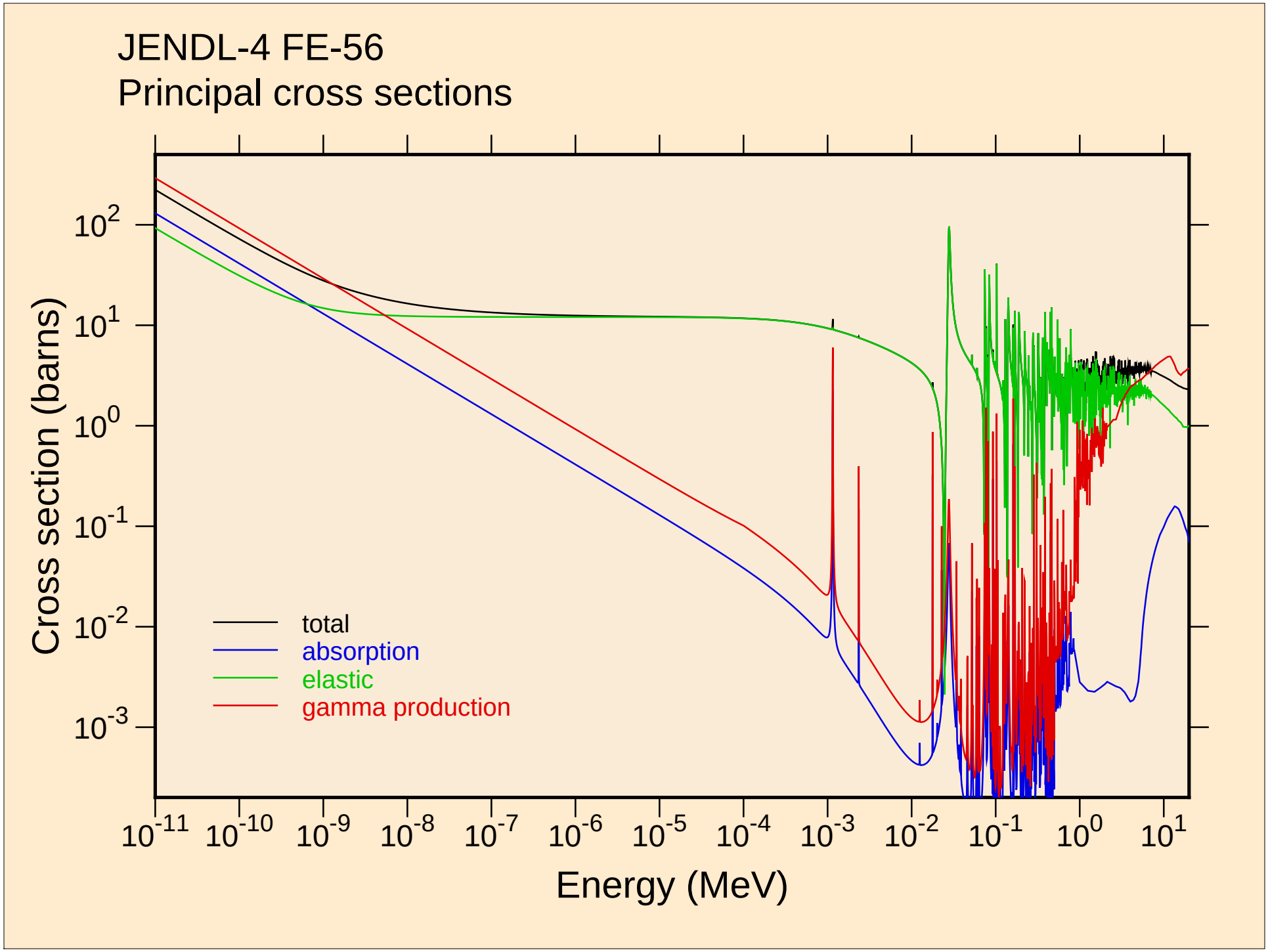
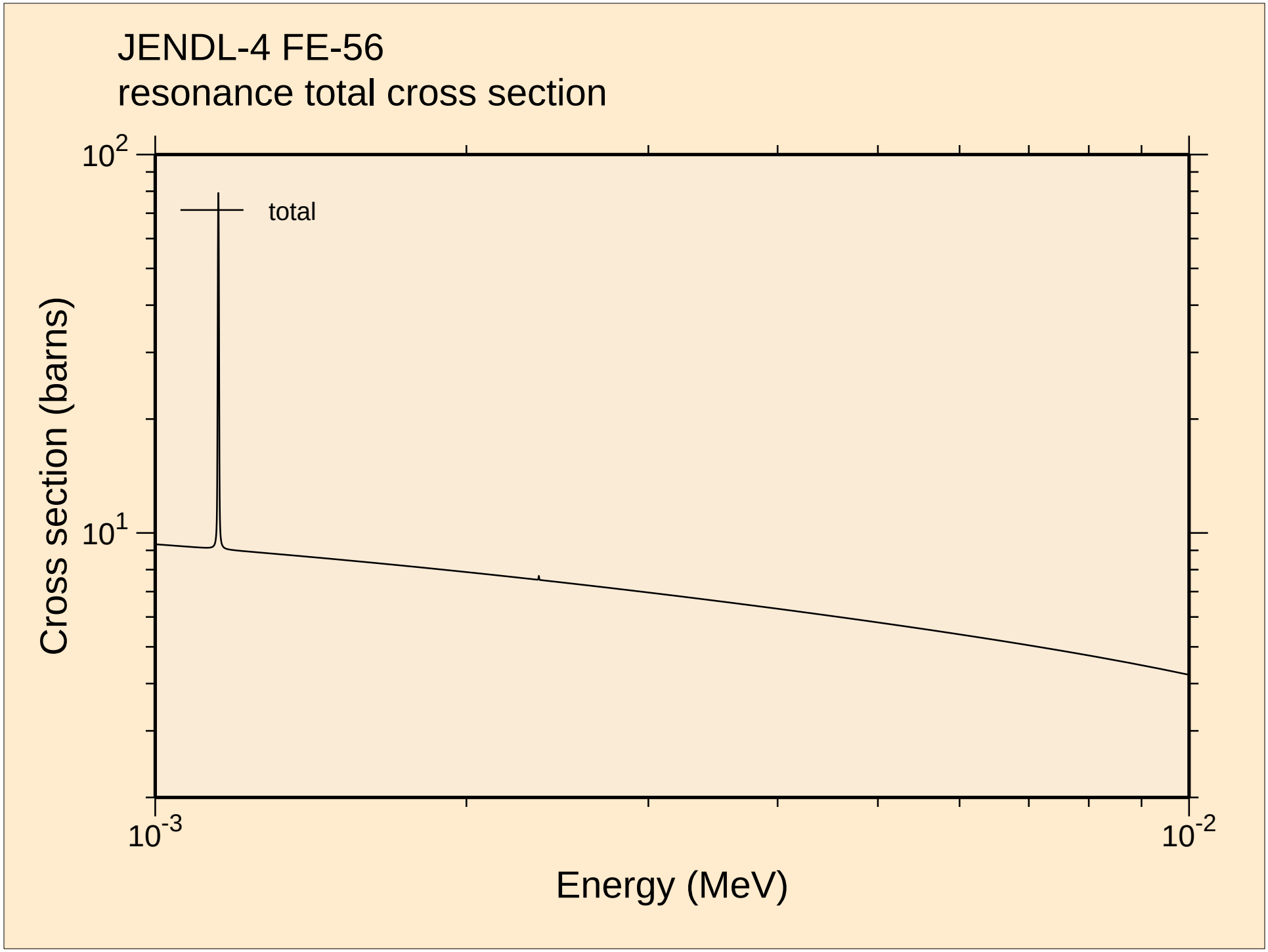
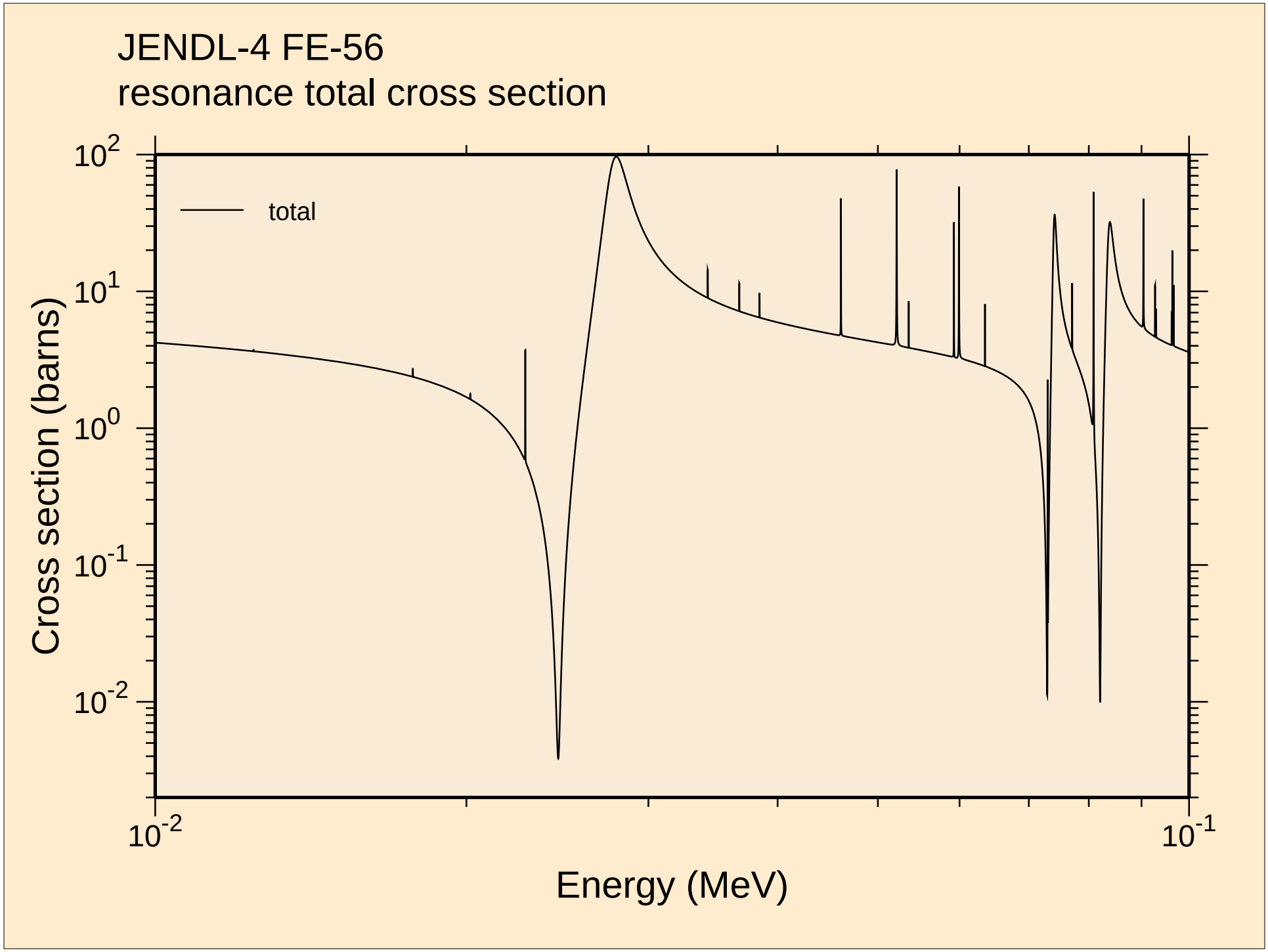
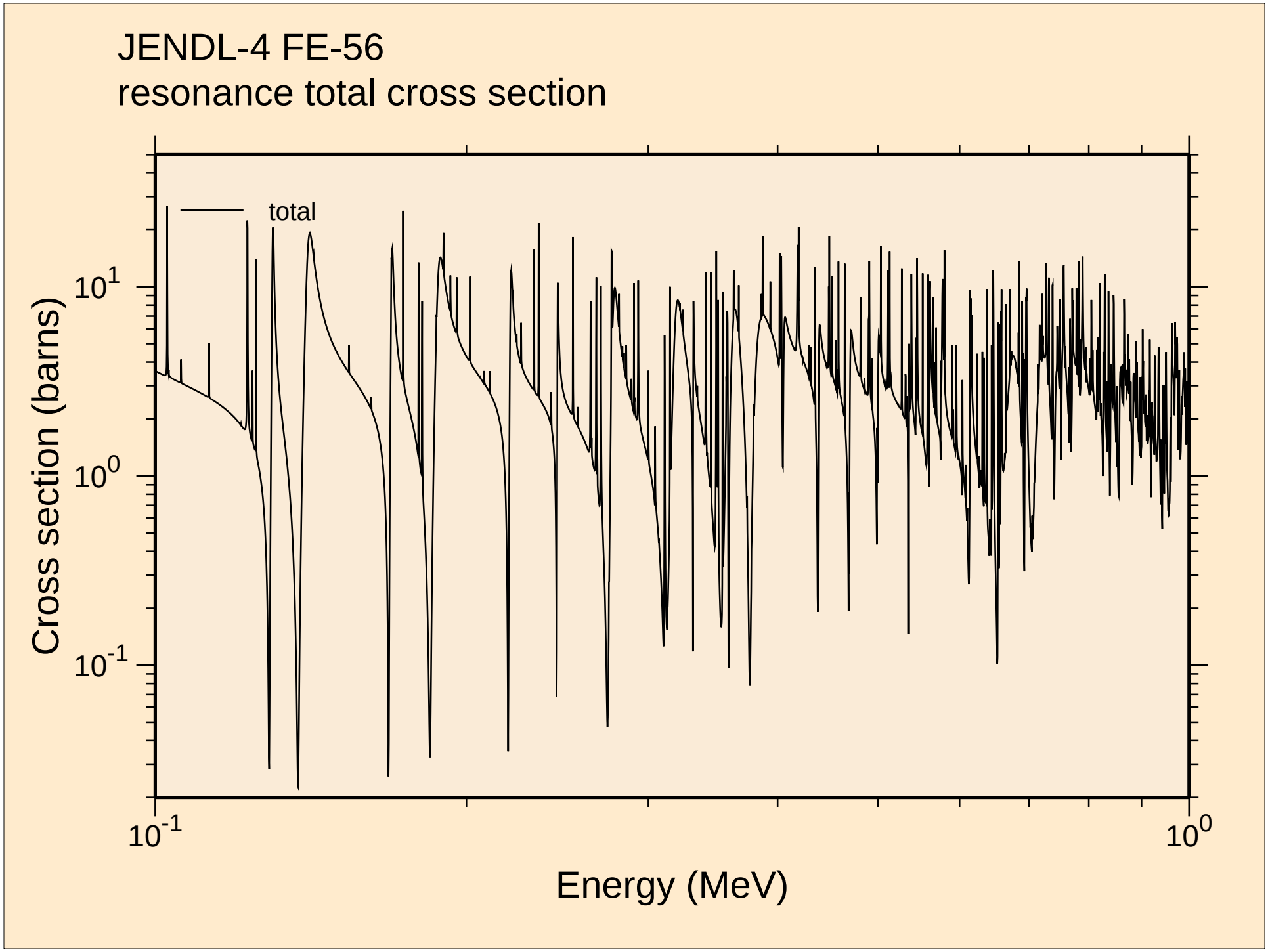
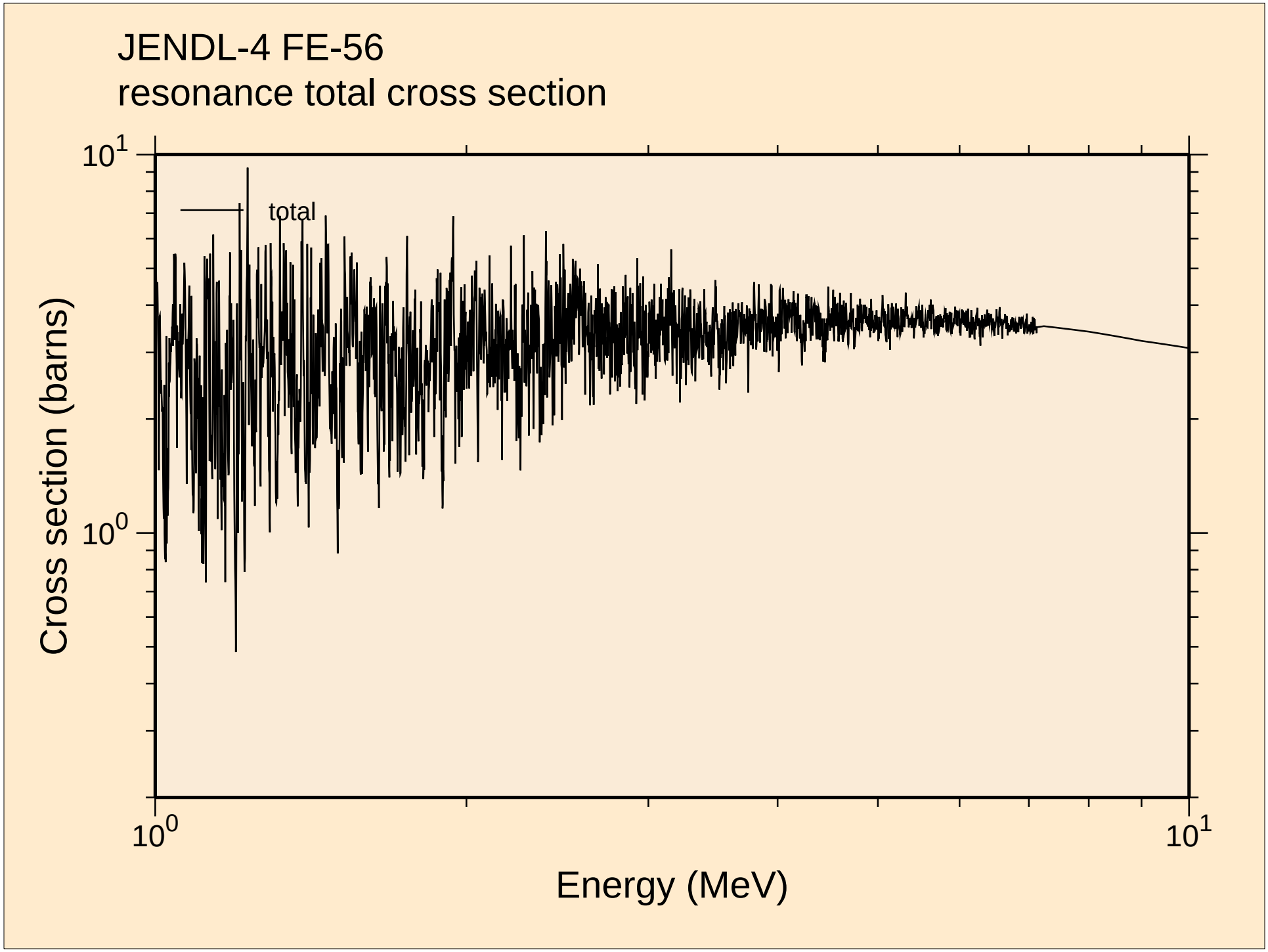

JENDL-4 FE-56
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-11}
10^{-10}
10^{-9}
10^{-8}
10^{-7}
10^{-6}
10^{-5}
10^{-4}
10^{-3}
10^{-2}
10^{-1}
10^{0}
10^{1}

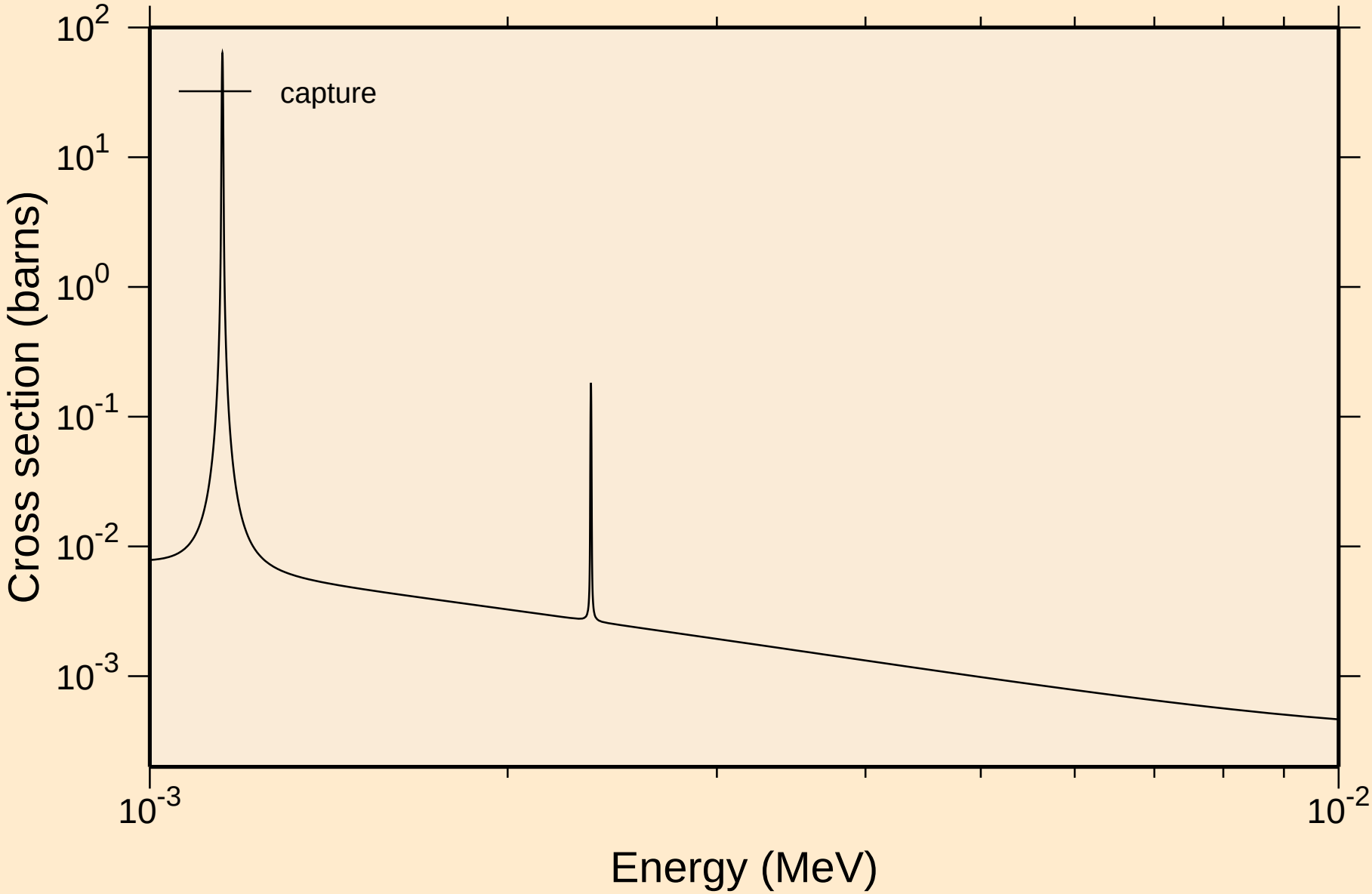

JENDL-4 FE-56
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^{-3}
10^{-2}
Energy (MeV)


JENDL-4 FE-56
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-2}
10^{-1}

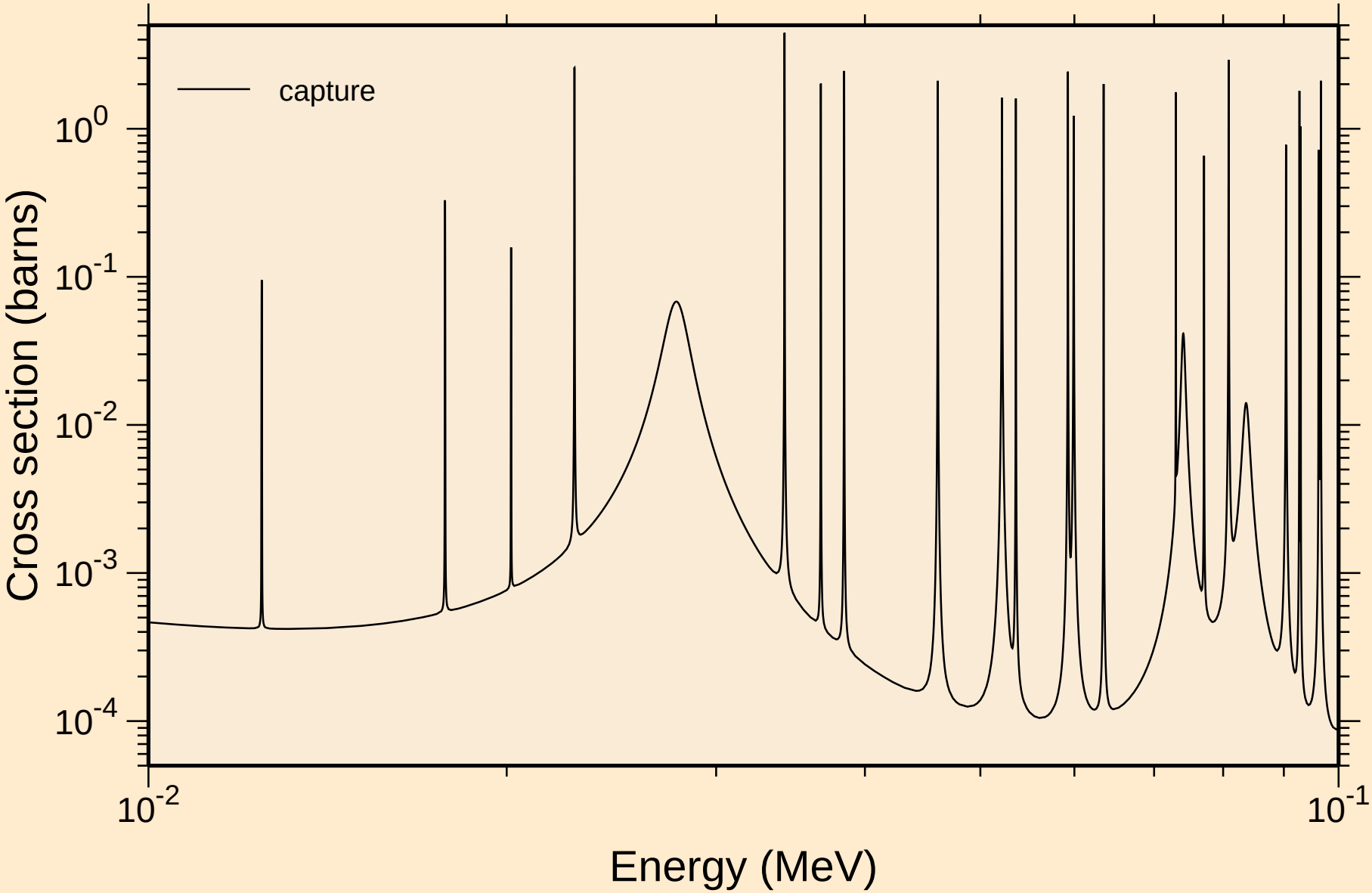

JENDL-4 FE-56
resonance total cross section
total
Cross section (barns)
10^{1}
10^{0}
10^{-1}
10^{-1}
10^{0}
Energy (MeV)


JENDL-4 FE-56
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^1
10^0
10^0
10^1

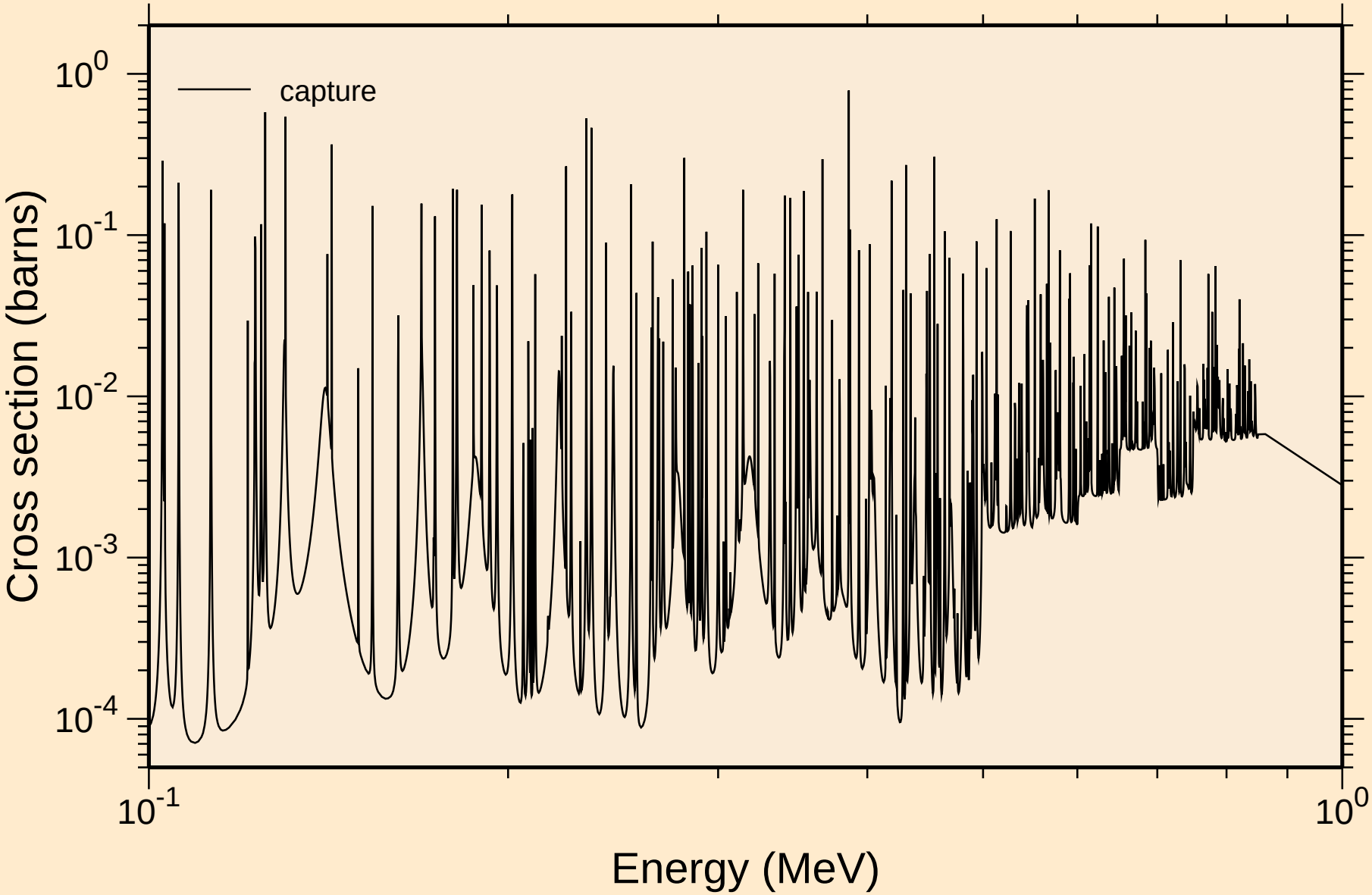
JENDL-4 FE-56
resonance absorption cross sections



