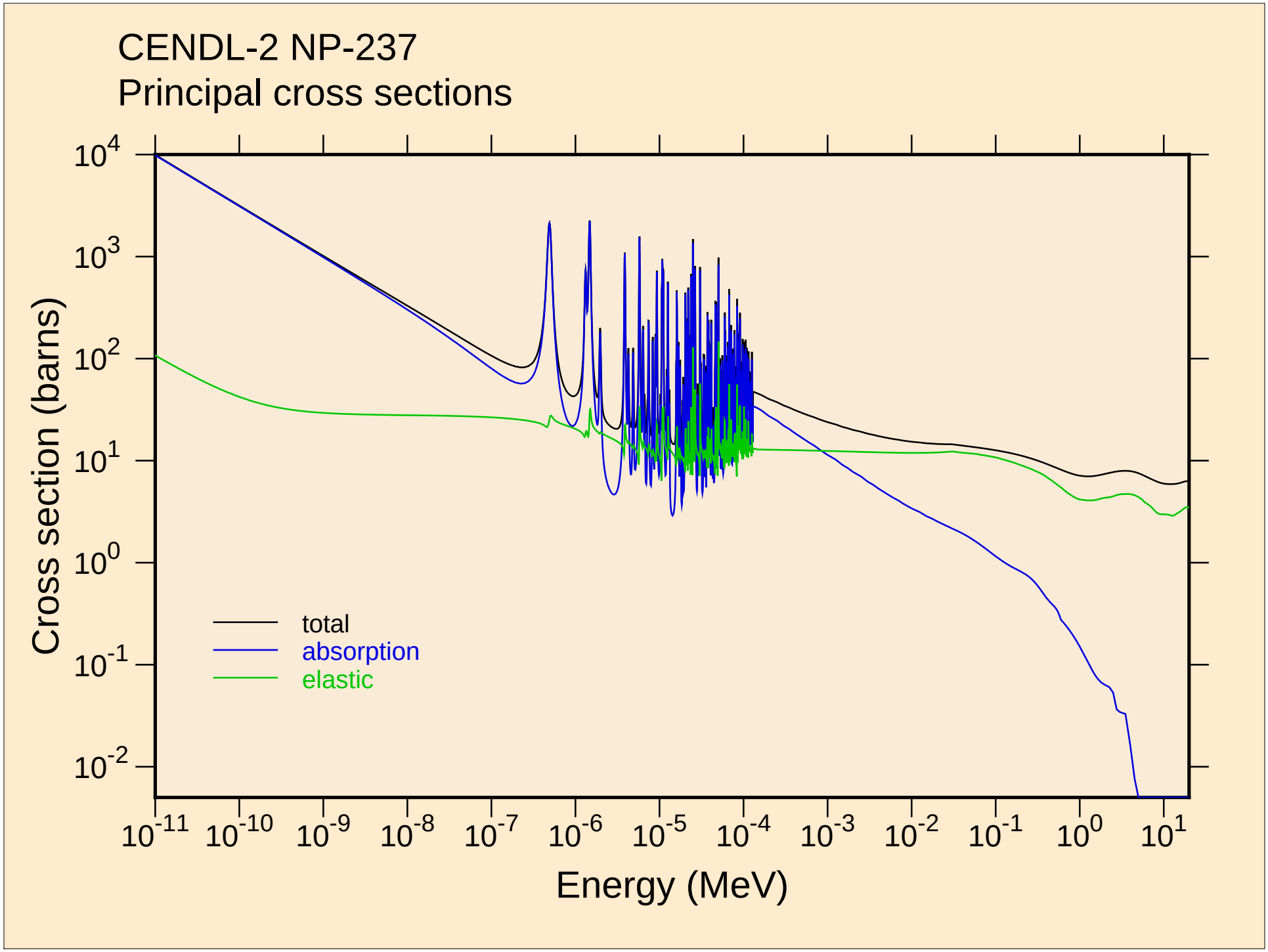
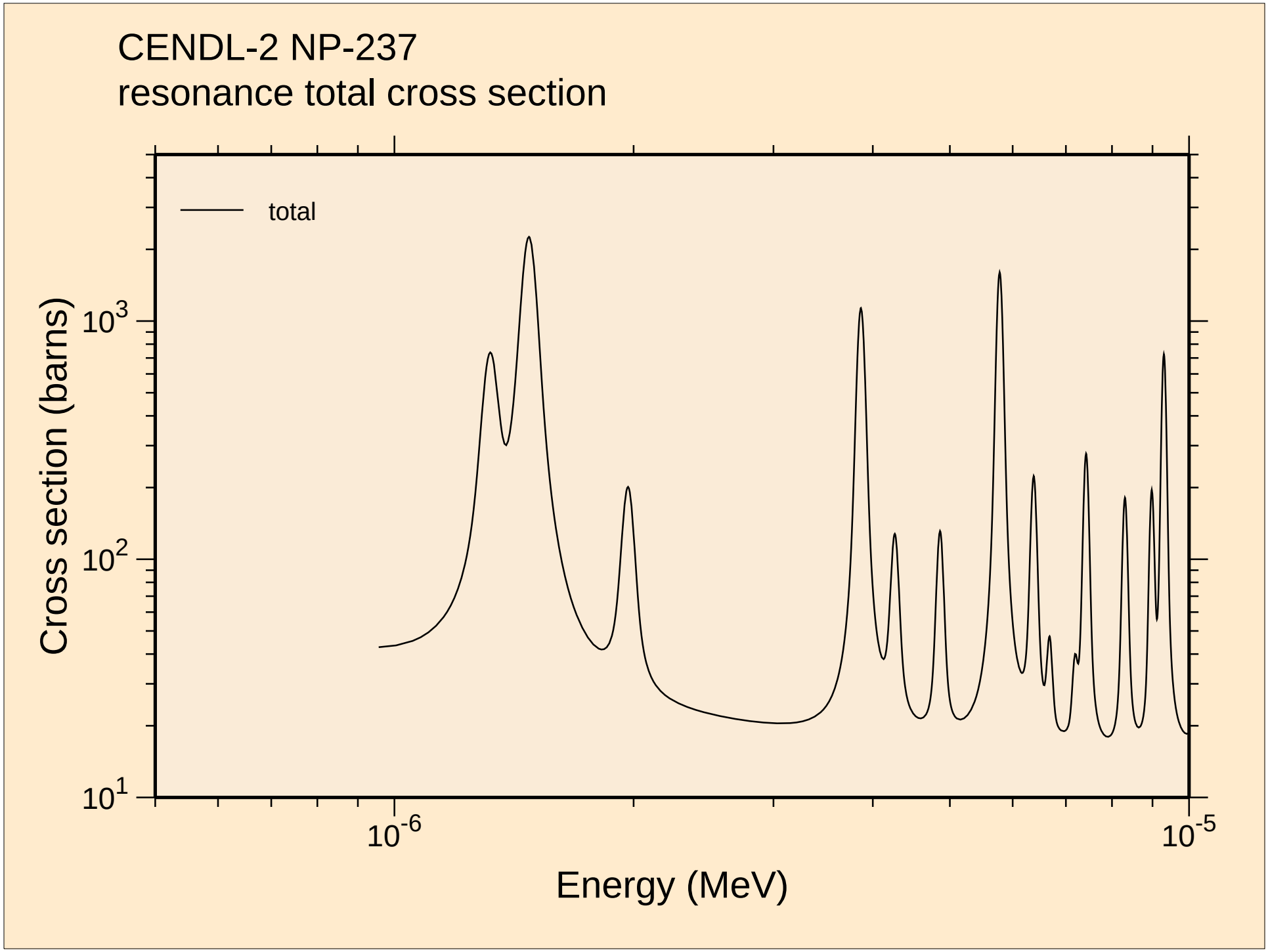
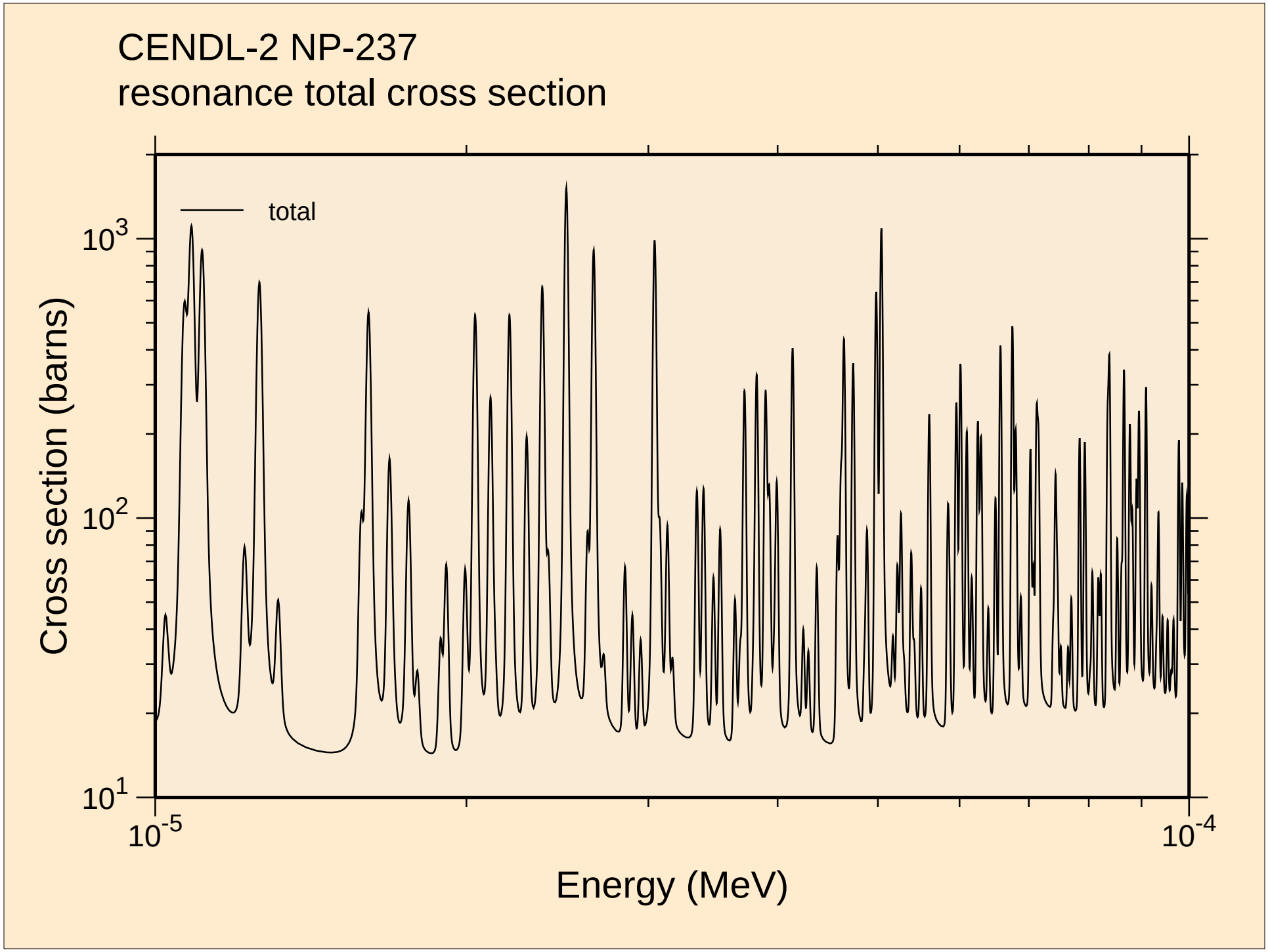
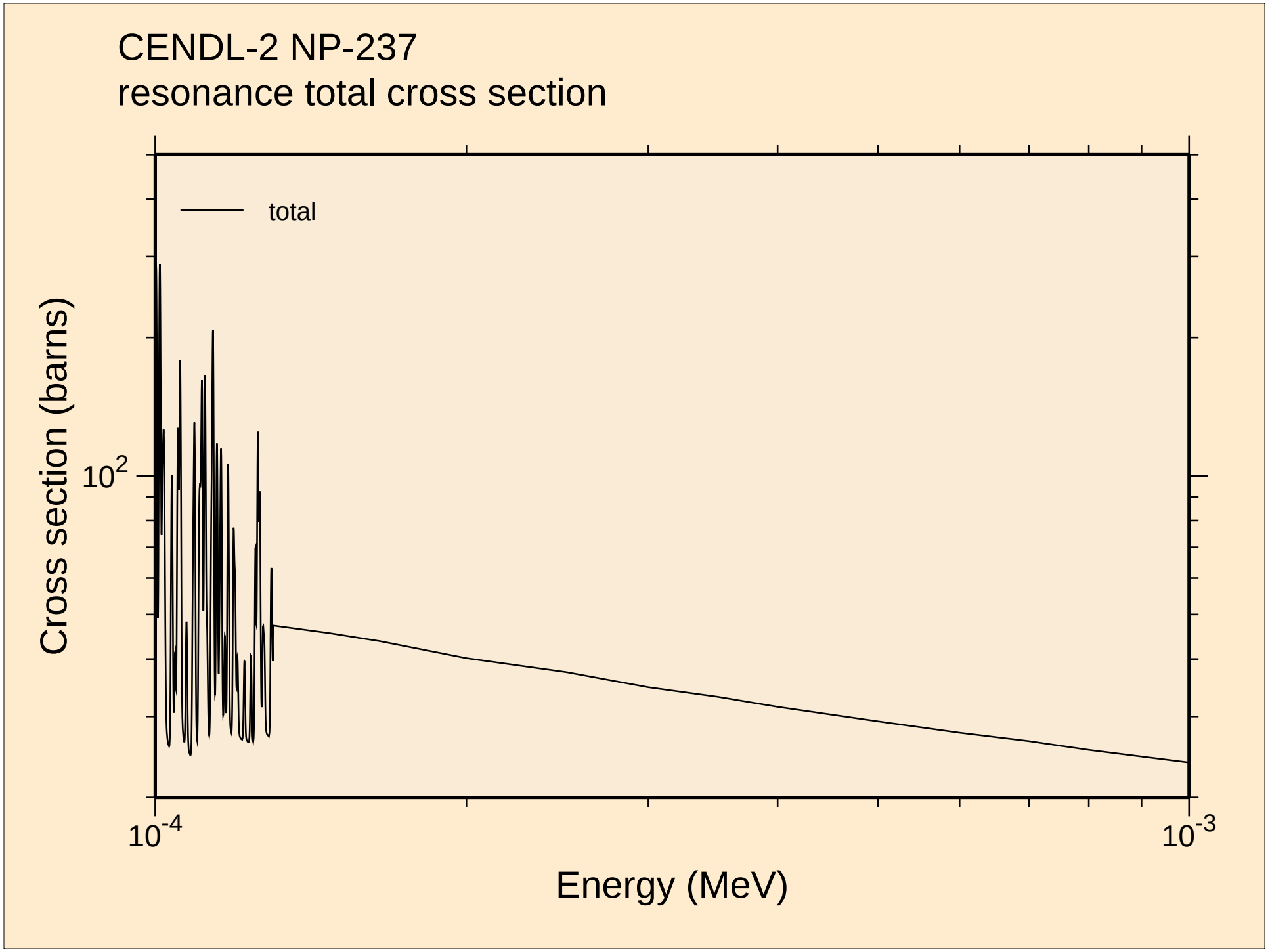
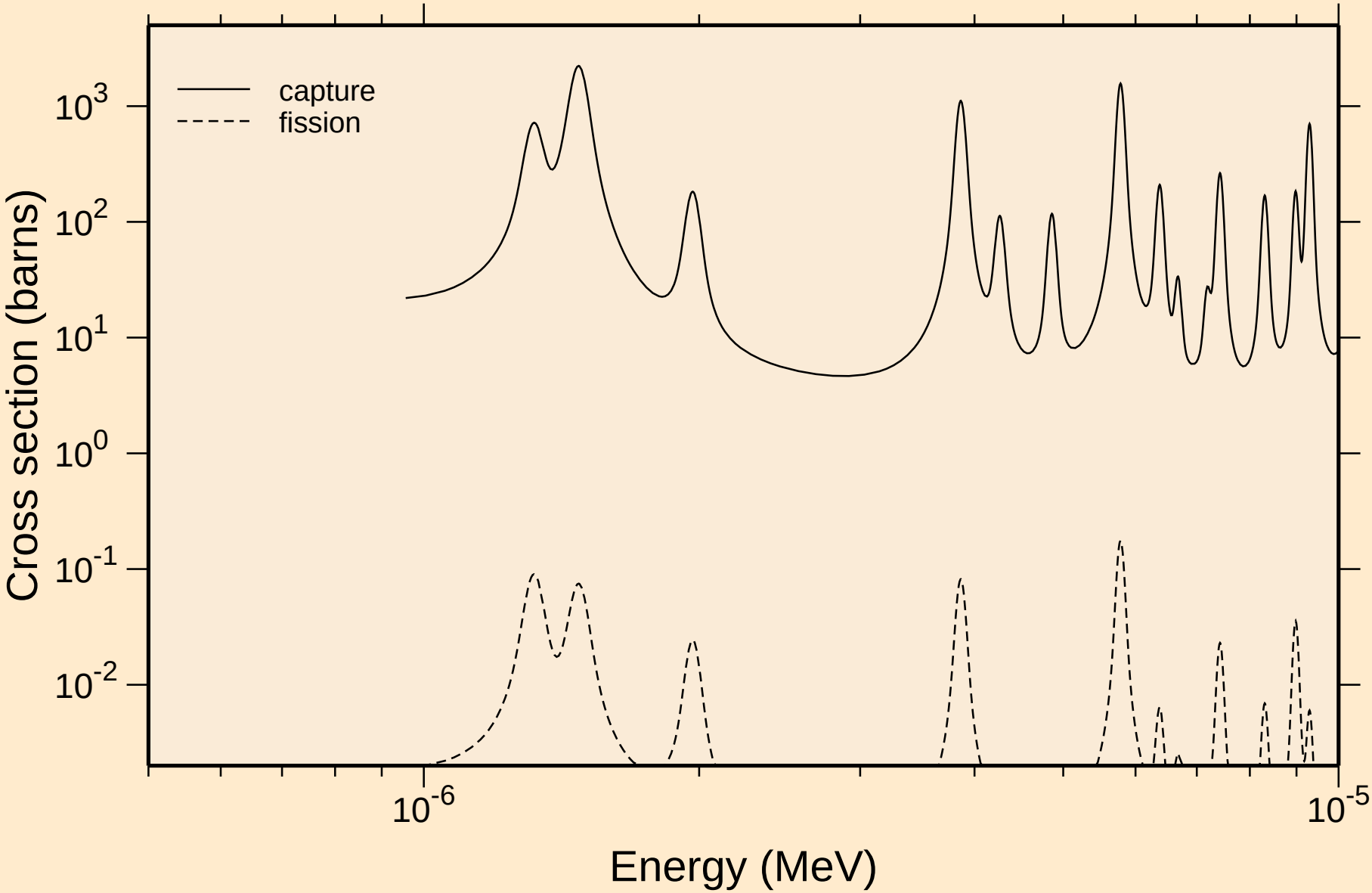

CENDL-2 NP-237
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
10^{0}
10^{1}


CENDL-2 NP-237
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-6}
10^{-5}
Energy (MeV)

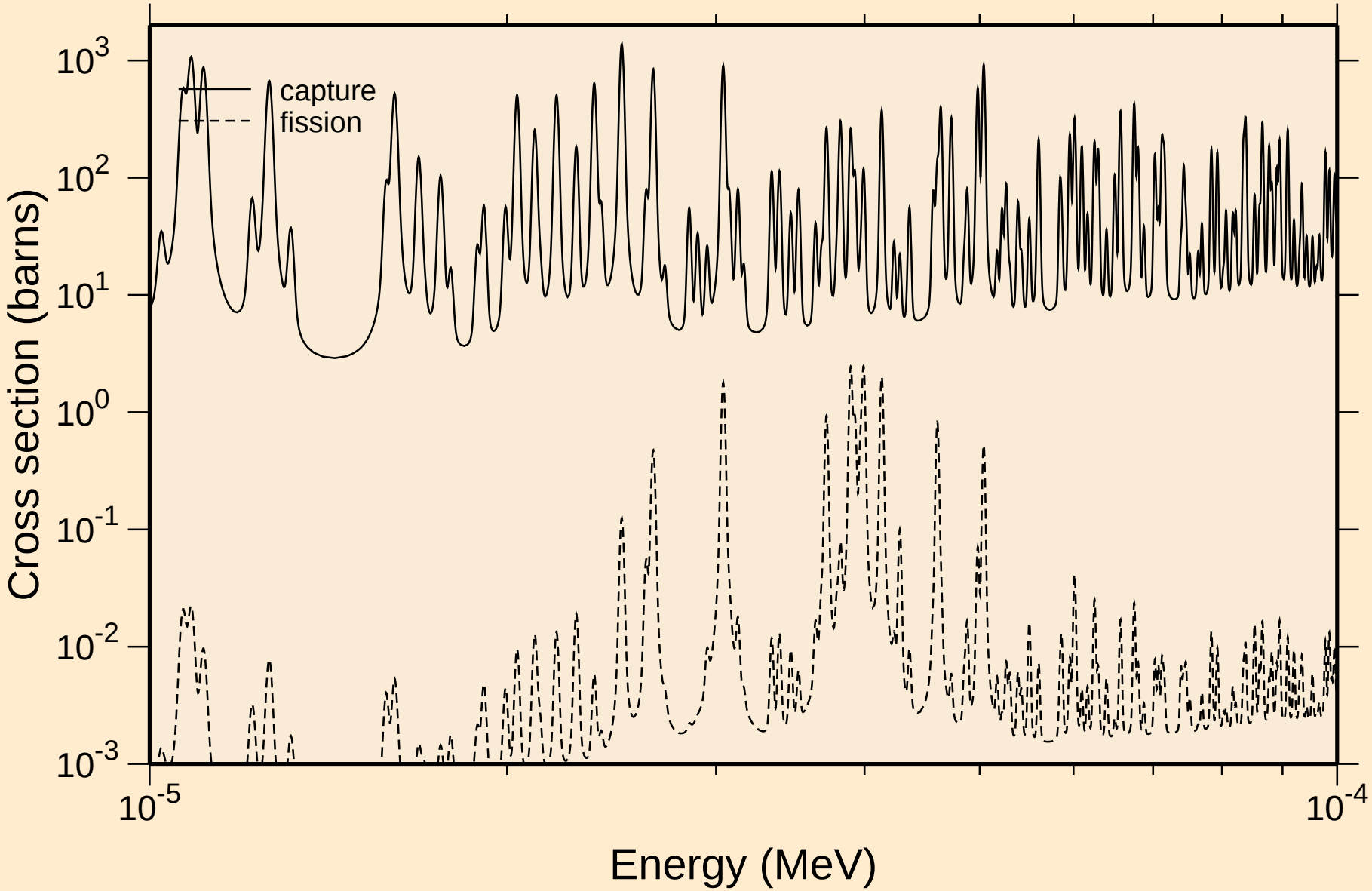

CENDL-2 NP-237
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^{-5}
10^{-4}
Energy (MeV)

