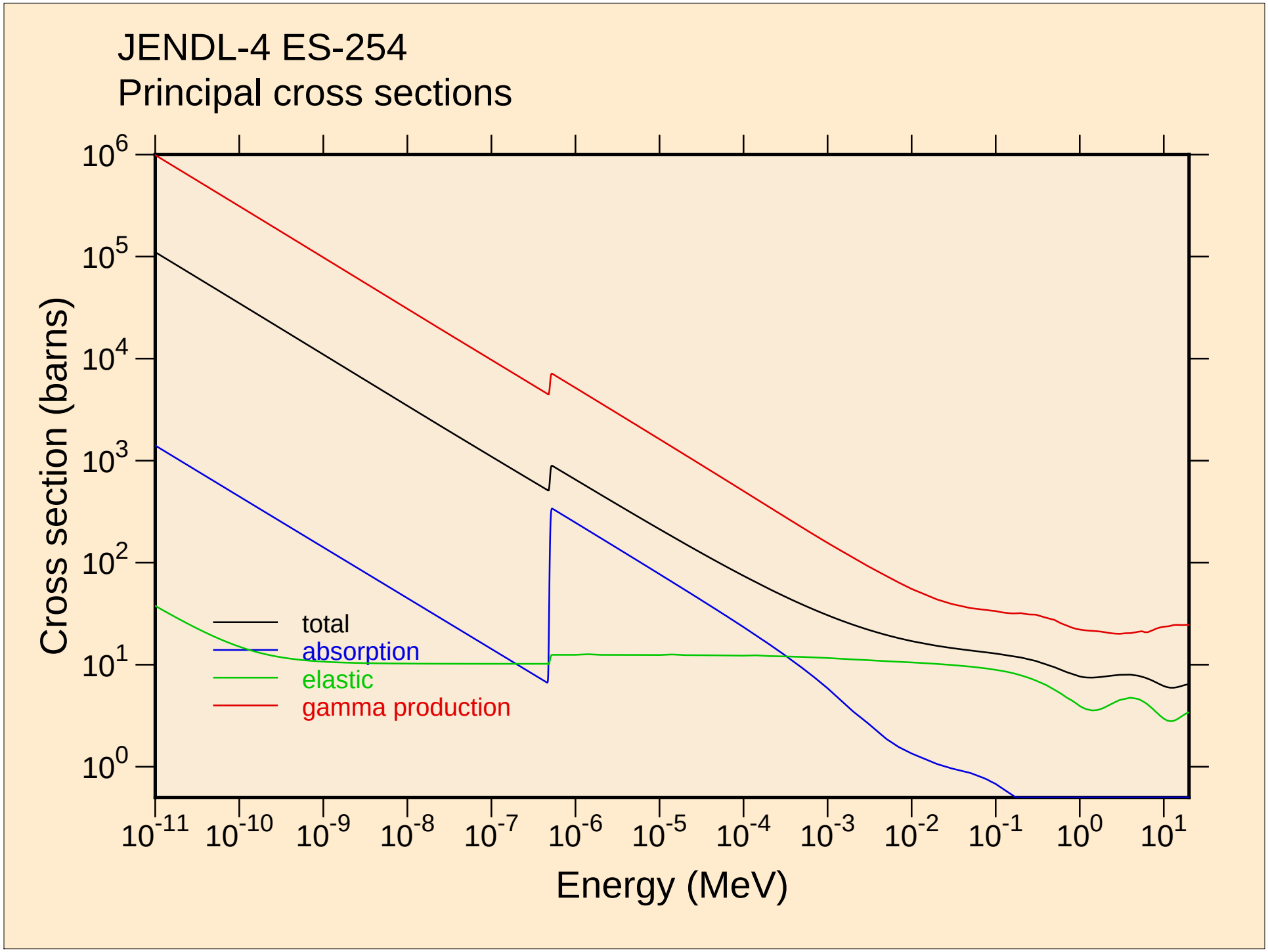
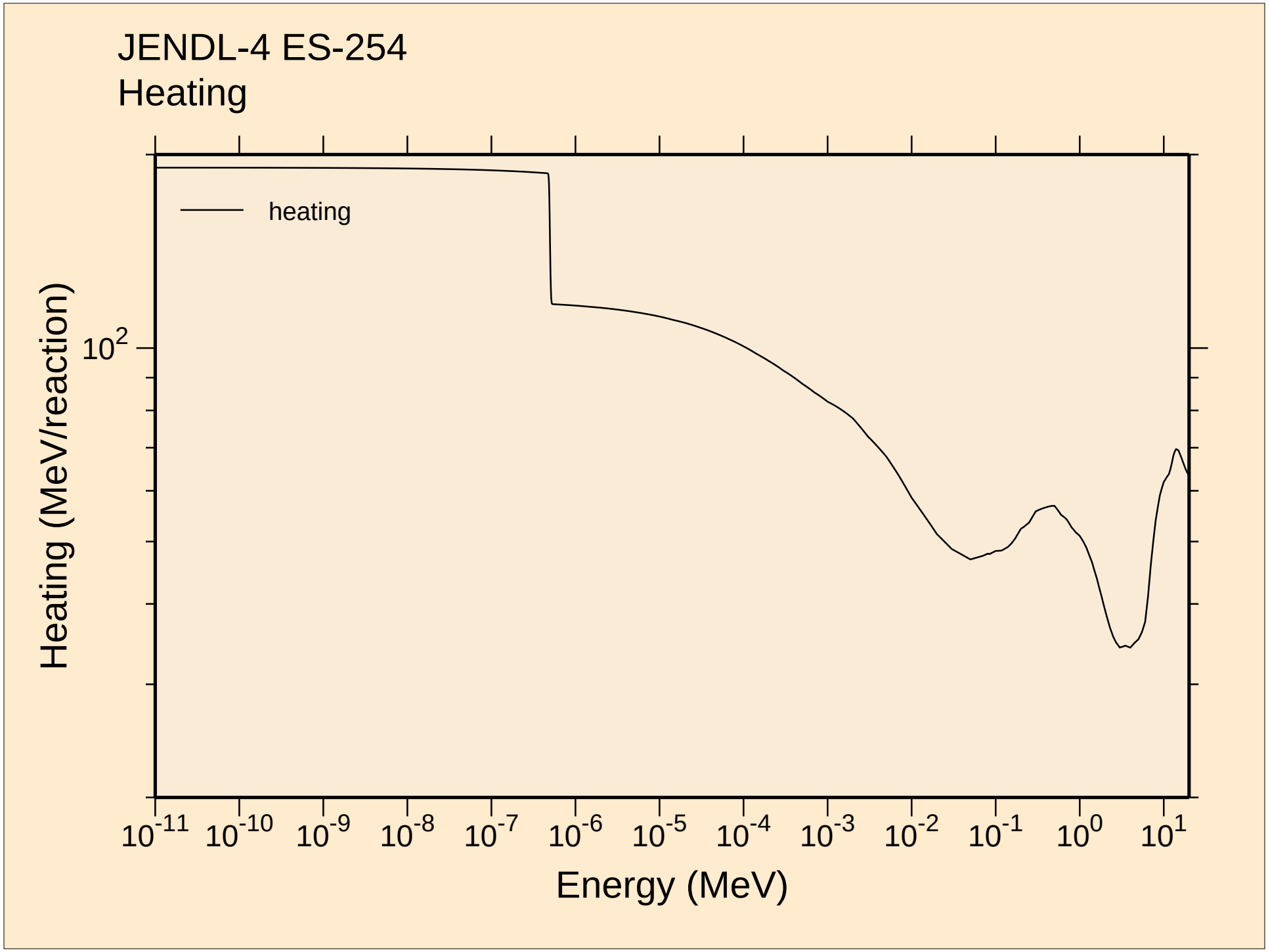
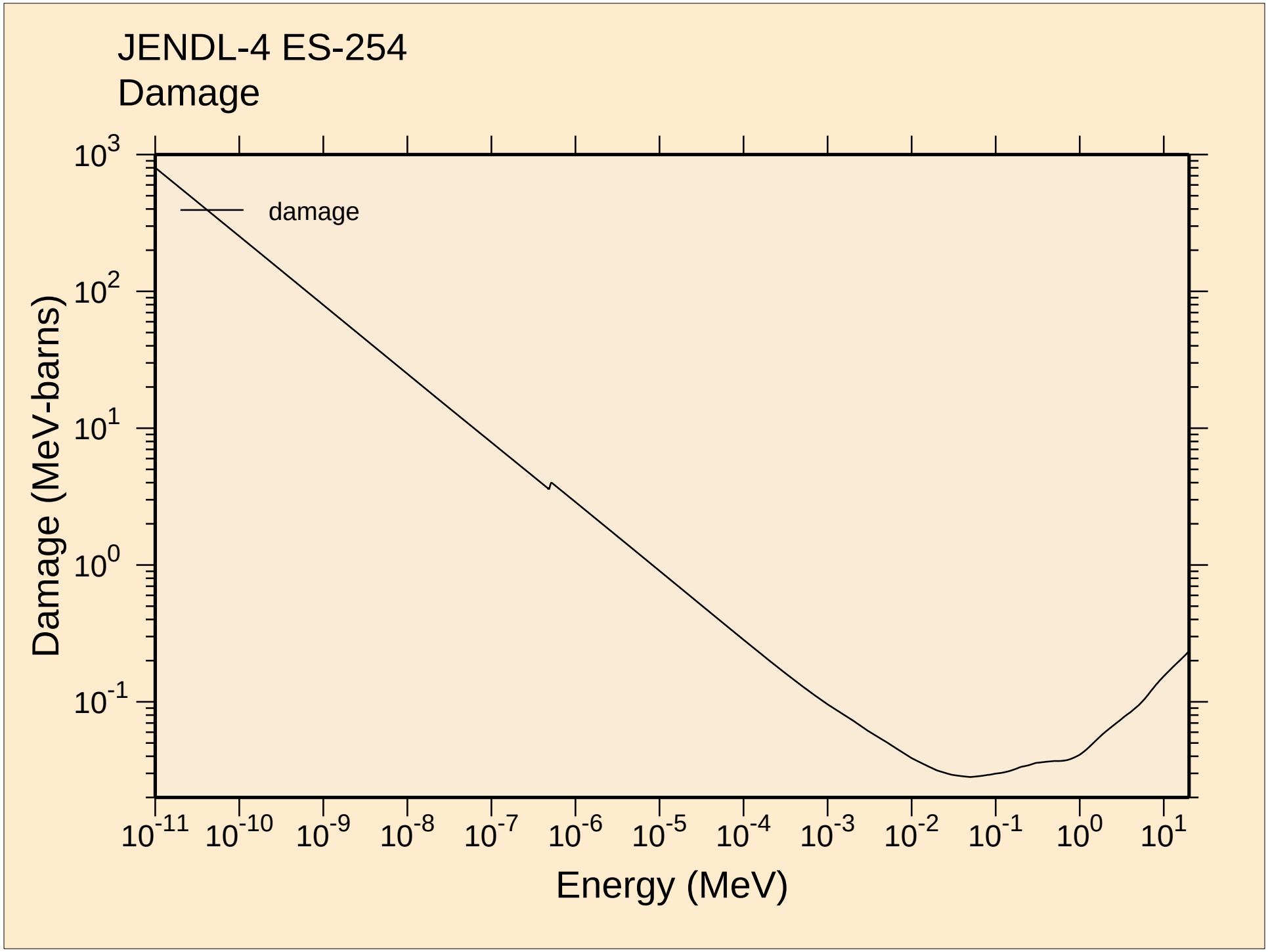
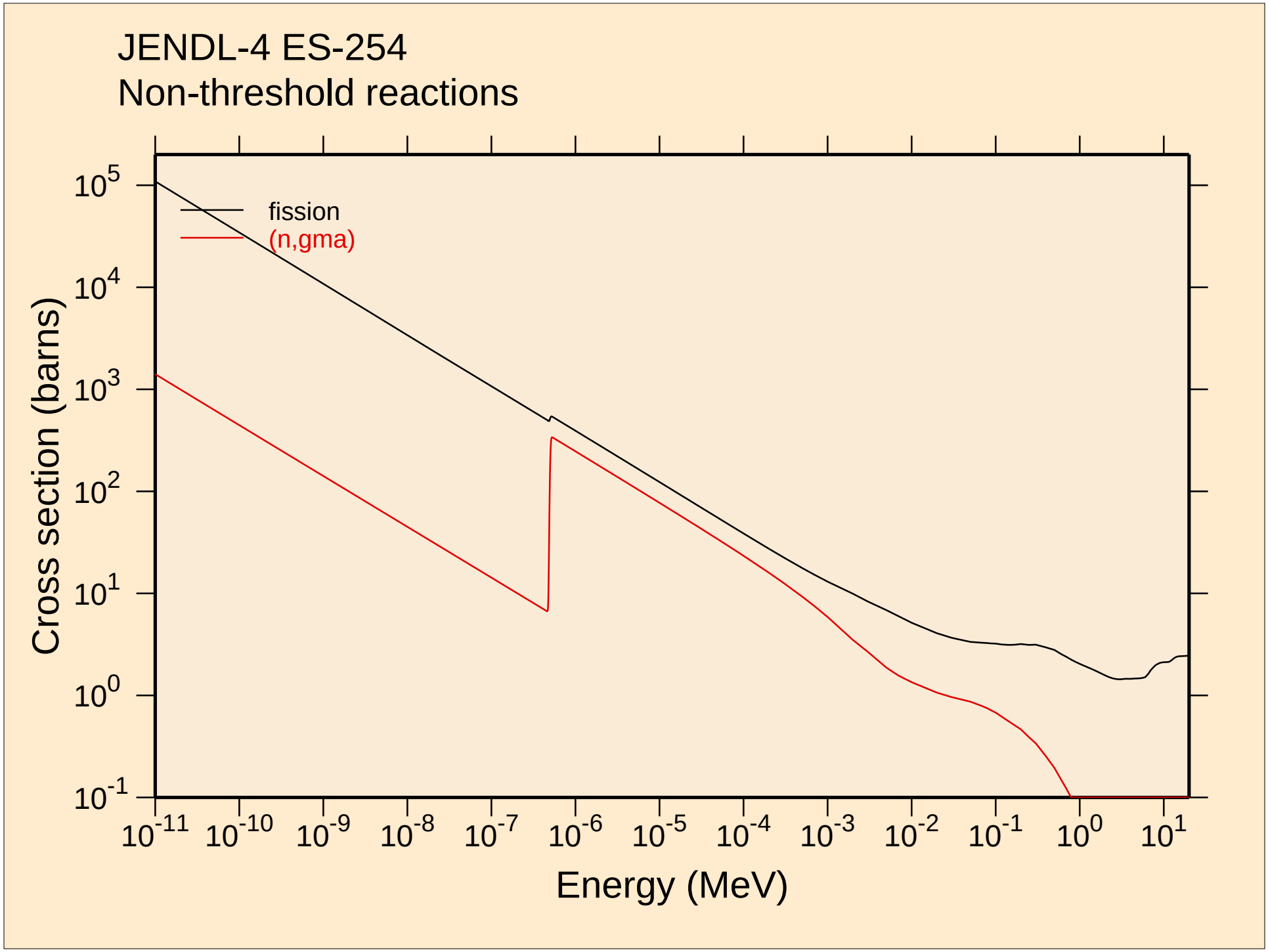
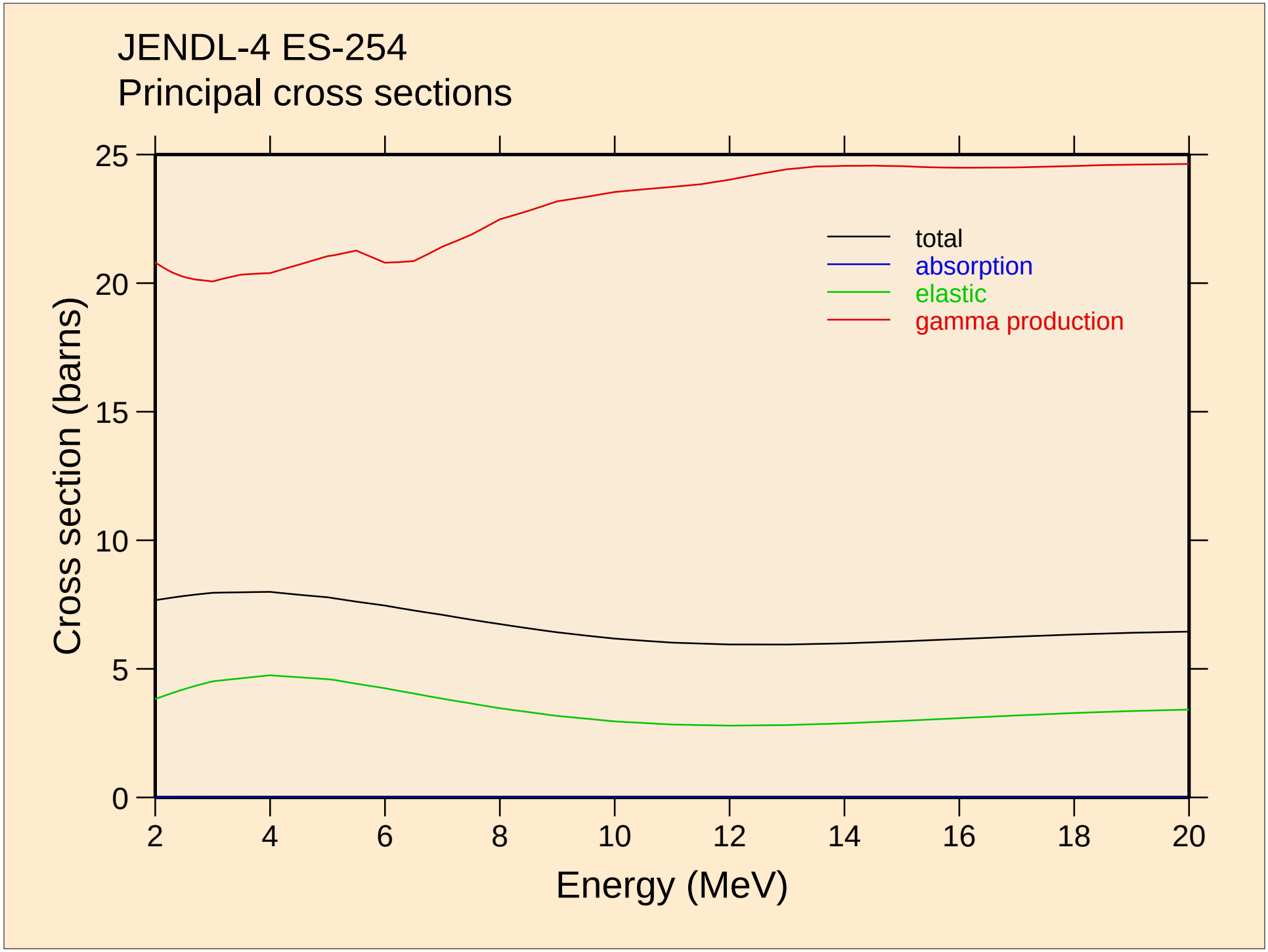
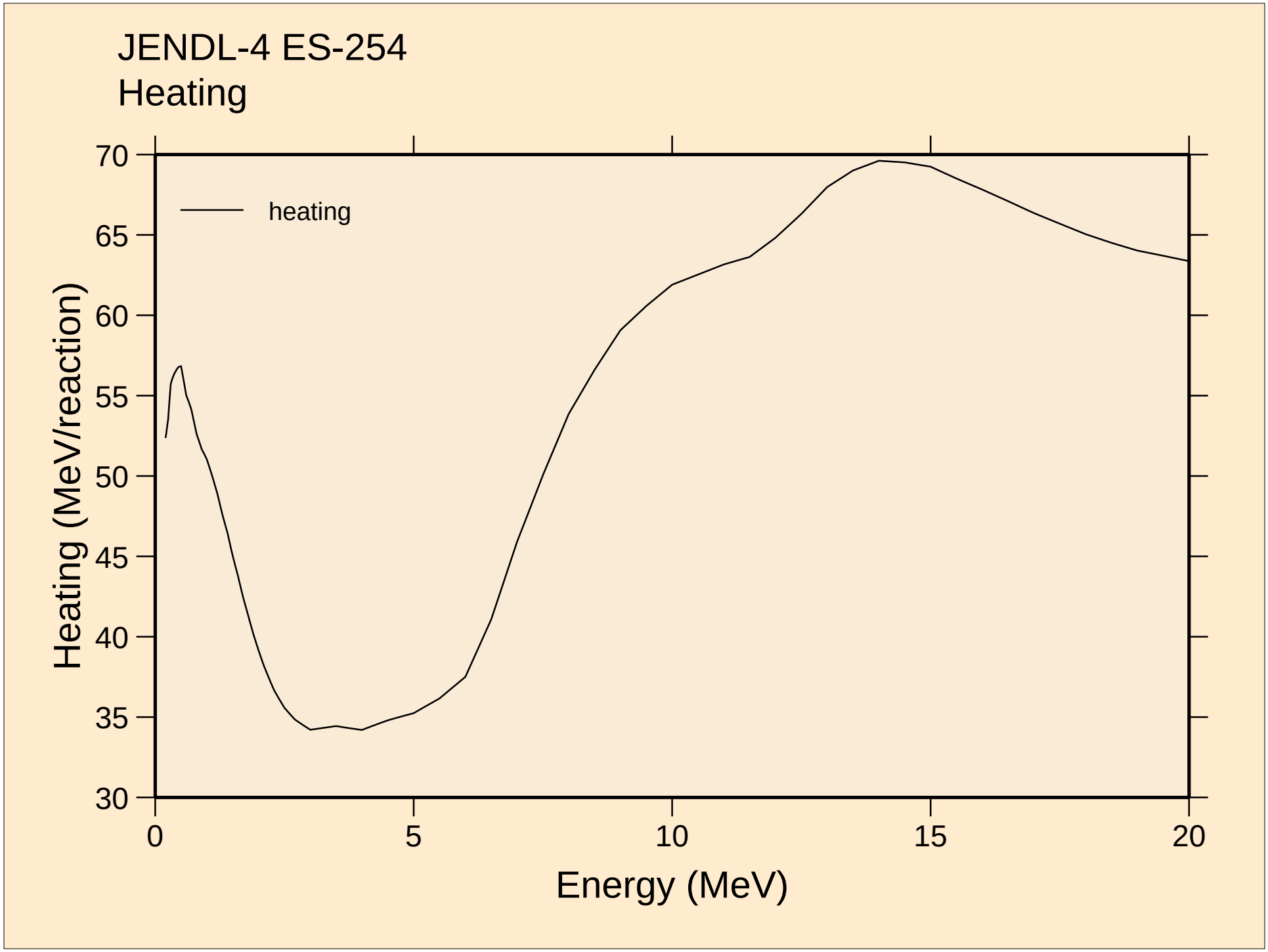

