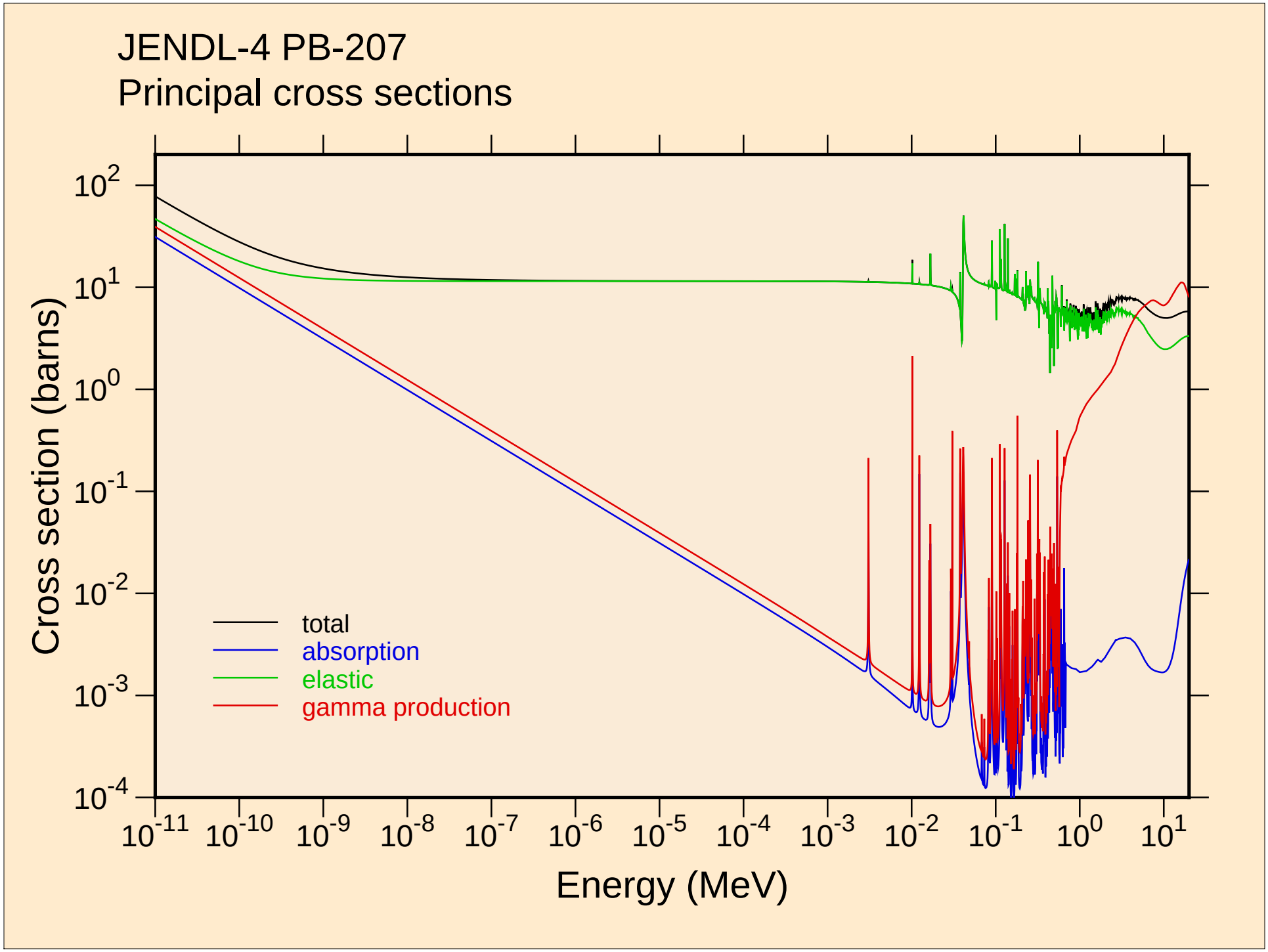
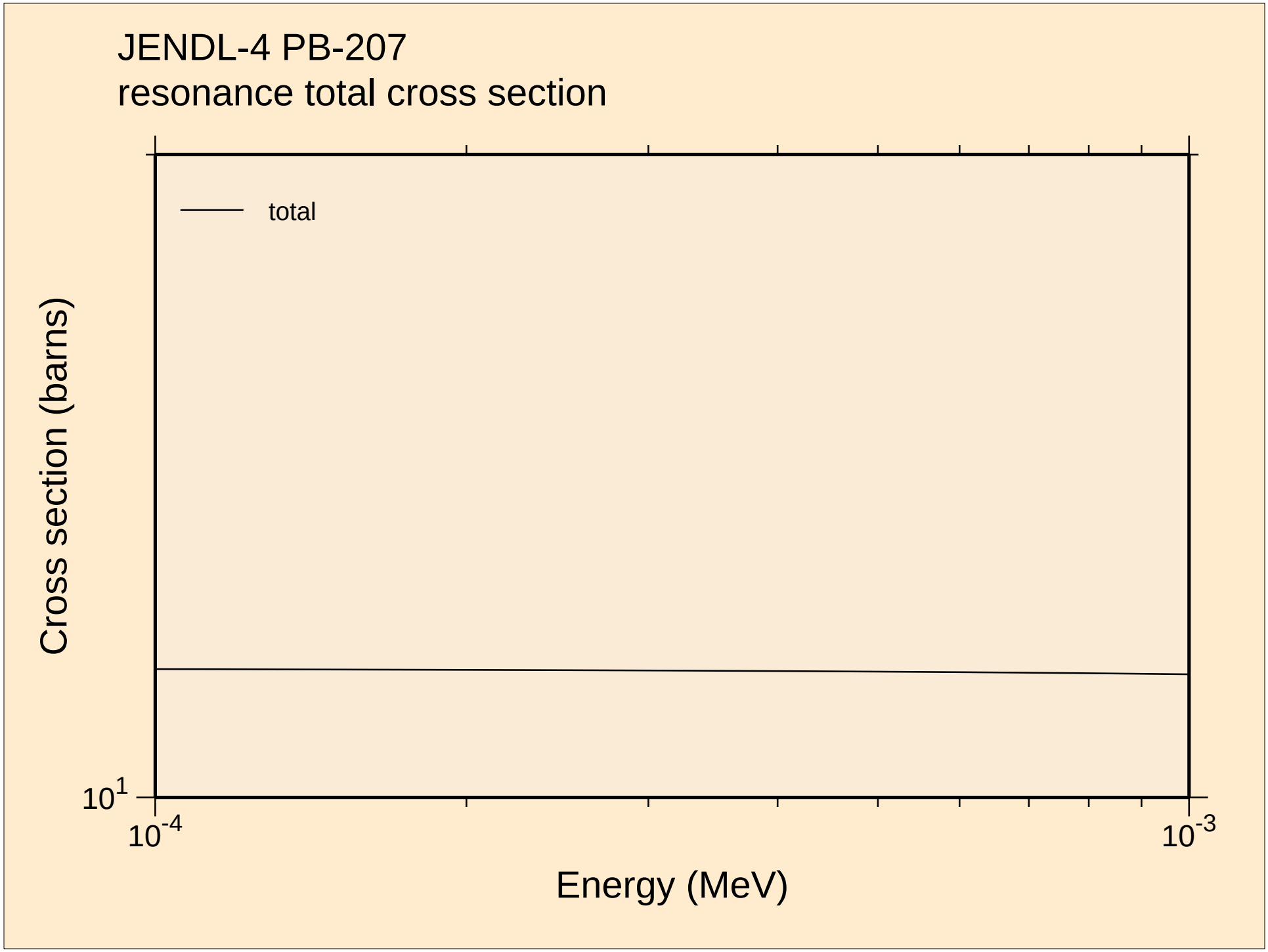
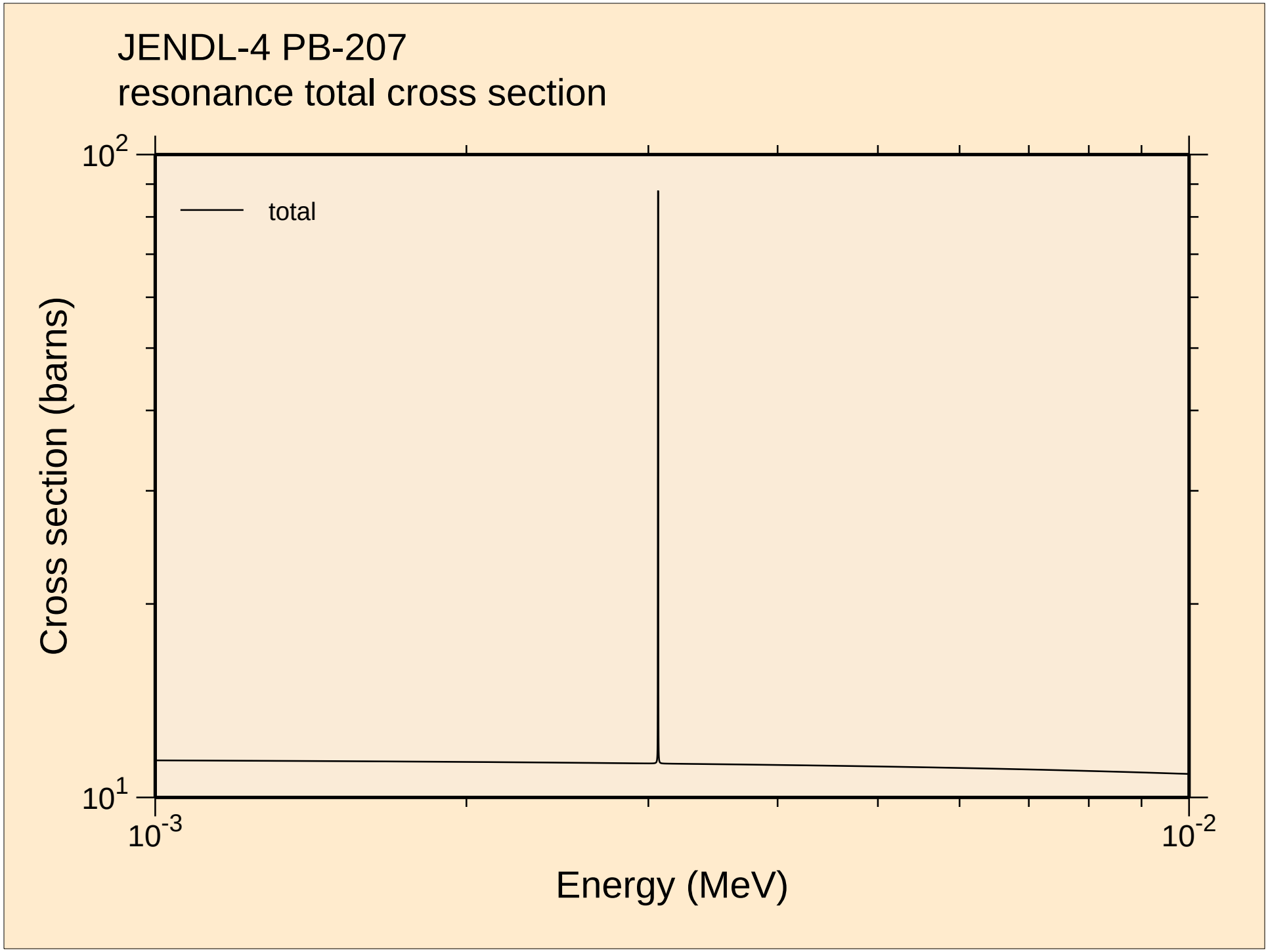
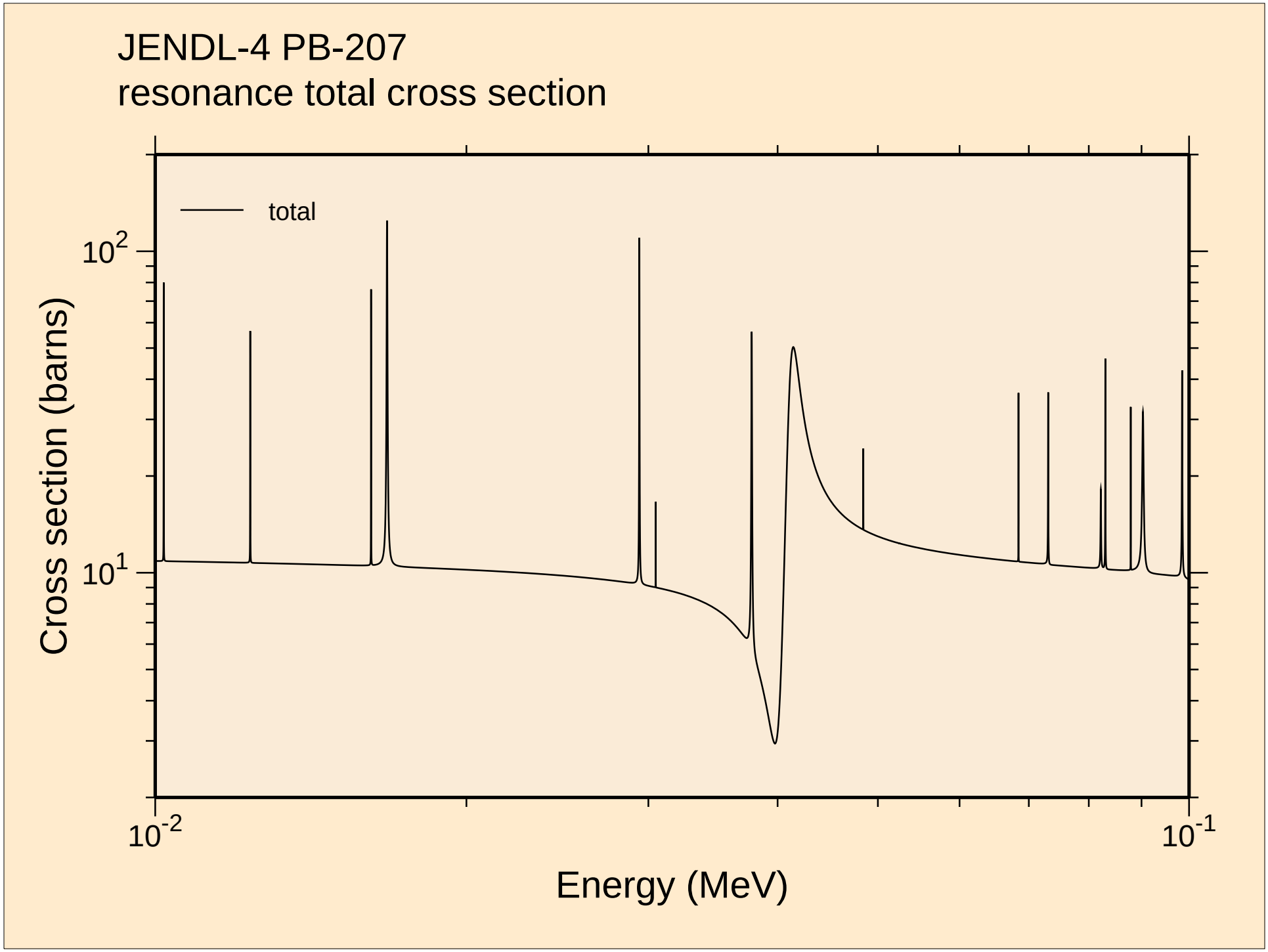
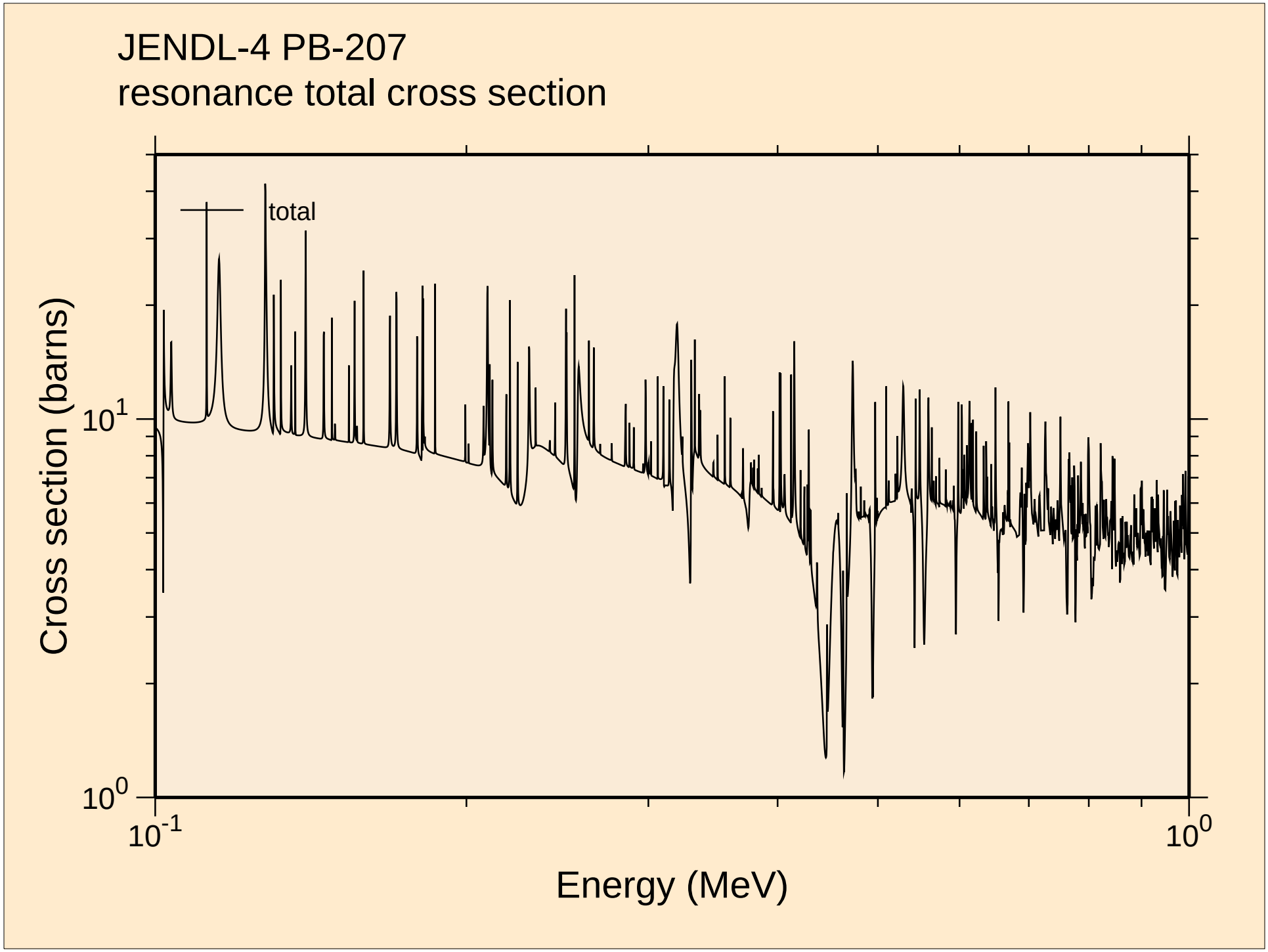
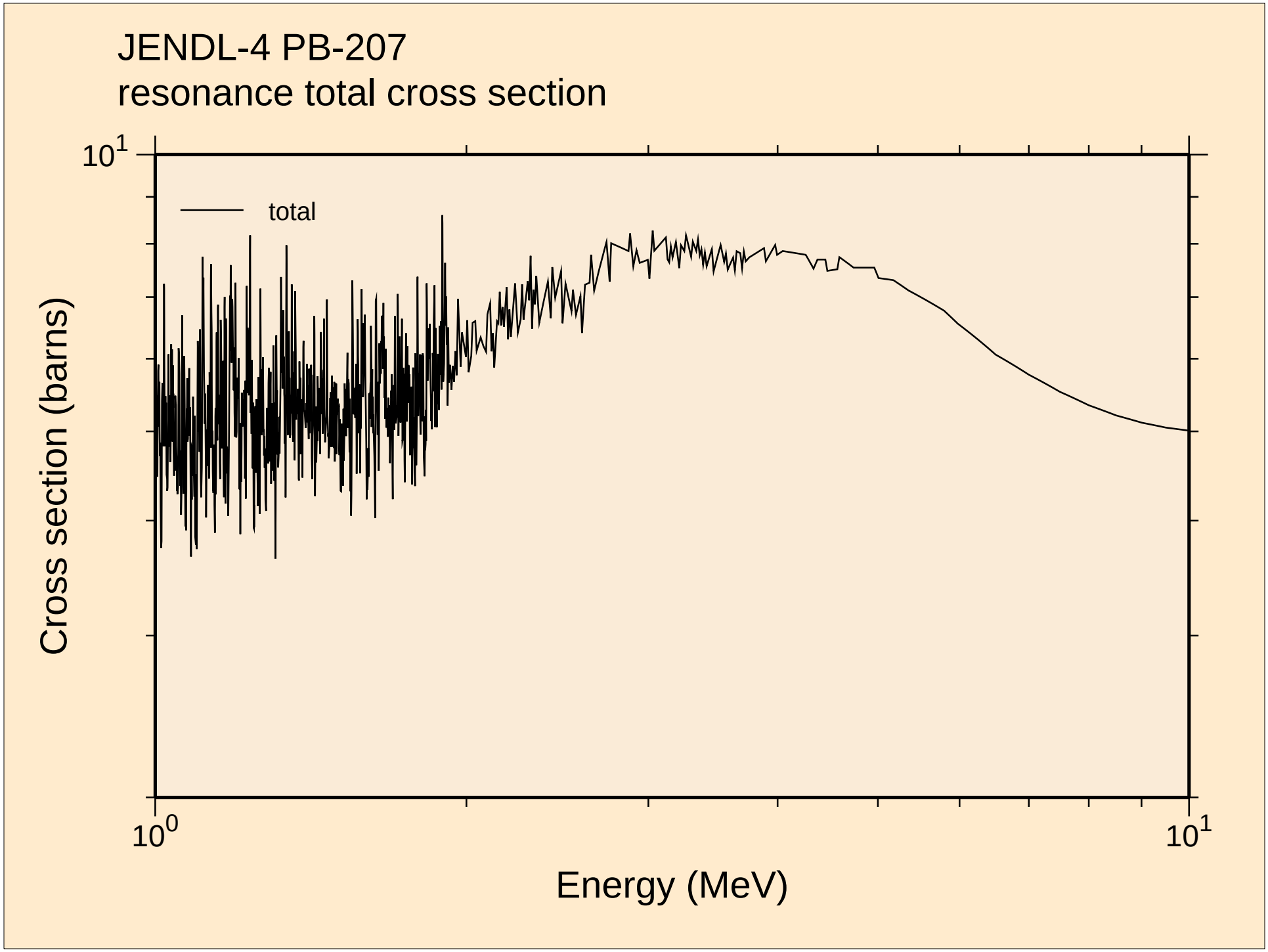

JENDL-4 PB-207
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
10^{0}
10^{1}

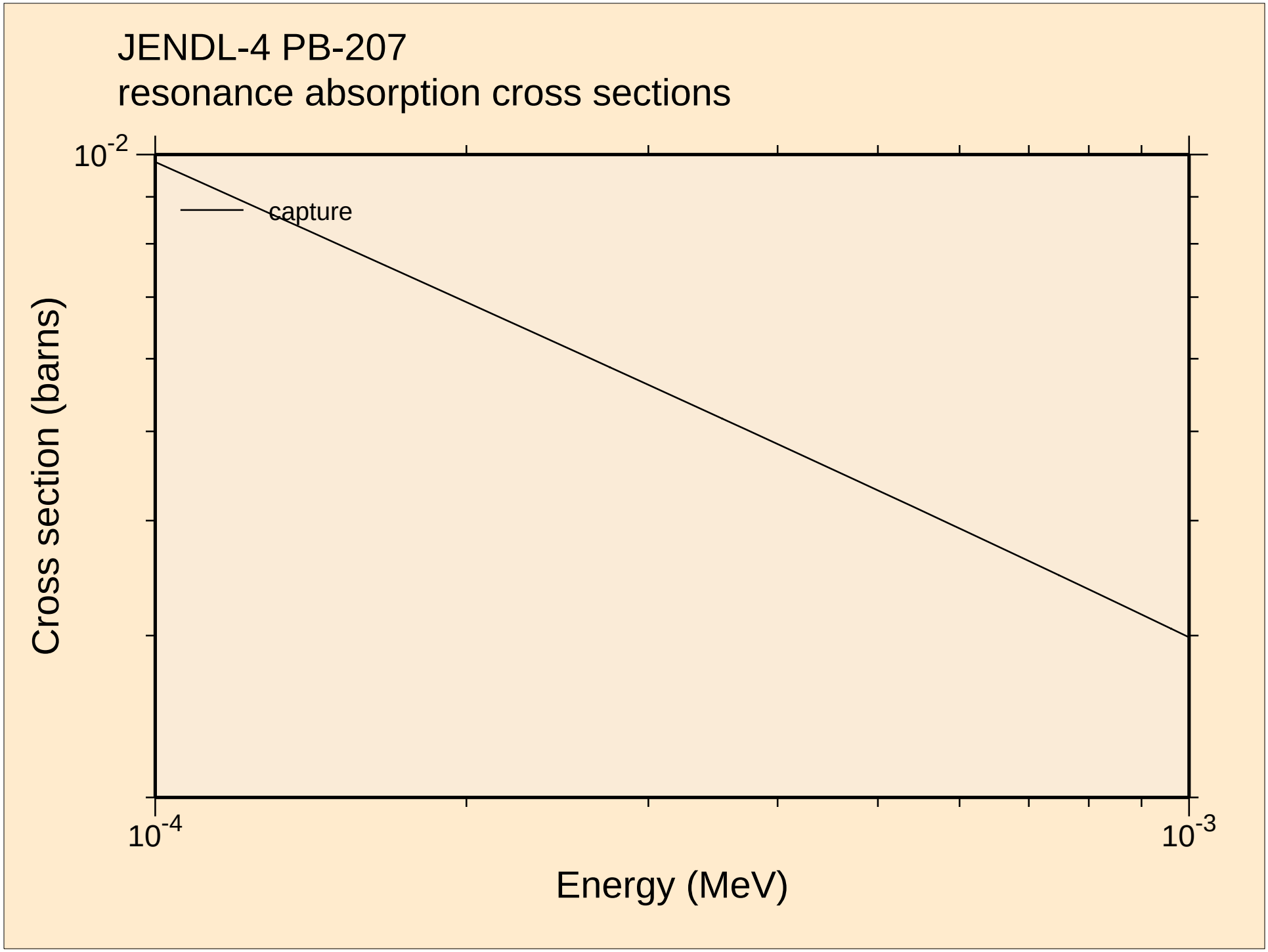

JENDL-4 PB-207
resonance total cross section
total
Cross section (barns)
10^{1}
10^{-4}
10^{-3}
Energy (MeV)


JENDL-4 PB-207
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^{-3}
10^{-2}
Energy (MeV)