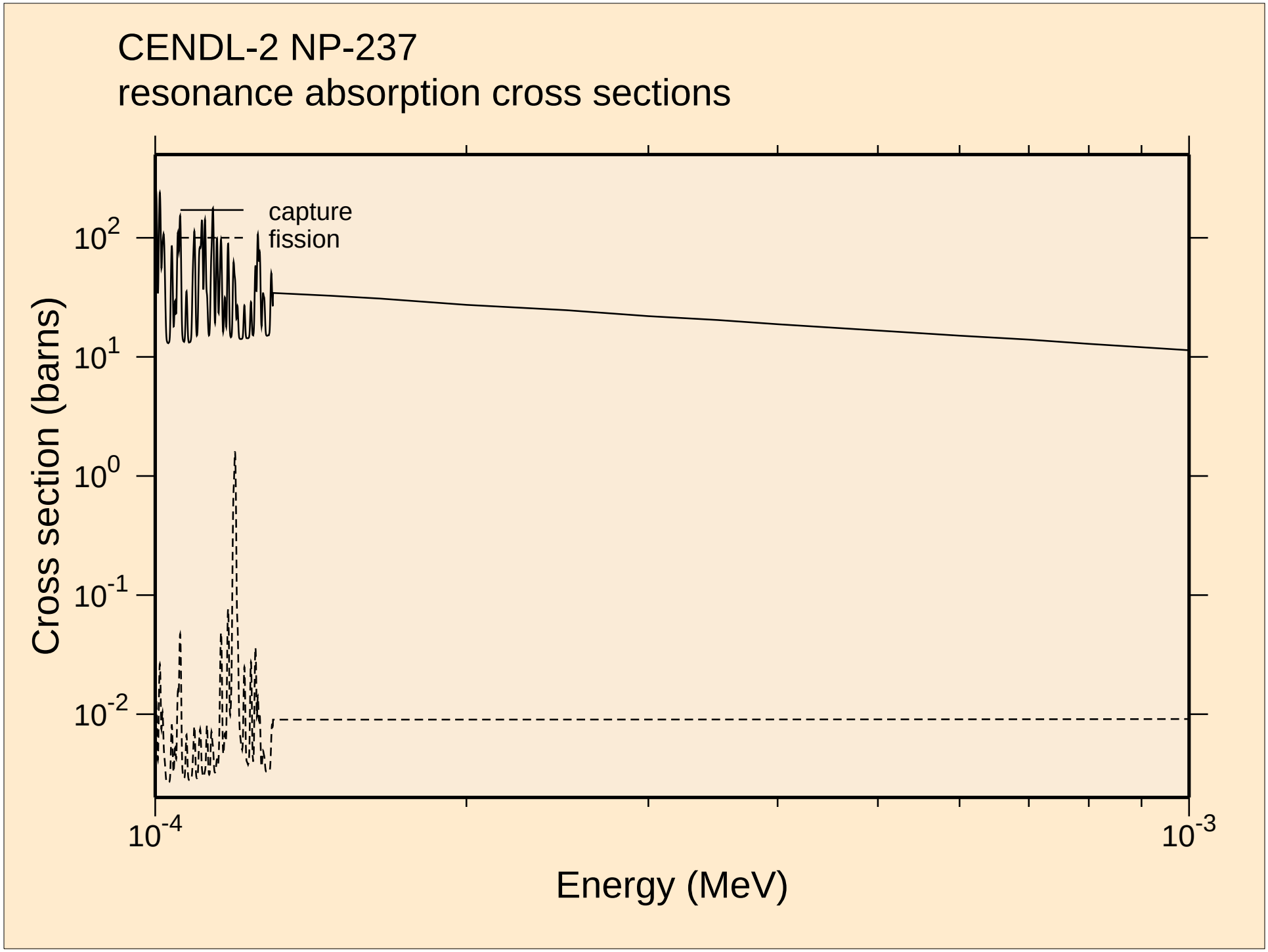

CENDL-2 NP-237
resonance total cross section
total
Cross section (barns)
10^2
10^-4
10^-3
Energy (MeV)

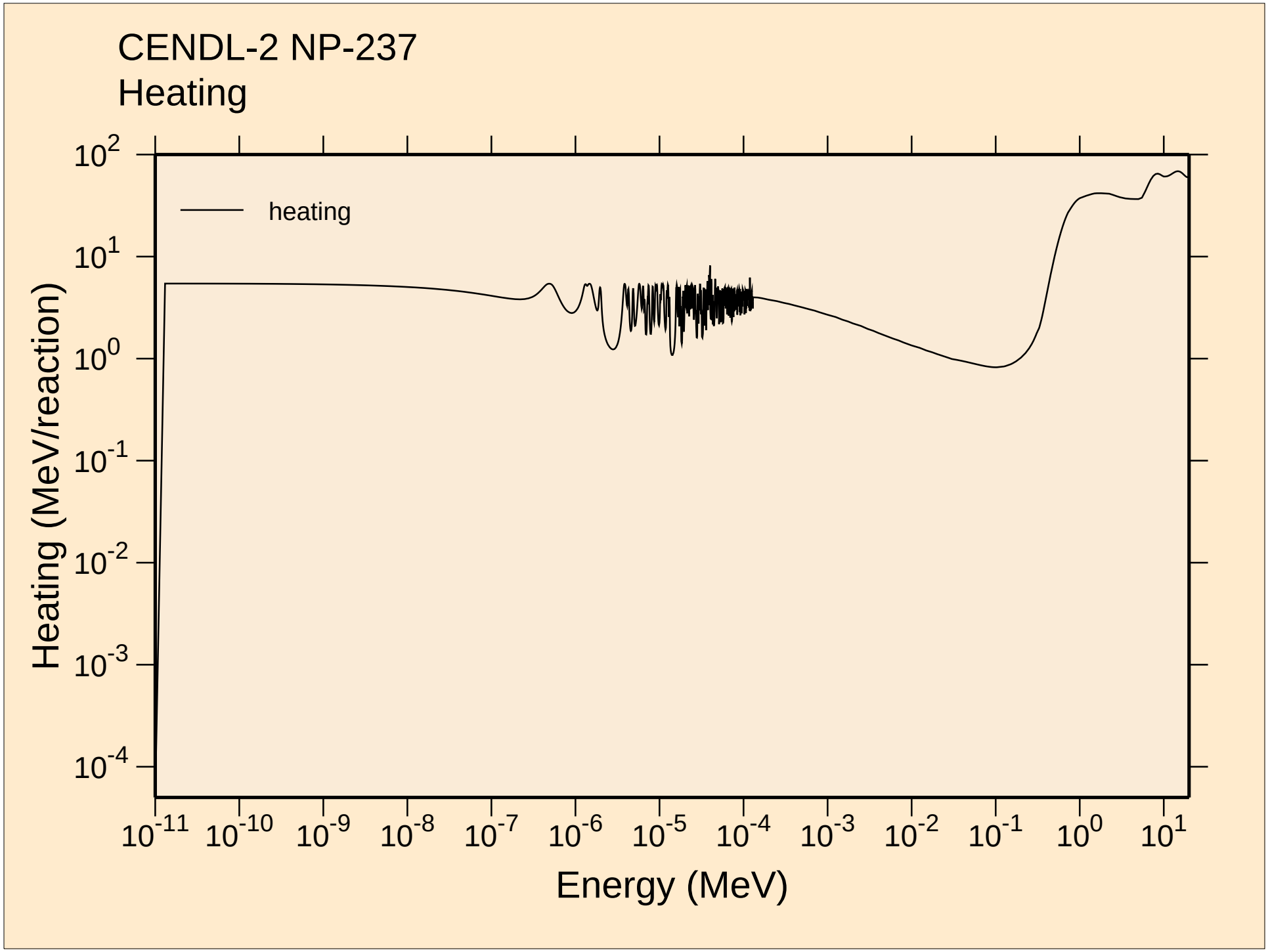
CENDL-2 NP-237
resonance absorption cross sections

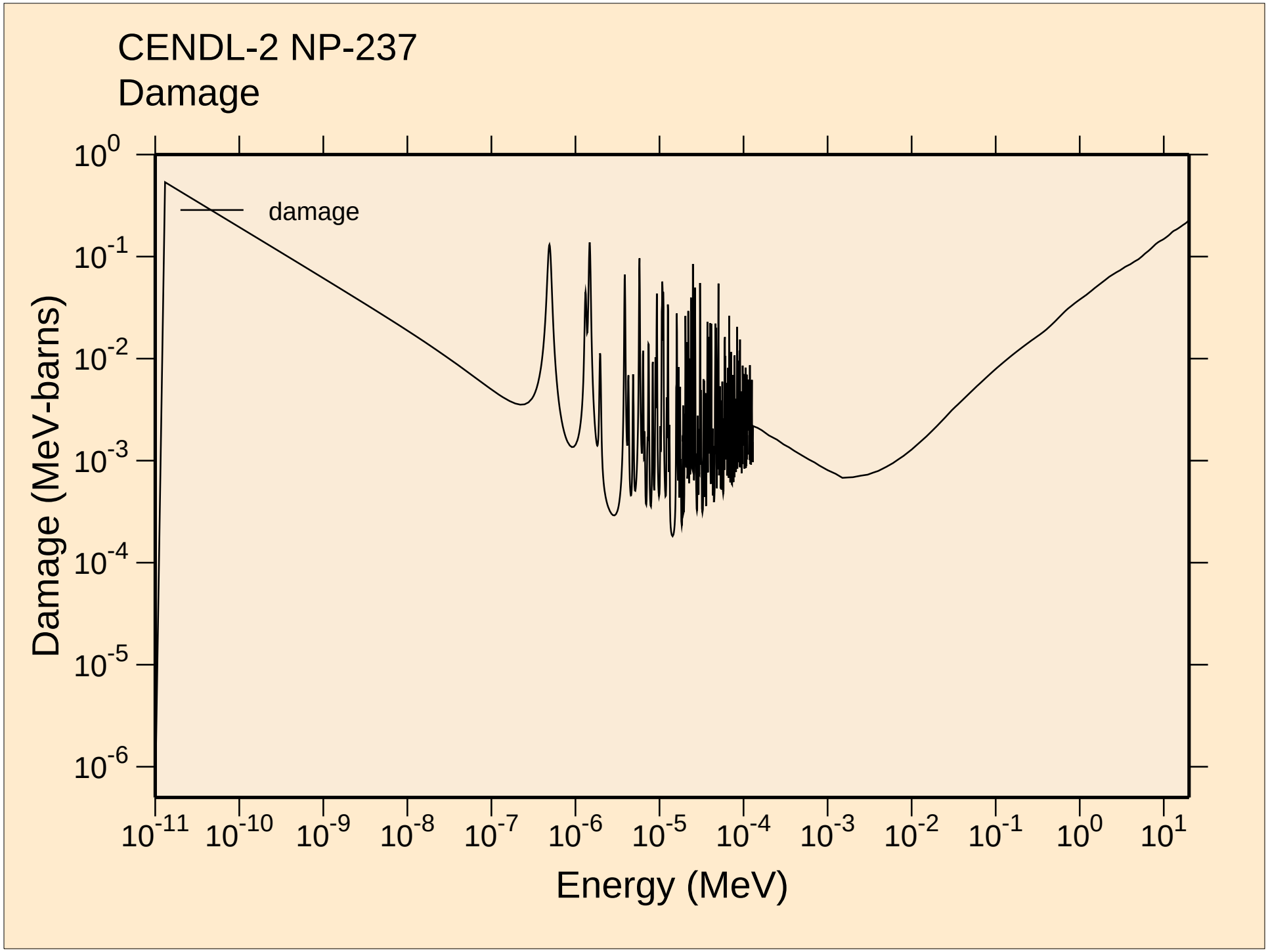


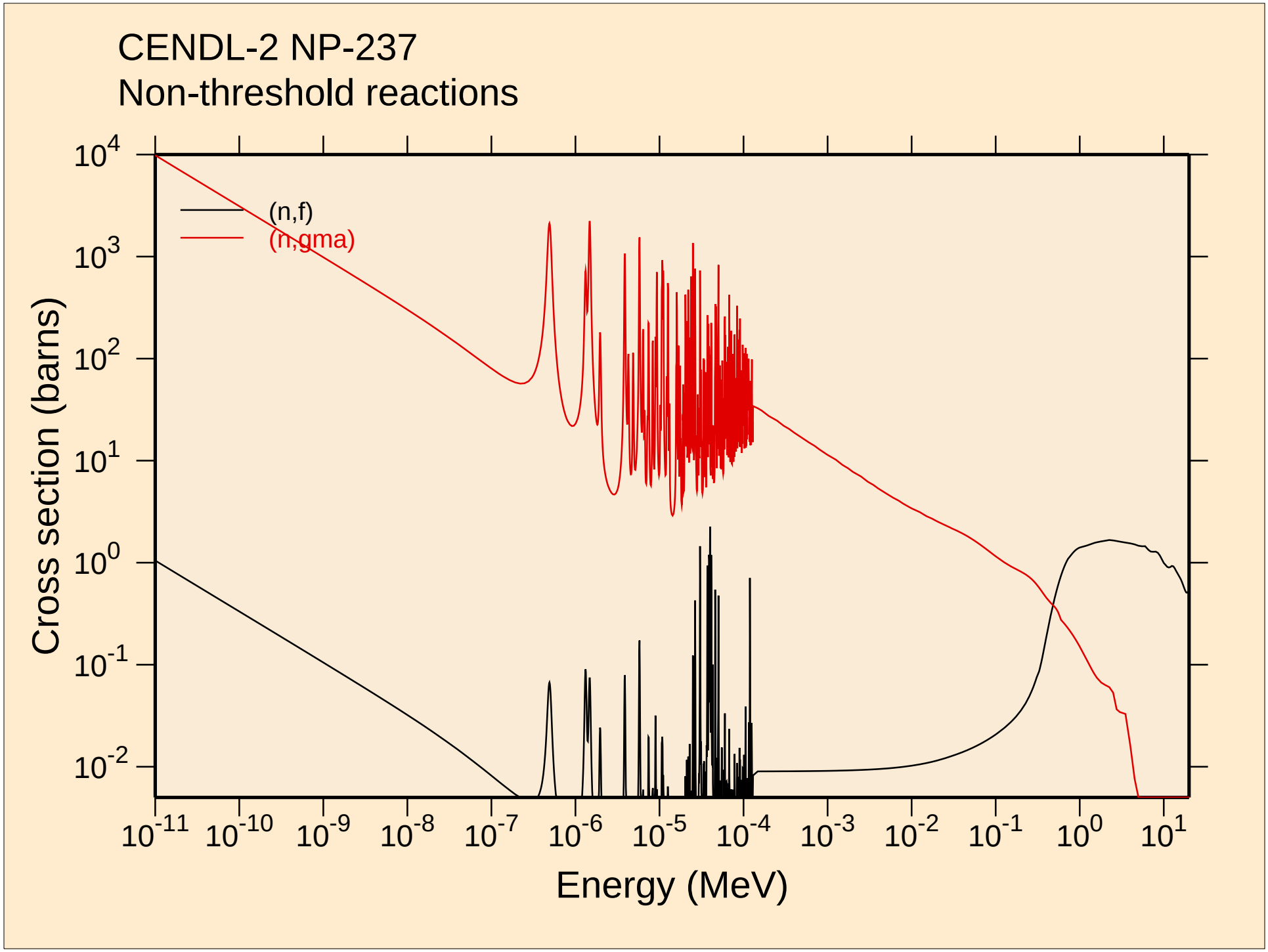
CENDL-2 NP-237
resonance absorption cross sections

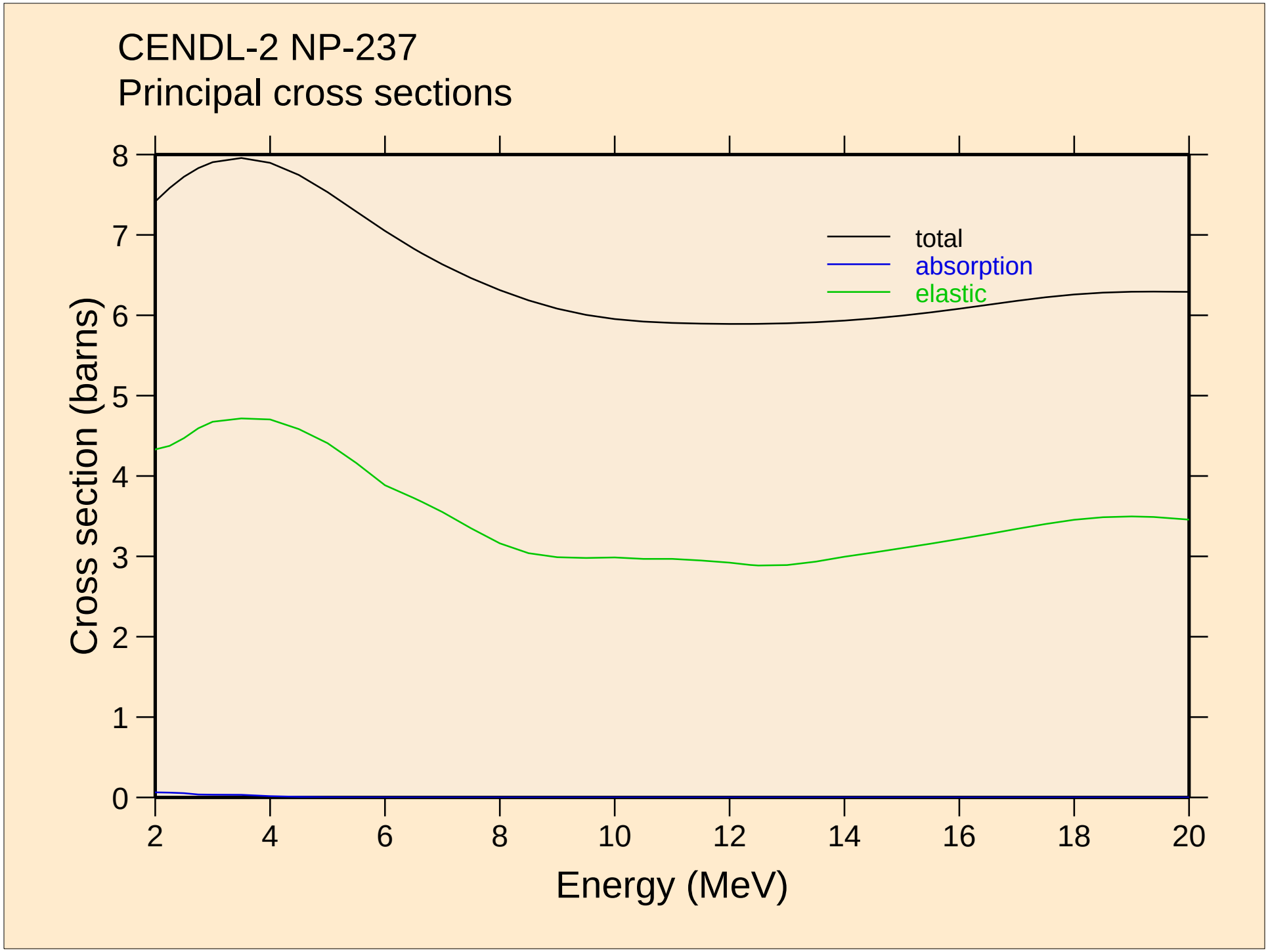


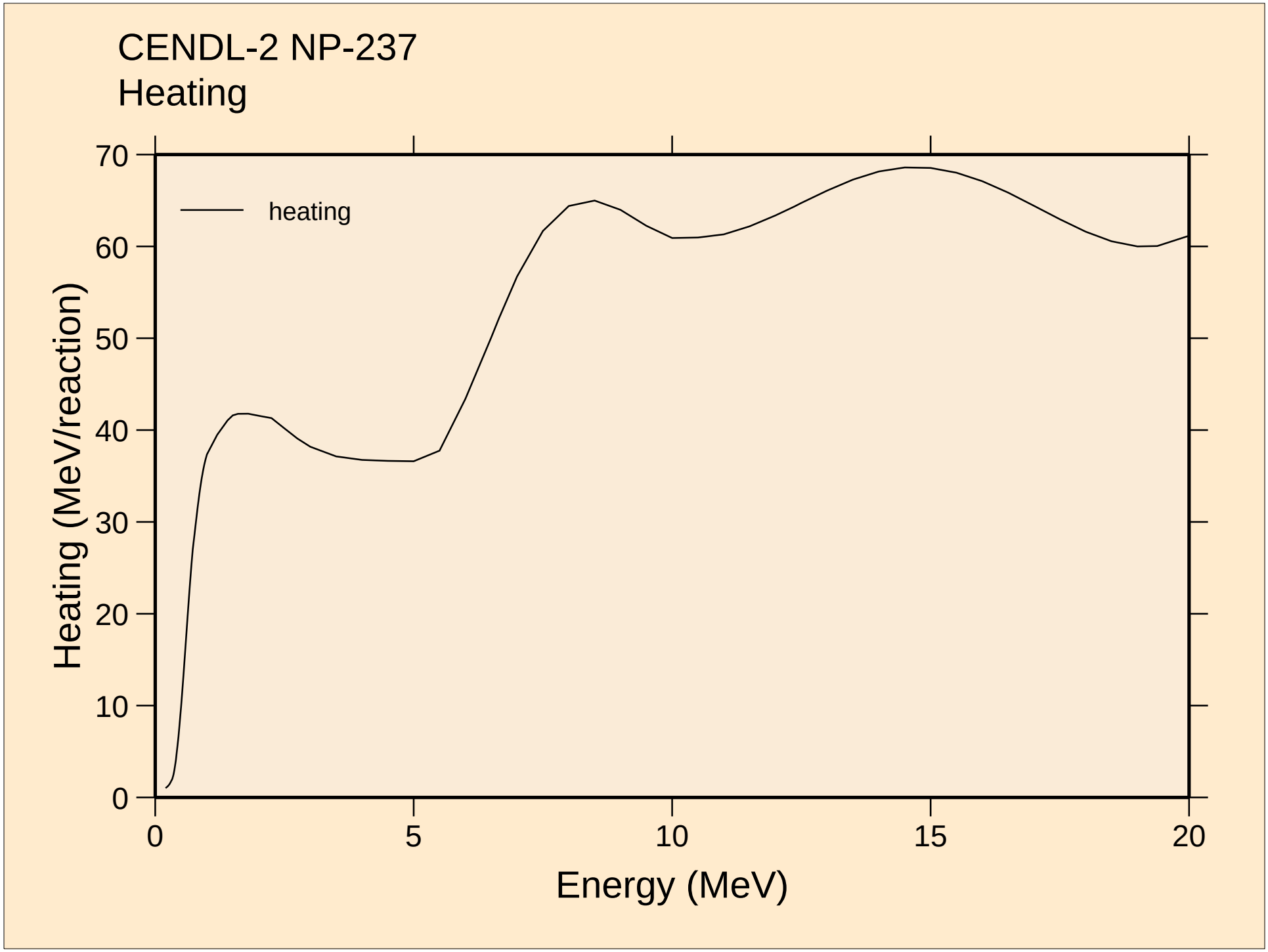

CENDL-2 NP-237
resonance absorption cross sections
capture
fission
Cross section (barns)
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-4}
10^{-3}
Energy (MeV)