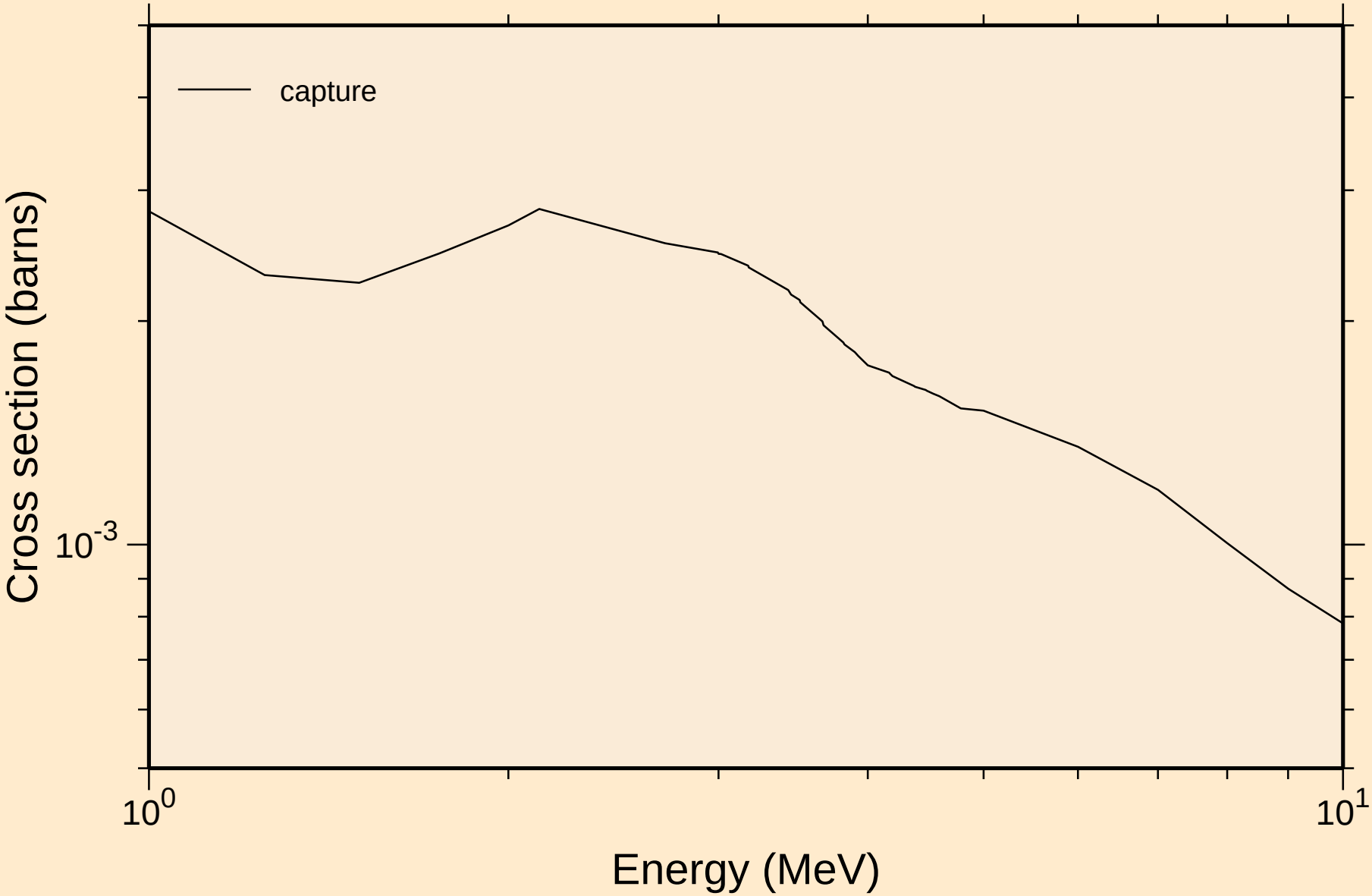
JENDL-4 FE-56
resonance absorption cross sections

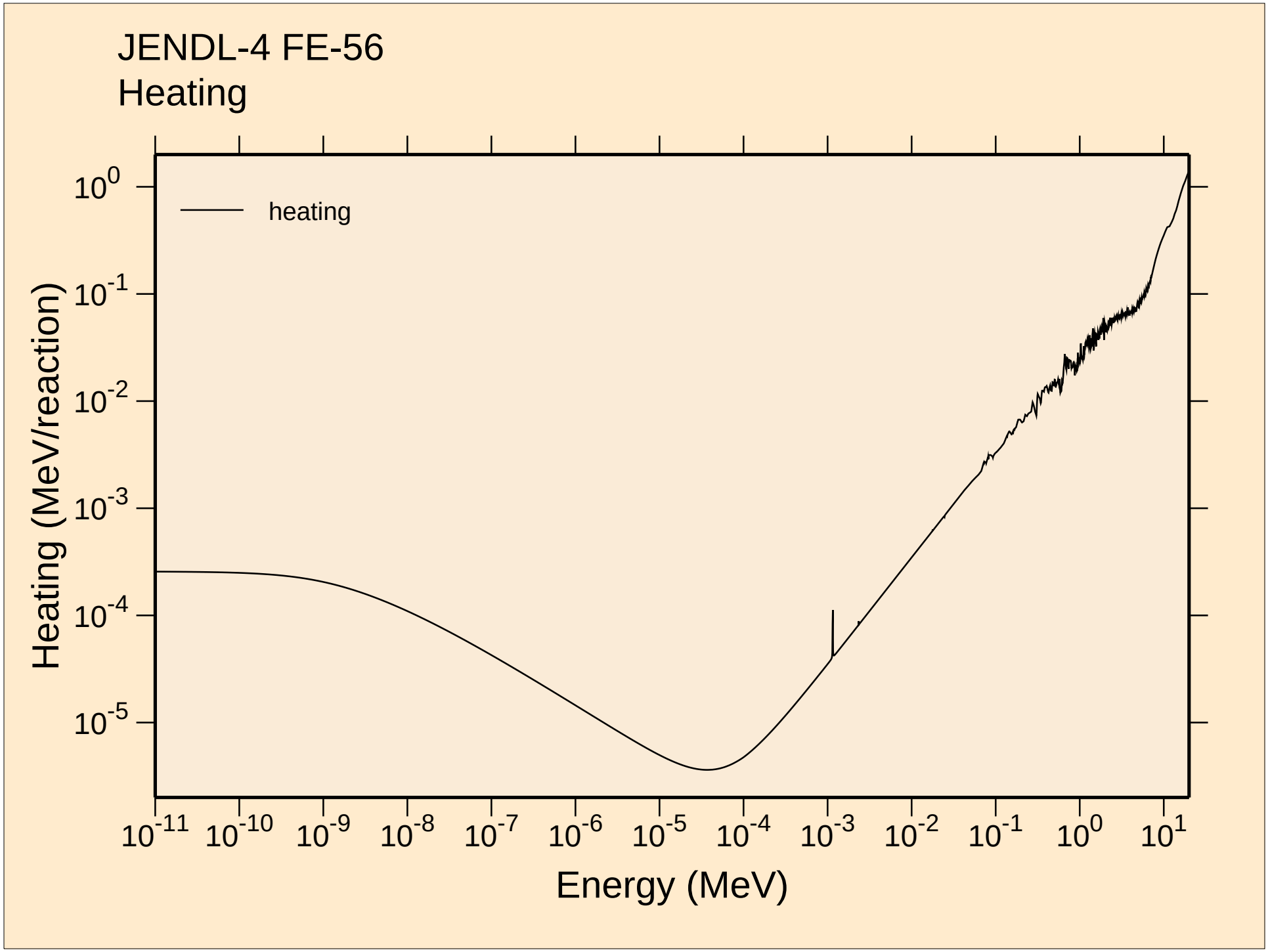


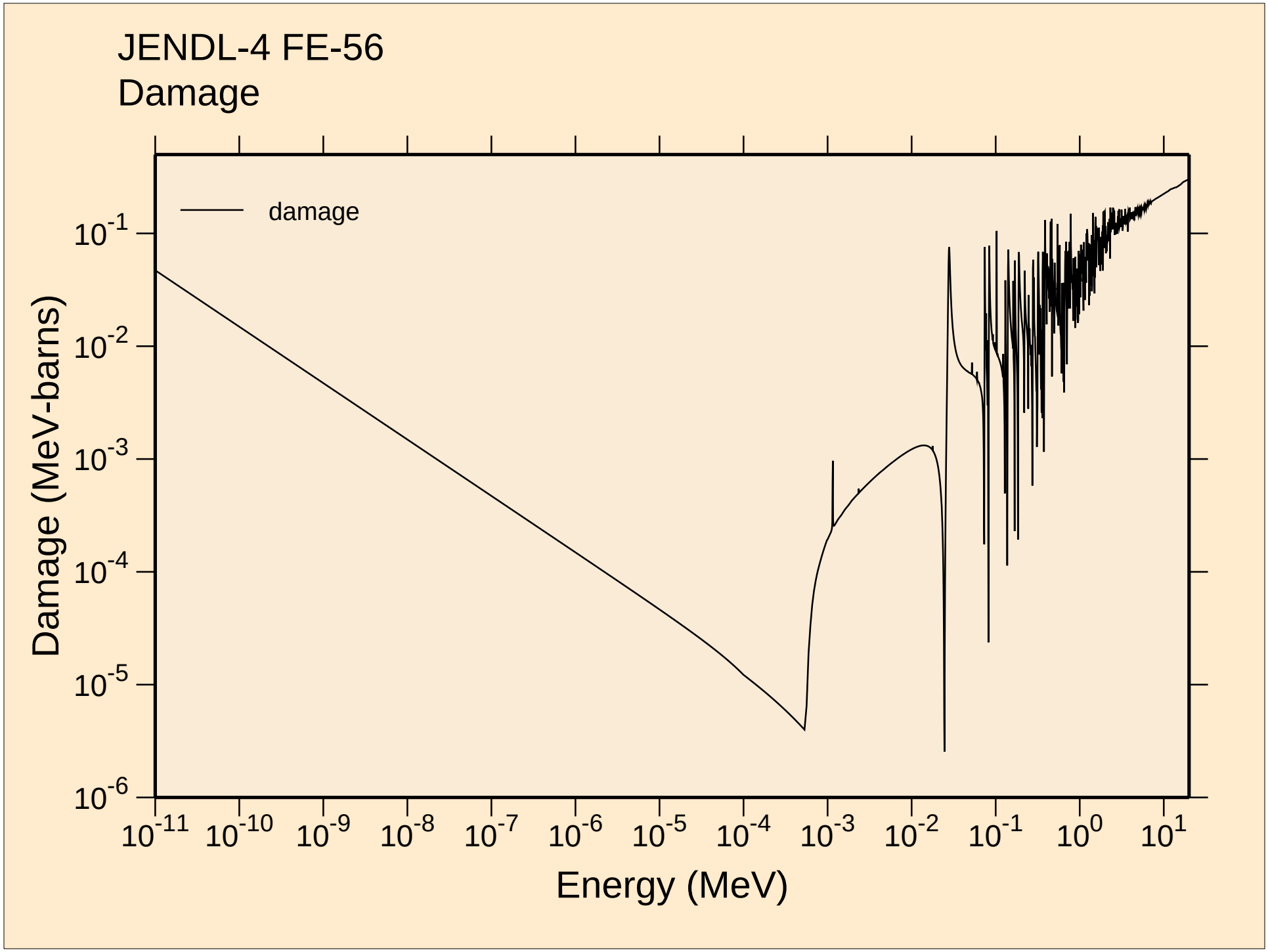
JENDL-4 FE-56
resonance absorption cross sections

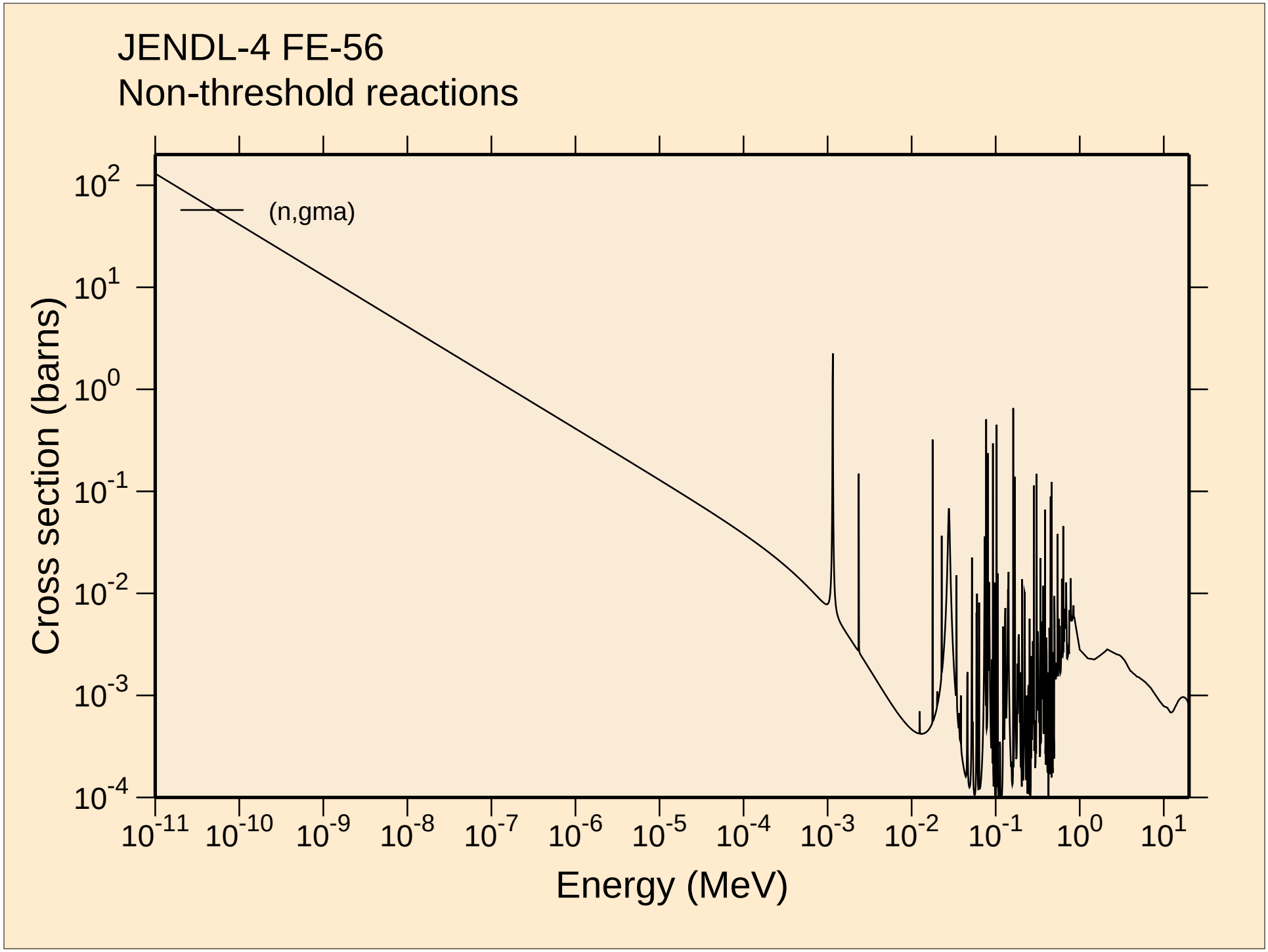


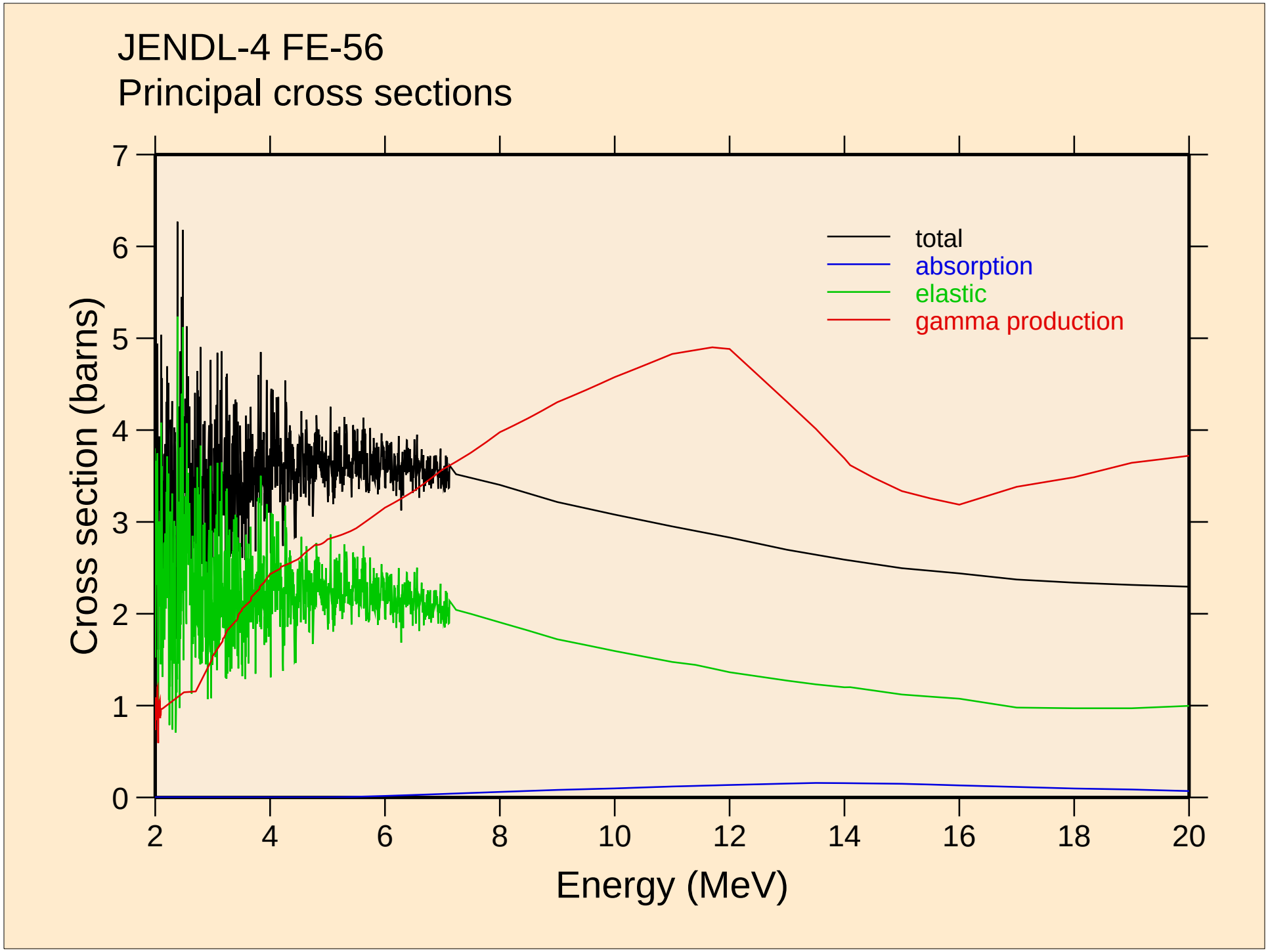
JENDL-4 FE-56
resonance absorption cross sections

