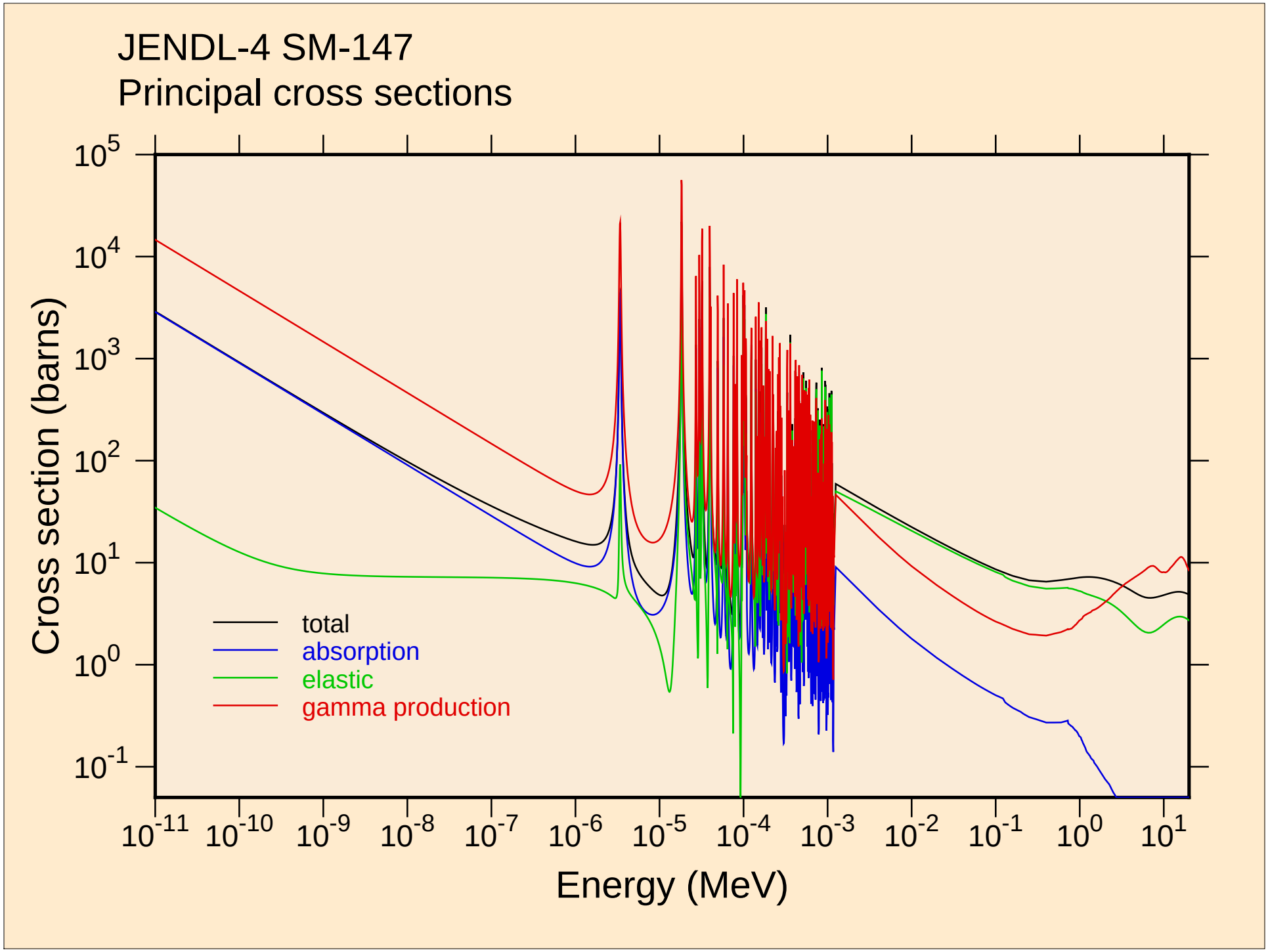
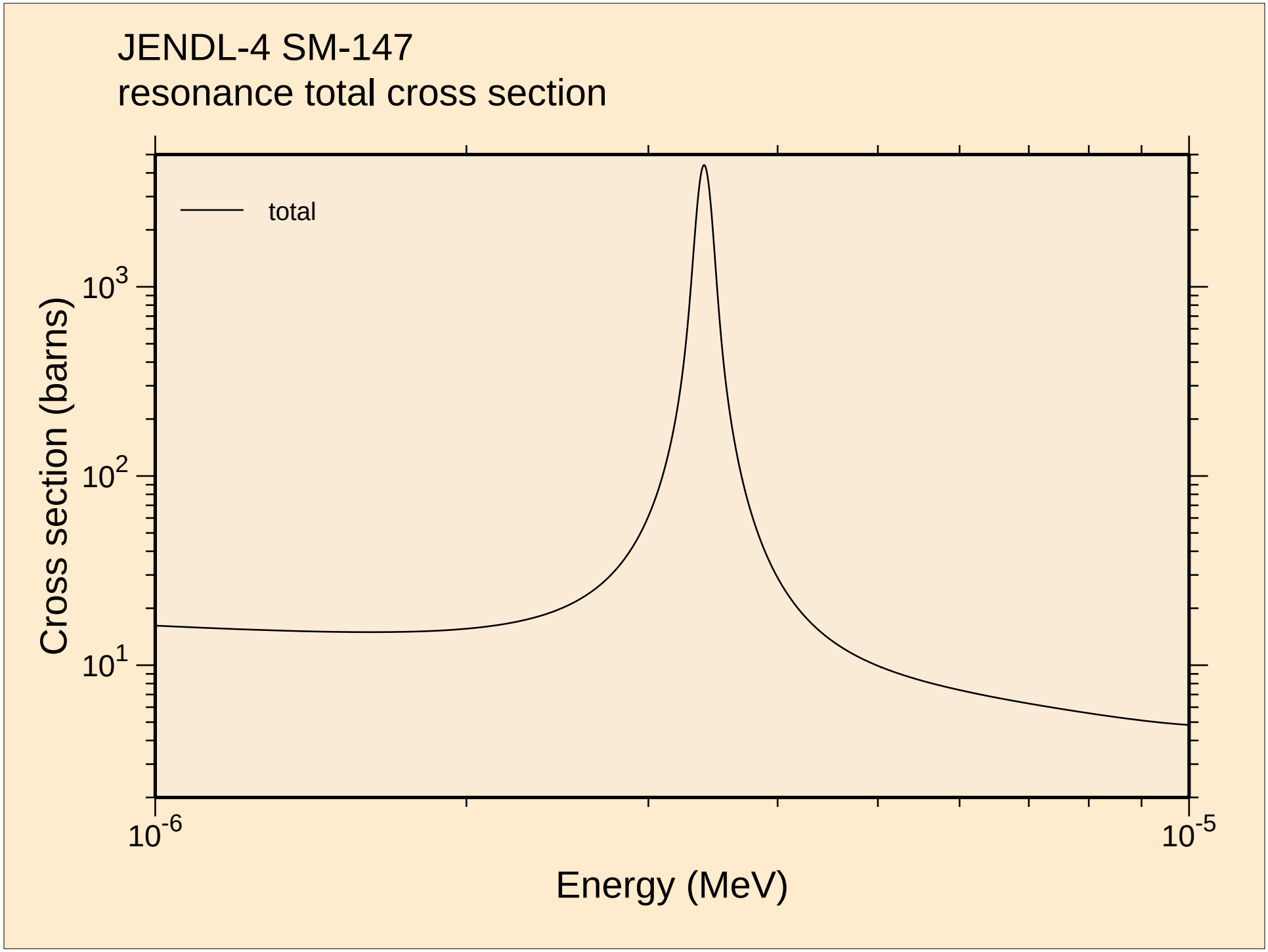
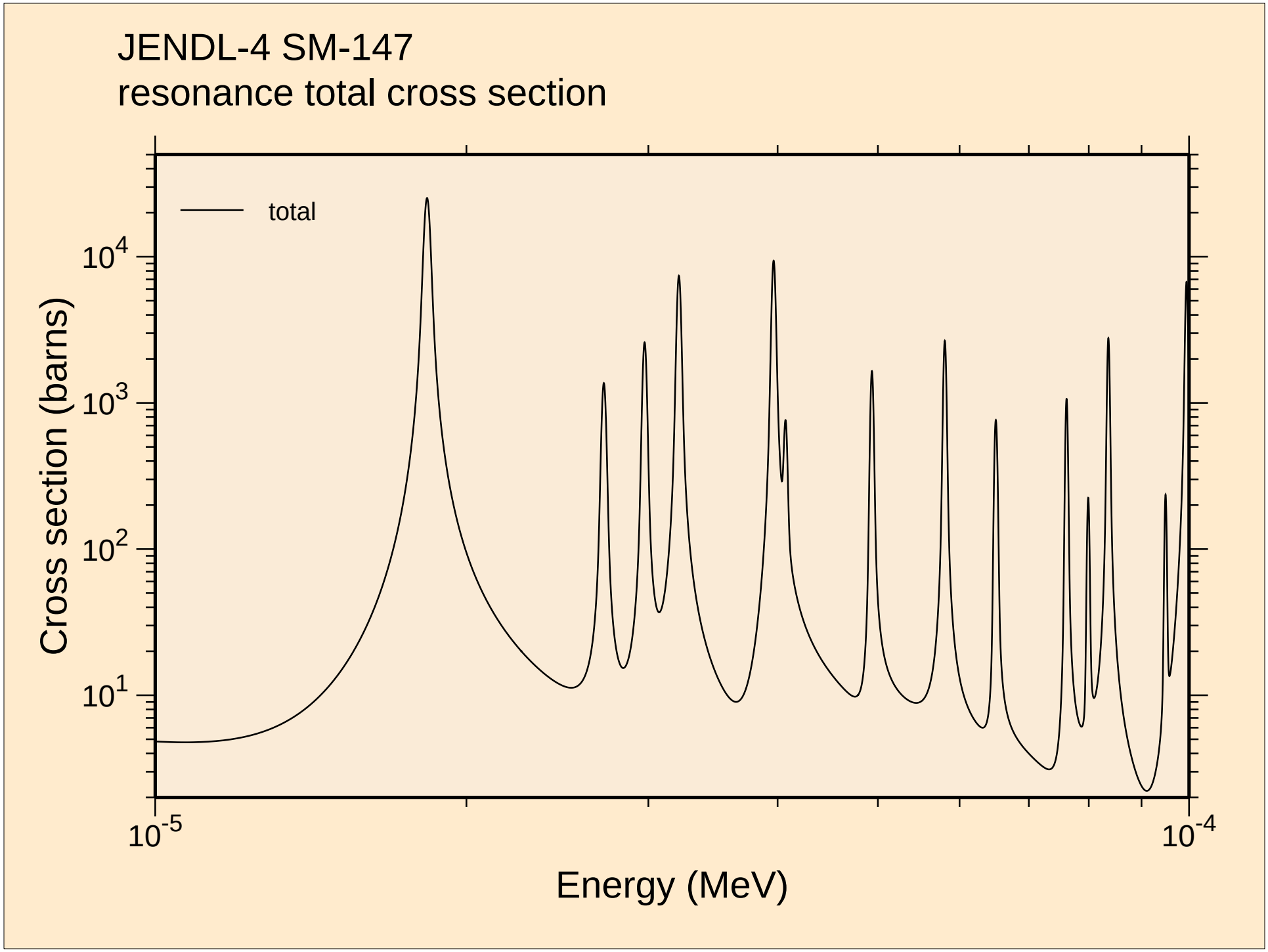
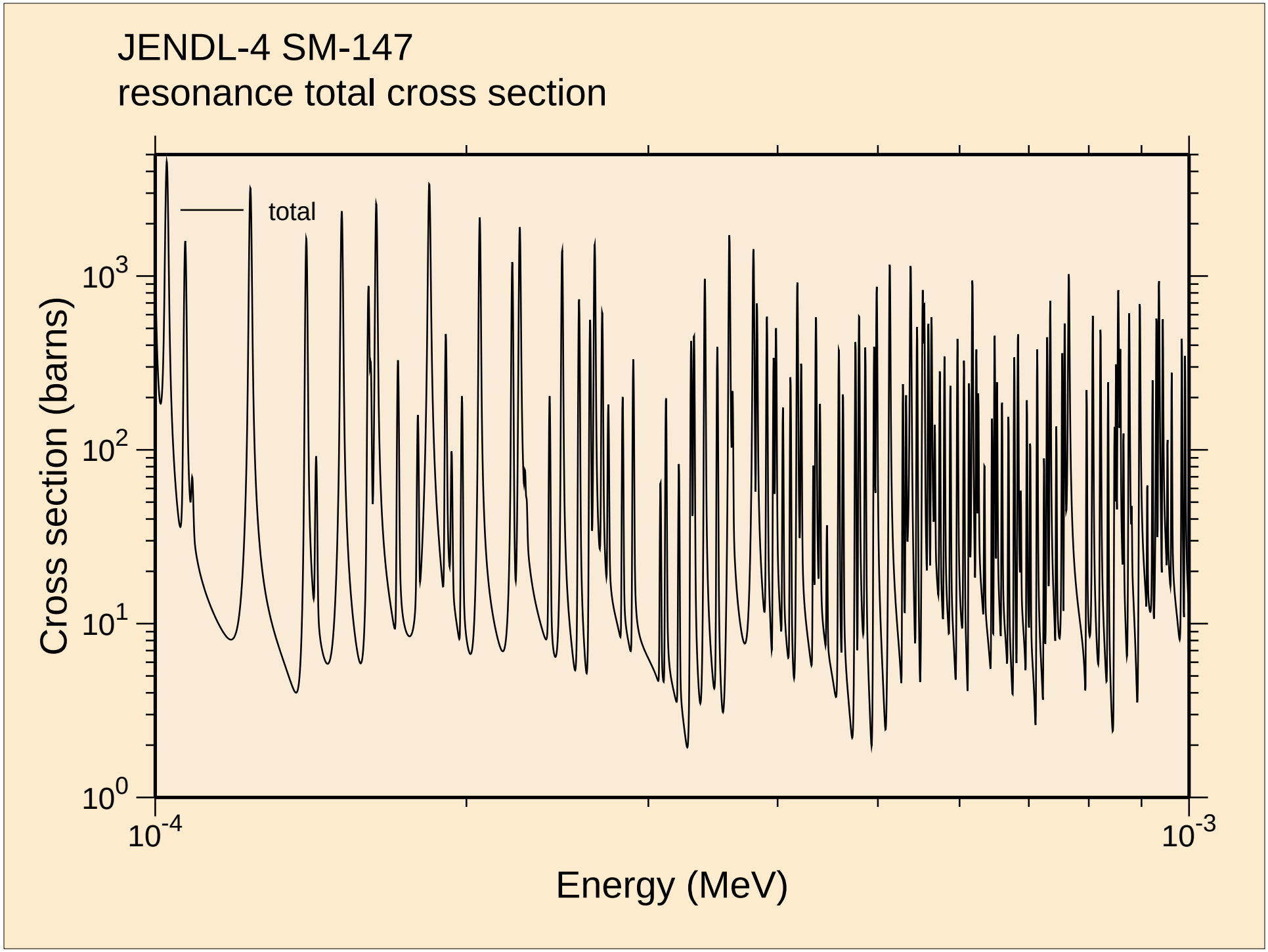
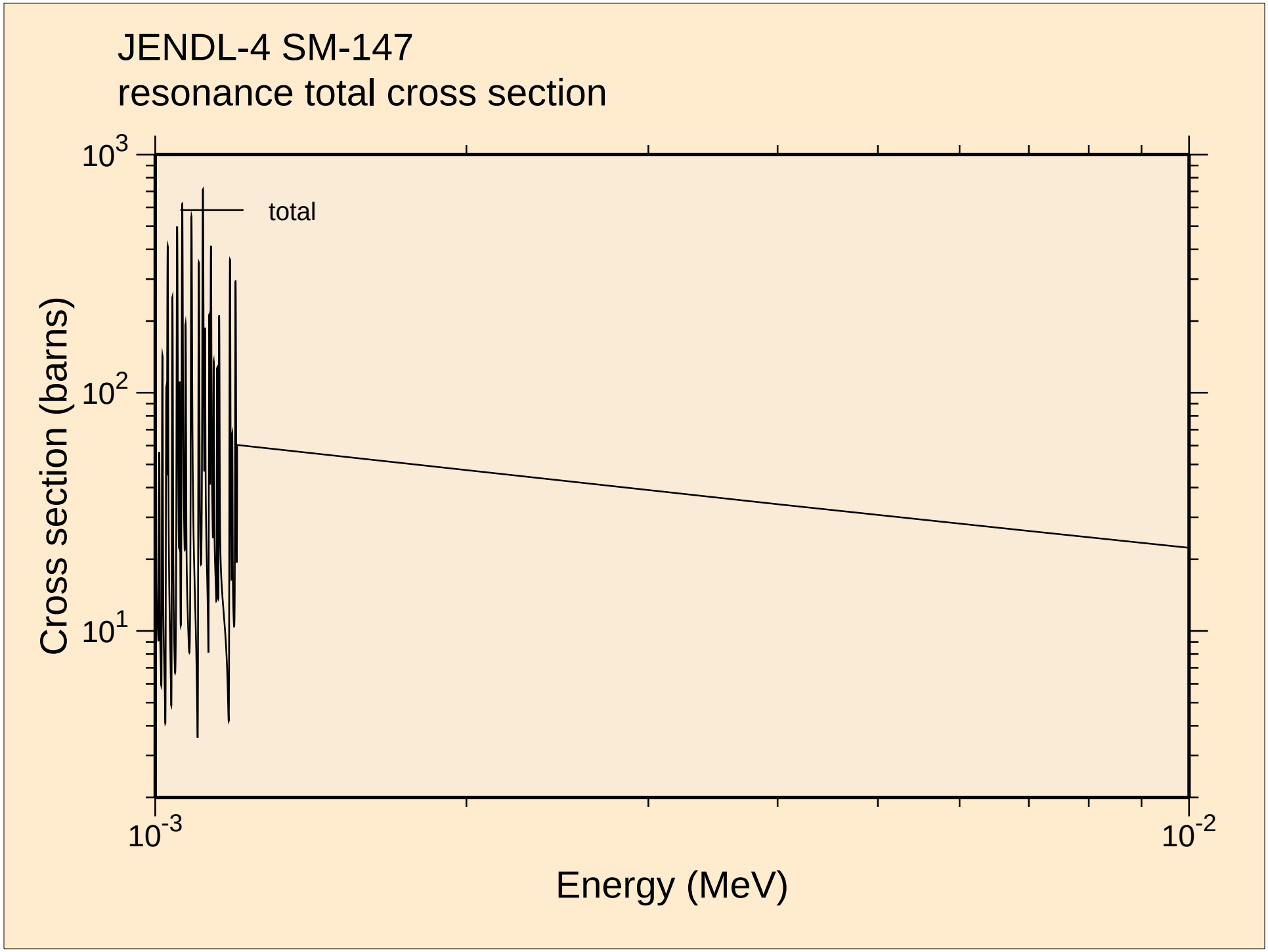
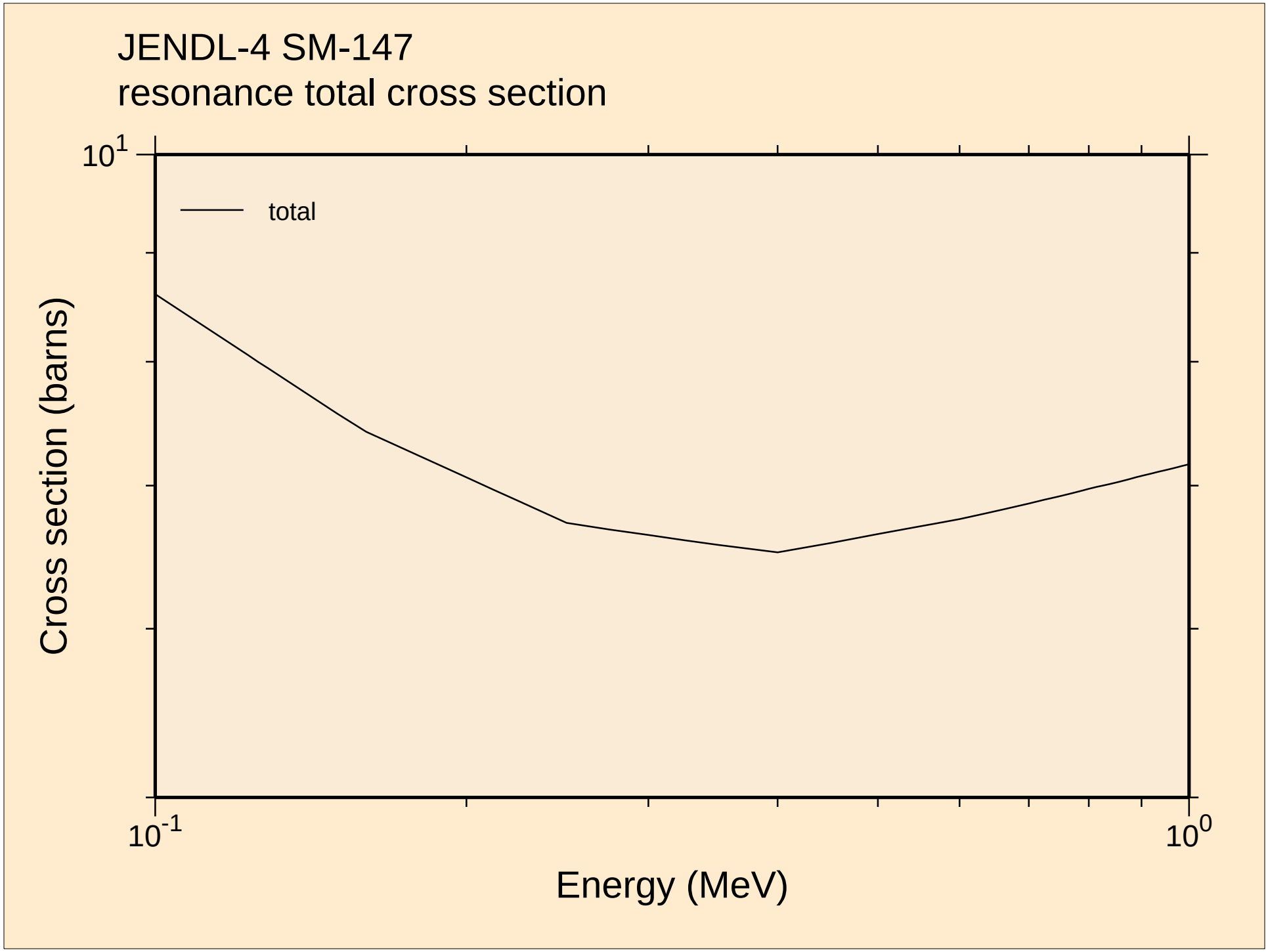

JENDL-4 SM-147
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production

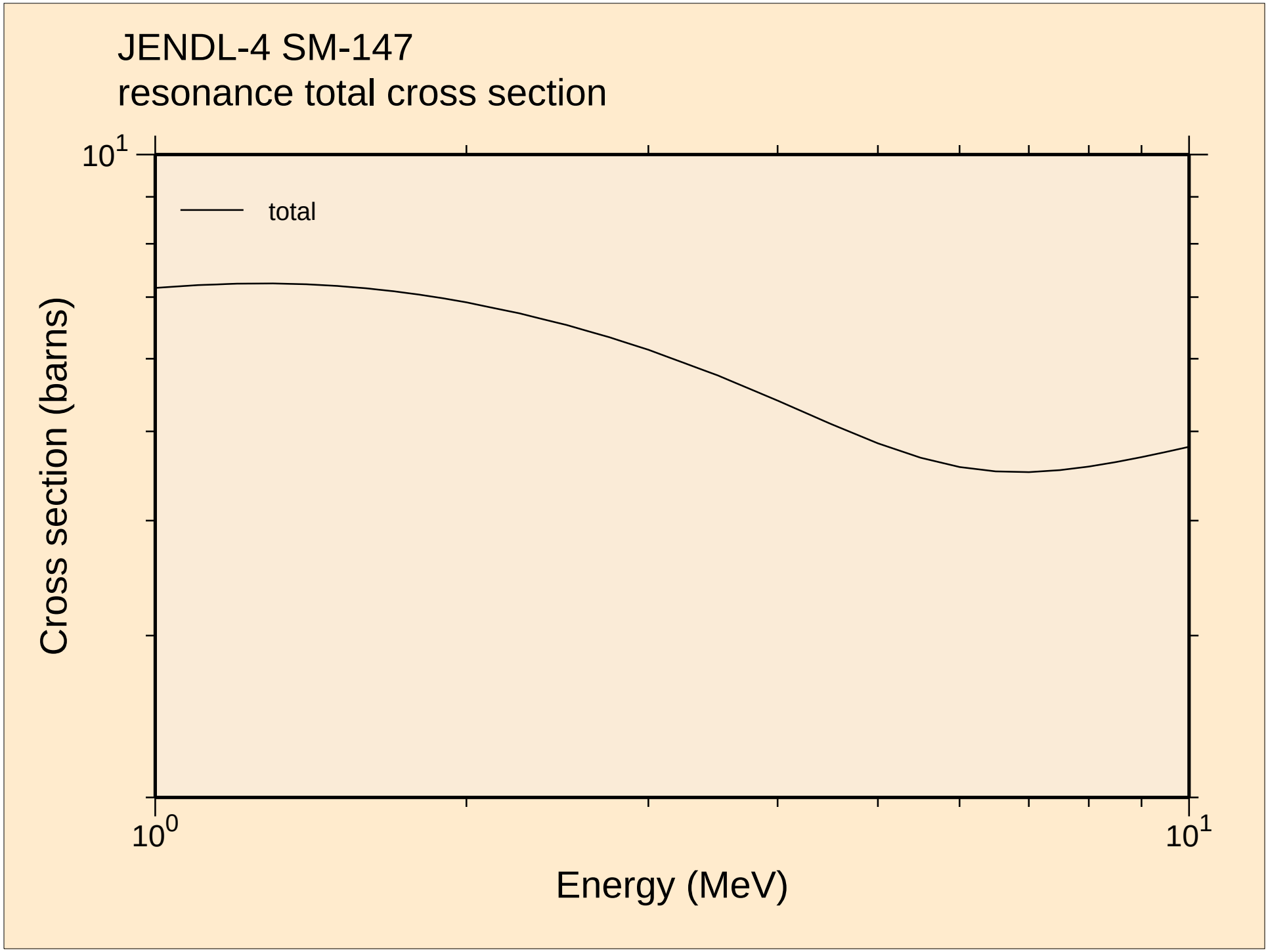

JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-6}
10^{-5}
Energy (MeV)

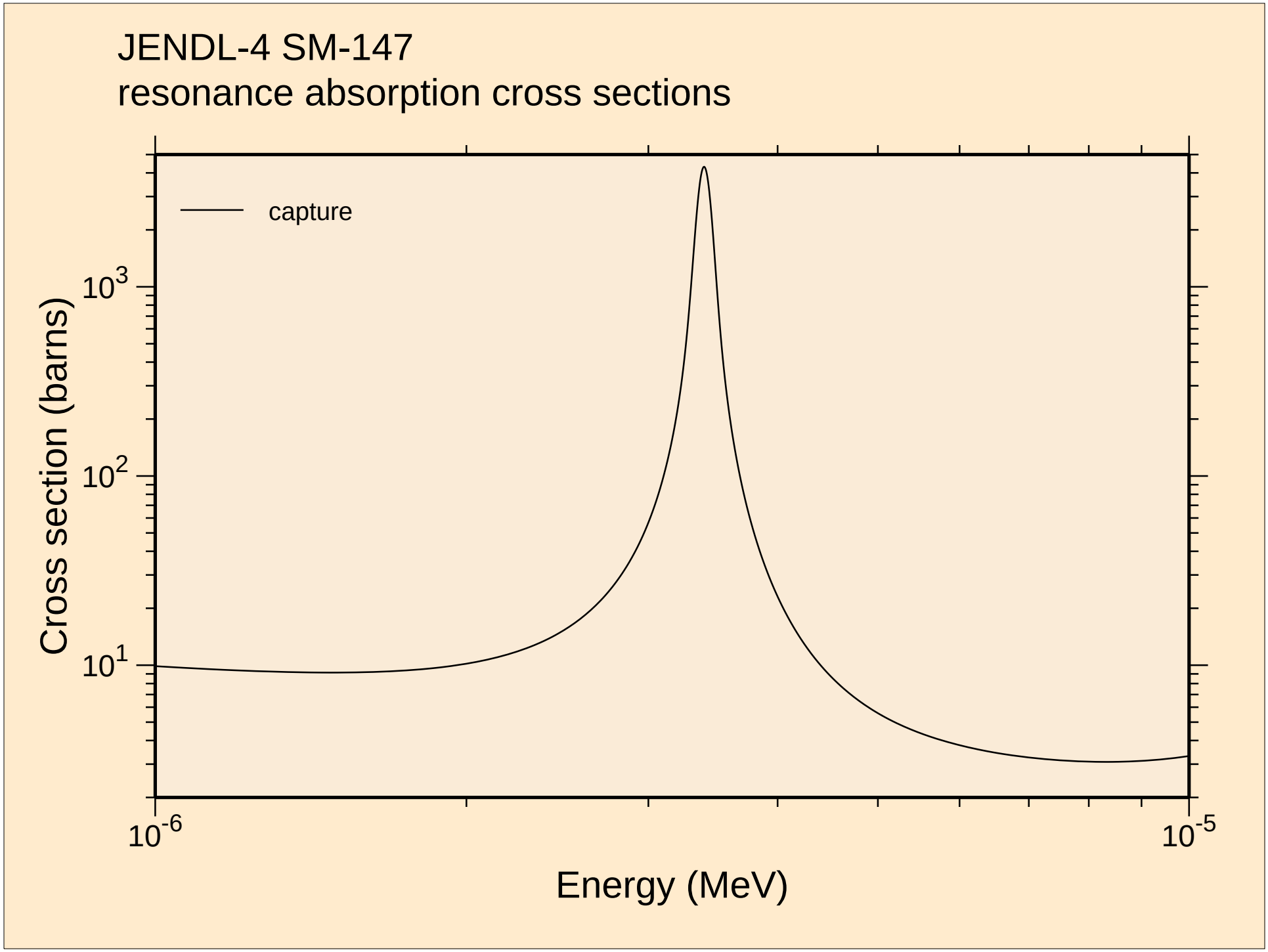

JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
10^4
10^3
10^2
10^1
10^{-5}
10^{-4}
Energy (MeV)

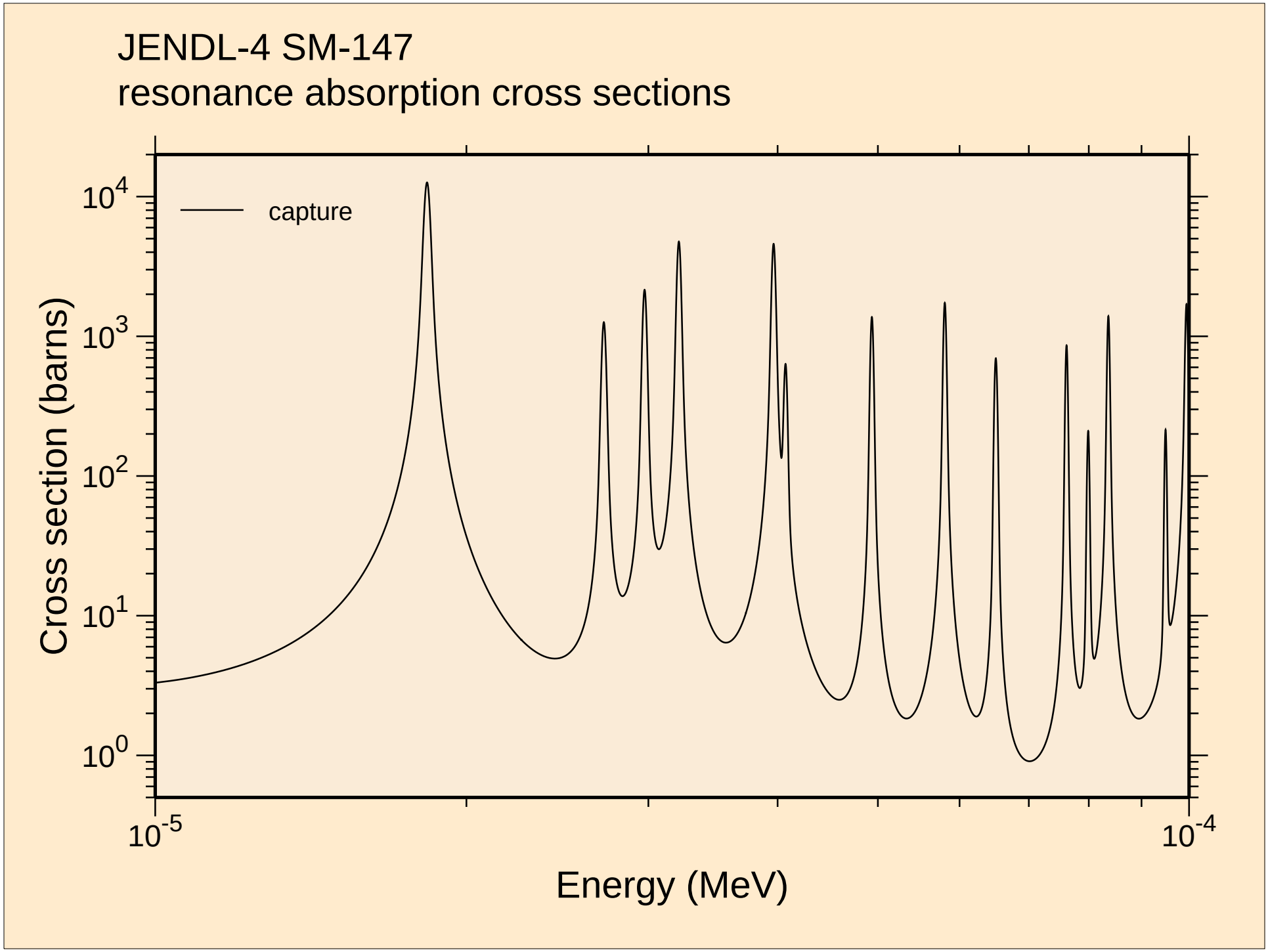

JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^0
10^{-4}
10^{-3}
Energy (MeV)


JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-3}
10^{-2}
Energy (MeV)

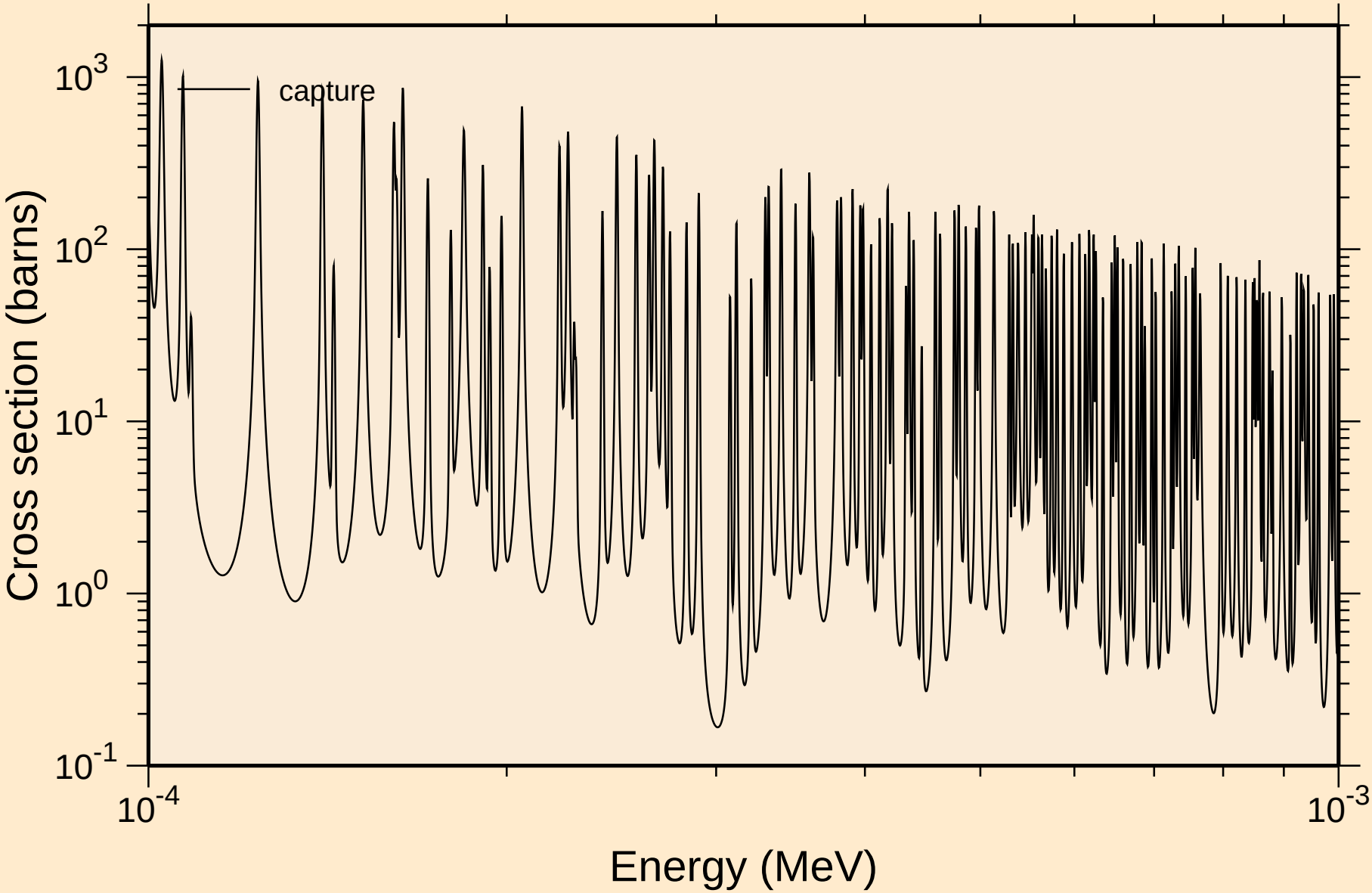

JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^{1}
10^{-1}
10^{0}

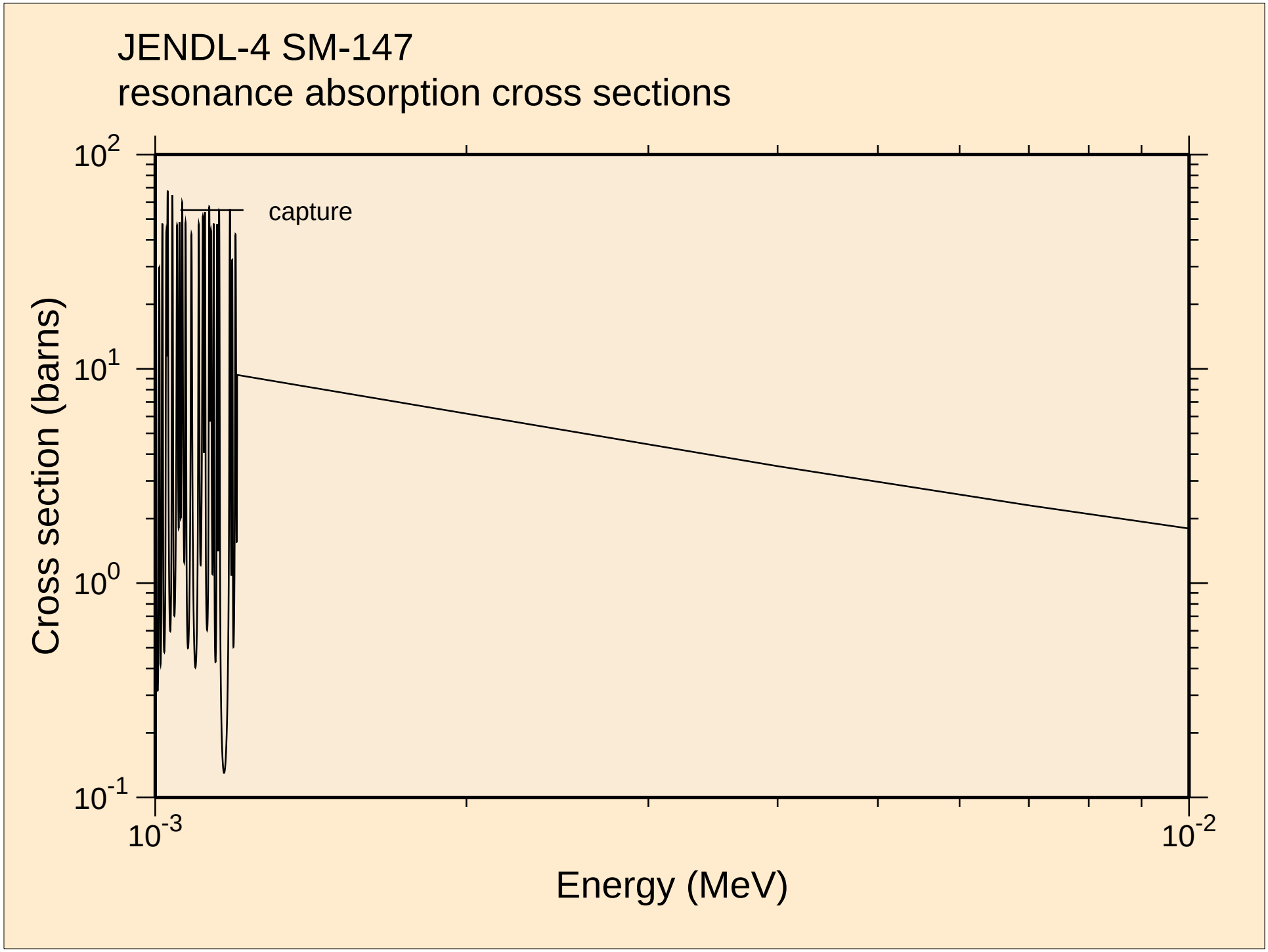

JENDL-4 SM-147
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^1
10^0
10^1

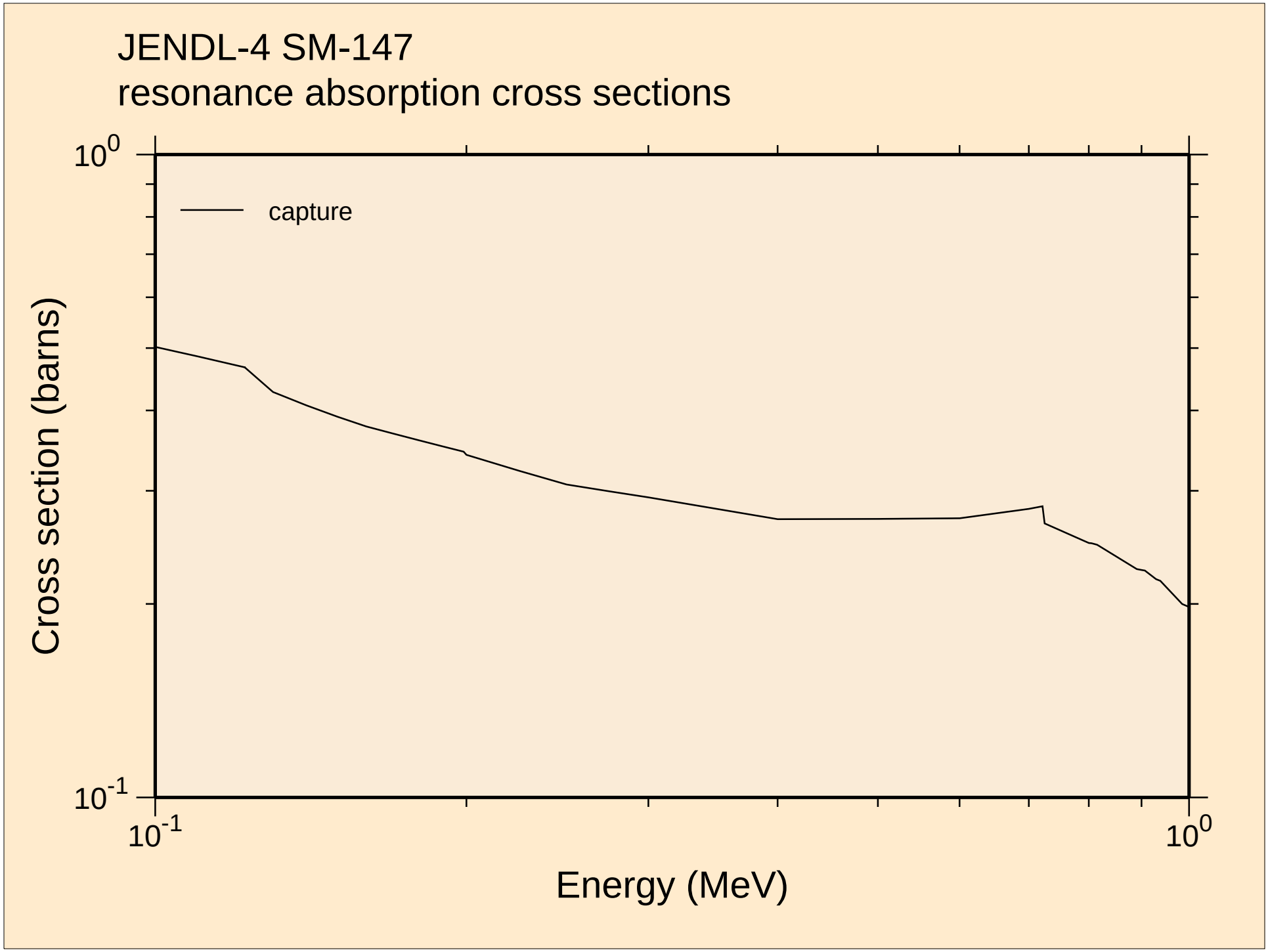

JENDL-4 SM-147
resonance absorption cross sections
capture
Cross section (barns)
10^3
10^2
10^1
10^{-6}
10^{-5}
Energy (MeV)

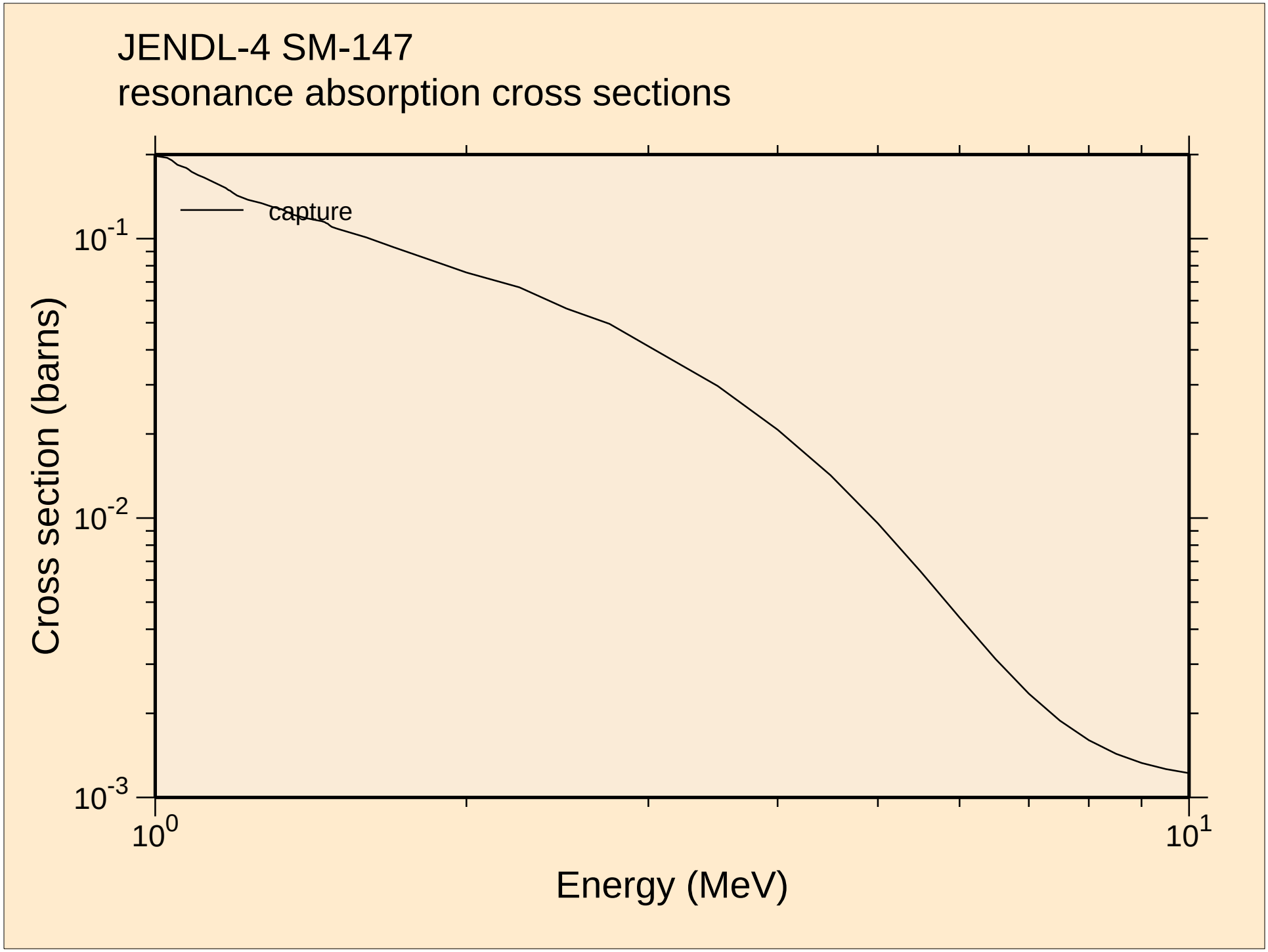

JENDL-4 SM-147
resonance absorption cross sections
capture
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^{-5}
10^{-4}
Energy (MeV)

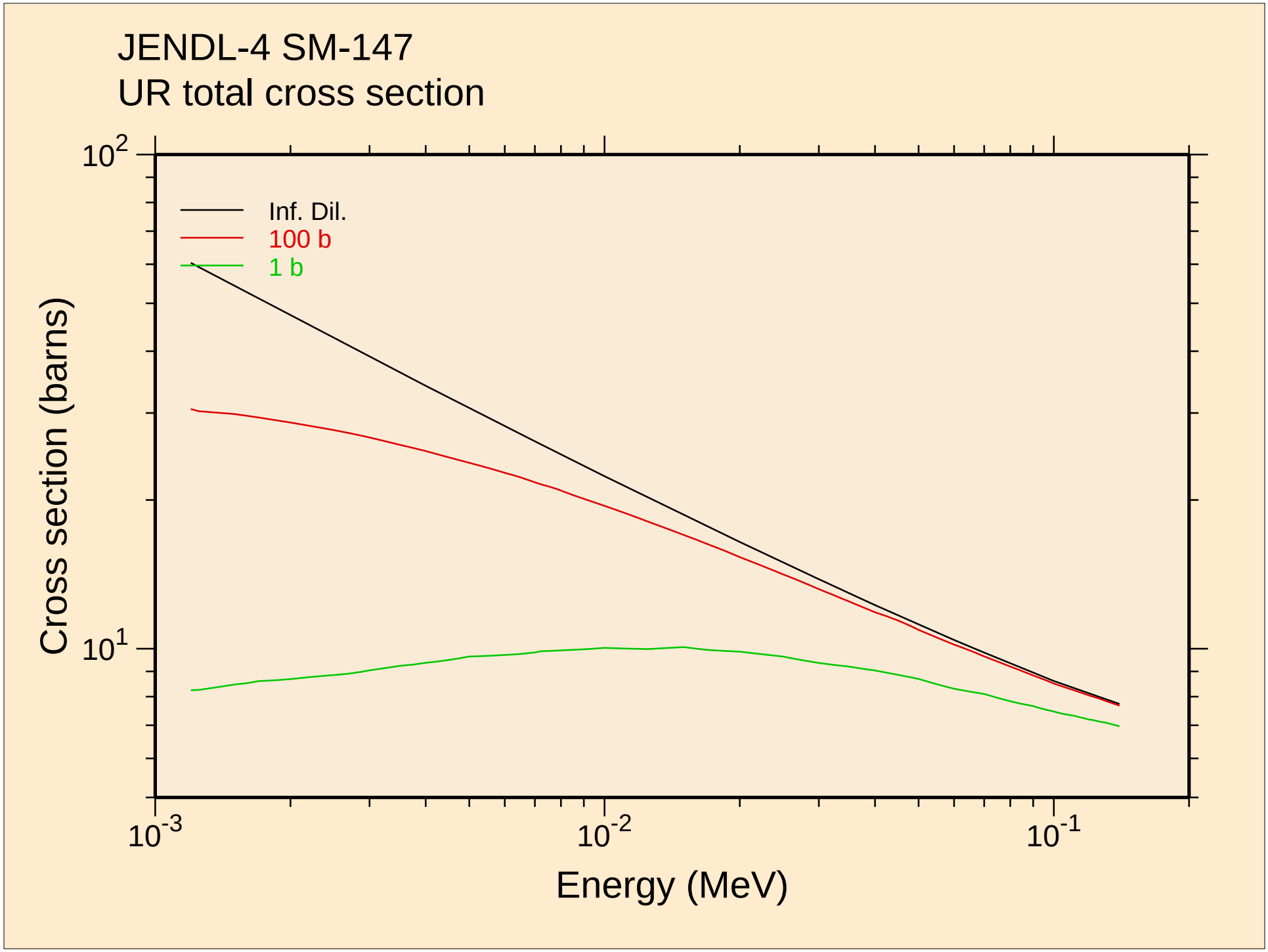
JENDL-4 SM-147
resonance absorption cross sections

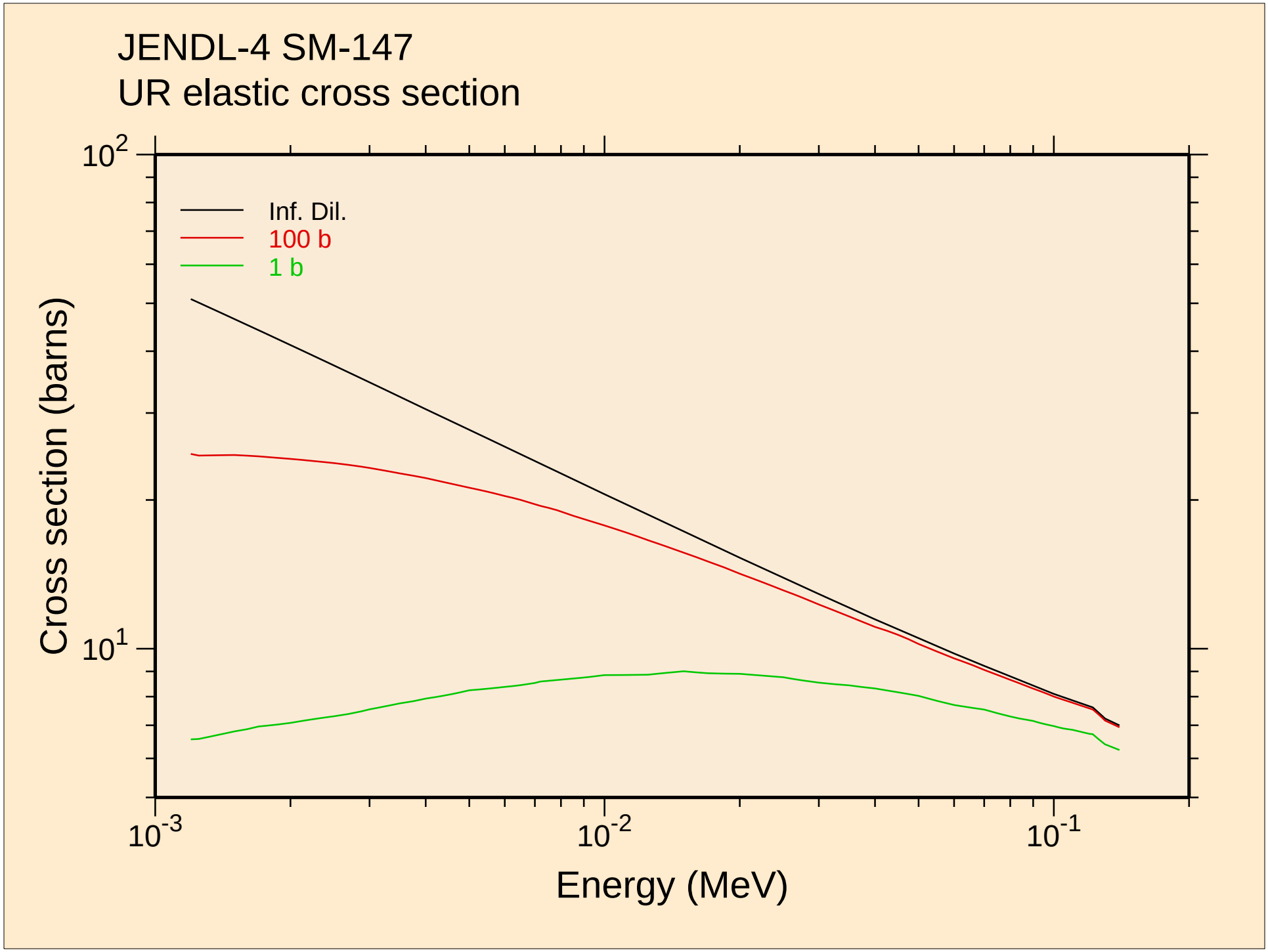


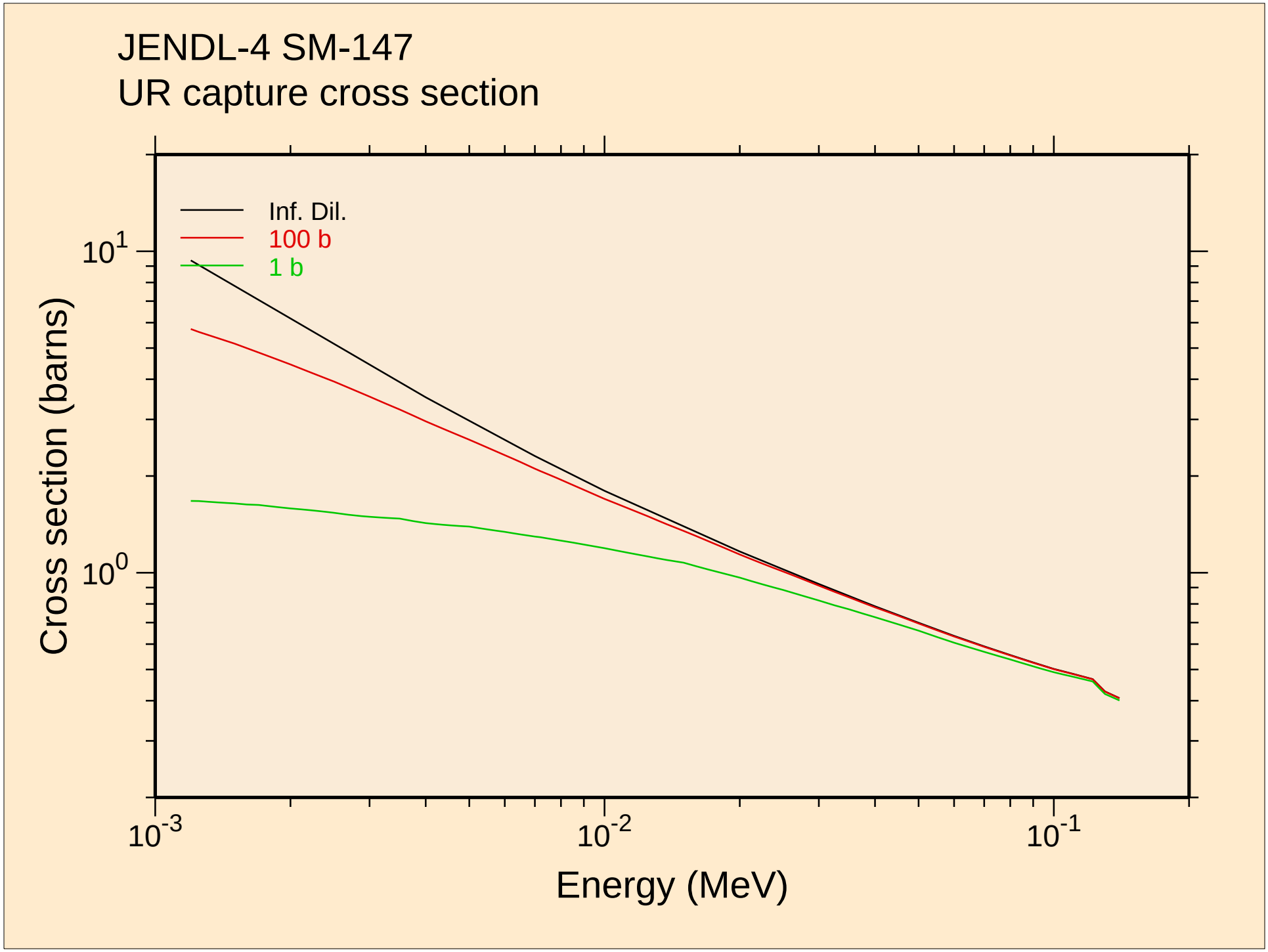

JENDL-4 SM-147
resonance absorption cross sections
capture
Cross section (barns)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-3
10^-2

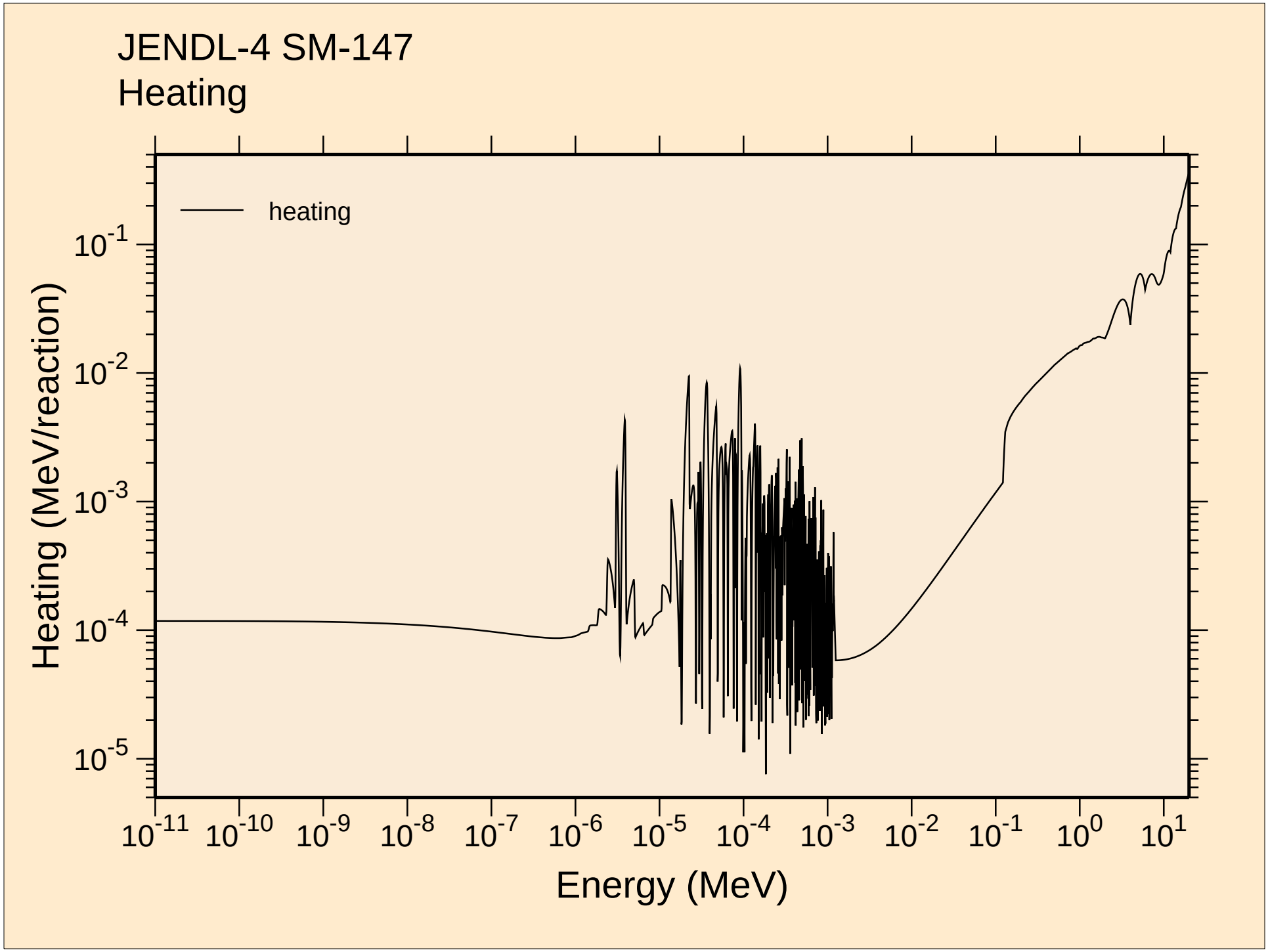

JENDL-4 SM-147
resonance absorption cross sections
capture
Cross section (barns)
Energy (MeV)
10^{0}
10^{-1}
10^{-1}
10^{0}

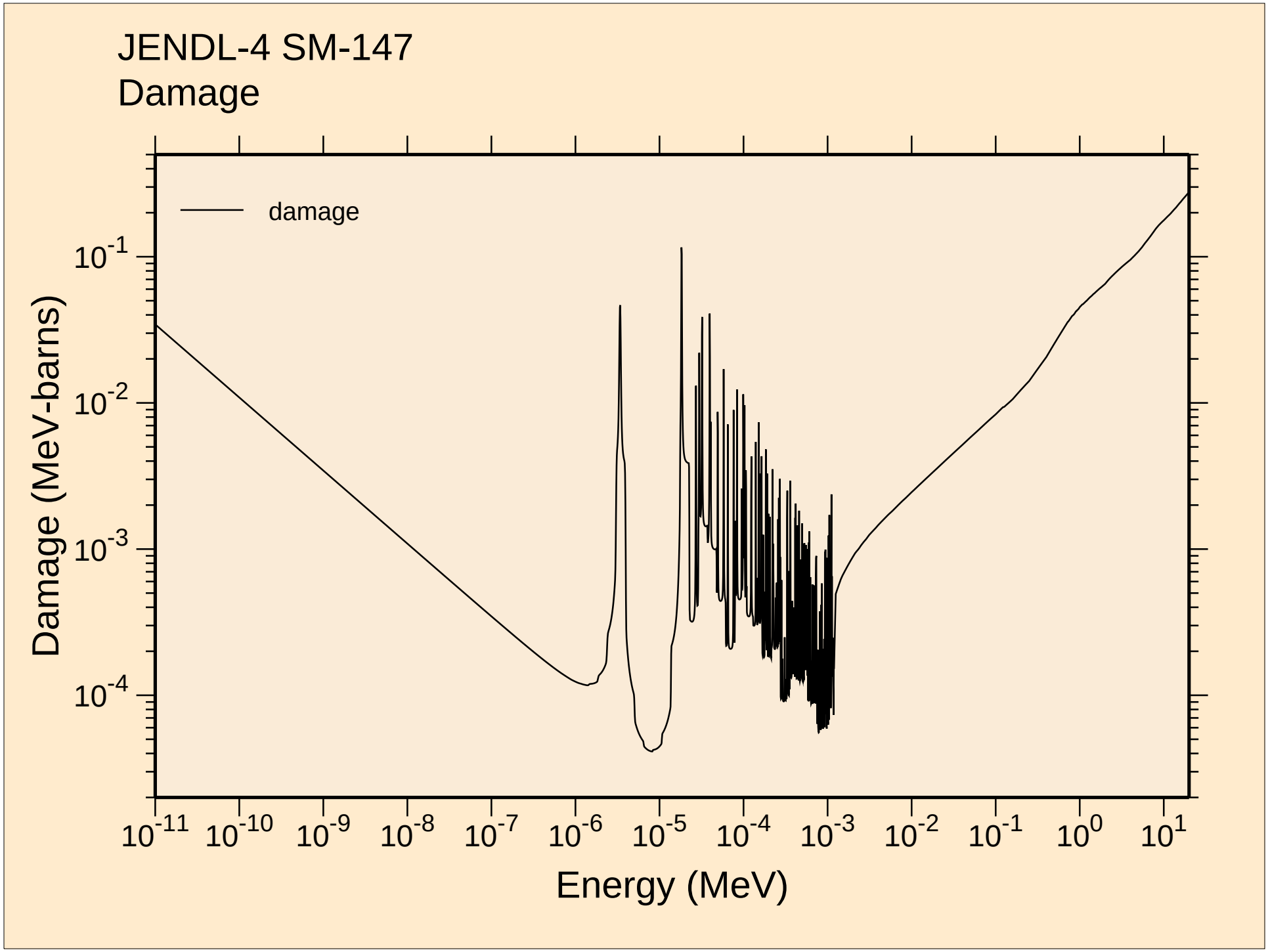

JENDL-4 SM-147
resonance absorption cross sections
capture
Cross section (barns)
10-1
10-2
10-3
100
101
Energy (MeV)

