

THE JOHNS HOPKINS UNIVERSITY
APPLIED PHYSICS LABORATORY
SILVER SPRING, MARYLAND

CPME HANDBOOK
FOR
IMP 7*

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December, 1972

*Supported by NASA under Task I of Contract N00017-72-C-4401 with the Department of the Navy.

TABLE OF CONTENTS

<u>Section #</u>	<u>Page</u>
1. Introduction	1
2. Factors for Conversion of Counting Rates to Differential Fluxes	2
3. Factors for Correction of P-Channel Counting Rates to Protons Only.	6
4. Factors for Correction of A-Channel Counting Rates to Alphas Only	15
5. Factors for Correction of Z1 and Z2 Counting Rates to Medium Nuclei Only.	21
6. Tabulation of Channel Passband Edges (Calculated) for Nuclear Species from Protons Through Iron	24
7. Channel Count Rate Ratios as Functions of Spectral Exponent, Gamma, for Various Nuclear Species Abundance Distributions	27
7.1 "Normal" Abundances	29
7.2 Fe/O = 0.001	32
7.3 Fe/O = 0.01	35
7.4 Fe/O = 0.02	38
7.5 Fe/O = 0.04	41
7.6 Fe/O = 0.08	44
7.7 Fe/O = 0.16	47
7.8 Fe/O = 0.32	50
7.9 Fe/O = 0.64	53
7.10 Fe/O = 1.28	56
7.11 Proton/alpha = 140.	59
7.12 Proton/alpha = 84.	62
7.13 Proton/alpha = 56.	65
7.14 Proton/alpha = 42.	68
7.15 Proton/alpha = 28.	71
7.16 Proton/alpha = 18.67	74
7.17 Proton/alpha = 14.	77
7.18 Proton/alpha = 10.5	80
7.19 Proton/alpha = 8.4	83
7.20 Proton/alpha = 7.	86
7.21 Proton/alpha = 6.	89
7.22 Proton/alpha = 4.67	92
7.23 Proton/alpha = 3.82	95
8. Response of Telescope to Protons	98
8.1 Range-Energy Table for Protons in Silicon from .25 MeV to 790. MeV.	99
8.2 Telescope Stack Parameters Used	102
8.3 Logical Definition of P-Channels	104

<u>Section #</u>	<u>Page</u>
8.	
8.4	Intrinsic Energy Deposition Fluctuations in Telescope Elements from Bohr Formula. 106
8.5	Energy Losses for Protons in Telescope 108
8.5.1	Units of MeV/Nucleon. 109
8.5.2	Units of MeV 111
8.6	Level Efficiencies for Thresholds in Telescope Elements, A, B, C, and Scintillator 113
8.7	P-Channel Efficiencies for Protons 122
9.	Response of Telescope to Alpha Particles 125
9.1	Range-Energy Table for Alphas in Silicon from .1 MeV/Nucleon to 190. MeV/Nucleon 126
9.2	Telescope Stack Parameters Used 129
9.3	Logical Definition of P and Alpha Channels. 131
9.4	Intrinsic Fluctuation in Energy Deposition of Alpha Particles in Telescope Elements 133
9.5	Energy Losses for Alphas in Telescope 135
9.5.1	Units of MeV/Nucleon. 136
9.5.2	Units of MeV 138
9.6	Level Efficiencies for Thresholds in Telescope Elements, A, B, C, and Scintillator 140
9.7	Alpha-Channel and P-Channel Efficiencies for Alpha Particles. 149
10.	Response of Telescope to Nitrogen. 154
10.1	Range-Energy Table for Nitrogen in Silicon from .2 MeV/Nucleon to 390. MeV/Nucleon 154
10.2	Telescope Stack Parameters 157
10.3	Logical Definition of Z1, Z2, and Alpha-Channels. 159
10.4	Intrinsic Fluctuations in Energy Losses of Nitrogen in Telescope Elements. 161
10.5	Energy Losses of Nitrogen in Telescope Elements 163
10.5.1	Units of MeV/Nucleon 164
10.5.2	Units of MeV 166
10.6	Level Efficiencies for Thresholds in Telescope Elements, A, B, C, and Scintillator 168
10.7	Z1, Z2, and Alpha Channel Efficiencies for Nitrogen. 177
11.	Response of Telescope to Iron Nuclei. 180
11.1	Range-Energy Table for Iron in Silicon for .2 MeV/Nucleon to 9.9 MeV/Nucleon. 180
11.2	Telescope Stack Parameters 182
11.3	Logical Definition of Z1, Z2, and Z3. 184
11.4	Intrinsic Fluctuations in Energy Losses of Iron Nuclei in Telescope Elements 186
11.5	Energy Losses of Iron in Telescope Elements 188
11.5.1	Units of MeV/Nucleon 189
11.5.2	Units of MeV 190
11.6	Level efficiencies for Thresholds in Telescope Elements A, B, C, and Scintillator 191
11.7	Z1, Z2, and Z3 Efficiencies for Iron Nuclei 196

<u>Section #</u>		<u>Page</u>
APPENDIX A	Fortran Source Program for Generating Tables in Sections 2, 3, 4, and 5.	198
APPENDIX B	Fortran Source Program for Generating Tables in Section 7	205
APPENDIX C	Fortran Source Program and Data for Generating Tables in Sections 8, 9, 10, and 11.	209
APPENDIX D	Memo On Laboratory Calibration of CPME.	224
APPENDIX E	Electron Response of Telescope	238
APPENDIX F	Passbands of Telescope as Functions of Atomic Number of Incident Particle	240

1. Introduction

The purpose of this compilation of data and computer calculations is to assemble in a common document as much of the material necessary for the analysis and interpretation of the IMP-7 (Explorer 47) data from the Johns Hopkins University Applied Physics Laboratory experiment (hereafter denoted as CPME). The parameters used refer explicitly to the experiment configuration as it was launched on September 22, 1972. The only exception is that the experimental calibration data in APPENDIX D refer to the configuration of the CPME instrument as calibrated in March of 1971. Minor changes were included in the final flight configuration and they are reflected in the following compilation. Most of the entries are self-explanatory. Additional information is contained in the heading to each Section. Further detail can be obtained from APPENDICES A, B, and C wherein listings of the computer programs used are given.

2. Factors for Conversion of Counting Rates to Differential Fluxes

Since the passbands of the telescope have finite widths in terms of incident energy/nucleon and the distribution of incident particles is not, in general, constant over the passband interval, corrections for the spectral shape should be made in order to obtain the best estimate of the differential flux at some point in the passband. If the ratios of adjacent channels (raw count rates, see Section 3) are used to obtain an estimate of gamma, the exponent in a power law spectrum in energy/nucleon can be substituted into the following formula which expresses the differential flux in terms of the counting rate:

$$\frac{dj}{dE}(E_m) = \frac{(\gamma+1)}{G} \frac{R}{(E_u^{\gamma+1} - E_l^{\gamma+1})}, \quad \gamma \neq -1 \quad (1)$$

where E_l , E_m , E_u are the lower, midpoint, and upper edges of the passband, respectively, G , the geometrical factor, and R , the count rate.

In the limit of gamma equals zero, flat energy spectrum, Eq. (1) reduces to

$$\frac{dj}{dE}(E_m) = \frac{R}{G(E_u - E_l)} \quad (2)$$

When $\gamma = -1$ the formula corresponding to Eq. (1) is

$$\frac{dj}{dE}(E_m) = \frac{R}{G E_m \log_e(E_u/E_l)} \quad (3)$$

The values of G , E_l , E_m , and E_u for each of the channels of the telescope are given in Table 1.

TABLE 1

Channel	G (cm ² sr)	E _l (MeV/nucleon)	E _m (MeV/nucleon)	E _u (MeV/nucleon)
P1	1.51	.287	.394	.500
P2	1.51	.500	.733	.966
P3	1.51	.966	1.408	1.85
P4	1.51	1.85	3.175	4.50
P5	1.51	4.50	6.20	7.90
P6	1.51	7.90	10.8	13.7
P7	.32	13.7	19.45	25.2
P8	.32	25.2	37.35	49.5
P9	.32	49.5	72.25	95.0
P10	.32	95.0	116.5	138.
P11	.32	190.	345.	500.
α1	1.51	.645	.908	1.17
α2	1.51	1.17	1.455	1.74
α3	1.51	1.74	3.02	4.30
α4	1.51	4.30	7.9	11.5
α5	.32	11.5	18.75	26.
α6	.32	26.	39.	52.
(Z1-Z2)	1.51	.77	1.185	1.6
Z2	1.51	1.6	2.4	3.2
Z3	1.51	3.35	5.475	7.6

In the following tabulations, column 1 is gamma and the second and following columns give the factor by which the counting rate should be multiplied in order to obtain the differential flux in units of (number-cm²-sec-sr-MeV/nucleon)⁻¹.

GAMMA	P 1	P 2	P 3	P 4	P 5	P 6	P 7	P 8	P 9	P10	P11
-6.00	1.838E 00	6.929E-01	3.719E-01	7.088E-02	1.144E-01	6.858E-02	1.462E-01	6.056E-02	3.395E-02	5.720E-02	2.313E-03
-5.80	1.895E 00	7.220E-01	3.872E-01	7.598E-02	1.180E-01	7.065E-02	1.516E-01	6.322E-02	3.535E-02	5.802E-02	2.506E-03
-5.60	1.952E 00	7.516E-01	4.027E-01	8.135E-02	1.216E-01	7.272E-02	1.569E-01	6.594E-02	3.677E-02	5.883E-02	2.711E-03
-5.40	2.009E 00	7.817E-01	4.184E-01	8.698E-02	1.253E-01	7.480E-02	1.624E-01	6.870E-02	3.822E-02	5.963E-02	2.929E-03
-5.20	2.066E 00	8.121E-01	4.343E-01	9.286E-02	1.289E-01	7.688E-02	1.678E-01	7.151E-02	3.968E-02	6.042E-02	3.160E-03
-5.00	2.123E 00	8.429E-01	4.503E-01	9.900E-02	1.325E-01	7.895E-02	1.733E-01	7.435E-02	4.115E-02	6.118E-02	3.404E-03
-4.80	2.180E 00	8.740E-01	4.665E-01	1.054E-01	1.361E-01	8.102E-02	1.788E-01	7.722E-02	4.264E-02	6.194E-02	3.660E-03
-4.60	2.237E 00	9.052E-01	4.827E-01	1.120E-01	1.397E-01	8.307E-02	1.844E-01	8.011E-02	4.413E-02	6.267E-02	3.929E-03
-4.40	2.293E 00	9.364E-01	4.990E-01	1.188E-01	1.433E-01	8.510E-02	1.898E-01	8.301E-02	4.563E-02	6.339E-02	4.209E-03
-4.20	2.349E 00	9.677E-01	5.152E-01	1.258E-01	1.468E-01	8.710E-02	1.953E-01	8.591E-02	4.712E-02	6.409E-02	4.501E-03
-4.00	2.404E 00	9.988E-01	5.313E-01	1.330E-01	1.503E-01	8.908E-02	2.007E-01	8.881E-02	4.861E-02	6.476E-02	4.802E-03
-3.80	2.457E 00	1.030E 00	5.473E-01	1.404E-01	1.537E-01	9.102E-02	2.060E-01	9.169E-02	5.008E-02	6.542E-02	5.114E-03
-3.60	2.510E 00	1.060E 00	5.631E-01	1.478E-01	1.571E-01	9.292E-02	2.113E-01	9.454E-02	5.153E-02	6.605E-02	5.433E-03
-3.40	2.562E 00	1.090E 00	5.787E-01	1.553E-01	1.603E-01	9.477E-02	2.164E-01	9.736E-02	5.296E-02	6.666E-02	5.759E-03
-3.20	2.612E 00	1.120E 00	5.939E-01	1.629E-01	1.635E-01	9.657E-02	2.214E-01	1.001E-01	5.437E-02	6.725E-02	6.089E-03
-3.00	2.660E 00	1.148E 00	6.088E-01	1.704E-01	1.666E-01	9.831E-02	2.263E-01	1.028E-01	5.574E-02	6.781E-02	6.422E-03
-2.80	2.707E 00	1.176E 00	6.232E-01	1.779E-01	1.696E-01	9.999E-02	2.310E-01	1.055E-01	5.707E-02	6.834E-02	6.755E-03
-2.60	2.752E 00	1.203E 00	6.371E-01	1.853E-01	1.724E-01	1.016E-01	2.356E-01	1.080E-01	5.835E-02	6.885E-02	7.087E-03
-2.40	2.795E 00	1.229E 00	6.505E-01	1.926E-01	1.751E-01	1.031E-01	2.399E-01	1.104E-01	5.958E-02	6.933E-02	7.415E-03
-2.20	2.836E 00	1.254E 00	6.632E-01	1.996E-01	1.777E-01	1.046E-01	2.441E-01	1.128E-01	6.076E-02	6.978E-02	7.735E-03
-2.00	2.874E 00	1.278E 00	6.753E-01	2.064E-01	1.801E-01	1.059E-01	2.480E-01	1.150E-01	6.187E-02	7.020E-02	8.046E-03
-1.80	2.910E 00	1.300E 00	6.867E-01	2.129E-01	1.824E-01	1.072E-01	2.517E-01	1.171E-01	6.292E-02	7.059E-02	8.344E-03
-1.60	2.944E 00	1.320E 00	6.973E-01	2.190E-01	1.845E-01	1.084E-01	2.551E-01	1.190E-01	6.389E-02	7.095E-02	8.628E-03
-1.40	2.975E 00	1.339E 00	7.070E-01	2.247E-01	1.865E-01	1.095E-01	2.582E-01	1.208E-01	6.479E-02	7.128E-02	8.893E-03
-1.20	3.003E 00	1.356E 00	7.159E-01	2.299E-01	1.882E-01	1.105E-01	2.611E-01	1.225E-01	6.561E-02	7.158E-02	9.138E-03
-1.00	3.035E 00	1.373E 00	7.113E-01	2.354E-01	1.863E-01	1.177E-01	2.569E-01	1.235E-01	6.916E-02	6.434E-02	9.657E-03
-0.80	3.050E 00	1.386E 00	7.309E-01	2.389E-01	1.912E-01	1.122E-01	2.659E-01	1.252E-01	6.700E-02	7.207E-02	9.560E-03
-0.60	3.070E 00	1.397E 00	7.370E-01	2.425E-01	1.924E-01	1.128E-01	2.678E-01	1.263E-01	6.756E-02	7.227E-02	9.732E-03
-0.40	3.086E 00	1.407E 00	7.420E-01	2.456E-01	1.934E-01	1.134E-01	2.695E-01	1.273E-01	6.802E-02	7.244E-02	9.877E-03
-0.20	3.099E 00	1.415E 00	7.461E-01	2.481E-01	1.942E-01	1.138E-01	2.708E-01	1.280E-01	6.840E-02	7.257E-02	9.994E-03
0.00	3.109E 00	1.421E 00	7.492E-01	2.499E-01	1.948E-01	1.142E-01	2.717E-01	1.286E-01	6.868E-02	7.267E-02	1.008E-02
0.20	3.116E 00	1.425E 00	7.512E-01	2.511E-01	1.952E-01	1.144E-01	2.724E-01	1.290E-01	6.887E-02	7.274E-02	1.014E-02
0.40	3.120E 00	1.427E 00	7.522E-01	2.517E-01	1.954E-01	1.145E-01	2.727E-01	1.292E-01	6.896E-02	7.277E-02	1.017E-02
0.60	3.121E 00	1.427E 00	7.522E-01	2.517E-01	1.954E-01	1.145E-01	2.727E-01	1.292E-01	6.896E-02	7.277E-02	1.017E-02
0.80	3.118E 00	1.425E 00	7.512E-01	2.511E-01	1.952E-01	1.144E-01	2.724E-01	1.290E-01	6.887E-02	7.274E-02	1.014E-02
1.00	3.113E 00	1.421E 00	7.492E-01	2.499E-01	1.948E-01	1.142E-01	2.717E-01	1.286E-01	6.868E-02	7.267E-02	1.008E-02

GAMMA	A1	A2	A3	A4	A5	A6	Z1	Z2	Z3
-6.00	6.950E-01	8.871E-01	7.038E-02	2.017E-02	7.357E-02	5.446E-02	3.323E-01	1.875E-01	5.275E-02
-5.80	7.193E-01	9.014E-01	7.560E-02	2.191E-02	7.812E-02	5.697E-02	3.492E-01	1.962E-01	5.603E-02
-5.60	7.438E-01	9.156E-01	8.111E-02	2.376E-02	8.286E-02	5.954E-02	3.665E-01	2.050E-01	5.945E-02
-5.40	7.686E-01	9.296E-01	8.690E-02	2.572E-02	8.777E-02	6.216E-02	3.843E-01	2.141E-01	6.301E-02
-5.20	7.935E-01	9.433E-01	9.298E-02	2.781E-02	9.285E-02	6.483E-02	4.025E-01	2.232E-01	6.668E-02
-5.00	8.184E-01	9.568E-01	9.932E-02	3.002E-02	9.809E-02	6.753E-02	4.211E-01	2.326E-01	7.048E-02
-4.80	8.434E-01	9.701E-01	1.059E-01	3.235E-02	1.035E-01	7.027E-02	4.400E-01	2.420E-01	7.439E-02
-4.60	8.683E-01	9.831E-01	1.128E-01	3.479E-02	1.090E-01	7.304E-02	4.592E-01	2.515E-01	7.840E-02
-4.40	8.931E-01	9.958E-01	1.199E-01	3.735E-02	1.147E-01	7.582E-02	4.786E-01	2.611E-01	8.250E-02
-4.20	9.178E-01	1.008E 00	1.272E-01	4.002E-02	1.204E-01	7.861E-02	4.981E-01	2.707E-01	8.667E-02
-4.00	9.421E-01	1.020E 00	1.348E-01	4.279E-02	1.263E-01	8.140E-02	5.177E-01	2.803E-01	9.091E-02
-3.80	9.662E-01	1.032E 00	1.424E-01	4.565E-02	1.322E-01	8.418E-02	5.373E-01	2.899E-01	9.520E-02
-3.60	9.898E-01	1.043E 00	1.503E-01	4.859E-02	1.381E-01	8.694E-02	5.568E-01	2.994E-01	9.951E-02
-3.40	1.013E 00	1.054E 00	1.582E-01	5.160E-02	1.441E-01	8.966E-02	5.762E-01	3.088E-01	1.038E-01
-3.20	1.036E 00	1.064E 00	1.661E-01	5.466E-02	1.500E-01	9.234E-02	5.954E-01	3.180E-01	1.081E-01
-3.00	1.057E 00	1.074E 00	1.741E-01	5.775E-02	1.559E-01	9.497E-02	6.142E-01	3.270E-01	1.124E-01
-2.80	1.079E 00	1.084E 00	1.820E-01	6.084E-02	1.617E-01	9.752E-02	6.326E-01	3.358E-01	1.166E-01
-2.60	1.099E 00	1.093E 00	1.899E-01	6.393E-02	1.674E-01	1.000E-01	6.504E-01	3.444E-01	1.207E-01
-2.40	1.119E 00	1.102E 00	1.975E-01	6.698E-02	1.729E-01	1.024E-01	6.677E-01	3.526E-01	1.248E-01
-2.20	1.137E 00	1.110E 00	2.050E-01	6.997E-02	1.782E-01	1.047E-01	6.843E-01	3.605E-01	1.286E-01
-2.00	1.155E 00	1.117E 00	2.122E-01	7.288E-02	1.833E-01	1.068E-01	7.000E-01	3.679E-01	1.324E-01
-1.80	1.171E 00	1.124E 00	2.191E-01	7.567E-02	1.881E-01	1.089E-01	7.149E-01	3.750E-01	1.359E-01
-1.60	1.186E 00	1.131E 00	2.256E-01	7.833E-02	1.927E-01	1.108E-01	7.289E-01	3.815E-01	1.392E-01
-1.40	1.200E 00	1.137E 00	2.317E-01	8.082E-02	1.969E-01	1.125E-01	7.418E-01	3.876E-01	1.423E-01
-1.20	1.213E 00	1.142E 00	2.373E-01	8.312E-02	2.008E-01	1.142E-01	7.535E-01	3.931E-01	1.451E-01
-1.00	1.224E 00	1.092E 00	2.475E-01	8.466E-02	1.999E-01	1.183E-01	7.659E-01	4.073E-01	1.451E-01
-0.80	1.235E 00	1.151E 00	2.469E-01	8.708E-02	2.074E-01	1.169E-01	7.735E-01	4.025E-01	1.499E-01
-0.60	1.244E 00	1.155E 00	2.508E-01	8.870E-02	2.101E-01	1.180E-01	7.816E-01	4.063E-01	1.519E-01
-0.40	1.251E 00	1.158E 00	2.541E-01	9.007E-02	2.124E-01	1.189E-01	7.884E-01	4.095E-01	1.535E-01
-0.20	1.257E 00	1.160E 00	2.567E-01	9.116E-02	2.142E-01	1.196E-01	7.938E-01	4.120E-01	1.548E-01
0.00	1.261E 00	1.162E 00	2.587E-01	9.198E-02	2.155E-01	1.202E-01	7.979E-01	4.139E-01	1.558E-01
0.20	1.264E 00	1.163E 00	2.600E-01	9.252E-02	2.164E-01	1.206E-01	8.006E-01	4.152E-01	1.565E-01
0.40	1.266E 00	1.164E 00	2.606E-01	9.279E-02	2.169E-01	1.207E-01	8.019E-01	4.158E-01	1.568E-01
0.60	1.266E 00	1.164E 00	2.606E-01	9.278E-02	2.168E-01	1.207E-01	8.019E-01	4.158E-01	1.568E-01
0.80	1.265E 00	1.163E 00	2.600E-01	9.251E-02	2.164E-01	1.206E-01	8.006E-01	4.152E-01	1.565E-01
1.00	1.262E 00	1.162E 00	2.587E-01	9.198E-02	2.155E-01	1.202E-01	7.979E-01	4.139E-01	1.558E-01

3. Factors for the Correction of P-Channel Counting Rates to Protons Only

The P-channels of the telescope have some response to particles heavier than protons in addition to their primary response to protons. The amount of "contamination" varies from channel to channel and with the steepness of the energy spectrum. Appendix F contains figures which display the passbands as functions of atomic number of the incident particles. For the P-channels the most important corrections to be applied are those for alpha particles. P1 through P7 have some response to alpha particles. Using the assumption that the proton and alpha spectra are characterized by the same power law exponent over the passband of the channel in question, the ratio of the response of the channel to protons R_p , to that of alphas, R_a is easily calculated from the known passbands in terms of the exponent of the power law spectrum (in energy/nucleon) and the p/alpha ratio.

$$\frac{R_p}{R_a} = \left(\frac{p}{\alpha}\right) \cdot \frac{(E_{pu}^{\gamma+1} - E_{pl}^{\gamma+1})}{(E_{au}^{\gamma+1} - E_{al}^{\gamma+1})} \quad \gamma \neq -1 \quad (4)$$

where E_{pu} and E_{pl} are the upper and lower thresholds for protons, and E_{au} and E_{al} are the upper and lower thresholds for alphas. The fraction of the channels response that is due to protons is easily obtained as:

$$\frac{R_p}{R_{tot}} = \frac{R_p}{R_a} \cdot \frac{1}{1 + R_p/R_a} \quad (5)$$

Hence, one can use an estimate of the p/alpha ratio and the spectral exponent to obtain the fraction of the response of the channel due to protons via Eqs. (4) and (5).

Initial estimates of the gamma and p/alpha ratio for putting into 4 and 5 can be obtained directly from the uncorrected raw count rate ratios via the tables and empirical formulae in Section 7.

Table 2 gives the proton and alpha particle passband edges used in the calculation of correction factors for various representative values of gamma and p/alpha.

TABLE 2

Channel	Proton Thresholds (MeV)		Alpha Thresholds (MeV/nucleon)	
	lower	upper	lower	upper
P1	.287	.50	.104	.168
P2	.50	.966	.170	.29
P3	.966	1.85	.295	1.74
P4	1.85	4.5	1.74	2.15
P5	4.5	7.9	2.15	2.75
P6	7.9	13.7	2.85	58.
P7	13.7	25.2	60.	100.

(no alpha response in P8 through P11)

In the following tabulation of data the leftmost column gives the spectral exponent gamma and the remaining columns give the correction factors to be applied for various values of the p/alpha ratio. Where the correction factors differ significantly from unity, the user is reminded to recall the assumptions made in this procedure in interpreting the results.

PROTON CORR. FACTORS

P1

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	6.055E-02	1.142E-01	1.620E-01	2.050E-01	2.437E-01	2.789E-01	3.109E-01	3.402E-01	3.671E-01	3.919E-01	4.148E-01
-5.80000	7.333E-02	1.366E-01	1.919E-01	2.404E-01	2.835E-01	3.219E-01	3.565E-01	3.877E-01	4.160E-01	4.418E-01	4.654E-01
-5.60000	8.858E-02	1.627E-01	2.257E-01	2.799E-01	3.270E-01	3.683E-01	4.049E-01	4.374E-01	4.666E-01	4.929E-01	5.167E-01
-5.40000	1.066E-01	1.927E-01	2.637E-01	3.232E-01	3.738E-01	4.173E-01	4.552E-01	4.885E-01	5.179E-01	5.441E-01	5.677E-01
-5.20000	1.279E-01	2.268E-01	3.055E-01	3.697E-01	4.230E-01	4.680E-01	5.065E-01	5.398E-01	5.689E-01	5.945E-01	6.173E-01
-5.00000	1.527E-01	2.649E-01	3.509E-01	4.188E-01	4.739E-01	5.195E-01	5.578E-01	5.904E-01	6.185E-01	6.431E-01	6.646E-01
-4.80000	1.813E-01	3.069E-01	3.991E-01	4.697E-01	5.254E-01	5.705E-01	6.078E-01	6.392E-01	6.658E-01	6.889E-01	7.089E-01
-4.59999	2.139E-01	3.524E-01	4.495E-01	5.212E-01	5.764E-01	6.202E-01	6.558E-01	6.852E-01	7.101E-01	7.313E-01	7.496E-01
-4.39999	2.507E-01	4.009E-01	5.009E-01	5.723E-01	6.258E-01	6.675E-01	7.008E-01	7.280E-01	7.507E-01	7.699E-01	7.863E-01
-4.19999	2.914E-01	4.513E-01	5.524E-01	6.220E-01	6.728E-01	7.116E-01	7.422E-01	7.669E-01	7.873E-01	8.044E-01	8.190E-01
-3.99999	3.359E-01	5.029E-01	6.028E-01	6.692E-01	7.167E-01	7.522E-01	7.798E-01	8.019E-01	8.199E-01	8.349E-01	8.477E-01
-3.79999	3.836E-01	5.545E-01	6.512E-01	7.134E-01	7.568E-01	7.887E-01	8.133E-01	8.327E-01	8.485E-01	8.615E-01	8.725E-01
-3.59999	4.336E-01	6.049E-01	6.967E-01	7.538E-01	7.929E-01	8.212E-01	8.427E-01	8.596E-01	8.733E-01	8.845E-01	8.939E-01
-3.39999	4.851E-01	6.533E-01	7.386E-01	7.903E-01	8.249E-01	8.497E-01	8.683E-01	8.829E-01	8.945E-01	9.040E-01	9.120E-01
-3.19999	5.369E-01	6.987E-01	7.767E-01	8.226E-01	8.529E-01	8.743E-01	8.903E-01	9.027E-01	9.126E-01	9.206E-01	9.273E-01
-2.99999	5.881E-01	7.406E-01	8.107E-01	8.510E-01	8.771E-01	8.955E-01	9.090E-01	9.195E-01	9.278E-01	9.345E-01	9.401E-01
-2.79999	6.374E-01	7.786E-01	8.406E-01	8.755E-01	8.979E-01	9.134E-01	9.248E-01	9.336E-01	9.406E-01	9.462E-01	9.508E-01
-2.59999	6.841E-01	8.124E-01	8.666E-01	8.965E-01	9.154E-01	9.285E-01	9.381E-01	9.454E-01	9.512E-01	9.559E-01	9.597E-01
-2.39999	7.273E-01	8.422E-01	8.889E-01	9.143E-01	9.303E-01	9.412E-01	9.492E-01	9.552E-01	9.600E-01	9.639E-01	9.670E-01
-2.19999	7.668E-01	8.680E-01	9.079E-01	9.293E-01	9.427E-01	9.517E-01	9.584E-01	9.634E-01	9.673E-01	9.705E-01	9.731E-01
-1.99998	8.021E-01	8.902E-01	9.240E-01	9.419E-01	9.530E-01	9.605E-01	9.659E-01	9.701E-01	9.733E-01	9.759E-01	9.781E-01
-1.79998	8.332E-01	9.090E-01	9.375E-01	9.523E-01	9.615E-01	9.677E-01	9.722E-01	9.756E-01	9.782E-01	9.804E-01	9.821E-01
-1.59998	8.604E-01	9.249E-01	9.487E-01	9.610E-01	9.686E-01	9.737E-01	9.773E-01	9.801E-01	9.823E-01	9.840E-01	9.855E-01
-1.39998	8.837E-01	9.383E-01	9.580E-01	9.682E-01	9.744E-01	9.785E-01	9.816E-01	9.838E-01	9.856E-01	9.870E-01	9.882E-01
-1.19998	9.037E-01	9.494E-01	9.657E-01	9.740E-01	9.791E-01	9.825E-01	9.850E-01	9.868E-01	9.883E-01	9.895E-01	9.904E-01
-0.99998	9.204E-01	9.586E-01	9.720E-01	9.788E-01	9.830E-01	9.858E-01	9.878E-01	9.893E-01	9.905E-01	9.914E-01	9.922E-01
-0.79998	9.346E-01	9.662E-01	9.772E-01	9.828E-01	9.862E-01	9.885E-01	9.901E-01	9.913E-01	9.923E-01	9.931E-01	9.937E-01
-0.59998	9.464E-01	9.724E-01	9.815E-01	9.860E-01	9.888E-01	9.906E-01	9.920E-01	9.930E-01	9.937E-01	9.944E-01	9.949E-01
-0.39998	9.561E-01	9.776E-01	9.849E-01	9.887E-01	9.909E-01	9.924E-01	9.935E-01	9.943E-01	9.949E-01	9.954E-01	9.958E-01
-0.19998	9.642E-01	9.818E-01	9.878E-01	9.908E-01	9.926E-01	9.938E-01	9.947E-01	9.954E-01	9.959E-01	9.963E-01	9.966E-01
0.00002	9.708E-01	9.852E-01	9.901E-01	9.925E-01	9.940E-01	9.950E-01	9.957E-01	9.963E-01	9.967E-01	9.970E-01	9.973E-01
0.20002	9.763E-01	9.880E-01	9.920E-01	9.940E-01	9.952E-01	9.960E-01	9.965E-01	9.970E-01	9.973E-01	9.976E-01	9.978E-01
0.40002	9.807E-01	9.903E-01	9.935E-01	9.951E-01	9.961E-01	9.967E-01	9.972E-01	9.975E-01	9.978E-01	9.980E-01	9.982E-01
0.60002	9.844E-01	9.921E-01	9.947E-01	9.960E-01	9.968E-01	9.974E-01	9.977E-01	9.980E-01	9.982E-01	9.984E-01	9.986E-01
0.80002	9.873E-01	9.936E-01	9.957E-01	9.968E-01	9.974E-01	9.979E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01	9.988E-01
1.00002	9.897E-01	9.948E-01	9.966E-01	9.974E-01	9.979E-01	9.983E-01	9.985E-01	9.987E-01	9.988E-01	9.990E-01	9.991E-01

PROTON CORR. FACTORS

P2

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	4.489E-02	8.593E-02	1.236E-01	1.583E-01	1.903E-01	2.200E-01	2.476E-01	2.733E-01	2.973E-01	3.197E-01	3.408E-01
-5.80000	5.526E-02	1.047E-01	1.493E-01	1.896E-01	2.263E-01	2.598E-01	2.905E-01	3.188E-01	3.449E-01	3.691E-01	3.915E-01
-5.60000	6.787E-02	1.271E-01	1.793E-01	2.256E-01	2.669E-01	3.040E-01	3.376E-01	3.681E-01	3.959E-01	4.213E-01	4.447E-01
-5.40000	8.312E-02	1.535E-01	2.138E-01	2.661E-01	3.119E-01	3.523E-01	3.882E-01	4.204E-01	4.493E-01	4.755E-01	4.993E-01
-5.20000	1.015E-01	1.842E-01	2.530E-01	3.111E-01	3.608E-01	4.039E-01	4.414E-01	4.746E-01	5.040E-01	5.303E-01	5.540E-01
-5.00000	1.233E-01	2.195E-01	2.967E-01	3.600E-01	4.129E-01	4.577E-01	4.961E-01	5.295E-01	5.587E-01	5.845E-01	6.074E-01
-4.80000	1.491E-01	2.596E-01	3.446E-01	4.121E-01	4.670E-01	5.126E-01	5.509E-01	5.837E-01	6.120E-01	6.367E-01	6.585E-01
-4.59999	1.793E-01	3.041E-01	3.959E-01	4.663E-01	5.221E-01	5.673E-01	6.046E-01	6.361E-01	6.629E-01	6.860E-01	7.062E-01
-4.39999	2.141E-01	3.527E-01	4.497E-01	5.214E-01	5.766E-01	6.204E-01	6.560E-01	6.855E-01	7.103E-01	7.315E-01	7.498E-01
-4.19999	2.536E-01	4.046E-01	5.048E-01	5.761E-01	6.295E-01	6.709E-01	7.040E-01	7.310E-01	7.536E-01	7.726E-01	7.889E-01
-3.99999	2.977E-01	4.588E-01	5.598E-01	6.290E-01	6.795E-01	7.178E-01	7.480E-01	7.723E-01	7.923E-01	8.091E-01	8.234E-01
-3.79999	3.460E-01	5.142E-01	6.135E-01	6.791E-01	7.257E-01	7.605E-01	7.874E-01	8.089E-01	8.265E-01	8.411E-01	8.534E-01
-3.59999	3.979E-01	5.692E-01	6.647E-01	7.255E-01	7.676E-01	7.986E-01	8.222E-01	8.409E-01	8.560E-01	8.685E-01	8.791E-01
-3.39999	4.522E-01	6.227E-01	7.123E-01	7.675E-01	8.049E-01	8.320E-01	8.525E-01	8.685E-01	8.813E-01	8.919E-01	9.008E-01
-3.19999	5.077E-01	6.735E-01	7.557E-01	8.049E-01	8.376E-01	8.609E-01	8.783E-01	8.919E-01	9.027E-01	9.116E-01	9.190E-01
-2.99999	5.632E-01	7.206E-01	7.946E-01	8.376E-01	8.657E-01	8.855E-01	9.003E-01	9.116E-01	9.207E-01	9.280E-01	9.341E-01
-2.79999	6.172E-01	7.633E-01	8.287E-01	8.658E-01	8.897E-01	9.063E-01	9.186E-01	9.281E-01	9.355E-01	9.416E-01	9.466E-01
-2.59999	6.686E-01	8.014E-01	8.582E-01	8.898E-01	9.098E-01	9.237E-01	9.339E-01	9.417E-01	9.478E-01	9.528E-01	9.569E-01
-2.39999	7.164E-01	8.348E-01	8.834E-01	9.099E-01	9.266E-01	9.381E-01	9.465E-01	9.528E-01	9.579E-01	9.619E-01	9.653E-01
-2.19999	7.598E-01	8.635E-01	9.047E-01	9.268E-01	9.405E-01	9.500E-01	9.568E-01	9.620E-01	9.661E-01	9.694E-01	9.721E-01
-1.99998	7.985E-01	8.880E-01	9.224E-01	9.407E-01	9.520E-01	9.596E-01	9.652E-01	9.694E-01	9.727E-01	9.754E-01	9.776E-01
-1.79998	8.325E-01	9.086E-01	9.371E-01	9.521E-01	9.613E-01	9.675E-01	9.721E-01	9.755E-01	9.781E-01	9.803E-01	9.820E-01
-1.59998	8.617E-01	9.257E-01	9.492E-01	9.614E-01	9.689E-01	9.740E-01	9.776E-01	9.803E-01	9.825E-01	9.842E-01	9.856E-01
-1.39998	8.866E-01	9.399E-01	9.591E-01	9.690E-01	9.751E-01	9.791E-01	9.821E-01	9.843E-01	9.860E-01	9.874E-01	9.885E-01
-1.19998	9.076E-01	9.515E-01	9.672E-01	9.752E-01	9.800E-01	9.833E-01	9.857E-01	9.874E-01	9.888E-01	9.899E-01	9.908E-01
-0.99998	9.249E-01	9.610E-01	9.737E-01	9.801E-01	9.840E-01	9.866E-01	9.885E-01	9.900E-01	9.911E-01	9.919E-01	9.927E-01
-0.79998	9.394E-01	9.687E-01	9.789E-01	9.841E-01	9.873E-01	9.894E-01	9.909E-01	9.920E-01	9.929E-01	9.936E-01	9.942E-01
-0.59998	9.512E-01	9.750E-01	9.832E-01	9.873E-01	9.898E-01	9.915E-01	9.927E-01	9.936E-01	9.943E-01	9.949E-01	9.954E-01
-0.39998	9.608E-01	9.800E-01	9.866E-01	9.899E-01	9.919E-01	9.932E-01	9.942E-01	9.949E-01	9.955E-01	9.959E-01	9.963E-01
-0.19998	9.686E-01	9.840E-01	9.893E-01	9.920E-01	9.936E-01	9.946E-01	9.954E-01	9.960E-01	9.964E-01	9.968E-01	9.971E-01
0.00002	9.749E-01	9.873E-01	9.915E-01	9.936E-01	9.949E-01	9.957E-01	9.963E-01	9.968E-01	9.971E-01	9.974E-01	9.977E-01
0.20002	9.800E-01	9.898E-01	9.932E-01	9.949E-01	9.959E-01	9.966E-01	9.971E-01	9.975E-01	9.977E-01	9.980E-01	9.981E-01
0.40002	9.840E-01	9.920E-01	9.946E-01	9.960E-01	9.968E-01	9.973E-01	9.977E-01	9.980E-01	9.982E-01	9.984E-01	9.985E-01
0.60002	9.873E-01	9.936E-01	9.957E-01	9.968E-01	9.974E-01	9.979E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01	9.988E-01
0.80002	9.899E-01	9.949E-01	9.966E-01	9.975E-01	9.980E-01	9.983E-01	9.985E-01	9.987E-01	9.989E-01	9.990E-01	9.991E-01
1.00002	9.920E-01	9.960E-01	9.973E-01	9.980E-01	9.984E-01	9.987E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01

PROTON CORR. FACTORS

P3

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	2.490E-02	4.858E-02	7.115E-02	9.267E-02	1.132E-01	1.328E-01	1.516E-01	1.696E-01	1.869E-01	2.034E-01	2.193E-01
-5.80000	3.119E-02	6.048E-02	8.806E-02	1.141E-01	1.386E-01	1.619E-01	1.839E-01	2.048E-01	2.246E-01	2.435E-01	2.615E-01
-5.60000	3.897E-02	7.501E-02	1.085E-01	1.396E-01	1.686E-01	1.957E-01	2.211E-01	2.449E-01	2.674E-01	2.885E-01	3.085E-01
-5.40000	4.856E-02	9.261E-02	1.328E-01	1.695E-01	2.033E-01	2.344E-01	2.632E-01	2.899E-01	3.147E-01	3.379E-01	3.595E-01
-5.20000	6.029E-02	1.137E-01	1.614E-01	2.042E-01	2.429E-01	2.780E-01	3.099E-01	3.392E-01	3.661E-01	3.908E-01	4.138E-01
-5.00000	7.457E-02	1.388E-01	1.947E-01	2.437E-01	2.872E-01	3.259E-01	3.606E-01	3.919E-01	4.203E-01	4.462E-01	4.699E-01
-4.80000	9.177E-02	1.681E-01	2.326E-01	2.878E-01	3.356E-01	3.774E-01	4.143E-01	4.470E-01	4.763E-01	5.026E-01	5.264E-01
-4.59999	1.123E-01	2.019E-01	2.751E-01	3.360E-01	3.875E-01	4.315E-01	4.697E-01	5.030E-01	5.324E-01	5.585E-01	5.819E-01
-4.39999	1.365E-01	2.403E-01	3.218E-01	3.874E-01	4.415E-01	4.869E-01	5.254E-01	5.585E-01	5.873E-01	6.126E-01	6.350E-01
-4.19999	1.647E-01	2.829E-01	3.717E-01	4.410E-01	4.965E-01	5.420E-01	5.800E-01	6.121E-01	6.397E-01	6.636E-01	6.845E-01
-3.99999	1.971E-01	3.293E-01	4.241E-01	4.954E-01	5.510E-01	5.956E-01	6.321E-01	6.626E-01	6.884E-01	7.105E-01	7.297E-01
-3.79999	2.335E-01	3.786E-01	4.775E-01	5.493E-01	6.037E-01	6.464E-01	6.808E-01	7.091E-01	7.327E-01	7.529E-01	7.702E-01
-3.59999	2.738E-01	4.298E-01	5.307E-01	6.012E-01	6.533E-01	6.934E-01	7.252E-01	7.510E-01	7.723E-01	7.903E-01	8.057E-01
-3.39999	3.173E-01	4.818E-01	5.829E-01	6.503E-01	6.992E-01	7.361E-01	7.649E-01	7.881E-01	8.071E-01	8.230E-01	8.364E-01
-3.19999	3.635E-01	5.332E-01	6.314E-01	6.955E-01	7.406E-01	7.741E-01	7.999E-01	8.204E-01	8.371E-01	8.510E-01	8.627E-01
-2.99999	4.112E-01	5.828E-01	6.769E-01	7.364E-01	7.774E-01	8.073E-01	8.302E-01	8.482E-01	8.627E-01	8.747E-01	8.848E-01
-2.79999	4.595E-01	6.296E-01	7.183E-01	7.727E-01	8.095E-01	8.361E-01	8.561E-01	8.718E-01	8.844E-01	8.947E-01	9.034E-01
-2.59999	5.072E-01	6.730E-01	7.553E-01	8.045E-01	8.373E-01	8.606E-01	8.781E-01	8.917E-01	9.025E-01	9.114E-01	9.188E-01
-2.39999	5.532E-01	7.124E-01	7.879E-01	8.320E-01	8.609E-01	8.814E-01	8.966E-01	9.083E-01	9.177E-01	9.253E-01	9.316E-01
-2.19999	5.968E-01	7.475E-01	8.162E-01	8.555E-01	8.810E-01	8.988E-01	9.120E-01	9.221E-01	9.302E-01	9.367E-01	9.421E-01
-1.99999	6.373E-01	7.785E-01	8.405E-01	8.754E-01	8.978E-01	9.134E-01	9.248E-01	9.336E-01	9.405E-01	9.462E-01	9.508E-01
-1.79998	6.743E-01	8.054E-01	8.613E-01	8.922E-01	9.119E-01	9.255E-01	9.354E-01	9.430E-01	9.491E-01	9.539E-01	9.579E-01
-1.59998	7.075E-01	8.287E-01	8.789E-01	9.063E-01	9.236E-01	9.355E-01	9.442E-01	9.509E-01	9.561E-01	9.603E-01	9.638E-01
-1.39998	7.370E-01	8.486E-01	8.937E-01	9.181E-01	9.334E-01	9.439E-01	9.515E-01	9.573E-01	9.619E-01	9.655E-01	9.686E-01
-1.19998	7.629E-01	8.655E-01	9.061E-01	9.279E-01	9.415E-01	9.507E-01	9.575E-01	9.626E-01	9.666E-01	9.699E-01	9.725E-01
-0.99998	7.865E-01	8.805E-01	9.170E-01	9.365E-01	9.485E-01	9.567E-01	9.627E-01	9.672E-01	9.707E-01	9.736E-01	9.759E-01
-0.79998	8.050E-01	8.920E-01	9.253E-01	9.429E-01	9.538E-01	9.612E-01	9.666E-01	9.706E-01	9.738E-01	9.764E-01	9.785E-01
-0.59998	8.219E-01	9.022E-01	9.326E-01	9.486E-01	9.585E-01	9.651E-01	9.700E-01	9.736E-01	9.765E-01	9.788E-01	9.807E-01
-0.39998	8.364E-01	9.109E-01	9.388E-01	9.534E-01	9.624E-01	9.684E-01	9.728E-01	9.761E-01	9.787E-01	9.808E-01	9.825E-01
-0.19998	8.488E-01	9.182E-01	9.440E-01	9.574E-01	9.656E-01	9.712E-01	9.752E-01	9.782E-01	9.806E-01	9.825E-01	9.841E-01
0.00002	8.595E-01	9.244E-01	9.483E-01	9.607E-01	9.683E-01	9.735E-01	9.772E-01	9.800E-01	9.822E-01	9.839E-01	9.854E-01
0.20002	8.687E-01	9.297E-01	9.520E-01	9.636E-01	9.707E-01	9.754E-01	9.789E-01	9.815E-01	9.835E-01	9.851E-01	9.864E-01
0.40002	8.766E-01	9.342E-01	9.552E-01	9.660E-01	9.726E-01	9.771E-01	9.803E-01	9.827E-01	9.846E-01	9.861E-01	9.874E-01
0.60002	8.834E-01	9.381E-01	9.578E-01	9.680E-01	9.743E-01	9.785E-01	9.815E-01	9.838E-01	9.855E-01	9.870E-01	9.881E-01
0.80002	8.892E-01	9.414E-01	9.601E-01	9.698E-01	9.757E-01	9.797E-01	9.825E-01	9.847E-01	9.863E-01	9.877E-01	9.888E-01
1.00002	8.944E-01	9.442E-01	9.621E-01	9.713E-01	9.769E-01	9.807E-01	9.834E-01	9.854E-01	9.870E-01	9.883E-01	9.894E-01

PROTON CORR. FACTORS

P4

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	9.176E-01	9.571E-01	9.710E-01	9.781E-01	9.824E-01	9.853E-01	9.873E-01	9.889E-01	9.901E-01	9.911E-01	9.919E-01
-5.80000	9.201E-01	9.584E-01	9.719E-01	9.788E-01	9.829E-01	9.857E-01	9.877E-01	9.893E-01	9.904E-01	9.914E-01	9.922E-01
-5.60000	9.226E-01	9.597E-01	9.728E-01	9.795E-01	9.835E-01	9.862E-01	9.882E-01	9.896E-01	9.908E-01	9.917E-01	9.924E-01
-5.40000	9.251E-01	9.611E-01	9.737E-01	9.802E-01	9.841E-01	9.867E-01	9.886E-01	9.900E-01	9.911E-01	9.920E-01	9.927E-01
-5.20000	9.276E-01	9.624E-01	9.746E-01	9.809E-01	9.846E-01	9.872E-01	9.890E-01	9.903E-01	9.914E-01	9.923E-01	9.930E-01
-5.00000	9.301E-01	9.638E-01	9.756E-01	9.816E-01	9.852E-01	9.876E-01	9.894E-01	9.907E-01	9.917E-01	9.925E-01	9.932E-01
-4.80000	9.327E-01	9.652E-01	9.765E-01	9.823E-01	9.858E-01	9.881E-01	9.898E-01	9.911E-01	9.920E-01	9.928E-01	9.935E-01
-4.59999	9.352E-01	9.665E-01	9.774E-01	9.830E-01	9.863E-01	9.886E-01	9.902E-01	9.914E-01	9.924E-01	9.931E-01	9.937E-01
-4.39999	9.377E-01	9.679E-01	9.783E-01	9.837E-01	9.869E-01	9.891E-01	9.906E-01	9.918E-01	9.927E-01	9.934E-01	9.940E-01
-4.19999	9.403E-01	9.692E-01	9.793E-01	9.844E-01	9.875E-01	9.895E-01	9.910E-01	9.921E-01	9.930E-01	9.937E-01	9.943E-01
-3.99999	9.428E-01	9.705E-01	9.802E-01	9.851E-01	9.880E-01	9.900E-01	9.914E-01	9.925E-01	9.933E-01	9.940E-01	9.945E-01
-3.79999	9.453E-01	9.719E-01	9.811E-01	9.857E-01	9.886E-01	9.904E-01	9.918E-01	9.928E-01	9.936E-01	9.942E-01	9.948E-01
-3.59999	9.478E-01	9.732E-01	9.820E-01	9.864E-01	9.891E-01	9.909E-01	9.922E-01	9.932E-01	9.939E-01	9.945E-01	9.950E-01
-3.39999	9.503E-01	9.745E-01	9.829E-01	9.871E-01	9.896E-01	9.914E-01	9.926E-01	9.935E-01	9.942E-01	9.948E-01	9.953E-01
-3.19999	9.527E-01	9.758E-01	9.837E-01	9.877E-01	9.902E-01	9.918E-01	9.930E-01	9.938E-01	9.945E-01	9.951E-01	9.955E-01
-2.99999	9.552E-01	9.771E-01	9.846E-01	9.884E-01	9.907E-01	9.922E-01	9.933E-01	9.942E-01	9.948E-01	9.953E-01	9.958E-01
-2.79999	9.576E-01	9.783E-01	9.854E-01	9.890E-01	9.912E-01	9.927E-01	9.937E-01	9.945E-01	9.951E-01	9.956E-01	9.960E-01
-2.59999	9.599E-01	9.796E-01	9.863E-01	9.897E-01	9.917E-01	9.931E-01	9.941E-01	9.948E-01	9.954E-01	9.958E-01	9.962E-01
-2.39999	9.622E-01	9.808E-01	9.871E-01	9.903E-01	9.922E-01	9.935E-01	9.944E-01	9.951E-01	9.957E-01	9.961E-01	9.964E-01
-2.19999	9.645E-01	9.819E-01	9.879E-01	9.909E-01	9.927E-01	9.939E-01	9.948E-01	9.954E-01	9.959E-01	9.963E-01	9.967E-01
-1.99998	9.667E-01	9.831E-01	9.887E-01	9.915E-01	9.932E-01	9.943E-01	9.951E-01	9.957E-01	9.962E-01	9.966E-01	9.969E-01
-1.79998	9.689E-01	9.842E-01	9.894E-01	9.920E-01	9.936E-01	9.947E-01	9.954E-01	9.960E-01	9.964E-01	9.968E-01	9.971E-01
-1.59998	9.709E-01	9.853E-01	9.901E-01	9.926E-01	9.941E-01	9.950E-01	9.957E-01	9.963E-01	9.967E-01	9.970E-01	9.973E-01
-1.39998	9.730E-01	9.863E-01	9.908E-01	9.931E-01	9.945E-01	9.954E-01	9.960E-01	9.965E-01	9.969E-01	9.972E-01	9.975E-01
-1.19998	9.749E-01	9.873E-01	9.915E-01	9.936E-01	9.949E-01	9.957E-01	9.963E-01	9.968E-01	9.971E-01	9.974E-01	9.977E-01
-0.99998	9.770E-01	9.884E-01	9.922E-01	9.942E-01	9.953E-01	9.961E-01	9.966E-01	9.971E-01	9.974E-01	9.977E-01	9.979E-01
-0.79998	9.785E-01	9.891E-01	9.927E-01	9.945E-01	9.956E-01	9.964E-01	9.969E-01	9.973E-01	9.976E-01	9.978E-01	9.980E-01
-0.59998	9.802E-01	9.900E-01	9.933E-01	9.950E-01	9.960E-01	9.966E-01	9.971E-01	9.975E-01	9.978E-01	9.980E-01	9.982E-01
-0.39998	9.818E-01	9.908E-01	9.939E-01	9.954E-01	9.963E-01	9.969E-01	9.974E-01	9.977E-01	9.979E-01	9.982E-01	9.983E-01
-0.19998	9.833E-01	9.916E-01	9.944E-01	9.958E-01	9.966E-01	9.972E-01	9.976E-01	9.979E-01	9.981E-01	9.983E-01	9.985E-01
0.00002	9.848E-01	9.923E-01	9.949E-01	9.961E-01	9.969E-01	9.974E-01	9.978E-01	9.981E-01	9.983E-01	9.985E-01	9.986E-01
0.20002	9.861E-01	9.930E-01	9.953E-01	9.965E-01	9.972E-01	9.977E-01	9.980E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01
0.40002	9.874E-01	9.936E-01	9.957E-01	9.968E-01	9.974E-01	9.979E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01	9.988E-01
0.60002	9.885E-01	9.942E-01	9.961E-01	9.971E-01	9.977E-01	9.981E-01	9.983E-01	9.986E-01	9.987E-01	9.988E-01	9.989E-01
0.80002	9.896E-01	9.948E-01	9.965E-01	9.974E-01	9.979E-01	9.983E-01	9.985E-01	9.987E-01	9.988E-01	9.990E-01	9.990E-01
1.00002	9.906E-01	9.953E-01	9.969E-01	9.976E-01	9.981E-01	9.984E-01	9.986E-01	9.988E-01	9.989E-01	9.991E-01	9.991E-01

PROTON CORR. FACTORS

P5

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	2.485E-01	3.980E-01	4.979E-01	5.694E-01	6.231E-01	6.648E-01	6.983E-01	7.256E-01	7.485E-01	7.678E-01	7.843E-01
-5.80000	2.797E-01	4.372E-01	5.381E-01	6.084E-01	6.601E-01	6.997E-01	7.311E-01	7.565E-01	7.776E-01	7.952E-01	8.103E-01
-5.60000	3.135E-01	4.773E-01	5.780E-01	6.462E-01	6.954E-01	7.326E-01	7.617E-01	7.851E-01	8.043E-01	8.203E-01	8.339E-01
-5.40000	3.494E-01	5.178E-01	6.170E-01	6.823E-01	7.286E-01	7.632E-01	7.899E-01	8.112E-01	8.286E-01	8.430E-01	8.552E-01
-5.20000	3.873E-01	5.583E-01	6.547E-01	7.166E-01	7.596E-01	7.913E-01	8.156E-01	8.349E-01	8.505E-01	8.634E-01	8.742E-01
-5.00000	4.267E-01	5.982E-01	6.907E-01	7.486E-01	7.882E-01	8.170E-01	8.390E-01	8.562E-01	8.701E-01	8.816E-01	8.912E-01
-4.80000	4.673E-01	6.369E-01	7.246E-01	7.782E-01	8.143E-01	8.403E-01	8.599E-01	8.753E-01	8.876E-01	8.977E-01	9.061E-01
-4.59999	5.084E-01	6.741E-01	7.563E-01	8.053E-01	8.380E-01	8.612E-01	8.786E-01	8.922E-01	9.030E-01	9.118E-01	9.192E-01
-4.39999	5.496E-01	7.094E-01	7.855E-01	8.300E-01	8.592E-01	8.798E-01	8.952E-01	9.071E-01	9.166E-01	9.243E-01	9.307E-01
-4.19999	5.903E-01	7.424E-01	8.121E-01	8.522E-01	8.781E-01	8.963E-01	9.098E-01	9.202E-01	9.284E-01	9.351E-01	9.407E-01
-3.99999	6.300E-01	7.730E-01	8.363E-01	8.720E-01	8.949E-01	9.108E-01	9.226E-01	9.316E-01	9.387E-01	9.445E-01	9.493E-01
-3.79999	6.682E-01	8.011E-01	8.580E-01	8.896E-01	9.096E-01	9.236E-01	9.338E-01	9.415E-01	9.477E-01	9.527E-01	9.568E-01
-3.59999	7.044E-01	8.266E-01	8.773E-01	9.050E-01	9.226E-01	9.346E-01	9.434E-01	9.502E-01	9.554E-01	9.597E-01	9.632E-01
-3.39999	7.383E-01	8.495E-01	8.944E-01	9.186E-01	9.338E-01	9.442E-01	9.518E-01	9.576E-01	9.621E-01	9.658E-01	9.688E-01
-3.19999	7.698E-01	8.699E-01	9.094E-01	9.304E-01	9.436E-01	9.525E-01	9.590E-01	9.640E-01	9.678E-01	9.710E-01	9.735E-01
-2.99999	7.987E-01	8.881E-01	9.225E-01	9.407E-01	9.520E-01	9.597E-01	9.652E-01	9.694E-01	9.728E-01	9.754E-01	9.776E-01
-2.79999	8.248E-01	9.040E-01	9.339E-01	9.496E-01	9.593E-01	9.658E-01	9.706E-01	9.741E-01	9.769E-01	9.792E-01	9.811E-01
-2.59999	8.483E-01	9.179E-01	9.438E-01	9.572E-01	9.655E-01	9.711E-01	9.751E-01	9.781E-01	9.805E-01	9.824E-01	9.840E-01
-2.39999	8.693E-01	9.301E-01	9.523E-01	9.638E-01	9.708E-01	9.756E-01	9.790E-01	9.816E-01	9.836E-01	9.852E-01	9.865E-01
-2.19999	8.878E-01	9.406E-01	9.596E-01	9.694E-01	9.754E-01	9.794E-01	9.823E-01	9.845E-01	9.862E-01	9.875E-01	9.886E-01
-1.99998	9.041E-01	9.496E-01	9.658E-01	9.742E-01	9.792E-01	9.826E-01	9.851E-01	9.869E-01	9.883E-01	9.895E-01	9.904E-01
-1.79998	9.183E-01	9.574E-01	9.712E-01	9.782E-01	9.825E-01	9.854E-01	9.874E-01	9.890E-01	9.902E-01	9.912E-01	9.920E-01
-1.59998	9.306E-01	9.640E-01	9.757E-01	9.817E-01	9.853E-01	9.877E-01	9.895E-01	9.908E-01	9.918E-01	9.926E-01	9.933E-01
-1.39998	9.412E-01	9.697E-01	9.796E-01	9.846E-01	9.877E-01	9.897E-01	9.912E-01	9.922E-01	9.931E-01	9.938E-01	9.944E-01
-1.19998	9.503E-01	9.745E-01	9.829E-01	9.871E-01	9.896E-01	9.914E-01	9.926E-01	9.935E-01	9.942E-01	9.948E-01	9.953E-01
-0.99998	9.649E-01	9.821E-01	9.880E-01	9.910E-01	9.928E-01	9.940E-01	9.948E-01	9.955E-01	9.960E-01	9.964E-01	9.967E-01
-0.79998	9.648E-01	9.821E-01	9.880E-01	9.909E-01	9.927E-01	9.939E-01	9.948E-01	9.955E-01	9.960E-01	9.964E-01	9.967E-01
-0.59998	9.704E-01	9.850E-01	9.899E-01	9.924E-01	9.939E-01	9.949E-01	9.957E-01	9.962E-01	9.966E-01	9.970E-01	9.972E-01
-0.39998	9.752E-01	9.874E-01	9.916E-01	9.937E-01	9.949E-01	9.958E-01	9.964E-01	9.968E-01	9.972E-01	9.975E-01	9.977E-01
-0.19998	9.792E-01	9.895E-01	9.930E-01	9.947E-01	9.958E-01	9.965E-01	9.970E-01	9.974E-01	9.977E-01	9.979E-01	9.981E-01
0.00002	9.827E-01	9.913E-01	9.942E-01	9.956E-01	9.965E-01	9.971E-01	9.975E-01	9.978E-01	9.980E-01	9.982E-01	9.984E-01
0.20002	9.855E-01	9.927E-01	9.951E-01	9.963E-01	9.971E-01	9.976E-01	9.979E-01	9.982E-01	9.984E-01	9.985E-01	9.987E-01
0.40002	9.879E-01	9.939E-01	9.959E-01	9.970E-01	9.976E-01	9.980E-01	9.983E-01	9.985E-01	9.986E-01	9.988E-01	9.989E-01
0.60002	9.900E-01	9.950E-01	9.966E-01	9.975E-01	9.980E-01	9.983E-01	9.986E-01	9.987E-01	9.989E-01	9.990E-01	9.991E-01
0.80002	9.917E-01	9.958E-01	9.972E-01	9.979E-01	9.983E-01	9.986E-01	9.988E-01	9.989E-01	9.991E-01	9.992E-01	9.992E-01
1.00002	9.931E-01	9.965E-01	9.977E-01	9.983E-01	9.986E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.994E-01

PROTON CORR. FACTORS

P6

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	5.411E-02	1.027E-01	1.465E-01	1.862E-01	2.224E-01	2.555E-01	2.860E-01	3.140E-01	3.399E-01	3.639E-01	3.862E-01
-5.80000	6.507E-02	1.222E-01	1.727E-01	2.178E-01	2.581E-01	2.946E-01	3.276E-01	3.576E-01	3.851E-01	4.104E-01	4.336E-01
-5.60000	7.798E-02	1.447E-01	2.024E-01	2.528E-01	2.972E-01	3.366E-01	3.719E-01	4.036E-01	4.322E-01	4.582E-01	4.820E-01
-5.40000	9.310E-02	1.703E-01	2.355E-01	2.911E-01	3.392E-01	3.812E-01	4.181E-01	4.509E-01	4.802E-01	5.066E-01	5.304E-01
-5.20000	1.107E-01	1.993E-01	2.719E-01	3.324E-01	3.836E-01	4.275E-01	4.656E-01	4.989E-01	5.283E-01	5.545E-01	5.779E-01
-5.00000	1.309E-01	2.315E-01	3.113E-01	3.760E-01	4.296E-01	4.748E-01	5.133E-01	5.465E-01	5.755E-01	6.010E-01	6.237E-01
-4.80000	1.540E-01	2.669E-01	3.532E-01	4.214E-01	4.765E-01	5.221E-01	5.603E-01	5.929E-01	6.210E-01	6.455E-01	6.670E-01
-4.59999	1.800E-01	3.052E-01	3.971E-01	4.676E-01	5.233E-01	5.685E-01	6.058E-01	6.372E-01	6.640E-01	6.871E-01	7.072E-01
-4.39999	2.090E-01	3.458E-01	4.422E-01	5.139E-01	5.692E-01	6.132E-01	6.491E-01	6.789E-01	7.040E-01	7.255E-01	7.440E-01
-4.19999	2.408E-01	3.881E-01	4.876E-01	5.592E-01	6.133E-01	6.555E-01	6.895E-01	7.173E-01	7.406E-01	7.603E-01	7.772E-01
-3.99999	2.751E-01	4.315E-01	5.324E-01	6.029E-01	6.549E-01	6.949E-01	7.265E-01	7.522E-01	7.735E-01	7.915E-01	8.068E-01
-3.79999	3.116E-01	4.751E-01	5.759E-01	6.442E-01	6.935E-01	7.309E-01	7.601E-01	7.836E-01	8.029E-01	8.190E-01	8.327E-01
-3.59999	3.496E-01	5.180E-01	6.172E-01	6.825E-01	7.288E-01	7.633E-01	7.900E-01	8.113E-01	8.287E-01	8.431E-01	8.553E-01
-3.39999	3.884E-01	5.595E-01	6.558E-01	7.176E-01	7.605E-01	7.921E-01	8.164E-01	8.356E-01	8.511E-01	8.640E-01	8.748E-01
-3.19999	4.273E-01	5.988E-01	6.912E-01	7.491E-01	7.886E-01	8.174E-01	8.393E-01	8.565E-01	8.704E-01	8.818E-01	8.914E-01
-2.99999	4.655E-01	6.353E-01	7.232E-01	7.769E-01	8.132E-01	8.394E-01	8.591E-01	8.745E-01	8.868E-01	8.970E-01	9.055E-01
-2.79999	5.020E-01	6.684E-01	7.515E-01	8.013E-01	8.344E-01	8.581E-01	8.759E-01	8.897E-01	9.007E-01	9.097E-01	9.173E-01
-2.59999	5.360E-01	6.979E-01	7.761E-01	8.221E-01	8.524E-01	8.739E-01	8.899E-01	9.024E-01	9.123E-01	9.203E-01	9.270E-01
-2.39999	5.668E-01	7.235E-01	7.970E-01	8.396E-01	8.674E-01	8.870E-01	9.016E-01	9.128E-01	9.217E-01	9.290E-01	9.350E-01
-2.19999	5.938E-01	7.451E-01	8.143E-01	8.540E-01	8.796E-01	8.977E-01	9.110E-01	9.212E-01	9.294E-01	9.360E-01	9.415E-01
-1.99998	6.163E-01	7.626E-01	8.281E-01	8.653E-01	8.893E-01	9.060E-01	9.183E-01	9.278E-01	9.353E-01	9.414E-01	9.464E-01
-1.79998	6.339E-01	7.759E-01	8.385E-01	8.738E-01	8.964E-01	9.122E-01	9.238E-01	9.327E-01	9.397E-01	9.454E-01	9.501E-01
-1.59998	6.460E-01	7.850E-01	8.456E-01	8.795E-01	9.012E-01	9.163E-01	9.274E-01	9.359E-01	9.426E-01	9.481E-01	9.526E-01
-1.39998	6.524E-01	7.896E-01	8.492E-01	8.825E-01	9.037E-01	9.184E-01	9.293E-01	9.376E-01	9.441E-01	9.494E-01	9.538E-01
-1.19998	6.526E-01	7.898E-01	8.493E-01	8.825E-01	9.038E-01	9.185E-01	9.293E-01	9.376E-01	9.442E-01	9.495E-01	9.538E-01
-0.99998	6.329E-01	7.752E-01	8.380E-01	8.734E-01	8.961E-01	9.119E-01	9.235E-01	9.324E-01	9.395E-01	9.452E-01	9.499E-01
-0.79998	6.332E-01	7.754E-01	8.381E-01	8.735E-01	8.962E-01	9.119E-01	9.236E-01	9.325E-01	9.395E-01	9.452E-01	9.500E-01
-0.59998	6.131E-01	7.601E-01	8.262E-01	8.637E-01	8.879E-01	9.048E-01	9.173E-01	9.269E-01	9.345E-01	9.406E-01	9.457E-01
-0.39998	5.860E-01	7.390E-01	8.094E-01	8.499E-01	8.762E-01	8.947E-01	9.083E-01	9.189E-01	9.272E-01	9.340E-01	9.397E-01
-0.19998	5.523E-01	7.116E-01	7.873E-01	8.315E-01	8.605E-01	8.810E-01	8.962E-01	9.080E-01	9.174E-01	9.250E-01	9.314E-01
0.00002	5.126E-01	6.778E-01	7.593E-01	8.079E-01	8.402E-01	8.632E-01	8.804E-01	8.938E-01	9.044E-01	9.132E-01	9.204E-01
0.20002	4.679E-01	6.375E-01	7.251E-01	7.786E-01	8.147E-01	8.407E-01	8.602E-01	8.755E-01	8.878E-01	8.979E-01	9.063E-01
0.40002	4.197E-01	5.913E-01	6.845E-01	7.431E-01	7.834E-01	8.127E-01	8.351E-01	8.526E-01	8.668E-01	8.785E-01	8.883E-01
0.60002	3.697E-01	5.399E-01	6.377E-01	7.012E-01	7.457E-01	7.787E-01	8.042E-01	8.243E-01	8.408E-01	8.544E-01	8.658E-01
0.80002	3.198E-01	4.847E-01	5.852E-01	6.529E-01	7.016E-01	7.383E-01	7.670E-01	7.900E-01	8.089E-01	8.246E-01	8.380E-01
1.00002	2.718E-01	4.275E-01	5.283E-01	5.989E-01	6.511E-01	6.913E-01	7.232E-01	7.492E-01	7.706E-01	7.887E-01	8.042E-01

PROTON CORR. FACTORS

P7

P/A = GAMMA	10.	20.	30.	40.	50.	60.	70.	80.	90.	100.	110.
-6.00000	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-5.80000	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-5.60000	9.999E-01	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-5.40000	9.998E-01	9.999E-01	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-5.20000	9.998E-01	9.999E-01	9.999E-01	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-5.00000	9.997E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-4.80000	9.996E-01	9.998E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	1.000E 00	1.000E 00	1.000E 00	1.000E 00
-4.59999	9.995E-01	9.997E-01	9.998E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	1.000E 00
-4.39999	9.993E-01	9.996E-01	9.998E-01	9.998E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01
-4.19999	9.990E-01	9.995E-01	9.997E-01	9.998E-01	9.998E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01	9.999E-01
-3.99999	9.987E-01	9.993E-01	9.996E-01	9.997E-01	9.997E-01	9.998E-01	9.998E-01	9.998E-01	9.999E-01	9.999E-01	9.999E-01
-3.79999	9.982E-01	9.991E-01	9.994E-01	9.996E-01	9.996E-01	9.997E-01	9.997E-01	9.998E-01	9.998E-01	9.998E-01	9.998E-01
-3.59999	9.976E-01	9.988E-01	9.992E-01	9.994E-01	9.995E-01	9.996E-01	9.997E-01	9.997E-01	9.997E-01	9.998E-01	9.998E-01
-3.39999	9.967E-01	9.984E-01	9.989E-01	9.992E-01	9.992E-01	9.995E-01	9.995E-01	9.996E-01	9.996E-01	9.997E-01	9.997E-01
-3.19999	9.956E-01	9.978E-01	9.985E-01	9.989E-01	9.991E-01	9.993E-01	9.994E-01	9.994E-01	9.995E-01	9.996E-01	9.996E-01
-2.99999	9.940E-01	9.970E-01	9.980E-01	9.985E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.994E-01	9.995E-01
-2.79999	9.918E-01	9.959E-01	9.973E-01	9.979E-01	9.984E-01	9.986E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01
-2.59999	9.889E-01	9.944E-01	9.963E-01	9.972E-01	9.978E-01	9.981E-01	9.984E-01	9.986E-01	9.988E-01	9.989E-01	9.990E-01
-2.39999	9.849E-01	9.924E-01	9.949E-01	9.962E-01	9.969E-01	9.975E-01	9.978E-01	9.981E-01	9.983E-01	9.985E-01	9.986E-01
-2.19999	9.795E-01	9.897E-01	9.931E-01	9.948E-01	9.958E-01	9.965E-01	9.970E-01	9.974E-01	9.977E-01	9.979E-01	9.981E-01
-1.99998	9.722E-01	9.859E-01	9.906E-01	9.929E-01	9.943E-01	9.953E-01	9.959E-01	9.964E-01	9.968E-01	9.971E-01	9.974E-01
-1.79998	9.623E-01	9.808E-01	9.871E-01	9.903E-01	9.922E-01	9.935E-01	9.944E-01	9.951E-01	9.957E-01	9.961E-01	9.965E-01
-1.59998	9.491E-01	9.739E-01	9.824E-01	9.868E-01	9.894E-01	9.911E-01	9.924E-01	9.933E-01	9.941E-01	9.947E-01	9.951E-01
-1.39998	9.314E-01	9.645E-01	9.761E-01	9.819E-01	9.855E-01	9.879E-01	9.896E-01	9.909E-01	9.919E-01	9.927E-01	9.934E-01
-1.19998	9.082E-01	9.519E-01	9.674E-01	9.753E-01	9.802E-01	9.834E-01	9.858E-01	9.875E-01	9.889E-01	9.900E-01	9.909E-01
-0.99998	8.824E-01	9.375E-01	9.574E-01	9.677E-01	9.740E-01	9.783E-01	9.813E-01	9.836E-01	9.854E-01	9.868E-01	9.880E-01
-0.79998	8.393E-01	9.127E-01	9.400E-01	9.543E-01	9.631E-01	9.691E-01	9.734E-01	9.766E-01	9.792E-01	9.812E-01	9.829E-01
-0.59998	7.912E-01	8.835E-01	9.192E-01	9.381E-01	9.499E-01	9.579E-01	9.637E-01	9.681E-01	9.715E-01	9.743E-01	9.766E-01
-0.39998	7.331E-01	8.460E-01	8.918E-01	9.166E-01	9.321E-01	9.428E-01	9.506E-01	9.565E-01	9.611E-01	9.649E-01	9.680E-01
-0.19998	6.653E-01	7.990E-01	8.564E-01	8.883E-01	9.086E-01	9.227E-01	9.330E-01	9.408E-01	9.471E-01	9.521E-01	9.563E-01
0.00002	5.897E-01	7.419E-01	8.118E-01	8.518E-01	8.779E-01	8.961E-01	9.096E-01	9.200E-01	9.282E-01	9.350E-01	9.405E-01
0.20002	5.094E-01	6.749E-01	7.570E-01	8.059E-01	8.385E-01	8.617E-01	8.790E-01	8.925E-01	9.033E-01	9.121E-01	9.195E-01
0.40002	4.283E-01	5.997E-01	6.920E-01	7.498E-01	7.893E-01	8.180E-01	8.398E-01	8.570E-01	8.708E-01	8.822E-01	8.918E-01
0.60002	3.506E-01	5.192E-01	6.183E-01	6.835E-01	7.297E-01	7.641E-01	7.907E-01	8.120E-01	8.293E-01	8.437E-01	8.559E-01
0.80002	2.799E-01	4.374E-01	5.383E-01	6.086E-01	6.603E-01	6.999E-01	7.312E-01	7.567E-01	7.777E-01	7.954E-01	8.104E-01
1.00002	2.185E-01	3.586E-01	4.562E-01	5.279E-01	5.830E-01	6.265E-01	6.618E-01	6.910E-01	7.156E-01	7.366E-01	7.546E-01

4. Factors for Correction of A-Channel Counting Rates to Alphas Only

The response of the A-channels of the telescope to nuclei with $Z \geq 3$ is given in the figures of APPENDIX F. Nominal alpha/medium ratios can be derived from the raw count rates of the A and Z channels. Further, the exponents for the alpha and medium spectra can be derived from the tables and formulas of Section 7. In order to calculate the differential fluxes alpha particles, corrections of the count rates of the alpha channels for the response to nuclei with $Z \geq 3$ can be made by a procedure similar to that described for the P-channels in Section 3. The passbands used herein for the purpose of calculating the correction factors for the alpha channels are given in Table 3.

TABLE 3

Channel	Proton Thresholds (MeV/nucleon)		Alpha Thresholds (MeV/nucleon)	
	lower	upper	lower	upper
A1	.645	1.17	.25	.40
A2	1.17	1.74	.40	3.2
A3	1.74	4.3	3.2	3.8
A4	4.3	11.5	3.8	24.
A5	11.5	26.	167.	310.
A6	26.	52.	(no response)	

In the following tabulation the first column lists the spectral exponent, gamma, and the remaining columns give the factors by which the A-channel rates should be multiplied in order to obtain the response due to protons only for various values of the alpha medium ratio. There is one table for each of the channels A1 through A5.

ALPHA CORRECTION FACTORS

A1

A/M = GAMMA	10.	15.	20.	25.	30.	35.	40.	45.	50.	55.	60.
-6.00000	8.406E-02	1.210E-01	1.551E-01	1.866E-01	2.159E-01	2.431E-01	2.685E-01	2.923E-01	3.145E-01	3.354E-01	3.551E-01
-5.80000	1.002E-01	1.431E-01	1.821E-01	2.177E-01	2.504E-01	2.804E-01	3.081E-01	3.338E-01	3.576E-01	3.798E-01	4.005E-01
-5.60000	1.190E-01	1.685E-01	2.127E-01	2.525E-01	2.884E-01	3.210E-01	3.508E-01	3.781E-01	4.032E-01	4.263E-01	4.477E-01
-5.40000	1.409E-01	1.974E-01	2.470E-01	2.907E-01	3.297E-01	3.646E-01	3.961E-01	4.246E-01	4.505E-01	4.742E-01	4.959E-01
-5.20000	1.660E-01	2.299E-01	2.848E-01	3.323E-01	3.739E-01	4.106E-01	4.433E-01	4.725E-01	4.988E-01	5.226E-01	5.443E-01
-5.00000	1.947E-01	2.661E-01	3.259E-01	3.767E-01	4.204E-01	4.583E-01	4.916E-01	5.210E-01	5.472E-01	5.707E-01	5.919E-01
-4.80000	2.270E-01	3.058E-01	3.700E-01	4.233E-01	4.683E-01	5.068E-01	5.401E-01	5.692E-01	5.948E-01	6.176E-01	6.379E-01
-4.59999	2.630E-01	3.486E-01	4.164E-01	4.715E-01	5.170E-01	5.553E-01	5.880E-01	6.162E-01	6.408E-01	6.624E-01	6.816E-01
-4.39999	3.025E-01	3.941E-01	4.645E-01	5.202E-01	5.654E-01	6.028E-01	6.343E-01	6.612E-01	6.844E-01	7.046E-01	7.224E-01
-4.19999	3.452E-01	4.416E-01	5.133E-01	5.686E-01	6.127E-01	6.486E-01	6.784E-01	7.035E-01	7.250E-01	7.436E-01	7.598E-01
-3.99999	3.907E-01	4.903E-01	5.619E-01	6.159E-01	6.580E-01	6.918E-01	7.195E-01	7.427E-01	7.623E-01	7.791E-01	7.937E-01
-3.79999	4.383E-01	5.393E-01	6.095E-01	6.611E-01	7.007E-01	7.320E-01	7.573E-01	7.783E-01	7.960E-01	8.110E-01	8.240E-01
-3.59999	4.871E-01	5.875E-01	6.551E-01	7.036E-01	7.402E-01	7.687E-01	7.916E-01	8.104E-01	8.260E-01	8.393E-01	8.507E-01
-3.39999	5.362E-01	6.343E-01	6.981E-01	7.430E-01	7.762E-01	8.019E-01	8.222E-01	8.388E-01	8.525E-01	8.641E-01	8.740E-01
-3.19999	5.848E-01	6.787E-01	7.380E-01	7.788E-01	8.086E-01	8.313E-01	8.493E-01	8.637E-01	8.757E-01	8.857E-01	8.942E-01
-2.99999	6.318E-01	7.202E-01	7.744E-01	8.110E-01	8.374E-01	8.573E-01	8.728E-01	8.854E-01	8.956E-01	9.042E-01	9.115E-01
-2.79999	6.766E-01	7.583E-01	8.071E-01	8.395E-01	8.626E-01	8.798E-01	8.932E-01	9.040E-01	9.127E-01	9.200E-01	9.262E-01
-2.59999	7.184E-01	7.928E-01	8.361E-01	8.645E-01	8.844E-01	8.993E-01	9.107E-01	9.199E-01	9.273E-01	9.335E-01	9.387E-01
-2.39999	7.568E-01	8.236E-01	8.616E-01	8.861E-01	9.033E-01	9.159E-01	9.256E-01	9.334E-01	9.396E-01	9.448E-01	9.492E-01
-2.19999	7.916E-01	8.507E-01	8.837E-01	9.047E-01	9.193E-01	9.300E-01	9.382E-01	9.447E-01	9.500E-01	9.543E-01	9.580E-01
-1.99998	8.226E-01	8.743E-01	9.027E-01	9.206E-01	9.329E-01	9.420E-01	9.489E-01	9.543E-01	9.587E-01	9.623E-01	9.653E-01
-1.79998	8.500E-01	8.947E-01	9.189E-01	9.341E-01	9.444E-01	9.520E-01	9.577E-01	9.623E-01	9.659E-01	9.689E-01	9.714E-01
-1.59998	8.738E-01	9.122E-01	9.326E-01	9.454E-01	9.541E-01	9.604E-01	9.652E-01	9.689E-01	9.719E-01	9.744E-01	9.765E-01
-1.39998	8.943E-01	9.270E-01	9.442E-01	9.549E-01	9.621E-01	9.673E-01	9.713E-01	9.744E-01	9.769E-01	9.790E-01	9.807E-01
-1.19998	9.119E-01	9.395E-01	9.539E-01	9.628E-01	9.688E-01	9.731E-01	9.764E-01	9.790E-01	9.811E-01	9.827E-01	9.842E-01
-0.99998	9.271E-01	9.502E-01	9.621E-01	9.695E-01	9.744E-01	9.780E-01	9.807E-01	9.828E-01	9.845E-01	9.859E-01	9.871E-01
-0.79998	9.394E-01	9.588E-01	9.688E-01	9.749E-01	9.790E-01	9.819E-01	9.841E-01	9.859E-01	9.873E-01	9.884E-01	9.894E-01
-0.59998	9.500E-01	9.661E-01	9.744E-01	9.794E-01	9.828E-01	9.852E-01	9.870E-01	9.884E-01	9.896E-01	9.905E-01	9.913E-01
-0.39998	9.588E-01	9.722E-01	9.790E-01	9.831E-01	9.859E-01	9.879E-01	9.894E-01	9.905E-01	9.915E-01	9.923E-01	9.929E-01
-0.19998	9.661E-01	9.772E-01	9.828E-01	9.862E-01	9.885E-01	9.901E-01	9.913E-01	9.923E-01	9.930E-01	9.937E-01	9.942E-01
0.00002	9.722E-01	9.813E-01	9.859E-01	9.887E-01	9.906E-01	9.919E-01	9.929E-01	9.937E-01	9.943E-01	9.948E-01	9.953E-01
0.20002	9.772E-01	9.847E-01	9.885E-01	9.908E-01	9.923E-01	9.934E-01	9.942E-01	9.949E-01	9.954E-01	9.958E-01	9.961E-01
0.40002	9.814E-01	9.875E-01	9.906E-01	9.925E-01	9.937E-01	9.946E-01	9.953E-01	9.958E-01	9.962E-01	9.966E-01	9.968E-01
0.60002	9.848E-01	9.898E-01	9.923E-01	9.939E-01	9.949E-01	9.956E-01	9.962E-01	9.966E-01	9.969E-01	9.972E-01	9.974E-01
0.80002	9.876E-01	9.917E-01	9.938E-01	9.950E-01	9.958E-01	9.964E-01	9.969E-01	9.972E-01	9.975E-01	9.977E-01	9.979E-01
1.00002	9.899E-01	9.932E-01	9.949E-01	9.959E-01	9.966E-01	9.971E-01	9.974E-01	9.977E-01	9.980E-01	9.981E-01	9.983E-01

ALPHA CORRECTION FACTORS

A2

A/M = GAMMA	10.	15.	20.	25.	30.	35.	40.	45.	50.	55.	60.
-6.00000	3.873E-02	5.699E-02	7.457E-02	9.150E-02	1.078E-01	1.236E-01	1.388E-01	1.535E-01	1.677E-01	1.814E-01	1.947E-01
-5.80000	4.696E-02	6.883E-02	8.971E-02	1.097E-01	1.288E-01	1.471E-01	1.647E-01	1.815E-01	1.977E-01	2.132E-01	2.282E-01
-5.60000	5.678E-02	8.281E-02	1.075E-01	1.308E-01	1.530E-01	1.740E-01	1.941E-01	2.131E-01	2.313E-01	2.487E-01	2.653E-01
-5.40000	6.840E-02	9.921E-02	1.280E-01	1.551E-01	1.805E-01	2.045E-01	2.270E-01	2.484E-01	2.685E-01	2.877E-01	3.058E-01
-5.20000	8.208E-02	1.183E-01	1.517E-01	1.827E-01	2.115E-01	2.384E-01	2.635E-01	2.869E-01	3.090E-01	3.297E-01	3.492E-01
-5.00000	9.805E-02	1.402E-01	1.786E-01	2.137E-01	2.459E-01	2.756E-01	3.031E-01	3.285E-01	3.522E-01	3.742E-01	3.948E-01
-4.80000	1.165E-01	1.652E-01	2.087E-01	2.480E-01	2.835E-01	3.158E-01	3.454E-01	3.725E-01	3.974E-01	4.204E-01	4.418E-01
-4.59999	1.377E-01	1.932E-01	2.421E-01	2.853E-01	3.239E-01	3.585E-01	3.898E-01	4.181E-01	4.439E-01	4.676E-01	4.893E-01
-4.39999	1.616E-01	2.243E-01	2.783E-01	3.252E-01	3.665E-01	4.029E-01	4.354E-01	4.646E-01	4.908E-01	5.147E-01	5.364E-01
-4.19999	1.884E-01	2.583E-01	3.171E-01	3.673E-01	4.105E-01	4.483E-01	4.815E-01	5.109E-01	5.372E-01	5.608E-01	5.821E-01
-3.99999	2.179E-01	2.948E-01	3.579E-01	4.106E-01	4.553E-01	4.937E-01	5.271E-01	5.563E-01	5.822E-01	6.052E-01	6.257E-01
-3.79999	2.500E-01	3.333E-01	3.999E-01	4.545E-01	4.999E-01	5.384E-01	5.714E-01	5.999E-01	6.249E-01	6.470E-01	6.666E-01
-3.59999	2.841E-01	3.732E-01	4.425E-01	4.981E-01	5.435E-01	5.814E-01	6.135E-01	6.411E-01	6.649E-01	6.858E-01	7.043E-01
-3.39999	3.200E-01	4.138E-01	4.848E-01	5.405E-01	5.853E-01	6.222E-01	6.530E-01	6.792E-01	7.017E-01	7.213E-01	7.384E-01
-3.19999	3.569E-01	4.543E-01	5.260E-01	5.811E-01	6.247E-01	6.601E-01	6.894E-01	7.140E-01	7.351E-01	7.532E-01	7.690E-01
-2.99999	3.941E-01	4.939E-01	5.654E-01	6.192E-01	6.612E-01	6.948E-01	7.224E-01	7.454E-01	7.649E-01	7.816E-01	7.960E-01
-2.79999	4.310E-01	5.319E-01	6.024E-01	6.544E-01	6.944E-01	7.261E-01	7.519E-01	7.732E-01	7.911E-01	8.064E-01	8.197E-01
-2.59999	4.668E-01	5.677E-01	6.365E-01	6.864E-01	7.242E-01	7.539E-01	7.779E-01	7.976E-01	8.140E-01	8.280E-01	8.401E-01
-2.39999	5.008E-01	6.008E-01	6.674E-01	7.150E-01	7.506E-01	7.783E-01	8.005E-01	8.187E-01	8.338E-01	8.466E-01	8.575E-01
-2.19999	5.325E-01	6.308E-01	6.950E-01	7.401E-01	7.736E-01	7.995E-01	8.200E-01	8.368E-01	8.506E-01	8.624E-01	8.724E-01
-1.99998	5.614E-01	6.575E-01	7.191E-01	7.619E-01	7.934E-01	8.175E-01	8.366E-01	8.521E-01	8.649E-01	8.756E-01	8.848E-01
-1.79998	5.872E-01	6.808E-01	7.399E-01	7.805E-01	8.101E-01	8.327E-01	8.505E-01	8.649E-01	8.767E-01	8.866E-01	8.951E-01
-1.59998	6.096E-01	7.008E-01	7.574E-01	7.960E-01	8.241E-01	8.453E-01	8.620E-01	8.754E-01	8.864E-01	8.957E-01	9.035E-01
-1.39998	6.285E-01	7.174E-01	7.719E-01	8.088E-01	8.354E-01	8.555E-01	8.713E-01	8.839E-01	8.943E-01	9.030E-01	9.103E-01
-1.19998	6.441E-01	7.308E-01	7.835E-01	8.190E-01	8.444E-01	8.636E-01	8.786E-01	8.906E-01	9.005E-01	9.087E-01	9.157E-01
-0.99998	6.691E-01	7.521E-01	8.018E-01	8.349E-01	8.585E-01	8.762E-01	8.900E-01	9.010E-01	9.100E-01	9.175E-01	9.239E-01
-0.79998	6.650E-01	7.486E-01	7.988E-01	8.323E-01	8.562E-01	8.742E-01	8.882E-01	8.993E-01	9.085E-01	9.161E-01	9.226E-01
-0.59998	6.707E-01	7.534E-01	8.029E-01	8.359E-01	8.594E-01	8.770E-01	8.907E-01	9.016E-01	9.106E-01	9.181E-01	9.244E-01
-0.39998	6.735E-01	7.557E-01	8.049E-01	8.376E-01	8.609E-01	8.783E-01	8.919E-01	9.027E-01	9.116E-01	9.190E-01	9.252E-01
-0.19998	6.734E-01	7.556E-01	8.048E-01	8.375E-01	8.608E-01	8.783E-01	8.918E-01	9.027E-01	9.116E-01	9.189E-01	9.252E-01
0.00002	6.706E-01	7.533E-01	8.028E-01	8.358E-01	8.593E-01	8.769E-01	8.906E-01	9.016E-01	9.105E-01	9.180E-01	9.243E-01
0.20002	6.653E-01	7.489E-01	7.990E-01	8.325E-01	8.564E-01	8.743E-01	8.883E-01	8.994E-01	9.086E-01	9.162E-01	9.226E-01
0.40002	6.577E-01	7.424E-01	7.935E-01	8.277E-01	8.521E-01	8.705E-01	8.849E-01	8.963E-01	9.057E-01	9.135E-01	9.202E-01
0.60002	6.478E-01	7.340E-01	7.863E-01	8.214E-01	8.466E-01	8.656E-01	8.803E-01	8.922E-01	9.019E-01	9.100E-01	9.169E-01
0.80002	6.359E-01	7.237E-01	7.774E-01	8.136E-01	8.397E-01	8.594E-01	8.748E-01	8.871E-01	8.972E-01	9.057E-01	9.129E-01
1.00002	6.220E-01	7.117E-01	7.670E-01	8.045E-01	8.316E-01	8.521E-01	8.681E-01	8.810E-01	8.916E-01	9.005E-01	9.080E-01

ALPHA CORRECTION FACTORS

A3

A/M =	10.	15.	20.	25.	30.	35.	40.	45.	50.	55.	60.
GAMMA											
-6.00000	9.972E-01	9.982E-01	9.986E-01	9.989E-01	9.991E-01	9.992E-01	9.993E-01	9.994E-01	9.994E-01	9.995E-01	9.995E-01
-5.80000	9.970E-01	9.980E-01	9.985E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.994E-01	9.994E-01	9.995E-01
-5.60000	9.966E-01	9.978E-01	9.983E-01	9.987E-01	9.989E-01	9.990E-01	9.992E-01	9.993E-01	9.993E-01	9.994E-01	9.994E-01
-5.40000	9.963E-01	9.975E-01	9.982E-01	9.985E-01	9.988E-01	9.989E-01	9.991E-01	9.992E-01	9.993E-01	9.993E-01	9.994E-01
-5.20000	9.959E-01	9.973E-01	9.980E-01	9.984E-01	9.986E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.993E-01
-5.00000	9.956E-01	9.970E-01	9.978E-01	9.982E-01	9.985E-01	9.987E-01	9.989E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01
-4.80000	9.951E-01	9.967E-01	9.976E-01	9.980E-01	9.984E-01	9.986E-01	9.988E-01	9.989E-01	9.990E-01	9.991E-01	9.992E-01
-4.59999	9.947E-01	9.964E-01	9.973E-01	9.979E-01	9.982E-01	9.985E-01	9.987E-01	9.988E-01	9.989E-01	9.990E-01	9.991E-01
-4.39999	9.942E-01	9.961E-01	9.971E-01	9.977E-01	9.981E-01	9.983E-01	9.985E-01	9.987E-01	9.988E-01	9.989E-01	9.990E-01
-4.19999	9.937E-01	9.958E-01	9.968E-01	9.975E-01	9.979E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01	9.988E-01	9.989E-01
-3.99999	9.931E-01	9.954E-01	9.965E-01	9.972E-01	9.977E-01	9.980E-01	9.983E-01	9.985E-01	9.986E-01	9.987E-01	9.988E-01
-3.79999	9.925E-01	9.950E-01	9.962E-01	9.970E-01	9.975E-01	9.979E-01	9.981E-01	9.983E-01	9.985E-01	9.986E-01	9.987E-01
-3.59999	9.919E-01	9.946E-01	9.959E-01	9.967E-01	9.973E-01	9.977E-01	9.980E-01	9.982E-01	9.984E-01	9.985E-01	9.986E-01
-3.39999	9.912E-01	9.941E-01	9.956E-01	9.965E-01	9.971E-01	9.975E-01	9.978E-01	9.980E-01	9.982E-01	9.984E-01	9.985E-01
-3.19999	9.905E-01	9.937E-01	9.953E-01	9.962E-01	9.968E-01	9.973E-01	9.976E-01	9.979E-01	9.981E-01	9.983E-01	9.984E-01
-2.99999	9.898E-01	9.932E-01	9.949E-01	9.959E-01	9.966E-01	9.971E-01	9.974E-01	9.977E-01	9.979E-01	9.981E-01	9.983E-01
-2.79999	9.891E-01	9.927E-01	9.945E-01	9.956E-01	9.963E-01	9.969E-01	9.972E-01	9.975E-01	9.978E-01	9.980E-01	9.982E-01
-2.59999	9.883E-01	9.922E-01	9.941E-01	9.953E-01	9.961E-01	9.966E-01	9.970E-01	9.974E-01	9.976E-01	9.978E-01	9.980E-01
-2.39999	9.875E-01	9.916E-01	9.937E-01	9.950E-01	9.958E-01	9.964E-01	9.968E-01	9.972E-01	9.975E-01	9.977E-01	9.979E-01
-2.19999	9.866E-01	9.911E-01	9.933E-01	9.946E-01	9.955E-01	9.961E-01	9.966E-01	9.970E-01	9.973E-01	9.975E-01	9.977E-01
-1.99998	9.858E-01	9.905E-01	9.928E-01	9.943E-01	9.952E-01	9.959E-01	9.964E-01	9.968E-01	9.971E-01	9.974E-01	9.976E-01
-1.79998	9.849E-01	9.899E-01	9.924E-01	9.939E-01	9.949E-01	9.956E-01	9.962E-01	9.966E-01	9.969E-01	9.972E-01	9.975E-01
-1.59998	9.840E-01	9.893E-01	9.920E-01	9.936E-01	9.946E-01	9.954E-01	9.960E-01	9.964E-01	9.968E-01	9.971E-01	9.973E-01
-1.39998	9.831E-01	9.887E-01	9.915E-01	9.932E-01	9.943E-01	9.951E-01	9.957E-01	9.962E-01	9.966E-01	9.969E-01	9.972E-01
-1.19998	9.823E-01	9.881E-01	9.910E-01	9.928E-01	9.940E-01	9.949E-01	9.955E-01	9.960E-01	9.964E-01	9.967E-01	9.970E-01
-0.99998	9.770E-01	9.846E-01	9.884E-01	9.907E-01	9.922E-01	9.933E-01	9.942E-01	9.948E-01	9.953E-01	9.957E-01	9.961E-01
-0.79998	9.805E-01	9.869E-01	9.901E-01	9.921E-01	9.934E-01	9.943E-01	9.950E-01	9.956E-01	9.960E-01	9.964E-01	9.967E-01
-0.59998	9.796E-01	9.863E-01	9.897E-01	9.917E-01	9.931E-01	9.941E-01	9.948E-01	9.954E-01	9.959E-01	9.962E-01	9.965E-01
-0.39998	9.787E-01	9.857E-01	9.893E-01	9.914E-01	9.928E-01	9.938E-01	9.946E-01	9.952E-01	9.957E-01	9.961E-01	9.964E-01
-0.19998	9.779E-01	9.852E-01	9.888E-01	9.910E-01	9.925E-01	9.936E-01	9.944E-01	9.950E-01	9.955E-01	9.959E-01	9.962E-01
0.00002	9.771E-01	9.846E-01	9.884E-01	9.907E-01	9.922E-01	9.933E-01	9.942E-01	9.948E-01	9.953E-01	9.958E-01	9.961E-01
0.20002	9.763E-01	9.841E-01	9.880E-01	9.904E-01	9.920E-01	9.931E-01	9.940E-01	9.946E-01	9.952E-01	9.956E-01	9.960E-01
0.40002	9.756E-01	9.836E-01	9.876E-01	9.901E-01	9.917E-01	9.929E-01	9.938E-01	9.945E-01	9.950E-01	9.955E-01	9.958E-01
0.60002	9.749E-01	9.831E-01	9.873E-01	9.898E-01	9.915E-01	9.927E-01	9.936E-01	9.943E-01	9.949E-01	9.953E-01	9.957E-01
0.80002	9.742E-01	9.826E-01	9.869E-01	9.895E-01	9.912E-01	9.925E-01	9.934E-01	9.941E-01	9.947E-01	9.952E-01	9.956E-01
1.00002	9.736E-01	9.822E-01	9.866E-01	9.893E-01	9.910E-01	9.923E-01	9.933E-01	9.940E-01	9.946E-01	9.951E-01	9.955E-01