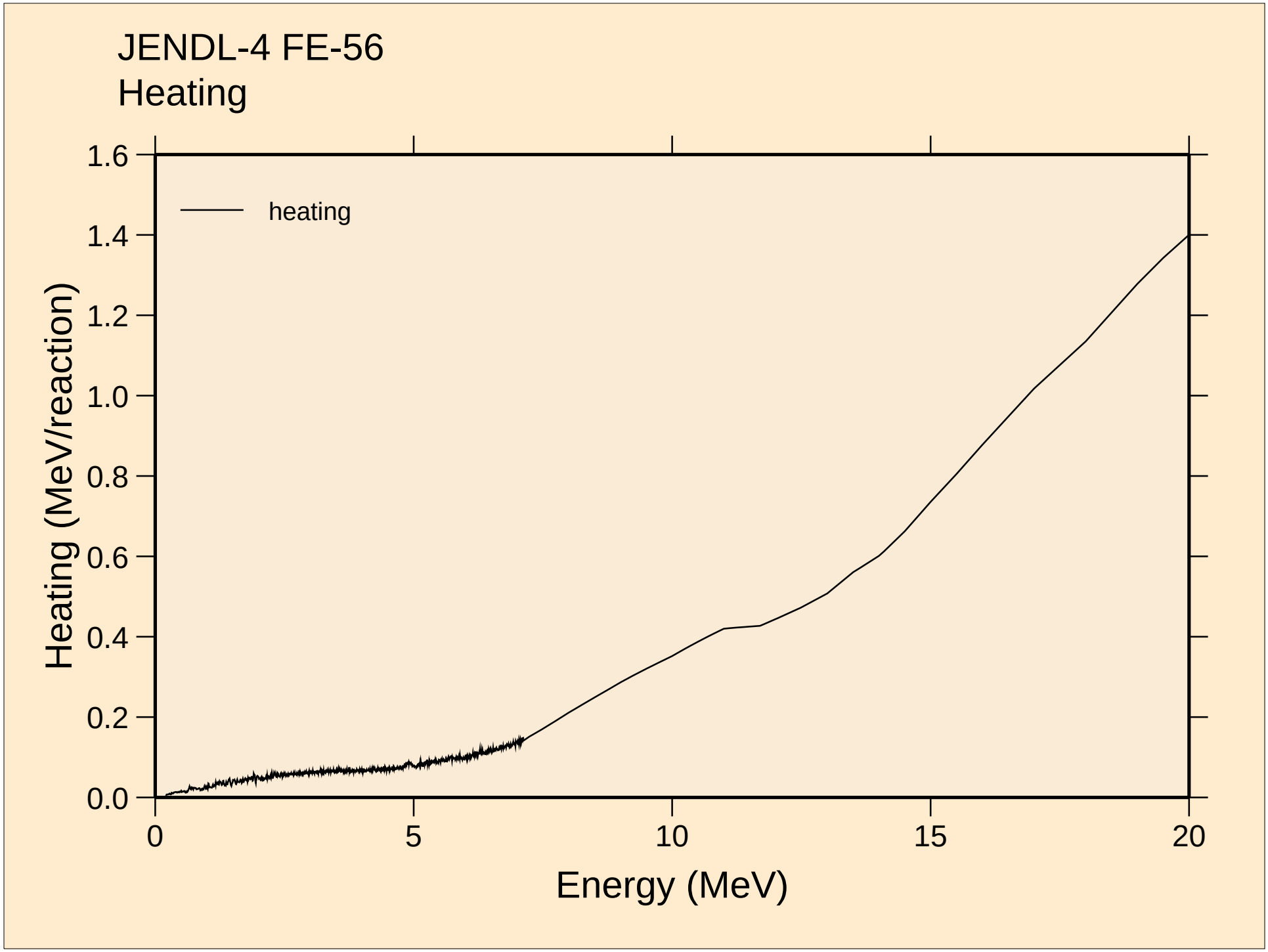


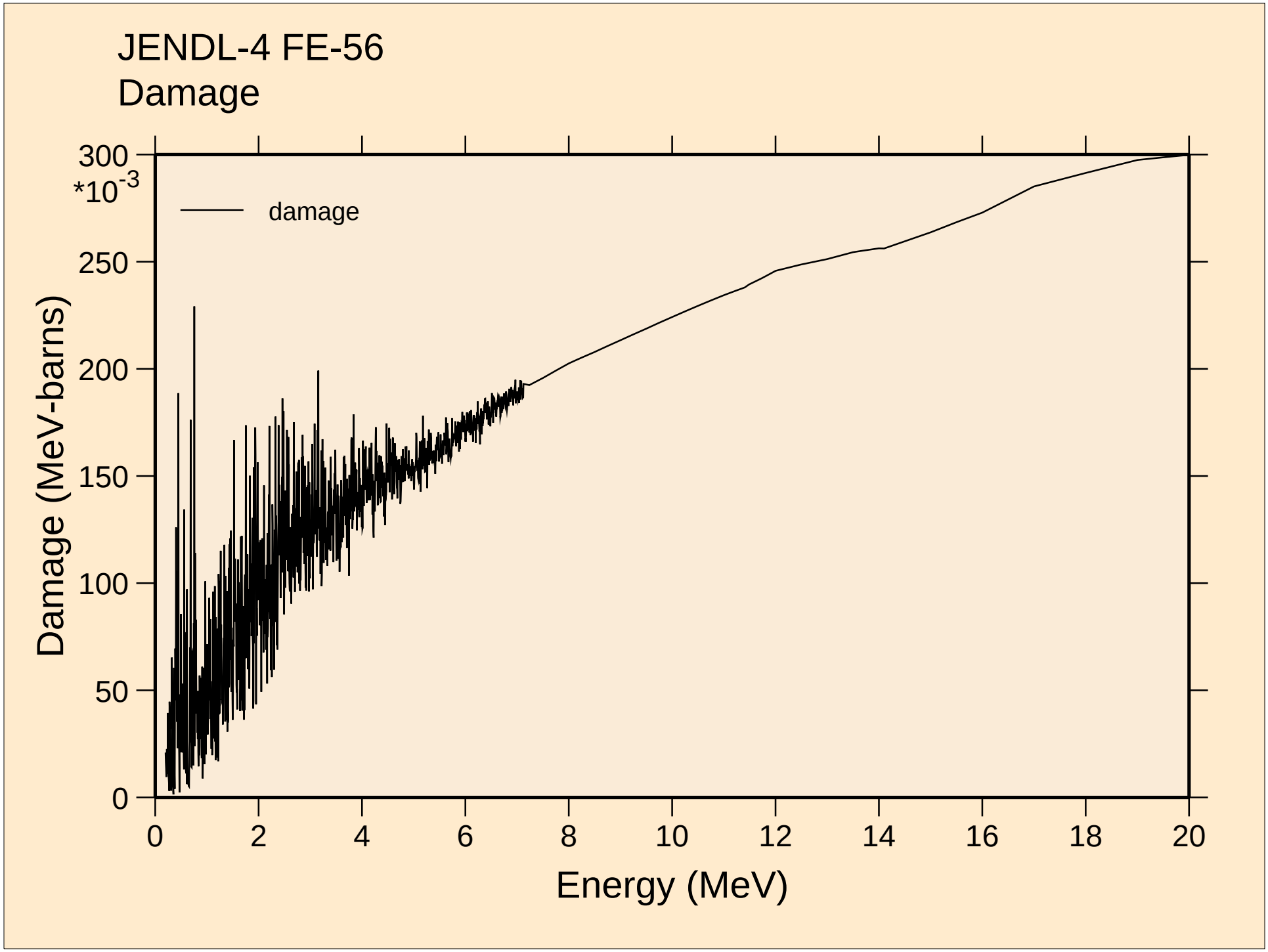

JENDL-4 FE-56
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

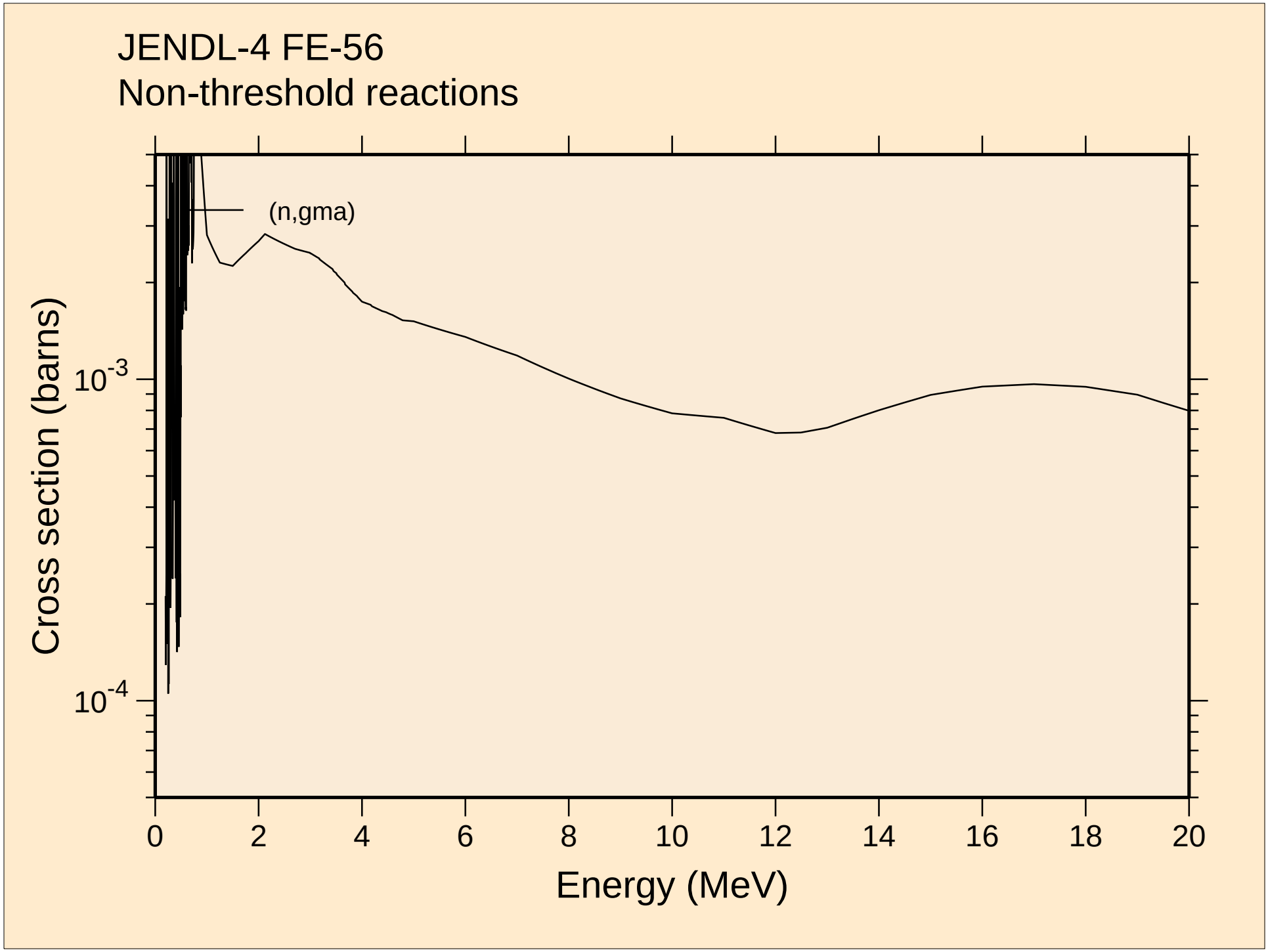

JENDL-4 FE-56
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

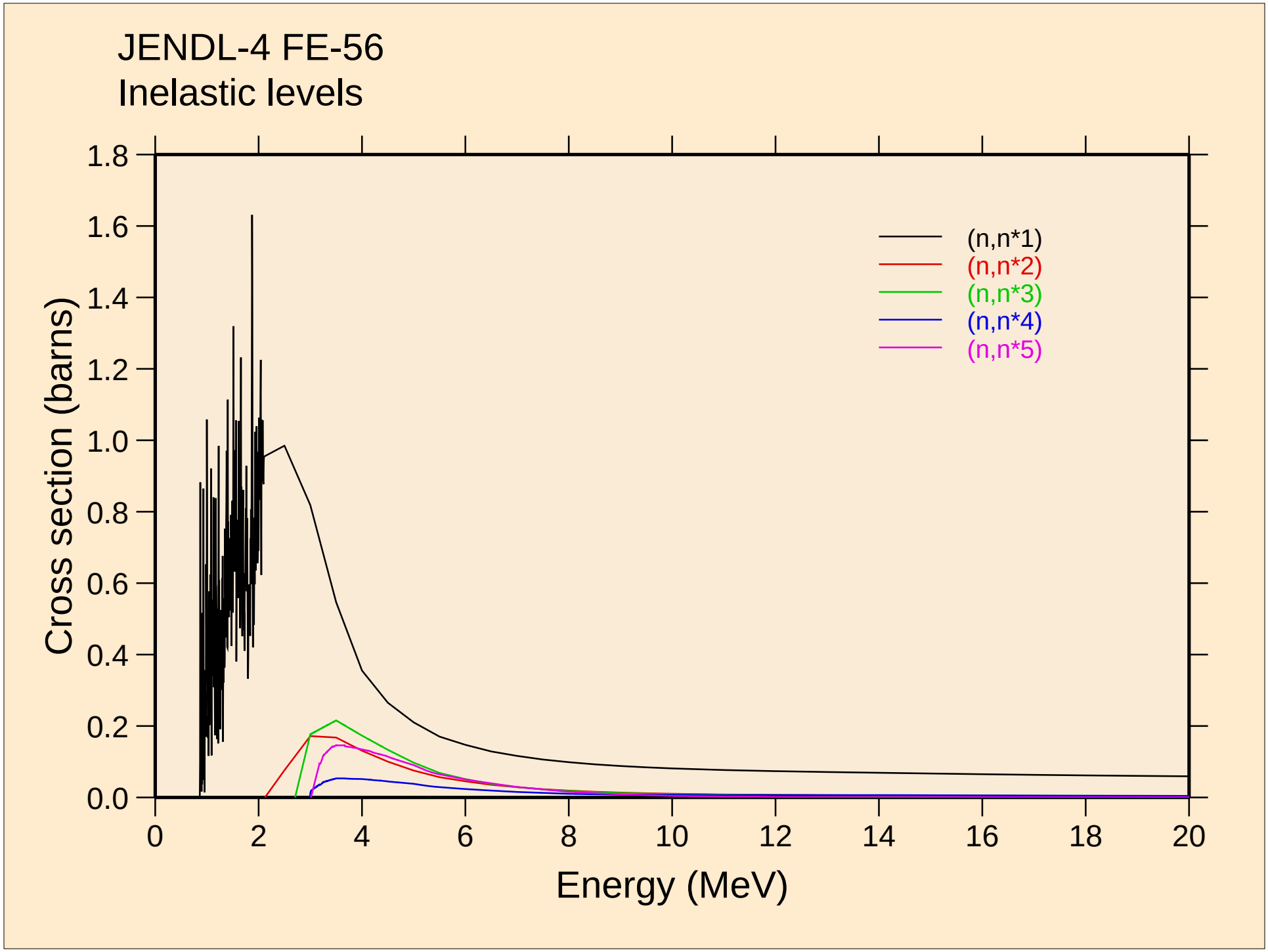

JENDL-4 FE-56
Non-threshold reactions
(n,gma)
Cross section (barns)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

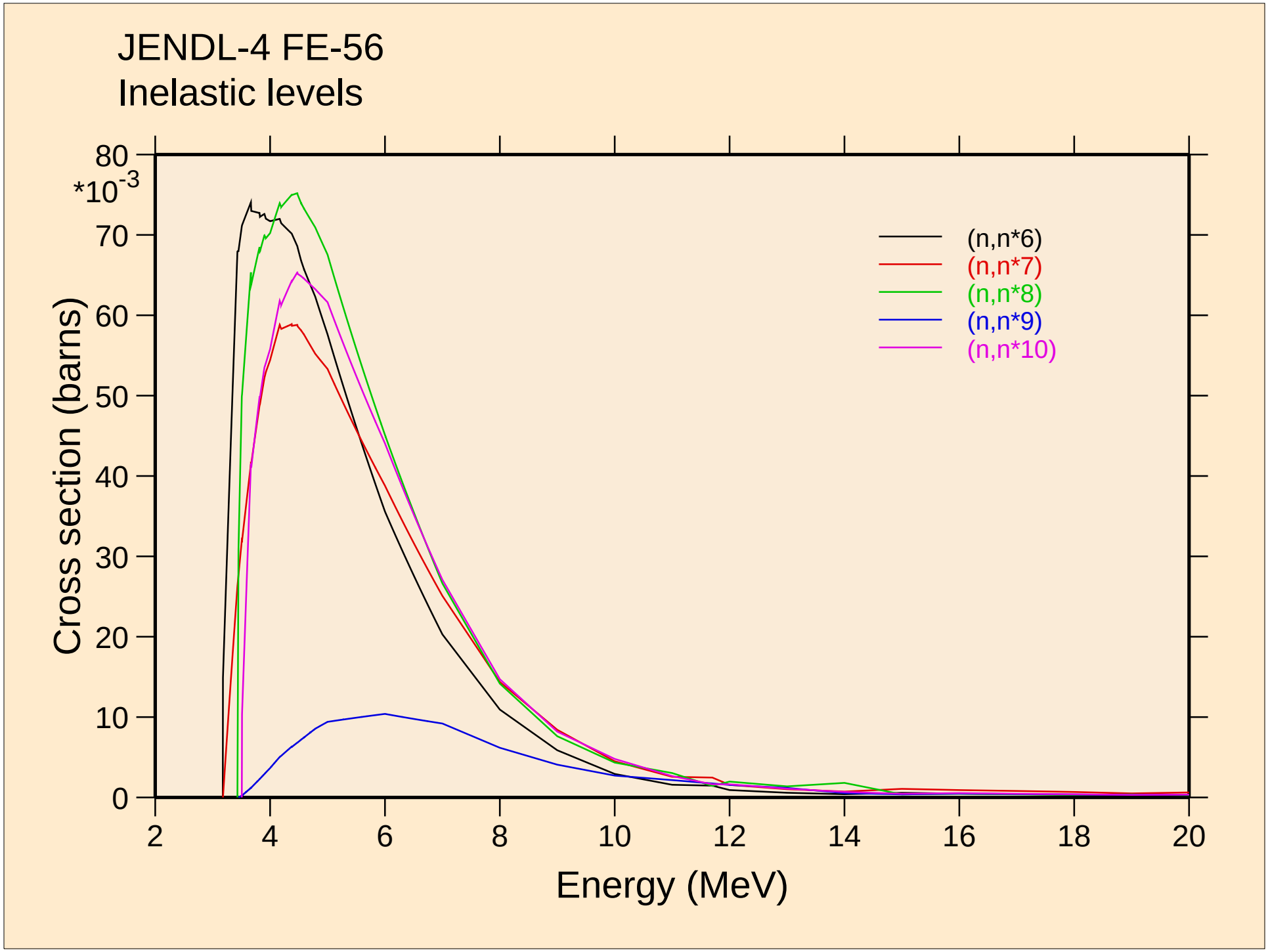

JENDL-4 FE-56
Principal cross sections
total
absorption
elastic
gamma production
Cross section (barns)
Energy (MeV)
0
1
2
3
4
5
6
7
2
4
6
8
10
12
14
16
18
20

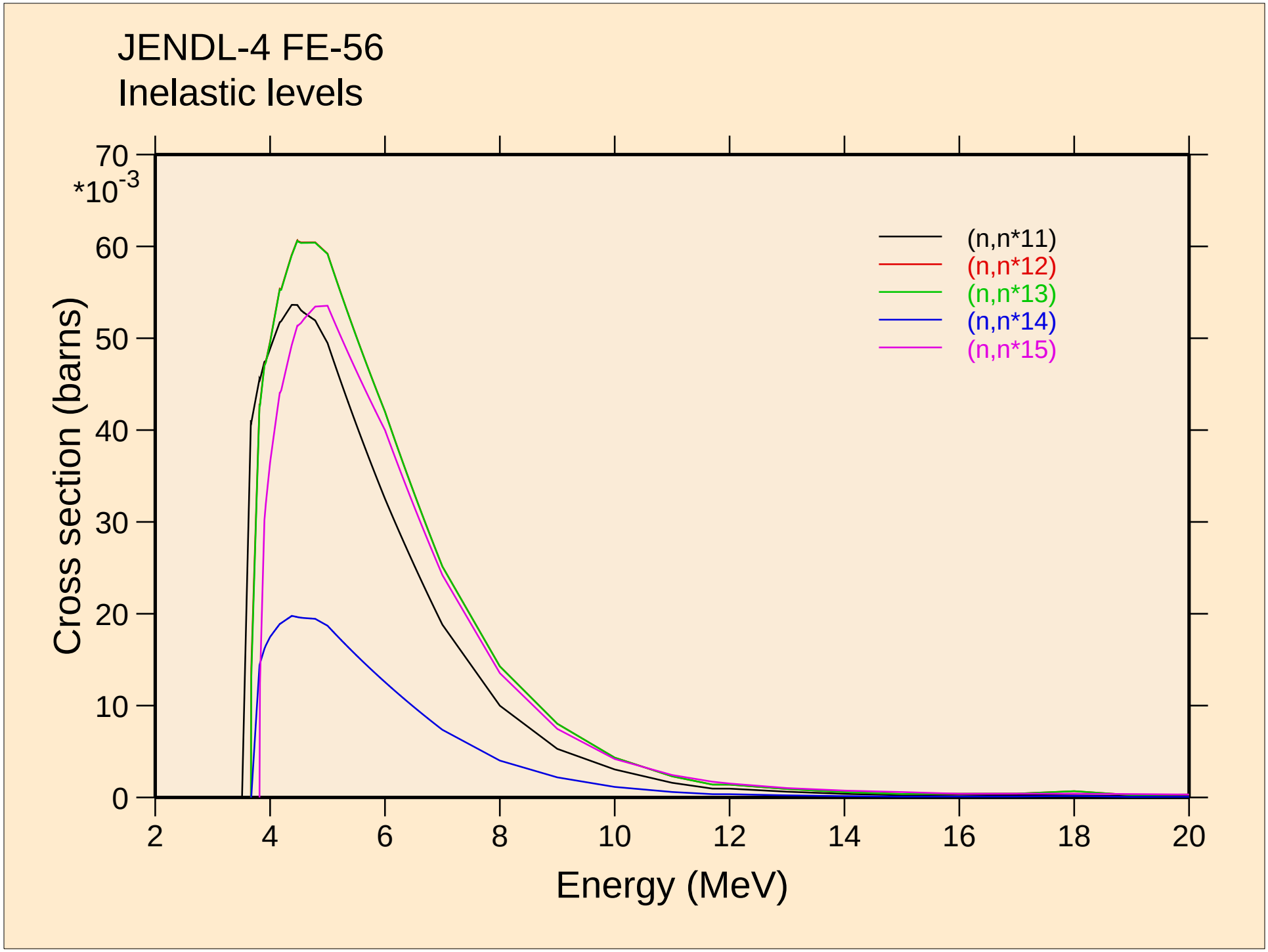

JENDL-4 FE-56
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
5
10
15
20

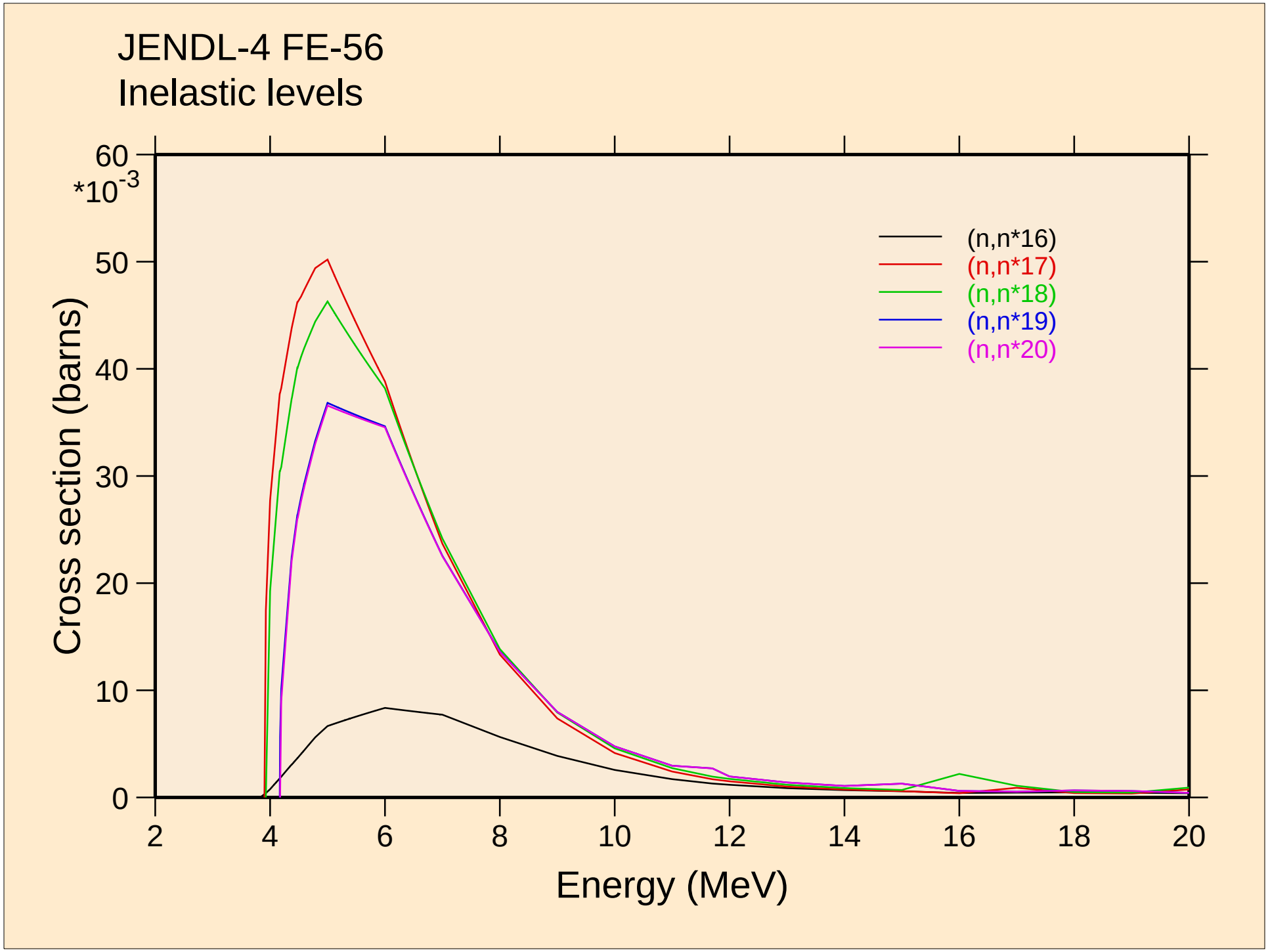

JENDL-4 FE-56
Damage
damage
*10-3
300
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

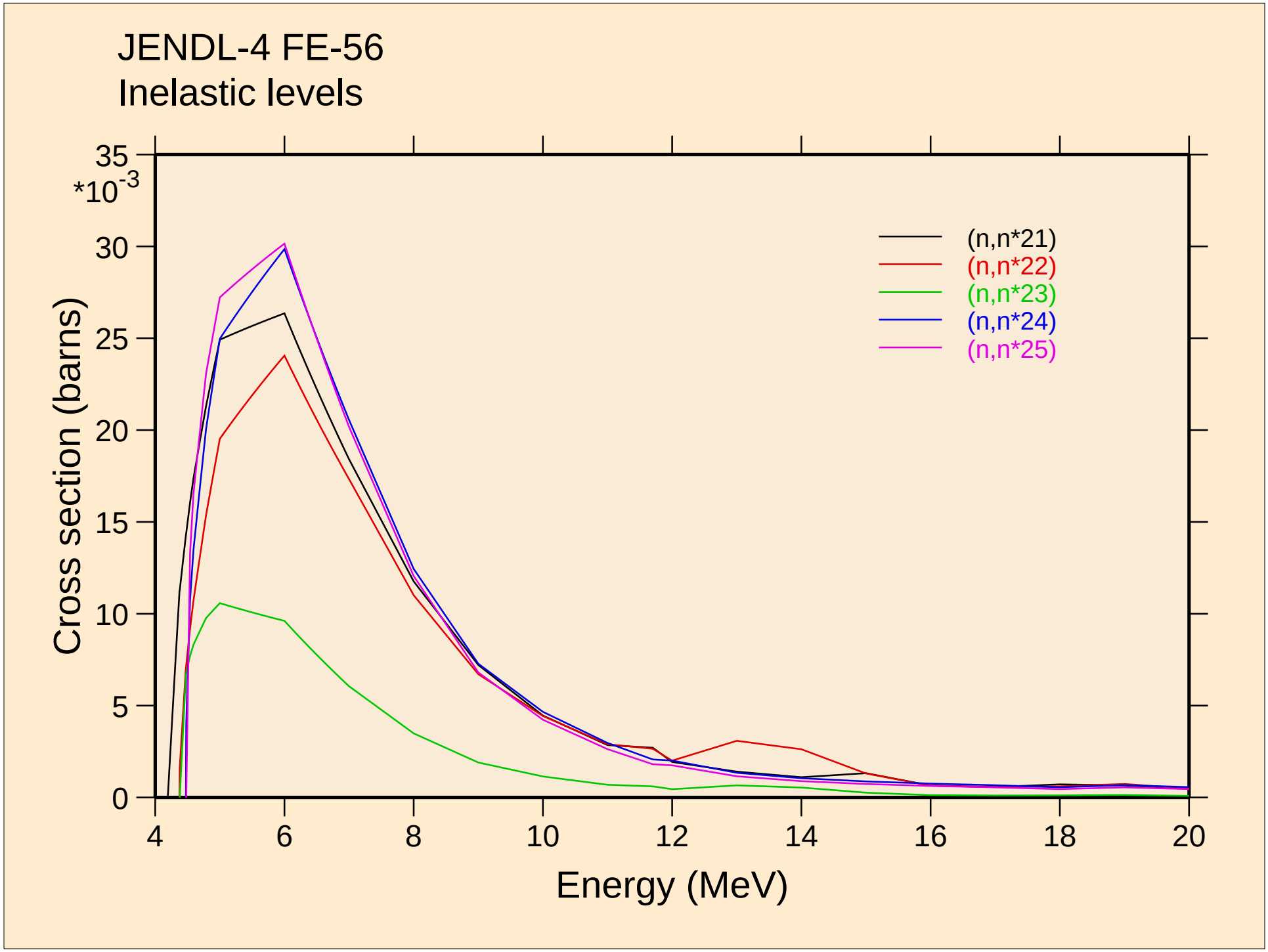

JENDL-4 FE-56
Non-threshold reactions
(n,gma)
Cross section (barns)
10-3
10-4
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

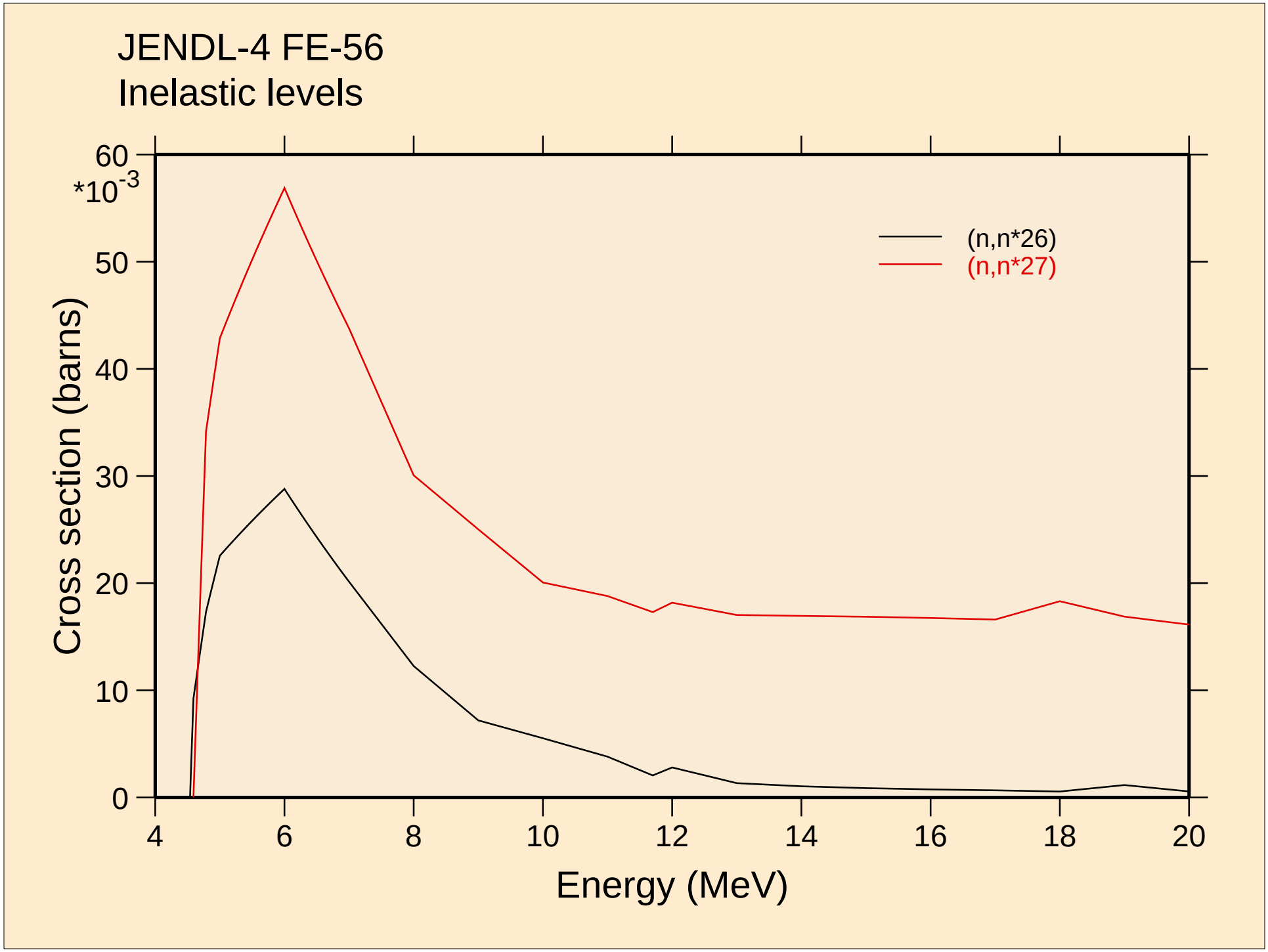

JENDL-4 FE-56
Inelastic levels
Cross section (barns)
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
2
4
6
8
10
12
14
16
18
20

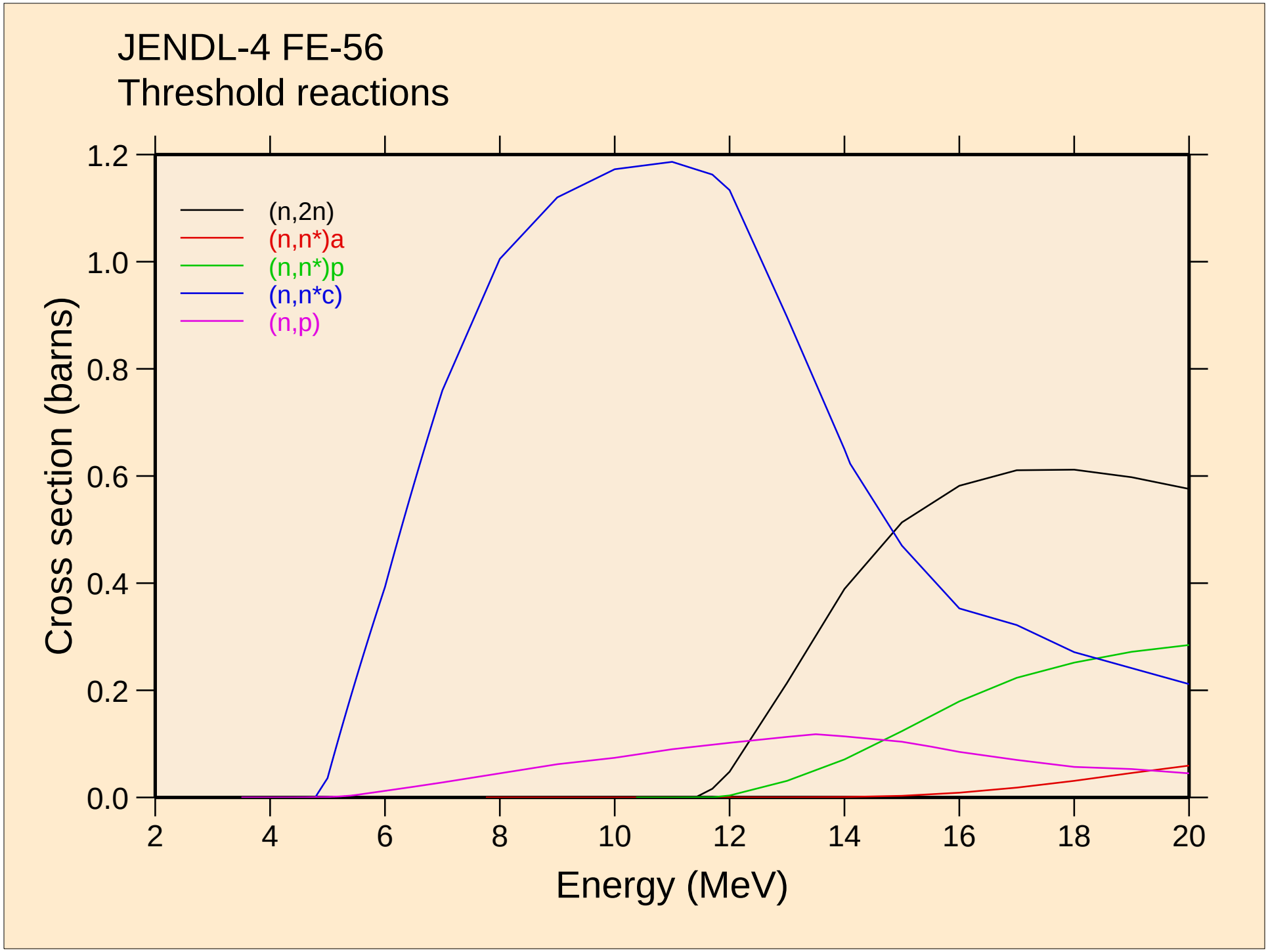

JENDL-4 FE-56
Inelastic levels
*10-3
Cross section (barns)
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)
0
10
20
30
40
50
60
70
80
2
4
6
8
10
12
14
16
18
20

