ENDF/B-VII.1 ZR-93
resonance total cross section

Energy (MeV)

Cross section (barns)

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

total
ENDF/B-VII.1 ZR-93
resonance total cross section

Cross section (barns)

Energy (MeV)

10^{-3} - 10^{-2}
ENDF/B-VII.1 ZR-93
resonance absorption cross sections

Cross section (barns)

Energy (MeV)
ENDF/B-VII.1 ZR-93
resonance absorption cross sections
ENDF/B-VII.1 ZR-93
resonance absorption cross sections
ENDF/B-VII.1 ZR-93
UR total cross section

Energy (MeV)

Cross section (barns)

Inf. Dil.
100 b
1 b

Energy (MeV)

Cross section (barns)
ENDF/B-VII.1 ZR-93
UR elastic cross section

Energy (MeV) vs. Cross section (barns)

- Inf. Dil.
- 100 b
- 1 b
ENDF/B-VII.1 ZR-93
UR capture cross section
ENDF/B-VII.1 ZR-93
Heating

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

- Heating curve is shown with a logarithmic scale.
Damage

Energy (MeV) vs. Damage (MeV-barns)
ENDF/B-VII.1 ZR-93
Non-threshold reactions

Energy (MeV)

Cross section (barns)

- (n,gma)
- (n,a)
- (n,xa)
ENDF/B-VII.1 ZR-93
Heating

Heating (MeV/reaction) vs. Energy (MeV)
ENDF/B-VII.1 ZR-93 Damage

![Graph showing the relationship between energy (MeV) and damage (MeV-barns).](image)
ENDF/B-VII.1 ZR-93
Non-threshold reactions

Energy (MeV)

Cross section (barns)

- (n,gma)
- (n,a)
- (n,xa)
ENDF/B-VII.1 ZR-93
Inelastic levels

Energy (MeV)

Cross section (barns)

(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

Energy (MeV)
ENDF/B-VII.1 ZR-93
Inelastic levels

Cross section (barns)

Energy (MeV)
ENDF/B-VII.1 ZR-93
Inelastic levels

Energy (MeV)

*10^{-3}

Cross section (barns)

(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

Energy (MeV)
ENDF/B-VII.1 ZR-93
Threshold reactions

Cross section (barns)

Energy (MeV)
ENDF/B-VII.1 ZR-93
Threshold reactions

Cross section (barns) vs. Energy (MeV) for reactions (n,p*6), (n,p*7), (n,p*8), (n,p*9), (n,p*10).
ENDF/B-VII.1 ZR-93
Threshold reactions

Energy (MeV)

Cross section (barns)

- (n,p*11)
- (n,p*12)
- (n,p*13)
- (n,p*14)
- (n,p*15)
ENDF/B-VII.1 ZR-93

Threshold reactions

Energy (MeV)

Cross section (barns)

- \( (n,p^{16}) \)
- \( (n,p^{\ast}) \)
- \( (n,a^{1}) \)
- \( (n,a^{2}) \)
- \( (n,a^{3}) \)
ENDF/B-VII.1 ZR-93
Threshold reactions

Energy (MeV)

Cross section (barns)

*10^-6

(n,a*4)
(n,a*5)
(n,a*6)
(n,a*7)
(n,a*8)
ENDF/B-VII.1 ZR-93
Threshold reactions

Cross section (barns) vs. Energy (MeV)

