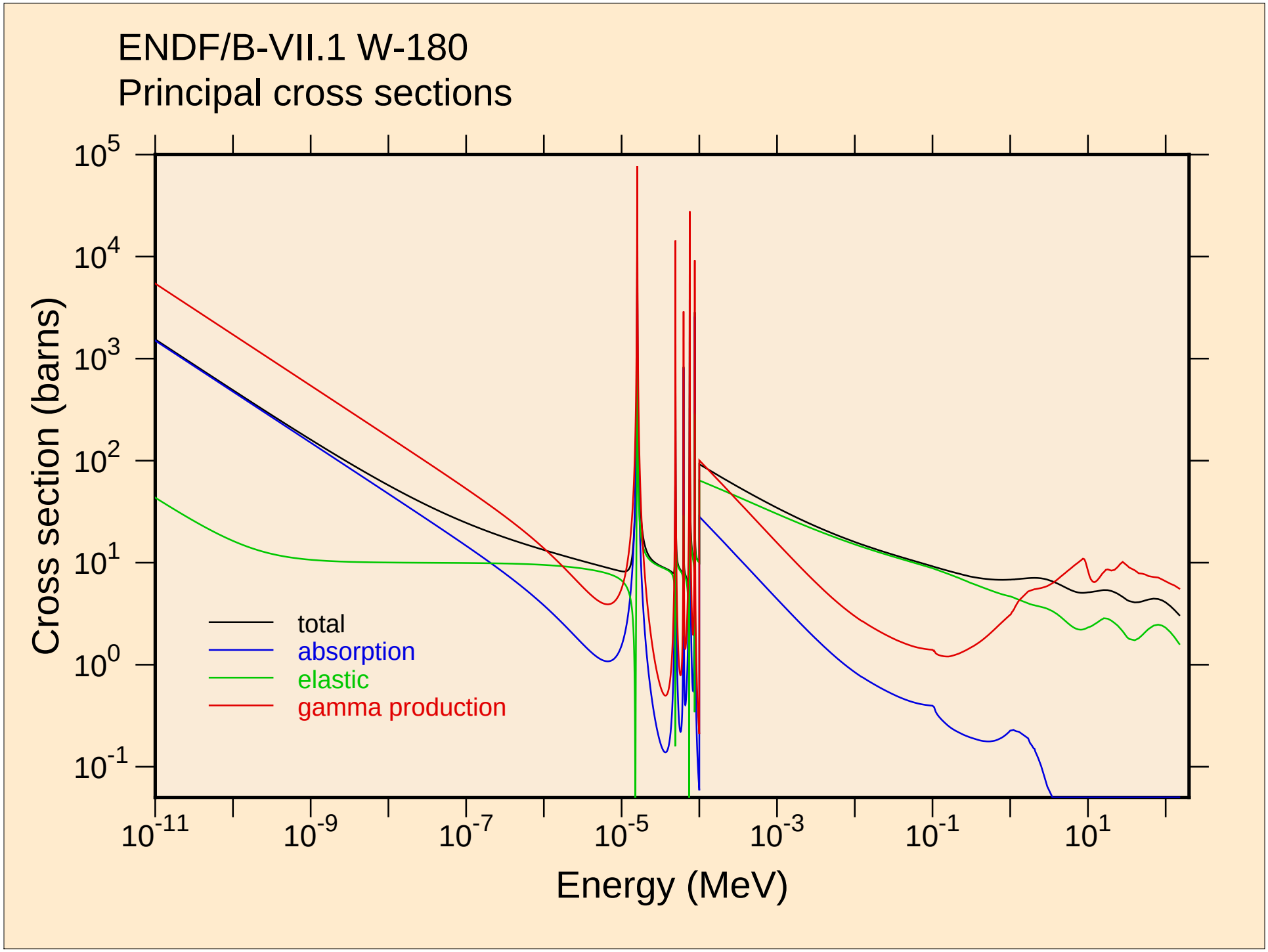
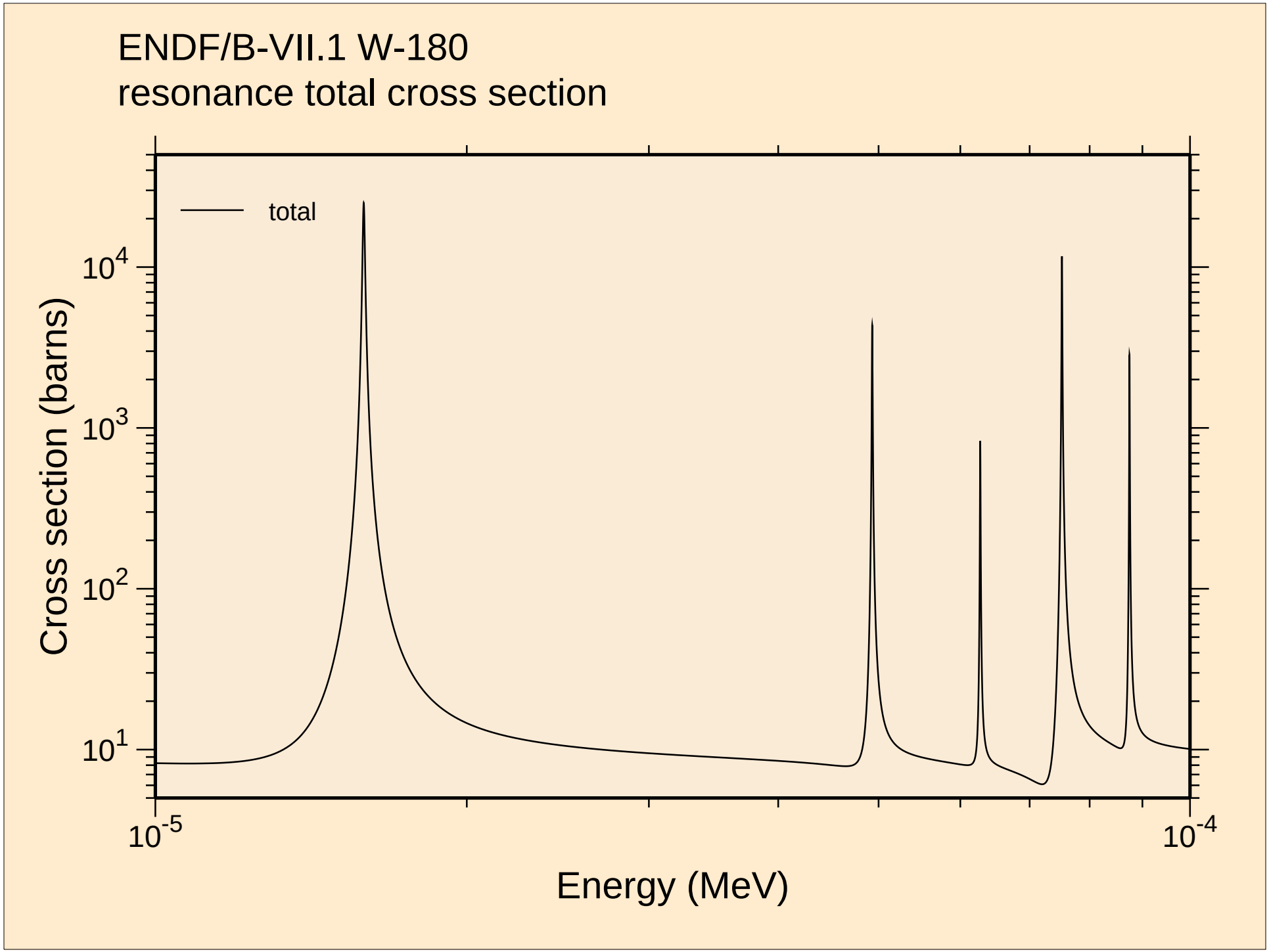
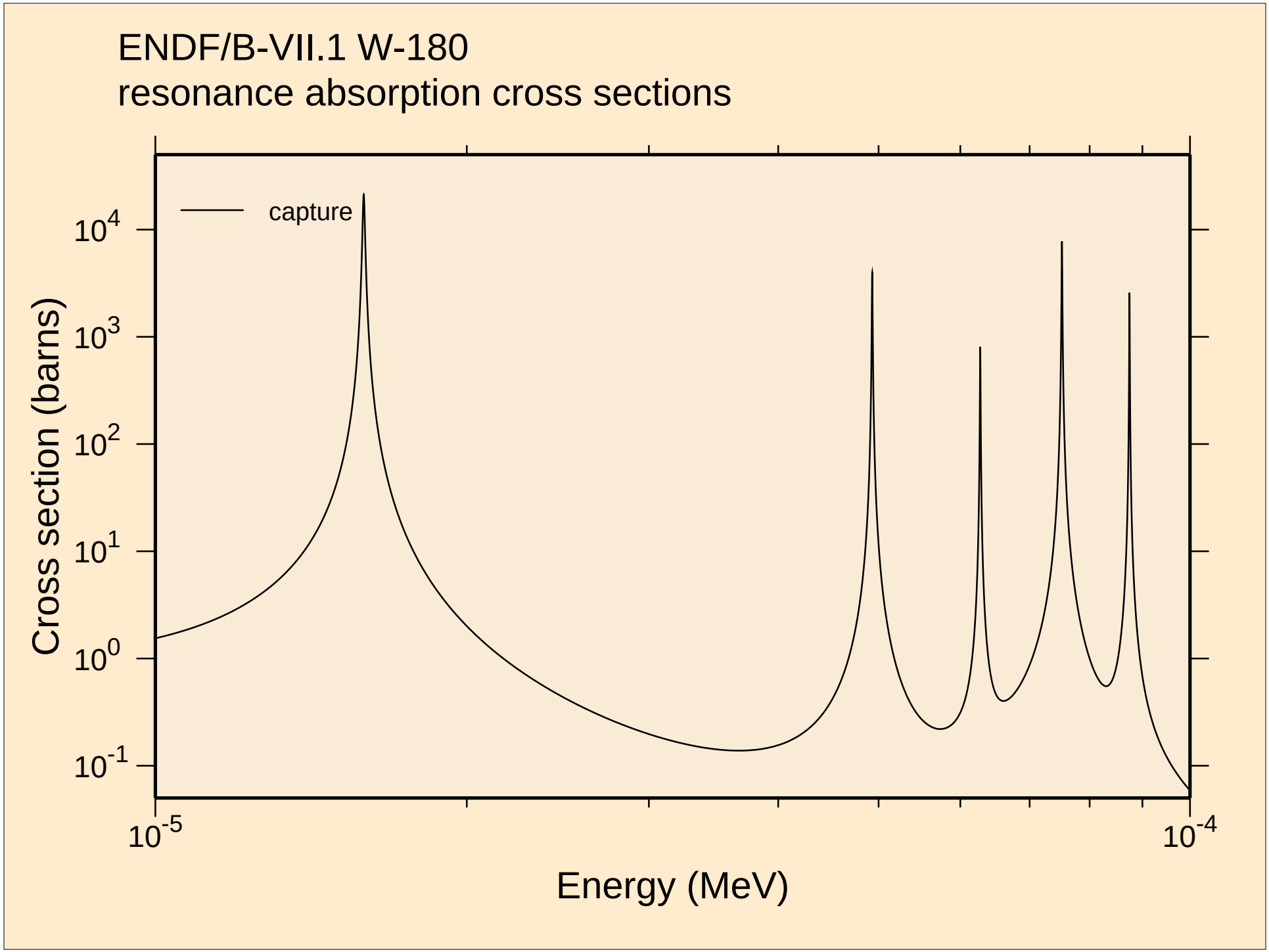
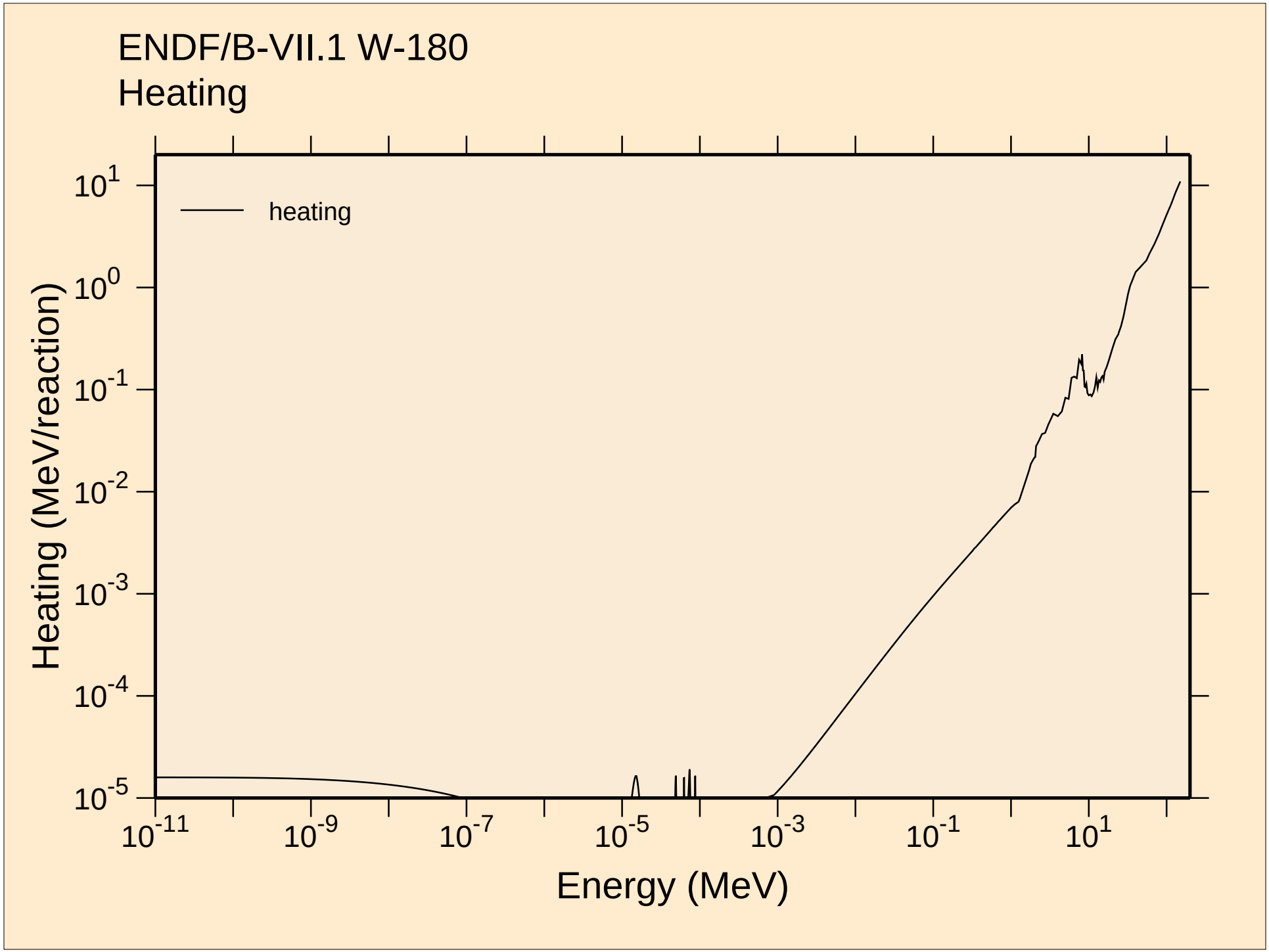
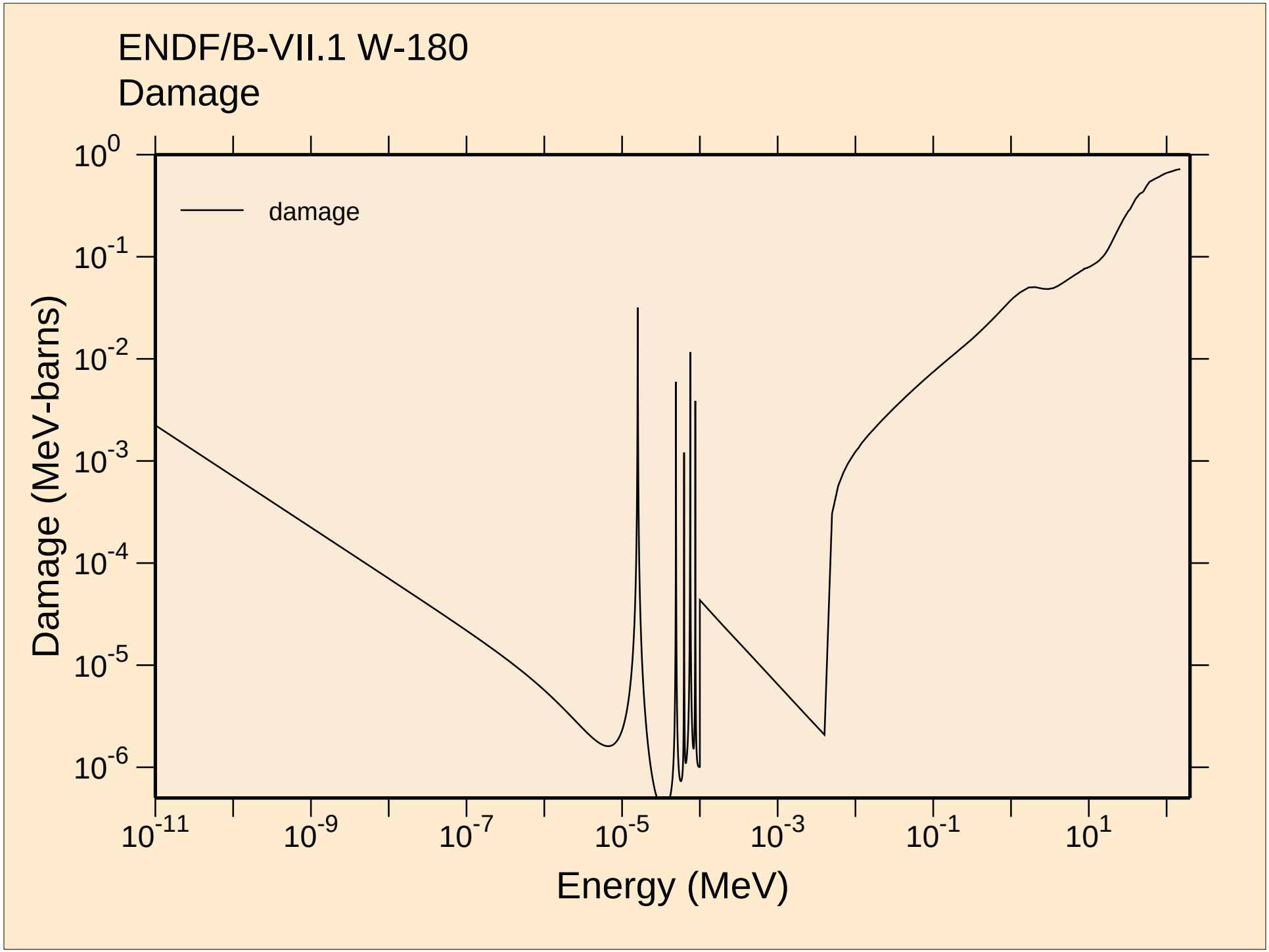
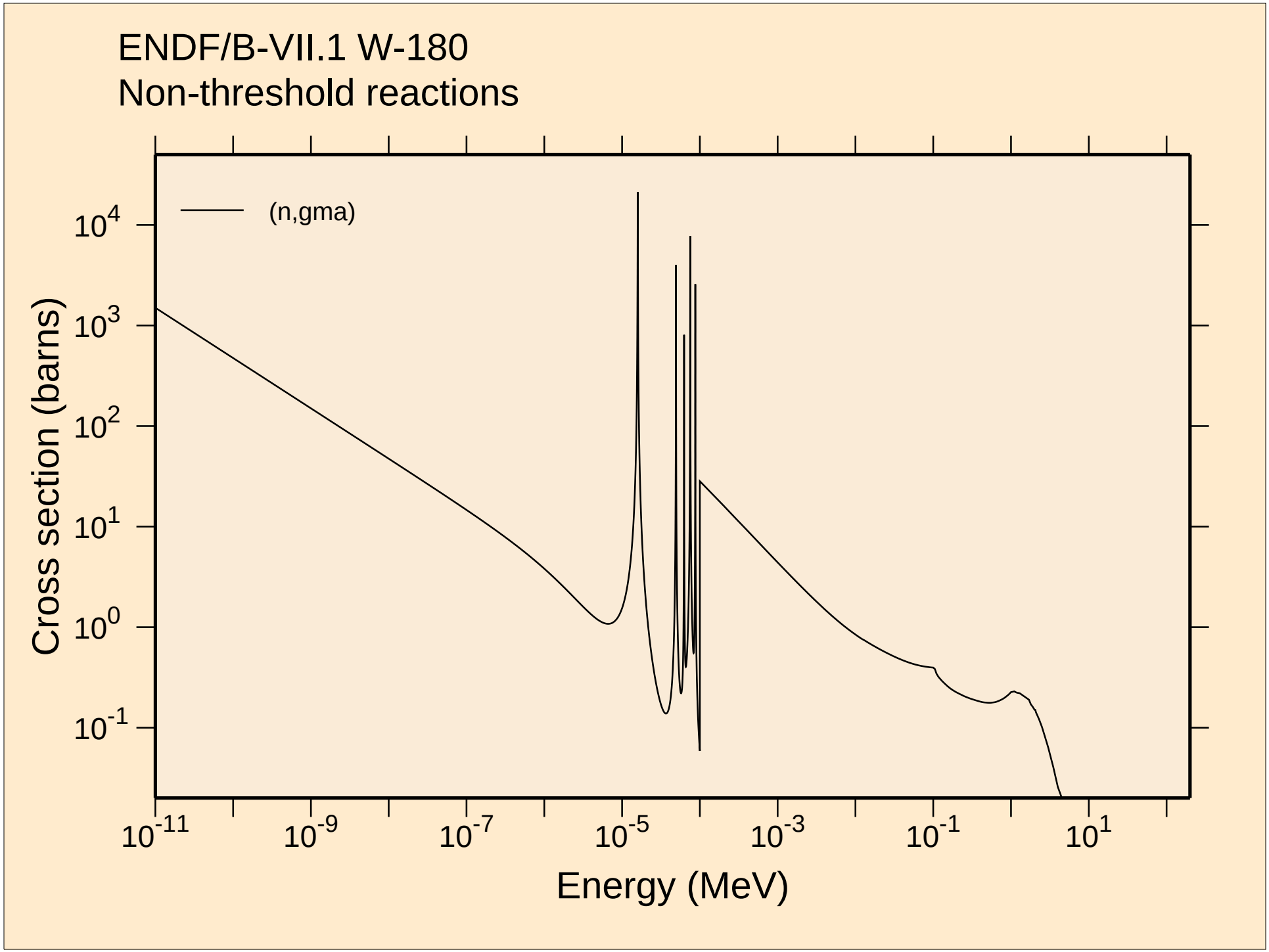

ENDF/B-VII.1 W-180
Principal cross sections
Cross section (barns)
10^{5}
10^{4}
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
total
absorption
elastic
gamma production
10^{-11}
10^{-9}
10^{-7}
10^{-5}
10^{-3}
10^{-1}
10^{1}
Energy (MeV)

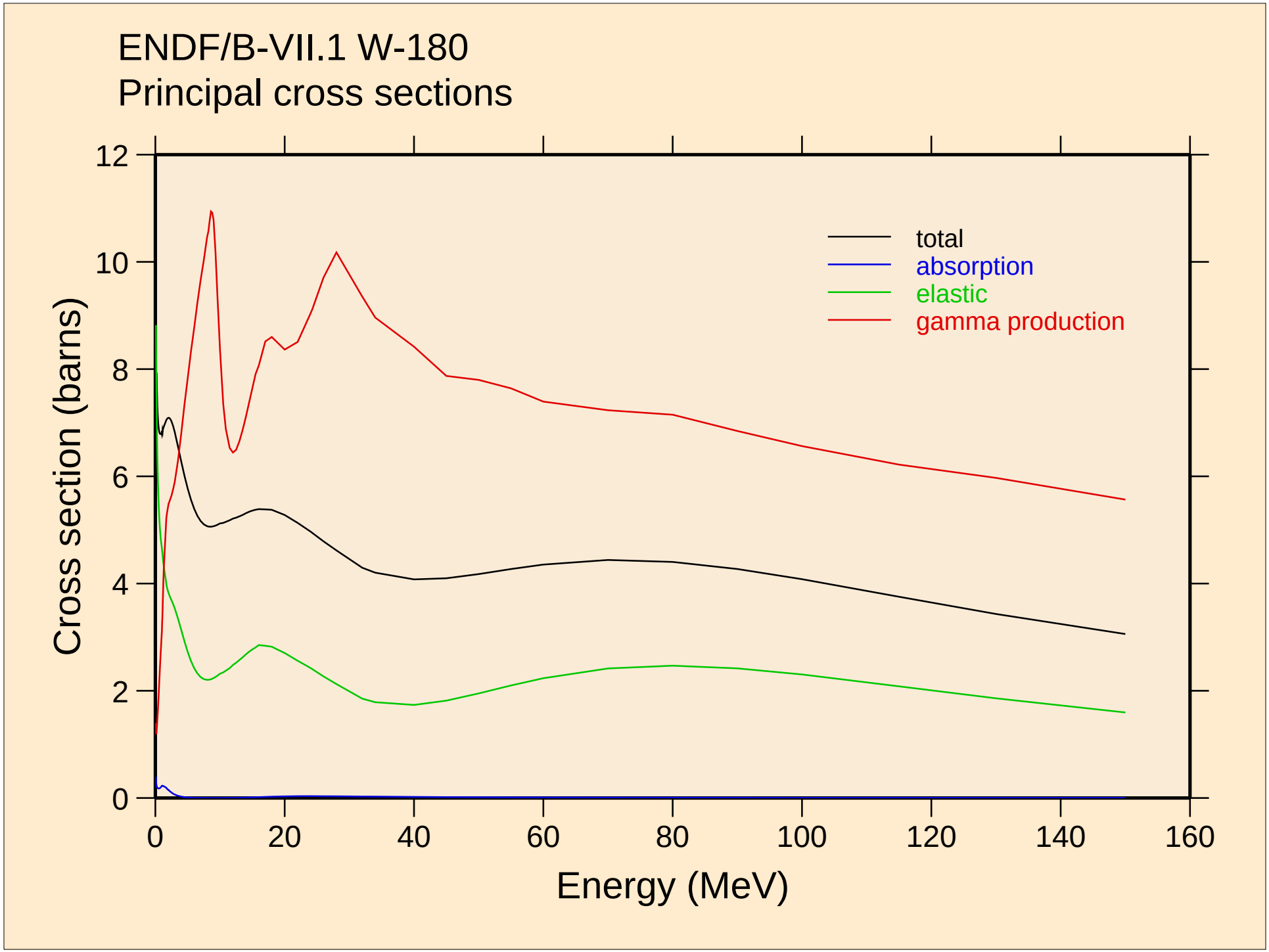

ENDF/B-VII.1 W-180
resonance total cross section
total
Cross section (barns)
10^4
10^3
10^2
10^1
10^{-5}
10^{-4}
Energy (MeV)

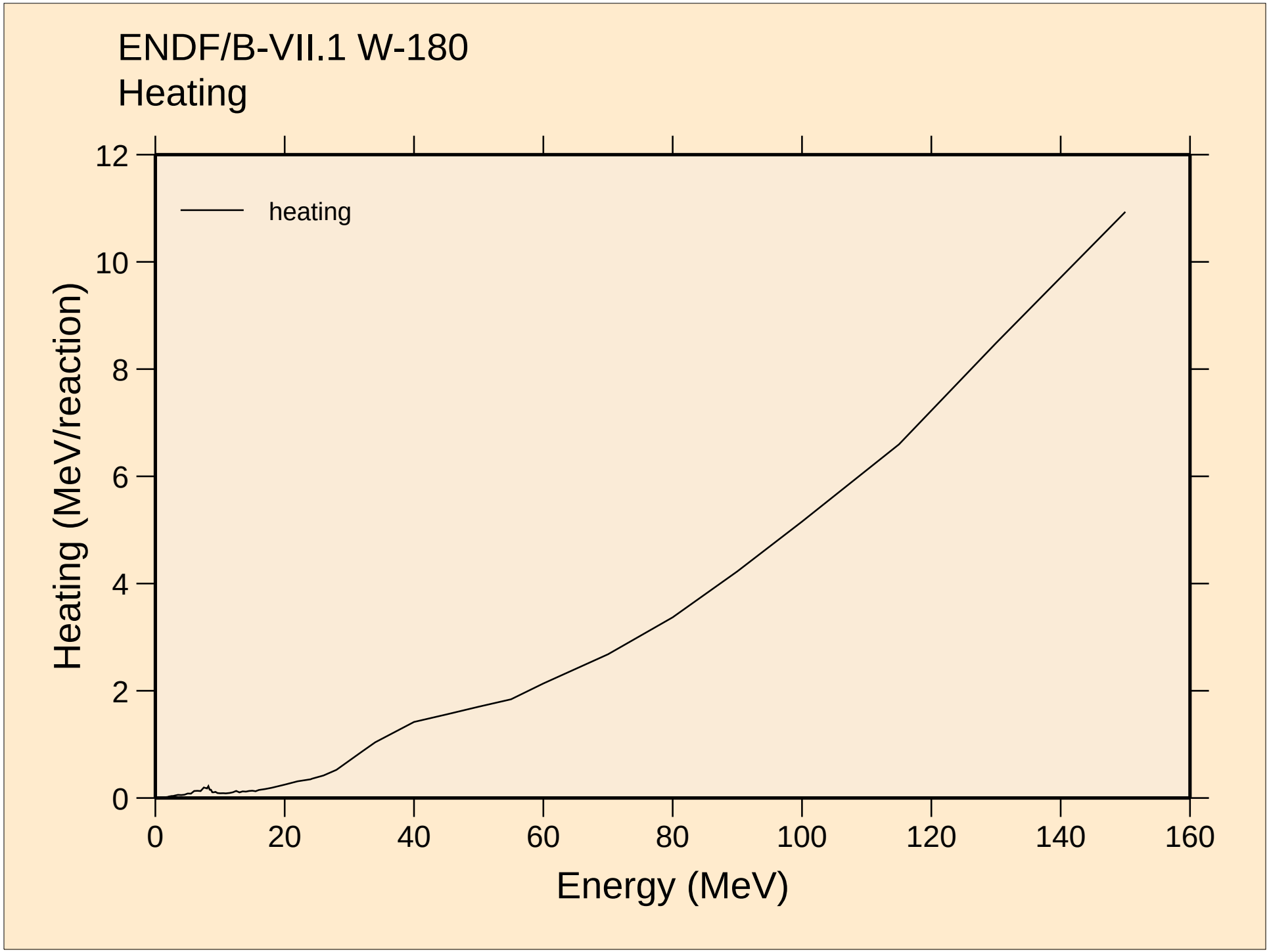

ENDF/B-VII.1 W-180
resonance absorption cross sections
capture
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-5
10^-4
Energy (MeV)

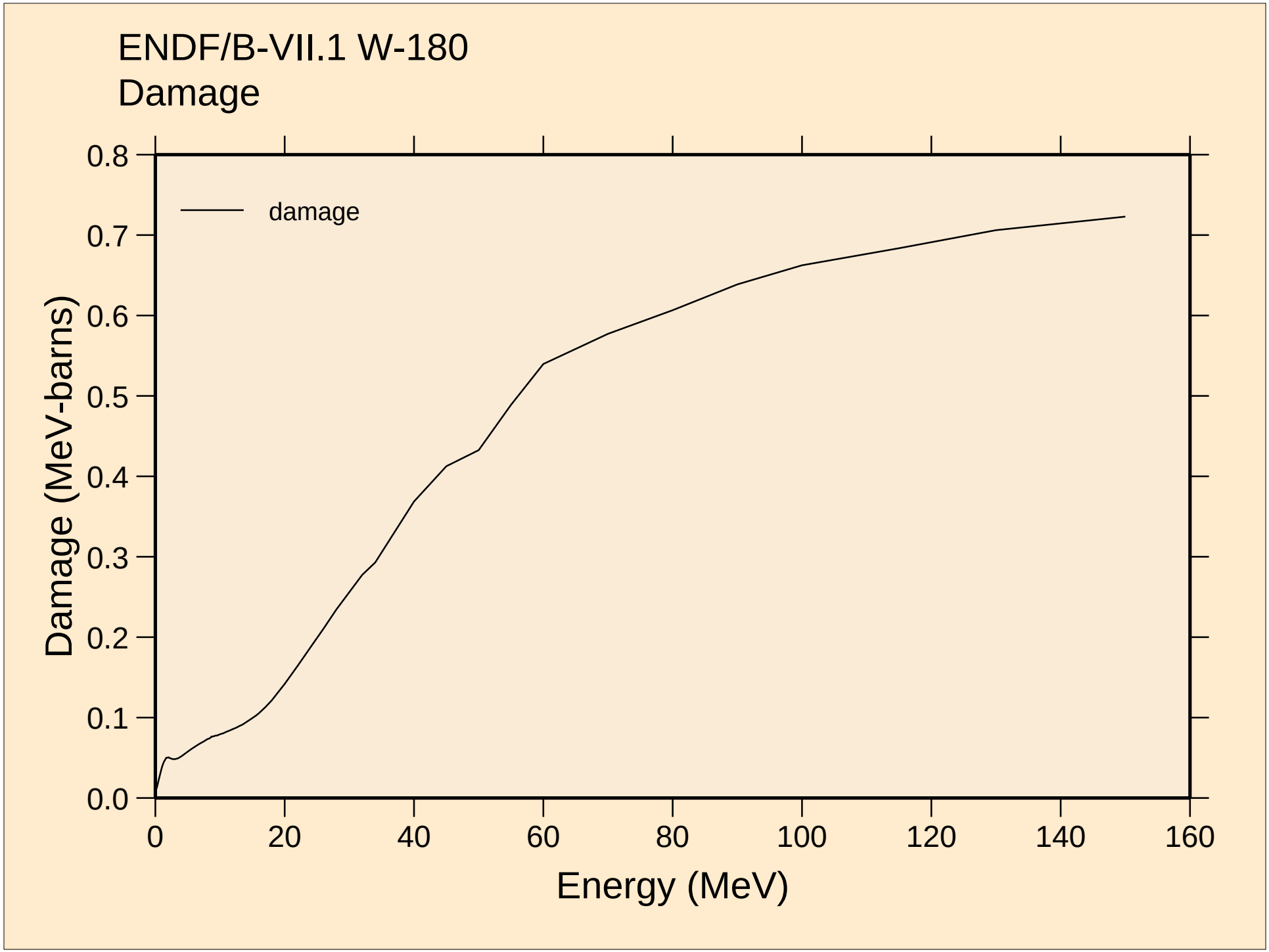

ENDF/B-VII.1 W-180
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

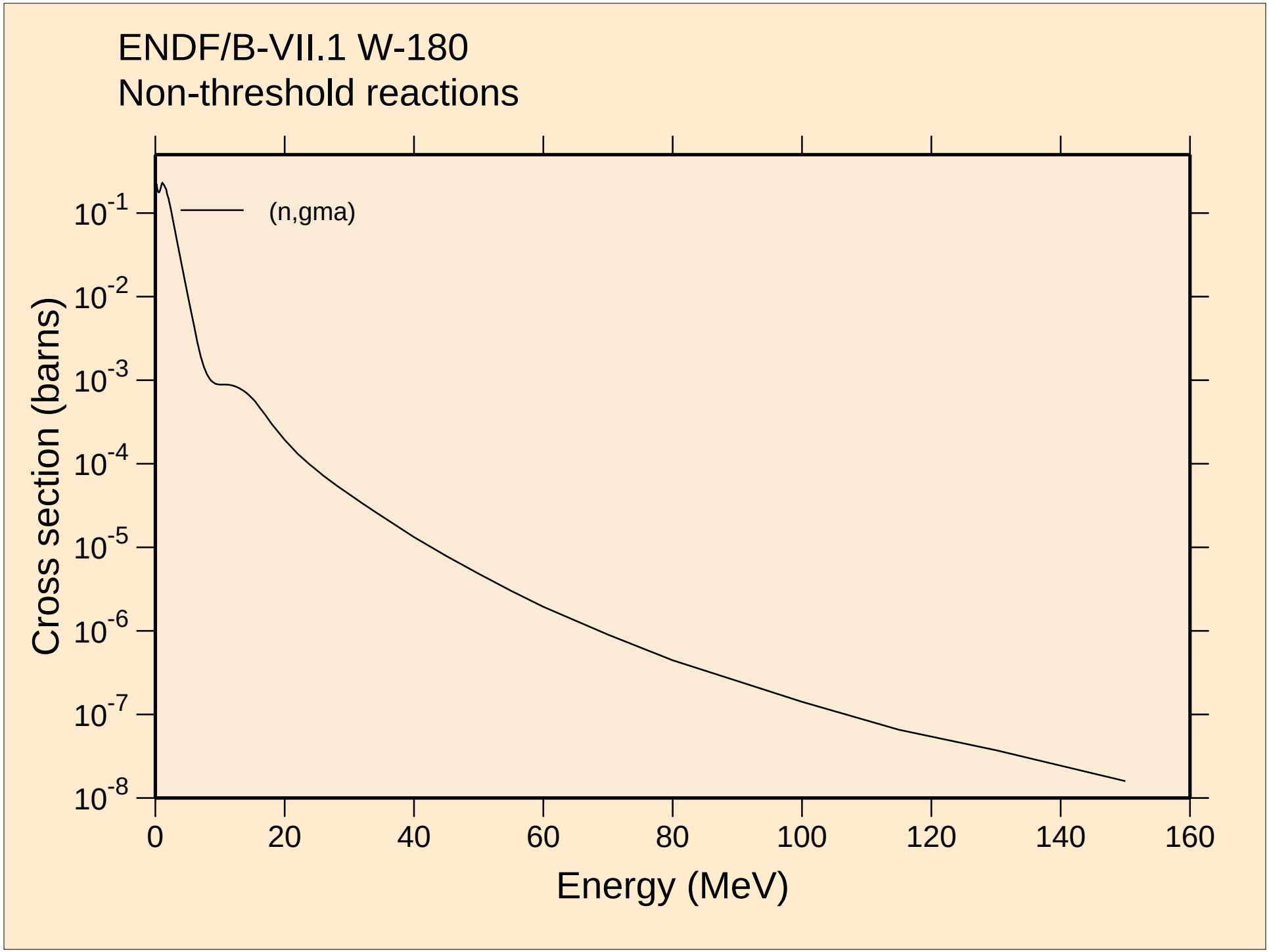

ENDF/B-VII.1 W-180
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

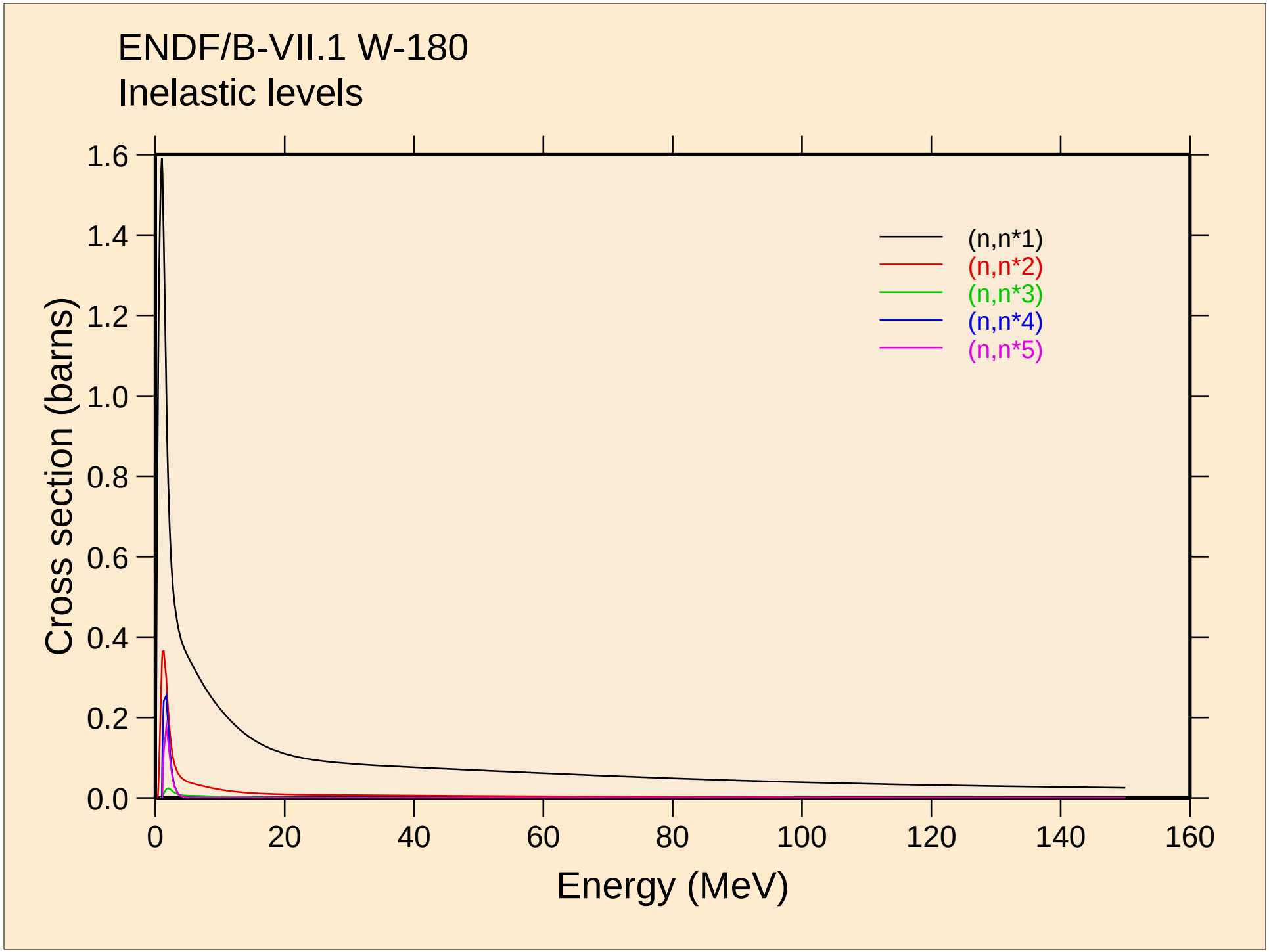

ENDF/B-VII.1 W-180
Non-threshold reactions
(n,gma)
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1
Energy (MeV)

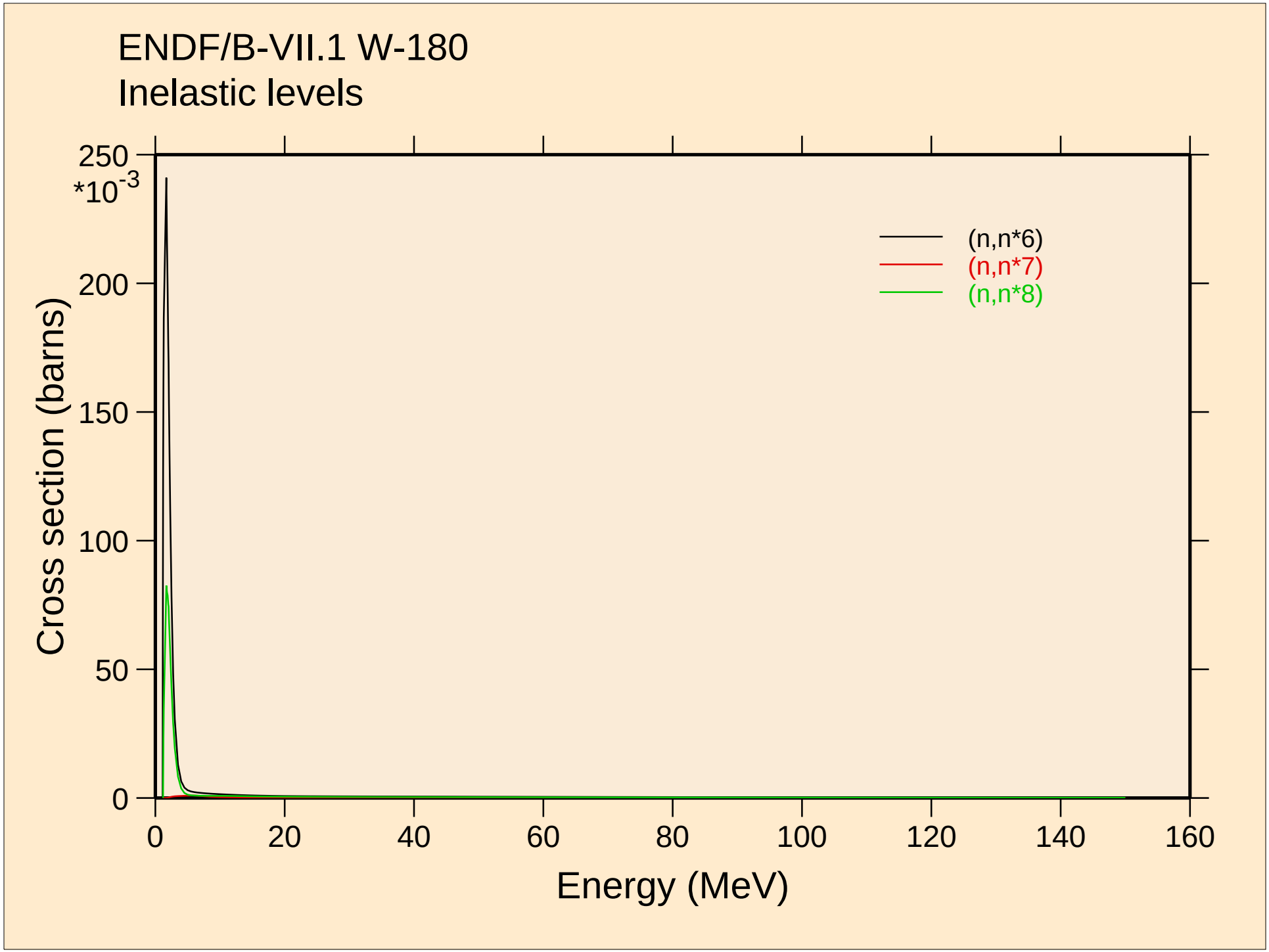

ENDF/B-VII.1 W-180
Principal cross sections
Cross section (barns)
Energy (MeV)
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140
160
total
absorption
elastic
gamma production

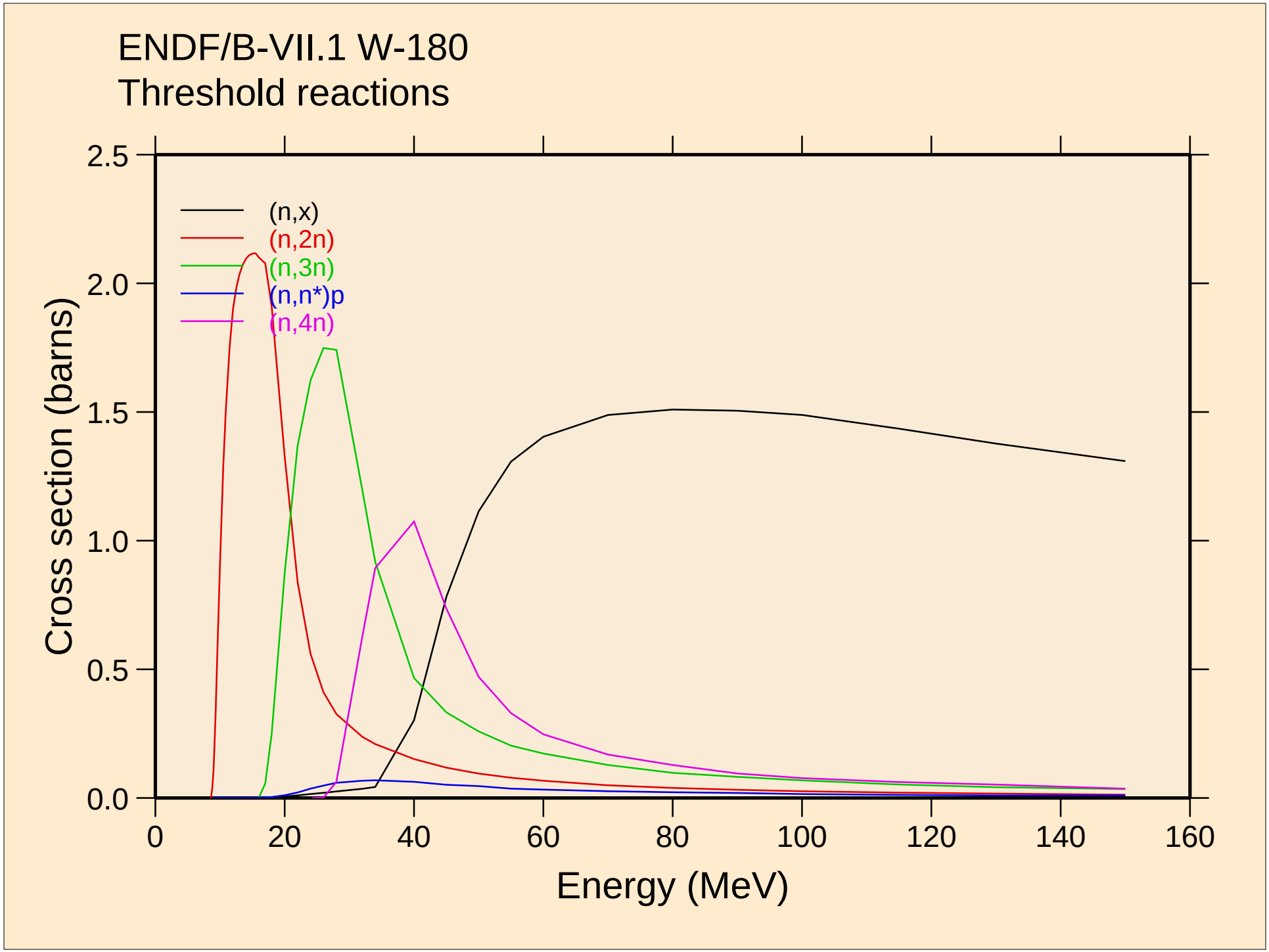

ENDF/B-VII.1 W-180
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140
160

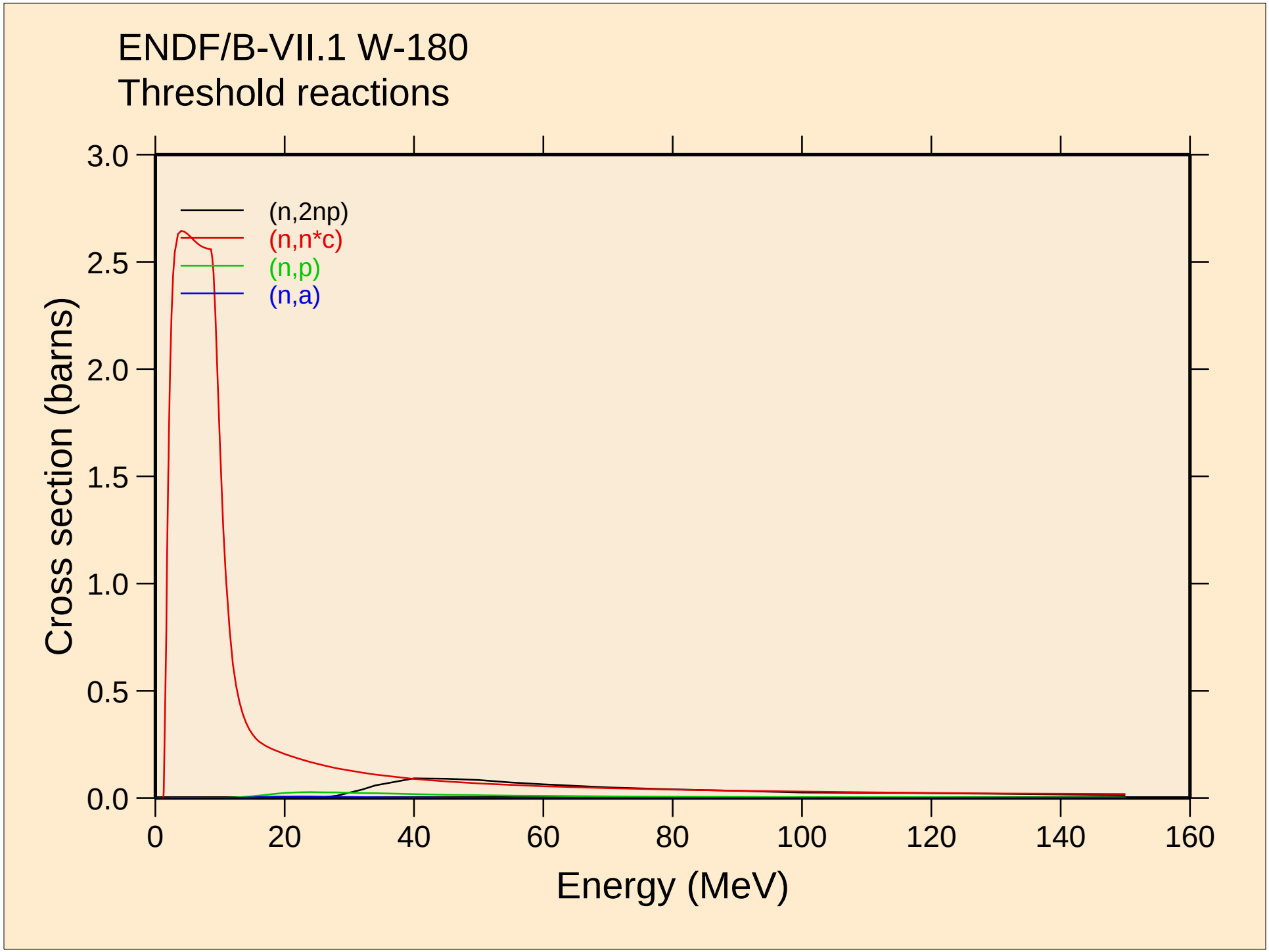

ENDF/B-VII.1 W-180
Damage
damage
Damage (MeV-barns)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
20
40
60
80
100
120
140
160
Energy (MeV)

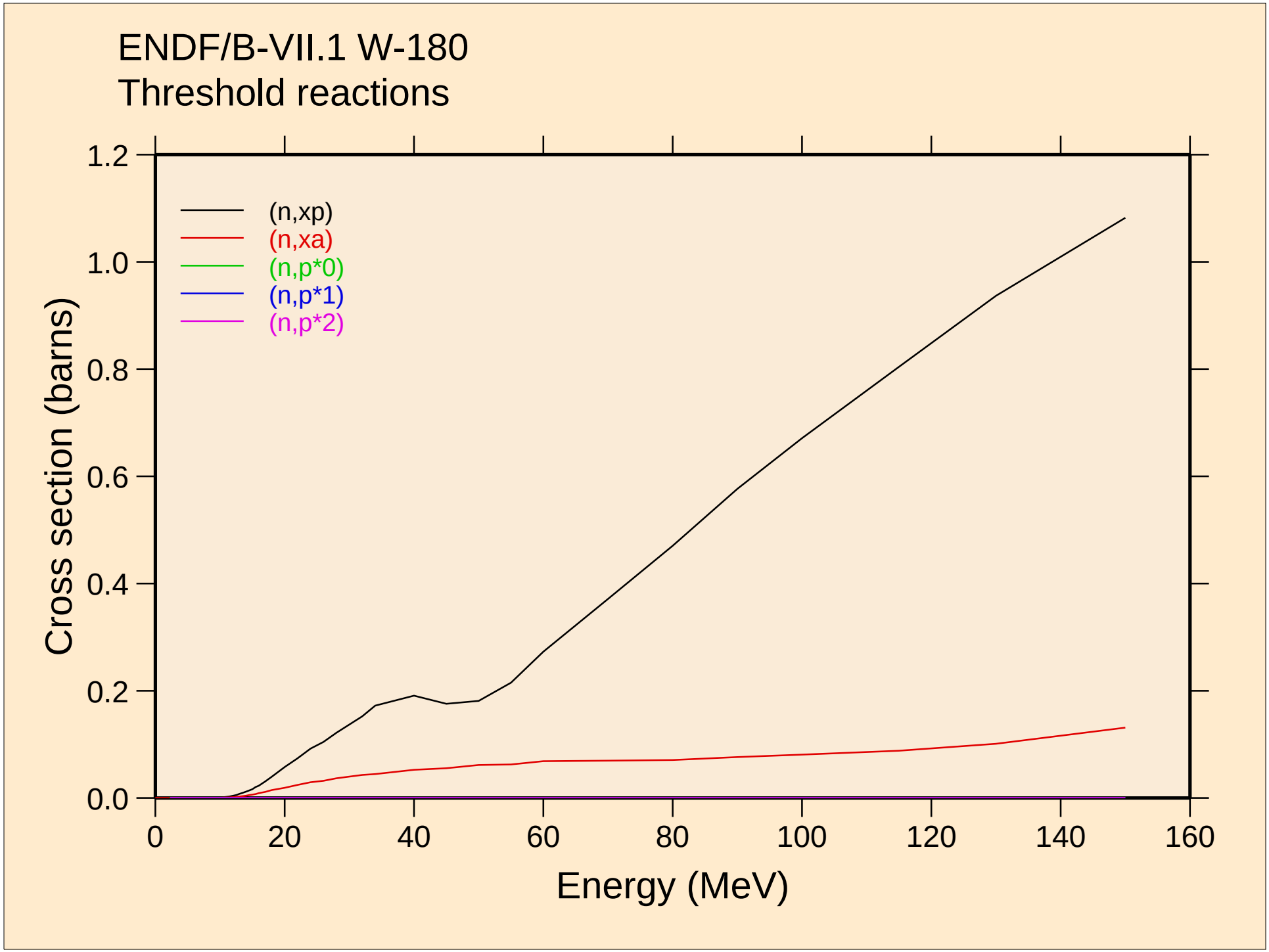

ENDF/B-VII.1 W-180
Non-threshold reactions
(n,gma)
Cross section (barns)
10-1
10-2
10-3
10-4
10-5
10-6
10-7
10-8
0
20
40
60
80
100
120
140
160
Energy (MeV)

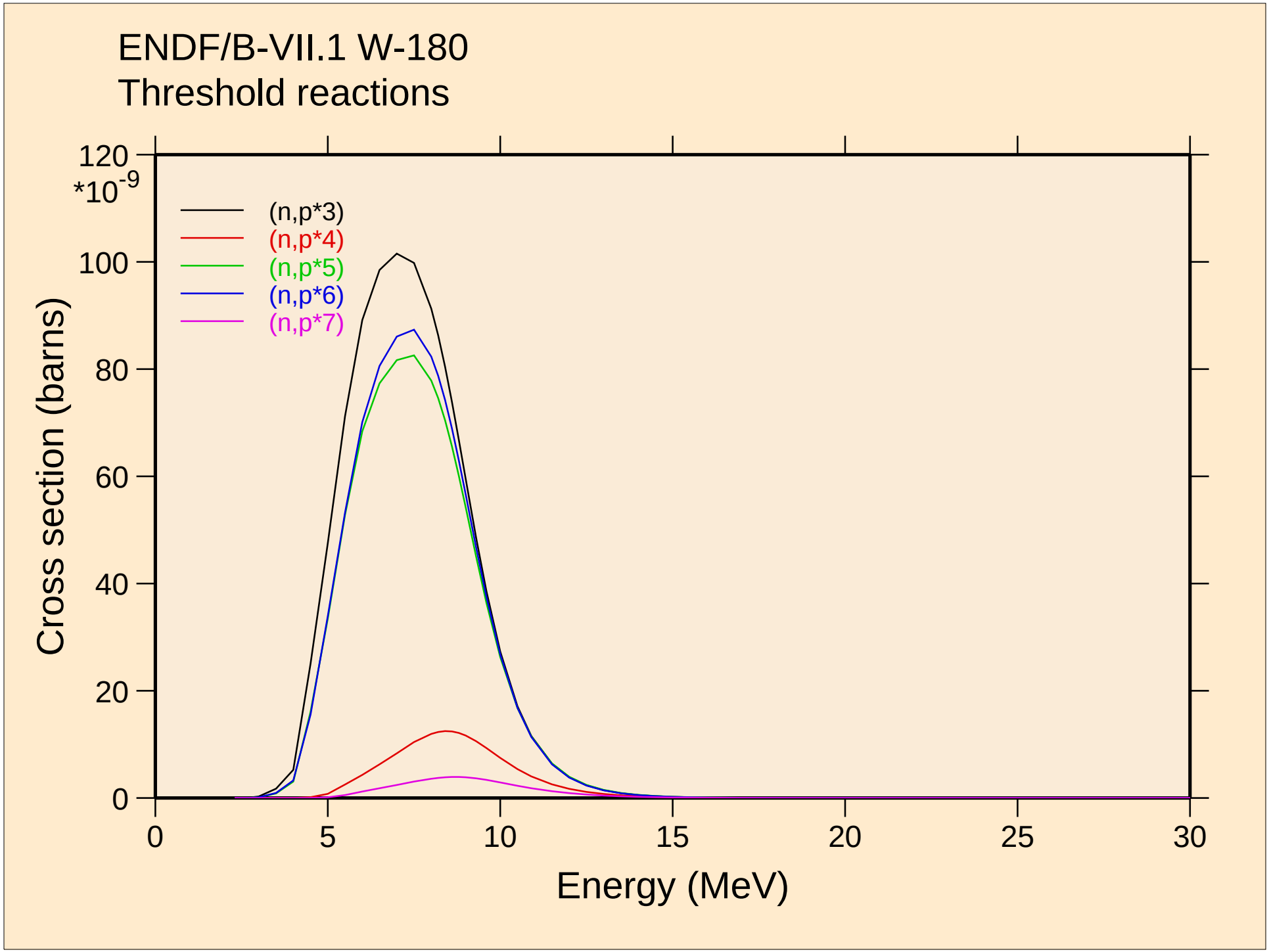

ENDF/B-VII.1 W-180
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
20
40
60
80
100
120
140
160
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

