ENDF/B-VII.1 GD-152
Principal cross sections

Energy (MeV) vs. Cross section (barns)

- Total
- Absorption
- Elastic
- Gamma production

Log-log scale with energy range from $10^{-11}$ to $10^1$ MeV and cross section range from $10^{-1}$ to $10^5$ barns.
ENDF/B-VII.1 GD-152
resonance total cross section

Energy (MeV) vs Cross section (barns)

- Energy scale: $10^{-5}$ to $10^{-4}$ MeV
- Cross section scale: $10^0$ to $10^4$ barns

Graph shows the resonance total cross section for an energy range of $10^{-5}$ to $10^{-4}$ MeV, with peaks indicating resonances.
ENDF/B-VII.1 GD-152
resonance total cross section

Energy (MeV)

Cross section (barns)

10^{-4} to 10^{-3} Energy (MeV)

10^{0} to 10^{4} Cross section (barns)

total
ENDF/B-VII.1 GD-152
resonance total cross section

Energy (MeV)

Cross section (barns)

10^0 10^1

10^0 10^1

total
ENDF/B-VII.1 GD-152
resonance absorption cross sections

![Graph showing resonance absorption cross sections.
Energy (MeV) is on the x-axis, and Cross section (barns) is on the y-axis.
The graph displays oscillatory behavior with resonances at various energies.
]
ENDF/B-VII.1 GD-152
resonance absorption cross sections

Energy (MeV)

Cross section (barns)

capture
ENDF/B-VII.1 GD-152
resonance absorption cross sections

capture
ENDF/B-VII.1 GD-152
UR total cross section
ENDF/B-VII.1 GD-152
UR elastic cross section
ENDF/B-VII.1 GD-152
UR capture cross section

Cross section (barns)

Energy (MeV)
ENDF/B-VII.1 GD-152
Damage

Energy (MeV) vs. Damage (MeV-barns)
ENDF/B-VII.1 GD-152
Non-threshold reactions

![Graph showing cross-sections for different reactions as a function of energy. The graph plots cross-section (in barns) on a logarithmic scale against energy (in MeV) on a logarithmic scale. The graph includes curves for (n,gma), (n,a), and (n,xa) reactions.](image-url)
ENDF/B-VII.1 GD-152
Principal cross sections

![Graph showing cross sections as a function of energy.](image)

- **Total cross section**
- **Absorption cross section**
- **Elastic cross section**
- **Gamma production cross section**
ENDF/B-VII.1 GD-152
Non-threshold reactions

Energy (MeV)

Cross section (barns)

- (n,gma)
- (n,a)
- (n,xa)
ENDF/B-VII.1 GD-152
Inelastic levels

Energy (MeV)

Cross section (barns)

- (n,n*1)
- (n,n*2)
- (n,n*3)
- (n,n*4)
- (n,n*5)
ENDF/B-VII.1 GD-152
Inelastic levels

Energy (MeV)

Cross section (barns)

*10^{-3}

Energy (MeV)
ENDF/B-VII.1 GD-152
Inelastic levels

Energy (MeV) vs. Cross section (barns)

- (n,n*21)
- (n,n*22)
- (n,n*23)
- (n,n*24)
- (n,n*25)
ENDF/B-VII.1 GD-152
Inelastic levels

Energy (MeV)

Cross section (barns)

(n,n*31)
(n,n*32)
(n,n*33)
ENDF/B-VII.1 GD-152
Threshold reactions

Cross section (barns) vs. Energy (MeV)
ENDF/B-VII.1 GD-152
angular distribution for elastic
ENDF/B-VII.1 GD-152
angular distribution for (n,n*1)
ENDF/B-VII.1 GD-152
angular distribution for \((n,n^*2)\)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*3)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*4)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*5)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*6)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*7)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*8)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*9)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*10)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*11)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*12)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*13)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*14)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*15)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*16)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*17)
ENDF/B-VII.1 GD-152
angular distribution for (n,n'18)
ENDF/B-VII.1 GD-152
angular distribution for \( (n,n^*19) \)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*20)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*21)
ENDF/B-VII.1 GD-152
angular distribution for \((n,n*22)\)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*23)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*24)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*25)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*26)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*27)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*28)
ENDF/B-VII.1 GD-152
angular distribution for (n,n^29)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*30)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*31)
ENDF/B-VII.1 GD-152
angular distribution for \((n,n^32)\)
ENDF/B-VII.1 GD-152
angular distribution for (n,n*33)
ENDF/B-VII.1 GD-152
Neutron emission for (n,2n)
ENDF/B-VII.1 GD-152
Neutron emission for (n,3n)
ENDF/B-VII.1 GD-152
Neutron emission for \((n,n^*)a\)
ENDF/B-VII.1 GD-152
Neutron emission for (n,2n)a
ENDF/B-VII.1 GD-152
Neutron emission for $(n,n^*)p$
ENDF/B-VII.1 GD-152
Neutron emission for (n,2np)
ENDF/B-VII.1 GD-152
Neutron emission for (n,n*c)
ENDF/B-VII.1 GD-152
Photon emission for (n,2n)
ENDF/B-VII.1 GD-152
Photon emission for (n,3n)
ENDF/B-VII.1 GD-152
Photon emission for \((n,n^*)a\)
ENDF/B-VII.1 GD-152
Photon emission for (n,2n)a
ENDF/B-VII.1 GD-152
Photon emission for \((n,n^*)p\)
ENDF/B-VII.1 GD-152
Photon emission for (n,2np)
ENDF/B-VII.1 GD-152
Photon emission for (n,n*c)
ENDF/B-VII.1 GD-152
Photon emission for (n,gma)
ENDF/B-VII.1 GD-152
Photon emission for \((n, p^c)\)
ENDF/B-VII.1 GD-152
14 MeV photon spectrum
Particle heating contributions

Energy (MeV)

MeV/collision

*10^{-3}

protons

alphas

Energy (MeV)
Recoil Heating

Heating (MeV/reaction) vs. Energy (MeV)

- Heating increases significantly with energy, reaching a peak around 180 MeV/reaction at high energies.
- The heating is plotted on a logarithmic scale for the y-axis, ranging from $10^{-3}$ to 180 MeV/reaction.

The graph shows the recoil heating for the ENDF/B-VII.1 GD-152 dataset.
ENDF/B-VII.1 GD-152
protons from \((n,n^*)p\)
ENDF/B-VII.1 GD-152
protons from (n,2np)
ENDF/B-VII.1 GD-152
angular distribution for (n,p*0) proton
ENDF/B-VII.1 GD-152

angular distribution for (n,p*1) proton
ENDF/B-VII.1 GD-152
angular distribution for \((n,p^*2)\) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*3) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*4) proton

Probl/Cos

Energy (MeV)

Cosine

10^0

10^-1

10^-2

10^-3

10^-4

10^-5

10^-6

10^-7

10^-8

10^-9

10^-10

10^-11

10^-12
ENDF/B-VII.1 GD-152
angular distribution for (n,p*5) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*6) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*7) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*8) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*9) proton

Probl/Cos

10^0

10^-1

1.0 0.5 0.0 -0.5 -1.0 0

Cosine

2 4 6 8 10 12 14 16 18 20

Energy (MeV)
ENDF/B-VII.1 GD-152
angular distribution for (n,p*10) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*11) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*12) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*13) proton
ENDF/B-VII.1 GD-152
angular distribution for (n,p*14) proton
ENDF/B-VII.1 GD-152
protons from (n,p*c)
ENDF/B-VII.1 GD-152
alphas from (n,n*)a
ENDF/B-VII.1 GD-152
alphas from (n,2n)a