ALPHA CORRECTION FACTORS

A4

A/M = GAMMA	10.	15.	20.	25.	30.	35.	40.	45.	50.	55.	60.
-6.00000	8.425E-01	8.892E-01	9.145E-01	9.304E-01	9.414E-01	9.493E-01	9.554E-01	9.601E-01	9.640E-01	9.671E-01	9.698E-01
-5.80000	8.456E-01	8.915E-01	9.163E-01	9.319E-01	9.426E-01	9.504E-01	9.563E-01	9.610E-01	9.648E-01	9.679E-01	9.705E-01
-5.60000	8.486E-01	8.937E-01	9.181E-01	9.334E-01	9.438E-01	9.515E-01	9.573E-01	9.619E-01	9.655E-01	9.686E-01	9.711E-01
-5.40000	8.514E-01	8.958E-01	9.197E-01	9.347E-01	9.450E-01	9.525E-01	9.582E-01	9.627E-01	9.663E-01	9.692E-01	9.717E-01
-5.20000	8.542E-01	8.978E-01	9.213E-01	9.361E-01	9.462E-01	9.535E-01	9.591E-01	9.634E-01	9.670E-01	9.699E-01	9.723E-01
-5.00000	8.568E-01	8.998E-01	9.229E-01	9.373E-01	9.472E-01	9.544E-01	9.599E-01	9.642E-01	9.677E-01	9.705E-01	9.729E-01
-4.80000	8.593E-01	9.016E-01	9.243E-01	9.385E-01	9.483E-01	9.553E-01	9.607E-01	9.649E-01	9.683E-01	9.711E-01	9.734E-01
-4.59999	8.617E-01	9.033E-01	9.257E-01	9.397E-01	9.492E-01	9.562E-01	9.614E-01	9.656E-01	9.689E-01	9.716E-01	9.739E-01
-4.39999	8.639E-01	9.050E-01	9.270E-01	9.407E-01	9.501E-01	9.569E-01	9.621E-01	9.662E-01	9.695E-01	9.722E-01	9.744E-01
-4.19999	8.660E-01	9.065E-01	9.282E-01	9.417E-01	9.509E-01	9.577E-01	9.628E-01	9.668E-01	9.700E-01	9.726E-01	9.749E-01
-3.99999	8.678E-01	9.078E-01	9.292E-01	9.426E-01	9.517E-01	9.583E-01	9.633E-01	9.673E-01	9.704E-01	9.731E-01	9.752E-01
-3.79999	8.695E-01	9.090E-01	9.302E-01	9.434E-01	9.524E-01	9.589E-01	9.638E-01	9.677E-01	9.709E-01	9.734E-01	9.756E-01
-3.59999	8.709E-01	9.101E-01	9.310E-01	9.440E-01	9.529E-01	9.594E-01	9.643E-01	9.681E-01	9.712E-01	9.738E-01	9.759E-01
-3.39999	8.720E-01	9.109E-01	9.316E-01	9.445E-01	9.534E-01	9.598E-01	9.646E-01	9.684E-01	9.715E-01	9.740E-01	9.761E-01
-3.19999	8.728E-01	9.115E-01	9.321E-01	9.449E-01	9.537E-01	9.600E-01	9.649E-01	9.686E-01	9.717E-01	9.742E-01	9.763E-01
-2.99999	8.733E-01	9.118E-01	9.323E-01	9.451E-01	9.539E-01	9.602E-01	9.650E-01	9.688E-01	9.718E-01	9.743E-01	9.764E-01
-2.79999	8.733E-01	9.118E-01	9.324E-01	9.451E-01	9.539E-01	9.602E-01	9.650E-01	9.688E-01	9.718E-01	9.743E-01	9.764E-01
-2.59999	8.729E-01	9.115E-01	9.321E-01	9.449E-01	9.537E-01	9.600E-01	9.649E-01	9.686E-01	9.717E-01	9.742E-01	9.763E-01
-2.39999	8.719E-01	9.108E-01	9.315E-01	9.445E-01	9.533E-01	9.597E-01	9.646E-01	9.684E-01	9.714E-01	9.740E-01	9.761E-01
-2.19999	8.703E-01	9.096E-01	9.306E-01	9.437E-01	9.527E-01	9.591E-01	9.641E-01	9.679E-01	9.710E-01	9.736E-01	9.758E-01
-1.99998	8.680E-01	9.079E-01	9.293E-01	9.426E-01	9.517E-01	9.583E-01	9.634E-01	9.673E-01	9.705E-01	9.731E-01	9.753E-01
-1.79998	8.649E-01	9.057E-01	9.275E-01	9.412E-01	9.505E-01	9.573E-01	9.624E-01	9.664E-01	9.697E-01	9.724E-01	9.746E-01
-1.59998	8.609E-01	9.027E-01	9.252E-01	9.393E-01	9.489E-01	9.559E-01	9.612E-01	9.653E-01	9.687E-01	9.715E-01	9.738E-01
-1.39998	8.558E-01	8.990E-01	9.223E-01	9.369E-01	9.468E-01	9.541E-01	9.596E-01	9.639E-01	9.674E-01	9.703E-01	9.727E-01
-1.19998	8.497E-01	8.945E-01	9.187E-01	9.339E-01	9.443E-01	9.519E-01	9.576E-01	9.622E-01	9.658E-01	9.688E-01	9.714E-01
-0.99998	8.444E-01	8.906E-01	9.157E-01	9.314E-01	9.421E-01	9.500E-01	9.560E-01	9.607E-01	9.645E-01	9.676E-01	9.702E-01
-0.79998	8.333E-01	8.824E-01	9.091E-01	9.259E-01	9.375E-01	9.459E-01	9.524E-01	9.574E-01	9.615E-01	9.649E-01	9.677E-01
-0.59998	8.229E-01	8.745E-01	9.029E-01	9.207E-01	9.331E-01	9.421E-01	9.489E-01	9.544E-01	9.587E-01	9.623E-01	9.654E-01
-0.39998	8.108E-01	8.654E-01	8.955E-01	9.146E-01	9.278E-01	9.375E-01	9.449E-01	9.507E-01	9.554E-01	9.593E-01	9.626E-01
-0.19998	7.968E-01	8.547E-01	8.869E-01	9.074E-01	9.217E-01	9.321E-01	9.401E-01	9.464E-01	9.515E-01	9.557E-01	9.592E-01
0.00002	7.809E-01	8.424E-01	8.770E-01	8.991E-01	9.145E-01	9.258E-01	9.345E-01	9.413E-01	9.469E-01	9.515E-01	9.553E-01
0.20002	7.629E-01	8.284E-01	8.655E-01	8.894E-01	9.061E-01	9.185E-01	9.279E-01	9.354E-01	9.415E-01	9.465E-01	9.508E-01
0.40002	7.428E-01	8.125E-01	8.524E-01	8.784E-01	8.965E-01	9.100E-01	9.203E-01	9.286E-01	9.352E-01	9.408E-01	9.454E-01
0.60002	7.205E-01	7.945E-01	8.376E-01	8.657E-01	8.855E-01	9.002E-01	9.116E-01	9.206E-01	9.280E-01	9.341E-01	9.393E-01
0.80002	6.961E-01	7.745E-01	8.208E-01	8.513E-01	8.729E-01	8.891E-01	9.016E-01	9.116E-01	9.197E-01	9.264E-01	9.322E-01
1.00002	6.695E-01	7.524E-01	8.020E-01	8.351E-01	8.587E-01	8.764E-01	8.901E-01	9.011E-01	9.101E-01	9.176E-01	9.240E-01

ALPHA CORRECTION FACTORS

A5

A/M = GAMMA	10.	15.	20.	25.	30.	35.	40.	45.	50.	55.	60.
-6.00000	9.974E-01	9.983E-01	9.987E-01	9.990E-01	9.991E-01	9.993E-01	9.994E-01	9.994E-01	9.995E-01	9.995E-01	9.996E-01
-5.80000	9.970E-01	9.980E-01	9.985E-01	9.988E-01	9.990E-01	9.991E-01	9.993E-01	9.993E-01	9.994E-01	9.995E-01	9.995E-01
-5.60000	9.965E-01	9.977E-01	9.983E-01	9.986E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.994E-01	9.994E-01
-5.40000	9.960E-01	9.973E-01	9.980E-01	9.984E-01	9.987E-01	9.988E-01	9.990E-01	9.991E-01	9.992E-01	9.993E-01	9.993E-01
-5.20000	9.953E-01	9.969E-01	9.977E-01	9.981E-01	9.984E-01	9.987E-01	9.988E-01	9.990E-01	9.991E-01	9.991E-01	9.992E-01
-5.00000	9.945E-01	9.964E-01	9.973E-01	9.978E-01	9.982E-01	9.984E-01	9.986E-01	9.988E-01	9.989E-01	9.990E-01	9.991E-01
-4.80000	9.936E-01	9.958E-01	9.968E-01	9.974E-01	9.979E-01	9.982E-01	9.984E-01	9.986E-01	9.987E-01	9.988E-01	9.989E-01
-4.59999	9.926E-01	9.950E-01	9.963E-01	9.970E-01	9.975E-01	9.979E-01	9.981E-01	9.983E-01	9.985E-01	9.986E-01	9.988E-01
-4.39999	9.913E-01	9.942E-01	9.956E-01	9.965E-01	9.971E-01	9.975E-01	9.978E-01	9.981E-01	9.983E-01	9.984E-01	9.985E-01
-4.19999	9.899E-01	9.932E-01	9.949E-01	9.959E-01	9.966E-01	9.971E-01	9.974E-01	9.977E-01	9.980E-01	9.981E-01	9.983E-01
-3.99999	9.881E-01	9.920E-01	9.940E-01	9.952E-01	9.960E-01	9.966E-01	9.970E-01	9.973E-01	9.976E-01	9.978E-01	9.980E-01
-3.79999	9.860E-01	9.906E-01	9.930E-01	9.944E-01	9.953E-01	9.960E-01	9.965E-01	9.969E-01	9.972E-01	9.974E-01	9.976E-01
-3.59999	9.835E-01	9.890E-01	9.917E-01	9.933E-01	9.944E-01	9.952E-01	9.958E-01	9.963E-01	9.967E-01	9.970E-01	9.972E-01
-3.39999	9.805E-01	9.869E-01	9.902E-01	9.921E-01	9.934E-01	9.944E-01	9.951E-01	9.956E-01	9.960E-01	9.964E-01	9.967E-01
-3.19999	9.769E-01	9.845E-01	9.883E-01	9.906E-01	9.922E-01	9.933E-01	9.941E-01	9.948E-01	9.953E-01	9.957E-01	9.961E-01
-2.99999	9.724E-01	9.814E-01	9.860E-01	9.888E-01	9.906E-01	9.920E-01	9.930E-01	9.937E-01	9.944E-01	9.949E-01	9.953E-01
-2.79999	9.669E-01	9.777E-01	9.832E-01	9.865E-01	9.887E-01	9.903E-01	9.915E-01	9.925E-01	9.932E-01	9.938E-01	9.943E-01
-2.59999	9.601E-01	9.730E-01	9.796E-01	9.836E-01	9.863E-01	9.883E-01	9.897E-01	9.908E-01	9.918E-01	9.925E-01	9.931E-01
-2.39999	9.515E-01	9.671E-01	9.751E-01	9.800E-01	9.833E-01	9.856E-01	9.874E-01	9.888E-01	9.899E-01	9.908E-01	9.916E-01
-2.19999	9.406E-01	9.596E-01	9.694E-01	9.754E-01	9.794E-01	9.823E-01	9.845E-01	9.862E-01	9.875E-01	9.886E-01	9.896E-01
-1.99998	9.266E-01	9.498E-01	9.619E-01	9.693E-01	9.743E-01	9.779E-01	9.806E-01	9.827E-01	9.844E-01	9.858E-01	9.870E-01
-1.79998	9.084E-01	9.370E-01	9.520E-01	9.612E-01	9.675E-01	9.720E-01	9.754E-01	9.781E-01	9.802E-01	9.820E-01	9.835E-01
-1.59998	8.847E-01	9.200E-01	9.388E-01	9.504E-01	9.584E-01	9.641E-01	9.684E-01	9.718E-01	9.746E-01	9.768E-01	9.787E-01
-1.39998	8.536E-01	8.974E-01	9.210E-01	9.358E-01	9.459E-01	9.533E-01	9.589E-01	9.633E-01	9.668E-01	9.698E-01	9.722E-01
-1.19998	8.132E-01	8.672E-01	8.970E-01	9.159E-01	9.289E-01	9.384E-01	9.457E-01	9.514E-01	9.561E-01	9.599E-01	9.631E-01
-0.99998	7.656E-01	8.304E-01	8.672E-01	8.909E-01	9.074E-01	9.195E-01	9.289E-01	9.363E-01	9.423E-01	9.473E-01	9.514E-01
-0.79998	6.960E-01	7.745E-01	8.207E-01	8.513E-01	8.729E-01	8.890E-01	9.016E-01	9.115E-01	9.197E-01	9.264E-01	9.321E-01
-0.59998	6.172E-01	7.075E-01	7.633E-01	8.012E-01	8.287E-01	8.495E-01	8.658E-01	8.789E-01	8.897E-01	8.987E-01	9.063E-01
-0.39998	5.272E-01	6.258E-01	6.904E-01	7.360E-01	7.698E-01	7.960E-01	8.168E-01	8.338E-01	8.479E-01	8.598E-01	8.700E-01
-0.19998	4.311E-01	5.320E-01	6.025E-01	6.545E-01	6.945E-01	7.262E-01	7.519E-01	7.732E-01	7.912E-01	8.065E-01	8.197E-01
0.00002	3.364E-01	4.320E-01	5.035E-01	5.590E-01	6.033E-01	6.396E-01	6.697E-01	6.953E-01	7.171E-01	7.360E-01	7.526E-01
0.20002	2.506E-01	3.341E-01	4.008E-01	4.554E-01	5.008E-01	5.393E-01	5.722E-01	6.008E-01	6.258E-01	6.478E-01	6.674E-01
0.40002	1.789E-01	2.464E-01	3.036E-01	3.527E-01	3.953E-01	4.327E-01	4.657E-01	4.951E-01	5.215E-01	5.452E-01	5.667E-01
0.60002	1.232E-01	1.741E-01	2.194E-01	2.600E-01	2.965E-01	3.297E-01	3.598E-01	3.874E-01	4.127E-01	4.359E-01	4.574E-01
0.80002	8.238E-02	1.187E-01	1.522E-01	1.833E-01	2.122E-01	2.391E-01	2.642E-01	2.877E-01	3.098E-01	3.306E-01	3.501E-01
1.00002	5.386E-02	7.866E-02	1.022E-01	1.246E-01	1.459E-01	1.661E-01	1.855E-01	2.039E-01	2.215E-01	2.384E-01	2.546E-01

5. Factors for the Correction of Z1 and Z2 Counting Rates to Medium Nuclei Only

The response of the Z1 and Z2 channels of the telescope to various heavy nuclei, including the Iron group is shown in the figures of APPENDIX F. In deriving the relative abundance of the iron group, measured by Z3 to the Medium group or to oxygen, it is necessary to correct the response of the Z1 and Z2 channels to exclude the iron response. Assuming identical spectra for all species in terms of energy/nucleon over the passbands Z1 and Z2, it is possible to derive factors for making such corrections. The procedure is similar to that described in Section 3. The passbands of Z1 and Z2 used in the calculation are given in Table 4.

TABLE 4

Channel	Medium Nuclei (MeV/nucleon)		Iron Group (MeV/nucleon)	
	lower	upper	lower	upper
Z1-Z2	.77	1.6	.225	.43
Z2	1.6	3.2	.43	3.8

(Since Z1 and Z2 are nested and share common upper thresholds of 3.2 MeV, the usual procedure is to first subtract the two in order to obtain differential channels and non-overlapping channels — all the factors and corrections apply to the data resulting from such a subtraction.)

In the following tabulation, the first column gives the values of the spectral exponent, gamma, and the remaining columns list the correction factors by which the Z1-Z2 or Z2 must be multiplied in order to obtain the response to non-iron group nuclei for various representative iron/oxygen abundances. Values of the gamma and of Fe/O can be obtained directly from the uncorrected count rate ratios using the empirical formulae of Section 7.

MEDIUM CORRECTION FACTORS

Z1

FE/O = GAMMA	0.00125	0.00250	0.00500	0.01000	0.02000	0.04000	0.08000	0.16000	0.32000	0.64000	1.28000
-6.00000	6.334E-01	4.635E-01	3.017E-01	1.776E-01	9.748E-02	5.124E-02	2.629E-02	1.332E-02	6.705E-03	3.364E-03	1.685E-03
-5.80000	6.888E-01	5.253E-01	3.562E-01	2.167E-01	1.215E-01	6.470E-02	3.343E-02	1.700E-02	8.572E-03	4.305E-03	2.157E-03
-5.60000	7.393E-01	5.864E-01	4.148E-01	2.617E-01	1.505E-01	8.140E-02	4.243E-02	2.167E-02	1.096E-02	5.508E-03	2.761E-03
-5.40000	7.842E-01	6.450E-01	4.760E-01	3.123E-01	1.850E-01	1.020E-01	5.372E-02	2.760E-02	1.399E-02	7.046E-03	3.535E-03
-5.20000	8.232E-01	6.995E-01	5.379E-01	3.679E-01	2.254E-01	1.270E-01	6.781E-02	3.510E-02	1.786E-02	9.011E-03	4.526E-03
-5.00000	8.565E-01	7.490E-01	5.987E-01	4.272E-01	2.716E-01	1.572E-01	8.528E-02	4.454E-02	2.278E-02	1.152E-02	5.793E-03
-4.80000	8.844E-01	7.927E-01	6.566E-01	4.888E-01	3.234E-01	1.929E-01	1.068E-01	5.639E-02	2.901E-02	1.472E-02	7.415E-03
-4.59999	9.075E-01	8.306E-01	7.103E-01	5.508E-01	3.800E-01	2.346E-01	1.329E-01	7.117E-02	3.690E-02	1.880E-02	9.487E-03
-4.39999	9.264E-01	8.628E-01	7.587E-01	6.112E-01	4.401E-01	2.822E-01	1.643E-01	8.947E-02	4.683E-02	2.398E-02	1.213E-02
-4.19999	9.416E-01	8.897E-01	8.013E-01	6.685E-01	5.021E-01	3.352E-01	2.013E-01	1.119E-01	5.929E-02	3.055E-02	1.551E-02
-3.99999	9.539E-01	9.119E-01	8.381E-01	7.213E-01	5.641E-01	3.928E-01	2.444E-01	1.392E-01	7.482E-02	3.886E-02	1.982E-02
-3.79999	9.637E-01	9.300E-01	8.691E-01	7.686E-01	6.241E-01	4.536E-01	2.933E-01	1.719E-01	9.402E-02	4.933E-02	2.529E-02
-3.59999	9.715E-01	9.446E-01	8.950E-01	8.100E-01	6.807E-01	5.159E-01	3.476E-01	2.104E-01	1.176E-01	6.245E-02	3.223E-02
-3.39999	9.777E-01	9.563E-01	9.163E-01	8.455E-01	7.324E-01	5.778E-01	4.063E-01	2.549E-01	1.461E-01	7.880E-02	4.101E-02
-3.19999	9.825E-01	9.657E-01	9.336E-01	8.755E-01	7.786E-01	6.374E-01	4.678E-01	3.053E-01	1.802E-01	9.899E-02	5.207E-02
-2.99999	9.864E-01	9.731E-01	9.476E-01	9.003E-01	8.188E-01	6.931E-01	5.304E-01	3.609E-01	2.202E-01	1.237E-01	6.593E-02
-2.79999	9.894E-01	9.789E-01	9.587E-01	9.207E-01	8.531E-01	7.438E-01	5.921E-01	4.205E-01	2.663E-01	1.536E-01	8.317E-02
-2.59999	9.917E-01	9.835E-01	9.676E-01	9.372E-01	8.819E-01	7.887E-01	6.511E-01	4.827E-01	3.181E-01	1.892E-01	1.045E-01
-2.39999	9.935E-01	9.871E-01	9.746E-01	9.505E-01	9.057E-01	8.276E-01	7.059E-01	5.455E-01	3.750E-01	2.308E-01	1.304E-01
-2.19999	9.950E-01	9.900E-01	9.802E-01	9.611E-01	9.251E-01	8.606E-01	7.554E-01	6.069E-01	4.357E-01	2.785E-01	1.618E-01
-1.99998	9.961E-01	9.922E-01	9.845E-01	9.695E-01	9.408E-01	8.883E-01	7.990E-01	6.652E-01	4.984E-01	3.319E-01	1.990E-01
-1.79998	9.970E-01	9.939E-01	9.879E-01	9.762E-01	9.534E-01	9.110E-01	8.365E-01	7.190E-01	5.613E-01	3.901E-01	2.423E-01
-1.59998	9.976E-01	9.953E-01	9.906E-01	9.814E-01	9.635E-01	9.295E-01	8.683E-01	7.672E-01	6.223E-01	4.517E-01	2.918E-01
-1.39998	9.982E-01	9.963E-01	9.927E-01	9.855E-01	9.714E-01	9.444E-01	8.947E-01	8.094E-01	6.798E-01	5.149E-01	3.467E-01
-1.19998	9.986E-01	9.972E-01	9.943E-01	9.887E-01	9.777E-01	9.563E-01	9.163E-01	8.455E-01	7.324E-01	5.778E-01	4.062E-01
-0.99998	9.989E-01	9.978E-01	9.956E-01	9.912E-01	9.825E-01	9.657E-01	9.336E-01	8.755E-01	7.786E-01	6.375E-01	4.679E-01
-0.79998	9.991E-01	9.983E-01	9.966E-01	9.932E-01	9.865E-01	9.733E-01	9.479E-01	9.010E-01	8.199E-01	6.948E-01	5.323E-01
-0.59998	9.993E-01	9.987E-01	9.973E-01	9.947E-01	9.895E-01	9.792E-01	9.592E-01	9.216E-01	8.545E-01	7.460E-01	5.949E-01
-0.39998	9.995E-01	9.990E-01	9.979E-01	9.959E-01	9.918E-01	9.838E-01	9.681E-01	9.381E-01	8.835E-01	7.913E-01	6.547E-01
-0.19998	9.996E-01	9.992E-01	9.984E-01	9.968E-01	9.937E-01	9.874E-01	9.751E-01	9.514E-01	9.074E-01	8.304E-01	7.100E-01
0.00002	9.997E-01	9.994E-01	9.988E-01	9.975E-01	9.951E-01	9.902E-01	9.806E-01	9.620E-01	9.268E-01	8.635E-01	7.598E-01
0.20002	9.998E-01	9.995E-01	9.990E-01	9.981E-01	9.962E-01	9.924E-01	9.849E-01	9.703E-01	9.424E-01	8.910E-01	8.035E-01
0.40002	9.998E-01	9.996E-01	9.993E-01	9.985E-01	9.971E-01	9.941E-01	9.883E-01	9.769E-01	9.548E-01	9.136E-01	8.409E-01
0.60002	9.999E-01	9.997E-01	9.994E-01	9.989E-01	9.977E-01	9.954E-01	9.909E-01	9.820E-01	9.647E-01	9.318E-01	8.724E-01
0.80002	9.999E-01	9.998E-01	9.996E-01	9.991E-01	9.982E-01	9.965E-01	9.930E-01	9.861E-01	9.725E-01	9.465E-01	8.984E-01
1.00002	9.999E-01	9.998E-01	9.997E-01	9.993E-01	9.986E-01	9.973E-01	9.946E-01	9.892E-01	9.786E-01	9.581E-01	9.196E-01

MEDIUM CORRECTION FACTORS

Z2

FE/O = GAMMA	0.00125	0.00250	0.00500	0.01000	0.02000	0.04000	0.08000	0.16000	0.32000	0.64000	1.28000
-6.00000	5.207E-01	3.520E-01	2.136E-01	1.196E-01	6.359E-02	3.284E-02	1.669E-02	8.417E-03	4.226E-03	2.118E-03	1.060E-03
-5.80000	5.844E-01	4.129E-01	2.601E-01	1.495E-01	8.080E-02	4.210E-02	2.150E-02	1.087E-02	5.464E-03	2.739E-03	1.372E-03
-5.60000	6.453E-01	4.763E-01	3.126E-01	1.853E-01	1.021E-01	5.379E-02	2.764E-02	1.401E-02	7.055E-03	3.540E-03	1.773E-03
-5.40000	7.015E-01	5.403E-01	3.701E-01	2.271E-01	1.281E-01	6.843E-02	3.543E-02	1.803E-02	9.099E-03	4.570E-03	2.290E-03
-5.20000	7.521E-01	6.028E-01	4.314E-01	2.750E-01	1.594E-01	8.662E-02	4.527E-02	2.316E-02	1.172E-02	5.892E-03	2.955E-03
-5.00000	7.965E-01	6.618E-01	4.945E-01	3.285E-01	1.965E-01	1.090E-01	5.762E-02	2.966E-02	1.506E-02	7.585E-03	3.807E-03
-4.80000	8.344E-01	7.159E-01	5.575E-01	3.865E-01	2.395E-01	1.361E-01	7.299E-02	3.788E-02	1.930E-02	9.746E-03	4.897E-03
-4.59999	8.663E-01	7.641E-01	6.183E-01	4.475E-01	2.882E-01	1.684E-01	9.193E-02	4.818E-02	2.469E-02	1.250E-02	6.288E-03
-4.39999	8.927E-01	8.061E-01	6.752E-01	5.097E-01	3.420E-01	2.063E-01	1.150E-01	6.101E-02	3.146E-02	1.598E-02	8.056E-03
-4.19999	9.142E-01	8.419E-01	7.270E-01	5.711E-01	3.996E-01	2.497E-01	1.427E-01	7.682E-02	3.994E-02	2.038E-02	1.029E-02
-3.99999	9.315E-01	8.719E-01	7.728E-01	6.298E-01	4.596E-01	2.984E-01	1.753E-01	9.609E-02	5.047E-02	2.589E-02	1.311E-02
-3.79999	9.455E-01	8.966E-01	8.125E-01	6.842E-01	5.200E-01	3.514E-01	2.131E-01	1.193E-01	6.342E-02	3.275E-02	1.665E-02
-3.59999	9.565E-01	9.167E-01	8.462E-01	7.334E-01	5.791E-01	4.075E-01	2.559E-01	1.467E-01	7.917E-02	4.122E-02	2.104E-02
-3.39999	9.653E-01	9.330E-01	8.744E-01	7.768E-01	6.350E-01	4.652E-01	3.031E-01	1.786E-01	9.808E-02	5.157E-02	2.647E-02
-3.19999	9.723E-01	9.460E-01	8.976E-01	8.142E-01	6.866E-01	5.227E-01	3.539E-01	2.150E-01	1.204E-01	6.407E-02	3.310E-02
-2.99999	9.777E-01	9.564E-01	9.165E-01	8.459E-01	7.329E-01	5.784E-01	4.069E-01	2.554E-01	1.464E-01	7.897E-02	4.111E-02
-2.79999	9.820E-01	9.647E-01	9.318E-01	8.723E-01	7.735E-01	6.307E-01	4.606E-01	2.992E-01	1.759E-01	9.644E-02	5.067E-02
-2.59999	9.854E-01	9.712E-01	9.441E-01	8.941E-01	8.085E-01	6.786E-01	5.135E-01	3.455E-01	2.088E-01	1.166E-01	6.190E-02
-2.39999	9.881E-01	9.764E-01	9.540E-01	9.120E-01	8.382E-01	7.214E-01	5.642E-01	3.930E-01	2.445E-01	1.393E-01	7.487E-02
-2.19999	9.902E-01	9.805E-01	9.618E-01	9.264E-01	8.629E-01	7.589E-01	6.115E-01	4.404E-01	2.824E-01	1.644E-01	8.956E-02
-1.99998	9.918E-01	9.838E-01	9.681E-01	9.381E-01	8.834E-01	7.911E-01	6.545E-01	4.864E-01	3.213E-01	1.914E-01	1.058E-01
-1.79998	9.931E-01	9.863E-01	9.730E-01	9.475E-01	9.002E-01	8.185E-01	6.927E-01	5.299E-01	3.604E-01	2.198E-01	1.235E-01
-1.59998	9.941E-01	9.883E-01	9.770E-01	9.550E-01	9.138E-01	8.413E-01	7.261E-01	5.699E-01	3.985E-01	2.489E-01	1.421E-01
-1.39998	9.949E-01	9.899E-01	9.801E-01	9.610E-01	9.248E-01	8.602E-01	7.547E-01	6.060E-01	4.347E-01	2.777E-01	1.613E-01
-1.19998	9.956E-01	9.912E-01	9.826E-01	9.657E-01	9.337E-01	8.757E-01	7.789E-01	6.378E-01	4.682E-01	3.057E-01	1.804E-01
-0.99998	9.960E-01	9.920E-01	9.840E-01	9.686E-01	9.391E-01	8.851E-01	7.939E-01	6.582E-01	4.906E-01	3.250E-01	1.940E-01
-0.79998	9.965E-01	9.930E-01	9.861E-01	9.725E-01	9.465E-01	8.985E-01	8.157E-01	6.888E-01	5.253E-01	3.562E-01	2.167E-01
-0.59998	9.968E-01	9.936E-01	9.873E-01	9.749E-01	9.511E-01	9.067E-01	8.293E-01	7.084E-01	5.484E-01	3.778E-01	2.329E-01
-0.39998	9.970E-01	9.941E-01	9.883E-01	9.768E-01	9.546E-01	9.132E-01	8.402E-01	7.245E-01	5.680E-01	3.966E-01	2.474E-01
-0.19998	9.972E-01	9.945E-01	9.890E-01	9.782E-01	9.574E-01	9.183E-01	8.490E-01	7.376E-01	5.842E-01	4.127E-01	2.600E-01
0.00002	9.974E-01	9.948E-01	9.896E-01	9.794E-01	9.596E-01	9.223E-01	8.558E-01	7.479E-01	5.974E-01	4.259E-01	2.706E-01
0.20002	9.975E-01	9.950E-01	9.900E-01	9.802E-01	9.612E-01	9.253E-01	8.611E-01	7.560E-01	6.077E-01	4.365E-01	2.792E-01
0.40002	9.976E-01	9.951E-01	9.903E-01	9.809E-01	9.624E-01	9.276E-01	8.650E-01	7.621E-01	6.156E-01	4.447E-01	2.859E-01
0.60002	9.976E-01	9.953E-01	9.906E-01	9.813E-01	9.633E-01	9.292E-01	8.678E-01	7.665E-01	6.213E-01	4.507E-01	2.909E-01
0.80002	9.977E-01	9.953E-01	9.907E-01	9.816E-01	9.639E-01	9.303E-01	8.697E-01	7.694E-01	6.252E-01	4.547E-01	2.943E-01
1.00002	9.977E-01	9.954E-01	9.908E-01	9.818E-01	9.642E-01	9.309E-01	8.707E-01	7.710E-01	6.274E-01	4.571E-01	2.962E-01

6. Tabulation of Channel Passband Edges for Nuclear Species from Protons through Iron

The following table has been calculated with the program PAMELA (see APPENDIX C and the JHU/APL preprint describing PAMELA) for the IMP-7 CPME instrument as flown. There is no set of laboratory calibration data which matches these passbands in all respects because the instrument was slightly modified between the last calibration and the flight. The proton and alpha particle passbands agree with the laboratory calibrations where it has been possible to compare them. APPENDIX D gives a summary of the laboratory calibration results. The heavy ion thresholds are calculated with the best available range-energy data (see the preprint describing PAMELA for further elaboration). Each channel of the telescope is listed at the extreme left. The upper entry is the lower threshold and the lower entry is the upper threshold in MeV/nucleon. Where the upper and lower thresholds are identical and equal to 100., that is a fill number and signifies no response in that channel for the species in question.

EXPLORER 47 RATIO PROGRAM

PASSBAND DATA

	PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
P1	0.287 0.500	0.104 0.168	0.071 0.113	0.061 0.096	0.054 0.085	0.055 0.085	0.051 0.078	0.046 0.069	0.039 0.060	0.038 0.056	0.037 0.049	0.033 0.044	0.031 0.041	0.030 0.038	0.029 0.035	0.025 0.029
P2	0.500 0.966	0.170 0.290	0.113 0.190	0.096 0.163	0.085 0.141	0.085 0.139	0.078 0.124	0.069 0.111	0.060 0.094	0.056 0.093	0.049 0.078	0.044 0.069	0.041 0.062	0.038 0.057	0.035 0.052	0.029 0.039
P3	0.966 1.850	0.295 1.740	0.190 1.950	0.163 2.250	0.141 2.550	0.139 3.000	0.124 3.150	0.111 3.400	0.094 3.400	0.093 3.550	0.078 3.650	0.069 3.800	0.062 3.800	0.057 3.800	0.052 3.800	0.039 3.800
P4	1.850 4.500	1.740 2.150	1.950 2.150	2.250 2.450	2.550 2.750	3.000 3.100	3.150 3.400	3.400 3.550	3.400 3.400	3.550 3.750	3.650 3.800	3.800 4.000	3.800 4.000	3.800 4.000	3.800 4.000	3.800 4.000
P5	4.500 7.900	2.150 2.750	2.150 2.450	2.450 2.650	2.750 3.000	3.100 3.400	3.400 3.550	3.550 3.650	3.400 3.650	3.750 3.800	3.800 4.000	4.000 4.150	4.000 4.150	4.000 4.150	4.000 4.150	4.000 4.150
P6	7.900 13.700	2.850 58.000	2.450 165.000	2.650 202.000	3.000 238.000	3.400 278.000	3.550 304.000	3.650 334.000	3.650 345.000	3.800 385.000	4.000 435.000	4.150 475.000	4.150 510.000	4.150 540.000	4.150 580.000	4.150 685.000
P7	13.700 25.200	60.000 140.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000
P8	25.200 49.500	140.000 140.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000
P9	49.500 95.000	140.000 140.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000
10	95.000 138.000	140.000 140.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000
11	190.000 500.000	140.000 140.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000	100.000 100.000

EXPLORER 47 RATIO PROGRAM

PASSBAND DATA

	PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
A1	100.000	0.645	0.400	0.330	0.280	0.280	0.246	0.225	0.195	0.184	0.155	0.138	0.123	0.117	0.110	0.071
	100.000	1.170	0.700	0.560	0.470	0.450	0.400	0.370	0.315	0.305	0.265	0.229	0.205	0.192	0.181	0.118
A2	100.000	1.170	0.700	0.560	0.470	0.450	0.400	0.370	0.315	0.305	0.265	0.229	0.205	0.192	0.181	0.118
	100.000	1.740	1.950	2.250	2.550	3.000	3.150	3.400	3.400	3.550	3.650	3.800	3.800	3.800	3.800	3.800
A3	100.000	1.740	1.950	2.250	2.550	3.000	3.150	3.400	3.400	3.550	3.650	3.800	3.800	3.800	3.800	3.800
	100.000	4.300	3.150	3.150	3.400	3.800	3.800	4.000	3.800	4.000	4.300	4.300	4.300	4.300	4.300	4.300
A4	100.000	4.300	3.150	3.150	3.400	3.800	3.800	4.000	3.800	4.000	4.300	4.300	4.300	4.300	4.300	4.300
	100.000	11.500	13.300	16.300	18.500	21.500	23.500	25.500	26.500	28.500	32.000	33.500	35.000	36.000	37.000	42.500
A5	100.000	11.500	14.300	16.800	18.500	21.500	23.500	25.500	26.500	28.500	32.000	33.500	35.000	36.000	37.000	42.500
	100.000	26.000	69.000	151.000	238.000	278.000	304.000	334.000	345.000	385.000	435.000	475.000	505.000	520.000	540.000	685.000
A6	100.000	26.000	69.000	151.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
	100.000	52.000	142.000	202.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Z1	100.000	100.000	1.370	1.130	0.930	0.890	0.765	0.680	0.600	0.575	0.490	0.420	0.380	0.360	0.340	0.225
	100.000	100.000	1.950	2.250	1.950	1.850	1.590	1.380	1.280	1.130	0.965	0.855	0.660	0.620	0.580	0.450
Z2	100.000	100.000	100.000	100.000	1.950	1.850	1.590	1.380	1.280	1.130	0.965	0.855	0.660	0.620	0.580	0.450
	100.000	100.000	100.000	100.000	2.550	2.850	3.150	3.400	3.400	3.550	3.650	3.800	3.800	3.800	3.800	3.800
Z3	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	3.200
	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	7.000

7. Channel Count Rate Ratios as Functions of Spectral Exponent, Gamma, for Various Nuclear Species Abundance Distributions

Under the assumptions of an abundance distribution and spectral form, the expected response of each of the channels of the telescope can be calculated. The spectral form used here is a power law in energy/nucleon and various representative abundance distributions are taken, starting from that reported by Teegarden, et al., 1972, for the September 1971 solar particle event. In the tables contained here, the distribution of elements between Lithium and the Iron group is held constant and the alpha to oxygen and Fe/oxygen ratios are varied over reasonable ranges. Some channel ratios are predominately sensitive to the spectral slope and others to the abundance ratios. The best procedure for approaching the problem of determining both the spectral slope and the relative abundances is to establish a good approximation for the spectral slope from a ratio which is relatively insensitive to the abundance ratio, (P_1/P_2 , P_4/P_5 , etc.) and then use that value of gamma along with a ratio such as P_4/A_3 which is sensitive to the abundance ratio to determine the abundance ratio. Table 5 gives some approximate expressions derived from the data in the following tabulations which can be used to obtain spectral exponents and abundance ratios.

TABLE 5a

FUNCTIONAL FORM

$$\gamma = C_1 (\log R + C_2)$$

R	C ₁	C ₂	Refers to	Restrictions
P1/P2	-3.8215	.3387	.3 ≤ E _p ≤ .97	P1/P2 < 3
P2/P3	-3.797	.3216	.5 ≤ E _p ≤ 1.85	P2/P3 < 3
P4/P5	-3.245	.1087	1.85 ≤ E _p ≤ 7.9	P4/P5 < 10
P5/P7	-1.884	-.546	4.5 ≤ E _p ≤ 25.	2 > P5/P7 > 1000
P7/P8	-3.720	.2955	13.7 ≤ E _p ≤ 49.5	.9 < P7/P8
P8/P9	-3.448	.2724	25.2 ≤ E _p ≤ 95.	none
P9/P10	-4.393	-.0492	49.5 ≤ E _p ≤ 138.	none
A3/A4	-2.419	.523	1.74 ≤ E _α ≤ 11.5	.15 < A4/A4
A4/A5	-2.25	-.2756	4.3 ≤ E _α ≤ 26.	.1 < A4/A5
A5/A6	-2.89	.268	11.5 ≤ E _α ≤ 52.	1.8 < A5/A6
(Z1-Z2)/Z2	-3.148	.4282	.77 ≤ E _m ≤ 3.2	none

TABLE 5b

Formula	Refers to	Restrictions
$\frac{P}{\alpha} = \frac{P4/A3 + 0.0232 \gamma}{1 + 0.0448 \gamma}$	1.74 to 4.3 MeV/nuc	none
$\frac{P}{\alpha} = \left[0.3239\gamma + 1.675 \right] \left(\frac{P5}{A4} \right) \left(1.12 + 0.04176(\gamma + 1.5)^2 \right)$	4.3 to 11.5 MeV/nuc	-4.5 ≤ γ ≤ 1.
$\frac{P}{\alpha} = 1.68 \frac{P8}{A6} \exp \left\{ \frac{\gamma + .2434}{1.5526} \right\}$	25.2 to 52. MeV/nuc	-6 ≤ γ ≤ -1.
$\frac{\alpha}{M} = \frac{A3}{Z2} \left[\frac{37.5}{\exp \left\{ \frac{\gamma + 23.717}{5.8152} \right\} - 21} \right]$	1.6 to 4.3 MeV/nuc	-5.5 ≤ γ ≤ 1.

NORMAL ABUNDANCES AFTER TEEGARDEN, ET. AL. (1972)

	PROTONS 840.000	ALPHAS 60.000	LITHIUM 0.0	BERYL. 0.0	BORON 0.0	CARBON 0.490	NITRO. 0.116	OXYGEN 1.000	FLUOR. 0.0	NEON 0.127	MAGNES. 0.182	SILICON 0.107	SULFUR 0.025	ARGON 0.0	CALCIUM 0.0	IRON 0.028
	GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11					
-6.000E 00	4.758E 00	6.385E 00	1.442E 04	3.012E 01	3.890E 00	9.903E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01						
-5.800E 00	4.742E 00	6.136E 00	7.326E 03	2.816E 01	3.738E 00	7.400E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01						
-5.600E 00	4.721E 00	5.896E 00	3.775E 03	2.620E 01	3.598E 00	5.552E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01						
-5.400E 00	4.691E 00	5.662E 00	1.978E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01						
-5.200E 00	4.648E 00	5.434E 00	1.056E 03	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01						
-5.000E 00	4.586E 00	5.207E 00	5.767E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01						
-4.800E 00	4.501E 00	4.980E 00	3.229E 02	1.858E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01						
-4.600E 00	4.388E 00	4.749E 00	1.859E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00						
-4.400E 00	4.244E 00	4.511E 00	1.104E 02	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00						
-4.200E 00	4.069E 00	4.266E 00	6.776E 01	1.355E 01	2.779E 00	8.716E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00						
-4.000E 00	3.865E 00	4.013E 00	4.304E 01	1.207E 01	2.661E 00	6.898E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00						
-3.800E 00	3.637E 00	3.753E 00	2.829E 01	1.070E 01	2.538E 00	5.509E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00						
-3.600E 00	3.390E 00	3.488E 00	1.924E 01	9.449E 00	2.411E 00	4.441E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00						
-3.400E 00	3.133E 00	3.221E 00	1.351E 01	8.312E 00	2.279E 00	3.614E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00						
-3.200E 00	2.872E 00	2.958E 00	9.770E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00						
-3.000E 00	2.616E 00	2.701E 00	7.259E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00						
-2.800E 00	2.369E 00	2.454E 00	5.522E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00						
-2.600E 00	2.134E 00	2.219E 00	4.287E 00	4.839E 00	1.724E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00						
-2.400E 00	1.916E 00	1.998E 00	3.387E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00						
-2.200E 00	1.714E 00	1.793E 00	2.715E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00						
-2.000E 00	1.530E 00	1.604E 00	2.203E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00						
-1.800E 00	1.362E 00	1.431E 00	1.805E 00	2.749E 00	1.192E 00	9.381E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01						
-1.600E 00	1.211E 00	1.274E 00	1.491E 00	2.384E 00	1.071E 00	8.157E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01						
-1.400E 00	1.076E 00	1.132E 00	1.239E 00	2.068E 00	9.569E-01	7.120E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01						
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.489E-01	6.235E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01						
-1.000E 00	8.459E-01	8.890E-01	8.683E-01	1.558E 00	7.471E-01	5.472E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01						
-8.000E-01	7.492E-01	7.863E-01	7.303E-01	1.353E 00	6.515E-01	4.810E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01						
-6.000E-01	6.632E-01	6.948E-01	6.155E-01	1.177E 00	5.617E-01	4.232E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01						
-4.000E-01	5.867E-01	6.134E-01	5.196E-01	1.024E 00	4.775E-01	3.725E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01						
-2.000E-01	5.187E-01	5.411E-01	4.392E-01	8.922E-01	3.988E-01	3.283E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01						
1.824E-05	4.585E-01	4.769E-01	3.714E-01	7.782E-01	3.254E-01	2.901E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01						
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.576E-01	2.580E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01						
4.000E-01	3.577E-01	3.700E-01	2.659E-01	5.941E-01	1.963E-01	2.324E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02						
6.000E-01	3.157E-01	3.256E-01	2.250E-01	5.201E-01	1.426E-01	2.137E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02						
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.790E-02	2.025E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02						
1.000E 00	2.458E-01	2.519E-01	1.610E-01	3.999E-01	6.313E-02	1.992E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02						

7.1 "NORMAL ABUNDANCES"

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.186E 01	4.983E 02	8.740E 01	6.851E 02	5.999E 01	3.005E 01	3.015E 04	8.116E 02	2.970E 02
-5.800E 00	1.066E 01	3.117E 02	7.295E 01	5.631E 02	5.106E 01	2.610E 01	2.173E 04	7.094E 02	2.366E 02
-5.600E 00	9.591E 00	1.971E 02	6.088E 01	4.629E 02	4.346E 01	2.266E 01	1.577E 04	6.209E 02	1.892E 02
-5.400E 00	8.640E 00	1.261E 02	5.081E 01	3.806E 02	3.700E 01	1.968E 01	1.154E 04	5.438E 02	1.522E 02
-5.200E 00	7.797E 00	8.187E 01	4.239E 01	3.131E 02	3.152E 01	1.709E 01	8.519E 03	4.761E 02	1.234E 02
-5.000E 00	7.055E 00	5.398E 01	3.537E 01	2.575E 02	2.685E 01	1.484E 01	6.342E 03	4.161E 02	1.011E 02
-4.800E 00	6.405E 00	3.622E 01	2.950E 01	2.120E 02	2.288E 01	1.289E 01	4.764E 03	3.625E 02	8.377E 01
-4.600E 00	5.838E 00	2.477E 01	2.460E 01	1.745E 02	1.950E 01	1.119E 01	3.611E 03	3.144E 02	7.046E 01
-4.400E 00	5.344E 00	1.730E 01	2.051E 01	1.437E 02	1.663E 01	9.706E 00	2.762E 03	2.711E 02	6.025E 01
-4.200E 00	4.913E 00	1.234E 01	1.710E 01	1.184E 02	1.419E 01	8.419E 00	2.132E 03	2.321E 02	5.245E 01
-4.000E 00	4.535E 00	9.012E 00	1.425E 01	9.758E 01	1.211E 01	7.300E 00	1.660E 03	1.974E 02	4.652E 01
-3.800E 00	4.199E 00	6.730E 00	1.875E 01	8.047E 01	1.034E 01	6.325E 00	1.304E 03	1.667E 02	4.202E 01
-3.600E 00	3.896E 00	5.139E 00	9.886E 00	6.639E 01	8.834E 00	5.478E 00	1.032E 03	1.400E 02	3.861E 01
-3.400E 00	3.617E 00	4.008E 00	8.230E 00	5.481E 01	7.552E 00	4.741E 00	8.233E 02	1.170E 02	3.602E 01
-3.200E 00	3.357E 00	3.187E 00	6.849E 00	4.527E 01	6.461E 00	4.101E 00	6.616E 02	9.745E 01	3.404E 01
-3.000E 00	3.111E 00	2.578E 00	5.697E 00	3.741E 01	5.531E 00	3.544E 00	5.353E 02	8.104E 01	3.251E 01
-2.800E 00	2.878E 00	2.118E 00	4.736E 00	3.093E 01	4.739E 00	3.061E 00	4.357E 02	6.736E 01	3.131E 01
-2.600E 00	2.656E 00	1.763E 00	3.935E 00	2.559E 01	4.065E 00	2.642E 00	3.567E 02	5.601E 01	3.033E 01
-2.400E 00	2.445E 00	1.483E 00	3.268E 00	2.117E 01	3.491E 00	2.279E 00	2.936E 02	4.663E 01	2.952E 01
-2.200E 00	2.245E 00	1.258E 00	2.712E 00	1.752E 01	3.002E 00	1.964E 00	2.428E 02	3.887E 01	2.880E 01
-2.000E 00	2.057E 00	1.076E 00	2.248E 00	1.450E 01	2.587E 00	1.692E 00	2.017E 02	3.246E 01	2.814E 01
-1.800E 00	1.880E 00	9.242E-01	1.863E 00	1.200E 01	2.235E 00	1.457E 00	1.682E 02	2.715E 01	2.752E 01
-1.600E 00	1.716E 00	7.976E-01	1.542E 00	9.910E 00	1.937E 00	1.254E 00	1.408E 02	2.275E 01	2.691E 01
-1.400E 00	1.563E 00	6.905E-01	1.275E 00	8.167E 00	1.686E 00	1.079E 00	1.182E 02	1.909E 01	2.629E 01
-1.200E 00	1.422E 00	5.992E-01	1.053E 00	6.703E 00	1.477E 00	9.274E-01	9.958E 01	1.604E 01	2.566E 01
-1.000E 00	1.292E 00	5.208E-01	8.690E-01	5.465E 00	1.306E 00	7.972E-01	8.411E 01	1.349E 01	2.501E 01
-8.000E-01	1.172E 00	4.531E-01	7.159E-01	4.409E 00	1.169E 00	6.851E-01	7.121E 01	1.136E 01	2.434E 01
-6.000E-01	1.063E 00	3.945E-01	5.890E-01	3.501E 00	1.067E 00	5.886E-01	6.043E 01	9.572E 00	2.365E 01
-4.000E-01	9.622E-01	3.436E-01	4.837E-01	2.716E 00	9.988E-01	5.057E-01	5.138E 01	8.072E 00	2.293E 01
-2.000E-01	8.706E-01	2.993E-01	3.965E-01	2.041E 00	9.695E-01	4.344E-01	4.377E 01	6.811E 00	2.220E 01
1.824E-05	7.870E-01	2.608E-01	3.244E-01	1.471E 00	9.823E-01	3.731E-01	3.735E 01	5.750E 00	2.144E 01
2.000E-01	7.107E-01	2.272E-01	2.647E-01	1.008E 00	1.051E 00	3.205E-01	3.192E 01	4.855E 00	2.067E 01
4.000E-01	6.411E-01	1.979E-01	2.155E-01	6.550E-01	1.190E 00	2.753E-01	2.732E 01	4.101E 00	1.989E 01
6.000E-01	5.777E-01	1.724E-01	1.749E-01	4.037E-01	1.428E 00	2.366E-01	2.341E 01	3.464E 00	1.910E 01
8.000E-01	5.200E-01	1.502E-01	1.415E-01	2.375E-01	1.801E 00	2.033E-01	2.009E 01	2.927E 00	1.831E 01
1.000E 00	4.674E-01	1.309E-01	1.140E-01	1.346E-01	2.369E 00	1.748E-01	1.725E 01	2.473E 00	1.752E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.706E 02	3.168E 02	1.095E 01	3.176E 01	5.594E 03	3.389E 02	2.970E 02	1.511E 00
-5.800E 00	1.496E 02	2.599E 02	1.106E 01	2.864E 01	4.314E 03	2.976E 02	2.366E 02	1.858E 00
-5.600E 00	1.315E 02	2.139E 02	1.117E 01	2.595E 01	3.339E 03	2.614E 02	1.892E 02	2.269E 00
-5.400E 00	1.159E 02	1.769E 02	1.128E 01	2.364E 01	2.594E 03	2.295E 02	1.522E 02	2.750E 00
-5.200E 00	1.024E 02	1.470E 02	1.139E 01	2.164E 01	2.025E 03	2.015E 02	1.234E 02	3.305E 00
-5.000E 00	9.072E 01	1.229E 02	1.151E 01	1.993E 01	1.589E 03	1.768E 02	1.011E 02	3.939E 00
-4.800E 00	8.054E 01	1.036E 02	1.162E 01	1.845E 01	1.255E 03	1.552E 02	8.377E 01	4.653E 00
-4.600E 00	7.165E 01	8.808E 01	1.174E 01	1.717E 01	9.971E 02	1.362E 02	7.046E 01	5.450E 00
-4.400E 00	6.386E 01	7.565E 01	1.185E 01	1.606E 01	7.980E 02	1.194E 02	6.025E 01	6.326E 00
-4.200E 00	5.704E 01	6.569E 01	1.197E 01	1.510E 01	6.436E 02	1.048E 02	5.245E 01	7.281E 00
-4.000E 00	5.106E 01	5.771E 01	1.208E 01	1.427E 01	5.233E 02	9.188E 01	4.652E 01	8.308E 00
-3.800E 00	4.584E 01	5.129E 01	1.220E 01	1.354E 01	4.292E 02	8.056E 01	4.202E 01	9.404E 00
-3.600E 00	4.129E 01	4.612E 01	1.232E 01	1.289E 01	3.550E 02	7.062E 01	3.861E 01	1.056E 01
-3.400E 00	3.734E 01	4.192E 01	1.244E 01	1.232E 01	2.962E 02	6.191E 01	3.602E 01	1.178E 01
-3.200E 00	3.392E 01	3.850E 01	1.256E 01	1.180E 01	2.493E 02	5.426E 01	3.404E 01	1.305E 01
-3.000E 00	3.098E 01	3.569E 01	1.268E 01	1.133E 01	2.116E 02	4.756E 01	3.251E 01	1.436E 01
-2.800E 00	2.844E 01	3.336E 01	1.280E 01	1.090E 01	1.810E 02	4.170E 01	3.131E 01	1.572E 01
-2.600E 00	2.625E 01	3.141E 01	1.292E 01	1.051E 01	1.560E 02	3.656E 01	3.033E 01	1.712E 01
-2.400E 00	2.434E 01	2.978E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	2.952E 01	1.855E 01
-2.200E 00	2.268E 01	2.839E 01	1.316E 01	9.770E 00	1.181E 02	2.816E 01	2.880E 01	2.003E 01
-2.000E 00	2.122E 01	2.720E 01	1.328E 01	9.423E 00	1.037E 02	2.474E 01	2.814E 01	2.153E 01
-1.800E 00	1.993E 01	2.618E 01	1.340E 01	9.083E 00	9.144E 01	2.178E 01	2.752E 01	2.308E 01
-1.600E 00	1.878E 01	2.529E 01	1.353E 01	8.749E 00	8.094E 01	1.922E 01	2.691E 01	2.466E 01
-1.400E 00	1.774E 01	2.450E 01	1.365E 01	8.417E 00	7.184E 01	1.701E 01	2.629E 01	2.628E 01
-1.200E 00	1.680E 01	2.380E 01	1.377E 01	8.086E 00	6.385E 01	1.513E 01	2.566E 01	2.794E 01
-1.000E 00	1.595E 01	2.317E 01	1.390E 01	7.754E 00	5.671E 01	1.353E 01	2.501E 01	2.965E 01
-8.000E-01	1.516E 01	2.260E 01	1.402E 01	7.419E 00	5.021E 01	1.220E 01	2.434E 01	3.140E 01
-6.000E-01	1.443E 01	2.207E 01	1.415E 01	7.082E 00	4.414E 01	1.113E 01	2.365E 01	3.321E 01
-4.000E-01	1.376E 01	2.159E 01	1.427E 01	6.743E 00	3.835E 01	1.028E 01	2.293E 01	3.507E 01
-2.000E-01	1.313E 01	2.113E 01	1.440E 01	6.401E 00	3.275E 01	9.664E 00	2.220E 01	3.699E 01
1.824E-05	1.254E 01	2.069E 01	1.453E 01	6.056E 00	2.738E 01	9.269E 00	2.144E 01	3.898E 01
2.000E-01	1.199E 01	2.027E 01	1.466E 01	5.710E 00	2.235E 01	9.101E 00	2.067E 01	4.104E 01
4.000E-01	1.147E 01	1.987E 01	1.479E 01	5.364E 00	1.790E 01	9.168E 00	1.989E 01	4.317E 01
6.000E-01	1.097E 01	1.947E 01	1.492E 01	5.017E 00	1.420E 01	9.486E 00	1.910E 01	4.538E 01
8.000E-01	1.051E 01	1.907E 01	1.505E 01	4.671E 00	1.133E 01	1.008E 01	1.831E 01	4.767E 01
1.000E 00	1.006E 01	1.867E 01	1.518E 01	4.328E 00	9.228E 00	1.098E 01	1.752E 01	5.006E 01

IFON=0.001

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 0.001

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.997E 00	9.481E 00	7.080E 03	3.012E 01	3.890E 00	9.903E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.798E 00	8.736E 00	3.919E 03	2.816E 01	3.738E 00	7.400E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.608E 00	8.052E 00	2.193E 03	2.620E 01	3.598E 00	5.551E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.423E 00	7.425E 00	1.243E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.240E 00	6.851E 00	7.145E 02	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	5.053E 00	6.325E 00	4.177E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.859E 00	5.842E 00	2.488E 02	1.858E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.654E 00	5.397E 00	1.514E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.436E 00	4.985E 00	9.429E 01	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.202E 00	4.602E 00	6.022E 01	1.355E 01	2.779E 00	8.715E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.953E 00	4.244E 00	3.950E 01	1.207E 01	2.661E 00	6.897E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.693E 00	3.906E 00	2.663E 01	1.070E 01	2.538E 00	5.518E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.424E 00	3.586E 00	1.846E 01	9.449E 00	2.411E 00	4.440E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.153E 00	3.283E 00	1.314E 01	8.312E 00	2.279E 00	3.613E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.884E 00	2.995E 00	9.594E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.622E 00	2.723E 00	7.175E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.372E 00	2.467E 00	5.481E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.136E 00	2.226E 00	4.267E 00	4.839E 00	1.724E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.917E 00	2.003E 00	3.377E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.714E 00	1.796E 00	2.710E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.530E 00	1.606E 00	2.201E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.432E 00	1.804E 00	2.749E 00	1.192E 00	9.380E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.275E 00	1.490E 00	2.384E 00	1.071E 00	8.156E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.132E 00	1.239E 00	2.068E 00	9.570E-01	7.119E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.490E-01	6.234E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.891E-01	8.681E-01	1.558E 00	7.473E-01	5.471E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.864E-01	7.302E-01	1.353E 00	6.517E-01	4.809E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.949E-01	6.154E-01	1.177E 00	5.620E-01	4.230E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.134E-01	5.196E-01	1.024E 00	4.779E-01	3.723E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.411E-01	4.391E-01	8.922E-01	3.992E-01	3.279E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.770E-01	3.714E-01	7.782E-01	3.260E-01	2.895E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.585E-01	2.571E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.700E-01	2.658E-01	5.941E-01	1.975E-01	2.310E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.257E-01	2.249E-01	5.201E-01	1.440E-01	2.117E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.941E-02	1.994E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.520E-01	1.609E-01	3.999E-01	6.458E-02	1.947E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.2 Fe/O = 0.001

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.001
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.217E 01	1.814E 02	8.743E 01	6.849E 02	5.999E 01	2.866E 01	3.432E 05	1.996E 03	2.862E 02
-5.800E 00	1.096E 01	1.263E 02	7.298E 01	5.629E 02	5.106E 01	2.513E 01	2.688E 05	1.585E 03	2.316E 02
-5.600E 00	9.889E 00	8.856E 01	6.091E 01	4.627E 02	4.346E 01	2.202E 01	2.114E 05	1.263E 03	1.885E 02
-5.400E 00	8.935E 00	6.260E 01	5.083E 01	3.805E 02	3.700E 01	1.928E 01	1.669E 05	1.009E 03	1.544E 02
-5.200E 00	8.091E 00	4.464E 01	4.241E 01	3.129E 02	3.152E 01	1.686E 01	1.324E 05	8.090E 02	1.276E 02
-5.000E 00	7.344E 00	3.215E 01	3.538E 01	2.574E 02	2.685E 01	1.473E 01	1.054E 05	6.505E 02	1.064E 02
-4.800E 00	6.686E 00	2.341E 01	2.951E 01	2.119E 02	2.288E 01	1.286E 01	8.426E 04	5.245E 02	8.964E 01
-4.600E 00	6.105E 00	1.724E 01	2.461E 01	1.744E 02	1.950E 01	1.121E 01	6.762E 04	4.240E 02	7.650E 01
-4.400E 00	5.591E 00	1.287E 01	2.052E 01	1.436E 02	1.663E 01	9.767E 00	5.448E 04	3.435E 02	6.616E 01
-4.200E 00	5.136E 00	9.734E 00	1.711E 01	1.183E 02	1.419E 01	8.498E 00	4.406E 04	2.788E 02	5.804E 01
-4.000E 00	4.730E 00	7.470E 00	1.426E 01	9.754E 01	1.211E 01	7.386E 00	3.576E 04	2.266E 02	5.166E 01
-3.800E 00	4.364E 00	5.818E 00	1.188E 01	8.044E 01	1.034E 01	6.413E 00	2.913E 04	1.846E 02	4.665E 01
-3.600E 00	4.031E 00	4.597E 00	9.891E 00	6.637E 01	8.834E 00	5.562E 00	2.382E 04	1.507E 02	4.270E 01
-3.400E 00	3.725E 00	3.685E 00	8.234E 00	5.478E 01	7.552E 00	4.820E 00	1.954E 04	1.232E 02	3.958E 01
-3.200E 00	3.441E 00	2.993E 00	6.852E 00	4.525E 01	6.460E 00	4.172E 00	1.609E 04	1.011E 02	3.709E 01
-3.000E 00	3.175E 00	2.462E 00	5.700E 00	3.739E 01	5.531E 00	3.608E 00	1.329E 04	8.309E 01	3.510E 01
-2.800E 00	2.926E 00	2.048E 00	4.739E 00	3.092E 01	4.739E 00	3.118E 00	1.101E 04	6.851E 01	3.348E 01
-2.600E 00	2.691E 00	1.720E 00	3.937E 00	2.557E 01	4.065E 00	2.692E 00	9.145E 03	5.665E 01	3.214E 01
-2.400E 00	2.470E 00	1.456E 00	3.269E 00	2.116E 01	3.491E 00	2.322E 00	7.621E 03	4.698E 01	3.100E 01
-2.200E 00	2.264E 00	1.242E 00	2.713E 00	1.752E 01	3.002E 00	2.002E 00	6.368E 03	3.906E 01	3.001E 01
-2.000E 00	2.070E 00	1.065E 00	2.250E 00	1.450E 01	2.587E 00	1.725E 00	5.336E 03	3.256E 01	2.913E 01
-1.800E 00	1.890E 00	9.173E-01	1.864E 00	1.199E 01	2.234E 00	1.485E 00	4.482E 03	2.721E 01	2.831E 01
-1.600E 00	1.723E 00	7.929E-01	1.543E 00	9.907E 00	1.936E 00	1.278E 00	3.773E 03	2.278E 01	2.754E 01
-1.400E 00	1.569E 00	6.873E-01	1.276E 00	8.166E 00	1.685E 00	1.099E 00	3.184E 03	1.910E 01	2.680E 01
-1.200E 00	1.426E 00	5.969E-01	1.054E 00	6.703E 00	1.476E 00	9.452E-01	2.692E 03	1.605E 01	2.606E 01
-1.000E 00	1.295E 00	5.191E-01	8.698E-01	5.467E 00	1.304E 00	8.125E-01	2.281E 03	1.349E 01	2.533E 01
-8.000E-01	1.175E 00	4.518E-01	7.167E-01	4.413E 00	1.167E 00	6.982E-01	1.937E 03	1.136E 01	2.459E 01
-6.000E-01	1.065E 00	3.935E-01	5.897E-01	3.508E 00	1.063E 00	5.998E-01	1.647E 03	9.574E 00	2.384E 01
-4.000E-01	9.646E-01	3.428E-01	4.844E-01	2.726E 00	9.937E-01	5.153E-01	1.403E 03	8.073E 00	2.308E 01
-2.000E-01	8.727E-01	2.986E-01	3.972E-01	2.053E 00	9.611E-01	4.426E-01	1.196E 03	6.812E 00	2.231E 01
1.824E-05	7.889E-01	2.602E-01	3.251E-01	1.484E 00	9.711E-01	3.802E-01	1.022E 03	5.750E 00	2.153E 01
2.000E-01	7.124E-01	2.266E-01	2.654E-01	1.022E 00	1.034E 00	3.266E-01	8.742E 02	4.855E 00	2.074E 01
4.000E-01	6.428E-01	1.974E-01	2.162E-01	6.676E-01	1.164E 00	2.806E-01	7.487E 02	4.101E 00	1.994E 01
6.000E-01	5.793E-01	1.719E-01	1.755E-01	4.140E-01	1.387E 00	2.412E-01	6.419E 02	3.464E 00	1.914E 01
8.000E-01	5.215E-01	1.498E-01	1.421E-01	2.452E-01	1.736E 00	2.073E-01	5.508E 02	2.927E 00	1.834E 01
1.000E 00	4.689E-01	1.305E-01	1.146E-01	1.400E-01	2.265E 00	1.782E-01	4.732E 02	2.473E 00	1.754E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.001
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005
GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2							
-6.000E 00	3.328E 02	4.271E 02	1.095E 01	3.178E 01	5.594E 03	3.389E 02	2.862E 02	3.715E 00							
-5.800E 00	2.734E 02	3.431E 02	1.106E 01	2.865E 01	4.314E 03	2.976E 02	2.316E 02	4.205E 00							
-5.600E 00	2.252E 02	2.766E 02	1.117E 01	2.596E 01	3.338E 03	2.614E 02	1.885E 02	4.741E 00							
-5.400E 00	1.861E 02	2.239E 02	1.128E 01	2.365E 01	2.594E 03	2.295E 02	1.544E 02	5.324E 00							
-5.200E 00	1.544E 02	1.823E 02	1.139E 01	2.165E 01	2.025E 03	2.015E 02	1.276E 02	5.955E 00							
-5.000E 00	1.287E 02	1.495E 02	1.151E 01	1.994E 01	1.589E 03	1.768E 02	1.064E 02	6.636E 00							
-4.800E 00	1.079E 02	1.235E 02	1.162E 01	1.846E 01	1.255E 03	1.552E 02	8.964E 01	7.367E 00							
-4.600E 00	9.110E 01	1.030E 02	1.174E 01	1.718E 01	9.970E 02	1.362E 02	7.650E 01	8.149E 00							
-4.400E 00	7.743E 01	8.685E 01	1.185E 01	1.607E 01	7.979E 02	1.194E 02	6.616E 01	8.981E 00							
-4.200E 00	6.634E 01	7.404E 01	1.197E 01	1.511E 01	6.436E 02	1.048E 02	5.804E 01	9.864E 00							
-4.000E 00	5.733E 01	6.390E 01	1.209E 01	1.428E 01	5.233E 02	9.188E 01	5.166E 01	1.080E 01							
-3.800E 00	4.999E 01	5.586E 01	1.220E 01	1.354E 01	4.291E 02	8.056E 01	4.665E 01	1.178E 01							
-3.600E 00	4.400E 01	4.946E 01	1.232E 01	1.290E 01	3.550E 02	7.062E 01	4.270E 01	1.281E 01							
-3.400E 00	3.909E 01	4.435E 01	1.244E 01	1.232E 01	2.962E 02	6.191E 01	3.958E 01	1.390E 01							
-3.200E 00	3.504E 01	4.025E 01	1.256E 01	1.181E 01	2.493E 02	5.426E 01	3.709E 01	1.503E 01							
-3.000E 00	3.168E 01	3.694E 01	1.268E 01	1.134E 01	2.116E 02	4.756E 01	3.510E 01	1.620E 01							
-2.800E 00	2.888E 01	3.426E 01	1.280E 01	1.091E 01	1.810E 02	4.170E 01	3.348E 01	1.743E 01							
-2.600E 00	2.652E 01	3.206E 01	1.292E 01	1.051E 01	1.560E 02	3.656E 01	3.214E 01	1.870E 01							
-2.400E 00	2.451E 01	3.024E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	3.100E 01	2.002E 01							
-2.200E 00	2.279E 01	2.872E 01	1.316E 01	9.775E 00	1.181E 02	2.816E 01	3.001E 01	2.138E 01							
-2.000E 00	2.129E 01	2.745E 01	1.328E 01	9.428E 00	1.037E 02	2.474E 01	2.913E 01	2.279E 01							
-1.800E 00	1.997E 01	2.636E 01	1.340E 01	9.089E 00	9.145E 01	2.178E 01	2.831E 01	2.425E 01							
-1.600E 00	1.880E 01	2.542E 01	1.353E 01	8.756E 00	8.096E 01	1.922E 01	2.754E 01	2.576E 01							
-1.400E 00	1.776E 01	2.461E 01	1.365E 01	8.424E 00	7.188E 01	1.701E 01	2.680E 01	2.732E 01							
-1.200E 00	1.681E 01	2.389E 01	1.377E 01	8.093E 00	6.390E 01	1.513E 01	2.606E 01	2.893E 01							
-1.000E 00	1.595E 01	2.324E 01	1.390E 01	7.761E 00	5.678E 01	1.353E 01	2.533E 01	3.060E 01							
-8.000E-01	1.516E 01	2.266E 01	1.402E 01	7.427E 00	5.030E 01	1.220E 01	2.459E 01	3.233E 01							
-6.000E-01	1.444E 01	2.213E 01	1.415E 01	7.091E 00	4.426E 01	1.113E 01	2.384E 01	3.412E 01							
-4.000E-01	1.376E 01	2.164E 01	1.428E 01	6.753E 00	3.852E 01	1.028E 01	2.308E 01	3.597E 01							
-2.000E-01	1.313E 01	2.118E 01	1.440E 01	6.412E 00	3.297E 01	9.664E 00	2.231E 01	3.789E 01							
1.824E-05	1.254E 01	2.074E 01	1.453E 01	6.069E 00	2.763E 01	9.269E 00	2.153E 01	3.988E 01							
2.000E-01	1.199E 01	2.032E 01	1.466E 01	5.725E 00	2.264E 01	9.101E 00	2.074E 01	4.196E 01							
4.000E-01	1.147E 01	1.992E 01	1.479E 01	5.381E 00	1.819E 01	9.168E 00	1.994E 01	4.411E 01							
6.000E-01	1.097E 01	1.952E 01	1.492E 01	5.036E 00	1.448E 01	9.486E 00	1.914E 01	4.635E 01							
8.000E-01	1.051E 01	1.912E 01	1.505E 01	4.694E 00	1.158E 01	1.008E 01	1.834E 01	4.868E 01							
1.000E 00	1.006E 01	1.873E 01	1.519E 01	4.353E 00	9.434E 00	1.098E 01	1.754E 01	5.110E 01							

IRON = 0.01

PROTONS ALPHAS LITHIUM BERYL. BORON CARBON NITRO. OXYGEN FLUOR. NEON MAGNES. SILICON SULFUR ARGON CALCIUM IRON
 840.000 60.000 0.0 0.0 0.0 0.490 0.116 1.000 0.0 0.127 0.182 0.107 0.025 0.0 0.0 0.010

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.493E 00	7.919E 00	9.527E 03	3.012E 01	3.890E 00	9.903E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.380E 00	7.480E 00	5.055E 03	2.816E 01	3.738E 00	7.400E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.265E 00	7.055E 00	2.720E 03	2.620E 01	3.598E 00	5.551E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.147E 00	6.644E 00	1.488E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.021E 00	6.249E 00	8.284E 02	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.884E 00	5.868E 00	4.707E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.732E 00	5.503E 00	2.735E 02	1.858E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.561E 00	5.150E 00	1.629E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.369E 00	4.810E 00	9.966E 01	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.156E 00	4.481E 00	6.274E 01	1.355E 01	2.779E 00	8.715E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.923E 00	4.162E 00	4.068E 01	1.207E 01	2.661E 00	6.897E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.674E 00	3.853E 00	2.718E 01	1.070E 01	2.538E 00	5.508E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.413E 00	3.552E 00	1.872E 01	9.449E 00	2.411E 00	4.440E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.146E 00	3.262E 00	1.326E 01	8.312E 00	2.279E 00	3.613E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.880E 00	2.983E 00	9.653E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.620E 00	2.716E 00	7.203E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.371E 00	2.462E 00	5.495E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.135E 00	2.224E 00	4.274E 00	4.839E 00	1.724E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.916E 00	2.001E 00	3.381E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.714E 00	1.795E 00	2.712E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.530E 00	1.605E 00	2.201E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.432E 00	1.804E 00	2.749E 00	1.192E 00	9.380E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.274E 00	1.491E 00	2.384E 00	1.071E 00	8.156E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.132E 00	1.239E 00	2.068E 00	9.570E-01	7.119E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.490E-01	6.234E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.891E-01	8.682E-01	1.558E 00	7.472E-01	5.471E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.864E-01	7.302E-01	1.353E 00	6.516E-01	4.809E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.949E-01	6.155E-01	1.177E 00	5.619E-01	4.231E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.134E-01	5.196E-01	1.024E 00	4.778E-01	3.723E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.411E-01	4.391E-01	8.922E-01	3.991E-01	3.280E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.770E-01	3.714E-01	7.782E-01	3.258E-01	2.897E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.582E-01	2.574E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.700E-01	2.658E-01	5.941E-01	1.971E-01	2.315E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.257E-01	2.249E-01	5.201E-01	1.435E-01	2.123E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.890E-02	2.004E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.520E-01	1.609E-01	3.999E-01	6.409E-02	1.962E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.3 Fe/O = 0.01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.010
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.199E 01	2.871E 02	8.742E 01	6.850E 02	5.999E 01	2.943E 01	5.102E 04	1.318E 03	2.923E 02
-5.800E 00	1.080E 01	1.881E 02	7.297E 01	5.630E 02	5.106E 01	2.565E 01	3.820E 04	1.108E 03	2.343E 02
-5.600E 00	9.732E 00	1.247E 02	6.090E 01	4.628E 02	4.346E 01	2.235E 01	2.882E 04	9.296E 02	1.889E 02
-5.400E 00	8.787E 00	8.378E 01	5.082E 01	3.805E 02	3.700E 01	1.948E 01	2.190E 04	7.795E 02	1.533E 02
-5.200E 00	7.950E 00	5.705E 01	4.240E 01	3.130E 02	3.152E 01	1.697E 01	1.678E 04	6.528E 02	1.256E 02
-5.000E 00	7.212E 00	3.943E 01	3.538E 01	2.575E 02	2.685E 01	1.478E 01	1.295E 04	5.459E 02	1.039E 02
-4.800E 00	6.563E 00	2.768E 01	2.951E 01	2.119E 02	2.288E 01	1.287E 01	1.006E 04	4.556E 02	8.705E 01
-4.600E 00	5.993E 00	1.975E 01	2.461E 01	1.744E 02	1.950E 01	1.120E 01	7.878E 03	3.794E 02	7.392E 01
-4.400E 00	5.492E 00	1.434E 01	2.052E 01	1.437E 02	1.663E 01	9.742E 00	6.210E 03	3.151E 02	6.371E 01
-4.200E 00	5.050E 00	1.060E 01	1.710E 01	1.184E 02	1.419E 01	8.466E 00	4.927E 03	2.611E 02	5.579E 01
-4.000E 00	4.657E 00	7.984E 00	1.425E 01	9.756E 01	1.211E 01	7.352E 00	3.933E 03	2.159E 02	4.965E 01
-3.800E 00	4.304E 00	6.122E 00	1.187E 01	8.045E 01	1.034E 01	6.379E 00	3.159E 03	1.782E 02	4.488E 01
-3.600E 00	3.983E 00	4.778E 00	9.889E 00	6.638E 01	8.834E 00	5.530E 00	2.551E 03	1.469E 02	4.117E 01
-3.400E 00	3.687E 00	3.792E 00	8.233E 00	5.479E 01	7.552E 00	4.791E 00	2.071E 03	1.211E 02	3.827E 01
-3.200E 00	3.412E 00	3.058E 00	6.851E 00	4.525E 01	6.460E 00	4.146E 00	1.690E 03	9.982E 01	3.599E 01
-3.000E 00	3.153E 00	2.501E 00	5.699E 00	3.740E 01	5.531E 00	3.585E 00	1.385E 03	8.239E 01	3.418E 01
-2.800E 00	2.909E 00	2.071E 00	4.738E 00	3.092E 01	4.739E 00	3.098E 00	1.140E 03	6.812E 01	3.272E 01
-2.600E 00	2.679E 00	1.734E 00	3.937E 00	2.558E 01	4.065E 00	2.674E 00	9.426E 02	5.644E 01	3.151E 01
-2.400E 00	2.462E 00	1.465E 00	3.269E 00	2.117E 01	3.491E 00	2.307E 00	7.821E 02	4.686E 01	3.049E 01
-2.200E 00	2.257E 00	1.247E 00	2.713E 00	1.752E 01	3.002E 00	1.989E 00	6.512E 02	3.900E 01	2.960E 01
-2.000E 00	2.066E 00	1.068E 00	2.249E 00	1.450E 01	2.587E 00	1.714E 00	5.440E 02	3.253E 01	2.879E 01
-1.800E 00	1.887E 00	9.196E-01	1.864E 00	1.199E 01	2.234E 00	1.475E 00	4.558E 02	2.719E 01	2.804E 01
-1.600E 00	1.721E 00	7.945E-01	1.543E 00	9.908E 00	1.936E 00	1.270E 00	3.830E 02	2.277E 01	2.733E 01
-1.400E 00	1.567E 00	6.884E-01	1.276E 00	8.166E 00	1.685E 00	1.092E 00	3.226E 02	1.910E 01	2.663E 01
-1.200E 00	1.425E 00	5.977E-01	1.054E 00	6.703E 00	1.476E 00	9.392E-01	2.724E 02	1.604E 01	2.593E 01
-1.000E 00	1.294E 00	5.197E-01	8.695E-01	5.466E 00	1.304E 00	8.073E-01	2.306E 02	1.349E 01	2.522E 01
-8.000E-01	1.174E 00	4.523E-01	7.165E-01	4.412E 00	1.168E 00	6.937E-01	1.956E 02	1.136E 01	2.451E 01
-6.000E-01	1.064E 00	3.938E-01	5.895E-01	3.505E 00	1.064E 00	5.960E-01	1.662E 02	9.573E 00	2.378E 01
-4.000E-01	9.638E-01	3.431E-01	4.842E-01	2.722E 00	9.954E-01	5.120E-01	1.415E 02	8.073E 00	2.303E 01
-2.000E-01	8.720E-01	2.989E-01	3.970E-01	2.049E 00	9.636E-01	4.398E-01	1.206E 02	6.811E 00	2.227E 01
1.824E-05	7.882E-01	2.604E-01	3.248E-01	1.480E 00	9.743E-01	3.778E-01	1.030E 02	5.750E 00	2.150E 01
2.000E-01	7.118E-01	2.268E-01	2.652E-01	1.018E 00	1.039E 00	3.246E-01	8.808E 01	4.855E 00	2.072E 01
4.000E-01	6.422E-01	1.976E-01	2.159E-01	6.634E-01	1.173E 00	2.789E-01	7.541E 01	4.101E 00	1.993E 01
6.000E-01	5.788E-01	1.721E-01	1.753E-01	4.105E-01	1.400E 00	2.396E-01	6.464E 01	3.464E 00	1.913E 01
8.000E-01	5.210E-01	1.499E-01	1.419E-01	2.426E-01	1.758E 00	2.060E-01	5.547E 01	2.927E 00	1.833E 01
1.000E 00	4.684E-01	1.306E-01	1.144E-01	1.381E-01	2.300E 00	1.771E-01	4.765E 01	2.473E 00	1.754E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.010
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	2.400E 02	3.633E 02	1.095E 01	3.177E 01	5.594E 03	3.389E 02	2.923E 02	2.499E 00
-5.800E 00	2.059E 02	2.971E 02	1.106E 01	2.865E 01	4.314E 03	2.976E 02	2.343E 02	2.959E 00
-5.600E 00	1.766E 02	2.436E 02	1.117E 01	2.596E 01	3.339E 03	2.614E 02	1.889E 02	3.478E 00
-5.400E 00	1.515E 02	2.003E 02	1.128E 01	2.364E 01	2.594E 03	2.295E 02	1.533E 02	4.058E 00
-5.200E 00	1.300E 02	1.654E 02	1.139E 01	2.165E 01	2.025E 03	2.015E 02	1.256E 02	4.699E 00
-5.000E 00	1.118E 02	1.374E 02	1.151E 01	1.993E 01	1.589E 03	1.768E 02	1.039E 02	5.403E 00
-4.800E 00	9.628E 01	1.148E 02	1.162E 01	1.845E 01	1.255E 03	1.552E 02	8.705E 01	6.168E 00
-4.600E 00	8.318E 01	9.679E 01	1.174E 01	1.718E 01	9.970E 02	1.362E 02	7.392E 01	6.994E 00
-4.400E 00	7.213E 01	8.235E 01	1.185E 01	1.607E 01	7.980E 02	1.194E 02	6.371E 01	7.879E 00
-4.200E 00	6.283E 01	7.080E 01	1.197E 01	1.511E 01	6.436E 02	1.048E 02	5.579E 01	8.821E 00
-4.000E 00	5.503E 01	6.157E 01	1.208E 01	1.427E 01	5.233E 02	9.188E 01	4.965E 01	9.817E 00
-3.800E 00	4.851E 01	5.419E 01	1.220E 01	1.354E 01	4.292E 02	8.056E 01	4.488E 01	1.087E 01
-3.600E 00	4.305E 01	4.826E 01	1.232E 01	1.289E 01	3.550E 02	7.062E 01	4.117E 01	1.196E 01
-3.400E 00	3.848E 01	4.349E 01	1.244E 01	1.232E 01	2.962E 02	6.191E 01	3.827E 01	1.311E 01
-3.200E 00	3.466E 01	3.964E 01	1.256E 01	1.181E 01	2.493E 02	5.426E 01	3.599E 01	1.430E 01
-3.000E 00	3.145E 01	3.651E 01	1.268E 01	1.134E 01	2.116E 02	4.756E 01	3.418E 01	1.554E 01
-2.800E 00	2.873E 01	3.395E 01	1.280E 01	1.091E 01	1.810E 02	4.170E 01	3.272E 01	1.682E 01
-2.600E 00	2.643E 01	3.184E 01	1.292E 01	1.051E 01	1.560E 02	3.656E 01	3.151E 01	1.814E 01
-2.400E 00	2.445E 01	3.008E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	3.049E 01	1.950E 01
-2.200E 00	2.275E 01	2.861E 01	1.316E 01	9.773E 00	1.181E 02	2.816E 01	2.960E 01	2.091E 01
-2.000E 00	2.126E 01	2.737E 01	1.328E 01	9.426E 00	1.037E 02	2.474E 01	2.879E 01	2.236E 01
-1.800E 00	1.996E 01	2.630E 01	1.340E 01	9.087E 00	9.145E 01	2.178E 01	2.804E 01	2.385E 01
-1.600E 00	1.879E 01	2.538E 01	1.353E 01	8.753E 00	8.096E 01	1.922E 01	2.733E 01	2.538E 01
-1.400E 00	1.775E 01	2.457E 01	1.365E 01	8.422E 00	7.187E 01	1.701E 01	2.663E 01	2.696E 01
-1.200E 00	1.681E 01	2.386E 01	1.377E 01	8.091E 00	6.388E 01	1.513E 01	2.593E 01	2.859E 01
-1.000E 00	1.595E 01	2.322E 01	1.390E 01	7.759E 00	5.676E 01	1.353E 01	2.522E 01	3.028E 01
-8.000E-01	1.516E 01	2.264E 01	1.402E 01	7.425E 00	5.027E 01	1.220E 01	2.451E 01	3.201E 01
-6.000E-01	1.444E 01	2.211E 01	1.415E 01	7.088E 00	4.422E 01	1.113E 01	2.378E 01	3.381E 01
-4.000E-01	1.376E 01	2.162E 01	1.427E 01	6.749E 00	3.846E 01	1.028E 01	2.303E 01	3.566E 01
-2.000E-01	1.313E 01	2.116E 01	1.440E 01	6.408E 00	3.290E 01	9.664E 00	2.227E 01	3.759E 01
1.824E-05	1.254E 01	2.072E 01	1.453E 01	6.065E 00	2.755E 01	9.269E 00	2.150E 01	3.958E 01
2.000E-01	1.199E 01	2.031E 01	1.466E 01	5.720E 00	2.254E 01	9.101E 00	2.072E 01	4.165E 01
4.000E-01	1.147E 01	1.990E 01	1.479E 01	5.375E 00	1.809E 01	9.168E 00	1.993E 01	4.379E 01
6.000E-01	1.097E 01	1.950E 01	1.492E 01	5.030E 00	1.438E 01	9.486E 00	1.913E 01	4.602E 01
8.000E-01	1.051E 01	1.911E 01	1.505E 01	4.686E 00	1.149E 01	1.008E 01	1.833E 01	4.834E 01
1.000E 00	1.006E 01	1.871E 01	1.518E 01	4.345E 00	9.363E 00	1.098E 01	1.754E 01	5.075E 01

IRON = 0.02

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 0.020

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.049E 00	6.915E 00	1.225E 04	3.012E 01	3.890E 00	9.903E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.999E 00	6.614E 00	6.317E 03	2.816E 01	3.738E 00	7.400E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.943E 00	6.320E 00	3.306E 03	2.620E 01	3.598E 00	5.552E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.880E 00	6.031E 00	1.760E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.804E 00	5.748E 00	9.549E 02	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.712E 00	5.468E 00	5.296E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.600E 00	5.191E 00	3.009E 02	1.858E 01	3.115E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.463E 00	4.914E 00	1.757E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.299E 00	4.637E 00	1.056E 02	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.107E 00	4.358E 00	6.553E 01	1.355E 01	2.779E 00	8.716E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.891E 00	4.077E 00	4.199E 01	1.207E 01	2.661E 00	6.897E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.653E 00	3.796E 00	2.780E 01	1.070E 01	2.538E 00	5.508E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.400E 00	3.516E 00	1.901E 01	9.449E 00	2.411E 00	4.441E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.139E 00	3.239E 00	1.340E 01	8.312E 00	2.279E 00	3.614E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.876E 00	2.969E 00	9.718E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.618E 00	2.707E 00	7.234E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.370E 00	2.457E 00	5.510E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.135E 00	2.221E 00	4.281E 00	4.839E 00	1.724E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.916E 00	2.000E 00	3.384E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.714E 00	1.794E 00	2.714E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.530E 00	1.605E 00	2.202E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.432E 00	1.805E 00	2.749E 00	1.192E 00	9.381E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.274E 00	1.491E 00	2.384E 00	1.071E 00	8.156E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.132E 00	1.239E 00	2.068E 00	9.569E-01	7.120E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.489E-01	6.234E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.890E-01	8.682E-01	1.558E 00	7.472E-01	5.472E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.864E-01	7.302E-01	1.353E 00	6.515E-01	4.810E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.948E-01	6.155E-01	1.177E 00	5.618E-01	4.231E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.134E-01	5.196E-01	1.024E 00	4.776E-01	3.724E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.411E-01	4.391E-01	8.922E-01	3.989E-01	3.282E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.770E-01	3.714E-01	7.782E-01	3.256E-01	2.899E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.579E-01	2.578E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.700E-01	2.659E-01	5.941E-01	1.966E-01	2.320E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.257E-01	2.249E-01	5.201E-01	1.430E-01	2.131E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.835E-02	2.016E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.520E-01	1.609E-01	3.999E-01	6.356E-02	1.978E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.4 Fe/O = 0.02

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.020
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.190E 01	4.044E 02	8.741E 01	6.851E 02	5.999E 01	2.985E 01	3.479E 04	9.726E 02	2.955E 02
-5.800E 00	1.070E 01	2.568E 02	7.296E 01	5.630E 02	5.106E 01	2.595E 01	2.539E 04	8.401E 02	2.358E 02
-5.600E 00	9.639E 00	1.649E 02	6.089E 01	4.629E 02	4.346E 01	2.256E 01	1.867E 04	7.257E 02	1.891E 02
-5.400E 00	8.691E 00	1.073E 02	5.081E 01	3.806E 02	3.700E 01	1.961E 01	1.385E 04	6.265E 02	1.526E 02
-5.200E 00	7.852E 00	7.084E 01	4.240E 01	3.130E 02	3.152E 01	1.705E 01	1.035E 04	5.401E 02	1.242E 02
-5.000E 00	7.113E 00	4.751E 01	3.537E 01	2.575E 02	2.685E 01	1.482E 01	7.810E 03	4.646E 02	1.021E 02
-4.800E 00	6.465E 00	3.242E 01	2.950E 01	2.119E 02	2.288E 01	1.288E 01	5.941E 03	3.983E 02	8.500E 01
-4.600E 00	5.898E 00	2.254E 01	2.460E 01	1.745E 02	1.950E 01	1.119E 01	4.559E 03	3.401E 02	7.179E 01
-4.400E 00	5.403E 00	1.598E 01	2.051E 01	1.437E 02	1.663E 01	9.720E 00	3.528E 03	2.889E 02	6.161E 01
-4.200E 00	4.969E 00	1.157E 01	1.710E 01	1.184E 02	1.419E 01	8.438E 00	2.753E 03	2.441E 02	5.378E 01
-4.000E 00	4.586E 00	8.555E 00	1.425E 01	9.757E 01	1.211E 01	7.321E 00	2.165E 03	2.052E 02	4.779E 01
-3.800E 00	4.243E 00	6.460E 00	1.187E 01	8.046E 01	1.034E 01	6.347E 00	1.716E 03	1.716E 02	4.319E 01
-3.600E 00	3.933E 00	4.979E 00	9.888E 00	6.639E 01	8.834E 00	5.500E 00	1.370E 03	1.430E 02	3.967E 01
-3.400E 00	3.647E 00	3.912E 00	8.232E 00	5.480E 01	7.552E 00	4.762E 00	1.101E 03	1.188E 02	3.697E 01
-3.200E 00	3.381E 00	3.129E 00	6.850E 00	4.526E 01	6.460E 00	4.120E 00	8.901E 02	9.849E 01	3.487E 01
-3.000E 00	3.130E 00	2.544E 00	5.698E 00	3.740E 01	5.531E 00	3.562E 00	7.241E 02	8.164E 01	3.323E 01
-2.800E 00	2.892E 00	2.097E 00	4.737E 00	3.093E 01	4.739E 00	3.077E 00	5.923E 02	6.770E 01	3.192E 01
-2.600E 00	2.666E 00	1.750E 00	3.936E 00	2.558E 01	4.065E 00	2.656E 00	4.869E 02	5.620E 01	3.084E 01
-2.400E 00	2.452E 00	1.475E 00	3.268E 00	2.117E 01	3.491E 00	2.291E 00	4.022E 02	4.673E 01	2.994E 01
-2.200E 00	2.250E 00	1.253E 00	2.712E 00	1.752E 01	3.002E 00	1.975E 00	3.336E 02	3.893E 01	2.915E 01
-2.000E 00	2.061E 00	1.072E 00	2.249E 00	1.450E 01	2.587E 00	1.702E 00	2.778E 02	3.249E 01	2.843E 01
-1.800E 00	1.883E 00	9.222E-01	1.863E 00	1.200E 01	2.235E 00	1.465E 00	2.321E 02	2.717E 01	2.775E 01
-1.600E 00	1.718E 00	7.962E-01	1.542E 00	9.909E 00	1.936E 00	1.261E 00	1.946E 02	2.276E 01	2.709E 01
-1.400E 00	1.565E 00	6.896E-01	1.275E 00	8.167E 00	1.686E 00	1.085E 00	1.636E 02	1.909E 01	2.644E 01
-1.200E 00	1.423E 00	5.985E-01	1.054E 00	6.703E 00	1.477E 00	9.326E-01	1.380E 02	1.604E 01	2.578E 01
-1.000E 00	1.293E 00	5.203E-01	8.692E-01	5.465E 00	1.305E 00	8.016E-01	1.167E 02	1.349E 01	2.511E 01
-8.000E-01	1.173E 00	4.527E-01	7.162E-01	4.410E 00	1.169E 00	6.889E-01	9.884E 01	1.136E 01	2.441E 01
-6.000E-01	1.063E 00	3.942E-01	5.892E-01	3.503E 00	1.066E 00	5.919E-01	8.393E 01	9.573E 00	2.370E 01
-4.000E-01	9.629E-01	3.434E-01	4.839E-01	2.719E 00	9.973E-01	5.085E-01	7.140E 01	8.072E 00	2.298E 01
-2.000E-01	8.712E-01	2.991E-01	3.967E-01	2.044E 00	9.663E-01	4.368E-01	6.085E 01	6.811E 00	2.223E 01
1.824E-05	7.875E-01	2.606E-01	3.246E-01	1.475E 00	9.790E-01	3.752E-01	5.194E 01	5.750E 00	2.147E 01
2.000E-01	7.112E-01	2.270E-01	2.649E-01	1.012E 00	1.046E 00	3.223E-01	4.440E 01	4.855E 00	2.069E 01
4.000E-01	6.416E-01	1.978E-01	2.157E-01	6.587E-01	1.183E 00	2.769E-01	3.801E 01	4.101E 00	1.991E 01
6.000E-01	5.782E-01	1.723E-01	1.751E-01	4.067E-01	1.415E 00	2.379E-01	3.258E 01	3.464E 00	1.912E 01
8.000E-01	5.205E-01	1.501E-01	1.416E-01	2.397E-01	1.782E 00	2.045E-01	2.795E 01	2.927E 00	1.832E 01
1.000E 00	4.679E-01	1.308E-01	1.142E-01	1.362E-01	2.338E 00	1.758E-01	2.401E 01	2.473E 00	1.753E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.020
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	F4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.926E 02	3.314E 02	1.095E 01	3.177E 01	5.594E 03	3.389E 02	2.955E 02	1.833E 00
-5.800E 00	1.681E 02	2.720E 02	1.106E 01	2.864E 01	4.314E 03	2.976E 02	2.358E 02	2.226E 00
-5.600E 00	1.468E 02	2.239E 02	1.117E 01	2.595E 01	3.339E 03	2.614E 02	1.891E 02	2.684E 00
-5.400E 00	1.284E 02	1.850E 02	1.128E 01	2.364E 01	2.594E 03	2.295E 02	1.526E 02	3.209E 00
-5.200E 00	1.124E 02	1.536E 02	1.139E 01	2.165E 01	2.025E 03	2.015E 02	1.242E 02	3.807E 00
-5.000E 00	9.859E 01	1.282E 02	1.151E 01	1.993E 01	1.589E 03	1.768E 02	1.021E 02	4.478E 00
-4.800E 00	8.660E 01	1.079E 02	1.162E 01	1.845E 01	1.255E 03	1.552E 02	8.500E 01	5.224E 00
-4.600E 00	7.621E 01	9.147E 01	1.174E 01	1.717E 01	9.971E 02	1.362E 02	7.179E 01	6.043E 00
-4.400E 00	6.721E 01	7.832E 01	1.185E 01	1.607E 01	7.980E 02	1.194E 02	6.161E 01	6.934E 00
-4.200E 00	5.944E 01	6.777E 01	1.197E 01	1.511E 01	6.436E 02	1.048E 02	5.378E 01	7.893E 00
-4.000E 00	5.274E 01	5.931E 01	1.208E 01	1.427E 01	5.233E 02	9.188E 01	4.779E 01	8.917E 00
-3.800E 00	4.698E 01	5.251E 01	1.220E 01	1.354E 01	4.292E 02	8.056E 01	4.319E 01	1.000E 01
-3.600E 00	4.205E 01	4.703E 01	1.232E 01	1.289E 01	3.550E 02	7.062E 01	3.967E 01	1.114E 01
-3.400E 00	3.784E 01	4.260E 01	1.244E 01	1.232E 01	2.962E 02	6.191E 01	3.697E 01	1.234E 01
-3.200E 00	3.425E 01	3.900E 01	1.256E 01	1.180E 01	2.493E 02	5.426E 01	3.487E 01	1.358E 01
-3.000E 00	3.119E 01	3.605E 01	1.268E 01	1.134E 01	2.116E 02	4.756E 01	3.323E 01	1.486E 01
-2.800E 00	2.857E 01	3.362E 01	1.280E 01	1.091E 01	1.810E 02	4.170E 01	3.192E 01	1.619E 01
-2.600E 00	2.633E 01	3.160E 01	1.292E 01	1.051E 01	1.560E 02	3.656E 01	3.084E 01	1.756E 01
-2.400E 00	2.439E 01	2.991E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	2.994E 01	1.896E 01
-2.200E 00	2.271E 01	2.849E 01	1.316E 01	9.771E 00	1.181E 02	2.816E 01	2.915E 01	2.041E 01
-2.000E 00	2.124E 01	2.728E 01	1.328E 01	9.424E 00	1.037E 02	2.474E 01	2.843E 01	2.189E 01
-1.800E 00	1.994E 01	2.623E 01	1.340E 01	9.085E 00	9.144E 01	2.178E 01	2.775E 01	2.341E 01
-1.600E 00	1.878E 01	2.533E 01	1.353E 01	8.751E 00	8.095E 01	1.922E 01	2.709E 01	2.497E 01
-1.400E 00	1.775E 01	2.453E 01	1.365E 01	8.419E 00	7.185E 01	1.701E 01	2.644E 01	2.658E 01
-1.200E 00	1.681E 01	2.382E 01	1.377E 01	8.088E 00	6.386E 01	1.513E 01	2.578E 01	2.823E 01
-1.000E 00	1.595E 01	2.319E 01	1.390E 01	7.756E 00	5.673E 01	1.353E 01	2.511E 01	2.992E 01
-8.000E-01	1.516E 01	2.262E 01	1.402E 01	7.422E 00	5.023E 01	1.220E 01	2.441E 01	3.167E 01
-6.000E-01	1.443E 01	2.209E 01	1.415E 01	7.085E 00	4.417E 01	1.113E 01	2.370E 01	3.347E 01
-4.000E-01	1.376E 01	2.160E 01	1.427E 01	6.746E 00	3.840E 01	1.028E 01	2.298E 01	3.533E 01
-2.000E-01	1.313E 01	2.114E 01	1.440E 01	6.404E 00	3.282E 01	9.664E 00	2.223E 01	3.725E 01
1.824E-05	1.254E 01	2.071E 01	1.453E 01	6.060E 00	2.745E 01	9.269E 00	2.147E 01	3.924E 01
2.000E-01	1.199E 01	2.029E 01	1.466E 01	5.715E 00	2.243E 01	9.101E 00	2.069E 01	4.131E 01
4.000E-01	1.147E 01	1.988E 01	1.479E 01	5.369E 00	1.798E 01	9.168E 00	1.991E 01	4.344E 01
6.000E-01	1.097E 01	1.948E 01	1.492E 01	5.023E 00	1.428E 01	9.486E 00	1.912E 01	4.566E 01
8.000E-01	1.051E 01	1.909E 01	1.505E 01	4.678E 00	1.140E 01	1.008E 01	1.832E 01	4.797E 01
1.000E 00	1.006E 01	1.869E 01	1.518E 01	4.335E 00	9.287E 00	1.098E 01	1.753E 01	5.036E 01