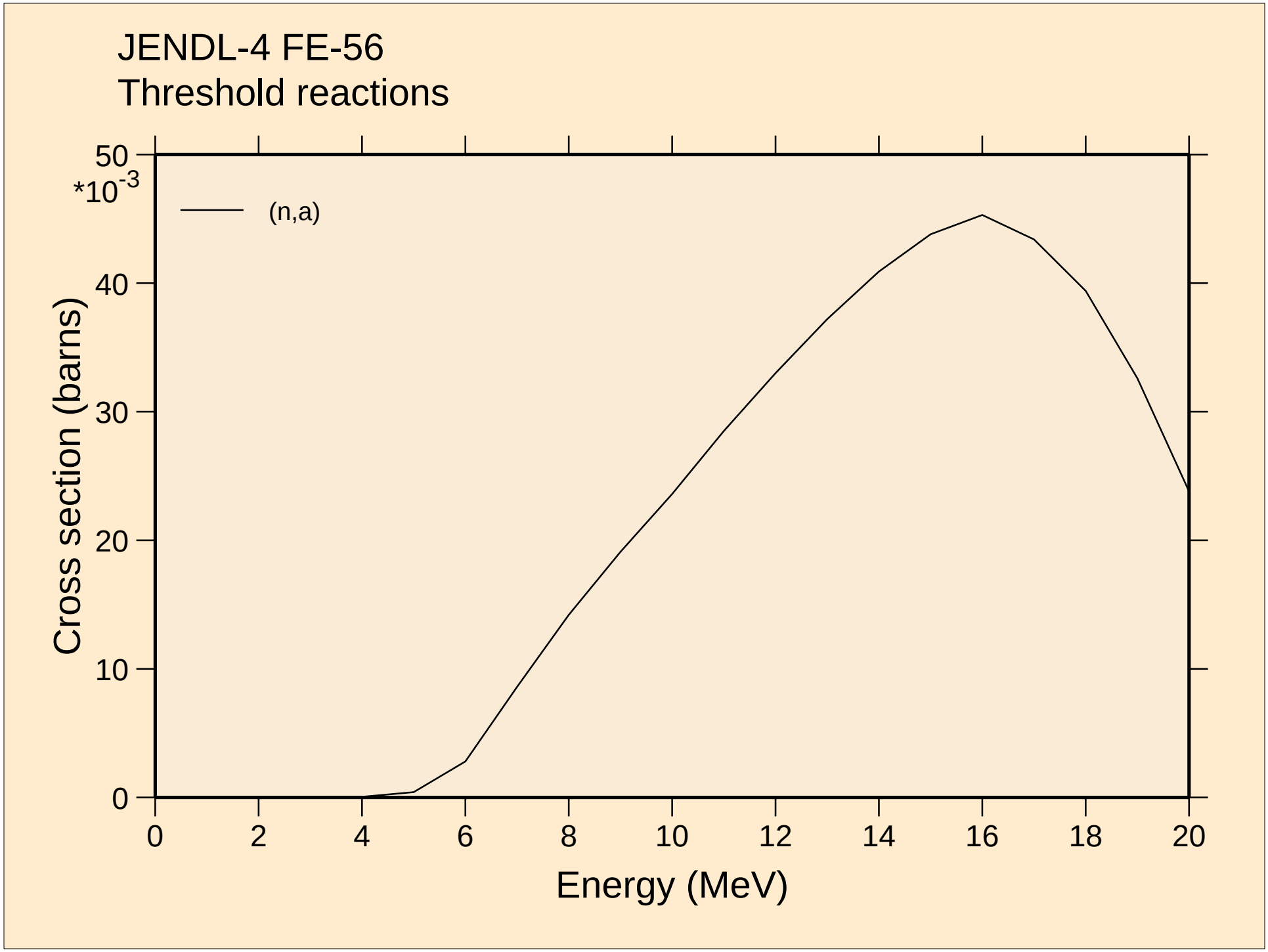

JENDL-4 FE-56
Inelastic levels
Cross section (barns)
*10^-3
70
60
50
40
30
20
10
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

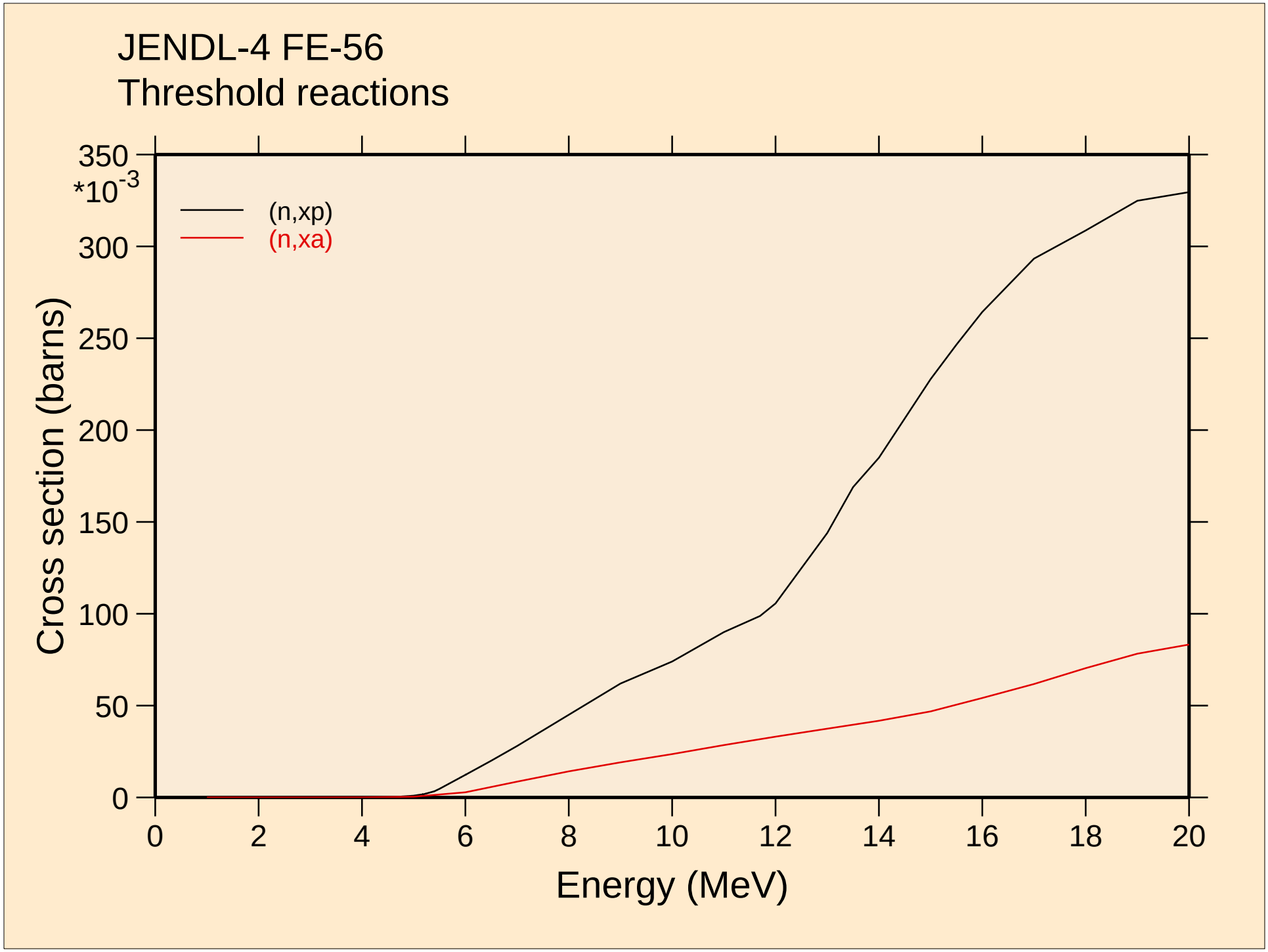

JENDL-4 FE-56
Inelastic levels
*10-3
60
50
40
30
20
10
0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

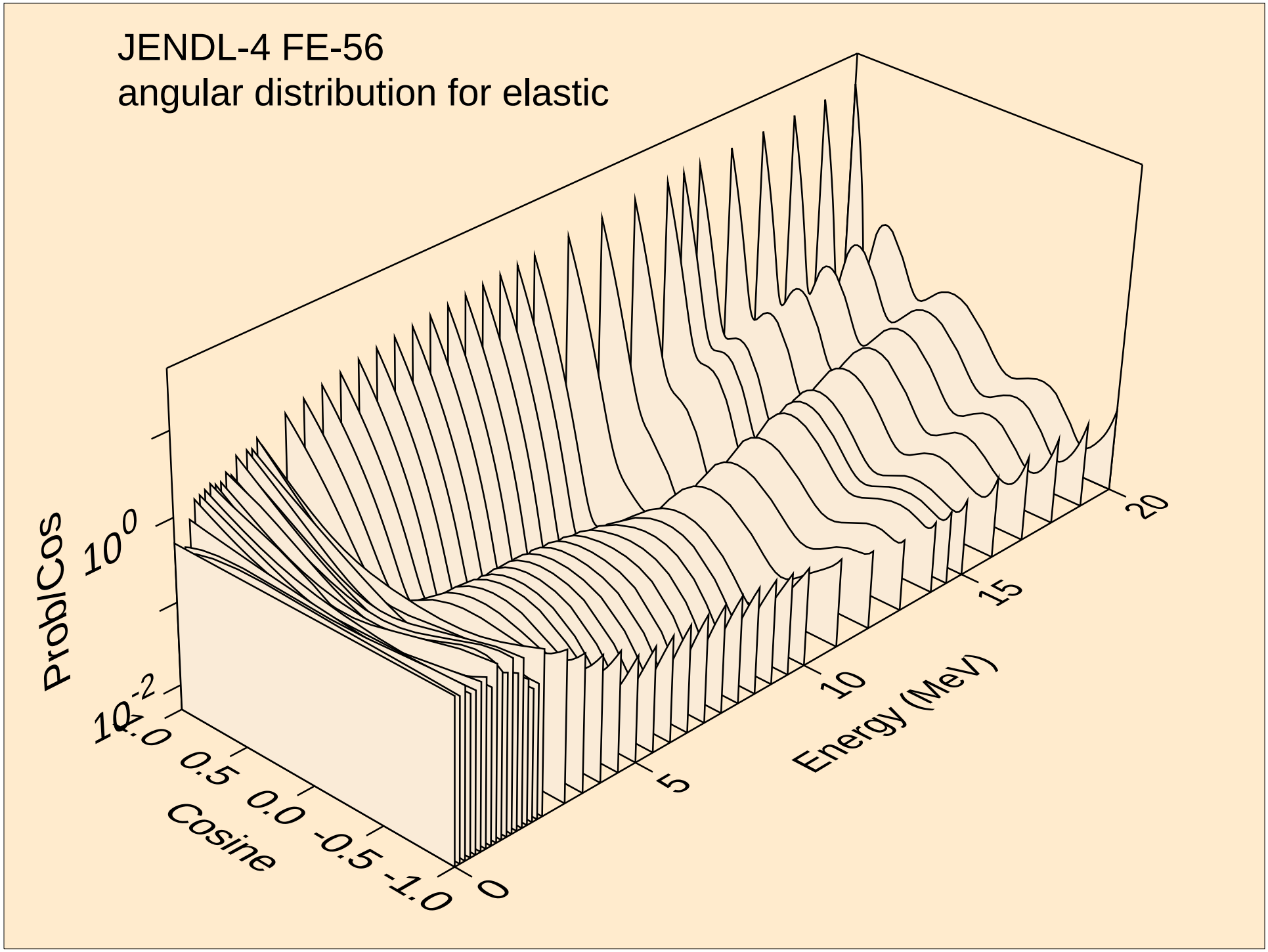

JENDL-4 FE-56
Inelastic levels
*10-3
35
30
25
20
15
10
5
0
Cross section (barns)
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

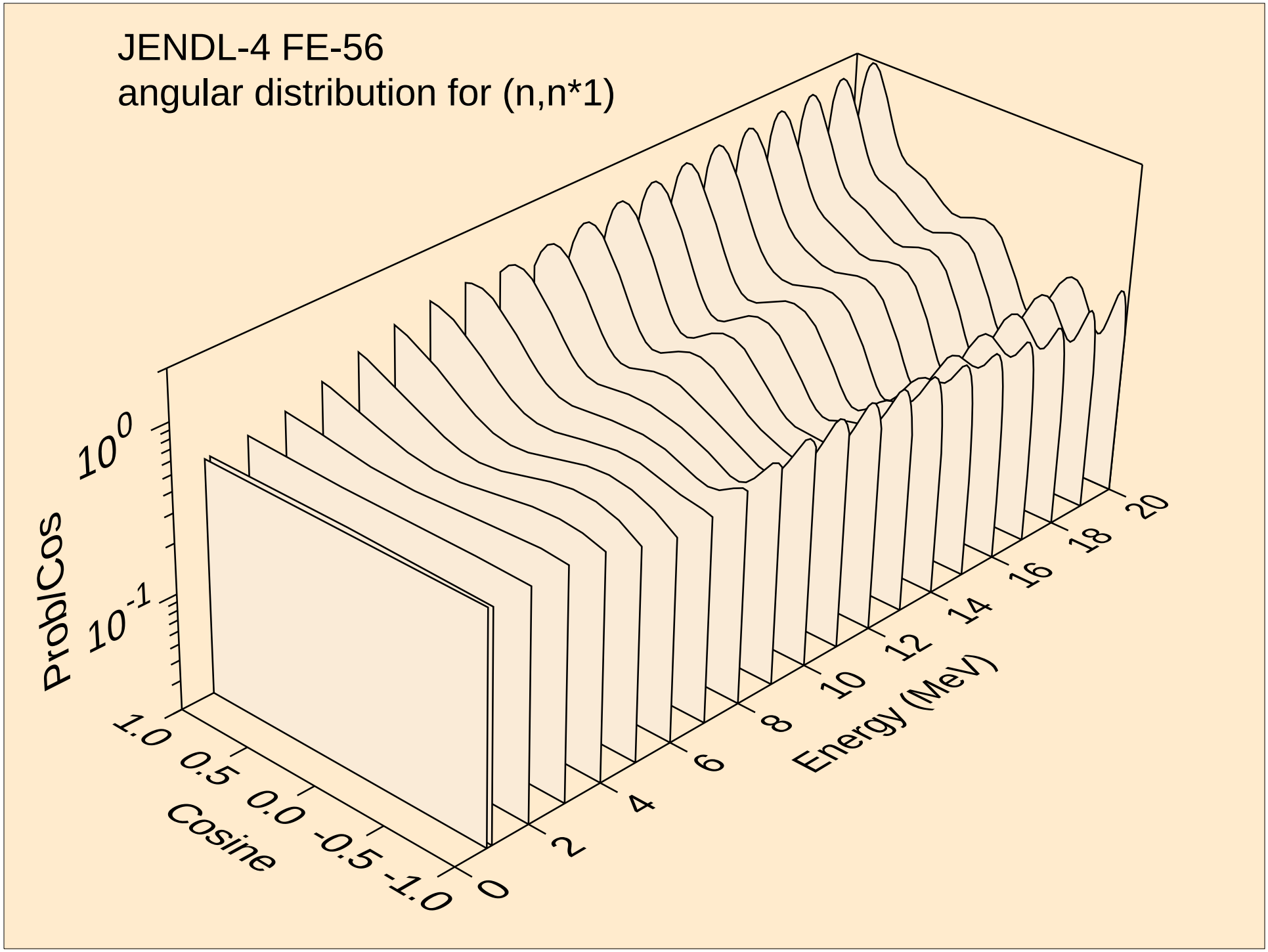

JENDL-4 FE-56
Inelastic levels
*10-3
60
50
40
30
20
10
0
Cross section (barns)
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*26)
(n,n*27)

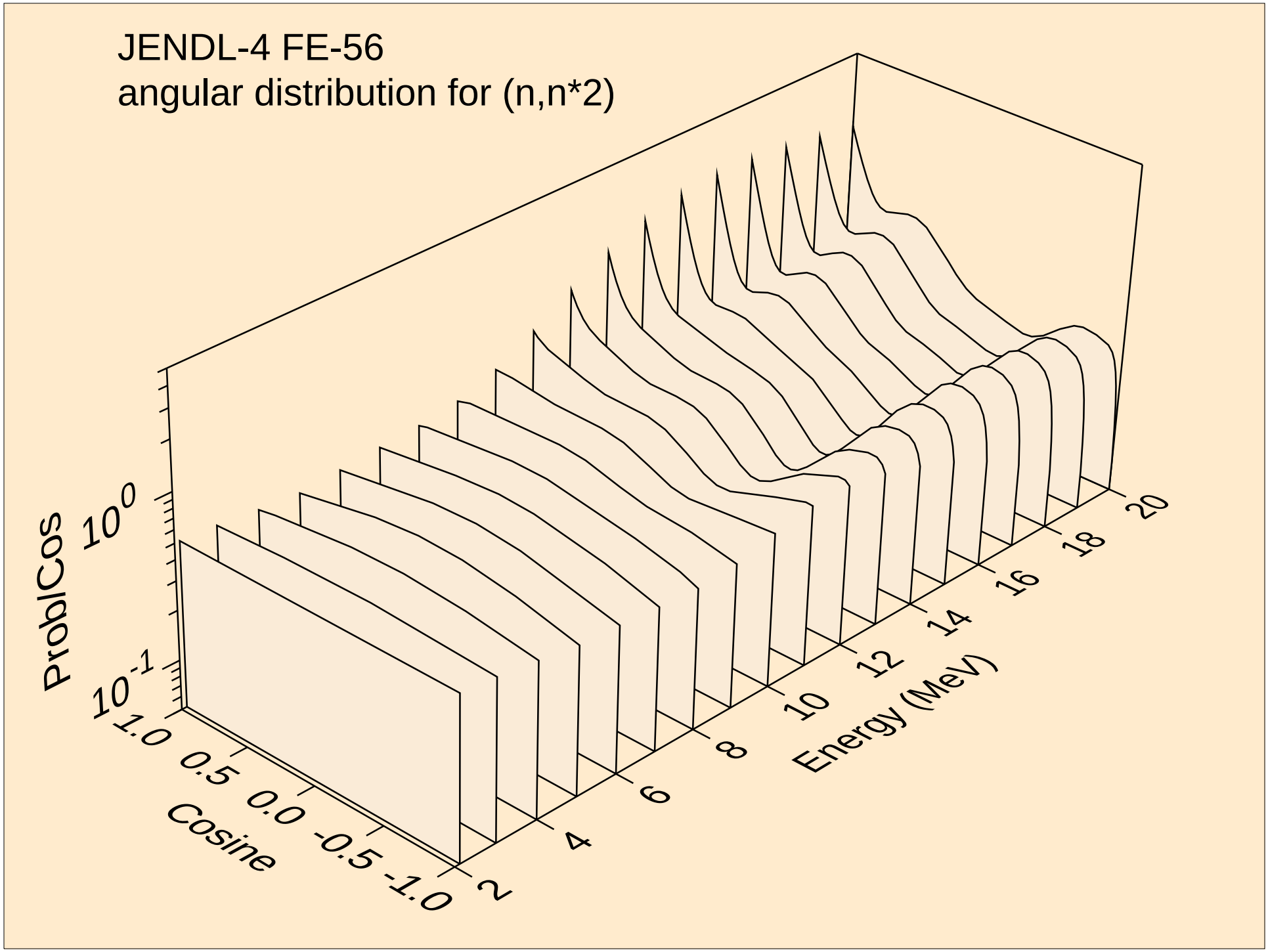

JENDL-4 FE-56
Threshold reactions
(n,2n)
(n,n*)a
(n,n*)p
(n,n*c)
(n,p)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
2
4
6
8
10
12
14
16
18
20

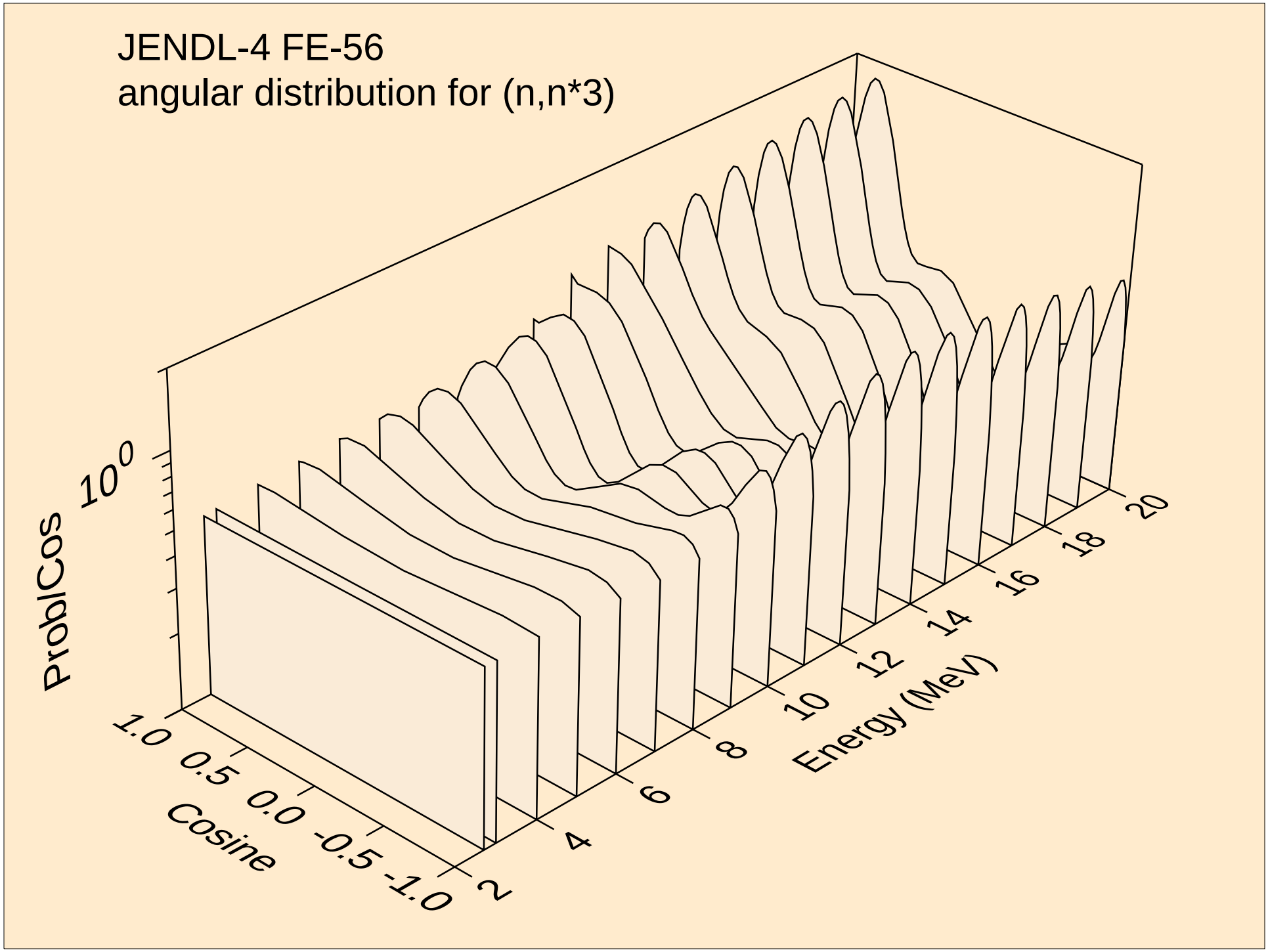

JENDL-4 FE-56
Threshold reactions
(n,a)
Cross section (barns)
*10-3
50
40
30
20
10
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

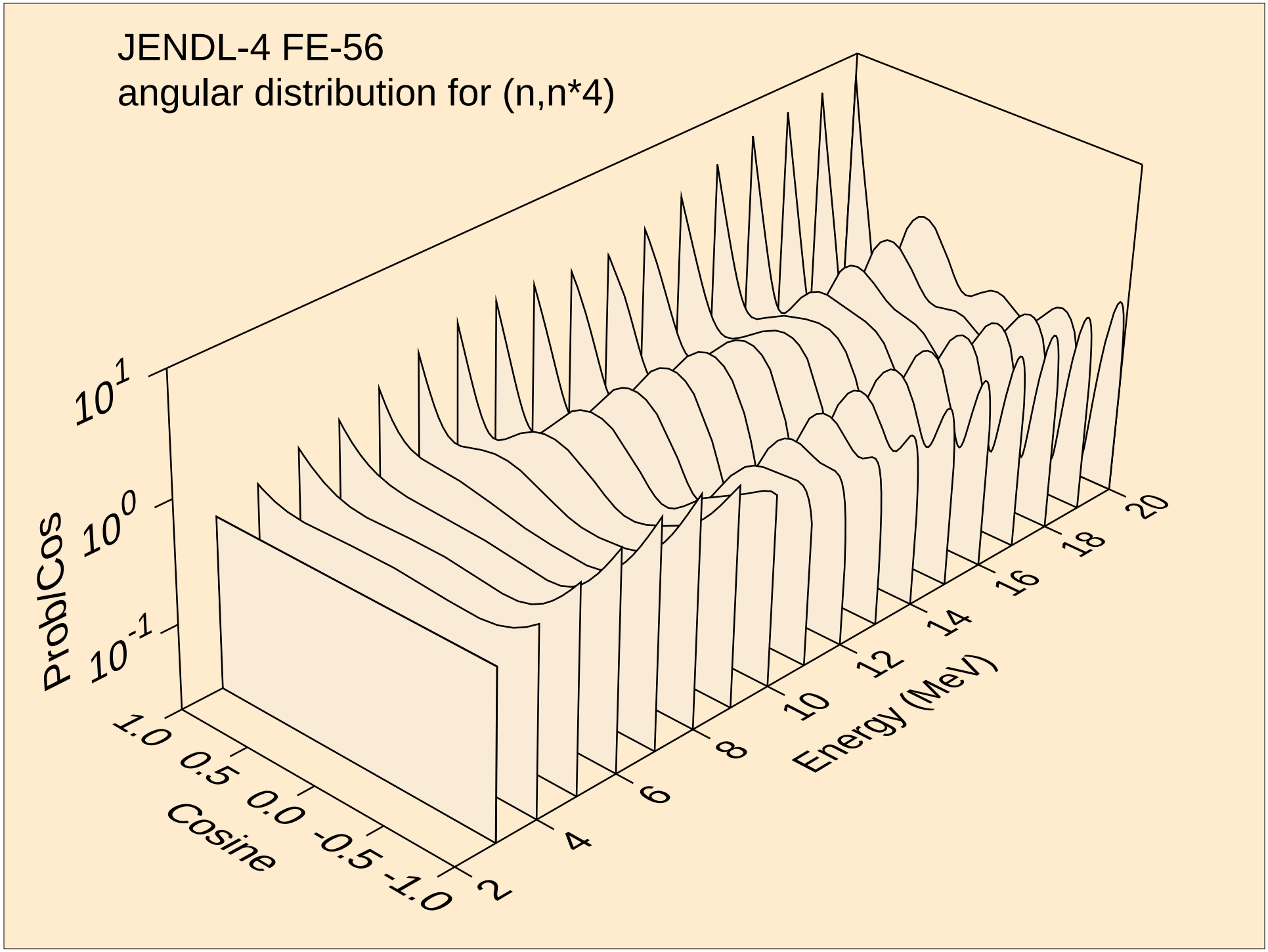

JENDL-4 FE-56
Threshold reactions
(n,xp)
(n,xa)
*10-3
Cross section (barns)
Energy (MeV)
0
50
100
150
200
250
300
350
0
2
4
6
8
10
12
14
16
18
20