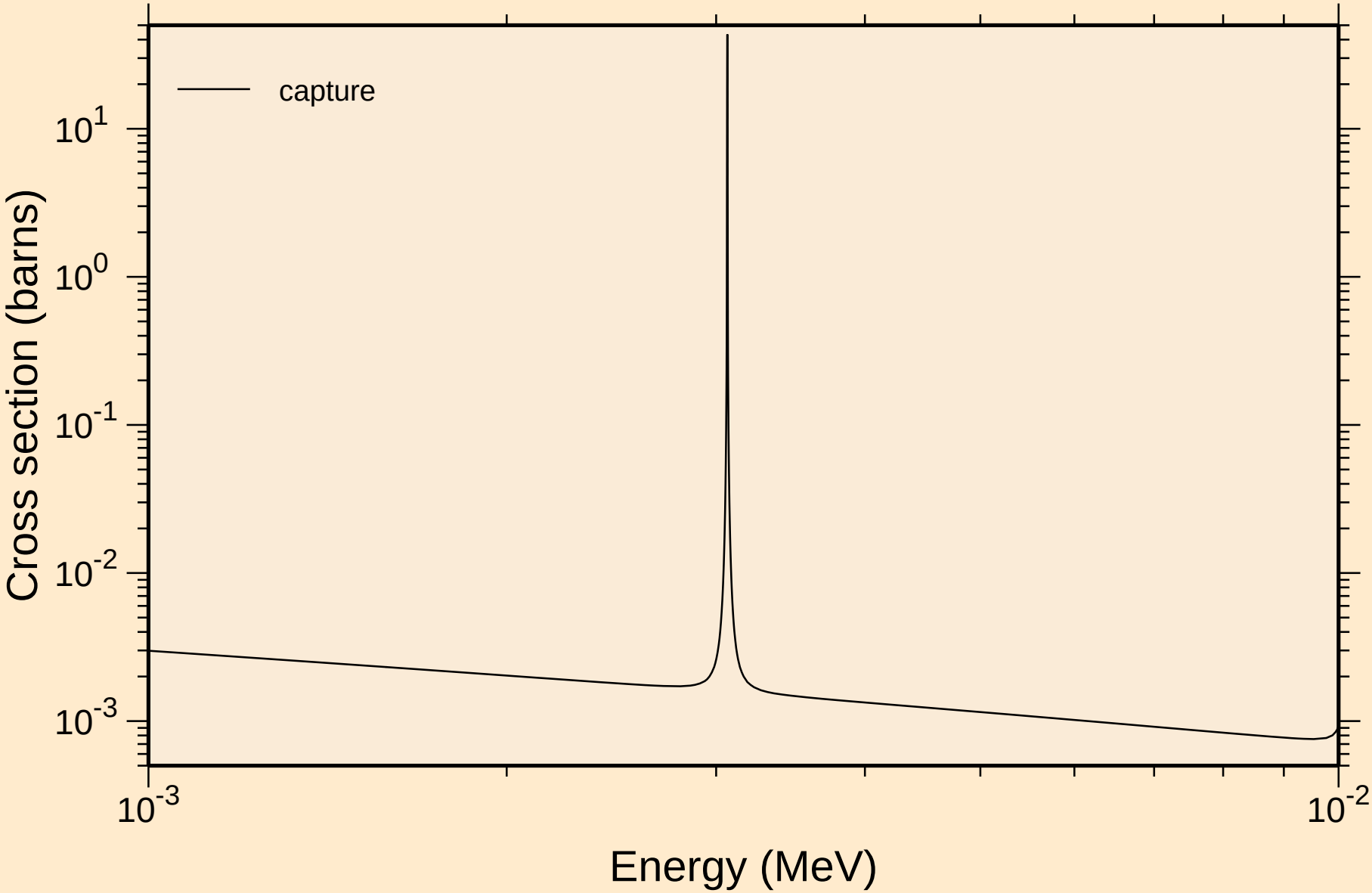

JENDL-4 PB-207
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^{-2}
10^{-1}
Energy (MeV)


JENDL-4 PB-207
resonance total cross section
total
Cross section (barns)
10^1
10^0
10^{-1}
10^0
Energy (MeV)

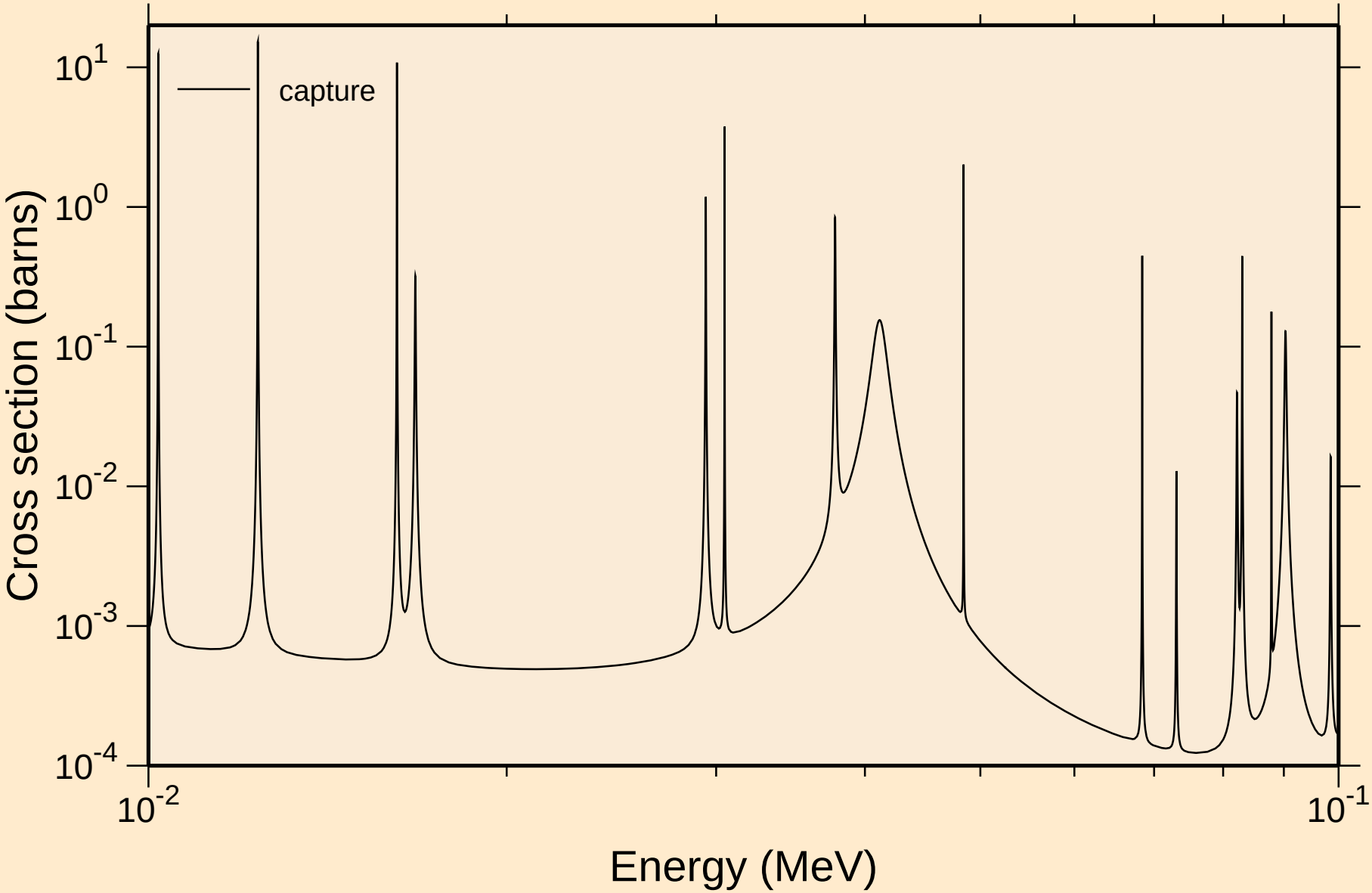

JENDL-4 PB-207
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^1
10^0
10^1


JENDL-4 PB-207
resonance absorption cross sections
capture
Cross section (barns)
Energy (MeV)
10-2
10-4
10-3

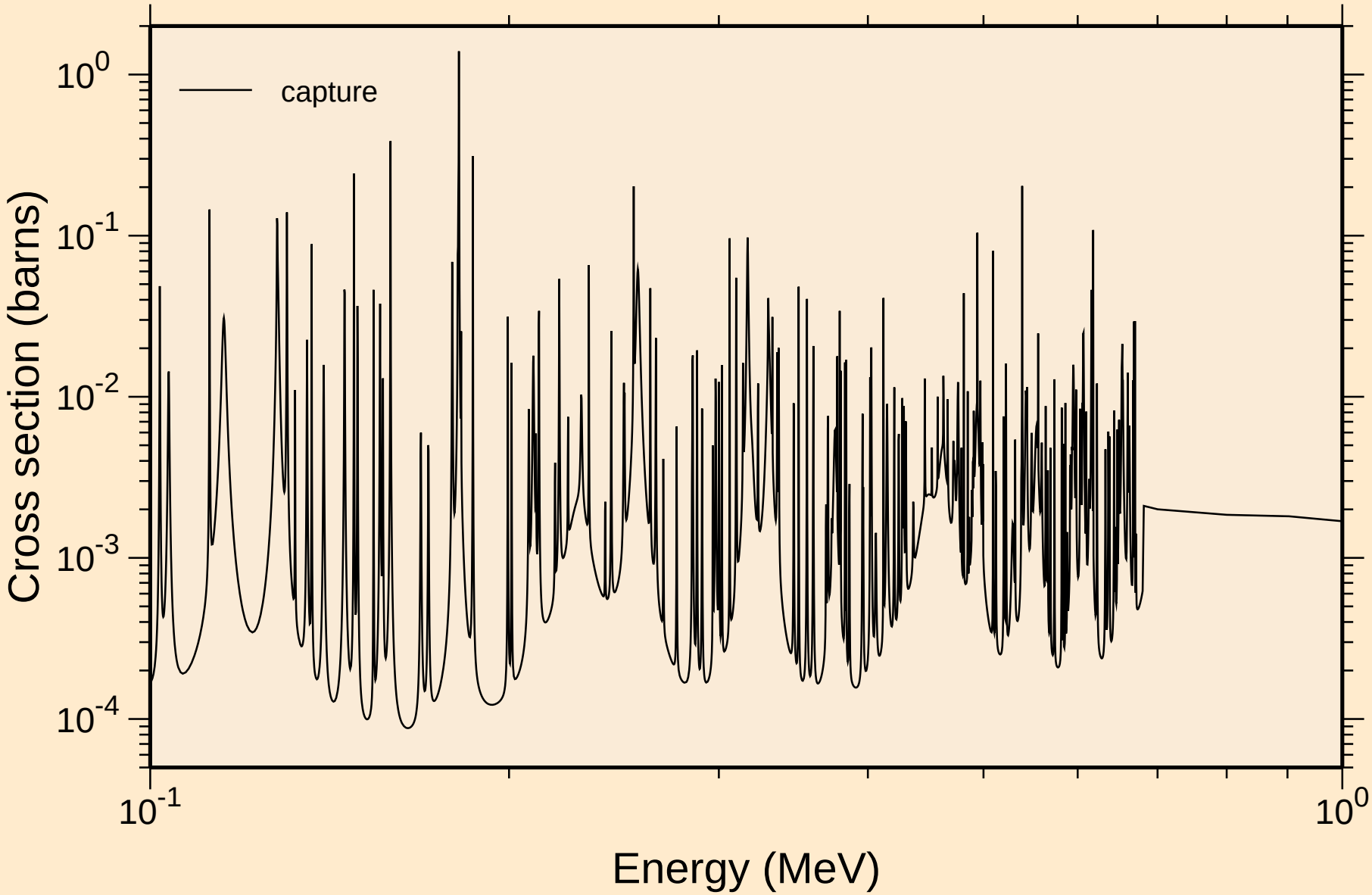
JENDL-4 PB-207
resonance absorption cross sections

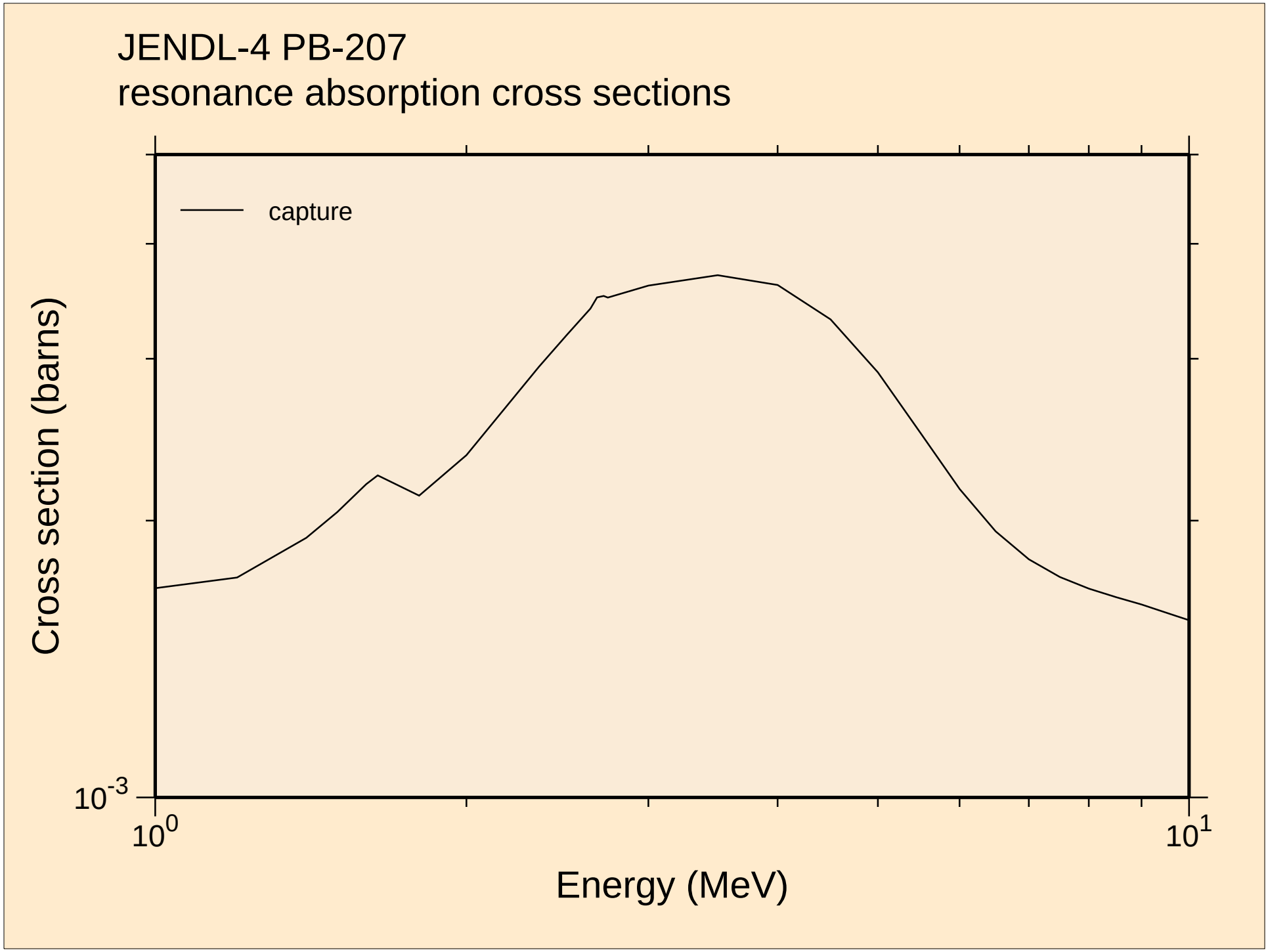


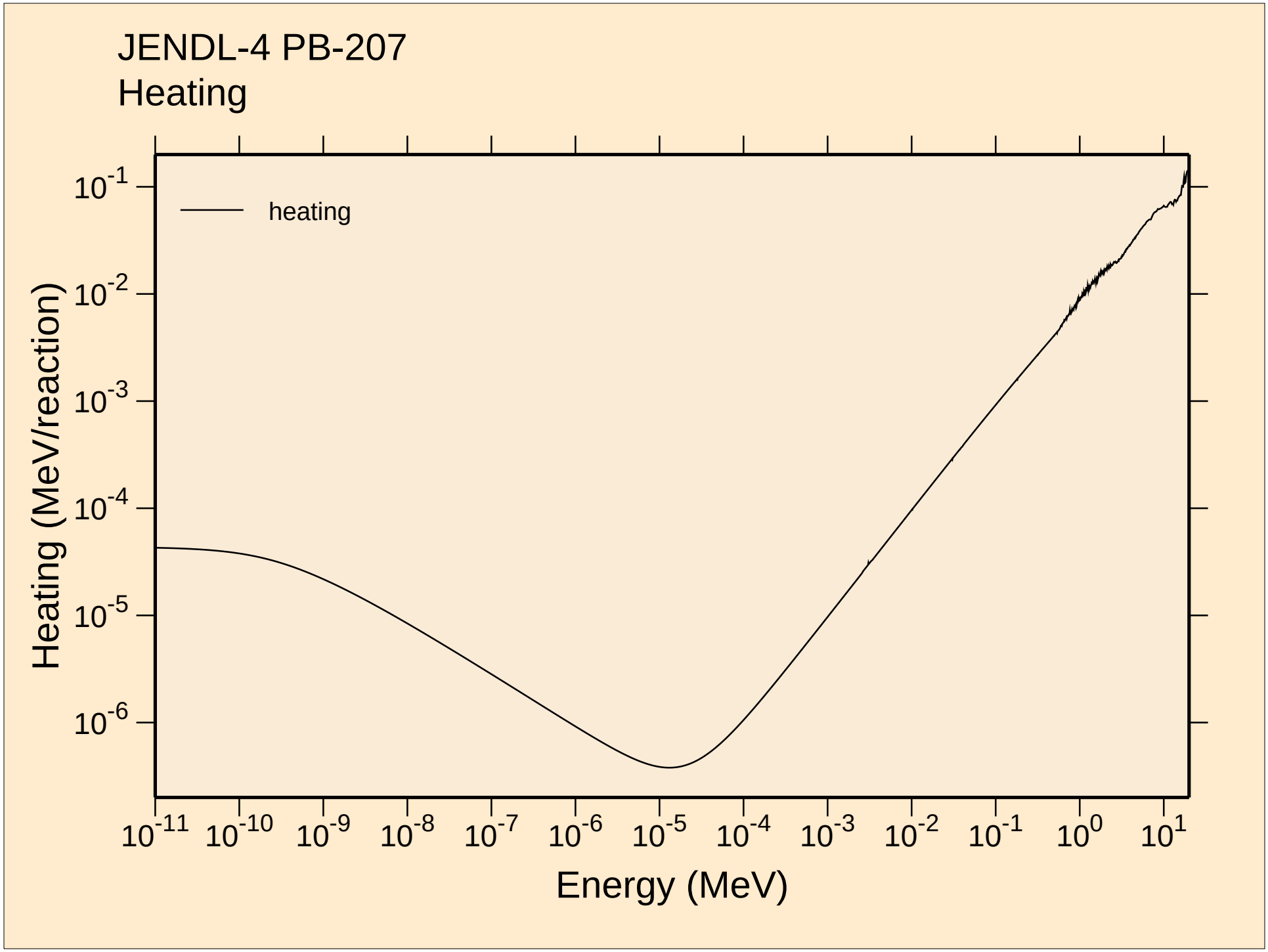
JENDL-4 PB-207
resonance absorption cross sections

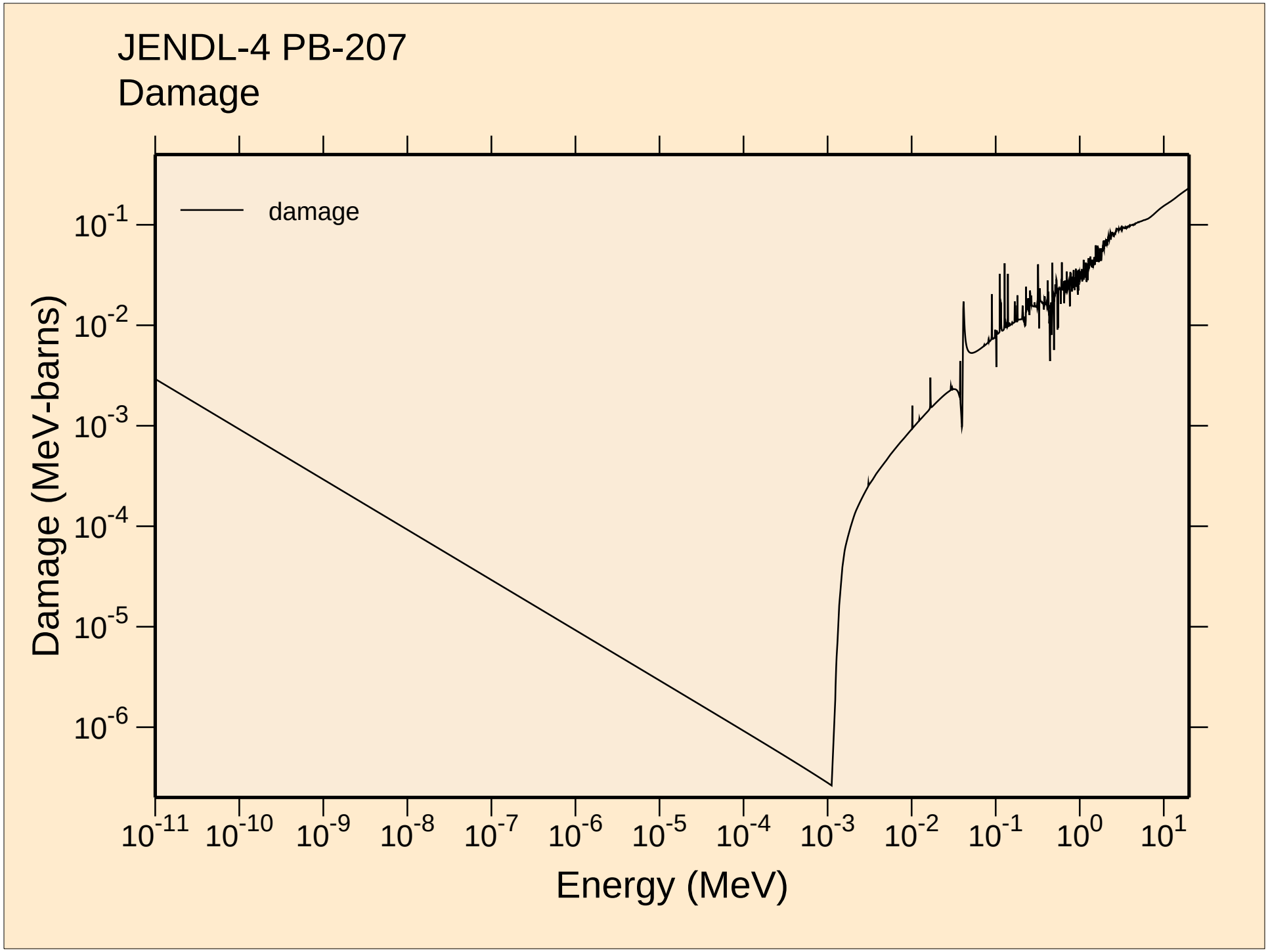


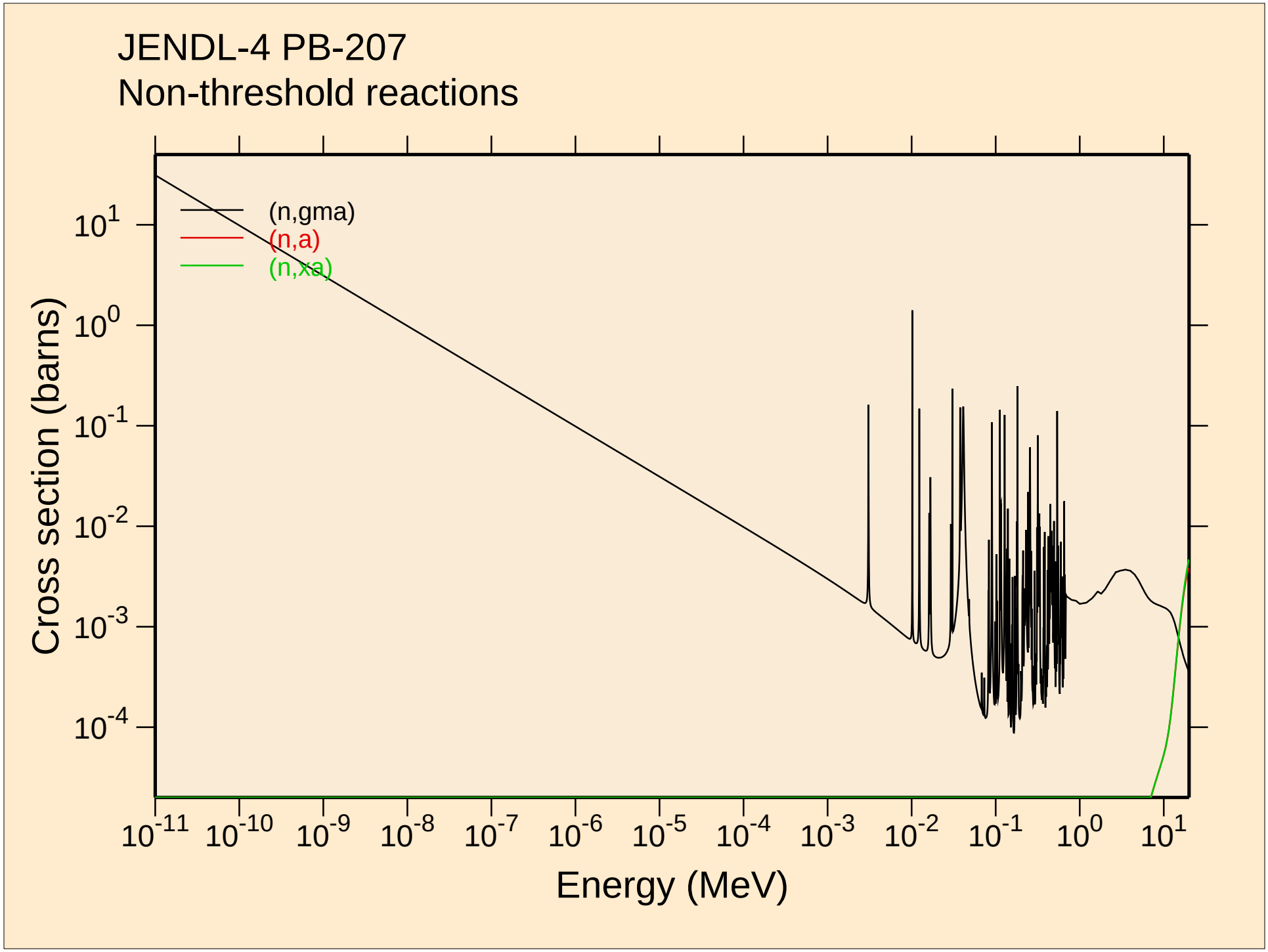
JENDL-4 PB-207
resonance absorption cross sections