IRON = 0.04

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.040
GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11					
-6.000E 00	4.400E 00	5.834E 00	1.768E 04	3.012E 01	3.890E 00	9.904E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01					
-5.800E 00	4.419E 00	5.624E 00	8.840E 03	2.816E 01	3.738E 00	7.401E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01					
-5.600E 00	4.435E 00	5.427E 00	4.478E 03	2.620E 01	3.598E 00	5.552E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01					
-5.400E 00	4.443E 00	5.240E 00	2.304E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01					
-5.200E 00	4.437E 00	5.061E 00	1.208E 03	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01					
-5.000E 00	4.413E 00	4.887E 00	6.473E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01					
-4.800E 00	4.363E 00	4.712E 00	3.558E 02	1.858E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01					
-4.600E 00	4.282E 00	4.532E 00	2.013E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00					
-4.400E 00	4.166E 00	4.342E 00	1.176E 02	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00					
-4.200E 00	4.014E 00	4.140E 00	7.111E 01	1.355E 01	2.778E 00	8.716E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00					
-4.000E 00	3.828E 00	3.922E 00	4.461E 01	1.207E 01	2.661E 00	6.898E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00					
-3.800E 00	3.612E 00	3.690E 00	2.903E 01	1.070E 01	2.538E 00	5.509E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00					
-3.600E 00	3.375E 00	3.446E 00	1.959E 01	9.449E 00	2.411E 00	4.441E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00					
-3.400E 00	3.124E 00	3.195E 00	1.367E 01	8.312E 00	2.279E 00	3.614E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00					
-3.200E 00	2.867E 00	2.942E 00	9.849E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00					
-3.000E 00	2.613E 00	2.691E 00	7.296E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00					
-2.800E 00	2.367E 00	2.448E 00	5.540E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00					
-2.600E 00	2.133E 00	2.216E 00	4.296E 00	4.839E 00	1.723E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00					
-2.400E 00	1.915E 00	1.996E 00	3.391E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00					
-2.200E 00	1.714E 00	1.792E 00	2.717E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00					
-2.000E 00	1.529E 00	1.604E 00	2.204E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00					
-1.800E 00	1.362E 00	1.431E 00	1.806E 00	2.749E 00	1.192E 00	9.382E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01					
-1.600E 00	1.211E 00	1.274E 00	1.491E 00	2.384E 00	1.071E 00	8.157E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01					
-1.400E 00	1.076E 00	1.132E 00	1.240E 00	2.068E 00	9.568E-01	7.120E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01					
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.488E-01	6.235E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01					
-1.000E 00	8.459E-01	8.889E-01	8.683E-01	1.558E 00	7.471E-01	5.473E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01					
-8.000E-01	7.492E-01	7.863E-01	7.303E-01	1.353E 00	6.514E-01	4.811E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01					
-6.000E-01	6.632E-01	6.948E-01	6.156E-01	1.177E 00	5.616E-01	4.233E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01					
-4.000E-01	5.867E-01	6.133E-01	5.197E-01	1.024E 00	4.774E-01	3.726E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01					
-2.000E-01	5.187E-01	5.410E-01	4.392E-01	8.922E-01	3.985E-01	3.285E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01					
1.824E-05	4.585E-01	4.769E-01	3.714E-01	7.782E-01	3.251E-01	2.904E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01					
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.572E-01	2.584E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01					
4.000E-01	3.577E-01	3.700E-01	2.659E-01	5.941E-01	1.958E-01	2.330E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02					
6.000E-01	3.157E-01	3.256E-01	2.250E-01	5.201E-01	1.420E-01	2.146E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02					
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.725E-02	2.038E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02					
1.000E 00	2.458E-01	2.519E-01	1.610E-01	3.999E-01	6.251E-02	2.011E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02					

7.5 Fe/O = 0.04

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.040
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.182E 01	6.392E 02	8.738E 01	6.853E 02	5.999E 01	3.025E 01	2.667E 04	6.577E 02	2.985E 02
-5.800E 00	1.062E 01	3.941E 02	7.293E 01	5.632E 02	5.106E 01	2.625E 01	1.898E 04	5.806E 02	2.373E 02
-5.600E 00	9.543E 00	2.453E 02	6.087E 01	4.630E 02	4.346E 01	2.278E 01	1.360E 04	5.141E 02	1.893E 02
-5.400E 00	8.587E 00	1.544E 02	5.080E 01	3.807E 02	3.700E 01	1.976E 01	9.818E 03	4.565E 02	1.518E 02
-5.200E 00	7.738E 00	9.842E 01	4.238E 01	3.131E 02	3.152E 01	1.714E 01	7.143E 03	4.059E 02	1.226E 02
-5.000E 00	6.990E 00	6.368E 01	3.536E 01	2.576E 02	2.685E 01	1.487E 01	5.242E 03	3.608E 02	9.989E 01
-4.800E 00	6.335E 00	4.191E 01	2.949E 01	2.120E 02	2.288E 01	1.289E 01	3.881E 03	3.201E 02	8.236E 01
-4.600E 00	5.765E 00	2.812E 01	2.460E 01	1.745E 02	1.950E 01	1.118E 01	2.900E 03	2.827E 02	6.889E 01
-4.400E 00	5.270E 00	1.927E 01	2.051E 01	1.437E 02	1.663E 01	9.690E 00	2.187E 03	2.483E 02	5.860E 01
-4.200E 00	4.842E 00	1.351E 01	1.710E 01	1.184E 02	1.419E 01	8.396E 00	1.666E 03	2.163E 02	5.079E 01
-4.000E 00	4.468E 00	9.697E 00	1.425E 01	9.760E 01	1.211E 01	7.273E 00	1.281E 03	1.868E 02	4.490E 01
-3.800E 00	4.139E 00	7.136E 00	1.187E 01	8.049E 01	1.034E 01	6.297E 00	9.943E 02	1.599E 02	4.049E 01
-3.600E 00	3.844E 00	5.380E 00	9.884E 00	6.641E 01	8.834E 00	5.449E 00	7.788E 02	1.357E 02	3.719E 01
-3.400E 00	3.575E 00	4.151E 00	8.229E 00	5.482E 01	7.552E 00	4.713E 00	6.153E 02	1.144E 02	3.474E 01
-3.200E 00	3.323E 00	3.273E 00	6.848E 00	4.528E 01	6.461E 00	4.074E 00	4.902E 02	9.593E 01	3.290E 01
-3.000E 00	3.085E 00	2.630E 00	5.696E 00	3.742E 01	5.531E 00	3.520E 00	3.936E 02	8.017E 01	3.152E 01
-2.800E 00	2.858E 00	2.150E 00	4.735E 00	3.094E 01	4.739E 00	3.039E 00	3.183E 02	6.687E 01	3.045E 01
-2.600E 00	2.641E 00	1.782E 00	3.934E 00	2.559E 01	4.065E 00	2.623E 00	2.591E 02	5.574E 01	2.961E 01
-2.400E 00	2.434E 00	1.495E 00	3.267E 00	2.118E 01	3.491E 00	2.262E 00	2.122E 02	4.647E 01	2.891E 01
-2.200E 00	2.237E 00	1.266E 00	2.711E 00	1.753E 01	3.003E 00	1.949E 00	1.748E 02	3.879E 01	2.829E 01
-2.000E 00	2.051E 00	1.080E 00	2.248E 00	1.451E 01	2.587E 00	1.679E 00	1.447E 02	3.241E 01	2.773E 01
-1.800E 00	1.876E 00	9.273E-01	1.862E 00	1.200E 01	2.235E 00	1.445E 00	1.203E 02	2.713E 01	2.718E 01
-1.600E 00	1.712E 00	7.997E-01	1.542E 00	9.911E 00	1.937E 00	1.244E 00	1.004E 02	2.273E 01	2.664E 01
-1.400E 00	1.560E 00	6.919E-01	1.275E 00	8.168E 00	1.686E 00	1.070E 00	8.416E 01	1.908E 01	2.607E 01
-1.200E 00	1.420E 00	6.002E-01	1.053E 00	6.703E 00	1.478E 00	9.199E-01	7.077E 01	1.603E 01	2.549E 01
-1.000E 00	1.290E 00	5.215E-01	8.686E-01	5.464E 00	1.306E 00	7.908E-01	5.969E 01	1.349E 01	2.488E 01
-8.000E-01	1.171E 00	4.537E-01	7.156E-01	4.407E 00	1.170E 00	6.795E-01	5.048E 01	1.136E 01	2.424E 01
-6.000E-01	1.061E 00	3.950E-01	5.887E-01	3.498E 00	1.068E 00	5.838E-01	4.280E 01	9.572E 00	2.357E 01
-4.000E-01	9.612E-01	3.440E-01	4.834E-01	2.712E 00	1.001E 00	5.015E-01	3.637E 01	8.072E 00	2.287E 01
-2.000E-01	8.697E-01	2.997E-01	3.962E-01	2.035E 00	9.718E-01	4.308E-01	3.096E 01	6.811E 00	2.215E 01
1.824E-05	7.861E-01	2.611E-01	3.241E-01	1.465E 00	9.872E-01	3.700E-01	2.641E 01	5.749E 00	2.140E 01
2.000E-01	7.099E-01	2.274E-01	2.644E-01	1.002E 00	1.058E 00	3.179E-01	2.257E 01	4.855E 00	2.064E 01
4.000E-01	6.404E-01	1.981E-01	2.152E-01	6.496E-01	1.202E 00	2.731E-01	1.931E 01	4.101E 00	1.987E 01
6.000E-01	5.770E-01	1.726E-01	1.746E-01	3.992E-01	1.446E 00	2.346E-01	1.654E 01	3.464E 00	1.909E 01
8.000E-01	5.193E-01	1.504E-01	1.412E-01	2.342E-01	1.830E 00	2.016E-01	1.419E 01	2.927E 00	1.830E 01
1.000E 00	4.668E-01	1.311E-01	1.137E-01	1.324E-01	2.415E 00	1.733E-01	1.219E 01	2.473E 00	1.751E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.040
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.495E 02	3.028E 02	1.095E 01	3.176E 01	5.595E 03	3.389E 02	2.985E 02	1.195E 00
-5.800E 00	1.314E 02	2.480E 02	1.106E 01	2.863E 01	4.314E 03	2.976E 02	2.373E 02	1.489E 00
-5.600E 00	1.159E 02	2.039E 02	1.117E 01	2.595E 01	3.339E 03	2.614E 02	1.893E 02	1.842E 00
-5.400E 00	1.028E 02	1.684E 02	1.128E 01	2.363E 01	2.594E 03	2.295E 02	1.518E 02	2.263E 00
-5.200E 00	9.147E 01	1.398E 02	1.139E 01	2.164E 01	2.025E 03	2.015E 02	1.226E 02	2.759E 00
-5.000E 00	8.176E 01	1.170E 02	1.151E 01	1.992E 01	1.589E 03	1.768E 02	9.989E 01	3.336E 00
-4.800E 00	7.336E 01	9.864E 01	1.162E 01	1.844E 01	1.255E 03	1.552E 02	8.236E 01	3.999E 00
-4.600E 00	6.603E 01	8.400E 01	1.174E 01	1.717E 01	9.971E 02	1.362E 02	6.889E 01	4.750E 00
-4.400E 00	5.959E 01	7.233E 01	1.185E 01	1.606E 01	7.980E 02	1.194E 02	5.860E 01	5.592E 00
-4.200E 00	5.388E 01	6.302E 01	1.197E 01	1.510E 01	6.436E 02	1.048E 02	5.079E 01	6.521E 00
-4.000E 00	4.879E 01	5.559E 01	1.208E 01	1.427E 01	5.234E 02	9.188E 01	4.490E 01	7.536E 00
-3.800E 00	4.425E 01	4.964E 01	1.220E 01	1.353E 01	4.292E 02	8.056E 01	4.049E 01	8.631E 00
-3.600E 00	4.021E 01	4.485E 01	1.232E 01	1.289E 01	3.550E 02	7.062E 01	3.719E 01	9.799E 00
-3.400E 00	3.662E 01	4.097E 01	1.244E 01	1.231E 01	2.962E 02	6.191E 01	3.474E 01	1.103E 01
-3.200E 00	3.346E 01	3.779E 01	1.256E 01	1.180E 01	2.493E 02	5.426E 01	3.290E 01	1.233E 01
-3.000E 00	3.068E 01	3.517E 01	1.268E 01	1.133E 01	2.116E 02	4.756E 01	3.152E 01	1.367E 01
-2.800E 00	2.825E 01	3.298E 01	1.280E 01	1.090E 01	1.810E 02	4.170E 01	3.045E 01	1.507E 01
-2.600E 00	2.613E 01	3.114E 01	1.292E 01	1.050E 01	1.560E 02	3.656E 01	2.961E 01	1.650E 01
-2.400E 00	2.427E 01	2.958E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	2.891E 01	1.797E 01
-2.200E 00	2.263E 01	2.825E 01	1.316E 01	9.767E 00	1.181E 02	2.816E 01	2.829E 01	1.948E 01
-2.000E 00	2.119E 01	2.710E 01	1.328E 01	9.420E 00	1.037E 02	2.474E 01	2.773E 01	2.102E 01
-1.800E 00	1.991E 01	2.610E 01	1.340E 01	9.081E 00	9.143E 01	2.178E 01	2.718E 01	2.259E 01
-1.600E 00	1.877E 01	2.523E 01	1.353E 01	8.747E 00	8.093E 01	1.922E 01	2.664E 01	2.420E 01
-1.400E 00	1.773E 01	2.445E 01	1.365E 01	8.415E 00	7.183E 01	1.701E 01	2.607E 01	2.584E 01
-1.200E 00	1.680E 01	2.376E 01	1.377E 01	8.083E 00	6.383E 01	1.513E 01	2.549E 01	2.752E 01
-1.000E 00	1.594E 01	2.314E 01	1.390E 01	7.750E 00	5.668E 01	1.353E 01	2.488E 01	2.924E 01
-8.000E-01	1.516E 01	2.257E 01	1.402E 01	7.415E 00	5.017E 01	1.220E 01	2.424E 01	3.101E 01
-6.000E-01	1.443E 01	2.205E 01	1.415E 01	7.078E 00	4.408E 01	1.113E 01	2.357E 01	3.282E 01
-4.000E-01	1.376E 01	2.156E 01	1.427E 01	6.738E 00	3.828E 01	1.028E 01	2.287E 01	3.469E 01
-2.000E-01	1.313E 01	2.111E 01	1.440E 01	6.395E 00	3.266E 01	9.664E 00	2.215E 01	3.661E 01
1.824E-05	1.254E 01	2.067E 01	1.453E 01	6.050E 00	2.726E 01	9.269E 00	2.140E 01	3.859E 01
2.000E-01	1.199E 01	2.025E 01	1.466E 01	5.704E 00	2.223E 01	9.101E 00	2.064E 01	4.064E 01
4.000E-01	1.147E 01	1.984E 01	1.479E 01	5.356E 00	1.777E 01	9.168E 00	1.987E 01	4.276E 01
6.000E-01	1.097E 01	1.944E 01	1.492E 01	5.008E 00	1.408E 01	9.486E 00	1.909E 01	4.496E 01
8.000E-01	1.051E 01	1.905E 01	1.505E 01	4.661E 00	1.123E 01	1.008E 01	1.830E 01	4.724E 01
1.000E 00	1.006E 01	1.865E 01	1.518E 01	4.317E 00	9.143E 00	1.098E 01	1.751E 01	4.961E 01

IRON = 0.08

	PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
	840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.080
	GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11					
-6.000E 00	3.615E 00	4.907E 00	2.856E 04	3.012E 01	3.889E 00	9.905E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01						
-5.800E 00	3.681E 00	4.723E 00	1.389E 04	2.816E 01	3.738E 00	7.401E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01						
-5.600E 00	3.752E 00	4.561E 00	6.822E 03	2.620E 01	3.598E 00	5.552E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01						
-5.400E 00	3.824E 00	4.419E 00	3.393E 03	2.425E 01	3.467E 00	4.184E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01						
-5.200E 00	3.890E 00	4.296E 00	1.714E 03	2.231E 01	3.345E 00	3.169E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01						
-5.000E 00	3.943E 00	4.189E 00	8.829E 02	2.042E 01	3.229E 00	2.414E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01						
-4.800E 00	3.974E 00	4.092E 00	4.655E 02	1.858E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01						
-4.600E 00	3.972E 00	4.000E 00	2.524E 02	1.682E 01	3.004E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00						
-4.400E 00	3.930E 00	3.903E 00	1.415E 02	1.513E 01	2.892E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00						
-4.200E 00	3.843E 00	3.792E 00	8.228E 01	1.355E 01	2.778E 00	8.717E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00						
-4.000E 00	3.710E 00	3.661E 00	4.984E 01	1.207E 01	2.660E 00	6.899E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00						
-3.800E 00	3.535E 00	3.503E 00	3.149E 01	1.070E 01	2.538E 00	5.510E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00						
-3.600E 00	3.326E 00	3.319E 00	2.074E 01	9.448E 00	2.410E 00	4.442E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00						
-3.400E 00	3.094E 00	3.112E 00	1.422E 01	8.312E 00	2.278E 00	3.614E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00						
-3.200E 00	2.850E 00	2.890E 00	1.011E 01	7.288E 00	2.142E 00	2.969E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00						
-3.000E 00	2.604E 00	2.660E 00	7.421E 00	6.372E 00	2.004E 00	2.461E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00						
-2.800E 00	2.362E 00	2.429E 00	5.600E 00	5.558E 00	1.863E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00						
-2.600E 00	2.131E 00	2.205E 00	4.325E 00	4.839E 00	1.723E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00						
-2.400E 00	1.914E 00	1.990E 00	3.406E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00						
-2.200E 00	1.713E 00	1.789E 00	2.725E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00						
-2.000E 00	1.529E 00	1.601E 00	2.208E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00						
-1.800E 00	1.362E 00	1.430E 00	1.808E 00	2.749E 00	1.191E 00	9.383E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01						
-1.600E 00	1.211E 00	1.273E 00	1.492E 00	2.384E 00	1.071E 00	8.158E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01						
-1.400E 00	1.076E 00	1.131E 00	1.240E 00	2.068E 00	9.567E-01	7.122E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01						
-1.200E 00	9.543E-01	1.003E 00	1.036E 00	1.794E 00	8.486E-01	6.237E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01						
-1.000E 00	8.459E-01	8.887E-01	8.686E-01	1.558E 00	7.468E-01	5.474E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01						
-8.000E-01	7.492E-01	7.861E-01	7.305E-01	1.353E 00	6.511E-01	4.813E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01						
-6.000E-01	6.632E-01	6.946E-01	6.157E-01	1.177E 00	5.612E-01	4.236E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01						
-4.000E-01	5.867E-01	6.132E-01	5.198E-01	1.024E 00	4.769E-01	3.731E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01						
-2.000E-01	5.187E-01	5.409E-01	4.393E-01	8.922E-01	3.978E-01	3.290E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01						
1.824E-05	4.585E-01	4.768E-01	3.715E-01	7.782E-01	3.241E-01	2.912E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01						
2.000E-01	4.050E-01	4.201E-01	3.143E-01	6.796E-01	2.559E-01	2.598E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01						
4.000E-01	3.577E-01	3.699E-01	2.659E-01	5.941E-01	1.941E-01	2.351E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02						
6.000E-01	3.157E-01	3.255E-01	2.250E-01	5.201E-01	1.400E-01	2.177E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02						
8.000E-01	2.786E-01	2.864E-01	1.904E-01	4.558E-01	9.513E-02	2.084E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02						
1.000E 00	2.458E-01	2.519E-01	1.610E-01	3.999E-01	6.051E-02	2.078E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02						

7.6 Fe/O = 0.08

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.080
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.176E 01	1.109E 03	8.732E 01	6.857E 02	5.999E 01	3.056E 01	2.261E 04	4.253E 02	3.008E 02
-5.800E 00	1.055E 01	6.687E 02	7.289E 01	5.636E 02	5.106E 01	2.649E 01	1.578E 04	3.783E 02	2.385E 02
-5.600E 00	9.466E 00	4.060E 02	6.083E 01	4.633E 02	4.346E 01	2.296E 01	1.107E 04	3.392E 02	1.895E 02
-5.400E 00	8.496E 00	2.485E 02	5.076E 01	3.809E 02	3.700E 01	1.989E 01	7.803E 03	3.063E 02	1.511E 02
-5.200E 00	7.633E 00	1.536E 02	4.236E 01	3.133E 02	3.152E 01	1.723E 01	5.538E 03	2.785E 02	1.211E 02
-5.000E 00	6.869E 00	9.602E 01	3.534E 01	2.578E 02	2.685E 01	1.491E 01	3.957E 03	2.544E 02	9.771E 01
-4.800E 00	6.197E 00	6.090E 01	2.948E 01	2.121E 02	2.288E 01	1.291E 01	2.850E 03	2.331E 02	7.961E 01
-4.600E 00	5.612E 00	3.927E 01	2.458E 01	1.746E 02	1.950E 01	1.116E 01	2.070E 03	2.135E 02	6.568E 01
-4.400E 00	5.106E 00	2.583E 01	2.050E 01	1.438E 02	1.663E 01	9.654E 00	1.517E 03	1.950E 02	5.507E 01
-4.200E 00	4.673E 00	1.737E 01	1.708E 01	1.185E 02	1.419E 01	8.345E 00	1.123E 03	1.768E 02	4.707E 01
-4.000E 00	4.301E 00	1.198E 01	1.424E 01	9.767E 01	1.211E 01	7.211E 00	8.390E 02	1.587E 02	4.112E 01
-3.800E 00	3.981E 00	8.488E 00	1.186E 01	8.054E 01	1.034E 01	6.229E 00	6.335E 02	1.408E 02	3.675E 01
-3.600E 00	3.702E 00	6.183E 00	9.878E 00	6.645E 01	8.834E 00	5.378E 00	4.834E 02	1.233E 02	3.359E 01
-3.400E 00	3.452E 00	4.630E 00	8.223E 00	5.486E 01	7.552E 00	4.642E 00	3.727E 02	1.066E 02	3.136E 01
-3.200E 00	3.221E 00	3.559E 00	6.843E 00	4.531E 01	6.461E 00	4.005E 00	2.903E 02	9.120E 01	2.980E 01
-3.000E 00	3.004E 00	2.803E 00	5.692E 00	3.744E 01	5.531E 00	3.454E 00	2.283E 02	7.738E 01	2.872E 01
-2.800E 00	2.795E 00	2.254E 00	4.732E 00	3.096E 01	4.740E 00	2.978E 00	1.813E 02	6.526E 01	2.798E 01
-2.600E 00	2.593E 00	1.846E 00	3.932E 00	2.561E 01	4.066E 00	2.566E 00	1.452E 02	5.483E 01	2.746E 01
-2.400E 00	2.398E 00	1.534E 00	3.265E 00	2.119E 01	3.492E 00	2.211E 00	1.172E 02	4.597E 01	2.707E 01
-2.200E 00	2.210E 00	1.291E 00	2.709E 00	1.754E 01	3.003E 00	1.904E 00	9.535E 01	3.851E 01	2.675E 01
-2.000E 00	2.031E 00	1.096E 00	2.246E 00	1.452E 01	2.588E 00	1.639E 00	7.810E 01	3.226E 01	2.644E 01
-1.800E 00	1.861E 00	9.377E-01	1.861E 00	1.200E 01	2.236E 00	1.410E 00	6.436E 01	2.704E 01	2.612E 01
-1.600E 00	1.701E 00	8.066E-01	1.540E 00	9.916E 00	1.938E 00	1.213E 00	5.334E 01	2.269E 01	2.577E 01
-1.400E 00	1.552E 00	6.967E-01	1.273E 00	8.170E 00	1.688E 00	1.043E 00	4.442E 01	1.905E 01	2.538E 01
-1.200E 00	1.413E 00	6.036E-01	1.052E 00	6.702E 00	1.480E 00	8.965E-01	3.716E 01	1.602E 01	2.493E 01
-1.000E 00	1.284E 00	5.240E-01	8.674E-01	5.461E 00	1.309E 00	7.704E-01	3.121E 01	1.348E 01	2.443E 01
-8.000E-01	1.166E 00	4.556E-01	7.145E-01	4.400E 00	1.174E 00	6.619E-01	2.630E 01	1.135E 01	2.388E 01
-6.000E-01	1.057E 00	3.965E-01	5.876E-01	3.487E 00	1.073E 00	5.686E-01	2.224E 01	9.569E 00	2.329E 01
-4.000E-01	9.578E-01	3.452E-01	4.824E-01	2.698E 00	1.008E 00	4.884E-01	1.885E 01	8.071E 00	2.265E 01
-2.000E-01	8.666E-01	3.007E-01	3.952E-01	2.018E 00	9.828E-01	4.195E-01	1.602E 01	6.810E 00	2.198E 01
1.824E-05	7.833E-01	2.620E-01	3.231E-01	1.445E 00	1.004E 00	3.603E-01	1.365E 01	5.749E 00	2.127E 01
2.000E-01	7.073E-01	2.282E-01	2.635E-01	9.828E-01	1.083E 00	3.094E-01	1.165E 01	4.855E 00	2.054E 01
4.000E-01	6.379E-01	1.989E-01	2.142E-01	6.322E-01	1.241E 00	2.658E-01	9.957E 00	4.101E 00	1.979E 01
6.000E-01	5.747E-01	1.733E-01	1.736E-01	3.853E-01	1.507E 00	2.283E-01	8.526E 00	3.464E 00	1.903E 01
8.000E-01	5.171E-01	1.510E-01	1.402E-01	2.241E-01	1.926E 00	1.961E-01	7.311E 00	2.927E 00	1.826E 01
1.000E 00	4.646E-01	1.317E-01	1.127E-01	1.256E-01	2.569E 00	1.685E-01	6.278E 00	2.473E 00	1.748E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.080
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.177E 02	2.820E 02	1.095E 01	3.174E 01	5.595E 03	3.389E 02	3.008E 02	7.049E-01
-5.800E 00	1.028E 02	2.296E 02	1.106E 01	2.862E 01	4.315E 03	2.976E 02	2.385E 02	8.955E-01
-5.600E 00	9.041E 01	1.876E 02	1.117E 01	2.593E 01	3.339E 03	2.614E 02	1.895E 02	1.132E 00
-5.400E 00	8.012E 01	1.540E 02	1.128E 01	2.362E 01	2.595E 03	2.295E 02	1.511E 02	1.424E 00
-5.200E 00	7.158E 01	1.272E 02	1.139E 01	2.163E 01	2.026E 03	2.015E 02	1.211E 02	1.780E 00
-5.000E 00	6.452E 01	1.058E 02	1.151E 01	1.991E 01	1.590E 03	1.768E 02	9.771E 01	2.209E 00
-4.800E 00	5.865E 01	8.883E 01	1.162E 01	1.843E 01	1.255E 03	1.552E 02	7.961E 01	2.722E 00
-4.600E 00	5.376E 01	7.543E 01	1.174E 01	1.716E 01	9.972E 02	1.362E 02	6.568E 01	3.327E 00
-4.400E 00	4.961E 01	6.491E 01	1.185E 01	1.605E 01	7.981E 02	1.194E 02	5.507E 01	4.031E 00
-4.200E 00	4.600E 01	5.668E 01	1.197E 01	1.509E 01	6.437E 02	1.048E 02	4.707E 01	4.839E 00
-4.000E 00	4.278E 01	5.027E 01	1.208E 01	1.426E 01	5.234E 02	9.188E 01	4.112E 01	5.754E 00
-3.800E 00	3.983E 01	4.527E 01	1.220E 01	1.352E 01	4.292E 02	8.056E 01	3.675E 01	6.773E 00
-3.600E 00	3.706E 01	4.134E 01	1.232E 01	1.288E 01	3.551E 02	7.062E 01	3.359E 01	7.894E 00
-3.400E 00	3.445E 01	3.821E 01	1.244E 01	1.231E 01	2.963E 02	6.191E 01	3.136E 01	9.109E 00
-3.200E 00	3.200E 01	3.567E 01	1.256E 01	1.179E 01	2.493E 02	5.426E 01	2.980E 01	1.041E 01
-3.000E 00	2.972E 01	3.356E 01	1.268E 01	1.132E 01	2.116E 02	4.756E 01	2.872E 01	1.179E 01
-2.800E 00	2.763E 01	3.179E 01	1.280E 01	1.089E 01	1.810E 02	4.170E 01	2.798E 01	1.323E 01
-2.600E 00	2.573E 01	3.026E 01	1.292E 01	1.049E 01	1.560E 02	3.656E 01	2.746E 01	1.473E 01
-2.400E 00	2.402E 01	2.894E 01	1.304E 01	1.012E 01	1.353E 02	3.207E 01	2.707E 01	1.627E 01
-2.200E 00	2.248E 01	2.778E 01	1.316E 01	9.759E 00	1.181E 02	2.816E 01	2.675E 01	1.785E 01
-2.000E 00	2.110E 01	2.675E 01	1.328E 01	9.411E 00	1.037E 02	2.474E 01	2.644E 01	1.947E 01
-1.800E 00	1.985E 01	2.584E 01	1.340E 01	9.072E 00	9.141E 01	2.178E 01	2.612E 01	2.111E 01
-1.600E 00	1.873E 01	2.503E 01	1.352E 01	8.737E 00	8.089E 01	1.922E 01	2.577E 01	2.278E 01
-1.400E 00	1.771E 01	2.429E 01	1.365E 01	8.405E 00	7.178E 01	1.701E 01	2.538E 01	2.448E 01
-1.200E 00	1.679E 01	2.363E 01	1.377E 01	8.072E 00	6.376E 01	1.513E 01	2.493E 01	2.621E 01
-1.000E 00	1.594E 01	2.303E 01	1.390E 01	7.739E 00	5.658E 01	1.353E 01	2.443E 01	2.797E 01
-8.000E-01	1.515E 01	2.248E 01	1.402E 01	7.403E 00	5.003E 01	1.220E 01	2.388E 01	2.976E 01
-6.000E-01	1.443E 01	2.197E 01	1.415E 01	7.065E 00	4.390E 01	1.113E 01	2.329E 01	3.159E 01
-4.000E-01	1.376E 01	2.149E 01	1.427E 01	6.723E 00	3.803E 01	1.028E 01	2.265E 01	3.346E 01
-2.000E-01	1.313E 01	2.103E 01	1.440E 01	6.378E 00	3.235E 01	9.664E 00	2.198E 01	3.538E 01
1.824E-05	1.254E 01	2.060E 01	1.453E 01	6.031E 00	2.690E 01	9.269E 00	2.127E 01	3.735E 01
2.000E-01	1.199E 01	2.018E 01	1.466E 01	5.682E 00	2.182E 01	9.101E 00	2.054E 01	3.938E 01
4.000E-01	1.146E 01	1.977E 01	1.479E 01	5.331E 00	1.736E 01	9.168E 00	1.979E 01	4.147E 01
6.000E-01	1.097E 01	1.937E 01	1.492E 01	4.980E 00	1.371E 01	9.486E 00	1.903E 01	4.363E 01
8.000E-01	1.051E 01	1.897E 01	1.505E 01	4.629E 00	1.090E 01	1.008E 01	1.826E 01	4.586E 01
1.000E 00	1.006E 01	1.856E 01	1.518E 01	4.279E 00	8.879E 00	1.098E 01	1.748E 01	4.817E 01

IRON = 0.16

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 0.160

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	2.858E 00	4.255E 00	5.031E 04	3.012E 01	3.889E 00	9.906E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	2.927E 00	4.059E 00	2.398E 04	2.816E 01	3.737E 00	7.403E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	3.010E 00	3.887E 00	1.151E 04	2.620E 01	3.597E 00	5.554E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	3.106E 00	3.740E 00	5.571E 03	2.425E 01	3.467E 00	4.185E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	3.212E 00	3.618E 00	2.727E 03	2.231E 01	3.344E 00	3.169E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	3.321E 00	3.521E 00	1.354E 03	2.042E 01	3.228E 00	2.414E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	3.422E 00	3.448E 00	6.849E 02	1.858E 01	3.115E 00	1.851E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	3.504E 00	3.396E 00	3.547E 02	1.682E 01	3.003E 00	1.429E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.552E 00	3.356E 00	1.892E 02	1.513E 01	2.892E 00	1.112E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.553E 00	3.320E 00	1.046E 02	1.355E 01	2.777E 00	8.720E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.500E 00	3.274E 00	6.031E 01	1.207E 01	2.659E 00	6.901E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.392E 00	3.204E 00	3.641E 01	1.070E 01	2.537E 00	5.511E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.234E 00	3.102E 00	2.306E 01	9.448E 00	2.410E 00	4.443E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.038E 00	2.963E 00	1.532E 01	8.312E 00	2.278E 00	3.615E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.817E 00	2.793E 00	1.063E 01	7.288E 00	2.142E 00	2.970E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.585E 00	2.599E 00	7.670E 00	6.372E 00	2.003E 00	2.461E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.352E 00	2.393E 00	5.720E 00	5.558E 00	1.863E 00	2.058E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.126E 00	2.183E 00	4.384E 00	4.839E 00	1.723E 00	1.735E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.911E 00	1.978E 00	3.435E 00	4.206E 00	1.584E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.712E 00	1.781E 00	2.739E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.529E 00	1.597E 00	2.215E 00	3.169E 00	1.317E 00	1.085E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.427E 00	1.812E 00	2.749E 00	1.191E 00	9.386E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.272E 00	1.495E 00	2.384E 00	1.071E 00	8.161E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.130E 00	1.241E 00	2.068E 00	9.563E-01	7.125E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.543E-01	1.003E 00	1.037E 00	1.794E 00	8.482E-01	6.240E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.882E-01	8.691E-01	1.558E 00	7.464E-01	5.478E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.858E-01	7.308E-01	1.353E 00	6.505E-01	4.817E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.943E-01	6.159E-01	1.177E 00	5.605E-01	4.241E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.130E-01	5.199E-01	1.024E 00	4.758E-01	3.739E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.407E-01	4.394E-01	8.922E-01	3.964E-01	3.302E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.767E-01	3.716E-01	7.782E-01	3.221E-01	2.930E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.199E-01	3.144E-01	6.796E-01	2.533E-01	2.625E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.698E-01	2.660E-01	5.941E-01	1.908E-01	2.391E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.254E-01	2.251E-01	5.201E-01	1.362E-01	2.238E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.863E-01	1.905E-01	4.558E-01	9.116E-02	2.175E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.517E-01	1.611E-01	3.999E-01	5.688E-02	2.210E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.7 Fe/O = 0.16

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.160
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.172E 01	2.048E 03	8.721E 01	6.866E 02	5.999E 01	3.076E 01	2.058E 04	2.790E 02	3.022E 02
-5.800E 00	1.051E 01	1.218E 03	7.280E 01	5.643E 02	5.106E 01	2.665E 01	1.418E 04	2.461E 02	2.393E 02
-5.600E 00	9.414E 00	7.275E 02	6.076E 01	4.639E 02	4.346E 01	2.309E 01	9.797E 03	2.196E 02	1.897E 02
-5.400E 00	8.433E 00	4.367E 02	5.070E 01	3.814E 02	3.701E 01	1.999E 01	6.796E 03	1.982E 02	1.506E 02
-5.200E 00	7.555E 00	2.639E 02	4.230E 01	3.137E 02	3.152E 01	1.729E 01	4.735E 03	1.811E 02	1.200E 02
-5.000E 00	6.772E 00	1.607E 02	3.529E 01	2.581E 02	2.685E 01	1.495E 01	3.315E 03	1.674E 02	9.600E 01
-4.800E 00	6.080E 00	9.886E 01	2.944E 01	2.124E 02	2.288E 01	1.292E 01	2.335E 03	1.563E 02	7.732E 01
-4.600E 00	5.472E 00	6.158E 01	2.455E 01	1.749E 02	1.950E 01	1.115E 01	1.655E 03	1.470E 02	6.287E 01
-4.400E 00	4.944E 00	3.895E 01	2.047E 01	1.440E 02	1.663E 01	9.622E 00	1.182E 03	1.388E 02	5.179E 01
-4.200E 00	4.491E 00	2.511E 01	1.706E 01	1.186E 02	1.419E 01	8.295E 00	8.508E 02	1.310E 02	4.339E 01
-4.000E 00	4.105E 00	1.655E 01	1.422E 01	9.780E 01	1.211E 01	7.147E 00	6.179E 02	1.229E 02	3.712E 01
-3.800E 00	3.780E 00	1.119E 01	1.185E 01	8.065E 01	1.034E 01	6.154E 00	4.531E 02	1.141E 02	3.255E 01
-3.600E 00	3.505E 00	7.788E 00	9.865E 00	6.654E 01	8.835E 00	5.295E 00	3.357E 02	1.044E 02	2.930E 01
-3.400E 00	3.269E 00	5.586E 00	8.212E 00	5.493E 01	7.553E 00	4.554E 00	2.514E 02	9.392E 01	2.708E 01
-3.200E 00	3.060E 00	4.132E 00	6.834E 00	4.537E 01	6.461E 00	3.916E 00	1.903E 02	8.308E 01	2.564E 01
-3.000E 00	2.868E 00	3.148E 00	5.684E 00	3.749E 01	5.532E 00	3.365E 00	1.457E 02	7.238E 01	2.478E 01
-2.800E 00	2.685E 00	2.463E 00	4.725E 00	3.100E 01	4.740E 00	2.891E 00	1.127E 02	6.229E 01	2.432E 01
-2.600E 00	2.506E 00	1.974E 00	3.926E 00	2.564E 01	4.066E 00	2.484E 00	8.821E 01	5.311E 01	2.414E 01
-2.400E 00	2.331E 00	1.614E 00	3.260E 00	2.122E 01	3.493E 00	2.134E 00	6.972E 01	4.499E 01	2.411E 01
-2.200E 00	2.160E 00	1.340E 00	2.704E 00	1.756E 01	3.004E 00	1.832E 00	5.565E 01	3.796E 01	2.416E 01
-2.000E 00	1.993E 00	1.128E 00	2.242E 00	1.453E 01	2.590E 00	1.574E 00	4.482E 01	3.196E 01	2.422E 01
-1.800E 00	1.832E 00	9.583E-01	1.857E 00	1.202E 01	2.238E 00	1.351E 00	3.641E 01	2.687E 01	2.424E 01
-1.600E 00	1.679E 00	8.204E-01	1.537E 00	9.925E 00	1.941E 00	1.161E 00	2.979E 01	2.260E 01	2.421E 01
-1.400E 00	1.535E 00	7.062E-01	1.271E 00	8.174E 00	1.691E 00	9.965E-01	2.455E 01	1.900E 01	2.409E 01
-1.200E 00	1.399E 00	6.103E-01	1.049E 00	6.702E 00	1.484E 00	8.556E-01	2.035E 01	1.599E 01	2.388E 01
-1.000E 00	1.273E 00	5.290E-01	8.651E-01	5.454E 00	1.315E 00	7.346E-01	1.697E 01	1.347E 01	2.359E 01
-8.000E-01	1.157E 00	4.594E-01	7.123E-01	4.387E 00	1.181E 00	6.307E-01	1.421E 01	1.135E 01	2.321E 01
-6.000E-01	1.050E 00	3.995E-01	5.855E-01	3.467E 00	1.084E 00	5.414E-01	1.195E 01	9.565E 00	2.276E 01
-4.000E-01	9.510E-01	3.477E-01	4.803E-01	2.670E 00	1.023E 00	4.648E-01	1.009E 01	8.068E 00	2.224E 01
-2.000E-01	8.605E-01	3.028E-01	3.932E-01	1.984E 00	1.005E 00	3.990E-01	8.550E 00	6.809E 00	2.166E 01
1.824E-05	7.777E-01	2.638E-01	3.211E-01	1.408E 00	1.037E 00	3.425E-01	7.264E 00	5.748E 00	2.102E 01
2.000E-01	7.021E-01	2.299E-01	2.615E-01	9.465E-01	1.134E 00	2.940E-01	6.187E 00	4.854E 00	2.035E 01
4.000E-01	6.331E-01	2.003E-01	2.123E-01	6.005E-01	1.319E 00	2.524E-01	5.282E 00	4.101E 00	1.965E 01
6.000E-01	5.701E-01	1.746E-01	1.717E-01	3.606E-01	1.628E 00	2.167E-01	4.518E 00	3.464E 00	1.892E 01
8.000E-01	5.126E-01	1.523E-01	1.383E-01	2.066E-01	2.119E 00	1.861E-01	3.871E 00	2.927E 00	1.817E 01
1.000E 00	4.603E-01	1.328E-01	1.109E-01	1.141E-01	2.876E 00	1.598E-01	3.322E 00	2.473E 00	1.742E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.160
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005
GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2							
-6.000E 00	9.761E 01	2.689E 02	1.095E 01	3.170E 01	5.596E 03	3.389E 02	3.022E 02	3.872E-01							
-5.800E 00	8.410E 01	2.177E 02	1.106E 01	2.858E 01	4.316E 03	2.976E 02	2.393E 02	4.983E-01							
-5.600E 00	7.296E 01	1.767E 02	1.117E 01	2.590E 01	3.340E 03	2.614E 02	1.897E 02	6.394E-01							
-5.400E 00	6.382E 01	1.439E 02	1.128E 01	2.359E 01	2.595E 03	2.295E 02	1.506E 02	8.174E-01							
-5.200E 00	5.639E 01	1.177E 02	1.139E 01	2.160E 01	2.026E 03	2.015E 02	1.200E 02	1.041E 00							
-5.000E 00	5.041E 01	9.694E 01	1.151E 01	1.989E 01	1.590E 03	1.768E 02	9.600E 01	1.319E 00							
-4.800E 00	4.566E 01	8.051E 01	1.162E 01	1.841E 01	1.255E 03	1.552E 02	7.732E 01	1.662E 00							
-4.600E 00	4.195E 01	6.760E 01	1.174E 01	1.713E 01	9.975E 02	1.362E 02	6.287E 01	2.081E 00							
-4.400E 00	3.908E 01	5.757E 01	1.185E 01	1.603E 01	7.983E 02	1.194E 02	5.179E 01	2.587E 00							
-4.200E 00	3.687E 01	4.987E 01	1.197E 01	1.507E 01	6.439E 02	1.048E 02	4.339E 01	3.193E 00							
-4.000E 00	3.512E 01	4.404E 01	1.208E 01	1.424E 01	5.236E 02	9.188E 01	3.712E 01	3.906E 00							
-3.800E 00	3.365E 01	3.969E 01	1.220E 01	1.351E 01	4.293E 02	8.056E 01	3.255E 01	4.735E 00							
-3.600E 00	3.228E 01	3.648E 01	1.232E 01	1.286E 01	3.552E 02	7.062E 01	2.930E 01	5.684E 00							
-3.400E 00	3.091E 01	3.410E 01	1.244E 01	1.229E 01	2.963E 02	6.191E 01	2.708E 01	6.753E 00							
-3.200E 00	2.949E 01	3.231E 01	1.256E 01	1.177E 01	2.494E 02	5.426E 01	2.564E 01	7.940E 00							
-3.000E 00	2.800E 01	3.089E 01	1.268E 01	1.131E 01	2.116E 02	4.756E 01	2.478E 01	9.237E 00							
-2.800E 00	2.649E 01	2.971E 01	1.280E 01	1.088E 01	1.810E 02	4.170E 01	2.432E 01	1.063E 01							
-2.600E 00	2.499E 01	2.868E 01	1.292E 01	1.048E 01	1.560E 02	3.656E 01	2.414E 01	1.212E 01							
-2.400E 00	2.354E 01	2.775E 01	1.304E 01	1.010E 01	1.353E 02	3.207E 01	2.411E 01	1.368E 01							
-2.200E 00	2.218E 01	2.689E 01	1.316E 01	9.742E 00	1.181E 02	2.816E 01	2.416E 01	1.529E 01							
-2.000E 00	2.091E 01	2.608E 01	1.328E 01	9.394E 00	1.036E 02	2.474E 01	2.422E 01	1.696E 01							
-1.800E 00	1.973E 01	2.533E 01	1.340E 01	9.054E 00	9.136E 01	2.178E 01	2.424E 01	1.866E 01							
-1.600E 00	1.866E 01	2.464E 01	1.352E 01	8.719E 00	8.082E 01	1.922E 01	2.421E 01	2.039E 01							
-1.400E 00	1.767E 01	2.399E 01	1.365E 01	8.385E 00	7.168E 01	1.701E 01	2.409E 01	2.215E 01							
-1.200E 00	1.676E 01	2.339E 01	1.377E 01	8.052E 00	6.362E 01	1.513E 01	2.388E 01	2.393E 01							
-1.000E 00	1.592E 01	2.282E 01	1.389E 01	7.716E 00	5.639E 01	1.353E 01	2.359E 01	2.572E 01							
-8.000E-01	1.514E 01	2.230E 01	1.402E 01	7.379E 00	4.976E 01	1.220E 01	2.321E 01	2.754E 01							
-6.000E-01	1.442E 01	2.180E 01	1.414E 01	7.038E 00	4.354E 01	1.113E 01	2.276E 01	2.939E 01							
-4.000E-01	1.375E 01	2.134E 01	1.427E 01	6.693E 00	3.756E 01	1.028E 01	2.224E 01	3.125E 01							
-2.000E-01	1.313E 01	2.089E 01	1.440E 01	6.345E 00	3.176E 01	9.664E 00	2.166E 01	3.316E 01							
1.824E-05	1.254E 01	2.046E 01	1.452E 01	5.993E 00	2.620E 01	9.269E 00	2.102E 01	3.509E 01							
2.000E-01	1.199E 01	2.004E 01	1.465E 01	5.639E 00	2.107E 01	9.101E 00	2.035E 01	3.707E 01							
4.000E-01	1.146E 01	1.963E 01	1.478E 01	5.282E 00	1.663E 01	9.168E 00	1.965E 01	3.910E 01							
6.000E-01	1.097E 01	1.922E 01	1.491E 01	4.924E 00	1.304E 01	9.486E 00	1.892E 01	4.118E 01							
8.000E-01	1.051E 01	1.881E 01	1.504E 01	4.565E 00	1.034E 01	1.008E 01	1.817E 01	4.332E 01							
1.000E 00	1.006E 01	1.840E 01	1.518E 01	4.207E 00	8.436E 00	1.098E 01	1.742E 01	4.552E 01							

IRON = 0.32

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 0.320

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	2.272E 00	3.858E 00	9.381E 04	3.012E 01	3.887E 00	9.910E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	2.312E 00	3.642E 00	4.417E 04	2.816E 01	3.736E 00	7.406E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	2.369E 00	3.447E 00	2.088E 04	2.620E 01	3.595E 00	5.556E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	2.445E 00	3.276E 00	9.927E 03	2.425E 01	3.465E 00	4.187E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	2.540E 00	3.129E 00	4.752E 03	2.231E 01	3.343E 00	3.171E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	2.654E 00	3.008E 00	2.296E 03	2.042E 01	3.226E 00	2.415E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	2.780E 00	2.915E 00	1.124E 03	1.858E 01	3.113E 00	1.852E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	2.910E 00	2.850E 00	5.593E 02	1.682E 01	3.002E 00	1.429E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.030E 00	2.813E 00	2.847E 02	1.513E 01	2.890E 00	1.112E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.121E 00	2.800E 00	1.493E 02	1.355E 01	2.776E 00	8.725E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.164E 00	2.799E 00	8.125E 01	1.207E 01	2.658E 00	6.905E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.148E 00	2.797E 00	4.625E 01	1.070E 01	2.536E 00	5.514E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.069E 00	2.777E 00	2.770E 01	9.448E 00	2.408E 00	4.445E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	2.933E 00	2.722E 00	1.751E 01	8.311E 00	2.277E 00	3.617E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.755E 00	2.625E 00	1.167E 01	7.287E 00	2.141E 00	2.971E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.549E 00	2.490E 00	8.169E 00	6.372E 00	2.002E 00	2.463E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.332E 00	2.325E 00	5.961E 00	5.558E 00	1.862E 00	2.059E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.115E 00	2.142E 00	4.501E 00	4.839E 00	1.722E 00	1.736E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.906E 00	1.954E 00	3.492E 00	4.206E 00	1.583E 00	1.474E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.709E 00	1.767E 00	2.768E 00	3.652E 00	1.448E 00	1.261E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.527E 00	1.589E 00	2.230E 00	3.169E 00	1.317E 00	1.085E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.361E 00	1.422E 00	1.820E 00	2.749E 00	1.190E 00	9.392E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.268E 00	1.499E 00	2.384E 00	1.070E 00	8.167E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.128E 00	1.244E 00	2.068E 00	9.556E-01	7.130E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.543E-01	1.001E 00	1.038E 00	1.794E 00	8.474E-01	6.246E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.873E-01	8.700E-01	1.558E 00	7.454E-01	5.485E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.851E-01	7.315E-01	1.353E 00	6.494E-01	4.826E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.938E-01	6.164E-01	1.177E 00	5.590E-01	4.253E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.125E-01	5.203E-01	1.024E 00	4.738E-01	3.755E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.404E-01	4.397E-01	8.922E-01	3.936E-01	3.326E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.763E-01	3.719E-01	7.782E-01	3.182E-01	2.966E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.196E-01	3.146E-01	6.796E-01	2.482E-01	2.679E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.695E-01	2.662E-01	5.941E-01	1.845E-01	2.473E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.251E-01	2.253E-01	5.201E-01	1.291E-01	2.361E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.860E-01	1.906E-01	4.558E-01	8.414E-02	2.356E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.515E-01	1.612E-01	3.999E-01	5.079E-02	2.476E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.8 Fe/O = 0.32

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULPUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.320
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.170E 01	3.925E 03	8.699E 01	6.883E 02	5.999E 01	3.087E 01	1.957E 04	1.960E 02	3.030E 02
-5.800E 00	1.048E 01	2.317E 03	7.261E 01	5.657E 02	5.106E 01	2.675E 01	1.338E 04	1.693E 02	2.397E 02
-5.600E 00	9.383E 00	1.370E 03	6.060E 01	4.651E 02	4.346E 01	2.316E 01	9.163E 03	1.481E 02	1.898E 02
-5.400E 00	8.394E 00	8.132E 02	5.057E 01	3.824E 02	3.701E 01	2.004E 01	6.292E 03	1.314E 02	1.503E 02
-5.200E 00	7.505E 00	4.845E 02	4.220E 01	3.145E 02	3.152E 01	1.733E 01	4.333E 03	1.184E 02	1.193E 02
-5.000E 00	6.709E 00	2.901E 02	3.520E 01	2.588E 02	2.685E 01	1.497E 01	2.994E 03	1.084E 02	9.487E 01
-4.800E 00	5.999E 00	1.748E 02	2.936E 01	2.130E 02	2.288E 01	1.292E 01	2.077E 03	1.009E 02	7.576E 01
-4.600E 00	5.369E 00	1.062E 02	2.449E 01	1.753E 02	1.950E 01	1.114E 01	1.448E 03	9.551E 01	6.086E 01
-4.400E 00	4.816E 00	6.520E 01	2.042E 01	1.444E 02	1.663E 01	9.597E 00	1.014E 03	9.162E 01	4.932E 01
-4.200E 00	4.335E 00	4.057E 01	1.702E 01	1.190E 02	1.419E 01	8.256E 00	7.149E 02	8.875E 01	4.047E 01
-4.000E 00	3.922E 00	2.568E 01	1.418E 01	9.805E 01	1.211E 01	7.094E 00	5.074E 02	8.633E 01	3.377E 01
-3.800E 00	3.574E 00	1.660E 01	1.181E 01	8.086E 01	1.034E 01	6.088E 00	3.629E 02	8.377E 01	2.880E 01
-3.600E 00	3.284E 00	1.100E 01	9.839E 00	6.672E 01	8.836E 00	5.219E 00	2.618E 02	8.052E 01	2.521E 01
-3.400E 00	3.043E 00	7.499E 00	8.190E 00	5.508E 01	7.554E 00	4.469E 00	1.907E 02	7.618E 01	2.273E 01
-3.200E 00	2.842E 00	5.277E 00	6.815E 00	4.549E 01	6.463E 00	3.823E 00	1.403E 02	7.066E 01	2.113E 01
-3.000E 00	2.669E 00	3.837E 00	5.668E 00	3.759E 01	5.533E 00	3.268E 00	1.043E 02	6.417E 01	2.021E 01
-2.800E 00	2.512E 00	2.882E 00	4.712E 00	3.108E 01	4.742E 00	2.791E 00	7.849E 01	5.712E 01	1.981E 01
-2.600E 00	2.363E 00	2.230E 00	3.914E 00	2.571E 01	4.068E 00	2.384E 00	5.972E 01	4.998E 01	1.979E 01
-2.400E 00	2.216E 00	1.772E 00	3.250E 00	2.128E 01	3.495E 00	2.035E 00	4.598E 01	4.316E 01	2.001E 01
-2.200E 00	2.069E 00	1.440E 00	2.696E 00	1.761E 01	3.007E 00	1.737E 00	3.580E 01	3.691E 01	2.039E 01
-2.000E 00	1.923E 00	1.191E 00	2.235E 00	1.457E 01	2.593E 00	1.484E 00	2.819E 01	3.137E 01	2.082E 01
-1.800E 00	1.778E 00	9.996E-01	1.851E 00	1.204E 01	2.242E 00	1.267E 00	2.243E 01	2.655E 01	2.125E 01
-1.600E 00	1.637E 00	8.480E-01	1.531E 00	9.942E 00	1.945E 00	1.083E 00	1.802E 01	2.242E 01	2.161E 01
-1.400E 00	1.502E 00	7.252E-01	1.265E 00	8.183E 00	1.697E 00	9.261E-01	1.462E 01	1.891E 01	2.189E 01
-1.200E 00	1.373E 00	6.239E-01	1.044E 00	6.700E 00	1.492E 00	7.922E-01	1.195E 01	1.594E 01	2.204E 01
-1.000E 00	1.252E 00	5.390E-01	8.604E-01	5.442E 00	1.325E 00	6.779E-01	9.846E 00	1.344E 01	2.207E 01
-8.000E-01	1.139E 00	4.670E-01	7.079E-01	4.362E 00	1.196E 00	5.804E-01	8.166E 00	1.133E 01	2.198E 01
-6.000E-01	1.034E 00	4.056E-01	5.813E-01	3.428E 00	1.105E 00	4.970E-01	6.813E 00	9.557E 00	2.177E 01
-4.000E-01	9.377E-01	3.527E-01	4.763E-01	2.618E 00	1.053E 00	4.258E-01	5.714E 00	8.064E 00	2.145E 01
-2.000E-01	8.486E-01	3.070E-01	3.893E-01	1.921E 00	1.049E 00	3.648E-01	4.815E 00	6.807E 00	2.104E 01
1.824E-05	7.669E-01	2.675E-01	3.173E-01	1.341E 00	1.103E 00	3.127E-01	4.073E 00	5.747E 00	2.054E 01
2.000E-01	6.920E-01	2.331E-01	2.577E-01	8.827E-01	1.234E 00	2.680E-01	3.457E 00	4.854E 00	1.998E 01
4.000E-01	6.236E-01	2.033E-01	2.086E-01	5.471E-01	1.474E 00	2.298E-01	2.944E 00	4.100E 00	1.936E 01
6.000E-01	5.610E-01	1.774E-01	1.680E-01	3.208E-01	1.872E 00	1.971E-01	2.514E 00	3.464E 00	1.870E 01
8.000E-01	5.040E-01	1.548E-01	1.347E-01	1.796E-01	2.504E 00	1.690E-01	2.151E 00	2.927E 00	1.800E 01
1.000E 00	4.519E-01	1.352E-01	1.073E-01	9.716E-02	3.491E 00	1.450E-01	1.845E 00	2.473E 00	1.729E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BOBON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.320
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	8.623E 01	2.616E 02	1.095E 01	3.162E 01	5.598E 03	3.389E 02	3.030E 02	2.036E-01
-5.800E 00	7.324E 01	2.108E 02	1.106E 01	2.851E 01	4.317E 03	2.976E 02	2.397E 02	2.641E-01
-5.600E 00	6.253E 01	1.702E 02	1.117E 01	2.583E 01	3.341E 03	2.614E 02	1.898E 02	3.418E-01
-5.400E 00	5.374E 01	1.377E 02	1.128E 01	2.353E 01	2.596E 03	2.295E 02	1.503E 02	4.414E-01
-5.200E 00	4.659E 01	1.117E 02	1.139E 01	2.154E 01	2.027E 03	2.015E 02	1.193E 02	5.686E-01
-5.000E 00	4.084E 01	9.108E 01	1.151E 01	1.983E 01	1.591E 03	1.768E 02	9.487E 01	7.300E-01
-4.800E 00	3.631E 01	7.471E 01	1.162E 01	1.836E 01	1.256E 03	1.552E 02	7.576E 01	9.339E-01
-4.600E 00	3.282E 01	6.181E 01	1.173E 01	1.709E 01	9.980E 02	1.362E 02	6.086E 01	1.190E 00
-4.400E 00	3.024E 01	5.176E 01	1.185E 01	1.599E 01	7.987E 02	1.194E 02	4.932E 01	1.508E 00
-4.200E 00	2.844E 01	4.403E 01	1.197E 01	1.503E 01	6.442E 02	1.048E 02	4.047E 01	1.900E 00
-4.000E 00	2.728E 01	3.823E 01	1.208E 01	1.420E 01	5.238E 02	9.188E 01	3.377E 01	2.379E 00
-3.800E 00	2.661E 01	3.399E 01	1.220E 01	1.347E 01	4.296E 02	8.056E 01	2.880E 01	2.956E 00
-3.600E 00	2.623E 01	3.102E 01	1.232E 01	1.283E 01	3.553E 02	7.062E 01	2.521E 01	3.644E 00
-3.400E 00	2.597E 01	2.904E 01	1.244E 01	1.225E 01	2.965E 02	6.191E 01	2.273E 01	4.451E 00
-3.200E 00	2.565E 01	2.777E 01	1.255E 01	1.174E 01	2.495E 02	5.426E 01	2.113E 01	5.385E 00
-3.000E 00	2.517E 01	2.698E 01	1.267E 01	1.127E 01	2.117E 02	4.756E 01	2.021E 01	6.448E 00
-2.800E 00	2.449E 01	2.646E 01	1.279E 01	1.085E 01	1.811E 02	4.170E 01	1.981E 01	7.639E 00
-2.600E 00	2.363E 01	2.606E 01	1.291E 01	1.045E 01	1.560E 02	3.656E 01	1.979E 01	8.951E 00
-2.400E 00	2.265E 01	2.569E 01	1.303E 01	1.007E 01	1.353E 02	3.207E 01	2.001E 01	1.037E 01
-2.200E 00	2.160E 01	2.529E 01	1.315E 01	9.709E 00	1.181E 02	2.816E 01	2.039E 01	1.189E 01
-2.000E 00	2.054E 01	2.485E 01	1.328E 01	9.361E 00	1.036E 02	2.474E 01	2.082E 01	1.349E 01
-1.800E 00	1.950E 01	2.438E 01	1.340E 01	9.019E 00	9.126E 01	2.178E 01	2.125E 01	1.515E 01
-1.600E 00	1.851E 01	2.390E 01	1.352E 01	8.682E 00	8.068E 01	1.922E 01	2.161E 01	1.686E 01
-1.400E 00	1.758E 01	2.340E 01	1.364E 01	8.347E 00	7.147E 01	1.701E 01	2.189E 01	1.861E 01
-1.200E 00	1.670E 01	2.290E 01	1.376E 01	8.011E 00	6.334E 01	1.513E 01	2.204E 01	2.038E 01
-1.000E 00	1.589E 01	2.242E 01	1.389E 01	7.672E 00	5.600E 01	1.353E 01	2.207E 01	2.217E 01
-8.000E-01	1.512E 01	2.195E 01	1.401E 01	7.330E 00	4.924E 01	1.220E 01	2.198E 01	2.398E 01
-6.000E-01	1.441E 01	2.149E 01	1.414E 01	6.984E 00	4.284E 01	1.113E 01	2.177E 01	2.579E 01
-4.000E-01	1.375E 01	2.104E 01	1.426E 01	6.633E 00	3.665E 01	1.028E 01	2.145E 01	2.762E 01
-2.000E-01	1.312E 01	2.061E 01	1.439E 01	6.278E 00	3.065E 01	9.664E 00	2.104E 01	2.945E 01
1.824E-05	1.254E 01	2.018E 01	1.452E 01	5.918E 00	2.493E 01	9.269E 00	2.054E 01	3.131E 01
2.000E-01	1.198E 01	1.976E 01	1.464E 01	5.554E 00	1.976E 01	9.101E 00	1.998E 01	3.319E 01
4.000E-01	1.146E 01	1.935E 01	1.477E 01	5.186E 00	1.538E 01	9.168E 00	1.936E 01	3.509E 01
6.000E-01	1.097E 01	1.893E 01	1.490E 01	4.815E 00	1.196E 01	9.486E 00	1.870E 01	3.703E 01
8.000E-01	1.051E 01	1.851E 01	1.503E 01	4.442E 00	9.484E 00	1.008E 01	1.800E 01	3.900E 01
1.000E 00	1.006E 01	1.809E 01	1.516E 01	4.070E 00	7.785E 00	1.098E 01	1.729E 01	4.102E 01

IRON = 0.64

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 0.640

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	1.891E 00	3.637E 00	1.808E 05	3.012E 01	3.885E 00	9.917E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	1.896E 00	3.405E 00	8.455E 04	2.816E 01	3.733E 00	7.412E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	1.915E 00	3.192E 00	3.964E 04	2.620E 01	3.593E 00	5.561E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	1.951E 00	2.999E 00	1.864E 04	2.424E 01	3.462E 00	4.190E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	2.007E 00	2.826E 00	8.802E 03	2.231E 01	3.340E 00	3.174E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	2.085E 00	2.676E 00	4.180E 03	2.042E 01	3.223E 00	2.418E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	2.186E 00	2.550E 00	2.001E 03	1.858E 01	3.110E 00	1.853E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	2.308E 00	2.451E 00	9.685E 02	1.681E 01	2.999E 00	1.431E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	2.445E 00	2.382E 00	4.758E 02	1.513E 01	2.887E 00	1.113E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	2.583E 00	2.343E 00	2.387E 02	1.355E 01	2.773E 00	8.734E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	2.703E 00	2.334E 00	1.231E 02	1.207E 01	2.655E 00	6.912E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	2.781E 00	2.348E 00	6.592E 01	1.070E 01	2.533E 00	5.521E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	2.800E 00	2.371E 00	3.697E 01	9.448E 00	2.406E 00	4.450E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	2.751E 00	2.384E 00	2.190E 01	8.311E 00	2.274E 00	3.622E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.640E 00	2.367E 00	1.376E 01	7.287E 00	2.138E 00	2.975E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.481E 00	2.307E 00	9.167E 00	6.371E 00	2.000E 00	2.466E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.294E 00	2.204E 00	6.441E 00	5.558E 00	1.860E 00	2.061E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.095E 00	2.066E 00	4.735E 00	4.838E 00	1.720E 00	1.738E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.895E 00	1.908E 00	3.608E 00	4.206E 00	1.582E 00	1.476E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.704E 00	1.740E 00	2.826E 00	3.652E 00	1.446E 00	1.262E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.525E 00	1.573E 00	2.260E 00	3.169E 00	1.315E 00	1.086E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.360E 00	1.412E 00	1.835E 00	2.749E 00	1.189E 00	9.403E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.210E 00	1.262E 00	1.507E 00	2.384E 00	1.069E 00	8.178E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.075E 00	1.124E 00	1.249E 00	2.068E 00	9.541E-01	7.141E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.541E-01	9.989E-01	1.041E 00	1.794E 00	8.458E-01	6.257E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.458E-01	8.855E-01	8.719E-01	1.558E 00	7.436E-01	5.498E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.837E-01	7.328E-01	1.353E 00	6.471E-01	4.843E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.631E-01	6.927E-01	6.174E-01	1.177E 00	5.560E-01	4.275E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.117E-01	5.211E-01	1.024E 00	4.698E-01	3.787E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.396E-01	4.403E-01	8.922E-01	3.881E-01	3.373E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.756E-01	3.724E-01	7.782E-01	3.108E-01	3.037E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.190E-01	3.151E-01	6.796E-01	2.386E-01	2.786E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.689E-01	2.667E-01	5.942E-01	1.731E-01	2.636E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.246E-01	2.257E-01	5.201E-01	1.170E-01	2.606E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.855E-01	1.910E-01	4.558E-01	7.291E-02	2.719E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.510E-01	1.616E-01	3.999E-01	4.183E-02	3.006E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.9 re/0 = 0.64

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.640
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005
GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1						
-6.000E 00	1.169E 01	7.681E 03	8.656E 01	6.918E 02	5.999E 01	3.093E 01	1.906E 04	1.516E 02	3.034E 02						
-5.800E 00	1.047E 01	4.513E 03	7.225E 01	5.686E 02	5.106E 01	2.680E 01	1.298E 04	1.277E 02	2.400E 02						
-5.600E 00	9.366E 00	2.656E 03	6.030E 01	4.674E 02	4.346E 01	2.321E 01	8.846E 03	1.087E 02	1.898E 02						
-5.400E 00	8.372E 00	1.566E 03	5.032E 01	3.844E 02	3.701E 01	2.008E 01	6.041E 03	9.382E 01	1.502E 02						
-5.200E 00	7.477E 00	9.256E 02	4.198E 01	3.161E 02	3.152E 01	1.736E 01	4.133E 03	8.219E 01	1.189E 02						
-5.000E 00	6.671E 00	5.487E 02	3.503E 01	2.601E 02	2.685E 01	1.499E 01	2.834E 03	7.331E 01	9.421E 01						
-4.800E 00	5.949E 00	3.266E 02	2.921E 01	2.140E 02	2.288E 01	1.293E 01	1.948E 03	6.672E 01	7.482E 01						
-4.600E 00	5.304E 00	1.954E 02	2.436E 01	1.762E 02	1.950E 01	1.114E 01	1.344E 03	6.204E 01	5.962E 01						
-4.400E 00	4.731E 00	1.177E 02	2.031E 01	1.451E 02	1.663E 01	9.581E 00	9.305E 02	5.897E 01	4.775E 01						
-4.200E 00	4.225E 00	7.150E 01	1.693E 01	1.196E 02	1.419E 01	8.230E 00	6.470E 02	5.721E 01	3.853E 01						
-4.000E 00	3.784E 00	4.394E 01	1.411E 01	9.857E 01	1.211E 01	7.058E 00	4.522E 02	5.643E 01	3.145E 01						
-3.800E 00	3.406E 00	2.741E 01	1.175E 01	8.129E 01	1.034E 01	6.042E 00	3.178E 02	5.626E 01	2.608E 01						
-3.600E 00	3.086E 00	1.742E 01	9.787E 00	6.707E 01	8.838E 00	5.162E 00	2.249E 02	5.626E 01	2.209E 01						
-3.400E 00	2.821E 00	1.132E 01	8.147E 00	5.537E 01	7.556E 00	4.402E 00	1.604E 02	5.590E 01	1.921E 01						
-3.200E 00	2.605E 00	7.567E 00	6.778E 00	4.573E 01	6.465E 00	3.747E 00	1.153E 02	5.474E 01	1.724E 01						
-3.000E 00	2.430E 00	5.216E 00	5.637E 00	3.779E 01	5.536E 00	3.183E 00	8.369E 01	5.247E 01	1.601E 01						
-2.800E 00	2.284E 00	3.718E 00	4.685E 00	3.125E 01	4.745E 00	2.700E 00	6.136E 01	4.906E 01	1.537E 01						
-2.600E 00	2.157E 00	2.741E 00	3.891E 00	2.585E 01	4.072E 00	2.286E 00	4.548E 01	4.475E 01	1.520E 01						
-2.400E 00	2.038E 00	2.088E 00	3.230E 00	2.139E 01	3.499E 00	1.934E 00	3.410E 01	3.992E 01	1.539E 01						
-2.200E 00	1.921E 00	1.638E 00	2.679E 00	1.770E 01	3.012E 00	1.635E 00	2.587E 01	3.499E 01	1.584E 01						
-2.000E 00	1.803E 00	1.318E 00	2.220E 00	1.464E 01	2.599E 00	1.382E 00	1.987E 01	3.026E 01	1.646E 01						
-1.800E 00	1.683E 00	1.082E 00	1.837E 00	1.210E 01	2.249E 00	1.168E 00	1.544E 01	2.592E 01	1.716E 01						
-1.600E 00	1.561E 00	9.032E-01	1.519E 00	9.977E 00	1.955E 00	9.882E-01	1.214E 01	2.207E 01	1.788E 01						
-1.400E 00	1.441E 00	7.632E-01	1.254E 00	8.199E 00	1.709E 00	8.365E-01	9.648E 00	1.871E 01	1.855E 01						
-1.200E 00	1.324E 00	6.509E-01	1.034E 00	6.697E 00	1.507E 00	7.088E-01	7.750E 00	1.583E 01	1.913E 01						
-1.000E 00	1.212E 00	5.589E-01	8.512E-01	5.417E 00	1.347E 00	6.014E-01	6.286E 00	1.338E 01	1.957E 01						
-8.000E-01	1.106E 00	4.823E-01	6.992E-01	4.313E 00	1.226E 00	5.108E-01	5.144E 00	1.130E 01	1.988E 01						
-6.000E-01	1.005E 00	4.177E-01	5.730E-01	3.355E 00	1.146E 00	4.345E-01	4.243E 00	9.540E 00	2.003E 01						
-4.000E-01	9.122E-01	3.626E-01	4.684E-01	2.521E 00	1.113E 00	3.699E-01	3.525E 00	8.055E 00	2.003E 01						
-2.000E-01	8.258E-01	3.154E-01	3.817E-01	1.810E 00	1.137E 00	3.153E-01	2.947E 00	6.802E 00	1.990E 01						
1.824E-05	7.461E-01	2.748E-01	3.099E-01	1.228E 00	1.234E 00	2.690E-01	2.477E 00	5.744E 00	1.964E 01						
2.000E-01	6.727E-01	2.396E-01	2.505E-01	7.819E-01	1.435E 00	2.296E-01	2.093E 00	4.852E 00	1.927E 01						
4.000E-01	6.054E-01	2.092E-01	2.015E-01	4.683E-01	1.785E 00	1.962E-01	1.775E 00	4.099E 00	1.881E 01						
6.000E-01	5.438E-01	1.828E-01	1.611E-01	2.658E-01	2.358E 00	1.677E-01	1.512E 00	3.464E 00	1.827E 01						
8.000E-01	4.875E-01	1.598E-01	1.280E-01	1.448E-01	3.274E 00	1.434E-01	1.291E 00	2.927E 00	1.768E 01						
1.000E 00	4.361E-01	1.399E-01	1.009E-01	7.656E-02	4.720E 00	1.227E-01	1.106E 00	2.473E 00	1.704E 01						

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.640
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	8.015E 01	2.577E 02	1.094E 01	3.146E 01	5.602E 03	3.389E 02	3.034E 02	1.045E-01
-5.800E 00	6.736E 01	2.071E 02	1.106E 01	2.836E 01	4.321E 03	2.976E 02	2.400E 02	1.361E-01
-5.600E 00	5.678E 01	1.666E 02	1.117E 01	2.570E 01	3.344E 03	2.614E 02	1.898E 02	1.770E-01
-5.400E 00	4.808E 01	1.342E 02	1.128E 01	2.341E 01	2.599E 03	2.295E 02	1.502E 02	2.299E-01
-5.200E 00	4.095E 01	1.083E 02	1.139E 01	2.143E 01	2.029E 03	2.015E 02	1.189E 02	2.981E-01
-5.000E 00	3.516E 01	8.765E 01	1.150E 01	1.973E 01	1.592E 03	1.768E 02	9.421E 01	3.857E-01
-4.800E 00	3.052E 01	7.120E 01	1.162E 01	1.827E 01	1.257E 03	1.552E 02	7.482E 01	4.979E-01
-4.600E 00	2.688E 01	5.816E 01	1.173E 01	1.700E 01	9.990E 02	1.362E 02	5.962E 01	6.407E-01
-4.400E 00	2.412E 01	4.791E 01	1.185E 01	1.591E 01	7.995E 02	1.194E 02	4.775E 01	8.218E-01
-4.200E 00	2.215E 01	3.994E 01	1.196E 01	1.495E 01	6.449E 02	1.048E 02	3.853E 01	1.050E 00
-4.000E 00	2.088E 01	3.385E 01	1.208E 01	1.413E 01	5.243E 02	9.188E 01	3.145E 01	1.335E 00
-3.800E 00	2.023E 01	2.934E 01	1.220E 01	1.340E 01	4.300E 02	8.056E 01	2.608E 01	1.688E 00
-3.600E 00	2.009E 01	2.615E 01	1.232E 01	1.276E 01	3.556E 02	7.062E 01	2.209E 01	2.121E 00
-3.400E 00	2.032E 01	2.404E 01	1.243E 01	1.219E 01	2.967E 02	6.191E 01	1.921E 01	2.647E 00
-3.200E 00	2.074E 01	2.282E 01	1.255E 01	1.167E 01	2.497E 02	5.426E 01	1.724E 01	3.277E 00
-3.000E 00	2.114E 01	2.227E 01	1.267E 01	1.121E 01	2.118E 02	4.756E 01	1.601E 01	4.021E 00
-2.800E 00	2.138E 01	2.216E 01	1.279E 01	1.078E 01	1.811E 02	4.170E 01	1.537E 01	4.887E 00
-2.600E 00	2.136E 01	2.229E 01	1.291E 01	1.038E 01	1.560E 02	3.656E 01	1.520E 01	5.879E 00
-2.400E 00	2.107E 01	2.251E 01	1.303E 01	1.000E 01	1.353E 02	3.207E 01	1.539E 01	6.995E 00
-2.200E 00	2.054E 01	2.268E 01	1.315E 01	9.644E 00	1.190E 02	2.816E 01	1.584E 01	8.229E 00
-2.000E 00	1.985E 01	2.275E 01	1.327E 01	9.294E 00	1.035E 02	2.474E 01	1.646E 01	9.573E 00
-1.800E 00	1.906E 01	2.271E 01	1.339E 01	8.950E 00	9.107E 01	2.178E 01	1.716E 01	1.101E 01
-1.600E 00	1.823E 01	2.255E 01	1.351E 01	8.610E 00	8.040E 01	1.922E 01	1.788E 01	1.253E 01
-1.400E 00	1.740E 01	2.231E 01	1.363E 01	8.271E 00	7.108E 01	1.701E 01	1.855E 01	1.411E 01
-1.200E 00	1.659E 01	2.200E 01	1.376E 01	7.929E 00	6.279E 01	1.513E 01	1.913E 01	1.573E 01
-1.000E 00	1.582E 01	2.165E 01	1.388E 01	7.585E 00	5.525E 01	1.353E 01	1.957E 01	1.738E 01
-8.000E-01	1.508E 01	2.127E 01	1.400E 01	7.235E 00	4.823E 01	1.220E 01	1.988E 01	1.905E 01
-6.000E-01	1.439E 01	2.088E 01	1.413E 01	6.880E 00	4.151E 01	1.113E 01	2.003E 01	2.072E 01
-4.000E-01	1.373E 01	2.048E 01	1.425E 01	6.518E 00	3.498E 01	1.028E 01	2.003E 01	2.240E 01
-2.000E-01	1.311E 01	2.007E 01	1.438E 01	6.149E 00	2.868E 01	9.664E 00	1.990E 01	2.409E 01
1.824E-05	1.253E 01	1.965E 01	1.450E 01	5.774E 00	2.281E 01	9.269E 00	1.964E 01	2.577E 01
2.000E-01	1.198E 01	1.923E 01	1.463E 01	5.392E 00	1.767E 01	9.101E 00	1.927E 01	2.745E 01
4.000E-01	1.146E 01	1.881E 01	1.476E 01	5.004E 00	1.354E 01	9.168E 00	1.881E 01	2.913E 01
6.000E-01	1.097E 01	1.838E 01	1.488E 01	4.611E 00	1.048E 01	9.486E 00	1.827E 01	3.083E 01
8.000E-01	1.050E 01	1.794E 01	1.501E 01	4.216E 00	8.370E 00	1.008E 01	1.768E 01	3.253E 01
1.000E 00	1.006E 01	1.749E 01	1.514E 01	3.820E 00	6.991E 00	1.098E 01	1.704E 01	3.425E 01

IRON = 01.28

PROTONS 840.000 ALPHAS 60.000 LITHIUM 0.0 BERYL. 0.0 BORON 0.0 CARBON 0.490 NITRO. 0.116 OXYGEN 1.000 FLUOR. 0.0 NEON 0.127 MAGNES. 0.182 SILICON 0.107 SULFUR 0.025 ARGON 0.0 CALCIUM 0.0 IRON 1.280

7.10 Fe/O = 1.28

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	1.670E 00	3.520E 00	3.548E 05	3.011E 01	3.879E 00	9.932E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	1.649E 00	3.278E 00	1.653E 05	2.816E 01	3.727E 00	7.423E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	1.638E 00	3.053E 00	7.714E 04	2.620E 01	3.587E 00	5.570E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	1.639E 00	2.846E 00	3.606E 04	2.424E 01	3.457E 00	4.198E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	1.654E 00	2.656E 00	1.690E 04	2.231E 01	3.334E 00	3.180E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	1.687E 00	2.484E 00	7.949E 03	2.042E 01	3.217E 00	2.422E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	1.742E 00	2.332E 00	3.756E 03	1.858E 01	3.104E 00	1.857E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	1.820E 00	2.201E 00	1.787E 03	1.681E 01	2.993E 00	1.434E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	1.924E 00	2.095E 00	8.579E 02	1.513E 01	2.881E 00	1.116E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	2.049E 00	2.017E 00	4.174E 02	1.355E 01	2.767E 00	8.753E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	2.187E 00	1.969E 00	2.069E 02	1.207E 01	2.650E 00	6.928E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	2.319E 00	1.953E 00	1.053E 02	1.070E 01	2.528E 00	5.533E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	2.421E 00	1.967E 00	5.552E 01	9.447E 00	2.401E 00	4.460E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	2.468E 00	1.998E 00	3.068E 01	8.311E 00	2.269E 00	3.630E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.447E 00	2.030E 00	1.793E 01	7.287E 00	2.134E 00	2.981E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.360E 00	2.039E 00	1.116E 01	6.371E 00	1.996E 00	2.471E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.223E 00	2.009E 00	7.403E 00	5.557E 00	1.856E 00	2.066E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.056E 00	1.935E 00	5.203E 00	4.838E 00	1.716E 00	1.742E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.875E 00	1.824E 00	3.838E 00	4.206E 00	1.578E 00	1.479E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.693E 00	1.688E 00	2.941E 00	3.652E 00	1.443E 00	1.265E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.519E 00	1.541E 00	2.319E 00	3.169E 00	1.312E 00	1.089E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.357E 00	1.393E 00	1.866E 00	2.749E 00	1.186E 00	9.426E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.209E 00	1.251E 00	1.524E 00	2.384E 00	1.066E 00	8.200E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.075E 00	1.117E 00	1.259E 00	2.068E 00	9.512E-01	7.163E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.539E-01	9.938E-01	1.047E 00	1.794E 00	8.427E-01	6.281E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.457E-01	8.819E-01	8.758E-01	1.558E 00	7.399E-01	5.526E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.491E-01	7.810E-01	7.354E-01	1.353E 00	6.426E-01	4.877E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.631E-01	6.906E-01	6.193E-01	1.177E 00	5.502E-01	4.321E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.099E-01	5.226E-01	1.024E 00	4.619E-01	3.851E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.381E-01	4.416E-01	8.922E-01	3.775E-01	3.468E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.743E-01	3.734E-01	7.783E-01	2.969E-01	3.179E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.178E-01	3.160E-01	6.796E-01	2.214E-01	3.002E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.677E-01	2.675E-01	5.942E-01	1.540E-01	2.963E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.235E-01	2.264E-01	5.201E-01	9.847E-02	3.095E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.844E-01	1.917E-01	4.558E-01	5.755E-02	3.445E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.500E-01	1.622E-01	3.999E-01	3.092E-02	4.067E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	1.280
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.169E 01	1.519E 04	8.570E 01	6.988E 02	5.999E 01	3.097E 01	1.881E 04	1.286E 02	3.037E 02
-5.800E 00	1.046E 01	8.906E 03	7.153E 01	5.744E 02	5.106E 01	2.683E 01	1.278E 04	1.060E 02	2.401E 02
-5.600E 00	9.357E 00	5.227E 03	5.970E 01	4.722E 02	4.346E 01	2.323E 01	8.688E 03	8.806E 01	1.898E 02
-5.400E 00	8.361E 00	3.071E 03	4.982E 01	3.883E 02	3.701E 01	2.010E 01	5.915E 03	7.385E 01	1.501E 02
-5.200E 00	7.461E 00	1.808E 03	4.157E 01	3.194E 02	3.152E 01	1.737E 01	4.032E 03	6.270E 01	1.187E 02
-5.000E 00	6.651E 00	1.066E 03	3.468E 01	2.627E 02	2.685E 01	1.499E 01	2.754E 03	5.406E 01	9.386E 01
-4.800E 00	5.922E 00	6.301E 02	2.892E 01	2.162E 02	2.288E 01	1.293E 01	1.884E 03	4.749E 01	7.431E 01
-4.600E 00	5.267E 00	3.737E 02	2.412E 01	1.780E 02	1.951E 01	1.113E 01	1.292E 03	4.267E 01	5.892E 01
-4.400E 00	4.681E 00	2.226E 02	2.011E 01	1.466E 02	1.664E 01	9.573E 00	8.886E 02	3.931E 01	4.684E 01
-4.200E 00	4.159E 00	1.333E 02	1.676E 01	1.208E 02	1.419E 01	8.215E 00	6.130E 02	3.721E 01	3.740E 01
-4.000E 00	3.696E 00	8.045E 01	1.396E 01	9.959E 01	1.211E 01	7.036E 00	4.245E 02	3.619E 01	3.005E 01
-3.800E 00	3.292E 00	4.901E 01	1.163E 01	8.214E 01	1.035E 01	6.013E 00	2.953E 02	3.605E 01	2.438E 01
-3.600E 00	2.942E 00	3.024E 01	9.686E 00	6.777E 01	8.841E 00	5.126E 00	2.065E 02	3.658E 01	2.007E 01
-3.400E 00	2.645E 00	1.897E 01	8.061E 00	5.595E 01	7.560E 00	4.358E 00	1.452E 02	3.747E 01	1.684E 01
-3.200E 00	2.399E 00	1.214E 01	6.706E 00	4.622E 01	6.470E 00	3.694E 00	1.028E 02	3.835E 01	1.450E 01
-3.000E 00	2.199E 00	7.971E 00	5.575E 00	3.820E 01	5.541E 00	3.123E 00	7.336E 01	3.881E 01	1.288E 01
-2.800E 00	2.040E 00	5.388E 00	4.633E 00	3.158E 01	4.751E 00	2.631E 00	5.280E 01	3.846E 01	1.187E 01
-2.600E 00	1.912E 00	3.763E 00	3.847E 00	2.612E 01	4.079E 00	2.211E 00	3.836E 01	3.709E 01	1.135E 01
-2.400E 00	1.807E 00	2.721E 00	3.191E 00	2.161E 01	3.507E 00	1.852E 00	2.817E 01	3.476E 01	1.125E 01
-2.200E 00	1.712E 00	2.035E 00	2.645E 00	1.788E 01	3.022E 00	1.548E 00	2.091E 01	3.170E 01	1.147E 01
-2.000E 00	1.622E 00	1.571E 00	2.190E 00	1.478E 01	2.611E 00	1.291E 00	1.571E 01	2.826E 01	1.196E 01
-1.800E 00	1.530E 00	1.247E 00	1.811E 00	1.220E 01	2.264E 00	1.075E 00	1.194E 01	2.475E 01	1.264E 01
-1.600E 00	1.435E 00	1.013E 00	1.496E 00	1.005E 01	1.974E 00	8.951E-01	9.193E 00	2.140E 01	1.345E 01
-1.400E 00	1.337E 00	8.389E-01	1.233E 00	8.232E 00	1.733E 00	7.450E-01	7.164E 00	1.834E 01	1.432E 01
-1.200E 00	1.238E 00	7.048E-01	1.015E 00	6.692E 00	1.539E 00	6.206E-01	5.649E 00	1.563E 01	1.519E 01
-1.000E 00	1.140E 00	5.986E-01	8.334E-01	5.370E 00	1.389E 00	5.178E-01	4.506E 00	1.327E 01	1.600E 01
-8.000E-01	1.044E 00	5.127E-01	6.826E-01	4.223E 00	1.284E 00	4.327E-01	3.632E 00	1.124E 01	1.671E 01
-6.000E-01	9.524E-01	4.418E-01	5.573E-01	3.222E 00	1.229E 00	3.624E-01	2.958E 00	9.506E 00	1.729E 01
-4.000E-01	8.654E-01	3.824E-01	4.534E-01	2.356E 00	1.232E 00	3.043E-01	2.430E 00	8.036E 00	1.771E 01
-2.000E-01	7.838E-01	3.322E-01	3.673E-01	1.632E 00	1.312E 00	2.561E-01	2.013E 00	6.792E 00	1.796E 01
1.824E-05	7.077E-01	2.894E-01	2.961E-01	1.061E 00	1.498E 00	2.160E-01	1.679E 00	5.739E 00	1.805E 01
2.000E-01	6.372E-01	2.526E-01	2.372E-01	6.465E-01	1.837E 00	1.826E-01	1.410E 00	4.849E 00	1.799E 01
4.000E-01	5.721E-01	2.209E-01	1.887E-01	3.717E-01	2.407E 00	1.546E-01	1.191E 00	4.098E 00	1.779E 01
6.000E-01	5.124E-01	1.935E-01	1.489E-01	2.041E-01	3.332E 00	1.312E-01	1.011E 00	3.463E 00	1.747E 01
8.000E-01	4.576E-01	1.699E-01	1.164E-01	1.085E-01	4.814E 00	1.114E-01	8.612E-01	2.926E 00	1.706E 01
1.000E 00	4.075E-01	1.493E-01	9.008E-02	5.652E-02	7.179E 00	9.475E-02	7.367E-01	2.473E 00	1.656E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	1.280
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	7.701E 01	2.556E 02	1.094E 01	3.114E 01	5.611E 03	3.389E 02	3.037E 02	5.298E-02
-5.800E 00	6.429E 01	2.052E 02	1.105E 01	2.808E 01	4.327E 03	2.976E 02	2.401E 02	6.914E-02
-5.600E 00	5.376E 01	1.648E 02	1.117E 01	2.544E 01	3.349E 03	2.614E 02	1.898E 02	9.015E-02
-5.400E 00	4.507E 01	1.324E 02	1.128E 01	2.317E 01	2.603E 03	2.295E 02	1.501E 02	1.174E-01
-5.200E 00	3.791E 01	1.065E 02	1.139E 01	2.122E 01	2.032E 03	2.015E 02	1.187E 02	1.528E-01
-5.000E 00	3.204E 01	8.578E 01	1.150E 01	1.953E 01	1.595E 03	1.768E 02	9.386E 01	1.985E-01
-4.800E 00	2.727E 01	6.925E 01	1.162E 01	1.808E 01	1.260E 03	1.552E 02	7.431E 01	2.575E-01
-4.600E 00	2.344E 01	5.609E 01	1.173E 01	1.683E 01	1.001E 03	1.362E 02	5.892E 01	3.333E-01
-4.400E 00	2.044E 01	4.566E 01	1.185E 01	1.574E 01	8.012E 02	1.194E 02	4.684E 01	4.304E-01
-4.200E 00	1.816E 01	3.744E 01	1.196E 01	1.480E 01	6.462E 02	1.048E 02	3.740E 01	5.542E-01
-4.000E 00	1.654E 01	3.106E 01	1.208E 01	1.398E 01	5.254E 02	9.188E 01	3.005E 01	7.111E-01
-3.800E 00	1.554E 01	2.619E 01	1.219E 01	1.326E 01	4.308E 02	8.056E 01	2.438E 01	9.088E-01
-3.600E 00	1.511E 01	2.260E 01	1.231E 01	1.262E 01	3.563E 02	7.062E 01	2.007E 01	1.156E 00
-3.400E 00	1.518E 01	2.010E 01	1.243E 01	1.205E 01	2.972E 02	6.191E 01	1.684E 01	1.463E 00
-3.200E 00	1.568E 01	1.853E 01	1.255E 01	1.155E 01	2.501E 02	5.426E 01	1.450E 01	1.839E 00
-3.000E 00	1.644E 01	1.773E 01	1.266E 01	1.108E 01	2.121E 02	4.756E 01	1.288E 01	2.295E 00
-2.800E 00	1.730E 01	1.756E 01	1.278E 01	1.065E 01	1.813E 02	4.170E 01	1.187E 01	2.842E 00
-2.600E 00	1.804E 01	1.783E 01	1.290E 01	1.026E 01	1.561E 02	3.656E 01	1.135E 01	3.487E 00
-2.400E 00	1.854E 01	1.837E 01	1.302E 01	9.878E 00	1.353E 02	3.207E 01	1.125E 01	4.238E 00
-2.200E 00	1.872E 01	1.899E 01	1.314E 01	9.515E 00	1.179E 02	2.816E 01	1.147E 01	5.096E 00
-2.000E 00	1.860E 01	1.957E 01	1.326E 01	9.162E 00	1.032E 02	2.474E 01	1.196E 01	6.060E 00
-1.800E 00	1.823E 01	2.002E 01	1.338E 01	8.815E 00	9.068E 01	2.178E 01	1.264E 01	7.124E 00
-1.600E 00	1.770E 01	2.031E 01	1.350E 01	8.469E 00	7.984E 01	1.922E 01	1.345E 01	8.279E 00
-1.400E 00	1.706E 01	2.043E 01	1.362E 01	8.123E 00	7.030E 01	1.701E 01	1.432E 01	9.510E 00
-1.200E 00	1.638E 01	2.041E 01	1.374E 01	7.772E 00	6.172E 01	1.513E 01	1.519E 01	1.080E 01
-1.000E 00	1.569E 01	2.027E 01	1.386E 01	7.416E 00	5.382E 01	1.353E 01	1.600E 01	1.214E 01
-8.000E-01	1.500E 01	2.005E 01	1.398E 01	7.052E 00	4.634E 01	1.220E 01	1.671E 01	1.351E 01
-6.000E-01	1.434E 01	1.977E 01	1.410E 01	6.680E 00	3.912E 01	1.113E 01	1.729E 01	1.489E 01
-4.000E-01	1.370E 01	1.944E 01	1.423E 01	6.298E 00	3.213E 01	1.028E 01	1.771E 01	1.628E 01
-2.000E-01	1.309E 01	1.907E 01	1.435E 01	5.907E 00	2.553E 01	9.664E 00	1.796E 01	1.766E 01
1.824E-05	1.252E 01	1.868E 01	1.447E 01	5.505E 00	1.967E 01	9.269E 00	1.805E 01	1.904E 01
2.000E-01	1.197E 01	1.826E 01	1.460E 01	5.095E 00	1.487E 01	9.101E 00	1.799E 01	2.041E 01
4.000E-01	1.146E 01	1.782E 01	1.472E 01	4.676E 00	1.129E 01	9.168E 00	1.779E 01	2.177E 01
6.000E-01	1.097E 01	1.737E 01	1.485E 01	4.252E 00	8.813E 00	9.486E 00	1.747E 01	2.311E 01
8.000E-01	1.050E 01	1.690E 01	1.498E 01	3.826E 00	7.212E 00	1.008E 01	1.706E 01	2.445E 01
1.000E 00	1.006E 01	1.640E 01	1.510E 01	3.402E 00	6.219E 00	1.098E 01	1.656E 01	2.579E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	6.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	F7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.067E 00	6.031E 00	1.462E 04	7.395E 01	8.580E 00	1.730E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	3.987E 00	5.726E 00	7.297E 03	6.392E 01	8.304E 00	1.391E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	3.915E 00	5.431E 00	3.675E 03	5.509E 01	7.986E 00	1.129E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	3.854E 00	5.149E 00	1.870E 03	4.737E 01	7.630E 00	9.254E 01	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	3.807E 00	4.884E 00	9.627E 02	4.065E 01	7.241E 00	7.655E 01	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	3.776E 00	4.641E 00	5.026E 02	3.482E 01	6.826E 00	6.389E 01	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	3.762E 00	4.427E 00	2.669E 02	2.979E 01	6.396E 00	5.376E 01	9.895E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	3.758E 00	4.246E 00	1.448E 02	2.545E 01	5.957E 00	4.559E 01	8.741E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.753E 00	4.102E 00	8.061E 01	2.173E 01	5.518E 00	3.893E 01	7.719E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.728E 00	3.992E 00	4.641E 01	1.855E 01	5.086E 00	3.345E 01	6.817E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.665E 00	3.904E 00	2.783E 01	1.582E 01	4.667E 00	2.890E 01	6.018E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.550E 00	3.818E 00	1.750E 01	1.350E 01	4.266E 00	2.509E 01	5.312E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.380E 00	3.710E 00	1.159E 01	1.152E 01	3.886E 00	2.187E 01	4.688E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.164E 00	3.563E 00	8.090E 00	9.828E 00	3.529E 00	1.913E 01	4.137E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.918E 00	3.368E 00	5.930E 00	8.392E 00	3.197E 00	1.679E 01	3.649E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.660E 00	3.134E 00	4.532E 00	7.170E 00	2.890E 00	1.478E 01	3.219E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.404E 00	2.874E 00	3.581E 00	6.131E 00	2.607E 00	1.303E 01	2.838E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.160E 00	2.604E 00	2.901E 00	5.247E 00	2.348E 00	1.151E 01	2.502E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.932E 00	2.339E 00	2.393E 00	4.495E 00	2.112E 00	1.019E 01	2.206E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.723E 00	2.087E 00	2.000E 00	3.855E 00	1.897E 00	9.027E 00	1.944E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.533E 00	1.853E 00	1.685E 00	3.311E 00	1.702E 00	8.007E 00	1.713E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.363E 00	1.640E 00	1.427E 00	2.846E 00	1.525E 00	7.111E 00	1.510E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.210E 00	1.448E 00	1.214E 00	2.451E 00	1.365E 00	6.321E 00	1.331E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.073E 00	1.277E 00	1.034E 00	2.113E 00	1.220E 00	5.624E 00	1.173E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.517E-01	1.124E 00	8.826E-01	1.824E 00	1.088E 00	5.011E 00	1.034E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.432E-01	9.890E-01	7.534E-01	1.577E 00	9.681E-01	4.471E 00	9.117E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.467E-01	8.695E-01	6.432E-01	1.366E 00	8.585E-01	4.000E 00	8.046E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.610E-01	7.641E-01	5.489E-01	1.184E 00	7.573E-01	3.591E 00	7.109E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.848E-01	6.712E-01	4.683E-01	1.029E 00	6.626E-01	3.244E 00	6.292E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.172E-01	5.894E-01	3.992E-01	8.946E-01	5.722E-01	2.962E 00	5.581E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.572E-01	5.175E-01	3.401E-01	7.793E-01	4.838E-01	2.751E 00	4.968E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.040E-01	4.543E-01	2.895E-01	6.798E-01	3.958E-01	2.627E 00	4.442E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.569E-01	3.987E-01	2.462E-01	5.939E-01	3.084E-01	2.618E 00	3.996E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.151E-01	3.499E-01	2.092E-01	5.196E-01	2.246E-01	2.766E 00	3.625E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.782E-01	3.070E-01	1.776E-01	4.551E-01	1.507E-01	3.137E 00	3.326E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.454E-01	2.693E-01	1.507E-01	3.992E-01	9.263E-02	3.826E 00	3.094E-01	2.761E-01	6.562E-01	4.684E-02