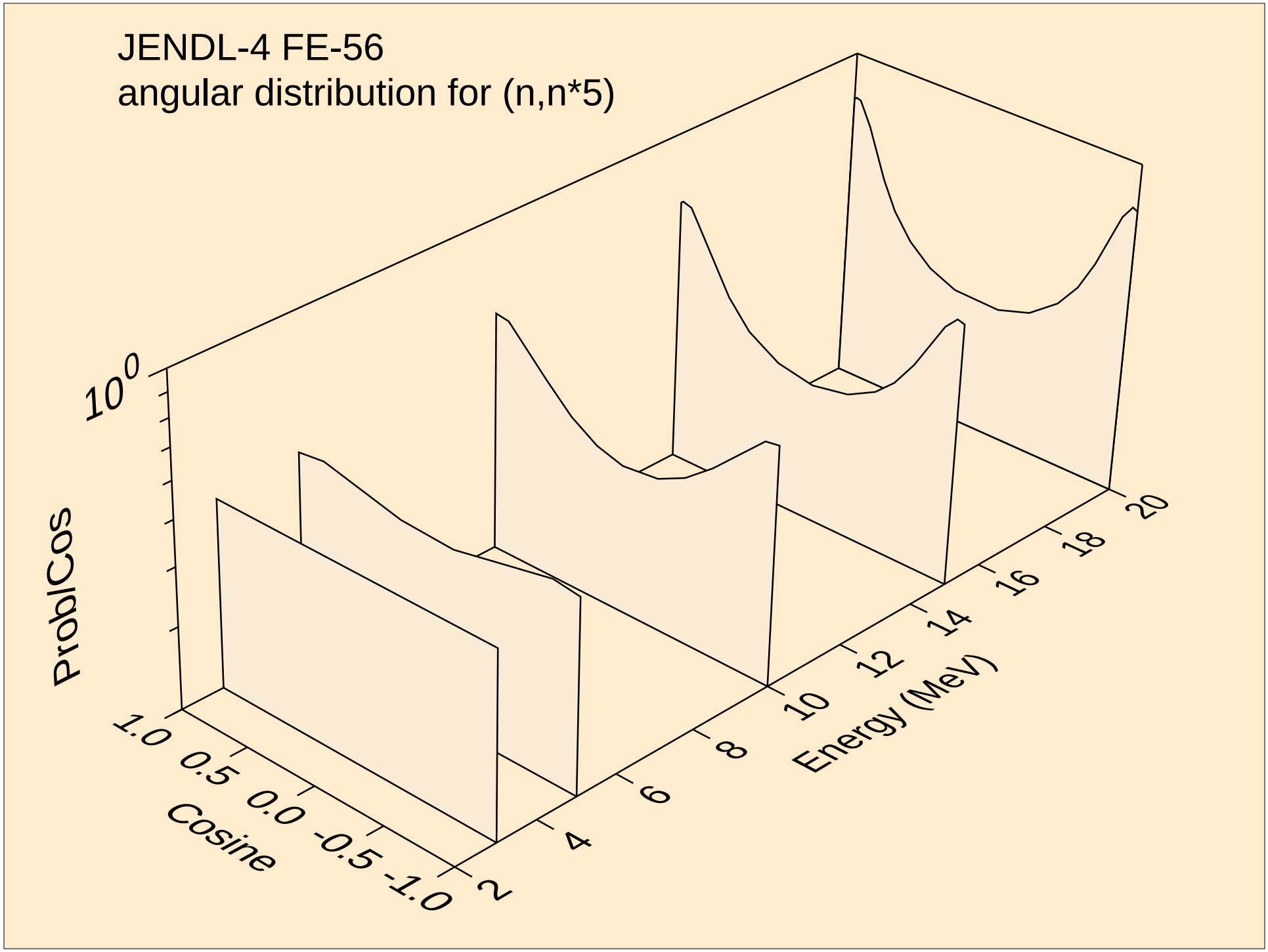

JENDL-4 FE-56
angular distribution for elastic
ProblCos
10^0
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

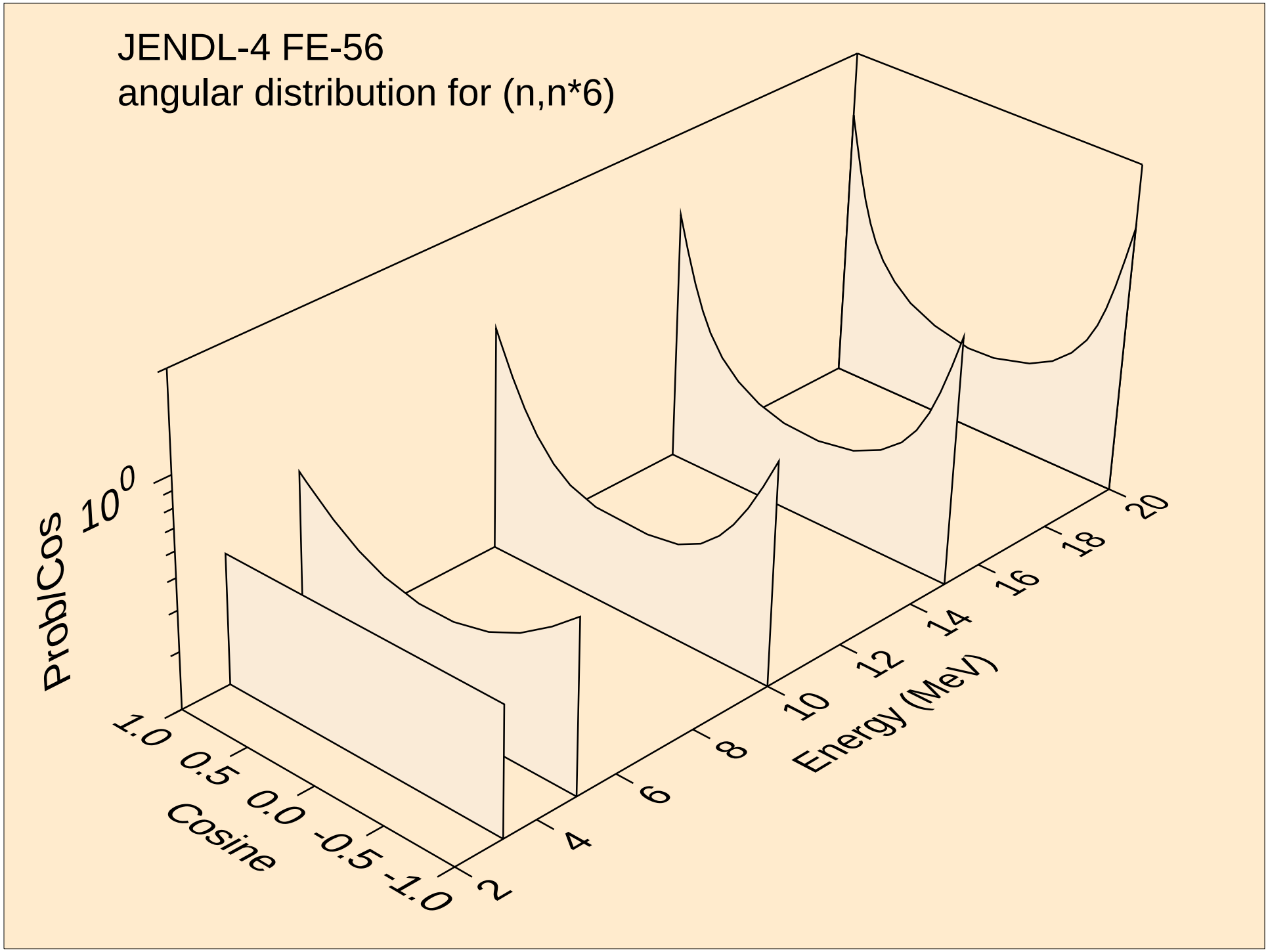

JENDL-4 FE-56
angular distribution for (n,n*1)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

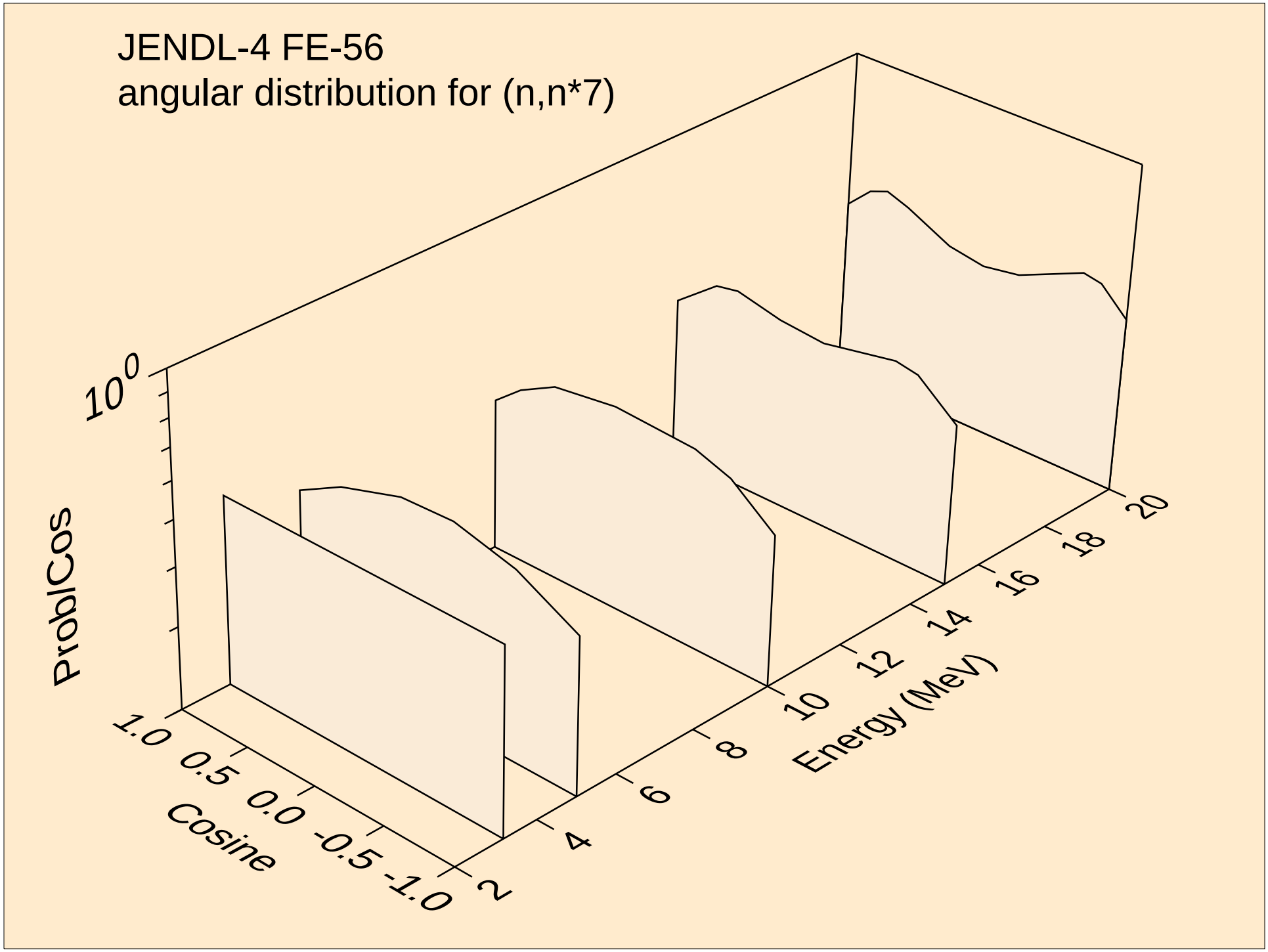

JENDL-4 FE-56
angular distribution for (n,n*2)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

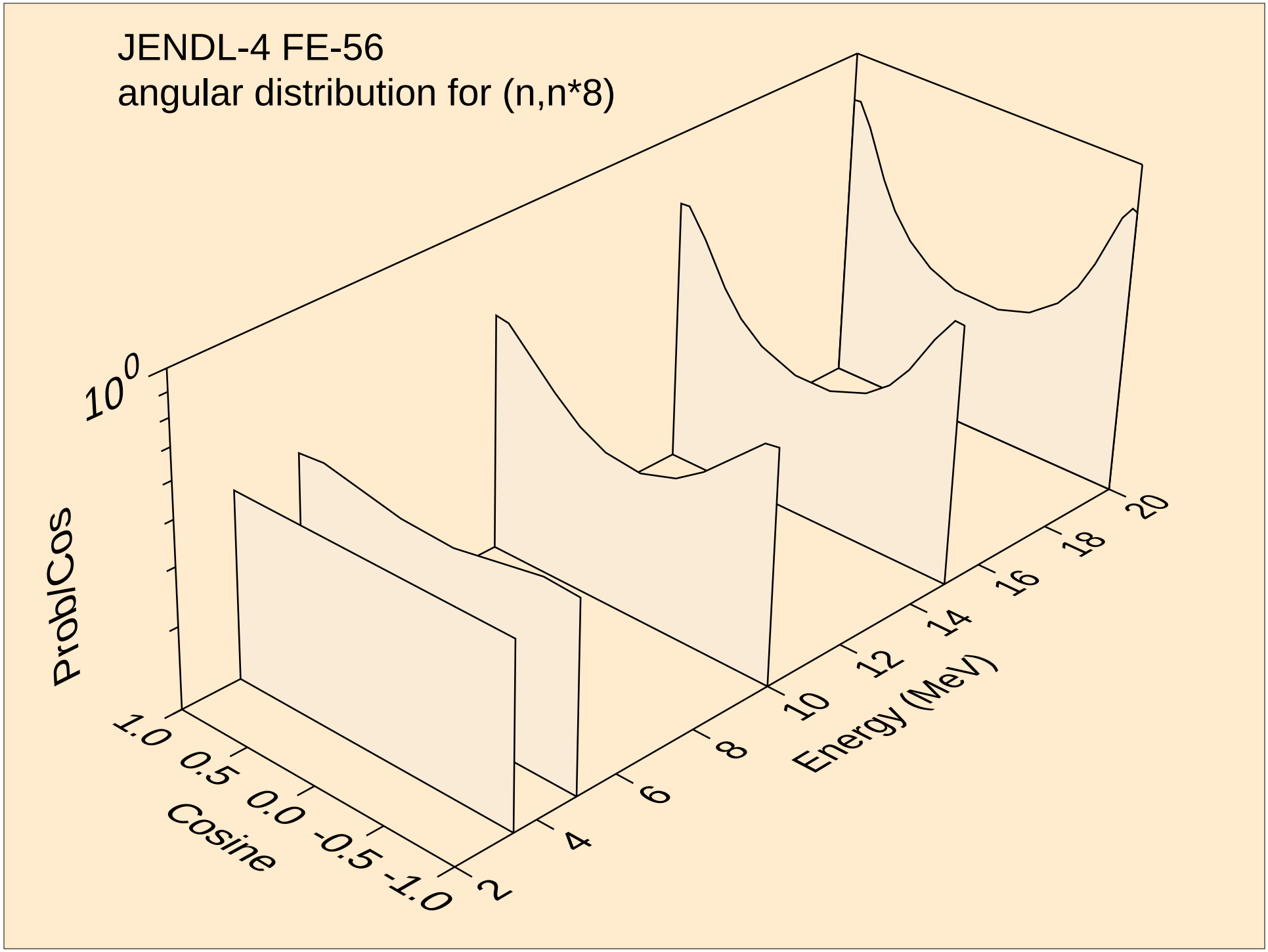

JENDL-4 FE-56
angular distribution for (n,n*3)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

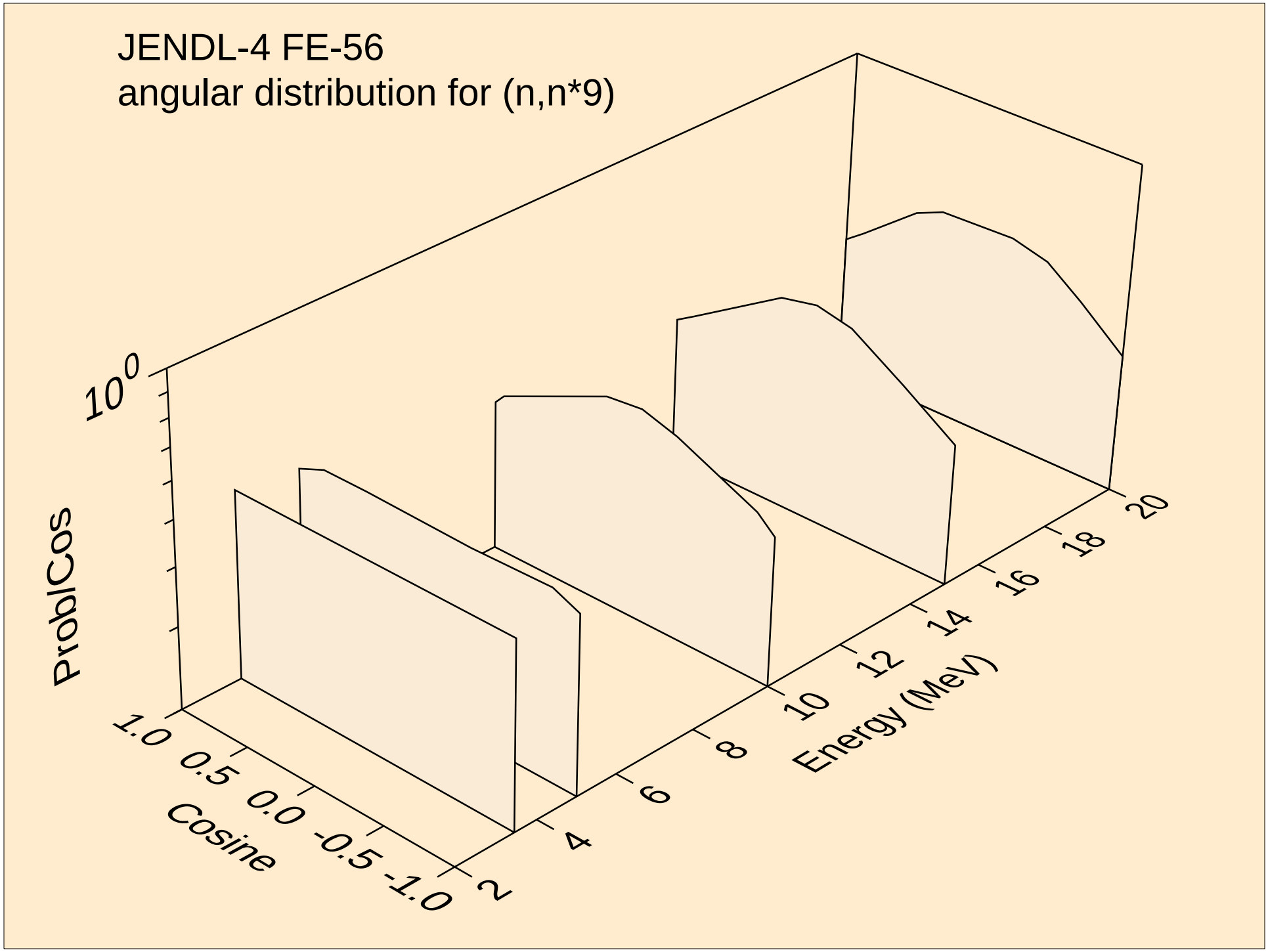

JENDL-4 FE-56
angular distribution for (n,n*4)
ProbCos
10^{1}
10^{0}
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

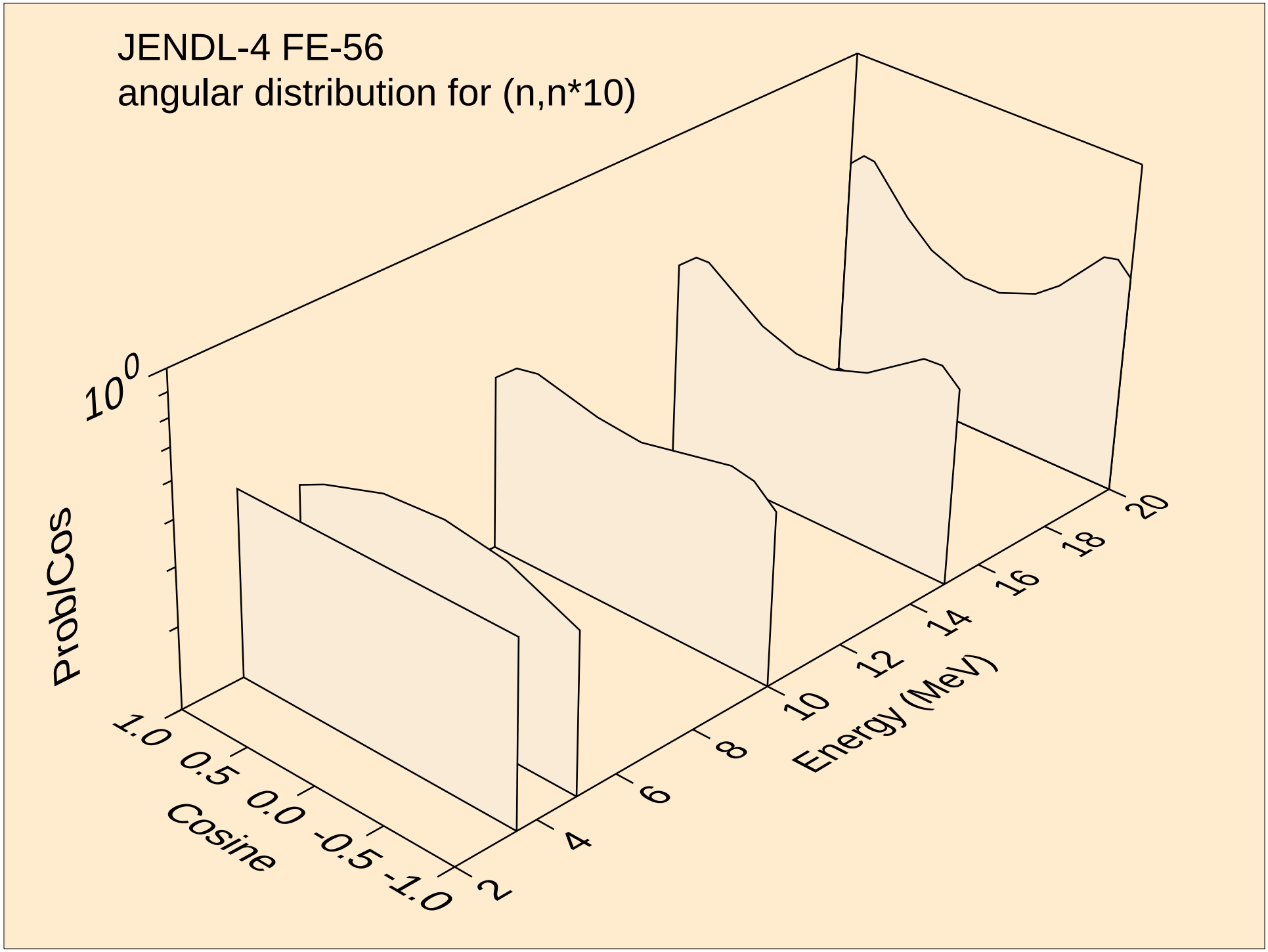

JENDL-4 FE-56
angular distribution for (n,n*5)
10^0
Prob/Cos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

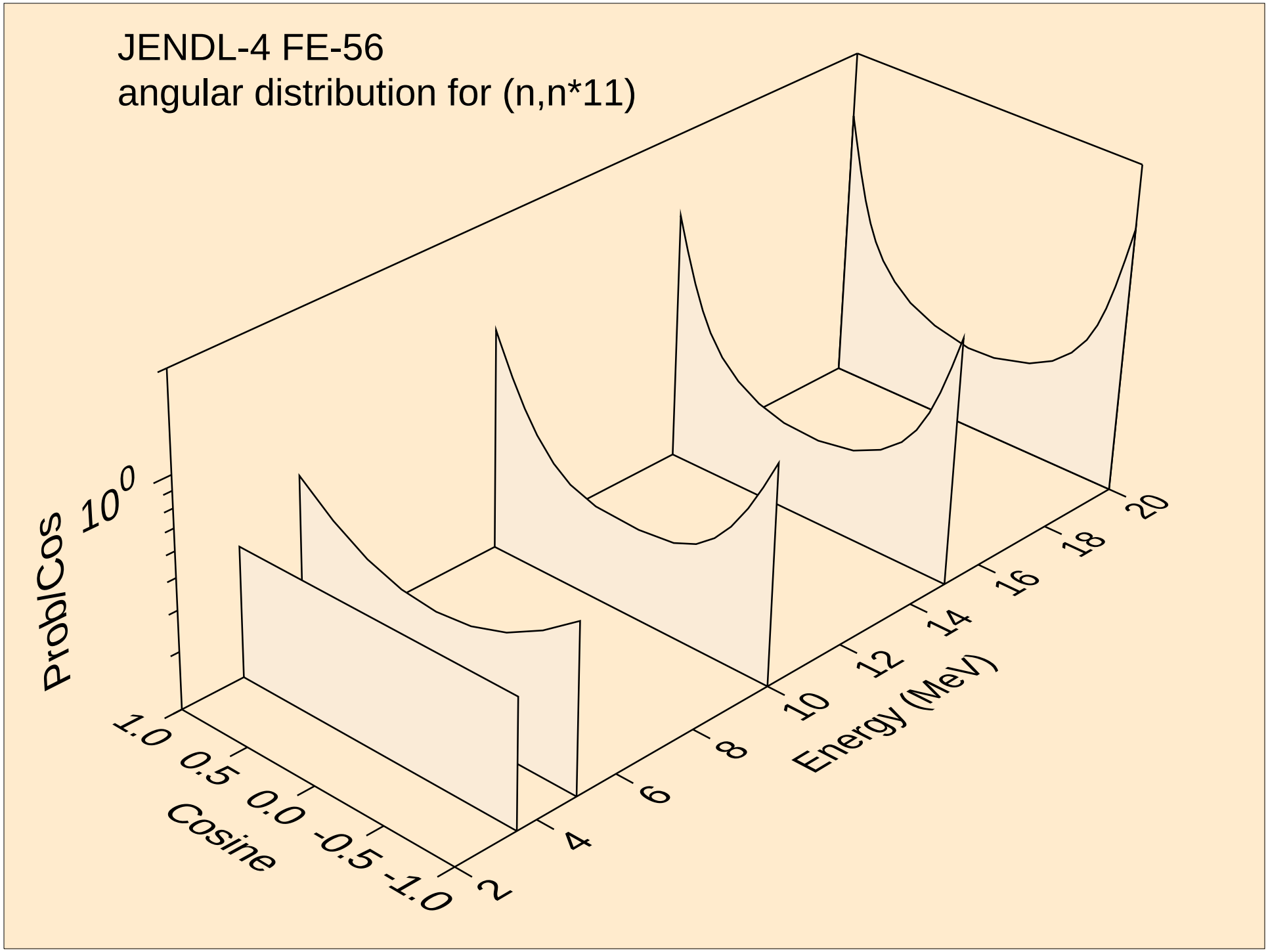

JENDL-4 FE-56
angular distribution for (n,n*6)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

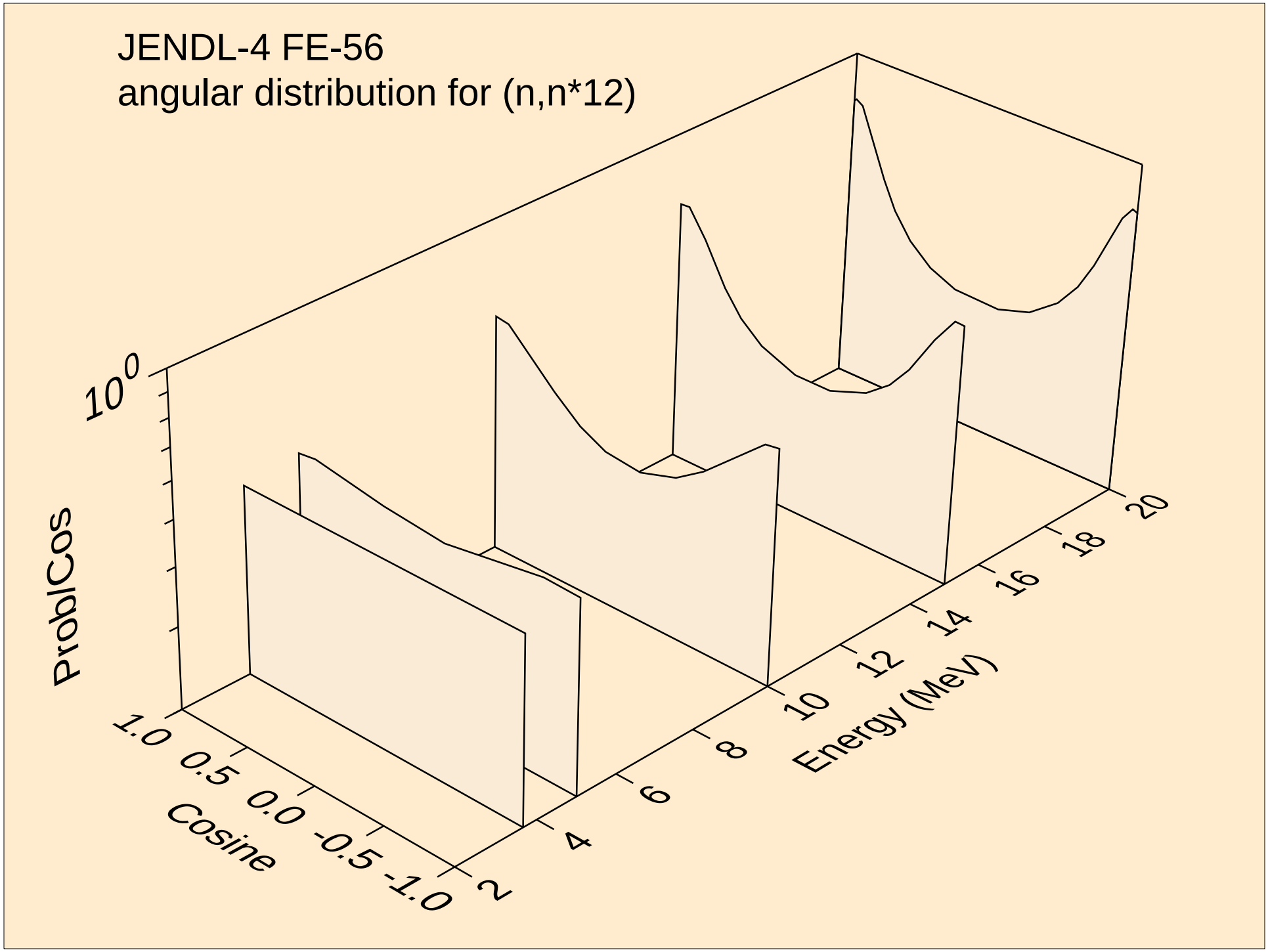

JENDL-4 FE-56
angular distribution for (n,n*7)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

