

**The Nb(n,x γ) Reaction Cross Section
for Incident Neutron Energies
Between 0.65 and 20.0 MeV**

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OAK RIDGE NATIONAL LABORATORY
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Neutron Physics Division

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ABSTRACT

Differential cross sections for the neutron-induced gamma-ray production from niobium have been measured for neutron energies between 0.65 and 20 MeV. The Oak Ridge Electron Linear Accelerator (ORELA) was used to provide the neutrons and a NaI spectrometer to detect the gamma rays at 90°. The data presented are the double differential cross section, $d^2\sigma/d\Omega dE$, for gamma-ray energies between 0.75 and 10.5 MeV and coarse intervals in the incident neutron energy. The integrated yield of gamma rays of energies greater than 0.75 MeV and higher resolution in the incident neutron energy is also presented. The experimentally determined results are compared with the Evaluated Neutron Data Library (ENDL).

INTRODUCTION

As part of a continuing program¹ for determining numerical values of gamma-ray production cross sections for neutron-induced reactions, we have measured the absolute differential cross sections for gamma rays produced by neutron interactions with natural niobium. The data are presented in this report in tabular and graphical form and are compared to the current evaluated data file for Nb (ENDL 7034).²

Two methods of data analysis were employed. One gives the detailed gamma-ray spectra for a series of relatively coarse intervals in incident neutron energy while the second method uses integral quantities to illustrate the detailed behavior of the cross sections as a function of the incident neutron energy. The second approach is used to facilitate comparison of the experimental and evaluated data in the region of the thresholds for the (n,2n) and (n,3n) reactions.

EXPERIMENTAL PROCEDURE

Details of the experimental procedure are given elsewhere³ and only a brief description will be given here. Neutrons were produced by photonuclear processes due to bremsstrahlung from the impact on a tantalum target of electrons from the Oak Ridge Electron Linear Accelerator (ORELA). The present experiment employed an electron beam energy of 140 MeV with a repetition rate of 1000 pulses per second and a pulse width of 30 ns. The total electron beam power was 50 kW.

Neutrons produced at the linac target traversed a 47.35 m flight path and were incident on a slab, 0.0325 atoms/barn thick, of natural

niobium oriented at 45° with respect to the incident beam. Gamma rays originating in the sample were detected by a heavily shielded 12.5 cm by 12.5 cm NaI detector at 90° with respect to the incident neutron beam. For each event in the detector data were recorded in a two-parameter array containing gamma-ray pulse height as a function of time-of-flight for the incident neutron.

The neutron flux at the sample position was determined using calibrated thick organic scintillators. During the course of the gamma-ray measurements the flux was monitored using a small plastic scintillator in the edge of the neutron beam 30 m from the source.

DATA REDUCTION

Two methods of data reduction were employed. In the first, the pulse height spectra were integrated over intervals of neutron time-of-flight to form pulse height spectra for specific incident neutron energy ranges. These intervals ranged in width from 0.5 MeV at energies below 7 MeV to 3 MeV in the range 14 to 20 MeV. The spectra so formed were then unfolded using the code FERD and measured response functions of the NaI detector. The results were the gamma-ray spectra defined by 122 points covering the gamma-ray energy range from 0.75 to 10.6 MeV. After correction for self-absorption and neutron self-shielding in the sample, these spectra were normalized to cross sections using the measured neutron flux and sample thickness.

These results are presented in the first set of figures at the end of this report. Figure 1 is a three-dimensional representation of the unfolded data showing the cross section as a function of gamma-ray and

incident neutron energy. Figures 2-21 present the detailed gamma-ray spectra for each incident neutron energy interval. These are compared to cross sections generated from the evaluation (ENDL 7034) by averaging over the appropriate neutron energy interval. It may be noted from the figures that although the cross sections for specific gamma-ray transitions are not accounted for in the evaluation, there is qualitative agreement between the data and the values derived from the current file.

The data described above provide detailed information about the secondary gamma-ray spectra, but because the unfolding technique requires good statistical accuracy the data must be binned over large neutron energy intervals. Therefore a second type of data reduction, pulse height weighting^{4,5} was also used. This technique provided only integral information about the secondary gamma spectra (i.e., total yield and average photon energy), but because the demands on statistical accuracy are less severe it allowed better resolution in the incident neutron energy. In this work the pulse height weighting analysis was applied to spectra formed by integration over time-of-flight intervals corresponding to $\Delta E_n = 0.1$ MeV at $E_n = 1$ MeV increasing to $\Delta E_n = 1.0$ MeV at $E_n = 20$ MeV. The results of this analysis for the total yield and average secondary gamma-ray energy as a function of the incident neutron energy are presented in Figures 22 and 23, respectively. The value of the lower cut-off in gamma-ray energy was 0.75 MeV. Comparisons are made for the same quantities calculated from the evaluated data.

The data shown in the graphs are given in the tables contained in the last section of the report. The values shown in the graphs and presented in the tables do not include an uncertainty of 10% in overall normalization due mainly to the determination of the incident neutron flux.

ACKNOWLEDGEMENTS

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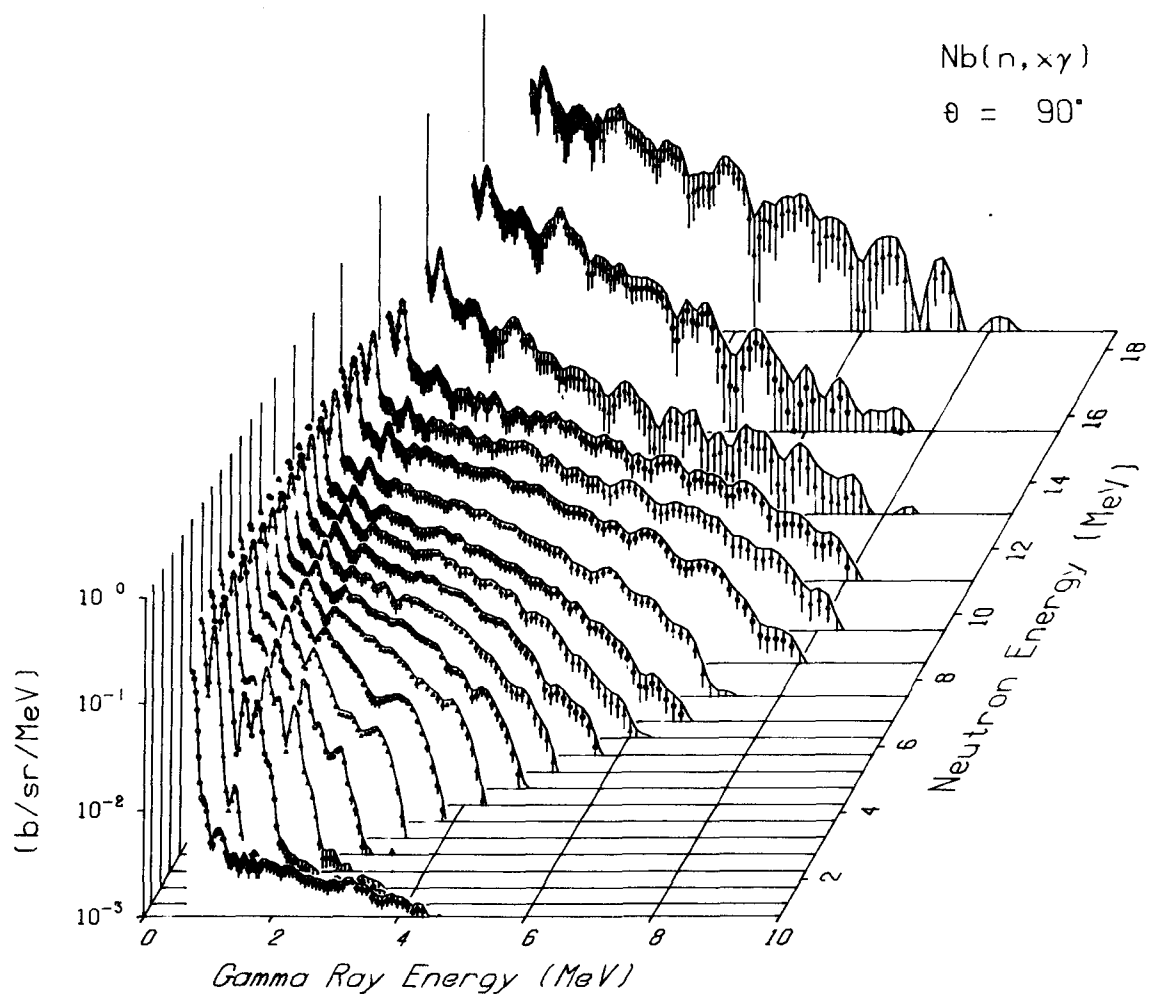


FIGURE 1

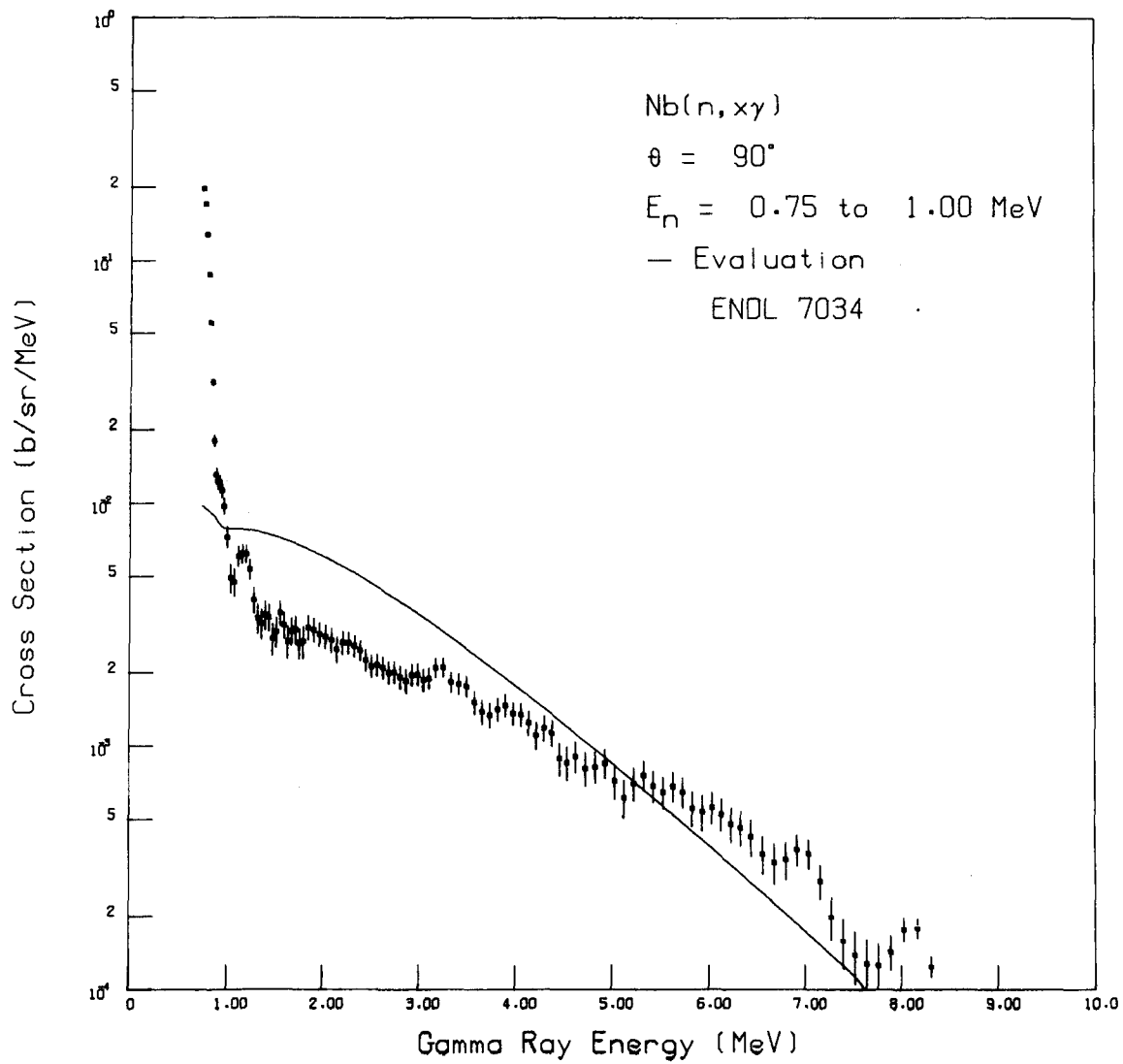


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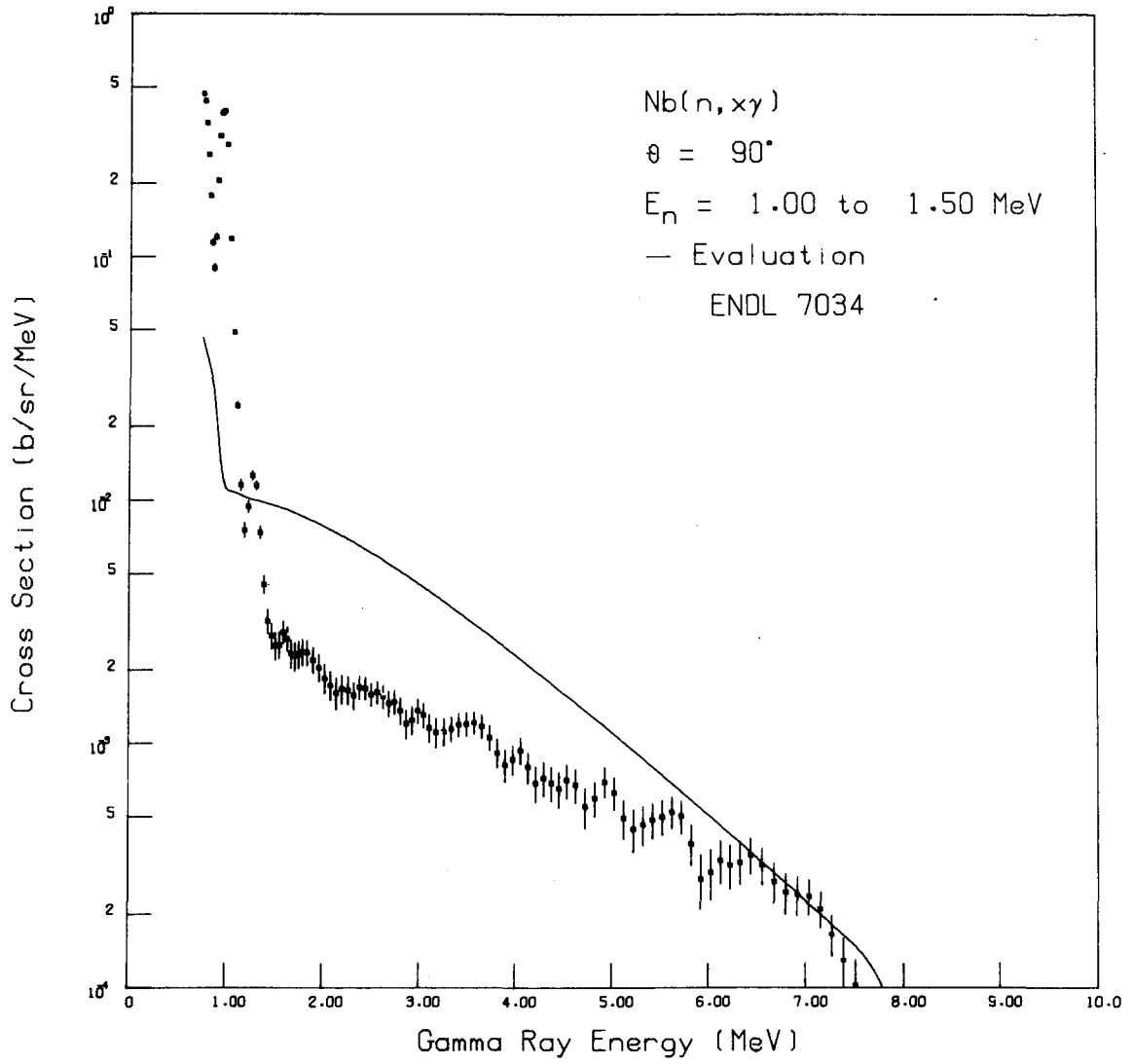


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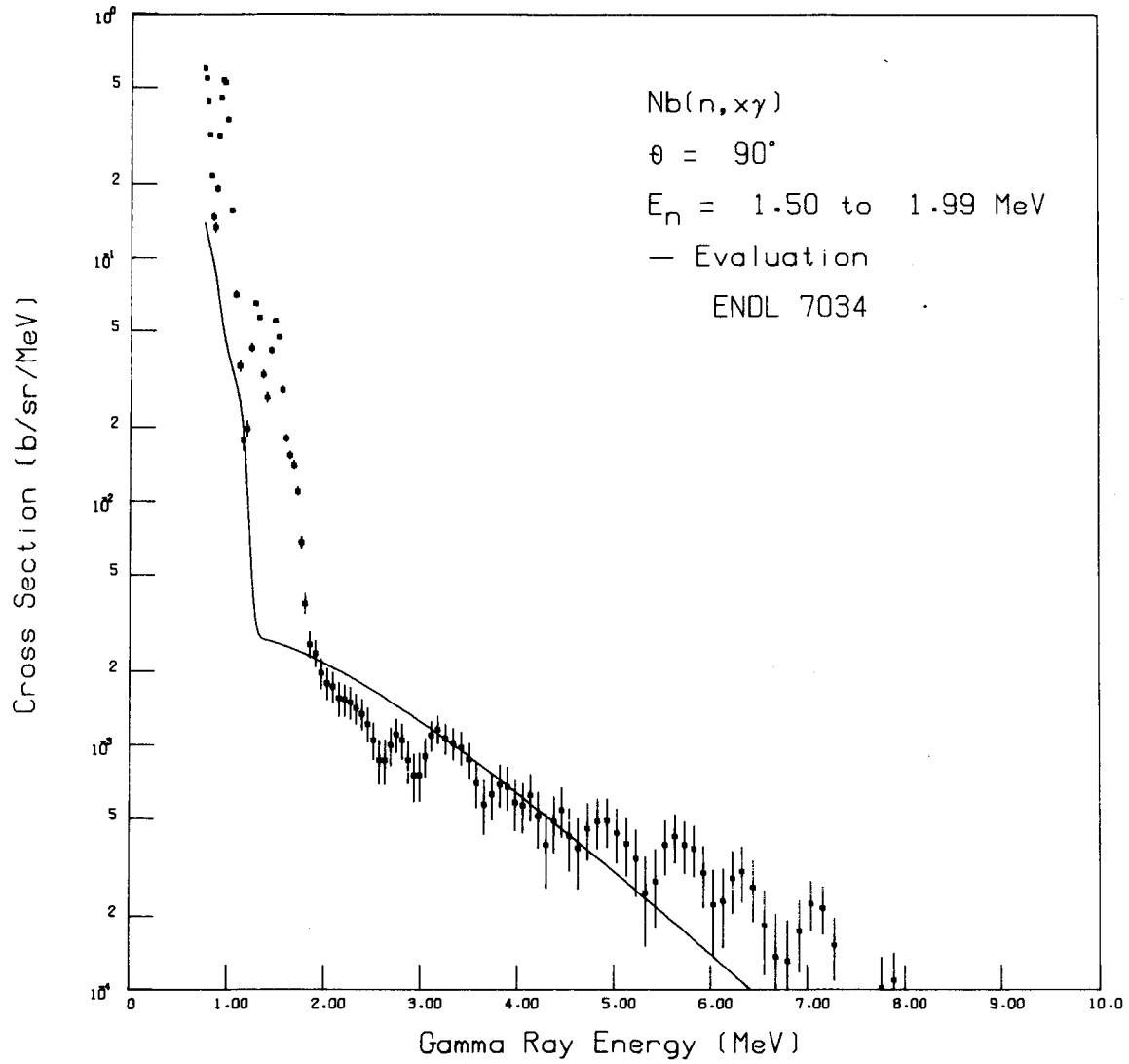


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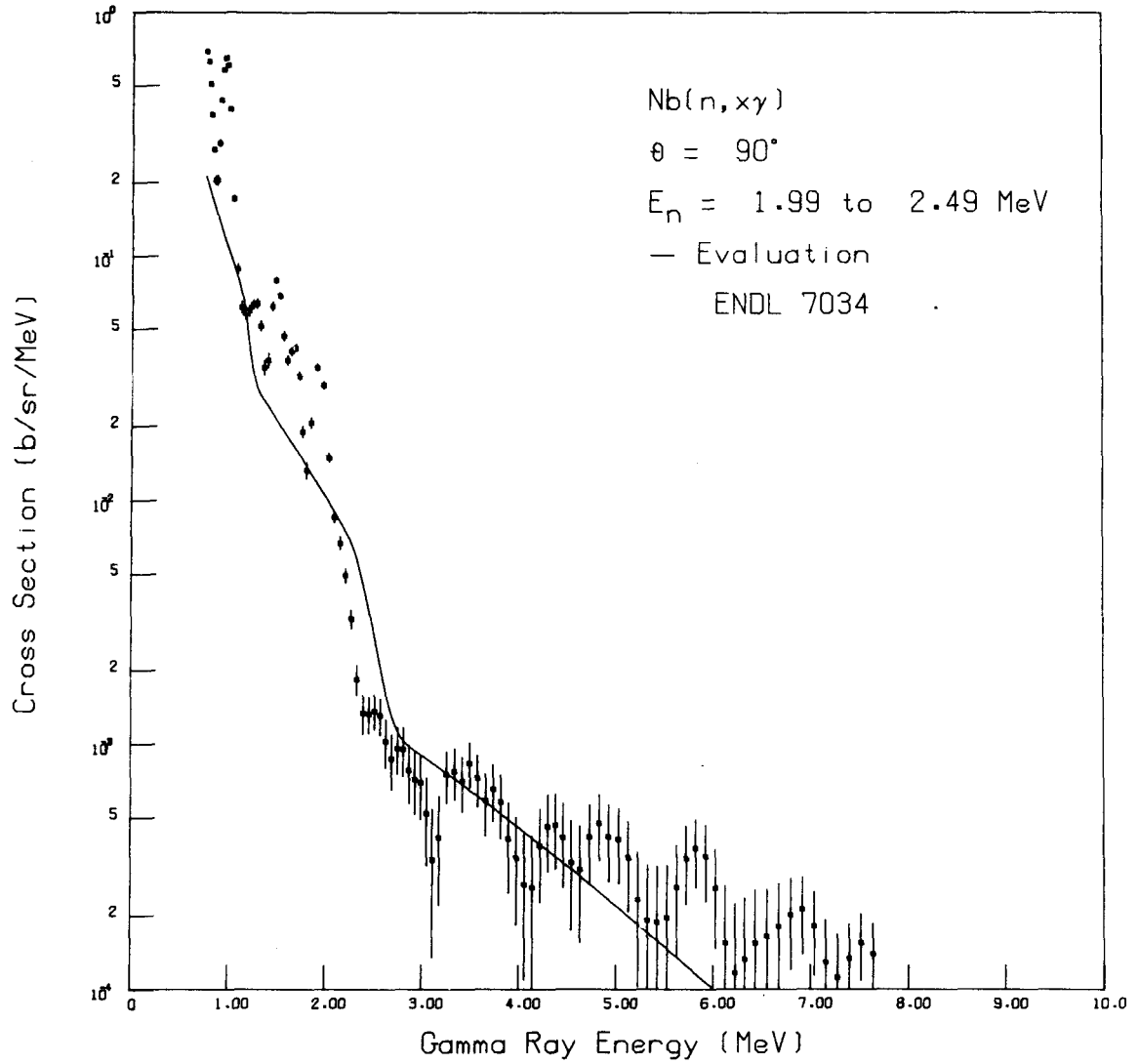


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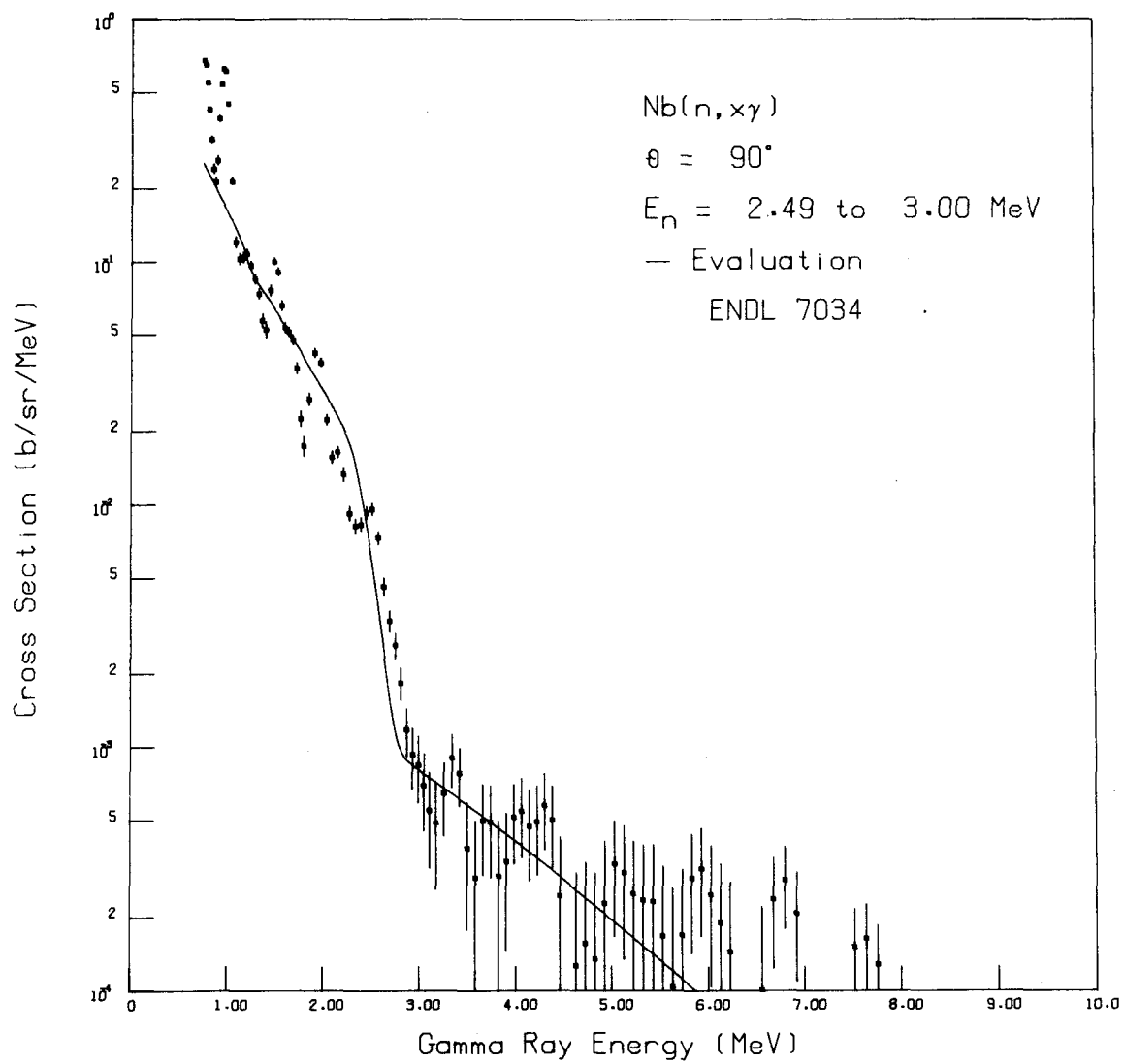


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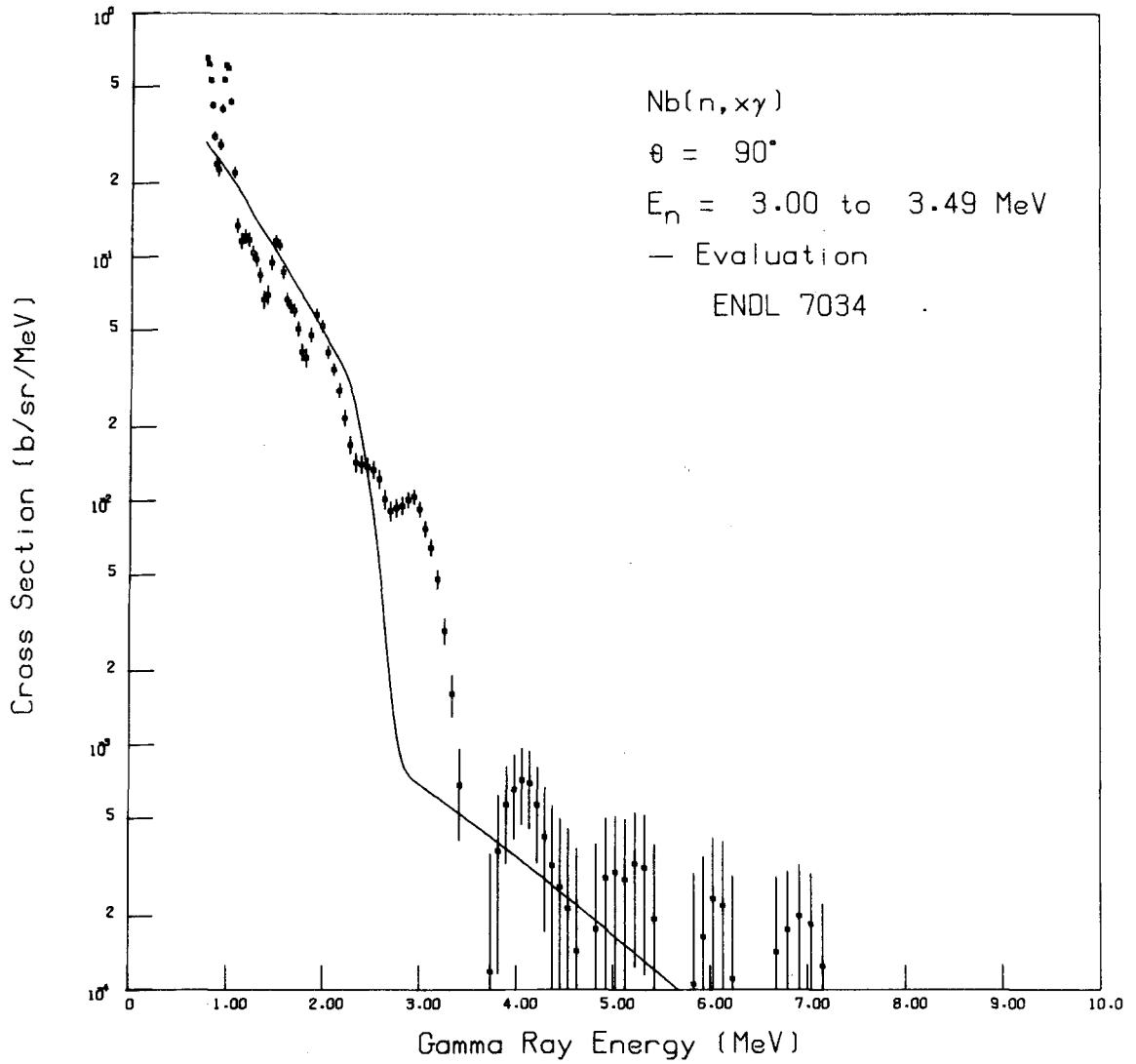