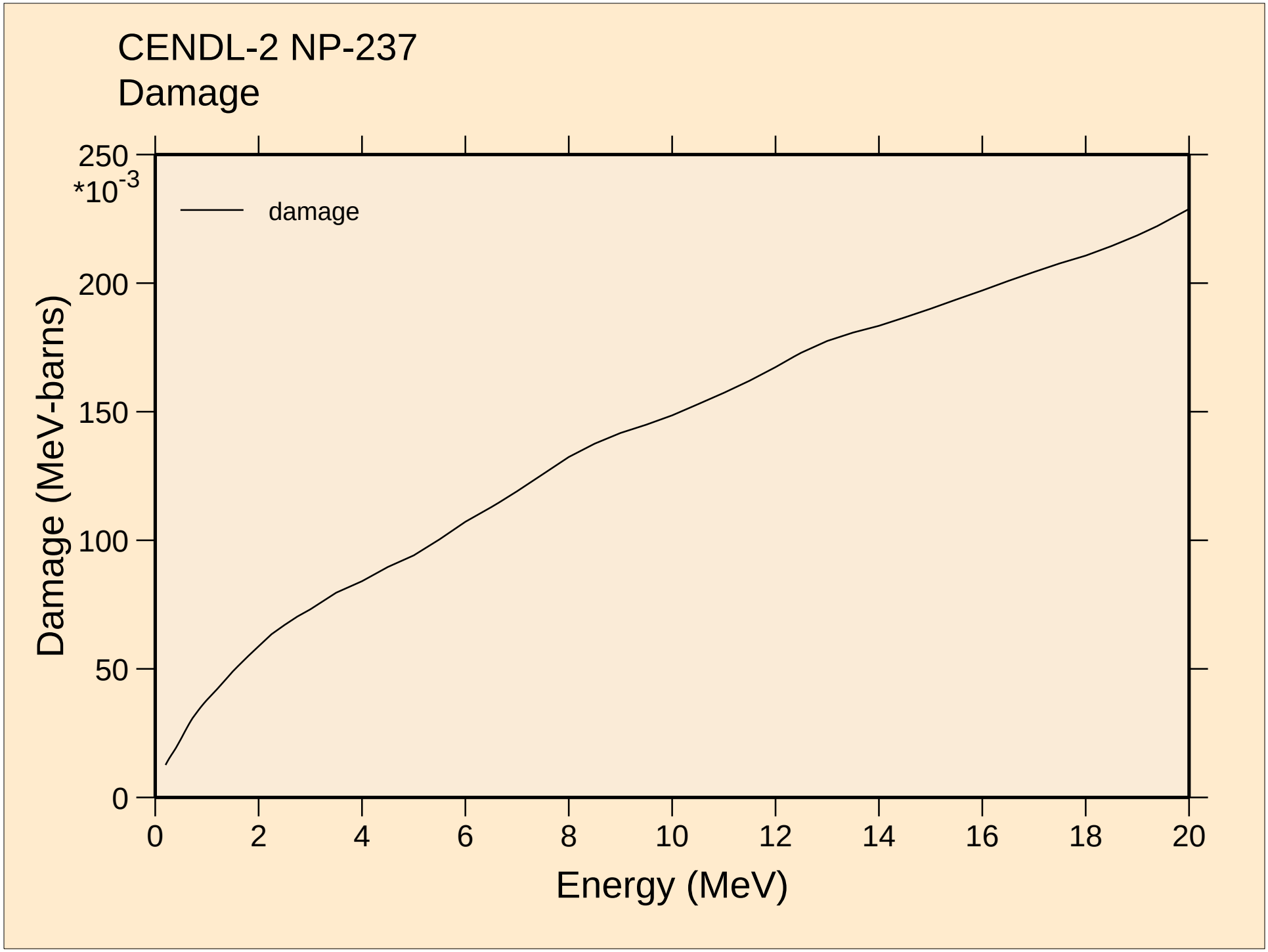

CENDL-2 NP-237
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

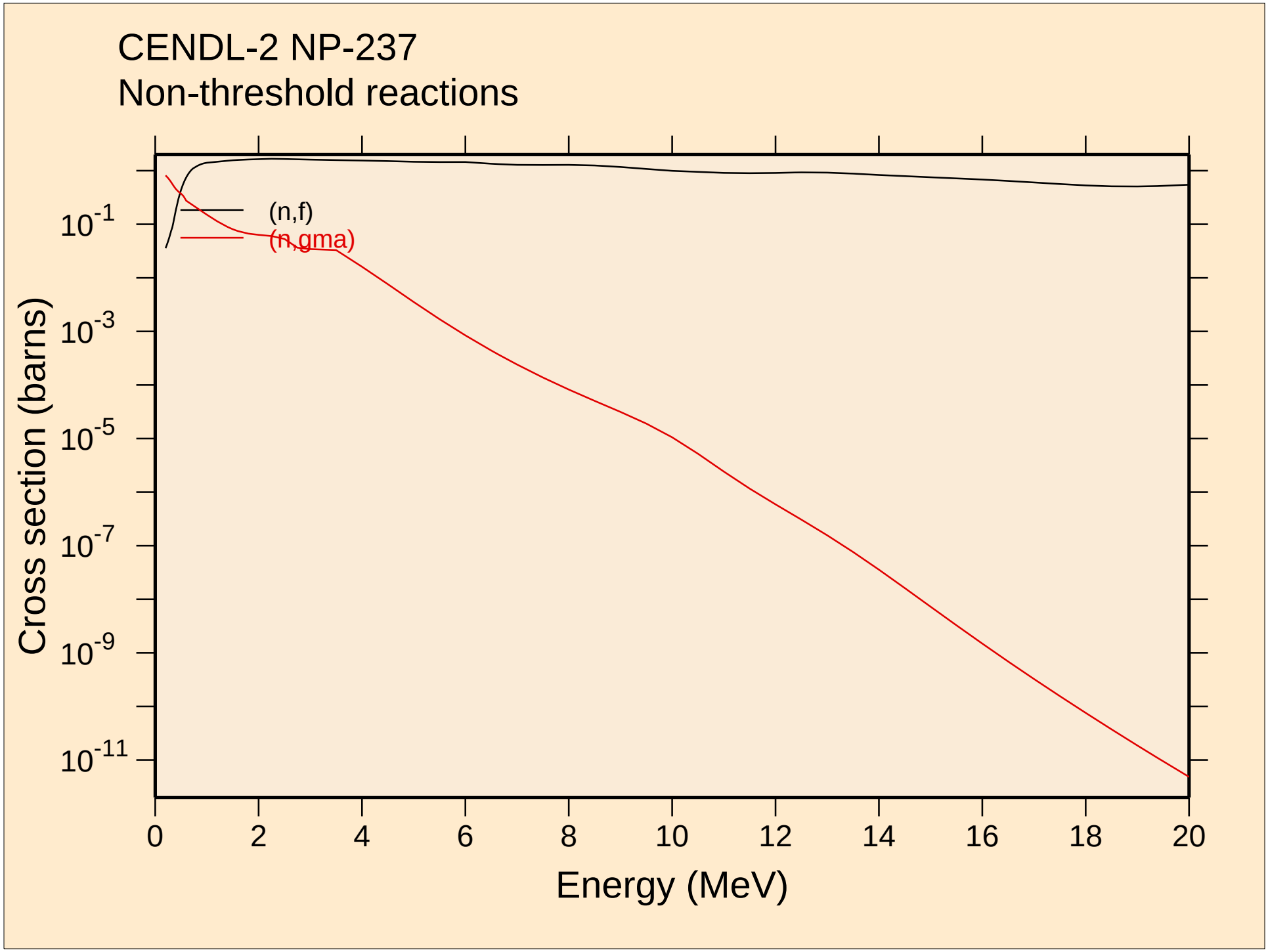

CENDL-2 NP-237
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-6}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

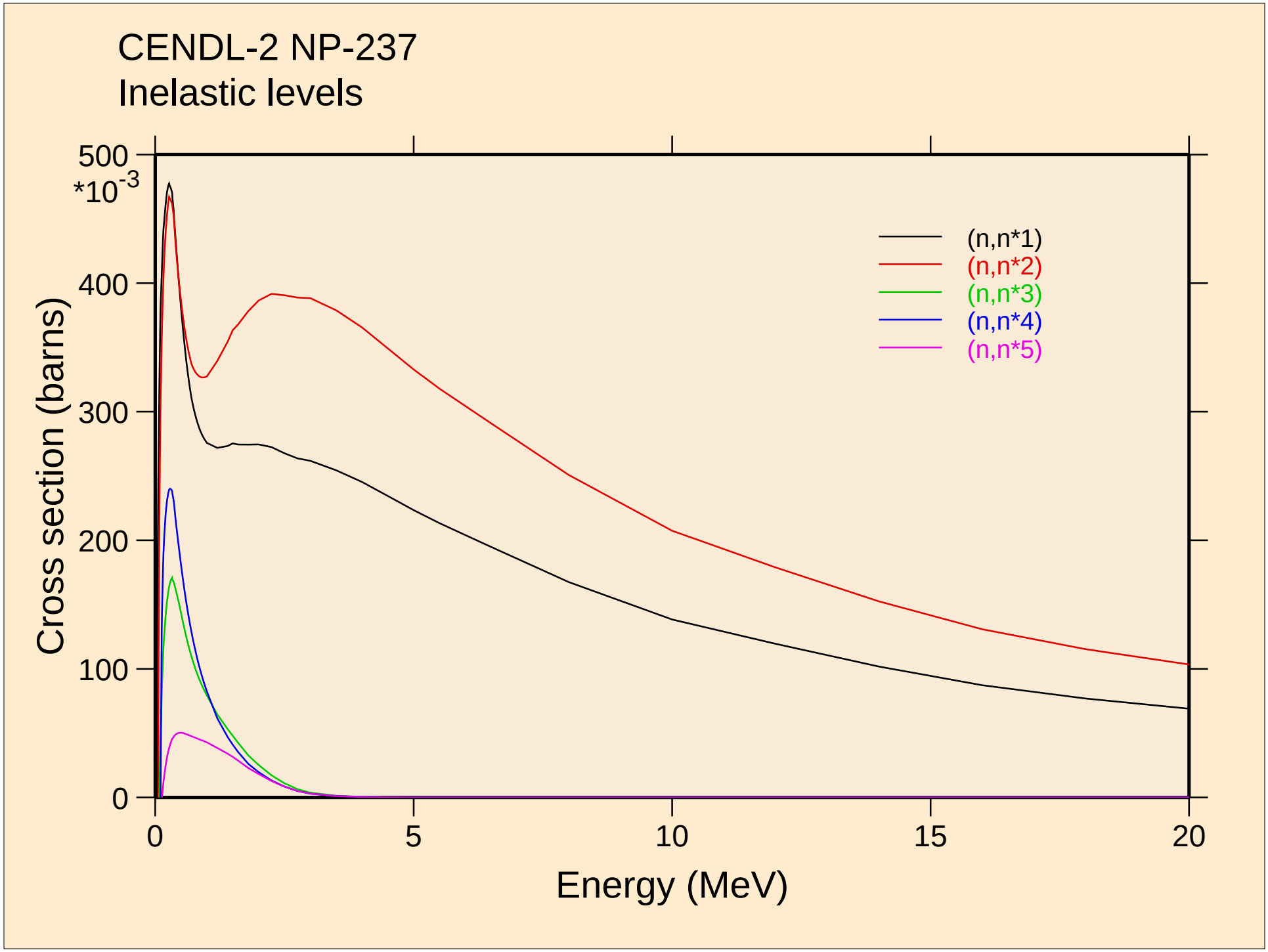

CENDL-2 NP-237
Non-threshold reactions
(n,f)
(n,gma)
Cross section (barns)
Energy (MeV)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

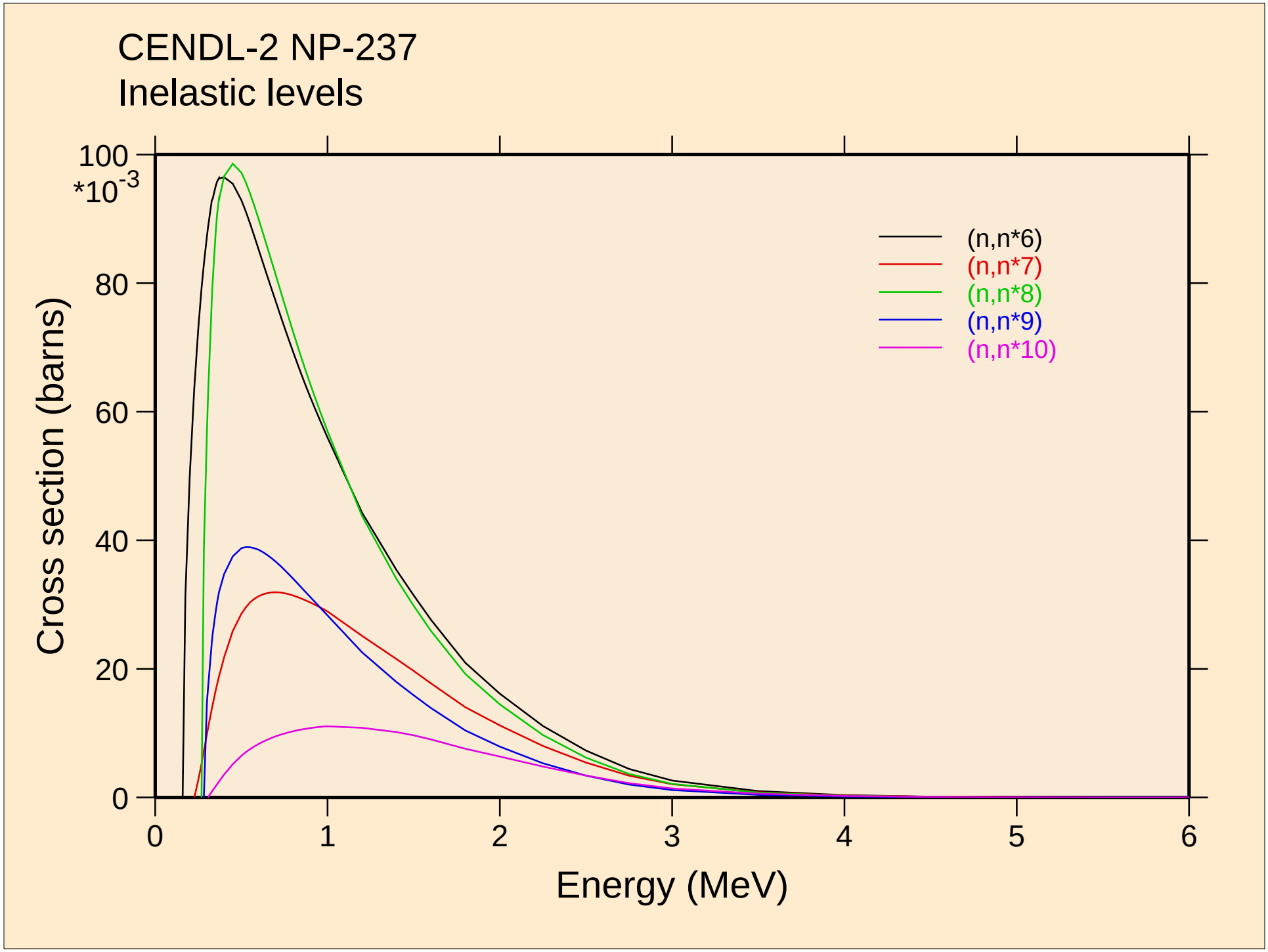

CENDL-2 NP-237
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
0
1
2
3
4
5
6
7
8
2
4
6
8
10
12
14
16
18
20

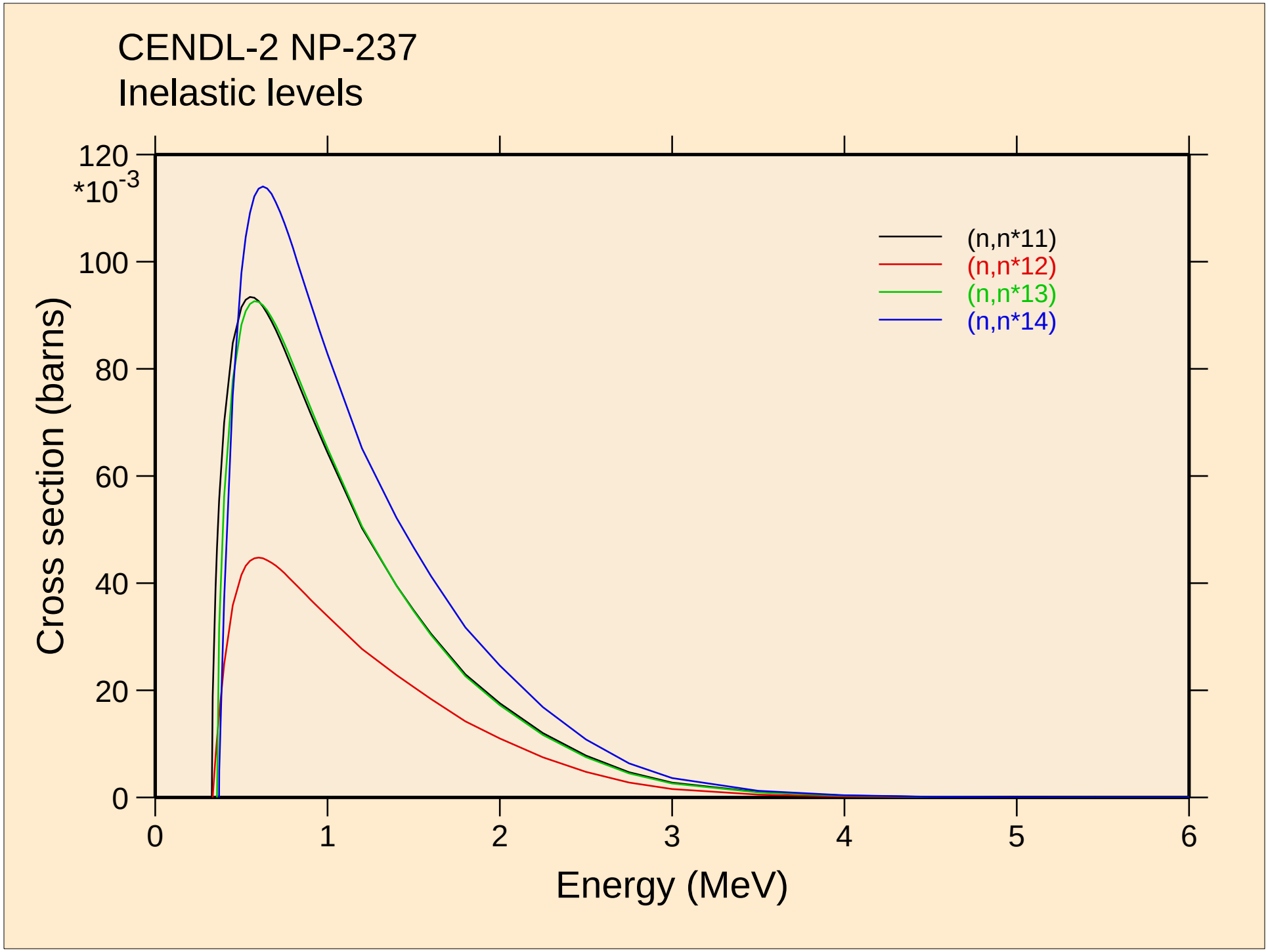

CENDL-2 NP-237
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
10
20
30
40
50
60
70
0
5
10
15
20

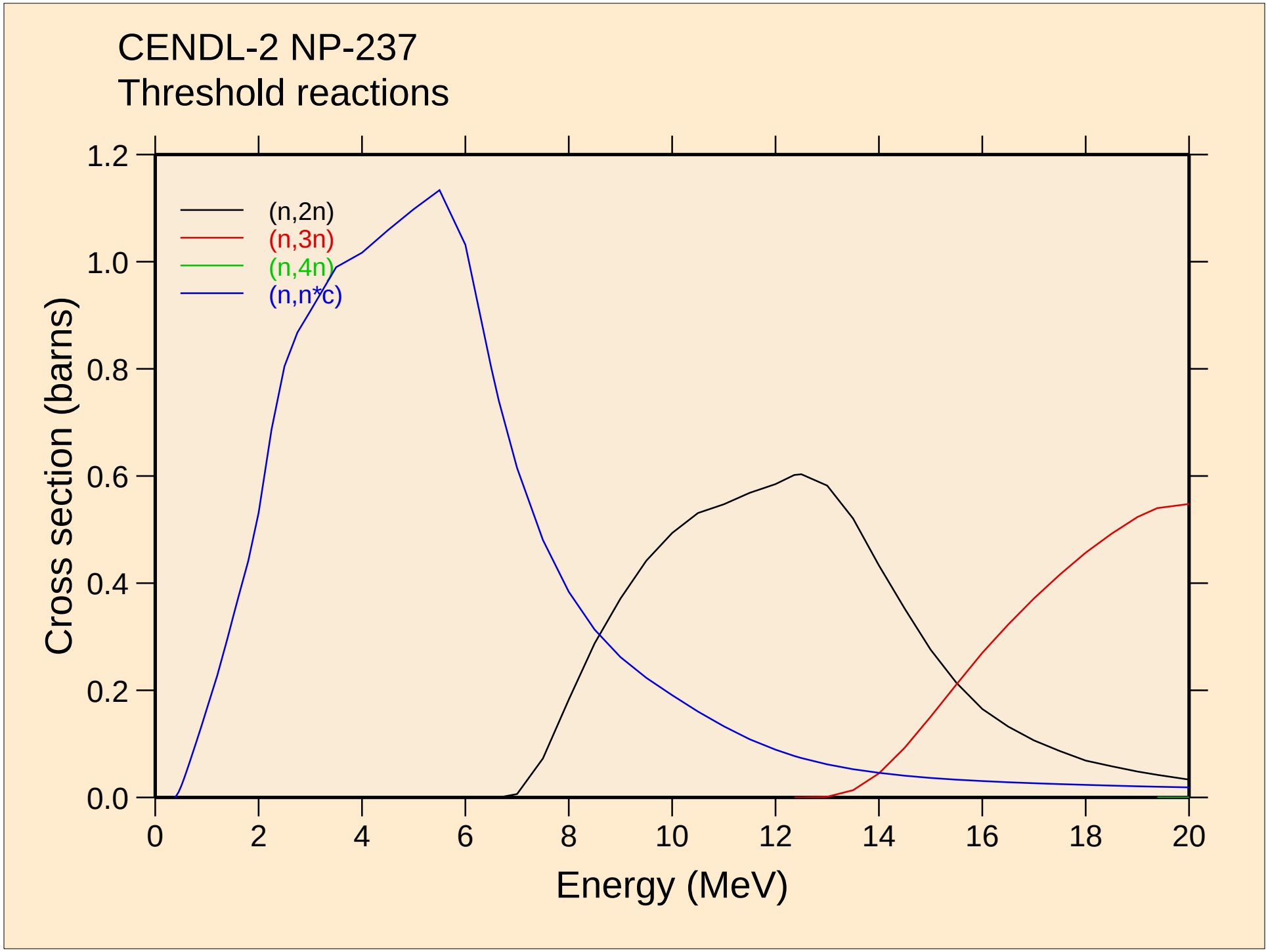

CENDL-2 NP-237
Damage
damage
Damage (MeV-barns)
*10^-3
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

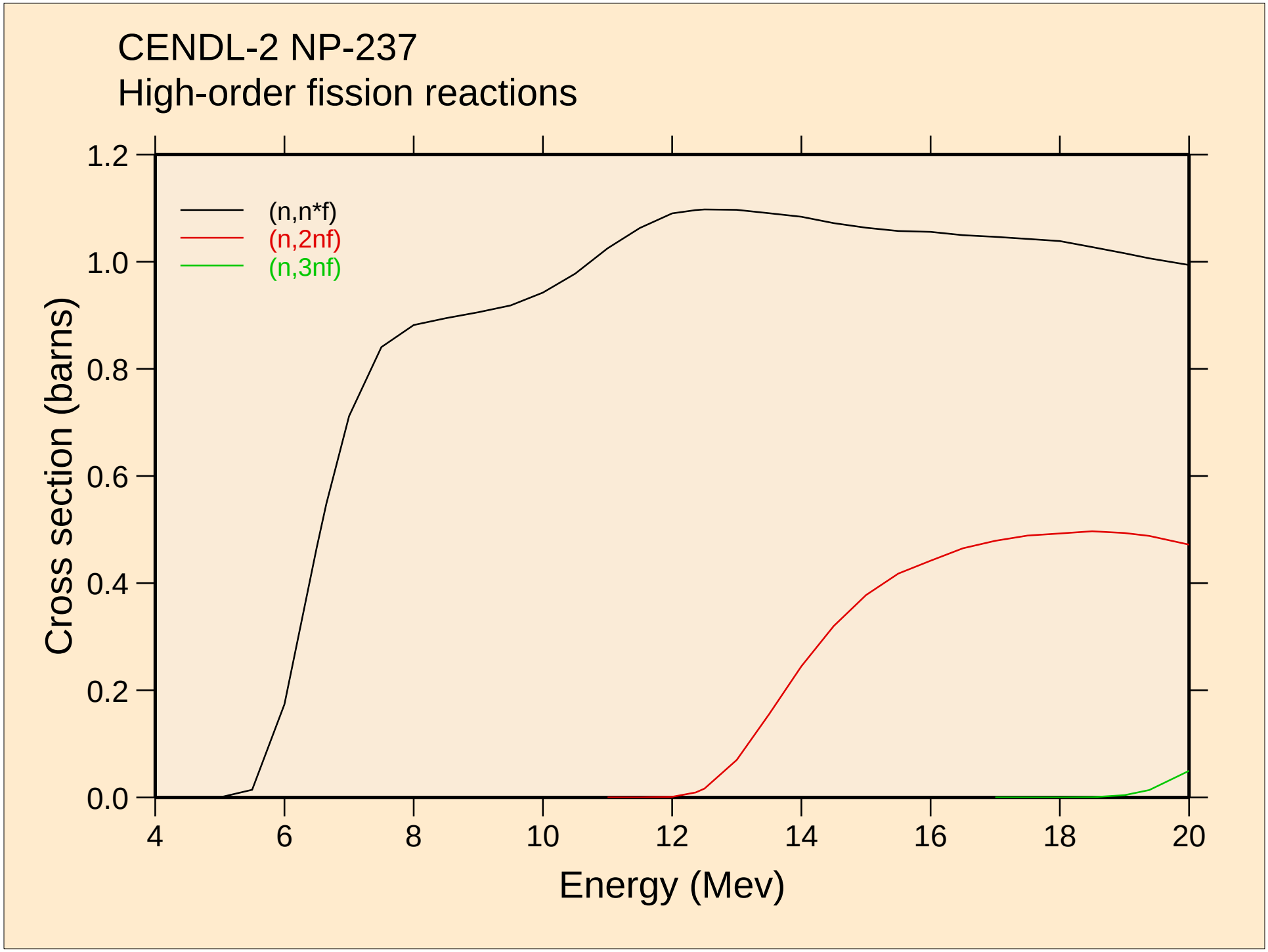

CENDL-2 NP-237
Non-threshold reactions
(n,f)
(n,gma)
Cross section (barns)
10-1
10-3
10-5
10-7
10-9
10-11
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

