Principal cross sections

Energy (MeV)

Cross section (barns)

- total
- absorption
- elastic
- gamma production
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance total cross section

![Graph showing the total cross section of 82-PB-204 over energy.](image)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance total cross section

Energy (MeV) vs. Cross section (barns)

- Total cross section graph showing resonances at various energies.
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance total cross section

![Graph showing resonance total cross section](image-url)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance total cross section

Energy (MeV)

Cross section (barns)

total

10^0

10^1

10^1

10^0

Energy (MeV)
resonance absorption cross sections

Energy (MeV)

Cross section (barns)

capture
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance absorption cross sections

![Graph showing energy (MeV) vs. cross section (barns) for capture. Peaks at different energies indicate resonance absorptions.](image-url)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance absorption cross sections
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
resonance absorption cross sections

Energy (MeV)

Cross section (barns)

capture
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+

Heating

heating

Energy (MeV)

Heating (MeV/reaction)
Non-threshold reactions
Principal cross sections

- Total
- Absorption
- Elastic
- Gamma production

Cross section (barns)

Energy (MeV)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Heating

heating

Heating (MeV/reaction) vs. Energy (MeV)
Non-threshold reactions

Energy (MeV)

Cross section (barns)

- (n,gma)
- (n,a)
- (n,xa)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Inelastic levels

Energy (MeV)

Cross section (barns)

(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

Energy (MeV)
Inelastic levels

Cross section (barns) vs. Energy (MeV)

- (n,n*16)
- (n,n*17)
- (n,n*18)
- (n,n*19)
- (n,n*20)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Inelastic levels

Cross section (barns)

Energy (MeV)

(n,n*21)
Threshold reactions

Cross section (barns)

Energy (MeV)

(n,x)
(n,2n)
(n,3n)
(n,n*)a
(n,2n)a
Threshold reactions

Energy (MeV)

Cross section (barns)

- (n,n*)p
- (n,n*)d
- (n,n*)t
- (n,2np)
- (n,n*c)
Threshold reactions

![Graph showing cross sections for different reactions as a function of energy (MeV). The reactions include (n,p), (n,d), (n,t), (n,he3), and (n,2p).]
Threshold reactions

Cross section (barns)

Energy (MeV)

- (n,xp)
- (n,xd)
- (n,xt)
- (n,xhe3)
- (n,p*0)
Threshold reactions

Energy (MeV) vs. Cross section (barns) for the reactions (n,p*1), (n,p*2), (n,p*3), (n,p*4), and (n,p*5). The graph shows the variation of cross sections with energy for each reaction.
Threshold reactions

Cross section (barns)

Energy (MeV)

(n,p\textsuperscript{c})
(n,d\textsuperscript{0})
(n,d\textsuperscript{1})
(n,d\textsuperscript{2})
(n,d\textsuperscript{3})
Threshold reactions

- $(n,d^4)$
- $(n,d^5)$
- $(n,d^c)$
- $(n,t^0)$
- $(n,t^1)$
Threshold reactions

Cross section (barns) vs. Energy (MeV)

- (n,t*2)
- (n,t*3)
- (n,t*4)
- (n,t*5)
- (n,t*c)
angular distribution for elastic
angular distribution for elastic
angular distribution for (n,n*1)
angular distribution for (n,n*2)
angular distribution for (n,n*3)
angular distribution for (n,n*4)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*5)
angular distribution for (n,n*6)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*7)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*8)
angular distribution for \((n,n^*9)\)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*10)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*11)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for \( (n,n*12) \)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*13)
angular distribution for (n,n*14)
angular distribution for (n,n*15)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*16)
angular distribution for \((n,n^{*17})\)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*18)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,n*19)
angular distribution for (n,n*20)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for \((n,n\ast21)\)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Neutron emission for (n,x)
Neutron emission for (n,2n)
Neutron emission for (n,3n)
Neutron emission for \((n, n^*)a\)
Neutron emission for (n,2n)a
Neutron emission for \((n,n^*)p\)
Neutron emission for \((n,n^*)d\)
Neutron emission for \((n,n^*)t\)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Neutron emission for (n,2np)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
Neutron emission for (n,n*c)
Photon emission for (n,x)
Photon emission for (n,2n)
Photon emission for (n,3n)
Photon emission for (n,2n)a
Photon emission for \((n,n^\star)p\)
Photon emission for \((n,n^*)d\)
Photon emission for \((n,n^*)t\)
Photon emission for (n,2np)
Photon emission for (n,n*1)
Photon emission for (n,n*2)
Photon emission for \((n,n^*3)\)
Photon emission for (n,n*4)
Photon emission for (n,n*5)
Photon emission for (n,n*6)
Photon emission for (n,n*7)
Photon emission for (n,n*8)
Photon emission for (n,n*9)
Photon emission for \((n,n^{*10})\)
Photon emission for (n,n*11)
Photon emission for $(n,n^{*}13)$
Photon emission for (n,n*14)
Photon emission for (n,n*15)
Photon emission for \((n,n^{*16})\)
Photon emission for \((n,n^*17)\)