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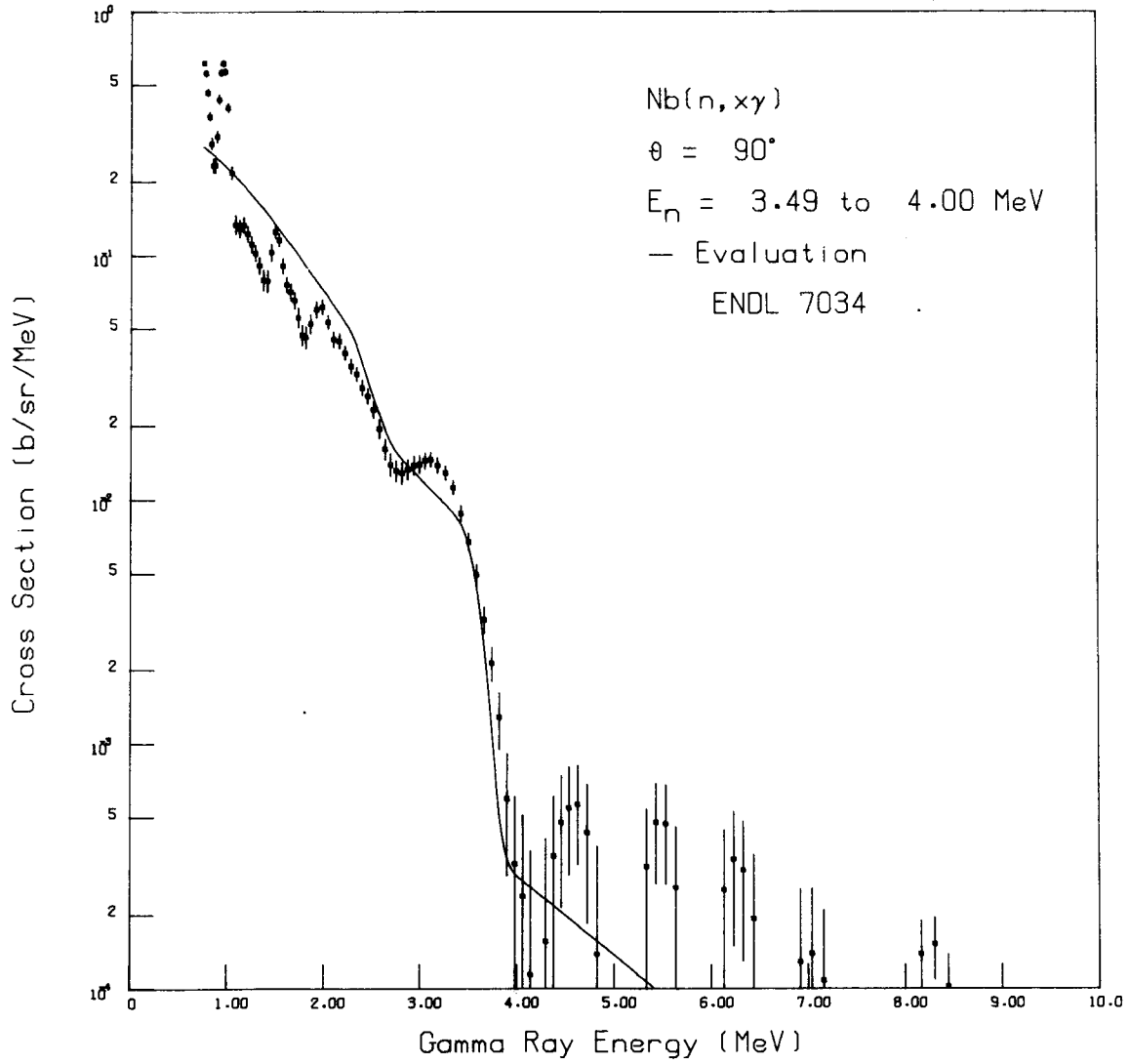


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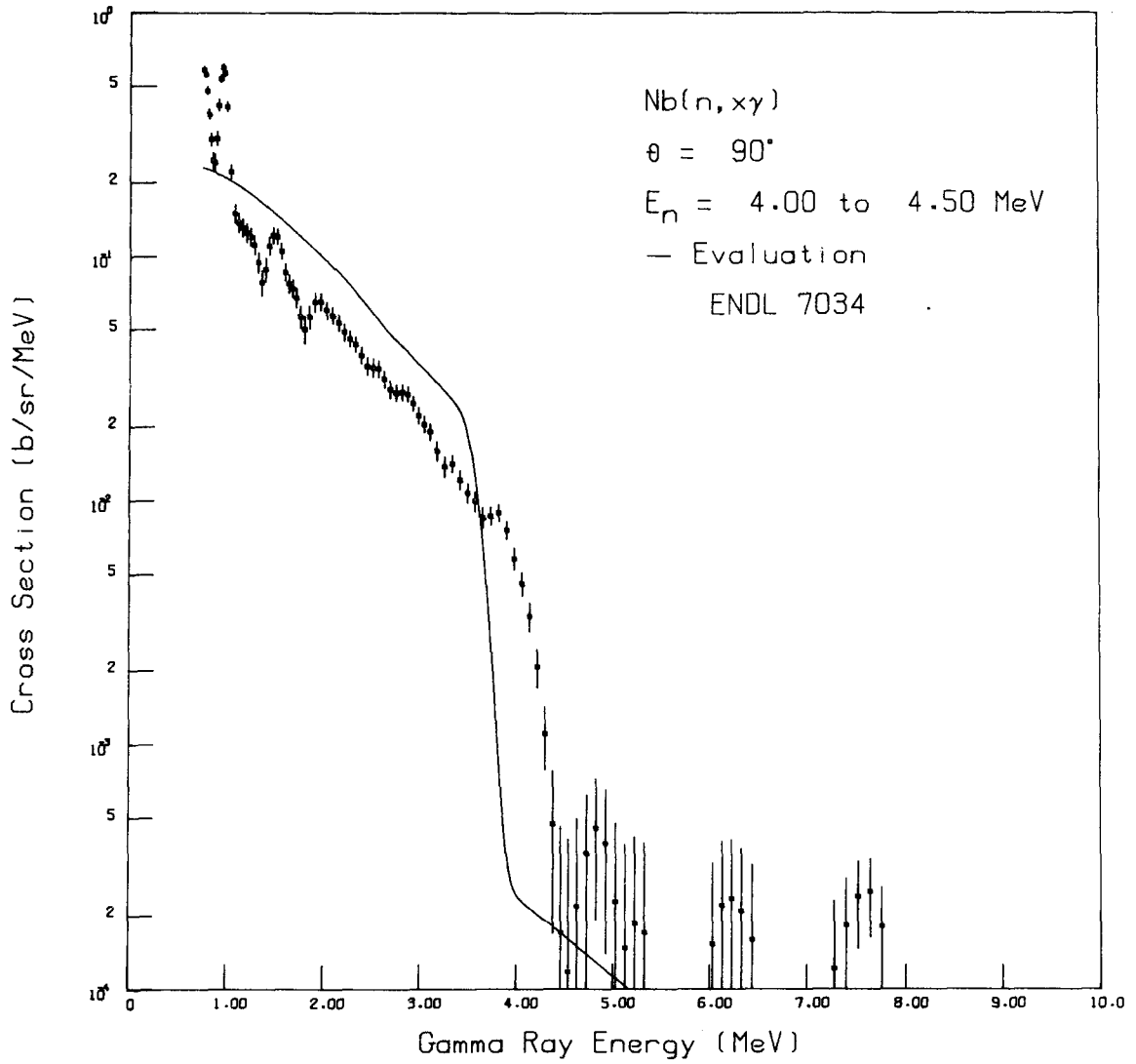


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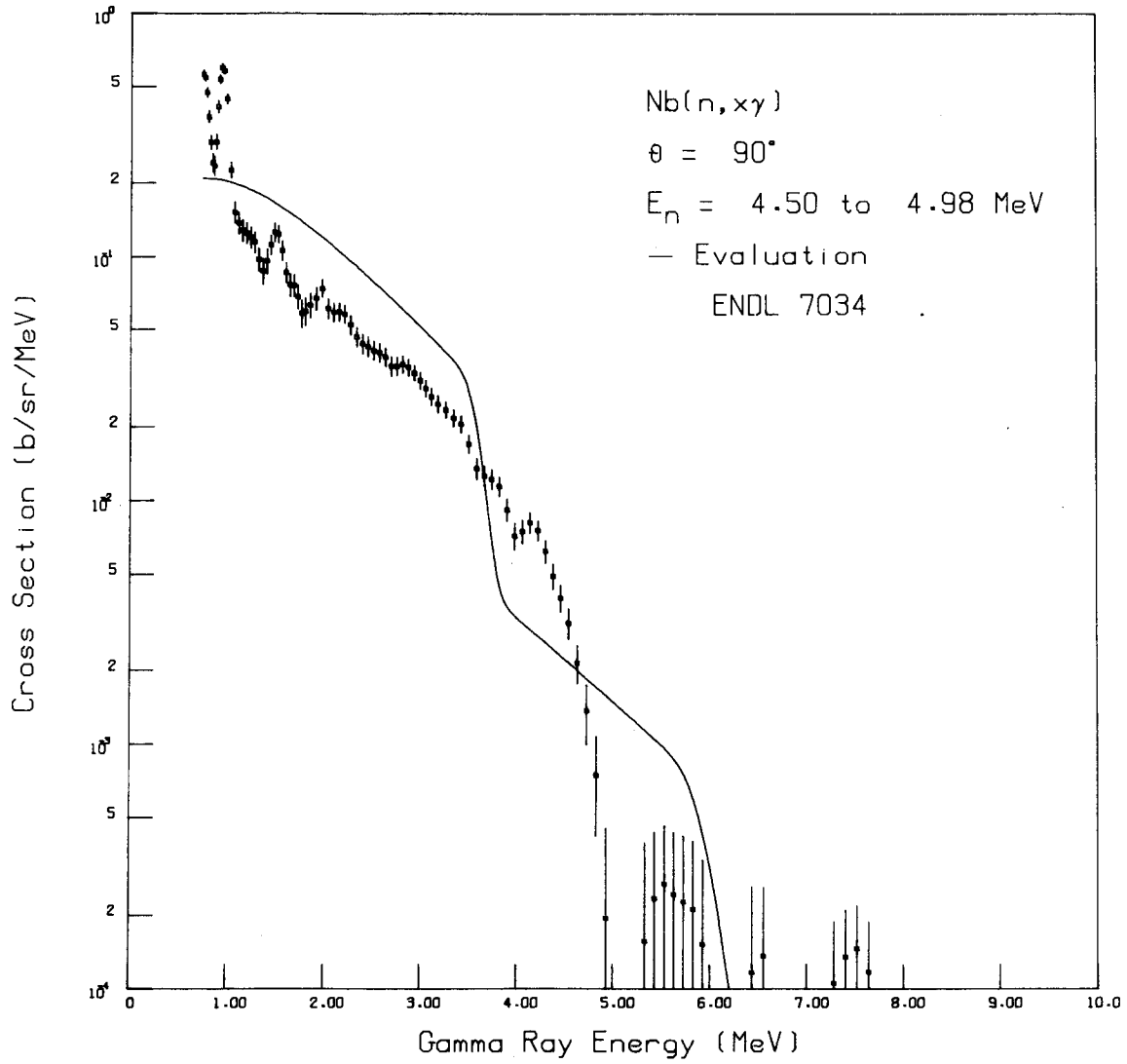


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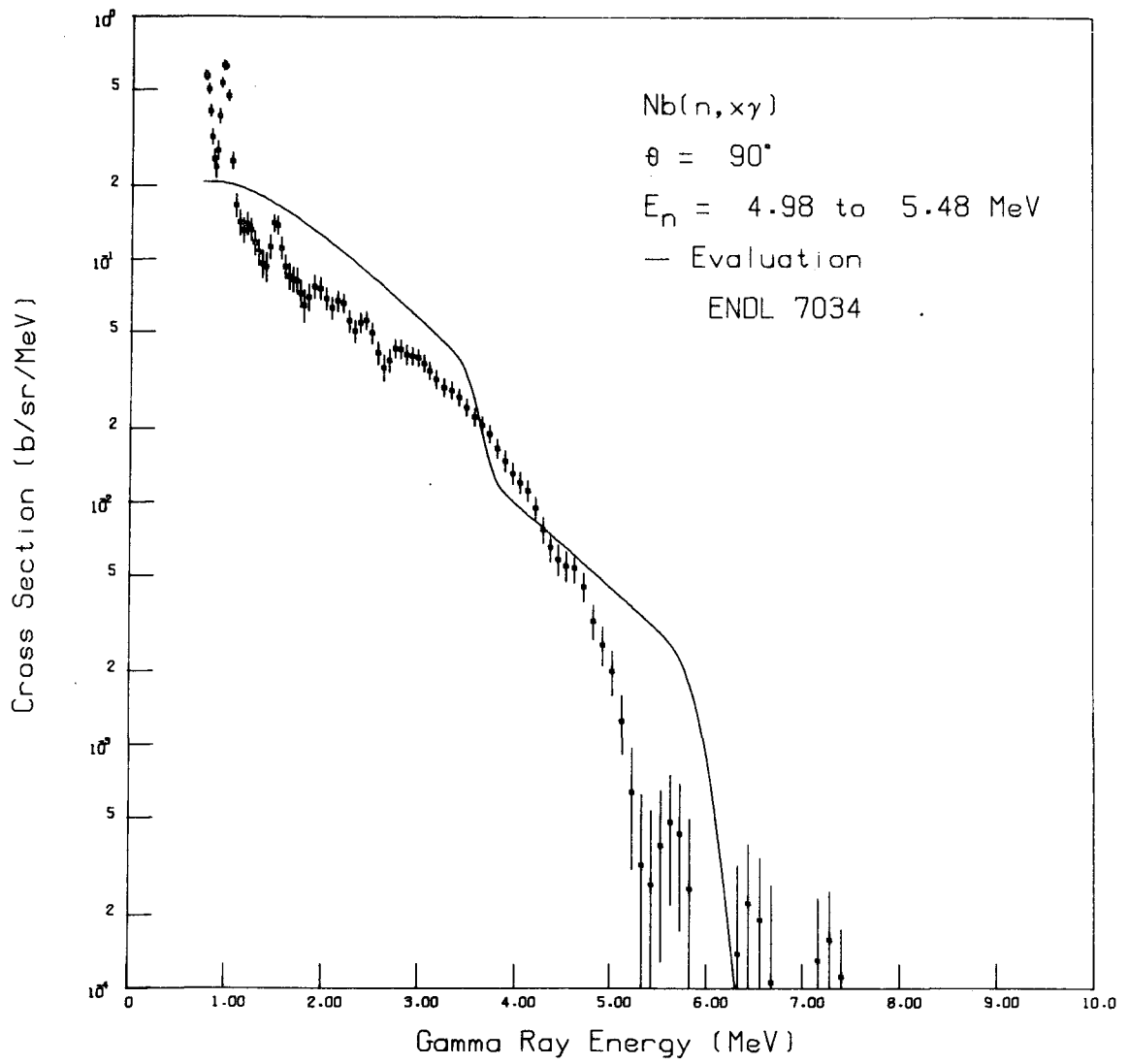


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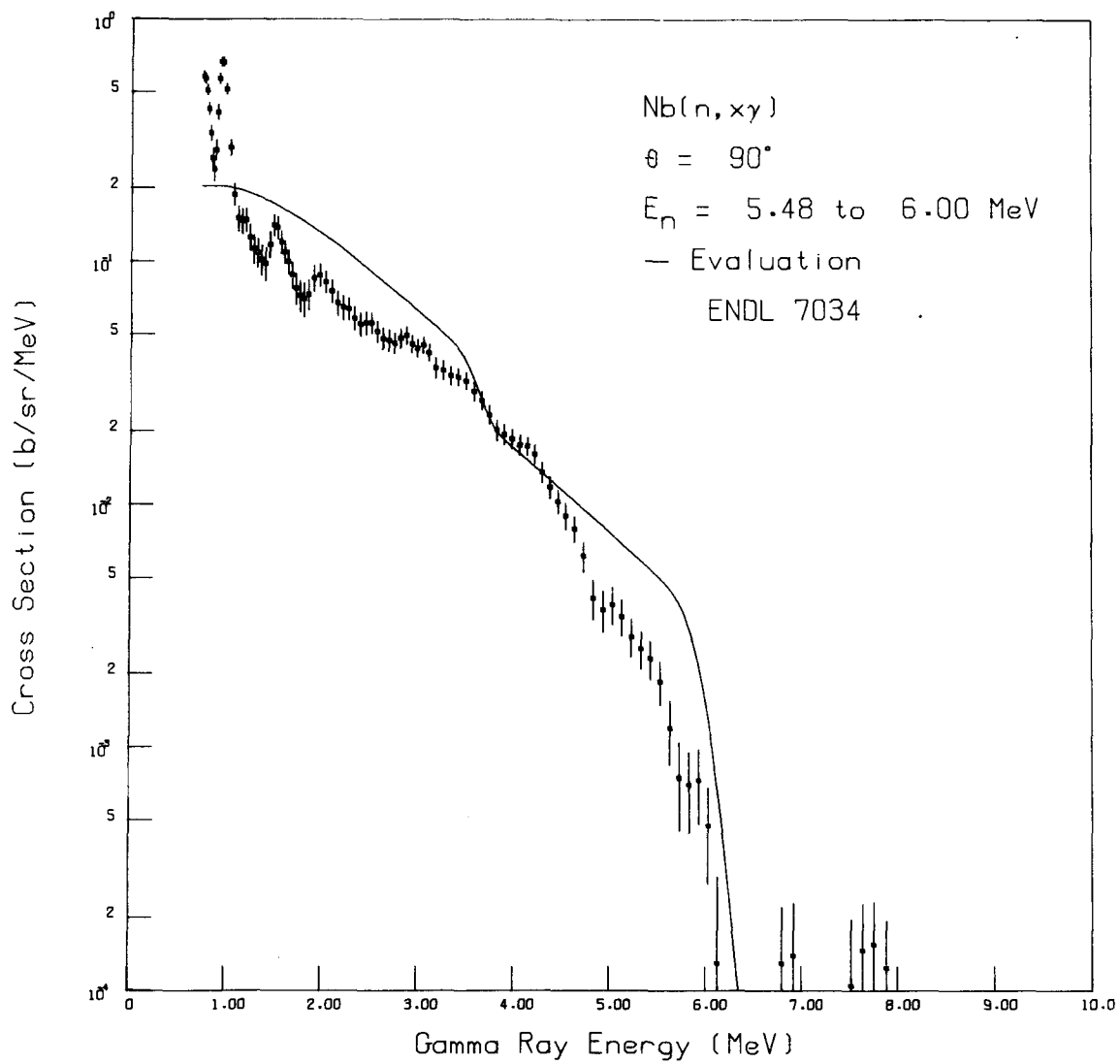


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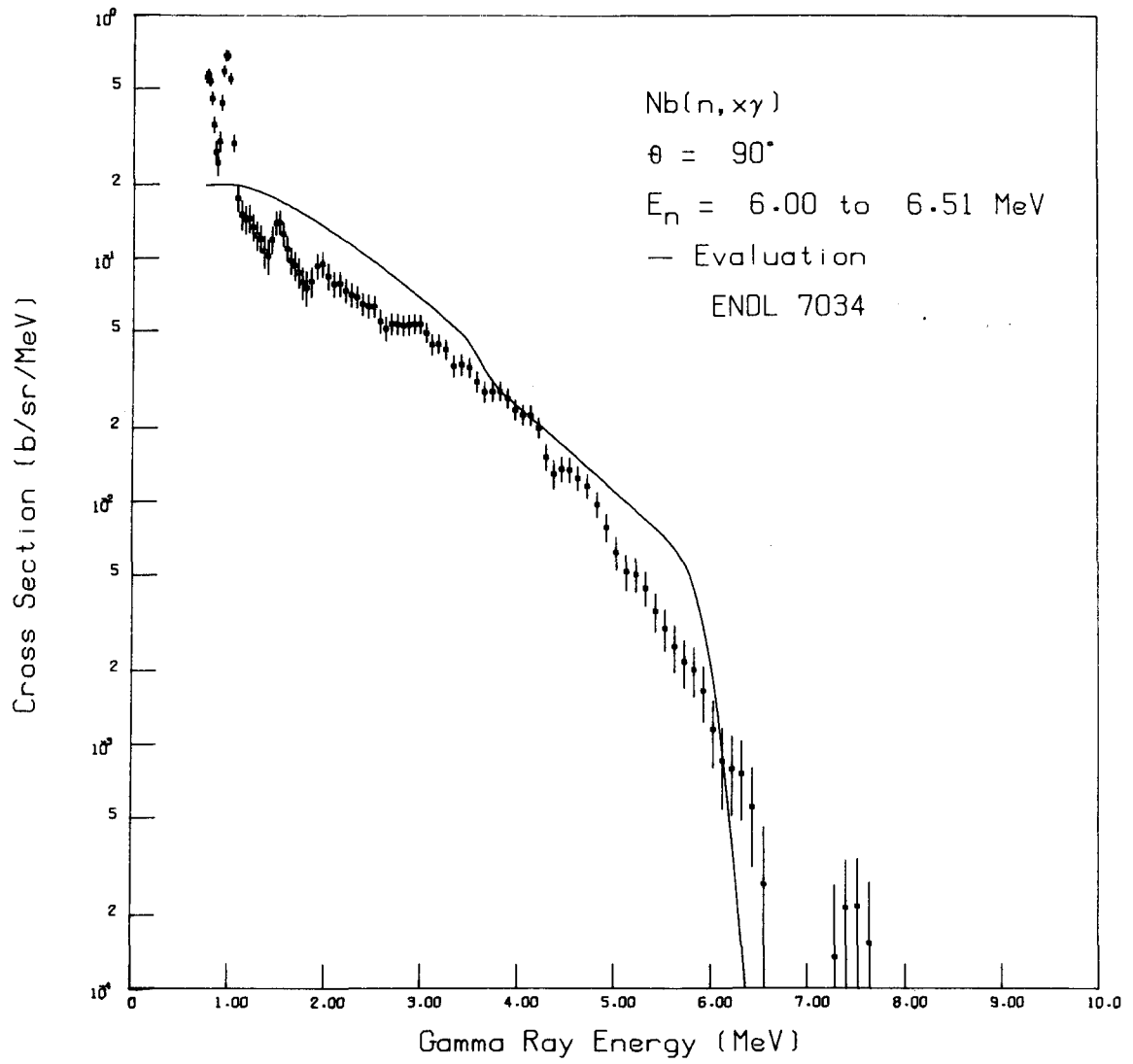


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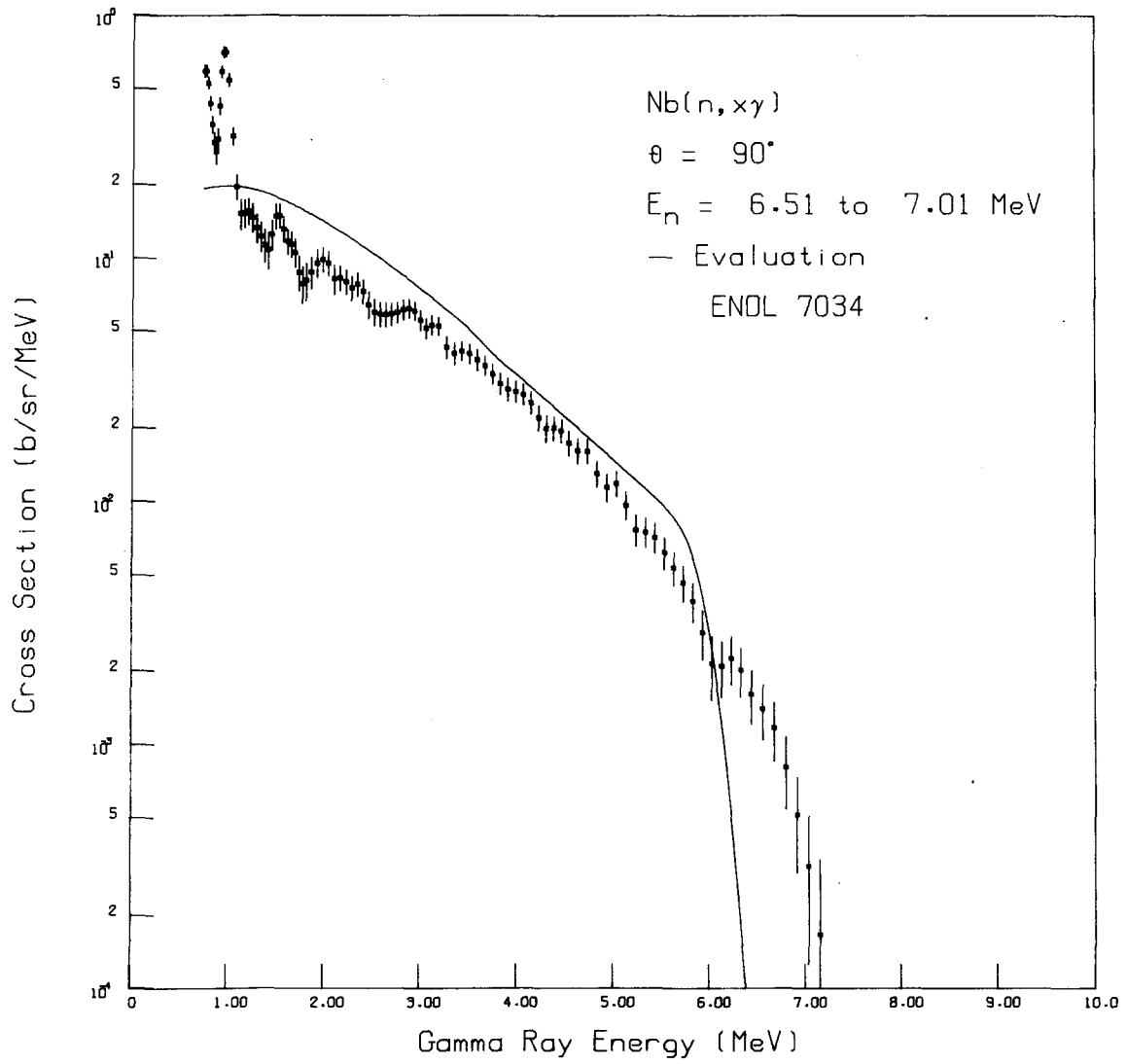


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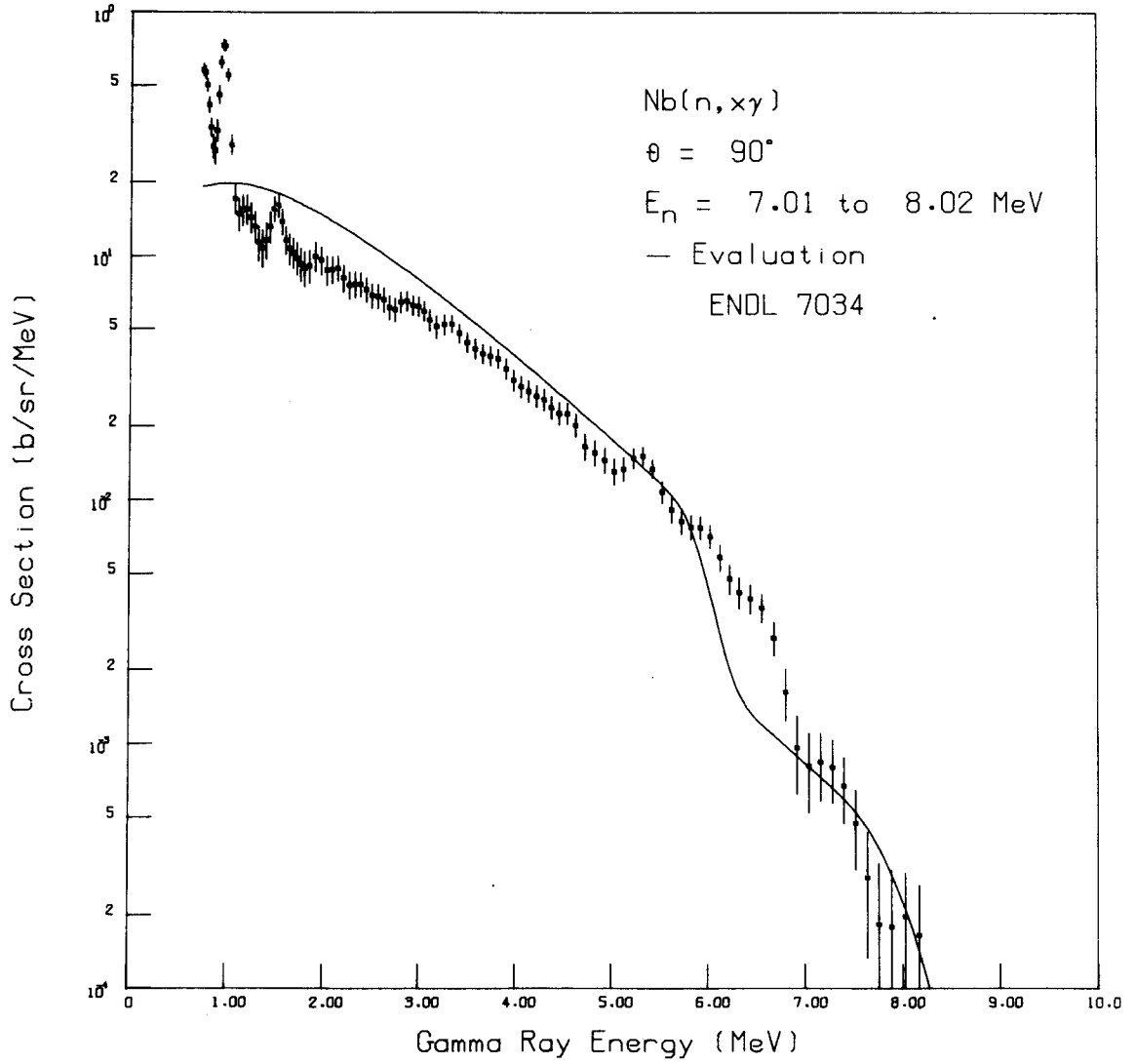