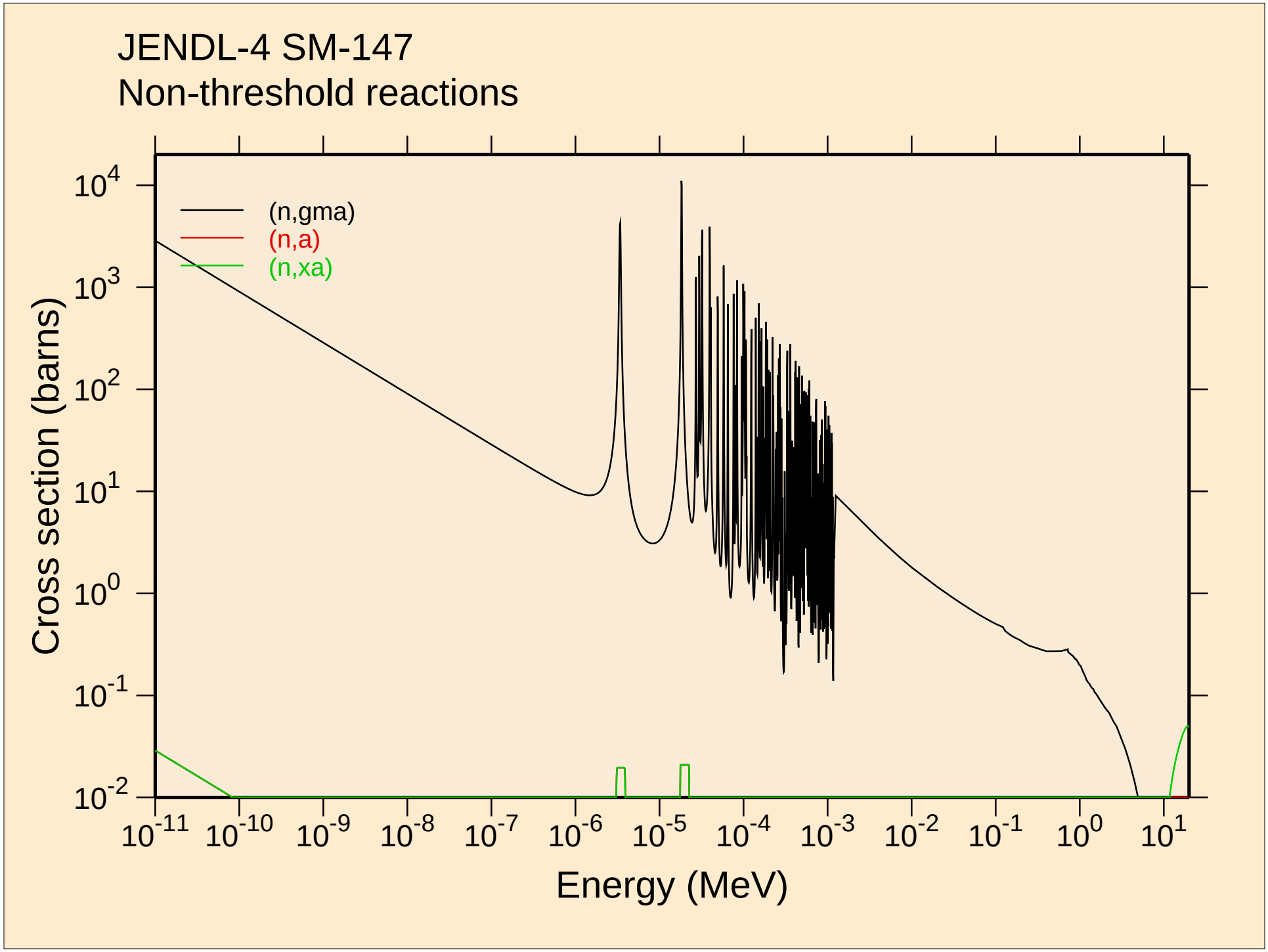

JENDL-4 SM-147
UR total cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
Energy (MeV)
10^2
10^1
10^-3
10^-2
10^-1

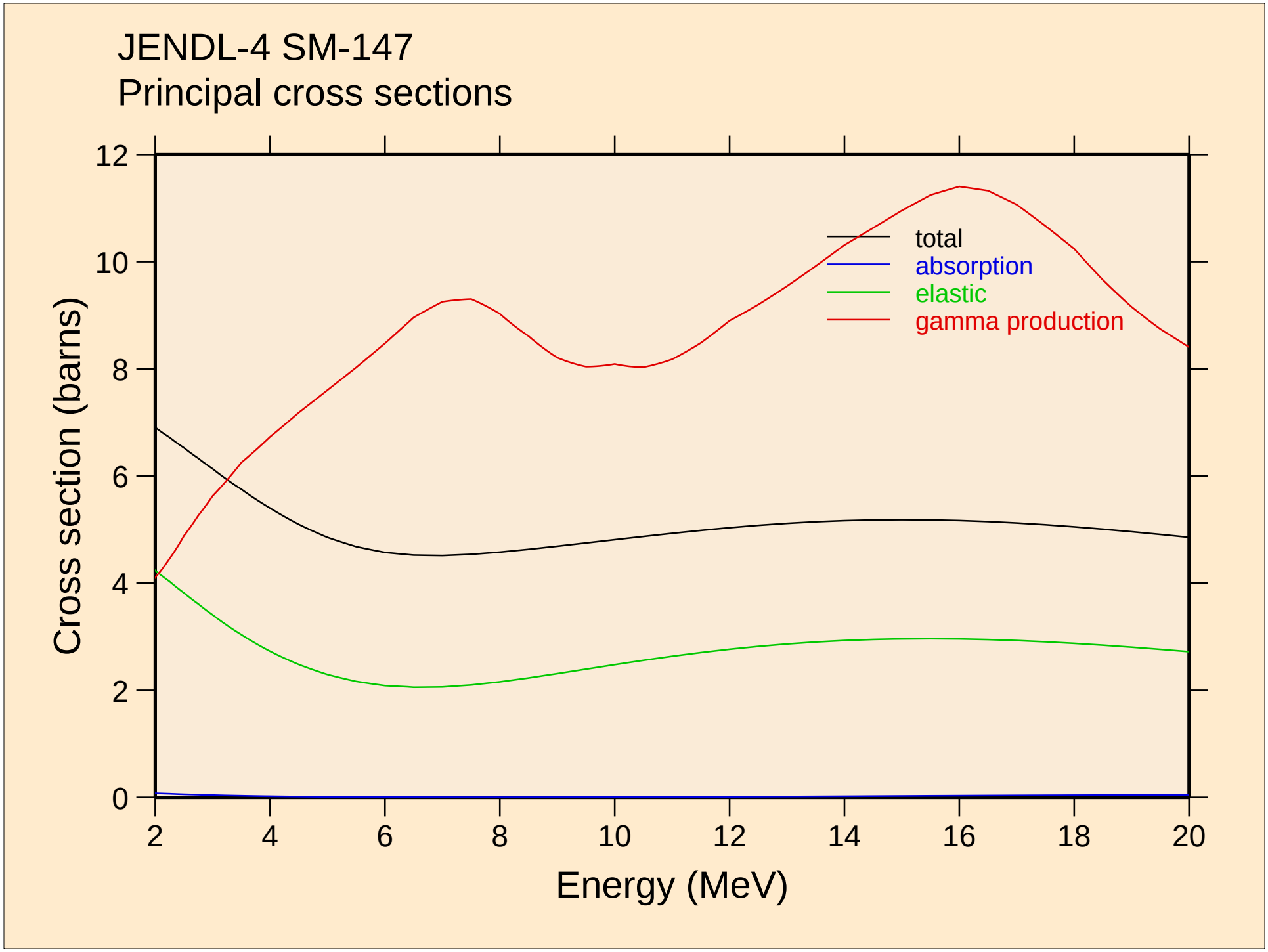

JENDL-4 SM-147
UR elastic cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
Energy (MeV)
10^2
10^1
10^-3
10^-2
10^-1

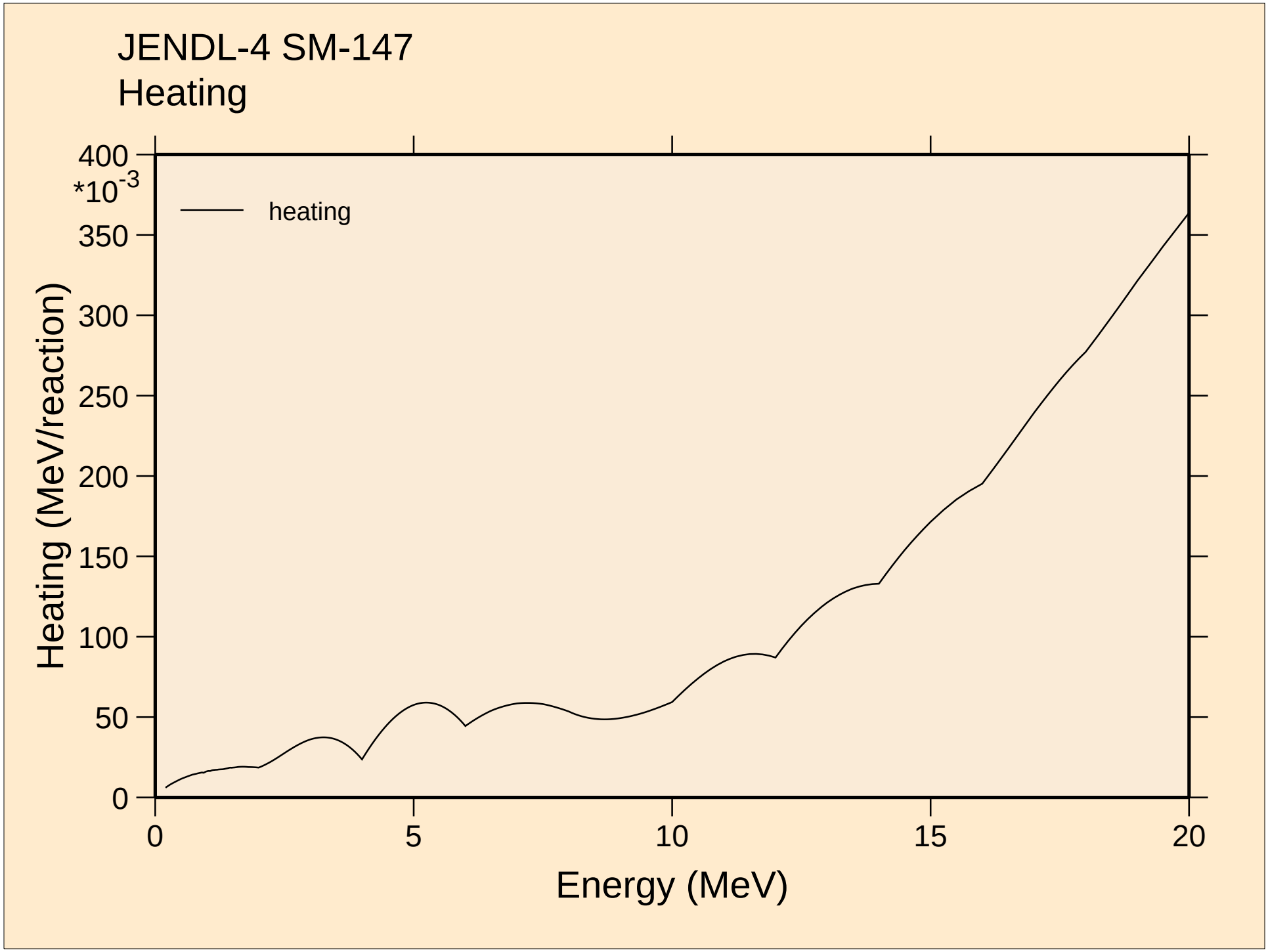

JENDL-4 SM-147
UR capture cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^1
10^0
10^{-3}
10^{-2}
10^{-1}
Energy (MeV)

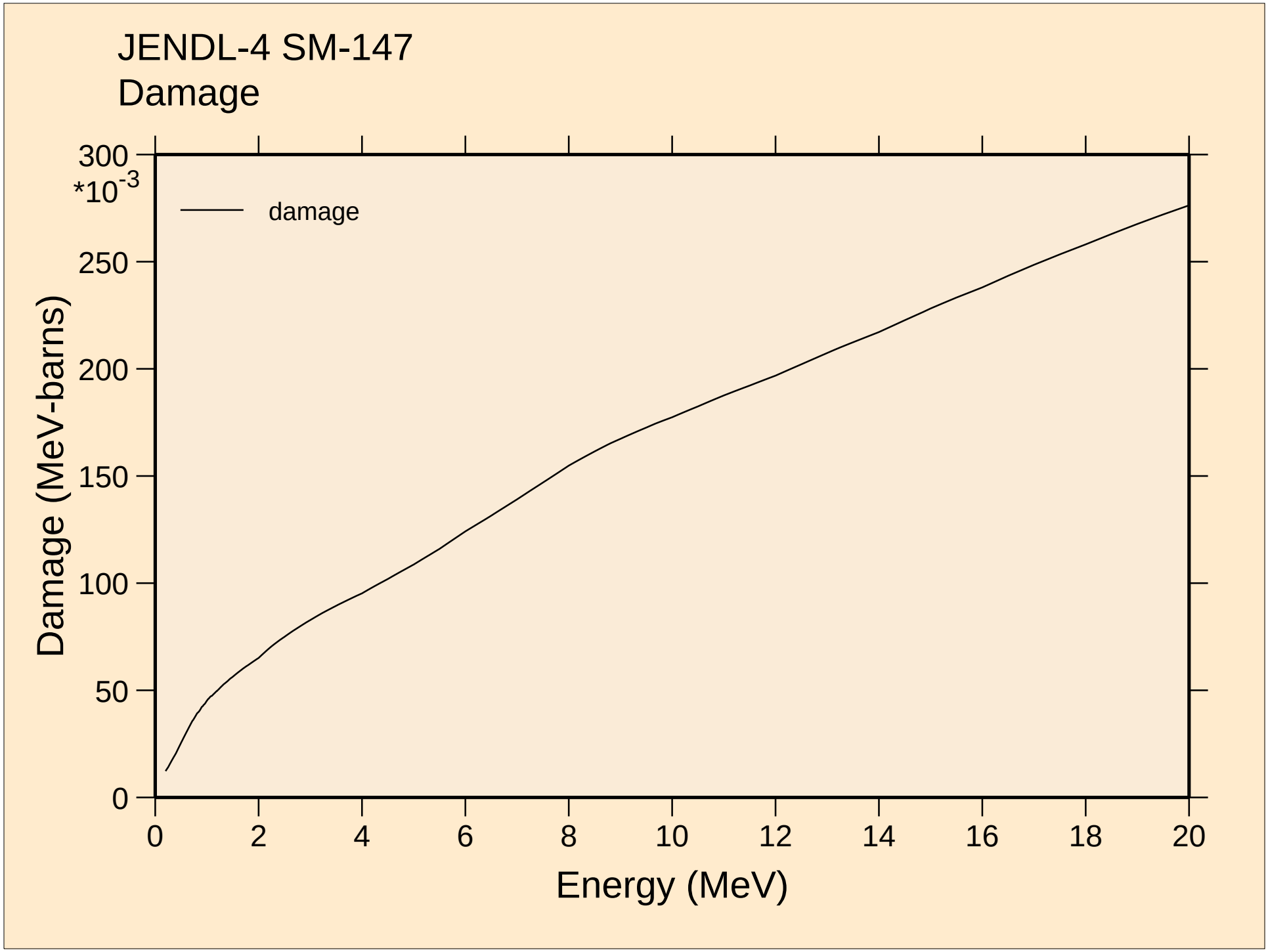

JENDL-4 SM-147
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-5
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

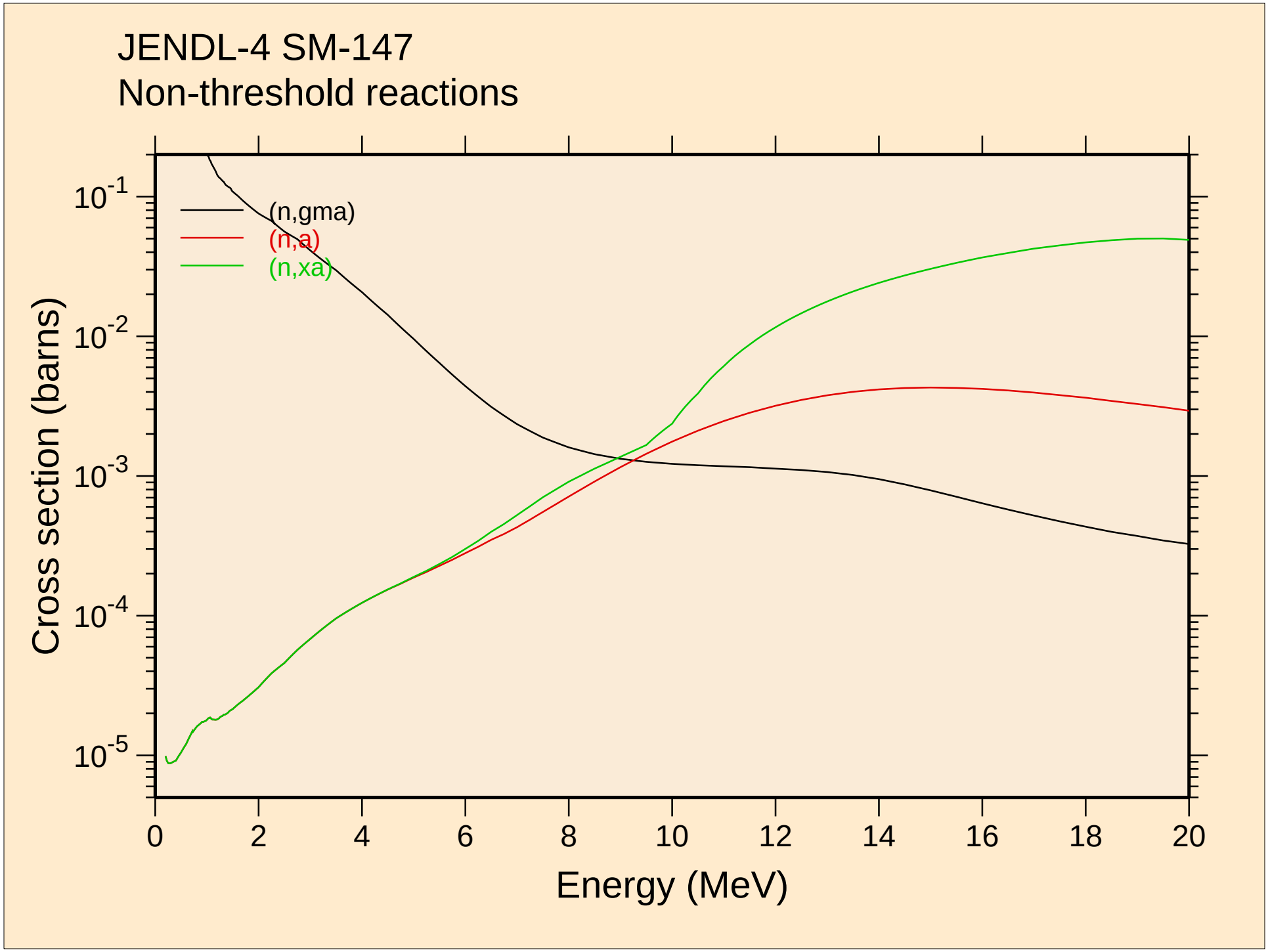

JENDL-4 SM-147
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

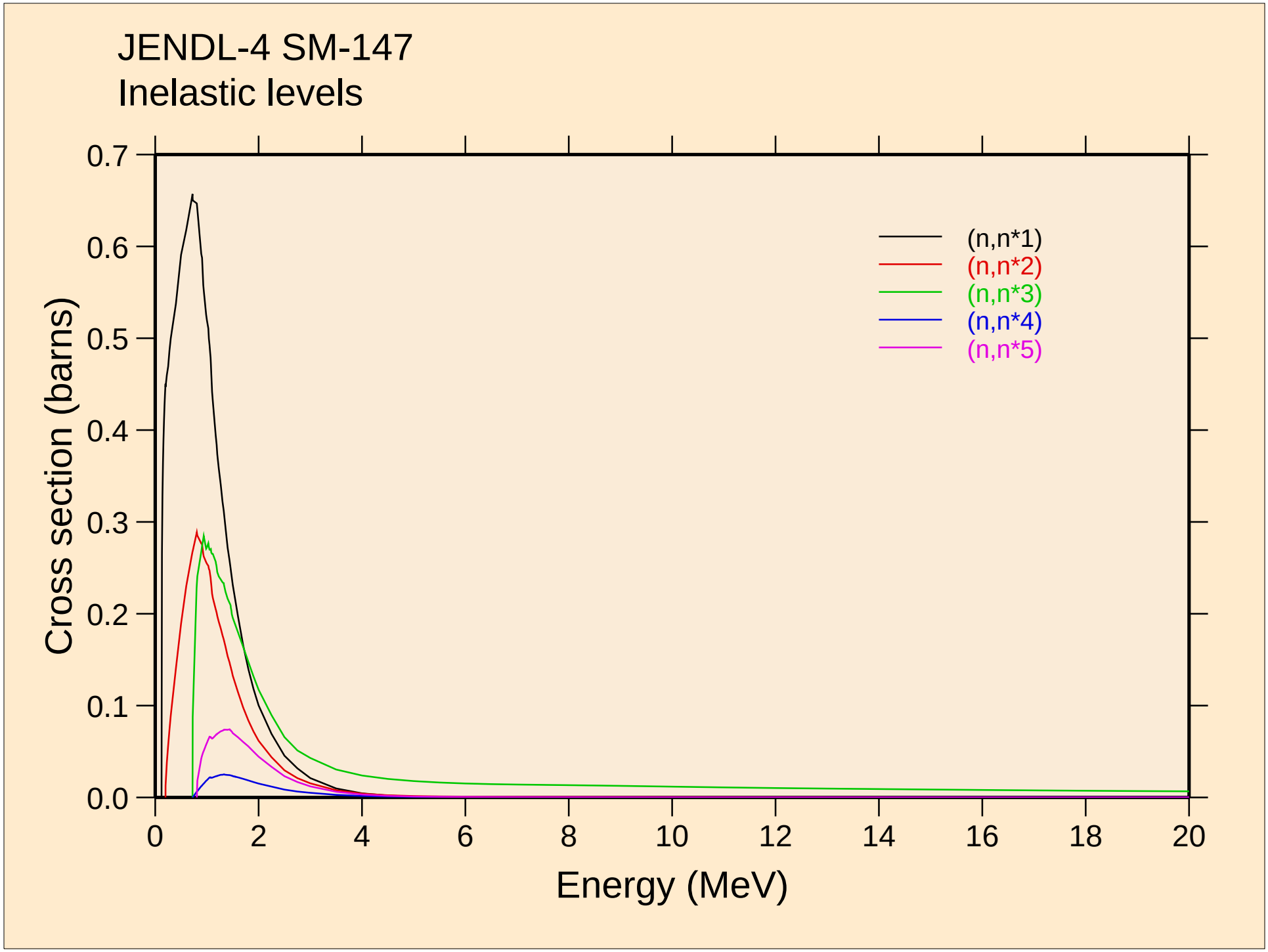

JENDL-4 SM-147
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
Energy (MeV)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

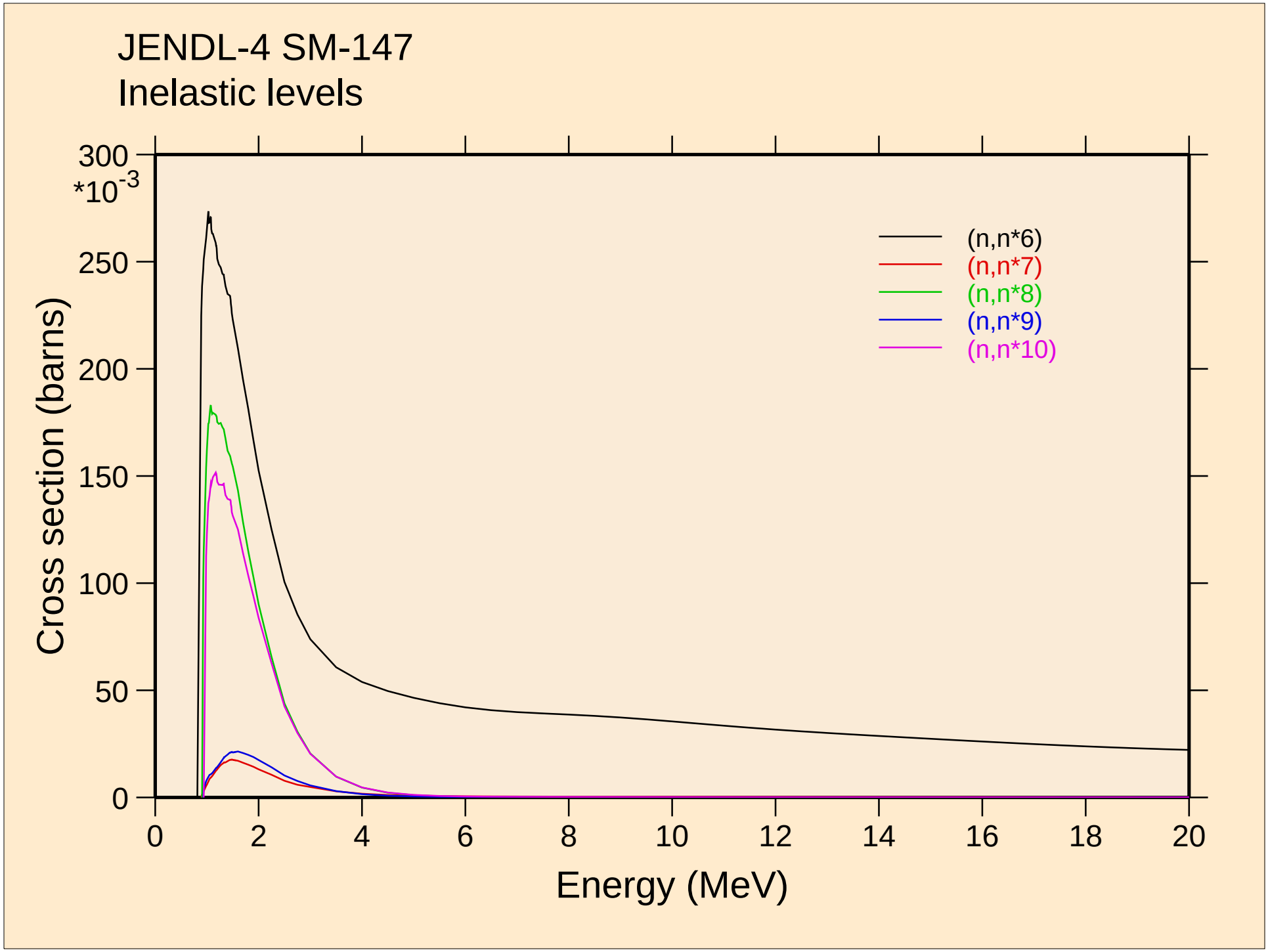

JENDL-4 SM-147
Principal cross sections
total
absorption
elastic
gamma production
Cross section (barns)
Energy (MeV)
0
2
4
6
8
10
12
2
4
6
8
10
12
14
16
18
20

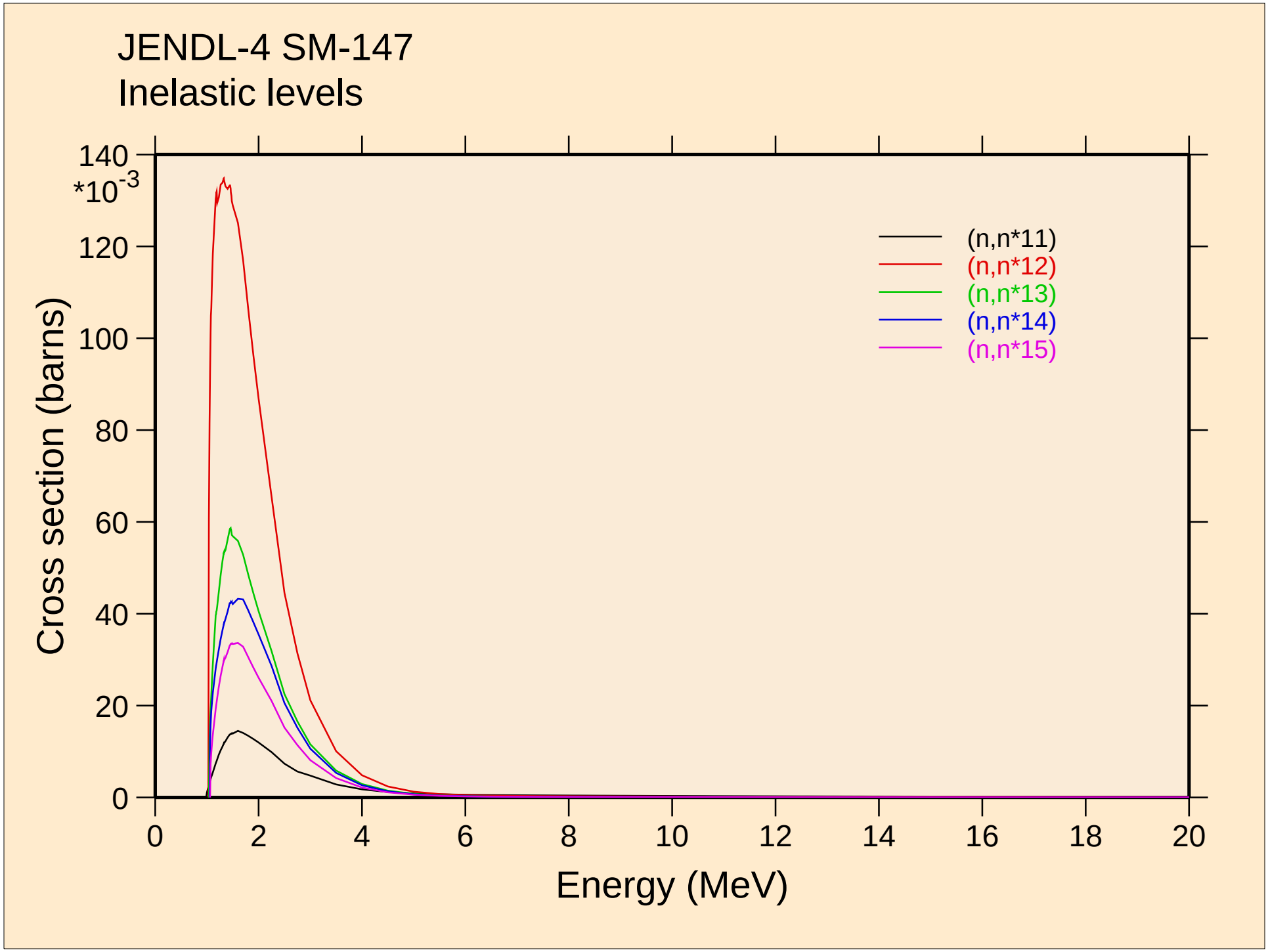

JENDL-4 SM-147
Heating
heating
Heating (MeV/reaction)
*10-3
400
350
300
250
200
150
100
50
0
0
5
10
15
20
Energy (MeV)

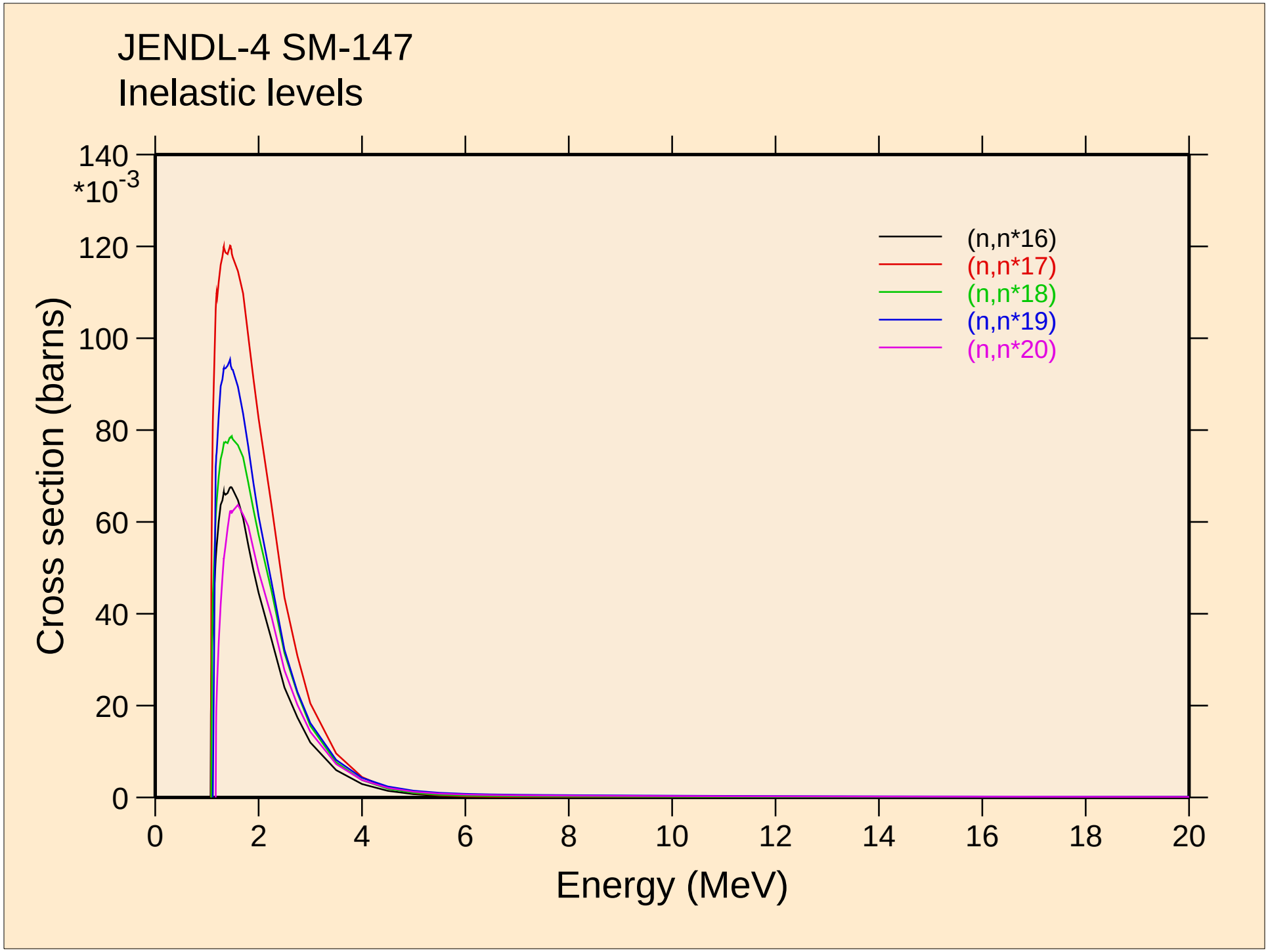

JENDL-4 SM-147
Damage
damage
*10-3
300
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

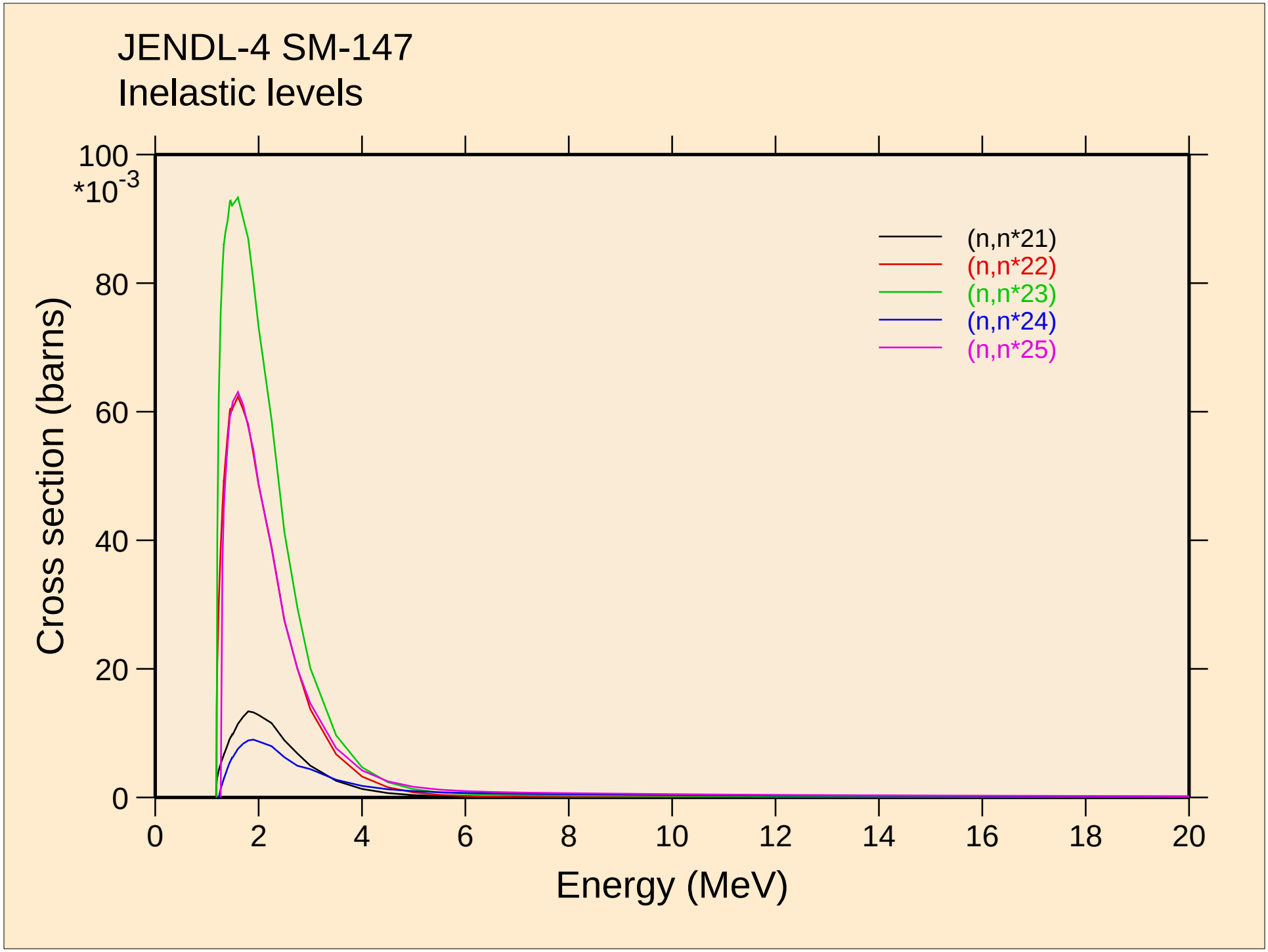

JENDL-4 SM-147
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
Energy (MeV)
10-1
10-2
10-3
10-4
10-5
0
2
4
6
8
10
12
14
16
18
20

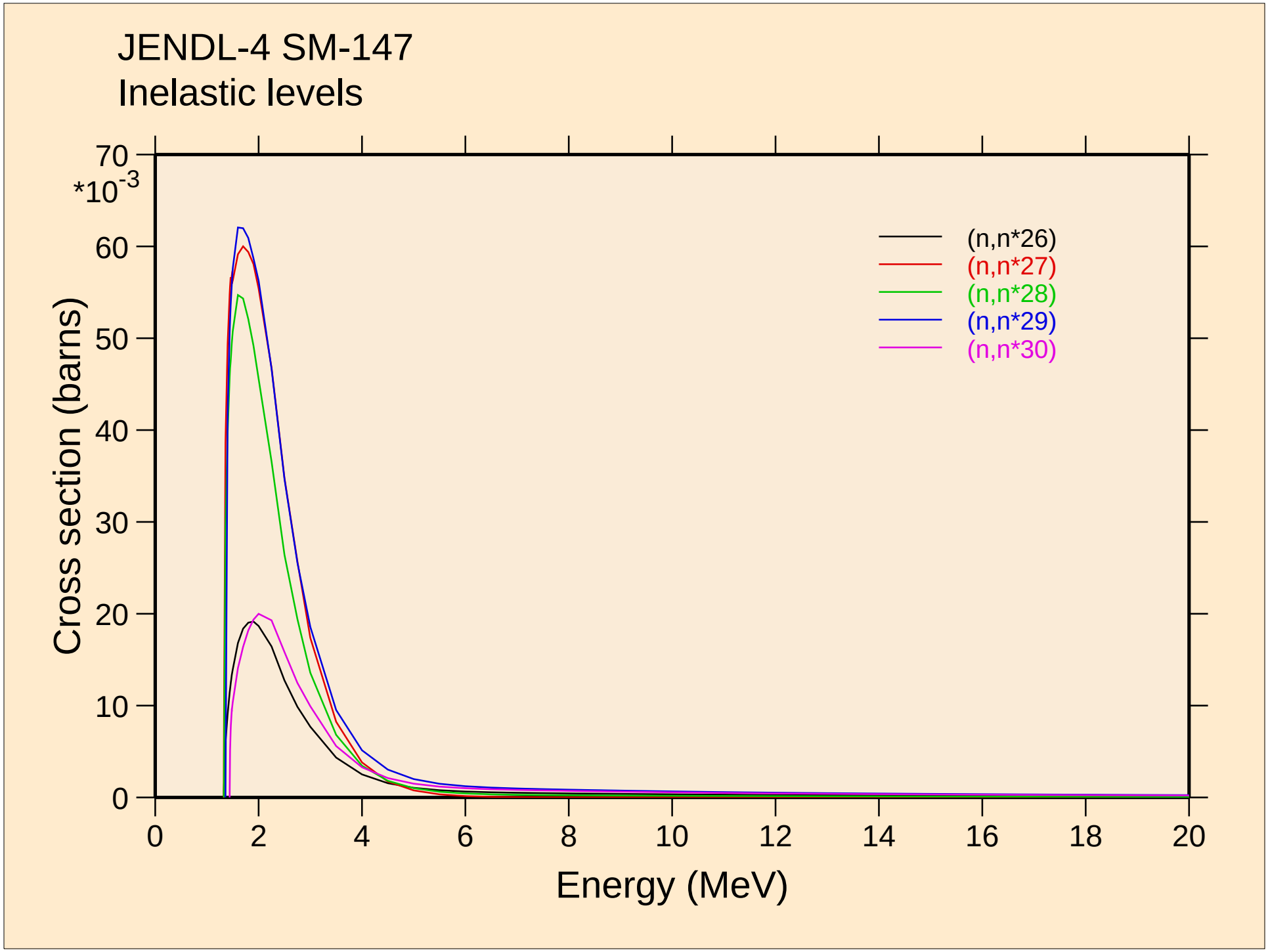

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
2
4
6
8
10
12
14
16
18
20
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

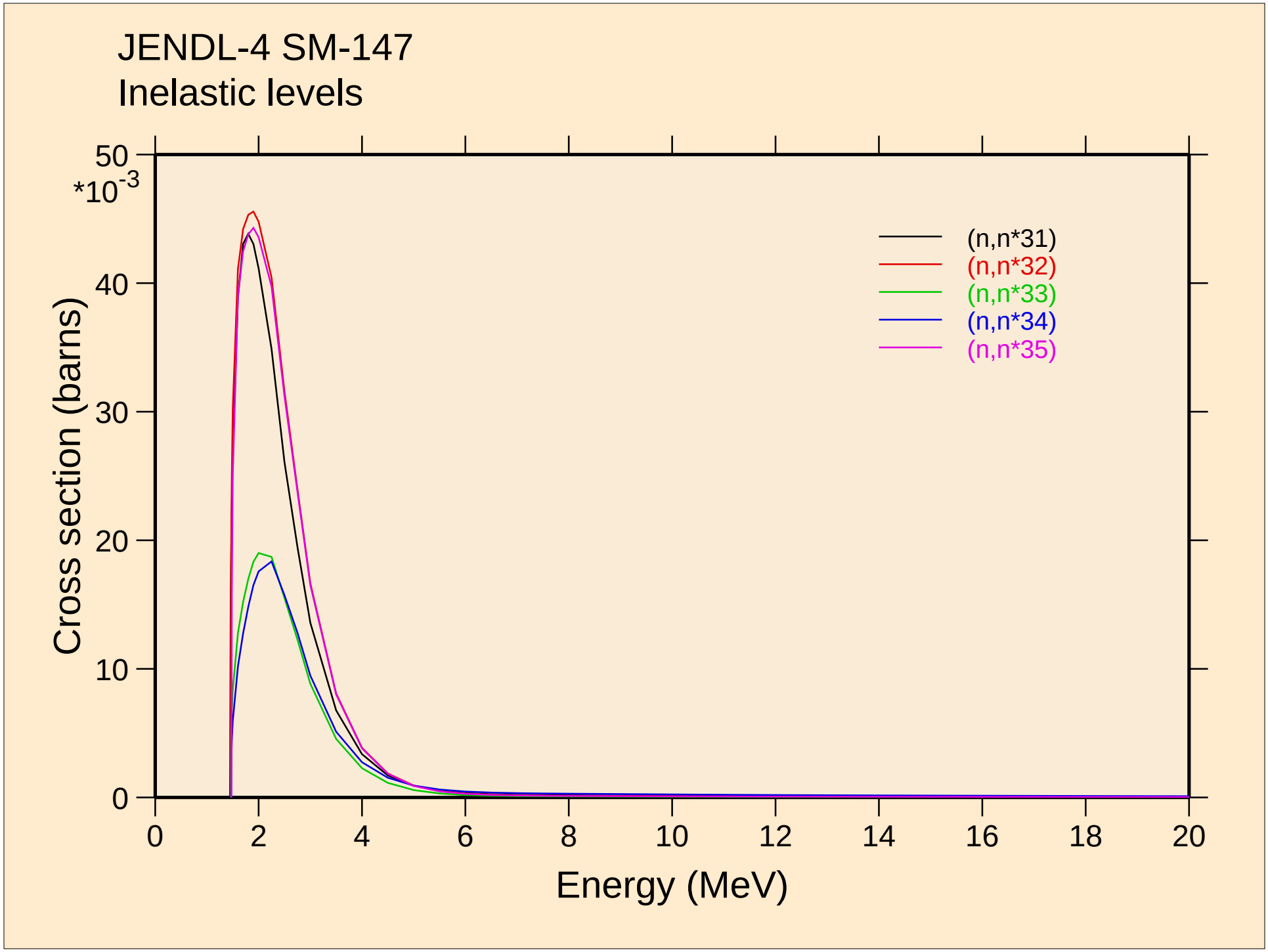

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
*10^-3
300
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

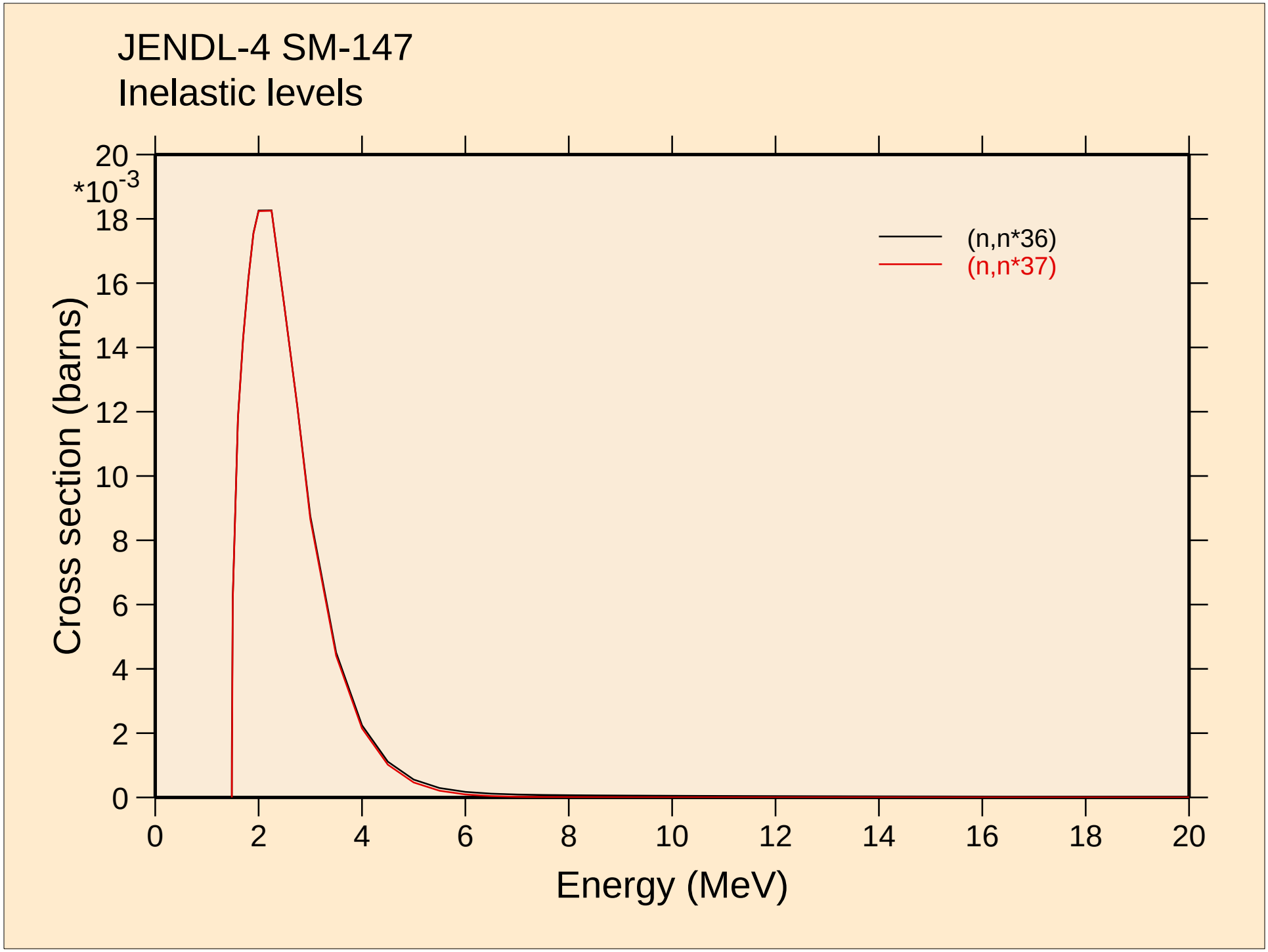

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
*10^-3
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

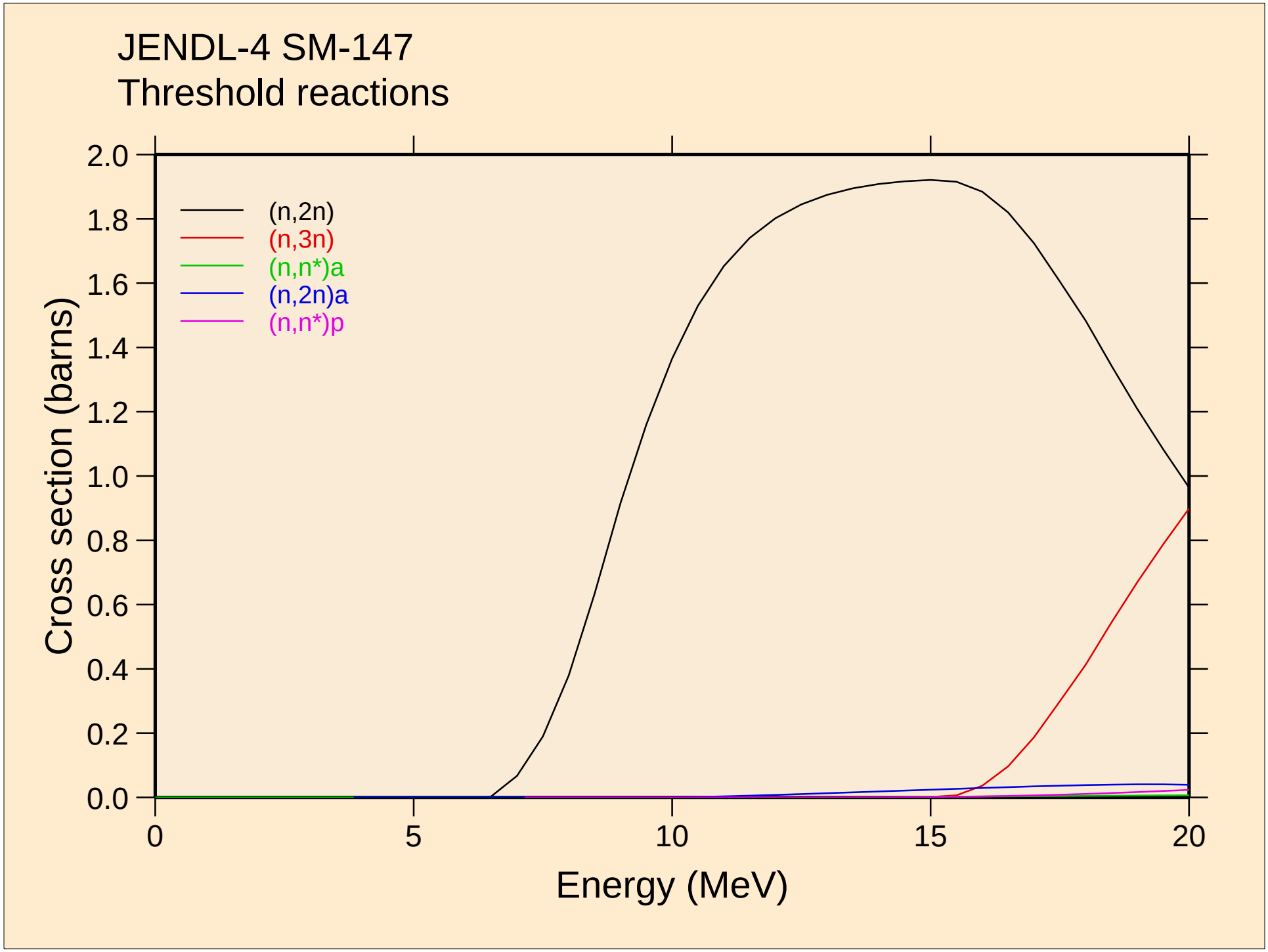

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
*10^-3
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

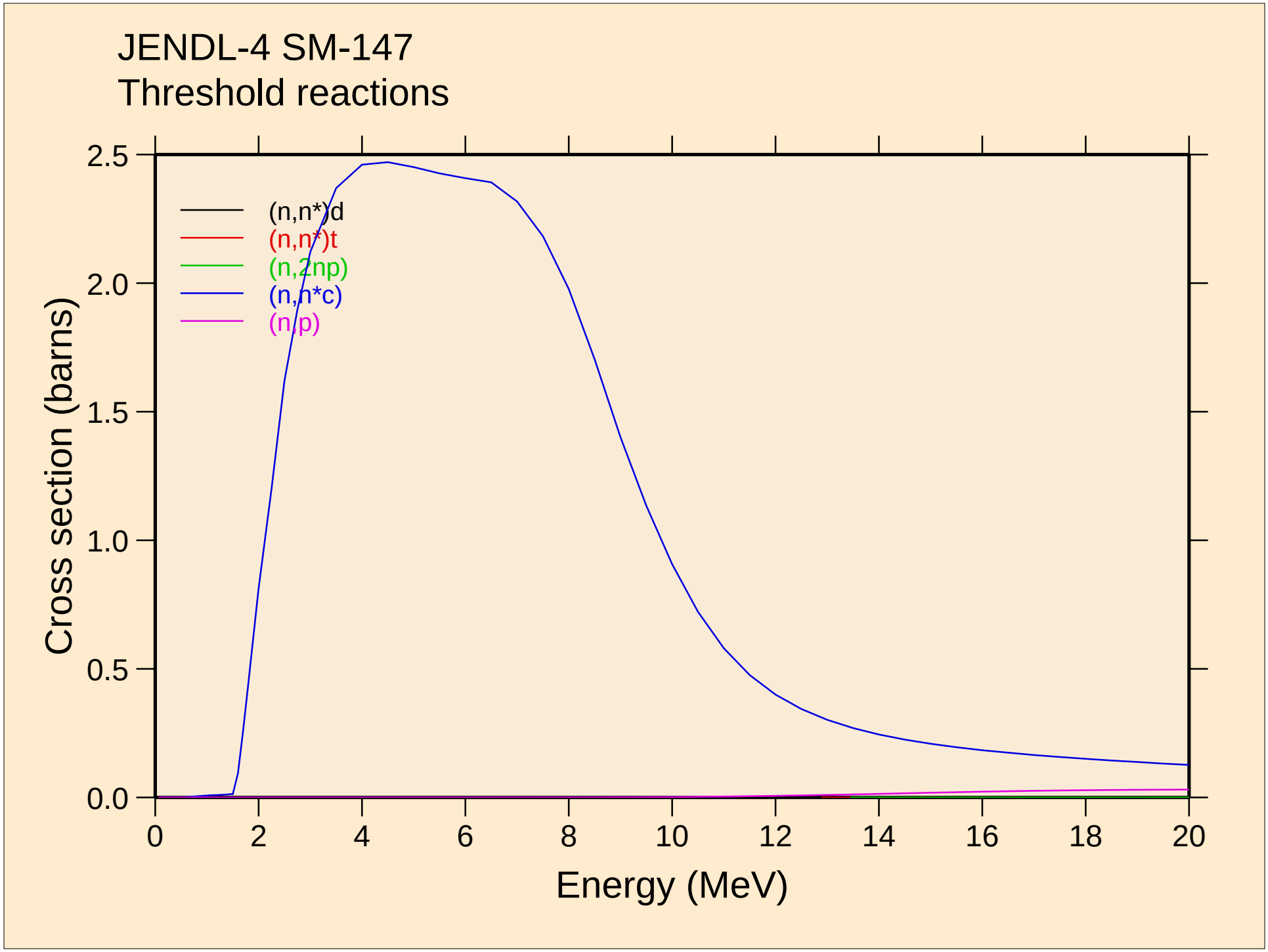

JENDL-4 SM-147
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

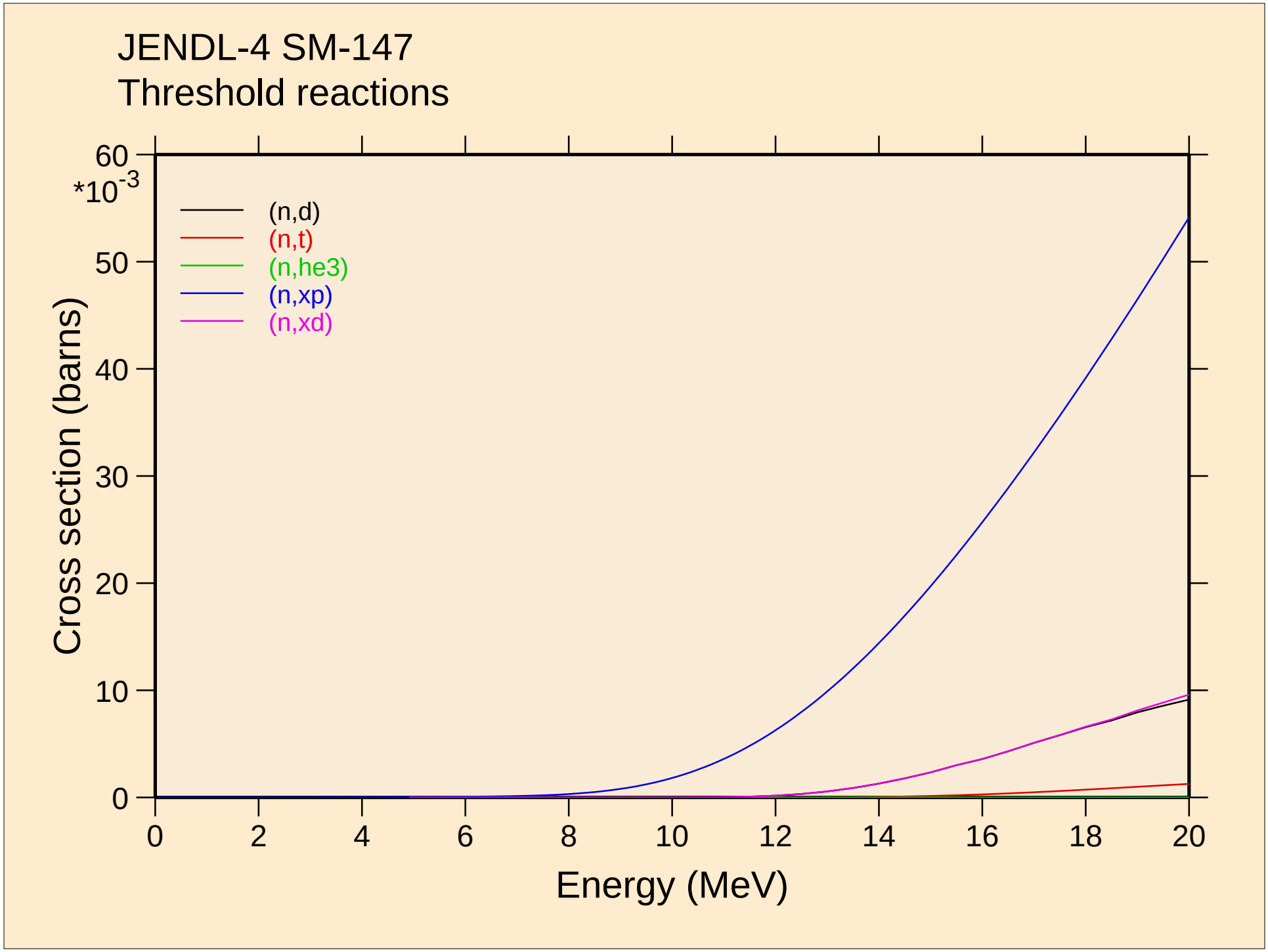

JENDL-4 SM-147
Inelastic levels
*10-3
70
60
50
40
30
20
10
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*26)
(n,n*27)
(n,n*28)
(n,n*29)
(n,n*30)

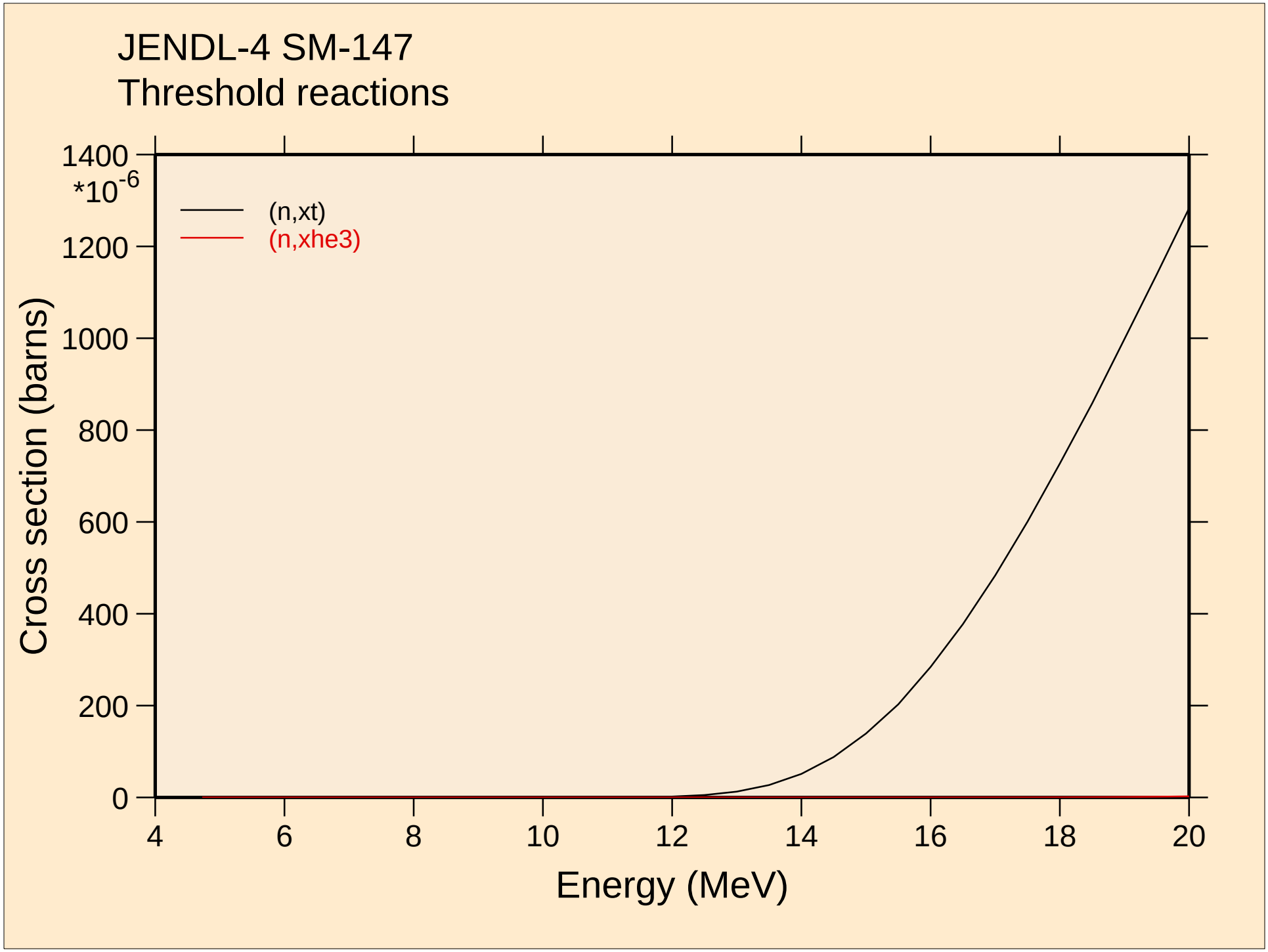

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
*10^-3
50
40
30
20
10
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*31)
(n,n*32)
(n,n*33)
(n,n*34)
(n,n*35)