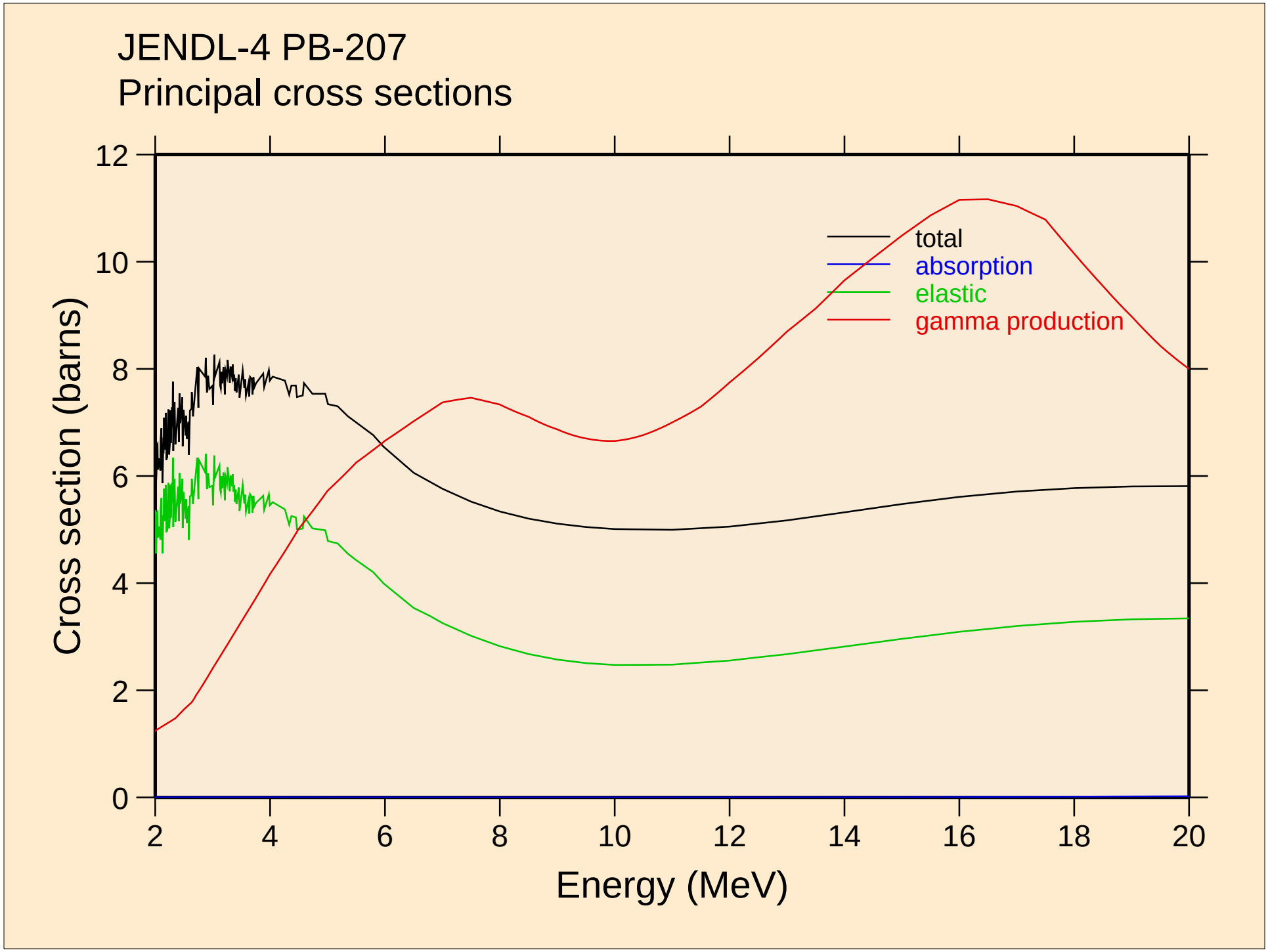


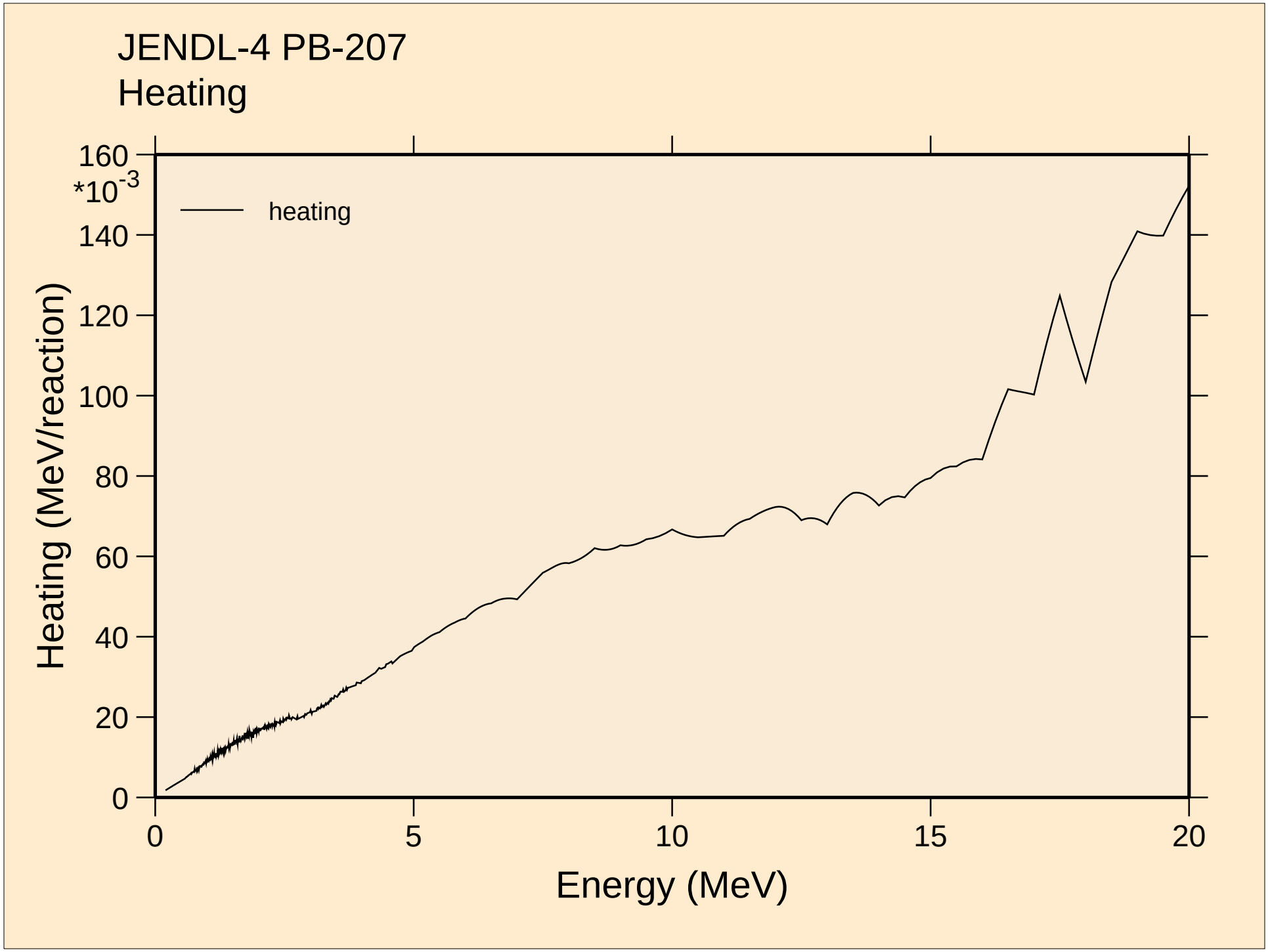

JENDL-4 PB-207
resonance absorption cross sections
capture
Cross section (barns)
10^{-3}
10^{0}
10^{1}
Energy (MeV)

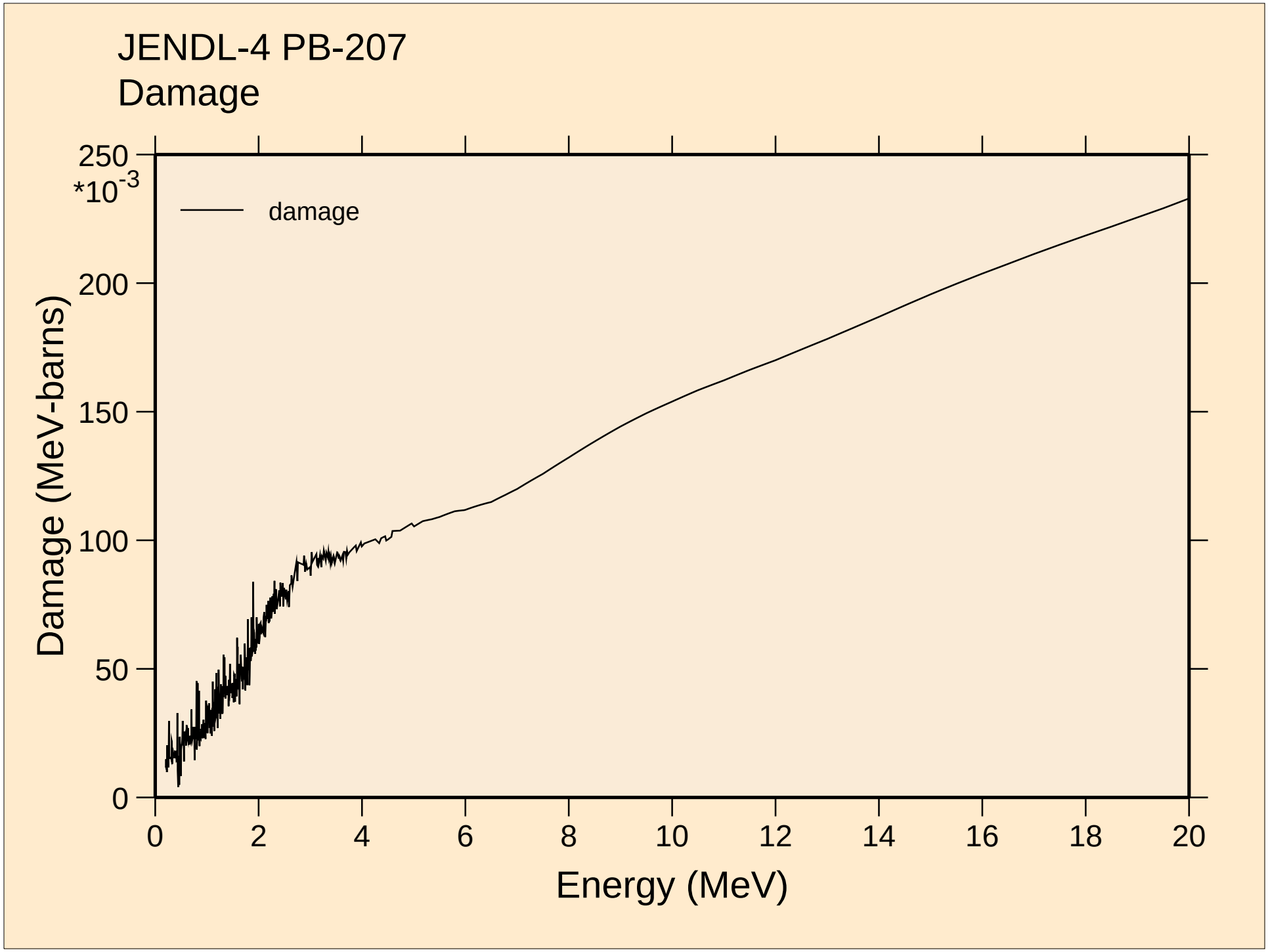

JENDL-4 PB-207
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

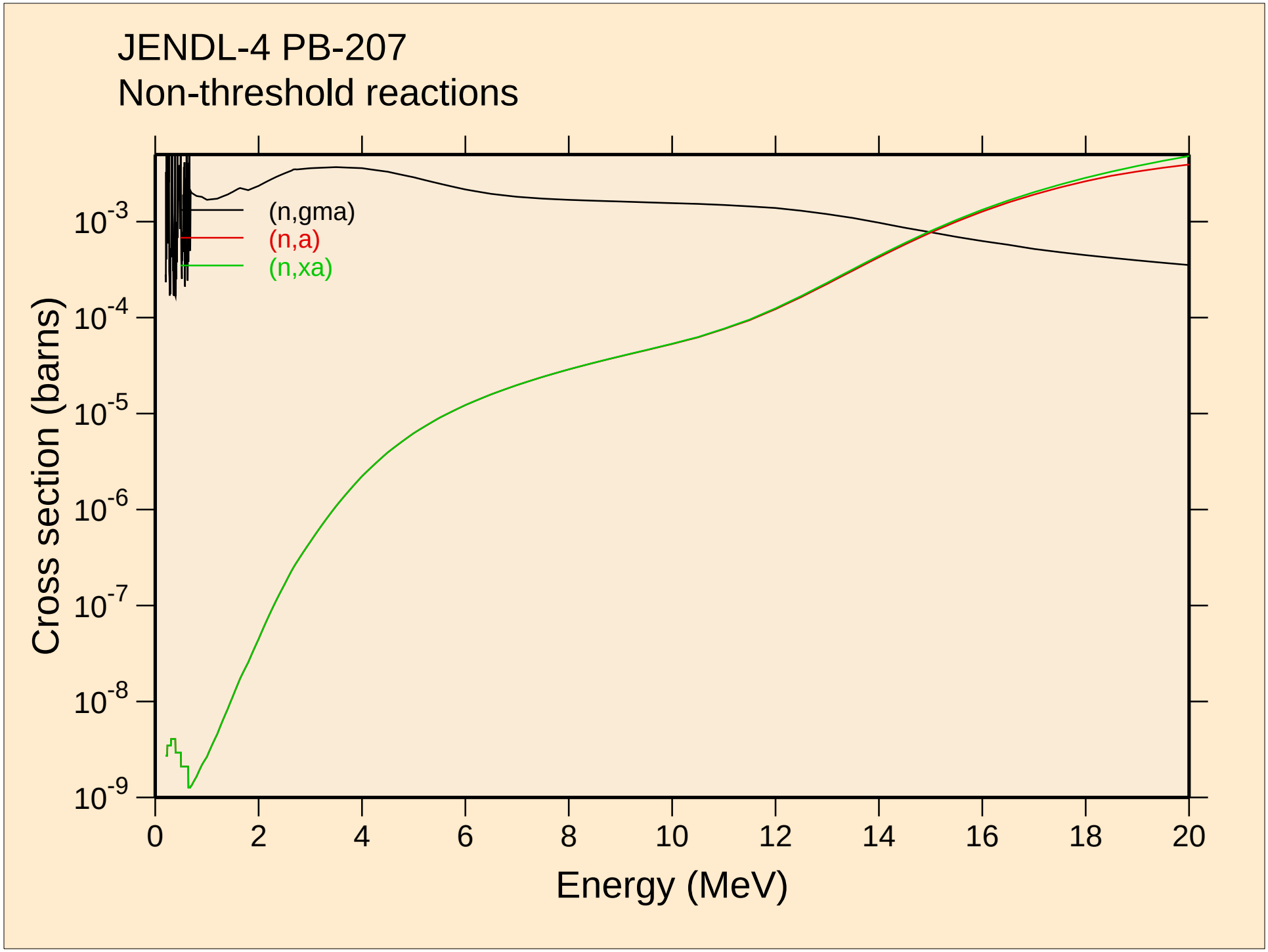

JENDL-4 PB-207
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10-1
10-2
10-3
10-4
10-5
10-6
10-11
10-10
10-9
10-8
10-7
10-6
10-5
10-4
10-3
10-2
10-1
100
101

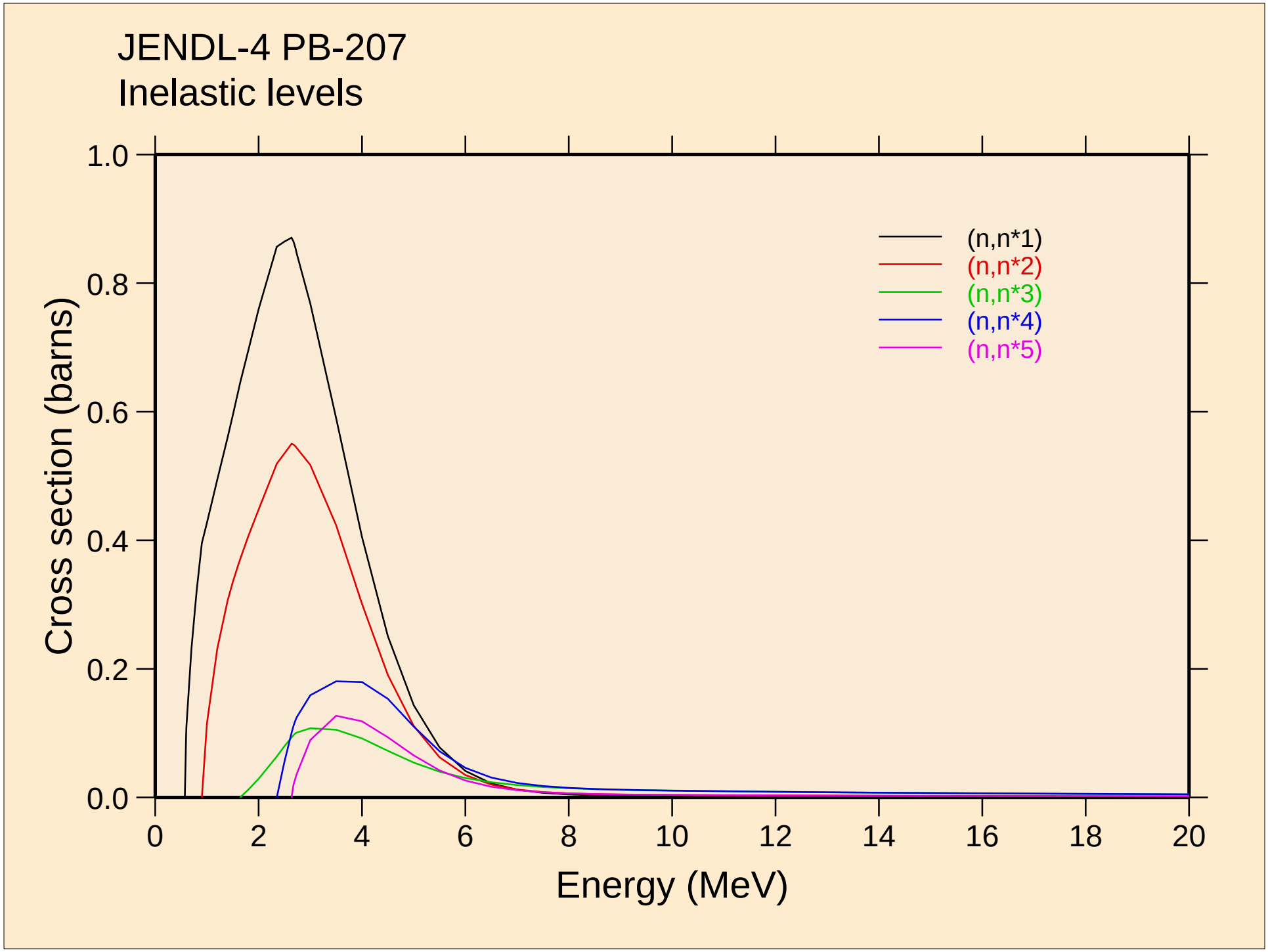

JENDL-4 PB-207
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

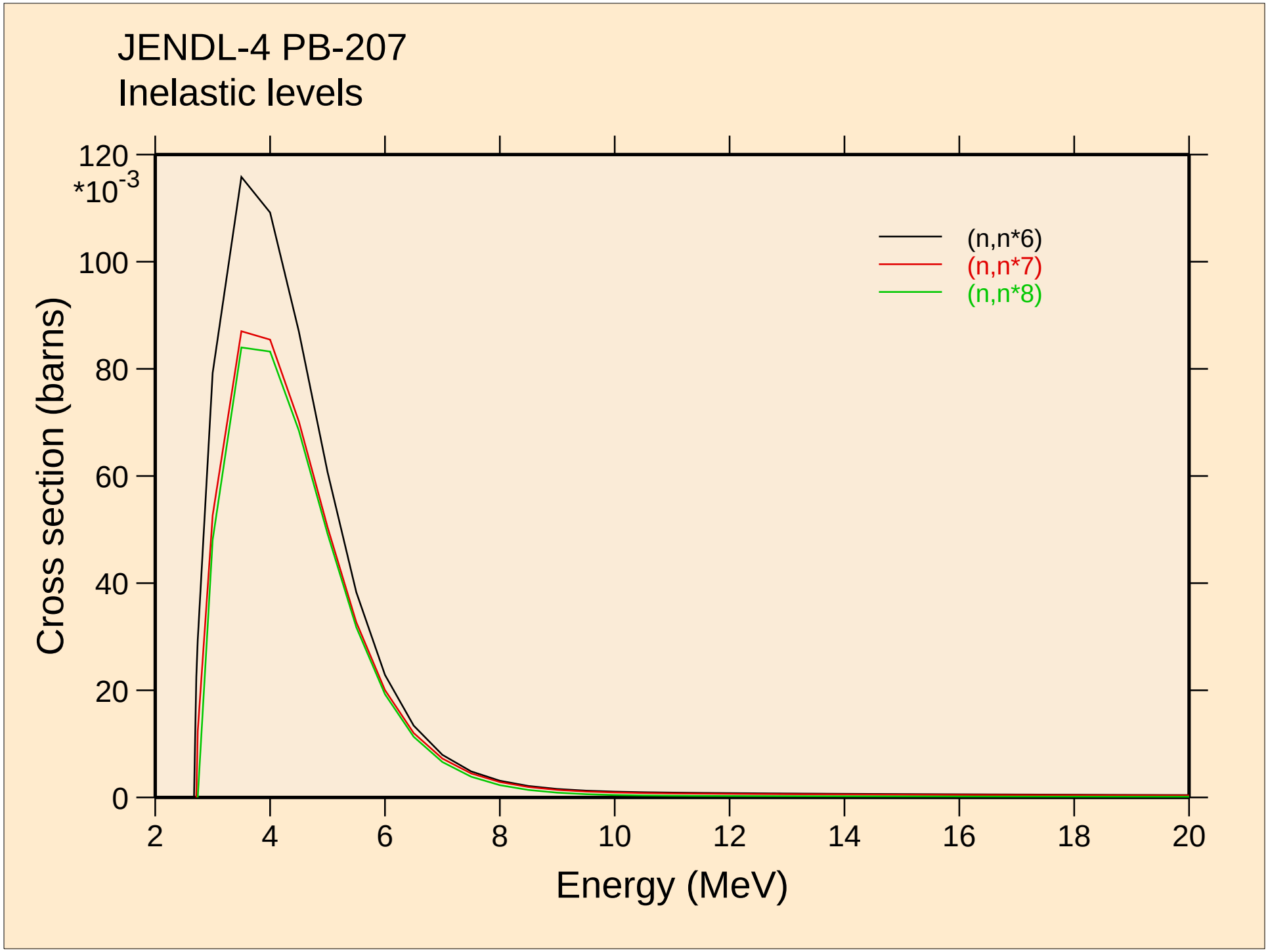

JENDL-4 PB-207
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0
2
4
6
8
10
12
2
4
6
8
10
12
14
16
18
20

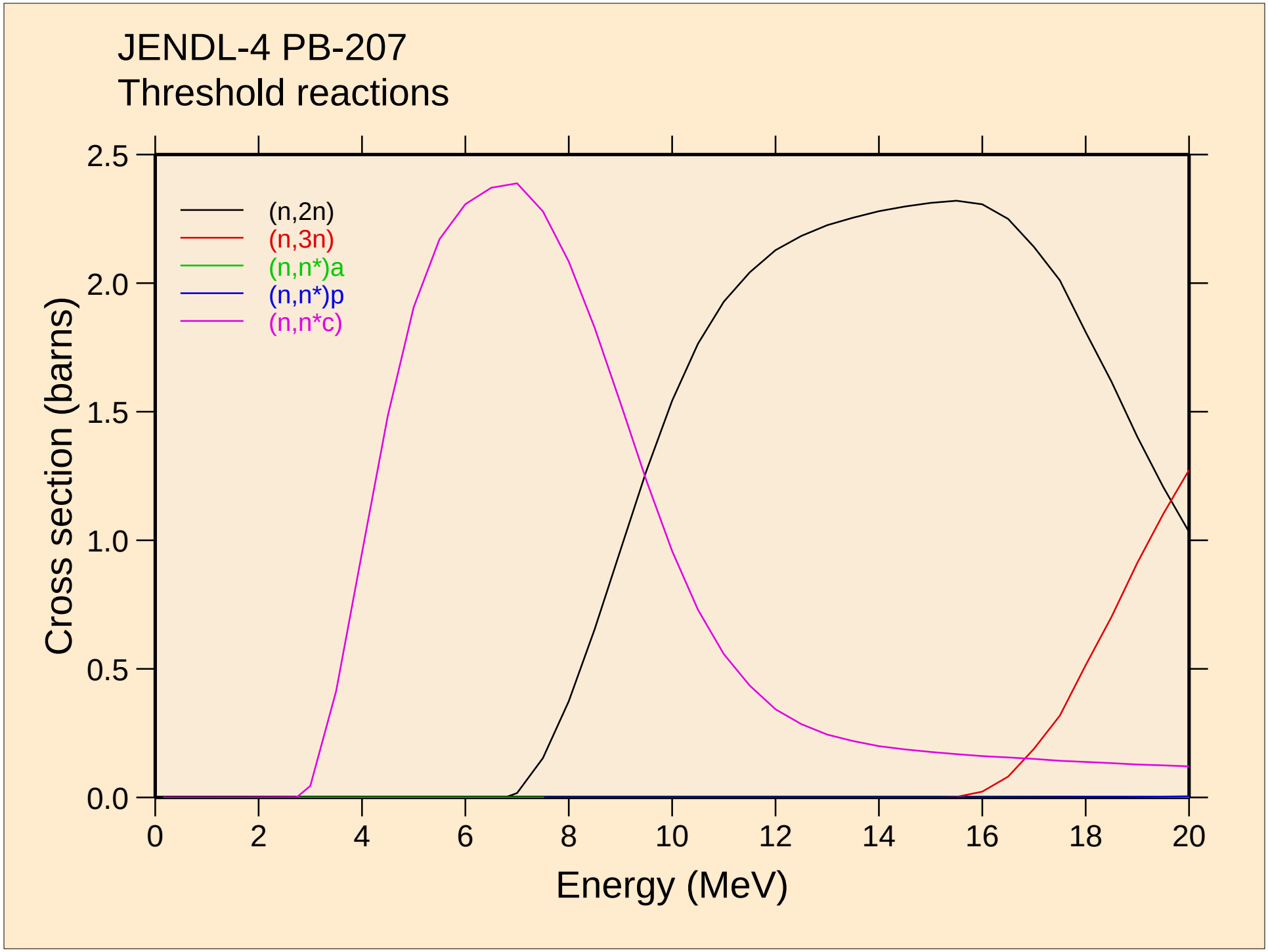

JENDL-4 PB-207
Heating
heating
Heating (MeV/reaction)
*10^-3
160
140
120
100
80
60
40
20
0
0
5
10
15
20
Energy (MeV)