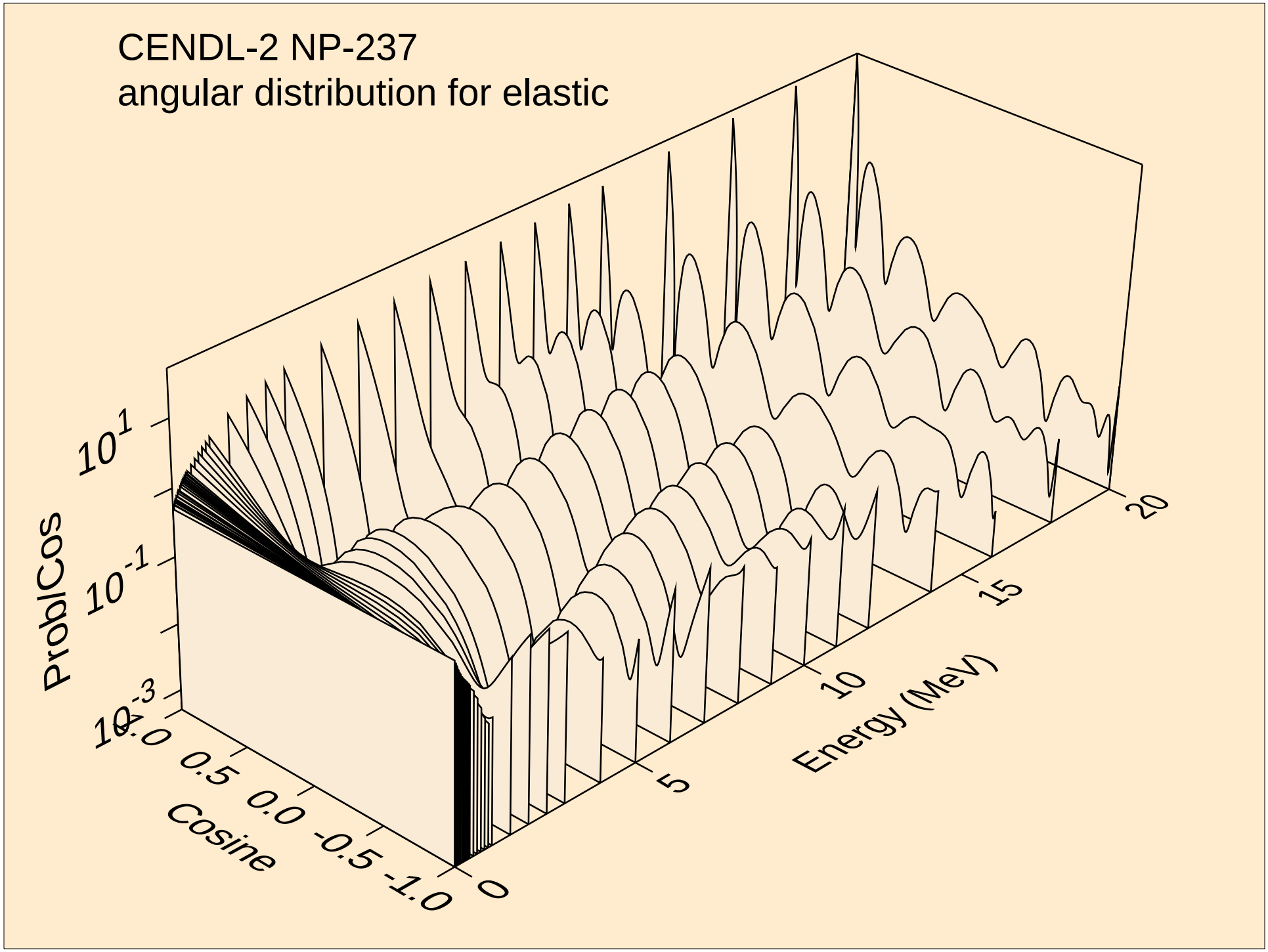

CENDL-2 NP-237
Inelastic levels
500
*10-3
400
300
200
100
0
Cross section (barns)
0
5
10
15
20
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

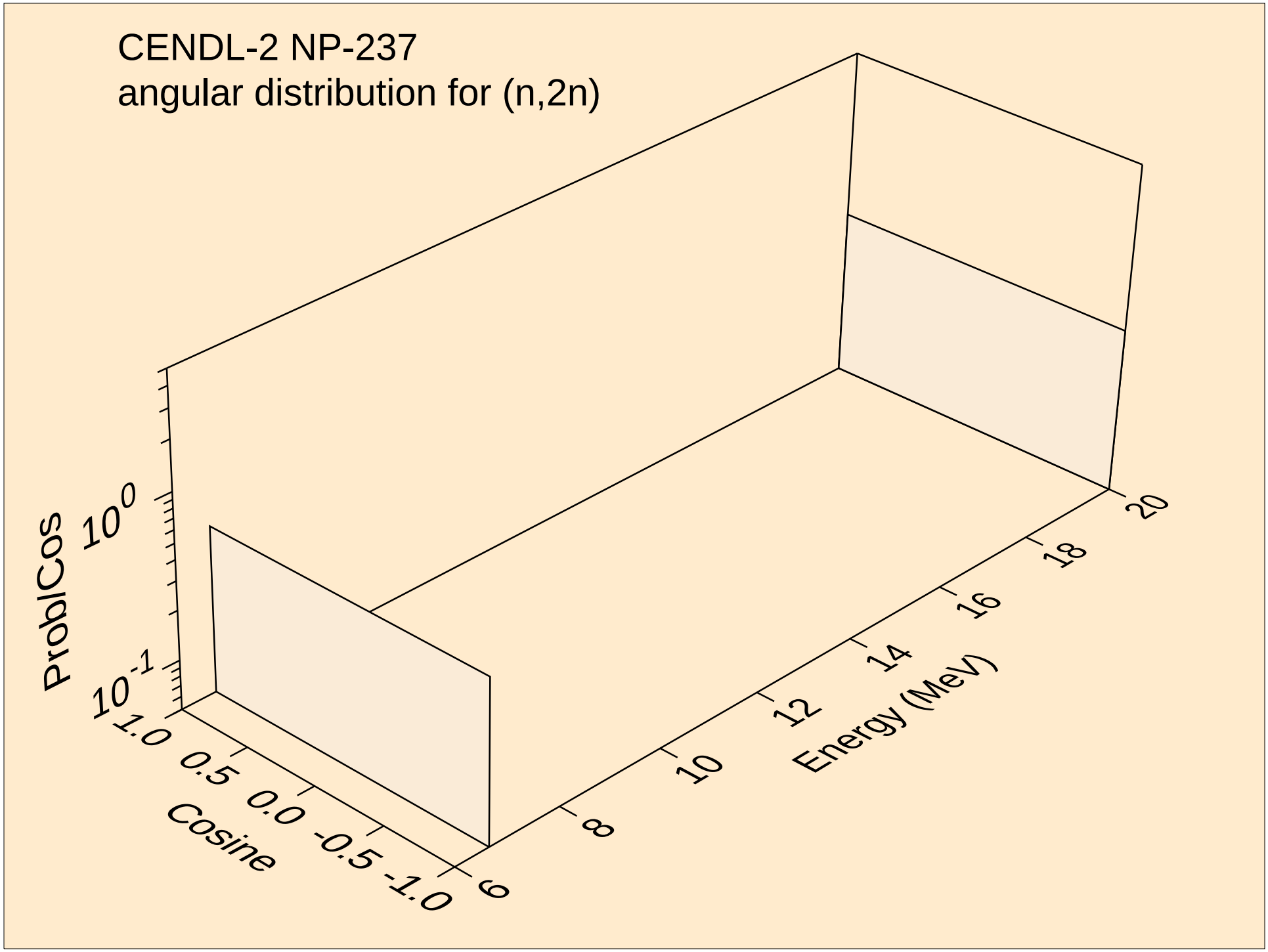

CENDL-2 NP-237
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
0
1
2
3
4
5
6
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

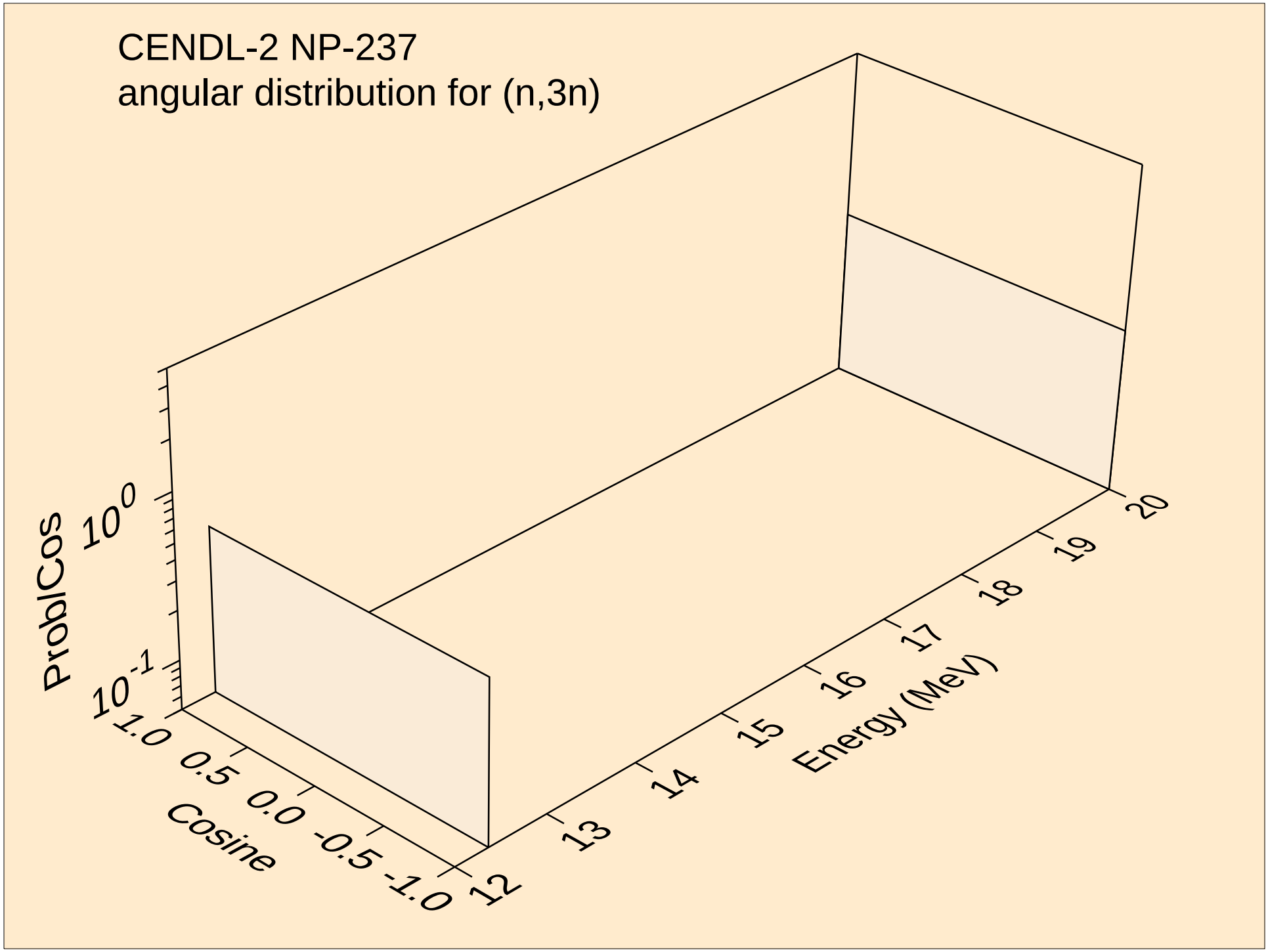

CENDL-2 NP-237
Inelastic levels
120
*10-3
100
80
60
40
20
0
Cross section (barns)
0
1
2
3
4
5
6
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)

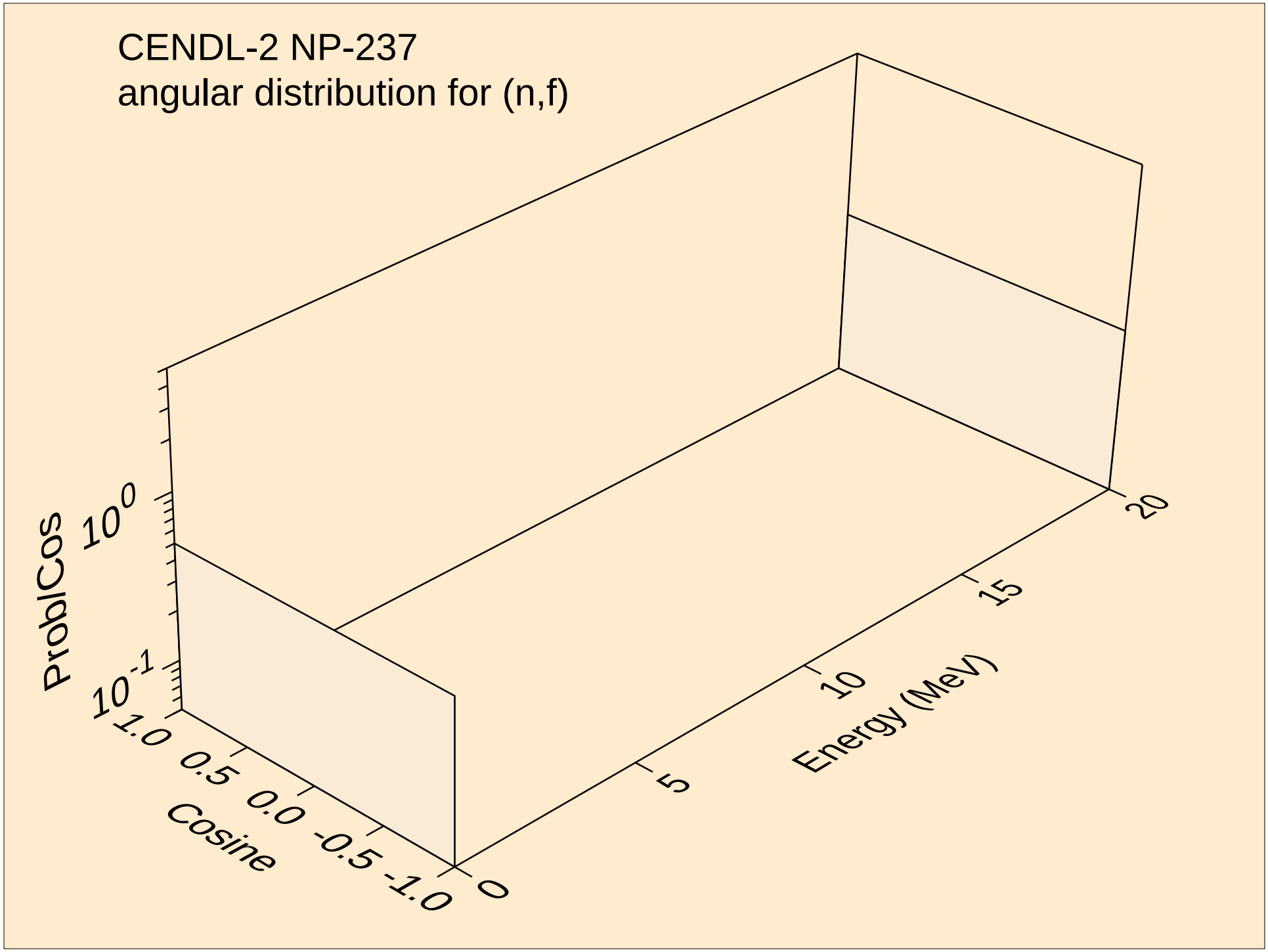

CENDL-2 NP-237
Threshold reactions
(n,2n)
(n,3n)
(n,4n)
(n,n*c)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
2
4
6
8
10
12
14
16
18
20

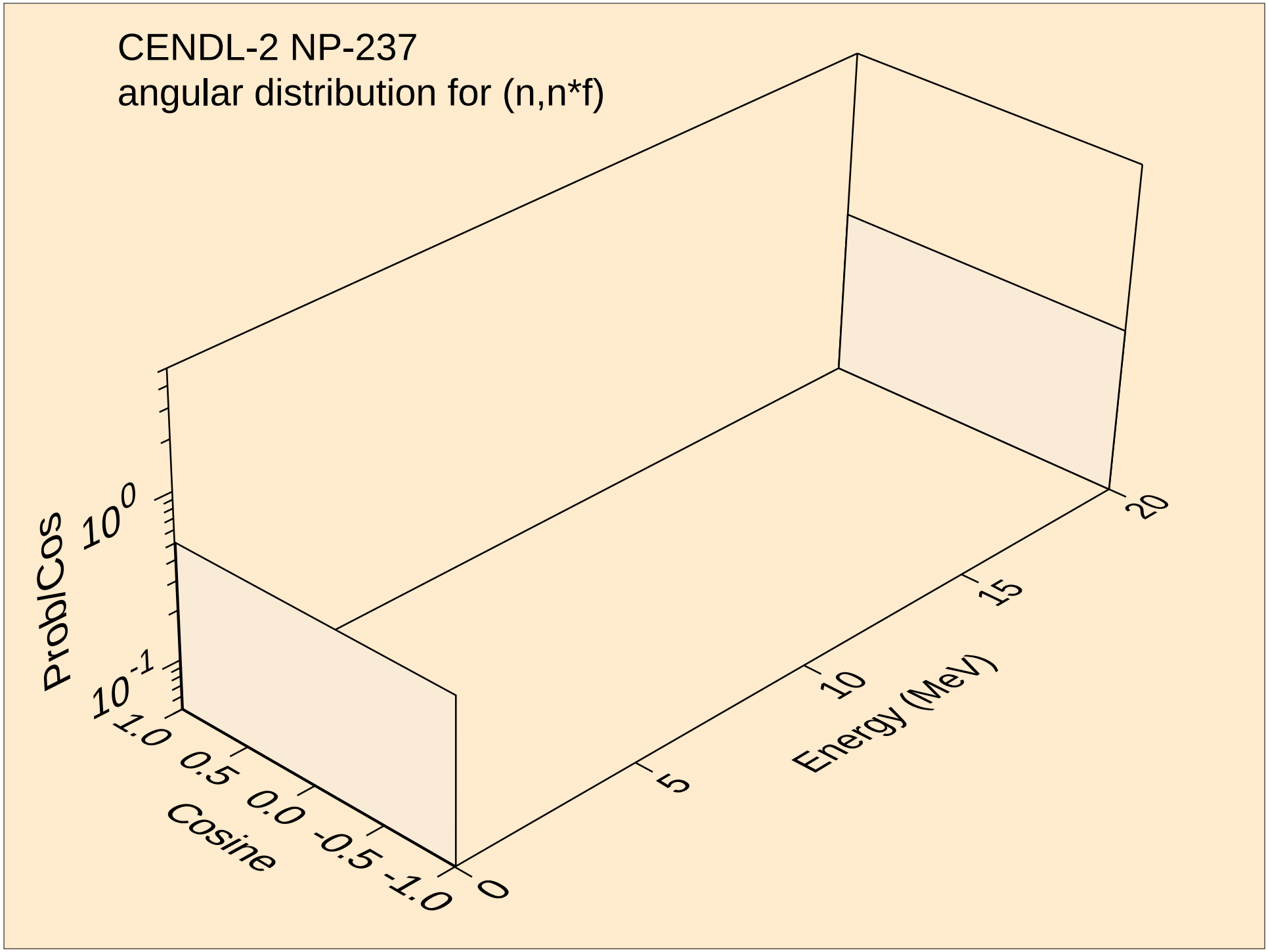

CENDL-2 NP-237
High-order fission reactions
(n,n*f)
(n,2nf)
(n,3nf)
Cross section (barns)
Energy (Mev)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
4
6
8
10
12
14
16
18
20

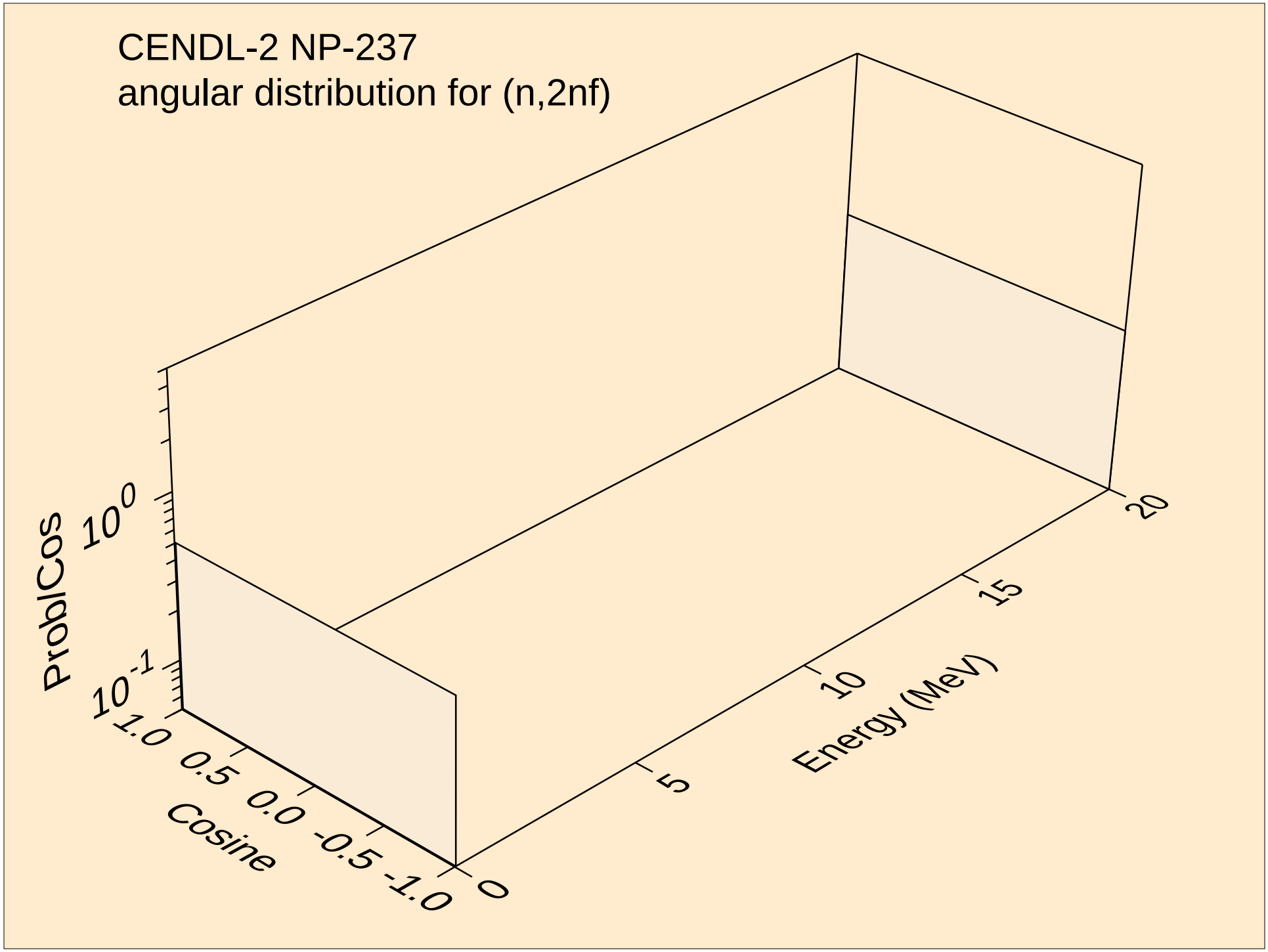

CENDL-2 NP-237
angular distribution for elastic
ProblCos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

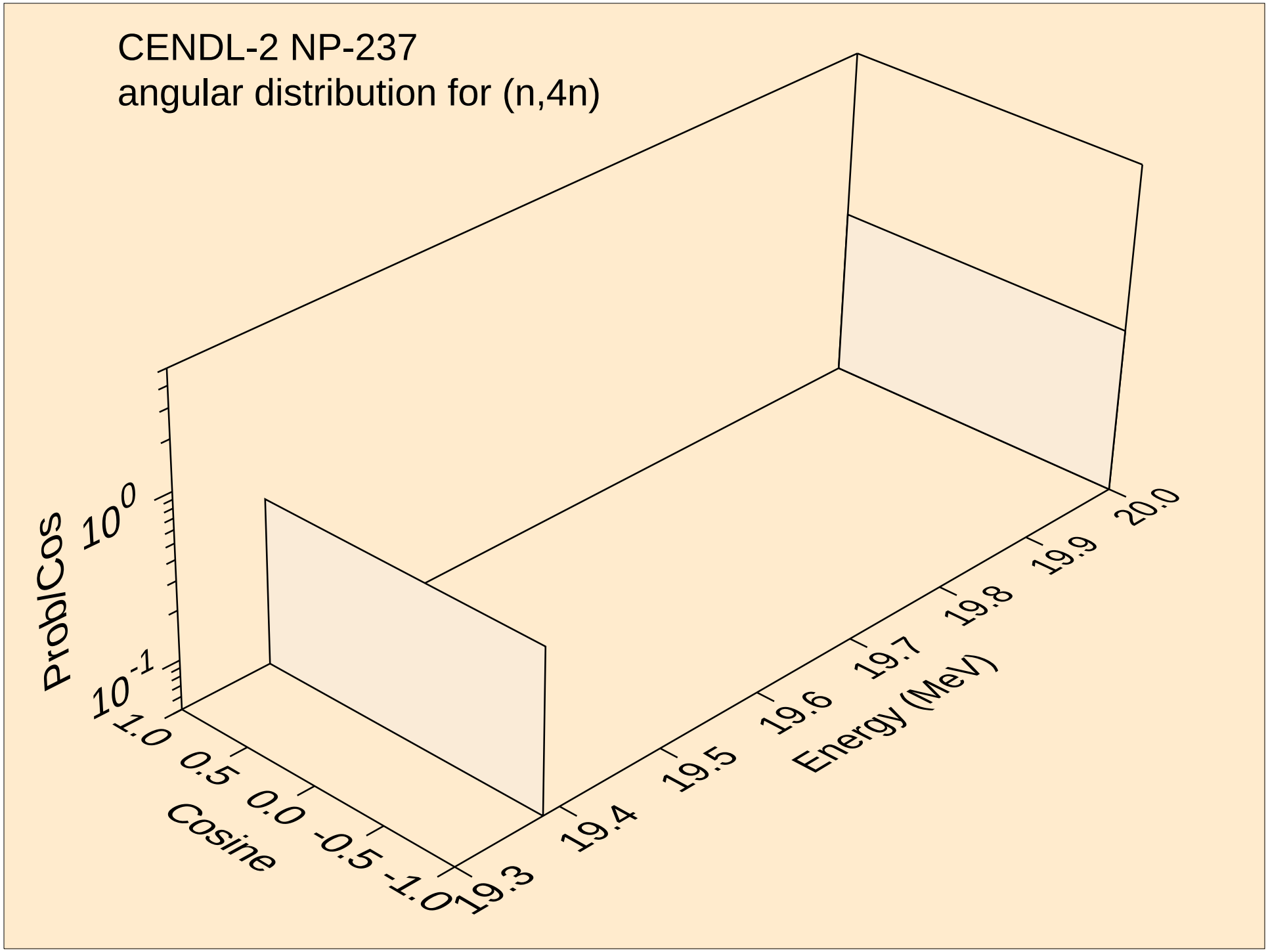

CENDL-2 NP-237
angular distribution for (n,2n)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