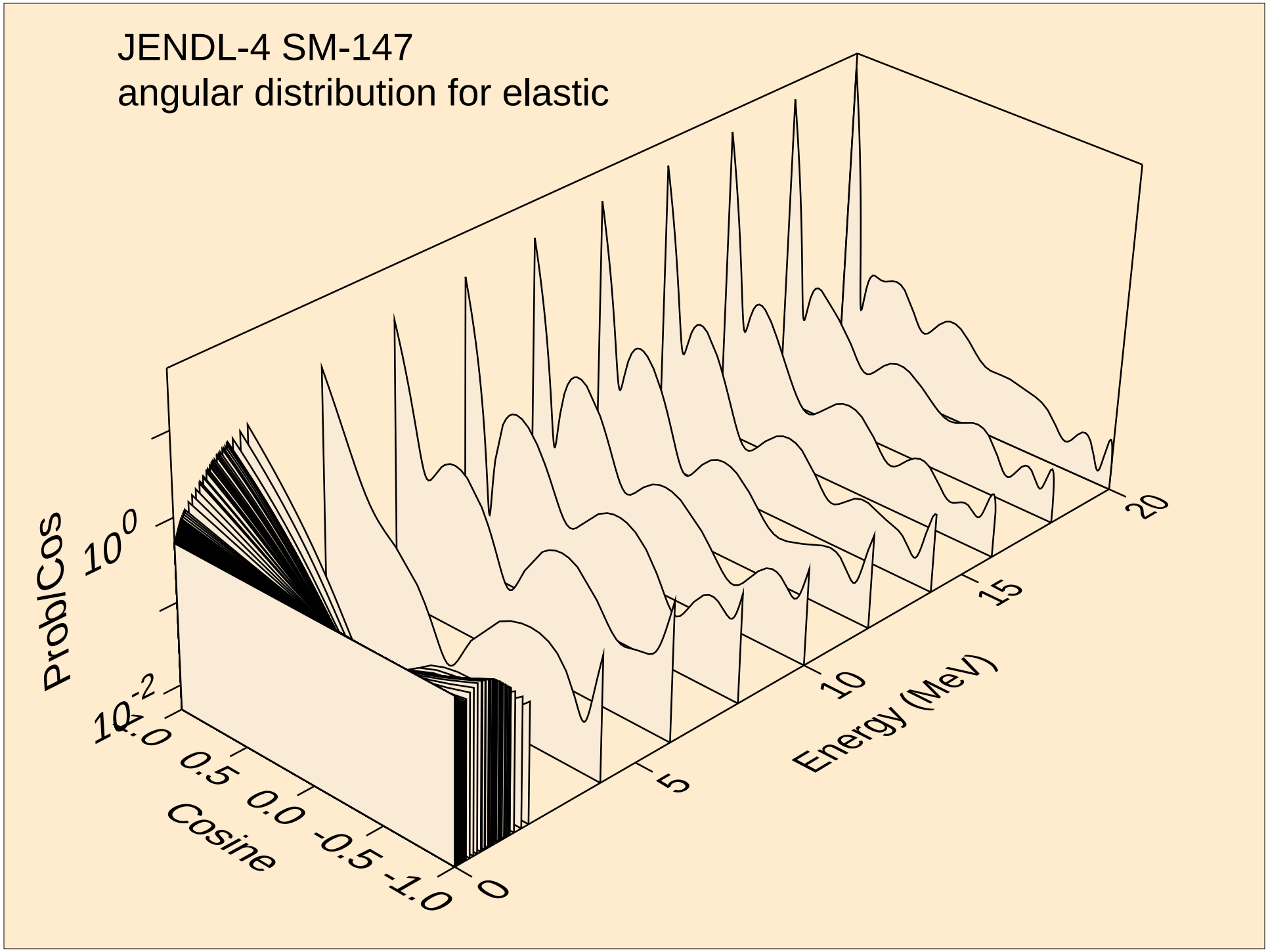

JENDL-4 SM-147
Inelastic levels
Cross section (barns)
*10-3
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*36)
(n,n*37)

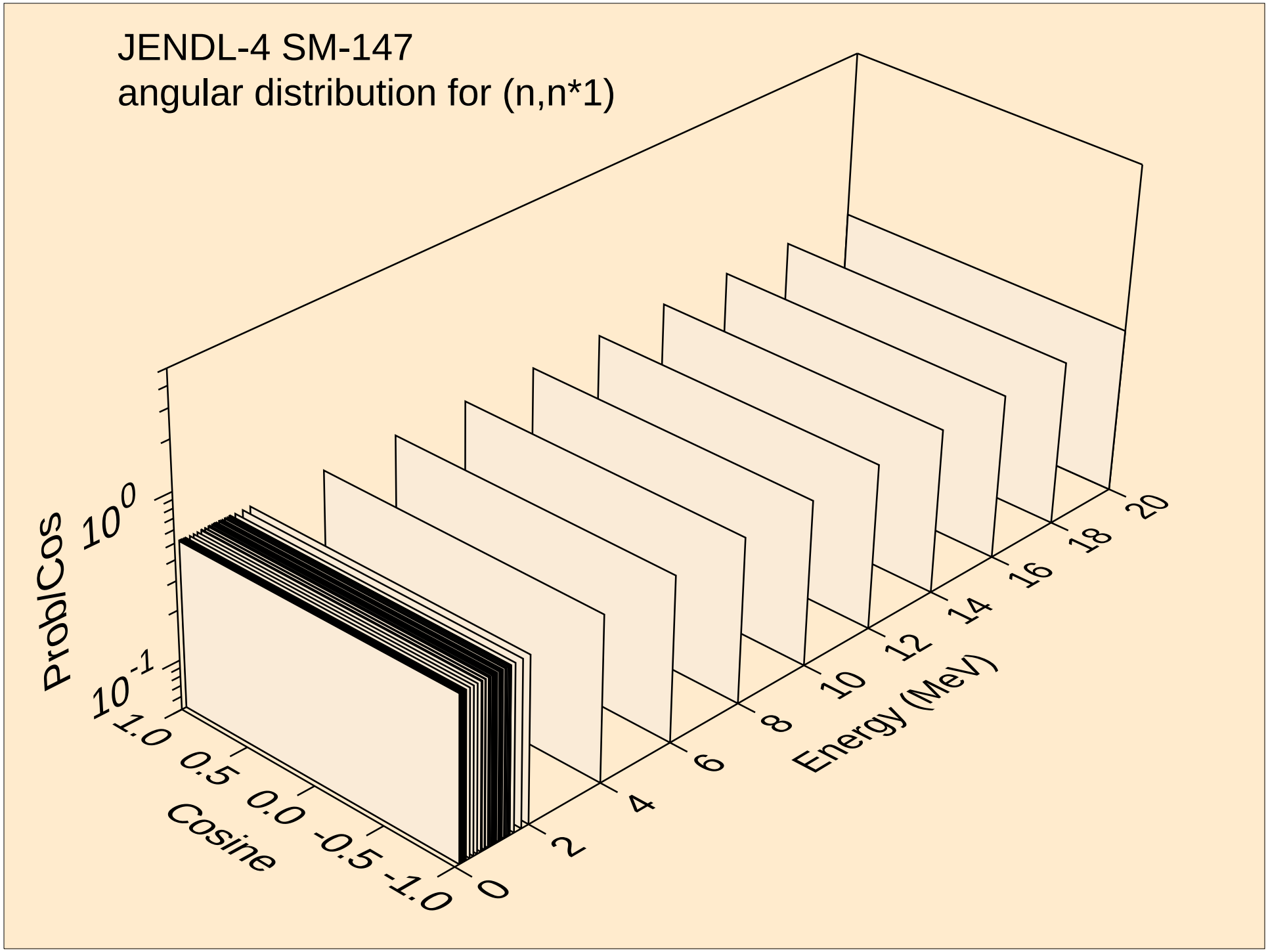

JENDL-4 SM-147
Threshold reactions
(n,2n)
(n,3n)
(n,n*)a
(n,2n)a
(n,n*)p
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
0
5
10
15
20

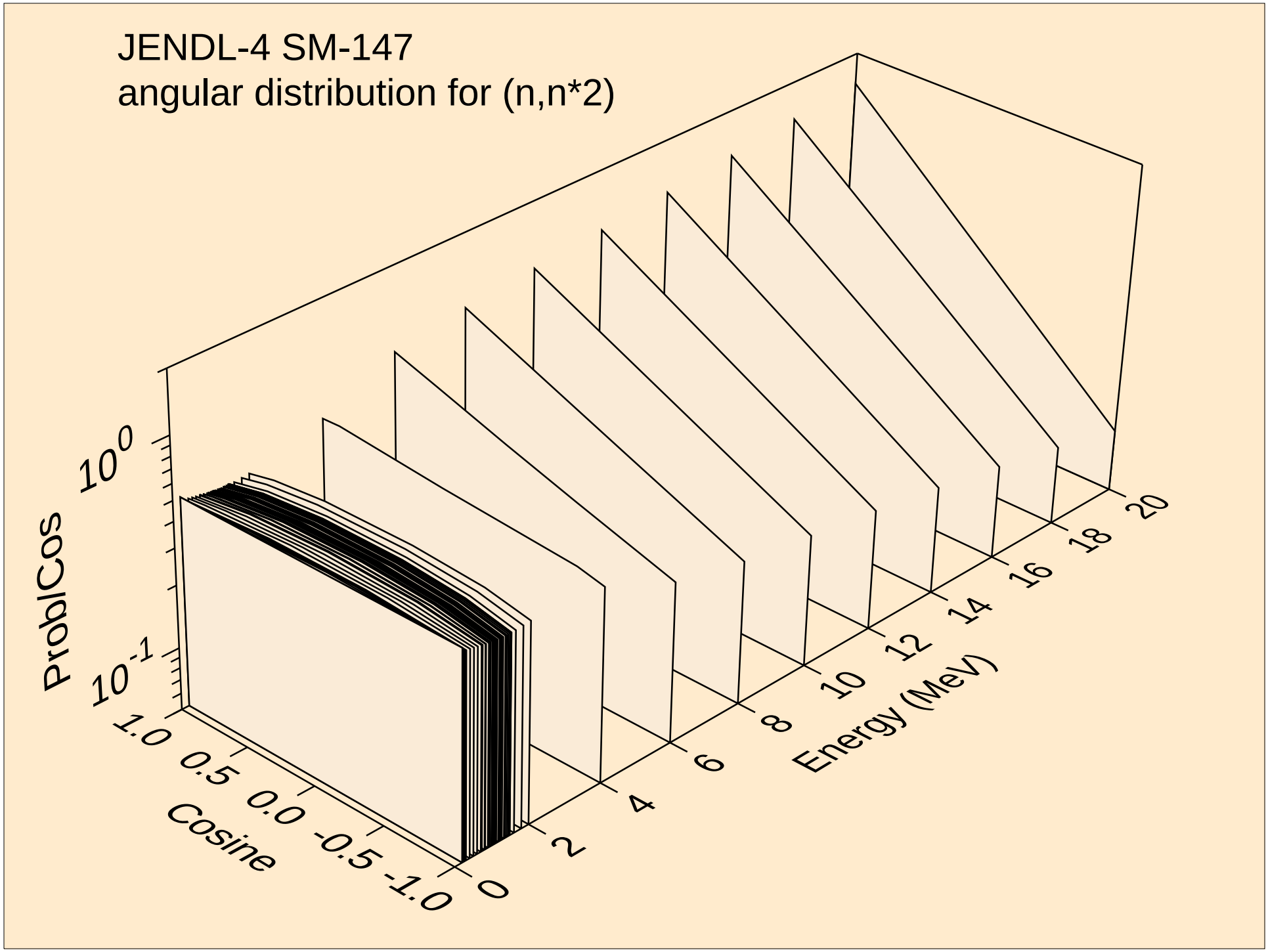

JENDL-4 SM-147
Threshold reactions
(n,n*)d
(n,n*)t
(n,2np)
(n,n*c)
(n,p)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
2
4
6
8
10
12
14
16
18
20

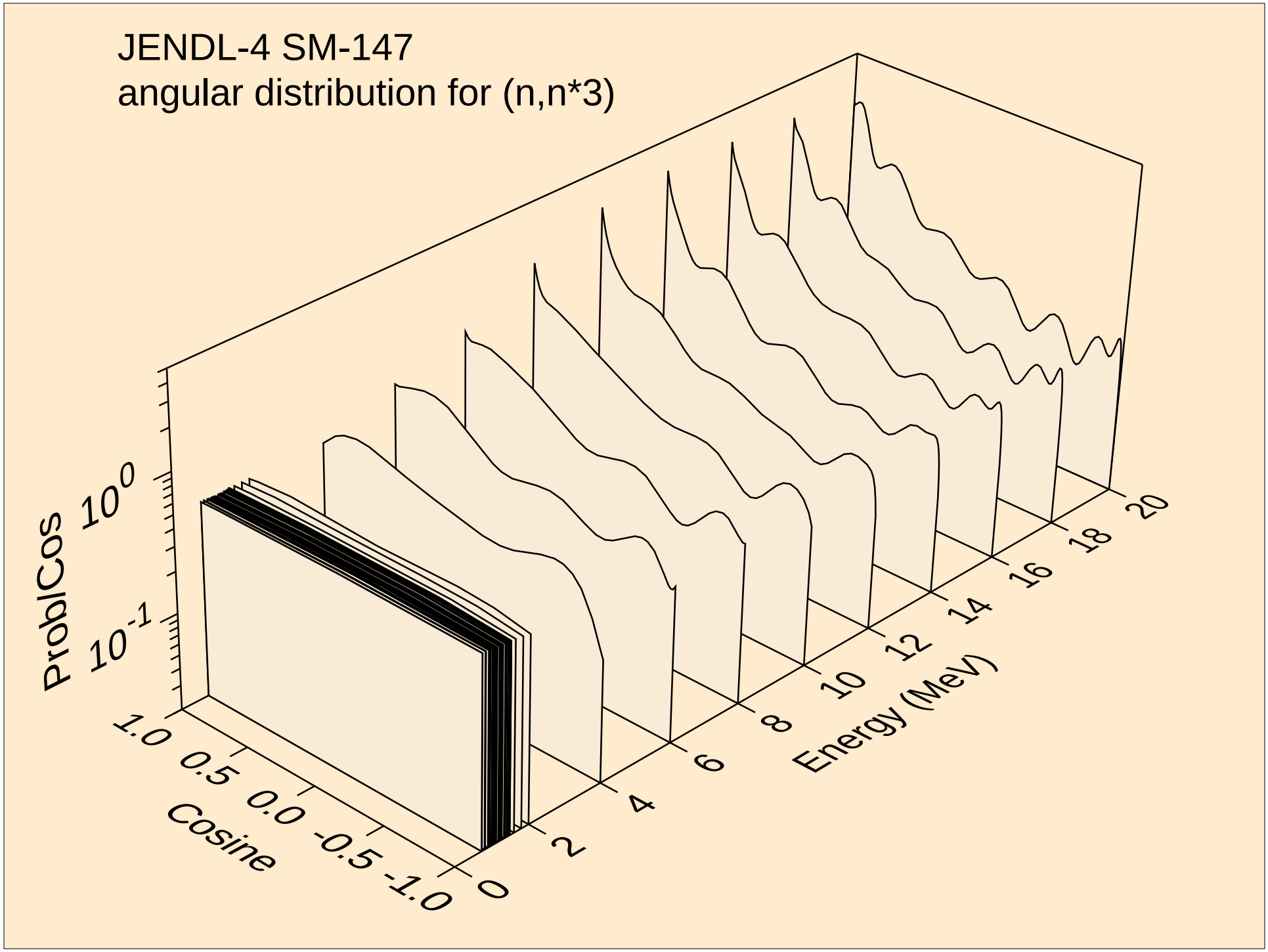

JENDL-4 SM-147
Threshold reactions
*10-3
60
50
40
30
20
10
0
Cross section (barns)
(n,d)
(n,t)
(n,he3)
(n,xp)
(n,xd)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

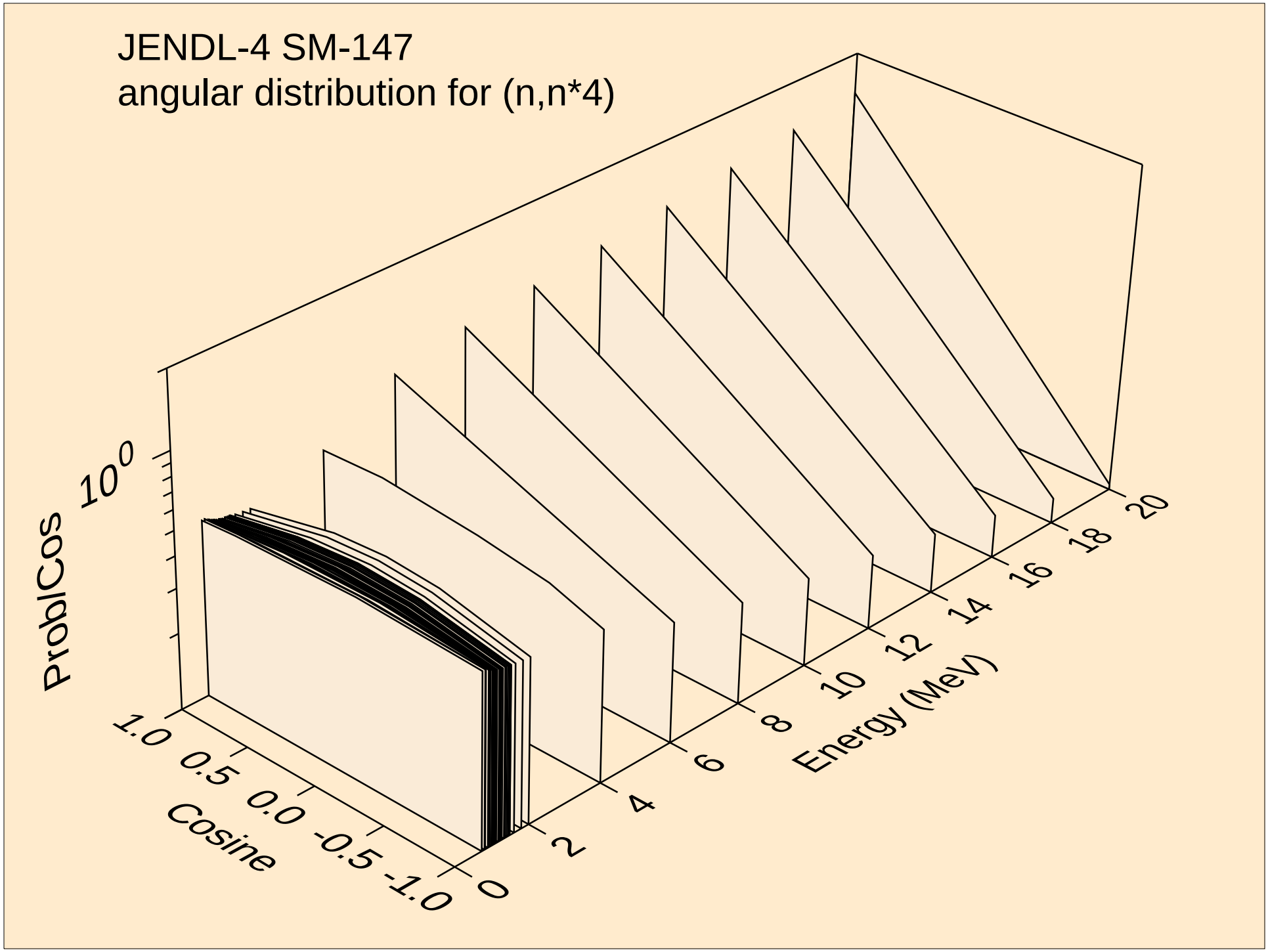

JENDL-4 SM-147
Threshold reactions
(n,xt)
(n,xhe3)
*10-6
1400
1200
1000
800
600
400
200
0
Cross section (barns)
4
6
8
10
12
14
16
18
20
Energy (MeV)

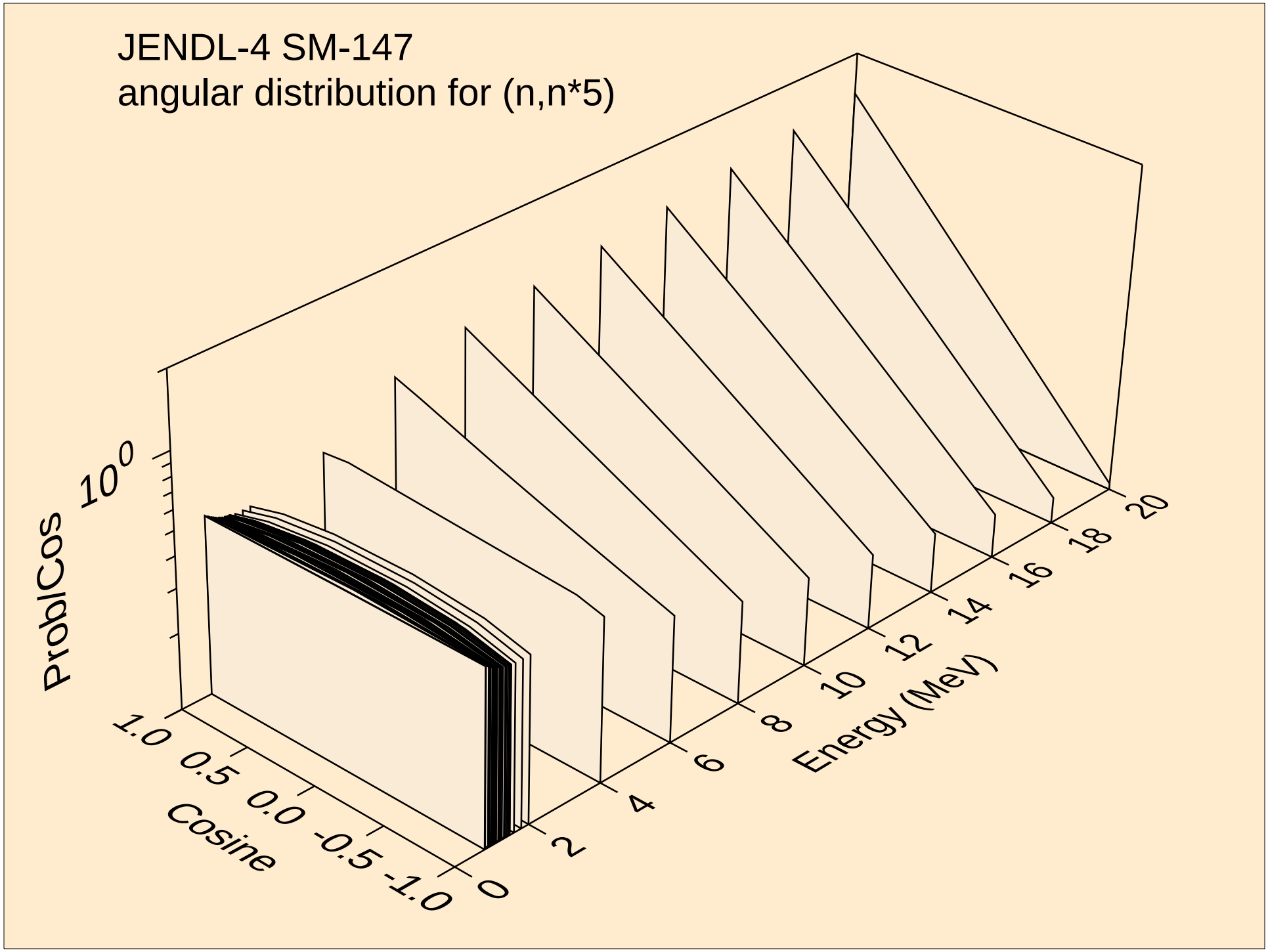

JENDL-4 SM-147
angular distribution for elastic
ProblCos
10^0
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

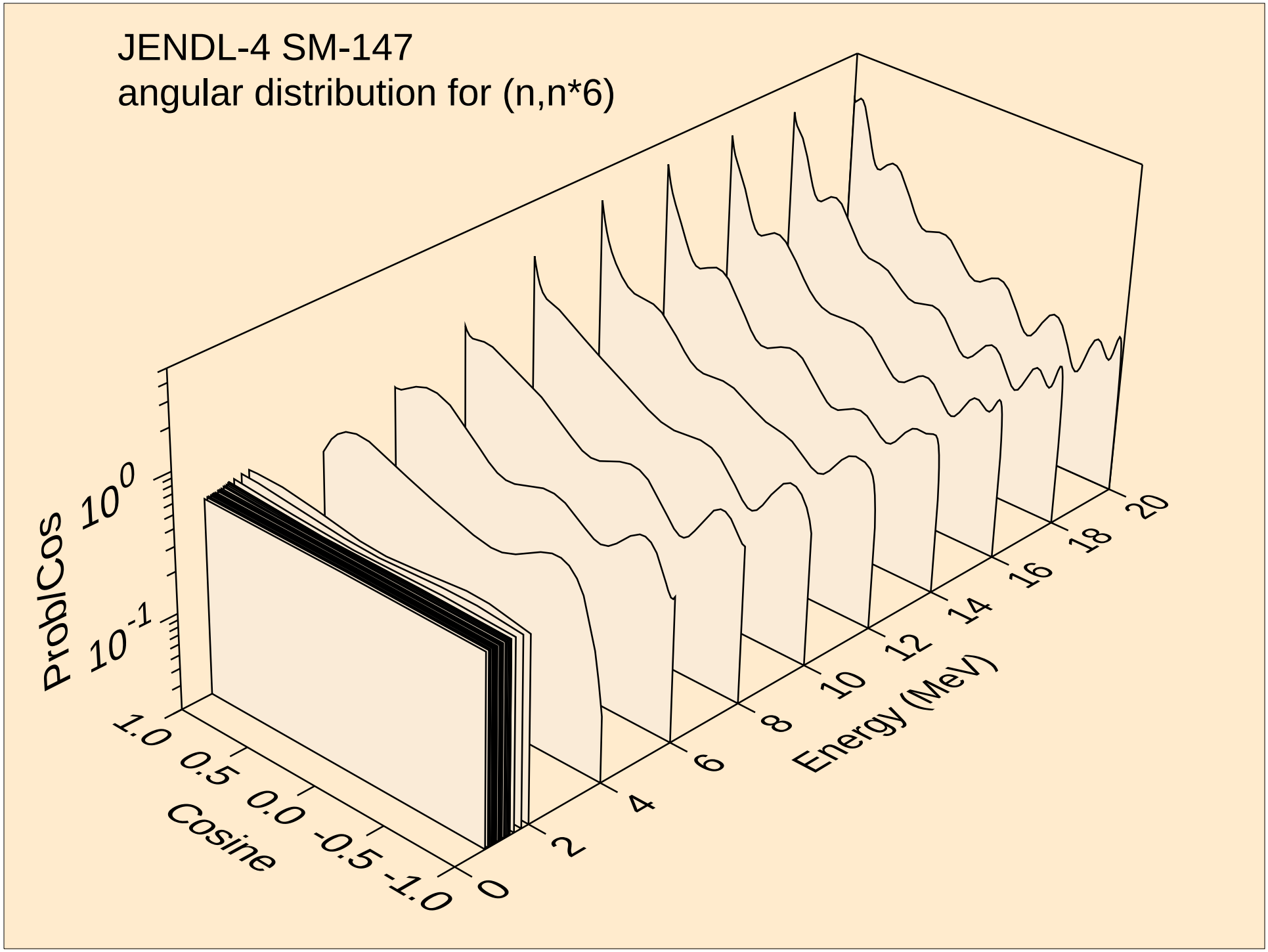

JENDL-4 SM-147
angular distribution for (n,n*1)
ProbCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

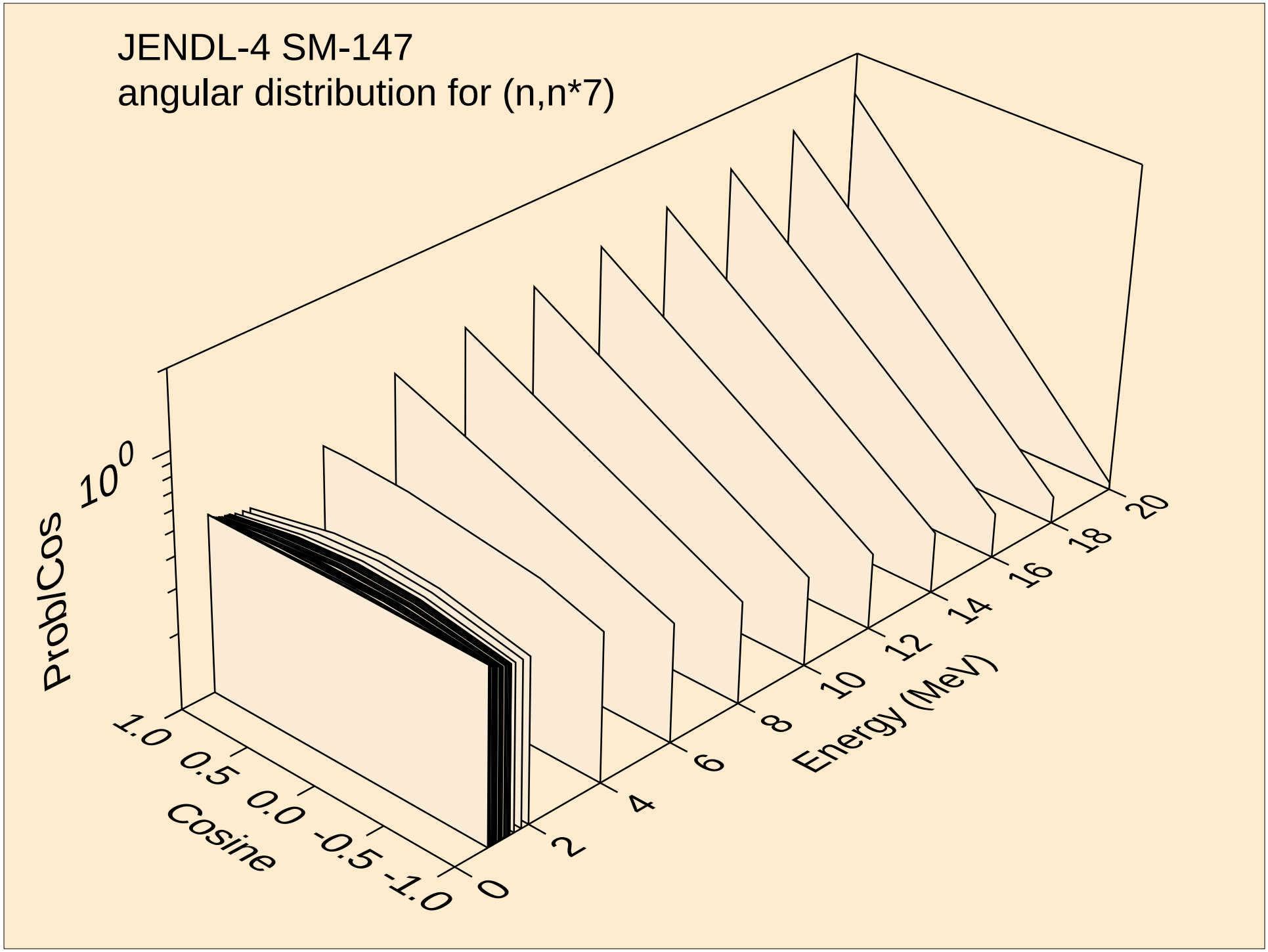

JENDL-4 SM-147
angular distribution for (n,n*2)
ProbCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

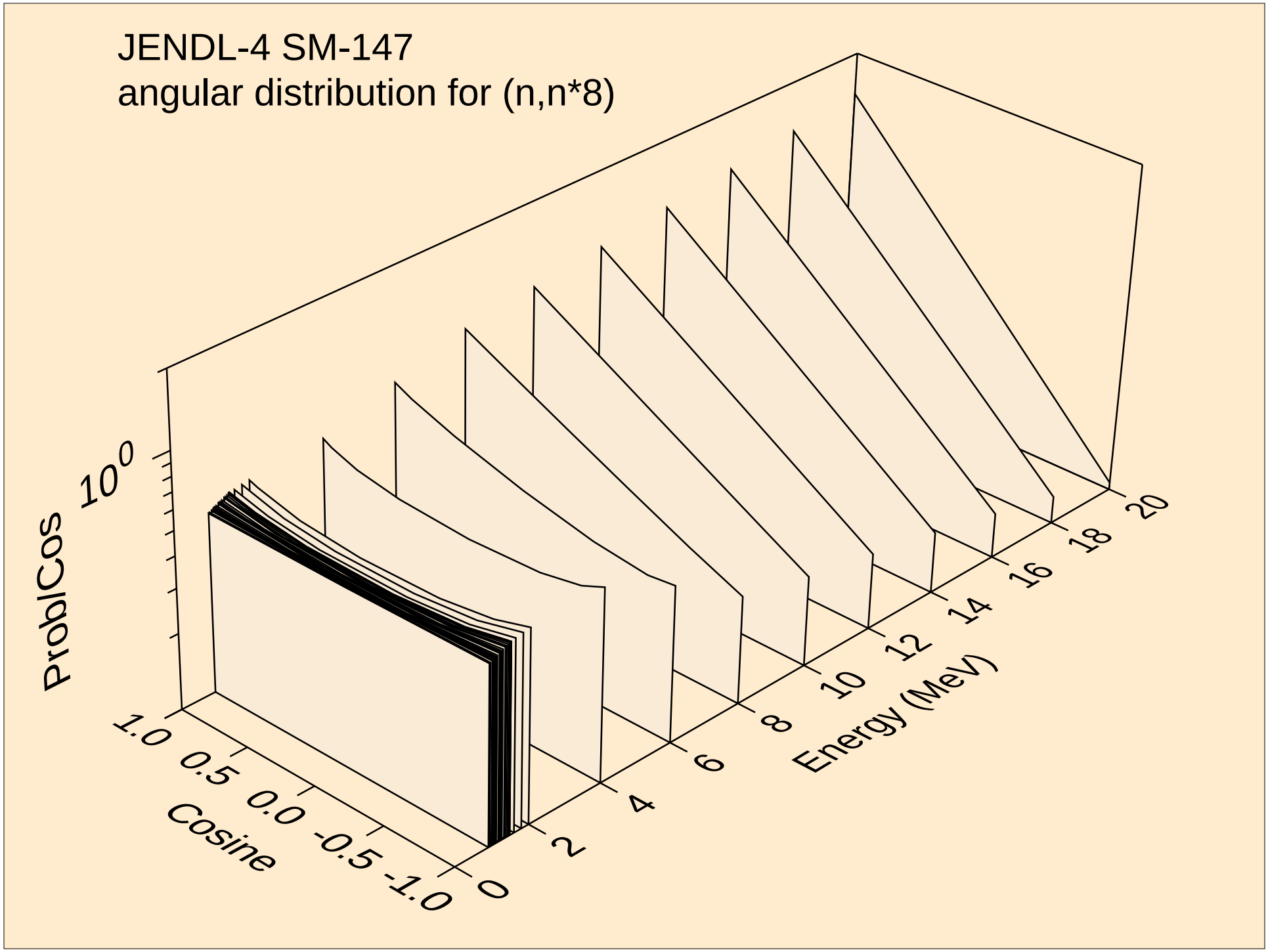

JENDL-4 SM-147
angular distribution for (n,n*3)
ProbCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

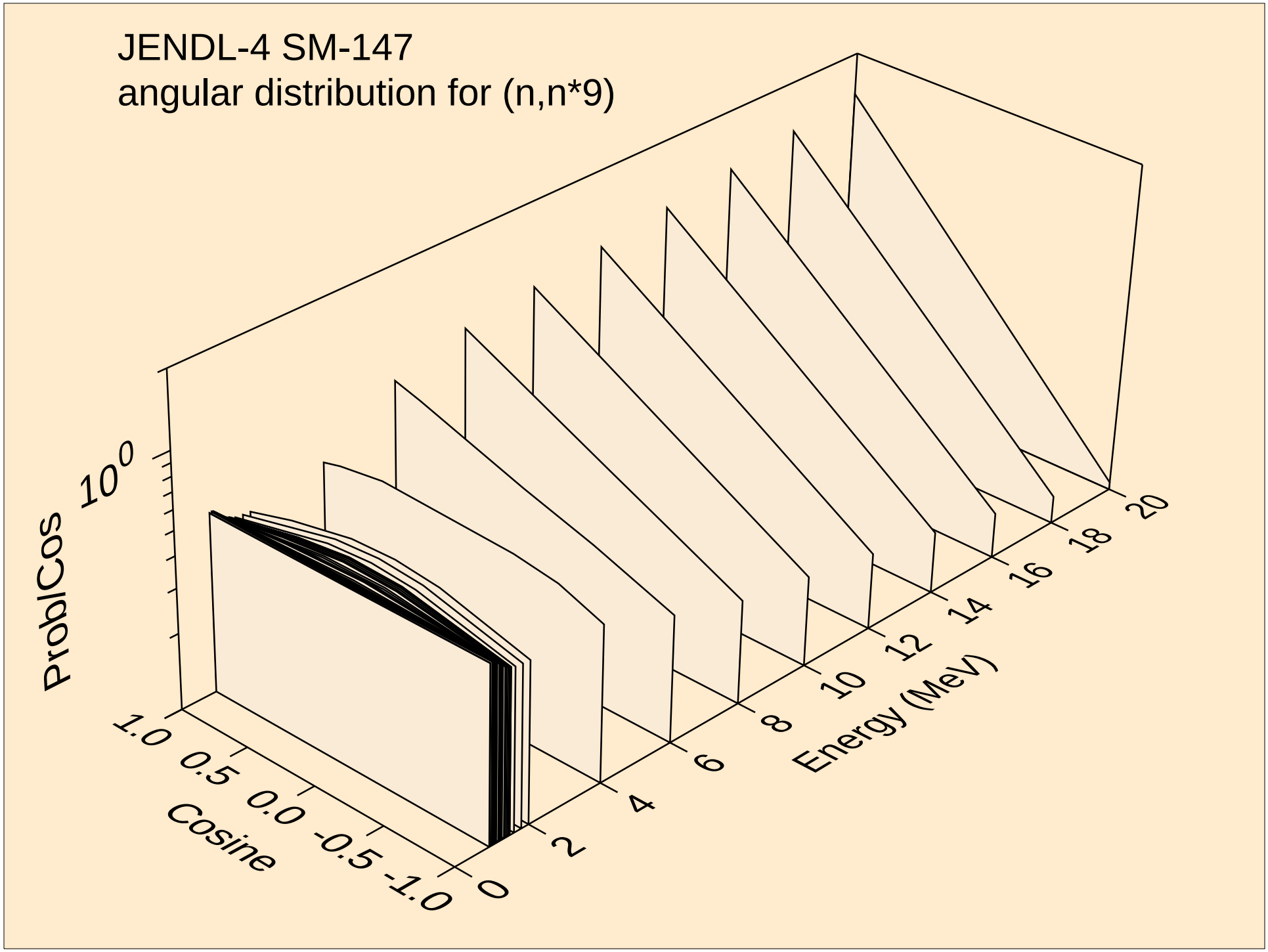

JENDL-4 SM-147
angular distribution for (n,n*4)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

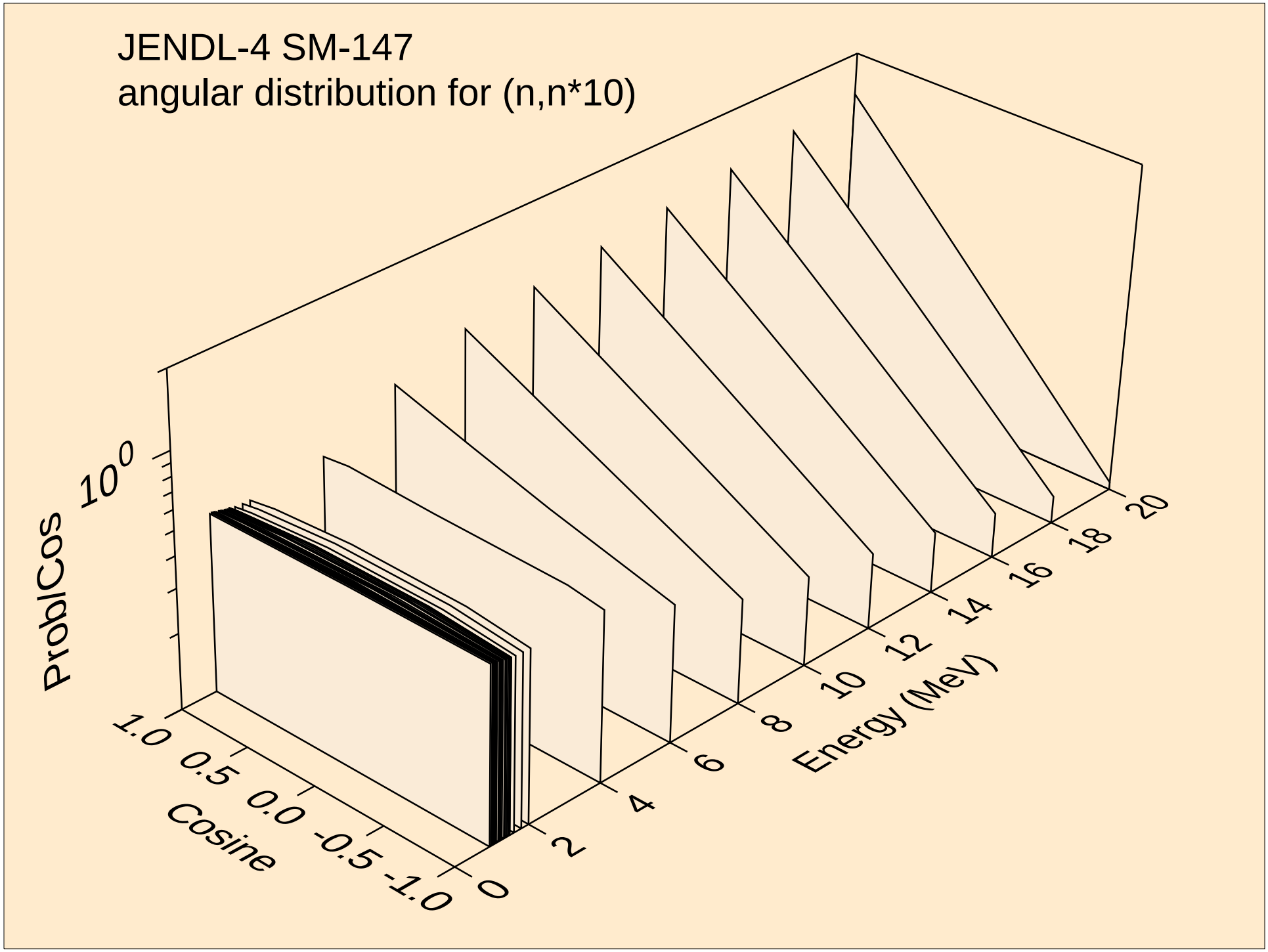

JENDL-4 SM-147
angular distribution for (n,n*5)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

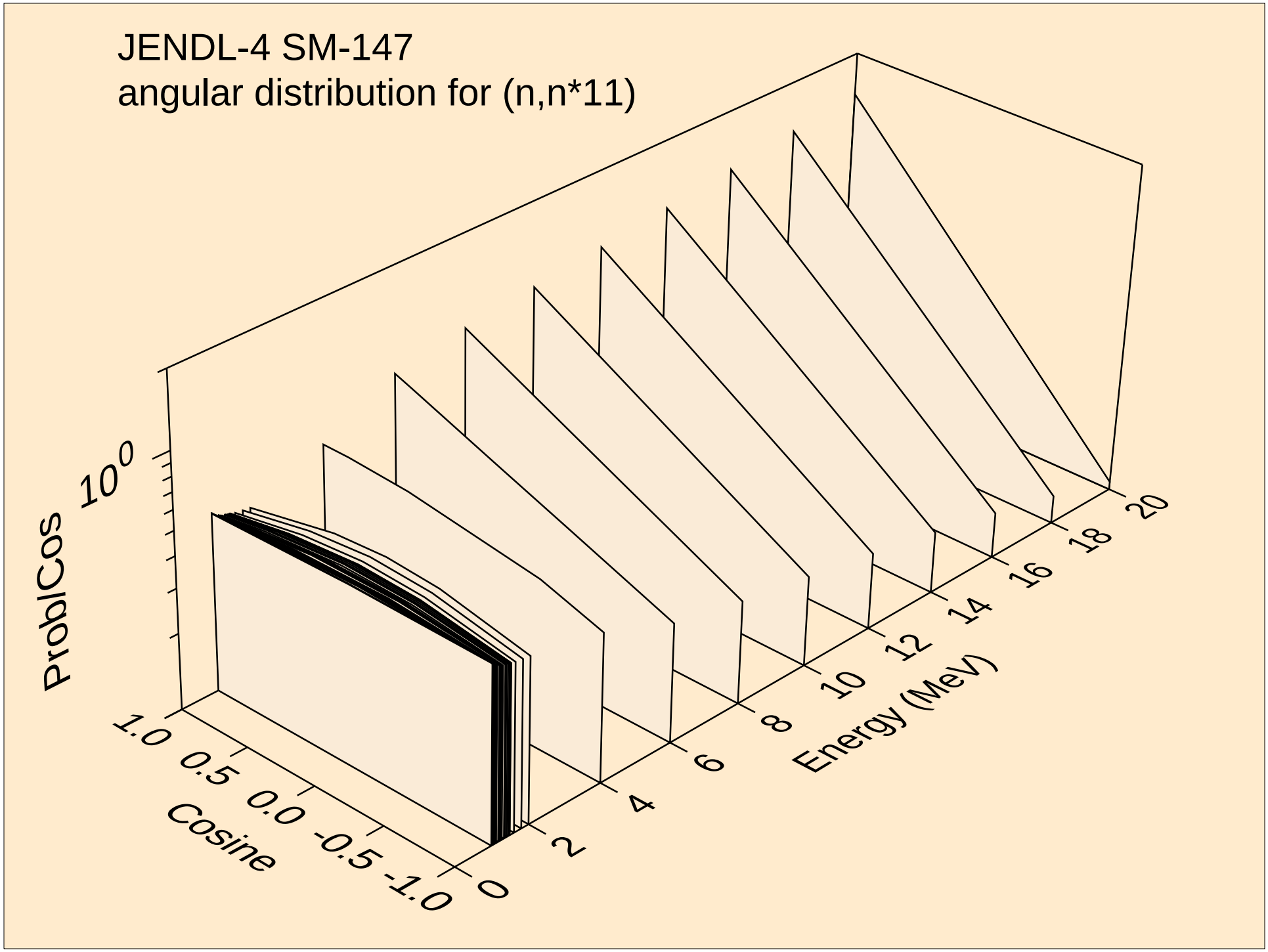

JENDL-4 SM-147
angular distribution for (n,n*6)
Prob/Cos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

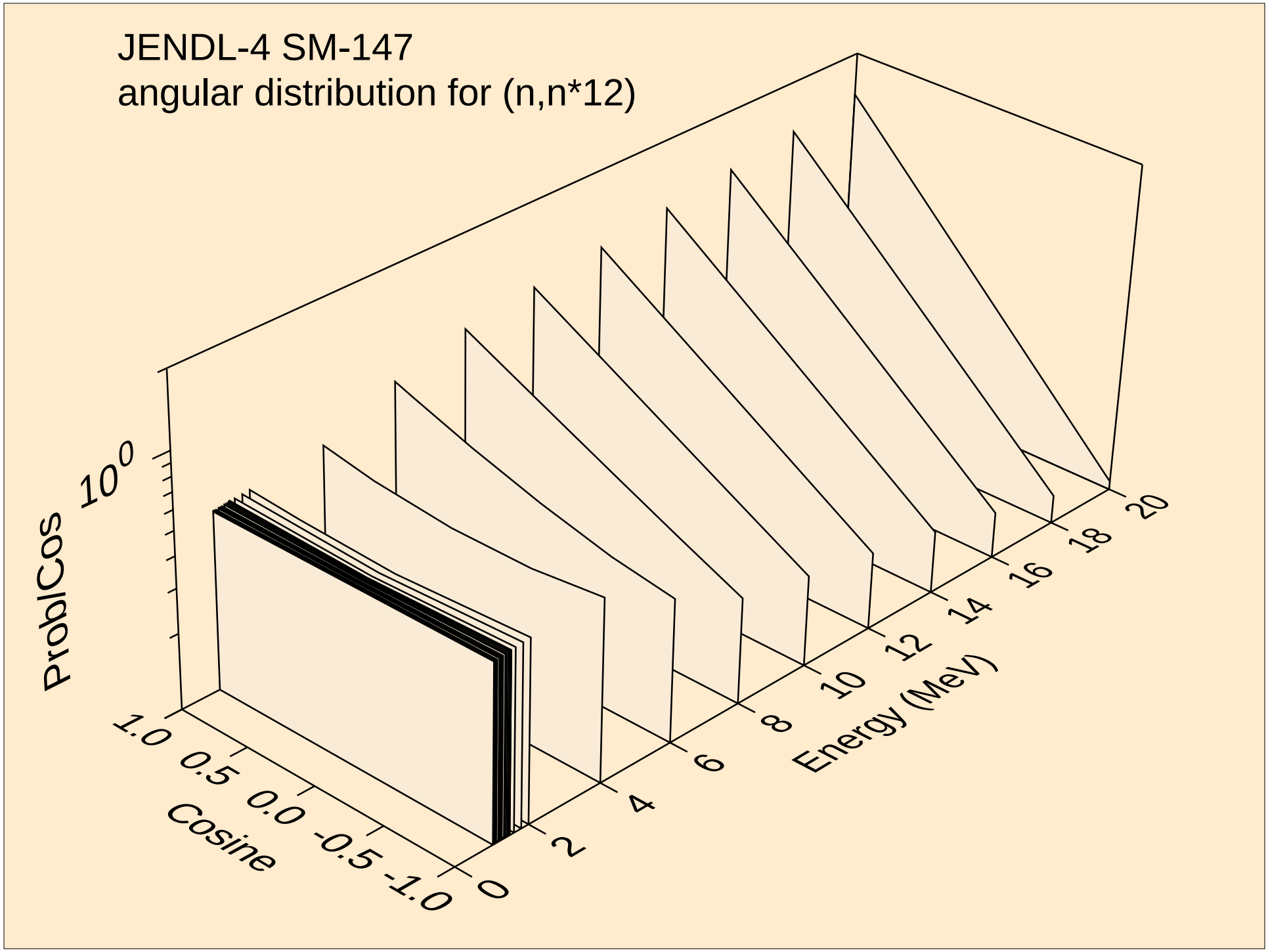

JENDL-4 SM-147
angular distribution for (n,n*7)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

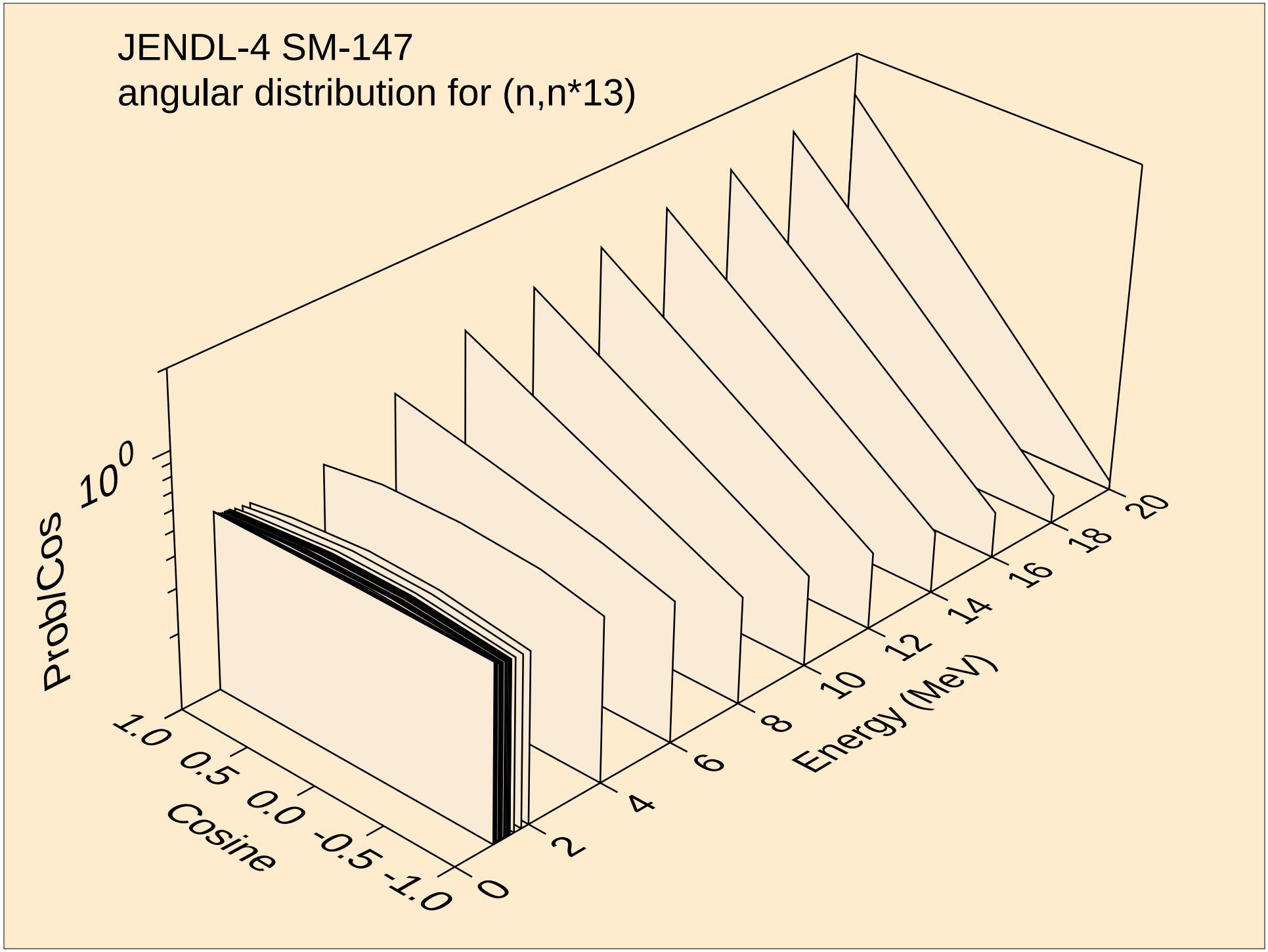

JENDL-4 SM-147
angular distribution for (n,n*8)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

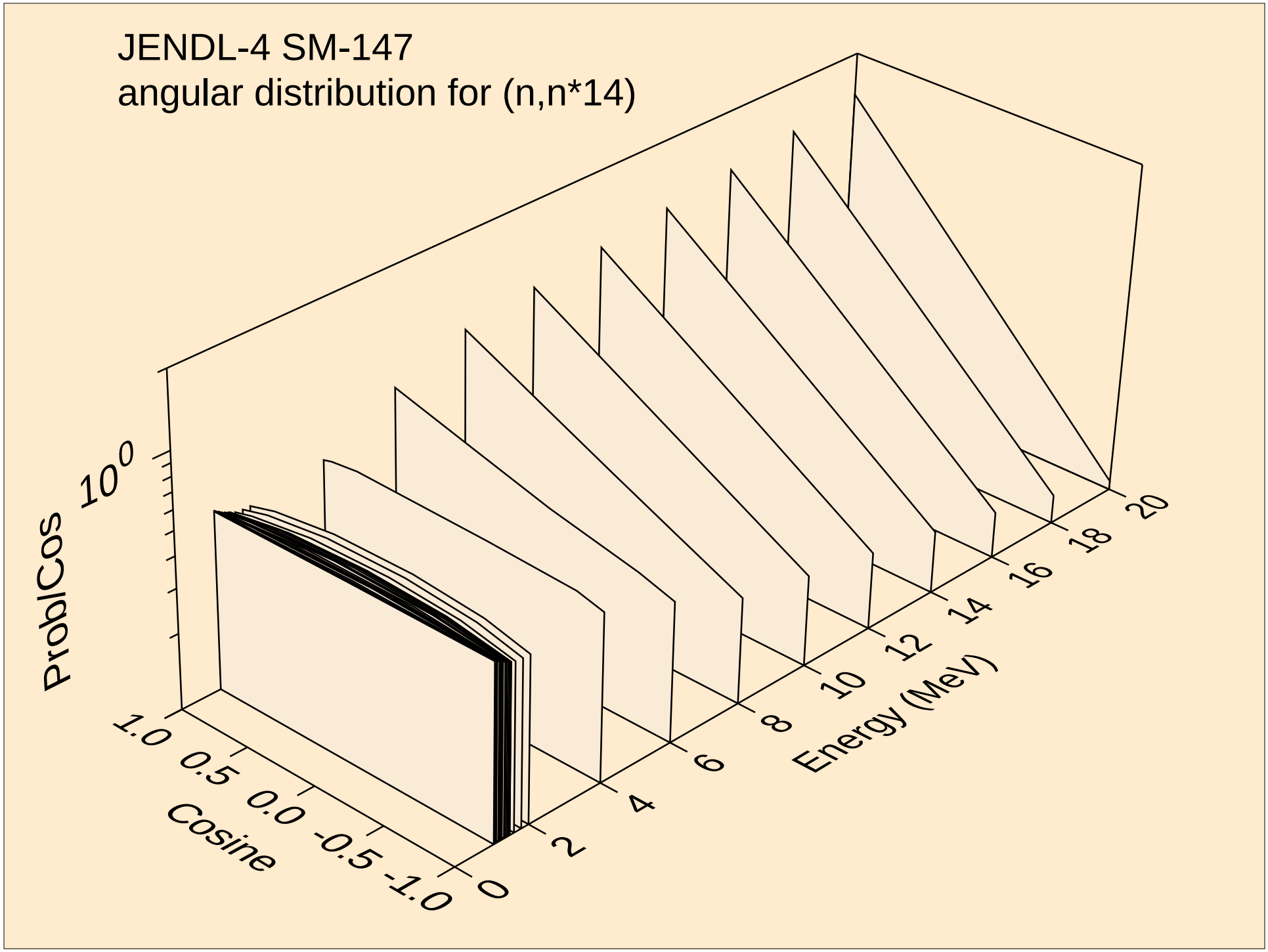

JENDL-4 SM-147
angular distribution for (n,n*9)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

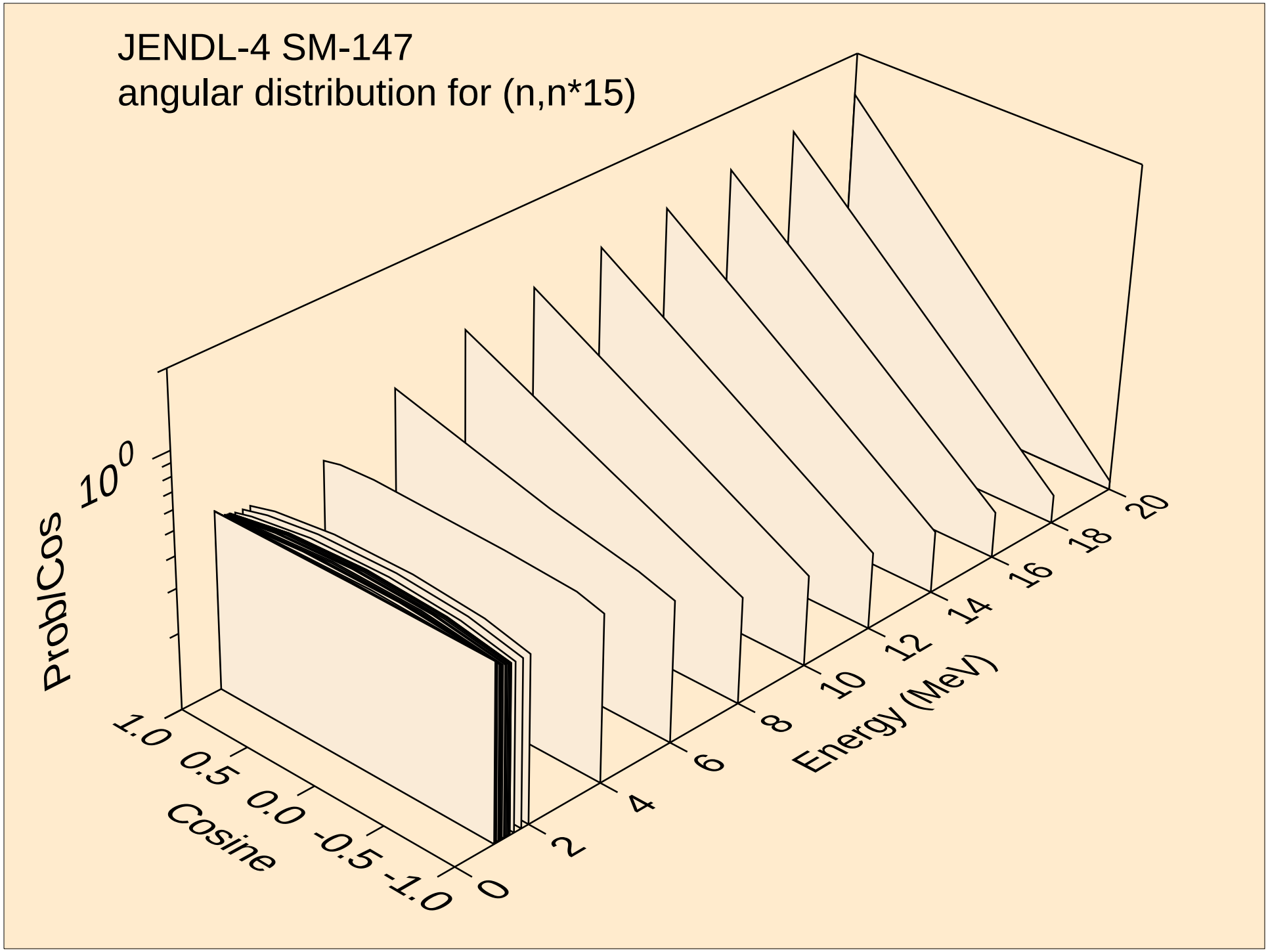

JENDL-4 SM-147
angular distribution for (n,n*10)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

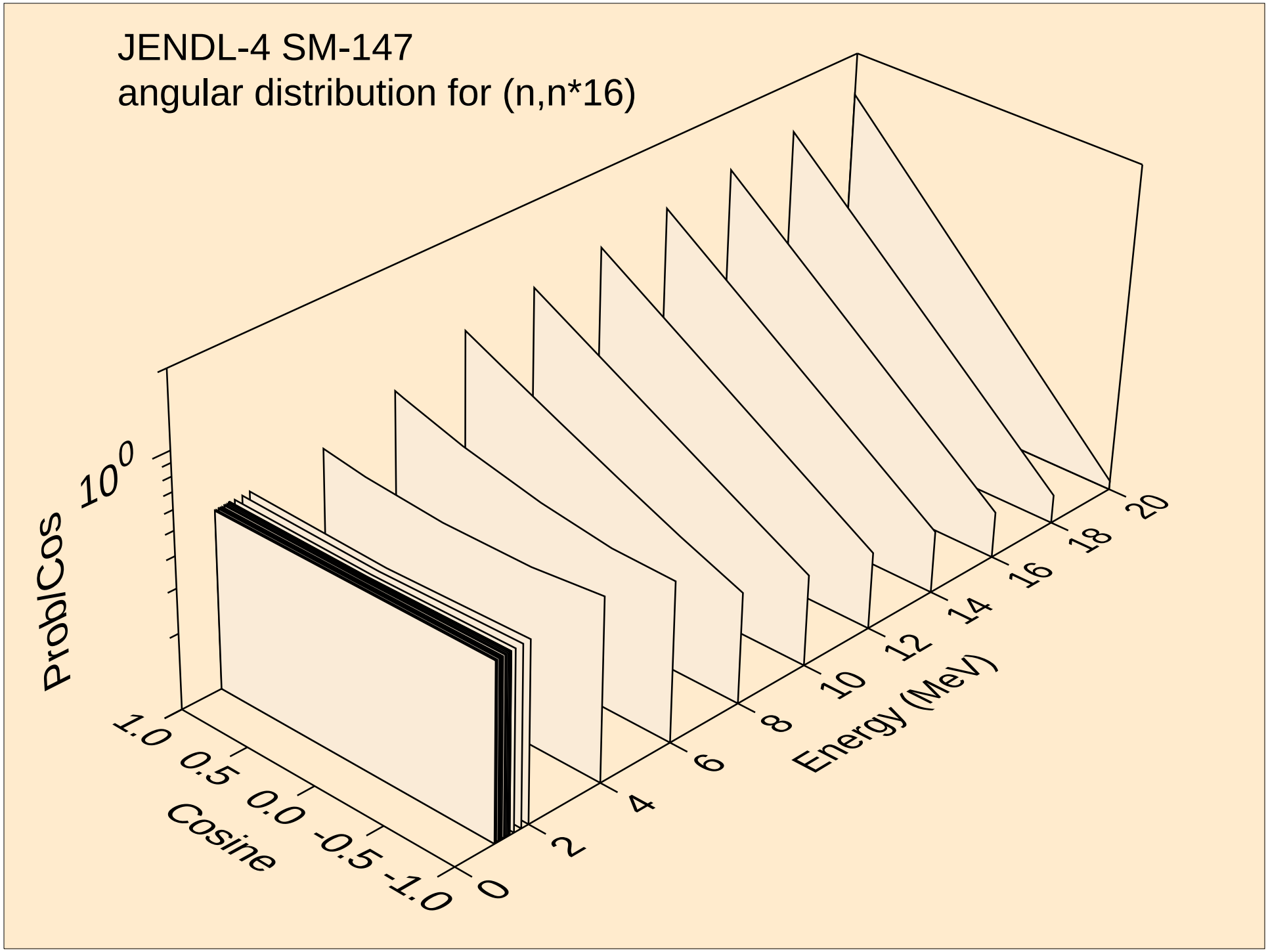

JENDL-4 SM-147
angular distribution for (n,n*11)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

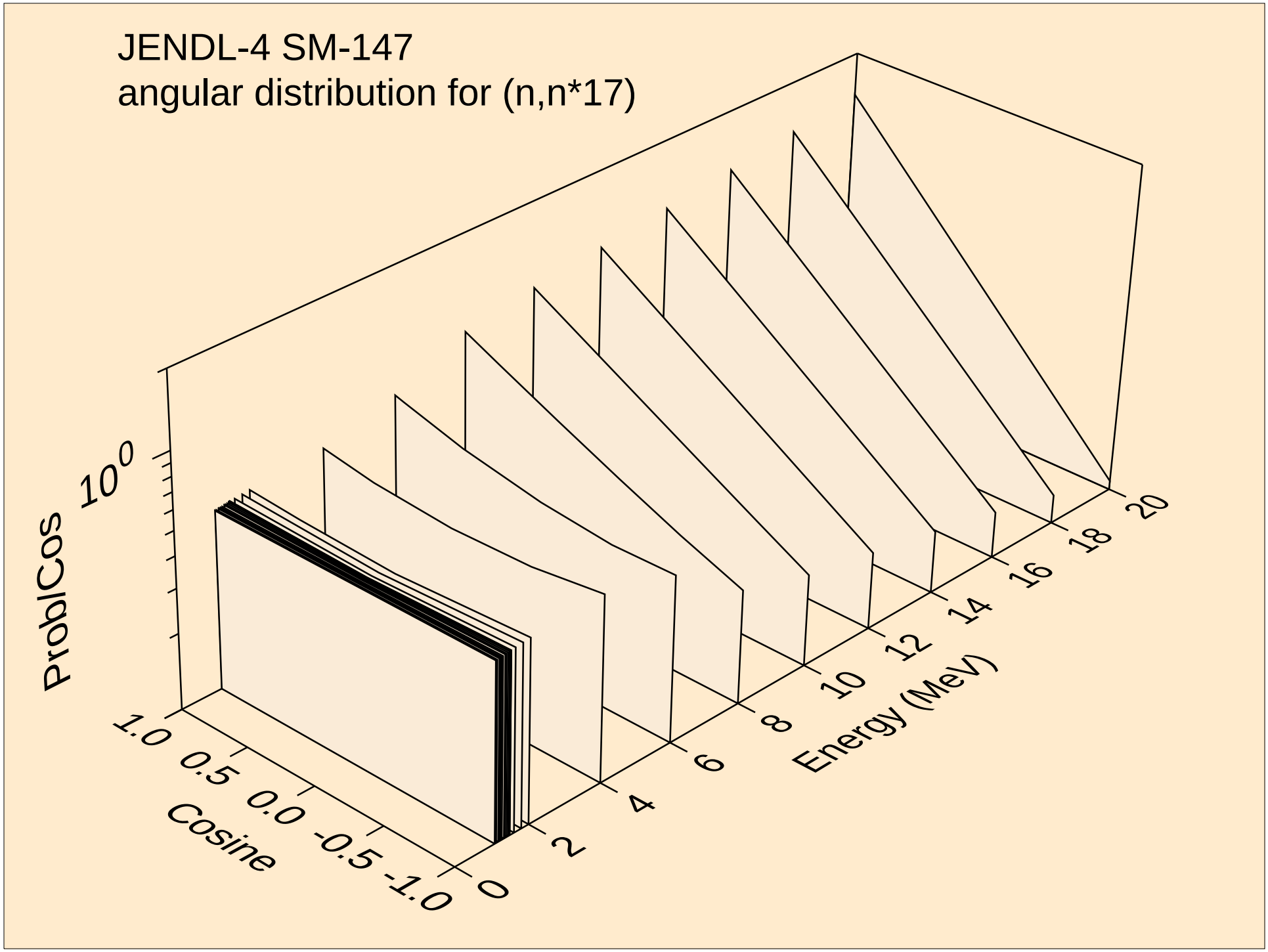

JENDL-4 SM-147
angular distribution for (n,n*12)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