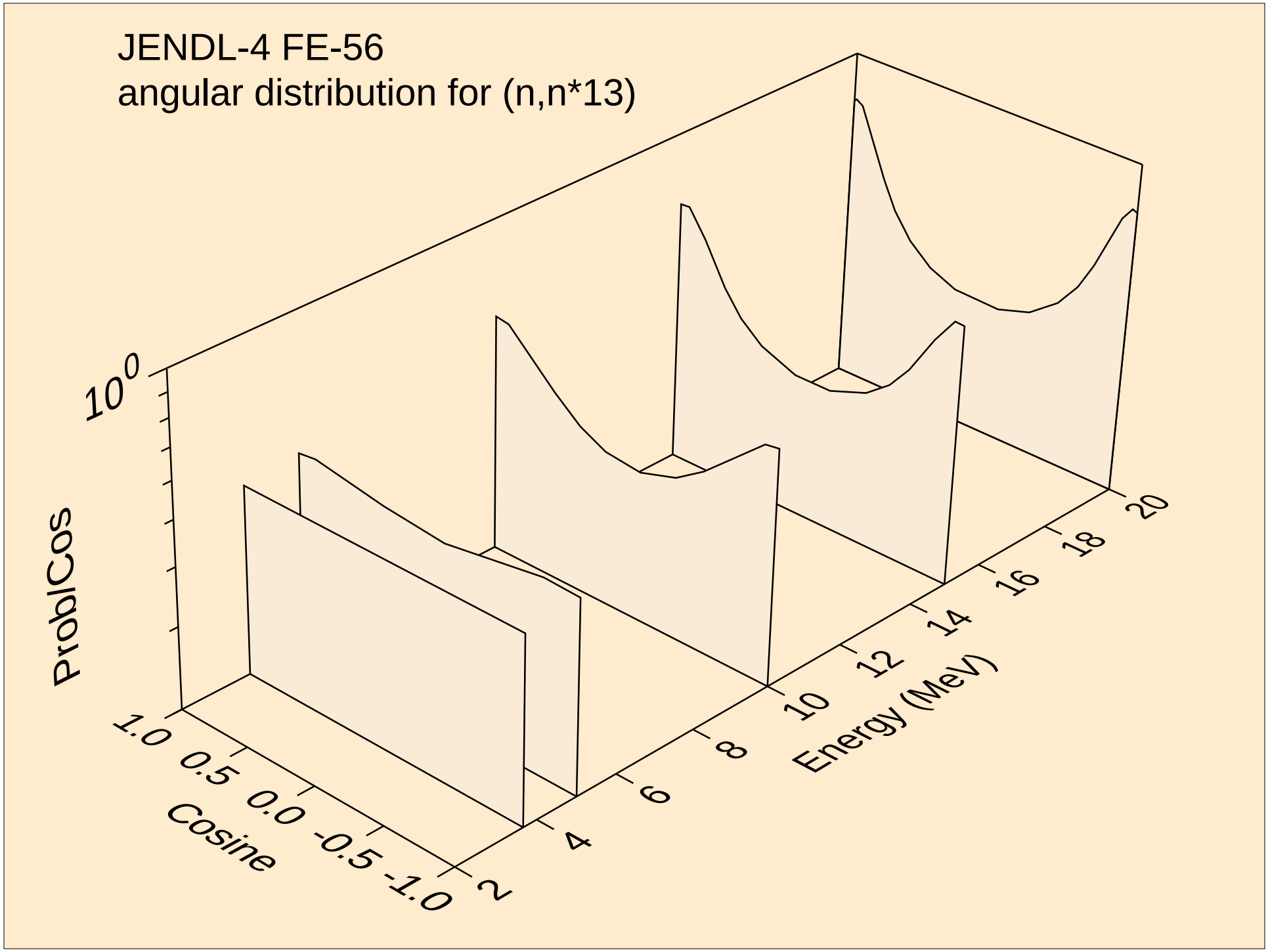

JENDL-4 FE-56
angular distribution for (n,n*8)
10^0
Prob/Cos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

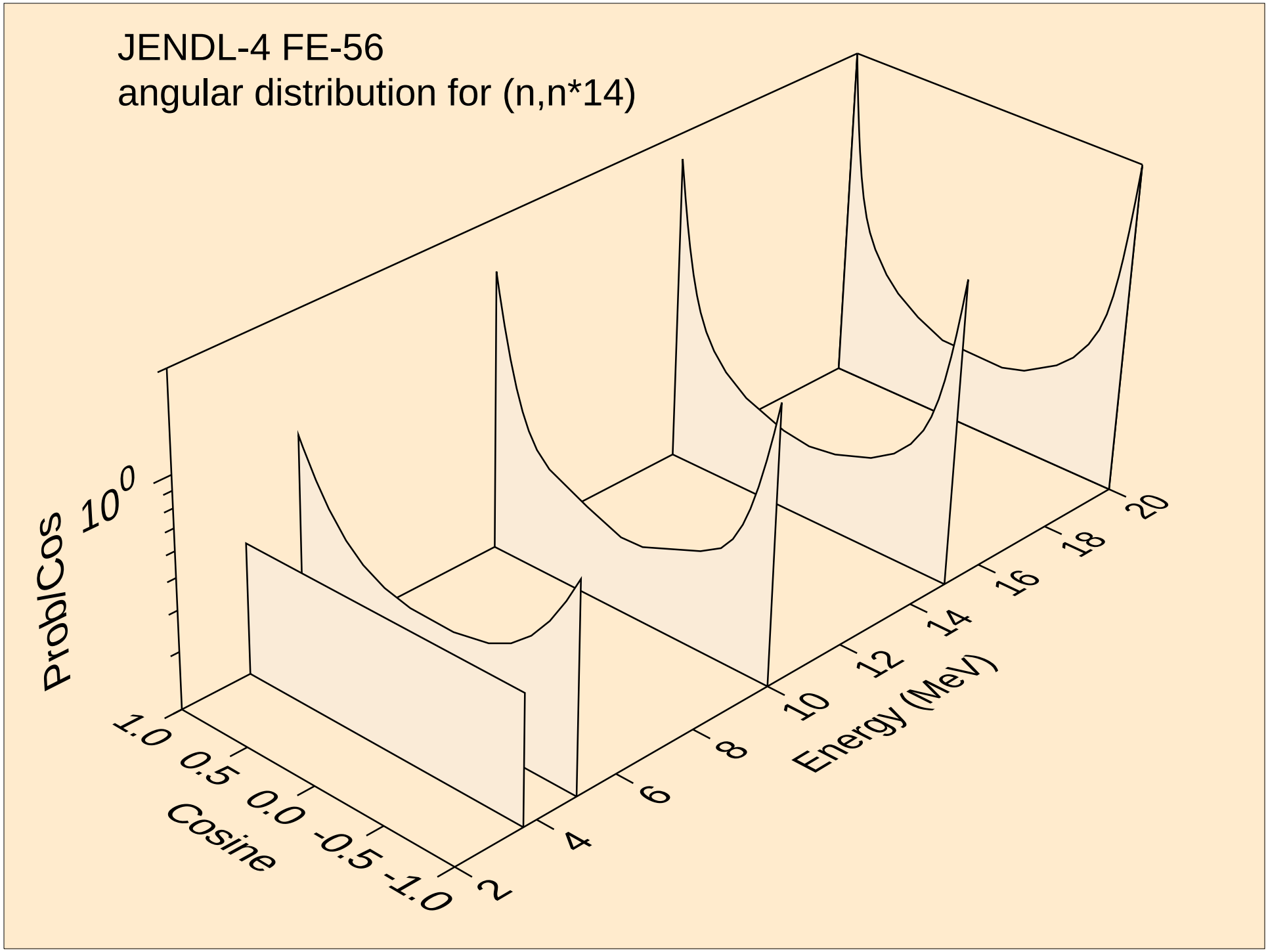

JENDL-4 FE-56
angular distribution for (n,n*9)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

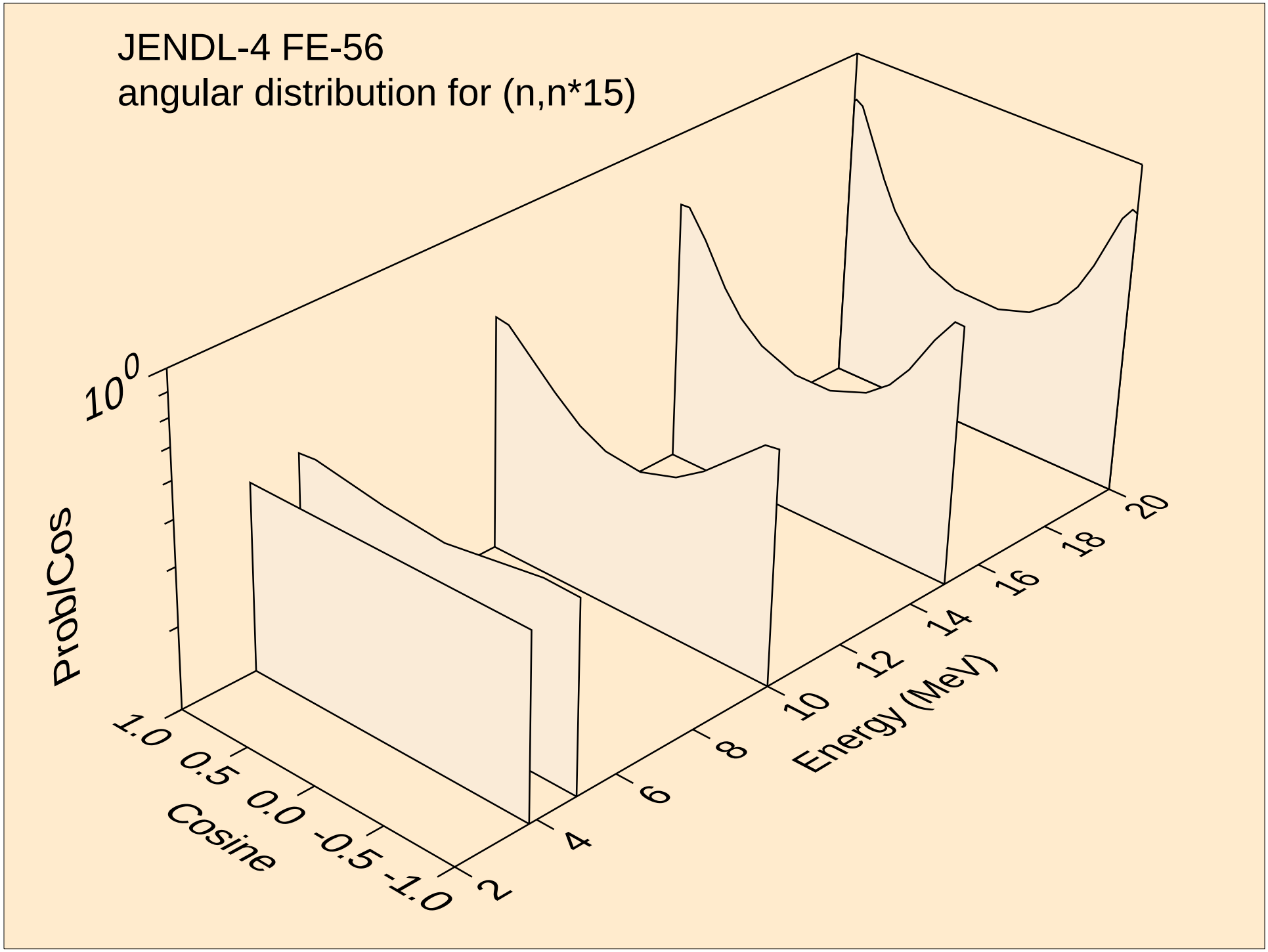

JENDL-4 FE-56
angular distribution for (n,n*10)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

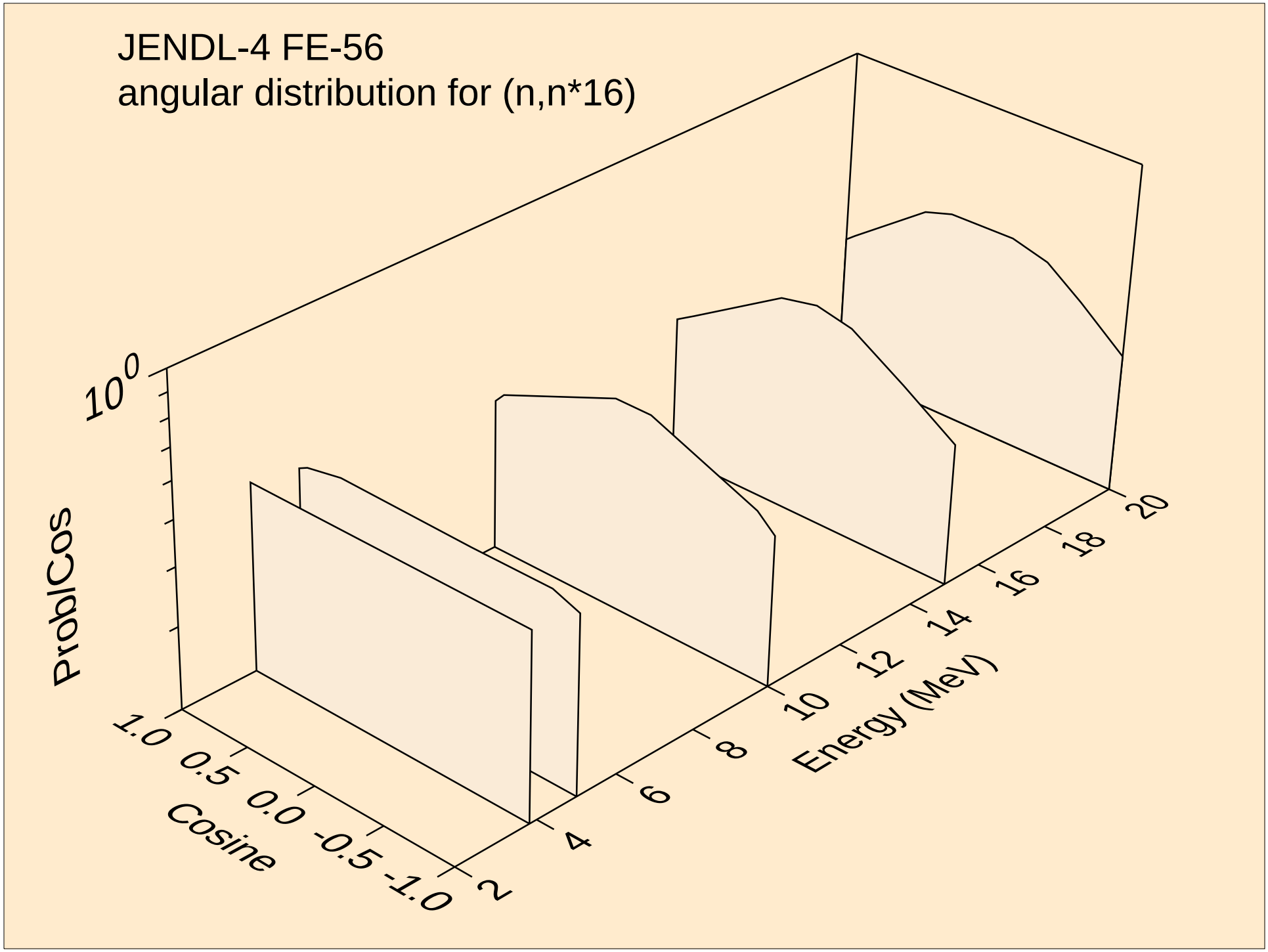

JENDL-4 FE-56
angular distribution for (n,n*11)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

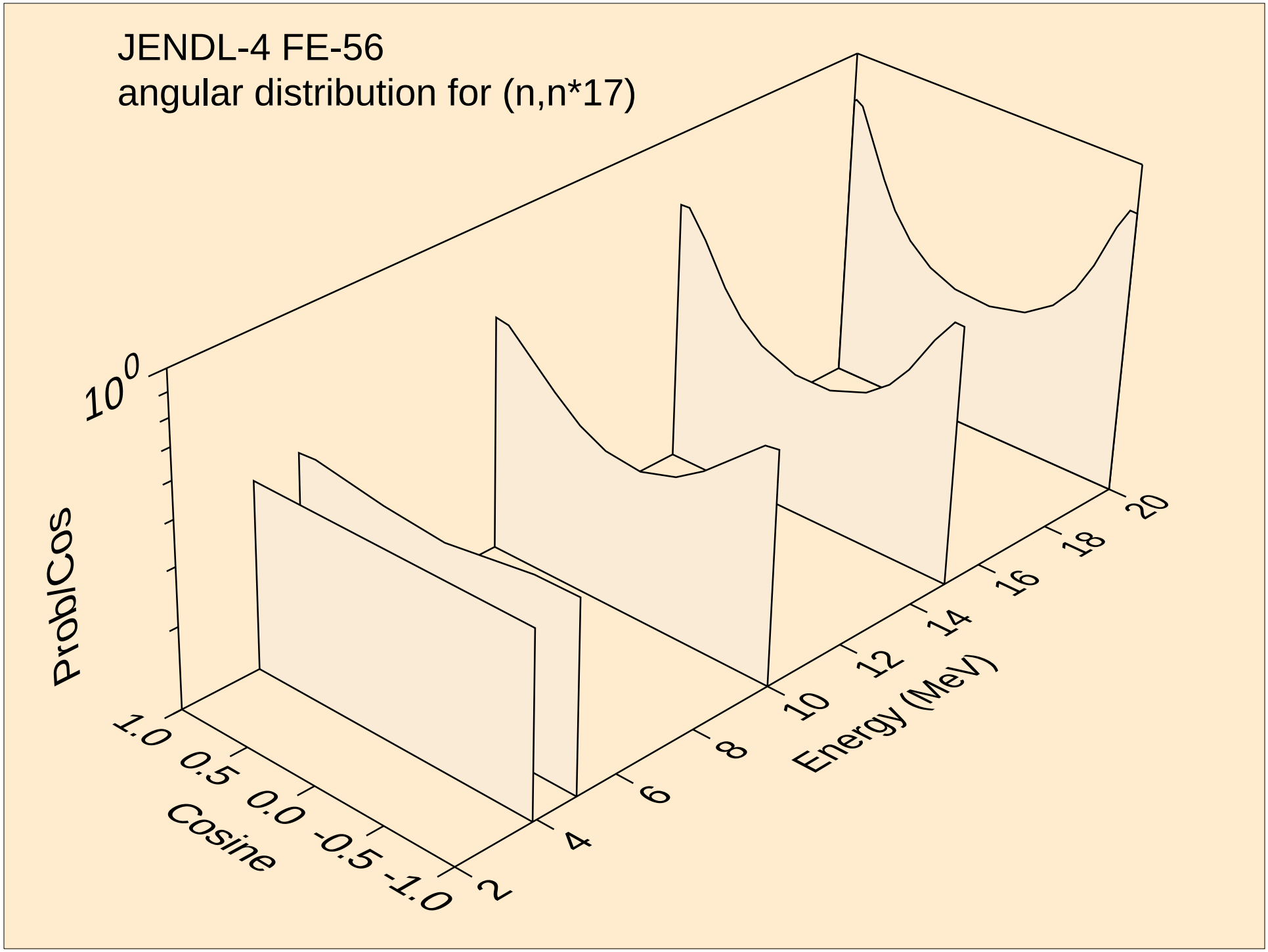

JENDL-4 FE-56
angular distribution for (n,n*12)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

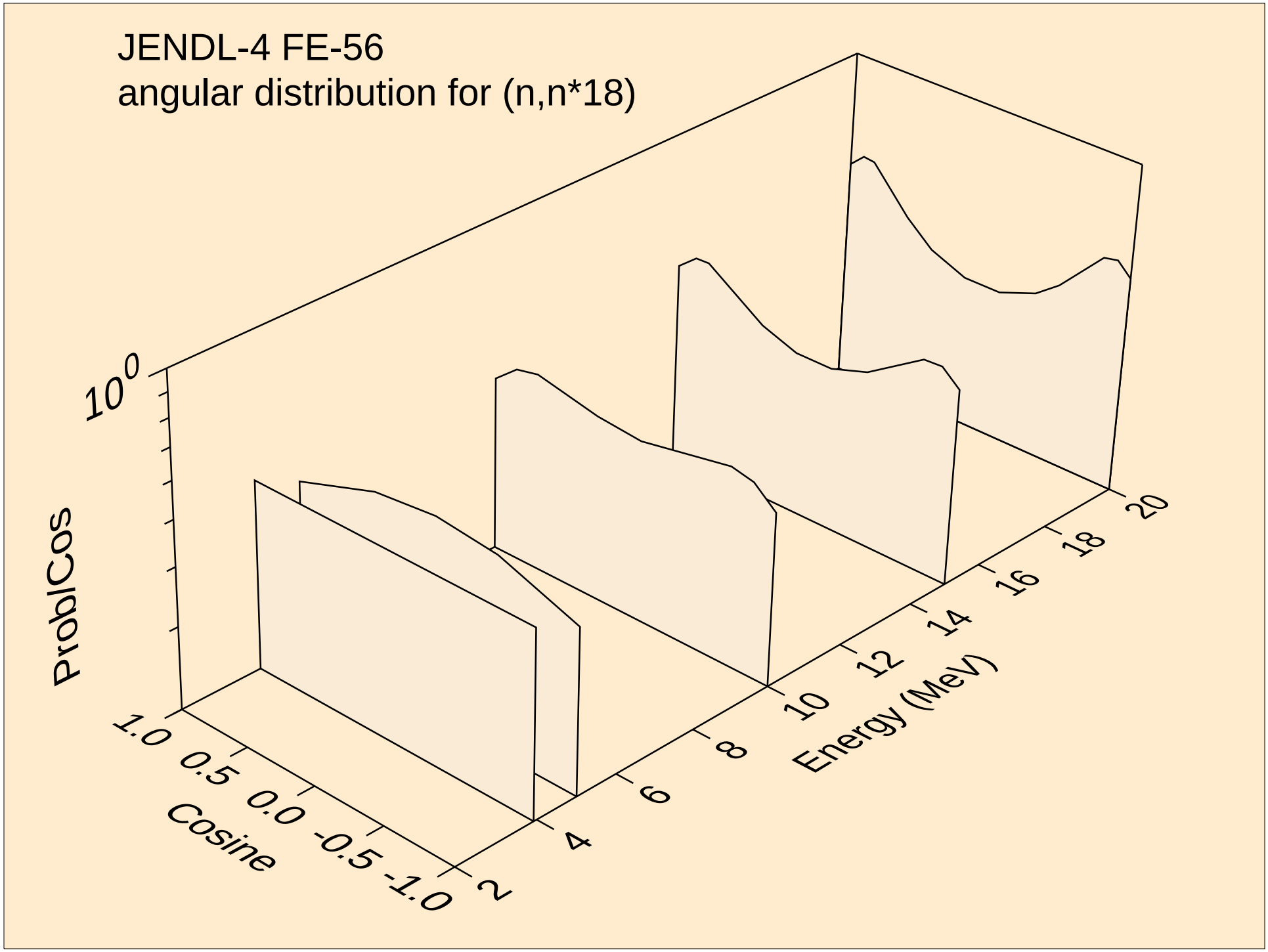

JENDL-4 FE-56
angular distribution for (n,n*13)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

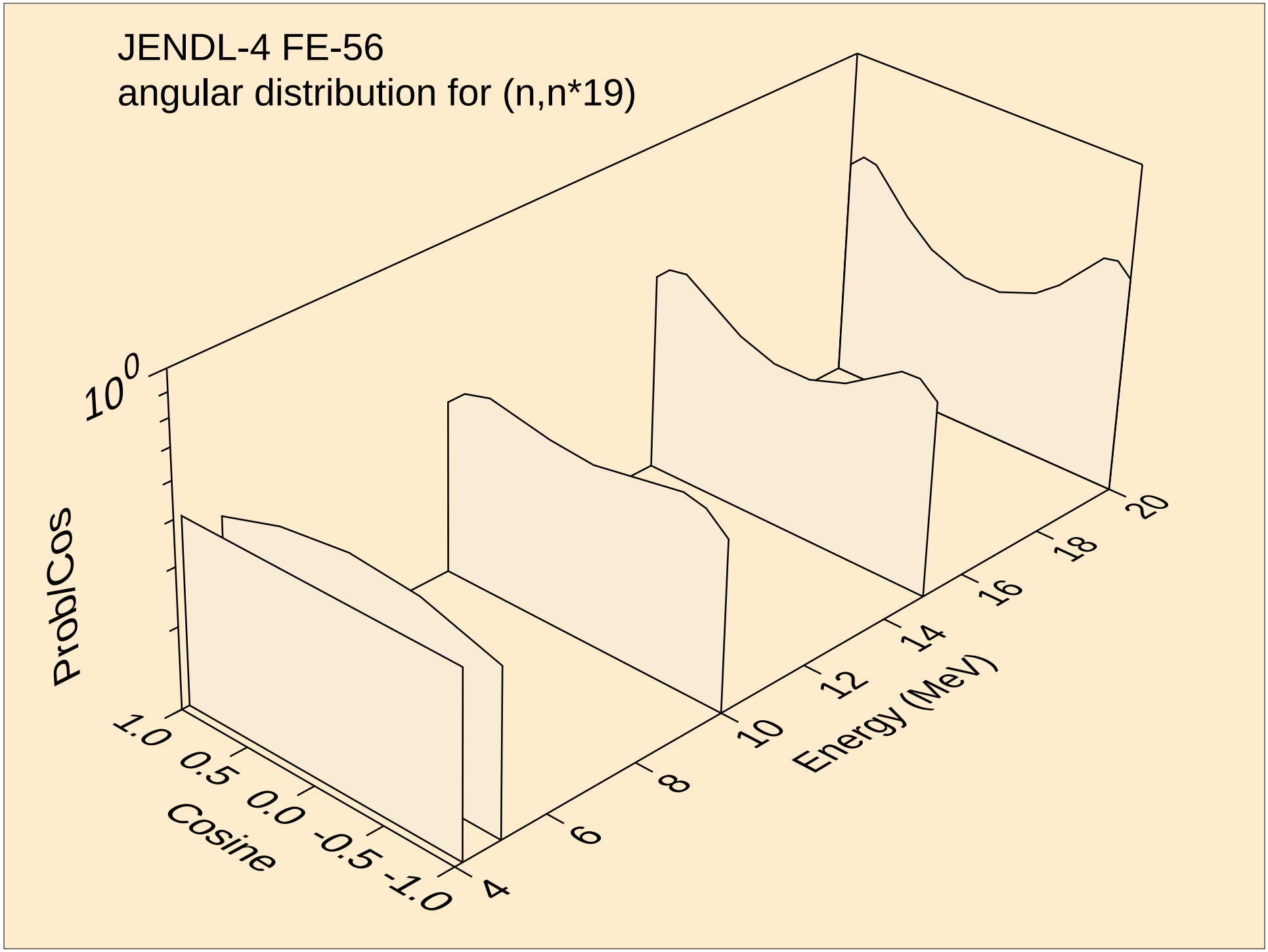

JENDL-4 FE-56
angular distribution for (n,n*14)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

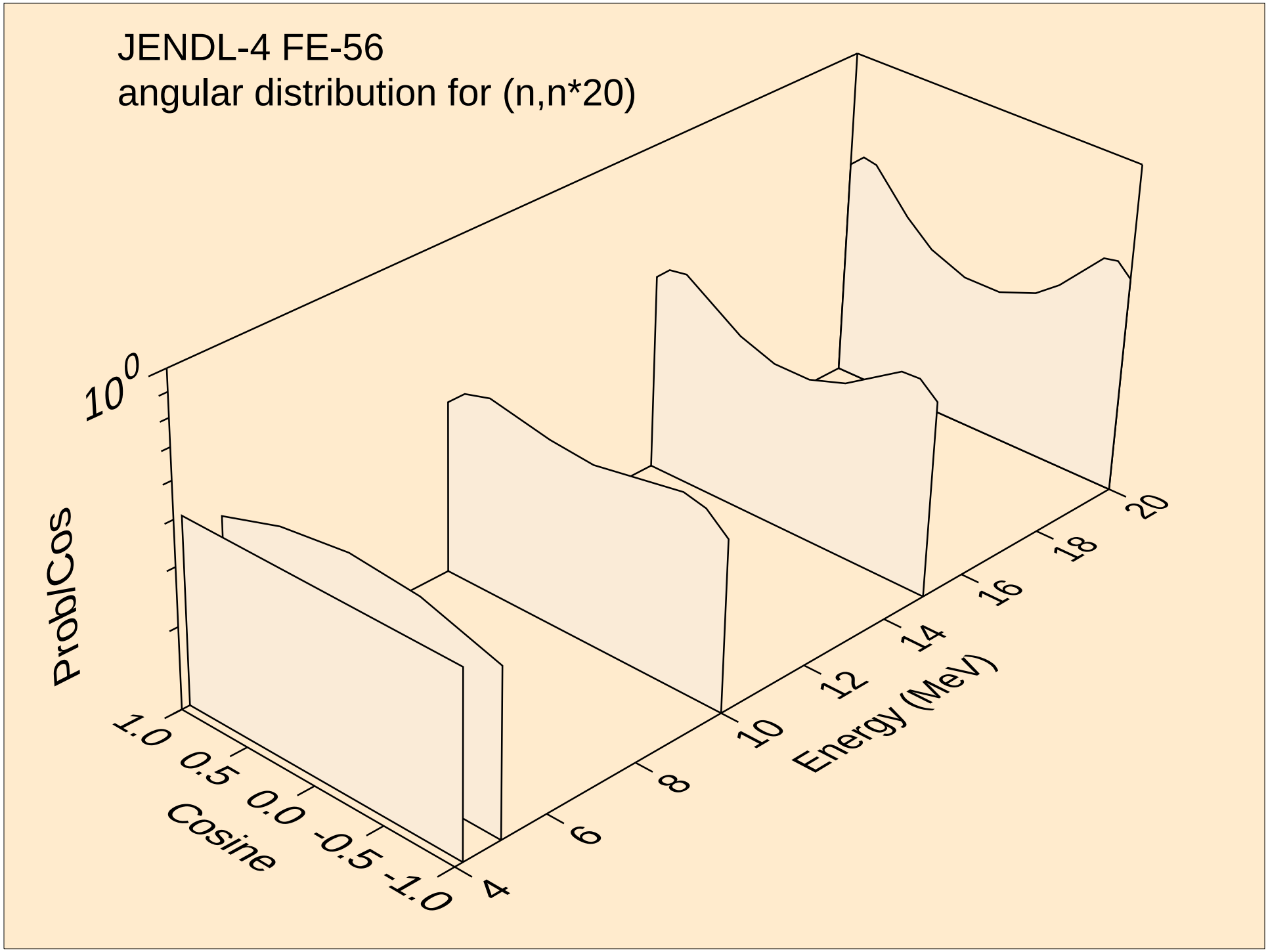

JENDL-4 FE-56
angular distribution for (n,n*15)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

