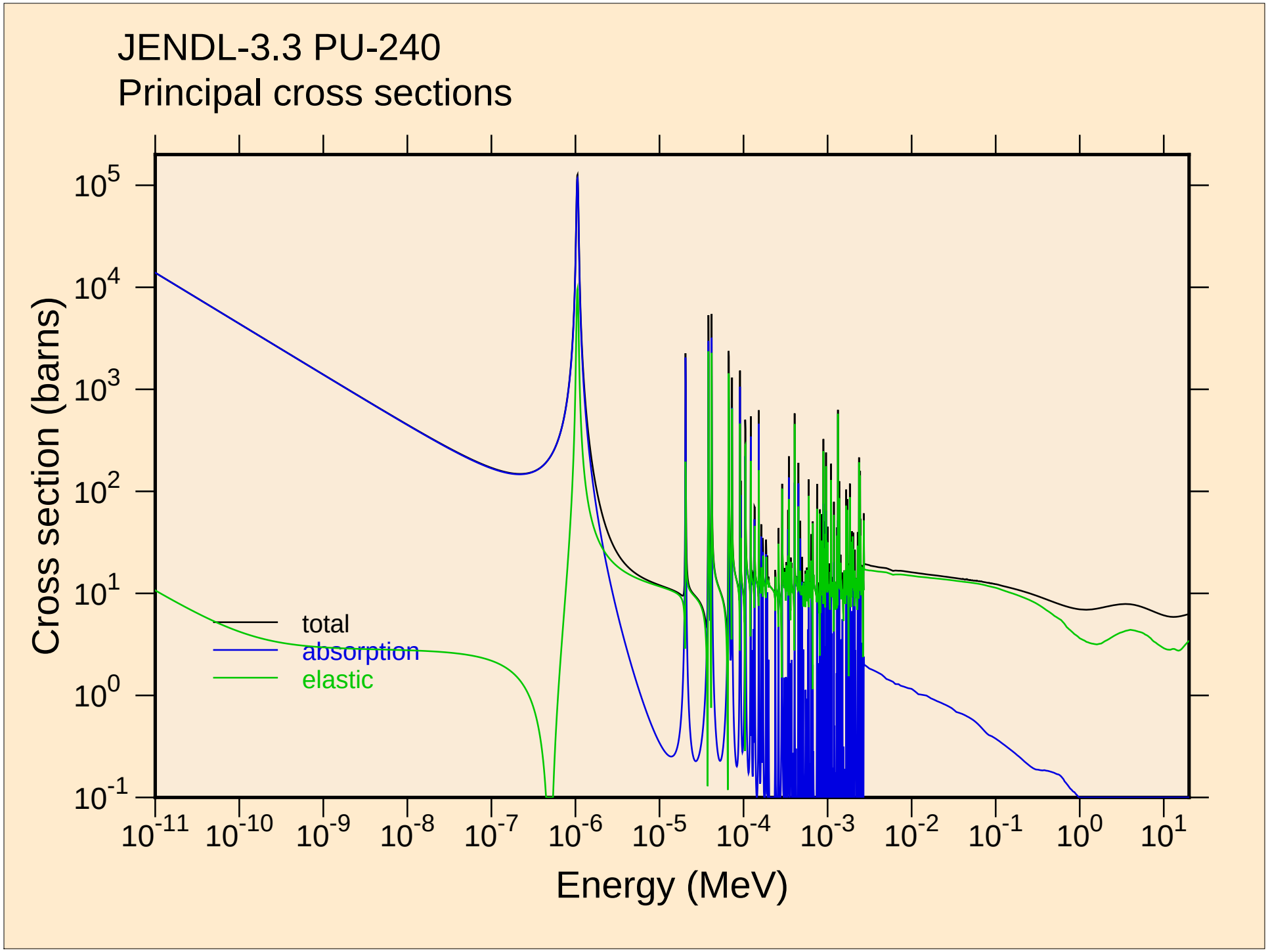
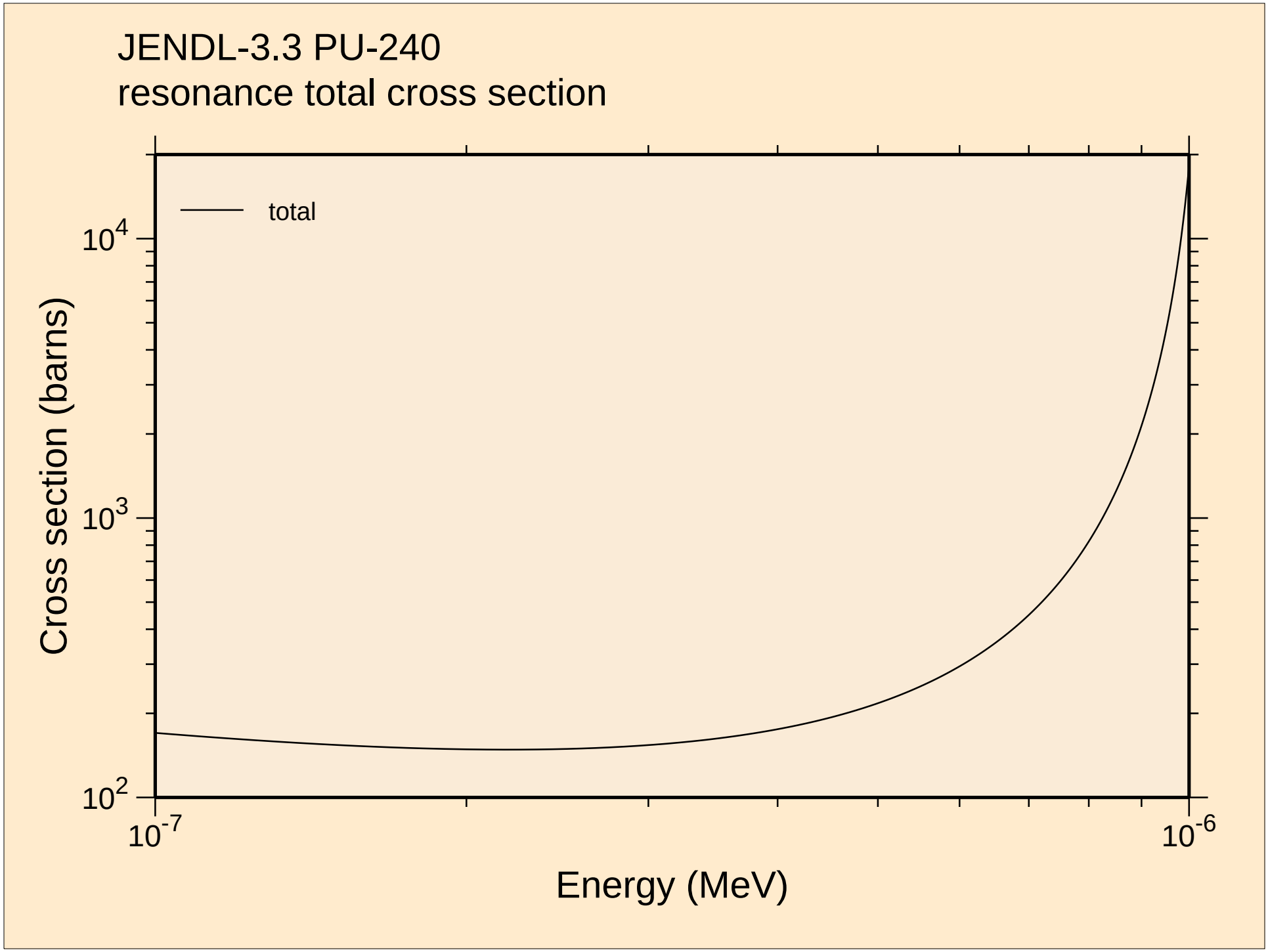
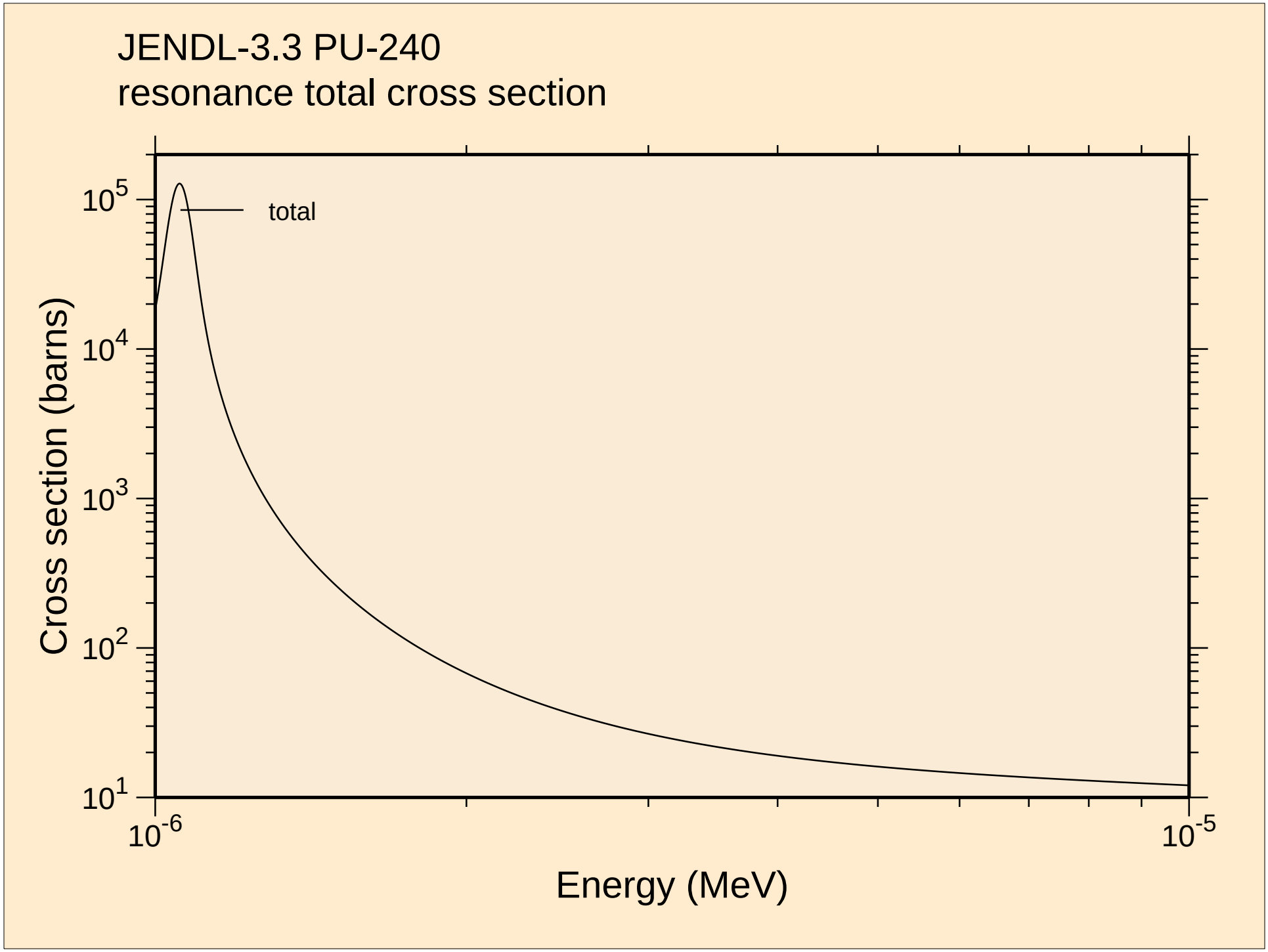
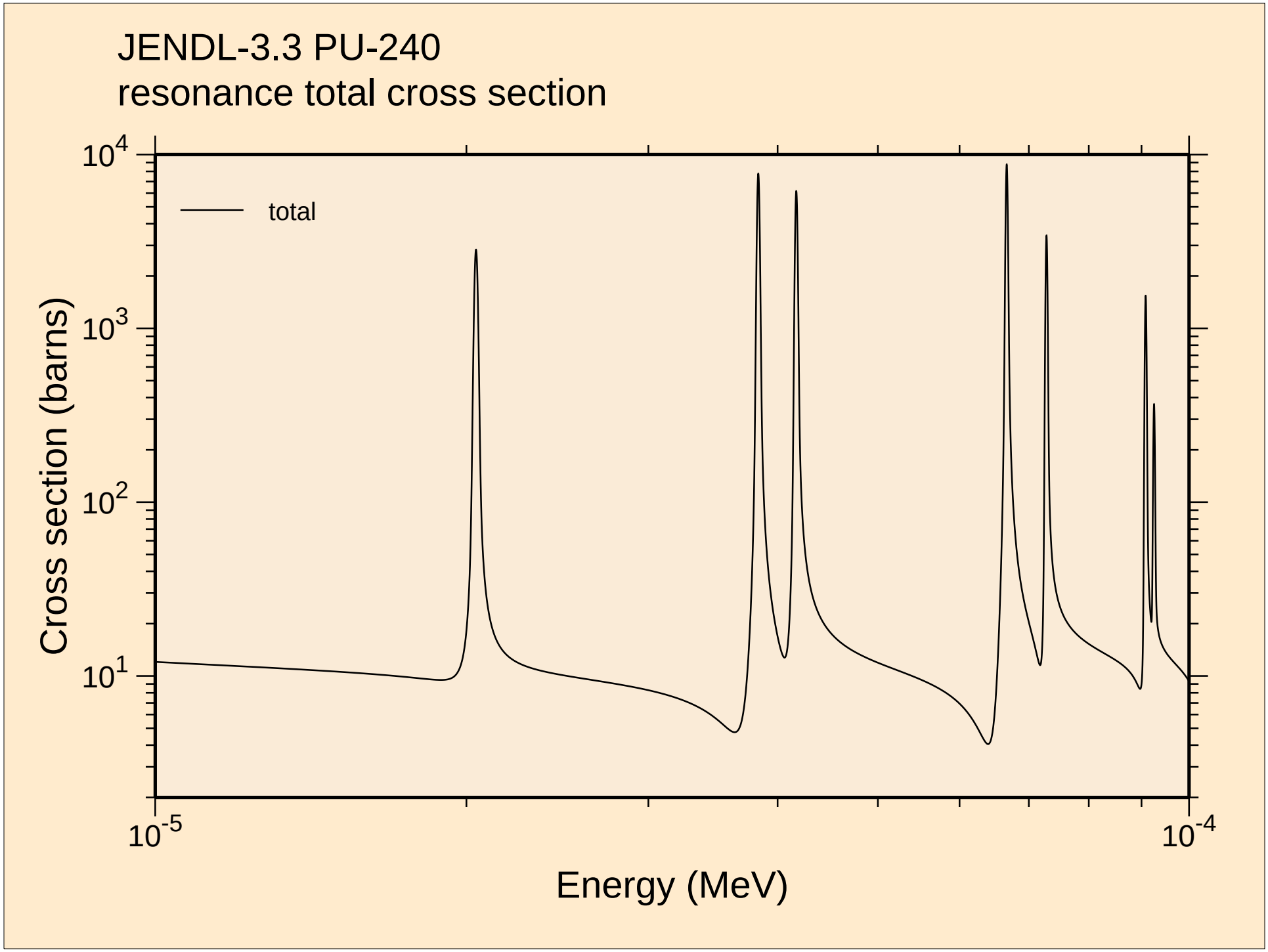
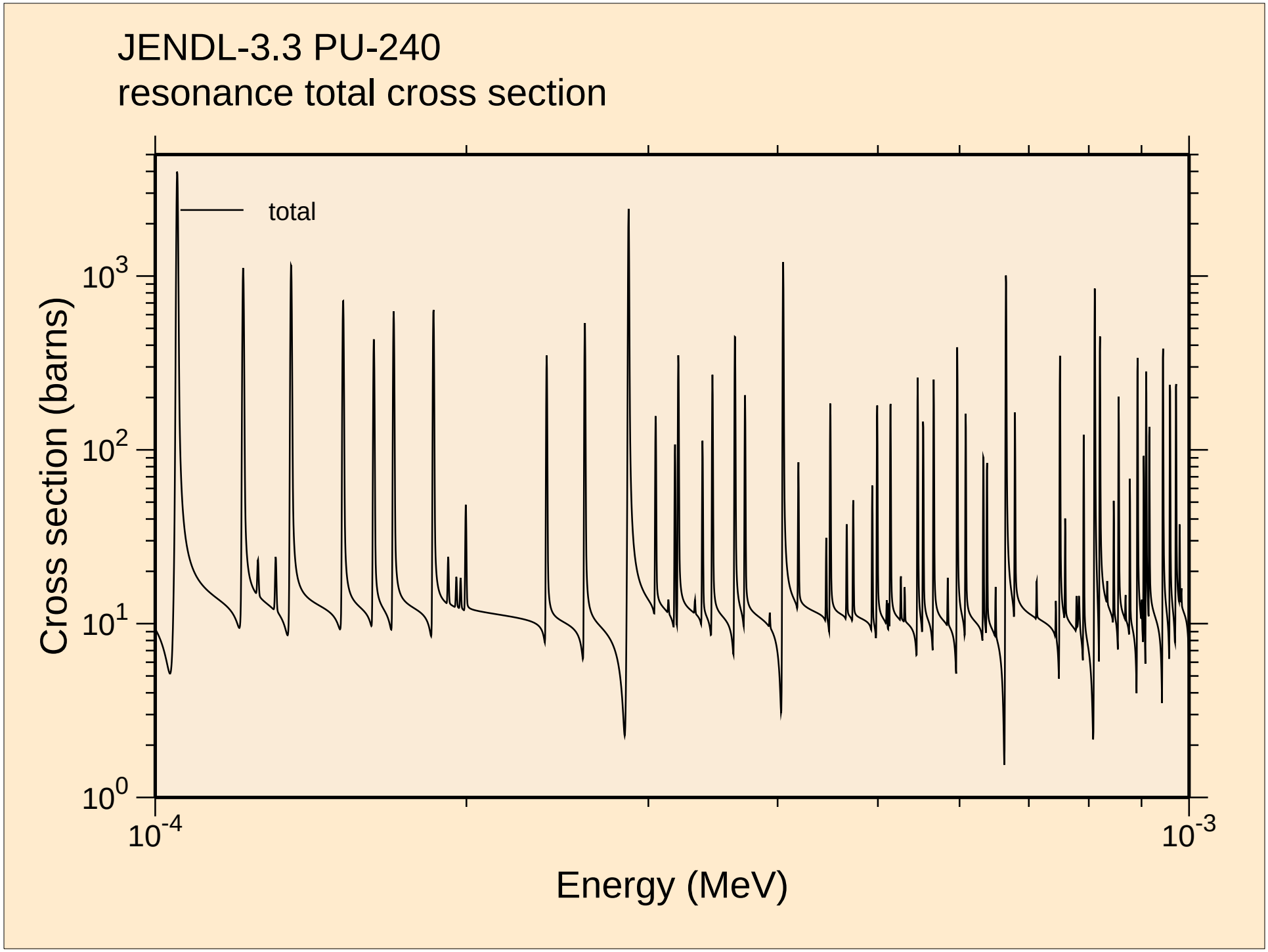
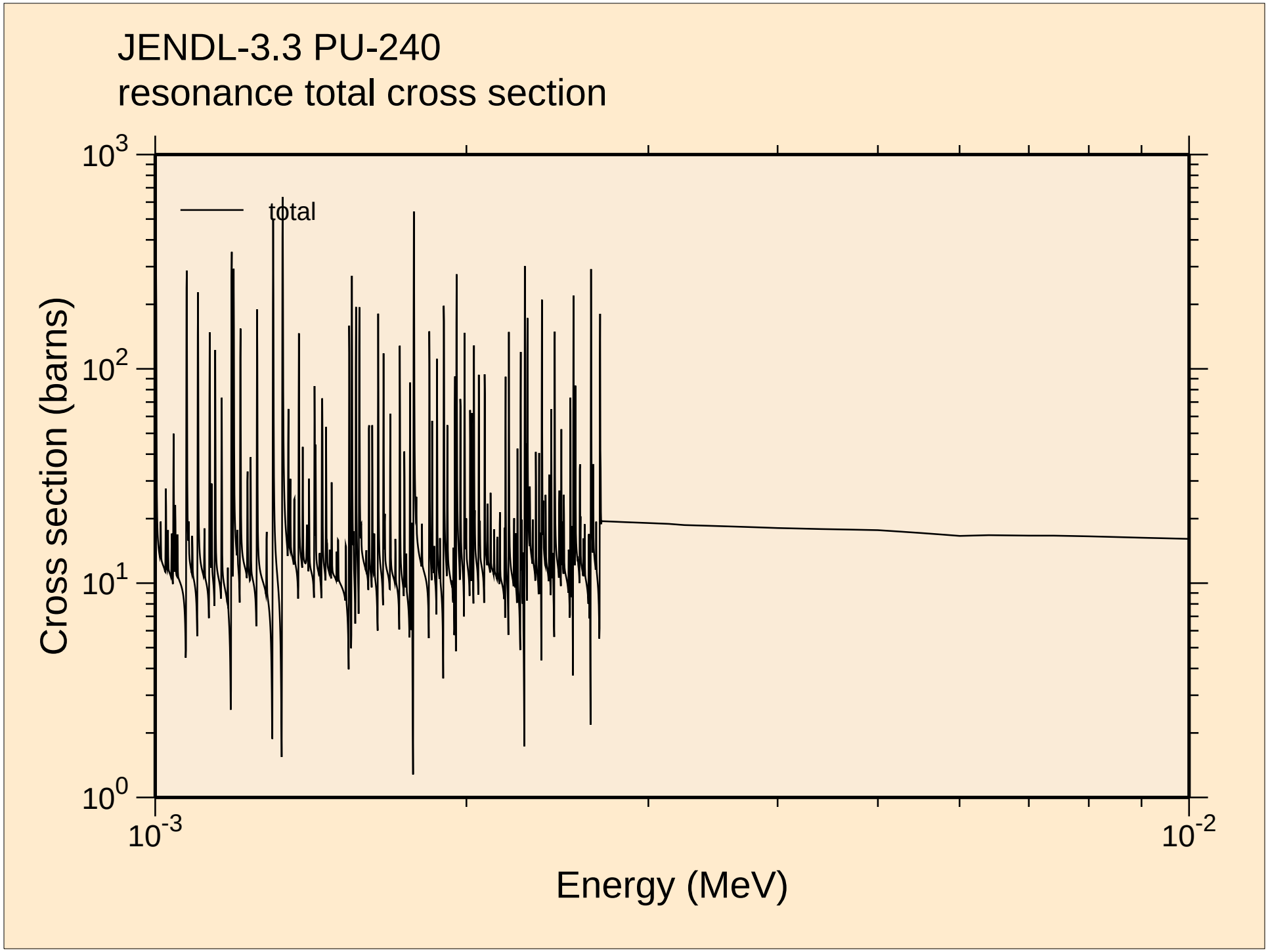

JENDL-3.3 PU-240
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
$10^{5}$
$10^{4}$
$10^{3}$
$10^{2}$
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-11}$
$10^{-10}$
$10^{-9}$
$10^{-8}$
$10^{-7}$
$10^{-6}$
$10^{-5}$
$10^{-4}$
$10^{-3}$
$10^{-2}$
$10^{-1}$
$10^{0}$
$10^{1}$

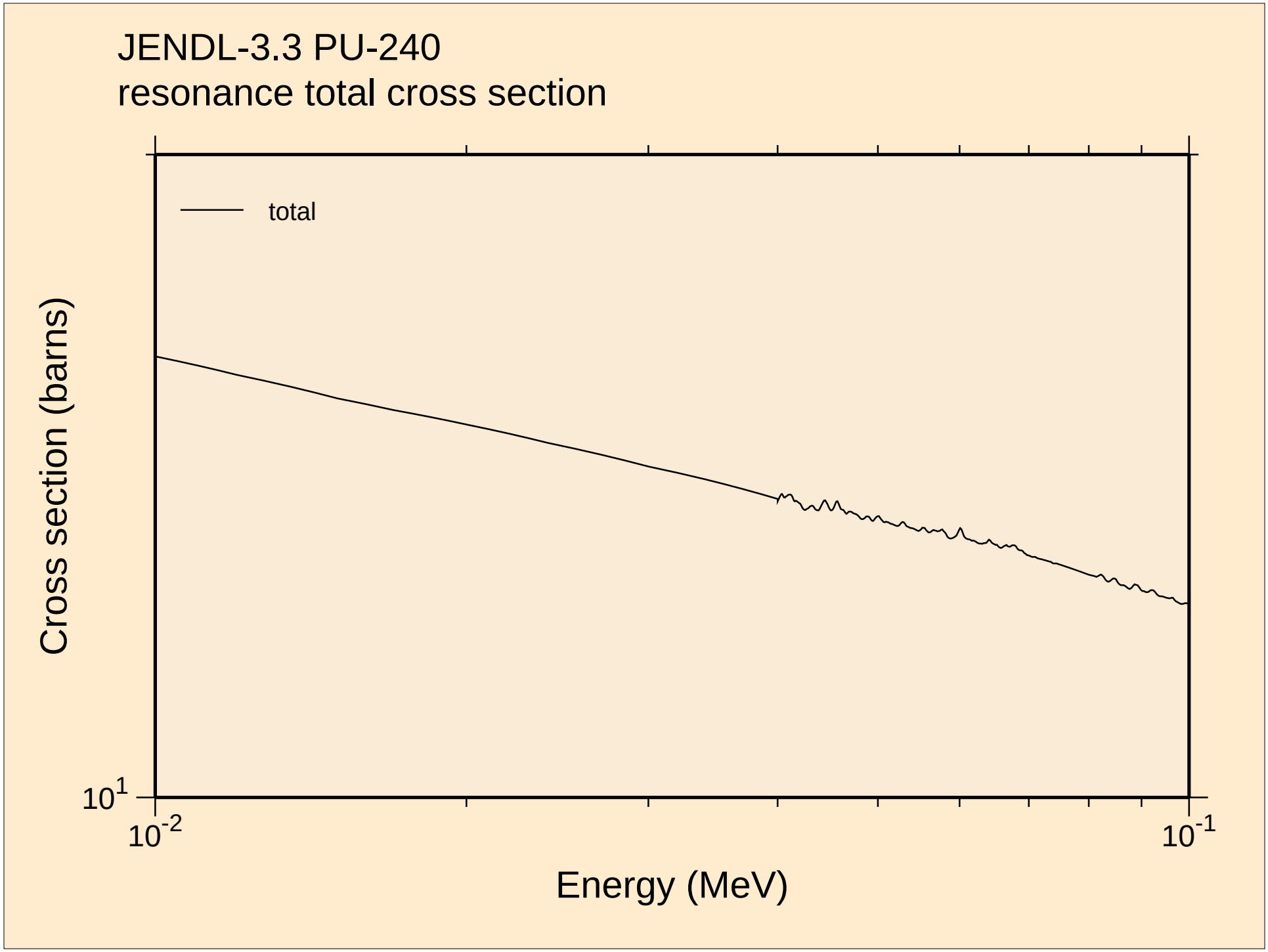

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^4$
$10^3$
$10^2$
$10^{-7}$
$10^{-6}$
Energy (MeV)

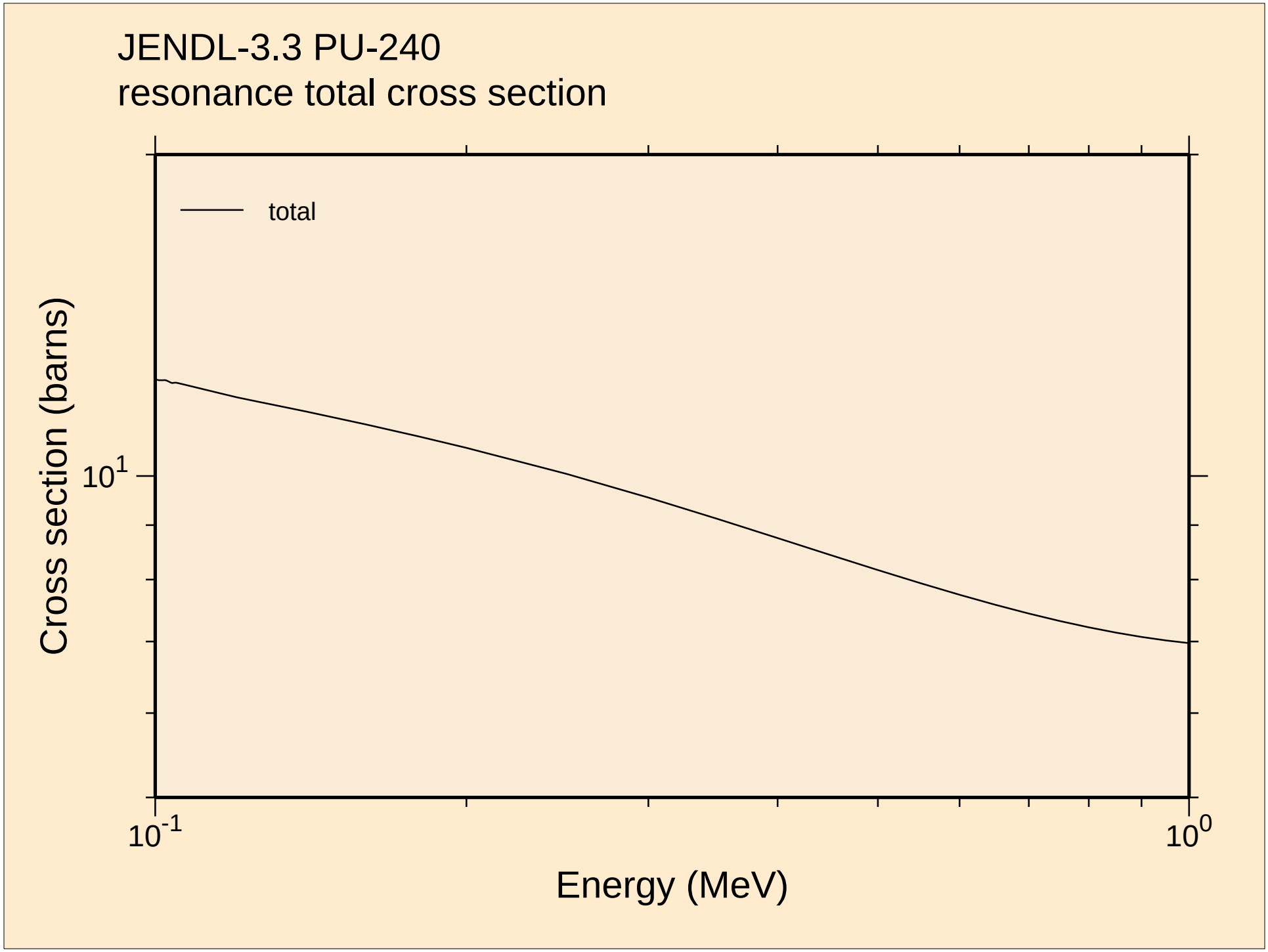

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^5$
$10^4$
$10^3$
$10^2$
$10^1$
$10^{-6}$
$10^{-5}$
Energy (MeV)

