NI059 NRG TENDL-2016, AKONING
Non-threshold reactions

Energy (MeV)

Cross section (barns)

(n,gma)
(n,p)
(n,a)
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Principal cross sections

Cross section (barns) vs. Energy (MeV)
- Black: total
- Blue: absorption
- Green: elastic
- Red: gamma production
Non-threshold reactions

Cross section (barns)

Energy (MeV)
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Inelastic levels

Energy (MeV)

Cross section (barns)

Energy (MeV)

0.0 0.1 0.2 0.3 0.4 0.5 0.6

0 5 10 15 20 25 30

(n,n^*1)
(n,n^*2)
(n,n^*3)
(n,n^*4)
(n,n^*5)
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Inelastic levels

Cross section (barns) vs. Energy (MeV)

- (n,n^16)
- (n,n^17)
- (n,n^18)
- (n,n^19)
- (n,n^20)
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Inelastic levels

*10^-3

Cross section (barns)

Energy (MeV)

(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)
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Inelastic levels

Energy (MeV)

$\times 10^{-3}$

Cross section (barns)

Energy (MeV)

(n,n*26)

(n,n*27)

(n,n*28)

(n,n*29)

(n,n*30)
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Threshold reactions

Energy (MeV)

Cross section (barns)

- (n,x)
- (n,2nd)
- (n,2n)
- (n,3n)
- (n,n*)a

Energy (MeV)
Threshold reactions

- (n,2n)a
- (n,n*)p
- (n,n*)2a
- (n,n*)d
- (n,n*)t

Cross section (barns) vs. Energy (MeV)
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Threshold reactions

Energy (MeV)

Cross section (barns)

- (n,n*)he3
- (n,2np)
- (n,3np)
- (n,2np)
- (n,npa)
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Threshold reactions

Energy (MeV)

Cross section (barns)

(n,2p)
(n,pa)
(n,pd)
(n,pt)
(n,da)
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angular distribution for elastic

\( P(Co) \times 10^{-2} \times 10^{0} \times 10^{2} \)

Energy (MeV)

Cosine

Prob/Cos
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angular distribution for elastic
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*1)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*2)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*3)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*4)
NI059 NRG TENDL-2016, AKONING
angular distribution for \((n,n^*5)\)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*6)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*7)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*8)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*9)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*10)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*11)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*12)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*13)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*14)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*15)
NI059 NRG TENDL-2016, AKONING
angular distribution for \((n,n*16)\)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*18)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*19)
NI059 NRG TENDL-2016, AKONING

angular distribution for (n,n*20)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n^*21)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*22)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*23)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*24)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*25)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*26)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*27)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*28)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*29)
NI059 NRG TENDL-2016, AKONING
angular distribution for (n,n*30)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,x)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,2nd)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,2n)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,3n)
Neutron emission for (n,n*)a
Neutron emission for (n,2n)a
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,n*)p
Neutron emission for (n,n*)2a
NI059 NRG TENDL-2016, AKONING
Neutron emission for \((n,n^*)d\)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,n*)t
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,n*)he3
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,2np)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,3np)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,2np)
Neutron emission for \((n,n\alpha)\)
NI059 NRG TENDL-2016, AKONING
Neutron emission for (n,n*c)
Photon emission for (n,x)
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,2nd)
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,2n)
Photon emission for (n,3n)
Photon emission for (n,n*)a
Photon emission for (n,2n)a
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Photon emission for (n,n*)p

![Graph showing photon emission for (n,n*)p](image-url)
Photon emission for (n,n*)2a

\[ \text{Prob}\text{MeV} \]

\[ \text{E}_\gamma (\text{MeV}) \]

\[ \text{E}_n (\text{MeV}) \]
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,n*)d
Photon emission for (n,n*)t
Photon emission for (n,n*)he3
Photon emission for (n,2np)
Photon emission for (n,3np)
Photon emission for (n,2np)
Photon emission for (n,npa)
NI059 NRG TENDL-2016, AKONING
Photon emission for \((n,n^*c)\)
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,p)
Photon emission for (n,t)
Photon emission for (n, he3)
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,a)
Photon emission for (n,2a)
Photon emission for (n,2p)
NI059 NRG TENDL-2016, AKONING
Photon emission for (n,pa)
Photon emission for (n,pd)
Photon emission for (n,pt)
Photon emission for (n,da)
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Particle heating contributions

![Graph showing the energy (MeV) vs. MeV/collision for different particles: protons (black), deuterons (red), tritons (green), he-3 (blue), and alphas (magenta).](image)
Particle production cross sections

Cross section (barns) vs Energy (MeV)

- Protons
- Deuterons
- Tritons
- He-3
- Alphas
NI059 NRG TENDL-2016, AKONING
protons from (n,x)
NI059 NRG TENDL-2016, AKONING
protons from (n,n*)p
NI059 NRG TENDL-2016, AKONING
protons from (n,3np)
NI059 NRG TENDL-2016, AKONING
protons from (n,2np)
NI059 NRG TENDL-2016, AKONING
protons from (n,npa)
NI059 NRG TENDL-2016, AKONING
protons from (n,p)
NI059 NRG TENDL-2016, AKONING
protons from (n,2p)
NI059 NRG TENDL-2016, AKONING
protons from (n,pa)
NI059 NRG TENDL-2016, AKONING
protons from (n, pd)
NI059 NRG TENDL-2016, AKONING
protons from (n,pt)
NI059 NRG TENDL-2016, AKONING
deuterons from \((n,x)\)
NI059 NRG TENDL-2016, AKONING
deuterons from (n,2nd)
NI059 NRG TENDL-2016, AKONING
deuterons from (n,n*)d
NI059 NRG TENDL-2016, AKONING
deuterons from (n,d)
NI059 NRG TENDL-2016, AKONING
deuteron from (n,pd)
NI059 NRG TENDL-2016, AKONING
tritons from (n,x)
NI059 NRG TENDL-2016, AKONING
tritons from \((n,n^*)t\)
NI059 NRG TENDL-2016, AKONING
tritons from (n,t)
NI059 NRG TENDL-2016, AKONING
tritons from (n,pt)
NI059 NRG TENDL-2016, AKONING
he3s from \((n,n^*)he3\)
NI059 NRG TENDL-2016, AKONING
he3s from (n,he3)
NI059 NRG TENDL-2016, AKONING
alphas from (n,x)
NI059 NRG TENDL-2016, AKONING
alphas from (n,n*)a
NI059 NRG TENDL-2016, AKONING
alphas from (n,2n)a
NI059 NRG TENDL-2016, AKONING
alphas from (n,n*)2a
NI059 NRG TENDL-2016, AKONING
alphas from (n,npa)
NI059 NRG TENDL-2016, AKONING
alphas from (n,a)
NI059 NRG TENDL-2016, AKONING
alphas from (n,2a)
NI059 NRG TENDL-2016, AKONING
alphas from (n,pa)
NI059 NRG TENDL-2016, AKONING
alphas from (n,da)