- (n,a*24)
- (n,a*25)
- (n,a*26)
ENDF/B-VII.1 ZR-93
angular distribution for elastic
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*1)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*2)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*3)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*4)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*5)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*6)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*7)
ENDF/B-VII.1 ZR-93
angular distribution for \((n,n^*8)\)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*9)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*10)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*11)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*12)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*13)
ENDF/B-VII.1 ZR-93 angular distribution for (n,n*14)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*15)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*16)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*17)
ENDF/B-VII.1 ZR-93
angular distribution for (\(n, n^*18\))
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*19)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*20)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*21)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*22)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*23)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*24)
ENDF/B-VII.1 ZR-93
angular distribution for (n,n*25)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,x)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,2n)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,3n)
ENDF/B-VII.1 ZR-93
Neutron emission for \((n,n^*)a\)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,2n)a
ENDF/B-VII.1 ZR-93
Neutron emission for \((n,n^*)p\)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,n*)d
ENDF/B-VII.1 ZR-93
Neutron emission for (n,2np)
ENDF/B-VII.1 ZR-93
Neutron emission for (n,n*c)
ENDF/B-VII.1 ZR-93
Photon emission for (n,x)
ENDF/B-VII.1 ZR-93
Photon emission for (n,2n)
ENDF/B-VII.1 ZR-93
Photon emission for (n,3n)
ENDF/B-VII.1 ZR-93
Photon emission for (n,n*)a
ENDF/B-VII.1 ZR-93
Photon emission for (n,2n)a
ENDF/B-VII.1 ZR-93
Photon emission for (n,n*)p
ENDF/B-VII.1 ZR-93
Photon emission for (n,n^*)d
ENDF/B-VII.1 ZR-93
Photon emission for (n,2np)
ENDF/B-VII.1 ZR-93
Photon emission for (n,n*c)
ENDF/B-VII.1 ZR-93
Photon emission for (n,gma)
ENDF/B-VII.1 ZR-93
Photon emission for (n,d)
ENDF/B-VII.1 ZR-93
Photon emission for (n,t)
ENDF/B-VII.1 ZR-93
Photon emission for (n,pa)
ENDF/B-VII.1 ZR-93
Photon emission for (n,p*c)
ENDF/B-VII.1 ZR-93
Photon emission for (n,a*c)
ENDF/B-VII.1 ZR-93
thermal capture photon spectrum
ENDF/B-VII.1 ZR-93
14 MeV photon spectrum
ENDF/B-VII.1 ZR-93
Particle heating contributions

![Graph showing particle heating contributions vs. energy in MeV/collision. The graph includes lines for protons, deuterons, tritons, He-3, and alphas. The x-axis represents energy in MeV, and the y-axis represents MeV/collision. The legend is shown below the graph.]
ENDF/B-VII.1 ZR-93
Particle production cross sections

Energy (MeV)

Cross section (barns)

protons
deuterons
tritons
he-3
alphas

Energy (MeV)
ENDF/B-VII.1 ZR-93
protons from (n,x)
ENDF/B-VII.1 ZR-93
protons from (n,2np)
ENDF/B-VII.1 ZR-93
protons from (n,pa)
ENDF/B-VII.1 ZR-93
angular distribution for (n,p\(^*\)0) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*1) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*2) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*3) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*4) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*5) proton

Prob/Cos

Energy (MeV)

Cosine

10^0

10^-1

1.0 0.5 0.0 -0.5 -1.0
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*6) proton

Probl/Cos

10^0

10^-1

10^-2

10^-3

10^-4

Cosine

-1.0 -0.5 0.0 0.5 1.0

Energy (MeV)

4 6 8 10 12 14 16 18 20
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*7) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p^8) proton
ENDF/B-VII.1 ZR-93 angular distribution for (n,p*9) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*10) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*11) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*12) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*13) proton
ENDF/B-VII.1 ZR-93
angular distribution for \((n,p^*14)\) proton
ENDF/B-VII.1 ZR-93
angular distribution for (n,p*15) proton
ENDF/B-VII.1 ZR-93
protons from (n,p*c)
ENDF/B-VII.1 ZR-93
deuterons from (n,x)
ENDF/B-VII.1 ZR-93
deuterons from \((n,n^*)d\)
ENDF/B-VII.1 ZR-93
deuterons from (n,d)
ENDF/B-VII.1 ZR-93
tritons from (n,x)
ENDF/B-VII.1 ZR-93
tritons from (n,t)
ENDF/B-VII.1 ZR-93
he3s from (n,x)
ENDF/B-VII.1 ZR-93
alphas from (n,x)
ENDF/B-VII.1 ZR-93
alphas from \((n,n^*)a\)
ENDF/B-VII.1 ZR-93
alphas from (n,2n)a
ENDF/B-VII.1 ZR-93
alphas from (n,pa)
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*0) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*1) alpha
ENDF/B-VII.1 ZR-93
angular distribution for \((n,a^2)\) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a^3) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*4) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*5) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*6) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*7) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*8) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*9) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*10) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*11) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*12) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*13) alpha
ENDF/B-VII.1 ZR-93 angular distribution for (n,a*14) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*15) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*17) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*18) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*19) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*20) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a^{*21}) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*22) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*23) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*24) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*25) alpha
ENDF/B-VII.1 ZR-93
angular distribution for (n,a*26) alpha
ENDF/B-VII.1 ZR-93 alphas from (n,a*c)