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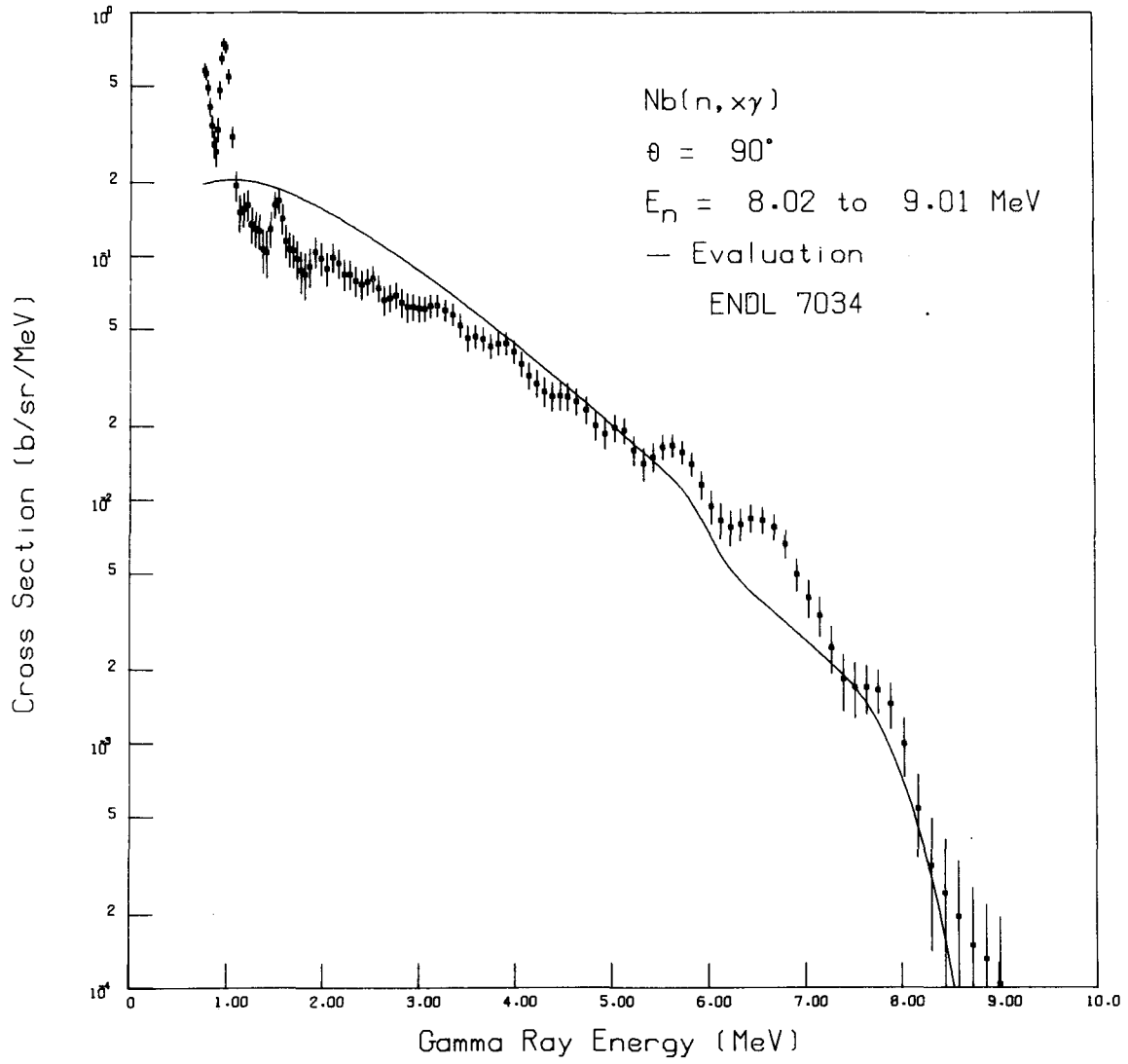


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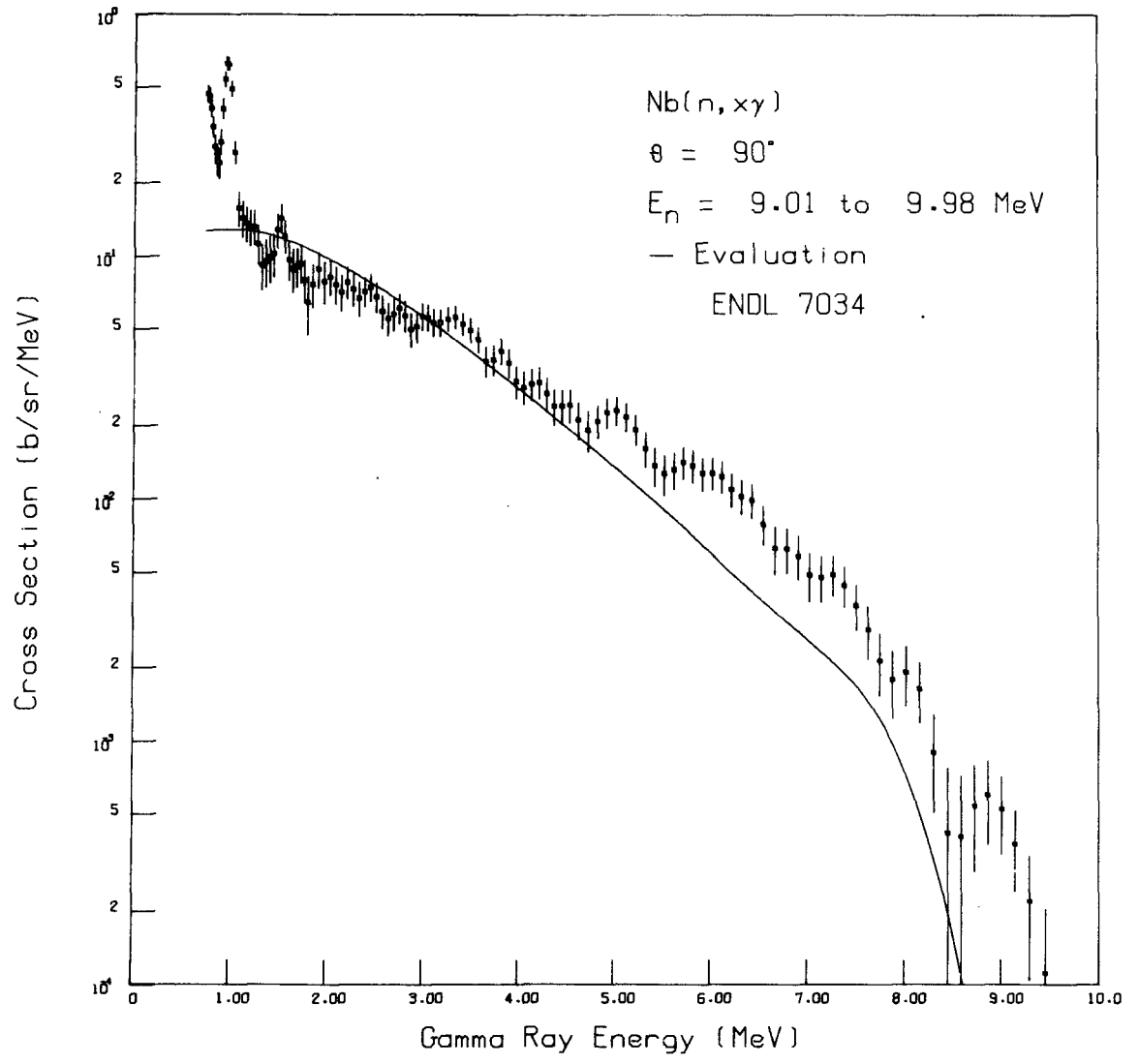


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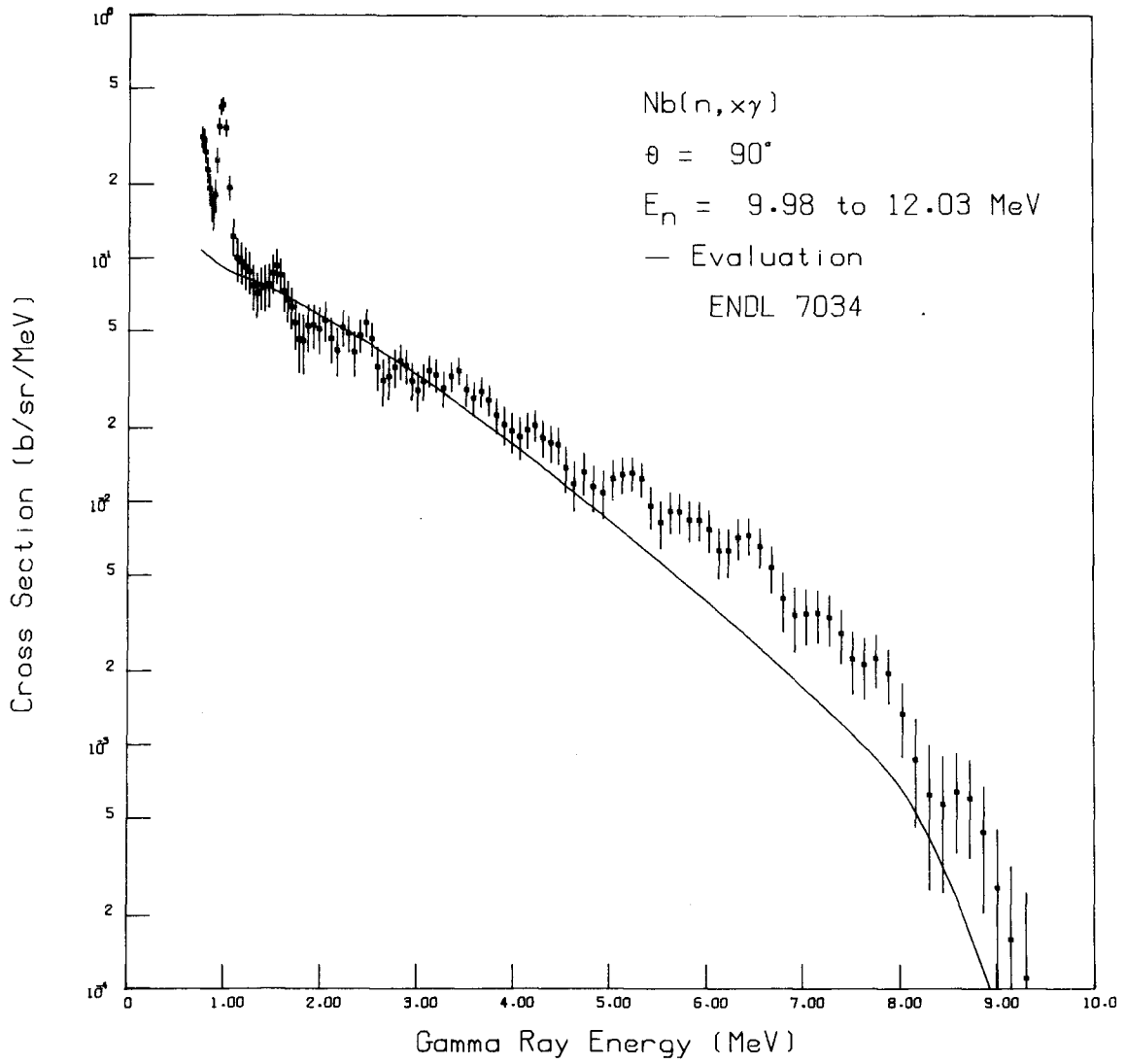


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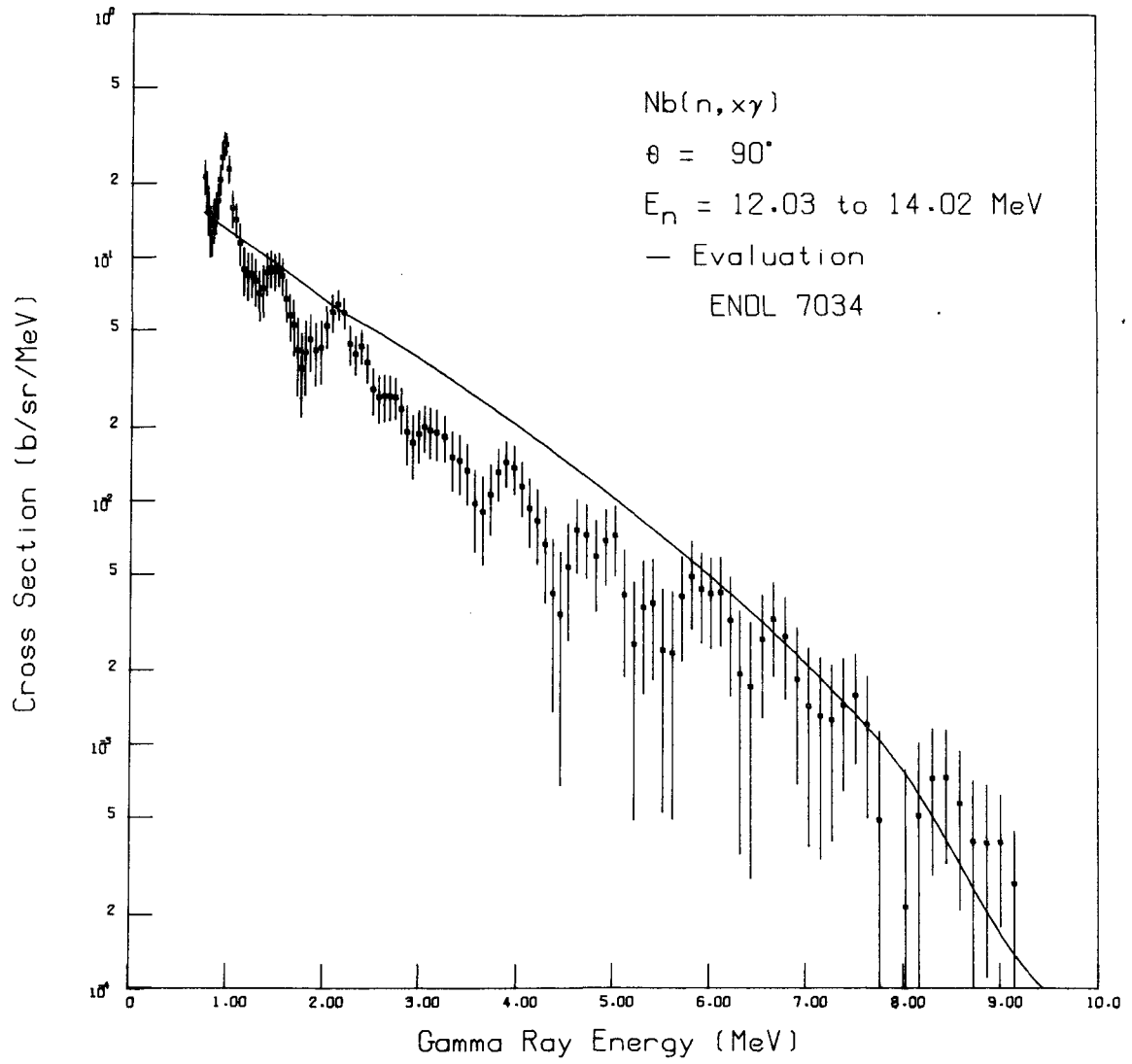


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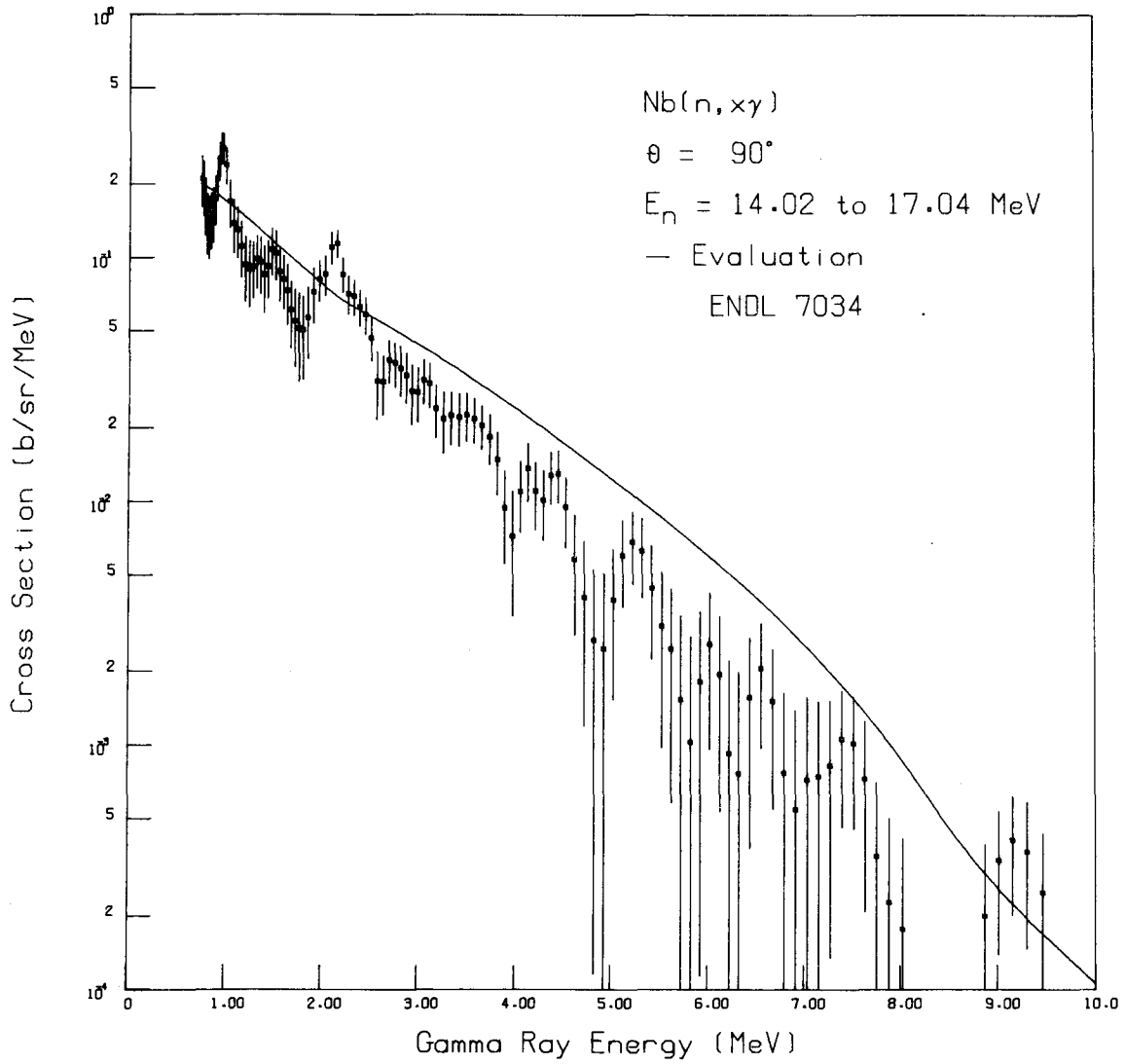


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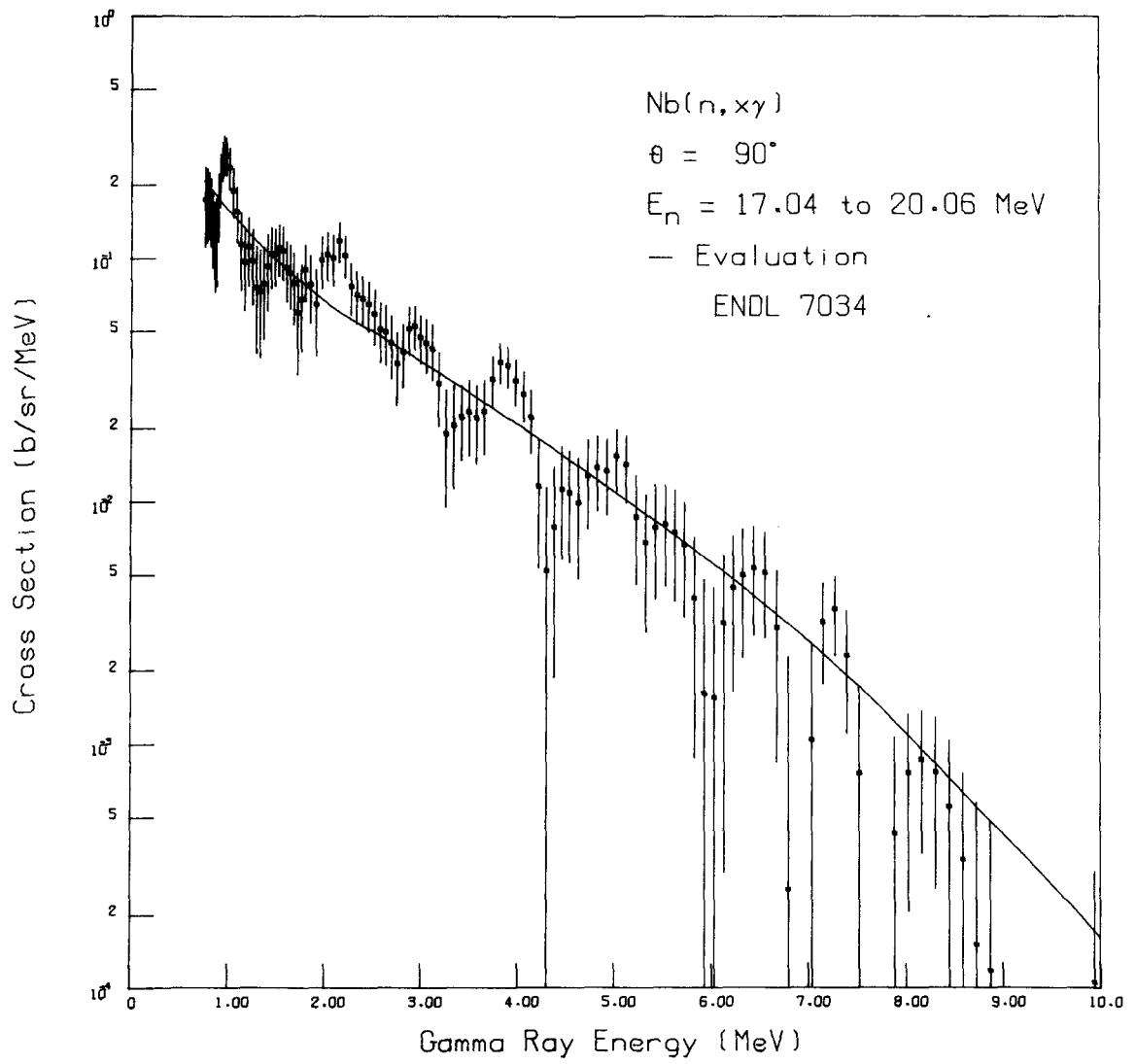