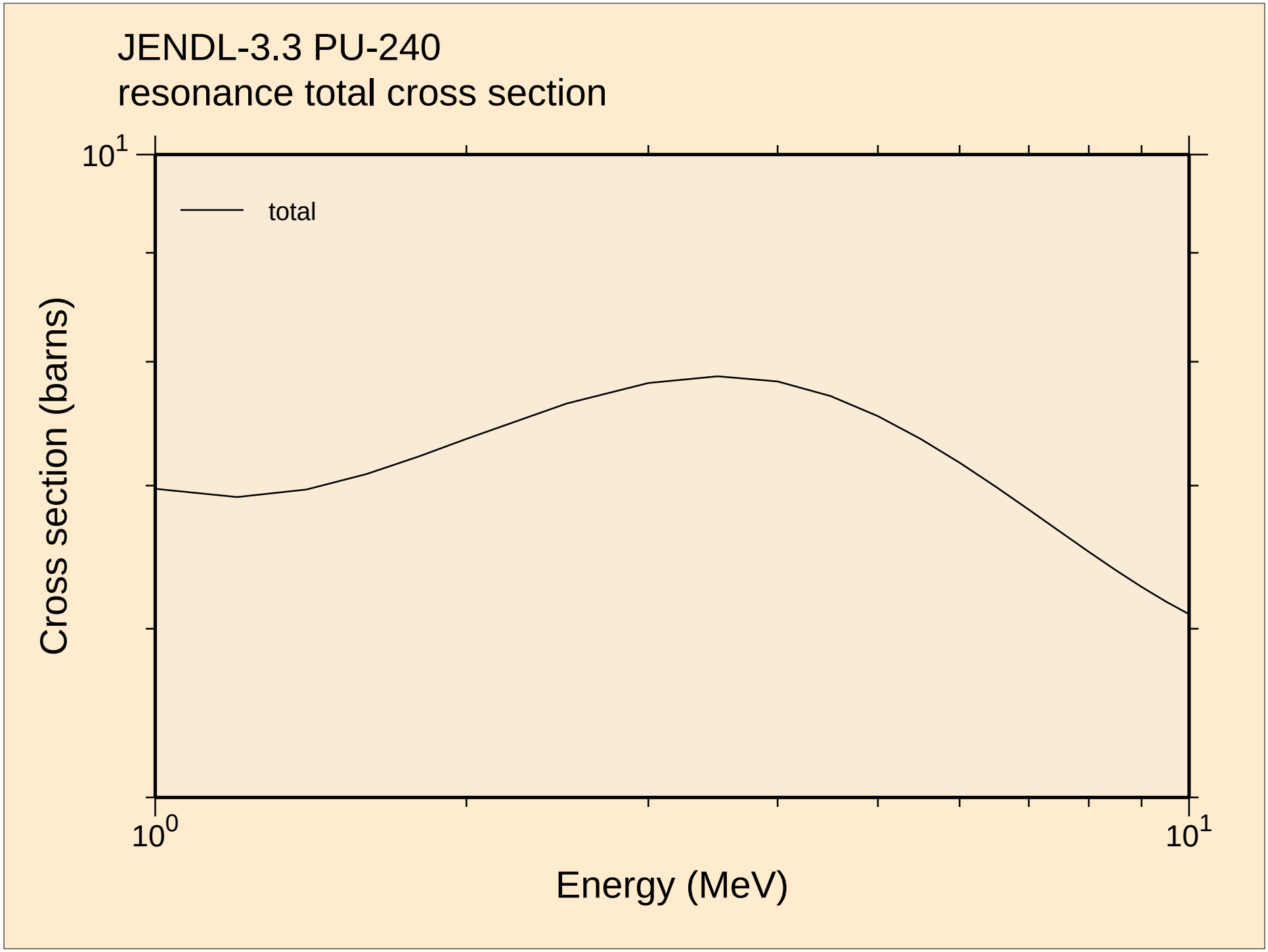

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^4$
$10^3$
$10^2$
$10^1$
$10^{-5}$
$10^{-4}$
Energy (MeV)

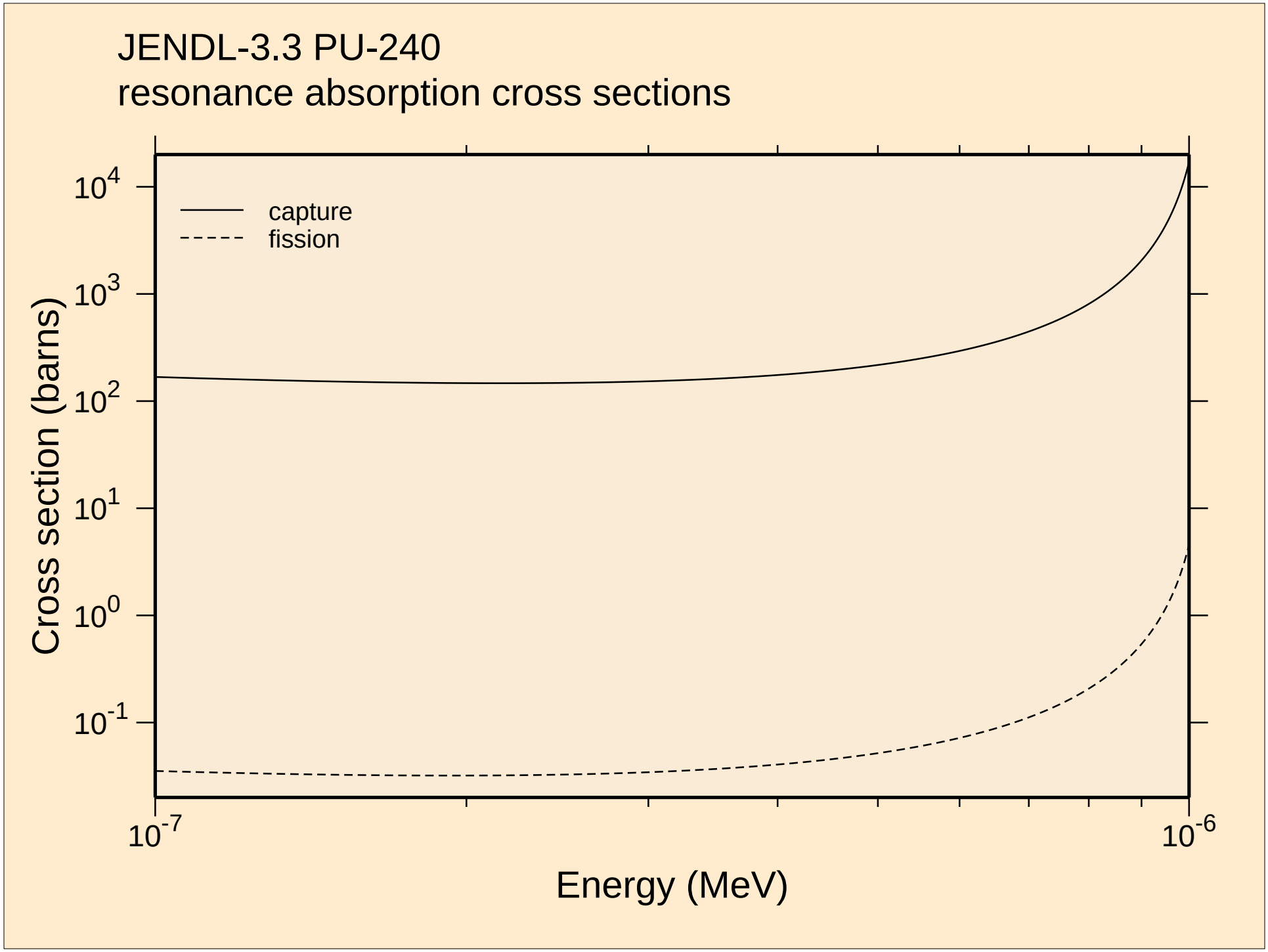

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^3$
$10^2$
$10^1$
$10^0$
$10^{-4}$
$10^{-3}$
Energy (MeV)

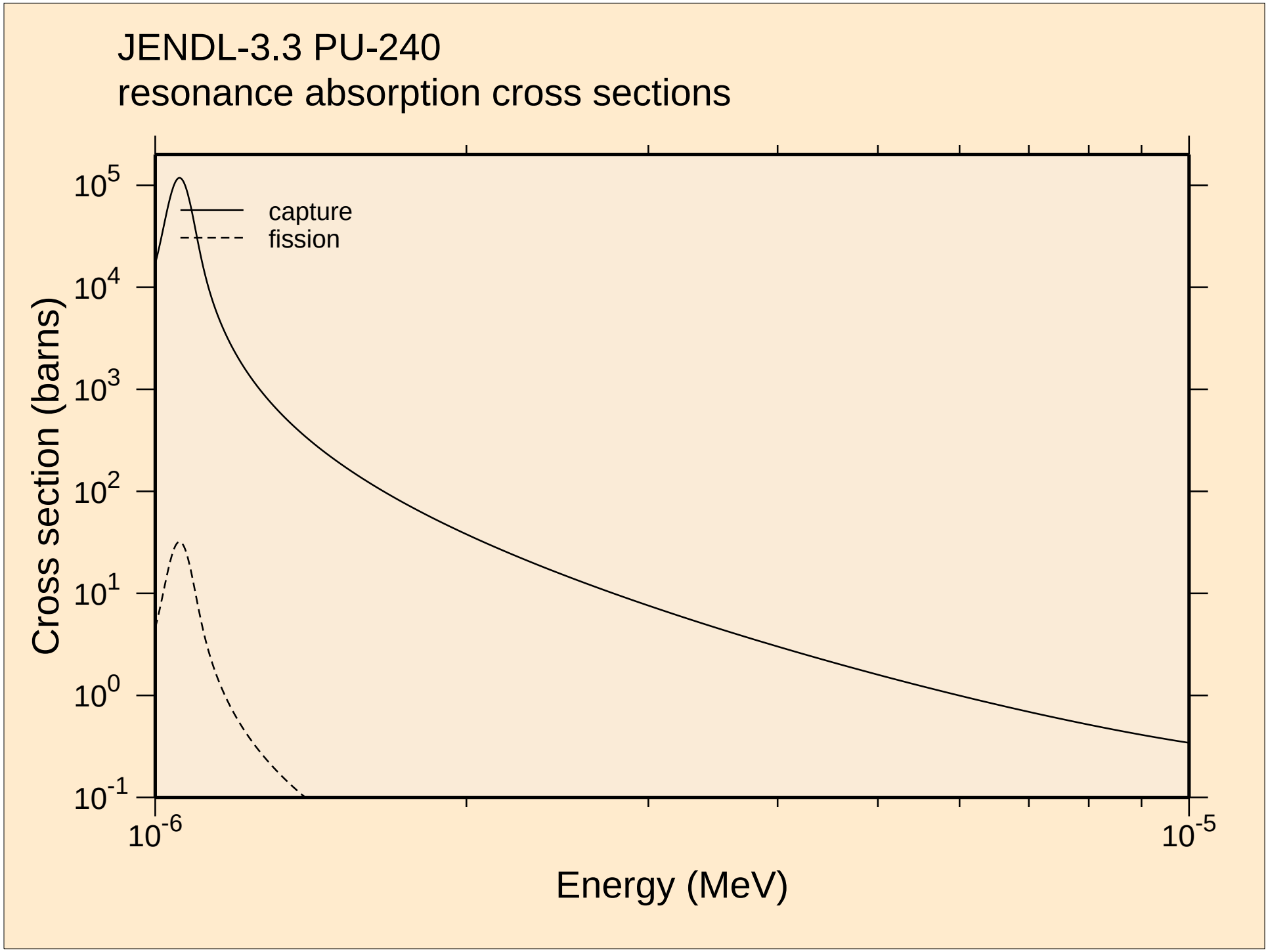

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^3
10^2
10^1
10^0
10^-3
10^-2

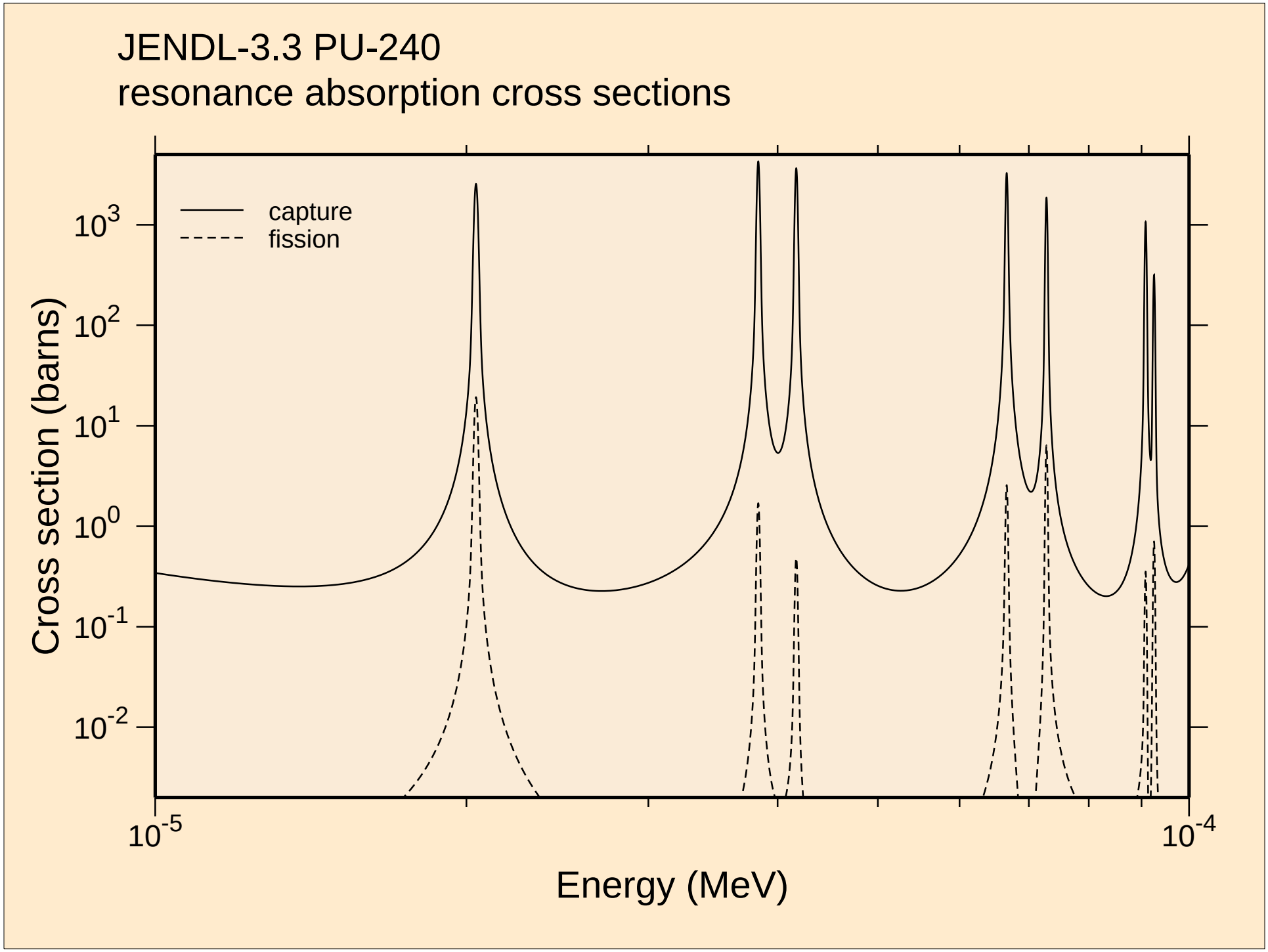

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^1$
$10^{-2}$
$10^{-1}$
Energy (MeV)


JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
$10^1$
$10^{-1}$
$10^0$
Energy (MeV)

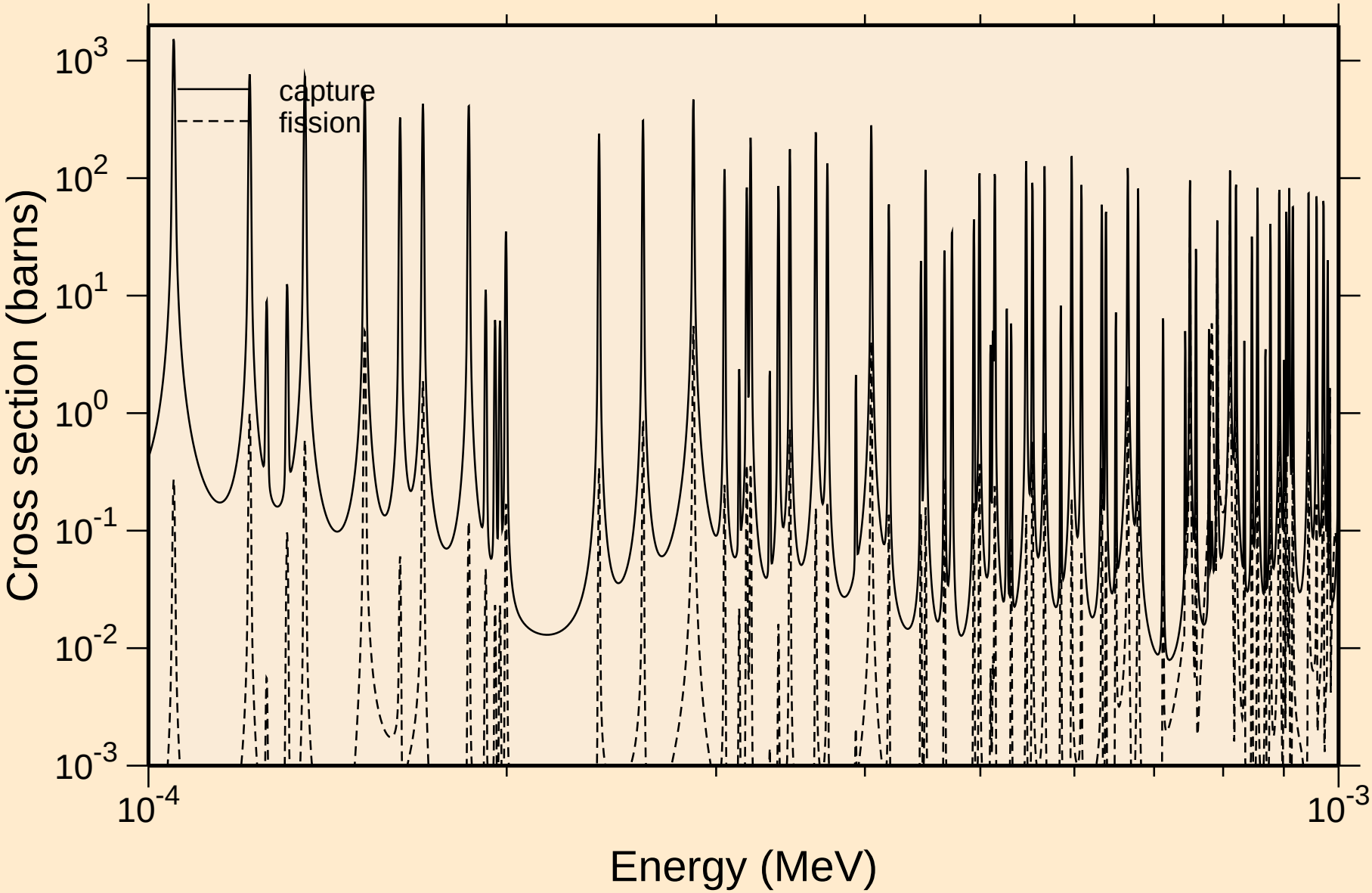

JENDL-3.3 PU-240
resonance total cross section
total
Cross section (barns)
Energy (MeV)
$10^1$
$10^0$
$10^1$


JENDL-3.3 PU-240
resonance absorption cross sections
capture
fission
Cross section (barns)
$10^{4}$
$10^{3}$
$10^{2}$
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-7}$
$10^{-6}$
Energy (MeV)

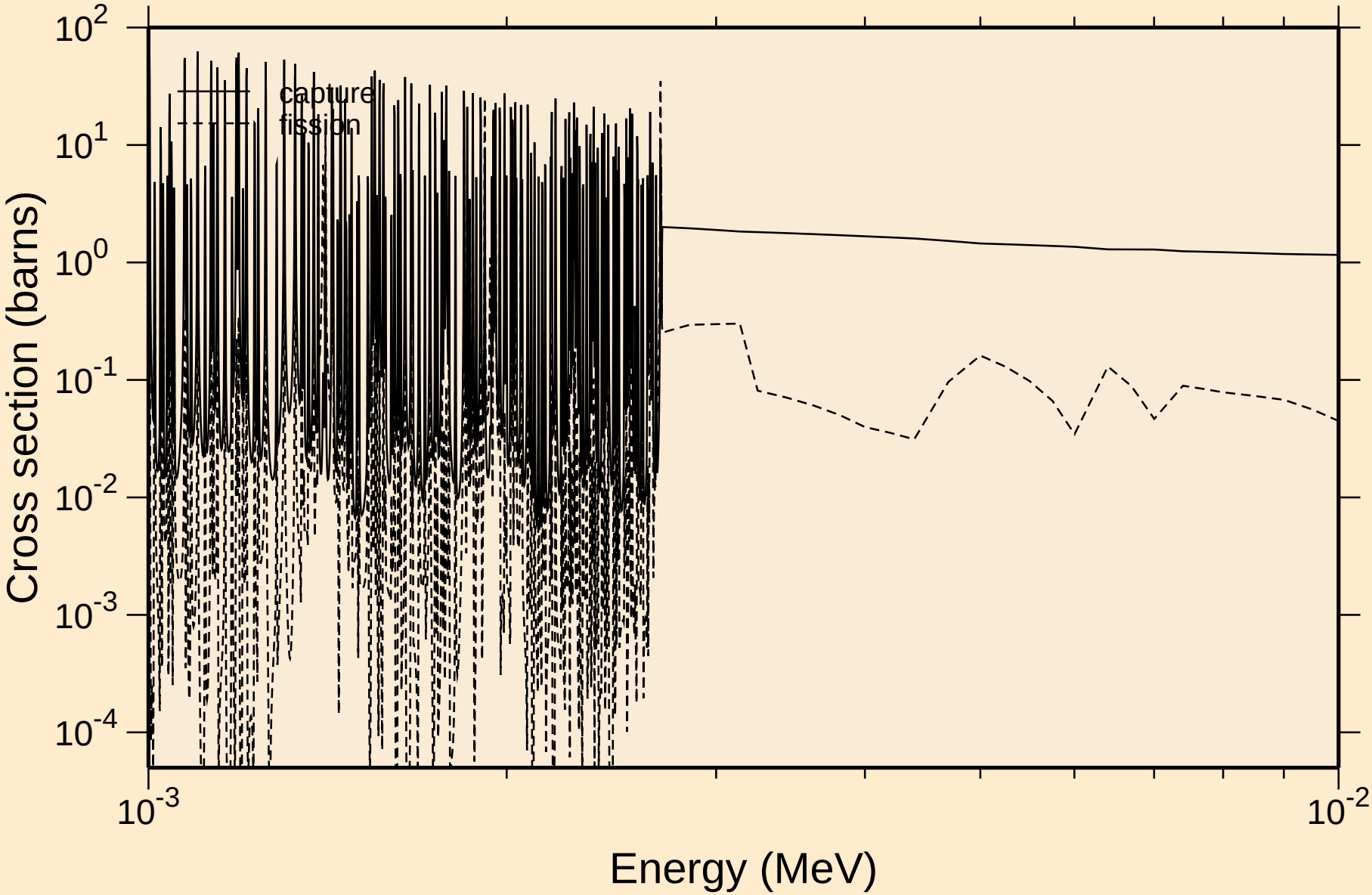

JENDL-3.3 PU-240
resonance absorption cross sections
capture
fission
Cross section (barns)
$10^{5}$
$10^{4}$
$10^{3}$
$10^{2}$
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-6}$
$10^{-5}$
Energy (MeV)

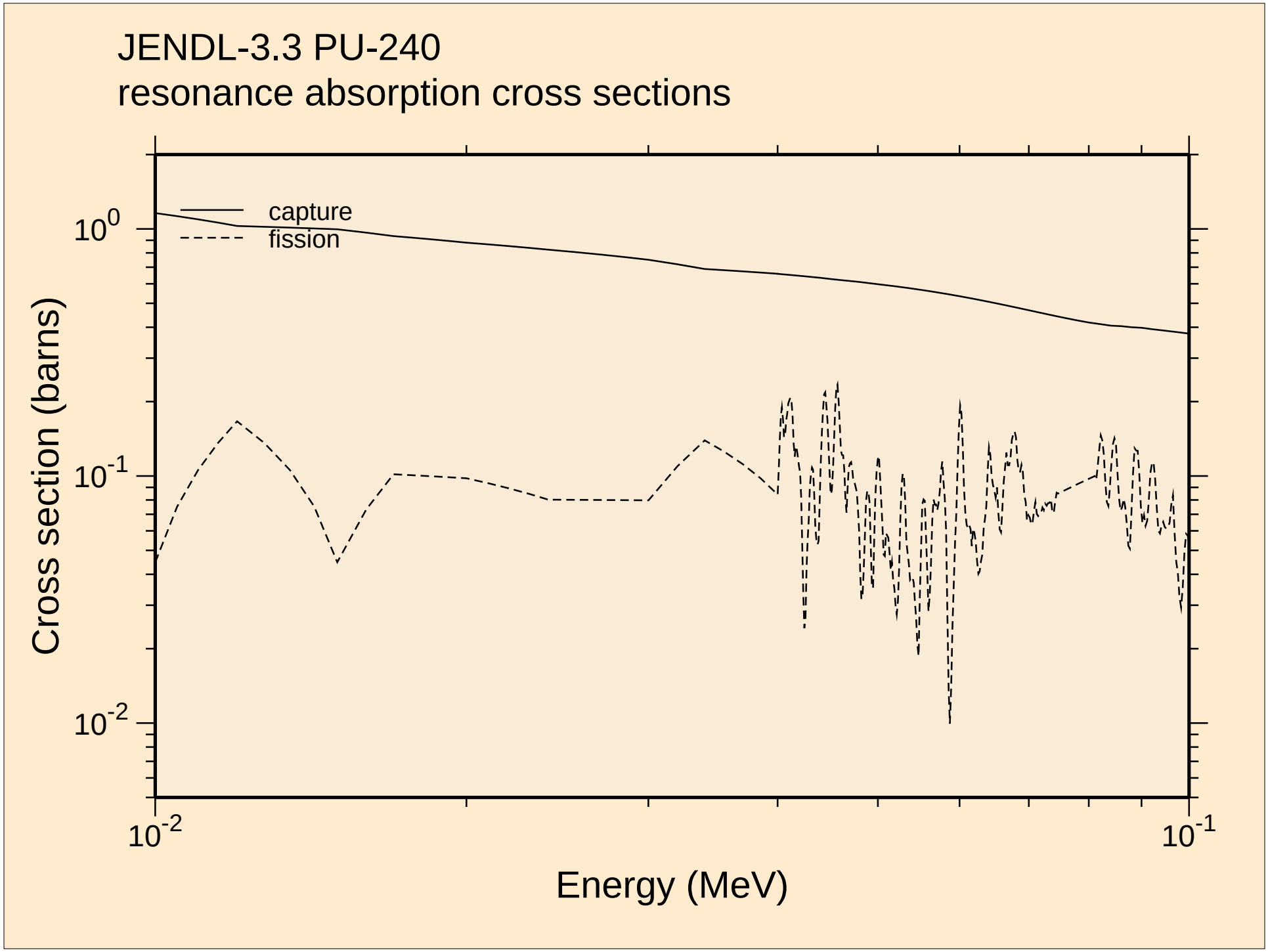

JENDL-3.3 PU-240
resonance absorption cross sections
capture
fission
Cross section (barns)
$10^{3}$
$10^{2}$
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
$10^{-5}$
$10^{-4}$
Energy (MeV)

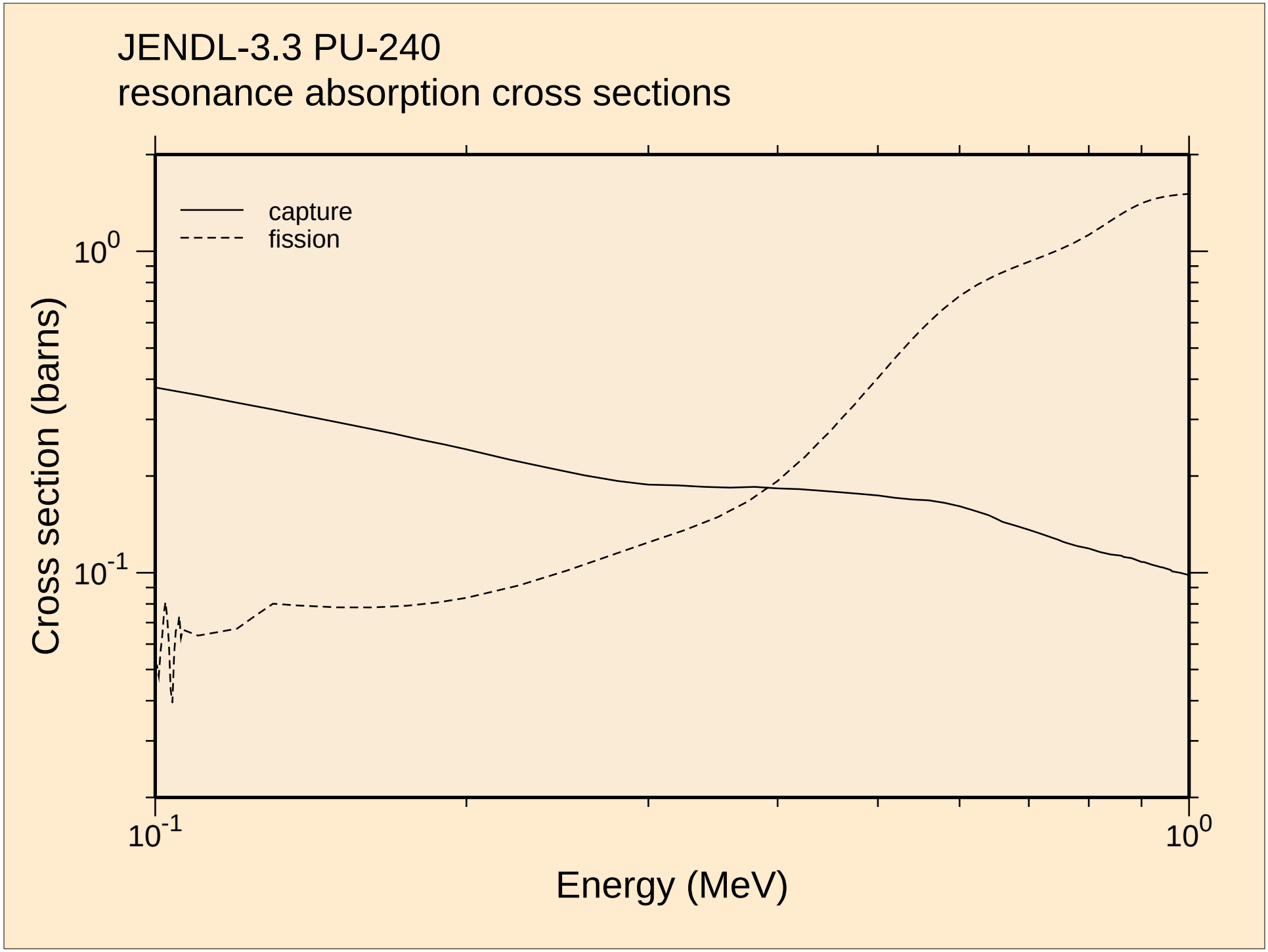
JENDL-3.3 PU-240
resonance absorption cross sections