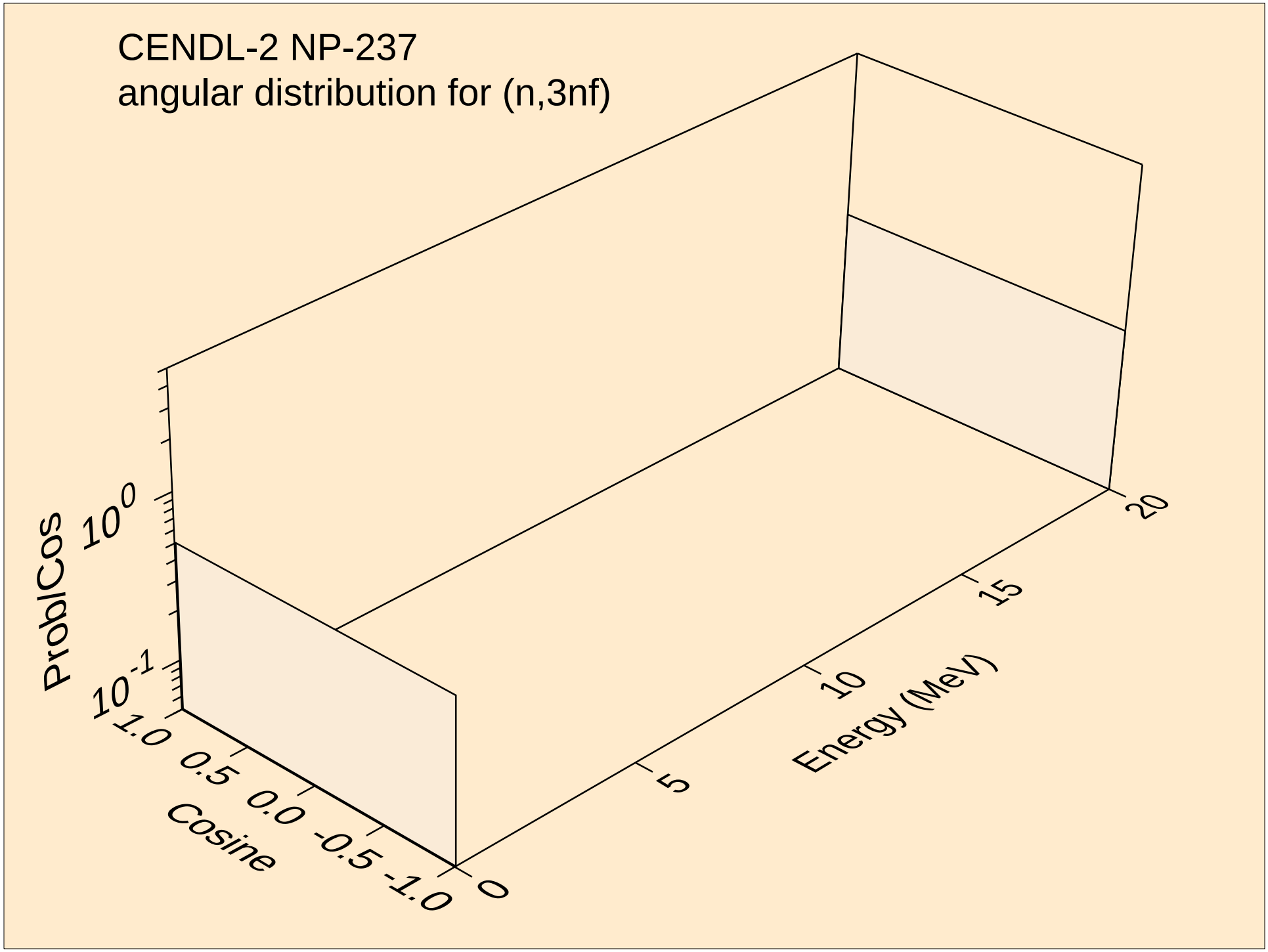

CENDL-2 NP-237
angular distribution for (n,3n)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
12
13
14
15
16
17
18
19
20
Energy (MeV)

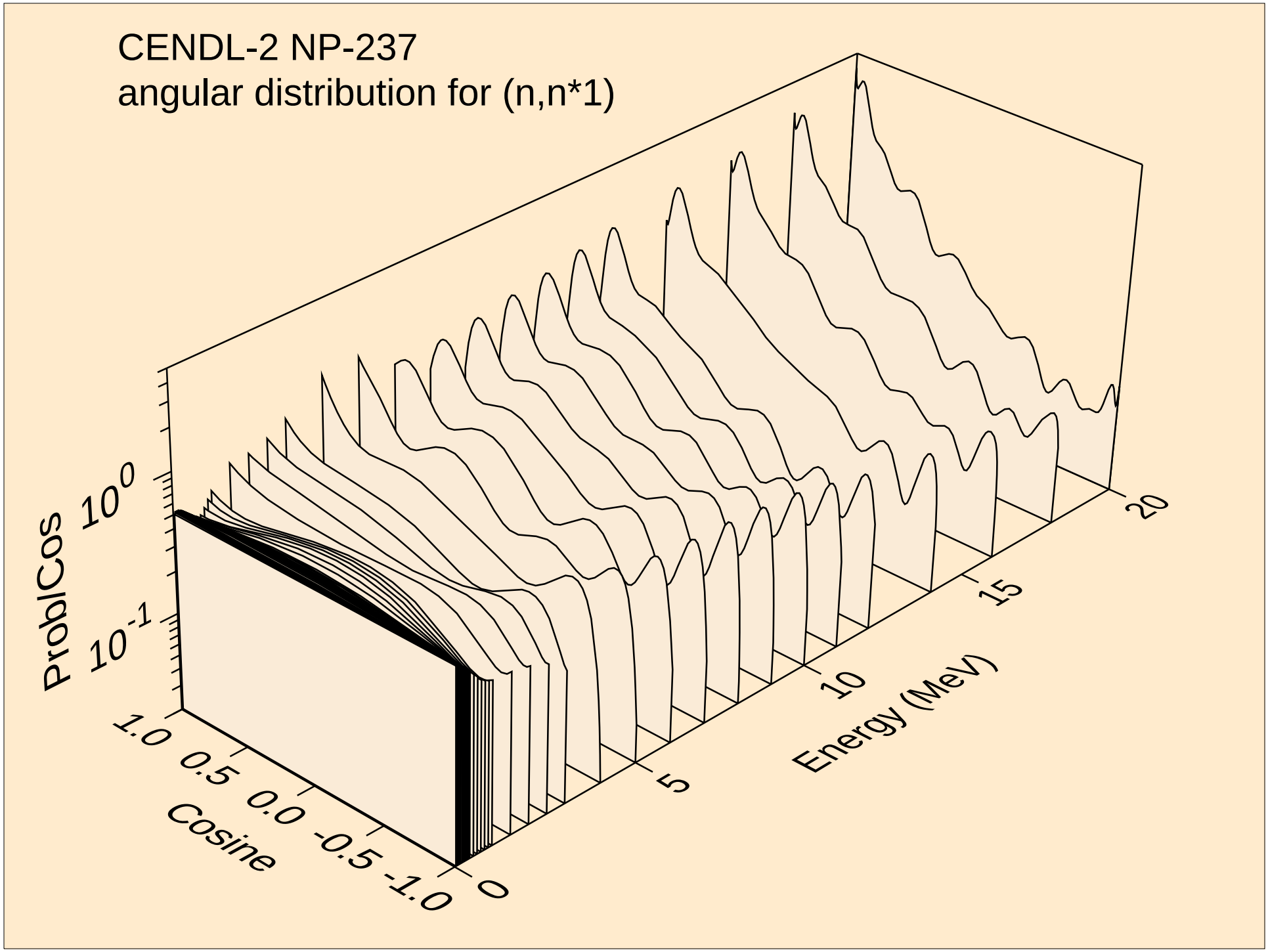

CENDL-2 NP-237
angular distribution for (n,f)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

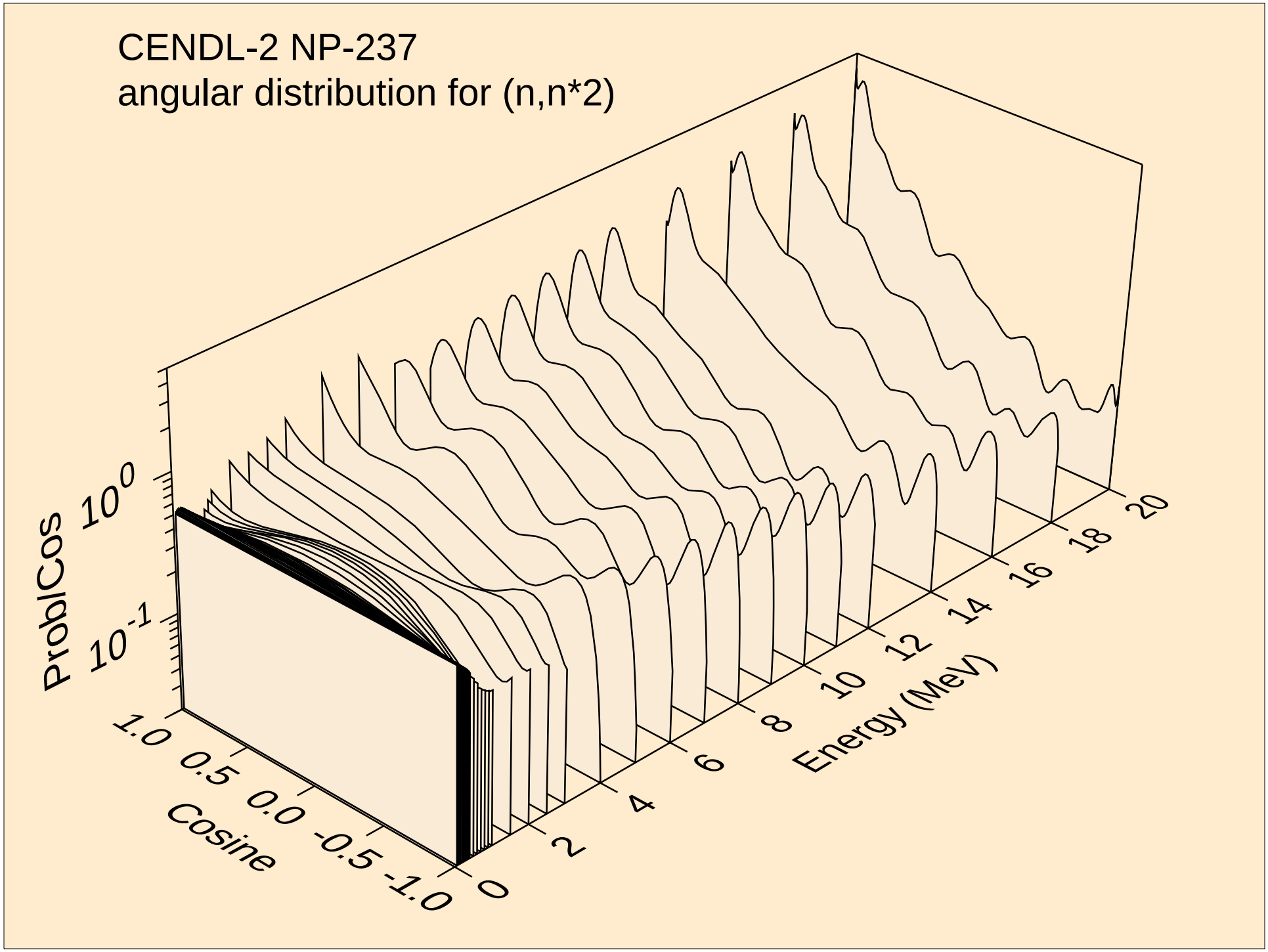

CENDL-2 NP-237
angular distribution for (n,n*f)
Prob/Cos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

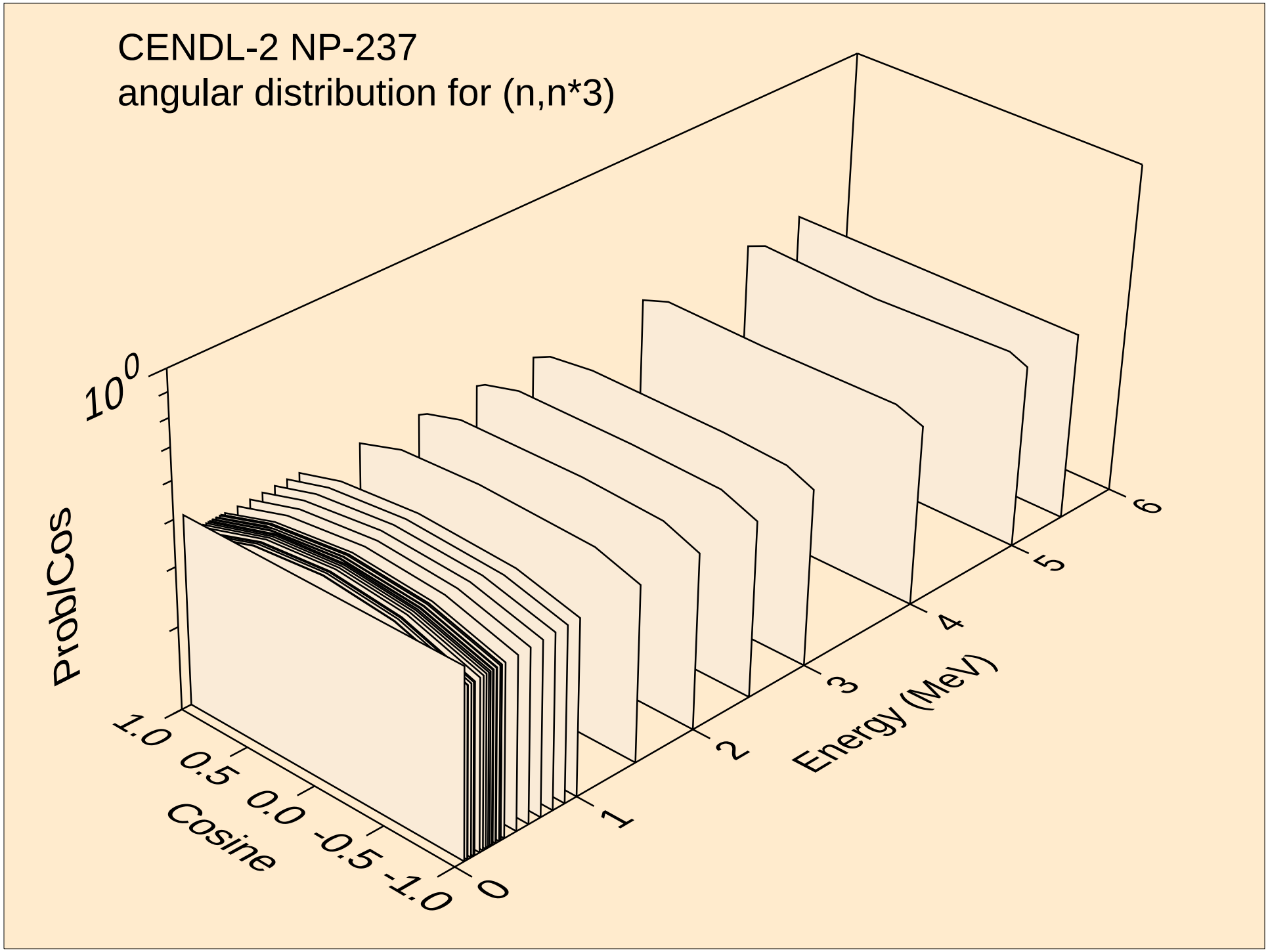

CENDL-2 NP-237
angular distribution for (n,2nf)
Prob/Cos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

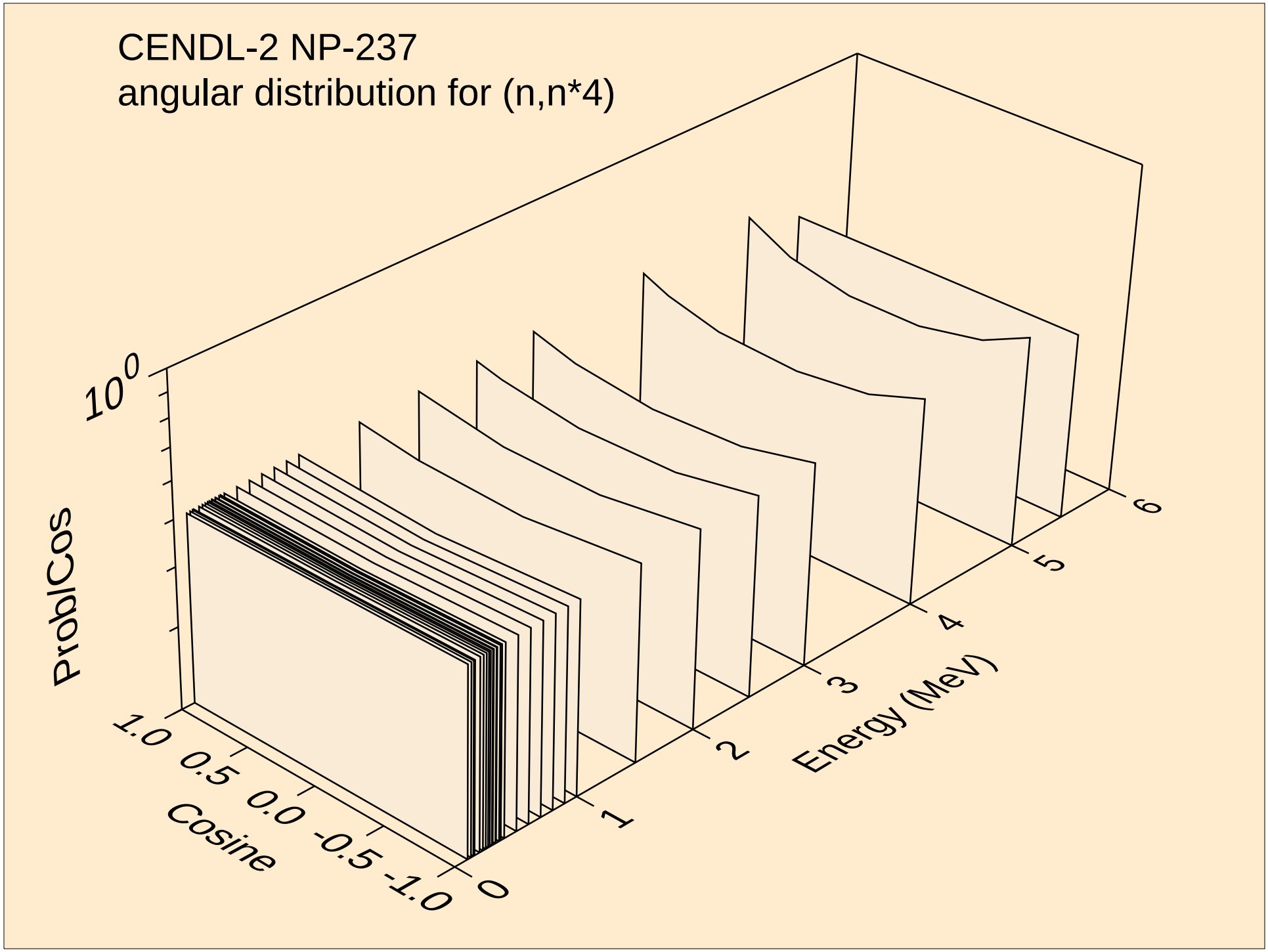

CENDL-2 NP-237
angular distribution for (n,4n)
Prob/Cos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
19.3
19.4
19.5
19.6
19.7
19.8
19.9
20.0
Energy (MeV)

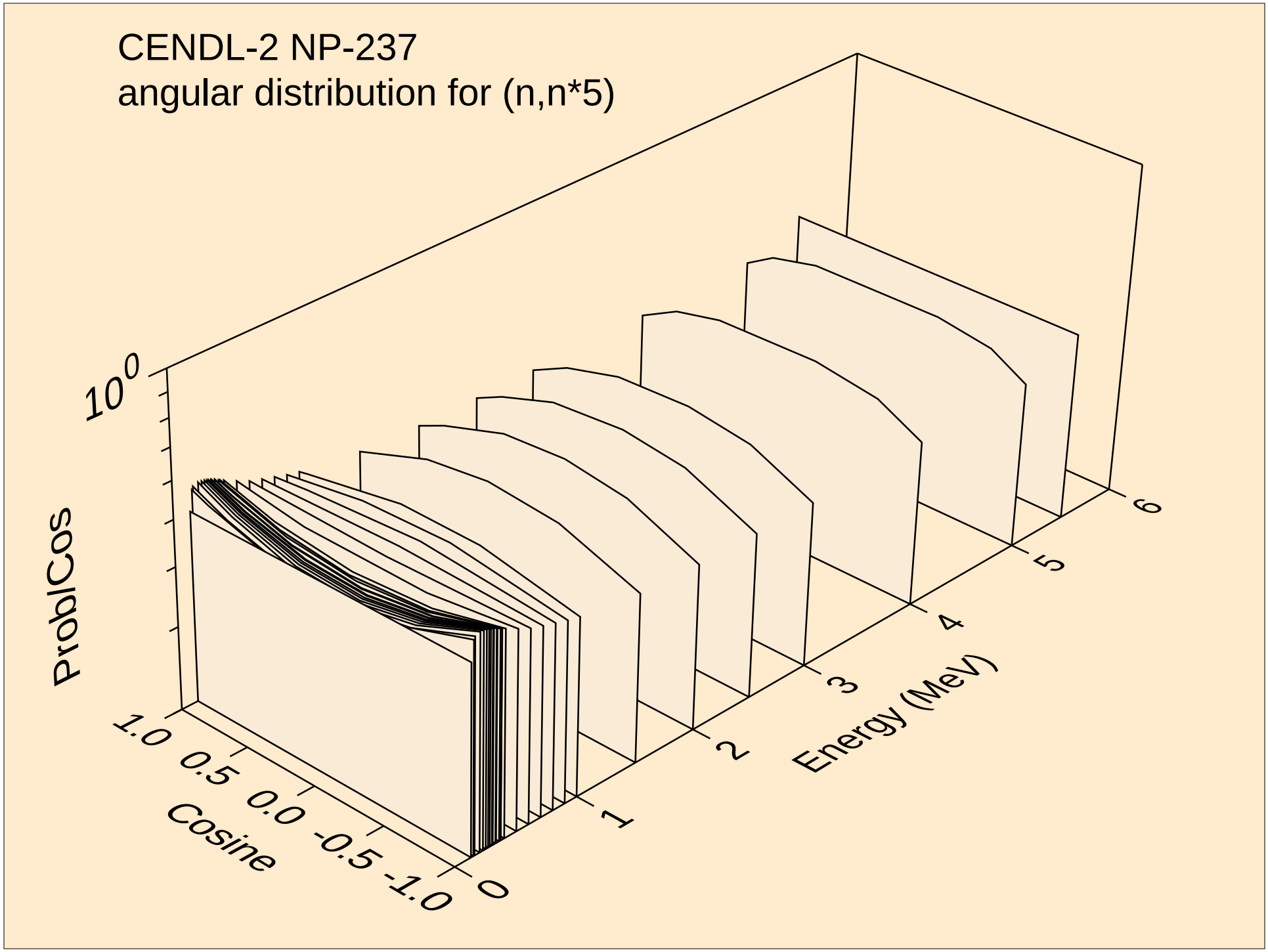

CENDL-2 NP-237
angular distribution for (n,3nf)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