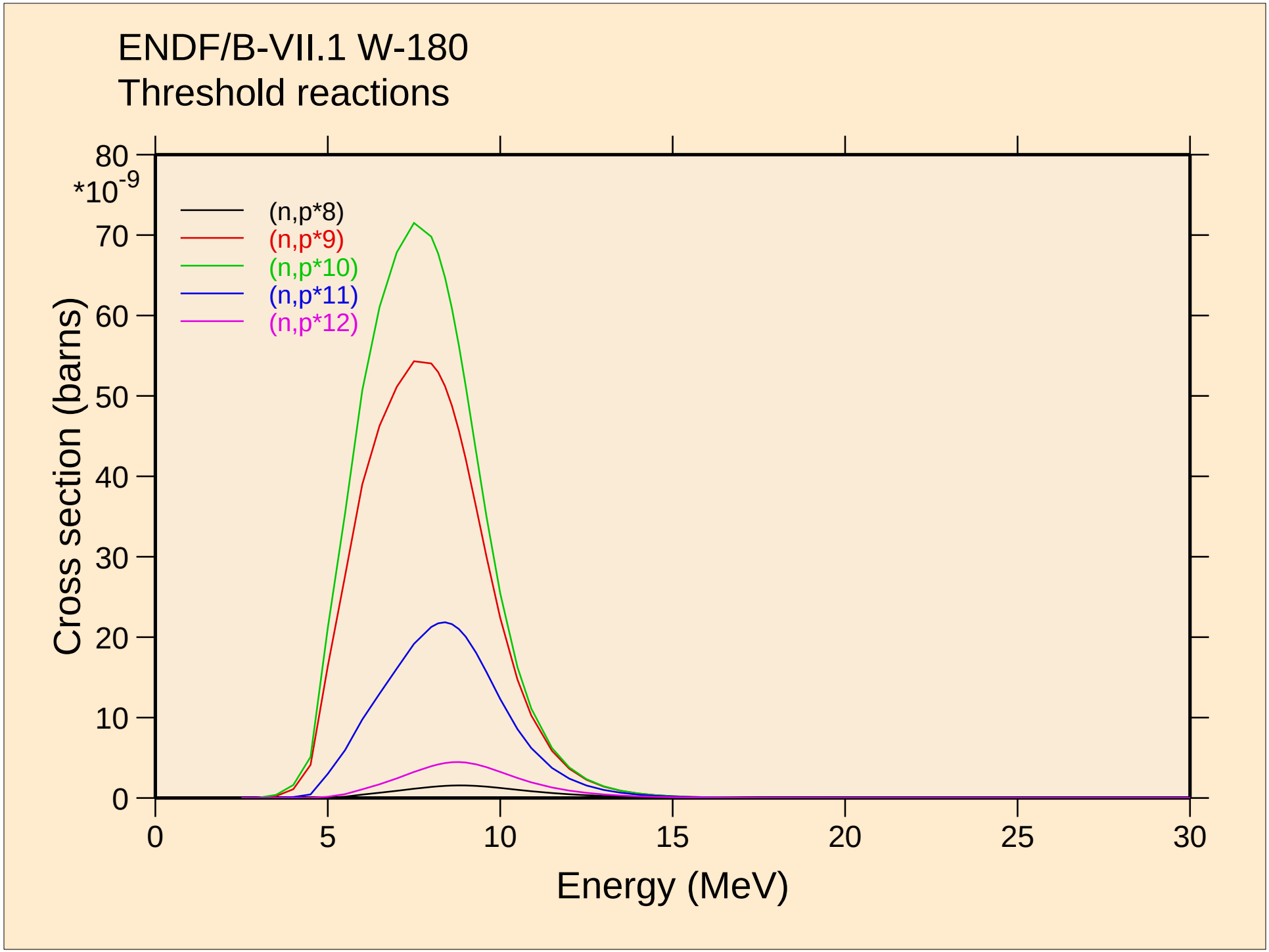

ENDF/B-VII.1 W-180
Inelastic levels
250
*10-3
200
150
100
50
0
Cross section (barns)
0
20
40
60
80
100
120
140
160
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)

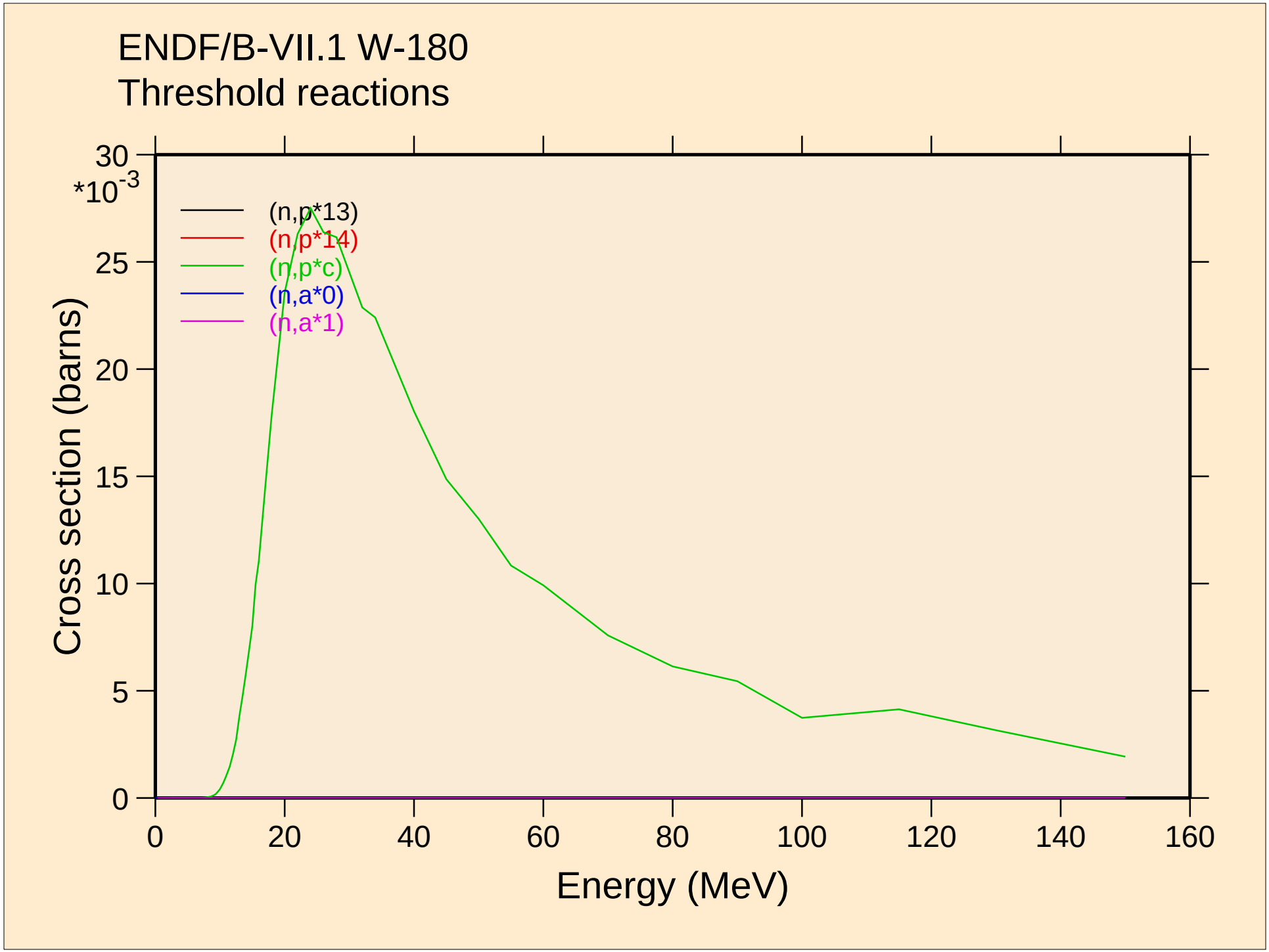

ENDF/B-VII.1 W-180
Threshold reactions
(n,x)
(n,2n)
(n,3n)
(n,n*)p
(n,4n)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
20
40
60
80
100
120
140
160

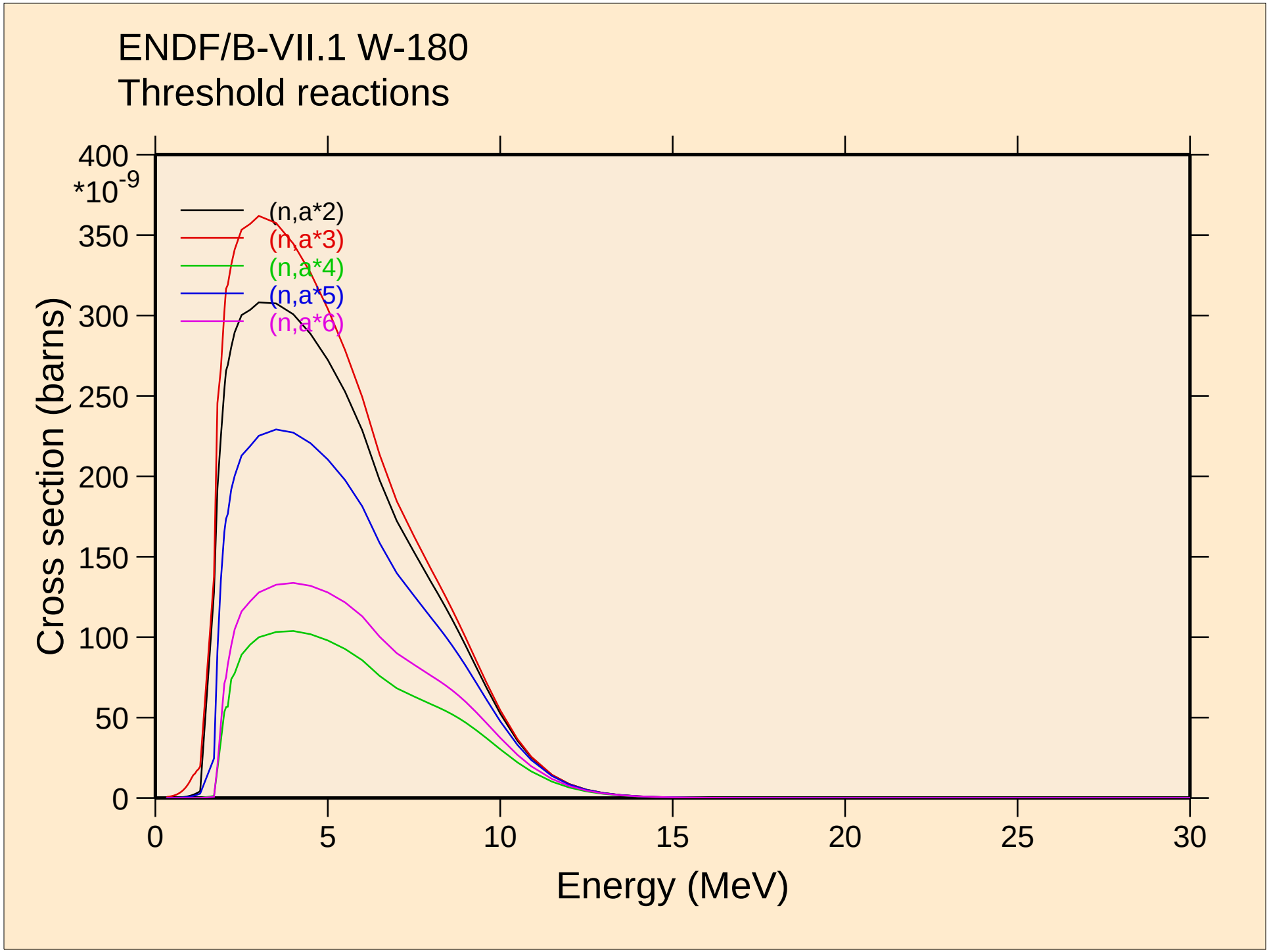

ENDF/B-VII.1 W-180
Threshold reactions
(n,2np)
(n,n*c)
(n,p)
(n,a)
Cross section (barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0
20
40
60
80
100
120
140
160
Energy (MeV)

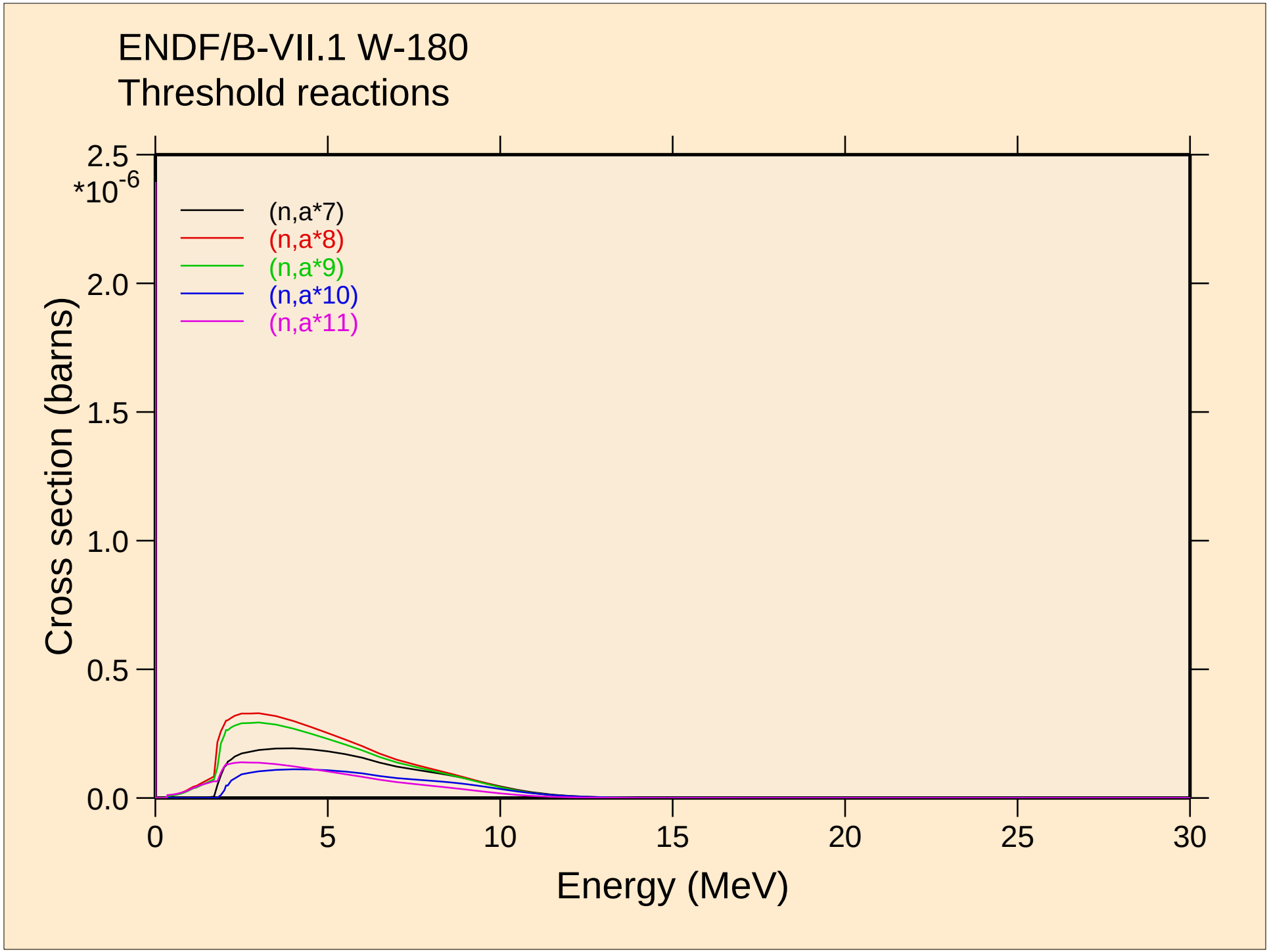

ENDF/B-VII.1 W-180
Threshold reactions
(n,xp)
(n,xa)
(n,p*0)
(n,p*1)
(n,p*2)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
20
40
60
80
100
120
140
160

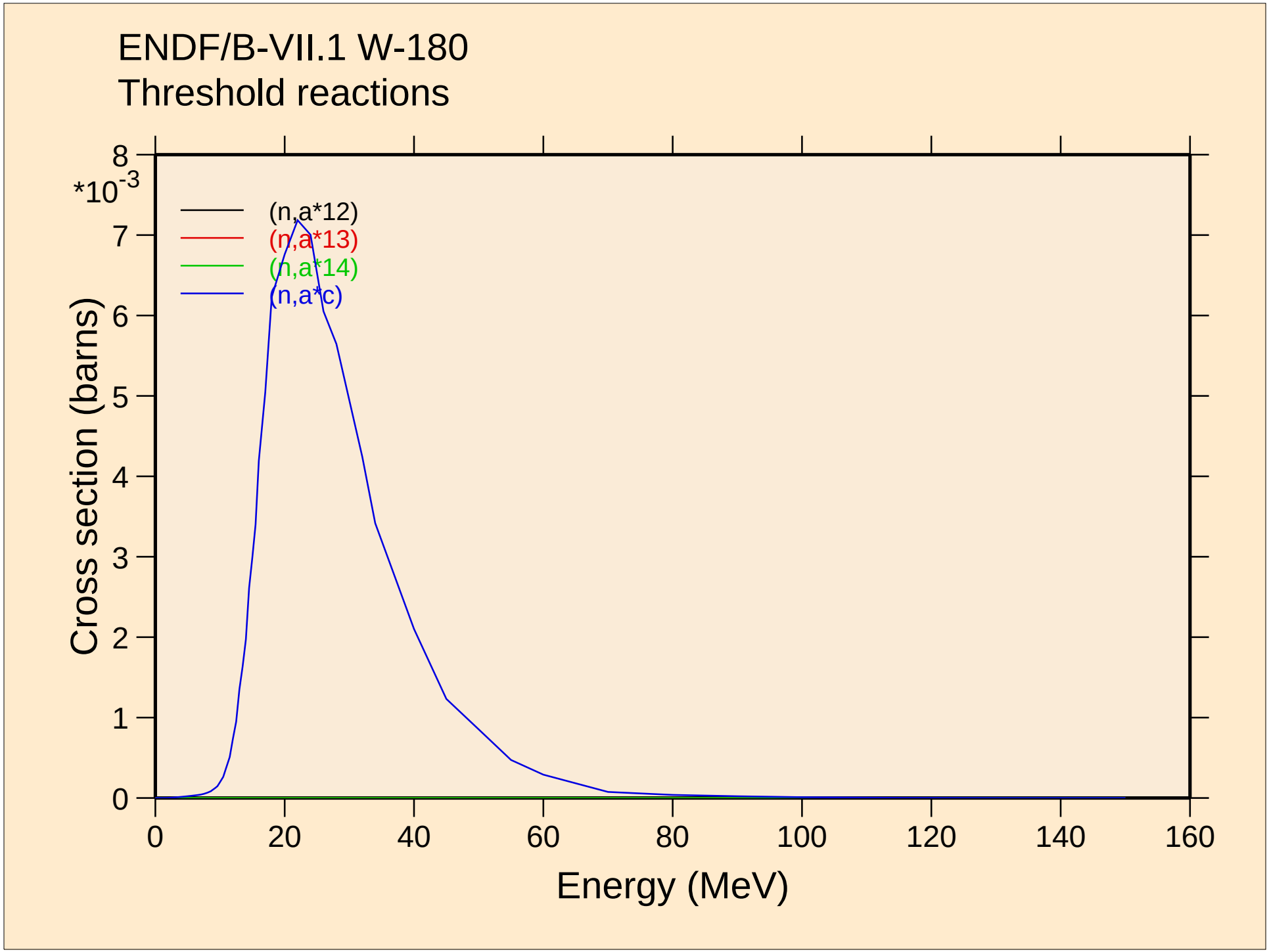

ENDF/B-VII.1 W-180
Threshold reactions
120
*10-9
100
80
60
40
20
0
Cross section (barns)
(n,p*3)
(n,p*4)
(n,p*5)
(n,p*6)
(n,p*7)
0
5
10
15
20
25
30
Energy (MeV)

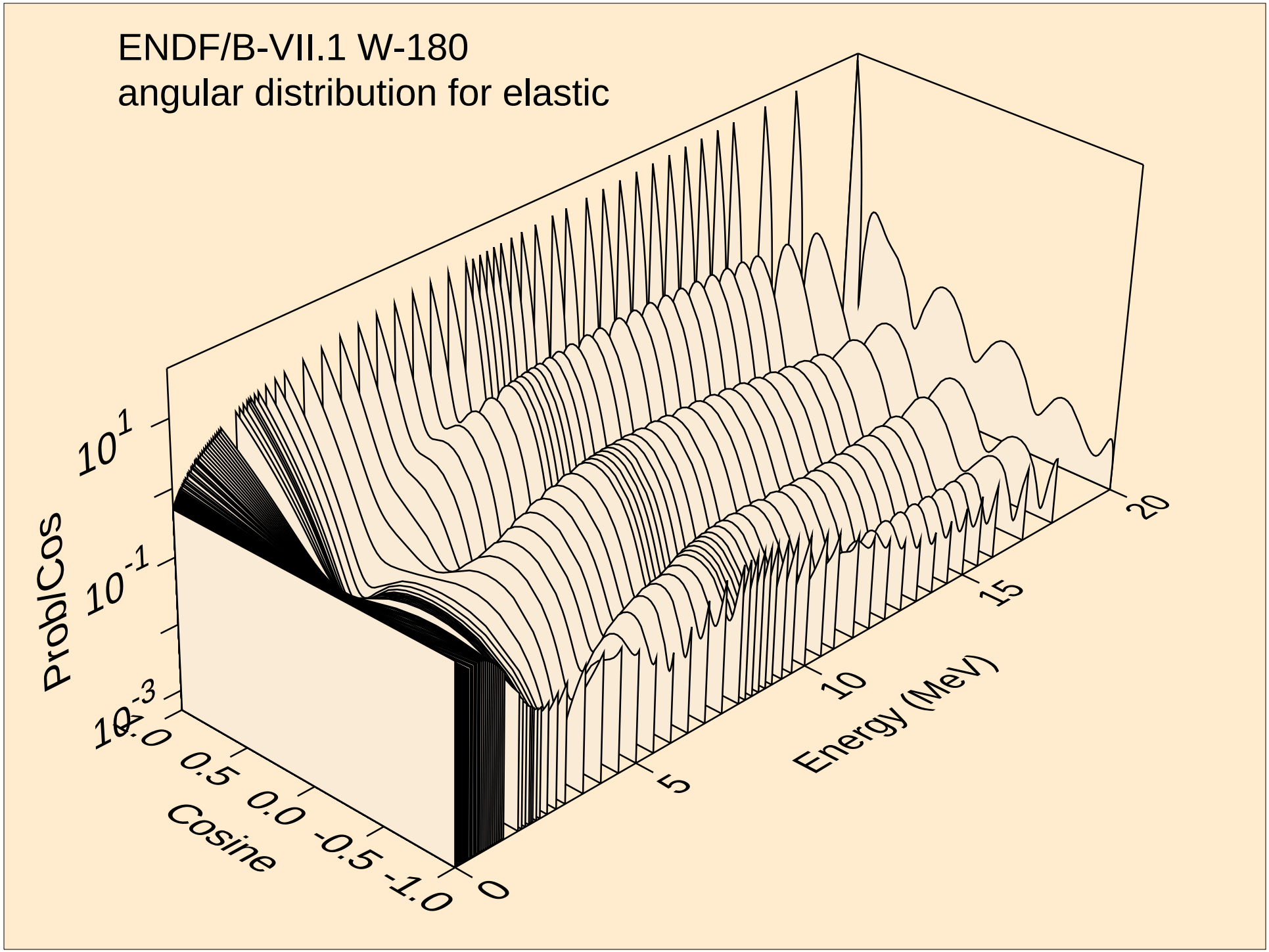

ENDF/B-VII.1 W-180
Threshold reactions
*10-9
Cross section (barns)
Energy (MeV)
(n,p*8)
(n,p*9)
(n,p*10)
(n,p*11)
(n,p*12)
0
10
20
30
40
50
60
70
80
0
5
10
15
20
25
30

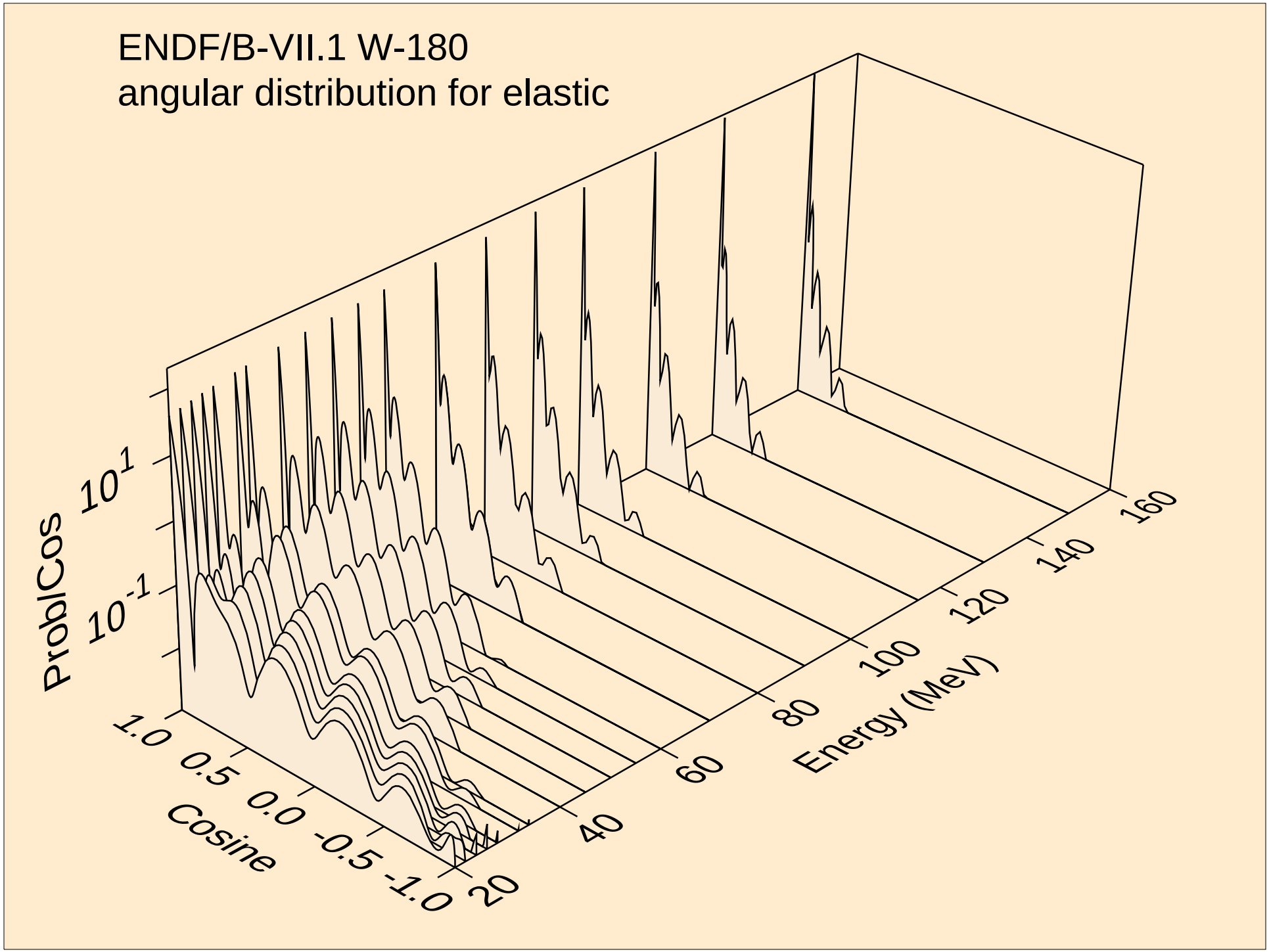

ENDF/B-VII.1 W-180
Threshold reactions
*10-3
30
25
20
15
10
5
0
Cross section (barns)
(n,p*13)
(n,p*14)
(n,p*c)
(n,a*0)
(n,a*1)
0
20
40
60
80
100
120
140
160
Energy (MeV)

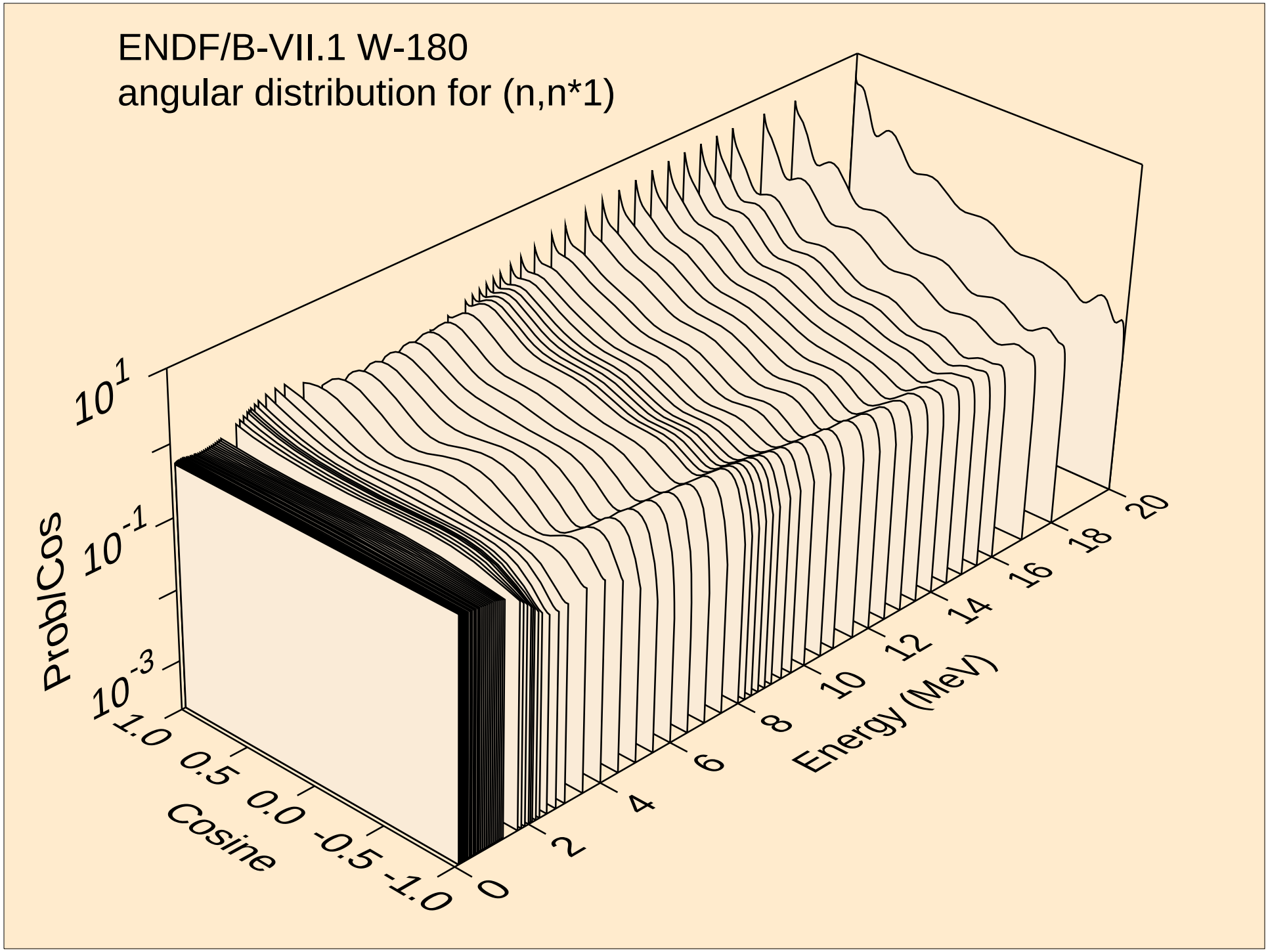

ENDF/B-VII.1 W-180
Threshold reactions
400
*10-9
350
300
250
200
150
100
50
0
Cross section (barns)
(n,a*2)
(n,a*3)
(n,a*4)
(n,a*5)
(n,a*6)
0
5
10
15
20
25
30
Energy (MeV)

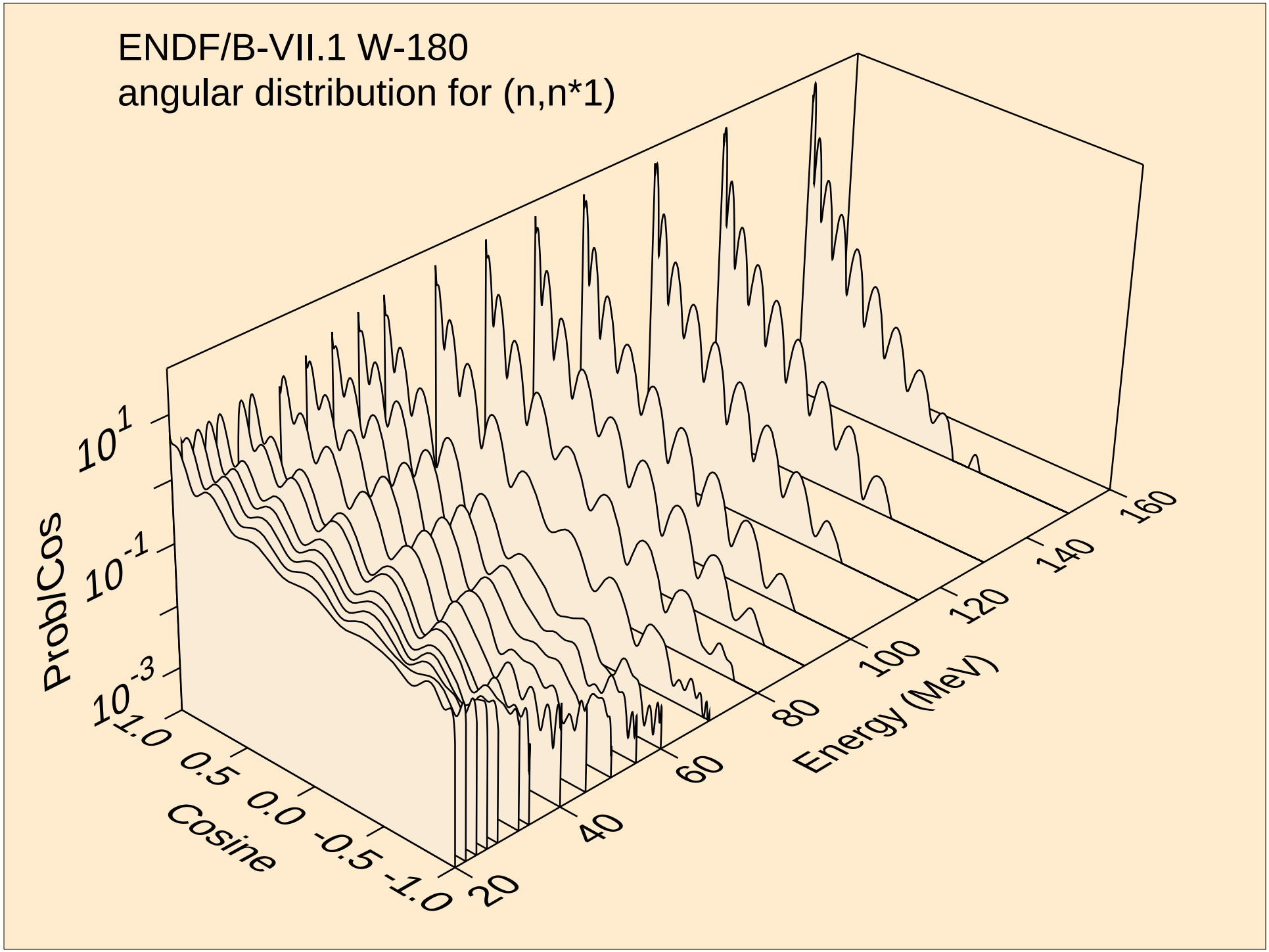

ENDF/B-VII.1 W-180
Threshold reactions
2.5
*10-6
2.0
1.5
1.0
0.5
0.0
Cross section (barns)
(n,a*7)
(n,a*8)
(n,a*9)
(n,a*10)
(n,a*11)
0
5
10
15
20
25
30
Energy (MeV)

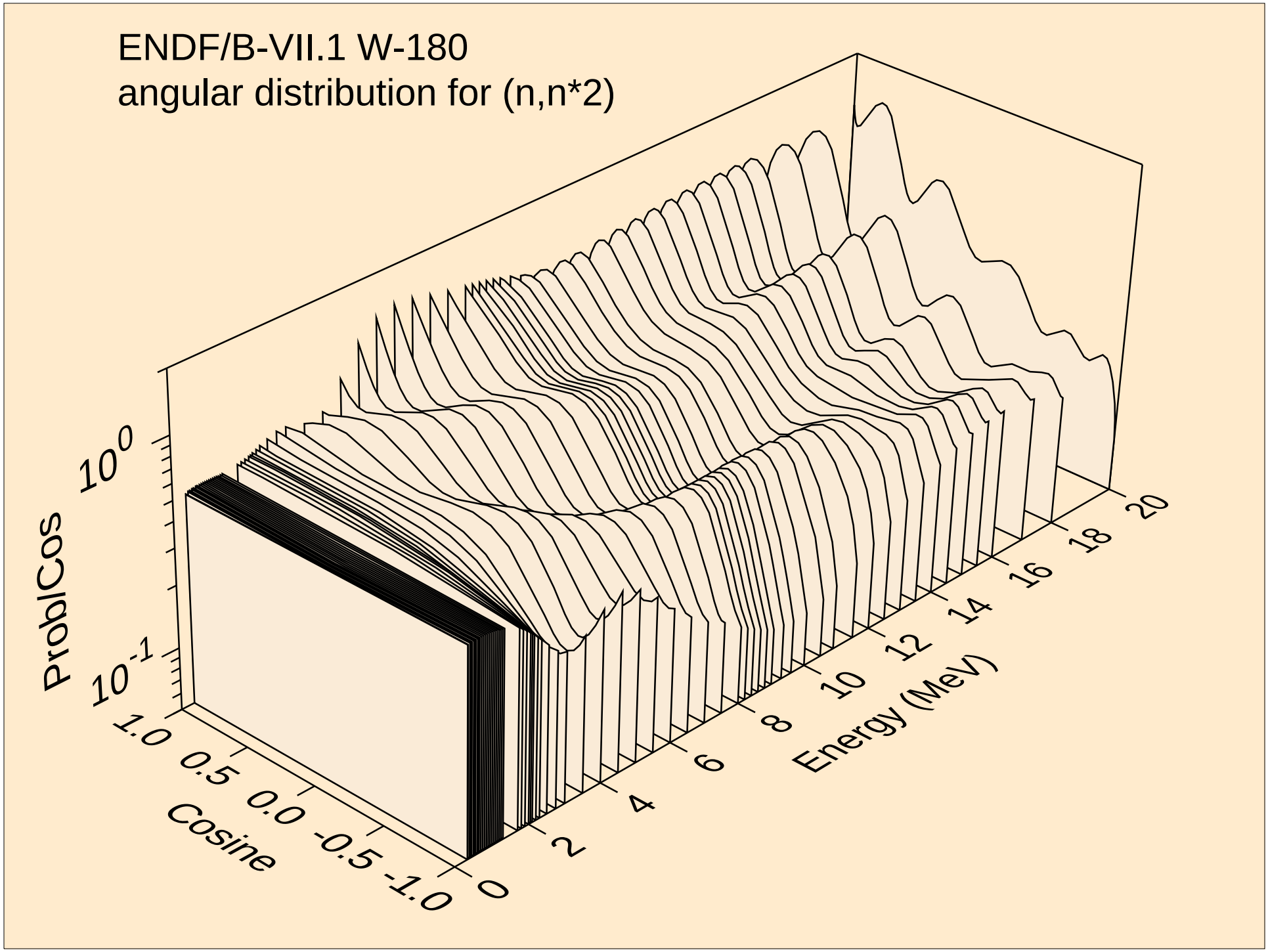

ENDF/B-VII.1 W-180
Threshold reactions
*10-3
Cross section (barns)
(n,a*12)
(n,a*13)
(n,a*14)
(n,a*c)
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
120
140
160
Energy (MeV)

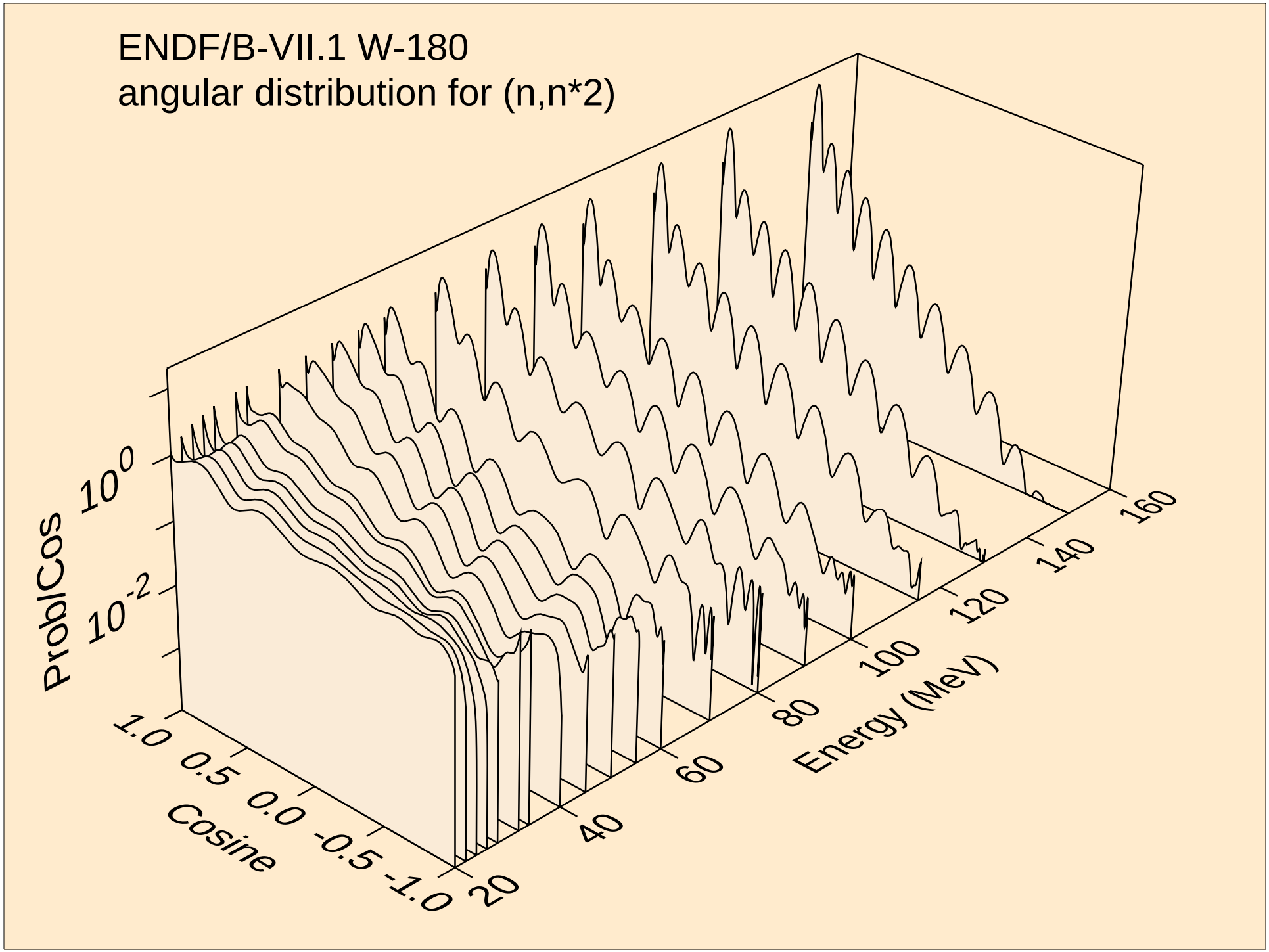

ENDF/B-VII.1 W-180
angular distribution for elastic
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

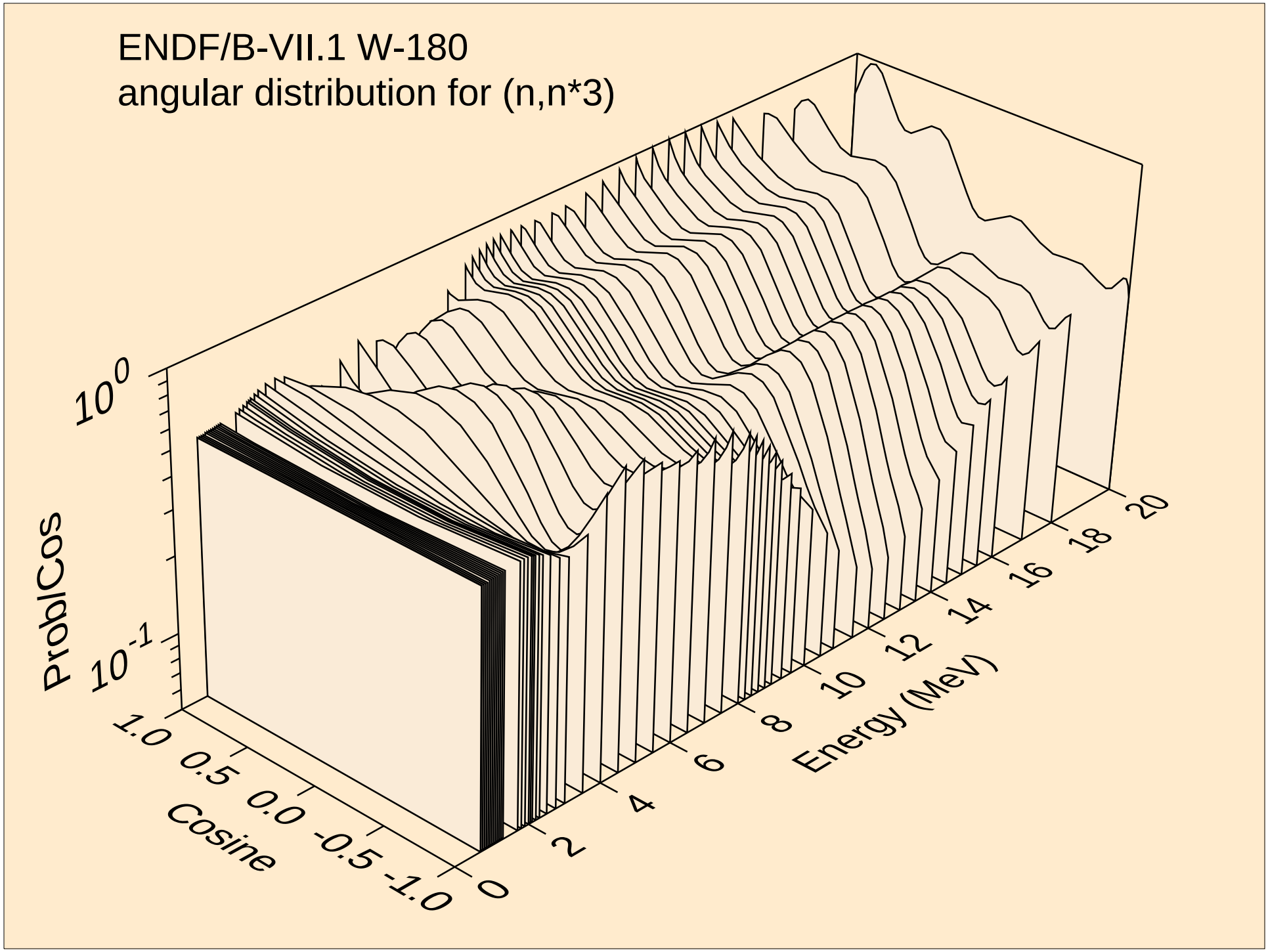

ENDF/B-VII.1 W-180
angular distribution for elastic
ProbICos
10^{1}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

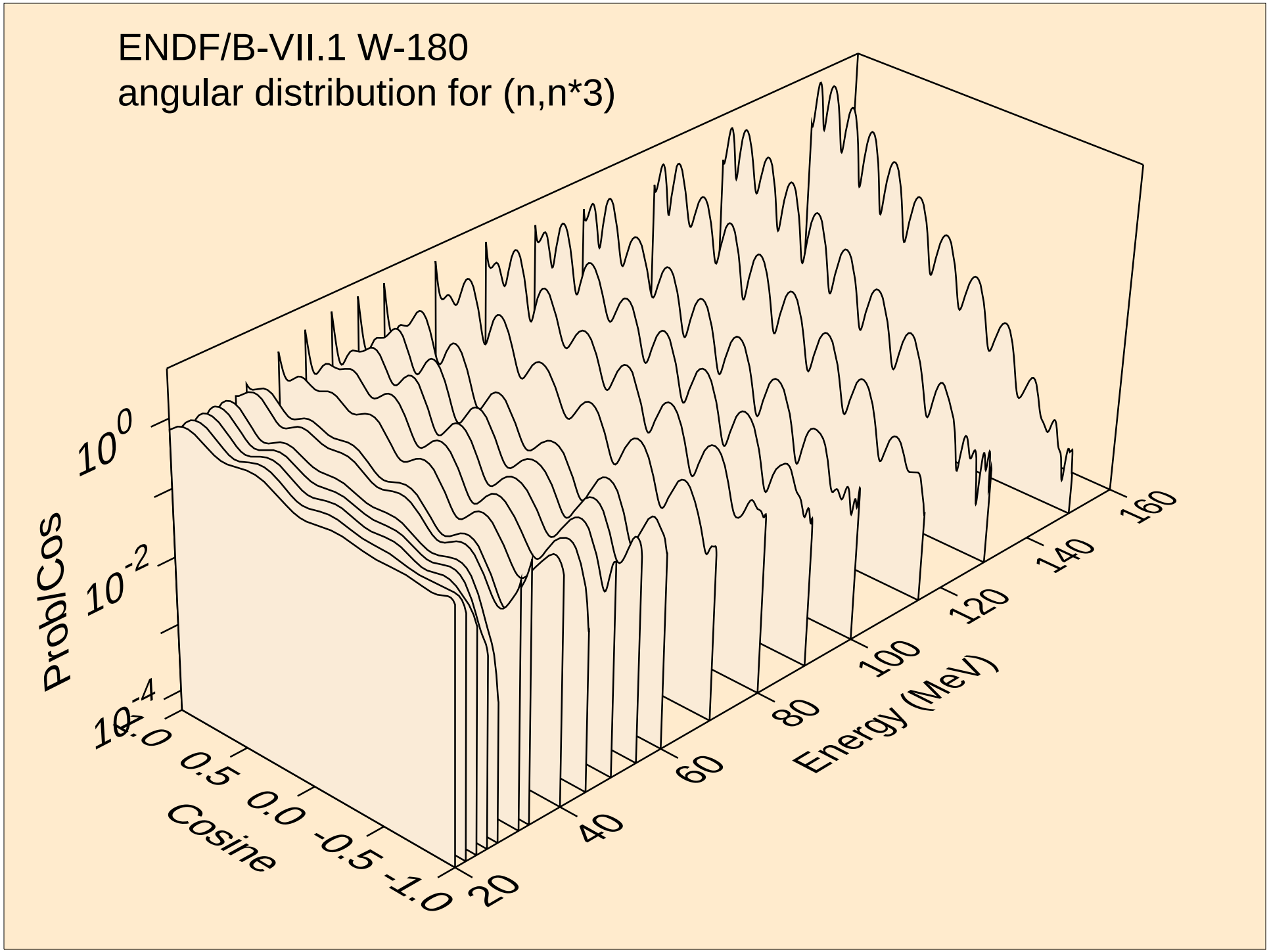

ENDF/B-VII.1 W-180
angular distribution for (n,n*1)
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

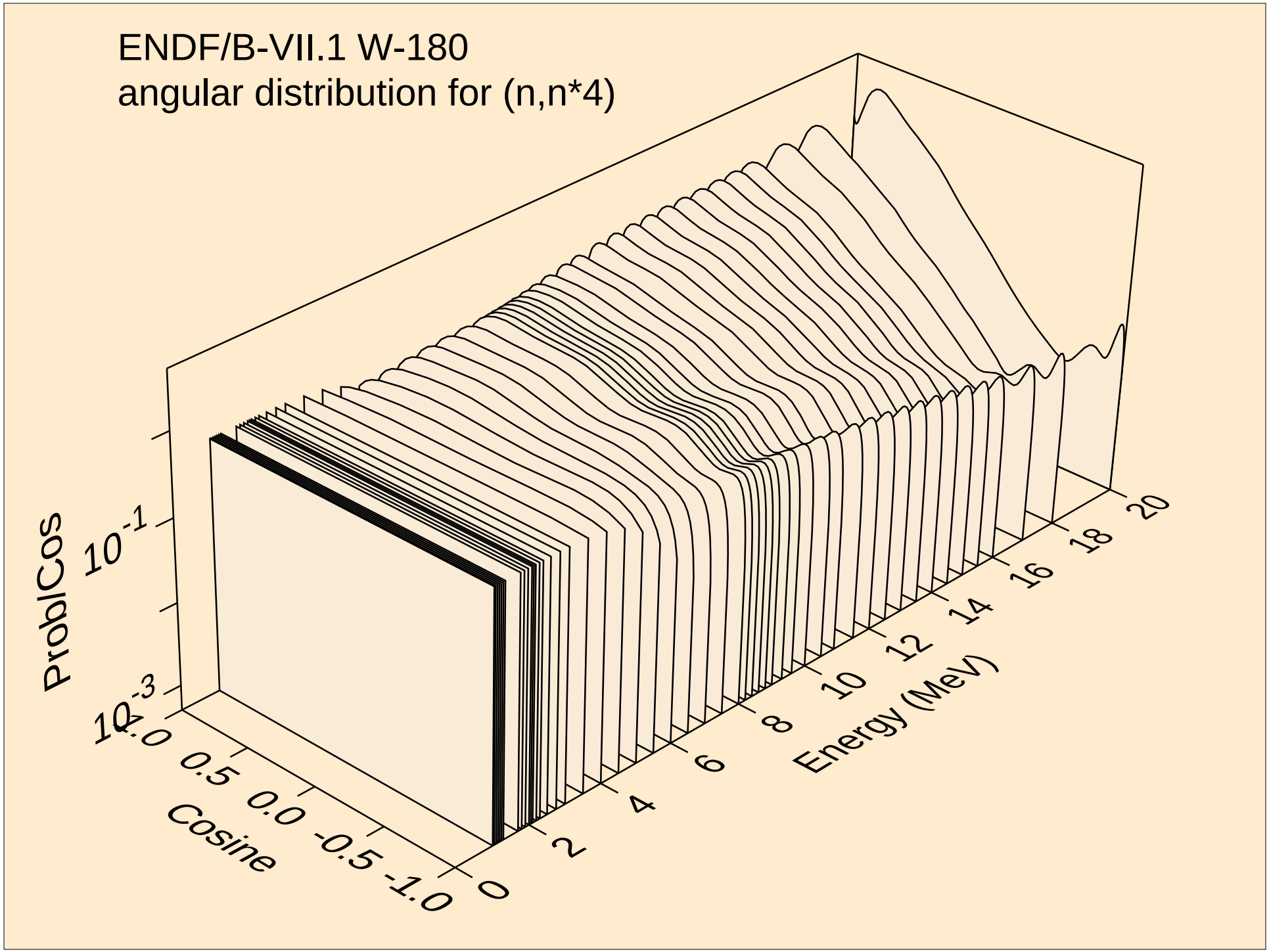

ENDF/B-VII.1 W-180
angular distribution for (n,n*1)
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

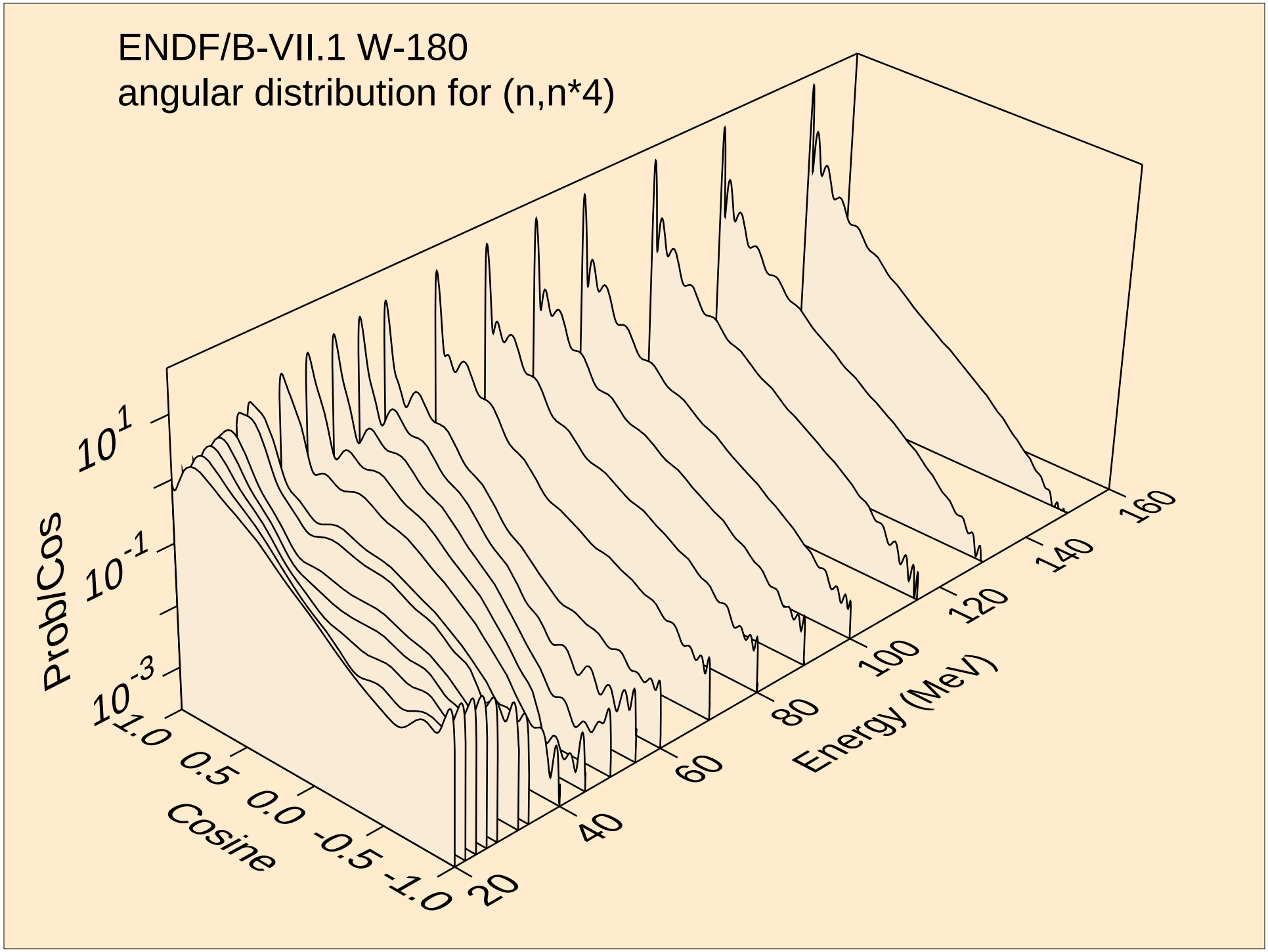

ENDF/B-VII.1 W-180
angular distribution for (n,n*2)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

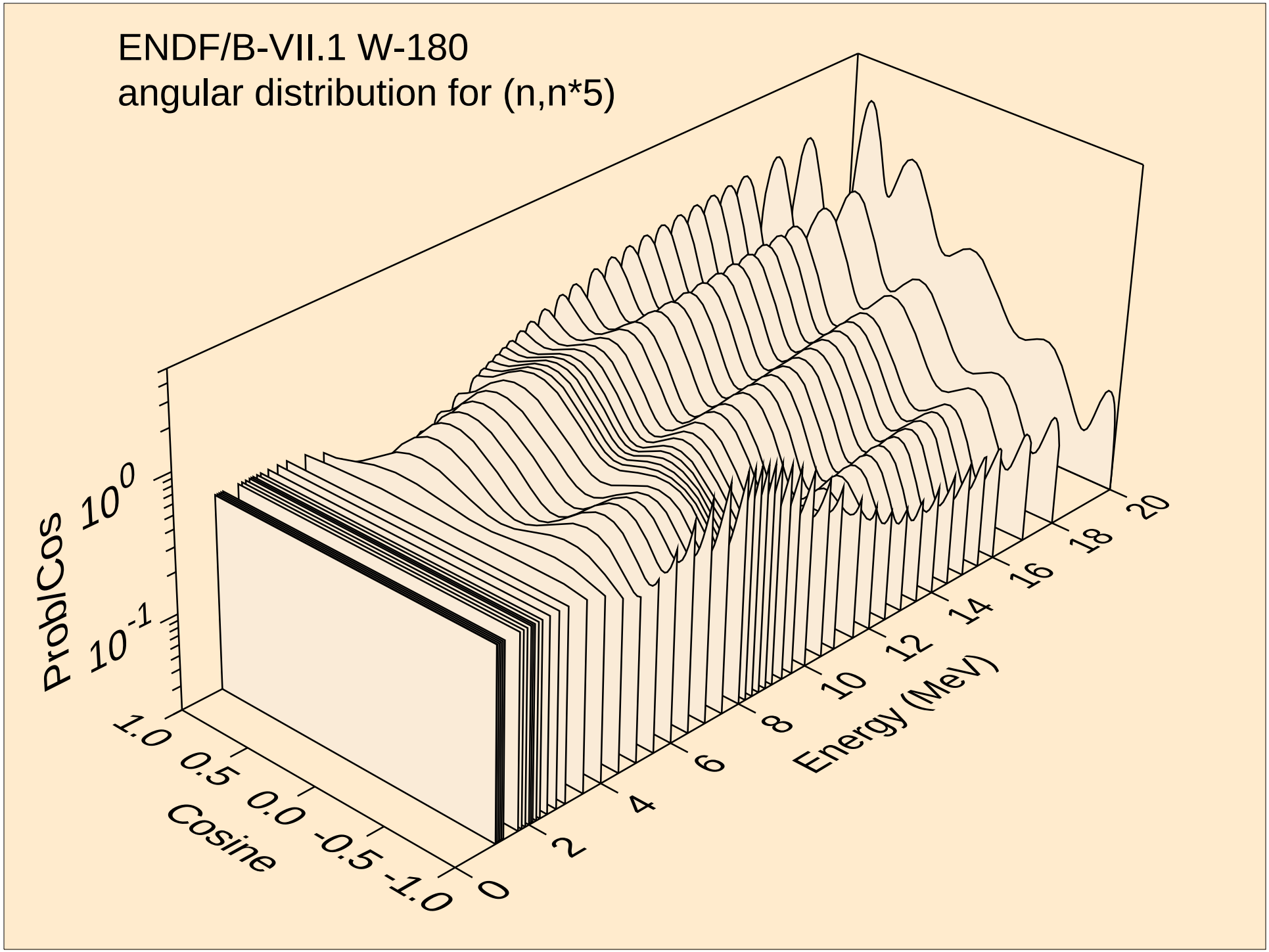

ENDF/B-VII.1 W-180
angular distribution for (n,n*2)
ProbICos
10^0
10^-2
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