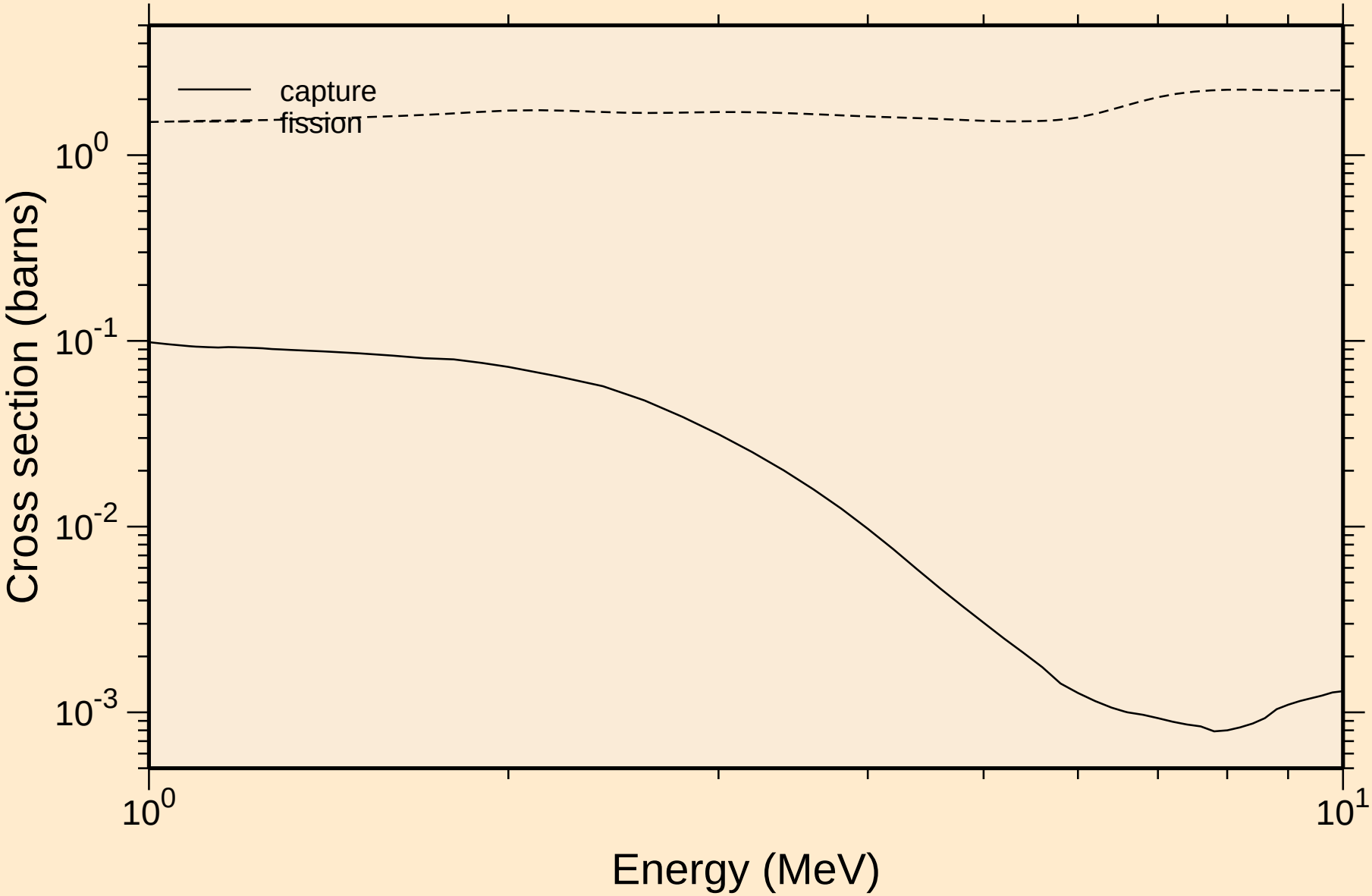
JENDL-3.3 PU-240
resonance absorption cross sections

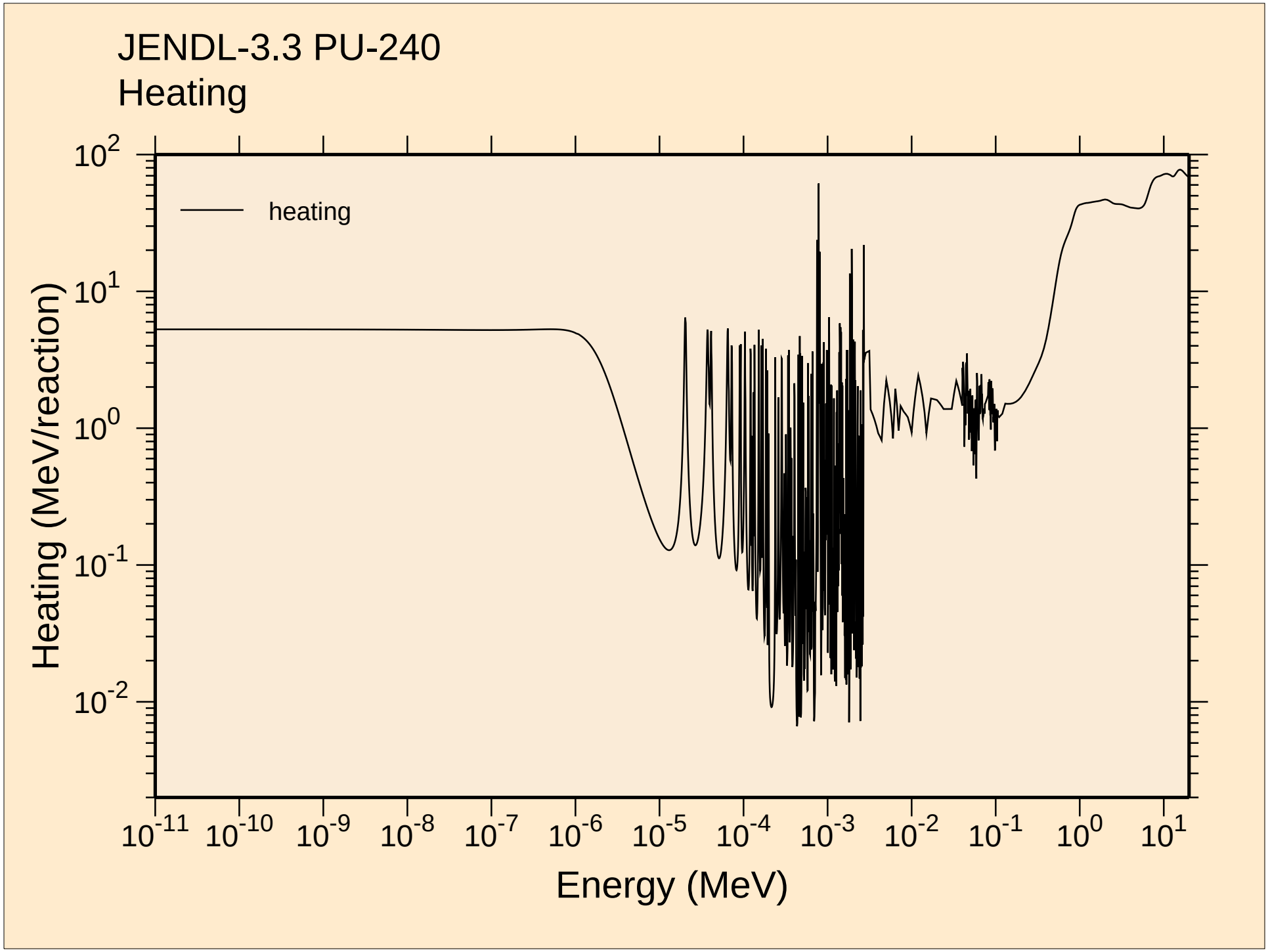


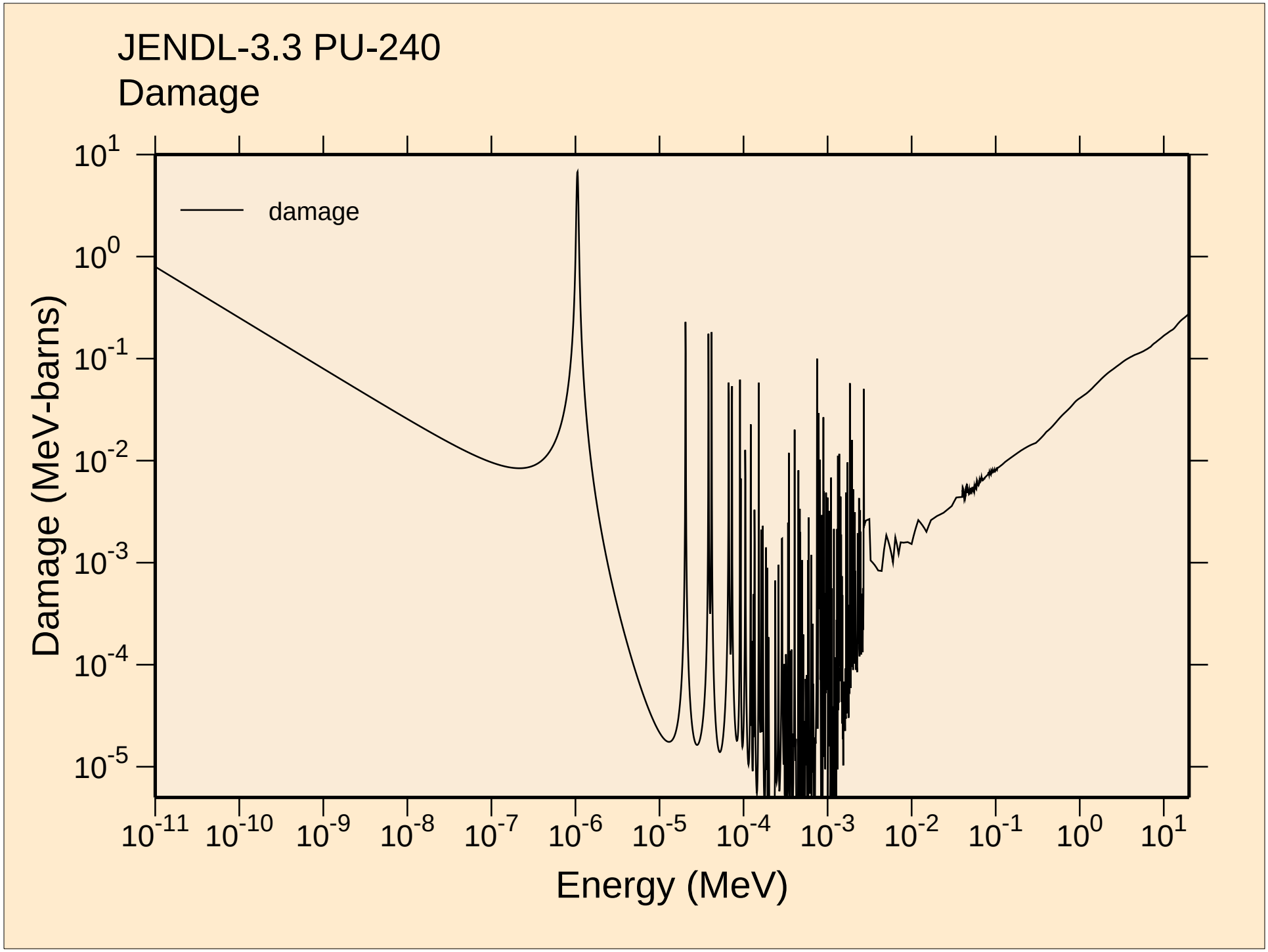

JENDL-3.3 PU-240
resonance absorption cross sections
capture
fission
Cross section (barns)
$10^{0}$
$10^{-1}$
$10^{-2}$
$10^{-2}$
$10^{-1}$
Energy (MeV)

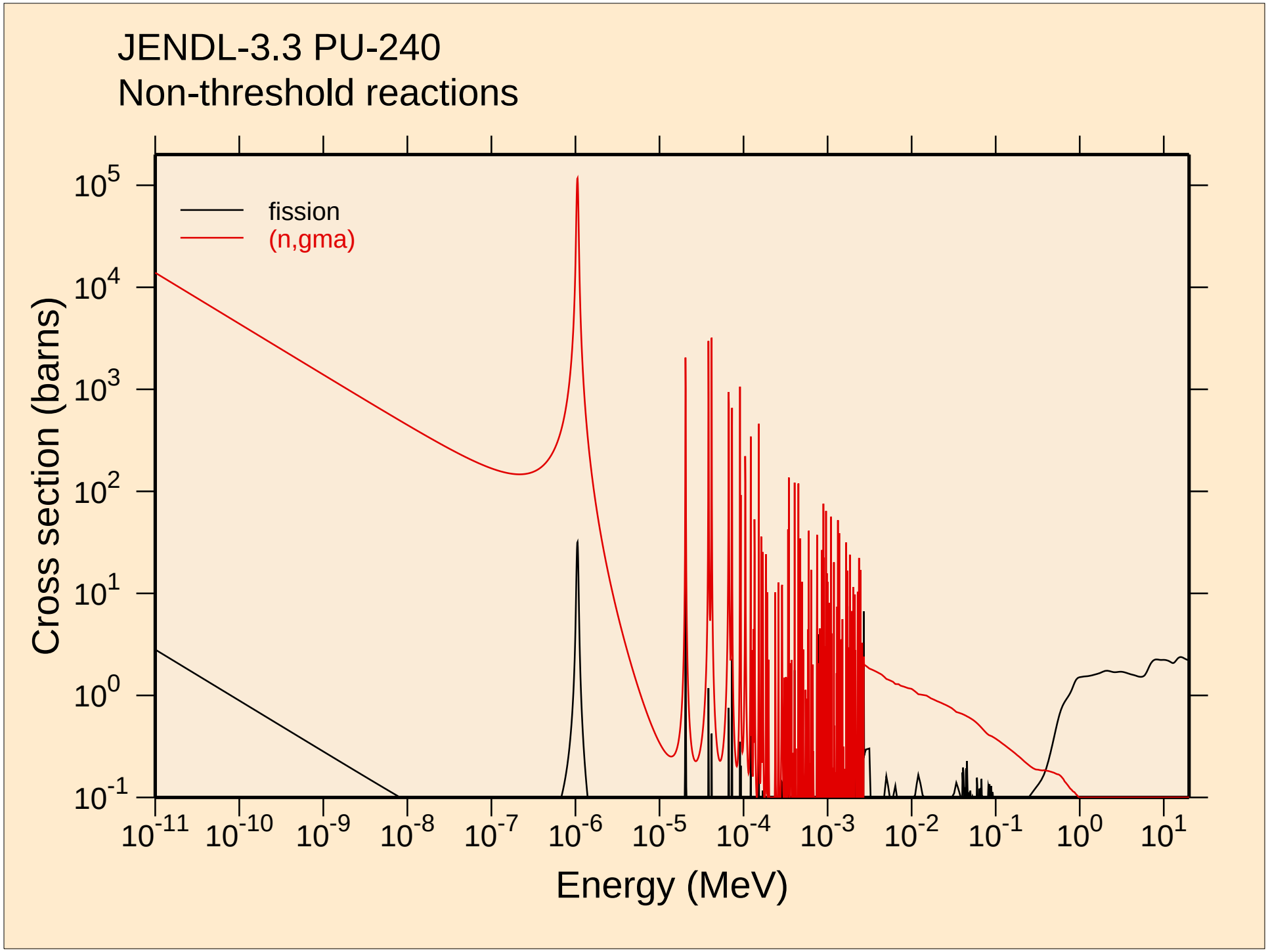

JENDL-3.3 PU-240
resonance absorption cross sections
capture
fission
Cross section (barns)
$10^0$
$10^{-1}$
$10^{-1}$
$10^0$
Energy (MeV)

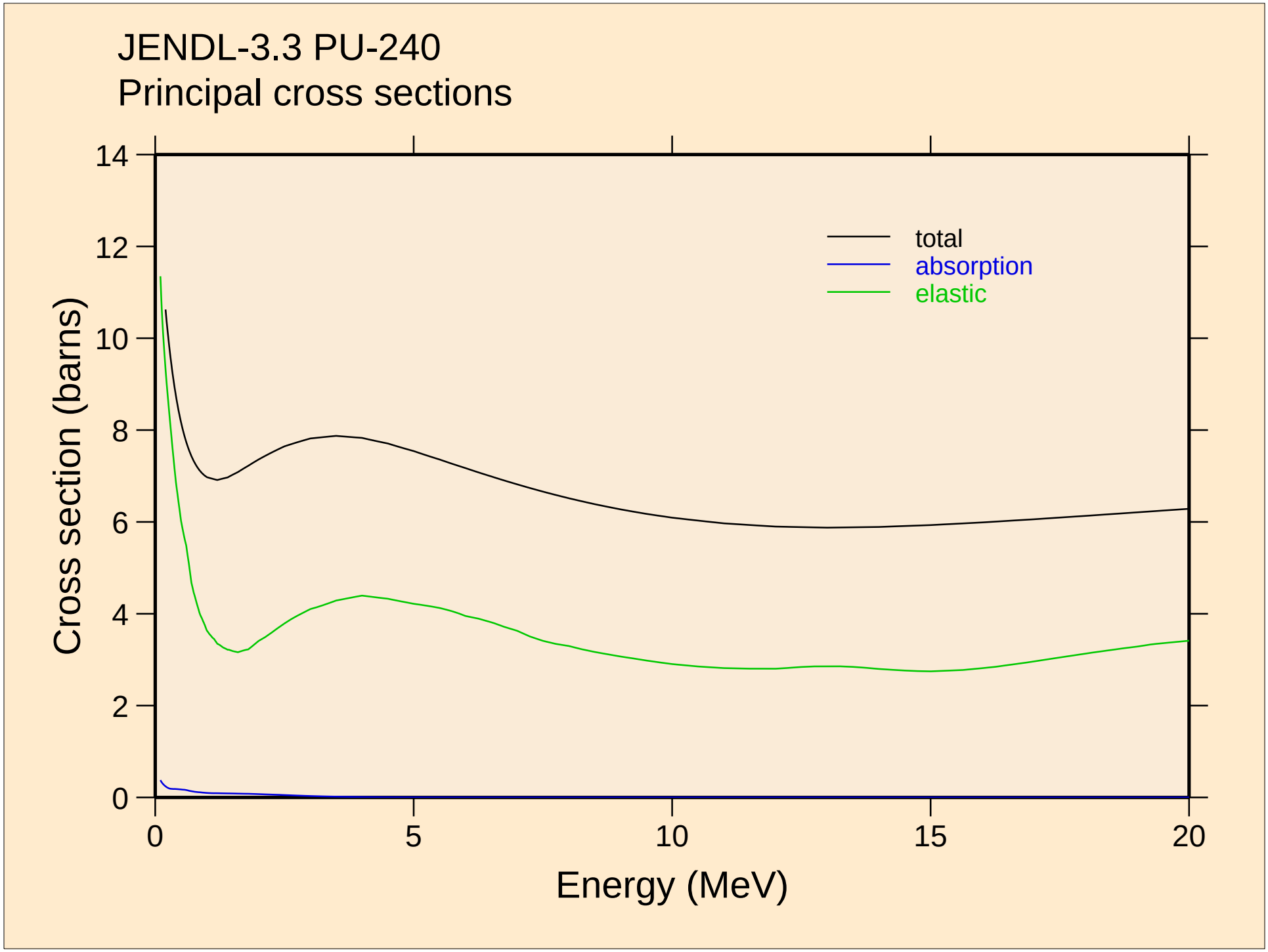
JENDL-3.3 PU-240
resonance absorption cross sections