FIGURE 21

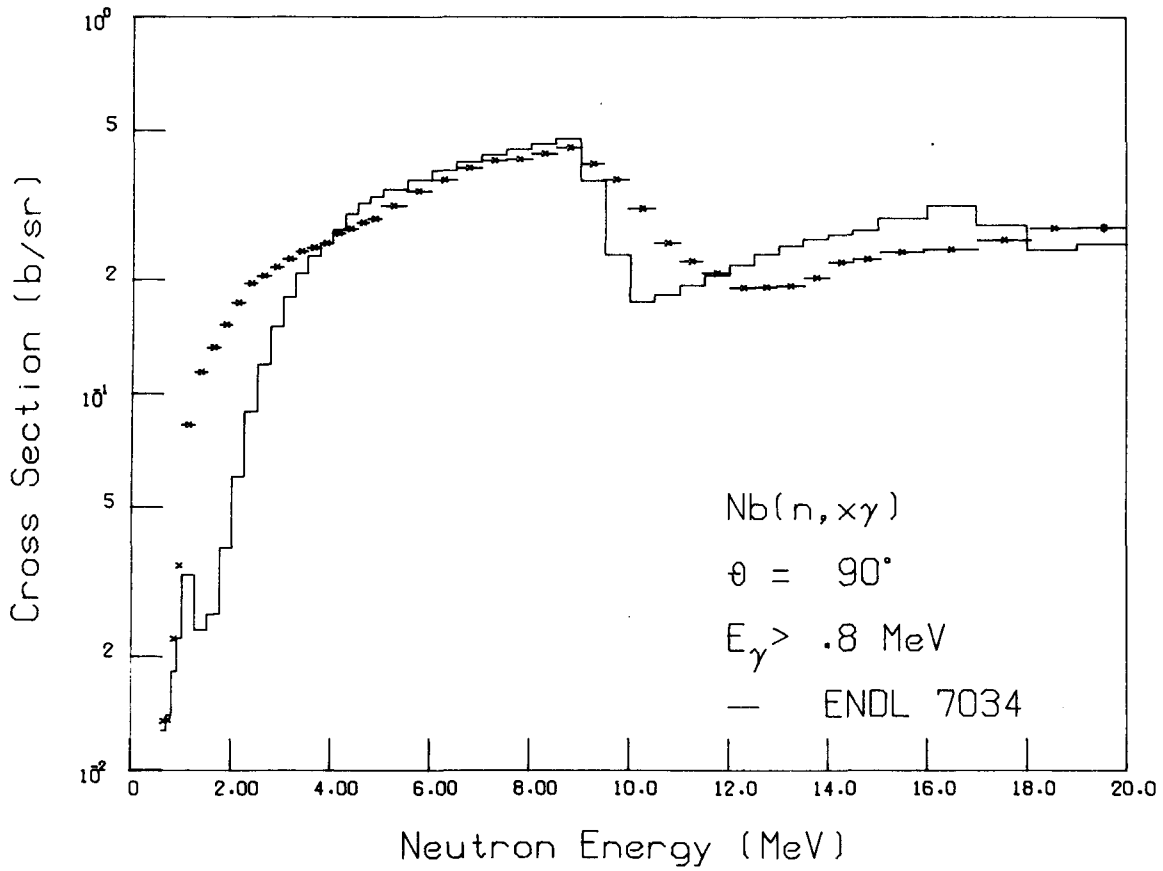


FIGURE 22

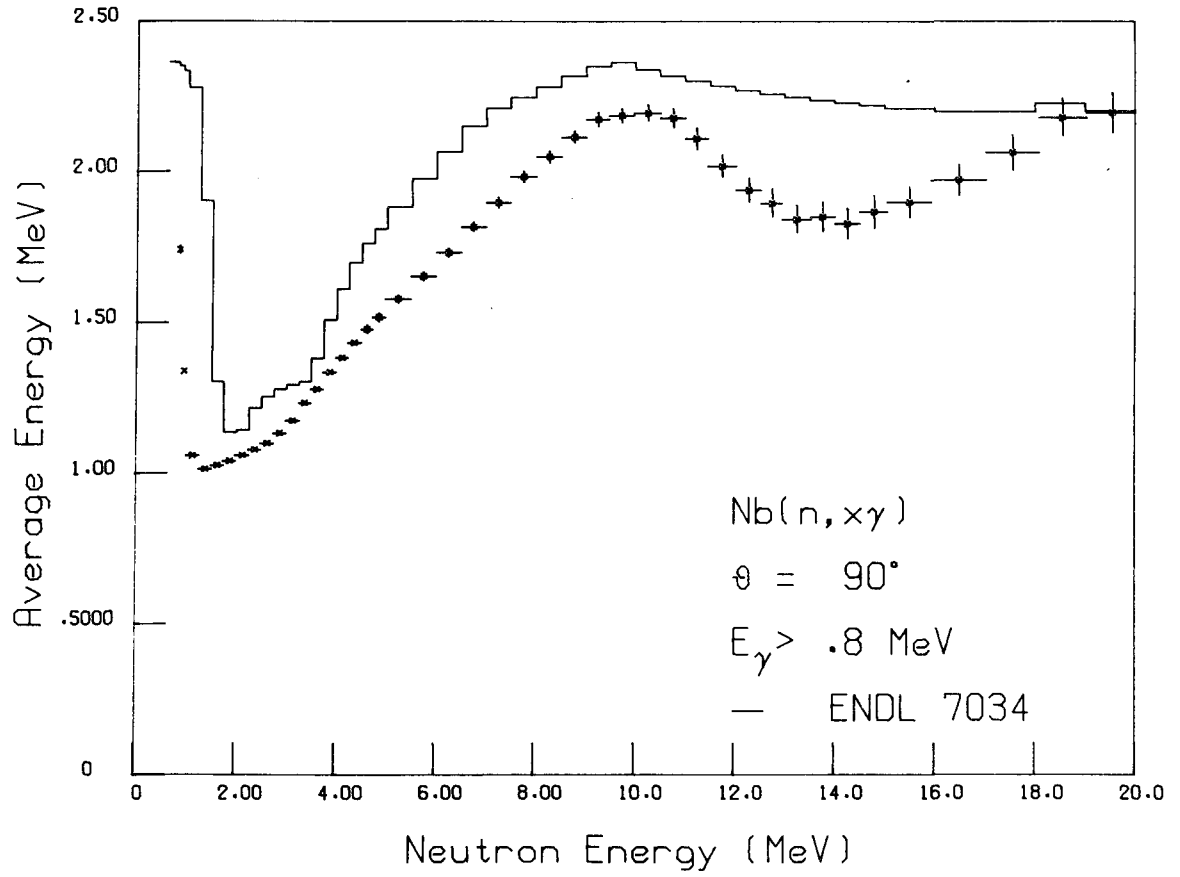


FIGURE 23

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN WB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 17.04 TO 20.06 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	1.743E-01	6.296E-02	3.660E 00	2.344E-02	7.862E-03
7.700E-01	1.748E-01	5.937E-02	3.740E 00	3.176E-02	7.492E-03
7.900E-01	1.729E-01	5.314E-02	3.820E 00	3.739E-02	7.039E-03
8.100E-01	1.624E-01	5.087E-02	3.900E 00	3.620E-02	6.924E-03
8.300E-01	1.400E-01	4.909E-02	3.980E 00	3.118E-02	6.656E-03
8.500E-01	1.210E-01	4.870E-02	4.060E 00	2.752E-02	6.296E-03
8.700E-01	1.261E-01	4.961E-02	4.140E 00	2.213E-02	6.453E-03
8.900E-01	1.654E-01	4.864E-02	4.220E 00	1.167E-02	6.300E-03
9.100E-01	2.189E-01	4.973E-02	4.300E 00	5.203E-03	6.225E-03
9.300E-01	2.551E-01	4.751E-02	4.380E 00	7.865E-03	5.996E-03
9.500E-01	2.696E-01	4.975E-02	4.460E 00	1.130E-02	5.504E-03
9.700E-01	2.663E-01	4.654E-02	4.540E 00	1.089E-02	5.284E-03
1.000E 00	2.381E-01	4.654E-02	4.630E 00	9.919E-03	5.136E-03
1.040E 00	1.894E-01	4.362E-02	4.730E 00	1.278E-02	5.100E-03
1.080E 00	1.558E-01	4.037E-02	4.830E 00	1.382E-02	4.715E-03
1.120E 00	1.136E-01	4.004E-02	4.930E 00	1.336E-02	4.570E-03
1.160E 00	9.700E-02	3.646E-02	5.030E 00	1.534E-02	4.346E-03
1.200E 00	1.115E-01	3.504E-02	5.130E 00	1.418E-02	4.359E-03
1.240E 00	9.774E-02	3.366E-02	5.230E 00	8.648E-03	4.125E-03
1.280E 00	7.601E-02	3.545E-02	5.330E 00	6.746E-03	3.876E-03
1.320E 00	7.358E-02	3.460E-02	5.430E 00	7.806E-03	3.876E-03
1.360E 00	7.870E-02	3.267E-02	5.530E 00	8.035E-03	3.582E-03
1.400E 00	9.275E-02	3.230E-02	5.630E 00	7.448E-03	3.594E-03
1.440E 00	1.042E-01	2.930E-02	5.730E 00	6.599E-03	3.282E-03
1.480E 00	1.043E-01	2.764E-02	5.830E 00	3.983E-03	3.114E-03
1.520E 00	1.107E-01	2.649E-02	5.930E 00	1.604E-03	3.165E-03
1.560E 00	1.077E-01	2.673E-02	6.030E 00	1.547E-03	2.860E-03
1.600E 00	9.141E-02	2.548E-02	6.130E 00	3.133E-03	2.838E-03
1.640E 00	8.749E-02	2.583E-02	6.230E 00	4.401E-03	2.773E-03
1.680E 00	7.936E-02	2.606E-02	6.330E 00	4.970E-03	2.718E-03
1.720E 00	6.002E-02	2.685E-02	6.440E 00	5.320E-03	2.544E-03
1.760E 00	6.748E-02	2.643E-02	6.560E 00	5.085E-03	2.372E-03
1.800E 00	8.943E-02	2.334E-02	6.680E 00	3.005E-03	2.166E-03
1.850E 00	7.801E-02	2.431E-02	6.800E 00	2.537E-04	2.031E-03
1.910E 00	6.454E-02	2.510E-02	6.920E 00	-6.351E-04	1.794E-03
1.970E 00	9.862E-02	2.396E-02	7.040E 00	1.039E-03	1.551E-03
2.030E 00	1.038E-01	2.323E-02	7.160E 00	3.156E-03	1.409E-03
2.090E 00	1.004E-01	2.379E-02	7.280E 00	3.578E-03	1.301E-03
2.150E 00	1.178E-01	2.187E-02	7.400E 00	2.306E-03	1.207E-03
2.210E 00	1.029E-01	2.004E-02	7.520E 00	7.549E-04	9.686E-04
2.270E 00	7.650E-02	1.844E-02	7.640E 00	-3.554E-05	7.442E-04
2.330E 00	7.076E-02	1.733E-02	7.760E 00	1.599E-05	6.721E-04
2.390E 00	6.828E-02	1.556E-02	7.890E 00	4.279E-04	6.343E-04
2.450E 00	6.446E-02	1.490E-02	8.030E 00	7.596E-04	5.558E-04
2.510E 00	5.856E-02	1.504E-02	8.170E 00	8.583E-04	5.031E-04
2.570E 00	5.086E-02	1.412E-02	8.310E 00	7.630E-04	5.105E-04
2.630E 00	4.974E-02	1.362E-02	8.450E 00	5.513E-04	4.787E-04
2.690E 00	4.466E-02	1.283E-02	8.590E 00	3.351E-04	4.206E-04
2.750E 00	3.682E-02	1.215E-02	8.730E 00	1.499E-04	4.234E-04
2.810E 00	4.103E-02	1.195E-02	8.870E 00	1.173E-04	3.655E-04
2.870E 00	5.102E-02	1.143E-02	9.010E 00	9.310E-05	3.024E-04
2.930E 00	5.245E-02	1.072E-02	9.150E 00	9.984E-05	2.775E-04
2.990E 00	4.727E-02	1.059E-02	9.300E 00	9.091E-05	2.449E-04
3.050E 00	4.459E-02	1.103E-02	9.460E 00	6.876E-05	2.572E-04
3.110E 00	4.223E-02	1.083E-02	9.620E 00	7.555E-05	2.395E-04
3.180E 00	3.053E-02	1.021E-02	9.780E 00	7.842E-05	2.293E-04
3.260E 00	1.900E-02	9.530E-03	9.940E 00	1.052E-04	1.954E-04
3.340E 00	2.057E-02	9.296E-03	1.010E 01	8.392E-05	1.688E-04
3.420E 00	2.228E-02	7.559E-03	1.026E 01	1.080E-04	1.202E-04
3.500E 00	2.335E-02	8.009E-03	1.042E 01	9.818E-05	1.311E-04
3.580E 00	2.212E-02	7.835E-03	1.058E 01	9.523E-05	1.470E-04

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	3.948E-02	9.729E-03
1.000E 00 - 1.200E 00	2.897E-02	8.038E-03
1.200E 00 - 1.400E 00	1.699E-02	6.801E-03
1.400E 00 - 1.600E 00	2.087E-02	5.558E-03
1.600E 00 - 1.800E 00	1.530E-02	5.199E-03
1.800E 00 - 2.000E 00	1.595E-02	4.878E-03
2.000E 00 - 2.500E 00	4.341E-02	9.618E-03
2.500E 00 - 3.000E 00	2.382E-02	6.229E-03
3.000E 00 - 3.500E 00	1.451E-02	4.765E-03
3.500E 00 - 4.000E 00	1.488E-02	3.694E-03
4.000E 00 - 4.500E 00	7.457E-03	3.076E-03
4.500E 00 - 5.000E 00	6.161E-03	2.462E-03
5.000E 00 - 6.000E 00	7.772E-03	3.704E-03
6.000E 00 - 7.000E 00	2.961E-03	2.404E-03
7.000E 00 - 8.000E 00	1.379E-03	1.023E-03
8.000E 00 - 9.000E 00	4.710E-04	4.523E-04
9.000E 00 - 1.000E 01	8.596E-05	2.459E-04

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 14.02 TO 17.04 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	2.108E-01	4.973E-02	3.660E 00	2.038E-02	4.120E-03
7.700E-01	1.981E-01	4.986E-02	3.740E 00	1.836E-02	4.242E-03
7.900E-01	1.670E-01	4.371E-02	3.820E 00	1.489E-02	4.294E-03
8.100E-01	1.424E-01	3.978E-02	3.900E 00	9.424E-03	3.883E-03
8.300E-01	1.379E-01	3.930E-02	3.980E 00	7.195E-03	3.825E-03
8.500E-01	1.454E-01	3.745E-02	4.060E 00	1.104E-02	3.596E-03
8.700E-01	1.534E-01	3.857E-02	4.140E 00	1.365E-02	3.644E-03
8.900E-01	1.736E-01	3.828E-02	4.220E 00	1.104E-02	3.402E-03
9.100E-01	2.122E-01	4.150E-02	4.300E 00	1.014E-02	3.210E-03
9.300E-01	2.541E-01	4.033E-02	4.380E 00	1.284E-02	3.059E-03
9.500E-01	2.821E-01	4.144E-02	4.460E 00	1.299E-02	3.141E-03
9.700E-01	2.821E-01	3.989E-02	4.540E 00	9.490E-03	3.028E-03
1.000E 00	2.401E-01	4.064E-02	4.630E 00	5.801E-03	2.979E-03
1.040E 00	1.697E-01	3.741E-02	4.730E 00	4.029E-03	2.840E-03
1.080E 00	1.381E-01	3.414E-02	4.830E 00	2.686E-03	2.570E-03
1.120E 00	1.299E-01	3.021E-02	4.930E 00	2.476E-03	2.582E-03
1.160E 00	1.113E-01	2.858E-02	5.030E 00	3.947E-03	2.420E-03
1.200E 00	9.349E-02	2.787E-02	5.130E 00	6.004E-03	2.341E-03
1.240E 00	8.955E-02	2.726E-02	5.230E 00	6.814E-03	2.248E-03
1.280E 00	9.171E-02	2.370E-02	5.330E 00	6.259E-03	2.269E-03
1.320E 00	9.841E-02	2.391E-02	5.430E 00	4.408E-03	2.167E-03
1.360E 00	9.608E-02	2.528E-02	5.530E 00	3.055E-03	2.085E-03
1.400E 00	8.513E-02	2.627E-02	5.630E 00	2.467E-03	1.889E-03
1.440E 00	9.219E-02	2.426E-02	5.730E 00	1.529E-03	1.846E-03
1.480E 00	1.061E-01	2.346E-02	5.830E 00	1.022E-03	1.747E-03
1.520E 00	1.043E-01	2.364E-02	5.930E 00	1.811E-03	1.698E-03
1.560E 00	8.768E-02	2.185E-02	6.030E 00	2.584E-03	1.627E-03
1.600E 00	8.129E-02	2.022E-02	6.130E 00	1.944E-03	1.412E-03
1.640E 00	7.309E-02	2.025E-02	6.230E 00	9.214E-04	1.289E-03
1.680E 00	6.093E-02	1.865E-02	6.330E 00	7.606E-04	1.224E-03
1.720E 00	5.469E-02	1.915E-02	6.440E 00	1.556E-03	1.179E-03
1.760E 00	5.107E-02	2.015E-02	6.560E 00	2.049E-03	1.083E-03
1.800E 00	5.024E-02	1.858E-02	6.680E 00	1.501E-03	9.559E-04
1.850E 00	5.656E-02	1.845E-02	6.800E 00	7.640E-04	8.584E-04
1.910E 00	7.200E-02	1.842E-02	6.920E 00	5.442E-04	8.343E-04
1.970E 00	8.136E-02	1.565E-02	7.040E 00	7.165E-04	8.400E-04
2.030E 00	8.538E-02	1.600E-02	7.160E 00	7.407E-04	7.618E-04
2.090E 00	1.100E-01	1.622E-02	7.280E 00	8.194E-04	6.849E-04
2.150E 00	1.161E-01	1.468E-02	7.400E 00	1.054E-03	5.947E-04
2.210E 00	8.529E-02	1.364E-02	7.520E 00	1.007E-03	5.562E-04
2.270E 00	7.095E-02	1.280E-02	7.640E 00	7.240E-04	5.173E-04
2.330E 00	6.909E-02	1.152E-02	7.760E 00	3.506E-04	3.468E-04
2.390E 00	6.261E-02	1.061E-02	7.890E 00	2.274E-04	2.713E-04
2.450E 00	5.797E-02	9.794E-03	8.030E 00	1.763E-04	2.369E-04
2.510E 00	4.665E-02	9.191E-03	8.170E 00	5.033E-05	2.104E-04
2.570E 00	3.111E-02	9.579E-03	8.310E 00	-6.892E-05	1.844E-04
2.630E 00	3.089E-02	8.435E-03	8.450E 00	-8.949E-05	1.691E-04
2.690E 00	3.791E-02	7.378E-03	8.590E 00	-4.837E-05	1.606E-04
2.750E 00	3.673E-02	7.498E-03	8.730E 00	8.748E-05	2.043E-04
2.810E 00	3.494E-02	8.017E-03	8.870E 00	1.991E-04	1.913E-04
2.870E 00	3.282E-02	7.551E-03	9.010E 00	3.366E-04	1.983E-04
2.930E 00	2.835E-02	7.766E-03	9.150E 00	4.070E-04	2.077E-04
2.990E 00	2.795E-02	6.991E-03	9.300E 00	3.647E-04	2.196E-04
3.050E 00	3.139E-02	6.446E-03	9.460E 00	2.488E-04	1.838E-04
3.110E 00	3.035E-02	6.284E-03	9.620E 00	6.948E-05	1.728E-04
3.180E 00	2.396E-02	5.826E-03	9.780E 00	-1.731E-05	1.620E-04
3.260E 00	2.178E-02	6.109E-03	9.940E 00	-2.982E-05	7.873E-05
3.340E 00	2.244E-02	5.450E-03	1.010E 01	4.355E-05	5.288E-05
3.420E 00	2.211E-02	5.380E-03	1.026E 01	9.262E-05	5.287E-05
3.500E 00	2.261E-02	5.055E-03	1.042E 01	9.172E-05	7.460E-05
3.580E 00	2.180E-02	4.490E-03	1.058E 01	9.878E-05	5.255E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	4.085E-02	7.939E-03
1.000E 00 - 1.200E 00	2.842E-02	6.575E-03
1.200E 00 - 1.400E 00	1.863E-02	5.078E-03
1.400E 00 - 1.600E 00	1.908E-02	4.655E-03
1.600E 00 - 1.800E 00	1.218E-02	3.911E-03
1.800E 00 - 2.000E 00	1.365E-02	3.546E-03
2.000E 00 - 2.500E 00	4.039E-02	6.505E-03
2.500E 00 - 3.000E 00	1.684E-02	4.032E-03
3.000E 00 - 3.500E 00	1.243E-02	2.930E-03
3.500E 00 - 4.000E 00	8.128E-03	2.107E-03
4.000E 00 - 4.500E 00	5.897E-03	1.679E-03
4.500E 00 - 5.000E 00	2.343E-03	1.388E-03
5.000E 00 - 6.000E 00	3.711E-03	2.055E-03
6.000E 00 - 7.000E 00	1.394E-03	1.127E-03
7.000E 00 - 8.000E 00	6.722E-04	5.460E-04
8.000E 00 - 9.000E 00	5.340E-05	1.924E-04
9.000E 00 - 1.000E 01	1.879E-04	1.752E-04

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN WB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 12.03 TO 14.02 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	2.142E-01	3.508E-02	3.660E 00	9.018E-03	3.569E-03
7.700E-01	1.913E-01	3.276E-02	3.740E 00	1.069E-02	3.445E-03
7.900E-01	1.535E-01	3.102E-02	3.820E 00	1.319E-02	3.206E-03
8.100E-01	1.300E-01	3.035E-02	3.900E 00	1.449E-02	3.049E-03
8.300E-01	1.307E-01	3.031E-02	3.980E 00	1.375E-02	3.086E-03
8.500E-01	1.430E-01	2.925E-02	4.060E 00	1.154E-02	2.930E-03
8.700E-01	1.534E-01	2.976E-02	4.140E 00	9.387E-03	2.967E-03
8.900E-01	1.706E-01	2.837E-02	4.220E 00	8.330E-03	2.855E-03
9.100E-01	2.079E-01	2.942E-02	4.300E 00	6.638E-03	2.851E-03
9.300E-01	2.572E-01	2.877E-02	4.380E 00	4.169E-03	2.820E-03
9.500E-01	2.934E-01	3.159E-02	4.460E 00	3.423E-03	2.750E-03
9.700E-01	2.913E-01	3.003E-02	4.540E 00	5.370E-03	2.714E-03
1.000E 00	2.300E-01	2.967E-02	4.630E 00	7.605E-03	2.562E-03
1.040E 00	1.592E-01	2.708E-02	4.730E 00	7.241E-03	2.455E-03
1.080E 00	1.425E-01	2.305E-02	4.830E 00	5.905E-03	2.430E-03
1.120E 00	1.143E-01	2.222E-02	4.930E 00	6.844E-03	2.374E-03
1.160E 00	8.921E-02	2.014E-02	5.030E 00	7.197E-03	2.289E-03
1.200E 00	8.443E-02	1.872E-02	5.130E 00	4.086E-03	2.203E-03
1.240E 00	8.556E-02	1.779E-02	5.230E 00	2.560E-03	2.074E-03
1.280E 00	8.006E-02	1.750E-02	5.330E 00	3.635E-03	2.046E-03
1.320E 00	7.079E-02	1.637E-02	5.430E 00	3.785E-03	1.969E-03
1.360E 00	7.439E-02	1.784E-02	5.530E 00	2.423E-03	1.901E-03
1.400E 00	8.657E-02	1.725E-02	5.630E 00	2.355E-03	1.865E-03
1.440E 00	9.039E-02	1.557E-02	5.730E 00	4.029E-03	1.850E-03
1.480E 00	8.758E-02	1.520E-02	5.830E 00	4.882E-03	1.942E-03
1.520E 00	8.968E-02	1.430E-02	5.930E 00	4.328E-03	1.749E-03
1.560E 00	8.401E-02	1.455E-02	6.030E 00	4.144E-03	1.701E-03
1.600E 00	6.731E-02	1.348E-02	6.130E 00	4.181E-03	1.685E-03
1.640E 00	5.765E-02	1.258E-02	6.230E 00	3.204E-03	1.645E-03
1.680E 00	5.279E-02	1.348E-02	6.330E 00	1.931E-03	1.577E-03
1.720E 00	4.145E-02	1.450E-02	6.440E 00	1.714E-03	1.433E-03
1.760E 00	3.520E-02	1.326E-02	6.560E 00	2.685E-03	1.415E-03
1.800E 00	4.071E-02	1.362E-02	6.680E 00	3.251E-03	1.368E-03
1.850E 00	4.598E-02	1.215E-02	6.800E 00	2.758E-03	1.248E-03
1.910E 00	4.143E-02	1.195E-02	6.920E 00	1.835E-03	1.154E-03
1.970E 00	4.238E-02	1.238E-02	7.040E 00	1.428E-03	1.050E-03
2.030E 00	5.230E-02	1.014E-02	7.160E 00	1.300E-03	9.634E-04
2.090E 00	5.937E-02	1.038E-02	7.280E 00	1.251E-03	8.528E-04
2.150E 00	6.388E-02	9.023E-03	7.400E 00	1.438E-03	7.988E-04
2.210E 00	5.909E-02	8.492E-03	7.520E 00	1.580E-03	7.558E-04
2.270E 00	4.396E-02	8.029E-03	7.640E 00	1.196E-03	7.014E-04
2.330E 00	3.993E-02	7.194E-03	7.760E 00	4.878E-04	6.353E-04
2.390E 00	4.313E-02	6.767E-03	7.890E 00	9.348E-05	5.998E-04
2.450E 00	3.697E-02	6.605E-03	8.030E 00	2.147E-04	5.684E-04
2.510E 00	2.866E-02	6.166E-03	8.170E 00	5.086E-04	5.019E-04
2.570E 00	2.671E-02	5.903E-03	8.310E 00	7.215E-04	4.336E-04
2.630E 00	2.695E-02	5.856E-03	8.450E 00	7.292E-04	4.072E-04
2.690E 00	2.690E-02	5.591E-03	8.590E 00	5.698E-04	3.614E-04
2.750E 00	2.663E-02	5.076E-03	8.730E 00	3.983E-04	3.053E-04
2.810E 00	2.389E-02	5.106E-03	8.870E 00	3.933E-04	2.832E-04
2.870E 00	1.927E-02	5.222E-03	9.010E 00	3.963E-04	2.189E-04
2.930E 00	1.735E-02	5.031E-03	9.150E 00	2.673E-04	1.725E-04
2.990E 00	1.887E-02	4.580E-03	9.300E 00	9.158E-05	1.626E-04
3.050E 00	2.017E-02	4.343E-03	9.460E 00	-1.074E-05	1.363E-04
3.110E 00	1.946E-02	4.523E-03	9.620E 00	-2.767E-05	7.615E-05
3.180E 00	1.913E-02	4.506E-03	9.780E 00	-8.930E-06	3.232E-05
3.260E 00	1.837E-02	3.887E-03	9.940E 00	1.018E-05	1.623E-05
3.340E 00	1.512E-02	4.127E-03	1.010E 01	1.609E-05	1.424E-05
3.420E 00	1.465E-02	4.013E-03	1.026E 01	1.716E-05	1.436E-05
3.500E 00	1.336E-02	3.700E-03	1.042E 01	1.808E-05	1.505E-05
3.580E 00	9.806E-03	3.634E-03	1.058E 01	1.815E-05	1.557E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	4.069E-02	5.950E-03
1.000E 00 - 1.200E 00	2.626E-02	4.658E-03
1.200E 00 - 1.400E 00	1.581E-02	3.503E-03
1.400E 00 - 1.600E 00	1.722E-02	3.001E-03
1.600E 00 - 1.800E 00	9.585E-03	2.688E-03
1.800E 00 - 2.000E 00	8.607E-03	2.448E-03
2.000E 00 - 2.500E 00	2.452E-02	4.138E-03
2.500E 00 - 3.000E 00	1.194E-02	2.698E-03
3.000E 00 - 3.500E 00	8.686E-03	2.097E-03
3.500E 00 - 4.000E 00	5.910E-03	1.684E-03
4.000E 00 - 4.500E 00	3.751E-03	1.436E-03
4.500E 00 - 5.000E 00	3.318E-03	1.245E-03
5.000E 00 - 6.000E 00	3.846E-03	1.978E-03
6.000E 00 - 7.000E 00	2.771E-03	1.443E-03
7.000E 00 - 8.000E 00	1.033E-03	7.766E-04
8.000E 00 - 9.000E 00	5.124E-04	3.908E-04
9.000E 00 - 1.000E 01	7.661E-05	1.083E-04

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 9.98 TO 12.03 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	3.131E-01	2.979E-02	3.600E 00	2.825E-02	3.941E-03
7.700E-01	3.061E-01	2.977E-02	3.740E 00	2.610E-02	3.707E-03
7.900E-01	2.728E-01	2.849E-02	3.820E 00	2.257E-02	3.721E-03
8.100E-01	2.304E-01	2.680E-02	3.900E 00	2.071E-02	3.751E-03
8.300E-01	1.929E-01	2.648E-02	3.980E 00	1.946E-02	3.649E-03
8.500E-01	1.668E-01	2.625E-02	4.060E 00	1.843E-02	3.626E-03
8.700E-01	1.570E-01	2.758E-02	4.140E 00	1.971E-02	3.291E-03
8.900E-01	1.820E-01	2.707E-02	4.220E 00	2.054E-02	3.027E-03
9.100E-01	2.524E-01	2.892E-02	4.300E 00	1.827E-02	3.121E-03
9.300E-01	3.465E-01	2.724E-02	4.380E 00	1.744E-02	2.992E-03
9.500E-01	4.176E-01	2.948E-02	4.460E 00	1.712E-02	2.946E-03
9.700E-01	4.272E-01	2.615E-02	4.540E 00	1.382E-02	2.961E-03
1.000E 00	3.416E-01	2.634E-02	4.630E 00	1.184E-02	2.722E-03
1.040E 00	1.942E-01	2.197E-02	4.730E 00	1.322E-02	2.604E-03
1.080E 00	1.226E-01	2.124E-02	4.830E 00	1.151E-02	2.462E-03
1.120E 00	9.953E-02	2.015E-02	4.930E 00	1.088E-02	2.411E-03
1.160E 00	9.597E-02	1.870E-02	5.030E 00	1.242E-02	2.310E-03
1.200E 00	9.171E-02	1.813E-02	5.130E 00	1.291E-02	2.161E-03
1.240E 00	8.760E-02	1.719E-02	5.230E 00	1.312E-02	2.067E-03
1.280E 00	7.650E-02	1.613E-02	5.330E 00	1.243E-02	1.983E-03
1.320E 00	7.104E-02	1.475E-02	5.430E 00	9.585E-03	1.903E-03
1.360E 00	7.542E-02	1.479E-02	5.530E 00	8.186E-03	1.819E-03
1.400E 00	7.613E-02	1.644E-02	5.630E 00	9.122E-03	1.785E-03
1.440E 00	7.758E-02	1.564E-02	5.730E 00	9.067E-03	1.702E-03
1.480E 00	8.637E-02	1.569E-02	5.830E 00	8.390E-03	1.608E-03
1.520E 00	9.246E-02	1.497E-02	5.930E 00	8.369E-03	1.551E-03
1.560E 00	8.455E-02	1.350E-02	6.030E 00	7.654E-03	1.507E-03
1.600E 00	7.256E-02	1.320E-02	6.130E 00	6.276E-03	1.471E-03
1.640E 00	6.667E-02	1.278E-02	6.230E 00	6.269E-03	1.427E-03
1.680E 00	6.259E-02	1.211E-02	6.330E 00	7.110E-03	1.348E-03
1.720E 00	5.404E-02	1.233E-02	6.440E 00	7.250E-03	1.262E-03
1.760E 00	4.607E-02	1.246E-02	6.560E 00	6.518E-03	1.213E-03
1.800E 00	4.542E-02	1.228E-02	6.680E 00	5.341E-03	1.160E-03
1.850E 00	5.228E-02	1.153E-02	6.800E 00	3.981E-03	1.099E-03
1.910E 00	5.266E-02	1.083E-02	6.920E 00	3.400E-03	1.007E-03
1.970E 00	5.090E-02	1.091E-02	7.040E 00	3.448E-03	8.916E-04
2.030E 00	5.529E-02	1.029E-02	7.160E 00	3.460E-03	8.541E-04
2.090E 00	4.637E-02	9.774E-03	7.280E 00	3.334E-03	8.019E-04
2.150E 00	4.155E-02	9.158E-03	7.400E 00	2.856E-03	7.157E-04
2.210E 00	5.156E-02	8.715E-03	7.520E 00	2.246E-03	6.500E-04
2.270E 00	4.881E-02	8.114E-03	7.640E 00	2.130E-03	5.996E-04
2.330E 00	4.087E-02	8.501E-03	7.760E 00	2.249E-03	5.510E-04
2.390E 00	4.780E-02	7.298E-03	7.890E 00	1.962E-03	4.976E-04
2.450E 00	5.389E-02	6.846E-03	8.030E 00	1.331E-03	4.499E-04
2.510E 00	4.625E-02	7.303E-03	8.170E 00	8.658E-04	4.061E-04
2.570E 00	3.565E-02	7.200E-03	8.310E 00	6.217E-04	3.680E-04
2.630E 00	3.135E-02	6.853E-03	8.450E 00	5.714E-04	3.249E-04
2.690E 00	3.255E-02	6.488E-03	8.590E 00	6.400E-04	2.818E-04
2.750E 00	3.546E-02	6.197E-03	8.730E 00	6.035E-04	2.615E-04
2.810E 00	3.765E-02	6.100E-03	8.870E 00	4.390E-04	2.352E-04
2.870E 00	3.601E-02	5.753E-03	9.010E 00	2.596E-04	1.922E-04
2.930E 00	3.124E-02	5.455E-03	9.150E 00	1.592E-04	1.590E-04
2.990E 00	2.862E-02	5.320E-03	9.300E 00	1.104E-04	1.377E-04
3.050E 00	3.103E-02	5.226E-03	9.460E 00	9.419E-05	1.188E-04
3.110E 00	3.442E-02	5.005E-03	9.620E 00	8.965E-05	9.557E-05
3.180E 00	3.297E-02	5.021E-03	9.780E 00	7.438E-05	8.503E-05
3.260E 00	2.905E-02	4.803E-03	9.940E 00	6.466E-05	7.265E-05
3.340E 00	3.250E-02	4.430E-03	1.010E 01	5.909E-05	4.935E-05
3.420E 00	3.437E-02	4.360E-03	1.026E 01	5.309E-05	4.071E-05
3.500E 00	2.884E-02	4.269E-03	1.042E 01	4.223E-05	4.112E-05
3.580E 00	2.659E-02	4.209E-03	1.058E 01	3.096E-05	4.192E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	5.508E-02	5.436E-03
1.000E 00 - 1.200E 00	2.860E-02	4.159E-03
1.200E 00 - 1.400E 00	1.576E-02	3.195E-03
1.400E 00 - 1.600E 00	1.667E-02	2.983E-03
1.600E 00 - 1.800E 00	1.151E-02	2.495E-03
1.800E 00 - 2.000E 00	1.029E-02	2.234E-03
2.000E 00 - 2.500E 00	2.407E-02	4.267E-03
2.500E 00 - 3.000E 00	1.734E-02	3.148E-03
3.000E 00 - 3.500E 00	1.605E-02	2.379E-03
3.500E 00 - 4.000E 00	1.226E-02	1.937E-03
4.000E 00 - 4.500E 00	9.288E-03	1.593E-03
4.500E 00 - 5.000E 00	6.104E-03	1.302E-03
5.000E 00 - 6.000E 00	1.026E-02	1.872E-03
6.000E 00 - 7.000E 00	5.810E-03	1.252E-03
7.000E 00 - 8.000E 00	2.635E-03	6.783E-04
8.000E 00 - 9.000E 00	6.704E-04	3.195E-04
9.000E 00 - 1.000E 01	1.097E-04	1.173E-04