7.11 Proton/alpha = 140.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	6.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.174E 01	4.889E 03	6.103E 01	9.818E 02	6.042E 01	3.005E 01	3.015E 04	6.416E 02	2.908E 02
-5.800E 00	1.051E 01	3.039E 03	5.121E 01	8.025E 02	5.148E 01	2.610E 01	2.173E 04	5.416E 02	2.294E 02
-5.600E 00	9.402E 00	1.905E 03	4.296E 01	6.561E 02	4.388E 01	2.266E 01	1.577E 04	4.581E 02	1.810E 02
-5.400E 00	8.398E 00	1.205E 03	3.603E 01	5.364E 02	3.741E 01	1.968E 01	1.154E 04	3.890E 02	1.429E 02
-5.200E 00	7.493E 00	7.703E 02	3.021E 01	4.387E 02	3.192E 01	1.709E 01	8.519E 03	3.327E 02	1.129E 02
-5.000E 00	6.677E 00	4.976E 02	2.532E 01	3.589E 02	2.725E 01	1.484E 01	6.342E 03	2.875E 02	8.928E 01
-4.800E 00	5.944E 00	3.250E 02	2.122E 01	2.936E 02	2.328E 01	1.289E 01	4.764E 03	2.521E 02	7.073E 01
-4.600E 00	5.285E 00	2.148E 02	1.778E 01	2.403E 02	1.990E 01	1.119E 01	3.611E 03	2.253E 02	5.614E 01
-4.400E 00	4.694E 00	1.437E 02	1.489E 01	1.966E 02	1.703E 01	9.706E 00	2.762E 03	2.058E 02	4.469E 01
-4.200E 00	4.165E 00	9.731E 01	1.246E 01	1.609E 02	1.459E 01	8.419E 00	2.132E 03	1.924E 02	3.569E 01
-4.000E 00	3.693E 00	6.676E 01	1.042E 01	1.318E 02	1.251E 01	7.300E 00	1.660E 03	1.841E 02	2.863E 01
-3.800E 00	3.274E 00	4.641E 01	8.711E 00	1.079E 02	1.075E 01	6.325E 00	1.304E 03	1.797E 02	2.308E 01
-3.600E 00	2.901E 00	3.269E 01	7.275E 00	8.828E 01	9.244E 00	5.478E 00	1.032E 03	1.781E 02	1.873E 01
-3.400E 00	2.572E 00	2.334E 01	6.071E 00	7.224E 01	7.970E 00	4.741E 00	8.233E 02	1.782E 02	1.530E 01
-3.200E 00	2.281E 00	1.690E 01	5.061E 00	5.909E 01	6.888E 00	4.101E 00	6.616E 02	1.790E 02	1.261E 01
-3.000E 00	2.025E 00	1.241E 01	4.213E 00	4.829E 01	5.971E 00	3.544E 00	5.353E 02	1.796E 02	1.049E 01
-2.800E 00	1.800E 00	9.242E 00	3.503E 00	3.941E 01	5.196E 00	3.061E 00	4.357E 02	1.792E 02	8.825E 00
-2.600E 00	1.602E 00	6.982E 00	2.907E 00	3.210E 01	4.543E 00	2.642E 00	3.567E 02	1.772E 02	7.507E 00
-2.400E 00	1.429E 00	5.352E 00	2.408E 00	2.606E 01	3.997E 00	2.279E 00	2.936E 02	1.732E 02	6.464E 00
-2.200E 00	1.276E 00	4.161E 00	1.990E 00	2.106E 01	3.544E 00	1.964E 00	2.428E 02	1.672E 02	5.636E 00
-2.000E 00	1.141E 00	3.282E 00	1.641E 00	1.690E 01	3.176E 00	1.692E 00	2.017E 02	1.591E 02	4.975E 00
-1.800E 00	1.021E 00	2.623E 00	1.349E 00	1.344E 01	2.884E 00	1.457E 00	1.682E 02	1.493E 02	4.444E 00
-1.600E 00	9.148E-01	2.125E 00	1.105E 00	1.055E 01	2.665E 00	1.254E 00	1.408E 02	1.383E 02	4.015E 00
-1.400E 00	8.192E-01	1.743E 00	9.021E-01	8.140E 00	2.519E 00	1.079E 00	1.182E 02	1.264E 02	3.664E 00
-1.200E 00	7.329E-01	1.446E 00	7.333E-01	6.136E 00	2.449E 00	9.274E-01	9.958E 01	1.142E 02	3.374E 00
-1.000E 00	6.548E-01	1.213E 00	5.932E-01	4.495E 00	2.465E 00	7.972E-01	8.411E 01	1.021E 02	3.132E 00
-8.000E-01	5.838E-01	1.028E 00	4.773E-01	3.185E 00	2.582E 00	6.851E-01	7.121E 01	9.047E 01	2.925E 00
-6.000E-01	5.192E-01	8.791E-01	3.819E-01	2.175E 00	2.825E 00	5.886E-01	6.043E 01	7.952E 01	2.747E 00
-4.000E-01	4.603E-01	7.582E-01	3.036E-01	1.430E 00	3.233E 00	5.057E-01	5.138E 01	6.943E 01	2.590E 00
-2.000E-01	4.067E-01	6.589E-01	2.397E-01	9.081E-01	3.864E 00	4.344E-01	4.377E 01	6.027E 01	2.450E 00
1.824E-05	3.580E-01	5.767E-01	1.879E-01	5.590E-01	4.803E 00	3.731E-01	3.735E 01	5.207E 01	2.323E 00
2.000E-01	3.139E-01	5.081E-01	1.462E-01	3.356E-01	6.176E 00	3.205E-01	3.192E 01	4.480E 01	2.206E 00
4.000E-01	2.741E-01	4.502E-01	1.128E-01	1.977E-01	8.166E 00	2.753E-01	2.732E 01	3.843E 01	2.096E 00
6.000E-01	2.384E-01	4.012E-01	8.627E-02	1.149E-01	1.105E 01	2.366E-01	2.341E 01	3.287E 01	1.993E 00
8.000E-01	2.064E-01	3.593E-01	6.544E-02	6.619E-02	1.522E 01	2.033E-01	2.009E 01	2.805E 01	1.895E 00
1.000E 00	1.780E-01	3.234E-01	4.922E-02	3.793E-02	2.128E 01	1.748E-01	1.725E 01	2.390E 01	1.801E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	6.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005
GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2							
-6.000E 00	1.578E 02	3.073E 02	1.027E 02	8.478E 01	9.701E 03	3.389E 03	2.908E 02	1.522E-01							
-5.800E 00	1.358E 02	2.494E 02	1.039E 02	8.321E 01	8.041E 03	2.976E 03	2.294E 02	1.874E-01							
-5.600E 00	1.170E 02	2.026E 02	1.050E 02	8.187E 01	6.726E 03	2.614E 03	1.810E 02	2.291E-01							
-5.400E 00	1.010E 02	1.647E 02	1.061E 02	8.072E 01	5.676E 03	2.295E 03	1.429E 02	2.778E-01							
-5.200E 00	8.739E-01	1.341E 02	1.073E 02	7.973E 01	4.831E 03	2.014E 03	1.129E 02	3.343E-01							
-5.000E 00	7.613E 01	1.095E 02	1.084E 02	7.885E 01	4.145E 03	1.768E 03	8.928E 01	3.989E-01							
-4.800E 00	6.701E 01	8.998E 01	1.096E 02	7.805E 01	3.583E 03	1.551E 03	7.073E 01	4.718E-01							
-4.600E 00	5.994E 01	7.460E 01	1.107E 02	7.730E 01	3.118E 03	1.361E 03	5.614E 01	5.533E-01							
-4.400E 00	5.483E 01	6.274E 01	1.118E 02	7.658E 01	2.729E 03	1.194E 03	4.469E 01	6.433E-01							
-4.200E 00	5.161E 01	5.385E 01	1.129E 02	7.586E 01	2.401E 03	1.047E 03	3.569E 01	7.415E-01							
-4.000E 00	5.023E 01	4.753E 01	1.140E 02	7.510E 01	2.120E 03	9.180E 02	2.863E 01	8.476E-01							
-3.800E 00	5.062E 01	4.341E 01	1.151E 02	7.430E 01	1.879E 03	8.047E 02	2.308E 01	9.611E-01							
-3.600E 00	5.269E 01	4.120E 01	1.162E 02	7.343E 01	1.668E 03	7.052E 02	1.873E 01	1.082E 00							
-3.400E 00	5.633E 01	4.066E 01	1.173E 02	7.246E 01	1.483E 03	6.178E 02	1.530E 01	1.209E 00							
-3.200E 00	6.134E 01	4.153E 01	1.184E 02	7.138E 01	1.319E 03	5.411E 02	1.261E 01	1.342E 00							
-3.000E 00	6.751E 01	4.362E 01	1.194E 02	7.017E 01	1.173E 03	4.738E 02	1.049E 01	1.480E 00							
-2.800E 00	7.452E 01	4.667E 01	1.204E 02	6.882E 01	1.040E 03	4.148E 02	8.825E 00	1.624E 00							
-2.600E 00	8.204E 01	5.047E 01	1.215E 02	6.730E 01	9.198E 02	3.630E 02	7.507E 00	1.773E 00							
-2.400E 00	8.967E 01	5.477E 01	1.225E 02	6.561E 01	8.095E 02	3.176E 02	6.464E 00	1.927E 00							
-2.200E 00	9.703E 01	5.932E 01	1.235E 02	6.374E 01	7.076E 02	2.778E 02	5.636E 00	2.085E 00							
-2.000E 00	1.038E 02	6.389E 01	1.244E 02	6.168E 01	6.127E 02	2.430E 02	4.975E 00	2.248E 00							
-1.800E 00	1.096E 02	6.824E 01	1.254E 02	5.943E 01	5.240E 02	2.125E 02	4.444E 00	2.417E 00							
-1.600E 00	1.143E 02	7.218E 01	1.264E 02	5.699E 01	4.407E 02	1.858E 02	4.015E 00	2.590E 00							
-1.400E 00	1.178E 02	7.555E 01	1.273E 02	5.435E 01	3.628E 02	1.625E 02	3.664E 00	2.768E 00							
-1.200E 00	1.200E 02	7.825E 01	1.282E 02	5.154E 01	2.907E 02	1.421E 02	3.374E 00	2.953E 00							
-1.000E 00	1.211E 02	8.019E 01	1.291E 02	4.857E 01	2.255E 02	1.243E 02	3.132E 00	3.143E 00							
-8.000E-01	1.212E 02	8.136E 01	1.300E 02	4.545E 01	1.686E 02	1.088E 02	2.925E 00	3.339E 00							
-6.000E-01	1.203E 02	8.175E 01	1.309E 02	4.222E 01	1.212E 02	9.538E 01	2.747E 00	3.543E 00							
-4.000E-01	1.187E 02	8.141E 01	1.318E 02	3.891E 01	8.400E 01	8.372E 01	2.590E 00	3.753E 00							
-2.000E-01	1.165E 02	8.040E 01	1.327E 02	3.556E 01	5.645E 01	7.365E 01	2.450E 00	3.971E 00							
1.824E-05	1.139E 02	7.878E 01	1.336E 02	3.222E 01	3.723E 01	6.500E 01	2.323E 00	4.198E 00							
2.000E-01	1.109E 02	7.663E 01	1.345E 02	2.891E 01	2.451E 01	5.762E 01	2.206E 00	4.433E 00							
4.000E-01	1.077E 02	7.403E 01	1.354E 02	2.570E 01	1.648E 01	5.140E 01	2.096E 00	4.677E 00							
6.000E-01	1.043E 02	7.107E 01	1.363E 02	2.263E 01	1.157E 01	4.623E 01	1.993E 00	4.931E 00							
8.000E-01	1.009E 02	6.783E 01	1.372E 02	1.973E 01	8.664E 00	4.204E 01	1.895E 00	5.195E 00							
1.000E 00	9.738E 01	6.437E 01	1.381E 02	1.703E 01	6.972E 00	3.877E 01	1.801E 00	5.470E 00							

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	10.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.123E 00	6.058E 00	1.461E 04	6.641E 01	7.107E 00	2.335E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.050E 00	5.758E 00	7.299E 03	5.817E 01	6.941E 00	1.836E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	3.984E 00	5.468E 00	3.683E 03	5.074E 01	6.747E 00	1.457E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	3.928E 00	5.191E 00	1.878E 03	4.411E 01	6.524E 00	1.167E 02	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	3.885E 00	4.930E 00	9.700E 02	3.822E 01	6.272E 00	9.435E 01	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	3.855E 00	4.691E 00	5.084E 02	3.302E 01	5.992E 00	7.703E 01	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	3.838E 00	4.478E 00	2.712E 02	2.846E 01	5.688E 00	6.348E 01	9.895E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	3.826E 00	4.295E 00	1.479E 02	2.448E 01	5.365E 00	5.279E 01	8.741E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.808E 00	4.144E 00	8.291E 01	2.103E 01	5.029E 00	4.428E 01	7.720E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.768E 00	4.022E 00	4.805E 01	1.803E 01	4.687E 00	3.743E 01	6.817E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.689E 00	3.916E 00	2.899E 01	1.545E 01	4.345E 00	3.187E 01	6.018E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.560E 00	3.810E 00	1.832E 01	1.323E 01	4.007E 00	2.731E 01	5.313E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.381E 00	3.683E 00	1.217E 01	1.133E 01	3.679E 00	2.354E 01	4.689E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.160E 00	3.521E 00	8.504E 00	9.693E 00	3.365E 00	2.040E 01	4.137E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.913E 00	3.319E 00	6.223E 00	8.296E 00	3.066E 00	1.775E 01	3.650E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.656E 00	3.083E 00	4.740E 00	7.102E 00	2.785E 00	1.551E 01	3.220E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.401E 00	2.826E 00	3.729E 00	6.083E 00	2.523E 00	1.359E 01	2.839E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.157E 00	2.562E 00	3.007E 00	5.214E 00	2.281E 00	1.195E 01	2.504E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.930E 00	2.303E 00	2.469E 00	4.472E 00	2.057E 00	1.053E 01	2.208E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.722E 00	2.057E 00	2.054E 00	3.839E 00	1.852E 00	9.294E 00	1.946E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.533E 00	1.829E 00	1.724E 00	3.299E 00	1.664E 00	8.221E 00	1.716E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.363E 00	1.621E 00	1.456E 00	2.839E 00	1.492E 00	7.283E 00	1.513E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.210E 00	1.432E 00	1.235E 00	2.445E 00	1.336E 00	6.461E 00	1.334E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.074E 00	1.264E 00	1.050E 00	2.109E 00	1.194E 00	5.740E 00	1.177E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.519E-01	1.114E 00	8.941E-01	1.822E 00	1.065E 00	5.107E 00	1.039E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.434E-01	9.804E-01	7.621E-01	1.576E 00	9.468E-01	4.552E 00	9.177E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.469E-01	8.625E-01	6.497E-01	1.365E 00	8.384E-01	4.066E 00	8.119E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.612E-01	7.583E-01	5.539E-01	1.184E 00	7.380E-01	3.646E 00	7.197E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.850E-01	6.664E-01	4.721E-01	1.028E 00	6.438E-01	3.287E 00	6.398E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.173E-01	5.855E-01	4.022E-01	8.944E-01	5.541E-01	2.992E 00	5.711E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.573E-01	5.142E-01	3.424E-01	7.792E-01	4.668E-01	2.766E 00	5.124E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.041E-01	4.515E-01	2.913E-01	6.798E-01	3.806E-01	2.622E 00	4.632E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.570E-01	3.964E-01	2.477E-01	5.939E-01	2.958E-01	2.581E 00	4.228E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.152E-01	3.479E-01	2.104E-01	5.196E-01	2.154E-01	2.677E 00	3.908E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.782E-01	3.053E-01	1.786E-01	4.552E-01	1.449E-01	2.958E 00	3.670E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.454E-01	2.679E-01	1.515E-01	3.993E-01	8.952E-02	3.487E 00	3.514E-01	2.761E-01	6.562E-01	4.684E-02

7.12 Proton/alpha = 84.

PROTONS	ALPHAS	LITHIUM	BERYL.	BOHON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	10.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.175E 01	2.946E 03	7.043E 01	8.504E 02	6.023E 01	3.005E 01	3.015E 04	6.544E 02	2.913E 02
-5.800E 00	1.052E 01	1.832E 03	5.898E 01	6.966E 02	5.129E 01	2.610E 01	2.173E 04	5.544E 02	2.299E 02
-5.600E 00	9.416E 00	1.150E 03	4.939E 01	5.707E 02	4.369E 01	2.266E 01	1.577E 04	4.707E 02	1.816E 02
-5.400E 00	8.417E 00	7.285E 02	4.134E 01	4.676E 02	3.723E 01	1.968E 01	1.154E 04	4.012E 02	1.436E 02
-5.200E 00	7.517E 00	4.663E 02	3.460E 01	3.833E 02	3.174E 01	1.709E 01	8.519E 03	3.442E 02	1.137E 02
-5.000E 00	6.707E 00	3.018E 02	2.895E 01	3.142E 02	2.707E 01	1.484E 01	6.342E 03	2.982E 02	9.016E 01
-4.800E 00	5.981E 00	1.976E 02	2.422E 01	2.577E 02	2.310E 01	1.289E 01	4.764E 03	2.617E 02	7.169E 01
-4.600E 00	5.331E 00	1.310E 02	2.025E 01	2.114E 02	1.972E 01	1.119E 01	3.611E 03	2.334E 02	5.720E 01
-4.400E 00	4.750E 00	8.802E 01	1.693E 01	1.734E 02	1.685E 01	9.706E 00	2.762E 03	2.121E 02	4.584E 01
-4.200E 00	4.233E 00	5.993E 01	1.415E 01	1.423E 02	1.441E 01	8.419E 00	2.132E 03	1.966E 02	3.694E 01
-4.000E 00	3.774E 00	4.138E 01	1.182E 01	1.168E 02	1.233E 01	7.300E 00	1.660E 03	1.857E 02	2.996E 01
-3.800E 00	3.368E 00	2.898E 01	9.864E 00	9.594E 01	1.057E 01	6.325E 00	1.304E 03	1.781E 02	2.449E 01
-3.600E 00	3.010E 00	2.061E 01	8.229E 00	7.880E 01	9.062E 00	5.478E 00	1.032E 03	1.727E 02	2.020E 01
-3.400E 00	2.695E 00	1.487E 01	6.860E 00	6.473E 01	7.784E 00	4.741E 00	8.233E 02	1.685E 02	1.684E 01
-3.200E 00	2.418E 00	1.090E 01	5.714E 00	5.316E 01	6.698E 00	4.101E 00	6.616E 02	1.645E 02	1.420E 01
-3.000E 00	2.176E 00	8.113E 00	4.754E 00	4.366E 01	5.775E 00	3.544E 00	5.353E 02	1.600E 02	1.212E 01
-2.800E 00	1.962E 00	6.133E 00	3.952E 00	3.583E 01	4.993E 00	3.061E 00	4.357E 02	1.545E 02	1.049E 01
-2.600E 00	1.774E 00	4.708E 00	3.281E 00	2.938E 01	4.331E 00	2.642E 00	3.567E 02	1.476E 02	9.198E 00
-2.400E 00	1.607E 00	3.668E 00	2.719E 00	2.405E 01	3.772E 00	2.279E 00	2.936E 02	1.394E 02	8.172E 00
-2.200E 00	1.459E 00	2.900E 00	2.251E 00	1.963E 01	3.303E 00	1.964E 00	2.428E 02	1.299E 02	7.352E 00
-2.000E 00	1.325E 00	2.325E 00	1.859E 00	1.596E 01	2.914E 00	1.692E 00	2.017E 02	1.196E 02	6.691E 00
-1.800E 00	1.204E 00	1.887E 00	1.532E 00	1.289E 01	2.595E 00	1.457E 00	1.682E 02	1.089E 02	6.154E 00
-1.600E 00	1.093E 00	1.551E 00	1.259E 00	1.032E 01	2.341E 00	1.254E 00	1.408E 02	9.795E 01	5.711E 00
-1.400E 00	9.912E-01	1.289E 00	1.032E 00	8.149E 00	2.149E 00	1.079E 00	1.182E 02	8.727E 01	5.340E 00
-1.200E 00	8.974E-01	1.081E 00	8.437E-01	6.320E 00	2.017E 00	9.274E-01	9.958E 01	7.707E 01	5.025E 00
-1.000E 00	8.107E-01	9.154E-01	6.870E-01	4.784E 00	1.950E 00	7.972E-01	8.411E 01	6.757E 01	4.753E 00
-8.000E-01	7.303E-01	7.812E-01	5.570E-01	3.510E 00	1.954E 00	6.851E-01	7.121E 01	5.886E 01	4.512E 00
-6.000E-01	6.560E-01	6.714E-01	4.497E-01	2.482E 00	2.044E 00	5.886E-01	6.043E 01	5.099E 01	4.295E 00
-4.000E-01	5.873E-01	5.809E-01	3.611E-01	1.685E 00	2.240E 00	5.057E-01	5.138E 01	4.399E 01	4.097E 00
-2.000E-01	5.240E-01	5.054E-01	2.885E-01	1.097E 00	2.577E 00	4.344E-01	4.377E 01	3.780E 01	3.913E 00
1.824E-05	4.659E-01	4.421E-01	2.290E-01	6.872E-01	3.105E 00	3.731E-01	3.735E 01	3.239E 01	3.739E 00
2.000E-01	4.126E-01	3.885E-01	1.806E-01	4.162E-01	3.898E 00	3.205E-01	3.192E 01	2.769E 01	3.574E 00
4.000E-01	3.641E-01	3.431E-01	1.414E-01	2.455E-01	5.066E 00	2.753E-01	2.732E 01	2.361E 01	3.415E 00
6.000E-01	3.200E-01	3.042E-01	1.099E-01	1.420E-01	6.772E 00	2.366E-01	2.341E 01	2.011E 01	3.261E 00
8.000E-01	2.801E-01	2.708E-01	8.471E-02	8.100E-02	9.256E 00	2.033E-01	2.009E 01	1.710E 01	3.111E 00
1.000E 00	2.442E-01	2.420E-01	6.477E-02	4.584E-02	1.287E 01	1.748E-01	1.725E 01	1.452E 01	2.966E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	10.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.587E 02	3.080E 02	6.211E 01	6.587E 01	7.883E 03	2.033E 03	2.913E 02	2.528E-01
-5.800E 00	1.369E 02	2.502E 02	6.281E 01	6.369E 01	6.392E 03	1.786E 03	2.299E 02	-3.112E-01
-5.600E 00	1.181E 02	2.034E 02	6.352E 01	6.182E 01	5.228E 03	1.568E 03	1.816E 02	3.802E-01
-5.400E 00	1.021E 02	1.656E 02	6.423E 01	6.020E 01	4.315E 03	1.377E 03	1.436E 02	4.609E-01
-5.200E 00	8.860E 01	1.351E 02	6.494E 01	5.879E 01	3.593E 03	1.209E 03	1.137E 02	5.543E-01
-5.000E 00	7.734E 01	1.106E 02	6.565E 01	5.756E 01	3.019E 03	1.061E 03	9.016E 01	6.611E-01
-4.800E 00	6.818E 01	9.108E 01	6.636E 01	5.647E 01	2.558E 03	9.309E 02	7.169E 01	7.816E-01
-4.600E 00	6.101E 01	7.572E 01	6.708E 01	5.549E 01	2.186E 03	8.167E 02	5.720E 01	9.160E-01
-4.400E 00	5.571E 01	6.385E 01	6.779E 01	5.459E 01	1.882E 03	7.164E 02	4.584E 01	1.064E 00
-4.200E 00	5.218E 01	5.493E 01	6.851E 01	5.374E 01	1.632E 03	6.283E 02	3.694E 01	1.226E 00
-4.000E 00	5.033E 01	4.850E 01	6.922E 01	5.293E 01	1.423E 03	5.508E 02	2.996E 01	1.400E 00
-3.800E 00	5.001E 01	4.421E 01	6.994E 01	5.213E 01	1.248E 03	4.828E 02	2.449E 01	1.587E 00
-3.600E 00	5.108E 01	4.174E 01	7.065E 01	5.133E 01	1.099E 03	4.231E 02	2.020E 01	1.784E 00
-3.400E 00	5.332E 01	4.081E 01	7.136E 01	5.050E 01	9.714E 02	3.707E 02	1.684E 01	1.992E 00
-3.200E 00	5.647E 01	4.115E 01	7.207E 01	4.963E 01	8.606E 02	3.247E 02	1.420E 01	2.209E 00
-3.000E 00	6.025E 01	4.252E 01	7.277E 01	4.871E 01	7.635E 02	2.844E 02	1.212E 01	2.435E 00
-2.800E 00	6.433E 01	4.467E 01	7.347E 01	4.773E 01	6.777E 02	2.490E 02	1.049E 01	2.668E 00
-2.600E 00	6.841E 01	4.736E 01	7.416E 01	4.667E 01	6.012E 02	2.179E 02	9.198E 00	2.910E 00
-2.400E 00	7.219E 01	5.038E 01	7.485E 01	4.552E 01	5.322E 02	1.907E 02	8.172E 00	3.158E 00
-2.200E 00	7.545E 01	5.349E 01	7.554E 01	4.428E 01	4.695E 02	1.669E 02	7.352E 00	3.414E 00
-2.000E 00	7.804E 01	5.652E 01	7.622E 01	4.294E 01	4.119E 02	1.460E 02	6.691E 00	3.677E 00
-1.800E 00	7.987E 01	5.932E 01	7.690E 01	4.150E 01	3.584E 02	1.277E 02	6.154E 00	3.947E 00
-1.600E 00	8.094E 01	6.175E 01	7.757E 01	3.995E 01	3.084E 02	1.118E 02	5.711E 00	4.225E 00
-1.400E 00	8.128E 01	6.374E 01	7.824E 01	3.830E 01	2.613E 02	9.782E 01	5.340E 00	4.510E 00
-1.200E 00	8.097E 01	6.525E 01	7.890E 01	3.654E 01	2.169E 02	8.566E 01	5.025E 00	4.804E 00
-1.000E 00	8.011E 01	6.624E 01	7.956E 01	3.469E 01	1.753E 02	7.508E 01	4.753E 00	5.106E 00
-8.000E-01	7.880E 01	6.672E 01	8.022E 01	3.275E 01	1.371E 02	6.589E 01	4.512E 00	5.418E 00
-6.000E-01	7.713E 01	6.673E 01	8.088E 01	3.073E 01	1.033E 02	5.793E 01	4.295E 00	5.740E 00
-4.000E-01	7.520E 01	6.627E 01	8.154E 01	2.864E 01	7.495E 01	5.108E 01	4.097E 00	6.073E 00
-2.000E-01	7.308E 01	6.541E 01	8.219E 01	2.651E 01	5.249E 01	4.521E 01	3.913E 00	6.417E 00
1.824E-05	7.083E 01	6.417E 01	8.284E 01	2.435E 01	3.584E 01	4.023E 01	3.739E 00	6.774E 00
2.000E-01	6.851E 01	6.261E 01	8.350E 01	2.218E 01	2.426E 01	3.606E 01	3.574E 00	7.144E 00
4.000E-01	6.615E 01	6.076E 01	8.416E 01	2.004E 01	1.663E 01	3.263E 01	3.415E 00	7.528E 00
6.000E-01	6.380E 01	5.867E 01	8.482E 01	1.794E 01	1.182E 01	2.990E 01	3.261E 00	7.927E 00
8.000E-01	6.146E 01	5.638E 01	8.549E 01	1.591E 01	8.895E 00	2.784E 01	3.111E 00	8.342E 00
1.000E 00	5.917E 01	5.392E 01	8.616E 01	1.398E 01	7.157E 00	2.642E 01	2.966E 00	8.773E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULPUR	ARGON	CALCIUM	IRON
840.000	15.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.192E 00	6.092E 00	1.459E 04	5.897E 01	6.076E 00	3.092E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.127E 00	5.798E 00	7.302E 03	5.234E 01	5.950E 00	2.392E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.068E 00	5.514E 00	3.692E 03	4.622E 01	5.810E 00	1.866E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.018E 00	5.242E 00	1.889E 03	4.064E 01	5.653E 00	1.468E 02	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	3.978E 00	4.987E 00	9.789E 02	3.558E 01	5.477E 00	1.166E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	3.948E 00	4.751E 00	5.155E 02	3.103E 01	5.278E 00	9.346E 01	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	3.926E 00	4.539E 00	2.766E 02	2.697E 01	5.059E 00	7.564E 01	9.895E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	3.903E 00	4.353E 00	1.519E 02	2.338E 01	4.819E 00	6.180E 01	8.741E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.870E 00	4.193E 00	8.575E 01	2.021E 01	4.563E 00	5.096E 01	7.720E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.812E 00	4.056E 00	5.009E 01	1.744E 01	4.295E 00	4.240E 01	6.817E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.715E 00	3.930E 00	3.044E 01	1.502E 01	4.018E 00	3.558E 01	6.019E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.572E 00	3.801E 00	1.935E 01	1.292E 01	3.738E 00	3.009E 01	5.313E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.382E 00	3.653E 00	1.290E 01	1.110E 01	3.459E 00	2.563E 01	4.689E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.156E 00	3.475E 00	9.018E 00	9.530E 00	3.186E 00	2.197E 01	4.138E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.907E 00	3.264E 00	6.587E 00	8.180E 00	2.921E 00	1.895E 01	3.651E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.650E 00	3.026E 00	4.998E 00	7.020E 00	2.668E 00	1.642E 01	3.221E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.397E 00	2.772E 00	3.912E 00	6.025E 00	2.428E 00	1.429E 01	2.841E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.155E 00	2.514E 00	3.137E 00	5.173E 00	2.203E 00	1.249E 01	2.505E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.929E 00	2.262E 00	2.563E 00	4.443E 00	1.993E 00	1.095E 01	2.210E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.721E 00	2.023E 00	2.121E 00	3.819E 00	1.798E 00	9.628E 00	1.949E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.533E 00	1.801E 00	1.773E 00	3.286E 00	1.619E 00	8.487E 00	1.719E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.363E 00	1.597E 00	1.491E 00	2.829E 00	1.454E 00	7.497E 00	1.516E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.210E 00	1.413E 00	1.261E 00	2.439E 00	1.303E 00	6.636E 00	1.338E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.074E 00	1.248E 00	1.069E 00	2.105E 00	1.165E 00	5.883E 00	1.182E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.521E-01	1.101E 00	9.084E-01	1.819E 00	1.038E 00	5.226E 00	1.045E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.437E-01	9.700E-01	7.728E-01	1.574E 00	9.216E-01	4.650E 00	9.251E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.472E-01	8.539E-01	6.579E-01	1.363E 00	8.145E-01	4.148E 00	8.209E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.614E-01	7.512E-01	5.602E-01	1.183E 00	7.152E-01	3.712E 00	7.307E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.851E-01	6.606E-01	4.769E-01	1.028E 00	6.219E-01	3.339E 00	6.531E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.175E-01	5.806E-01	4.059E-01	8.942E-01	5.331E-01	3.029E 00	5.872E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.574E-01	5.102E-01	3.453E-01	7.791E-01	4.471E-01	2.784E 00	5.320E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.042E-01	4.481E-01	2.936E-01	6.798E-01	3.631E-01	2.616E 00	4.870E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.570E-01	3.936E-01	2.495E-01	5.939E-01	2.814E-01	2.541E 00	4.518E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.152E-01	3.456E-01	2.119E-01	5.196E-01	2.049E-01	2.583E 00	4.261E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.782E-01	3.033E-01	1.798E-01	4.552E-01	1.382E-01	2.776E 00	4.100E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.455E-01	2.662E-01	1.524E-01	3.993E-01	8.591E-02	3.163E 00	4.038E-01	2.761E-01	6.562E-01	4.684E-02

7.13 Proton/alpha = 56.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	15.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.176E 01	1.969E 03	7.635E 01	7.845E 02	6.013E 01	3.005E 01	3.015E 04	6.704E 02	2.919E 02
-5.800E 00	1.054E 01	1.226E 03	6.386E 01	6.433E 02	5.120E 01	2.610E 01	2.173E 04	5.703E 02	2.306E 02
-5.600E 00	9.434E 00	7.700E 02	5.341E 01	5.277E 02	4.350E 01	2.266E 01	1.577E 04	4.863E 02	1.824E 02
-5.400E 00	8.440E 00	4.884E 02	4.466E 01	4.329E 02	3.714E 01	1.968E 01	1.154E 04	4.162E 02	1.444E 02
-5.200E 00	7.546E 00	3.131E 02	3.733E 01	3.553E 02	3.165E 01	1.709E 01	8.519E 03	3.584E 02	1.146E 02
-5.000E 00	6.744E 00	2.031E 02	3.121E 01	2.917E 02	2.698E 01	1.484E 01	6.342E 03	3.112E 02	9.125E 01
-4.800E 00	6.027E 00	1.334E 02	2.608E 01	2.395E 02	2.301E 01	1.289E 01	4.764E 03	2.732E 02	7.290E 01
-4.600E 00	5.387E 00	8.875E 01	2.179E 01	1.967E 02	1.964E 01	1.119E 01	3.611E 03	2.432E 02	5.853E 01
-4.400E 00	4.818E 00	5.989E 01	1.819E 01	1.616E 02	1.676E 01	9.706E 00	2.762E 03	2.196E 02	4.728E 01
-4.200E 00	4.314E 00	4.101E 01	1.519E 01	1.328E 02	1.432E 01	8.419E 00	2.132E 03	2.015E 02	3.849E 01
-4.000E 00	3.870E 00	2.852E 01	1.268E 01	1.092E 02	1.224E 01	7.300E 00	1.660E 03	1.874E 02	3.161E 01
-3.800E 00	3.478E 00	2.015E 01	1.057E 01	8.984E 01	1.048E 01	6.325E 00	1.304E 03	1.762E 02	2.624E 01
-3.600E 00	3.135E 00	1.447E 01	8.815E 00	7.391E 01	8.971E 00	5.478E 00	1.032E 03	1.670E 02	2.204E 01
-3.400E 00	2.834E 00	1.056E 01	7.345E 00	6.083E 01	7.691E 00	4.741E 00	8.233E 02	1.586E 02	1.876E 01
-3.200E 00	2.570E 00	7.843E 00	6.115E 00	5.007E 01	6.603E 00	4.101E 00	6.616E 02	1.504E 02	1.618E 01
-3.000E 00	2.337E 00	5.921E 00	5.088E 00	4.122E 01	5.678E 00	3.544E 00	5.353E 02	1.419E 02	1.416E 01
-2.800E 00	2.131E 00	4.544E 00	4.229E 00	3.393E 01	4.891E 00	3.061E 00	4.357E 02	1.328E 02	1.257E 01
-2.600E 00	1.947E 00	3.544E 00	3.512E 00	2.792E 01	4.224E 00	2.642E 00	3.567E 02	1.230E 02	1.131E 01
-2.400E 00	1.782E 00	2.805E 00	2.913E 00	2.295E 01	3.660E 00	2.279E 00	2.936E 02	1.128E 02	1.031E 01
-2.200E 00	1.632E 00	2.252E 00	2.412E 00	1.884E 01	3.183E 00	1.964E 00	2.428E 02	1.023E 02	9.497E 00
-2.000E 00	1.494E 00	1.832E 00	1.995E 00	1.542E 01	2.783E 00	1.692E 00	2.017E 02	9.188E 01	8.836E 00
-1.800E 00	1.367E 00	1.508E 00	1.647E 00	1.256E 01	2.451E 00	1.457E 00	1.682E 02	8.173E 01	8.290E 00
-1.600E 00	1.249E 00	1.255E 00	1.357E 00	1.017E 01	2.179E 00	1.254E 00	1.408E 02	7.211E 01	7.830E 00
-1.400E 00	1.138E 00	1.054E 00	1.116E 00	8.155E 00	1.964E 00	1.079E 00	1.182E 02	6.316E 01	7.436E 00
-1.200E 00	1.036E 00	8.920E-01	9.152E-01	6.446E 00	1.801E 00	9.274E-01	9.958E 01	5.498E 01	7.089E 00
-1.000E 00	9.398E-01	7.606E-01	7.484E-01	4.994E 00	1.692E 00	7.972E-01	8.411E 01	4.761E 01	6.779E 00
-8.000E-01	8.505E-01	6.527E-01	6.101E-01	3.766E 00	1.640E 00	6.851E-01	7.121E 01	4.105E 01	6.495E 00
-6.000E-01	7.674E-01	5.631E-01	4.955E-01	2.745E 00	1.653E 00	5.886E-01	6.043E 01	3.527E 01	6.231E 00
-4.000E-01	6.905E-01	4.881E-01	4.009E-01	1.921E 00	1.744E 00	5.057E-01	5.138E 01	3.022E 01	5.981E 00
-2.000E-01	6.193E-01	4.249E-01	3.228E-01	1.286E 00	1.934E 00	4.344E-01	4.377E 01	2.582E 01	5.741E 00
1.824E-05	5.538E-01	3.714E-01	2.587E-01	8.236E-01	2.256E 00	3.731E-01	3.735E 01	2.202E 01	5.509E 00
2.000E-01	4.936E-01	3.257E-01	2.061E-01	5.064E-01	2.759E 00	3.205E-01	3.192E 01	1.875E 01	5.283E 00
4.000E-01	4.385E-01	2.866E-01	1.632E-01	3.009E-01	3.516E 00	2.753E-01	2.732E 01	1.595E 01	5.062E 00
6.000E-01	3.883E-01	2.529E-01	1.284E-01	1.742E-01	4.634E 00	2.366E-01	2.341E 01	1.355E 01	4.845E 00
8.000E-01	3.426E-01	2.240E-01	1.003E-01	9.897E-02	6.274E 00	2.033E-01	2.009E 01	1.150E 01	4.632E 00
1.000E 00	3.012E-01	1.989E-01	7.781E-02	5.554E-02	8.672E 00	1.748E-01	1.725E 01	9.748E 00	4.422E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	15.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005
GAMMA	P2/A1	P3/A2	F4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2							
-6.000E 00	1.599E 02	3.089E 02	4.170E 01	5.398E 01	6.970E 03	1.356E 03	2.919E 02	3.786E-01							
-5.800E 00	1.382E 02	2.512E 02	4.217E 01	5.145E 01	5.563E 03	1.191E 03	2.306E 02	4.659E-01							
-5.600E 00	1.195E 02	2.045E 02	4.264E 01	4.927E 01	4.475E 03	1.045E 03	1.824E 02	5.691E-01							
-5.400E 00	1.036E 02	1.668E 02	4.312E 01	4.739E 01	3.629E 03	9.179E 02	1.444E 02	6.898E-01							
-5.200E 00	9.009E 01	1.363E 02	4.360E 01	4.576E 01	2.968E 03	8.058E 02	1.146E 02	8.294E-01							
-5.000E 00	7.882E 01	1.119E 02	4.408E 01	4.433E 01	2.450E 03	7.072E 02	9.125E 01	9.889E-01							
-4.800E 00	6.960E 01	9.243E 01	4.457E 01	4.309E 01	2.040E 03	6.206E 02	7.290E 01	1.169E 00							
-4.600E 00	6.229E 01	7.710E 01	4.505E 01	4.198E 01	1.714E 03	5.445E 02	5.853E 01	1.369E 00							
-4.400E 00	5.675E 01	6.521E 01	4.554E 01	4.100E 01	1.452E 03	4.776E 02	4.728E 01	1.590E 00							
-4.200E 00	5.285E 01	5.622E 01	4.603E 01	4.010E 01	1.240E 03	4.189E 02	3.849E 01	1.831E 00							
-4.000E 00	5.044E 01	4.966E 01	4.652E 01	3.927E 01	1.067E 03	3.673E 02	3.161E 01	2.091E 00							
-3.800E 00	4.935E 01	4.515E 01	4.701E 01	3.848E 01	9.248E 02	3.219E 02	2.624E 01	2.368E 00							
-3.600E 00	4.936E 01	4.236E 01	4.750E 01	3.773E 01	8.061E 02	2.821E 02	2.204E 01	2.662E 00							
-3.400E 00	5.025E 01	4.097E 01	4.799E 01	3.699E 01	7.062E 02	2.472E 02	1.876E 01	2.971E 00							
-3.200E 00	5.173E 01	4.072E 01	4.848E 01	3.625E 01	6.214E 02	2.165E 02	1.618E 01	3.293E 00							
-3.000E 00	5.353E 01	4.134E 01	4.897E 01	3.549E 01	5.485E 02	1.896E 02	1.416E 01	3.628E 00							
-2.800E 00	5.540E 01	4.258E 01	4.946E 01	3.472E 01	4.852E 02	1.661E 02	1.257E 01	3.974E 00							
-2.600E 00	5.710E 01	4.423E 01	4.995E 01	3.391E 01	4.298E 02	1.454E 02	1.131E 01	4.331E 00							
-2.400E 00	5.849E 01	4.608E 01	5.044E 01	3.306E 01	3.808E 02	1.273E 02	1.031E 01	4.698E 00							
-2.200E 00	5.945E 01	4.796E 01	5.093E 01	3.217E 01	3.369E 02	1.114E 02	9.497E 00	5.075E 00							
-2.000E 00	5.994E 01	4.974E 01	5.141E 01	3.122E 01	2.973E 02	9.749E 01	8.836E 00	5.463E 00							
-1.800E 00	5.997E 01	5.132E 01	5.189E 01	3.021E 01	2.611E 02	8.535E 01	8.290E 00	5.860E 00							
-1.600E 00	5.958E 01	5.263E 01	5.237E 01	2.915E 01	2.276E 02	7.475E 01	7.830E 00	6.268E 00							
-1.400E 00	5.881E 01	5.364E 01	5.286E 01	2.802E 01	1.962E 02	6.550E 01	7.436E 00	6.687E 00							
-1.200E 00	5.774E 01	5.432E 01	5.333E 01	2.684E 01	1.667E 02	5.745E 01	7.089E 00	7.117E 00							
-1.000E 00	5.643E 01	5.467E 01	5.381E 01	2.559E 01	1.387E 02	5.046E 01	6.779E 00	7.560E 00							
-8.000E-01	5.495E 01	5.472E 01	5.429E 01	2.429E 01	1.123E 02	4.441E 01	6.495E 00	8.016E 00							
-6.000E-01	5.333E 01	5.448E 01	5.477E 01	2.294E 01	8.806E 01	3.921E 01	6.231E 00	8.487E 00							
-4.000E-01	5.164E 01	5.398E 01	5.525E 01	2.155E 01	6.657E 01	3.476E 01	5.981E 00	8.973E 00							
-2.000E-01	4.990E 01	5.323E 01	5.572E 01	2.012E 01	4.854E 01	3.099E 01	5.741E 00	9.475E 00							
1.824E-05	4.814E 01	5.226E 01	5.620E 01	1.866E 01	3.437E 01	2.785E 01	5.509E 00	9.995E 00							
2.000E-01	4.639E 01	5.110E 01	5.668E 01	1.718E 01	2.397E 01	2.528E 01	5.283E 00	1.053E 01							
4.000E-01	4.466E 01	4.977E 01	5.716E 01	1.571E 01	1.680E 01	2.325E 01	5.062E 00	1.109E 01							
6.000E-01	4.297E 01	4.828E 01	5.764E 01	1.425E 01	1.211E 01	2.173E 01	4.845E 00	1.167E 01							
8.000E-01	4.132E 01	4.666E 01	5.813E 01	1.281E 01	9.175E 00	2.073E 01	4.632E 00	1.227E 01							
1.000E 00	3.971E 01	4.492E 01	5.862E 01	1.142E 01	7.383E 00	2.024E 01	4.422E 00	1.290E 01							

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULPUR	ARGON	CALCIUM	IRON
840.000	20.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.259E 00	6.126E 00	1.457E 04	5.308E 01	5.451E 00	3.849E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.202E 00	5.837E 00	7.305E 03	4.761E 01	5.333E 00	2.949E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.150E 00	5.559E 00	3.702E 03	4.247E 01	5.211E 00	2.276E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.105E 00	5.293E 00	1.899E 03	3.770E 01	5.080E 00	1.770E 02	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.067E 00	5.042E 00	9.878E 02	3.330E 01	4.936E 00	1.388E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.036E 00	4.809E 00	5.225E 02	2.928E 01	4.778E 00	1.099E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.008E 00	4.597E 00	2.819E 02	2.564E 01	4.604E 00	8.779E 01	9.896E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	3.975E 00	4.407E 00	1.558E 02	2.238E 01	4.413E 00	7.080E 01	8.741E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	3.927E 00	4.239E 00	8.858E 01	1.946E 01	4.206E 00	5.765E 01	7.720E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.852E 00	4.087E 00	5.211E 01	1.688E 01	3.985E 00	4.738E 01	6.818E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.739E 00	3.943E 00	3.188E 01	1.461E 01	3.753E 00	3.929E 01	6.019E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.582E 00	3.794E 00	2.037E 01	1.262E 01	3.514E 00	3.287E 01	5.314E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.383E 00	3.627E 00	1.362E 01	1.088E 01	3.272E 00	2.772E 01	4.690E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.153E 00	3.434E 00	9.529E 00	9.374E 00	3.031E 00	2.355E 01	4.139E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.902E 00	3.215E 00	6.949E 00	8.067E 00	2.793E 00	2.014E 01	3.652E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.646E 00	2.975E 00	5.255E 00	6.940E 00	2.563E 00	1.733E 01	3.222E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.393E 00	2.724E 00	4.095E 00	5.968E 00	2.342E 00	1.499E 01	2.842E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.152E 00	2.470E 00	3.268E 00	5.133E 00	2.132E 00	1.303E 01	2.507E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.927E 00	2.224E 00	2.656E 00	4.415E 00	1.934E 00	1.137E 01	2.212E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.720E 00	1.991E 00	2.188E 00	3.800E 00	1.749E 00	9.961E 00	1.951E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.532E 00	1.774E 00	1.821E 00	3.272E 00	1.577E 00	8.752E 00	1.722E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.363E 00	1.575E 00	1.527E 00	2.820E 00	1.418E 00	7.710E 00	1.520E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.210E 00	1.395E 00	1.287E 00	2.433E 00	1.271E 00	6.809E 00	1.342E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.074E 00	1.233E 00	1.088E 00	2.101E 00	1.136E 00	6.026E 00	1.187E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.524E-01	1.089E 00	9.227E-01	1.816E 00	1.012E 00	5.343E 00	1.051E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.439E-01	9.599E-01	7.835E-01	1.572E 00	8.979E-01	4.748E 00	9.326E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.474E-01	8.456E-01	6.660E-01	1.362E 00	7.921E-01	4.228E 00	8.299E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.616E-01	7.444E-01	5.664E-01	1.182E 00	6.938E-01	3.777E 00	7.416E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.853E-01	6.549E-01	4.817E-01	1.027E 00	6.015E-01	3.389E 00	6.664E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.176E-01	5.759E-01	4.096E-01	8.940E-01	5.137E-01	3.063E 00	6.033E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.576E-01	5.062E-01	3.483E-01	7.790E-01	4.291E-01	2.801E 00	5.516E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.043E-01	4.448E-01	2.959E-01	6.798E-01	3.472E-01	2.611E 00	5.109E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.571E-01	3.908E-01	2.513E-01	5.940E-01	2.684E-01	2.505E 00	4.808E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.153E-01	3.432E-01	2.133E-01	5.197E-01	1.954E-01	1.954E-01	4.614E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.783E-01	3.014E-01	1.809E-01	4.553E-01	1.321E-01	2.629E 00	4.530E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.455E-01	2.646E-01	1.534E-01	3.994E-01	8.259E-02	2.913E 00	4.563E-01	2.761E-01	6.562E-01	4.684E-02

7.14 Proton/alpha = 42.

PROTONS	ALPHAS	LITHIUM	BERYL.	BOFON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	20.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.177E 01	1.480E 03	7.970E 01	7.514E 02	6.009E 01	3.005E 01	3.015E 04	6.864E 02	2.924E 02
-5.800E 00	1.055E 01	9.217E 02	6.662E 01	6.166E 02	5.115E 01	2.610E 01	2.173E 04	5.861E 02	2.313E 02
-5.600E 00	9.452E 00	5.794E 02	5.568E 01	5.061E 02	4.355E 01	2.266E 01	1.577E 04	5.017E 02	1.831E 02
-5.400E 00	8.462E 00	3.679E 02	4.653E 01	4.156E 02	3.710E 01	1.968E 01	1.154E 04	4.311E 02	1.453E 02
-5.200E 00	7.575E 00	2.362E 02	3.888E 01	3.413E 02	3.161E 01	1.709E 01	8.519E 03	3.724E 02	1.156E 02
-5.000E 00	6.780E 00	1.535E 02	3.248E 01	2.803E 02	2.694E 01	1.484E 01	6.342E 03	3.240E 02	9.234E 01
-4.800E 00	6.072E 00	1.011E 02	2.712E 01	2.303E 02	2.297E 01	1.289E 01	4.764E 03	2.845E 02	7.411E 01
-4.600E 00	5.442E 00	6.750E 01	2.265E 01	1.893E 02	1.959E 01	1.119E 01	3.611E 03	2.525E 02	5.986E 01
-4.400E 00	4.884E 00	4.575E 01	1.890E 01	1.557E 02	1.672E 01	9.706E 00	2.762E 03	2.267E 02	4.872E 01
-4.200E 00	4.392E 00	3.150E 01	1.577E 01	1.281E 02	1.428E 01	8.419E 00	2.132E 03	2.059E 02	4.004E 01
-4.000E 00	3.960E 00	2.205E 01	1.316E 01	1.054E 02	1.220E 01	7.300E 00	1.660E 03	1.889E 02	3.327E 01
-3.800E 00	3.581E 00	1.570E 01	1.097E 01	8.674E 01	1.043E 01	6.325E 00	1.304E 03	1.746E 02	2.799E 01
-3.600E 00	3.249E 00	1.137E 01	9.144E 00	7.143E 01	8.925E 00	5.478E 00	1.032E 03	1.621E 02	2.388E 01
-3.400E 00	2.958E 00	8.391E 00	7.616E 00	5.885E 01	7.645E 00	4.741E 00	8.233E 02	1.505E 02	2.067E 01
-3.200E 00	2.701E 00	6.301E 00	6.340E 00	4.850E 01	6.555E 00	4.101E 00	6.616E 02	1.394E 02	1.817E 01
-3.000E 00	2.474E 00	4.815E 00	5.274E 00	3.997E 01	5.629E 00	3.544E 00	5.353E 02	1.283E 02	1.620E 01
-2.800E 00	2.271E 00	3.742E 00	4.384E 00	3.295E 01	4.841E 00	3.061E 00	4.357E 02	1.172E 02	1.465E 01
-2.600E 00	2.087E 00	2.955E 00	3.641E 00	2.716E 01	4.171E 00	2.642E 00	3.567E 02	1.062E 02	1.343E 01
-2.400E 00	1.919E 00	2.368E 00	3.021E 00	2.238E 01	3.603E 00	2.279E 00	2.936E 02	9.536E 01	1.244E 01
-2.200E 00	1.764E 00	1.924E 00	2.504E 00	1.842E 01	3.123E 00	1.964E 00	2.428E 02	8.488E 01	1.164E 01
-2.000E 00	1.620E 00	1.582E 00	2.072E 00	1.513E 01	2.718E 00	1.692E 00	2.017E 02	7.496E 01	1.098E 01
-1.800E 00	1.486E 00	1.316E 00	1.713E 00	1.239E 01	2.379E 00	1.457E 00	1.682E 02	6.573E 01	1.043E 01
-1.600E 00	1.360E 00	1.104E 00	1.413E 00	1.009E 01	2.099E 00	1.254E 00	1.408E 02	5.728E 01	9.950E 00
-1.400E 00	1.242E 00	9.340E-01	1.164E 00	8.159E 00	1.871E 00	1.079E 00	1.182E 02	4.965E 01	9.531E 00
-1.200E 00	1.131E 00	7.956E-01	9.565E-01	6.521E 00	1.693E 00	9.274E-01	9.958E 01	4.285E 01	9.153E 00
-1.000E 00	1.028E 00	6.817E-01	7.842E-01	5.125E 00	1.563E 00	7.972E-01	8.411E 01	3.684E 01	8.805E 00
-8.000E-01	9.321E-01	5.871E-01	6.413E-01	3.935E 00	1.483E 00	6.851E-01	7.121E 01	3.158E 01	8.478E 00
-6.000E-01	8.428E-01	5.077E-01	5.228E-01	2.930E 00	1.458E 00	5.886E-01	6.043E 01	2.700E 01	8.166E 00
-4.000E-01	7.600E-01	4.407E-01	4.247E-01	2.098E 00	1.495E 00	5.057E-01	5.138E 01	2.304E 01	7.864E 00
-2.000E-01	6.836E-01	3.838E-01	3.438E-01	1.437E 00	1.612E 00	4.344E-01	4.377E 01	1.963E 01	7.569E 00
1.824E-05	6.133E-01	3.351E-01	2.771E-01	9.393E-01	1.831E 00	3.731E-01	3.735E 01	1.670E 01	7.279E 00
2.000E-01	5.486E-01	2.934E-01	2.222E-01	5.867E-01	2.190E 00	3.205E-01	3.192E 01	1.419E 01	6.993E 00
4.000E-01	4.895E-01	2.575E-01	1.773E-01	3.522E-01	2.741E 00	2.753E-01	2.732E 01	1.204E 01	6.710E 00
6.000E-01	4.354E-01	2.266E-01	1.407E-01	2.048E-01	3.565E 00	2.366E-01	2.341E 01	1.022E 01	6.429E 00
8.000E-01	3.862E-01	1.998E-01	1.109E-01	1.164E-01	4.783E 00	2.033E-01	2.009E 01	8.661E 00	6.152E 00
1.000E 00	3.414E-01	1.767E-01	8.680E-02	6.504E-02	6.571E 00	1.748E-01	1.725E 01	7.338E 00	5.877E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	20.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.611E 02	3.097E 02	3.146E 01	4.724E 01	6.512E 03	1.017E 03	2.924E 02	5.044E-01
-5.800E 00	1.395E 02	2.522E 02	3.182E 01	4.452E 01	5.148E 03	8.929E 02	2.313E 02	6.206E-01
-5.600E 00	1.209E 02	2.056E 02	3.217E 01	4.218E 01	4.097E 03	7.841E 02	1.831E 02	7.580E-01
-5.400E 00	1.050E 02	1.679E 02	3.253E 01	4.015E 01	3.285E 03	6.884E 02	1.453E 02	9.187E-01
-5.200E 00	9.155E 01	1.375E 02	3.289E 01	3.840E 01	2.655E 03	6.043E 02	1.156E 02	1.104E 00
-5.000E 00	8.027E 01	1.132E 02	3.325E 01	3.688E 01	2.164E 03	5.304E 02	9.234E 01	1.317E 00
-4.800E 00	7.098E 01	9.376E 01	3.362E 01	3.556E 01	1.779E 03	4.655E 02	7.411E 01	1.556E 00
-4.600E 00	6.351E 01	7.844E 01	3.399E 01	3.440E 01	1.476E 03	4.084E 02	5.986E 01	1.823E 00
-4.400E 00	5.773E 01	6.652E 01	3.435E 01	3.337E 01	1.235E 03	3.582E 02	4.872E 01	2.117E 00
-4.200E 00	5.346E 01	5.745E 01	3.472E 01	3.244E 01	1.043E 03	3.142E 02	4.004E 01	2.437E 00
-4.000E 00	5.053E 01	5.075E 01	3.509E 01	3.161E 01	8.873E 02	2.755E 02	3.327E 01	2.782E 00
-3.800E 00	4.876E 01	4.603E 01	3.546E 01	3.083E 01	7.610E 02	2.415E 02	2.799E 01	3.150E 00
-3.600E 00	4.791E 01	4.292E 01	3.584E 01	3.011E 01	6.573E 02	2.116E 02	2.388E 01	3.540E 00
-3.400E 00	4.775E 01	4.112E 01	3.621E 01	2.942E 01	5.712E 02	1.854E 02	2.067E 01	3.949E 00
-3.200E 00	4.802E 01	4.035E 01	3.658E 01	2.875E 01	4.991E 02	1.625E 02	1.817E 01	4.377E 00
-3.000E 00	4.850E 01	4.034E 01	3.696E 01	2.809E 01	4.381E 02	1.423E 02	1.620E 01	4.820E 00
-2.800E 00	4.900E 01	4.085E 01	3.733E 01	2.742E 01	3.859E 02	1.246E 02	1.465E 01	5.279E 00
-2.600E 00	4.936E 01	4.170E 01	3.770E 01	2.675E 01	3.409E 02	1.091E 02	1.343E 01	5.752E 00
-2.400E 00	4.949E 01	4.270E 01	3.808E 01	2.605E 01	3.015E 02	9.553E 01	1.244E 01	6.238E 00
-2.200E 00	4.934E 01	4.373E 01	3.845E 01	2.534E 01	2.668E 02	8.364E 01	1.164E 01	6.737E 00
-2.000E 00	4.892E 01	4.468E 01	3.882E 01	2.459E 01	2.359E 02	7.324E 01	1.098E 01	7.248E 00
-1.800E 00	4.823E 01	4.549E 01	3.920E 01	2.380E 01	2.079E 02	6.416E 01	1.043E 01	7.773E 00
-1.600E 00	4.732E 01	4.612E 01	3.957E 01	2.299E 01	1.825E 02	5.624E 01	9.950E 00	8.311E 00
-1.400E 00	4.622E 01	4.654E 01	3.994E 01	2.213E 01	1.589E 02	4.934E 01	9.531E 00	8.863E 00
-1.200E 00	4.499E 01	4.675E 01	4.031E 01	2.123E 01	1.368E 02	4.334E 01	9.153E 00	9.431E 00
-1.000E 00	4.365E 01	4.676E 01	4.068E 01	2.030E 01	1.159E 02	3.815E 01	8.805E 00	1.001E 01
-8.000E-01	4.225E 01	4.657E 01	4.105E 01	1.932E 01	9.600E 01	3.368E 01	8.478E 00	1.061E 01
-6.000E-01	4.082E 01	4.621E 01	4.143E 01	1.832E 01	7.735E 01	2.985E 01	8.166E 00	1.123E 01
-4.000E-01	3.937E 01	4.569E 01	4.180E 01	1.728E 01	6.028E 01	2.660E 01	7.864E 00	1.187E 01
-2.000E-01	3.792E 01	4.502E 01	4.217E 01	1.622E 01	4.538E 01	2.388E 01	7.569E 00	1.253E 01
1.824E-05	3.649E 01	4.421E 01	4.254E 01	1.513E 01	3.312E 01	2.165E 01	7.279E 00	1.322E 01
2.000E-01	3.509E 01	4.328E 01	4.292E 01	1.403E 01	2.371E 01	1.988E 01	6.993E 00	1.392E 01
4.000E-01	3.373E 01	4.225E 01	4.329E 01	1.292E 01	1.696E 01	1.855E 01	6.710E 00	1.466E 01
6.000E-01	3.241E 01	4.111E 01	4.367E 01	1.182E 01	1.239E 01	1.765E 01	6.429E 00	1.542E 01
8.000E-01	3.112E 01	3.988E 01	4.405E 01	1.073E 01	9.445E 00	1.718E 01	6.152E 00	1.621E 01
1.000E 00	2.989E 01	3.857E 01	4.443E 01	9.656E 00	7.605E 00	1.715E 01	5.877E 00	1.703E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	30.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.391E 00	6.192E 00	1.453E 04	4.436E 01	4.730E 00	5.362E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.346E 00	5.914E 00	7.310E 03	4.042E 01	4.607E 00	4.062E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.306E 00	5.647E 00	3.721E 03	3.662E 01	4.487E 00	3.095E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.268E 00	5.391E 00	1.919E 03	3.299E 01	4.369E 00	2.373E 02	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.233E 00	5.148E 00	1.005E 03	2.956E 01	4.249E 00	1.833E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.197E 00	4.919E 00	5.364E 02	2.635E 01	4.123E 00	1.428E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.155E 00	4.705E 00	2.924E 02	2.337E 01	3.990E 00	1.121E 02	9.896E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.102E 00	4.506E 00	1.635E 02	2.063E 01	3.846E 00	8.881E 01	8.742E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.026E 00	4.320E 00	9.416E 01	1.814E 01	3.692E 00	7.102E 01	7.721E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	3.921E 00	4.142E 00	5.611E 01	1.588E 01	3.526E 00	5.733E 01	6.818E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.779E 00	3.965E 00	3.473E 01	1.386E 01	3.350E 00	4.672E 01	6.020E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.599E 00	3.780E 00	2.239E 01	1.207E 01	3.164E 00	3.843E 01	5.315E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.385E 00	3.581E 00	1.505E 01	1.048E 01	2.972E 00	3.190E 01	4.691E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.146E 00	3.365E 00	1.054E 01	9.078E 00	2.776E 00	2.670E 01	4.140E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.893E 00	3.132E 00	7.667E 00	7.854E 00	2.579E 00	2.253E 01	3.654E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.637E 00	2.887E 00	5.764E 00	6.786E 00	2.383E 00	1.915E 01	3.224E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.386E 00	2.639E 00	4.457E 00	5.858E 00	2.191E 00	1.639E 01	2.845E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.147E 00	2.393E 00	3.526E 00	5.055E 00	2.006E 00	1.411E 01	2.510E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.924E 00	2.156E 00	2.841E 00	4.360E 00	1.828E 00	1.222E 01	2.216E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.719E 00	1.932E 00	2.322E 00	3.761E 00	1.659E 00	1.062E 01	1.956E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.532E 00	1.725E 00	1.918E 00	3.245E 00	1.501E 00	9.279E 00	1.727E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.363E 00	1.534E 00	1.597E 00	2.802E 00	1.352E 00	8.134E 00	1.527E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.361E 00	1.338E 00	2.420E 00	1.213E 00	7.152E 00	1.351E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.075E 00	1.205E 00	1.126E 00	2.092E 00	1.084E 00	6.306E 00	1.197E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.529E-01	1.065E 00	9.511E-01	1.810E 00	9.649E-01	5.574E 00	1.063E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.445E-01	9.406E-01	8.049E-01	1.568E 00	8.541E-01	4.937E 00	9.475E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.479E-01	8.296E-01	6.822E-01	1.360E 00	7.511E-01	4.383E 00	8.480E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.620E-01	7.311E-01	5.787E-01	1.181E 00	6.549E-01	3.900E 00	7.635E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.857E-01	6.438E-01	4.913E-01	1.027E 00	5.645E-01	3.483E 00	6.930E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.179E-01	5.666E-01	4.171E-01	8.935E-01	4.789E-01	3.126E 00	6.356E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.578E-01	4.985E-01	3.541E-01	7.788E-01	3.973E-01	2.831E 00	5.908E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.045E-01	4.384E-01	3.005E-01	6.797E-01	3.193E-01	2.601E 00	5.585E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.572E-01	3.853E-01	2.550E-01	5.940E-01	2.458E-01	2.445E 00	5.388E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.154E-01	3.386E-01	2.162E-01	5.198E-01	1.788E-01	2.375E 00	5.320E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.784E-01	2.975E-01	1.833E-01	4.554E-01	1.215E-01	2.406E 00	5.391E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.456E-01	2.613E-01	1.553E-01	3.995E-01	7.667E-02	2.553E 00	5.612E-01	2.761E-01	6.562E-01	4.684E-02

7.15 Proton/Alpha = 28.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	30.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.180E 01	9.895E 02	8.337E 01	7.183E 02	6.004E 01	3.005E 01	3.015E 04	7.180E 02	2.936E 02
-5.800E 00	1.058E 01	6.170E 02	6.964E 01	5.899E 02	5.110E 01	2.610E 01	2.173E 04	6.175E 02	2.326E 02
-5.600E 00	9.487E 00	3.884E 02	5.816E 01	4.846E 02	4.351E 01	2.266E 01	1.577E 04	5.323E 02	1.847E 02
-5.400E 00	8.508E 00	2.472E 02	4.857E 01	3.981E 02	3.705E 01	1.968E 01	1.154E 04	4.602E 02	1.470E 02
-5.200E 00	7.632E 00	1.592E 02	4.056E 01	3.272E 02	3.156E 01	1.709E 01	8.519E 03	3.996E 02	1.176E 02
-5.000E 00	6.852E 00	1.038E 02	3.386E 01	2.690E 02	2.689E 01	1.484E 01	6.342E 03	3.486E 02	9.452E 01
-4.800E 00	6.160E 00	6.870E 01	2.826E 01	2.212E 02	2.292E 01	1.289E 01	4.764E 03	3.058E 02	7.652E 01
-4.600E 00	5.548E 00	4.617E 01	2.458E 01	1.819E 02	1.955E 01	1.119E 01	3.611E 03	2.699E 02	6.251E 01
-4.400E 00	5.010E 00	3.155E 01	1.967E 01	1.497E 02	1.668E 01	9.706E 00	2.762E 03	2.396E 02	5.160E 01
-4.200E 00	4.539E 00	2.194E 01	1.641E 01	1.232E 02	1.423E 01	8.419E 00	2.132E 03	2.139E 02	4.314E 01
-4.000E 00	4.126E 00	1.554E 01	1.368E 01	1.015E 02	1.215E 01	7.300E 00	1.660E 03	1.916E 02	3.658E 01
-3.800E 00	3.766E 00	1.122E 01	1.140E 01	8.362E 01	1.039E 01	6.325E 00	1.304E 03	1.720E 02	3.150E 01
-3.600E 00	3.450E 00	8.265E 00	9.499E 00	6.893E 01	8.880E 00	5.478E 00	1.032E 03	1.544E 02	2.756E 01
-3.400E 00	3.170E 00	6.206E 00	7.911E 00	5.684E 01	7.599E 00	4.741E 00	8.233E 02	1.382E 02	2.451E 01
-3.200E 00	2.921E 00	4.749E 00	6.584E 00	4.689E 01	6.508E 00	4.101E 00	6.616E 02	1.233E 02	2.214E 01
-3.000E 00	2.696E 00	3.700E 00	5.477E 00	3.870E 01	5.580E 00	3.544E 00	5.353E 02	1.094E 02	2.028E 01
-2.800E 00	2.489E 00	2.933E 00	4.553E 00	3.195E 01	4.790E 00	3.061E 00	4.357E 02	9.649E 01	1.882E 01
-2.600E 00	2.299E 00	2.361E 00	3.782E 00	2.638E 01	4.118E 00	2.642E 00	3.567E 02	8.464E 01	1.765E 01
-2.400E 00	2.121E 00	1.927E 00	3.139E 00	2.178E 01	3.547E 00	2.279E 00	2.936E 02	7.384E 01	1.671E 01
-2.200E 00	1.953E 00	1.593E 00	2.603E 00	1.798E 01	3.063E 00	1.964E 00	2.428E 02	6.409E 01	1.593E 01
-2.000E 00	1.796E 00	1.330E 00	2.156E 00	1.482E 01	2.652E 00	1.692E 00	2.017E 02	5.538E 01	1.527E 01
-1.800E 00	1.648E 00	1.121E 00	1.784E 00	1.220E 01	2.307E 00	1.457E 00	1.682E 02	4.767E 01	1.470E 01
-1.600E 00	1.508E 00	9.516E-01	1.474E 00	1.000E 01	2.018E 00	1.254E 00	1.408E 02	4.091E 01	1.419E 01
-1.400E 00	1.377E 00	8.130E-01	1.217E 00	8.163E 00	1.779E 00	1.079E 00	1.182E 02	3.501E 01	1.372E 01
-1.200E 00	1.255E 00	6.980E-01	1.002E 00	6.605E 00	1.585E 00	9.274E-01	9.958E 01	2.990E 01	1.328E 01
-1.000E 00	1.141E 00	6.018E-01	8.242E-01	5.280E 00	1.435E 00	7.972E-01	8.411E 01	2.548E 01	1.286E 01
-8.000E-01	1.036E 00	5.206E-01	6.763E-01	4.144E 00	1.326E 00	6.851E-01	7.121E 01	2.169E 01	1.244E 01
-6.000E-01	9.381E-01	4.515E-01	5.537E-01	3.171E 00	1.262E 00	5.886E-01	6.043E 01	1.844E 01	1.204E 01
-4.000E-01	8.478E-01	3.925E-01	4.521E-01	2.346E 00	1.247E 00	5.057E-01	5.138E 01	1.566E 01	1.163E 01
-2.000E-01	7.648E-01	3.419E-01	3.681E-01	1.664E 00	1.290E 00	4.344E-01	4.377E 01	1.329E 01	1.123E 01
1.824E-05	6.886E-01	2.983E-01	2.987E-01	1.125E 00	1.407E 00	3.731E-01	3.735E 01	1.127E 01	1.082E 01
2.000E-01	6.186E-01	2.606E-01	2.414E-01	7.234E-01	1.620E 00	3.205E-01	3.192E 01	9.556E 00	1.041E 01
4.000E-01	5.547E-01	2.280E-01	1.944E-01	4.439E-01	1.966E 00	2.753E-01	2.732E 01	8.096E 00	1.001E 01
6.000E-01	4.962E-01	1.998E-01	1.558E-01	2.617E-01	2.496E 00	2.366E-01	2.341E 01	6.857E 00	9.598E 00
8.000E-01	4.429E-01	1.753E-01	1.242E-01	1.495E-01	3.292E 00	2.033E-01	2.009E 01	5.805E 00	9.192E 00
1.000E 00	3.944E-01	1.540E-01	9.842E-02	8.348E-02	4.470E 00	1.748E-01	1.725E 01	4.913E 00	8.788E 00

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	30.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	F4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.635E 02	3.115E 02	2.121E 01	3.986E 01	6.054E 03	6.778E 02	2.936E 02	7.559E-01
-5.800E 00	1.421E 02	2.541E 02	2.145E 01	3.695E 01	4.731E 03	5.953E 02	2.326E 02	9.299E-01
-5.600E 00	1.236E 02	2.077E 02	2.168E 01	3.443E 01	3.718E 03	5.227E 02	1.847E 02	1.136E 00
-5.400E 00	1.078E 02	1.702E 02	2.192E 01	3.227E 01	2.940E 03	4.590E 02	1.470E 02	1.376E 00
-5.200E 00	9.440E 01	1.400E 02	2.216E 01	3.040E 01	2.341E 03	4.029E 02	1.176E 02	1.655E 00
-5.000E 00	8.306E 01	1.157E 02	2.240E 01	2.878E 01	1.877E 03	3.536E 02	9.452E 01	1.972E 00
-4.800E 00	7.359E 01	9.635E 01	2.264E 01	2.738E 01	1.517E 03	3.103E 02	7.652E 01	2.330E 00
-4.600E 00	6.581E 01	8.102E 01	2.288E 01	2.615E 01	1.237E 03	2.723E 02	6.251E 01	2.729E 00
-4.400E 00	5.952E 01	6.902E 01	2.312E 01	2.508E 01	1.017E 03	2.388E 02	5.160E 01	3.169E 00
-4.200E 00	5.455E 01	5.976E 01	2.337E 01	2.414E 01	8.437E 02	2.095E 02	4.314E 01	3.648E 00
-4.000E 00	5.070E 01	5.276E 01	2.361E 01	2.330E 01	7.060E 02	1.837E 02	3.658E 01	4.163E 00
-3.800E 00	4.779E 01	4.760E 01	2.386E 01	2.255E 01	5.958E 02	1.610E 02	3.150E 01	4.714E 00
-3.600E 00	4.559E 01	4.391E 01	2.411E 01	2.186E 01	5.069E 02	1.411E 02	2.756E 01	5.296E 00
-3.400E 00	4.392E 01	4.138E 01	2.436E 01	2.123E 01	4.346E 02	1.237E 02	2.451E 01	5.907E 00
-3.200E 00	4.260E 01	3.973E 01	2.461E 01	2.063E 01	3.751E 02	1.084E 02	2.214E 01	6.545E 00
-3.000E 00	4.148E 01	3.872E 01	2.486E 01	2.006E 01	3.258E 02	9.493E 01	2.028E 01	7.206E 00
-2.800E 00	4.045E 01	3.816E 01	2.511E 01	1.951E 01	2.845E 02	8.315E 01	1.882E 01	7.890E 00
-2.600E 00	3.943E 01	3.788E 01	2.536E 01	1.897E 01	2.496E 02	7.283E 01	1.765E 01	8.594E 00
-2.400E 00	3.838E 01	3.775E 01	2.561E 01	1.844E 01	2.197E 02	6.380E 01	1.671E 01	9.317E 00
-2.200E 00	3.729E 01	3.770E 01	2.586E 01	1.790E 01	1.939E 02	5.590E 01	1.593E 01	1.006E 01
-2.000E 00	3.616E 01	3.765E 01	2.611E 01	1.735E 01	1.714E 02	4.899E 01	1.527E 01	1.082E 01
-1.800E 00	3.498E 01	3.757E 01	2.637E 01	1.679E 01	1.515E 02	4.297E 01	1.470E 01	1.160E 01
-1.600E 00	3.379E 01	3.744E 01	2.662E 01	1.622E 01	1.337E 02	3.773E 01	1.419E 01	1.240E 01
-1.400E 00	3.258E 01	3.723E 01	2.687E 01	1.563E 01	1.176E 02	3.317E 01	1.372E 01	1.322E 01
-1.200E 00	3.137E 01	3.696E 01	2.713E 01	1.502E 01	1.028E 02	2.923E 01	1.328E 01	1.406E 01
-1.000E 00	3.018E 01	3.662E 01	2.738E 01	1.439E 01	8.894E 01	2.584E 01	1.286E 01	1.492E 01
-8.000E-01	2.900E 01	3.621E 01	2.763E 01	1.374E 01	7.581E 01	2.294E 01	1.244E 01	1.581E 01
-6.000E-01	2.786E 01	3.574E 01	2.789E 01	1.308E 01	6.331E 01	2.049E 01	1.204E 01	1.673E 01
-4.000E-01	2.674E 01	3.522E 01	2.814E 01	1.239E 01	5.150E 01	1.844E 01	1.163E 01	1.767E 01
-2.000E-01	2.567E 01	3.464E 01	2.840E 01	1.170E 01	4.064E 01	1.677E 01	1.123E 01	1.865E 01
1.824E-05	2.463E 01	3.402E 01	2.866E 01	1.099E 01	3.111E 01	1.546E 01	1.082E 01	1.966E 01
2.000E-01	2.363E 01	3.334E 01	2.891E 01	1.027E 01	2.327E 01	1.449E 01	1.041E 01	2.070E 01
4.000E-01	2.266E 01	3.262E 01	2.917E 01	9.546E 00	1.724E 01	1.386E 01	1.001E 01	2.178E 01
6.000E-01	2.174E 01	3.186E 01	2.943E 01	8.819E 00	1.291E 01	1.357E 01	9.598E 00	2.291E 01
8.000E-01	2.086E 01	3.105E 01	2.969E 01	8.096E 00	9.961E 00	1.363E 01	9.192E 00	2.407E 01
1.000E 00	2.001E 01	3.020E 01	2.996E 01	7.379E 00	8.035E 00	1.407E 01	8.788E 00	2.529E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	45.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.579E 00	6.290E 00	1.447E 04	3.577E 01	4.185E 00	7.633E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.551E 00	6.027E 00	7.318E 03	3.311E 01	4.046E 00	5.731E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.522E 00	5.774E 00	3.748E 03	3.047E 01	3.916E 00	4.323E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.491E 00	5.531E 00	1.949E 03	2.789E 01	3.794E 00	3.278E 02	1.434E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.454E 00	5.296E 00	1.031E 03	2.538E 01	3.677E 00	2.501E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.406E 00	5.070E 00	5.568E 02	2.297E 01	3.561E 00	1.920E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.344E 00	4.851E 00	1.748E 02	2.067E 01	3.446E 00	1.485E 02	9.897E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.259E 00	4.637E 00	1.024E 02	1.851E 01	3.327E 00	1.158E 02	8.743E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.148E 00	4.425E 00	1.024E 02	1.648E 01	3.204E 00	9.106E 01	7.722E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.004E 00	4.211E 00	6.200E 01	1.461E 01	3.075E 00	7.225E 01	6.820E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.828E 00	3.992E 00	3.893E 01	1.289E 01	2.939E 00	5.785E 01	6.022E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.620E 00	3.765E 00	2.537E 01	1.134E 01	2.795E 00	4.676E 01	5.317E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.388E 00	3.528E 00	1.717E 01	9.931E 00	2.645E 00	3.815E 01	4.693E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.139E 00	3.284E 00	1.204E 01	8.675E 00	2.490E 00	3.142E 01	4.143E 00	5.127E 00	6.388E 00	3.433E 00
-3.200E 00	2.882E 00	3.034E 00	8.728E 00	7.558E 00	2.331E 00	2.611E 01	3.657E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.625E 00	2.783E 00	6.518E 00	6.571E 00	2.170E 00	2.188E 01	3.228E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.376E 00	2.536E 00	4.994E 00	5.703E 00	2.009E 00	1.848E 01	2.849E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.140E 00	2.297E 00	3.910E 00	4.943E 00	1.850E 00	1.573E 01	2.515E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.919E 00	2.070E 00	3.116E 00	4.281E 00	1.695E 00	1.348E 01	2.222E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.716E 00	1.857E 00	2.520E 00	3.706E 00	1.545E 00	1.161E 01	1.963E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.531E 00	1.660E 00	2.061E 00	3.207E 00	1.402E 00	1.006E 01	1.736E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.479E 00	1.702E 00	2.775E 00	1.266E 00	8.762E 00	1.537E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.315E 00	1.415E 00	2.402E 00	1.137E 00	7.659E 00	1.364E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.075E 00	1.167E 00	1.183E 00	2.080E 00	1.016E 00	6.718E 00	1.212E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.537E-01	1.033E 00	9.934E-01	1.802E 00	9.027E-01	5.910E 00	1.082E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.452E-01	9.137E-01	8.367E-01	1.563E 00	7.966E-01	5.211E 00	9.699E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.485E-01	8.071E-01	7.063E-01	1.357E 00	6.974E-01	4.603E 00	8.752E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.626E-01	7.123E-01	5.972E-01	1.179E 00	6.045E-01	4.073E 00	7.964E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.862E-01	6.281E-01	5.055E-01	1.025E 00	5.172E-01	3.611E 00	7.329E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.183E-01	5.535E-01	4.281E-01	8.929E-01	4.350E-01	3.210E 00	6.840E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.581E-01	4.874E-01	3.628E-01	7.785E-01	3.576E-01	2.869E 00	6.496E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.048E-01	4.290E-01	3.074E-01	6.797E-01	2.851E-01	2.590E 00	6.300E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.575E-01	3.775E-01	2.604E-01	5.941E-01	2.182E-01	2.376E 00	6.257E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.156E-01	3.320E-01	2.206E-01	5.199E-01	1.586E-01	2.236E 00	6.379E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.785E-01	2.919E-01	1.868E-01	4.556E-01	1.084E-01	2.179E 00	6.681E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.457E-01	2.565E-01	1.581E-01	3.997E-01	6.924E-02	2.211E 00	7.187E-01	2.761E-01	6.562E-01	4.684E-02

7.16 Proton/alpha = 18.67

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	45.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.183E 01	6.621E 02	8.601E 01	6.962E 02	6.001E 01	3.005E 01	3.015E 04	7.651E 02	2.953E 02
-5.800E 00	1.062E 01	4.135E 02	7.181E 01	5.720E 02	5.107E 01	2.610E 01	2.173E 04	6.638E 02	2.346E 02
-5.600E 00	9.540E 00	2.609E 02	5.995E 01	4.701E 02	4.348E 01	2.266E 01	1.577E 04	5.771E 02	1.869E 02
-5.400E 00	8.574E 00	1.665E 02	5.004E 01	3.865E 02	3.702E 01	1.968E 01	1.154E 04	5.027E 02	1.496E 02
-5.200E 00	7.716E 00	1.077E 02	4.176E 01	3.178E 02	3.153E 01	1.709E 01	8.519E 03	4.387E 02	1.205E 02
-5.000E 00	6.955E 00	7.061E 01	3.485E 01	2.614E 02	2.686E 01	1.484E 01	6.342E 03	3.835E 02	9.779E 01
-4.800E 00	6.285E 00	4.706E 01	2.907E 01	2.150E 02	2.289E 01	1.289E 01	4.764E 03	3.354E 02	8.015E 01
-4.600E 00	5.698E 00	3.191E 01	2.425E 01	1.770E 02	1.952E 01	1.119E 01	3.611E 03	2.935E 02	6.648E 01
-4.400E 00	5.185E 00	2.205E 01	2.022E 01	1.457E 02	1.665E 01	9.706E 00	2.762E 03	2.566E 02	5.593E 01
-4.200E 00	4.737E 00	1.555E 01	1.686E 01	1.200E 02	1.420E 01	8.419E 00	2.132E 03	2.239E 02	4.780E 01
-4.000E 00	4.346E 00	1.119E 01	1.405E 01	9.889E 01	1.212E 01	7.300E 00	1.660E 03	1.948E 02	4.155E 01
-3.800E 00	4.002E 00	8.231E 00	1.171E 01	8.153E 01	1.036E 01	6.325E 00	1.304E 03	1.690E 02	3.676E 01
-3.600E 00	3.697E 00	6.183E 00	9.754E 00	6.724E 01	8.849E 00	5.478E 00	1.032E 03	1.460E 02	3.309E 01
-3.400E 00	3.422E 00	4.742E 00	8.121E 00	5.549E 01	7.568E 00	4.741E 00	8.233E 02	1.256E 02	3.026E 01
-3.200E 00	3.170E 00	3.708E 00	6.758E 00	4.581E 01	6.476E 00	4.101E 00	6.616E 02	1.076E 02	2.809E 01
-3.000E 00	2.937E 00	2.953E 00	5.621E 00	3.784E 01	5.547E 00	3.544E 00	5.353E 02	9.192E 01	2.640E 01
-2.800E 00	2.719E 00	2.390E 00	4.673E 00	3.127E 01	4.756E 00	3.061E 00	4.357E 02	7.830E 01	2.506E 01
-2.600E 00	2.512E 00	1.963E 00	3.883E 00	2.585E 01	4.083E 00	2.642E 00	3.567E 02	6.655E 01	2.399E 01
-2.400E 00	2.317E 00	1.631E 00	3.224E 00	2.138E 01	3.510E 00	2.279E 00	2.936E 02	5.646E 01	2.311E 01
-2.200E 00	2.132E 00	1.370E 00	2.674E 00	1.768E 01	3.022E 00	1.964E 00	2.428E 02	4.785E 01	2.237E 01
-2.000E 00	1.957E 00	1.161E 00	2.217E 00	1.461E 01	2.609E 00	1.692E 00	2.017E 02	4.052E 01	2.171E 01
-1.800E 00	1.792E 00	9.900E-01	1.836E 00	1.206E 01	2.259E 00	1.457E 00	1.682E 02	3.430E 01	2.111E 01
-1.600E 00	1.638E 00	8.491E-01	1.519E 00	9.942E 00	1.964E 00	1.254E 00	1.408E 02	2.902E 01	2.055E 01
-1.400E 00	1.494E 00	7.315E-01	1.255E 00	8.165E 00	1.717E 00	1.079E 00	1.182E 02	2.455E 01	2.001E 01
-1.200E 00	1.360E 00	6.323E-01	1.036E 00	6.669E 00	1.513E 00	9.274E-01	9.958E 01	2.076E 01	1.947E 01
-1.000E 00	1.236E 00	5.479E-01	8.534E-01	5.399E 00	1.349E 00	7.972E-01	8.411E 01	1.756E 01	1.894E 01
-8.000E-01	1.122E 00	4.757E-01	7.022E-01	4.313E 00	1.222E 00	6.851E-01	7.121E 01	1.485E 01	1.839E 01
-6.000E-01	1.017E 00	4.136E-01	5.767E-01	3.378E 00	1.132E 00	5.886E-01	6.043E 01	1.256E 01	1.784E 01
-4.000E-01	9.204E-01	3.600E-01	4.726E-01	2.574E 00	1.082E 00	5.057E-01	5.138E 01	1.063E 01	1.728E 01
-2.000E-01	8.320E-01	3.136E-01	3.865E-01	1.890E 00	1.076E 00	4.344E-01	4.377E 01	8.988E 00	1.671E 01
1.824E-05	7.510E-01	2.733E-01	3.153E-01	1.326E 00	1.124E 00	3.731E-01	3.735E 01	7.602E 00	1.613E 01
2.000E-01	6.769E-01	2.384E-01	2.564E-01	8.843E-01	1.240E 00	3.205E-01	3.192E 01	6.430E 00	1.554E 01
4.000E-01	6.093E-01	2.080E-01	2.079E-01	5.595E-01	1.449E 00	2.753E-01	2.732E 01	5.438E 00	1.495E 01
6.000E-01	5.477E-01	1.816E-01	1.680E-01	3.374E-01	1.784E 00	2.366E-01	2.341E 01	4.599E 00	1.435E 01
8.000E-01	4.914E-01	1.586E-01	1.351E-01	1.955E-01	2.298E 00	2.033E-01	2.009E 01	3.889E 00	1.375E 01
1.000E 00	4.402E-01	1.386E-01	1.082E-01	1.098E-01	3.069E 00	1.748E-01	1.725E 01	3.288E 00	1.316E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	45.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.671E 02	3.141E 02	1.437E 01	3.455E 01	5.748E 03	4.519E 02	2.953E 02	1.133E 00
-5.800E 00	1.459E 02	2.570E 02	1.452E 01	3.150E 01	4.453E 03	3.969E 02	2.346E 02	1.394E 00
-5.600E 00	1.276E 02	2.108E 02	1.468E 01	2.887E 01	3.465E 03	3.485E 02	1.869E 02	1.702E 00
-5.400E 00	1.119E 02	1.736E 02	1.483E 01	2.660E 01	2.710E 03	3.060E 02	1.496E 02	2.063E 00
-5.200E 00	9.851E 01	1.435E 02	1.498E 01	2.465E 01	2.130E 03	2.686E 02	1.205E 02	2.480E 00
-5.000E 00	8.702E 01	1.194E 02	1.514E 01	2.297E 01	1.685E 03	2.358E 02	9.779E 01	2.955E 00
-4.800E 00	7.722E 01	1.001E 02	1.530E 01	2.151E 01	1.342E 03	2.069E 02	8.015E 01	3.492E 00
-4.600E 00	6.890E 01	8.467E 01	1.545E 01	2.025E 01	1.077E 03	1.815E 02	6.648E 01	4.090E 00
-4.400E 00	6.186E 01	7.248E 01	1.561E 01	1.916E 01	8.712E 02	1.592E 02	5.593E 01	4.748E 00
-4.200E 00	5.591E 01	6.290E 01	1.577E 01	1.820E 01	7.105E 02	1.397E 02	4.780E 01	5.464E 00
-4.000E 00	5.090E 01	5.542E 01	1.593E 01	1.737E 01	5.844E 02	1.225E 02	4.155E 01	6.236E 00
-3.800E 00	4.667E 01	4.961E 01	1.610E 01	1.663E 01	4.849E 02	1.074E 02	3.676E 01	7.059E 00
-3.600E 00	4.308E 01	4.513E 01	1.626E 01	1.597E 01	4.058E 02	9.413E 01	3.309E 01	7.930E 00
-3.400E 00	4.000E 01	4.169E 01	1.642E 01	1.537E 01	3.425E 02	8.250E 01	3.026E 01	8.844E 00
-3.200E 00	3.734E 01	3.903E 01	1.658E 01	1.483E 01	2.915E 02	7.230E 01	2.809E 01	9.796E 00
-3.000E 00	3.501E 01	3.696E 01	1.675E 01	1.433E 01	2.499E 02	6.335E 01	2.640E 01	1.078E 01
-2.800E 00	3.295E 01	3.533E 01	1.691E 01	1.386E 01	2.158E 02	5.551E 01	2.506E 01	1.181E 01
-2.600E 00	3.109E 01	3.401E 01	1.708E 01	1.341E 01	1.874E 02	4.865E 01	2.399E 01	1.286E 01
-2.400E 00	2.942E 01	3.293E 01	1.724E 01	1.298E 01	1.638E 02	4.265E 01	2.311E 01	1.394E 01
-2.200E 00	2.788E 01	3.201E 01	1.741E 01	1.256E 01	1.437E 02	3.740E 01	2.237E 01	1.504E 01
-2.000E 00	2.647E 01	3.121E 01	1.757E 01	1.215E 01	1.266E 02	3.283E 01	2.171E 01	1.618E 01
-1.800E 00	2.517E 01	3.049E 01	1.774E 01	1.174E 01	1.119E 02	2.885E 01	2.111E 01	1.734E 01
-1.600E 00	2.396E 01	2.984E 01	1.791E 01	1.132E 01	9.902E 01	2.539E 01	2.055E 01	1.853E 01
-1.400E 00	2.283E 01	2.924E 01	1.807E 01	1.091E 01	8.765E 01	2.240E 01	2.001E 01	1.975E 01
-1.200E 00	2.177E 01	2.866E 01	1.824E 01	1.048E 01	7.745E 01	1.983E 01	1.947E 01	2.100E 01
-1.000E 00	2.078E 01	2.812E 01	1.841E 01	1.005E 01	6.814E 01	1.763E 01	1.894E 01	2.228E 01
-8.000E-01	1.984E 01	2.759E 01	1.858E 01	9.617E 00	5.947E 01	1.578E 01	1.839E 01	2.361E 01
-6.000E-01	1.896E 01	2.707E 01	1.875E 01	9.173E 00	5.126E 01	1.425E 01	1.784E 01	2.497E 01
-4.000E-01	1.813E 01	2.657E 01	1.892E 01	8.722E 00	4.340E 01	1.300E 01	1.728E 01	2.637E 01
-2.000E-01	1.734E 01	2.607E 01	1.909E 01	8.265E 00	3.591E 01	1.203E 01	1.671E 01	2.782E 01
1.824E-05	1.659E 01	2.557E 01	1.926E 01	7.802E 00	2.893E 01	1.133E 01	1.613E 01	2.932E 01
2.000E-01	1.589E 01	2.506E 01	1.944E 01	7.334E 00	2.275E 01	1.090E 01	1.554E 01	3.087E 01
4.000E-01	1.521E 01	2.456E 01	1.961E 01	6.864E 00	1.760E 01	1.073E 01	1.495E 01	3.248E 01
6.000E-01	1.457E 01	2.404E 01	1.979E 01	6.392E 00	1.360E 01	1.085E 01	1.435E 01	3.414E 01
8.000E-01	1.396E 01	2.351E 01	1.996E 01	5.922E 00	1.068E 01	1.126E 01	1.375E 01	3.587E 01
1.000E 00	1.339E 01	2.297E 01	2.014E 01	5.454E 00	8.649E 00	1.201E 01	1.316E 01	3.767E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.758E 00	6.385E 00	1.442E 04	3.012E 01	3.890E 00	9.903E 02	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.742E 00	6.136E 00	7.326E 03	2.816E 01	3.738E 00	7.400E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.721E 00	5.896E 00	3.775E 03	2.620E 01	3.598E 00	5.552E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.691E 00	5.662E 00	1.978E 03	2.425E 01	3.468E 00	4.183E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.648E 00	5.434E 00	1.056E 03	2.231E 01	3.346E 00	3.168E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.586E 00	5.207E 00	5.767E 02	2.042E 01	3.229E 00	2.413E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.501E 00	4.980E 00	3.229E 02	1.859E 01	3.116E 00	1.850E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.388E 00	4.749E 00	1.859E 02	1.682E 01	3.005E 00	1.428E 02	8.744E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.244E 00	4.511E 00	1.104E 02	1.513E 01	2.893E 00	1.111E 02	7.723E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.069E 00	4.266E 00	6.776E 01	1.355E 01	2.779E 00	8.716E 01	6.821E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.865E 00	4.013E 00	4.304E 01	1.207E 01	2.661E 00	6.898E 01	6.023E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.637E 00	3.753E 00	2.829E 01	1.070E 01	2.538E 00	5.509E 01	5.318E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.390E 00	3.488E 00	1.924E 01	9.449E 00	2.411E 00	4.441E 01	4.695E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.133E 00	3.221E 00	1.351E 01	8.312E 00	2.279E 00	3.614E 01	4.145E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.872E 00	2.958E 00	9.770E 00	7.288E 00	2.143E 00	2.968E 01	3.660E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.616E 00	2.701E 00	7.259E 00	6.372E 00	2.004E 00	2.460E 01	3.231E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.369E 00	2.454E 00	5.522E 00	5.558E 00	1.864E 00	2.057E 01	2.853E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.134E 00	2.219E 00	4.287E 00	4.839E 00	1.724E 00	1.734E 01	2.520E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.916E 00	1.998E 00	3.387E 00	4.206E 00	1.585E 00	1.473E 01	2.228E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.714E 00	1.793E 00	2.715E 00	3.652E 00	1.449E 00	1.260E 01	1.970E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.530E 00	1.604E 00	2.203E 00	3.169E 00	1.318E 00	1.084E 01	1.745E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.431E 00	1.805E 00	2.749E 00	1.192E 00	9.381E 00	1.548E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.211E 00	1.274E 00	1.491E 00	2.384E 00	1.071E 00	8.157E 00	1.376E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.076E 00	1.132E 00	1.239E 00	2.068E 00	9.569E-01	7.120E 00	1.228E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.544E-01	1.004E 00	1.035E 00	1.794E 00	8.489E-01	6.235E 00	1.100E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.459E-01	8.890E-01	8.683E-01	1.558E 00	7.471E-01	5.472E 00	9.924E-01	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.492E-01	7.863E-01	7.303E-01	1.353E 00	6.515E-01	4.810E 00	9.023E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.632E-01	6.948E-01	6.155E-01	1.177E 00	5.617E-01	4.232E 00	8.293E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.867E-01	6.134E-01	5.196E-01	1.024E 00	4.775E-01	3.725E 00	7.727E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.187E-01	5.411E-01	4.392E-01	8.922E-01	3.988E-01	3.283E 00	7.324E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.585E-01	4.769E-01	3.714E-01	7.782E-01	3.254E-01	2.901E 00	7.084E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.050E-01	4.202E-01	3.142E-01	6.796E-01	2.576E-01	2.580E 00	7.015E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.577E-01	3.700E-01	2.659E-01	5.941E-01	1.963E-01	2.324E 00	7.127E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.157E-01	3.256E-01	2.250E-01	5.201E-01	1.426E-01	2.137E 00	7.438E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.786E-01	2.865E-01	1.903E-01	4.558E-01	9.790E-02	2.025E 00	7.972E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.458E-01	2.519E-01	1.610E-01	3.999E-01	6.313E-02	1.992E 00	8.761E-01	2.761E-01	6.562E-01	4.684E-02