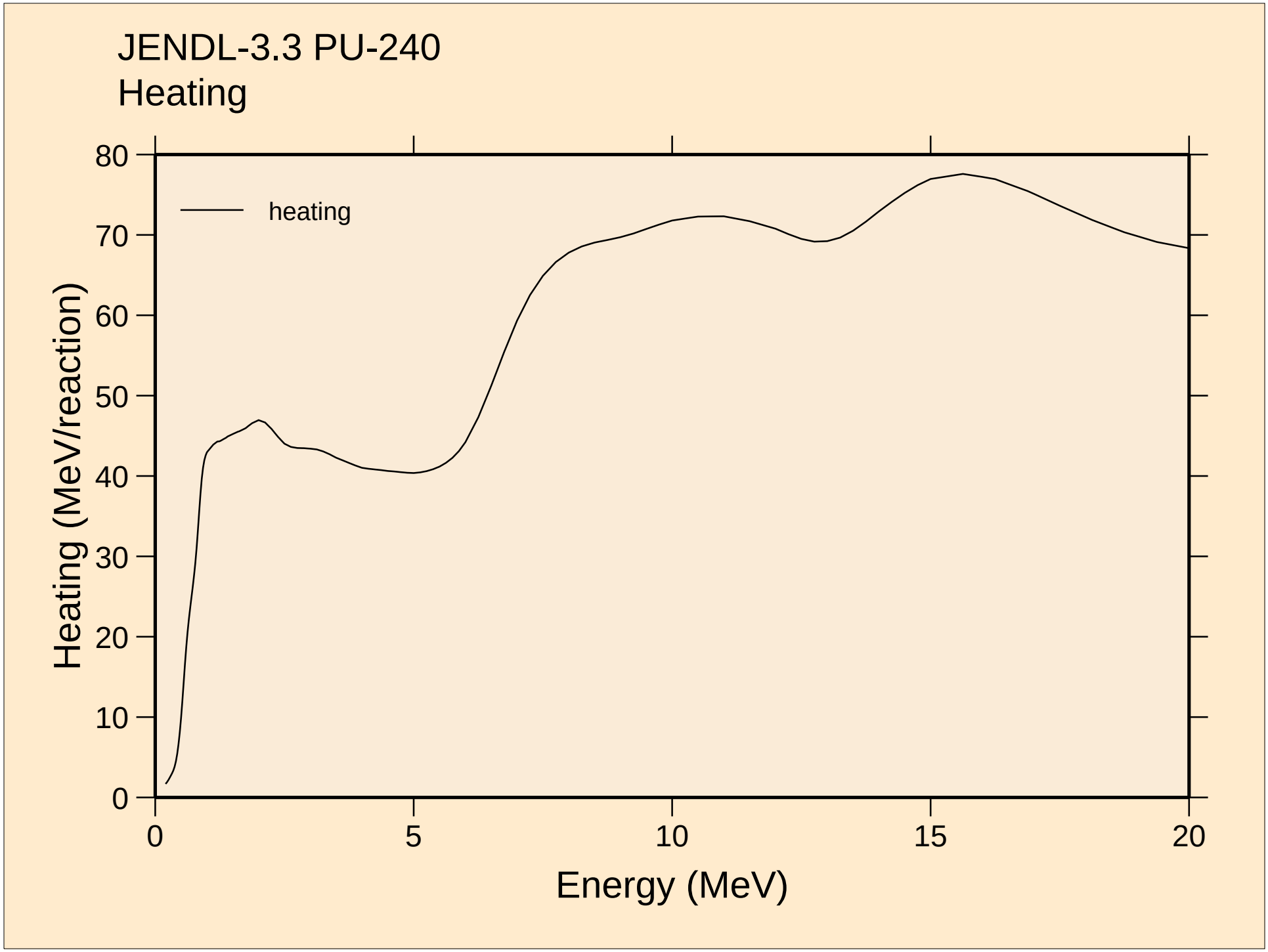


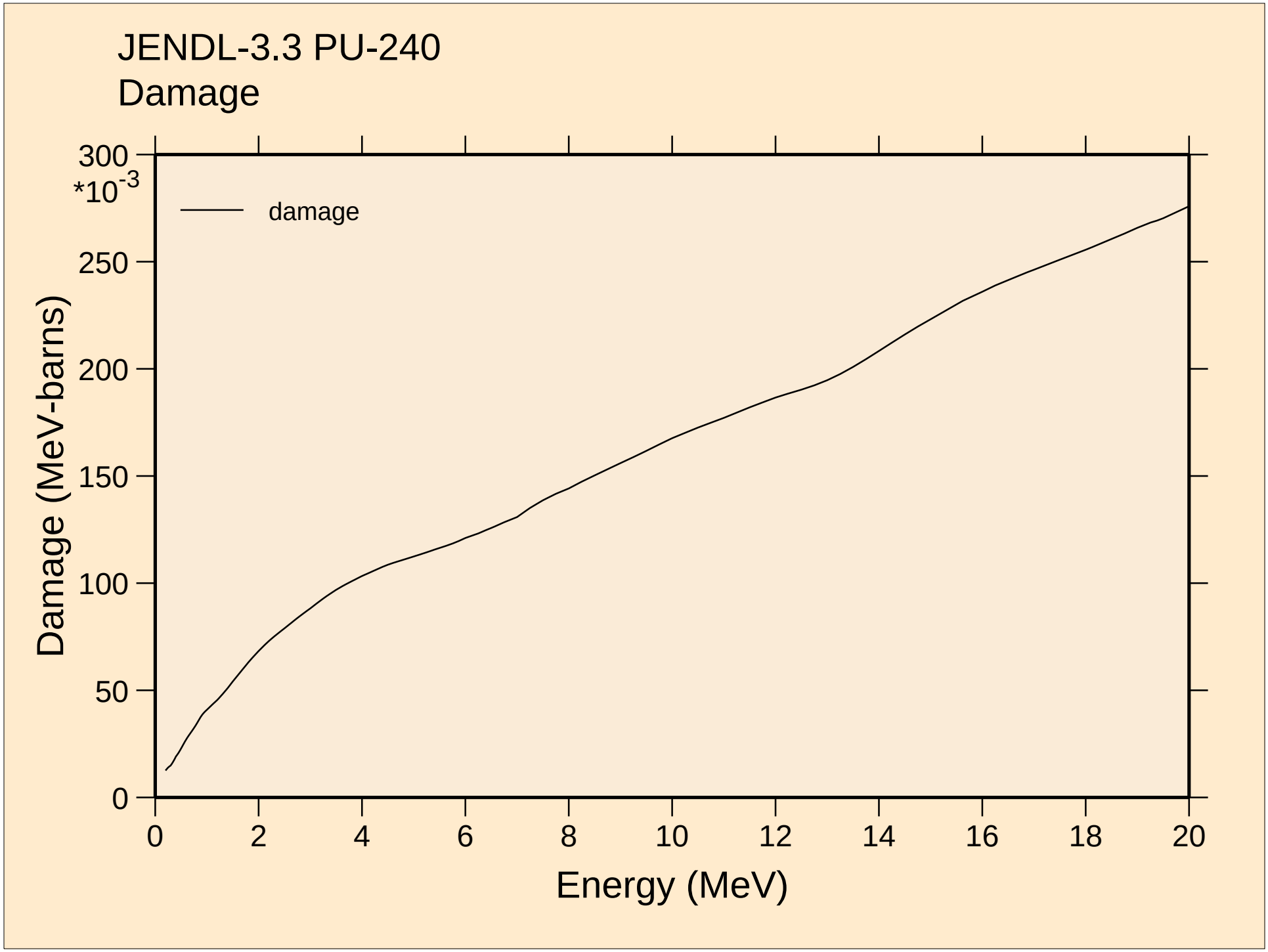

JENDL-3.3 PU-240
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

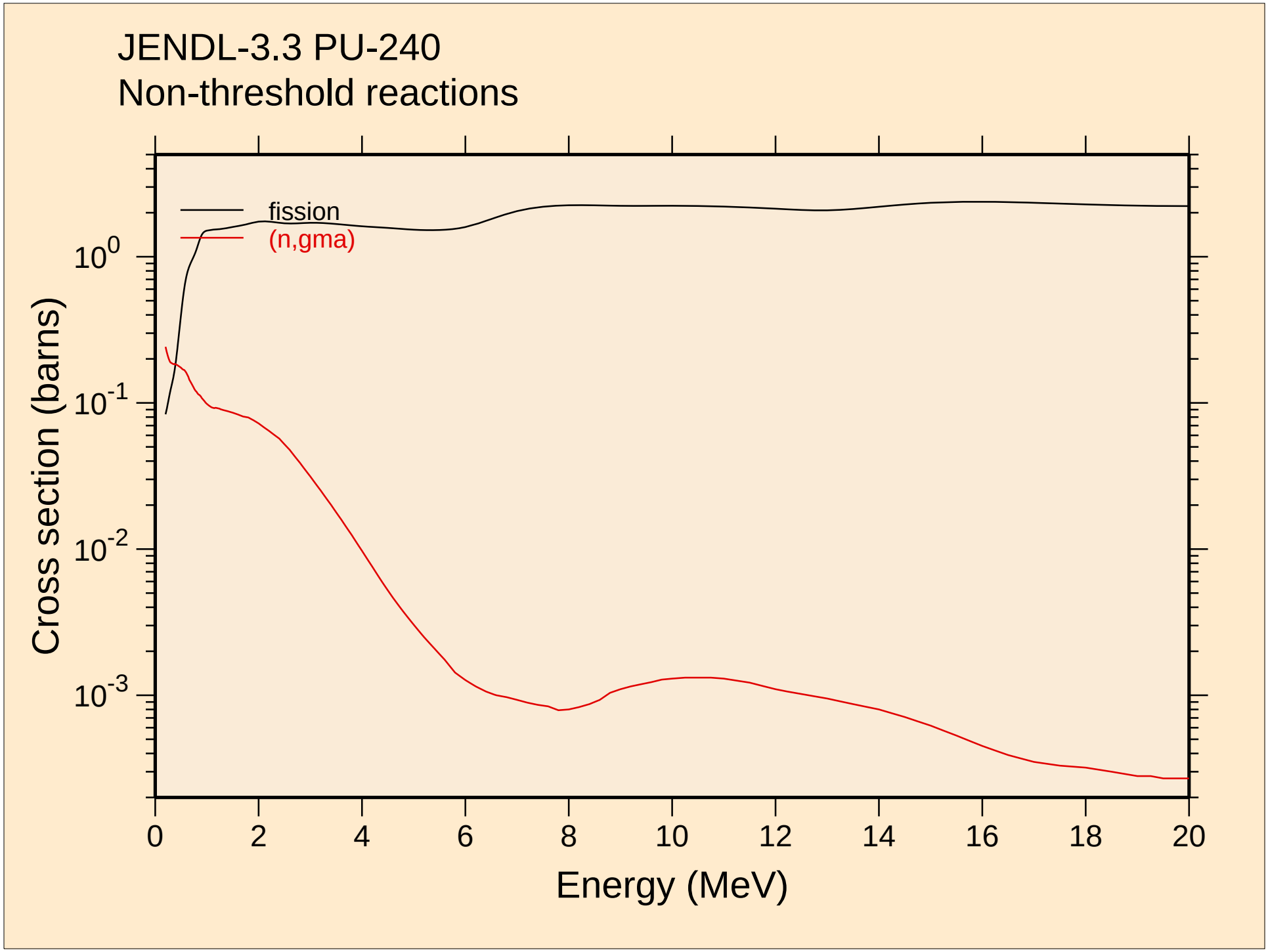

JENDL-3.3 PU-240
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

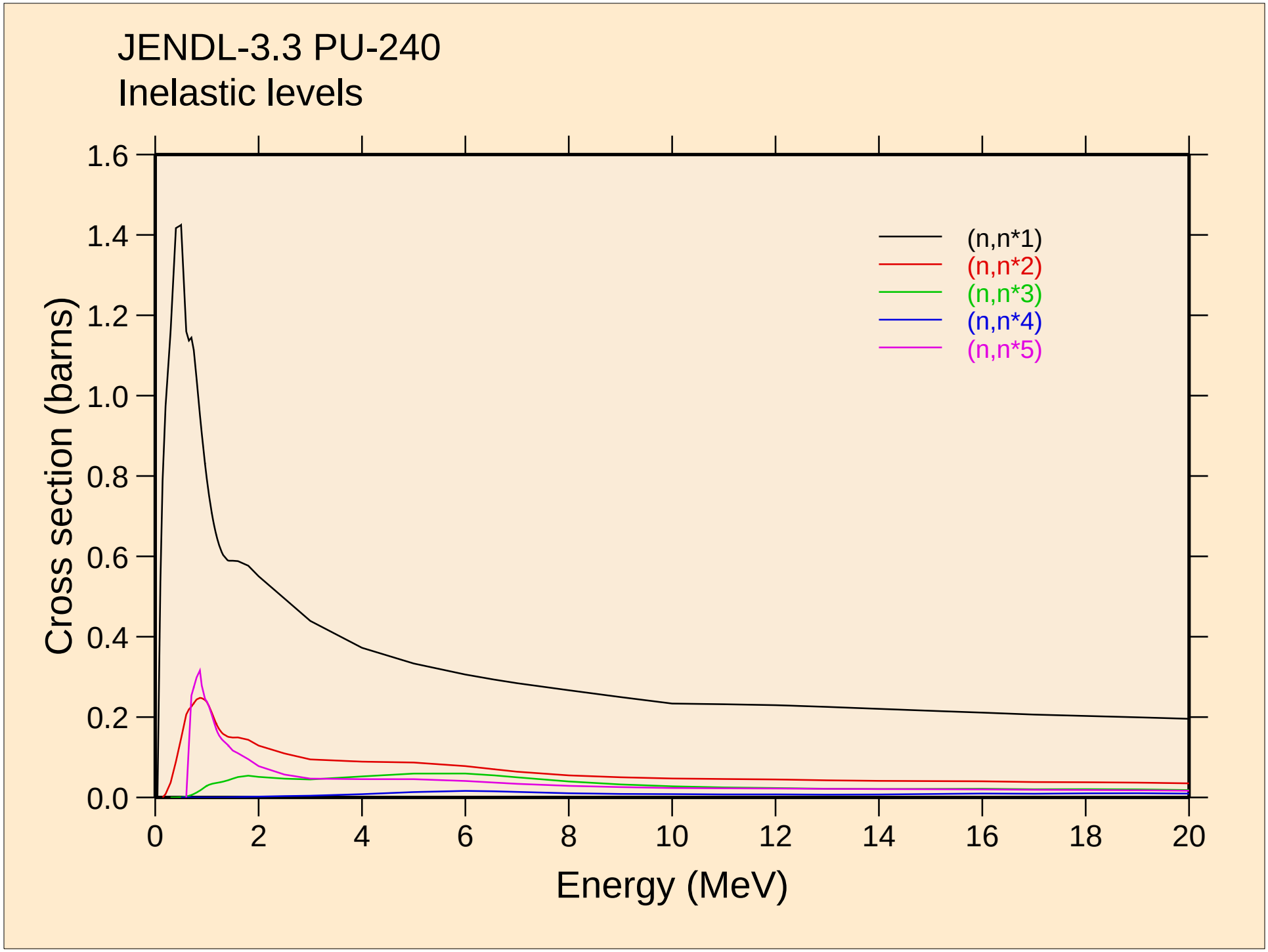

JENDL-3.3 PU-240
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
Energy (MeV)
10^5
10^4
10^3
10^2
10^1
10^0
10^-1
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

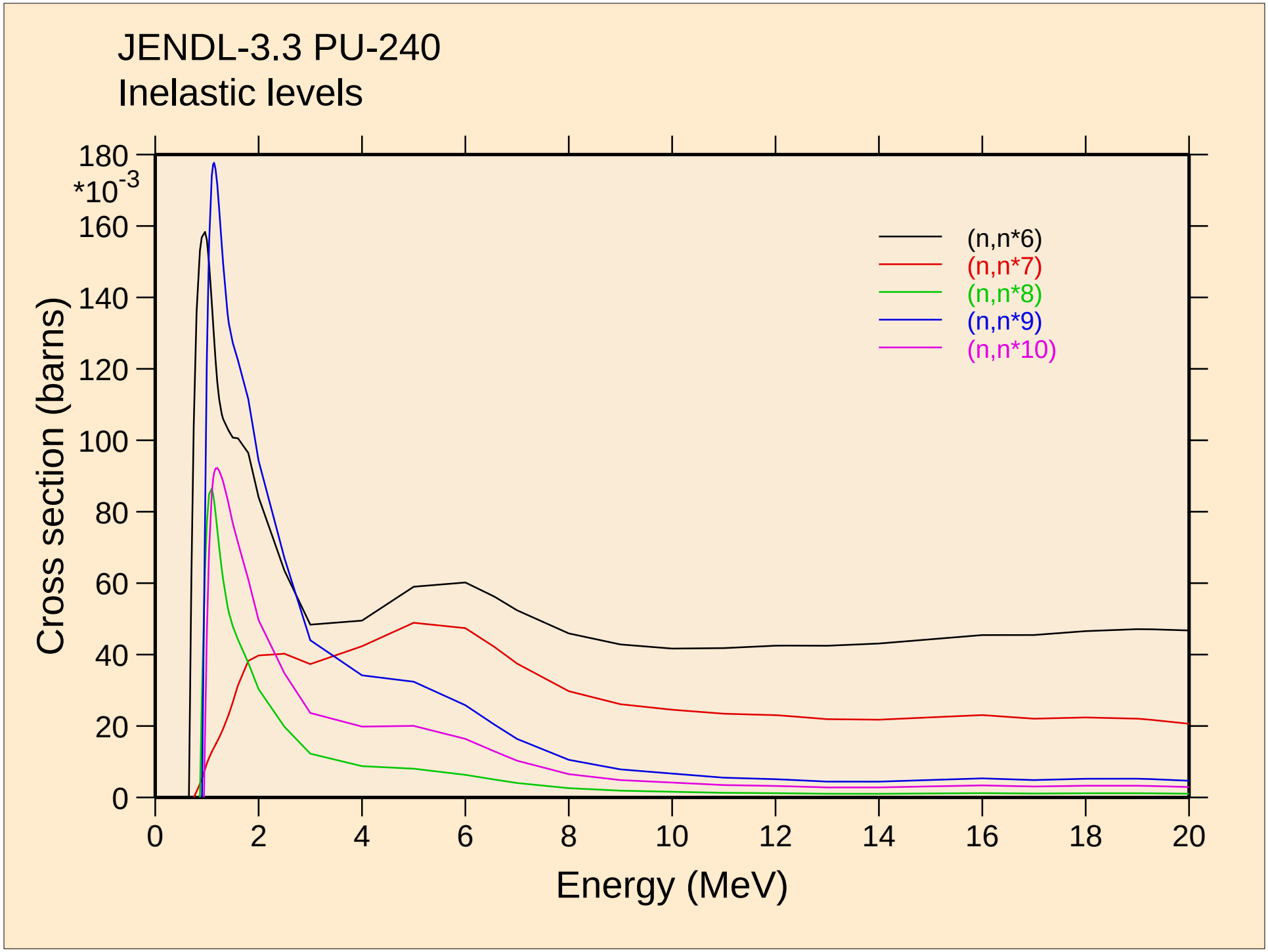

JENDL-3.3 PU-240
Principal cross sections
total
absorption
elastic
Cross section (barns)
Energy (MeV)
0
2
4
6
8
10
12
14
0
5
10
15
20

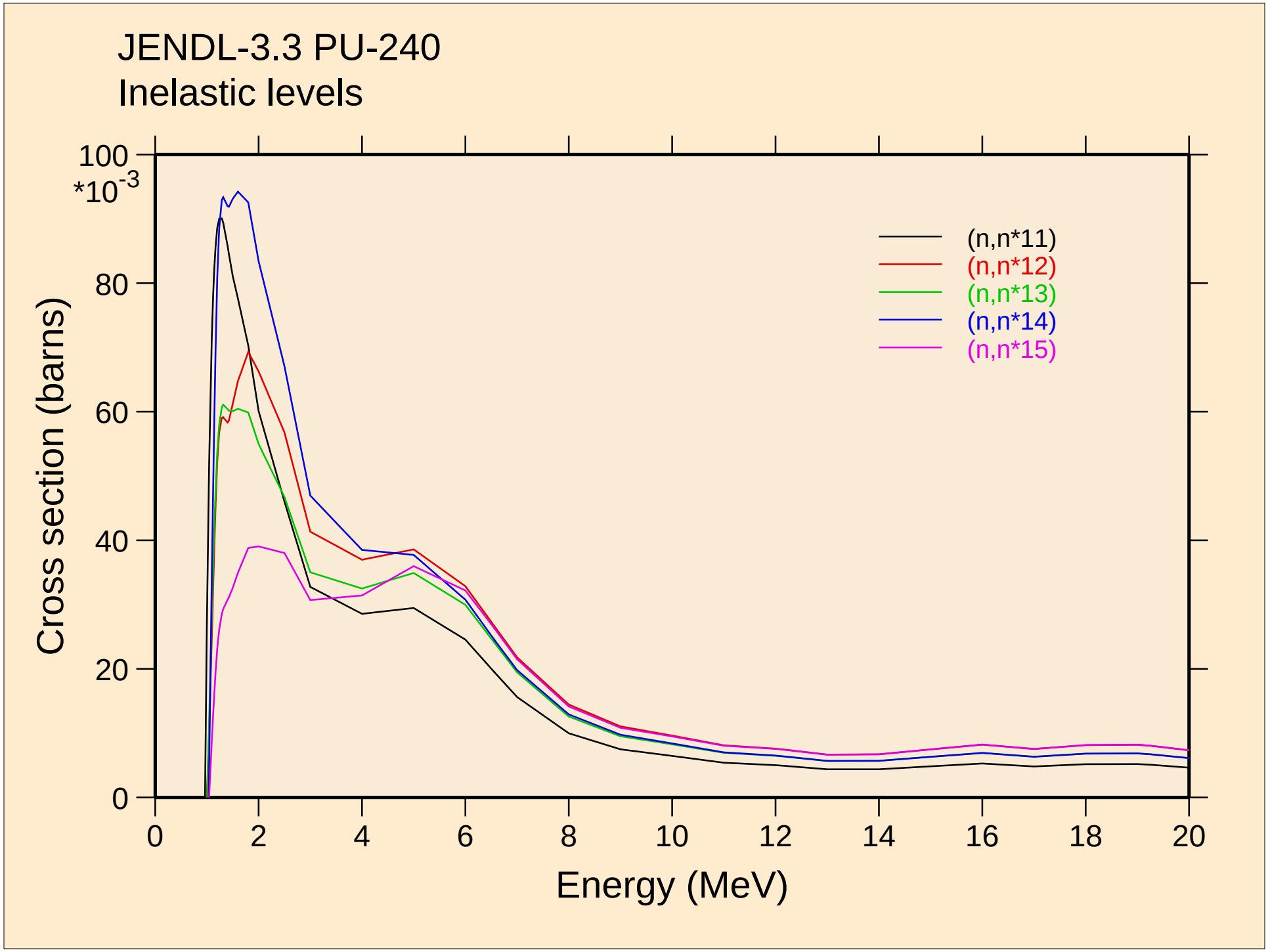

JENDL-3.3 PU-240
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
10
20
30
40
50
60
70
80
0
5
10
15
20

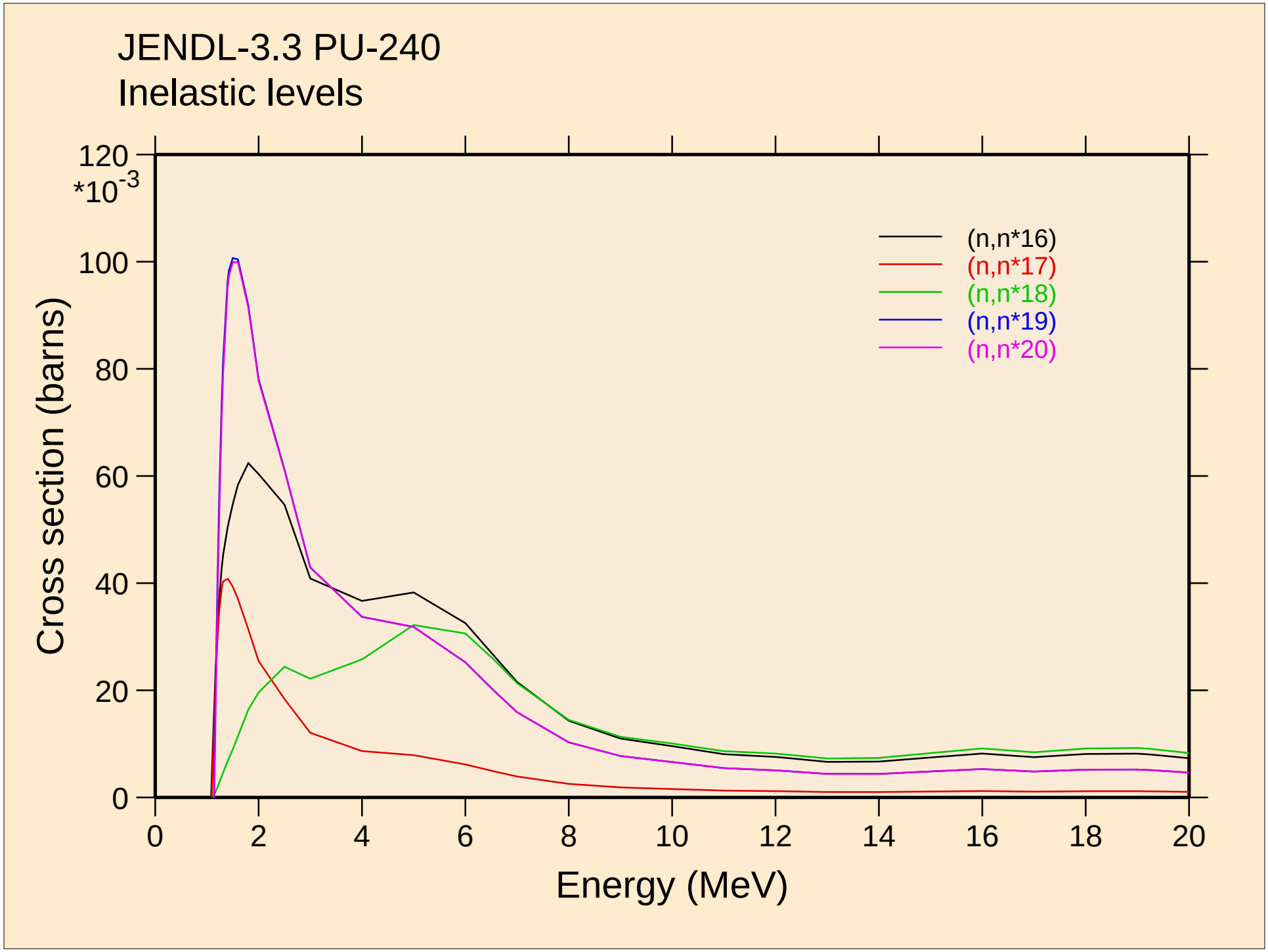

JENDL-3.3 PU-240
Damage
damage
*10-3
300
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

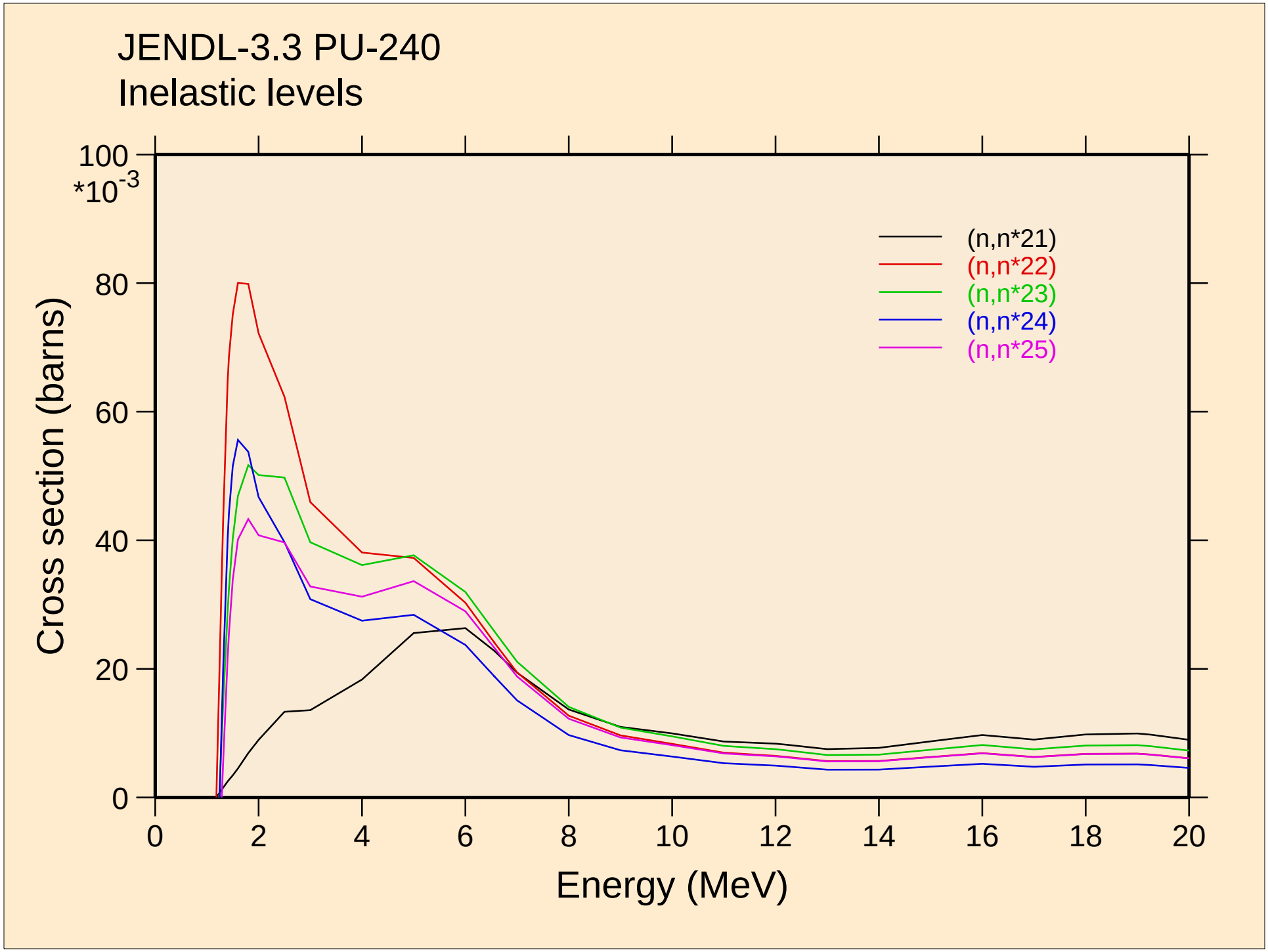

JENDL-3.3 PU-240
Non-threshold reactions
fission
(n,gma)
Cross section (barns)
$10^0$
$10^{-1}$
$10^{-2}$
$10^{-3}$
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

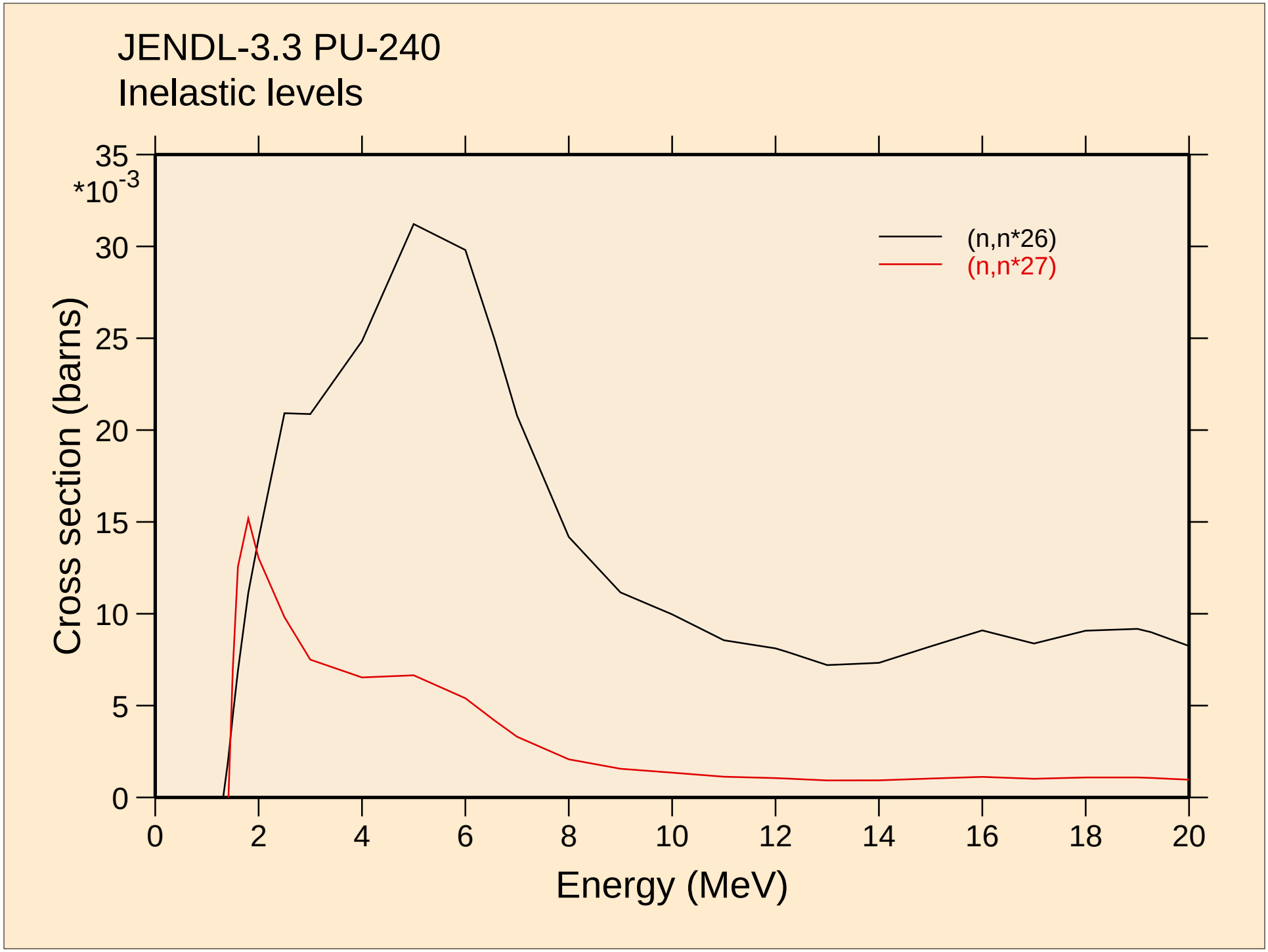

JENDL-3.3 PU-240
Inelastic levels
Cross section (barns)
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
2
4
6
8
10
12
14
16
18
20

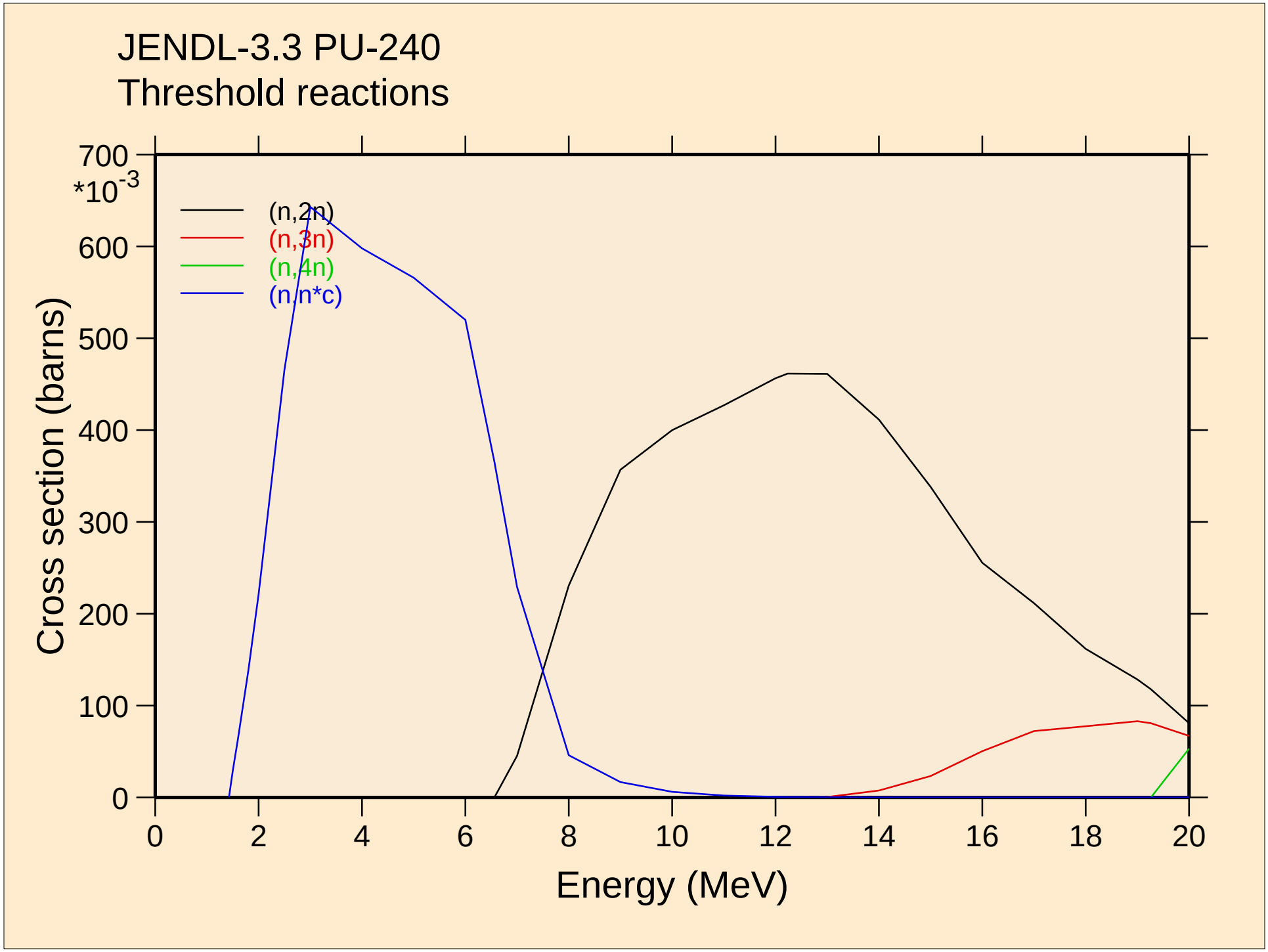

JENDL-3.3 PU-240
Inelastic levels
Cross section (barns)
*10-3
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

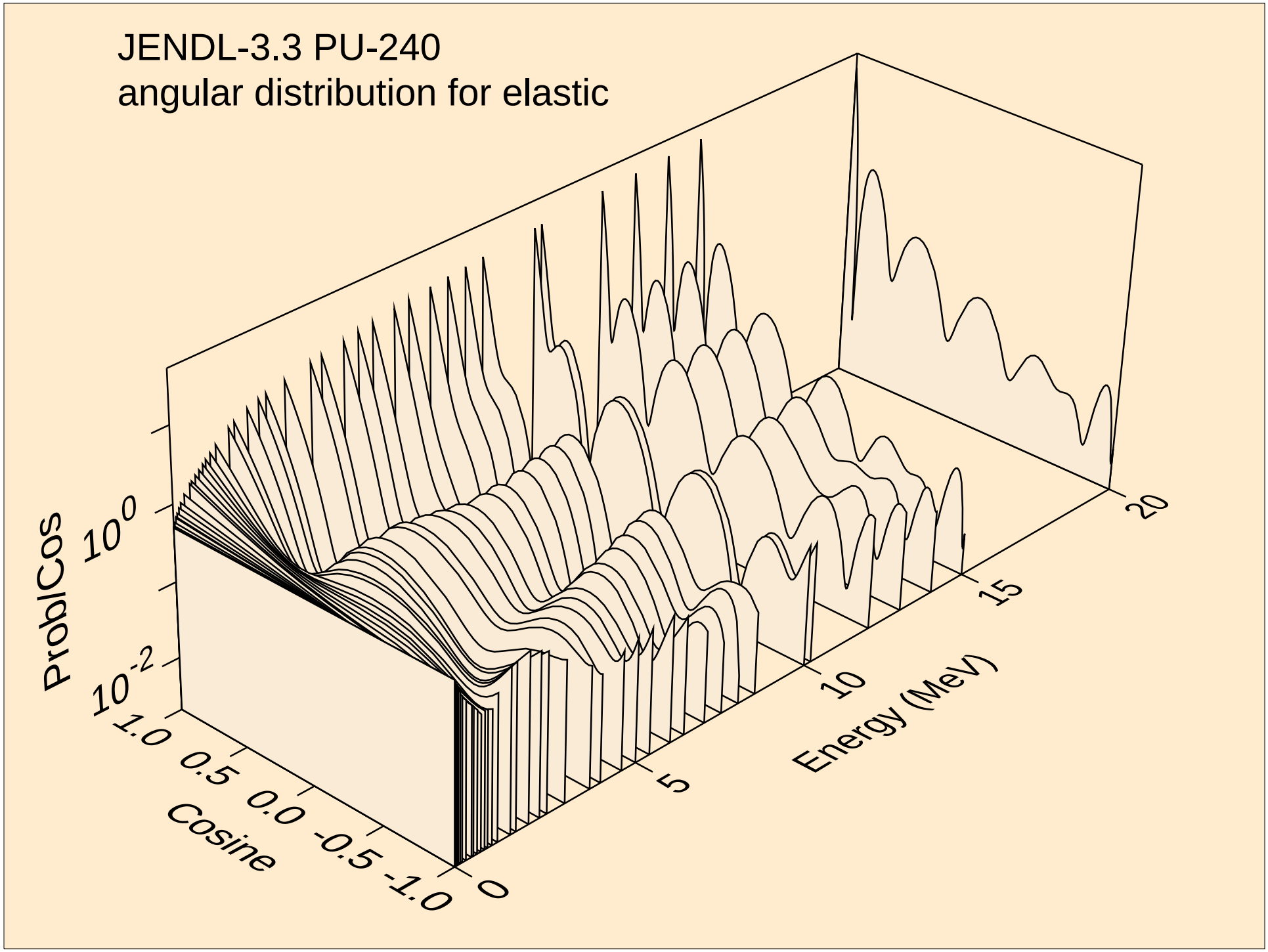

JENDL-3.3 PU-240
Inelastic levels
Cross section (barns)
*10^-3
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