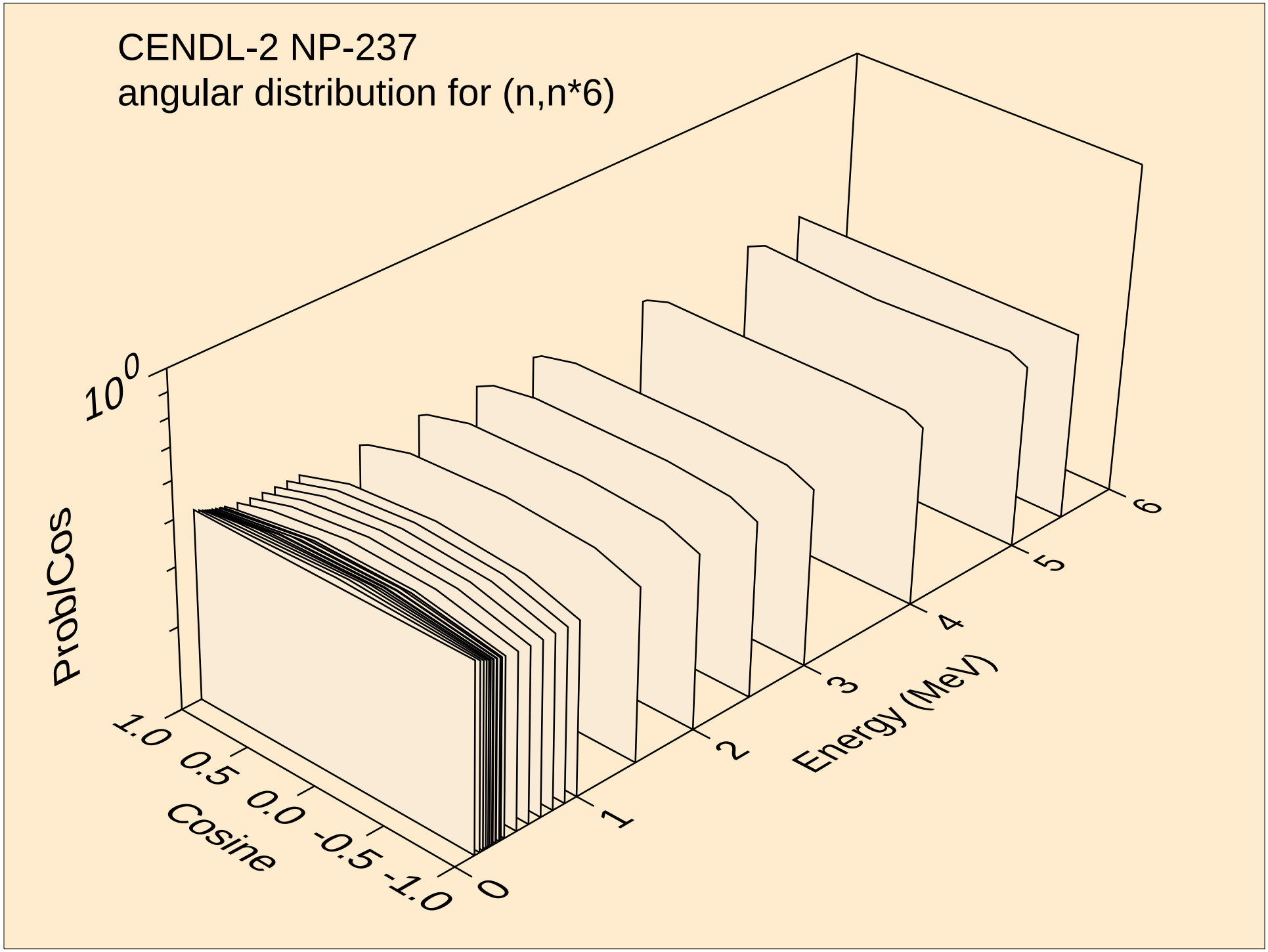

CENDL-2 NP-237
angular distribution for (n,n*1)
Prob/Cos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

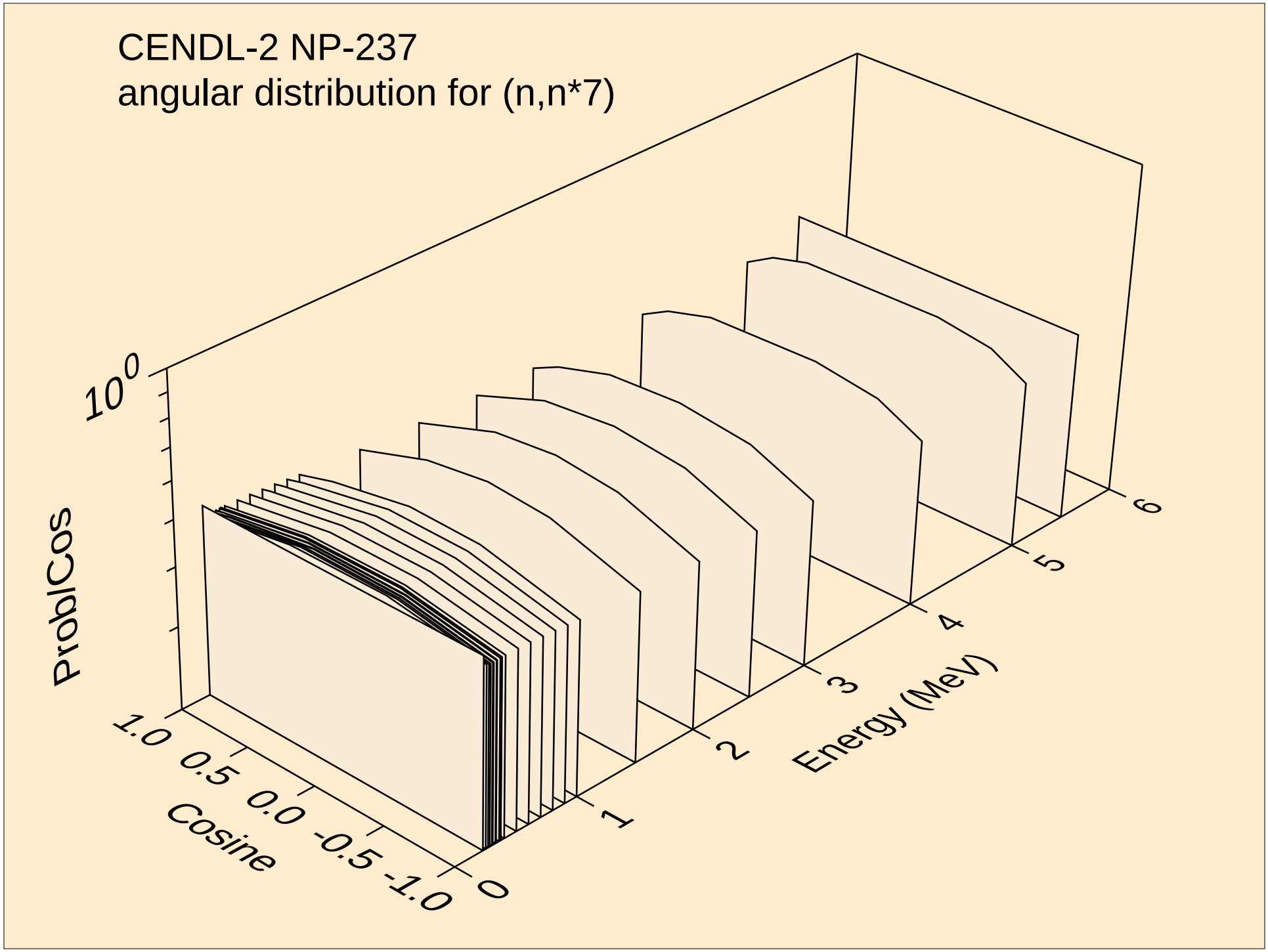

CENDL-2 NP-237
angular distribution for (n,n*2)
ProbCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

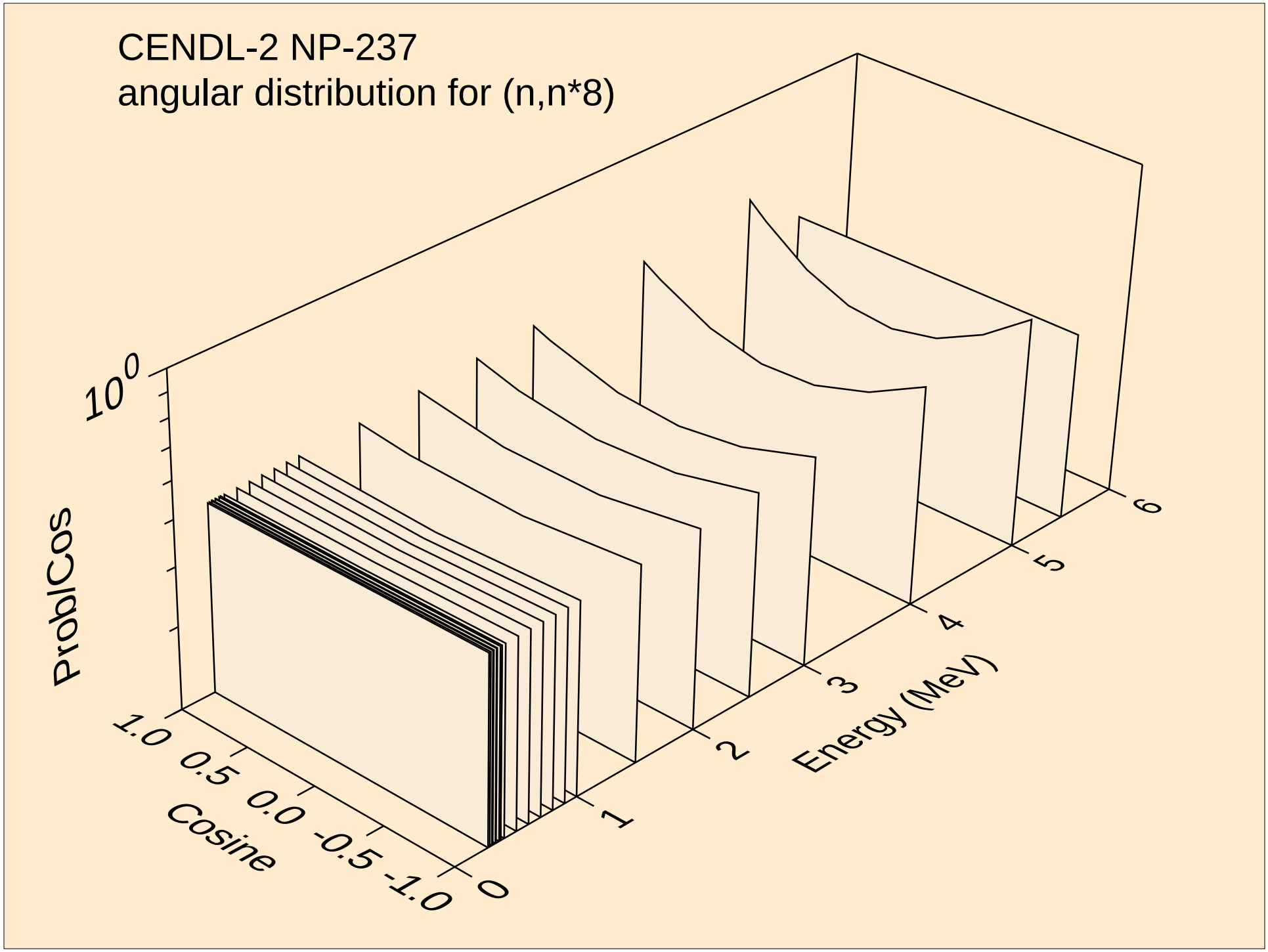

CENDL-2 NP-237
angular distribution for (n,n*3)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

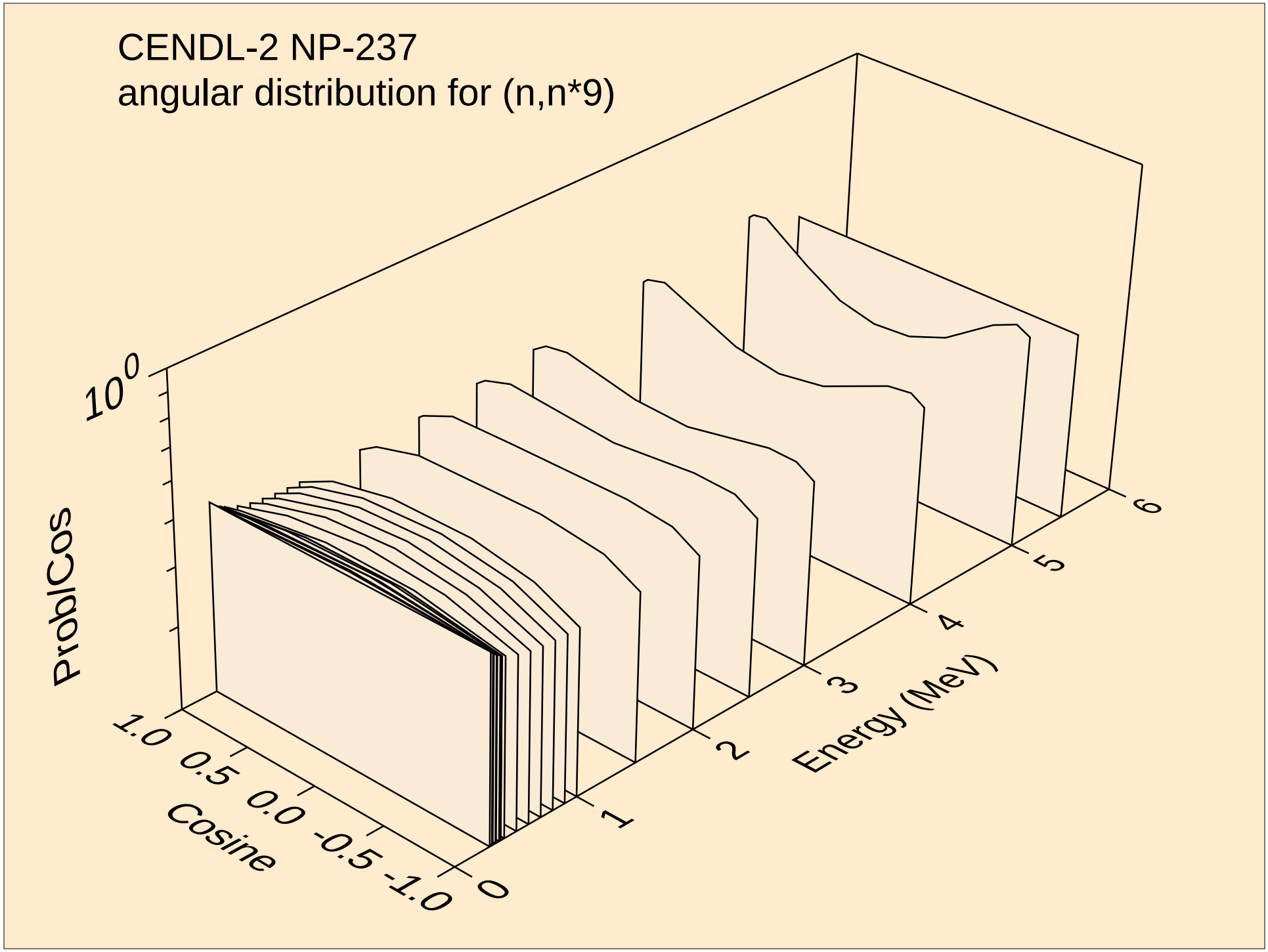

CENDL-2 NP-237
angular distribution for (n,n*4)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

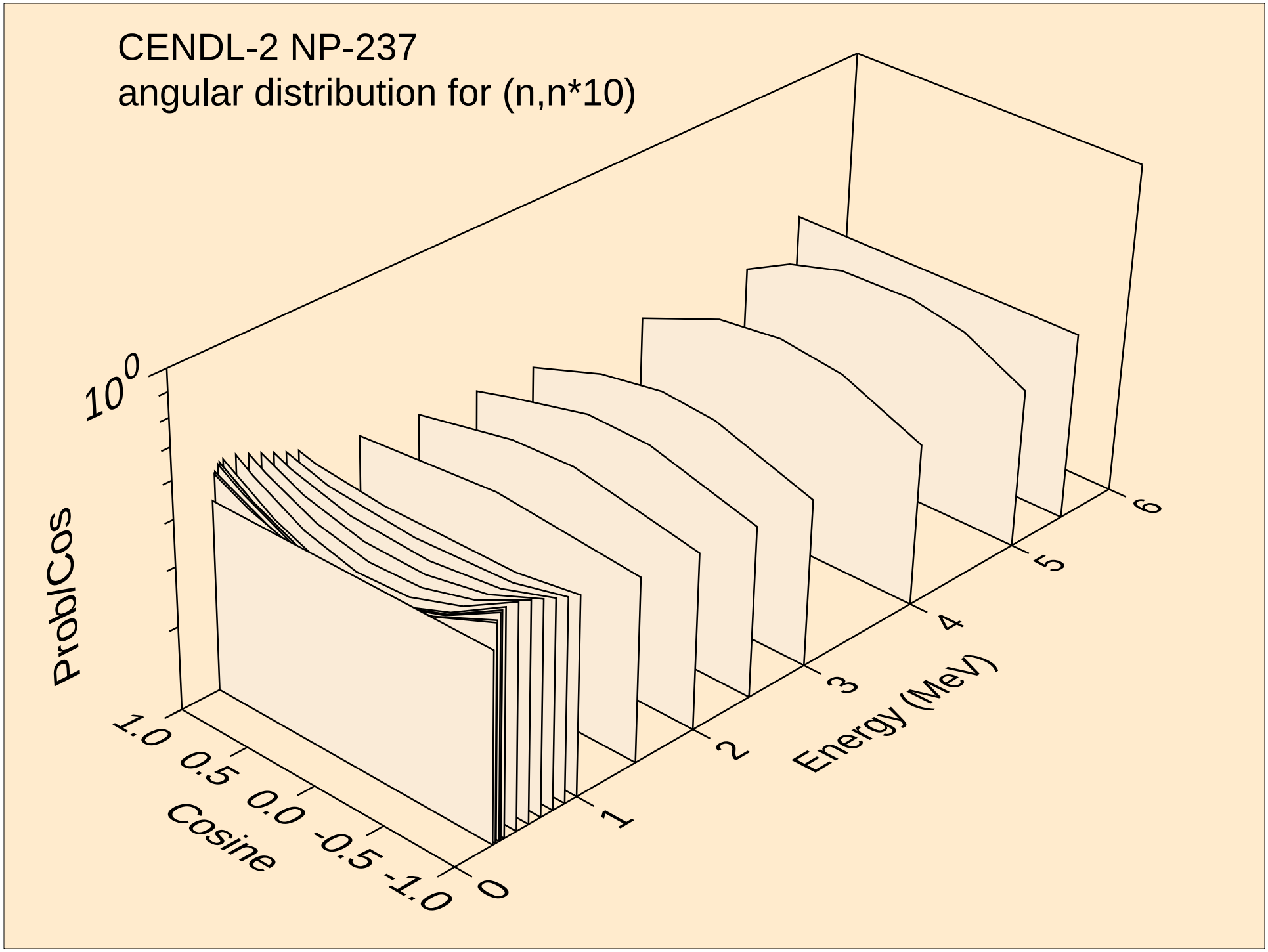

CENDL-2 NP-237
angular distribution for (n,n*5)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

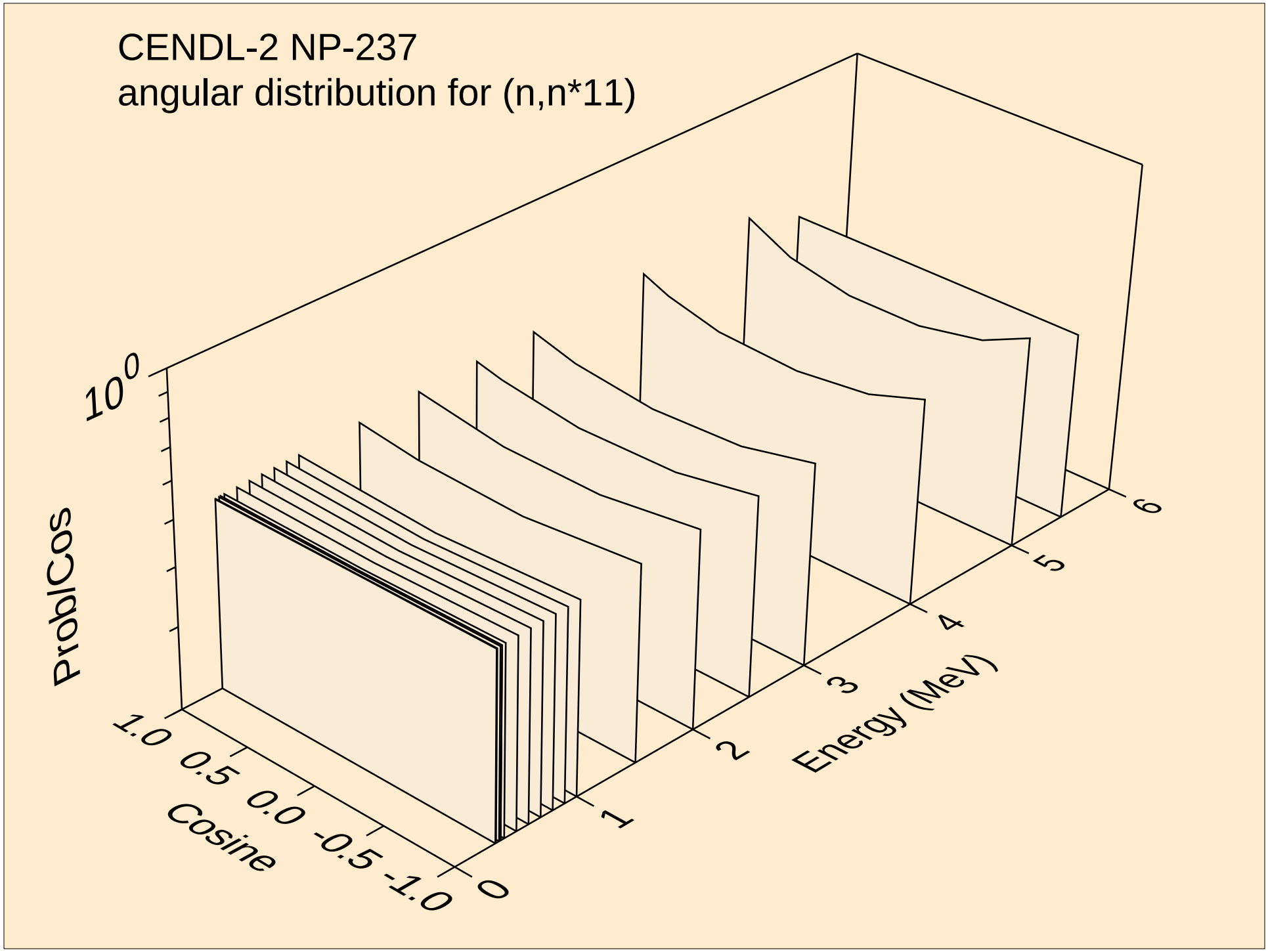

CENDL-2 NP-237
angular distribution for (n,n*6)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