7.17 Proton/alpha = 14.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.186E 01	4.983E 02	8.740E 01	6.851E 02	5.999E 01	3.005E 01	3.015E 04	8.116E 02	2.970E 02
-5.800E 00	1.066E 01	3.117E 02	7.295E 01	5.631E 02	5.106E 01	2.610E 01	2.173E 04	7.094E 02	2.366E 02
-5.600E 00	9.591E 00	1.971E 02	6.088E 01	4.629E 02	4.346E 01	2.266E 01	1.577E 04	6.209E 02	1.892E 02
-5.400E 00	8.640E 00	1.261E 02	5.081E 01	3.806E 02	3.700E 01	1.968E 01	1.154E 04	5.438E 02	1.522E 02
-5.200E 00	7.797E 00	8.187E 01	4.239E 01	3.131E 02	3.152E 01	1.709E 01	8.519E 03	4.761E 02	1.234E 02
-5.000E 00	7.055E 00	5.398E 01	3.537E 01	2.575E 02	2.685E 01	1.484E 01	6.342E 03	4.161E 02	1.011E 02
-4.800E 00	6.405E 00	3.622E 01	2.950E 01	2.120E 02	2.288E 01	1.289E 01	4.764E 03	3.625E 02	8.377E 01
-4.600E 00	5.838E 00	2.477E 01	2.460E 01	1.745E 02	1.950E 01	1.119E 01	3.611E 03	3.144E 02	7.046E 01
-4.400E 00	5.344E 00	1.730E 01	2.051E 01	1.437E 02	1.663E 01	9.706E 00	2.762E 03	2.711E 02	6.025E 01
-4.200E 00	4.913E 00	1.234E 01	1.710E 01	1.184E 02	1.419E 01	8.419E 00	2.132E 03	2.321E 02	5.245E 01
-4.000E 00	4.535E 00	9.012E 00	1.425E 01	9.758E 01	1.211E 01	7.300E 00	1.660E 03	1.974E 02	4.652E 01
-3.800E 00	4.199E 00	6.730E 00	1.187E 01	8.047E 01	1.034E 01	6.325E 00	1.304E 03	1.667E 02	4.202E 01
-3.600E 00	3.896E 00	5.139E 00	9.886E 00	6.639E 01	8.834E 00	5.478E 00	1.032E 03	1.400E 02	3.861E 01
-3.400E 00	3.617E 00	4.008E 00	8.230E 00	5.481E 01	7.552E 00	4.741E 00	8.233E 02	1.170E 02	3.602E 01
-3.200E 00	3.357E 00	3.187E 00	6.849E 00	4.527E 01	6.461E 00	4.101E 00	6.616E 02	9.745E 01	3.404E 01
-3.000E 00	3.111E 00	2.578E 00	5.697E 00	3.741E 01	5.531E 00	3.544E 00	5.353E 02	8.104E 01	3.251E 01
-2.800E 00	2.878E 00	2.118E 00	4.736E 00	3.093E 01	4.739E 00	3.061E 00	4.357E 02	6.736E 01	3.131E 01
-2.600E 00	2.656E 00	1.763E 00	3.935E 00	2.559E 01	4.065E 00	2.642E 00	3.567E 02	5.601E 01	3.033E 01
-2.400E 00	2.445E 00	1.483E 00	3.268E 00	2.117E 01	3.491E 00	2.279E 00	2.936E 02	4.663E 01	2.952E 01
-2.200E 00	2.245E 00	1.258E 00	2.712E 00	1.752E 01	3.002E 00	1.964E 00	2.428E 02	3.887E 01	2.880E 01
-2.000E 00	2.057E 00	1.076E 00	2.248E 00	1.450E 01	2.587E 00	1.692E 00	2.017E 02	3.246E 01	2.814E 01
-1.800E 00	1.880E 00	9.242E-01	1.863E 00	1.200E 01	2.235E 00	1.457E 00	1.682E 02	2.715E 01	2.752E 01
-1.600E 00	1.716E 00	7.976E-01	1.542E 00	9.910E 00	1.937E 00	1.254E 00	1.408E 02	2.275E 01	2.691E 01
-1.400E 00	1.563E 00	6.905E-01	1.275E 00	8.167E 00	1.686E 00	1.079E 00	1.182E 02	1.909E 01	2.629E 01
-1.200E 00	1.422E 00	5.992E-01	1.053E 00	6.703E 00	1.477E 00	9.274E-01	9.958E 01	1.604E 01	2.566E 01
-1.000E 00	1.292E 00	5.208E-01	8.690E-01	5.465E 00	1.306E 00	7.972E-01	8.411E 01	1.349E 01	2.501E 01
-8.000E-01	1.172E 00	4.531E-01	7.159E-01	4.409E 00	1.169E 00	6.851E-01	7.121E 01	1.136E 01	2.434E 01
-6.000E-01	1.063E 00	3.945E-01	5.890E-01	3.501E 00	1.067E 00	5.886E-01	6.043E 01	9.572E 00	2.365E 01
-4.000E-01	9.622E-01	3.436E-01	4.837E-01	2.716E 00	9.988E-01	5.057E-01	5.138E 01	8.072E 00	2.293E 01
-2.000E-01	8.706E-01	2.993E-01	3.965E-01	2.041E 00	9.685E-01	4.344E-01	4.377E 01	6.811E 00	2.220E 01
1.824E-05	7.870E-01	2.608E-01	3.244E-01	1.471E 00	9.823E-01	3.731E-01	3.735E 01	5.750E 00	2.144E 01
2.000E-01	7.107E-01	2.272E-01	2.647E-01	1.008E 00	1.051E 00	3.205E-01	3.192E 01	4.855E 00	2.067E 01
4.000E-01	6.411E-01	1.979E-01	2.155E-01	6.550E-01	1.190E 00	2.753E-01	2.732E 01	4.101E 00	1.989E 01
6.000E-01	5.777E-01	1.724E-01	1.749E-01	4.037E-01	1.428E 00	2.366E-01	2.341E 01	3.464E 00	1.910E 01
8.000E-01	5.200E-01	1.502E-01	1.415E-01	2.375E-01	1.801E 00	2.033E-01	2.009E 01	2.927E 00	1.831E 01
1.000E 00	4.674E-01	1.309E-01	1.140E-01	1.346E-01	2.369E 00	1.748E-01	1.725E 01	2.473E 00	1.752E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	60.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.706E 02	3.168E 02	1.095E 01	3.176E 01	5.594E 03	3.389E 02	2.970E 02	1.511E 00
-5.800E 00	1.496E 02	2.599E 02	1.106E 01	2.864E 01	4.314E 03	2.976E 02	2.366E 02	1.858E 00
-5.600E 00	1.315E 02	2.139E 02	1.117E 01	2.595E 01	3.339E 03	2.614E 02	1.892E 02	2.269E 00
-5.400E 00	1.159E 02	1.769E 02	1.128E 01	2.364E 01	2.594E 03	2.295E 02	1.522E 02	2.750E 00
-5.200E 00	1.024E 02	1.470E 02	1.139E 01	2.164E 01	2.025E 03	2.015E 02	1.234E 02	3.305E 00
-5.000E 00	9.072E 01	1.229E 02	1.151E 01	1.993E 01	1.589E 03	1.768E 02	1.011E 02	3.939E 00
-4.800E 00	8.054E 01	1.036E 02	1.162E 01	1.845E 01	1.255E 03	1.552E 02	8.377E 01	4.653E 00
-4.600E 00	7.165E 01	8.808E 01	1.174E 01	1.717E 01	9.971E 02	1.362E 02	7.046E 01	5.450E 00
-4.400E 00	6.386E 01	7.565E 01	1.185E 01	1.606E 01	7.980E 02	1.194E 02	6.025E 01	6.326E 00
-4.200E 00	5.704E 01	6.569E 01	1.197E 01	1.510E 01	6.436E 02	1.048E 02	5.245E 01	7.281E 00
-4.000E 00	5.106E 01	5.771E 01	1.208E 01	1.427E 01	5.233E 02	9.188E 01	4.652E 01	8.308E 00
-3.800E 00	4.584E 01	5.129E 01	1.220E 01	1.354E 01	4.292E 02	8.056E 01	4.202E 01	9.404E 00
-3.600E 00	4.129E 01	4.612E 01	1.232E 01	1.289E 01	3.550E 02	7.062E 01	3.861E 01	1.056E 01
-3.400E 00	3.734E 01	4.192E 01	1.244E 01	1.232E 01	2.962E 02	6.191E 01	3.602E 01	1.178E 01
-3.200E 00	3.392E 01	3.850E 01	1.256E 01	1.180E 01	2.493E 02	5.426E 01	3.404E 01	1.305E 01
-3.000E 00	3.098E 01	3.569E 01	1.268E 01	1.133E 01	2.116E 02	4.756E 01	3.251E 01	1.436E 01
-2.800E 00	2.844E 01	3.336E 01	1.280E 01	1.090E 01	1.810E 02	4.170E 01	3.131E 01	1.572E 01
-2.600E 00	2.625E 01	3.141E 01	1.292E 01	1.051E 01	1.560E 02	3.656E 01	3.033E 01	1.712E 01
-2.400E 00	2.434E 01	2.978E 01	1.304E 01	1.013E 01	1.353E 02	3.207E 01	2.952E 01	1.855E 01
-2.200E 00	2.268E 01	2.839E 01	1.316E 01	9.770E 00	1.181E 02	2.816E 01	2.880E 01	2.003E 01
-2.000E 00	2.122E 01	2.720E 01	1.328E 01	9.423E 00	1.037E 02	2.474E 01	2.814E 01	2.153E 01
-1.800E 00	1.993E 01	2.618E 01	1.340E 01	9.083E 00	9.144E 01	2.178E 01	2.752E 01	2.308E 01
-1.600E 00	1.878E 01	2.529E 01	1.353E 01	8.749E 00	8.094E 01	1.922E 01	2.691E 01	2.466E 01
-1.400E 00	1.774E 01	2.450E 01	1.365E 01	8.417E 00	7.184E 01	1.701E 01	2.629E 01	2.628E 01
-1.200E 00	1.680E 01	2.380E 01	1.377E 01	8.086E 00	6.335E 01	1.513E 01	2.566E 01	2.794E 01
-1.000E 00	1.595E 01	2.317E 01	1.390E 01	7.754E 00	5.671E 01	1.353E 01	2.501E 01	2.965E 01
-8.000E-01	1.516E 01	2.260E 01	1.402E 01	7.419E 00	5.021E 01	1.220E 01	2.434E 01	3.140E 01
-6.000E-01	1.443E 01	2.207E 01	1.415E 01	7.082E 00	4.414E 01	1.113E 01	2.365E 01	3.321E 01
-4.000E-01	1.376E 01	2.159E 01	1.427E 01	6.743E 00	3.835E 01	1.028E 01	2.293E 01	3.507E 01
-2.000E-01	1.313E 01	2.113E 01	1.440E 01	6.401E 00	3.275E 01	9.664E 00	2.220E 01	3.699E 01
1.824E-05	1.254E 01	2.069E 01	1.453E 01	6.056E 00	2.738E 01	9.269E 00	2.144E 01	3.898E 01
2.000E-01	1.199E 01	2.027E 01	1.466E 01	5.710E 00	2.235E 01	9.101E 00	2.067E 01	4.104E 01
4.000E-01	1.147E 01	1.987E 01	1.479E 01	5.364E 00	1.790E 01	9.168E 00	1.989E 01	4.317E 01
6.000E-01	1.097E 01	1.947E 01	1.492E 01	5.017E 00	1.420E 01	9.486E 00	1.910E 01	4.538E 01
8.000E-01	1.051E 01	1.907E 01	1.505E 01	4.671E 00	1.133E 01	1.008E 01	1.831E 01	4.767E 01
1.000E 00	1.006E 01	1.867E 01	1.518E 01	4.328E 00	9.228E 00	1.098E 01	1.752E 01	5.006E 01

PROTONS ALPHAS LITHIUM BERYL. BORON CARBON NITRO. OXYGEN FLUOR. NEON MAGNES. SILICON SULFUR ARGON CALCIUM IRON
 840.000 80.000 0.0 0.0 0.0 0.490 0.116 1.000 0.0 0.127 0.182 0.107 0.025 0.0 0.0 0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	4.982E 00	6.509E 00	1.435E 04	2.503E 01	3.657E 00	1.293E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	4.978E 00	6.276E 00	7.336E 03	2.362E 01	3.494E 00	9.626E 02	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	4.962E 00	6.050E 00	3.810E 03	2.219E 01	3.343E 00	7.189E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	4.929E 00	5.827E 00	2.015E 03	2.074E 01	3.203E 00	5.390E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	4.873E 00	5.602E 00	1.089E 03	1.930E 01	3.074E 00	4.058E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.789E 00	5.371E 00	6.024E 02	1.786E 01	2.952E 00	3.070E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.674E 00	5.130E 00	3.423E 02	1.643E 01	2.837E 00	2.336E 02	9.898E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.526E 00	4.875E 00	2.003E 02	1.503E 01	2.726E 00	1.788E 02	8.745E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.346E 00	4.607E 00	1.208E 02	1.368E 01	2.618E 00	1.378E 02	7.724E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.137E 00	4.326E 00	7.525E 01	1.238E 01	2.512E 00	1.070E 02	6.822E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.904E 00	4.035E 00	4.838E 01	1.114E 01	2.405E 00	8.380E 01	6.025E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.654E 00	3.740E 00	3.210E 01	9.972E 00	2.296E 00	6.618E 01	5.320E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.392E 00	3.446E 00	2.194E 01	8.885E 00	2.185E 00	5.274E 01	4.698E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.126E 00	3.158E 00	1.543E 01	7.881E 00	2.071E 00	4.242E 01	4.149E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.862E 00	2.880E 00	1.113E 01	6.963E 00	1.953E 00	3.444E 01	3.664E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.606E 00	2.616E 00	8.229E 00	6.129E 00	1.833E 00	2.822E 01	3.236E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.360E 00	2.367E 00	6.214E 00	5.379E 00	1.711E 00	2.334E 01	2.859E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.127E 00	2.135E 00	4.782E 00	4.708E 00	1.588E 00	1.948E 01	2.527E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.911E 00	1.920E 00	3.743E 00	4.112E 00	1.465E 00	1.639E 01	2.236E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.711E 00	1.722E 00	2.972E 00	3.585E 00	1.344E 00	1.389E 01	1.980E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.528E 00	1.541E 00	2.389E 00	3.121E 00	1.224E 00	1.186E 01	1.756E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.376E 00	1.941E 00	2.715E 00	1.108E 00	1.019E 01	1.562E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.212E 00	1.226E 00	1.591E 00	2.361E 00	9.967E-01	8.806E 00	1.393E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.077E 00	1.091E 00	1.314E 00	2.052E 00	8.896E-01	7.640E 00	1.248E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.553E-01	9.685E-01	1.091E 00	1.783E 00	7.876E-01	6.651E 00	1.125E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.468E-01	8.590E-01	9.099E-01	1.551E 00	6.909E-01	5.803E 00	1.022E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.501E-01	7.608E-01	7.619E-01	1.349E 00	5.996E-01	5.068E 00	9.385E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.639E-01	6.732E-01	6.398E-01	1.174E 00	5.138E-01	4.425E 00	8.731E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.873E-01	5.950E-01	5.384E-01	1.022E 00	4.337E-01	3.861E 00	8.259E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.193E-01	5.255E-01	4.537E-01	8.913E-01	3.592E-01	3.366E 00	7.969E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.589E-01	4.638E-01	3.828E-01	7.778E-01	2.906E-01	2.936E 00	7.868E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.054E-01	4.090E-01	3.233E-01	6.795E-01	2.284E-01	2.571E 00	7.968E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.580E-01	3.605E-01	2.731E-01	5.942E-01	1.732E-01	2.272E 00	8.287E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.160E-01	3.176E-01	2.307E-01	5.202E-01	1.258E-01	2.042E 00	8.850E-01	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.788E-01	2.796E-01	1.950E-01	4.560E-01	8.673E-02	1.884E 00	9.693E-01	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.459E-01	2.461E-01	1.647E-01	4.001E-01	5.651E-02	1.798E 00	1.086E 00	2.761E-01	6.562E-01	4.684E-02

7.18 Proton/alpha = 10.5

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	80.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.190E 01	3.754E 02	8.847E 01	6.769E 02	5.998E 01	3.005E 01	3.015E 04	8.727E 02	2.993E 02
-5.800E 00	1.071E 01	2.353E 02	7.383E 01	5.564E 02	5.105E 01	2.610E 01	2.173E 04	7.689E 02	2.392E 02
-5.600E 00	9.659E 00	1.492E 02	6.160E 01	4.575E 02	4.345E 01	2.266E 01	1.577E 04	6.776E 02	1.923E 02
-5.400E 00	8.725E 00	9.583E 01	5.140E 01	3.763E 02	3.699E 01	1.968E 01	1.154E 04	5.964E 02	1.557E 02
-5.200E 00	7.903E 00	6.252E 01	4.288E 01	3.095E 02	3.150E 01	1.709E 01	8.519E 03	5.231E 02	1.273E 02
-5.000E 00	7.183E 00	4.150E 01	3.577E 01	2.547E 02	2.684E 01	1.484E 01	6.342E 03	4.564E 02	1.054E 02
-4.800E 00	6.555E 00	2.808E 01	2.983E 01	2.096E 02	2.287E 01	1.289E 01	4.764E 03	3.951E 02	8.860E 01
-4.600E 00	6.010E 00	1.941E 01	2.487E 01	1.726E 02	1.949E 01	1.119E 01	3.611E 03	3.388E 02	7.576E 01
-4.400E 00	5.536E 00	1.373E 01	2.073E 01	1.422E 02	1.662E 01	9.706E 00	2.762E 03	2.874E 02	6.601E 01
-4.200E 00	5.121E 00	9.940E 00	1.728E 01	1.172E 02	1.418E 01	8.419E 00	2.132E 03	2.411E 02	5.866E 01
-4.000E 00	4.751E 00	7.375E 00	1.440E 01	9.660E 01	1.210E 01	7.300E 00	1.660E 03	2.000E 02	5.314E 01
-3.800E 00	4.417E 00	5.603E 00	1.199E 01	7.968E 01	1.033E 01	6.325E 00	1.304E 03	1.644E 02	4.903E 01
-3.600E 00	4.108E 00	4.355E 00	9.988E 00	6.576E 01	8.823E 00	5.478E 00	1.032E 03	1.342E 02	4.597E 01
-3.400E 00	3.819E 00	3.456E 00	8.315E 00	5.430E 01	7.541E 00	4.741E 00	8.233E 02	1.090E 02	4.369E 01
-3.200E 00	3.543E 00	2.795E 00	6.919E 00	4.486E 01	6.449E 00	4.101E 00	6.616E 02	8.837E 01	4.198E 01
-3.000E 00	3.280E 00	2.297E 00	5.755E 00	3.708E 01	5.519E 00	3.544E 00	5.353E 02	7.162E 01	4.067E 01
-2.800E 00	3.028E 00	1.914E 00	4.785E 00	3.067E 01	4.726E 00	3.061E 00	4.357E 02	5.814E 01	3.964E 01
-2.600E 00	2.787E 00	1.612E 00	3.976E 00	2.538E 01	4.052E 00	2.642E 00	3.567E 02	4.733E 01	3.879E 01
-2.400E 00	2.559E 00	1.371E 00	3.302E 00	2.102E 01	3.477E 00	2.279E 00	2.936E 02	3.866E 01	3.805E 01
-2.200E 00	2.344E 00	1.174E 00	2.740E 00	1.741E 01	2.987E 00	1.964E 00	2.428E 02	3.171E 01	3.738E 01
-2.000E 00	2.143E 00	1.011E 00	2.273E 00	1.442E 01	2.571E 00	1.692E 00	2.017E 02	2.610E 01	3.673E 01
-1.800E 00	1.955E 00	8.747E-01	1.884E 00	1.194E 01	2.217E 00	1.457E 00	1.682E 02	2.157E 01	3.607E 01
-1.600E 00	1.781E 00	7.588E-01	1.560E 00	9.885E 00	1.916E 00	1.254E 00	1.408E 02	1.789E 01	3.539E 01
-1.400E 00	1.620E 00	6.597E-01	1.291E 00	8.168E 00	1.663E 00	1.079E 00	1.182E 02	1.489E 01	3.467E 01
-1.200E 00	1.473E 00	5.743E-01	1.067E 00	6.730E 00	1.450E 00	9.274E-01	9.958E 01	1.242E 01	3.392E 01
-1.000E 00	1.337E 00	5.004E-01	8.811E-01	5.517E 00	1.273E 00	7.972E-01	8.411E 01	1.039E 01	3.312E 01
-8.000E-01	1.213E 00	4.361E-01	7.267E-01	4.486E 00	1.130E 00	6.851E-01	7.121E 01	8.703E 00	3.228E 01
-6.000E-01	1.100E 00	3.801E-01	5.986E-01	3.603E 00	1.018E 00	5.886E-01	6.043E 01	7.305E 00	3.139E 01
-4.000E-01	9.965E-01	3.313E-01	4.924E-01	2.839E 00	9.367E-01	5.057E-01	5.138E 01	6.140E 00	3.047E 01
-2.000E-01	9.023E-01	2.886E-01	4.044E-01	2.178E 00	8.881E-01	4.344E-01	4.377E 01	5.167E 00	2.951E 01
1.824E-05	8.165E-01	2.513E-01	3.316E-01	1.609E 00	8.761E-01	3.731E-01	3.735E 01	4.352E 00	2.852E 01
2.000E-01	7.384E-01	2.187E-01	2.714E-01	1.135E 00	9.083E-01	3.205E-01	3.192E 01	3.669E 00	2.751E 01
4.000E-01	6.673E-01	1.903E-01	2.216E-01	7.591E-01	9.967E-01	2.753E-01	2.732E 01	3.094E 00	2.648E 01
6.000E-01	6.026E-01	1.655E-01	1.805E-01	4.800E-01	1.160E 00	2.366E-01	2.341E 01	2.611E 00	2.544E 01
8.000E-01	5.438E-01	1.439E-01	1.466E-01	2.882E-01	1.428E 00	2.033E-01	2.009E 01	2.204E 00	2.439E 01
1.000E 00	4.902E-01	1.250E-01	1.187E-01	1.656E-01	1.844E 00	1.748E-01	1.725E 01	1.861E 00	2.334E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	80.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.752E 02	3.202E 02	8.376E 00	2.961E 01	5.480E 03	2.542E 02	2.993E 02	2.014E 00
-5.800E 00	1.545E 02	2.637E 02	8.456E 00	2.643E 01	4.210E 03	2.232E 02	2.392E 02	2.477E 00
-5.600E 00	1.366E 02	2.180E 02	8.536E 00	2.370E 01	3.244E 03	1.960E 02	1.923E 02	3.025E 00
-5.400E 00	1.210E 02	1.812E 02	8.617E 00	2.135E 01	2.508E 03	1.721E 02	1.557E 02	3.665E 00
-5.200E 00	1.074E 02	1.514E 02	8.698E 00	1.933E 01	1.946E 03	1.511E 02	1.273E 02	4.405E 00
-5.000E 00	9.530E 01	1.274E 02	8.780E 00	1.759E 01	1.517E 03	1.326E 02	1.054E 02	5.250E 00
-4.800E 00	8.454E 01	1.080E 02	8.862E 00	1.609E 01	1.189E 03	1.164E 02	8.860E 01	6.202E 00
-4.600E 00	7.486E 01	9.229E 01	8.944E 00	1.480E 01	9.369E 02	1.021E 02	7.576E 01	7.263E 00
-4.400E 00	6.613E 01	7.947E 01	9.027E 00	1.368E 01	7.430E 02	8.960E 01	6.601E 01	8.431E 00
-4.200E 00	5.826E 01	6.897E 01	9.111E 00	1.272E 01	5.934E 02	7.860E 01	5.866E 01	9.702E 00
-4.000E 00	5.123E 01	6.032E 01	9.194E 00	1.189E 01	4.775E 02	6.893E 01	5.314E 01	1.107E 01
-3.800E 00	4.500E 01	5.315E 01	9.278E 00	1.116E 01	3.873E 02	6.044E 01	4.903E 01	1.253E 01
-3.600E 00	3.956E 01	4.717E 01	9.363E 00	1.053E 01	3.168E 02	5.300E 01	4.597E 01	1.408E 01
-3.400E 00	3.487E 01	4.217E 01	9.448E 00	9.968E 00	2.614E 02	4.647E 01	4.369E 01	1.570E 01
-3.200E 00	3.087E 01	3.798E 01	9.533E 00	9.473E 00	2.176E 02	4.074E 01	4.198E 01	1.738E 01
-3.000E 00	2.749E 01	3.446E 01	9.619E 00	9.032E 00	1.827E 02	3.572E 01	4.067E 01	1.914E 01
-2.800E 00	2.464E 01	3.151E 01	9.705E 00	8.633E 00	1.547E 02	3.133E 01	3.964E 01	2.094E 01
-2.600E 00	2.225E 01	2.904E 01	9.791E 00	8.269E 00	1.322E 02	2.749E 01	3.879E 01	2.280E 01
-2.400E 00	2.023E 01	2.696E 01	9.878E 00	7.932E 00	1.138E 02	2.414E 01	3.805E 01	2.471E 01
-2.200E 00	1.853E 01	2.522E 01	9.965E 00	7.618E 00	9.870E 01	2.122E 01	3.738E 01	2.667E 01
-2.000E 00	1.708E 01	2.375E 01	1.005E 01	7.320E 00	8.622E 01	1.868E 01	3.673E 01	2.868E 01
-1.800E 00	1.584E 01	2.251E 01	1.014E 01	7.036E 00	7.581E 01	1.648E 01	3.607E 01	3.073E 01
-1.600E 00	1.476E 01	2.145E 01	1.023E 01	6.760E 00	6.704E 01	1.459E 01	3.539E 01	3.283E 01
-1.400E 00	1.383E 01	2.055E 01	1.032E 01	6.491E 00	5.960E 01	1.297E 01	3.467E 01	3.498E 01
-1.200E 00	1.300E 01	1.977E 01	1.041E 01	6.227E 00	5.321E 01	1.160E 01	3.392E 01	3.719E 01
-1.000E 00	1.226E 01	1.909E 01	1.050E 01	5.965E 00	4.764E 01	1.045E 01	3.312E 01	3.946E 01
-8.000E-01	1.160E 01	1.850E 01	1.059E 01	5.706E 00	4.269E 01	9.520E 00	3.228E 01	4.179E 01
-6.000E-01	1.100E 01	1.798E 01	1.068E 01	5.447E 00	3.819E 01	8.785E 00	3.139E 01	4.419E 01
-4.000E-01	1.045E 01	1.751E 01	1.077E 01	5.189E 00	3.397E 01	8.242E 00	3.047E 01	4.667E 01
-2.000E-01	9.951E 00	1.708E 01	1.087E 01	4.931E 00	2.989E 01	7.886E 00	2.951E 01	4.922E 01
1.824E-05	9.484E 00	1.670E 01	1.096E 01	4.673E 00	2.587E 01	7.721E 00	2.852E 01	5.186E 01
2.000E-01	9.050E 00	1.634E 01	1.105E 01	4.415E 00	2.194E 01	7.753E 00	2.751E 01	5.459E 01
4.000E-01	8.645E 00	1.600E 01	1.115E 01	4.158E 00	1.822E 01	7.995E 00	2.648E 01	5.743E 01
6.000E-01	8.264E 00	1.568E 01	1.125E 01	3.902E 00	1.489E 01	8.465E 00	2.544E 01	6.036E 01
8.000E-01	7.906E 00	1.537E 01	1.134E 01	3.648E 00	1.212E 01	9.190E 00	2.439E 01	6.341E 01
1.000E 00	7.568E 00	1.508E 01	1.144E 01	3.396E 00	9.952E 00	1.021E 01	2.334E 01	6.657E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	100.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.192E 00	6.629E 00	1.429E 04	2.153E 01	3.513E 00	1.596E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.195E 00	6.411E 00	7.346E 03	2.044E 01	3.341E 00	1.185E 03	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.179E 00	6.197E 00	3.843E 03	1.933E 01	3.182E 00	8.827E 02	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.138E 00	5.980E 00	2.051E 03	1.821E 01	3.036E 00	6.596E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.066E 00	5.756E 00	1.120E 03	1.707E 01	2.899E 00	4.947E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	4.959E 00	5.517E 00	6.273E 02	1.592E 01	2.772E 00	3.727E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.816E 00	5.260E 00	3.612E 02	1.477E 01	2.653E 00	2.821E 02	9.899E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.637E 00	4.982E 00	2.142E 02	1.363E 01	2.541E 00	2.148E 02	8.746E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.427E 00	4.685E 00	1.310E 02	1.251E 01	2.433E 00	1.645E 02	7.726E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.190E 00	4.373E 00	8.253E 01	1.142E 01	2.329E 00	1.269E 02	6.824E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.935E 00	4.052E 00	5.359E 01	1.036E 01	2.226E 00	9.862E 01	6.027E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.667E 00	3.730E 00	3.580E 01	9.352E 00	2.124E 00	7.726E 01	5.323E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.394E 00	3.414E 00	2.458E 01	8.397E 00	2.021E 00	6.106E 01	4.701E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.121E 00	3.110E 00	1.730E 01	7.502E 00	1.916E 00	4.869E 01	4.152E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.854E 00	2.821E 00	1.247E 01	6.672E 00	1.810E 00	3.918E 01	3.667E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.597E 00	2.551E 00	9.178E 00	5.909E 00	1.701E 00	3.183E 01	3.240E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.352E 00	2.300E 00	6.892E 00	5.214E 00	1.591E 00	2.610E 01	2.864E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.122E 00	2.069E 00	5.268E 00	4.586E 00	1.480E 00	2.160E 01	2.534E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.907E 00	1.857E 00	4.092E 00	4.023E 00	1.368E 00	1.803E 01	2.244E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.709E 00	1.664E 00	3.224E 00	3.521E 00	1.257E 00	1.518E 01	1.990E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.527E 00	1.488E 00	2.573E 00	3.075E 00	1.147E 00	1.287E 01	1.768E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.329E 00	2.075E 00	2.683E 00	1.039E 00	1.099E 01	1.576E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.212E 00	1.184E 00	1.690E 00	2.338E 00	9.339E-01	9.440E 00	1.410E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.077E 00	1.054E 00	1.387E 00	2.036E 00	8.327E-01	8.144E 00	1.269E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.562E-01	9.370E-01	1.145E 00	1.773E 00	7.357E-01	7.050E 00	1.150E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.477E-01	8.318E-01	9.511E-01	1.544E 00	6.434E-01	6.115E 00	1.052E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.509E-01	7.376E-01	7.932E-01	1.344E 00	5.560E-01	5.306E 00	9.747E-01	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.647E-01	6.533E-01	6.638E-01	1.171E 00	4.740E-01	4.600E 00	9.170E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.880E-01	5.781E-01	5.569E-01	1.021E 00	3.976E-01	3.980E 00	8.790E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.198E-01	5.111E-01	4.682E-01	8.905E-01	3.270E-01	3.437E 00	8.614E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.594E-01	4.515E-01	3.942E-01	7.774E-01	2.628E-01	2.965E 00	8.652E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.057E-01	3.985E-01	3.323E-01	6.794E-01	2.054E-01	2.563E 00	8.921E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.582E-01	3.516E-01	2.802E-01	5.943E-01	1.551E-01	2.232E 00	9.446E-01	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.162E-01	3.100E-01	2.365E-01	5.204E-01	1.125E-01	1.973E 00	1.026E 00	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.790E-01	2.731E-01	1.996E-01	4.562E-01	7.788E-02	1.785E 00	1.141E 00	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.460E-01	2.406E-01	1.685E-01	4.003E-01	5.116E-02	1.667E 00	1.296E 00	2.761E-01	6.562E-01	4.684E-02

7.19 Proton/alpha = 8.4

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULPUR	ARGON	CALCIUM	IRON
840.000	100.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.194E 01	3.016E 02	8.912E 01	6.719E 02	5.997E 01	3.005E 01	3.015E 04	9.330E 02	3.016E 02
-5.800E 00	1.077E 01	1.894E 02	7.436E 01	5.524E 02	5.104E 01	2.610E 01	2.173E 04	8.272E 02	2.419E 02
-5.600E 00	9.726E 00	1.204E 02	6.204E 01	4.542E 02	4.344E 01	2.266E 01	1.577E 04	7.326E 02	1.953E 02
-5.400E 00	8.808E 00	7.764E 01	5.176E 01	3.736E 02	3.699E 01	1.968E 01	1.154E 04	6.467E 02	1.592E 02
-5.200E 00	8.005E 00	5.090E 01	4.318E 01	3.074E 02	3.153E 01	1.709E 01	8.519E 03	5.674E 02	1.312E 02
-5.000E 00	7.304E 00	3.401E 01	3.601E 01	2.530E 02	2.683E 01	1.484E 01	6.342E 03	4.935E 02	1.098E 02
-4.800E 00	6.696E 00	2.320E 01	3.003E 01	2.083E 02	2.286E 01	1.289E 01	4.764E 03	4.244E 02	9.343E 01
-4.600E 00	6.169E 00	1.619E 01	2.504E 01	1.715E 02	1.948E 01	1.119E 01	3.611E 03	3.601E 02	8.106E 01
-4.400E 00	5.709E 00	1.158E 01	2.087E 01	1.413E 02	1.661E 01	9.706E 00	2.762E 03	3.012E 02	7.177E 01
-4.200E 00	5.301E 00	8.496E 00	1.739E 01	1.164E 02	1.417E 01	8.419E 00	2.132E 03	2.483E 02	6.486E 01
-4.000E 00	4.934E 00	6.391E 00	1.449E 01	9.601E 01	1.209E 01	7.300E 00	1.660E 03	2.021E 02	5.977E 01
-3.800E 00	4.596E 00	4.926E 00	1.207E 01	7.921E 01	1.032E 01	6.325E 00	1.304E 03	1.627E 02	5.605E 01
-3.600E 00	4.277E 00	3.884E 00	1.005E 01	6.537E 01	8.816E 00	5.478E 00	1.032E 03	1.300E 02	5.334E 01
-3.400E 00	3.974E 00	3.125E 00	8.366E 00	5.399E 01	7.534E 00	4.741E 00	8.233E 02	1.035E 02	5.136E 01
-3.200E 00	3.682E 00	2.559E 00	6.962E 00	4.461E 01	6.442E 00	4.101E 00	6.616E 02	8.219E 01	4.991E 01
-3.000E 00	3.402E 00	2.128E 00	5.790E 00	3.689E 01	5.511E 00	3.544E 00	5.353E 02	6.535E 01	4.882E 01
-2.800E 00	3.134E 00	1.791E 00	4.814E 00	3.052E 01	4.719E 00	3.061E 00	4.357E 02	5.212E 01	4.797E 01
-2.600E 00	2.879E 00	1.522E 00	4.000E 00	2.526E 01	4.044E 00	2.642E 00	3.567E 02	4.175E 01	4.724E 01
-2.400E 00	2.638E 00	1.304E 00	3.323E 00	2.092E 01	3.468E 00	2.279E 00	2.936E 02	3.362E 01	4.659E 01
-2.200E 00	2.411E 00	1.124E 00	2.758E 00	1.734E 01	2.978E 00	1.964E 00	2.428E 02	2.722E 01	4.596E 01
-2.000E 00	2.200E 00	9.729E-01	2.288E 00	1.437E 01	2.561E 00	1.692E 00	2.017E 02	2.216E 01	4.531E 01
-1.800E 00	2.004E 00	8.450E-01	1.897E 00	1.191E 01	2.206E 00	1.457E 00	1.682E 02	1.813E 01	4.462E 01
-1.600E 00	1.824E 00	7.355E-01	1.571E 00	9.870E 00	1.904E 00	1.254E 00	1.408E 02	1.492E 01	4.387E 01
-1.400E 00	1.658E 00	6.411E-01	1.300E 00	8.169E 00	1.649E 00	1.079E 00	1.182E 02	1.232E 01	4.305E 01
-1.200E 00	1.506E 00	5.593E-01	1.075E 00	6.746E 00	1.434E 00	9.274E-01	9.958E 01	1.022E 01	4.217E 01
-1.000E 00	1.366E 00	4.881E-01	8.885E-01	5.549E 00	1.254E 00	7.972E-01	8.411E 01	8.502E 00	4.122E 01
-8.000E-01	1.239E 00	4.259E-01	7.333E-01	4.536E 00	1.107E 00	6.851E-01	7.121E 01	7.095E 00	4.021E 01
-6.000E-01	1.124E 00	3.715E-01	6.046E-01	3.669E 00	9.886E-01	5.886E-01	6.043E 01	5.935E 00	3.913E 01
-4.000E-01	1.018E 00	3.238E-01	4.978E-01	2.921E 00	8.995E-01	5.057E-01	5.138E 01	4.974E 00	3.800E 01
-2.000E-01	9.225E-01	2.821E-01	4.094E-01	2.272E 00	8.398E-01	4.344E-01	4.377E 01	4.176E 00	3.682E 01
1.824E-05	8.353E-01	2.456E-01	3.361E-01	1.710E 00	8.124E-01	3.731E-01	3.735E 01	3.511E 00	3.560E 01
2.000E-01	7.561E-01	2.137E-01	2.755E-01	1.233E 00	8.229E-01	3.205E-01	3.192E 01	2.955E 00	3.435E 01
4.000E-01	6.841E-01	1.857E-01	2.254E-01	8.435E-01	8.805E-01	2.753E-01	2.732E 01	2.489E 00	3.307E 01
6.000E-01	6.186E-01	1.613E-01	1.841E-01	5.454E-01	1.000E 00	2.366E-01	2.341E 01	2.098E 00	3.178E 01
8.000E-01	5.591E-01	1.400E-01	1.499E-01	3.337E-01	1.205E 00	2.033E-01	2.009E 01	1.770E 00	3.047E 01
1.000E 00	5.050E-01	1.215E-01	1.218E-01	1.944E-01	1.529E 00	1.748E-01	1.725E 01	1.493E 00	2.917E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	100.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.797E 02	3.237E 02	6.834E 00	2.829E 01	5.411E 03	2.033E 02	3.016E 02	2.517E 00
-5.800E 00	1.592E 02	2.674E 02	6.895E 00	2.509E 01	4.147E 03	1.786E 02	2.419E 02	3.096E 00
-5.600E 00	1.415E 02	2.220E 02	6.956E 00	2.233E 01	3.187E 03	1.568E 02	1.953E 02	3.780E 00
-5.400E 00	1.259E 02	1.854E 02	7.018E 00	1.995E 01	2.456E 03	1.377E 02	1.592E 02	4.581E 00
-5.200E 00	1.120E 02	1.558E 02	7.080E 00	1.791E 01	1.899E 03	1.209E 02	1.312E 02	5.505E 00
-5.000E 00	9.951E 01	1.317E 02	7.142E 00	1.615E 01	1.474E 03	1.061E 02	1.098E 02	6.561E 00
-4.800E 00	8.812E 01	1.122E 02	7.205E 00	1.464E 01	1.149E 03	9.313E 01	9.343E 01	7.751E 00
-4.600E 00	7.765E 01	9.616E 01	7.268E 00	1.335E 01	9.008E 02	8.172E 01	8.106E 01	9.077E 00
-4.400E 00	6.803E 01	8.290E 01	7.331E 00	1.223E 01	7.100E 02	7.169E 01	7.177E 01	1.054E 01
-4.200E 00	5.925E 01	7.183E 01	7.395E 00	1.126E 01	5.632E 02	6.289E 01	6.486E 01	1.212E 01
-4.000E 00	5.136E 01	6.253E 01	7.458E 00	1.043E 01	4.499E 02	5.516E 01	5.977E 01	1.383E 01
-3.800E 00	4.438E 01	5.467E 01	7.522E 00	9.708E 00	3.621E 02	4.838E 01	5.605E 01	1.566E 01
-3.600E 00	3.832E 01	4.800E 01	7.587E 00	9.081E 00	2.938E 02	4.242E 01	5.334E 01	1.759E 01
-3.400E 00	3.315E 01	4.236E 01	7.651E 00	8.533E 00	2.404E 02	3.720E 01	5.136E 01	1.961E 01
-3.200E 00	2.879E 01	3.758E 01	7.716E 00	8.052E 00	1.985E 02	3.263E 01	4.991E 01	2.172E 01
-3.000E 00	2.517E 01	3.357E 01	7.781E 00	7.625E 00	1.653E 02	2.862E 01	4.882E 01	2.391E 01
-2.800E 00	2.216E 01	3.020E 01	7.847E 00	7.245E 00	1.389E 02	2.512E 01	4.797E 01	2.616E 01
-2.600E 00	1.968E 01	2.738E 01	7.912E 00	6.902E 00	1.178E 02	2.205E 01	4.724E 01	2.849E 01
-2.400E 00	1.763E 01	2.504E 01	7.979E 00	6.590E 00	1.008E 02	1.938E 01	4.659E 01	3.087E 01
-2.200E 00	1.593E 01	2.308E 01	8.045E 00	6.302E 00	8.695E 01	1.706E 01	4.596E 01	3.332E 01
-2.000E 00	1.451E 01	2.145E 01	8.112E 00	6.034E 00	7.563E 01	1.504E 01	4.531E 01	3.582E 01
-1.800E 00	1.332E 01	2.009E 01	8.179E 00	5.782E 00	6.631E 01	1.331E 01	4.462E 01	3.838E 01
-1.600E 00	1.230E 01	1.895E 01	8.247E 00	5.541E 00	5.857E 01	1.181E 01	4.387E 01	4.100E 01
-1.400E 00	1.144E 01	1.799E 01	8.315E 00	5.310E 00	5.209E 01	1.055E 01	4.305E 01	4.369E 01
-1.200E 00	1.069E 01	1.717E 01	8.384E 00	5.085E 00	4.663E 01	9.483E 00	4.217E 01	4.645E 01
-1.000E 00	1.003E 01	1.647E 01	8.454E 00	4.866E 00	4.197E 01	8.608E 00	4.122E 01	4.928E 01
-8.000E-01	9.448E 00	1.588E 01	8.524E 00	4.650E 00	3.793E 01	7.910E 00	4.021E 01	5.219E 01
-6.000E-01	8.929E 00	1.536E 01	8.595E 00	4.437E 00	3.435E 01	7.381E 00	3.913E 01	5.518E 01
-4.000E-01	8.460E 00	1.490E 01	8.666E 00	4.226E 00	3.106E 01	7.018E 00	3.800E 01	5.827E 01
-2.000E-01	8.034E 00	1.450E 01	8.738E 00	4.017E 00	2.791E 01	6.820E 00	3.682E 01	6.145E 01
1.824E-05	7.643E 00	1.414E 01	8.811E 00	3.809E 00	2.479E 01	6.792E 00	3.560E 01	6.475E 01
2.000E-01	7.283E 00	1.382E 01	8.885E 00	3.603E 00	2.163E 01	6.944E 00	3.435E 01	6.815E 01
4.000E-01	6.948E 00	1.352E 01	8.960E 00	3.398E 00	1.848E 01	7.291E 00	3.307E 01	7.168E 01
6.000E-01	6.636E 00	1.324E 01	9.035E 00	3.195E 00	1.549E 01	7.852E 00	3.178E 01	7.534E 01
8.000E-01	6.344E 00	1.299E 01	9.111E 00	2.994E 00	1.283E 01	8.657E 00	3.047E 01	7.914E 01
1.000E 00	6.069E 00	1.274E 01	9.189E 00	2.795E 00	1.062E 01	9.743E 00	2.917E 01	8.309E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	120.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.388E 00	6.746E 00	1.422E 04	1.897E 01	3.415E 00	1.898E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.394E 00	6.541E 00	7.355E 03	1.809E 01	3.237E 00	1.408E 03	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.375E 00	6.336E 00	3.875E 03	1.720E 01	3.072E 00	1.046E 03	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.324E 00	6.123E 00	2.086E 03	1.628E 01	2.920E 00	7.802E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.234E 00	5.896E 00	1.150E 03	1.535E 01	2.778E 00	5.837E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	5.104E 00	5.648E 00	6.513E 02	1.441E 01	2.647E 00	4.384E 02	1.120E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	4.934E 00	5.373E 00	3.795E 02	1.346E 01	2.524E 00	3.307E 02	9.900E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.728E 00	5.073E 00	2.277E 02	1.250E 01	2.409E 00	2.508E 02	8.747E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.492E 00	4.750E 00	1.408E 02	1.156E 01	2.300E 00	1.912E 02	7.727E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.233E 00	4.412E 00	8.961E 01	1.062E 01	2.195E 00	1.468E 02	6.825E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.959E 00	4.066E 00	5.865E 01	9.704E 00	2.094E 00	1.134E 02	6.029E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.677E 00	3.723E 00	3.942E 01	8.818E 00	1.994E 00	8.834E 01	5.325E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.395E 00	3.389E 00	2.715E 01	7.969E 00	1.896E 00	6.937E 01	4.703E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.117E 00	3.072E 00	1.913E 01	7.165E 00	1.797E 00	5.495E 01	4.155E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.848E 00	2.774E 00	1.377E 01	6.410E 00	1.698E 00	4.392E 01	3.671E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.590E 00	2.498E 00	1.011E 01	5.708E 00	1.597E 00	3.543E 01	3.245E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.346E 00	2.245E 00	7.556E 00	5.062E 00	1.495E 00	2.886E 01	2.870E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.117E 00	2.014E 00	5.745E 00	4.472E 00	1.392E 00	2.372E 01	2.540E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.904E 00	1.804E 00	4.435E 00	3.939E 00	1.288E 00	1.967E 01	2.252E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.707E 00	1.614E 00	3.473E 00	3.460E 00	1.184E 00	1.645E 01	1.999E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.526E 00	1.443E 00	2.753E 00	3.032E 00	1.081E 00	1.387E 01	1.780E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.287E 00	2.208E 00	2.652E 00	9.794E-01	1.178E 01	1.590E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.213E 00	1.148E 00	1.787E 00	2.317E 00	8.802E-01	1.006E 01	1.427E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.078E 00	1.022E 00	1.459E 00	2.022E 00	7.839E-01	8.632E 00	1.289E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.570E-01	9.087E-01	1.199E 00	1.763E 00	6.912E-01	7.431E 00	1.175E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.486E-01	8.072E-01	9.919E-01	1.537E 00	6.028E-01	6.409E 00	1.082E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.518E-01	7.163E-01	8.242E-01	1.340E 00	5.190E-01	5.527E 00	1.011E 00	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.654E-01	6.350E-01	6.875E-01	1.168E 00	4.403E-01	4.759E 00	9.608E-01	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.886E-01	5.624E-01	5.753E-01	1.019E 00	3.673E-01	4.086E 00	9.322E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.204E-01	4.976E-01	4.825E-01	8.896E-01	3.004E-01	3.498E 00	9.259E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.598E-01	4.399E-01	4.055E-01	7.771E-01	2.400E-01	2.989E 00	9.436E-01	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.061E-01	3.887E-01	3.412E-01	6.793E-01	1.866E-01	2.557E 00	9.874E-01	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.585E-01	3.431E-01	2.874E-01	5.944E-01	1.405E-01	2.201E 00	1.061E 00	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.164E-01	3.027E-01	2.422E-01	5.206E-01	1.018E-01	1.920E 00	1.167E 00	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.791E-01	2.670E-01	2.042E-01	4.564E-01	7.070E-02	1.712E 00	1.313E 00	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.462E-01	2.353E-01	1.722E-01	4.006E-01	4.675E-02	1.573E 00	1.506E 00	2.761E-01	6.562E-01	4.684E-02

7.20 Proton/Alpha = 7.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	120.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.198E 01	2.524E 02	8.956E 01	6.685E 02	5.997E 01	3.005E 01	3.015E 04	9.923E 02	3.039E 02
-5.800E 00	1.082E 01	1.588E 02	7.473E 01	5.497E 02	5.103E 01	2.610E 01	2.173E 04	8.842E 02	2.445E 02
-5.600E 00	9.791E 00	1.012E 02	6.234E 01	4.521E 02	4.344E 01	2.266E 01	1.577E 04	7.859E 02	1.984E 02
-5.400E 00	8.890E 00	6.551E 01	5.200E 01	3.719E 02	3.698E 01	1.968E 01	1.154E 04	6.949E 02	1.626E 02
-5.200E 00	8.103E 00	4.316E 01	4.338E 01	3.060E 02	3.149E 01	1.709E 01	8.519E 03	6.091E 02	1.351E 02
-5.000E 00	7.420E 00	2.901E 01	3.617E 01	2.518E 02	2.683E 01	1.484E 01	6.342E 03	5.278E 02	1.142E 02
-4.800E 00	6.829E 00	1.994E 01	3.016E 01	2.073E 02	2.286E 01	1.289E 01	4.764E 03	4.508E 02	9.826E 01
-4.600E 00	6.315E 00	1.405E 01	2.515E 01	1.708E 02	1.948E 01	1.119E 01	3.611E 03	3.788E 02	8.636E 01
-4.400E 00	5.864E 00	1.015E 01	2.096E 01	1.407E 02	1.661E 01	9.706E 00	2.762E 03	3.129E 02	7.753E 01
-4.200E 00	5.461E 00	7.533E 00	1.747E 01	1.160E 02	1.417E 01	8.419E 00	2.132E 03	2.543E 02	7.107E 01
-4.000E 00	5.091E 00	5.736E 00	1.455E 01	9.562E 01	1.209E 01	7.300E 00	1.660E 03	2.037E 02	6.640E 01
-3.800E 00	4.745E 00	4.475E 00	1.212E 01	7.889E 01	1.032E 01	6.325E 00	1.304E 03	1.614E 02	6.306E 01
-3.600E 00	4.415E 00	3.570E 00	1.009E 01	6.512E 01	8.811E 00	5.478E 00	1.032E 03	1.269E 02	6.070E 01
-3.400E 00	4.097E 00	2.904E 00	8.401E 00	5.378E 01	7.529E 00	4.741E 00	8.233E 02	9.934E 01	5.904E 01
-3.200E 00	3.790E 00	2.402E 00	6.990E 00	4.445E 01	6.437E 00	4.101E 00	6.616E 02	7.770E 01	5.785E 01
-3.000E 00	3.495E 00	2.015E 00	5.814E 00	3.675E 01	5.506E 00	3.544E 00	5.353E 02	6.088E 01	5.698E 01
-2.800E 00	3.213E 00	1.709E 00	4.834E 00	3.041E 01	4.714E 00	3.061E 00	4.357E 02	4.789E 01	5.629E 01
-2.600E 00	2.946E 00	1.462E 00	4.017E 00	2.518E 01	4.038E 00	2.642E 00	3.567E 02	3.787E 01	5.570E 01
-2.400E 00	2.694E 00	1.259E 00	3.337E 00	2.086E 01	3.463E 00	2.279E 00	2.936E 02	3.013E 01	5.513E 01
-2.200E 00	2.459E 00	1.090E 00	2.770E 00	1.729E 01	2.972E 00	1.964E 00	2.428E 02	2.414E 01	5.454E 01
-2.000E 00	2.241E 00	9.472E-01	2.298E 00	1.434E 01	2.554E 00	1.692E 00	2.017E 02	1.947E 01	5.389E 01
-1.800E 00	2.039E 00	8.251E-01	1.905E 00	1.189E 01	2.199E 00	1.457E 00	1.682E 02	1.580E 01	5.316E 01
-1.600E 00	1.854E 00	7.199E-01	1.579E 00	9.860E 00	1.896E 00	1.254E 00	1.408E 02	1.290E 01	5.235E 01
-1.400E 00	1.684E 00	6.287E-01	1.307E 00	8.169E 00	1.640E 00	1.079E 00	1.182E 02	1.059E 01	5.143E 01
-1.200E 00	1.529E 00	5.493E-01	1.081E 00	6.757E 00	1.423E 00	9.274E-01	9.958E 01	8.737E 00	5.043E 01
-1.000E 00	1.387E 00	4.799E-01	8.935E-01	5.572E 00	1.241E 00	7.972E-01	8.411E 01	7.238E 00	4.933E 01
-8.000E-01	1.258E 00	4.190E-01	7.378E-01	4.570E 00	1.091E 00	6.851E-01	7.121E 01	6.017E 00	4.814E 01
-6.000E-01	1.140E 00	3.657E-01	6.086E-01	3.715E 00	9.691E-01	5.886E-01	6.043E 01	5.017E 00	4.687E 01
-4.000E-01	1.033E 00	3.189E-01	5.015E-01	2.980E 00	8.746E-01	5.057E-01	5.138E 01	4.194E 00	4.553E 01
-2.000E-01	9.365E-01	2.778E-01	4.127E-01	2.342E 00	8.076E-01	4.344E-01	4.377E 01	3.514E 00	4.414E 01
1.824E-05	8.484E-01	2.418E-01	3.392E-01	1.787E 00	7.700E-01	3.731E-01	3.735E 01	2.949E 00	4.268E 01
2.000E-01	7.684E-01	2.103E-01	2.784E-01	1.310E 00	7.659E-01	3.205E-01	3.192E 01	2.478E 00	4.119E 01
4.000E-01	6.958E-01	1.826E-01	2.281E-01	9.134E-01	8.029E-01	2.753E-01	2.732E 01	2.085E 00	3.966E 01
6.000E-01	6.298E-01	1.585E-01	1.865E-01	6.021E-01	8.932E-01	2.366E-01	2.341E 01	1.756E 00	3.812E 01
8.000E-01	5.699E-01	1.375E-01	1.522E-01	3.747E-01	1.056E 00	2.033E-01	2.009E 01	1.480E 00	3.656E 01
1.000E 00	5.154E-01	1.191E-01	1.239E-01	2.213E-01	1.319E 00	1.748E-01	1.725E 01	1.248E 00	3.499E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	120.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	F4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.842E 02	3.271E 02	5.805E 00	2.740E 01	5.365E 03	1.695E 02	3.039E 02	3.020E 00
-5.800E 00	1.639E 02	2.711E 02	5.854E 00	2.418E 01	4.105E 03	1.488E 02	2.445E 02	3.714E 00
-5.600E 00	1.462E 02	2.260E 02	5.903E 00	2.140E 01	3.149E 03	1.307E 02	1.984E 02	4.536E 00
-5.400E 00	1.305E 02	1.895E 02	5.952E 00	1.901E 01	2.421E 03	1.148E 02	1.626E 02	5.496E 00
-5.200E 00	1.164E 02	1.599E 02	6.001E 00	1.695E 01	1.867E 03	1.007E 02	1.351E 02	6.606E 00
-5.000E 00	1.034E 02	1.359E 02	6.051E 00	1.519E 01	1.445E 03	8.843E 01	1.142E 02	7.872E 00
-4.800E 00	9.135E 01	1.161E 02	6.100E 00	1.367E 01	1.123E 03	7.761E 01	9.826E 01	9.300E 00
-4.600E 00	8.010E 01	9.972E 01	6.150E 00	1.237E 01	8.767E 02	6.811E 01	8.636E 01	1.089E 01
-4.400E 00	6.965E 01	8.598E 01	6.200E 00	1.125E 01	6.880E 02	5.975E 01	7.753E 01	1.264E 01
-4.200E 00	6.007E 01	7.435E 01	6.250E 00	1.028E 01	5.431E 02	5.242E 01	7.107E 01	1.455E 01
-4.000E 00	5.146E 01	6.443E 01	6.301E 00	9.449E 00	4.315E 02	4.598E 01	6.640E 01	1.660E 01
-3.800E 00	4.389E 01	5.594E 01	6.351E 00	8.730E 00	3.453E 02	4.033E 01	6.306E 01	1.879E 01
-3.600E 00	3.738E 01	4.868E 01	6.402E 00	8.107E 00	2.785E 02	3.537E 01	6.070E 01	2.110E 01
-3.400E 00	3.187E 01	4.251E 01	6.453E 00	7.566E 00	2.264E 02	3.103E 01	5.904E 01	2.353E 01
-3.200E 00	2.728E 01	3.728E 01	6.504E 00	7.093E 00	1.857E 02	2.722E 01	5.785E 01	2.606E 01
-3.000E 00	2.351E 01	3.289E 01	6.555E 00	6.677E 00	1.537E 02	2.388E 01	5.698E 01	2.868E 01
-2.800E 00	2.041E 01	2.922E 01	6.607E 00	6.309E 00	1.284E 02	2.097E 01	5.629E 01	3.139E 01
-2.600E 00	1.789E 01	2.617E 01	6.659E 00	5.981E 00	1.082E 02	1.843E 01	5.570E 01	3.417E 01
-2.400E 00	1.583E 01	2.364E 01	6.711E 00	5.685E 00	9.208E 01	1.621E 01	5.513E 01	3.703E 01
-2.200E 00	1.414E 01	2.155E 01	6.764E 00	5.415E 00	7.908E 01	1.429E 01	5.454E 01	3.996E 01
-2.000E 00	1.275E 01	1.981E 01	6.816E 00	5.167E 00	6.853E 01	1.262E 01	5.389E 01	4.296E 01
-1.800E 00	1.160E 01	1.838E 01	6.870E 00	4.936E 00	5.992E 01	1.119E 01	5.316E 01	4.603E 01
-1.600E 00	1.064E 01	1.719E 01	6.924E 00	4.718E 00	5.285E 01	9.964E 00	5.235E 01	4.918E 01
-1.400E 00	9.825E 00	1.619E 01	6.978E 00	4.511E 00	4.701E 01	8.931E 00	5.143E 01	5.240E 01
-1.200E 00	9.130E 00	1.536E 01	7.033E 00	4.313E 00	4.216E 01	8.072E 00	5.043E 01	5.570E 01
-1.000E 00	8.529E 00	1.465E 01	7.088E 00	4.121E 00	3.809E 01	7.377E 00	4.933E 01	5.909E 01
-8.000E-01	8.004E 00	1.405E 01	7.144E 00	3.934E 00	3.464E 01	6.836E 00	4.814E 01	6.258E 01
-6.000E-01	7.540E 00	1.354E 01	7.201E 00	3.751E 00	3.165E 01	6.445E 00	4.687E 01	6.617E 01
-4.000E-01	7.126E 00	1.310E 01	7.259E 00	3.571E 00	2.897E 01	6.202E 00	4.553E 01	6.987E 01
-2.000E-01	6.753E 00	1.271E 01	7.317E 00	3.394E 00	2.646E 01	6.109E 00	4.414E 01	7.368E 01
1.824E-05	6.413E 00	1.237E 01	7.376E 00	3.219E 00	2.396E 01	6.173E 00	4.268E 01	7.763E 01
2.000E-01	6.102E 00	1.207E 01	7.435E 00	3.047E 00	2.138E 01	6.405E 00	4.119E 01	8.171E 01
4.000E-01	5.816E 00	1.179E 01	7.496E 00	2.876E 00	1.870E 01	6.821E 00	3.966E 01	8.594E 01
6.000E-01	5.549E 00	1.155E 01	7.557E 00	2.707E 00	1.600E 01	7.444E 00	3.812E 01	9.032E 01
8.000E-01	5.301E 00	1.132E 01	7.619E 00	2.541E 00	1.347E 01	8.302E 00	3.656E 01	9.487E 01
1.000E 00	5.069E 00	1.110E 01	7.682E 00	2.377E 00	1.125E 01	9.434E 00	3.499E 01	9.960E 01

PROTONS ALPHAS LITHIUM BERYL. BORON CARBON NITRO. OXYGEN FLUOR. NEON MAGNES. SILICON SULFUR ARGON CALCIUM IRON
 840.000 140.000 0.0 0.0 0.0 0.490 0.116 1.000 0.0 0.127 0.182 0.107 0.025 0.0 0.0 0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.572E 00	6.859E 00	1.416E 04	1.703E 01	3.344E 00	2.201E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.579E 00	6.665E 00	7.364E 03	1.629E 01	3.161E 00	1.630E 03	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.554E 00	6.467E 00	3.906E 03	1.554E 01	2.992E 00	1.210E 03	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.490E 00	6.257E 00	2.119E 03	1.478E 01	2.835E 00	9.008E 02	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.382E 00	6.025E 00	1.179E 03	1.399E 01	2.689E 00	6.726E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	5.229E 00	5.765E 00	6.746E 02	1.320E 01	2.554E 00	5.040E 02	1.121E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	5.035E 00	5.473E 00	3.972E 02	1.239E 01	2.428E 00	3.793E 02	9.901E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.804E 00	5.152E 00	2.409E 02	1.157E 01	2.310E 00	2.867E 02	8.748E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.546E 00	4.805E 00	1.503E 02	1.076E 01	2.199E 00	2.179E 02	7.728E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.268E 00	4.444E 00	9.650E 01	9.942E 00	2.093E 00	1.666E 02	6.827E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	3.978E 00	4.078E 00	6.359E 01	9.138E 00	1.992E 00	1.282E 02	6.031E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.686E 00	3.717E 00	4.294E 01	8.353E 00	1.894E 00	9.940E 01	5.327E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.396E 00	3.369E 00	2.966E 01	7.592E 00	1.798E 00	7.767E 01	4.706E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.114E 00	3.041E 00	2.092E 01	6.863E 00	1.703E 00	6.120E 01	4.158E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.842E 00	2.736E 00	1.504E 01	6.172E 00	1.607E 00	4.864E 01	3.675E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.584E 00	2.456E 00	1.102E 01	5.524E 00	1.512E 00	3.902E 01	3.250E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.340E 00	2.200E 00	8.208E 00	4.921E 00	1.415E 00	3.160E 01	2.876E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.112E 00	1.969E 00	6.212E 00	4.366E 00	1.318E 00	2.582E 01	2.547E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.901E 00	1.760E 00	4.772E 00	3.860E 00	1.220E 00	2.129E 01	2.260E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.705E 00	1.572E 00	3.717E 00	3.402E 00	1.122E 00	1.771E 01	2.009E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.525E 00	1.403E 00	2.931E 00	2.990E 00	1.025E 00	1.486E 01	1.791E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.362E 00	1.251E 00	2.338E 00	2.622E 00	9.283E-01	1.255E 01	1.604E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.213E 00	1.115E 00	1.883E 00	2.295E 00	8.337E-01	1.066E 01	1.444E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.079E 00	9.929E-01	1.530E 00	2.007E 00	7.416E-01	9.104E 00	1.310E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.578E-01	8.831E-01	1.253E 00	1.753E 00	6.527E-01	7.798E 00	1.199E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.494E-01	7.848E-01	1.032E 00	1.530E 00	5.676E-01	6.688E 00	1.112E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.526E-01	6.968E-01	8.549E-01	1.336E 00	4.870E-01	5.733E 00	1.047E 00	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.661E-01	6.180E-01	7.111E-01	1.166E 00	4.115E-01	4.904E 00	1.005E 00	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.892E-01	5.477E-01	5.935E-01	1.018E 00	3.417E-01	4.180E 00	9.854E-01	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.209E-01	4.850E-01	4.968E-01	8.888E-01	2.780E-01	3.551E 00	9.905E-01	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.602E-01	4.291E-01	4.167E-01	7.767E-01	2.210E-01	3.009E 00	1.022E 00	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.064E-01	3.794E-01	3.501E-01	6.792E-01	1.711E-01	2.552E 00	1.083E 00	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.588E-01	3.351E-01	2.944E-01	5.945E-01	1.285E-01	2.176E 00	1.177E 00	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.166E-01	2.959E-01	2.479E-01	5.208E-01	9.306E-02	1.879E 00	1.309E 00	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.793E-01	2.611E-01	2.088E-01	4.566E-01	6.475E-02	1.656E 00	1.486E 00	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.463E-01	2.302E-01	1.759E-01	4.008E-01	4.305E-02	1.501E 00	1.716E 00	2.761E-01	6.562E-01	4.684E-02

7.21 Proton/alpha = 6.

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	140.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.202E 01	2.173E 02	8.988E 01	6.662E 02	5.996E 01	3.005E 01	3.015E 04	1.051E 03	3.062E 02
-5.800E 00	1.087E 01	1.370E 02	7.499E 01	5.478E 02	5.103E 01	2.610E 01	2.173E 04	9.400E 02	2.472E 02
-5.600E 00	9.856E 00	8.753E 01	6.256E 01	4.505E 02	4.344E 01	2.266E 01	1.577E 04	8.376E 02	2.014E 02
-5.400E 00	8.969E 00	5.685E 01	5.218E 01	3.706E 02	3.698E 01	1.968E 01	1.154E 04	7.410E 02	1.661E 02
-5.200E 00	8.198E 00	3.762E 01	4.352E 01	3.050E 02	3.149E 01	1.709E 01	8.519E 03	6.485E 02	1.390E 02
-5.000E 00	7.531E 00	2.544E 01	3.629E 01	2.510E 02	2.682E 01	1.484E 01	6.342E 03	5.596E 02	1.185E 02
-4.800E 00	6.954E 00	1.761E 01	3.026E 01	2.067E 02	2.285E 01	1.289E 01	4.764E 03	4.747E 02	1.031E 02
-4.600E 00	6.451E 00	1.251E 01	2.523E 01	1.702E 02	1.948E 01	1.119E 01	3.611E 03	3.952E 02	9.166E 01
-4.400E 00	6.005E 00	9.130E 00	2.103E 01	1.403E 02	1.661E 01	9.706E 00	2.762E 03	3.229E 02	8.329E 01
-4.200E 00	5.602E 00	6.845E 00	1.752E 01	1.156E 02	1.416E 01	8.419E 00	2.132E 03	2.593E 02	7.727E 01
-4.000E 00	5.227E 00	5.267E 00	1.460E 01	9.534E 01	1.208E 01	7.300E 00	1.660E 03	2.051E 02	7.302E 01
-3.800E 00	4.871E 00	4.152E 00	1.216E 01	7.866E 01	1.031E 01	6.325E 00	1.304E 03	1.603E 02	7.007E 01
-3.600E 00	4.529E 00	3.345E 00	1.012E 01	6.494E 01	8.808E 00	5.478E 00	1.032E 03	1.244E 02	6.806E 01
-3.400E 00	4.197E 00	2.746E 00	8.426E 00	5.364E 01	7.526E 00	4.741E 00	8.233E 02	9.616E 01	6.671E 01
-3.200E 00	3.876E 00	2.290E 00	7.011E 00	4.433E 01	6.433E 00	4.101E 00	6.616E 02	7.429E 01	6.579E 01
-3.000E 00	3.568E 00	1.934E 00	5.832E 00	3.666E 01	5.503E 00	3.544E 00	5.353E 02	5.752E 01	6.513E 01
-2.800E 00	3.275E 00	1.650E 00	4.848E 00	3.034E 01	4.710E 00	3.061E 00	4.357E 02	4.474E 01	6.462E 01
-2.600E 00	2.998E 00	1.419E 00	4.029E 00	2.512E 01	4.035E 00	2.642E 00	3.567E 02	3.501E 01	6.415E 01
-2.400E 00	2.738E 00	1.227E 00	3.347E 00	2.082E 01	3.459E 00	2.279E 00	2.936E 02	2.758E 01	6.367E 01
-2.200E 00	2.496E 00	1.066E 00	2.778E 00	1.726E 01	2.968E 00	1.964E 00	2.428E 02	2.190E 01	6.312E 01
-2.000E 00	2.272E 00	9.288E-01	2.305E 00	1.431E 01	2.550E 00	1.692E 00	2.017E 02	1.752E 01	6.247E 01
-1.800E 00	2.065E 00	8.109E-01	1.911E 00	1.188E 01	2.194E 00	1.457E 00	1.682E 02	1.411E 01	6.171E 01
-1.600E 00	1.876E 00	7.088E-01	1.584E 00	9.852E 00	1.890E 00	1.254E 00	1.408E 02	1.145E 01	6.083E 01
-1.400E 00	1.703E 00	6.199E-01	1.312E 00	8.170E 00	1.633E 00	1.079E 00	1.182E 02	9.347E 00	5.982E 01
-1.200E 00	1.545E 00	5.421E-01	1.085E 00	6.765E 00	1.415E 00	9.274E-01	9.958E 01	7.673E 00	5.868E 01
-1.000E 00	1.402E 00	4.740E-01	8.972E-01	5.588E 00	1.232E 00	7.972E-01	8.411E 01	6.330E 00	5.743E 01
-8.000E-01	1.271E 00	4.141E-01	7.411E-01	4.595E 00	1.080E 00	6.851E-01	7.121E 01	5.244E 00	5.607E 01
-6.000E-01	1.152E 00	3.615E-01	6.115E-01	3.750E 00	9.551E-01	5.886E-01	6.043E 01	4.360E 00	5.461E 01
-4.000E-01	1.045E 00	3.153E-01	5.041E-01	3.024E 00	8.569E-01	5.057E-01	5.138E 01	3.636E 00	5.307E 01
-2.000E-01	9.468E-01	2.747E-01	4.151E-01	2.395E 00	7.846E-01	4.344E-01	4.377E 01	3.040E 00	5.145E 01
1.824E-05	8.580E-01	2.391E-01	3.414E-01	1.847E 00	7.396E-01	3.731E-01	3.735E 01	2.547E 00	4.976E 01
2.000E-01	7.775E-01	2.078E-01	2.804E-01	1.372E 00	7.252E-01	3.205E-01	3.192E 01	2.137E 00	4.803E 01
4.000E-01	7.044E-01	1.805E-01	2.300E-01	9.722E-01	7.476E-01	2.753E-01	2.732E 01	1.796E 00	4.626E 01
6.000E-01	6.381E-01	1.565E-01	1.883E-01	6.516E-01	8.169E-01	2.366E-01	2.341E 01	1.511E 00	4.445E 01
8.000E-01	5.778E-01	1.356E-01	1.539E-01	4.119E-01	9.490E-01	2.033E-01	2.009E 01	1.273E 00	4.264E 01
1.000E 00	5.230E-01	1.175E-01	1.255E-01	2.464E-01	1.169E 00	1.748E-01	1.725E 01	1.072E 00	4.081E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULPUR	ARGON	CAICIUM	IRON
840.000	140.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.886E 02	3.304E 02	5.070E 00	2.676E 01	5.332E 03	1.453E 02	3.062E 02	3.523E 00
-5.800E 00	1.685E 02	2.748E 02	5.110E 00	2.352E 01	4.076E 03	1.276E 02	2.472E 02	4.333E 00
-5.600E 00	1.508E 02	2.298E 02	5.150E 00	2.073E 01	3.122E 03	1.120E 02	2.014E 02	5.291E 00
-5.400E 00	1.350E 02	1.935E 02	5.190E 00	1.833E 01	2.396E 03	9.837E 01	1.661E 02	6.412E 00
-5.200E 00	1.205E 02	1.640E 02	5.230E 00	1.627E 01	1.845E 03	8.636E 01	1.390E 02	7.706E 00
-5.000E 00	1.070E 02	1.398E 02	5.271E 00	1.449E 01	1.425E 03	7.581E 01	1.185E 02	9.183E 00
-4.800E 00	9.428E 01	1.198E 02	5.311E 00	1.297E 01	1.104E 03	6.653E 01	1.031E 02	1.085E 01
-4.600E 00	8.227E 01	1.030E 02	5.351E 00	1.166E 01	8.595E 02	5.838E 01	9.166E 01	1.270E 01
-4.400E 00	7.104E 01	8.878E 01	5.392E 00	1.054E 01	6.723E 02	5.123E 01	8.329E 01	1.475E 01
-4.200E 00	6.076E 01	7.659E 01	5.432E 00	9.574E 00	5.287E 02	4.494E 01	7.727E 01	1.697E 01
-4.000E 00	5.155E 01	6.608E 01	5.473E 00	8.742E 00	4.184E 02	3.943E 01	7.302E 01	1.936E 01
-3.800E 00	4.350E 01	5.702E 01	5.514E 00	8.026E 00	3.333E 02	3.458E 01	7.007E 01	2.191E 01
-3.600E 00	3.664E 01	4.925E 01	5.555E 00	7.407E 00	2.675E 02	3.034E 01	6.806E 01	2.461E 01
-3.400E 00	3.088E 01	4.263E 01	5.596E 00	6.870E 00	2.164E 02	2.661E 01	6.671E 01	2.744E 01
-3.200E 00	2.614E 01	3.704E 01	5.637E 00	6.403E 00	1.766E 02	2.335E 01	6.579E 01	3.039E 01
-3.000E 00	2.226E 01	3.235E 01	5.679E 00	5.995E 00	1.454E 02	2.050E 01	6.513E 01	3.345E 01
-2.800E 00	1.912E 01	2.846E 01	5.721E 00	5.636E 00	1.208E 02	1.801E 01	6.462E 01	3.661E 01
-2.600E 00	1.657E 01	2.523E 01	5.763E 00	5.318E 00	1.013E 02	1.584E 01	6.415E 01	3.985E 01
-2.400E 00	1.451E 01	2.258E 01	5.805E 00	5.033E 00	8.585E 01	1.394E 01	6.367E 01	4.319E 01
-2.200E 00	1.284E 01	2.039E 01	5.847E 00	4.776E 00	7.344E 01	1.230E 01	6.312E 01	4.661E 01
-2.000E 00	1.148E 01	1.859E 01	5.890E 00	4.542E 00	6.344E 01	1.089E 01	6.247E 01	5.010E 01
-1.800E 00	1.037E 01	1.711E 01	5.934E 00	4.326E 00	5.534E 01	9.674E 00	6.171E 01	5.368E 01
-1.600E 00	9.440E 00	1.588E 01	5.978E 00	4.125E 00	4.874E 01	8.642E 00	6.083E 01	5.735E 01
-1.400E 00	8.666E 00	1.487E 01	6.022E 00	3.935E 00	4.335E 01	7.776E 00	5.982E 01	6.111E 01
-1.200E 00	8.011E 00	1.402E 01	6.067E 00	3.755E 00	3.892E 01	7.065E 00	5.868E 01	6.496E 01
-1.000E 00	7.452E 00	1.331E 01	6.112E 00	3.583E 00	3.527E 01	6.498E 00	5.743E 01	6.891E 01
-8.000E-01	6.968E 00	1.271E 01	6.158E 00	3.416E 00	3.223E 01	6.069E 00	5.607E 01	7.297E 01
-6.000E-01	6.545E 00	1.220E 01	6.205E 00	3.255E 00	2.966E 01	5.776E 00	5.461E 01	7.716E 01
-4.000E-01	6.170E 00	1.177E 01	6.252E 00	3.097E 00	2.741E 01	5.619E 00	5.307E 01	8.147E 01
-2.000E-01	5.835E 00	1.139E 01	6.300E 00	2.943E 00	2.535E 01	5.601E 00	5.145E 01	8.591E 01
1.824E-05	5.533E 00	1.106E 01	6.349E 00	2.791E 00	2.331E 01	5.731E 00	4.976E 01	9.051E 01
2.000E-01	5.258E 00	1.078E 01	6.398E 00	2.642E 00	2.118E 01	6.020E 00	4.803E 01	9.527E 01
4.000E-01	5.006E 00	1.052E 01	6.448E 00	2.495E 00	1.888E 01	6.486E 00	4.626E 01	1.002E 02
6.000E-01	4.773E 00	1.029E 01	6.500E 00	2.350E 00	1.646E 01	7.152E 00	4.445E 01	1.053E 02
8.000E-01	4.556E 00	1.008E 01	6.552E 00	2.208E 00	1.405E 01	8.049E 00	4.264E 01	1.106E 02
1.000E 00	4.354E 00	9.891E 00	6.604E 00	2.068E 00	1.184E 01	9.213E 00	4.081E 01	1.161E 02

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
.840.000	180.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028

GAMMA	P1/P2	P2/P3	P3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	5.908E 00	7.077E 00	1.405E 04	1.426E 01	3.248E 00	2.807E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	5.910E 00	6.900E 00	7.381E 03	1.371E 01	3.058E 00	2.075E 03	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	5.867E 00	6.712E 00	3.965E 03	1.314E 01	2.882E 00	1.538E 03	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	5.774E 00	6.500E 00	2.183E 03	1.256E 01	2.719E 00	1.142E 03	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.628E 00	6.254E 00	1.235E 03	1.197E 01	2.567E 00	8.505E 02	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	5.433E 00	5.968E 00	7.191E 02	1.137E 01	2.426E 00	6.354E 02	1.121E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	5.195E 00	5.642E 00	4.311E 02	1.076E 01	2.294E 00	4.764E 02	9.903E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	4.924E 00	5.280E 00	2.660E 02	1.013E 01	2.172E 00	3.586E 02	8.750E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.629E 00	4.894E 00	1.686E 02	9.497E 00	2.057E 00	2.713E 02	7.731E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.321E 00	4.494E 00	1.097E 02	8.857E 00	1.949E 00	2.063E 02	6.830E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	4.009E 00	4.095E 00	7.307E 01	8.217E 00	1.846E 00	1.578E 02	6.034E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.699E 00	3.707E 00	4.972E 01	7.582E 00	1.749E 00	1.215E 02	5.332E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.398E 00	3.338E 00	3.450E 01	6.957E 00	1.654E 00	9.424E 01	4.712E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.108E 00	2.994E 00	2.437E 01	6.348E 00	1.562E 00	7.367E 01	4.165E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.833E 00	2.678E 00	1.751E 01	5.760E 00	1.471E 00	5.807E 01	3.683E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.574E 00	2.390E 00	1.278E 01	5.199E 00	1.382E 00	4.617E 01	3.259E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.331E 00	2.131E 00	9.473E 00	4.669E 00	1.292E 00	3.704E 01	2.887E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.105E 00	1.898E 00	7.122E 00	4.174E 00	1.203E 00	3.000E 01	2.561E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.895E 00	1.690E 00	5.429E 00	3.715E 00	1.113E 00	2.451E 01	2.276E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.702E 00	1.504E 00	4.193E 00	3.294E 00	1.023E 00	2.020E 01	2.028E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.524E 00	1.339E 00	3.279E 00	2.911E 00	9.337E-01	1.679E 01	1.815E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.361E 00	1.192E 00	2.593E 00	2.565E 00	8.449E-01	1.405E 01	1.632E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.214E 00	1.060E 00	2.071E 00	2.255E 00	7.575E-01	1.183E 01	1.478E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.080E 00	9.432E-01	1.670E 00	1.979E 00	6.720E-01	1.001E 01	1.350E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.593E-01	8.387E-01	1.358E 00	1.734E 00	5.892E-01	8.486E 00	1.249E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.510E-01	7.454E-01	1.112E 00	1.518E 00	5.099E-01	7.203E 00	1.172E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.541E-01	6.621E-01	9.153E-01	1.327E 00	4.348E-01	6.105E 00	1.119E 00	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.675E-01	5.877E-01	7.576E-01	1.161E 00	3.648E-01	5.159E 00	1.092E 00	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.905E-01	5.213E-01	6.296E-01	1.015E 00	3.004E-01	4.341E 00	1.092E 00	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.219E-01	4.621E-01	5.249E-01	8.871E-01	2.424E-01	3.638E 00	1.120E 00	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.611E-01	4.093E-01	4.388E-01	7.759E-01	1.911E-01	3.041E 00	1.179E 00	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.071E-01	3.622E-01	3.676E-01	6.790E-01	1.469E-01	2.544E 00	1.273E 00	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.594E-01	3.204E-01	3.085E-01	5.946E-01	1.098E-01	2.139E 00	1.408E 00	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.171E-01	2.832E-01	2.591E-01	5.211E-01	7.945E-02	1.819E 00	1.591E 00	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.796E-01	2.501E-01	2.179E-01	4.571E-01	5.547E-02	1.576E 00	1.830E 00	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.466E-01	2.208E-01	1.833E-01	4.013E-01	3.719E-02	1.401E 00	2.135E 00	2.761E-01	6.562E-01	4.684E-02

7.22 Proton/alpha = 4.67

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CAICIUM	IRON
840.000	180.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.210E 01	1.704E 02	9.031E 01	6.630E 02	5.996E 01	3.005E 01	3.015E 04	1.165E 03	3.108E 02
-5.800E 00	1.097E 01	1.078E 02	7.534E 01	5.452E 02	5.103E 01	2.610E 01	2.173E 04	1.048E 03	2.525E 02
-5.600E 00	9.981E 00	6.926E 01	6.285E 01	4.485E 02	4.343E 01	2.266E 01	1.577E 04	9.364E 02	2.075E 02
-5.400E 00	9.122E 00	4.529E 01	5.242E 01	3.690E 02	3.697E 01	1.968E 01	1.154E 04	8.278E 02	1.730E 02
-5.200E 00	8.379E 00	3.024E 01	4.371E 01	3.036E 02	3.149E 01	1.709E 01	8.519E 03	7.210E 02	1.468E 02
-5.000E 00	7.738E 00	2.068E 01	3.645E 01	2.499E 02	2.682E 01	1.484E 01	6.342E 03	6.166E 02	1.272E 02
-4.800E 00	7.182E 00	1.451E 01	3.039E 01	2.058E 02	2.285E 01	1.289E 01	4.764E 03	5.164E 02	1.128E 02
-4.600E 00	6.692E 00	1.047E 01	2.533E 01	1.695E 02	1.947E 01	1.119E 01	3.611E 03	4.231E 02	1.023E 02
-4.400E 00	6.251E 00	7.767E 00	2.111E 01	1.397E 02	1.660E 01	9.706E 00	2.762E 03	3.394E 02	9.482E 01
-4.200E 00	5.841E 00	5.927E 00	1.759E 01	1.151E 02	1.416E 01	8.419E 00	2.132E 03	2.672E 02	8.969E 01
-4.000E 00	5.451E 00	4.642E 00	1.466E 01	9.496E 01	1.208E 01	7.300E 00	1.660E 03	2.071E 02	8.627E 01
-3.800E 00	5.074E 00	3.722E 00	1.221E 01	7.836E 01	1.031E 01	6.325E 00	1.304E 03	1.588E 02	8.410E 01
-3.600E 00	4.707E 00	3.046E 00	1.016E 01	6.469E 01	8.804E 00	5.478E 00	1.032E 03	1.208E 02	8.279E 01
-3.400E 00	4.350E 00	2.535E 00	8.460E 00	5.344E 01	7.521E 00	4.741E 00	8.233E 02	9.160E 01	8.205E 01
-3.200E 00	4.006E 00	2.140E 00	7.039E 00	4.417E 01	6.429E 00	4.101E 00	6.616E 02	6.946E 01	8.166E 01
-3.000E 00	3.676E 00	1.826E 00	5.855E 00	3.653E 01	5.498E 00	3.544E 00	5.353E 02	5.283E 01	8.145E 01
-2.800E 00	3.364E 00	1.572E 00	4.868E 00	3.024E 01	4.705E 00	3.061E 00	4.357E 02	4.038E 01	8.128E 01
-2.600E 00	3.072E 00	1.361E 00	4.045E 00	2.504E 01	4.030E 00	2.642E 00	3.567E 02	3.108E 01	8.106E 01
-2.400E 00	2.799E 00	1.184E 00	3.360E 00	2.075E 01	3.453E 00	2.279E 00	2.936E 02	2.410E 01	8.074E 01
-2.200E 00	2.547E 00	1.034E 00	2.790E 00	1.721E 01	2.962E 00	1.964E 00	2.428E 02	1.885E 01	8.028E 01
-2.000E 00	2.314E 00	9.043E-01	2.315E 00	1.428E 01	2.544E 00	1.692E 00	2.017E 02	1.488E 01	7.963E 01
-1.800E 00	2.102E 00	7.920E-01	1.920E 00	1.185E 01	2.187E 00	1.457E 00	1.682E 02	1.184E 01	7.880E 01
-1.600E 00	1.907E 00	6.940E-01	1.591E 00	9.843E 00	1.883E 00	1.254E 00	1.408E 02	9.496E 00	7.778E 01
-1.400E 00	1.730E 00	6.081E-01	1.318E 00	8.170E 00	1.624E 00	1.079E 00	1.182E 02	7.675E 00	7.658E 01
-1.200E 00	1.569E 00	5.326E-01	1.091E 00	6.776E 00	1.405E 00	9.274E-01	9.958E 01	6.246E 00	7.519E 01
-1.000E 00	1.422E 00	4.662E-01	9.021E-01	5.610E 00	1.220E 00	7.972E-01	8.411E 01	5.114E 00	7.364E 01
-8.000E-01	1.290E 00	4.076E-01	7.454E-01	4.629E 00	1.065E 00	6.851E-01	7.121E 01	4.209E 00	7.194E 01
-6.000E-01	1.169E 00	3.560E-01	6.155E-01	3.797E 00	9.365E-01	5.886E-01	6.043E 01	3.480E 00	7.010E 01
-4.000E-01	1.060E 00	3.106E-01	5.077E-01	3.086E 00	8.332E-01	5.057E-01	5.138E 01	2.889E 00	6.814E 01
-2.000E-01	9.609E-01	2.706E-01	4.184E-01	2.471E 00	7.540E-01	4.344E-01	4.377E 01	2.406E 00	6.607E 01
1.824E-05	8.712E-01	2.354E-01	3.445E-01	1.935E 00	6.992E-01	3.731E-01	3.735E 01	2.009E 00	6.393E 01
2.000E-01	7.900E-01	2.046E-01	2.832E-01	1.467E 00	6.710E-01	3.205E-01	3.192E 01	1.682E 00	6.171E 01
4.000E-01	7.163E-01	1.775E-01	2.326E-01	1.066E 00	6.738E-01	2.753E-01	2.732E 01	1.410E 00	5.944E 01
6.000E-01	6.494E-01	1.539E-01	1.908E-01	7.341E-01	7.151E-01	2.366E-01	2.341E 01	1.185E 00	5.713E 01
8.000E-01	5.887E-01	1.332E-01	1.562E-01	4.767E-01	8.070E-01	2.033E-01	2.009E 01	9.961E-01	5.480E 01
1.000E 00	5.337E-01	1.152E-01	1.277E-01	2.920E-01	9.684E-01	1.748E-01	1.725E 01	8.384E-01	5.246E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	180.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	1.972E 02	3.371E 02	4.091E 00	2.590E 01	5.288E 03	1.130E 02	3.108E 02	4.529E 00
-5.800E 00	1.773E 02	2.819E 02	4.119E 00	2.264E 01	4.036E 03	9.923E 01	2.525E 02	5.571E 00
-5.600E 00	1.596E 02	2.374E 02	4.146E 00	1.983E 01	3.085E 03	8.714E 01	2.075E 02	6.803E 00
-5.400E 00	1.434E 02	2.012E 02	4.174E 00	1.742E 01	2.363E 03	7.651E 01	1.730E 02	8.243E 00
-5.200E 00	1.281E 02	1.716E 02	4.202E 00	1.534E 01	1.815E 03	6.718E 01	1.468E 02	9.906E 00
-5.000E 00	1.135E 02	1.471E 02	4.230E 00	1.356E 01	1.397E 03	5.897E 01	1.272E 02	1.181E 01
-4.800E 00	9.939E 01	1.265E 02	4.258E 00	1.203E 01	1.079E 03	5.176E 01	1.128E 02	1.395E 01
-4.600E 00	8.593E 01	1.089E 02	4.286E 00	1.072E 01	8.365E 02	4.542E 01	1.023E 02	1.633E 01
-4.400E 00	7.333E 01	9.367E 01	4.314E 00	9.591E 00	6.513E 02	3.986E 01	9.482E 01	1.896E 01
-4.200E 00	6.184E 01	8.038E 01	4.342E 00	8.624E 00	5.095E 02	3.497E 01	8.969E 01	2.181E 01
-4.000E 00	5.168E 01	6.879E 01	4.370E 00	7.794E 00	4.008E 02	3.068E 01	8.627E 01	2.489E 01
-3.800E 00	4.292E 01	5.875E 01	4.397E 00	7.080E 00	3.173E 02	2.692E 01	8.410E 01	2.817E 01
-3.600E 00	3.555E 01	5.013E 01	4.425E 00	6.465E 00	2.529E 02	2.362E 01	8.279E 01	3.163E 01
-3.400E 00	2.947E 01	4.281E 01	4.454E 00	5.935E 00	2.031E 02	2.073E 01	8.205E 01	3.527E 01
-3.200E 00	2.452E 01	3.667E 01	4.482E 00	5.477E 00	1.644E 02	1.820E 01	8.166E 01	3.906E 01
-3.000E 00	2.052E 01	3.157E 01	4.510E 00	5.079E 00	1.343E 02	1.599E 01	8.145E 01	4.299E 01
-2.800E 00	1.732E 01	2.735E 01	4.538E 00	4.731E 00	1.107E 02	1.406E 01	8.128E 01	4.705E 01
-2.600E 00	1.476E 01	2.390E 01	4.567E 00	4.426E 00	9.216E 01	1.238E 01	8.106E 01	5.122E 01
-2.400E 00	1.272E 01	2.107E 01	4.596E 00	4.157E 00	7.752E 01	1.092E 01	8.074E 01	5.551E 01
-2.200E 00	1.108E 01	1.876E 01	4.625E 00	3.917E 00	6.589E 01	9.662E 00	8.028E 01	5.989E 01
-2.000E 00	9.762E 00	1.688E 01	4.655E 00	3.701E 00	5.661E 01	8.578E 00	7.963E 01	6.439E 01
-1.800E 00	8.695E 00	1.534E 01	4.685E 00	3.506E 00	4.919E 01	7.656E 00	7.880E 01	6.899E 01
-1.600E 00	7.824E 00	1.407E 01	4.715E 00	3.326E 00	4.322E 01	6.879E 00	7.778E 01	7.370E 01
-1.400E 00	7.107E 00	1.304E 01	4.746E 00	3.160E 00	3.842E 01	6.237E 00	7.658E 01	7.852E 01
-1.200E 00	6.511E 00	1.218E 01	4.777E 00	3.005E 00	3.456E 01	5.721E 00	7.519E 01	8.347E 01
-1.000E 00	6.009E 00	1.147E 01	4.809E 00	2.858E 00	3.145E 01	5.326E 00	7.364E 01	8.854E 01
-8.000E-01	5.582E 00	1.087E 01	4.841E 00	2.719E 00	2.894E 01	5.047E 00	7.194E 01	9.376E 01
-6.000E-01	5.214E 00	1.037E 01	4.874E 00	2.585E 00	2.691E 01	4.885E 00	7.010E 01	9.913E 01
-4.000E-01	4.893E 00	9.948E 00	4.908E 00	2.456E 00	2.523E 01	4.842E 00	6.814E 01	1.047E 02
-2.000E-01	4.610E 00	9.587E 00	4.942E 00	2.331E 00	2.376E 01	4.924E 00	6.607E 01	1.104E 02
1.824E-05	4.358E 00	9.277E 00	4.977E 00	2.210E 00	2.236E 01	5.141E 00	6.393E 01	1.163E 02
2.000E-01	4.131E 00	9.009E 00	5.013E 00	2.091E 00	2.088E 01	5.507E 00	6.171E 01	1.224E 02
4.000E-01	3.925E 00	8.774E 00	5.050E 00	1.975E 00	1.917E 01	6.039E 00	5.944E 01	1.287E 02
6.000E-01	3.736E 00	8.567E 00	5.087E 00	1.862E 00	1.721E 01	6.763E 00	5.713E 01	1.353E 02
8.000E-01	3.562E 00	8.383E 00	5.126E 00	1.752E 00	1.506E 01	7.710E 00	5.480E 01	1.421E 02
1.000E 00	3.400E 00	8.217E 00	5.165E 00	1.643E 00	1.290E 01	8.919E 00	5.246E 01	1.491E 02