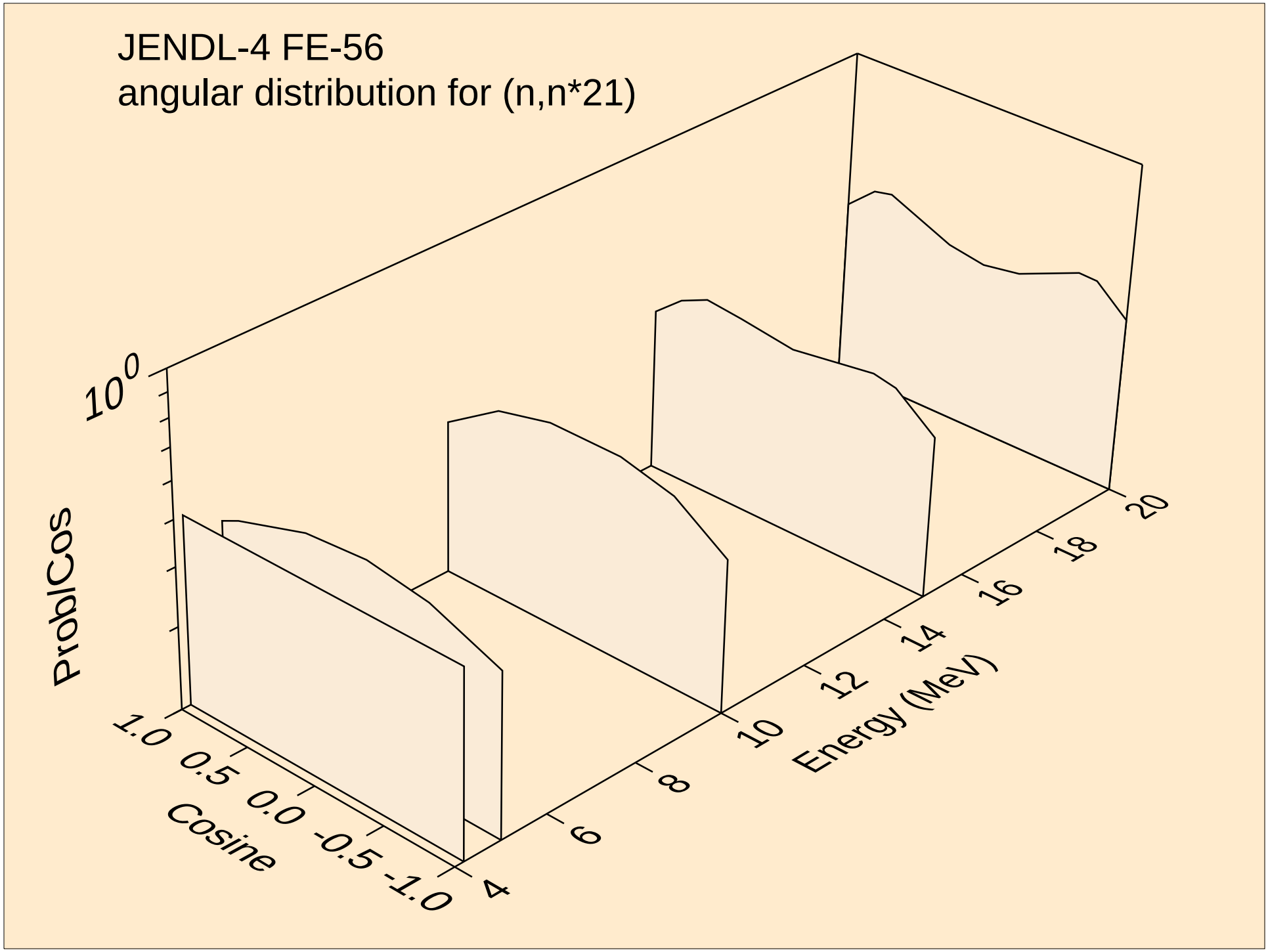

JENDL-4 FE-56
angular distribution for (n,n*16)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

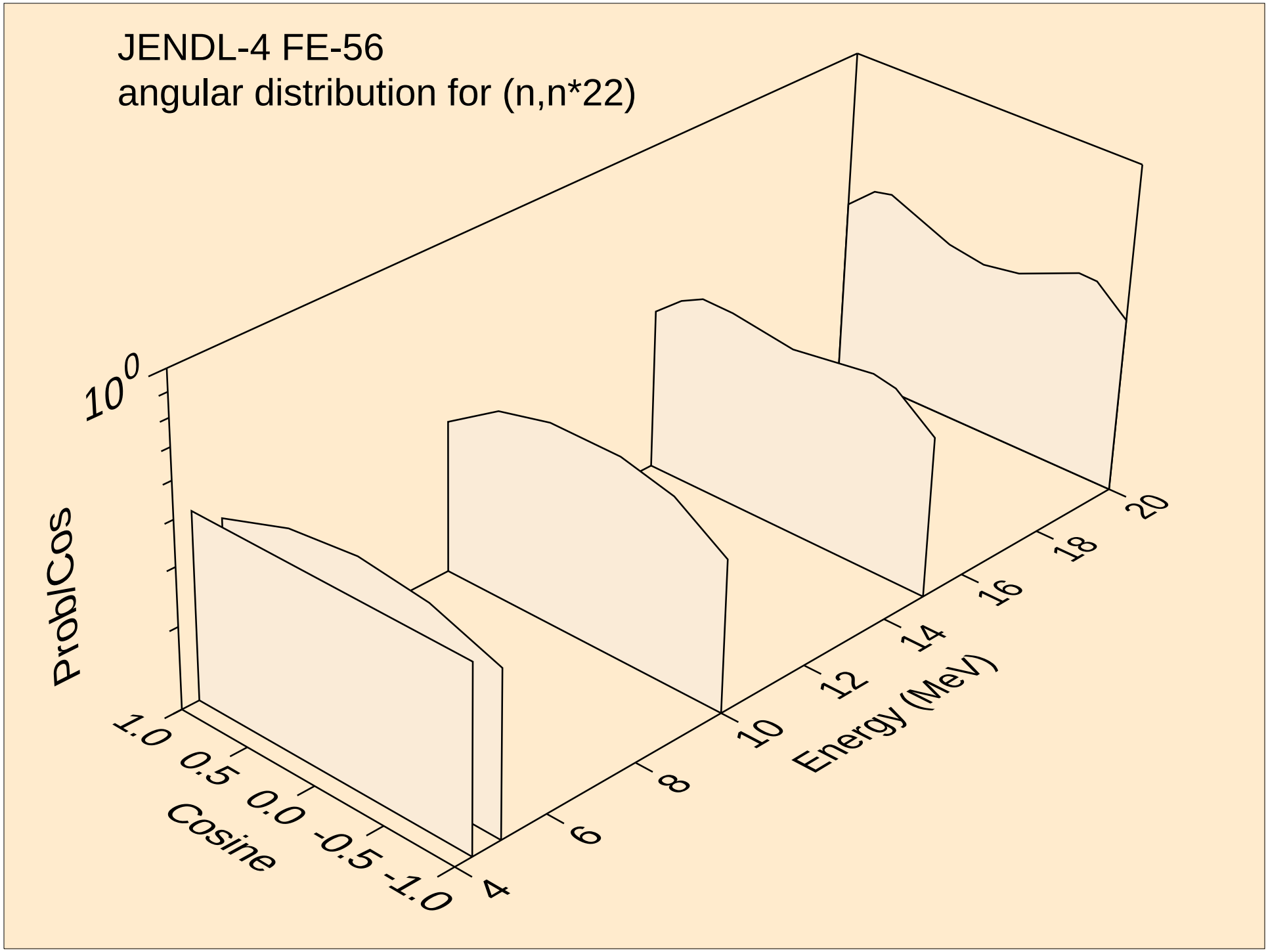

JENDL-4 FE-56
angular distribution for (n,n*17)
10^0
Prob/Cos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

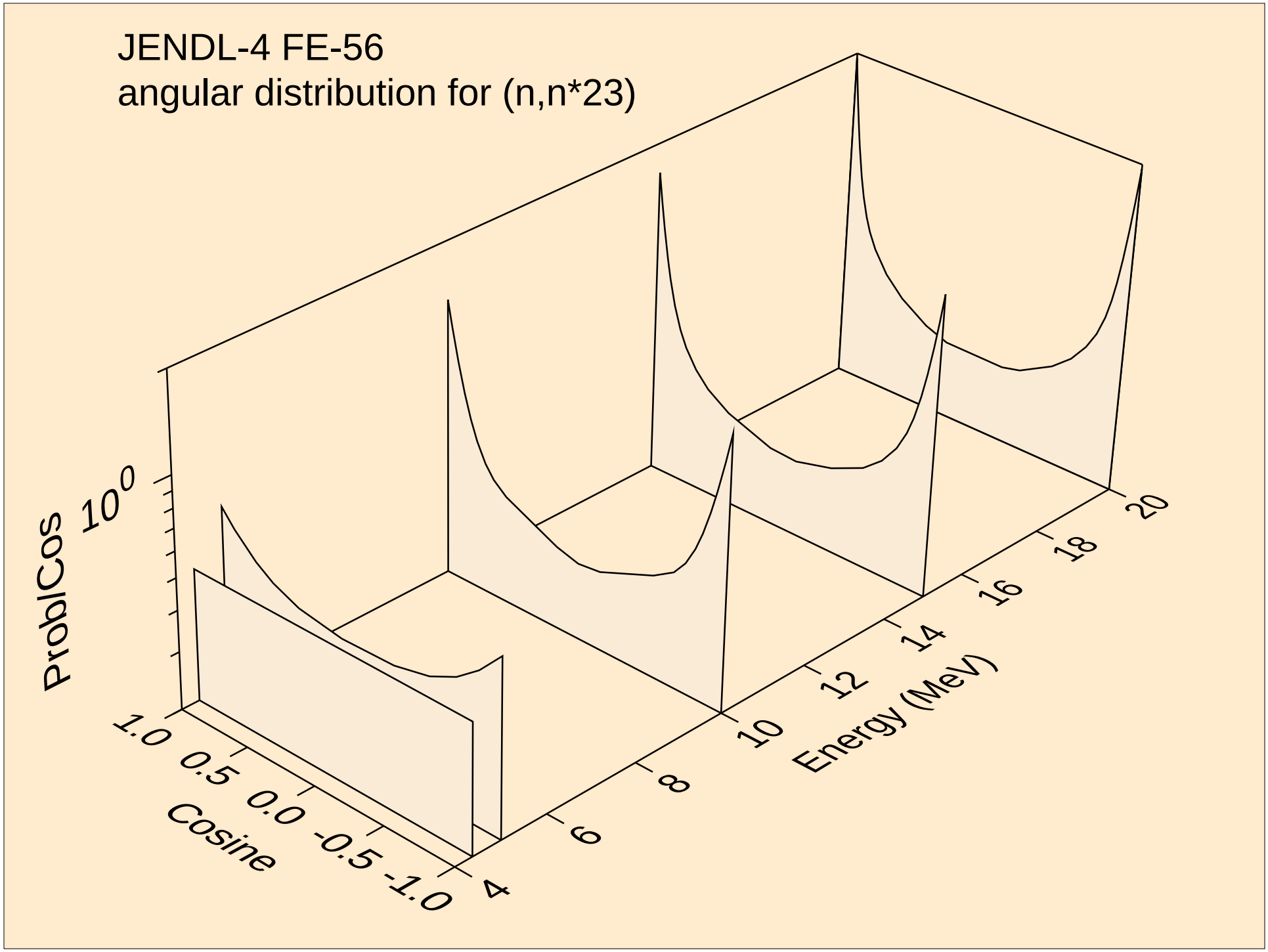

JENDL-4 FE-56
angular distribution for (n,n*18)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

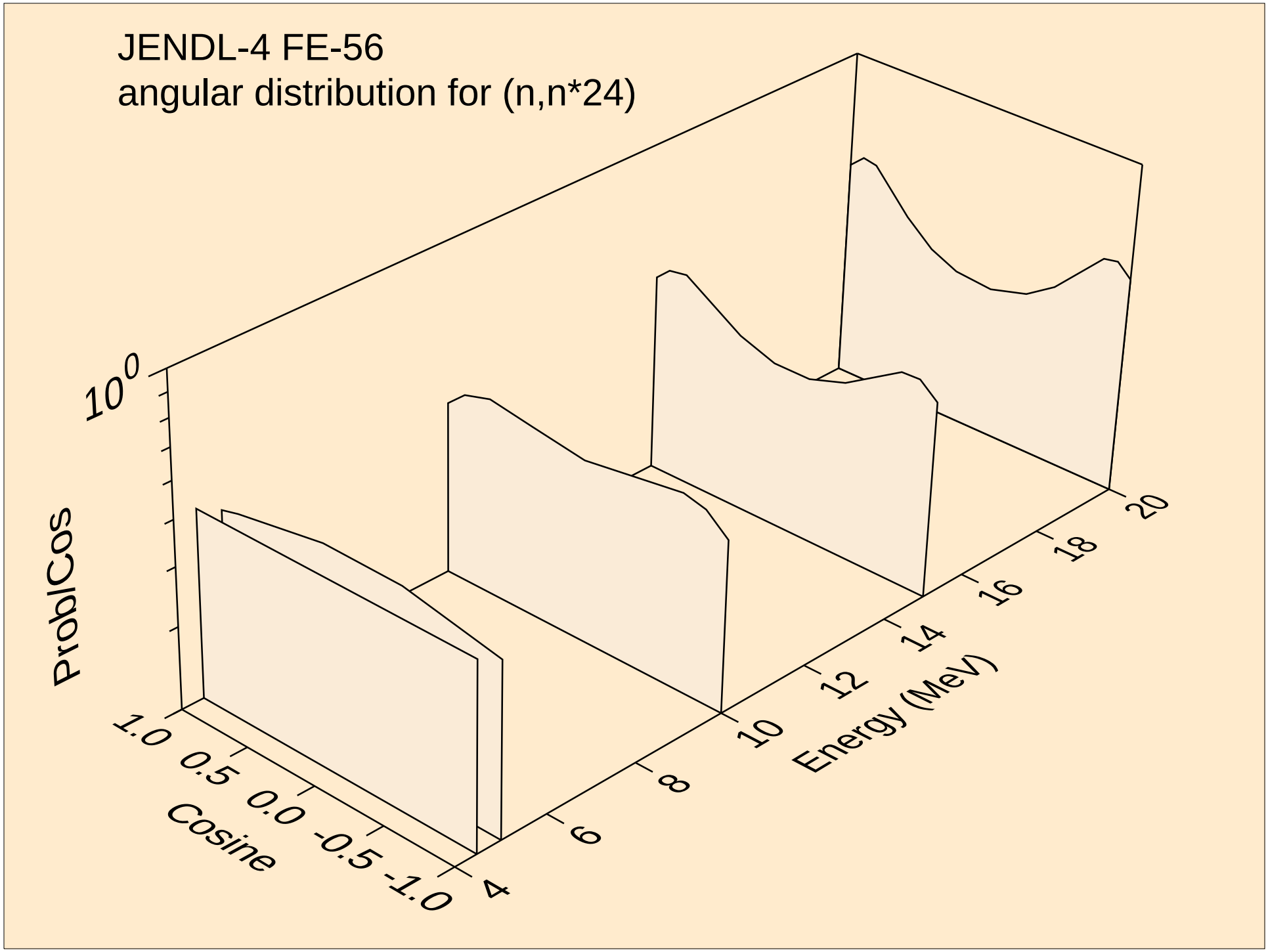

JENDL-4 FE-56
angular distribution for (n,n*19)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

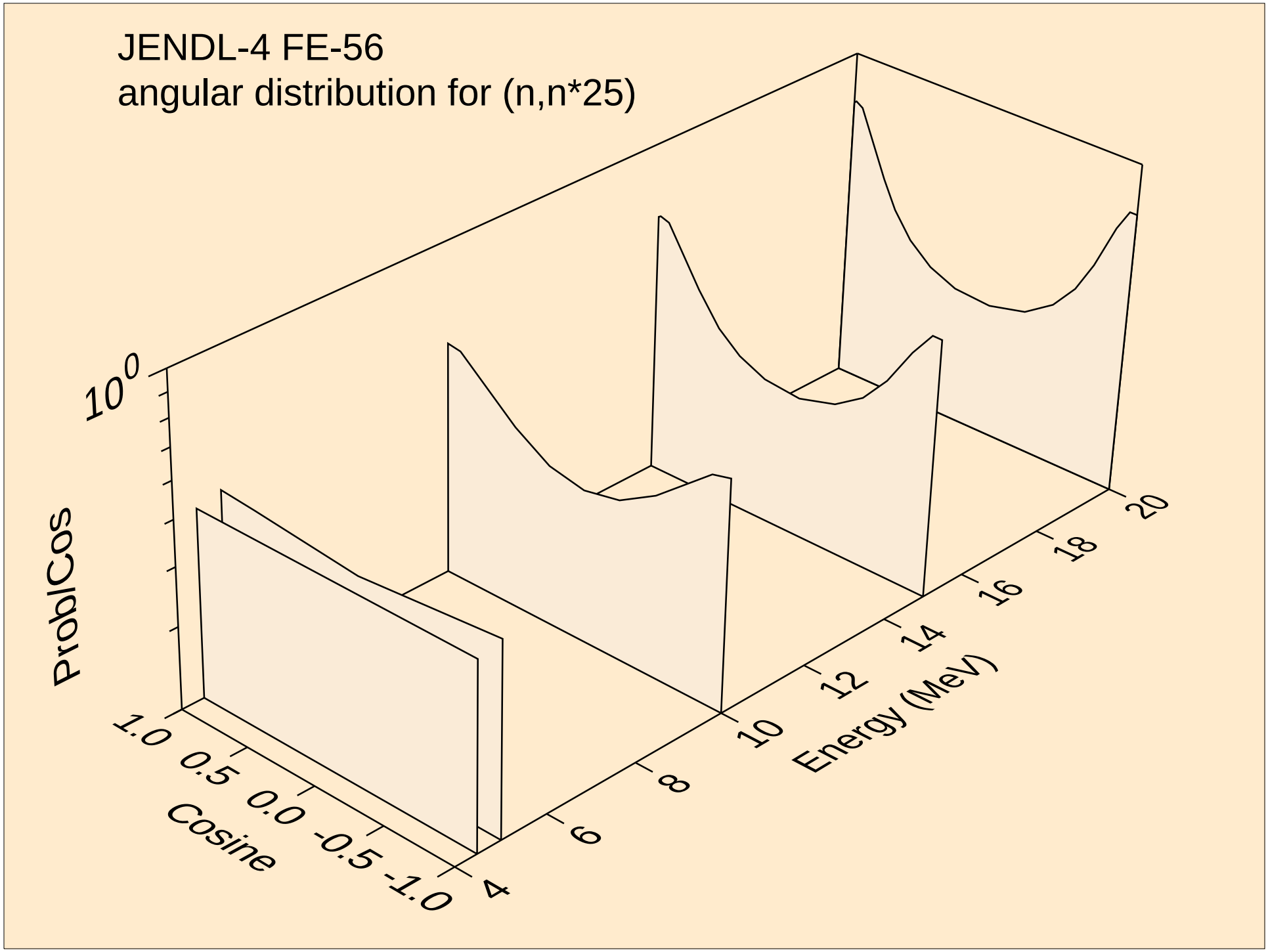

JENDL-4 FE-56
angular distribution for (n,n*20)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

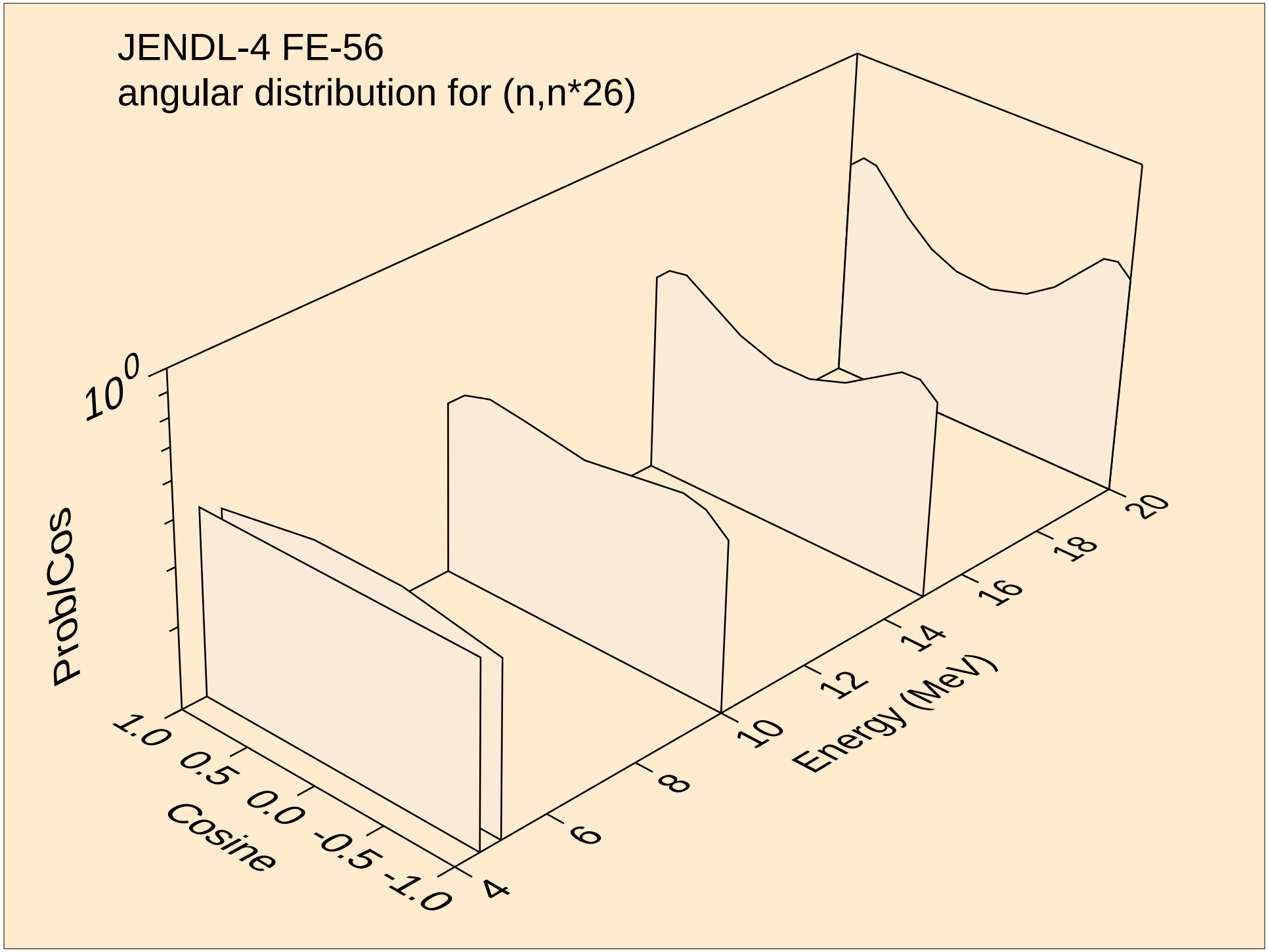

JENDL-4 FE-56
angular distribution for (n,n*21)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

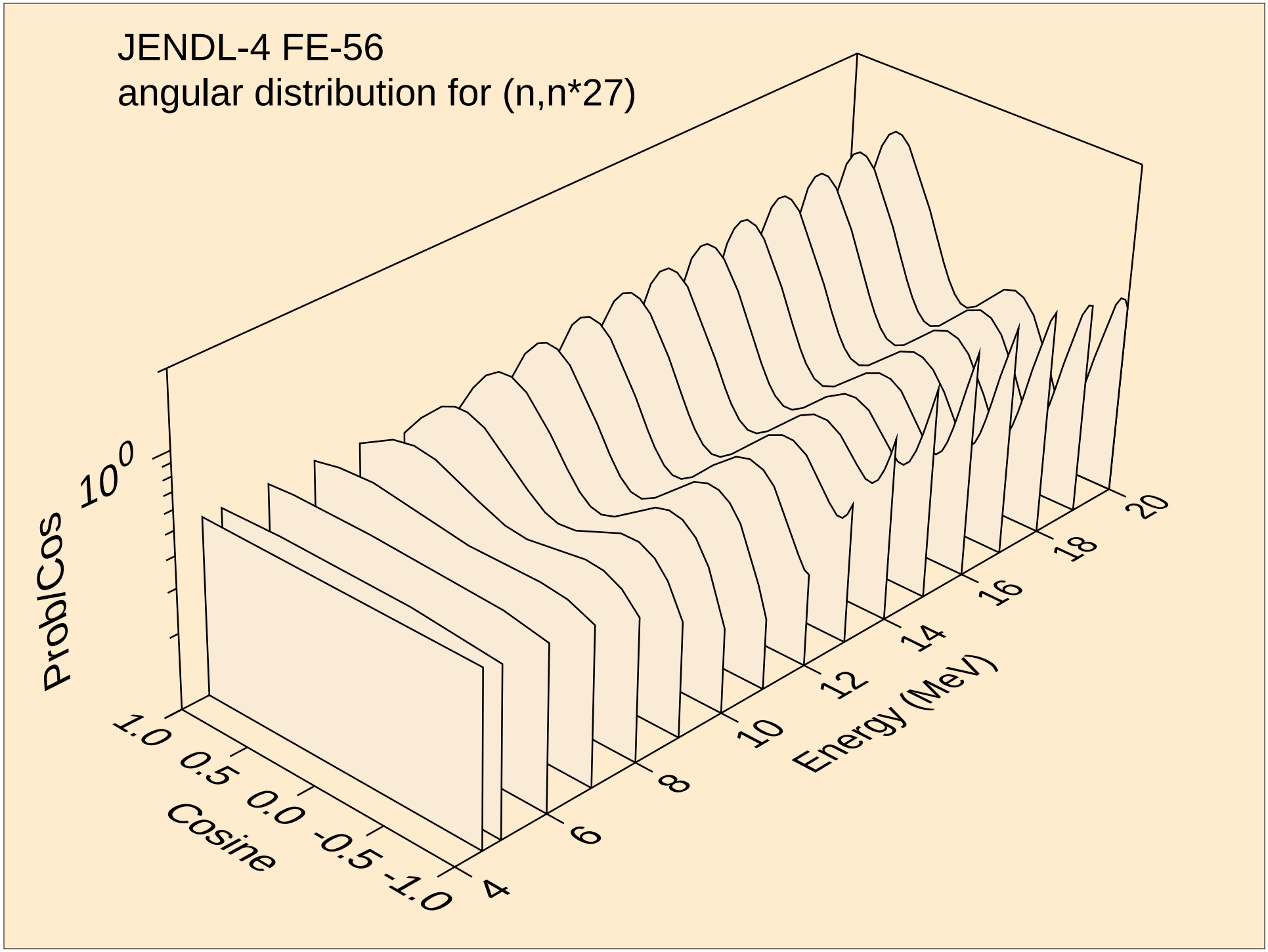

JENDL-4 FE-56
angular distribution for (n,n*22)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

