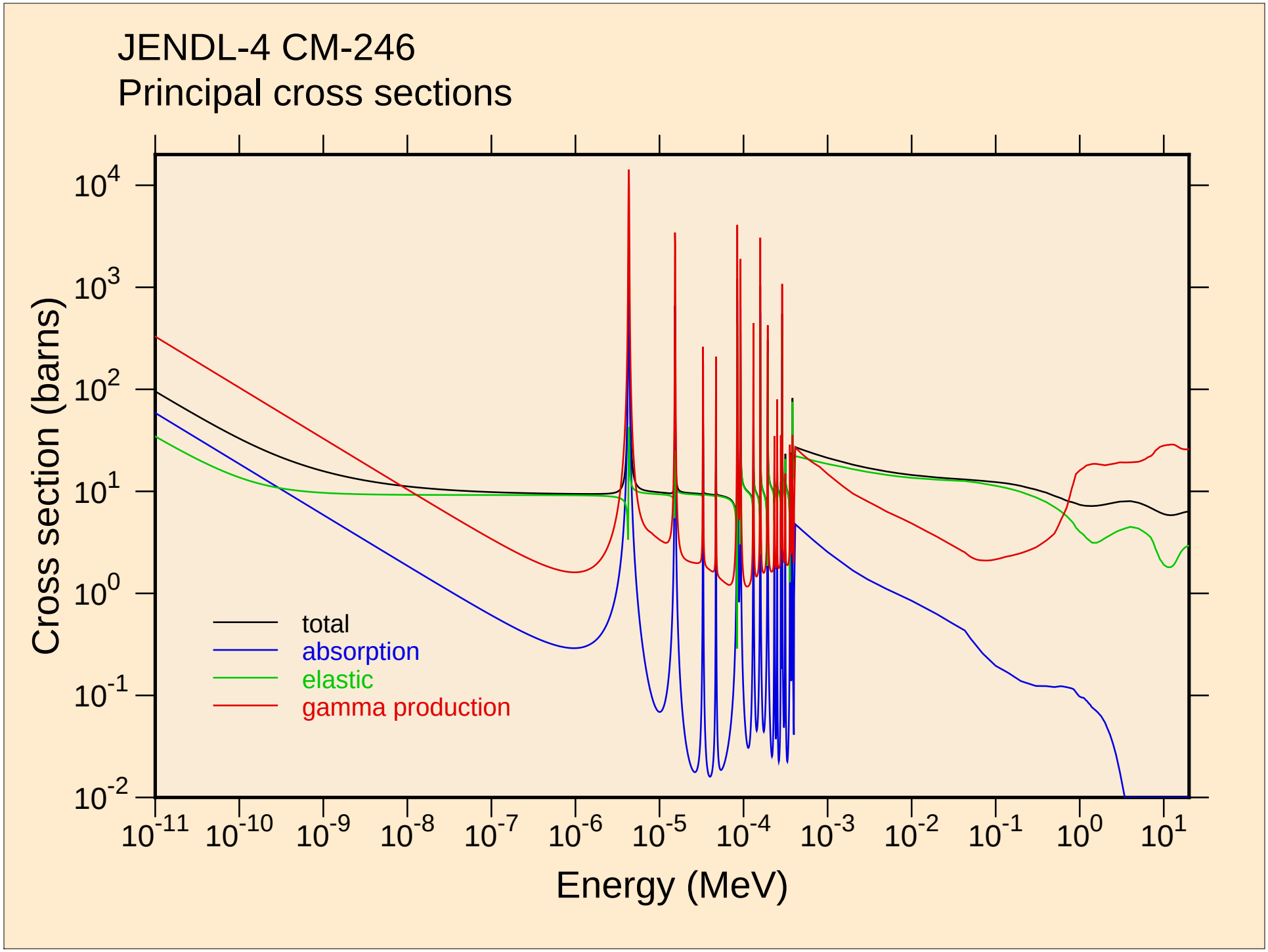
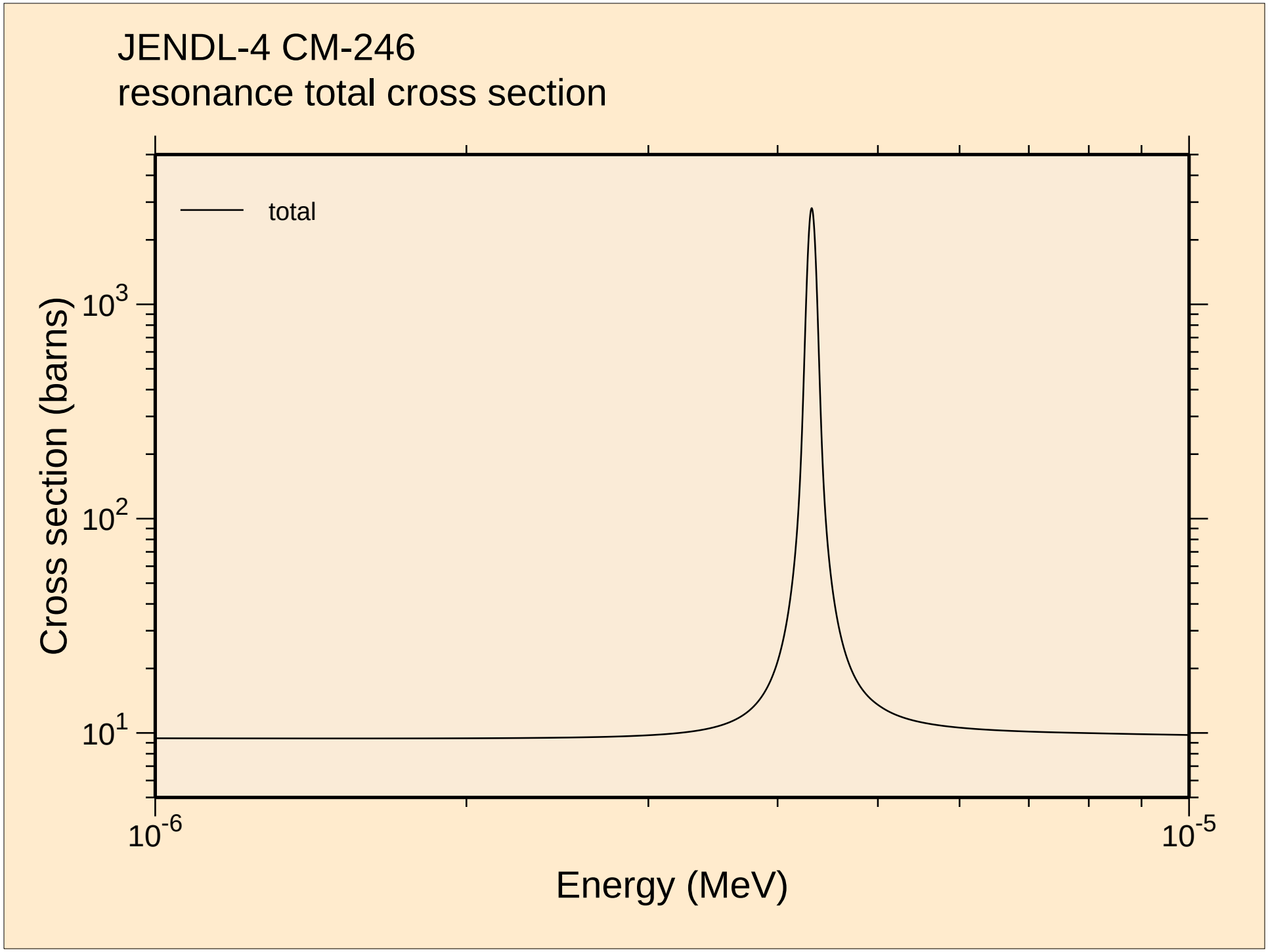
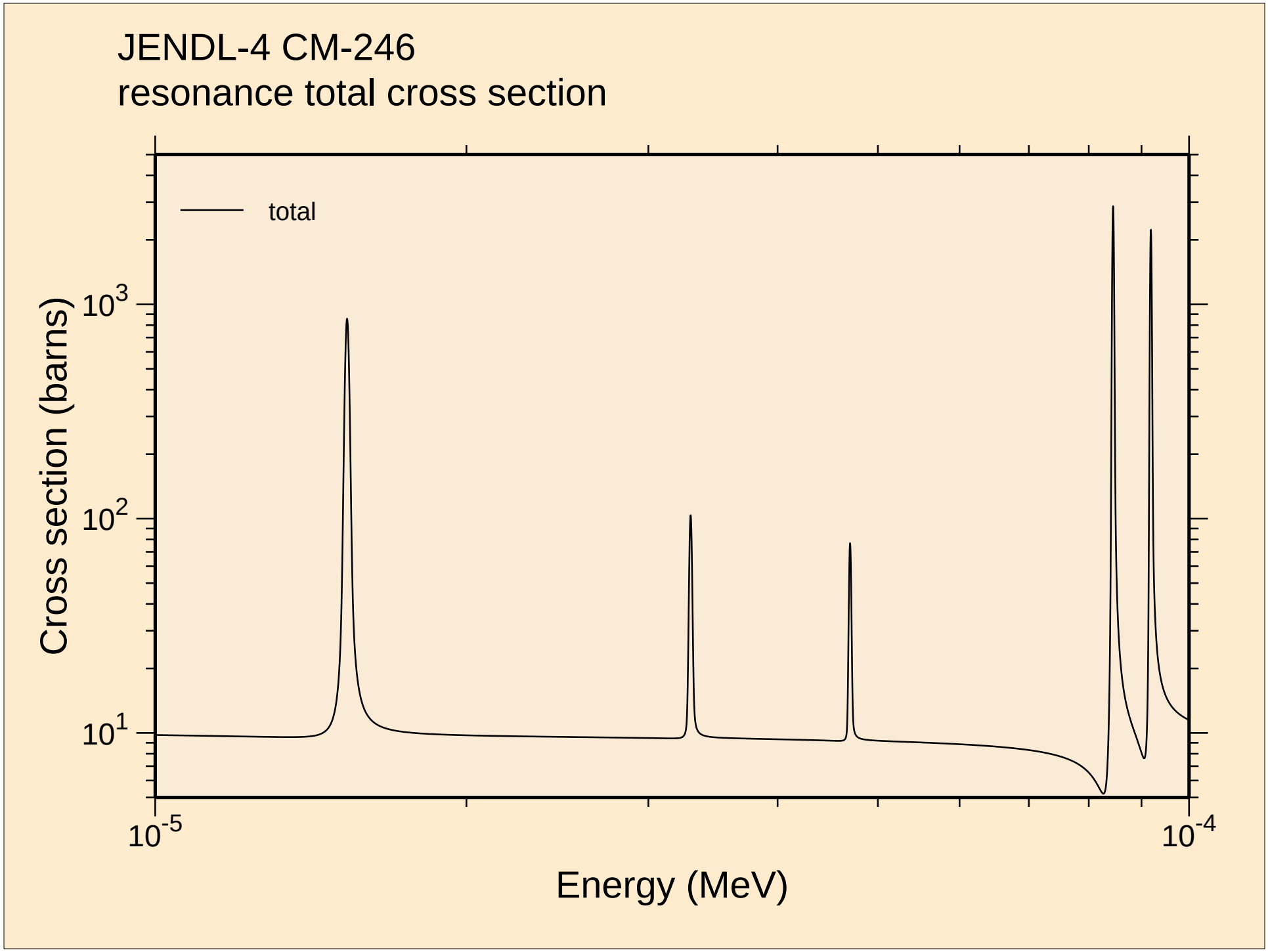
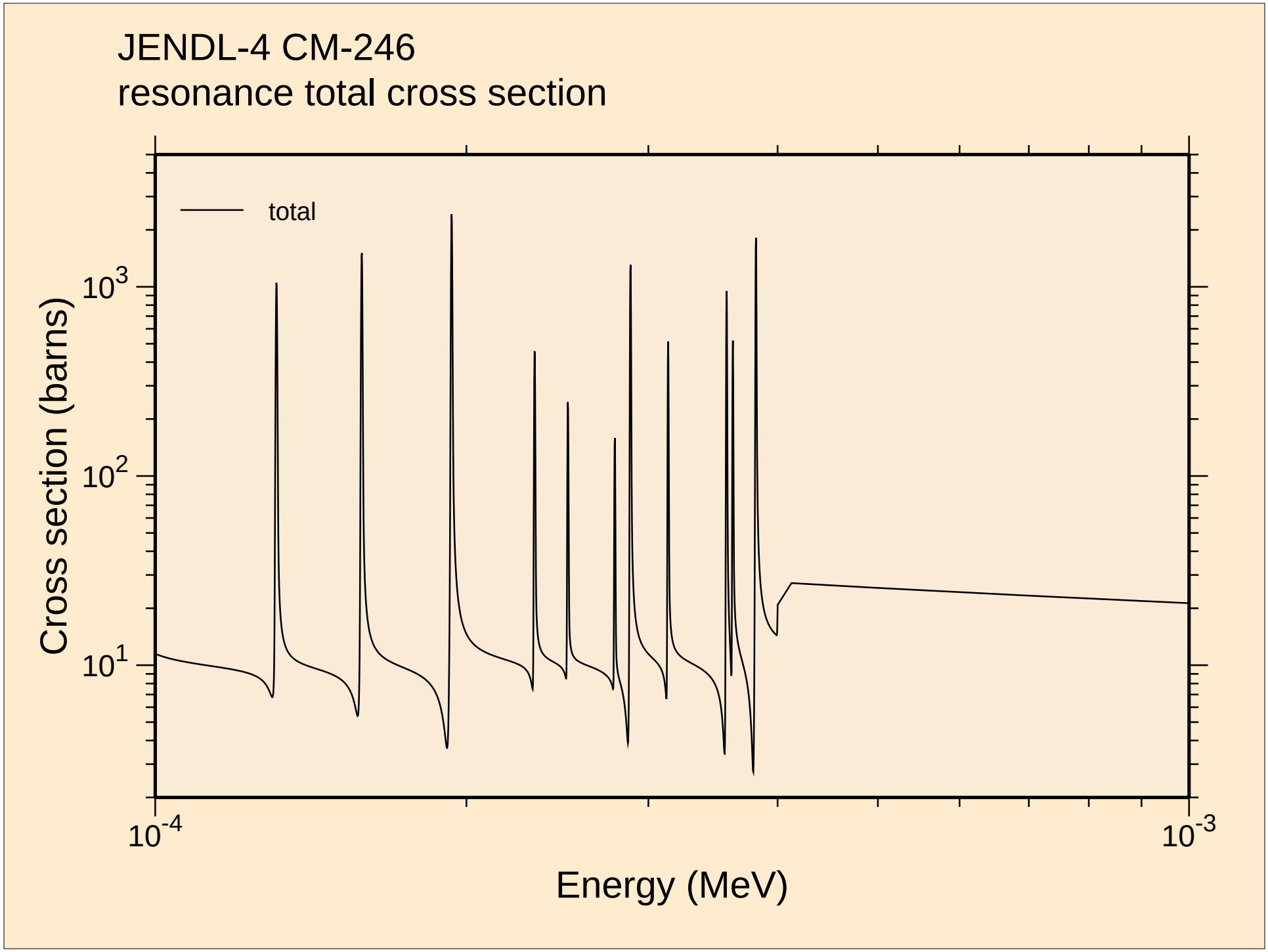
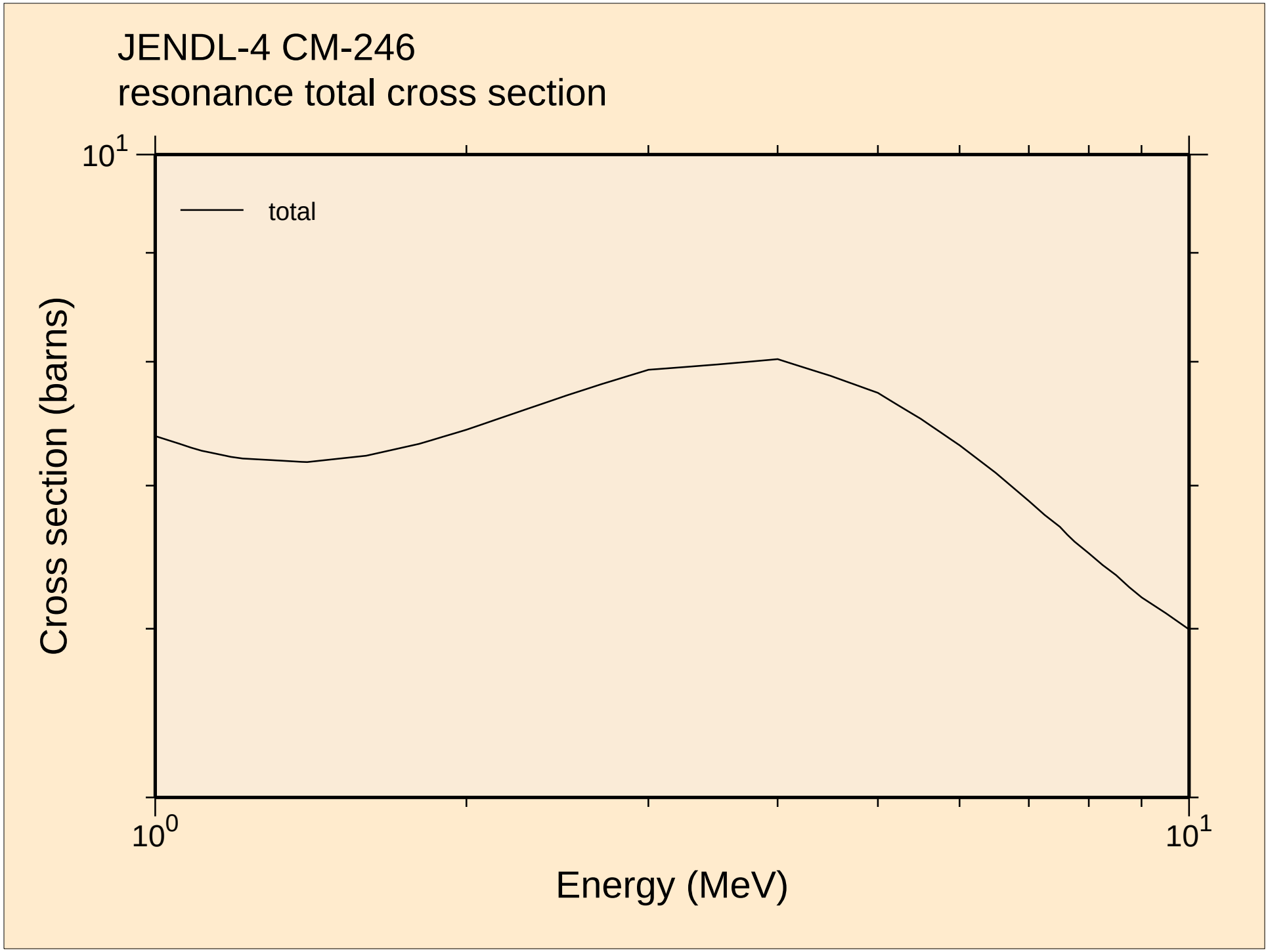
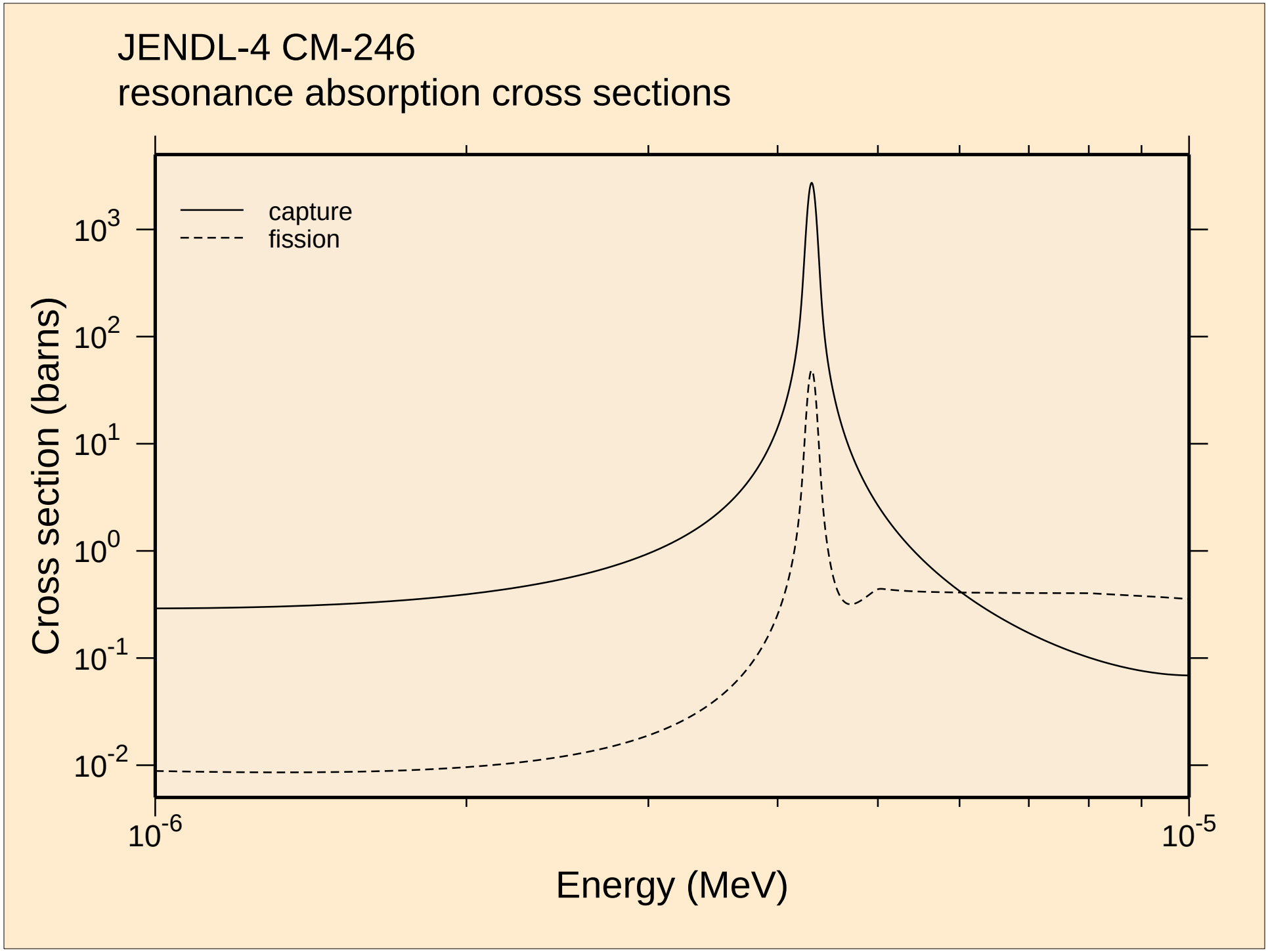

JENDL-4 CM-246
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
10^{0}
10^{1}

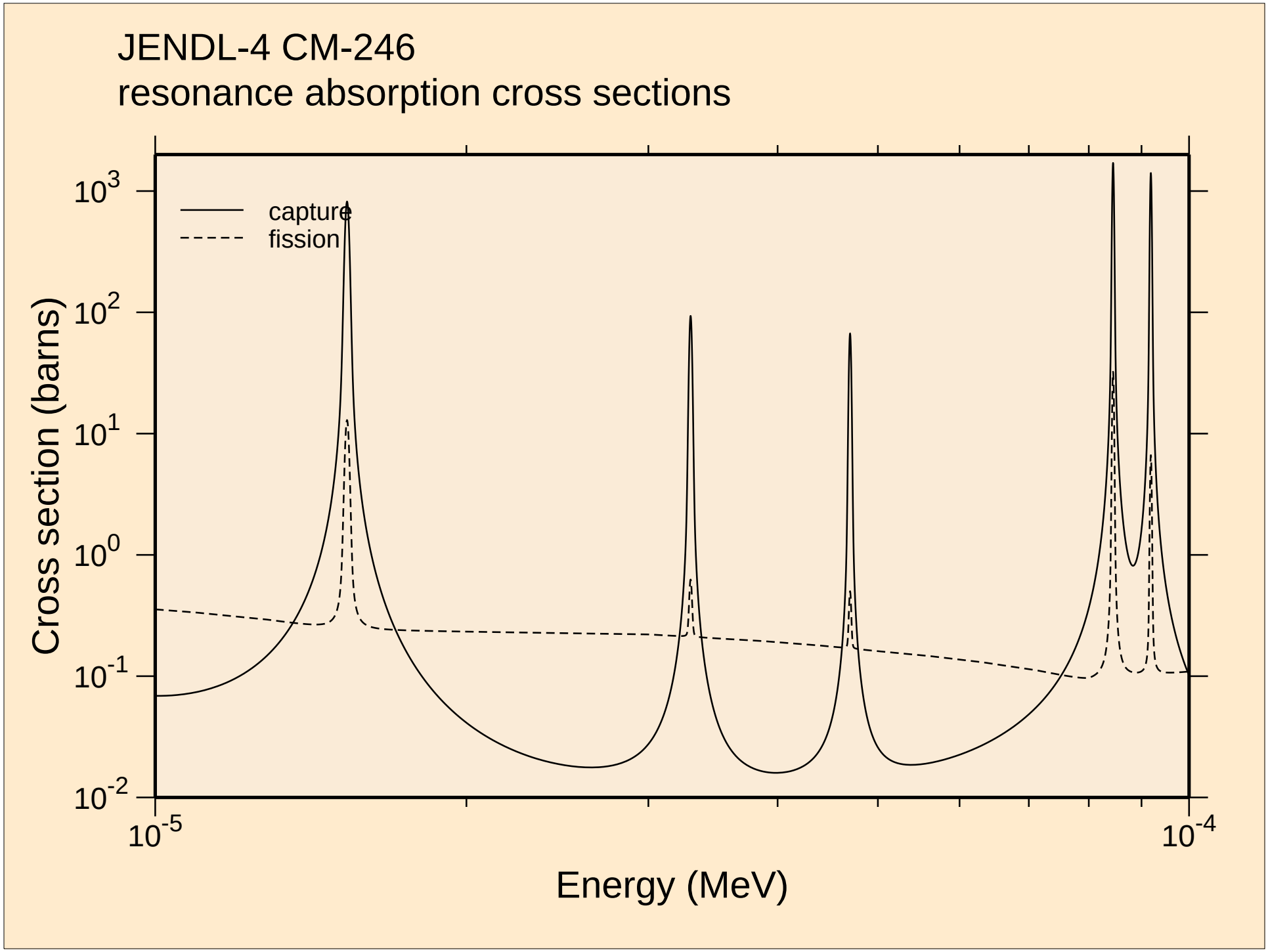

JENDL-4 CM-246
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-6}
10^{-5}
Energy (MeV)

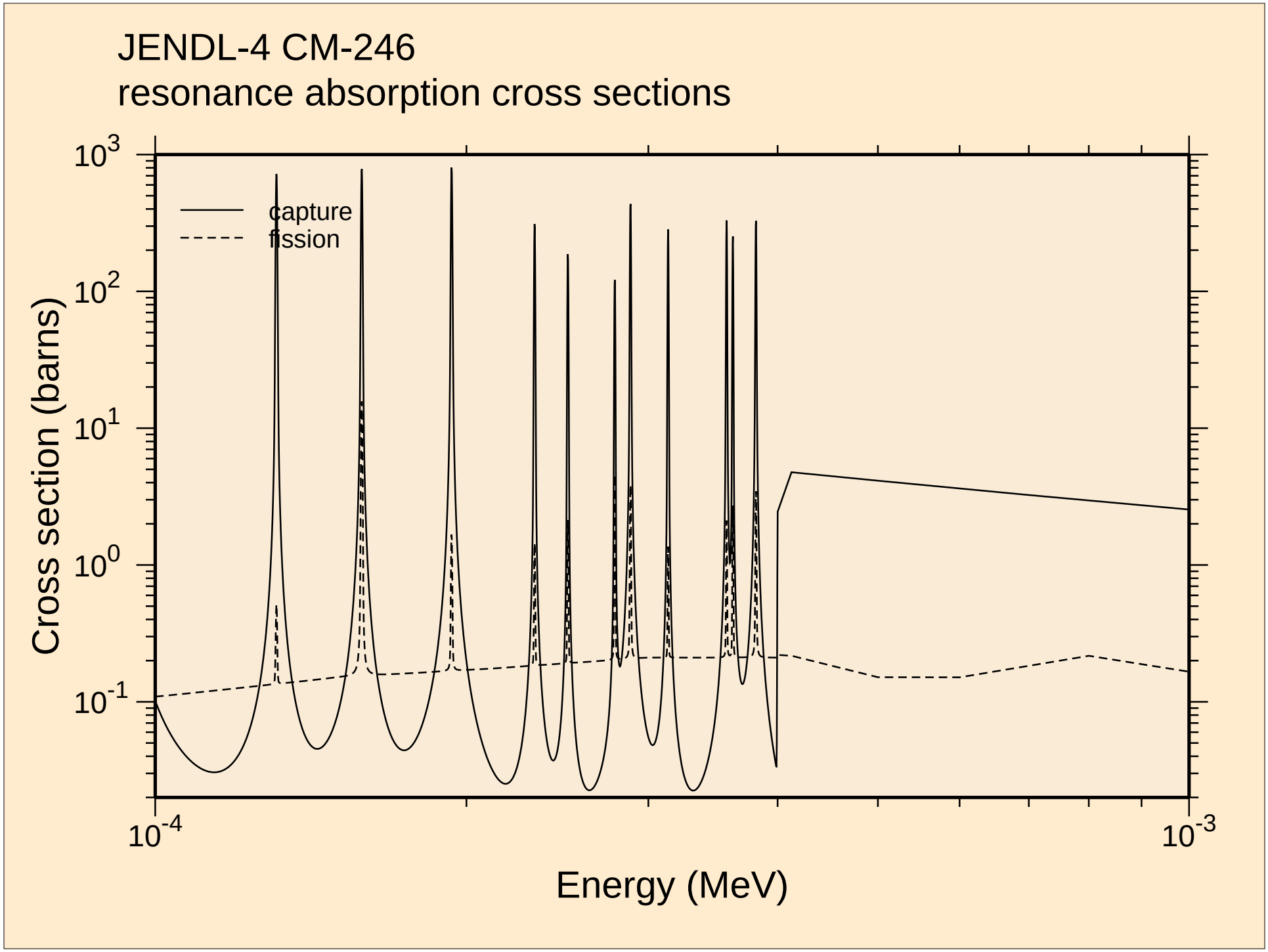

JENDL-4 CM-246
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-5}
10^{-4}
Energy (MeV)


JENDL-4 CM-246
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-4}
10^{-3}
Energy (MeV)

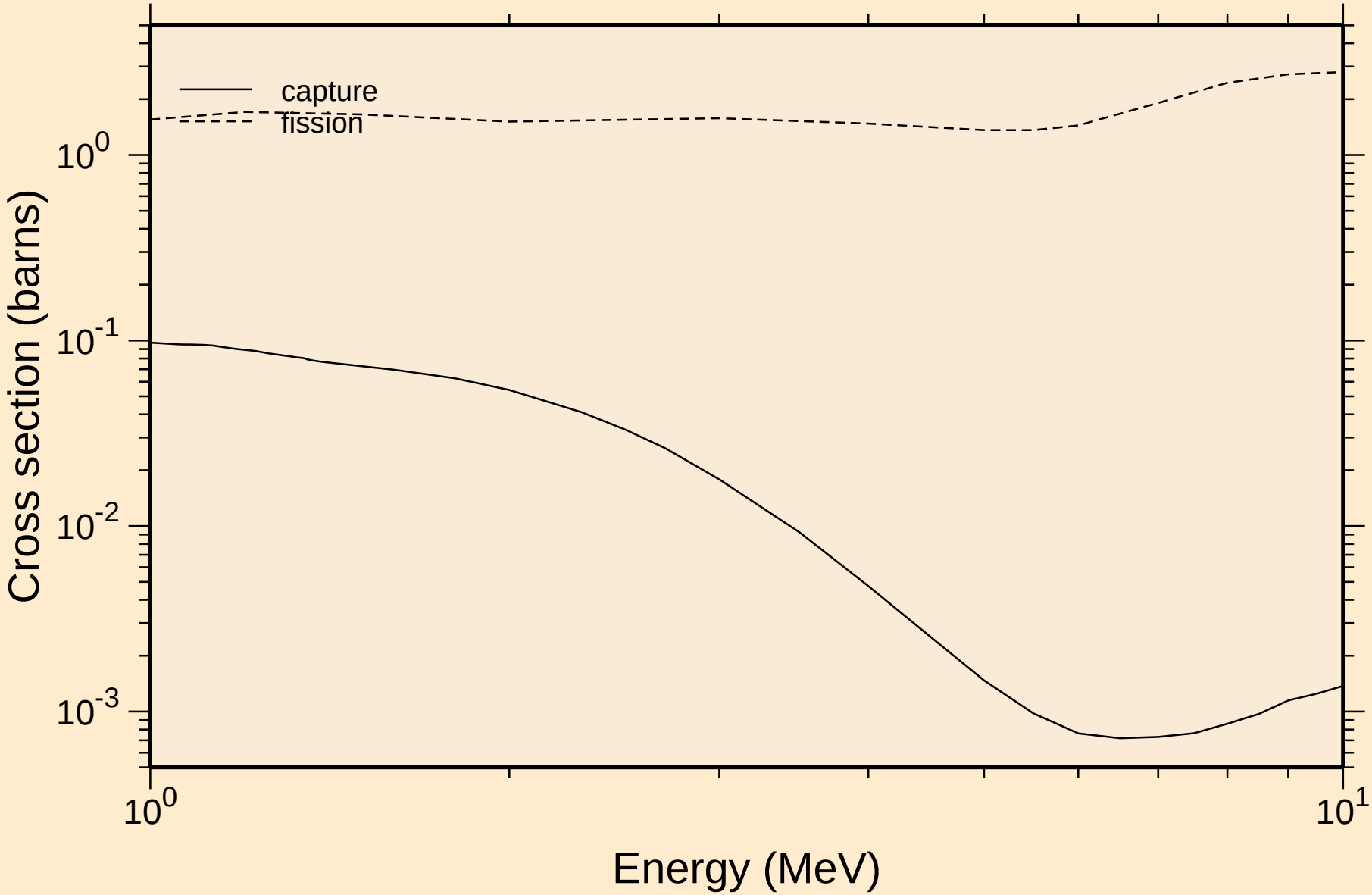

JENDL-4 CM-246
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^1
10^0
10^1

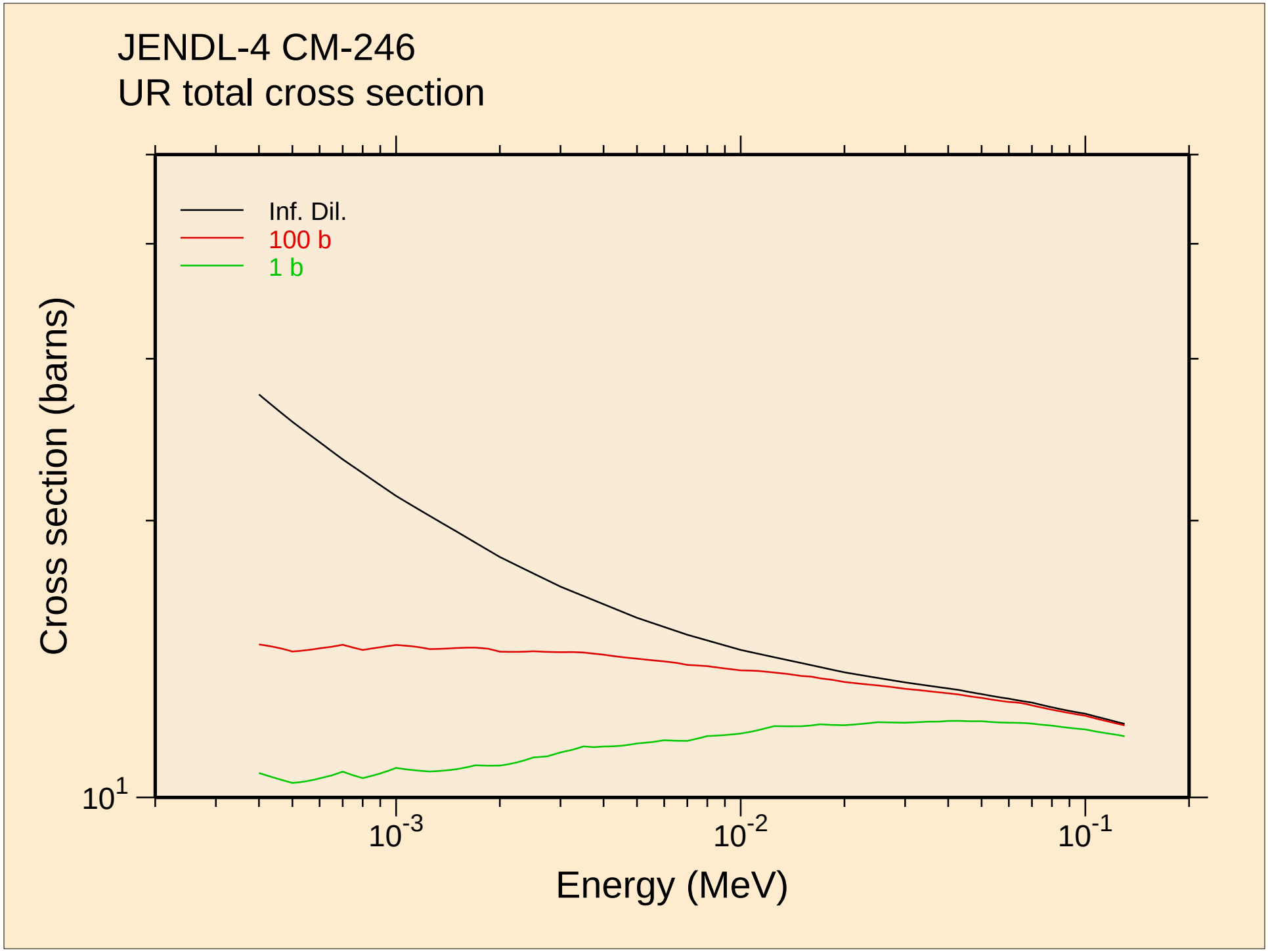

JENDL-4 CM-246
resonance absorption cross sections
capture
fission
Cross section (barns)
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-6}
10^{-5}
Energy (MeV)

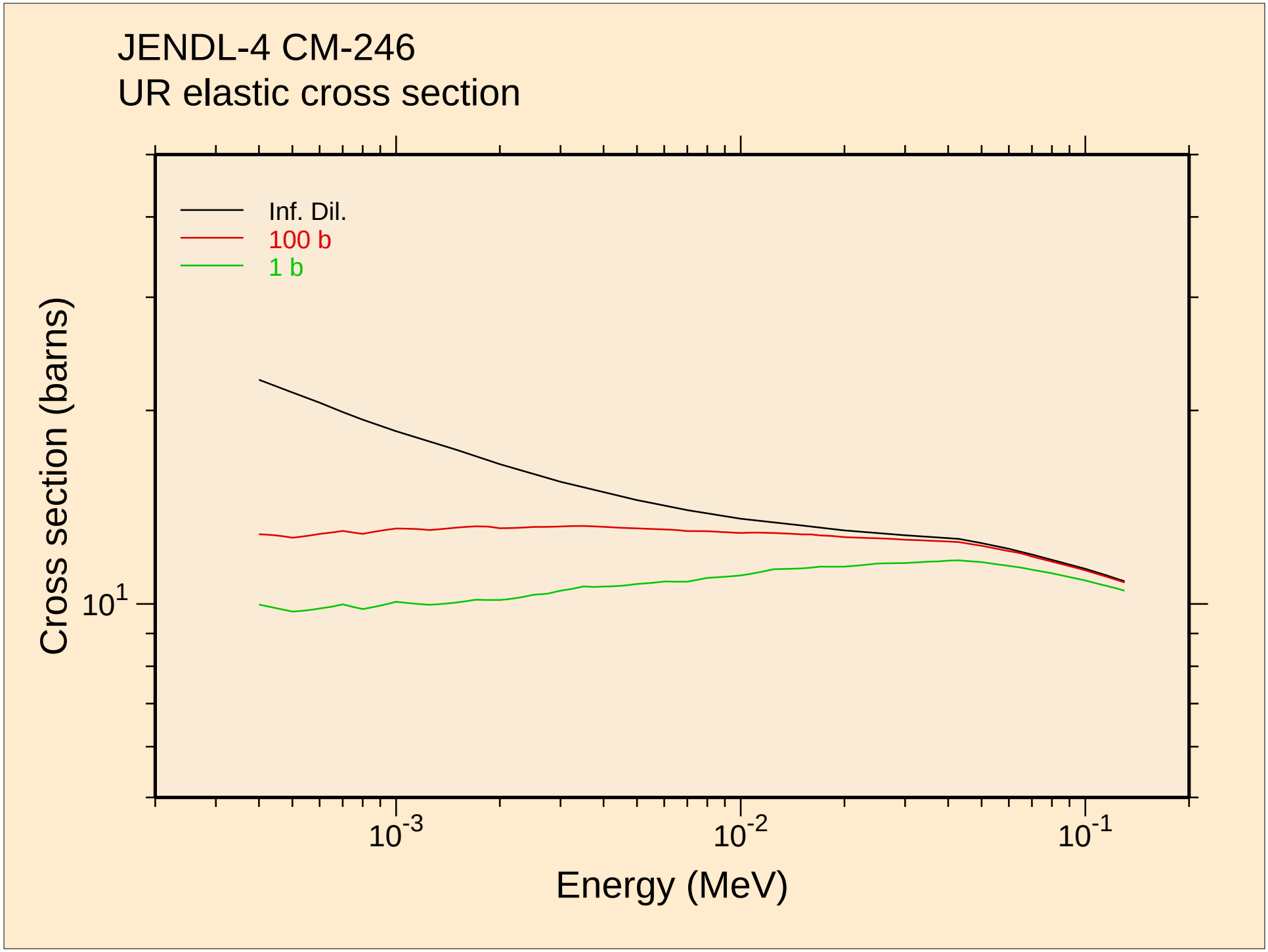

JENDL-4 CM-246
resonance absorption cross sections
capture
fission
Cross section (barns)
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-5}
10^{-4}
Energy (MeV)

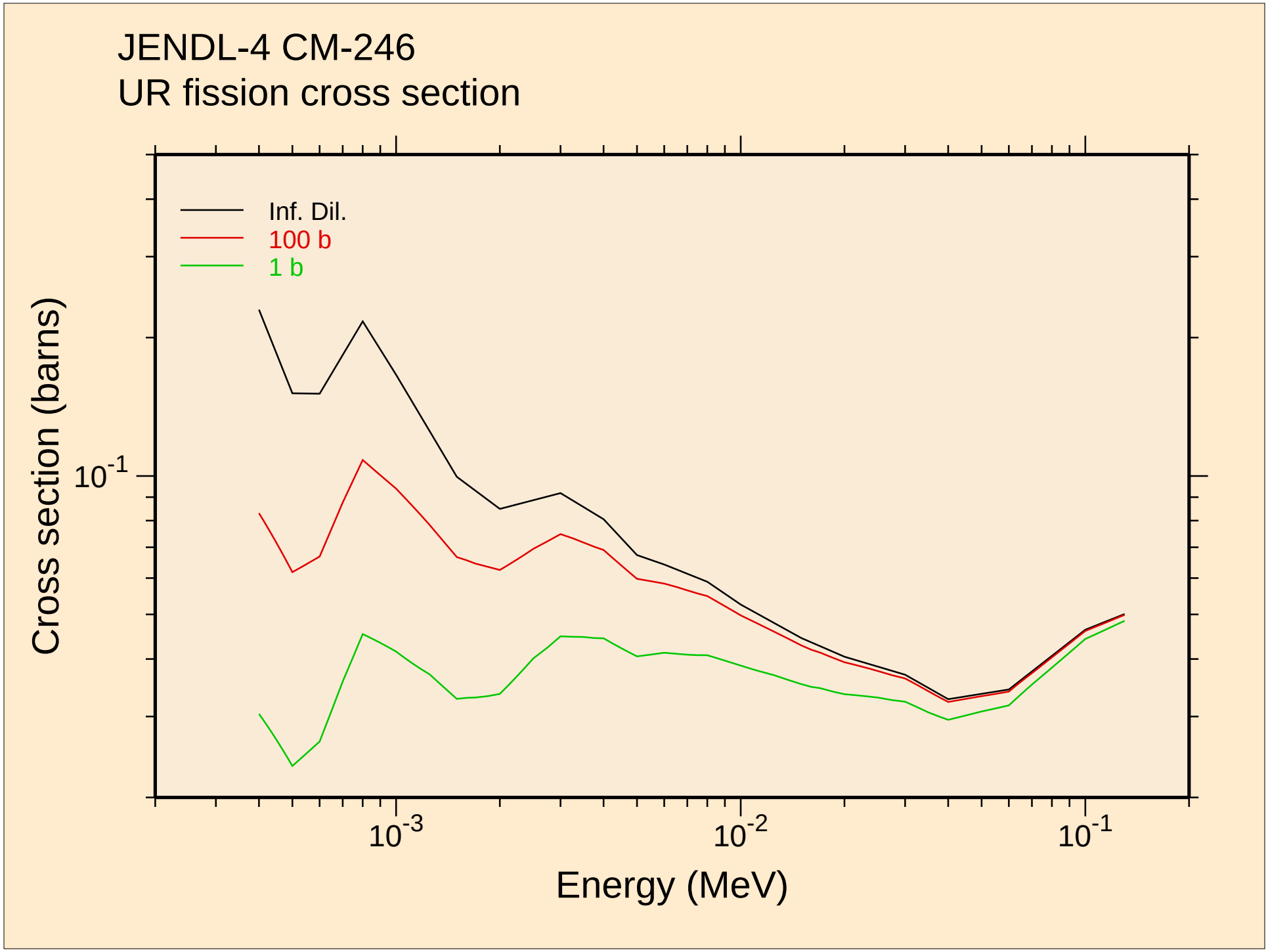

JENDL-4 CM-246
resonance absorption cross sections
capture
fission
Cross section (barns)
Energy (MeV)
10^3
10^2
10^1
10^0
10^-1
10^-4
10^-3

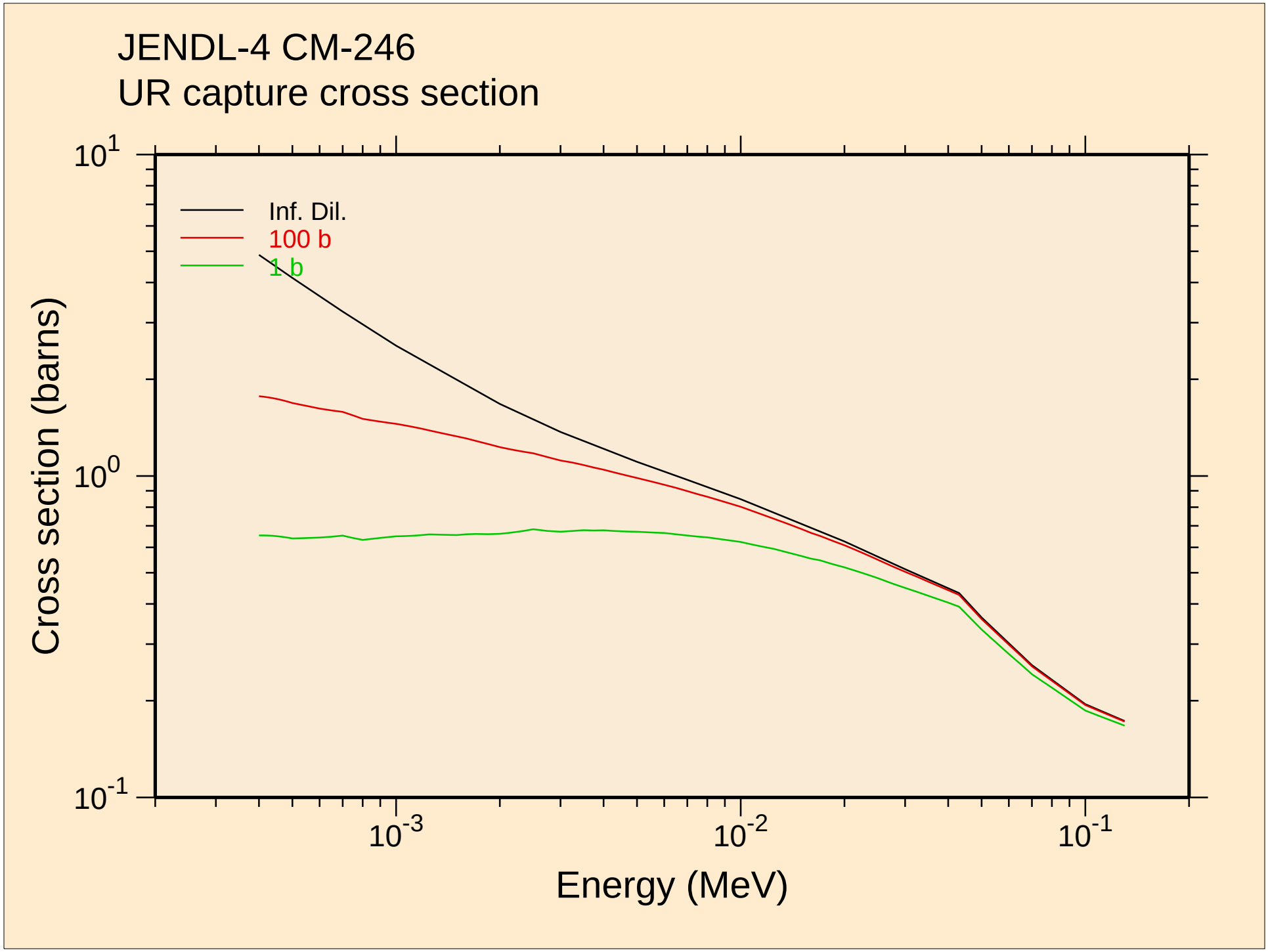
JENDL-4 CM-246
resonance absorption cross sections