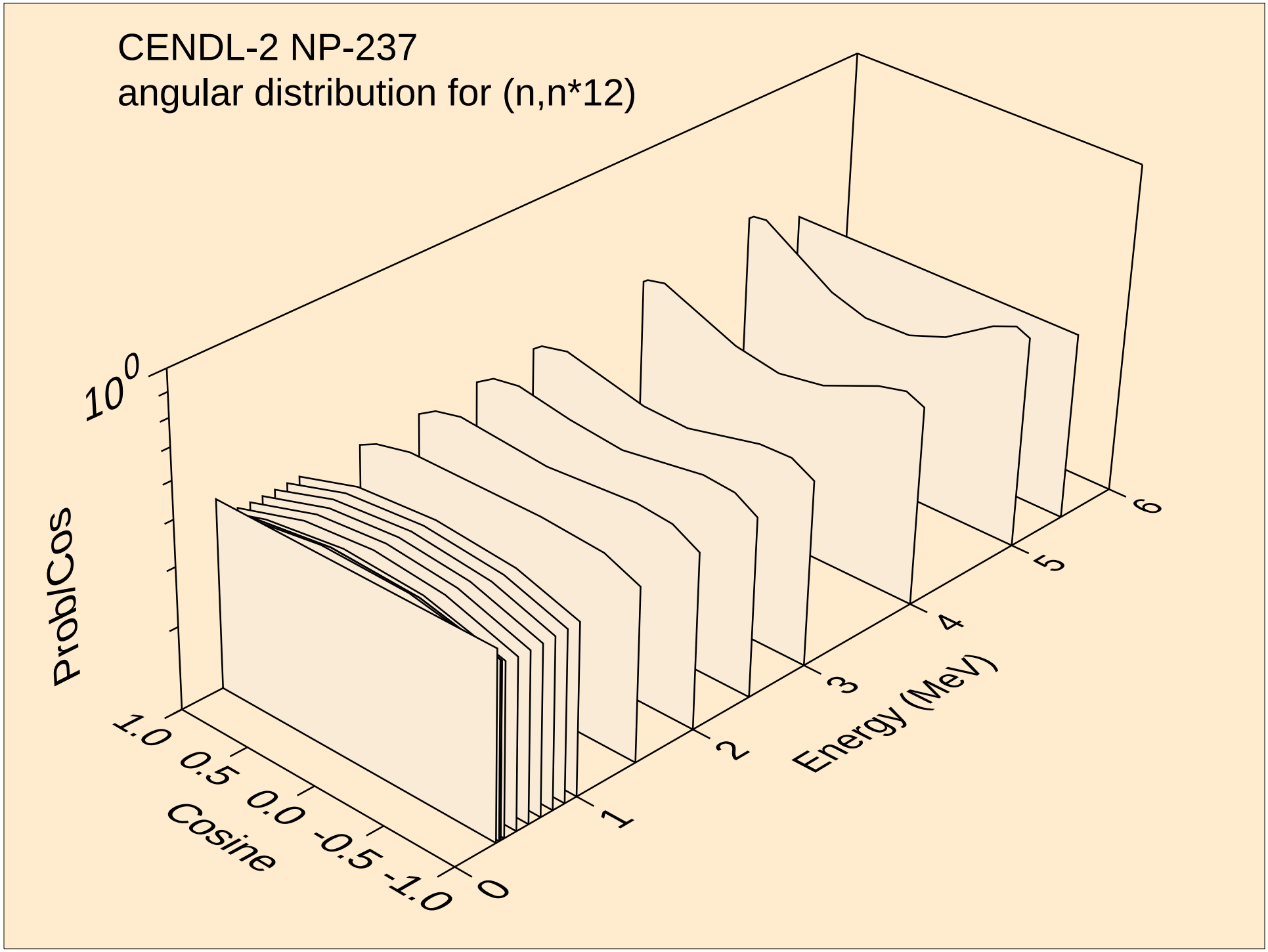

CENDL-2 NP-237
angular distribution for (n,n*7)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

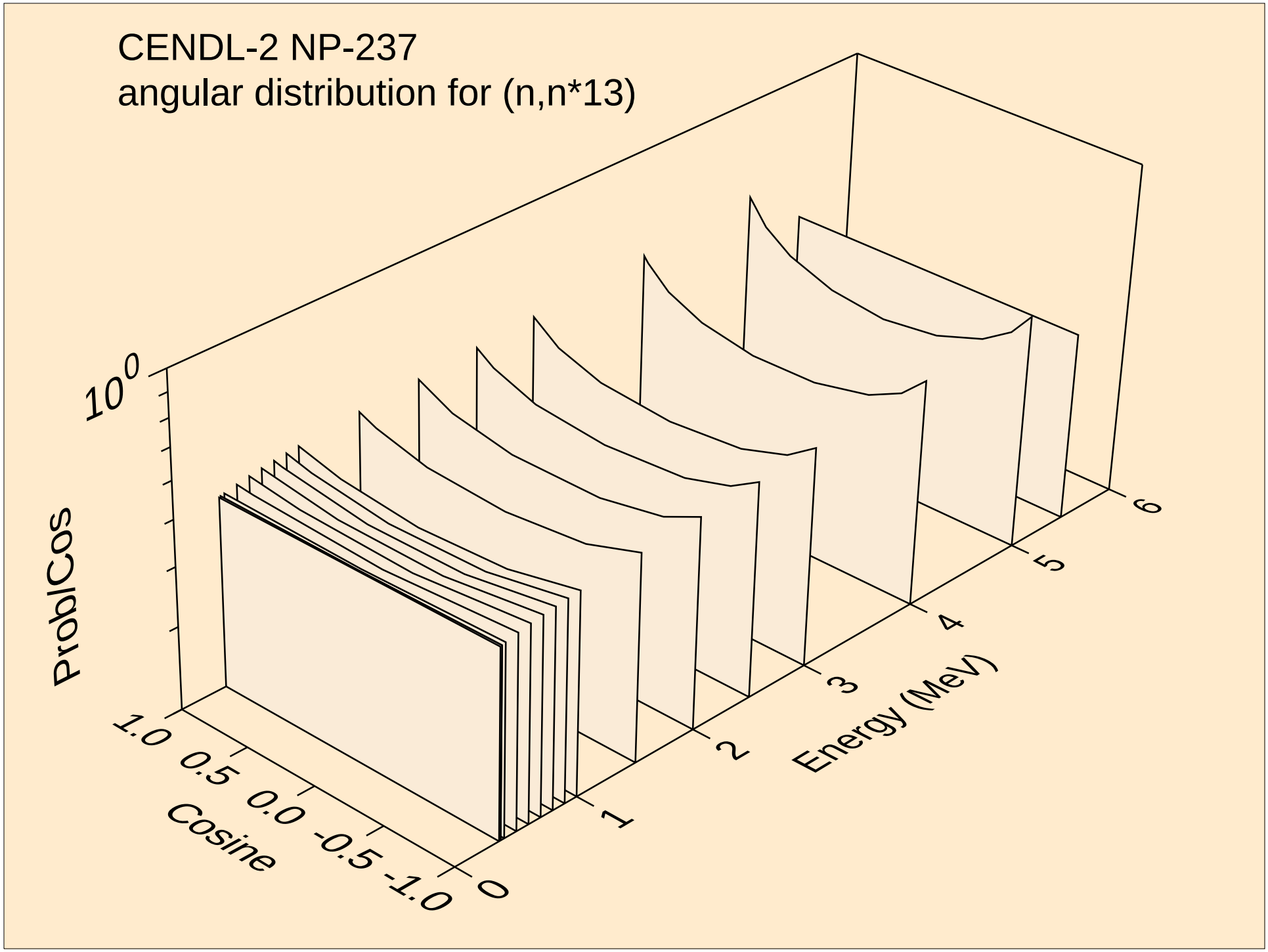

CENDL-2 NP-237
angular distribution for (n,n*8)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

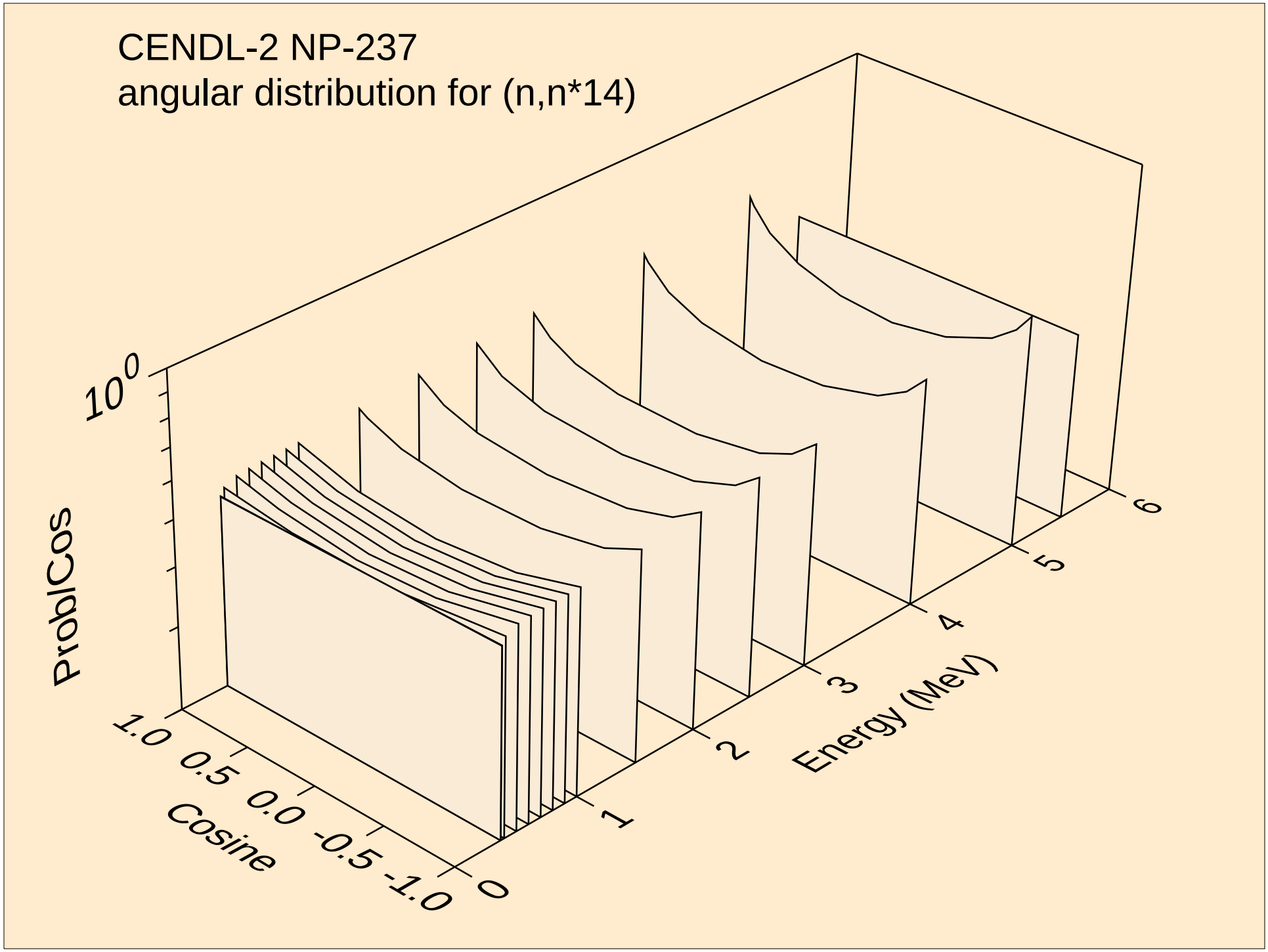

CENDL-2 NP-237
angular distribution for (n,n*9)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

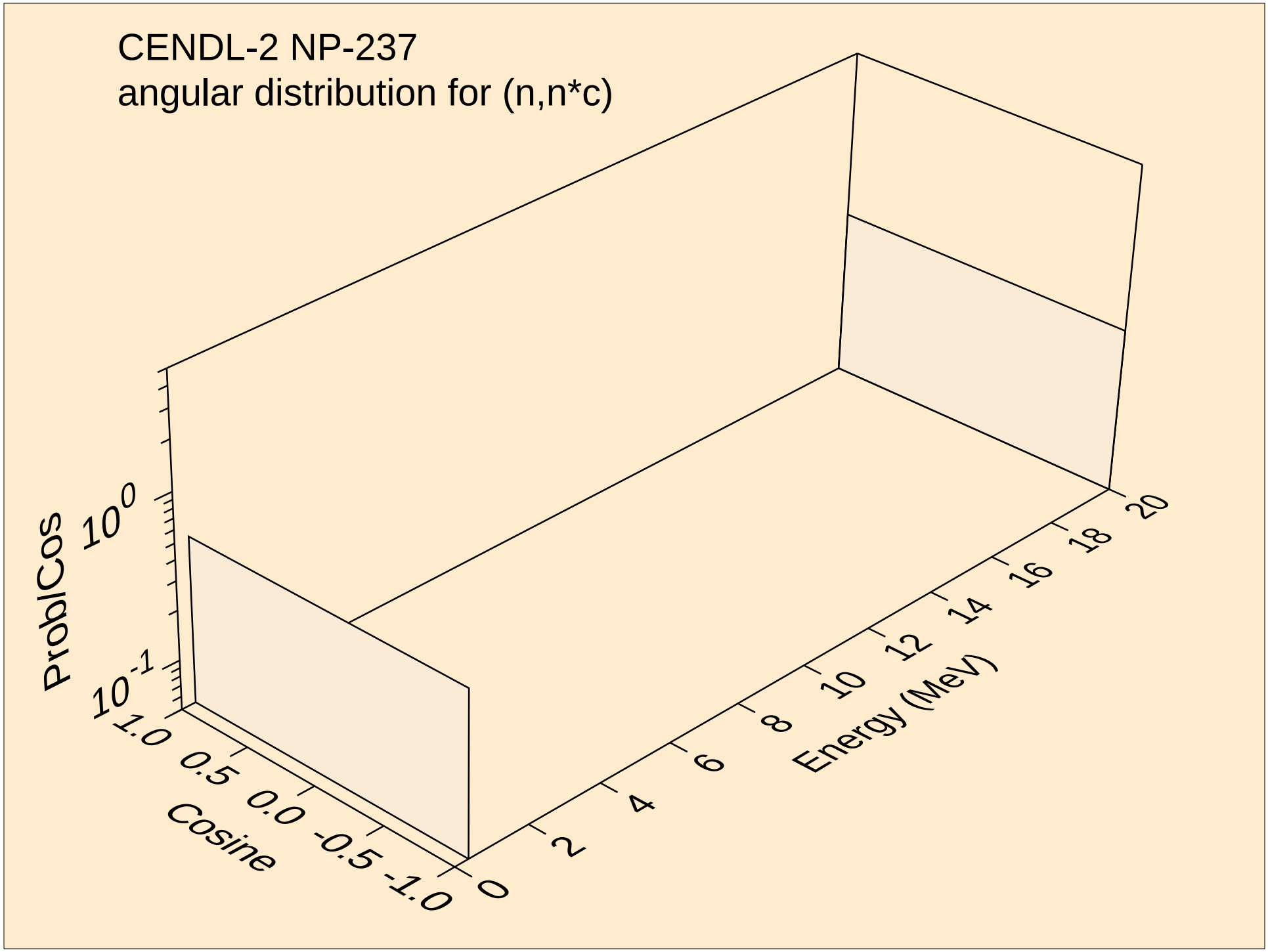

CENDL-2 NP-237
angular distribution for (n,n*10)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

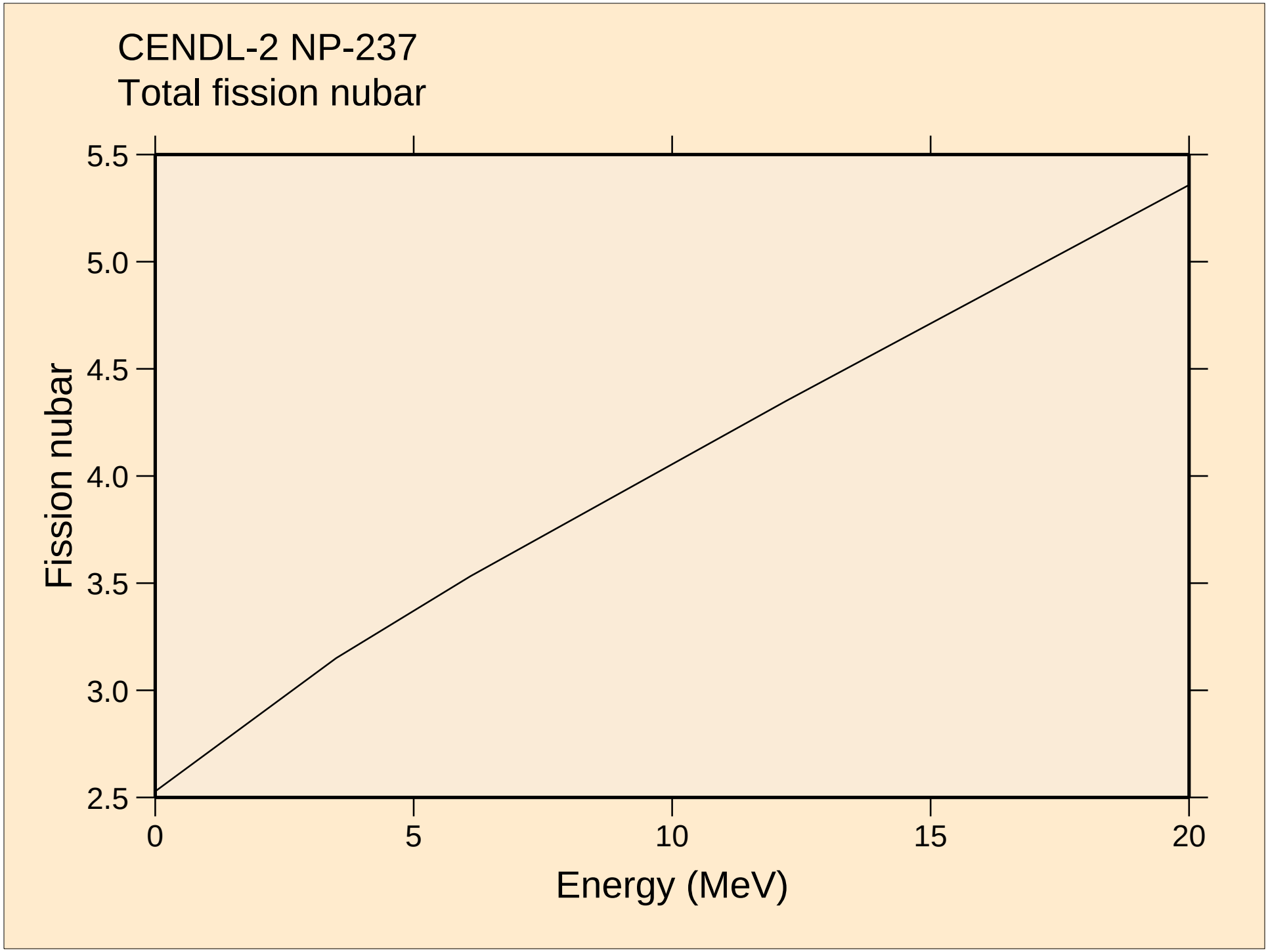

CENDL-2 NP-237
angular distribution for (n,n*11)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

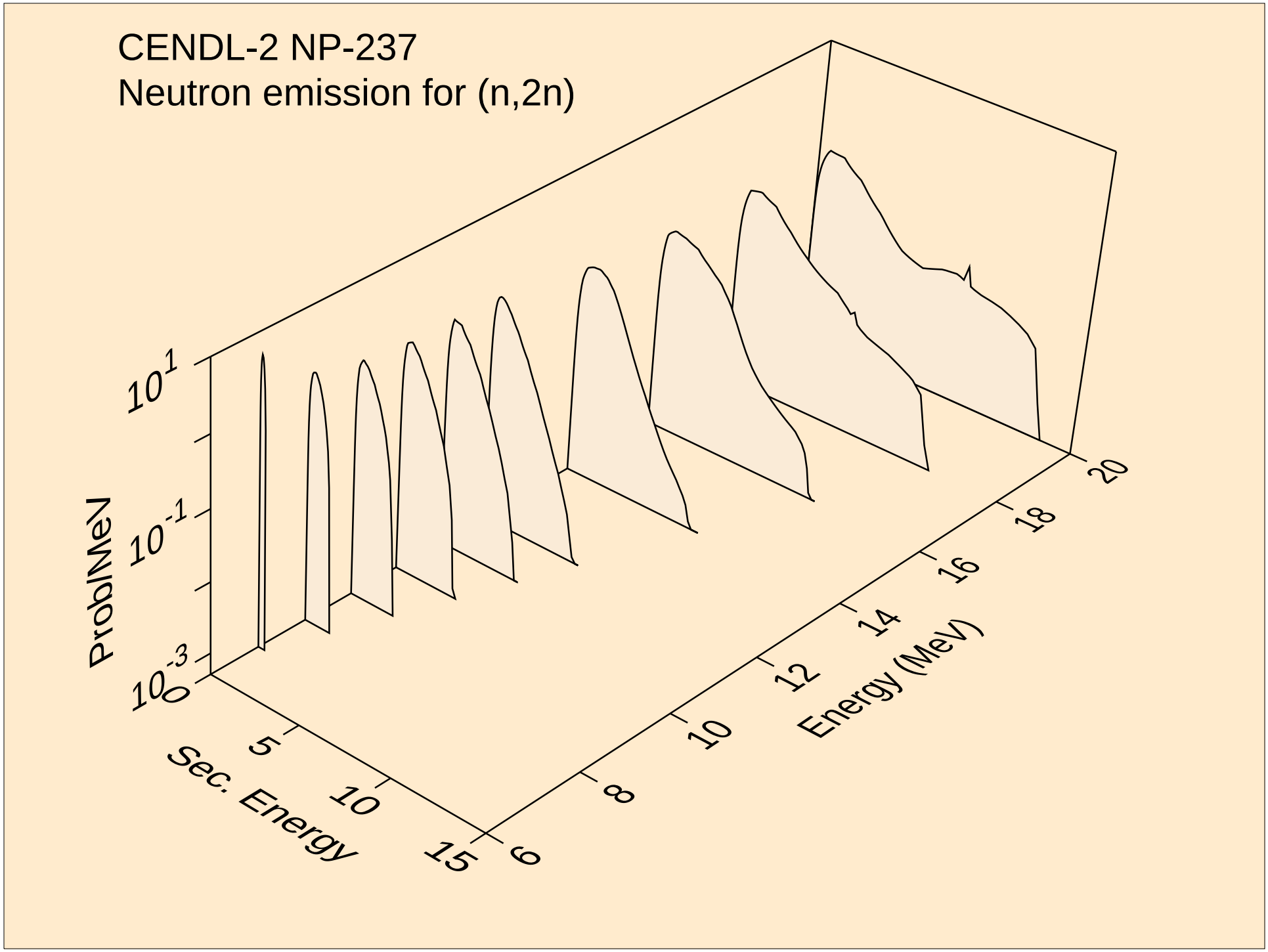

CENDL-2 NP-237
angular distribution for (n,n*12)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

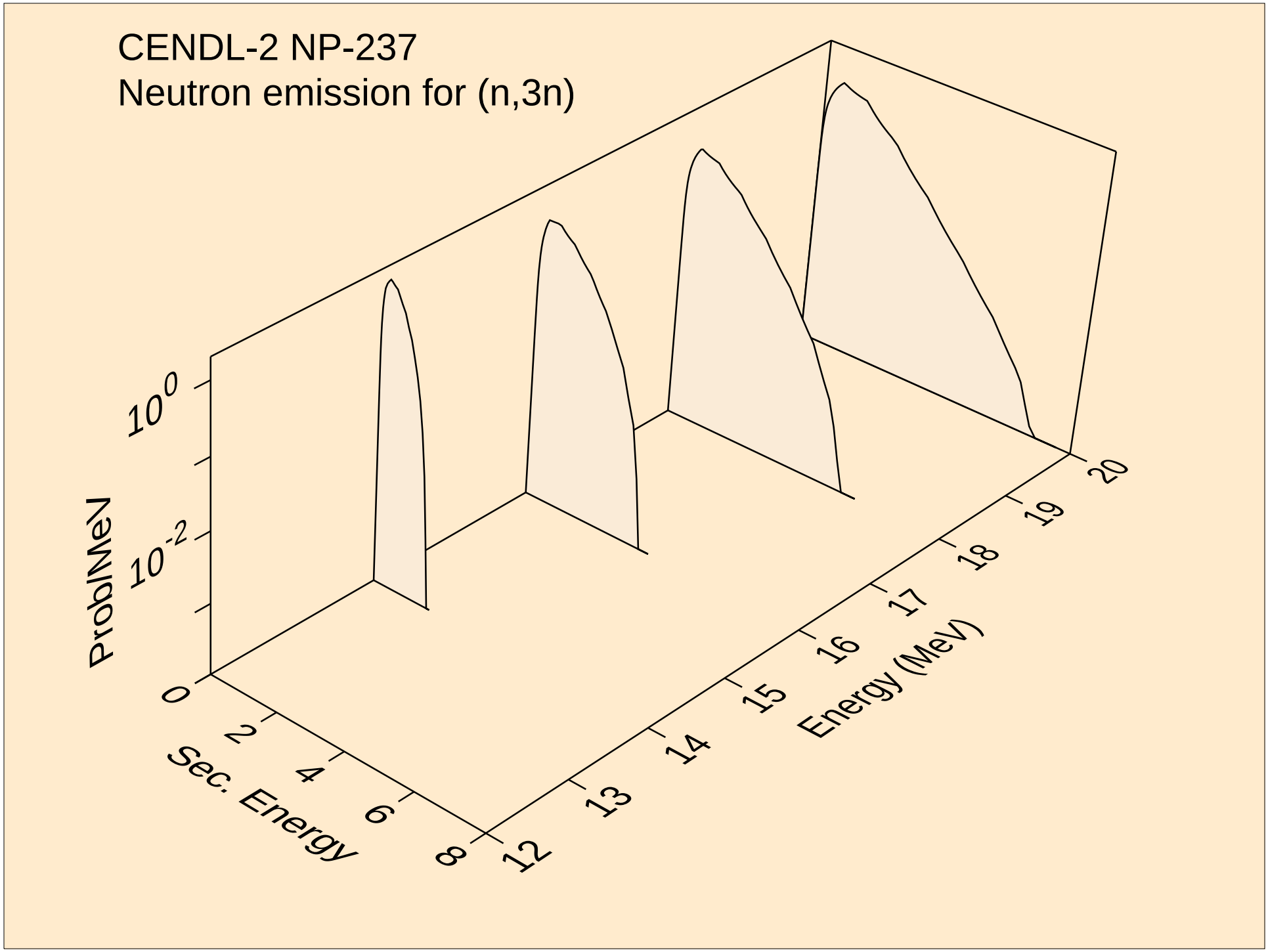

CENDL-2 NP-237
angular distribution for (n,n*13)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)