JENDL-4 ES-254
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production

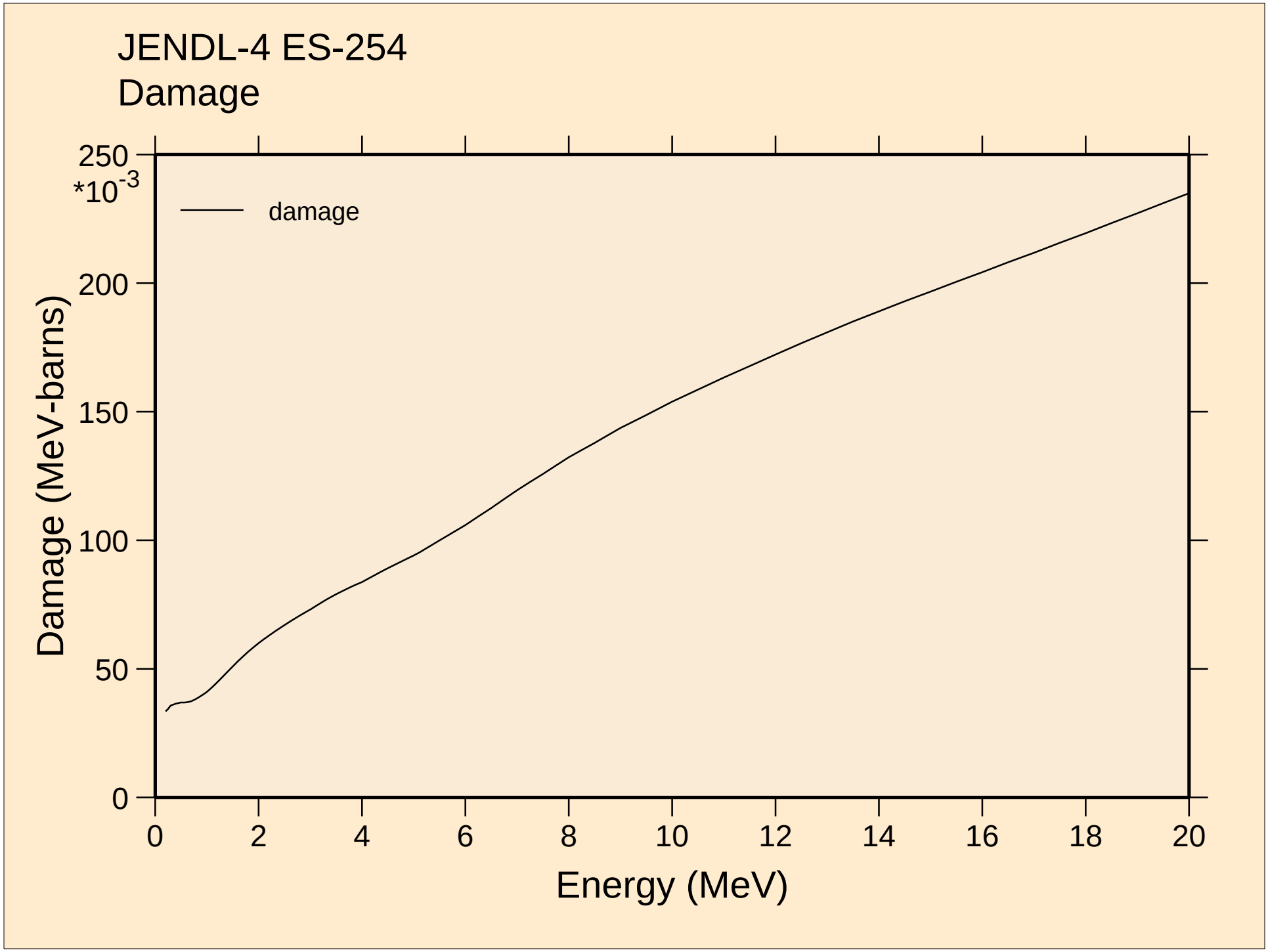

JENDL-4 ES-254
Heating
heating
Heating (MeV/reaction)
10^{2}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}
Energy (MeV)