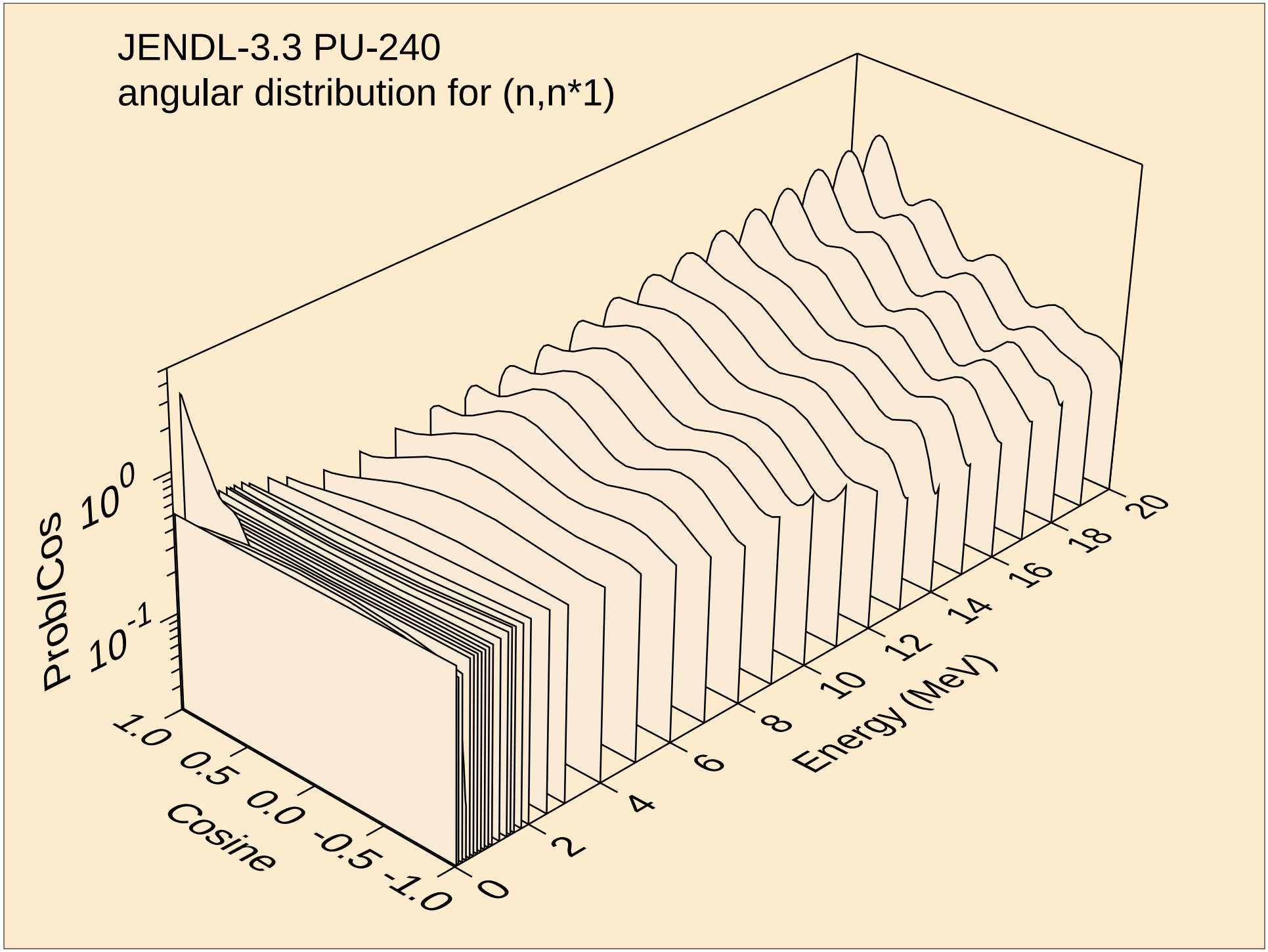

JENDL-3.3 PU-240
Inelastic levels
Cross section (barns)
*10^-3
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

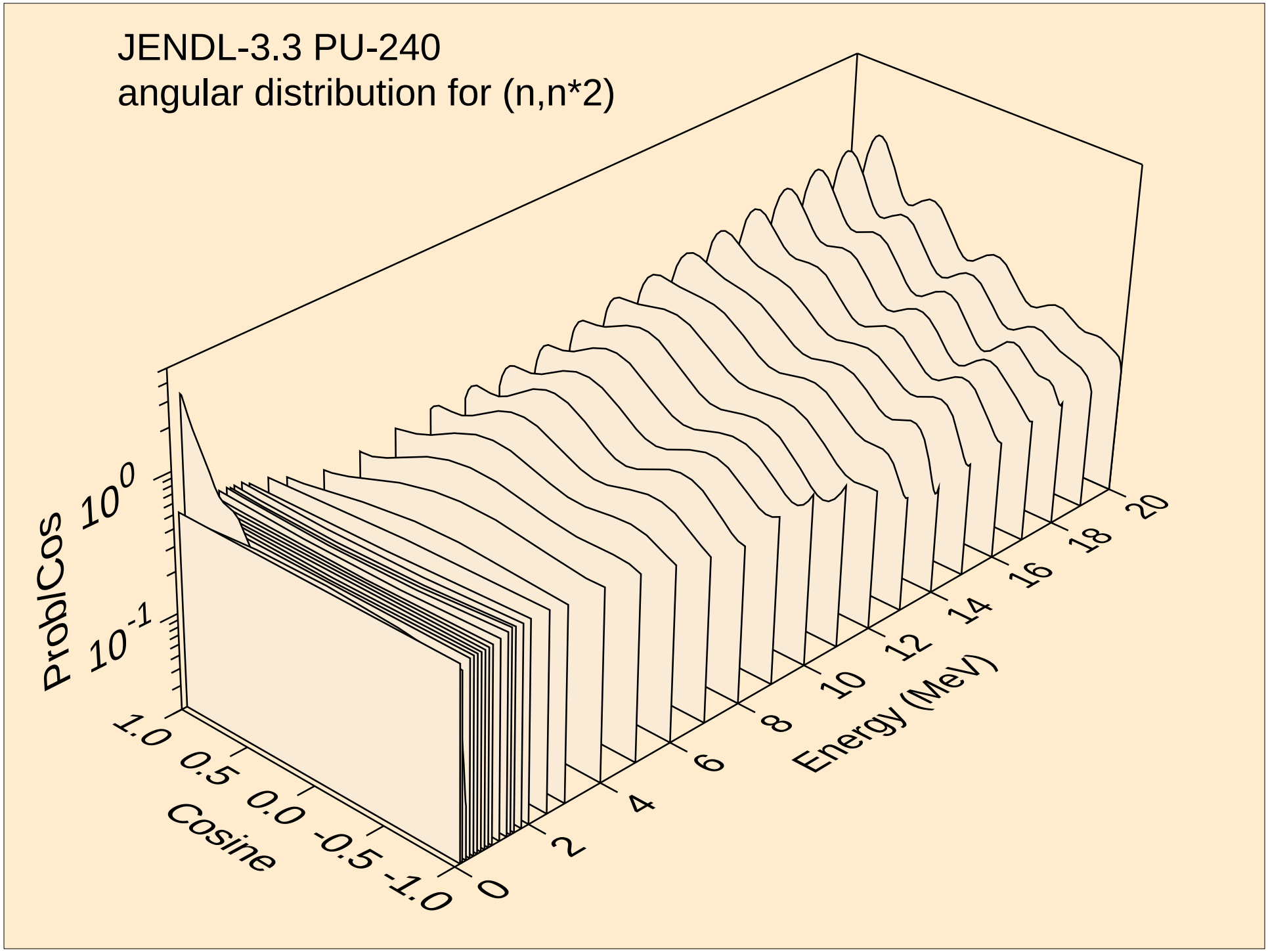

JENDL-3.3 PU-240
Inelastic levels
Cross section (barns)
*10-3
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

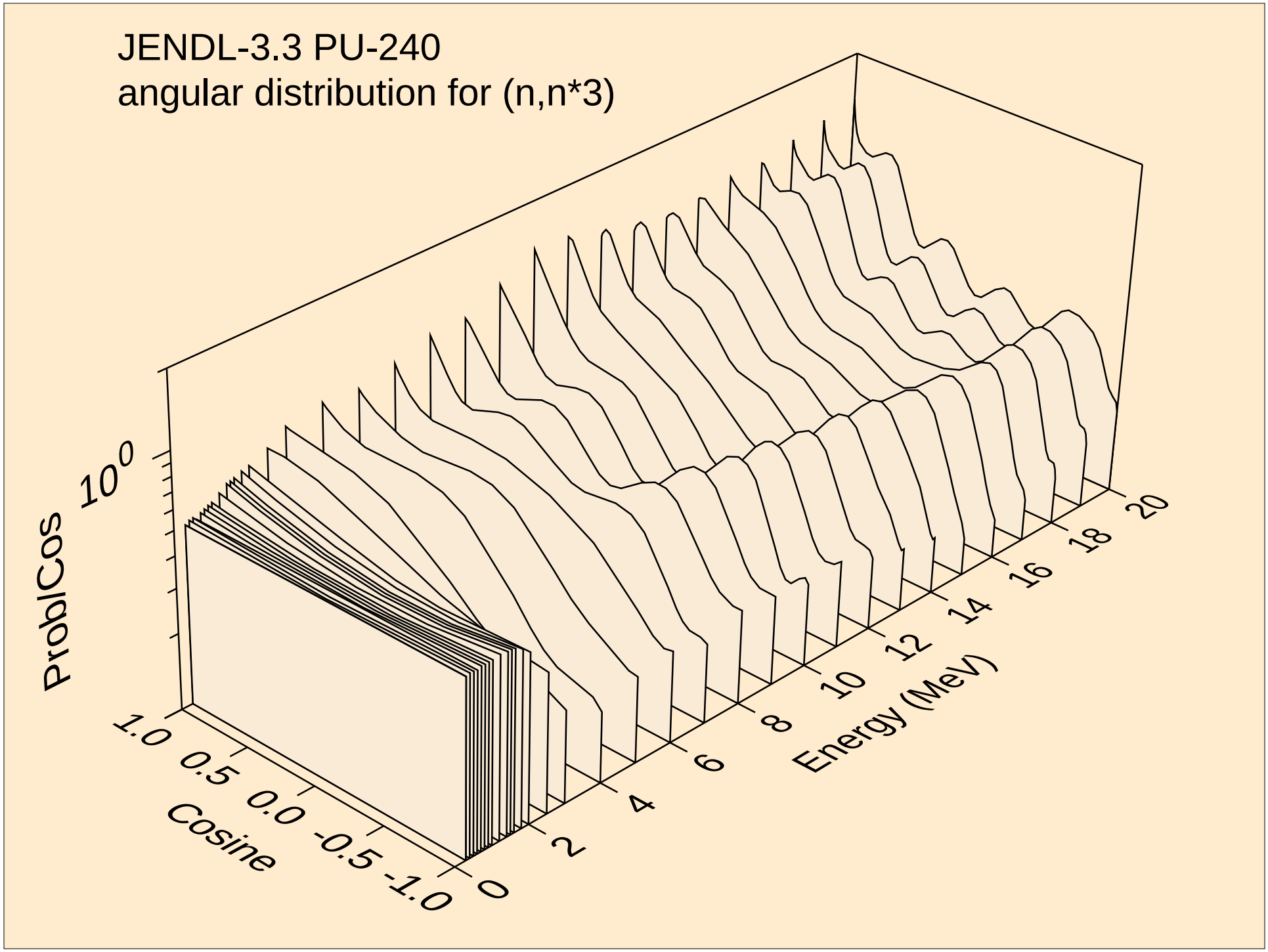

JENDL-3.3 PU-240
Inelastic levels
*10-3
35
30
25
20
15
10
5
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*26)
(n,n*27)

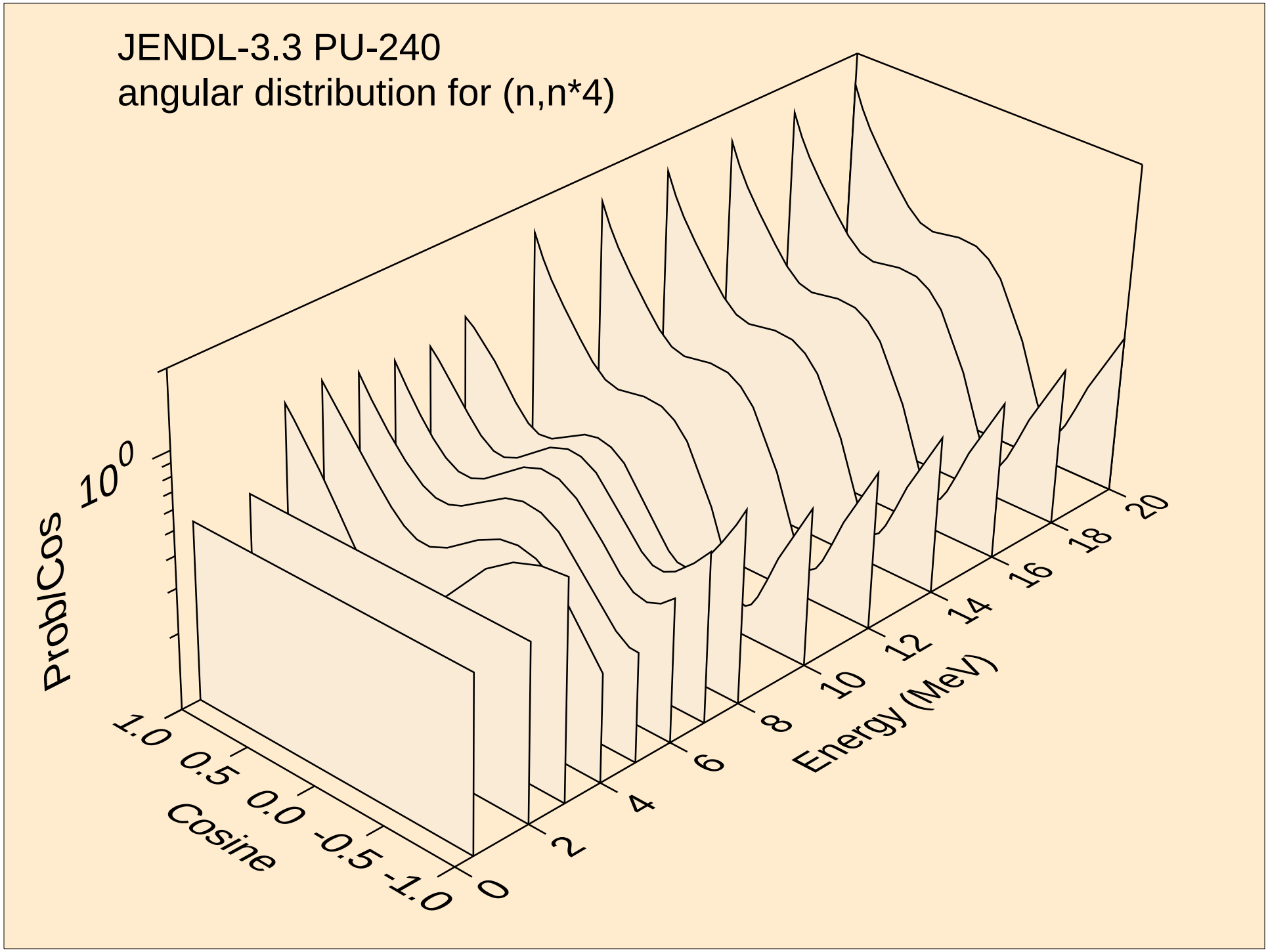

JENDL-3.3 PU-240
Threshold reactions
(n,2n)
(n,3n)
(n,4n)
(n,n*c)
Cross section (barns)
*10-3
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

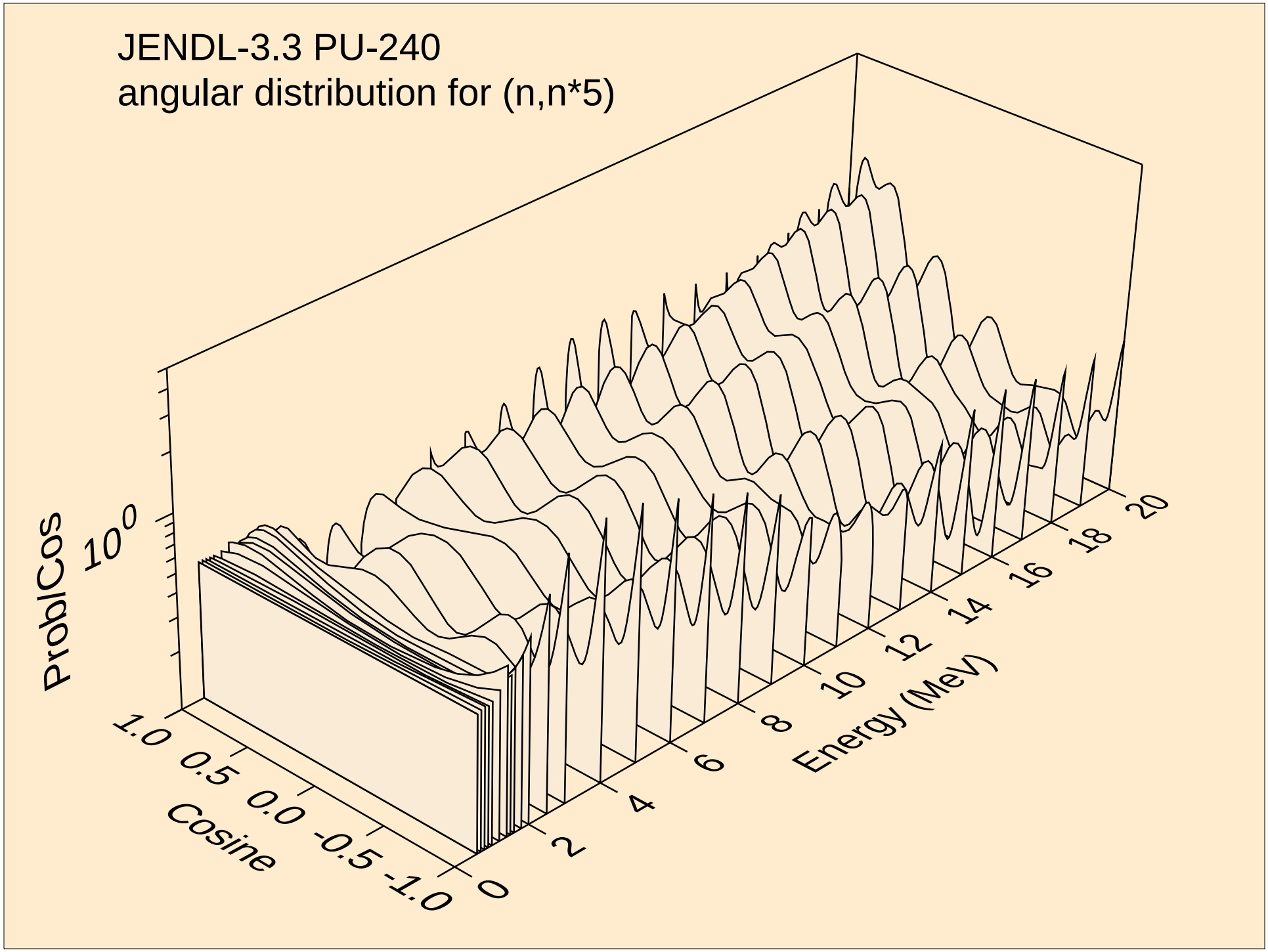

JENDL-3.3 PU-240
angular distribution for elastic
ProblCos
$10^0$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

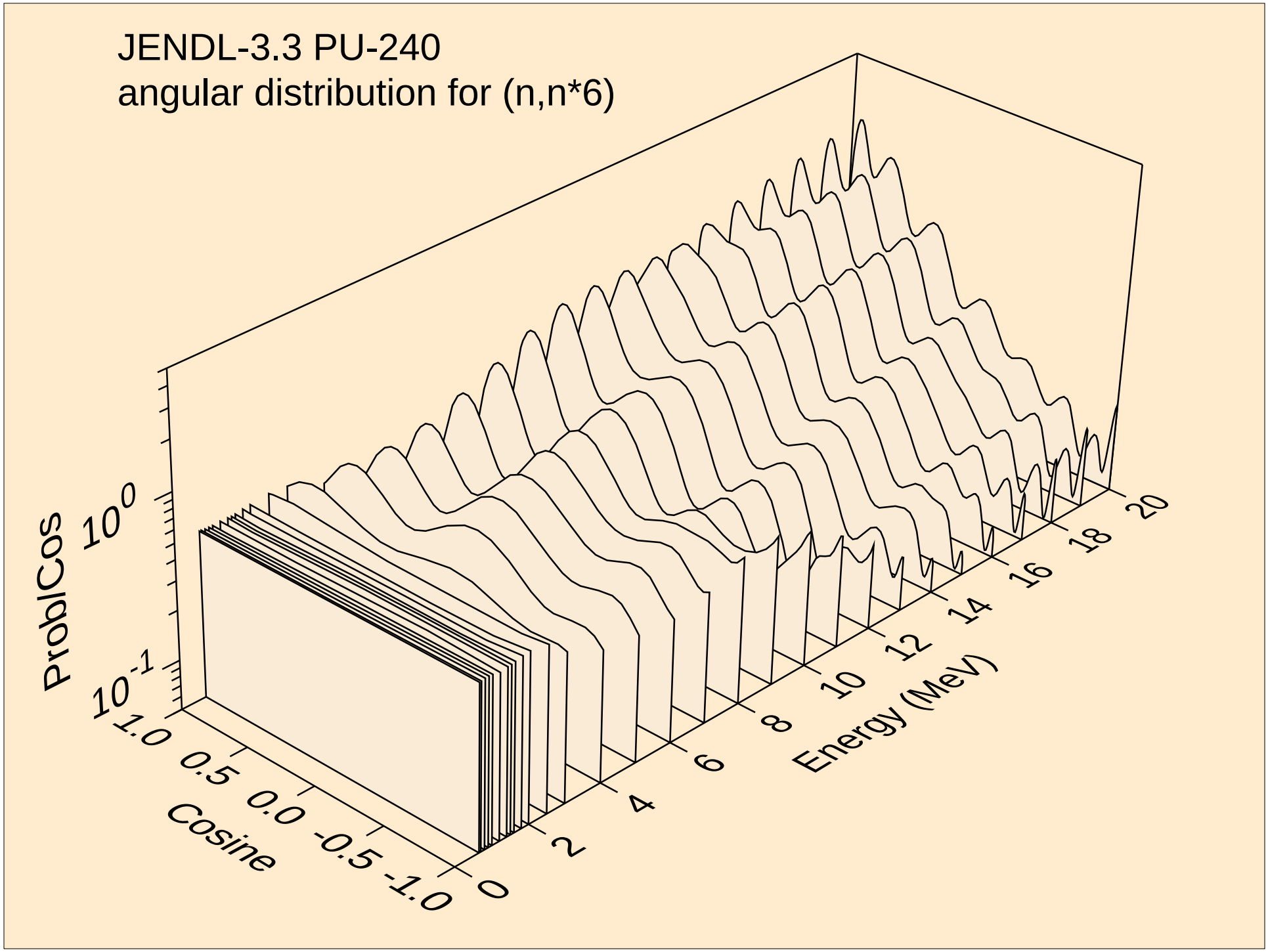

JENDL-3.3 PU-240
angular distribution for (n,n*1)
ProbCos
$10^0$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

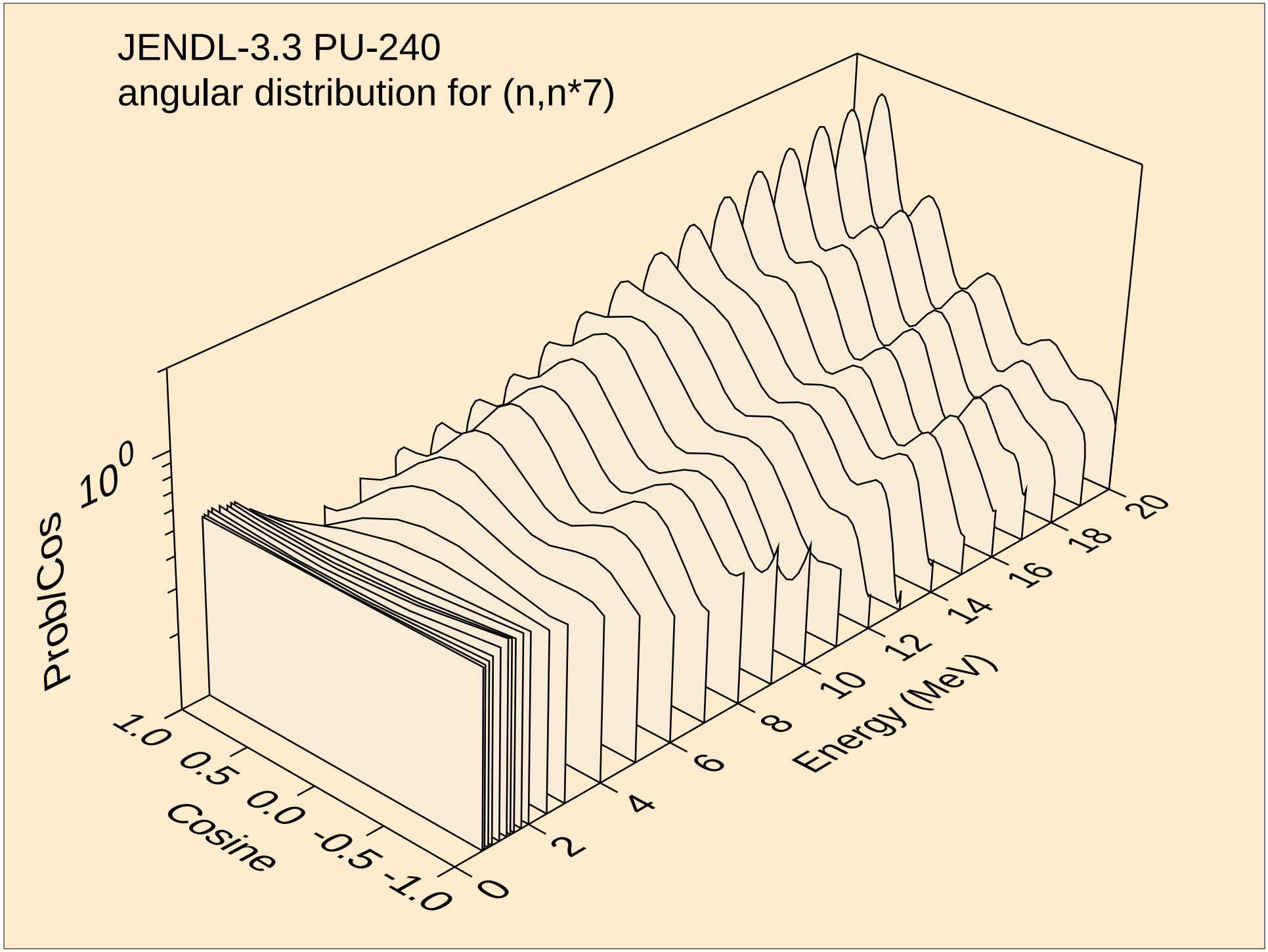

JENDL-3.3 PU-240
angular distribution for (n,n*2)
ProblCos
$10^0$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