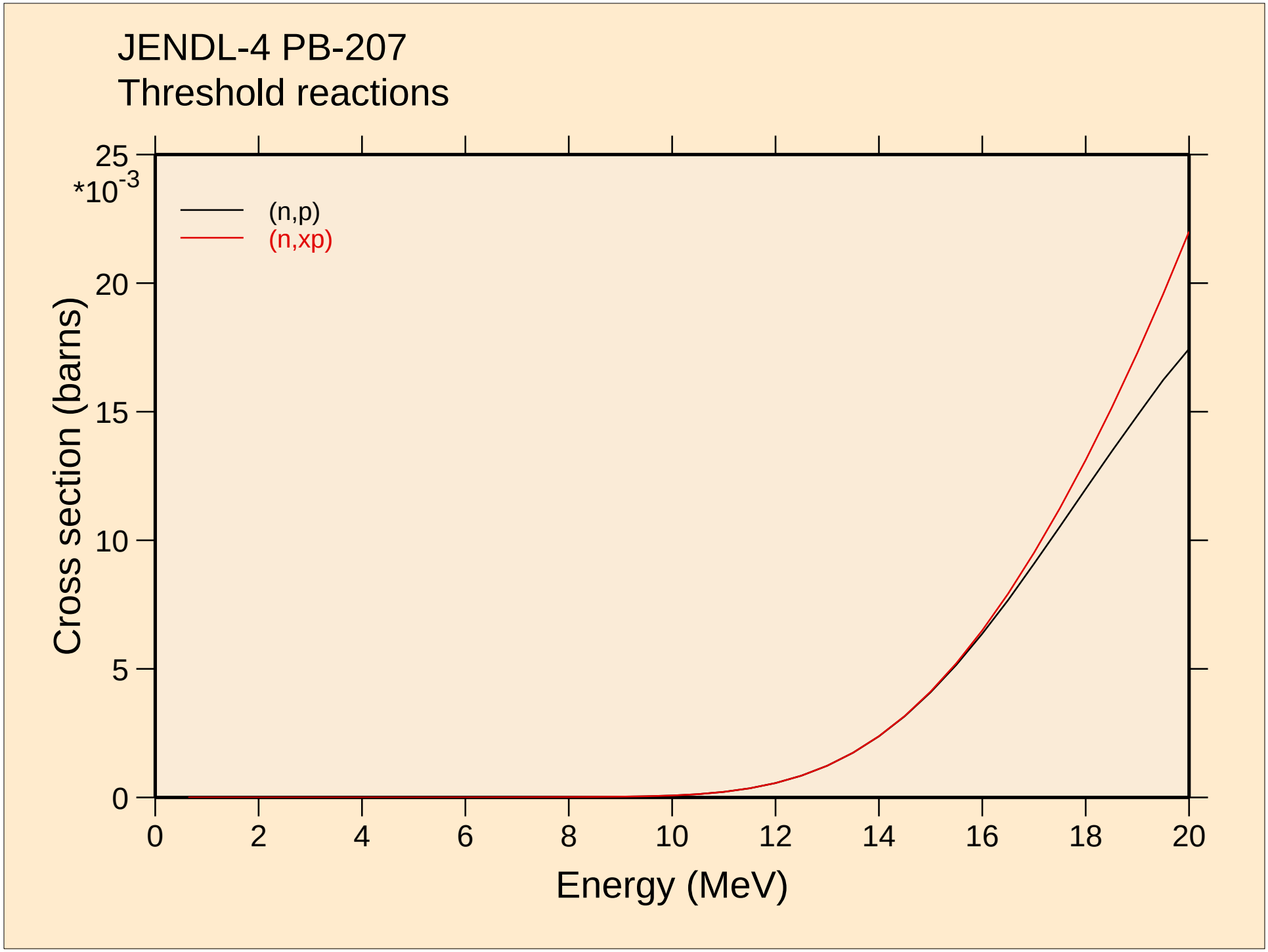

JENDL-4 PB-207
Damage
damage
*10-3
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

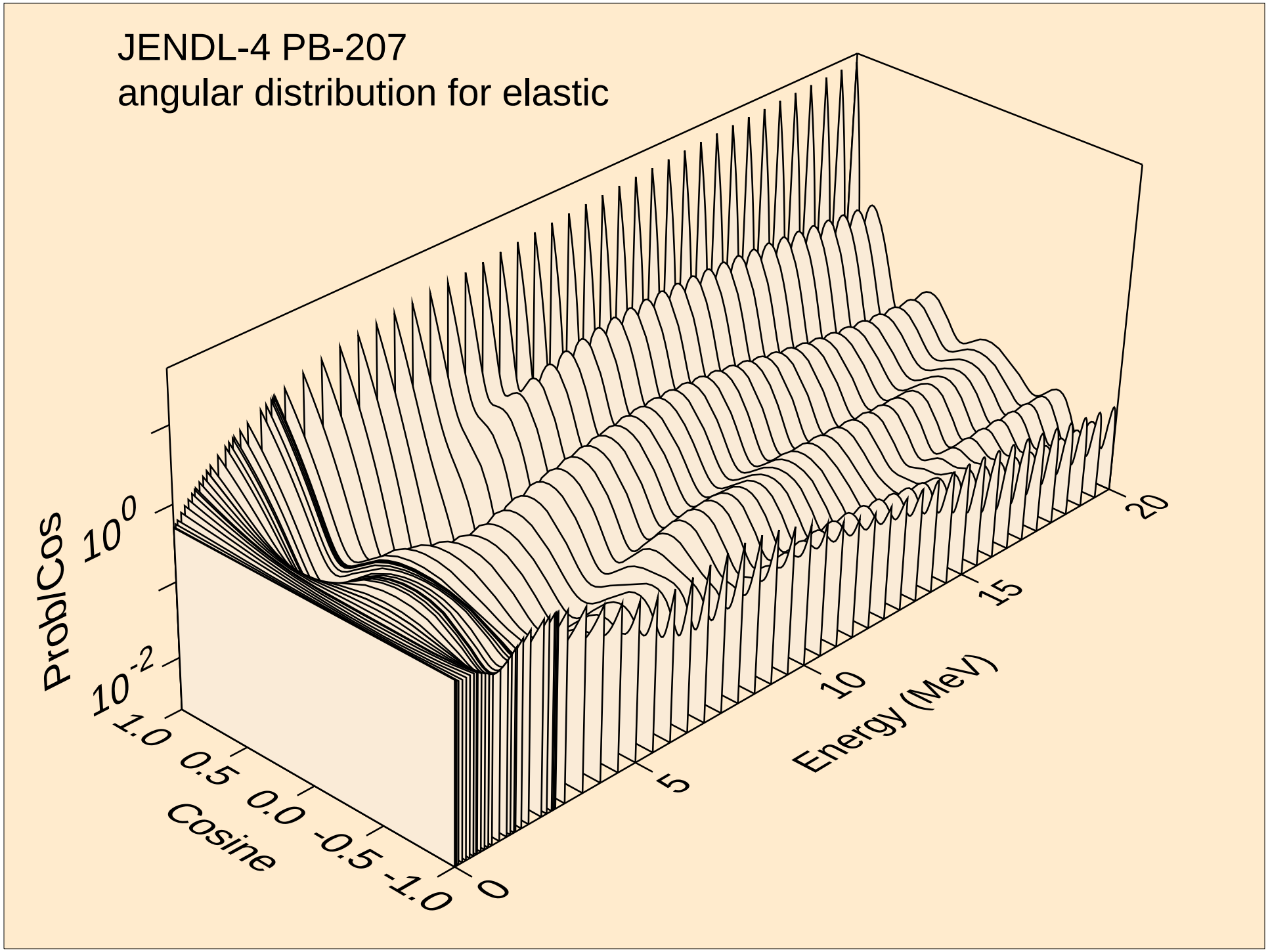

JENDL-4 PB-207
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
10-3
10-4
10-5
10-6
10-7
10-8
10-9
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

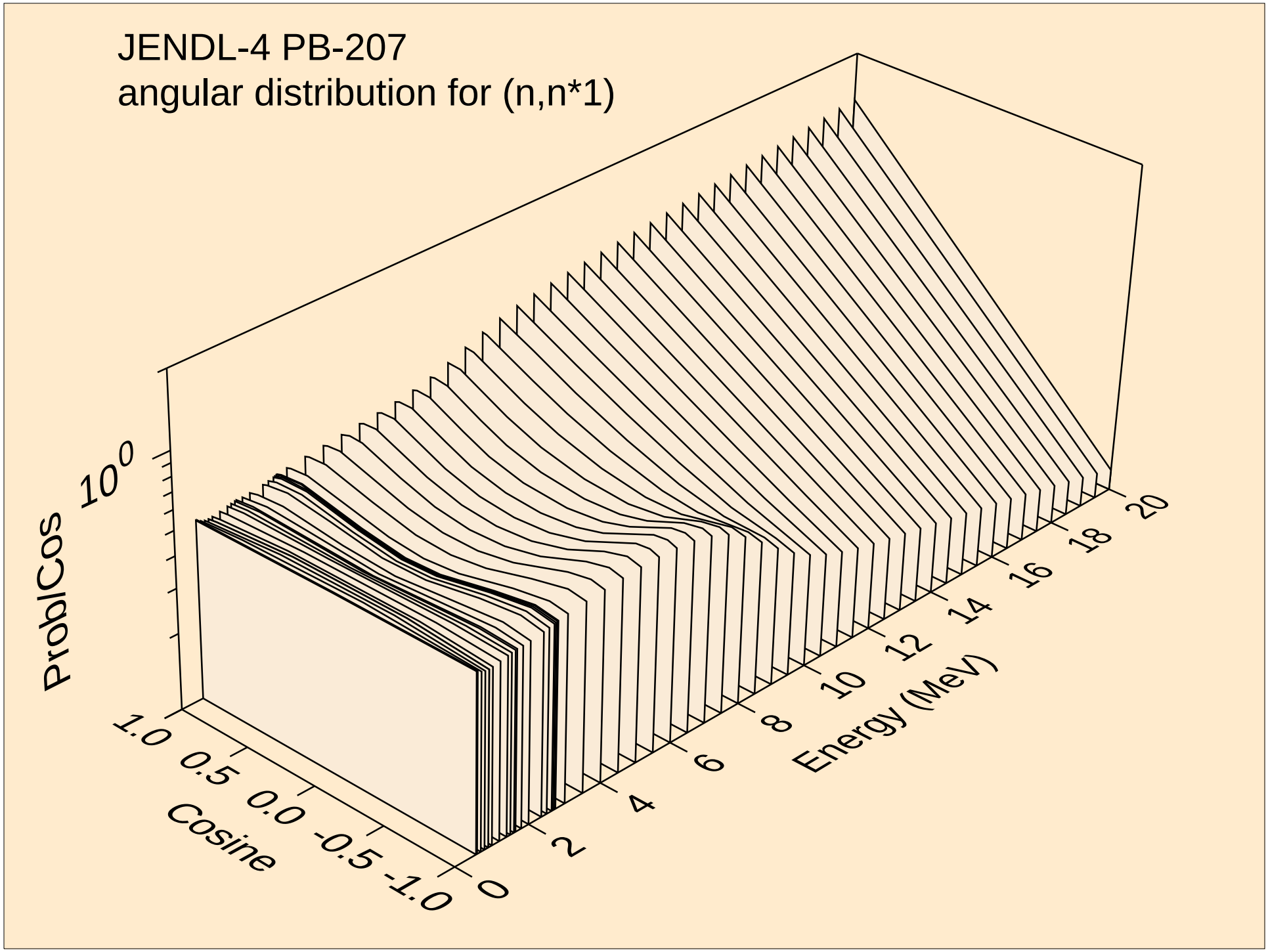

JENDL-4 PB-207
Inelastic levels
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20

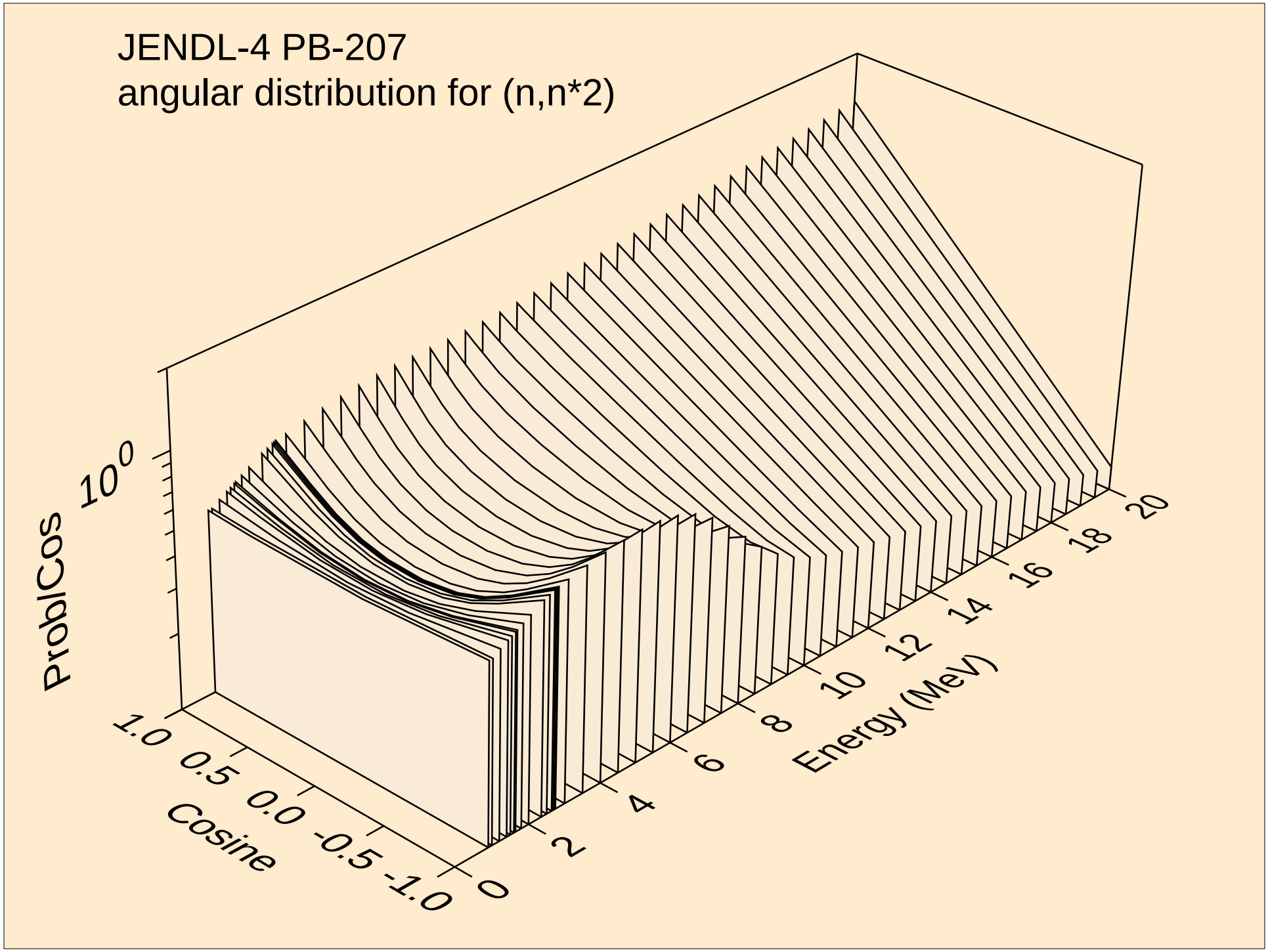

JENDL-4 PB-207
Inelastic levels
120
*10-3
100
80
60
40
20
0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)

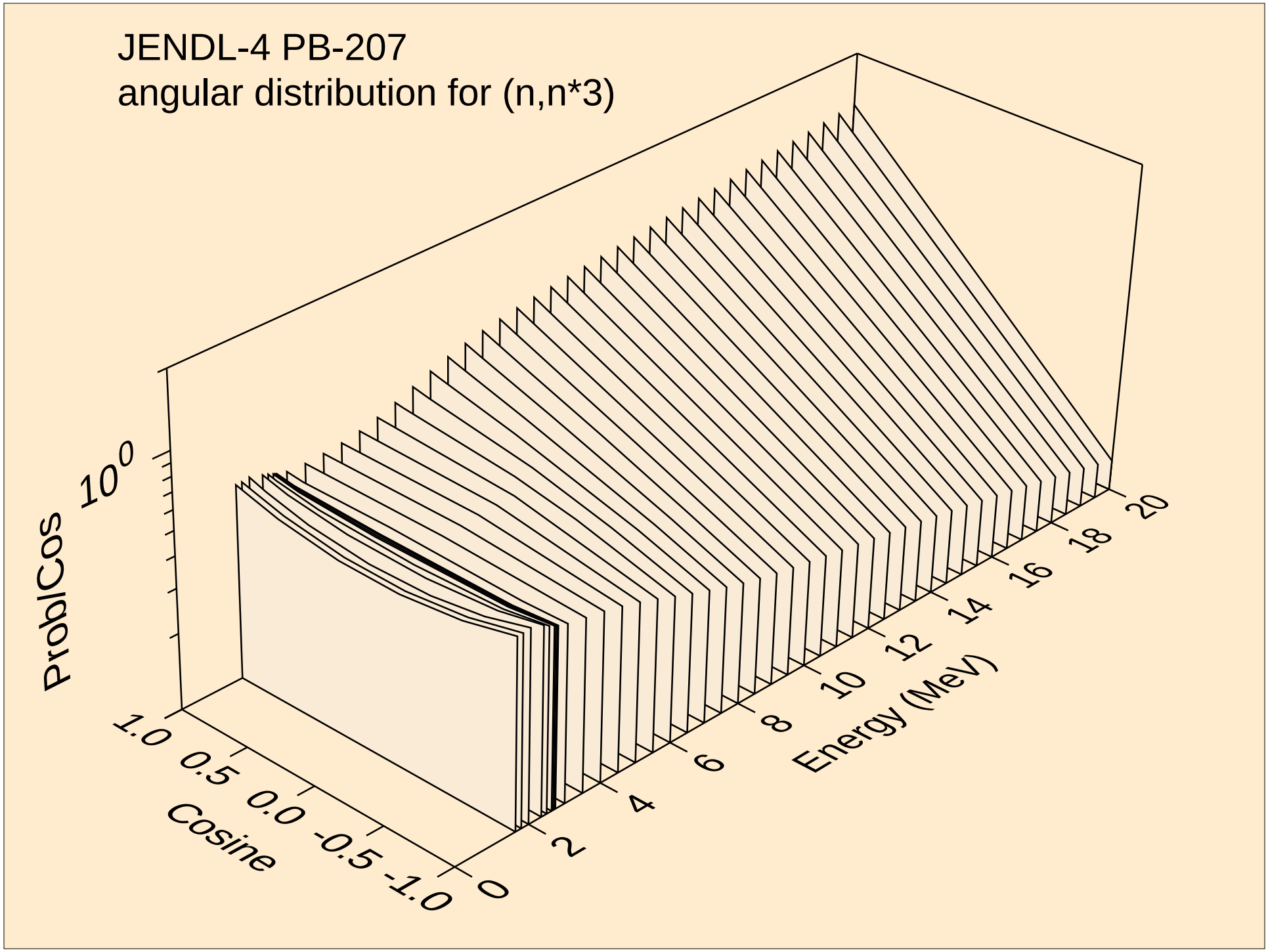

JENDL-4 PB-207
Threshold reactions
(n,2n)
(n,3n)
(n,n*)a
(n,n*)p
(n,n*c)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
2
4
6
8
10
12
14
16
18
20

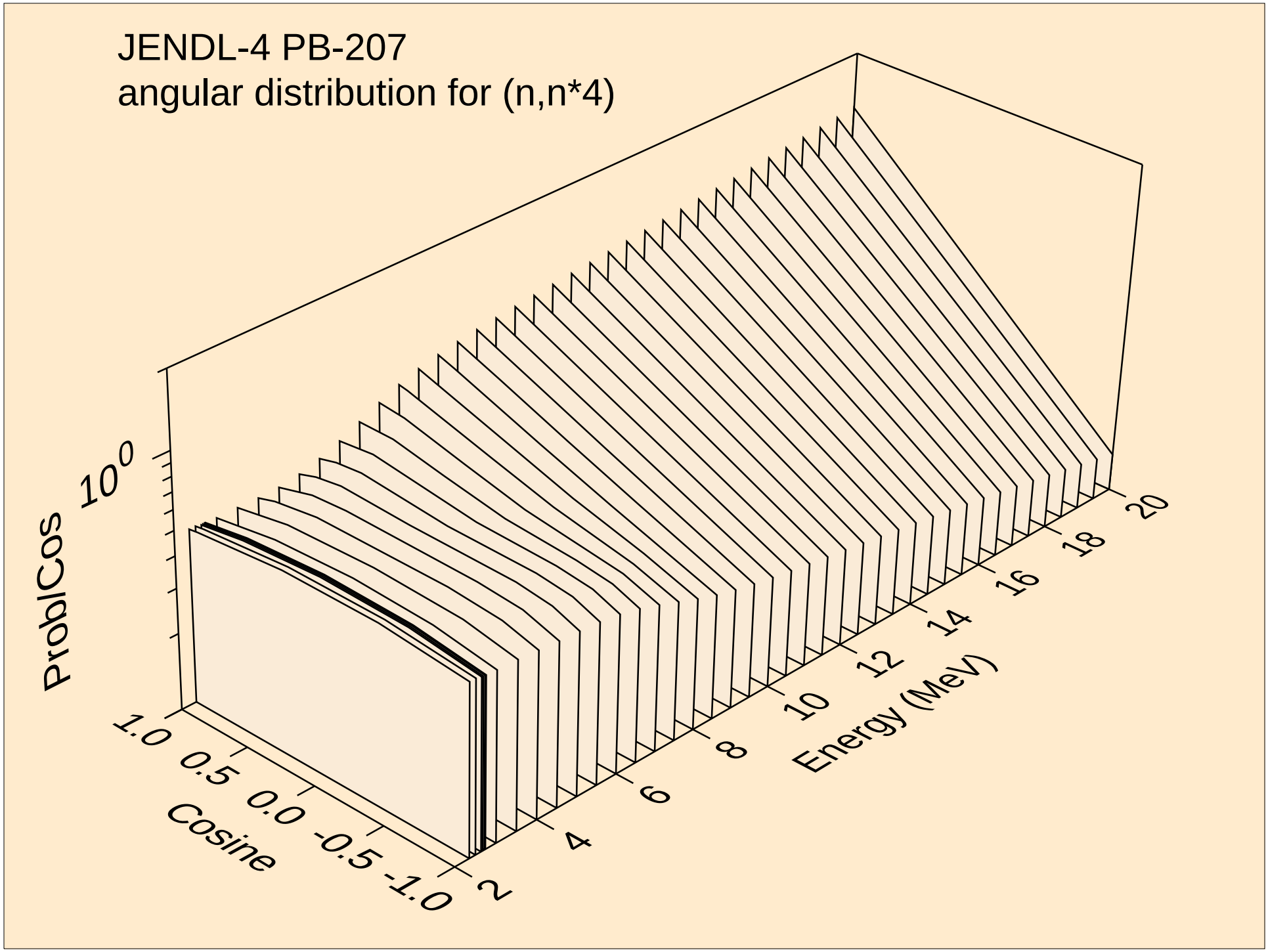

JENDL-4 PB-207
Threshold reactions
*10-3
(n,p)
(n,xp)
Cross section (barns)
Energy (MeV)
0
5
10
15
20
25
0
2
4
6
8
10
12
14
16
18
20

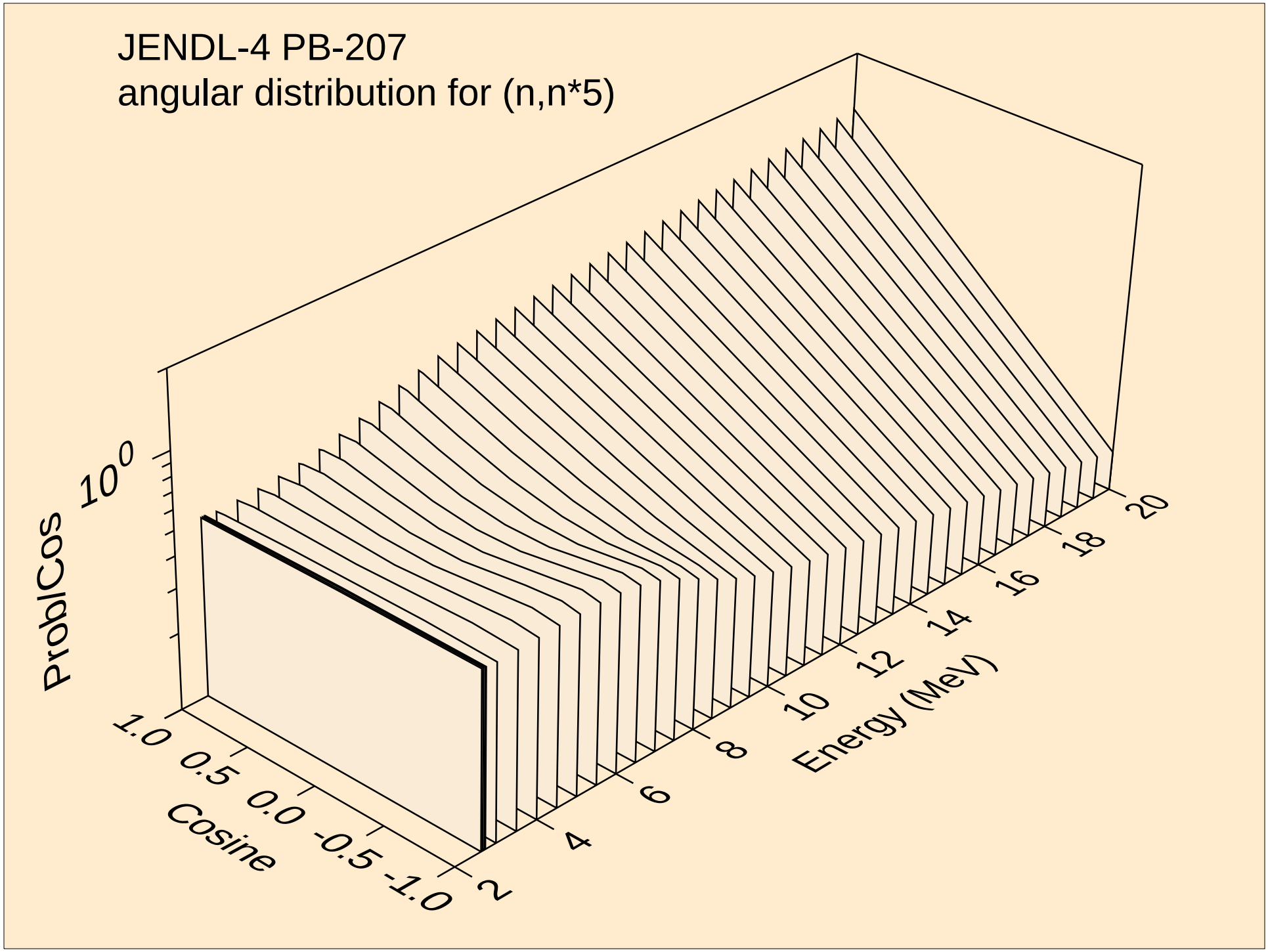

JENDL-4 PB-207
angular distribution for elastic
ProblCos
10^0
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