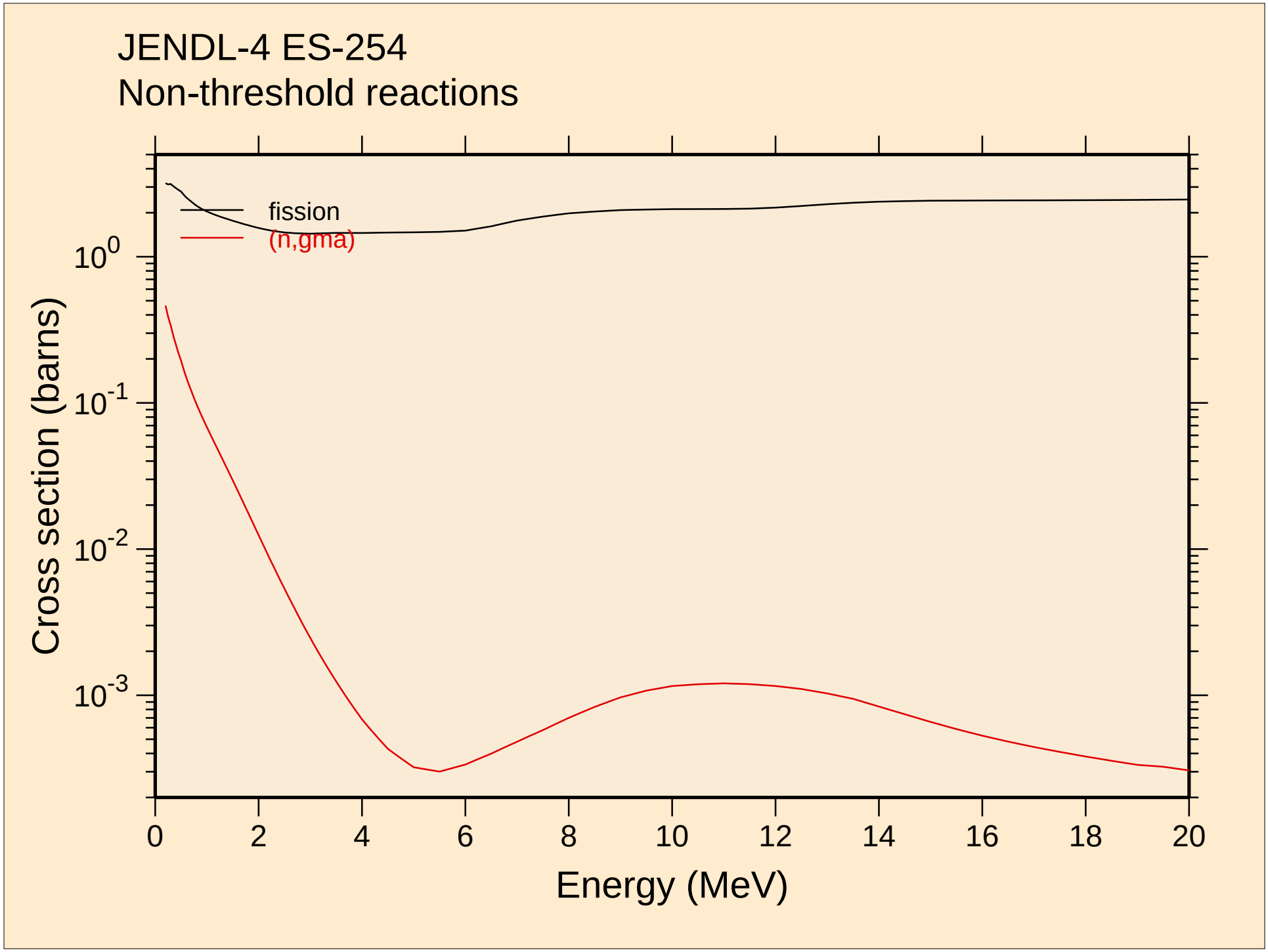

JENDL-4 ES-254
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^3
10^2
10^1
10^0
10^-1
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

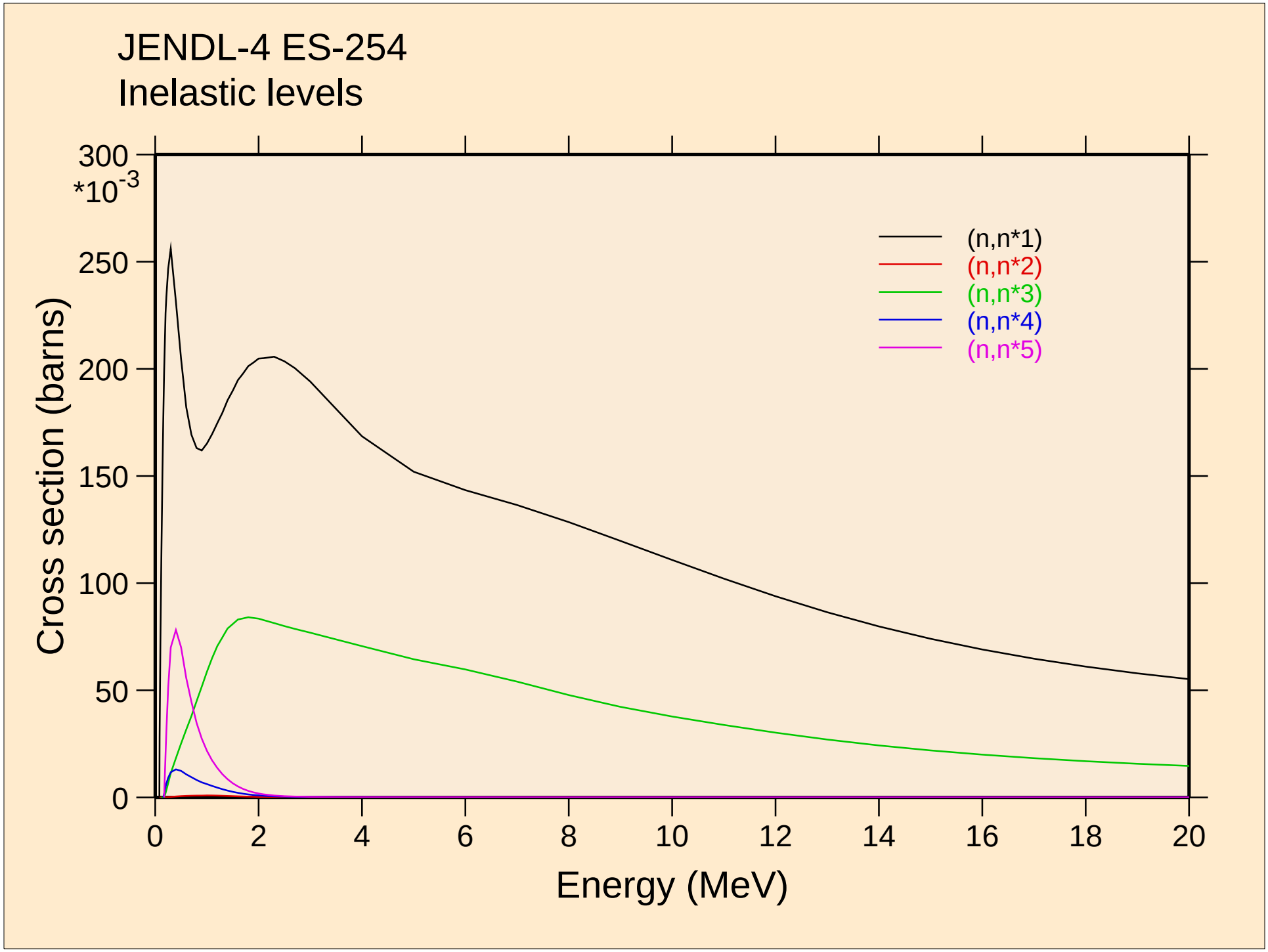

JENDL-4 ES-254
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
Energy (MeV)
10^{5}
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

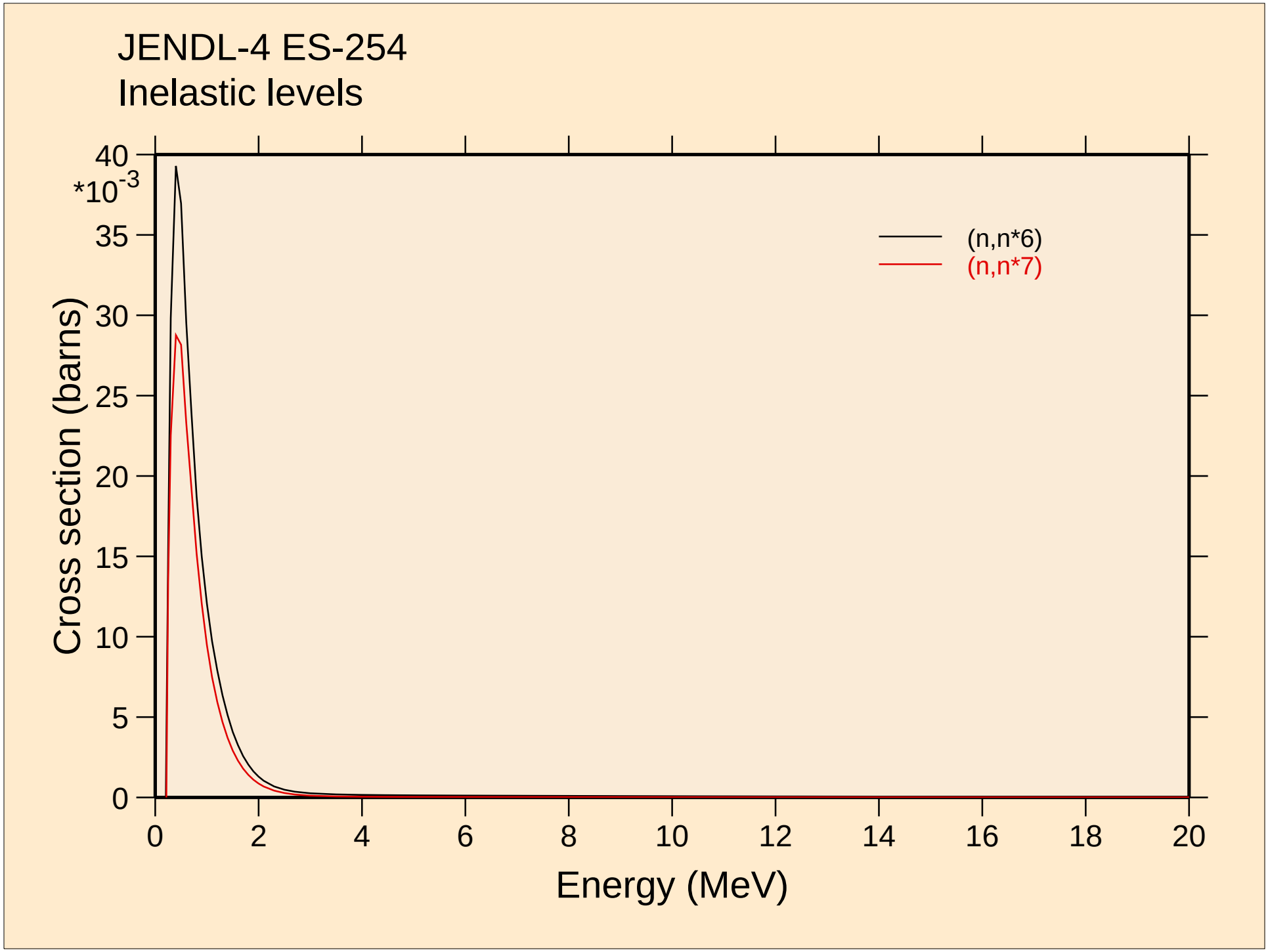

JENDL-4 ES-254
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0
5
10
15
20
25
2
4
6
8
10
12
14
16
18
20

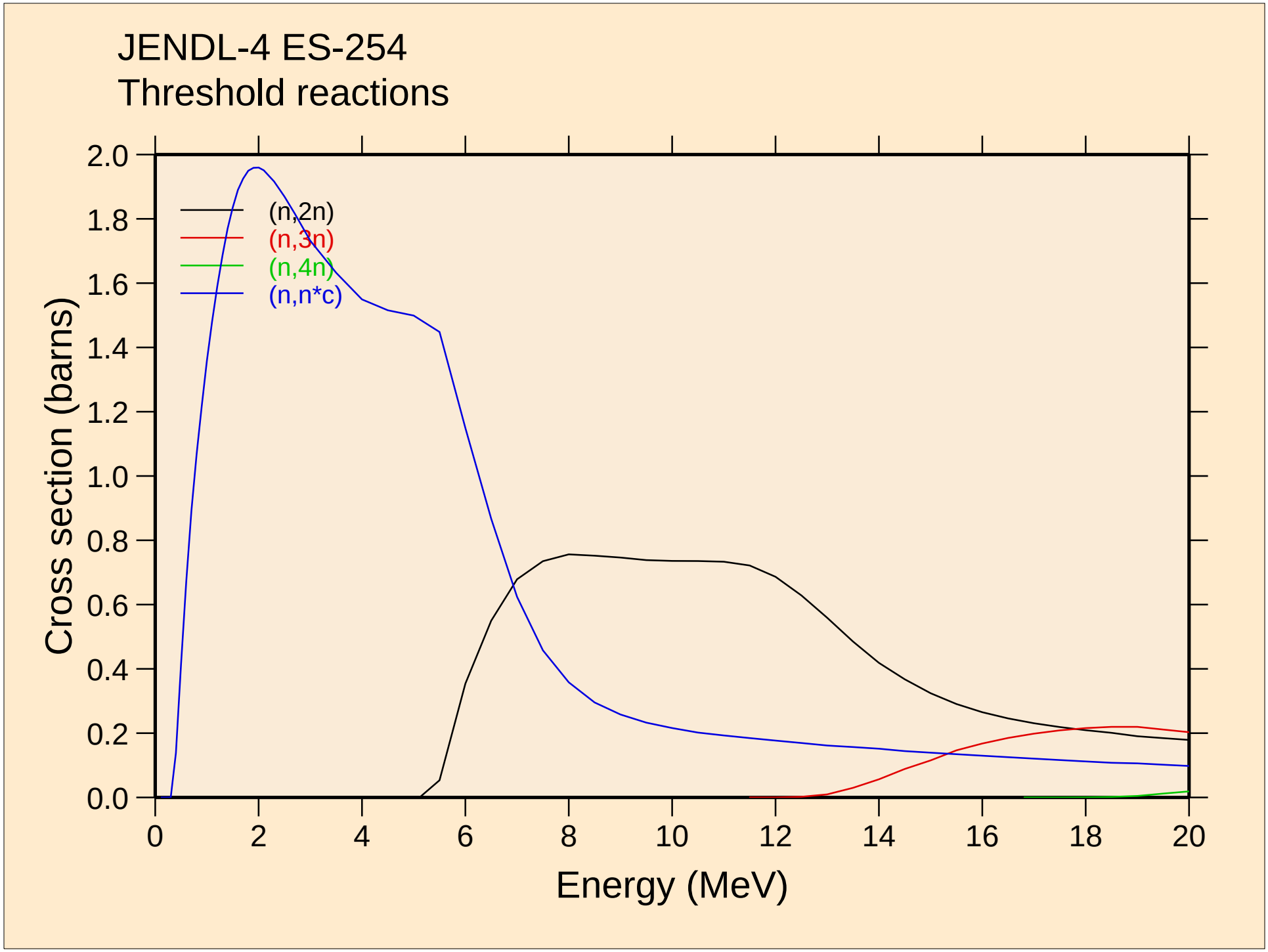

JENDL-4 ES-254
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
70
65
60
55
50
45
40
35
30
0
5
10
15
20