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 9.01 TO 9.98 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	4.670E-01	3.716E-02	3.660E 00	3.688E-02	5.218E-03
7.700E-01	4.595E-01	3.508E-02	3.740E 00	3.734E-02	5.221E-03
7.900E-01	4.074E-01	3.273E-02	3.820E 00	4.057E-02	4.872E-03
8.100E-01	3.449E-01	3.182E-02	3.900E 00	3.628E-02	4.739E-03
8.300E-01	2.832E-01	3.153E-02	3.980E 00	3.047E-02	4.595E-03
8.500E-01	2.448E-01	3.234E-02	4.060E 00	2.872E-02	4.448E-03
8.700E-01	2.428E-01	3.440E-02	4.140E 00	2.960E-02	4.400E-03
8.900E-01	2.967E-01	3.449E-02	4.220E 00	3.008E-02	4.396E-03
9.100E-01	4.060E-01	3.815E-02	4.300E 00	2.714E-02	4.183E-03
9.300E-01	5.363E-01	3.641E-02	4.380E 00	2.406E-02	4.000E-03
9.500E-01	6.230E-01	4.039E-02	4.460E 00	2.409E-02	3.859E-03
9.700E-01	6.230E-01	3.603E-02	4.540E 00	2.430E-02	3.788E-03
1.000E 00	4.888E-01	3.482E-02	4.630E 00	2.120E-02	3.664E-03
1.040E 00	2.679E-01	2.828E-02	4.730E 00	1.920E-02	3.665E-03
1.080E 00	1.578E-01	2.574E-02	4.830E 00	2.094E-02	3.266E-03
1.120E 00	1.430E-01	2.458E-02	4.930E 00	2.269E-02	3.182E-03
1.160E 00	1.360E-01	2.275E-02	5.030E 00	2.299E-02	3.072E-03
1.200E 00	1.348E-01	2.269E-02	5.130E 00	2.170E-02	2.893E-03
1.240E 00	1.320E-01	2.123E-02	5.230E 00	1.926E-02	2.766E-03
1.280E 00	1.123E-01	2.076E-02	5.330E 00	1.607E-02	2.636E-03
1.320E 00	9.181E-02	1.959E-02	5.430E 00	1.369E-02	2.468E-03
1.360E 00	9.508E-02	2.087E-02	5.530E 00	1.269E-02	2.397E-03
1.400E 00	9.844E-02	2.134E-02	5.630E 00	1.316E-02	2.263E-03
1.440E 00	1.022E-01	2.043E-02	5.730E 00	1.409E-02	2.092E-03
1.480E 00	1.281E-01	2.049E-02	5.830E 00	1.370E-02	2.101E-03
1.520E 00	1.433E-01	1.930E-02	5.930E 00	1.268E-02	1.947E-03
1.560E 00	1.209E-01	1.841E-02	6.030E 00	1.271E-02	1.872E-03
1.600E 00	9.636E-02	1.743E-02	6.130E 00	1.231E-02	1.834E-03
1.640E 00	8.833E-02	1.780E-02	6.230E 00	1.091E-02	1.701E-03
1.680E 00	9.062E-02	1.659E-02	6.330E 00	1.019E-02	1.643E-03
1.720E 00	9.331E-02	1.587E-02	6.430E 00	9.816E-03	1.566E-03
1.760E 00	7.986E-02	1.597E-02	6.530E 00	7.840E-03	1.434E-03
1.800E 00	6.461E-02	1.747E-02	6.630E 00	6.241E-03	1.400E-03
1.850E 00	7.663E-02	1.560E-02	6.800E 00	6.212E-03	1.312E-03
1.910E 00	8.867E-02	1.482E-02	6.920E 00	5.784E-03	1.190E-03
1.970E 00	7.862E-02	1.536E-02	7.040E 00	4.821E-03	1.093E-03
2.030E 00	8.194E-02	1.322E-02	7.160E 00	4.725E-03	1.018E-03
2.090E 00	7.628E-02	1.312E-02	7.280E 00	4.861E-03	9.103E-04
2.150E 00	7.115E-02	1.207E-02	7.400E 00	4.385E-03	8.318E-04
2.210E 00	7.801E-02	1.153E-02	7.520E 00	3.609E-03	7.709E-04
2.270E 00	7.299E-02	1.112E-02	7.640E 00	2.868E-03	7.135E-04
2.330E 00	6.707E-02	1.087E-02	7.760E 00	2.142E-03	6.207E-04
2.390E 00	7.140E-02	9.886E-03	7.890E 00	1.784E-03	5.514E-04
2.450E 00	7.440E-02	9.566E-03	8.030E 00	1.915E-03	5.312E-04
2.510E 00	6.778E-02	9.406E-03	8.170E 00	1.640E-03	4.588E-04
2.570E 00	5.921E-02	9.132E-03	8.310E 00	8.933E-04	3.885E-04
2.630E 00	5.518E-02	8.555E-03	8.450E 00	4.190E-04	3.509E-04
2.690E 00	5.756E-02	8.677E-03	8.590E 00	4.050E-04	3.117E-04
2.750E 00	6.104E-02	8.442E-03	8.730E 00	5.426E-04	2.532E-04
2.810E 00	5.682E-02	8.289E-03	8.870E 00	5.987E-04	2.259E-04
2.870E 00	4.981E-02	7.971E-03	9.010E 00	5.252E-04	1.853E-04
2.930E 00	5.140E-02	7.532E-03	9.150E 00	3.774E-04	1.380E-04
2.990E 00	5.637E-02	7.265E-03	9.300E 00	2.198E-04	1.166E-04
3.050E 00	5.566E-02	6.917E-03	9.460E 00	1.114E-04	9.249E-05
3.110E 00	5.299E-02	6.909E-03	9.620E 00	4.623E-05	6.815E-05
3.180E 00	5.313E-02	6.692E-03	9.780E 00	1.784E-05	4.491E-05
3.260E 00	5.508E-02	6.002E-03	9.940E 00	1.941E-05	3.243E-05
3.340E 00	5.589E-02	5.914E-03	1.010E 01	2.343E-05	2.660E-05
3.420E 00	5.245E-02	5.465E-03	1.026E 01	2.714E-05	2.527E-05
3.500E 00	4.952E-02	5.607E-03	1.042E 01	2.817E-05	2.710E-05
3.580E 00	4.520E-02	5.400E-03	1.058E 01	2.720E-05	2.786E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.291E-02	7.003E-03
1.000E 00 - 1.200E 00	3.972E-02	5.177E-03
1.200E 00 - 1.400E 00	2.184E-02	4.175E-03
1.400E 00 - 1.600E 00	2.379E-02	3.923E-03
1.600E 00 - 1.800E 00	1.733E-02	3.340E-03
1.800E 00 - 2.000E 00	1.609E-02	3.078E-03
2.000E 00 - 2.500E 00	3.695E-02	5.684E-03
2.500E 00 - 3.000E 00	2.835E-02	4.183E-03
3.000E 00 - 3.500E 00	2.696E-02	3.122E-03
3.500E 00 - 4.000E 00	1.949E-02	2.535E-03
4.000E 00 - 4.500E 00	1.369E-02	2.114E-03
4.500E 00 - 5.000E 00	1.079E-02	1.741E-03
5.000E 00 - 6.000E 00	1.580E-02	2.440E-03
6.000E 00 - 7.000E 00	8.766E-03	1.519E-03
7.000E 00 - 8.000E 00	3.519E-03	7.918E-04
8.000E 00 - 9.000E 00	8.537E-04	3.423E-04
9.000E 00 - 1.000E 01	1.592E-04	8.955E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 8.02 TO 9.01 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.754E-01	3.619E-02	3.660E 00	4.534E-02	4.955E-03
7.700E-01	5.600E-01	3.383E-02	3.740E 00	4.229E-02	4.634E-03
7.900E-01	4.877E-01	3.207E-02	3.820E 00	4.329E-02	4.477E-03
8.100E-01	4.070E-01	3.367E-02	3.900E 00	4.343E-02	4.511E-03
8.300E-01	3.401E-01	3.360E-02	3.980E 00	4.025E-02	4.272E-03
8.500E-01	2.859E-01	3.452E-02	4.060E 00	3.577E-02	4.052E-03
8.700E-01	2.668E-01	3.607E-02	4.140E 00	3.205E-02	3.901E-03
8.900E-01	3.287E-01	3.661E-02	4.220E 00	2.977E-02	3.763E-03
9.100E-01	4.754E-01	3.913E-02	4.300E 00	2.763E-02	3.715E-03
9.300E-01	6.435E-01	3.536E-02	4.380E 00	2.644E-02	3.490E-03
9.500E-01	7.370E-01	3.877E-02	4.460E 00	2.649E-02	3.362E-03
9.700E-01	7.163E-01	3.594E-02	4.540E 00	2.632E-02	3.296E-03
1.000E 00	5.430E-01	3.640E-02	4.630E 00	2.516E-02	3.051E-03
1.040E 00	3.060E-01	2.971E-02	4.730E 00	2.320E-02	2.914E-03
1.080E 00	1.930E-01	2.686E-02	4.830E 00	2.001E-02	2.623E-03
1.120E 00	1.497E-01	2.564E-02	4.930E 00	1.850E-02	2.537E-03
1.160E 00	1.552E-01	2.428E-02	5.030E 00	1.965E-02	2.416E-03
1.200E 00	1.608E-01	2.259E-02	5.130E 00	1.913E-02	2.266E-03
1.240E 00	1.336E-01	2.206E-02	5.230E 00	1.587E-02	2.152E-03
1.280E 00	1.281E-01	2.119E-02	5.330E 00	1.397E-02	2.115E-03
1.320E 00	1.259E-01	2.022E-02	5.430E 00	1.488E-02	1.939E-03
1.360E 00	1.055E-01	2.116E-02	5.530E 00	1.638E-02	1.889E-03
1.400E 00	1.028E-01	2.209E-02	5.630E 00	1.661E-02	1.781E-03
1.440E 00	1.283E-01	2.097E-02	5.730E 00	1.558E-02	1.658E-03
1.480E 00	1.608E-01	1.916E-02	5.830E 00	1.395E-02	1.556E-03
1.520E 00	1.676E-01	1.949E-02	5.930E 00	1.147E-02	1.469E-03
1.560E 00	1.413E-01	1.911E-02	6.030E 00	9.358E-03	1.469E-03
1.600E 00	1.143E-01	1.721E-02	6.130E 00	8.215E-03	1.360E-03
1.640E 00	1.059E-01	1.684E-02	6.230E 00	7.698E-03	1.276E-03
1.680E 00	1.045E-01	1.597E-02	6.330E 00	7.915E-03	1.193E-03
1.720E 00	9.661E-02	1.689E-02	6.440E 00	8.373E-03	1.073E-03
1.760E 00	8.657E-02	1.660E-02	6.560E 00	8.191E-03	9.930E-04
1.800E 00	8.338E-02	1.799E-02	6.680E 00	7.677E-03	9.310E-04
1.850E 00	9.014E-02	1.618E-02	6.800E 00	6.550E-03	8.520E-04
1.910E 00	1.034E-01	1.461E-02	6.920E 00	4.915E-03	7.520E-04
1.970E 00	9.749E-02	1.462E-02	7.040E 00	3.942E-03	6.841E-04
2.030E 00	8.846E-02	1.351E-02	7.160E 00	3.329E-03	6.109E-04
2.090E 00	9.811E-02	1.281E-02	7.280E 00	2.453E-03	5.370E-04
2.150E 00	9.271E-02	1.228E-02	7.400E 00	1.819E-03	4.765E-04
2.210E 00	8.359E-02	1.170E-02	7.520E 00	1.688E-03	4.342E-04
2.270E 00	8.349E-02	1.104E-02	7.640E 00	1.685E-03	3.854E-04
2.330E 00	7.875E-02	1.076E-02	7.760E 00	1.640E-03	3.340E-04
2.390E 00	7.589E-02	1.003E-02	7.890E 00	1.437E-03	3.055E-04
2.450E 00	7.803E-02	9.510E-03	8.030E 00	9.878E-04	2.655E-04
2.510E 00	8.051E-02	9.612E-03	8.170E 00	5.369E-04	2.001E-04
2.570E 00	7.358E-02	8.984E-03	8.310E 00	3.154E-04	1.754E-04
2.630E 00	6.549E-02	9.060E-03	8.450E 00	2.436E-04	1.574E-04
2.690E 00	6.681E-02	8.262E-03	8.590E 00	1.953E-04	1.347E-04
2.750E 00	6.861E-02	8.180E-03	8.730E 00	1.483E-04	1.058E-04
2.810E 00	6.391E-02	8.387E-03	8.870E 00	1.307E-04	8.710E-05
2.870E 00	6.126E-02	8.243E-03	9.010E 00	1.032E-04	9.093E-05
2.930E 00	6.148E-02	7.422E-03	9.150E 00	7.650E-05	7.562E-05
2.990E 00	6.049E-02	7.228E-03	9.300E 00	3.891E-05	5.609E-05
3.050E 00	6.017E-02	6.817E-03	9.460E 00	1.782E-05	5.036E-05
3.110E 00	6.190E-02	6.745E-03	9.620E 00	7.599E-06	4.744E-05
3.180E 00	6.227E-02	6.399E-03	9.780E 00	9.087E-06	4.726E-05
3.260E 00	5.950E-02	5.862E-03	9.940E 00	1.905E-05	4.663E-05
3.340E 00	5.709E-02	5.718E-03	1.010E 01	2.580E-05	5.213E-05
3.420E 00	5.163E-02	5.601E-03	1.026E 01	4.866E-05	3.962E-05
3.500E 00	4.569E-02	5.369E-03	1.042E 01	6.539E-05	3.420E-05
3.580E 00	4.642E-02	4.942E-03	1.058E 01	6.420E-05	4.681E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	9.633E-02	7.184E-03
1.000E 00 - 1.200E 00	4.531E-02	5.421E-03
1.200E 00 - 1.400E 00	2.488E-02	4.274E-03
1.400E 00 - 1.600E 00	2.848E-02	3.937E-03
1.600E 00 - 1.800E 00	1.968E-02	3.344E-03
1.800E 00 - 2.000E 00	1.921E-02	3.070E-03
2.000E 00 - 2.500E 00	4.244E-02	5.694E-03
2.500E 00 - 3.000E 00	3.329E-02	4.180E-03
3.000E 00 - 3.500E 00	2.884E-02	3.061E-03
3.500E 00 - 4.000E 00	2.194E-02	2.353E-03
4.000E 00 - 4.500E 00	1.503E-02	1.867E-03
4.500E 00 - 5.000E 00	1.118E-02	1.424E-03
5.000E 00 - 6.000E 00	1.556E-02	1.904E-03
6.000E 00 - 7.000E 00	7.497E-03	1.066E-03
7.000E 00 - 8.000E 00	2.154E-03	4.551E-04
8.000E 00 - 9.000E 00	3.198E-04	1.515E-04
9.000E 00 - 1.000E 01	3.311E-05	5.651E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 7.01 TO 8.02 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.783E-01	3.345E-02	3.660E 00	3.954E-02	3.610E-03
7.700E-01	5.641E-01	3.179E-02	3.740E 00	3.879E-02	3.480E-03
7.900E-01	5.003E-01	2.979E-02	3.820E 00	3.782E-02	3.337E-03
8.100E-01	4.147E-01	2.935E-02	3.900E 00	3.439E-02	3.190E-03
8.300E-01	3.353E-01	2.968E-02	3.980E 00	3.085E-02	3.107E-03
8.500E-01	2.807E-01	3.108E-02	4.060E 00	2.904E-02	2.940E-03
8.700E-01	2.699E-01	3.302E-02	4.140E 00	2.776E-02	2.809E-03
8.900E-01	3.271E-01	3.330E-02	4.220E 00	2.660E-02	2.680E-03
9.100E-01	4.568E-01	3.712E-02	4.300E 00	2.569E-02	2.613E-03
9.300E-01	6.197E-01	3.424E-02	4.380E 00	2.390E-02	2.469E-03
9.500E-01	7.287E-01	3.649E-02	4.460E 00	2.260E-02	2.343E-03
9.700E-01	7.251E-01	3.309E-02	4.540E 00	2.254E-02	2.216E-03
1.000E 00	5.489E-01	3.180E-02	4.620E 00	2.018E-02	2.176E-03
1.040E 00	5.481E-01	2.689E-02	4.700E 00	1.650E-02	2.018E-03
1.080E 00	1.777E-01	2.406E-02	4.800E 00	1.555E-02	1.801E-03
1.120E 00	1.489E-01	2.280E-02	4.900E 00	1.451E-02	1.687E-03
1.160E 00	1.546E-01	2.204E-02	5.000E 00	1.308E-02	1.599E-03
1.200E 00	1.557E-01	2.159E-02	5.100E 00	1.339E-02	1.463E-03
1.240E 00	1.441E-01	2.033E-02	5.200E 00	1.477E-02	1.393E-03
1.280E 00	1.320E-01	1.914E-02	5.300E 00	1.510E-02	1.259E-03
1.320E 00	1.137E-01	1.845E-02	5.400E 00	1.339E-02	1.164E-03
1.360E 00	1.080E-01	1.874E-02	5.500E 00	1.077E-02	1.107E-03
1.400E 00	1.165E-01	1.983E-02	5.600E 00	9.100E-03	1.041E-03
1.440E 00	1.317E-01	1.920E-02	5.700E 00	8.170E-03	9.745E-04
1.480E 00	1.558E-01	1.782E-02	5.800E 00	7.739E-03	8.986E-04
1.520E 00	1.606E-01	1.758E-02	5.900E 00	7.700E-03	8.131E-04
1.560E 00	1.382E-01	1.676E-02	6.000E 00	7.093E-03	7.671E-04
1.600E 00	1.161E-01	1.535E-02	6.100E 00	5.798E-03	7.090E-04
1.640E 00	1.071E-01	1.559E-02	6.200E 00	4.736E-03	6.664E-04
1.680E 00	1.035E-01	1.478E-02	6.300E 00	4.469E-03	6.066E-04
1.720E 00	9.838E-02	1.508E-02	6.440E 00	3.931E-03	5.372E-04
1.760E 00	9.286E-02	1.444E-02	6.560E 00	3.605E-03	4.833E-04
1.800E 00	8.931E-02	1.467E-02	6.680E 00	2.709E-03	4.308E-04
1.850E 00	9.122E-02	1.390E-02	6.800E 00	1.629E-03	3.923E-04
1.910E 00	9.975E-02	1.332E-02	6.920E 00	9.576E-04	3.368E-04
1.970E 00	9.617E-02	1.272E-02	7.040E 00	8.076E-04	2.887E-04
2.030E 00	8.752E-02	1.204E-02	7.160E 00	8.380E-04	2.603E-04
2.090E 00	8.783E-02	1.119E-02	7.280E 00	7.991E-04	2.285E-04
2.150E 00	8.931E-02	1.059E-02	7.400E 00	6.706E-04	2.026E-04
2.210E 00	8.112E-02	1.017E-02	7.520E 00	4.731E-04	1.693E-04
2.270E 00	7.582E-02	9.580E-03	7.640E 00	2.838E-04	1.514E-04
2.330E 00	7.656E-02	9.159E-03	7.760E 00	1.826E-04	1.414E-04
2.390E 00	7.650E-02	8.700E-03	7.890E 00	1.785E-04	1.254E-04
2.450E 00	7.262E-02	8.179E-03	8.030E 00	1.966E-04	9.819E-05
2.510E 00	6.875E-02	7.910E-03	8.170E 00	1.651E-04	9.911E-05
2.570E 00	6.816E-02	7.610E-03	8.310E 00	9.626E-05	8.605E-05
2.630E 00	6.605E-02	7.323E-03	8.450E 00	5.849E-05	5.679E-05
2.690E 00	6.129E-02	7.053E-03	8.590E 00	6.404E-05	4.704E-05
2.750E 00	6.017E-02	6.593E-03	8.730E 00	5.832E-05	5.001E-05
2.810E 00	6.447E-02	6.406E-03	8.870E 00	2.925E-05	4.319E-05
2.870E 00	6.507E-02	5.967E-03	9.010E 00	1.904E-06	3.687E-05
2.930E 00	6.254E-02	5.928E-03	9.150E 00	3.541E-06	3.614E-05
2.990E 00	6.181E-02	5.641E-03	9.300E 00	1.685E-05	3.109E-05
3.050E 00	5.926E-02	5.481E-03	9.460E 00	2.477E-05	2.544E-05
3.110E 00	5.449E-02	5.597E-03	9.620E 00	2.235E-05	3.061E-05
3.180E 00	5.125E-02	5.463E-03	9.780E 00	2.749E-05	3.420E-05
3.260E 00	5.216E-02	4.895E-03	9.940E 00	3.649E-05	3.331E-05
3.340E 00	5.257E-02	4.288E-03	1.010E 01	4.145E-05	2.961E-05
3.420E 00	4.800E-02	4.151E-03	1.026E 01	3.801E-05	2.203E-05
3.500E 00	4.411E-02	4.077E-03	1.042E 01	2.662E-05	2.331E-05
3.580E 00	4.144E-02	3.843E-03	1.058E 01	1.859E-05	2.475E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	9.567E-02	6.583E-03
1.000E 00 - 1.200E 00	4.347E-02	4.881E-03
1.200E 00 - 1.400E 00	2.527E-02	3.885E-03
1.400E 00 - 1.600E 00	2.826E-02	3.560E-03
1.600E 00 - 1.800E 00	2.016E-02	2.992E-03
1.800E 00 - 2.000E 00	1.905E-02	2.688E-03
2.000E 00 - 2.500E 00	4.028E-02	4.937E-03
2.500E 00 - 3.000E 00	3.209E-02	3.356E-03
3.000E 00 - 3.500E 00	2.616E-02	2.445E-03
3.500E 00 - 4.000E 00	1.897E-02	1.744E-03
4.000E 00 - 4.500E 00	1.306E-02	1.329E-03
4.500E 00 - 5.000E 00	8.743E-03	9.786E-04
5.000E 00 - 6.000E 00	1.120E-02	1.154E-03
6.000E 00 - 7.000E 00	3.585E-03	5.271E-04
7.000E 00 - 8.000E 00	5.037E-04	1.891E-04
8.000E 00 - 9.000E 00	8.610E-05	6.592E-05
9.000E 00 - 1.000E 01	2.024E-05	3.213E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 6.51 TO 7.01 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.857E-01	3.245E-02	3.660E 00	3.581E-02	3.294E-03
7.700E-01	5.892E-01	3.084E-02	3.740E 00	3.310E-02	3.188E-03
7.900E-01	5.230E-01	2.885E-02	3.820E 00	3.022E-02	3.097E-03
8.100E-01	4.313E-01	2.816E-02	3.900E 00	2.868E-02	3.046E-03
8.300E-01	3.535E-01	2.782E-02	3.980E 00	2.807E-02	2.827E-03
8.500E-01	2.977E-01	2.960E-02	4.060E 00	2.734E-02	2.722E-03
8.700E-01	2.728E-01	3.136E-02	4.140E 00	2.528E-02	2.633E-03
8.900E-01	3.072E-01	3.215E-02	4.220E 00	2.197E-02	2.528E-03
9.100E-01	4.205E-01	3.550E-02	4.300E 00	1.983E-02	2.518E-03
9.300E-01	5.825E-01	3.182E-02	4.380E 00	1.991E-02	2.281E-03
9.500E-01	6.984E-01	3.486E-02	4.460E 00	1.944E-02	2.158E-03
9.700E-01	7.003E-01	3.183E-02	4.540E 00	1.729E-02	2.003E-03
1.000E 00	5.379E-01	3.224E-02	4.630E 00	1.605E-02	1.934E-03
1.040E 00	3.158E-01	2.612E-02	4.730E 00	1.603E-02	1.845E-03
1.080E 00	1.958E-01	2.331E-02	4.830E 00	1.296E-02	1.572E-03
1.120E 00	1.513E-01	2.208E-02	4.930E 00	1.139E-02	1.516E-03
1.160E 00	1.519E-01	2.035E-02	5.030E 00	1.182E-02	1.432E-03
1.200E 00	1.549E-01	1.955E-02	5.130E 00	9.610E-03	1.262E-03
1.240E 00	1.461E-01	1.997E-02	5.230E 00	7.637E-03	1.146E-03
1.280E 00	1.319E-01	1.831E-02	5.330E 00	7.457E-03	1.053E-03
1.320E 00	1.218E-01	1.731E-02	5.430E 00	7.081E-03	1.004E-03
1.360E 00	1.123E-01	1.756E-02	5.530E 00	6.133E-03	9.262E-04
1.400E 00	1.073E-01	1.867E-02	5.630E 00	5.329E-03	8.447E-04
1.440E 00	1.239E-01	1.761E-02	5.730E 00	4.616E-03	7.724E-04
1.480E 00	1.472E-01	1.800E-02	5.830E 00	3.868E-03	7.154E-04
1.520E 00	1.489E-01	1.724E-02	5.930E 00	2.876E-03	6.680E-04
1.560E 00	1.309E-01	1.577E-02	6.030E 00	2.136E-03	6.282E-04
1.600E 00	1.164E-01	1.389E-02	6.130E 00	2.088E-03	5.438E-04
1.640E 00	1.134E-01	1.380E-02	6.230E 00	2.254E-03	5.133E-04
1.680E 00	1.048E-01	1.390E-02	6.330E 00	2.015E-03	4.673E-04
1.720E 00	8.671E-02	1.441E-02	6.440E 00	1.600E-03	4.039E-04
1.760E 00	7.788E-02	1.368E-02	6.560E 00	1.394E-03	3.603E-04
1.800E 00	8.045E-02	1.437E-02	6.680E 00	1.163E-03	3.179E-04
1.850E 00	8.712E-02	1.294E-02	6.800E 00	8.013E-04	2.639E-04
1.910E 00	9.452E-02	1.263E-02	6.920E 00	5.132E-04	2.186E-04
1.970E 00	9.819E-02	1.143E-02	7.040E 00	3.166E-04	1.921E-04
2.030E 00	9.455E-02	1.108E-02	7.160E 00	1.661E-04	1.707E-04
2.090E 00	8.155E-02	1.132E-02	7.280E 00	7.389E-05	1.435E-04
2.150E 00	8.239E-02	9.644E-03	7.400E 00	6.033E-05	1.315E-04
2.210E 00	7.936E-02	9.274E-03	7.520E 00	6.474E-05	1.156E-04
2.270E 00	7.479E-02	8.707E-03	7.640E 00	7.156E-05	1.006E-04
2.330E 00	7.754E-02	8.563E-03	7.760E 00	8.029E-05	9.362E-05
2.390E 00	7.229E-02	8.305E-03	7.880E 00	7.598E-05	9.180E-05
2.450E 00	6.372E-02	7.987E-03	8.000E 00	6.911E-05	8.316E-05
2.510E 00	5.945E-02	7.396E-03	8.170E 00	6.310E-05	7.163E-05
2.570E 00	5.825E-02	7.001E-03	8.310E 00	6.925E-05	6.339E-05
2.630E 00	5.812E-02	6.685E-03	8.450E 00	7.067E-05	5.916E-05
2.690E 00	5.856E-02	6.282E-03	8.590E 00	5.866E-05	5.394E-05
2.750E 00	5.938E-02	5.910E-03	8.730E 00	3.043E-05	3.423E-05
2.810E 00	6.093E-02	5.869E-03	8.870E 00	1.247E-05	2.518E-05
2.870E 00	6.168E-02	5.484E-03	9.010E 00	3.100E-06	2.171E-05
2.930E 00	6.016E-02	5.325E-03	9.150E 00	1.408E-06	1.860E-05
2.990E 00	5.517E-02	5.189E-03	9.300E 00	5.003E-06	1.550E-05
3.050E 00	5.106E-02	4.954E-03	9.460E 00	9.069E-06	1.644E-05
3.110E 00	5.278E-02	4.908E-03	9.620E 00	1.063E-05	1.782E-05
3.180E 00	5.224E-02	4.593E-03	9.780E 00	1.207E-05	1.710E-05
3.260E 00	4.273E-02	4.478E-03	9.940E 00	1.025E-05	1.303E-05
3.340E 00	4.021E-02	4.209E-03	1.010E 01	8.346E-06	9.747E-06
3.420E 00	4.110E-02	3.843E-03	1.026E 01	5.754E-06	9.280E-06
3.500E 00	4.010E-02	3.774E-03	1.042E 01	3.553E-06	8.834E-06
3.580E 00	3.788E-02	3.879E-03	1.058E 01	3.371E-06	8.589E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	9.349E-02	6.292E-03
1.000E 00 - 1.200E 00	4.557E-02	4.689E-03
1.200E 00 - 1.400E 00	2.570E-02	3.685E-03
1.400E 00 - 1.600E 00	2.664E-02	3.401E-03
1.600E 00 - 1.800E 00	1.923E-02	2.791E-03
1.800E 00 - 2.000E 00	1.840E-02	2.514E-03
2.000E 00 - 2.500E 00	3.874E-02	4.650E-03
2.500E 00 - 3.000E 00	2.963E-02	3.055E-03
3.000E 00 - 3.500E 00	2.304E-02	2.216E-03
3.500E 00 - 4.000E 00	1.653E-02	1.642E-03
4.000E 00 - 4.500E 00	1.125E-02	1.242E-03
4.500E 00 - 5.000E 00	7.268E-03	8.759E-04
5.000E 00 - 6.000E 00	6.437E-03	9.653E-04
6.000E 00 - 7.000E 00	1.472E-03	3.939E-04
7.000E 00 - 8.000E 00	1.066E-04	1.260E-04
8.000E 00 - 9.000E 00	4.967E-05	5.253E-05
9.000E 00 - 1.000E 01	7.733E-06	1.687E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 6.00 TO 6.51 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.543E-01	2.968E-02	3.660E 00	2.809E-02	2.684E-03
7.700E-01	5.690E-01	2.865E-02	3.740E 00	2.817E-02	2.611E-03
7.900E-01	5.356E-01	2.630E-02	3.820E 00	2.824E-02	2.580E-03
8.100E-01	4.523E-01	2.625E-02	3.900E 00	2.644E-02	2.401E-03
8.300E-01	3.527E-01	2.650E-02	3.980E 00	2.368E-02	2.252E-03
8.500E-01	2.732E-01	2.750E-02	4.060E 00	2.256E-02	2.150E-03
8.700E-01	2.461E-01	2.840E-02	4.140E 00	2.245E-02	2.038E-03
8.900E-01	3.015E-01	2.837E-02	4.220E 00	2.000E-02	1.887E-03
9.100E-01	4.346E-01	3.131E-02	4.300E 00	1.519E-02	1.837E-03
9.300E-01	5.855E-01	2.905E-02	4.380E 00	1.295E-02	1.706E-03
9.500E-01	6.781E-01	3.191E-02	4.460E 00	1.358E-02	1.559E-03
9.700E-01	6.790E-01	2.914E-02	4.540E 00	1.344E-02	1.533E-03
1.000E 00	5.444E-01	2.824E-02	4.630E 00	1.243E-02	1.356E-03
1.040E 00	2.966E-01	2.343E-02	4.730E 00	1.155E-02	1.289E-03
1.080E 00	1.758E-01	2.108E-02	4.830E 00	9.682E-03	1.115E-03
1.120E 00	1.505E-01	2.062E-02	4.930E 00	7.806E-03	1.012E-03
1.160E 00	1.443E-01	1.887E-02	5.030E 00	6.145E-03	9.484E-04
1.200E 00	1.457E-01	1.860E-02	5.130E 00	5.125E-03	8.525E-04
1.240E 00	1.342E-01	1.667E-02	5.230E 00	4.999E-03	8.134E-04
1.280E 00	1.240E-01	1.650E-02	5.330E 00	4.394E-03	7.118E-04
1.320E 00	1.202E-01	1.518E-02	5.430E 00	3.514E-03	6.430E-04
1.360E 00	1.066E-01	1.585E-02	5.530E 00	2.983E-03	5.880E-04
1.400E 00	1.021E-01	1.658E-02	5.630E 00	2.511E-03	5.543E-04
1.440E 00	1.190E-01	1.501E-02	5.730E 00	2.176E-03	4.861E-04
1.480E 00	1.395E-01	1.511E-02	5.830E 00	2.021E-03	4.619E-04
1.520E 00	1.409E-01	1.543E-02	5.930E 00	1.653E-03	4.280E-04
1.560E 00	1.259E-01	1.411E-02	6.030E 00	1.146E-03	3.532E-04
1.600E 00	1.096E-01	1.281E-02	6.130E 00	8.499E-04	3.107E-04
1.640E 00	9.795E-02	1.213E-02	6.230E 00	7.915E-04	2.825E-04
1.680E 00	9.332E-02	1.231E-02	6.330E 00	7.545E-04	2.695E-04
1.720E 00	8.734E-02	1.233E-02	6.440E 00	5.526E-04	2.409E-04
1.760E 00	7.935E-02	1.196E-02	6.560E 00	2.673E-04	1.893E-04
1.800E 00	7.544E-02	1.230E-02	6.680E 00	5.235E-05	1.719E-04
1.850E 00	8.004E-02	1.127E-02	6.800E 00	-5.550E-05	1.751E-04
1.910E 00	9.292E-02	1.106E-02	6.920E 00	-1.032E-04	1.552E-04
1.970E 00	9.461E-02	1.105E-02	7.040E 00	-7.948E-05	1.381E-04
2.030E 00	8.435E-02	1.022E-02	7.160E 00	1.467E-05	1.330E-04
2.090E 00	7.824E-02	9.339E-03	7.280E 00	1.344E-04	1.303E-04
2.150E 00	7.855E-02	9.058E-03	7.400E 00	2.136E-04	1.212E-04
2.210E 00	7.356E-02	8.031E-03	7.520E 00	2.168E-04	1.213E-04
2.270E 00	7.044E-02	7.834E-03	7.640E 00	1.525E-04	1.197E-04
2.330E 00	6.895E-02	7.001E-03	7.760E 00	8.415E-05	1.031E-04
2.390E 00	6.456E-02	6.656E-03	7.890E 00	6.207E-05	8.930E-05
2.450E 00	6.318E-02	6.858E-03	8.030E 00	7.963E-05	8.908E-05
2.510E 00	6.285E-02	6.191E-03	8.170E 00	8.399E-05	8.416E-05
2.570E 00	5.481E-02	6.048E-03	8.310E 00	6.800E-05	6.643E-05
2.630E 00	5.101E-02	5.702E-03	8.450E 00	3.912E-05	5.619E-05
2.690E 00	5.342E-02	5.312E-03	8.590E 00	9.651E-06	5.878E-05
2.750E 00	5.319E-02	5.084E-03	8.730E 00	-1.336E-05	5.328E-05
2.810E 00	5.258E-02	4.996E-03	8.870E 00	-1.094E-05	4.260E-05
2.870E 00	5.286E-02	4.913E-03	9.010E 00	2.032E-05	3.797E-05
2.930E 00	5.322E-02	4.729E-03	9.150E 00	4.667E-05	3.603E-05
2.990E 00	5.325E-02	4.634E-03	9.300E 00	5.317E-05	2.969E-05
3.050E 00	4.906E-02	4.401E-03	9.460E 00	4.306E-05	2.566E-05
3.110E 00	4.389E-02	4.243E-03	9.620E 00	2.718E-05	2.755E-05
3.180E 00	4.406E-02	3.974E-03	9.780E 00	8.528E-06	2.747E-05
3.260E 00	4.189E-02	3.916E-03	9.940E 00	7.391E-06	2.228E-05
3.340E 00	3.582E-02	3.631E-03	1.010E 01	8.837E-06	1.567E-05
3.420E 00	3.624E-02	3.610E-03	1.026E 01	1.712E-05	1.891E-05
3.500E 00	3.525E-02	3.131E-03	1.042E 01	2.309E-05	1.973E-05
3.580E 00	3.088E-02	2.971E-03	1.058E 01	2.601E-05	2.175E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	9.213E-02	5.731E-03
1.000E 00 - 1.200E 00	4.348E-02	4.276E-03
1.200E 00 - 1.400E 00	2.431E-02	3.265E-03
1.400E 00 - 1.600E 00	2.539E-02	2.973E-03
1.600E 00 - 1.800E 00	1.799E-02	2.447E-03
1.800E 00 - 2.000E 00	1.758E-02	2.244E-03
2.000E 00 - 2.500E 00	3.618E-02	4.025E-03
2.500E 00 - 3.000E 00	2.686E-02	2.640E-03
3.000E 00 - 3.500E 00	2.067E-02	1.952E-03
3.500E 00 - 4.000E 00	1.415E-02	1.319E-03
4.000E 00 - 4.500E 00	9.003E-03	9.395E-04
4.500E 00 - 5.000E 00	5.351E-03	6.184E-04
5.000E 00 - 6.000E 00	3.449E-03	6.364E-04
6.000E 00 - 7.000E 00	4.140E-04	2.293E-04
7.000E 00 - 8.000E 00	1.019E-04	1.173E-04
8.000E 00 - 9.000E 00	3.352E-05	6.190E-05
9.000E 00 - 1.000E 01	3.061E-05	2.891E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 5.48 TO 6.00 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.764E-01	2.960E-02	3.660E 00	2.672E-02	2.231E-03
7.700E-01	5.673E-01	2.829E-02	3.740E 00	2.338E-02	2.060E-03
7.900E-01	5.070E-01	2.492E-02	3.820E 00	2.019E-02	1.990E-03
8.100E-01	4.245E-01	2.427E-02	3.900E 00	1.939E-02	1.858E-03
8.300E-01	3.373E-01	2.437E-02	3.980E 00	1.862E-02	1.707E-03
8.500E-01	2.656E-01	2.542E-02	4.060E 00	1.758E-02	1.639E-03
8.700E-01	2.396E-01	2.666E-02	4.140E 00	1.735E-02	1.482E-03
8.900E-01	2.876E-01	2.649E-02	4.220E 00	1.606E-02	1.388E-03
9.100E-01	4.114E-01	2.909E-02	4.300E 00	1.353E-02	1.305E-03
9.300E-01	5.637E-01	2.662E-02	4.380E 00	1.173E-02	1.204E-03
9.500E-01	6.636E-01	2.974E-02	4.460E 00	1.029E-02	1.139E-03
9.700E-01	6.610E-01	2.716E-02	4.540E 00	8.984E-03	1.101E-03
1.000E 00	5.109E-01	2.636E-02	4.630E 00	7.954E-03	9.736E-04
1.040E 00	2.933E-01	2.143E-02	4.730E 00	6.126E-03	8.722E-04
1.080E 00	1.883E-01	1.945E-02	4.830E 00	4.114E-03	7.712E-04
1.120E 00	1.499E-01	1.811E-02	4.930E 00	3.684E-03	7.132E-04
1.160E 00	1.463E-01	1.733E-02	5.030E 00	3.868E-03	6.749E-04
1.200E 00	1.479E-01	1.659E-02	5.130E 00	3.453E-03	5.999E-04
1.240E 00	1.250E-01	1.556E-02	5.230E 00	2.849E-03	5.192E-04
1.280E 00	1.120E-01	1.502E-02	5.330E 00	2.532E-03	4.525E-04
1.320E 00	1.083E-01	1.467E-02	5.430E 00	2.308E-03	4.238E-04
1.360E 00	1.010E-01	1.415E-02	5.530E 00	1.856E-03	3.787E-04
1.400E 00	9.785E-02	1.524E-02	5.630E 00	1.191E-03	3.517E-04
1.440E 00	1.167E-01	1.449E-02	5.730E 00	7.457E-04	2.946E-04
1.480E 00	1.408E-01	1.444E-02	5.830E 00	6.942E-04	2.546E-04
1.520E 00	1.375E-01	1.437E-02	5.930E 00	7.262E-04	2.475E-04
1.560E 00	1.197E-01	1.262E-02	6.030E 00	4.742E-04	2.009E-04
1.600E 00	1.085E-01	1.146E-02	6.130E 00	1.296E-04	1.648E-04
1.640E 00	9.947E-02	1.122E-02	6.230E 00	-1.101E-04	1.643E-04
1.680E 00	8.772E-02	1.091E-02	6.330E 00	-1.846E-04	1.451E-04
1.720E 00	7.728E-02	1.126E-02	6.440E 00	-1.294E-04	1.279E-04
1.760E 00	7.206E-02	1.078E-02	6.560E 00	-4.228E-05	1.113E-04
1.800E 00	6.981E-02	1.121E-02	6.680E 00	4.568E-05	1.070E-04
1.850E 00	7.289E-02	1.026E-02	6.800E 00	1.295E-04	9.176E-05
1.910E 00	8.511E-02	1.020E-02	6.920E 00	1.392E-04	9.090E-05
1.970E 00	8.762E-02	9.235E-03	7.040E 00	6.050E-05	1.068E-04
2.030E 00	8.216E-02	8.359E-03	7.160E 00	-2.786E-05	9.642E-05
2.090E 00	7.505E-02	8.102E-03	7.280E 00	-2.881E-05	9.039E-05
2.150E 00	6.719E-02	7.679E-03	7.400E 00	3.283E-05	9.719E-05
2.210E 00	6.442E-02	7.339E-03	7.520E 00	1.048E-04	9.174E-05
2.270E 00	6.363E-02	6.623E-03	7.640E 00	1.468E-04	8.043E-05
2.330E 00	5.811E-02	6.359E-03	7.760E 00	1.552E-04	7.575E-05
2.390E 00	5.486E-02	6.077E-03	7.890E 00	1.242E-04	6.987E-05
2.450E 00	5.575E-02	6.043E-03	8.030E 00	5.769E-05	5.327E-05
2.510E 00	5.561E-02	5.594E-03	8.170E 00	9.759E-06	4.010E-05
2.570E 00	5.123E-02	5.185E-03	8.310E 00	-6.464E-06	3.457E-05
2.630E 00	4.794E-02	5.026E-03	8.450E 00	-1.947E-06	3.171E-05
2.690E 00	4.715E-02	4.957E-03	8.590E 00	7.581E-06	2.827E-05
2.750E 00	4.597E-02	4.386E-03	8.730E 00	2.072E-05	2.620E-05
2.810E 00	4.801E-02	4.491E-03	8.870E 00	3.435E-05	2.675E-05
2.870E 00	4.940E-02	4.150E-03	9.010E 00	3.629E-05	3.128E-05
2.930E 00	4.540E-02	3.790E-03	9.150E 00	2.926E-05	3.030E-05
2.990E 00	4.370E-02	3.786E-03	9.300E 00	1.297E-05	2.818E-05
3.050E 00	4.501E-02	3.463E-03	9.460E 00	4.903E-06	3.353E-05
3.110E 00	4.188E-02	3.340E-03	9.620E 00	2.650E-06	2.764E-05
3.180E 00	3.637E-02	3.520E-03	9.780E 00	1.725E-07	3.663E-05
3.260E 00	3.548E-02	3.187E-03	9.940E 00	8.941E-06	3.950E-05
3.340E 00	3.369E-02	2.920E-03	1.010E 01	1.297E-05	2.993E-05
3.420E 00	3.326E-02	2.682E-03	1.026E 01	3.766E-05	2.943E-05
3.500E 00	3.211E-02	2.508E-03	1.042E 01	4.510E-05	2.734E-05
3.580E 00	2.909E-02	2.491E-03	1.058E 01	4.689E-05	2.881E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.862E-02	5.322E-03
1.000E 00 - 1.200E 00	4.343E-02	3.897E-03
1.200E 00 - 1.400E 00	2.268E-02	3.003E-03
1.400E 00 - 1.600E 00	2.485E-02	2.771E-03
1.600E 00 - 1.800E 00	1.700E-02	2.216E-03
1.800E 00 - 2.000E 00	1.617E-02	2.010E-03
2.000E 00 - 2.500E 00	3.238E-02	3.512E-03
2.500E 00 - 3.000E 00	2.406E-02	2.291E-03
3.000E 00 - 3.500E 00	1.851E-02	1.567E-03
3.500E 00 - 4.000E 00	1.189E-02	1.054E-03
4.000E 00 - 4.500E 00	7.290E-03	6.861E-04
4.500E 00 - 5.000E 00	2.987E-03	4.346E-04
5.000E 00 - 6.000E 00	1.952E-03	4.099E-04
6.000E 00 - 7.000E 00	3.796E-05	1.288E-04
7.000E 00 - 8.000E 00	7.177E-05	8.641E-05
8.000E 00 - 9.000E 00	1.632E-05	3.325E-05
9.000E 00 - 1.000E 01	1.144E-05	3.238E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN W. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 4.98 TO 5.48 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.677E-01	2.398E-02	3.660E 00	2.069E-02	1.672E-03
7.700E-01	5.655E-01	2.391E-02	3.740E 00	1.903E-02	1.588E-03
7.900E-01	4.991E-01	2.272E-02	3.820E 00	1.661E-02	1.495E-03
8.100E-01	4.057E-01	2.220E-02	3.900E 00	1.474E-02	1.451E-03
8.300E-01	3.182E-01	2.256E-02	3.980E 00	1.312E-02	1.308E-03
8.500E-01	2.575E-01	2.299E-02	4.060E 00	1.204E-02	1.197E-03
8.700E-01	2.385E-01	2.367E-02	4.140E 00	1.115E-02	1.122E-03
8.900E-01	2.787E-01	2.434E-02	4.220E 00	9.497E-03	1.025E-03
9.100E-01	3.869E-01	2.699E-02	4.300E 00	7.714E-03	9.619E-04
9.300E-01	5.288E-01	2.398E-02	4.380E 00	6.557E-03	8.874E-04
9.500E-01	6.244E-01	2.635E-02	4.460E 00	5.815E-03	8.425E-04
9.700E-01	6.202E-01	2.441E-02	4.540E 00	5.480E-03	7.825E-04
1.000E 00	4.679E-01	2.381E-02	4.630E 00	5.360E-03	7.202E-04
1.040E 00	2.527E-01	1.985E-02	4.730E 00	4.494E-03	6.055E-04
1.080E 00	1.659E-01	1.793E-02	4.830E 00	3.239E-03	5.313E-04
1.120E 00	1.410E-01	1.689E-02	4.930E 00	2.572E-03	4.737E-04
1.160E 00	1.314E-01	1.539E-02	5.030E 00	2.001E-03	4.159E-04
1.200E 00	1.393E-01	1.457E-02	5.130E 00	1.249E-03	3.433E-04
1.240E 00	1.321E-01	1.364E-02	5.230E 00	6.381E-04	3.321E-04
1.280E 00	1.162E-01	1.315E-02	5.330E 00	3.209E-04	3.021E-04
1.320E 00	1.065E-01	1.262E-02	5.430E 00	2.668E-04	2.675E-04
1.360E 00	9.563E-02	1.241E-02	5.530E 00	3.861E-04	2.587E-04
1.400E 00	9.278E-02	1.298E-02	5.630E 00	4.809E-04	2.623E-04
1.440E 00	1.122E-01	1.265E-02	5.730E 00	4.296E-04	2.584E-04
1.480E 00	1.403E-01	1.132E-02	5.830E 00	2.560E-04	2.390E-04
1.520E 00	1.375E-01	1.180E-02	5.930E 00	3.210E-05	2.036E-04
1.560E 00	1.108E-01	1.148E-02	6.030E 00	-1.135E-04	1.914E-04
1.600E 00	9.298E-02	1.030E-02	6.130E 00	-1.212E-04	1.902E-04
1.640E 00	8.490E-02	1.042E-02	6.230E 00	1.842E-06	1.890E-04
1.680E 00	8.246E-02	9.642E-03	6.330E 00	1.385E-04	1.808E-04
1.720E 00	8.121E-02	9.868E-03	6.440E 00	2.237E-04	1.653E-04
1.760E 00	7.203E-02	9.258E-03	6.560E 00	1.912E-04	1.501E-04
1.800E 00	6.439E-02	1.000E-02	6.680E 00	1.058E-04	1.598E-04
1.850E 00	6.964E-02	8.852E-03	6.800E 00	3.866E-05	1.405E-04
1.910E 00	7.705E-02	8.436E-03	6.920E 00	1.386E-05	1.229E-04
1.970E 00	7.562E-02	8.095E-03	7.040E 00	5.870E-05	1.186E-04
2.030E 00	6.870E-02	7.196E-03	7.160E 00	1.300E-04	1.043E-04
2.090E 00	6.291E-02	6.687E-03	7.280E 00	1.582E-04	9.171E-05
2.150E 00	6.721E-02	6.673E-03	7.400E 00	1.118E-04	6.316E-05
2.210E 00	6.564E-02	5.933E-03	7.520E 00	7.504E-05	4.924E-05
2.270E 00	5.537E-02	5.693E-03	7.640E 00	5.855E-05	5.704E-05
2.330E 00	5.032E-02	5.518E-03	7.760E 00	6.188E-05	5.159E-05
2.390E 00	5.455E-02	5.110E-03	7.890E 00	4.057E-05	4.171E-05
2.450E 00	5.573E-02	4.821E-03	8.030E 00	1.346E-05	3.133E-05
2.510E 00	4.934E-02	4.782E-03	8.170E 00	-8.864E-06	2.911E-05
2.570E 00	4.091E-02	4.463E-03	8.310E 00	-1.133E-05	3.228E-05
2.630E 00	3.555E-02	4.364E-03	8.450E 00	-1.535E-05	2.329E-05
2.690E 00	3.798E-02	4.043E-03	8.590E 00	-1.162E-05	2.116E-05
2.750E 00	4.259E-02	3.756E-03	8.730E 00	-2.132E-06	2.401E-05
2.810E 00	4.229E-02	3.750E-03	8.870E 00	7.637E-06	2.210E-05
2.870E 00	4.014E-02	3.708E-03	9.010E 00	2.375E-05	2.370E-05
2.930E 00	3.960E-02	3.294E-03	9.150E 00	4.274E-05	2.351E-05
2.990E 00	3.903E-02	3.090E-03	9.300E 00	5.647E-05	2.372E-05
3.050E 00	3.696E-02	2.974E-03	9.460E 00	5.095E-05	2.121E-05
3.110E 00	3.457E-02	2.858E-03	9.620E 00	3.431E-05	2.097E-05
3.180E 00	3.186E-02	2.754E-03	9.780E 00	2.043E-05	1.775E-05
3.260E 00	2.949E-02	2.421E-03	9.940E 00	1.806E-05	1.425E-05
3.340E 00	2.870E-02	2.349E-03	1.010E 01	1.611E-05	9.977E-06
3.420E 00	2.689E-02	2.098E-03	1.026E 01	1.321E-05	9.256E-06
3.500E 00	2.446E-02	1.990E-03	1.042E 01	1.170E-05	1.137E-05
3.580E 00	2.237E-02	1.814E-03	1.058E 01	1.109E-05	1.143E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.387E-02	4.825E-03
1.000E 00 - 1.200E 00	3.891E-02	3.557E-03
1.200E 00 - 1.400E 00	2.262E-02	2.618E-03
1.400E 00 - 1.600E 00	2.391E-02	2.357E-03
1.600E 00 - 1.800E 00	1.597E-02	1.968E-03
1.800E 00 - 2.000E 00	1.465E-02	1.720E-03
2.000E 00 - 2.500E 00	2.984E-02	2.956E-03
2.500E 00 - 3.000E 00	2.024E-02	1.956E-03
3.000E 00 - 3.500E 00	1.542E-02	1.261E-03
3.500E 00 - 4.000E 00	9.234E-03	7.993E-04
4.000E 00 - 4.500E 00	4.481E-03	5.083E-04
4.500E 00 - 5.000E 00	2.049E-03	3.046E-04
5.000E 00 - 6.000E 00	5.607E-04	2.834E-04
6.000E 00 - 7.000E 00	6.223E-05	1.624E-04
7.000E 00 - 8.000E 00	8.453E-05	6.903E-05
8.000E 00 - 9.000E 00	-3.540E-06	2.580E-05
9.000E 00 - 1.000E 01	3.651E-05	2.056E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 4.50 TO 4.98 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.607E-01	2.203E-02	3.660E 00	1.258E-02	1.193E-03
7.700E-01	5.454E-01	2.156E-02	3.740E 00	1.221E-02	1.120E-03
7.900E-01	4.712E-01	1.988E-02	3.820E 00	1.141E-02	1.015E-03
8.100E-01	3.757E-01	1.992E-02	3.900E 00	9.166E-03	9.676E-04
8.300E-01	2.952E-01	1.992E-02	3.980E 00	7.149E-03	8.908E-04
8.500E-01	2.437E-01	2.050E-02	4.060E 00	7.474E-03	8.443E-04
8.700E-01	2.370E-01	2.135E-02	4.140E 00	8.134E-03	7.779E-04
8.900E-01	2.963E-01	2.147E-02	4.220E 00	7.534E-03	7.037E-04
9.100E-01	4.131E-01	2.326E-02	4.300E 00	6.199E-03	6.674E-04
9.300E-01	5.345E-01	2.071E-02	4.380E 00	4.900E-03	5.845E-04
9.500E-01	5.972E-01	2.315E-02	4.460E 00	3.979E-03	4.986E-04
9.700E-01	5.806E-01	2.135E-02	4.540E 00	3.135E-03	4.616E-04
1.000E 00	4.437E-01	2.023E-02	4.630E 00	2.148E-03	3.868E-04
1.040E 00	2.272E-01	1.707E-02	4.730E 00	1.367E-03	3.791E-04
1.080E 00	1.520E-01	1.532E-02	4.830E 00	7.464E-04	3.276E-04
1.120E 00	1.377E-01	1.419E-02	4.930E 00	1.941E-04	2.582E-04
1.160E 00	1.283E-01	1.321E-02	5.030E 00	-4.671E-05	2.256E-04
1.200E 00	1.250E-01	1.220E-02	5.130E 00	-3.936E-05	2.180E-04
1.240E 00	1.201E-01	1.178E-02	5.230E 00	4.090E-05	2.227E-04
1.280E 00	1.148E-01	1.133E-02	5.330E 00	1.563E-04	2.383E-04
1.320E 00	9.742E-02	1.086E-02	5.430E 00	2.339E-04	2.036E-04
1.360E 00	8.725E-02	1.063E-02	5.530E 00	2.685E-04	1.949E-04
1.400E 00	9.589E-02	1.129E-02	5.630E 00	2.427E-04	1.909E-04
1.440E 00	1.116E-01	1.037E-02	5.730E 00	2.273E-04	1.942E-04
1.480E 00	1.258E-01	1.079E-02	5.830E 00	2.114E-04	1.893E-04
1.520E 00	1.238E-01	1.003E-02	5.930E 00	1.524E-04	1.835E-04
1.560E 00	1.055E-01	9.655E-03	6.030E 00	5.464E-05	1.752E-04
1.600E 00	8.583E-02	8.316E-03	6.130E 00	-8.444E-06	1.674E-04
1.640E 00	7.650E-02	8.176E-03	6.230E 00	9.431E-06	1.587E-04
1.680E 00	7.618E-02	7.895E-03	6.330E 00	6.923E-05	1.481E-04
1.720E 00	6.833E-02	7.880E-03	6.440E 00	1.165E-04	1.459E-04
1.760E 00	5.830E-02	7.748E-03	6.560E 00	1.360E-04	1.246E-04
1.800E 00	5.952E-02	7.789E-03	6.680E 00	6.585E-05	1.184E-04
1.850E 00	6.316E-02	7.326E-03	6.800E 00	-9.748E-07	1.124E-04
1.910E 00	6.719E-02	7.298E-03	6.920E 00	-2.202E-05	9.320E-05
1.970E 00	7.394E-02	6.085E-03	7.040E 00	2.226E-05	9.207E-05
2.030E 00	6.102E-02	6.079E-03	7.160E 00	7.553E-05	8.771E-05
2.090E 00	5.877E-02	5.360E-03	7.280E 00	1.051E-04	8.306E-05
2.150E 00	5.911E-02	5.147E-03	7.400E 00	1.346E-04	7.540E-05
2.210E 00	5.790E-02	4.902E-03	7.520E 00	1.460E-04	7.307E-05
2.270E 00	5.226E-02	4.753E-03	7.640E 00	1.172E-04	6.980E-05
2.330E 00	4.662E-02	4.301E-03	7.760E 00	6.528E-05	5.616E-05
2.390E 00	4.364E-02	3.969E-03	7.890E 00	6.648E-06	5.151E-05
2.450E 00	4.255E-02	3.962E-03	8.030E 00	-1.564E-05	4.856E-05
2.510E 00	4.096E-02	3.613E-03	8.170E 00	-3.222E-06	4.114E-05
2.570E 00	4.021E-02	3.493E-03	8.310E 00	2.599E-05	3.777E-05
2.630E 00	3.851E-02	3.323E-03	8.450E 00	5.091E-05	3.621E-05
2.690E 00	3.531E-02	3.175E-03	8.590E 00	4.997E-05	3.701E-05
2.750E 00	3.537E-02	2.976E-03	8.730E 00	3.073E-05	3.616E-05
2.810E 00	3.596E-02	2.877E-03	8.870E 00	1.834E-05	3.324E-05
2.870E 00	3.492E-02	2.673E-03	9.010E 00	2.122E-05	2.947E-05
2.930E 00	3.316E-02	2.398E-03	9.150E 00	2.923E-05	2.773E-05
2.990E 00	3.086E-02	2.375E-03	9.300E 00	2.915E-05	2.499E-05
3.050E 00	2.869E-02	2.235E-03	9.460E 00	1.622E-05	2.311E-05
3.110E 00	2.660E-02	2.134E-03	9.620E 00	7.499E-06	2.092E-05
3.180E 00	2.481E-02	1.995E-03	9.780E 00	6.753E-06	1.946E-05
3.260E 00	2.344E-02	1.787E-03	9.940E 00	1.058E-05	1.634E-05
3.340E 00	2.169E-02	1.718E-03	1.010E 01	1.084E-05	1.229E-05
3.420E 00	2.049E-02	1.591E-03	1.026E 01	9.314E-06	1.072E-05
3.500E 00	1.698E-02	1.426E-03	1.042E 01	8.402E-06	1.154E-05
3.580E 00	1.347E-02	1.331E-03	1.058E 01	7.858E-06	1.170E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.151E-02	4.240E-03
1.000E 00 - 1.200E 00	3.636E-02	3.032E-03
1.200E 00 - 1.400E 00	2.114E-02	2.249E-03
1.400E 00 - 1.600E 00	2.245E-02	2.031E-03
1.600E 00 - 1.800E 00	1.404E-02	1.589E-03
1.800E 00 - 2.000E 00	1.336E-02	1.408E-03
2.000E 00 - 2.500E 00	2.619E-02	2.378E-03
2.500E 00 - 3.000E 00	1.809E-02	1.494E-03
3.000E 00 - 3.500E 00	1.187E-02	9.349E-04
3.500E 00 - 4.000E 00	5.801E-03	5.603E-04
4.000E 00 - 4.500E 00	3.203E-03	3.438E-04
4.500E 00 - 5.000E 00	7.003E-04	1.768E-04
5.000E 00 - 6.000E 00	1.476E-04	2.051E-04
6.000E 00 - 7.000E 00	4.650E-05	1.347E-04
7.000E 00 - 8.000E 00	8.045E-05	7.173E-05
8.000E 00 - 9.000E 00	2.389E-05	3.760E-05
9.000E 00 - 1.000E 01	1.688E-05	2.269E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 4.00 TO 4.50 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.813E-01	1.958E-02	3.660E 00	8.523E-03	8.204E-04
7.700E-01	5.567E-01	1.836E-02	3.740E 00	8.643E-03	7.428E-04
7.900E-01	4.770E-01	1.703E-02	3.820E 00	8.894E-03	7.166E-04
8.100E-01	3.827E-01	1.727E-02	3.900E 00	7.550E-03	6.711E-04
8.300E-01	3.013E-01	1.763E-02	3.980E 00	5.767E-03	5.939E-04
8.500E-01	2.476E-01	1.828E-02	4.060E 00	4.547E-03	5.121E-04
8.700E-01	2.436E-01	1.925E-02	4.140E 00	3.341E-03	4.553E-04
8.900E-01	3.049E-01	1.992E-02	4.220E 00	2.076E-03	3.799E-04
9.100E-01	4.174E-01	2.219E-02	4.300E 00	1.100E-03	3.197E-04
9.300E-01	5.345E-01	1.972E-02	4.380E 00	4.730E-04	3.050E-04
9.500E-01	5.930E-01	2.204E-02	4.460E 00	1.709E-04	2.905E-04
9.700E-01	5.640E-01	2.004E-02	4.540E 00	1.173E-04	2.895E-04
1.000E 00	4.117E-01	1.882E-02	4.630E 00	2.182E-04	2.791E-04
1.040E 00	2.227E-01	1.519E-02	4.730E 00	3.579E-04	2.623E-04
1.080E 00	1.499E-01	1.332E-02	4.830E 00	4.653E-04	2.644E-04
1.120E 00	1.374E-01	1.228E-02	4.930E 00	3.953E-04	2.557E-04
1.160E 00	1.314E-01	1.136E-02	5.030E 00	2.274E-04	2.472E-04
1.200E 00	1.253E-01	1.079E-02	5.130E 00	1.471E-04	2.412E-04
1.240E 00	1.207E-01	1.014E-02	5.230E 00	1.865E-04	2.319E-04
1.280E 00	1.118E-01	9.997E-03	5.330E 00	1.707E-04	2.239E-04
1.320E 00	9.465E-02	8.968E-03	5.430E 00	7.655E-05	1.970E-04
1.360E 00	7.825E-02	9.252E-03	5.530E 00	-2.919E-05	1.957E-04
1.400E 00	8.861E-02	9.929E-03	5.630E 00	-9.575E-05	2.068E-04
1.440E 00	1.102E-01	9.410E-03	5.730E 00	-9.648E-05	1.932E-04
1.480E 00	1.218E-01	6.921E-03	5.830E 00	-2.845E-05	1.863E-04
1.520E 00	1.208E-01	8.592E-03	5.930E 00	5.742E-05	1.702E-04
1.560E 00	1.051E-01	8.065E-03	6.030E 00	1.529E-04	1.748E-04
1.600E 00	8.640E-02	6.959E-03	6.130E 00	2.193E-04	1.820E-04
1.640E 00	7.724E-02	6.750E-03	6.230E 00	2.349E-04	1.723E-04
1.680E 00	7.379E-02	6.339E-03	6.330E 00	2.087E-04	1.668E-04
1.720E 00	6.761E-02	6.366E-03	6.440E 00	1.593E-04	1.628E-04
1.760E 00	5.651E-02	6.004E-03	6.560E 00	9.714E-05	1.610E-04
1.800E 00	5.009E-02	6.399E-03	6.680E 00	5.952E-05	1.527E-04
1.850E 00	5.641E-02	6.126E-03	6.800E 00	2.460E-05	1.463E-04
1.910E 00	6.481E-02	6.050E-03	6.920E 00	-1.462E-05	1.371E-04
1.970E 00	6.506E-02	5.375E-03	7.040E 00	-1.265E-05	1.261E-04
2.030E 00	6.013E-02	5.059E-03	7.160E 00	4.912E-05	1.146E-04
2.090E 00	5.712E-02	4.471E-03	7.280E 00	1.214E-04	1.075E-04
2.150E 00	5.311E-02	4.131E-03	7.400E 00	1.828E-04	1.005E-04
2.210E 00	4.866E-02	3.938E-03	7.520E 00	2.386E-04	9.345E-05
2.270E 00	4.576E-02	3.370E-03	7.640E 00	2.504E-04	8.816E-05
2.330E 00	4.345E-02	3.128E-03	7.760E 00	1.802E-04	7.947E-05
2.390E 00	3.912E-02	3.054E-03	7.890E 00	6.275E-05	6.967E-05
2.450E 00	3.539E-02	2.878E-03	8.030E 00	-1.188E-05	5.988E-05
2.510E 00	3.489E-02	3.009E-03	8.170E 00	-2.194E-05	5.499E-05
2.570E 00	3.446E-02	2.662E-03	8.310E 00	-9.541E-06	5.167E-05
2.630E 00	3.134E-02	2.452E-03	8.450E 00	8.113E-06	4.601E-05
2.690E 00	2.841E-02	2.315E-03	8.590E 00	3.505E-05	4.337E-05
2.750E 00	2.748E-02	2.123E-03	8.730E 00	5.693E-05	4.493E-05
2.810E 00	2.764E-02	2.058E-03	8.870E 00	5.463E-05	4.759E-05
2.870E 00	2.708E-02	1.869E-03	9.010E 00	4.642E-05	4.282E-05
2.930E 00	2.485E-02	1.735E-03	9.150E 00	4.188E-05	3.758E-05
2.990E 00	2.218E-02	1.696E-03	9.300E 00	4.349E-05	3.404E-05
3.050E 00	2.041E-02	1.551E-03	9.460E 00	3.639E-05	2.908E-05
3.110E 00	1.903E-02	1.449E-03	9.620E 00	2.268E-05	2.001E-05
3.180E 00	1.589E-02	1.415E-03	9.780E 00	1.432E-05	1.584E-05
3.260E 00	1.372E-02	1.331E-03	9.940E 00	1.008E-05	1.249E-05
3.340E 00	1.414E-02	1.159E-03	1.010E 01	9.935E-06	7.896E-06
3.420E 00	1.216E-02	1.088E-03	1.026E 01	8.708E-06	7.240E-06
3.500E 00	1.076E-02	9.680E-04	1.042E 01	4.958E-06	9.827E-06
3.580E 00	9.900E-03	9.261E-04	1.058E 01	4.049E-06	9.769E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.127E-02	3.906E-03
1.000E 00 - 1.200E 00	3.569E-02	2.666E-03
1.200E 00 - 1.400E 00	2.041E-02	1.945E-03
1.400E 00 - 1.600E 00	2.198E-02	1.740E-03
1.600E 00 - 1.800E 00	1.372E-02	1.282E-03
1.800E 00 - 2.000E 00	1.220E-02	1.184E-03
2.000E 00 - 2.500E 00	2.368E-02	1.862E-03
2.500E 00 - 3.000E 00	1.438E-02	1.099E-03
3.000E 00 - 3.500E 00	7.723E-03	6.522E-04
3.500E 00 - 4.000E 00	4.256E-03	3.846E-04
4.000E 00 - 4.500E 00	1.047E-03	1.927E-04
4.500E 00 - 5.000E 00	1.581E-04	1.343E-04
5.000E 00 - 6.000E 00	5.909E-05	2.084E-04
6.000E 00 - 7.000E 00	1.180E-04	1.600E-04
7.000E 00 - 8.000E 00	1.313E-04	9.485E-05
8.000E 00 - 9.000E 00	1.899E-05	4.896E-05
9.000E 00 - 1.000E 01	2.960E-05	2.620E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 3.49 TO 4.00 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	6.137E-01	1.650E-02	3.660E 00	3.225E-03	3.973E-04
7.700E-01	5.563E-01	1.581E-02	3.740E 00	2.134E-03	3.398E-04
7.900E-01	4.636E-01	1.455E-02	3.820E 00	1.282E-03	3.344E-04
8.100E-01	3.699E-01	1.424E-02	3.900E 00	5.969E-04	3.091E-04
8.300E-01	2.875E-01	1.442E-02	3.980E 00	3.236E-04	2.838E-04
8.500E-01	2.330E-01	1.545E-02	4.060E 00	2.392E-04	2.721E-04
8.700E-01	2.344E-01	1.652E-02	4.140E 00	1.144E-04	2.502E-04
8.900E-01	3.075E-01	1.677E-02	4.220E 00	5.308E-05	2.524E-04
9.100E-01	4.349E-01	1.854E-02	4.300E 00	1.563E-04	2.533E-04
9.300E-01	5.602E-01	1.624E-02	4.380E 00	3.483E-04	2.595E-04
9.500E-01	6.110E-01	1.774E-02	4.460E 00	4.761E-04	2.622E-04
9.700E-01	5.645E-01	1.641E-02	4.540E 00	5.458E-04	2.559E-04
1.000E 00	4.009E-01	1.519E-02	4.630E 00	5.653E-04	2.464E-04
1.040E 00	2.175E-01	1.238E-02	4.730E 00	4.318E-04	2.478E-04
1.080E 00	1.339E-01	1.131E-02	4.830E 00	1.382E-04	2.419E-04
1.120E 00	1.288E-01	1.023E-02	4.930E 00	-1.570E-04	2.351E-04
1.160E 00	1.333E-01	9.443E-03	5.030E 00	-2.527E-04	2.177E-04
1.200E 00	1.224E-01	8.581E-03	5.130E 00	-1.356E-04	2.196E-04
1.240E 00	1.111E-01	8.300E-03	5.230E 00	7.818E-05	2.196E-04
1.280E 00	1.021E-01	7.550E-03	5.330E 00	3.143E-04	2.259E-04
1.320E 00	9.072E-02	7.092E-03	5.430E 00	4.758E-04	2.092E-04
1.360E 00	7.889E-02	7.307E-03	5.530E 00	4.689E-04	2.032E-04
1.400E 00	7.834E-02	8.037E-03	5.630E 00	2.583E-04	1.897E-04
1.440E 00	1.026E-01	8.136E-03	5.730E 00	-2.344E-05	2.002E-04
1.480E 00	1.249E-01	7.200E-03	5.830E 00	-1.920E-04	1.972E-04
1.520E 00	1.152E-01	6.606E-03	5.930E 00	-1.370E-04	1.865E-04
1.560E 00	9.042E-02	6.336E-03	6.030E 00	5.856E-05	1.897E-04
1.600E 00	7.555E-02	5.465E-03	6.130E 00	2.536E-04	1.890E-04
1.640E 00	7.041E-02	5.415E-03	6.230E 00	3.379E-04	1.890E-04
1.680E 00	6.496E-02	4.992E-03	6.330E 00	3.049E-04	1.762E-04
1.720E 00	5.524E-02	4.933E-03	6.440E 00	1.932E-04	1.598E-04
1.760E 00	4.684E-02	4.379E-03	6.560E 00	6.608E-05	1.647E-04
1.800E 00	4.600E-02	4.630E-03	6.680E 00	1.947E-05	1.601E-04
1.850E 00	5.217E-02	4.637E-03	6.800E 00	6.664E-05	1.355E-04
1.910E 00	5.961E-02	4.390E-03	6.920E 00	1.287E-04	1.257E-04
1.970E 00	6.110E-02	3.931E-03	7.040E 00	1.392E-04	1.164E-04
2.030E 00	5.296E-02	3.354E-03	7.160E 00	1.084E-04	1.010E-04
2.090E 00	4.499E-02	3.059E-03	7.280E 00	7.291E-05	9.024E-05
2.150E 00	4.835E-02	2.986E-03	7.400E 00	1.904E-05	8.715E-05
2.210E 00	3.962E-02	2.479E-03	7.520E 00	-2.190E-05	8.239E-05
2.270E 00	3.497E-02	2.365E-03	7.640E 00	-2.247E-05	7.443E-05
2.330E 00	3.247E-02	2.122E-03	7.760E 00	1.361E-05	7.005E-05
2.390E 00	2.864E-02	1.970E-03	7.890E 00	5.602E-05	6.980E-05
2.450E 00	2.641E-02	1.915E-03	8.030E 00	9.575E-05	6.167E-05
2.510E 00	2.327E-02	1.768E-03	8.170E 00	1.368E-04	4.967E-05
2.570E 00	1.939E-02	1.711E-03	8.310E 00	1.519E-04	4.333E-05
2.630E 00	1.605E-02	1.525E-03	8.450E 00	1.022E-04	3.575E-05
2.690E 00	1.389E-02	1.426E-03	8.590E 00	3.389E-05	2.742E-05
2.750E 00	1.312E-02	1.275E-03	8.730E 00	-6.000E-06	1.769E-05
2.810E 00	1.287E-02	1.285E-03	8.870E 00	-1.273E-05	1.341E-05
2.870E 00	1.333E-02	1.221E-03	9.010E 00	-4.399E-06	1.209E-05
2.930E 00	1.381E-02	1.163E-03	9.150E 00	5.809E-06	1.033E-05
2.990E 00	1.395E-02	1.113E-03	9.300E 00	1.406E-05	8.850E-06
3.050E 00	1.443E-02	1.039E-03	9.460E 00	2.030E-05	8.887E-06
3.110E 00	1.458E-02	9.712E-04	9.620E 00	2.347E-05	9.233E-06
3.180E 00	1.383E-02	9.609E-04	9.780E 00	2.221E-05	8.635E-06
3.260E 00	1.288E-02	8.045E-04	9.940E 00	1.490E-05	9.846E-06
3.340E 00	1.124E-02	7.349E-04	1.010E 01	8.641E-06	7.209E-06
3.420E 00	8.780E-03	6.651E-04	1.026E 01	4.304E-06	5.047E-06
3.500E 00	6.740E-03	5.301E-04	1.042E 01	3.862E-06	6.555E-06
3.580E 00	4.949E-03	4.810E-04	1.058E 01	2.906E-06	6.415E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.136E-02	3.236E-03
1.000E 00 - 1.200E 00	3.432E-02	2.204E-03
1.200E 00 - 1.400E 00	1.928E-02	1.538E-03
1.400E 00 - 1.600E 00	2.057E-02	1.405E-03
1.600E 00 - 1.800E 00	1.191E-02	9.878E-04
1.800E 00 - 2.000E 00	1.128E-02	8.689E-04
2.000E 00 - 2.500E 00	1.874E-02	1.252E-03
2.500E 00 - 3.000E 00	7.619E-03	6.919E-04
3.000E 00 - 3.500E 00	6.045E-03	4.178E-04
3.500E 00 - 4.000E 00	1.250E-03	1.869E-04
4.000E 00 - 4.500E 00	1.171E-04	1.295E-04
4.500E 00 - 5.000E 00	1.371E-04	1.220E-04
5.000E 00 - 6.000E 00	9.090E-05	2.069E-04
6.000E 00 - 7.000E 00	1.552E-04	1.623E-04
7.000E 00 - 8.000E 00	4.526E-05	8.444E-05
8.000E 00 - 9.000E 00	6.671E-05	3.295E-05
9.000E 00 - 1.000E 01	1.553E-05	9.428E-06