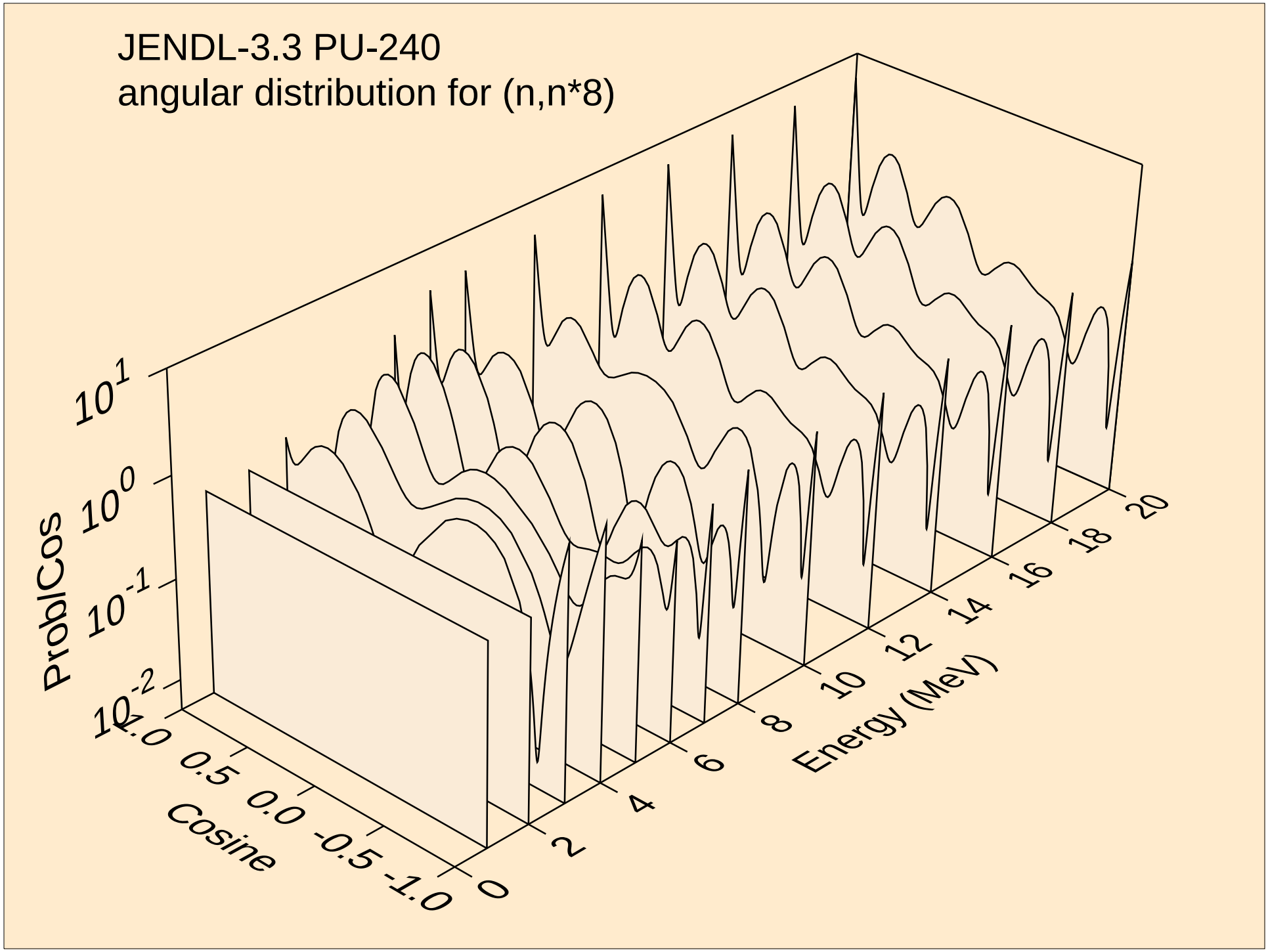

JENDL-3.3 PU-240
angular distribution for (n,n*3)
ProblCos
$10^0$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

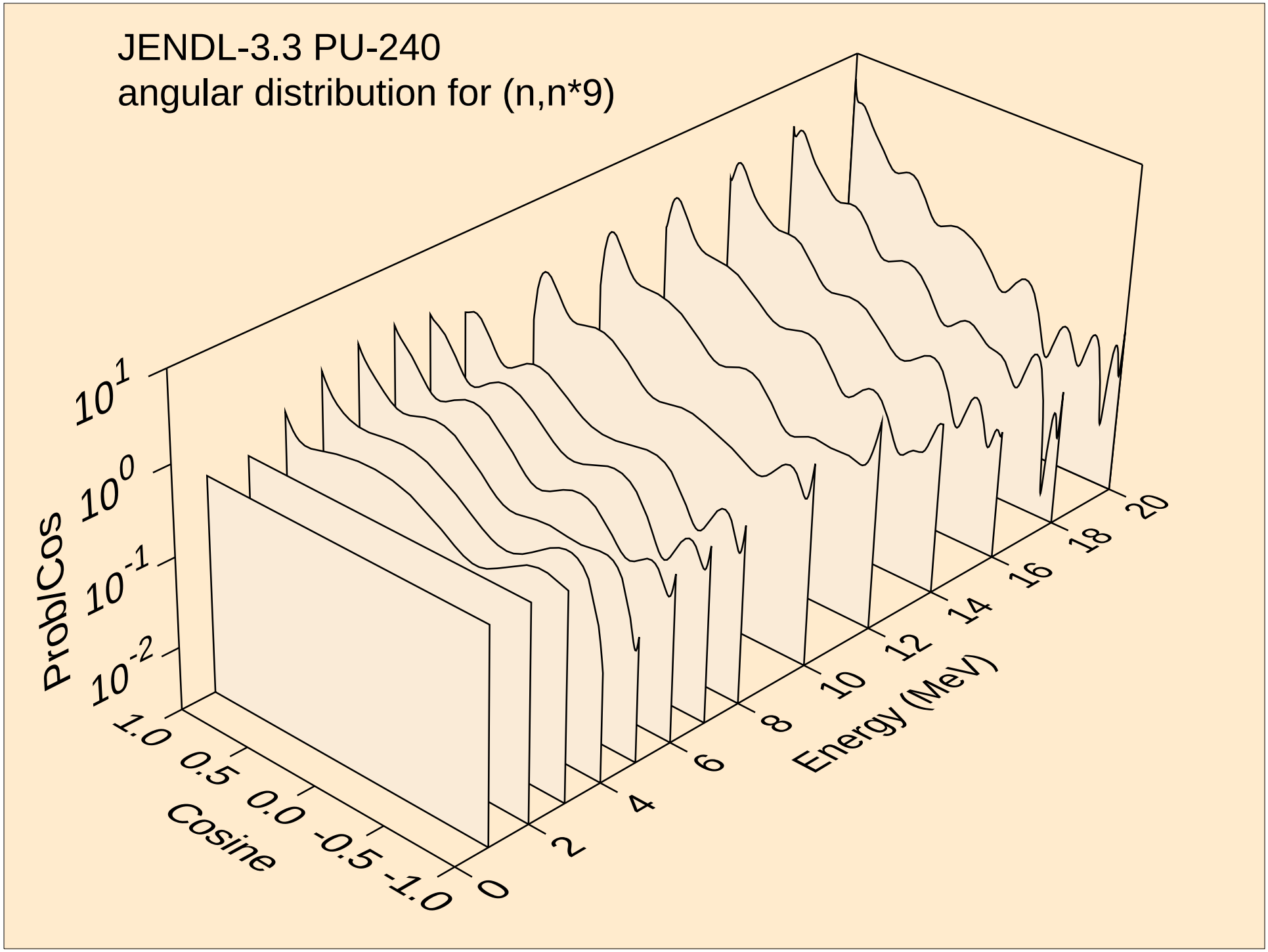

JENDL-3.3 PU-240
angular distribution for (n,n*4)
ProblCos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

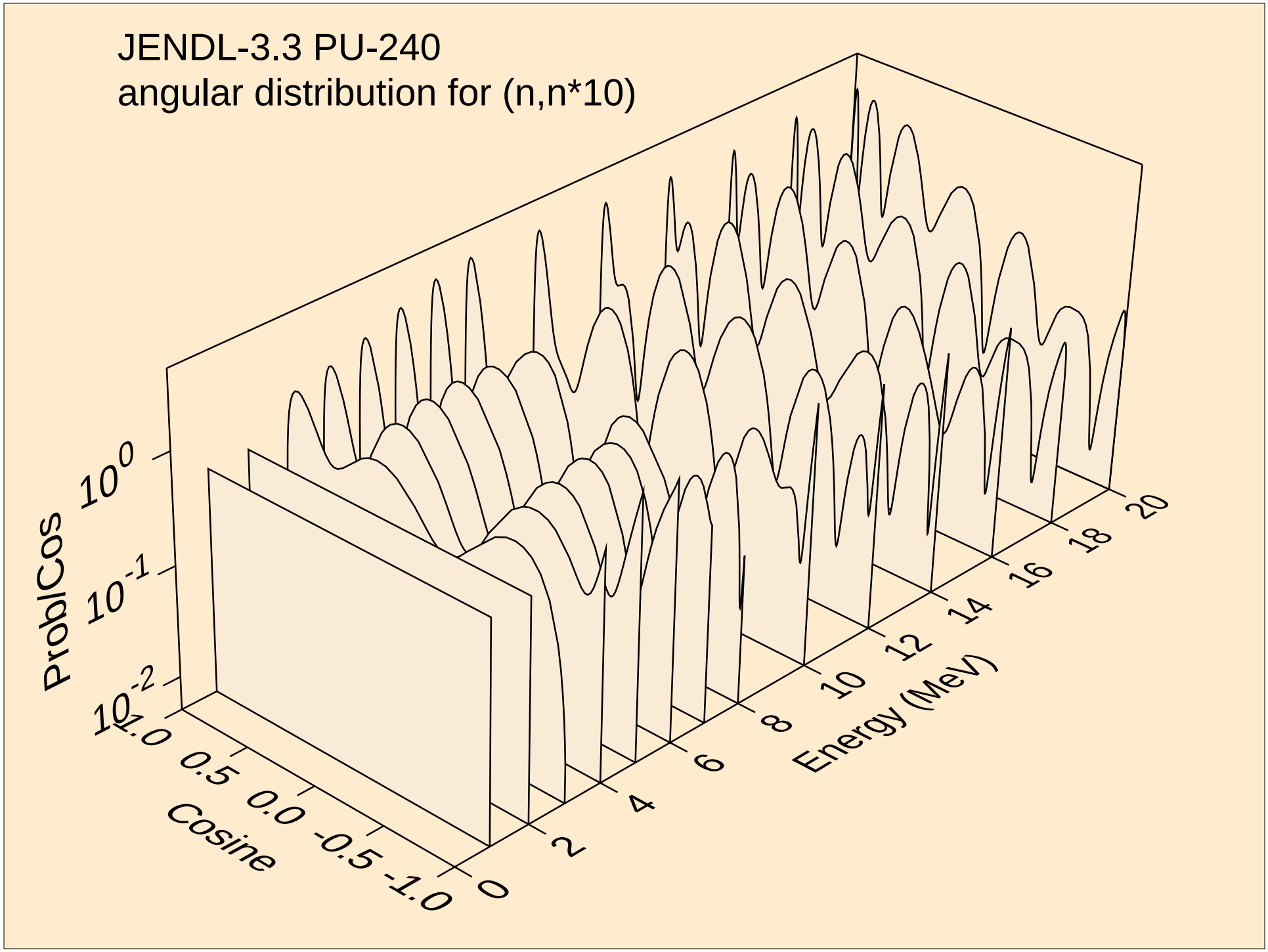

JENDL-3.3 PU-240
angular distribution for (n,n*5)
ProblCos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

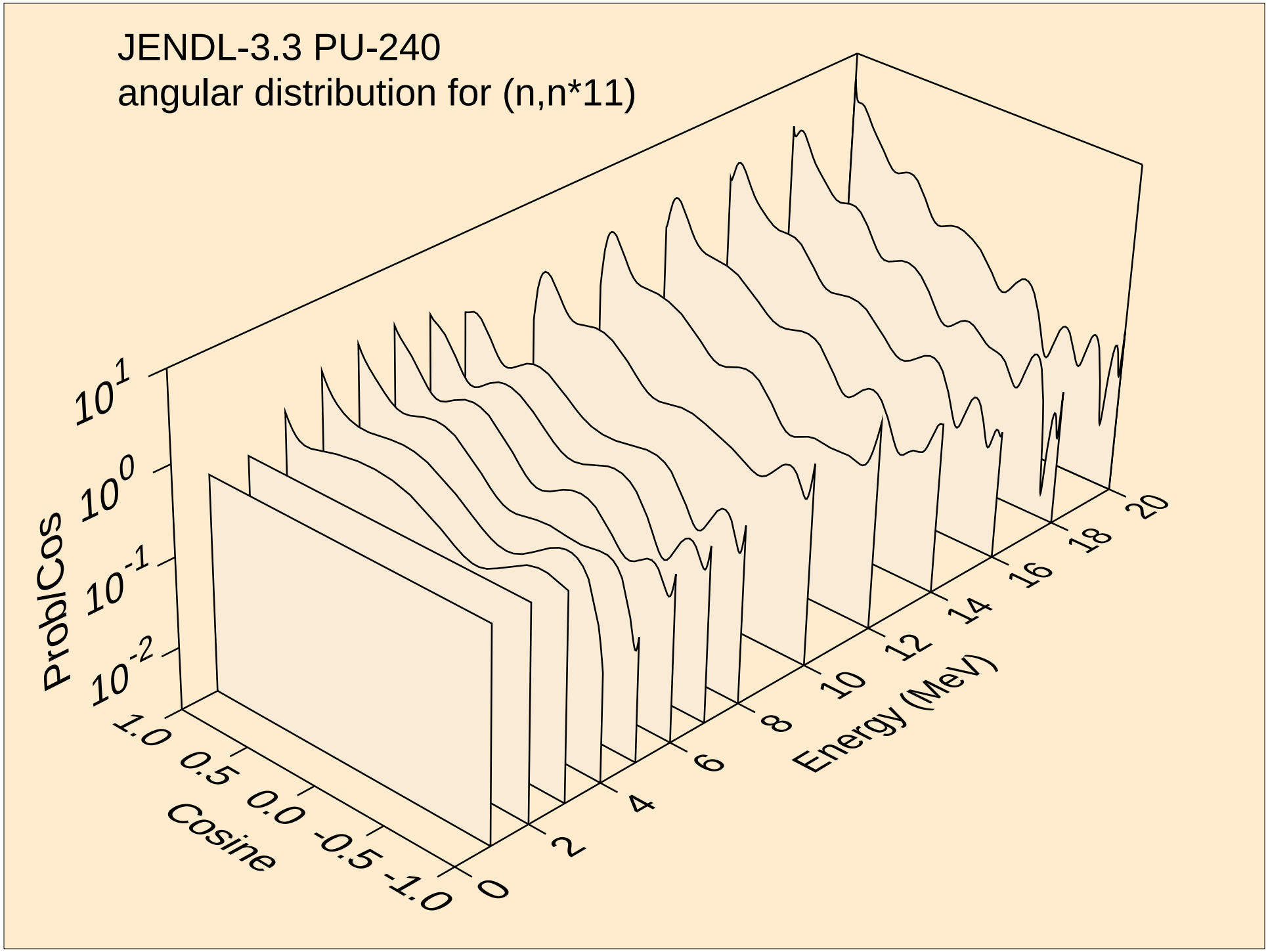

JENDL-3.3 PU-240
angular distribution for (n,n*6)
ProbCos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

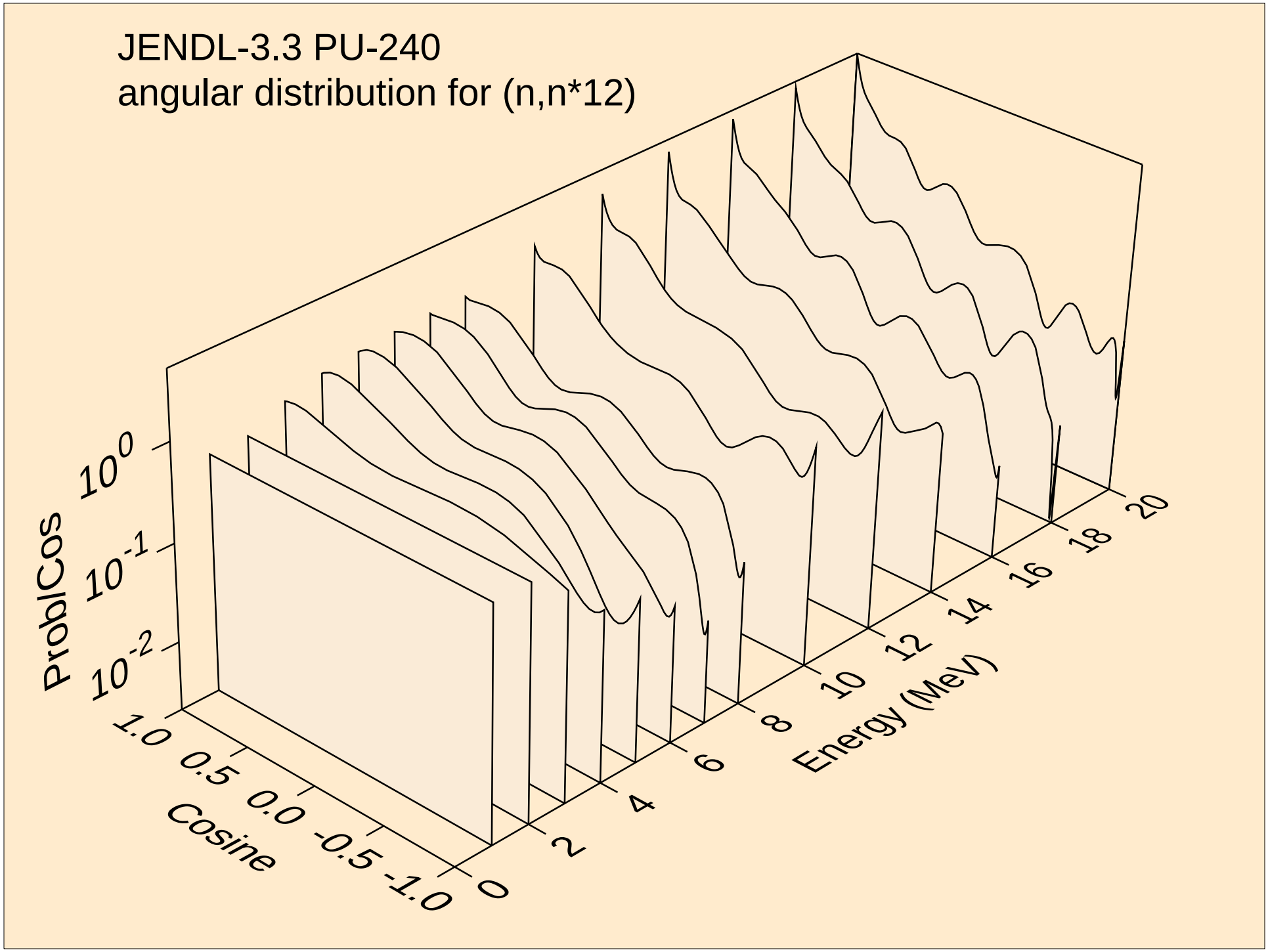

JENDL-3.3 PU-240
angular distribution for (n,n*7)
ProblCos
$10^0$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

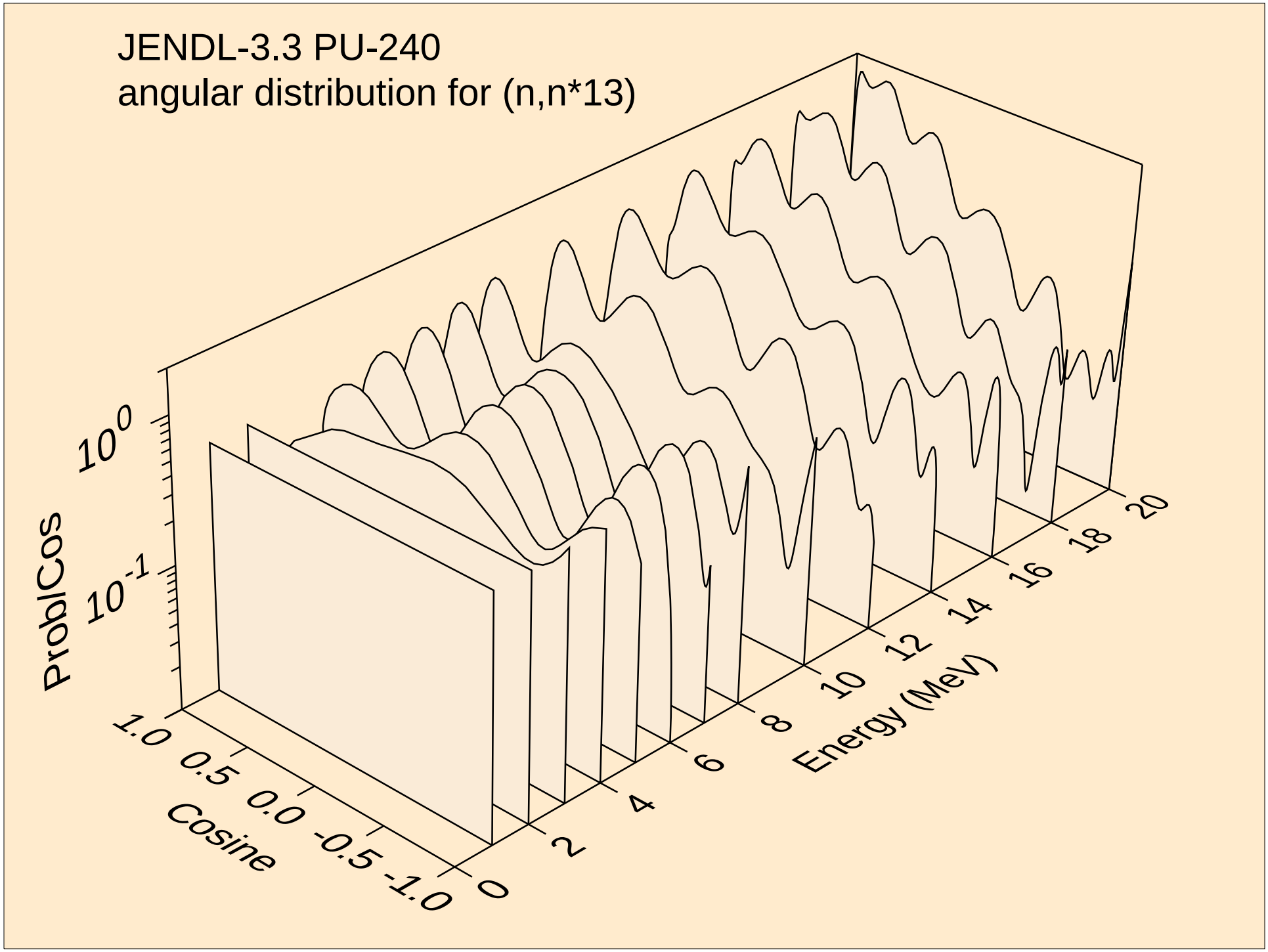

JENDL-3.3 PU-240
angular distribution for (n,n*8)
Prob/Cos
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

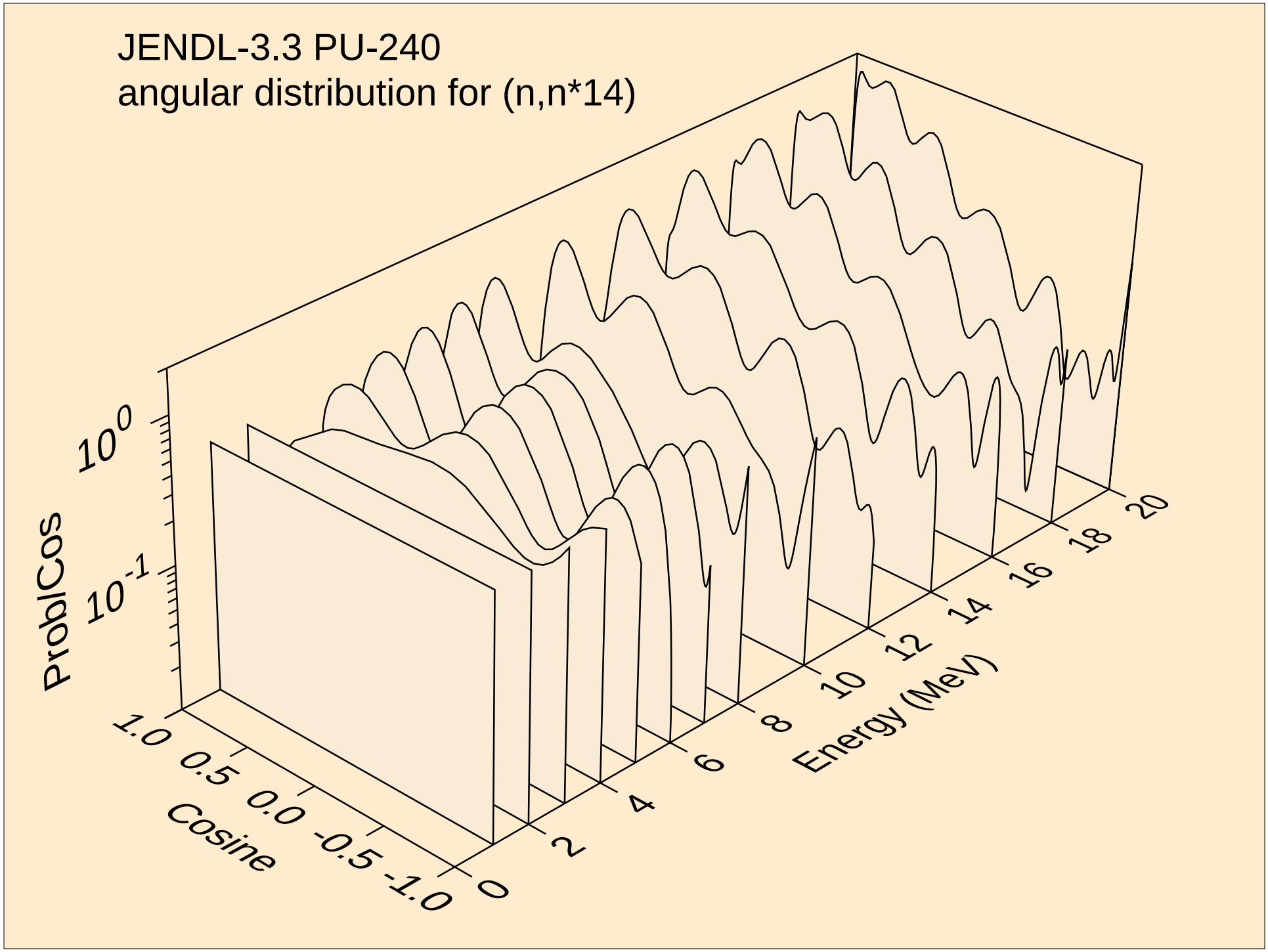

JENDL-3.3 PU-240
angular distribution for (n,n*9)
Prob/Cos
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

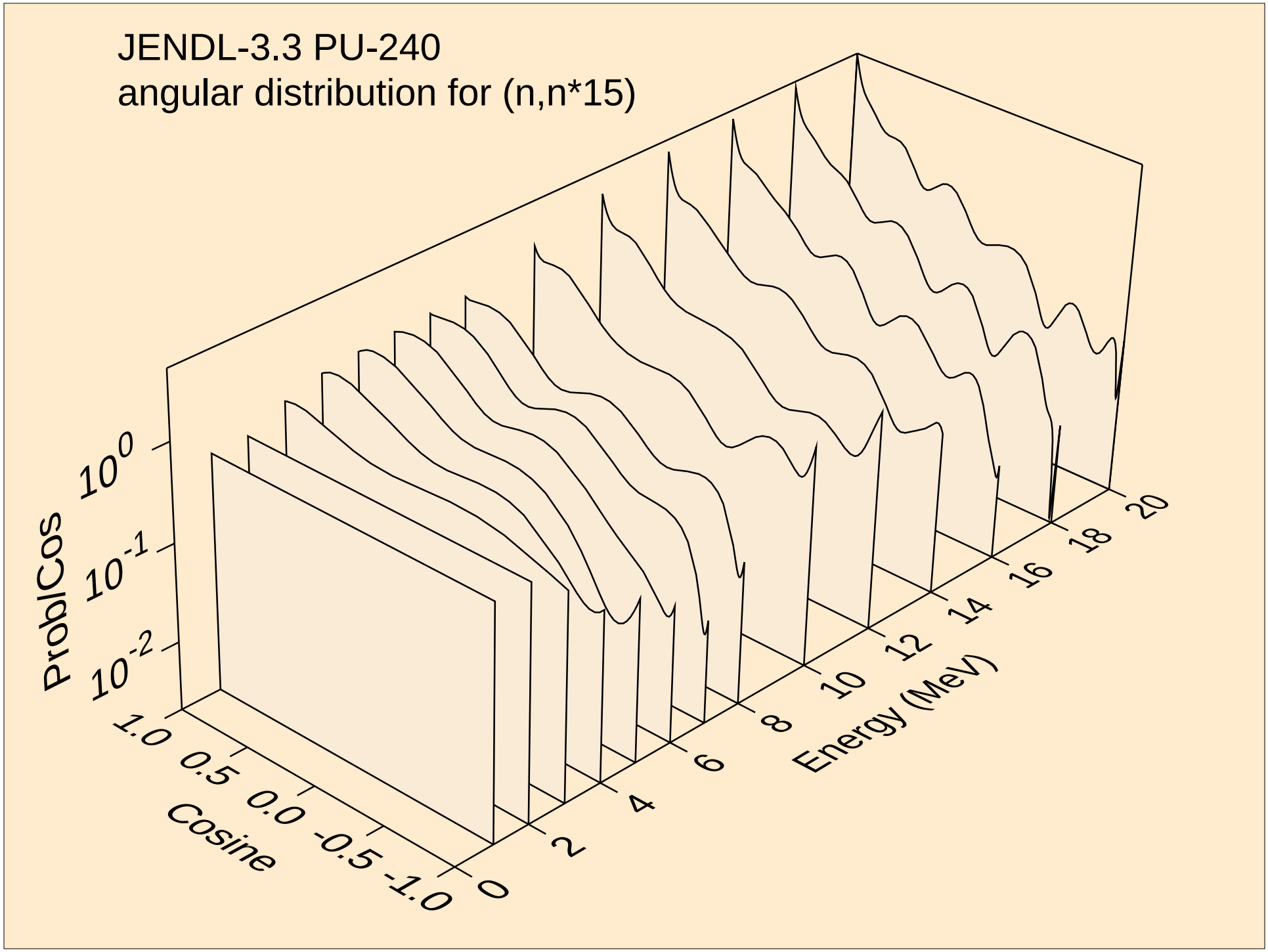

JENDL-3.3 PU-240
angular distribution for (n,n*10)
ProbCos
$10^{0}$
$10^{-1}$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