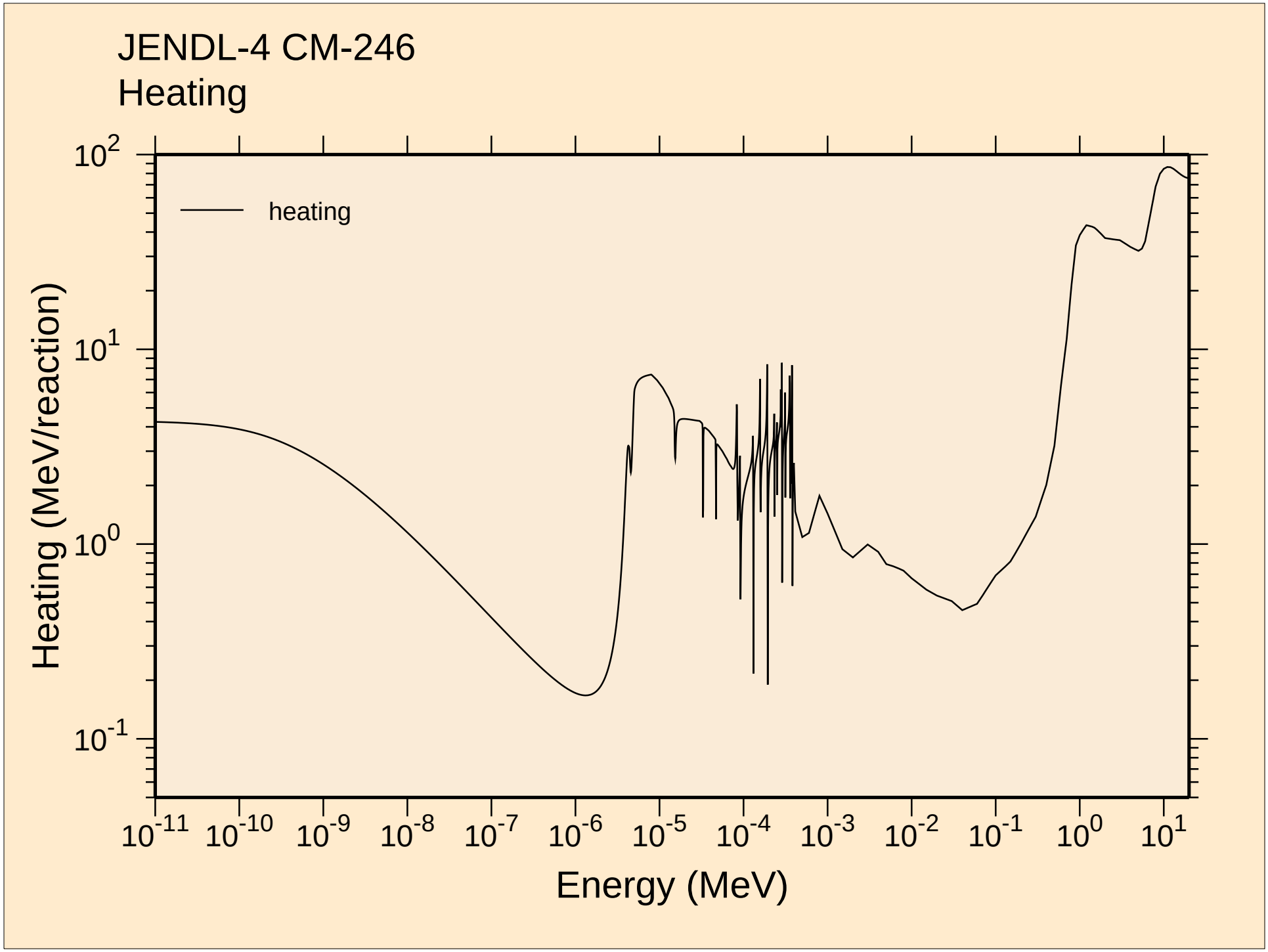


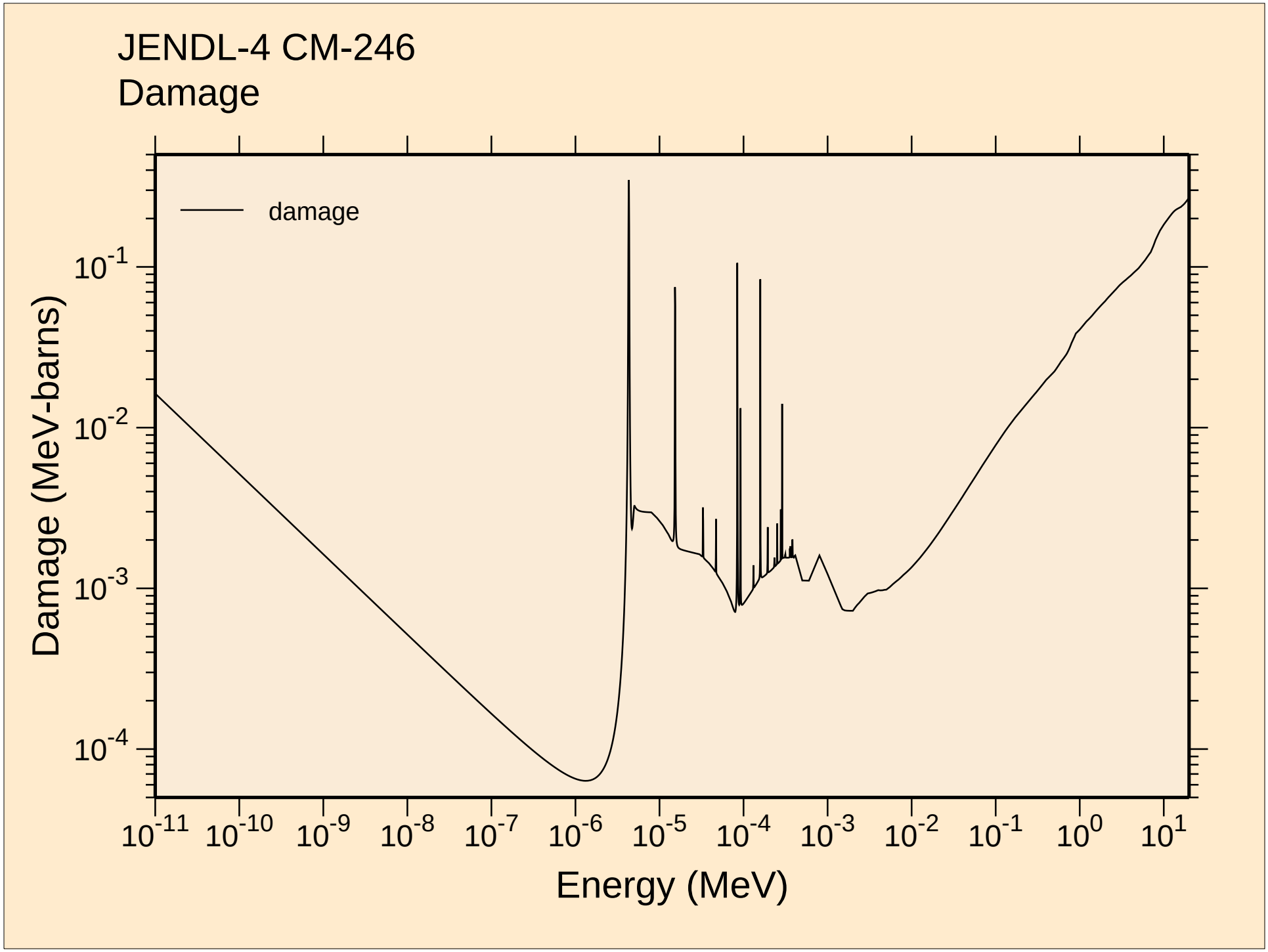

JENDL-4 CM-246
UR total cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^1
10^{-3}
10^{-2}
10^{-1}
Energy (MeV)

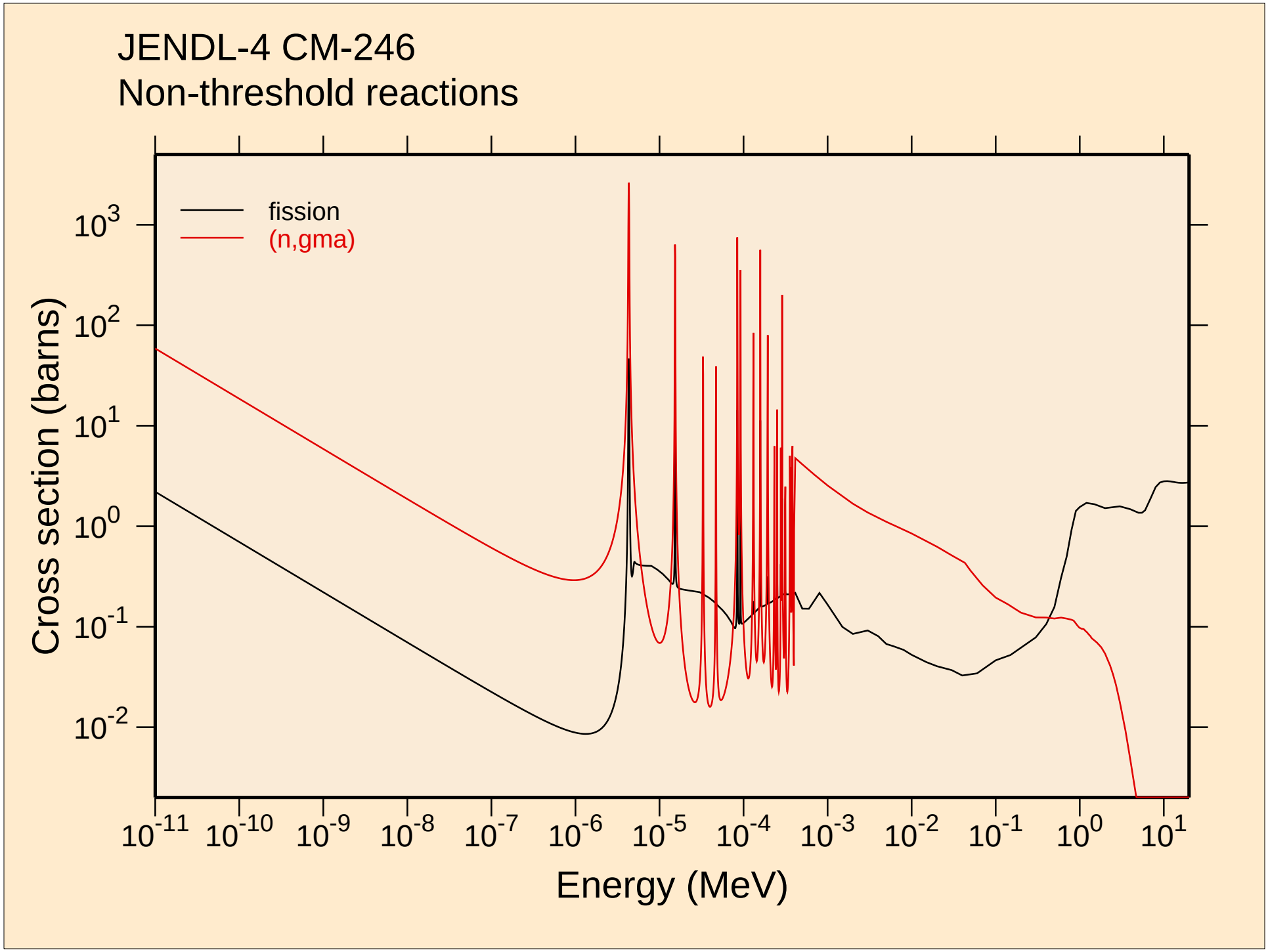

JENDL-4 CM-246
UR elastic cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^1
10^-3
10^-2
10^-1
Energy (MeV)

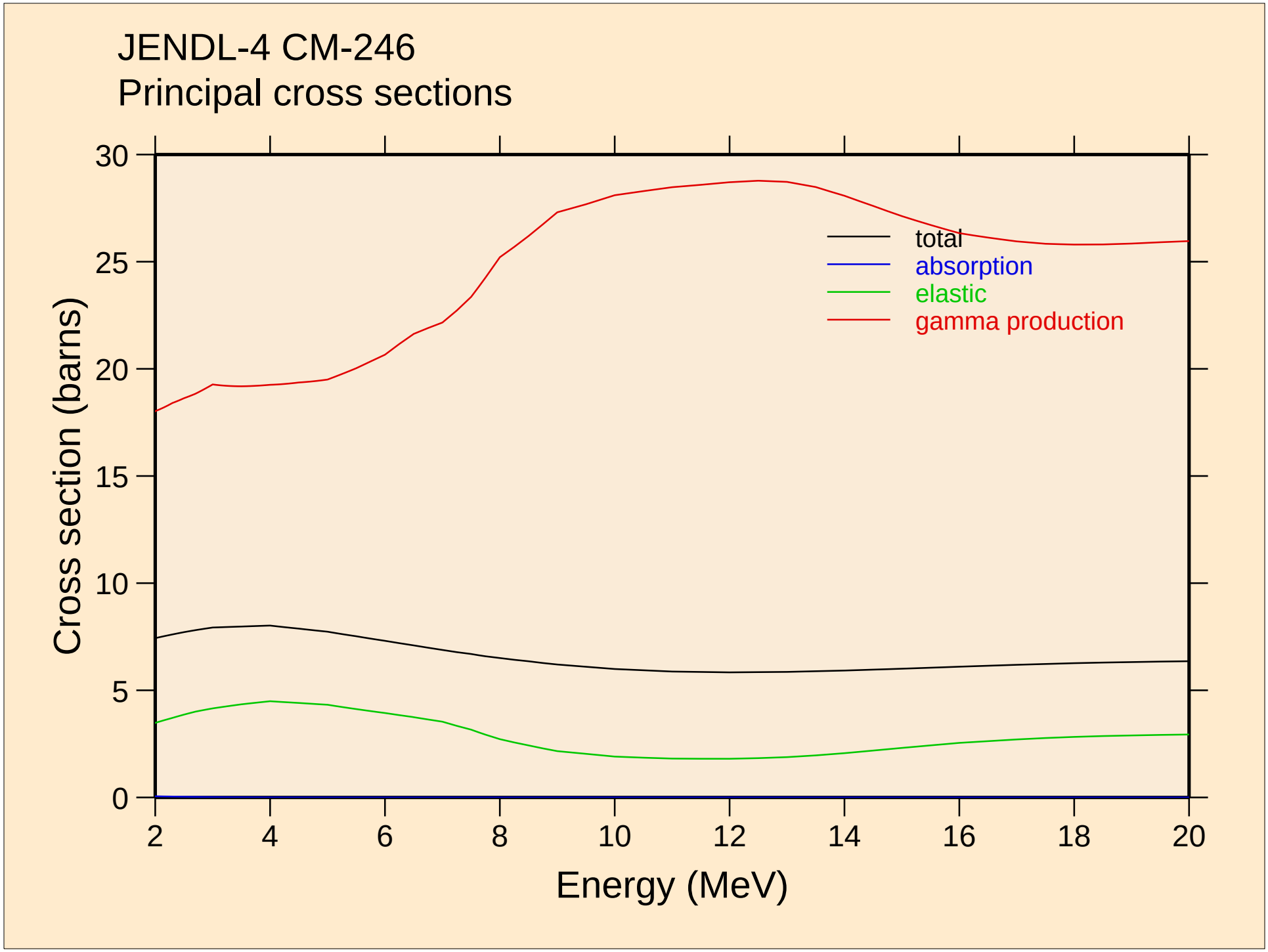

JENDL-4 CM-246
UR fission cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10-1
10-3
10-2
10-1
Energy (MeV)

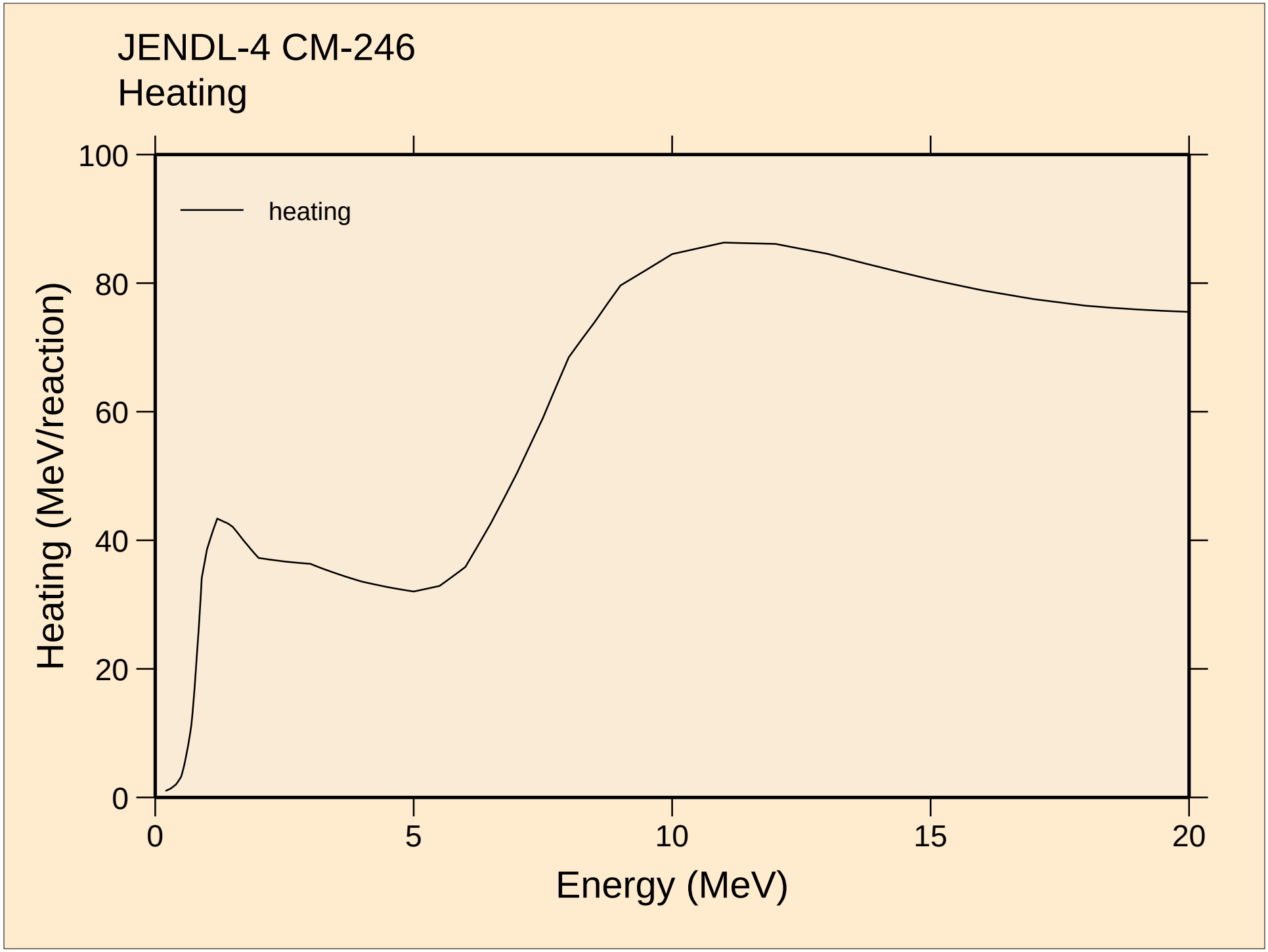

JENDL-4 CM-246
UR capture cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
Energy (MeV)
10^1
10^0
10^-1
10^-3
10^-2
10^-1

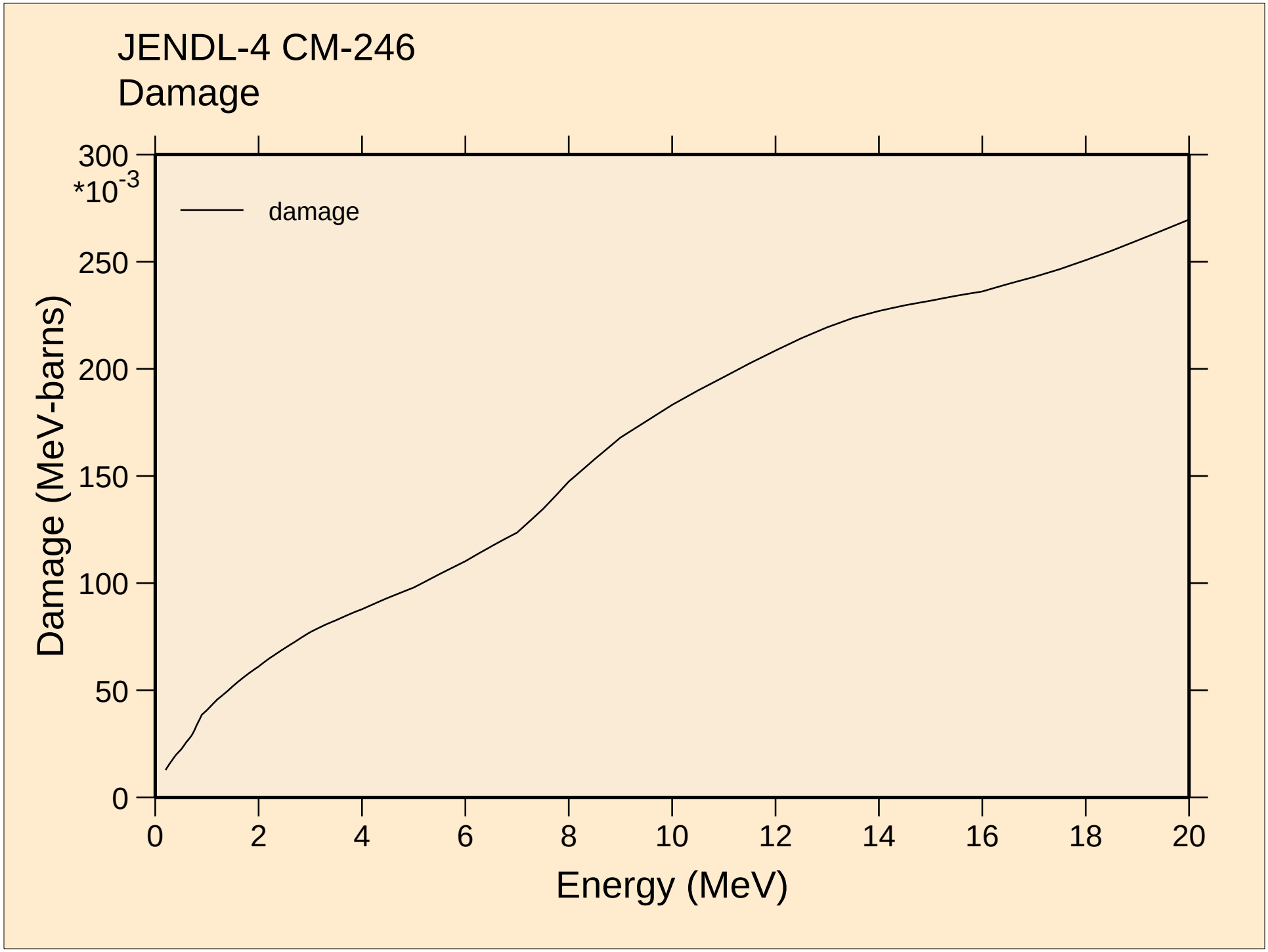

JENDL-4 CM-246
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

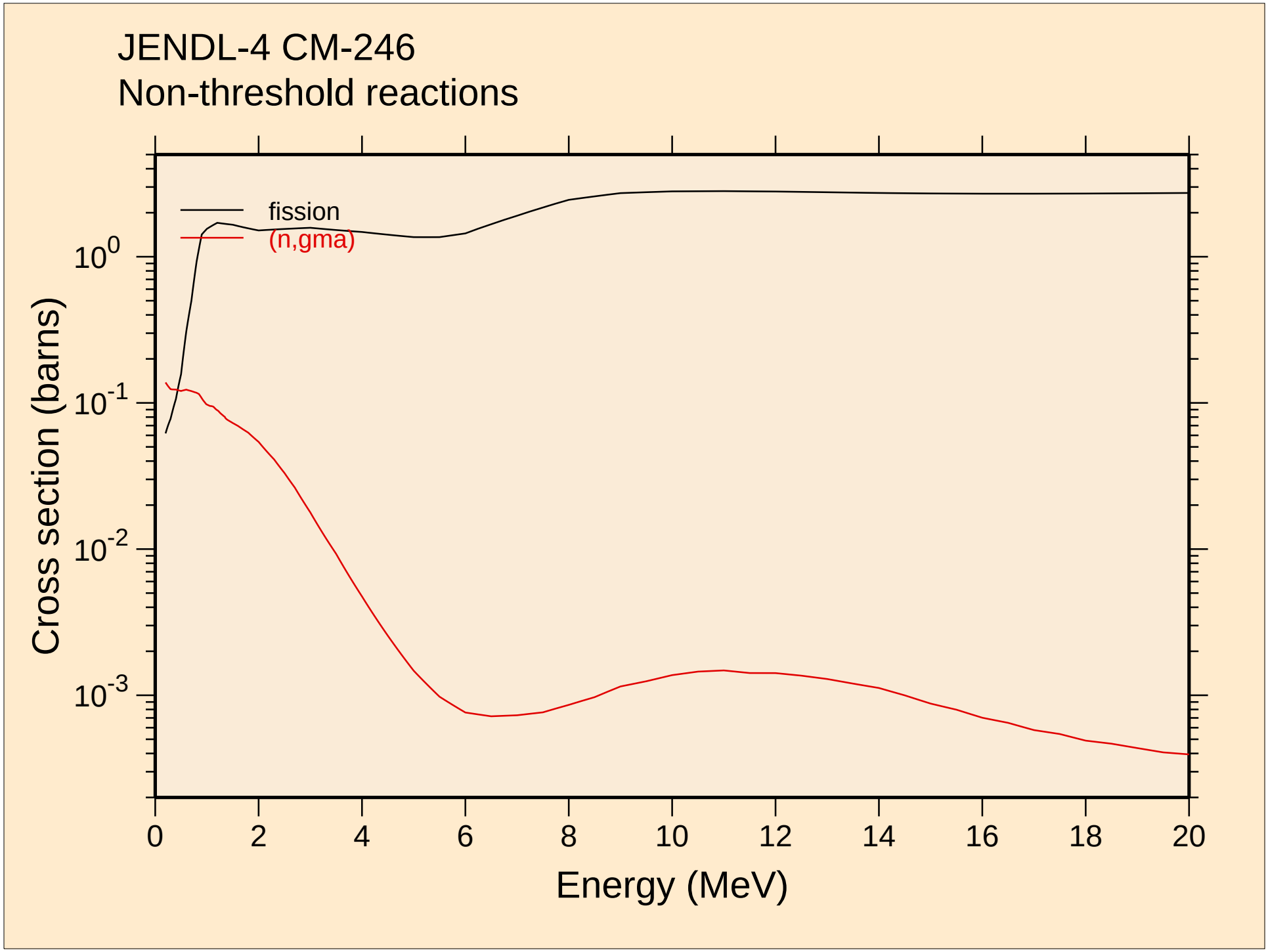

JENDL-4 CM-246
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

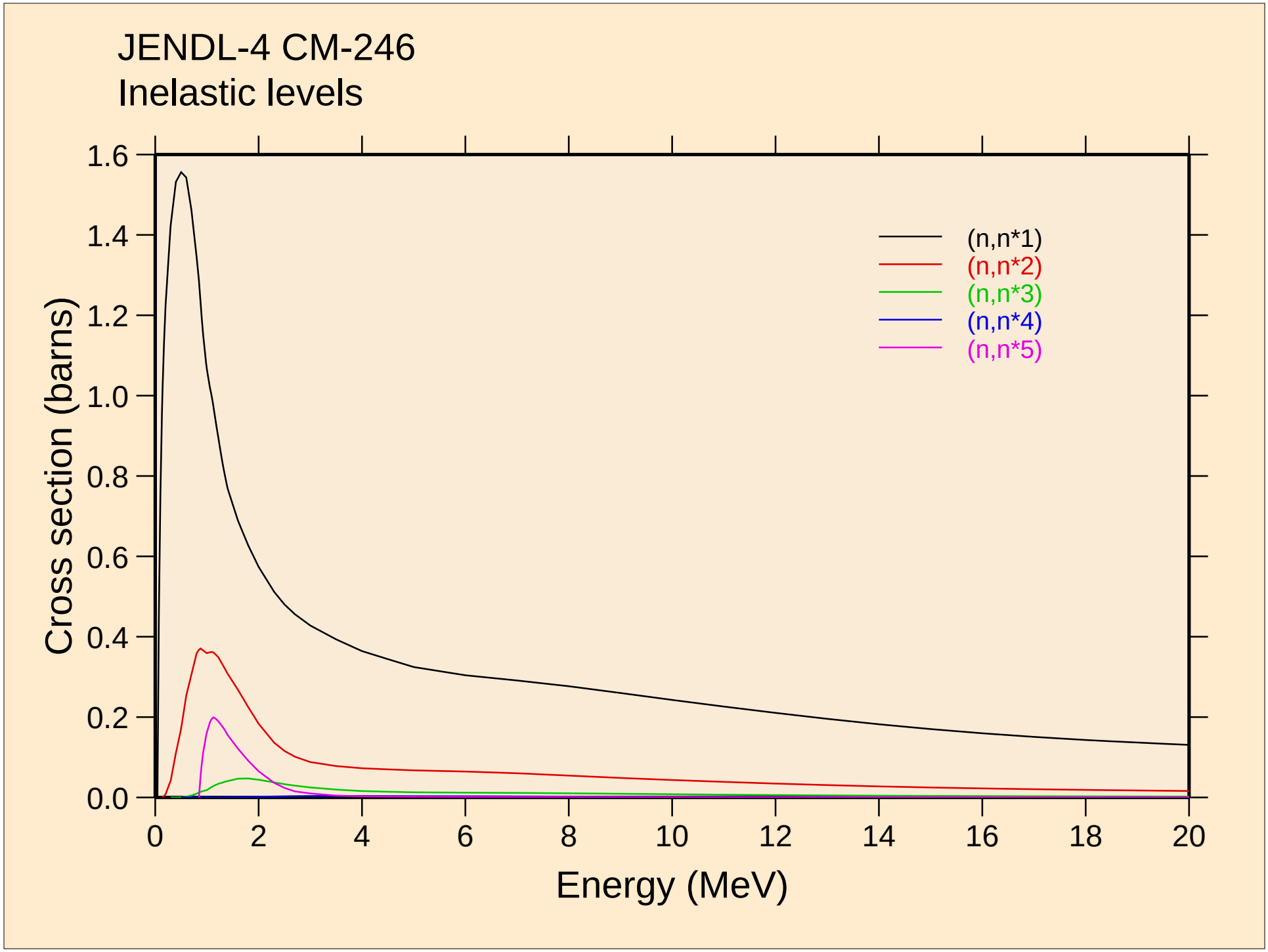

JENDL-4 CM-246
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
Energy (MeV)
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

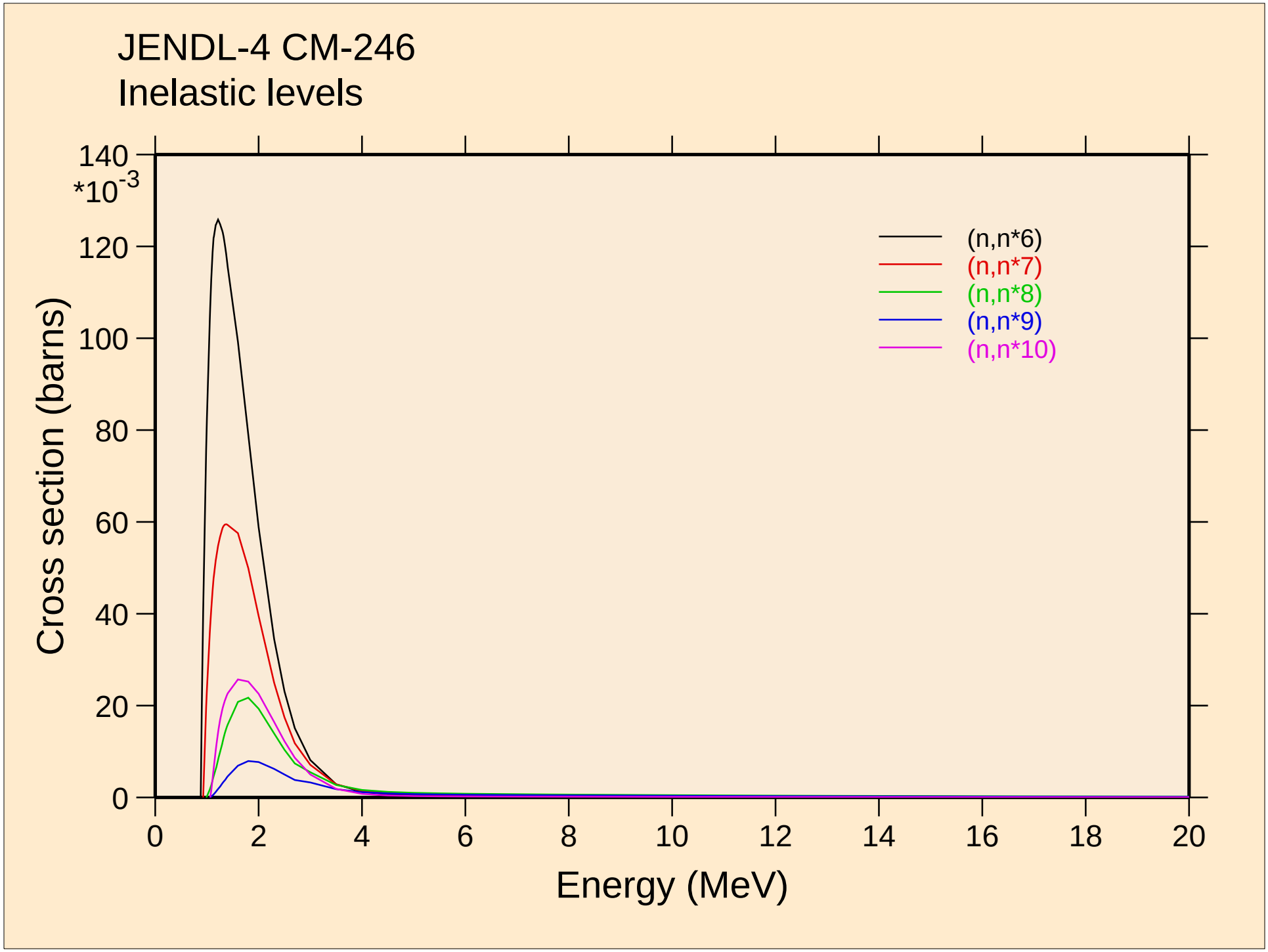

JENDL-4 CM-246
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0
5
10
15
20
25
30
2
4
6
8
10
12
14
16
18
20

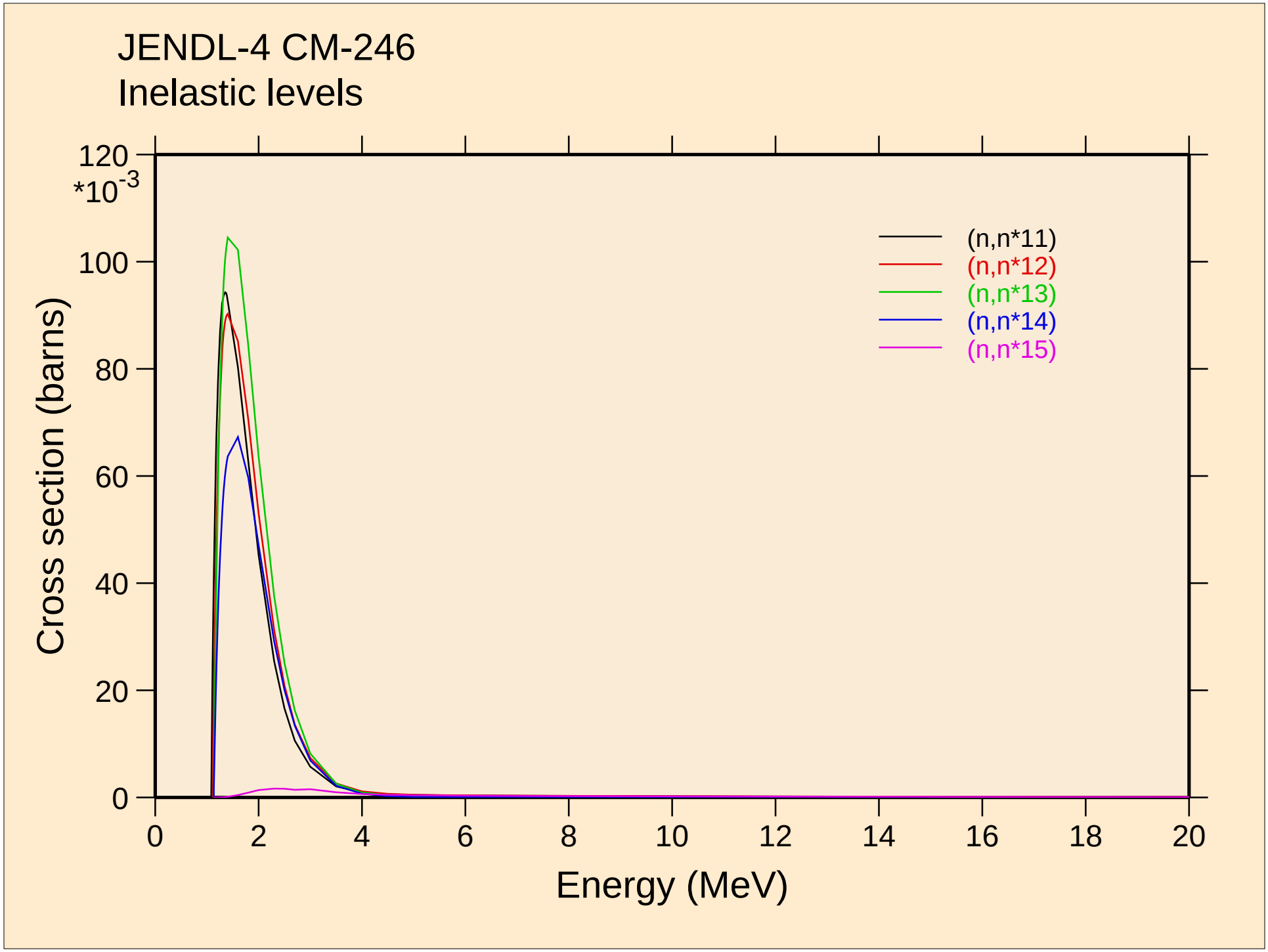

JENDL-4 CM-246
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
20
40
60
80
100
0
5
10
15
20

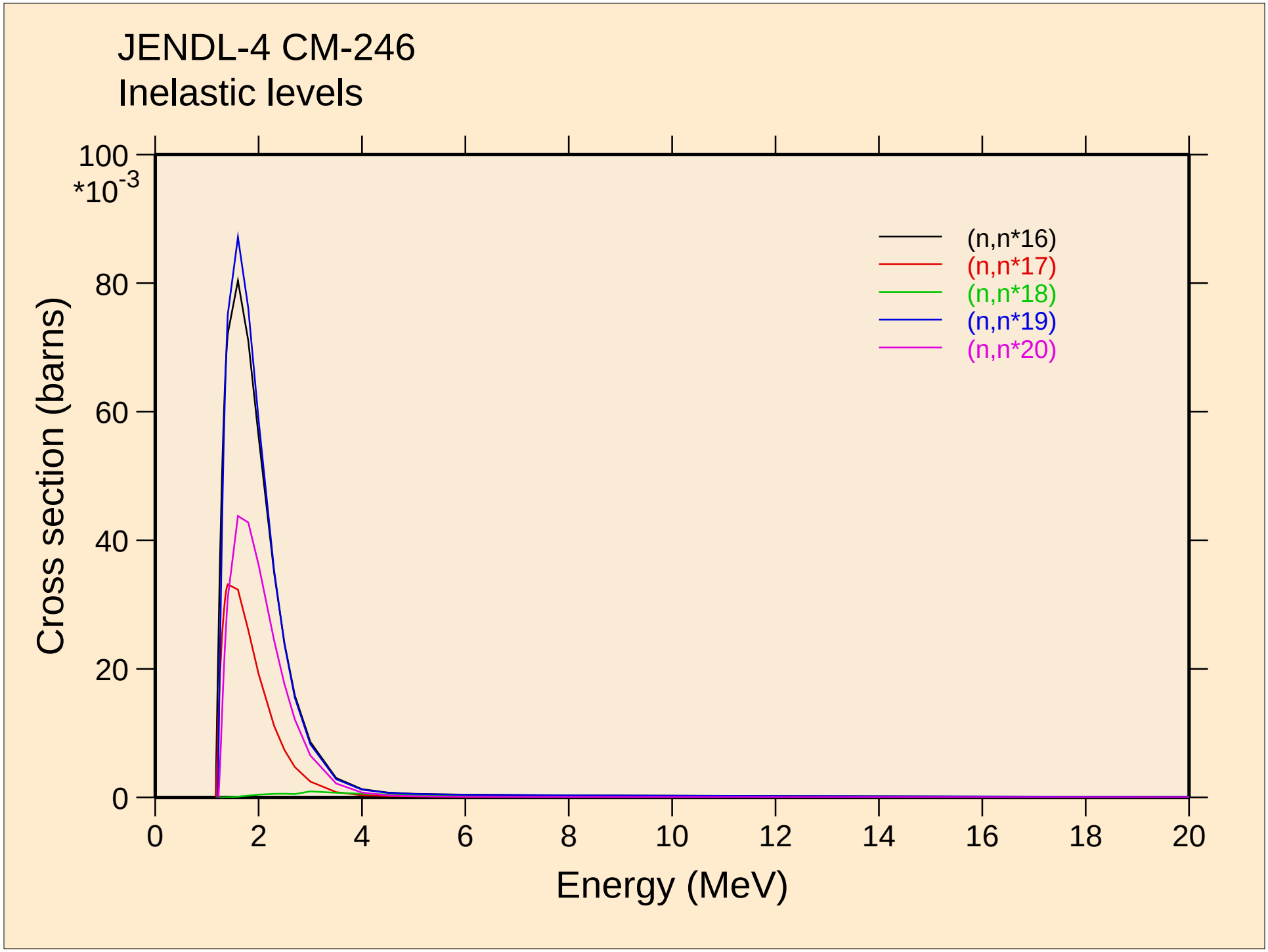

JENDL-4 CM-246
Damage
damage
*10-3
300
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

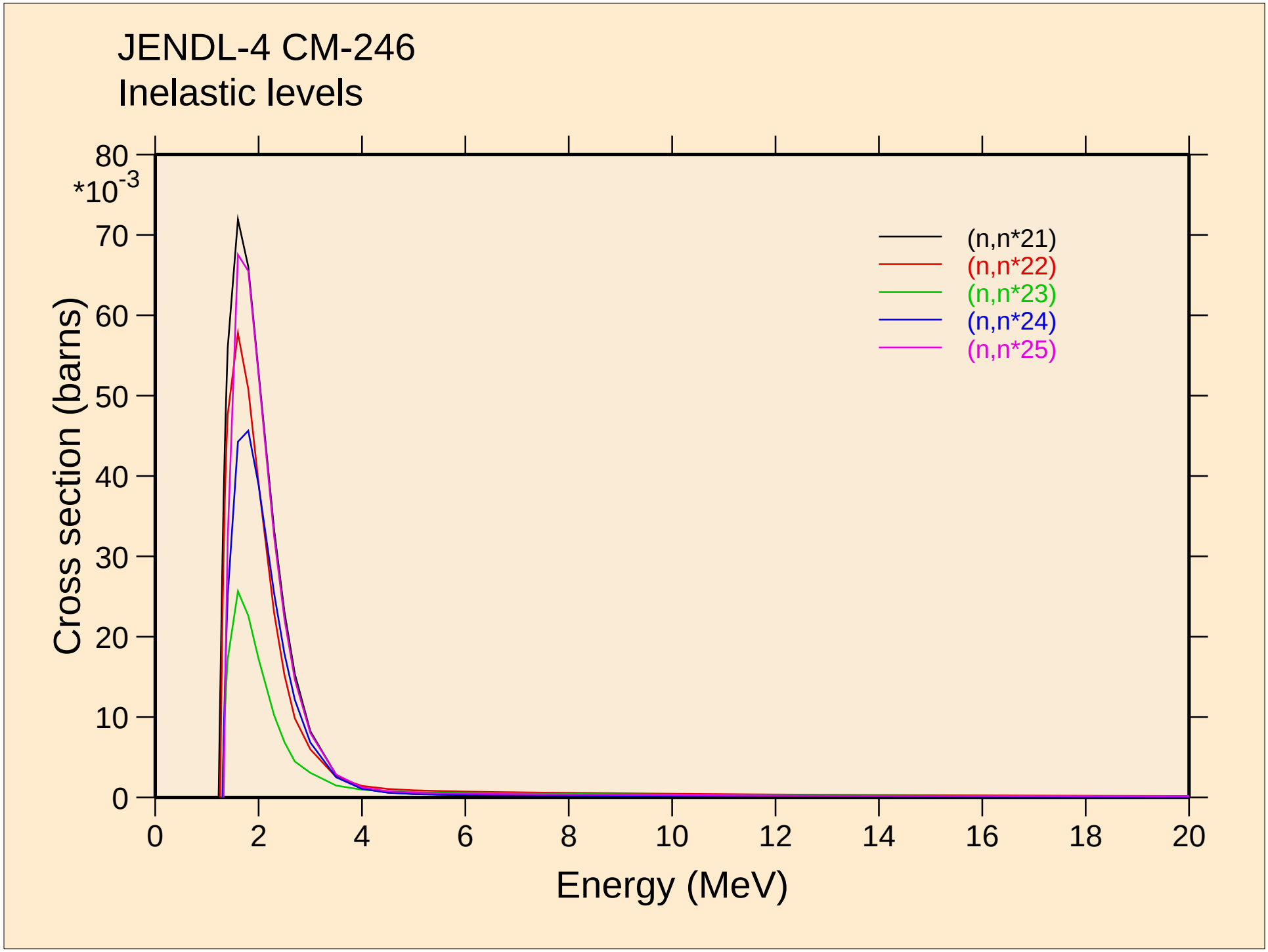

JENDL-4 CM-246
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
10^{0}
10^{-1}
10^{-2}
10^{-3}
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