PROTONS ALPHAS LITHIUM BERYL. BORON CARBON NITRO. OXYGEN FLUOR. NEON MAGNES. SILICON SULFUR ARGON CALCIUM IRON
 840.000 220.000 0.0 0.0 0.0 0.490 0.116 1.000 0.0 0.127 0.182 0.107 0.025 0.0 0.0 0.028

GAMMA	P1/P2	P2/P3	F3/P4	P4/P5	P5/P6	P6/P7	P7/P8	P8/P9	P9/P10	P10/P11
-6.000E 00	6.208E 00	7.282E 00	1.394E 04	1.239E 01	3.185E 00	3.412E 03	2.077E 01	2.937E 01	2.962E 01	2.727E 01
-5.800E 00	6.198E 00	7.119E 00	7.396E 03	1.194E 01	2.992E 00	2.520E 03	1.836E 01	2.567E 01	2.622E 01	2.344E 01
-5.600E 00	6.132E 00	6.934E 00	4.019E 03	1.148E 01	2.811E 00	1.865E 03	1.623E 01	2.244E 01	2.323E 01	2.013E 01
-5.400E 00	6.008E 00	6.715E 00	2.243E 03	1.102E 01	2.643E 00	1.383E 03	1.435E 01	1.962E 01	2.059E 01	1.727E 01
-5.200E 00	5.826E 00	6.451E 00	1.287E 03	1.055E 01	2.487E 00	1.028E 03	1.268E 01	1.715E 01	1.826E 01	1.480E 01
-5.000E 00	5.593E 00	6.138E 00	7.609E 02	1.006E 01	2.341E 00	7.666E 02	1.121E 01	1.499E 01	1.621E 01	1.267E 01
-4.800E 00	5.318E 00	5.778E 00	4.630E 02	9.569E 00	2.206E 00	5.734E 02	9.905E 00	1.311E 01	1.439E 01	1.083E 01
-4.600E 00	5.014E 00	5.381E 00	2.897E 02	9.064E 00	2.080E 00	4.305E 02	8.752E 00	1.146E 01	1.279E 01	9.248E 00
-4.400E 00	4.691E 00	4.961E 00	1.860E 02	8.549E 00	1.962E 00	3.246E 02	7.733E 00	1.002E 01	1.137E 01	7.884E 00
-4.200E 00	4.360E 00	4.532E 00	1.223E 02	8.027E 00	1.851E 00	2.459E 02	6.833E 00	8.763E 00	1.012E 01	6.711E 00
-4.000E 00	4.031E 00	4.108E 00	8.209E 01	7.499E 00	1.747E 00	1.873E 02	6.038E 00	7.663E 00	9.008E 00	5.703E 00
-3.800E 00	3.709E 00	3.700E 00	5.618E 01	6.970E 00	1.648E 00	1.436E 02	5.336E 00	6.702E 00	8.026E 00	4.838E 00
-3.600E 00	3.399E 00	3.316E 00	3.912E 01	6.442E 00	1.553E 00	1.108E 02	4.717E 00	5.862E 00	7.158E 00	4.097E 00
-3.400E 00	3.104E 00	2.960E 00	2.768E 01	5.922E 00	1.462E 00	8.610E 01	4.171E 00	5.127E 00	6.388E 00	3.463E 00
-3.200E 00	2.827E 00	2.636E 00	1.988E 01	5.413E 00	1.374E 00	6.745E 01	3.691E 00	4.485E 00	5.706E 00	2.922E 00
-3.000E 00	2.567E 00	2.342E 00	1.448E 01	4.921E 00	1.287E 00	5.328E 01	3.268E 00	3.924E 00	5.100E 00	2.460E 00
-2.800E 00	2.324E 00	2.079E 00	1.069E 01	4.450E 00	1.201E 00	4.245E 01	2.898E 00	3.433E 00	4.563E 00	2.066E 00
-2.600E 00	2.099E 00	1.844E 00	8.000E 00	4.004E 00	1.116E 00	3.413E 01	2.574E 00	3.004E 00	4.086E 00	1.732E 00
-2.400E 00	1.891E 00	1.636E 00	6.064E 00	3.585E 00	1.032E 00	2.768E 01	2.292E 00	2.628E 00	3.662E 00	1.448E 00
-2.200E 00	1.699E 00	1.452E 00	4.655E 00	3.196E 00	9.472E-01	2.264E 01	2.048E 00	2.300E 00	3.285E 00	1.208E 00
-2.000E 00	1.523E 00	1.288E 00	3.616E 00	2.839E 00	8.631E-01	1.867E 01	1.838E 00	2.013E 00	2.950E 00	1.005E 00
-1.800E 00	1.361E 00	1.144E 00	2.840E 00	2.513E 00	7.797E-01	1.550E 01	1.660E 00	1.762E 00	2.651E 00	8.343E-01
-1.600E 00	1.214E 00	1.016E 00	2.255E 00	2.218E 00	6.975E-01	1.294E 01	1.512E 00	1.543E 00	2.385E 00	6.907E-01
-1.400E 00	1.081E 00	9.022E-01	1.807E 00	1.952E 00	6.170E-01	1.085E 01	1.391E 00	1.351E 00	2.147E 00	5.704E-01
-1.200E 00	9.607E-01	8.015E-01	1.460E 00	1.716E 00	5.390E-01	9.122E 00	1.298E 00	1.183E 00	1.935E 00	4.698E-01
-1.000E 00	8.525E-01	7.120E-01	1.189E 00	1.505E 00	4.644E-01	7.667E 00	1.231E 00	1.036E 00	1.746E 00	3.859E-01
-8.000E-01	7.555E-01	6.323E-01	9.746E-01	1.319E 00	3.939E-01	6.432E 00	1.192E 00	9.070E-01	1.577E 00	3.161E-01
-6.000E-01	6.689E-01	5.614E-01	8.032E-01	1.155E 00	3.284E-01	5.376E 00	1.180E 00	7.944E-01	1.425E 00	2.583E-01
-4.000E-01	5.916E-01	4.982E-01	6.650E-01	1.012E 00	2.687E-01	4.474E 00	1.198E 00	6.958E-01	1.289E 00	2.105E-01
-2.000E-01	5.229E-01	4.418E-01	5.526E-01	8.855E-01	2.153E-01	3.708E 00	1.249E 00	6.096E-01	1.167E 00	1.711E-01
1.824E-05	4.619E-01	3.916E-01	4.607E-01	7.752E-01	1.687E-01	3.066E 00	1.335E 00	5.341E-01	1.058E 00	1.387E-01
2.000E-01	4.078E-01	3.469E-01	3.850E-01	6.789E-01	1.290E-01	2.538E 00	1.464E 00	4.679E-01	9.600E-01	1.122E-01
4.000E-01	3.599E-01	3.071E-01	3.223E-01	5.948E-01	9.601E-02	2.112E 00	1.640E 00	4.101E-01	8.717E-01	9.049E-02
6.000E-01	3.175E-01	2.717E-01	2.703E-01	5.215E-01	6.940E-02	1.777E 00	1.874E 00	3.594E-01	7.923E-01	7.282E-02
8.000E-01	2.800E-01	2.402E-01	2.269E-01	4.575E-01	4.856E-02	1.521E 00	2.174E 00	3.150E-01	7.207E-01	5.847E-02
1.000E 00	2.468E-01	2.122E-01	1.906E-01	4.017E-01	3.276E-02	1.333E 00	2.555E 00	2.761E-01	6.562E-01	4.684E-02

7.23 Proton/alpha = 3.82

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	220.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	A1/A2	A2/A3	A3/A4	A4/A5	A5/A6	Z1/Z2	Z2/Z3	P1/A1	A1/Z1
-6.000E 00	1.218E 01	1.406E 02	9.058E 01	6.610E 02	5.996E 01	3.005E 01	3.015E 04	1.276E 03	3.154E 02
-5.800E 00	1.107E 01	8.928E 01	7.557E 01	5.436E 02	5.102E 01	2.610E 01	2.173E 04	1.152E 03	2.578E 02
-5.600E 00	1.010E 01	5.763E 01	6.303E 01	4.471E 02	4.343E 01	2.266E 01	1.577E 04	1.030E 03	2.136E 02
-5.400E 00	9.268E 00	3.794E 01	5.257E 01	3.679E 02	3.697E 01	1.968E 01	1.154E 04	9.079E 02	1.799E 02
-5.200E 00	8.548E 00	2.554E 01	4.384E 01	3.028E 02	3.148E 01	1.709E 01	8.519E 03	7.862E 02	1.547E 02
-5.000E 00	7.928E 00	1.764E 01	3.655E 01	2.492E 02	2.682E 01	1.484E 01	6.342E 03	6.662E 02	1.360E 02
-4.800E 00	7.386E 00	1.253E 01	3.047E 01	2.052E 02	2.285E 01	1.289E 01	4.764E 03	5.515E 02	1.224E 02
-4.600E 00	6.903E 00	9.164E 00	2.540E 01	1.691E 02	1.947E 01	1.119E 01	3.611E 03	4.457E 02	1.129E 02
-4.400E 00	6.458E 00	6.900E 00	2.117E 01	1.393E 02	1.660E 01	9.706E 00	2.762E 03	3.523E 02	1.063E 02
-4.200E 00	6.036E 00	5.342E 00	1.764E 01	1.148E 02	1.416E 01	8.419E 00	2.132E 03	2.732E 02	1.021E 02
-4.000E 00	5.629E 00	4.244E 00	1.469E 01	9.472E 01	1.208E 01	7.300E 00	1.660E 03	2.087E 02	9.952E 01
-3.800E 00	5.230E 00	3.448E 00	1.224E 01	7.817E 01	1.031E 01	6.325E 00	1.304E 03	1.576E 02	9.813E 01
-3.600E 00	4.840E 00	2.855E 00	1.019E 01	6.454E 01	8.801E 00	5.478E 00	1.032E 03	1.183E 02	9.752E 01
-3.400E 00	4.462E 00	2.401E 00	8.481E 00	5.332E 01	7.518E 00	4.741E 00	8.233E 02	8.847E 01	9.740E 01
-3.200E 00	4.098E 00	2.045E 00	7.057E 00	4.407E 01	6.426E 00	4.101E 00	6.616E 02	6.621E 01	9.754E 01
-3.000E 00	3.752E 00	1.758E 00	5.869E 00	3.645E 01	5.495E 00	3.544E 00	5.353E 02	4.970E 01	9.776E 01
-2.800E 00	3.426E 00	1.522E 00	4.880E 00	3.017E 01	4.702E 00	3.061E 00	4.357E 02	3.751E 01	9.793E 01
-2.600E 00	3.122E 00	1.325E 00	4.056E 00	2.499E 01	4.026E 00	2.642E 00	3.567E 02	2.850E 01	9.797E 01
-2.400E 00	2.840E 00	1.157E 00	3.369E 00	2.072E 01	3.450E 00	2.279E 00	2.936E 02	2.184E 01	9.782E 01
-2.200E 00	2.581E 00	1.013E 00	2.797E 00	1.718E 01	2.959E 00	1.964E 00	2.428E 02	1.688E 01	9.743E 01
-2.000E 00	2.343E 00	8.887E-01	2.321E 00	1.426E 01	2.540E 00	1.692E 00	2.017E 02	1.317E 01	9.680E 01
-1.800E 00	2.126E 00	7.799E-01	1.925E 00	1.184E 01	2.182E 00	1.457E 00	1.682E 02	1.037E 01	9.590E 01
-1.600E 00	1.927E 00	6.845E-01	1.596E 00	9.836E 00	1.878E 00	1.254E 00	1.408E 02	8.242E 00	9.474E 01
-1.400E 00	1.747E 00	6.005E-01	1.322E 00	8.170E 00	1.619E 00	1.079E 00	1.182E 02	6.604E 00	9.334E 01
-1.200E 00	1.584E 00	5.265E-01	1.094E 00	6.783E 00	1.398E 00	9.274E-01	9.958E 01	5.333E 00	9.170E 01
-1.000E 00	1.436E 00	4.612E-01	9.052E-01	5.624E 00	1.212E 00	7.972E-01	8.411E 01	4.337E 00	8.985E 01
-8.000E-01	1.302E 00	4.035E-01	7.483E-01	4.651E 00	1.055E 00	6.851E-01	7.121E 01	3.548E 00	8.780E 01
-6.000E-01	1.180E 00	3.525E-01	6.180E-01	3.828E 00	9.246E-01	5.886E-01	6.043E 01	2.919E 00	8.558E 01
-4.000E-01	1.070E 00	3.076E-01	5.100E-01	3.127E 00	8.182E-01	5.057E-01	5.138E 01	2.413E 00	8.321E 01
-2.000E-01	9.702E-01	2.680E-01	4.205E-01	2.522E 00	7.345E-01	4.344E-01	4.377E 01	2.002E 00	8.070E 01
1.824E-05	8.799E-01	2.331E-01	3.464E-01	1.996E 00	6.735E-01	3.731E-01	3.735E 01	1.667E 00	7.809E 01
2.000E-01	7.981E-01	2.025E-01	2.851E-01	1.536E 00	6.365E-01	3.205E-01	3.192E 01	1.392E 00	7.539E 01
4.000E-01	7.240E-01	1.757E-01	2.343E-01	1.137E 00	6.268E-01	2.753E-01	2.732E 01	1.165E 00	7.262E 01
6.000E-01	6.568E-01	1.522E-01	1.924E-01	8.000E-01	6.503E-01	2.366E-01	2.341E 01	9.765E-01	6.980E 01
8.000E-01	5.959E-01	1.317E-01	1.577E-01	5.314E-01	7.167E-01	2.033E-01	2.009E 01	8.200E-01	6.696E 01
1.000E 00	5.406E-01	1.138E-01	1.291E-01	3.323E-01	8.411E-01	1.748E-01	1.725E 01	6.894E-01	6.410E 01

PROTONS	ALPHAS	LITHIUM	BERYL.	BORON	CARBON	NITRO.	OXYGEN	FLUOR.	NEON	MAGNES.	SILICON	SULFUR	ARGON	CALCIUM	IRON
840.000	220.000	0.0	0.0	0.0	0.490	0.116	1.000	0.0	0.127	0.182	0.107	0.025	0.0	0.0	0.028
50.000	2.500	0.0	0.0	0.0	0.030	0.011	0.0	0.0	0.011	0.014	0.011	0.005	0.0	0.0	0.005

GAMMA	P2/A1	P3/A2	P4/A3	P5/A4	P7/A5	P8/A6	A1/Z1	A3/Z2
-6.000E 00	2.055E 02	3.437E 02	3.467E 00	2.535E 01	5.260E 03	9.244E 01	3.154E 02	5.535E 00
-5.800E 00	1.858E 02	2.889E 02	3.487E 00	2.207E 01	4.010E 03	8.119E 01	2.578E 02	6.808E 00
-5.600E 00	1.679E 02	2.446E 02	3.508E 00	1.925E 01	3.062E 03	7.130E 01	2.136E 02	8.314E 00
-5.400E 00	1.511E 02	2.086E 02	3.528E 00	1.683E 01	2.342E 03	6.261E 01	1.799E 02	1.007E 01
-5.200E 00	1.349E 02	1.788E 02	3.548E 00	1.475E 01	1.795E 03	5.497E 01	1.547E 02	1.211E 01
-5.000E 00	1.191E 02	1.539E 02	3.568E 00	1.296E 01	1.380E 03	4.825E 01	1.360E 02	1.443E 01
-4.800E 00	1.037E 02	1.326E 02	3.588E 00	1.143E 01	1.063E 03	4.235E 01	1.224E 02	1.704E 01
-4.600E 00	8.890E 01	1.140E 02	3.608E 00	1.011E 01	8.219E 02	3.717E 01	1.129E 02	1.996E 01
-4.400E 00	7.511E 01	9.778E 01	3.628E 00	8.983E 00	6.379E 02	3.262E 01	1.063E 02	2.317E 01
-4.200E 00	6.266E 01	8.346E 01	3.647E 00	8.015E 00	4.973E 02	2.863E 01	1.021E 02	2.666E 01
-4.000E 00	5.177E 01	7.093E 01	3.667E 00	7.186E 00	3.897E 02	2.512E 01	9.952E 01	3.041E 01
-3.800E 00	4.250E 01	6.007E 01	3.687E 00	6.474E 00	3.071E 02	2.204E 01	9.813E 01	3.442E 01
-3.600E 00	3.480E 01	5.079E 01	3.706E 00	5.862E 00	2.435E 02	1.935E 01	9.752E 01	3.866E 01
-3.400E 00	2.850E 01	4.295E 01	3.726E 00	5.336E 00	1.946E 02	1.699E 01	9.740E 01	4.310E 01
-3.200E 00	2.342E 01	3.641E 01	3.746E 00	4.883E 00	1.566E 02	1.492E 01	9.754E 01	4.773E 01
-3.000E 00	1.936E 01	3.101E 01	3.766E 00	4.491E 00	1.272E 02	1.312E 01	9.776E 01	5.254E 01
-2.800E 00	1.614E 01	2.659E 01	3.786E 00	4.151E 00	1.043E 02	1.155E 01	9.793E 01	5.749E 01
-2.600E 00	1.358E 01	2.298E 01	3.806E 00	3.855E 00	8.631E 01	1.018E 01	9.797E 01	6.259E 01
-2.400E 00	1.155E 01	2.005E 01	3.826E 00	3.596E 00	7.220E 01	9.000E 00	9.782E 01	6.782E 01
-2.200E 00	9.937E 00	1.767E 01	3.847E 00	3.366E 00	6.107E 01	7.980E 00	9.743E 01	7.318E 01
-2.000E 00	8.652E 00	1.574E 01	3.868E 00	3.162E 00	5.225E 01	7.109E 00	9.680E 01	7.867E 01
-1.800E 00	7.620E 00	1.416E 01	3.889E 00	2.980E 00	4.525E 01	6.371E 00	9.590E 01	8.429E 01
-1.600E 00	6.787E 00	1.288E 01	3.911E 00	2.814E 00	3.968E 01	5.757E 00	9.474E 01	9.004E 01
-1.400E 00	6.109E 00	1.183E 01	3.933E 00	2.662E 00	3.526E 01	5.257E 00	9.334E 01	9.594E 01
-1.200E 00	5.551E 00	1.097E 01	3.955E 00	2.523E 00	3.174E 01	4.866E 00	9.170E 01	1.020E 02
-1.000E 00	5.087E 00	1.026E 01	3.978E 00	2.392E 00	2.897E 01	4.580E 00	8.985E 01	1.082E 02
-8.000E-01	4.697E 00	9.667E 00	4.002E 00	2.270E 00	2.680E 01	4.396E 00	8.780E 01	1.145E 02
-6.000E-01	4.365E 00	9.174E 00	4.026E 00	2.154E 00	2.510E 01	4.317E 00	8.558E 01	1.211E 02
-4.000E-01	4.079E 00	8.759E 00	4.051E 00	2.043E 00	2.377E 01	4.347E 00	8.321E 01	1.279E 02
-2.000E-01	3.829E 00	8.408E 00	4.077E 00	1.936E 00	2.268E 01	4.493E 00	8.070E 01	1.348E 02
1.824E-05	3.609E 00	8.109E 00	4.103E 00	1.834E 00	2.170E 01	4.766E 00	7.809E 01	1.420E 02
2.000E-01	3.413E 00	7.853E 00	4.131E 00	1.735E 00	2.065E 01	5.180E 00	7.539E 01	1.495E 02
4.000E-01	3.236E 00	7.631E 00	4.159E 00	1.638E 00	1.939E 01	5.755E 00	7.262E 01	1.572E 02
6.000E-01	3.076E 00	7.437E 00	4.187E 00	1.545E 00	1.781E 01	6.516E 00	6.980E 01	1.652E 02
8.000E-01	2.929E 00	7.267E 00	4.217E 00	1.453E 00	1.591E 01	7.495E 00	6.696E 01	1.735E 02
1.000E 00	2.793E 00	7.115E 00	4.247E 00	1.365E 00	1.384E 01	8.732E 00	6.410E 01	1.822E 02

8. Response of Telescope to Protons

The following is a comprehensive summary of the parameters of the response of the Proton-Electron-Telescope to protons as obtained from the program PAMELA (preprint available on request, see APPENDIX C). Representative range-energy tables are calculated, telescope parameters are defined (thicknesses, thresholds, logic) and the resulting energy loss curves threshold efficiencies and logical channel efficiencies are calculated in a straightforward manner. In the interest of compactness of presentation, the tabulation of data in this and the following tables have been limited to that most relevant to the analysis of CPME flight data. Not all energies or incident nuclei types are tabulated. Also the incident energies are coarser than those used to determine the passbands with the appropriate precision at all energies.

8.1 Range-Energy Table for Protons in Silicon for Incident Energies
from .25 MeV to 790 MeV

The units of "Range" and "Stragglng" in the following table are cm. "Stragglng" is an approximation to the rms fluctuation of the range distribution and is included here only incidently. No subsequent use is made of "stragglng" in later calculations. Fluctuations in the energy loss signal are accounted for by a different method.

RANGE-ENERGY TABLE FOR Z = 1.000 AND A = 1.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
0.2500	0.000298	0.000010
0.2700	0.000324	0.000010
0.2900	0.000351	0.000011
0.3200	0.000393	0.000012
0.3400	0.000422	0.000013
0.3700	0.000467	0.000014
0.4000	0.000513	0.000015
0.4400	0.000578	0.000016
0.4800	0.000644	0.000018
0.5200	0.000714	0.000019
0.5600	0.000786	0.000021
0.6100	0.000880	0.000022
0.6700	0.000998	0.000025
0.7200	0.001101	0.000027
0.7900	0.001251	0.000030
0.8500	0.001385	0.000032
0.9300	0.001570	0.000036
1.0000	0.001737	0.000039
1.1000	0.001989	0.000043
1.1900	0.002223	0.000048
1.2000	0.002250	0.000048
1.4000	0.002820	0.000059
1.5000	0.003127	0.000064
1.6000	0.003445	0.000070
1.8000	0.004125	0.000082
1.9000	0.004485	0.000089
2.1000	0.005241	0.000102
2.3000	0.006049	0.000116
2.5000	0.006908	0.000131
2.7000	0.007815	0.000147
2.9000	0.008772	0.000163
3.2000	0.010296	0.000189
3.4000	0.011371	0.000207
3.7000	0.013073	0.000235
4.1000	0.015502	0.000274
4.4000	0.017441	0.000305
4.8000	0.020183	0.000349
5.2000	0.023099	0.000395
5.7000	0.026984	0.000455
6.2000	0.031133	0.000519
6.7000	0.035540	0.000585
7.3000	0.041164	0.000670
7.9000	0.047141	0.000758
8.6000	0.054563	0.000866
9.3000	0.062470	0.000980
10.0000	0.070840	0.001103
11.0000	0.083604	0.001283
11.9000	0.095886	0.001457
13.0000	0.111904	0.001678
14.0000	0.127406	0.001893

RANGE-ENERGY TABLE FOR Z = 1.000 AND A = 1.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
15.0000	0.143801	0.002116
16.0000	0.161067	0.002352
18.0000	0.198200	0.002854
19.0000	0.218032	0.003116
21.0000	0.260219	0.003676
23.0000	0.305675	0.004272
25.0000	0.354360	0.004903
27.0000	0.406211	0.005571
29.0000	0.461183	0.006275
32.0000	0.549350	0.007395
34.0000	0.611882	0.008180
37.0000	0.711263	0.009421
41.0000	0.853833	0.011187
44.0000	0.968200	0.012590
48.0000	1.130404	0.014565
52.0000	1.303461	0.016655
57.0000	1.534695	0.019424
62.0000	1.782114	0.022361
67.0000	2.045293	0.025460
73.0000	2.381409	0.029385
79.0000	2.739052	0.033528
86.0000	3.182612	0.038620
94.0000	3.723596	0.044774
100.0000	4.152618	0.049618
110.0000	4.909814	0.058090
120.0000	5.717972	0.067042
130.0000	6.575473	0.076454
140.0000	7.480610	0.086299
150.0000	8.431251	0.096557
160.0000	9.426077	0.107205
180.0000	11.541945	0.129599
190.0000	12.660388	0.141312
210.0000	15.011013	0.165694
230.0000	17.505398	0.191251
250.0000	20.134553	0.217890
270.0000	22.890327	0.245512
290.0000	25.764991	0.274049
320.0000	30.284681	0.318396
350.0000	35.034829	0.364416
380.0000	39.996133	0.411923
410.0000	45.149714	0.460768
440.0000	50.484493	0.510810
480.0000	57.849152	0.579178
520.0000	65.475677	0.649220
570.0000	75.342495	0.738877
620.0000	85.535618	0.830506
670.0000	96.015014	0.923886
730.0000	108.925481	1.037969
790.0000	122.157791	1.153960

NUMBER OF INPUT PARTICLES SELECTED = 1

PARTICLE TYPES SELECTED ARE 1

8.2 Telescope Parameters Used

This table summarizes the properties of the Proton-Electron-Telescope for particle incident parallel to the telescope axis. Detector and electronic noise and thickness inhomogeneity are included in the calculation of the passband edge shapes. Computer runs for particles with oblique incidence were made and the results showed no important quantitative or qualitative differences from those tabulated herein. The entries in the table are self-explanatory except for the second row wherein the absorber type is given. "3." denotes nickel; "2." denotes silicon; and "4." denotes a tungsten alloy block. The tungsten penetration is calculated approximately from the range-energy relations for gold and the effective thickness is chosen to match the experimentally measured penetration energy for protons. The passbands are relatively insensitive to the details of the last two absorbers. The elements of the telescope are as follows: nickel foil light shield, nominal 40 micro detector, nominal 900 micron detector, nominal 2700 micron detector, nominal 2 cm. tungsten alloy absorber, anticoincidence cup. The anticoincidence cup is plastic scintillator and is used to place a maximum upper limit to the passbands due to complete penetration of the telescope. The veto effect of the scintillator is simulated by including a .5 MeV threshold in a .5 cm. silicon slab. This procedure adequately represents the experimental passbands and is used for simplicity here.

PARAMETERS OF ABSORBER STACK							
ABSORBER THICKNESSES, MICRONS		0.347	38.700	900.000	2700.000	14572.992	5000.000
ABSORBER MATERIAL		3.	2.	2.	2.	4.	2.
THICKNESS VARIATION, MICRONS		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
CONICAL HALF ANGLE, DEGREES		0.0	0.0	0.0	0.0	0.0	0.0
DETECTOR NOISE, MEV		0.0	0.070	0.027	0.023	0.0	0.100
ELECTRONIC NOISE, MEV		0.0	0.0	0.0	0.0	0.0	0.0
NUMBER OF THRESHOLDS SET		0.0	8.0	7.0	5.0	0.0	1.0
THRESHOLD LEVEL NO. MEV	1	0.0	0.1700	0.1960	1.4900	0.0	0.5000
THRESHOLD LEVEL NO. MEV	2	0.0	0.2100	0.2090	2.9800	0.0	0.0
THRESHOLD LEVEL NO. MEV	3	0.0	0.4400	0.4560	3.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV	4	0.0	0.9250	0.8090	6.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV	5	0.0	2.3800	3.8200	26.4000	0.0	0.0
THRESHOLD LEVEL NO. MEV	6	0.0	4.4800	7.5100	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV	7	0.0	9.4800	14.8000	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV	8	0.0	21.2000	0.0	0.0	0.0	0.0
AVERAGE PROJECTED DEPTH, MIC		0.347	38.700	900.000	2700.000	14572.992	5000.000
EST. RMS VARN. PROJ. DEPTH, MIC		0.0	0.0	0.0	0.0	0.0	0.0
NET RMS THICKNESS VARN. (MIC)		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
LOWER LIMIT THICKNESS (MIC)		0.337	34.830	895.000	2689.999	14572.992	4949.999
UPPER LIMIT THICKNESS (MIC)		0.357	42.570	904.999	2710.000	14572.992	5050.000

8.3 Logical Definition of the P-Channels

The following table, when used with the preceding (Section 8.2) summary of the telescope parameters, completely defines the P-Channels for the telescope. The interpretation of the entries of the table is that the numbers when taken in groups of three represent absorber number, threshold number, logical yes or no. The label of each channel is the last column on the right. For example, the first row of the table represents the channel P1 with the functions $A_2 \overline{A_3} \overline{B_2} \overline{M}$. Plus one equals "yes" and minus one equals "no". The channels then represent the logical intersection of the threshold efficiencies.

LOGIC TABLE FOR 11 CHANNELS

2	2	1	2	3	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P1
2	3	1	2	4	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P2
2	4	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P3
2	2	1	3	2	1	3	5	-1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P4
2	2	1	3	5	1	3	6	-1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P5
2	2	1	3	6	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P6
3	5	1	3	6	-1	4	4	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P7
3	4	1	3	5	-1	4	4	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P8
3	4	1	3	5	-1	4	3	1	4	4	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P9
3	1	1	4	2	1	4	3	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P10
3	4	-1	3	1	1	4	1	1	4	2	-1	0	0	0	0	0	0	0	0	0	0	0	0	P11

8.4 Intrinsic Fluctuations of the Energy Loss of Protons in the Telescope Elements

From left to right in the table the entries are: Z of projectile, A of projectile, standard deviations in KeV/Nucleon of the energy loss signal in each of the telescope elements. The calculation is based on an approximation of Bohr for the statistical fluctuations expected when the particle is well above the absorber penetration energy. The subsequent calculations of the passbands utilize this fluctuation as one source of the width of the energy loss signal.

INTRINSIC FLUCTUATIONS IN ENERGY LOSS (KEV/NUC) CALC FROM BOHR FORMULA

Z	A						
1.	1.	4.812	26.563	128.098	221.873	1331.352	301.931

8.5 Energy Losses of Protons in the Telescope

These tables are tabulations of the energy loss versus incident energy for each of the elements of the telescope. The entries labelled DDELTAEL, DDELTAE2, etc., are estimates of the FWHM of the energy loss signal which has contributions from detector noise, electronic noise, thickness inhomogeneity, and intrinsic statistical fluctuations.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 1 AND A = 1.

EINC	DELTAE1	DDELTE1	DELTAE2	DDELTE2	DELTAE3	DDELTE3	DELTAE4	DDELTE4	DELTAE5	DDELTE5	DELTAE6	DDELTE6	DELTAE
0.250	0.077	0.005*	0.173	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.270	0.077	0.005*	0.193	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.290	0.077	0.005*	0.213	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.320	0.075	0.005*	0.245	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.340	0.073	0.005*	0.267	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.370	0.069	0.005*	0.301	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.400	0.069	0.005*	0.331	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.440	0.064	0.005*	0.376	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.480	0.061	0.005*	0.419	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.520	0.058	0.005*	0.462	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.560	0.055	0.005*	0.505	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.610	0.053	0.005*	0.557	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.670	0.050	0.005*	0.620	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.720	0.048	0.005*	0.672	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.790	0.045	0.005*	0.745	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.850	0.044	0.005*	0.806	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.930	0.042	0.005*	0.888	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.000	0.041	0.005*	0.959	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.100	0.038	0.005*	1.062	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.190	0.037	0.005*	1.153	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.200	0.037	0.005*	1.163	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.400	0.034	0.005*	1.366	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.500	0.032	0.005*	1.468	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.600	0.031	0.005*	1.569	0.070*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.800	0.029	0.005*	1.640	0.221*	0.132	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.900	0.027	0.005*	1.471	0.267*	0.401	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.100	0.026	0.005*	1.276	0.191*	0.798	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.300	0.024	0.005*	1.141	0.164*	1.134	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.500	0.023	0.005*	1.039	0.146*	1.438	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.700	0.022	0.005*	0.959	0.133*	1.719	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.900	0.021	0.005*	0.894	0.125*	1.985	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.200	0.020	0.005*	0.815	0.115*	2.365	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.400	0.019	0.005*	0.772	0.110*	2.609	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.700	0.018	0.005*	0.716	0.105*	2.966	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.100	0.017	0.005*	0.655	0.099*	3.428	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.400	0.016	0.005*	0.617	0.096*	3.767	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.800	0.015	0.005*	0.574	0.092*	4.211	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.200	0.014	0.005*	0.537	0.090*	4.648	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.700	0.013	0.005*	0.499	0.087*	5.188	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.200	0.013	0.005*	0.466	0.085*	5.721	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.700	0.012	0.005*	0.438	0.083*	6.250	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.300	0.011	0.005*	0.409	0.082*	6.880	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.900	0.011	0.005*	0.385	0.080*	7.505	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.600	0.010	0.005*	0.360	0.079*	8.230	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
9.300	0.009	0.005*	0.338	0.078*	8.953	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
10.000	0.009	0.005*	0.319	0.077*	9.672	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
11.000	0.008	0.005*	0.296	0.076*	10.696	0.027*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
11.900	0.008	0.005*	0.278	0.075*	10.546	0.200*	1.068	0.023*	0.0	0.0 *	0.0	0.0 *	0.0 *
13.000	0.007	0.005*	0.259	0.075*	8.261	0.131*	4.472	0.023*	0.0	0.0 *	0.0	0.0 *	0.0 *
14.000	0.007	0.005*	0.245	0.075*	7.284	0.131*	6.464	0.023*	0.0	0.0 *	0.0	0.0 *	0.0 *

8.5.1 The Units of this Table are in MeV/Nucleon Throughout.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 1. AND A = 1.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E	
15.000	0.007	0.005*	0.232	0.075*	6.604	0.131*	8.158	0.023*	0.0	0.0	*	0.0	0.0	*
16.000	0.006	0.005*	0.220	0.075*	6.083	0.131*	9.691	0.023*	0.0	0.0	*	0.0	0.0	*
18.000	0.006	0.005*	0.200	0.075*	5.313	0.131*	12.481	0.023*	0.0	0.0	*	0.0	0.0	*
19.000	0.006	0.005*	0.192	0.075*	5.014	0.131*	13.788	0.023*	0.0	0.0	*	0.0	0.0	*
21.000	0.005	0.005*	0.177	0.075*	4.528	0.131*	16.290	0.023*	0.0	0.0	*	0.0	0.0	*
23.000	0.005	0.005*	0.165	0.075*	4.146	0.131*	18.685	0.023*	0.0	0.0	*	0.0	0.0	*
25.000	0.004	0.005*	0.154	0.075*	3.834	0.131*	21.007	0.023*	0.0	0.0	*	0.0	0.0	*
27.000	0.004	0.005*	0.145	0.075*	3.573	0.131*	15.868	0.223*	7.410	0.0	*	0.0	0.0	*
29.000	0.004	0.005*	0.137	0.075*	3.352	0.131*	13.513	0.223*	11.993	0.0	*	0.0	0.0	*
32.000	0.004	0.005*	0.127	0.075*	3.076	0.131*	11.465	0.223*	17.329	0.0	*	0.0	0.0	*
34.000	0.004	0.005*	0.121	0.075*	2.920	0.131*	10.524	0.223*	20.432	0.0	*	0.0	0.0	*
37.000	0.003	0.005*	0.113	0.075*	2.715	0.131*	9.451	0.223*	24.717	0.0	*	0.0	0.0	*
41.000	0.003	0.005*	0.105	0.075*	2.493	0.131*	8.399	0.223*	30.001	0.0	*	0.0	0.0	*
44.000	0.003	0.005*	0.099	0.075*	2.351	0.131*	7.787	0.223*	33.760	0.0	*	0.0	0.0	*
48.000	0.003	0.005*	0.092	0.075*	2.189	0.131*	7.130	0.223*	38.586	0.0	*	0.0	0.0	*
52.000	0.003	0.005*	0.087	0.075*	2.052	0.131*	6.596	0.223*	43.262	0.0	*	0.0	0.0	*
57.000	0.002	0.005*	0.081	0.075*	1.907	0.131*	6.056	0.223*	48.954	0.0	*	0.0	0.0	*
62.000	0.002	0.005*	0.076	0.075*	1.784	0.131*	5.614	0.223*	54.524	0.0	*	0.0	0.0	*
67.000	0.002	0.005*	0.071	0.075*	1.679	0.131*	5.247	0.223*	60.001	0.0	*	0.0	0.0	*
73.000	0.002	0.005*	0.067	0.075*	1.570	0.131*	4.877	0.223*	66.484	0.0	*	0.0	0.0	*
79.000	0.002	0.005*	0.063	0.075*	1.478	0.131*	4.567	0.223*	72.890	0.0	*	0.0	0.0	*
86.000	0.002	0.005*	0.059	0.075*	1.385	0.131*	4.265	0.223*	80.289	0.0	*	0.0	0.0	*
94.000	0.002	0.005*	0.055	0.075*	1.297	0.131*	3.972	0.223*	88.674	0.0	*	0.0	0.0	*
100.000	0.002	0.005*	0.053	0.075*	1.236	0.131*	3.781	0.223*	94.928	0.0	*	0.0	0.0	*
110.000	0.001	0.005*	0.049	0.075*	1.152	0.131*	3.514	0.223*	105.283	0.0	*	0.0	0.0	*
120.000	0.001	0.005*	0.046	0.075*	1.083	0.131*	3.293	0.223*	115.577	0.0	*	0.0	0.0	*
130.000	0.001	0.005*	0.044	0.075*	1.023	0.131*	3.105	0.223*	125.828	0.0	*	0.0	0.0	*
140.000	0.001	0.005*	0.042	0.075*	0.971	0.131*	2.942	0.223*	136.044	0.0	*	0.0	0.0	*
150.000	0.001	0.005*	0.040	0.075*	0.926	0.131*	2.803	0.223*	115.660	1.331*	28.163	1.265*		
160.000	0.001	0.005*	0.038	0.075*	0.886	0.131*	2.680	0.223*	101.480	1.331*	11.736	0.318*		
180.000	0.001	0.005*	0.035	0.075*	0.819	0.131*	2.474	0.223*	86.297	1.331*	7.607	0.318*		
190.000	0.001	0.005*	0.034	0.075*	0.791	0.131*	2.387	0.223*	81.267	1.331*	6.739	0.318*		
210.000	0.001	0.005*	0.032	0.075*	0.742	0.131*	2.238	0.223*	73.690	1.331*	5.658	0.318*		
230.000	0.001	0.005*	0.030	0.075*	0.702	0.131*	2.114	0.223*	68.143	1.331*	4.990	0.318*		
250.000	0.001	0.005*	0.029	0.075*	0.668	0.131*	2.010	0.223*	63.854	1.331*	4.534	0.318*		
270.000	0.001	0.005*	0.027	0.075*	0.638	0.131*	1.921	0.223*	60.399	1.331*	4.189	0.318*		
290.000	0.001	0.005*	0.026	0.075*	0.613	0.131*	1.845	0.223*	57.527	1.331*	3.917	0.318*		
320.000	0.001	0.005*	0.025	0.075*	0.582	0.131*	1.749	0.223*	54.052	1.331*	3.617	0.318*		
350.000	0.001	0.005*	0.024	0.075*	0.555	0.131*	1.669	0.223*	51.260	1.331*	3.381	0.318*		
380.000	0.001	0.005*	0.023	0.075*	0.533	0.131*	1.602	0.223*	48.902	1.331*	3.193	0.318*		
410.000	0.001	0.005*	0.022	0.075*	0.514	0.131*	1.545	0.223*	46.983	1.331*	3.045	0.318*		
440.000	0.001	0.005*	0.021	0.075*	0.497	0.131*	1.494	0.223*	45.593	1.331*	2.927	0.318*		
480.000	0.001	0.005*	0.021	0.075*	0.479	0.131*	1.440	0.223*	43.758	1.331*	2.788	0.318*		
520.000	0.001	0.005*	0.020	0.075*	0.465	0.131*	1.396	0.223*	42.295	1.331*	2.680	0.318*		
570.000	0.001	0.005*	0.019	0.075*	0.448	0.131*	1.345	0.223*	40.755	1.331*	2.563	0.318*		
620.000	0.001	0.005*	0.019	0.075*	0.434	0.131*	1.304	0.223*	39.592	1.331*	2.479	0.318*		
670.000	0.001	0.005*	0.018	0.075*	0.424	0.131*	1.273	0.223*	38.461	1.331*	2.407	0.318*		
730.000	0.001	0.005*	0.018	0.075*	0.413	0.131*	1.240	0.223*	37.589	1.331*	2.335	0.318*		
790.000	0.001	0.005*	0.017	0.075*	0.404	0.131*	1.212	0.223*	36.789	1.331*	2.275	0.318*		

UNITS FOR ABOVE TABLE ARE MEV/NUC

ENERGY LOSS TABLE FOR PARTICLES OF Z = 1 AND A = 1.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
0.250	0.08	0.005	0.17	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.270	0.08	0.005	0.19	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.290	0.08	0.005	0.21	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.320	0.07	0.005	0.25	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.340	0.07	0.005	0.27	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.370	0.07	0.005	0.30	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.400	0.07	0.005	0.33	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.440	0.06	0.005	0.38	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.480	0.06	0.005	0.42	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.520	0.06	0.005	0.46	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.560	0.05	0.005	0.51	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.610	0.05	0.005	0.56	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.670	0.05	0.005	0.62	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.720	0.05	0.005	0.67	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.790	0.05	0.005	0.74	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.850	0.04	0.005	0.81	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.930	0.04	0.005	0.89	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.000	0.04	0.005	0.96	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.100	0.04	0.005	1.06	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.190	0.04	0.005	1.15	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.200	0.04	0.005	1.16	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.400	0.03	0.005	1.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.500	0.03	0.005	1.47	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.600	0.03	0.005	1.57	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.800	0.03	0.005	1.64	0.221	0.13	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.900	0.03	0.005	1.47	0.267	0.40	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.100	0.03	0.005	1.28	0.191	0.80	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.300	0.02	0.005	1.14	0.164	1.13	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.500	0.02	0.005	1.04	0.146	1.44	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.700	0.02	0.005	0.96	0.133	1.72	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.900	0.02	0.005	0.89	0.125	1.99	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.200	0.02	0.005	0.82	0.115	2.36	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.400	0.02	0.005	0.77	0.110	2.61	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.700	0.02	0.005	0.72	0.105	2.97	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.100	0.02	0.005	0.66	0.099	3.43	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.400	0.02	0.005	0.62	0.096	3.77	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.800	0.02	0.005	0.57	0.092	4.21	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.200	0.01	0.005	0.54	0.090	4.65	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.700	0.01	0.005	0.50	0.087	5.19	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.200	0.01	0.005	0.47	0.085	5.72	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.700	0.01	0.005	0.44	0.083	6.25	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.300	0.01	0.005	0.41	0.082	6.88	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.900	0.01	0.005	0.38	0.080	7.50	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.600	0.01	0.005	0.36	0.079	8.23	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.300	0.01	0.005	0.34	0.078	8.95	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.01	0.005	0.32	0.077	9.67	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.000	0.01	0.005	0.30	0.076	10.70	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.900	0.01	0.005	0.28	0.075	10.55	0.200	1.07	0.023	0.0	0.0	0.0	0.0	0.0
13.000	0.01	0.005	0.26	0.075	8.26	0.131	4.47	0.023	0.0	0.0	0.0	0.0	0.0
14.000	0.01	0.005	0.24	0.075	7.28	0.131	6.46	0.023	0.0	0.0	0.0	0.0	0.0

8.5.2 The Units of this Table are MeV Throughout.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 1 AND A = 1.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
15.000	0.01	0.005	0.23	0.075	6.60	0.131	8.16	0.023	0.0	0.0	0.0	0.0	0.0
16.000	0.01	0.005	0.22	0.075	6.08	0.131	9.69	0.023	0.0	0.0	0.0	0.0	0.0
18.000	0.01	0.005	0.20	0.075	5.31	0.131	12.48	0.023	0.0	0.0	0.0	0.0	0.0
19.000	0.01	0.005	0.19	0.075	5.01	0.131	13.79	0.023	0.0	0.0	0.0	0.0	0.0
21.000	0.01	0.005	0.18	0.075	4.53	0.131	16.29	0.023	0.0	0.0	0.0	0.0	0.0
23.000	0.00	0.005	0.16	0.075	4.15	0.131	18.68	0.023	0.0	0.0	0.0	0.0	0.0
25.000	0.00	0.005	0.15	0.075	3.83	0.131	21.01	0.023	0.0	0.0	0.0	0.0	0.0
27.000	0.00	0.005	0.15	0.075	3.57	0.131	15.87	0.223	7.41	0.0	0.0	0.0	0.0
29.000	0.00	0.005	0.14	0.075	3.35	0.131	13.51	0.223	11.99	0.0	0.0	0.0	0.0
32.000	0.00	0.005	0.13	0.075	3.08	0.131	11.46	0.223	17.33	0.0	0.0	0.0	0.0
34.000	0.00	0.005	0.12	0.075	2.92	0.131	10.52	0.223	20.43	0.0	0.0	0.0	0.0
37.000	0.00	0.005	0.11	0.075	2.72	0.131	9.45	0.223	24.72	0.0	0.0	0.0	0.0
41.000	0.00	0.005	0.10	0.075	2.49	0.131	8.40	0.223	30.00	0.0	0.0	0.0	0.0
44.000	0.00	0.005	0.10	0.075	2.35	0.131	7.79	0.223	33.76	0.0	0.0	0.0	0.0
48.000	0.00	0.005	0.09	0.075	2.19	0.131	7.13	0.223	38.59	0.0	0.0	0.0	0.0
52.000	0.00	0.005	0.09	0.075	2.05	0.131	6.60	0.223	43.26	0.0	0.0	0.0	0.0
57.000	0.00	0.005	0.08	0.075	1.91	0.131	6.06	0.223	48.95	0.0	0.0	0.0	0.0
62.000	0.00	0.005	0.08	0.075	1.78	0.131	5.61	0.223	54.52	0.0	0.0	0.0	0.0
67.000	0.00	0.005	0.07	0.075	1.68	0.131	5.25	0.223	60.00	0.0	0.0	0.0	0.0
73.000	0.00	0.005	0.07	0.075	1.57	0.131	4.88	0.223	66.48	0.0	0.0	0.0	0.0
79.000	0.00	0.005	0.06	0.075	1.48	0.131	4.57	0.223	72.89	0.0	0.0	0.0	0.0
86.000	0.00	0.005	0.06	0.075	1.39	0.131	4.27	0.223	80.29	0.0	0.0	0.0	0.0
94.000	0.00	0.005	0.06	0.075	1.30	0.131	3.97	0.223	88.67	0.0	0.0	0.0	0.0
100.000	0.00	0.005	0.05	0.075	1.24	0.131	3.78	0.223	94.93	0.0	0.0	0.0	0.0
110.000	0.00	0.005	0.05	0.075	1.15	0.131	3.51	0.223	105.28	0.0	0.0	0.0	0.0
120.000	0.00	0.005	0.05	0.075	1.08	0.131	3.29	0.223	115.58	0.0	0.0	0.0	0.0
130.000	0.00	0.005	0.04	0.075	1.02	0.131	3.10	0.223	125.83	0.0	0.0	0.0	0.0
140.000	0.00	0.005	0.04	0.075	0.97	0.131	2.94	0.223	136.04	0.0	0.0	0.0	0.0
150.000	0.00	0.005	0.04	0.075	0.93	0.131	2.80	0.223	115.66	1.331	28.16	1.265	
160.000	0.00	0.005	0.04	0.075	0.89	0.131	2.68	0.223	101.48	1.331	11.74	0.318	
180.000	0.00	0.005	0.04	0.075	0.82	0.131	2.47	0.223	86.30	1.331	7.61	0.318	
190.000	0.00	0.005	0.03	0.075	0.79	0.131	2.39	0.223	81.27	1.331	6.74	0.318	
210.000	0.00	0.005	0.03	0.075	0.74	0.131	2.24	0.223	73.69	1.331	5.66	0.318	
230.000	0.00	0.005	0.03	0.075	0.70	0.131	2.11	0.223	68.14	1.331	4.99	0.318	
250.000	0.00	0.005	0.03	0.075	0.67	0.131	2.01	0.223	63.85	1.331	4.53	0.318	
270.000	0.00	0.005	0.03	0.075	0.64	0.131	1.92	0.223	60.40	1.331	4.19	0.318	
290.000	0.00	0.005	0.03	0.075	0.61	0.131	1.85	0.223	57.53	1.331	3.92	0.318	
320.000	0.00	0.005	0.02	0.075	0.58	0.131	1.75	0.223	54.05	1.331	3.62	0.318	
350.000	0.00	0.005	0.02	0.075	0.56	0.131	1.67	0.223	51.26	1.331	3.38	0.318	
380.000	0.00	0.005	0.02	0.075	0.53	0.131	1.60	0.223	48.90	1.331	3.19	0.318	
410.000	0.00	0.005	0.02	0.075	0.51	0.131	1.55	0.223	46.98	1.331	3.04	0.318	
440.000	0.00	0.005	0.02	0.075	0.50	0.131	1.49	0.223	45.59	1.331	2.93	0.318	
480.000	0.00	0.005	0.02	0.075	0.48	0.131	1.44	0.223	43.76	1.331	2.79	0.318	
520.000	0.00	0.005	0.02	0.075	0.46	0.131	1.40	0.223	42.29	1.331	2.68	0.318	
570.000	0.00	0.005	0.02	0.075	0.45	0.131	1.35	0.223	40.76	1.331	2.56	0.318	
620.000	0.00	0.005	0.02	0.075	0.43	0.131	1.30	0.223	39.59	1.331	2.48	0.318	
670.000	0.00	0.005	0.02	0.075	0.42	0.131	1.27	0.223	38.46	1.331	2.41	0.318	
730.000	0.00	0.005	0.02	0.075	0.41	0.131	1.24	0.223	37.59	1.331	2.34	0.318	
790.000	0.00	0.005	0.02	0.075	0.40	0.131	1.21	0.223	36.79	1.331	2.27	0.318	

UNITS FOR ABOVE TABLE ARE MEV, TOTAL ENERGY

8.6 Level Efficiencies for Thresholds in Telescope Elements A(absorber #2), B(absorber #3), C(absorber #4) and Scintillator(absorber #6)

The entries in the following table have the significance:

Column 1, incident energy (MeV/Nucleon)

Column 2, incident energy (MeV)

Column 3, incident energy, efficiency of thresholds #1 ...

EFFICIENCIES OF 8 LEVELS IN THE 2 ABSORBER FOR PARTICLES WITH Z = 1. AND A = 1.

0.170MEV/NUC 0.210MEV/NUC 0.440MEV/NUC 0.925MEV/NUC 2.380MEV/NUC 4.480MEV/NUC 9.480MEV/NUC 21.200MEV/NUC

			D10		D11		D12		D13								
0.250	0.250	#1	0.5376	#2	0.1054	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.270	0.270	#1	0.7852	#2	0.2892	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.290	0.290	#1	0.9279	#2	0.5455	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.320	0.320	#1	0.9943	#2	0.8815	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.340	0.340	#1	0.9995	#2	0.9731	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.370	0.370	#1	1.0000	#2	0.9989	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.400	0.400	#1	1.0000	#2	1.0000	#3	0.0001	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.440	0.440	#1	1.0000	#2	1.0000	#3	0.0159	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.480	0.480	#1	1.0000	#2	1.0000	#3	0.2448	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.520	0.520	#1	1.0000	#2	1.0000	#3	0.7687	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.560	0.560	#1	1.0000	#2	1.0000	#3	0.9862	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.610	0.610	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.670	0.670	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.720	0.720	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.790	0.790	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.850	0.850	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.930	0.930	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.1067	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.000	1.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.8754	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.100	1.100	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.190	1.190	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.200	1.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.400	1.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.500	1.500	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.600	1.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
1.800	1.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
1.900	1.900	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
2.100	2.100	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
2.300	2.300	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9991	#5	0.0	#6	0.0	#7	0.0	#8	0.0
2.500	2.500	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9671	#5	0.0	#6	0.0	#7	0.0	#8	0.0
2.700	2.700	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.7290	#5	0.0	#6	0.0	#7	0.0	#8	0.0
2.900	2.900	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.2779	#5	0.0	#6	0.0	#7	0.0	#8	0.0
3.200	3.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0122	#5	0.0	#6	0.0	#7	0.0	#8	0.0
3.400	3.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0005	#5	0.0	#6	0.0	#7	0.0	#8	0.0
3.700	3.700	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
4.100	4.100	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
4.400	4.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
4.800	4.800	#1	1.0000	#2	1.0000	#3	0.9997	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
5.200	5.200	#1	1.0000	#2	1.0000	#3	0.9947	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
5.700	5.700	#1	1.0000	#2	1.0000	#3	0.9447	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
6.200	6.200	#1	1.0000	#2	1.0000	#3	0.7658	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
6.700	6.700	#1	1.0000	#2	1.0000	#3	0.4785	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
7.300	7.300	#1	1.0000	#2	1.0000	#3	0.1875	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
7.900	7.900	#1	1.0000	#2	1.0000	#3	0.0520	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
8.600	8.600	#1	1.0000	#2	1.0000	#3	0.0083	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
9.300	9.300	#1	1.0000	#2	0.9999	#3	0.0010	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
10.000	10.000	#1	1.0000	#2	0.9996	#3	0.0001	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
11.000	11.000	#1	1.0000	#2	0.9961	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
11.900	11.900	#1	0.9996	#2	0.9833	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
13.000	13.000	#1	0.9975	#2	0.9394	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
14.000	14.000	#1	0.9905	#2	0.8618	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0

EFFICIENCIES OF	8	LEVELS IN THE	2	ABSORBER FOR PARTICLES WITH Z =				AND A =	1.	#7	0.0	#7	0.0	#8	0.0
				#1	#2	#3	#4									#5	#6
15.000	#1	0.9735	0.7506	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
16.000	#1	0.9422	0.6238	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
18.000	#1	0.8304	0.3812	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
19.000	#1	0.7554	0.2855	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
21.000	#1	0.5900	0.1513	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
23.000	#1	0.4359	0.0779	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
25.000	#1	0.3110	0.0400	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
27.000	#1	0.2179	0.0208	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
29.000	#1	0.1511	0.0110	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
32.000	#1	0.0884	0.0045	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
34.000	#1	0.0620	0.0026	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
37.000	#1	0.0372	0.0012	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
41.000	#1	0.0197	0.0005	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
44.000	#1	0.0127	0.0002	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
48.000	#1	0.0073	0.0001	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
52.000	#1	0.0045	0.0001	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
57.000	#1	0.0025	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
62.000	#1	0.0015	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
67.000	#1	0.0010	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
73.000	#1	0.0006	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
79.000	#1	0.0004	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
86.000	#1	0.0002	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
94.000	#1	0.0002	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
100.000	#1	0.0001	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
110.000	#1	0.0001	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
120.000	#1	0.0001	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
130.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
140.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
150.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
160.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
180.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
190.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
210.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
230.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
250.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
270.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
290.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
320.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
350.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
380.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
410.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
440.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
480.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
520.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
570.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
620.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
670.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
730.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	
790.000	#1	0.0000	0.0000	0.0000	0.0000	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0	

EFFICIENCIES OF 7 LEVELS IN THE 3 ABSORBER FOR PARTICLES WITH $Z = 1$ AND $A = 1$.

	0.196MEV/NUC	0.209MEV/NUC	0.456MEV/NUC	0.809MEV/NUC	3.820MEV/NUC	7.510MEV/NUC	14.800MEV/NUC						
0.250	0.250 #1	0.250 #2	0.250 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.270	0.270 #1	0.270 #2	0.270 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.290	0.290 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.320	0.320 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.340	0.340 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.370	0.370 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.400	0.400 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.440	0.440 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.480	0.480 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.520	0.520 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.560	0.560 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.610	0.610 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.670	0.670 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.720	0.720 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.790	0.790 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.850	0.850 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
0.930	0.930 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.000	1.000 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.100	1.100 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.190	1.190 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.200	1.200 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.400	1.400 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.500	1.500 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.600	1.600 #1	0.0 #2	0.0 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.800	1.800 #1	0.0000 #2	0.0000 #3	0.0 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
1.900	1.900 #1	1.0000 #2	1.0000 #3	0.0000 #4	0.0 #5	0.0 #6	0.0 #7	0.0 #8					
2.100	2.100 #1	1.0000 #2	1.0000 #3	1.0000 #4	0.1799 #5	0.0 #6	0.0 #7	0.0 #8					
2.300	2.300 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
2.500	2.500 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
2.700	2.700 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
2.900	2.900 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
3.200	3.200 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
3.400	3.400 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
3.700	3.700 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
4.100	4.100 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0 #6	0.0 #7	0.0 #8					
4.400	4.400 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	0.0000 #6	0.0 #7	0.0 #8					
4.800	4.800 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
5.200	5.200 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
5.700	5.700 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
6.200	6.200 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
6.700	6.700 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
7.300	7.300 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0 #7	0.0 #8					
7.900	7.900 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.3252 #7	0.0 #8					
8.600	8.600 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
9.300	9.300 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
10.000	10.000 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
11.000	11.000 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
11.900	11.900 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
13.000	13.000 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	1.0000 #7	0.0 #8					
14.000	14.000 #1	1.0000 #2	1.0000 #3	1.0000 #4	1.0000 #5	1.0000 #6	0.0000 #7	0.0 #8					

EFFICIENCIES OF 7		LEVELS IN THE		3 ABSORBER FOR PARTICLES WITH Z = 1.							AND A = 1.					
15.000	15.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
16.000	16.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
18.000	18.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
19.000	19.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
21.000	21.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
23.000	23.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
25.000	25.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
27.000	27.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.5989	#6	0.0	#7	0.0	#
29.000	29.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#
32.000	32.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
34.000	34.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
37.000	37.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
41.000	41.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
44.000	44.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
48.000	48.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
52.000	52.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
57.000	57.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
62.000	62.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
67.000	67.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
73.000	73.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
79.000	79.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
86.000	86.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
94.000	94.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
100.000	100.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
110.000	110.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
120.000	120.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#
130.000	130.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9999	#5	0.0	#6	0.0	#7	0.0	#
140.000	140.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9982	#5	0.0	#6	0.0	#7	0.0	#
150.000	150.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9821	#5	0.0	#6	0.0	#7	0.0	#
160.000	160.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9168	#5	0.0	#6	0.0	#7	0.0	#
180.000	180.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.5729	#5	0.0	#6	0.0	#7	0.0	#
190.000	190.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.3719	#5	0.0	#6	0.0	#7	0.0	#
210.000	210.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.1146	#5	0.0	#6	0.0	#7	0.0	#
230.000	230.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0268	#5	0.0	#6	0.0	#7	0.0	#
250.000	250.000	#1	1.0000	#2	1.0000	#3	0.9999	#4	0.0055	#5	0.0	#6	0.0	#7	0.0	#
270.000	270.000	#1	1.0000	#2	1.0000	#3	0.9995	#4	0.0011	#5	0.0	#6	0.0	#7	0.0	#
290.000	290.000	#1	1.0000	#2	1.0000	#3	0.9977	#4	0.0002	#5	0.0	#6	0.0	#7	0.0	#
320.000	320.000	#1	1.0000	#2	1.0000	#3	0.9880	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
350.000	350.000	#1	1.0000	#2	1.0000	#3	0.9627	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
380.000	380.000	#1	1.0000	#2	1.0000	#3	0.9169	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
410.000	410.000	#1	1.0000	#2	1.0000	#3	0.8526	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
440.000	440.000	#1	1.0000	#2	1.0000	#3	0.7716	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
480.000	480.000	#1	1.0000	#2	1.0000	#3	0.6631	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
520.000	520.000	#1	1.0000	#2	1.0000	#3	0.5626	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
570.000	570.000	#1	1.0000	#2	1.0000	#3	0.4432	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
620.000	620.000	#1	1.0000	#2	1.0000	#3	0.3482	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
670.000	670.000	#1	1.0000	#2	0.9999	#3	0.2832	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
730.000	730.000	#1	1.0000	#2	0.9999	#3	0.2210	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#
790.000	790.000	#1	0.9999	#2	0.9998	#3	0.1735	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#

EFFICIENCIES OF 5 LEVELS IN THE 4 ABSORBER FOR PARTICLES WITH Z = 1. AND A = 1.

D31 D32 D33 D34

	1.490MEV/NUC	2.980MEV/NUC	3.950MEV/NUC	6.950MEV/NUC	26.400MEV/NUC						
0.250	0.250	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.270	0.270	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.290	0.290	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.320	0.320	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.340	0.340	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.370	0.370	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.400	0.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.440	0.440	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.480	0.480	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.520	0.520	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.560	0.560	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.610	0.610	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.670	0.670	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.720	0.720	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.790	0.790	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.850	0.850	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.930	0.930	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.000	1.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.100	1.100	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.190	1.190	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.200	1.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.400	1.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.500	1.500	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.600	1.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.800	1.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.900	1.900	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.100	2.100	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.300	2.300	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.500	2.500	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.700	2.700	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.900	2.900	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.200	3.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.400	3.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.700	3.700	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.100	4.100	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.400	4.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.800	4.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
5.200	5.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
5.700	5.700	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
6.200	6.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
6.700	6.700	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
7.300	7.300	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
7.900	7.900	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
8.600	8.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
9.300	9.300	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
10.000	10.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
11.000	11.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
11.900	11.900	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
13.000	13.000	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 0.0	#				
14.000	14.000	#1 1.0000	#2 1.0000	#3 1.0000	#4 0.0	#5 0.0	#				

EFFICIENCIES OF		5 LEVELS IN THE		4 ABSORBER FOR PARTICLES WITH Z = 1. AND A = 1.								
15.000	15.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
16.000	16.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
18.000	18.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
19.000	19.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
21.000	21.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
23.000	23.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
25.000	25.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
27.000	27.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
29.000	29.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
32.000	32.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
34.000	34.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
37.000	37.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
41.000	41.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
44.000	44.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
48.000	48.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9710	#5	0.0	#
52.000	52.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0001	#5	0.0	#
57.000	57.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#
62.000	62.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#
67.000	67.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#
73.000	73.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#
79.000	79.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#
86.000	86.000	#1	1.0000	#2	1.0000	#3	0.9996	#4	0.0	#5	0.0	#
94.000	94.000	#1	1.0000	#2	1.0000	#3	0.5918	#4	0.0	#5	0.0	#
100.000	100.000	#1	1.0000	#2	1.0000	#3	0.0375	#4	0.0	#5	0.0	#
110.000	110.000	#1	1.0000	#2	1.0000	#3	0.0000	#4	0.0	#5	0.0	#
120.000	120.000	#1	1.0000	#2	0.9995	#3	0.0000	#4	0.0	#5	0.0	#
130.000	130.000	#1	1.0000	#2	0.9057	#3	0.0	#4	0.0	#5	0.0	#
140.000	140.000	#1	1.0000	#2	0.3456	#3	0.0	#4	0.0	#5	0.0	#
150.000	150.000	#1	1.0000	#2	0.0307	#3	0.0	#4	0.0	#5	0.0	#
160.000	160.000	#1	1.0000	#2	0.0008	#3	0.0	#4	0.0	#5	0.0	#
180.000	180.000	#1	1.0000	#2	0.0000	#3	0.0	#4	0.0	#5	0.0	#
190.000	190.000	#1	1.0000	#2	0.0000	#3	0.0	#4	0.0	#5	0.0	#
210.000	210.000	#1	1.0000	#2	0.0000	#3	0.0	#4	0.0	#5	0.0	#
230.000	230.000	#1	1.0000	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
250.000	250.000	#1	1.0000	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
270.000	270.000	#1	1.0000	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
290.000	290.000	#1	0.9999	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
320.000	320.000	#1	0.9968	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
350.000	350.000	#1	0.9703	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
380.000	380.000	#1	0.8807	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
410.000	410.000	#1	0.7194	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
440.000	440.000	#1	0.5170	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
480.000	480.000	#1	0.2982	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
520.000	520.000	#1	0.1596	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
570.000	570.000	#1	0.0633	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
620.000	620.000	#1	0.0247	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
670.000	670.000	#1	0.0110	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
730.000	730.000	#1	0.0042	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
790.000	790.000	#1	0.0017	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH Z = 1. AND A = 1.

0.500MEV/NUC

0.250	0.250	#1	0.0	#
0.270	0.270	#1	0.0	#
0.290	0.290	#1	0.0	#
0.320	0.320	#1	0.0	#
0.340	0.340	#1	0.0	#
0.370	0.370	#1	0.0	#
0.400	0.400	#1	0.0	#
0.440	0.440	#1	0.0	#
0.480	0.480	#1	0.0	#
0.520	0.520	#1	0.0	#
0.560	0.560	#1	0.0	#
0.610	0.610	#1	0.0	#
0.670	0.670	#1	0.0	#
0.720	0.720	#1	0.0	#
0.790	0.790	#1	0.0	#
0.850	0.850	#1	0.0	#
0.930	0.930	#1	0.0	#
1.000	1.000	#1	0.0	#
1.100	1.100	#1	0.0	#
1.190	1.190	#1	0.0	#
1.200	1.200	#1	0.0	#
1.400	1.400	#1	0.0	#
1.500	1.500	#1	0.0	#
1.600	1.600	#1	0.0	#
1.800	1.800	#1	0.0	#
1.900	1.900	#1	0.0	#
2.100	2.100	#1	0.0	#
2.300	2.300	#1	0.0	#
2.500	2.500	#1	0.0	#
2.700	2.700	#1	0.0	#
2.900	2.900	#1	0.0	#
3.200	3.200	#1	0.0	#
3.400	3.400	#1	0.0	#
3.700	3.700	#1	0.0	#
4.100	4.100	#1	0.0	#
4.400	4.400	#1	0.0	#
4.800	4.800	#1	0.0	#
5.200	5.200	#1	0.0	#
5.700	5.700	#1	0.0	#
6.200	6.200	#1	0.0	#
6.700	6.700	#1	0.0	#
7.300	7.300	#1	0.0	#
7.900	7.900	#1	0.0	#
8.600	8.600	#1	0.0	#
9.300	9.300	#1	0.0	#
10.000	10.000	#1	0.0	#
11.000	11.000	#1	0.0	#
11.900	11.900	#1	0.0	#
13.000	13.000	#1	0.0	#
14.000	14.000	#1	0.0	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH Z = 1. AND A = 1.

15.000	15.000	#1	0.0	#
16.000	16.000	#1	0.0	#
18.000	18.000	#1	0.0	#
19.000	19.000	#1	0.0	#
21.000	21.000	#1	0.0	#
23.000	23.000	#1	0.0	#
25.000	25.000	#1	0.0	#
27.000	27.000	#1	0.0	#
29.000	29.000	#1	0.0	#
32.000	32.000	#1	0.0	#
34.000	34.000	#1	0.0	#
37.000	37.000	#1	0.0	#
41.000	41.000	#1	0.0	#
44.000	44.000	#1	0.0	#
48.000	48.000	#1	0.0	#
52.000	52.000	#1	0.0	#
57.000	57.000	#1	0.0	#
62.000	62.000	#1	0.0	#
67.000	67.000	#1	0.0	#
73.000	73.000	#1	0.0	#
79.000	79.000	#1	0.0	#
86.000	86.000	#1	0.0	#
94.000	94.000	#1	0.0	#
100.000	100.000	#1	0.0	#
110.000	110.000	#1	0.0	#
120.000	120.000	#1	0.0	#
130.000	130.000	#1	0.0	#
140.000	140.000	#1	0.0	#
150.000	150.000	#1	1.0000	#
160.000	160.000	#1	1.0000	#
180.000	180.000	#1	1.0000	#
190.000	190.000	#1	1.0000	#
210.000	210.000	#1	1.0000	#
230.000	230.000	#1	1.0000	#
250.000	250.000	#1	1.0000	#
270.000	270.000	#1	1.0000	#
290.000	290.000	#1	1.0000	#
320.000	320.000	#1	1.0000	#
350.000	350.000	#1	1.0000	#
380.000	380.000	#1	1.0000	#
410.000	410.000	#1	1.0000	#
440.000	440.000	#1	1.0000	#
480.000	480.000	#1	1.0000	#
520.000	520.000	#1	1.0000	#
570.000	570.000	#1	1.0000	#
620.000	620.000	#1	1.0000	#
670.000	670.000	#1	1.0000	#
730.000	730.000	#1	1.0000	#
790.000	790.000	#1	1.0000	#

8.7 P-Channel Efficiencies for Protons

The following table given the efficiencies of the P-channels (columns 2 through 12) as functions of incident energy in MeV/nucleon (column 1) and MeV (column 13). Column 1 and 13 are identical for protons, of course, but for alphas and other heavier nuclei the two entries are not redundant.

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 1. AND A = 1.

EINC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	
0.2500	0.105	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.250
0.2700	0.289	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.270
0.2900	0.546	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.290
0.3200	0.882	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.320
0.3400	0.973	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.340
0.3700	0.999	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.370
0.4000	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.400
0.4400	0.984	0.016	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.440
0.4800	0.755	0.245	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.480
0.5200	0.231	0.769	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.520
0.5600	0.014	0.986	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.560
0.6100	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.610
0.6700	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.670
0.7200	0.000	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.720
0.7900	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.790
0.8500	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.850
0.9300	0.0	0.893	0.107	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.930
1.0000	0.0	0.125	0.875	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000
1.1000	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.100
1.1900	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.190
1.2000	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.200
1.4000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.400
1.5000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.500
1.6000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.600
1.8000	0.0	0.000	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.800
1.9000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.900
2.1000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.100
2.3000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.300
2.5000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.500
2.7000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.700
2.9000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.900
3.2000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.200
3.4000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.400
3.7000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.700
4.1000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.100
4.4000	0.0	0.0	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	4.400
4.8000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	4.800
5.2000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	5.200
5.7000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	5.700
6.2000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	6.200
6.7000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	6.700
7.3000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	7.300
7.9000	0.0	0.0	0.0	0.0	0.675	0.325	0.0	0.0	0.0	0.0	0.0	7.900
8.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	8.600
9.3000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	9.300
10.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	10.000
11.0000	0.0	0.0	0.0	0.0	0.0	0.996	0.0	0.0	0.0	0.0	0.0	11.000
11.9000	0.0	0.0	0.0	0.0	0.0	0.983	0.0	0.0	0.0	0.0	0.0	11.900
13.0000	0.0	0.0	0.0	0.0	0.0	0.939	0.0	0.0	0.0	0.0	0.0	13.000
14.0000	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	14.000

EINC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	
15.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	15.000
16.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	16.000
18.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	18.000
19.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	19.000
21.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	21.000
23.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	0.0	0.0	23.000
25.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.599	0.401	0.0	0.0	0.0	25.000
27.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.0	0.0	0.0	27.000
29.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.0	0.0	0.0	29.000
32.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	32.000
34.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	34.000
37.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	37.000
41.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	41.000
44.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	44.000
48.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.971	0.029	0.0	0.0	48.000
52.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.0	0.0	52.000
57.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	57.000
62.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	62.000
67.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	67.000
73.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	73.000
79.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	79.000
86.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	86.000
94.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.592	0.408	0.0	94.000
100.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.038	0.962	0.000	100.000
110.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.000	110.000
120.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.000	120.000
130.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.906	0.000	130.000
140.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.345	0.001	140.000
150.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.017	150.000
160.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.083	160.000
180.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.427	180.000
190.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.628	190.000
210.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.885	210.000
230.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.973	230.000
250.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.994	250.000
270.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.999	270.000
290.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	290.000
320.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.997	320.000
350.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.970	350.000
380.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.881	380.000
410.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.719	410.000
440.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.517	440.000
480.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.298	480.000
520.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.160	520.000
570.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.063	570.000
620.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.025	620.000
670.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.011	670.000
730.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.004	730.000
790.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.002	790.000

9. Response of Telescope to Alpha Particles

The following is a comprehensive summary of the parameters of the response of the Alpha-Electron-Telescope to alpha particles as obtained from the program PAMELA (preprint available on request, see APPENDIX C). Representative range-energy tables are calculated, telescope parameters are defined (thicknesses, thresholds, logic) and the resulting energy loss curves threshold efficiencies and logical channel efficiencies are calculated in a straightforward manner. In the interest of compactness of presentation, the tabulation of data in this and the following tables has been limited to that most relevant to the analysis of CPME flight data. Not all energies or incident nuclei types are tabulated. Also the incident energies are coarser than those used to determine the pass-bands with the appropriate precision at all energies.

9.1 Range-Energy Table for Alphas in Silicon for Incident Energies
from .1 to 190 MeV/Nucleon

The units of "Range" and "Stragglng" in the following table are cm. "Stragglng" is an approximation to the rms fluctuation of the range distribution and is included here only incidently. No subsequent use is made of "stragglng" in later calculations. Fluctuations in the energy loss signal are accounted for by a different method.

RANGE-ENERGY TABLE FOR Z = 2.000 AND A = 4.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
0.1000	0.000213	0.000003
0.1080	0.000224	0.000004
0.1100	0.000227	0.000005
0.1200	0.000240	0.000007
0.1300	0.000253	0.000008
0.1400	0.000266	0.000008
0.1500	0.000279	0.000009
0.1700	0.000305	0.000007
0.1800	0.000318	0.000006
0.2000	0.000344	0.000004
0.2100	0.000358	0.000006
0.2300	0.000385	0.000008
0.2500	0.000412	0.000012
0.2700	0.000440	0.000013
0.2900	0.000469	0.000013
0.3200	0.000511	0.000014
0.3400	0.000542	0.000012
0.3700	0.000587	0.000009
0.4000	0.000633	0.000008
0.4300	0.000682	0.000008
0.4700	0.000749	0.000009
0.5000	0.000798	0.000009
0.5500	0.000889	0.000010
0.5900	0.000962	0.000011
0.6400	0.001058	0.000012
0.6900	0.001158	0.000013
0.7500	0.001284	0.000014
0.8100	0.001415	0.000015
0.8700	0.001552	0.000017
0.9400	0.001719	0.000018
1.0000	0.001867	0.000019
1.1000	0.002129	0.000031
1.1900	0.002374	0.000046
1.2000	0.002401	0.000048
1.3000	0.002689	0.000054
1.5000	0.003307	0.000040
1.6000	0.003631	0.000035
1.7000	0.003978	0.000038
1.9000	0.004702	0.000044
2.0000	0.005080	0.000048
2.2000	0.005891	0.000078
2.4000	0.006744	0.000123
2.5000	0.007186	0.000153
2.8000	0.008615	0.000122
3.0000	0.009621	0.000107
3.2000	0.010669	0.000094
3.5000	0.012357	0.000108
3.8000	0.014141	0.000122
4.1000	0.016029	0.000137
4.4000	0.018034	0.000153

RANGE-ENERGY TABLE FOR Z = 2.000 AND A = 4.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
4.8000	0.020853	0.000175
5.2000	0.023853	0.000198
5.6000	0.027037	0.000222
6.0000	0.030382	0.000247
6.5000	0.034824	0.000279
7.1000	0.040486	0.000320
7.6000	0.045497	0.000356
8.3000	0.052932	0.000410
8.9000	0.059693	0.000457
9.7000	0.069261	0.000525
10.0000	0.073003	0.000551
11.0000	0.086109	0.000642
12.0000	0.100148	0.000738
13.0000	0.114757	0.000839
14.0000	0.130259	0.000946
15.0000	0.146654	0.001058
16.0000	0.163919	0.001176
18.0000	0.201052	0.001427
19.0000	0.220885	0.001558
21.0000	0.263081	0.001838
22.0000	0.285382	0.001985
24.0000	0.332463	0.002292
26.0000	0.382741	0.002616
28.0000	0.436153	0.002959
31.0000	0.522071	0.003507
33.0000	0.583104	0.003892
36.0000	0.680271	0.004500
39.0000	0.783972	0.005144
42.0000	0.894122	0.005824
45.0000	1.010568	0.006536
49.0000	1.175527	0.007539
53.0000	1.351251	0.008598
57.0000	1.537553	0.009712
62.0000	1.784970	0.011181
67.0000	2.048146	0.012730
72.0000	2.326731	0.014357
78.0000	2.680812	0.016411
85.0000	3.120360	0.018938
92.0000	3.587956	0.021602
99.0000	4.082561	0.024398
100.0000	4.155463	0.024809
110.0000	4.912658	0.029045
120.0000	5.720816	0.033521
130.0000	6.578317	0.038227
140.0000	7.483452	0.043150
150.0000	8.434093	0.048278
170.0000	10.466245	0.059111
180.0000	11.544785	0.064800
190.0000	12.663226	0.070656

NUMBER OF INPUT PARTICLES SELECTED = 1

PARTICLE TYPES SELECTED ARE 4

9.2 Telescope Parameters Used

This table summarizes the properties of the Proton-Electron-Telescope for particle incident parallel to the telescope axis. Detector and electronic noise and thickness inhomogeneity are included in the calculation of the passband edge shapes. Computer runs for particles with oblique incidence were made and the results showed no important quantitative or qualitative differences from those tabulated herein. The entries in the table are self-explanatory except for the second row wherein the absorber type is given. "3." denotes nickel; "2." denotes silicon; and "4." denotes a tungsten alloy block. The tungsten penetration is calculated approximately from the range-energy relations for gold and the effective thickness is chosen to match the experimentally measured penetration energy for protons. The passbands are relatively insensitive to the details of the last two absorbers. The elements of the telescope are as follows: nickel foil light shield, nominal 40 micron detector, nominal 900 micron detector, nominal 2700 micron detector, nominal 2 cm tungsten alloy absorber, anticoincidence cup. The anticoincidence cup is plastic scintillator and is used to place a maximum upper limit to the passbands due to complete penetration of the telescope. The veto effect of the scintillator is simulated by including a .5 MeV threshold in a .5 cm silicon slab. This procedure adequately represents the experimental passbands and is used for simplicity here.

PARAMETERS OF ABSORBER STACK

ABSORBER THICKNESSES, MICRCNS		0.347	38.700	900.000	2700.000	14572.992	5000.000
ABSORBER MATERIAL		3.	2.	2.	2.	4.	2.
THICKNESS VARIATION, MICRONS		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
CONICAL HALF ANGLE, DEGREES		0.0	0.0	0.0	0.0	0.0	0.0
DETECTOR NOISE, MEV		0.0	0.070	0.027	0.023	0.0	0.100
ELECTRONIC NOISE, MEV		0.0	0.0	0.0	0.0	0.0	0.0
NUMBER OF THRESHOLDS SET		0.0	8.0	7.0	5.0	0.0	1.0
THRESHOLD LEVEL NO. MEV	1	0.0	0.1700	0.1960	1.4900	0.0	0.5000
THRESHOLD LEVEL NO. MEV	2	0.0	0.2100	0.2090	2.9800	0.0	0.0
THRESHOLD LEVEL NO. MEV	3	0.0	0.4400	0.4560	3.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV	4	0.0	0.9250	0.8090	6.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV	5	0.0	2.3800	3.8200	26.4000	0.0	0.0
THRESHOLD LEVEL NO. MEV	6	0.0	4.4800	7.5100	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV	7	0.0	9.4800	14.8000	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV	8	0.0	21.2000	0.0	0.0	0.0	0.0
AVERAGE PROJECTED DEPTH, MIC		0.347	38.700	900.000	2700.000	14572.992	5000.000
EST. RMS VARN. PROJ. DEPTH, MIC		0.0	0.0	0.0	0.0	0.0	0.0
NET RMS THICKNESS VARN. (MIC)		0.0100	3.8700	5.0000	10.0000	0.0	50.0000
LOWER LIMIT THICKNESS (MIC)		0.337	34.830	895.000	2689.999	14572.992	4949.999
UPPER LIMIT THICKNESS (MIC)		0.357	42.570	904.999	2710.000	14572.992	5050.000

9.3 Logical Definition of P and Alpha Channels

The following table, when used with the preceding (Section 9.2) summary of the telescope parameters, completely defines the P-Channels for the telescope. The interpretation of the entries of the table is that the numbers when taken in groups of three represent absorber number, threshold number, logical yes or no. The label of each channel is the last column on the right. For example, the first row of the table represents the channel P1 with the functions $A_2 \overline{A_3} \overline{B_2} \overline{M}$. Plus one equals "yes" and minus one equals "no". The channels then represent the logical intersection of the threshold efficiencies.

LOGIC TABLE FOR 17 CHANNELS

2	2	1	2	3	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P1
2	3	1	2	4	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P2
2	4	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P3
2	2	1	3	2	1	3	5	-1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P4
2	2	1	3	5	1	3	6	-1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P5
2	2	1	3	6	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	P6
3	5	1	3	6	-1	4	4	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P7
3	4	1	3	5	-1	4	4	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P8
3	4	1	3	5	-1	4	3	1	4	4	-1	6	1	-1	0	0	0	0	0	0	0	0	0	P9
3	1	1	4	2	1	4	3	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	P10
3	4	-1	3	1	1	4	1	1	4	2	-1	0	0	0	0	0	0	0	0	0	0	0	0	P11
2	5	1	2	6	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 1
2	6	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 2
2	5	1	3	2	1	3	7	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 3
2	1	1	3	7	1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 4
3	7	1	4	5	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 5
3	5	1	3	7	-1	4	5	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0 ALPHA 6

9.4 Intrinsic Fluctuation in Energy Deposition of Alpha Particles in the Telescope Elements

From left to right in the table the entries are: Z of projectile, A of projectile, standard deviations in KeV/nucleon of the energy loss signal in each of the telescope elements. The calculation is based on an approximation of Bohr for the statistical fluctuations expected when the particle is well above the absorber penetration energy. The subsequent calculations of the passbands utilize this fluctuation as one source of the width of the energy loss signal.

INTRINSIC FLUCTUATIONS IN ENERGY LOSS (KEV/NUC) CALC FROM BOHR FORMULA

Z	A						
2.	4.	1.701	9.391	45.290	78.444	470.704	106.749

9.5 Energy Losses for Alphas in Telescope

These tables are tabulations of the energy loss versus incident energy for each of the elements of the telescope. The entries labelled DDELTAEL, DDELTAE2, etc., are estimates of the FWHM of the energy loss signal which has contributions from detector noise, electronic noise, thickness inhomogeneity, and intrinsic statistical fluctuations.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 2 AND A = 4.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
0.100	0.051	0.002*	0.049	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.108	0.053	0.002*	0.055	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.110	0.053	0.002*	0.057	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.120	0.055	0.002*	0.065	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.130	0.057	0.002*	0.073	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.140	0.058	0.002*	0.082	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.150	0.059	0.002*	0.091	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.170	0.060	0.002*	0.110	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.180	0.061	0.002*	0.119	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.200	0.062	0.002*	0.138	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.210	0.062	0.002*	0.148	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.230	0.061	0.002*	0.169	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.250	0.062	0.002*	0.188	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.270	0.060	0.002*	0.210	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.290	0.060	0.002*	0.230	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.320	0.060	0.002*	0.260	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.340	0.059	0.002*	0.281	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.370	0.057	0.002*	0.313	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.400	0.057	0.002*	0.343	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.430	0.055	0.002*	0.375	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.470	0.053	0.002*	0.417	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.500	0.053	0.002*	0.447	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.550	0.050	0.002*	0.500	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.590	0.049	0.002*	0.541	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.640	0.047	0.002*	0.593	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.690	0.046	0.002*	0.644	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.750	0.043	0.002*	0.707	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.810	0.042	0.002*	0.768	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.870	0.041	0.002*	0.829	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.940	0.039	0.002*	0.901	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.000	0.038	0.002*	0.962	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.100	0.036	0.002*	1.064	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.190	0.035	0.002*	1.155	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.200	0.035	0.002*	1.165	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.300	0.033	0.002*	1.267	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.500	0.031	0.002*	1.469	0.017*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.600	0.030	0.002*	1.570	0.020*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.700	0.028	0.002*	1.671	0.120*	0.000	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.900	0.027	0.002*	1.413	0.236*	0.460	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.000	0.027	0.002*	1.308	0.197*	0.665	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.200	0.025	0.002*	1.155	0.153*	1.020	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.400	0.024	0.002*	1.049	0.131*	1.327	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.500	0.023	0.002*	1.007	0.124*	1.470	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.800	0.021	0.002*	0.895	0.106*	1.884	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.000	0.020	0.002*	0.839	0.096*	2.141	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.200	0.020	0.002*	0.792	0.091*	2.388	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.500	0.018	0.002*	0.729	0.081*	2.752	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.800	0.017	0.002*	0.678	0.076*	3.105	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.100	0.016	0.002*	0.637	0.070*	3.447	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.400	0.016	0.002*	0.598	0.066*	3.786	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *

ENERGY LOSS TABLE FOR PARTICLES OF Z = 2 AND A = 4.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
4.800	0.015	0.002*	0.557	0.061*	4.228	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.200	0.014	0.002*	0.522	0.057*	4.664	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.600	0.013	0.002*	0.490	0.054*	5.097	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.000	0.013	0.002*	0.465	0.051*	5.522	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.500	0.012	0.002*	0.435	0.048*	6.053	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.100	0.011	0.002*	0.406	0.045*	6.682	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.600	0.011	0.002*	0.384	0.043*	7.205	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.300	0.010	0.002*	0.359	0.041*	7.931	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.900	0.010	0.002*	0.340	0.039*	8.550	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
9.700	0.009	0.002*	0.318	0.037*	9.373	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
10.000	0.009	0.002*	0.311	0.036*	9.681	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
11.000	0.008	0.002*	0.288	0.034*	10.703	0.007*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
12.000	0.008	0.002*	0.270	0.032*	9.457	0.118*	2.265	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
13.000	0.007	0.002*	0.260	0.031*	7.944	0.069*	4.789	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
14.000	0.007	0.002*	0.245	0.030*	7.090	0.054*	6.658	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
15.000	0.007	0.002*	0.232	0.029*	6.485	0.046*	8.276	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
16.000	0.006	0.002*	0.220	0.028*	6.019	0.046*	9.755	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
18.000	0.006	0.002*	0.201	0.027*	5.313	0.046*	12.481	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
19.000	0.006	0.002*	0.192	0.026*	5.015	0.046*	13.788	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
21.000	0.005	0.002*	0.177	0.025*	4.528	0.046*	16.290	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
22.000	0.005	0.002*	0.171	0.025*	4.327	0.046*	17.497	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
24.000	0.005	0.002*	0.160	0.024*	3.982	0.046*	19.853	0.006*	0.0	0.0 *	0.0	0.0 *	0.0 *
26.000	0.004	0.002*	0.150	0.023*	3.698	0.046*	17.643	0.144*	4.505	0.0 *	0.0	0.0 *	0.0 *
28.000	0.004	0.002*	0.141	0.023*	3.459	0.046*	14.462	0.080*	9.934	0.0 *	0.0	0.0 *	0.0 *
31.000	0.004	0.002*	0.130	0.022*	3.161	0.046*	12.038	0.079*	15.667	0.0 *	0.0	0.0 *	0.0 *
33.000	0.004	0.002*	0.124	0.021*	2.995	0.046*	10.965	0.079*	18.913	0.0 *	0.0	0.0 *	0.0 *
36.000	0.003	0.002*	0.116	0.021*	2.779	0.046*	9.774	0.079*	23.327	0.0 *	0.0	0.0 *	0.0 *
39.000	0.003	0.002*	0.109	0.021*	2.599	0.046*	8.883	0.079*	27.406	0.0 *	0.0	0.0 *	0.0 *
42.000	0.003	0.002*	0.103	0.020*	2.443	0.046*	8.181	0.079*	31.270	0.0 *	0.0	0.0 *	0.0 *
45.000	0.003	0.002*	0.097	0.020*	2.309	0.046*	7.608	0.079*	34.983	0.0 *	0.0	0.0 *	0.0 *
49.000	0.003	0.002*	0.091	0.020*	2.153	0.046*	6.986	0.079*	39.768	0.0 *	0.0	0.0 *	0.0 *
53.000	0.003	0.002*	0.086	0.020*	2.021	0.046*	6.479	0.079*	44.412	0.0 *	0.0	0.0 *	0.0 *
57.000	0.002	0.002*	0.081	0.020*	1.907	0.046*	6.056	0.079*	48.954	0.0 *	0.0	0.0 *	0.0 *
62.000	0.002	0.002*	0.076	0.020*	1.784	0.046*	5.614	0.079*	54.524	0.0 *	0.0	0.0 *	0.0 *
67.000	0.002	0.002*	0.071	0.020*	1.679	0.046*	5.247	0.079*	60.001	0.0 *	0.0	0.0 *	0.0 *
72.000	0.002	0.002*	0.068	0.020*	1.587	0.046*	4.933	0.079*	65.409	0.0 *	0.0	0.0 *	0.0 *
78.000	0.002	0.002*	0.064	0.020*	1.492	0.046*	4.615	0.079*	71.827	0.0 *	0.0	0.0 *	0.0 *
85.000	0.002	0.002*	0.060	0.020*	1.398	0.046*	4.305	0.079*	79.235	0.0 *	0.0	0.0 *	0.0 *
92.000	0.002	0.002*	0.056	0.020*	1.318	0.046*	4.037	0.079*	86.587	0.0 *	0.0	0.0 *	0.0 *
99.000	0.002	0.002*	0.053	0.020*	1.246	0.046*	3.812	0.079*	93.887	0.0 *	0.0	0.0 *	0.0 *
100.000	0.002	0.002*	0.053	0.020*	1.236	0.046*	3.781	0.079*	94.928	0.0 *	0.0	0.0 *	0.0 *
110.000	0.001	0.002*	0.049	0.020*	1.152	0.046*	3.514	0.079*	105.283	0.0 *	0.0	0.0 *	0.0 *
120.000	0.001	0.002*	0.046	0.020*	1.083	0.046*	3.293	0.079*	115.577	0.0 *	0.0	0.0 *	0.0 *
130.000	0.001	0.002*	0.044	0.020*	1.023	0.046*	3.105	0.079*	125.828	0.0 *	0.0	0.0 *	0.0 *
140.000	0.001	0.002*	0.042	0.020*	0.971	0.046*	2.942	0.079*	136.044	0.0 *	0.0	0.0 *	0.0 *
150.000	0.001	0.002*	0.040	0.020*	0.926	0.046*	2.803	0.079*	115.660	0.471*	27.624	1.016*	
170.000	0.001	0.002*	0.037	0.020*	0.851	0.046*	2.571	0.079*	92.716	0.471*	8.992	0.110*	
180.000	0.001	0.002*	0.035	0.020*	0.819	0.046*	2.474	0.079*	86.298	0.471*	7.608	0.110*	
190.000	0.001	0.002*	0.034	0.020*	0.791	0.046*	2.387	0.079*	81.267	0.471*	6.739	0.110*	

UNITS FOR ABOVE TABLE ARE MEV/NUC

ENERGY LOSS TABLE FOR PARTICLES OF Z = 2 AND A = 4.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
0.400	0.20	0.007	0.20	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.432	0.21	0.007	0.22	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.440	0.21	0.007	0.23	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.480	0.22	0.007	0.26	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.520	0.23	0.007	0.29	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.560	0.23	0.007	0.33	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.600	0.24	0.007	0.36	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.680	0.24	0.007	0.44	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.720	0.24	0.007	0.48	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.800	0.25	0.007	0.55	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.840	0.25	0.007	0.59	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.920	0.25	0.007	0.67	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.000	0.25	0.007	0.75	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.080	0.24	0.007	0.84	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.160	0.24	0.007	0.92	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.280	0.24	0.007	1.04	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.360	0.23	0.007	1.13	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.480	0.23	0.007	1.25	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.600	0.23	0.007	1.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.720	0.22	0.007	1.50	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1.880	0.21	0.007	1.67	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.000	0.21	0.007	1.79	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.200	0.20	0.007	2.00	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.360	0.20	0.007	2.16	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.560	0.19	0.007	2.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.760	0.18	0.007	2.58	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.000	0.17	0.007	2.83	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.240	0.17	0.007	3.07	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.480	0.16	0.007	3.32	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.760	0.16	0.007	3.60	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.000	0.15	0.007	3.85	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.400	0.14	0.007	4.26	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.760	0.14	0.007	4.62	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.800	0.14	0.007	4.66	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.200	0.13	0.007	5.07	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.000	0.12	0.007	5.88	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.400	0.12	0.007	6.28	0.078	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.800	0.11	0.007	6.68	0.481	0.00	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.600	0.11	0.007	5.65	0.943	1.84	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.000	0.11	0.007	5.23	0.787	2.66	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.800	0.10	0.007	4.62	0.612	4.08	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.600	0.09	0.007	4.20	0.523	5.31	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.000	0.09	0.007	4.03	0.495	5.88	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.200	0.08	0.007	3.58	0.424	7.53	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.000	0.08	0.007	3.35	0.384	8.56	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.800	0.08	0.007	3.17	0.362	9.55	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.000	0.07	0.007	2.92	0.325	11.01	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.200	0.07	0.007	2.71	0.304	12.42	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.400	0.07	0.007	2.55	0.279	13.79	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.600	0.06	0.007	2.39	0.264	15.14	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0

9.5.2 The Units of this Table are MeV Throughout

ENERGY LOSS TABLE FOR PARTICLES OF Z = 2 AND A = 4.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
19.200	0.06	0.007	2.23	0.243	16.91	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20.800	0.06	0.007	2.09	0.229	18.66	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.400	0.05	0.007	1.96	0.214	20.39	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24.000	0.05	0.007	1.86	0.204	22.09	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26.000	0.05	0.007	1.74	0.191	24.21	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28.400	0.04	0.007	1.63	0.180	26.73	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.400	0.04	0.007	1.54	0.172	28.82	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
33.200	0.04	0.007	1.43	0.162	31.73	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.600	0.04	0.007	1.36	0.155	34.20	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
38.800	0.04	0.007	1.27	0.146	37.49	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.000	0.04	0.007	1.24	0.144	38.72	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44.000	0.03	0.007	1.15	0.136	42.81	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48.000	0.03	0.007	1.08	0.129	37.83	0.474	9.06	0.023	0.0	0.0	0.0	0.0	0.0
52.000	0.03	0.007	1.04	0.126	31.77	0.278	19.16	0.023	0.0	0.0	0.0	0.0	0.0
56.000	0.03	0.007	0.98	0.121	28.36	0.217	26.63	0.023	0.0	0.0	0.0	0.0	0.0
60.000	0.03	0.007	0.93	0.117	25.94	0.184	33.11	0.023	0.0	0.0	0.0	0.0	0.0
64.000	0.03	0.007	0.88	0.113	24.07	0.183	39.02	0.023	0.0	0.0	0.0	0.0	0.0
72.000	0.02	0.007	0.80	0.107	21.25	0.183	49.92	0.023	0.0	0.0	0.0	0.0	0.0
76.000	0.02	0.007	0.77	0.104	20.06	0.183	55.15	0.023	0.0	0.0	0.0	0.0	0.0
84.000	0.02	0.007	0.71	0.100	18.11	0.183	65.16	0.023	0.0	0.0	0.0	0.0	0.0
88.000	0.02	0.007	0.68	0.098	17.31	0.183	69.99	0.023	0.0	0.0	0.0	0.0	0.0
96.000	0.02	0.007	0.64	0.095	15.93	0.183	79.41	0.023	0.0	0.0	0.0	0.0	0.0
104.000	0.02	0.007	0.60	0.092	14.79	0.183	70.57	0.576	18.02	0.0	0.0	0.0	0.0
112.000	0.02	0.007	0.56	0.090	13.84	0.183	57.85	0.319	39.74	0.0	0.0	0.0	0.0
124.000	0.02	0.007	0.52	0.087	12.64	0.183	48.15	0.315	62.67	0.0	0.0	0.0	0.0
132.000	0.01	0.007	0.50	0.086	11.98	0.183	43.86	0.315	75.65	0.0	0.0	0.0	0.0
144.000	0.01	0.007	0.46	0.084	11.12	0.183	39.10	0.315	93.31	0.0	0.0	0.0	0.0
156.000	0.01	0.007	0.43	0.082	10.40	0.183	35.53	0.315	109.63	0.0	0.0	0.0	0.0
168.000	0.01	0.007	0.41	0.081	9.77	0.183	32.73	0.315	125.08	0.0	0.0	0.0	0.0
180.000	0.01	0.007	0.39	0.080	9.23	0.183	30.43	0.315	139.93	0.0	0.0	0.0	0.0
196.000	0.01	0.007	0.36	0.079	8.61	0.183	27.94	0.315	159.07	0.0	0.0	0.0	0.0
212.000	0.01	0.007	0.34	0.079	8.08	0.183	25.91	0.315	177.65	0.0	0.0	0.0	0.0
228.000	0.01	0.007	0.32	0.079	7.63	0.183	24.22	0.315	195.82	0.0	0.0	0.0	0.0
248.000	0.01	0.007	0.30	0.079	7.14	0.183	22.46	0.315	218.09	0.0	0.0	0.0	0.0
268.000	0.01	0.007	0.29	0.079	6.71	0.183	20.99	0.315	240.00	0.0	0.0	0.0	0.0
288.000	0.01	0.007	0.27	0.079	6.35	0.183	19.73	0.315	261.64	0.0	0.0	0.0	0.0
312.000	0.01	0.007	0.25	0.079	5.97	0.183	18.46	0.315	287.31	0.0	0.0	0.0	0.0
340.000	0.01	0.007	0.24	0.079	5.59	0.183	17.22	0.315	316.94	0.0	0.0	0.0	0.0
368.000	0.01	0.007	0.23	0.079	5.27	0.183	16.15	0.315	346.35	0.0	0.0	0.0	0.0
396.000	0.01	0.007	0.21	0.079	4.98	0.183	15.25	0.315	375.55	0.0	0.0	0.0	0.0
400.000	0.01	0.007	0.21	0.079	4.94	0.183	15.13	0.315	379.71	0.0	0.0	0.0	0.0
440.000	0.01	0.007	0.20	0.079	4.61	0.183	14.06	0.315	421.13	0.0	0.0	0.0	0.0
480.000	0.01	0.007	0.19	0.079	4.33	0.183	13.17	0.315	462.31	0.0	0.0	0.0	0.0
520.000	0.01	0.007	0.18	0.079	4.09	0.183	12.42	0.315	503.31	0.0	0.0	0.0	0.0
560.000	0.01	0.007	0.17	0.079	3.88	0.183	11.77	0.315	544.18	0.0	0.0	0.0	0.0
600.000	0.00	0.007	0.16	0.079	3.70	0.183	11.21	0.315	462.64	1.883	110.50	4.063	
680.000	0.00	0.007	0.15	0.079	3.40	0.183	10.28	0.315	370.86	1.883	35.97	0.439	
720.000	0.00	0.007	0.14	0.079	3.28	0.183	9.90	0.315	345.19	1.883	30.43	0.439	
760.000	0.00	0.007	0.14	0.079	3.16	0.183	9.55	0.315	325.07	1.883	26.95	0.439	

UNITS FOR ABOVE TABLE ARE MEV, TOTAL ENERGY

9.6 Level Efficiencies for Thresholds in Telescope Elements A, B, C
and Scintillator

The entries in the following table have the significance:

Column 1, incident energy (MeV/nucleon)

Column 2, incident energy (MeV)

Column 3, incident energy, efficiency of thresholds #1 ...