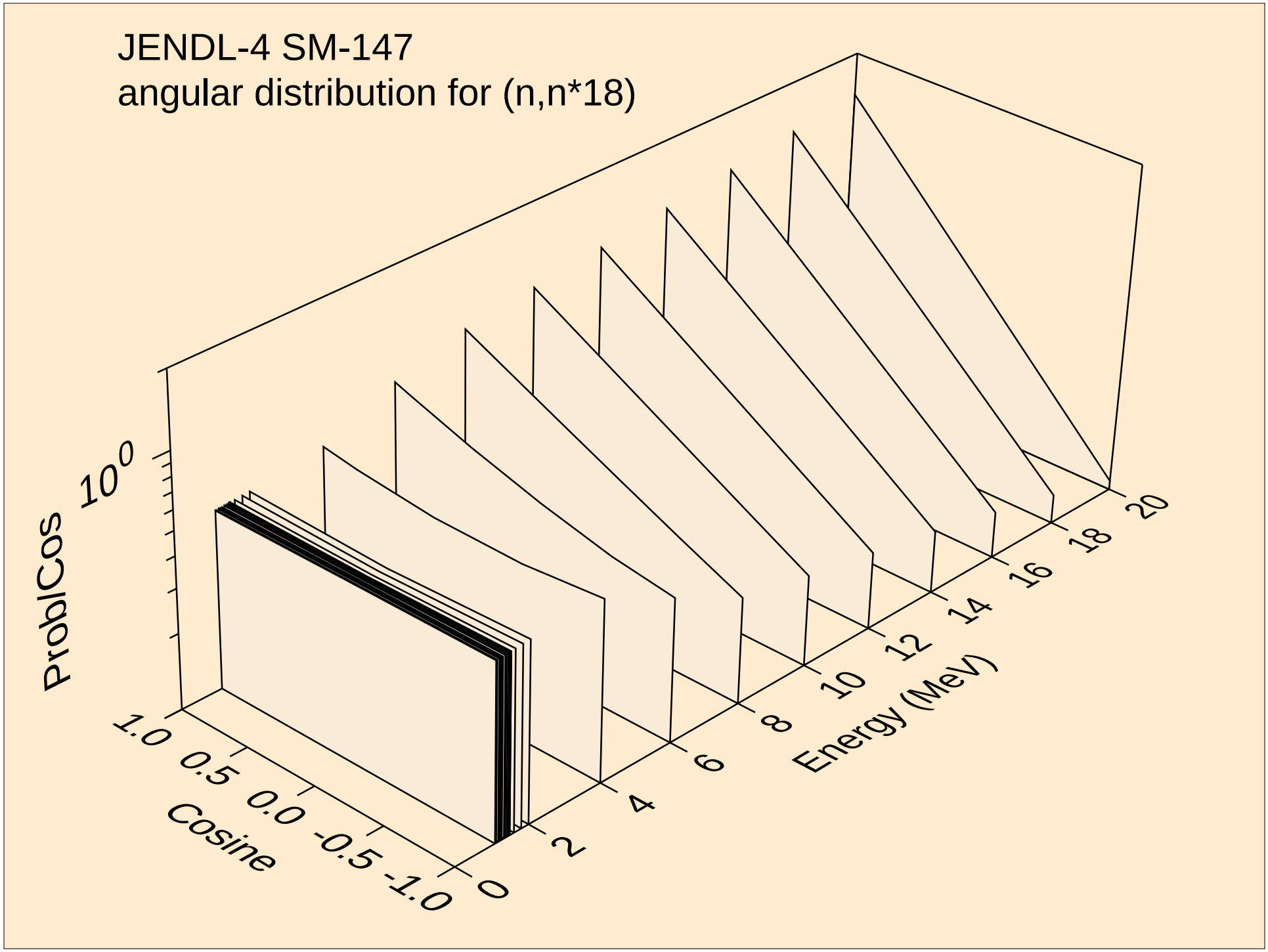

JENDL-4 SM-147
angular distribution for (n,n*13)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

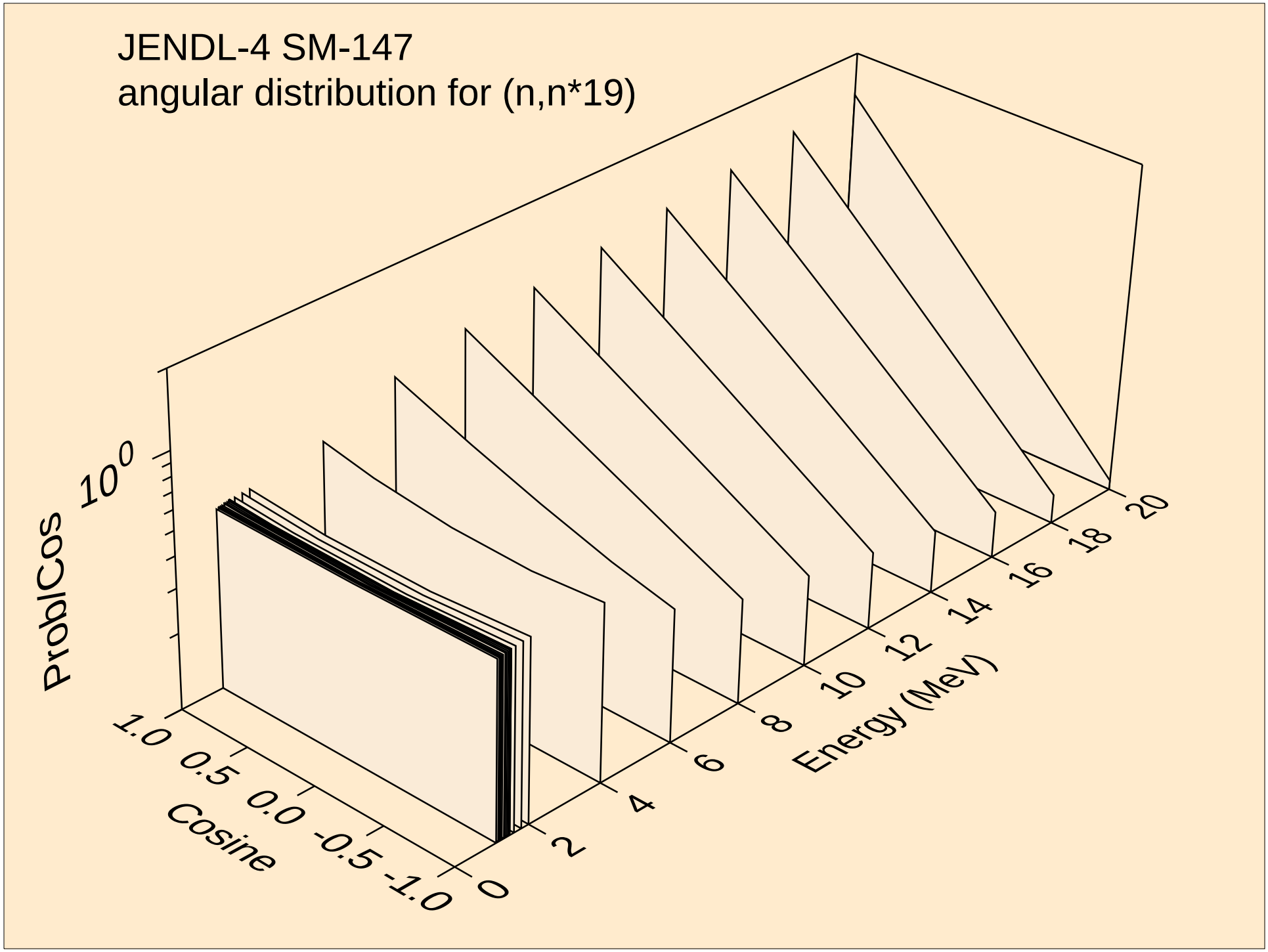

JENDL-4 SM-147
angular distribution for (n,n*14)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

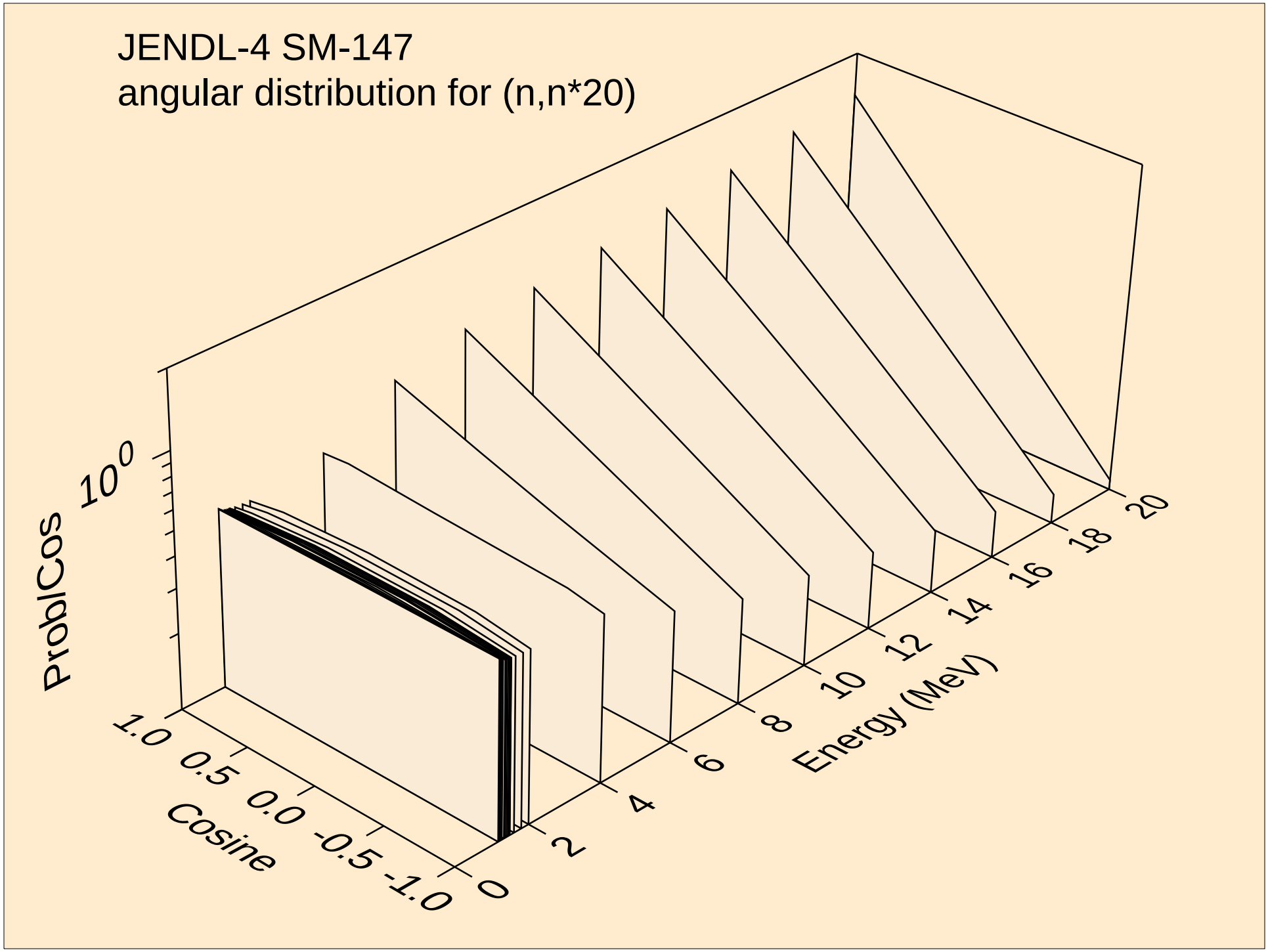

JENDL-4 SM-147
angular distribution for (n,n*15)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

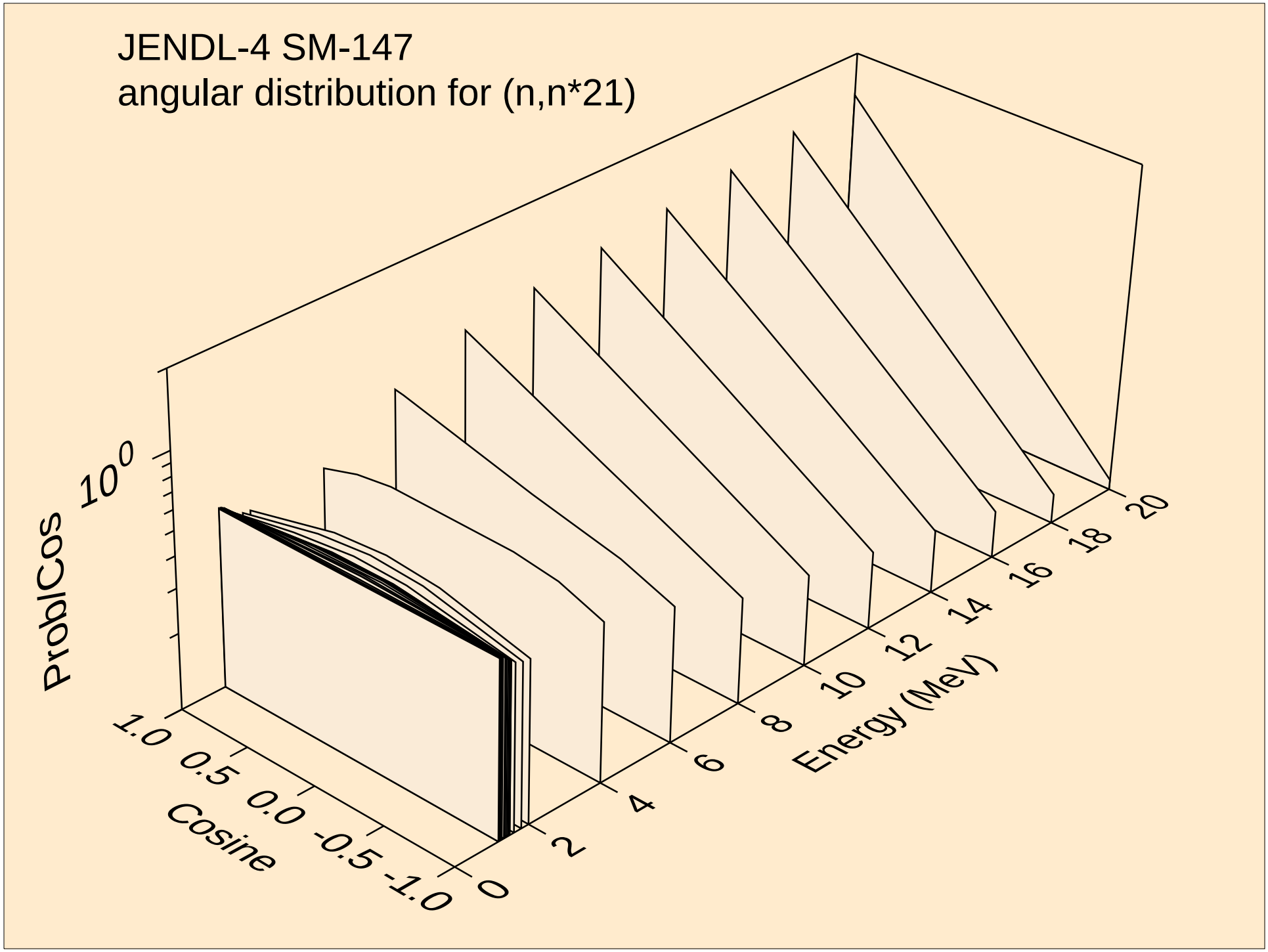

JENDL-4 SM-147
angular distribution for (n,n*16)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

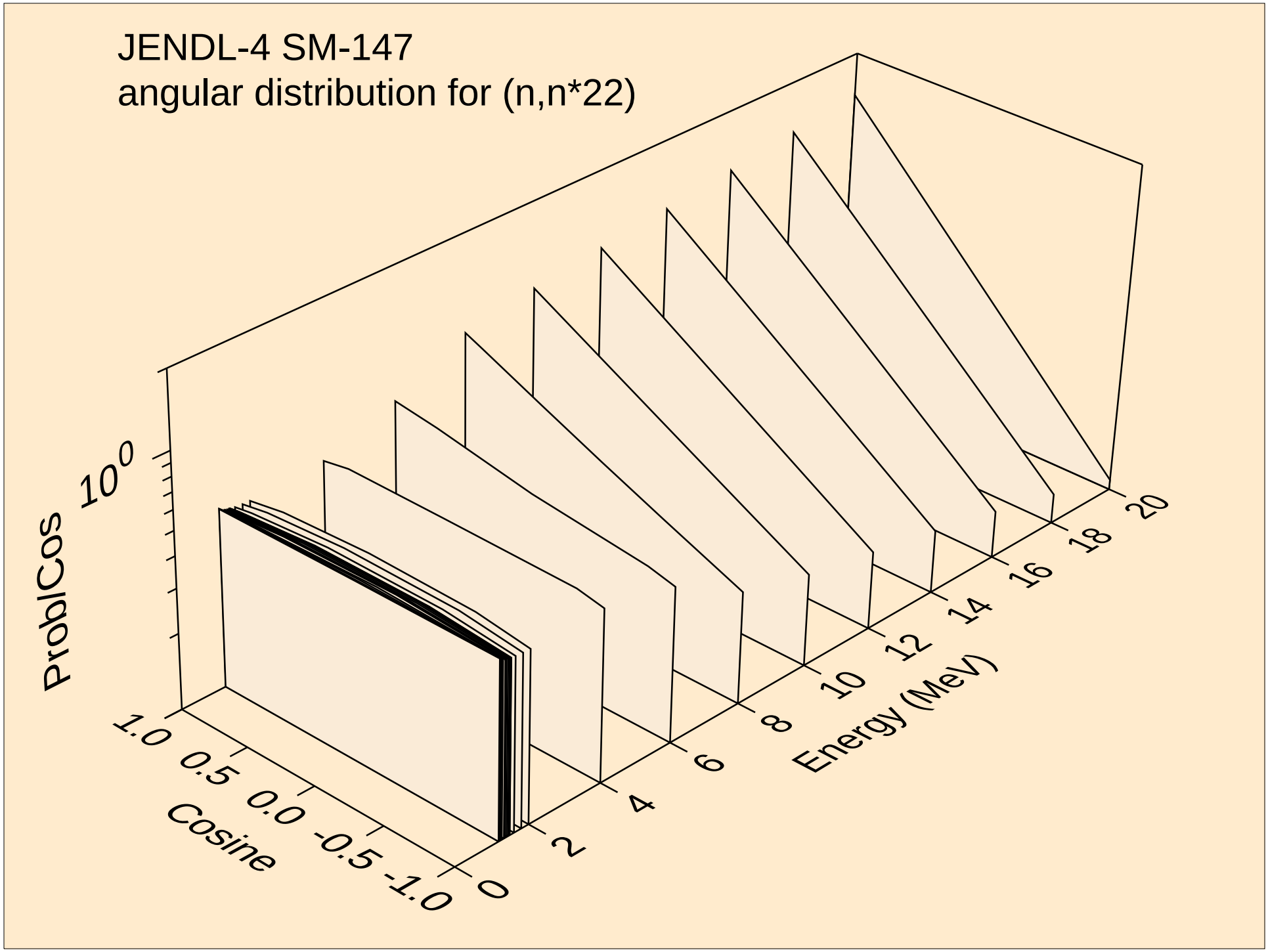

JENDL-4 SM-147
angular distribution for (n,n*17)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

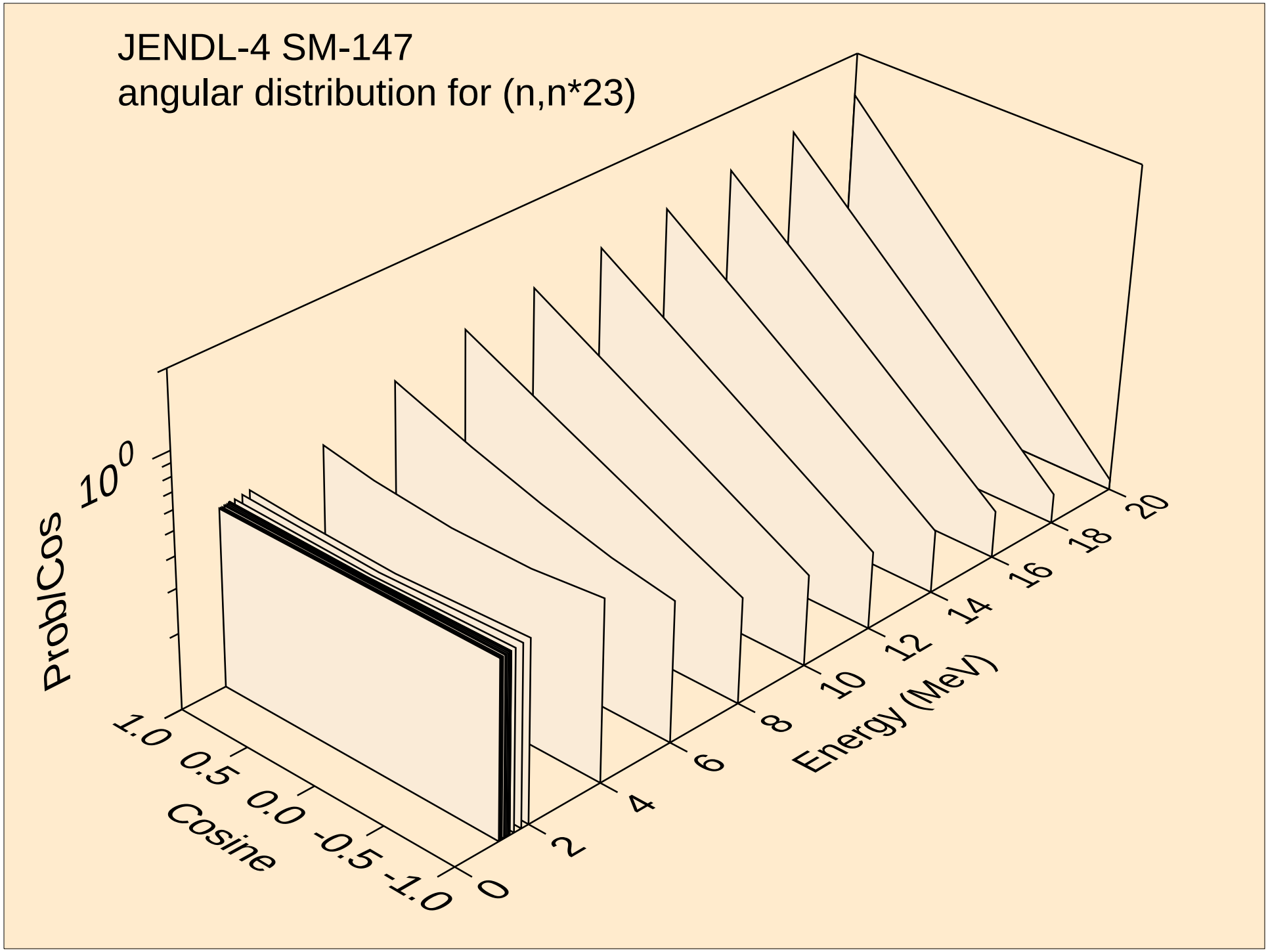

JENDL-4 SM-147
angular distribution for (n,n*18)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

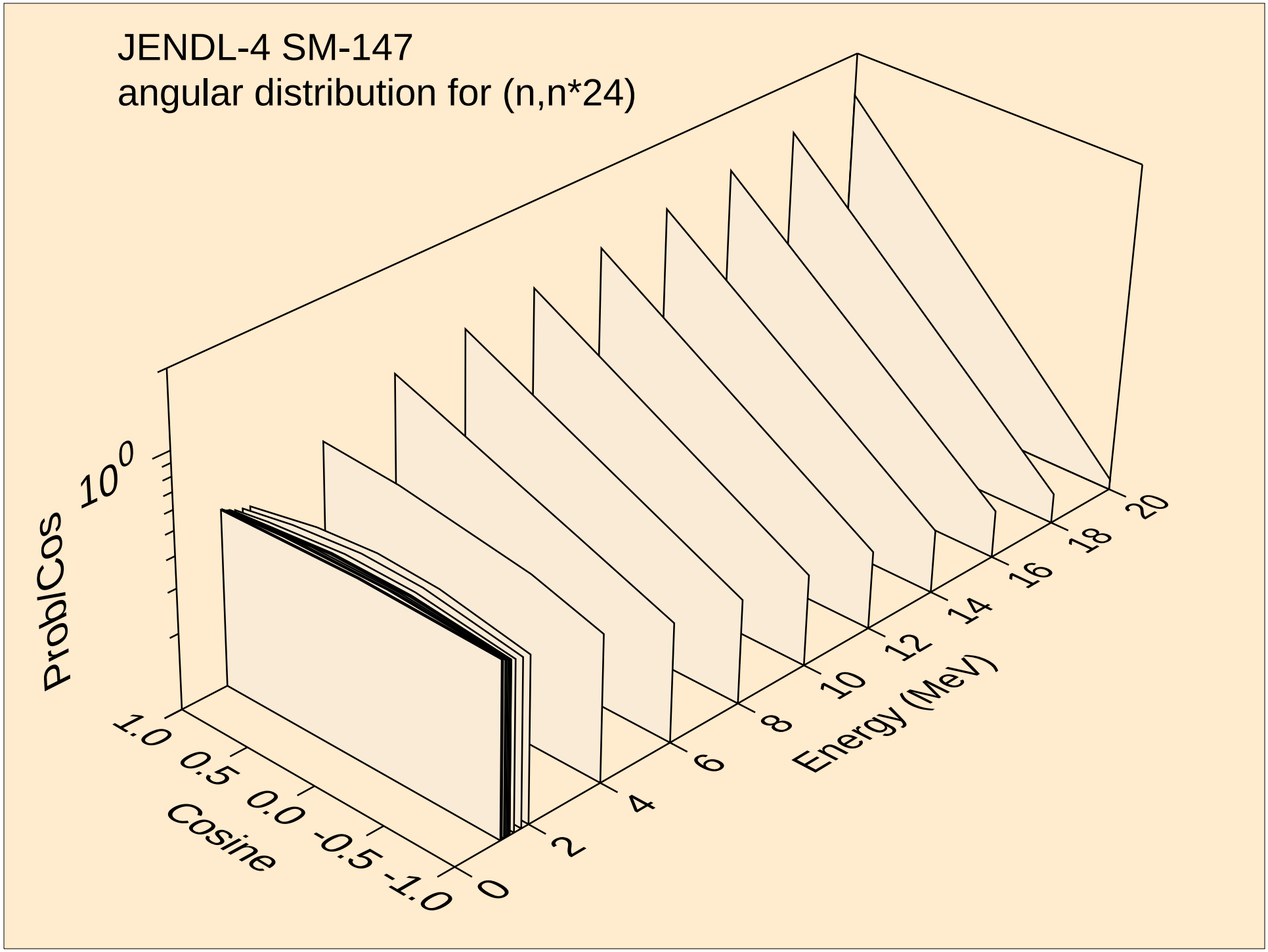

JENDL-4 SM-147
angular distribution for (n,n*19)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

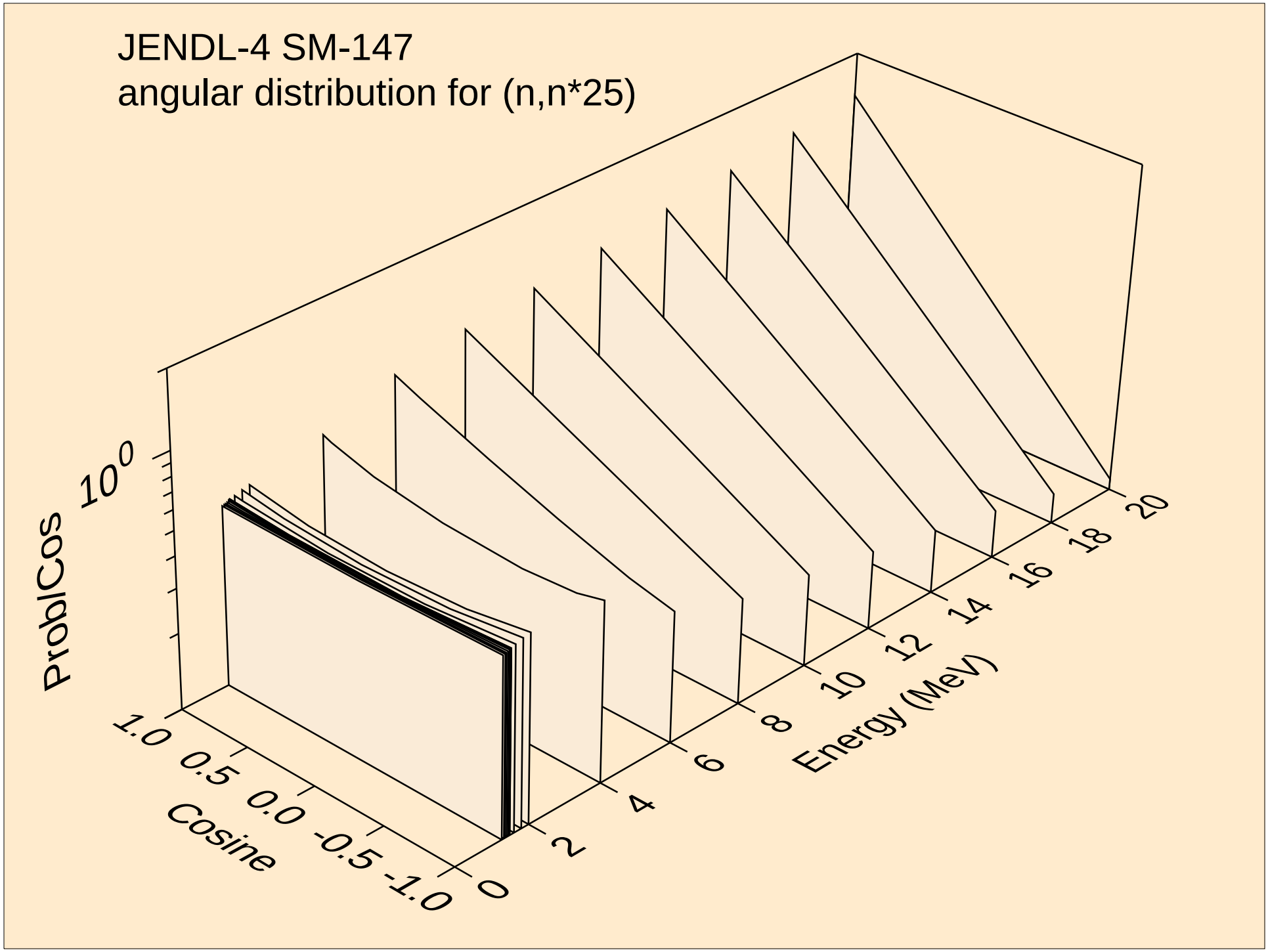

JENDL-4 SM-147
angular distribution for (n,n*20)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

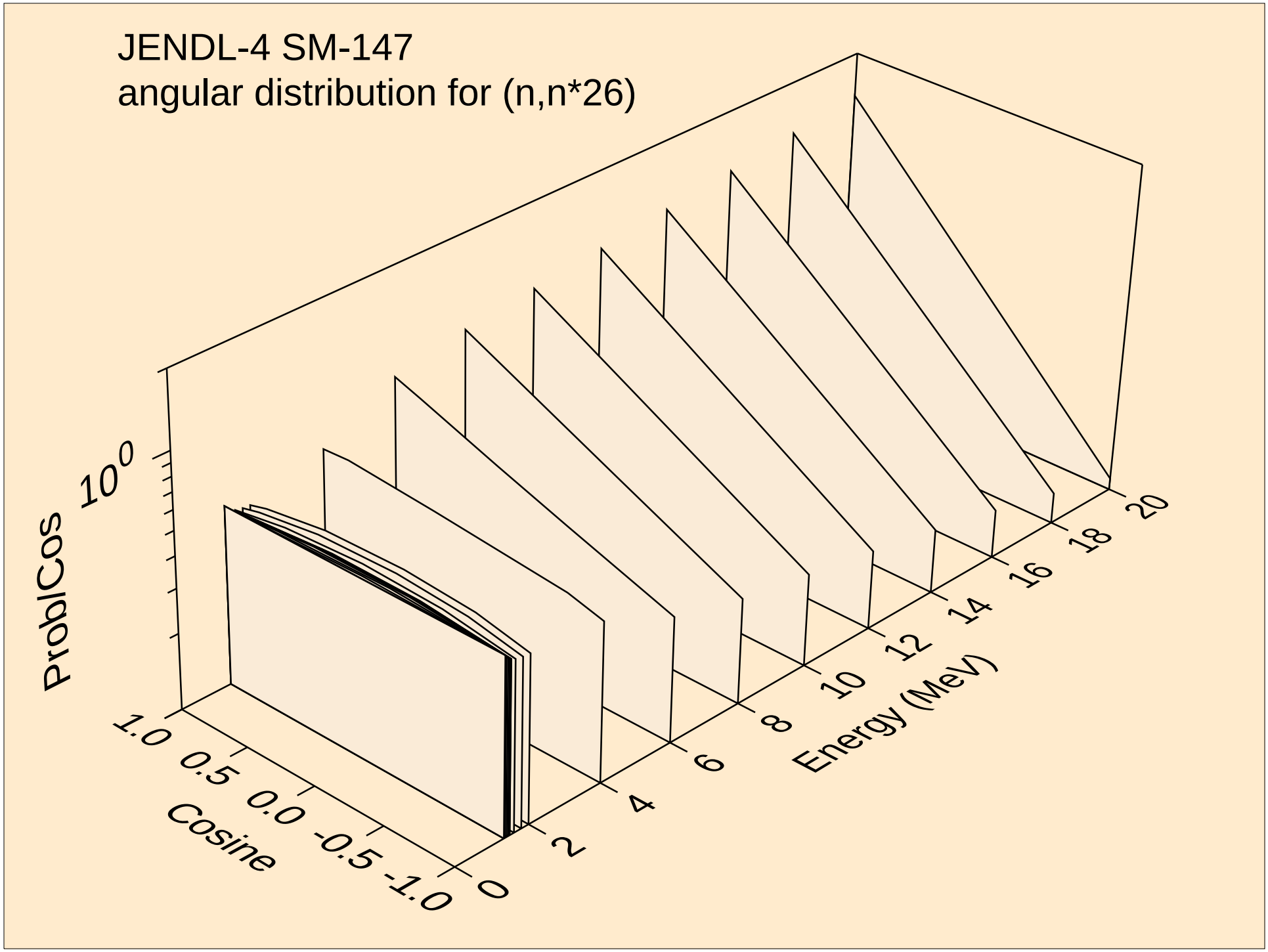

JENDL-4 SM-147
angular distribution for (n,n*21)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

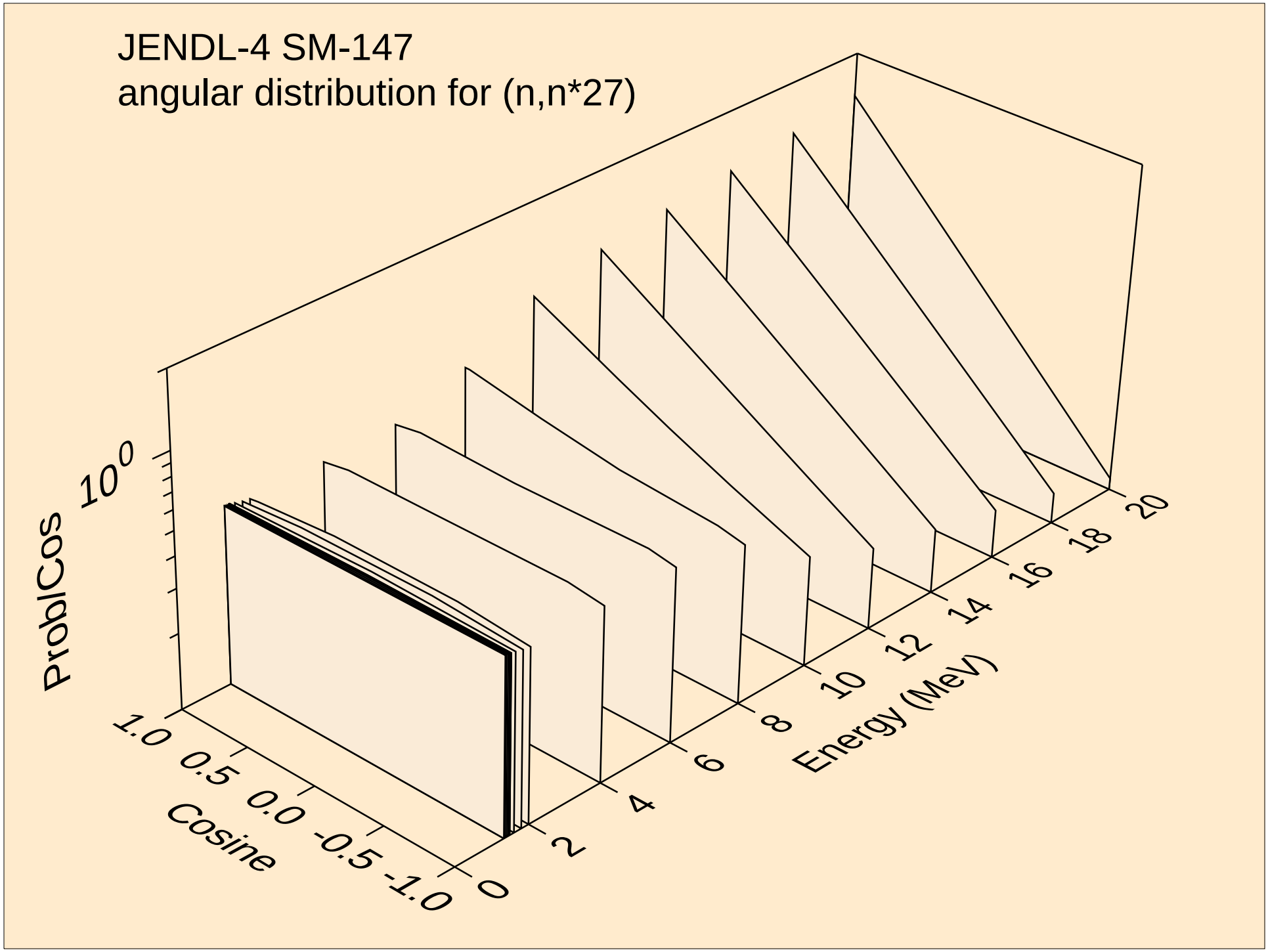

JENDL-4 SM-147
angular distribution for (n,n*22)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

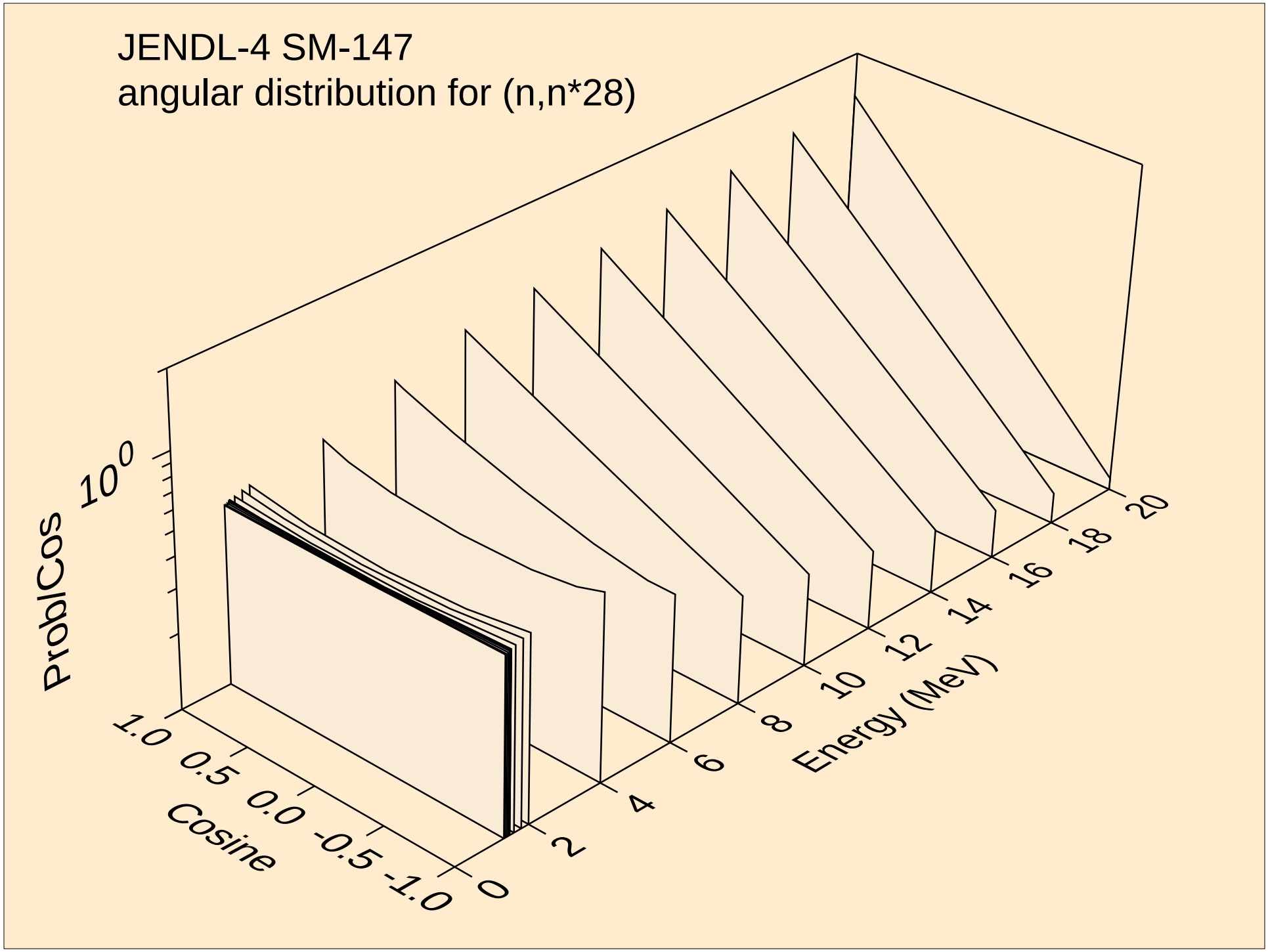

JENDL-4 SM-147
angular distribution for (n,n*23)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

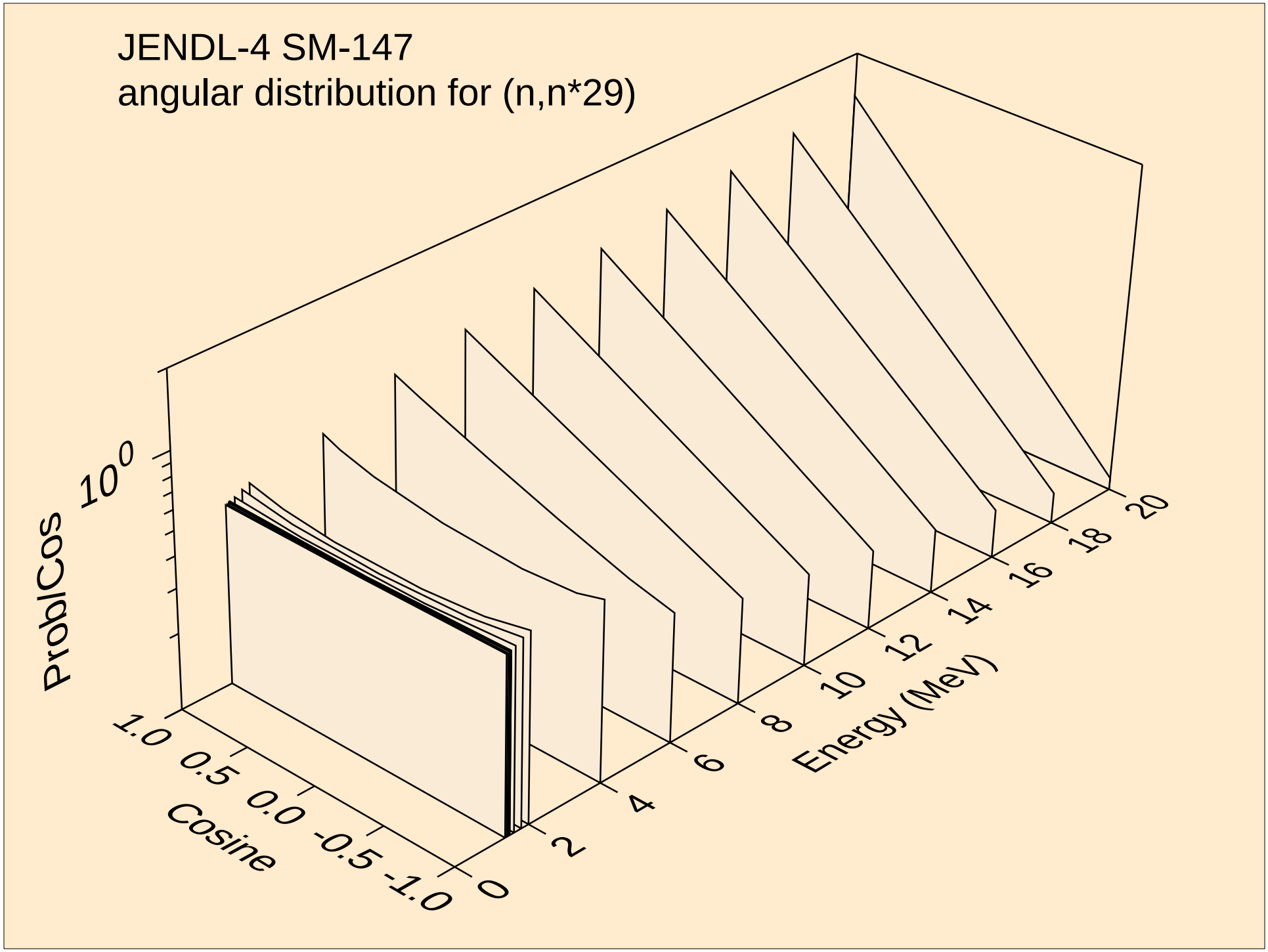

JENDL-4 SM-147
angular distribution for (n,n*24)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

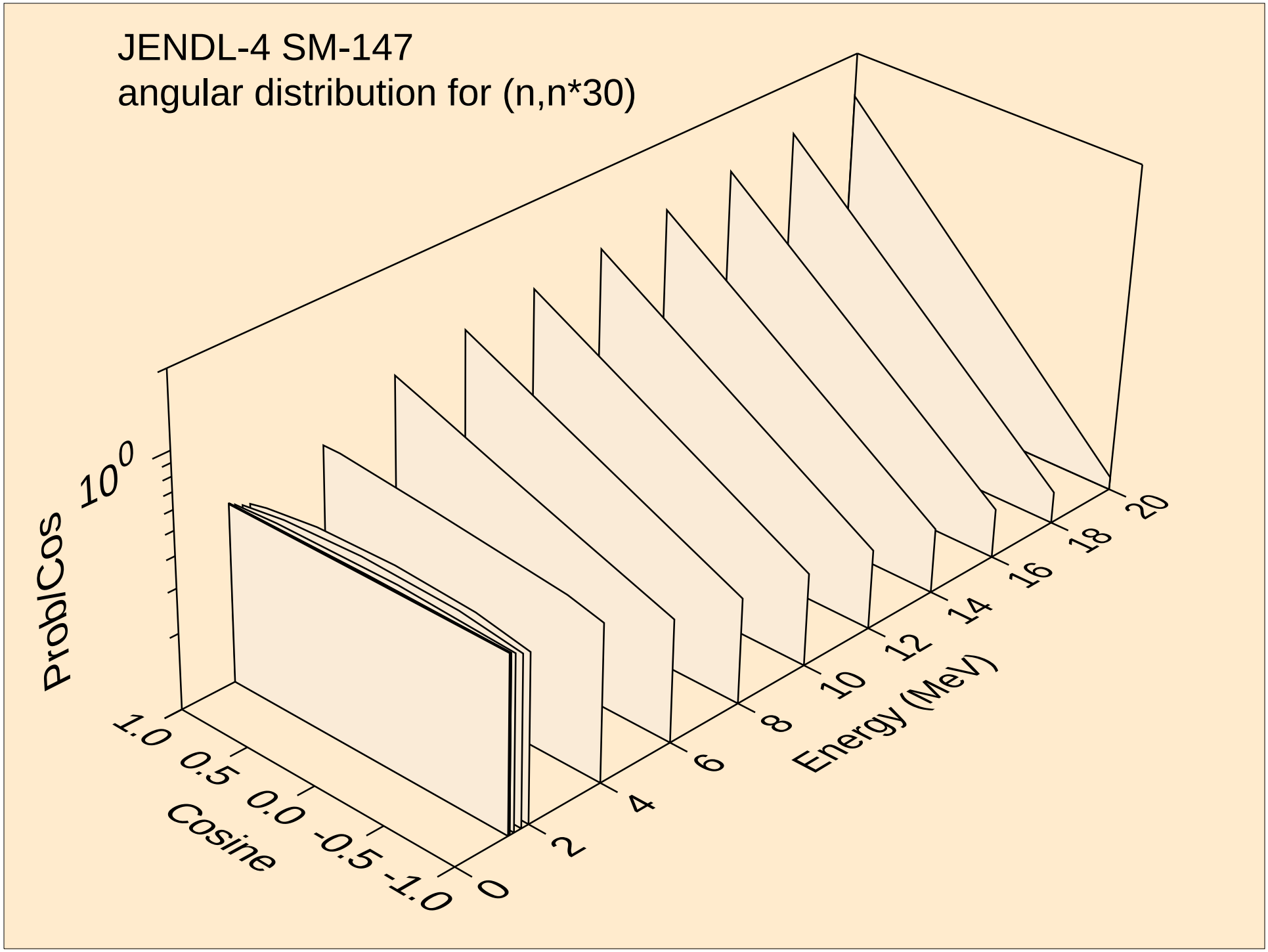

JENDL-4 SM-147
angular distribution for (n,n*25)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

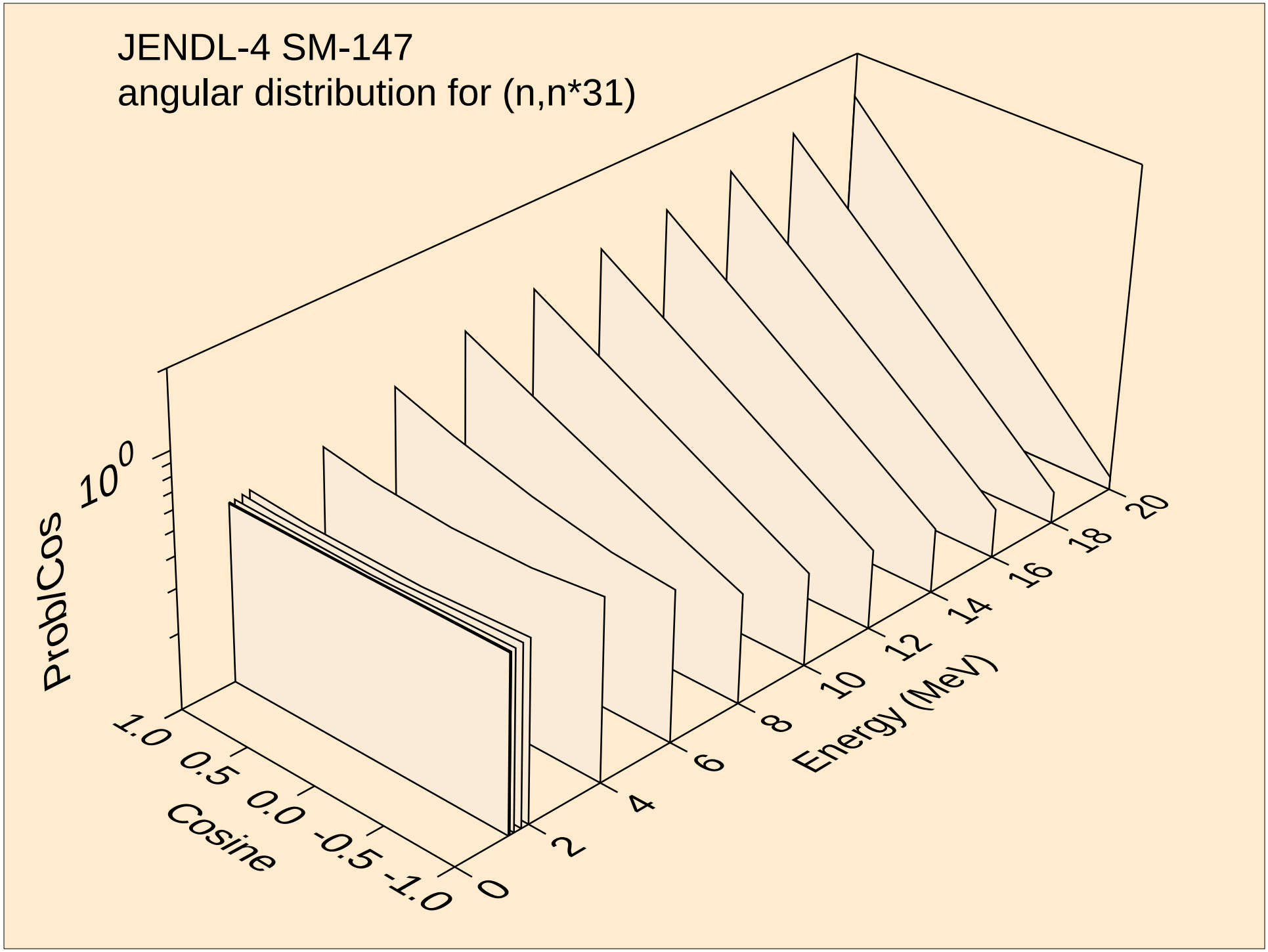

JENDL-4 SM-147
angular distribution for (n,n*26)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

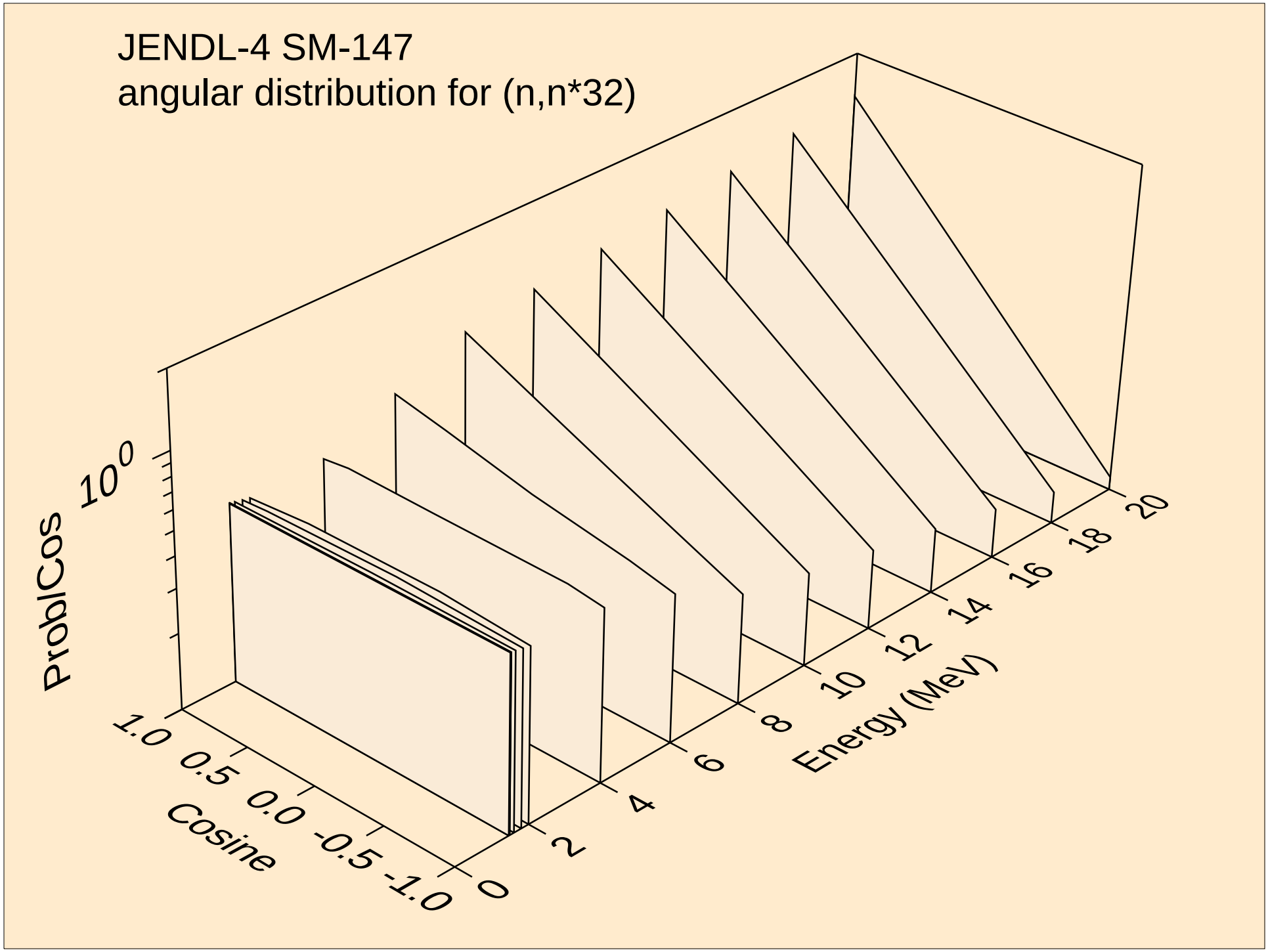

JENDL-4 SM-147
angular distribution for (n,n*27)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

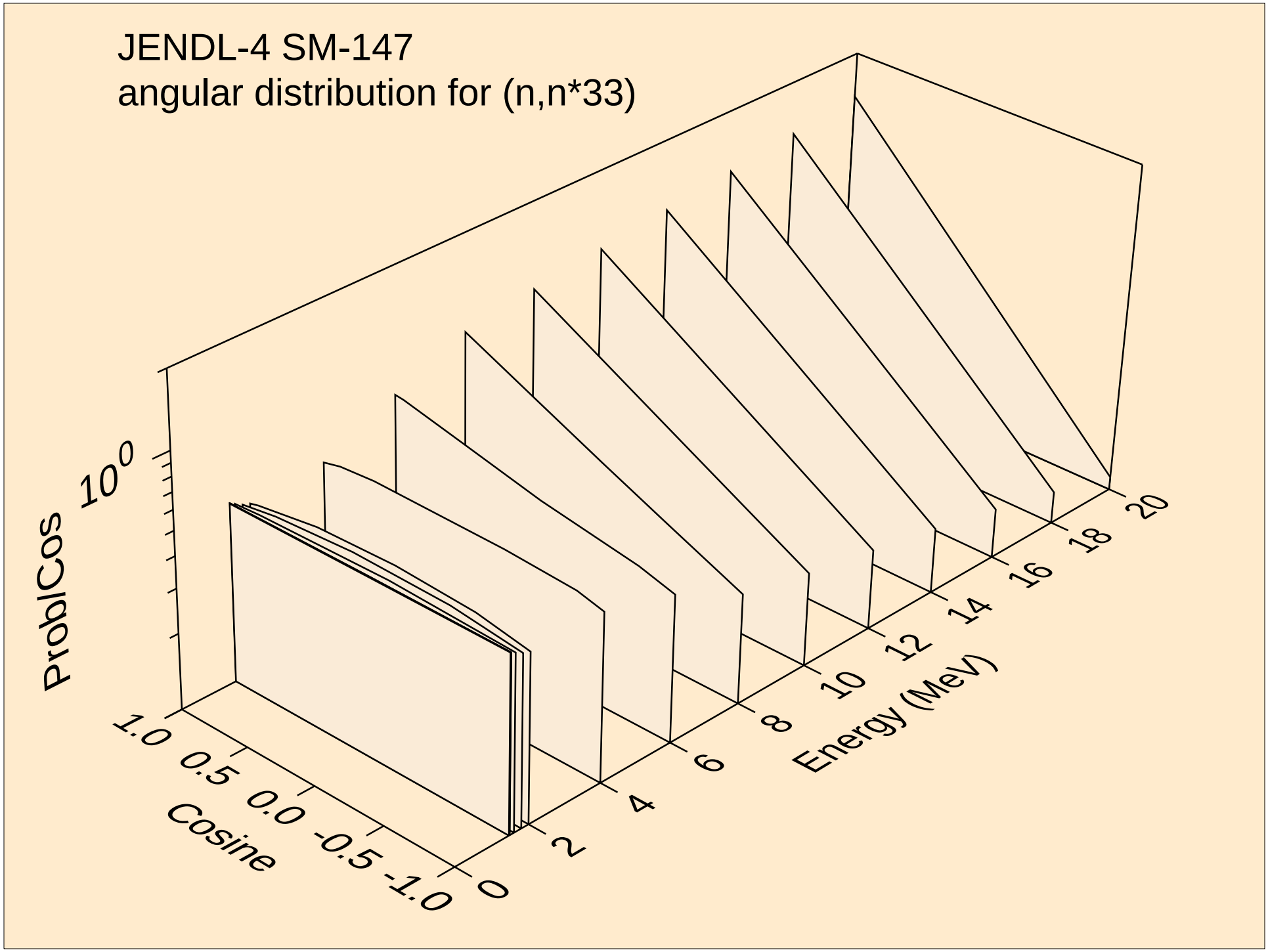

JENDL-4 SM-147
angular distribution for (n,n*28)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

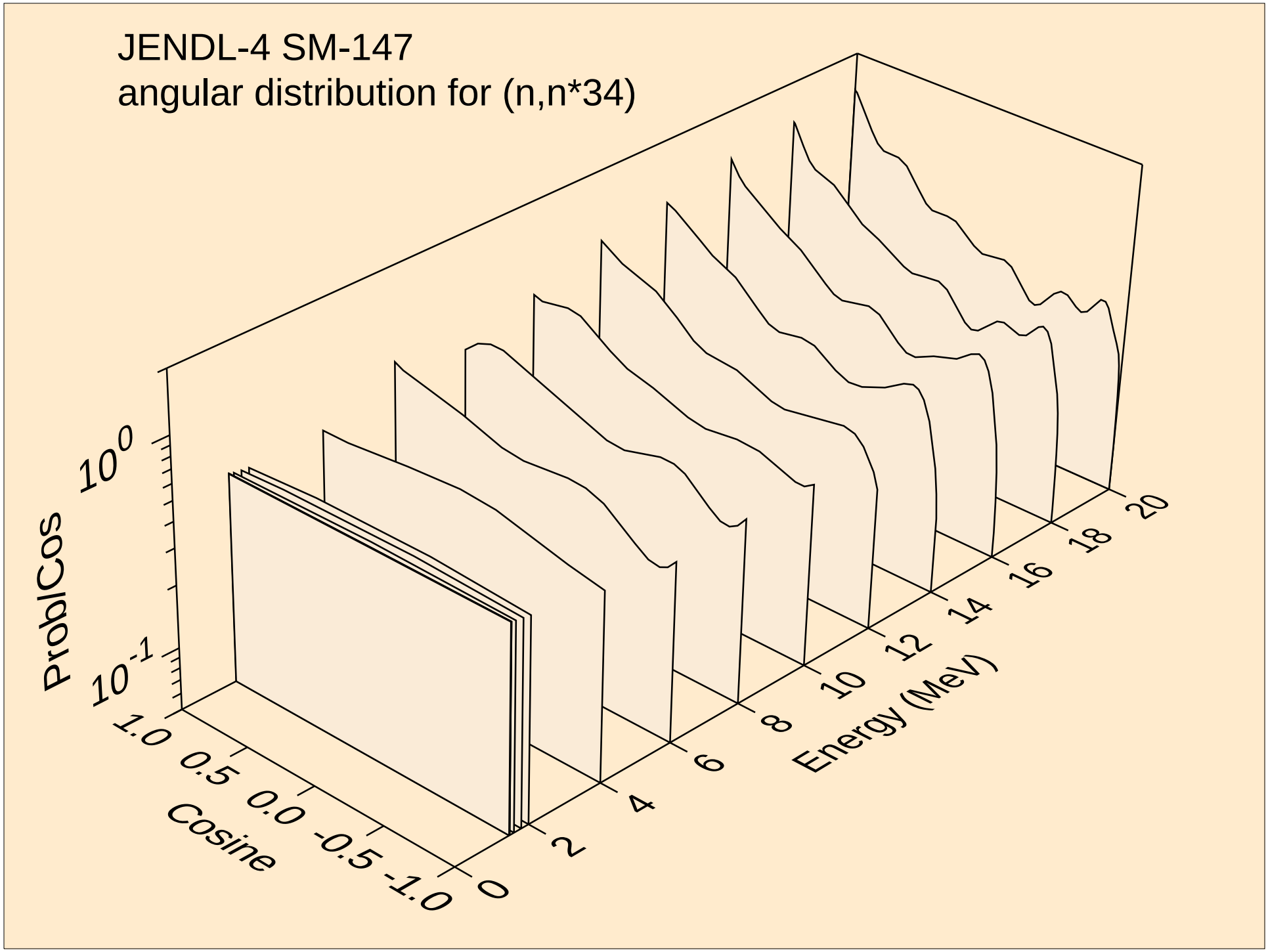

JENDL-4 SM-147
angular distribution for (n,n*29)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