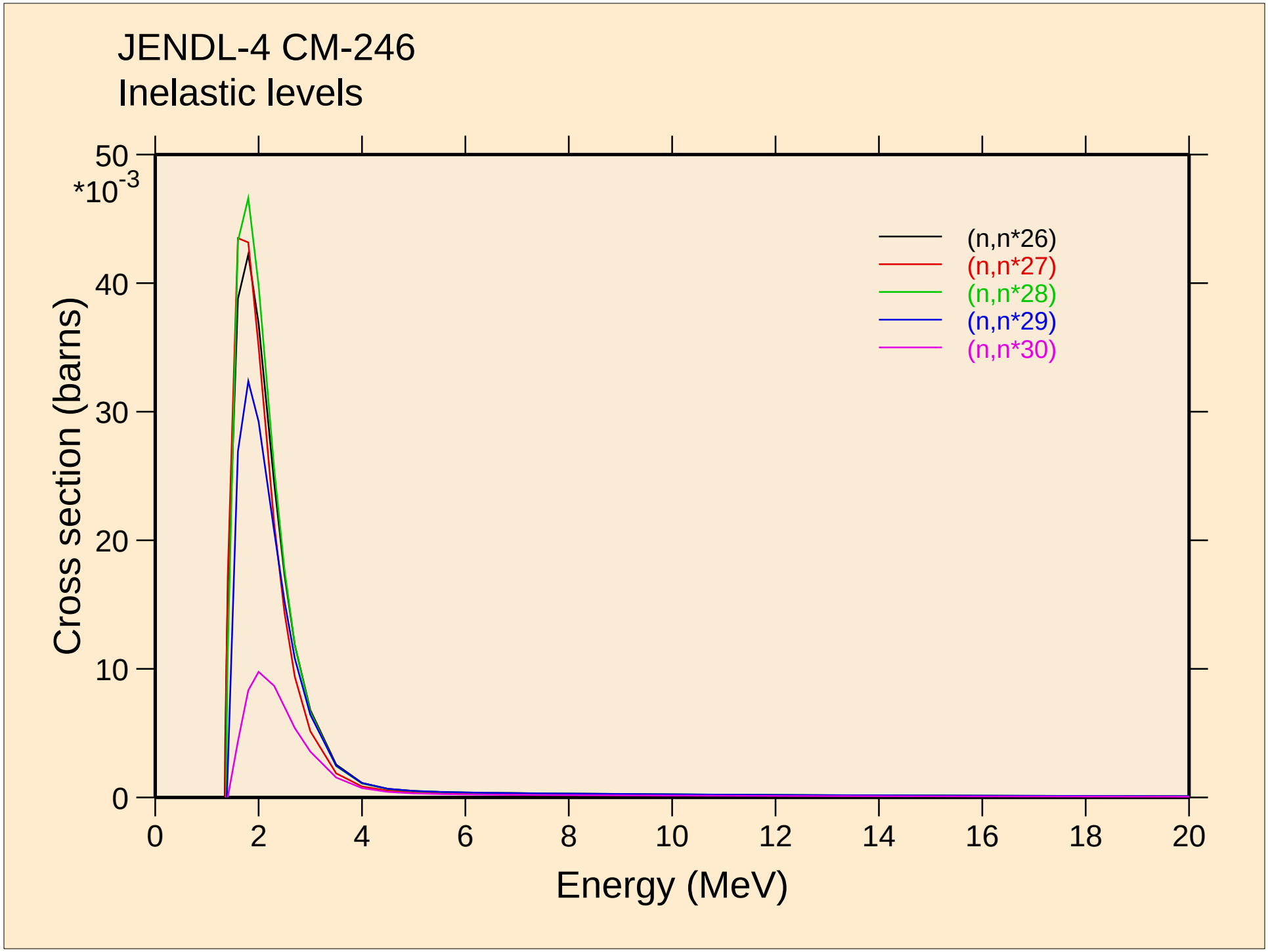

JENDL-4 CM-246
Inelastic levels
Cross section (barns)
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
2
4
6
8
10
12
14
16
18
20

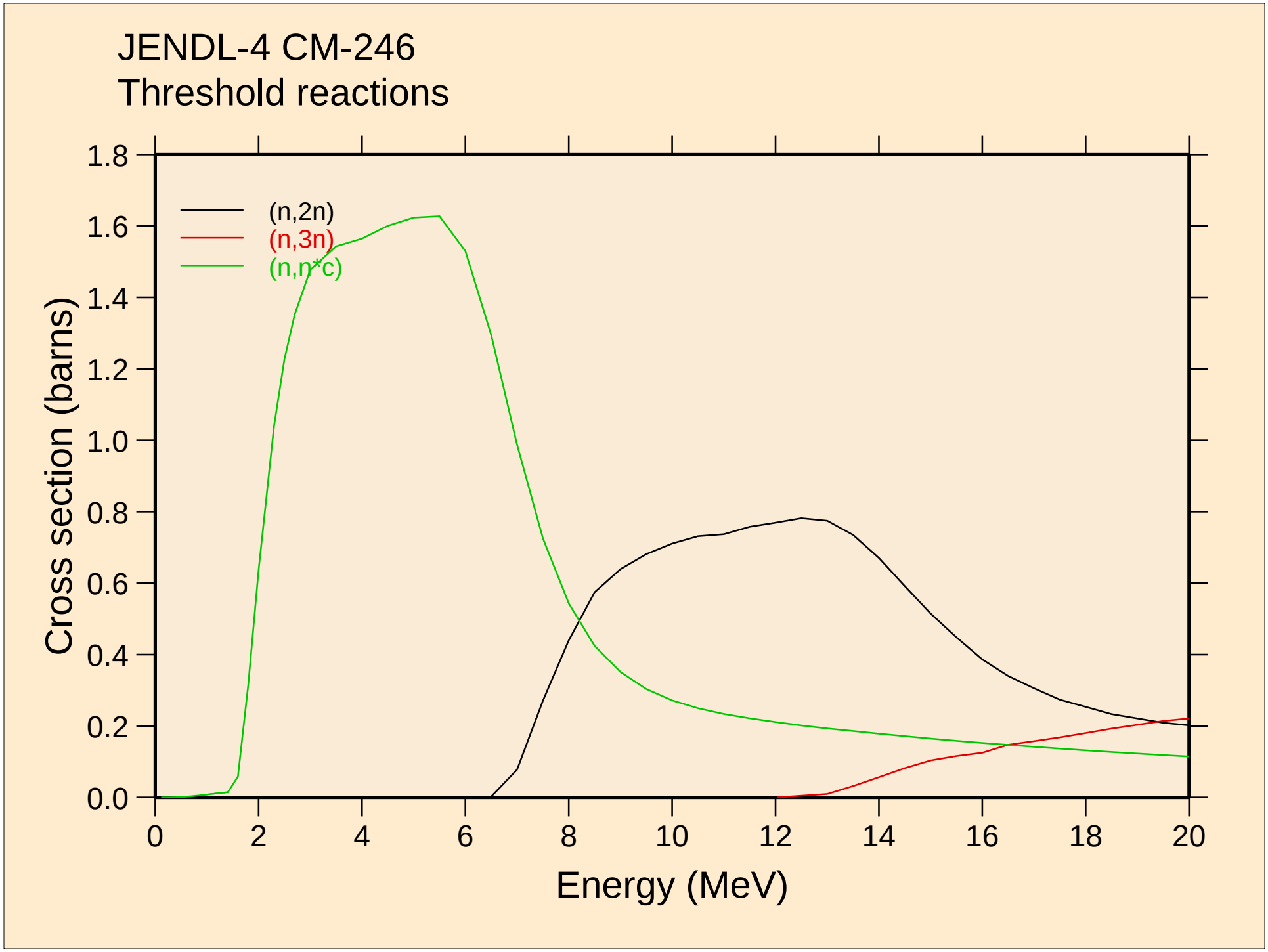

JENDL-4 CM-246
Inelastic levels
Cross section (barns)
*10^-3
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

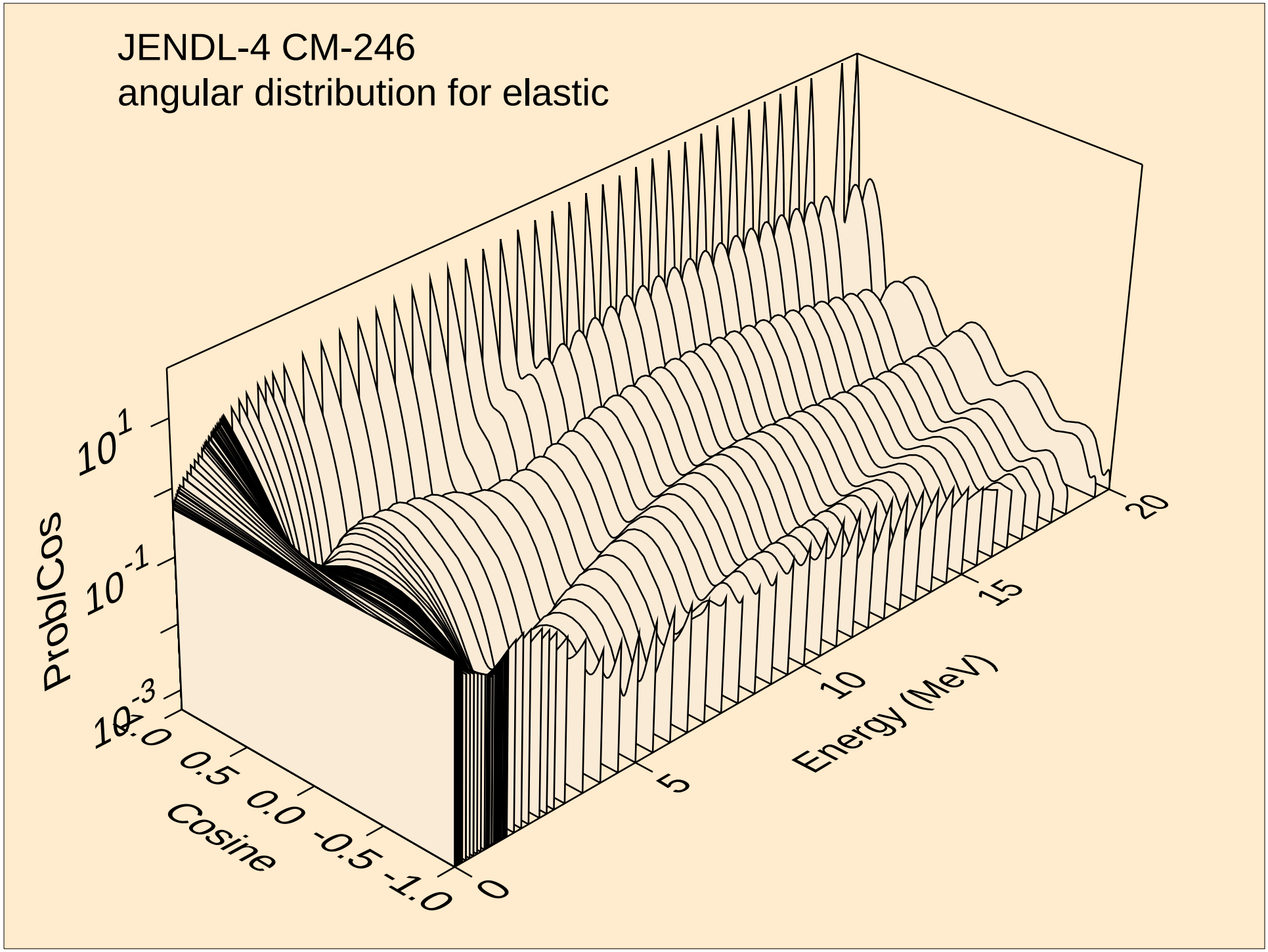

JENDL-4 CM-246
Inelastic levels
120
*10-3
100
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

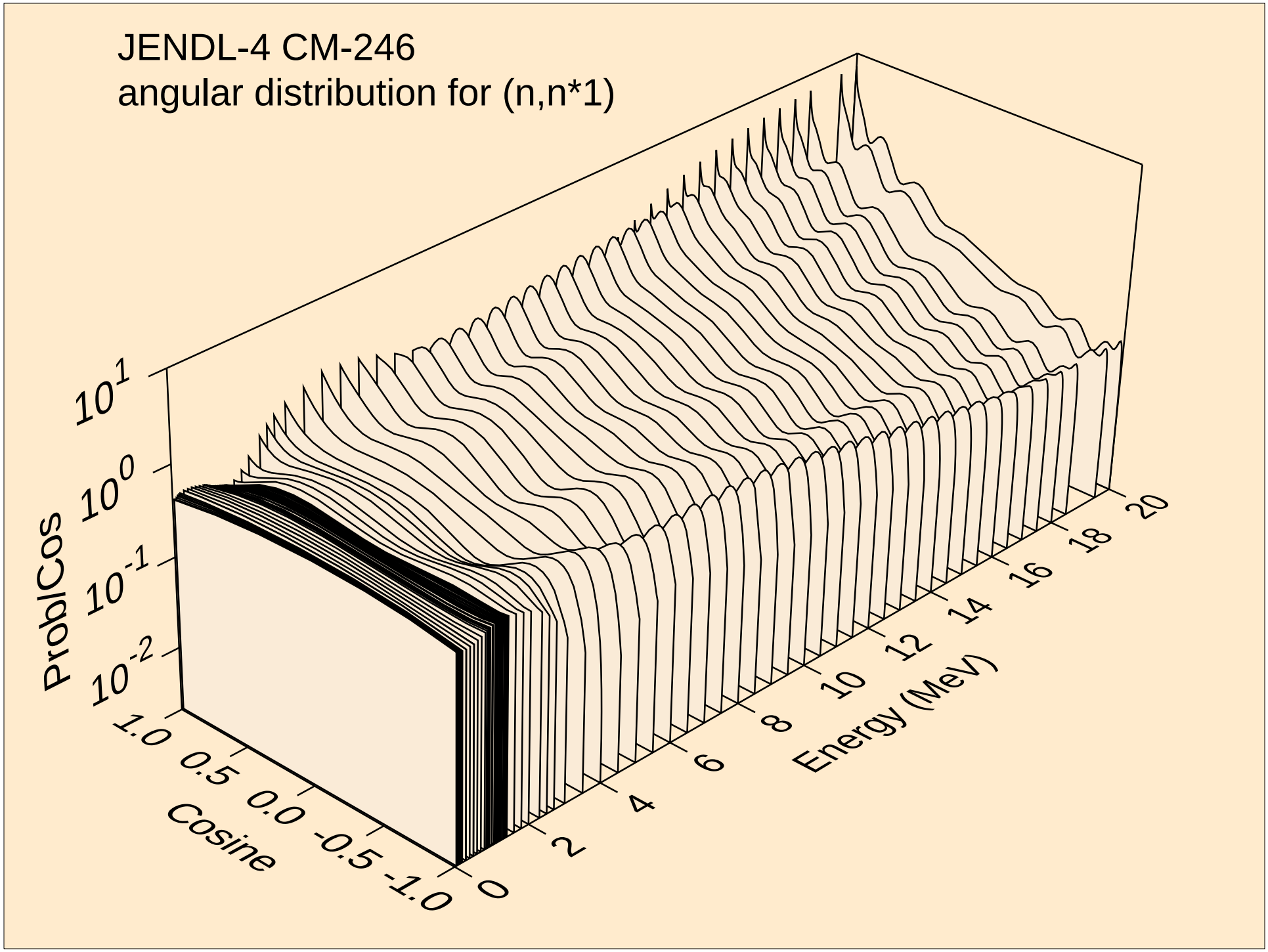

JENDL-4 CM-246
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

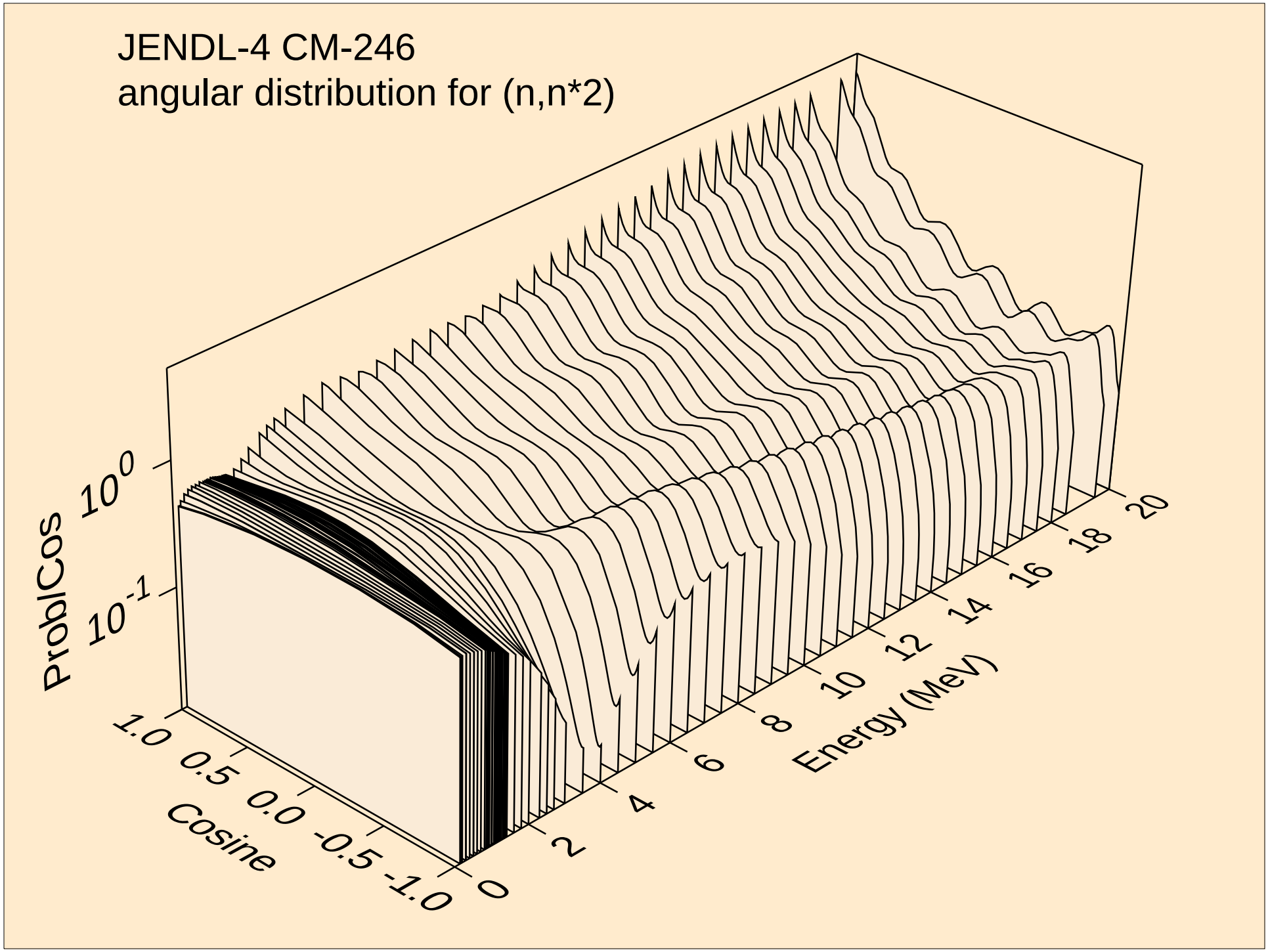

JENDL-4 CM-246
Inelastic levels
*10-3
80
70
60
50
40
30
20
10
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

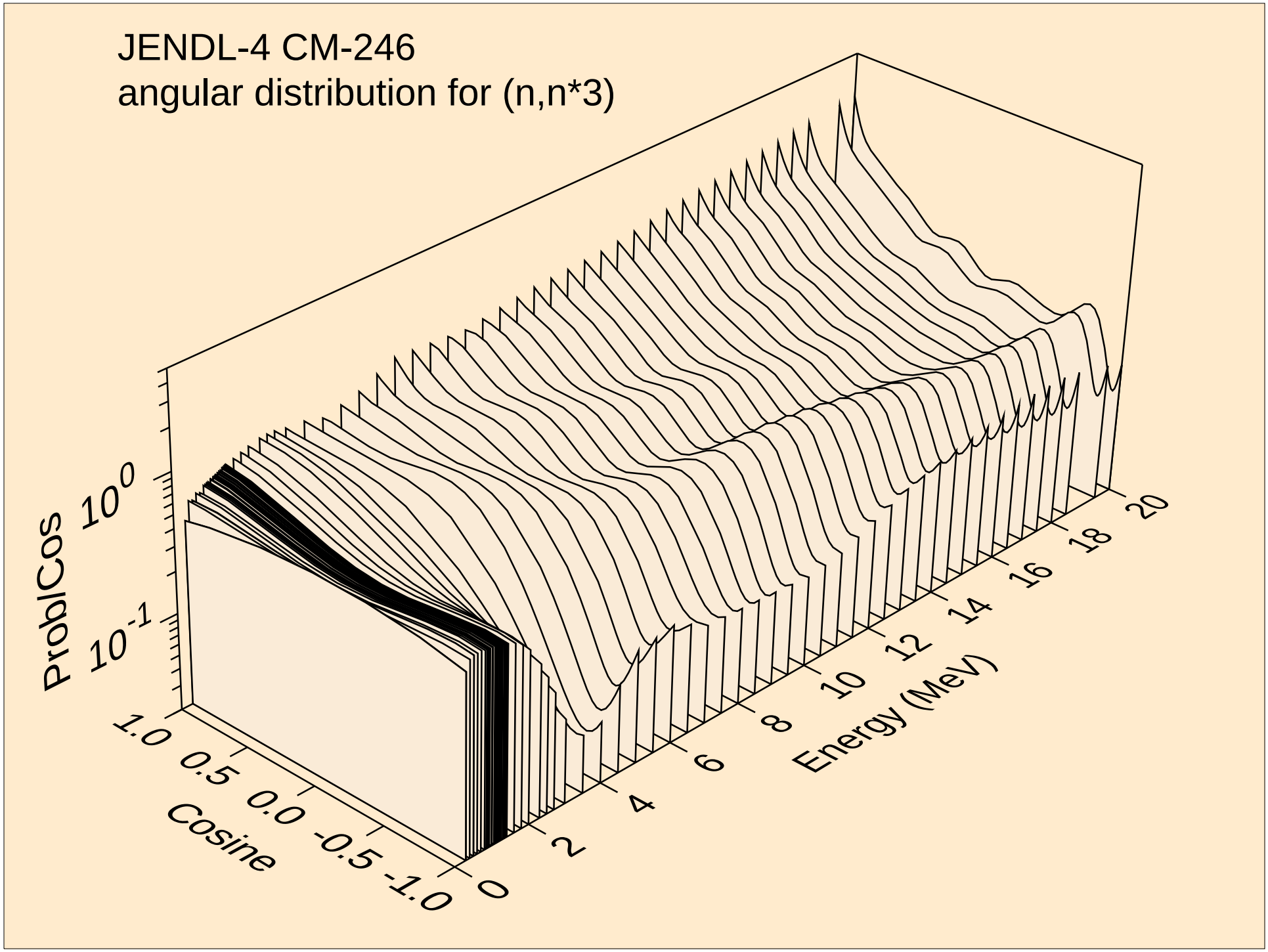

JENDL-4 CM-246
Inelastic levels
*10-3
50
40
30
20
10
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*26)
(n,n*27)
(n,n*28)
(n,n*29)
(n,n*30)

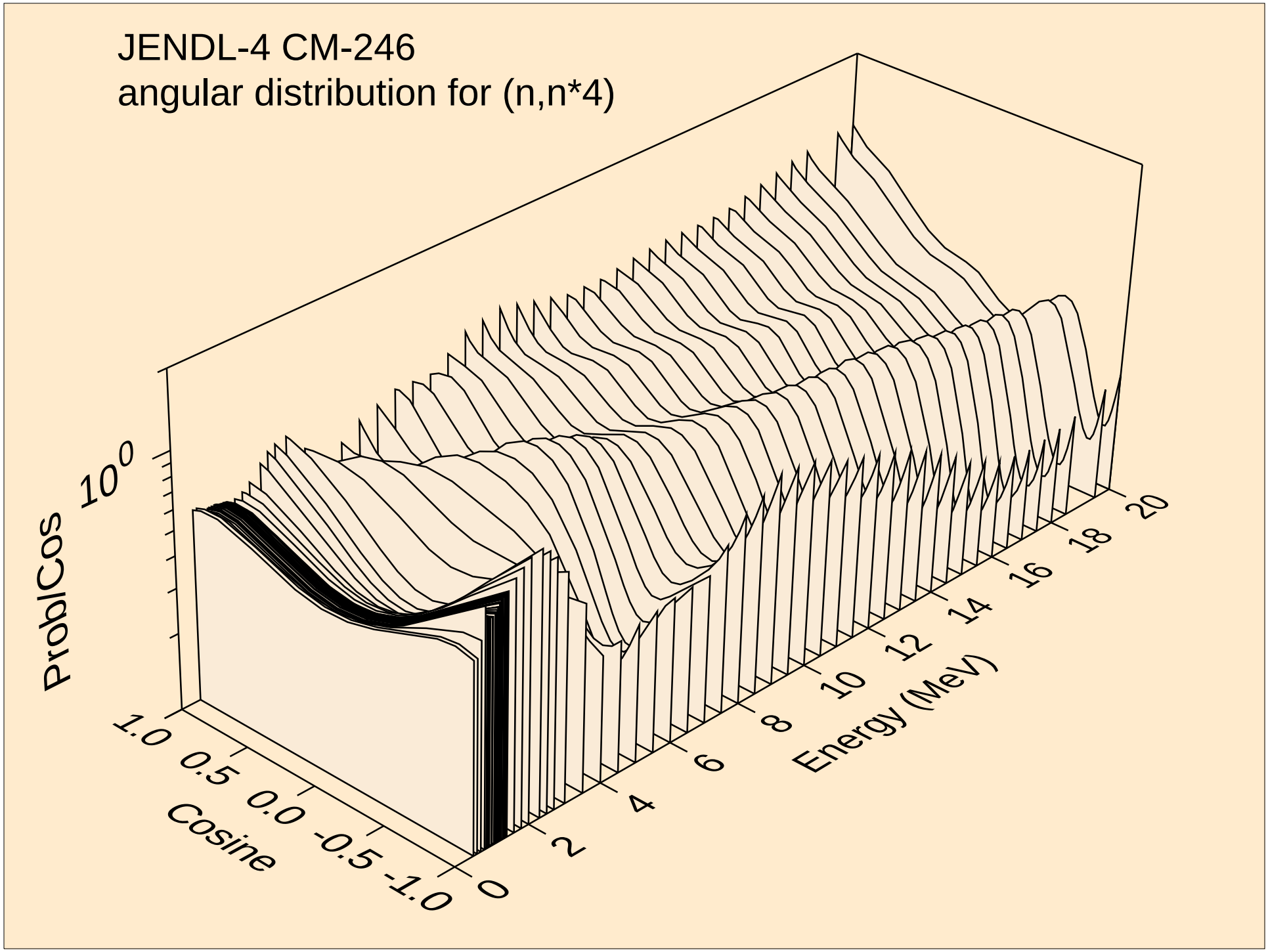

JENDL-4 CM-246
Threshold reactions
(n,2n)
(n,3n)
(n,n*c)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
2
4
6
8
10
12
14
16
18
20

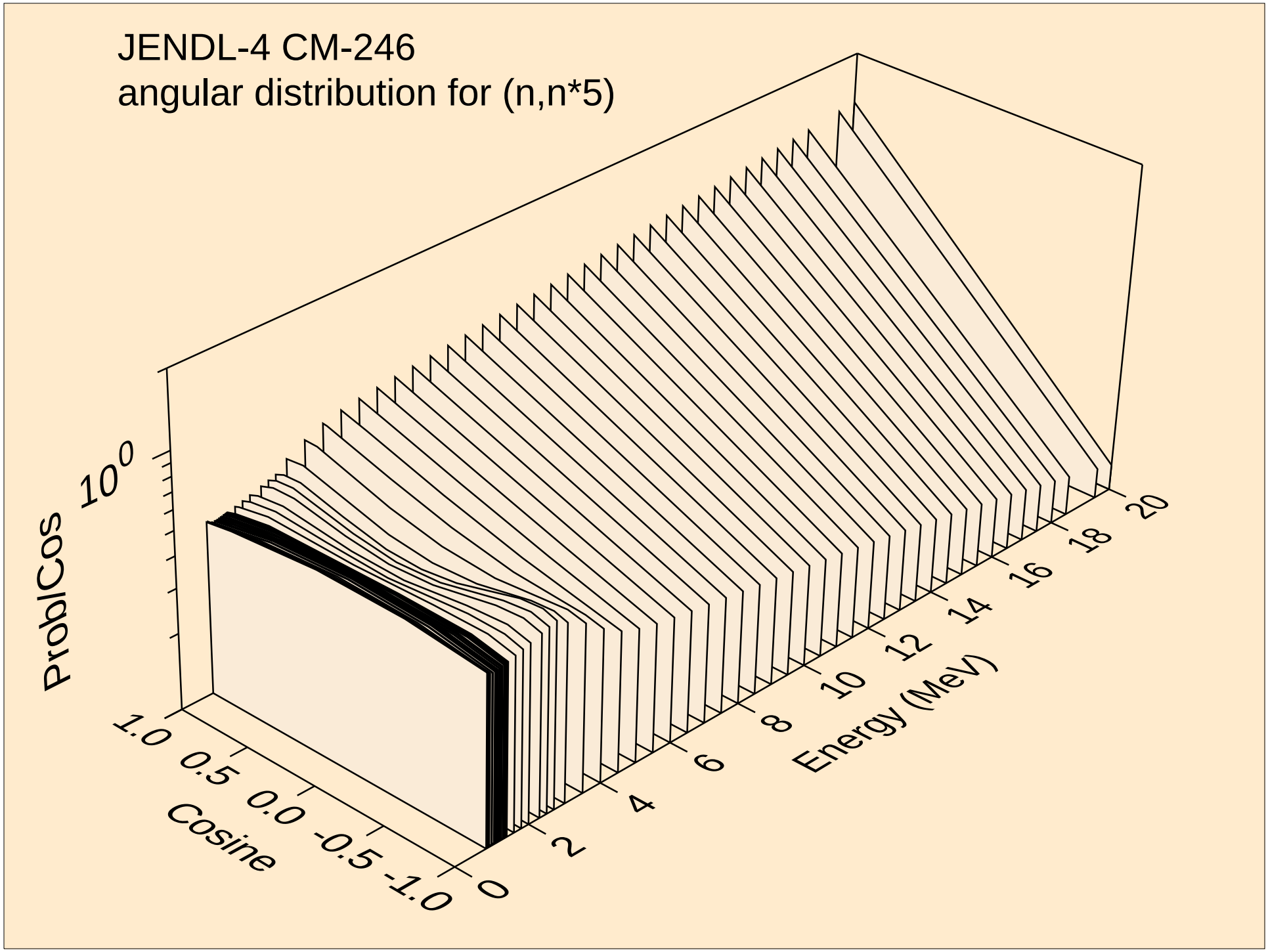

JENDL-4 CM-246
angular distribution for elastic
ProblCos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

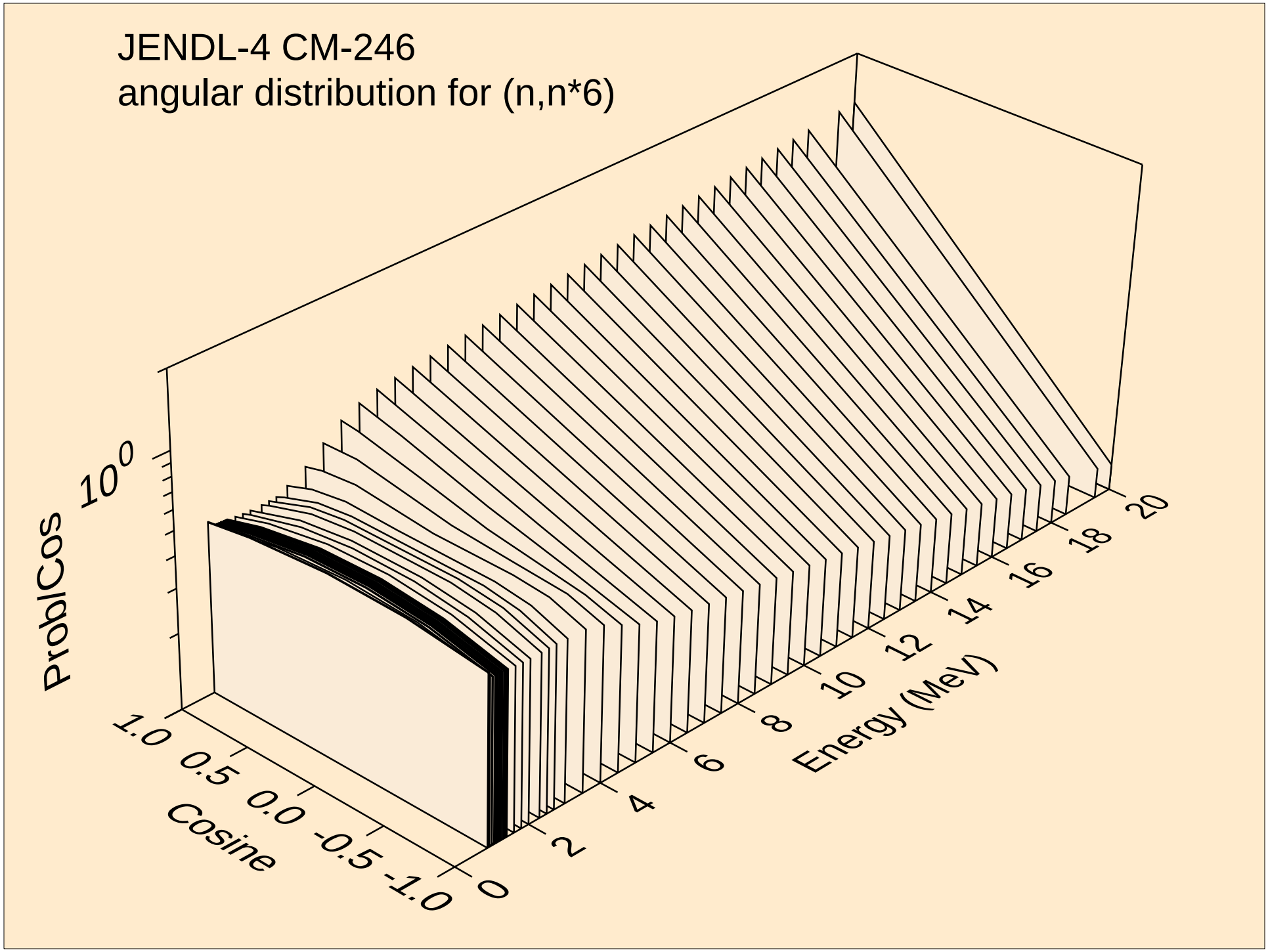

JENDL-4 CM-246
angular distribution for (n,n*1)
ProbCos
10^1
10^0
10^-1
10^-2
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

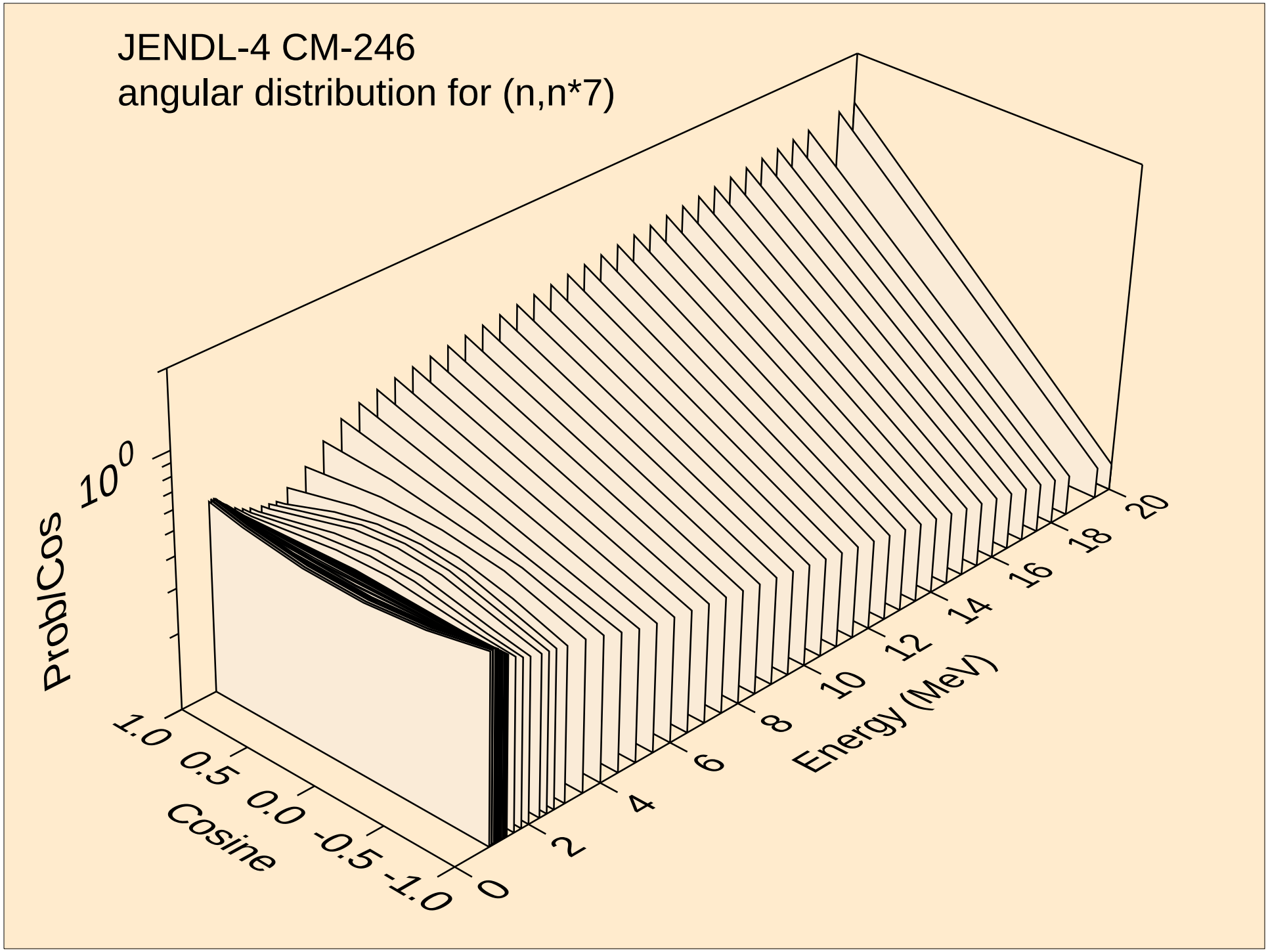

JENDL-4 CM-246
angular distribution for (n,n*2)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

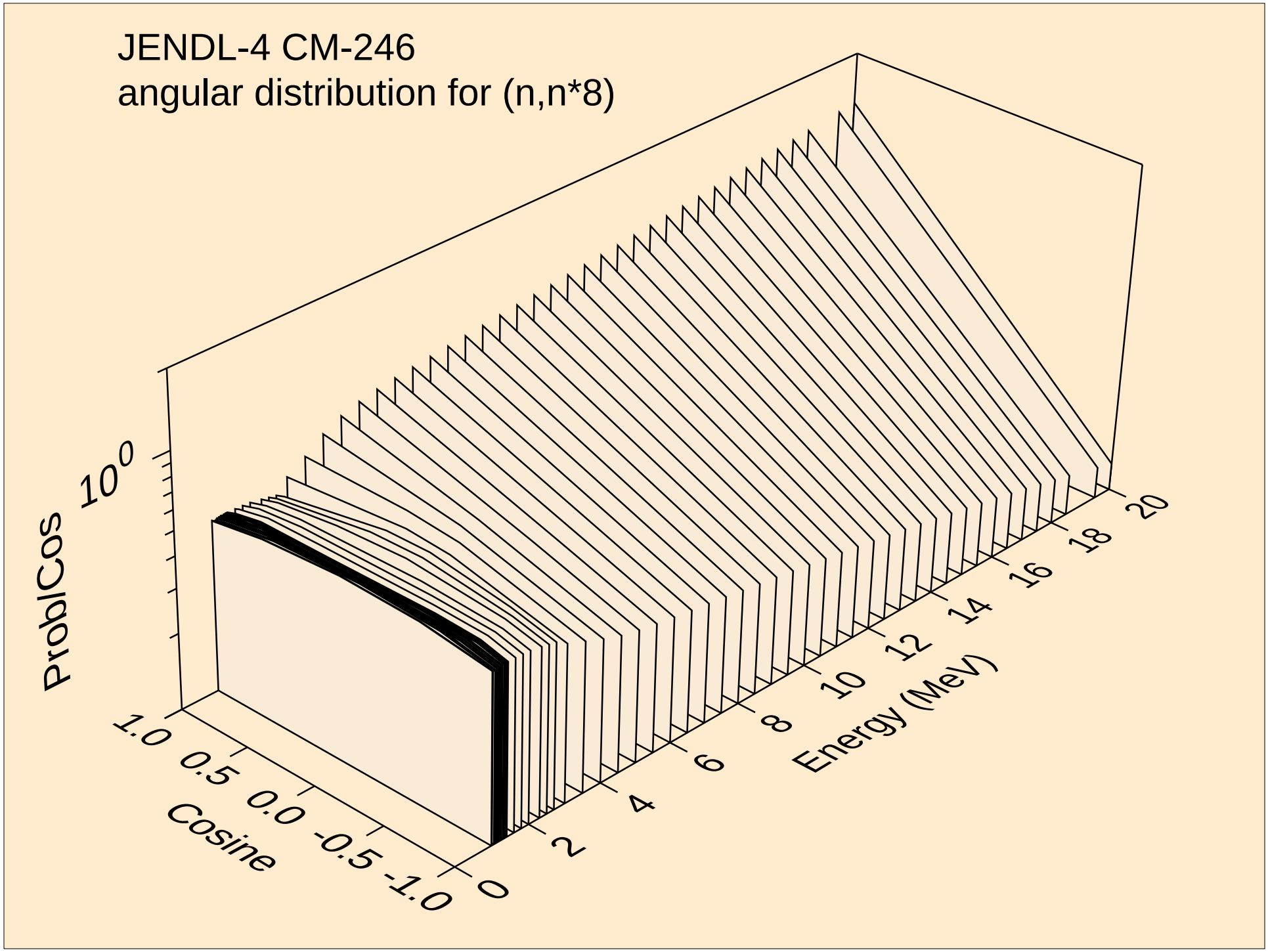

JENDL-4 CM-246
angular distribution for (n,n*3)
ProbCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

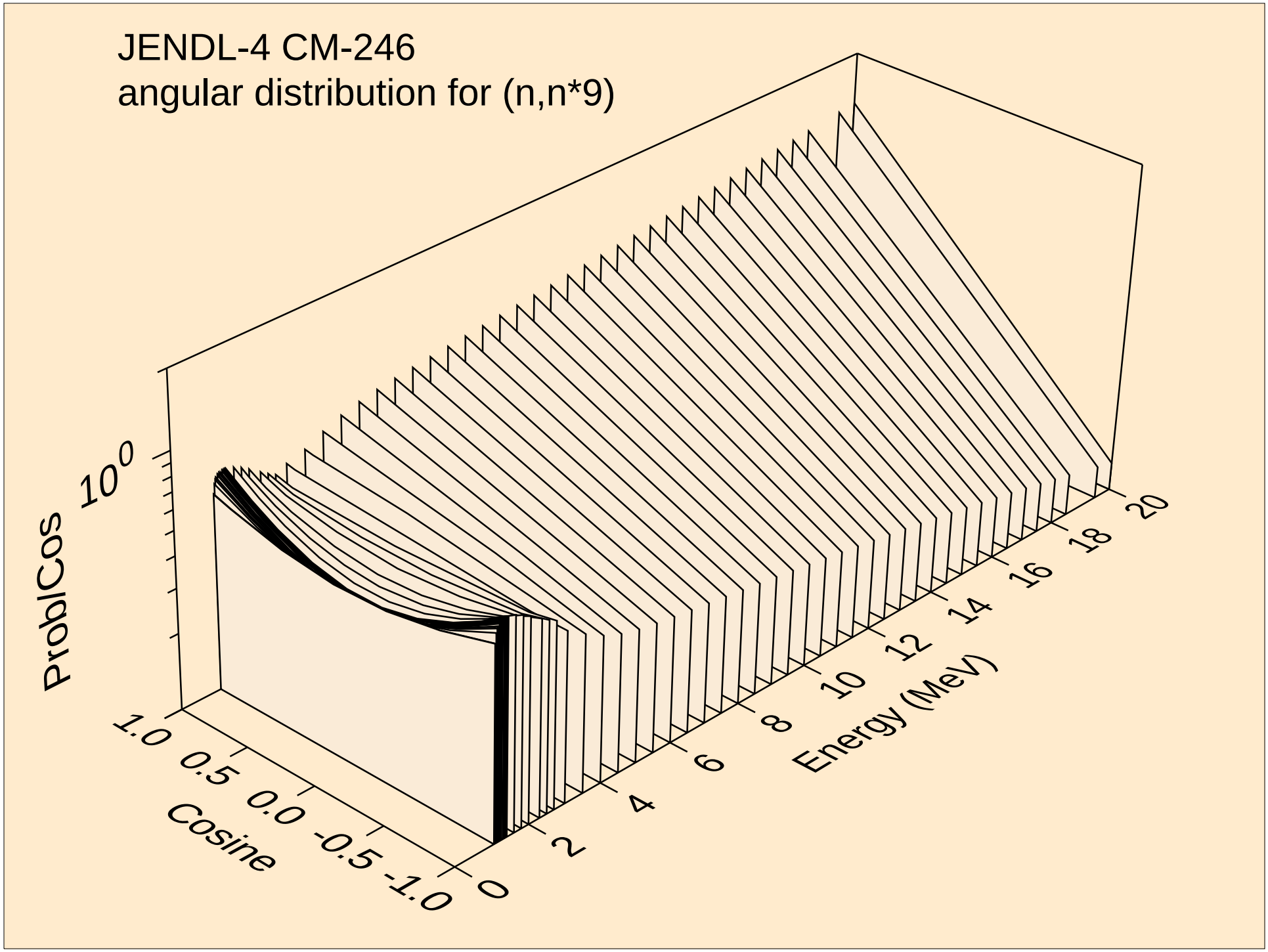

JENDL-4 CM-246
angular distribution for (n,n*4)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