\[
\text{Prob}/\text{MeV} \\
\log_{10}(100) \\
\log_{10}(10) \\
\log_{10}(0.1) \\
0
\]

\[
E_\gamma \text{ (MeV)} \\
E_n \text{ (MeV)}
\]
Photon emission for \((n,n^{*18})\)
Photon emission for (n,n'19)
Photon emission for (n,n*20)
Photon emission for (n,gma)
Photon emission for (n,2p)
Photon emission for $(n,p^*1)$
Photon emission for \((n,p*2)\)
Photon emission for (n,p\(*3\))
Photon emission for (n,p*4)
Photon emission for (n,p*5)
Photon emission for (n,p*6)
Photon emission for (n,p*7)
Photon emission for (n,p*8)

- Energy (MeV) vs. Probability/MeV

- Eγ (MeV) vs. E_n (MeV)
Photon emission for (n,p*9)
Photon emission for (n,p*10)
Photon emission for (n,p*c)
Photon emission for (n,d*1)
Photon emission for (n,d*2)
Photon emission for (n,d*3)
Photon emission for (n,d*4)
Photon emission for (n,d*5)
Photon emission for (n,d*c)
Photon emission for (n,t\*1)
Photon emission for (n,t*2)
Photon emission for (n,t*3)
Photon emission for (n,t*4)
Photon emission for (n,t*5)

\[ E_\gamma (\text{MeV}) \]

\[ E_n (\text{MeV}) \]

\[ \text{Prob/MeV} \]
Photon emission for (n,t*c)
Photon emission for \((n,\text{he3}^*1)\)
Photon emission for (n, he3*2)
Photon emission for (n,he3*3)
Photon emission for (n,he3*c)
Photon emission for (n,a*1)
Photon emission for $({\text{n}}, a^*2)$
Photon emission for \((n,a^*3)\)
Photon emission for (n,a*4)
Photon emission for (n,a*5)
Photon emission for (n,a*6)
Photon emission for (n,a*7)
Photon emission for (n,a*8)
Photon emission for (n,a*9)
Photon emission for (n,a*10)
Photon emission for \((n,a^c)\)
Gamma Energy (MeV) vs. Gamma Prod (barns/MeV)

Gamma Energy (MeV) range: 0 to 4
Gamma Prod (barns/MeV) range: 10^{-1} to 10^{2}

82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
thermal capture photon spectrum
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
14 MeV photon spectrum
Particle heating contributions

Energy (MeV)

MeV/collision

0  50  100  150  200

0  2  4  6  8  10  12  14  16  18  20

protons
deuterons
tritons
he-3
alphas
Recoil Heating

Energy (MeV)

Heating (MeV/reaction)
Particle production cross sections

- protons
- deuterons
- tritons
- he-3
- alphas
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
protons from (n,x)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
protons from (n,2np)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
protons from (n,2p)
angular distribution for (n,p*0) proton
angular distribution for (n,p*1) proton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,p*2) proton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
n-angular distribution for (n,p*3) proton
angular distribution for \((n,p^*4)\) proton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,p*5) proton
angular distribution for (n,p*6) proton
angular distribution for (n,p*7) proton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,p*8) proton
angular distribution for (n,p*9) proton
angular distribution for (n,p*10) proton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
protons from \( (n,p^*c) \)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
deuterons from (n,x)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
deuterons from (n,n*)d
angular distribution for \((n,d^*0)\) deuteron
angular distribution for (n,d*1) deuteron
angular distribution for (n,d*2) deuteron
angular distribution for \((n,d^*3)\) deuteron
angular distribution for (n,d*4) deuteron
angular distribution for (n,d*5) deuteron
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
deuterons from (n,d*c)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
tritons from (n,x)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
tritons from \((n,n^*)t\)
angular distribution for (n,t*0) triton
angular distribution for (n,t*1) triton

82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,t*2) triton
angular distribution for \((n,t^*3)\) triton
angular distribution for (n,t*4) triton
angular distribution for (n,t*) triton
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
tritons from (n,t*c)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
he3s from (n,x)
angular distribution for \((n, \text{he}^3*0)\) 3he
angular distribution for (n,he3*) 3he
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,he3*2) 3he
angular distribution for (n,he3*3) 3he
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
he3s from (n,he3*c)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
alphas from (n,x)
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
alphas from (n,2n)a
angular distribution for (n,a*0) alpha
angular distribution for (n,a*1) alpha
angular distribution for (n,α*2) alpha
angular distribution for \((n,a^*3)\) alpha
angular distribution for \((n,a^*4)\) alpha
angular distribution for \((n, a^5)\) alpha
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
angular distribution for (n,a*6) alpha
angular distribution for (n,a*7) alpha
angular distribution for (n,a*8) alpha
angular distribution for (n,a*9) alpha
angular distribution for (n,a*10) alpha
82-PB-204 FOR FENDL-3.2 FROM JEFF-3.1.1 BY NJOY2016.60+
aphas from (n,a*c)

![Graph showing energy distribution.](image-url)