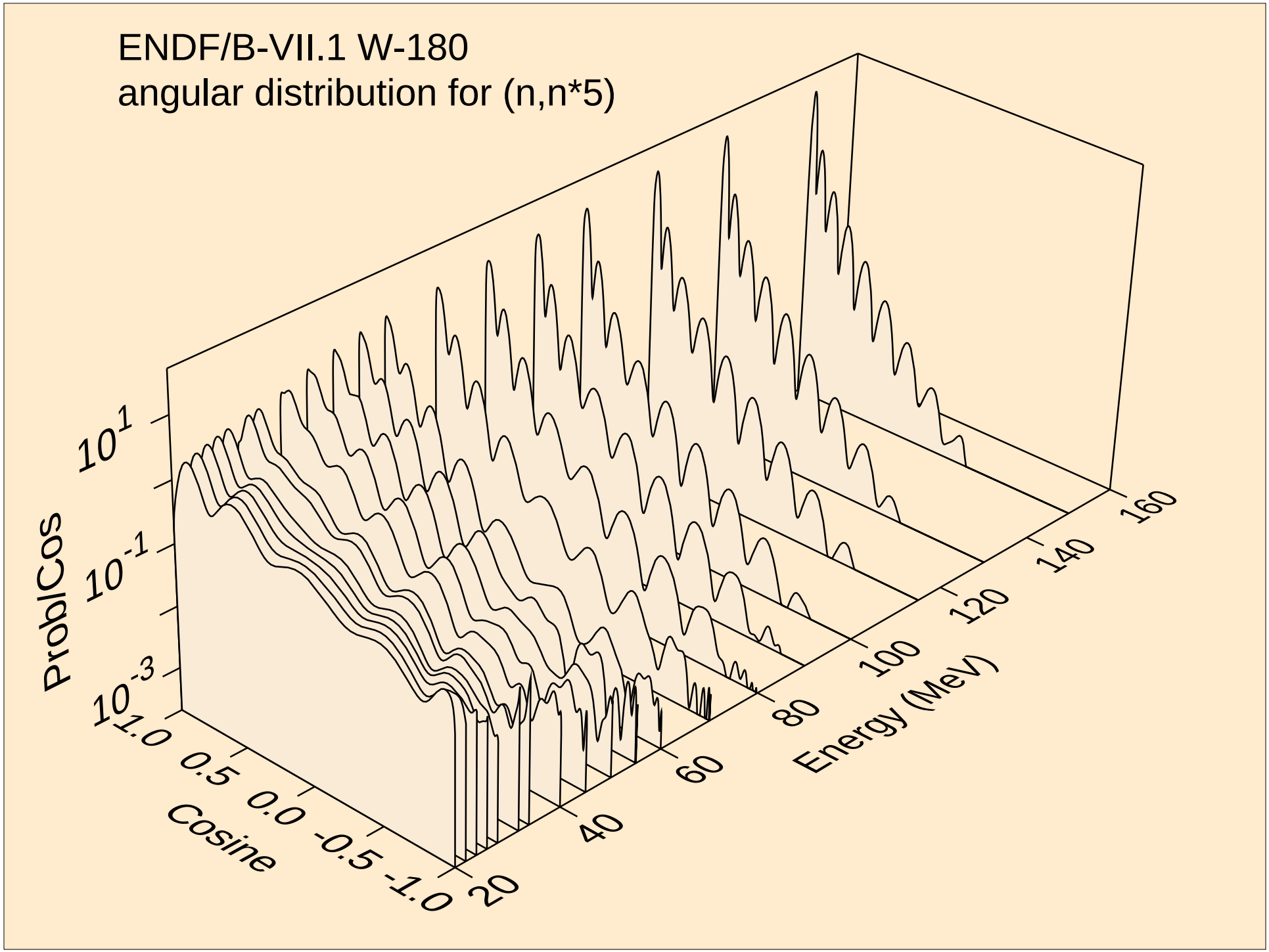

ENDF/B-VII.1 W-180
angular distribution for (n,n*3)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

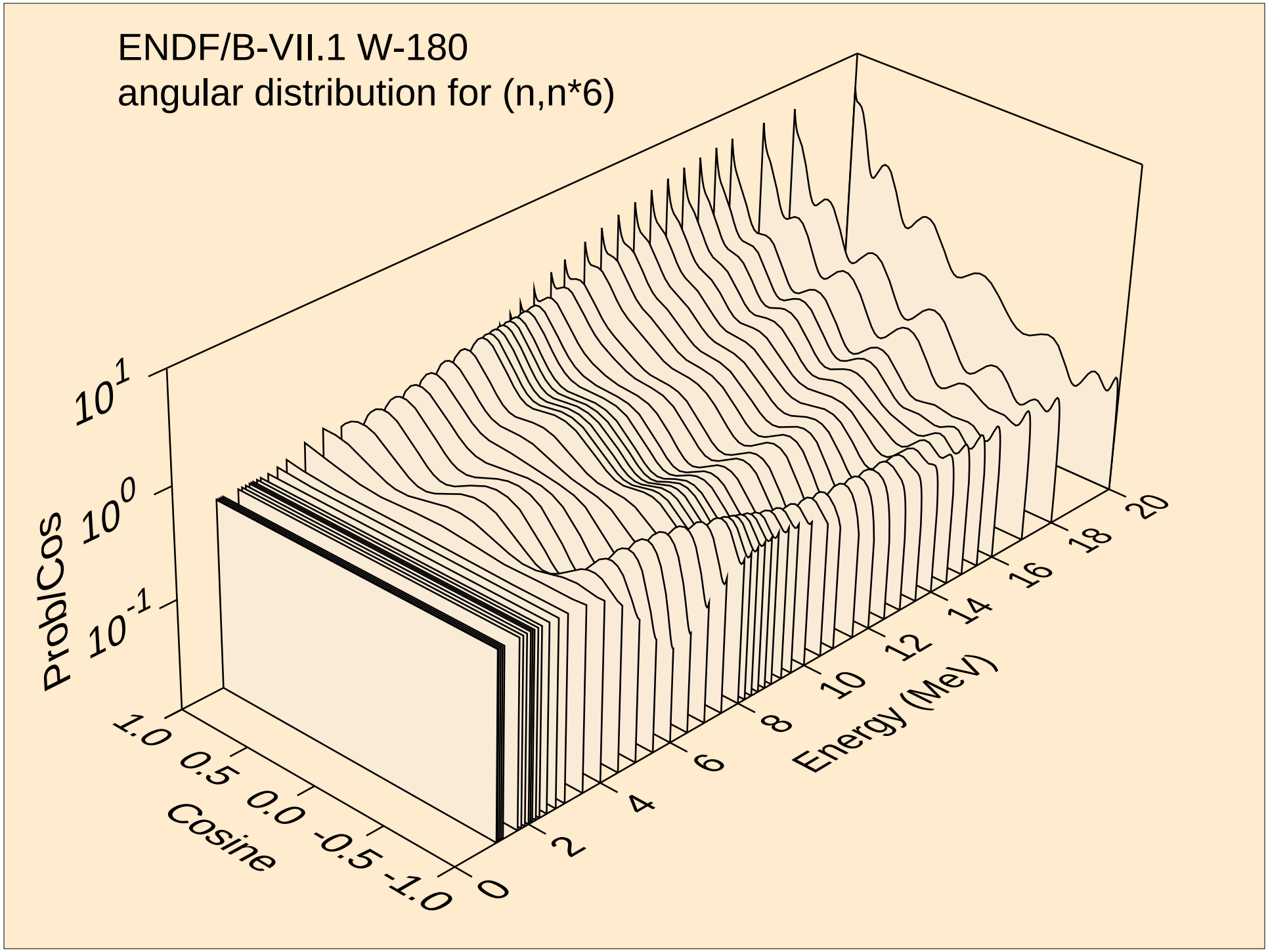

ENDF/B-VII.1 W-180
angular distribution for (n,n*3)
Prob\Cos
10^{0}
10^{-2}
10^{-4}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

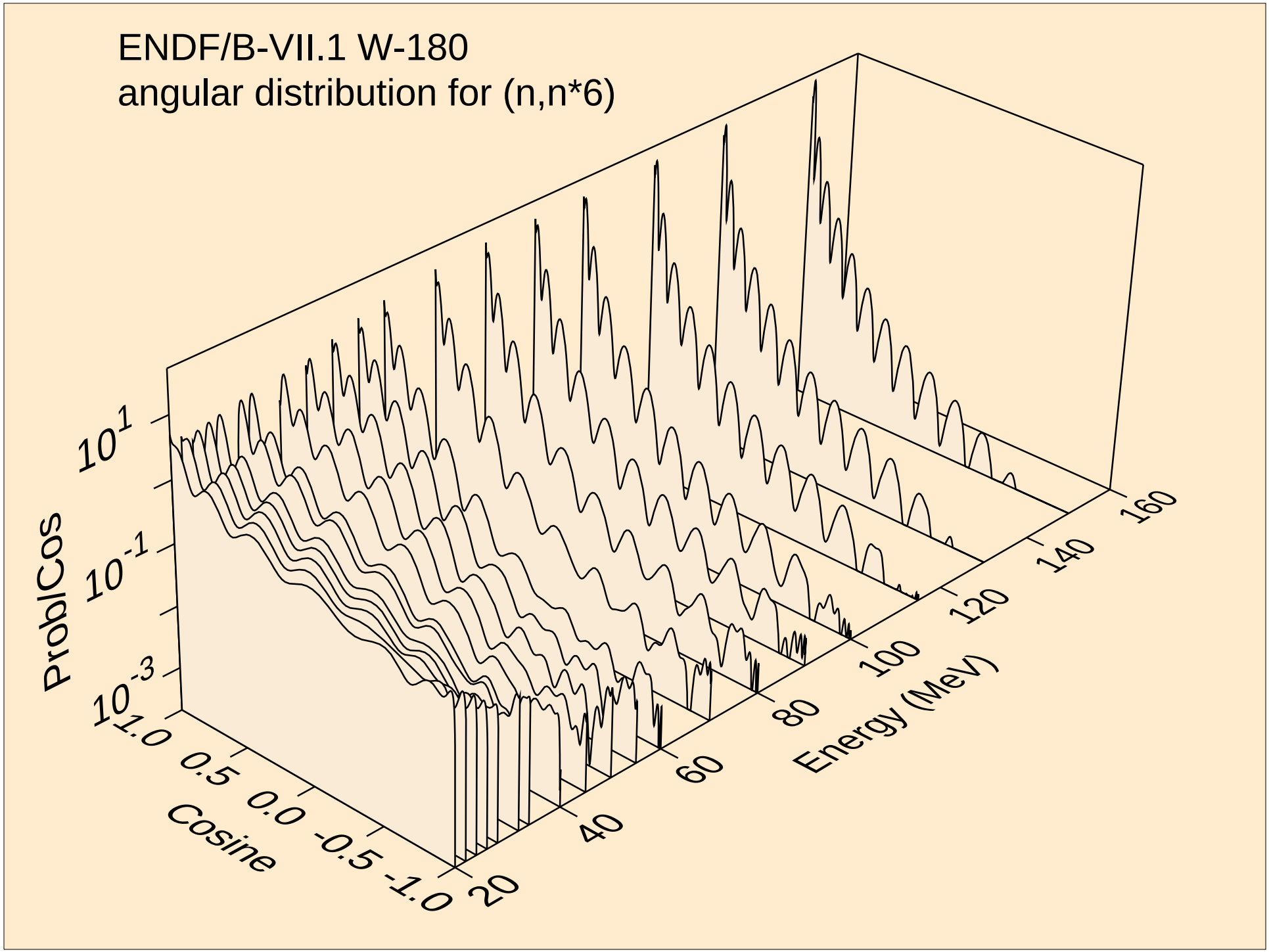

ENDF/B-VII.1 W-180
angular distribution for (n,n*4)
ProbICos
10-1
10-3
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

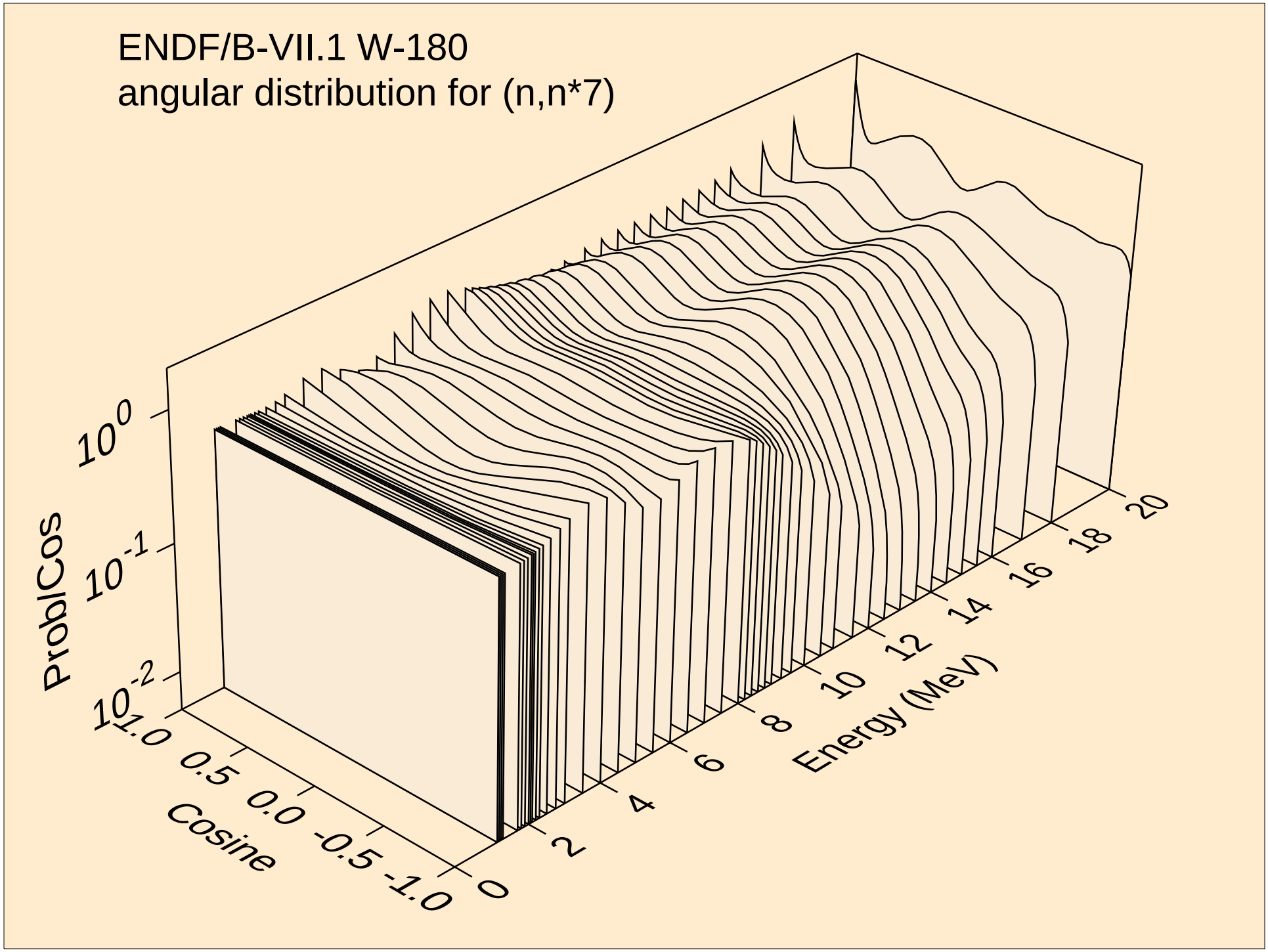

ENDF/B-VII.1 W-180
angular distribution for (n,n*4)
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

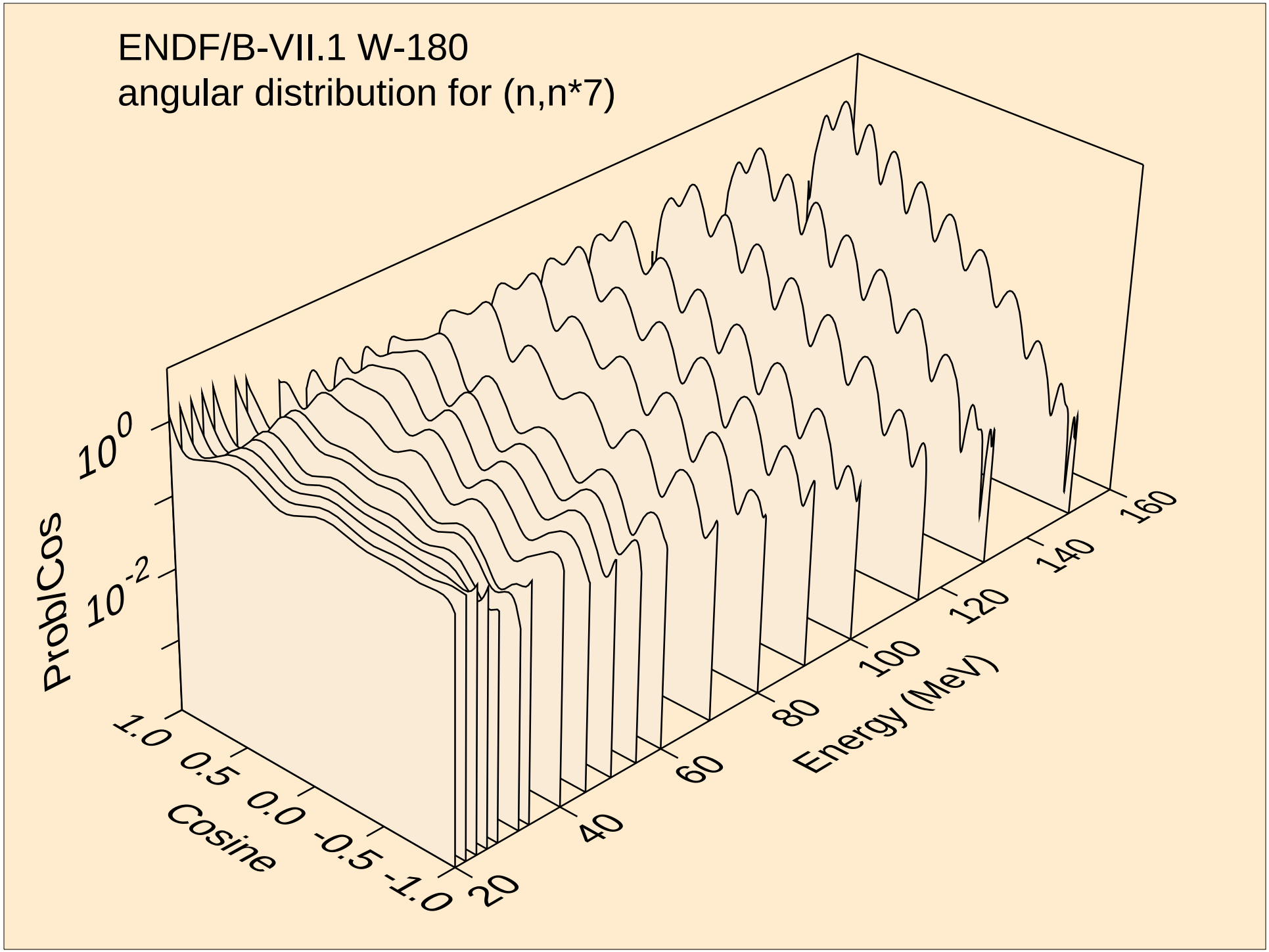

ENDF/B-VII.1 W-180
angular distribution for (n,n*5)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

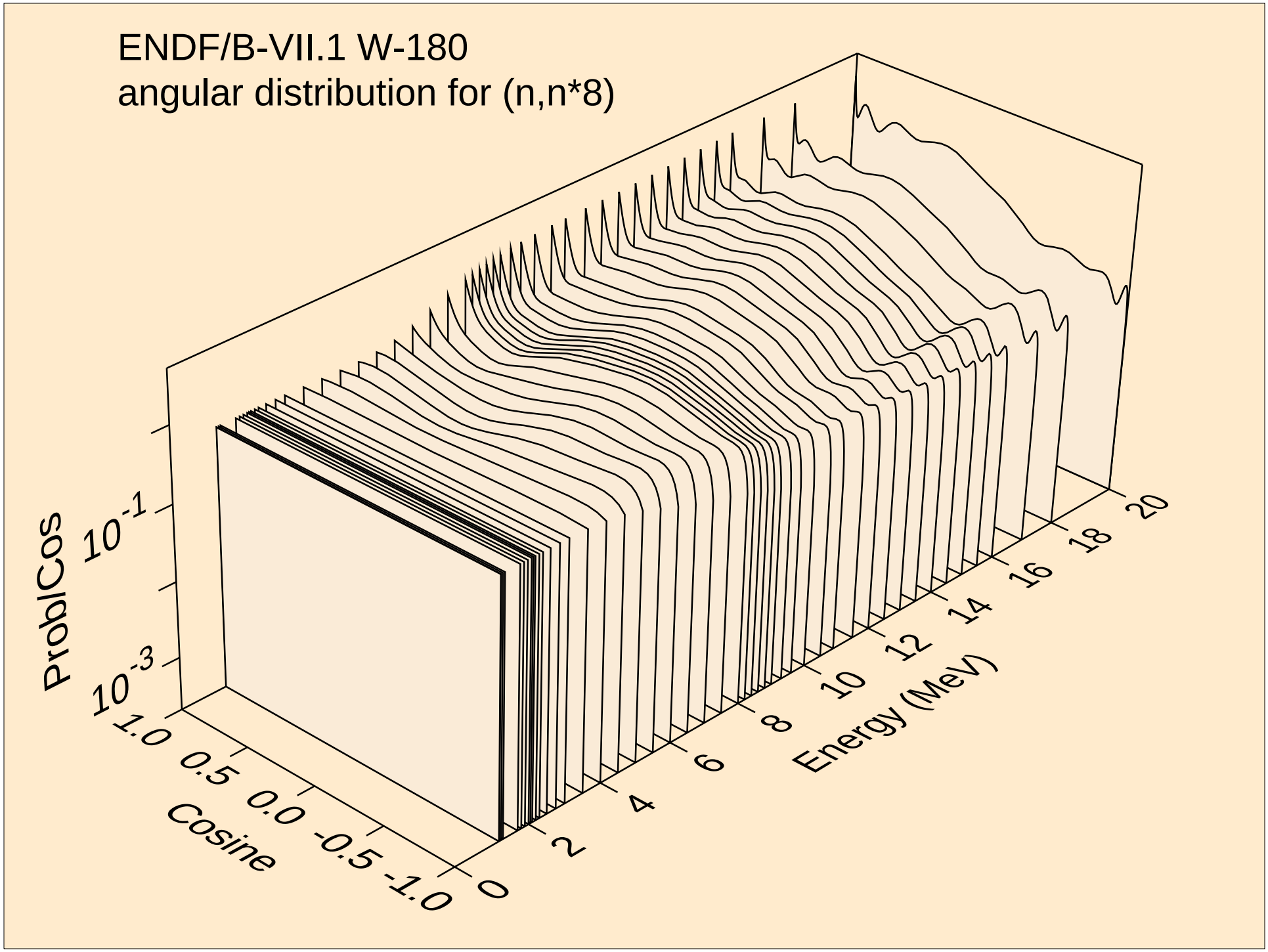

ENDF/B-VII.1 W-180
angular distribution for (n,n*5)
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

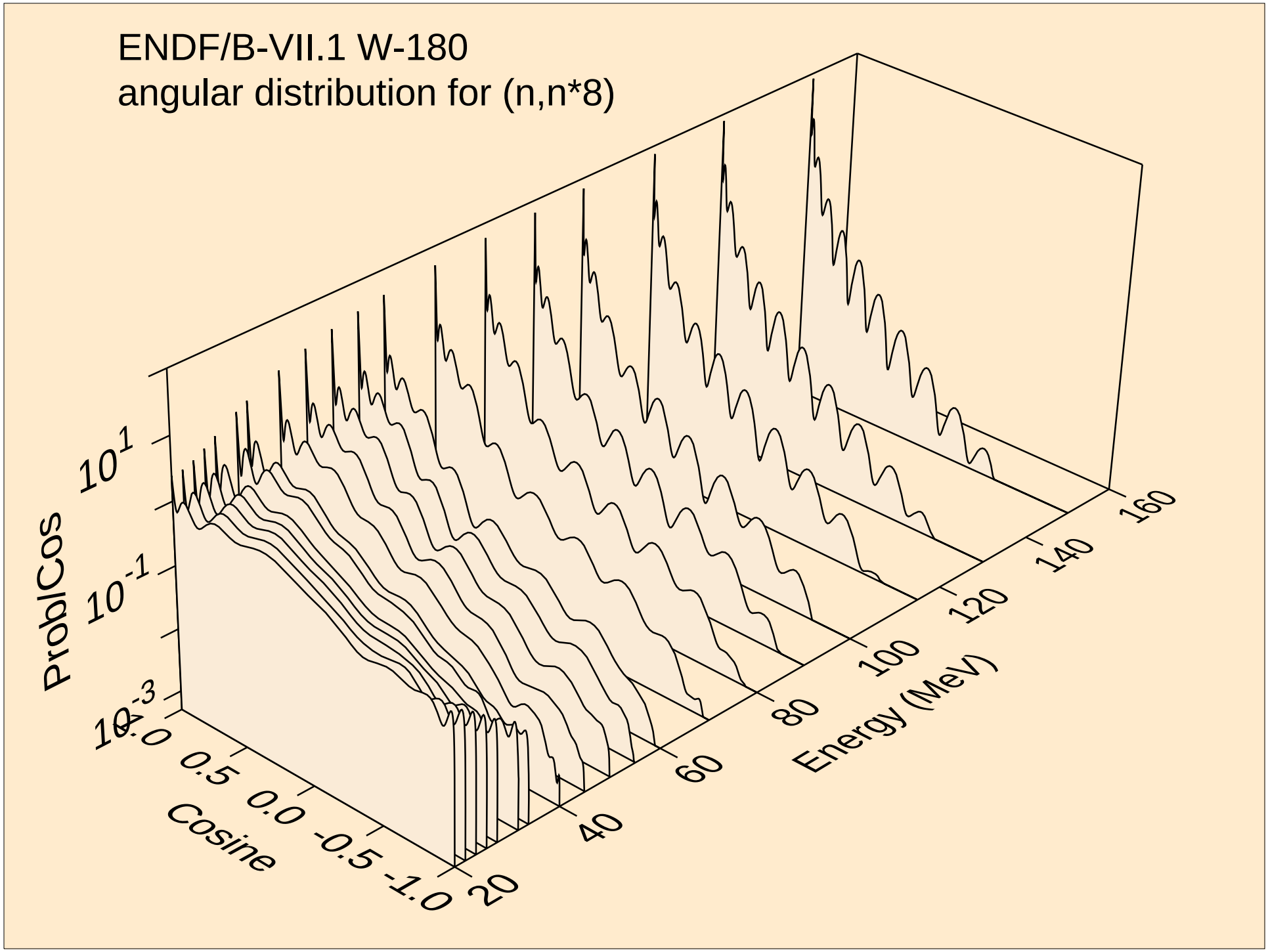

ENDF/B-VII.1 W-180
angular distribution for (n,n*6)
Prob\Cos
10^{1}
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

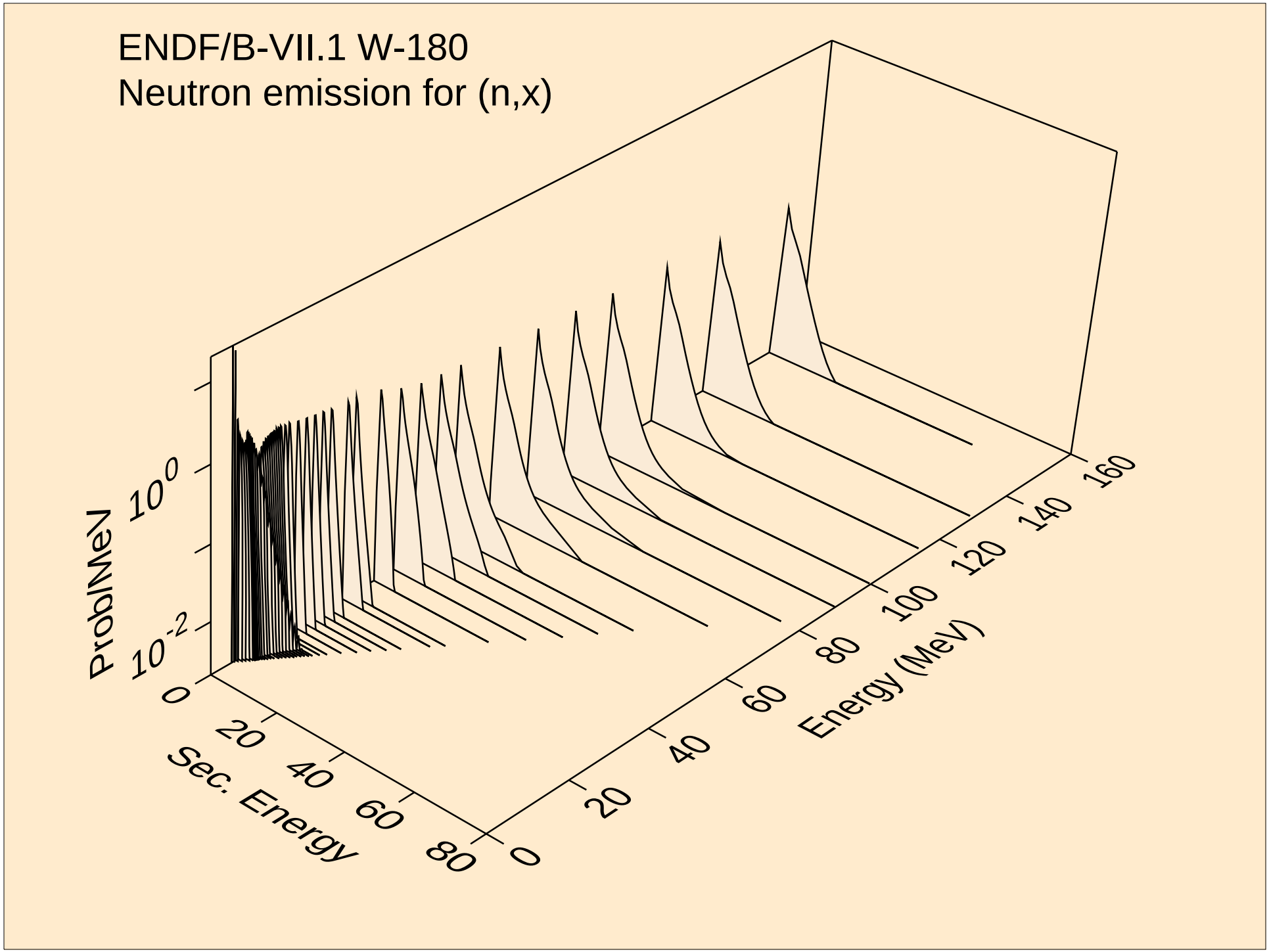

ENDF/B-VII.1 W-180
angular distribution for (n,n*6)
ProbICos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

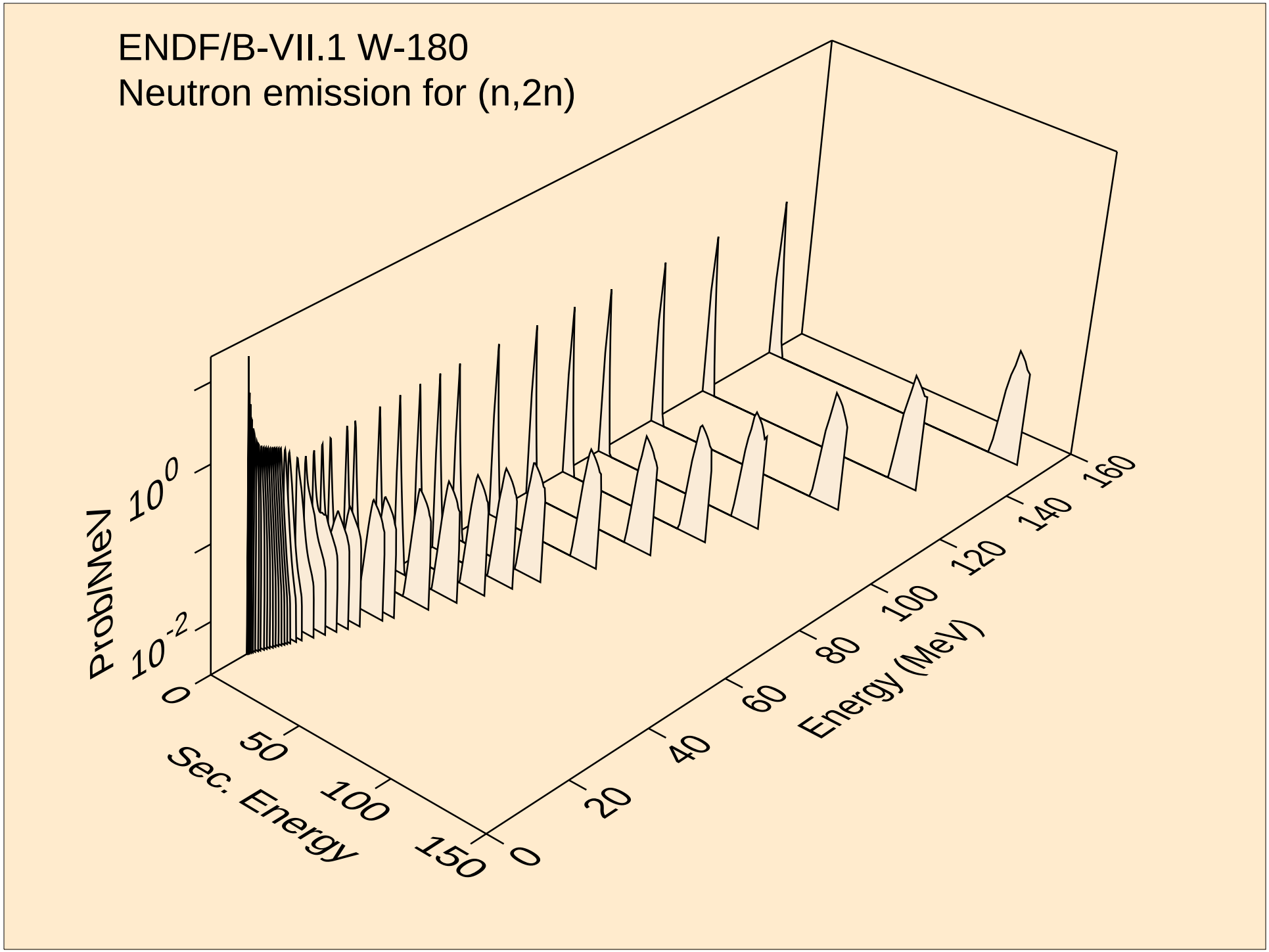

ENDF/B-VII.1 W-180
angular distribution for (n,n*7)
Prob\Cos
10^{0}
10^{-1}
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

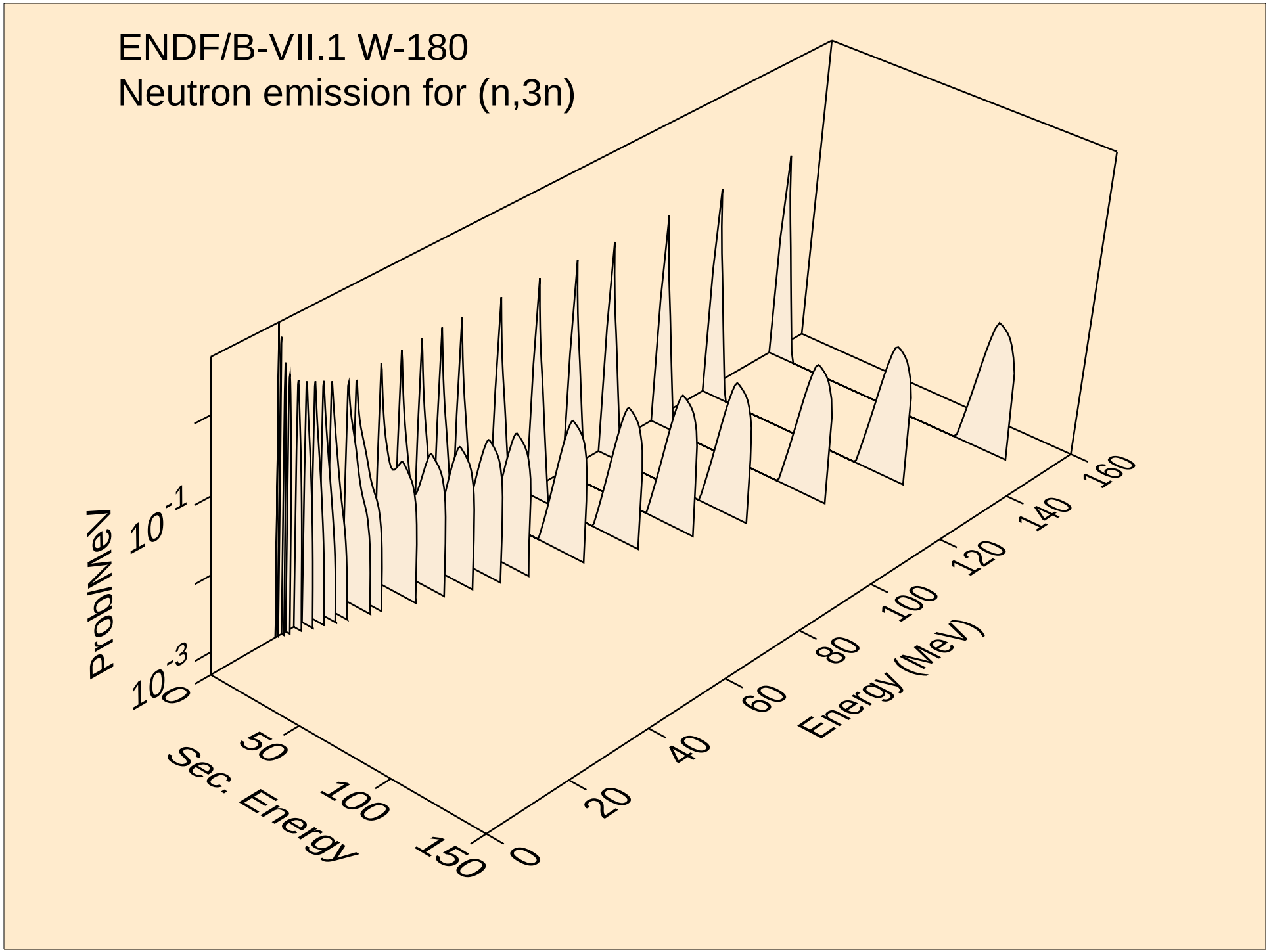

ENDF/B-VII.1 W-180
angular distribution for (n,n*7)
ProbICos
10^{0}
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

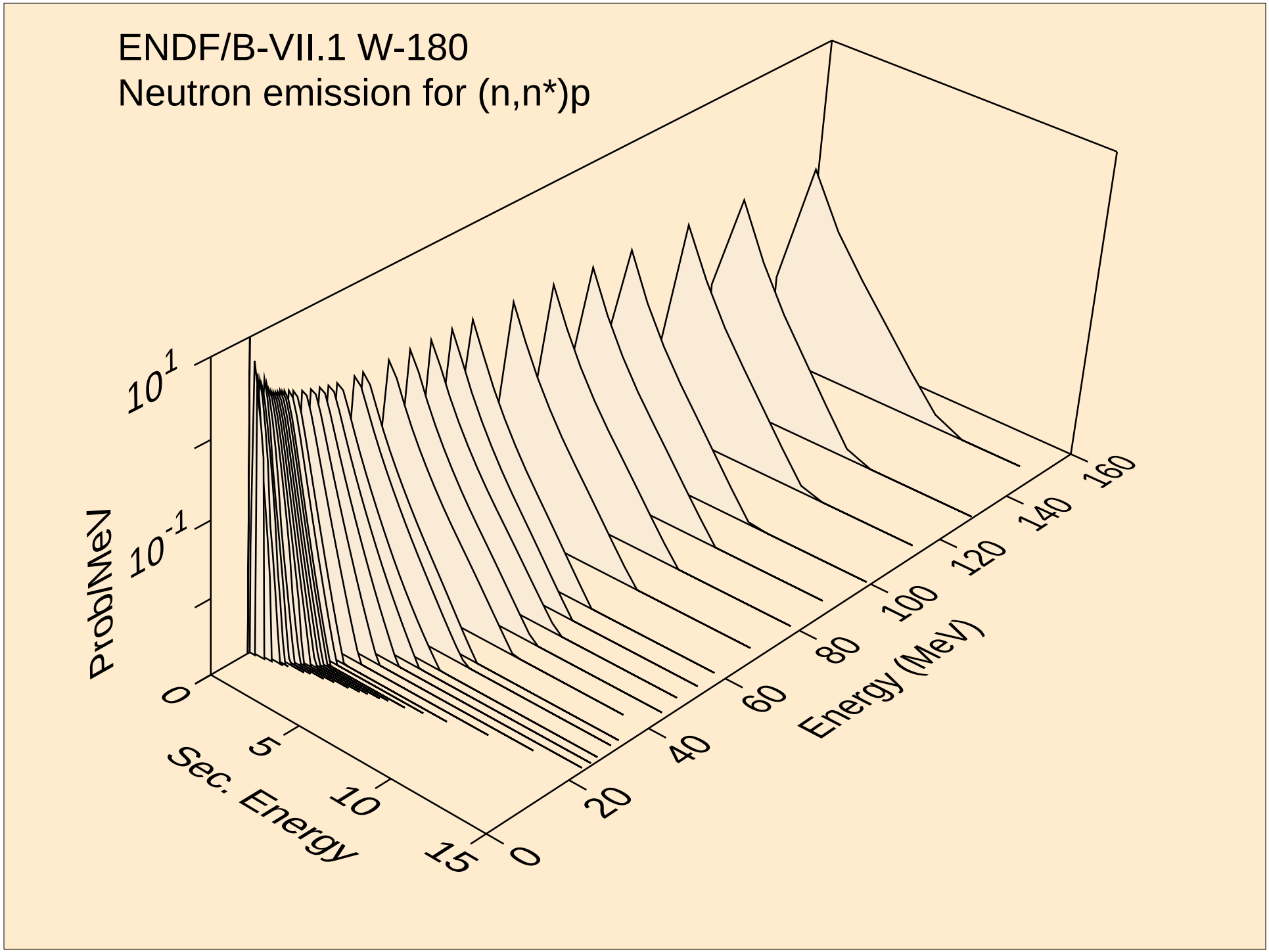

ENDF/B-VII.1 W-180
angular distribution for (n,n*8)
ProbICos
10-1
10-3
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

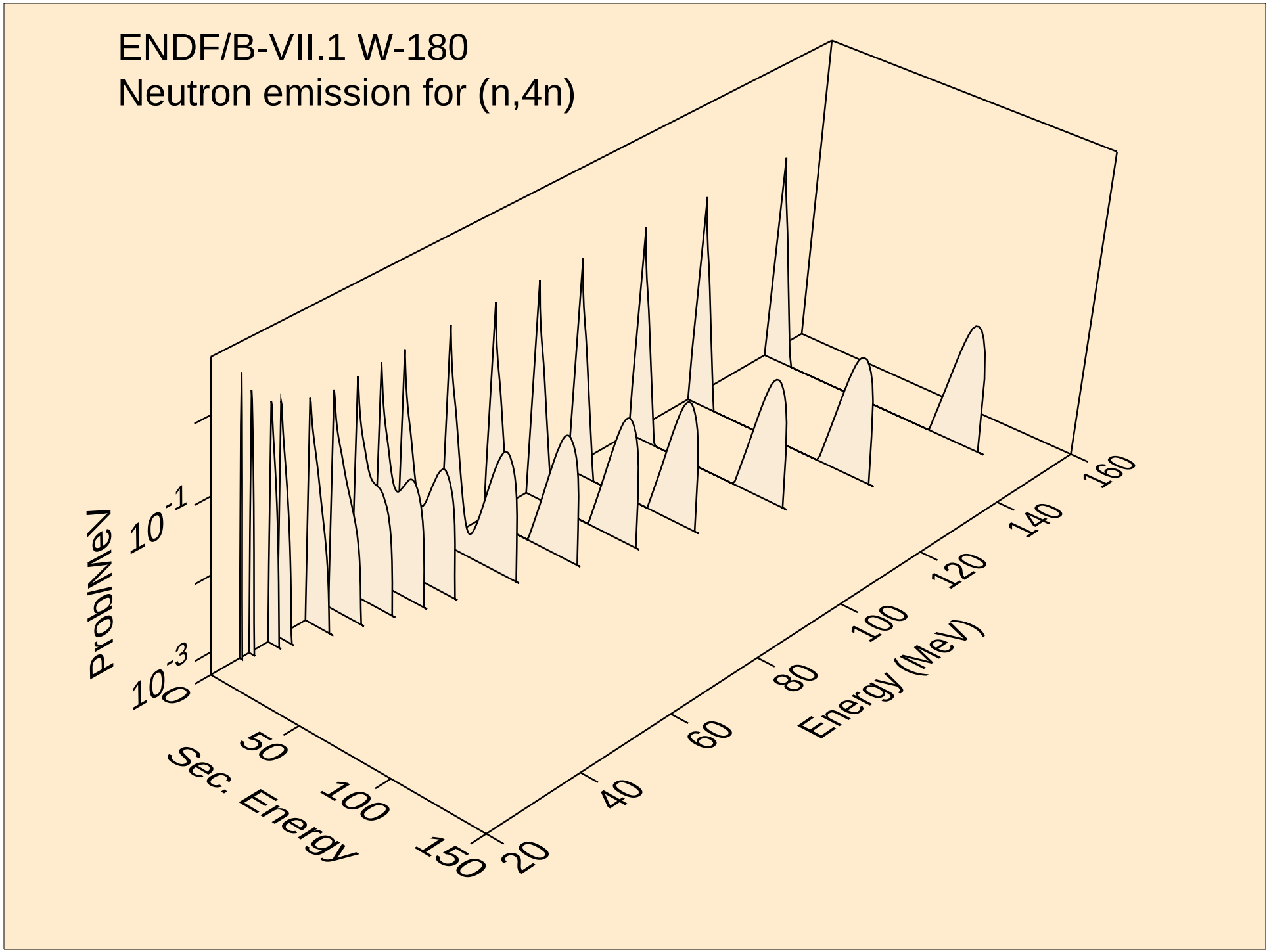

ENDF/B-VII.1 W-180
angular distribution for (n,n*8)
Prob\Cos
10^{1}
10^{-1}
10^{-3}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

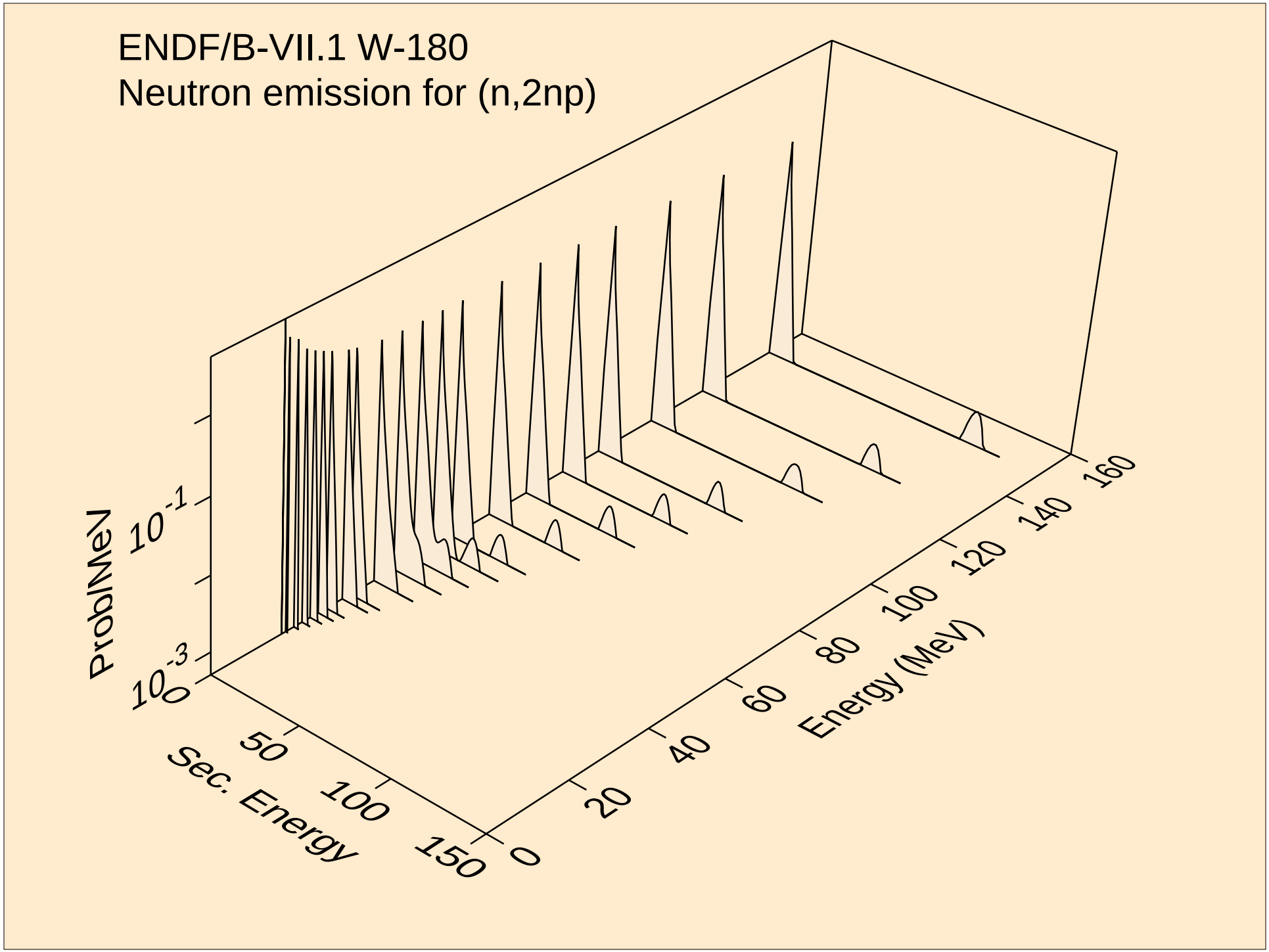

ENDF/B-VII.1 W-180
Neutron emission for (n,x)
Prob/MeV
10^{0}
10^{-2}
0
20
40
60
80
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

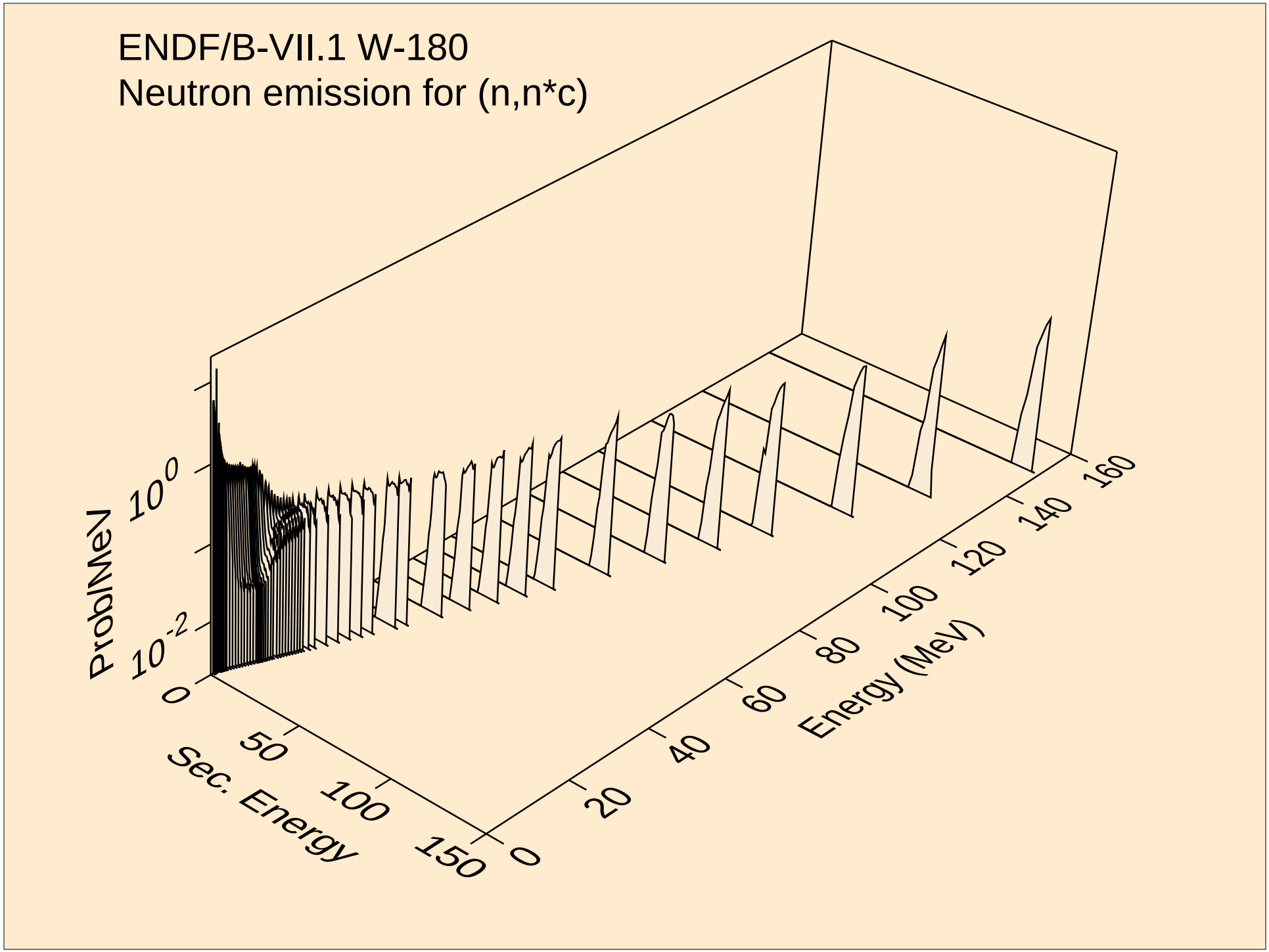

ENDF/B-VII.1 W-180
Neutron emission for (n,2n)
Prob/MeV
10^{0}
10^{-2}
0
50
100
150
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

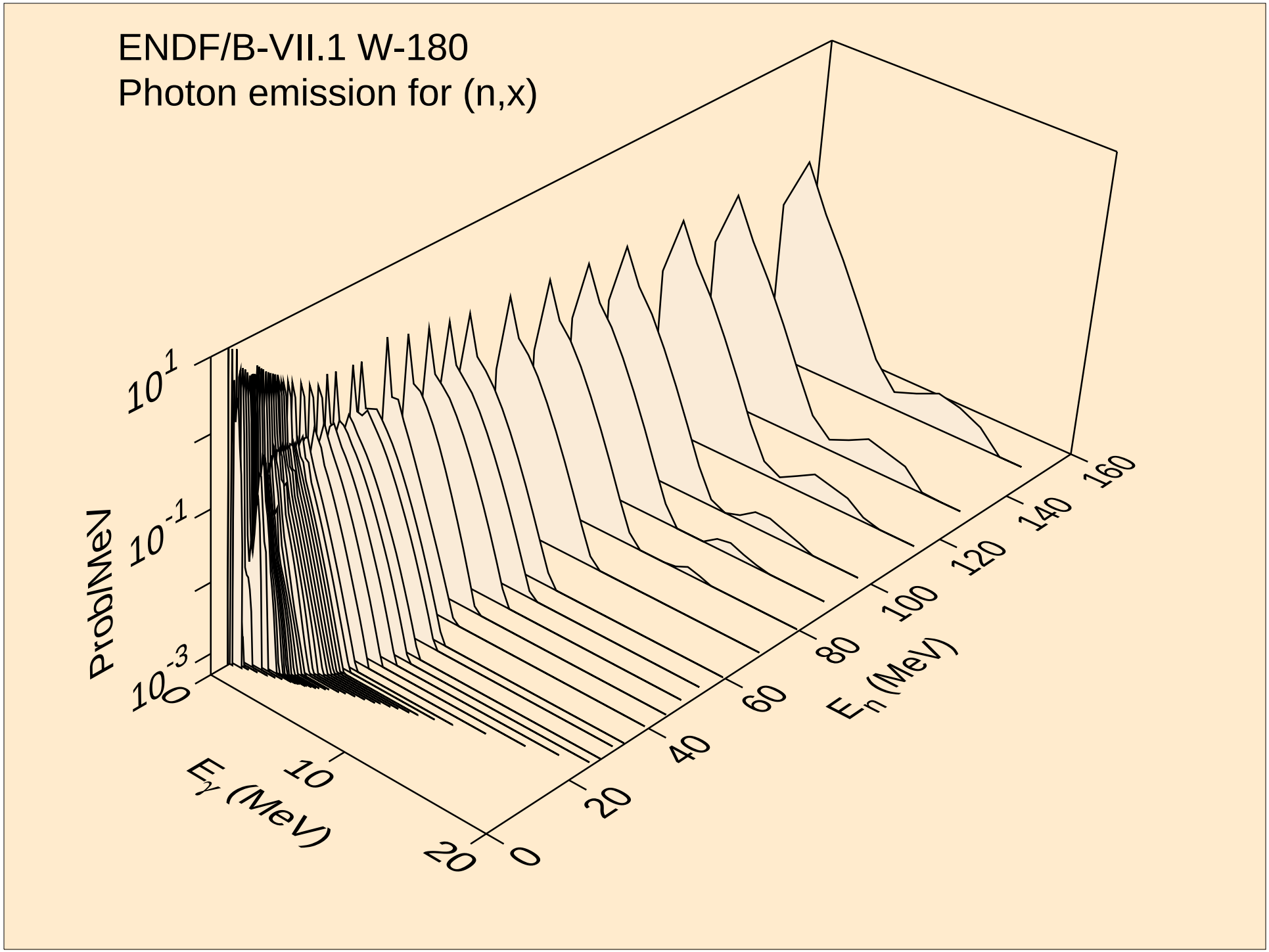

ENDF/B-VII.1 W-180
Neutron emission for (n,3n)
Prob/MeV
10-1
10-3
0
50
100
150
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