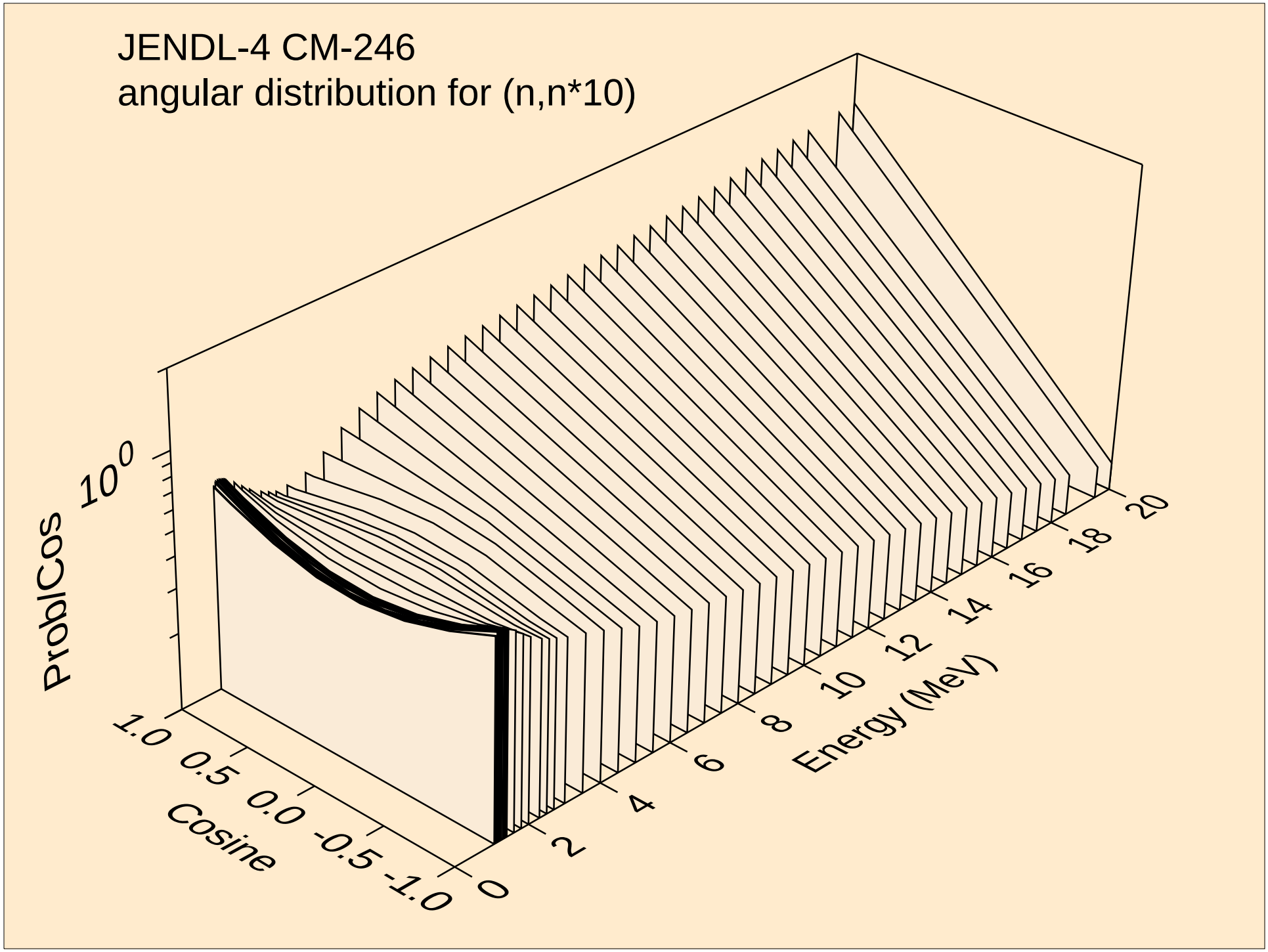

JENDL-4 CM-246
angular distribution for (n,n*5)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

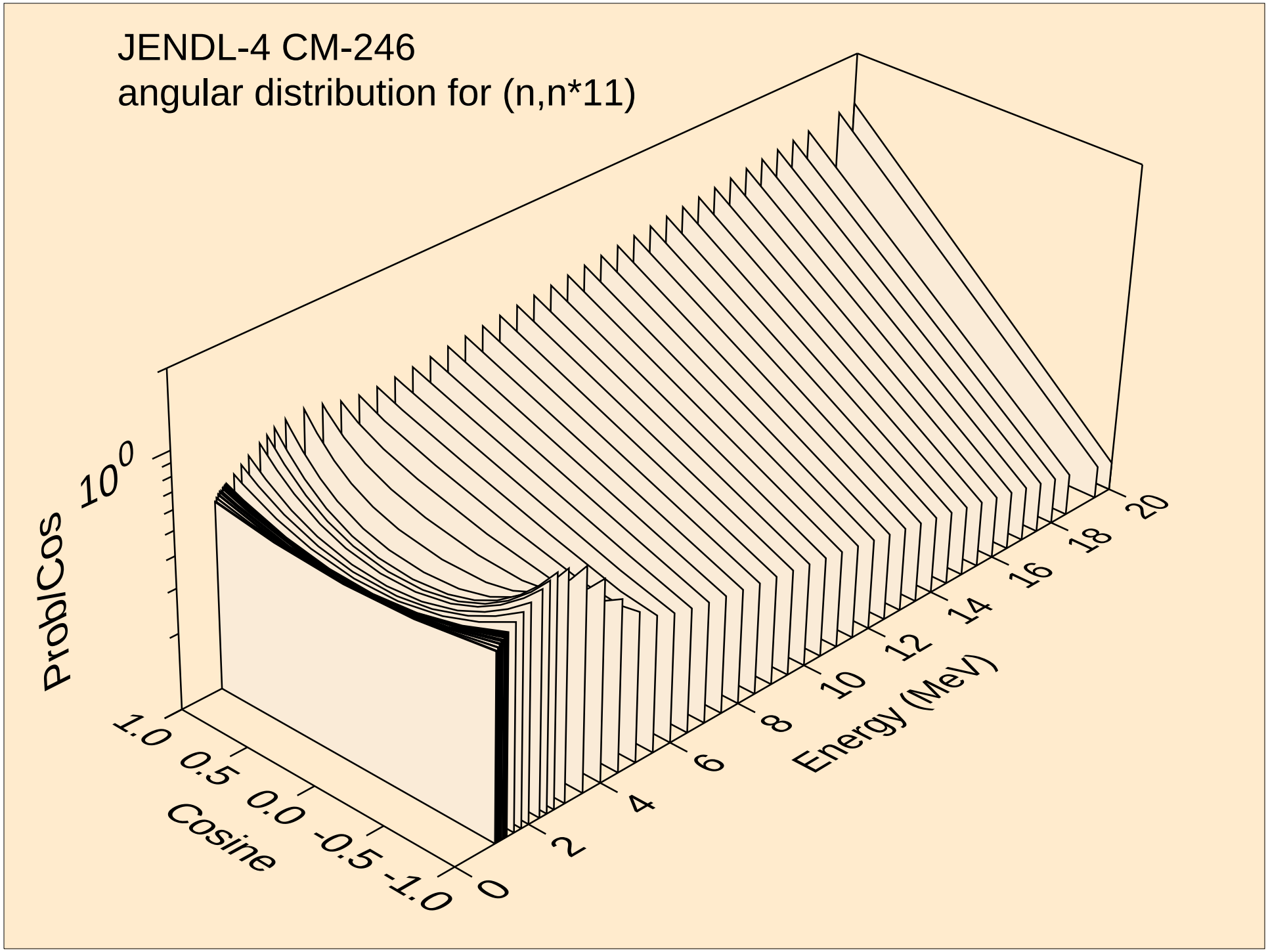

JENDL-4 CM-246
angular distribution for (n,n*6)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

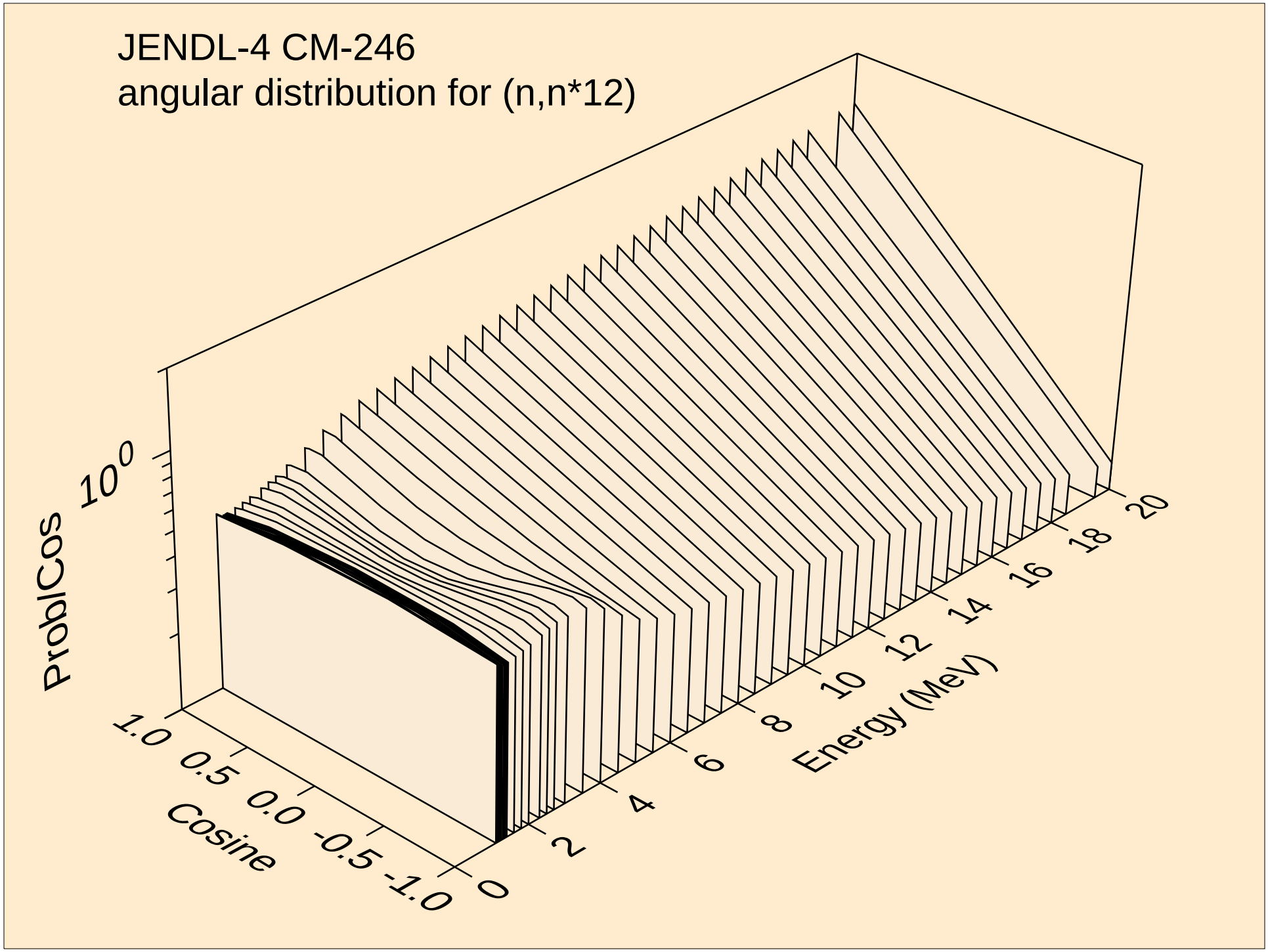

JENDL-4 CM-246
angular distribution for (n,n*7)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

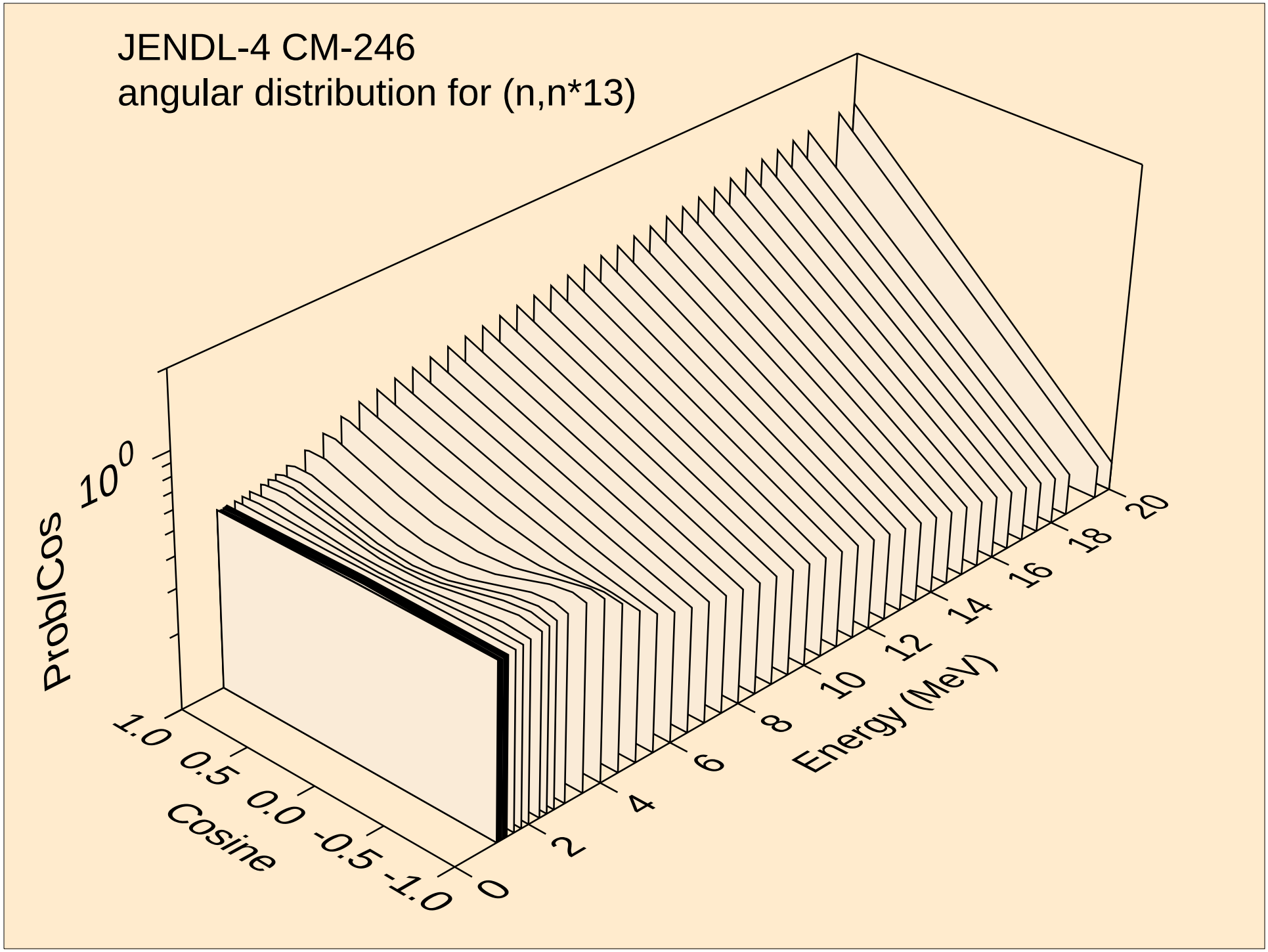

JENDL-4 CM-246
angular distribution for (n,n*8)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

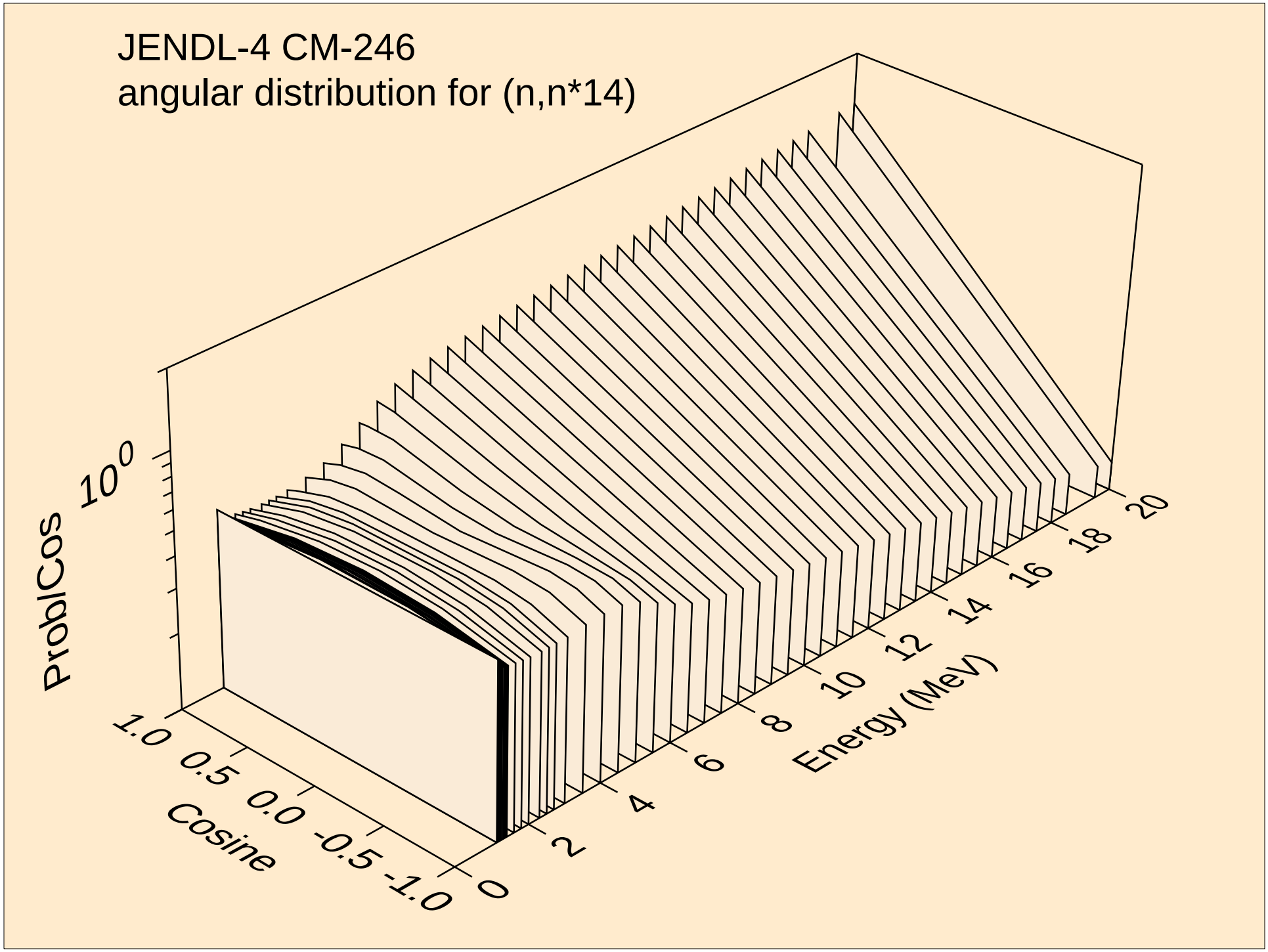

JENDL-4 CM-246
angular distribution for (n,n*9)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

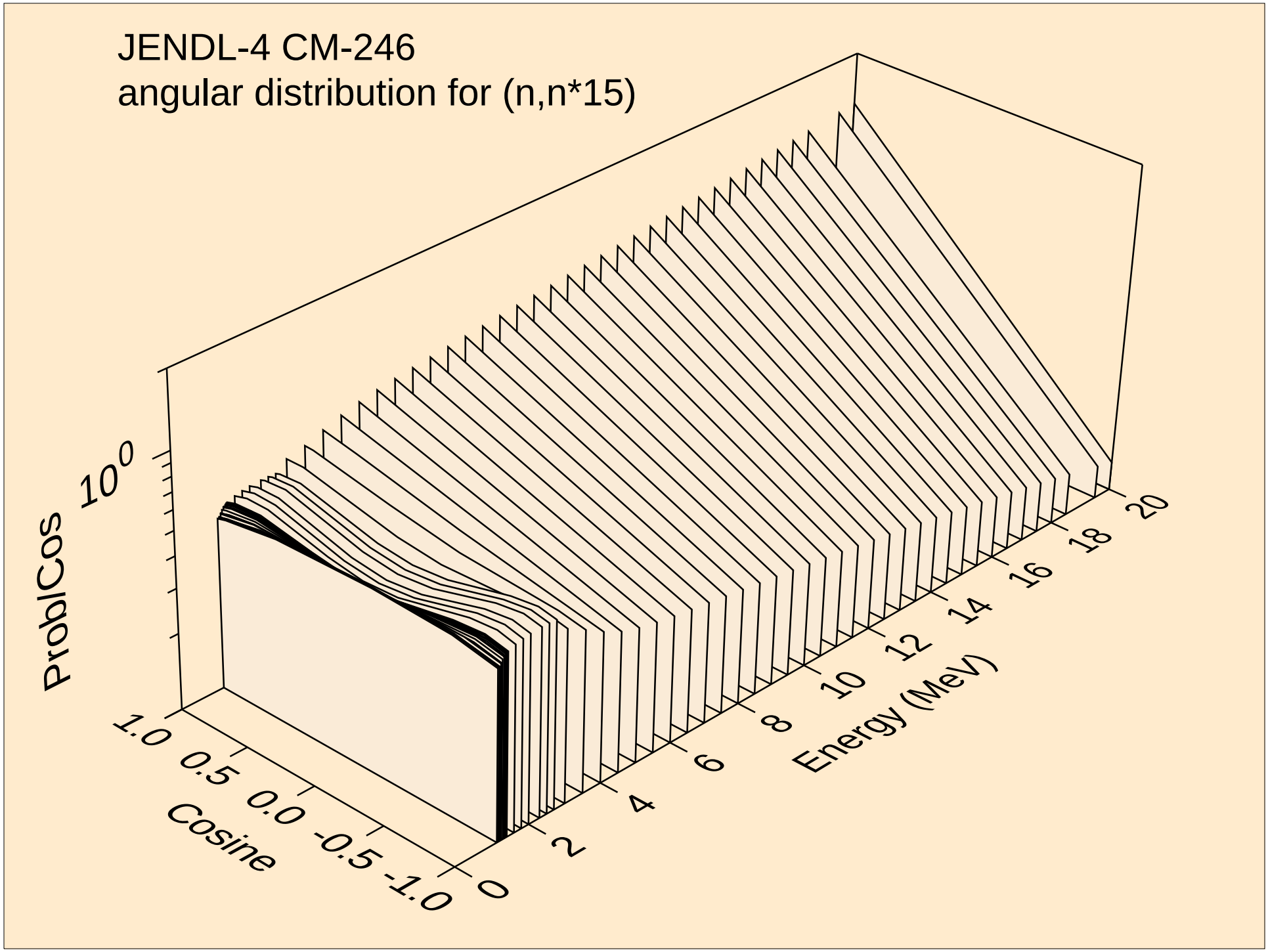

JENDL-4 CM-246
angular distribution for (n,n*10)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

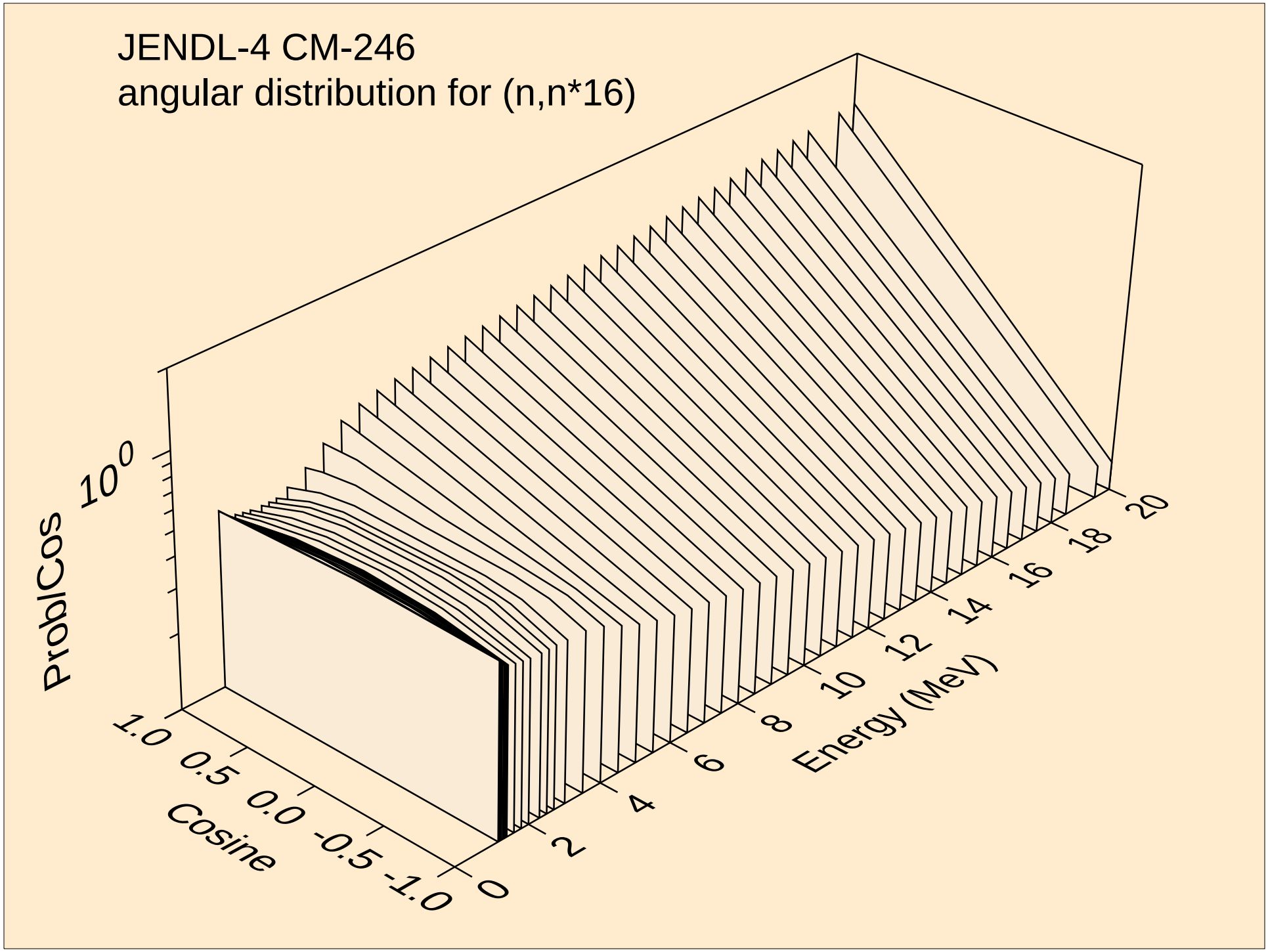

JENDL-4 CM-246
angular distribution for (n,n*11)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

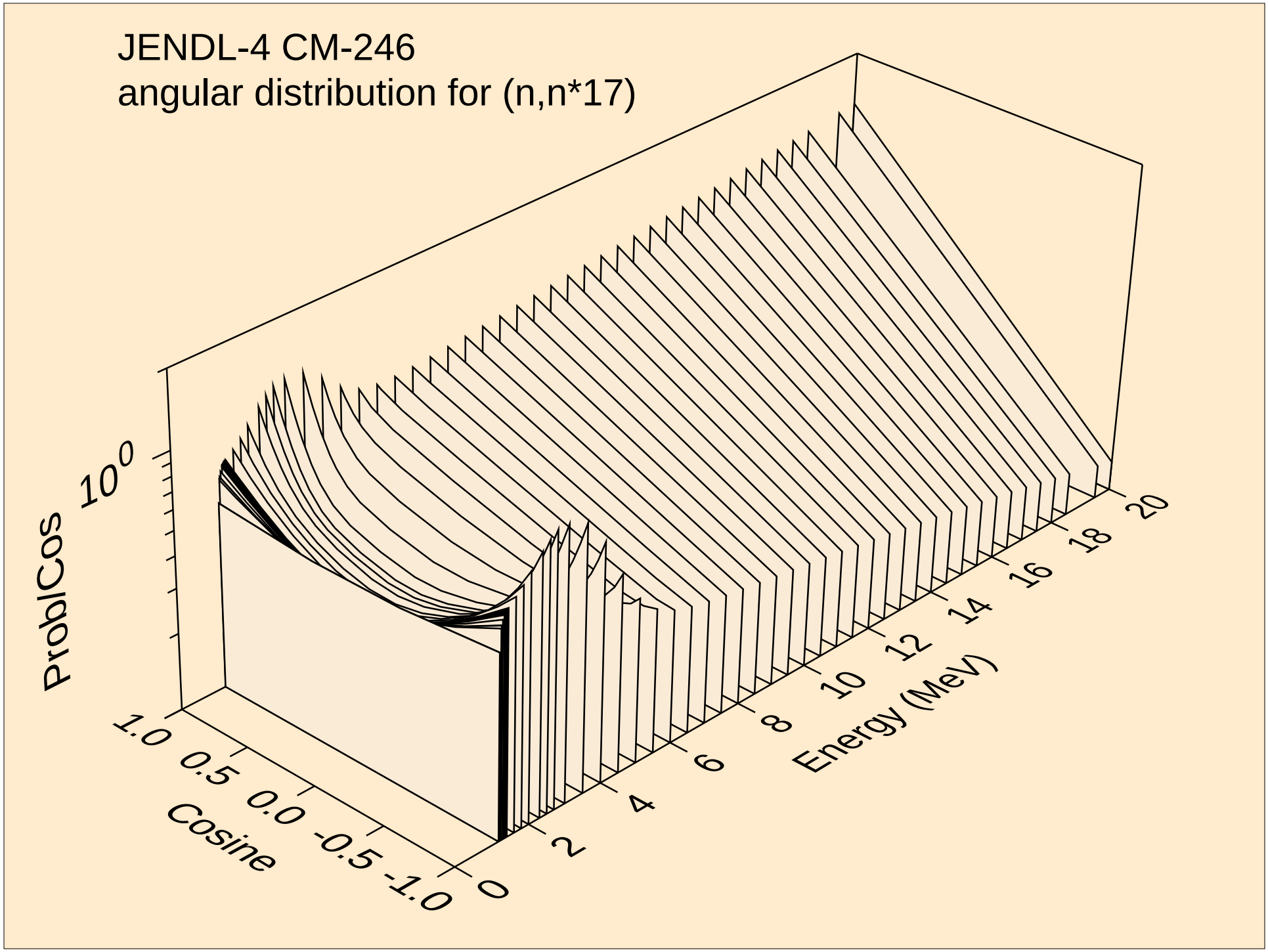

JENDL-4 CM-246
angular distribution for (n,n*12)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

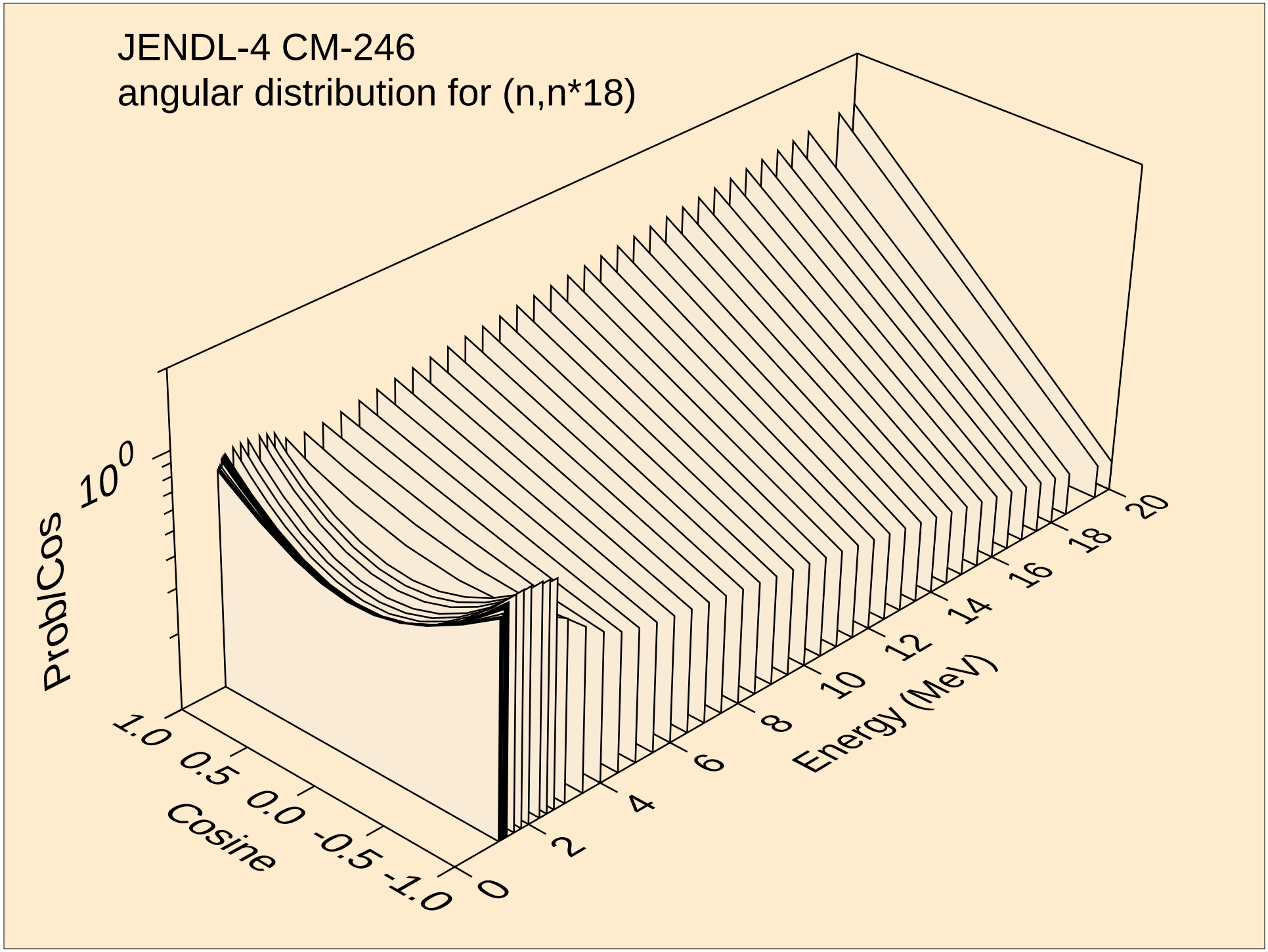

JENDL-4 CM-246
angular distribution for (n,n*13)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

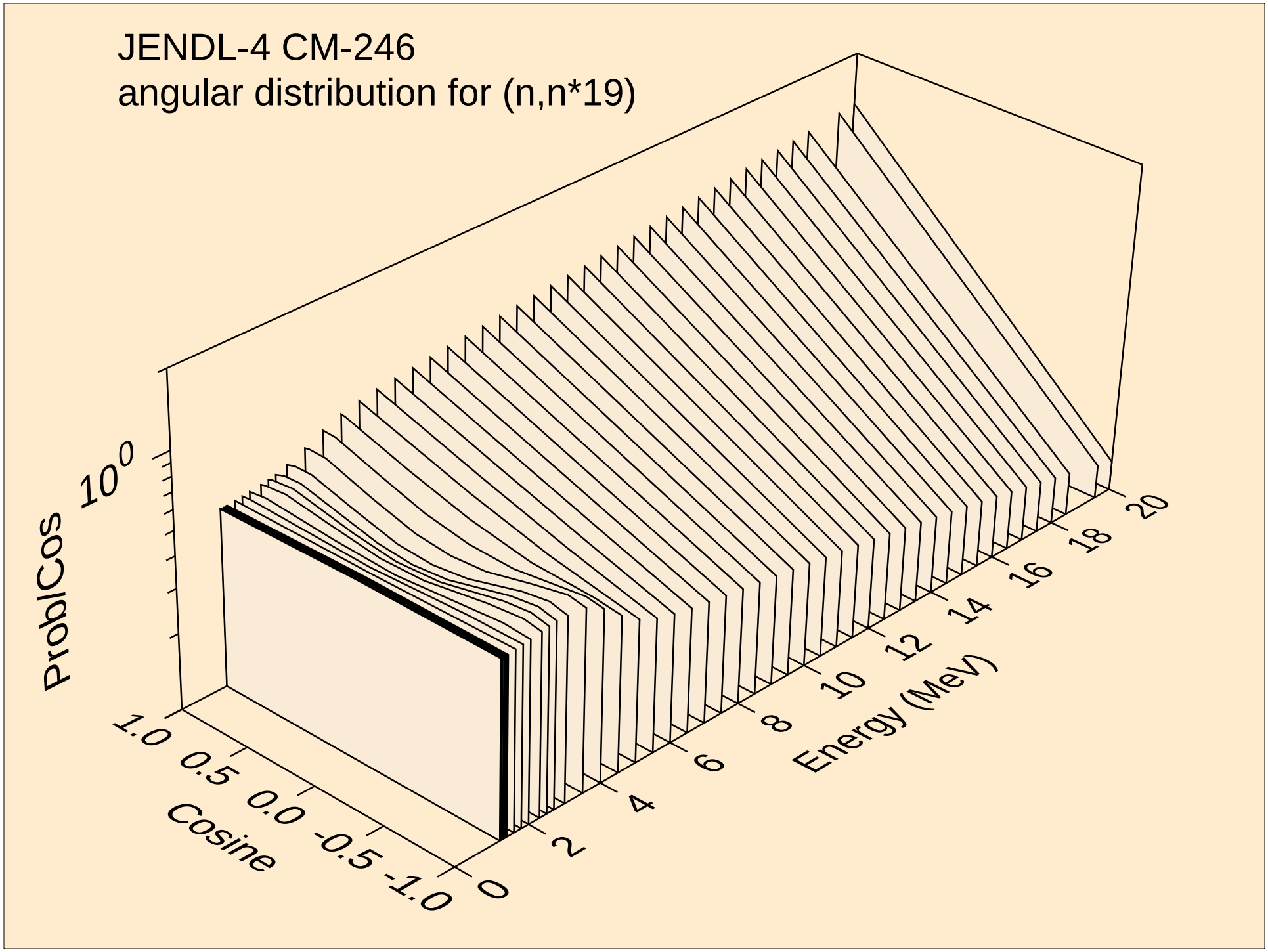

JENDL-4 CM-246
angular distribution for (n,n*14)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

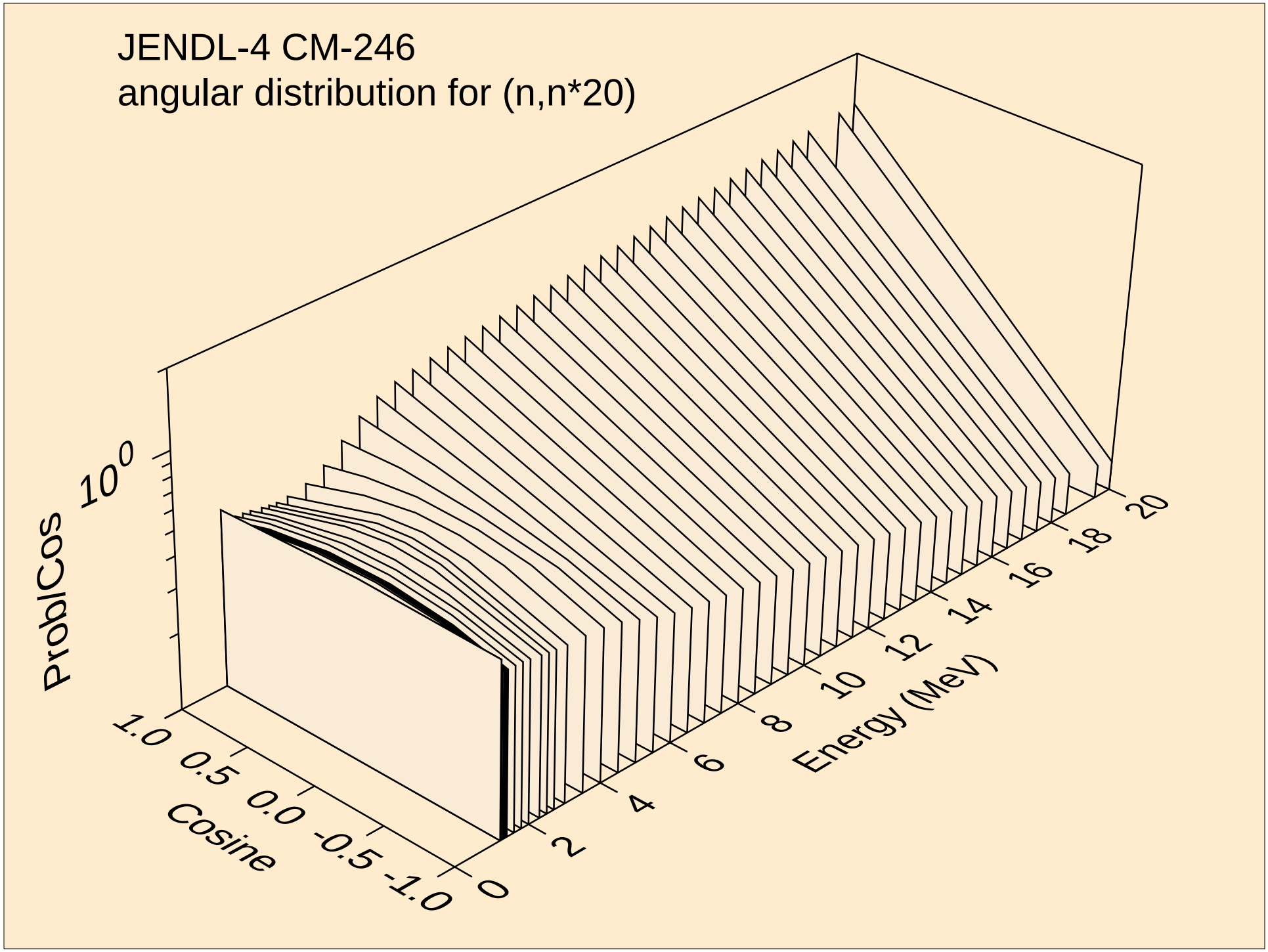

JENDL-4 CM-246
angular distribution for (n,n*15)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

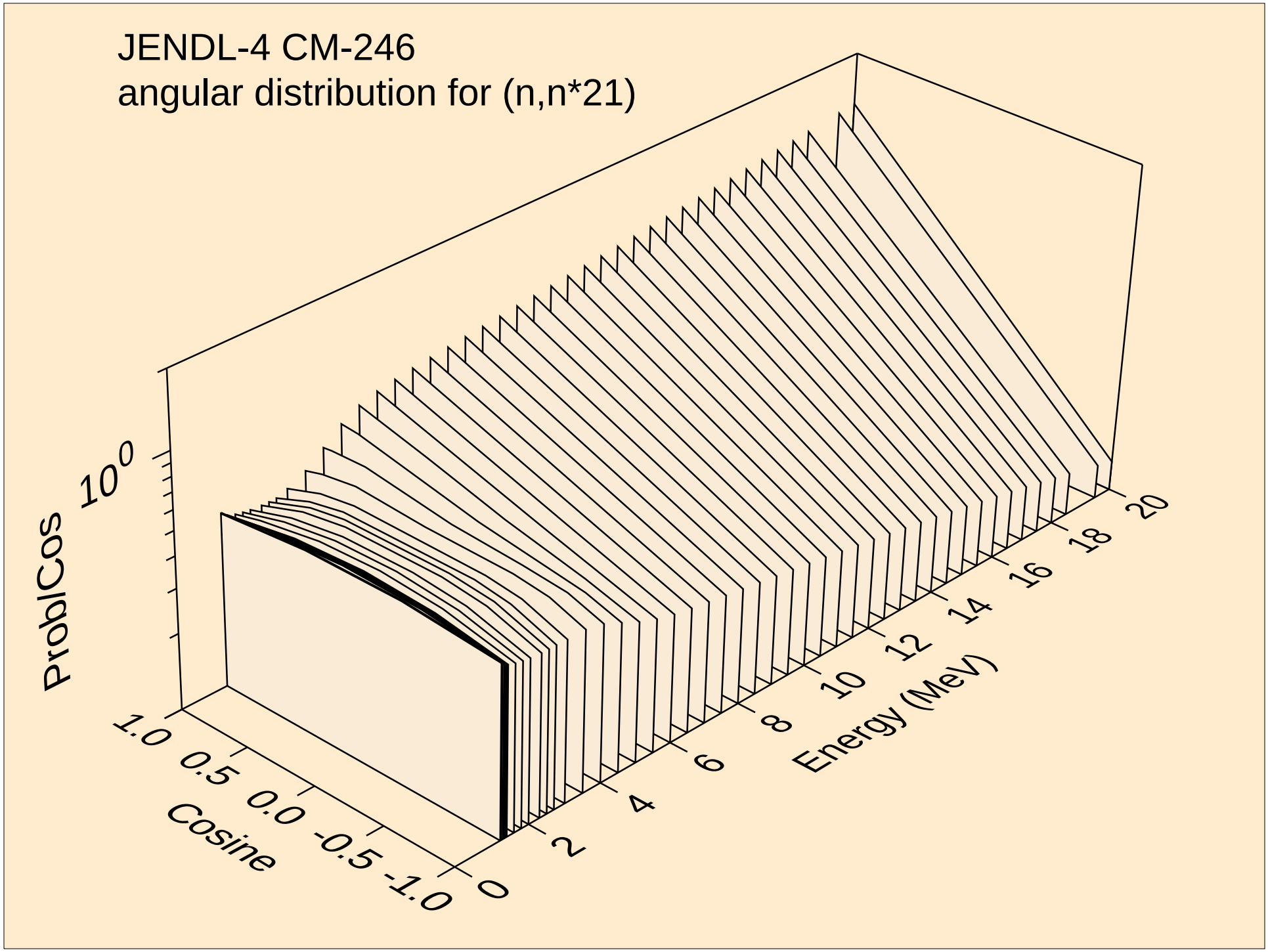

JENDL-4 CM-246
angular distribution for (n,n*16)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

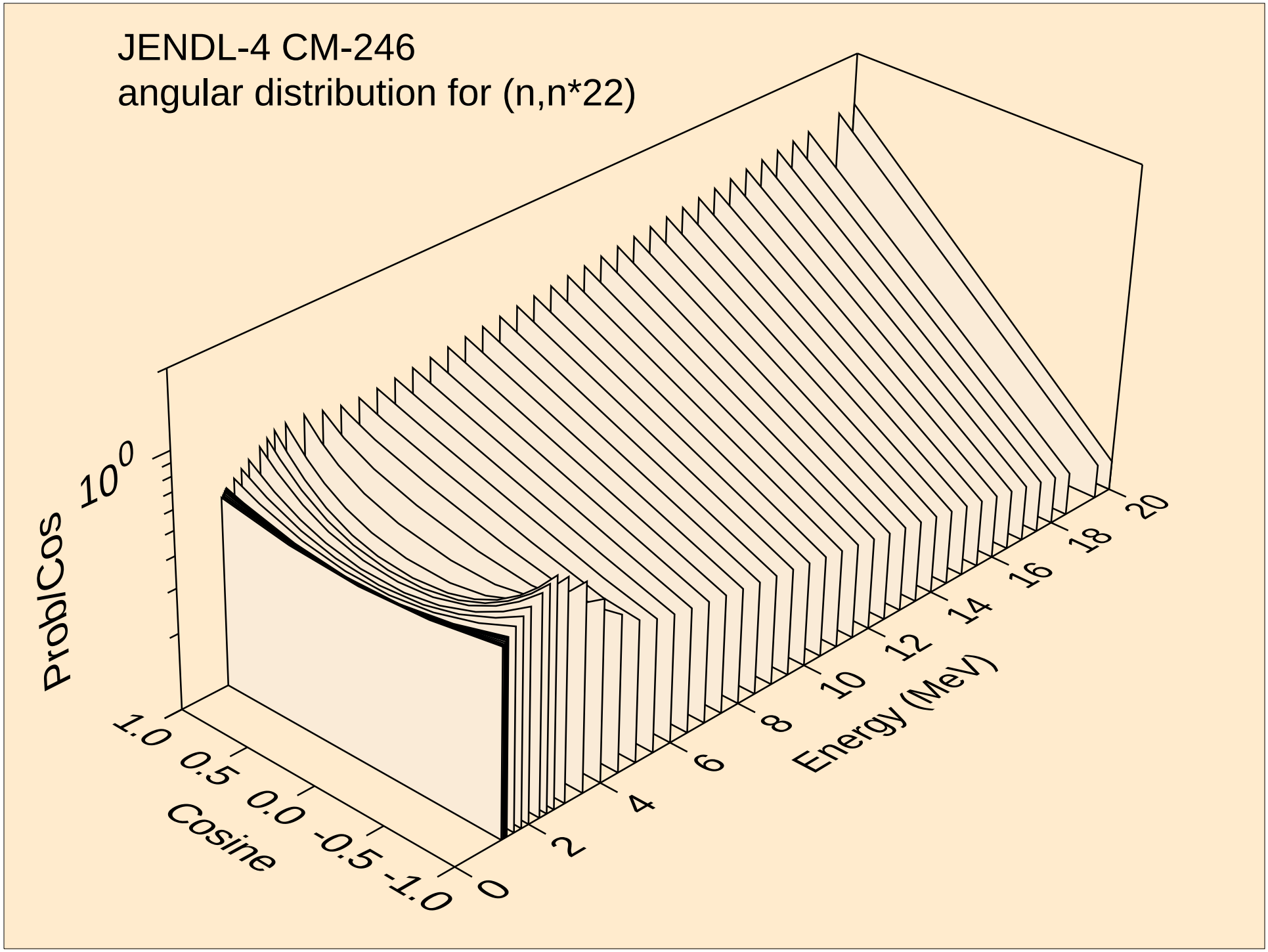

JENDL-4 CM-246
angular distribution for (n,n*17)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