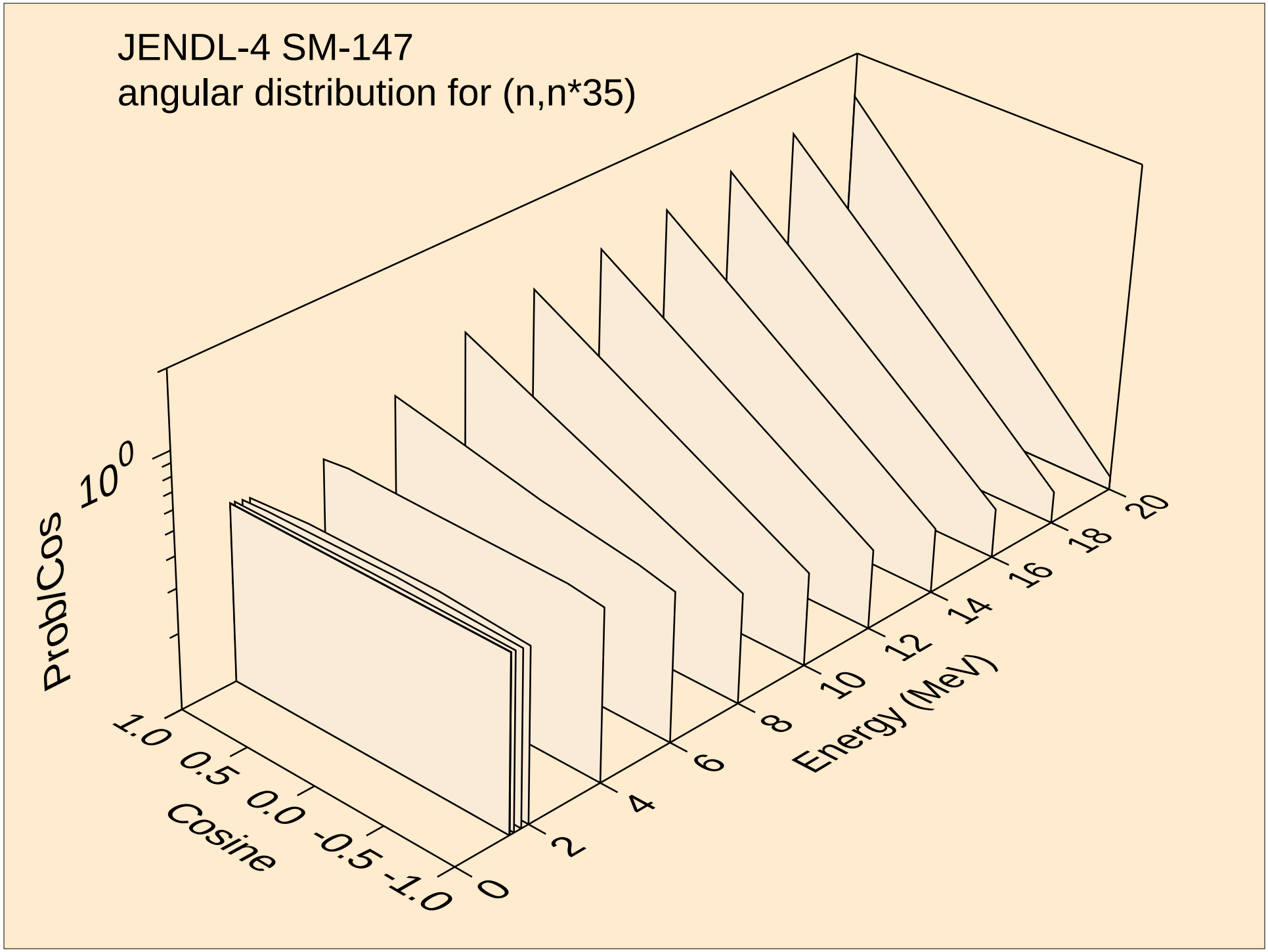

JENDL-4 SM-147
angular distribution for (n,n*30)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

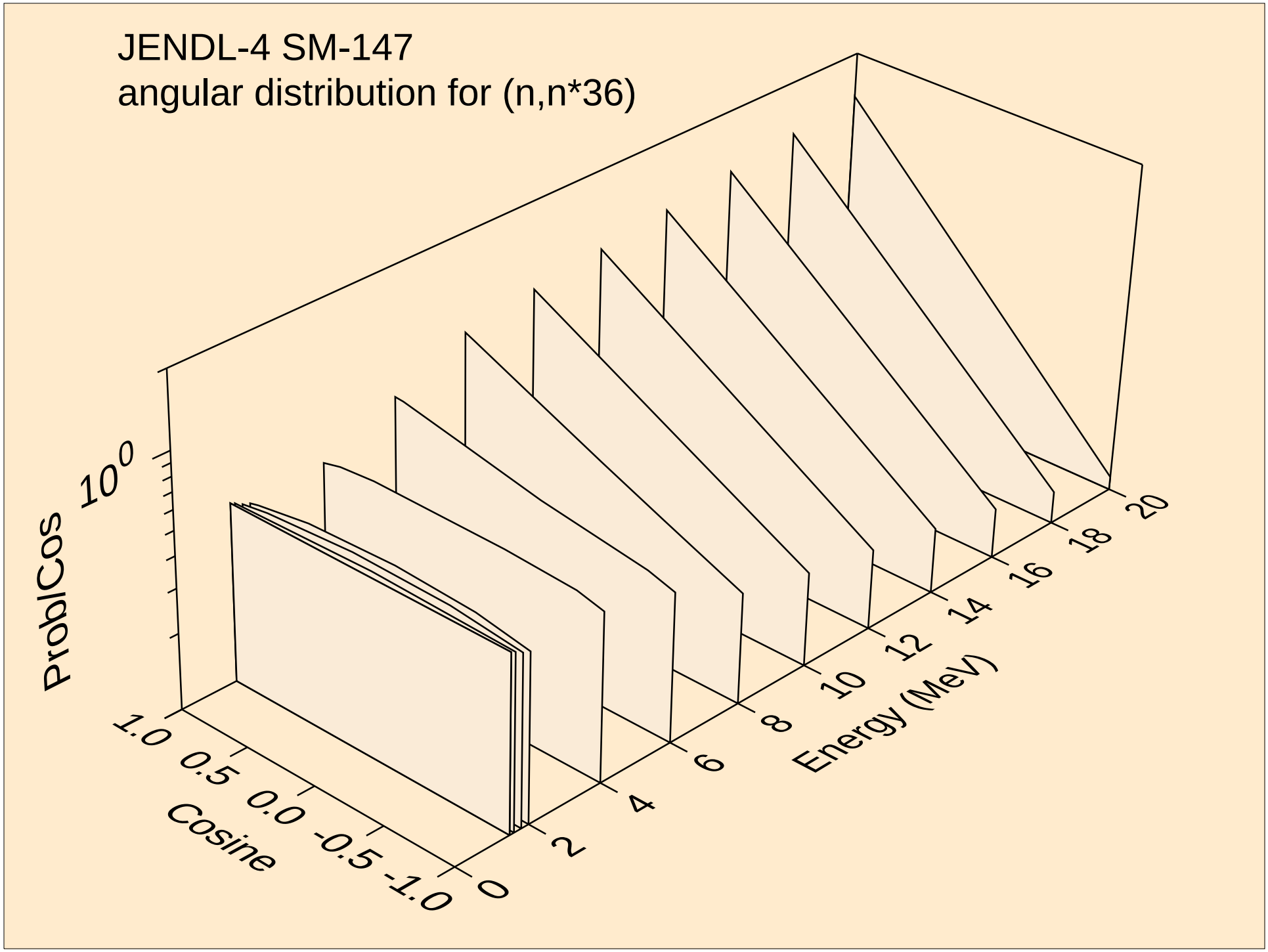

JENDL-4 SM-147
angular distribution for (n,n*31)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

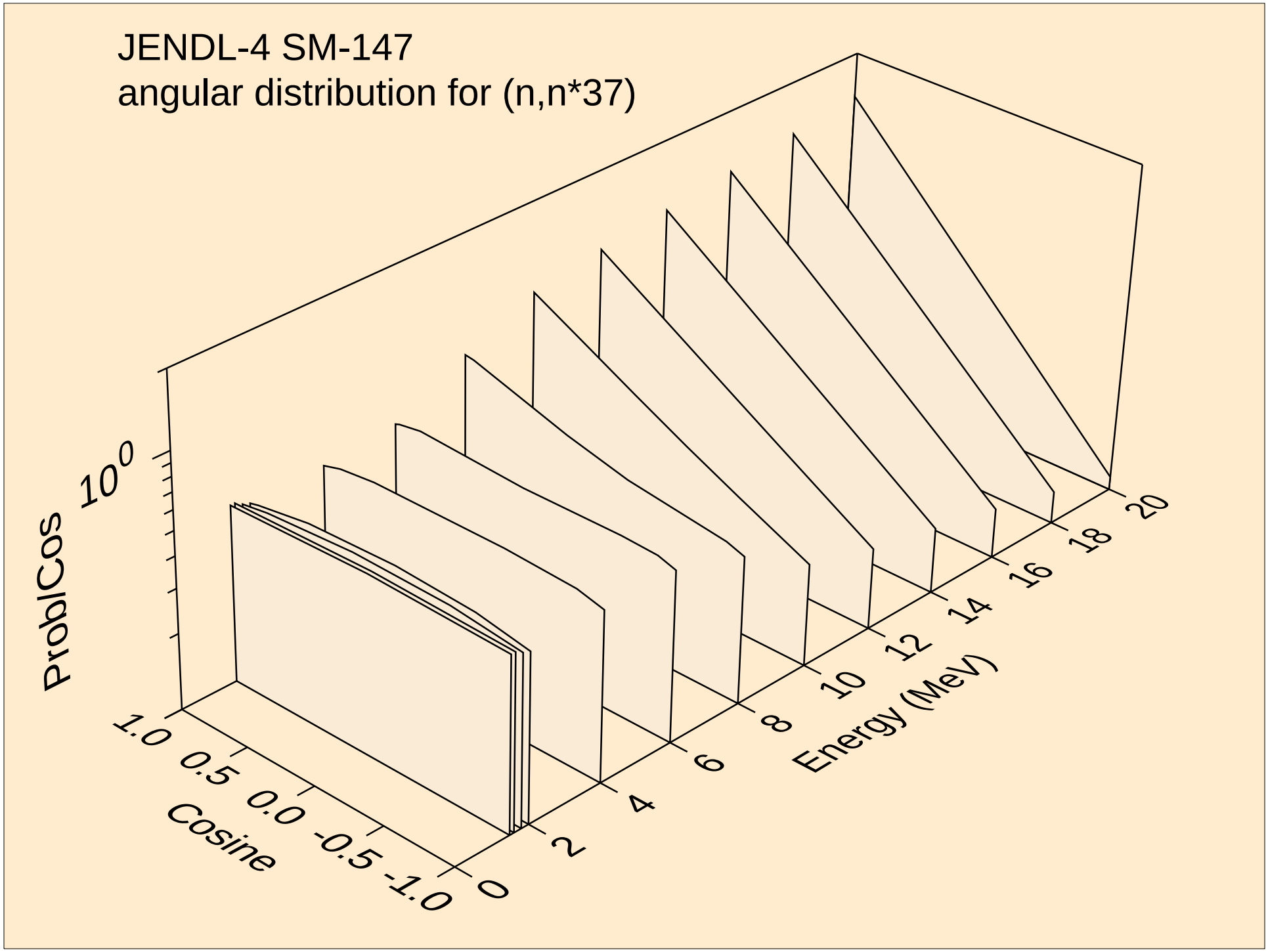

JENDL-4 SM-147
angular distribution for (n,n*32)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

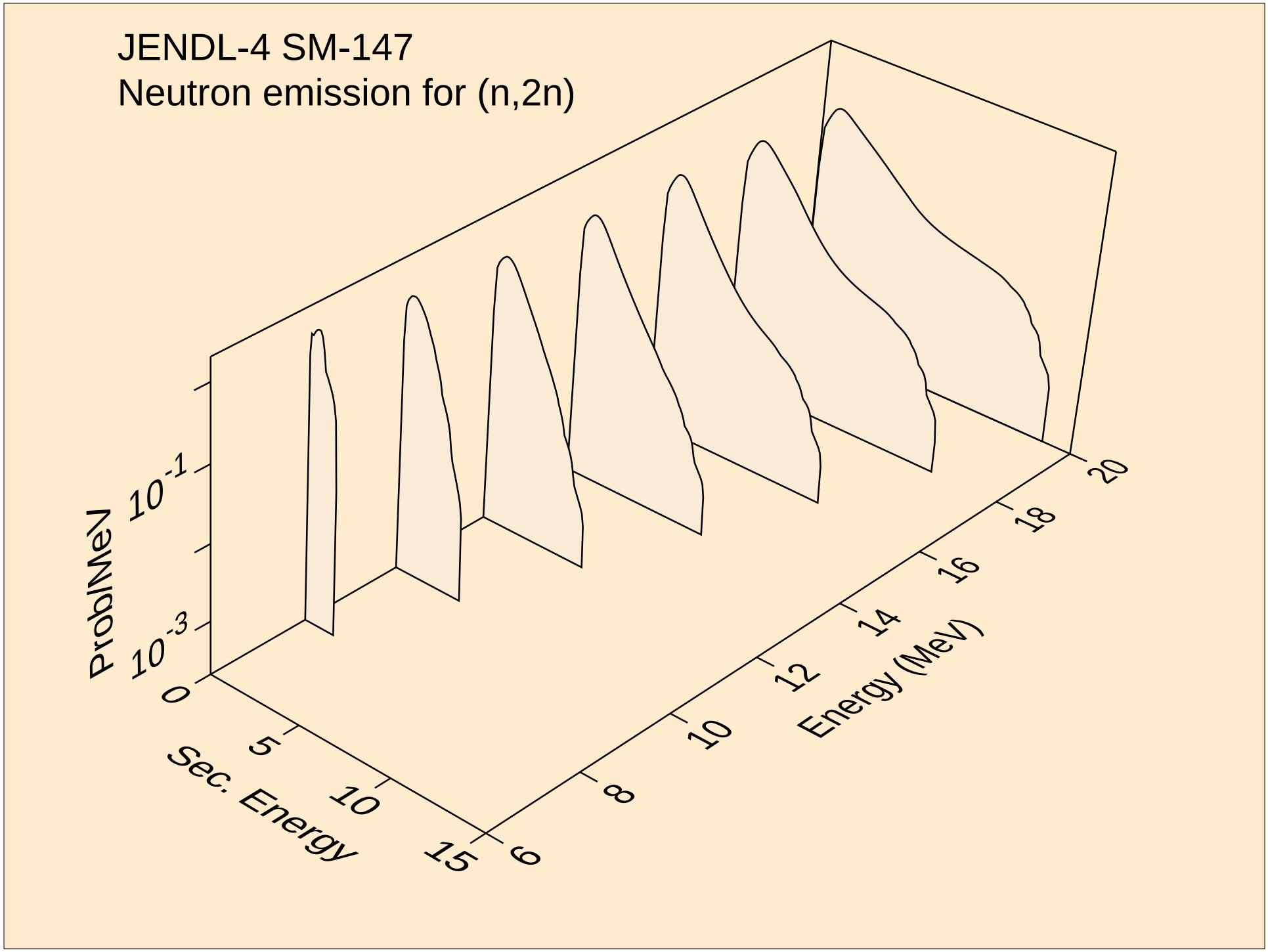

JENDL-4 SM-147
angular distribution for (n,n*33)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

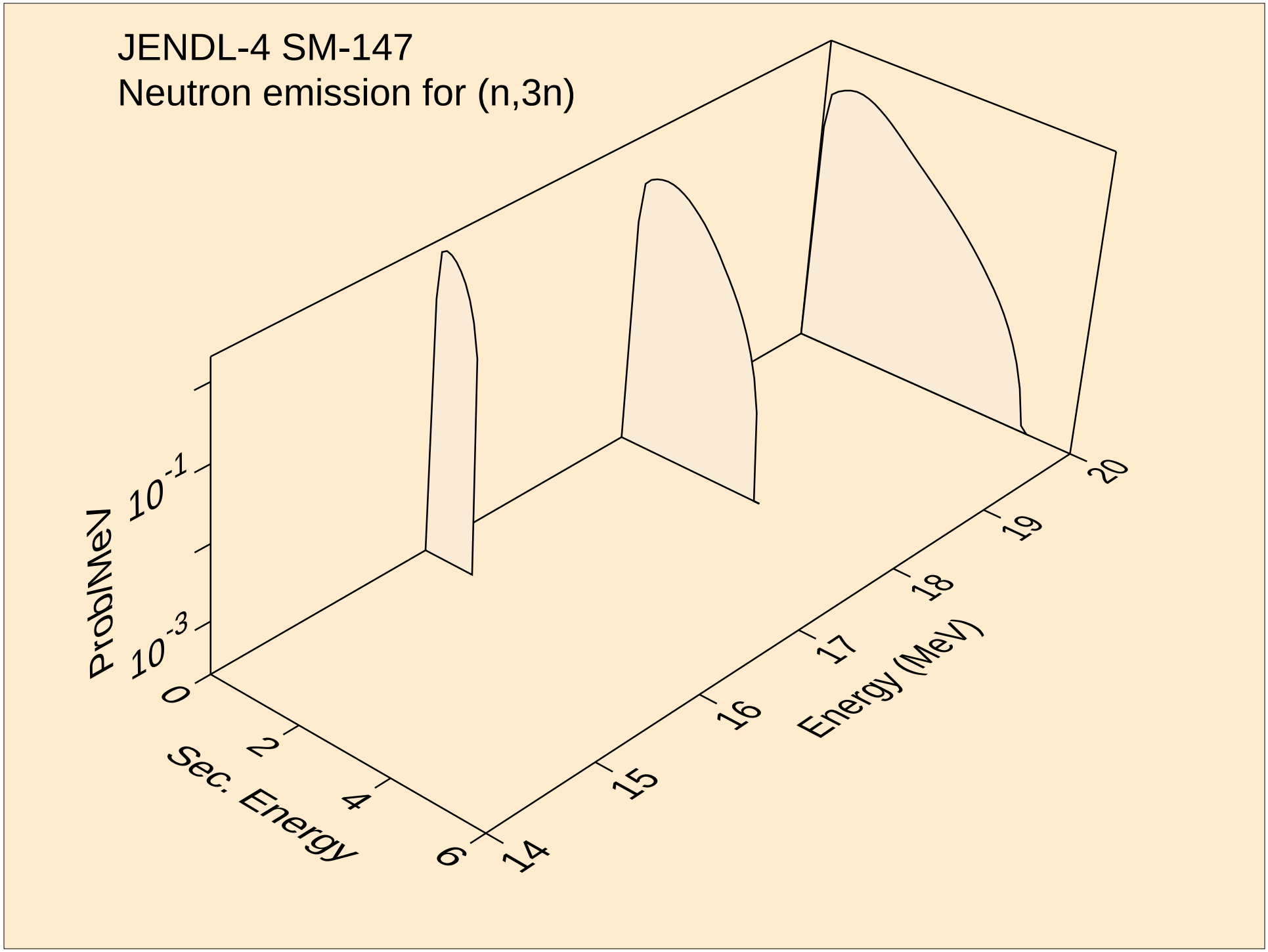

JENDL-4 SM-147
angular distribution for (n,n*34)
Prob/Cos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

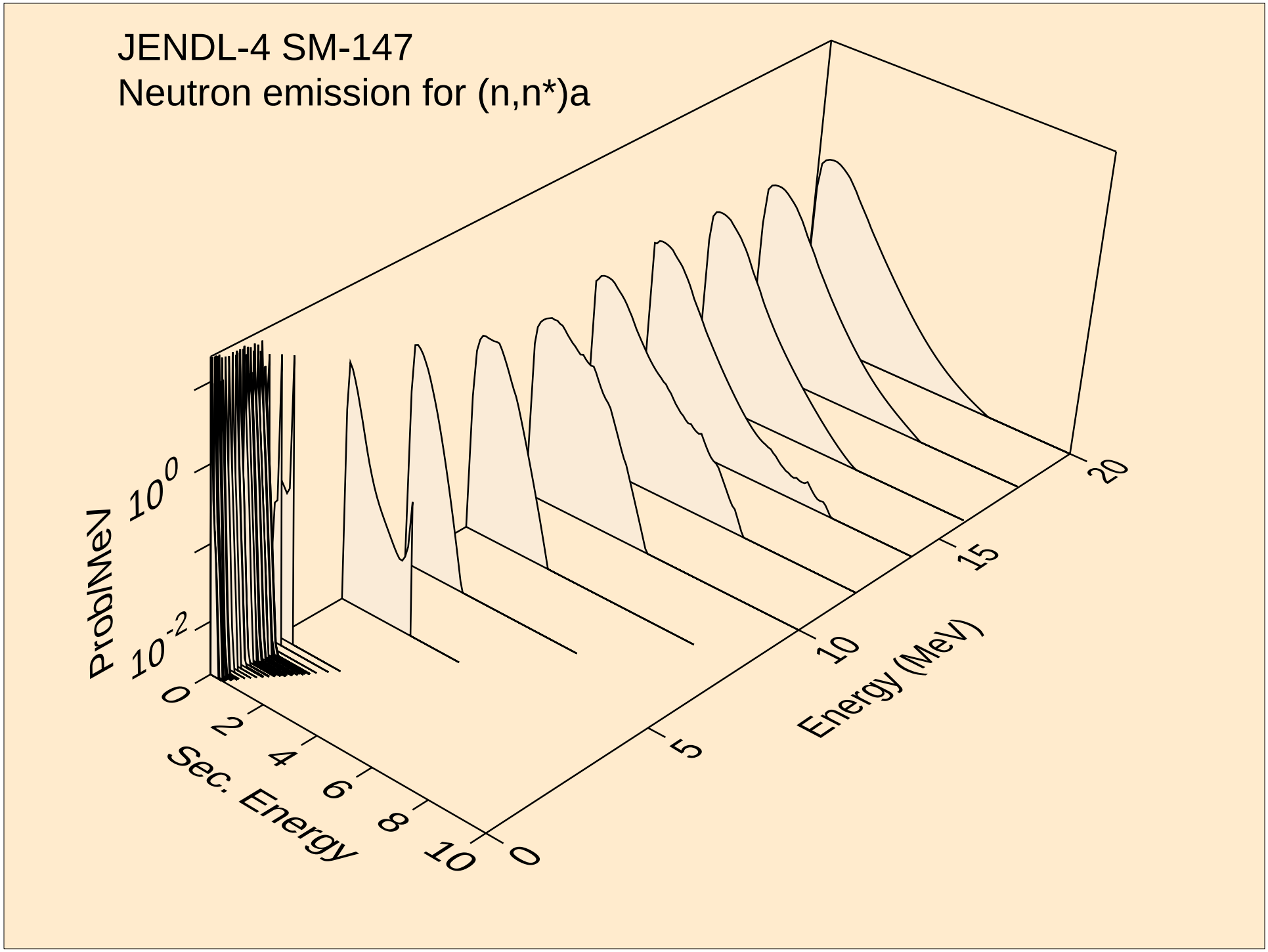

JENDL-4 SM-147
angular distribution for (n,n*35)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

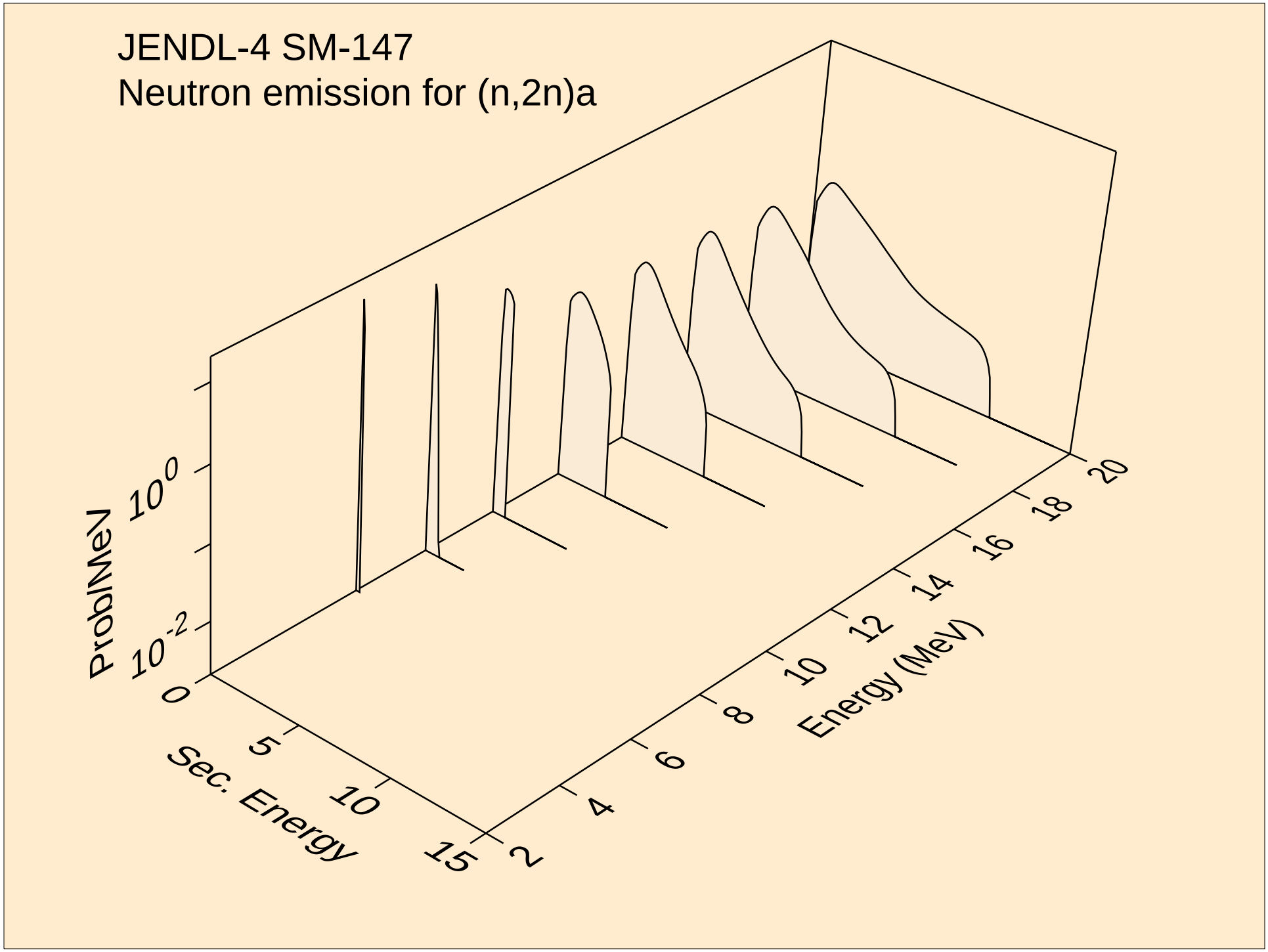

JENDL-4 SM-147
angular distribution for (n,n*36)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

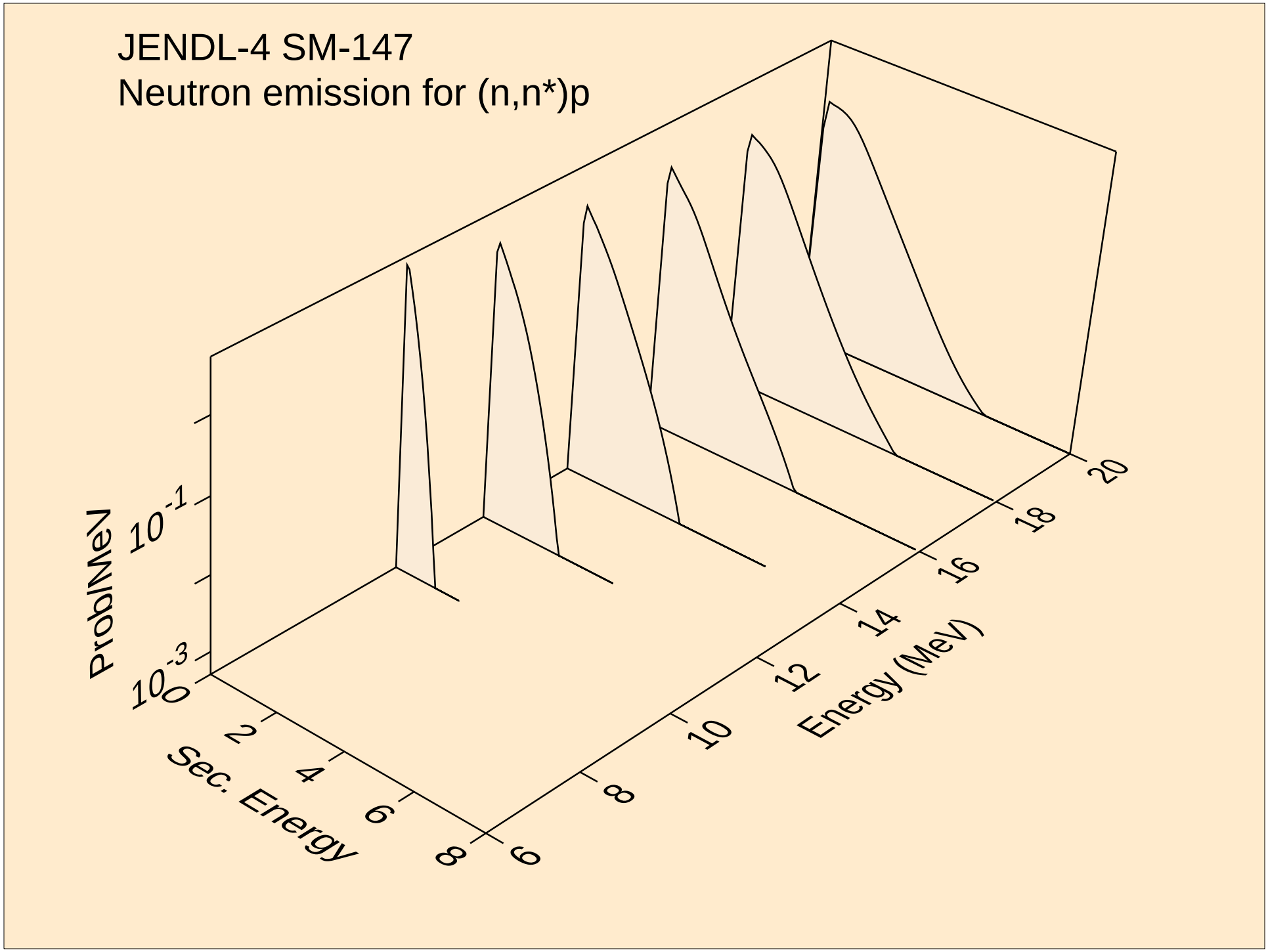

JENDL-4 SM-147
angular distribution for (n,n*37)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

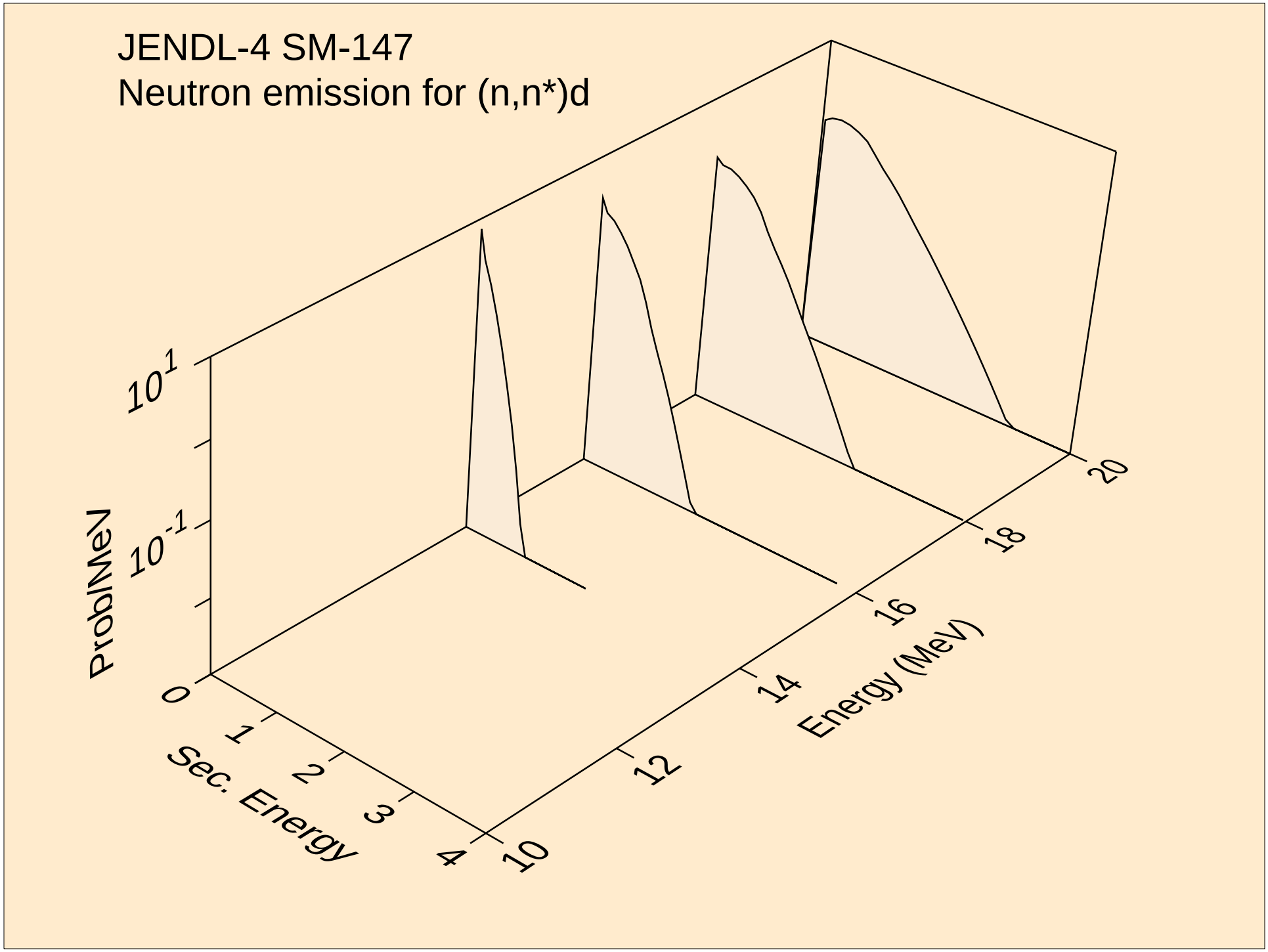

JENDL-4 SM-147
Neutron emission for (n,2n)
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

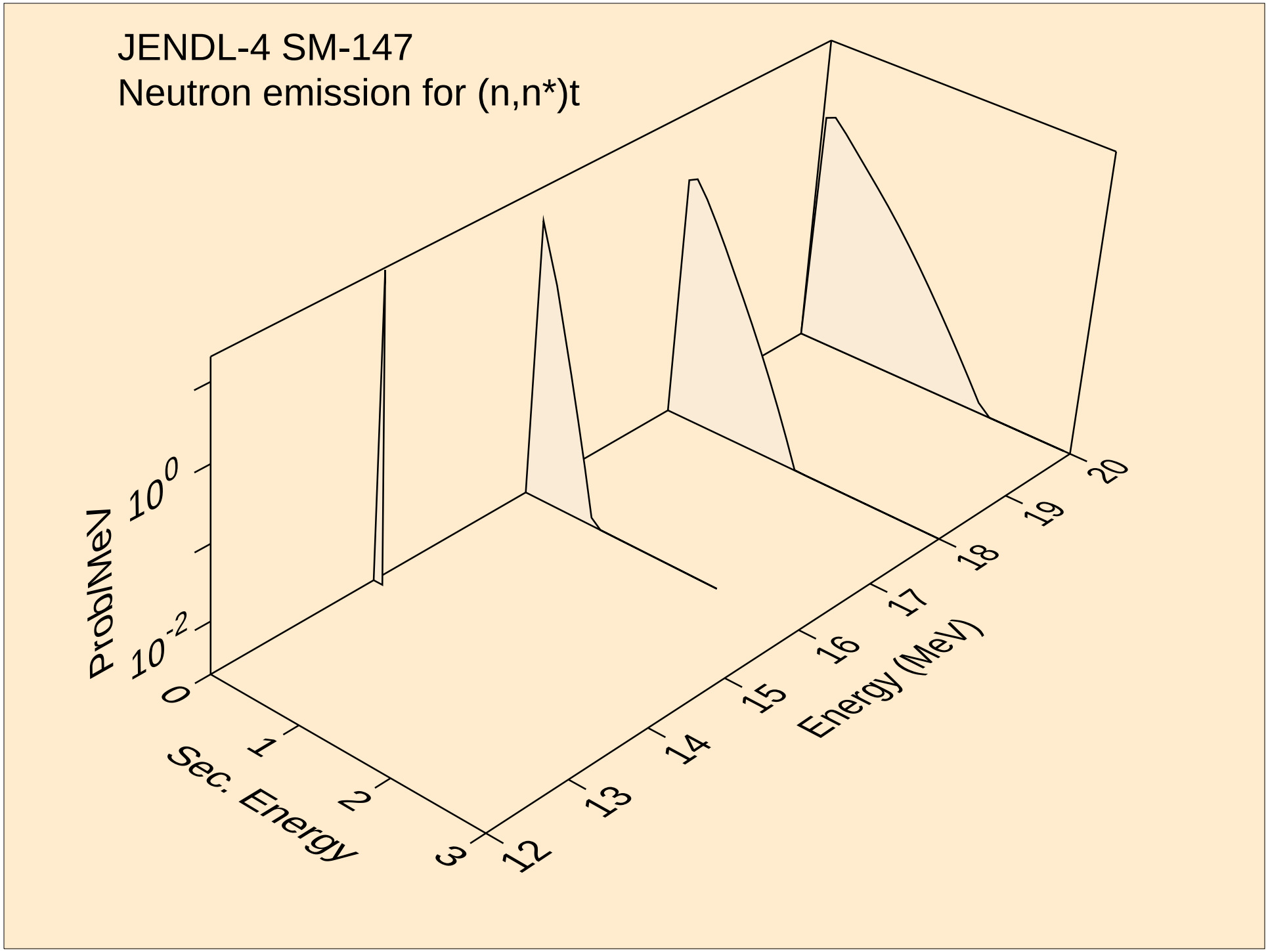

JENDL-4 SM-147
Neutron emission for (n,3n)
Prob/MeV
10-1
10-3
0
2
4
6
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)

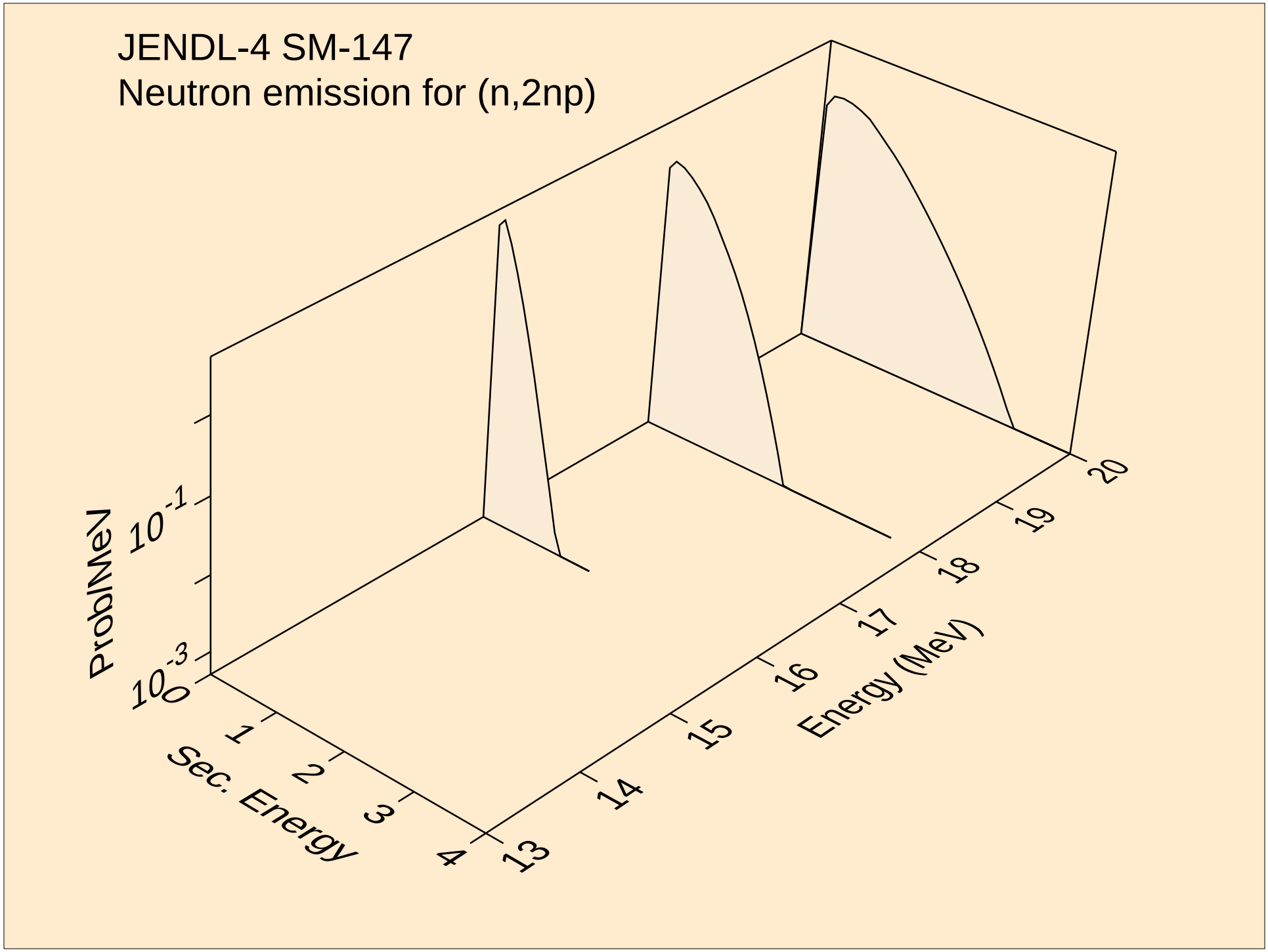

JENDL-4 SM-147
Neutron emission for (n,n*)a
Prob/MeV
10^0
10^{-2}
0
2
4
6
8
10
Sec. Energy
0
5
10
15
20
Energy (MeV)

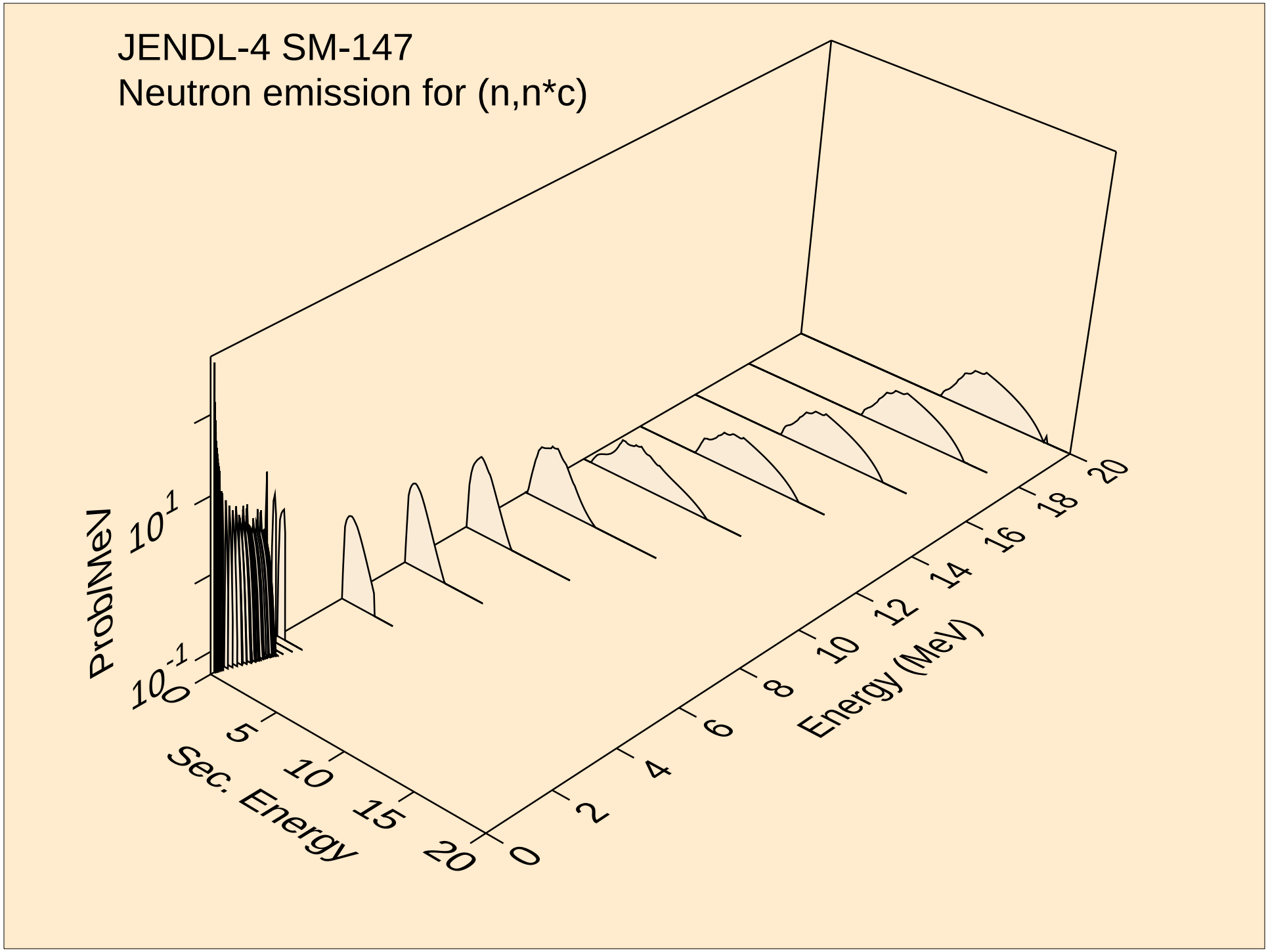

JENDL-4 SM-147
Neutron emission for (n,2n)a
Prob/MeV
10^0
10^{-2}
0
5
10
15
Sec. Energy
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

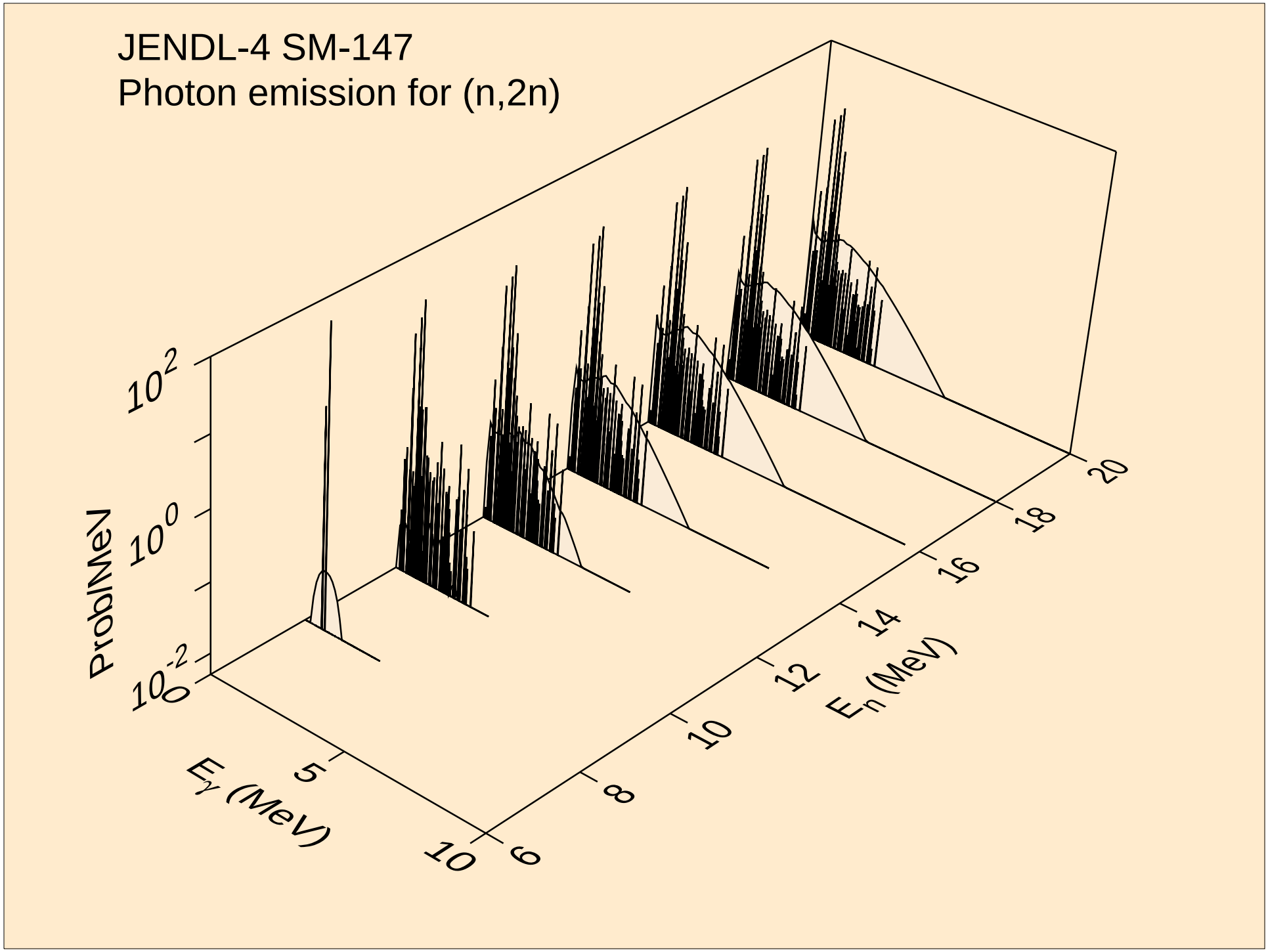

JENDL-4 SM-147
Neutron emission for (n,n*)p
Prob/MeV
10^-1
10^-3
0
2
4
6
8
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

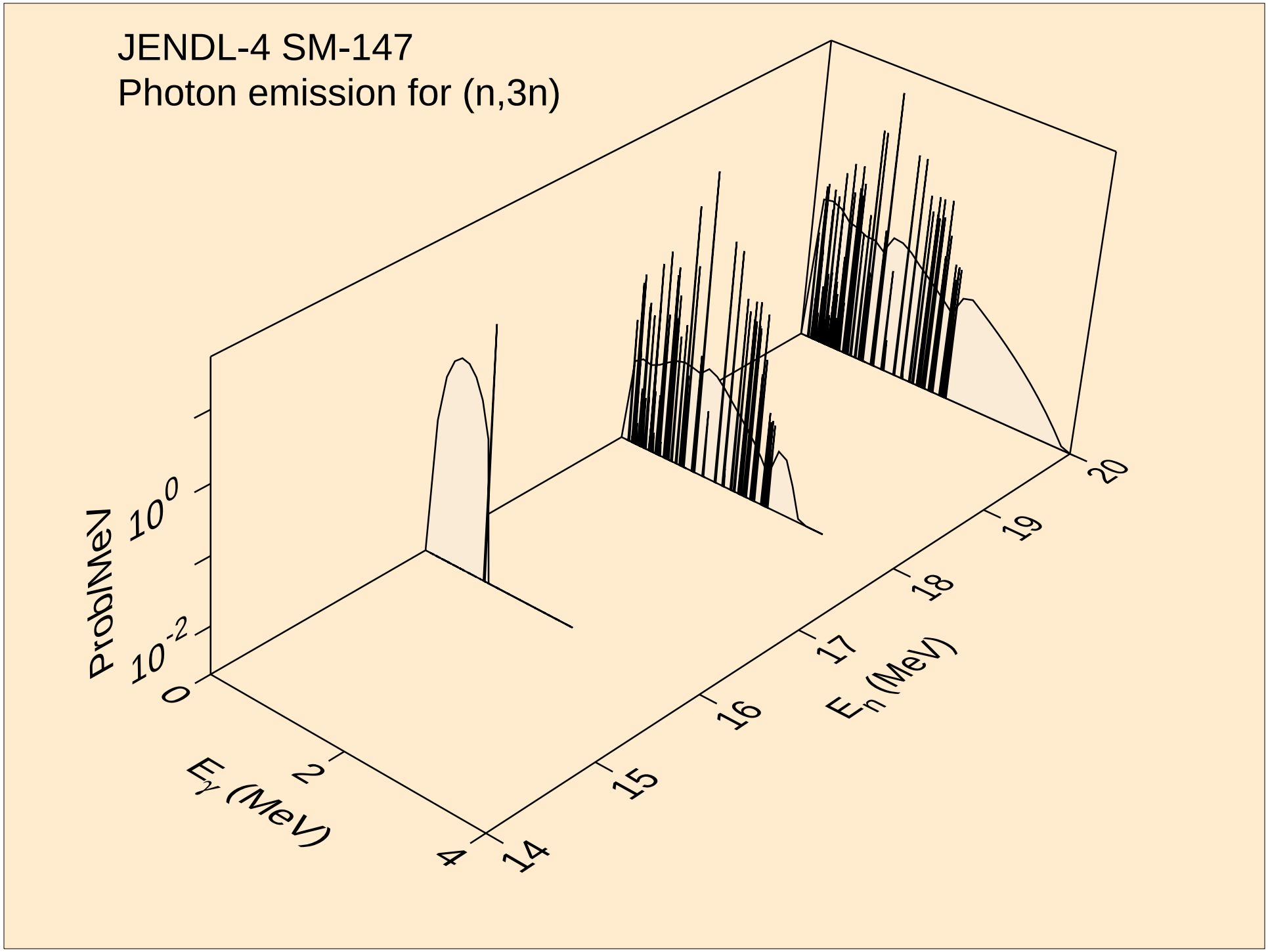

JENDL-4 SM-147
Neutron emission for (n,n*)d
Prob/MeV
10^{1}
10^{-1}
0
Sec. Energy
1
2
3
4
Energy (MeV)
10
12
14
16
18
20

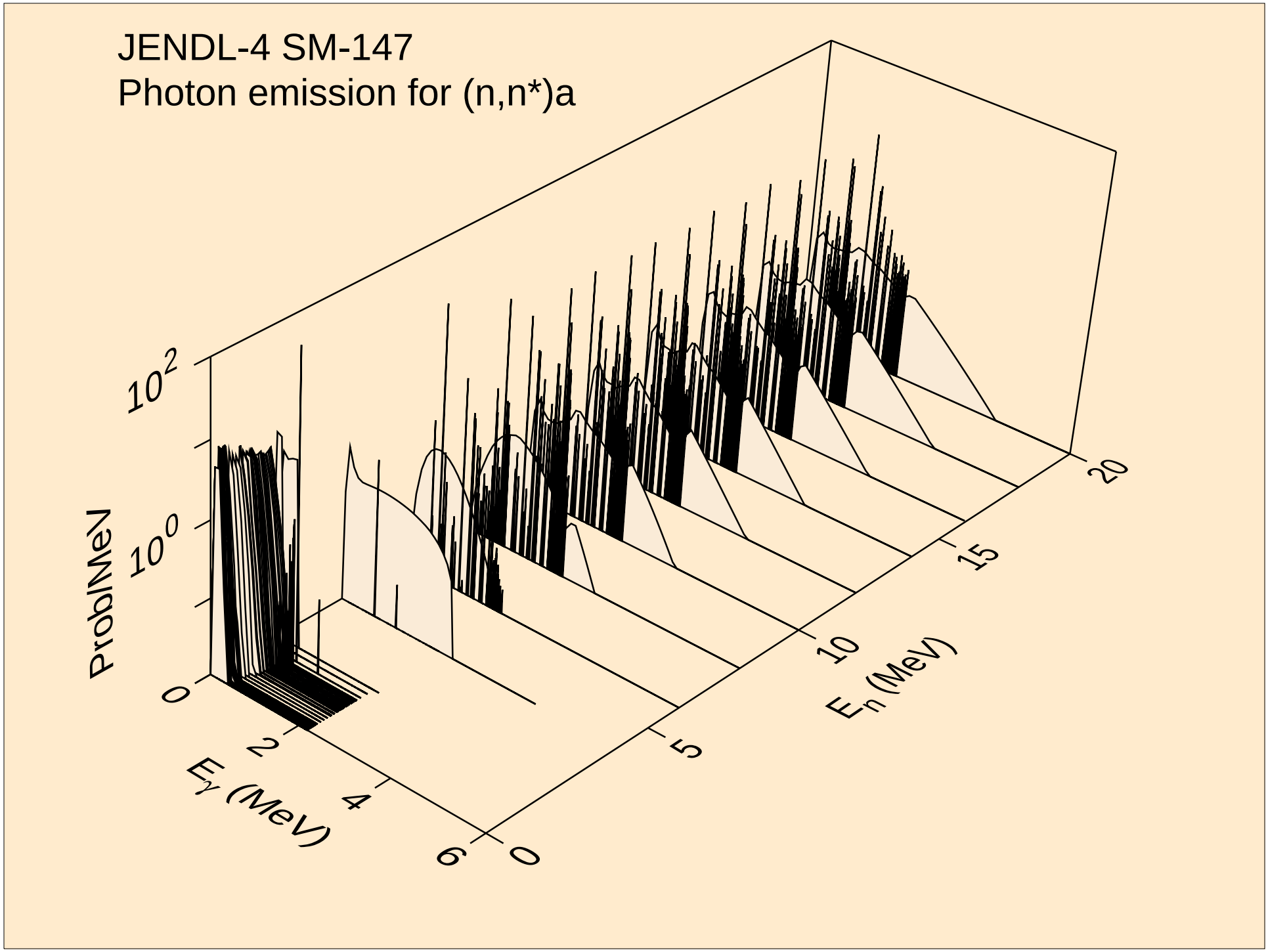

JENDL-4 SM-147
Neutron emission for (n,n*)t
Prob/MeV
10^0
10^{-2}
0
Sec. Energy
1
2
3
12
13
14
15
16
17
18
19
20
Energy (MeV)

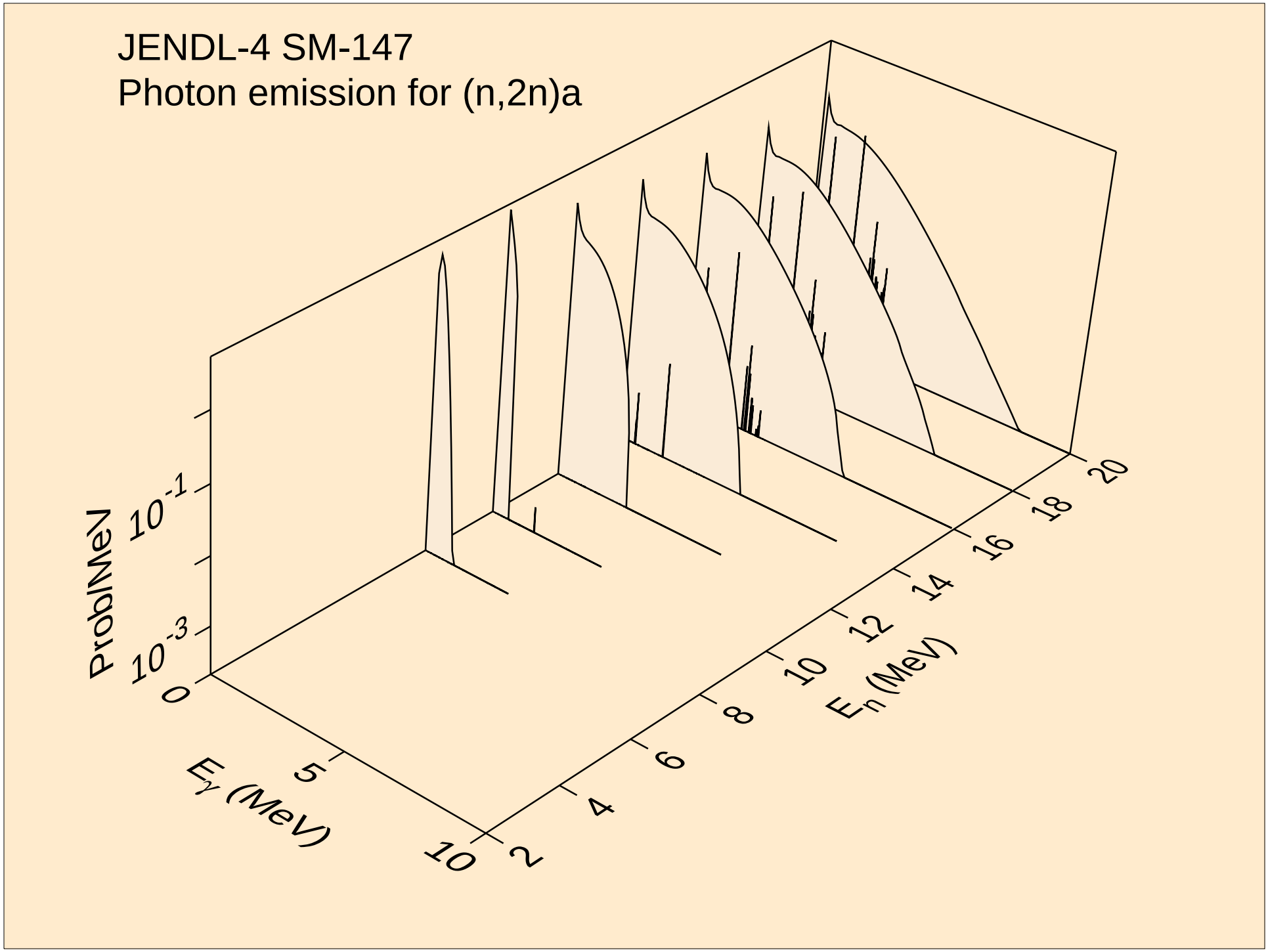

JENDL-4 SM-147
Neutron emission for (n,2np)
Prob/MeV
10^-1
10^-3
0
1
2
3
4
Sec. Energy
13
14
15
16
17
18
19
20
Energy (MeV)

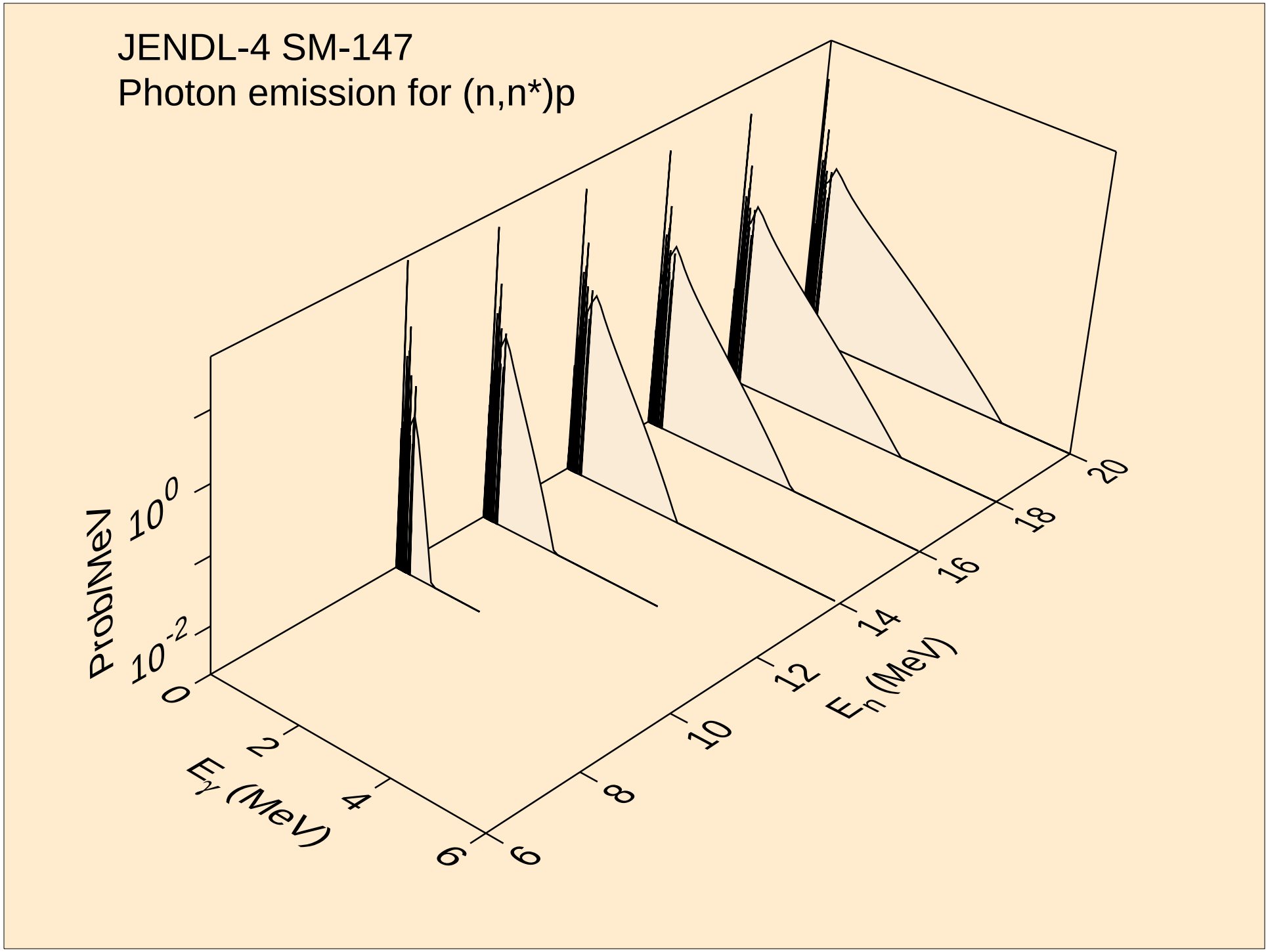

JENDL-4 SM-147
Neutron emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 SM-147
Photon emission for (n,2n)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
5
10
E_γ (MeV)
6
8
10
12
14
16
18
20
E_n (MeV)