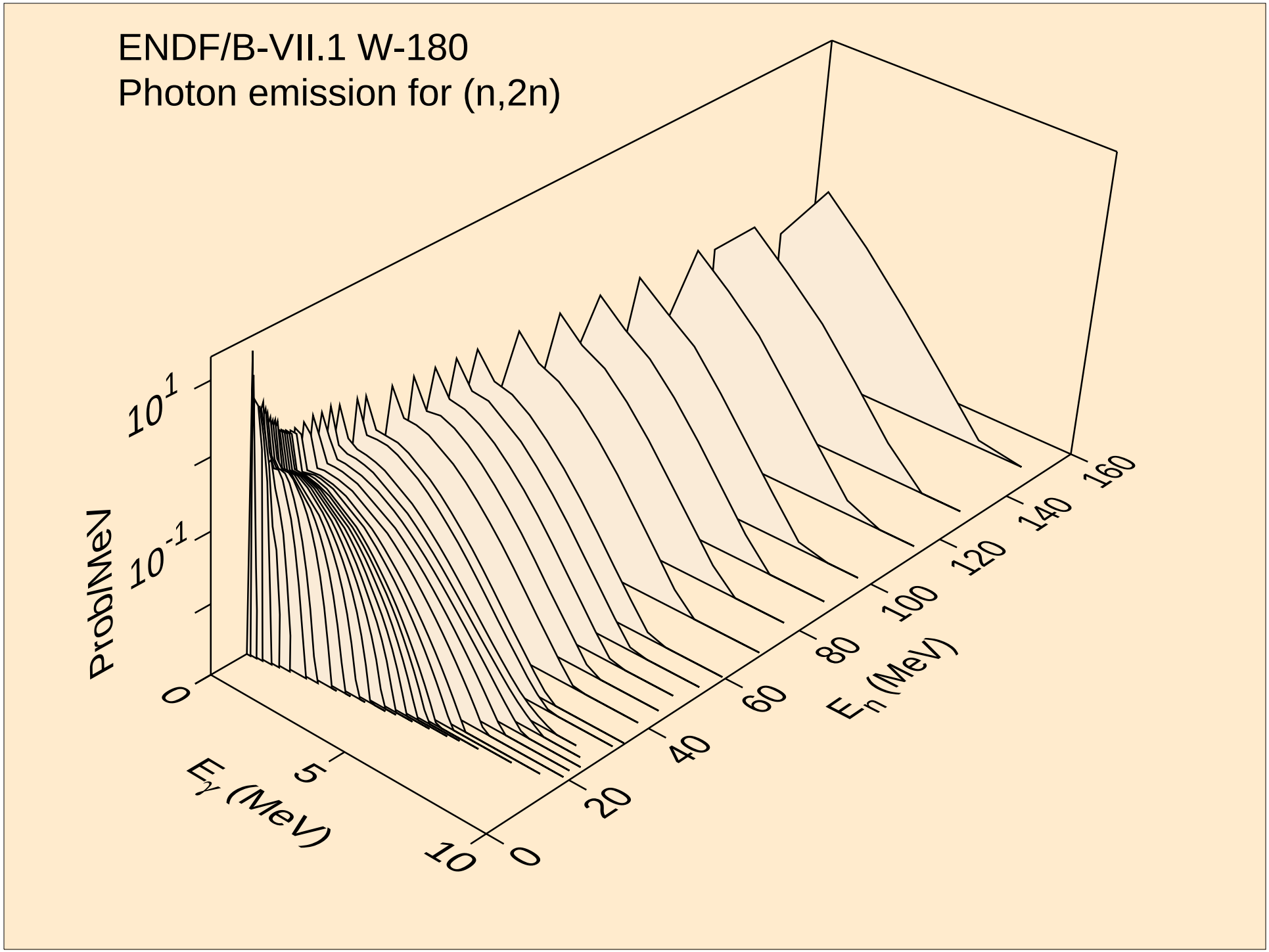

ENDF/B-VII.1 W-180
Neutron emission for (n,n*)p
Prob/MeV
10^1
10^-1
0
Sec. Energy
5
10
15
0
20
40
60
80
100
120
140
160
Energy (MeV)

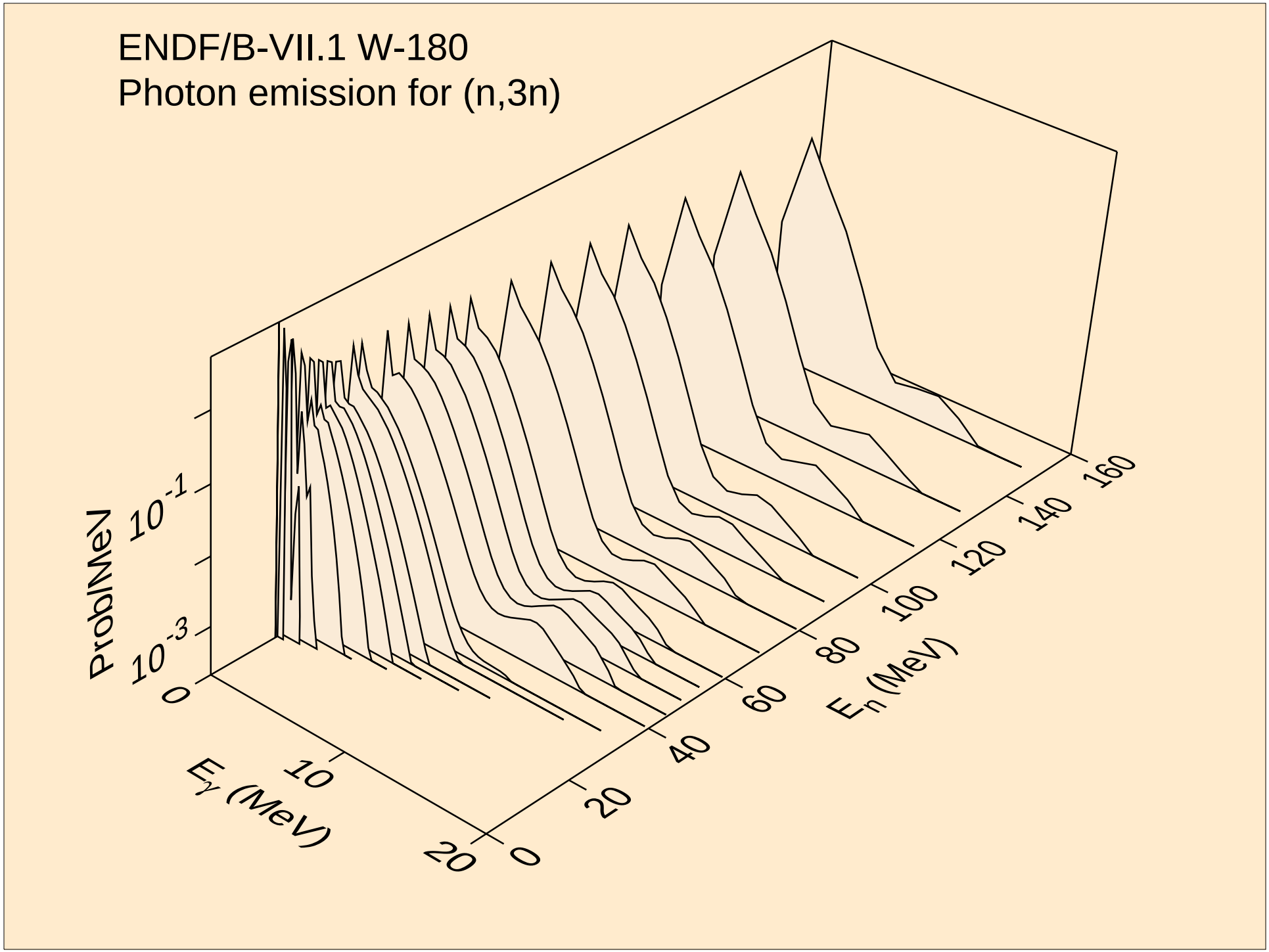

ENDF/B-VII.1 W-180
Neutron emission for (n,4n)
Prob/MeV
10-1
10-3
0
50
100
150
Sec. Energy
20
40
60
80
100
120
140
160
Energy (MeV)

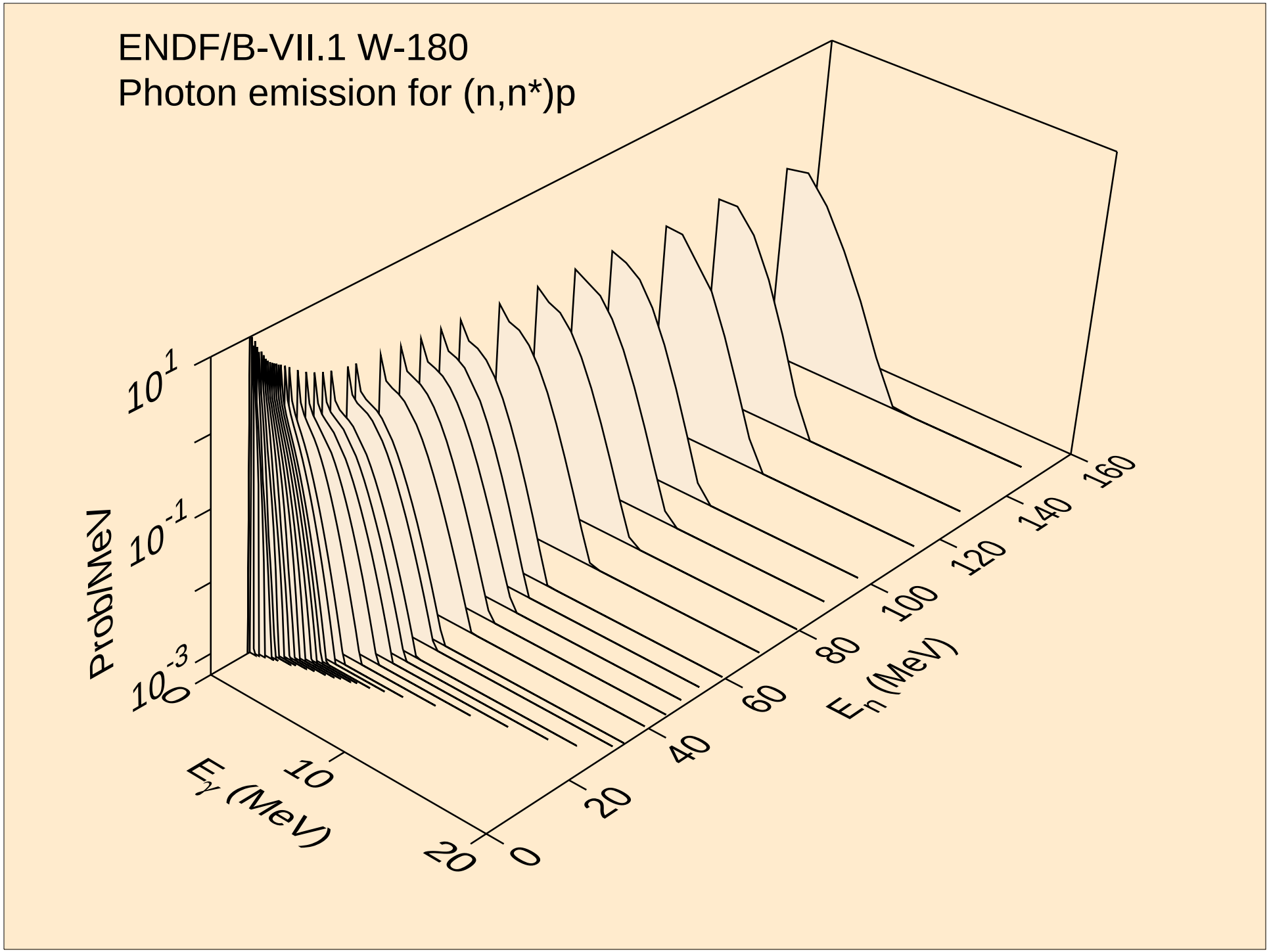

ENDF/B-VII.1 W-180
Neutron emission for (n,2np)
Prob/MeV
10-1
10-3
0
50
100
150
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

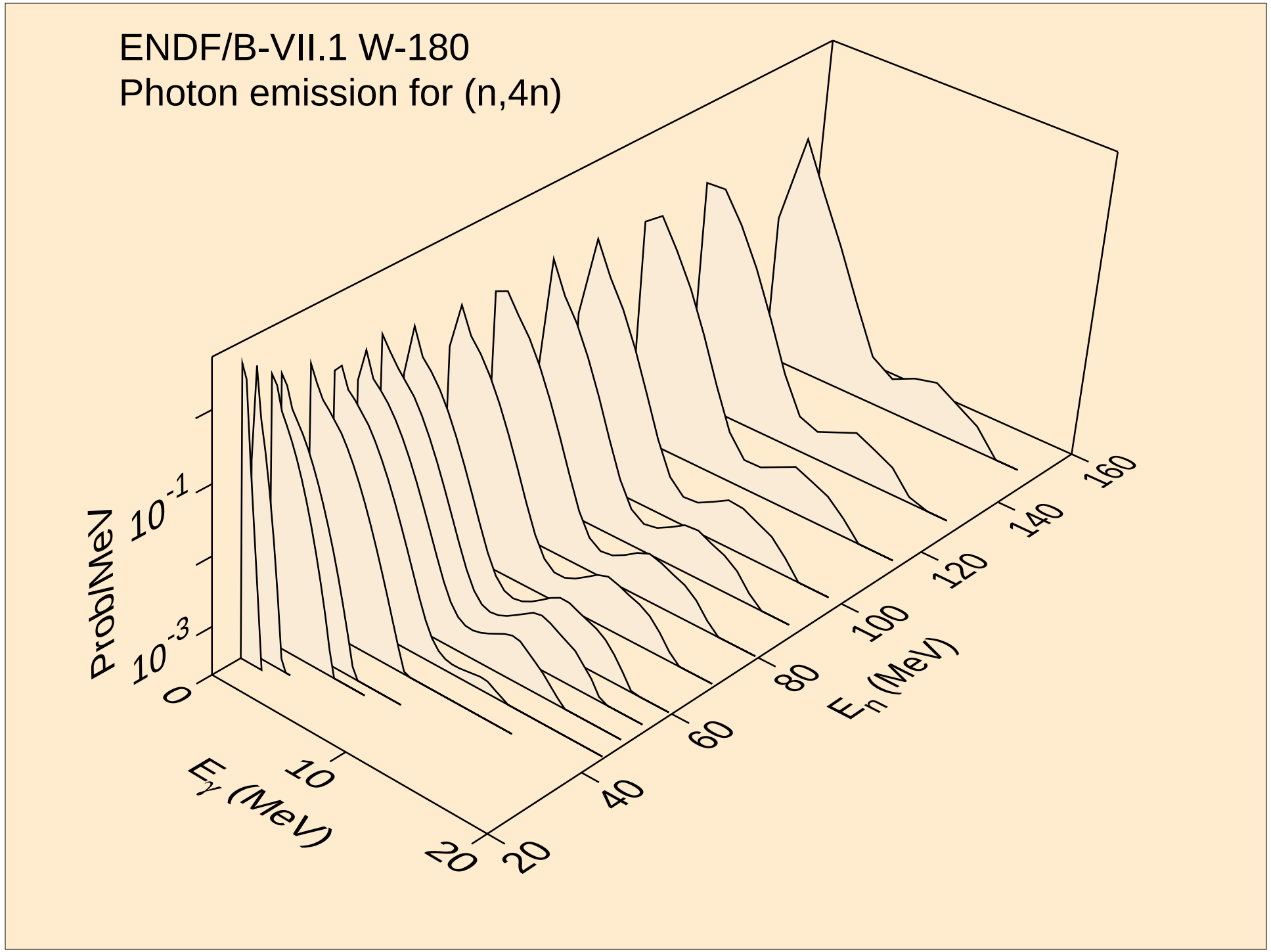

ENDF/B-VII.1 W-180
Neutron emission for (n,n*c)
Prob/MeV
10^{0}
10^{-2}
0
50
100
150
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

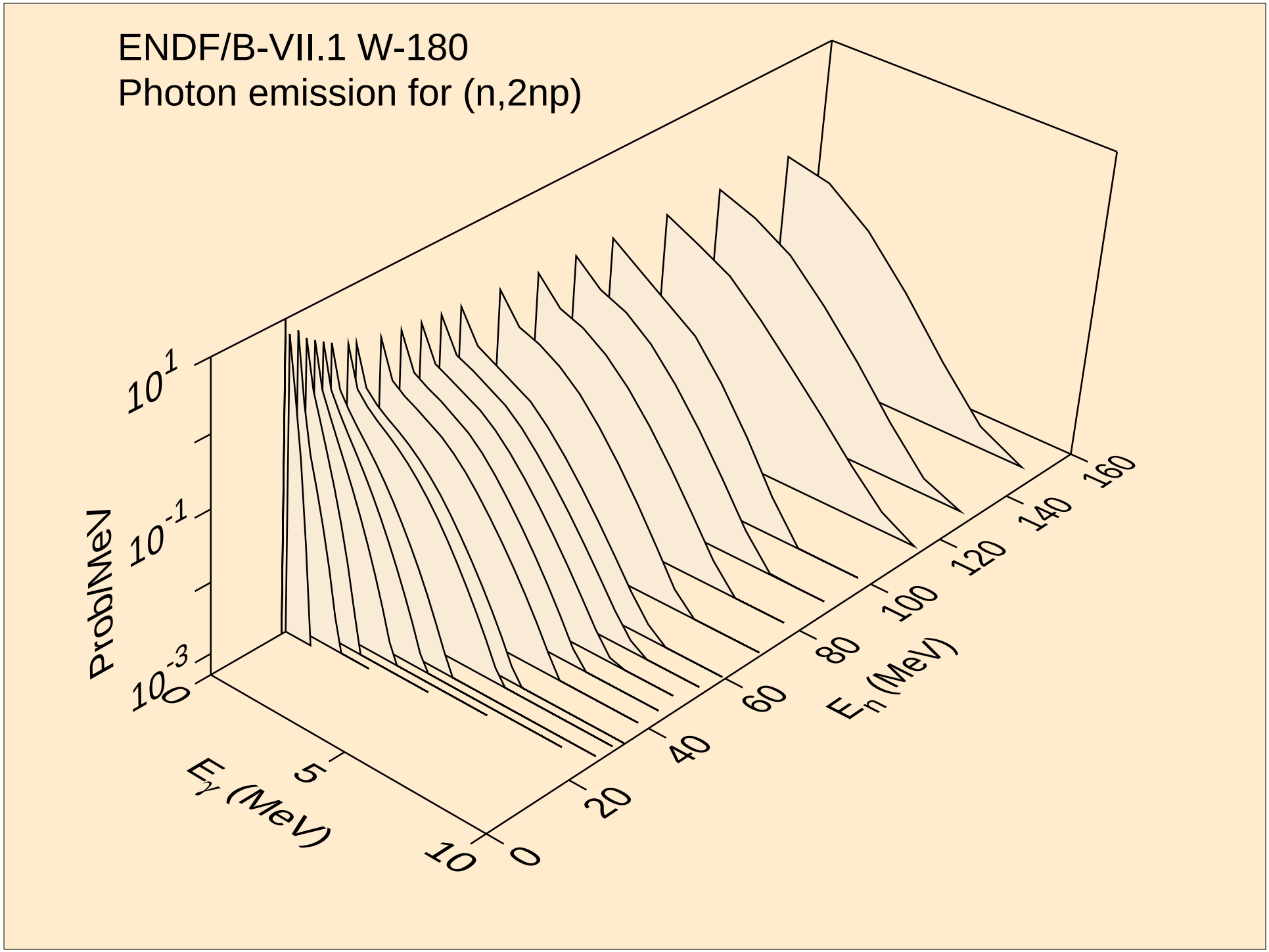

ENDF/B-VII.1 W-180
Photon emission for (n,x)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
10
20
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

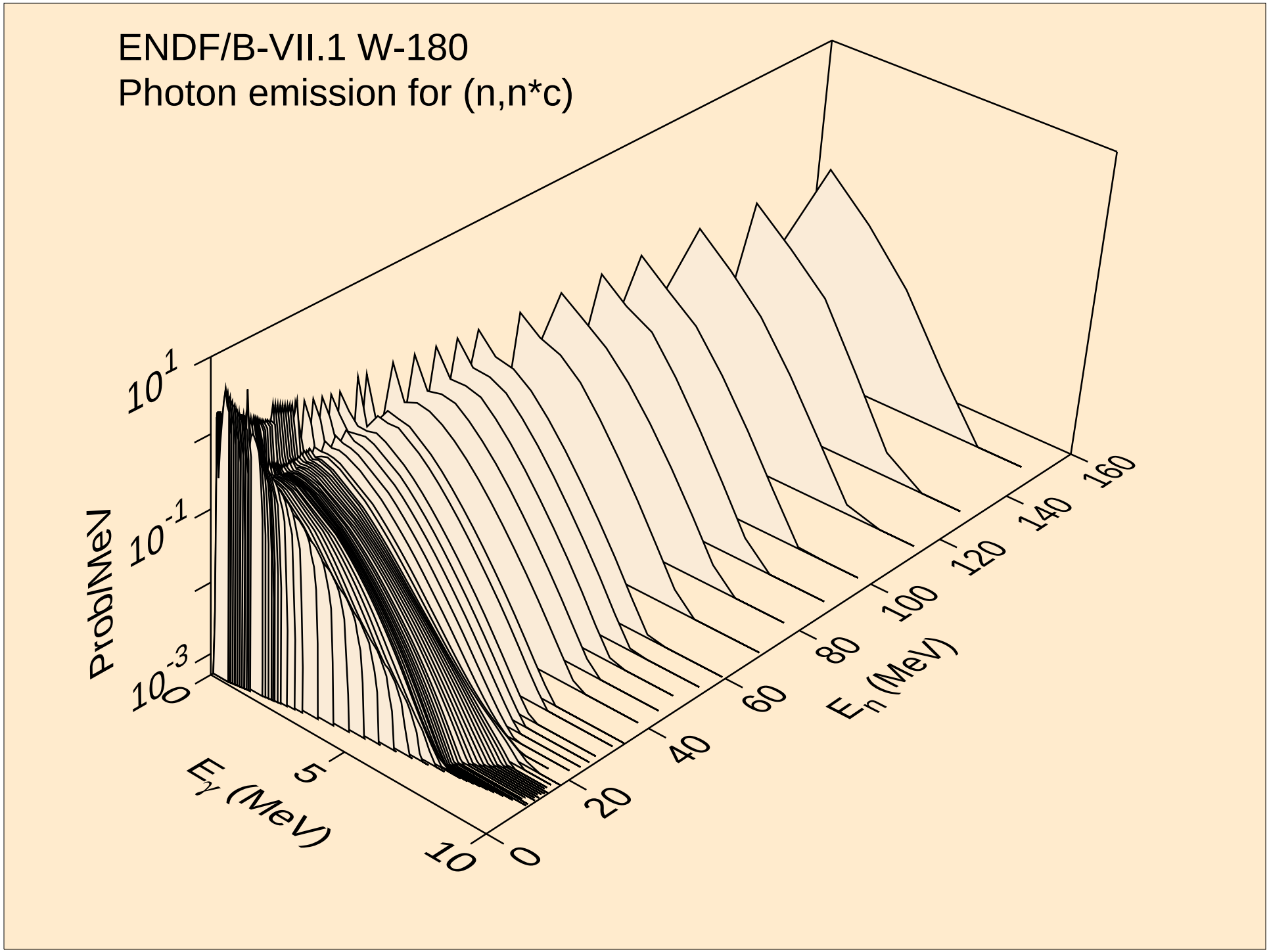

ENDF/B-VII.1 W-180
Photon emission for (n,2n)
Prob/MeV
10^{1}
10^{-1}
0
5
10
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

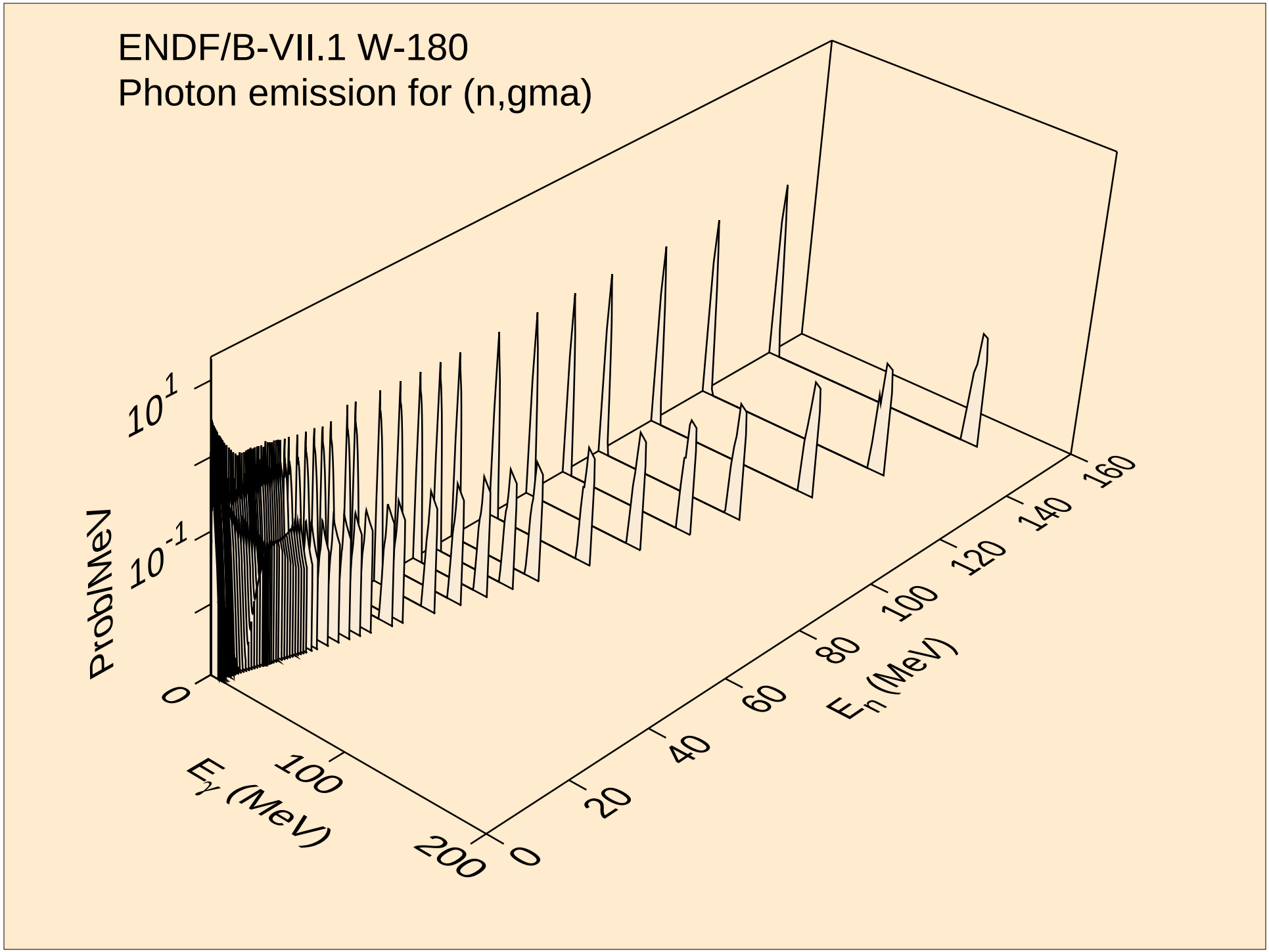

ENDF/B-VII.1 W-180
Photon emission for (n,3n)
Prob/MeV
10^-1
10^-3
0
Eγ (MeV)
10
20
0
20
40
60
80
100
120
140
160
En (MeV)

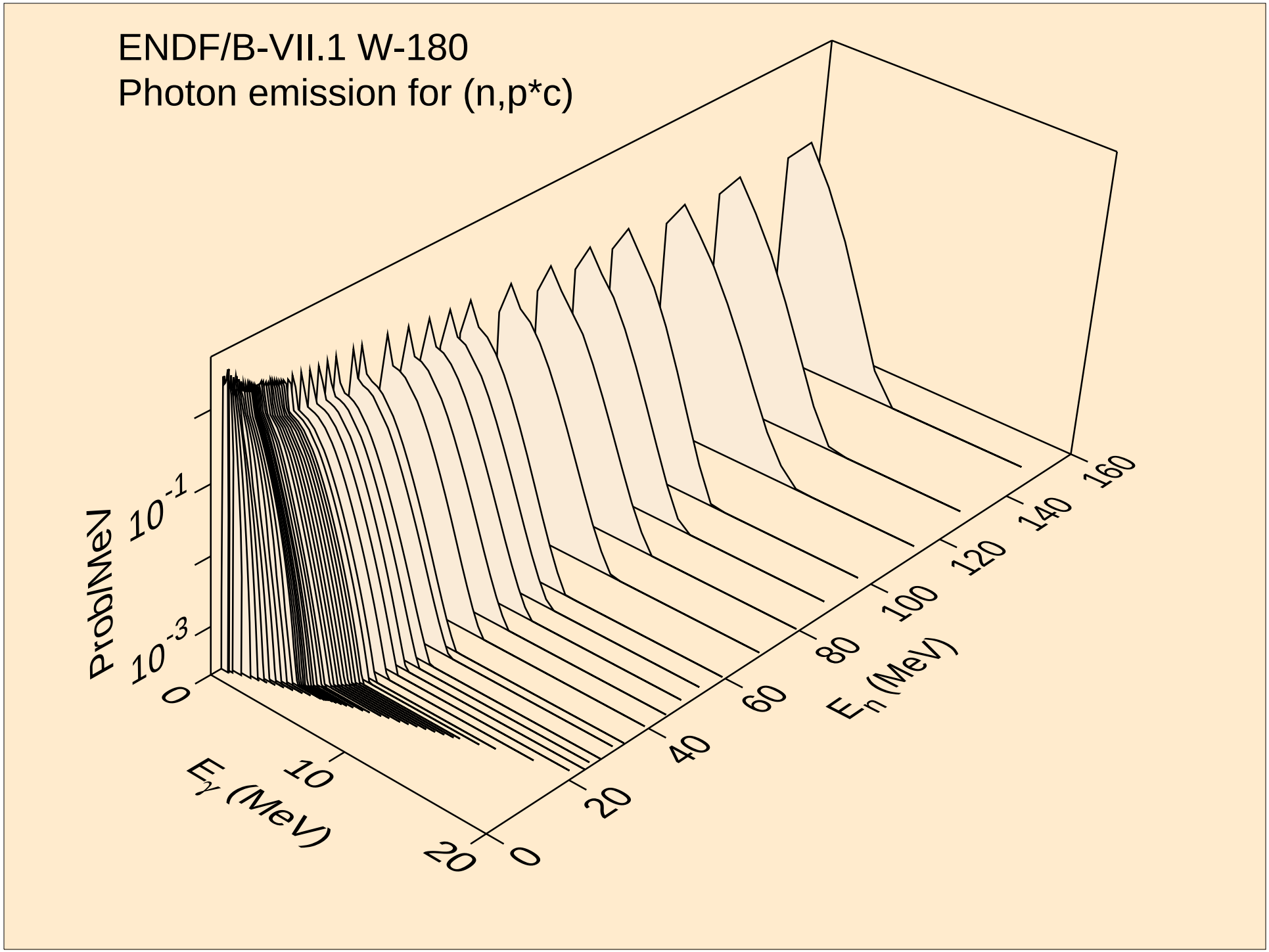

ENDF/B-VII.1 W-180
Photon emission for (n,n*)p
Prob/MeV
10^1
10^-1
10^-3
0
10
20
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

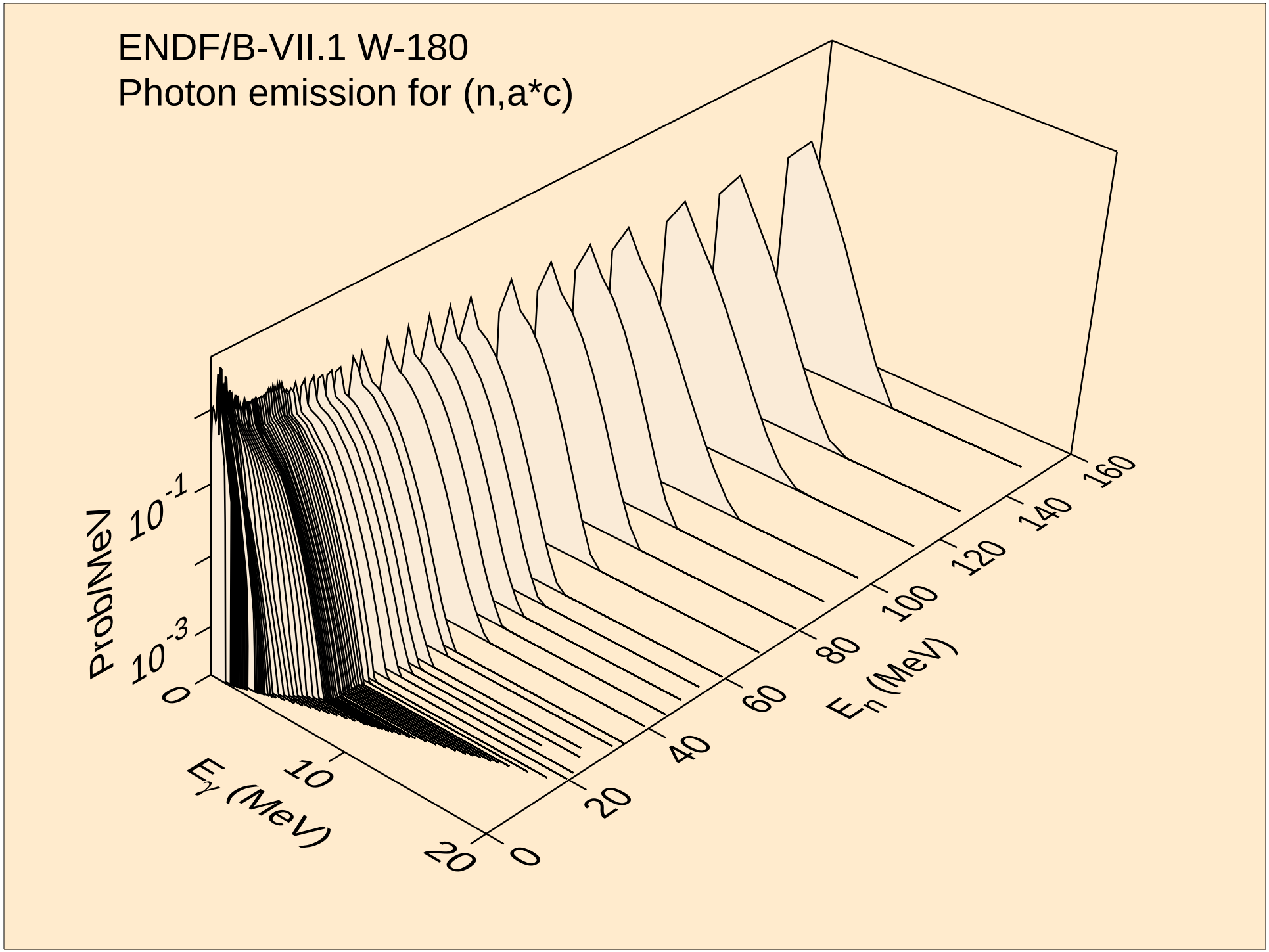

ENDF/B-VII.1 W-180
Photon emission for (n,4n)
Prob/MeV
10^-1
10^-3
0
E_γ (MeV)
10
20
20
40
60
80
100
120
140
160
E_n (MeV)

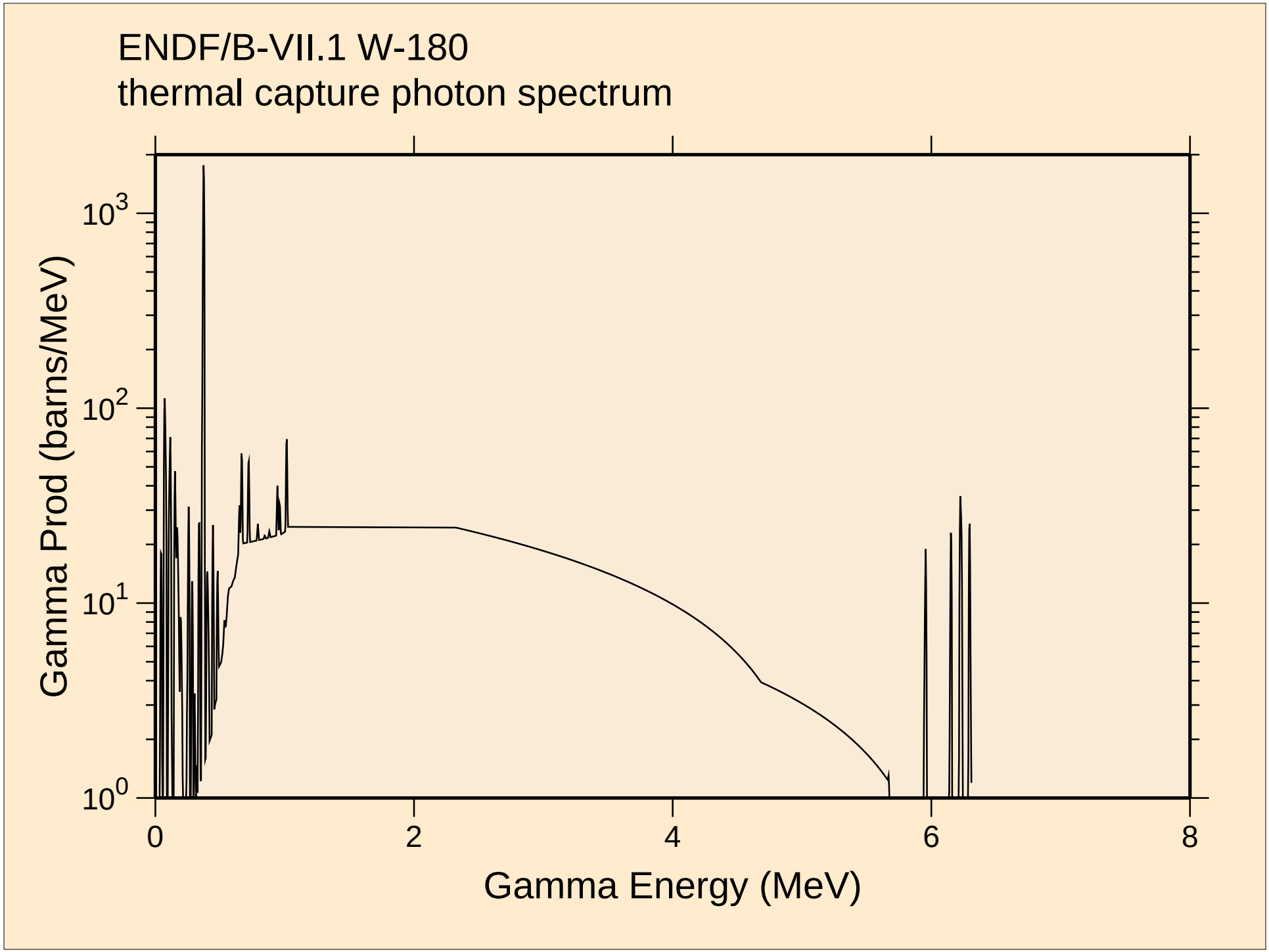

ENDF/B-VII.1 W-180
Photon emission for (n,2np)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
5
10
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

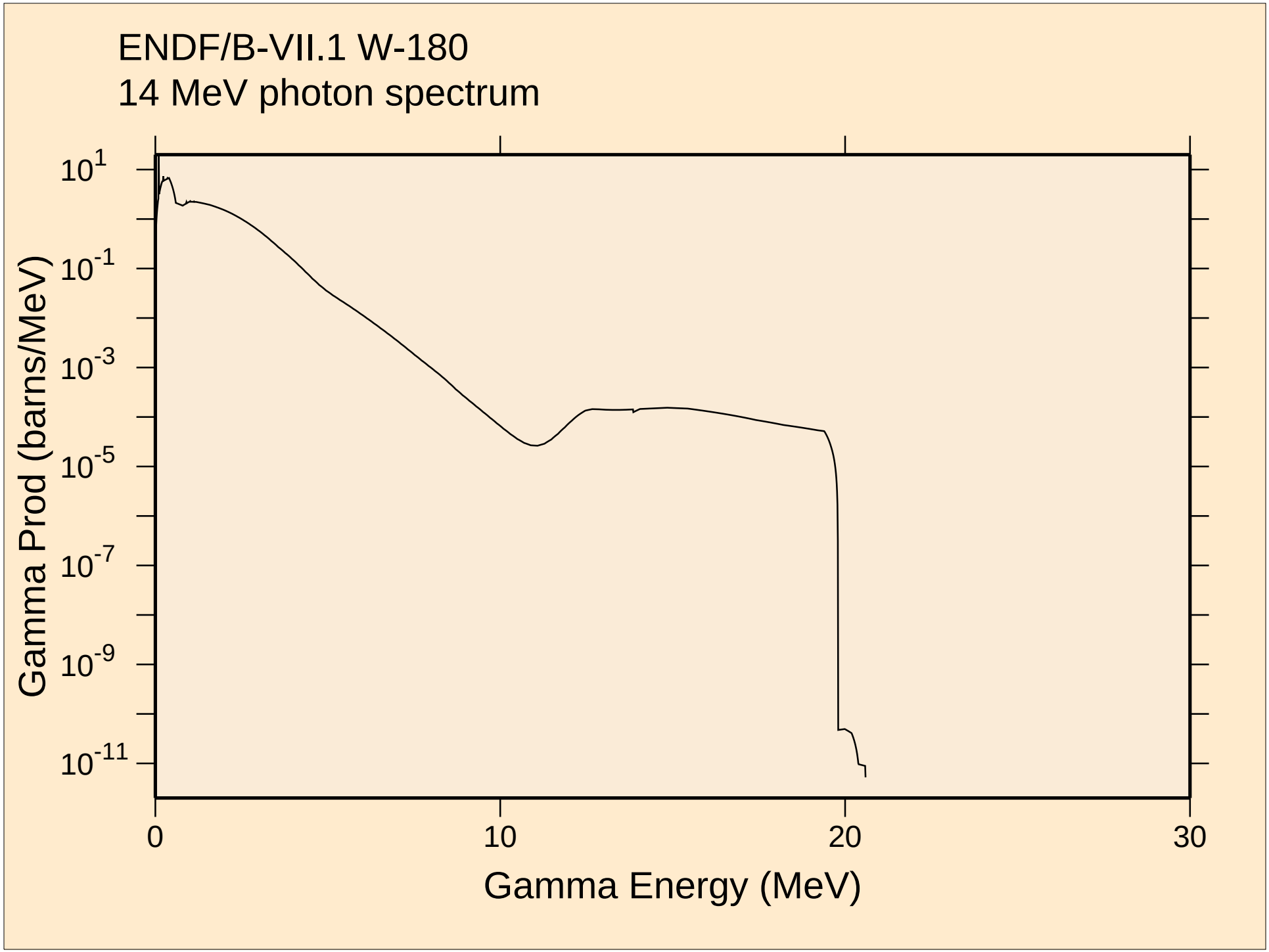

ENDF/B-VII.1 W-180
Photon emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
5
10
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

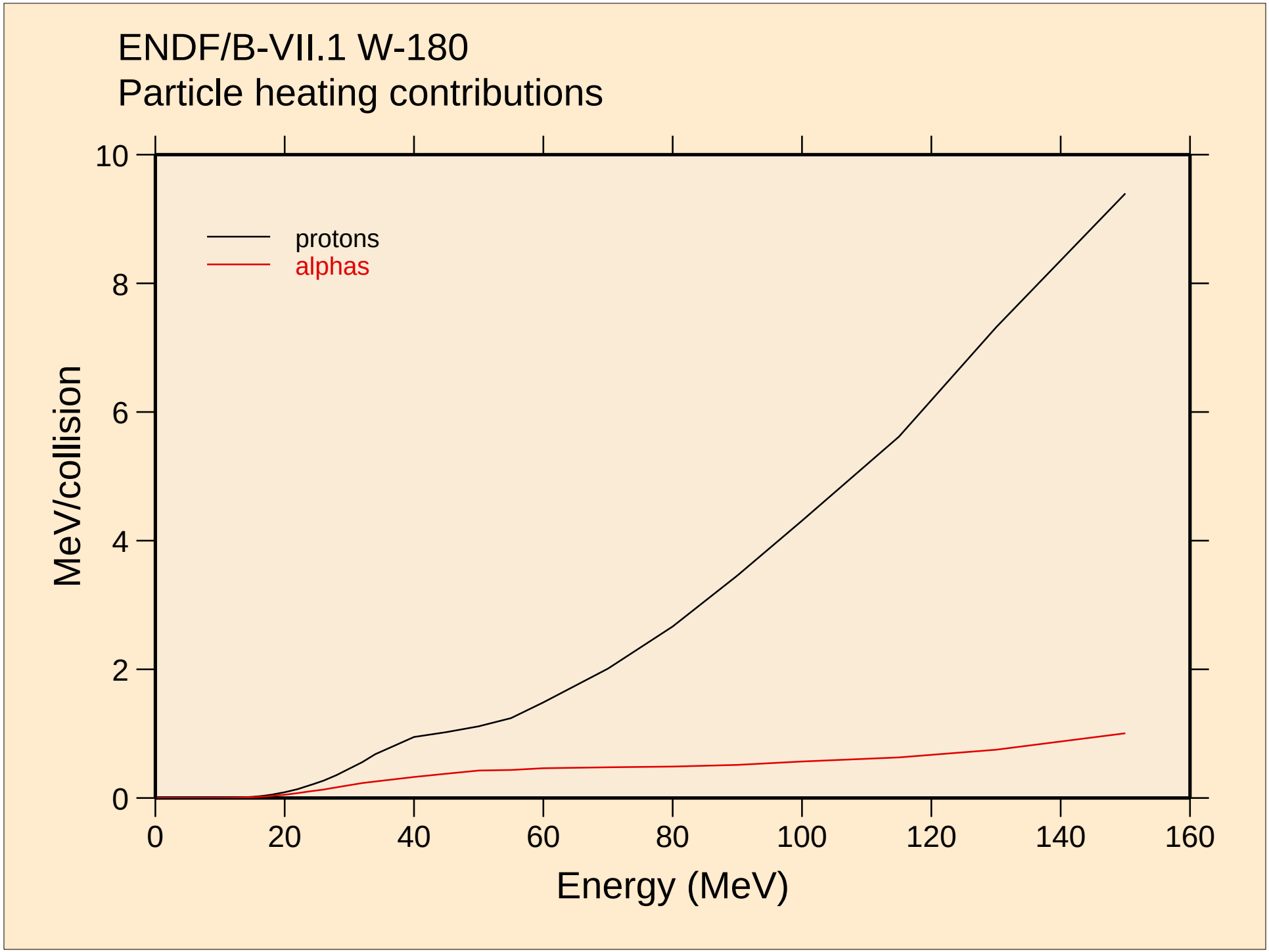

ENDF/B-VII.1 W-180
Photon emission for (n,gma)
Prob/MeV
10^{1}
10^{-1}
0
100
200
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

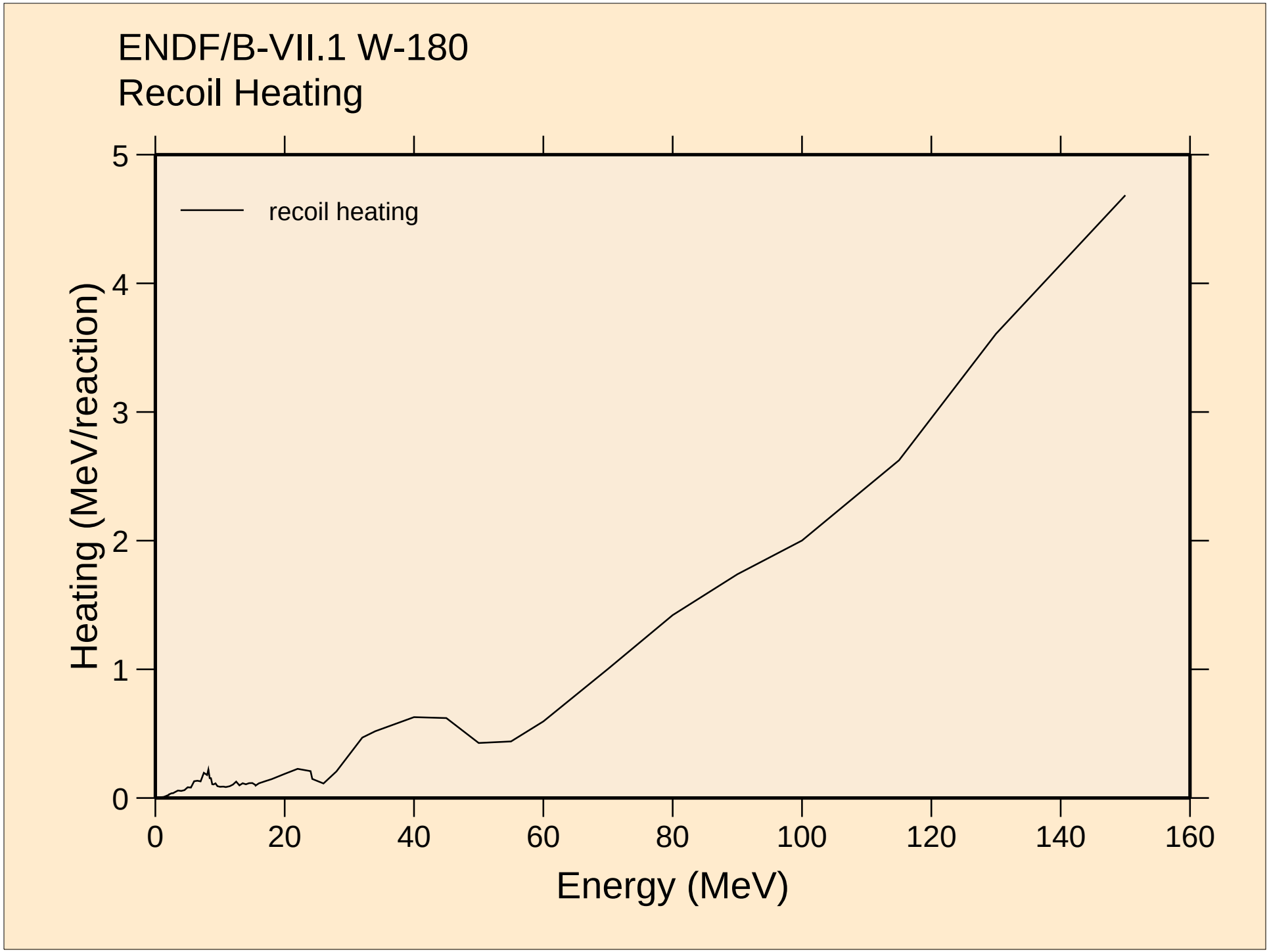

ENDF/B-VII.1 W-180
Photon emission for (n,p*c)
Prob/MeV
10^-1
10^-3
0
Eγ (MeV)
10
20
0
20
40
60
80
100
120
140
160
En (MeV)

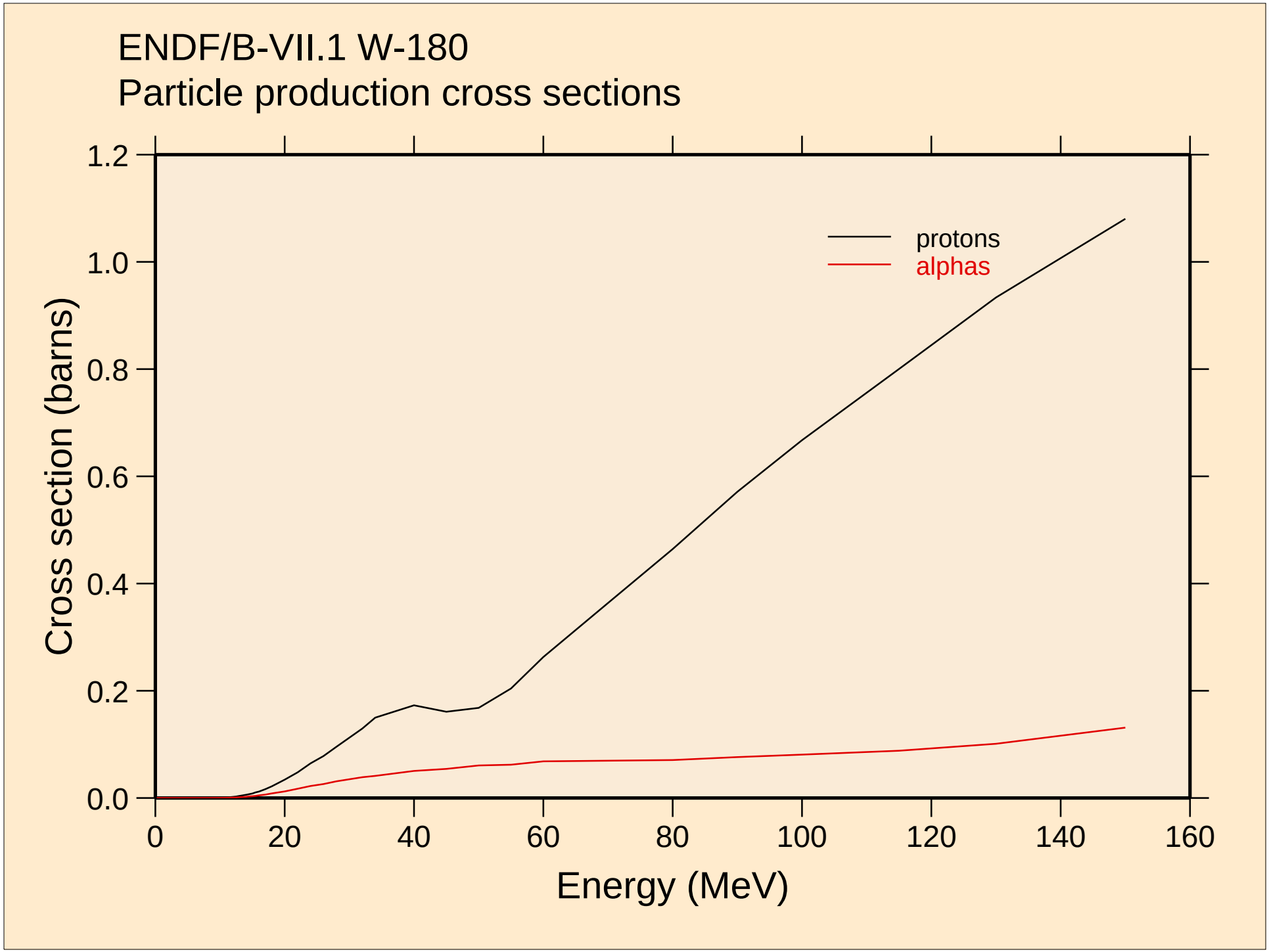

ENDF/B-VII.1 W-180
Photon emission for (n,a*c)
Prob/MeV
10-1
10-3
0
Eγ (MeV)
0
10
20
En (MeV)
0
20
40
60
80
100
120
140
160

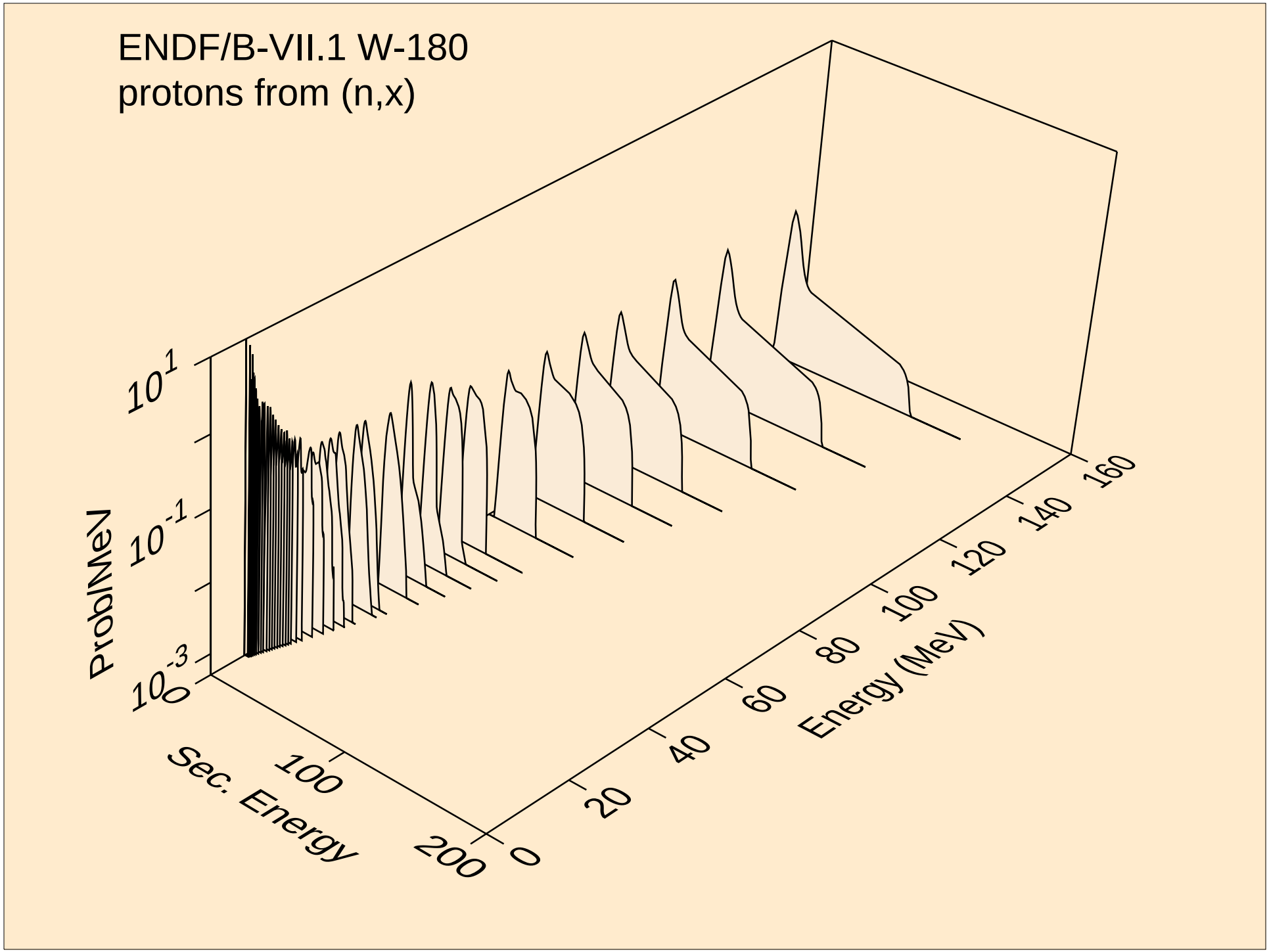

ENDF/B-VII.1 W-180
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^3
10^2
10^1
10^0
0
2
4
6
8
Gamma Energy (MeV)

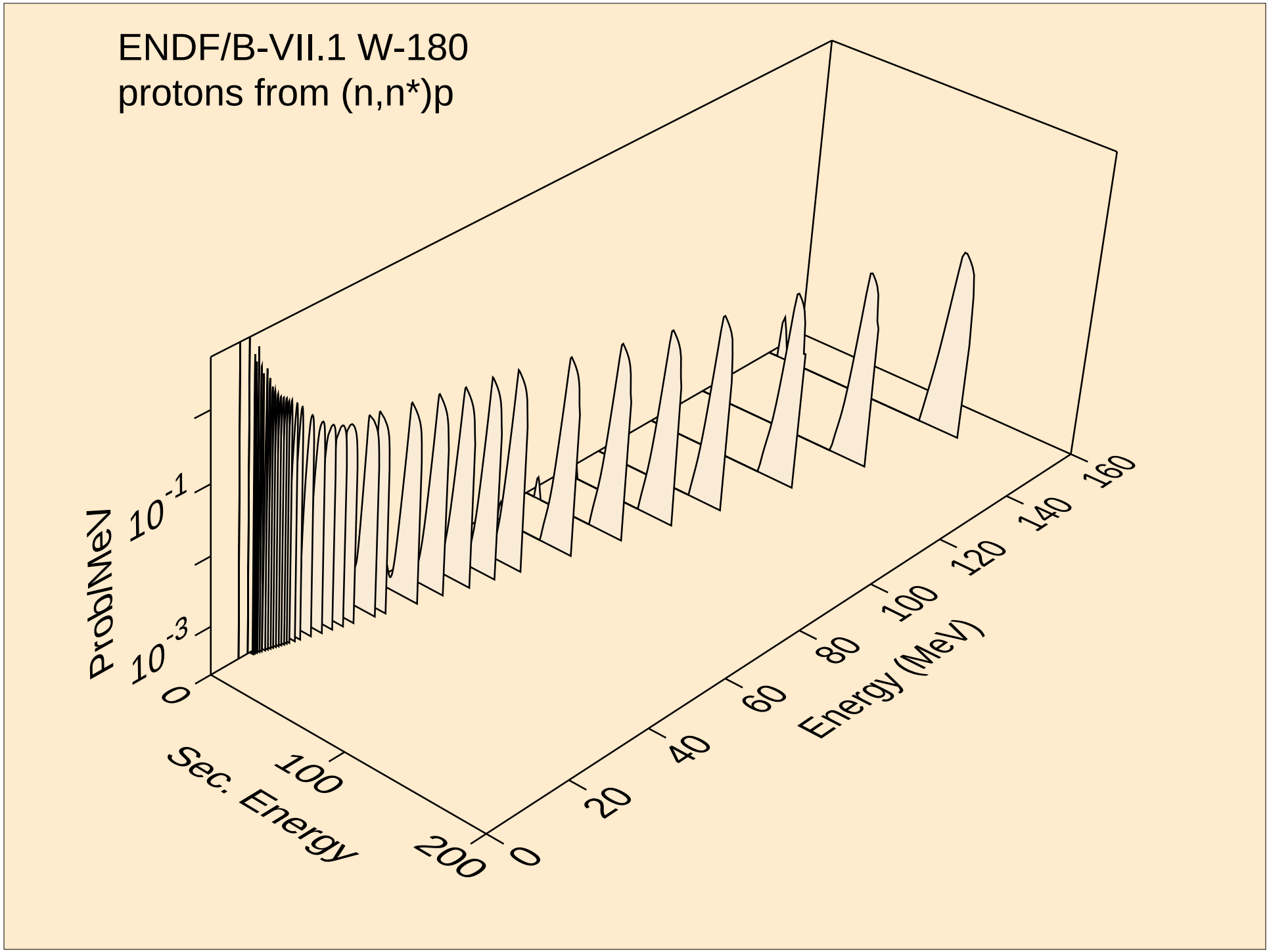

ENDF/B-VII.1 W-180
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^1
10^-1
10^-3
10^-5
10^-7
10^-9
10^-11
0
10
20
30
Gamma Energy (MeV)