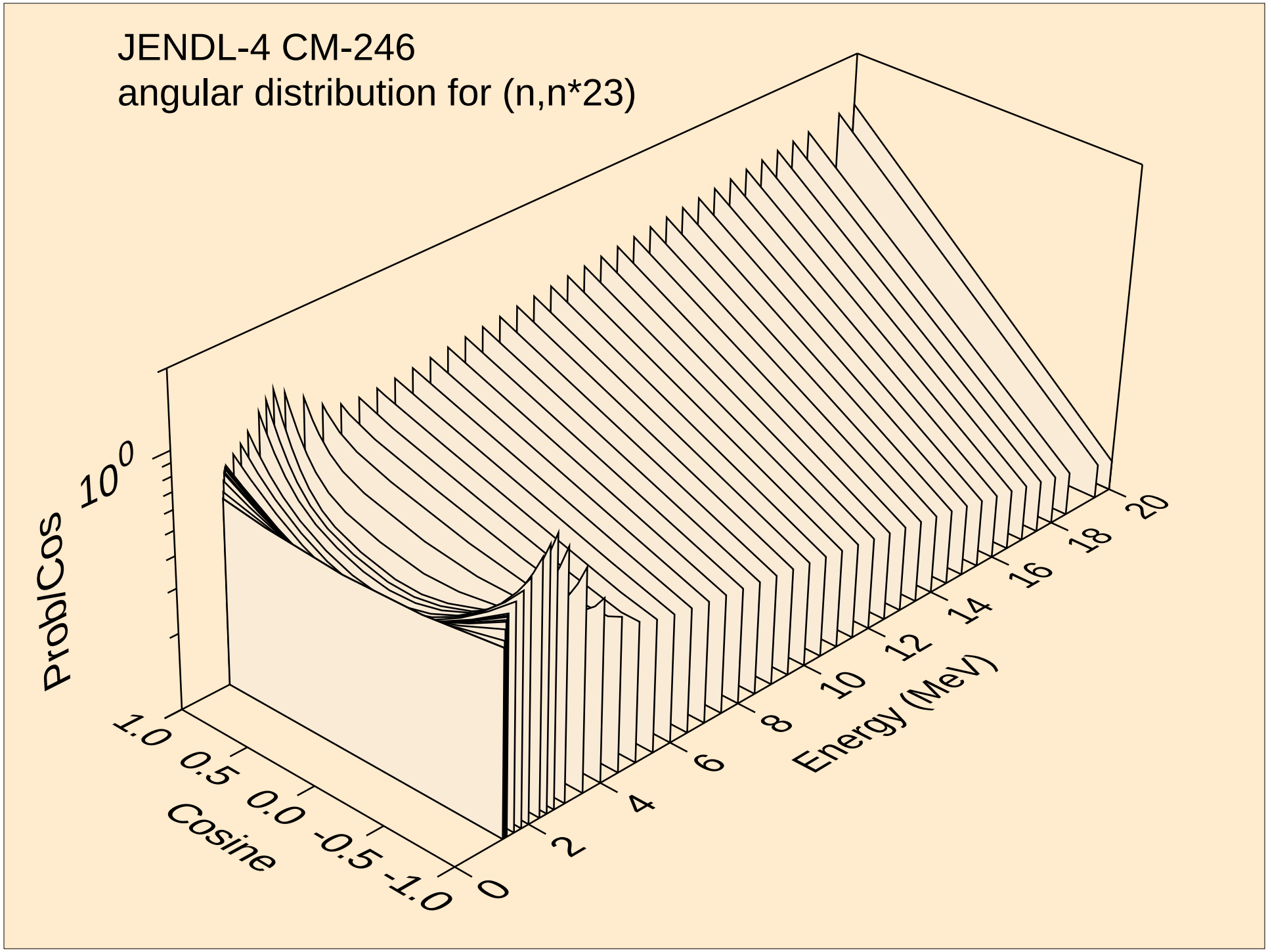

JENDL-4 CM-246
angular distribution for (n,n*18)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

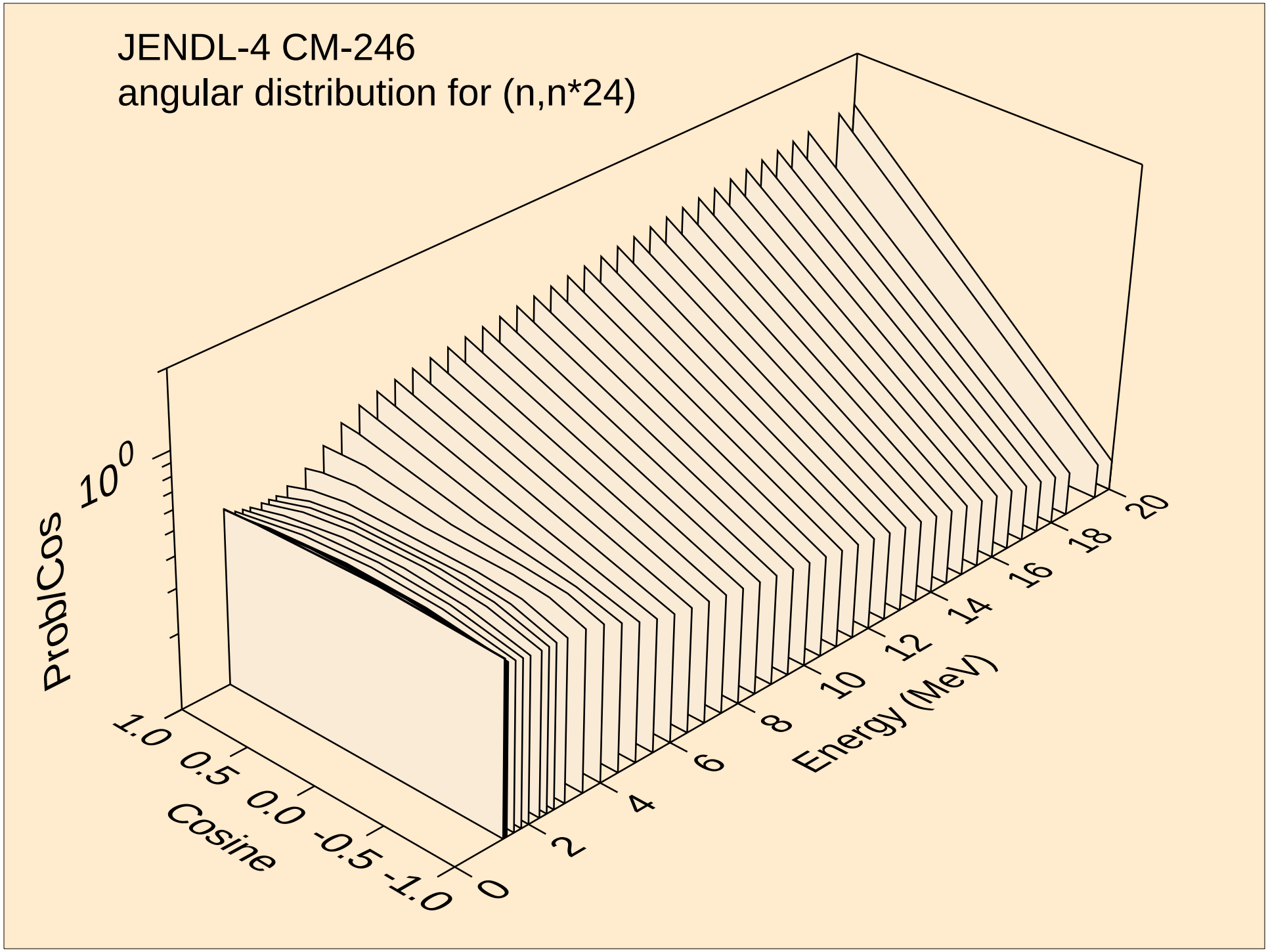

JENDL-4 CM-246
angular distribution for (n,n*19)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

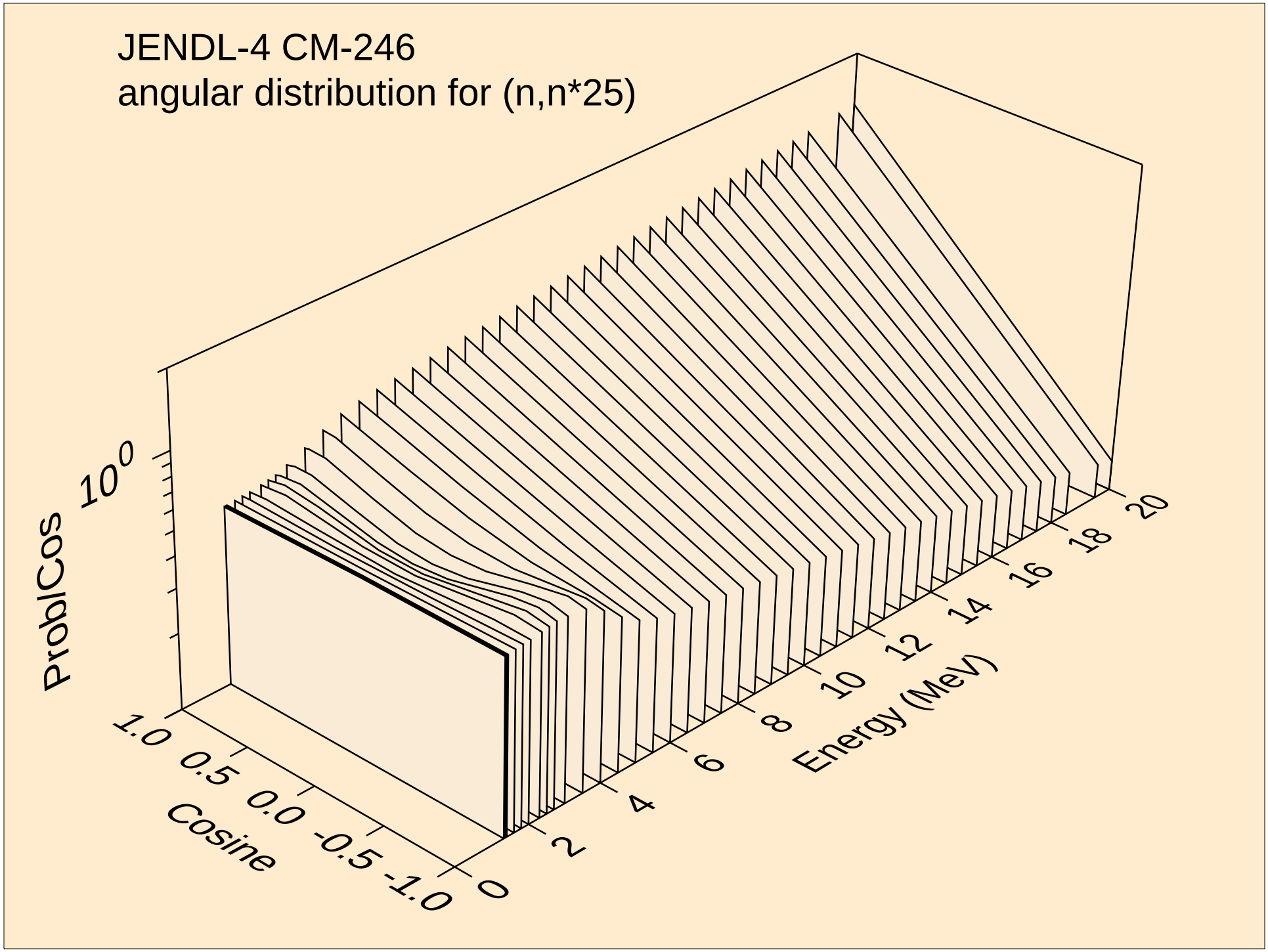

JENDL-4 CM-246
angular distribution for (n,n*20)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

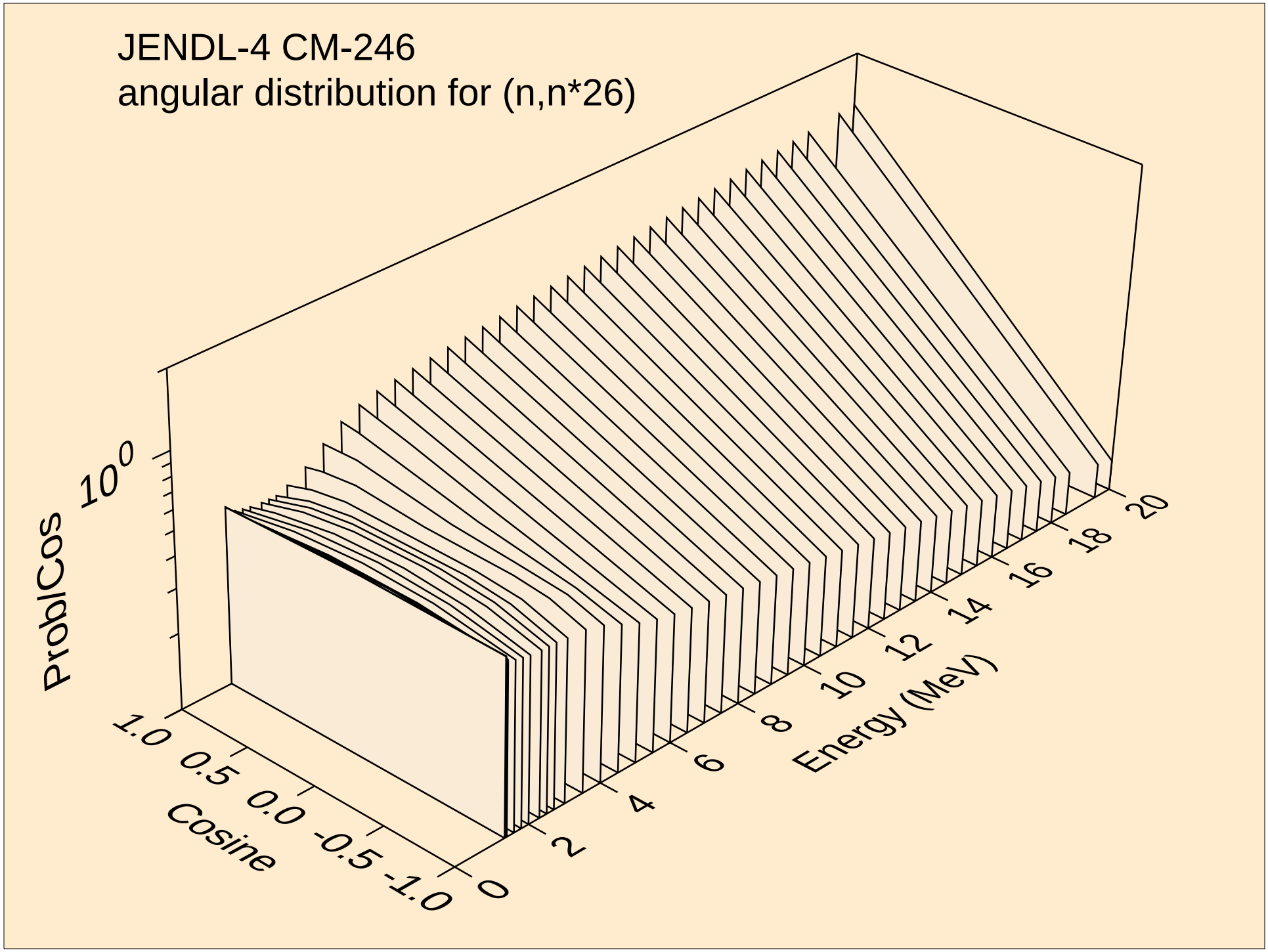

JENDL-4 CM-246
angular distribution for (n,n*21)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

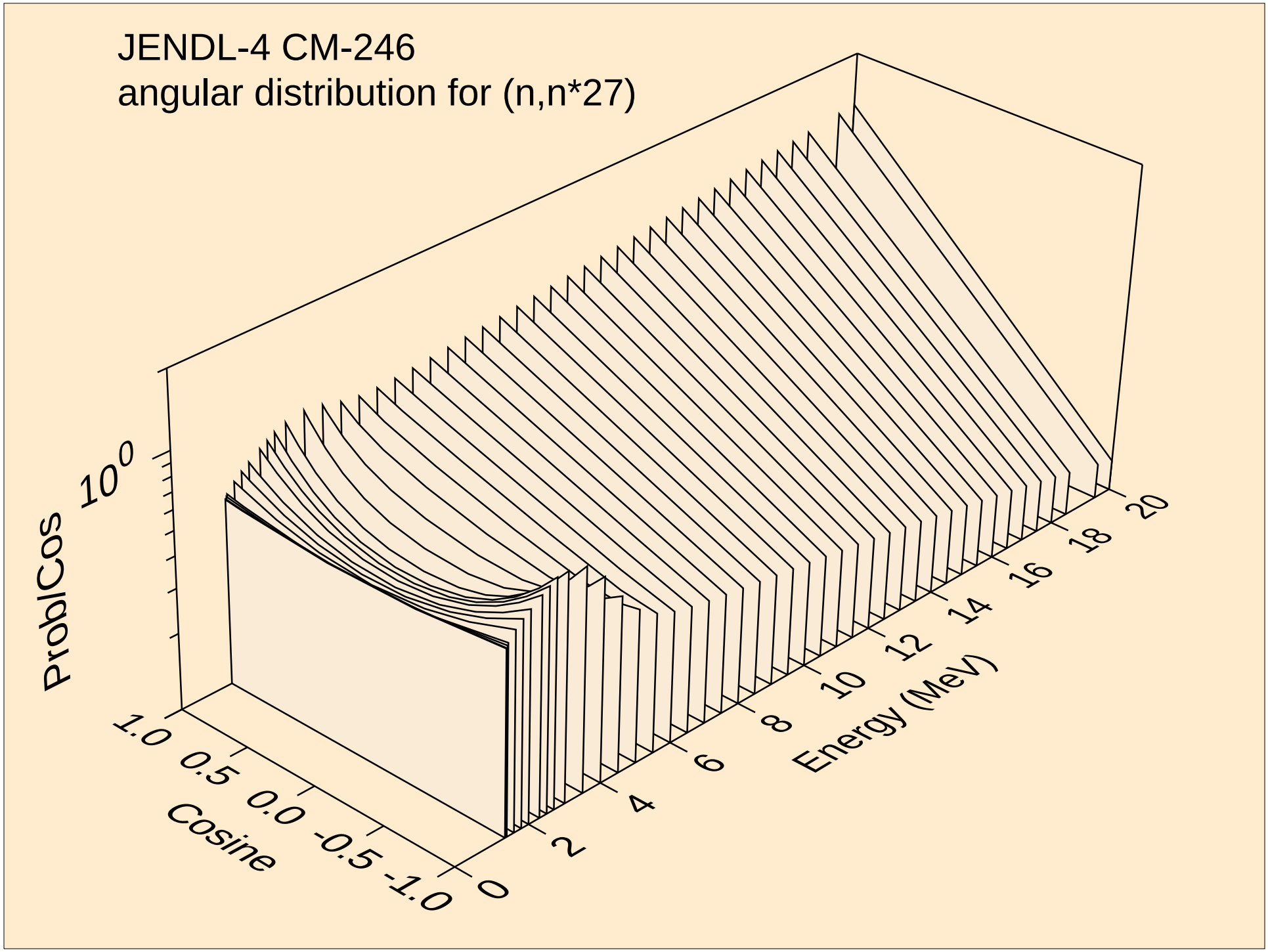

JENDL-4 CM-246
angular distribution for (n,n*22)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

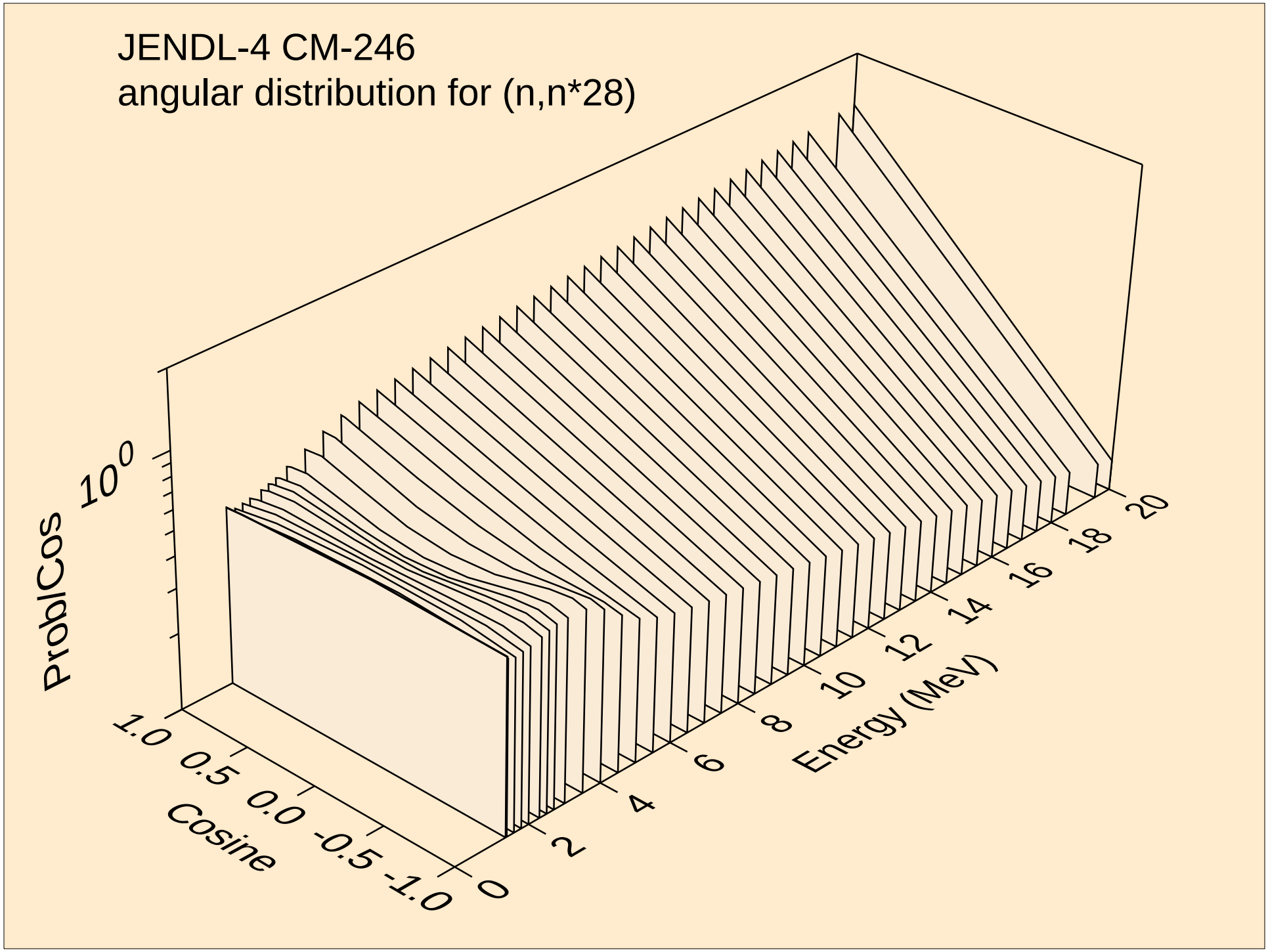

JENDL-4 CM-246
angular distribution for (n,n*23)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

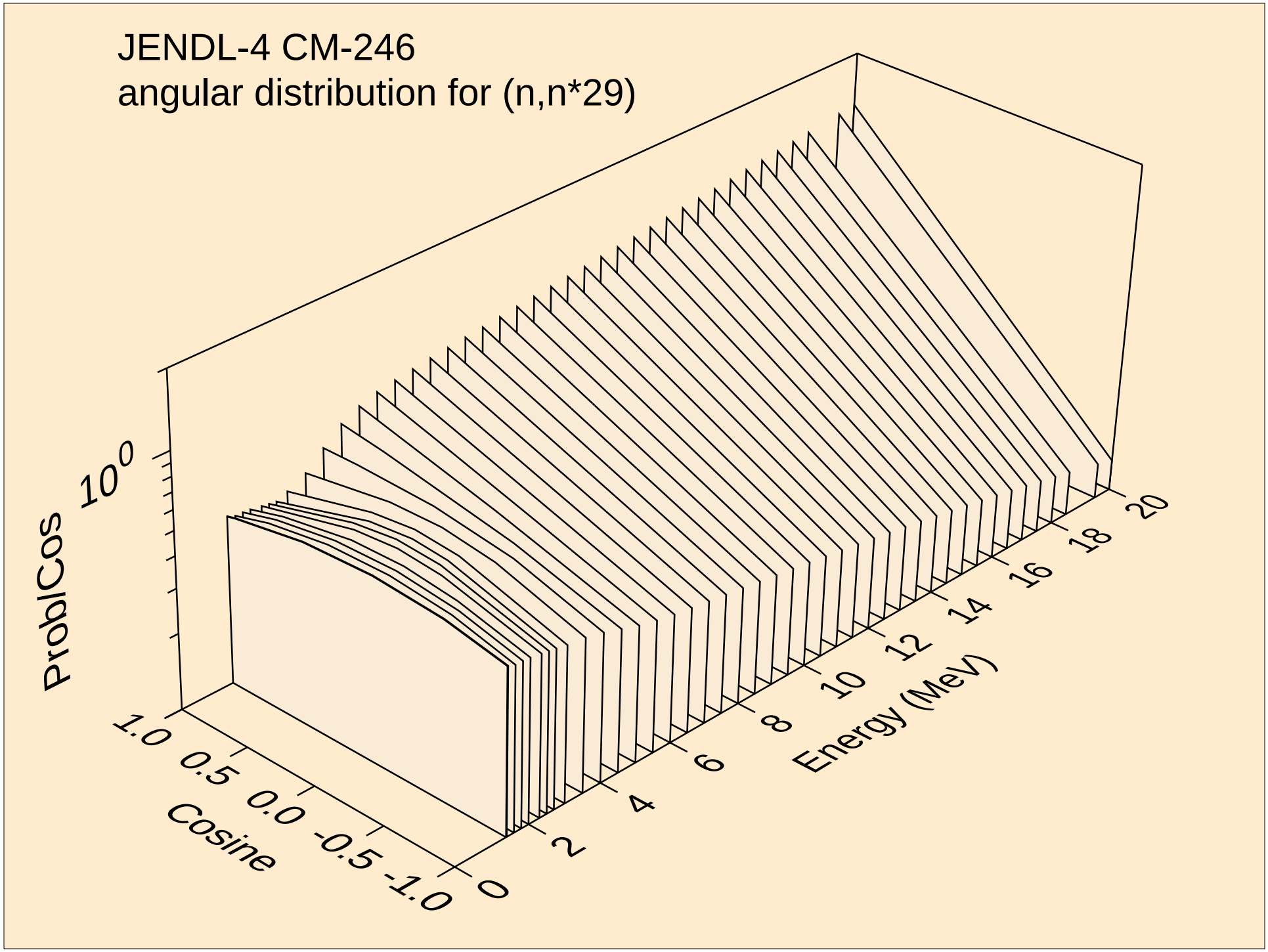

JENDL-4 CM-246
angular distribution for (n,n*24)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

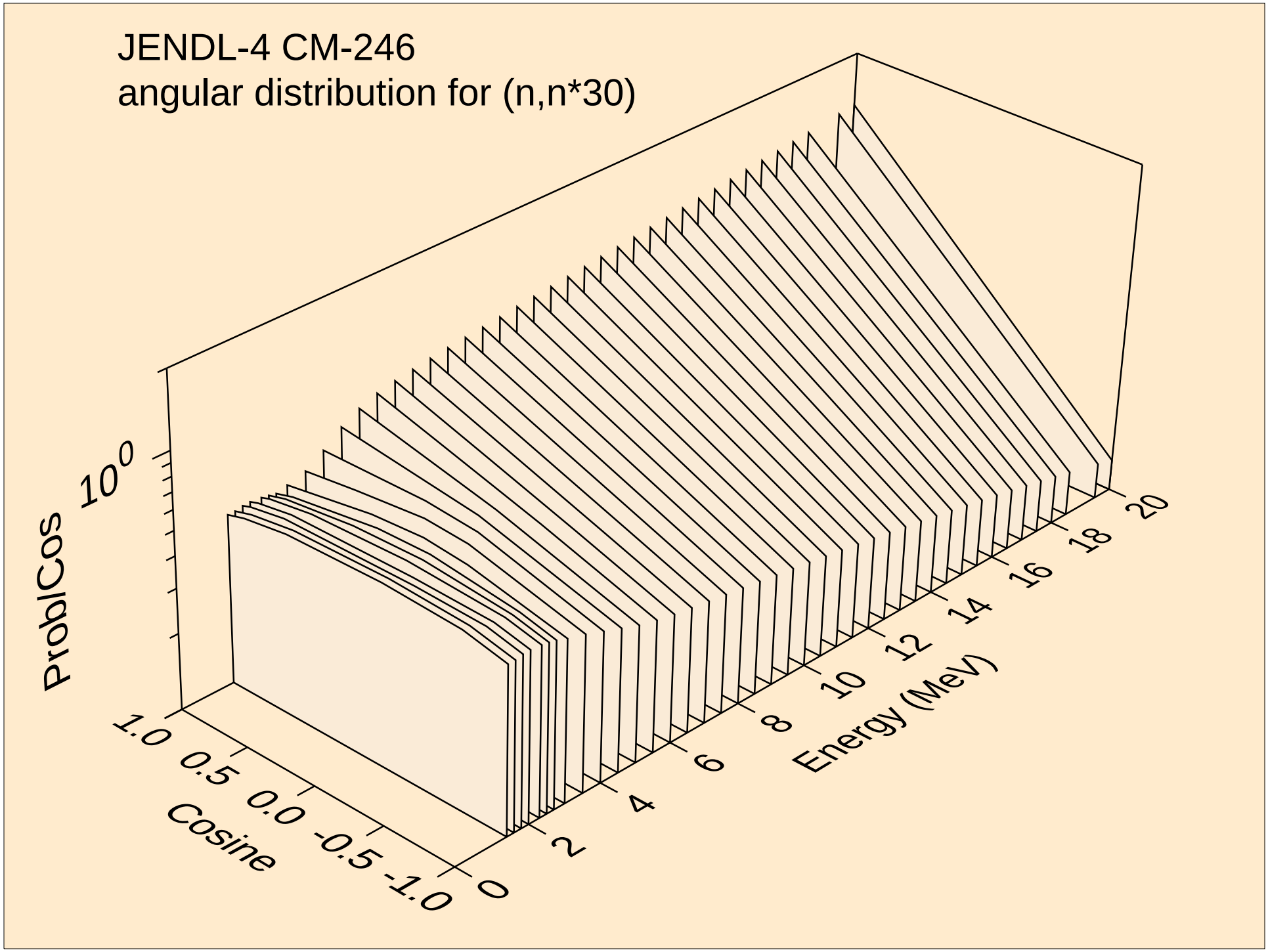

JENDL-4 CM-246
angular distribution for (n,n*25)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

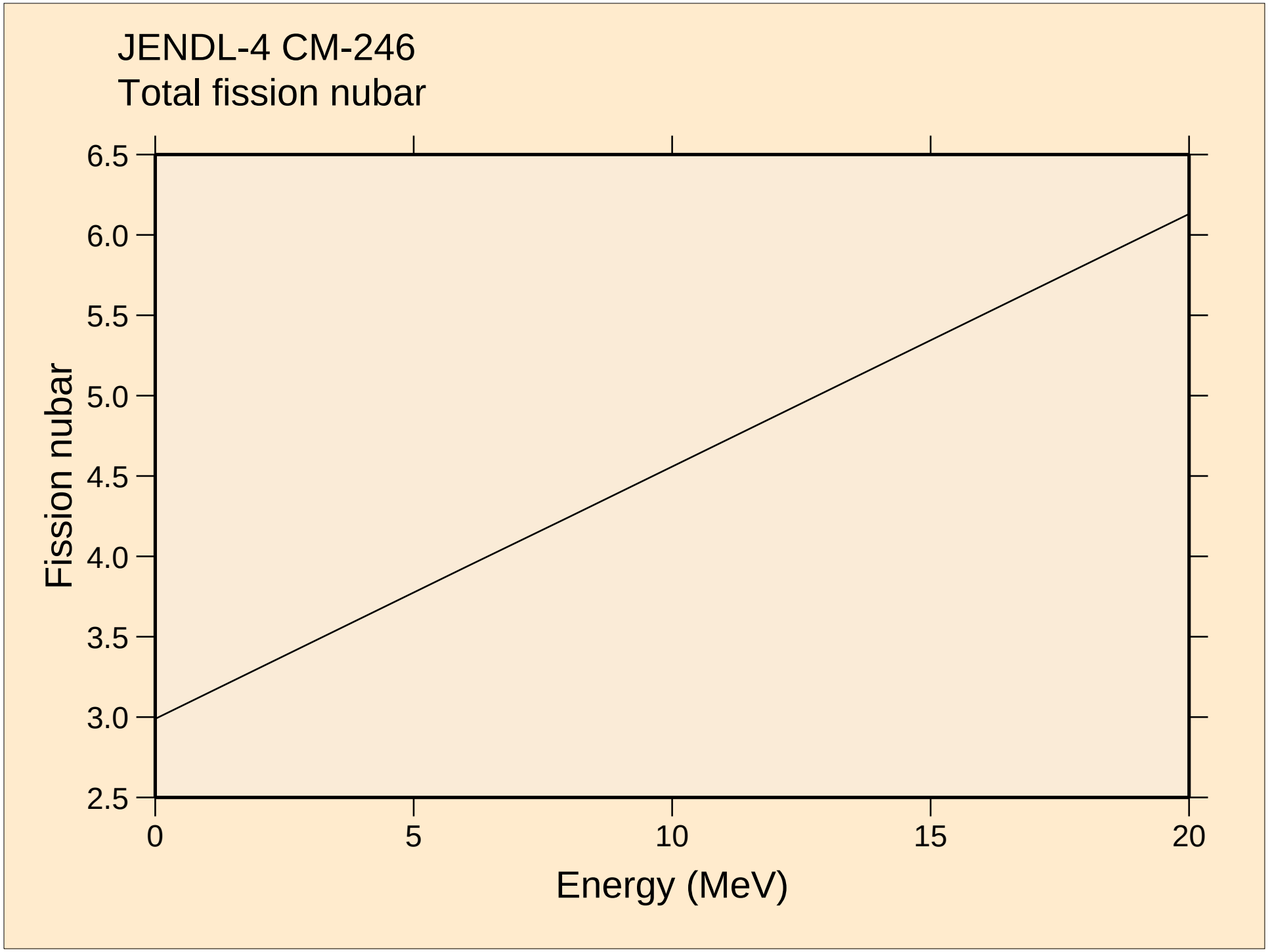

JENDL-4 CM-246
angular distribution for (n,n*26)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

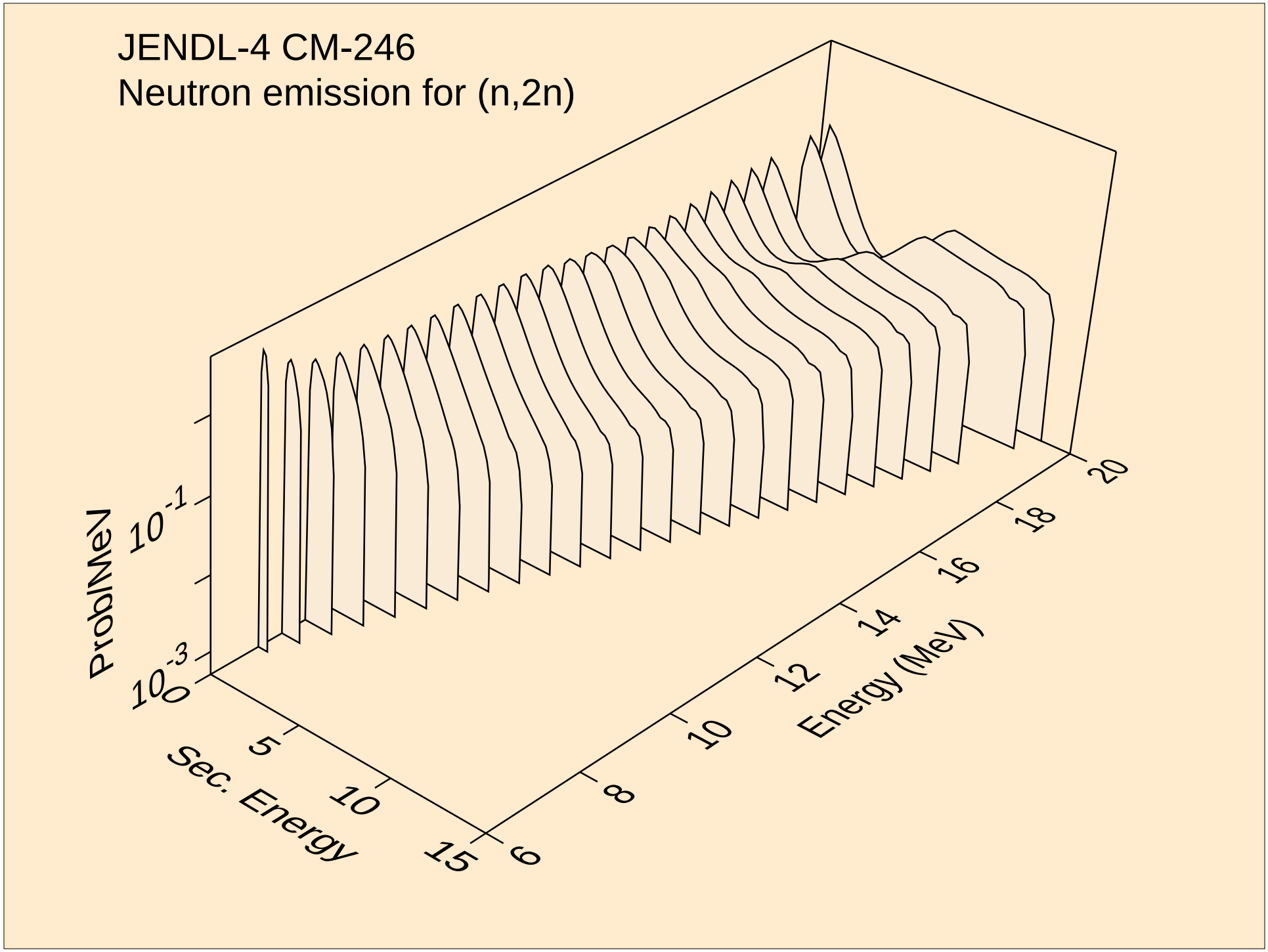

JENDL-4 CM-246
angular distribution for (n,n*27)
ProblCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

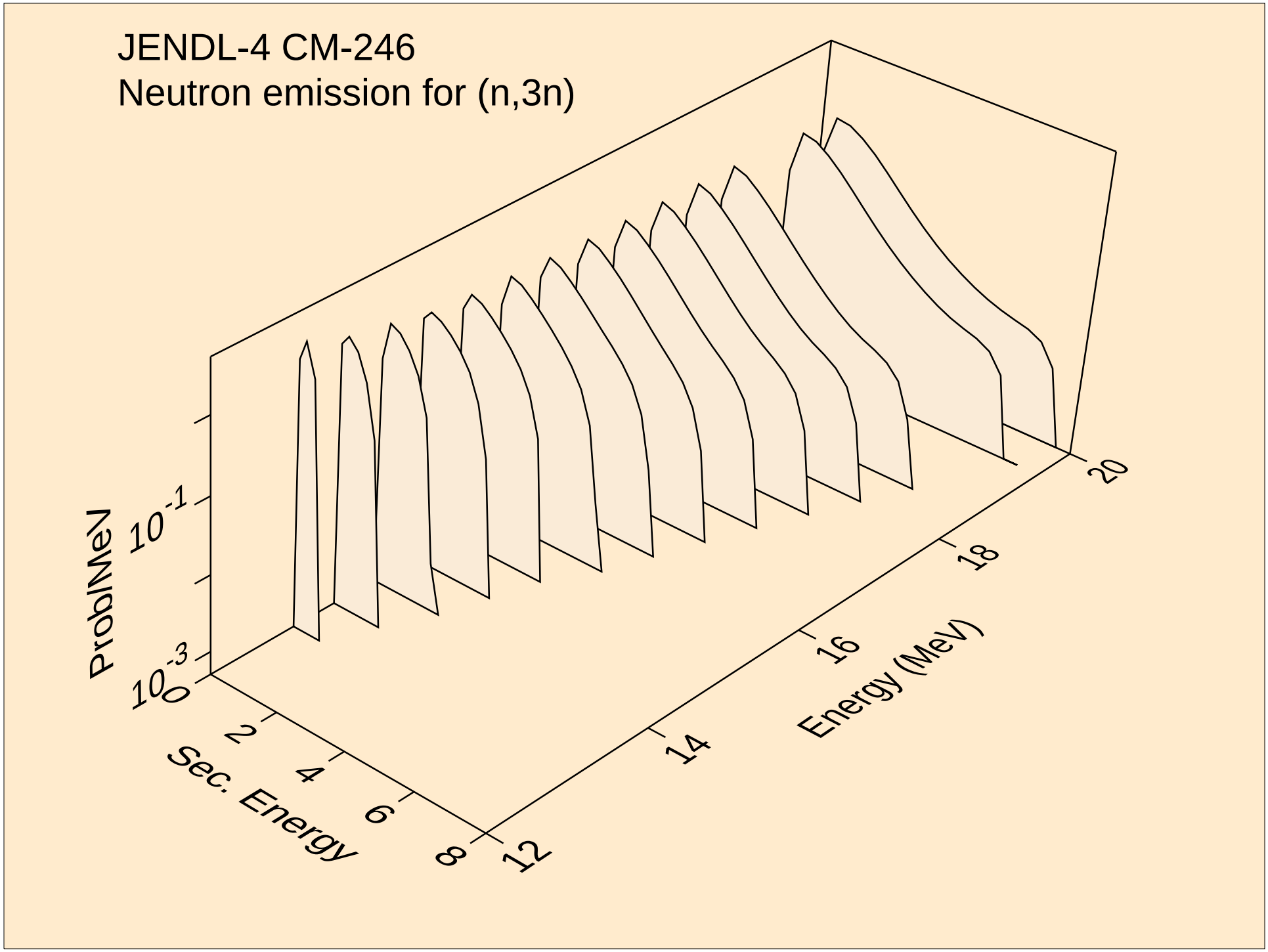

JENDL-4 CM-246
angular distribution for (n,n*28)
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20


JENDL-4 CM-246
angular distribution for (n,n*29)
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)

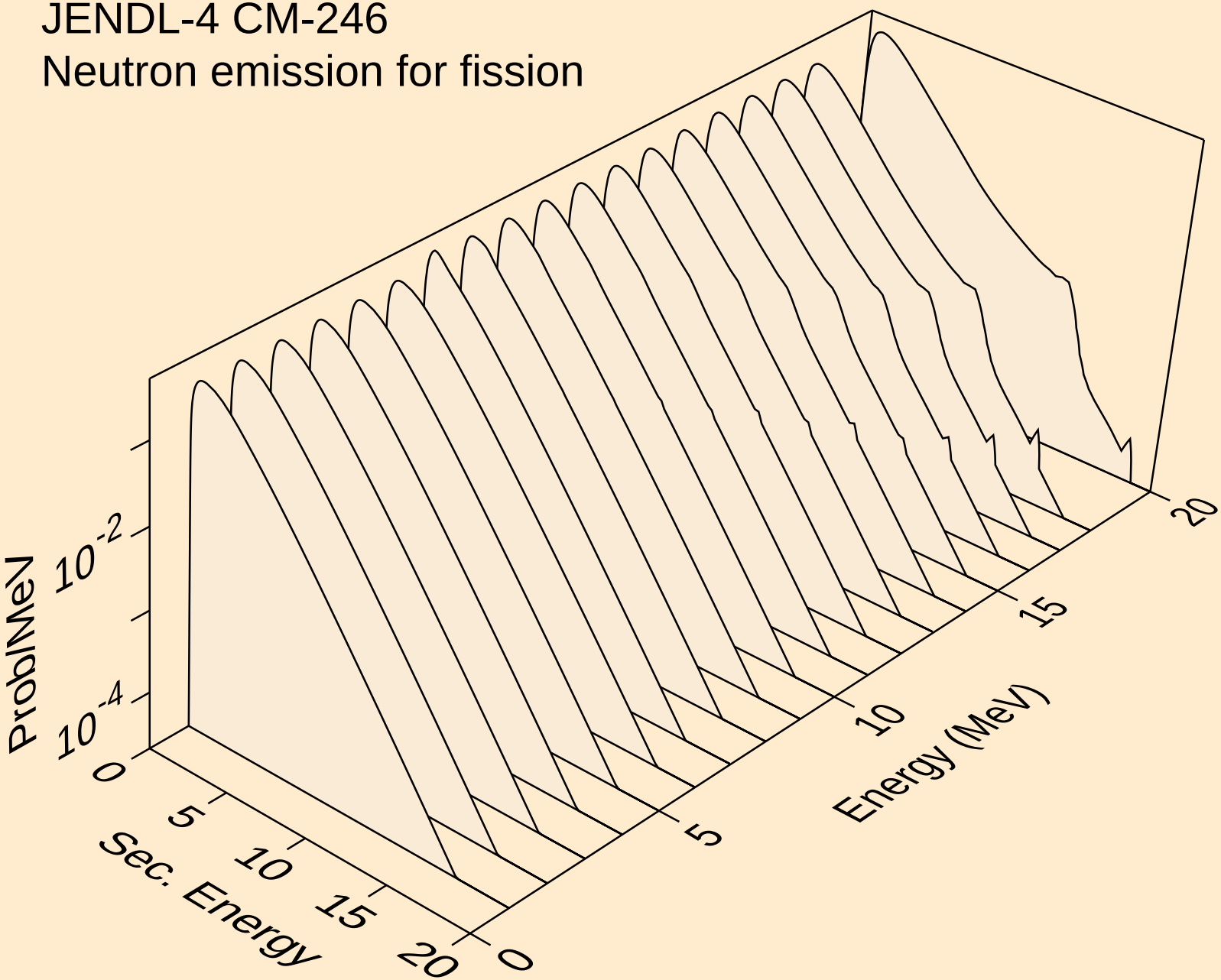

JENDL-4 CM-246
angular distribution for (n,n*30)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