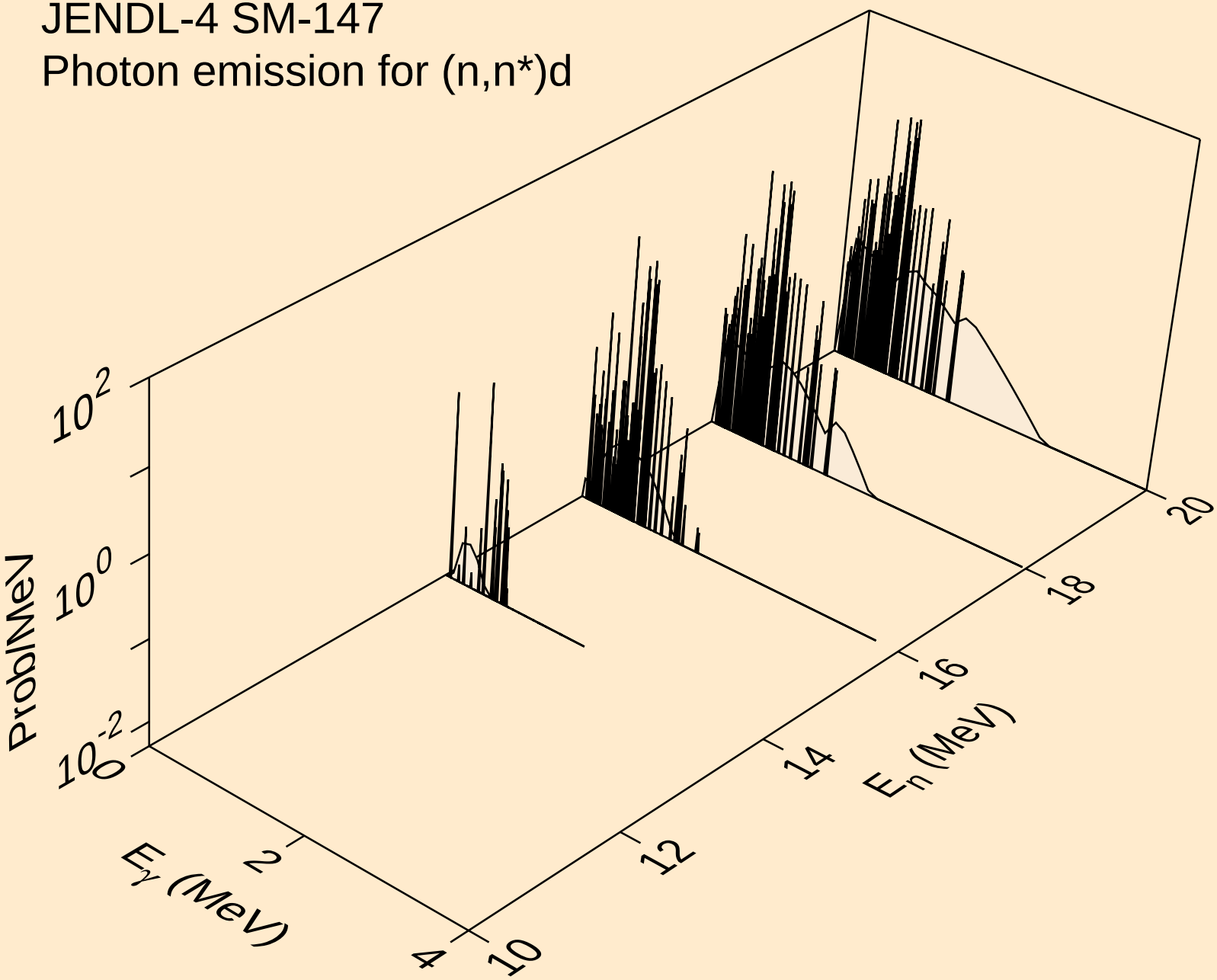

JENDL-4 SM-147
Photon emission for (n,3n)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
14
15
16
17
18
19
20
E_n (MeV)


JENDL-4 SM-147
Photon emission for (n,n*)a
Prob/MeV
10^2
10^0
0
2
4
6
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

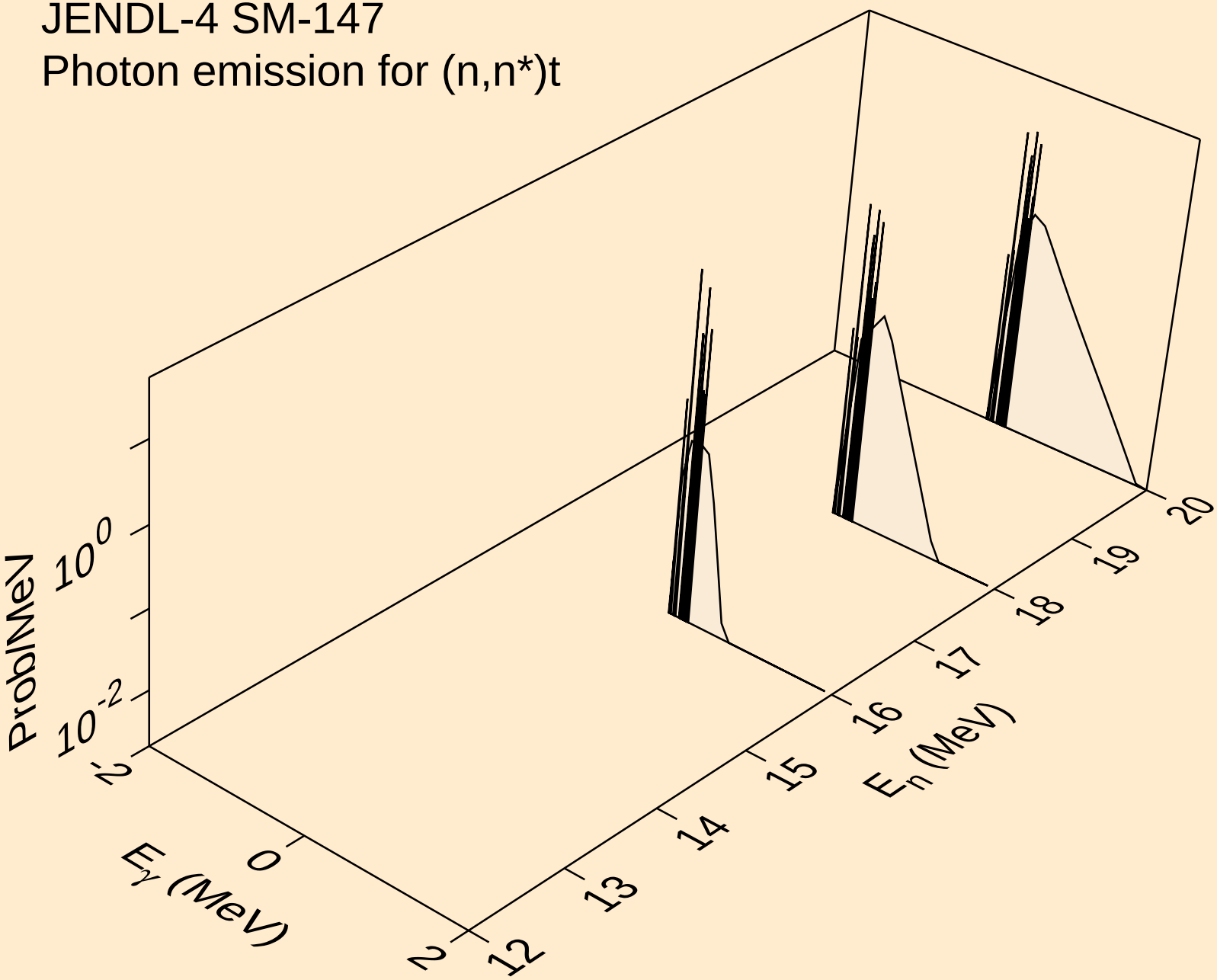

JENDL-4 SM-147
Photon emission for (n,2n)a
Prob/MeV
10^{-1}
10^{-3}
0
5
10
E_γ (MeV)
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

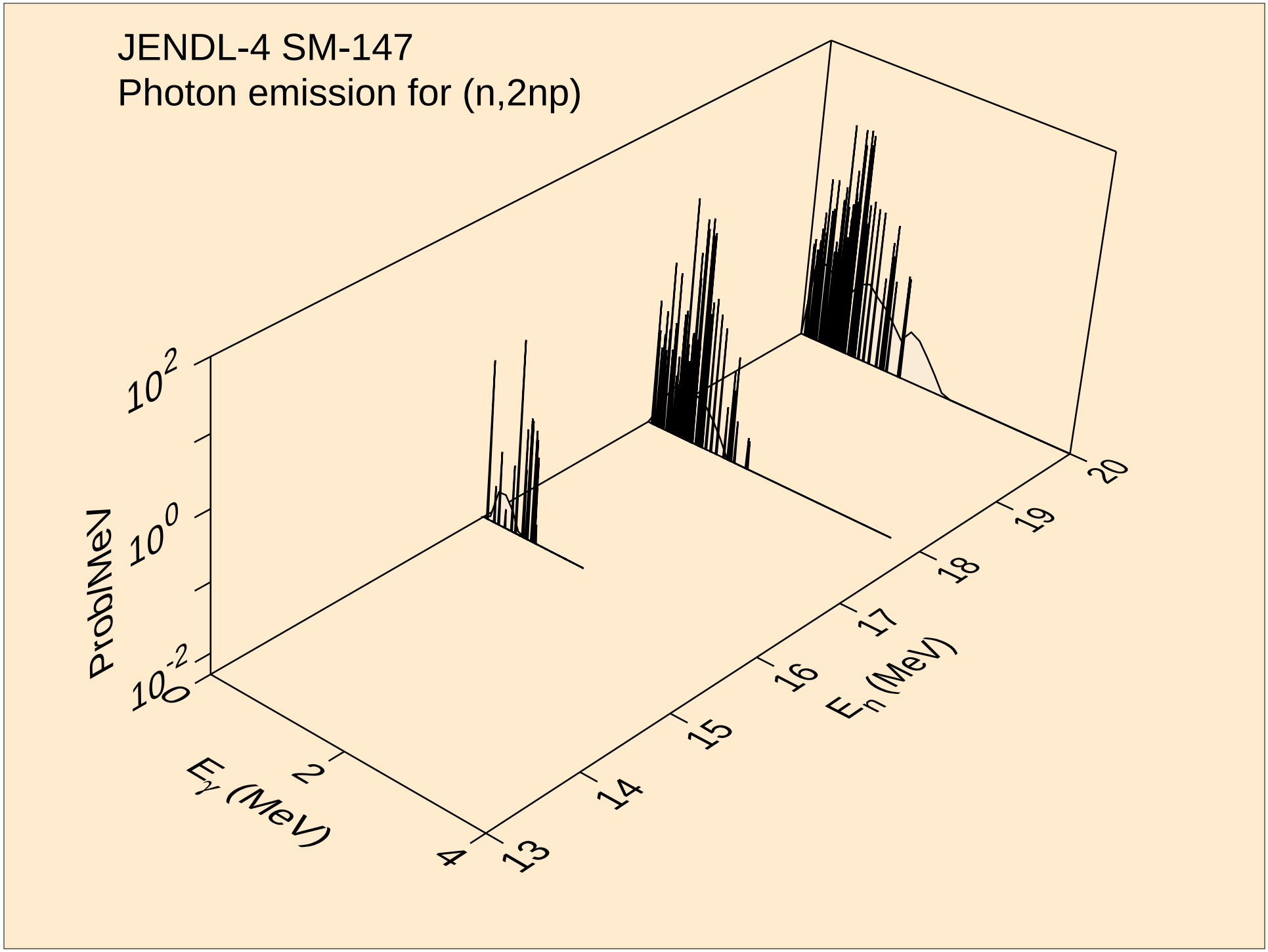

JENDL-4 SM-147
Photon emission for (n,n*)p
Prob/MeV
10^0
10^{-2}
0
2
4
6
E_γ (MeV)
6
8
10
12
14
16
18
20
E_n (MeV)

JENDL-4 SM-147
Photon emission for (n,n*)d

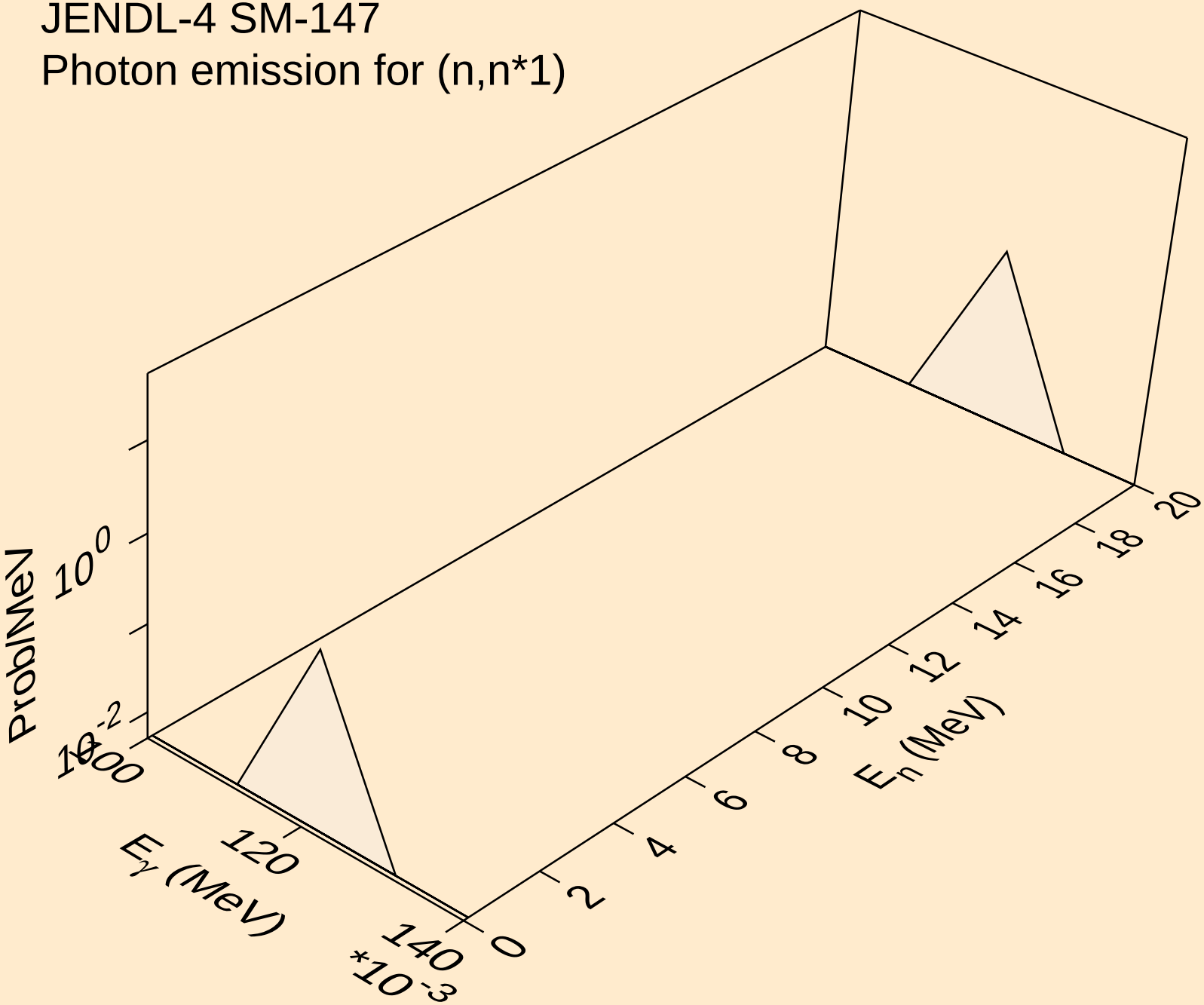


JENDL-4 SM-147
Photon emission for (n,n*)t

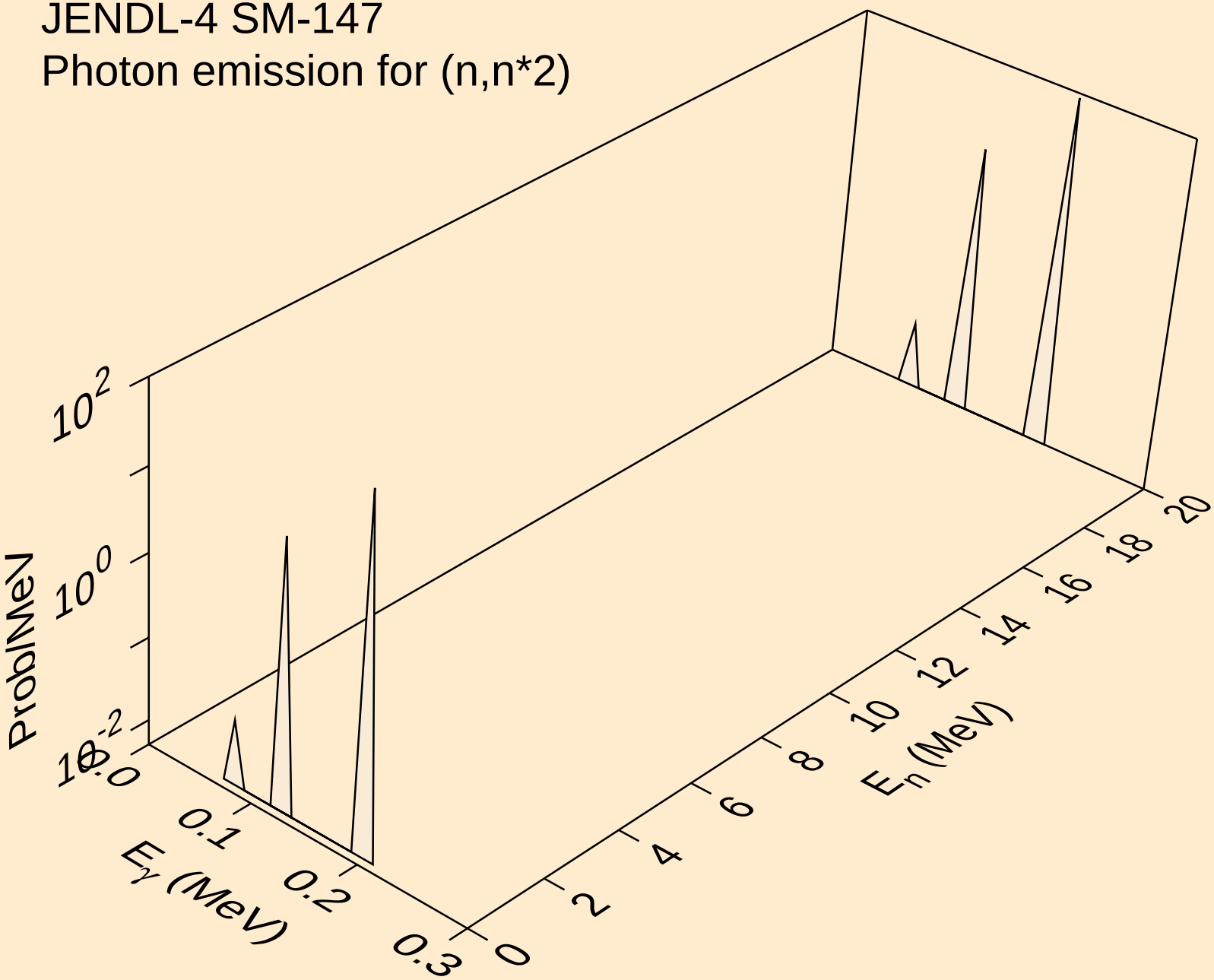



JENDL-4 SM-147
Photon emission for (n,2np)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
2
4
E_γ (MeV)
13
14
15
16
17
18
19
20
E_n (MeV)

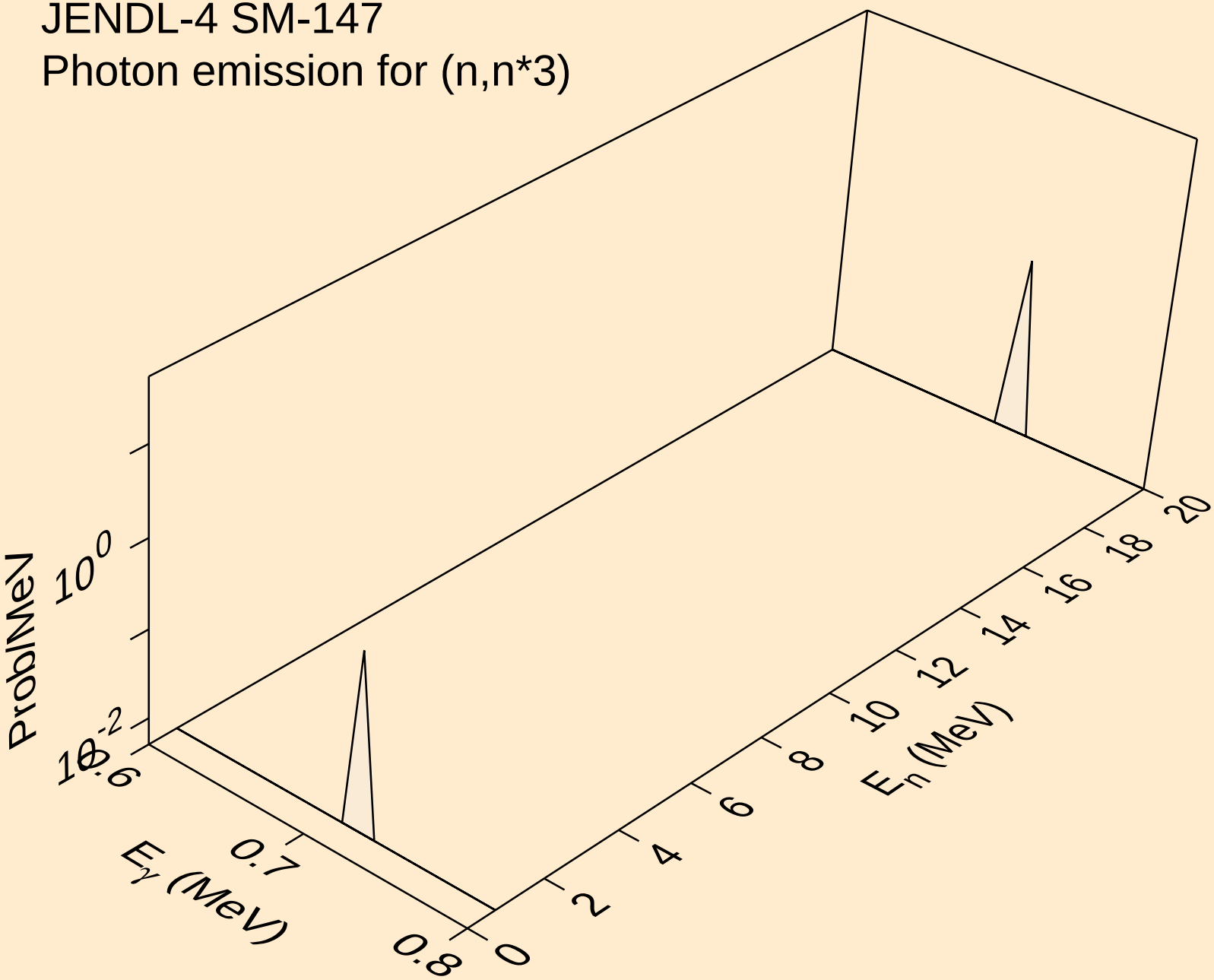
JENDL-4 SM-147
Photon emission for (n,n*1)



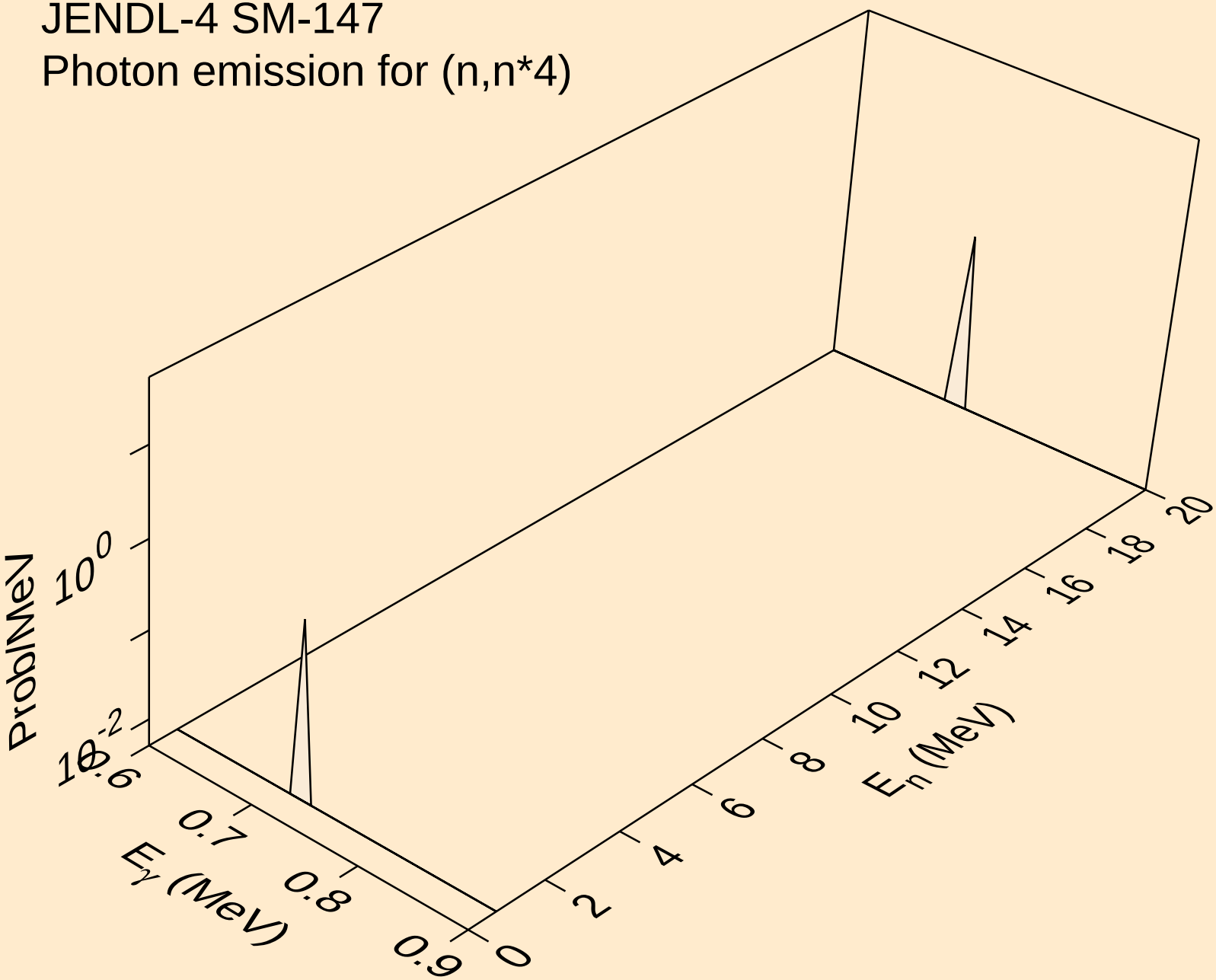
JENDL-4 SM-147
Photon emission for (n,n*2)



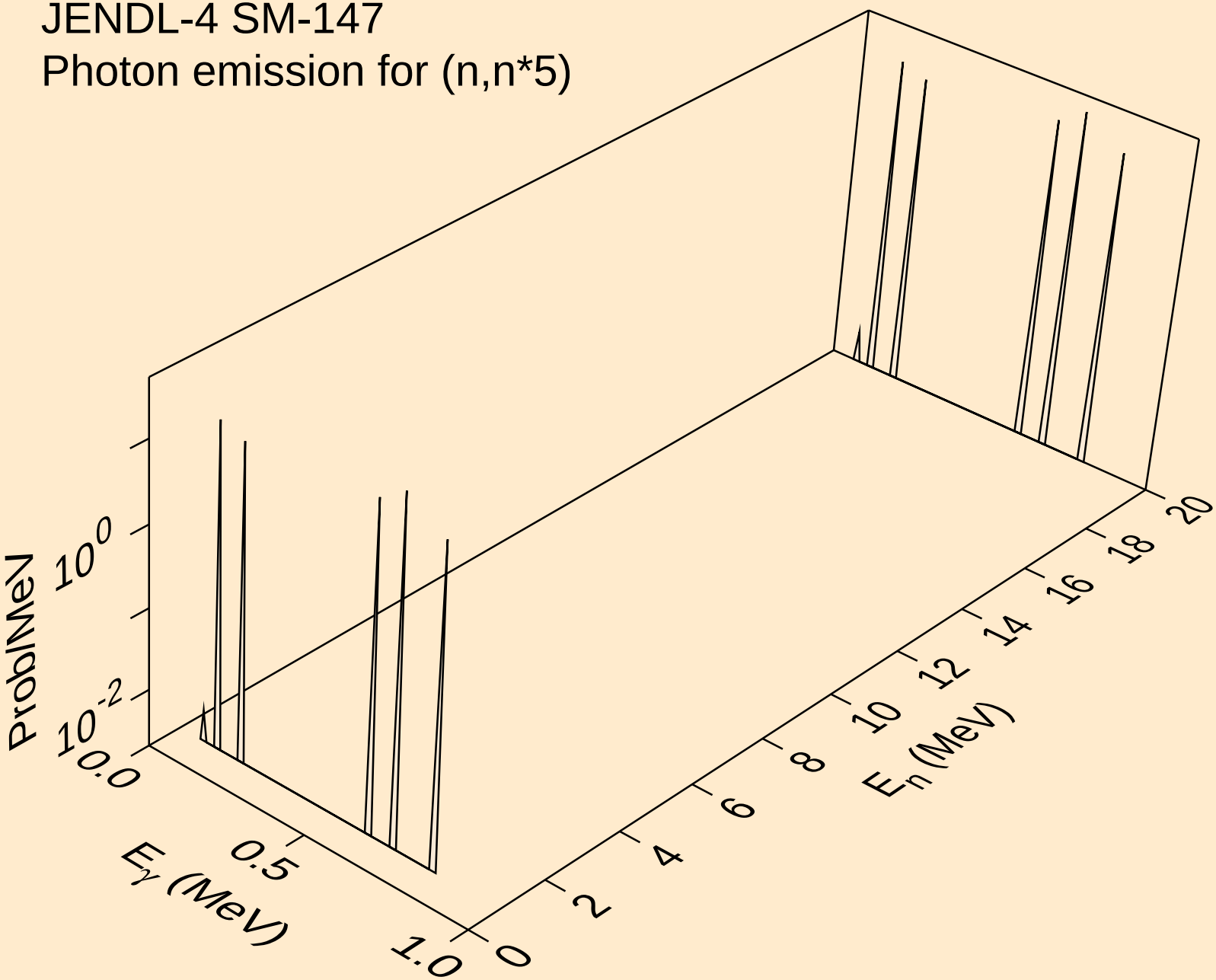
JENDL-4 SM-147
Photon emission for (n,n*3)

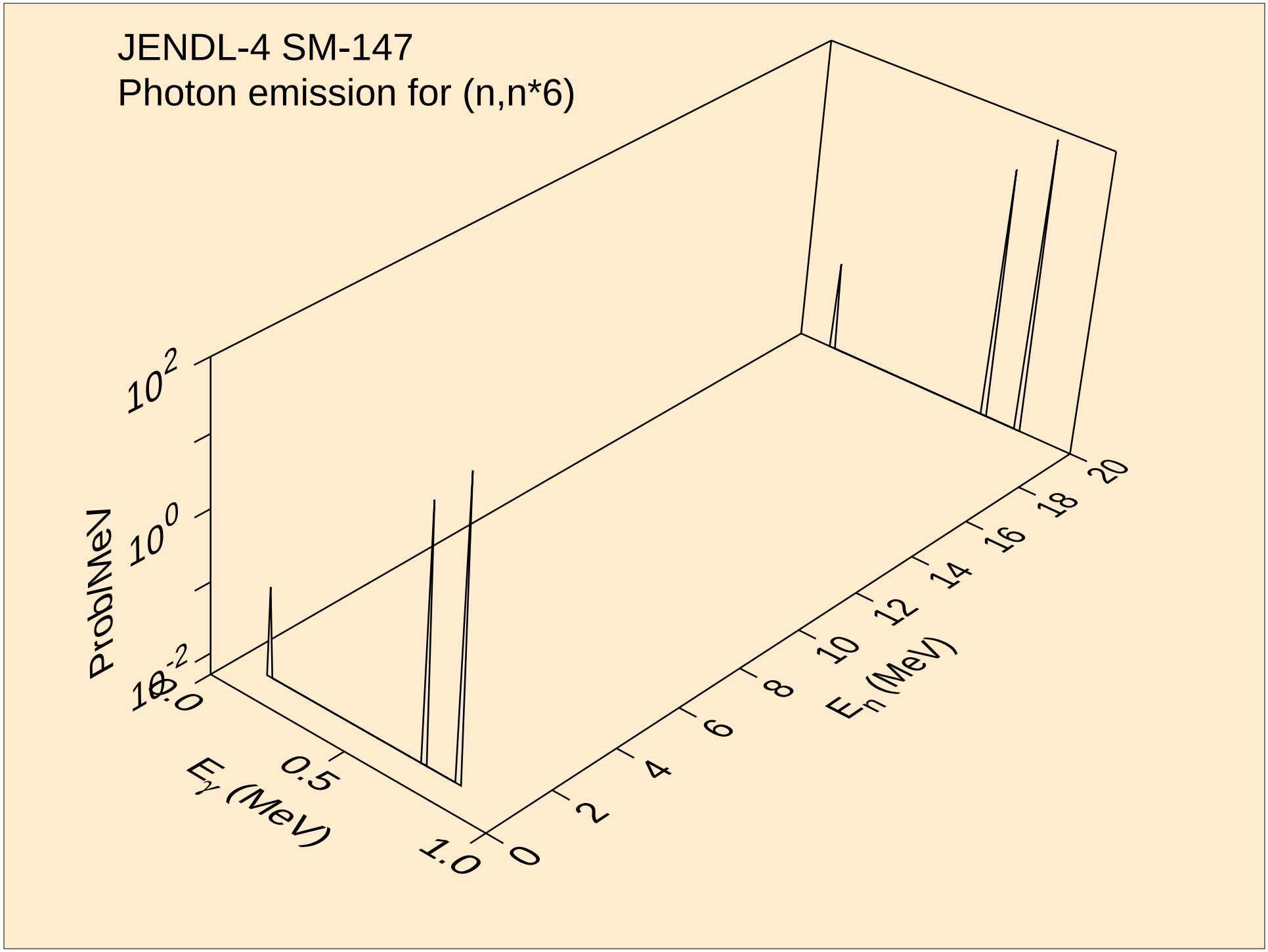


JENDL-4 SM-147
Photon emission for (n,n*4)

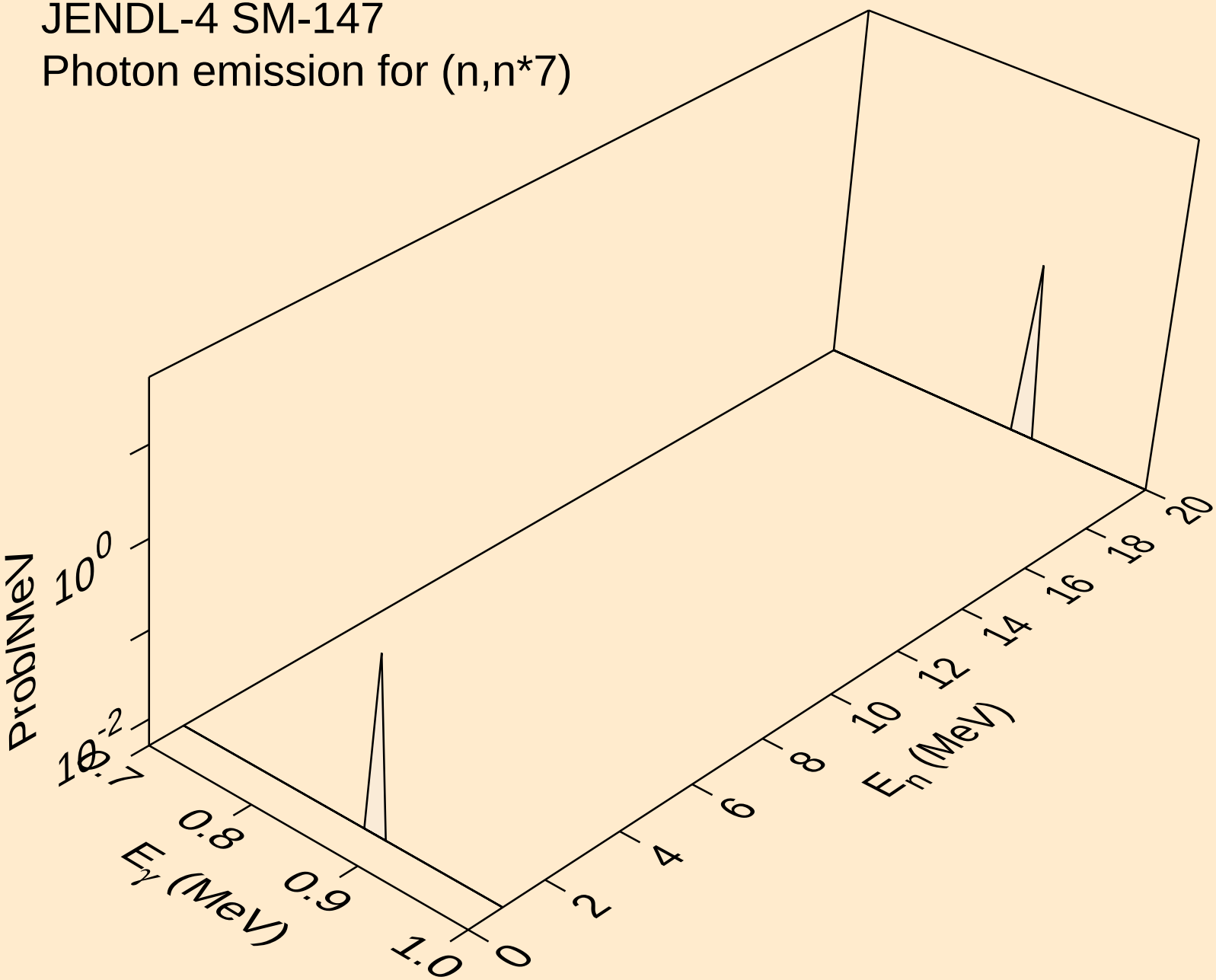


JENDL-4 SM-147
Photon emission for (n,n*5)

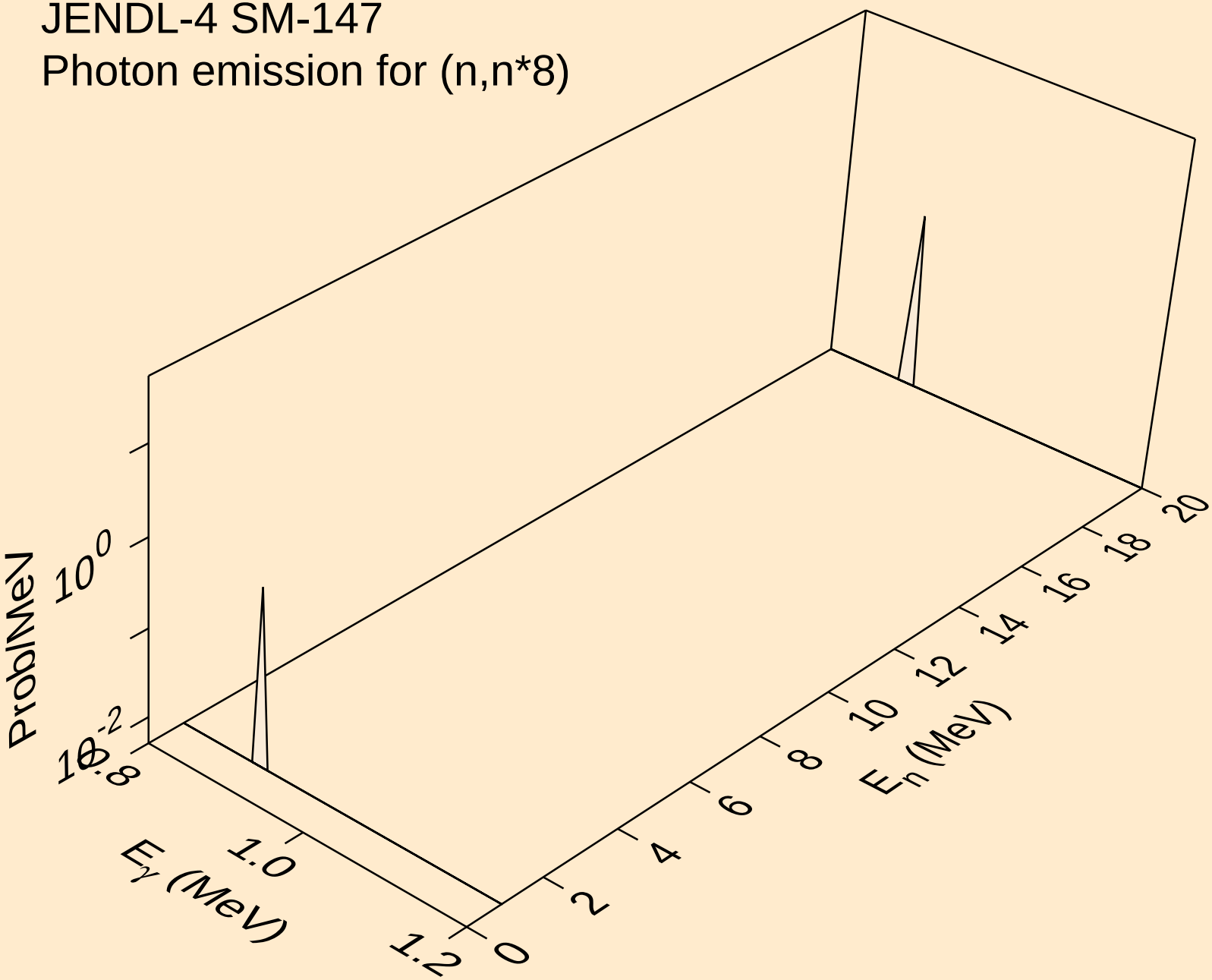



JENDL-4 SM-147
Photon emission for (n,n*6)
Prob/MeV
10^2
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

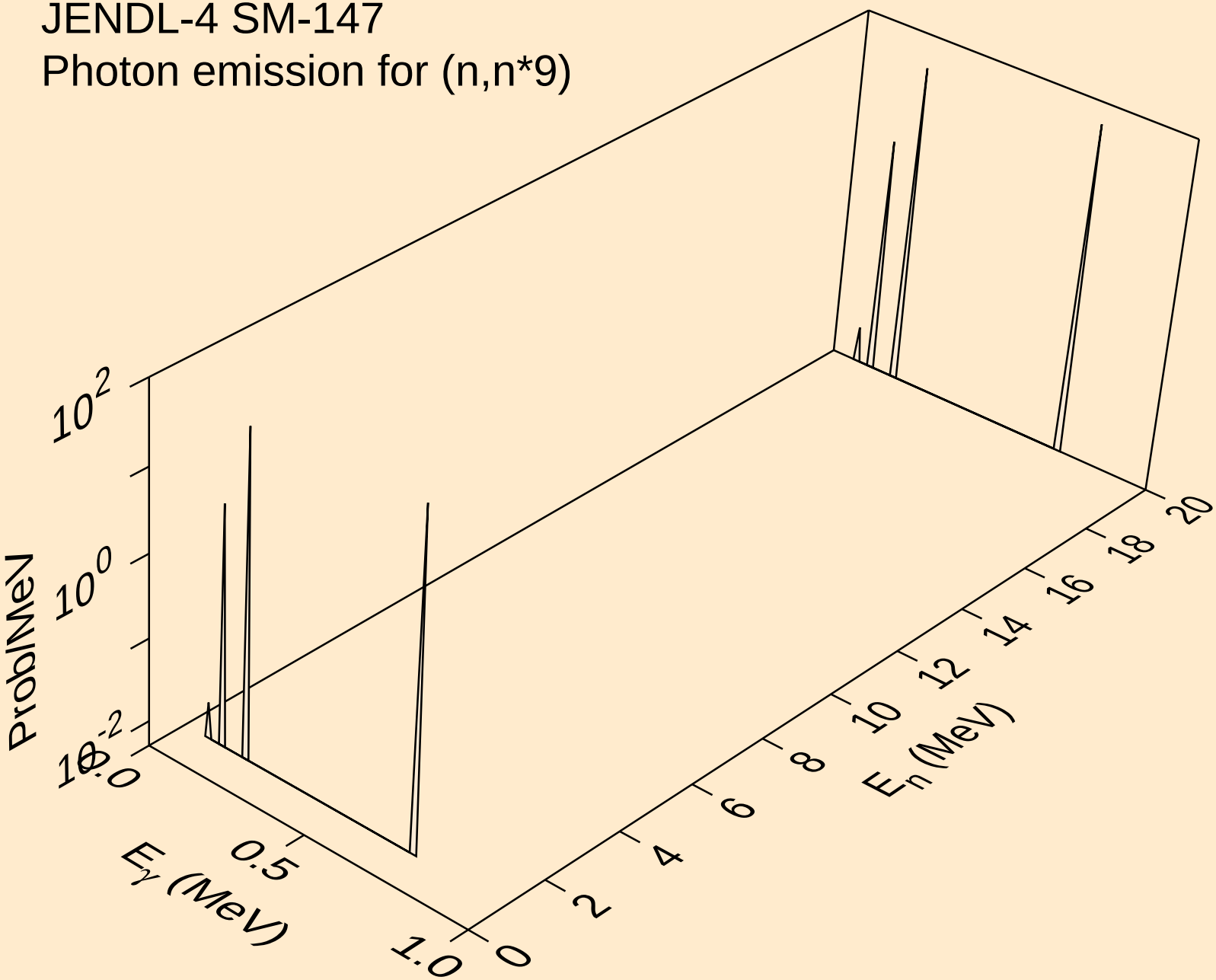
JENDL-4 SM-147
Photon emission for (n,n*7)

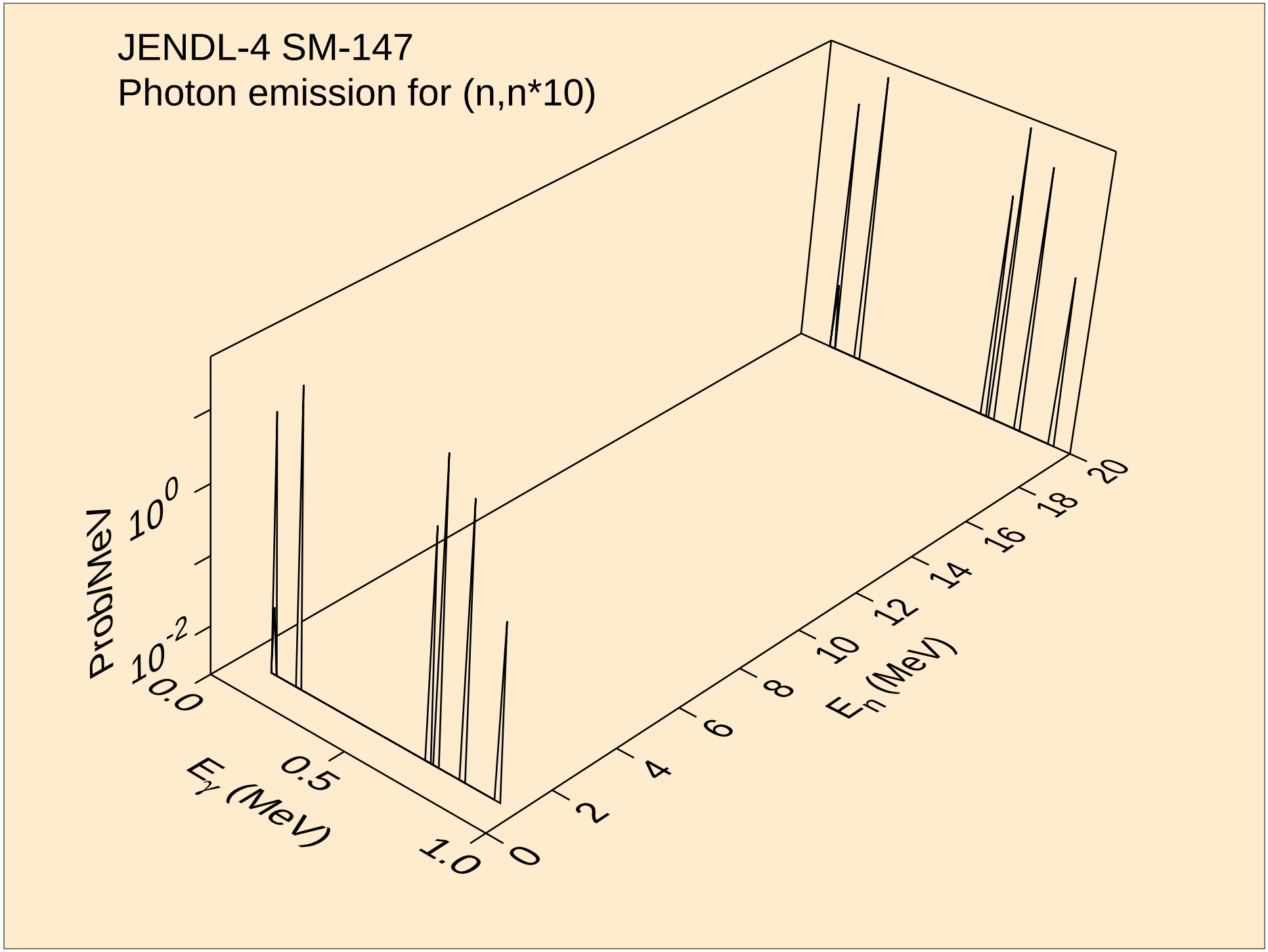


JENDL-4 SM-147
Photon emission for (n,n*8)

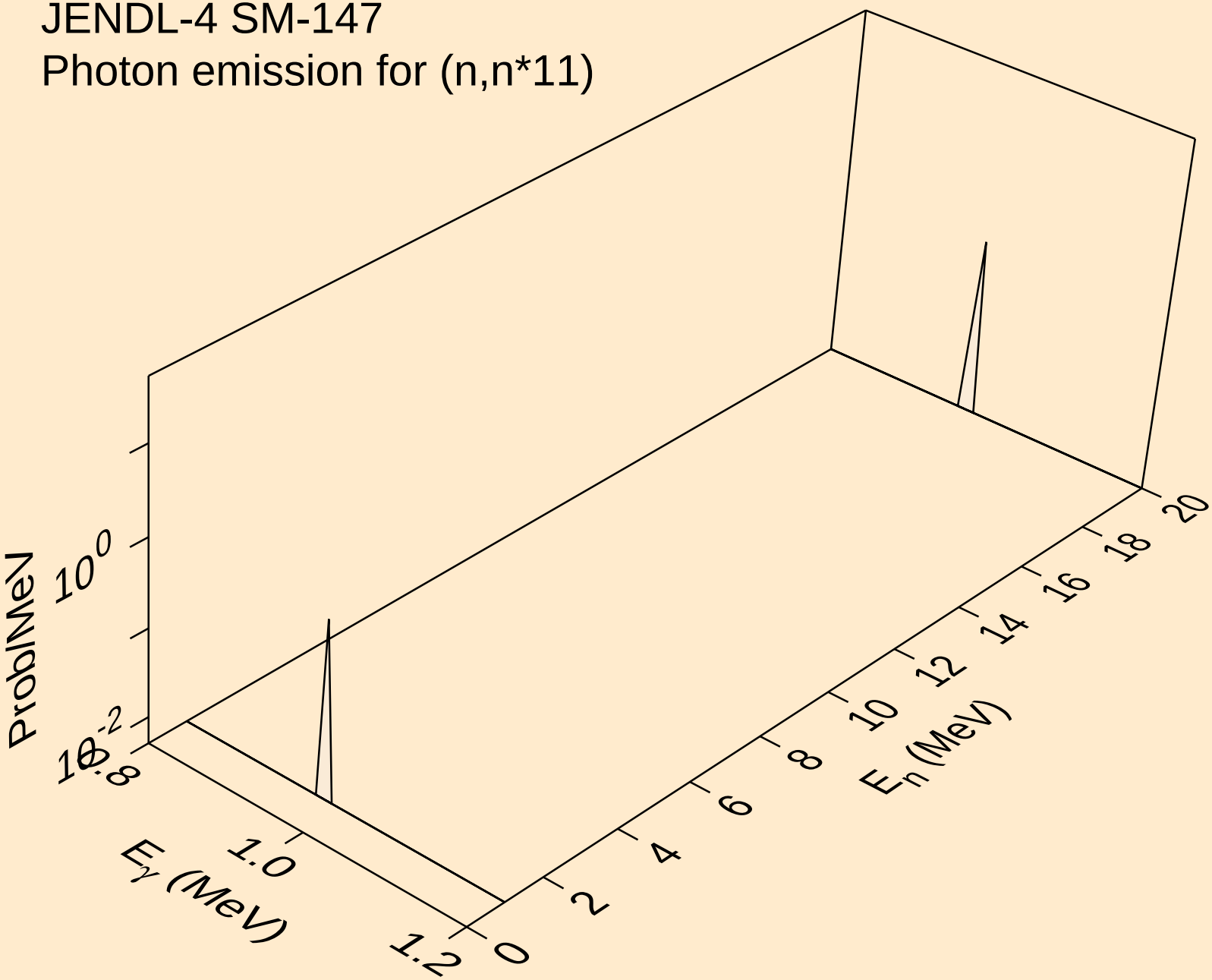


JENDL-4 SM-147
Photon emission for (n,n*9)

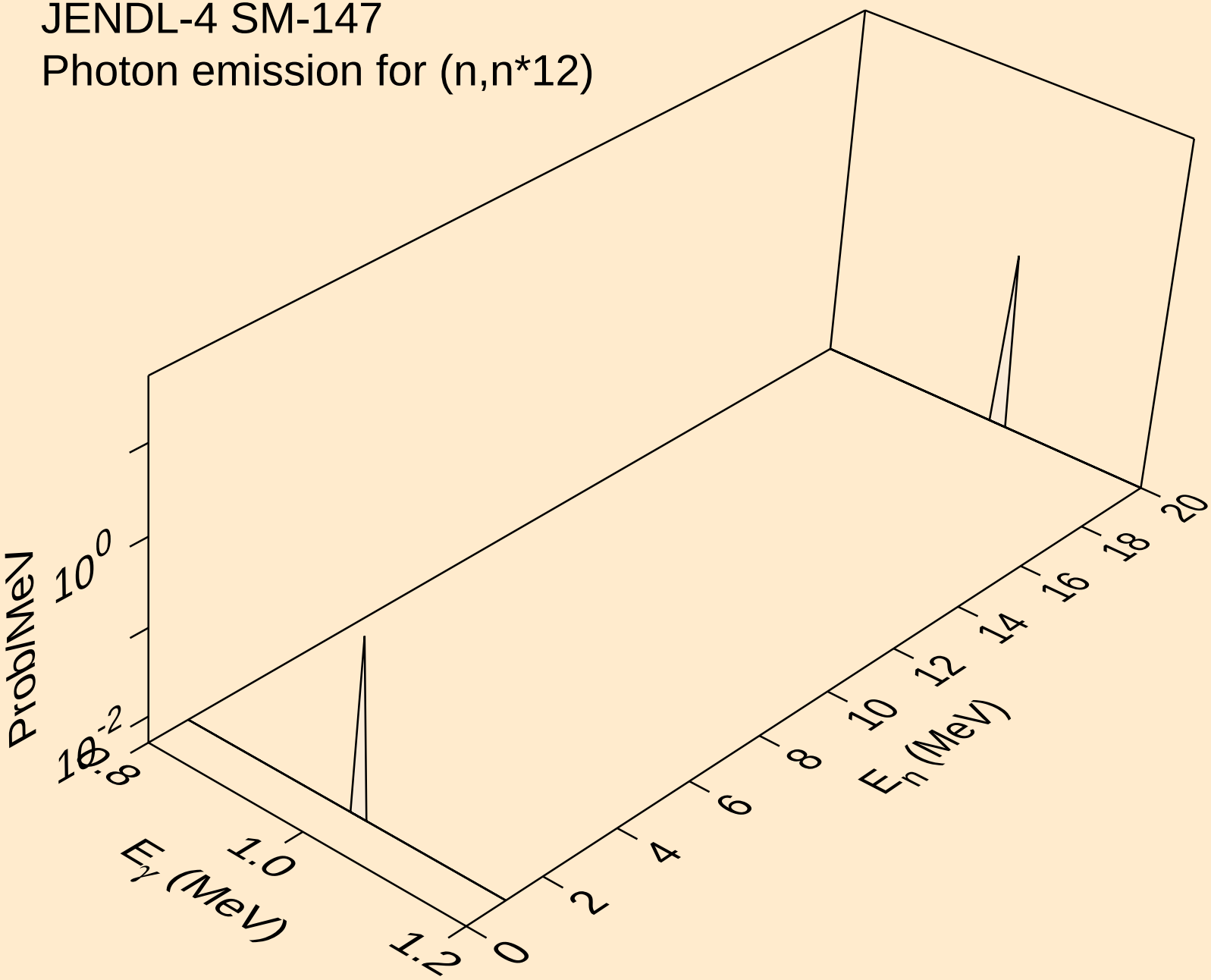



JENDL-4 SM-147
Photon emission for (n,n*10)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

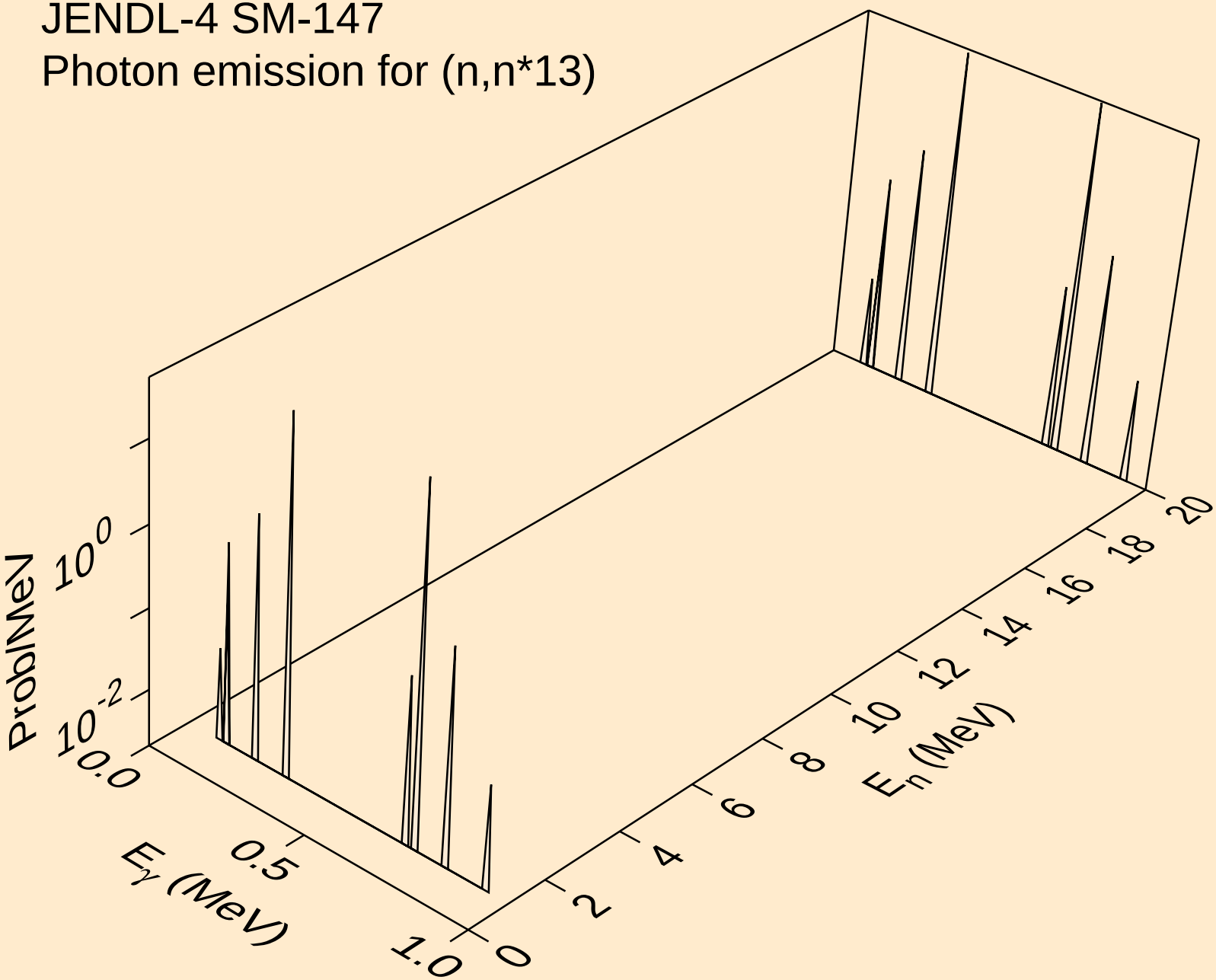
JENDL-4 SM-147
Photon emission for (n,n*11)

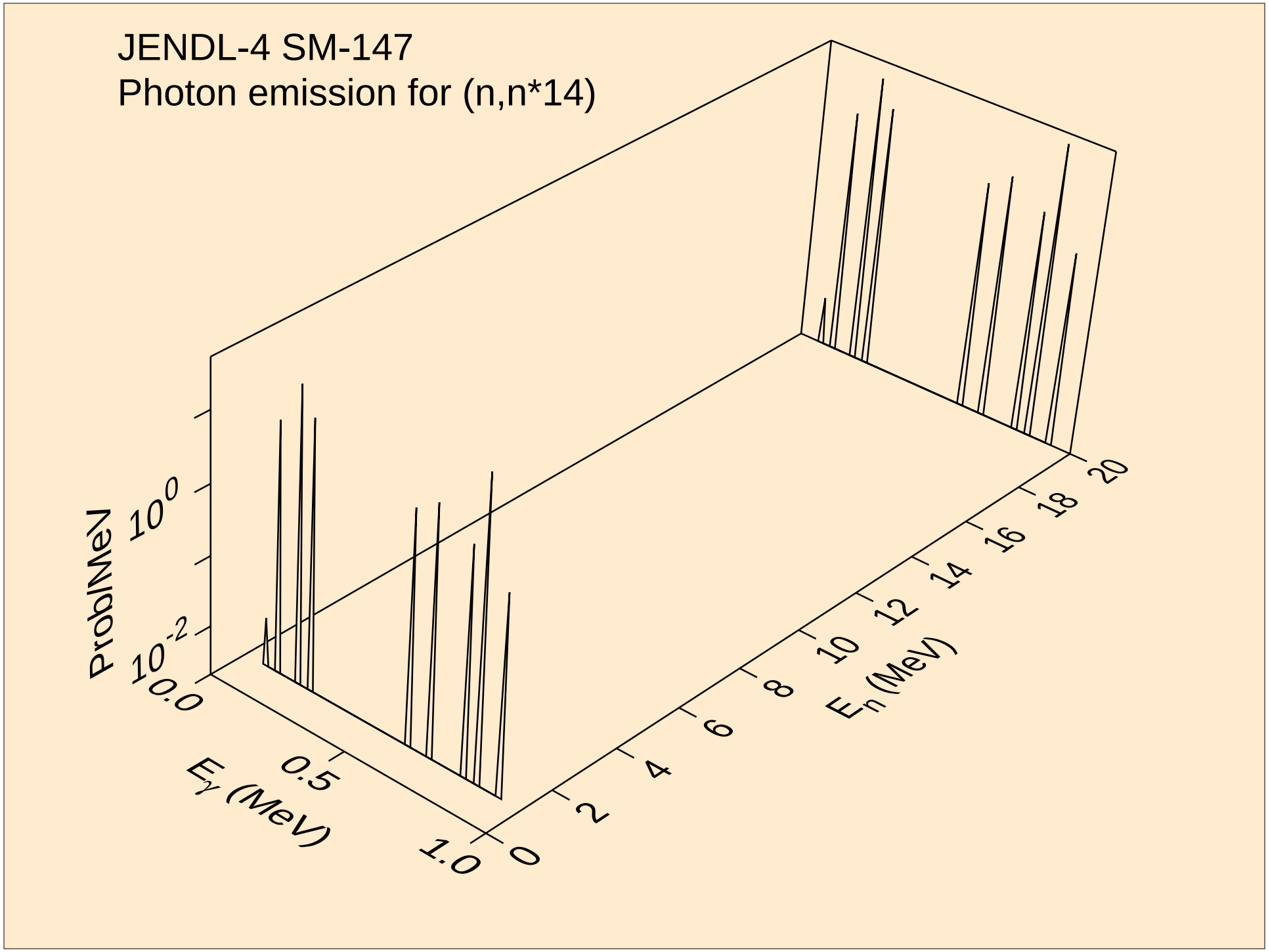


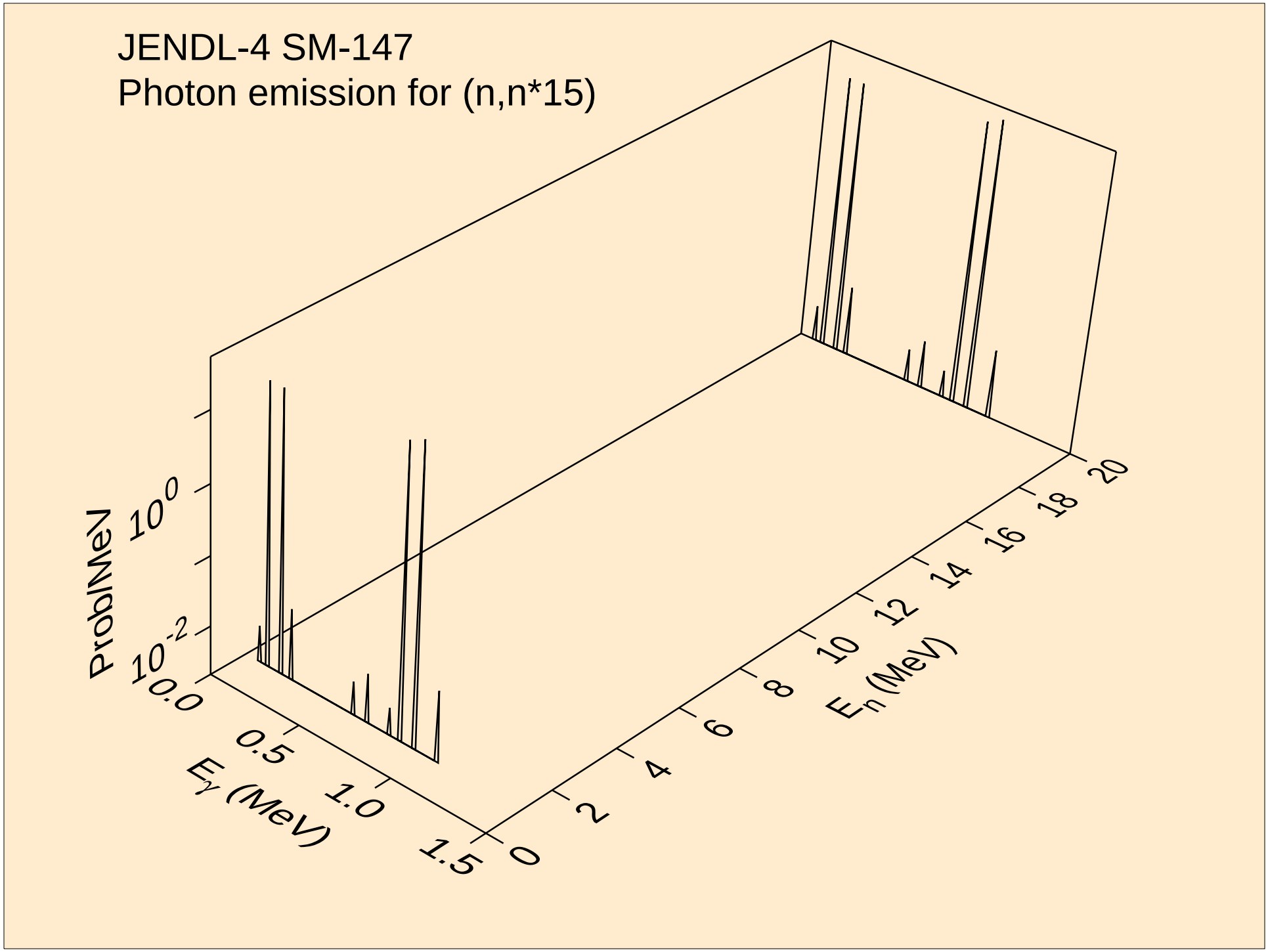
JENDL-4 SM-147
Photon emission for (n,n*12)