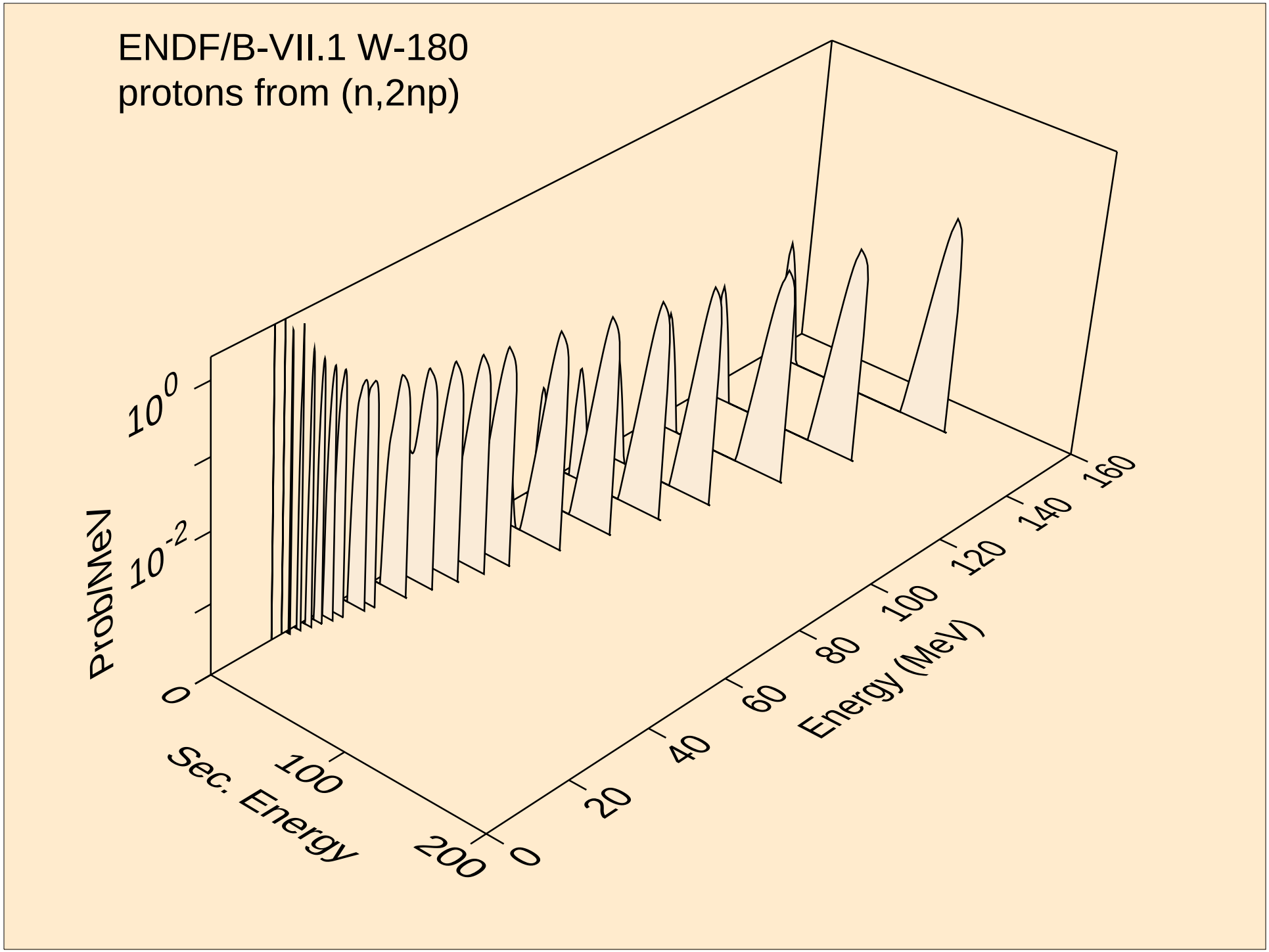

ENDF/B-VII.1 W-180
Particle heating contributions
protons
alphas
MeV/collision
Energy (MeV)
0
2
4
6
8
10
0
20
40
60
80
100
120
140
160

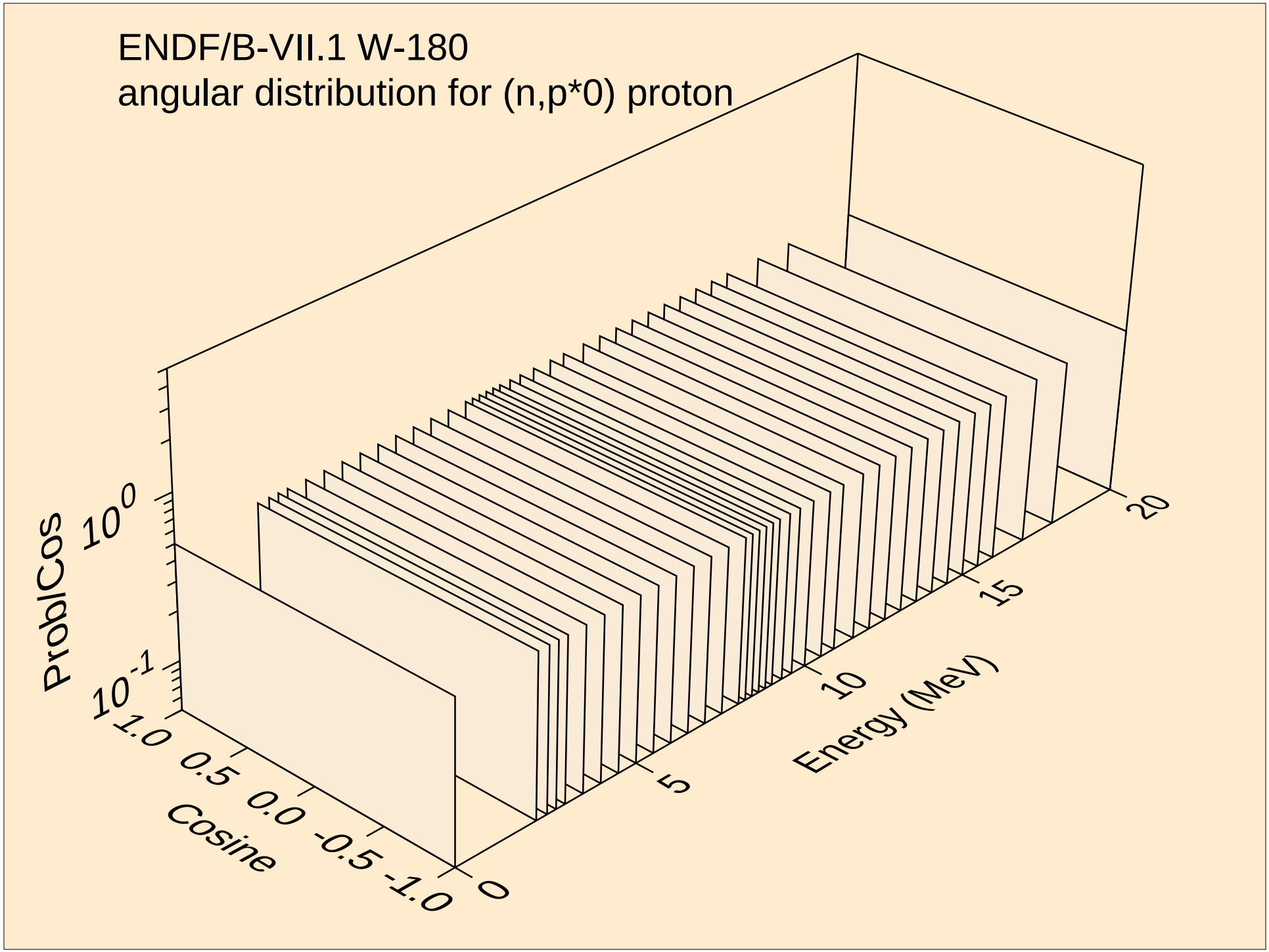

ENDF/B-VII.1 W-180
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
0
1
2
3
4
5
0
20
40
60
80
100
120
140
160

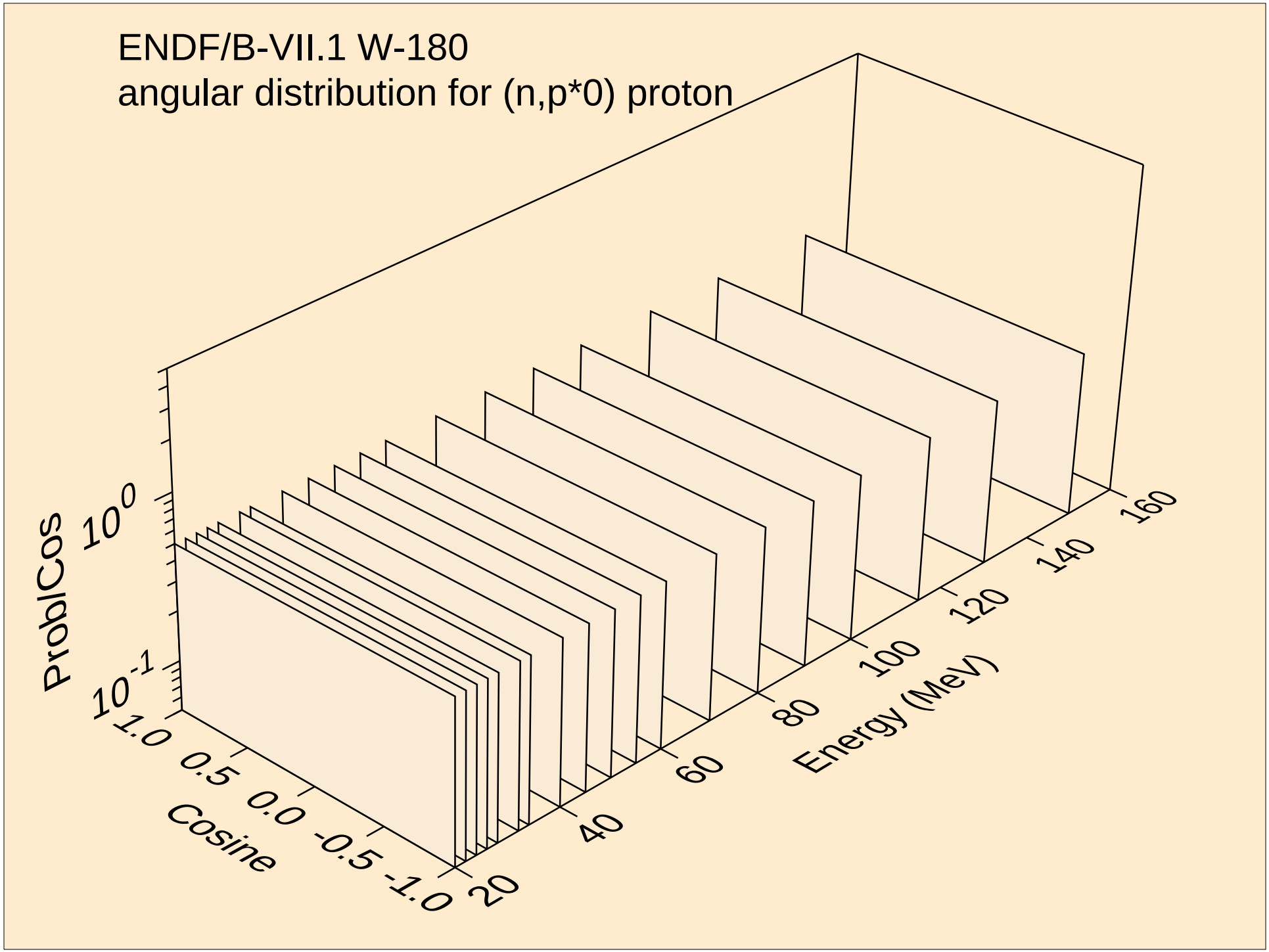

ENDF/B-VII.1 W-180
Particle production cross sections
Cross section (barns)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100
120
140
160
Energy (MeV)
protons
alphas

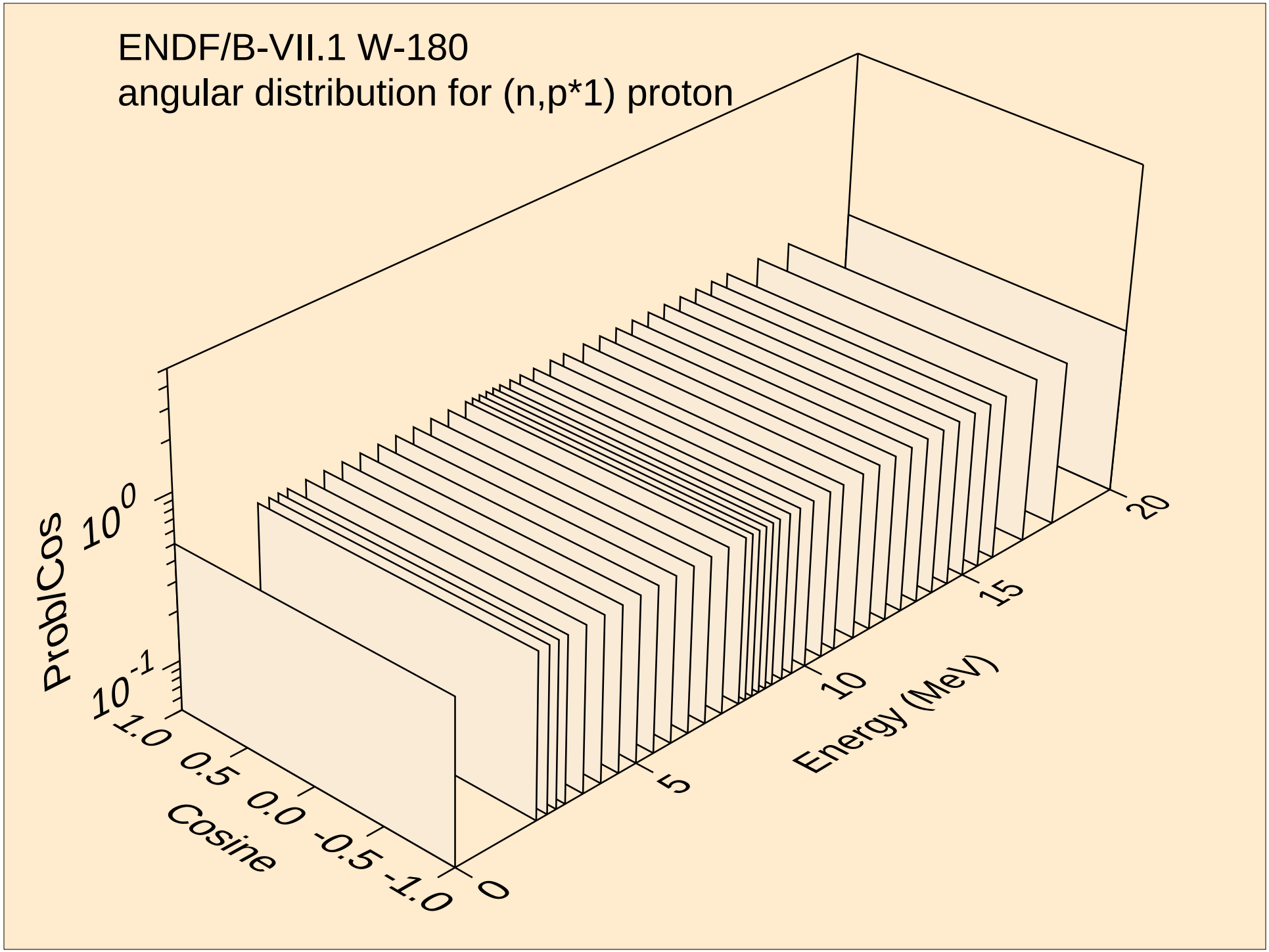

ENDF/B-VII.1 W-180
protons from (n,x)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
100
200
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

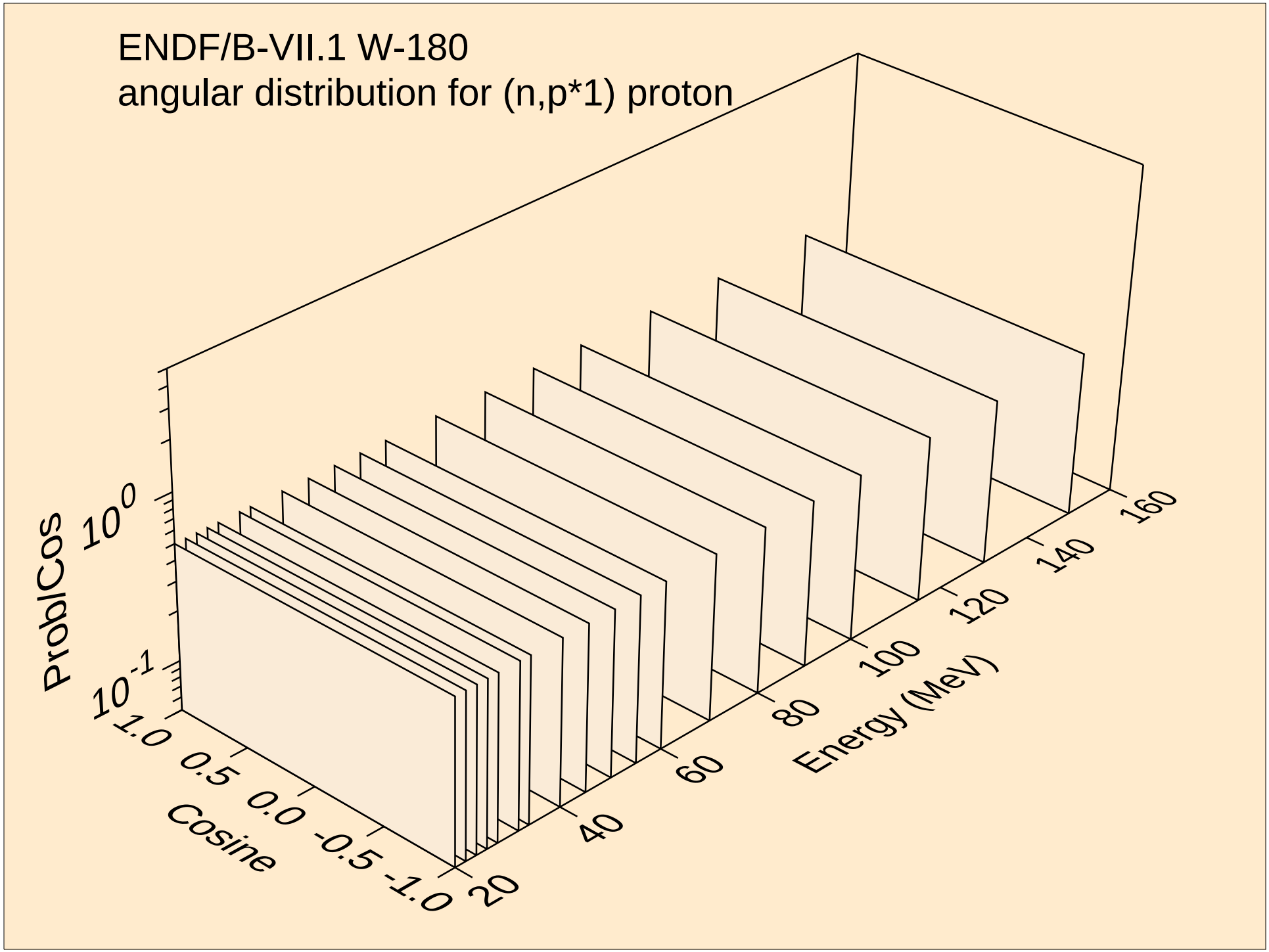

ENDF/B-VII.1 W-180
protons from (n,n*)p
Prob/MeV
10^-1
10^-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)

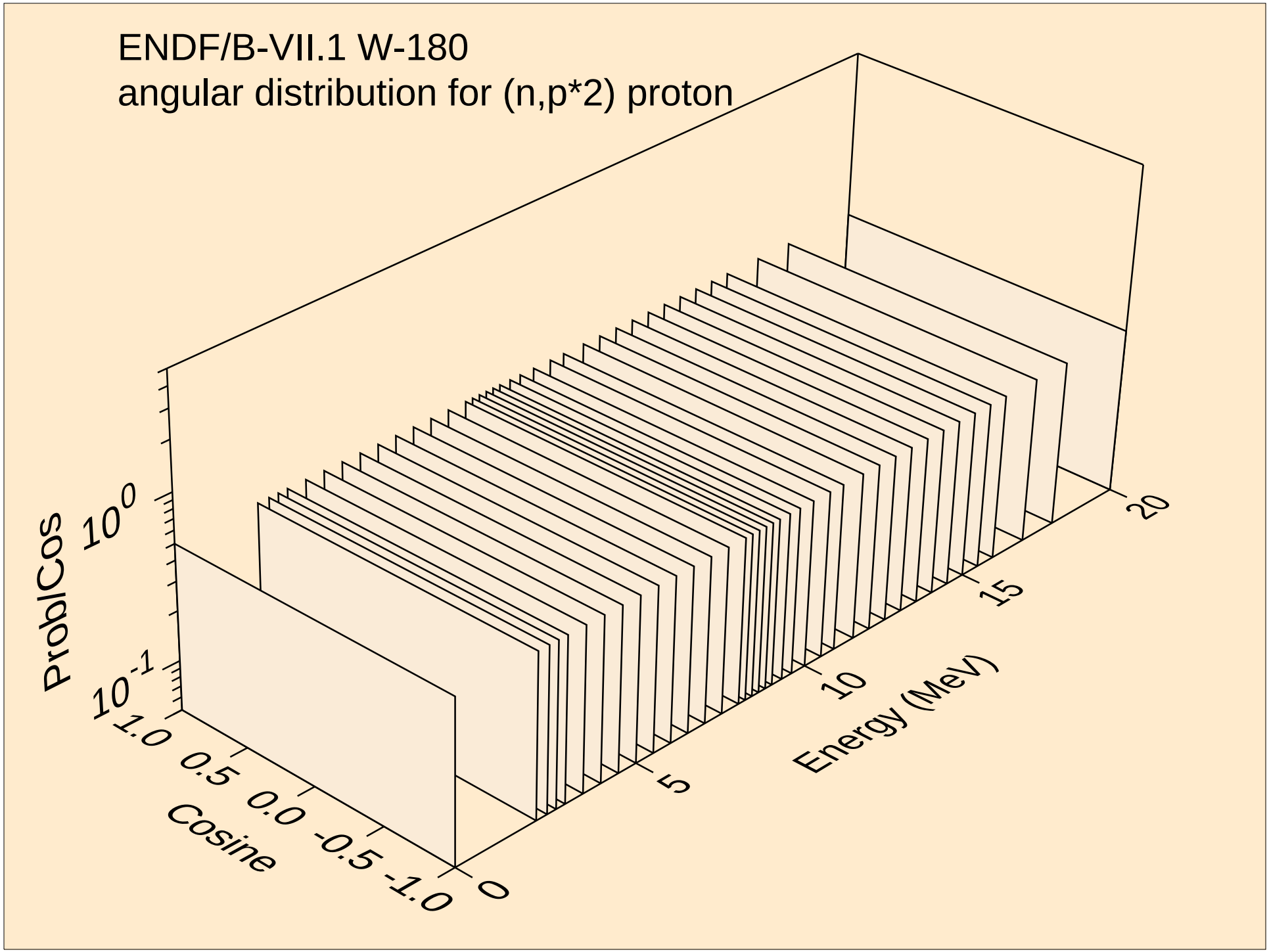

ENDF/B-VII.1 W-180
protons from (n,2np)
Prob/MeV
10^{0}
10^{-2}
0
100
200
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

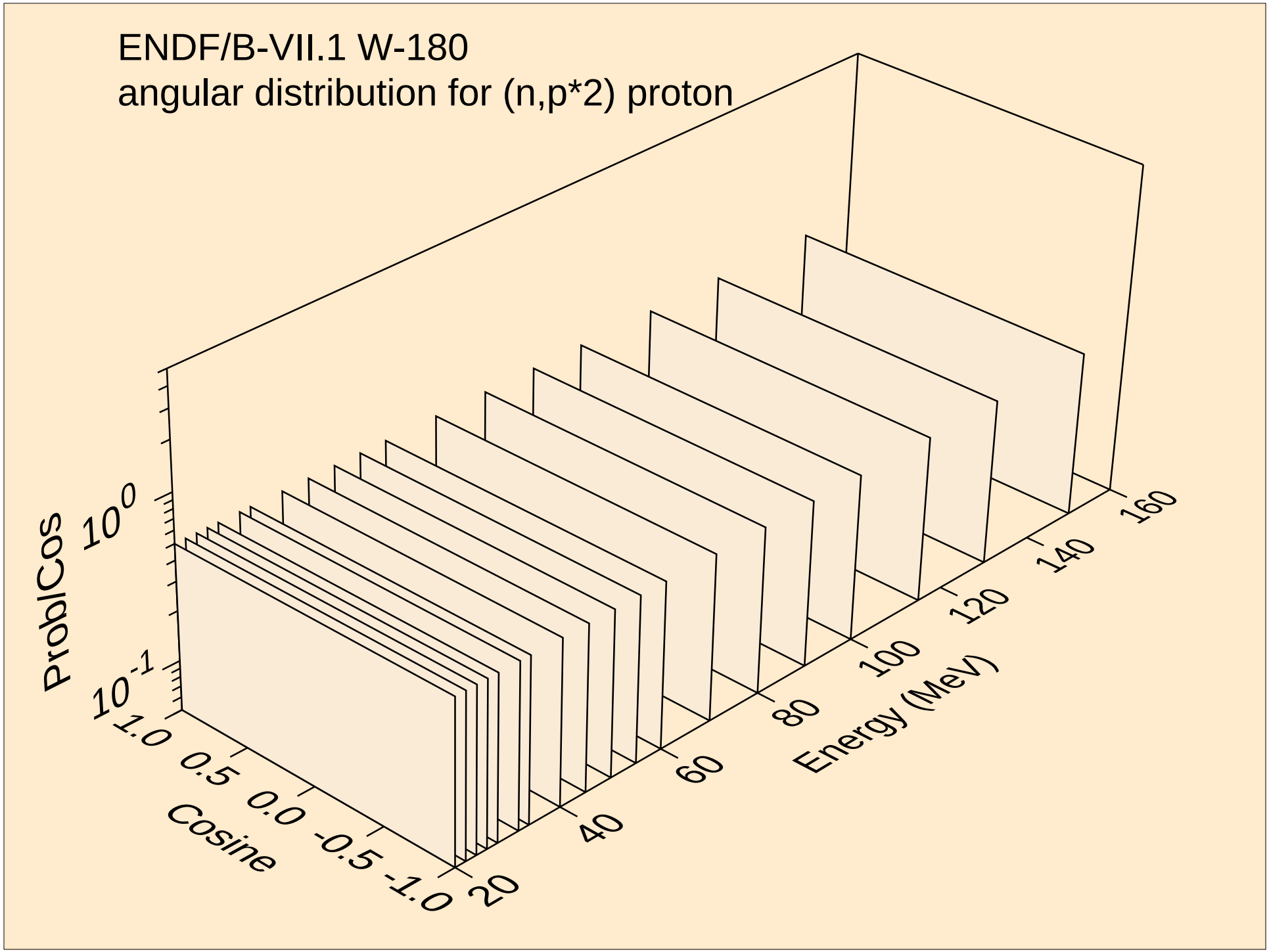

ENDF/B-VII.1 W-180
angular distribution for (n,p*0) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

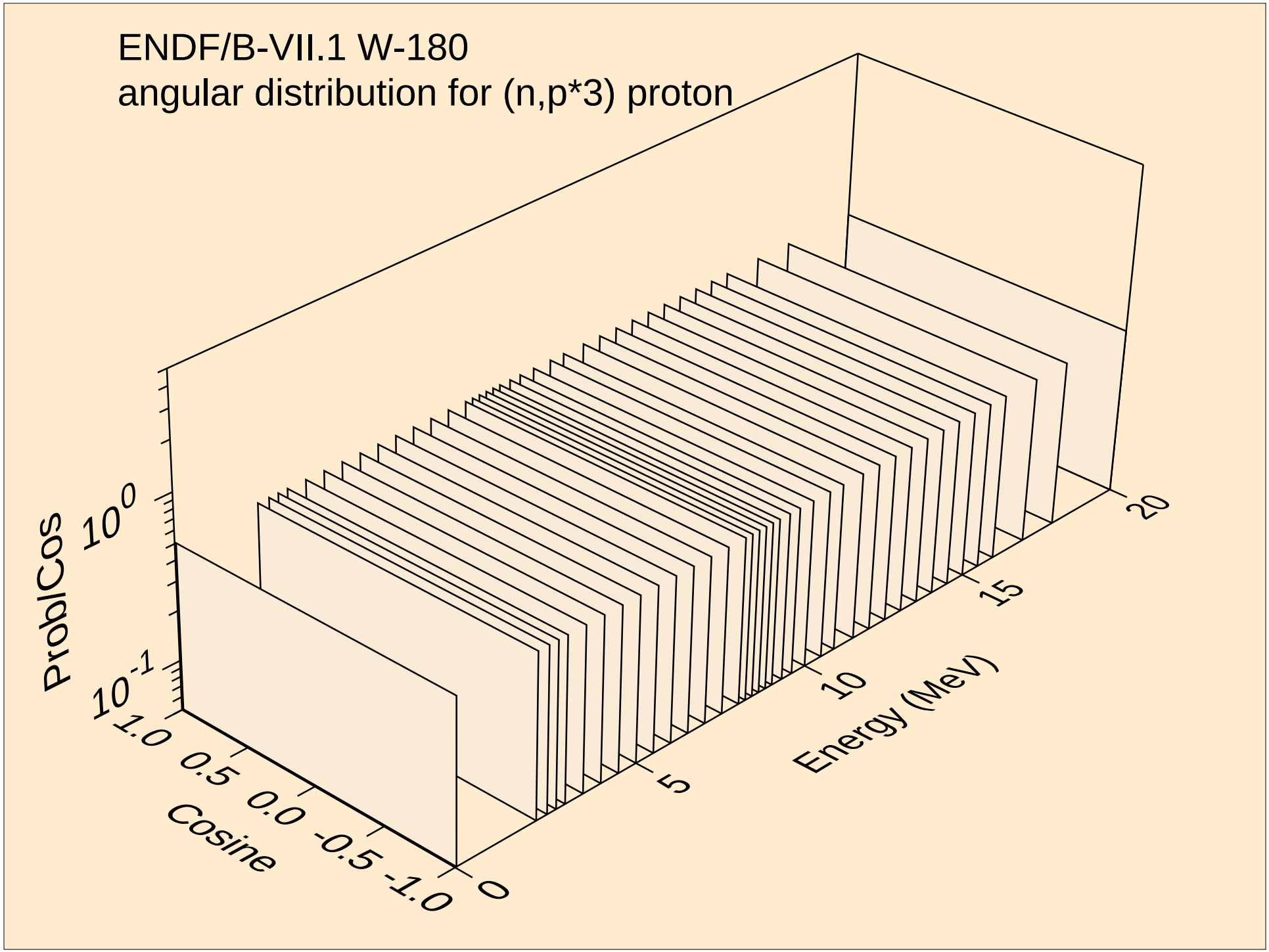

ENDF/B-VII.1 W-180
angular distribution for (n,p*0) proton
ProblCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

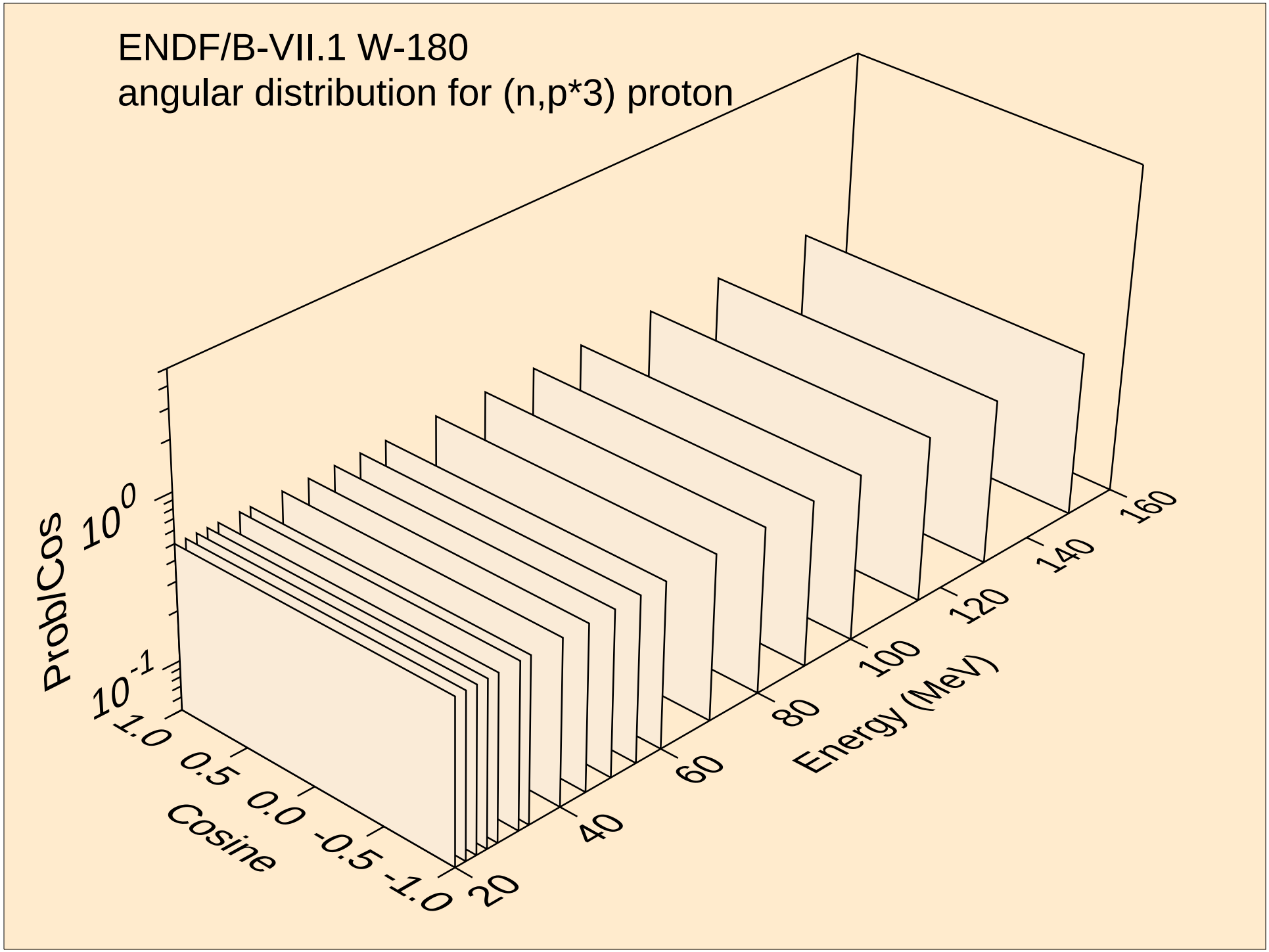

ENDF/B-VII.1 W-180
angular distribution for (n,p*1) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

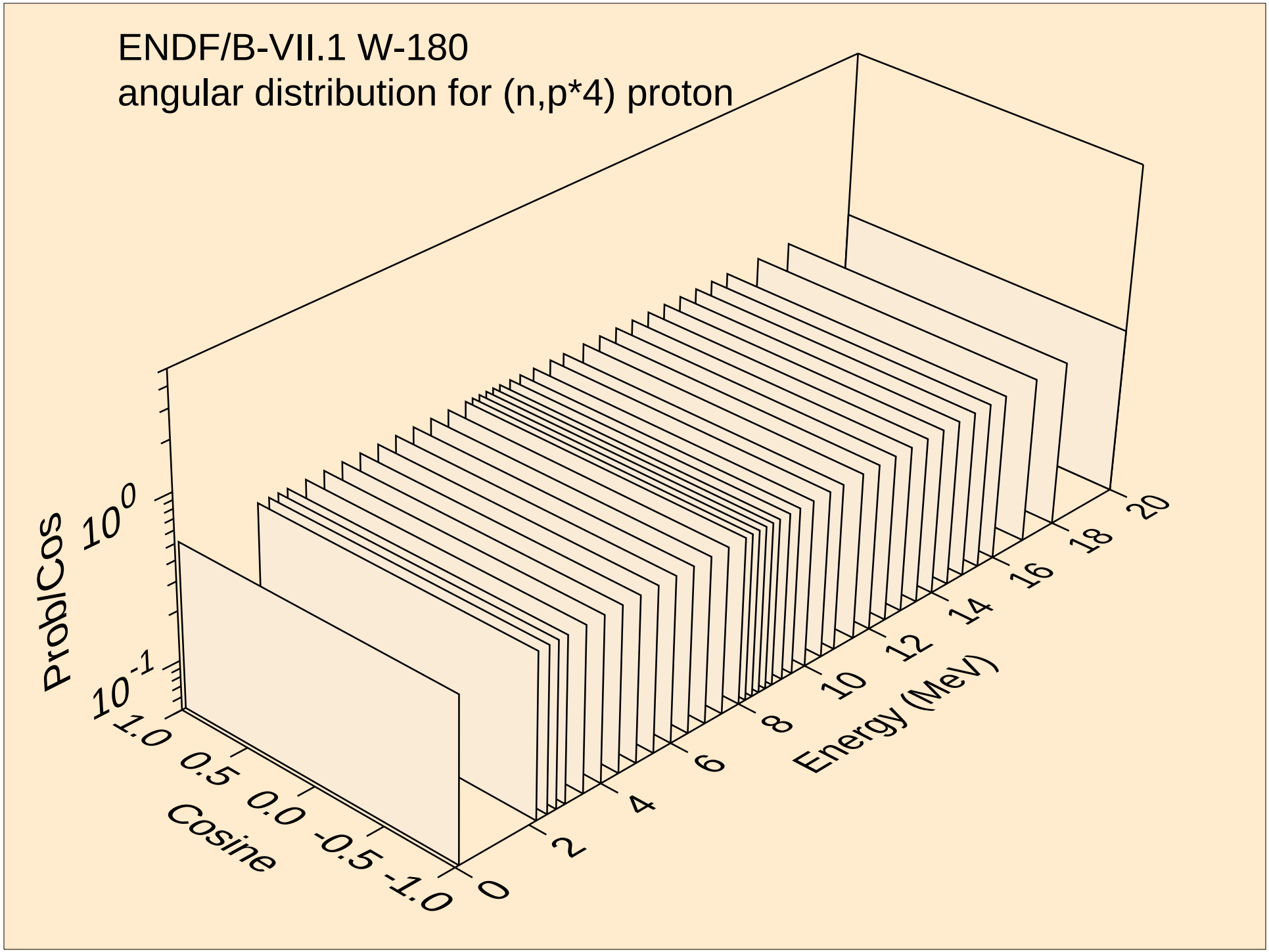

ENDF/B-VII.1 W-180
angular distribution for (n,p*1) proton
ProblCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

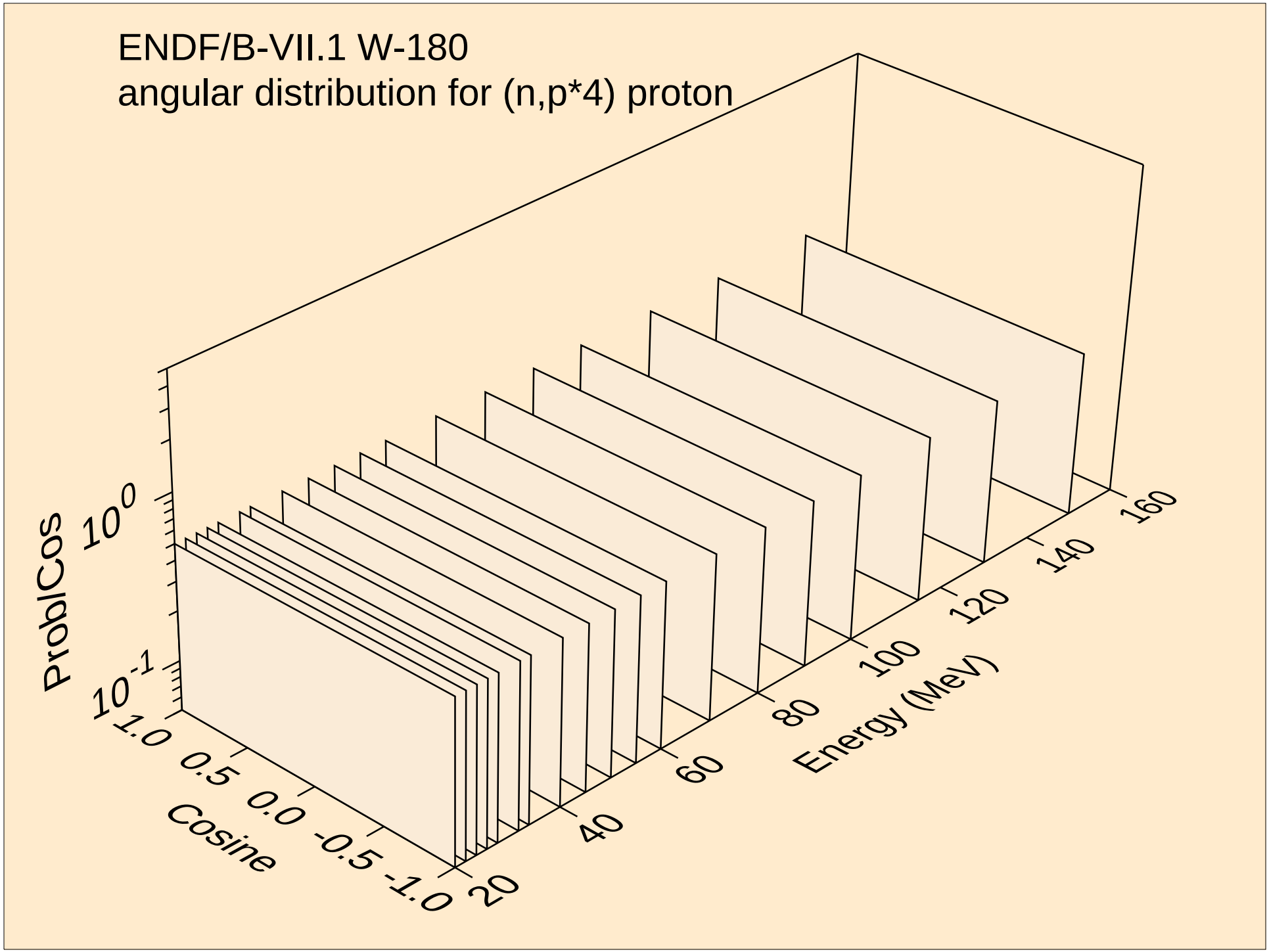

ENDF/B-VII.1 W-180
angular distribution for (n,p*2) proton
ProbICos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

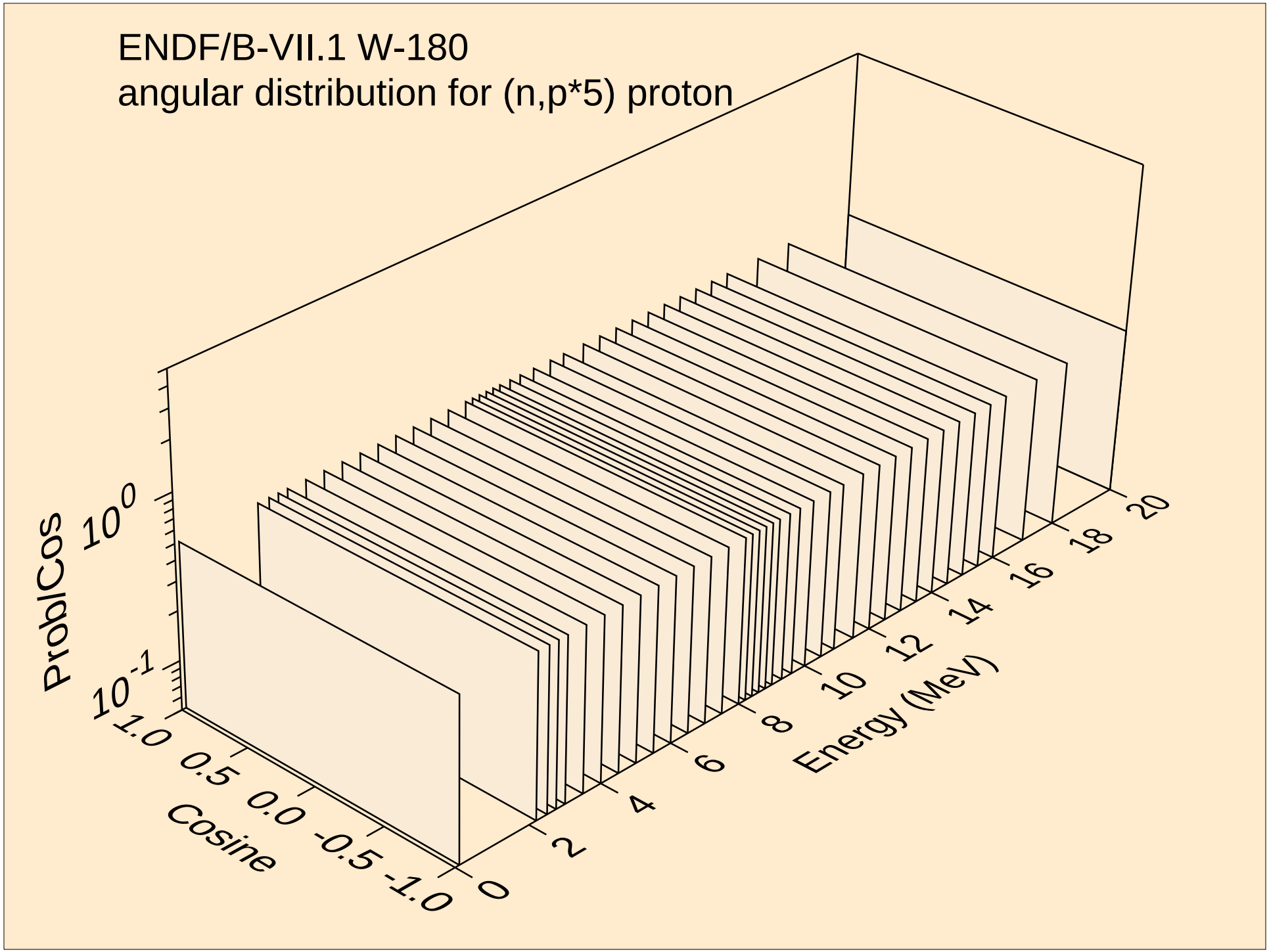

ENDF/B-VII.1 W-180
angular distribution for (n,p*2) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

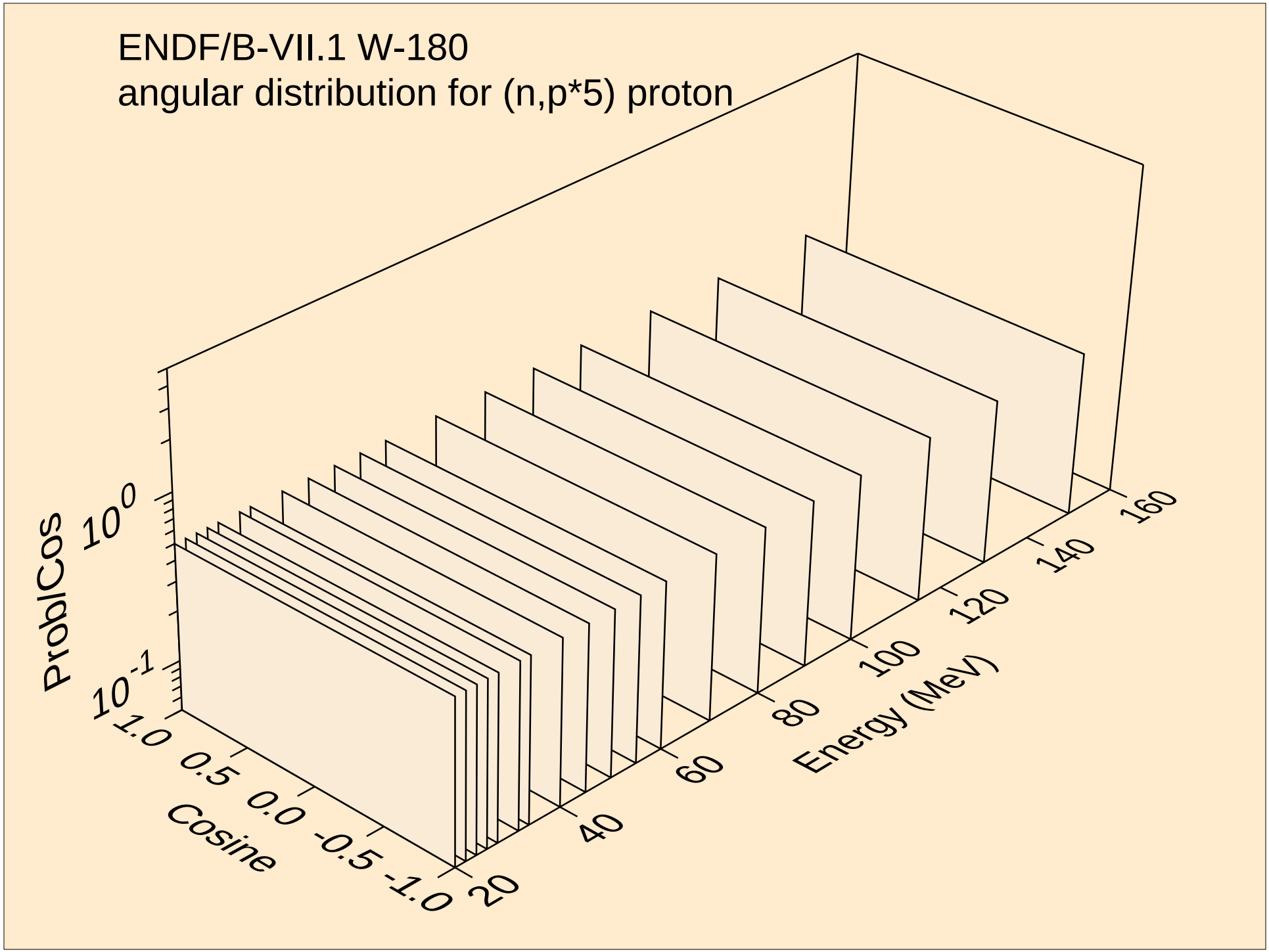

ENDF/B-VII.1 W-180
angular distribution for (n,p*3) proton
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

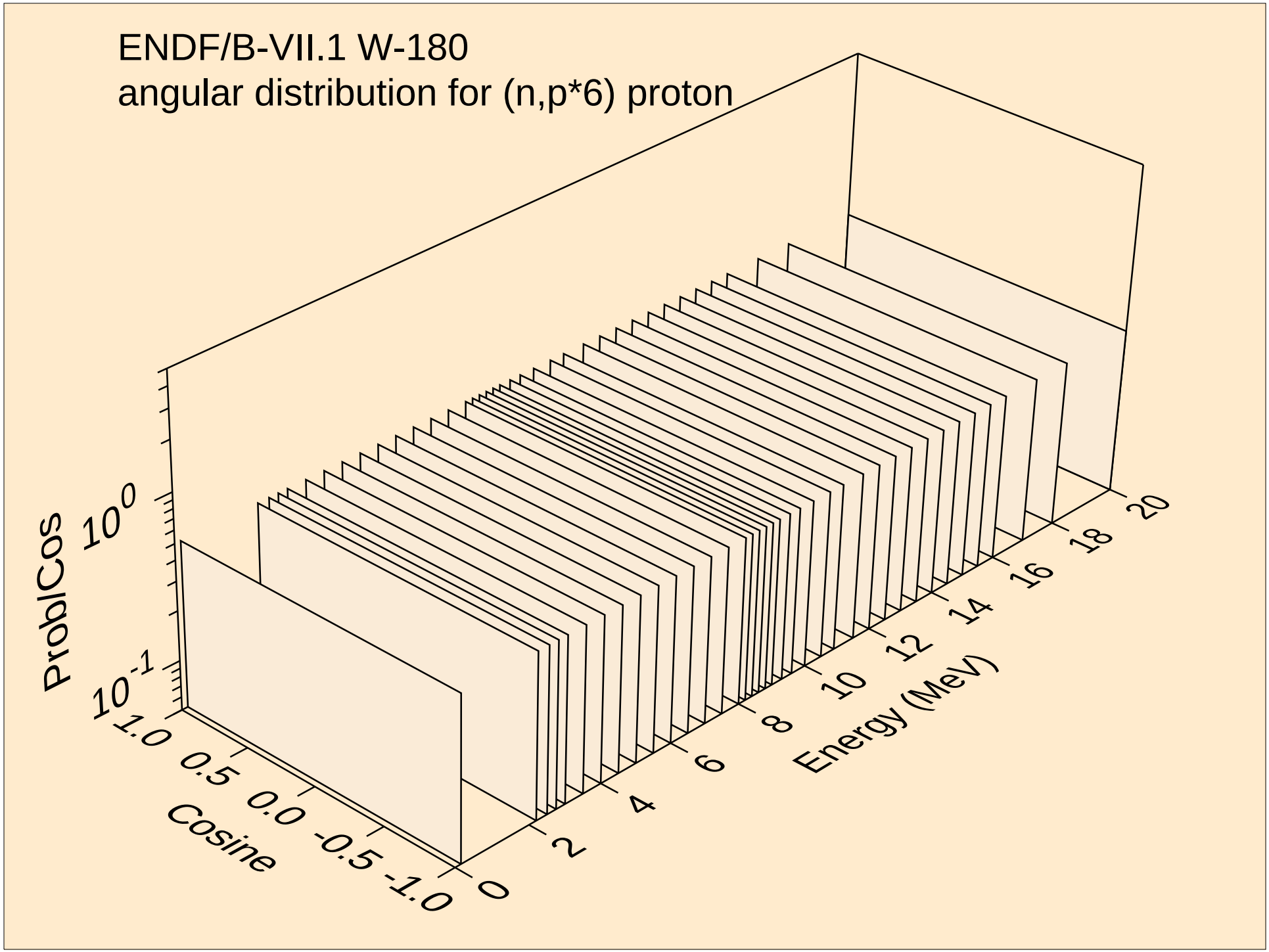

ENDF/B-VII.1 W-180
angular distribution for (n,p*3) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

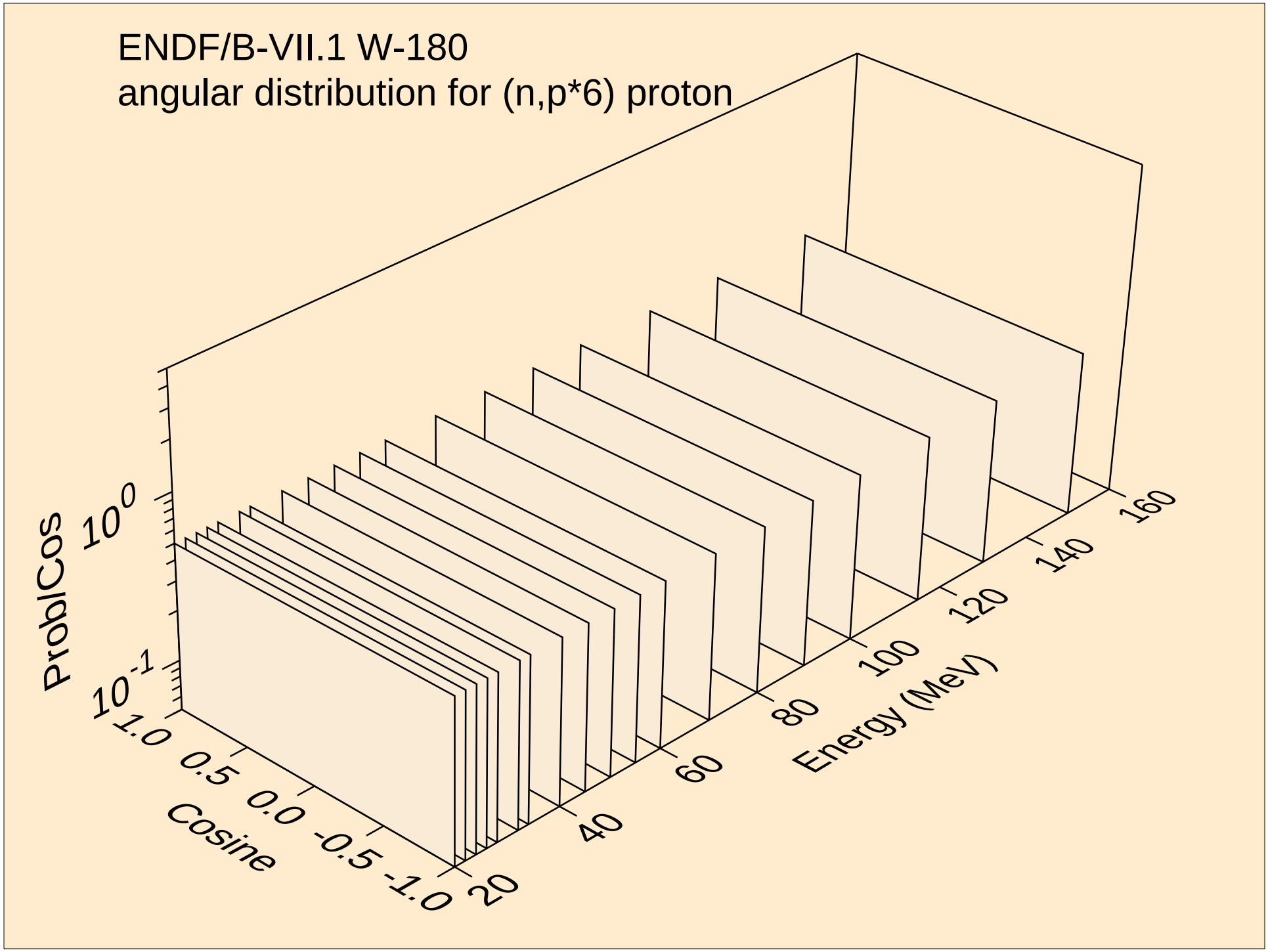

ENDF/B-VII.1 W-180
angular distribution for (n,p*4) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

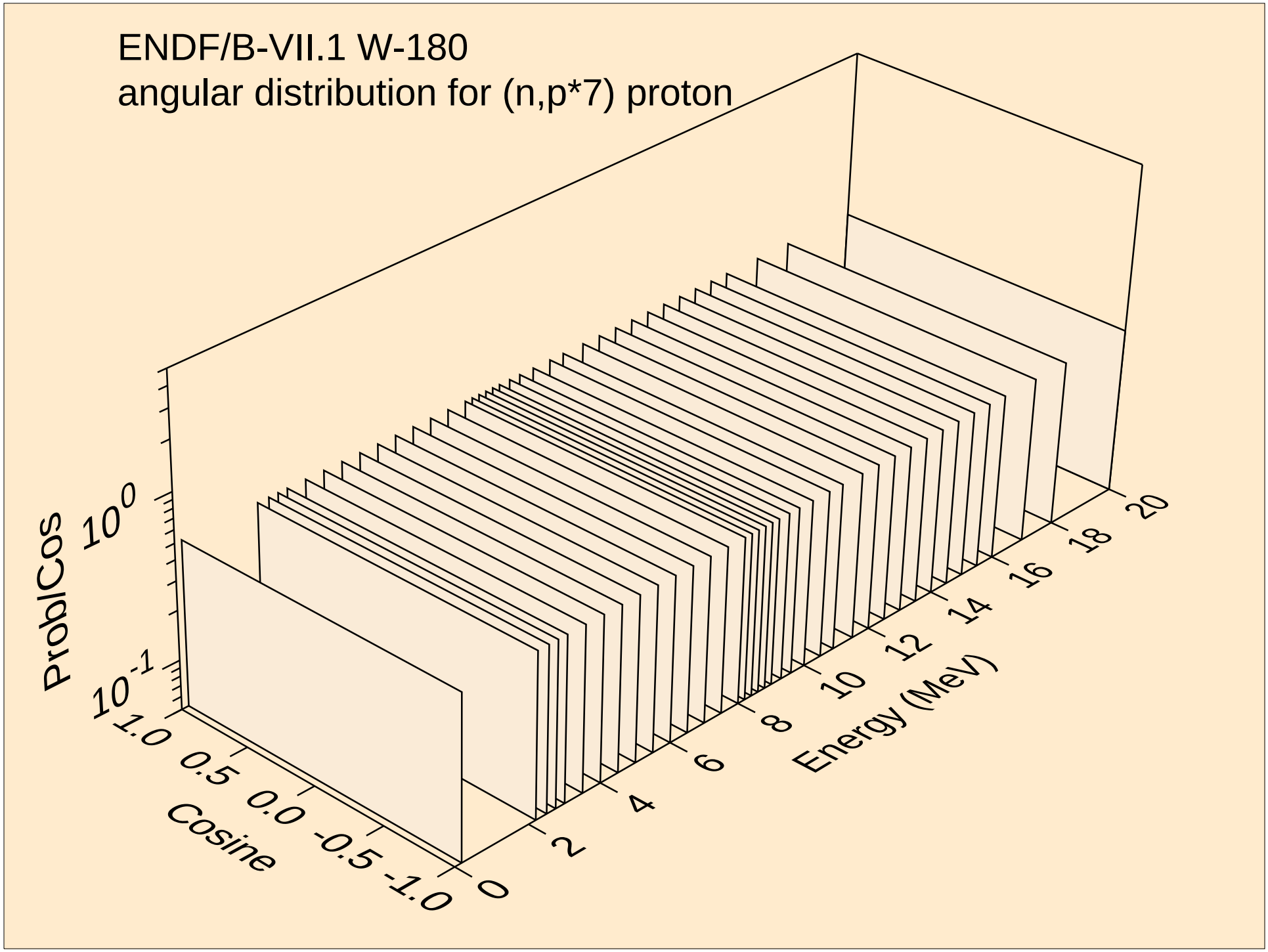

ENDF/B-VII.1 W-180
angular distribution for (n,p*4) proton
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