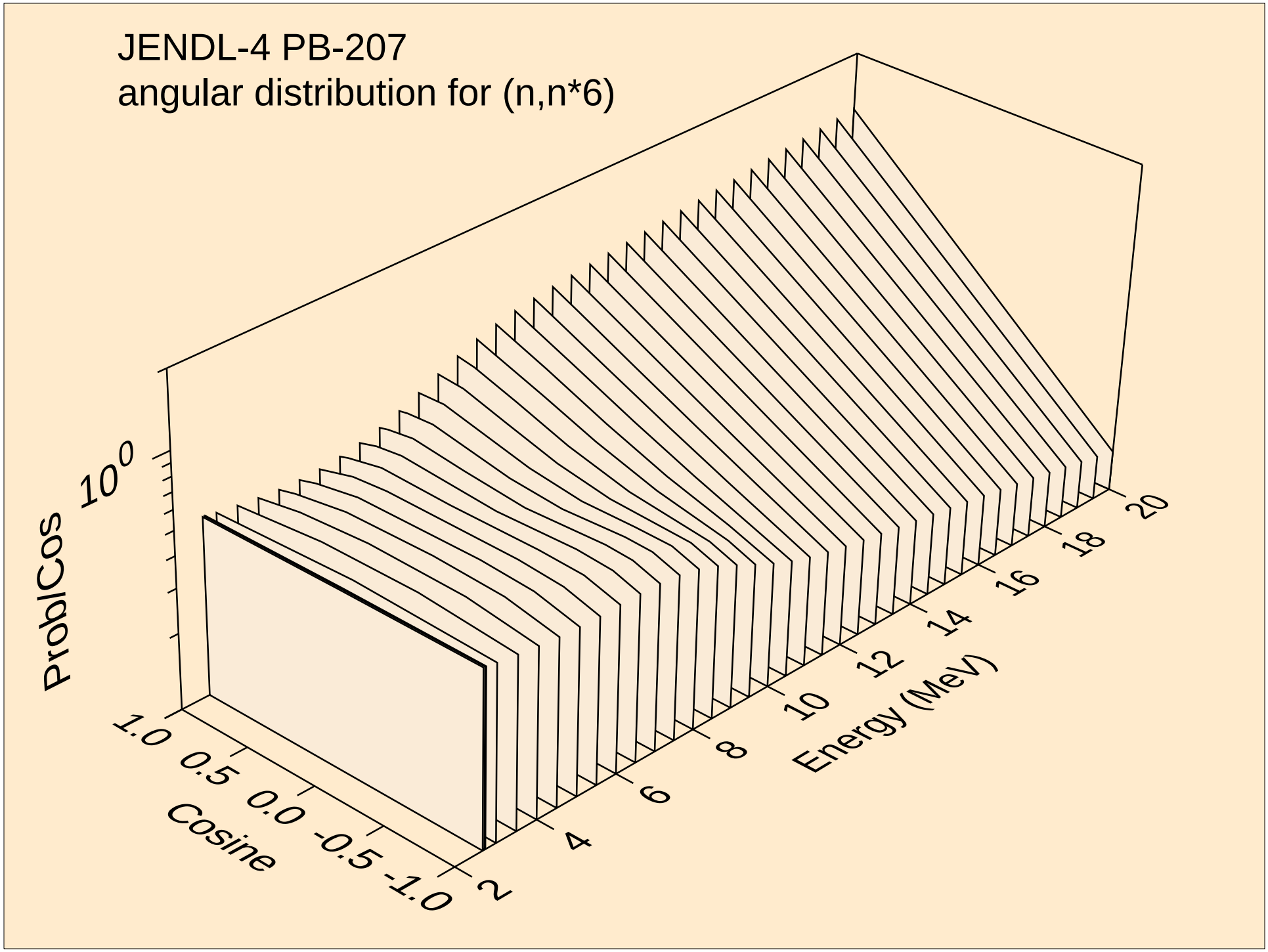

JENDL-4 PB-207
angular distribution for (n,n*1)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

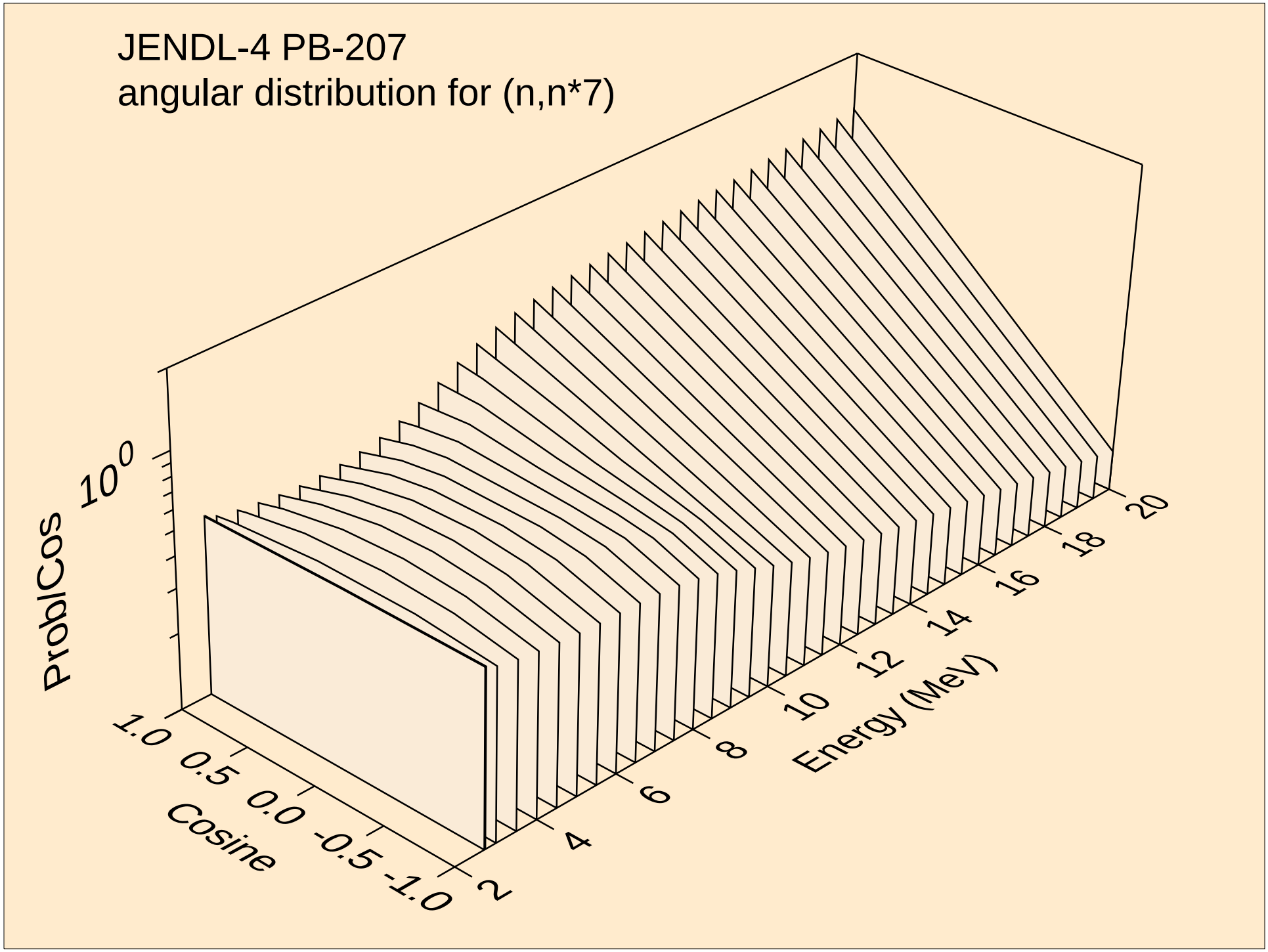

JENDL-4 PB-207
angular distribution for (n,n*2)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

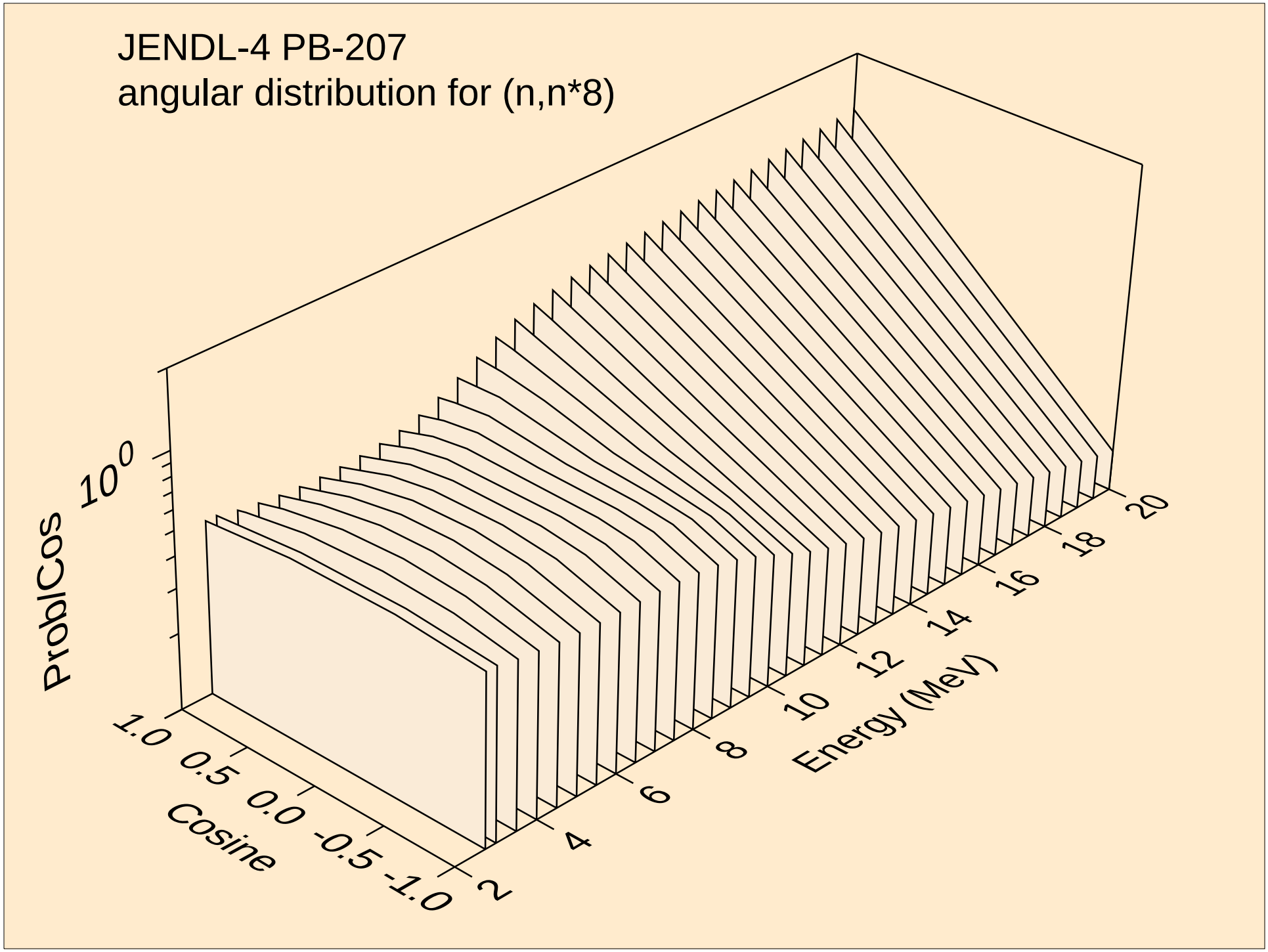

JENDL-4 PB-207
angular distribution for (n,n*3)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

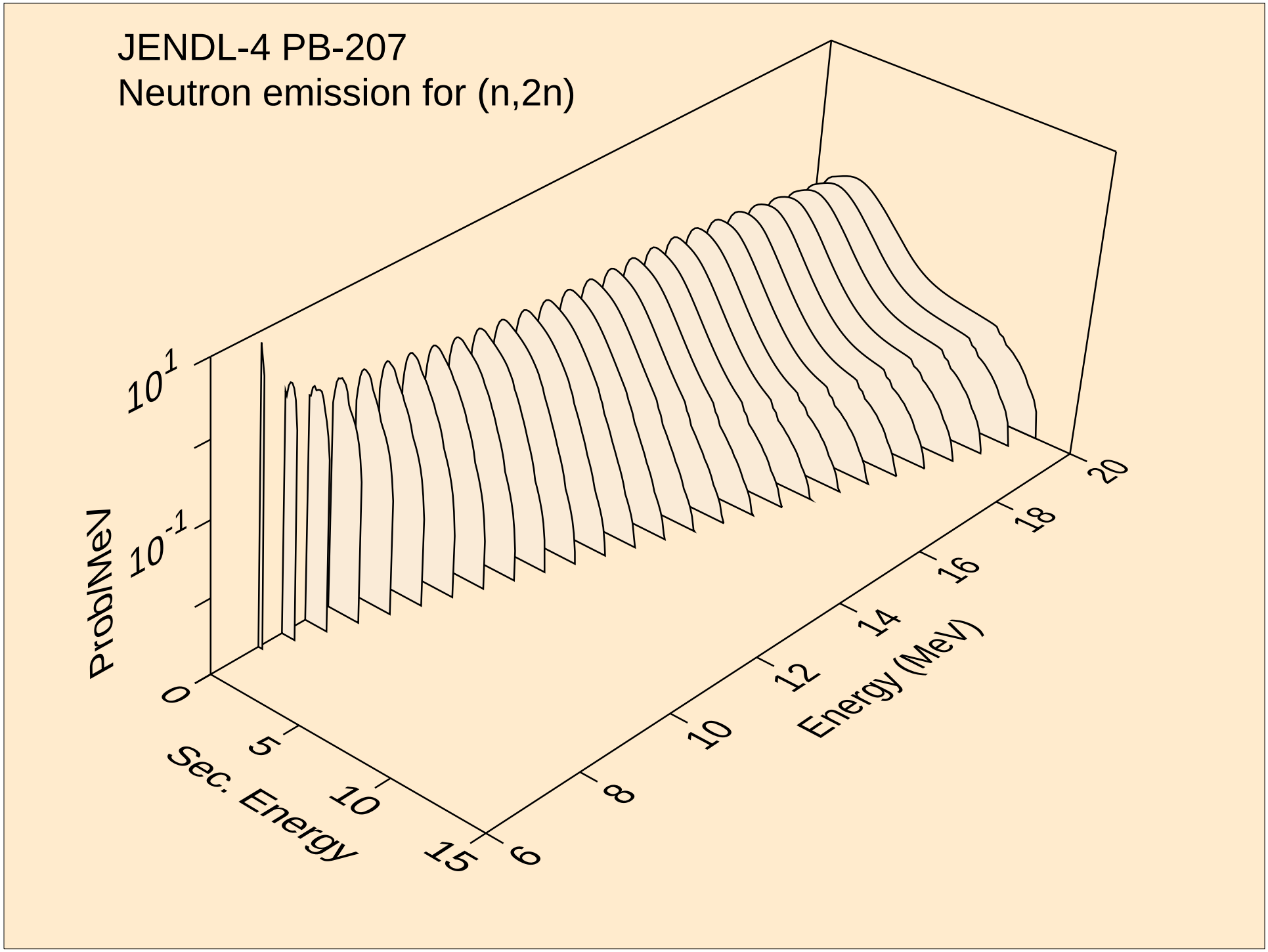

JENDL-4 PB-207
angular distribution for (n,n*4)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

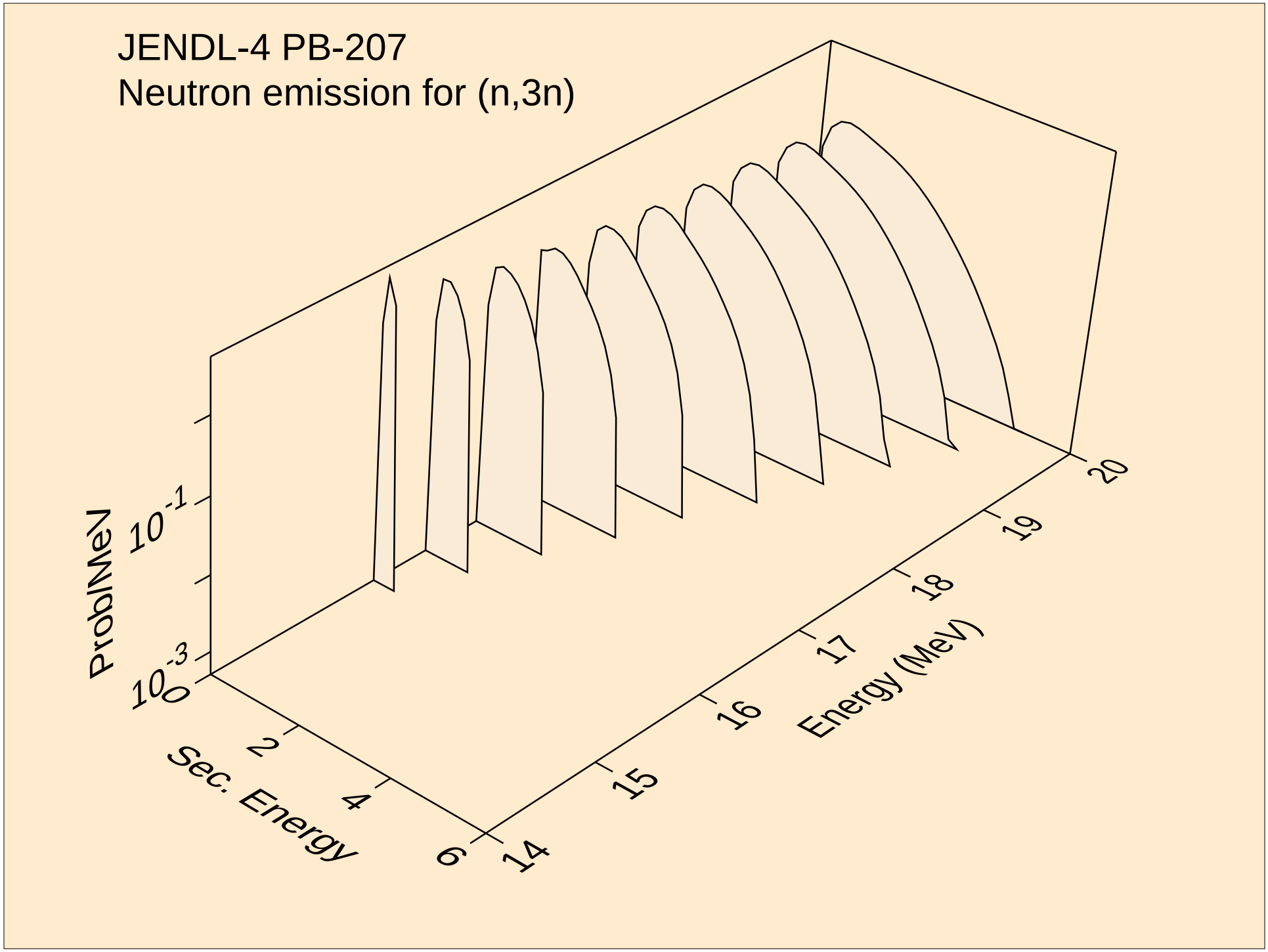

JENDL-4 PB-207
angular distribution for (n,n*5)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 PB-207
angular distribution for (n,n*6)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

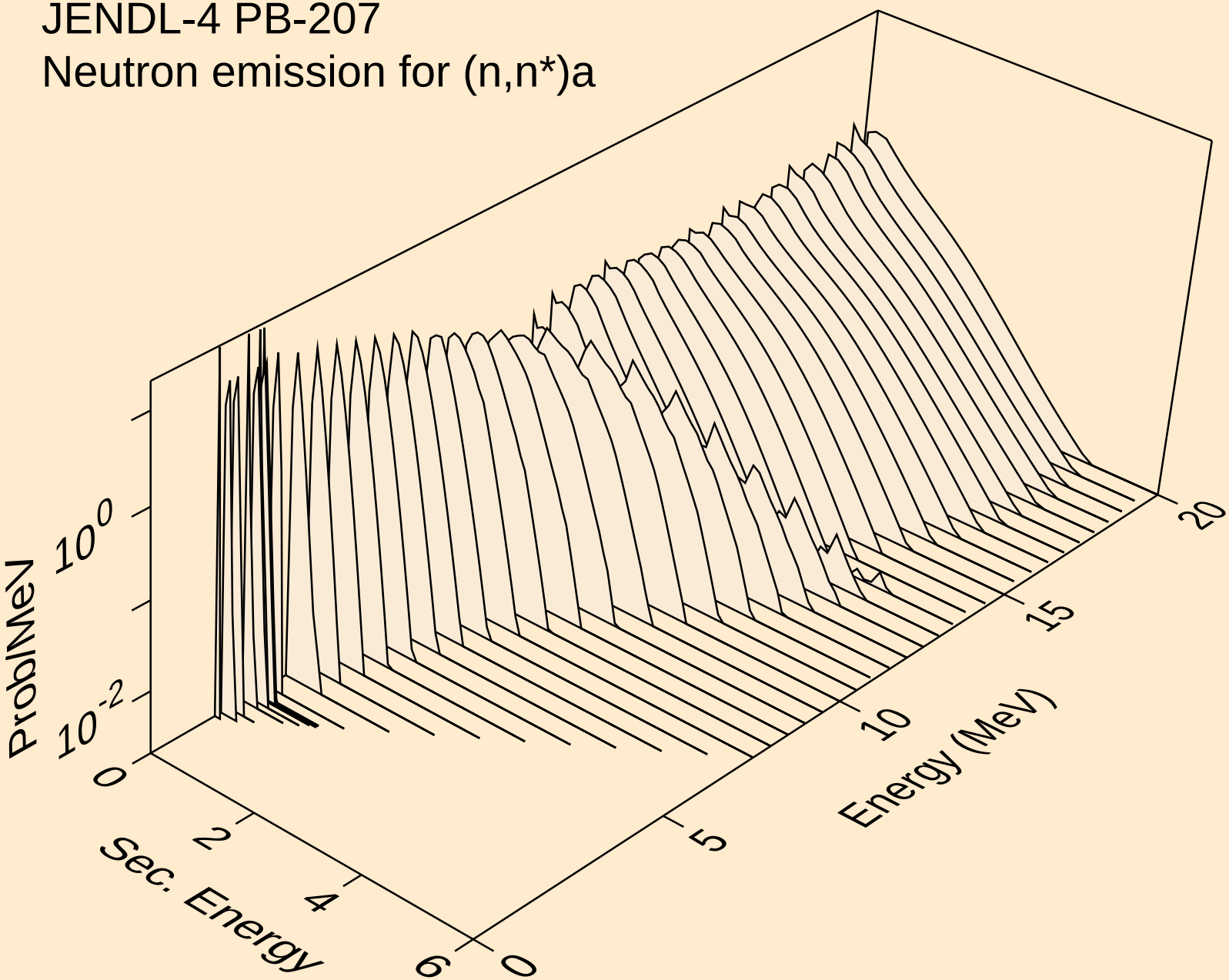

JENDL-4 PB-207
angular distribution for (n,n*7)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20


JENDL-4 PB-207
angular distribution for (n,n*8)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

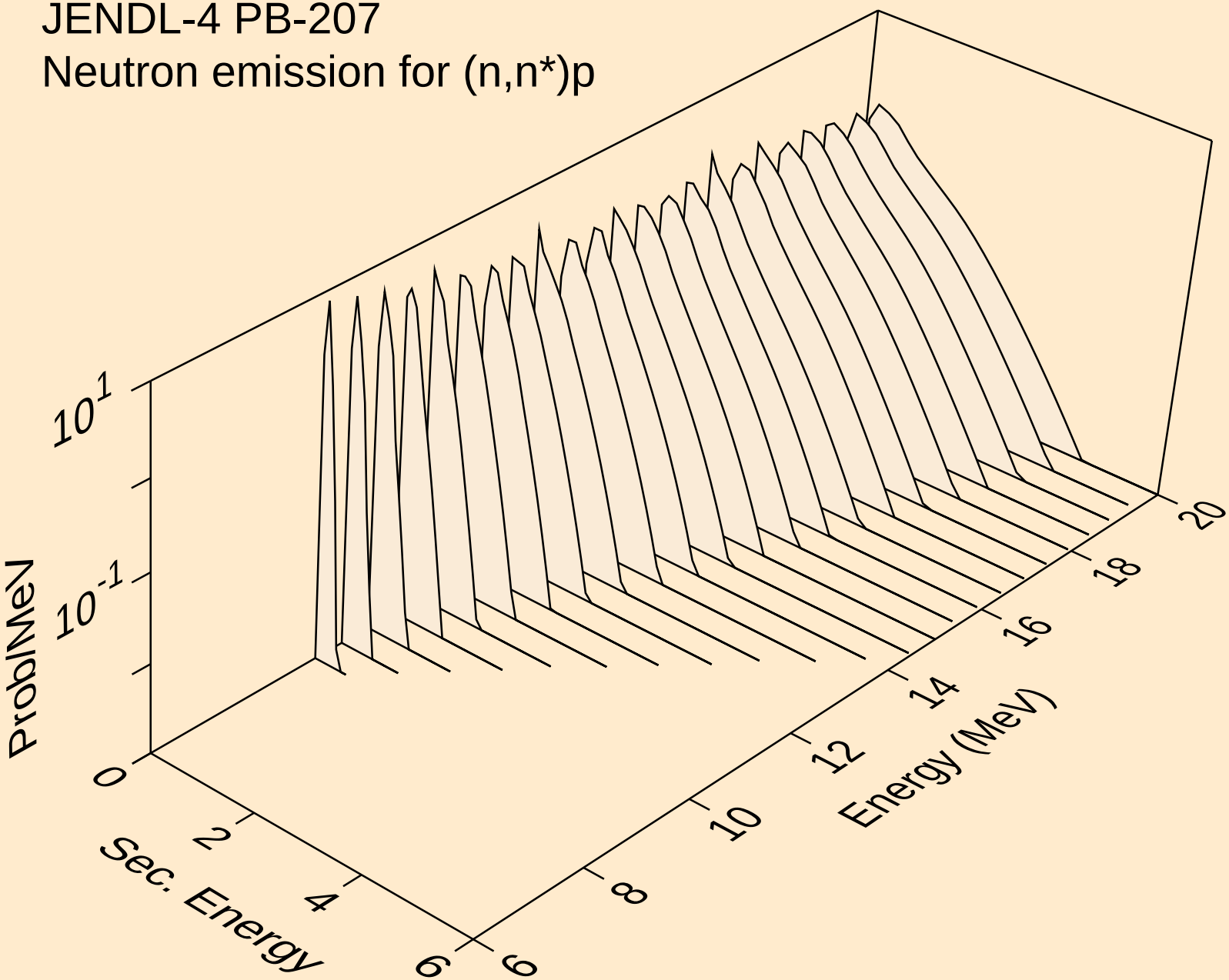

JENDL-4 PB-207
Neutron emission for (n,2n)
Prob/MeV
10^{1}
10^{-1}
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 PB-207
Neutron emission for (n,3n)
Prob/MeV
10^{-1}
10^{-3}
0
2
4
6
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)

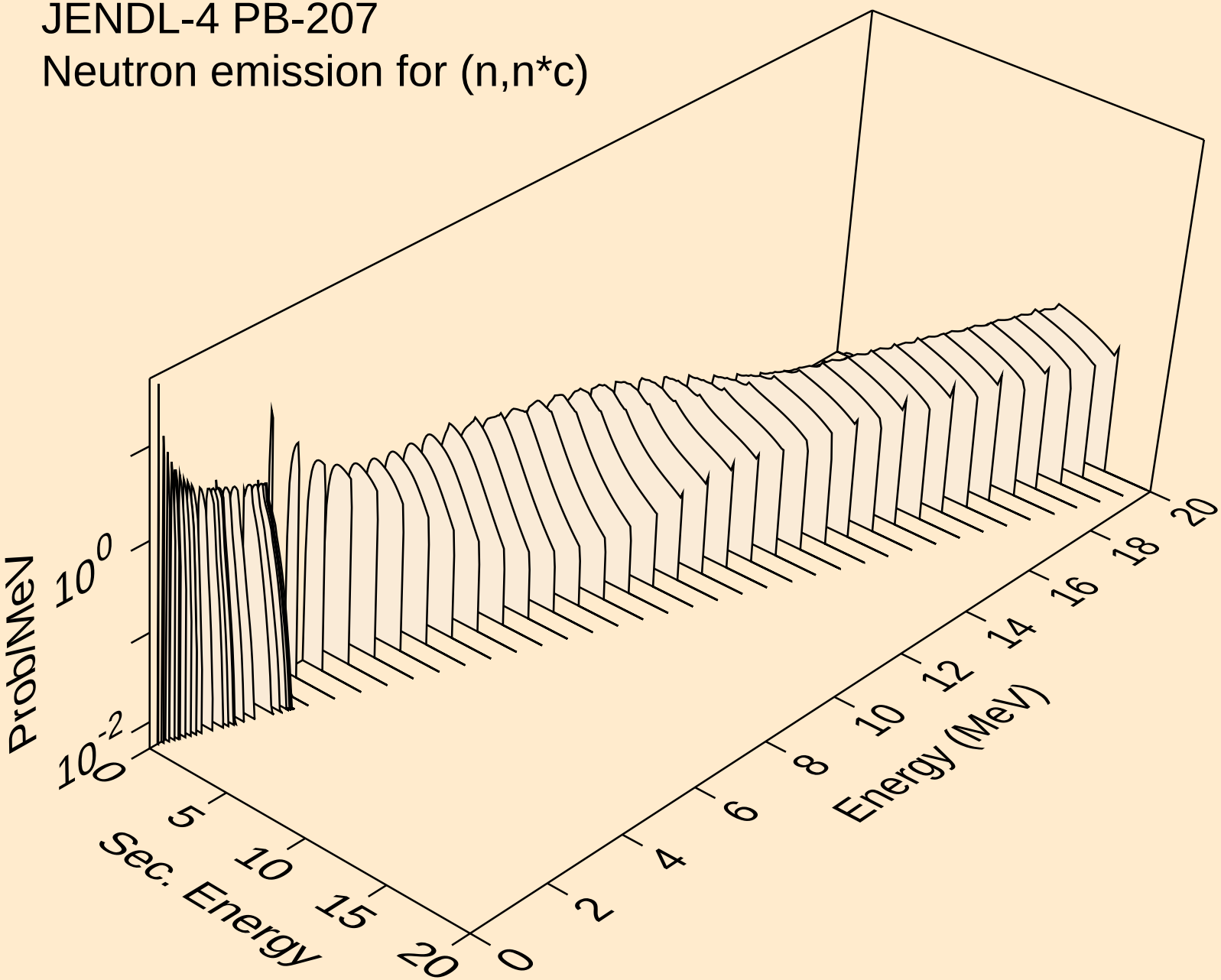
JENDL-4 PB-207
Neutron emission for (n,n*)a