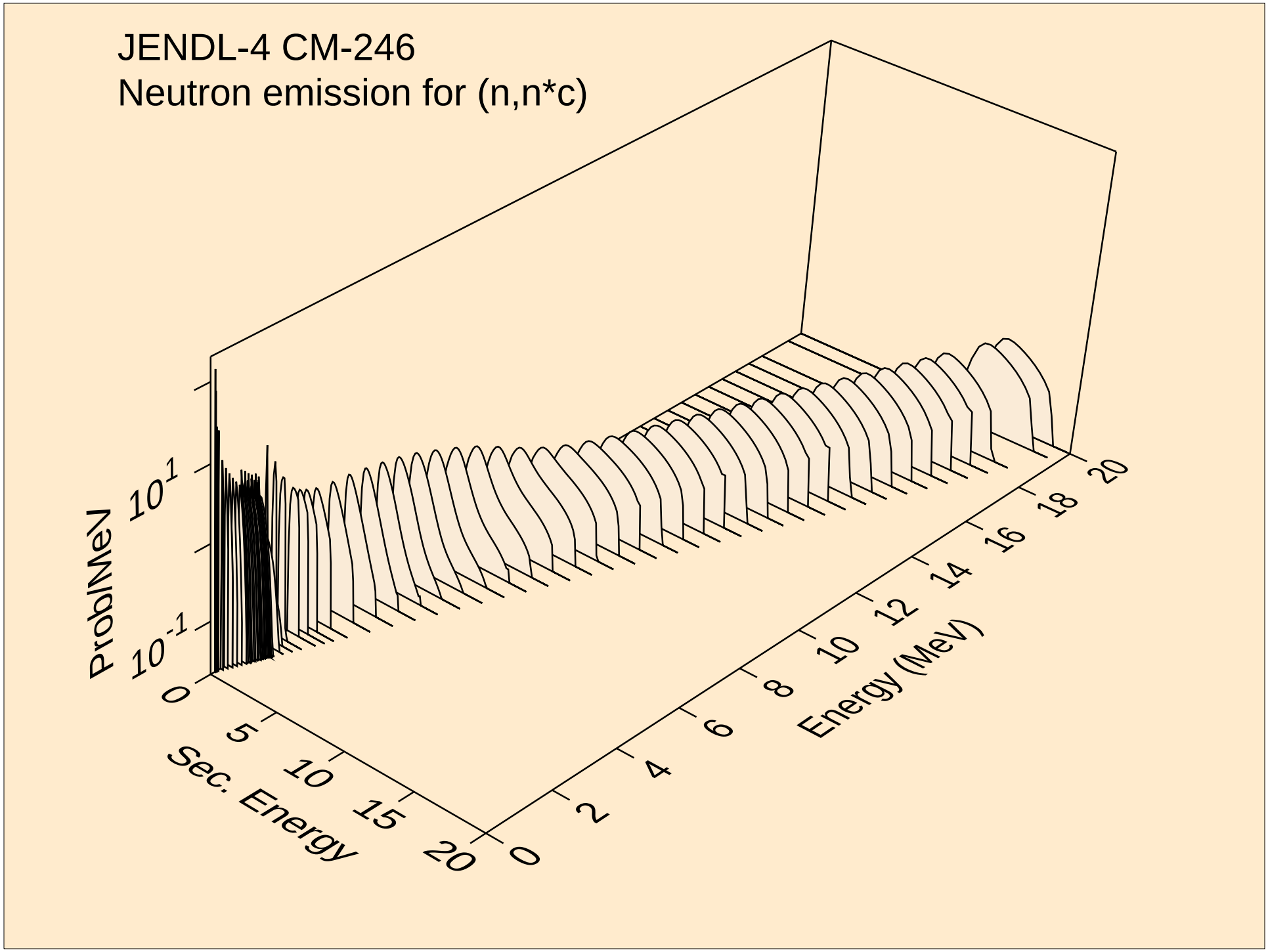

JENDL-4 CM-246
Total fission nubar
Fission nubar
6.5
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0
5
10
15
20
Energy (MeV)


JENDL-4 CM-246
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)

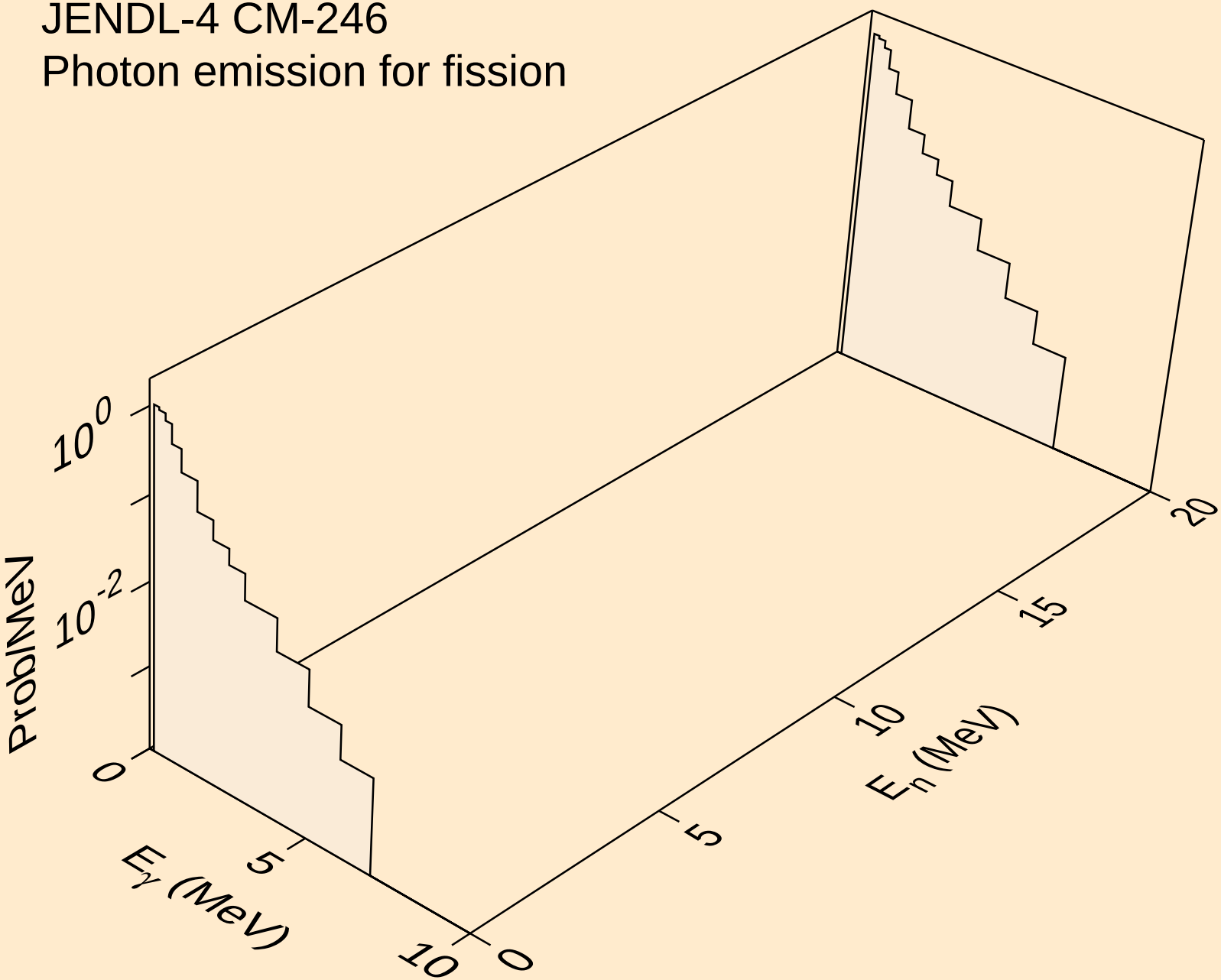

JENDL-4 CM-246
Neutron emission for (n,3n)
Prob/MeV
10^{-1}
10^{-3}
0
2
4
6
8
Sec. Energy
12
14
16
18
20
Energy (MeV)

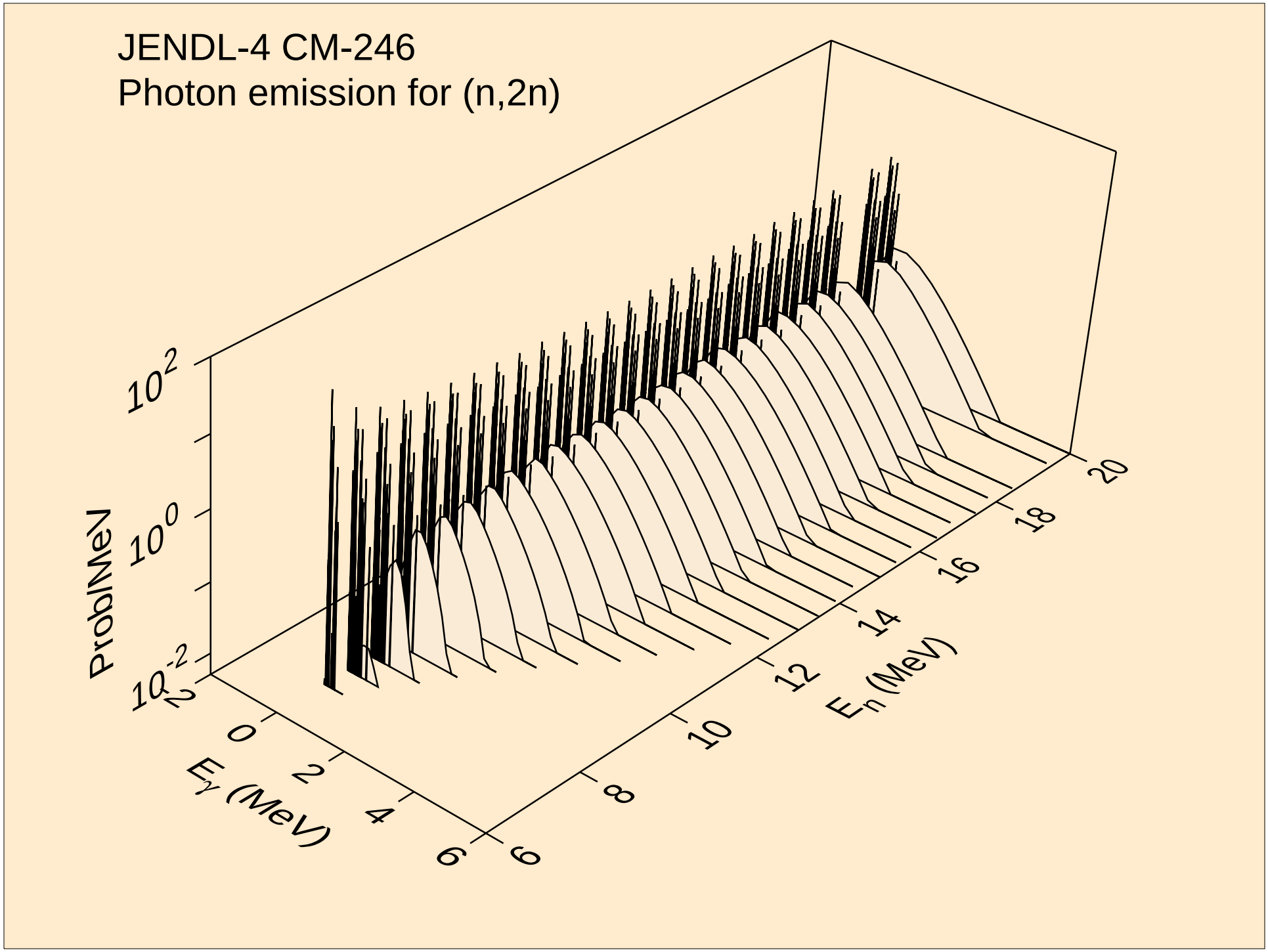
JENDL-4 CM-246
Neutron emission for fission

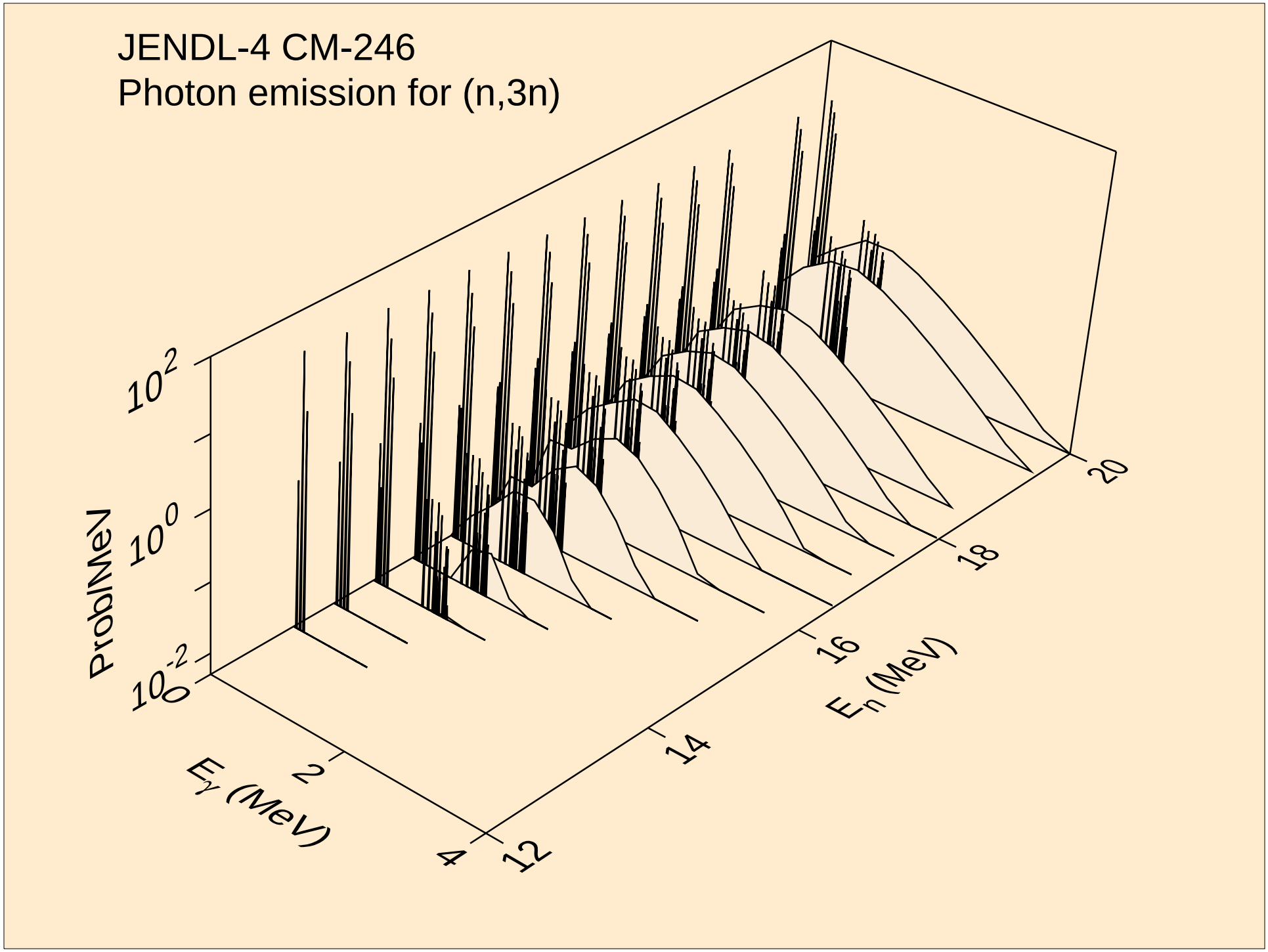


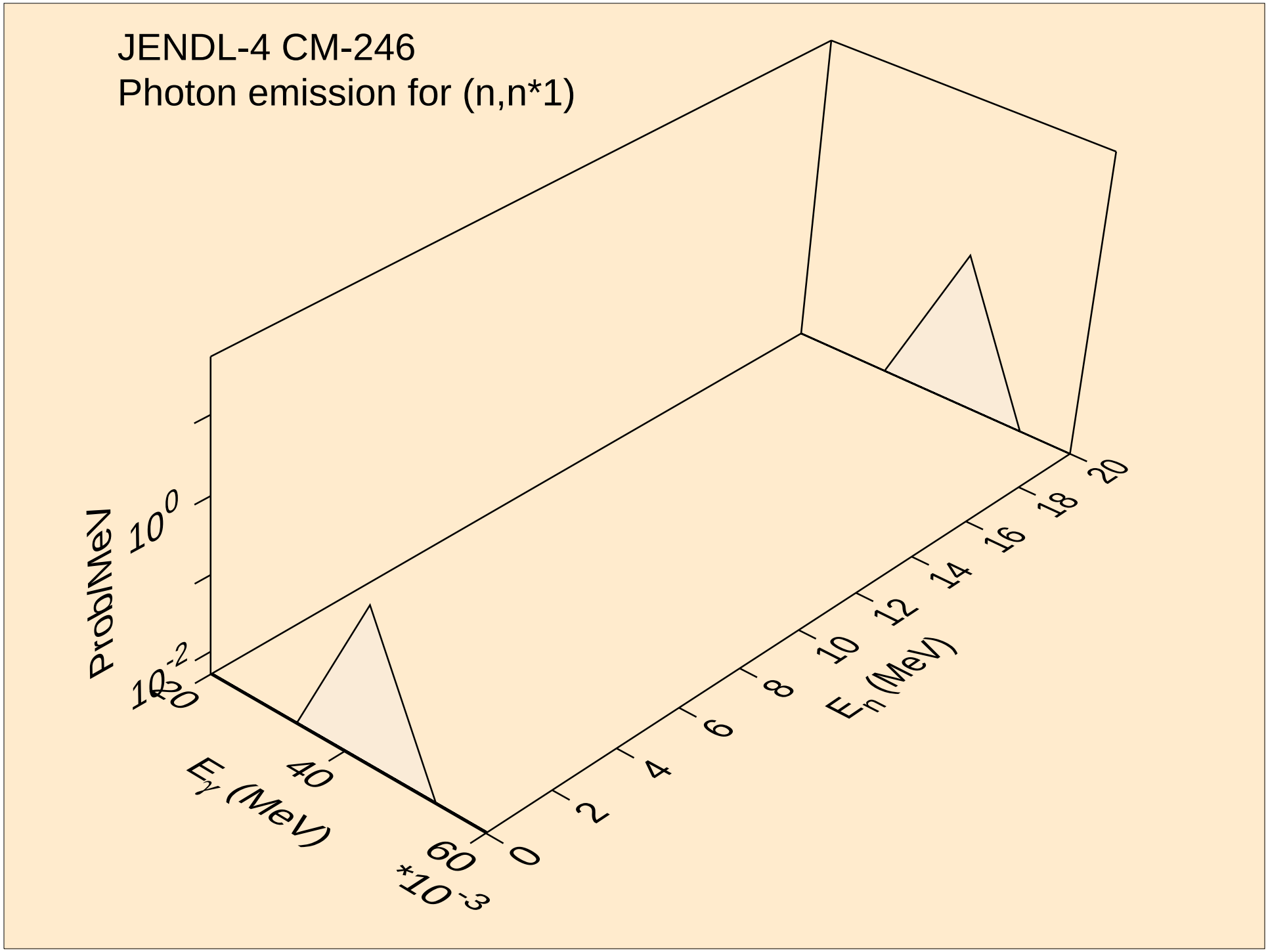

JENDL-4 CM-246
Neutron emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

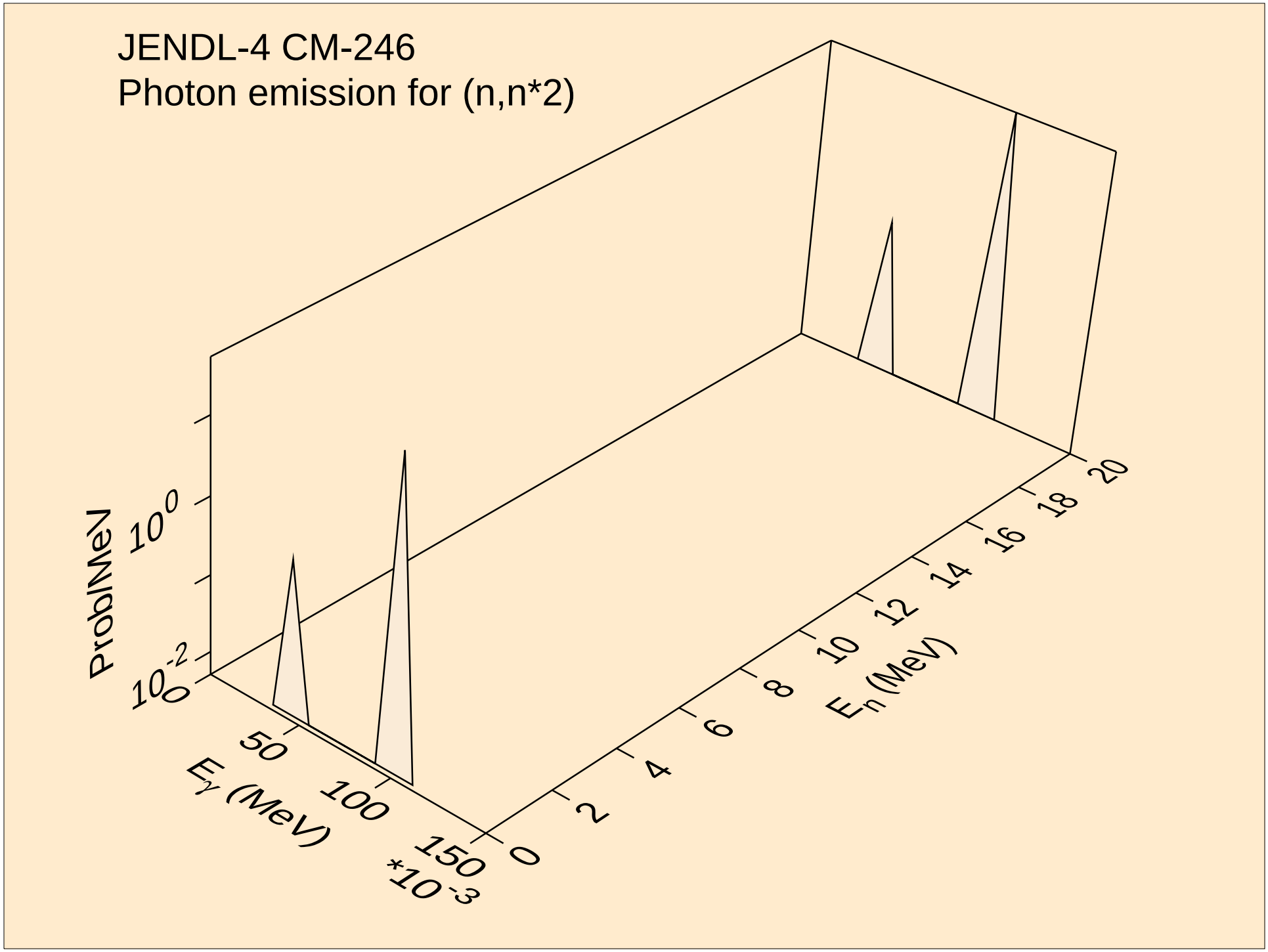
JENDL-4 CM-246
Photon emission for fission

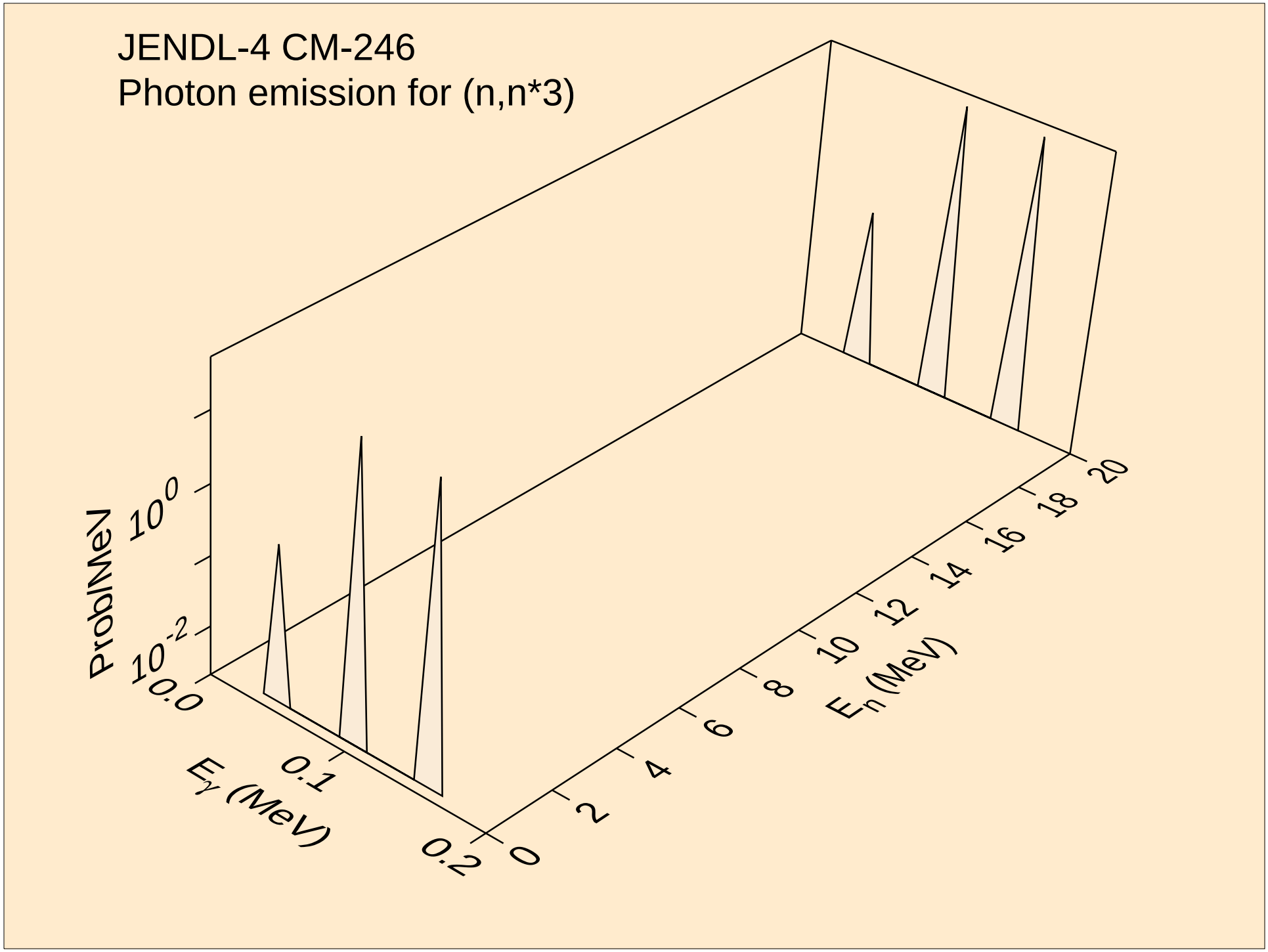



JENDL-4 CM-246
Photon emission for (n,2n)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
2
4
6
E_n (MeV)
6
8
10
12
14
16
18
20

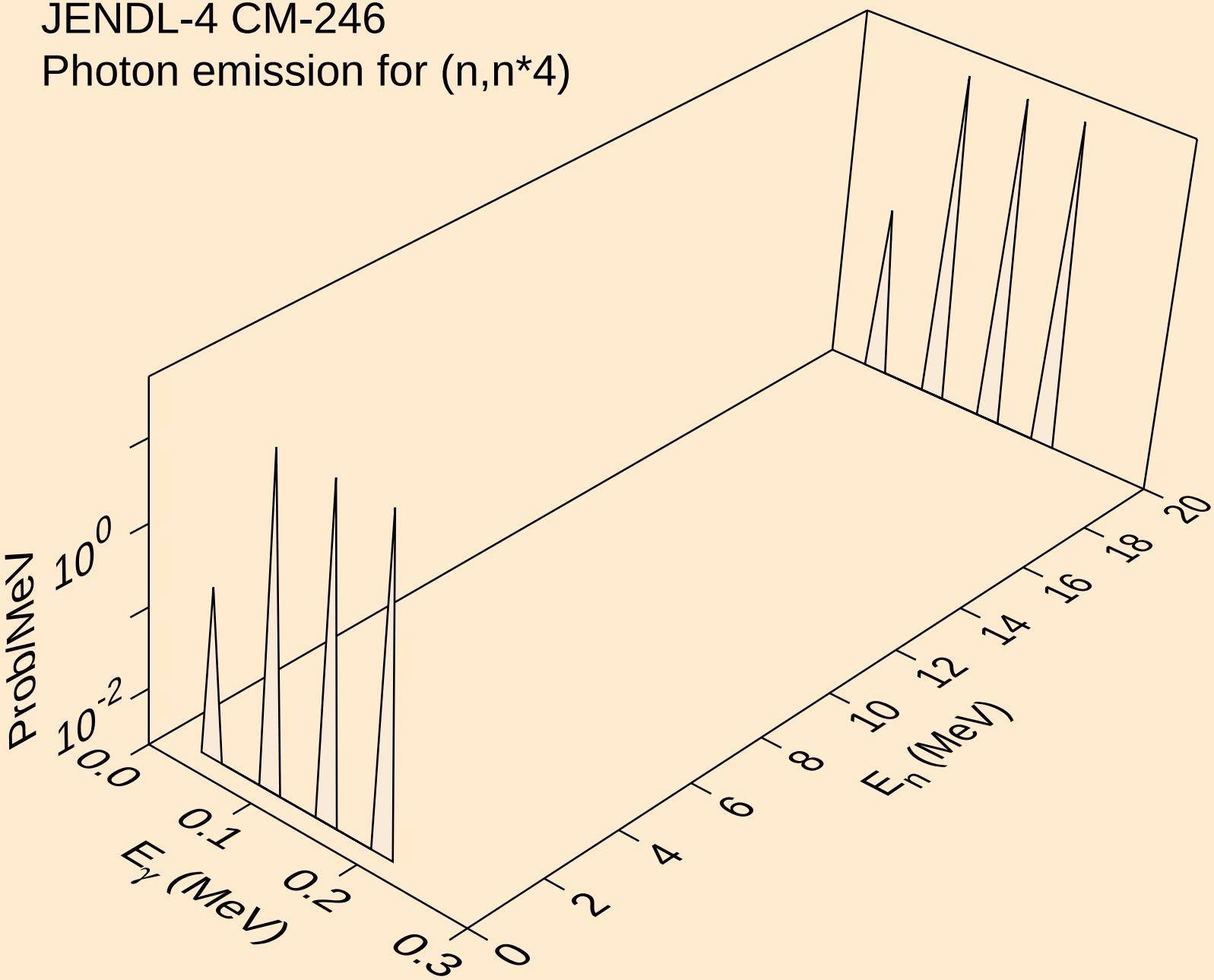

JENDL-4 CM-246
Photon emission for (n,3n)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
2
4
E_γ (MeV)
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
Photon emission for (n,n*1)
Prob/MeV
10^{0}
10^{-2}
E_γ (MeV)
20
40
60
*10^{-3}
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

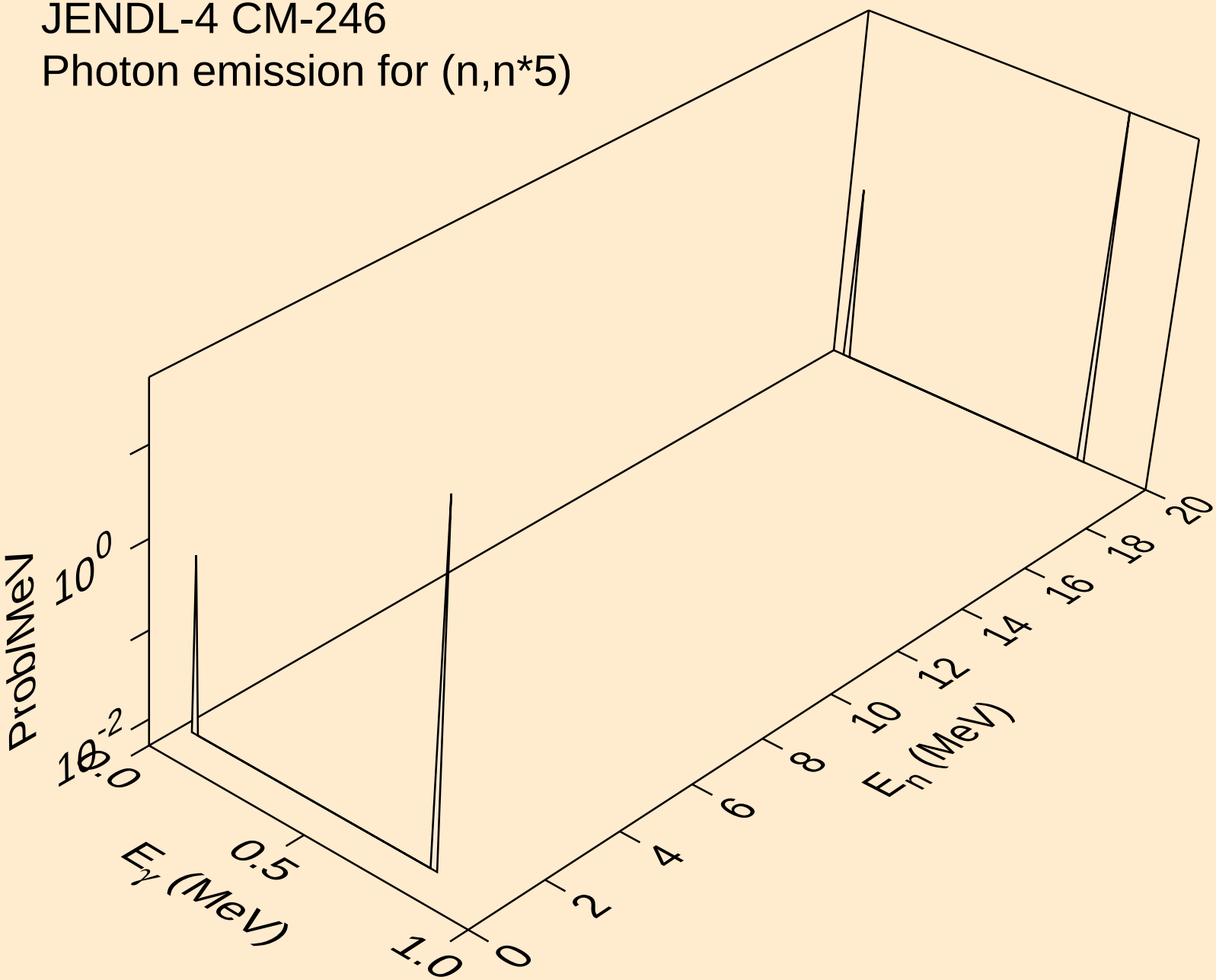

JENDL-4 CM-246
Photon emission for (n,n*2)
Prob/MeV
10^0
10^{-2}
0
50
100
150
E_γ (MeV)
*10^{-3}
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
Photon emission for (n,n*3)
Prob/MeV
10^0
10^{-2}
0.0
0.1
0.2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

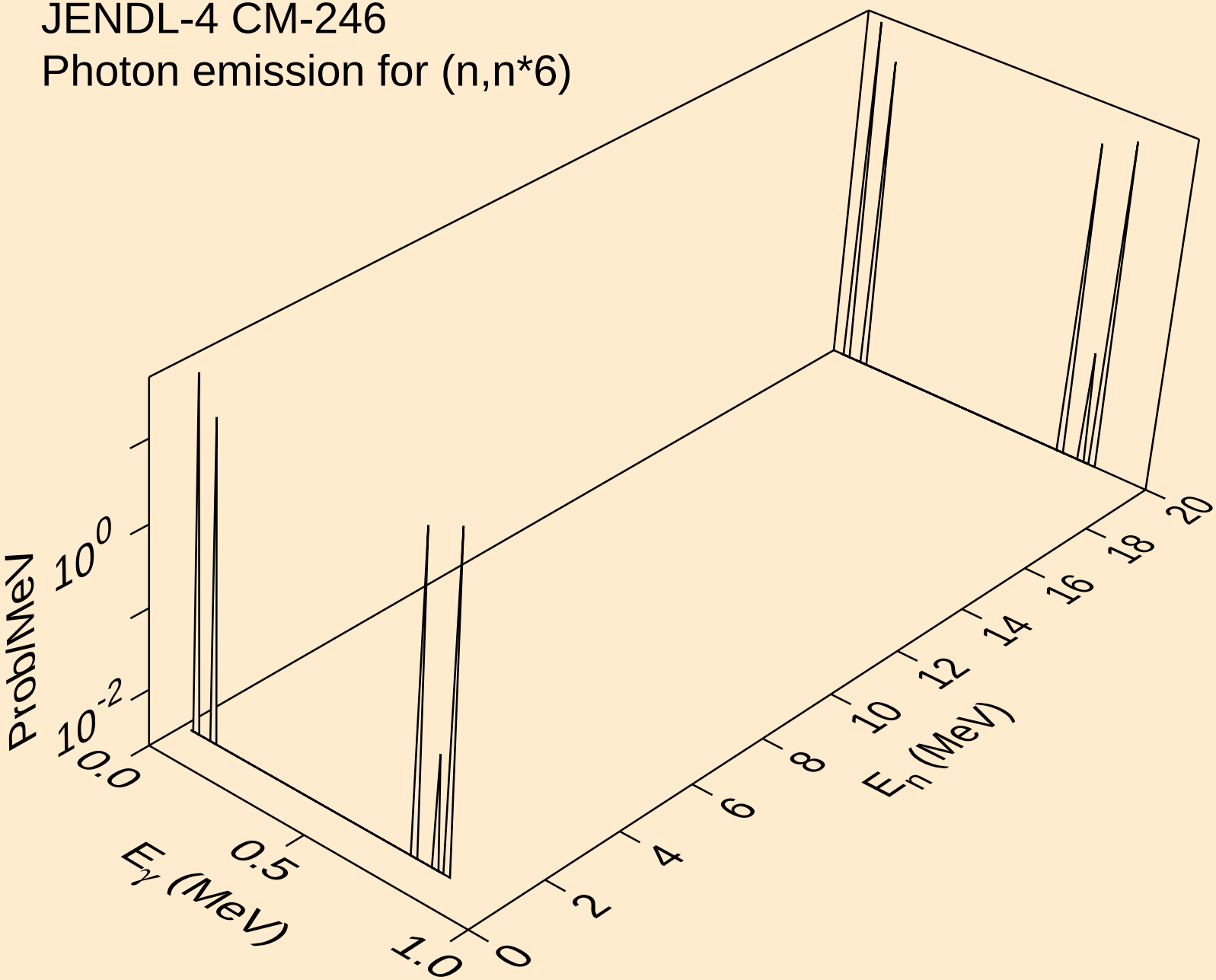
JENDL-4 CM-246
Photon emission for (n,n*4)

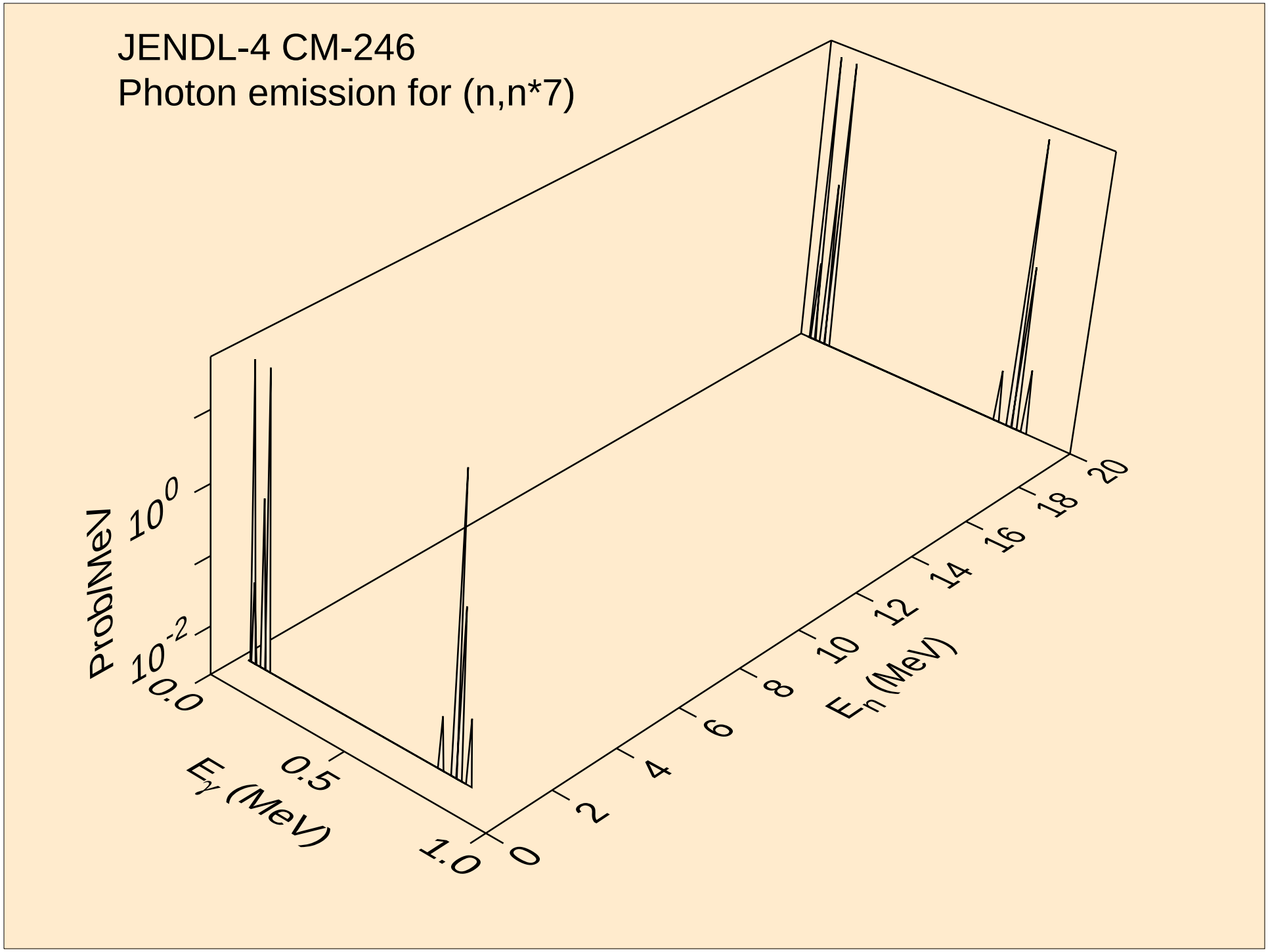


JENDL-4 CM-246
Photon emission for (n,n*5)

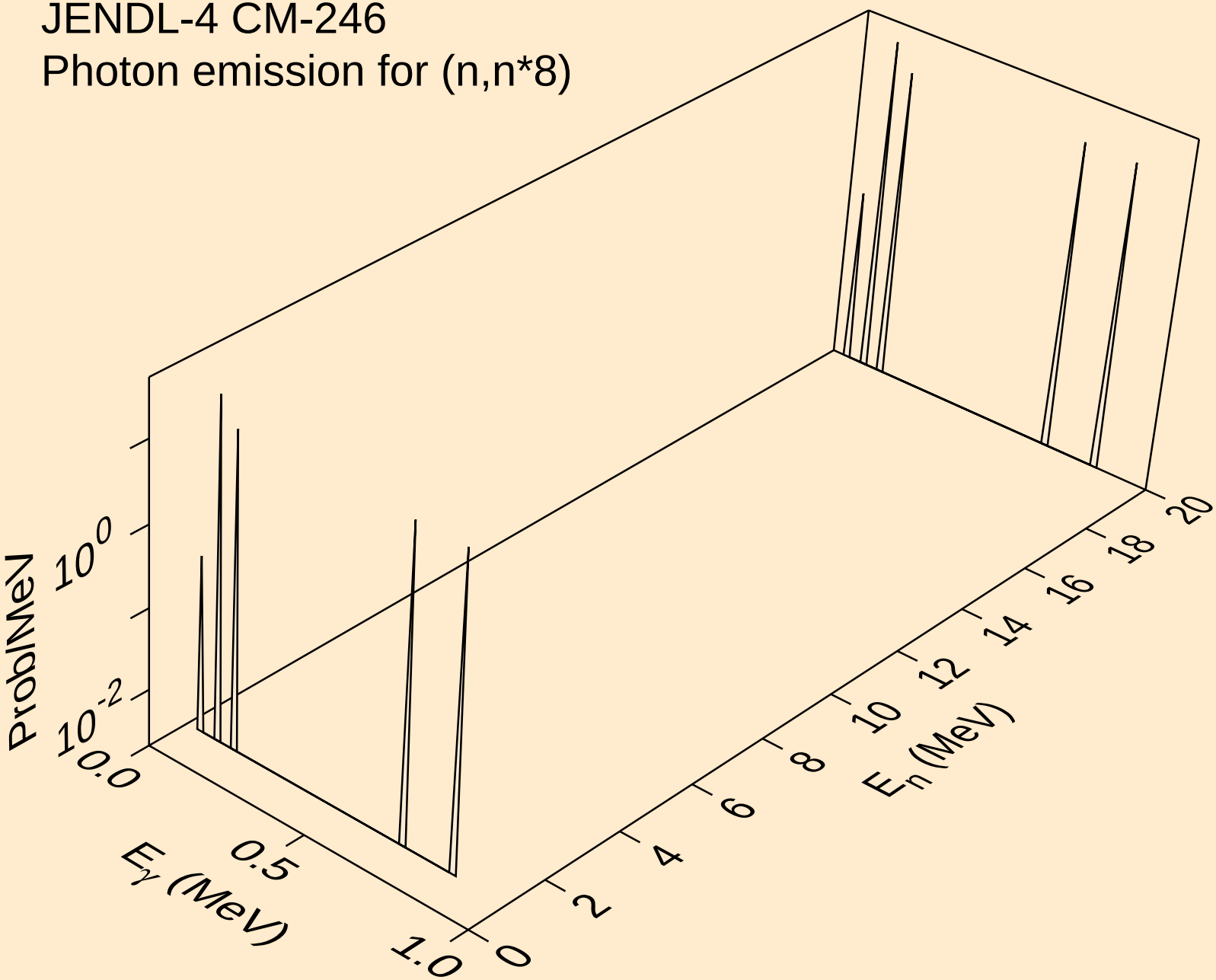


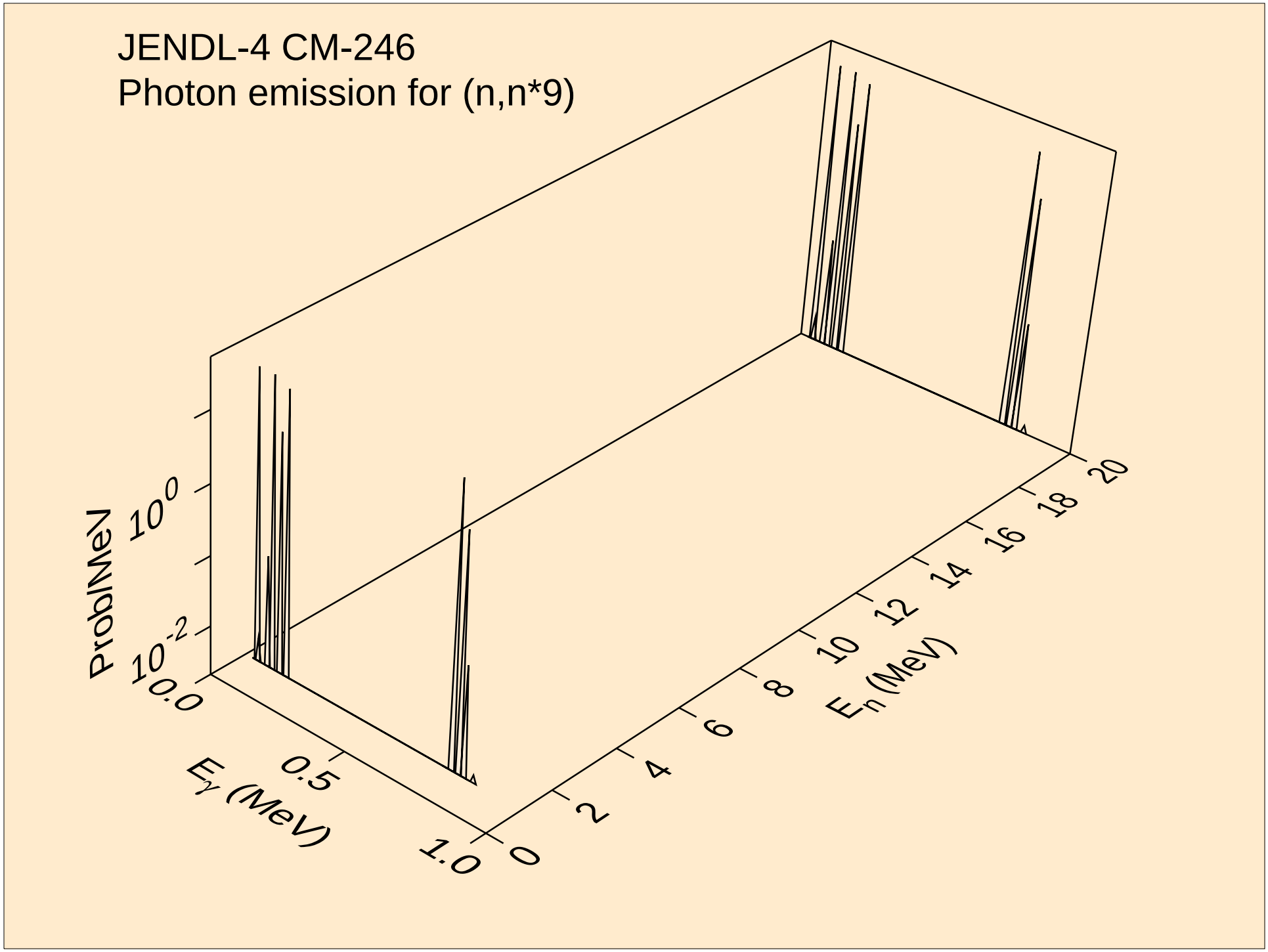
JENDL-4 CM-246
Photon emission for (n,n*6)