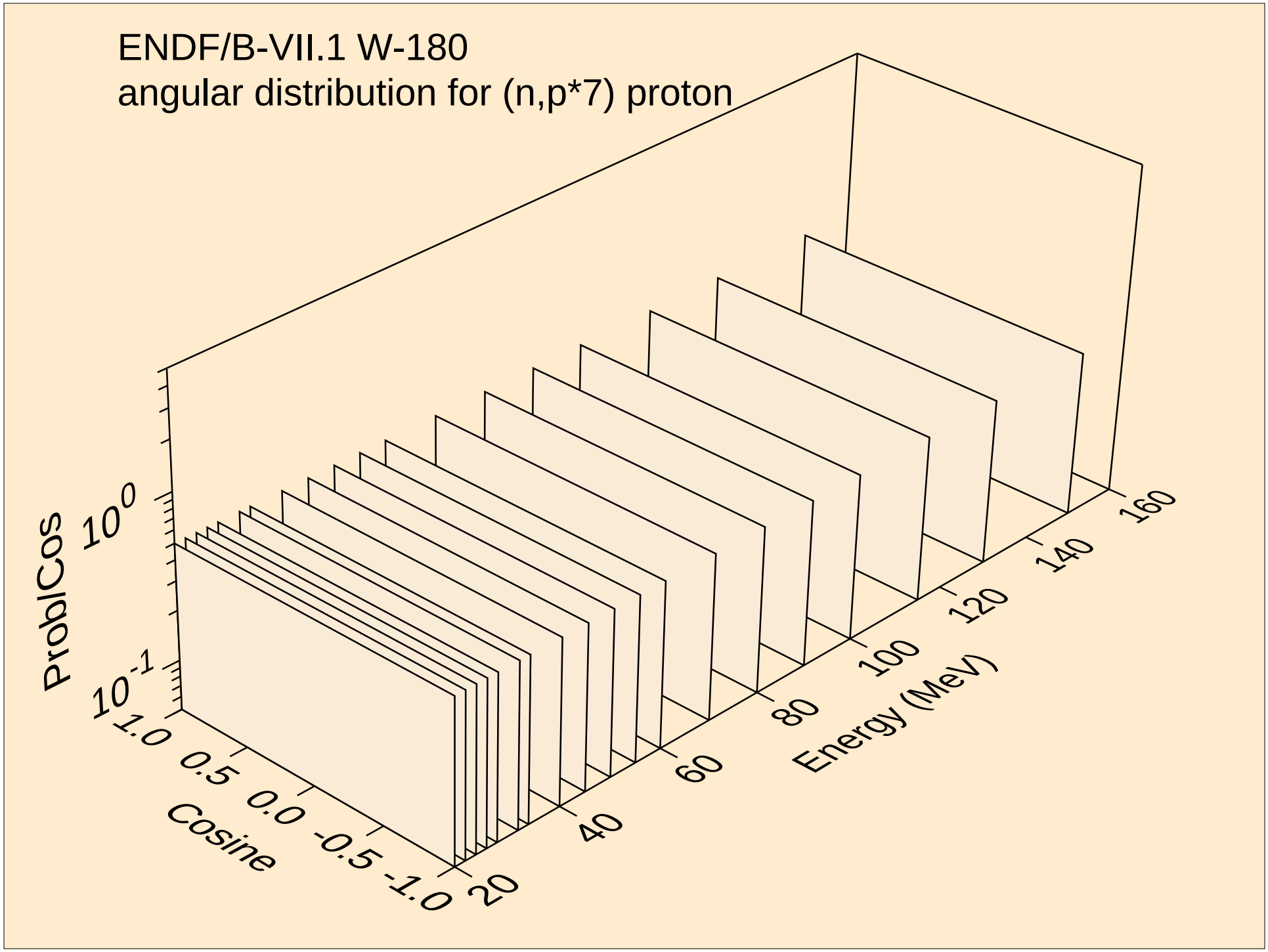

ENDF/B-VII.1 W-180
angular distribution for (n,p*5) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

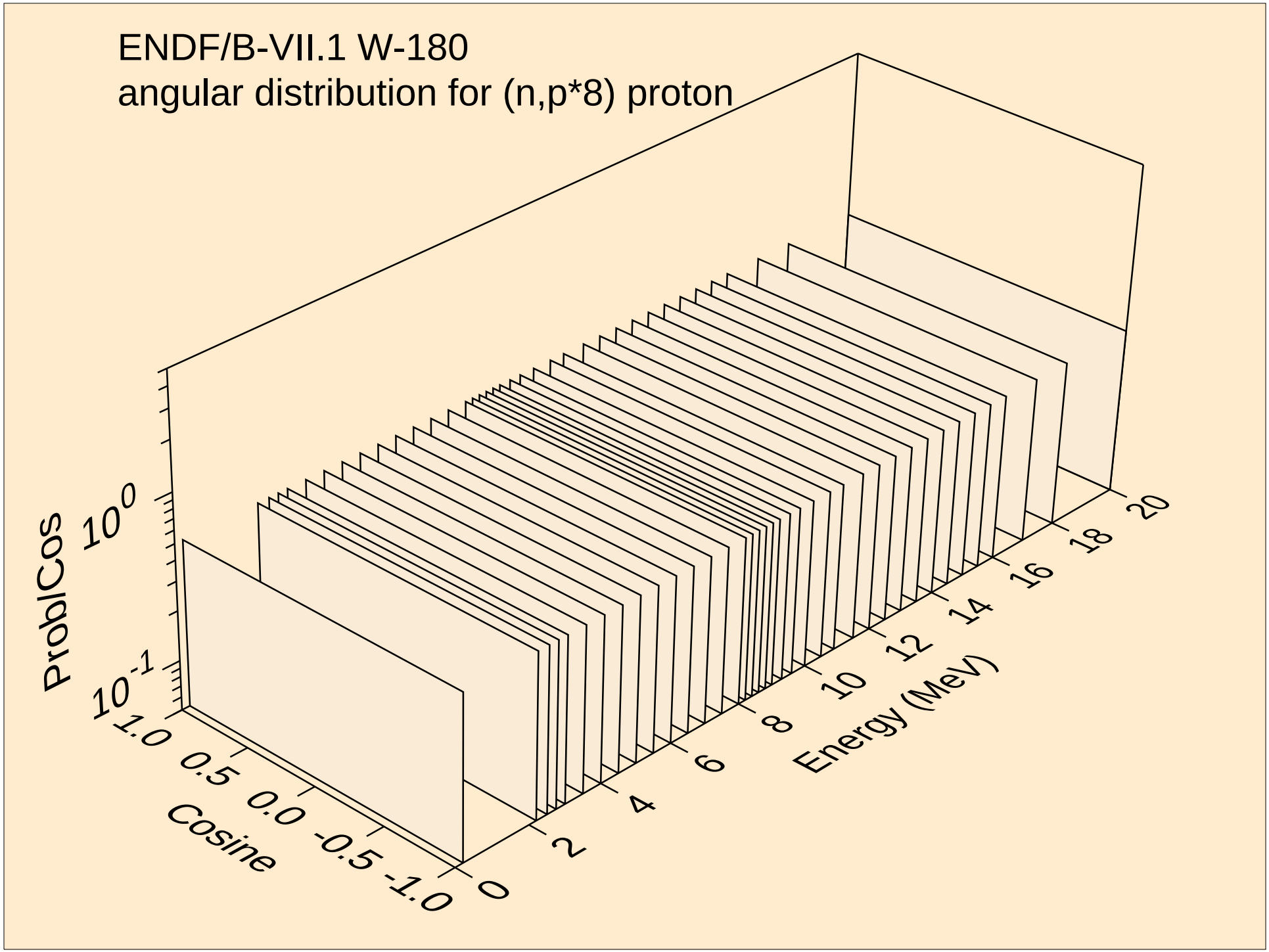

ENDF/B-VII.1 W-180
angular distribution for (n,p*5) proton
ProblCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

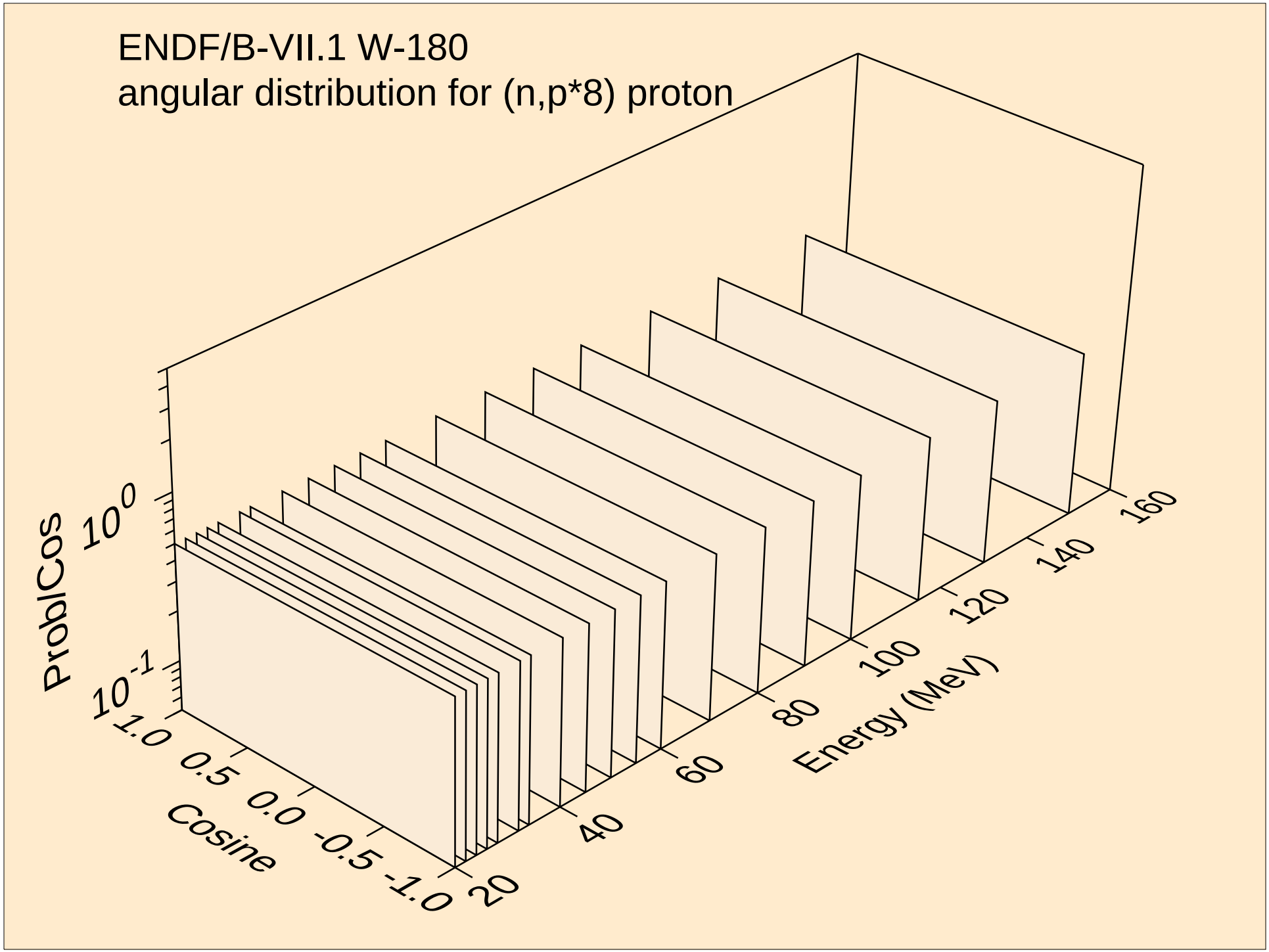

ENDF/B-VII.1 W-180
angular distribution for (n,p*6) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

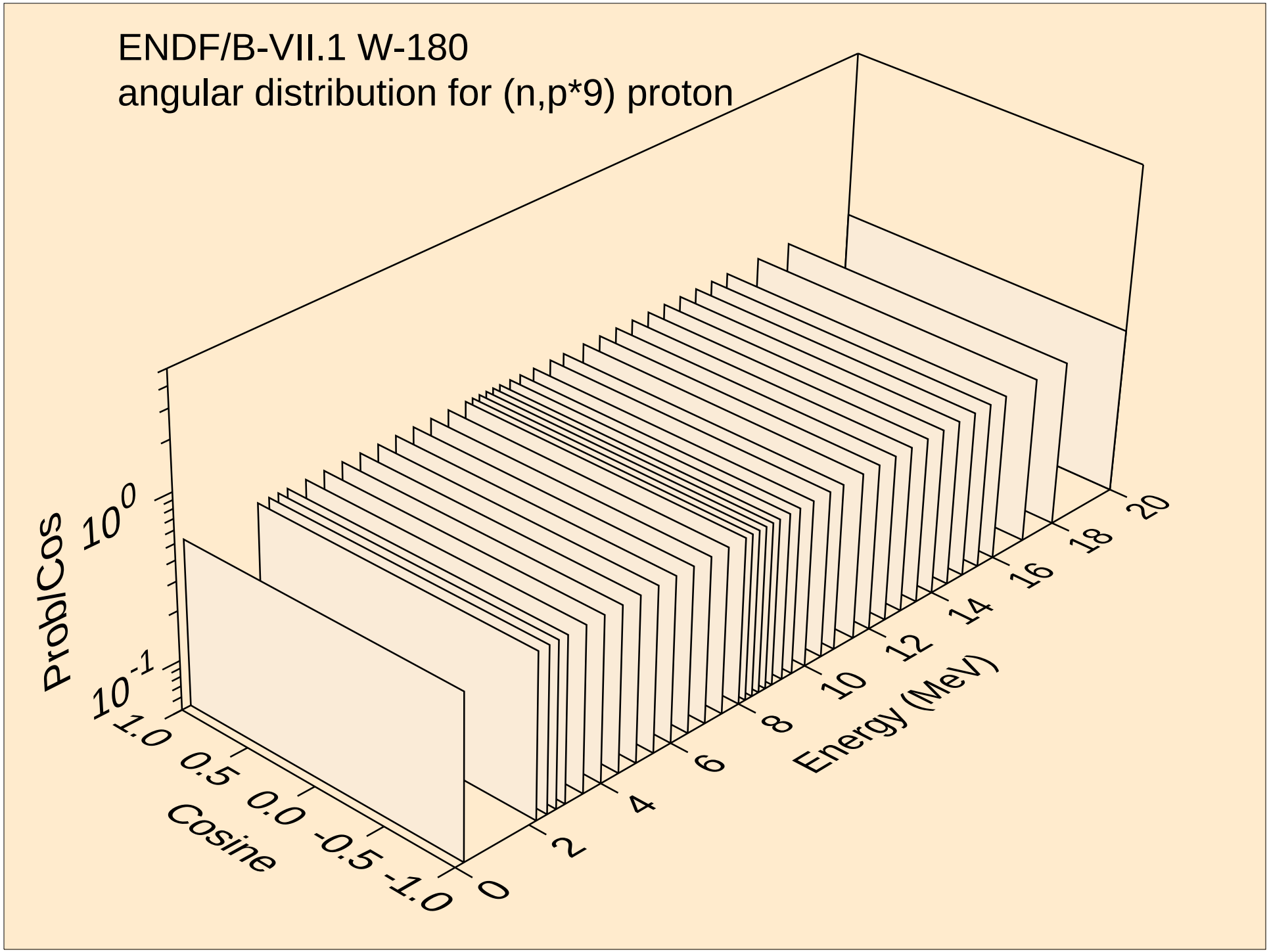

ENDF/B-VII.1 W-180
angular distribution for (n,p*6) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

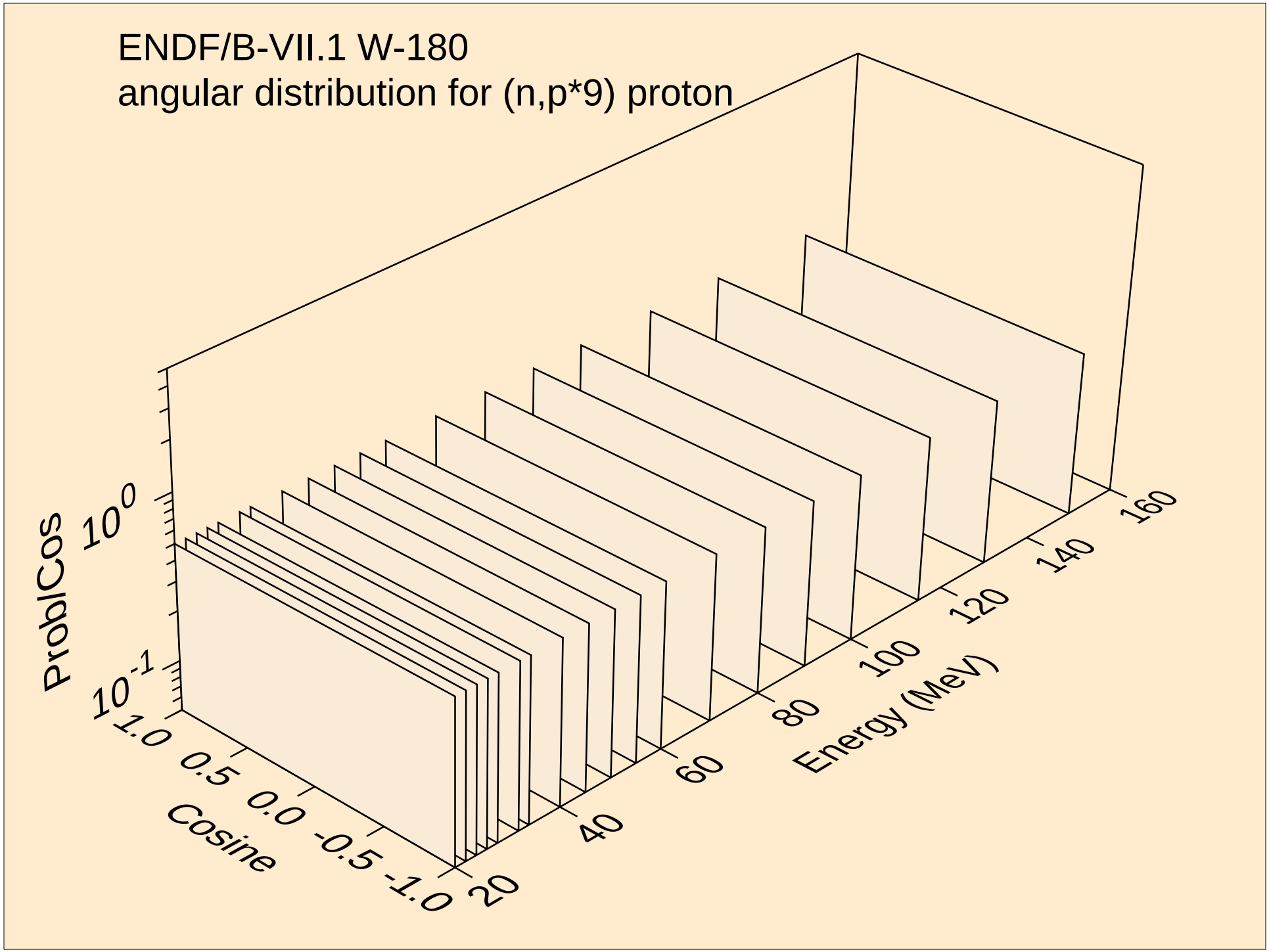

ENDF/B-VII.1 W-180
angular distribution for (n,p*7) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

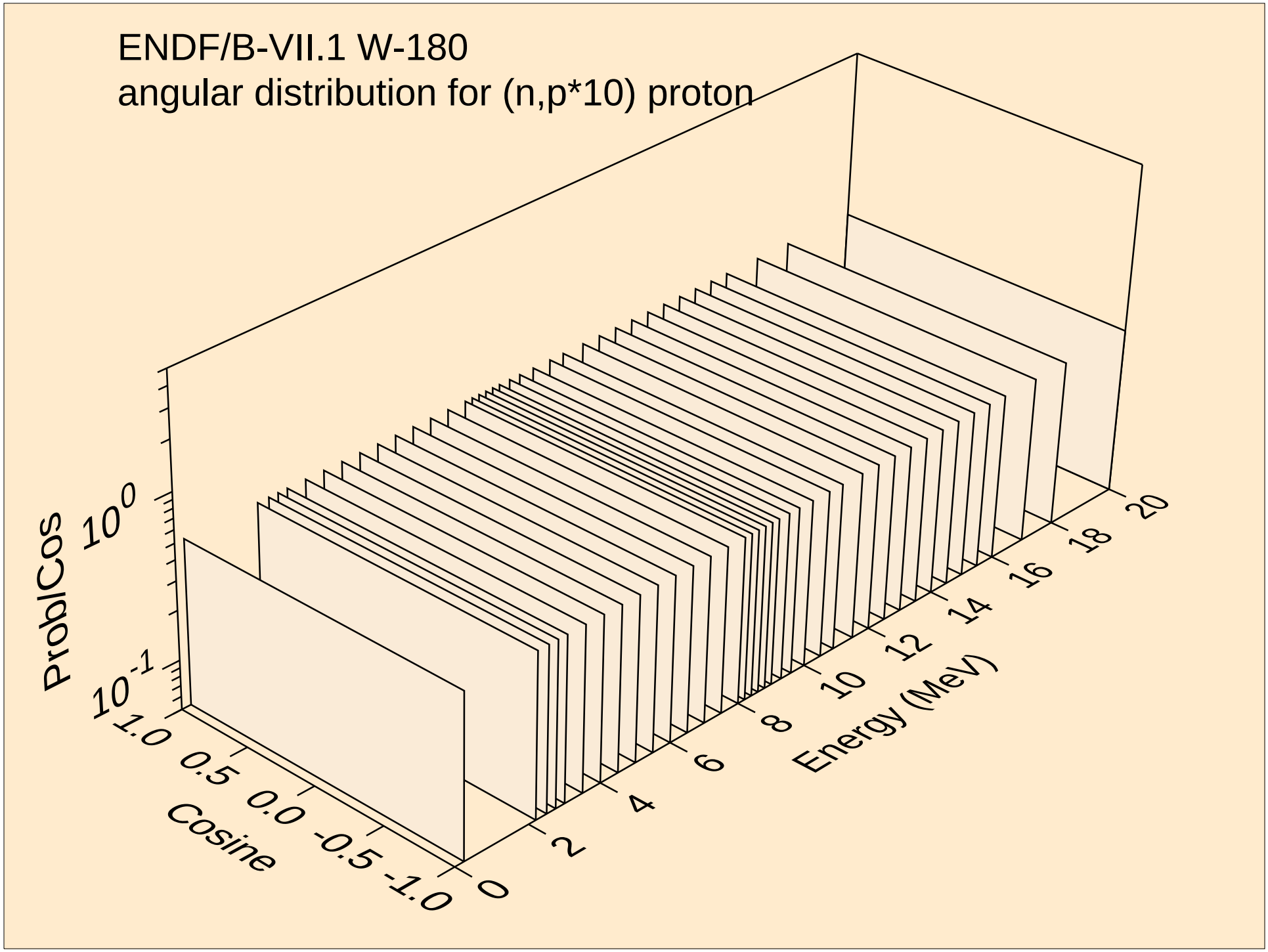

ENDF/B-VII.1 W-180
angular distribution for (n,p*7) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

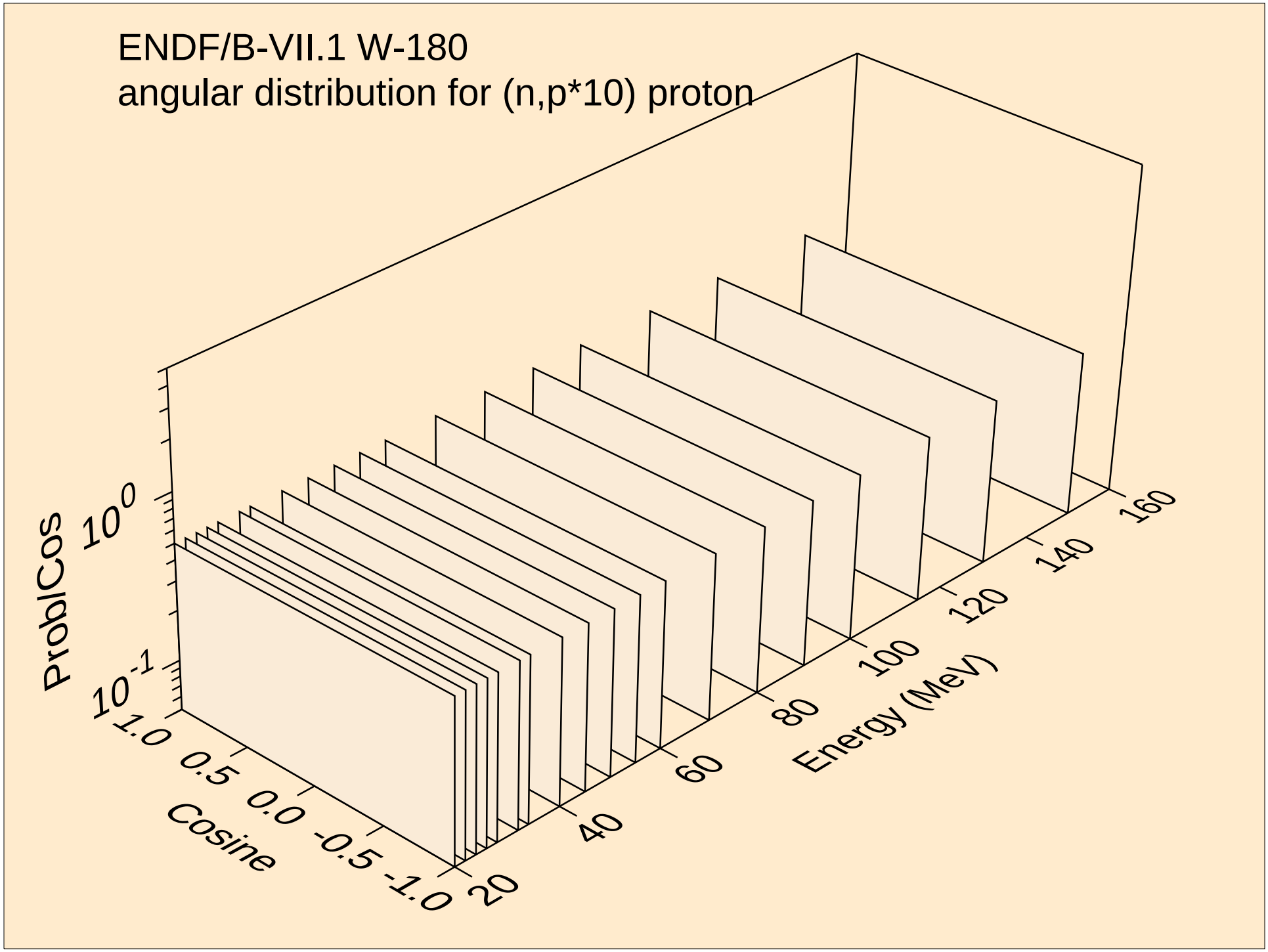

ENDF/B-VII.1 W-180
angular distribution for (n,p*8) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

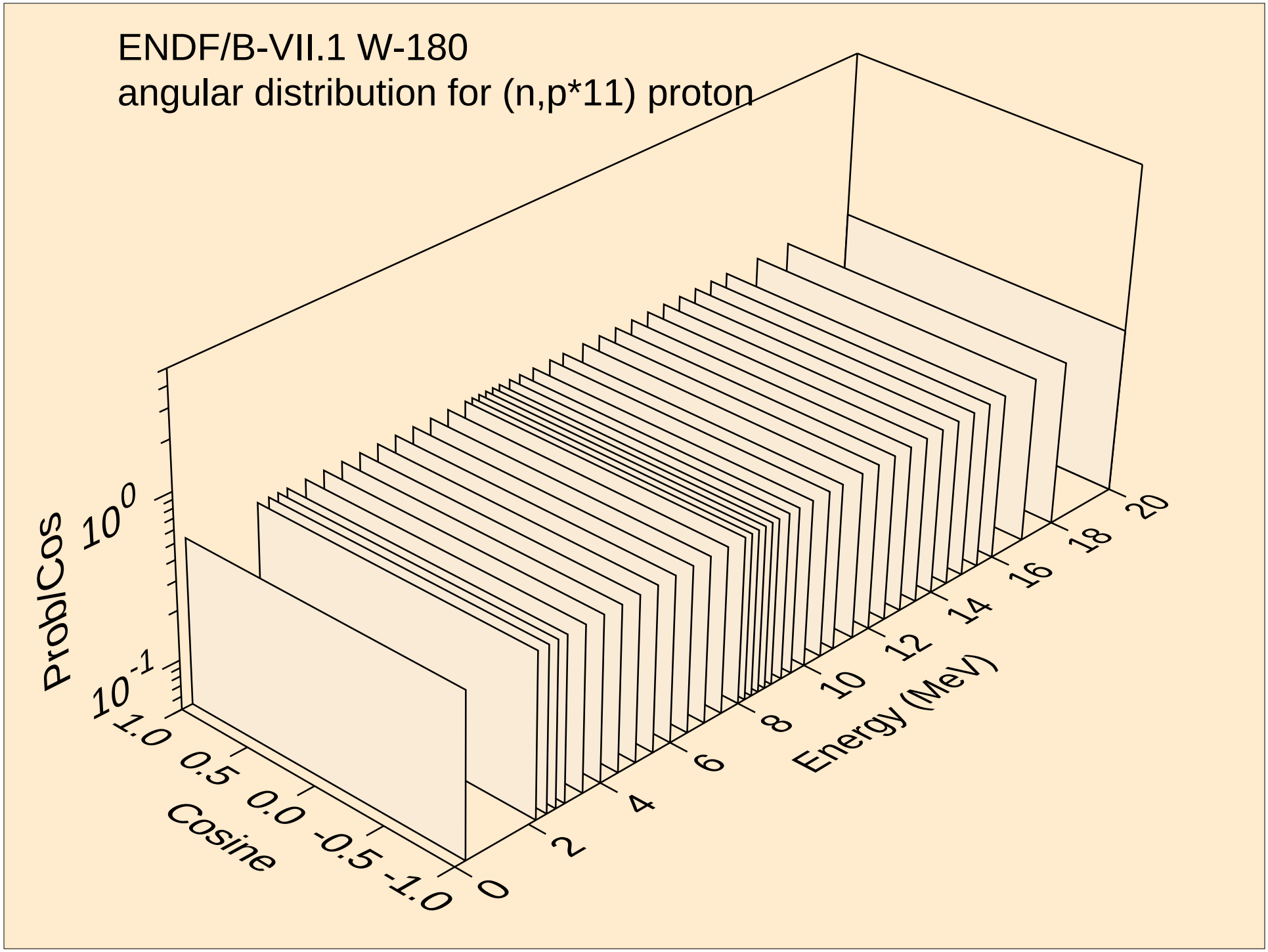

ENDF/B-VII.1 W-180
angular distribution for (n,p*8) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

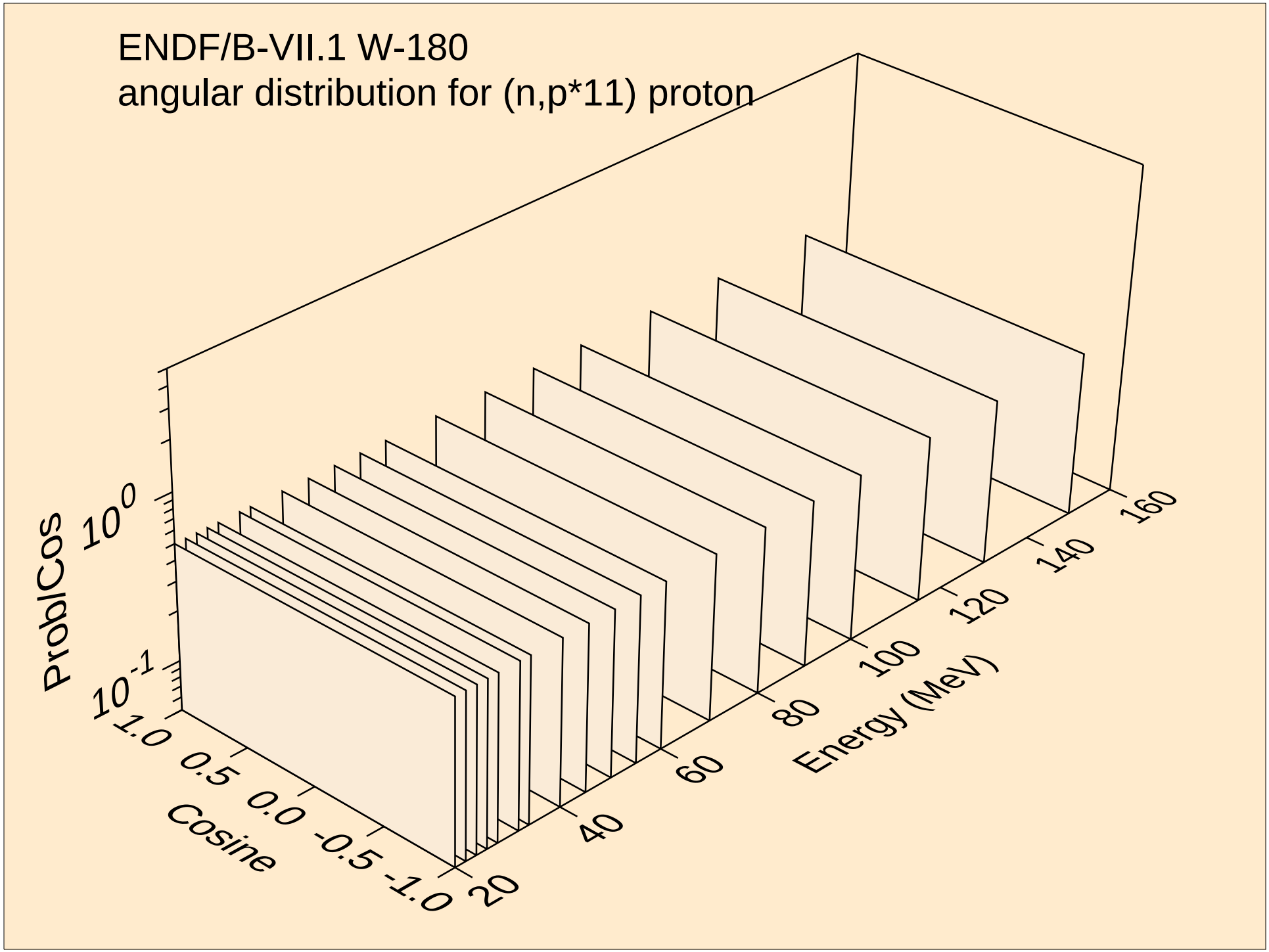

ENDF/B-VII.1 W-180
angular distribution for (n,p*9) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

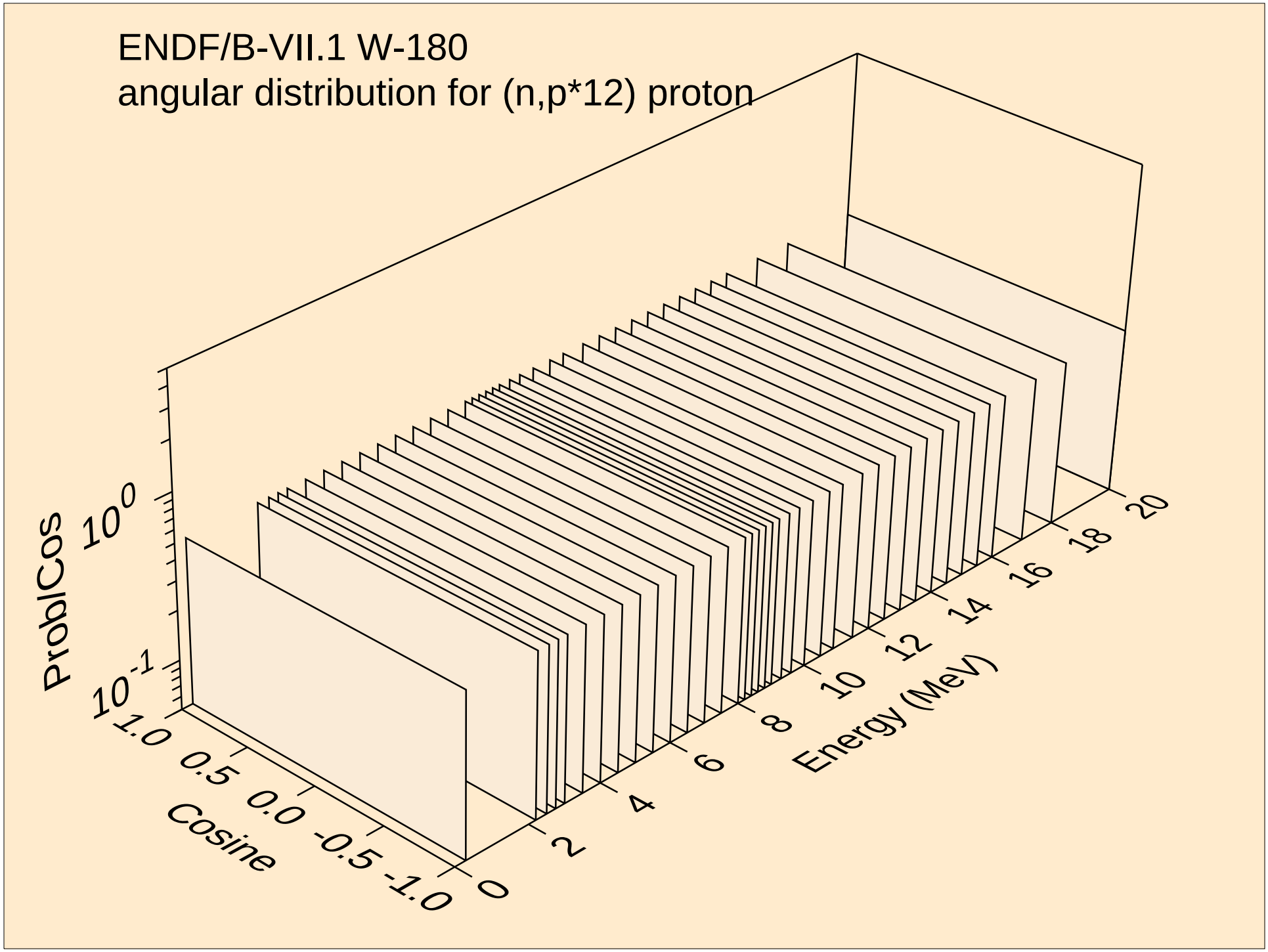

ENDF/B-VII.1 W-180
angular distribution for (n,p*9) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

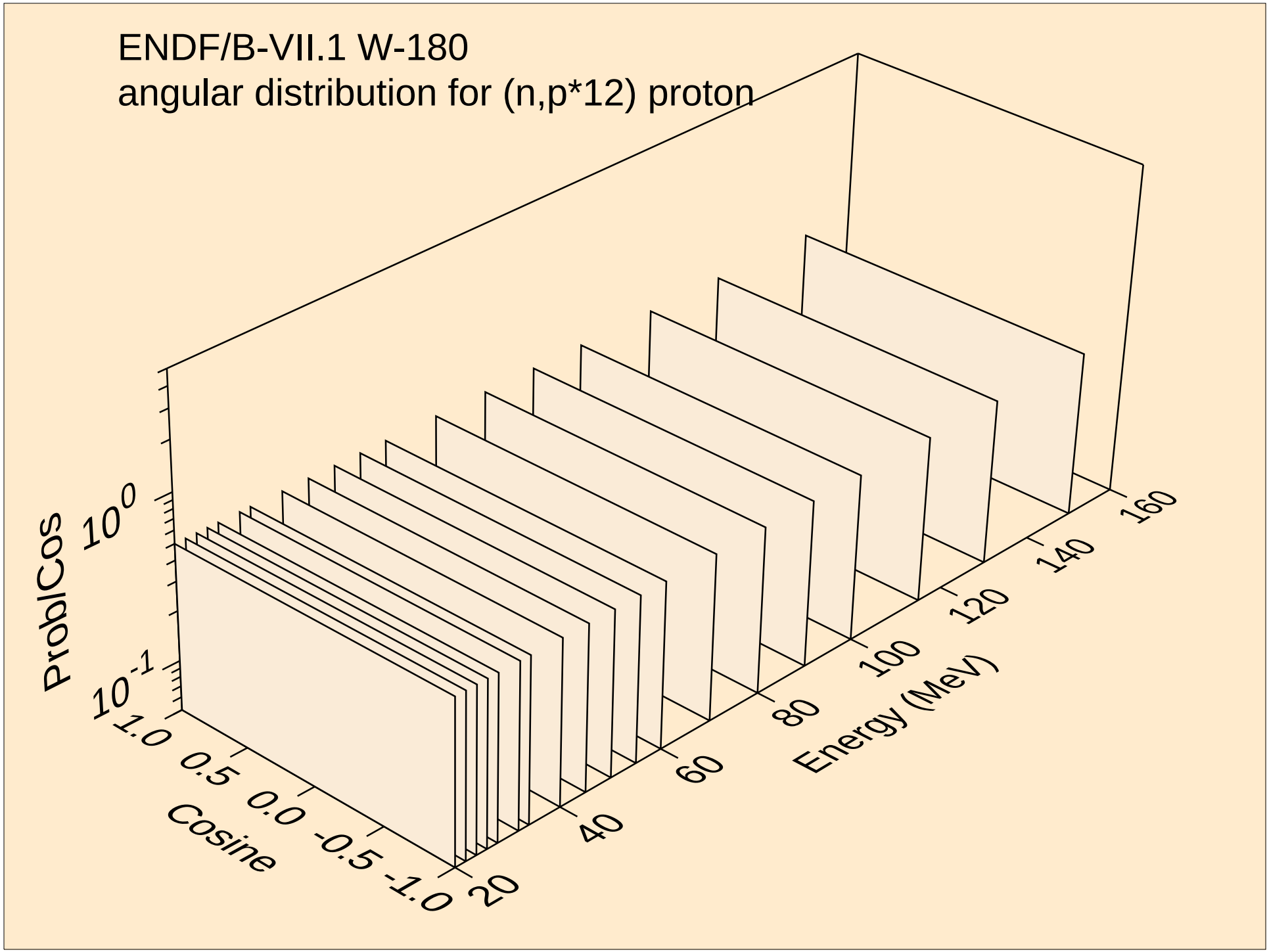

ENDF/B-VII.1 W-180
angular distribution for (n,p*10) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

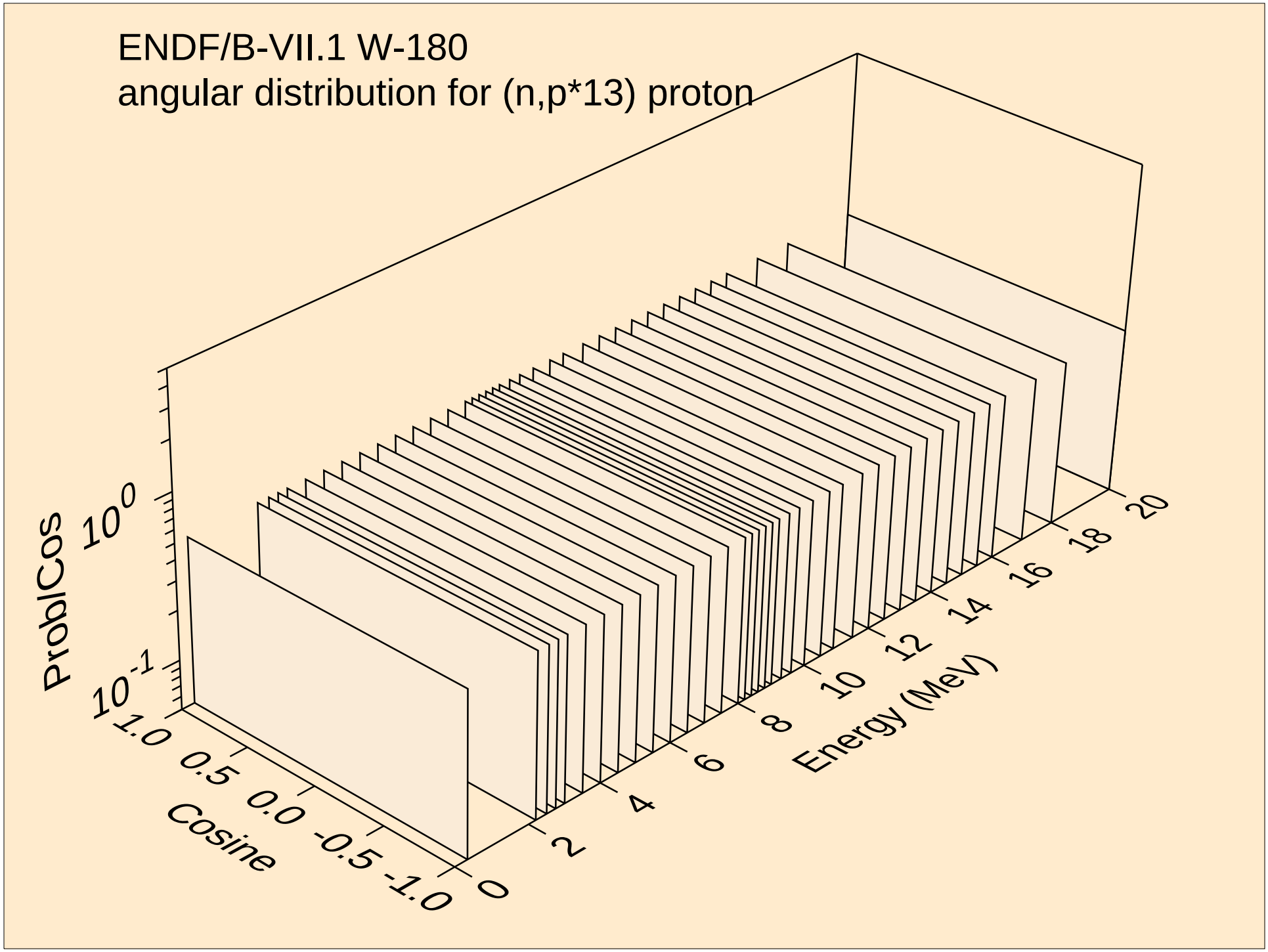

ENDF/B-VII.1 W-180
angular distribution for (n,p*10) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

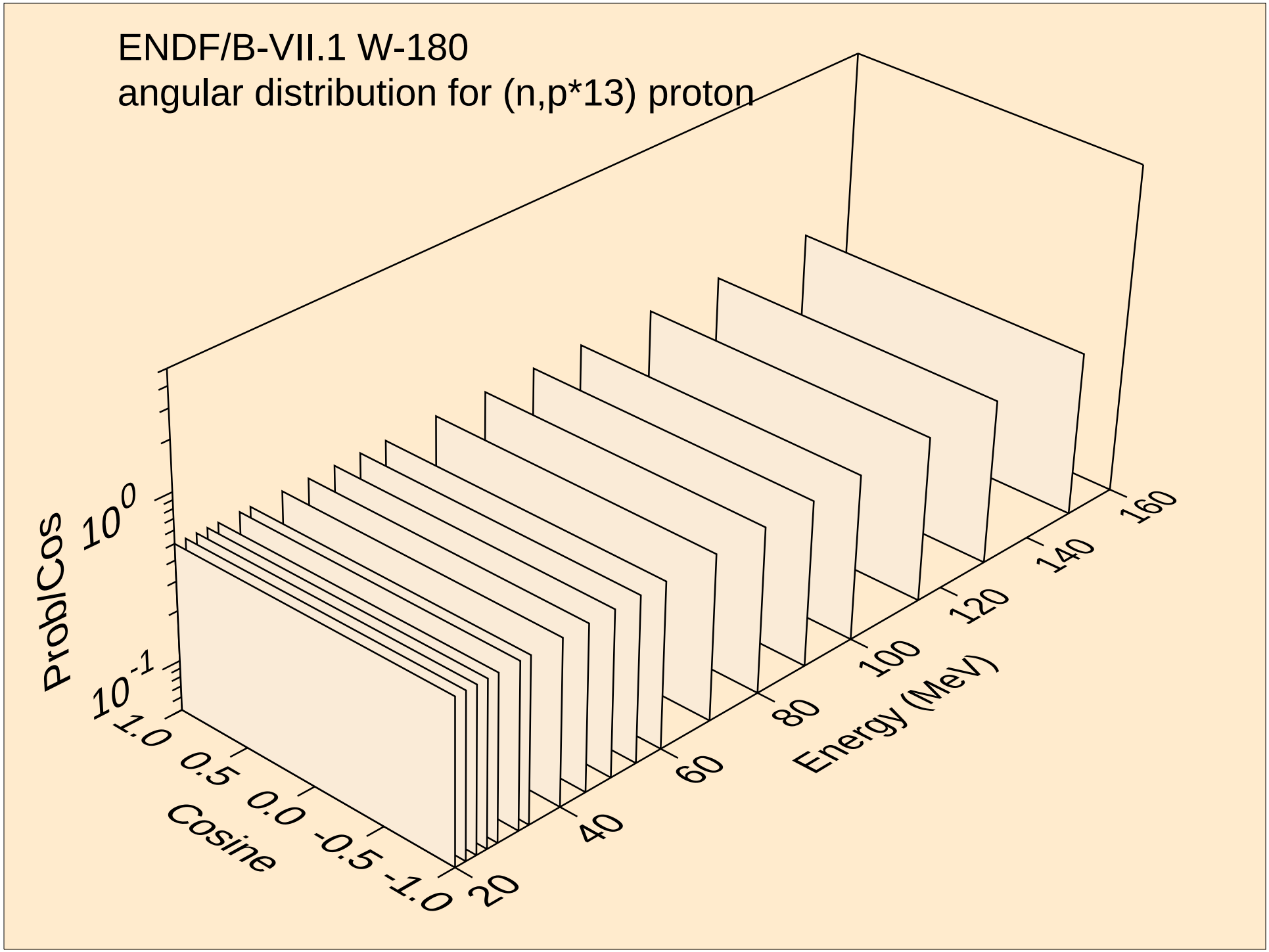

ENDF/B-VII.1 W-180
angular distribution for (n,p*11) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

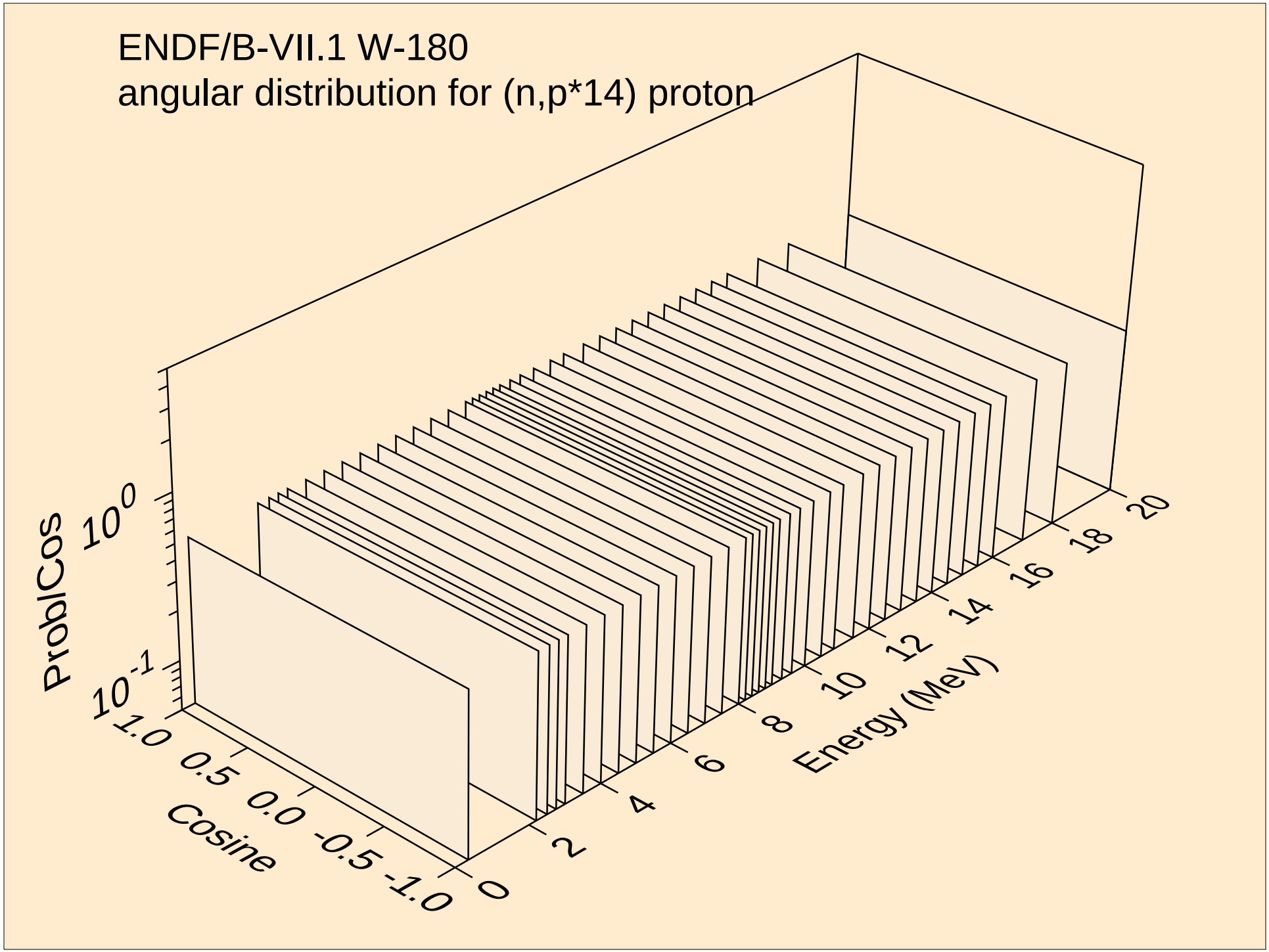

ENDF/B-VII.1 W-180
angular distribution for (n,p*11) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

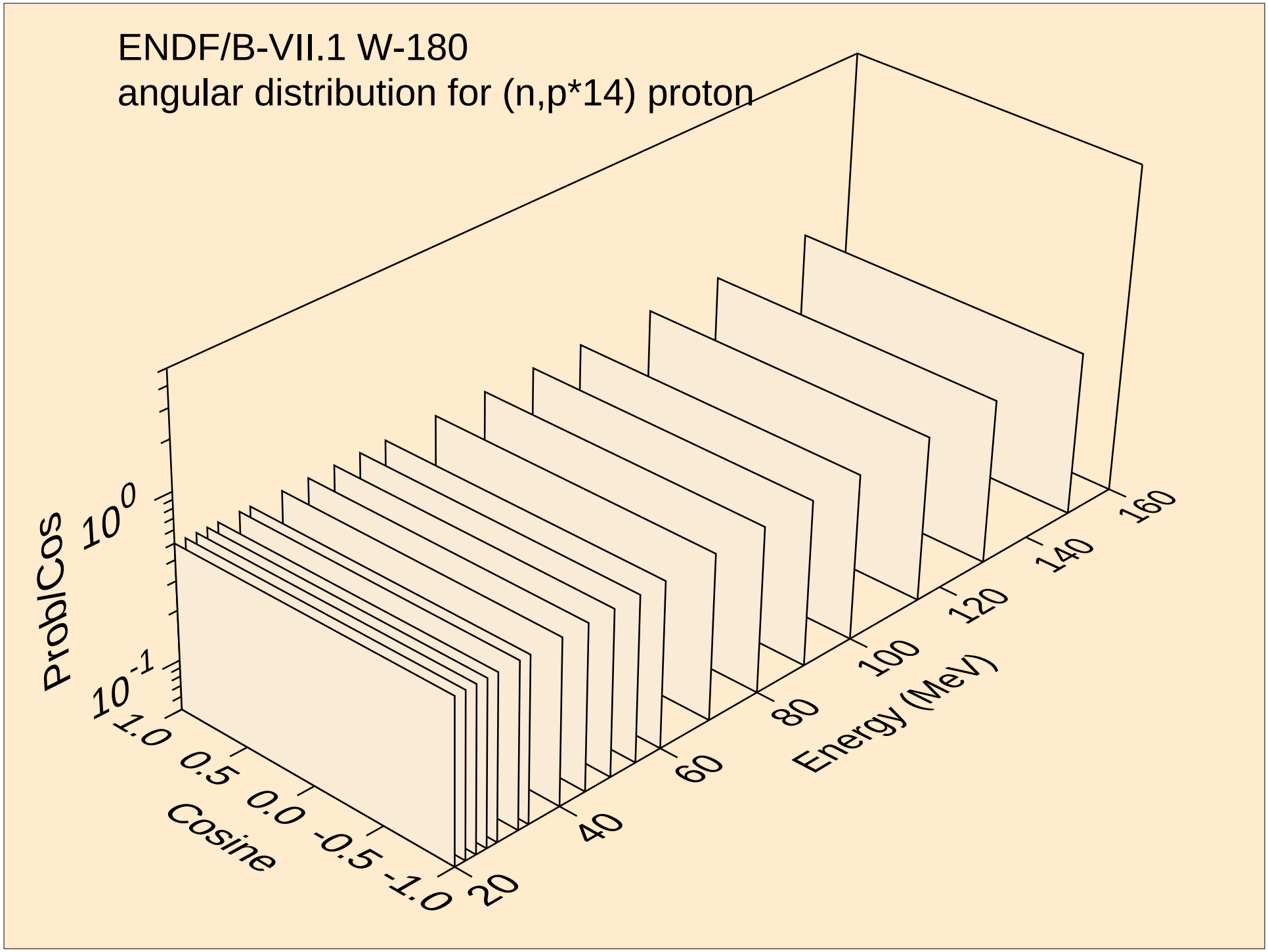

ENDF/B-VII.1 W-180
angular distribution for (n,p*12) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

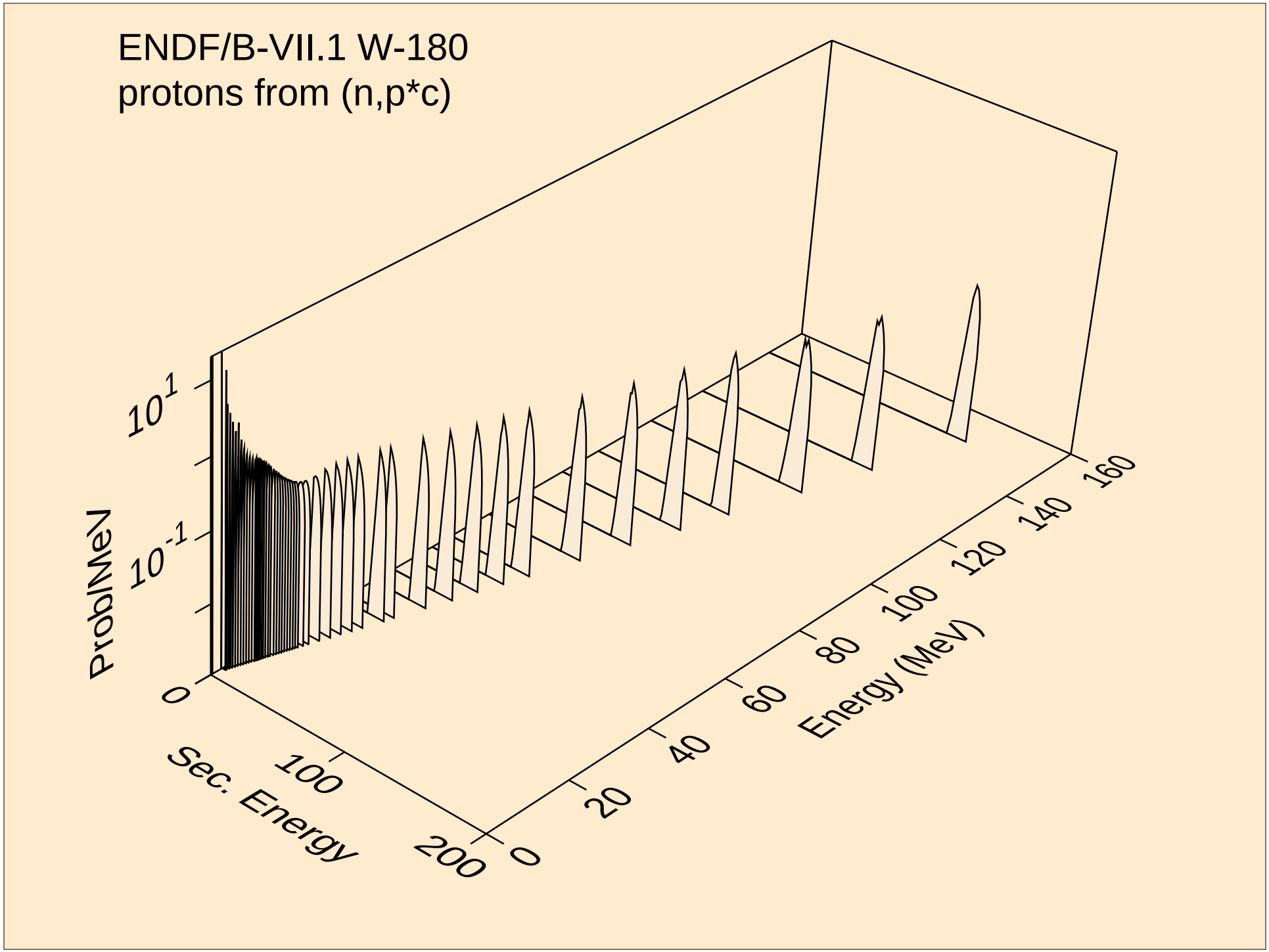

ENDF/B-VII.1 W-180
angular distribution for (n,p*12) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