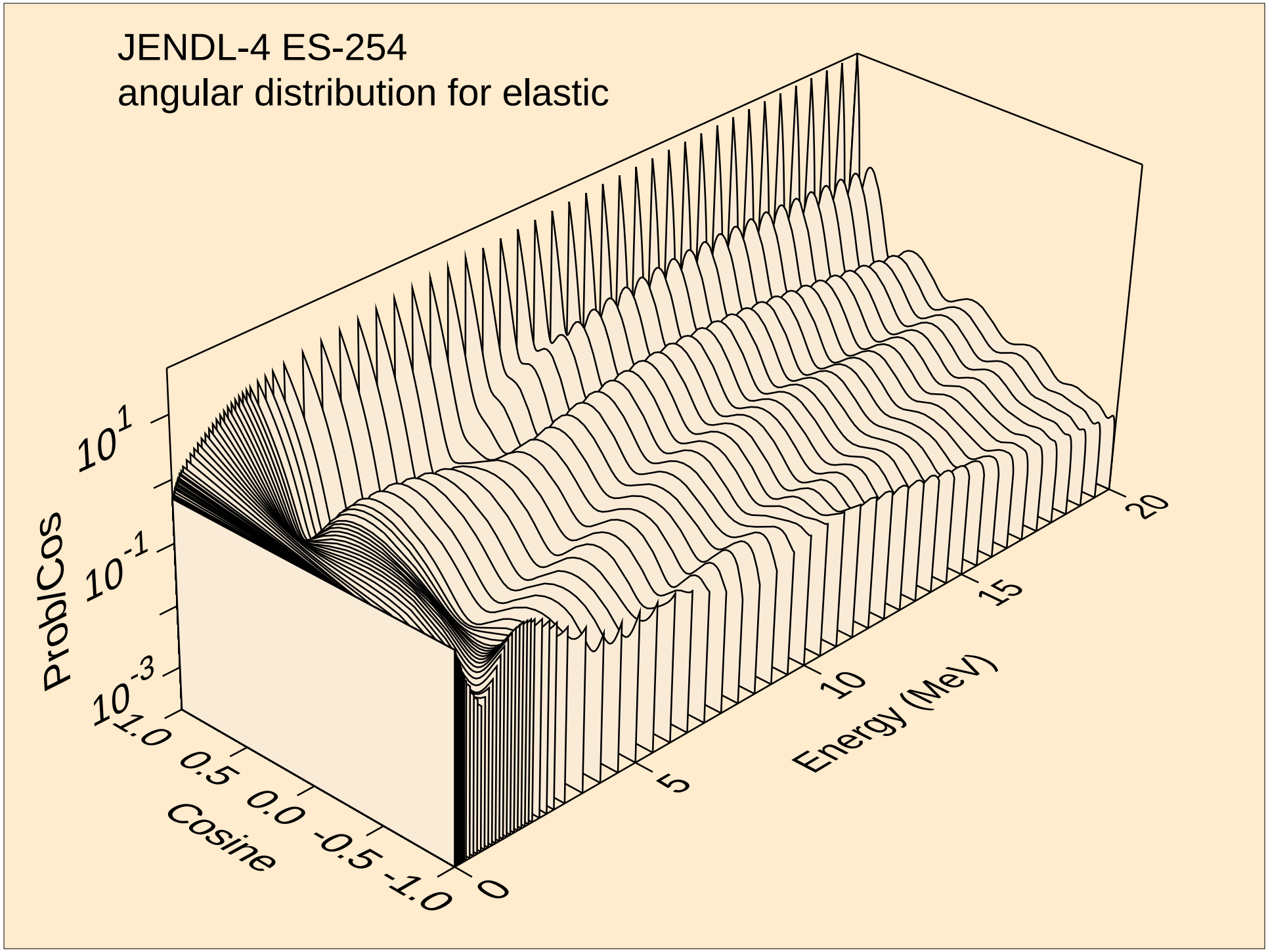

JENDL-4 ES-254
Damage
damage
Damage (MeV-barns)
*10-3
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

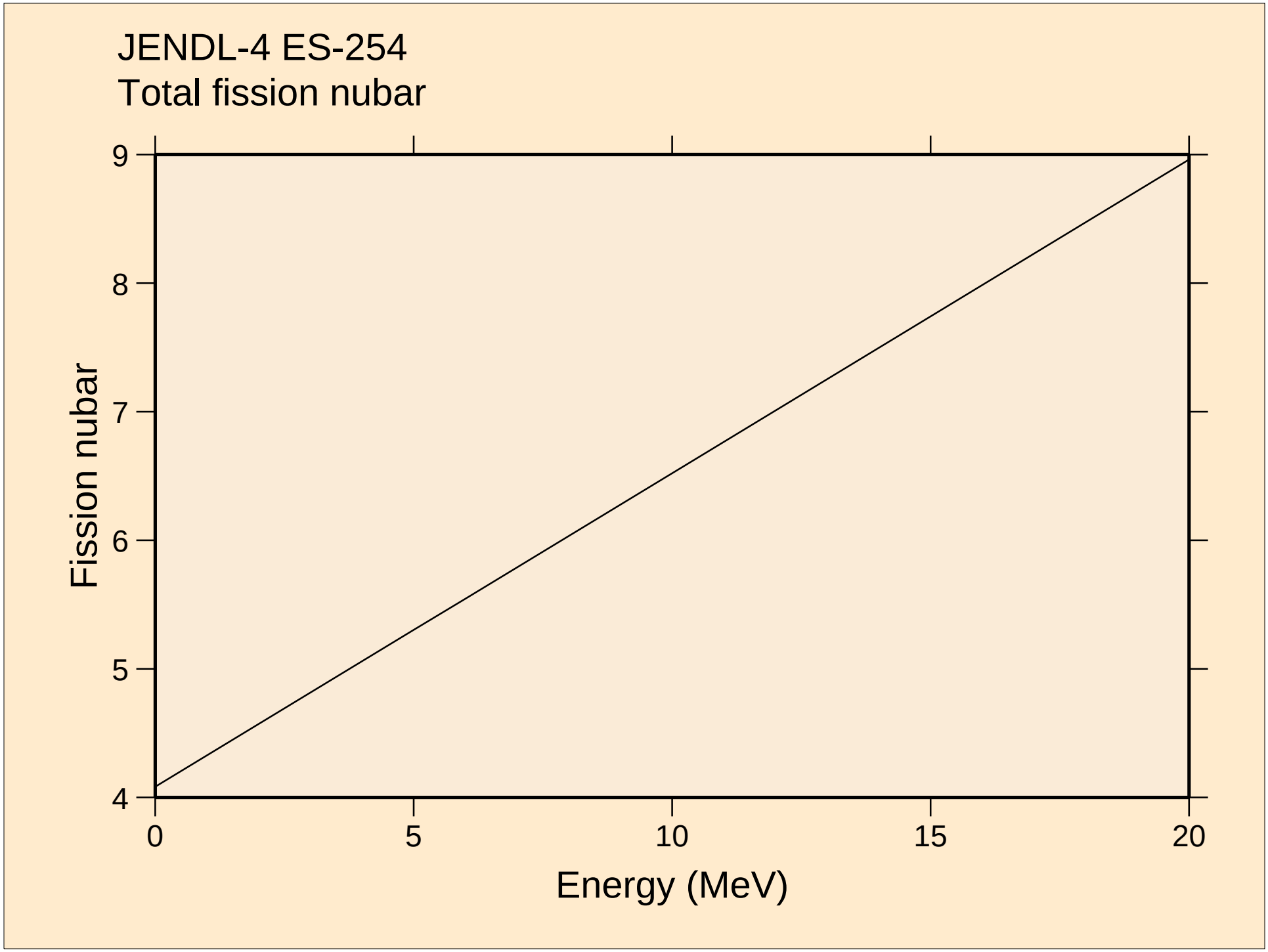

JENDL-4 ES-254
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
10^{0}
10^{-1}
10^{-2}
10^{-3}
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

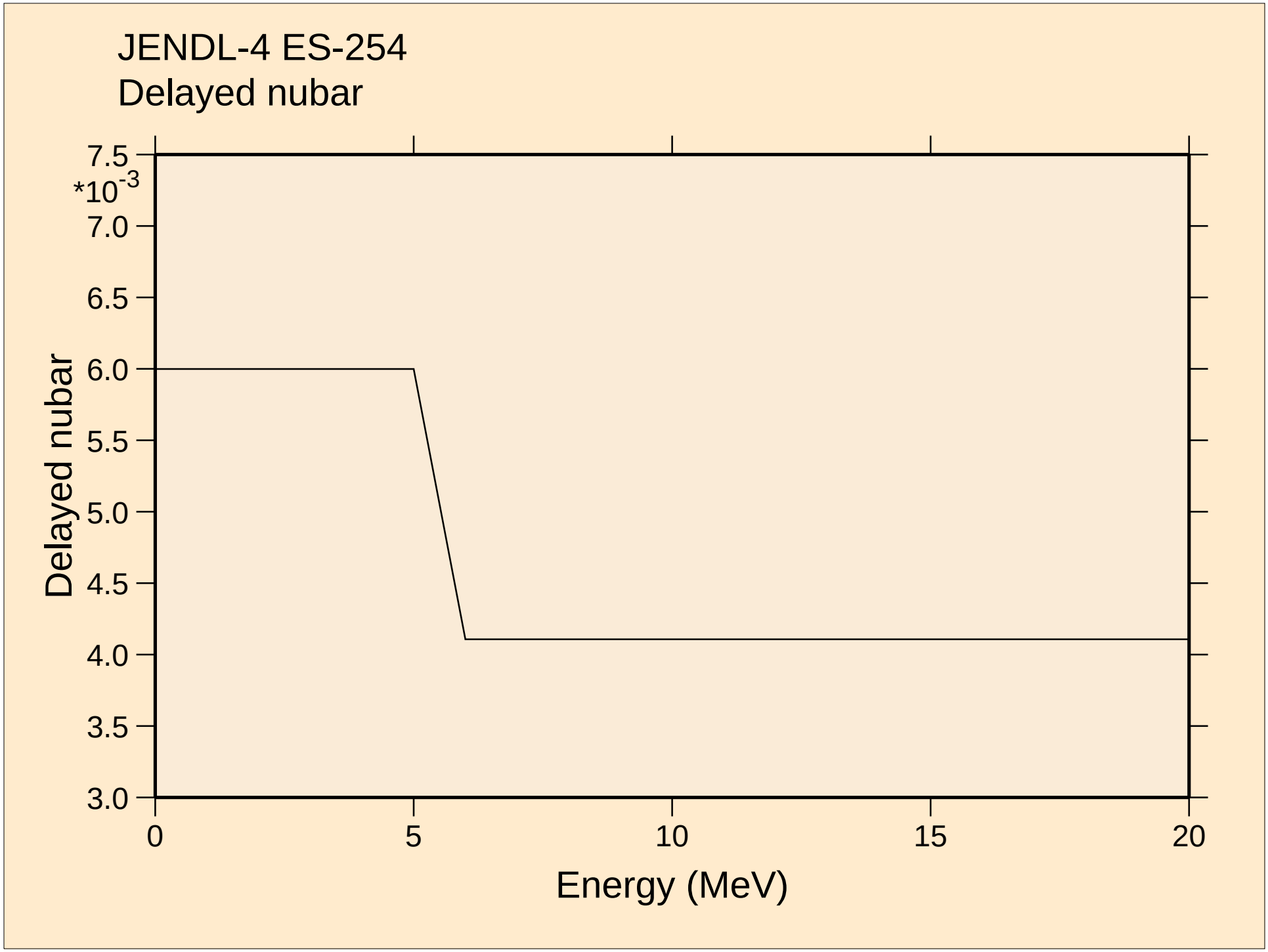

JENDL-4 ES-254
Inelastic levels
300
*10-3
250
200
150
100
50
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

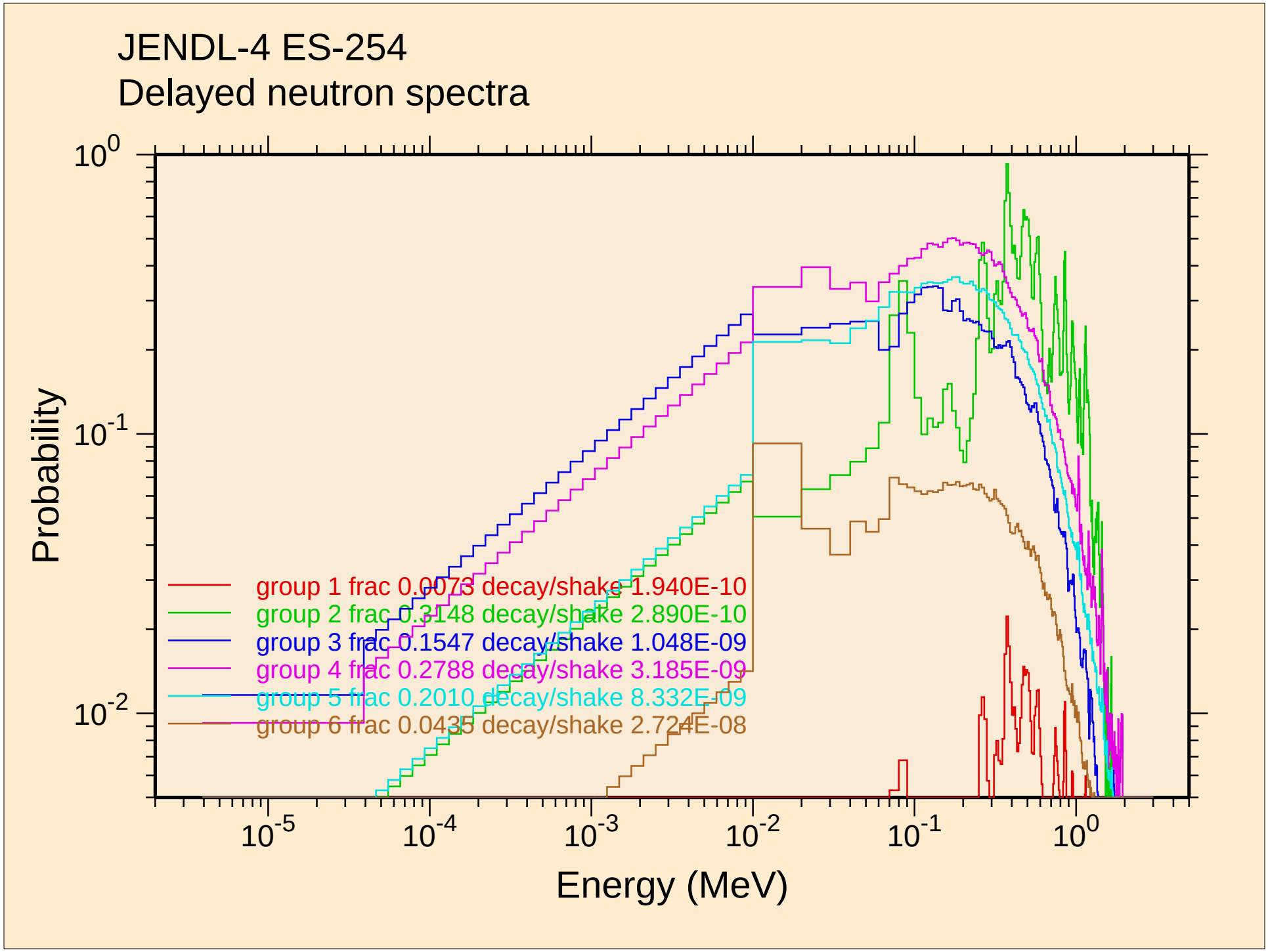

JENDL-4 ES-254
Inelastic levels
Cross section (barns)
*10-3
40
35
30
25
20
15
10
5
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)