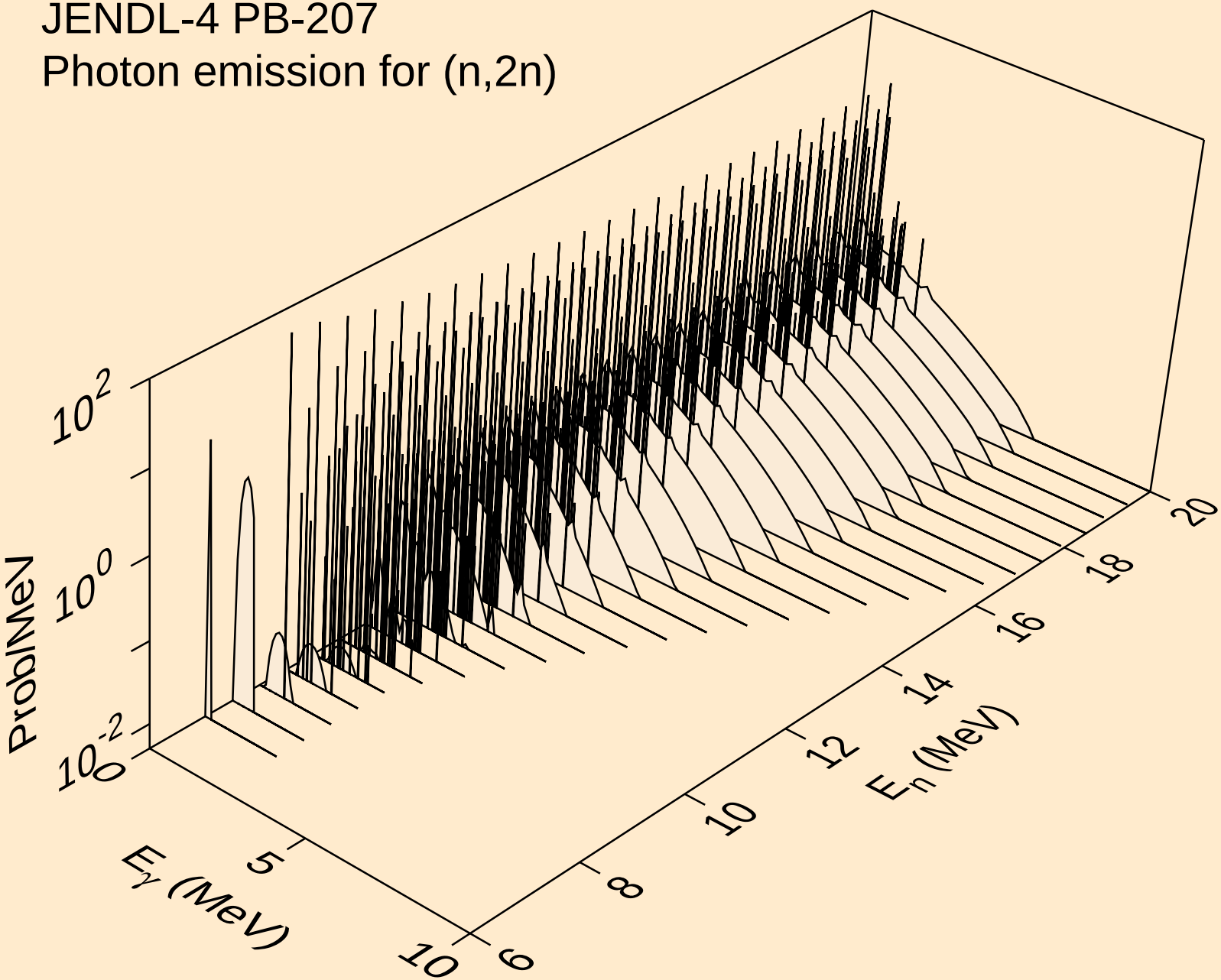
JENDL-4 PB-207
Neutron emission for (n,n*)p



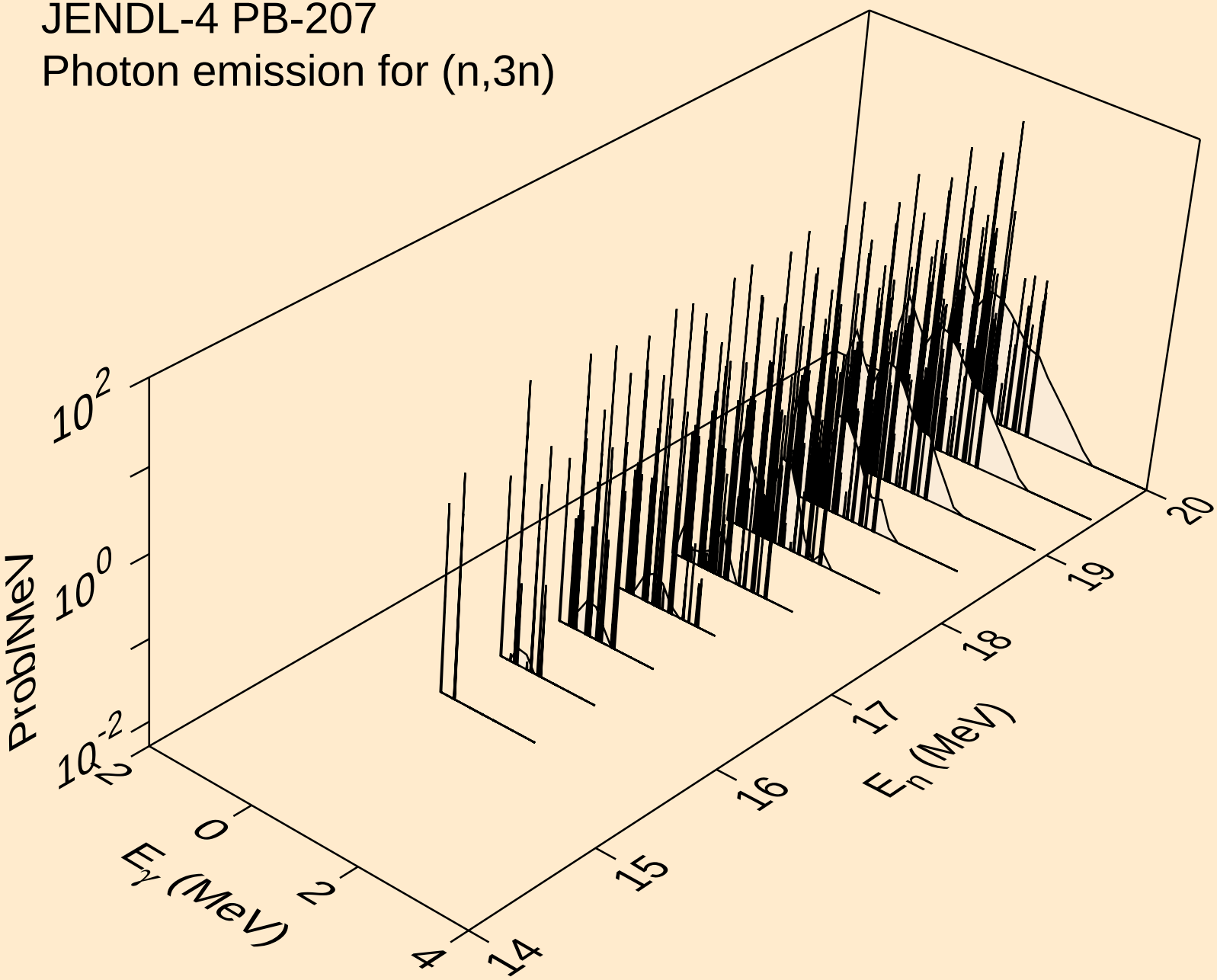
JENDL-4 PB-207
Neutron emission for (n,n*c)



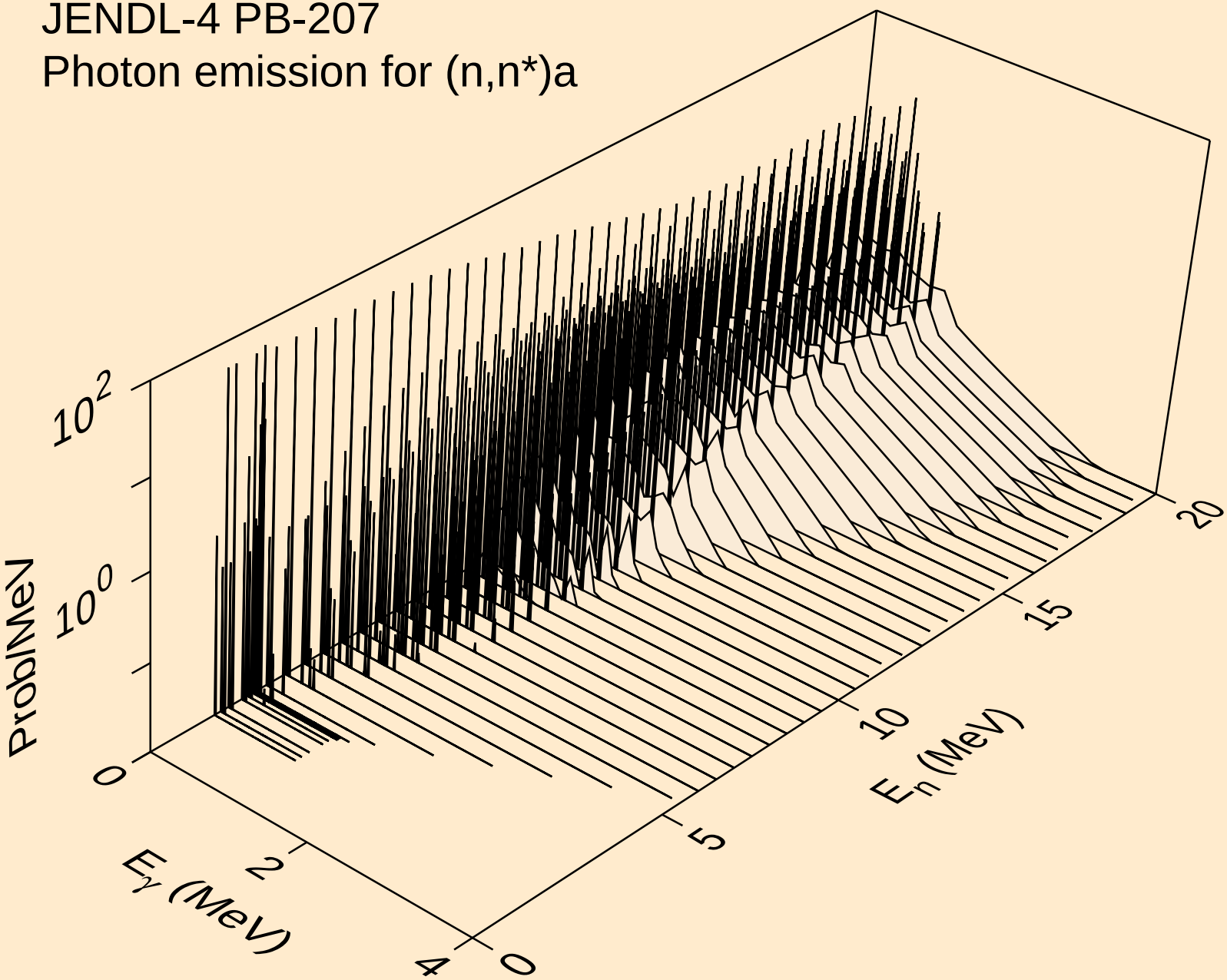
JENDL-4 PB-207
Photon emission for (n,2n)



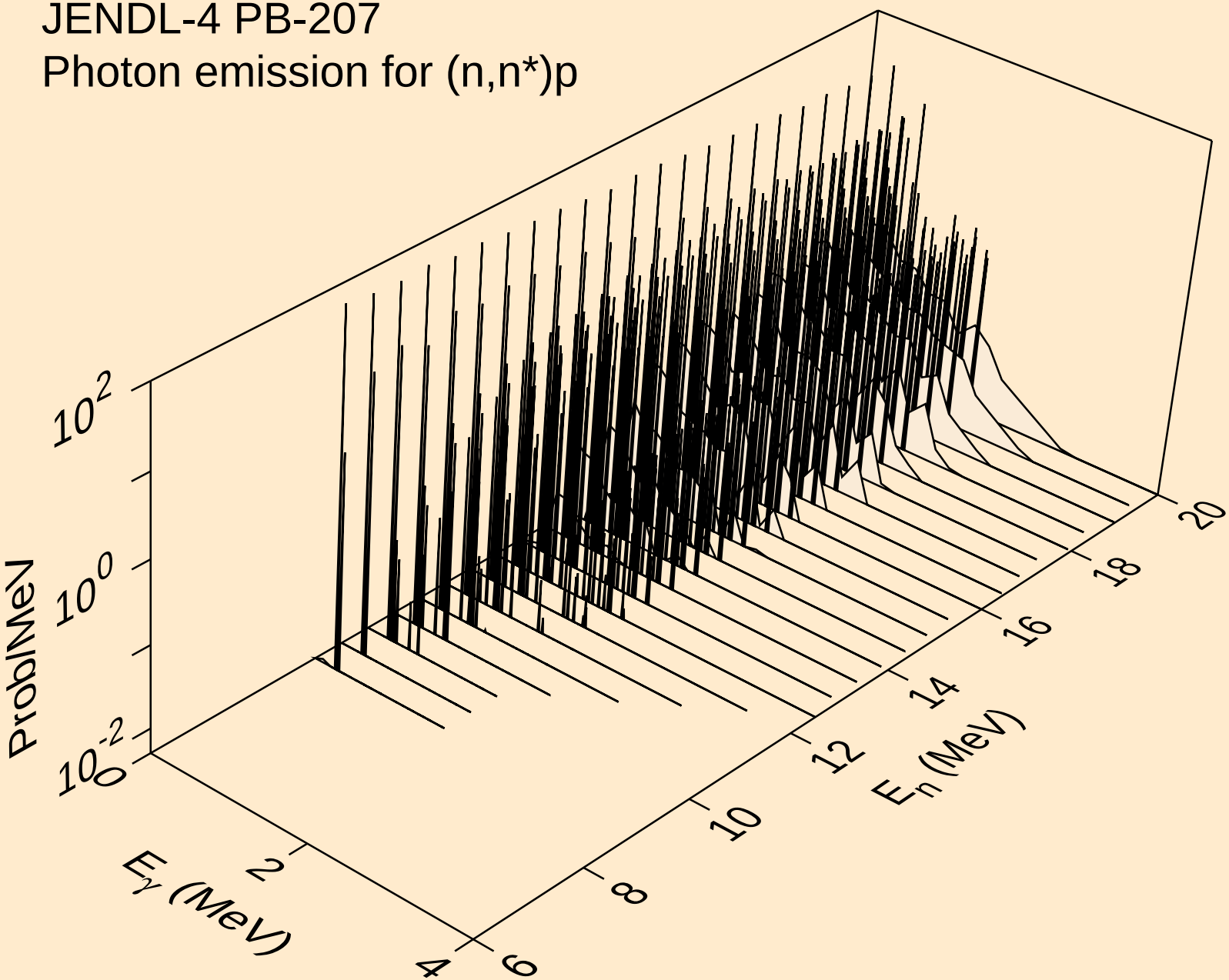
JENDL-4 PB-207
Photon emission for (n,3n)



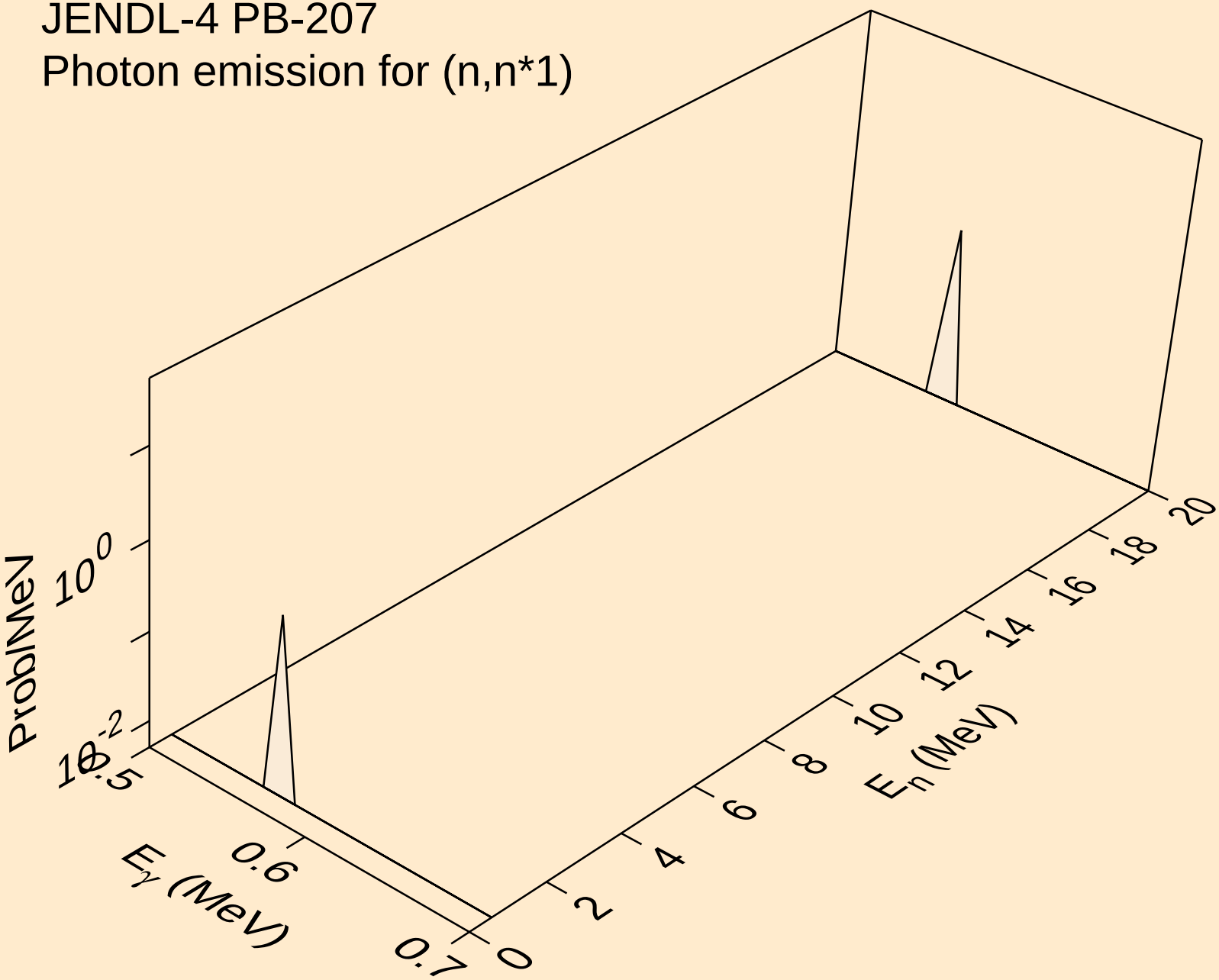
JENDL-4 PB-207
Photon emission for (n,n*)a



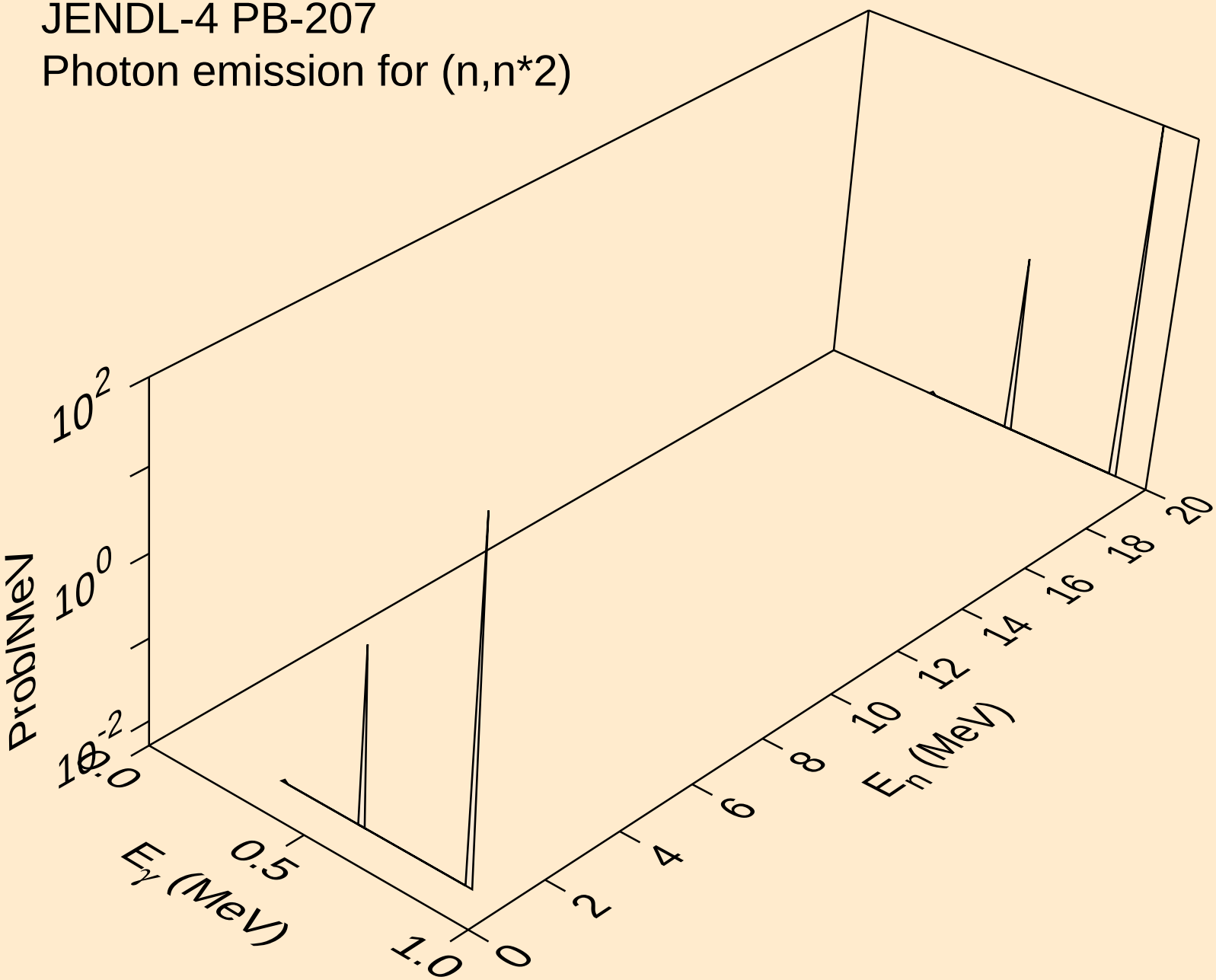
JENDL-4 PB-207
Photon emission for (n,n*)p



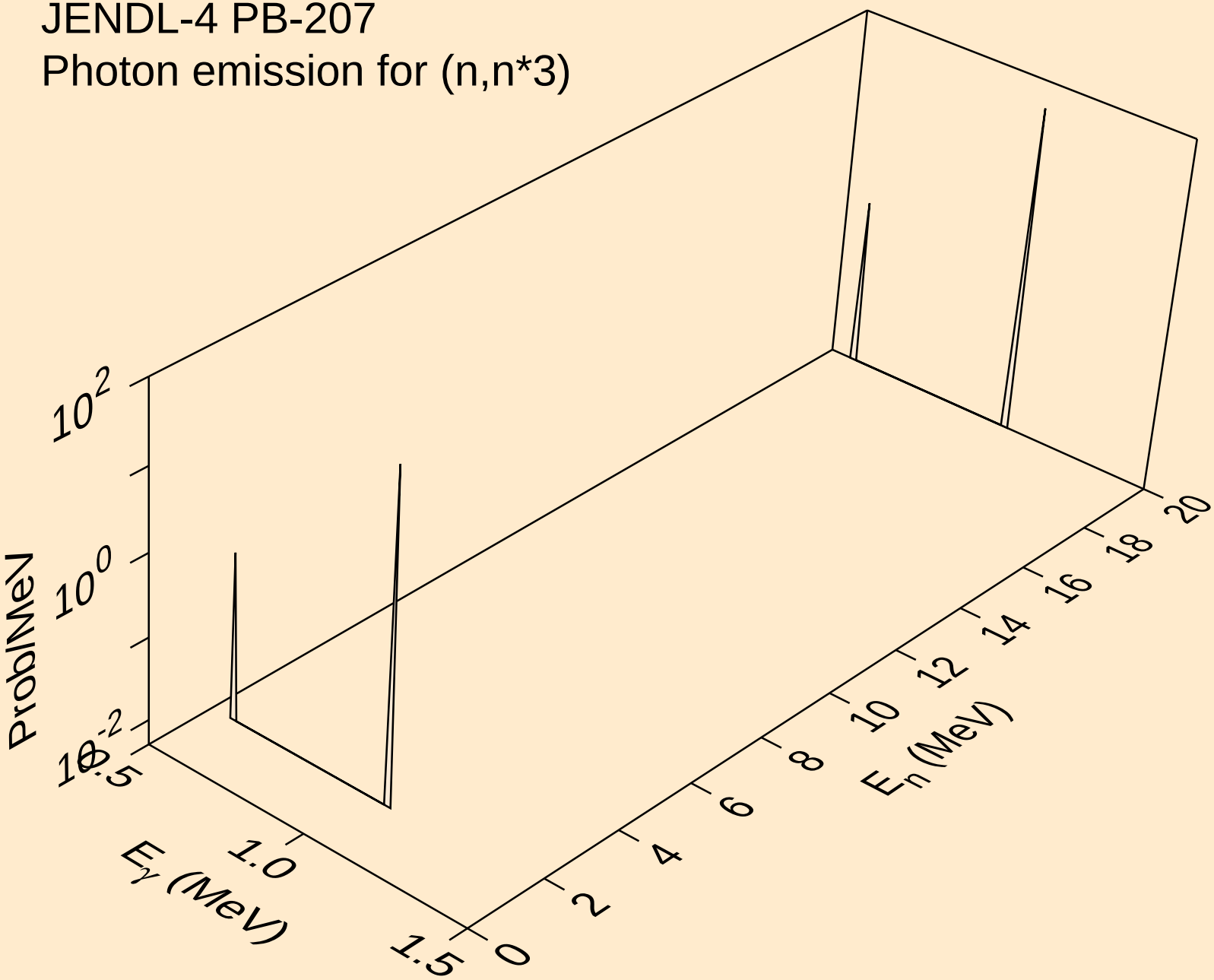
JENDL-4 PB-207
Photon emission for (n,n*1)