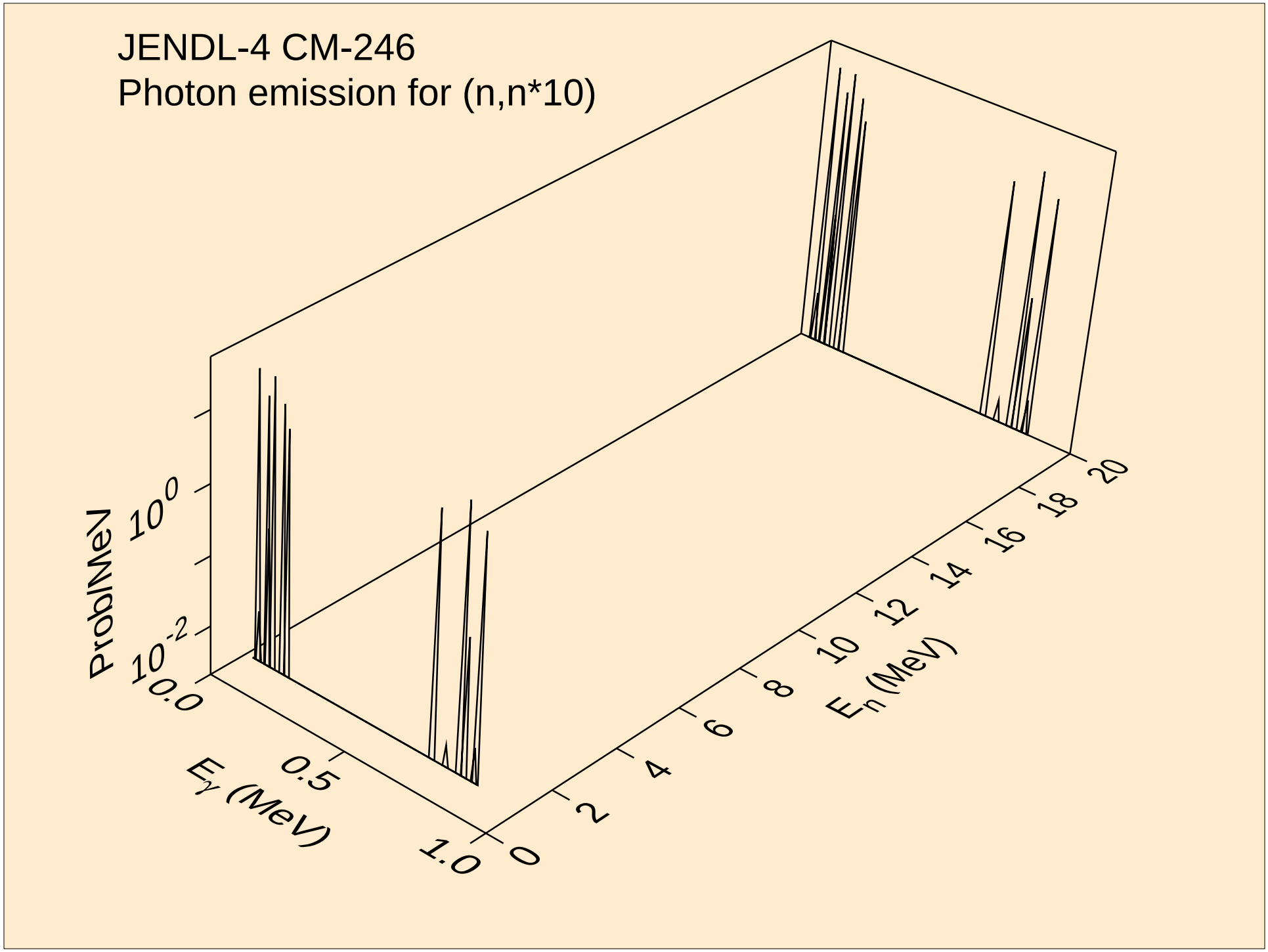


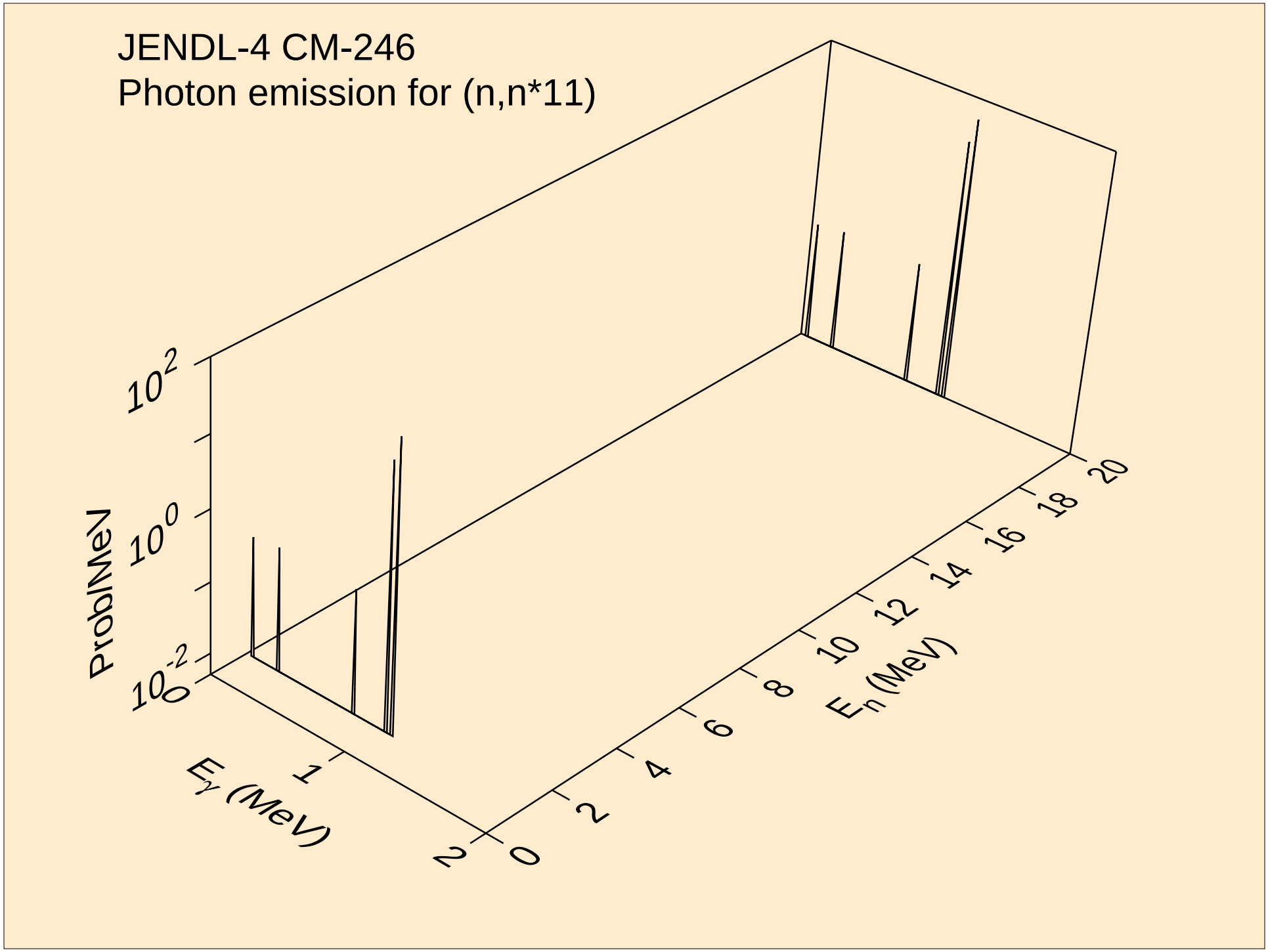

JENDL-4 CM-246
Photon emission for (n,n*7)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

JENDL-4 CM-246
Photon emission for (n,n*8)

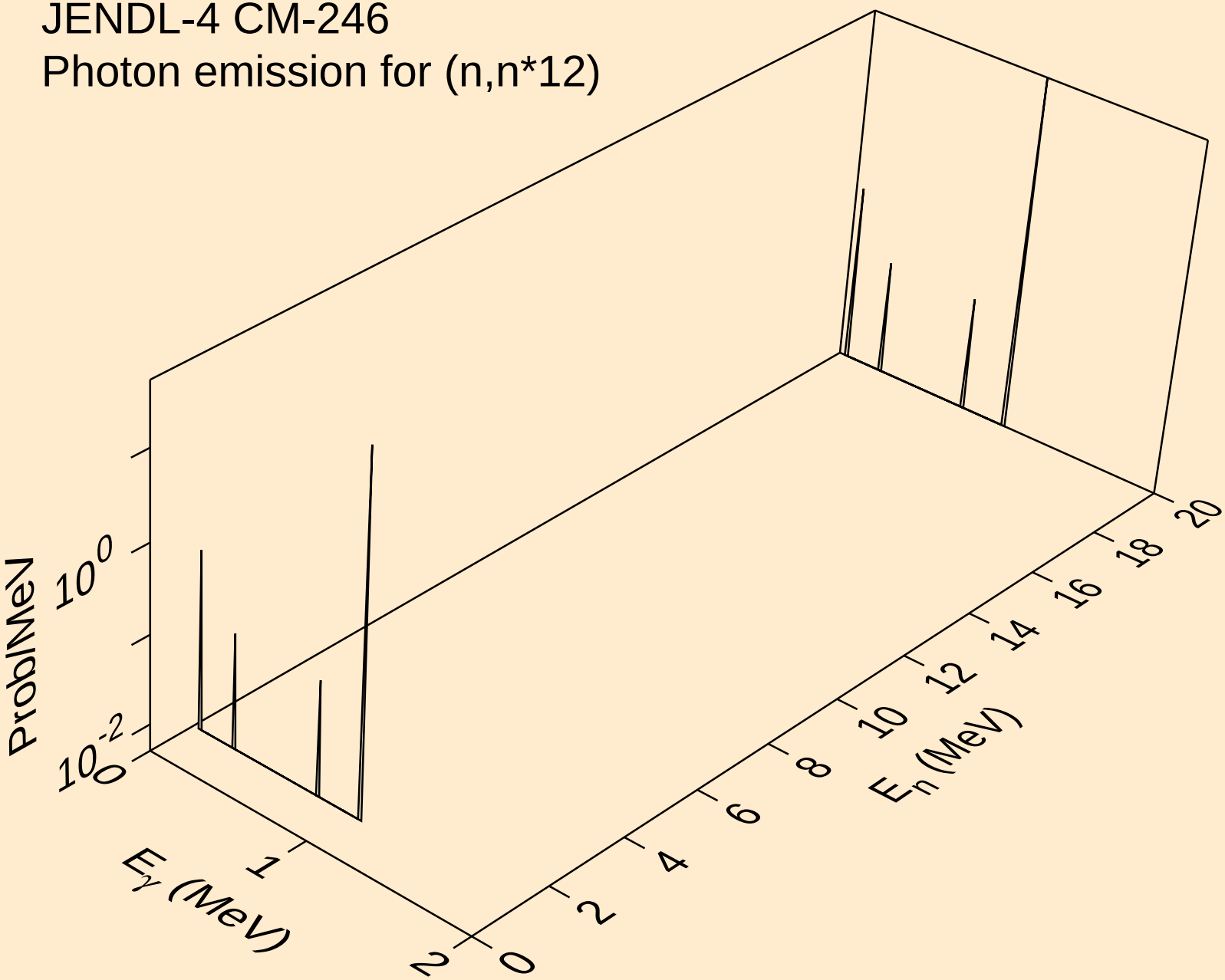


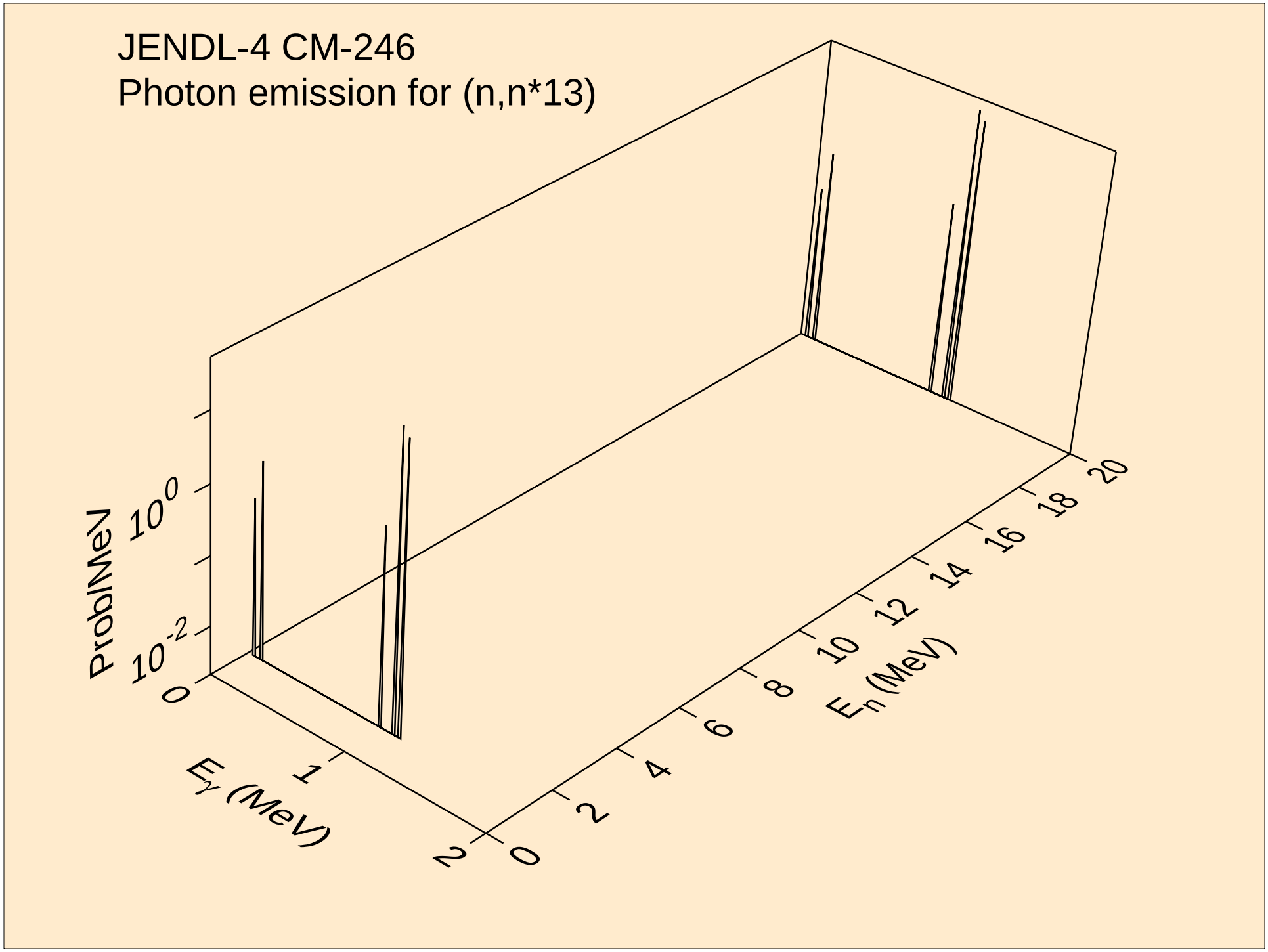

JENDL-4 CM-246
Photon emission for (n,n*9)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

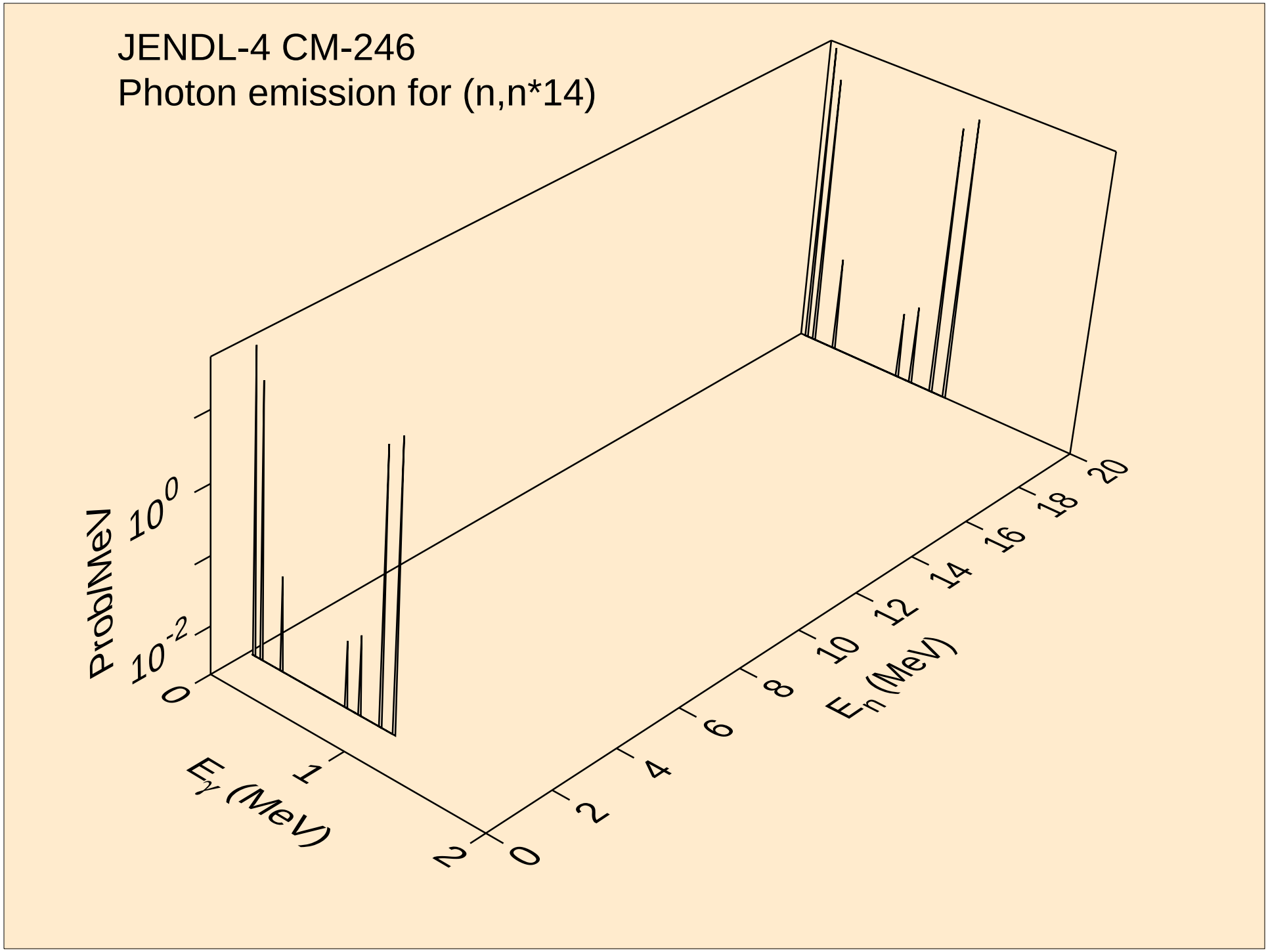

JENDL-4 CM-246
Photon emission for (n,n*10)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

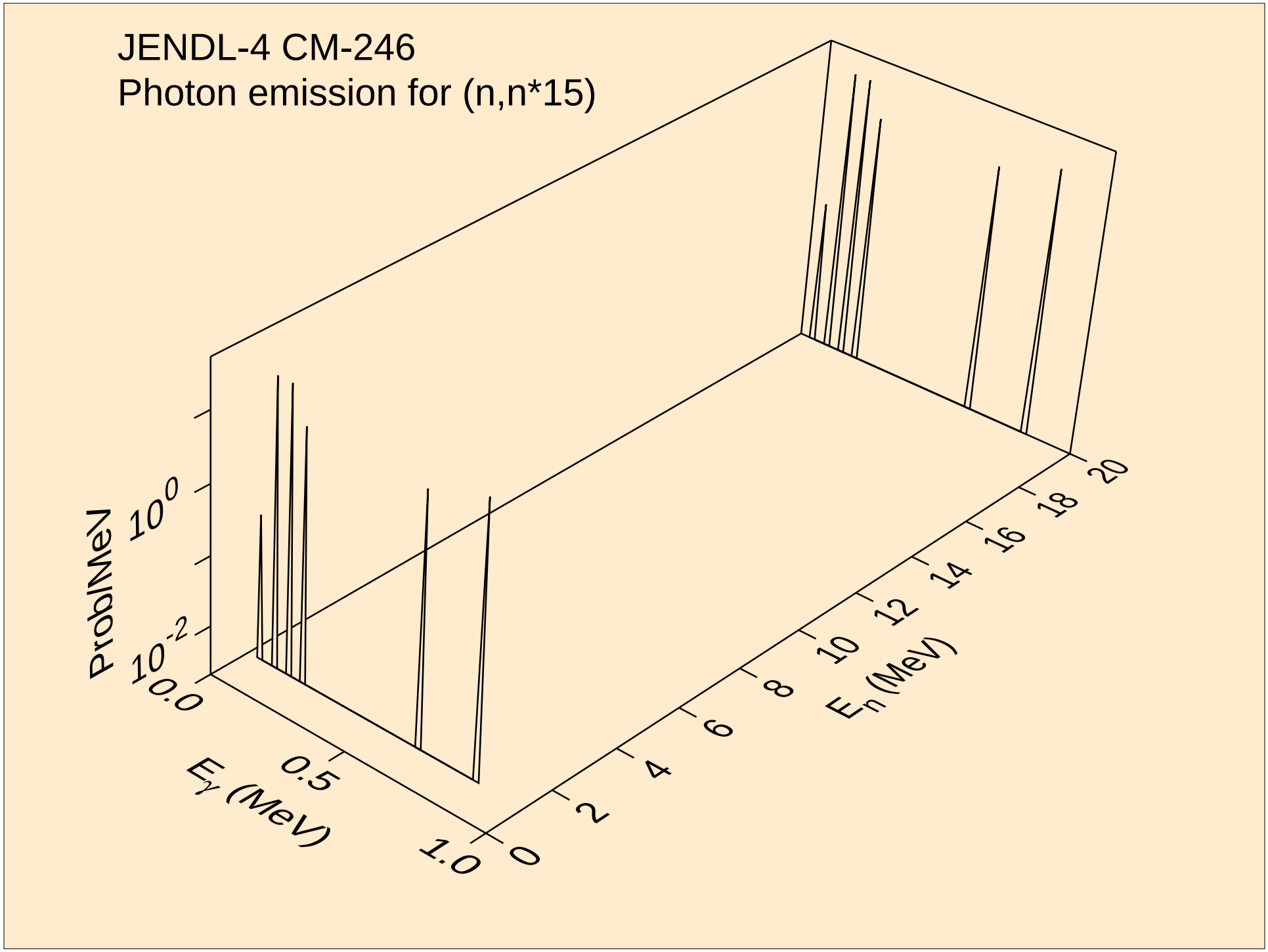

JENDL-4 CM-246
Photon emission for (n,n*11)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
1
2
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

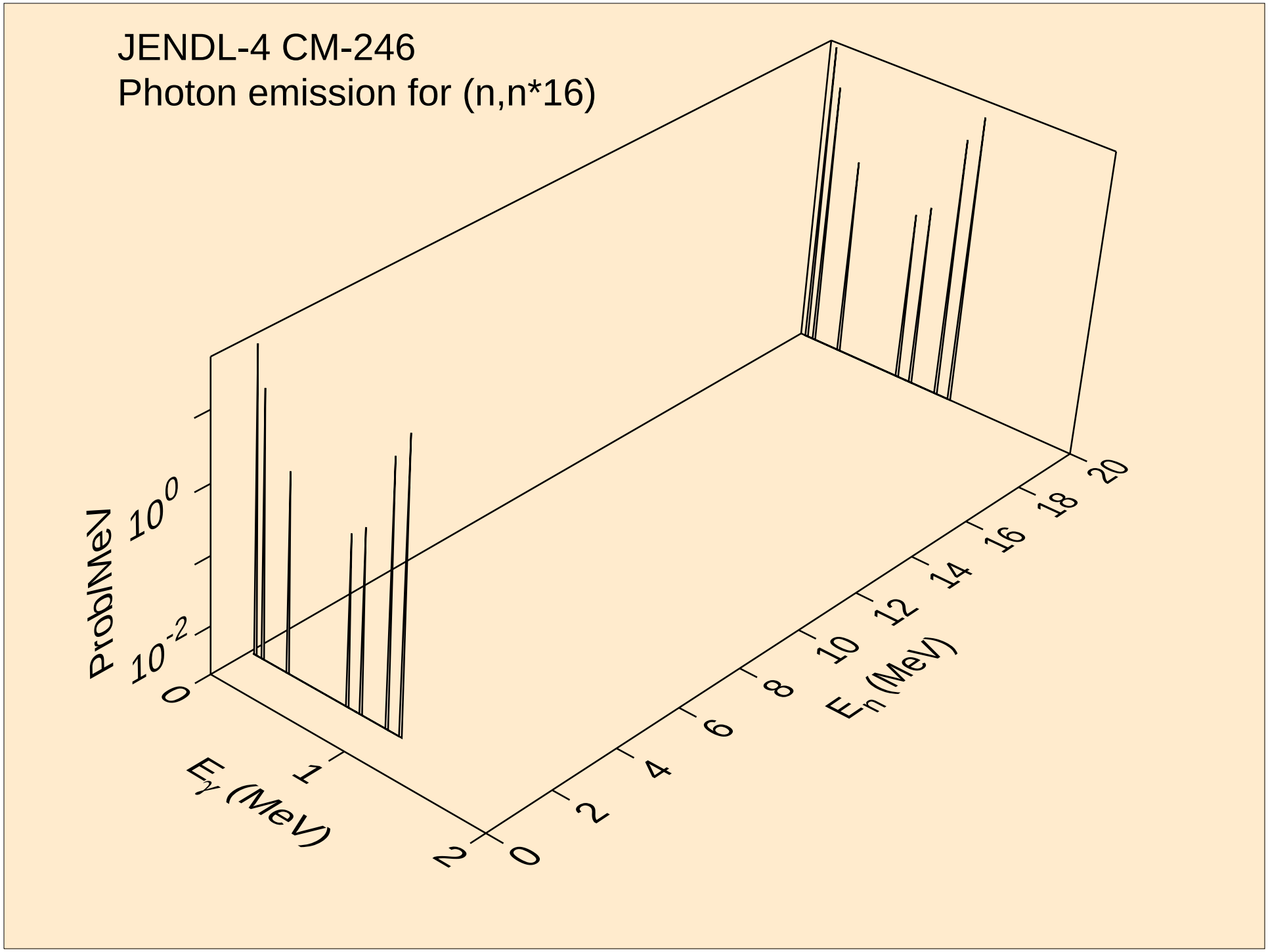
JENDL-4 CM-246
Photon emission for (n,n*12)



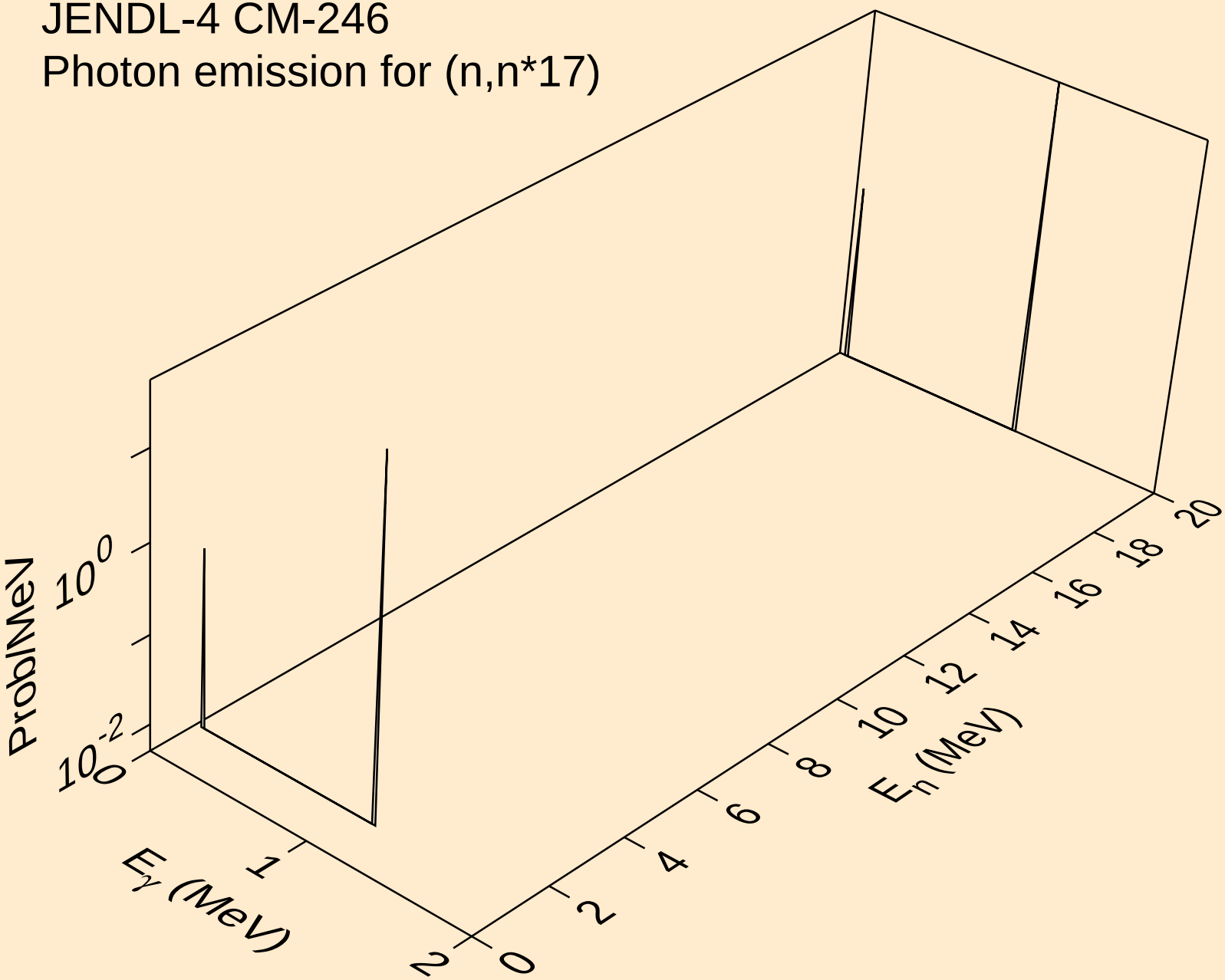

JENDL-4 CM-246
Photon emission for (n,n*13)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

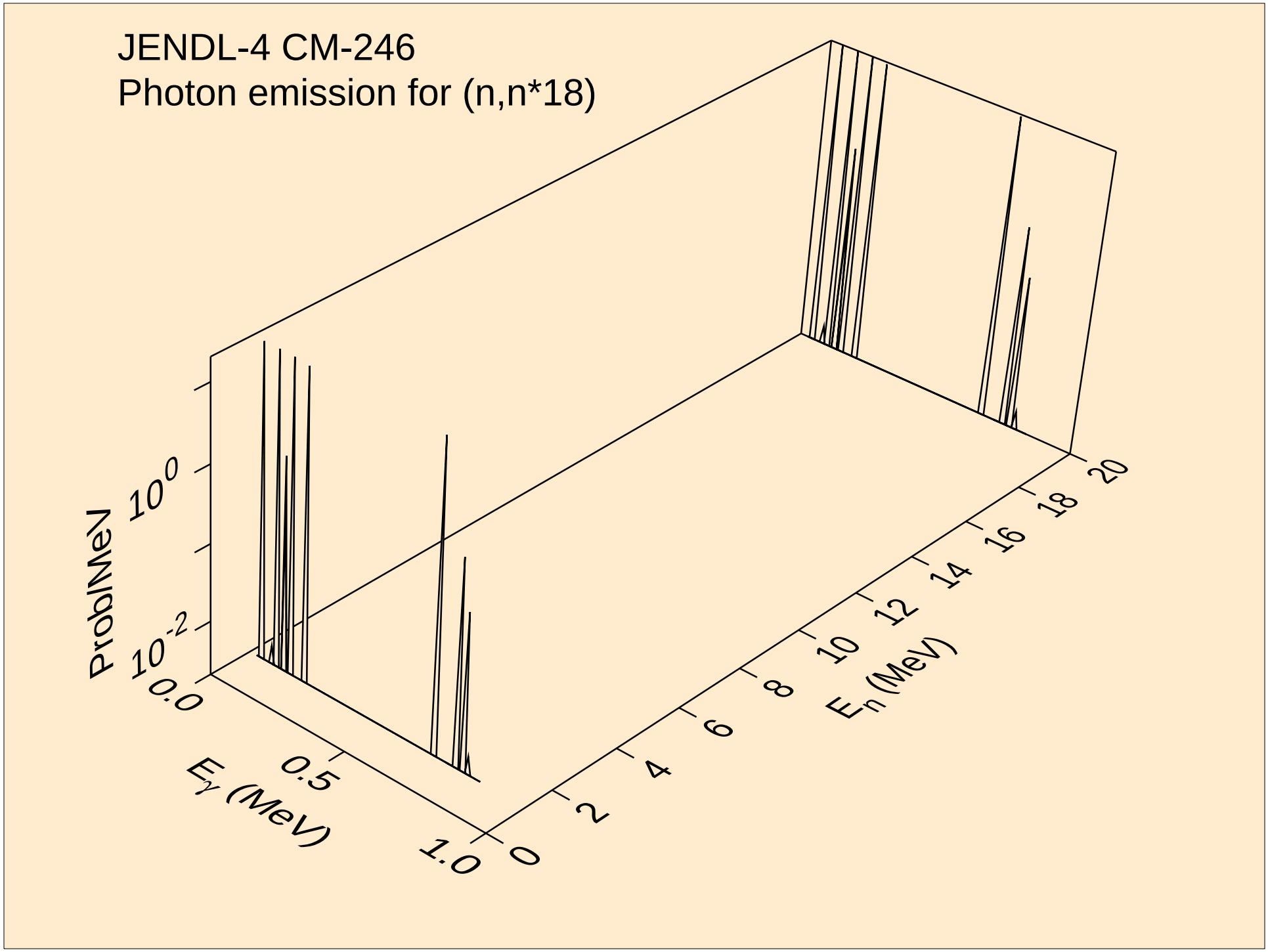

JENDL-4 CM-246
Photon emission for (n,n*14)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
Photon emission for (n,n*15)
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)

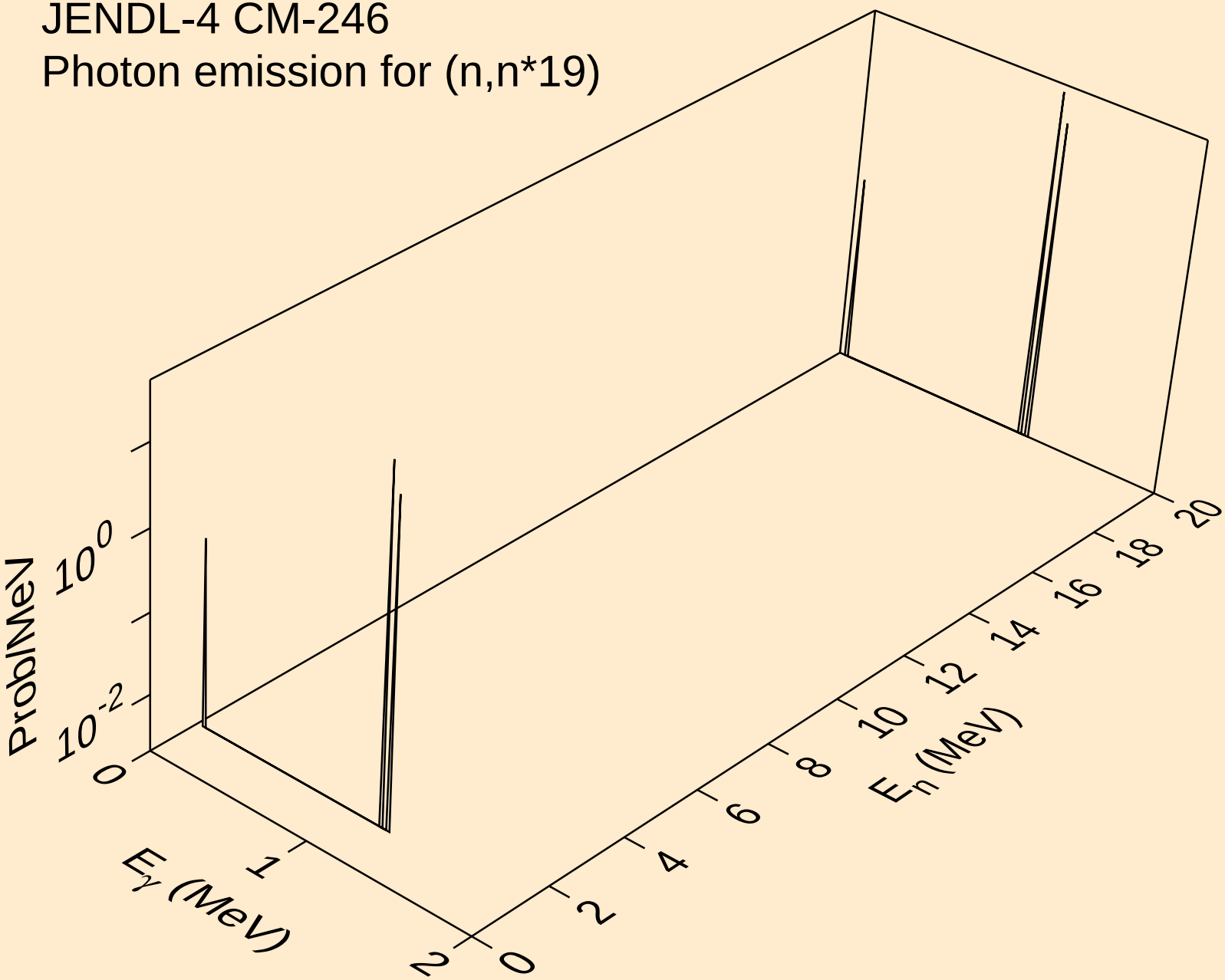

JENDL-4 CM-246
Photon emission for (n,n*16)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

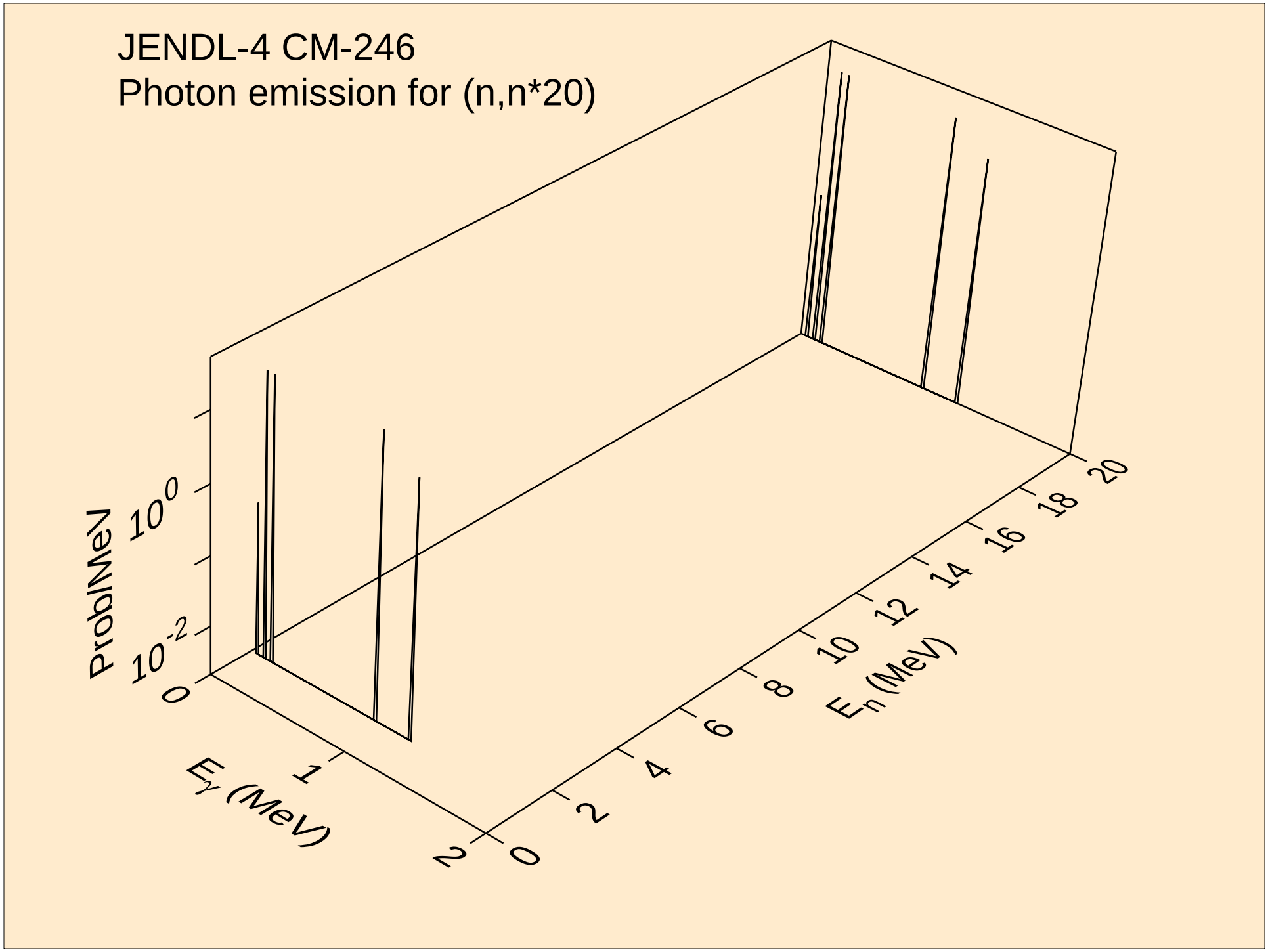
JENDL-4 CM-246
Photon emission for (n,n*17)

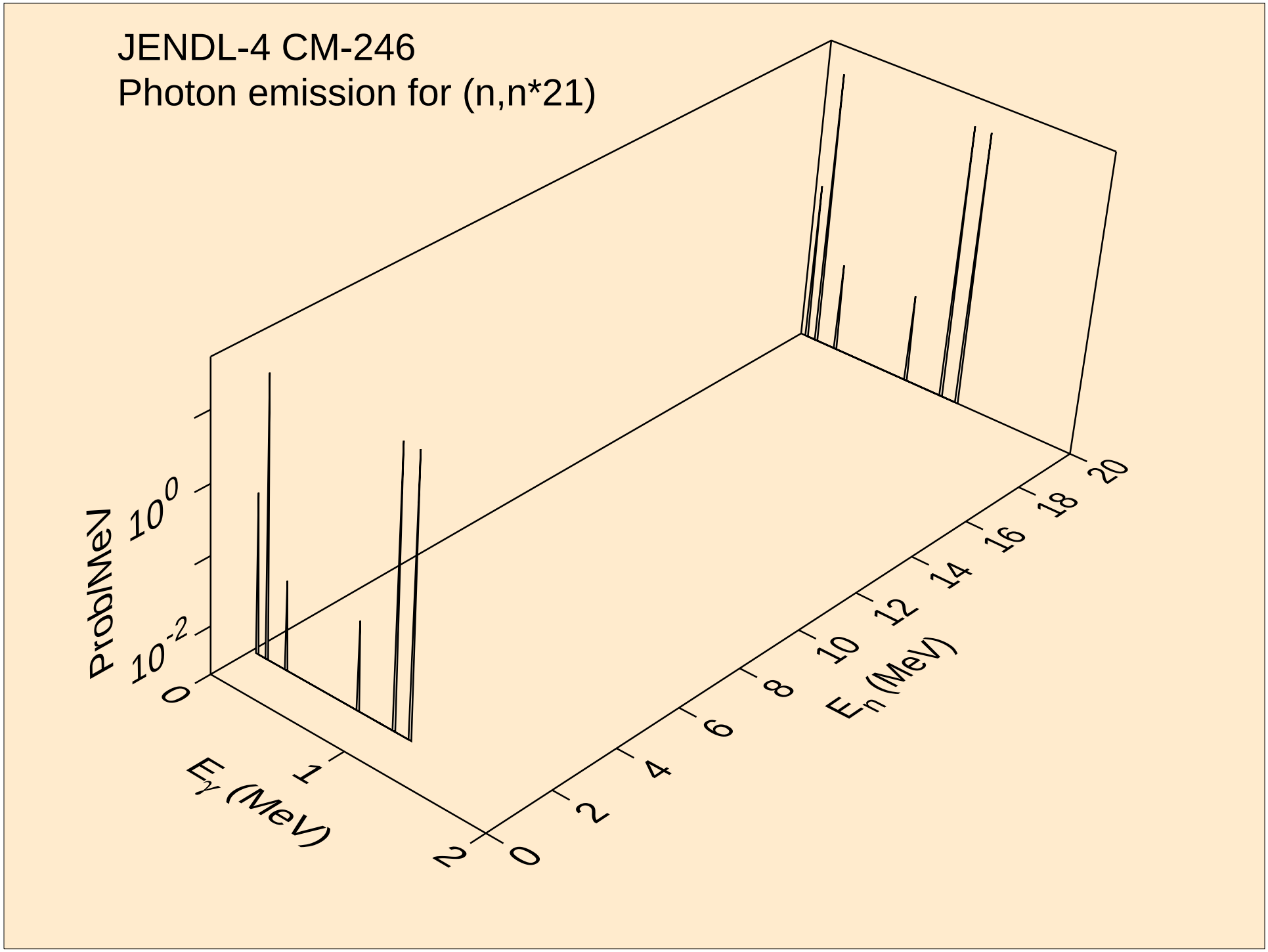


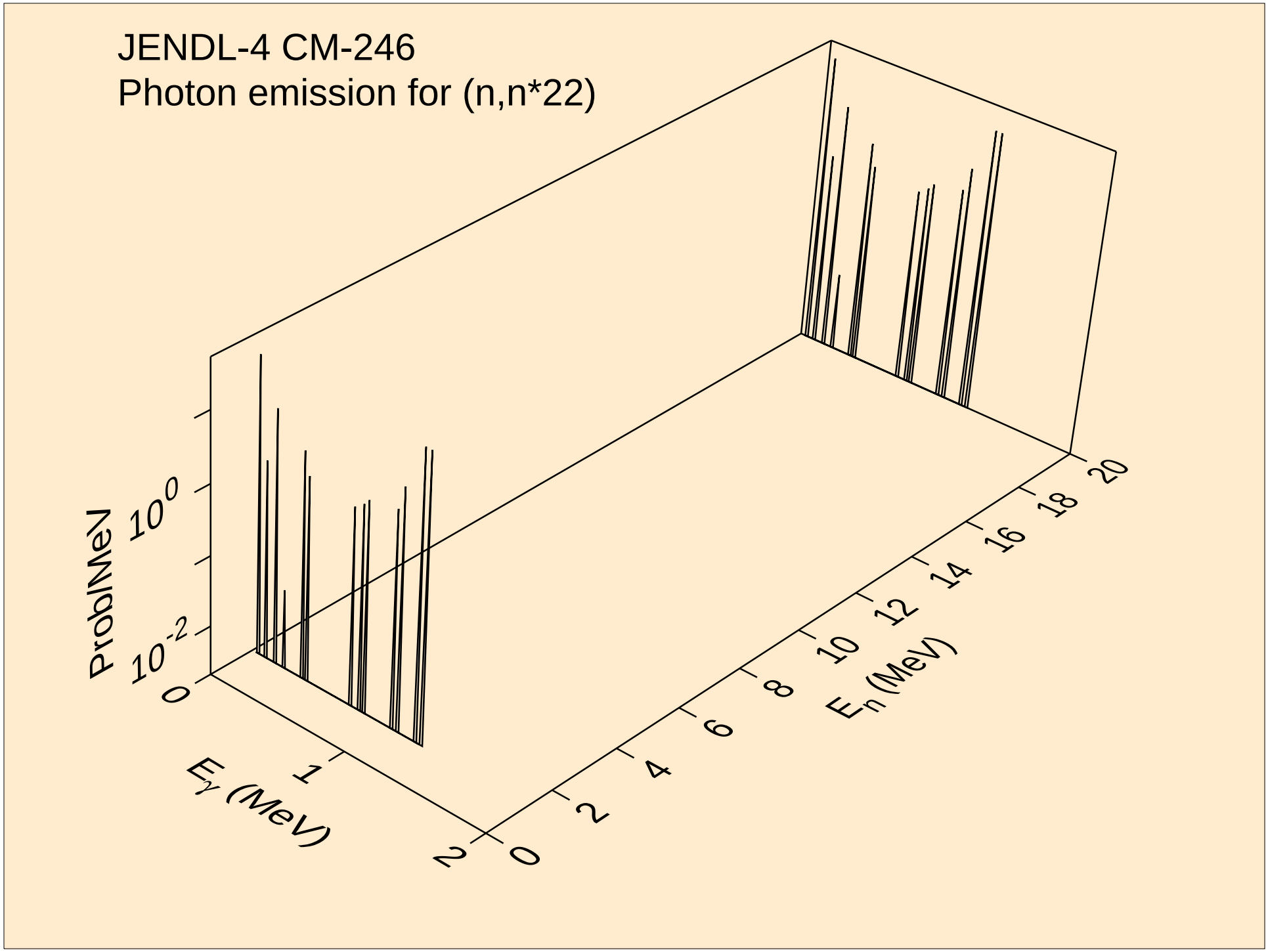

JENDL-4 CM-246
Photon emission for (n,n*18)
Prob/MeV
10^0
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