JENDL-4 ES-254
Threshold reactions
(n,2n)
(n,3n)
(n,4n)
(n,n*c)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
0
2
4
6
8
10
12
14
16
18
20

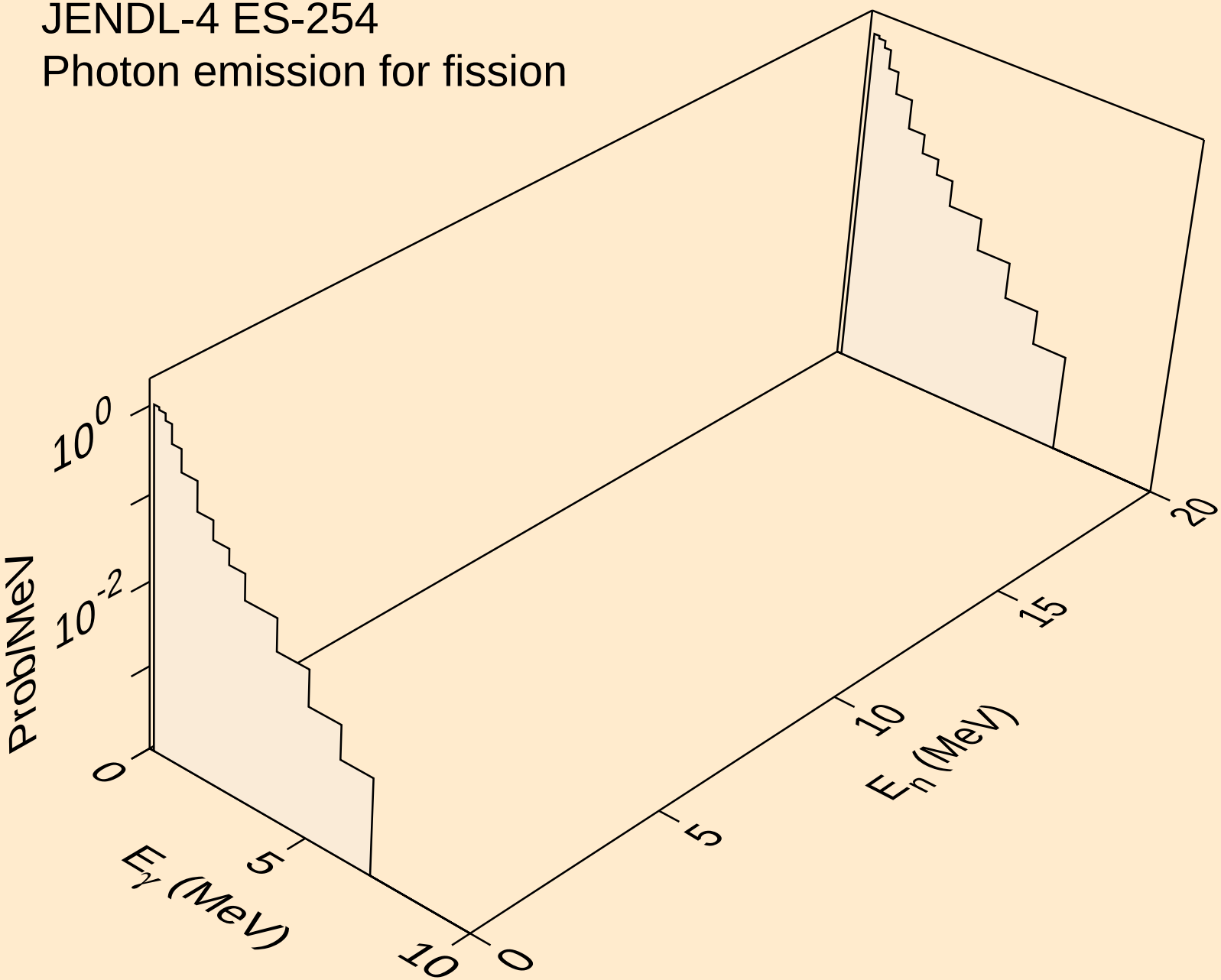

JENDL-4 ES-254
angular distribution for elastic
ProblCos
10^{1}
10^{-1}
10^{-3}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
5
10
15
20


JENDL-4 ES-254
Total fission nubar
Fission nubar
9
8
7
6
5
4
0
5
10
15
20
Energy (MeV)

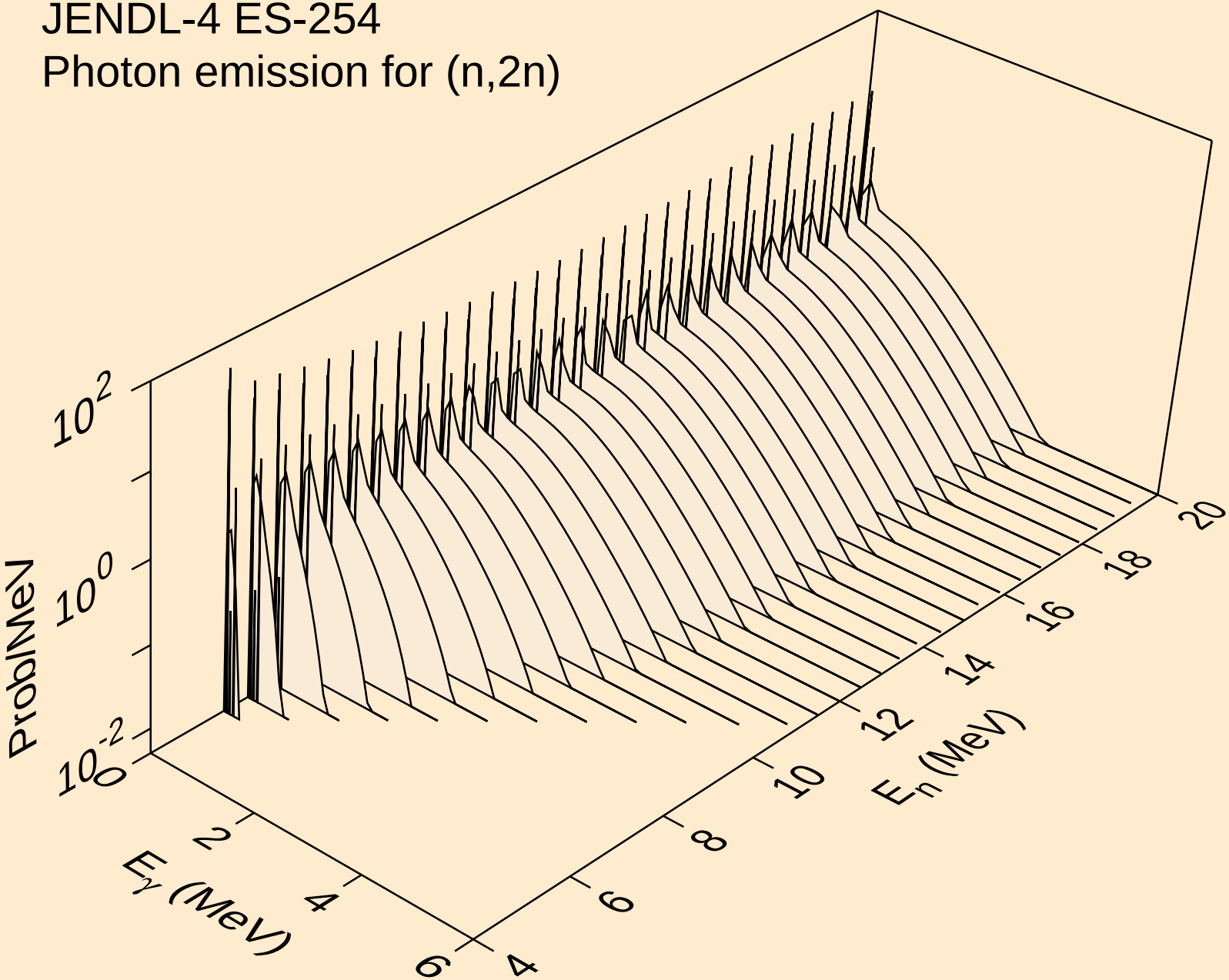

JENDL-4 ES-254
Delayed nubar
7.5
*10-3
7.0
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
Delayed nubar
0
5
10
15
20
Energy (MeV)

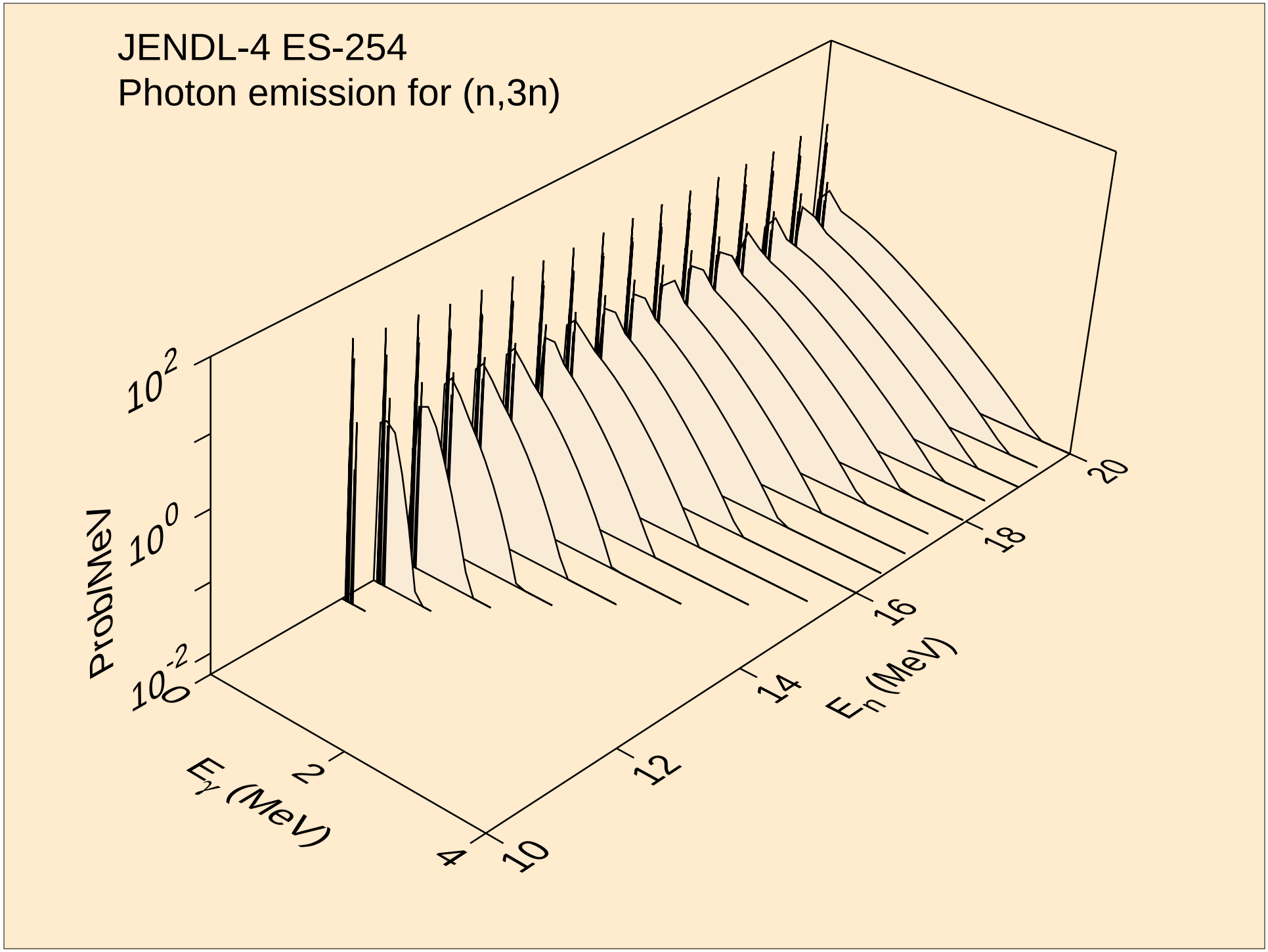

JENDL-4 ES-254
Delayed neutron spectra
Probability
Energy (MeV)
group 1 frac 0.0073 decay/shake 1.940E-10
group 2 frac 0.3148 decay/shake 2.890E-10
group 3 frac 0.1547 decay/shake 1.048E-09
group 4 frac 0.2788 decay/shake 3.185E-09
group 5 frac 0.2010 decay/shake 8.332E-09
group 6 frac 0.0435 decay/shake 2.724E-08