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN WB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 3.00 TO 3.49 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	6.505E-01	1.377E-02	3.660E 00	-6.372E-05	2.571E-04
7.700E-01	6.178E-01	1.321E-02	3.740E 00	1.188E-04	2.390E-04
7.900E-01	5.294E-01	1.229E-02	3.820E 00	3.682E-04	2.523E-04
8.100E-01	4.191E-01	1.240E-02	3.900E 00	5.690E-04	2.425E-04
8.300E-01	3.125E-01	1.227E-02	3.980E 00	6.564E-04	2.454E-04
8.500E-01	2.395E-01	1.289E-02	4.060E 00	7.182E-04	2.456E-04
8.700E-01	2.286E-01	1.356E-02	4.140E 00	6.956E-04	2.436E-04
8.900E-01	2.887E-01	1.367E-02	4.220E 00	5.664E-04	2.385E-04
9.100E-01	4.037E-01	1.514E-02	4.300E 00	4.198E-04	2.477E-04
9.300E-01	5.323E-01	1.391E-02	4.380E 00	3.225E-04	2.402E-04
9.500E-01	6.113E-01	1.509E-02	4.460E 00	2.626E-04	2.333E-04
9.700E-01	5.951E-01	1.404E-02	4.540E 00	2.152E-04	2.380E-04
1.000E 00	4.326E-01	1.291E-02	4.630E 00	1.436E-04	2.320E-04
1.040E 00	2.218E-01	1.016E-02	4.730E 00	9.230E-05	2.175E-04
1.080E 00	1.345E-01	8.768E-03	4.830E 00	1.767E-04	2.157E-04
1.120E 00	1.160E-01	7.870E-03	4.930E 00	2.853E-04	2.128E-04
1.160E 00	1.214E-01	7.254E-03	5.030E 00	3.017E-04	2.098E-04
1.200E 00	1.175E-01	6.939E-03	5.130E 00	2.817E-04	2.119E-04
1.240E 00	1.038E-01	6.268E-03	5.230E 00	3.260E-04	2.022E-04
1.280E 00	9.753E-02	6.032E-03	5.330E 00	3.147E-04	1.999E-04
1.320E 00	8.425E-02	5.432E-03	5.430E 00	1.951E-04	1.954E-04
1.360E 00	6.657E-02	5.610E-03	5.530E 00	8.533E-05	1.903E-04
1.400E 00	6.983E-02	5.893E-03	5.630E 00	6.675E-05	1.949E-04
1.440E 00	9.465E-02	6.113E-03	5.730E 00	8.544E-05	1.959E-04
1.480E 00	1.165E-01	5.433E-03	5.830E 00	1.053E-04	1.924E-04
1.520E 00	1.117E-01	5.185E-03	5.930E 00	1.643E-04	1.842E-04
1.560E 00	8.657E-02	4.731E-03	6.030E 00	2.350E-04	1.798E-04
1.600E 00	6.679E-02	3.995E-03	6.130E 00	2.212E-04	1.806E-04
1.640E 00	6.265E-02	3.788E-03	6.230E 00	1.107E-04	1.801E-04
1.680E 00	6.021E-02	3.494E-03	6.330E 00	1.051E-05	1.669E-04
1.720E 00	5.058E-02	3.458E-03	6.440E 00	1.096E-05	1.574E-04
1.760E 00	4.049E-02	3.210E-03	6.560E 00	8.571E-05	1.596E-04
1.800E 00	3.840E-02	3.181E-03	6.680E 00	1.423E-04	1.462E-04
1.850E 00	4.772E-02	3.014E-03	6.800E 00	1.766E-04	1.261E-04
1.910E 00	5.771E-02	3.014E-03	6.920E 00	2.001E-04	1.219E-04
1.970E 00	5.194E-02	2.705E-03	7.040E 00	1.246E-04	1.128E-04
2.030E 00	4.037E-02	2.219E-03	7.160E 00	4.877E-05	9.914E-05
2.090E 00	3.434E-02	1.844E-03	7.280E 00	8.282E-06	8.330E-05
2.150E 00	2.822E-02	1.743E-03	7.400E 00	8.282E-06	7.783E-05
2.210E 00	2.176E-02	1.563E-03	7.520E 00	1.019E-05	7.325E-05
2.270E 00	1.688E-02	1.327E-03	7.640E 00	3.211E-05	7.082E-05
2.330E 00	1.432E-02	1.224E-03	7.760E 00	5.265E-05	6.686E-05
2.390E 00	1.405E-02	1.105E-03	7.890E 00	6.765E-05	5.929E-05
2.450E 00	1.372E-02	1.113E-03	8.030E 00	7.719E-05	5.782E-05
2.510E 00	1.336E-02	1.072E-03	8.170E 00	6.822E-05	5.570E-05
2.570E 00	1.223E-02	1.027E-03	8.310E 00	3.716E-05	4.945E-05
2.630E 00	1.012E-02	8.815E-04	8.450E 00	2.297E-05	4.423E-05
2.690E 00	9.057E-03	7.882E-04	8.590E 00	3.988E-05	4.017E-05
2.750E 00	9.326E-03	7.442E-04	8.730E 00	5.291E-05	3.680E-05
2.810E 00	9.523E-03	7.334E-04	8.870E 00	4.012E-05	3.039E-05
2.870E 00	1.007E-02	6.956E-04	9.010E 00	1.426E-05	2.555E-05
2.930E 00	1.040E-02	6.589E-04	9.150E 00	3.313E-06	2.174E-05
2.990E 00	9.251E-03	6.022E-04	9.300E 00	8.853E-06	1.491E-05
3.050E 00	7.714E-03	5.380E-04	9.460E 00	2.164E-05	1.339E-05
3.110E 00	6.459E-03	4.838E-04	9.620E 00	2.875E-05	1.207E-05
3.180E 00	4.779E-03	4.183E-04	9.780E 00	2.584E-05	8.715E-06
3.260E 00	2.936E-03	3.546E-04	9.940E 00	1.638E-05	6.775E-06
3.340E 00	1.612E-03	3.122E-04	1.010E 01	8.621E-06	4.715E-06
3.420E 00	6.830E-04	2.756E-04	1.026E 01	3.177E-06	3.999E-06
3.500E 00	8.469E-05	2.546E-04	1.042E 01	-1.664E-06	4.840E-06
3.580E 00	-1.428E-04	2.575E-04	1.058E 01	-2.293E-06	4.056E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.265E-02	2.723E-03
1.000E 00 - 1.200E 00	3.397E-02	1.750E-03
1.200E 00 - 1.400E 00	1.775E-02	1.188E-03
1.400E 00 - 1.600E 00	1.929E-02	1.059E-03
1.600E 00 - 1.800E 00	1.065E-02	7.001E-04
1.800E 00 - 2.000E 00	1.025E-02	5.877E-04
2.000E 00 - 2.500E 00	1.133E-02	7.504E-04
2.500E 00 - 3.000E 00	5.153E-03	3.991E-04
3.000E 00 - 3.500E 00	1.840E-03	1.923E-04
3.500E 00 - 4.000E 00	1.088E-04	1.248E-04
4.000E 00 - 4.500E 00	2.522E-04	1.209E-04
4.500E 00 - 5.000E 00	9.287E-05	1.110E-04
5.000E 00 - 6.000E 00	1.905E-04	1.972E-04
6.000E 00 - 7.000E 00	1.307E-04	1.547E-04
7.000E 00 - 8.000E 00	6.388E-05	7.844E-05
8.000E 00 - 9.000E 00	4.561E-05	4.334E-05
9.000E 00 - 1.000E 01	1.736E-05	1.387E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 2.49 TO 3.00 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	6.775E-01	1.105E-02	3.600E 00	4.986E-04	2.018E-04
7.700E-01	6.479E-01	1.059E-02	3.740E 00	4.910E-04	2.012E-04
7.900E-01	5.458E-01	9.562E-03	3.820E 00	2.956E-04	2.021E-04
8.100E-01	4.250E-01	9.572E-03	3.900E 00	3.390E-04	1.948E-04
8.300E-01	3.193E-01	9.871E-03	3.980E 00	5.158E-04	1.860E-04
8.500E-01	2.413E-01	1.046E-02	4.060E 00	5.453E-04	1.951E-04
8.700E-01	2.125E-01	1.075E-02	4.140E 00	4.718E-04	1.906E-04
8.900E-01	2.620E-01	1.093E-02	4.220E 00	4.923E-04	1.957E-04
9.100E-01	3.887E-01	1.198E-02	4.300E 00	5.762E-04	2.001E-04
9.300E-01	5.361E-01	1.065E-02	4.380E 00	5.021E-04	1.860E-04
9.500E-01	6.237E-01	1.185E-02	4.460E 00	2.444E-04	1.798E-04
9.700E-01	6.094E-01	1.114E-02	4.540E 00	8.633E-05	1.802E-04
1.000E 00	4.457E-01	1.015E-02	4.630E 00	1.266E-04	1.777E-04
1.040E 00	2.140E-01	7.344E-03	4.730E 00	1.566E-04	1.793E-04
1.080E 00	1.209E-01	6.150E-03	4.830E 00	1.349E-04	1.691E-04
1.120E 00	1.030E-01	5.333E-03	4.930E 00	2.282E-04	1.808E-04
1.160E 00	1.045E-01	4.975E-03	5.030E 00	3.312E-04	1.651E-04
1.200E 00	1.080E-01	4.654E-03	5.130E 00	3.045E-04	1.708E-04
1.240E 00	9.655E-02	4.141E-03	5.230E 00	2.496E-04	1.594E-04
1.280E 00	8.496E-02	3.831E-03	5.330E 00	2.353E-04	1.591E-04
1.320E 00	7.393E-02	3.523E-03	5.430E 00	2.327E-04	1.651E-04
1.360E 00	5.713E-02	3.554E-03	5.530E 00	1.672E-04	1.570E-04
1.400E 00	5.226E-02	3.922E-03	5.630E 00	1.040E-04	1.598E-04
1.440E 00	7.617E-02	3.954E-03	5.730E 00	1.692E-04	1.453E-04
1.480E 00	1.002E-01	3.578E-03	5.830E 00	2.903E-04	1.484E-04
1.520E 00	9.087E-02	3.278E-03	5.930E 00	3.164E-04	1.498E-04
1.560E 00	6.576E-02	3.073E-03	6.030E 00	2.481E-04	1.450E-04
1.600E 00	5.327E-02	2.372E-03	6.130E 00	1.894E-04	1.418E-04
1.640E 00	5.107E-02	2.198E-03	6.230E 00	1.445E-04	1.353E-04
1.680E 00	4.735E-02	2.095E-03	6.330E 00	7.619E-05	1.300E-04
1.720E 00	3.629E-02	1.766E-03	6.440E 00	2.635E-05	1.255E-04
1.760E 00	2.251E-02	1.639E-03	6.560E 00	1.005E-04	1.204E-04
1.800E 00	1.738E-02	1.607E-03	6.680E 00	2.374E-04	1.141E-04
1.850E 00	2.710E-02	1.594E-03	6.800E 00	2.838E-04	1.049E-04
1.910E 00	4.192E-02	1.776E-03	6.920E 00	2.078E-04	9.886E-05
1.970E 00	3.824E-02	1.509E-03	7.040E 00	8.008E-05	9.354E-05
2.030E 00	2.225E-02	1.104E-03	7.160E 00	-1.006E-05	8.368E-05
2.090E 00	1.562E-02	9.261E-04	7.280E 00	-1.030E-06	7.544E-05
2.150E 00	1.641E-02	8.895E-04	7.400E 00	8.059E-05	6.879E-05
2.210E 00	1.329E-02	8.226E-04	7.520E 00	1.512E-04	6.571E-05
2.270E 00	9.219E-03	6.337E-04	7.640E 00	1.635E-04	6.197E-05
2.330E 00	8.148E-03	5.750E-04	7.760E 00	1.283E-04	5.673E-05
2.390E 00	8.276E-03	5.639E-04	7.890E 00	8.078E-05	5.269E-05
2.450E 00	9.269E-03	5.678E-04	8.030E 00	5.035E-05	4.953E-05
2.510E 00	9.605E-03	5.196E-04	8.170E 00	4.966E-05	4.424E-05
2.570E 00	7.295E-03	4.488E-04	8.310E 00	6.188E-05	4.208E-05
2.630E 00	4.600E-03	3.928E-04	8.450E 00	6.063E-05	3.923E-05
2.690E 00	3.314E-03	3.339E-04	8.590E 00	4.774E-05	3.667E-05
2.750E 00	2.626E-03	3.105E-04	8.730E 00	3.399E-05	3.210E-05
2.810E 00	1.836E-03	2.835E-04	8.870E 00	2.245E-05	2.781E-05
2.870E 00	1.177E-03	2.652E-04	9.010E 00	8.786E-06	2.568E-05
2.930E 00	9.299E-04	2.611E-04	9.150E 00	-3.740E-06	2.488E-05
2.990E 00	8.447E-04	2.547E-04	9.300E 00	-3.150E-06	2.227E-05
3.050E 00	6.958E-04	2.427E-04	9.460E 00	8.130E-06	2.023E-05
3.110E 00	5.502E-04	2.322E-04	9.620E 00	2.108E-05	2.097E-05
3.180E 00	4.898E-04	2.299E-04	9.780E 00	2.446E-05	2.206E-05
3.260E 00	6.449E-04	2.153E-04	9.940E 00	2.635E-05	2.354E-05
3.340E 00	9.001E-04	2.215E-04	1.010E 01	2.165E-05	1.766E-05
3.420E 00	7.797E-04	2.084E-04	1.026E 01	1.979E-05	1.288E-05
3.500E 00	3.841E-04	2.070E-04	1.042E 01	1.164E-05	1.428E-05
3.580E 00	2.913E-04	2.055E-04	1.058E 01	7.431E-06	1.285E-05