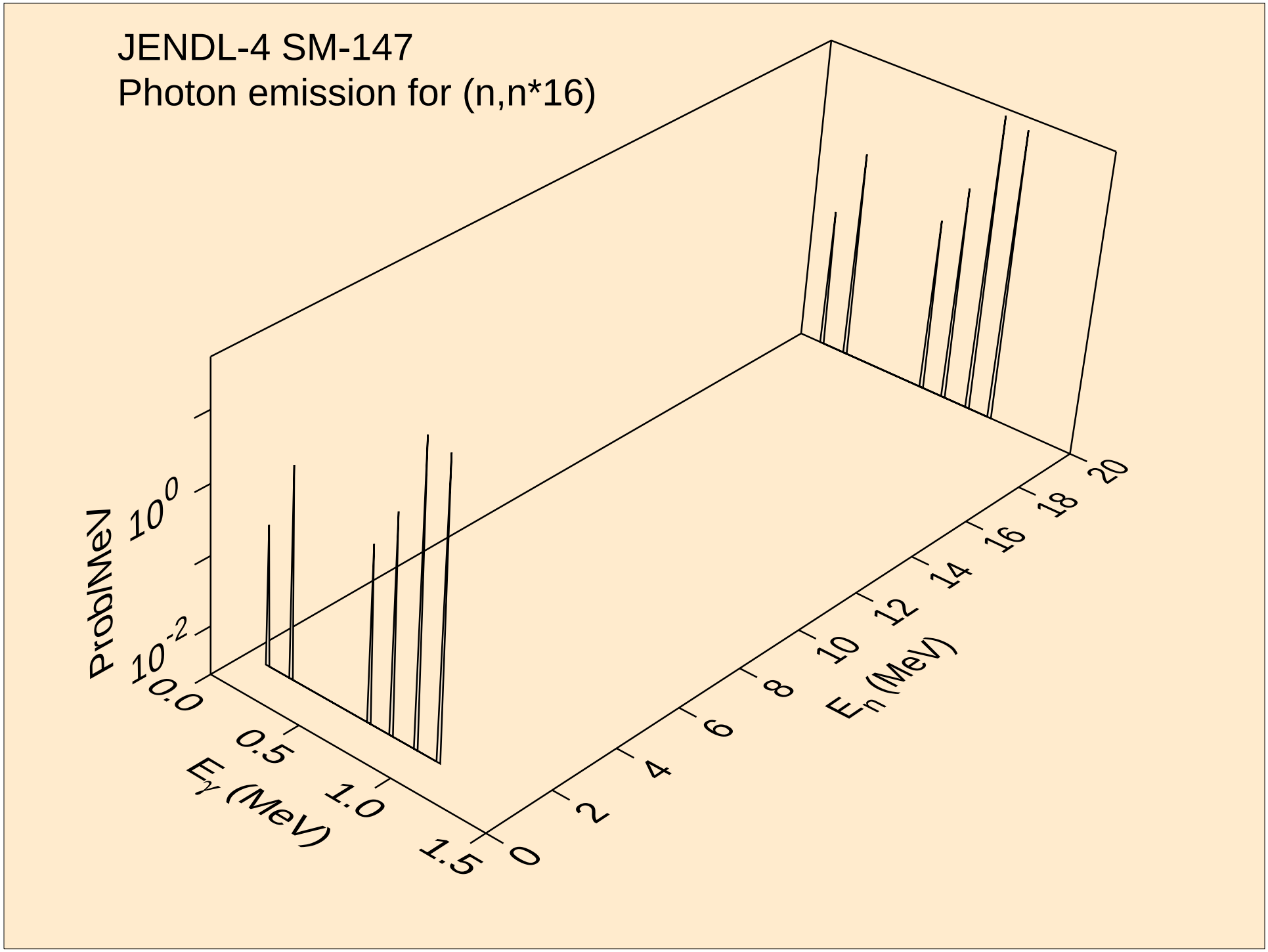


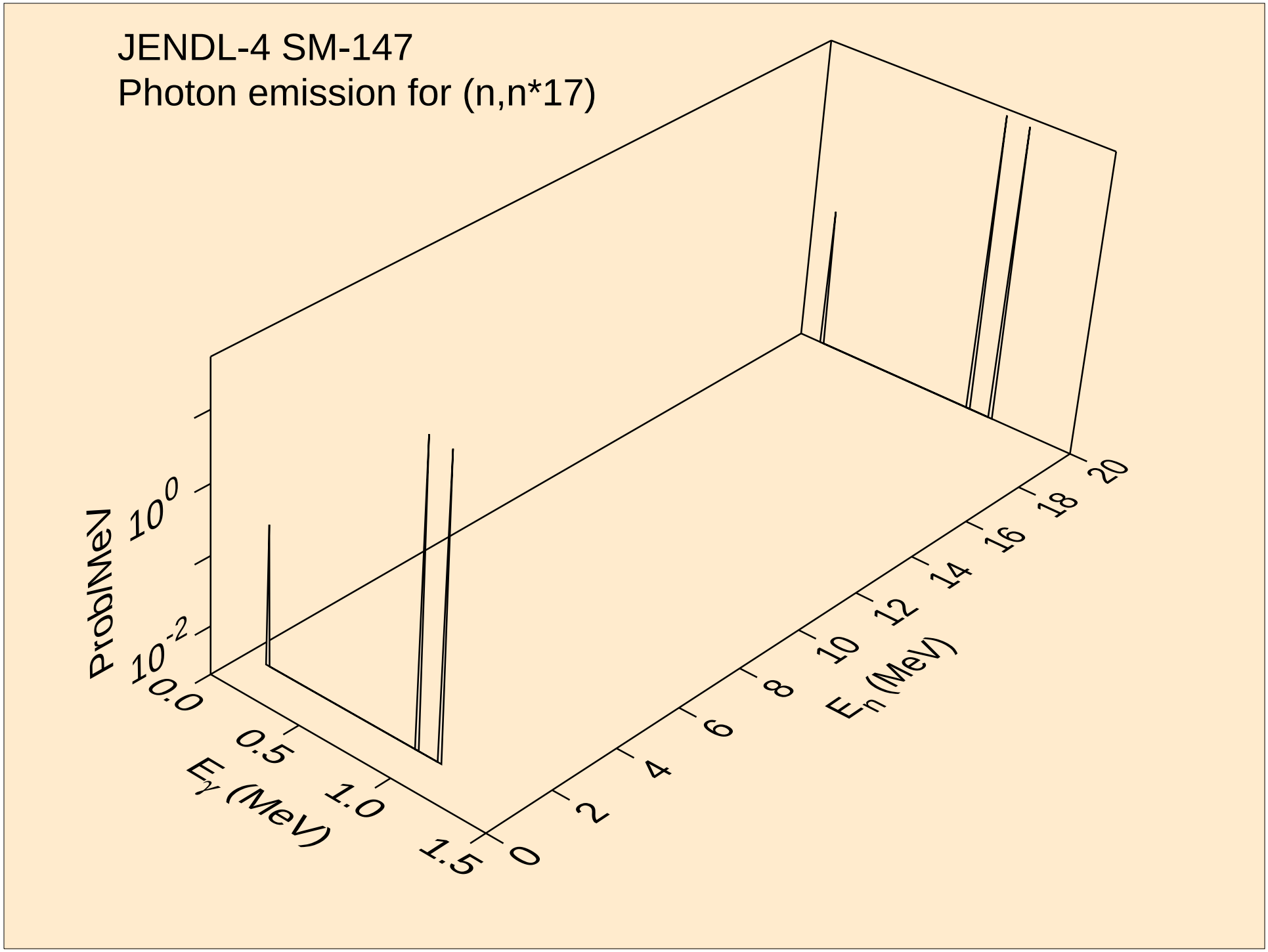
JENDL-4 SM-147
Photon emission for (n,n*13)

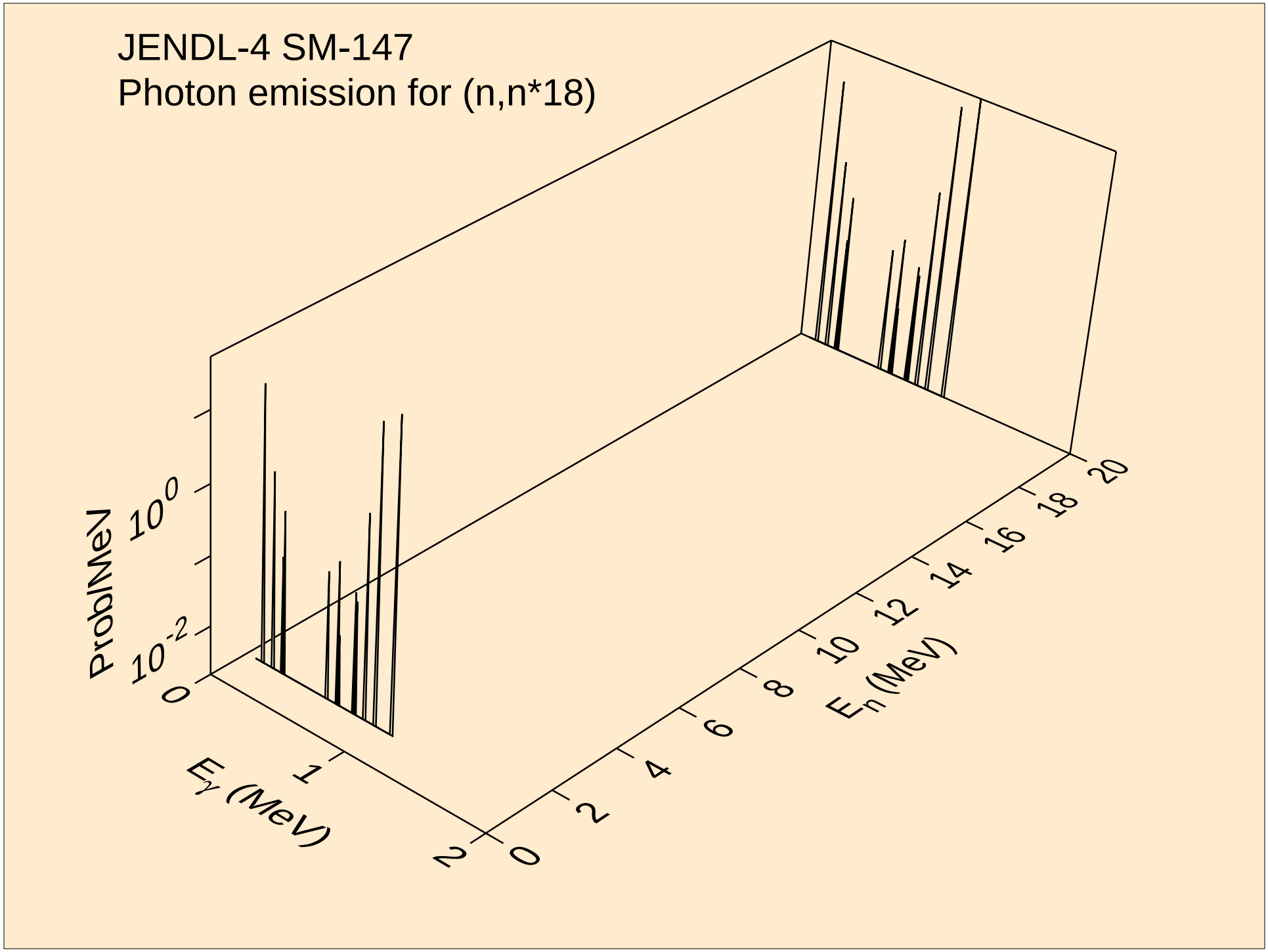



JENDL-4 SM-147
Photon emission for (n,n*14)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

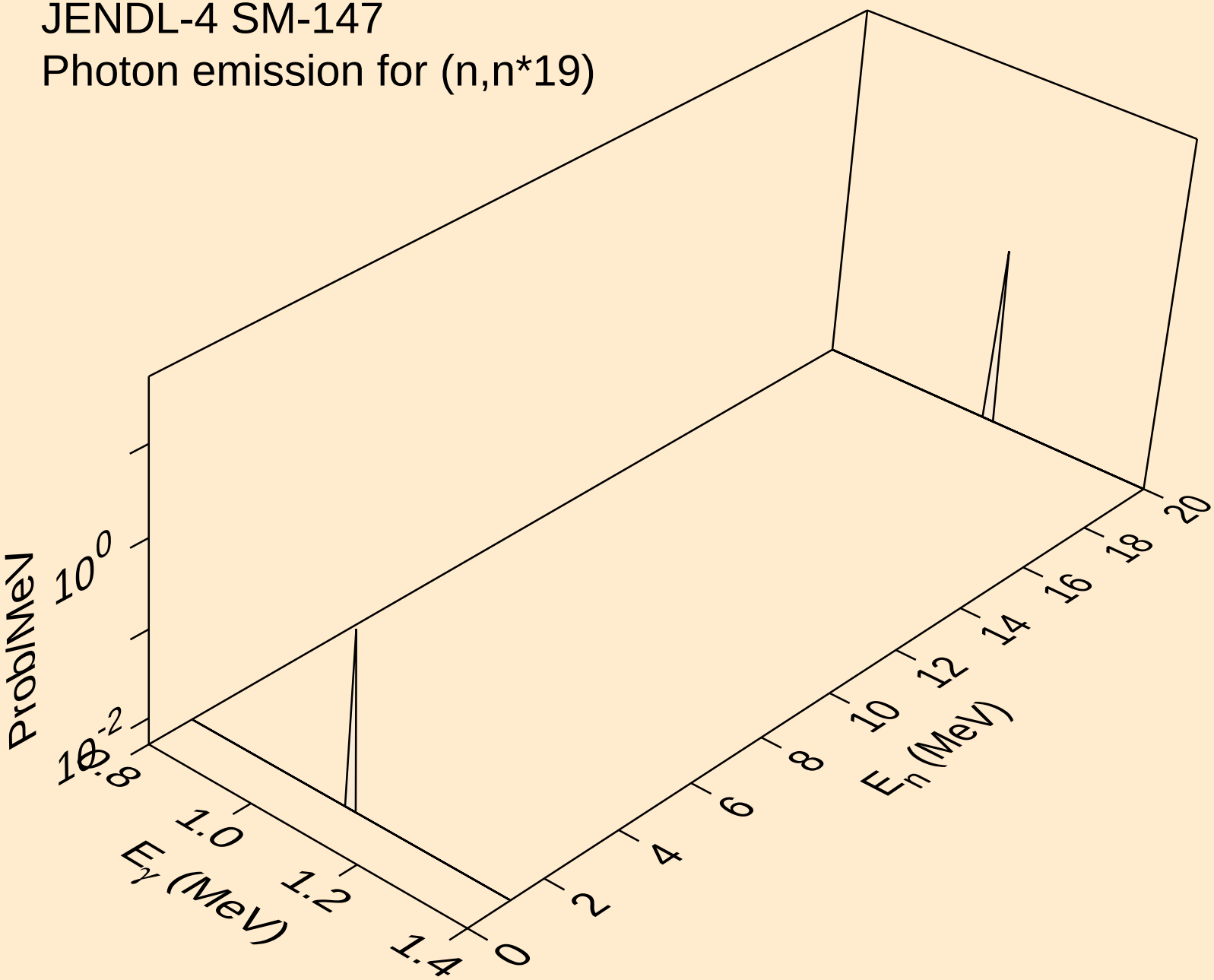

JENDL-4 SM-147
Photon emission for (n,n*15)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
1.5
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 SM-147
Photon emission for (n,n*16)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
1.5
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

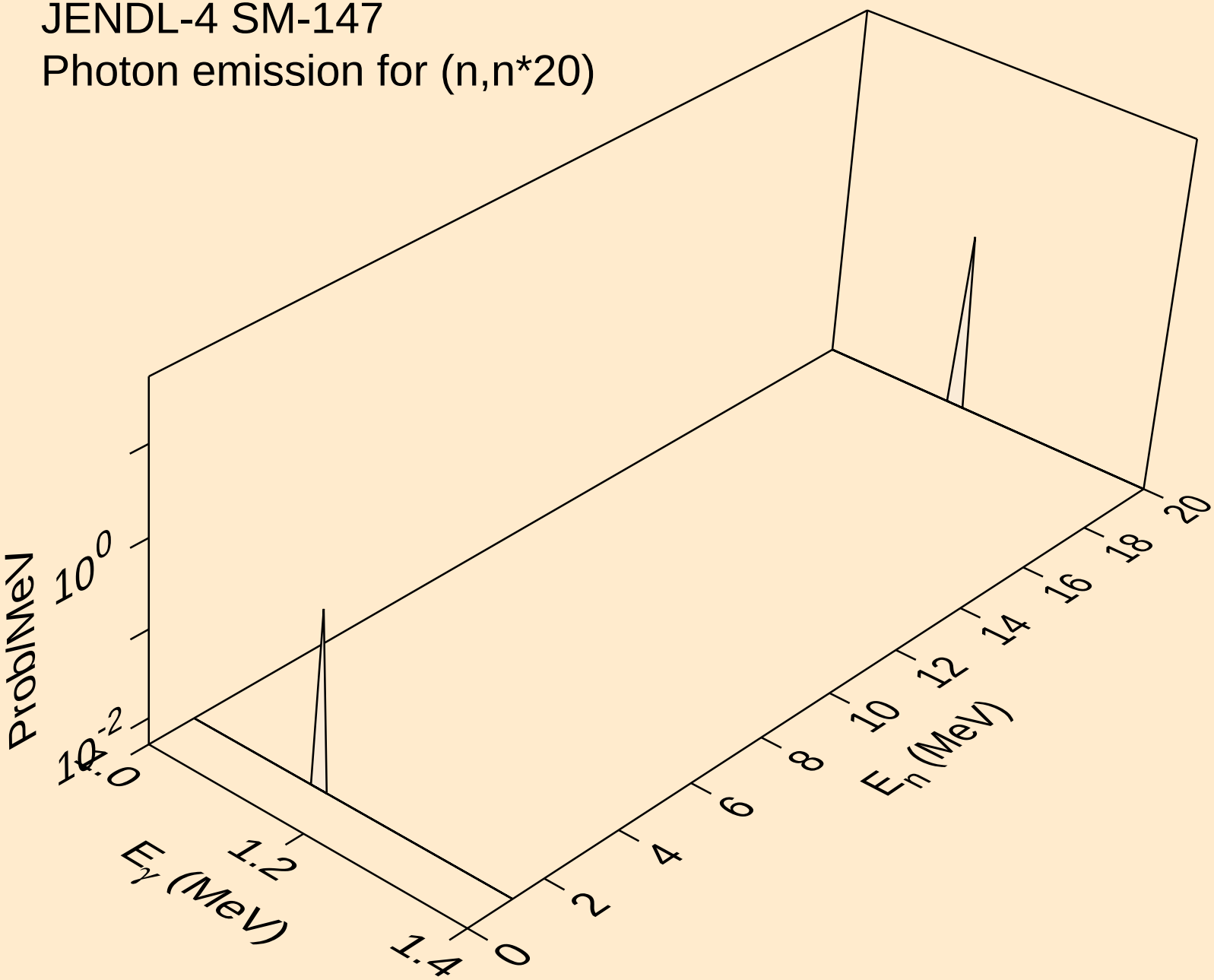

JENDL-4 SM-147
Photon emission for (n,n*17)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
1.5
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 SM-147
Photon emission for (n,n*18)
Prob/MeV
10^0
10^{-2}
0
E_γ (MeV)
1
2
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

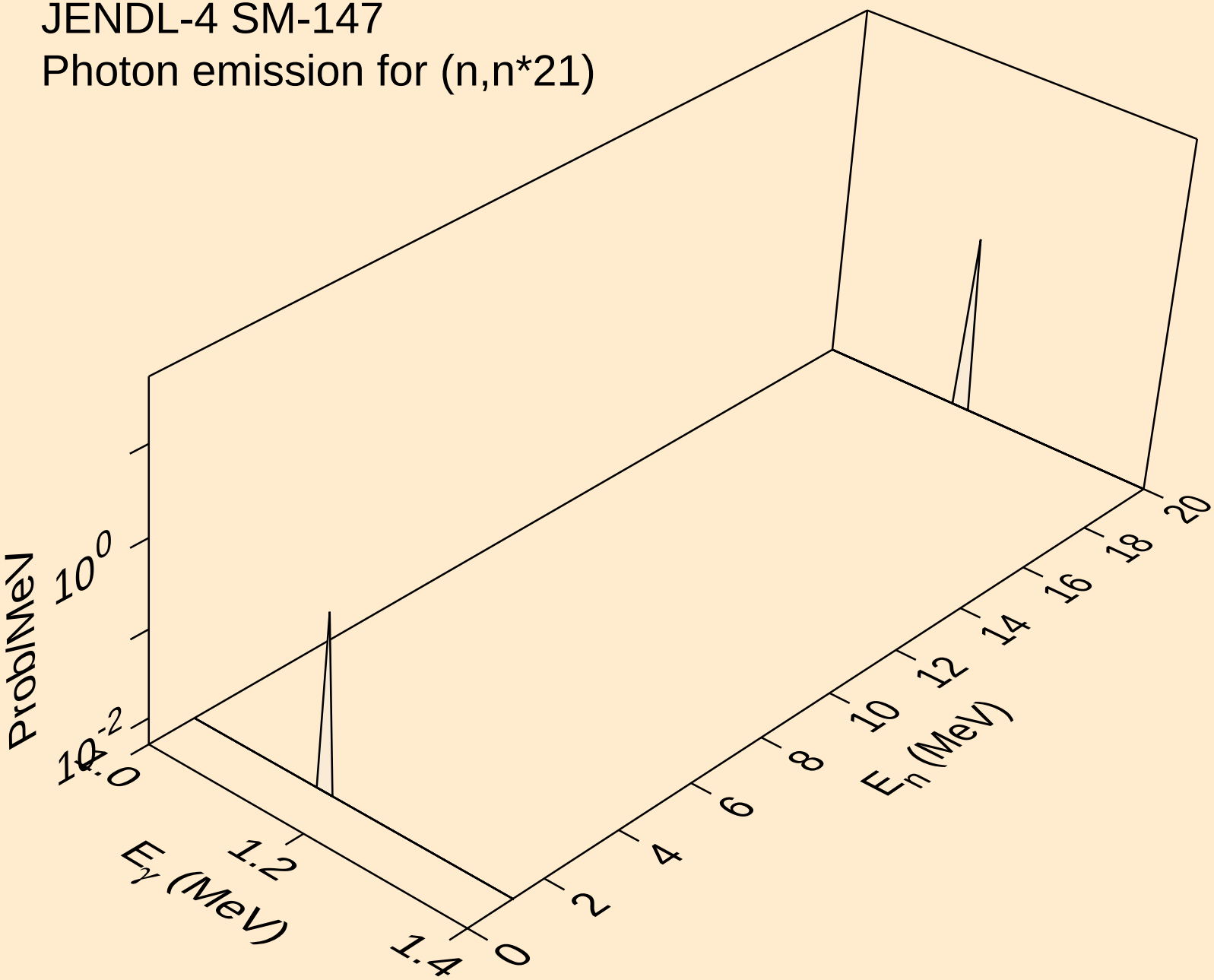
JENDL-4 SM-147
Photon emission for (n,n*19)



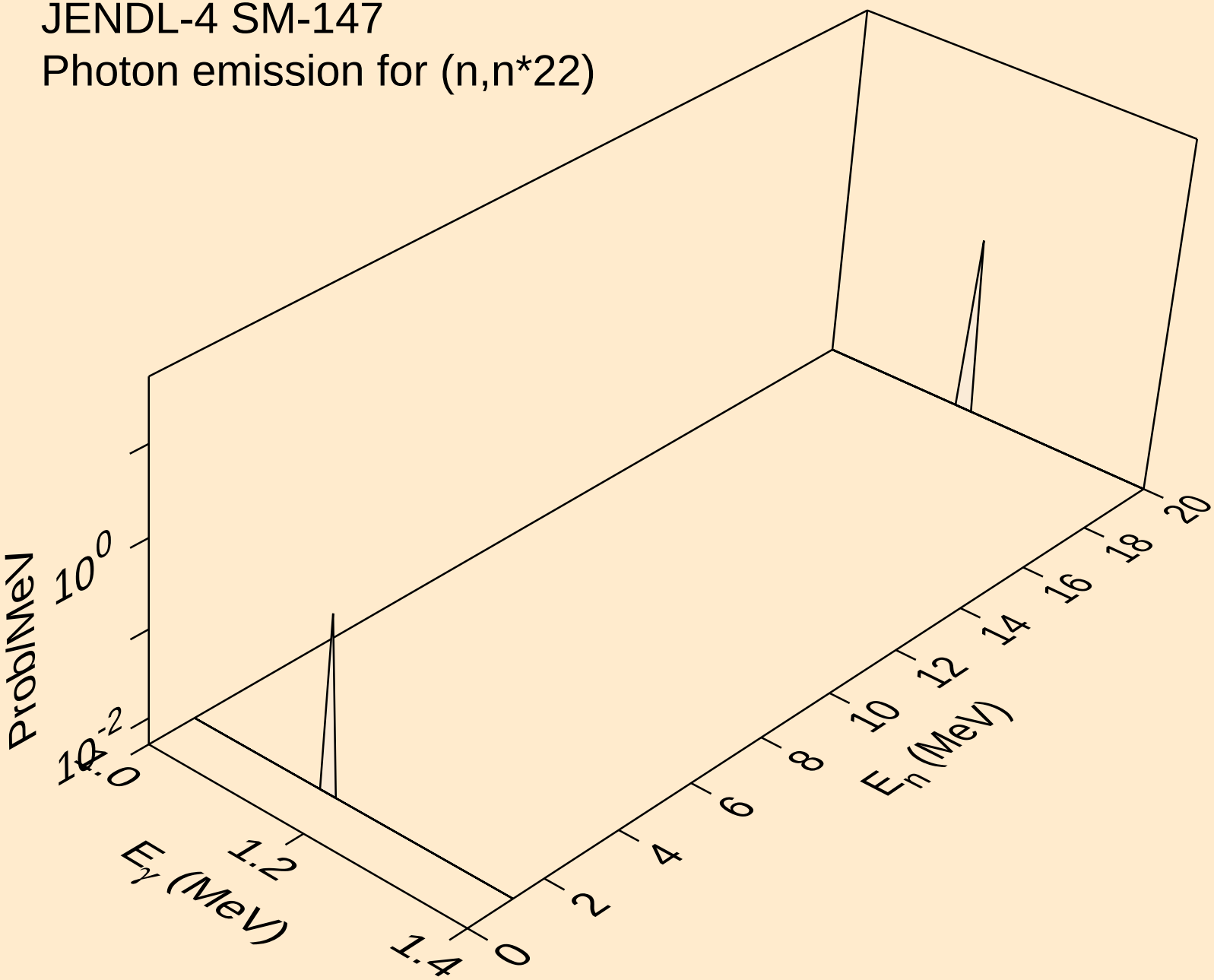
JENDL-4 SM-147
Photon emission for (n,n*20)

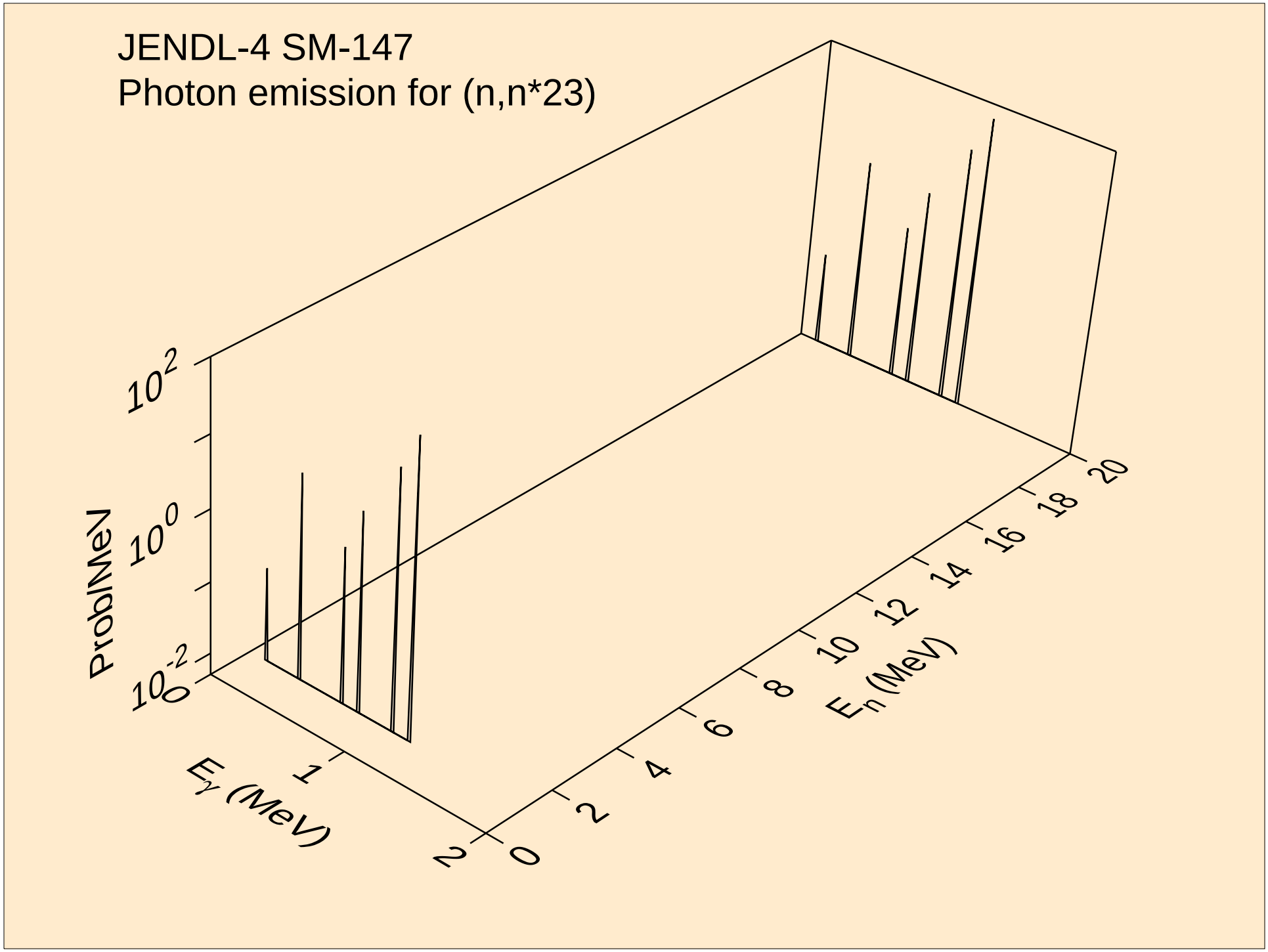


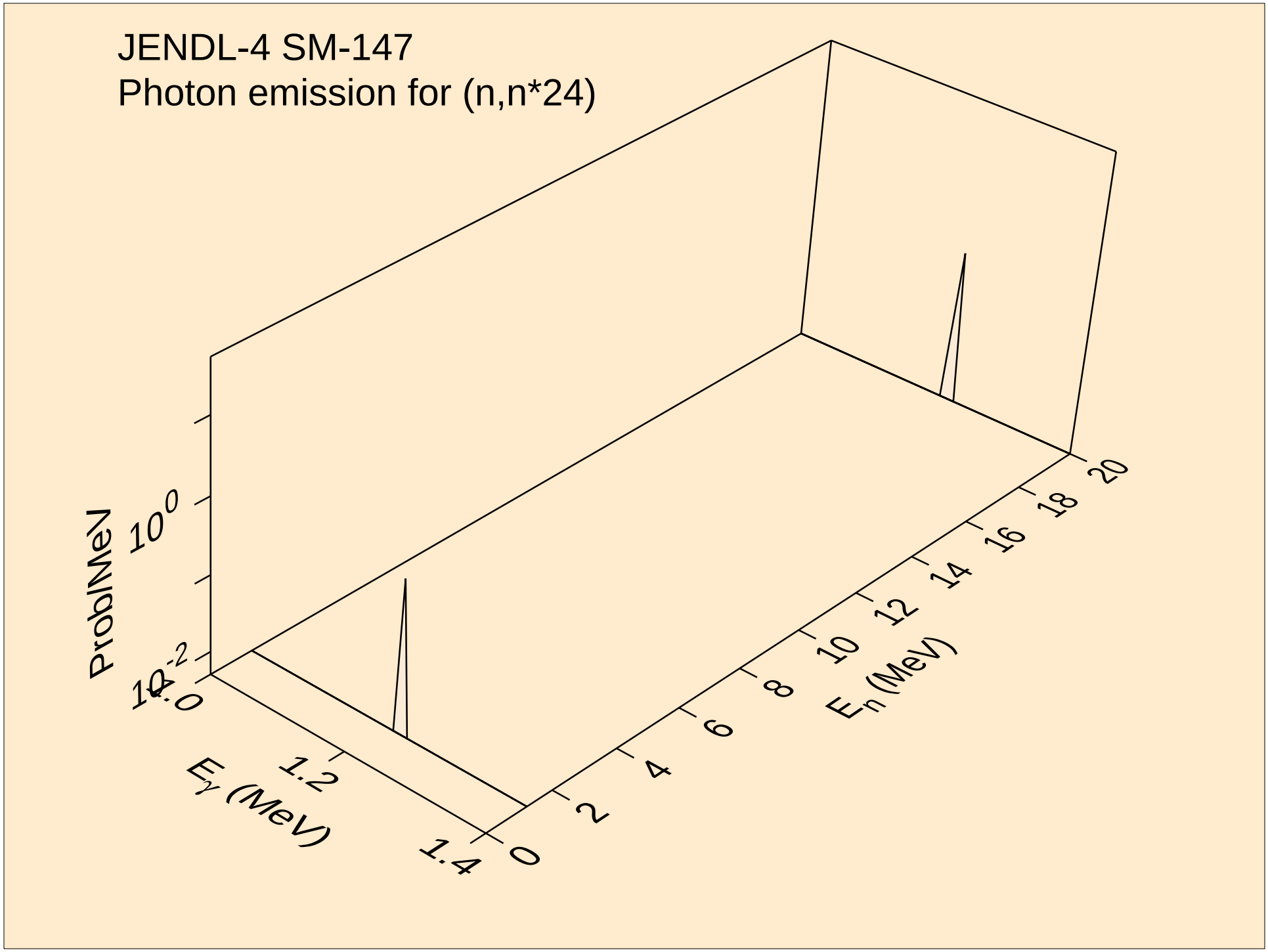
JENDL-4 SM-147
Photon emission for (n,n*21)



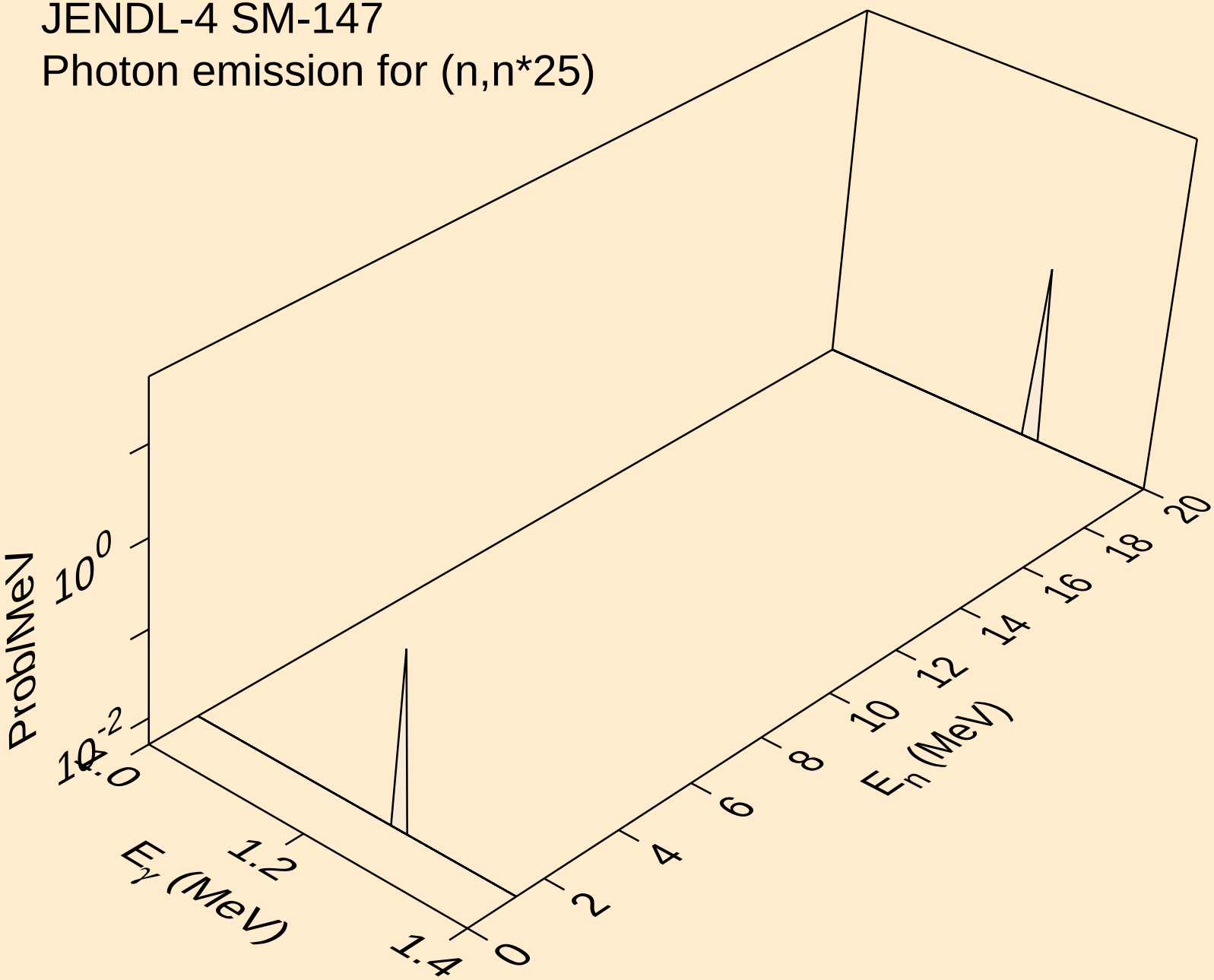
JENDL-4 SM-147
Photon emission for (n,n*22)

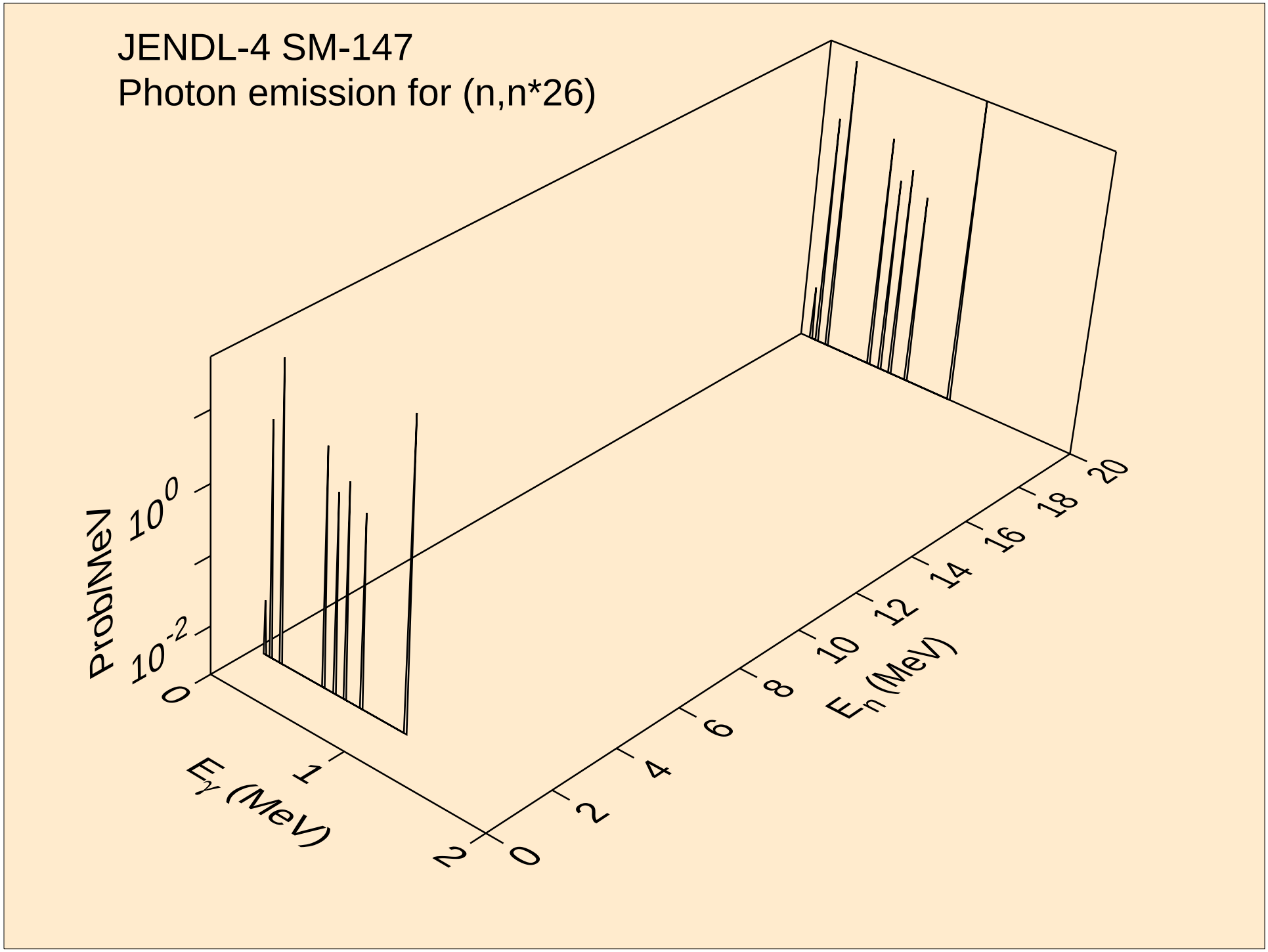



JENDL-4 SM-147
Photon emission for (n,n*23)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
1
2
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

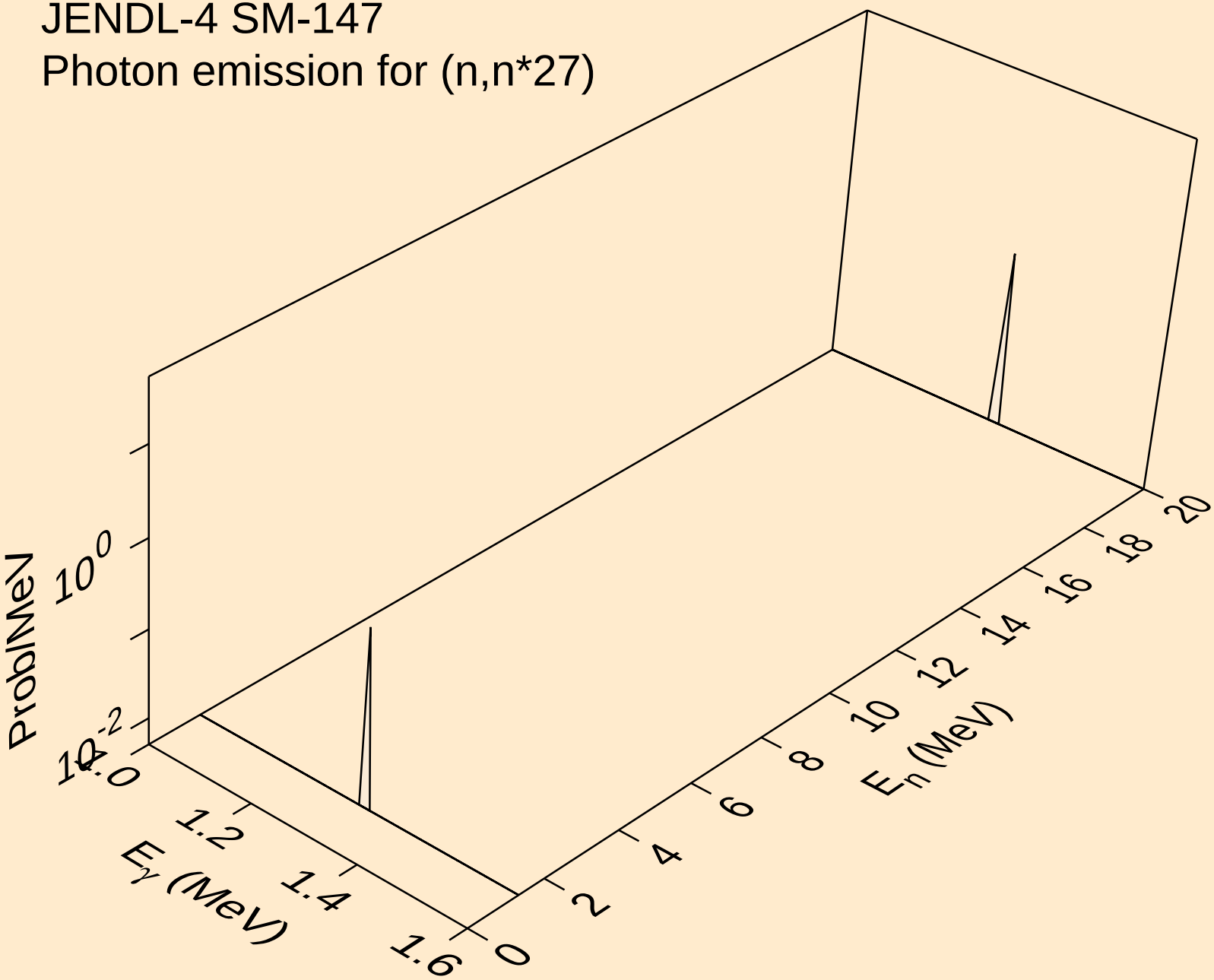

JENDL-4 SM-147
Photon emission for (n,n*24)
Prob/MeV
10^0
10^{-2}
1.0
1.2
1.4
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

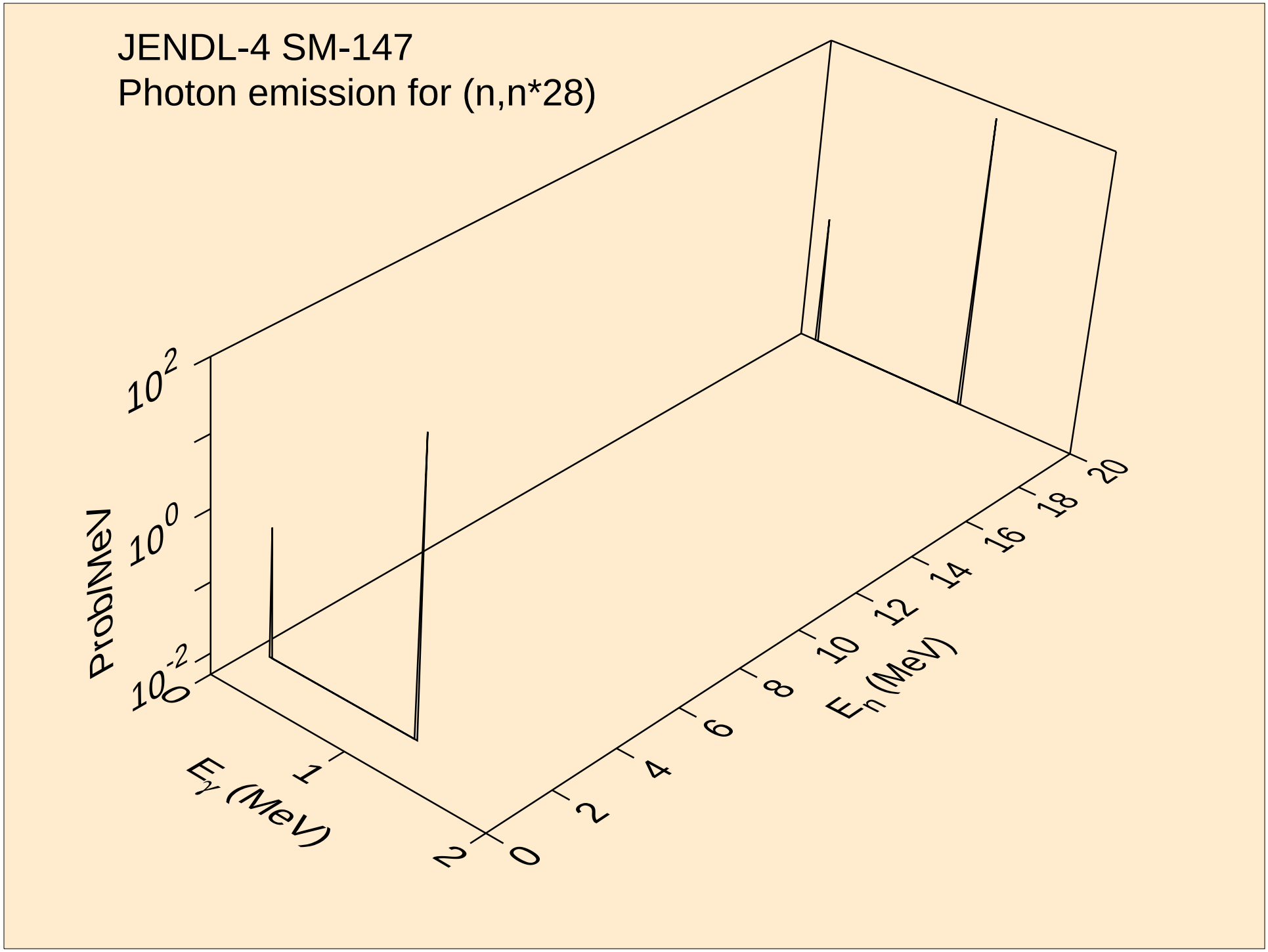
JENDL-4 SM-147
Photon emission for (n,n*25)

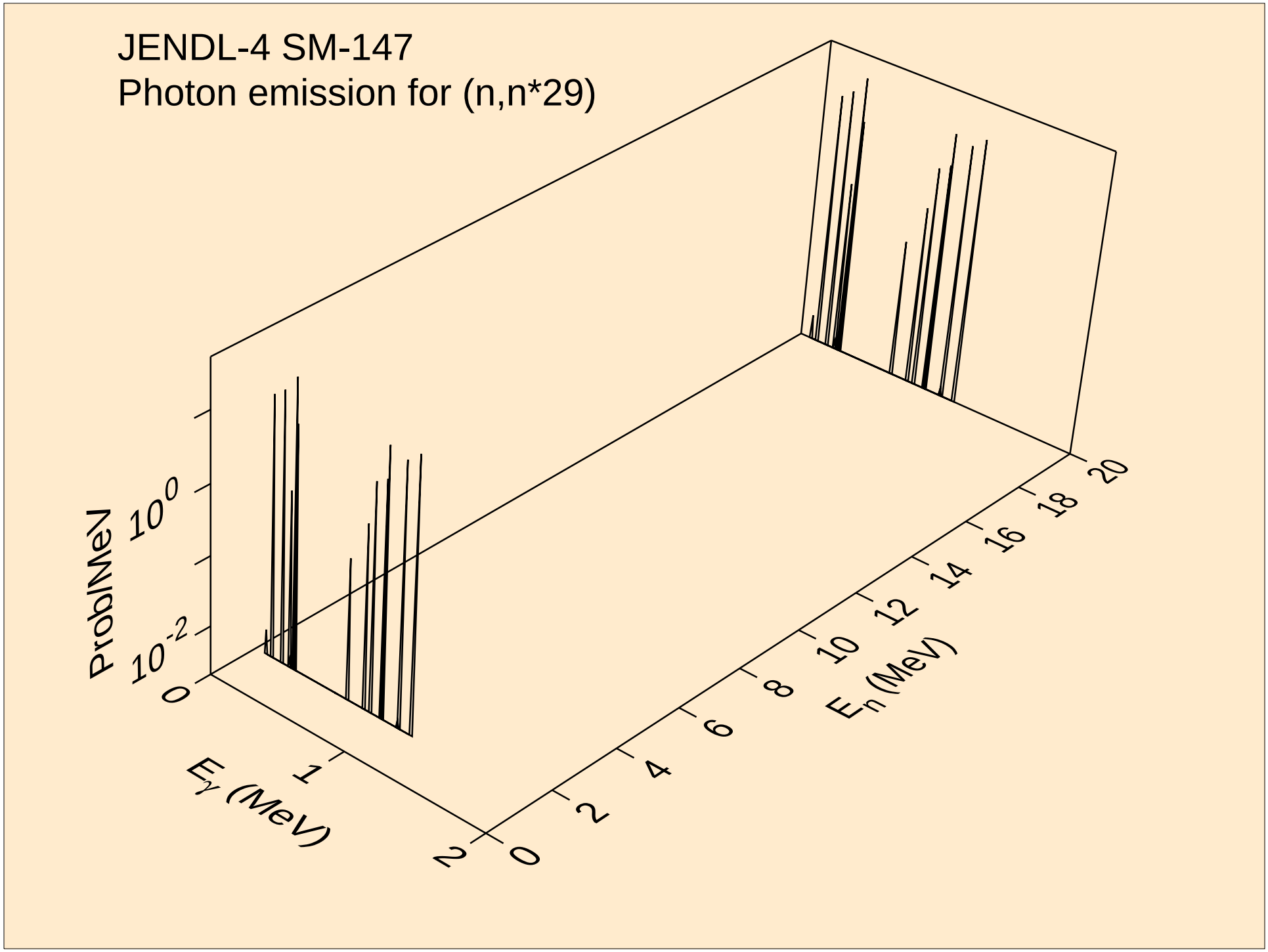


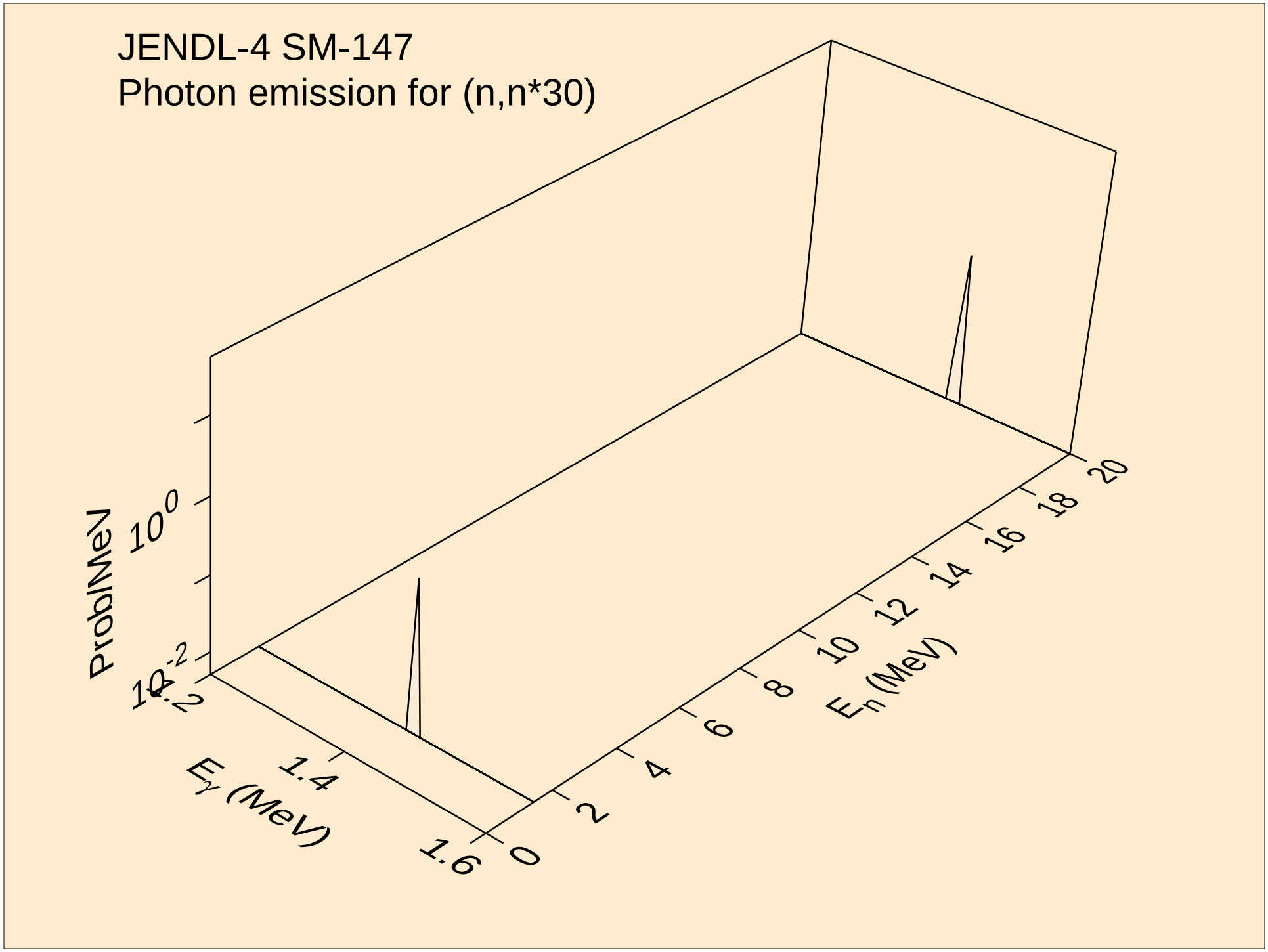

JENDL-4 SM-147
Photon emission for (n,n*26)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

JENDL-4 SM-147
Photon emission for (n,n*27)

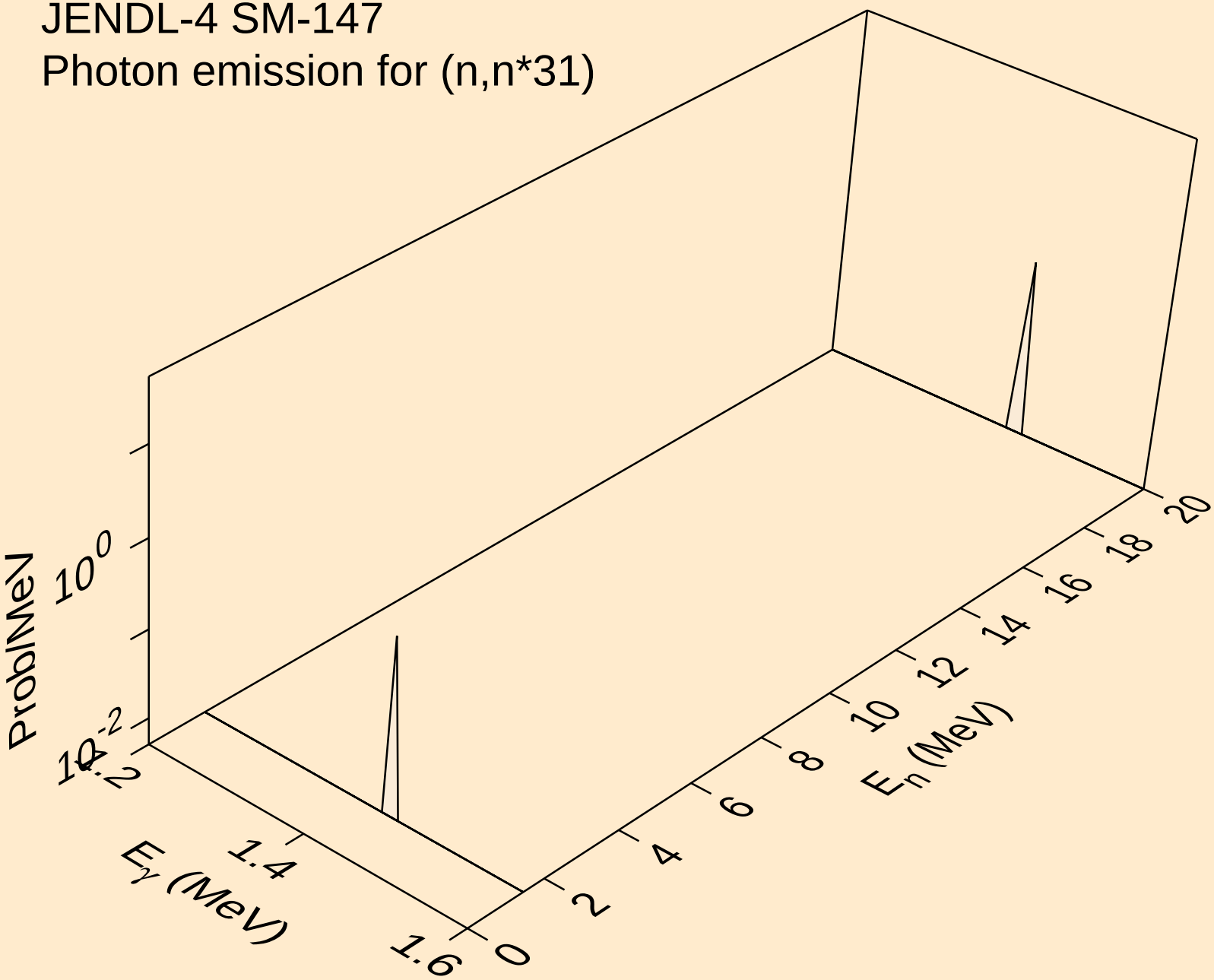


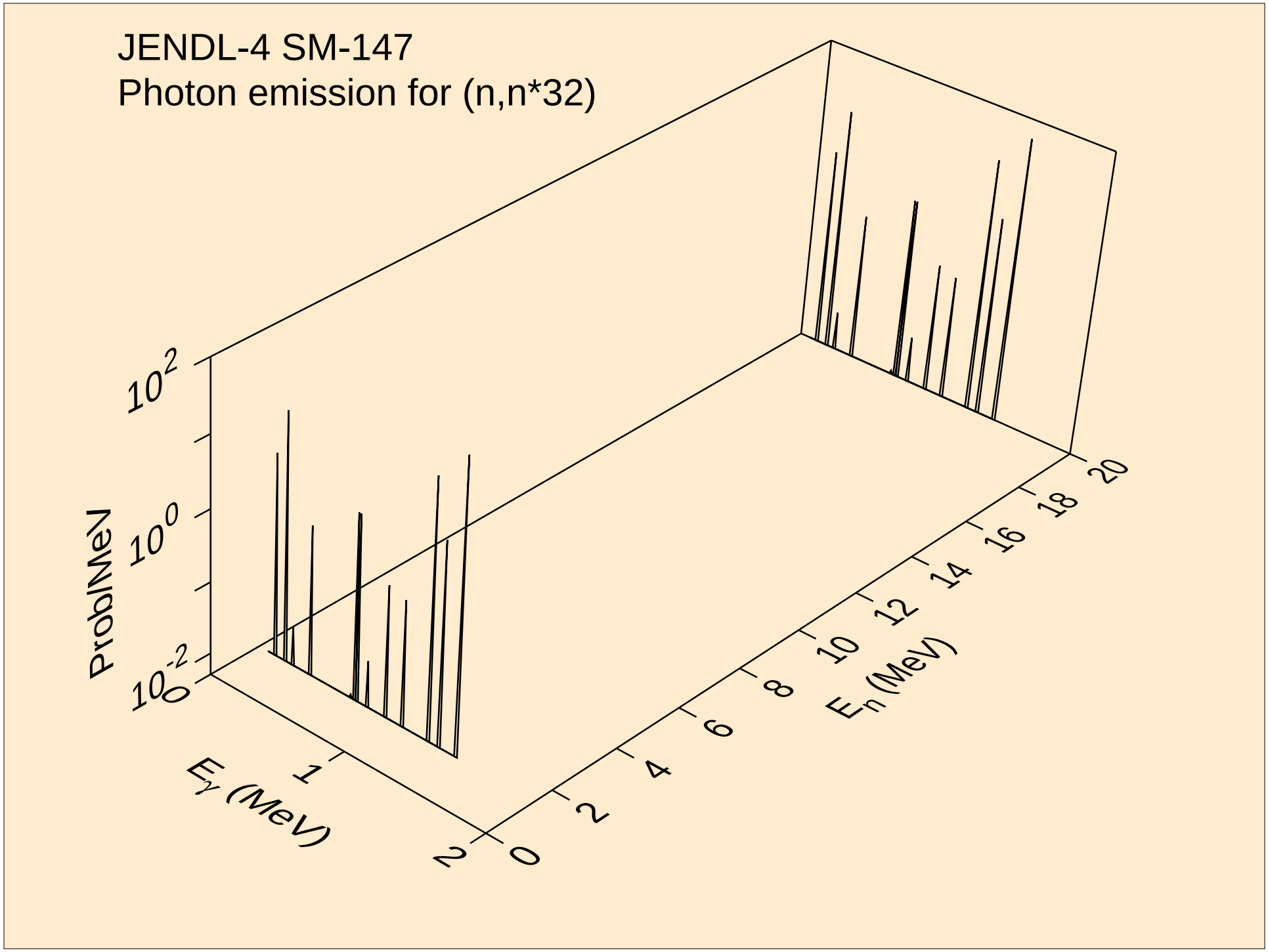

JENDL-4 SM-147
Photon emission for (n,n*28)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
1
2
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

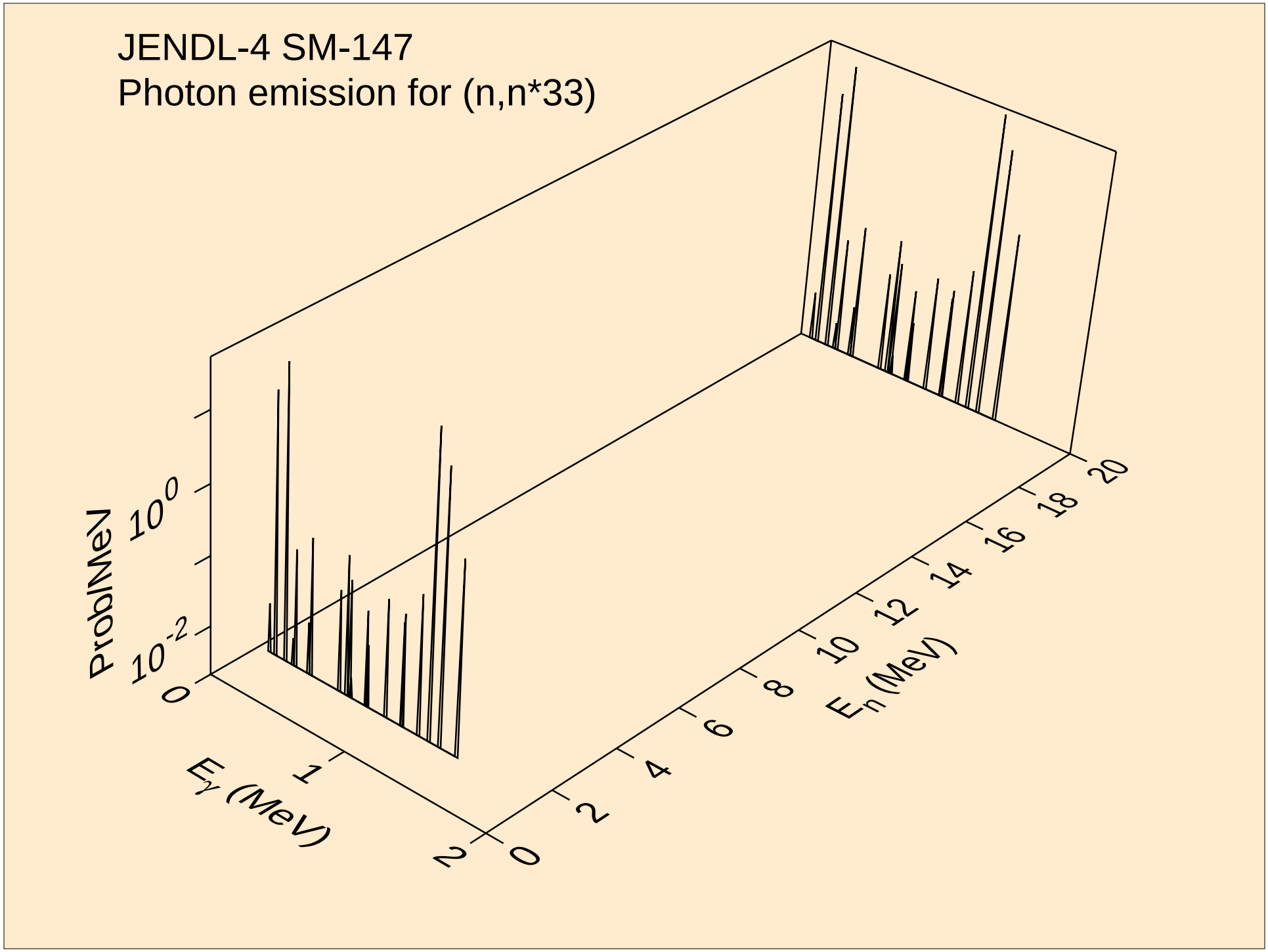

JENDL-4 SM-147
Photon emission for (n,n*29)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