JENDL-4 CM-246
Photon emission for (n,n*19)

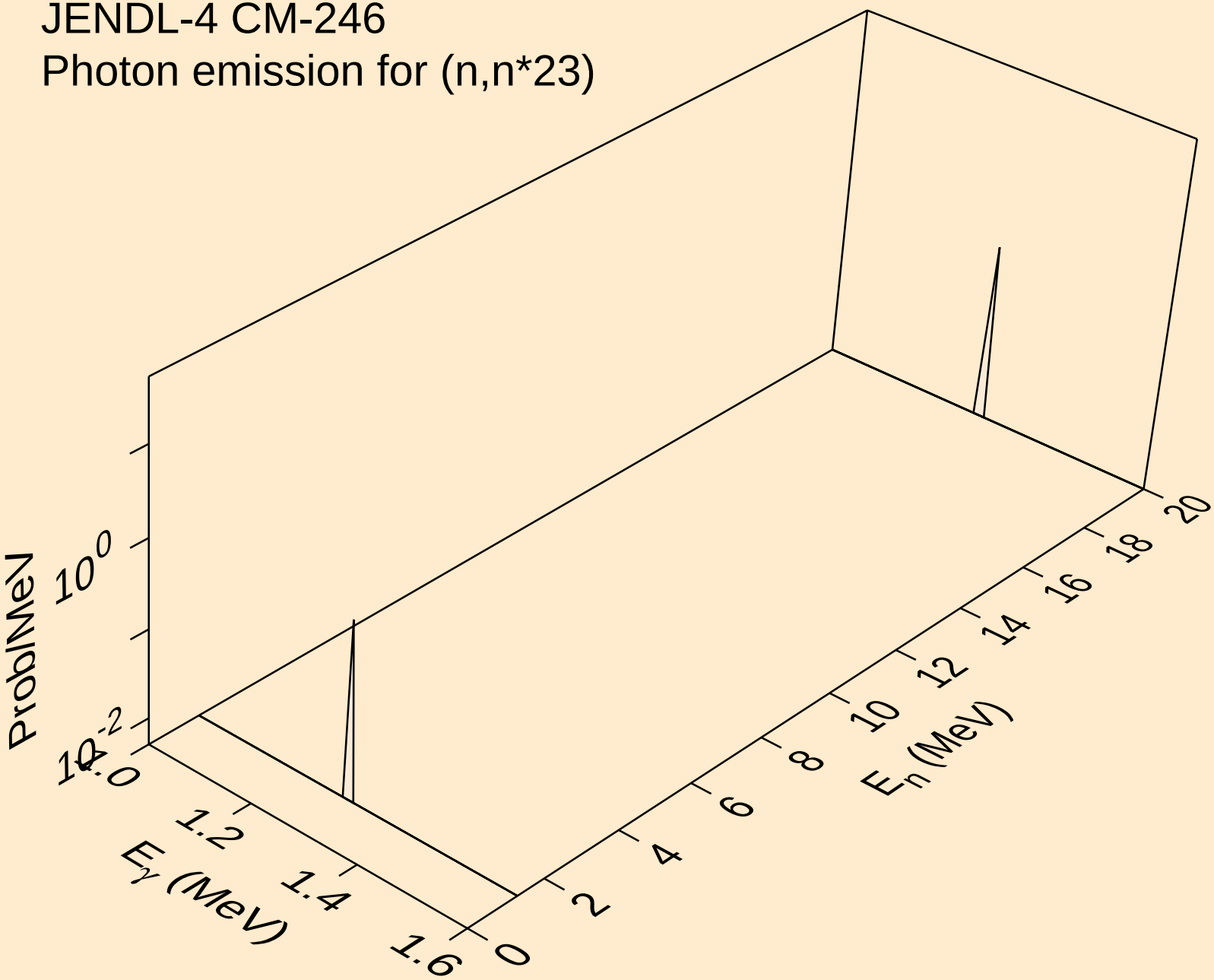


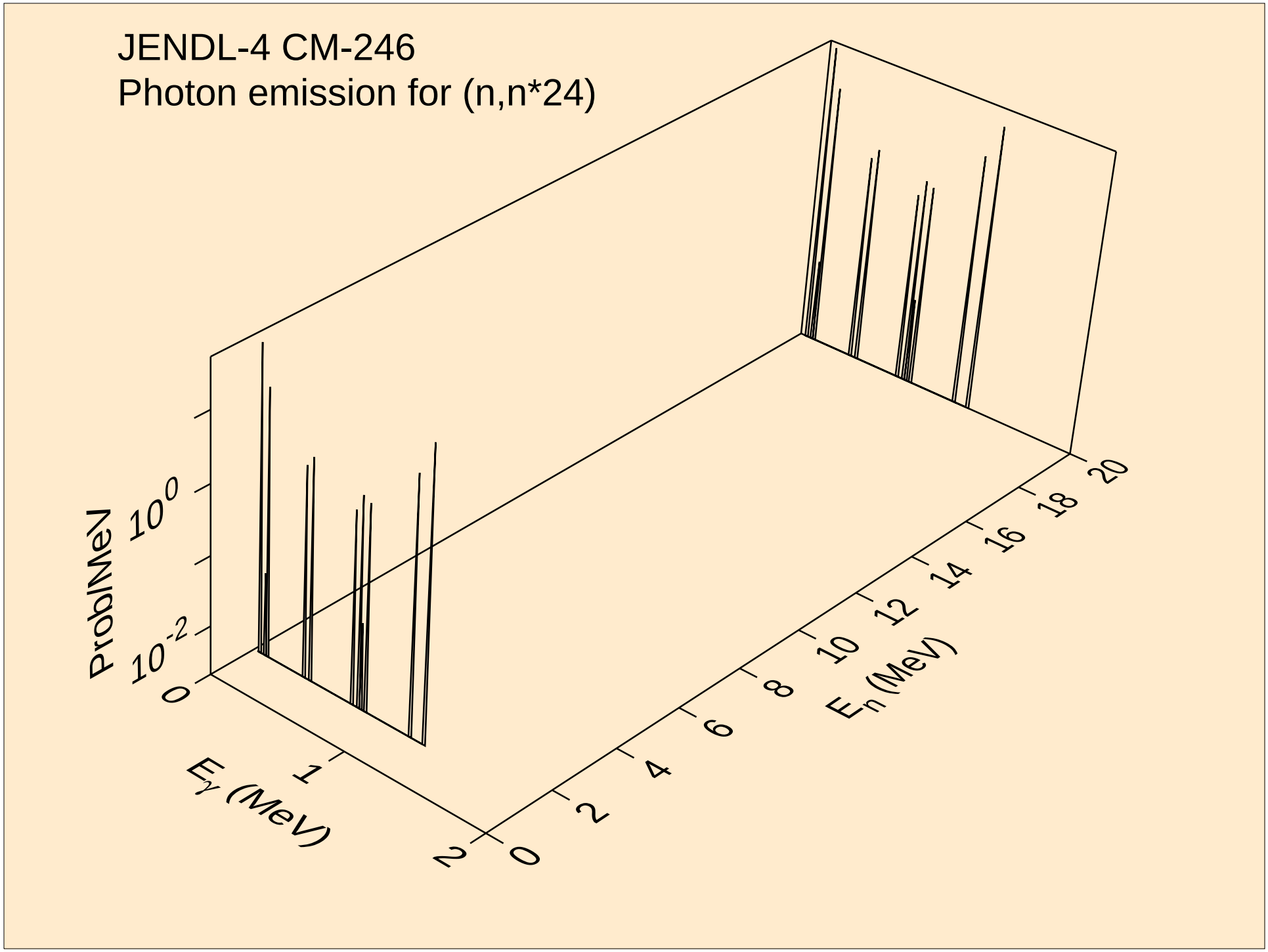

JENDL-4 CM-246
Photon emission for (n,n*20)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
Photon emission for (n,n*21)
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)

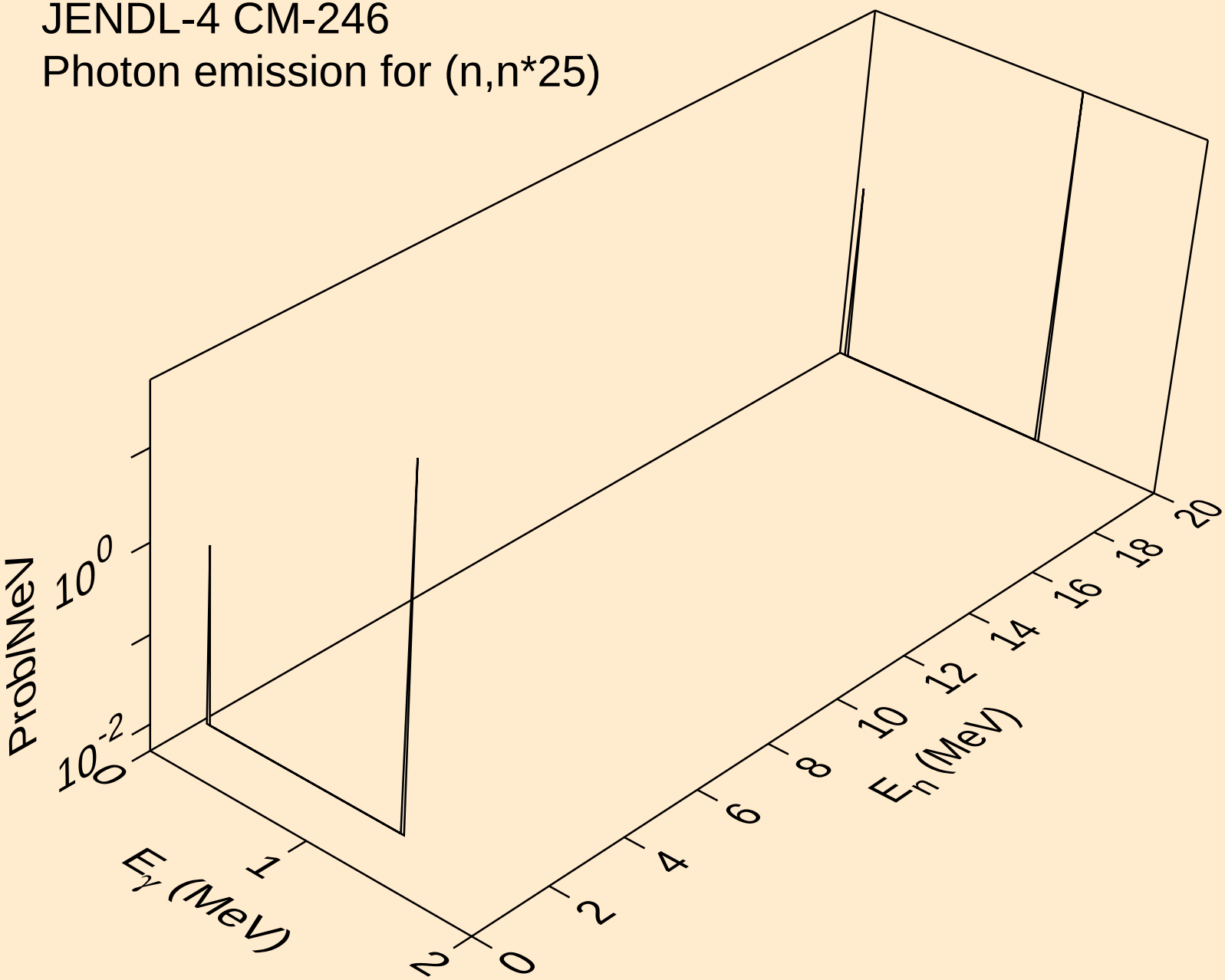

JENDL-4 CM-246
Photon emission for (n,n*22)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

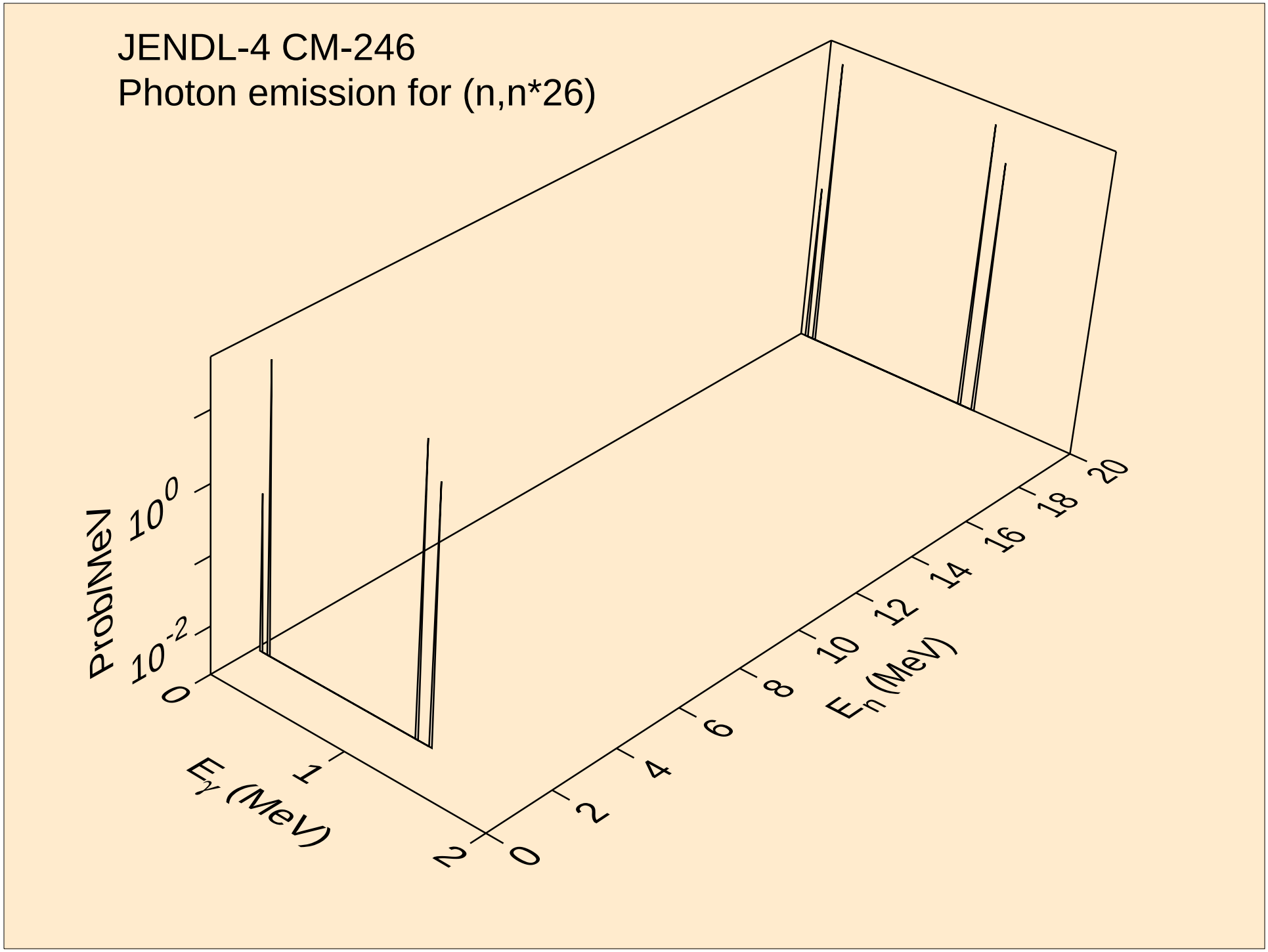
JENDL-4 CM-246
Photon emission for (n,n*23)

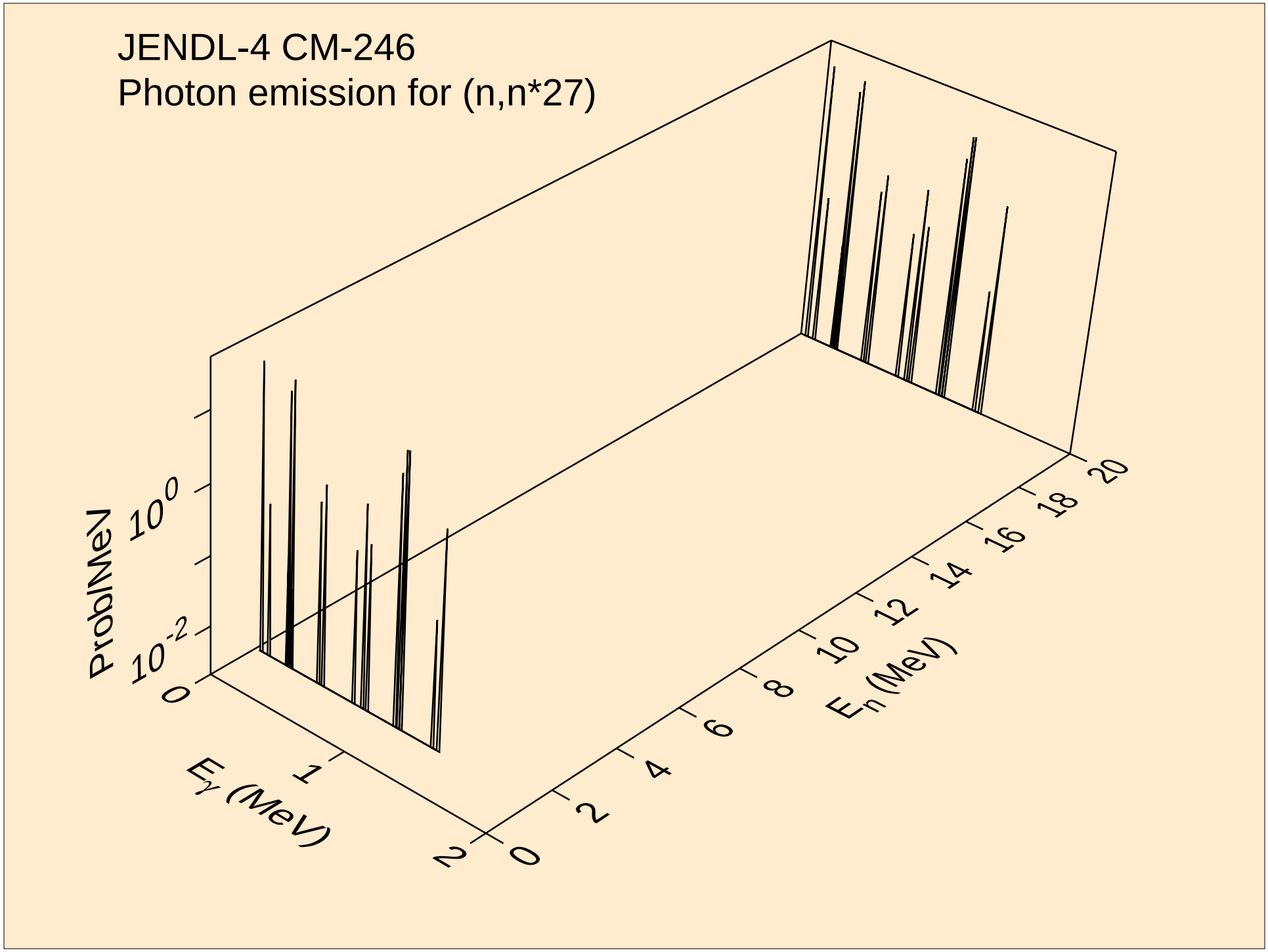


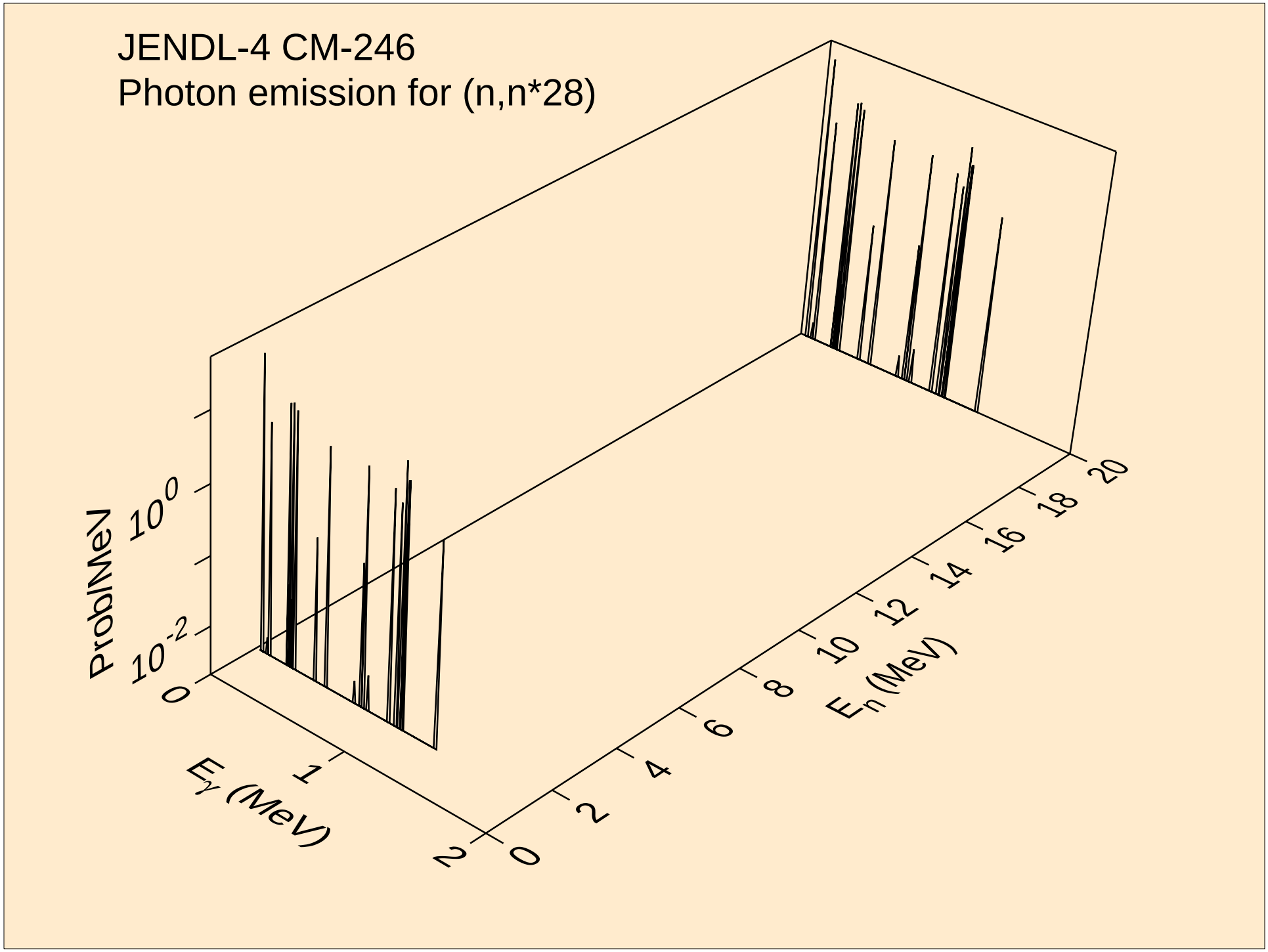

JENDL-4 CM-246
Photon emission for (n,n*24)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

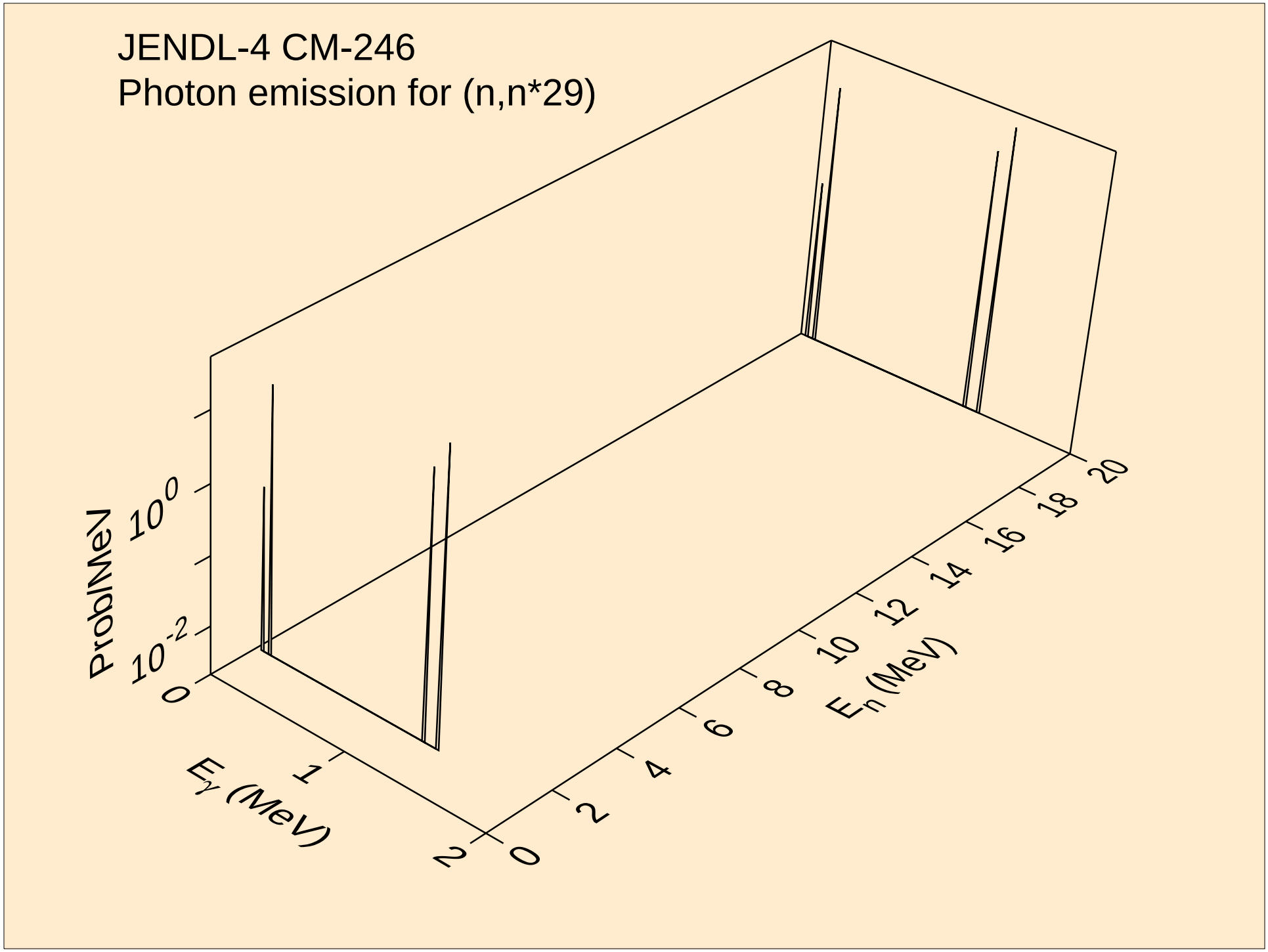
JENDL-4 CM-246
Photon emission for (n,n*25)

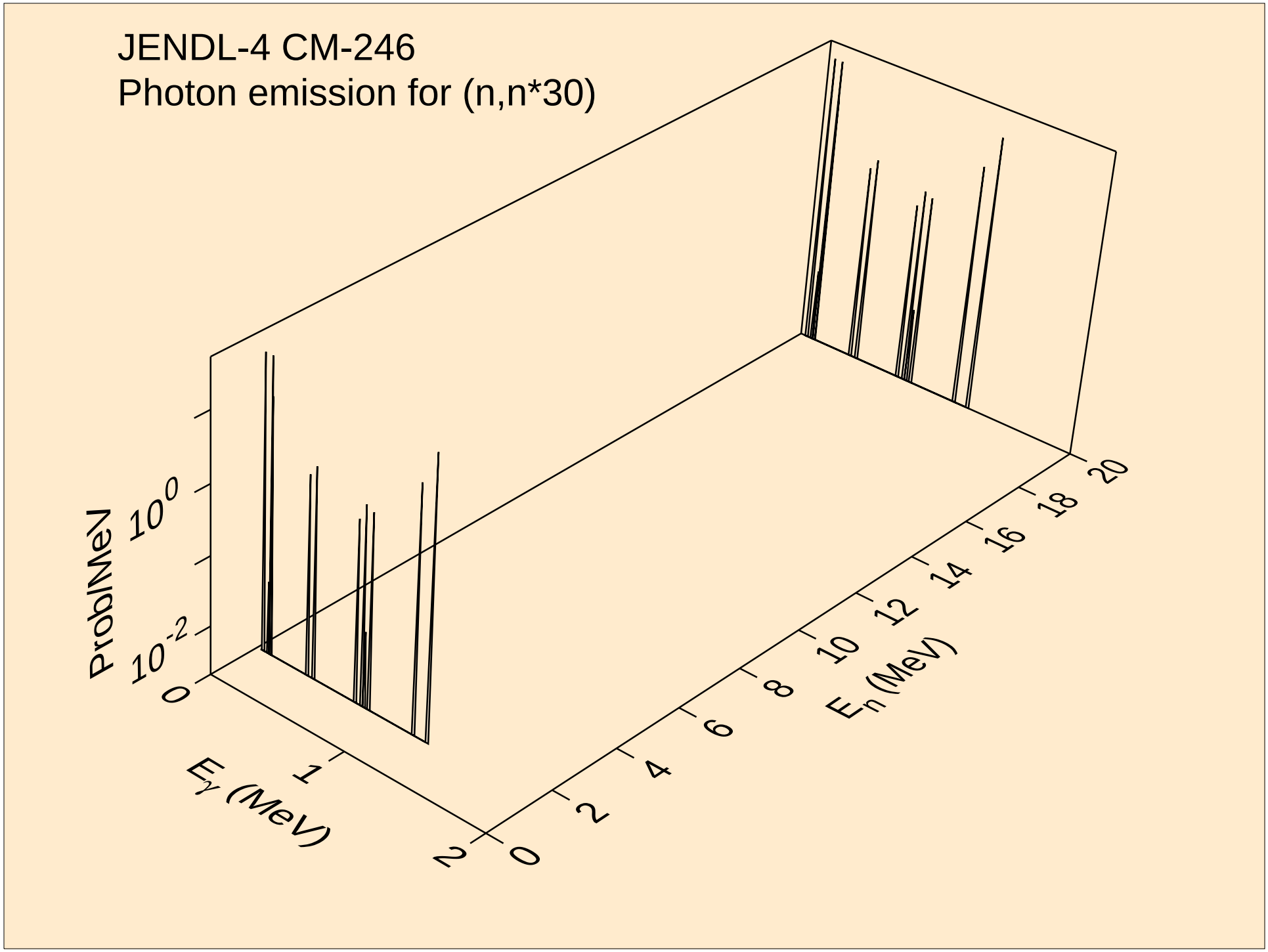


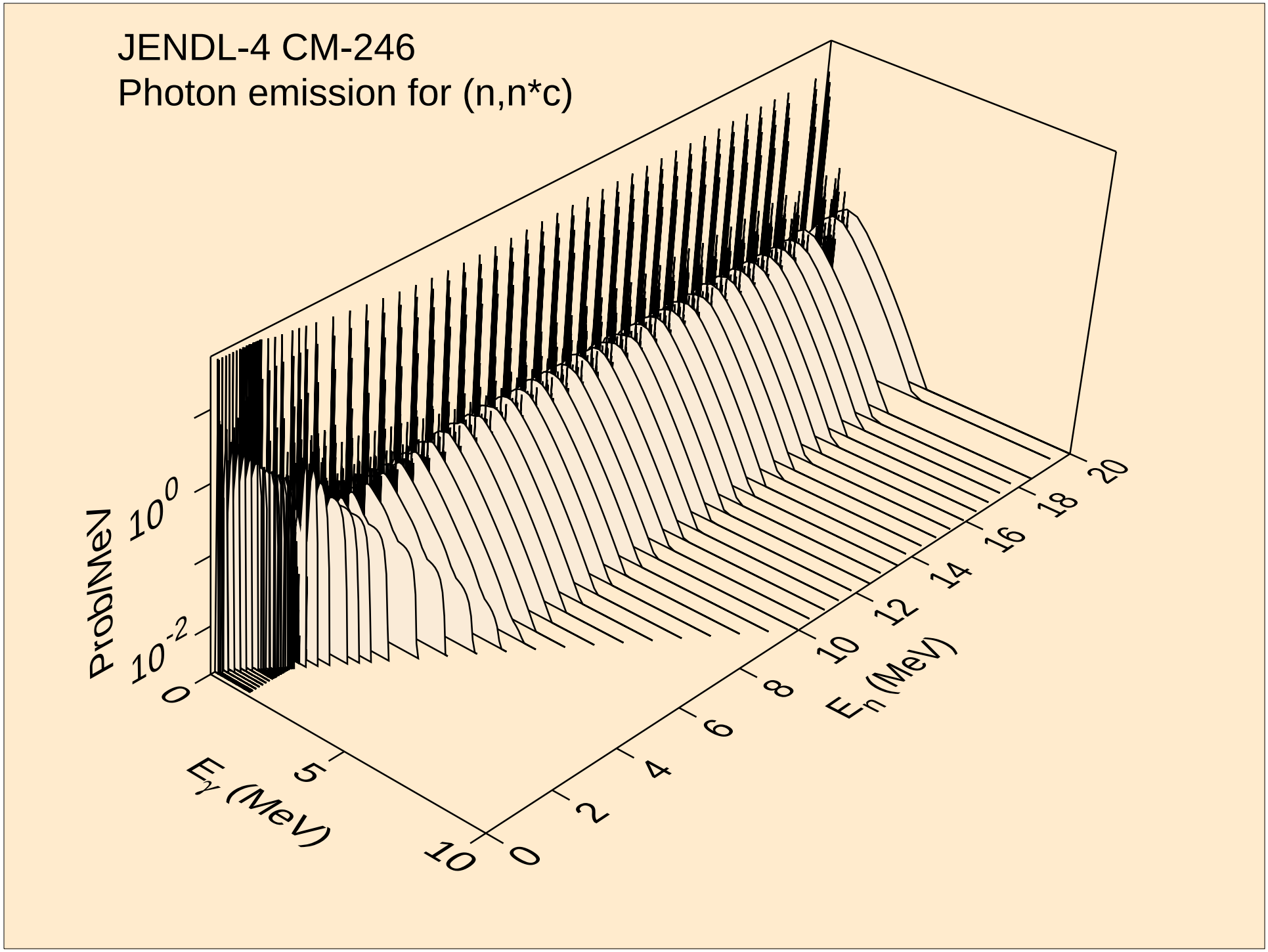

JENDL-4 CM-246
Photon emission for (n,n*26)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
Photon emission for (n,n*27)
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)

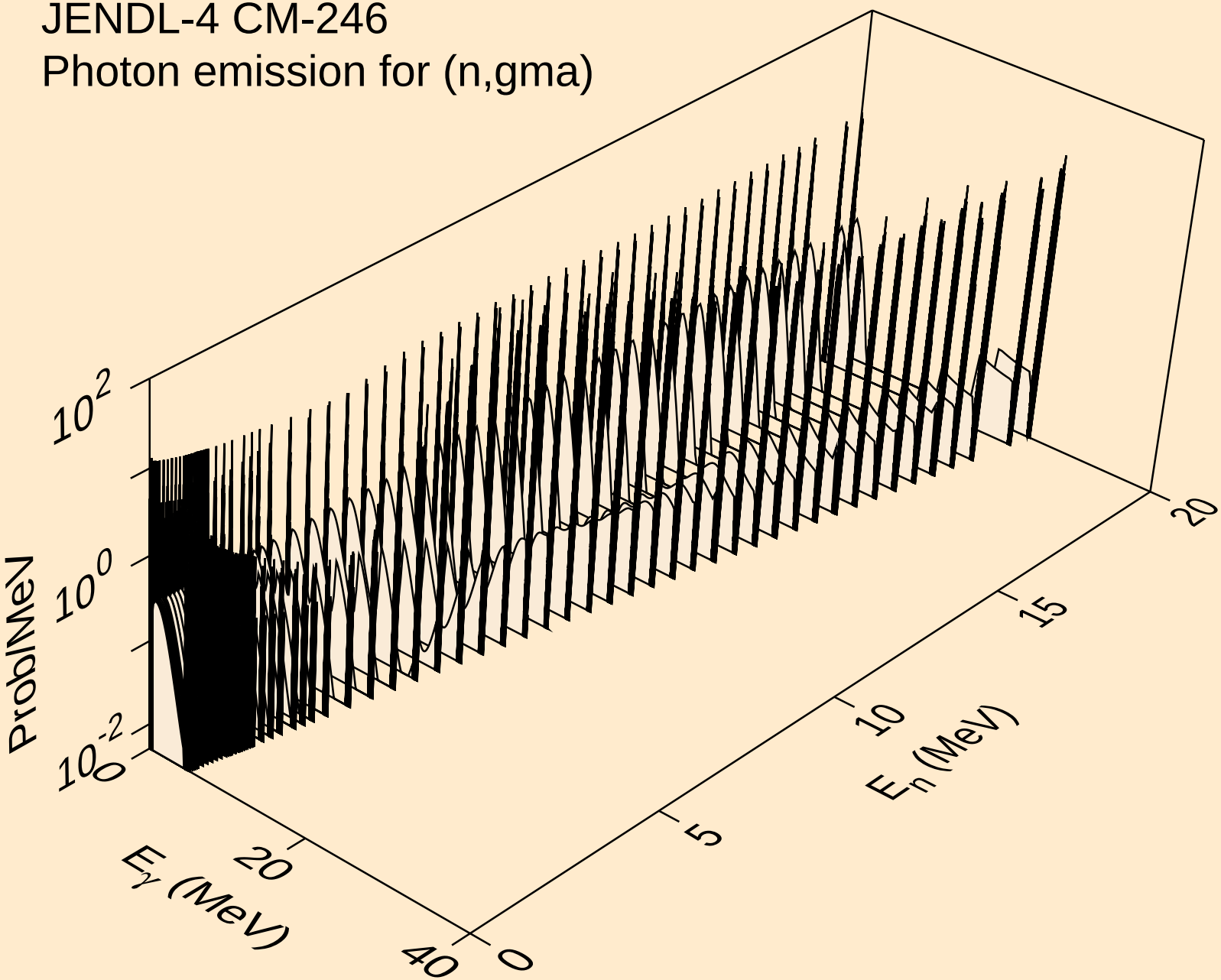

JENDL-4 CM-246
Photon emission for (n,n*28)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

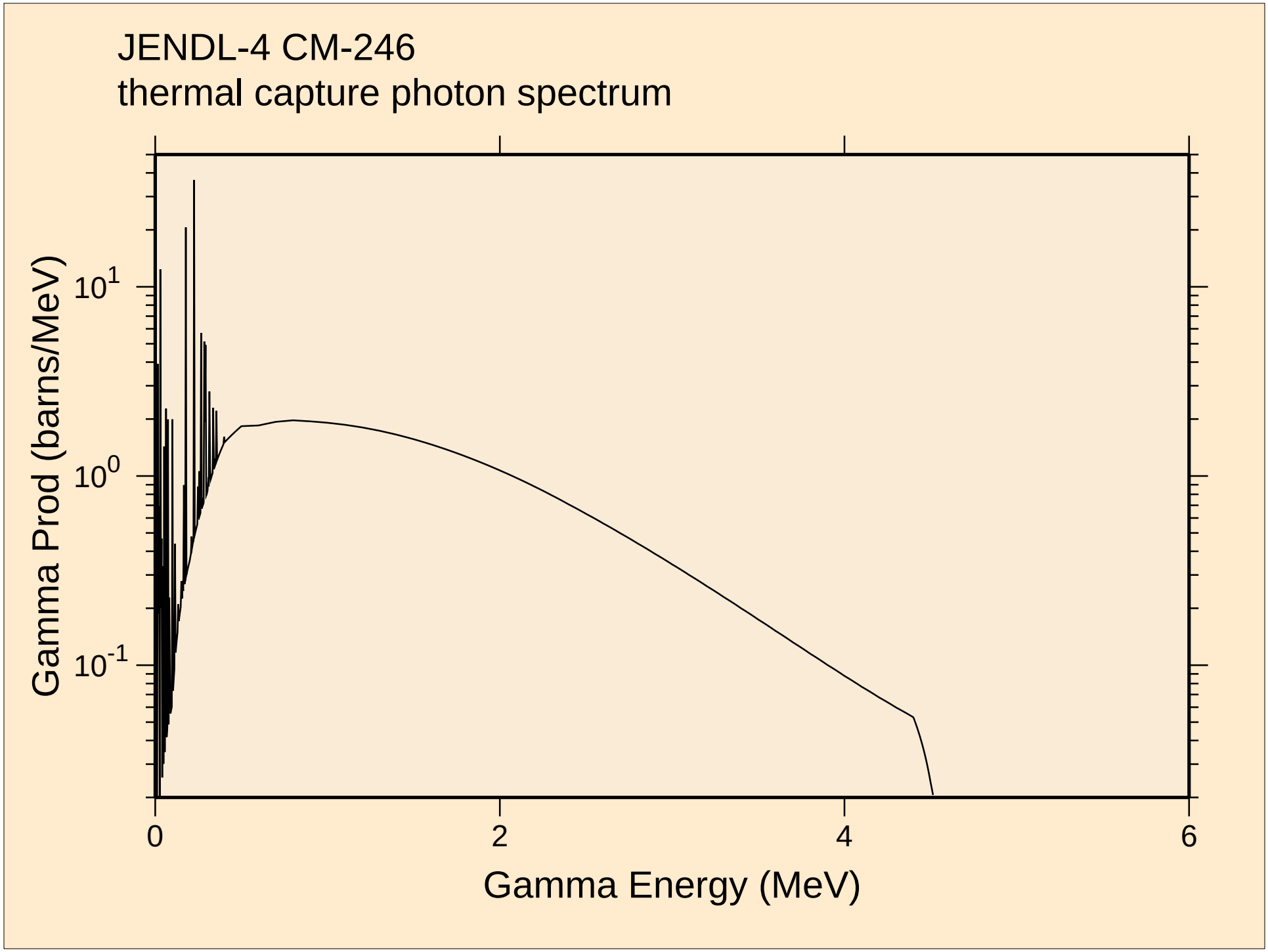

JENDL-4 CM-246
Photon emission for (n,n*29)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

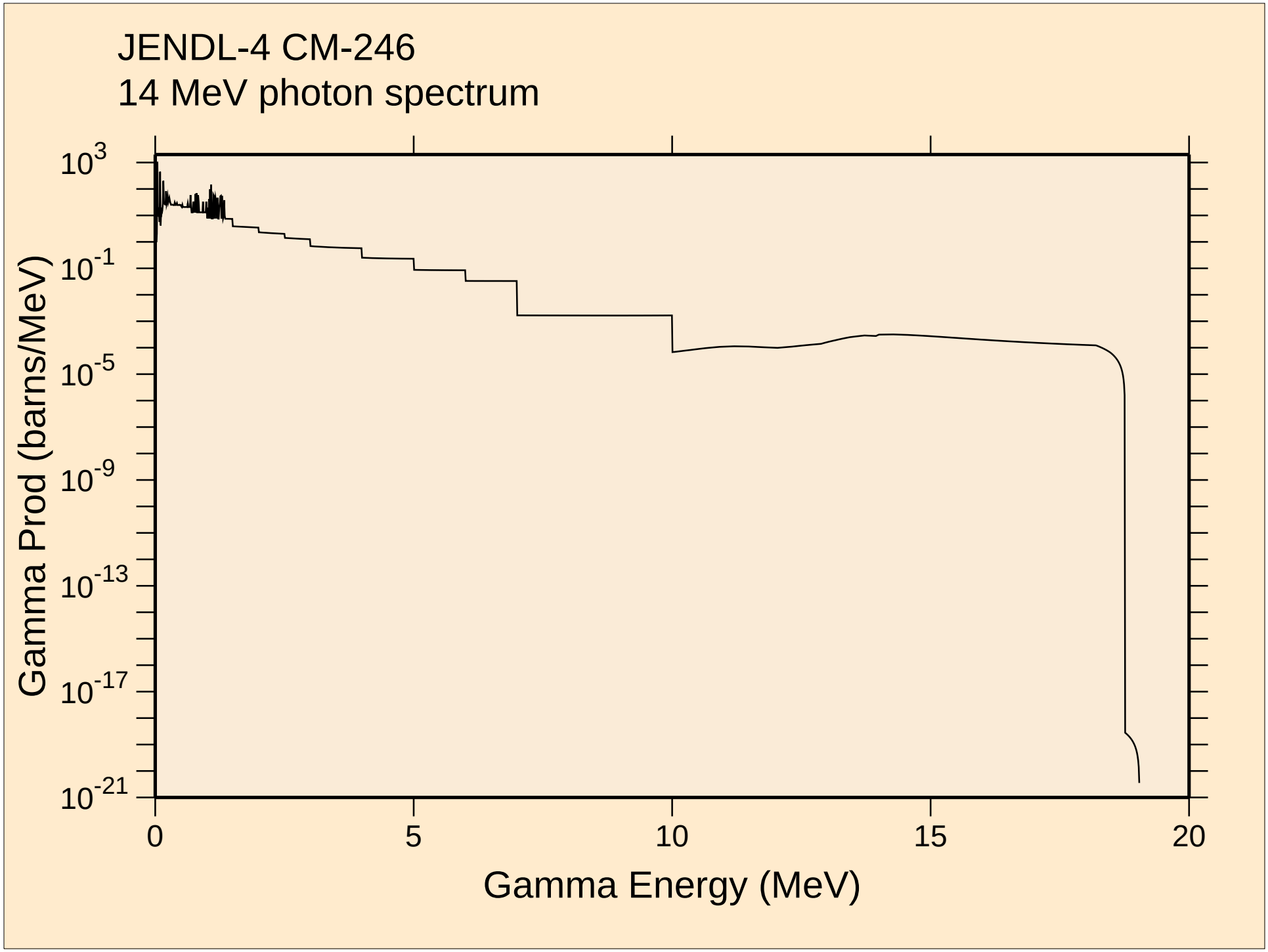

JENDL-4 CM-246
Photon emission for (n,n*30)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)


JENDL-4 CM-246
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 CM-246
Photon emission for (n,gma)




JENDL-4 CM-246
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^{1}
10^{0}
10^{-1}
0
2
4
6
Gamma Energy (MeV)


JENDL-4 CM-246
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^3
10^-1
10^-5
10^-9
10^-13
10^-17
10^-21
0
5
10
15
20
Gamma Energy (MeV)