EFFICIENCIES OF 8 LEVELS IN THE 2 ABSORBER FOR PARTICLES WITH Z = 2. AND A = 4.

0.042MEV/NUC 0.052MEV/NUC 0.110MEV/NUC 0.231MEV/NUC 0.595MEV/NUC 1.120MEV/NUC 2.370MEV/NUC 5.300MEV/NUC

0.100	0.400	#1	0.8016	#2	0.3091	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.108	0.432	#1	0.9561	#2	0.6411	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.110	0.440	#1	0.9729	#2	0.7188	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.120	0.480	#1	0.9988	#2	0.9534	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.130	0.520	#1	1.0000	#2	0.9976	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.140	0.560	#1	1.0000	#2	1.0000	#3	0.0001	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.150	0.600	#1	1.0000	#2	1.0000	#3	0.0056	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.170	0.680	#1	1.0000	#2	1.0000	#3	0.4758	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.180	0.720	#1	1.0000	#2	1.0000	#3	0.8906	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.200	0.800	#1	1.0000	#2	1.0000	#3	0.9999	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.210	0.840	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.230	0.920	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.250	1.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.270	1.080	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0017	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.290	1.160	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.4352	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.320	1.280	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.340	1.360	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.370	1.480	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.400	1.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.430	1.720	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.470	1.880	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.500	2.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.550	2.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.590	2.360	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
0.640	2.560	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.4144	#6	0.0	#7	0.0	#8	0.0
0.690	2.760	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.750	3.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.810	3.240	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.870	3.480	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.940	3.760	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
1.000	4.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
1.100	4.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
1.190	4.760	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.200	4.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.300	5.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.500	6.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.600	6.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.700	6.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
1.900	7.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.9983	#7	0.0	#8	0.0
2.000	8.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.9879	#7	0.0	#8	0.0
2.200	8.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.7063	#7	0.0	#8	0.0
2.400	9.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.1009	#7	0.0	#8	0.0
2.500	10.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0156	#7	0.0	#8	0.0
2.800	11.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
3.000	12.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
3.200	12.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
3.500	14.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
3.800	15.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9949	#6	0.0	#7	0.0	#8	0.0
4.100	16.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9198	#6	0.0	#7	0.0	#8	0.0
4.400	17.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.5445	#6	0.0	#7	0.0	#8	0.0

EFFICIENCIES OF 8 LEVELS IN THE 2 ABSORBER FOR PARTICLES WITH Z = 2. AND A = 4.																	
4.800	19.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0691	#6	0.0	#7	0.0	#8	0.0
5.200	20.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0013	#6	0.0	#7	0.0	#8	0.0
5.600	22.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
6.000	24.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
6.500	26.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
7.100	28.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
7.600	30.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
8.300	33.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
8.900	35.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
9.700	38.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
10.000	40.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
11.000	44.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
12.000	48.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
13.000	52.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9973	#5	0.0	#6	0.0	#7	0.0	#8	0.0
14.000	56.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9832	#5	0.0	#6	0.0	#7	0.0	#8	0.0
15.000	60.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.8559	#5	0.0	#6	0.0	#7	0.0	#8	0.0
16.000	64.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.5153	#5	0.0	#6	0.0	#7	0.0	#8	0.0
18.000	72.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.1782	#5	0.0	#6	0.0	#7	0.0	#8	0.0
19.000	76.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0033	#5	0.0	#6	0.0	#7	0.0	#8	0.0
21.000	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0002	#5	0.0	#6	0.0	#7	0.0	#8	0.0
22.000	88.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
24.000	96.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
26.000	104.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
28.000	112.000	#1	1.0000	#2	1.0000	#3	0.9995	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
31.000	124.000	#1	1.0000	#2	1.0000	#3	0.9855	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
33.000	132.000	#1	1.0000	#2	1.0000	#3	0.9373	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
36.000	144.000	#1	1.0000	#2	1.0000	#3	0.7392	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
39.000	156.000	#1	1.0000	#2	1.0000	#3	0.4408	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
42.000	168.000	#1	1.0000	#2	1.0000	#3	0.1936	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
45.000	180.000	#1	1.0000	#2	1.0000	#3	0.0661	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
49.000	196.000	#1	1.0000	#2	1.0000	#3	0.0118	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
53.000	212.000	#1	1.0000	#2	1.0000	#3	0.0019	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
57.000	228.000	#1	1.0000	#2	0.9996	#3	0.0003	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
62.000	248.000	#1	1.0000	#2	0.9972	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
67.000	268.000	#1	0.9997	#2	0.9877	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
72.000	288.000	#1	0.9986	#2	0.9638	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
78.000	312.000	#1	0.9940	#2	0.9076	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
85.000	340.000	#1	0.9794	#2	0.8040	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
92.000	368.000	#1	0.9499	#2	0.6765	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
99.000	396.000	#1	0.8998	#2	0.5378	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
100.000	400.000	#1	0.8911	#2	0.5186	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
110.000	440.000	#1	0.7916	#2	0.3543	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
120.000	480.000	#1	0.6775	#2	0.2342	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
130.000	520.000	#1	0.5629	#2	0.1521	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
140.000	560.000	#1	0.4587	#2	0.0986	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
150.000	600.000	#1	0.3705	#2	0.0647	#3	0.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
170.000	680.000	#1	0.2389	#2	0.0290	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
180.000	720.000	#1	0.1923	#2	0.0199	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0
190.000	760.000	#1	0.1554	#2	0.0139	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#8	0.0

EFFICIENCIES OF 7 LEVELS IN THE 3 ABSORBER FOR PARTICLES WITH Z = 2. AND A = 4.

4.800	19.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
5.200	20.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
5.600	22.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
6.000	24.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
6.500	26.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
7.100	28.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
7.600	30.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
8.300	33.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
8.900	35.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
9.700	38.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
10.000	40.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
11.000	44.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
12.000	48.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
13.000	52.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
14.000	56.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
15.000	60.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
16.000	64.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
18.000	72.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
19.000	76.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
21.000	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
22.000	88.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
24.000	96.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
26.000	104.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.4576	#
28.000	112.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
31.000	124.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
33.000	132.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
36.000	144.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
39.000	156.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
42.000	168.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
45.000	180.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
49.000	196.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
53.000	212.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#
57.000	228.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.9325	#7	0.0	#
62.000	248.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#
67.000	268.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
72.000	288.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
78.000	312.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
85.000	340.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
92.000	368.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
99.000	396.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
100.000	400.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
110.000	440.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
120.000	480.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#
130.000	520.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9997	#6	0.0	#7	0.0	#
140.000	560.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.7889	#6	0.0	#7	0.0	#
150.000	600.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0661	#6	0.0	#7	0.0	#
170.000	680.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#
180.000	720.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#
190.000	760.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#

-143-

700MEV/NUC

-144-

EFFICIENCIES OF 5 LEVELS IN THE 4 ABSORBER FOR PARTICLES WITH $Z = 2$. AND $A = 4$.

	0.372MEV/NUC	0.745MEV/NUC	0.987MEV/NUC	1.737MEV/NUC	6.600MEV/NUC							
0.100	0.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.108	0.432	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.110	0.440	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.120	0.480	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.130	0.520	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.140	0.560	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.150	0.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.170	0.680	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.180	0.720	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.200	0.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.210	0.840	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.230	0.920	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.250	1.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.270	1.080	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.290	1.160	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.320	1.280	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.340	1.360	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.370	1.480	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.400	1.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.430	1.720	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.470	1.880	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.500	2.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.550	2.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.590	2.360	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.640	2.560	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.690	2.760	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.750	3.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.810	3.240	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.870	3.480	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.940	3.760	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.000	4.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.100	4.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.190	4.760	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.200	4.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.300	5.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.500	6.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.600	6.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.700	6.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.900	7.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.000	8.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.200	8.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.400	9.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.500	10.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.800	11.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.000	12.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.200	12.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.500	14.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.800	15.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
4.100	16.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
4.400	17.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#

EFFICIENCIES OF		5 LEVELS IN THE		4 ABSORBER FOR PARTICLES WITH Z = 2.		AND A = 4.						
4.800	19.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
5.200	20.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
5.600	22.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
6.000	24.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
6.500	26.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
7.100	28.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
7.600	30.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
8.300	33.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
8.900	35.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
9.700	38.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
10.000	40.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
11.000	44.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
12.000	48.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
13.000	52.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
14.000	56.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
15.000	60.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
16.000	64.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
18.000	72.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
19.000	76.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
21.000	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
22.000	88.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
24.000	96.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
26.000	104.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
28.000	112.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
31.000	124.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
33.000	132.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
36.000	144.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
39.000	156.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
42.000	168.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
45.000	180.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
49.000	196.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
53.000	212.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0001	#
57.000	228.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
62.000	248.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
67.000	268.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
72.000	288.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
78.000	312.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
85.000	340.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
92.000	368.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
99.000	396.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
100.000	400.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
110.000	440.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
120.000	480.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
130.000	520.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
140.000	560.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
150.000	600.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
170.000	680.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
180.000	720.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#
190.000	760.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH Z = 2. AND A = 4.

0.125MEV/NUC

0.100	0.400	#1	0.0	#
0.108	0.432	#1	0.0	#
0.110	0.440	#1	0.0	#
0.120	0.480	#1	0.0	#
0.130	0.520	#1	0.0	#
0.140	0.560	#1	0.0	#
0.150	0.600	#1	0.0	#
0.170	0.680	#1	0.0	#
0.180	0.720	#1	0.0	#
0.200	0.800	#1	0.0	#
0.210	0.840	#1	0.0	#
0.230	0.920	#1	0.0	#
0.250	1.000	#1	0.0	#
0.270	1.080	#1	0.0	#
0.290	1.160	#1	0.0	#
0.320	1.280	#1	0.0	#
0.340	1.360	#1	0.0	#
0.370	1.480	#1	0.0	#
0.400	1.600	#1	0.0	#
0.430	1.720	#1	0.0	#
0.470	1.880	#1	0.0	#
0.500	2.000	#1	0.0	#
0.550	2.200	#1	0.0	#
0.590	2.360	#1	0.0	#
0.640	2.560	#1	0.0	#
0.690	2.760	#1	0.0	#
0.750	3.000	#1	0.0	#
0.810	3.240	#1	0.0	#
0.870	3.480	#1	0.0	#
0.940	3.760	#1	0.0	#
1.000	4.000	#1	0.0	#
1.100	4.400	#1	0.0	#
1.190	4.760	#1	0.0	#
1.200	4.800	#1	0.0	#
1.300	5.200	#1	0.0	#
1.500	6.000	#1	0.0	#
1.600	6.400	#1	0.0	#
1.700	6.800	#1	0.0	#
1.900	7.600	#1	0.0	#
2.000	8.000	#1	0.0	#
2.200	8.800	#1	0.0	#
2.400	9.600	#1	0.0	#
2.500	10.000	#1	0.0	#
2.800	11.200	#1	0.0	#
3.000	12.000	#1	0.0	#
3.200	12.800	#1	0.0	#
3.500	14.000	#1	0.0	#
3.800	15.200	#1	0.0	#
4.100	16.400	#1	0.0	#
4.400	17.600	#1	0.0	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH Z = 2. AND A = 4.

4.800	19.200	#1	0.0	#
5.200	20.800	#1	0.0	#
5.600	22.400	#1	0.0	#
6.000	24.000	#1	0.0	#
6.500	26.000	#1	0.0	#
7.100	28.400	#1	0.0	#
7.600	30.400	#1	0.0	#
8.300	33.200	#1	0.0	#
8.900	35.600	#1	0.0	#
9.700	38.800	#1	0.0	#
10.000	40.000	#1	0.0	#
11.000	44.000	#1	0.0	#
12.000	48.000	#1	0.0	#
13.000	52.000	#1	0.0	#
14.000	56.000	#1	0.0	#
15.000	60.000	#1	0.0	#
16.000	64.000	#1	0.0	#
18.000	72.000	#1	0.0	#
19.000	76.000	#1	0.0	#
21.000	84.000	#1	0.0	#
22.000	88.000	#1	0.0	#
24.000	96.000	#1	0.0	#
26.000	104.000	#1	0.0	#
28.000	112.000	#1	0.0	#
31.000	124.000	#1	0.0	#
33.000	132.000	#1	0.0	#
36.000	144.000	#1	0.0	#
39.000	156.000	#1	0.0	#
42.000	168.000	#1	0.0	#
45.000	180.000	#1	0.0	#
49.000	196.000	#1	0.0	#
53.000	212.000	#1	0.0	#
57.000	228.000	#1	0.0	#
62.000	248.000	#1	0.0	#
67.000	268.000	#1	0.0	#
72.000	288.000	#1	0.0	#
78.000	312.000	#1	0.0	#
85.000	340.000	#1	0.0	#
92.000	368.000	#1	0.0	#
99.000	396.000	#1	0.0	#
100.000	400.000	#1	0.0	#
110.000	440.000	#1	0.0	#
120.000	480.000	#1	0.0	#
130.000	520.000	#1	0.0	#
140.000	560.000	#1	0.0	#
150.000	600.000	#1	1.0000	#
170.000	680.000	#1	1.0000	#
180.000	720.000	#1	1.0000	#
190.000	760.000	#1	1.0000	#

9.7 Alpha-Channel and P-Channel Efficiencies for Alpha Particles

The following table given the efficiencies of the P-channels (columns 2 through 12) as functions of incident energy in MeV/nucleon (column 1) and MeV (column 13). Column 1 and 13 are identical for protons, of course, but for alphas and other heavier nuclei the two entries are not redundant.

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 2. AND A = 4.

EINC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	ALPHA 1	ALPHA 2	ALPHA 3
0.1000	0.309	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.400
0.1080	0.641	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.432
0.1100	0.719	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.440
0.1200	0.953	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.480
0.1300	0.998	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.520
0.1400	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.560
0.1500	0.994	0.006	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.600
0.1700	0.524	0.476	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.680
0.1800	0.109	0.891	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.720
0.2000	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.800
0.2100	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.840
0.2300	0.000	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.920
0.2500	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000
0.2700	0.0	0.998	0.002	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.080
0.2900	0.0	0.565	0.435	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.160
0.3200	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.280
0.3400	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.360
0.3700	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.480
0.4000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.600
0.4300	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.720
0.4700	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.880
0.5000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.000
0.5500	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.200
0.5900	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000	0.0	0.0	2.360
0.6400	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.414	0.0	0.0	2.560
0.6900	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	2.760
0.7500	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	3.000
0.8100	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	3.240
0.8700	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	3.480
0.9400	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	3.760
1.0000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	4.000
1.1000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	4.400
1.1900	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	4.760
1.2000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	4.800
1.3000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	5.200
1.5000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	6.000
1.6000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	6.400
1.7000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	1.000	0.0	6.800
1.9000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	7.600
2.0000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	8.000
2.2000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	8.800
2.4000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.000	9.600
2.5000	0.0	0.0	0.0	0.0	1.000	0.982	0.0	0.0	0.0	0.0	0.0	0.0	1.000	10.000
2.8000	0.0	0.0	0.0	0.0	0.018	1.000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	11.200
3.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	12.000
3.2000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	12.800
3.5000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	14.000
3.8000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	15.200
4.1000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.995	16.400
4.4000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.920	17.600

EINC	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	ALPHA 1	ALPHA 2	ALPHA 3	
4.8000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	19.200
5.2000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.800
5.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	22.400
6.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	24.000
6.5000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	26.000
7.1000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.400
7.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	30.400
8.3000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	33.200
8.9000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.600
9.7000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	38.800
10.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	40.000
11.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.000
12.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	48.000
13.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	52.000
14.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	56.000
15.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.000
16.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.000
18.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	72.000
19.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	76.000
21.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	84.000
22.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	88.000
24.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	96.000
26.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	104.000
28.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	112.000
31.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	124.000
33.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	132.000
36.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	144.000
39.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	156.000
42.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	168.000
45.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	180.000
49.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	196.000
53.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	212.000
57.0000	0.0	0.0	0.0	0.0	0.0	0.932	0.067	0.0	0.0	0.0	0.0	0.0	0.0	0.0	228.000
62.0000	0.0	0.0	0.0	0.0	0.0	0.000	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	248.000
67.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	268.000
72.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	288.000
78.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	312.000
85.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	340.000
92.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	368.000
99.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	396.000
100.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	400.000
110.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	440.000
120.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	480.000
130.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.000	0.0	0.0	0.0	0.0	0.0	0.0	520.000
140.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.789	0.211	0.0	0.0	0.0	0.0	0.0	0.0	560.000
150.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	600.000
170.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	680.000
180.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	720.000
190.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	760.000

	EINC	ALPHA 4	ALPHA 5	ALPHA 6	
(	0.1000	0.0	0.0	0.0	0.400
	0.1080	0.0	0.0	0.0	0.432
	0.1100	0.0	0.0	0.0	0.440
	0.1200	0.0	0.0	0.0	0.480
(	0.1300	0.0	0.0	0.0	0.520
	0.1400	0.0	0.0	0.0	0.560
	0.1500	0.0	0.0	0.0	0.600
(	0.1700	0.0	0.0	0.0	0.680
	0.1800	0.0	0.0	0.0	0.720
	0.2000	0.0	0.0	0.0	0.800
(	0.2100	0.0	0.0	0.0	0.840
	0.2300	0.0	0.0	0.0	0.880
	0.2500	0.0	0.0	0.0	0.920
(	0.2700	0.0	0.0	0.0	1.000
	0.2900	0.0	0.0	0.0	1.080
	0.3200	0.0	0.0	0.0	1.160
(	0.3400	0.0	0.0	0.0	1.280
	0.3700	0.0	0.0	0.0	1.360
	0.4000	0.0	0.0	0.0	1.480
(	0.4300	0.0	0.0	0.0	1.600
	0.4700	0.0	0.0	0.0	1.720
	0.5000	0.0	0.0	0.0	1.880
(	0.5500	0.0	0.0	0.0	2.000
	0.5900	0.0	0.0	0.0	2.200
	0.6400	0.0	0.0	0.0	2.360
(	0.6900	0.0	0.0	0.0	2.560
	0.7500	0.0	0.0	0.0	2.760
	0.8100	0.0	0.0	0.0	3.000
(	0.8700	0.0	0.0	0.0	3.240
	0.9400	0.0	0.0	0.0	3.480
	1.0000	0.0	0.0	0.0	3.760
(	1.1000	0.0	0.0	0.0	4.000
	1.1900	0.0	0.0	0.0	4.400
	1.2000	0.0	0.0	0.0	4.760
(	1.3000	0.0	0.0	0.0	4.800
	1.5000	0.0	0.0	0.0	5.200
	1.6000	0.0	0.0	0.0	6.000
(	1.7000	0.0	0.0	0.0	6.400
	1.9000	0.0	0.0	0.0	6.800
	2.0000	0.0	0.0	0.0	7.600
(	2.2000	0.0	0.0	0.0	8.000
	2.4000	0.0	0.0	0.0	8.800
	2.5000	0.0	0.0	0.0	9.600
(	2.8000	0.0	0.0	0.0	10.000
	3.0000	0.0	0.0	0.0	11.200
	3.2000	0.0	0.0	0.0	12.000
(	3.5000	0.0	0.0	0.0	12.800
	3.8000	0.0	0.0	0.0	14.000
	4.1000	0.0	0.0	0.0	15.200
(	4.4000	1.000	0.0	0.0	16.400
			0.0	0.0	17.600

EINC	ALPHA 4	ALPHA 5	ALPHA 6	
4.8000	1.000	0.0	0.0	19.200
5.2000	1.000	0.0	0.0	20.800
5.6000	1.000	0.0	0.0	22.400
6.0000	1.000	0.0	0.0	24.000
6.5000	1.000	0.0	0.0	26.000
7.1000	1.000	0.0	0.0	28.400
7.6000	1.000	0.0	0.0	30.400
8.3000	1.000	0.0	0.0	33.200
8.9000	1.000	0.0	0.0	35.600
9.7000	1.000	0.0	0.0	38.800
10.0000	1.000	0.0	0.0	40.000
11.0000	1.000	0.0	0.0	44.000
12.0000	0.0	0.0	0.0	48.000
13.0000	0.0	0.0	0.0	52.000
14.0000	0.0	1.000	0.0	56.000
15.0000	0.0	1.000	0.0	60.000
16.0000	0.0	1.000	0.0	64.000
18.0000	0.0	1.000	0.0	72.000
19.0000	0.0	1.000	0.0	76.000
21.0000	0.0	1.000	0.0	84.000
22.0000	0.0	1.000	0.0	88.000
24.0000	0.0	1.000	0.0	96.000
26.0000	0.0	0.458	0.542	104.000
28.0000	0.0	0.0	1.000	112.000
31.0000	0.0	0.0	1.000	124.000
33.0000	0.0	0.0	1.000	132.000
36.0000	0.0	0.0	1.000	144.000
39.0000	0.0	0.0	1.000	156.000
42.0000	0.0	0.0	1.000	168.000
45.0000	0.0	0.0	1.000	180.000
49.0000	0.0	0.0	1.000	196.000
53.0000	0.0	0.0	0.000	212.000
57.0000	0.0	0.0	0.0	228.000
62.0000	0.0	0.0	0.0	248.000
67.0000	0.0	0.0	0.0	268.000
72.0000	0.0	0.0	0.0	288.000
78.0000	0.0	0.0	0.0	312.000
85.0000	0.0	0.0	0.0	340.000
92.0000	0.0	0.0	0.0	368.000
99.0000	0.0	0.0	0.0	396.000
100.0000	0.0	0.0	0.0	400.000
110.0000	0.0	0.0	0.0	440.000
120.0000	0.0	0.0	0.0	480.000
130.0000	0.0	0.0	0.0	520.000
140.0000	0.0	0.0	0.0	560.000
150.0000	0.0	0.0	0.0	600.000
170.0000	0.0	0.0	0.0	680.000
180.0000	0.0	0.0	0.0	720.000
190.0000	0.0	0.0	0.0	760.000

10. Response of Telescope to Nitrogen

10.1 Range-Energy Table for Nitrogen in Silicon for .2 to 390
MeV/Nucleon

The units of "Range" and "Stragglings" in the following table are cm. "Stragglings" is an approximation to the rms fluctuation of the range distribution and is included here only incidentally. No subsequent use is made of "stragglings" in later calculations. Fluctuations in the energy loss signal are accounted for by a different method.

RANGE-ENERGY TABLE FOR Z = 7.000 AND A = 14.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
0.2000	0.000313	0.000002
0.2100	0.000324	0.000002
0.2300	0.000345	0.000003
0.2500	0.000365	0.000005
0.2700	0.000385	0.000005
0.2900	0.000405	0.000005
0.3100	0.000425	0.000005
0.3400	0.000455	0.000004
0.3700	0.000485	0.000003
0.4000	0.000514	0.000002
0.4300	0.000544	0.000002
0.4600	0.000573	0.000002
0.5000	0.000612	0.000003
0.5400	0.000651	0.000003
0.5900	0.000701	0.000003
0.6400	0.000751	0.000003
0.6900	0.000801	0.000003
0.7400	0.000852	0.000003
0.8000	0.000912	0.000003
0.8700	0.000985	0.000004
0.9400	0.001059	0.000004
1.0000	0.001122	0.000004
1.1000	0.001231	0.000006
1.1900	0.001330	0.000009
1.2000	0.001341	0.000010
1.3000	0.001453	0.000011
1.5000	0.001686	0.000008
1.6000	0.001803	0.000007
1.7000	0.001929	0.000007
1.8000	0.002055	0.000007
2.0000	0.002309	0.000008
2.2000	0.002584	0.000014
2.3000	0.002723	0.000017
2.5000	0.003004	0.000026
2.7000	0.003310	0.000022
3.0000	0.003780	0.000018
3.2000	0.004100	0.000016
3.5000	0.004624	0.000018
3.8000	0.005163	0.000020
4.1000	0.005728	0.000022
4.4000	0.006332	0.000024
4.8000	0.007164	0.000028
5.1000	0.007818	0.000030
5.6000	0.008982	0.000035
6.0000	0.009950	0.000039
6.5000	0.011250	0.000043
7.0000	0.012605	0.000049
7.6000	0.014346	0.000055
8.2000	0.016181	0.000062
8.9000	0.018453	0.000070

RANGE-ENERGY TABLE FOR Z = 7.000 AND A = 14.000 PARTICLES IN SILICON

ENERGY	RANGE	STRAGGLING
9.6000	0.020871	0.000079
10.0000	0.022307	0.000085
11.0000	0.026109	0.000098
12.0000	0.030189	0.000113
13.0000	0.034377	0.000129
14.0000	0.038817	0.000145
15.0000	0.043511	0.000162
16.0000	0.048452	0.000180
17.0000	0.053644	0.000199
19.0000	0.064746	0.000238
20.0000	0.070658	0.000259
22.0000	0.083185	0.000303
24.0000	0.096642	0.000350
26.0000	0.111010	0.000400
28.0000	0.126274	0.000452
30.0000	0.142425	0.000507
33.0000	0.168267	0.000594
36.0000	0.196028	0.000687
39.0000	0.225660	0.000786
42.0000	0.257139	0.000889
45.0000	0.290401	0.000998
49.0000	0.337538	0.001151
53.0000	0.387747	0.001313
57.0000	0.440975	0.001483
62.0000	0.511665	0.001708
67.0000	0.586858	0.001944
72.0000	0.666454	0.002193
78.0000	0.767620	0.002506
84.0000	0.874774	0.002836
91.0000	1.007262	0.003240
99.0000	1.168119	0.003726
100.0000	1.188946	0.003789
110.0000	1.405287	0.004436
120.0000	1.636189	0.005119
130.0000	1.881188	0.005838
140.0000	2.139798	0.006590
150.0000	2.411409	0.007373
170.0000	2.992023	0.009027
180.0000	3.300178	0.009896
190.0000	3.619732	0.010791
210.0000	4.291338	0.012652
230.0000	5.004015	0.014604
250.0000	5.755204	0.016638
270.0000	6.542566	0.018747
290.0000	7.363897	0.020927
310.0000	8.217212	0.023169
340.0000	9.553074	0.026642
370.0000	10.951100	0.030234
390.0000	11.915023	0.032687

NUMBER OF INPUT PARTICLES SELECTED = 1

PARTICLE TYPES SELECTED ARE 9

10.2 Telescope Stack Parameters

This table summarizes the properties of the Proton-Electron-Telescope for particle incident parallel to the telescope axis. Detector and electronic noise and thickness inhomogeneity are included in the calculation of the passband edge shapes. Computer runs for particles with oblique incidence were made and the results showed no important quantitative or qualitative differences from those tabulated herein. The entries in the table are self-explanatory except for the second row wherein the absorber type is given. "3." denotes nickel; "2." denotes silicon; and "4." denotes a tungsten alloy block. The tungsten penetration is calculated approximately from the range-energy relations for gold and the effective thickness is chosen to match the experimentally measured penetration energy for protons. The passbands are relatively insensitive to the details of the last two absorbers. The elements of the telescope are as follows: nickel foil light shield, nominal 40 micron detector, nominal 900 micron detector, nominal 2700 micron detector, nominal 2 cm tungsten alloy absorber, anticoincidence cup. The anticoincidence cup is plastic scintillator and is used to place a maximum upper limit to the passbands due to complete penetration of the telescope. The veto effect of the scintillator is simulated by including a .5 MeV threshold in a .5 cm silicon slab. This procedure adequately represents the experimental passbands and is used for simplicity here.

PARAMETERS OF ABSORBER STACK

ABSORBER THICKNESSES, MICFCNS	0.347	38.700	900.000	2700.000	14572.992	5000.000
ABSORBER MATERIAL	3.	2.	2.	2.	4.	2.
THICKNESS VARIATION, MICRONS	0.0100	3.8700	5.0000	10.0000	0.0	50.0000
CONICAL HALF ANGLE, DEGREES	0.0	0.0	0.0	0.0	0.0	0.0
DETECTOR NOISE, MEV	0.0	0.070	0.027	0.023	0.0	0.100
ELECTRONIC NOISE, MEV	0.0	0.0	0.0	0.0	0.0	0.0
NUMBER OF THRESHOLDS SET	0.0	8.0	7.0	5.0	0.0	1.0
THRESHOLD LEVEL NO. MEV 1	0.0	0.1700	0.1960	1.4900	0.0	0.5000
THRESHOLD LEVEL NO. MEV 2	0.0	0.2100	0.2090	2.9800	0.0	0.0
THRESHOLD LEVEL NO. MEV 3	0.0	0.4400	0.4560	3.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV 4	0.0	0.9250	0.8090	6.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV 5	0.0	2.3800	3.8200	26.4000	0.0	0.0
THRESHOLD LEVEL NO. MEV 6	0.0	4.4800	7.5100	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV 7	0.0	9.4800	14.8000	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV 8	0.0	21.2000	0.0	0.0	0.0	0.0
AVERAGE PROJECTED DEPTH, MIC	0.347	38.700	900.000	2700.000	14572.992	5000.000
EST. RMS VARN. PROJ. DEPTH, MIC	0.0	0.0	0.0	0.0	0.0	0.0
NET RMS THICKNESS VARN. (MIC)	0.0100	3.8700	5.0000	10.0000	0.0	50.0000
LOWER LIMIT THICKNESS (MIC)	0.337	34.830	895.000	2689.999	14572.992	4949.999
UPPER LIMIT THICKNESS (MIC)	0.357	42.570	904.999	2710.000	14572.992	5050.000

10.3 Logical Definitions of Z1, Z2, and Alpha-Channels

The following table, when used with the preceeding (Section 9.3) summary of the telescope parameters, completely defines the P-channels for the telescope. The interpretation of the entries of the table is that the numbers when taken in groups of three represent absorber number, threshold number, logical yes or no. The label of each channel is the last column on the right. For example, the first row of the table represents the channel P1 with the functions $A_2 \bar{A}_3 B_2 \bar{M}$. Plus one equals "yes" and minus one equals "no". The channels then represent the logical intersection of the threshold efficiencies.

LOGIC TABLE FOR 8 CHANNELS

2	7	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Z1
2	8	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	Z2
2	5	1	2	6	-1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 1
2	6	1	3	2	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 2
2	5	1	3	2	1	3	7	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 3
2	1	1	3	7	1	4	1	-1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 4
3	7	1	4	5	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 5
3	5	1	3	7	-1	4	5	1	6	1	-1	0	0	0	0	0	0	0	0	0	0	0	0	ALPHA 6

10.4 Intrinsic Fluctuations in Energy Losses of Nitrogen in Telescope Elements

From left to right in the table the entries are: Z of projectile, A of projectile, standard deviations in KeV/nucleon of the energy loss signal in each of the telescope elements. The calculation is based on an approximation of Bohr for the statistical fluctuations expected when the particle is well above the absorber penetration energy. The subsequent calculations of the passbands utilize this fluctuation as one source of the width of the energy loss signal.

INTRINSIC FLUCTUATIONS IN ENERGY LOSS(KEV/NUC) CALC FROM BOHR FORMULA

Z	A						
7.	14.	0.909	5.020	24.208	41.930	251.602	57.060

10.5 Energy Losses of Nitrogen Nuclei Incident on Telescope Elements

These tables are tabulations of the energy loss versus incident energy for each of the elements of the telescope. The entries labelled DDELTAEL, DDELTAE2, etc., are estimates of the FWHM of the energy loss signal which has contributions from detector noise, electronic noise, thickness inhomogeneity, and intrinsic statistical fluctuations.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 7 AND A = 14.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
0.200	0.073	0.002*	0.127	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.210	0.074	0.002*	0.136	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.230	0.076	0.002*	0.154	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.250	0.079	0.002*	0.171	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.270	0.080	0.002*	0.190	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.290	0.082	0.002*	0.208	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.310	0.083	0.002*	0.227	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.340	0.085	0.002*	0.255	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.370	0.086	0.002*	0.284	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.400	0.088	0.003*	0.312	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.430	0.088	0.002*	0.342	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.460	0.089	0.003*	0.371	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.500	0.090	0.003*	0.410	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.540	0.091	0.003*	0.449	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.590	0.091	0.003*	0.499	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.640	0.091	0.003*	0.549	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.690	0.091	0.003*	0.599	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.740	0.091	0.003*	0.649	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.800	0.091	0.003*	0.709	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.870	0.091	0.003*	0.779	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.940	0.090	0.003*	0.850	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.000	0.088	0.003*	0.912	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.100	0.087	0.002*	1.013	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.190	0.088	0.003*	1.102	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.200	0.088	0.003*	1.112	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.300	0.086	0.003*	1.214	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.500	0.084	0.002*	1.416	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.600	0.085	0.002*	1.515	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.700	0.079	0.002*	1.621	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.800	0.079	0.002*	1.721	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.000	0.079	0.002*	1.921	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.200	0.074	0.002*	2.126	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.300	0.073	0.002*	2.227	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.500	0.073	0.002*	2.427	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.700	0.067	0.002*	2.633	0.005*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.000	0.066	0.002*	2.934	0.094*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.200	0.066	0.002*	3.088	0.199*	0.047	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.500	0.060	0.002*	2.904	0.383*	0.536	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.800	0.059	0.002*	2.682	0.357*	1.059	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.100	0.054	0.002*	2.490	0.322*	1.556	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.400	0.053	0.002*	2.314	0.291*	2.033	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.800	0.051	0.001*	2.129	0.257*	2.619	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.100	0.048	0.001*	2.015	0.241*	3.038	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.600	0.046	0.001*	1.842	0.214*	3.712	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.000	0.045	0.001*	1.734	0.193*	4.221	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.500	0.041	0.001*	1.608	0.181*	4.850	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.000	0.040	0.001*	1.511	0.165*	5.449	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.600	0.037	0.001*	1.401	0.150*	6.162	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.200	0.035	0.001*	1.312	0.142*	6.853	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.900	0.033	0.001*	1.224	0.130*	7.642	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *

10.5.1 The Units of this Table are in MeV/Nucleon Throughout

ENERGY LOSS TABLE FOR PARTICLES OF Z = 7 AND A = 14.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
9.600	0.031	0.001*	1.146	0.120*	8.422	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
10.000	0.031	0.001*	1.108	0.117*	8.861	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
11.000	0.029	0.001*	1.021	0.107*	9.950	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
12.000	0.027	0.001*	0.949	0.098*	11.024	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
13.000	0.026	0.001*	0.923	0.094*	12.051	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
14.000	0.024	0.001*	0.870	0.089*	13.106	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
15.000	0.023	0.001*	0.822	0.084*	14.155	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
16.000	0.022	0.001*	0.780	0.080*	15.198	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
17.000	0.021	0.001*	0.742	0.076*	16.237	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
19.000	0.019	0.001*	0.679	0.069*	18.302	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
20.000	0.019	0.001*	0.651	0.066*	19.330	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
22.000	0.017	0.001*	0.604	0.061*	21.379	0.002*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
24.000	0.016	0.001*	0.563	0.057*	21.167	0.360*	2.254	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
26.000	0.015	0.001*	0.528	0.053*	16.992	0.155*	8.465	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
28.000	0.014	0.001*	0.497	0.050*	14.980	0.119*	12.508	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
30.000	0.014	0.001*	0.470	0.048*	13.518	0.099*	15.998	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
33.000	0.013	0.001*	0.435	0.044*	11.959	0.081*	20.593	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
36.000	0.012	0.001*	0.406	0.041*	10.816	0.070*	24.766	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
39.000	0.011	0.001*	0.381	0.039*	9.927	0.062*	28.680	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
42.000	0.011	0.001*	0.360	0.036*	9.206	0.057*	32.424	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
45.000	0.010	0.001*	0.341	0.035*	8.608	0.052*	36.041	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
49.000	0.009	0.001*	0.319	0.032*	7.945	0.047*	40.727	0.002*	0.0	0.0 *	0.0	0.0 *	0.0 *
53.000	0.009	0.001*	0.300	0.030*	7.397	0.044*	34.904	0.265*	10.390	0.0 *	0.0	0.0 *	0.0 *
57.000	0.008	0.001*	0.283	0.029*	6.936	0.041*	28.744	0.160*	21.028	0.0 *	0.0	0.0 *	0.0 *
62.000	0.008	0.001*	0.266	0.027*	6.449	0.037*	24.649	0.119*	30.628	0.0 *	0.0	0.0 *	0.0 *
67.000	0.007	0.001*	0.250	0.026*	6.041	0.035*	21.976	0.099*	38.726	0.0 *	0.0	0.0 *	0.0 *
72.000	0.007	0.001*	0.237	0.024*	5.690	0.033*	20.016	0.086*	46.049	0.0 *	0.0	0.0 *	0.0 *
78.000	0.007	0.001*	0.223	0.023*	5.332	0.030*	18.220	0.076*	54.218	0.0 *	0.0	0.0 *	0.0 *
84.000	0.006	0.001*	0.211	0.022*	5.027	0.029*	16.816	0.069*	61.940	0.0 *	0.0	0.0 *	0.0 *
91.000	0.006	0.001*	0.199	0.021*	4.717	0.027*	15.507	0.062*	70.572	0.0 *	0.0	0.0 *	0.0 *
99.000	0.006	0.001*	0.187	0.019*	4.420	0.025*	14.307	0.057*	80.081	0.0 *	0.0	0.0 *	0.0 *
100.000	0.006	0.001*	0.185	0.019*	4.385	0.025*	14.173	0.056*	81.252	0.0 *	0.0	0.0 *	0.0 *
110.000	0.005	0.001*	0.173	0.018*	4.079	0.024*	13.007	0.051*	92.736	0.0 *	0.0	0.0 *	0.0 *
120.000	0.005	0.001*	0.162	0.017*	3.825	0.024*	12.073	0.047*	103.934	0.0 *	0.0	0.0 *	0.0 *
130.000	0.005	0.001*	0.153	0.016*	3.608	0.024*	11.305	0.043*	114.928	0.0 *	0.0	0.0 *	0.0 *
140.000	0.004	0.001*	0.146	0.015*	3.421	0.024*	10.657	0.042*	125.771	0.0 *	0.0	0.0 *	0.0 *
150.000	0.004	0.001*	0.139	0.015*	3.260	0.024*	10.106	0.042*	136.490	0.0 *	0.0	0.0 *	0.0 *
170.000	0.004	0.001*	0.128	0.014*	2.993	0.024*	9.212	0.042*	157.663	0.0 *	0.0	0.0 *	0.0 *
180.000	0.004	0.001*	0.123	0.013*	2.880	0.024*	8.844	0.042*	168.149	0.0 *	0.0	0.0 *	0.0 *
190.000	0.004	0.001*	0.119	0.013*	2.779	0.024*	8.515	0.042*	178.583	0.0 *	0.0	0.0 *	0.0 *
210.000	0.003	0.001*	0.112	0.012*	2.606	0.024*	7.958	0.042*	199.320	0.0 *	0.0	0.0 *	0.0 *
230.000	0.003	0.001*	0.106	0.012*	2.463	0.024*	7.502	0.042*	219.927	0.0 *	0.0	0.0 *	0.0 *
250.000	0.003	0.001*	0.100	0.011*	2.343	0.024*	7.120	0.042*	240.434	0.0 *	0.0	0.0 *	0.0 *
270.000	0.003	0.001*	0.096	0.011*	2.239	0.024*	6.794	0.042*	260.868	0.0 *	0.0	0.0 *	0.0 *
290.000	0.003	0.001*	0.092	0.010*	2.151	0.024*	6.516	0.042*	281.238	0.0 *	0.0	0.0 *	0.0 *
310.000	0.003	0.001*	0.089	0.010*	2.073	0.024*	6.274	0.042*	278.791	0.252*	22.771	0.007*	
340.000	0.003	0.001*	0.085	0.010*	1.975	0.024*	5.968	0.042*	224.977	0.252*	24.982	0.278*	
370.000	0.002	0.001*	0.081	0.010*	1.892	0.024*	5.711	0.042*	202.476	0.252*	17.916	0.187*	
390.000	0.002	0.001*	0.079	0.009*	1.844	0.024*	5.563	0.042*	192.004	0.252*	15.777	0.163*	

UNITS FOR ABOVE TABLE ARE MEV/NUC

ENERGY LOSS TABLE FOR PARTICLES OF Z = 7 AND A = 14.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
2.800	1.02	0.027	1.78	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2.940	1.04	0.028	1.90	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.220	1.07	0.029	2.15	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.500	1.10	0.030	2.40	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3.780	1.12	0.031	2.66	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.060	1.14	0.031	2.92	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.340	1.17	0.032	3.17	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.760	1.19	0.033	3.57	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.180	1.21	0.034	3.97	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5.600	1.23	0.035	4.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.020	1.24	0.035	4.78	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6.440	1.25	0.036	5.19	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.000	1.26	0.035	5.74	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7.560	1.27	0.036	6.29	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.260	1.27	0.037	6.99	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8.960	1.28	0.037	7.68	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9.660	1.27	0.037	8.39	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.360	1.27	0.037	9.09	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.200	1.27	0.036	9.93	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.180	1.27	0.037	10.91	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13.160	1.26	0.037	11.90	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.000	1.24	0.035	12.76	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.400	1.22	0.035	14.18	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.660	1.23	0.035	15.43	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.800	1.23	0.035	15.57	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18.200	1.20	0.036	17.00	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21.000	1.18	0.034	19.82	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.400	1.18	0.034	21.22	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23.800	1.11	0.032	22.69	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.200	1.11	0.032	24.09	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28.000	1.11	0.032	26.89	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
30.800	1.03	0.030	29.77	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
32.200	1.03	0.030	31.17	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35.000	1.02	0.029	33.98	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.800	0.94	0.027	36.86	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
42.000	0.93	0.027	41.07	1.313	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44.800	0.92	0.026	43.23	2.783	0.65	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
49.000	0.84	0.024	40.65	5.364	7.51	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
53.200	0.82	0.024	37.55	5.002	14.83	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
57.400	0.75	0.022	34.86	4.511	21.78	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61.600	0.74	0.021	32.39	4.079	28.47	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.200	0.72	0.021	29.81	3.603	36.67	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
71.400	0.67	0.019	28.20	3.371	42.53	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.400	0.64	0.019	25.79	2.997	51.96	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.000	0.63	0.018	24.28	2.702	59.10	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
91.000	0.58	0.017	22.52	2.539	67.90	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
98.000	0.56	0.016	21.15	2.308	76.29	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106.400	0.52	0.015	19.61	2.101	86.27	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
114.800	0.49	0.014	18.37	1.985	95.94	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
124.600	0.47	0.014	17.14	1.820	106.99	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0

10.5.2 The Units of this Table are in MeV/Nucleon Throughout

ENERGY LOSS TABLE FOR PARTICLES OF Z = 7 AND A = 14.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
134.400	0.44	0.013	16.05	1.685	117.91	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.000	0.43	0.013	15.51	1.634	124.06	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
154.000	0.40	0.013	14.29	1.491	139.30	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
168.000	0.38	0.013	13.28	1.373	154.34	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
182.000	0.36	0.013	12.93	1.317	168.71	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
196.000	0.34	0.013	12.18	1.245	183.48	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
210.000	0.32	0.013	11.51	1.175	198.17	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
224.000	0.31	0.013	10.92	1.113	212.77	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
238.000	0.30	0.013	10.39	1.057	227.31	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
266.000	0.27	0.013	9.50	0.965	256.23	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
280.000	0.26	0.013	9.11	0.925	270.63	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
308.000	0.24	0.013	8.46	0.857	299.30	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
336.000	0.23	0.013	7.88	0.798	296.33	5.038	31.56	0.023	0.0	0.0	0.0	0.0	0.0
364.000	0.21	0.013	7.39	0.747	237.89	2.169	118.51	0.023	0.0	0.0	0.0	0.0	0.0
392.000	0.20	0.013	6.96	0.704	209.72	1.671	175.11	0.023	0.0	0.0	0.0	0.0	0.0
420.000	0.19	0.013	6.58	0.666	189.25	1.382	223.97	0.023	0.0	0.0	0.0	0.0	0.0
462.000	0.18	0.013	6.10	0.617	167.42	1.134	288.30	0.023	0.0	0.0	0.0	0.0	0.0
504.000	0.17	0.013	5.69	0.576	151.42	0.981	346.72	0.023	0.0	0.0	0.0	0.0	0.0
546.000	0.16	0.013	5.34	0.541	138.98	0.874	401.53	0.023	0.0	0.0	0.0	0.0	0.0
588.000	0.15	0.013	5.04	0.510	128.88	0.794	453.94	0.023	0.0	0.0	0.0	0.0	0.0
630.000	0.14	0.013	4.78	0.484	120.51	0.731	504.57	0.023	0.0	0.0	0.0	0.0	0.0
686.000	0.13	0.013	4.46	0.453	111.23	0.664	570.17	0.023	0.0	0.0	0.0	0.0	0.0
742.000	0.12	0.013	4.20	0.427	103.56	0.612	488.66	3.708	145.46	0.0	0.0	0.0	0.0
798.000	0.12	0.013	3.97	0.404	97.10	0.569	402.42	2.233	294.39	0.0	0.0	0.0	0.0
868.000	0.11	0.013	3.72	0.379	90.29	0.525	345.09	1.661	428.80	0.0	0.0	0.0	0.0
938.000	0.10	0.013	3.50	0.358	84.57	0.488	307.66	1.382	542.16	0.0	0.0	0.0	0.0
1008.000	0.10	0.013	3.32	0.340	79.66	0.458	280.23	1.207	644.69	0.0	0.0	0.0	0.0
1092.000	0.09	0.013	3.12	0.320	74.65	0.427	255.08	1.064	759.05	0.0	0.0	0.0	0.0
1176.000	0.09	0.013	2.95	0.304	70.38	0.401	235.42	0.961	867.16	0.0	0.0	0.0	0.0
1274.000	0.08	0.013	2.79	0.288	66.04	0.375	217.09	0.870	988.00	0.0	0.0	0.0	0.0
1386.000	0.08	0.013	2.61	0.271	61.87	0.351	200.30	0.791	1121.14	0.0	0.0	0.0	0.0
1400.000	0.08	0.013	2.59	0.269	61.38	0.348	198.42	0.783	1137.52	0.0	0.0	0.0	0.0
1540.000	0.07	0.013	2.42	0.252	57.10	0.340	182.10	0.709	1298.31	0.0	0.0	0.0	0.0
1680.000	0.07	0.013	2.27	0.238	53.55	0.340	169.03	0.653	1455.08	0.0	0.0	0.0	0.0
1820.000	0.06	0.013	2.15	0.226	50.52	0.340	158.27	0.607	1608.99	0.0	0.0	0.0	0.0
1960.000	0.06	0.013	2.04	0.216	47.90	0.340	149.20	0.587	1760.80	0.0	0.0	0.0	0.0
2100.000	0.06	0.013	1.95	0.207	45.65	0.340	141.48	0.587	1910.86	0.0	0.0	0.0	0.0
2380.000	0.05	0.013	1.79	0.192	41.90	0.340	128.97	0.587	2207.29	0.0	0.0	0.0	0.0
2520.000	0.05	0.013	1.72	0.186	40.32	0.340	123.81	0.587	2354.09	0.0	0.0	0.0	0.0
2660.000	0.05	0.013	1.66	0.181	38.91	0.340	119.22	0.587	2500.16	0.0	0.0	0.0	0.0
2940.000	0.05	0.013	1.56	0.171	36.49	0.340	111.42	0.587	2790.48	0.0	0.0	0.0	0.0
3220.000	0.04	0.013	1.48	0.163	34.48	0.340	105.02	0.587	3078.97	0.0	0.0	0.0	0.0
3500.000	0.04	0.013	1.41	0.157	32.80	0.340	99.68	0.587	3366.07	0.0	0.0	0.0	0.0
3780.000	0.04	0.013	1.34	0.152	31.35	0.340	95.11	0.587	3652.15	0.0	0.0	0.0	0.0
4060.000	0.04	0.013	1.29	0.147	30.11	0.340	91.22	0.587	3937.34	0.0	0.0	0.0	0.0
4340.000	0.04	0.013	1.25	0.143	29.02	0.340	87.83	0.587	3903.07	3.522	318.80	0.100	
4760.000	0.04	0.013	1.19	0.138	27.64	0.340	83.55	0.587	3149.67	3.522	349.74	3.885	
5180.000	0.03	0.013	1.14	0.134	26.49	0.340	79.96	0.587	2834.66	3.522	250.82	2.620	
5460.000	0.03	0.013	1.11	0.131	25.81	0.340	77.89	0.587	2688.05	3.522	220.88	2.276	

UNITS FOR ABOVE TABLE ARE MEV, TOTAL ENERGY

10.6 Level Efficiencies for Thresholds in Telescope Elements A(absorber #2), B(absorber #3), C(absorber #4) and Scintillator(absorber #6)

The entries in the following table have the significance:

Column 1, incident energy (MeV/nucleon)

Column 2, incident energy (MeV)

Column 3, incident energy, efficiency of thresholds #1 ...

EFFICIENCIES OF 8 LEVELS IN THE 2 ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.

0.012MEV/NUC 0.015MEV/NUC 0.031MEV/NUC 0.066MEV/NUC 0.170MEV/NUC 0.320MEV/NUC 0.677MEV/NUC 1.514MEV/NUC

0.200	2.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.210	2.940	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
0.230	3.220	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
0.250	3.500	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.7216	#6	0.0	#7	0.0	#8	0.0
0.270	3.780	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.290	4.060	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.310	4.340	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.340	4.760	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.370	5.180	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.400	5.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0001	#7	0.0	#8	0.0
0.430	6.020	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.460	6.440	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.500	7.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.540	7.560	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.590	8.260	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.640	8.960	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.690	9.660	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.740	10.360	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.800	11.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.870	12.180	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.940	13.160	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.000	14.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.100	15.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.190	16.660	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.200	16.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.300	18.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.500	21.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.600	22.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.7047
1.700	23.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
1.800	25.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
2.000	28.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
2.200	30.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
2.300	32.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
2.500	35.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
2.700	37.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
3.000	42.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
3.200	44.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
3.500	49.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
3.800	53.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.100	57.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.400	61.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.800	67.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
5.100	71.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
5.600	78.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.9998
6.000	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.9963
6.500	91.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.8891
7.000	98.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.4809
7.600	106.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0371
8.200	114.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0004
8.900	124.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0000

EFFICIENCIES OF 8		LEVELS IN THE		2 ABSORBER FOR PARTICLES WITH Z = 7.				AND A = 14.									
9.600	134.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0000
10.000	140.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0000
11.000	154.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
12.000	168.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
13.000	182.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
14.000	196.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
15.000	210.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
16.000	224.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.9989	#8	0.0
17.000	238.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.9787	#8	0.0
19.000	266.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.5223	#8	0.0
20.000	280.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.1748	#8	0.0
22.000	308.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0024	#8	0.0
24.000	336.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0000	#8	0.0
26.000	364.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0000	#8	0.0
28.000	392.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0000	#8	0.0
30.000	420.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
33.000	462.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
36.000	504.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
39.000	546.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.9999	#8	0.0
42.000	588.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.9949	#7	0.0	#8	0.0
45.000	630.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.9253	#7	0.0	#8	0.0
49.000	686.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.4684	#7	0.0	#8	0.0
53.000	742.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0609	#7	0.0	#8	0.0
57.000	798.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0014	#7	0.0	#8	0.0
62.000	868.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
67.000	938.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
72.000	1008.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0000	#7	0.0	#8	0.0
78.000	1092.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
84.000	1176.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
91.000	1274.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9996	#6	0.0	#7	0.0	#8	0.0
99.000	1386.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9788	#6	0.0	#7	0.0	#8	0.0
100.000	1400.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.9693	#6	0.0	#7	0.0	#8	0.0
110.000	1540.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.6437	#6	0.0	#7	0.0	#8	0.0
120.000	1680.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.1471	#6	0.0	#7	0.0	#8	0.0
130.000	1820.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0080	#6	0.0	#7	0.0	#8	0.0
140.000	1960.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0001	#6	0.0	#7	0.0	#8	0.0
150.000	2100.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
170.000	2380.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
180.000	2520.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0000	#6	0.0	#7	0.0	#8	0.0
190.000	2660.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
210.000	2940.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
230.000	3220.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
250.000	3500.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
270.000	3780.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
290.000	4060.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
310.000	4340.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
340.000	4760.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	0.0	#6	0.0	#7	0.0	#8	0.0
370.000	5180.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9999	#5	0.0	#6	0.0	#7	0.0	#8	0.0
390.000	5460.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.9995	#5	0.0	#6	0.0	#7	0.0	#8	0.0

EFFICIENCIES OF 7 LEVELS IN THE 3 ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.

	0.014MEV/NUC	0.015MEV/NUC	0.033MEV/NUC	0.058MEV/NUC	0.273MEV/NUC	0.536MEV/NUC	1.057MEV/NUC									
0.200	2.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.210	2.940	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.230	3.220	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.250	3.500	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.270	3.780	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.290	4.060	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.310	4.340	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.340	4.760	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.370	5.180	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.400	5.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.430	6.020	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.460	6.440	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.500	7.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.540	7.560	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.590	8.260	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.640	8.960	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.690	9.660	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.740	10.360	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.800	11.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.870	12.180	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
0.940	13.160	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.000	14.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.100	15.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.190	16.660	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.200	16.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.300	18.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.500	21.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.600	22.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.700	23.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
1.800	25.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
2.000	28.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
2.200	30.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
2.300	32.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
2.500	35.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
2.700	37.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
3.000	42.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
3.200	44.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	0.0	#5	0.0	#6	0.0	#7	0.0	#
3.500	49.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.5057	#7	0.0	#
3.800	53.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.9870	#
4.100	57.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
4.400	61.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
4.800	67.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
5.100	71.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
5.600	78.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
6.000	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
6.500	91.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
7.000	98.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
7.600	106.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
8.200	114.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#
8.900	124.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#

EFFICIENCIES OF 5 LEVELS IN THE 4 ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.

	0.106MEV/NUC	0.213MEV/NUC	0.282MEV/NUC	0.496MEV/NUC	1.886MEV/NUC						
0.200	2.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.210	2.940	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.230	3.220	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.250	3.500	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.270	3.780	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.290	4.060	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.310	4.340	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.340	4.760	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.370	5.180	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.400	5.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.430	6.020	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.460	6.440	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.500	7.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.540	7.560	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.590	8.260	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.640	8.960	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.690	9.660	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.740	10.360	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.800	11.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.870	12.180	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
0.940	13.160	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.000	14.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.100	15.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.190	16.660	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.200	16.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.300	18.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.500	21.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.600	22.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.700	23.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
1.800	25.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.000	28.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.200	30.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.300	32.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.500	35.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
2.700	37.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.000	42.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.200	44.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.500	49.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
3.800	53.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.100	57.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.400	61.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
4.800	67.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
5.100	71.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
5.600	78.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
6.000	84.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
6.500	91.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
7.000	98.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
7.600	106.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
8.200	114.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				
8.900	124.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#				

EFFICIENCIES OF 5 LEVELS IN THE 4 ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.												
9.600	134.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
10.000	140.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
11.000	154.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
12.000	168.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
13.000	182.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
14.000	196.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
15.000	210.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
16.000	224.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
17.000	238.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
19.000	266.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
20.000	280.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
22.000	308.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
24.000	336.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
26.000	364.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
28.000	392.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
30.000	420.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
33.000	462.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
36.000	504.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
39.000	546.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
42.000	588.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
45.000	630.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
49.000	686.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
53.000	742.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
57.000	798.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
62.000	868.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
67.000	938.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
72.000	1008.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
78.000	1092.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
84.000	1176.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
91.000	1274.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
99.000	1386.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
100.000	1400.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
110.000	1540.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
120.000	1680.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
130.000	1820.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
140.000	1960.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
150.000	2100.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
170.000	2380.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
180.000	2520.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
190.000	2660.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
210.000	2940.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
230.000	3220.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
250.000	3500.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
270.000	3780.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
290.000	4060.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
310.000	4340.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
340.000	4760.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
370.000	5180.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#
390.000	5460.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.

0.036MEV/NUC

0.200	2.800	#1	0.0	#
0.210	2.940	#1	0.0	#
0.230	3.220	#1	0.0	#
0.250	3.500	#1	0.0	#
0.270	3.780	#1	0.0	#
0.290	4.060	#1	0.0	#
0.310	4.340	#1	0.0	#
0.340	4.760	#1	0.0	#
0.370	5.180	#1	0.0	#
0.400	5.600	#1	0.0	#
0.430	6.020	#1	0.0	#
0.460	6.440	#1	0.0	#
0.500	7.000	#1	0.0	#
0.540	7.560	#1	0.0	#
0.590	8.260	#1	0.0	#
0.640	8.960	#1	0.0	#
0.690	9.660	#1	0.0	#
0.740	10.360	#1	0.0	#
0.800	11.200	#1	0.0	#
0.870	12.180	#1	0.0	#
0.940	13.160	#1	0.0	#
1.000	14.000	#1	0.0	#
1.100	15.400	#1	0.0	#
1.190	16.660	#1	0.0	#
1.200	16.800	#1	0.0	#
1.300	18.200	#1	0.0	#
1.500	21.000	#1	0.0	#
1.600	22.400	#1	0.0	#
1.700	23.800	#1	0.0	#
1.800	25.200	#1	0.0	#
2.000	28.000	#1	0.0	#
2.200	30.800	#1	0.0	#
2.300	32.200	#1	0.0	#
2.500	35.000	#1	0.0	#
2.700	37.800	#1	0.0	#
3.000	42.000	#1	0.0	#
3.200	44.800	#1	0.0	#
3.500	49.000	#1	0.0	#
3.800	53.200	#1	0.0	#
4.100	57.400	#1	0.0	#
4.400	61.600	#1	0.0	#
4.800	67.200	#1	0.0	#
5.100	71.400	#1	0.0	#
5.600	78.400	#1	0.0	#
6.000	84.000	#1	0.0	#
6.500	91.000	#1	0.0	#
7.000	98.000	#1	0.0	#
7.600	106.400	#1	0.0	#
8.200	114.800	#1	0.0	#
8.900	124.600	#1	0.0	#

EFFICIENCIES OF		1	LEVELS IN THE		6	ABSORBER FOR PARTICLES WITH Z = 7. AND A = 14.	
9.600	134.400	#1	0.0	#			
10.000	140.000	#1	0.0	#			
11.000	154.000	#1	0.0	#			
12.000	168.000	#1	0.0	#			
13.000	182.000	#1	0.0	#			
14.000	196.000	#1	0.0	#			
15.000	210.000	#1	0.0	#			
16.000	224.000	#1	0.0	#			
17.000	238.000	#1	0.0	#			
19.000	266.000	#1	0.0	#			
20.000	280.000	#1	0.0	#			
22.000	308.000	#1	0.0	#			
24.000	336.000	#1	0.0	#			
26.000	364.000	#1	0.0	#			
28.000	392.000	#1	0.0	#			
30.000	420.000	#1	0.0	#			
33.000	462.000	#1	0.0	#			
36.000	504.000	#1	0.0	#			
39.000	546.000	#1	0.0	#			
42.000	588.000	#1	0.0	#			
45.000	630.000	#1	0.0	#			
49.000	686.000	#1	0.0	#			
53.000	742.000	#1	0.0	#			
57.000	798.000	#1	0.0	#			
62.000	868.000	#1	0.0	#			
67.000	938.000	#1	0.0	#			
72.000	1008.000	#1	0.0	#			
78.000	1092.000	#1	0.0	#			
84.000	1176.000	#1	0.0	#			
91.000	1274.000	#1	0.0	#			
99.000	1386.000	#1	0.0	#			
100.000	1400.000	#1	0.0	#			
110.000	1540.000	#1	0.0	#			
120.000	1680.000	#1	0.0	#			
130.000	1820.000	#1	0.0	#			
140.000	1960.000	#1	0.0	#			
150.000	2100.000	#1	0.0	#			
170.000	2380.000	#1	0.0	#			
180.000	2520.000	#1	0.0	#			
190.000	2660.000	#1	0.0	#			
210.000	2940.000	#1	0.0	#			
230.000	3220.000	#1	0.0	#			
250.000	3500.000	#1	0.0	#			
270.000	3780.000	#1	0.0	#			
290.000	4060.000	#1	0.0	#			
310.000	4340.000	#1	1.0000	#			
340.000	4760.000	#1	1.0000	#			
370.000	5180.000	#1	1.0000	#			
390.000	5460.000	#1	1.0000	#			

10.7 %1, %2, and Alpha Channel Efficiencies for Nitrogen Nuclei

The following table given the efficiencies of the P-channels (columns 2 through 12) as functions of incident energy in MeV/nucleon (column 1) and MeV (column 13). Columns 1 and 13 are identical for protons, of course, but for alphas and other heavier nuclei the two entries are not redundant.

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 7. AND A = 14.

EINC	Z1	Z2	ALPHA 1	ALPHA 2	ALPHA 3	ALPHA 4	ALPHA 5	ALPHA 6	
0.2000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.800
0.2100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.940
0.2300	0.0	0.0	0.000	0.0	0.0	0.0	0.0	0.0	3.220
0.2500	0.0	0.0	0.722	0.0	0.0	0.0	0.0	0.0	3.500
0.2700	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	3.780
0.2900	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	4.060
0.3100	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	4.340
0.3400	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	4.760
0.3700	0.0	0.0	1.000	0.0	0.0	0.0	0.0	0.0	5.180
0.4000	0.0	0.0	1.000	0.000	0.0	0.0	0.0	0.0	5.600
0.4300	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	6.020
0.4600	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	6.440
0.5000	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	7.000
0.5400	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	7.560
0.5900	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	8.260
0.6400	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	8.960
0.6900	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	9.660
0.7400	0.0	0.0	0.0	1.000	0.0	0.0	0.0	0.0	10.360
0.8000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	11.200
0.8700	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	12.180
0.9400	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	13.160
1.0000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	14.000
1.1000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	15.400
1.1900	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	16.660
1.2000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	16.800
1.3000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	18.200
1.5000	1.000	0.0	0.0	1.000	0.0	0.0	0.0	0.0	21.000
1.6000	1.000	0.705	0.0	1.000	0.0	0.0	0.0	0.0	22.400
1.7000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	23.800
1.8000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	25.200
2.0000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	28.000
2.2000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	30.800
2.3000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	32.200
2.5000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	35.000
2.7000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	37.800
3.0000	1.000	1.000	0.0	1.000	0.0	0.0	0.0	0.0	42.000
3.2000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	44.800
3.5000	0.0	0.0	0.0	0.0	1.000	0.0	0.0	0.0	49.000
3.8000	0.0	0.0	0.0	0.0	0.013	0.987	0.0	0.0	53.200
4.1000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	57.400
4.4000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	61.600
4.8000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	67.200
5.1000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	71.400
5.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	78.400
6.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	84.000
6.5000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	91.000
7.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	98.000
7.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	106.400
8.2000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	114.800
8.9000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	124.600

EINC	Z1	Z2	ALPHA 1	ALPHA 2	ALPHA 3	ALPHA 4	ALPHA 5	ALPHA 6	
9.6000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	134.400
10.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	140.000
11.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	154.000
12.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	168.000
13.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	182.000
14.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	196.000
15.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	210.000
16.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	224.000
17.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	238.000
19.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	266.000
20.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	280.000
22.0000	0.0	0.0	0.0	0.0	0.0	1.000	0.0	0.0	308.000
24.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	336.000
26.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	364.000
28.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	392.000
30.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	420.000
33.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	462.000
36.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	504.000
39.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	546.000
42.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	588.000
45.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	630.000
49.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	686.000
53.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	742.000
57.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	798.000
62.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	868.000
67.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	938.000
72.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1008.000
78.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1092.000
84.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1176.000
91.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1274.000
99.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1386.000
100.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1400.000
110.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1540.000
120.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1680.000
130.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1820.000
140.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	1960.000
150.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	2100.000
170.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	2380.000
180.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	2520.000
190.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	2660.000
210.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	2940.000
230.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	3220.000
250.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	3500.000
270.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	3780.000
290.0000	0.0	0.0	0.0	0.0	0.0	0.0	1.000	0.0	4060.000
310.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4340.000
340.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4760.000
370.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5180.000
390.0000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5460.000

11. Response of Telescope to Iron Nuclei

11.1 Range-Energy Table for Iron in Silicon for .2 to 9.9 MeV/
Nucleon

The units of "Range" and "Straggling" in the following table are cm. "Straggling" is an approximation to the rms fluctuations of the range distribution and is included here only incidently. No subsequent use is made of "straggling" in later calculations. Fluctuations in the energy loss signal are accounted for by a different method.

RANGE-ENERGY TABLE FOR Z = 26.000 AND A = 56.000 PARTICLES IN SILICN

ENERGY	RANGE	STRAGGLING
0.2000	0.000473	0.000001
0.2100	0.000487	0.000001
0.2300	0.000517	0.000002
0.2500	0.000545	0.000002
0.2700	0.000572	0.000003
0.3000	0.000612	0.000003
0.3200	0.000637	0.000003
0.3500	0.000675	0.000002
0.3800	0.000711	0.000002
0.4100	0.000746	0.000002
0.4500	0.000792	0.000002
0.4900	0.000836	0.000002
0.5300	0.000879	0.000002
0.5700	0.000921	0.000002
0.6200	0.000973	0.000003
0.6700	0.001023	0.000003
0.7300	0.001082	0.000003
0.7900	0.001140	0.000003
0.8600	0.001207	0.000004
0.9400	0.001282	0.000004
1.0000	0.001337	0.000004
1.1000	0.001430	0.000006
1.2000	0.001520	0.000009
1.3000	0.001610	0.000009
1.4000	0.001701	0.000007
1.5000	0.001789	0.000005
1.6000	0.001877	0.000004
1.8000	0.002059	0.000004
1.9000	0.002148	0.000004
2.1000	0.002330	0.000006
2.3000	0.002515	0.000008
2.5000	0.002698	0.000012
2.7000	0.002893	0.000010
2.9000	0.003087	0.000008
3.1000	0.003279	0.000007
3.4000	0.003582	0.000006
3.7000	0.003893	0.000007
4.0000	0.004202	0.000007
4.4000	0.004647	0.000008
4.8000	0.005094	0.000009
5.2000	0.005558	0.000009
5.6000	0.006040	0.000010
6.1000	0.006655	0.000011
6.6000	0.007301	0.000012
7.2000	0.008097	0.000013
7.8000	0.008928	0.000014
8.4000	0.009789	0.000015
9.2000	0.010981	0.000017
9.9000	0.012067	0.000019

NUMBER OF INPUT PARTICLES SELECTED = 1

PARTICLE TYPES SELECTED ARE 17

11.2 Telescope Stack Parameters

See Section 8.2 for explanation; threshold nomenclature differs slightly from that used in previous calculations in order to accommodate the limitations of the program PAMELA.

PARAMETERS OF ABSORBER STACK

ABSORBER THICKNESSES, MICRONS	0.347	38.700	900.000	2700.000	14572.992	5000.000
ABSORBER MATERIAL	3.	2.	2.	2.	4.	2.
THICKNESS VARIATION, MICRONS	0.0100	3.8700	5.0000	10.0000	0.0	50.0000
CONICAL HALF ANGLE, DEGREES	0.0	0.0	0.0	0.0	0.0	0.0
DETECTOR NOISE, MEV	0.0	0.070	0.027	0.023	0.0	0.100
ELECTRONIC NOISE, MEV	0.0	0.0	0.0	0.0	0.0	0.0
NUMBER OF THRESHOLDS SET	0.0	8.0	7.0	5.0	0.0	1.0
THRESHOLD LEVEL NO. MEV 1	0.0	0.1700	0.1960	1.4900	0.0	0.5000
THRESHOLD LEVEL NO. MEV 2	0.0	0.2100	0.2090	2.9800	0.0	0.0
THRESHOLD LEVEL NO. MEV 3	0.0	0.4400	0.4560	3.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV 4	0.0	0.9250	0.8090	6.9500	0.0	0.0
THRESHOLD LEVEL NO. MEV 5	0.0	2.3800	3.8200	26.4000	0.0	0.0
THRESHOLD LEVEL NO. MEV 6	0.0	9.4800	7.5100	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV 7	0.0	21.2000	14.8000	0.0	0.0	0.0
THRESHOLD LEVEL NO. MEV 8	0.0	180.1000	0.0	0.0	0.0	0.0
AVERAGE PROJECTED DEPTH, MIC	0.347	38.700	900.000	2700.000	14572.992	5000.000
EST. RMS VARN. PROJ. DEPTH, MIC	0.0	0.0	0.0	0.0	0.0	0.0
NET RMS THICKNESS VARN. (MIC)	0.0100	3.8700	5.0000	10.0000	0.0	50.0000
LOWER LIMIT THICKNESS (MIC)	0.337	34.830	895.000	2689.999	14572.992	4949.999
UPPER LIMIT THICKNESS (MIC)	0.357	42.570	904.999	2710.000	14572.992	5050.000

11.3 Logical Definitions of Z1, Z2, and Z3.

The following table, when used with the preceding (Section 10.2) summary of the telescope parameters, completely defines the P-channels for the telescope. The interpretation of the entries of the table is that the numbers when taken in groups of three represent absorber number, threshold number, logical yes or no. The label of each channel is the last column on the right. For example, the first row of the table represents the channel P1 with the functions $A_2 \bar{A}_3 \bar{B}_2 \bar{M}$. Plus one equals "yes" and minus one equals "no". The channels then represent the logical intersection of the threshold efficiencies.

11.4 Intrinsic Fluctuations in Energy Losses of Iron Nuclei in Telescope Elements

From left to right in the table the entries are: Z of projectile, A of projectile, standard deviations in DeV/nucleon of the energy loss signal in each of the telescope elements. The calculation is based on an approximation of Bohr for the statistical fluctuations expected when the particle is well above the absorber penetration energy. The subsequent calculations of the passbands utilize this fluctuation as one source of the width of the energy loss signal.

INTRINSIC FLUCTUATIONS IN ENERGY LOSS (KEV/NUC) CALC FROM BOHR FORMULA

Z	A						
26.	56.	0.438	2.419	11.664	20.202	121.225	27.492

11.5 Energy Losses of Iron in Telescope Elements

These are tabulations of the energy loss versus incident energy for each of the elements of the telescope. The entries labelled DDELTAEL, DDELTAE2, etc., are estimates of the FWHM of the energy loss signal which has contributions from detector noise, electronic noise, thickness inhomogeneity, and intrinsic statistical fluctuations.

ENERGY LOSS TABLE FOR PARTICLES OF Z = 26 AND A = 56.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
0.200	0.051	0.001*	0.149	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.210	0.052	0.001*	0.158	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.230	0.055	0.001*	0.175	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.250	0.057	0.002*	0.193	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.270	0.059	0.002*	0.211	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.300	0.062	0.002*	0.238	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.320	0.064	0.002*	0.256	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.350	0.067	0.002*	0.283	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.380	0.070	0.002*	0.310	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.410	0.073	0.002*	0.337	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.450	0.076	0.002*	0.374	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.490	0.079	0.002*	0.411	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.530	0.082	0.002*	0.448	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.570	0.084	0.002*	0.486	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.620	0.087	0.002*	0.533	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.670	0.089	0.003*	0.581	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.730	0.092	0.003*	0.638	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.790	0.095	0.003*	0.695	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.860	0.097	0.003*	0.763	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
0.940	0.100	0.003*	0.840	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.000	0.101	0.003*	0.899	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.100	0.103	0.003*	0.997	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.200	0.107	0.003*	1.093	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.300	0.108	0.003*	1.192	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.400	0.108	0.003*	1.292	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.500	0.110	0.003*	1.390	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.600	0.113	0.003*	1.487	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.800	0.110	0.003*	1.690	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
1.900	0.112	0.003*	1.788	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.100	0.109	0.003*	1.991	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.300	0.111	0.003*	2.189	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.500	0.113	0.003*	2.387	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.700	0.106	0.003*	2.594	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
2.900	0.108	0.003*	2.792	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.100	0.109	0.003*	2.991	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.400	0.102	0.003*	3.298	0.001*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
3.700	0.103	0.003*	3.597	0.102*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.000	0.104	0.003*	3.829	0.150*	0.067	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.400	0.096	0.003*	3.958	0.306*	0.346	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
4.800	0.097	0.003*	3.939	0.393*	0.765	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.200	0.090	0.003*	3.843	0.427*	1.267	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
5.600	0.090	0.003*	3.707	0.428*	1.803	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.100	0.085	0.002*	3.540	0.410*	2.475	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
6.600	0.084	0.002*	3.372	0.390*	3.143	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.200	0.080	0.002*	3.202	0.364*	3.918	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
7.800	0.079	0.002*	3.052	0.346*	4.668	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
8.400	0.076	0.002*	2.916	0.321*	5.408	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
9.200	0.072	0.002*	2.759	0.299*	6.369	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *
9.900	0.071	0.002*	2.637	0.284*	7.192	0.000*	0.0	0.0 *	0.0	0.0 *	0.0	0.0 *	0.0 *

UNITS FOR ABOVE TABLE ARE MEV/NUC

11.5.1 The Units of this Table are in MeV/Nucleon Throughout

ENERGY LOSS TABLE FOR PARTICLES OF Z = 26 AND A = 56.

EINC	DELTA E1	DDELTE1	DELTA E2	DDELTE2	DELTA E3	DDELTE3	DELTA E4	DDELTE4	DELTA E5	DDELTE5	DELTA E6	DDELTE6	DELTA E
11.200	2.85	0.076	8.35	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.760	2.93	0.077	8.83	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12.880	3.06	0.083	9.82	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14.000	3.19	0.086	10.81	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15.120	3.32	0.090	11.80	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16.800	3.50	0.095	13.30	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17.920	3.60	0.099	14.32	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19.600	3.76	0.103	15.84	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21.280	3.92	0.107	17.36	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22.960	4.06	0.112	18.90	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25.200	4.24	0.117	20.96	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27.440	4.41	0.122	23.03	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29.680	4.57	0.127	25.11	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
31.920	4.73	0.131	27.19	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
34.720	4.89	0.137	29.83	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
37.520	5.01	0.142	32.51	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
40.880	5.16	0.145	35.72	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
44.240	5.30	0.150	38.94	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
48.160	5.45	0.154	42.71	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
52.640	5.60	0.159	47.04	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
56.000	5.68	0.162	50.32	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
61.600	5.78	0.167	55.82	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
67.200	5.97	0.169	61.23	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
72.800	6.02	0.174	66.78	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
78.400	6.03	0.171	72.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
84.000	6.17	0.175	77.83	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
89.600	6.31	0.179	83.29	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
100.800	6.18	0.176	94.62	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
106.400	6.28	0.179	100.12	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
117.600	6.09	0.185	111.51	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
128.800	6.20	0.177	122.60	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
140.000	6.33	0.181	133.67	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
151.200	5.95	0.170	145.25	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
162.400	6.03	0.173	156.37	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
173.600	6.10	0.175	167.50	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
190.400	5.70	0.164	184.70	0.070	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
207.200	5.76	0.165	201.44	5.703	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
224.000	5.81	0.167	214.45	8.411	3.74	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
246.400	5.39	0.155	221.63	17.137	19.38	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
268.800	5.41	0.156	220.57	21.999	42.82	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
291.200	5.05	0.145	215.18	23.894	70.96	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
313.600	5.04	0.145	207.61	23.981	100.94	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
341.600	4.76	0.137	198.22	22.944	138.62	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
369.600	4.73	0.136	188.85	21.822	176.02	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
403.200	4.49	0.129	179.31	20.404	219.40	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
436.800	4.44	0.128	170.92	19.350	261.44	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
470.400	4.24	0.122	163.28	17.980	302.87	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
515.200	4.06	0.117	154.51	16.763	356.64	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0
554.400	3.99	0.115	147.68	15.901	402.73	0.027	0.0	0.0	0.0	0.0	0.0	0.0	0.0

UNITS FOR ABOVE TABLE ARE MEV, TOTAL ENERGY

11.5.2 The Units of this Table are MeV Throughout

11.6 Level Efficiencies of Thresholds in Telescope for Iron Nuclei

The entries in the following table have the significance:

Column 1, incident energy (MeV/Nucleon)

Column 2, incident energy (MeV)

Column 3, incident energy, efficiency of thresholds #1 ...

EFFICIENCIES OF 8 LEVELS IN THE 2 ABSORBER FOR PARTICLES WITH Z = 26. AND A = 56.

0.003MEV/NUC 0.004MEV/NUC 0.008MEV/NUC 0.017MEV/NUC 0.042MEV/NUC 0.169MEV/NUC 0.379MEV/NUC 3.216MEV/NUC

0.200	11.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.210	11.760	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	0.0	#7	0.0	#8	0.0
0.230	12.880	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.250	14.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.270	15.120	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.300	16.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.320	17.920	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.350	19.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.380	21.280	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.410	22.960	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0	#8	0.0
0.450	25.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	0.0000	#8	0.0
0.490	27.440	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.530	29.680	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.570	31.920	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.620	34.720	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.670	37.520	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.730	40.880	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.790	44.240	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.860	48.160	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
0.940	52.640	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.000	56.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.100	61.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.200	67.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.300	72.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.400	78.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.500	84.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.600	89.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.800	100.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
1.900	106.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
2.100	117.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
2.300	128.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
2.500	140.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
2.700	151.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
2.900	162.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
3.100	173.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0
3.400	190.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
3.700	207.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.000	224.000	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.400	246.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
4.800	268.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	1.0000
5.200	291.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.9997
5.600	313.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.9966
6.100	341.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.9685
6.600	369.600	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.8274
7.200	403.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.4637
7.800	436.800	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.1320
8.400	470.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0138
9.200	515.200	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0002
9.900	554.400	#1	1.0000	#2	1.0000	#3	1.0000	#4	1.0000	#5	1.0000	#6	1.0000	#7	1.0000	#8	0.0000

EFFICIENCIES OF 7 LEVELS IN THE 3 ABSORBER FOR PARTICLES WITH Z = 26. AND A = 56.

	0.003MEV/NUC	0.004MEV/NUC	0.008MEV/NUC	0.014MEV/NUC	0.068MEV/NUC	0.134MEV/NUC	0.264MEV/NUC								
0.200	11.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.210	11.760	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.230	12.880	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.250	14.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.270	15.120	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.300	16.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.320	17.920	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.350	19.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.380	21.280	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.410	22.960	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.450	25.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.490	27.440	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.530	29.680	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.570	31.920	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.620	34.720	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.670	37.520	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.730	40.880	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.790	44.240	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.860	48.160	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
0.940	52.640	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.000	56.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.100	61.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.200	67.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.300	72.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.400	78.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.500	84.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.600	89.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.800	100.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
1.900	106.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
2.100	117.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
2.300	128.800	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
2.500	140.000	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
2.700	151.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
2.900	162.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
3.100	173.600	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
3.400	190.400	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
3.700	207.200	#1 0.0	#2 0.0	#3 0.0	#4 0.0	#5 0.0	#6 0.0	#7 0.0	#						
4.000	224.000	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 0.0000	#6 0.0	#7 0.0	#						
4.400	246.400	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
4.800	268.800	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
5.200	291.200	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
5.600	313.600	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
6.100	341.600	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
6.600	369.600	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
7.200	403.200	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
7.800	436.800	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
8.400	470.400	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
9.200	515.200	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						
9.900	554.400	#1 1.0000	#2 1.0000	#3 1.0000	#4 1.0000	#5 1.0000	#6 1.0000	#7 1.0000	#						

EFFICIENCIES OF 5 LEVELS IN THE 4 ABSORBER FOR PARTICLES WITH Z = 26. AND A = 56.

	0.027MEV/NUC	0.053MEV/NUC	0.071MEV/NUC	0.124MEV/NUC	0.471MEV/NUC							
0.200	11.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.210	11.760	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.230	12.880	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.250	14.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.270	15.120	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.300	16.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.320	17.920	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.350	19.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.380	21.280	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.410	22.960	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.450	25.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.490	27.440	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.530	29.680	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.570	31.920	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.620	34.720	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.670	37.520	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.730	40.880	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.790	44.240	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.860	48.160	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
0.940	52.640	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.000	56.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.100	61.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.200	67.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.300	72.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.400	78.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.500	84.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.600	89.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.800	100.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
1.900	106.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.100	117.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.300	128.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.500	140.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.700	151.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
2.900	162.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.100	173.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.400	190.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
3.700	207.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
4.000	224.000	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
4.400	246.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
4.800	268.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
5.200	291.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
5.600	313.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
6.100	341.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
6.600	369.600	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
7.200	403.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
7.800	436.800	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
8.400	470.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
9.200	515.200	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#
9.900	554.400	#1	0.0	#2	0.0	#3	0.0	#4	0.0	#5	0.0	#

EFFICIENCIES OF 1 LEVELS IN THE 6 ABSORBER FOR PARTICLES WITH $Z = 26$. AND $A = 56$.

0.009MEV/NUC

0.200	11.200	#1	0.0	#
0.210	11.760	#1	0.0	#
0.230	12.880	#1	0.0	#
0.250	14.000	#1	0.0	#
0.270	15.120	#1	0.0	#
0.300	16.800	#1	0.0	#
0.320	17.920	#1	0.0	#
0.350	19.600	#1	0.0	#
0.380	21.280	#1	0.0	#
0.410	22.960	#1	0.0	#
0.450	25.200	#1	0.0	#
0.490	27.440	#1	0.0	#
0.530	29.680	#1	0.0	#
0.570	31.920	#1	0.0	#
0.620	34.720	#1	0.0	#
0.670	37.520	#1	0.0	#
0.730	40.880	#1	0.0	#
0.790	44.240	#1	0.0	#
0.860	48.160	#1	0.0	#
0.940	52.640	#1	0.0	#
1.000	56.000	#1	0.0	#
1.100	61.600	#1	0.0	#
1.200	67.200	#1	0.0	#
1.300	72.800	#1	0.0	#
1.400	78.400	#1	0.0	#
1.500	84.000	#1	0.0	#
1.600	89.600	#1	0.0	#
1.800	100.800	#1	0.0	#
1.900	106.400	#1	0.0	#
2.100	117.600	#1	0.0	#
2.300	128.800	#1	0.0	#
2.500	140.000	#1	0.0	#
2.700	151.200	#1	0.0	#
2.900	162.400	#1	0.0	#
3.100	173.600	#1	0.0	#
3.400	190.400	#1	0.0	#
3.700	207.200	#1	0.0	#
4.000	224.000	#1	0.0	#
4.400	246.400	#1	0.0	#
4.800	268.800	#1	0.0	#
5.200	291.200	#1	0.0	#
5.600	313.600	#1	0.0	#
6.100	341.600	#1	0.0	#
6.600	369.600	#1	0.0	#
7.200	403.200	#1	0.0	#
7.800	436.800	#1	0.0	#
8.400	470.400	#1	0.0	#
9.200	515.200	#1	0.0	#
9.900	554.400	#1	0.0	#

11.7 Z1, Z2, and Z3 Efficiencies for Iron Nuclei

The following table given the efficiencies of the P-channels (columns 2 through 12) as functions of incident energy in MeV/nucleon (column 1) and MeV (column 13). Columns 1 and 13 are identical for protons, of course, but for alphas and other heavier nuclei the two entries are not redundant.

LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = 26. AND A = 56.

EINC	Z1	Z2	Z3	
0.2000	0.0	0.0	0.0	11.200
0.2100	0.0	0.0	0.0	11.760
0.2300	1.000	0.0	0.0	12.880
0.2500	1.000	0.0	0.0	14.000
0.2700	1.000	0.0	0.0	15.120
0.3000	1.000	0.0	0.0	16.800
0.3200	1.000	0.0	0.0	17.920
0.3500	1.000	0.0	0.0	19.600
0.3800	1.000	0.0	0.0	21.280
0.4100	1.000	0.0	0.0	22.960
0.4500	1.000	0.000	0.0	25.200
0.4900	1.000	1.000	0.0	27.440
0.5300	1.000	1.000	0.0	29.680
0.5700	1.000	1.000	0.0	31.920
0.6200	1.000	1.000	0.0	34.720
0.6700	1.000	1.000	0.0	37.520
0.7300	1.000	1.000	0.0	40.880
0.7900	1.000	1.000	0.0	44.240
0.8600	1.000	1.000	0.0	48.160
0.9400	1.000	1.000	0.0	52.640
1.0000	1.000	1.000	0.0	56.000
1.1000	1.000	1.000	0.0	61.600
1.2000	1.000	1.000	0.0	67.200
1.3000	1.000	1.000	0.0	72.800
1.4000	1.000	1.000	0.0	78.400
1.5000	1.000	1.000	0.0	84.000
1.6000	1.000	1.000	0.0	89.600
1.8000	1.000	1.000	0.0	100.800
1.9000	1.000	1.000	0.0	106.400
2.1000	1.000	1.000	0.0	117.600
2.3000	1.000	1.000	0.0	128.800
2.5000	1.000	1.000	0.0	140.000
2.7000	1.000	1.000	0.0	151.200
2.9000	1.000	1.000	0.0	162.400
3.1000	1.000	1.000	0.0	173.600
3.4000	1.000	1.000	1.000	190.400
3.7000	1.000	1.000	1.000	207.200
4.0000	0.0	0.0	1.000	224.000
4.4000	0.0	0.0	1.000	246.400
4.8000	0.0	0.0	1.000	268.800
5.2000	0.0	0.0	1.000	291.200
5.6000	0.0	0.0	0.997	313.600
6.1000	0.0	0.0	0.969	341.600
6.6000	0.0	0.0	0.827	369.600
7.2000	0.0	0.0	0.464	403.200
7.8000	0.0	0.0	0.132	436.800
8.4000	0.0	0.0	0.014	470.400
9.2000	0.0	0.0	0.000	515.200
9.9000	0.0	0.0	0.000	554.400

APPENDIX A

Fortran Source Program for Generating the Factors for Converting Counting Rates to Fluxes and for Correcting the Response of the P-Channels to Protons Only, Alpha-Channels to Alpha Particles Only and of Z1 and Z2 to Medium Nuclei Only.