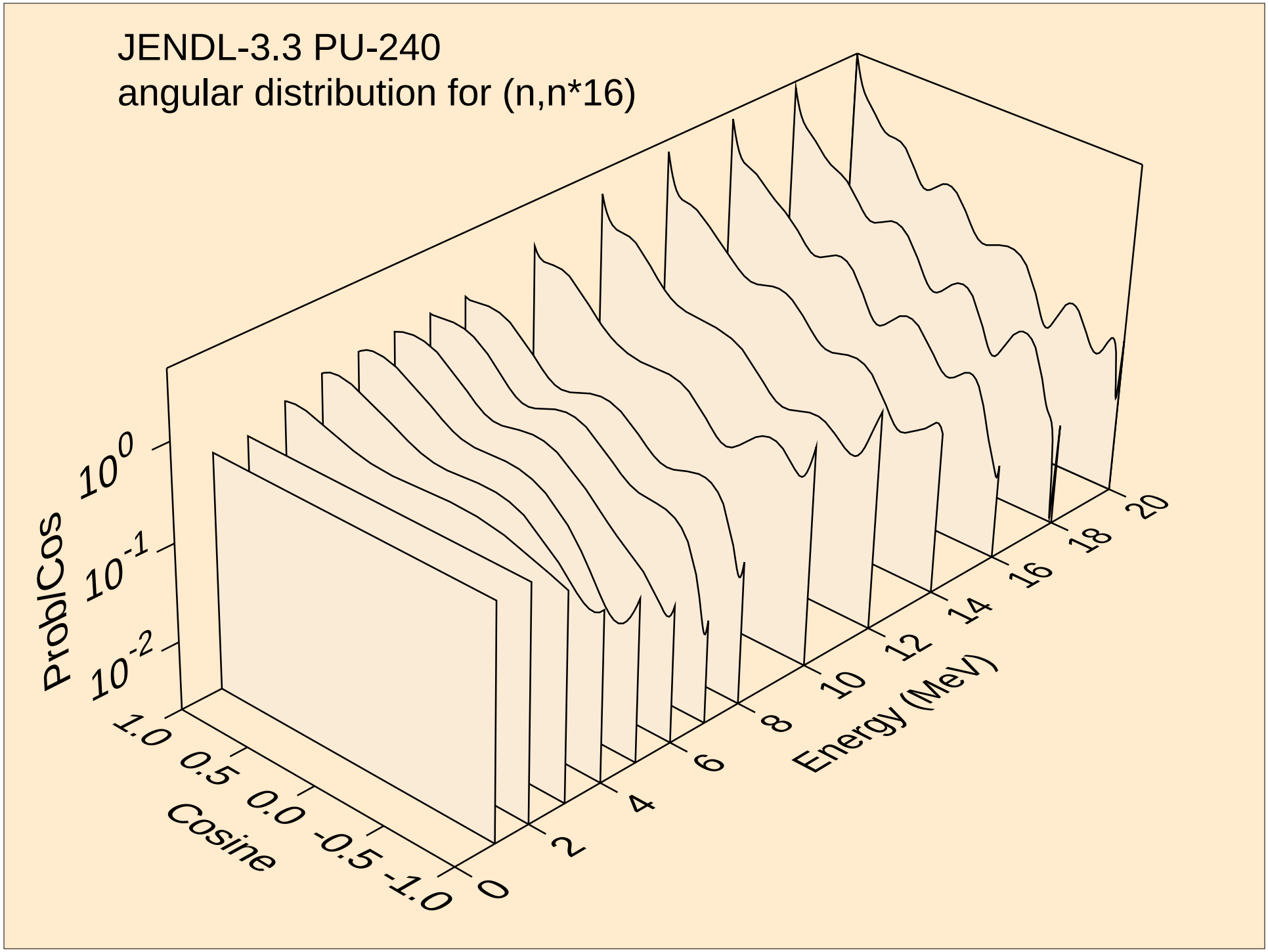

JENDL-3.3 PU-240
angular distribution for (n,n*11)
Prob/Cos
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

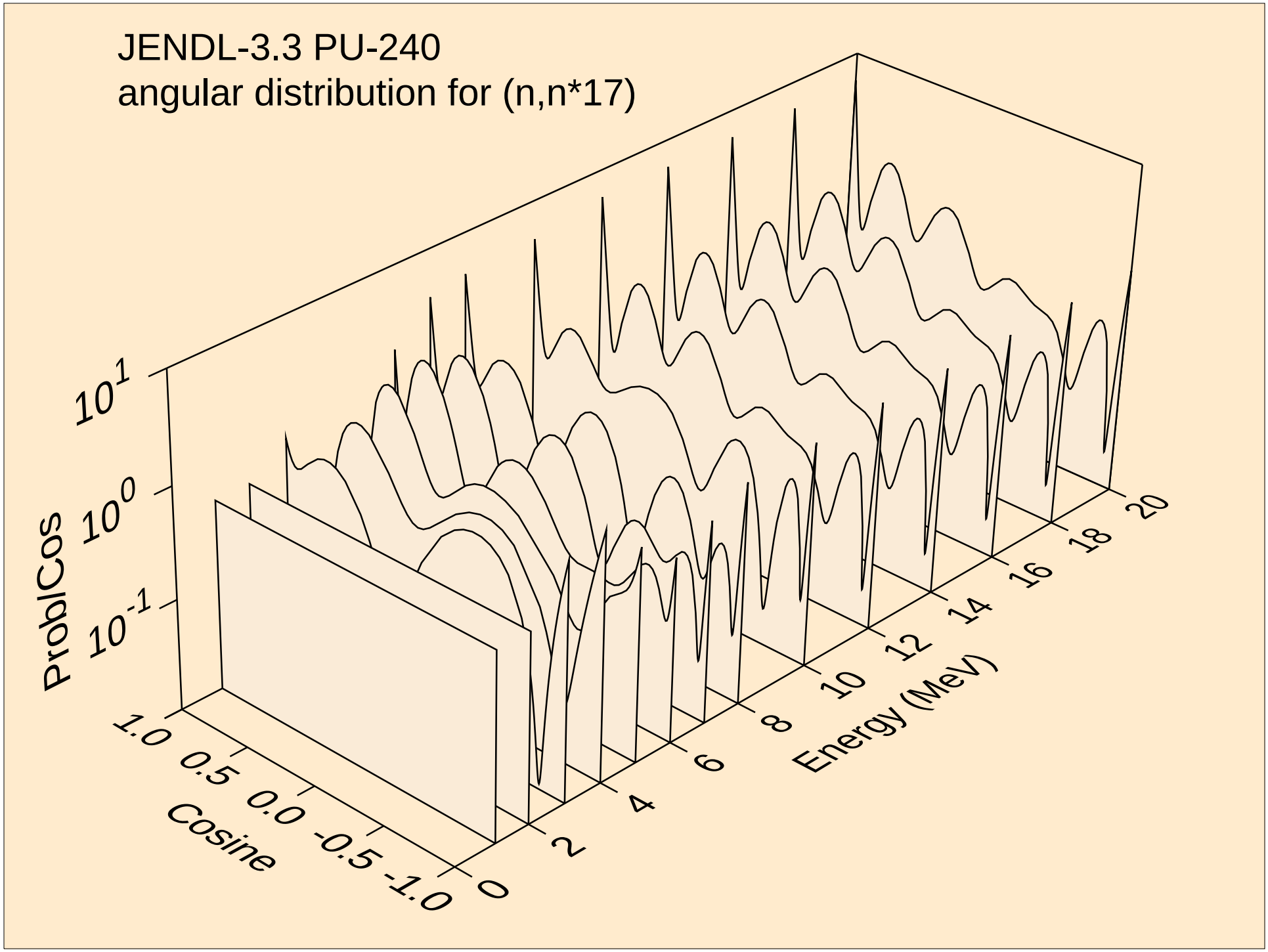

JENDL-3.3 PU-240
angular distribution for (n,n*12)
Prob/Cos
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

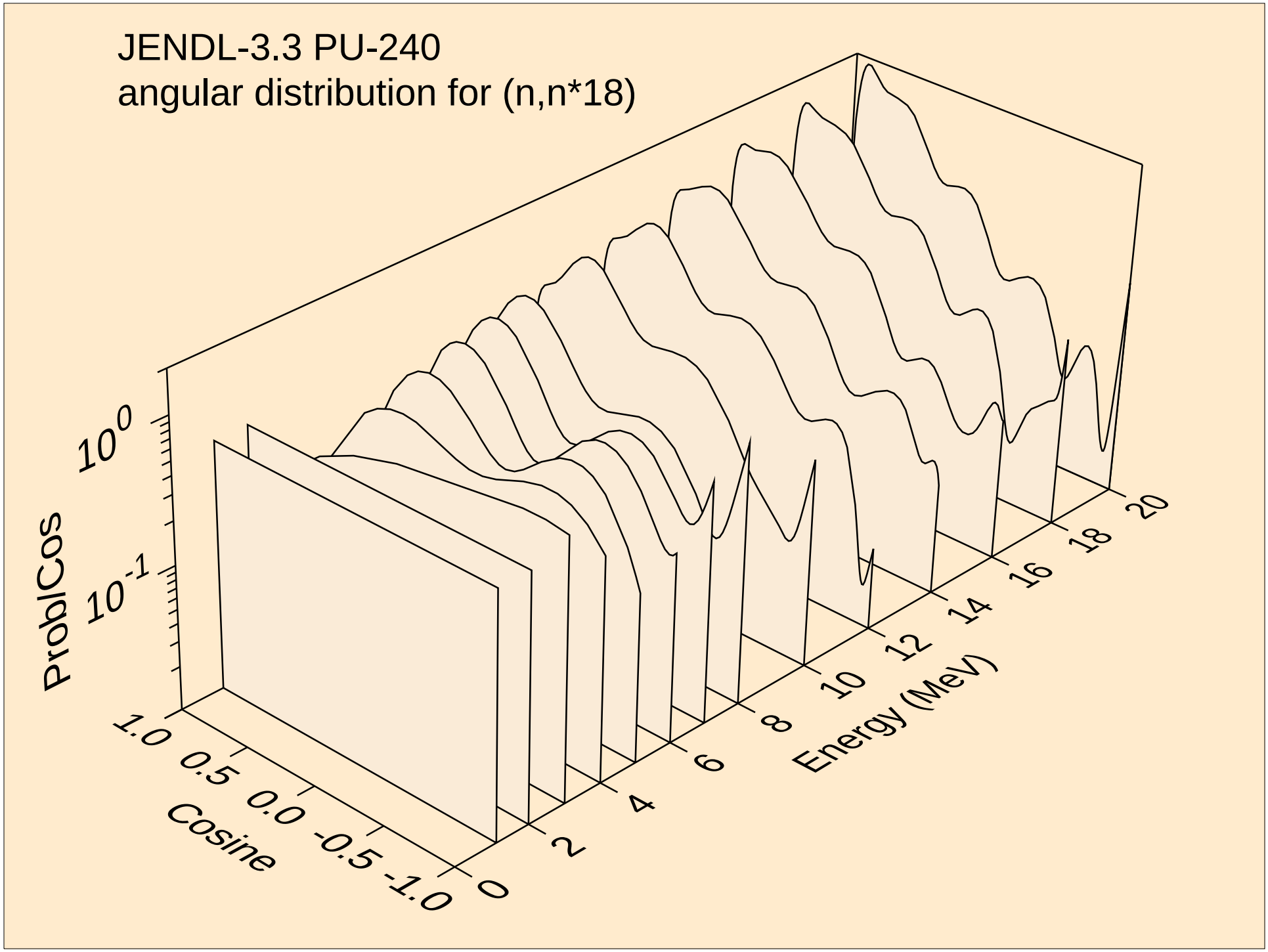

JENDL-3.3 PU-240
angular distribution for (n,n*13)
Prob/Cos
$10^0$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

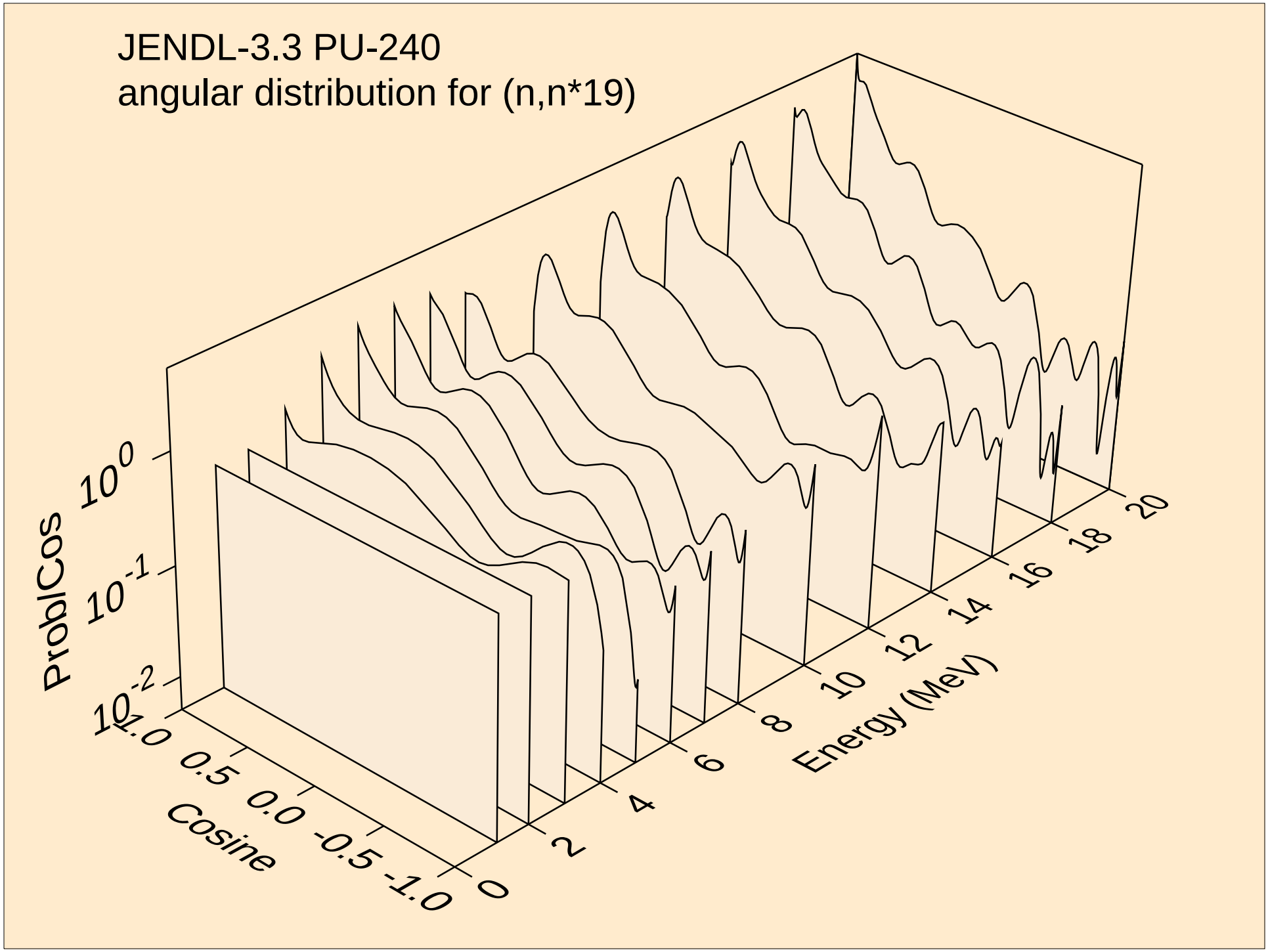

JENDL-3.3 PU-240
angular distribution for (n,n*14)
Prob/Cos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

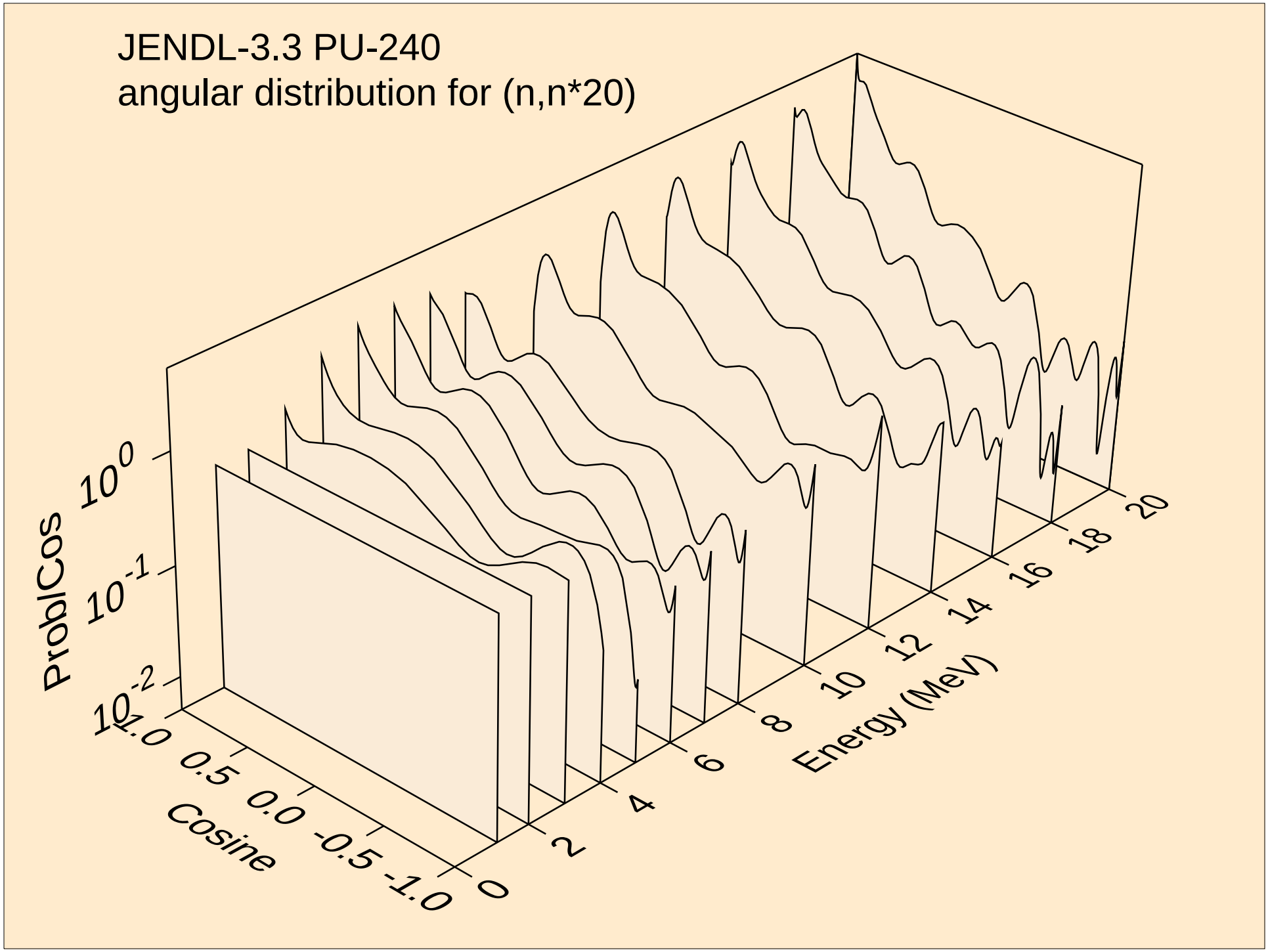

JENDL-3.3 PU-240
angular distribution for (n,n*15)
Prob/Cos
$10^{0}$
$10^{-1}$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

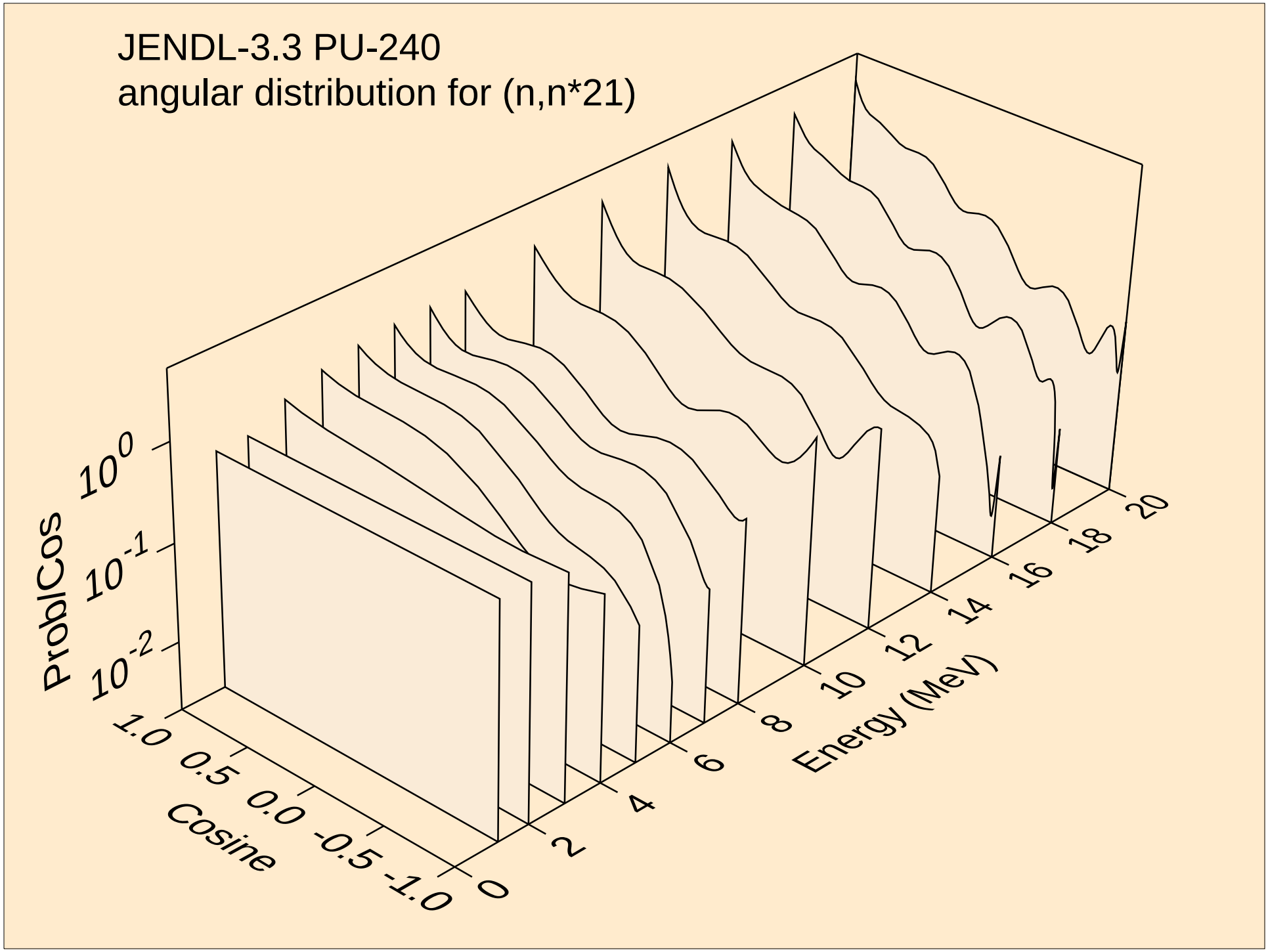

JENDL-3.3 PU-240
angular distribution for (n,n*16)
ProbCos
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

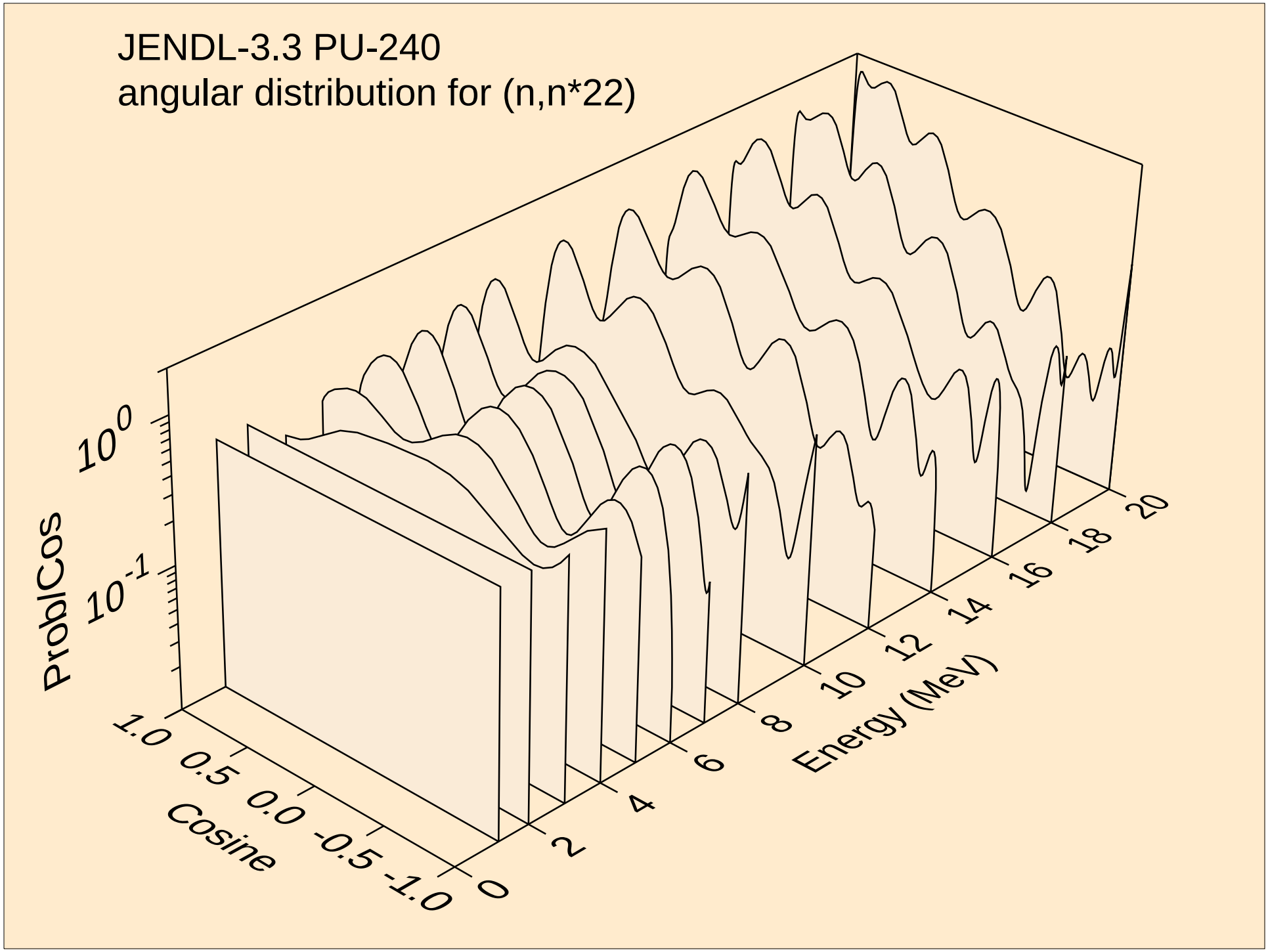

JENDL-3.3 PU-240
angular distribution for (n,n*17)
ProbCos
$10^{1}$
$10^{0}$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

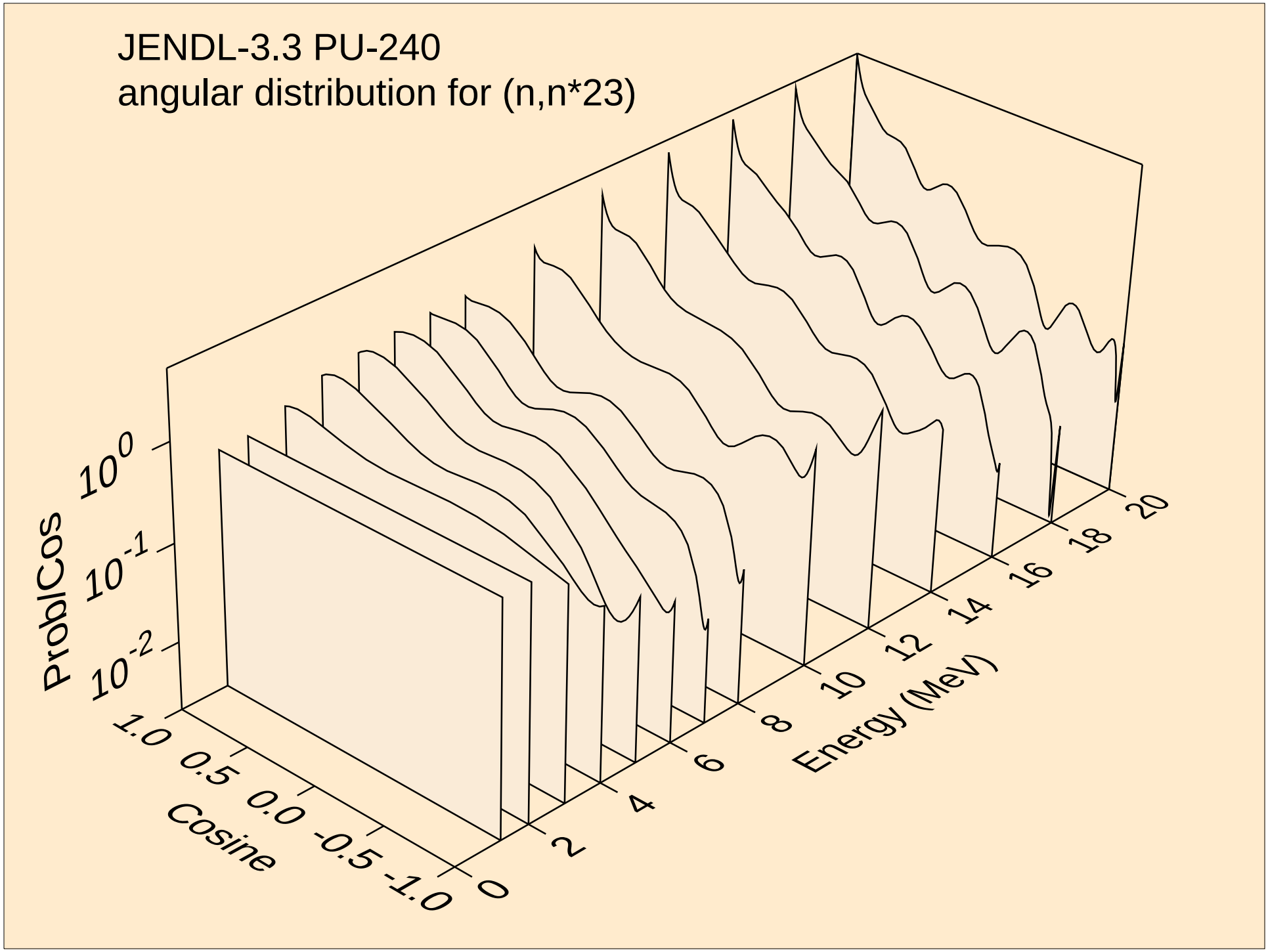

JENDL-3.3 PU-240
angular distribution for (n,n*18)
ProbCos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