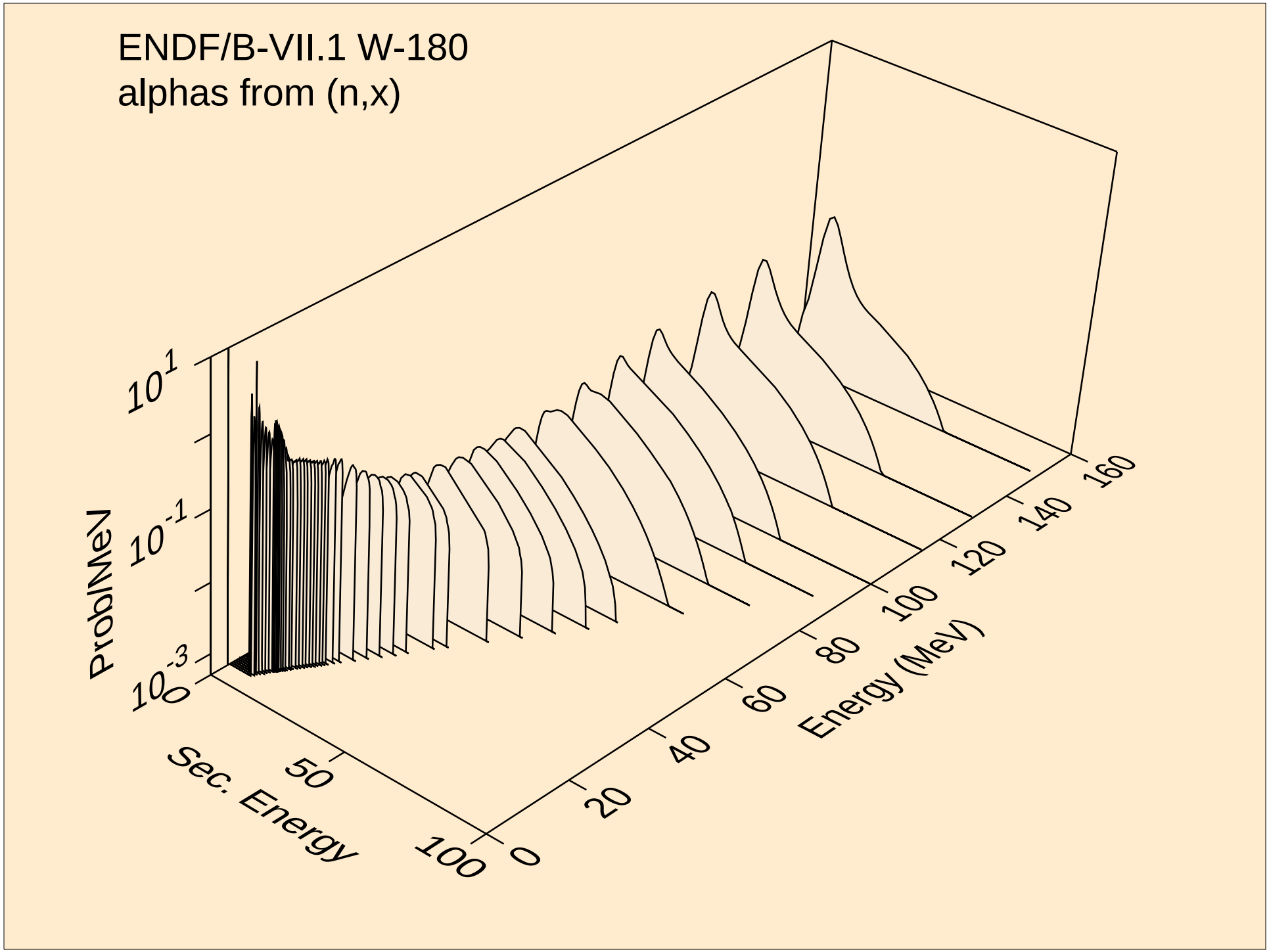

ENDF/B-VII.1 W-180
angular distribution for (n,p*13) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

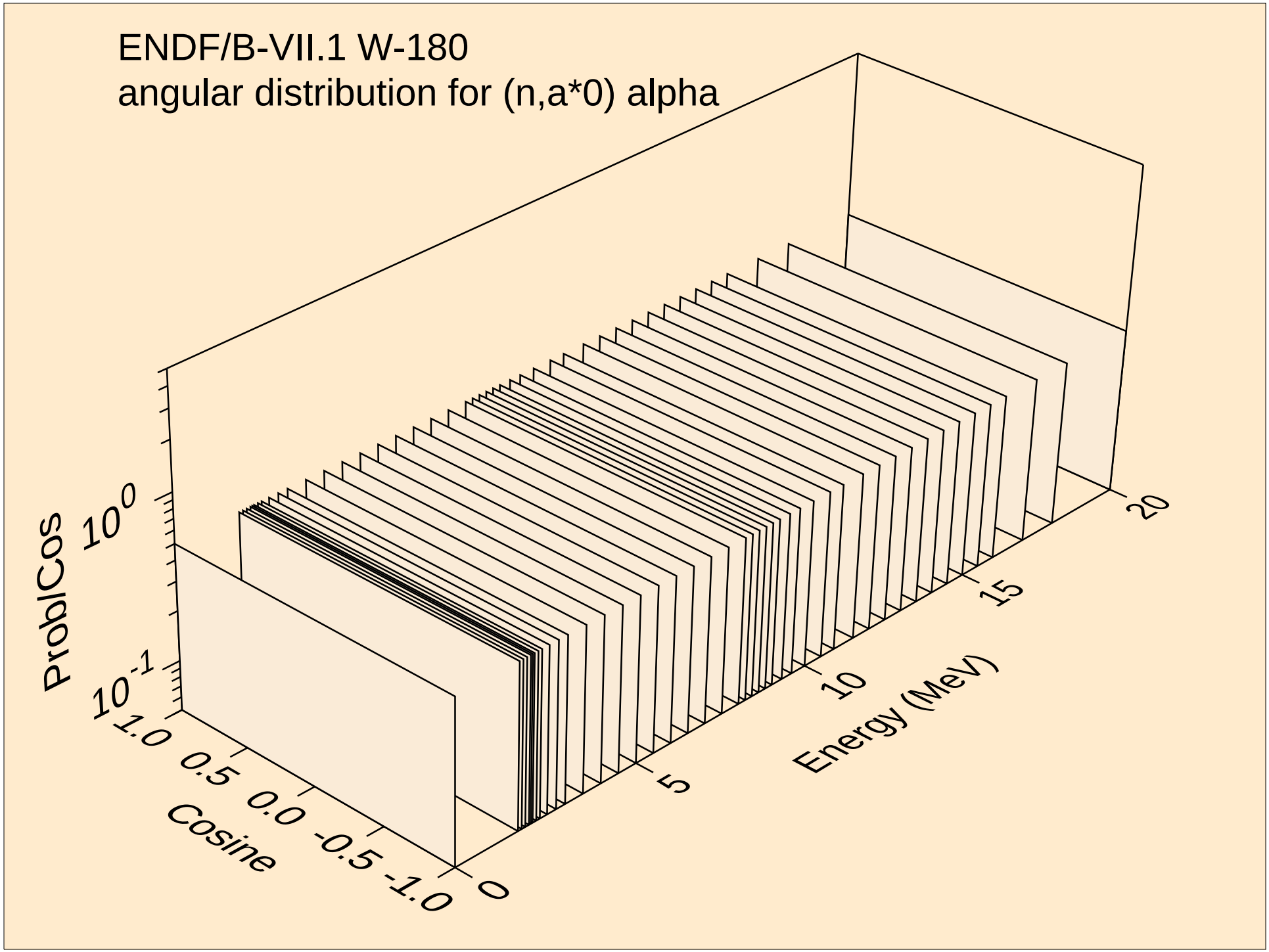

ENDF/B-VII.1 W-180
angular distribution for (n,p*13) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

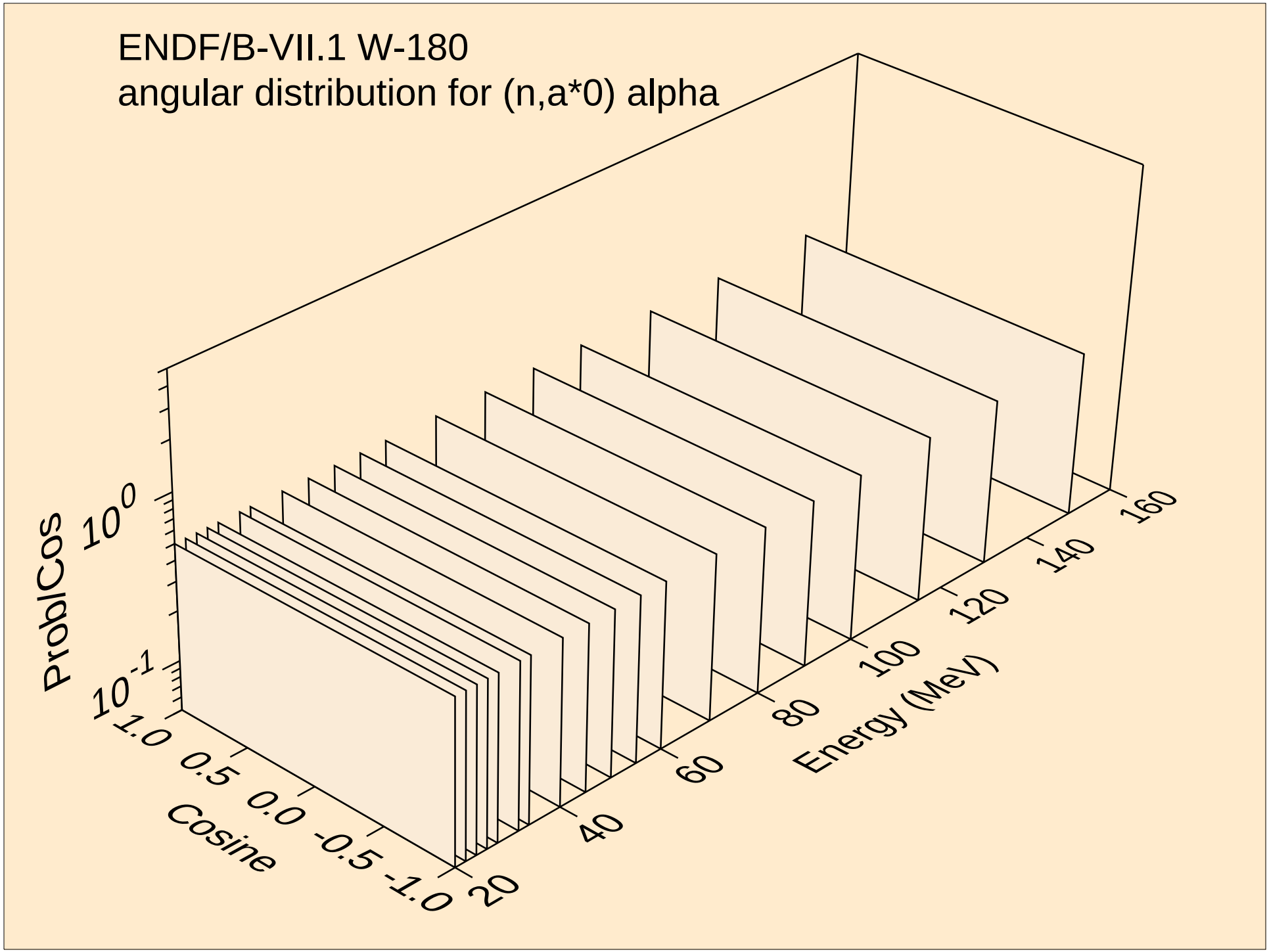

ENDF/B-VII.1 W-180
angular distribution for (n,p*14) proton
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

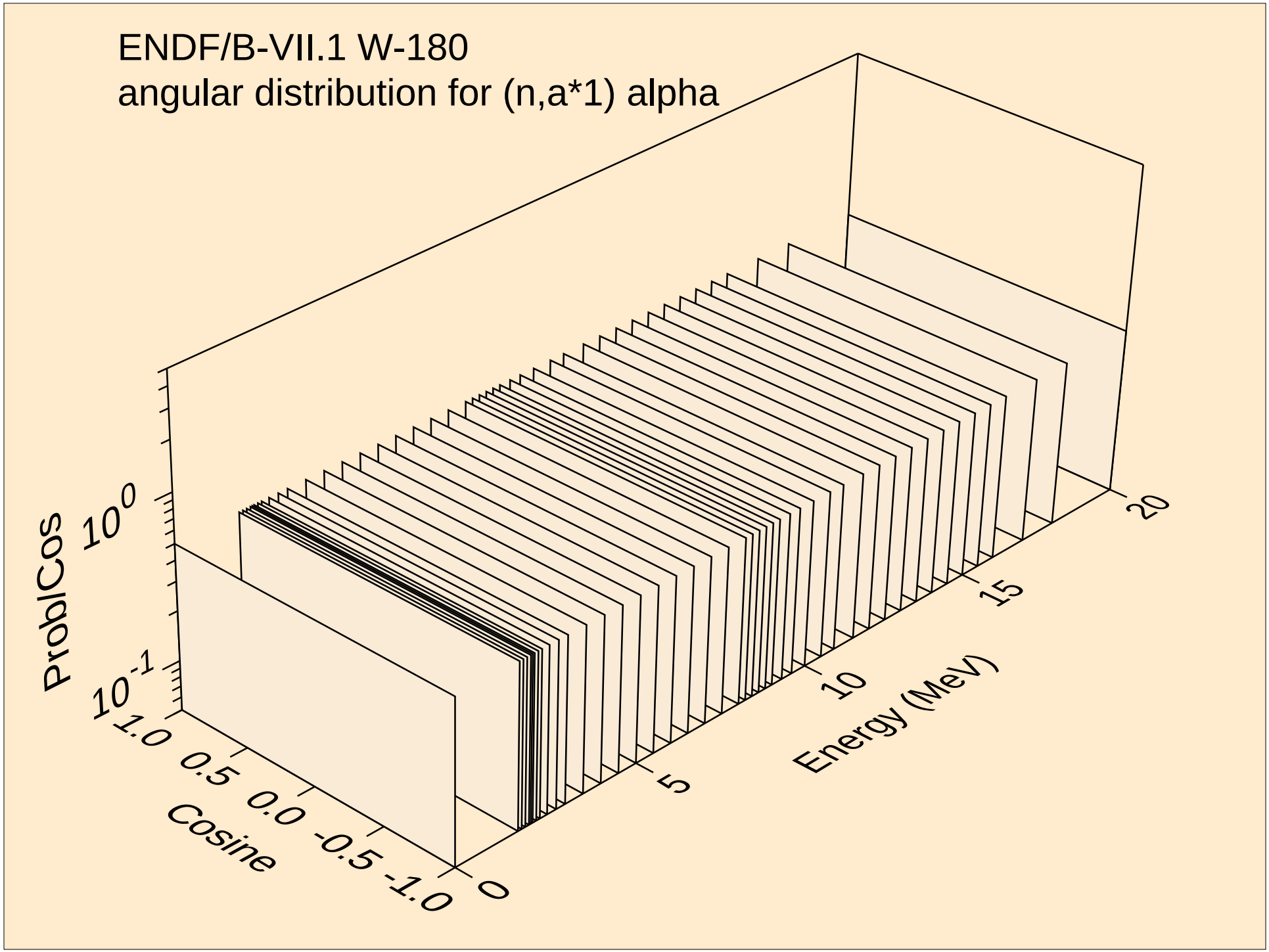

ENDF/B-VII.1 W-180
angular distribution for (n,p*14) proton
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

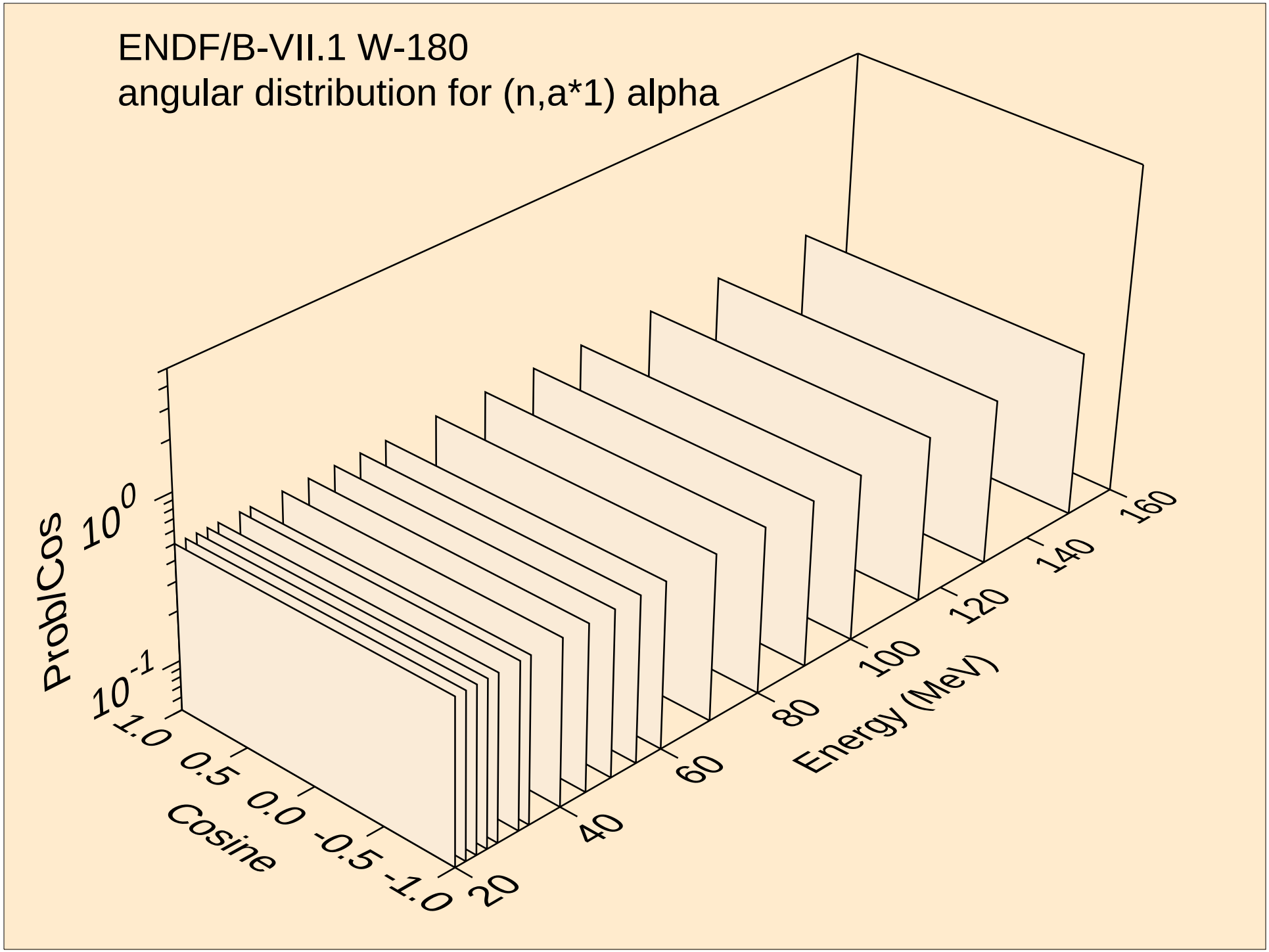

ENDF/B-VII.1 W-180
protons from (n,p*c)
Prob/MeV
10^{1}
10^{-1}
0
100
200
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

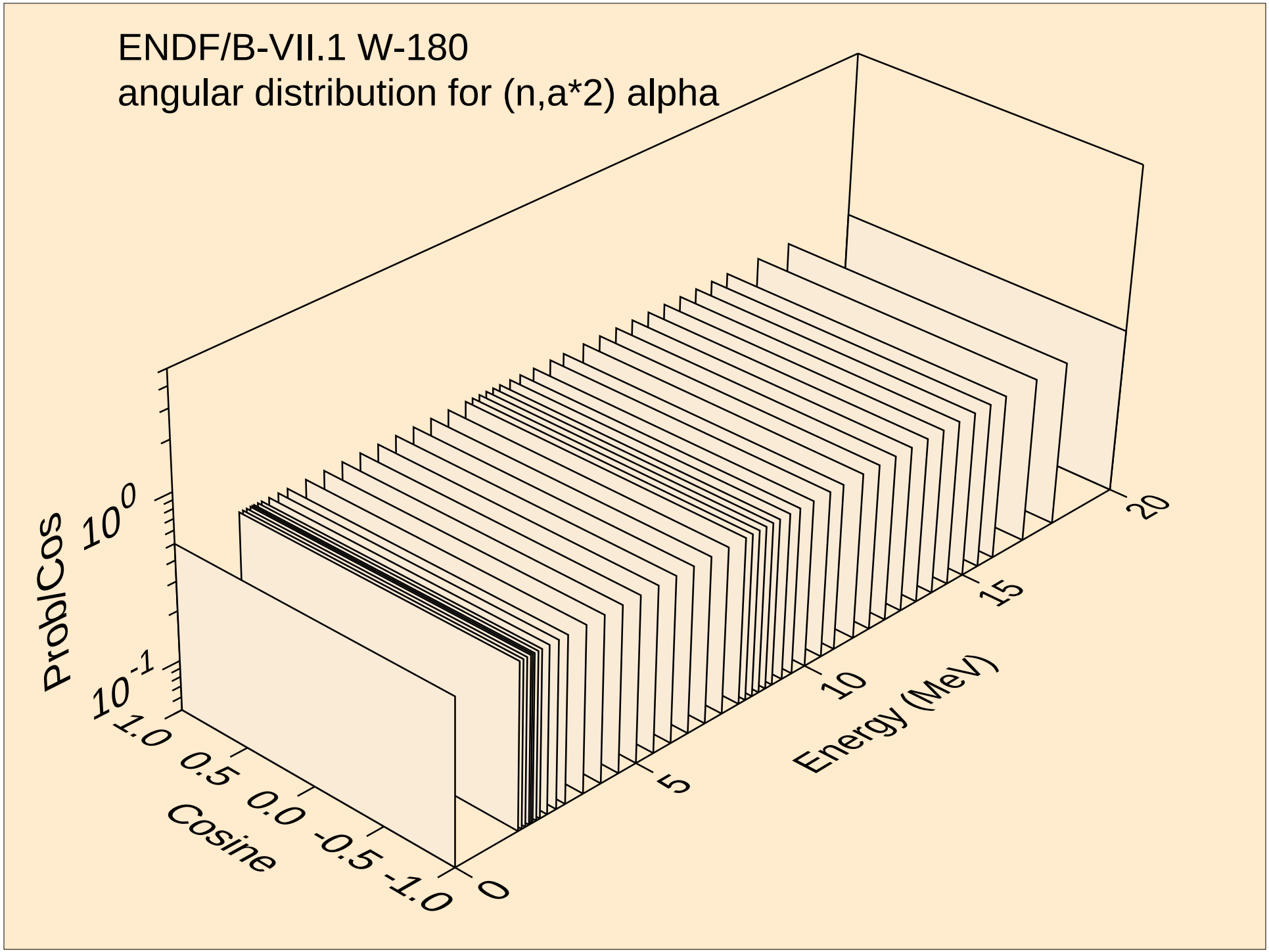

ENDF/B-VII.1 W-180
alphas from (n,x)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
50
100
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

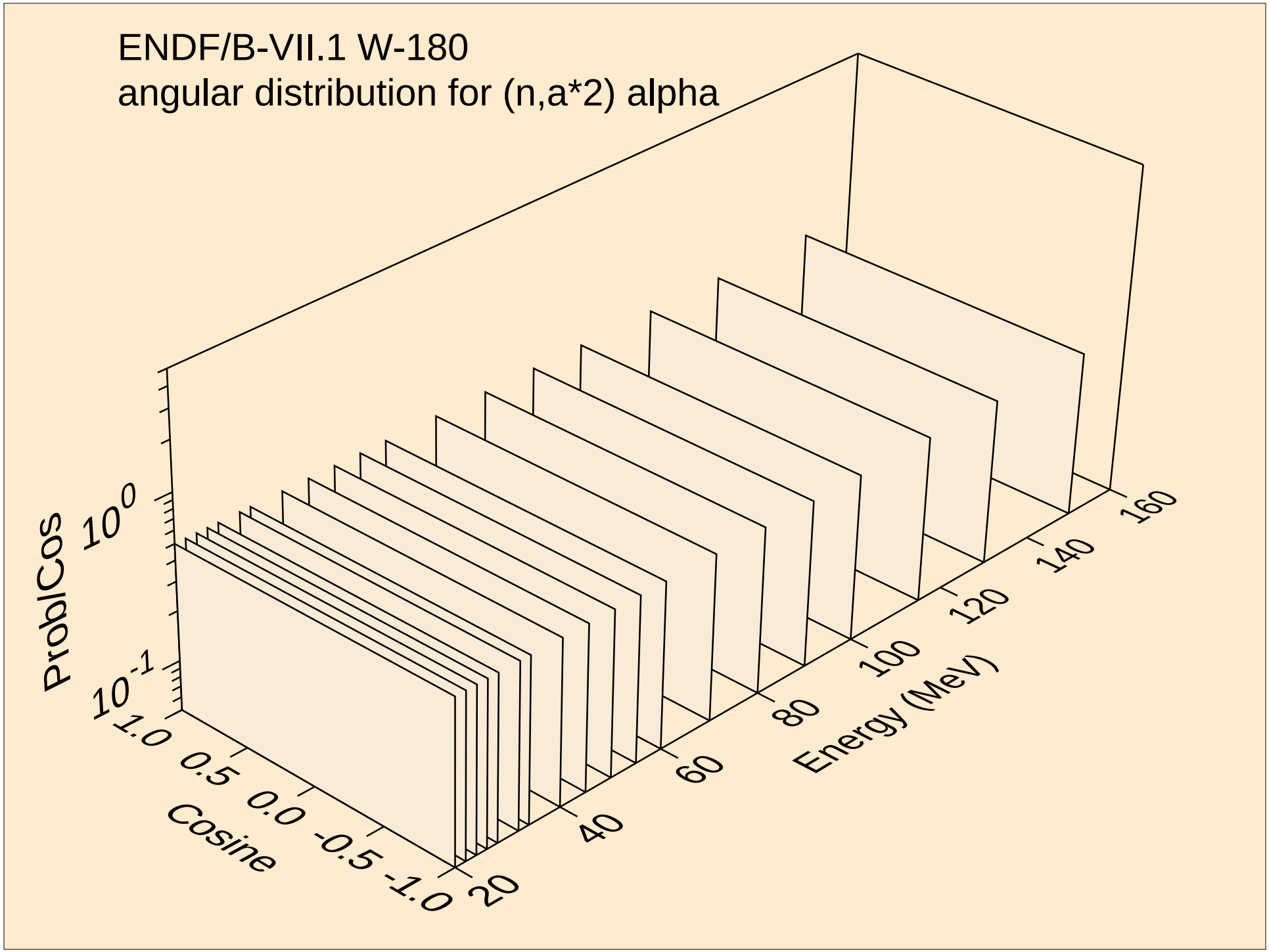

ENDF/B-VII.1 W-180
angular distribution for (n,a*0) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

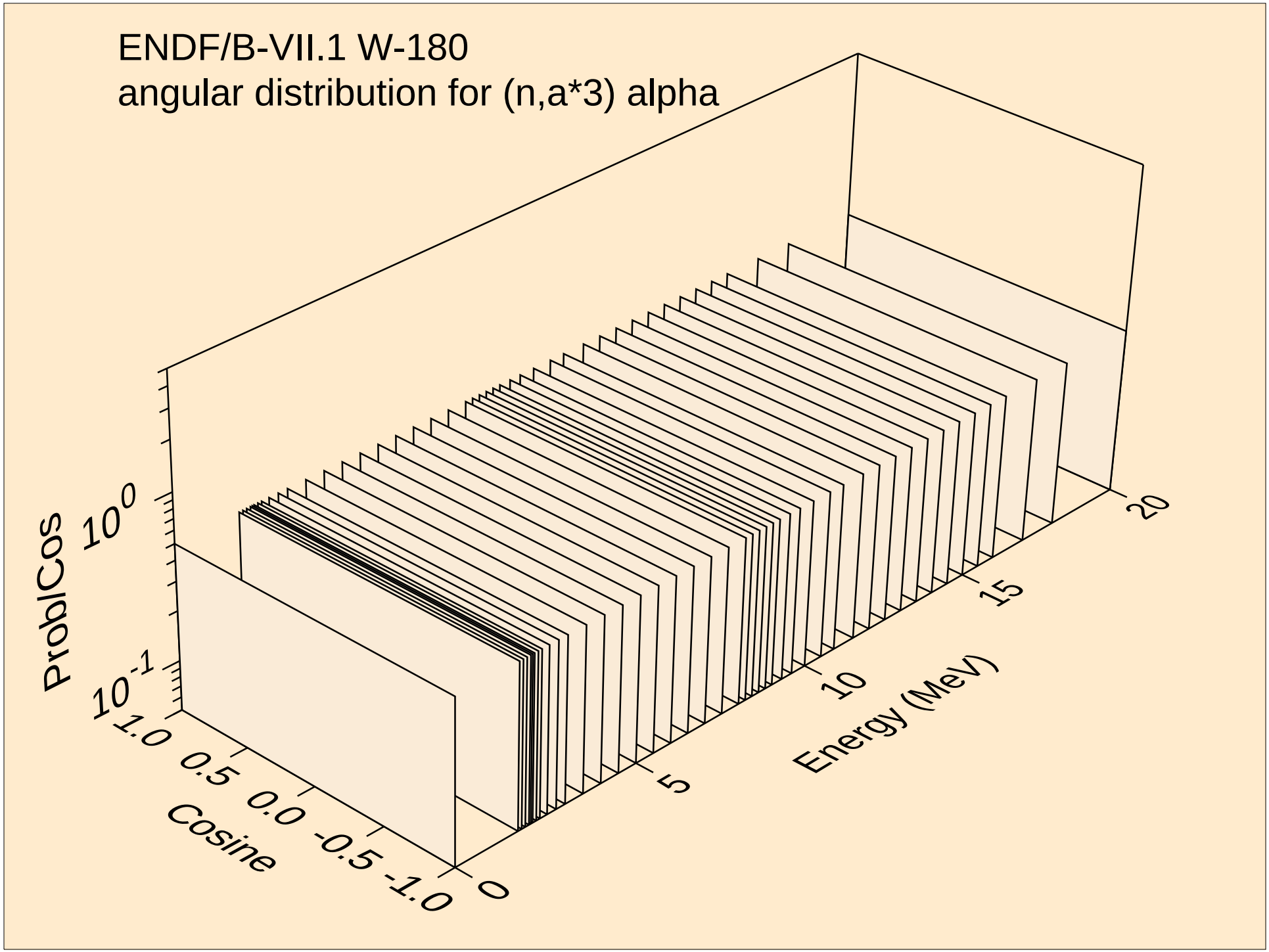

ENDF/B-VII.1 W-180
angular distribution for (n,a*0) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

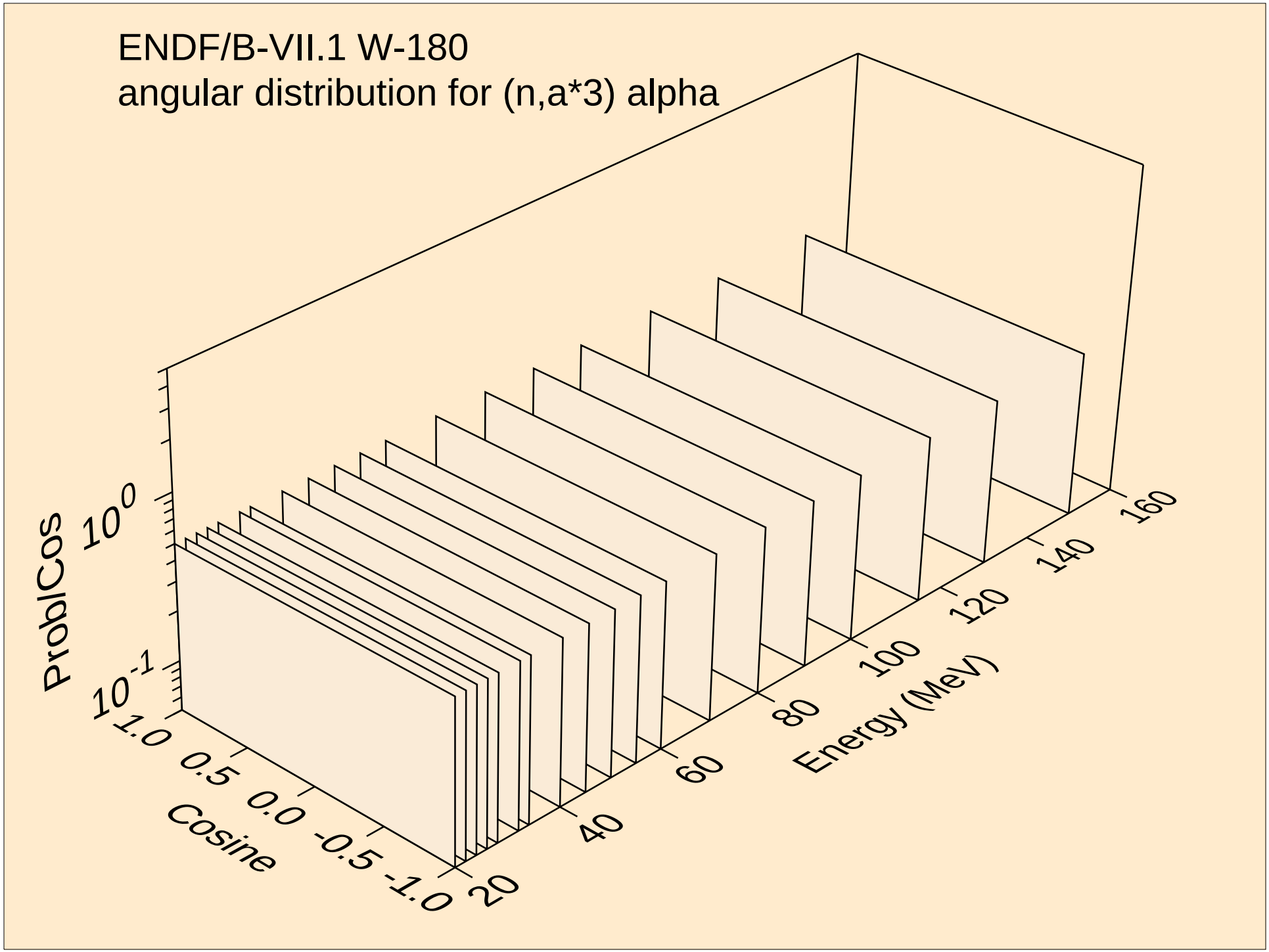

ENDF/B-VII.1 W-180
angular distribution for (n,a*1) alpha
ProbICos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

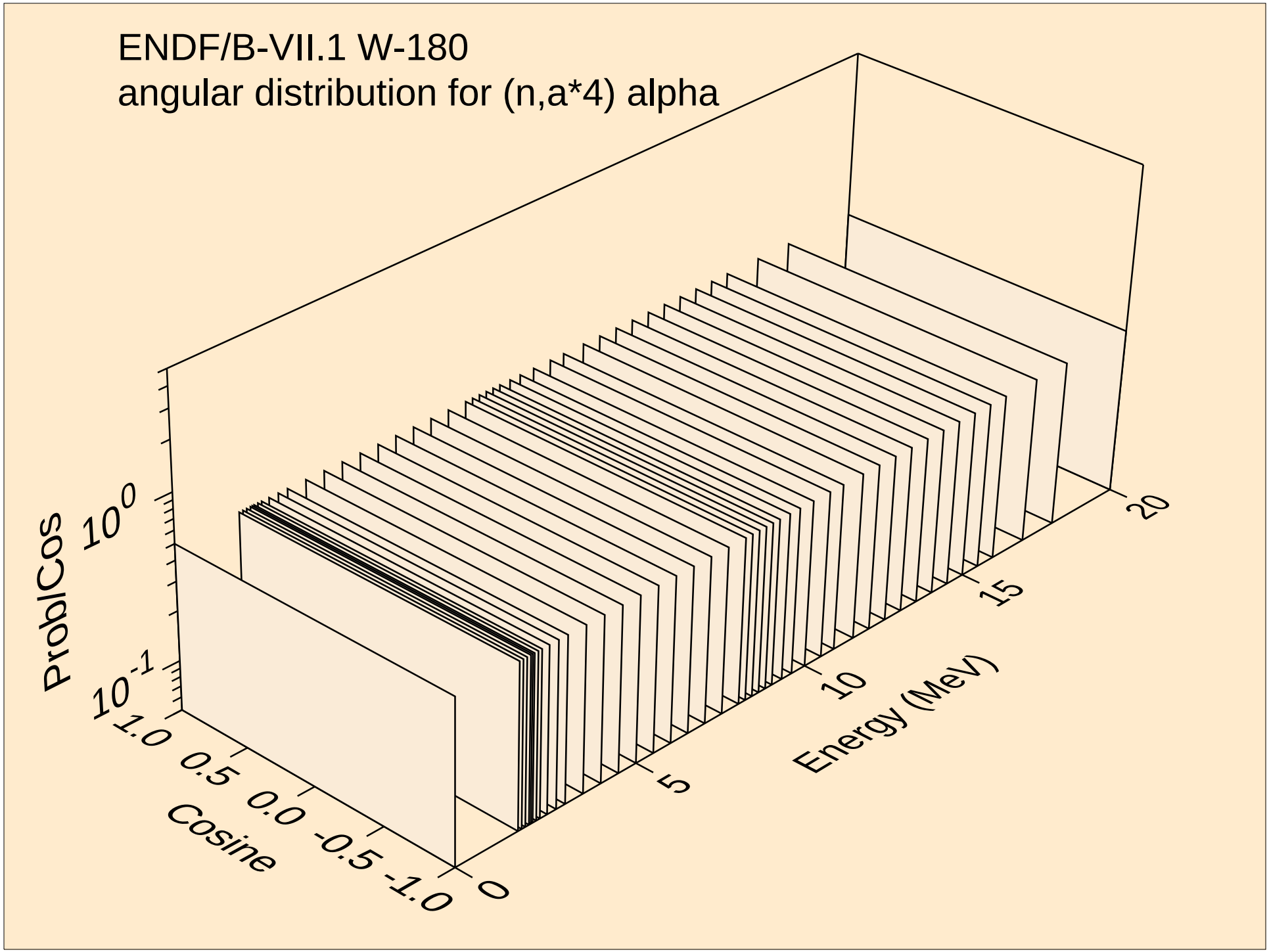

ENDF/B-VII.1 W-180
angular distribution for (n,a*1) alpha
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

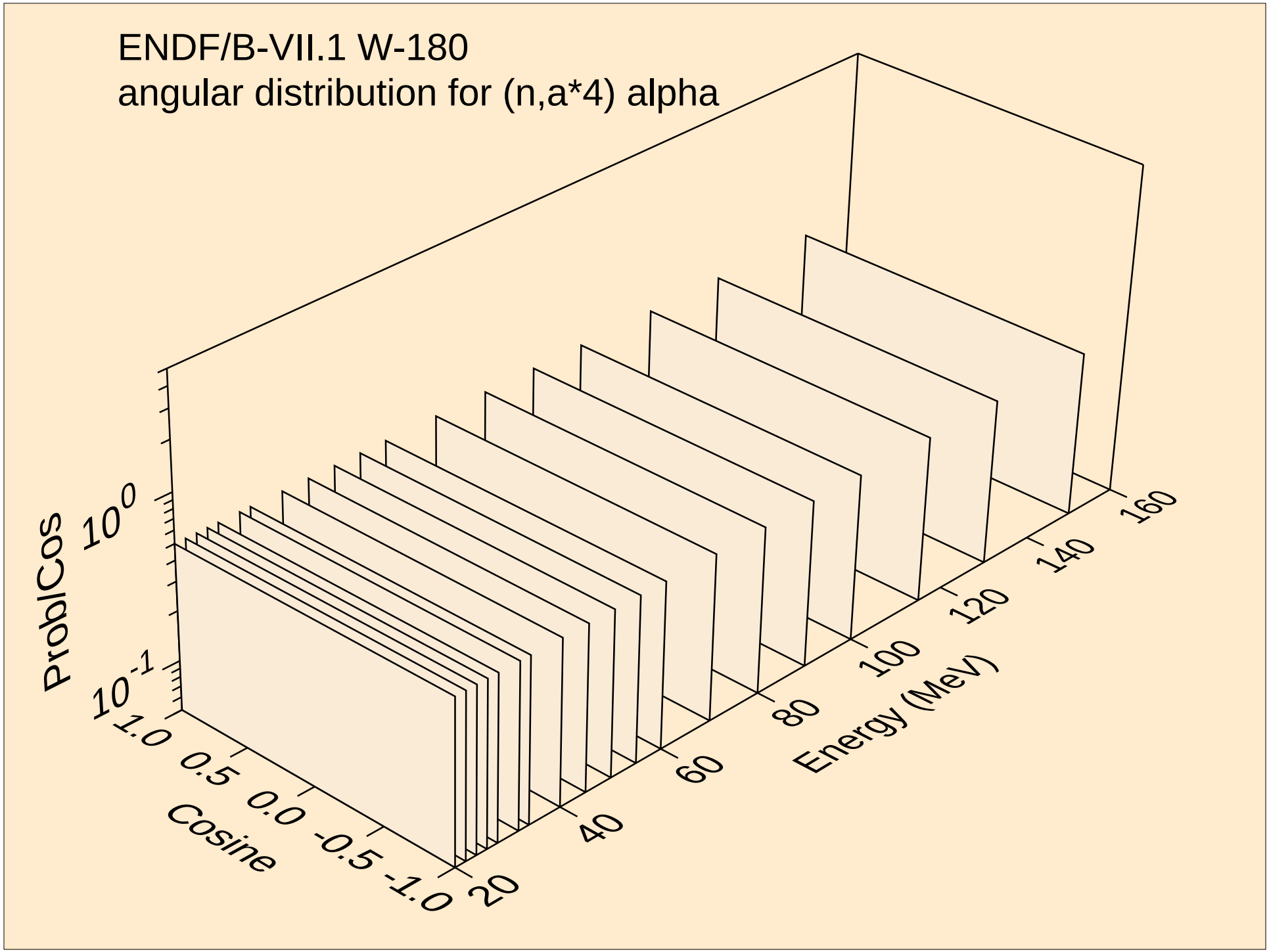

ENDF/B-VII.1 W-180
angular distribution for (n,a*2) alpha
ProbICos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

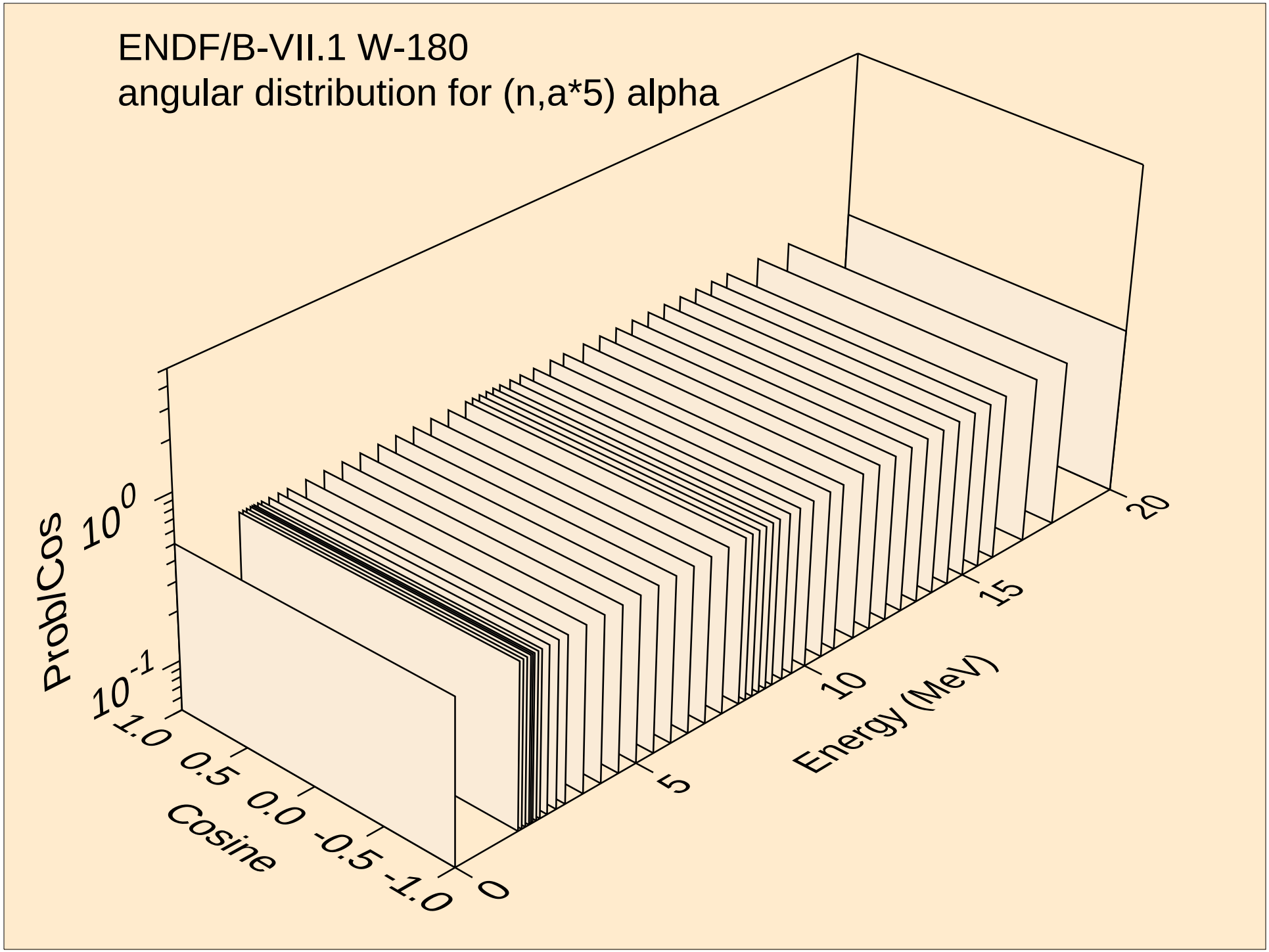

ENDF/B-VII.1 W-180
angular distribution for (n,a*2) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

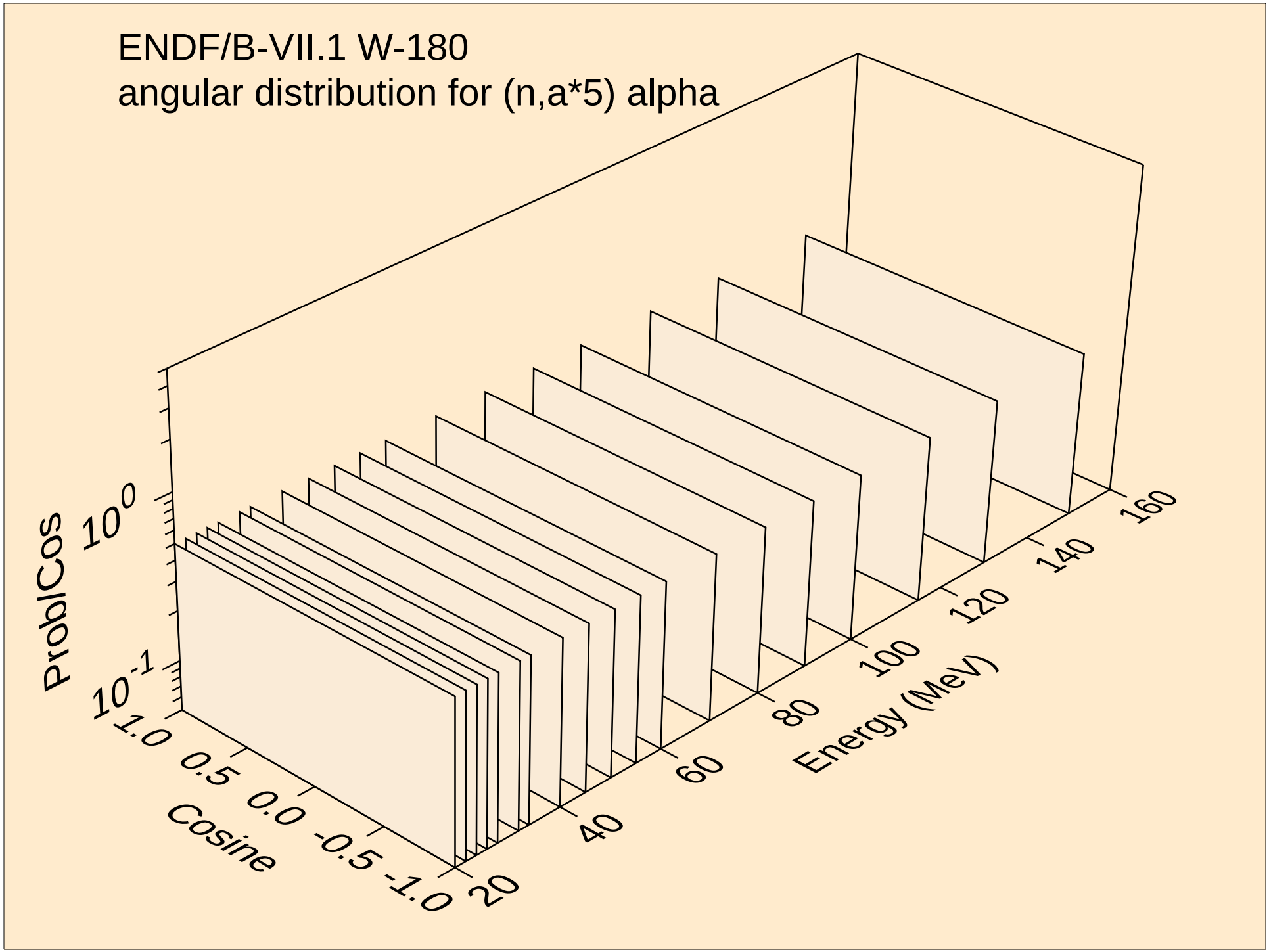

ENDF/B-VII.1 W-180
angular distribution for (n,a*3) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

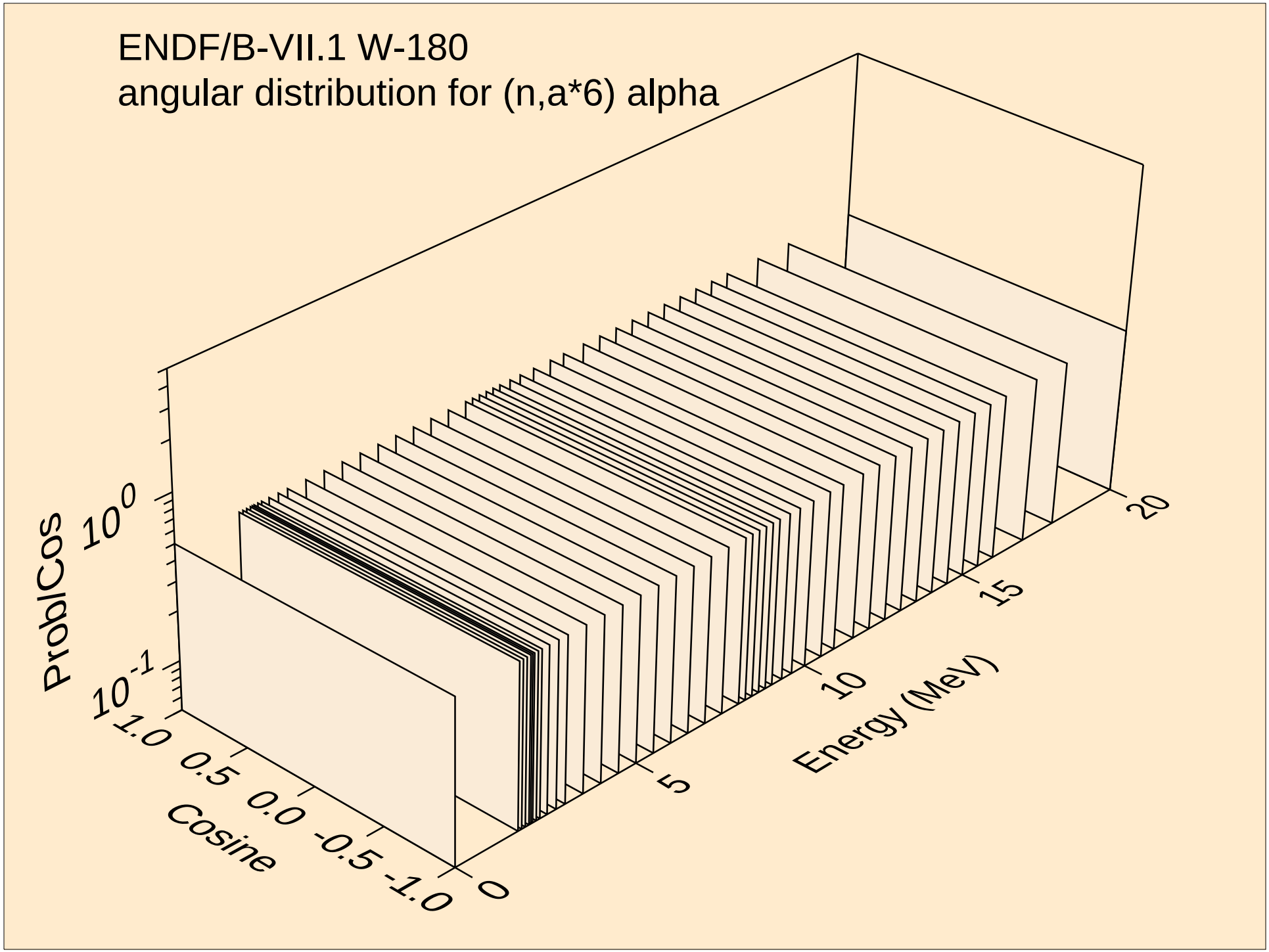

ENDF/B-VII.1 W-180
angular distribution for (n,a*3) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

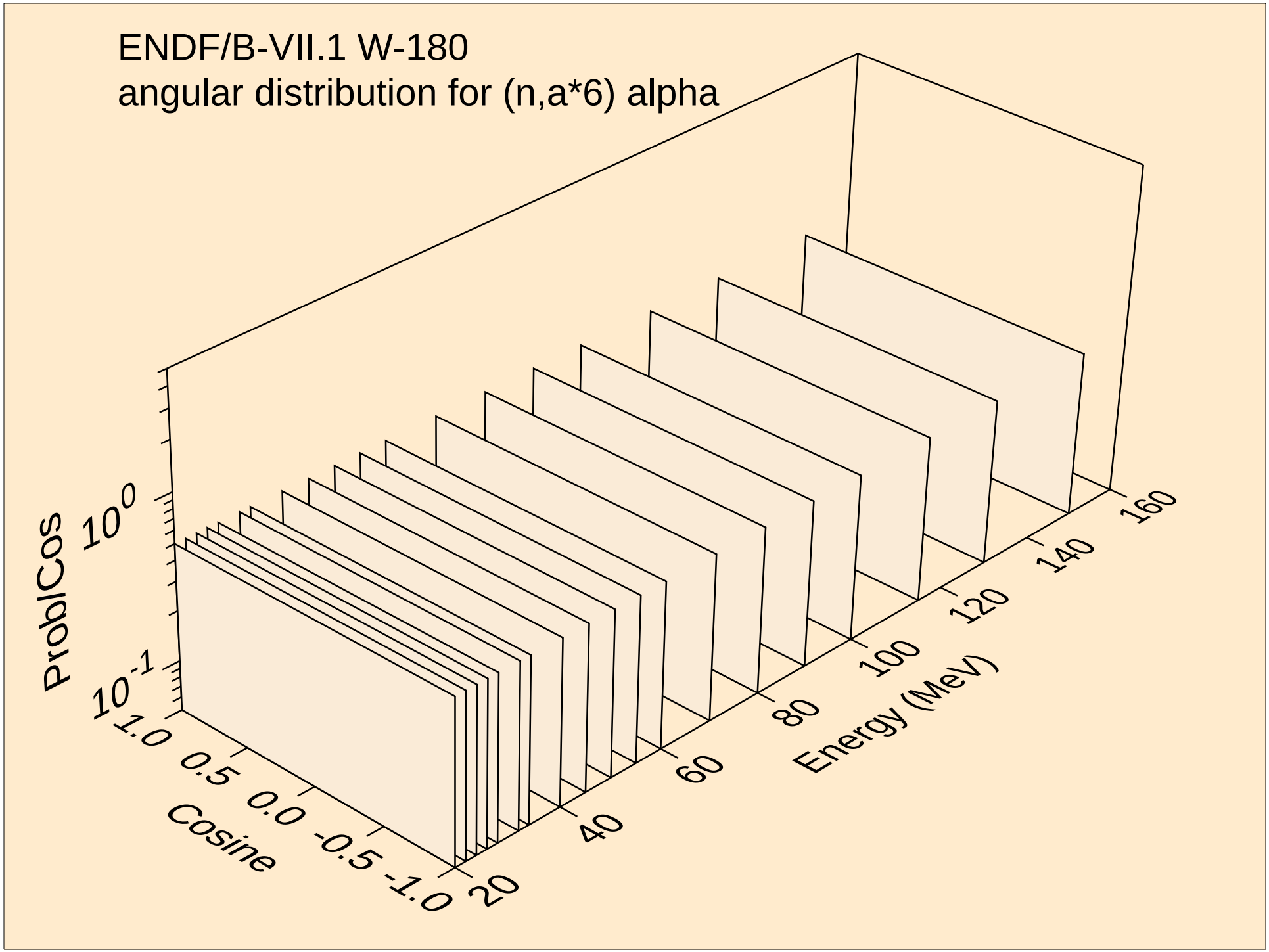

ENDF/B-VII.1 W-180
angular distribution for (n,a*4) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

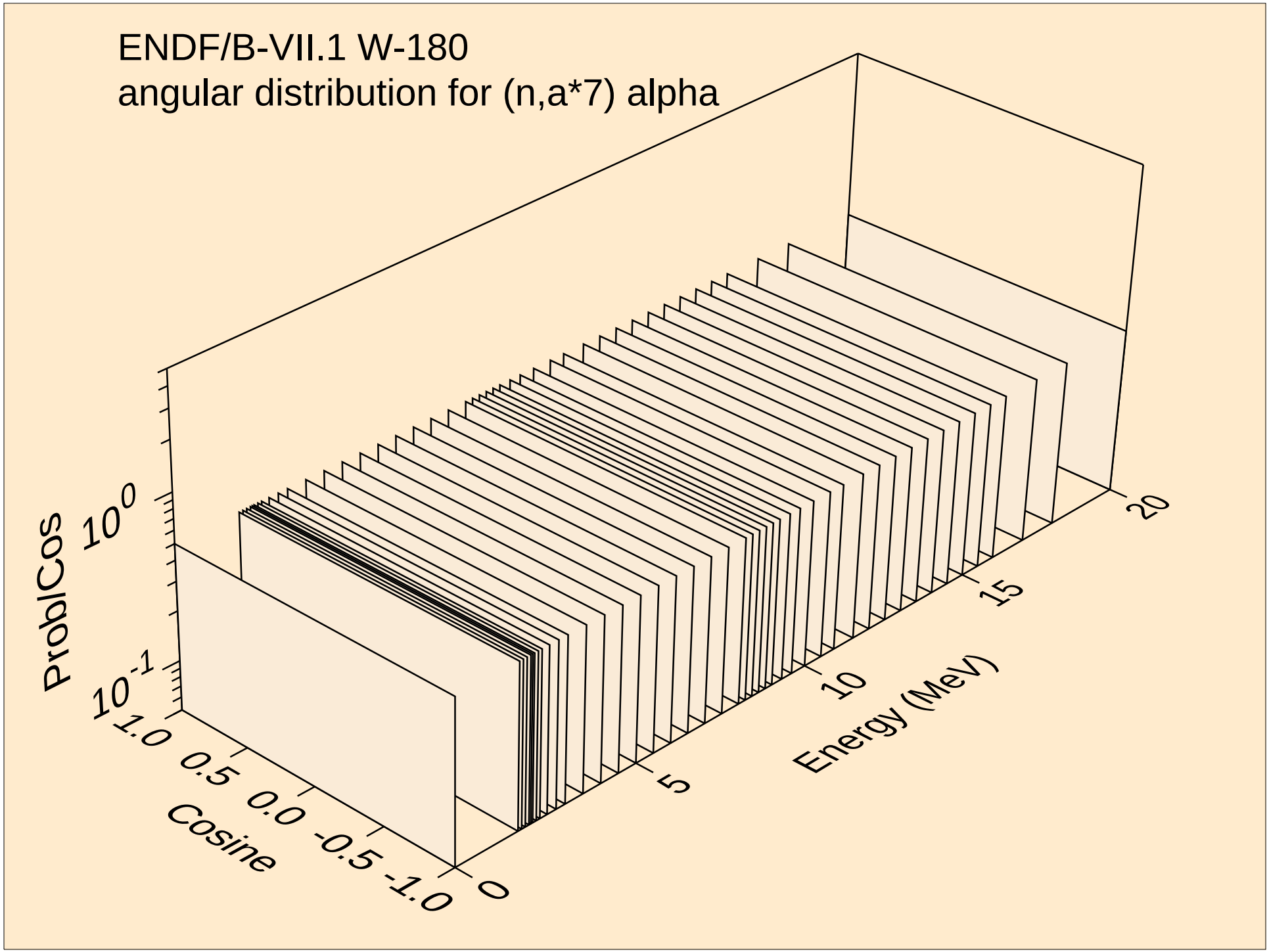

ENDF/B-VII.1 W-180
angular distribution for (n,a*4) alpha
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