JENDL-4 ES-254
Photon emission for fission

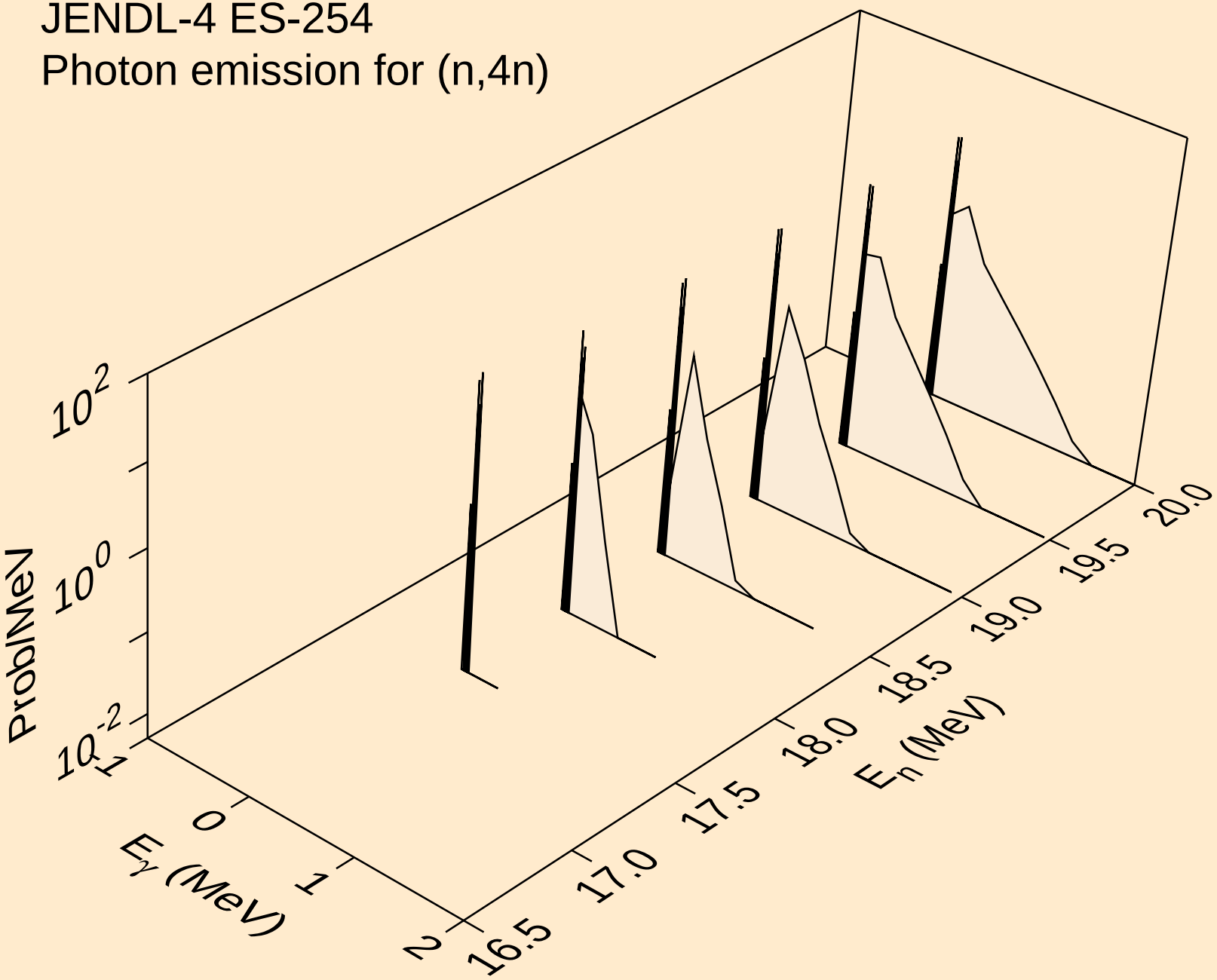


JENDL-4 ES-254
Photon emission for (n,2n)

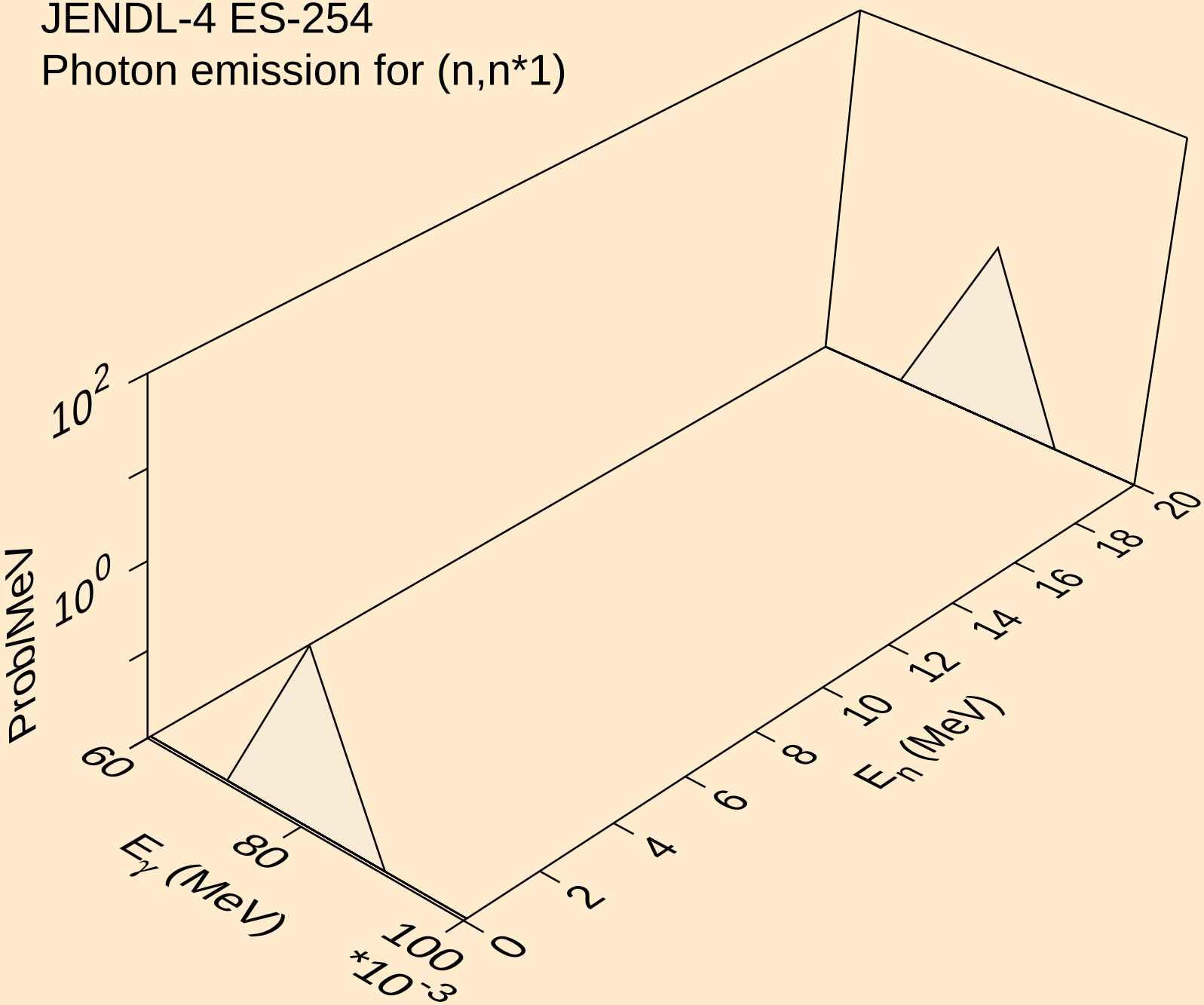



JENDL-4 ES-254
Photon emission for (n,3n)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
2
4
E_γ (MeV)
10
12
14
16
18
20
E_n (MeV)

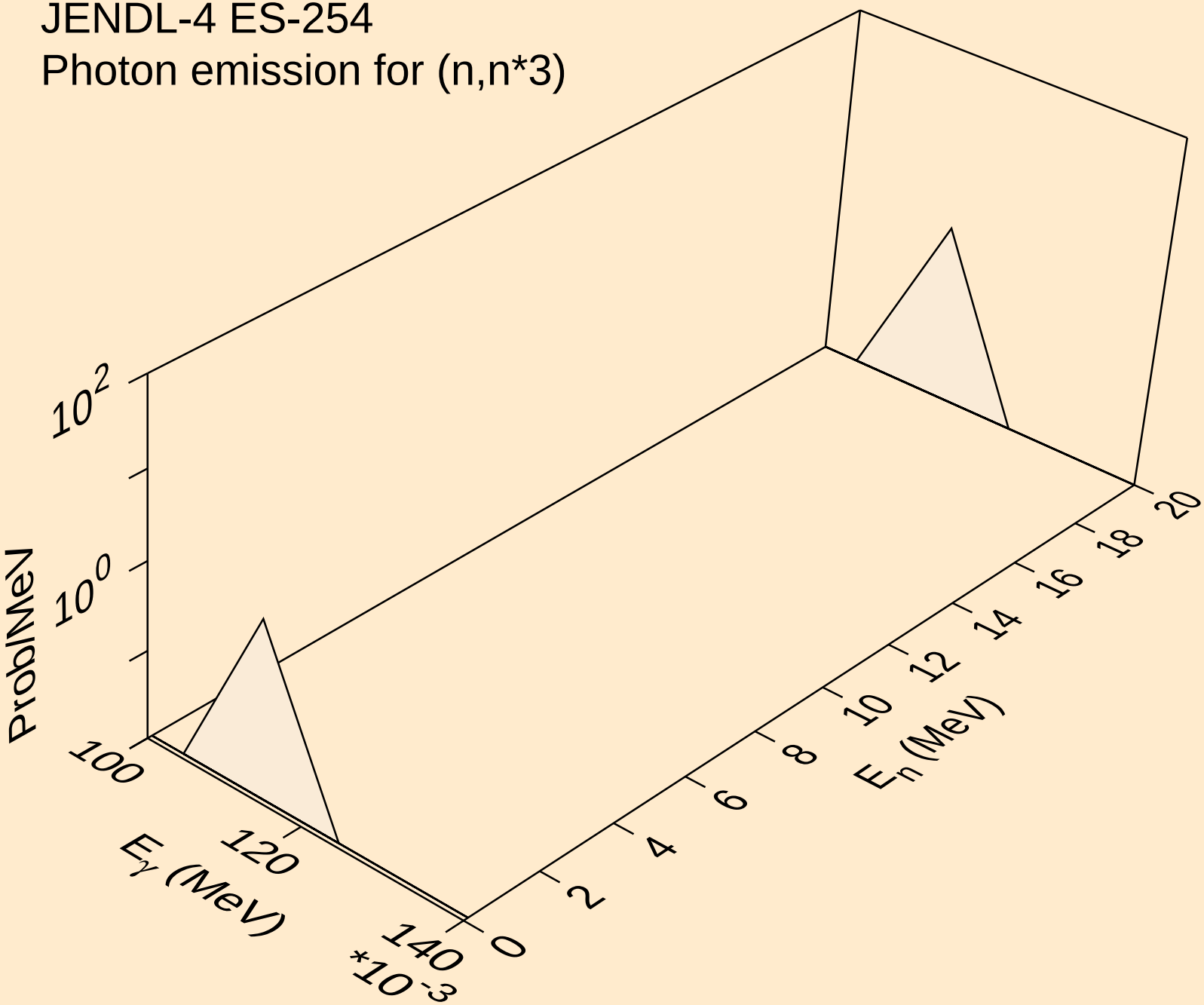
JENDL-4 ES-254
Photon emission for (n,4n)



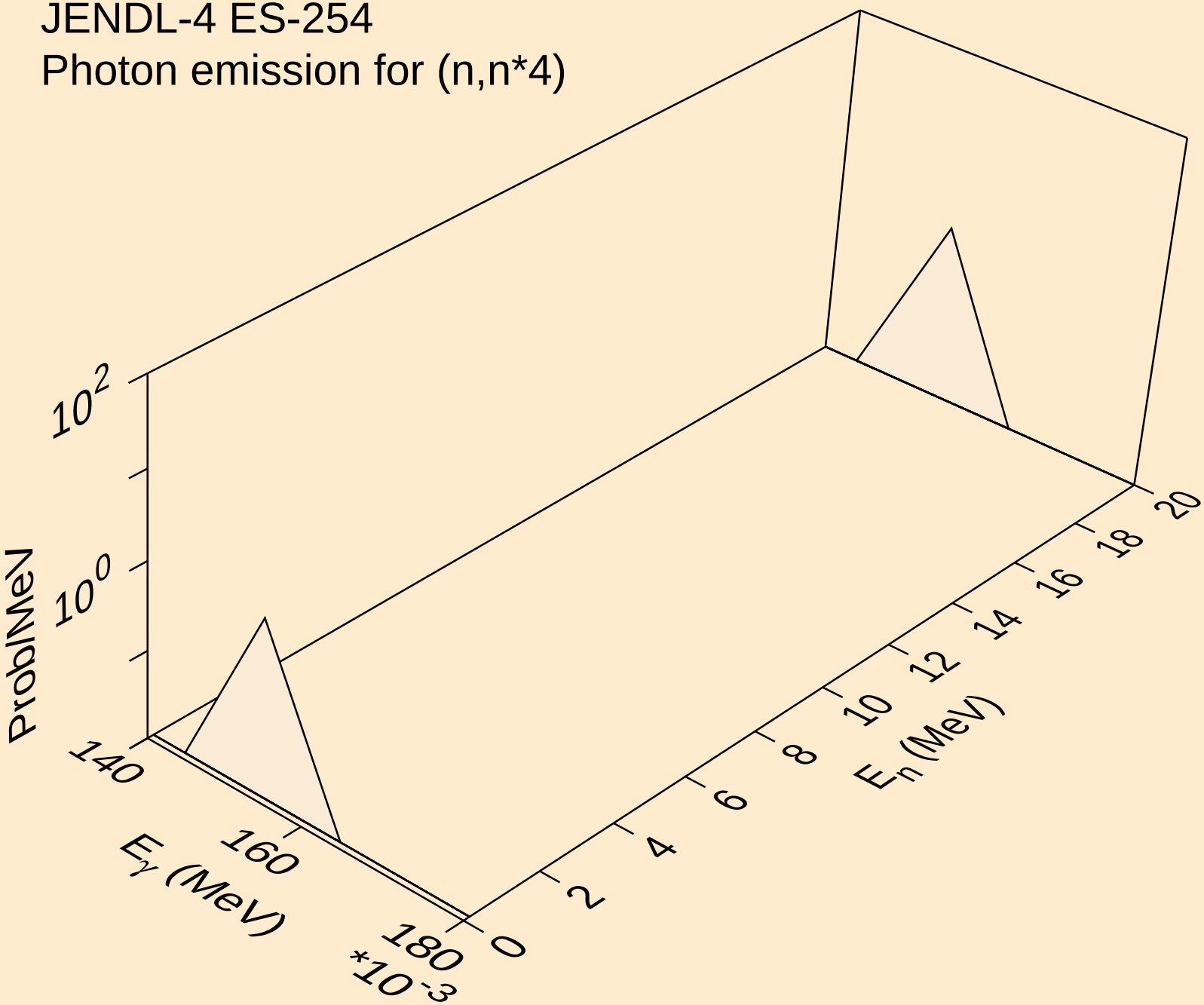
JENDL-4 ES-254
Photon emission for (n,n*1)