CENDL-2 NP-237
angular distribution for (n,n*14)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
1
2
3
4
5
6
Energy (MeV)

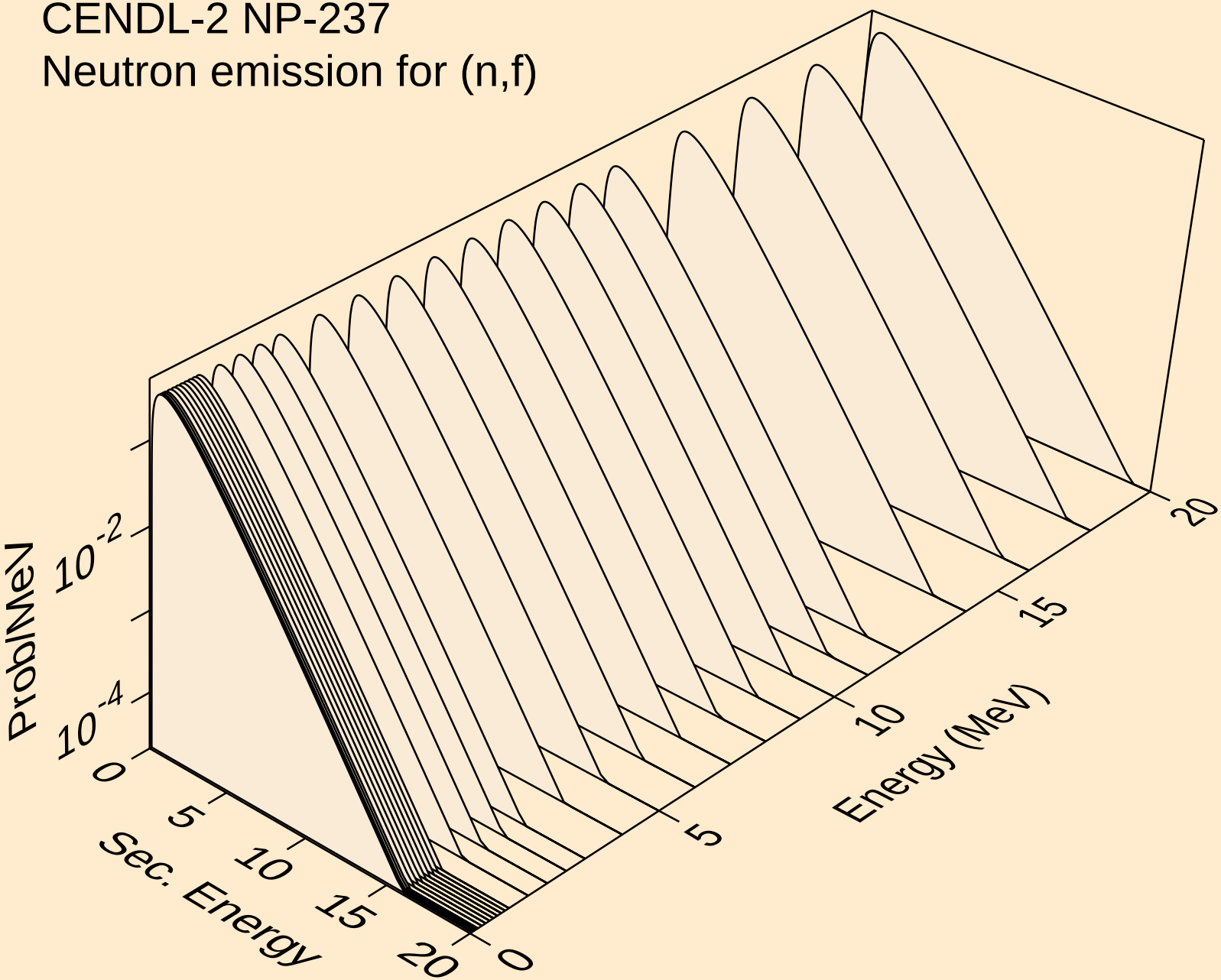

CENDL-2 NP-237
angular distribution for (n,n*c)
Prob/Cos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


CENDL-2 NP-237
Total fission nubar
Fission nubar
5.5
5.0
4.5
4.0
3.5
3.0
2.5
0
5
10
15
20
Energy (MeV)

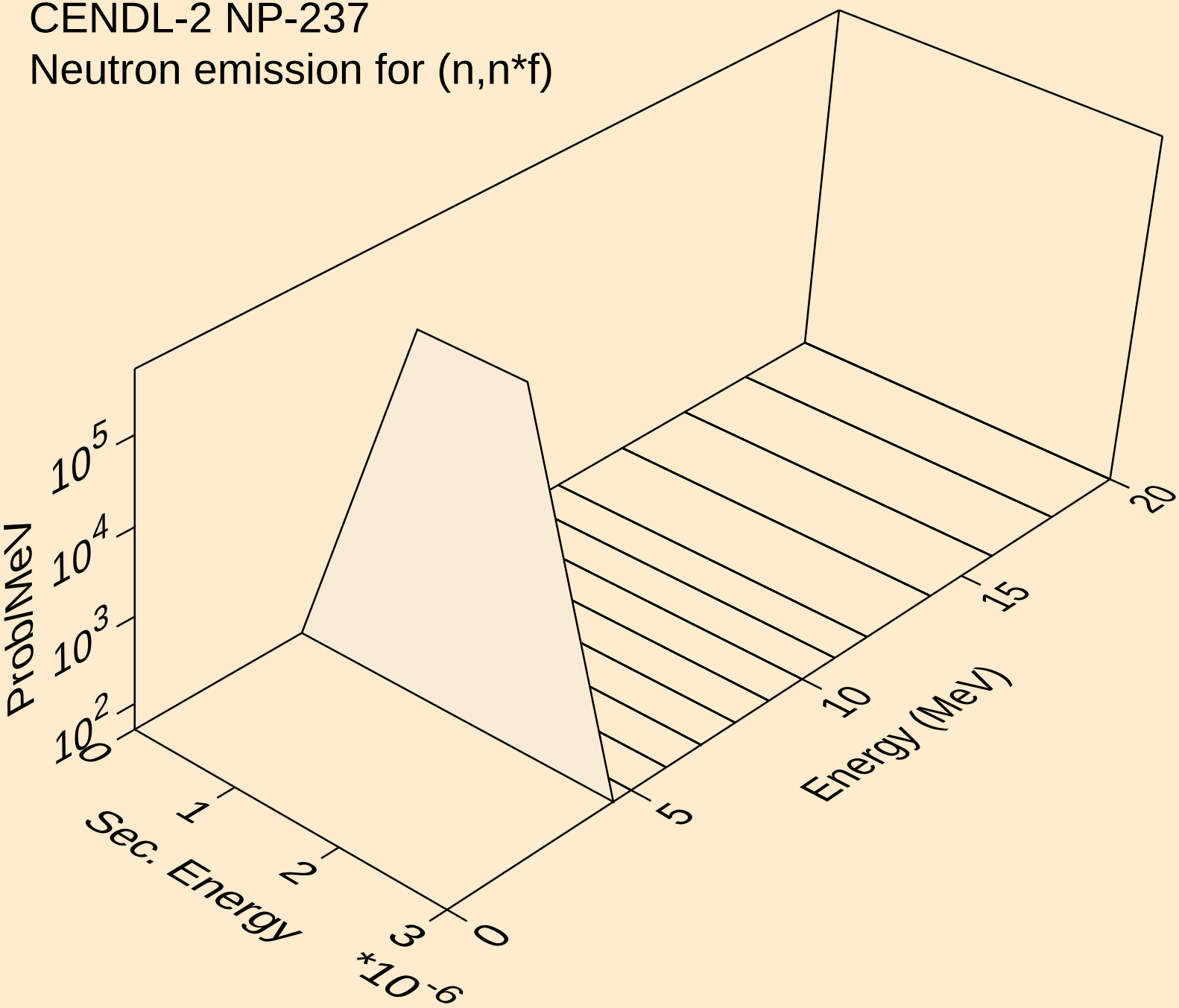

CENDL-2 NP-237
Neutron emission for (n,2n)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)


CENDL-2 NP-237
Neutron emission for (n,3n)
Prob/MeV
10^0
10^{-2}
0
2
4
6
8
Sec. Energy
12
13
14
15
16
17
18
19
20
Energy (MeV)

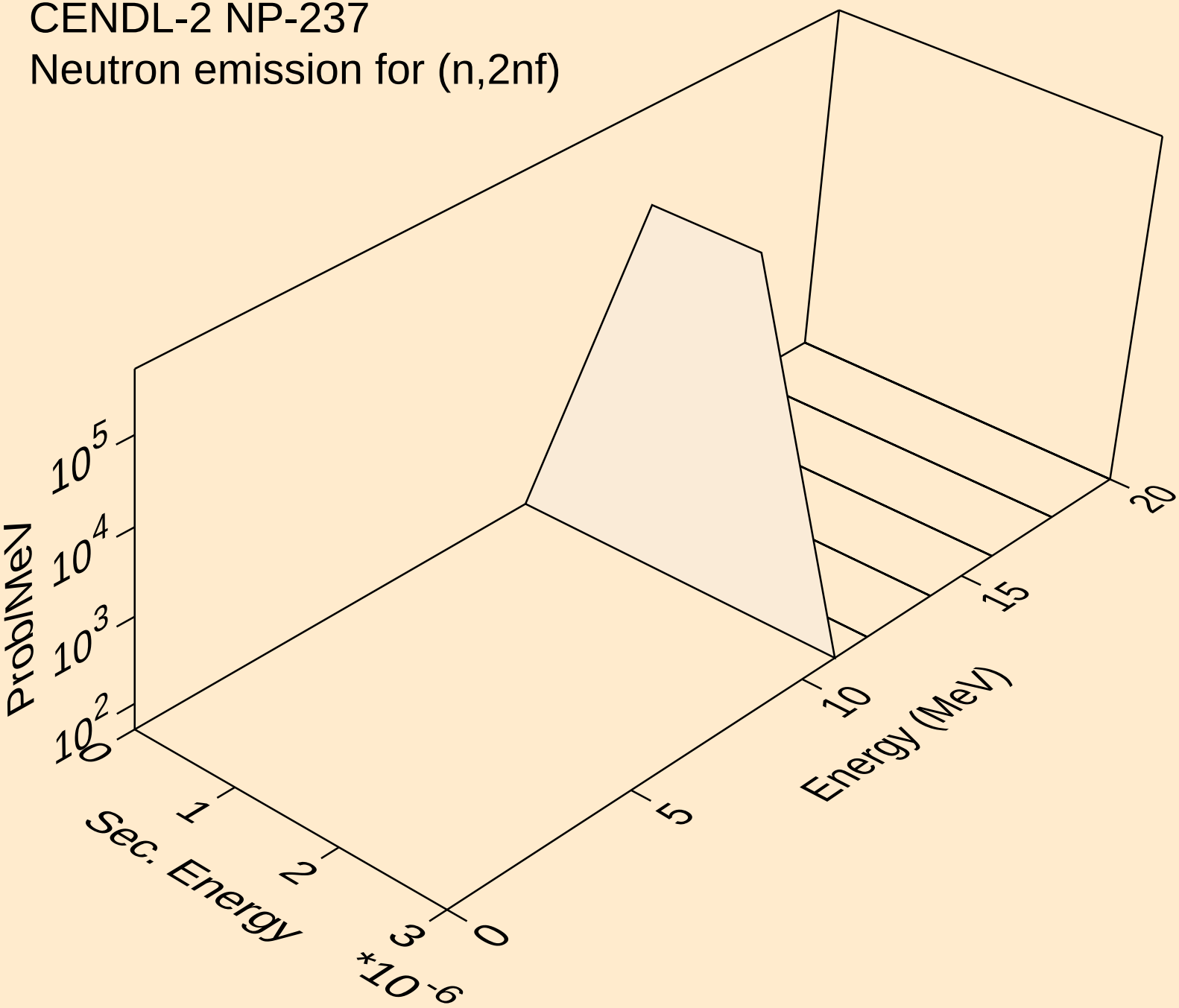
CENDL-2 NP-237
Neutron emission for (n,f)

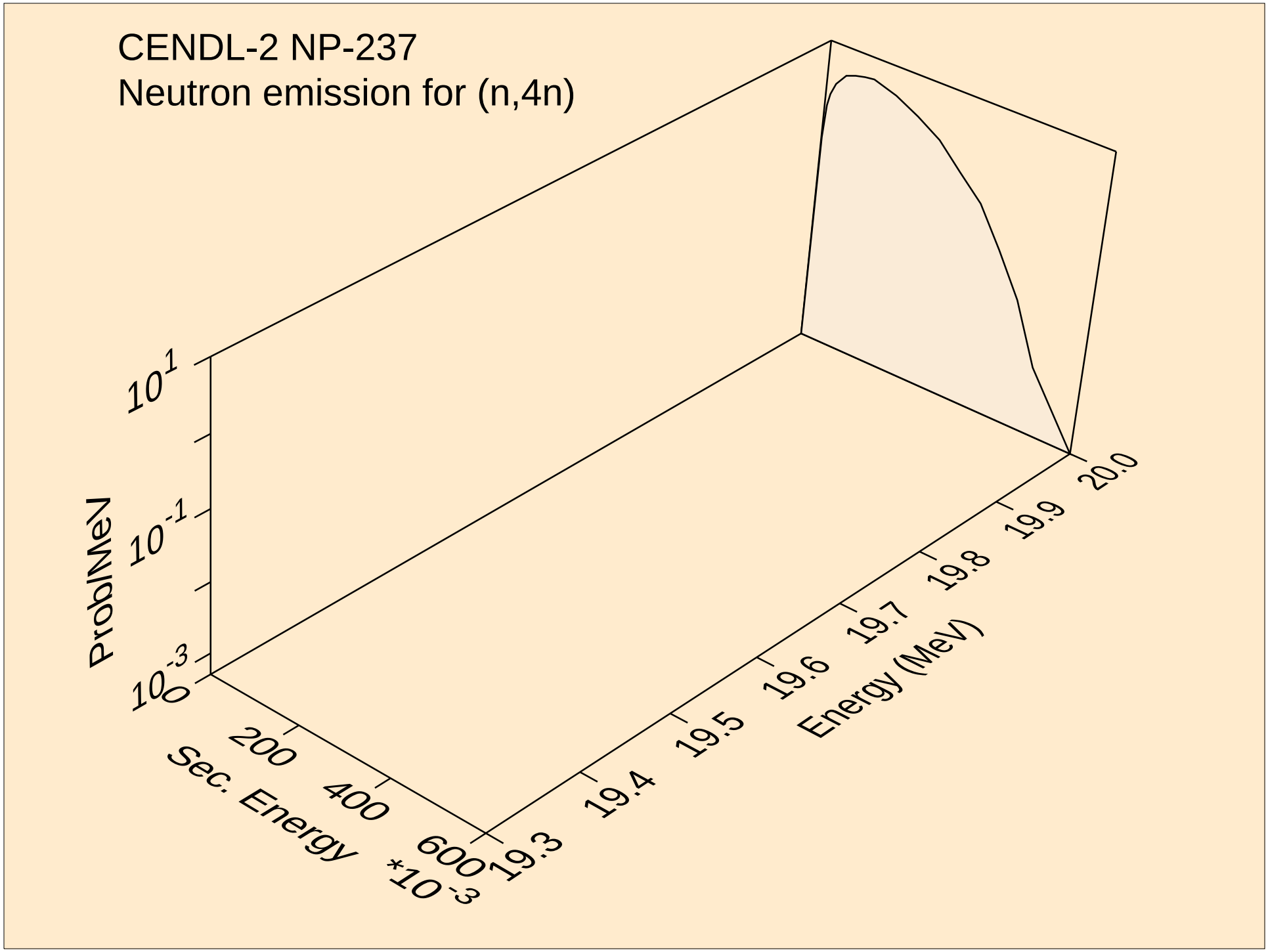


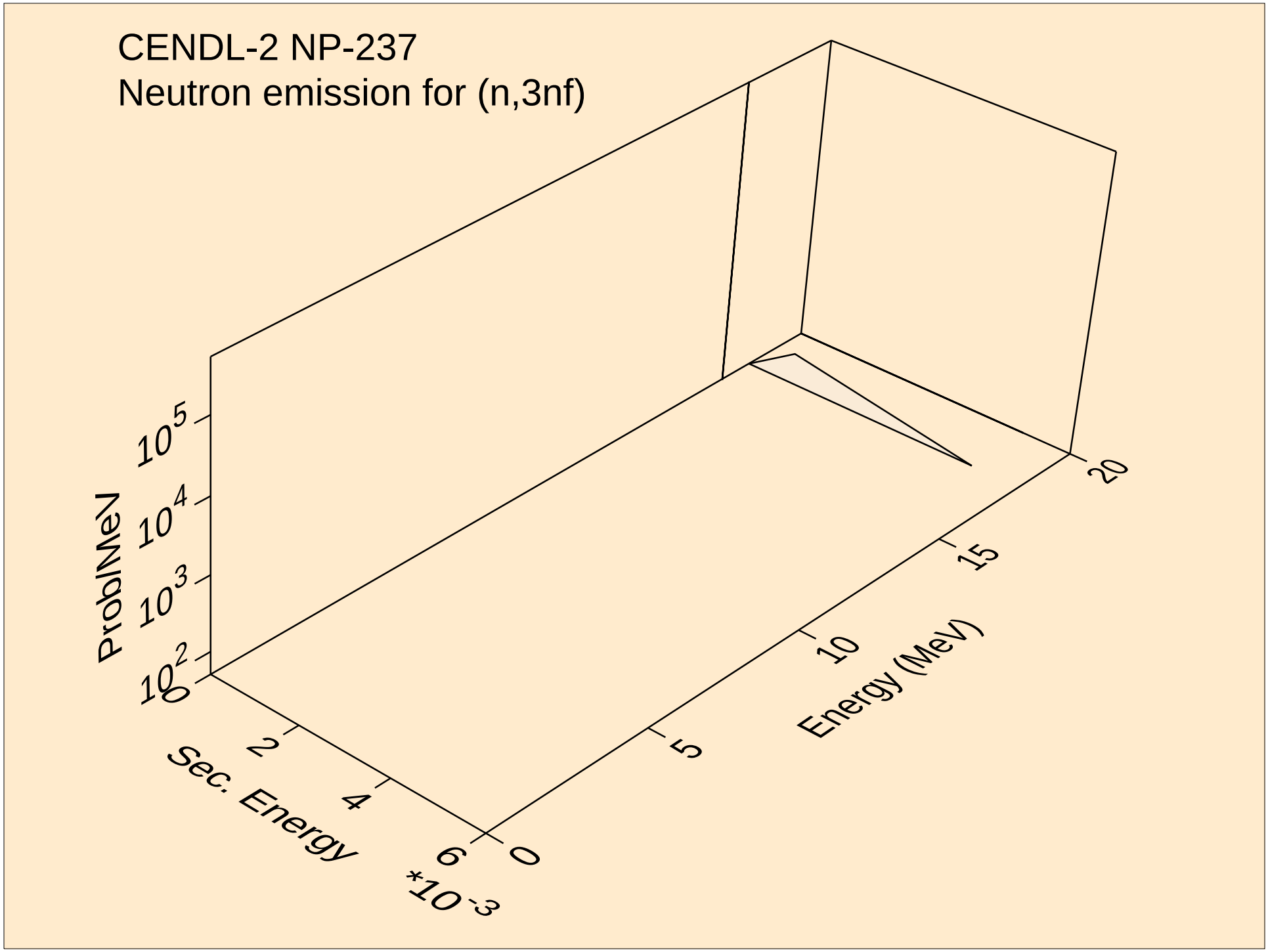
CENDL-2 NP-237
Neutron emission for (n,n*f)

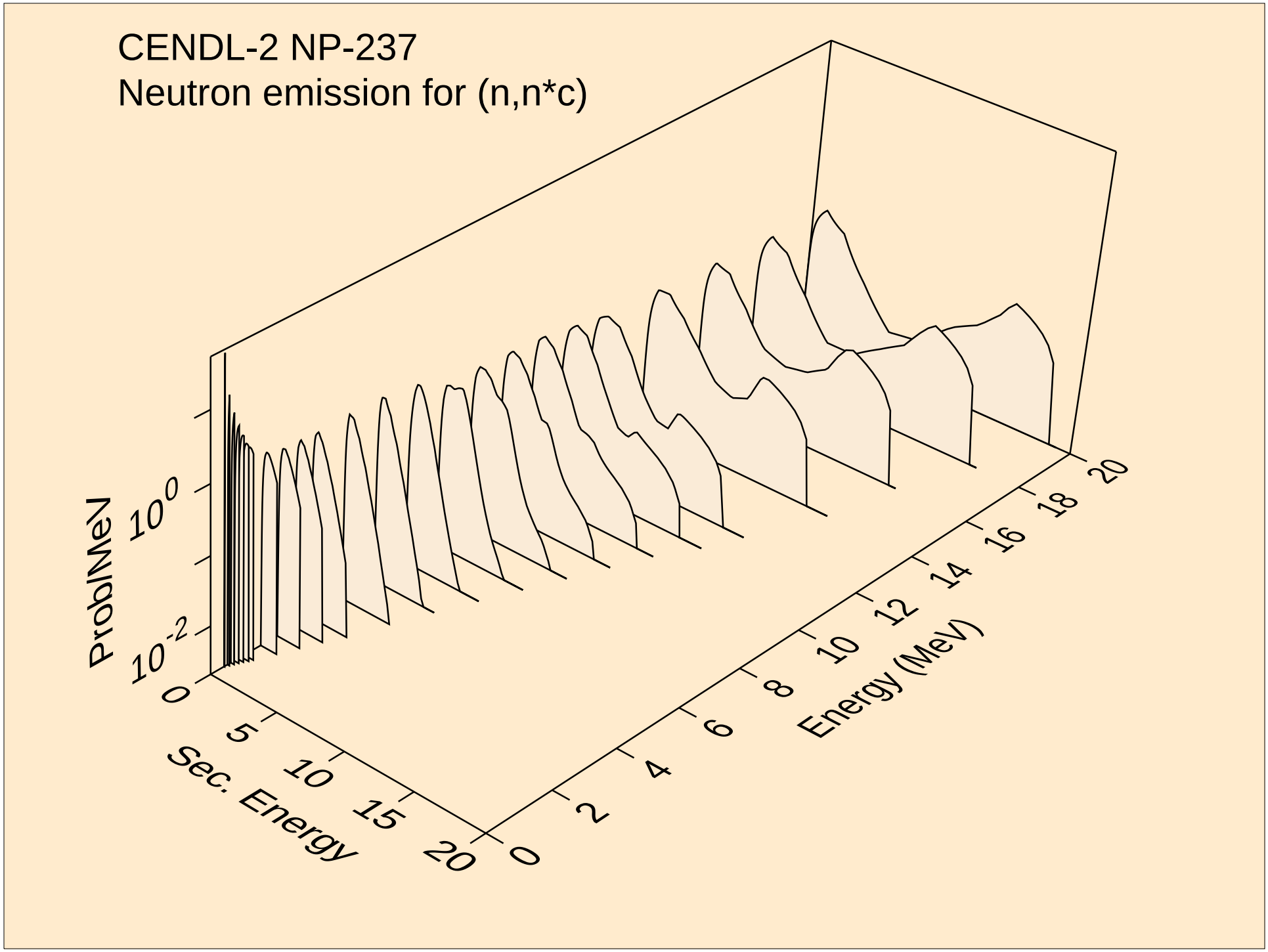


CENDL-2 NP-237
Neutron emission for (n,2nf)




CENDL-2 NP-237
Neutron emission for (n,4n)
Prob/MeV
10^1
10^-1
10^-3
0
200
400
600
Sec. Energy
*10^-3
19.3
19.4
19.5
19.6
19.7
19.8
19.9
20.0
Energy (MeV)


CENDL-2 NP-237
Neutron emission for (n,3nf)
Prob/MeV
10^5
10^4
10^3
10^2
0
2
4
6
Sec. Energy
*10 -3
0
5
10
15
20
Energy (MeV)


CENDL-2 NP-237
Neutron emission for (n,n*c)
Prob/MeV
10^{0}
10^{-2}
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)