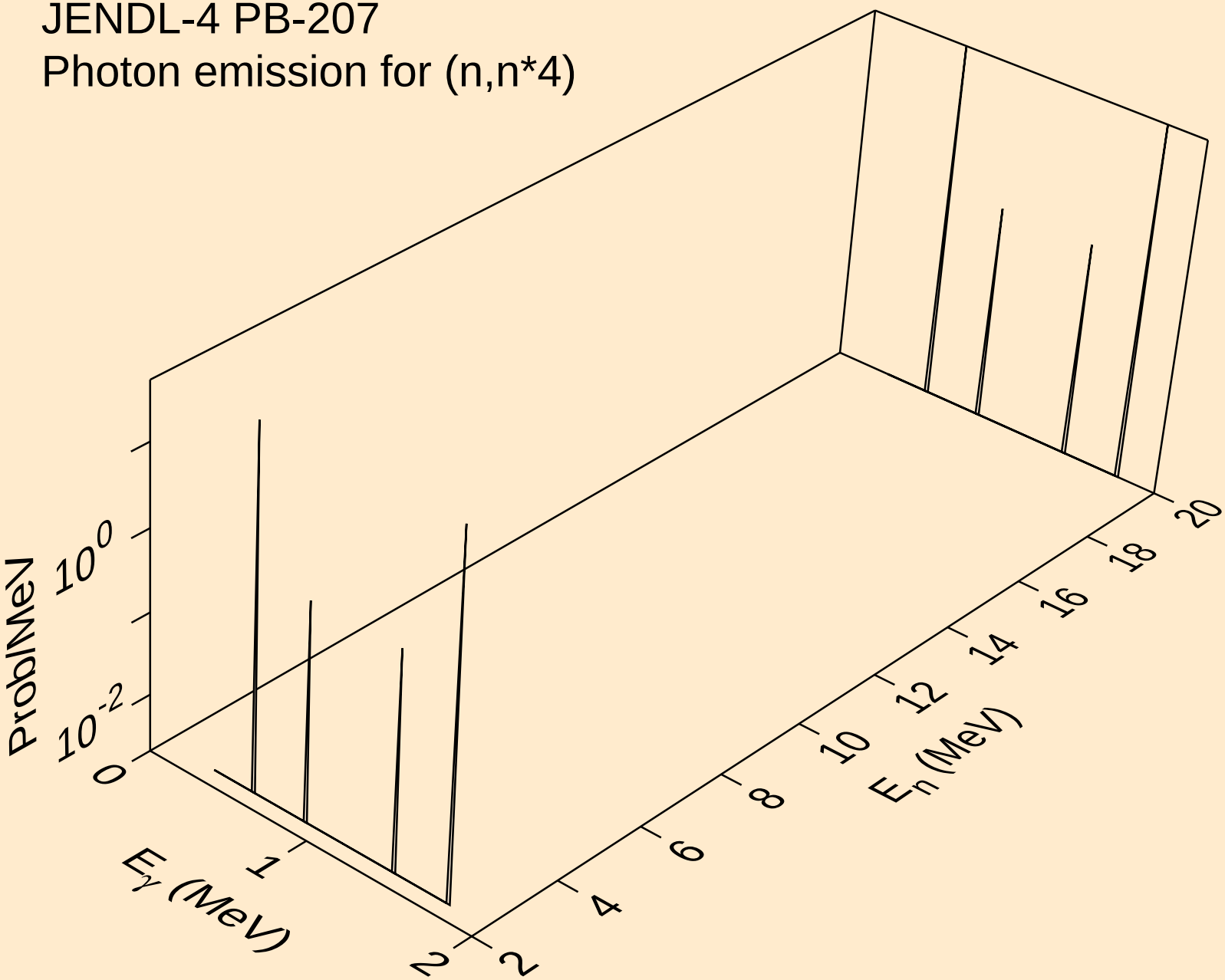
JENDL-4 PB-207
Photon emission for (n,n*2)



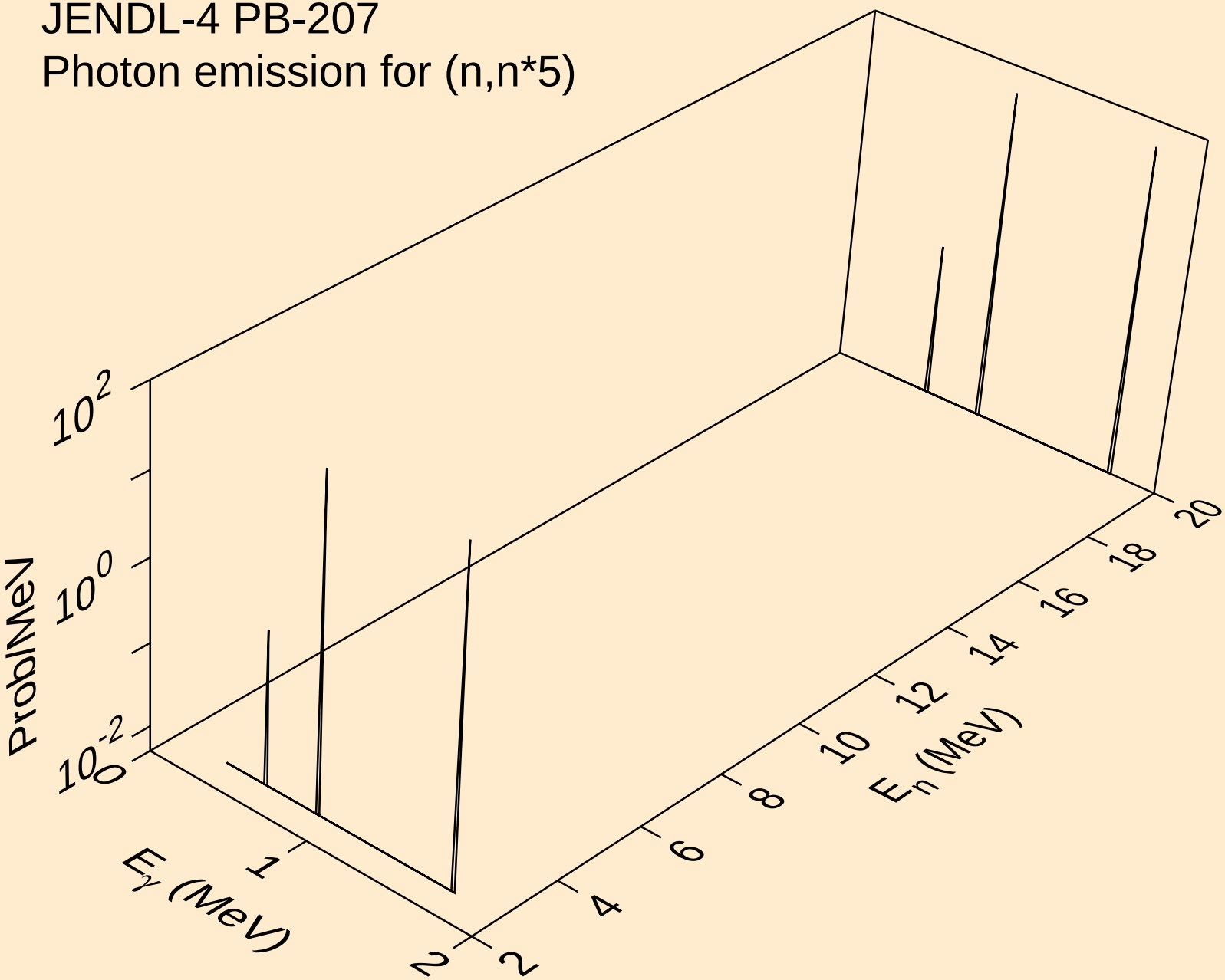
JENDL-4 PB-207
Photon emission for (n,n*3)



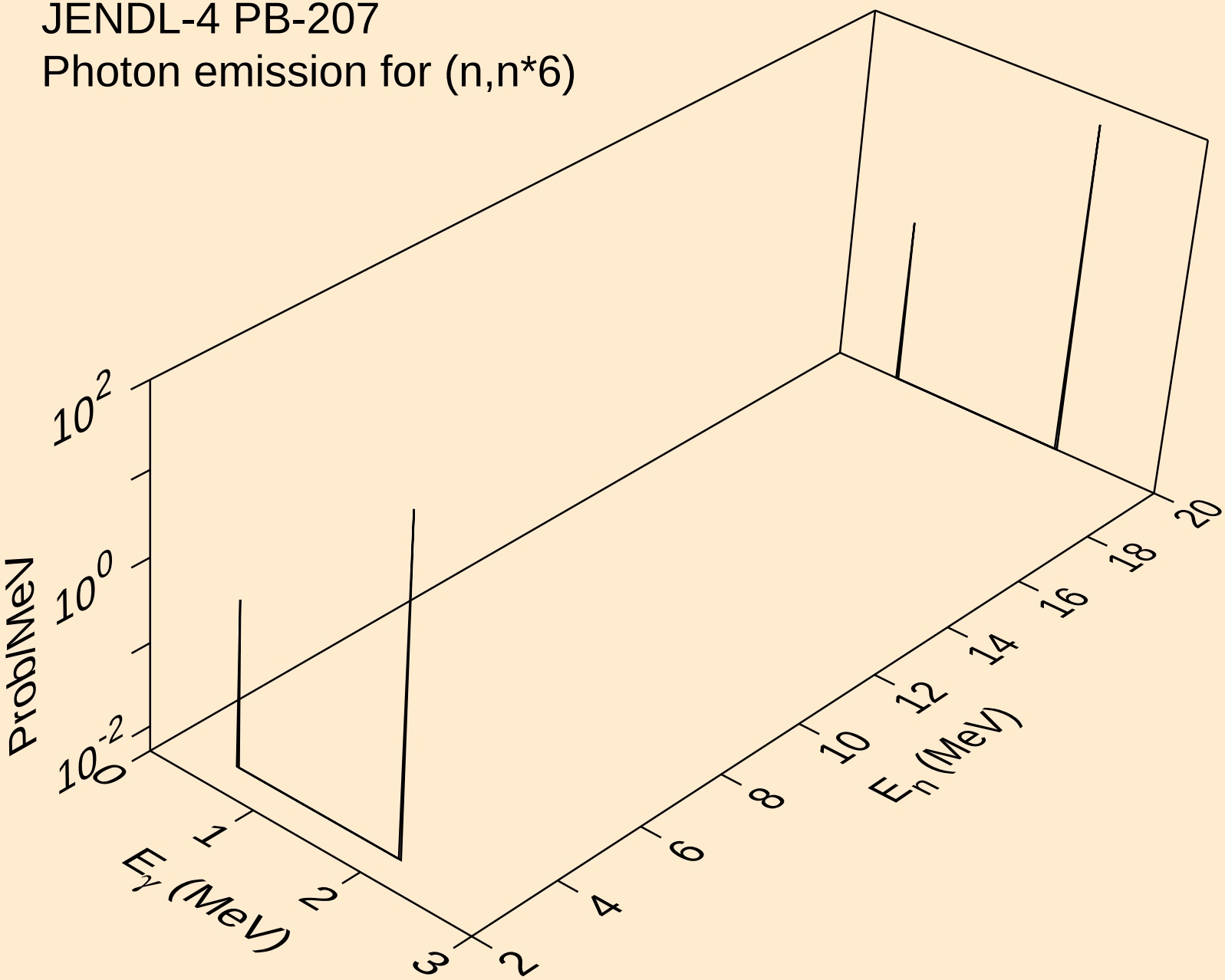
JENDL-4 PB-207
Photon emission for (n,n*4)



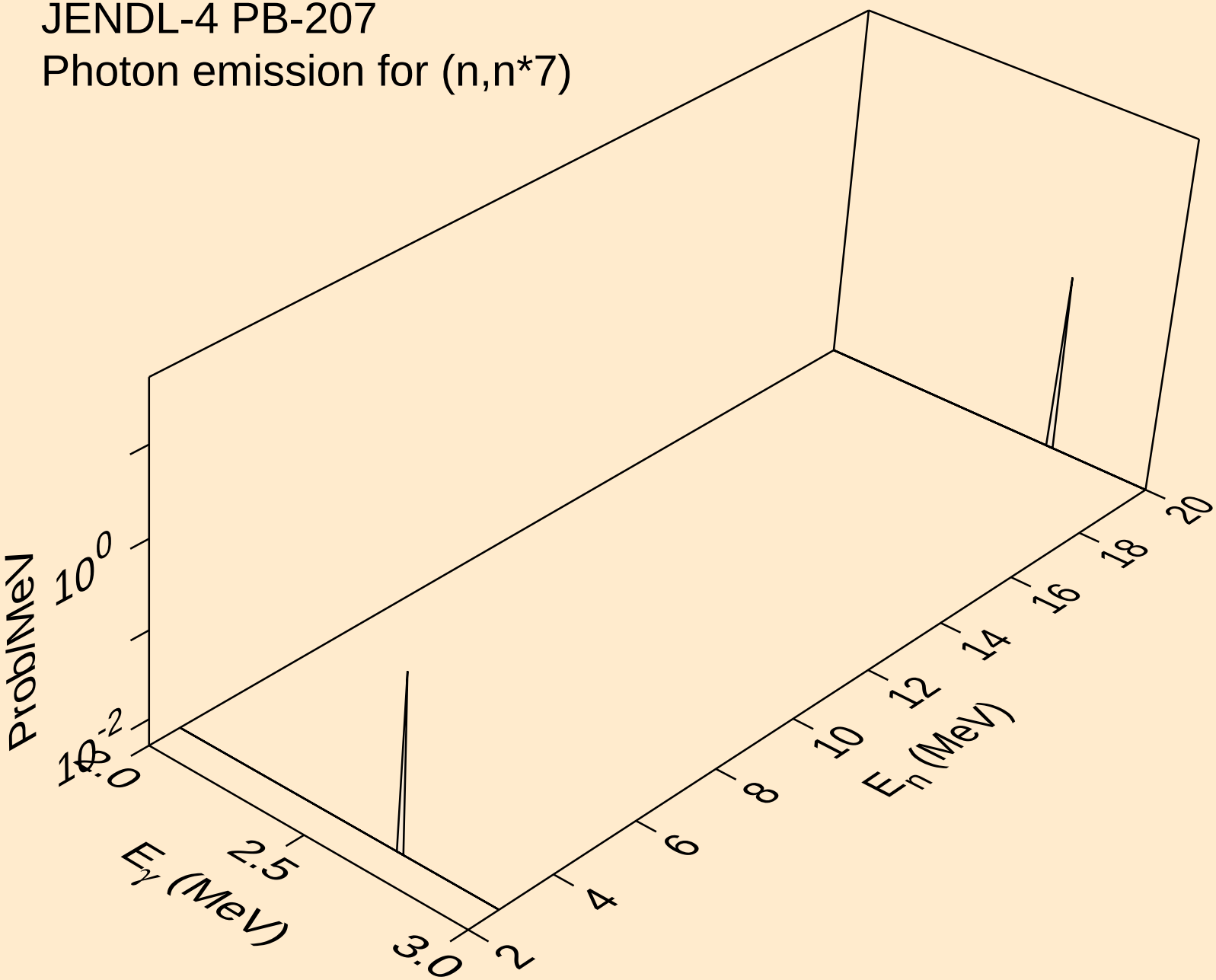
JENDL-4 PB-207
Photon emission for (n,n*5)



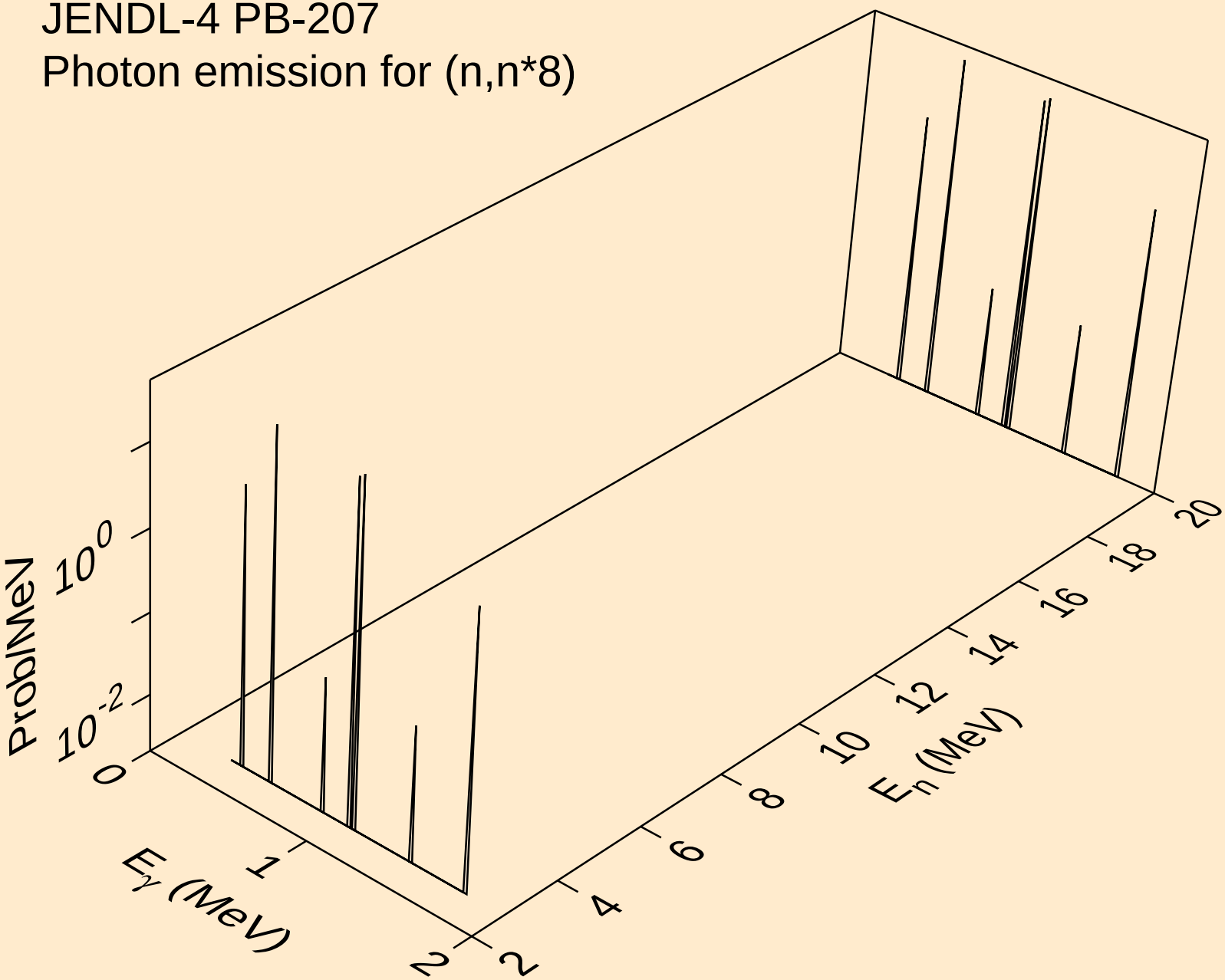
JENDL-4 PB-207
Photon emission for (n,n*6)

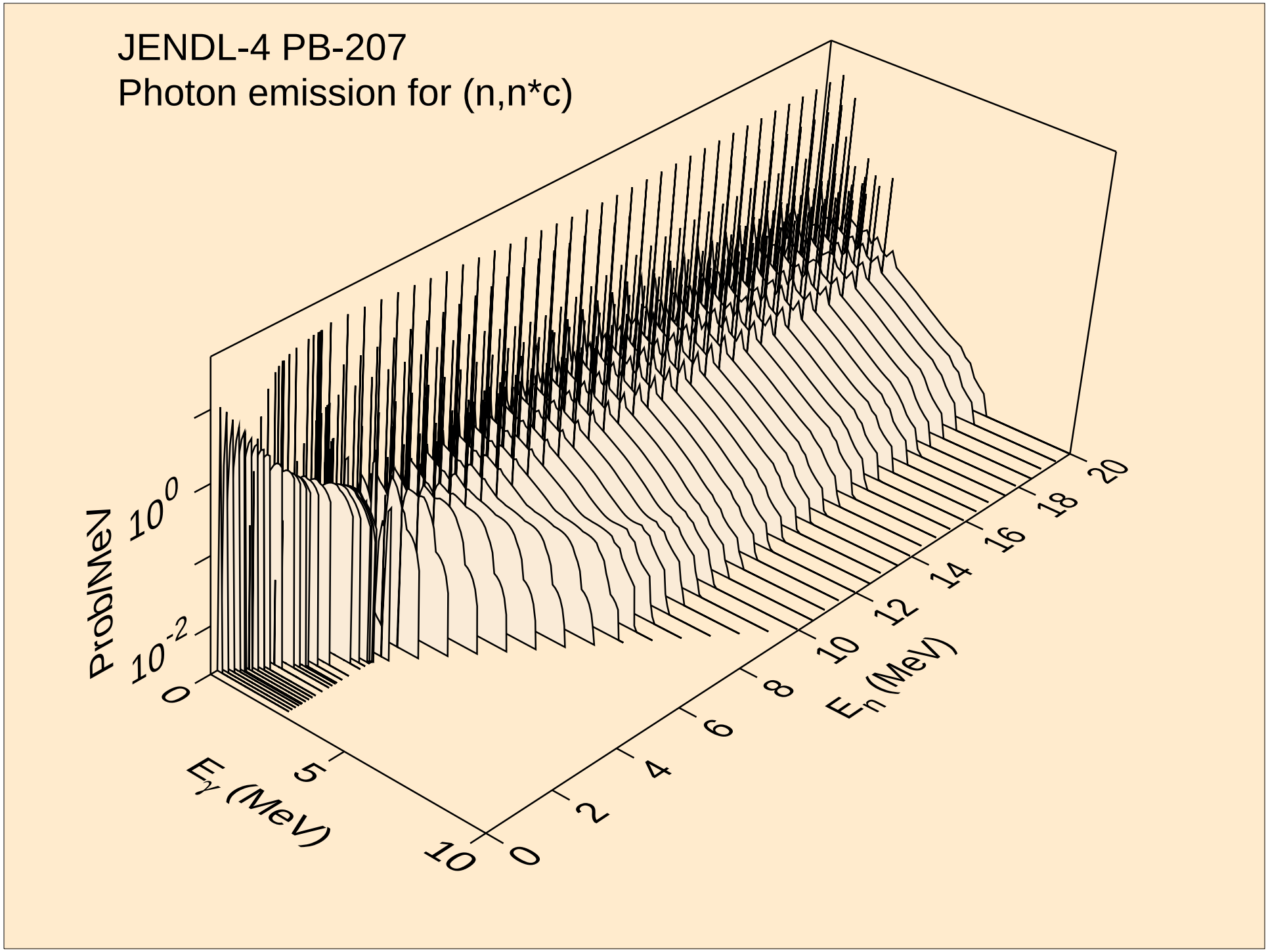


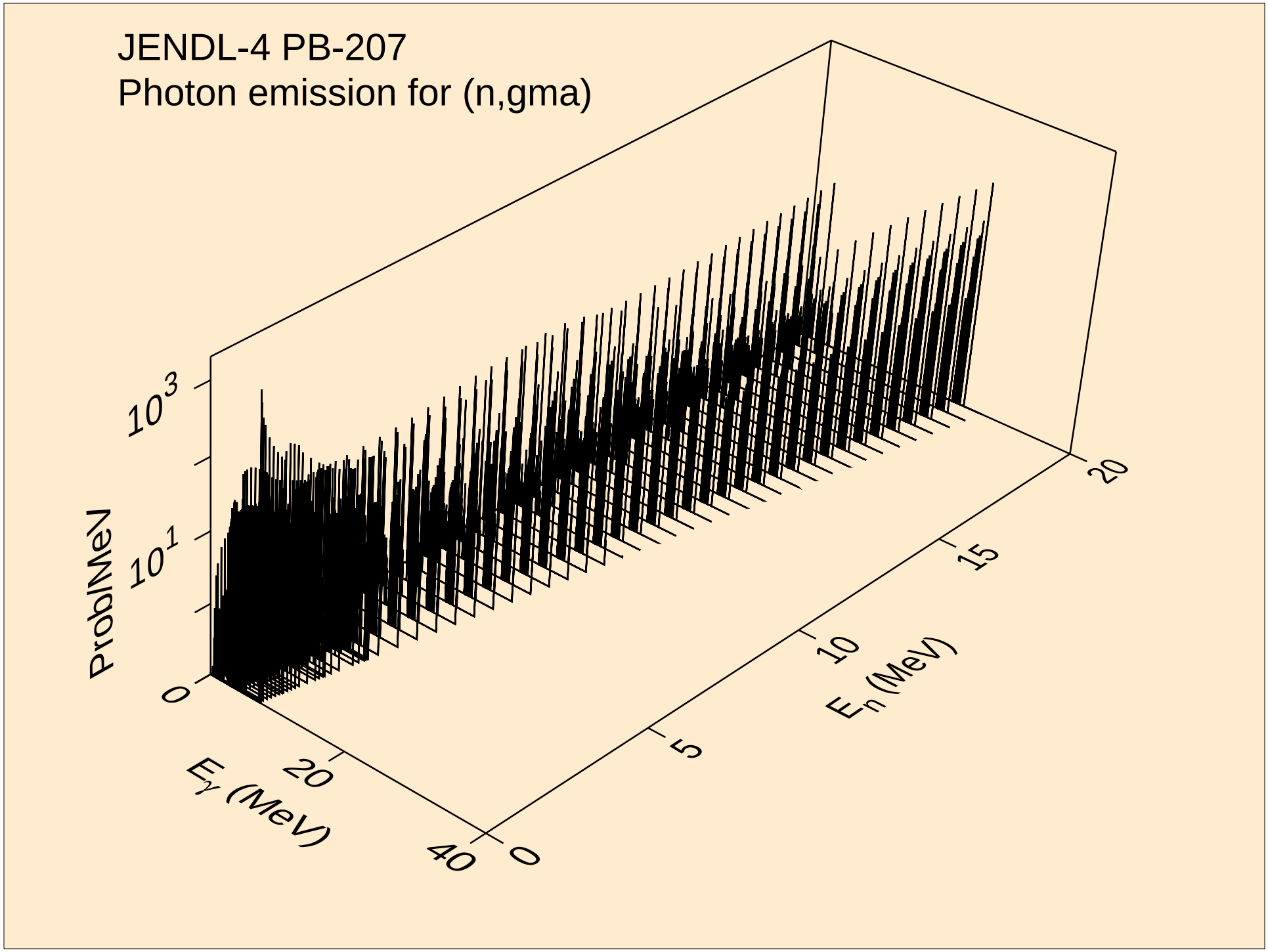
JENDL-4 PB-207
Photon emission for (n,n*7)