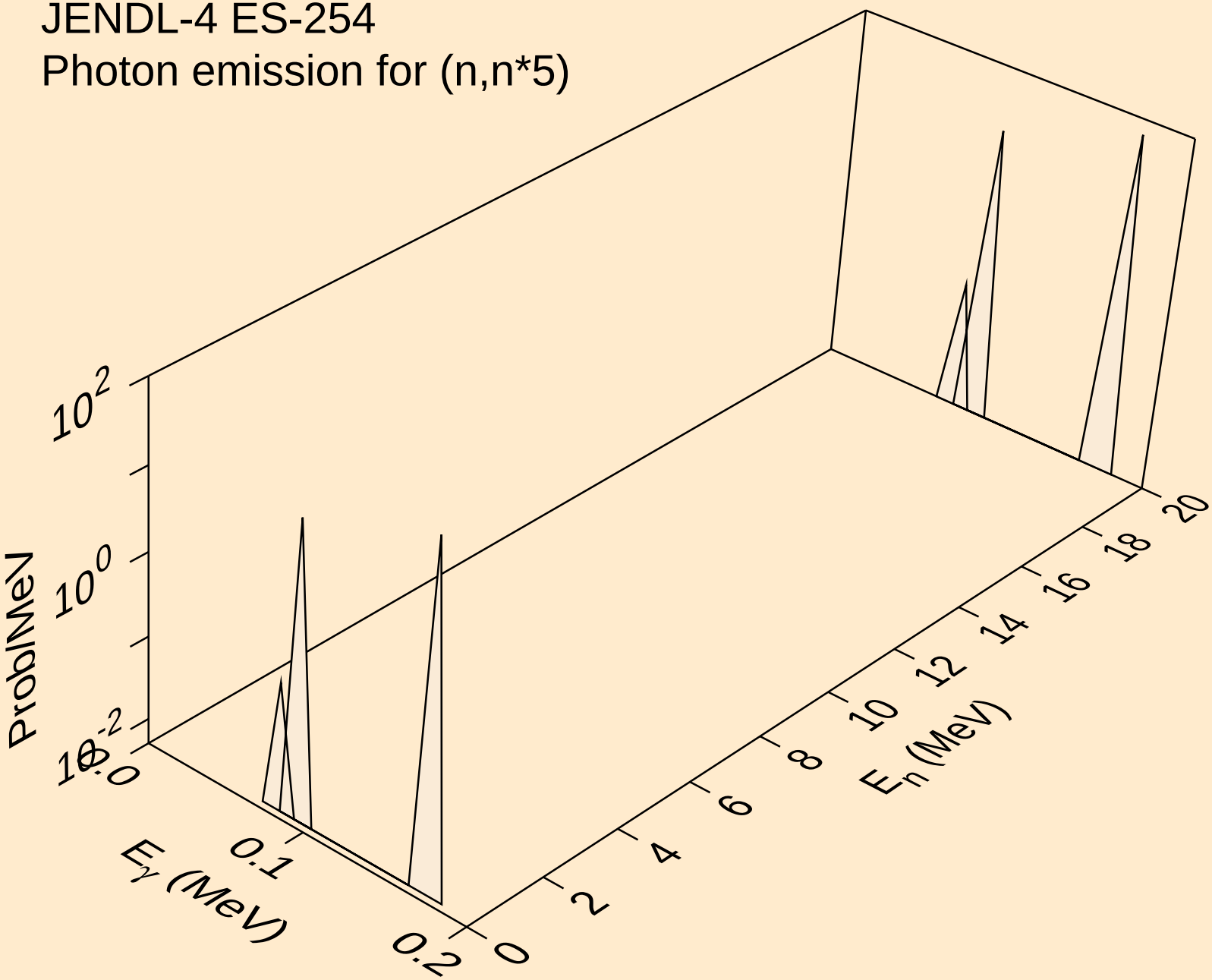
JENDL-4 ES-254
Photon emission for (n,n*3)



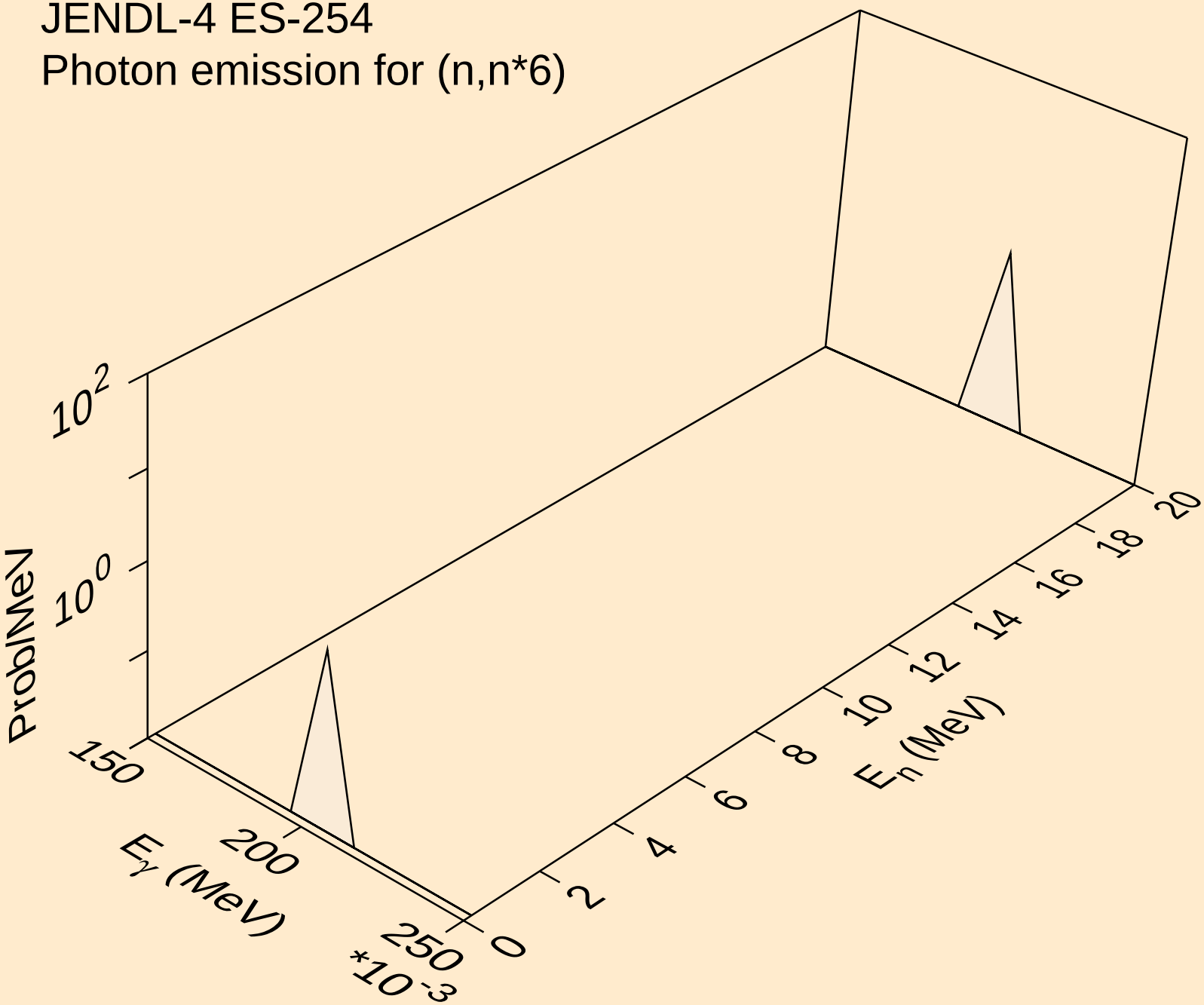
JENDL-4 ES-254
Photon emission for (n,n*4)



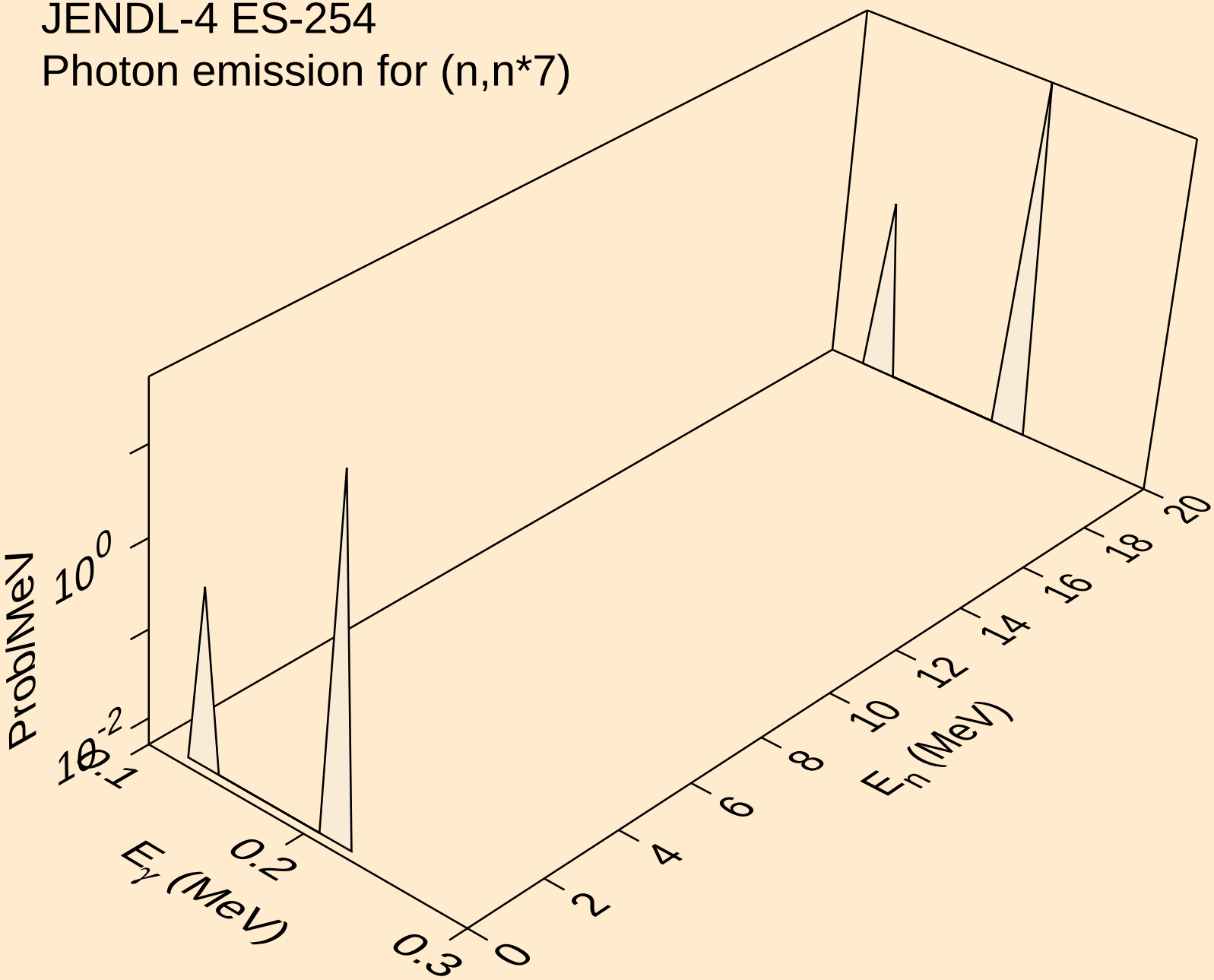
JENDL-4 ES-254
Photon emission for (n,n*5)



