Principal cross sections

- Total cross section
- Absorption cross section
- Elastic cross section
- Gamma production cross section

Energy (MeV) vs. Cross section (barns)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance total cross section

Energy (MeV) vs. Cross section (barns) for 48-CD-113.
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance total cross section

![graph showing the relationship between energy (MeV) and cross section (barns) with a line labeled 'total'].
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance total cross section
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance total cross section

Energy (MeV)

Cross section (barns)

10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3}

total
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance total cross section

Energy (MeV)

Cross section (barns)

total
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance absorption cross sections

capture

Cross section (barns)

Energy (MeV)
Capture cross section as a function of energy.

Energy (MeV) vs. Cross section (barns).
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance absorption cross sections

![Graph showing resonance absorption cross sections with energy on the x-axis and cross section on the y-axis in a log-log scale. The graph has peaks and dips indicating resonances.]
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance absorption cross sections

capture
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance absorption cross sections

capture
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
resonance absorption cross sections

capture
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
UR elastic cross section
UR capture cross section
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Damage

Damage (MeV-barns)

Energy (MeV)

-10^{-11} - 10^{-9} - 10^{-7} - 10^{-5} - 10^{-3} - 10^{-1} - 10^{1}
Non-threshold reactions

Energy (MeV) vs. Cross section (barns) plot for 48-CD-113 from FENDL-3.2 using NJOY2016.60. The graph shows the cross section in barns as a function of energy in MeV. The curve labeled \((n,g\alpha)\) indicates a specific reaction cross section.
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+ Heating

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

- Heating curve starts at a low value at low energy and rises steeply as energy increases.

Key: heating
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Non-threshold reactions

Cross section (barns) vs. Energy (MeV)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Inelastic levels

![Graph showing cross-sections for inelastic levels: (n,n*6), (n,n*7), (n,n*8), (n,n*9), (n,n*10). The x-axis represents energy in MeV, ranging from 0 to 20, and the y-axis represents cross-section in barns, ranging from 0 to 20,000. Each curve represents a different inelastic level, with distinct colors for each level.](image-url)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Inelastic levels

Energy (MeV)

Cross section (barns)

- (n,n*16)
- (n,n*17)
- (n,n*18)
- (n,n*19)
- (n,n*20)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Inelastic levels

Cross section (barns) vs. Energy (MeV) for (n,n^21) reaction.
Threshold reactions

Cross section (barns) vs. Energy (MeV)

- $(n,x)$
- $(n,2n)$
- $(n,3n)$
- $(n,n^*)a$
- $(n,n^*)p$
Threshold reactions
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for elastic
Probl/Cos

10^0

Cosine
1.0 0.5 0.0 -0.5 -1.0 0 8 10 12 14 16 18 20

Energy (MeV)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,2n)
angular distribution for (n,3n)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*)a
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \((n,n^*)p\)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*2)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*3)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*4)
angular distribution for (n,n*5)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*6)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*7)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*8)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*9)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*11)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60
angular distribution for \((n,n^*12)\)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \((n,n'13)\)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*14)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \( (n,n*15) \)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \((n,n^{*16})\)
angular distribution for (n,n*17)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \((n,n^*18)\)
angular distribution for (n,n*19)
angular distribution for (n,n*20)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for \((n,n^{*21})\)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
angular distribution for (n,n*c)
Neutron emission for (n,x)
Neutron emission for (n,2n)
Neutron emission for (n,3n)
Neutron emission for \((n,n^*)a\)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Neutron emission for (n,n*)p
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
Neutron emission for (n,n*c)
Photon emission for (n,x)
Particle heating contributions

Energy (MeV)

MeV/collision

Energy (MeV)

protons
deuterons
tritons
he-3
alphas
Recoil Heating

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

- The graph shows the relationship between heating (in MeV/reaction) and energy (in MeV).
- The heating increases significantly with energy, particularly above 150 MeV.
- The data is generated using NJOY2016.60+ software for FENDL-3.2.
Particle production cross sections

- Protons
- Deuterons
- Tritons
- He-3
- Alphas
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
protons from (n,x)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
deuterons from (n,x)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+ tritons from (n,x)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
he3s from (n,x)
48-CD-113 FOR FENDL-3.2 FROM FENDL-3.2 BY NJOY2016.60+
alphas from (n,x)