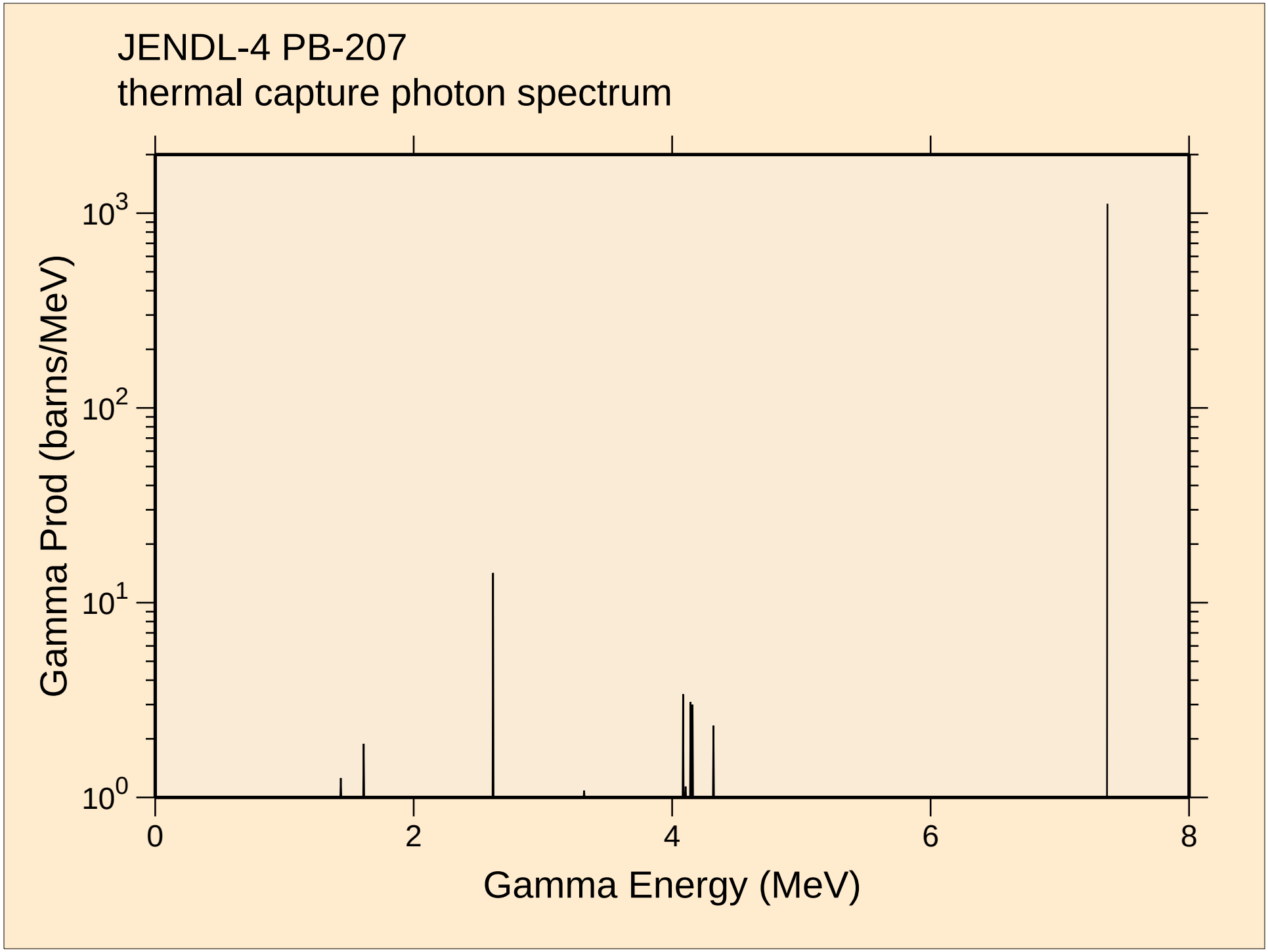


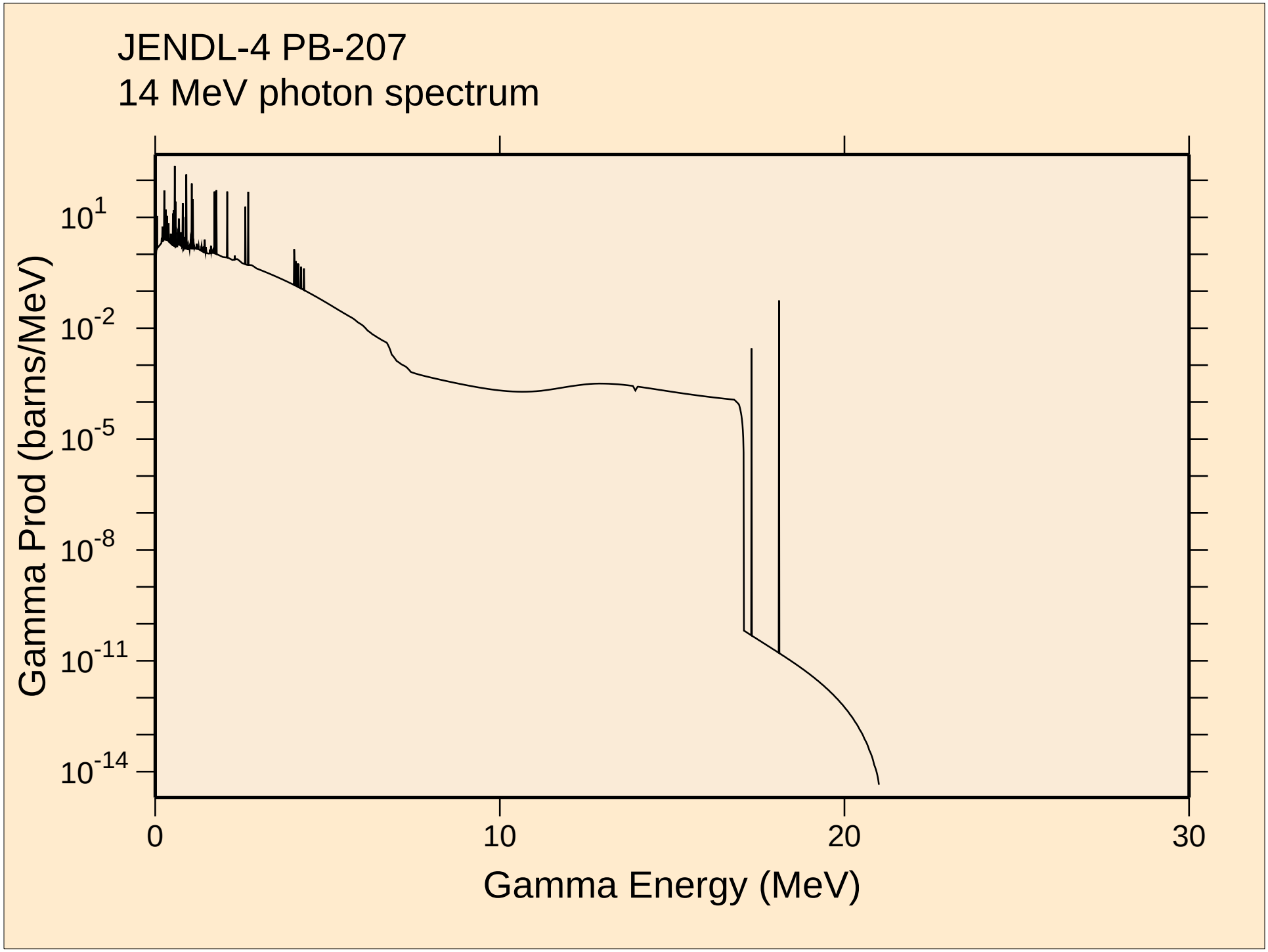
JENDL-4 PB-207
Photon emission for (n,n*8)

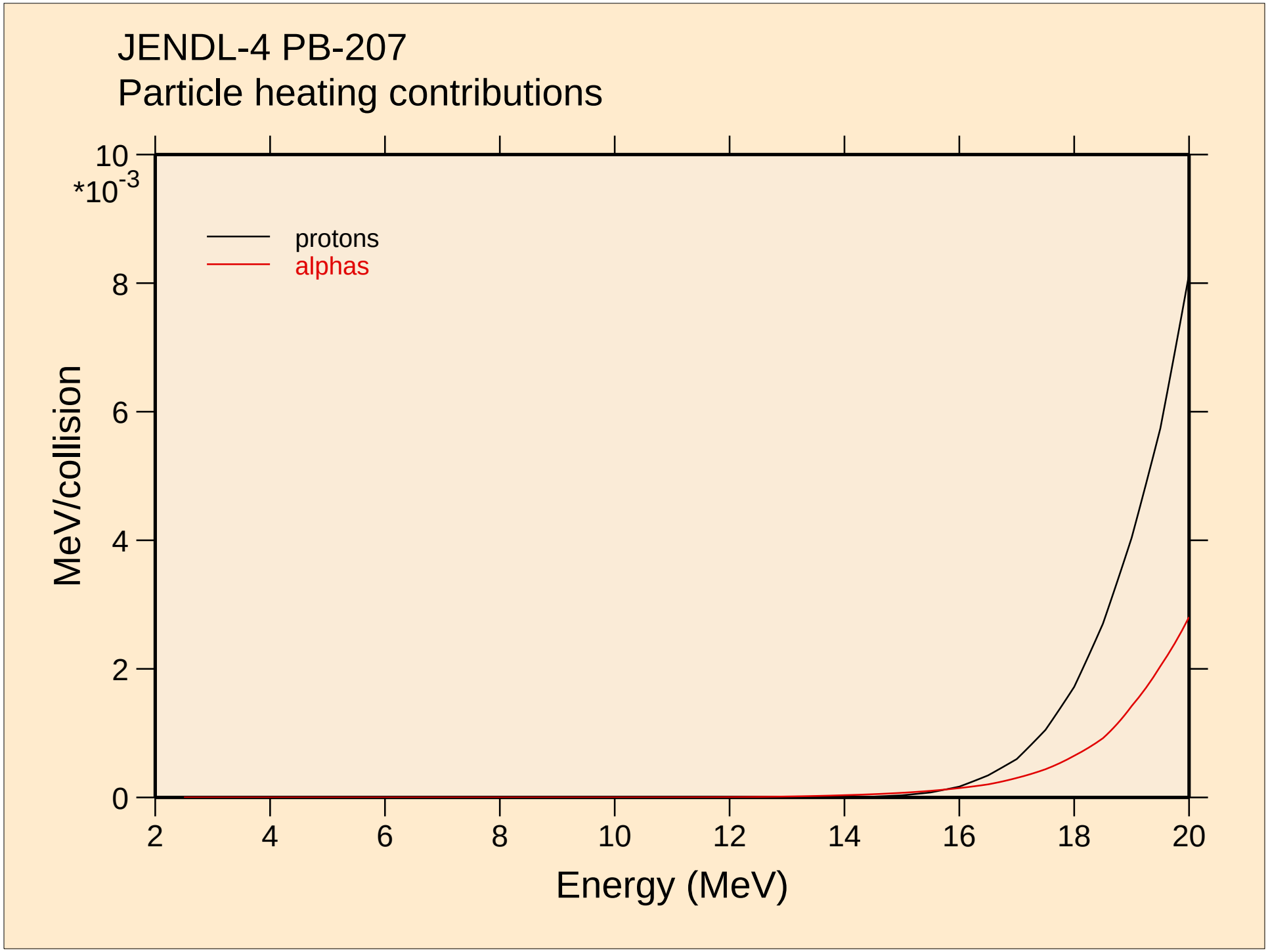


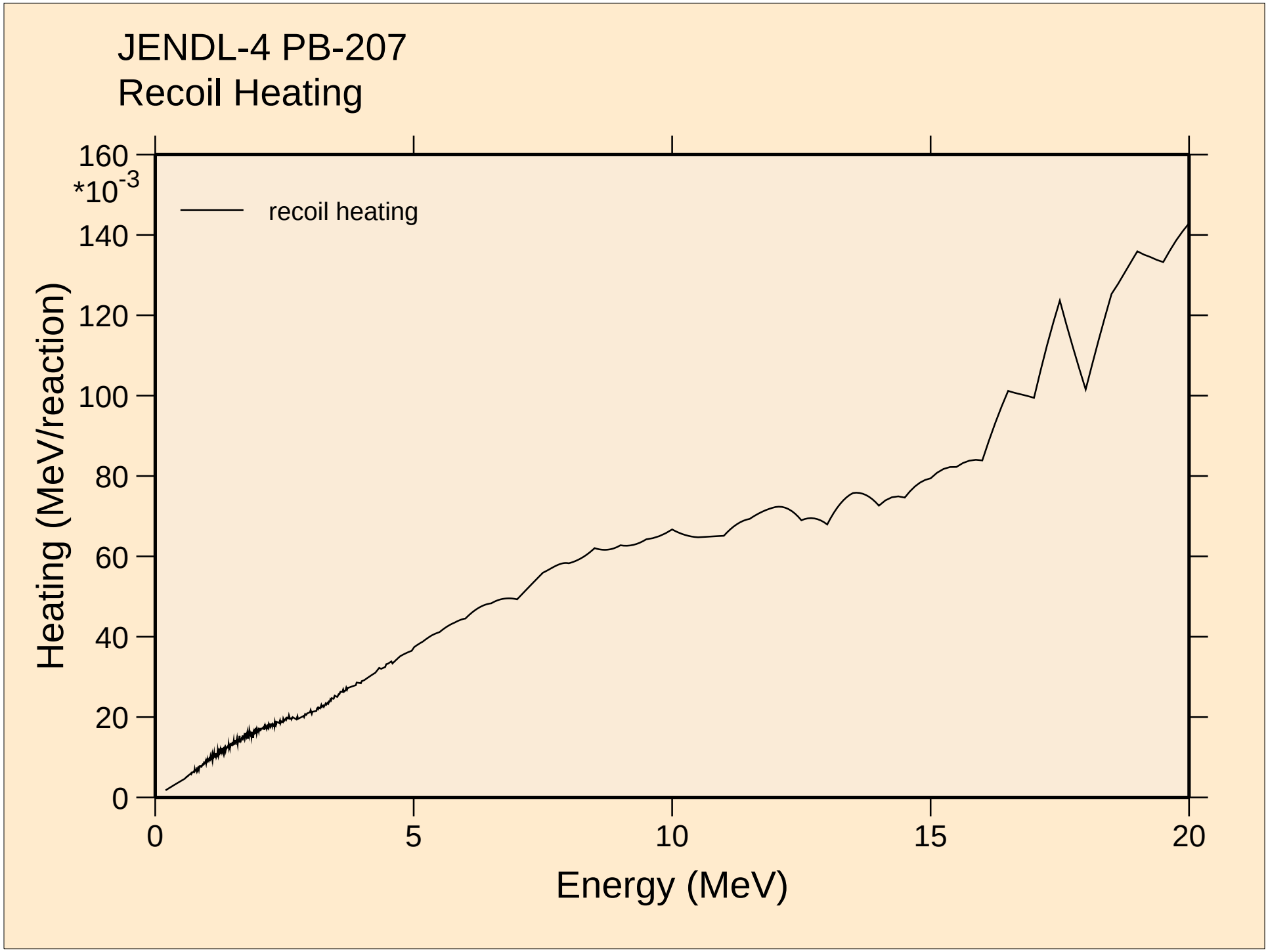

JENDL-4 PB-207
Photon emission for (n,n*c)
Prob/MeV
10^0
10^{-2}
0
5
10
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

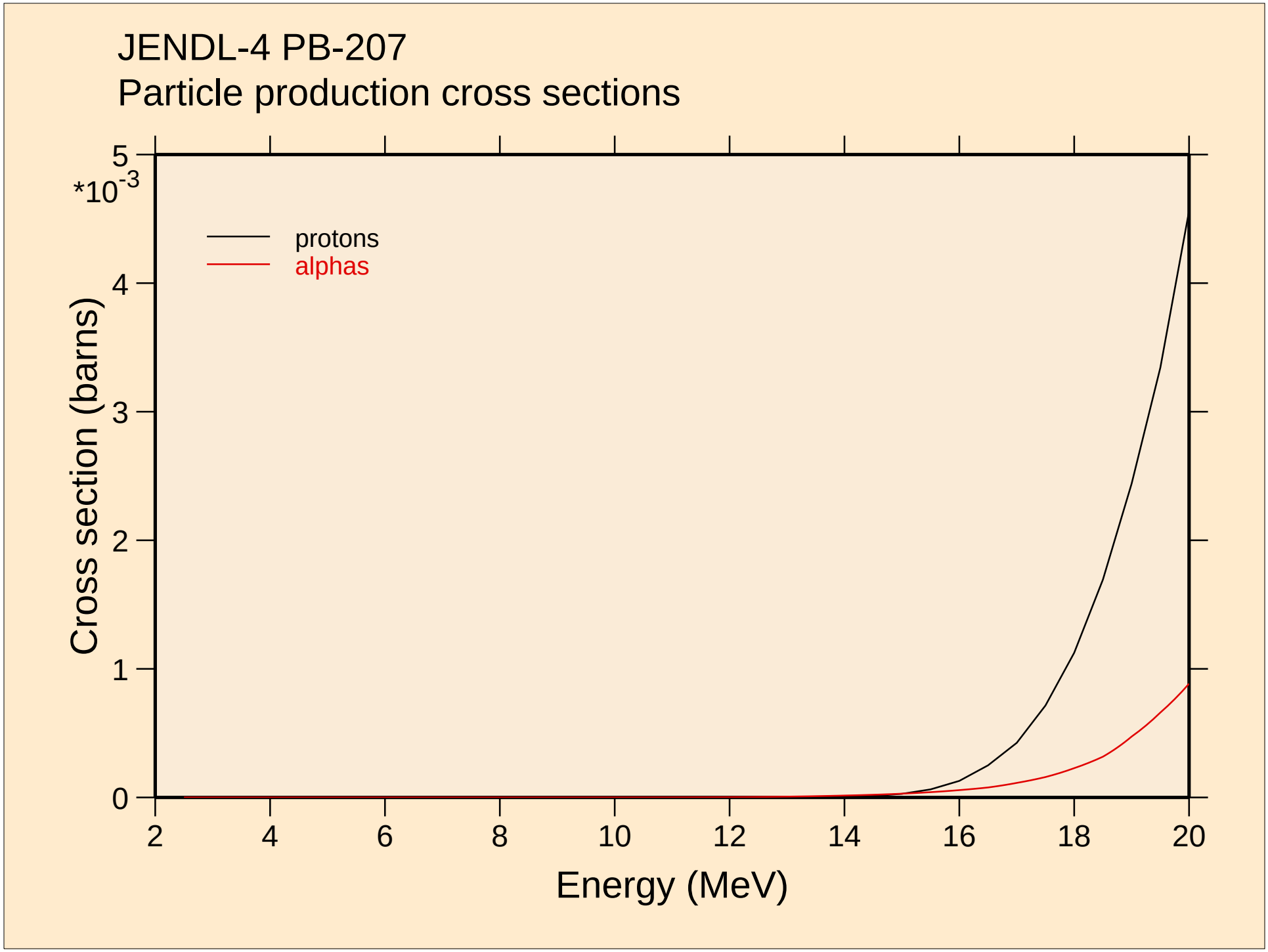

JENDL-4 PB-207
Photon emission for (n,gma)
Prob/MeV
10^3
10^1
0
20
40
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

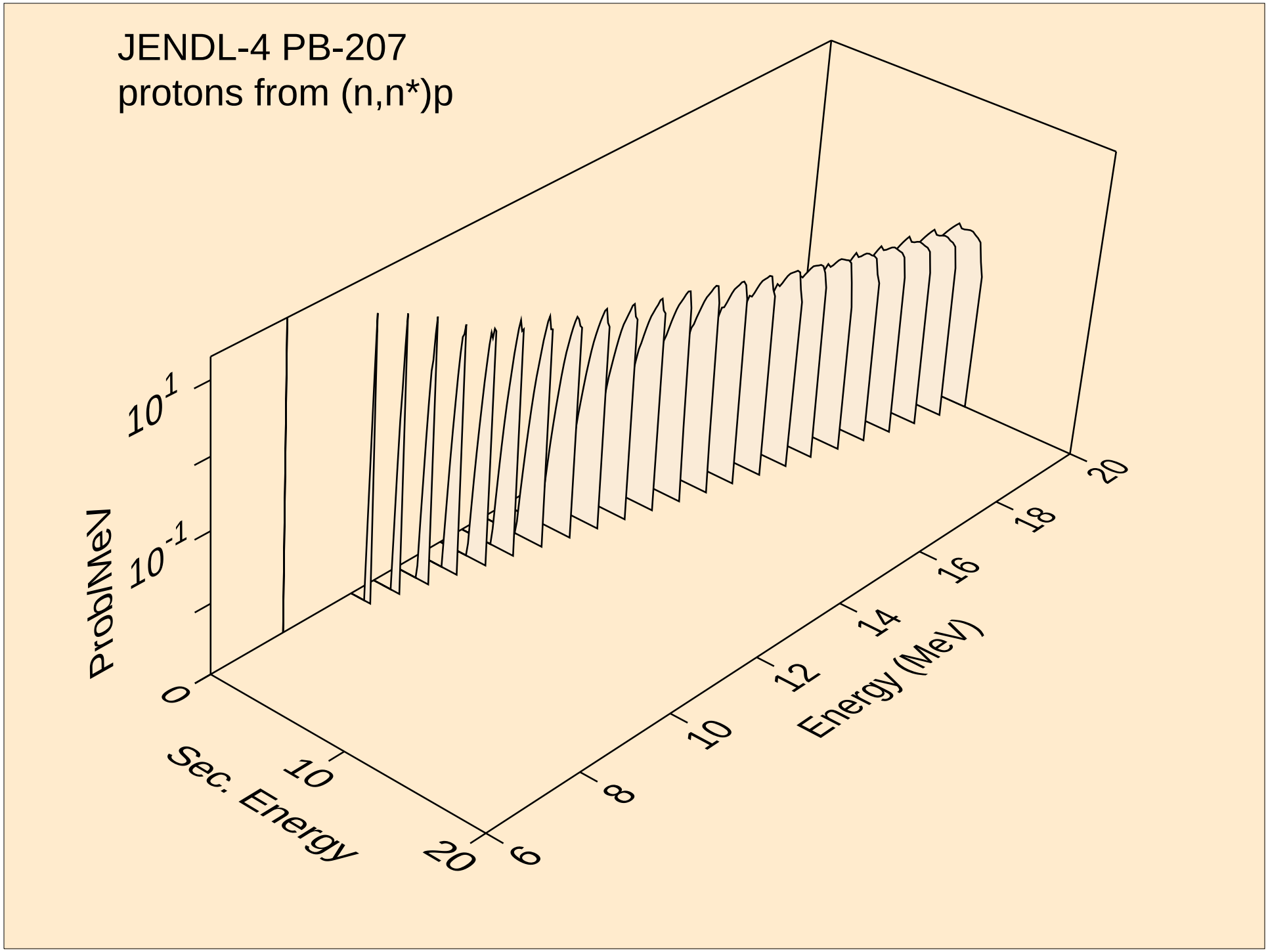

JENDL-4 PB-207
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^3
10^2
10^1
10^0
0
2
4
6
8
Gamma Energy (MeV)

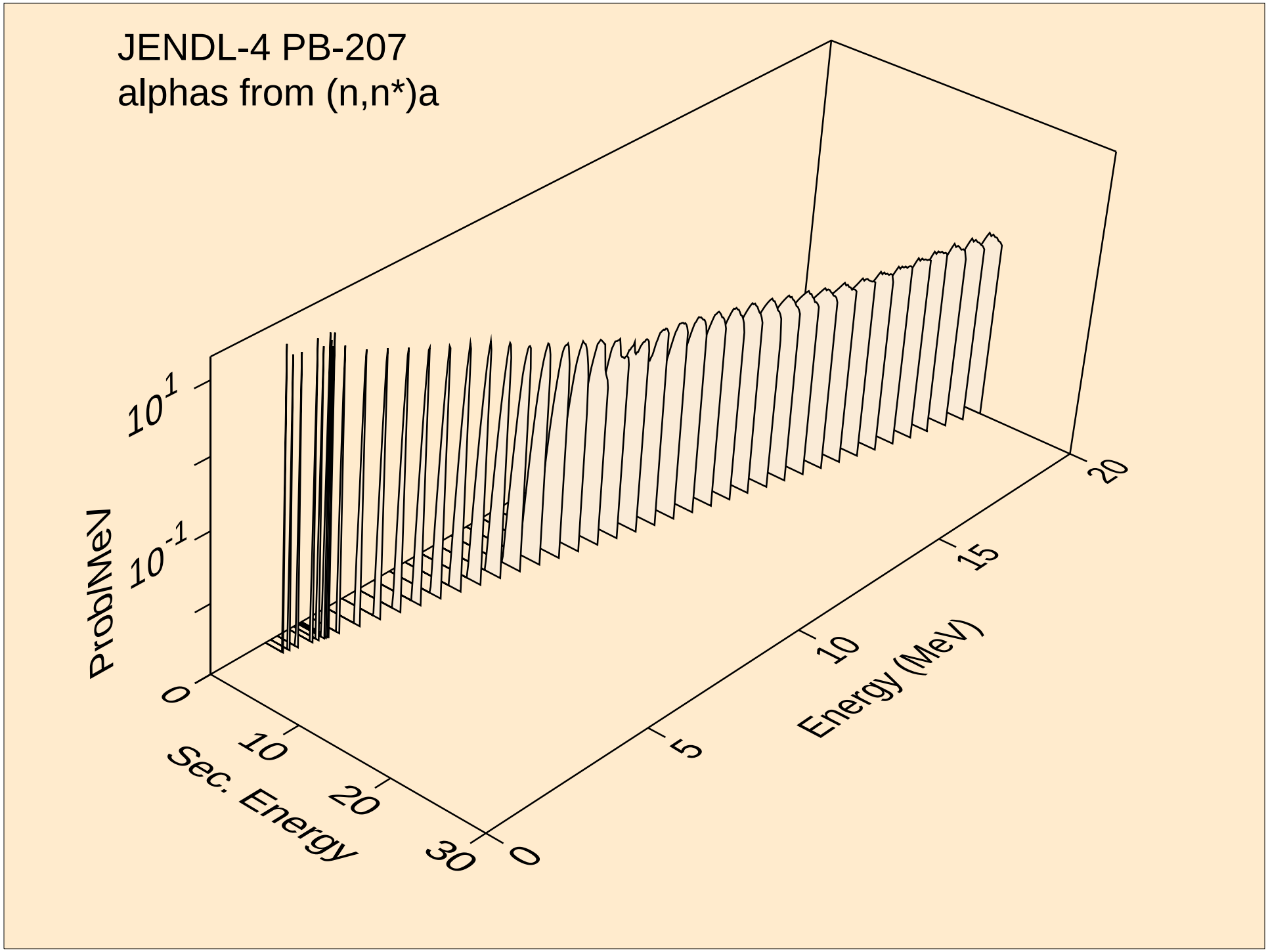

JENDL-4 PB-207
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^1
10^-2
10^-5
10^-8
10^-11
10^-14
0
10
20
30
Gamma Energy (MeV)


JENDL-4 PB-207
Particle heating contributions
protons
alphas
MeV/collision
*10^-3
10
8
6
4
2
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 PB-207
Recoil Heating
recoil heating
Heating (MeV/reaction)
*10^-3
160
140
120
100
80
60
40
20
0
0
5
10
15
20
Energy (MeV)


JENDL-4 PB-207
Particle production cross sections
protons
alphas
Cross section (barns)
*10-3
5
4
3
2
1
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 PB-207
protons from (n,n*)p
Prob/MeV
10^{1}
10^{-1}
0
Sec. Energy
10
20
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 PB-207
alphas from (n,n*)a
Prob/MeV
10^1
10^-1
0
Sec. Energy
10
20
30
0
5
10
15
20
Energy (MeV)