These listings are included as a convenient reference should questions regarding Sections 2 through 5 arise at some later time. The tables in Sections 2 through 5 will be used frequently in the construction of energy and charge spectra from the detector count rates; hence, these listings are included. These subroutines are also incorporated into the regular data analysis programs for CPME data and the spectra and abundance ratios calculated therein utilize exactly these procedures.

```

C DRIVER PROGRAM
0001     DIMENSION Y(36,20)
0002     DIMENSION X(11,36,11),A(36),AB(11)
0003     G=-6.
0004     DO 1 I=1,36
0005     A(I)=G
0006     1 G=G+0.2
0007     DO11I=1,36
0008     DO12J=1,11
0009     12 Y(I,J)=AAA(1,J,A(I))
0010     DO13J=1,6
0011     13 Y(I,J+11)=AAA(2,J,A(I))
0012     DO11J=1,3
0013     11 Y(I,J+17)=AAA(3,J,A(I))
0014     WRITE(6,9006)(K,K=1,11)
0015     DO 14I=1,36
0016     14 WRITE(6,9004)A(I),(Y(I,J),J=1,11)
0017     WRITE(6,9005)(K,K=1,6),(L,L=1,3)
0018     DO15I=1,36
0019     15 WRITE(6,9004)A(I),(Y(I,J),J=12,20)
0020     9004 FORMAT(1H ,P6.2,11(1X,1PE10.3))
0021     9006 FORMAT(1H1,' GAMMA',11(8X,'P',I2))
0022     9005 FORMAT(1H1,' GAMMA',6(9X,'A',I1),3(9X,'Z',I1))
0023     PA=10.
0024     DO 2 I=1,11
0025     AB(I)=PA
0026     2 PA=PA+10.
0027     DO 3 I=1,11
0028     DO 3 J=1,36
0029     DO 3 K=1,7
0030     3 X(I,J,K)=PFACT(AB(I),A(J),K)
0031     DO 4 K=1,7
0032     WRITE(6,9000)K,AB
0033     9000 FORMAT(1H1,'PROTON CORR. FACTORS'/1H0,'P',I1/1H0,' P/A = ',
0034     1 11(6X,P5.0)/1H , ' GAMMA')
0035     DO 4 J=1,36
0036     4 WRITE(6,9001)A(J),(X(I,J,K),I=1,11)
0037     9001 FORMAT(1H ,P9.5,11(1X,1PE10.3))
0038     PM=10.
0039     DO5I=1,11
0040     AB(I)=PM
0041     5 PM=PM+5.
0042     DO 6 I=1,11
0043     DO 6 J=1,36
0044     DO 6 K=1,5
0045     6 X(I,J,K)=AFAC(AB(I),A(J),K)
0046     DO 7 K=1,5
0047     WRITE(6,9002)K,AB
0048     9002 FORMAT(1H1,'ALPHA CORRECTION FACTORS'/1H0,'A',I1/1H0,' A/M = ',
0049     1 11(6X,P5.0)/1H , ' GAMMA')
0050     DO7 J=1,36
0051     7 WRITE(6,9001)A(J),(X(I,J,K),I=1,11)
0052     RFE=0.00125
0053     DO8I=1,11
0054     AB(I)=1./RFE
0055     8 RFE=RFE*2.

```

```
0054      DO9I=1,11
0055      DO 9 J=1,36
0056      DO 9 K=1,2
0057      9 X(I,J,K)=ZFACT(AB(I),A(J),K)
0058      DO16I=1,11
0059      16 AB(I)=1./AB(I)
0060      DO 10 K=1,2
0061      WRITE(6,9003)K,AB
0062      9003 FORMAT(1H1,'MEDIUM CORRECTION FACTORS'/1H0,'Z',I1/1H0,'
      1,11(3X,F8.5)/1H,' GAMMA')
0063      DO 10 J=1,36
0064      10 WRITE(6,9001)A(J),(X(I,J,K),I=1,11)
0065      STOP
0066      END
```

```
0001 REAL FUNCTION AAA(I,J,G)
0002 DIMENSION PPE(3,11),AAE(3,6),ZME(3,2),Z3HE(3),GP(11),GA(6),GZ(3)
0003 DATA PPE/.287,.394,2*.5,.733,2*.966,1.408,2*1.85,3.175,4.5,
1 4.5,6.2,7.9,7.9,10.8,2*13.7,19.45,2*25.2,37.35,2*49.5,72.25,
1 2*95.,116.5,138.,190.,345.,500./
0004 DATA AAE/.645,.908,2*1.17,1.455,2*1.74,3.02,2*4.3,7.9,2*11.5,
1 18.75,2*26.,39.,52./
0005 DATA ZME/.77,1.185,2*1.6,2.4,3.2/
0006 DATA Z3HE/3.35,5.475,7.6/
0007 DATA GA/4*1.51,2*.32/
0008 DATA GZ/3*1.51/
0009 DATA GP/6*1.51,5*.32/
0010 IF(I.EQ.1) GO TO 10
0011 IF(I.EQ.2) GO TO 11
0012 IF(J.LT.3) GO TO 12
0013 GG=GZ(3)
0014 E1=Z3HE(1)
0015 E2=Z3HE(2)
0016 E3=Z3HE(3)
0017 GO TO 13
0018 12 GG=GZ(J)
0019 E1=ZME(1,J)
0020 E2=ZME(2,J)
0021 E3=ZME(3,J)
0022 GO TO 13
0023 11 GG=GA(J)
0024 E1=AAE(1,J)
0025 E2=AAE(2,J)
0026 E3=AAE(3,J)
0027 GO TO 13
0028 10 GG=GP(J)
0029 E1=PPE(1,J)
0030 E2=PPE(2,J)
0031 E3=PPE(3,J)
0032 13 IF(G.EQ.(-1.)) GO TO 14
0033 AAA=(G+1.)*(E2**G)/(GG*(E3**(G+1.)-E1**(G+1.)))
0034 RETURN
0035 14 AAA=1./(GG*E2*ALOG(E3/E1))
0036 RETURN
0037 END
```



```
0001     REAL FUNCTION PFACT(PTOA,GAM,I)
0002     DIMENSION PPE(3,11),PAE(3,11)
0003     DATA PPE/.287,.394,2*.5,.733,2*.966,1.408,2*1.85,3.175,4.5,
1 4.5,6.2,7.9,7.9,10.8,2*13.7,19.45,2*25.2,37.35,2*49.5,72.25,
1 2*95.,116.5,138.,190.,345.,500./
0004     DATA PAE/.104,.136,.168,.17,.23,.29,.295,1.018,2*1.74,1.945,2*2.15
1 ,2.45,2.75,2.85,30.425,58.,60.,100.,13*140./
0005     PFACT=1.
0006     IF(I.GE.8) RETURN
0007     IF(I.LT.1) RETURN
0008     IF(PTOA.GE.1000.) RETURN
0009     IF(GAM+1.) 10,11,10
0010     10 G= GAM+1.
0011     RP= PPE(3,I)**G - PPE(1,I)**G
0012     RA= PAE(3,I)**G - PAE(1,I)**G
0013     GO TC 12
0014     11 RP= ALOG(PPE(3,I)/PPE(1,I))
0015     RA= ALOG(PAE(3,I)/PAE(1,I))
0016     12 RPRA= PTOA*RP/RA
0017     PFACT= RERA/(1.+PPRA)
0018     RETURN
0019     END
```

```
0001 REAL FUNCTION AFACT(ATCH,GAM,I)
0002 DIMENSION AME(3,6),AAE(3,6)
0003 DATA AME/.25,.325,2*.4,1.8,2*3.2,3.5,2*3.8,13.9,2*24.,167.,4*310./
0004 DATA AAE/.645,.908,2*1.17,1.455,2*1.74,3.02,2*4.3,7.9,2*11.5,
0005 1 18.75,2*26.,39.,52./
0005 AFACT=1.
0006 IF (I.GE.6) RETURN
0007 IF (I.LT.1) RETURN
0008 IF (ATOM.GE.1000.) RETURN
0009 IF (GAM + 1.) 10,11,10
0010 10 G= GAM + 1.
0011 RA = AAE(3,I)**G - AAE(1,I)**G
0012 RM = AME(3,I)**G - AME(1,I)**G
0013 GO TO 12
0014 11 RA= ALOG(AAE(3,I)/AAE(1,I))
0015 RM= ALOG(AME(3,I)/AME(1,I))
0016 12 RARM = ATOM * RA /RM
0017 AFACT = RARM/(1.+RARM)
0018 RETURN
0019 END
```

```
0001      REAL FUNCTION ZFACT(FMTOFE,GAM,I)
0002      DIMENSION ZME(3,2),ZHE(3,2)
0003      DATA ZME/.77,1.185,2*1.6,2.4,3.2/
0004      DATA ZHE/.225,.328,.43,.43,2.115,3.8/
0005      ZFACT=1.
0006      IF(I.GE.3) RETURN
0007      IF(I.LT.1) RETURN
0008      IF(FMTOFE.GE.1000.)RETURN
0009      IF(GAM +1.)10,11,10
0010  10  G= GAM+1.
0011      RM= ZME(3,I)**G - ZME(1,I)**G
0012      RZ= ZHE(3,I)**G - ZHE(1,I)**G
0013      GO TO 12
0014  11  RM= ALOG(ZME(3,I)/ZME(1,I))
0015      RZ= ALOG(ZHE(3,I)/ZHE(1,I))
0016  12  RMZ = FMTOFE * RM /RZ
0017      ZFACT = RMZ/(1. + RMZ)
0018      RETURN
0019      END
```

APPENDIX B

Fortran Source Program for Generating Expected Count Rate Ratios as Functions of Spectral Exponent for Various Nuclear Species Abundance Distributions.

This Fortran source program was used with the passband edges tabulated in Section 6 to generate the count rate ratios for all the sensible combinations of channels of the telescope channels. From the passbands and the ratios, reliable spectral exponents and abundance ratios can be inferred from the observed count rate ratios. These results are subject to the assumptions outline in Section 7, namely, that all nuclear species present have identical energy/nucleon spectra of the passbands of the channels in question.

```

0001     DIMENSION PPE(3,11),AAE(3,6),PAE(3,11)
0002     DIMENSION ABLAB(20)
0003     DATA PPE/.287,.394,2*.5,.733,2*.966,1.408,2*1.85,3.175,4.5,
1 4.5,6.2,7.9,7.9,10.8,2*13.7,19.45,2*25.2,37.35,2*49.5,72.25,
1 2*95.,116.5,138.,190.,345.,500./
0004     DATA PAE/.104,.136,.168,.17,.23,.29,.295,1.018,2*1.74,1.945,2*2.15
1,2.45,2.75,2.85,30.425,58.,60.,100.,13*140./
0005     DATA AAE/.645,.908,2*1.17,1.455,2*1.74,3.02,2*4.3,7.9,2*11.5,
1 18.75,2*26.,39.,52./
0006     DOUBLE PRECISION LAB,LR1,LR2,LR3
C CALCULATE RATIOS FOR EXPLORER 47
0007     DIMENSION E1(20,16),E2(20,16),R(20,16),DR(20,16),RR(36,27),
1 DRR(36,25),GP(11),GA(6),GZ(3),AB(16),ABD(16),LAB(16)
0008     DATA GA/4*1.51,2*.32/
0009     DATA GZ/3*1.51/
0010     DATA GP/6*1.51,5*.32/
0011     DATA AB/ 840.,42.,3*0.,.49,.116,1.,0.,.127,.182,.107,.025,2*0.,
1 .028/
0012     DATA ABD/ 50.,2.5,3*0.,.03,.011,0.,0.,.011,.014,.011,.005,2*0.,
1 .005/
0013     DATA LAB/' PROTONS', ' ALPHAS', ' LITHIUM', ' BERYL.', ' BORON',
1 ' CARBON', ' NITRO.', ' OXYGEN', ' FLUOR.', ' NEON', ' MAGNES.',
2 ' SILICON', ' SULFUR', ' ARGON', ' CALCIUM', ' IRON'/
0017     DATA LR2/'A1/A2', 'A2/A3', 'A3/A4', 'A4/A5', 'A5/A6', 'Z1/Z2', 'Z2/Z3',
1 'P1/A1', 'A1/Z1'/
0018     DATA LR3/'P2/A1', 'P3/A2', 'P4/A3', 'P5/A4', 'P7/A5', 'P8/A6', 'A1/Z1',
1 'A3/Z2'/
0019     X(X1,X2,GX) = (X2**(GX+1.) - X1**(GX+1.)) / (GX+1.)
0020     DO6I=1,20
0021     DO6J=1,16
0022     E1(I,J)=100.
0023     E2(I,J)=100.
0024     6 CONTINUE
0025     A(1)=-6.
0026     DO 9 I=2,36
0027     9 A(I)=A(I-1) + 0.2
0028     DO 8I=1,11
0029     E1(I,1)=PPE(1,I)
0030     E2(I,1)=PPE(3,I)
0031     E1(I,2)=PAE(1,I)
0032     E2(I,2)=PAE(3,I)
0033     8 CONTINUE
0034     DO7I=12,17
0035     E1(I,2)=AAE(1,I-11)
0036     E2(I,2)=AAE(3,I-11)
0037     7 CONTINUE
0038     DO 10 J=3,16
0039     READ(5,9000) ((E1(I,J),E2(I,J)),I=1,6)
0040     READ(5,9000) ((E1(I,J),E2(I,J)),I=7,11)
0041     READ(5,9000) ((E1(I,J),E2(I,J)),I=12,17)
0042     10 READ(5,9000) ((E1(I,J),E2(I,J)),I=18,20)

```

```

0043     9000 FORMAT (2X,12P6.0)
0044         DO110J=5,16
0045         E1(17,J)=100.
0046         E2(17,J)=100.
0047     110 CONTINUE
0048         WRITE(6,9001)
0049     9001 FORMAT (1H1,'EXPLORER 47 RATIO PROGRAM'/1H0,'PASSBAND DATA')
0050         DO 11 I=1,20
0051         IF(I.EQ.12) WRITE(6,9001)
0052         WRITE(6,9002) LAB
0053     9002 FORMAT (1H0,2X,16A8)
0054         WRITE(6,9003) LP(I), (E1(I,J),J=1,16)
0055     9003 FORMAT (1H0,A2,16F8.3)
0056         11 WRITE(6,9004) (E2(I,J),J=1,16)
0057     9004 FORMAT (1H,2X,16F8.3)
0058         READ(5,9015) NCARD
0059     9015 FORMAT (I2)
0060         DO30M=1,NCARD
0061         READ(5,9016) ABLAB
0062     9016 FORMAT (20A4)
0063         WRITE(6,9017) ABLAB
0064     9017 FORMAT (1H1,20A4)
0065         READ(5,9018) AB
0066     9018 FORMAT (16F5.0)
0067         WRITE(6,9006) LAB,AB
0068     9006 FORMAT (1H0,2X,16A8/3X,16F8.3/3X,16F8.3)
0069         17 CONTINUE
0070         DO 49 K= 1,36
0071         IF (K.EQ.26) GO TO 51
0072         DO 50 I=1,20
0073         DO 50 J=1,16
0074         50 R(I,J) = AB(J) *X(E1(I,J),E2(I,J),A(K))
0075         GO TO 52
0076         51 DO 53 I=1,20
0077         DO 53 J=1,16
0078         53 P(I,J) = AB(J) * ALOG(E2(I,J)/E1(I,J))
0079     52 CONTINUE
0080         DO 54 I=1,20
0081         SUM=0.
0082         DO 55 J=1,16
0083         55 SUM= SUM + R(I,J)
0084         54 XX(I) = SUM
0085         DO 56 I=1,10
0086     56 RR(K,I) = (XX(I) *GP(I)) / (XX(I+1) *GP(I+1))
0087         DO 57 I=12,16
0088     57 RR(K,I-1) = (XX(I) *GA(I-11)) / (XX(I+1) *GA(I-10))
0089         DO 58 I=18,19
0090     58 RR(K,I-2) = (XX(I) *GZ(I-16)) / (XX(I+1) *GZ(I-17))
0091         DO 59 I=18,23
0092     59 RR(K,I) = (XX(I-16) *GP(I-16)) / (XX(I-6) *GA(I-17))
0093         RR(K,26) = (XX(1) *GP(1)) / (XX(12) *GA(1))
0094         RR(K,27) = (XX(12) *GA(1)) / (XX(18) *GZ(1))
0095         RR(K,24) = (XX(12) *GA(1)) / (XX(18) *GZ(1))
0096         49 RR(K,25) = (XX(14) *GA(3)) / (XX(19) *GZ(2))
0097         WRITE(6,9012) LR1
0098     9012 FORMAT (1H0,' GAMMA',10(4X,A7))

```

```
0099      9014 FORMAT(1H1)
0100          DO 62 K=1,36
0101          62 WRITE(6,9013) A(K), (RR(K,I), I=1,10)
0102              WRITE(6,9014)
0103              WRITE(6,9006) LAB,AB,ABD
0104              WRITE(6,9012) LR2
0105          DO 60 K=1,36
0106          60 WRITE(6,9013) A(K), (RR(K,I), I=11,17), RR(K,26), RR(K,27)
0107      9013 FORMAT(1H,11(1X,1PE10.3))
0108          WRITE(6,9014)
0109          WRITE(6,9006) LAB,AB,ABD
0110          WRITE(6,9012) LR3
0111          DO 61K=1,36
0112          61 WRITE(6,9013) A(K), (RR(K,I), I=18,25)
0113      30 CONTINUE
0114          STOP
0115          END
```

APPENDIX C

Fortran Source Program and Data for Generating Tables in Sections 8, 9, 10 and 11.

These listings are provided as references, should questions arise in the interpretation of data in the main text. It is not anticipated that regular reference to this data will be necessary. A full working description of PAMELA, the program which performs the range-energy analysis of the telescope, is available in an APL/JHU Preprint available on request. The following pages include a complete source listing of PAMELA from which reference can be made. Listing of the range-energy data are too lengthy to include here and hence are not. Following the source listing are four sets of data with the JCL necessary to invoke PAMELA and its data from the APL/JHU library. The four data sets included here generate the tables of Sections 8, 9, 10, and 11.

C*****

PAMELA

C

DIMENSION TDE(100,8),TDD(100,8),TEINC(100)
DIMENSION IPARTS(17)
DIMENSION CONE(17,4)
EQUIVALENCE (STR(1,1,1),EPPCHA(1,1))
EQUIVALENCE(XR(1,1,1),EPS(1,1,1))
EQUIVALENCE (XR(1,1,3),TDE(1,1))
EQUIVALENCE (XR(1,5,3),TDD(1,1))
DIMENSION A(17),Z(17),PVFCT(140,17),SVFCT(140,17)
EQUIVALENCE (DE(1,1,1),PVFCT(1,1)),(DD(1,1,1),SVFCT(1,1))
DIMENSION D(7,7),THRESH(7,8)
DIMENSION L(50,26),EPPCHA(100,50)
DIMENSION DE(100,17,8),DD(100,17,8),EPS(100,17,8)
DIMENSION T(7,5)
DIMENSION NV(17),NS(21),NR(21),PTAG(4),EINC(100),EDENS(4),TDENS(4)
DIMENSION DDEIN(17,4),DDEIX(17,7)
DOUBLE PRECISION SC(17,4),RXX,EXXX,STRXX,TK,RPRIME,ESTART,EOUT
DOUBLE PRECISION CC,CX,PTAG
DOUBLE PRECISION XC
DOUBLE PRECISION XE,XR,STR,XXE,XXR
DOUBLE PRECISION ET1,ET2,XXST
COMMON/RT/XR(140,17,4),XE(140,2),STR(140,17,4)
DATA A/1.,2.,3.,4.,7.,9.,11.,12.,14.,16.,19.,20.,23.,24.,27.,28.,
1 56./
DATA Z/1.,1.,1.,2.,3.,4.,5.,6.,7.,8.,9.,10.,11.,12.,13.,14.,26./
DATA SC/2.1D-6,2.48D-6,2.9D-6,3.4D-6,4.05D-6,4.8D-6,5.7D-6,6.6D-6,
1 7.4D-6,8.2D-6,9.D-6,1.17D-5,1.44D-5,2.2D-5,2.7D-5,1.18D-4,
23.05D-4, 2.85D-6,3.3D-6,3.8D-6,4.35D-6,5.1D-6,5.9D-6,6.8D-6,
37.7D-6,8.6D-6,9.5D-6,1.02D-5,1.3D-5,1.55D-5,2.2D-5,2.7D-5,1.18D-4,
43.05D-4, 7.7D-6,8.7D-6,9.7D-6,1.09D-5,1.23D-5,1.4D-5,1.56D-5,
51.73D-5,1.87D-5,2.02D-5,2.18D-5,2.6D-5,3.03D-5,3.95D-5,4.6D-5,
61.95D-4,4.8D-4, 2.4D-5,2.7D-5,3.0D-5,3.3D-5,3.75D-5,4.2D-5,
74.65D-5,5.1D-5,5.5D-5,5.95D-5,6.3D-5,7.6D-5,8.8D-5,1.1D-4,1.3D-4,
85.15D-4,1.18D-3/
DATA NV/1,2,3,4,5,6,7,8,9,10,11,13,14,16,17,25,28/
DATA NS/12,15,18,19,20,21,22,23,24,26,27,29,30,31,32,33,34,35,36,
1 37,38/
DATA NR/1,3,5,6,7,8,9,10,11,14,16,22,26,31,33,35,37,39,41,42,43/
DATA PTAG/6HALUM.,6HSILICN,6HNICKEL,6H GOLD/
DATA EDENS/2.903E+23,3.003E+23,2.873E+23,2.416E+23/
DATA TDENS/2.699,2.33,8.9,19.32/
C D(I,1)=NO. OF THRESHOLDS IN ITH LAYER LE.8, GE.0
C D(I,2)=ABSORBER MATERIAL,1=ALUMINUM,2=SILICON,3=NICKEL,4=GOLD
C D(I,3)=THICKNESS OF ITH LAYER IN CM.
C D(I,4)=RMS UNC. IN THICKNESS, ITH LAYER (CM.)
C D(I,5)=MAX. CONICAL HALF ANG. OF INC. REL. TO NORMAL(DEG.)
C D(I,6)=DETECTOR RMS NOISE (MEV)
C D(I,7)=ELECTRONIC NOISE (MEV)
C
C DE(I,J,K)=ENERGY LOSS OF PARTICLE OF TYPE J AT ITH
C ENERGY IN KTH ABSORBER (MEV)
C DD(I,J,K)=RMS UNC. IN DE (MEV)
C EPS(I,J,K)=EPP. OF KTH THRESHOLD IN JTH DETECTOR AT ITH ENERGY
C EACH PARTICLE TAKEN SUCCESSIVELY
C L(I,J)= ITH LOGICAL CHANNEL LE.50
C J=1,4,7,10,13,16,19,22=ABSORBER NO OF 1,2,3,4,5,6,7,8
C LOGICAL FUNCTION
C J=2,5,8,11,14,17,20,23=THRESHOLD NO OF 1,...,8 LOG. FN.

```

C           J=3,6,9,12,15,18,21,24= LOGICAL USE,1=COINC,-1=ANTI,0=OMIT
C           J=25,26 ALPHAMERIC NAME OF ITH CHANNEL (2A4)
C           T(I,1)= AVG. PROJ. DEPTH FOR I TH LAYER (CM)
C           T(I,2)= RMS VARIATION IN PROJ. DEPTH (CM)
C           T(I,3)= COMBINED RMS VARIATION IN PROJ DEPTH DUE TO THICKNESS AND
C                   ANGLE
C           T(I,4)= AVG - SIGMA
C           T(I,5)= AVG + SIGMA
C
C           CX = (4. * 3.14159 * ((4.8E-10)**4)) / ((1.6E-6)**2)
C           DO 10 I = 1,4
C           DO 10 IP= 1,17
C           10 DDEIN(IP,I) = CX * Z(IP) * EDENS(I) * TDENS(I)
C           DO 11 I = 1,7
C           DO 11 J = 1,7
C           11 D(I,J) = 0.
C READ IN RANGE ENERGY DATA
C           READ(5,9005) (XE(K,1),K=1,140)
C           9005 FORMAT(8F10.4)
C           DO33K=1,140
C           33 XE(K,1)=DLOG10(XE(K,1))
C           DO 30 J=1,4
C           READ(5,9006) (STR(K,1,J),K=1,140)
C           30 READ(5,9006) (XR(K,1,J),K=1,140)
C           9006 FORMAT(8F10.6)
C           READ(5,9005) (XE(K,2),K=1,38)
C           DO34K=1,38
C           34 XE(K,2)=DLOG10(XE(K,2))
C           DO 32 J=1,4
C           IF(J.EQ.2) GO TO 32
C           DO 31 I=4,17
C           31 READ(5,9006) (XR(K,I,J),K=1,38)
C           32 CONTINUE
C FILL IN SILICON TABLE FOR 0.0125 TO 12 MEV/NUC. USING ALUMINUM
C           MULTIPLY RANGE BY RHO(AL)/RHO(SI) =2.699/2.33
C           CC= 2.699/2.33
C           CX= DLOG10(CC)
C           J=2
C           DO 16 I=4,17
C           DO 16 K=1,38
C           16 XR(K,I,J) = XR(K,I,1) + CX
C
C CALCULATE CONVERSION FACTORS WIRH 'EFFECTIVE CHARGE'
C           DO15I=4,17
C           II=2
C           KMAX=135
C           DO15K=1,KMAX
C           IF(K.GT.38) XE(K,2)=XE(K+5,1)
C           EKE=(1.D+1)**XE(K,II)
C           EKE=EKE/938.211
C           BETASQ=1.-1./((EKE+1.)**2)
C           BETA=SQRT(BETASQ)
C           PSI=(137.*BETA)/Z(I)
C           XC=DBLE(PSI)
C           IF(PSI.LE.1.459) GAMASQ=1.-1.44*DEXP(-XC*1.83D+0)
C           IF(PSI.GT.1.459) GAMASQ=1.-1.85*DEXP(-XC*2.D+0)
C           GAMASQ=AMAX1(GAMASQ,0.1)
C           PVFCT(K,I)=GAMASQ*Z(I)*Z(I)
C           SVFCT(K,I)=SQRT(A(I))/Z(I)*GAMASQ*Z(I)
C           15 SVFCT(K,I)=ALOG10(SVFCT(K,I))

```

```

C
C
C
C GENERATE DEUTERON AND TRITON CURVES BY SCALING PROTONS
  DO 17 I=2,3
  DO 17 J=1,4
  DO 17 K=1,140
  CC=DBLE(A(I))
  CC=DSQRT(CC)
  CC=DLOG10(CC)
  XC=DBLE(A(I))
  XC=DLOG10(XC)
  STR(K,I,J)= STR(K,1,J)+CC
17 XR(K,I,J)=XR(K,1,J)+ XC
C FILL IN Z.GE.2 NUCLEI, E.GT.12MEV/NUC.BY SCALING JANNI PROTONS
  DO 18 I=4,17
  DO 18 J=1,4
  DO 18 K=39,135
  CC=DBLE(SVFCT(K,I))
  STR(K,I,J)= STR(K+5,1,J)+CC
18 CONTINUE
C
  DO2500J=1,4
  DO2500I=4,17
  RNGE=(1.D+1)**XR(38,I,J)
  ELOW=(1.D+1)**XE(43,1)
  PRNGE=(1.D+1)**XR(43,1,J)
  GLOW=PVFCT(38,I)
  DO2500K=39,135
  GHIGH=PVFCT(K,I)
  GAVE=0.5*(GLOW+GHIGH)
  EHIGH=(1.D+1)**XE(K+5,1)
  PHRNGE=(1.D+1)**XR(K+5,1,J)
  XRFACT=(EHIGH-ELOW)*A(I)/GAVE
  DRDE=(PHRNGE-PRNGE)/(EHIGH-ELOW)
  RNGE=RNGE+XRFACT*DRDE
  CC=DBLE(RNGE)
  XR(K,I,J)=DLOG10(CC)
  GLOW=GHIGH
  ELOW=EHIGH
2500 PRNGE=PHRNGE
C FILL IN STRAGGLING ESTIMATES FOR IONS USING SCALING LAW E.LE.12MEV/NUC
  DO 19 I=4,17
  DO 20 K=1,17
  KK=NV(K)
  CC=DBLE(SVFCT(KK,I))
  DO 20 J=1,4
20 STR(KK,I,J) = CC + DLOG10(SC(K,J))
  DO 21 J=1,4
  DO 21 K =1,21
  KK = NS(K)
  CC=DBLE(SVFCT(KK,I))
  KL = NR(K)
21 STR(KK,I,J)=CC + STR(KL,1,J)
19 CONTINUE
C READ OPTION CARD FOR RANGE ENERGY TABLE PRINT OUT
40 READ(5,9007) IP,IT,ENGL,ENGH,NUMENG,LAST
9007 FORMAT(2I10,2F10.4,2I10)
  KMAX=140
  II=1

```

```

      IP(IP.GE.4) II=2
      IP(IP.GE.4) KMAX=135
      XTX=(1.D+1)**XE(1,II)
      ENGL=AMAX1(ENGL,XTX)
      XTY=(1.D+1)**XE(KMAX,II)
      ENGH=AMIN1(ENGH,XTY)
      DEL=(ALOG10(ENGH)-ALOG10(ENGL))/FLOAT(NUMENG-1)
      DEL=10.**DEL
      PRINT 9008, Z(IP), A(IP), PTAG(IT)
9008  FORMAT(1H1, 'RANGE-ENERGY TABLE FOR Z = ', F6.3, ' AND A = ', F6.3, ' PAR
      TTICLES IN ', A6/1H0, 8X, 6HENERGY, 10X, 5HRANGE, 5X, 10HSTRAGGLING)
      EINC(1) = ENGL
      NUMENG = MINO(NUMENG, 100)
      EXX = ENGL
      DO 41 I=1, NUMENG
      XXE=EINC(I)
      CALL RR(XXE, XXR, XXST, IP, IT, IPLAG)
      IF(IPLAG.NE.0) GO TO 43
      PRINT 9009, XXE, XXR, XXST
9009  FORMAT(1H , 4X, F10.4, 4X, F11.6, 5X, F10.6)
      IF(MOD(I, 50).EQ.0) PRINT 9008, Z(IP), A(IP), PTAG(IT)
      43  EXX= EXX * DEL
      IEX=ALOG10(EXX)
      IF(EXX.LT.1.) IEX=IEX-1
      IEXX=EXX*(10.**(-IEX))
      TEXX=FLOAT(IEXX)*(10.**(IEX-1))
      IF(TEXX.NE.EINC(I)) GO TO 44
      IEXX=EXX*(10.**(-IEX))
      TEXX=FLOAT(IEXX)*(10.**(IEX-2))
      44  CONTINUE
      41  EINC(I+1) = TEXX
      IF(LAST.EQ.0) GO TO 42
      GO TO 40
      42  CONTINUE
C READ PARTICLE SELECTION
      READ(5, 9041) NPARTS
      READ(5, 9040) (IPARTS(I), I=1, NPARTS)
9041  FORMAT(I2)
9040  FORMAT(17I2)
      PRINT 9042, NPARTS
9042  FORMAT(1H0, 'NUMBER OF INPUT PARTICLES SELECTED = ', I2)
      PRINT 9043, (IPARTS(I), I=1, NPARTS)
9043  FORMAT(1H0, 'PARTICLE TYPES SELECTED ARE ', 17(2X, I2))
C READ ABSORBER CARDS
9010  FORMAT(7F10.4, I10)
      DO 50 I=1, 7
      READ(5, 9010) (D(I, J), J=1, 7), INDEX
      IF(INDEX.NE.1111) GO TO 55
      IABS = D(I, 2)
      IF(IABS.EQ.1) GO TO 51
      IF(IABS.EQ.2) GO TO 51
      IF(IABS.EQ.3) GO TO 51
      IF(IABS.EQ.4) GO TO 51
      52  PRINT 9011, (D(I, J), J=1, 7)
9011  FORMAT(1H0, 'WRONG MATERIAL, CHECK ABSORBER CARDS', 7(5X, F10.4))
      STOP
      51  CONTINUE
      IF(D(I, 1).LT.0.) GO TO 52
      NLEVEL=D(I, 1)
      DO63J=1, 8

```

```

63 THRESH(I,J)=0.
   IF(D(I,1).GT.0.) READ(5,9012) (THRESH(I,J),J=1,NLEVEL)
53 IF(D(I,3))52,52,50
50 CONTINUE
55 NABS = I-1
C COMPUTE PROJECTED DEPTH AND UNCERTAINTY
DO 56 I=1,NABS
   IF(D(I,5).LE.0.)GO TO 57
   ANGLE=(D(I,5)*6.28318)/360.
   T(I,1)=(D(I,3)*2.*(1.-COS(ANGLE)))/(SIN(ANGLE)**2)
   T(I,2)=D(I,3)*((1./COS(ANGLE))-1.)*0.5
   T(I,3)=SQRT(T(I,2)**2 + D(I,4)**2)
   T(I,4)= T(I,1) - T(I,3)
   T(I,5)= T(I,1) + T(I,3)
   GO TO 56
57 T(I,1)= D(I,3)
   T(I,2)= 0.
   T(I,3)= D(I,4)
   T(I,4)= T(I,1) - T(I,3)
   T(I,5)= T(I,1) + T(I,3)
56 CONTINUE
9012 FORMAT(8F10.4)
   PRINT 9013
9013 FORMAT(1H1,'PARAMETERS OF ABSORBER STACK')
   PRINT 9014,(D(J,3),J=1,NABS)
   PRINT 9015,(D(J,2),J=1,NABS)
   PRINT 9026,(D(J,4),J=1,NABS)
   PRINT 9027,(D(J,5),J=1,NABS)
   PRINT 9028,(D(J,6),J=1,NABS)
   PRINT 9029,(D(J,7),J=1,NABS)
   PRINT 9030,(D(J,1),J=1,NABS)
9014 FORMAT(1H0,'ABSORBER THICKNESSES,MICRONS',8(1X,4PF10.3))
9015 FORMAT(1H0,'ABSORBER MATERIAL',8(8X,F3.0))
9026 FORMAT(1H0,'THICKNESS VARIATION,MICRONS',8(1X,4PF10.4))
9027 FORMAT(1H0,'CONICAL HALF ANGLE,DEGREES',8(6X,F5.1))
9028 FORMAT(1H0,'DETECTOR NOISE,MEV',8(5X,F6.3))
9029 FORMAT(1H0,'ELECTRONIC NOISE,MEV',8(5X,F6.3))
9030 FORMAT(1H0,'NUMBER OF THRESHOLDS SET',8(6X,F5.1))
   DO64J=1,8
64 PRINT 9031,J,(THRESH(I,J),I=1,NABS)
9031 FORMAT(1H0,'THRESHOLD LEVEL NO.MEV',I5,8(2X,F9.4))
   PRINT 9032,(T(I,1),I=1,NABS)
   PRINT 9033,(T(I,2),I=1,NABS)
   PRINT 9034,(T(I,3),I=1,NABS)
   PRINT 9035,(T(I,4),I=1,NABS)
   PRINT 9036,(T(I,5),I=1,NABS)
9032 FORMAT(1H0,'AVERAGE PROJECTED DEPTH,MIC',8(1X,4PF10.3))
9033 FORMAT(1H0,'EST.RMS VARN.PROJ.DEPTH,MIC',8(1X,4PF10.4))
9034 FORMAT(1H0,'NET RMS THICKNESS VARN.(MIC)',8(1X,4PF10.4))
9035 FORMAT(1H0,'LOWER LIMIT THICKNESS(MIC)',8(1X,4PF10.3))
9036 FORMAT(1H0,'UPPER LIMIT THICKNESS(MIC)',8(1X,4PF10.3))
60 READ(5,9016)LFLAG
9016 FORMAT(I10)
   I=0
   IF(LFLAG)58,58,59
59 PRINT 9039,LFLAG
9039 FORMAT(1H1,'LOGIC TABLE FOR ',I4,' CHANNELS')
   DO62I=1,LFLAG
   READ(5,9017) (I(I,K),K=1,26)
9017 FORMAT(24(1X,I2),2A4)

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62 PRINT 9018, (L(I,K),K=1,26)
9018 FORMAT(1H0,24(2X,I2),2A4)
58 CONTINUE
PRINT 9037
9037 FORMAT(1H1,'INTRINSIC FLUCTUATIONS IN ENERGY LOSS (KEV/NUC) CALC FROM
20M BOHR FORMULA',/1H0,6X,1HZ,6X,1HA)
DO 100 IIP=1,NPARTS
IP=IPARTS(IIP)
C CALCULATE INTRINSIC FLUCTUATION IN ENERGY LOSS
DO 129 M=1,NABS
IM=D(M,2)
DDEIX(IP,M)=DDEIN(IP,IM)*T(M,1)
129 DDEIX(IP,M)=SQRT(DDEIX(IP,M))/A(IP)
8001 FORMAT(1H0,2(3X,F4.0),8(5X,3PF8.3))
PRINT 8001,Z(IP),A(IP),(DDEIX(IP,M),M=1,NABS)
DO 110 K=1,NUMENG
EXXX=EINC(K)
DO 120 M=1,NABS
IF(EXXX.EQ.0.) GO TO 125
IT=D(M,2)
CALL DELTAE(EXXX,EOUT,T(M,1),DE(K,IP,M),IP,IT)
CALL DELTAE(EXXX,ET2,T(M,5),DET2,IP,IT)
CALL DELTAE(EXXX,ET1,T(M,4),DET1,IP,IT)
IF(ET1.EQ.0.) GO TO 121
IF(EOUT.EQ.0.) GO TO 122
IF(ET2.EQ.0.) GO TO 123
C NOT STOPPED AT ANY THICKNESS
XSIG=DET2-DET1
XSIG=0.5*XSIG
XSIG=AMAX1(XSIG,DDEIX(IP,M))
126 DD(K,IP,M)=SQRT((D(M,6)/A(IP))**2+(D(M,7)/A(IP))**2+XSIG**2)
EXXX=EOUT
GO TO 120
C STOPPED AT AVG+SIGMA,NOT STOPPED AT AVG
123 XSIG=EXXX-DBLE(DET1)
XSIG=XSIG*0.5
GO TO 126
C NOT STOPPED AT AVG-SIGMA,STOPPED AT AVG AND AVG+SIGMA
122 XSIG=EXXX-DBLE(DET1)
GO TO 126
121 XSIG=0.
GO TO 126
125 DO124MM=M,NABS
DE(K,IP,MM)=0.
124 DD(K,IP,MM)=0.
GO TO 128
120 CONTINUE
128 CONTINUE
110 CONTINUE
100 CONTINUE
DO 130 IIP=1,NPARTS
IP=IPARTS(IIP)
PRINT 9019,Z(IP),A(IP),((II,II),II=1,NABS)
9019 FORMAT(1H1,'ENERGY LOSS TABLE FOR PARTICLES OF Z = ',F4.0,' AND A =
2 ',F4.0/1H,5X,4HEINC,2X,7(' DELTAE',I1,' DDELTE',I1))
DO 131 K=1,NUMENG
IF(MOD(K,51).EQ.0) PRINT 9019,Z(IP),A(IP),((II,II),II=1,NABS)
DO 2131 M=1,NABS
TDE(K,M)=DE(K,IP,M)*A(IP)
TDD(K,M)=DD(K,IP,M)*A(IP)

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```

2131 CONTINUE
      TEINC(K)=EINC(K)*A(IP)
      131 PRINT 9020,EINC(K),((DE(K,IP,M),DD(K,IP,M)),M=1,NABS)
9020 FORMAT(1H ,F9.3,2X,7(1X,F7.3,1X,F6.3,1H*))
      PRINT 9044
9044 FORMAT(1H0,'UNITS FOR ABOVE TABLE ARE MEV/NUC')
9045 FORMAT(1H0,'UNITS FOR ABOVE TABLE ARE MEV,TOTAL ENERGY')
9046 FORMAT(1H ,F9.3,7(F8.2,F8.3))
      PRINT 9019,Z(IP),A(IP),((II,II),II=1,NABS)
      DO1131 K=1,NUMENG
      IF(MOD(K,51).EQ.0) PRINT 9019,Z(IP),A(IP),((II,II),II=1,NABS)
1131 PRINT 9046,TEINC(K),((TDE(K,M),TDD(K,M)),M=1,NABS)
      PRINT 9045
130 CONTINUE
      DO 140 IIP=1,NPARTS
      IP=IPARTS(IIP)
      DO 141 M=1,NABS
      IF(D(M,1).LE.0.) GO TO 141
      NLEVEL = D(M,1)
      PRINT 9021,NLEVEL,M,Z(IP),A(IP)
      DO1142KT=1,NLEVEL
1142 CONE(KT,1)=THRESH(M,KT)/A(IP)
      PRINT 9038 ,(CONE(KT,1),KT=1,NLEVEL)
9038 FORMAT(1H0,9X,8(F6.3,'MEV/NUC')/1H0)
      DO 142 K=1,NUMENG
      SSDE = DD(K,IP,M) * DSQRT(2.D+0)/2.355D+0
      SDE = DE(K,IP,M)
      DO 143 KT=1,NLEVEL
      IF(SSDE.EQ.0.) GO TO 144
      AA=((THRESH(M,KT)/A(IP))-SDE)/SSDE
      EPS(K,M,KT)= 0.5*ERFC(AA)
      GO TO 143
144 IF(THRESH(M,KT)-SDE) 145,146,147
145 EPS(K,M,KT)=1.
      GO TO 143
146 EPS(K,M,KT)=0.5
      GO TO 143
147 EPS(K,M,KT)=0.
143 CONTINUE
9021 FORMAT(1H1,'EFFICIENCIES OF ',I4,' LEVELS IN THE ',I4,' ABSORBER
1 FOR PARTICLES WITH Z = ',F3.0,' AND A = ',F3.0)
      IF(MOD(K,51).EQ.0) PRINT 9021,NLEVEL,M,Z(IP),A(IP)
      TEINC(K)=EINC(K)*A(IP)
142 PRINT 9022,EINC(K),TEINC(K),((KT,EPS(K,M,KT)),KT=1,NLEVEL)
9022 FORMAT(1H ,F9.3,2X,F9.3,8(' #',I1,2X,F7.4))
141 CONTINUE
      IF(LFLAG.LE.0) GO TO 140
      DO 150 K=1,NUMENG
      DO 150 IL=1,LFLAG
      EDUM =1.
      DO151JL=1,22,3
      IF(L(IL,JL+2).EQ.0)GO TO 151
      ISUBS = L(IL,JL+1)
      MSUBS = L(IL,JL)
      IF(L(IL,JL+2).EQ.1)GO TO 152
      EDUM = EDUM * (1. - EPS(K,MSUBS,ISUBS))
      GO TO 151
152 EDUM = EDUM * EPS(K,MSUBS,ISUBS)
151 CONTINUE
150 EPPCHA(K,IL)=EDUM

```

```

PRINT 9047
9047 FORMAT(1H1)
PRINT 9023,Z(IP),A(IP)
9023 FORMAT(1H0,'LOGICAL CHANNEL EFFICIENCIES FOR PARTICLES OF Z = ',F3
2.0,' AND A = ',F3.0)
LPRINT =1
154 LTOP=LPRINT +13
LTOP=MIN0(LFLAG,LTOP)
PRINT 9025,((L(LDUM,25),L(LDUM,26)),LDUM=LPRINT,LTOP)
DO153 K=1,NUMENG
IF(MOD(K,51).EQ.0) PRINT 9048,((L(LDUM,25),L(LDUM,26)),LDUM=LPRINT
2,LTOP)
TEINC(K)=EINC(K)*A(IP)
153 PRINT 9024,EINC(K),(EPPCHA(K,IL),IL=LPRINT,LTOP)
1,TEINC(K)
9024 FORMAT(1H ,F8.4,14(F8.3),1X,F9.3)
9048 FORMAT(1H1,3X,4HEINC,28A4)
9025 FORMAT(1H0,3X,4HEINC,28A4)
IF(LTOP.GE.IFLAG) GO TO 155
LPRINT = LTOP + 1
GO TO 154
155 CONTINUE
140 CONTINUE
STOP
END
REAL FUNCTION ERFC(Y)
C ABRANOWITZ AND STEGUN NO. 7.1.26
DOUBLE PRECISION P,A1,A2,A3,A4,A5,T,FACT,XERF
DOUBLE PRECISION DX,DY,DX2
DATA P,A1,A2,A3,A4,A5/.3275811,.254829592,-.284496736,1.421413741,
1 -1.453152027,1.061405429/
X=ABS(Y)
DY=DBLE(Y)
DX=DBLE(X)
IF(X.GT.8.) GO TO 10
T=(1.D+0)/(1.D+0+P*DX)
FACT=T*(A1+T*(A2+T*(A3+T*(A4+T*A5))))
DX2=DX*DX
XERF=1.D+0-FACT*DEXP(-DX2)
11 ERFC=1.D+0-DSIGN(XERF,DY)
RETURN
10 XERF=DSIGN(1.D+0,DY)
GO TO 11
END
SUBROUTINE DELTAE(EINX,EOUTX,DXX,DEX,IP,IT)
DOUBLE PRECISION EINX,EOUTX,STR,RINX,STRX,ROUTX,STROUT,RRR,XR,XE
DOUBLE PRECISION XA,XB,XEE,XE1,RR1,XAR,DDD
COMMON/ET/ XR(140,17,4), XE(140,2), STR(140,17,4)
DDD=DBLE(DXX)
CALL RR(EINX,RINX,STRX,IP,IT,IFLAG)
IF(IFLAG.EQ.1) GO TO 200
IF(IFLAG.EQ.(-1)) GO TO 205
IF(RINX-DDD) 201,201,202
202 ROUTX=RINX-DDD
RRR=DLOG10(ROUTX)
IF(RRR.LT.XR(1,IP,IT)) GO TO 203
CALL EE(EOUTX,ROUTX,STROUT,IP,IT,IFLAG)
IF(IFLAG.NE.0) GO TO 200
204 CONTINUE
DEX=EINX-EOUTX

```



```

RETURN
201 DEX=EINX
EOUTX=0.
RETURN
200 PRINT 9000,EINX,EOUTX,DX,DEX,IP,IT,IPLAG
9000 FORMAT(1H0,'OFF OF RANGE TABLE, CHECK INPUT',4F10.4,3I10)
EOUTX=-0.
DEX=-0.
RETURN
203 II=1
IF(IP.GE.4) II=2
RRR=(1.D+1)**XR(1,IP,IT)
RR1=(1.D+1)**XR(2,IP,IT)
XEE=(1.D+1)**XE(1,II)
XE1=(1.D+1)**XE(2,II)
XB=(XEE*(RR1-RRR))/(RRR*(XE1-XEE))
XA=RRR/(XEE**XB)
XBR=(1.D+0)/XB
EOUTX=(ROUTX/XA)**XBR
GO TO 204
205 RRR=(1.D+1)**XR(1,IP,IT)
IF(DDD.LT.RRR) GO TO 200
GO TO 201
END
SUBROUTINE RR(EX,RX,STRX,I,J,IPLAG)
DOUBLE PRECISION XR,XE,STR
COMMON/RT/ XR(140,17,4), XE(140,2), STR(140,17,4)
DOUBLE PRECISION EX, RX, STRX
DOUBLE PRECISION XRH, XEH, XSH, XRL, XEL, XSL, EXL

```

C
C
C
C

THIS ROUTINE USES LINEAR INTERPOLATION
GIVEN ENERGY (EX) FIND RANGE (RX)

```

EXL=DLOG10(EX)
II=1
JMAX=140
IF(I.GE.4) JMAX=135
IF(I.GE.4) II=2
IF(EXL.LT.XE(1,II)) GO TO 100
GO TO 110
100 IPLAG=-1
RETURN
110 CONTINUE
IF(EXL.EQ.XE(1,II)) GO TO 120
DO 200 JH=2,JMAX
IF(EXL.LT.XE(JH,II)) GO TO 220
IF(EXL.EQ.XE(JH,II)) GO TO 210
200 CONTINUE
IPLAG=+1
RETURN
120 JH=1
210 RX=XR(JH,I,J)
STRX=STR(JH,I,J)
GO TO 300
220 JL=JH-1
XRH=XR(JH,I,J)
XEH=XE(JH,II)
XSH=STR(JH,I,J)
XRL=XR(JL,I,J)
XEL=XE(JL,II)

```

```

XSL=STR(JL,I,J)
RX=XRI+(XRH-XRI)*(EXL-XEL)/(XEH-XEL)
STRX=XSL+(XSH-XSL)*(EXI-XEI)/(XEH-XEL)
300 IFLAG=0
RX=(1.D+1)**RX
STRX=(1.D+1)**STRX
RETURN
END
SUBROUTINE EE(EX,RX,STRX,I,J,IFLAG)
COMMON/RT/ XR(140,17,4), XE(140,2), STR(140,17,4)
DOUBLE PRECISION XR,XE,STR
DOUBLE PRECISION EX, RX, STRX
DOUBLE PRECISION XRH, XEH, XSH, XRL, XEL, XSL, RXL

```

C
C
C
C
C

THIS ROUTINE USES LINEAR INTERPOLATION
GIVEN RANGE (RX) FIND ENERGY (EX)

```

RXL=DLOG10(RX)
II=1
JMAX=140
IF(I.GE.4)II=2
IF(I.GE.4)JMAX=135
IF(RXL.LT.XR(1,I,J)) GO TO 100
GO TO 110
100 IFLAG=-1
RETURN
110 CONTINUE
IF(RXL.EQ.XR(1,I,J)) GO TO 120
DO 200 JH=2,JMAX
IF(RXL.LT.XR(JH,I,J)) GO TO 220
IF(RXL.EQ.XR(JH,I,J)) GO TO 210
200 CONTINUE
IFLAG=1
RETURN
120 JH=1
210 EX=XE(JH,II)
STRX=STR(JH,I,J)
GO TO 300
220 JL=JH-1
XRH=XR(JH,I,J)
XEH=XE(JH,II)
XSH=STR(JH,I,J)
XRL=XR(JL,I,J)
XEL=XE(JL,II)
XSL=STR(JL,I,J)
EX=XEL+(XEH-XEL)*(RXL-XRL)/(XRH-XRL)
STRX=XSL+(XSH-XSL)*(RXL-XRL)/(XRH-XRL)
300 IFLAG=0
STRX=(1.D+1)**STRX
EX=(1.D+1)**EX
RETURN
END

```

```

//JOB LIB DD DSN=S1P.TPA.VLASOV,DISP=SHR
// EXEC PGM=PAMELA,REGION=350K
//PT06P001 DD SYSOUT=A,
// DCB=(RECPM=VBA,LRECL=137,BLKSIZE=3520,BUFNO=1)
//PT05P001 DD DSN=S1P.TPA.PAMDATA1,DISP=SHR
// DD *

```

```

1          2 .25      800.          99
1
0.          3..00003475 0.000001 0.          0.          0.          1111
8.          2. .00387 0.000387 0.          0.07         0.          1111
.17         .21         .44          .925        2.38         4.48         9.48        21.2
7.          2. 0.09     0.0005     0.          0.027        0.          1111
.196        .209        .456         .809        3.82         7.51        14.8
5.          2. .27      .001        0.          .0235        0.          1111
1.49        2.98        3.95         6.95        26.4
0.          4.1.4573     0.          0.          0.          0.          1111
1.          2. .5       0.005       0.          0.1          0.          1111
0.5

```

```

11
2 2 1 2 3 -1 3 2 -1 6 1 -1          P1
2 3 1 2 4 -1 3 2 -1 6 1 -1          P2
2 4 1 3 2 -1 6 1 -1                  P3
2 2 1 3 2 1 3 5 -1 4 1 -1 6 1 -1    P4
2 2 1 3 5 1 3 6 -1 4 1 -1 6 1 -1    P5
2 2 1 3 6 1 6 1 -1                    P6
3 5 1 3 6 -1 4 4 1 6 1 -1            P7
3 4 1 3 5 -1 4 4 1 6 1 -1            P8
3 4 1 3 5 -1 4 3 1 4 4 -1 6 1 -1    P9
3 4 1 4 2 1 4 3 -1 6 1 -1            P10
3 4 -1 3 1 1 4 1 1 4 2 -1            P11

```

```

//JOB LIB DD DSN=S1P.TPA.VLASOV,DISP=SHR
// EXEC PGM=PAMELA,REGION=350K
//PT06F001 DD SYSOUT=A,
// DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520,BUFNO=1)
//PT05F001 DD DSN=S1P.TPA.PAMDATA1,DISP=SHR
// DD *

```

	4	2	.1	200.	99		
1							
4							
	0.	3..00003475	0.000001	0.	0.	0.	1111
	8.	2. .00387	0.000387	0.	0.07	0.	1111
.17	.21	.44	.925	2.38	4.48	9.48	21.2
	7.	2. 0.09	0.0005	0.	0.027	0.	1111
.196	.209	.456	.809	3.82	7.51	14.8	
	5.	2. .27	.001	0.	.0235	0.	1111
1.49	2.98	3.95	6.95	26.4			
	0.	4.1.4573	0.	0.	0.	0.	1111
0.5	1.	2. .5	0.005	0.	0.1	0.	1111

	17.														
2	2	1	2	3	-1	3	2	-1	6	1	-1				
2	3	1	2	4	-1	3	2	-1	6	1	-1		P1		
2	4	1	3	2	-1	6	1	-1					P2		
2	2	1	3	2	1	3	5	-1	4	1	-1	6	1	-1	P3
2	2	1	3	5	1	3	6	-1	4	1	-1	6	1	-1	P4
2	2	1	3	6	1	6	1	-1							P5
3	5	1	3	6	-1	4	4	1	6	1	-1				P6
3	4	1	3	5	-1	4	4	1	6	1	-1				P7
3	4	1	3	5	-1	4	3	1	4	4	-1	6	1	-1	P8
3	4	1	4	2	1	4	3	-1	6	1	-1				P9
3	4	-1	3	1	1	4	1	1	4	2	-1				P10
2	5	1	2	6	-1	3	2	-1	6	1	-1				P11
2	6	1	3	2	-1	6	1	-1							ALPHA 1
2	5	1	3	2	1	3	7	-1	6	1	-1				ALPHA 2
2	1	1	3	7	1	4	1	-1	6	1	-1				ALPHA 3
3	7	1	4	5	1	6	1	-1							ALPHA 4
3	5	1	3	7	-1	4	5	1	6	1	-1				ALPHA 5
															ALPHA 6

```

//JOB LIB DD DSN=S1P.TPA.VLASOV,DISP=SHR
// EXEC PGM=PAMELA,REGION=350K
//FT06F001 DD SYSOUT=A,
// DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520,BUFNO=1)
//FT05F001 DD DSN=S1P.TPA.PAMDATA1,DISP=SHR
// DD *

```

```

          9          2          .2          400.          99
1
9
0.          3..00003475 0.000001 0.          0.          0.          1111
8.          2. .00387 0.000387 0.          0.07 0.          1111
.17 .21 .44 .925 2.38 4.48 9.48 21.2
7.          2. 0.09 0.0005 0.          0.027 0.          1111
.196 .209 .456 .809 3.82 7.51 14.8
5.          2. .27 .001 0.          .0235 0.          1111
1.49 2.98 3.95 6.95 26.4
0.          4.1.4573 0.          0.          0.          1111
1.          2. .5 0.005 0.          0.1 0.          1111
0.5

```

```

          8
2 7 1 3 2 -1 6 1 -1
2 8 1 3 2 -1 6 1 -1
2 5 1 2 6 -1 3 2 -1 6 1 -1
2 6 1 3 2 -1 6 1 -1
2 5 1 3 2 1 3 7 -1 6 1 -1
2 1 1 3 7 1 4 1 -1 6 1 -1
3 7 1 4 5 1 6 1 -1
3 5 1 3 7 -1 4 5 1 6 1 -1
          Z1
          Z2
          ALPHA 1
          ALPHA 2
          ALPHA 3
          ALPHA 4
          ALPHA 5
          ALPHA 6

```

```

02
          3
1 1 1 2 2 1 3 3 -1
1 3 1 2 1 1 3 1 1
1 1 -1 2 2 1 3 1 -1
          CHAN. 1
          CHAN. 2
          CHAN. 3

```

```

//JOB LIB DD DSN=S1P.TPA.VLASOV,DISP=SHR
// EXEC PGM=PAMELA,REGION=350K
//FT06F001 DD SYSOUT=A,
// DCB=(RECFM=VBA,LRECL=137,BLKSIZE=3520,BUFNO=1)
//FT05F001 DD DSN=S1P.TPA.PAMDATA1,DISP=SHR
// DD *

```

```

17 2 .2 10. 49
1
17
0. 3..00003475 0.000001 0. 0. 0. 1111
8. 2. .00387 0.000387 0. 0.07 0. 1111
.17 -21 .44 .925 2.38 9.48 21.2 180.1
7. 2. 0.09 0.0005 0. 0.027 0. 1111
.196 .209 .456 .809 3.82 7.51 14.8
5. 2. .27 .001 0. .0235 0. 1111
1.49 2.98 3.95 6.95 26.4
0. 4.1.4573 0. 0. 0. 1111
1. 2. .5 0.005 0. 0.1 0. 1111
0.5

```

```

3
2 6 1 3 2 -1 6 1 -1 21
2 7 1 3 2 -1 6 1 -1 22
2 8 1 6 1 -1 23

```

APPENDIX D

Memo On Laboratory Calibration of CPME

The memo included here reports the laboratory calibration of the prototype CPME instrument on the accelerators at the Naval Research Laboratory, the Space Radiation Effects Laboratory, and the Goddard Space Flight Center. Although the memo refers to the "prototype instrument", it happens that this was the instrument which was launched on September 22, 1972. The modifications suggested in the memo were made before launch and hence this memo is not appropriate in all details. Other changes, not mentioned in the memo, were also made and have been included in the calculated responses presented in the main body of this report.

SLP-750-71
June 8, 1971

TO: Distribution

FROM: T. P. Armstrong *JPA 6/8/71*

SUBJECT: Summary of C.P.M.E. Prototype Calibrations with
 α 's, p's, and e's at GSFC 3/24, SREL, 3/18 and
NRL 3/30.

I. General Status (see Table I)

- 1) Primary response curves, thresholds and noise widths of all channels calibrated appear to be nominal according to the following set of level settings (S.P. Gary, 6/3/71).

A1 - 0.218 MeV
A2 - 0.446 MeV
A3 - 0.935 MeV
A4 - 2.50 MeV
A5 - 4.66 MeV
A6 - 9.5 MeV (no particle check of this)
A7 - 38.0 MeV (no particle check of this)
B1 - 0.267 MeV
B2 - 0.491 MeV
B3 - 0.904 MeV
B4 - 3.86 MeV
B5 - 8.24 MeV
B6 - 14.6 MeV
B7 - 33.3 MeV
C1 - 1.63 MeV
C2 - 3.25 MeV
C3 - 5.32 MeV
C4 - 8.46 MeV
C5 - 31.5 MeV

Note: At SREL A4 = 3.25 MeV, A6 = 8.46 MeV and A7 = 57.5 MeV.

- 2) No detailed comparison of shapes and widths with theoretical has yet been made, but I foresee no problem in accounting for the observations. FWHM's will be entered in Table I at a later date.
- 3) The ΔE vs. E curves (J.W. Kohl, 6/3/71) for protons and alpha particles are shown in Figs. 1 and 2. Noise widths are not shown but have been tabulated (Table II). The series of points for detector B taken at SREL (lower energies) remains suspect. Some entries for Table II will be calculated later.
- 4) Detector B's proton ΔE spectrum at NRL had a three-peaked structure which has not yet been explained.

II. Comments on Specific Channels

- 1) Z1 (A6 B1 M) and Z2 (A7 B1 M). Extremely clean for protons or alphas of any energy observed. NRL data yields $< 10^{-5}$ for an efficiency. We could drive this upper limit lower with one or two long runs.

- 2) $\alpha 1 - \alpha 7$. Alpha passbands look good except for $\alpha 5$ which has a broad $\sim 15\%$ "shoulder" at the high end. This is probably due to level B7 being set (33.3) too close to the α stopping energy (48 MeV) in B. If we lowered B7 to about 30 MeV $\alpha 5$ should improve. The only effect of lowering B7 is to move the boundary between $\alpha 4$ and $\alpha 5$ down. The proton sensitivities of the alpha channels generally look consistent with the inelastic rates $\leq 10^{-4}$ expected.

- 3) P1 - P11. Proton passbands look satisfactory except for P9 for which a logic change from C3 C4 B3 M to C3 C4 B3 B4 M would remove a "blip" of response at ~ 15 MeV that is far outside the nominal passband. We need more points on P11 in the 200 to 600 MeV range. There are some $\sim 5\%$ "tails" on some of the passbands that are probably due to a combination of geometric effects and anomalous ΔE signals (channeling or elastic scattering).

- 4) E4, E5, E6. The electron thresholds and passband shapes are acceptable. We still need to determine the "absolute" efficiency at a few points. By far the most serious problem is with the proton sensitivity of the electron channels. Owing to a geometrical property in the design ~ 50% of the protons in the 11 to 150 MeV range will be counted in E4, E5 and E6. This effect must be removed by computer from the flight data. Figure 3 shows the proton efficiencies of the electron channels.

III. Calibration Check List

	<u>Detector</u>	<u>Item</u>	<u>Status</u>
1)	GM tubes	Active areas	
2)	GM tubes	Window thickness (proton passbands)	
3)	GM tubes	X-ray passband	
4)	GM tubes	R vs. r	
5)	Telescope	Active areas	Have
6)	Telescope	p, α , e passbands	Need more points on P10, P11
7)	Telescope	R vs. r	
8)	Telescope	Double pulse resolving times	
9)	Telescope	Inelastic effects	Need a long run to drive down upper limit
10)	Scintillators	Blanking Pulse Width	
11)	Performance Parameters	Conversion Curves	

TABLE I

Name	Logic	ALPHAS								PROTONS							
		Nominal (Calc)				Calibrated				Nominal				Calibrated			
		Lower Thresh	FWHM	Upper Thresh	FWHM	Lower Thresh	FWHM	Upper Thresh	FWHM	Lower Thresh	FWHM	Upper Thresh	FWHM	Lower Thresh	FWHM	Upper Thresh	FWHM
$\alpha 1$	A4 $\overline{A5}$ $\overline{B1}$ \overline{M}	2.60		4.70		2.60		4.60									$\sim 10^{-4}$ at 16 MeV
$\alpha 2$	A5 $\overline{B1}$ \overline{M}	4.70		7.4		4.60		7.40									3×10^{-4} at 25 MeV
$\alpha 3$	A4 $\overline{B1}$ $\overline{B6}$ \overline{M}	7.4		13.0		7.40		16.2									2×10^{-4} at 8 MeV
$\alpha 4$	B6 $\overline{B7}$ $\overline{C1}$ \overline{M} A0	17.5		36.0		16.20		32.4									$\sim 10^{-3}$ at 16 MeV
$\alpha 5$	B7 $\overline{C1}$ \overline{M} A2 \overline{M}	36.0		56.0		32.6		44.8 (56.8)									$(10^{-3}?) \leq 10^{-5}$
$\alpha 6$	C5 $\overline{B6}$ \overline{M}	60.0				?		?									$\leq 10^{-5}$
$\alpha 7$	C5 $\overline{B4}$ $\overline{B6}$ \overline{M}					?		?									2.5×10^{-4} at 28 MeV
P1	A1 $\overline{A2}$ $\overline{B1}$ \overline{M}	0.400		0.540		?		?		0.280		0.500		0.275		.480	
P2	A2 $\overline{A3}$ $\overline{B1}$ \overline{M}	0.540		1.05		?		?		0.500		0.970		0.475		0.935	
P3	A3 $\overline{B1}$ \overline{M}	1.05		7.4		2.0		7.4		0.970		1.80		0.925		—	
P4	A1 $\overline{B1}$ $\overline{B4}$ $\overline{C1}$ \overline{M}	7.4		8.8		7.2		8.3		1.80		4.20		1.80		4.10	
P5	A1 $\overline{B4}$ $\overline{B5}$ $\overline{C1}$ \overline{M}	8.8		11.3		8.6		11.0		4.20		7.70		4.20		3.0	
P6	B5 \overline{M} A1	11.3				11.0		>67		7.70		16.0		8.0		14.6	
P7	C4 $\overline{B4}$ \overline{M} $\overline{B5}$	52.0								15.5		27.5		15.0		30.2	
P8	C4 $\overline{B1}$ $\overline{B4}$ \overline{M} B3					?		?		27.5		45.0		30.2		41.0	
P9	C3 $\overline{C4}$ B3 \overline{M}					?		?		45.0		70.0		—		65 ?	
P10	C2 $\overline{C3}$ B3 \overline{M}					?		?		70.0		125		53		134	
P11	C1 B0 $\overline{C2}$ B3					?		?		125		390		150		(~600)	
E4	B1 $\overline{A1}$ $\overline{B5}$ $\overline{C2}$ \overline{M}							$\sim 3\%$ at 44 MeV									11 to 150 MeV (20%)
E5	B2 $\overline{A1}$ $\overline{B5}$ $\overline{C2}$ \overline{M}							$\sim 3\%$ at 44 MeV									11 to 150 MeV (20%)
E6	B3 $\overline{A1}$ $\overline{B5}$ $\overline{C2}$ \overline{M}																11 to 150 MeV (20%)

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APPLIED PHYSICS LABORATORY
SILVER SPRING, MARYLAND

-7-

SLP-750-71

TABLE IIA

Protons

Beam Energy (MeV)	ΔE -A (MeV)	FWHM (MeV)	ΔE -B (MeV)	FWHM (MeV)	ΔE -C (MeV)	FWHM (MeV)
576			0.480	0.230	1.39	1.30
520			0.504	0.290	1.33	0.372
312			0.730	0.398	2.11	0.571
177			1.160	0.567	2.48	0.686
154			1.310	0.590	2.87	0.714
142			1.420	0.664	3.13	0.885
120			1.74	0.870	3.50	0.915
100			1.91	0.820	3.84	0.715
85			2.31	0.664	4.30	1.14
65			2.72	1.06	4.83	1.55
44.5			2.56		8.5	
43.5			2.62		8.75	
40.0			2.81		9.7	
35.0			3.15		11.3	
30.25			3.58		14.9	
29.0			3.68		16.4	
28.0			3.82		17.9	
27.0			3.96		20.6	
26.0			4.30		23.8	
25.0	.160		4.28		22.35	
20.0	.190		5.20		15.7	
17.0	.210		6.40		11.25	
16.0	.215		7.06		9.6	
15.0	.230		7.55		8.1	
14.5	.250				6.9	
14.0	.250				6.0	
13.0	.275				3.7	

TABLE IA (Continued)

Beam Energy (MeV)	ΔE -A (MeV)	FWHM (MeV)	ΔE -B (MeV)	FWHM (MeV)	ΔE -C (MeV)	FWHM (MeV)
12.0	.290					
10.0	.315					
9.0	.350					
8.5	.360					
8.0	.395					
7.5	.400					
7.0	.445					
5.0	.563		4.66			
4.8	.580		4.45			
4.5	.640		4.07			
4.0			3.56			
3.5	.695		2.97			
3.0	.785		2.36			
2.5	.940		1.57			
2.3	1.19		1.28			
2.1	1.33		0.89			
2.0	1.41		0.70			
1.9	1.58		0.44			
1.8	1.82		0.32			
1.7	1.73					
1.6	1.63					

TABLE IIB

Alphas

Beam Energy (MeV)	ΔE -A (MeV)	FWHM (MeV)	ΔE -B (MeV)	FWHM (MeV)	ΔE -C (MeV)	FWHM (MeV)
67.0	.910				39.5	
60.0	.950				33.2	
59.0	.980				31.5	
58.0	1.010				28.8	
57.0	1.045				26.6	
56.0	1.010				24.25	
55.0	1.050				21.2	
53.0	1.065				15.9	
50.0	1.125				.5?	
47.0	1.160					
45.0	1.230					
44.0	1.245					
43.0	1.280					
40.0	1.330					
35.0	1.130					
34.0	1.160					
33.0	1.135					
32.0	1.170					
30.0	1.44					
25.0	1.905					
20.0	2.32					
19.5	2.34					
19.0	2.38					
18.5	2.42					
18.0	2.57					

TABLE IIB (Continued)

Beam Energy (MeV)	ΔE -A (MeV)	FWHM (MeV)	ΔE -B (MeV)	FWHM (MeV)	ΔE -C (MeV)	FWHM (MeV)
17.0	2.85					
16.5	2.80					
16.0	2.85					
14.0	2.86					
12.0						
10.0			6.55			
9.5			5.03			
9.0			4.27			
8.5			3.20			
8.0			2.00			
7.5			.42			
7.0						
6.0						
5.0						
5.8						
4.5						
4.0						
3.5						
3.0						
2.8	2.69					
2.5	2.38					
2.0	1.85					

Figure 1

Proton Energy (MeV)

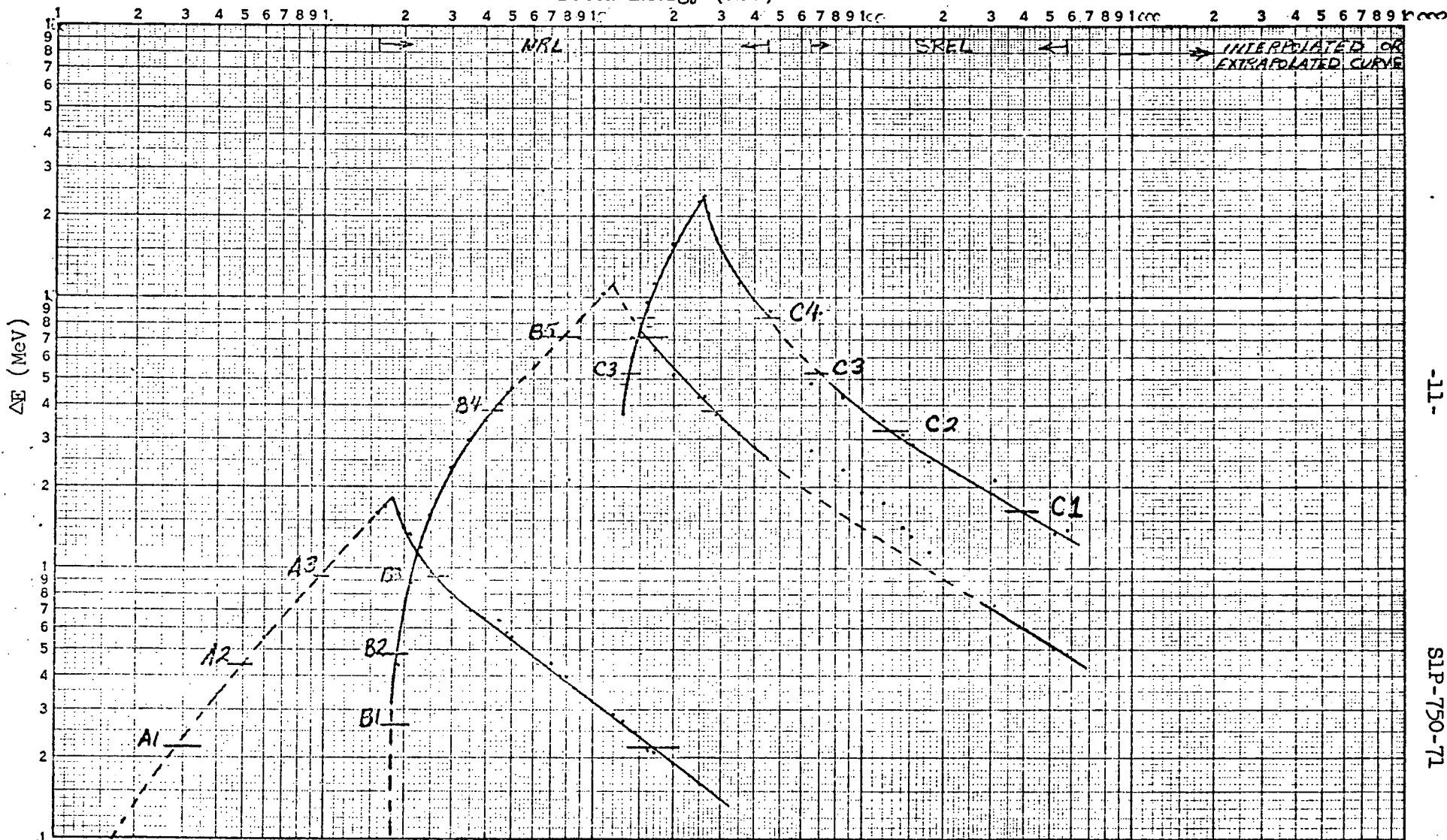


Figure 2

Alpha Energy (MeV)

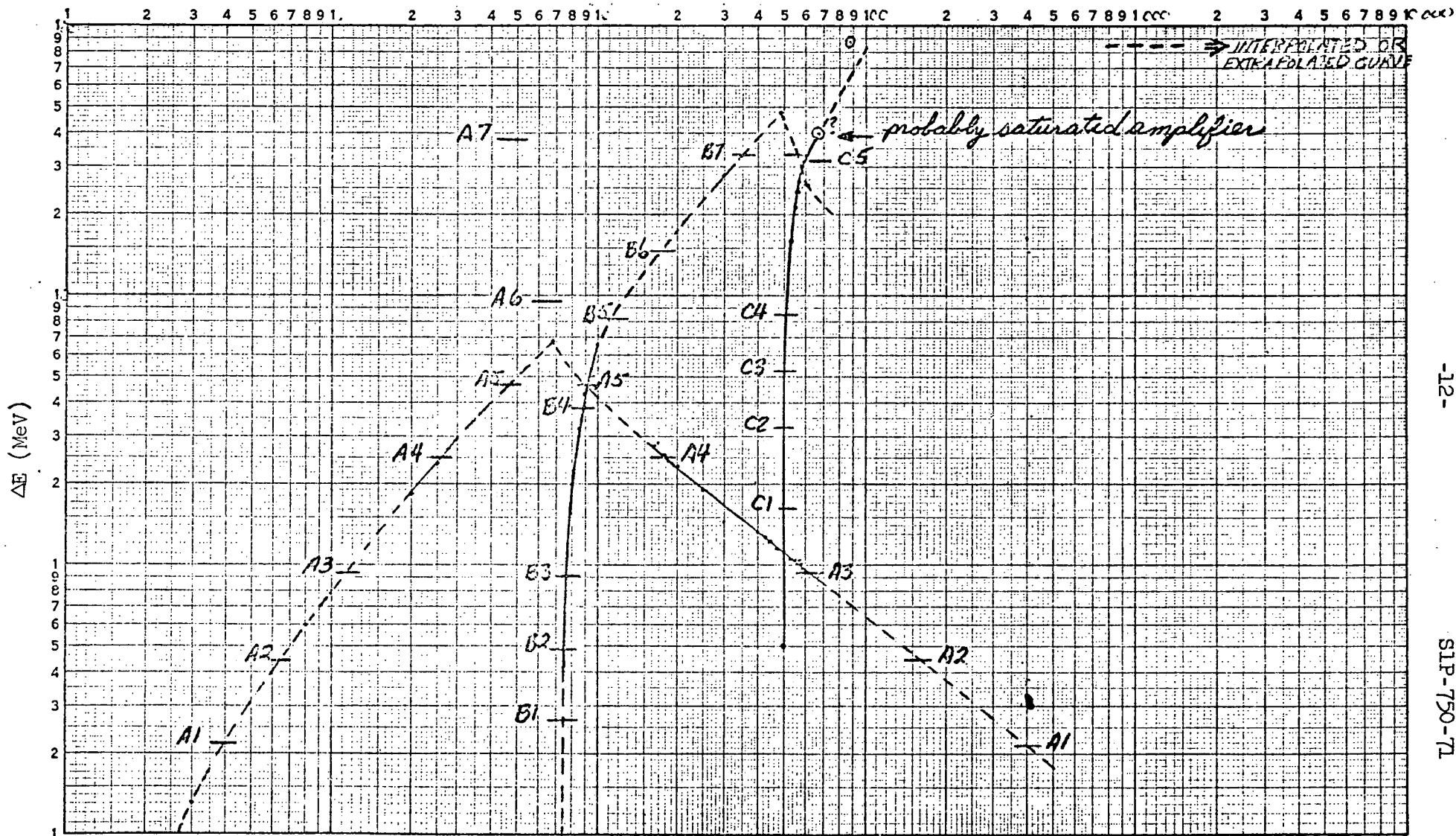
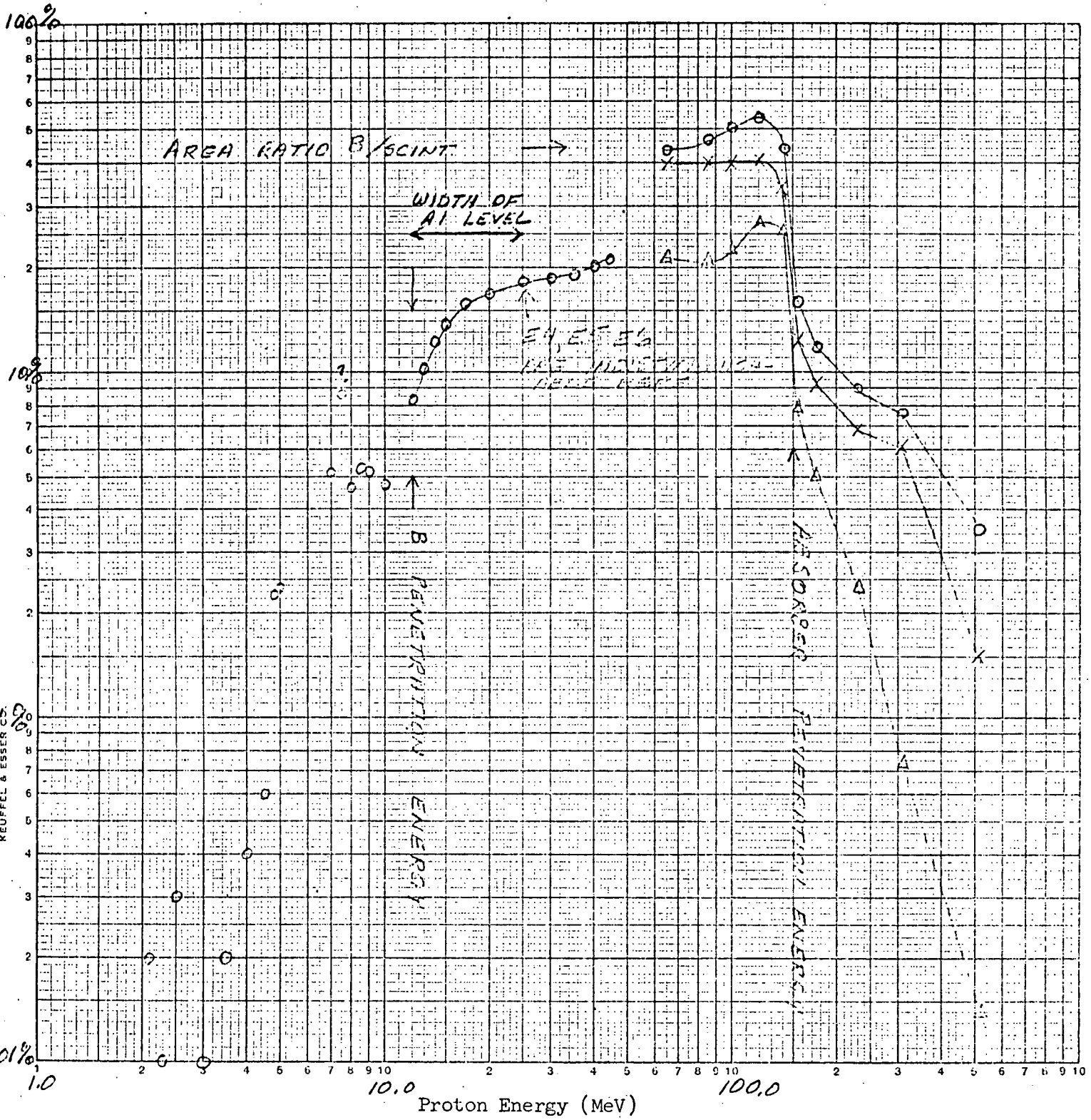


Figure 3



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APPENDIX E

Electron Response of the Telescope

It is difficult to calculate the response due to electrons reliably because of scattering which is much more severe for electrons than for ions. The electron passbands have been determined experimentally and are shown in Figure E-1 along with points calculated utilizing the energy deposition functions for electrons in silicon detectors reported by Berger, et al., 1969 (NBS Technical Note 489). As can be seen from the figure, channel E4 and E5 approximate integral channels for electrons with energies exceeding .220 MeV and .50 MeV respectively. E6 approximates a differential channel with upper and lower edges of .8 and 1.0 MeV respectively. The geometric factor corresponding to unit efficiency in Figure E-1 has been assigned a preliminary value of $.32 \text{ cm}^2 \text{ sr}$. The uncertainty in this number is due to the not-yet-quantitatively certain effect of the anticoincidence plastic scintillator. Further experimental data will be obtained on a spare unit to firm-up the effective geometric factor.

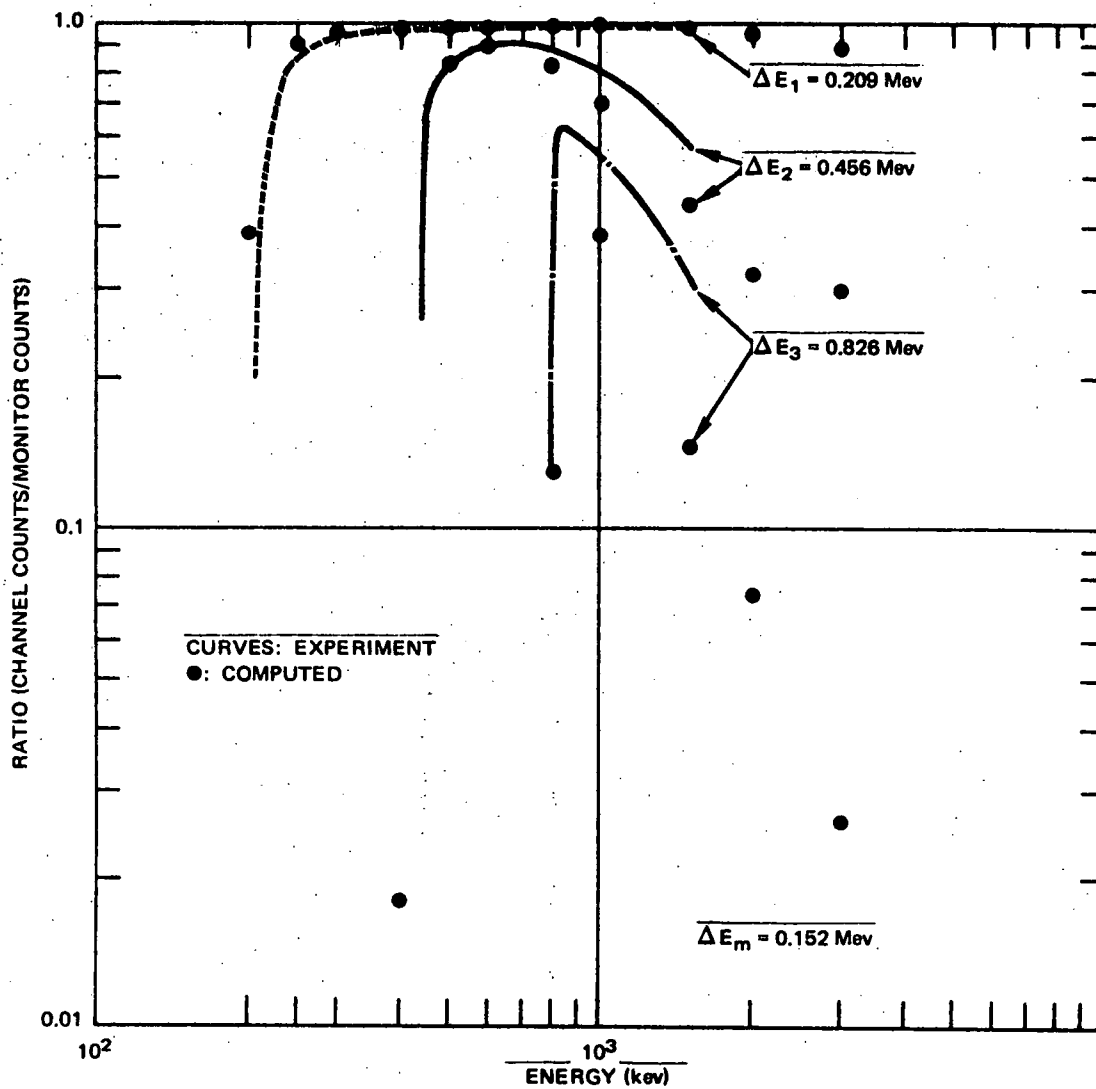


Fig. E1 COMPARISON OF COMPUTED AND EXPERIMENTAL RELATIVE ELECTRON EFFICIENCIES

APPENDIX F

Passbands of Telescope as Functions of Atomic Number of Incident Particle

Included in this appendix are three figures which display the dependence of atomic number of the passbands of the CPME telescope. These are curves calculated with PAMELA (see APPENDIX C).

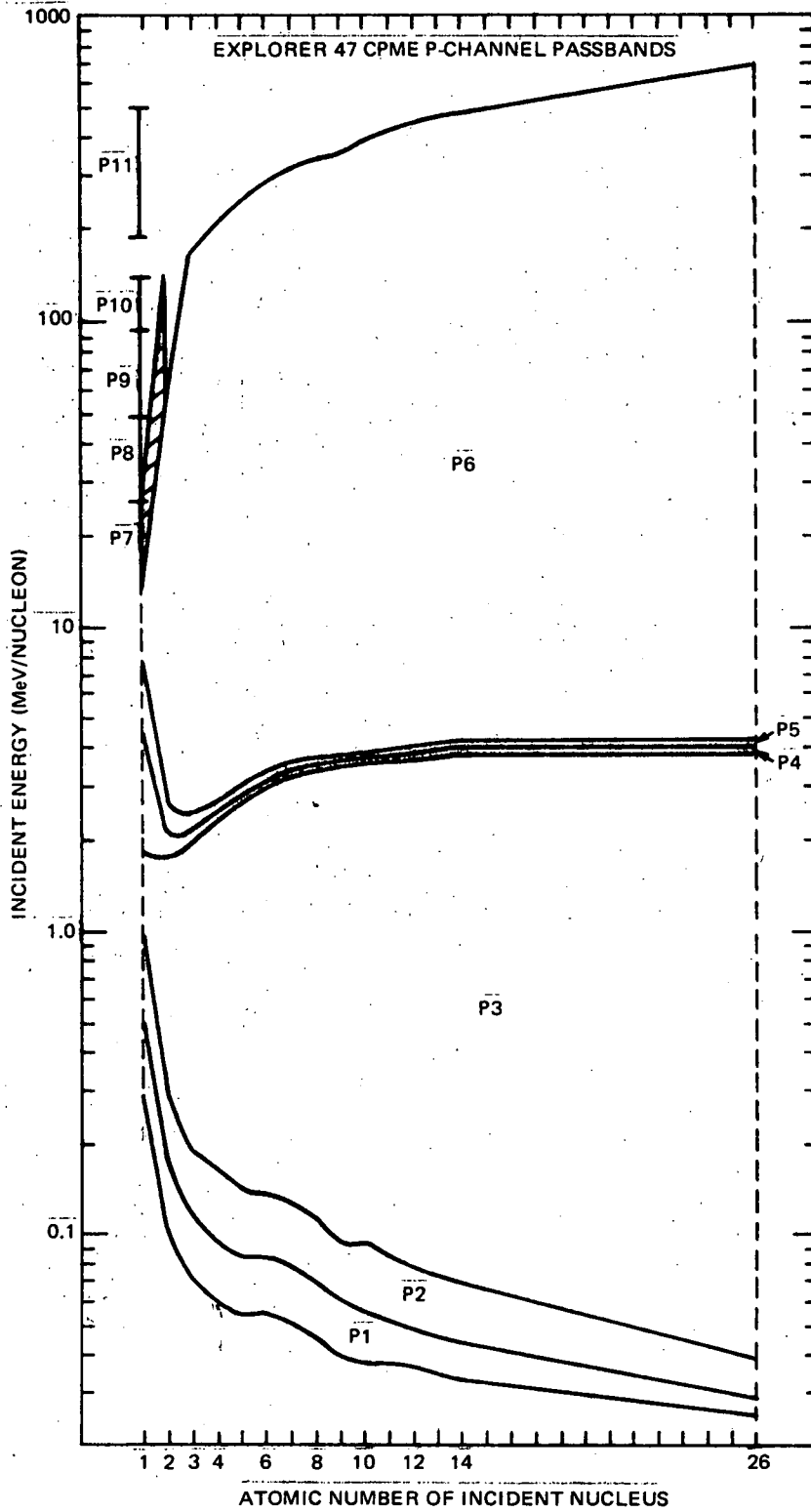


FIGURE F-1

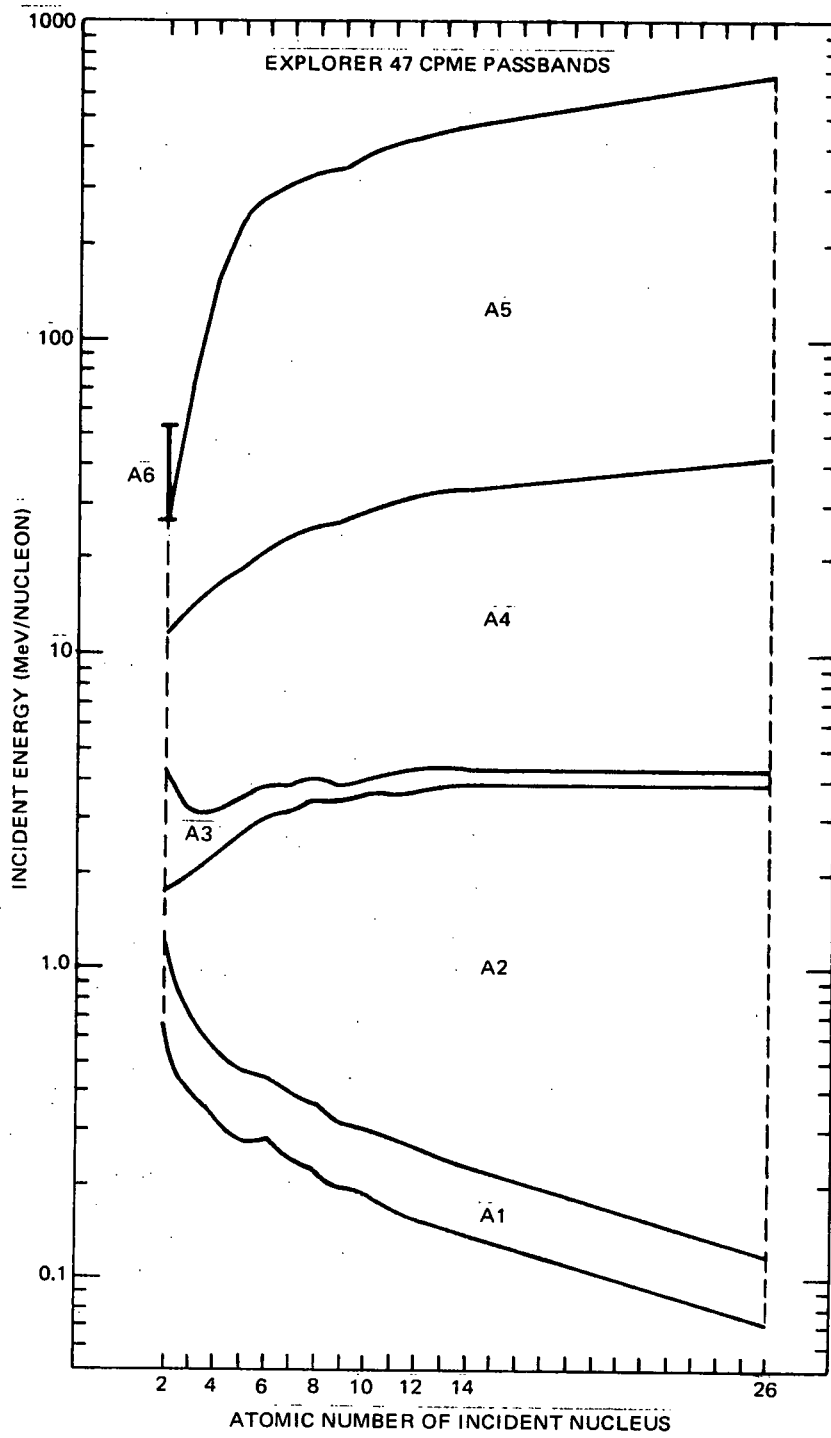


FIGURE F-2

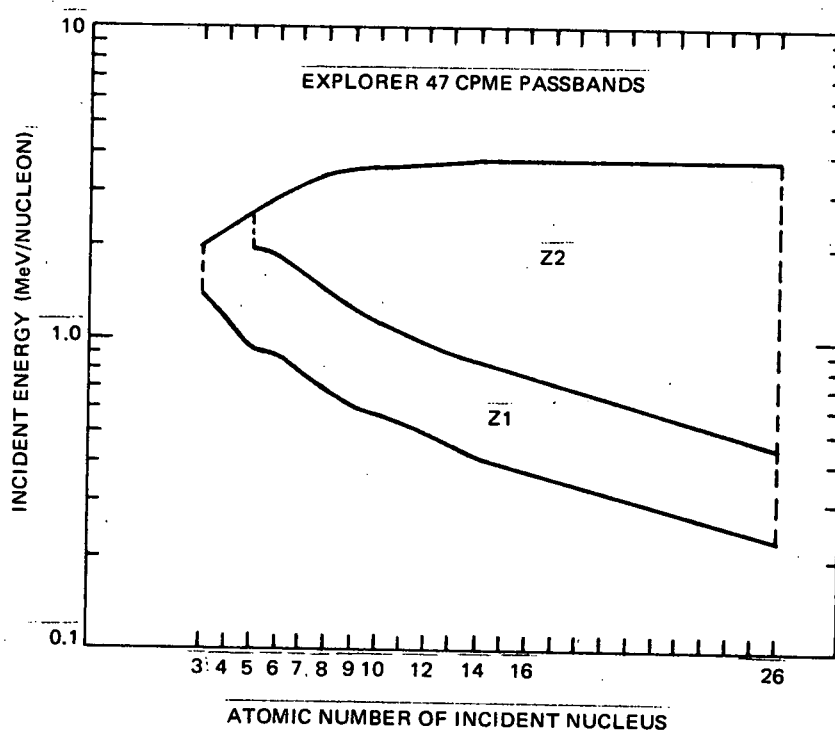


FIGURE F-3

3:40p 5:56p C CO 86 K.

6:00p 8:16p - C CO 86 K.

398 3000.