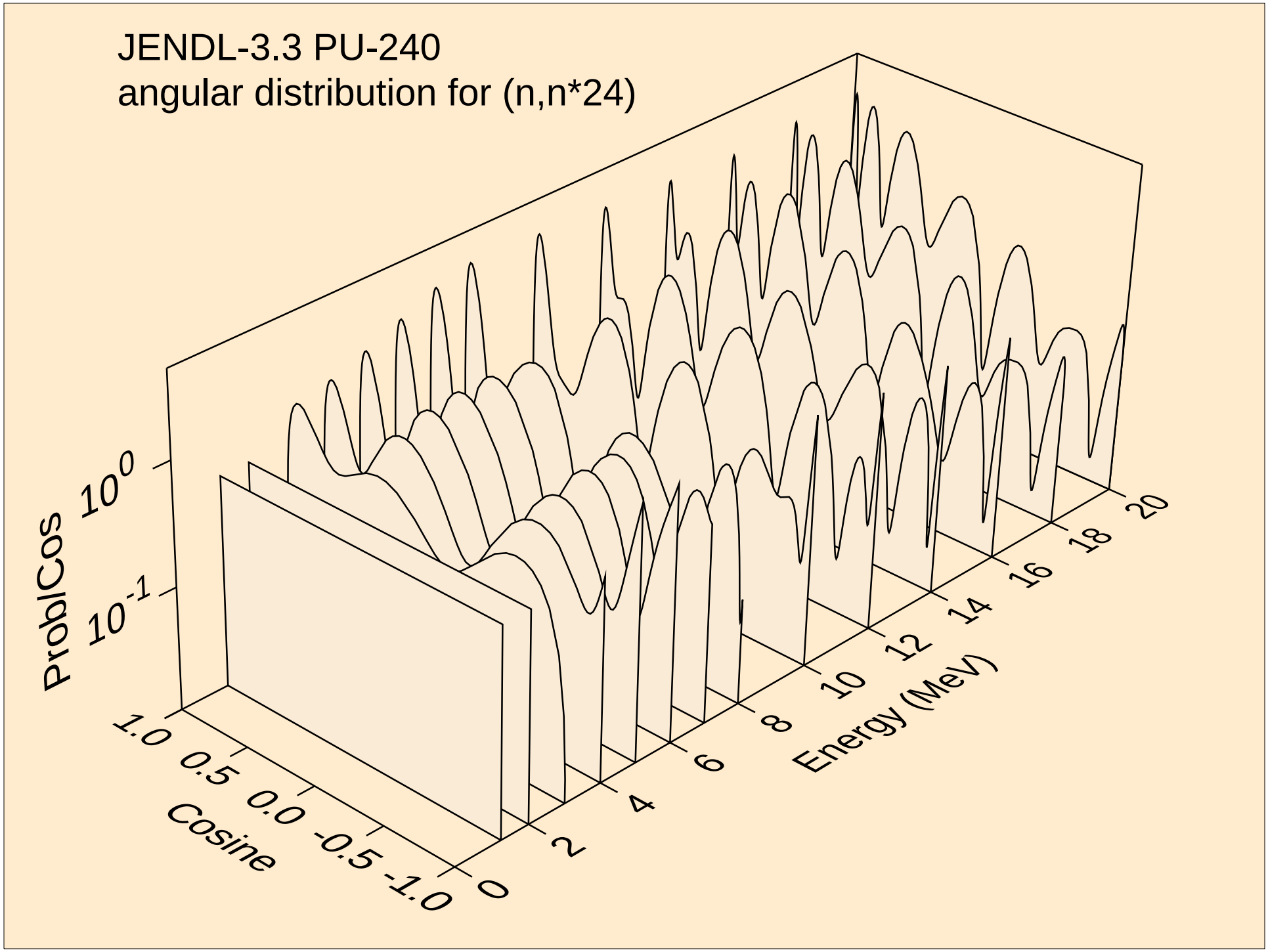

JENDL-3.3 PU-240
angular distribution for (n,n*19)
Prob/Cos
$10^{0}$
$10^{-1}$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

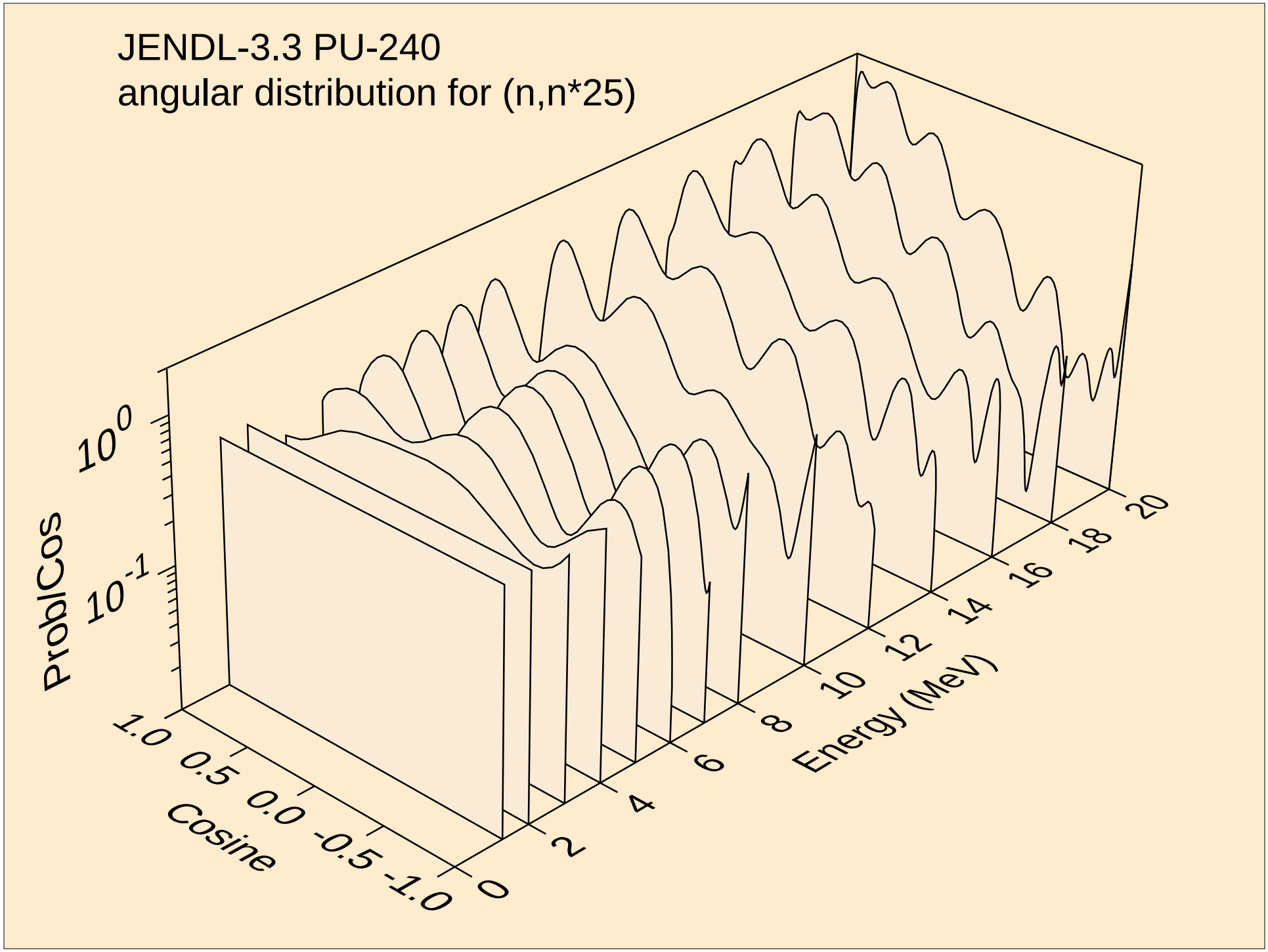

JENDL-3.3 PU-240
angular distribution for (n,n*20)
ProbCos
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

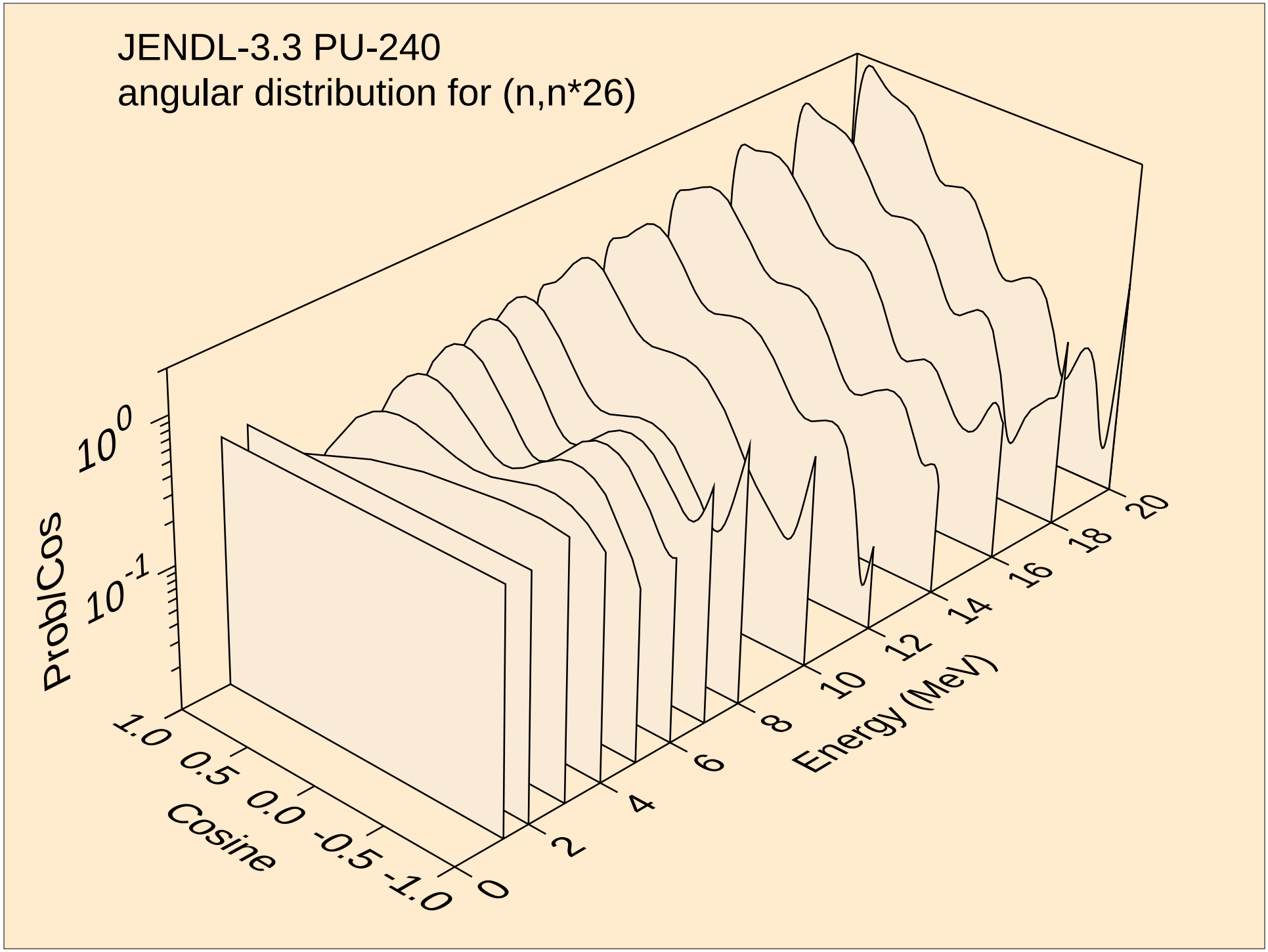

JENDL-3.3 PU-240
angular distribution for (n,n*21)
Prob/Cos
$10^{0}$
$10^{-1}$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

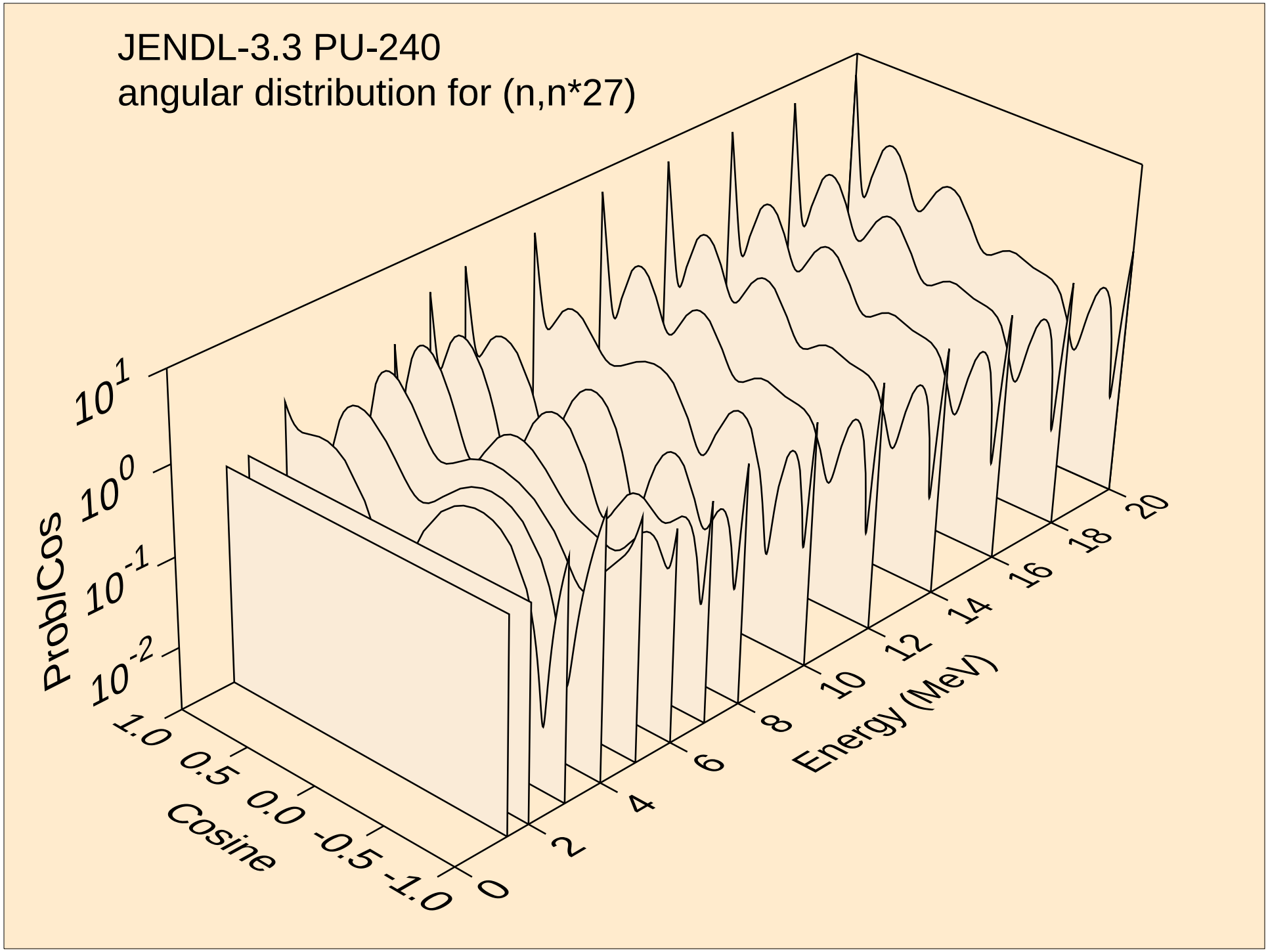

JENDL-3.3 PU-240
angular distribution for (n,n*22)
ProbCos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

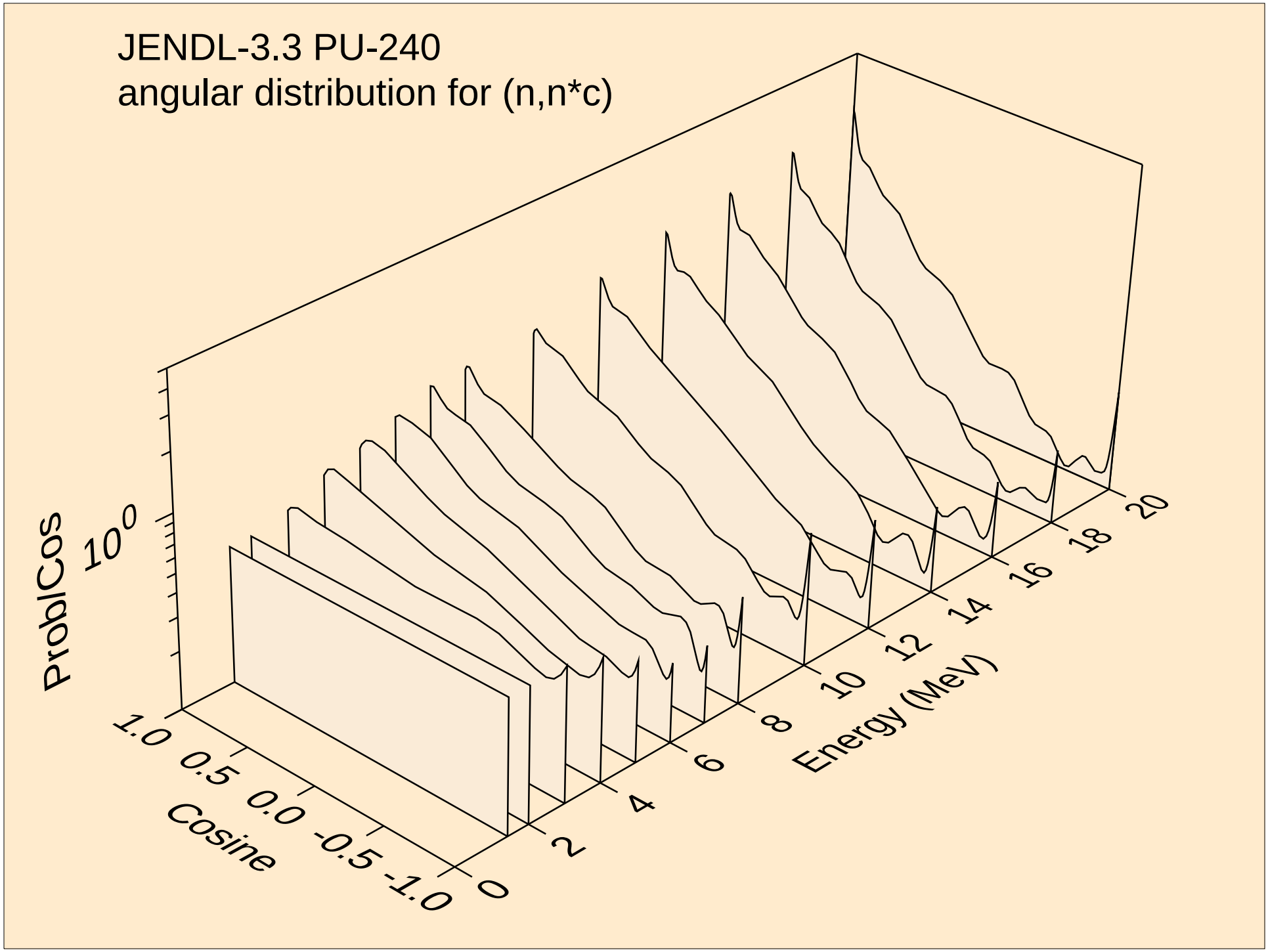

JENDL-3.3 PU-240
angular distribution for (n,n*23)
ProbCos
$10^{0}$
$10^{-1}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

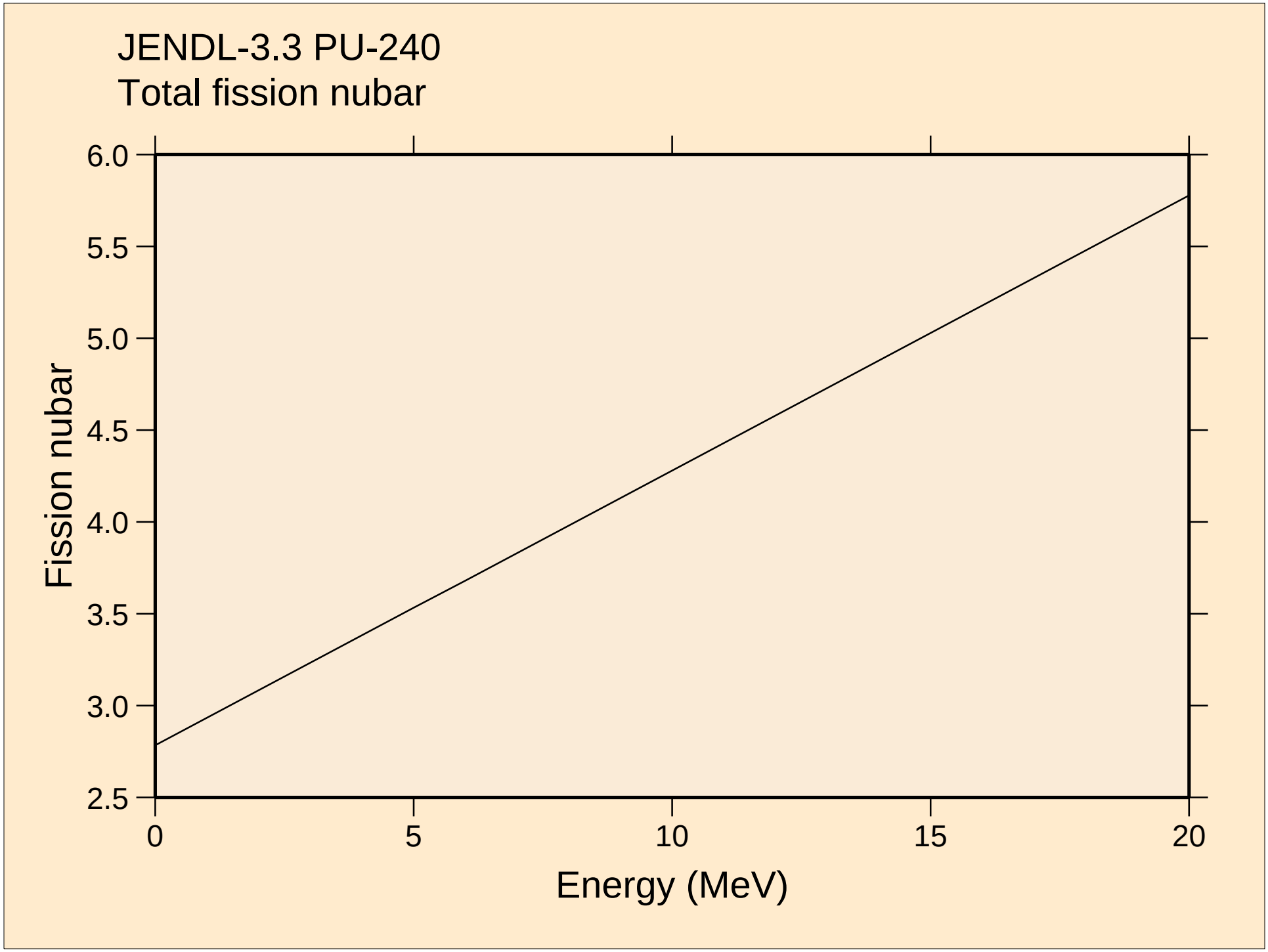

JENDL-3.3 PU-240
angular distribution for (n,n*24)
ProbCos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

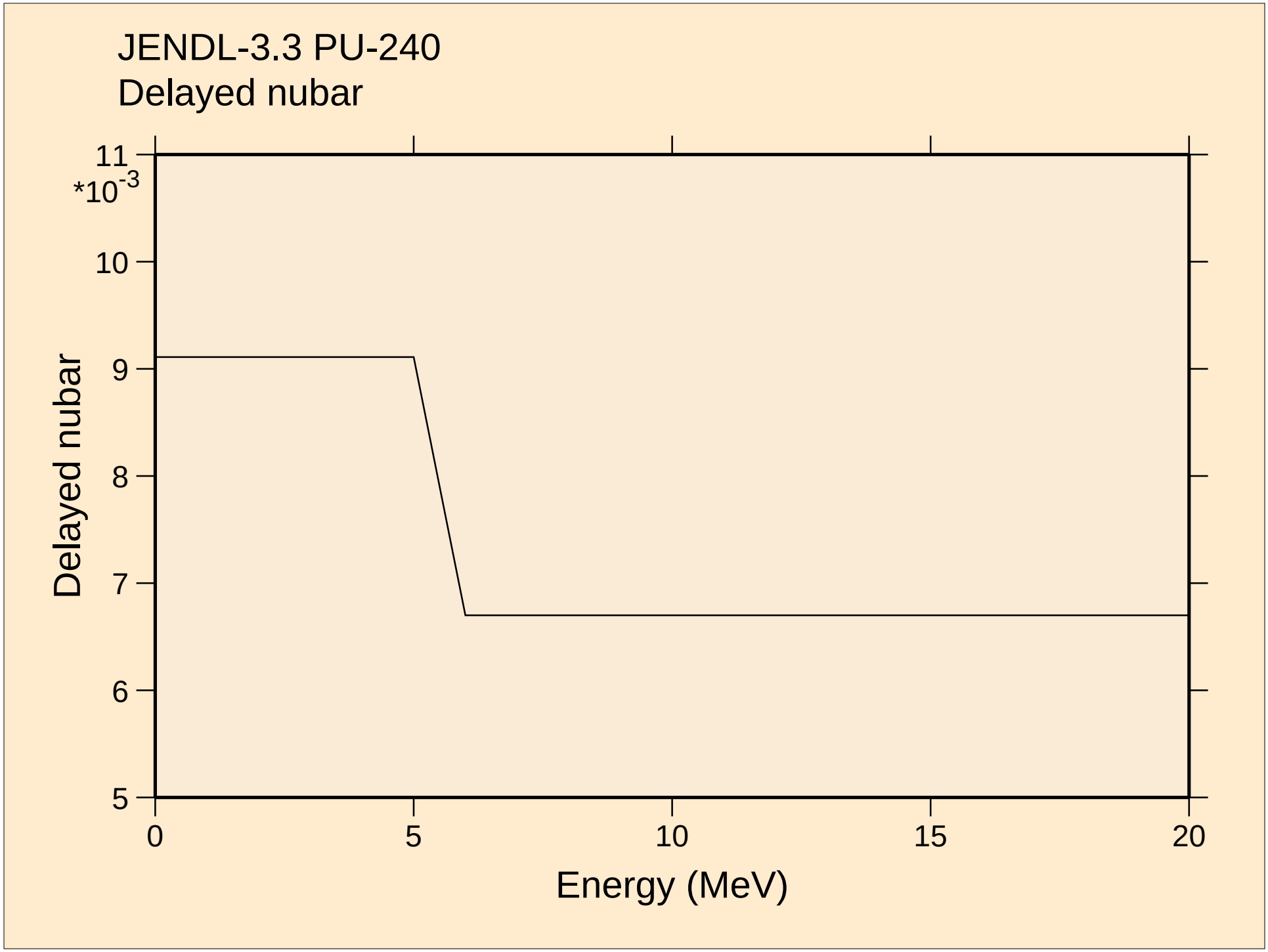

JENDL-3.3 PU-240
angular distribution for (n,n*25)
ProbCos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

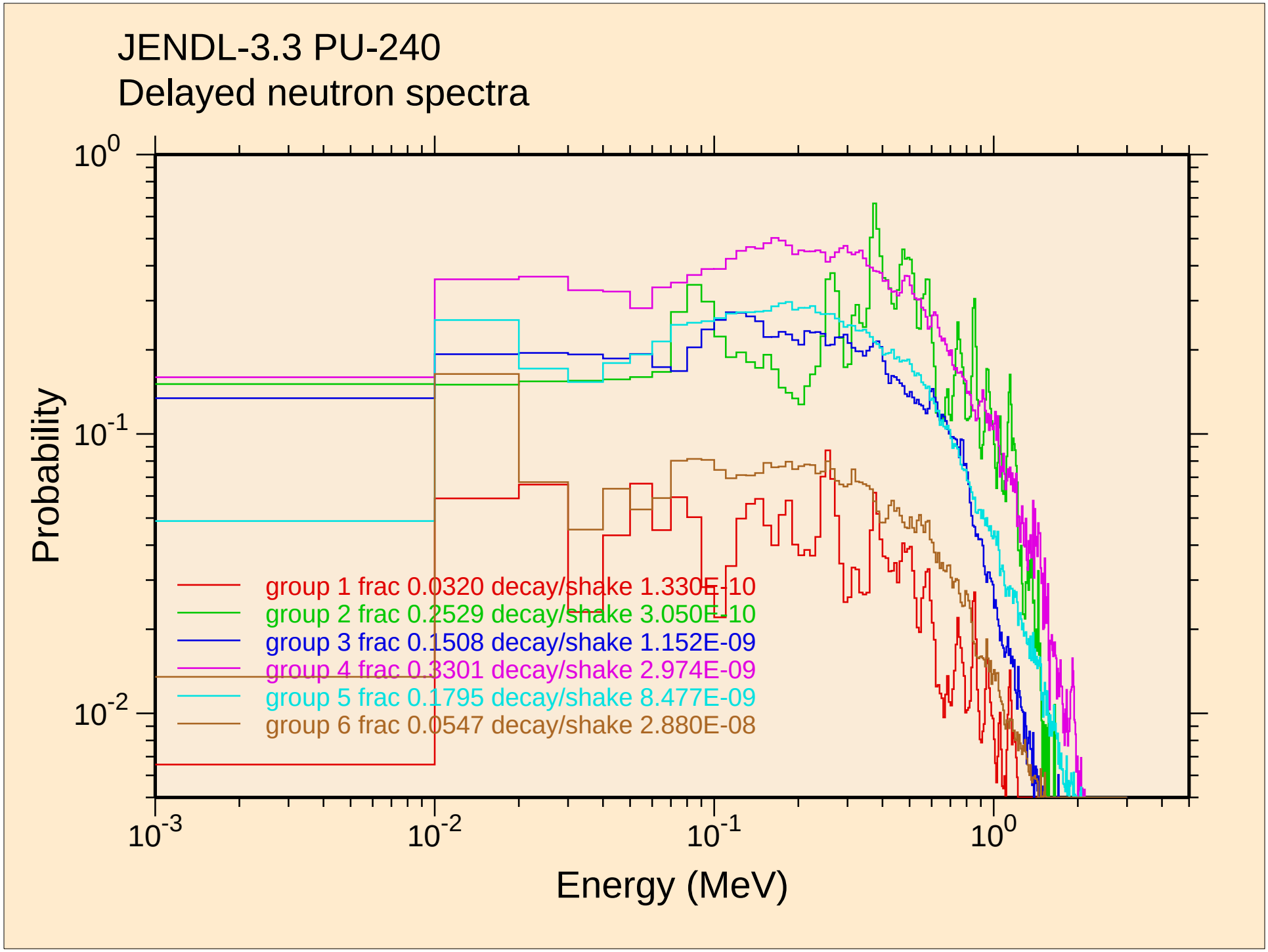

JENDL-3.3 PU-240
angular distribution for (n,n*26)
ProbCos
$10^0$
$10^{-1}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20


JENDL-3.3 PU-240
angular distribution for (n,n*27)
Prob/Cos
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-2}$
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-3.3 PU-240
angular distribution for (n,n*c)
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-3.3 PU-240
Total fission nubar
Fission nubar
6.0
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0
5
10
15
20
Energy (MeV)


JENDL-3.3 PU-240
Delayed nubar
11
*10-3
10
9
8
7
6
5
Delayed nubar
0
5
10
15
20
Energy (MeV)


JENDL-3.3 PU-240
Delayed neutron spectra
Probability
Energy (MeV)
group 1 frac 0.0320 decay/shake 1.330E-10
group 2 frac 0.2529 decay/shake 3.050E-10
group 3 frac 0.1508 decay/shake 1.152E-09
group 4 frac 0.3301 decay/shake 2.974E-09
group 5 frac 0.1795 decay/shake 8.477E-09
group 6 frac 0.0547 decay/shake 2.880E-08