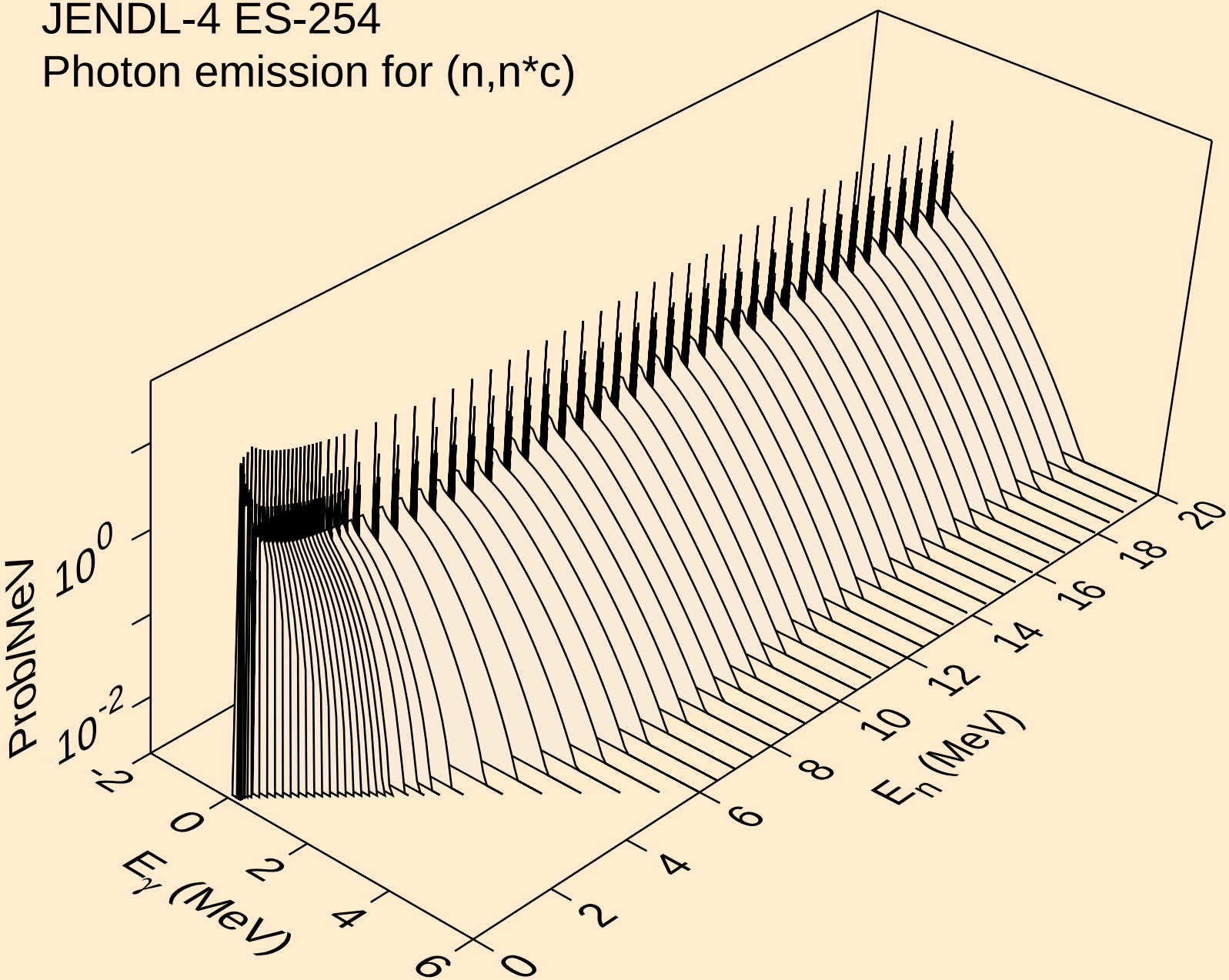
JENDL-4 ES-254
Photon emission for (n,n*6)



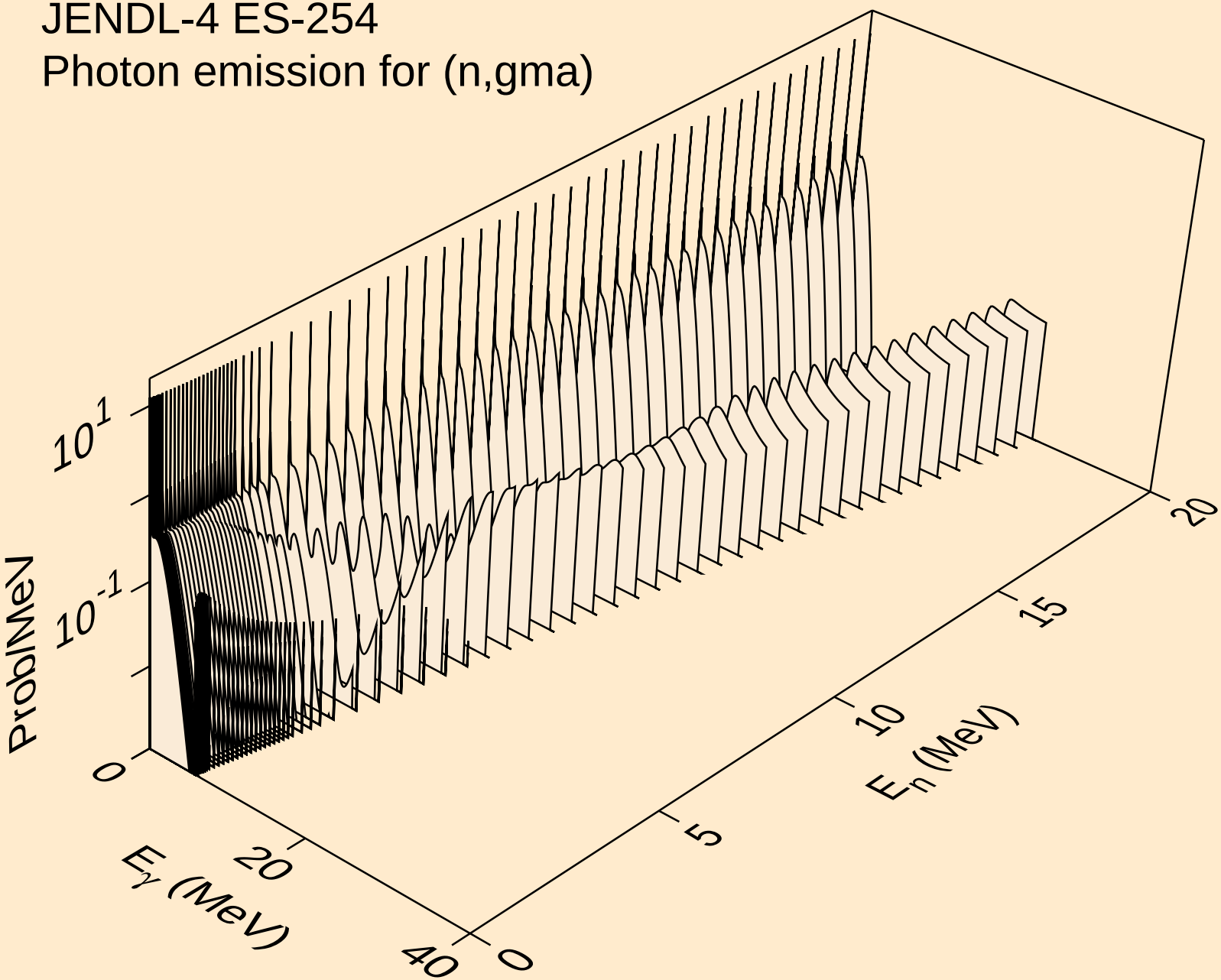
JENDL-4 ES-254
Photon emission for (n,n*7)

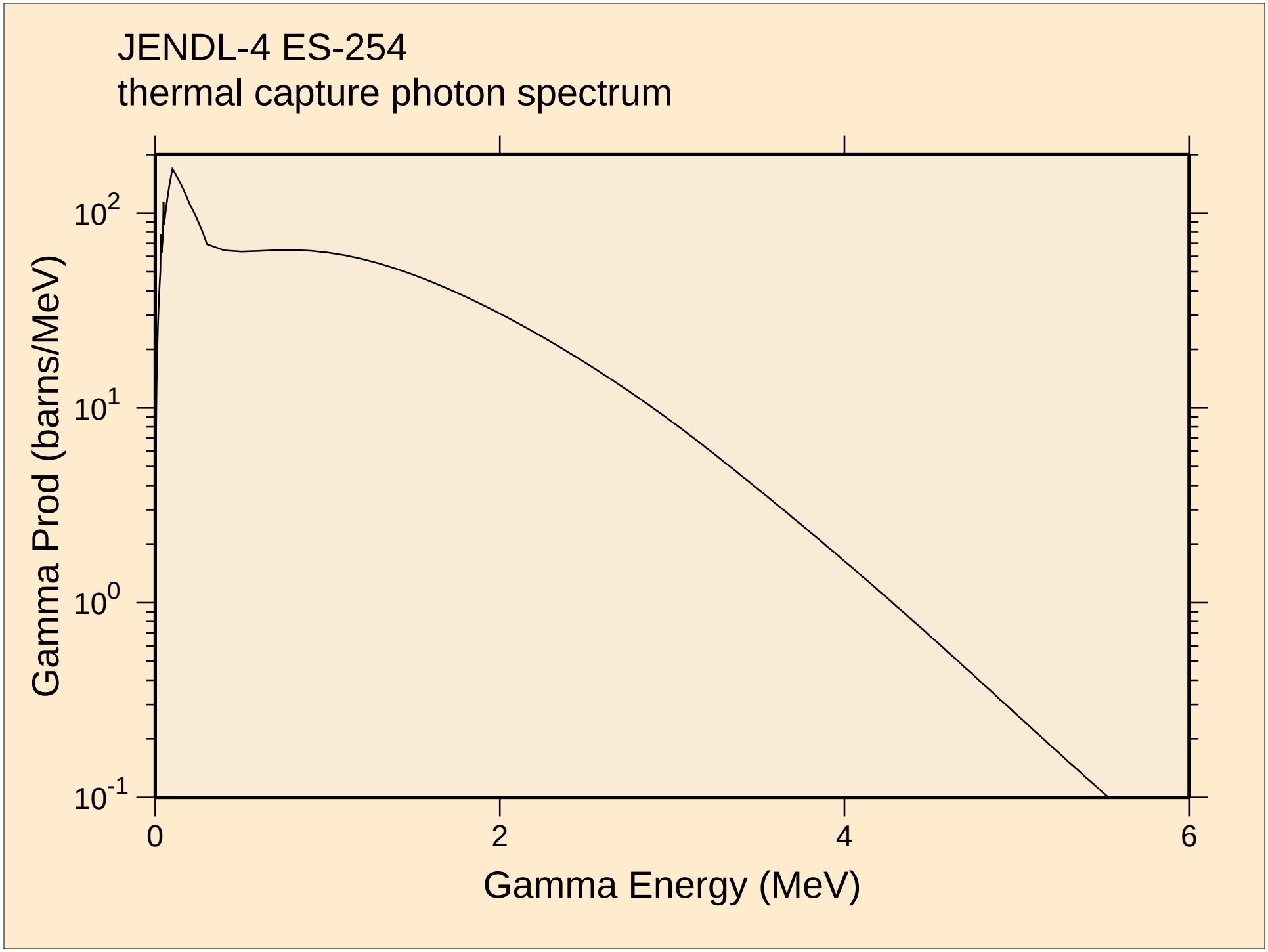


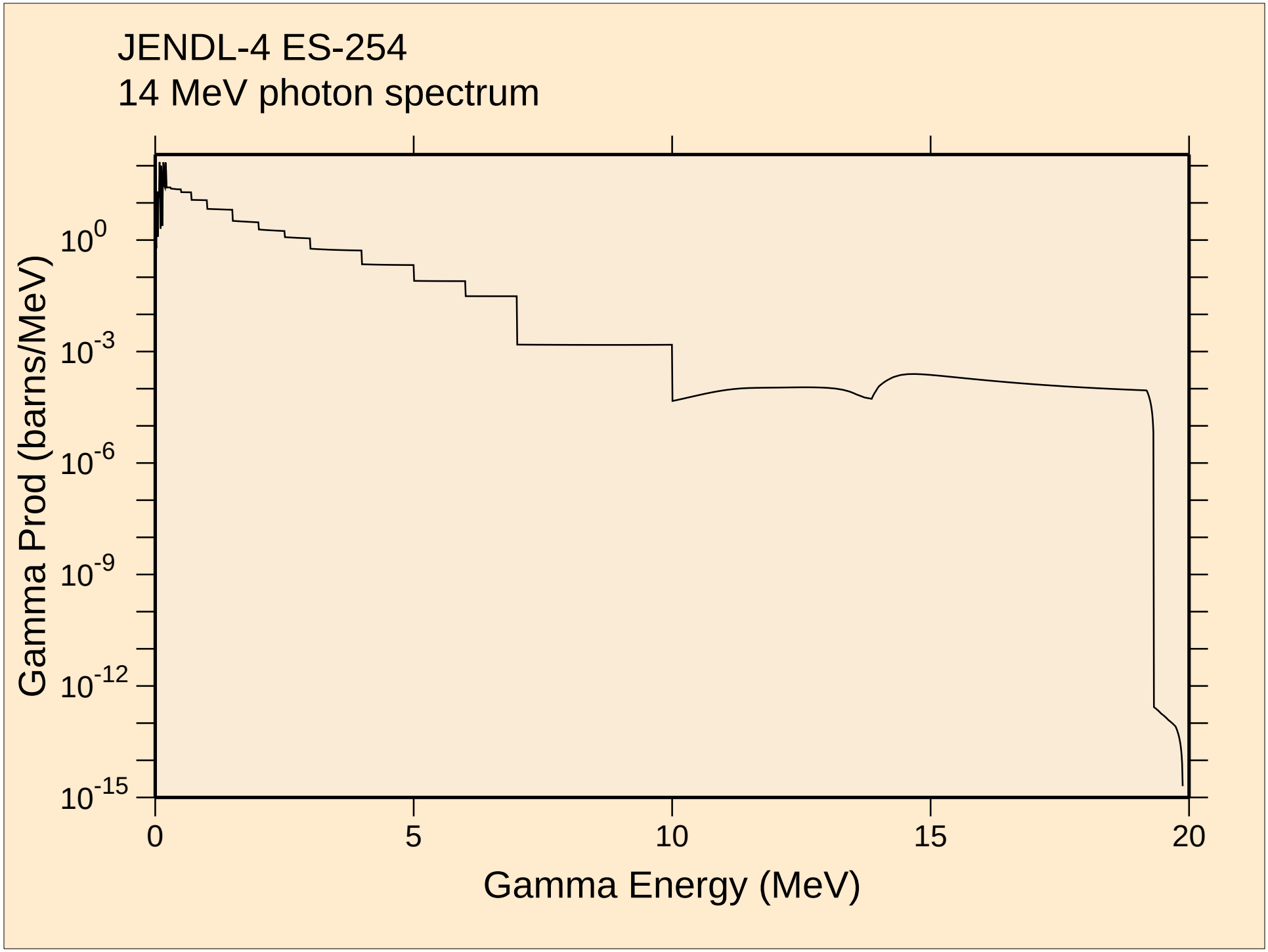
JENDL-4 ES-254
Photon emission for (n,n*c)



JENDL-4 ES-254
Photon emission for (n,gma)




JENDL-4 ES-254
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^{2}
10^{1}
10^{0}
10^{-1}
0
2
4
6
Gamma Energy (MeV)


JENDL-4 ES-254
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^{0}
10^{-3}
10^{-6}
10^{-9}
10^{-12}
10^{-15}
0
5
10
15
20
Gamma Energy (MeV)