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.270E-02	2.153E-03
1.000E 00 - 1.200E 00	3.186E-02	1.239E-03
1.200E 00 - 1.400E 00	1.567E-02	7.700E-04
1.400E 00 - 1.600E 00	1.559E-02	6.843E-04
1.600E 00 - 1.800E 00	7.710E-03	3.873E-04
1.800E 00 - 2.000E 00	6.820E-03	3.261E-04
2.000E 00 - 2.500E 00	6.382E-03	3.767E-04
2.500E 00 - 3.000E 00	1.715E-03	1.684E-04
3.000E 00 - 3.500E 00	3.351E-04	1.118E-04
3.500E 00 - 4.000E 00	1.983E-04	9.993E-05
4.000E 00 - 4.500E 00	2.370E-04	9.550E-05
4.500E 00 - 5.000E 00	7.849E-05	8.831E-05
5.000E 00 - 6.000E 00	2.385E-04	1.577E-04
6.000E 00 - 7.000E 00	1.660E-04	1.219E-04
7.000E 00 - 8.000E 00	8.261E-05	6.816E-05
8.000E 00 - 9.000E 00	4.437E-05	3.755E-05
9.000E 00 - 1.000E 01	1.169E-05	2.247E-05

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 1.99 TO 2.49 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	X-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	6.898E-01	8.561E-03	3.660E 00	5.884E-04	1.674E-04
7.700E-01	6.249E-01	7.990E-03	3.740E 00	6.534E-04	1.698E-04
7.900E-01	5.048E-01	7.194E-03	3.820E 00	5.795E-04	1.684E-04
8.100E-01	3.793E-01	7.136E-03	3.900E 00	4.112E-04	1.649E-04
8.300E-01	2.731E-01	7.484E-03	3.980E 00	3.430E-04	1.600E-04
8.500E-01	2.048E-01	8.167E-03	4.060E 00	2.684E-04	1.590E-04
8.700E-01	2.049E-01	8.626E-03	4.140E 00	2.602E-04	1.618E-04
8.900E-01	2.897E-01	9.018E-03	4.220E 00	3.846E-04	1.587E-04
9.100E-01	4.346E-01	9.913E-03	4.300E 00	4.610E-04	1.601E-04
9.300E-01	5.777E-01	8.732E-03	4.380E 00	4.667E-04	1.585E-04
9.500E-01	6.464E-01	9.252E-03	4.460E 00	4.159E-04	1.569E-04
9.700E-01	6.029E-01	8.547E-03	4.540E 00	3.304E-04	1.567E-04
1.000E 00	3.989E-01	7.273E-03	4.630E 00	3.089E-04	1.542E-04
1.040E 00	1.713E-01	5.155E-03	4.730E 00	4.196E-04	1.467E-04
1.080E 00	8.842E-02	4.010E-03	4.830E 00	4.767E-04	1.446E-04
1.120E 00	6.144E-02	3.369E-03	4.930E 00	4.195E-04	1.459E-04
1.160E 00	5.809E-02	3.026E-03	5.030E 00	4.088E-04	1.393E-04
1.200E 00	5.932E-02	2.852E-03	5.130E 00	3.452E-04	1.379E-04
1.240E 00	6.315E-02	2.669E-03	5.230E 00	2.319E-04	1.303E-04
1.280E 00	6.373E-02	2.580E-03	5.330E 00	1.918E-04	1.290E-04
1.320E 00	5.140E-02	2.232E-03	5.430E 00	1.875E-04	1.305E-04
1.360E 00	3.467E-02	2.281E-03	5.530E 00	1.955E-04	1.231E-04
1.400E 00	3.711E-02	2.506E-03	5.630E 00	2.600E-04	1.251E-04
1.440E 00	6.189E-02	2.562E-03	5.730E 00	3.404E-04	1.199E-04
1.480E 00	7.931E-02	2.435E-03	5.830E 00	3.747E-04	1.162E-04
1.520E 00	6.841E-02	2.155E-03	5.930E 00	3.466E-04	1.200E-04
1.560E 00	4.677E-02	1.990E-03	6.030E 00	2.587E-04	1.119E-04
1.600E 00	3.716E-02	1.536E-03	6.130E 00	1.540E-04	1.103E-04
1.640E 00	4.047E-02	1.476E-03	6.230E 00	1.162E-04	1.064E-04
1.680E 00	4.176E-02	1.392E-03	6.330E 00	1.326E-04	1.024E-04
1.720E 00	3.206E-02	1.157E-03	6.440E 00	1.538E-04	9.939E-05
1.760E 00	1.896E-02	9.671E-04	6.560E 00	1.643E-04	9.067E-05
1.800E 00	1.323E-02	9.665E-04	6.680E 00	1.807E-04	8.852E-05
1.850E 00	2.060E-02	9.708E-04	6.800E 00	2.017E-04	8.201E-05
1.910E 00	3.472E-02	1.134E-03	6.920E 00	2.116E-04	7.385E-05
1.970E 00	2.932E-02	9.479E-04	7.040E 00	1.810E-04	6.787E-05
2.030E 00	1.485E-02	5.812E-04	7.160E 00	1.286E-04	6.287E-05
2.090E 00	8.518E-03	4.353E-04	7.280E 00	1.117E-04	5.610E-05
2.150E 00	6.672E-03	4.011E-04	7.400E 00	1.337E-04	5.106E-05
2.210E 00	4.924E-03	3.304E-04	7.520E 00	1.549E-04	4.699E-05
2.270E 00	3.261E-03	2.905E-04	7.640E 00	1.392E-04	4.636E-05
2.330E 00	1.839E-03	2.581E-04	7.760E 00	9.568E-05	4.257E-05
2.390E 00	1.336E-03	2.422E-04	7.890E 00	5.640E-05	3.646E-05
2.450E 00	1.324E-03	2.263E-04	8.030E 00	5.176E-05	3.140E-05
2.510E 00	1.360E-03	2.212E-04	8.170E 00	5.579E-05	2.999E-05
2.570E 00	1.304E-03	2.248E-04	8.310E 00	3.622E-05	2.726E-05
2.630E 00	1.026E-03	2.272E-04	8.450E 00	1.409E-05	2.463E-05
2.690E 00	8.673E-04	2.183E-04	8.590E 00	1.465E-05	2.193E-05
2.750E 00	9.572E-04	2.050E-04	8.730E 00	2.703E-05	2.110E-05
2.810E 00	9.489E-04	2.141E-04	8.870E 00	3.425E-05	1.906E-05
2.870E 00	7.786E-04	2.079E-04	9.010E 00	3.134E-05	1.508E-05
2.930E 00	7.154E-04	2.002E-04	9.150E 00	2.002E-05	1.297E-05
2.990E 00	6.945E-04	2.029E-04	9.300E 00	1.000E-05	1.125E-05
3.050E 00	5.208E-04	2.026E-04	9.460E 00	6.715E-06	7.179E-06
3.110E 00	3.373E-04	2.032E-04	9.620E 00	8.488E-06	6.347E-06
3.180E 00	4.157E-04	1.961E-04	9.780E 00	9.774E-06	5.645E-06
3.260E 00	7.510E-04	1.787E-04	9.940E 00	8.100E-06	4.265E-06
3.340E 00	7.724E-04	1.804E-04	1.010E 01	5.660E-06	3.109E-06
3.420E 00	7.051E-04	1.777E-04	1.026E 01	3.846E-06	2.762E-06
3.500E 00	8.349E-04	1.724E-04	1.042E 01	1.890E-06	3.221E-06
3.580E 00	7.232E-04	1.711E-04	1.058E 01	1.055E-06	2.881E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	X-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	8.191E-02	1.691E-03
1.000E 00 - 1.200E 00	2.347E-02	8.173E-04
1.200E 00 - 1.400E 00	1.044E-02	4.964E-04
1.400E 00 - 1.600E 00	1.188E-02	4.490E-04
1.600E 00 - 1.800E 00	6.374E-03	2.495E-04
1.800E 00 - 2.000E 00	5.399E-03	2.032E-04
2.000E 00 - 2.500E 00	2.634E-03	1.716E-04
2.500E 00 - 3.000E 00	4.782E-04	1.068E-04
3.000E 00 - 3.500E 00	3.073E-04	9.401E-05
3.500E 00 - 4.000E 00	2.890E-04	8.382E-05
4.000E 00 - 4.500E 00	1.865E-04	7.963E-05
4.500E 00 - 5.000E 00	1.979E-04	7.446E-05
5.000E 00 - 6.000E 00	2.856E-04	1.266E-04
6.000E 00 - 7.000E 00	1.733E-04	9.442E-05
7.000E 00 - 8.000E 00	1.194E-04	4.993E-05
8.000E 00 - 9.000E 00	3.279E-05	2.426E-05
9.000E 00 - 1.000E 01	1.194E-05	8.471E-06