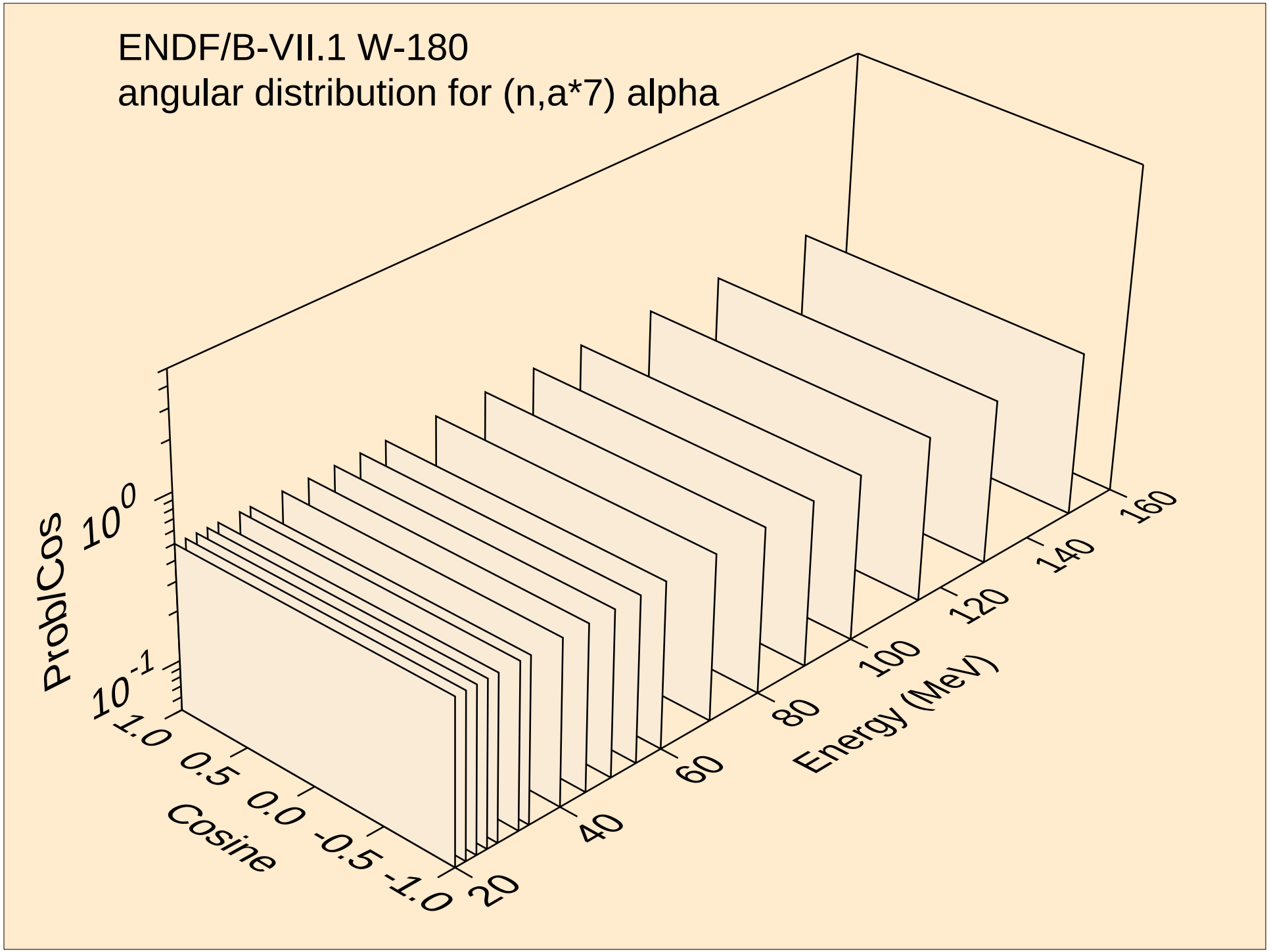

ENDF/B-VII.1 W-180
angular distribution for (n,a*5) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

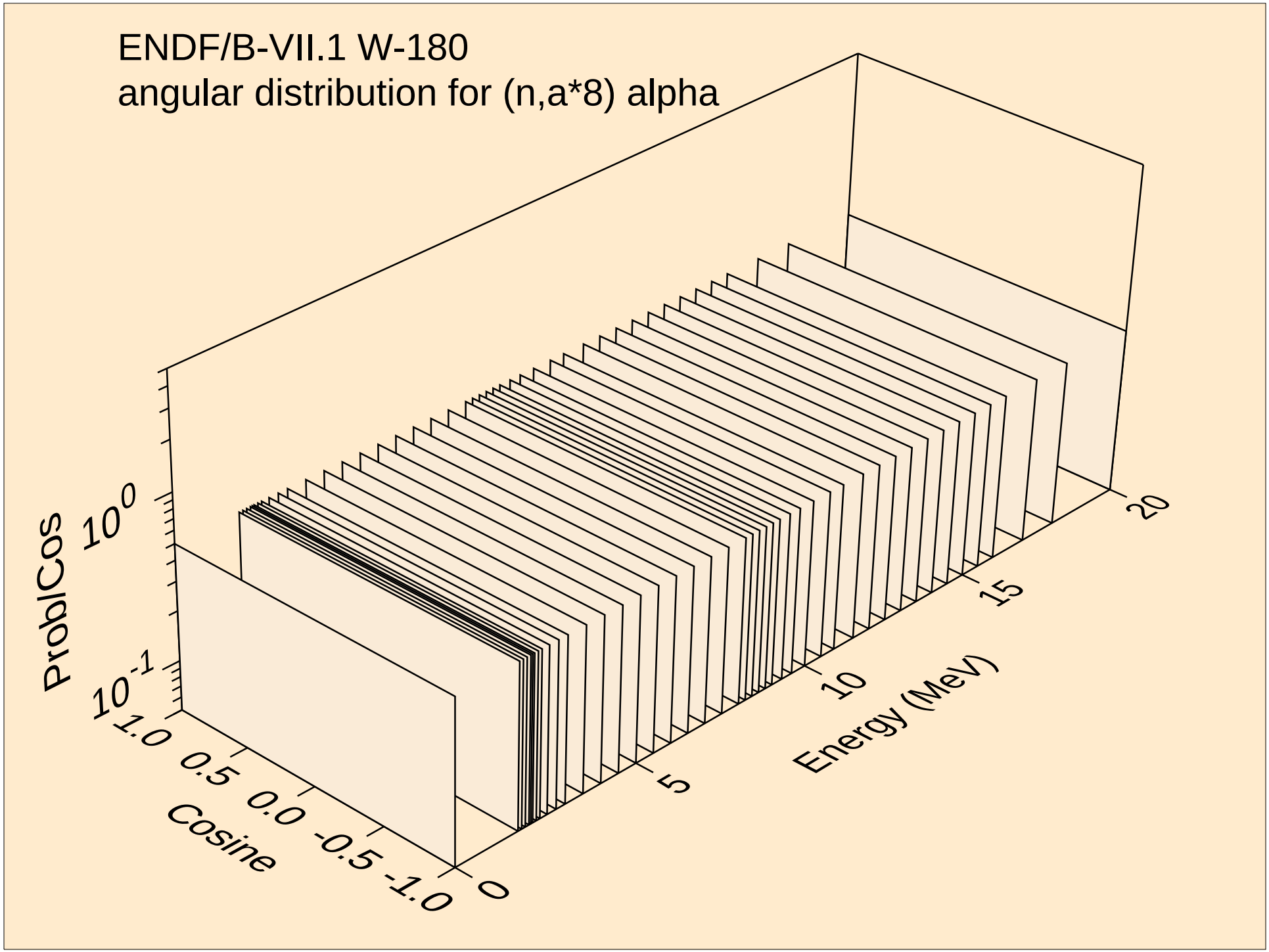

ENDF/B-VII.1 W-180
angular distribution for (n,a*5) alpha
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

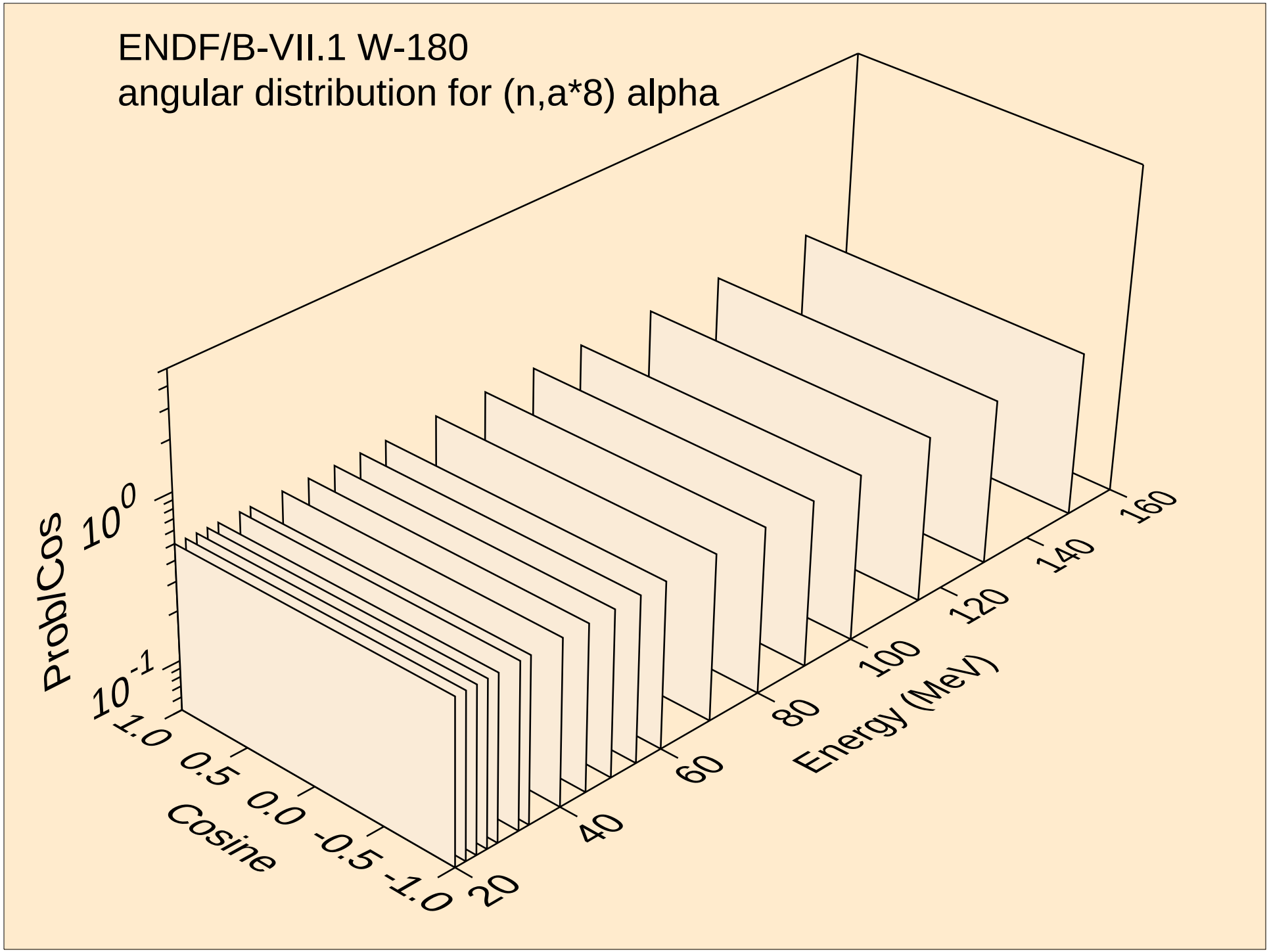

ENDF/B-VII.1 W-180
angular distribution for (n,a*6) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

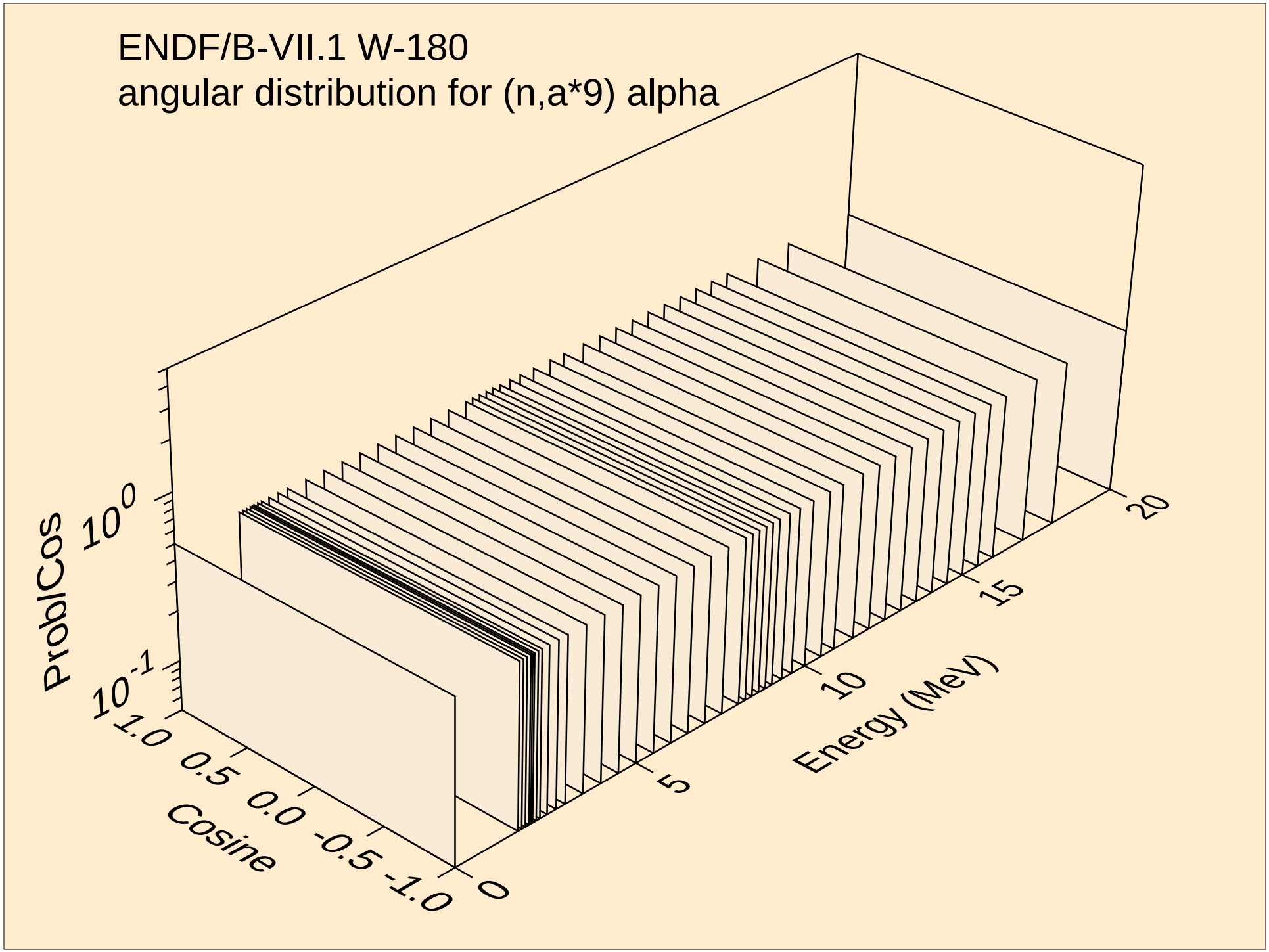

ENDF/B-VII.1 W-180
angular distribution for (n,a*6) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

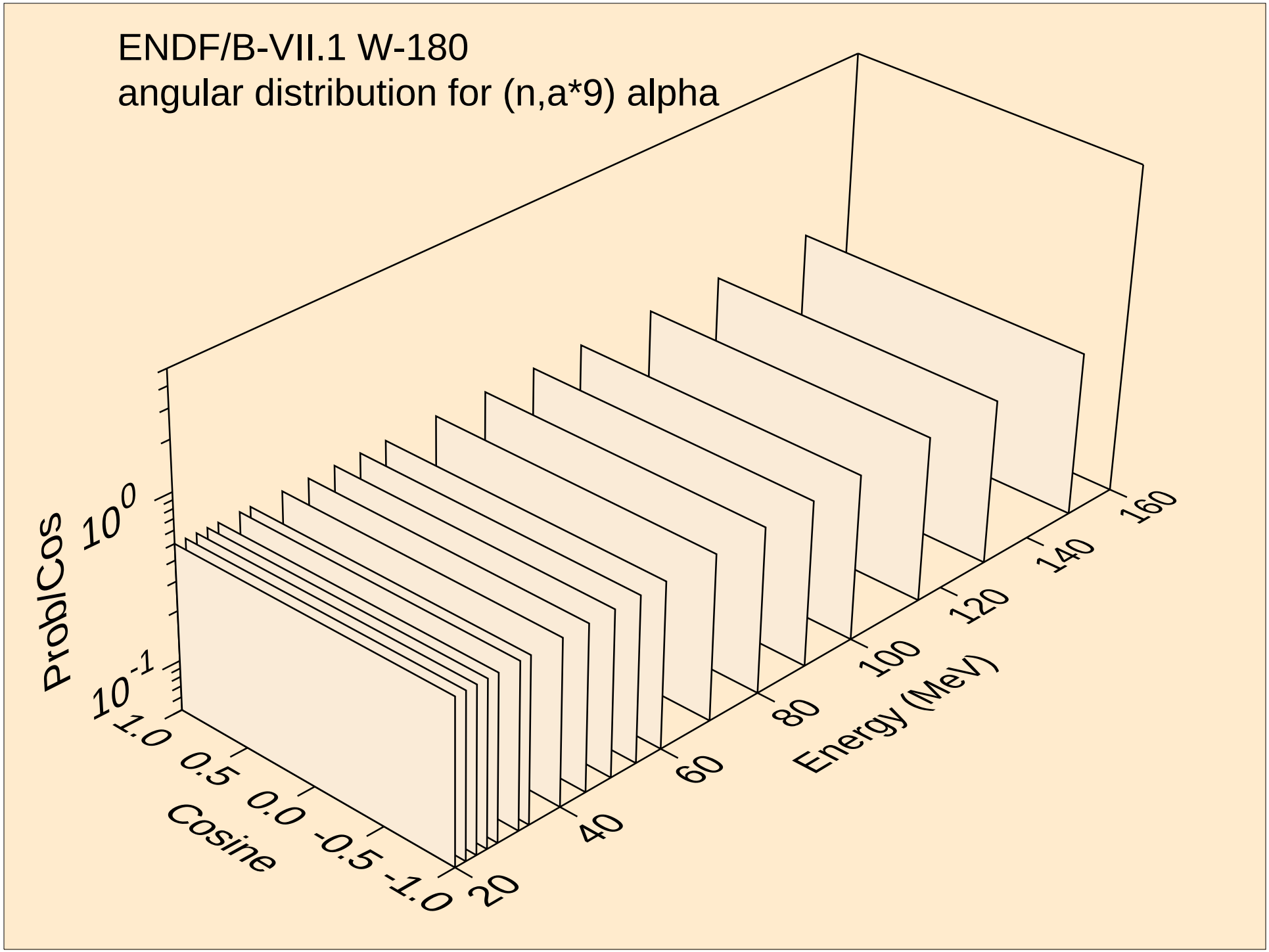

ENDF/B-VII.1 W-180
angular distribution for (n,a*7) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

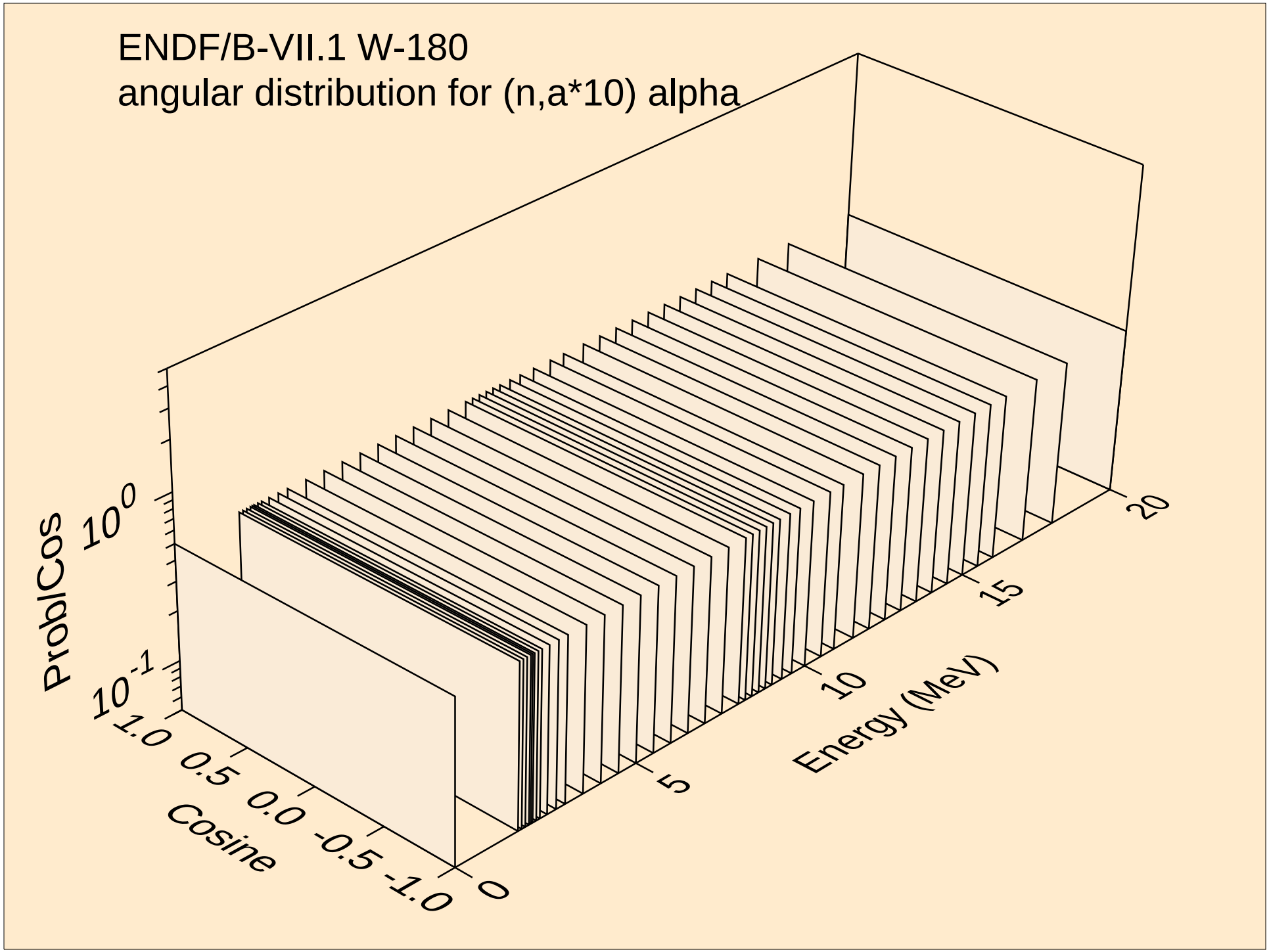

ENDF/B-VII.1 W-180
angular distribution for (n,a*7) alpha
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

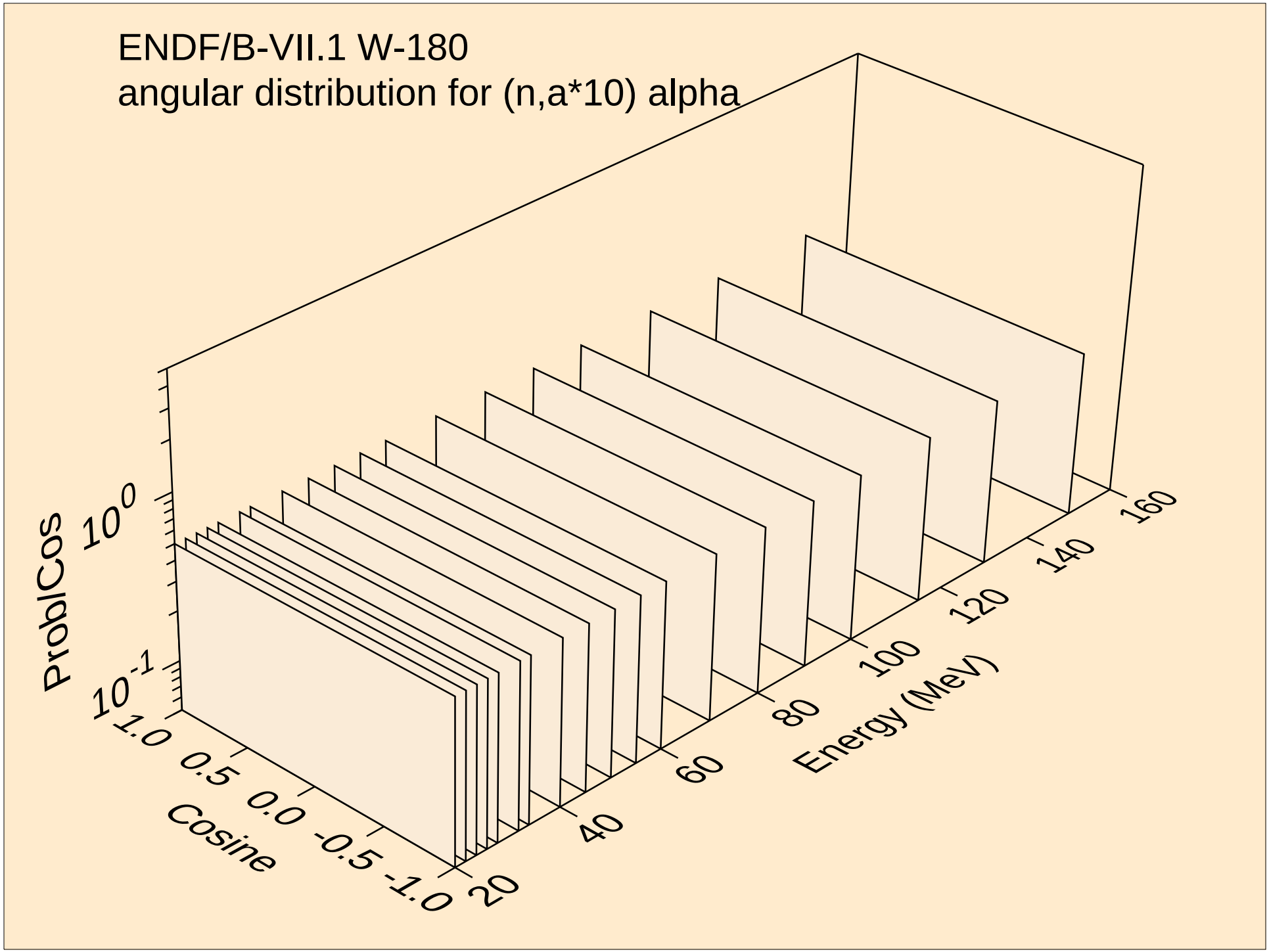

ENDF/B-VII.1 W-180
angular distribution for (n,a*8) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

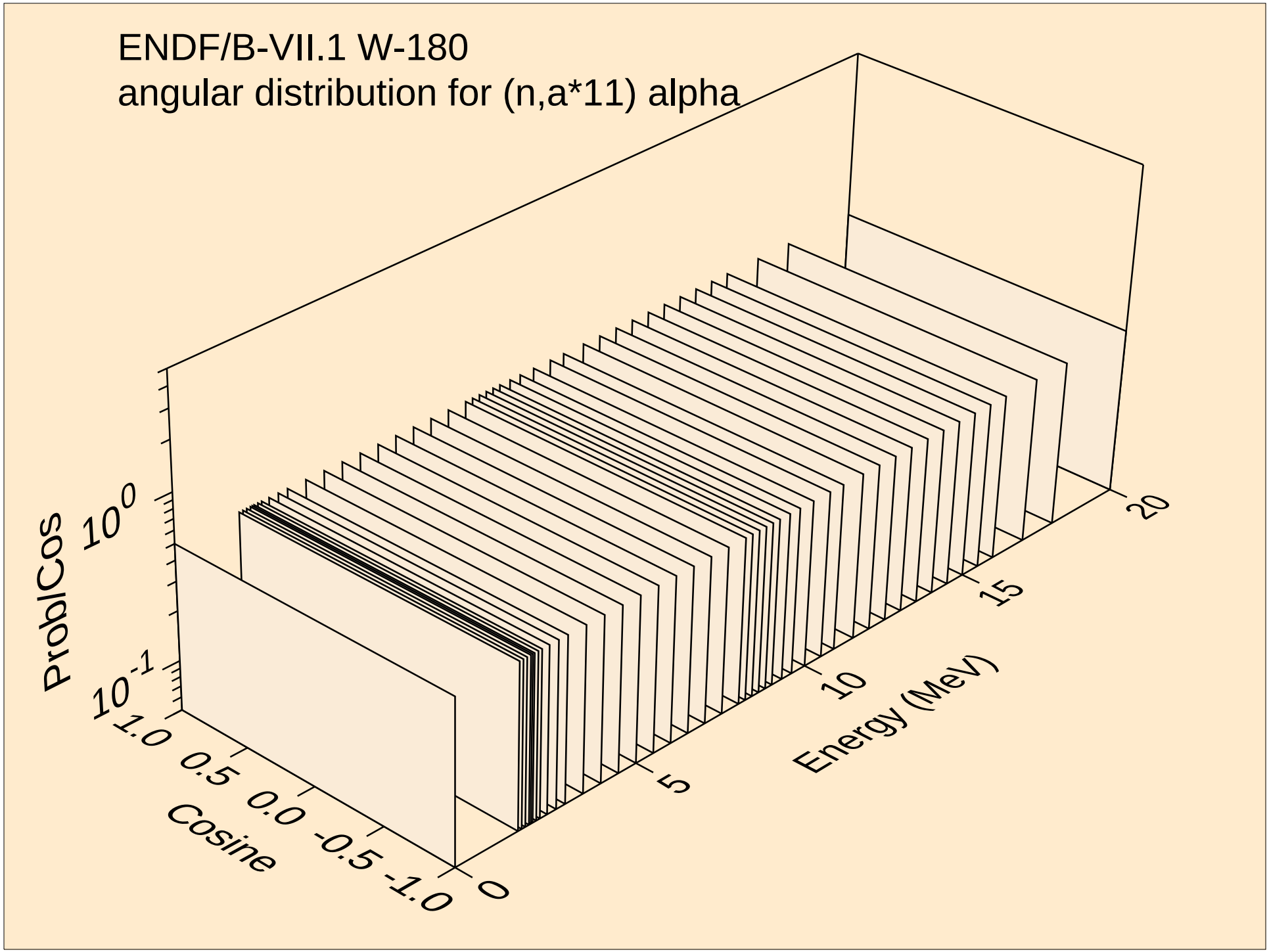

ENDF/B-VII.1 W-180
angular distribution for (n,a*8) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

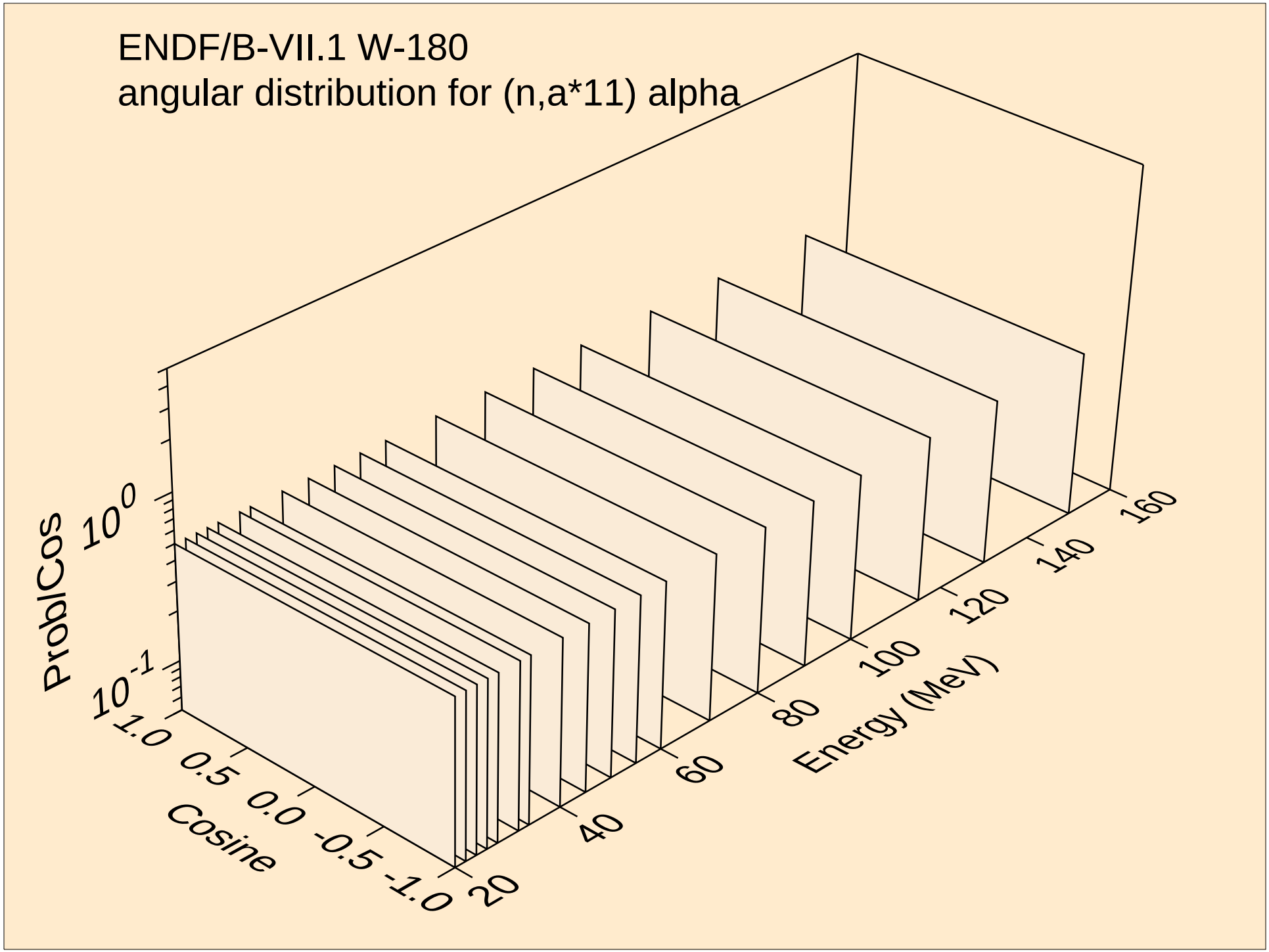

ENDF/B-VII.1 W-180
angular distribution for (n,a*9) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

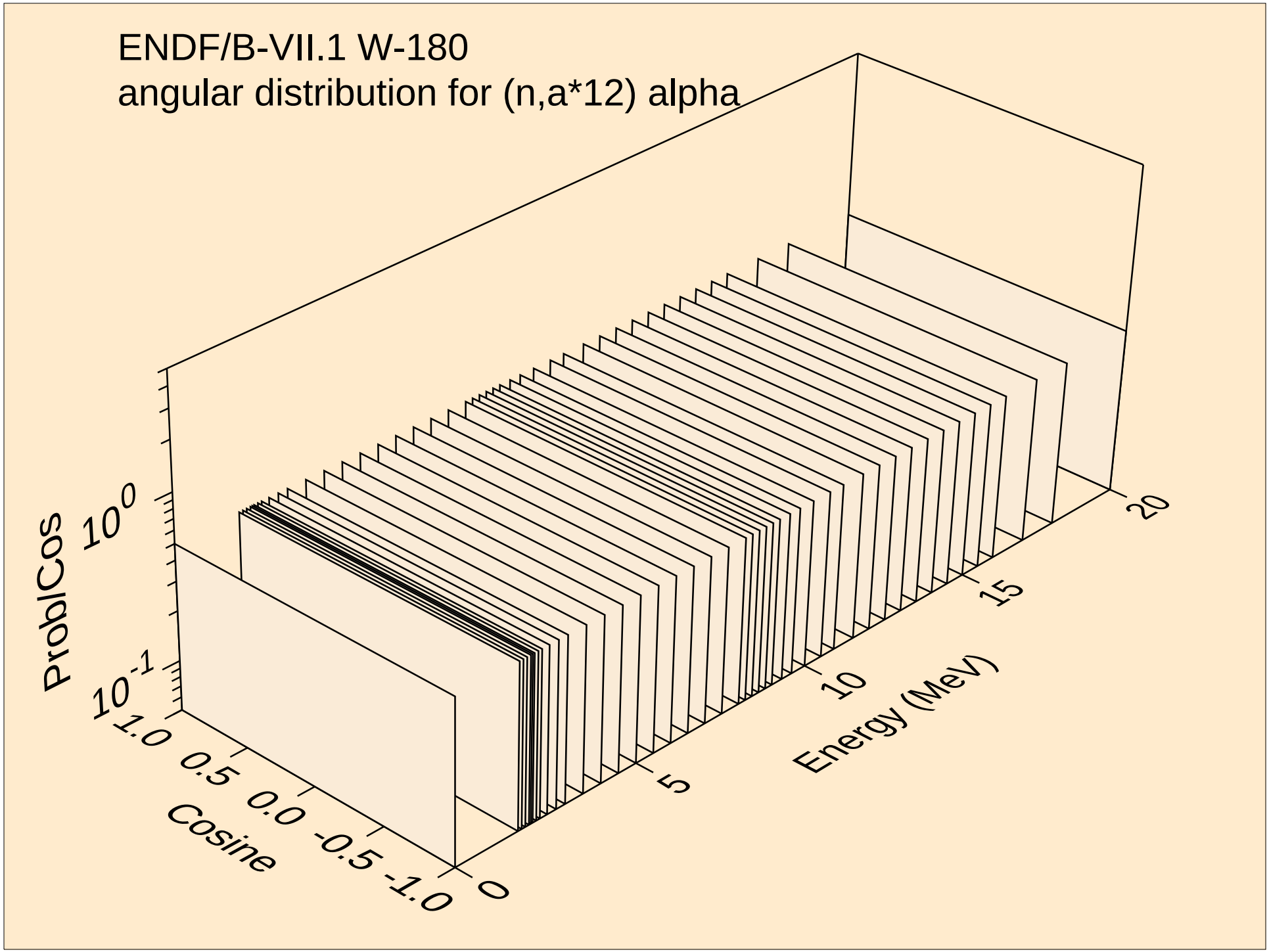

ENDF/B-VII.1 W-180
angular distribution for (n,a*9) alpha
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

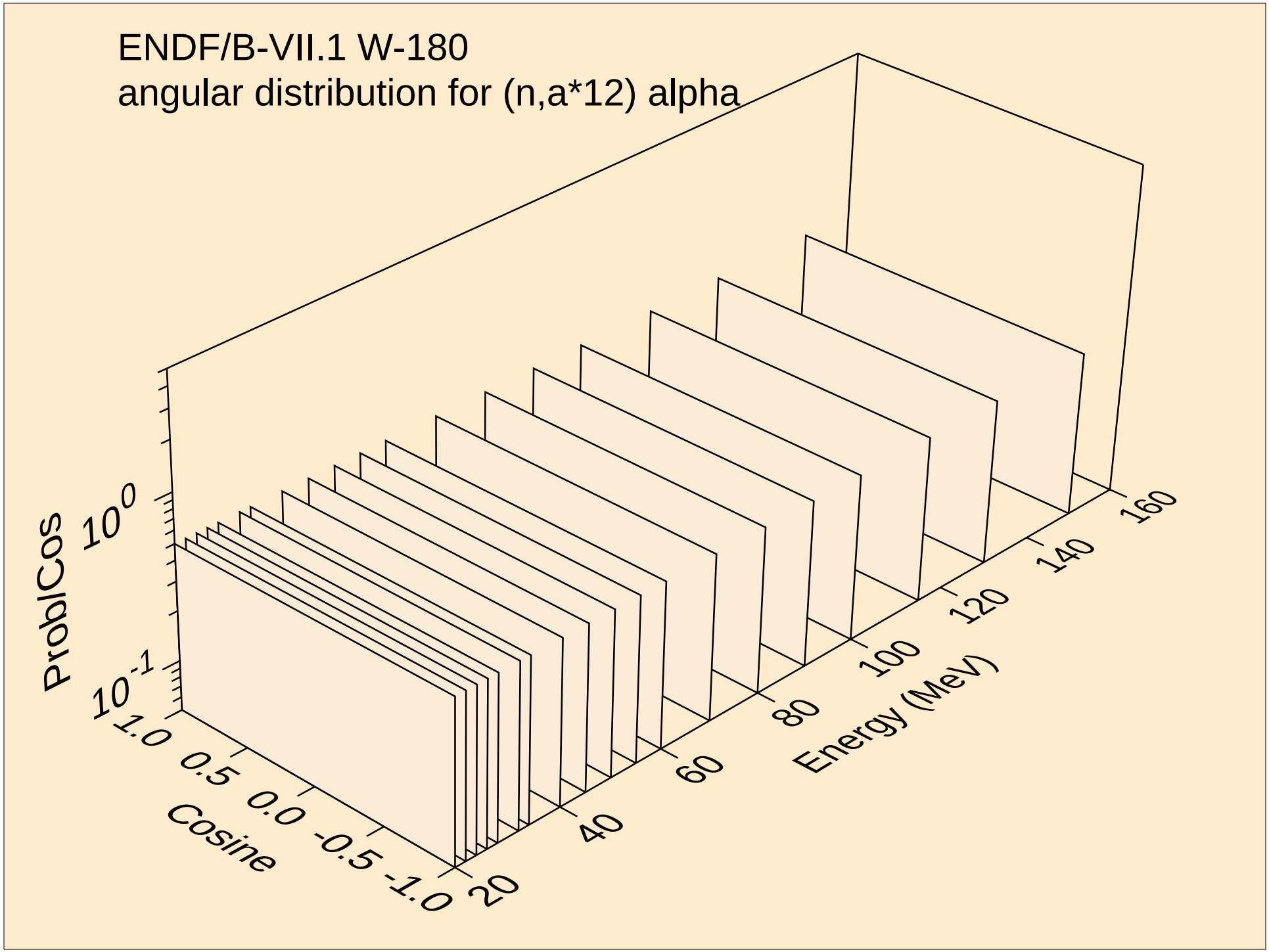

ENDF/B-VII.1 W-180
angular distribution for (n,a*10) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

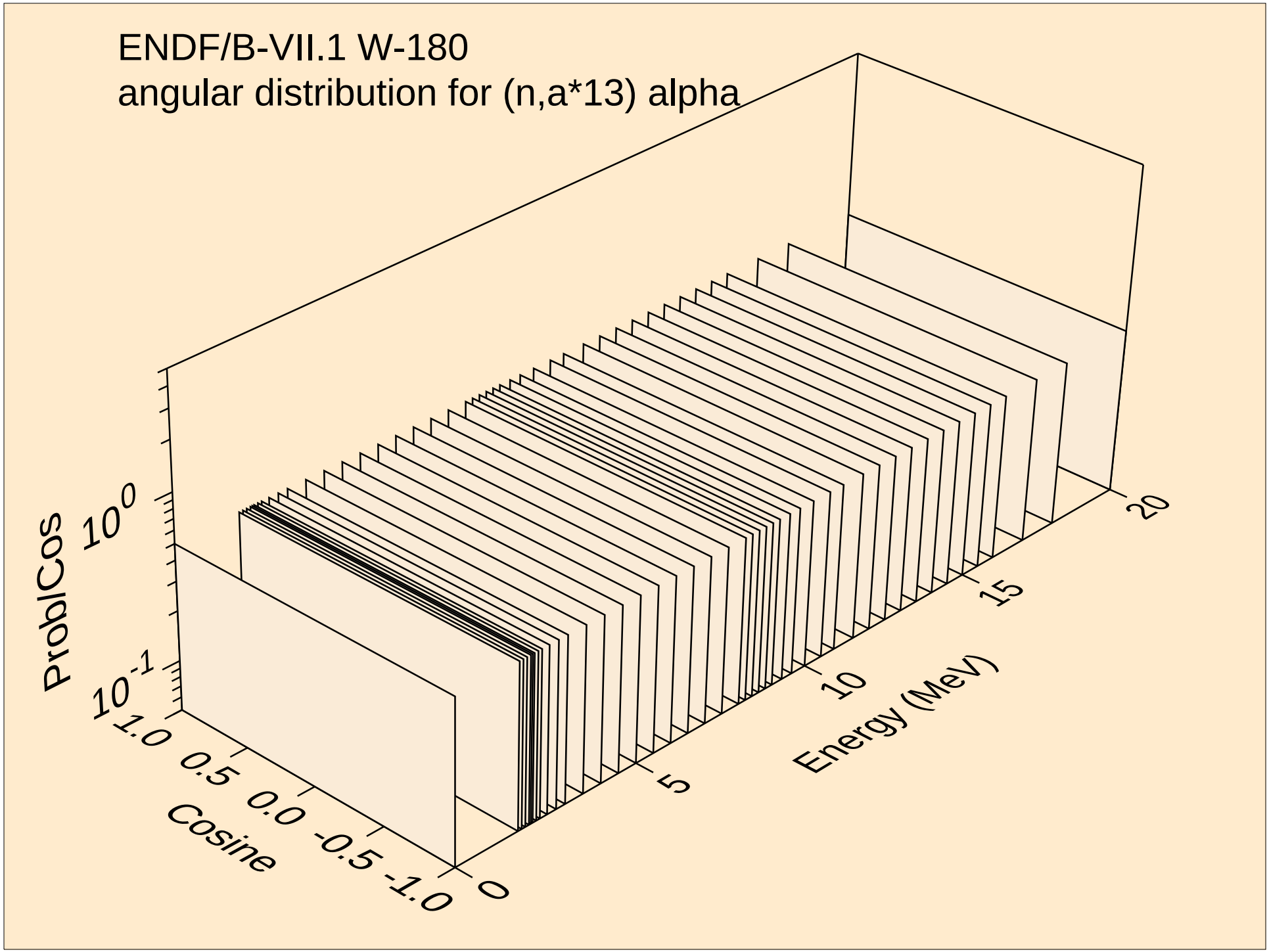

ENDF/B-VII.1 W-180
angular distribution for (n,a*10) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

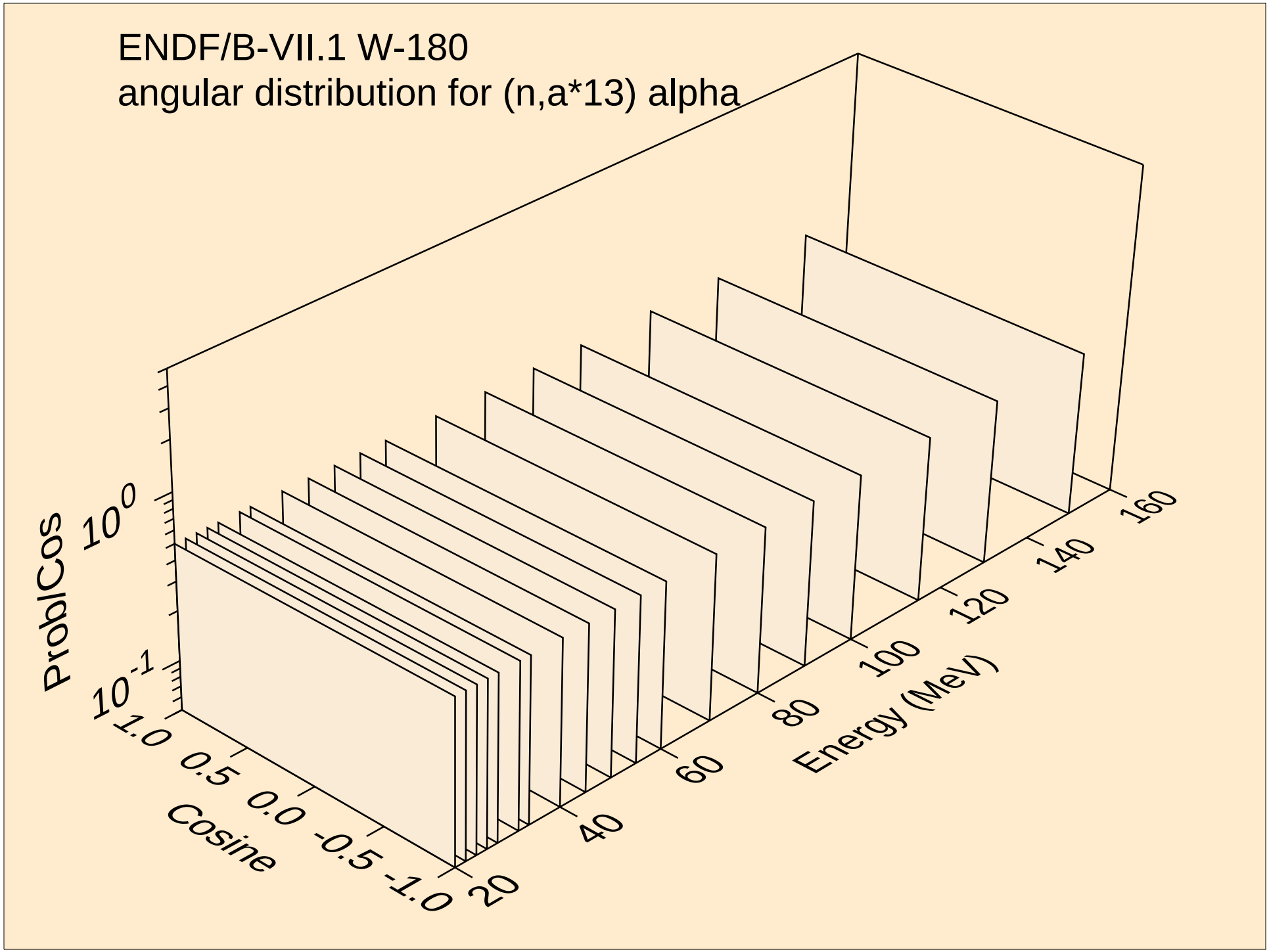

ENDF/B-VII.1 W-180
angular distribution for (n,a*11) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

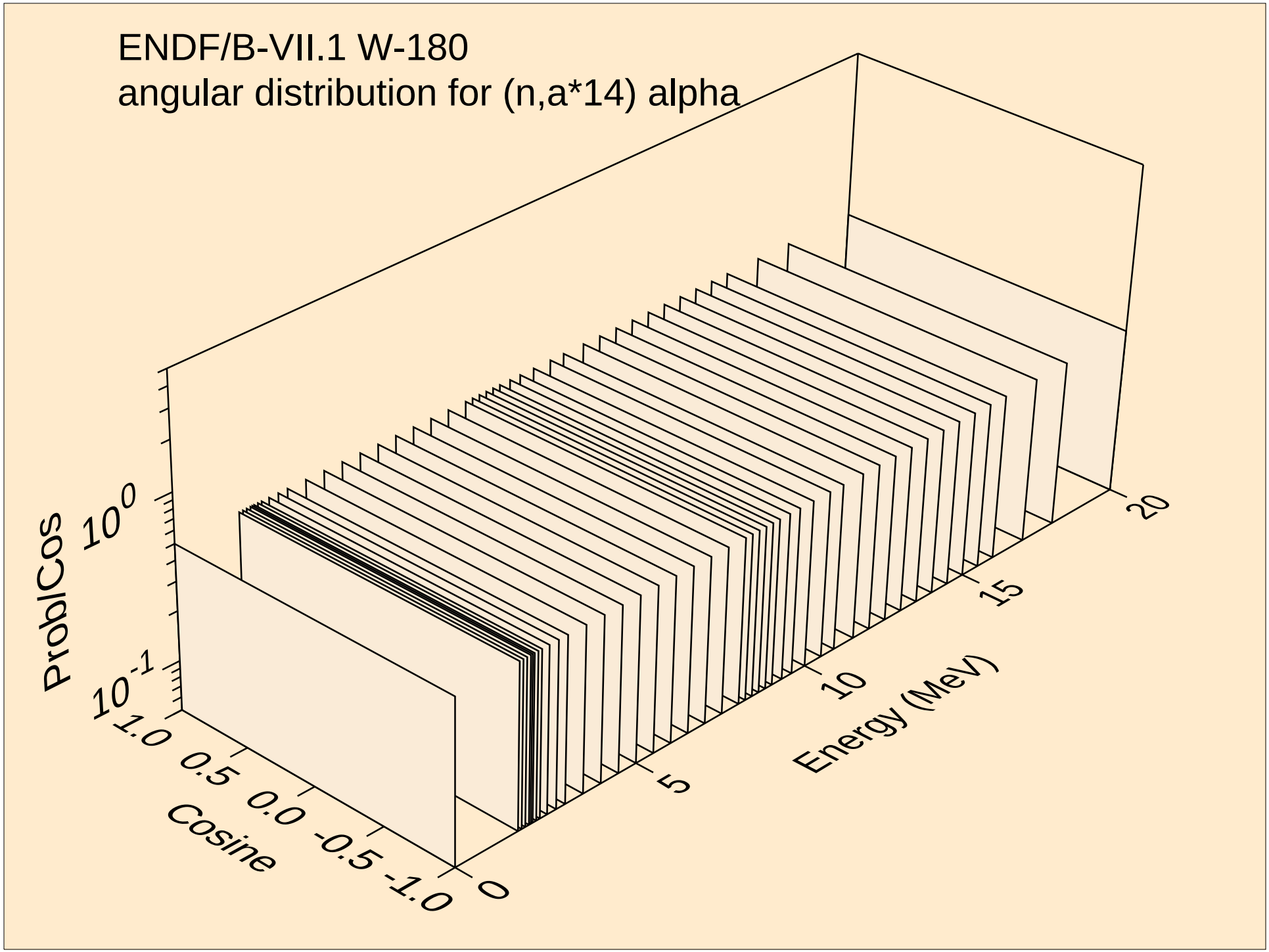

ENDF/B-VII.1 W-180
angular distribution for (n,a*11) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

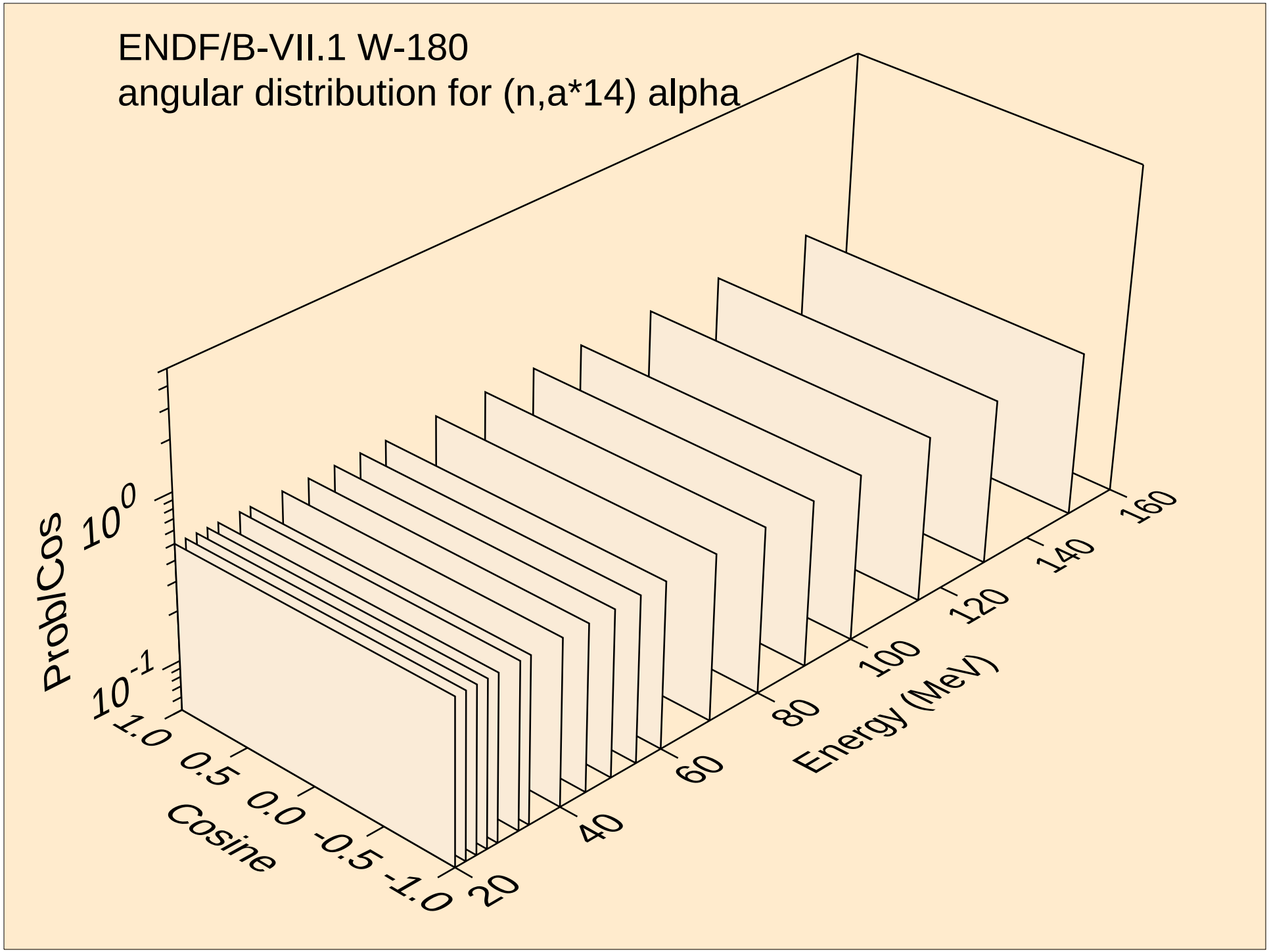

ENDF/B-VII.1 W-180
angular distribution for (n,a*12) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

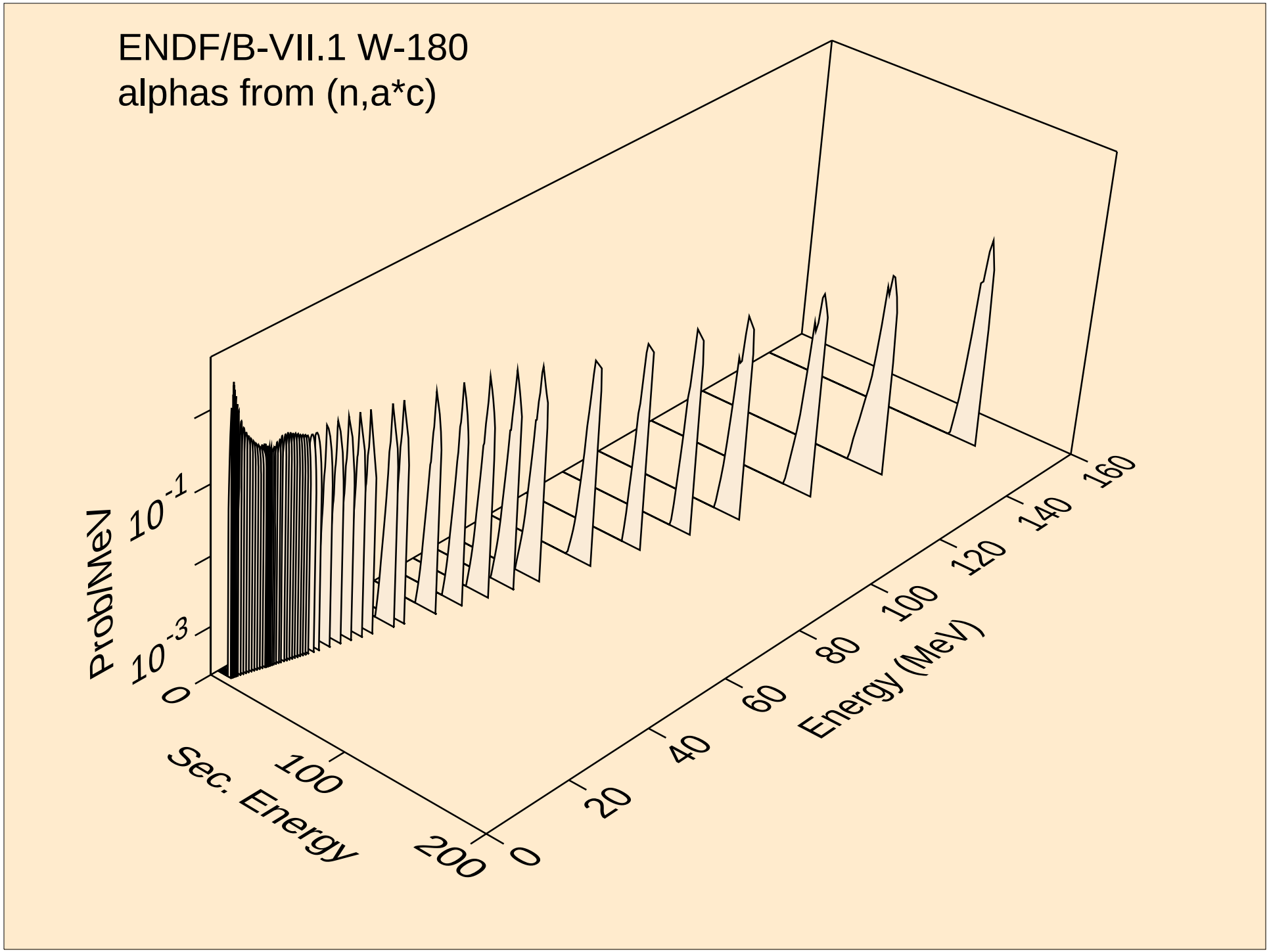

ENDF/B-VII.1 W-180
angular distribution for (n,a*12) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)


ENDF/B-VII.1 W-180
angular distribution for (n,a*13) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)


ENDF/B-VII.1 W-180
angular distribution for (n,a*13) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)


ENDF/B-VII.1 W-180
angular distribution for (n,a*14) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)


ENDF/B-VII.1 W-180
angular distribution for (n,a*14) alpha
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)


ENDF/B-VII.1 W-180
alphas from (n,a*c)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)