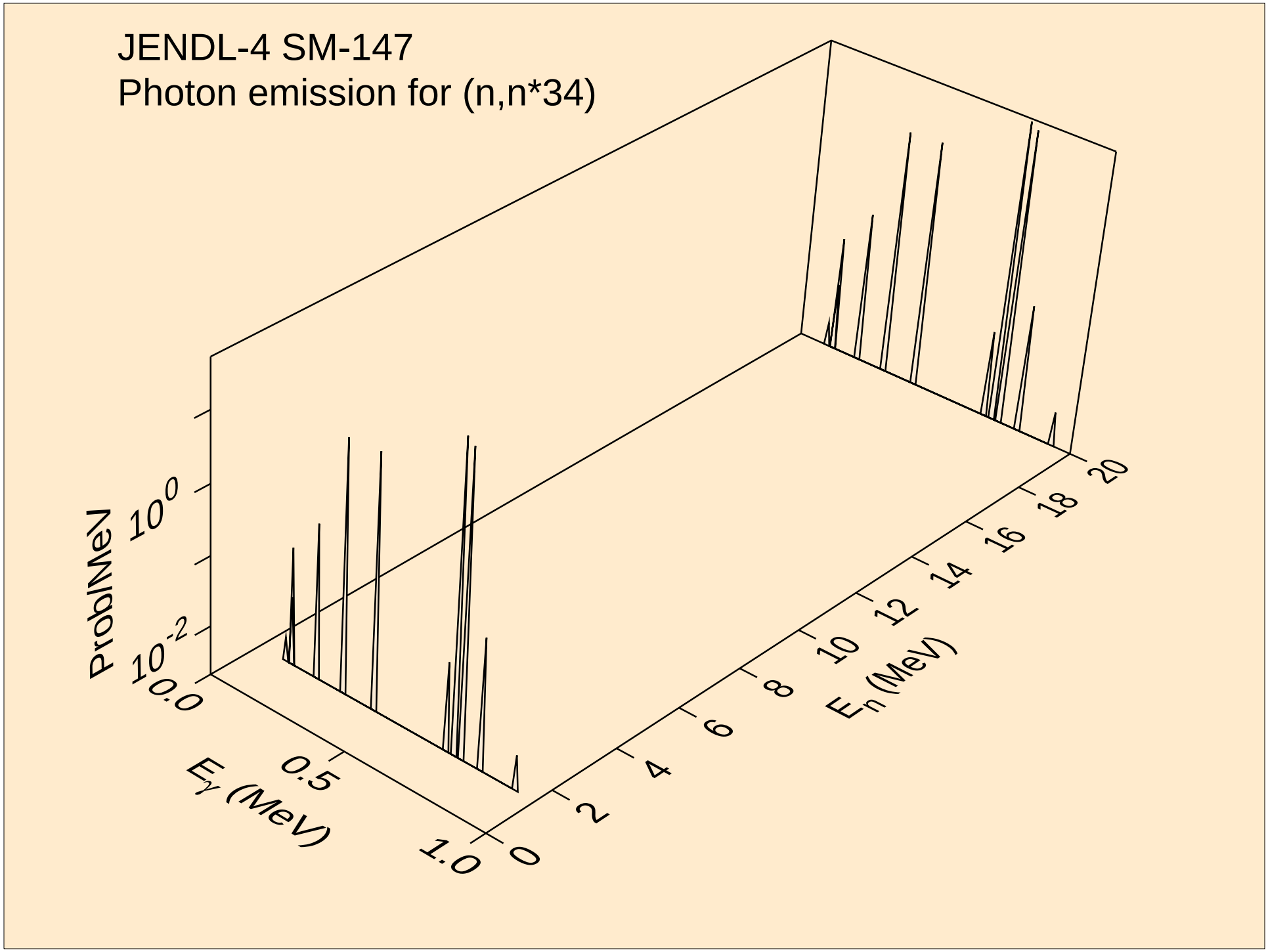

JENDL-4 SM-147
Photon emission for (n,n*30)
Prob/MeV
10^0
10^{-2}
1.2
1.4
1.6
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

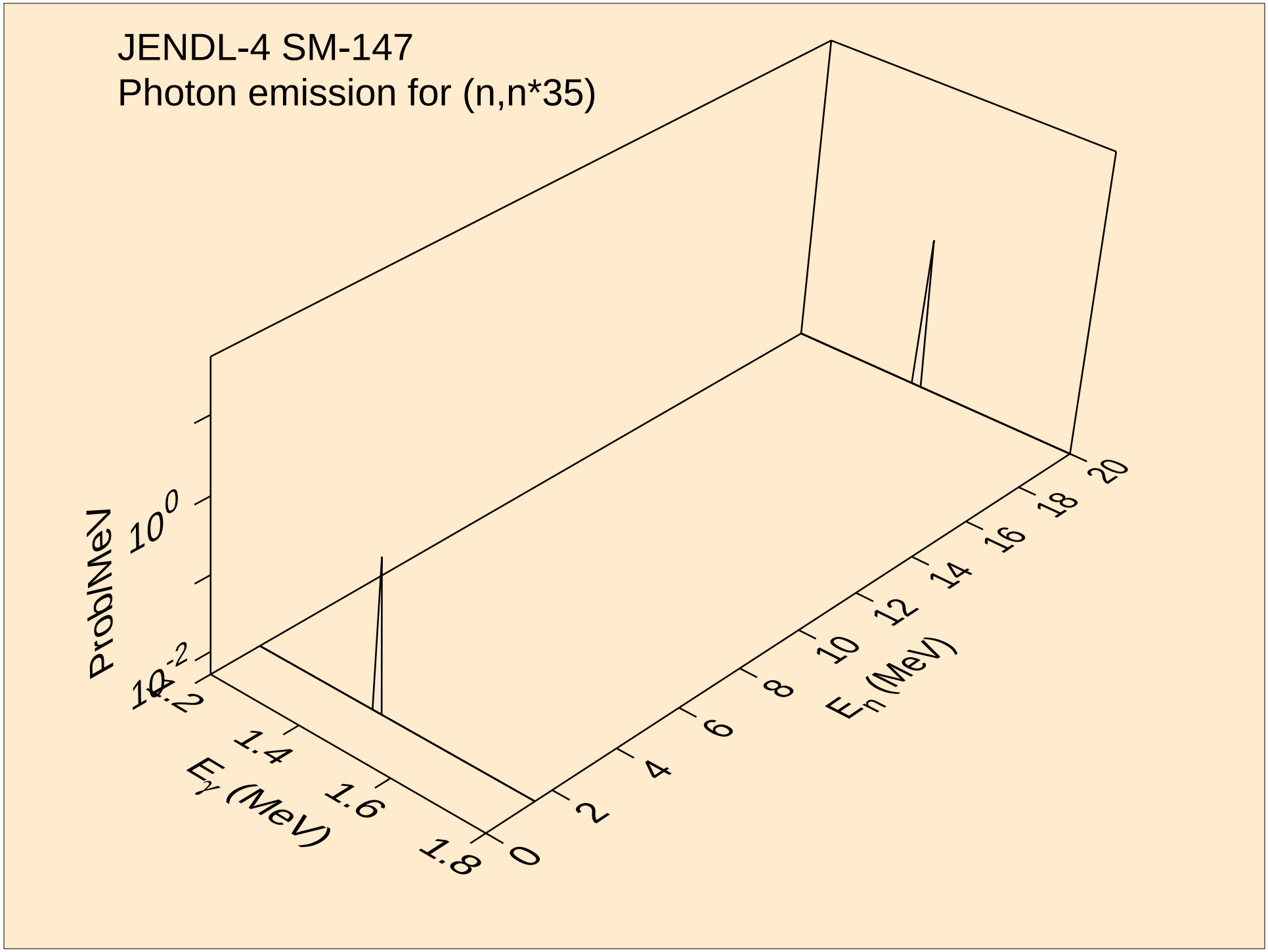
JENDL-4 SM-147
Photon emission for (n,n*31)

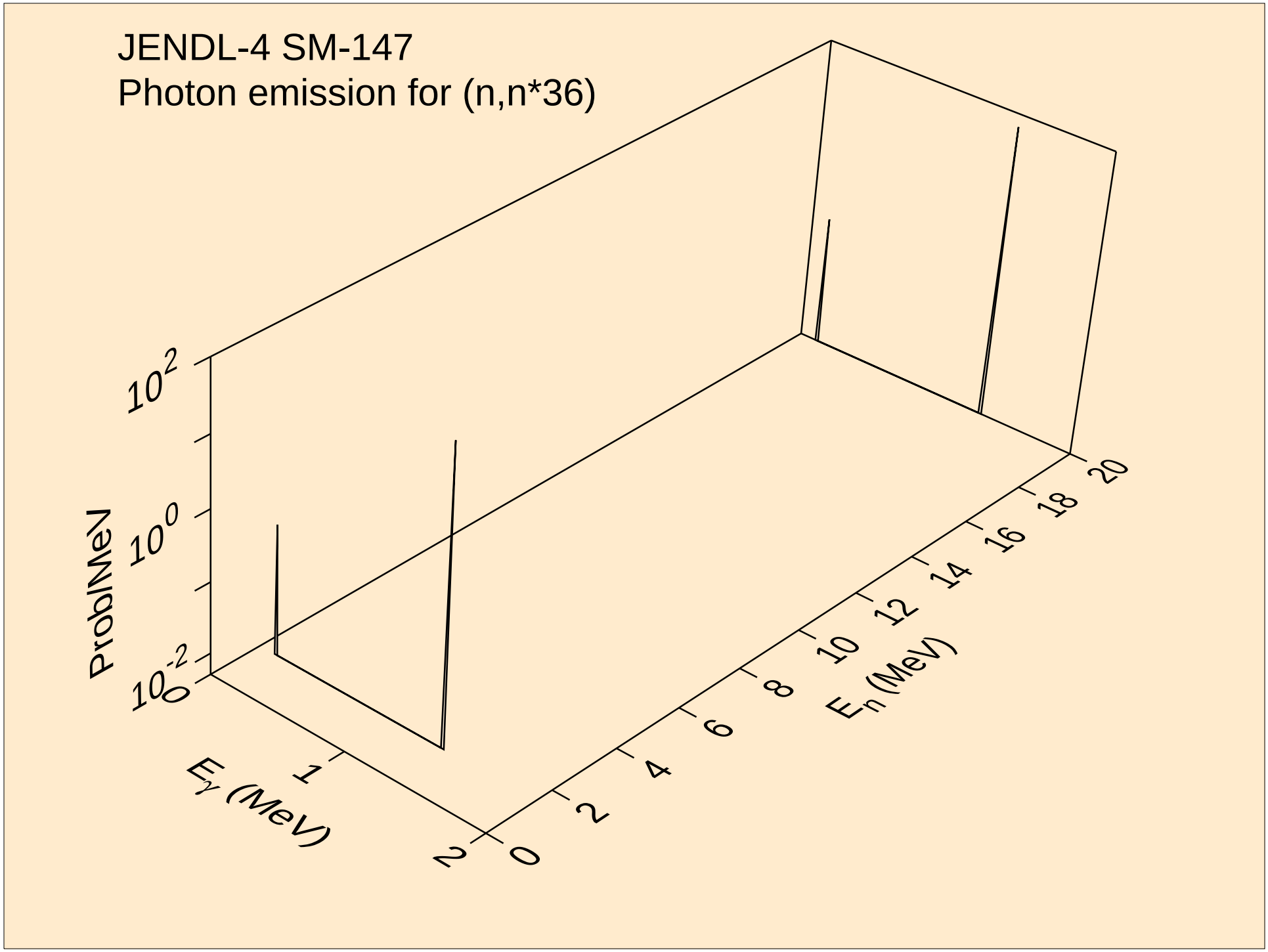


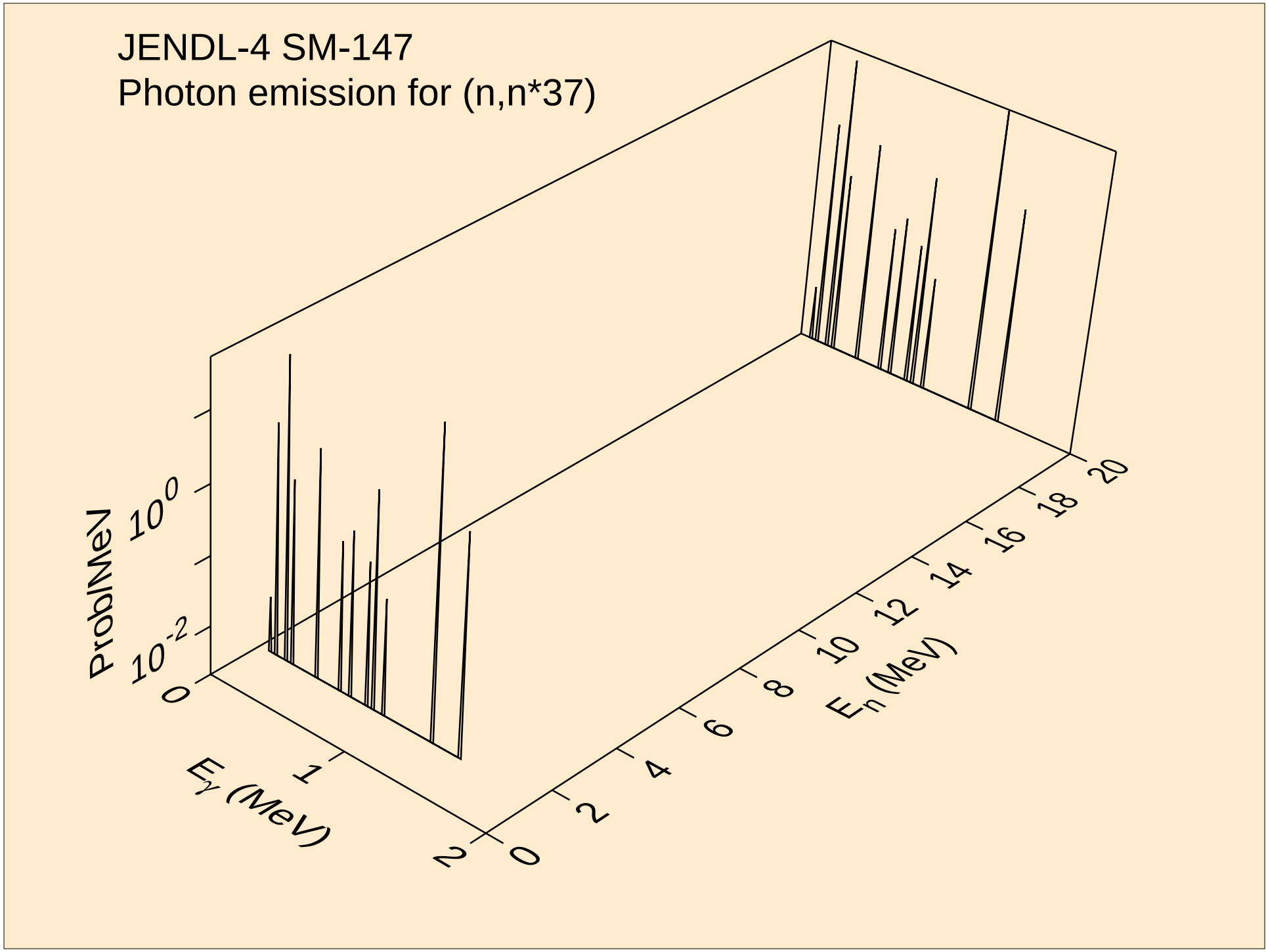

JENDL-4 SM-147
Photon emission for (n,n*32)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
1
2
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

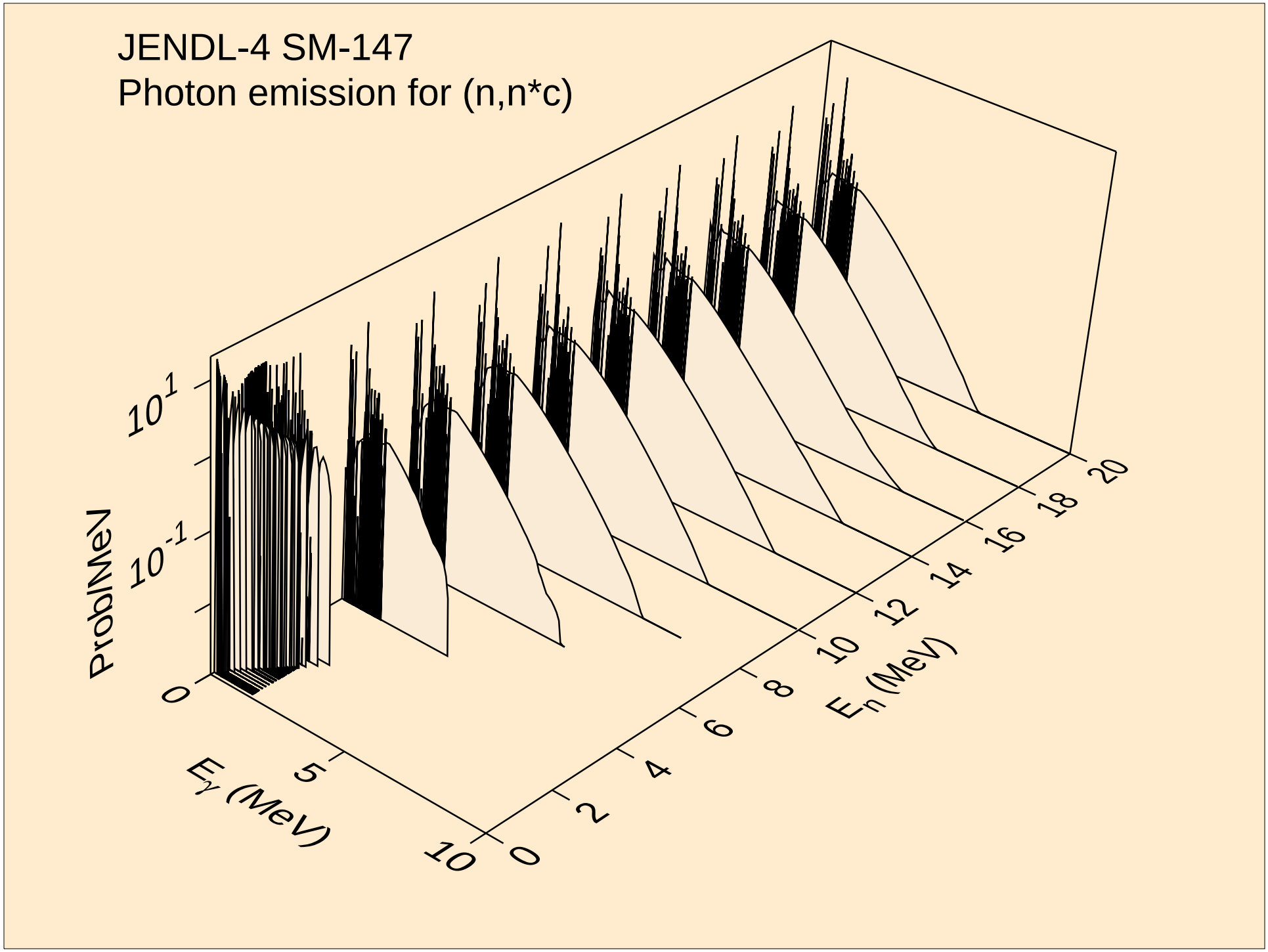

JENDL-4 SM-147
Photon emission for (n,n*33)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

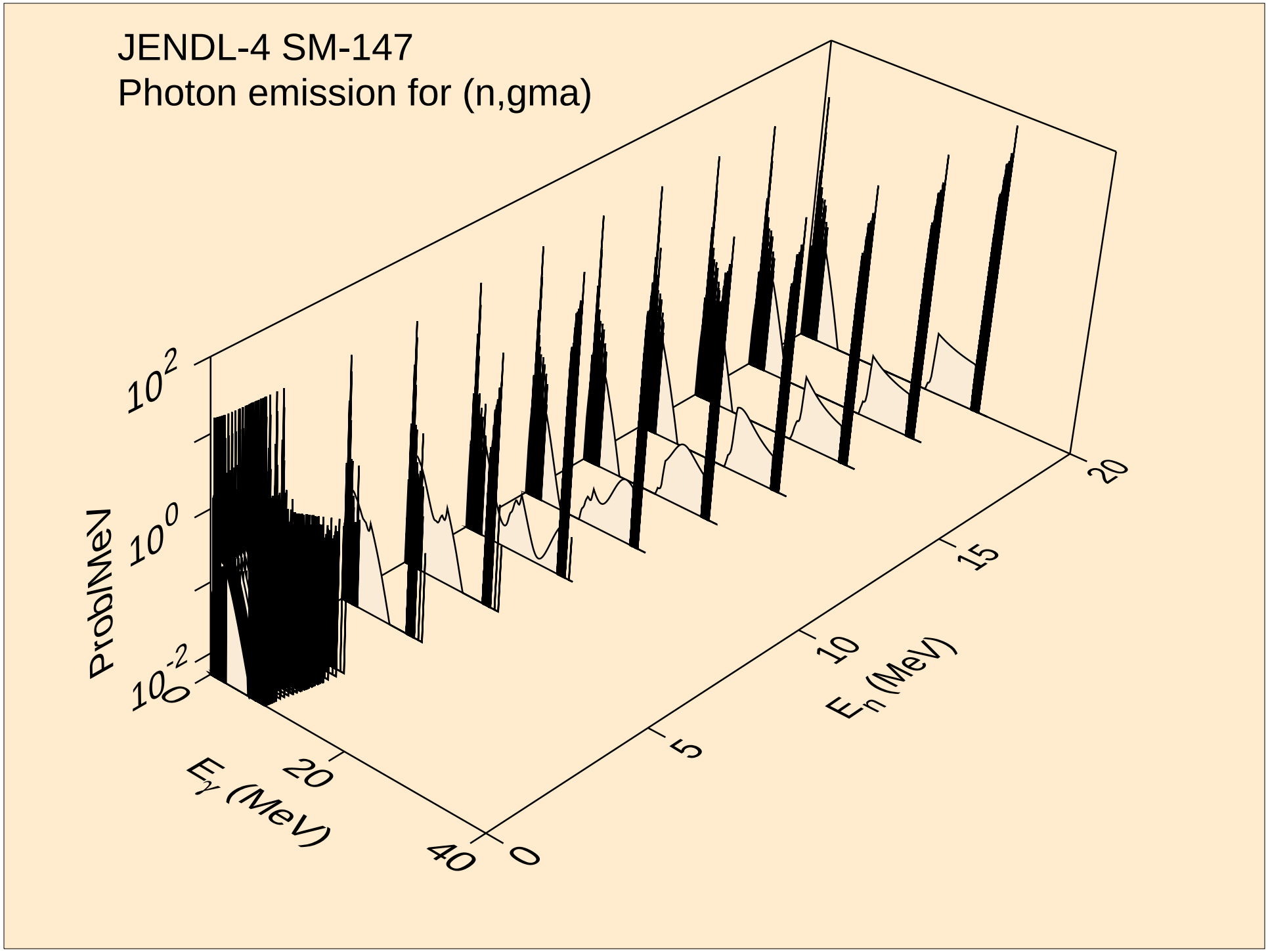

JENDL-4 SM-147
Photon emission for (n,n*34)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

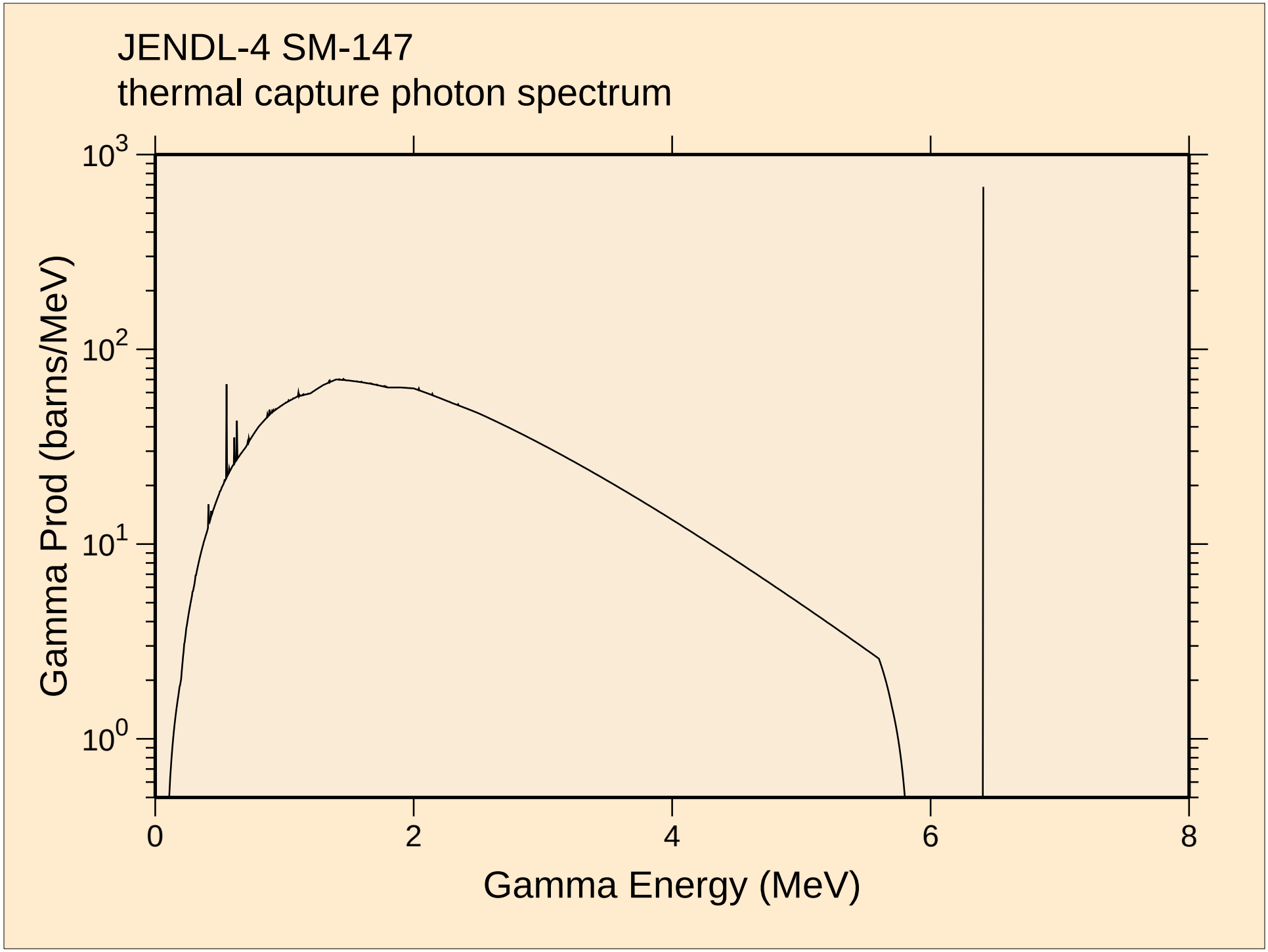

JENDL-4 SM-147
Photon emission for (n,n*35)
Prob/MeV
10^0
10^{-2}
1.2
1.4
1.6
1.8
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

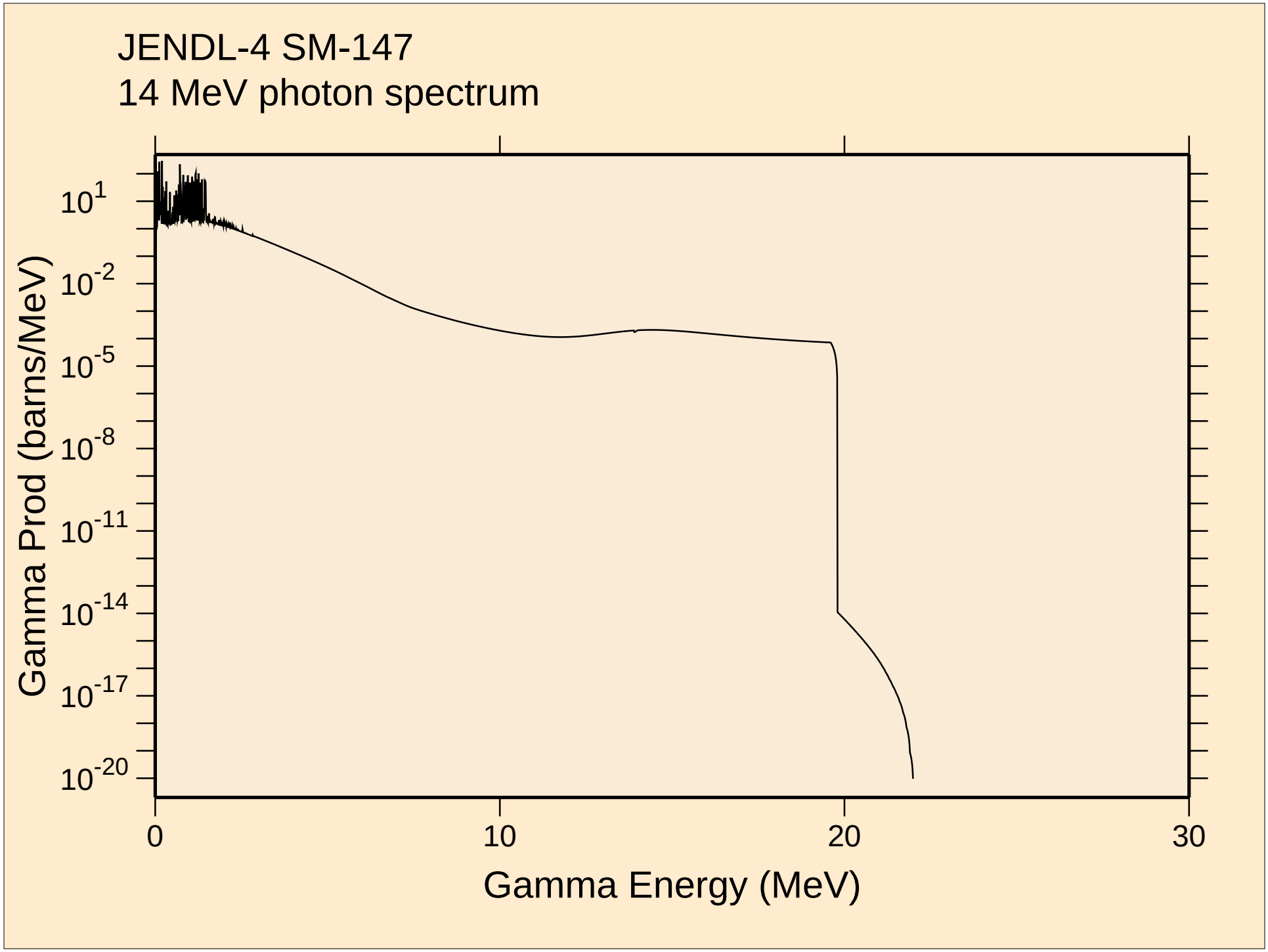

JENDL-4 SM-147
Photon emission for (n,n*36)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
1
2
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

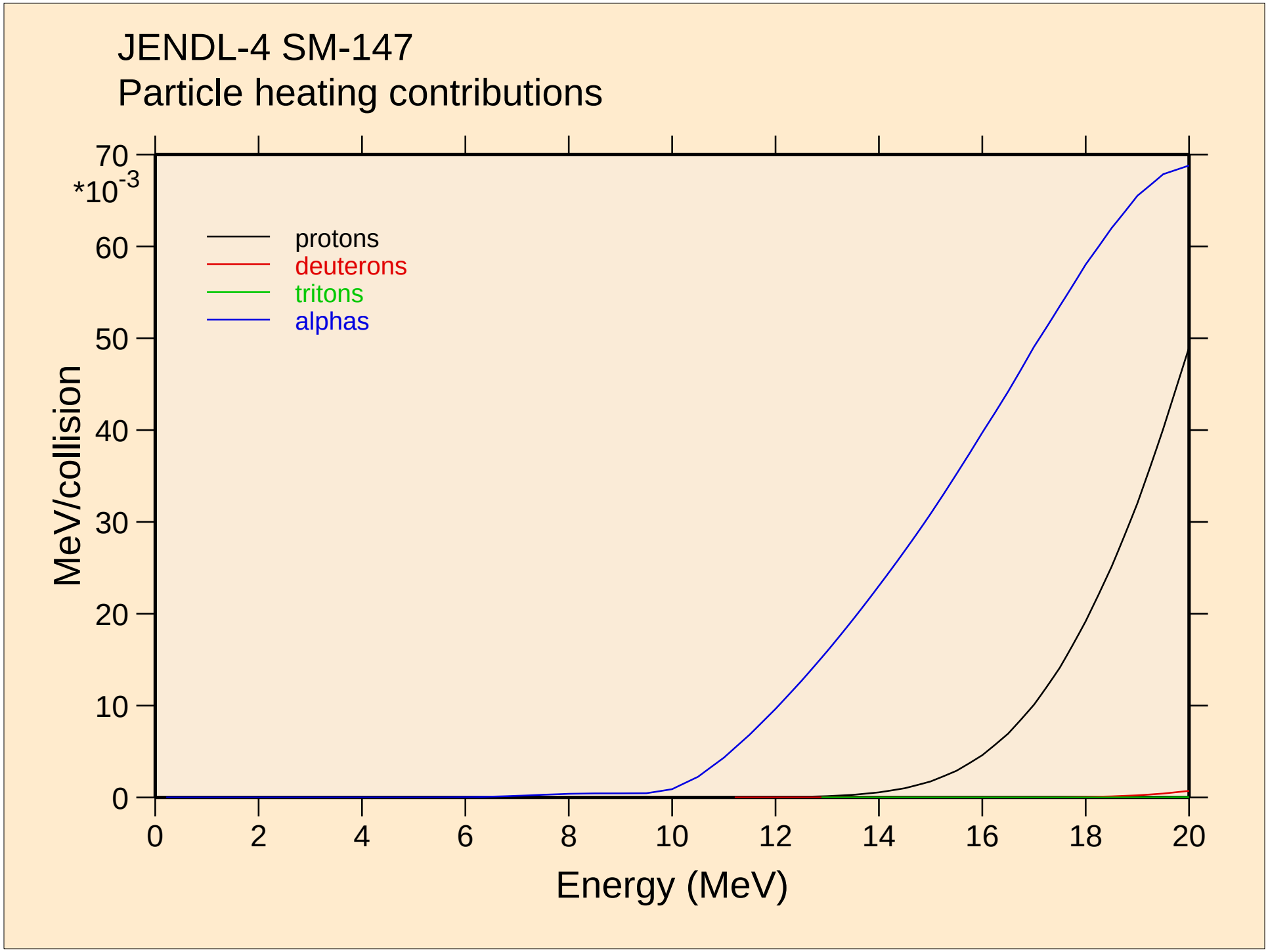

JENDL-4 SM-147
Photon emission for (n,n*37)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

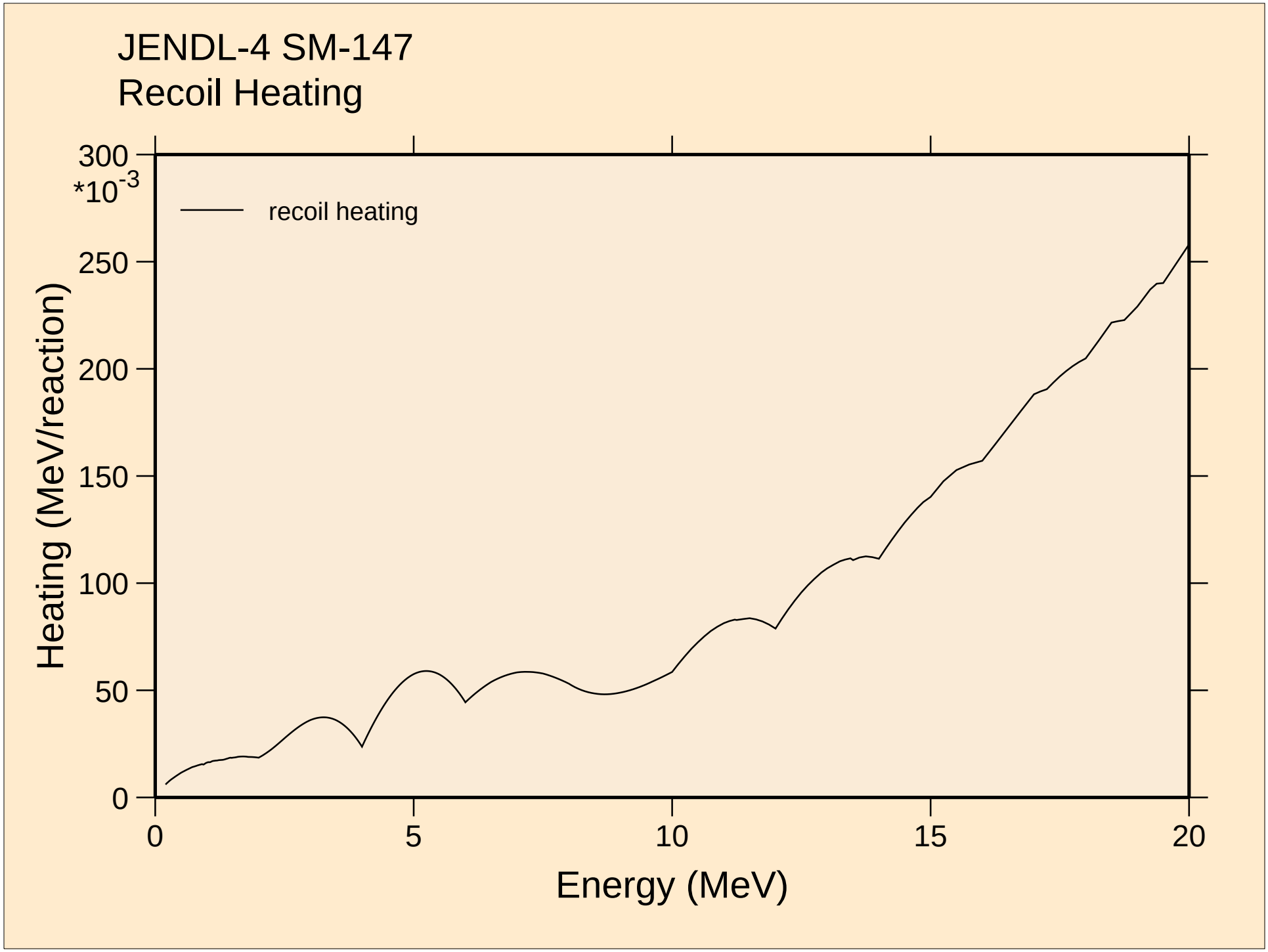

JENDL-4 SM-147
Photon emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
0
5
10
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

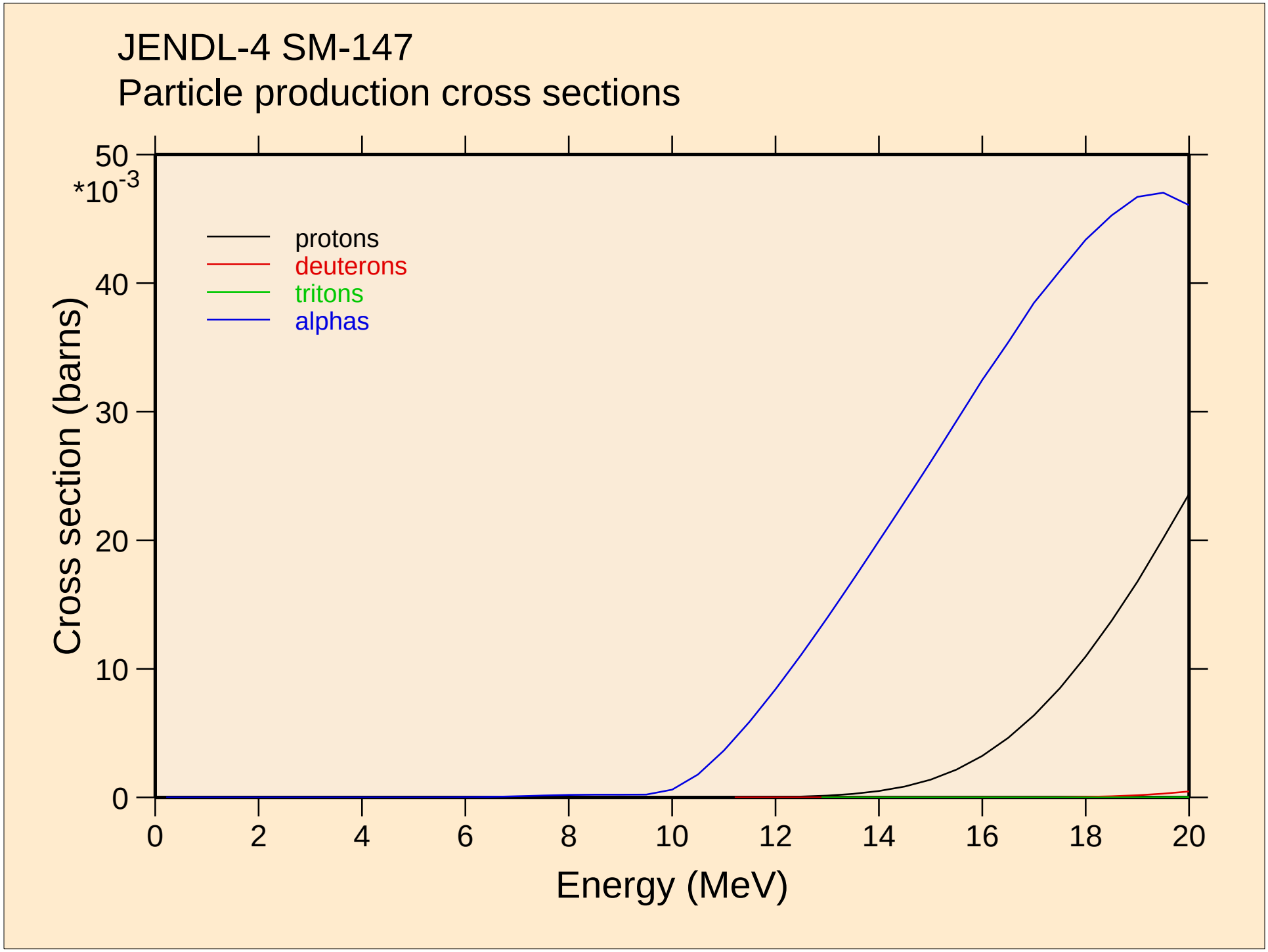

JENDL-4 SM-147
Photon emission for (n,gma)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
20
40
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

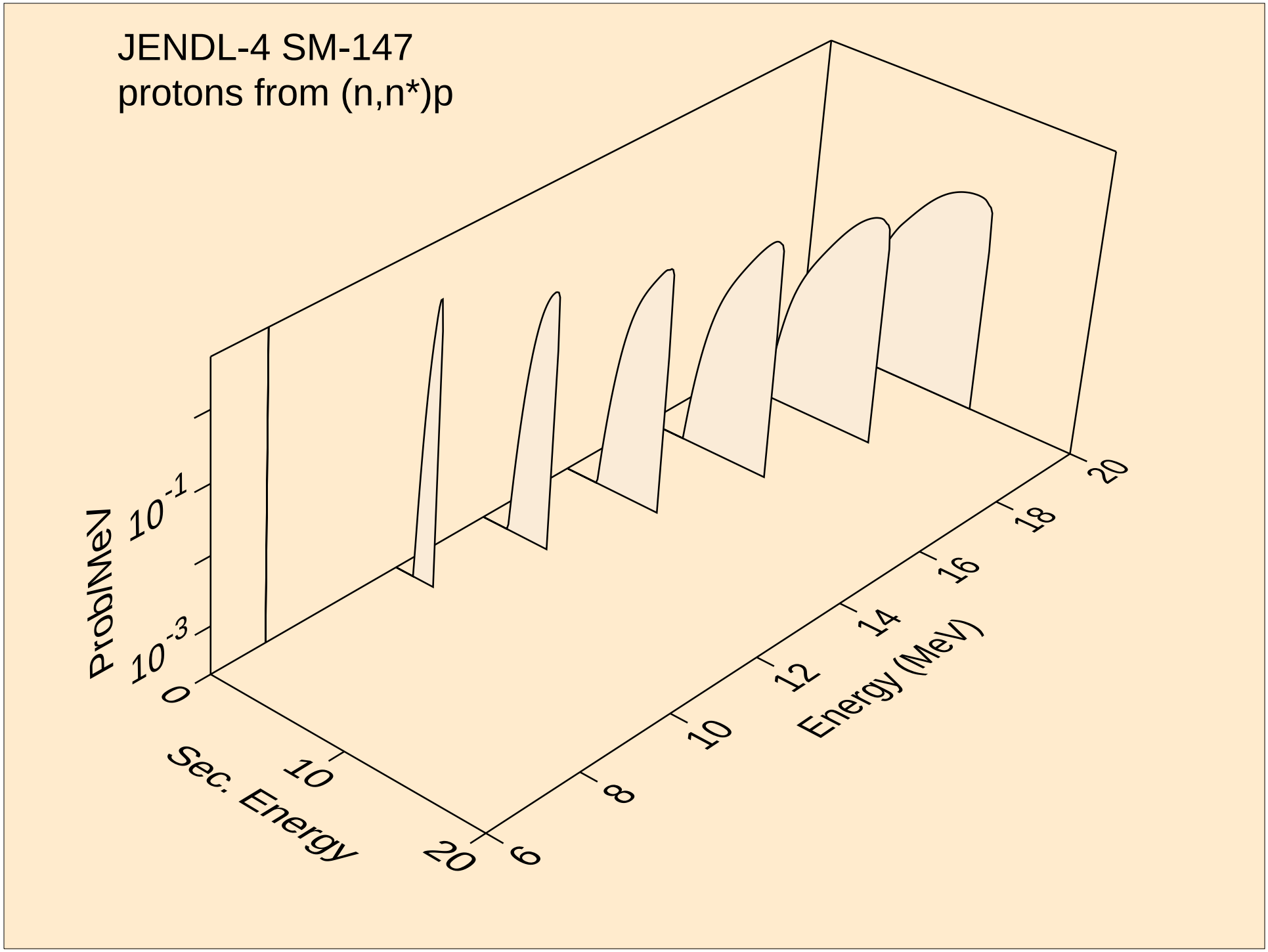

JENDL-4 SM-147
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^3
10^2
10^1
10^0
0
2
4
6
8
Gamma Energy (MeV)

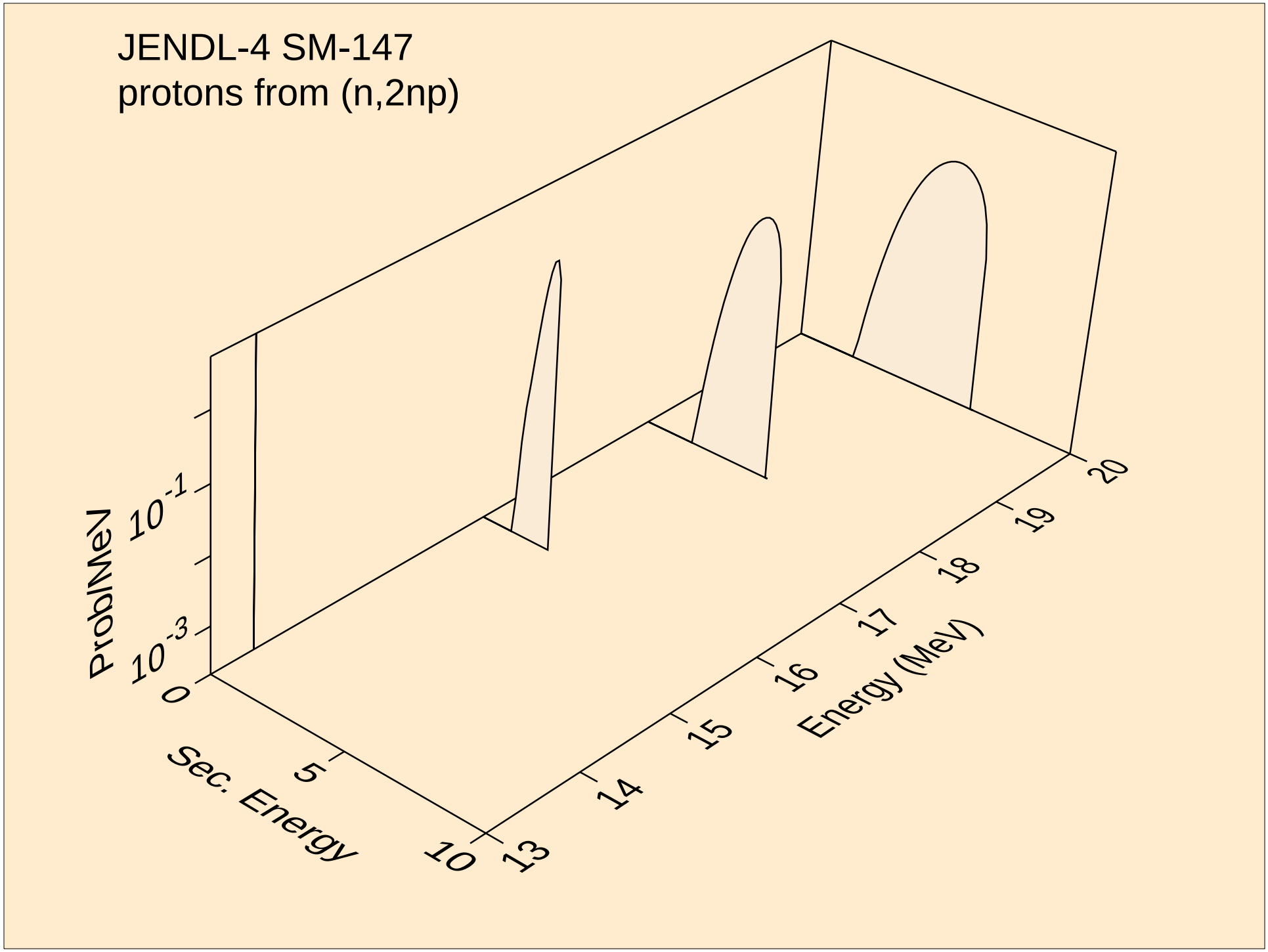

JENDL-4 SM-147
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^1
10^-2
10^-5
10^-8
10^-11
10^-14
10^-17
10^-20
0
10
20
30
Gamma Energy (MeV)

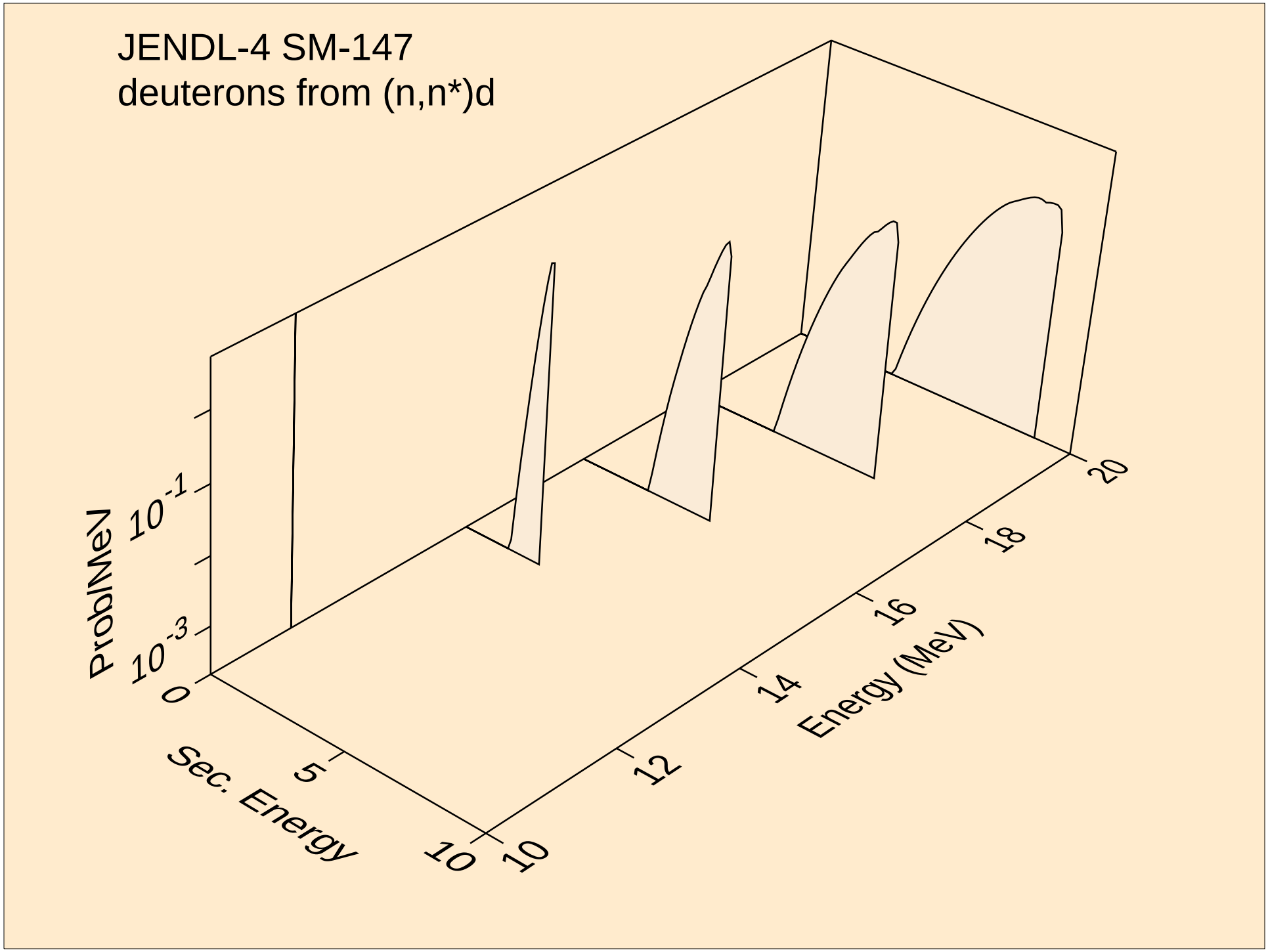

JENDL-4 SM-147
Particle heating contributions
*10-3
70
60
50
40
30
20
10
0
MeV/collision
protons
deuterons
tritons
alphas
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

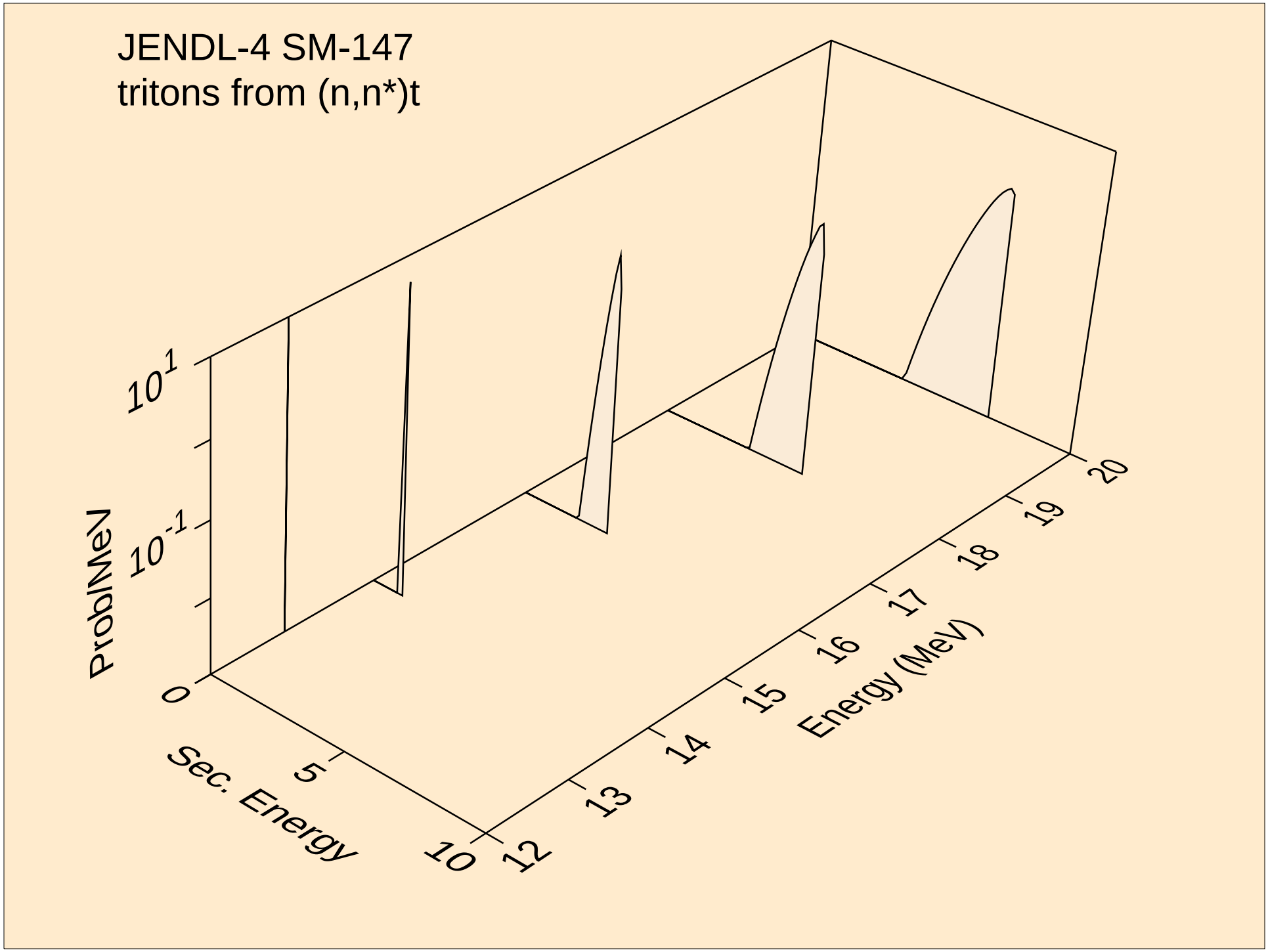

JENDL-4 SM-147
Recoil Heating
recoil heating
Heating (MeV/reaction)
*10^-3
300
250
200
150
100
50
0
0
5
10
15
20
Energy (MeV)

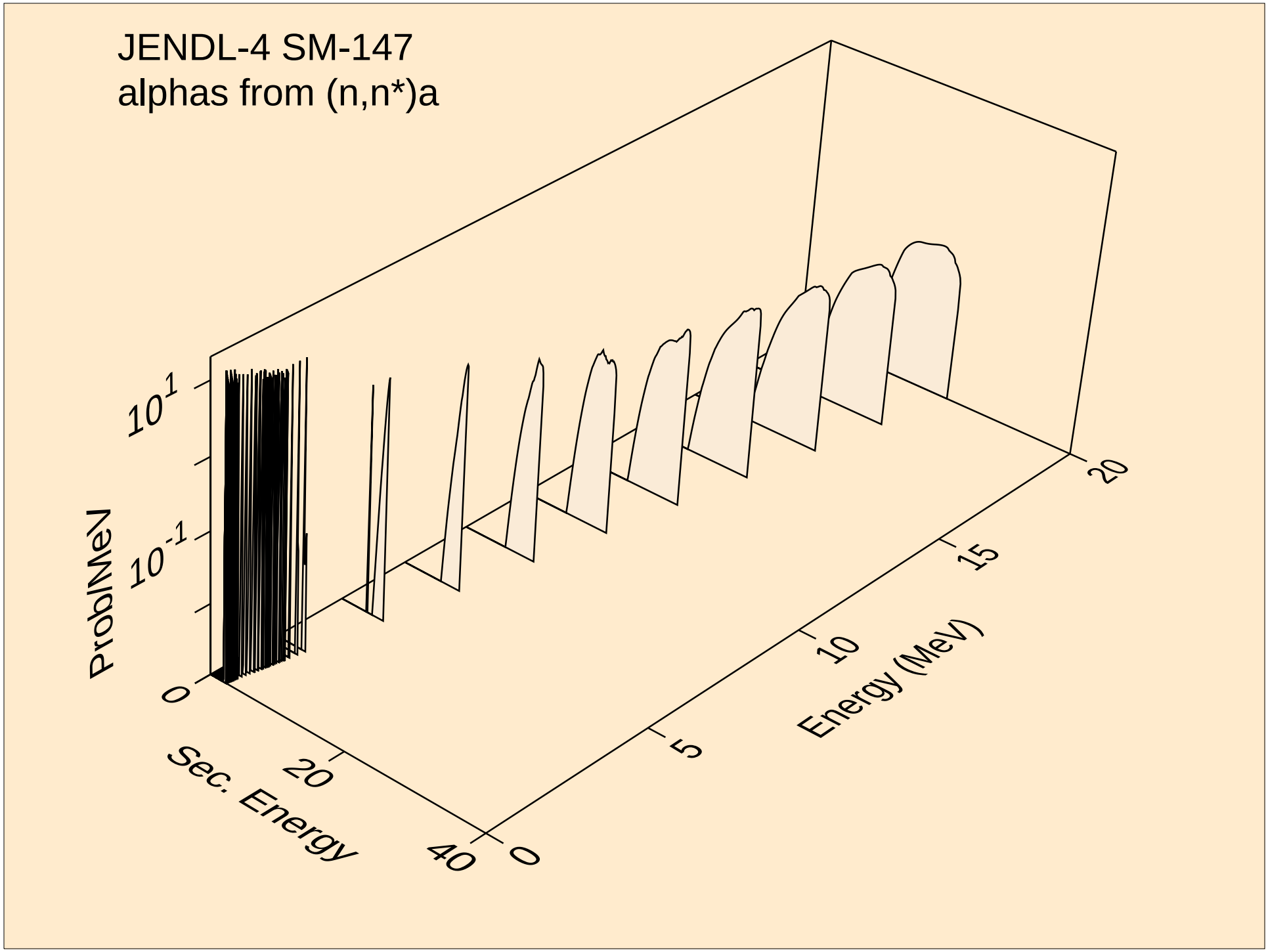

JENDL-4 SM-147
Particle production cross sections
protons
deuterons
tritons
alphas
Cross section (barns)
*10-3
50
40
30
20
10
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

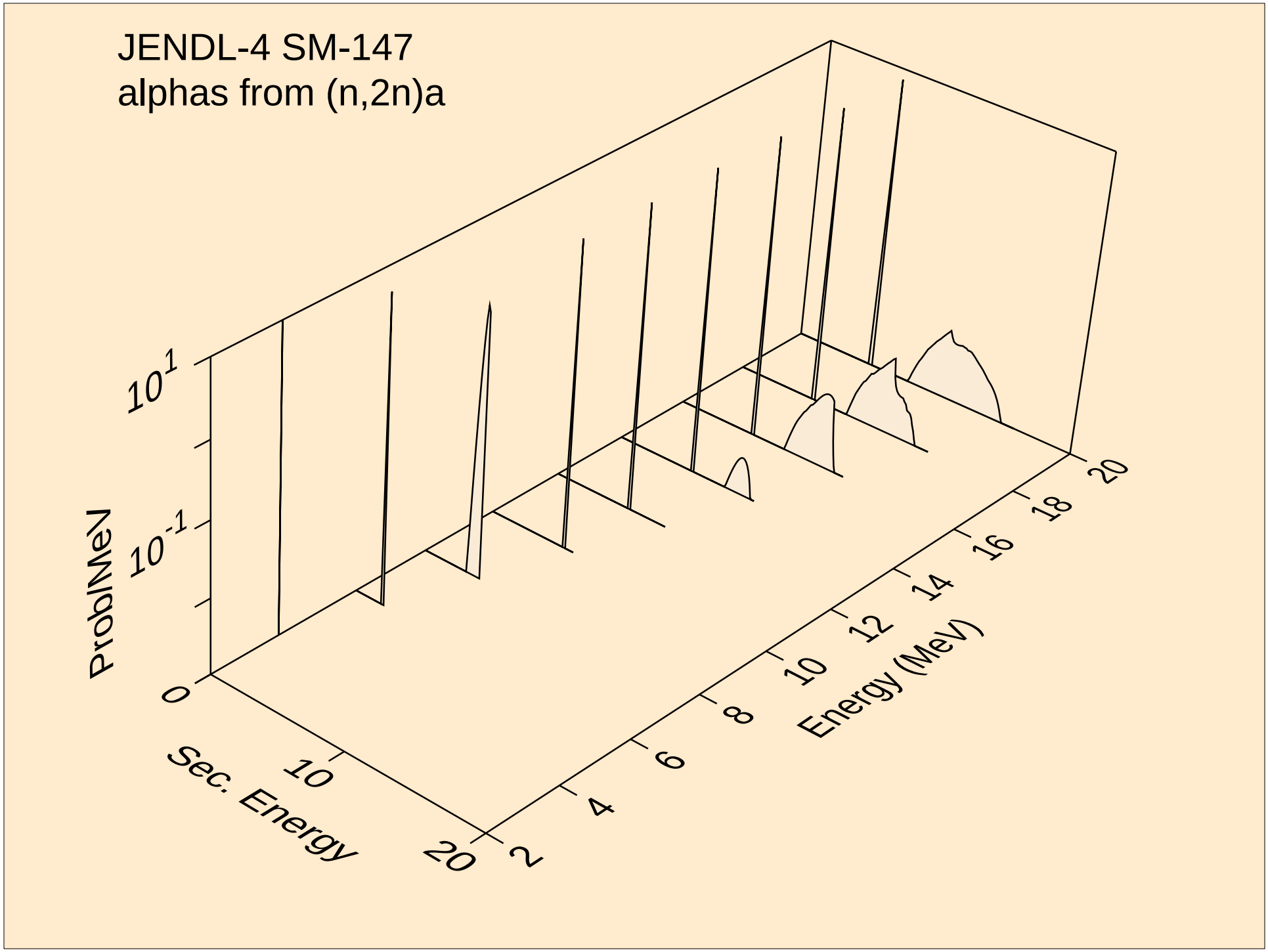

JENDL-4 SM-147
protons from (n,n*)p
Prob/MeV
10^-1
10^-3
0
Sec. Energy
10
20
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 SM-147
protons from (n,2np)
Prob/MeV
10-1
10-3
0
Sec. Energy
5
10
13
14
15
16
17
18
19
20
Energy (MeV)


JENDL-4 SM-147
deuterons from (n,n*)d
Prob/MeV
10^-1
10^-3
0
Sec. Energy
5
10
10
12
14
16
18
20
Energy (MeV)


JENDL-4 SM-147
tritons from (n,n*)t
Prob/MeV
10^{1}
10^{-1}
0
Sec. Energy
5
10
12
13
14
15
16
17
18
19
20
Energy (MeV)


JENDL-4 SM-147
alphas from (n,n*)a
Prob/MeV
10^1
10^-1
0
Sec. Energy
20
40
0
5
10
15
20
Energy (MeV)


JENDL-4 SM-147
alphas from (n,2n)a
Prob/MeV
10^{1}
10^{-1}
0
Sec. Energy
10
20
Energy (MeV)
2
4
6
8
10
12
14
16
18
20