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 1.50 TO 1.99 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	5.978E-01	5.870E-03	3.660E 00	5.713E-04	1.407E-04
7.700E-01	5.454E-01	5.454E-03	3.740E 00	6.268E-04	1.359E-04
7.900E-01	4.368E-01	4.911E-03	3.820E 00	6.891E-04	1.332E-04
8.100E-01	3.192E-01	4.859E-03	3.900E 00	6.735E-04	1.349E-04
8.300E-01	2.163E-01	4.990E-03	3.980E 00	5.795E-04	1.319E-04
8.500E-01	1.470E-01	5.287E-03	4.060E 00	5.654E-04	1.279E-04
8.700E-01	1.335E-01	5.534E-03	4.140E 00	6.212E-04	1.331E-04
8.900E-01	1.922E-01	5.735E-03	4.220E 00	5.099E-04	1.306E-04
9.100E-01	3.142E-01	6.469E-03	4.300E 00	3.904E-04	1.319E-04
9.300E-01	4.512E-01	5.754E-03	4.380E 00	4.873E-04	1.254E-04
9.500E-01	5.337E-01	6.258E-03	4.460E 00	5.428E-04	1.231E-04
9.700E-01	5.217E-01	5.971E-03	4.540E 00	4.254E-04	1.226E-04
1.000E 00	3.686E-01	5.004E-03	4.630E 00	3.785E-04	1.211E-04
1.040E 00	1.564E-01	3.345E-03	4.730E 00	4.549E-04	1.196E-04
1.080E 00	7.051E-02	2.366E-03	4.830E 00	4.869E-04	1.119E-04
1.120E 00	3.586E-02	1.866E-03	4.930E 00	4.904E-04	1.105E-04
1.160E 00	1.767E-02	1.558E-03	5.030E 00	4.363E-04	1.080E-04
1.200E 00	1.975E-02	1.482E-03	5.130E 00	3.946E-04	1.043E-04
1.240E 00	4.253E-02	1.530E-03	5.230E 00	3.437E-04	1.042E-04
1.280E 00	6.489E-02	1.583E-03	5.330E 00	2.494E-04	9.943E-05
1.320E 00	5.671E-02	1.303E-03	5.430E 00	2.763E-04	9.692E-05
1.360E 00	3.295E-02	1.210E-03	5.530E 00	3.914E-04	9.729E-05
1.400E 00	2.659E-02	1.247E-03	5.630E 00	4.228E-04	9.478E-05
1.440E 00	4.142E-02	1.330E-03	5.730E 00	3.910E-04	9.372E-05
1.480E 00	5.486E-02	1.260E-03	5.830E 00	3.774E-04	8.907E-05
1.520E 00	4.707E-02	1.034E-03	5.930E 00	3.009E-04	8.519E-05
1.560E 00	2.859E-02	9.503E-04	6.030E 00	2.228E-04	8.461E-05
1.600E 00	1.800E-02	5.981E-04	6.130E 00	2.298E-04	8.227E-05
1.640E 00	1.532E-02	5.563E-04	6.230E 00	2.852E-04	8.080E-05
1.680E 00	1.399E-02	5.023E-04	6.330E 00	3.044E-04	7.737E-05
1.720E 00	1.093E-02	4.316E-04	6.440E 00	2.623E-04	7.339E-05
1.760E 00	6.757E-03	3.630E-04	6.560E 00	1.840E-04	6.960E-05
1.800E 00	3.793E-03	3.524E-04	6.680E 00	1.362E-04	6.675E-05
1.850E 00	2.576E-03	3.087E-04	6.800E 00	1.303E-04	6.093E-05
1.910E 00	2.364E-03	2.887E-04	6.920E 00	1.741E-04	5.723E-05
1.970E 00	1.966E-03	2.768E-04	7.040E 00	2.253E-04	5.131E-05
2.030E 00	1.785E-03	2.560E-04	7.160E 00	2.154E-04	4.793E-05
2.090E 00	1.728E-03	2.397E-04	7.280E 00	1.522E-04	4.373E-05
2.150E 00	1.546E-03	2.382E-04	7.400E 00	9.243E-05	4.047E-05
2.210E 00	1.532E-03	2.251E-04	7.520E 00	6.941E-05	3.665E-05
2.270E 00	1.491E-03	2.204E-04	7.640E 00	8.035E-05	3.503E-05
2.330E 00	1.410E-03	1.981E-04	7.760E 00	1.019E-04	3.352E-05
2.390E 00	1.339E-03	1.920E-04	7.890E 00	1.093E-04	3.096E-05
2.450E 00	1.216E-03	1.947E-04	8.030E 00	9.879E-05	2.799E-05
2.510E 00	1.041E-03	1.759E-04	8.170E 00	7.724E-05	2.567E-05
2.570E 00	8.646E-04	1.752E-04	8.310E 00	5.047E-05	2.231E-05
2.630E 00	8.641E-04	1.771E-04	8.450E 00	3.329E-05	1.977E-05
2.690E 00	9.943E-04	1.776E-04	8.590E 00	2.862E-05	1.708E-05
2.750E 00	1.099E-03	1.719E-04	8.730E 00	3.026E-05	1.508E-05
2.810E 00	1.042E-03	1.718E-04	8.870E 00	3.476E-05	1.073E-05
2.870E 00	8.625E-04	1.703E-04	9.010E 00	3.584E-05	8.772E-06
2.930E 00	7.483E-04	1.636E-04	9.150E 00	2.877E-05	7.366E-06
2.990E 00	7.529E-04	1.674E-04	9.300E 00	1.411E-05	4.435E-06
3.050E 00	8.969E-04	1.606E-04	9.460E 00	4.098E-06	2.717E-06
3.110E 00	1.091E-03	1.527E-04	9.620E 00	6.267E-07	2.238E-06
3.180E 00	1.154E-03	1.503E-04	9.780E 00	2.311E-07	1.658E-06
3.260E 00	1.060E-03	1.472E-04	9.940E 00	4.624E-08	1.375E-06
3.340E 00	1.015E-03	1.500E-04	1.010E 01	2.016E-07	9.842E-07
3.420E 00	9.730E-04	1.484E-04	1.026E 01	2.581E-07	1.134E-06
3.500E 00	8.671E-04	1.444E-04	1.042E 01	3.663E-07	1.330E-06
3.580E 00	6.940E-04	1.429E-04	1.058E 01	5.163E-07	1.370E-06

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	6.529E-02	1.124E-03
1.000E 00 - 1.200E 00	1.815E-02	4.887E-04
1.200E 00 - 1.400E 00	8.929E-03	2.800E-04
1.400E 00 - 1.600E 00	7.877E-03	2.220E-04
1.600E 00 - 1.800E 00	2.318E-03	9.297E-05
1.800E 00 - 2.000E 00	4.923E-04	5.940E-05
2.000E 00 - 2.500E 00	7.455E-04	1.094E-04
2.500E 00 - 3.000E 00	4.588E-04	8.614E-05
3.000E 00 - 3.500E 00	5.069E-04	7.559E-05
3.500E 00 - 4.000E 00	3.288E-04	6.872E-05
4.000E 00 - 4.500E 00	2.607E-04	6.442E-05
4.500E 00 - 5.000E 00	2.245E-04	5.827E-05
5.000E 00 - 6.000E 00	3.546E-04	9.680E-05
6.000E 00 - 7.000E 00	2.105E-04	7.118E-05
7.000E 00 - 8.000E 00	1.273E-04	3.910E-05
8.000E 00 - 9.000E 00	4.748E-05	1.884E-05
9.000E 00 - 1.000E 01	9.945E-06	3.690E-06

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN Nb. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 1.00 TO 1.50 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	4.686E-01	3.775E-03	3.660E 00	1.471E-03	1.269E-04
7.700E-01	4.363E-01	3.827E-03	3.740E 00	1.051E-03	1.237E-04
7.900E-01	3.551E-01	2.997E-03	3.820E 00	9.092E-04	1.221E-04
8.100E-01	2.634E-01	2.957E-03	3.900E 00	8.140E-04	1.219E-04
8.300E-01	1.783E-01	3.030E-03	3.980E 00	8.578E-04	1.167E-04
8.500E-01	1.142E-01	3.253E-03	4.060E 00	9.324E-04	1.152E-04
8.700E-01	8.998E-02	3.280E-03	4.140E 00	7.962E-04	1.130E-04
8.900E-01	1.210E-01	3.546E-03	4.220E 00	6.850E-04	1.128E-04
9.100E-01	2.056E-01	3.850E-03	4.300E 00	7.173E-04	1.127E-04
9.300E-01	3.127E-01	3.481E-03	4.380E 00	6.852E-04	1.099E-04
9.500E-01	3.890E-01	3.617E-03	4.460E 00	6.504E-04	1.090E-04
9.700E-01	3.954E-01	3.448E-03	4.540E 00	7.044E-04	1.101E-04
1.000E 00	2.879E-01	2.750E-03	4.630E 00	6.718E-04	1.044E-04
1.040E 00	1.188E-01	1.705E-03	4.730E 00	5.485E-04	1.015E-04
1.080E 00	4.877E-02	1.113E-03	4.830E 00	5.937E-04	9.530E-05
1.120E 00	2.434E-02	7.982E-04	4.930E 00	6.932E-04	9.585E-05
1.160E 00	1.154E-02	5.923E-04	5.030E 00	6.255E-04	9.286E-05
1.200E 00	7.555E-03	5.199E-04	5.130E 00	4.931E-04	8.881E-05
1.240E 00	9.402E-03	5.059E-04	5.230E 00	4.448E-04	8.847E-05
1.280E 00	1.262E-02	5.111E-04	5.330E 00	4.637E-04	8.413E-05
1.320E 00	1.146E-02	4.517E-04	5.430E 00	4.860E-04	7.961E-05
1.360E 00	7.300E-03	4.065E-04	5.530E 00	5.000E-04	8.080E-05
1.400E 00	4.509E-03	3.837E-04	5.630E 00	5.226E-04	7.647E-05
1.440E 00	3.197E-03	3.607E-04	5.730E 00	5.034E-04	7.600E-05
1.480E 00	2.774E-03	3.307E-04	5.830E 00	3.878E-04	7.365E-05
1.520E 00	2.525E-03	3.284E-04	5.930E 00	2.786E-04	7.007E-05
1.560E 00	2.539E-03	3.119E-04	6.030E 00	2.965E-04	6.957E-05
1.600E 00	2.877E-03	2.976E-04	6.130E 00	3.312E-04	6.723E-05
1.640E 00	2.693E-03	3.077E-04	6.230E 00	3.170E-04	6.433E-05
1.680E 00	2.339E-03	3.019E-04	6.330E 00	3.249E-04	6.185E-05
1.720E 00	2.286E-03	3.117E-04	6.440E 00	3.486E-04	5.907E-05
1.760E 00	2.322E-03	2.986E-04	6.560E 00	3.172E-04	5.490E-05
1.800E 00	2.378E-03	2.950E-04	6.680E 00	2.715E-04	5.130E-05
1.850E 00	2.365E-03	2.832E-04	6.800E 00	2.451E-04	4.770E-05
1.910E 00	2.197E-03	2.698E-04	6.920E 00	2.395E-04	4.389E-05
1.970E 00	2.045E-03	2.629E-04	7.040E 00	2.362E-04	3.937E-05
2.030E 00	1.849E-03	2.573E-04	7.160E 00	2.098E-04	3.540E-05
2.090E 00	1.728E-03	2.356E-04	7.280E 00	1.651E-04	3.159E-05
2.150E 00	1.609E-03	2.406E-04	7.400E 00	1.292E-04	2.970E-05
2.210E 00	1.672E-03	2.276E-04	7.520E 00	1.023E-04	2.757E-05
2.270E 00	1.653E-03	2.160E-04	7.640E 00	7.742E-05	2.569E-05
2.330E 00	1.569E-03	2.008E-04	7.760E 00	6.126E-05	2.368E-05
2.390E 00	1.699E-03	1.875E-04	7.890E 00	6.529E-05	2.162E-05
2.450E 00	1.685E-03	1.760E-04	8.030E 00	8.330E-05	1.917E-05
2.510E 00	1.585E-03	1.689E-04	8.170E 00	8.866E-05	1.732E-05
2.570E 00	1.619E-03	1.669E-04	8.310E 00	7.805E-05	1.475E-05
2.630E 00	1.555E-03	1.697E-04	8.450E 00	6.683E-05	1.141E-05
2.690E 00	1.458E-03	1.726E-04	8.590E 00	5.686E-05	9.347E-06
2.750E 00	1.477E-03	1.656E-04	8.730E 00	4.011E-05	7.269E-06
2.810E 00	1.361E-03	1.677E-04	8.870E 00	2.065E-05	4.809E-06
2.870E 00	1.200E-03	1.645E-04	9.010E 00	7.823E-06	3.143E-06
2.930E 00	1.243E-03	1.604E-04	9.150E 00	1.945E-06	2.750E-06
2.990E 00	1.360E-03	1.567E-04	9.300E 00	2.029E-07	2.075E-06
3.050E 00	1.304E-03	1.500E-04	9.460E 00	-2.868E-07	1.252E-06
3.110E 00	1.154E-03	1.501E-04	9.620E 00	-4.087E-10	1.019E-06
3.180E 00	1.108E-03	1.538E-04	9.780E 00	1.528E-07	8.915E-07
3.260E 00	1.114E-03	1.421E-04	9.940E 00	2.553E-07	7.073E-07
3.340E 00	1.144E-03	1.346E-04	1.010E 01	2.387E-07	5.797E-07
3.420E 00	1.189E-03	1.314E-04	1.026E 01	2.653E-07	5.538E-07
3.500E 00	1.198E-03	1.322E-04	1.042E 01	2.303E-07	8.191E-07
3.580E 00	1.211E-03	1.239E-04	1.058E 01	2.214E-07	7.616E-07

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	4.815E-02	6.699E-04
1.000E 00 - 1.200E 00	1.341E-02	2.298E-04
1.200E 00 - 1.400E 00	1.897E-03	9.318E-05
1.400E 00 - 1.600E 00	5.828E-04	6.682E-05
1.600E 00 - 1.800E 00	4.893E-04	6.065E-05
1.800E 00 - 2.000E 00	4.430E-04	5.480E-05
2.000E 00 - 2.500E 00	8.410E-04	1.078E-04
2.500E 00 - 3.000E 00	7.123E-04	8.306E-05
3.000E 00 - 3.500E 00	5.865E-04	7.131E-05
3.500E 00 - 4.000E 00	5.117E-04	6.177E-05
4.000E 00 - 4.500E 00	3.750E-04	5.612E-05
4.500E 00 - 5.000E 00	3.191E-04	5.032E-05
5.000E 00 - 6.000E 00	4.631E-04	8.060E-05
6.000E 00 - 7.000E 00	2.966E-04	5.652E-05
7.000E 00 - 8.000E 00	1.251E-04	2.858E-05
8.000E 00 - 9.000E 00	5.827E-05	1.120E-05
9.000E 00 - 1.000E 01	8.551E-07	1.573E-06

DIFFERENTIAL CROSS SECTIONS FOR GAMMA RAY PRODUCTION IN NB. THE FIRST SET OF NUMBERS IS THE DOUBLY DIFFERENTIAL CROSS SECTION, WHILE THE SECOND SET IS THE GAMMA RAY PRODUCTION CROSS SECTION FOR THE DESIGNATED GAMMA RAY ENERGY INTERVALS. THIS SECOND SET RESULTS FROM INTEGRATION OF THE DOUBLY DIFFERENTIAL DATA. THE UNCERTAINTIES ARE GIVEN IN THE SAME UNITS AS THE DATA AND DO NOT INCLUDE AN ESTIMATED 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION.

INCIDENT NEUTRON ENERGY = 0.75 TO 1.00 MEV. ANGLE = 90 DEGREES.

PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)	PHOTON ENERGY (MEV)	I-SECTION (B/SR/MEV)	ERROR (B/SR/MEV)
7.500E-01	1.966E-01	1.578E-03	3.660E 00	1.378E-03	1.574E-04
7.700E-01	1.695E-01	1.387E-03	3.740E 00	1.335E-03	1.571E-04
7.900E-01	1.269E-01	1.161E-03	3.820E 00	1.411E-03	1.529E-04
8.100E-01	8.721E-02	1.008E-03	3.900E 00	1.467E-03	1.521E-04
8.300E-01	5.488E-02	8.789E-04	3.980E 00	1.357E-03	1.459E-04
8.500E-01	3.136E-02	8.898E-04	4.060E 00	1.341E-03	1.449E-04
8.700E-01	1.800E-02	8.413E-04	4.140E 00	1.239E-03	1.410E-04
8.900E-01	1.306E-02	8.355E-04	4.220E 00	1.100E-03	1.396E-04
9.100E-01	1.227E-02	8.798E-04	4.300E 00	1.180E-03	1.447E-04
9.300E-01	1.217E-02	7.268E-04	4.380E 00	1.127E-03	1.379E-04
9.500E-01	1.129E-02	7.887E-04	4.460E 00	8.852E-04	1.335E-04
9.700E-01	9.691E-03	7.097E-04	4.540E 00	8.527E-04	1.335E-04
1.000E 00	7.226E-03	7.166E-04	4.630E 00	9.017E-04	1.288E-04
1.040E 00	4.904E-03	6.507E-04	4.730E 00	8.060E-04	1.265E-04
1.080E 00	4.712E-03	6.067E-04	4.830E 00	8.181E-04	1.201E-04
1.120E 00	6.034E-03	5.719E-04	4.930E 00	8.441E-04	1.139E-04
1.160E 00	6.169E-03	5.440E-04	5.030E 00	7.146E-04	1.139E-04
1.200E 00	6.178E-03	5.005E-04	5.130E 00	6.073E-04	1.067E-04
1.240E 00	5.321E-03	4.821E-04	5.230E 00	6.947E-04	1.062E-04
1.280E 00	3.988E-03	4.810E-04	5.330E 00	7.562E-04	1.042E-04
1.320E 00	3.341E-03	4.632E-04	5.430E 00	6.818E-04	9.941E-05
1.360E 00	3.175E-03	4.413E-04	5.530E 00	6.435E-04	9.486E-05
1.400E 00	3.458E-03	4.590E-04	5.630E 00	6.781E-04	9.295E-05
1.440E 00	3.377E-03	4.282E-04	5.730E 00	6.425E-04	9.105E-05
1.480E 00	2.751E-03	4.032E-04	5.830E 00	5.531E-04	9.033E-05
1.520E 00	2.933E-03	4.143E-04	5.930E 00	5.342E-04	8.874E-05
1.560E 00	3.509E-03	4.016E-04	6.030E 00	5.580E-04	8.116E-05
1.600E 00	3.138E-03	3.828E-04	6.130E 00	5.230E-04	7.797E-05
1.640E 00	2.675E-03	3.963E-04	6.230E 00	4.763E-04	7.814E-05
1.680E 00	2.954E-03	3.757E-04	6.330E 00	4.596E-04	7.468E-05
1.720E 00	3.005E-03	3.883E-04	6.440E 00	4.220E-04	7.166E-05
1.760E 00	2.641E-03	3.708E-04	6.560E 00	3.587E-04	6.412E-05
1.800E 00	2.675E-03	4.008E-04	6.680E 00	3.319E-04	6.249E-05
1.850E 00	3.069E-03	3.573E-04	6.800E 00	3.399E-04	5.892E-05
1.910E 00	2.998E-03	3.353E-04	6.920E 00	3.733E-04	5.349E-05
1.970E 00	2.875E-03	3.210E-04	7.040E 00	3.603E-04	4.974E-05
2.030E 00	2.810E-03	3.071E-04	7.160E 00	2.777E-04	4.487E-05
2.090E 00	2.719E-03	3.040E-04	7.280E 00	1.980E-04	3.968E-05
2.150E 00	2.484E-03	2.926E-04	7.400E 00	1.577E-04	3.634E-05
2.210E 00	2.651E-03	2.850E-04	7.520E 00	1.379E-04	3.386E-05
2.270E 00	2.644E-03	2.685E-04	7.640E 00	1.273E-04	3.166E-05
2.330E 00	2.570E-03	2.549E-04	7.760E 00	1.256E-04	2.788E-05
2.390E 00	2.462E-03	2.336E-04	7.890E 00	1.424E-04	2.343E-05
2.450E 00	2.246E-03	2.339E-04	8.030E 00	1.762E-04	1.981E-05
2.510E 00	2.122E-03	2.227E-04	8.170E 00	1.779E-04	1.697E-05
2.570E 00	2.145E-03	2.217E-04	8.310E 00	1.238E-04	1.235E-05
2.630E 00	2.095E-03	2.119E-04	8.450E 00	5.650E-05	8.481E-06
2.690E 00	1.995E-03	2.096E-04	8.590E 00	1.700E-05	5.194E-06
2.750E 00	2.007E-03	2.043E-04	8.730E 00	3.950E-06	3.687E-06
2.810E 00	1.912E-03	2.075E-04	8.870E 00	1.648E-06	2.392E-06
2.870E 00	1.845E-03	2.046E-04	9.010E 00	1.867E-06	1.670E-06
2.930E 00	1.954E-03	2.001E-04	9.150E 00	1.891E-06	1.703E-06
2.990E 00	1.961E-03	2.026E-04	9.300E 00	1.482E-06	1.400E-06
3.050E 00	1.859E-03	1.905E-04	9.460E 00	6.315E-07	1.041E-06
3.110E 00	1.892E-03	1.859E-04	9.620E 00	-5.926E-08	1.060E-06
3.180E 00	2.093E-03	1.903E-04	9.780E 00	-3.193E-07	1.028E-06
3.260E 00	2.099E-03	1.805E-04	9.940E 00	-2.800E-07	9.521E-07
3.340E 00	1.825E-03	1.736E-04	1.010E 01	-4.013E-11	8.193E-07
3.420E 00	1.794E-03	1.742E-04	1.026E 01	4.877E-07	6.970E-07
3.500E 00	1.751E-03	1.682E-04	1.042E 01	7.146E-07	8.616E-07
3.580E 00	1.504E-03	1.613E-04	1.058E 01	9.438E-07	9.740E-07

INTEGRATED DATA

PHOTON ENERGY INTERVAL (MEV)	I-SECTION (B/SR)	ERROR (B/SR)
8.000E-01 - 1.000E 00	5.190E-03	1.652E-04
1.000E 00 - 1.200E 00	1.131E-03	1.192E-04
1.200E 00 - 1.400E 00	8.200E-04	9.373E-05
1.400E 00 - 1.600E 00	6.360E-04	8.264E-05
1.600E 00 - 1.800E 00	5.653E-04	7.672E-05
1.800E 00 - 2.000E 00	5.897E-04	6.877E-05
2.000E 00 - 2.500E 00	1.279E-03	1.353E-04
2.500E 00 - 3.000E 00	1.001E-03	1.046E-04
3.000E 00 - 3.500E 00	9.582E-04	9.082E-05
3.500E 00 - 4.000E 00	7.183E-04	7.794E-05
4.000E 00 - 4.500E 00	5.781E-04	7.024E-05
4.500E 00 - 5.000E 00	4.203E-04	6.190E-05
5.000E 00 - 6.000E 00	6.460E-04	9.814E-05
6.000E 00 - 7.000E 00	4.164E-04	6.786E-05
7.000E 00 - 8.000E 00	1.849E-04	3.478E-05
8.000E 00 - 9.000E 00	7.127E-05	8.946E-06
9.000E 00 - 1.000E 01	6.553E-07	1.233E-06

TOTAL SECONDARY GAMMA RAY YIELD AND AVERAGE SECONDARY GAMMA RAY ENERGY FROM NB AS A FUNCTION OF THE INCIDENT NEUTRON ENERGY. THESE DATA RESULT FROM A PULSE HEIGHT WEIGHTING ANALYSIS FOR PULSE HEIGHTS GREATER THAN 0.750 MEV. UNCERTAINTIES ARE GIVEN IN PARENTHESES IN THE SAME UNITS AS THE DATA. THE UNCERTAINTIES IN TOTAL YIELD DO NOT INCLUDE A 10 PERCENT ERROR IN ABSOLUTE NORMALIZATION. THE ANGLE IS 90 DEGREES.

INC. NT. ENERGY (MEV)	ENERGY SPREAD (MEV)	SECONDARY PHOTON YIELD (B/SR)	AVERAGE ENERGY (MEV)	INC. NT. ENERGY (MEV)	ENERGY SPREAD (MEV)	SECONDARY PHOTON YIELD (B/SR)	AVERAGE ENERGY (MEV)
0.651	0.049	0.135E-01 (0.929E-04)	0.263E 01(0.236E-01)	6.759	0.248	0.396E 00(0.272E-02)	0.182E 01(0.159E-01)
0.749	0.048	0.135E-01 (0.891E-04)	0.253E 01(0.217E-01)	7.260	0.253	0.416E 00(0.298E-02)	0.190E 01(0.171E-01)
0.848	0.051	0.223E-01 (0.121E-03)	0.174E 01(0.126E-01)	7.767	0.254	0.418E 00(0.303E-02)	0.198E 01(0.180E-01)
0.951	0.052	0.350E-01 (0.158E-03)	0.134E 01(0.824E-02)	8.273	0.252	0.434E 00(0.317E-02)	0.205E 01(0.189E-01)
1.125	0.122	0.826E-01 (0.245E-03)	0.106E 01(0.424E-02)	8.769	0.244	0.451E 00(0.353E-02)	0.212E 01(0.207E-01)
1.375	0.128	0.114E 00(0.327E-03)	0.101E 01(0.395E-02)	9.245	0.232	0.408E 00(0.343E-02)	0.217E 01(0.229E-01)
1.628	0.126	0.132E 00(0.412E-03)	0.103E 01(0.431E-02)	9.726	0.250	0.370E 00(0.332E-02)	0.219E 01(0.246E-01)
1.874	0.120	0.152E 00(0.534E-03)	0.104E 01(0.492E-02)	10.246	0.270	0.310E 00(0.312E-02)	0.220E 01(0.277E-01)
2.124	0.130	0.173E 00(0.636E-03)	0.106E 01(0.523E-02)	10.766	0.250	0.252E 00(0.290E-02)	0.218E 01(0.316E-01)
2.373	0.120	0.196E 00(0.778E-03)	0.108E 01(0.577E-02)	11.238	0.222	0.225E 00(0.305E-02)	0.211E 01(0.364E-01)
2.622	0.129	0.205E 00(0.863E-03)	0.110E 01(0.620E-02)	11.745	0.285	0.209E 00(0.298E-02)	0.202E 01(0.369E-01)
2.877	0.126	0.216E 00(0.102E-02)	0.113E 01(0.715E-02)	12.284	0.254	0.191E 00(0.313E-02)	0.194E 01(0.410E-01)
3.132	0.130	0.227E 00(0.114E-02)	0.118E 01(0.789E-02)	12.752	0.215	0.192E 00(0.376E-02)	0.190E 01(0.478E-01)
3.378	0.116	0.238E 00(0.130E-02)	0.123E 01(0.902E-02)	13.252	0.285	0.192E 00(0.374E-02)	0.184E 01(0.463E-01)
3.623	0.129	0.244E 00(0.139E-02)	0.128E 01(0.973E-02)	13.779	0.242	0.203E 00(0.419E-02)	0.185E 01(0.502E-01)
3.878	0.125	0.251E 00(0.156E-02)	0.133E 01(0.110E-01)	14.275	0.255	0.223E 00(0.486E-02)	0.183E 01(0.518E-01)
4.121	0.118	0.266E 00(0.171E-02)	0.138E 01(0.117E-01)	14.799	0.269	0.228E 00(0.525E-02)	0.187E 01(0.550E-01)
4.367	0.128	0.274E 00(0.180E-02)	0.143E 01(0.124E-01)	15.501	0.433	0.237E 00(0.514E-02)	0.190E 01(0.522E-01)
4.611	0.116	0.284E 00(0.197E-02)	0.148E 01(0.134E-01)	16.489	0.554	0.241E 00(0.505E-02)	0.197E 01(0.523E-01)
4.852	0.125	0.290E 00(0.203E-02)	0.152E 01(0.138E-01)	17.566	0.523	0.255E 00(0.574E-02)	0.206E 01(0.591E-01)
5.230	0.252	0.315E 00(0.203E-02)	0.158E 01(0.131E-01)	18.563	0.474	0.274E 00(0.635E-02)	0.218E 01(0.636E-01)
5.740	0.258	0.344E 00(0.235E-02)	0.165E 01(0.144E-01)	19.550	0.513	0.275E 00(0.674E-02)	0.220E 01(0.681E-01)
6.255	0.257	0.369E 00(0.248E-02)	0.173E 01(0.148E-01)				

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