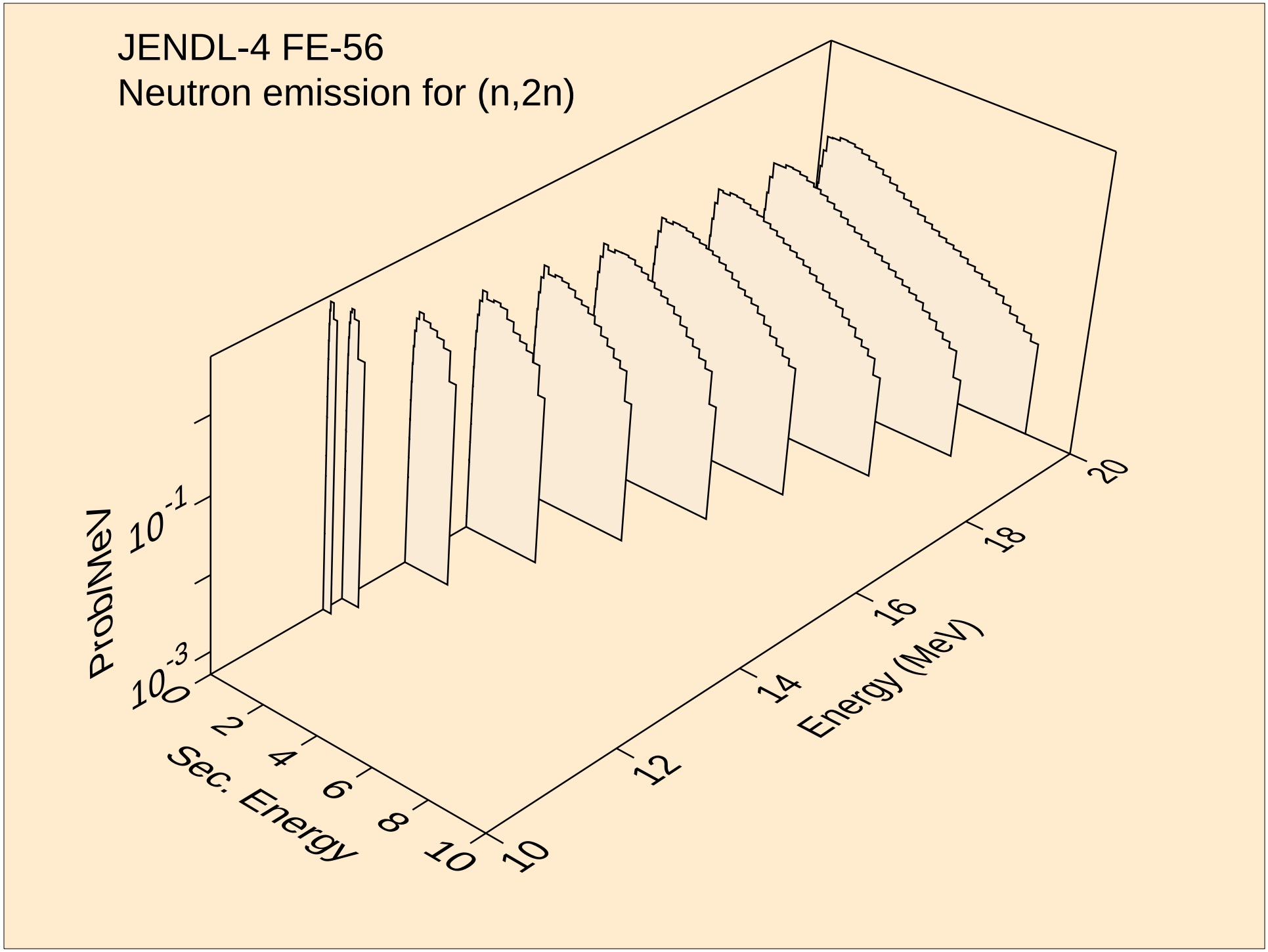

JENDL-4 FE-56
angular distribution for (n,n*23)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 FE-56
angular distribution for (n,n*24)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

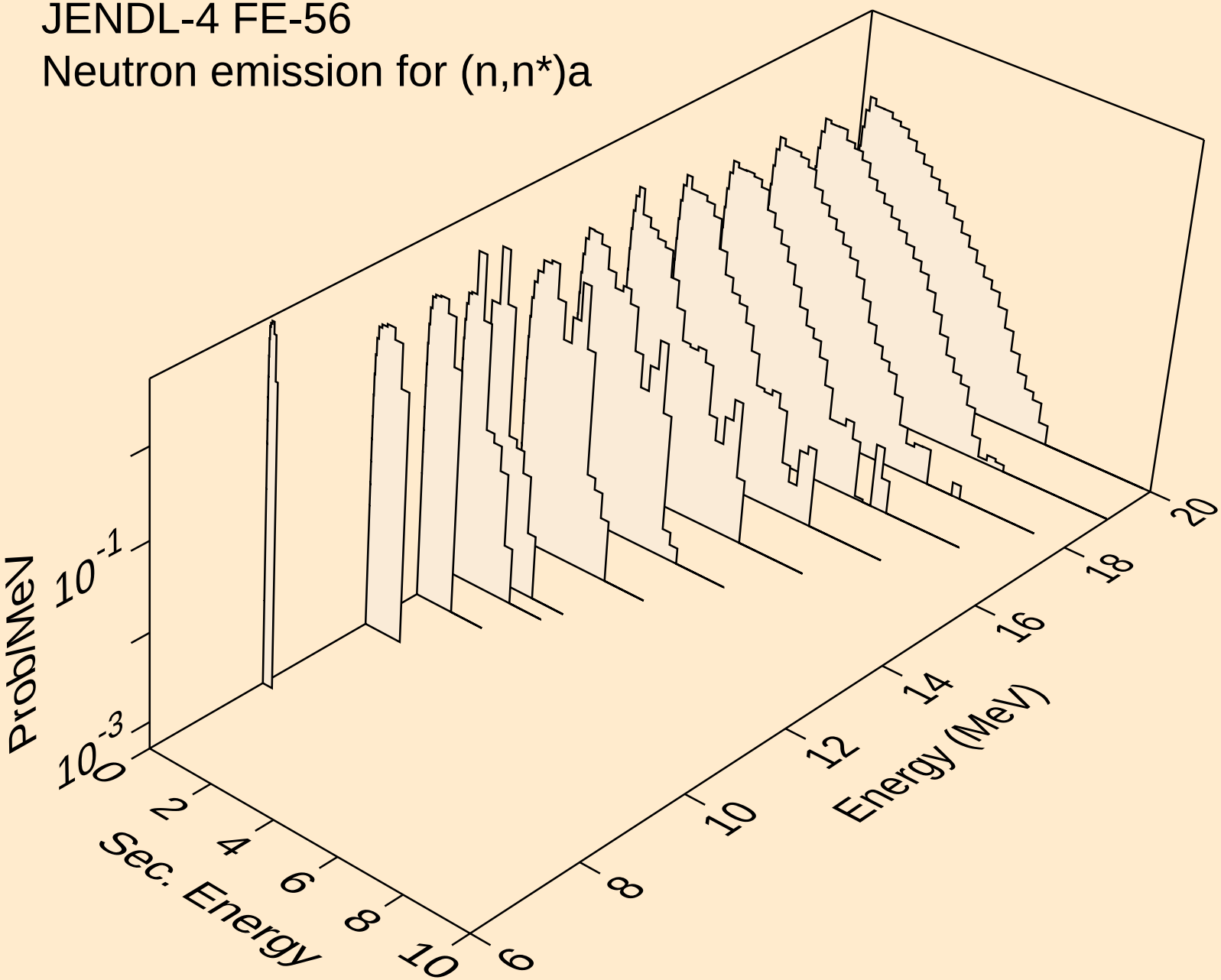

JENDL-4 FE-56
angular distribution for (n,n*25)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

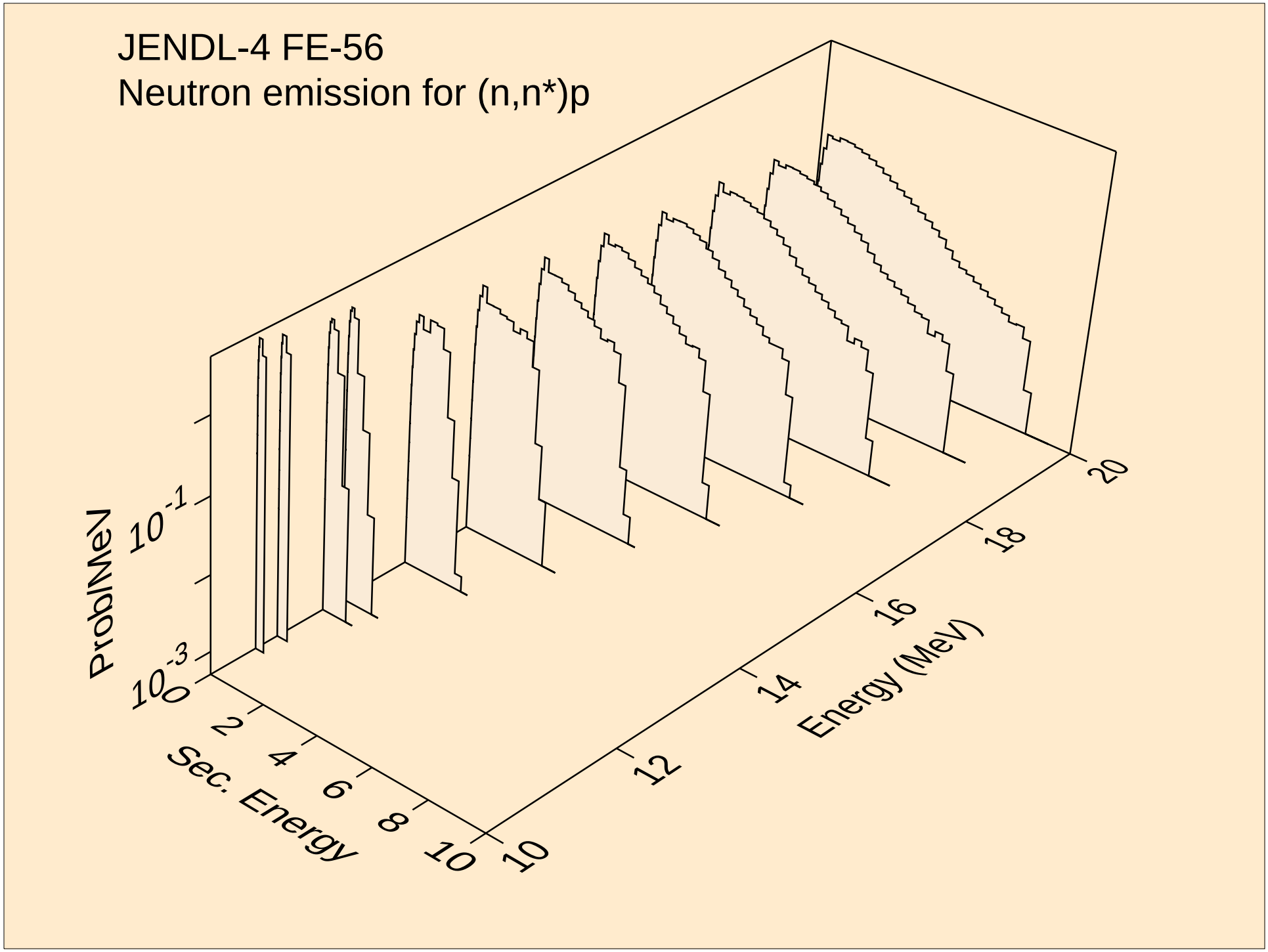

JENDL-4 FE-56
angular distribution for (n,n*26)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

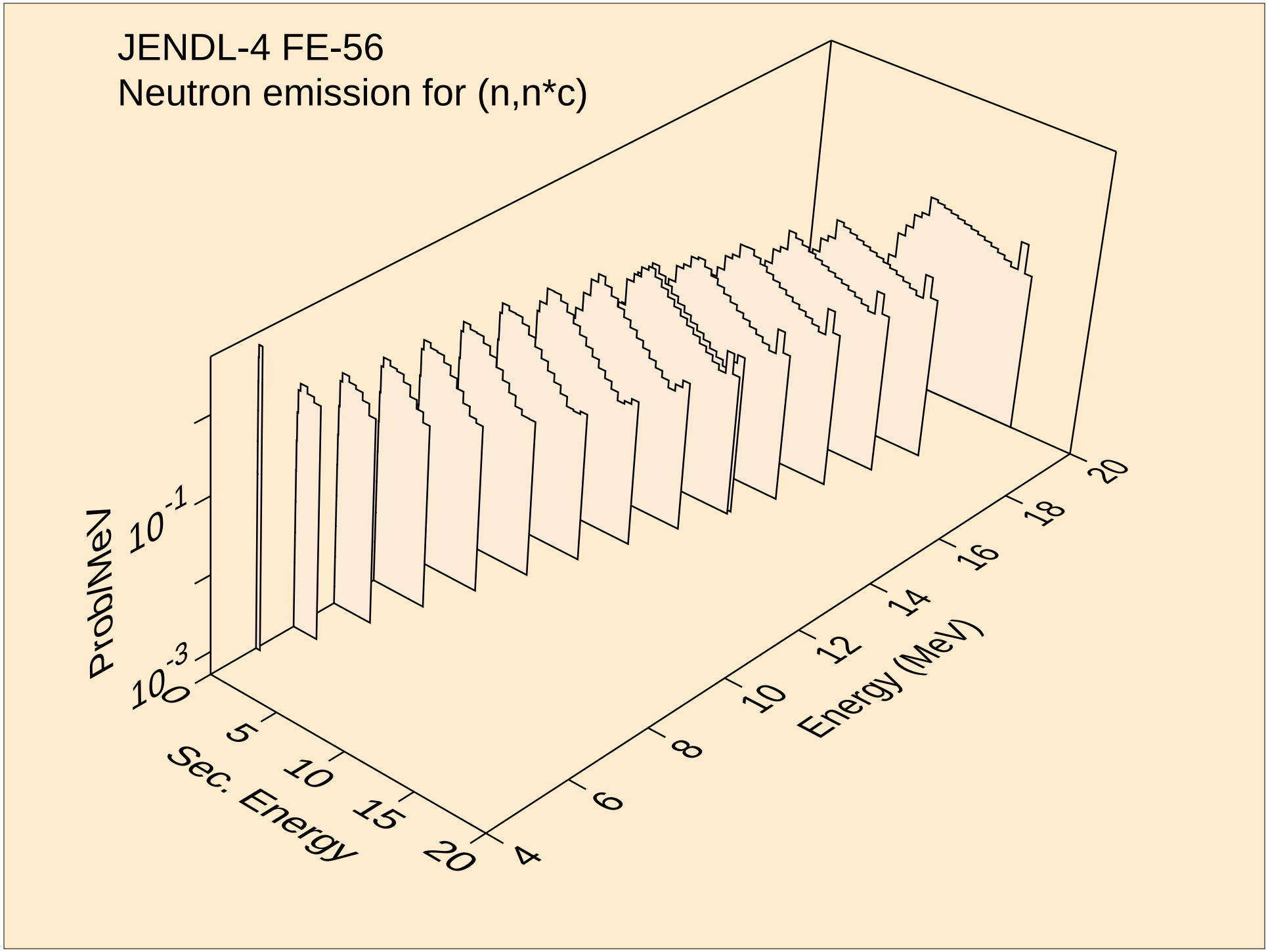

JENDL-4 FE-56
angular distribution for (n,n*27)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

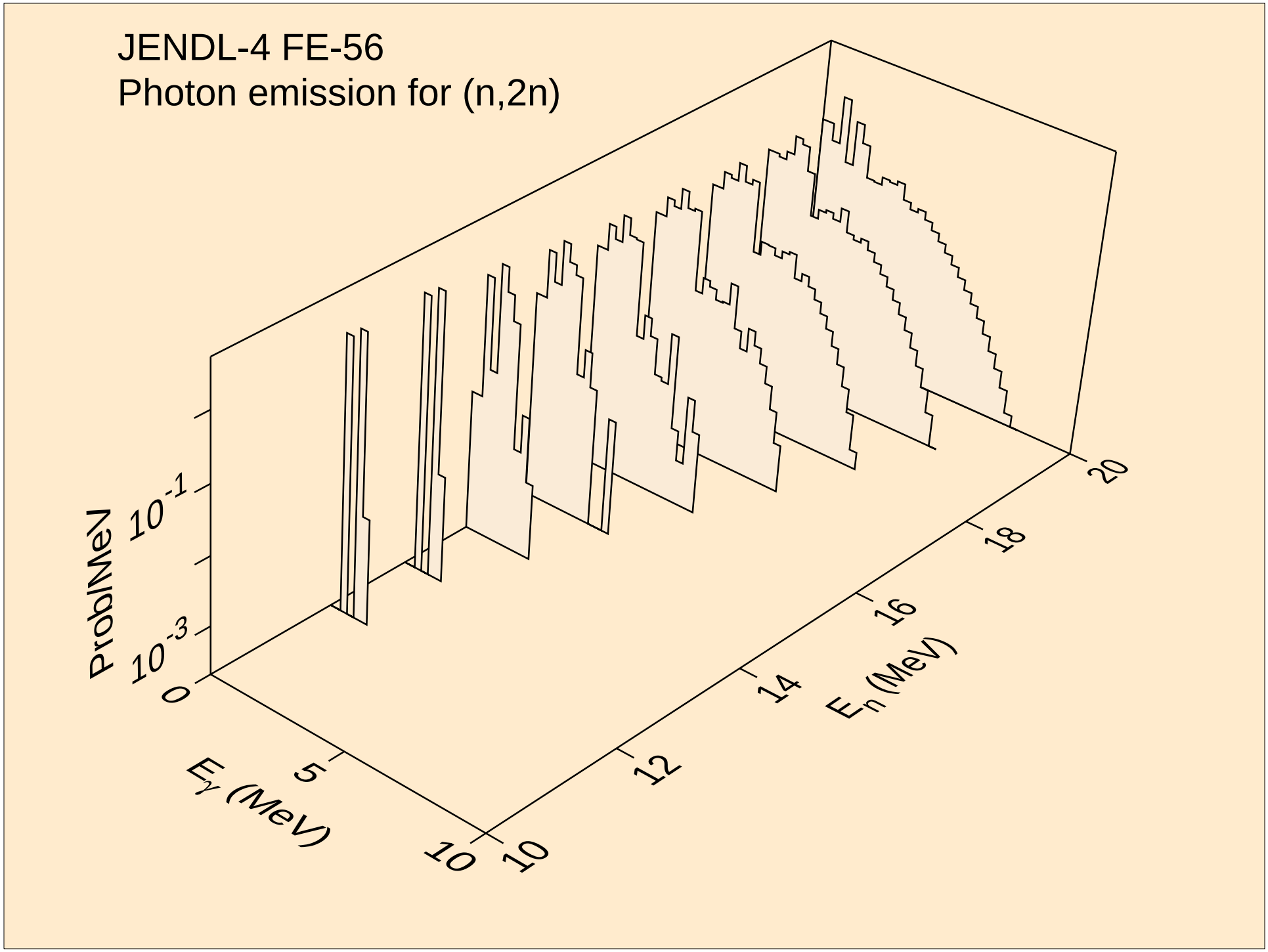

JENDL-4 FE-56
Neutron emission for (n,2n)
Prob/MeV
10^{-1}
10^{-3}
0
2
4
6
8
10
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

JENDL-4 FE-56
Neutron emission for (n,n*)a

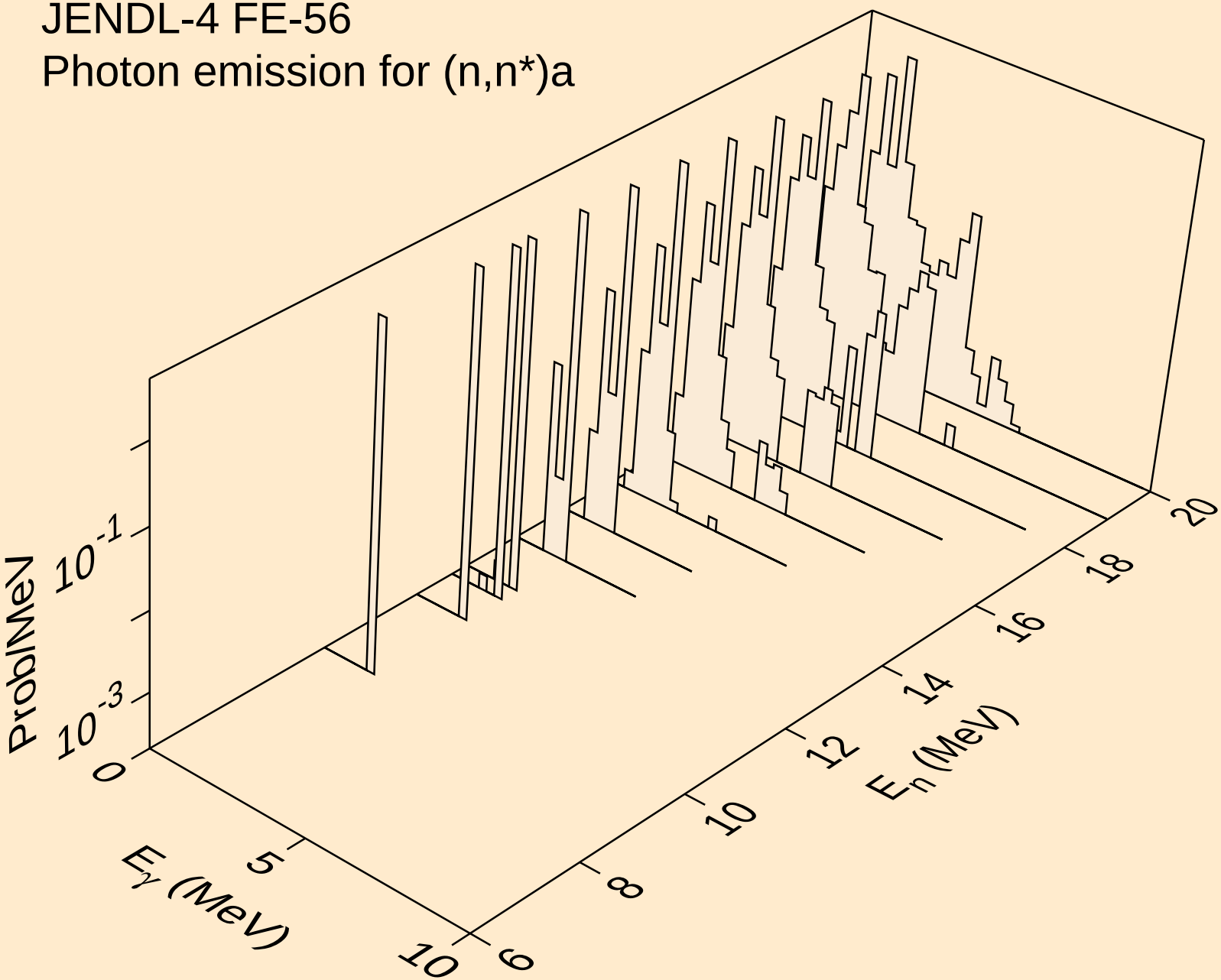


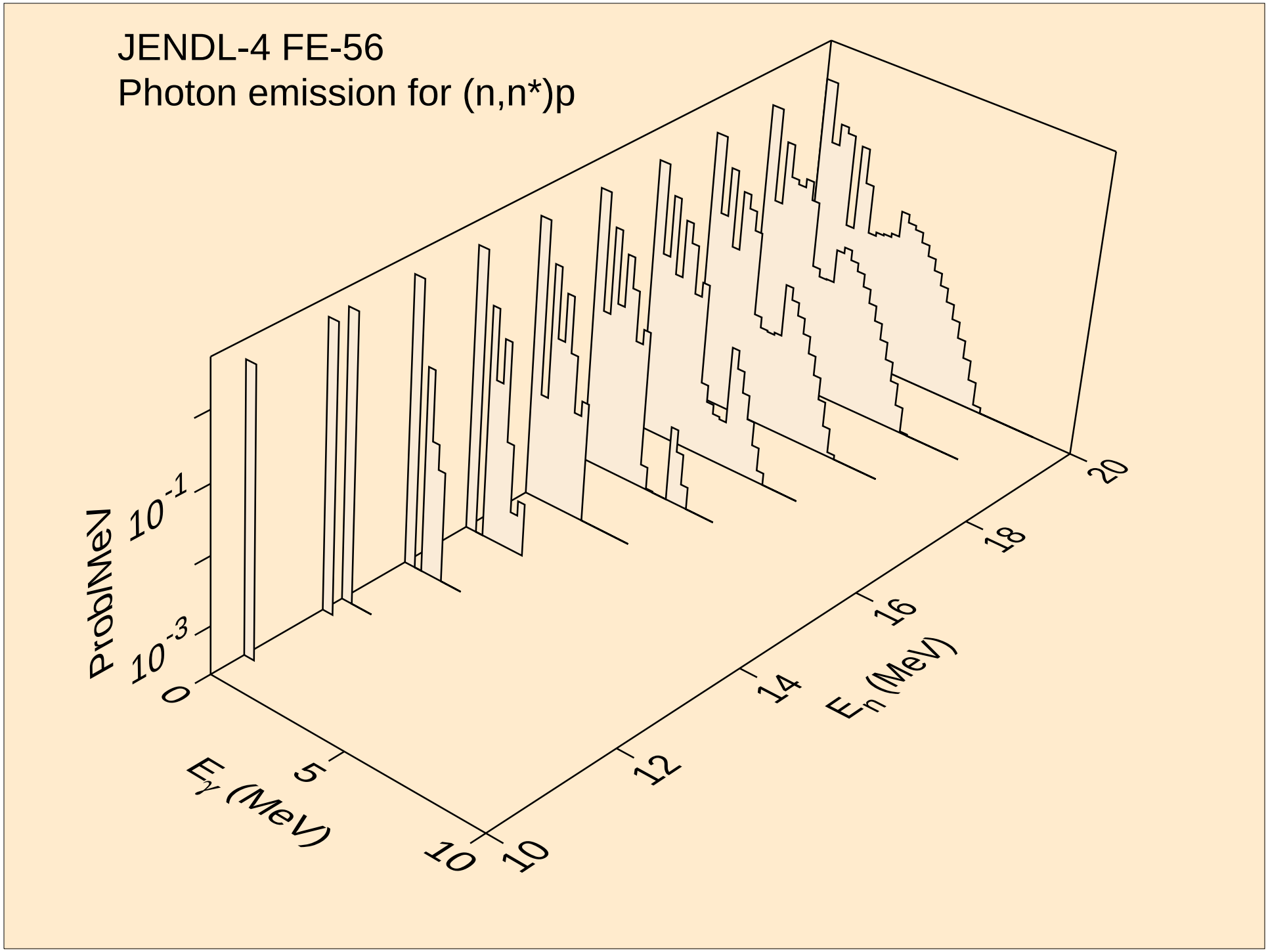

JENDL-4 FE-56
Neutron emission for (n,n*)p
Prob/MeV
10^{-1}
10^{-3}
0
2
4
6
8
10
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

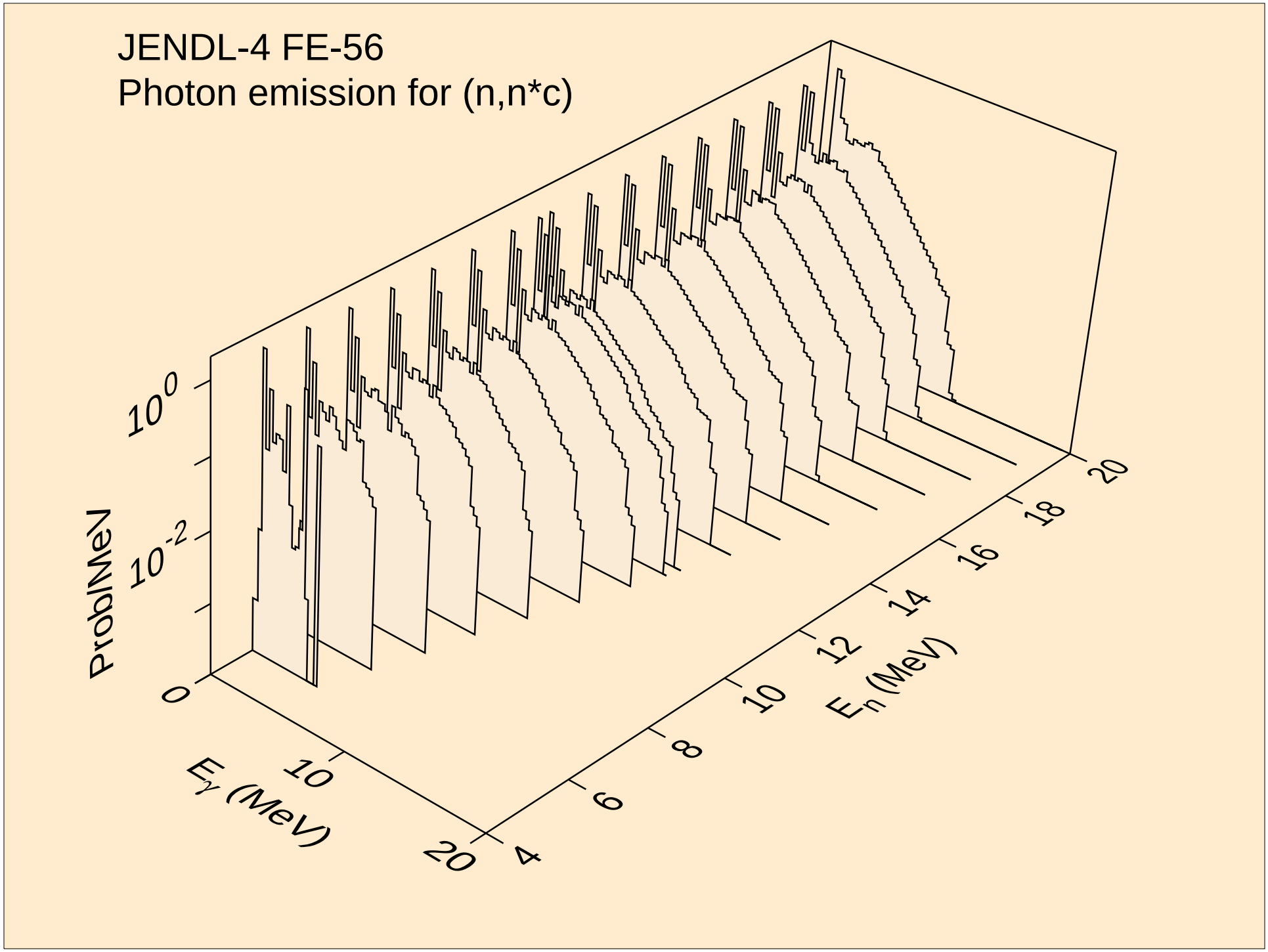

JENDL-4 FE-56
Neutron emission for (n,n*c)
Prob/MeV
10^{-1}
10^{-3}
0
5
10
15
20
Sec. Energy
4
6
8
10
12
14
16
18
20
Energy (MeV)

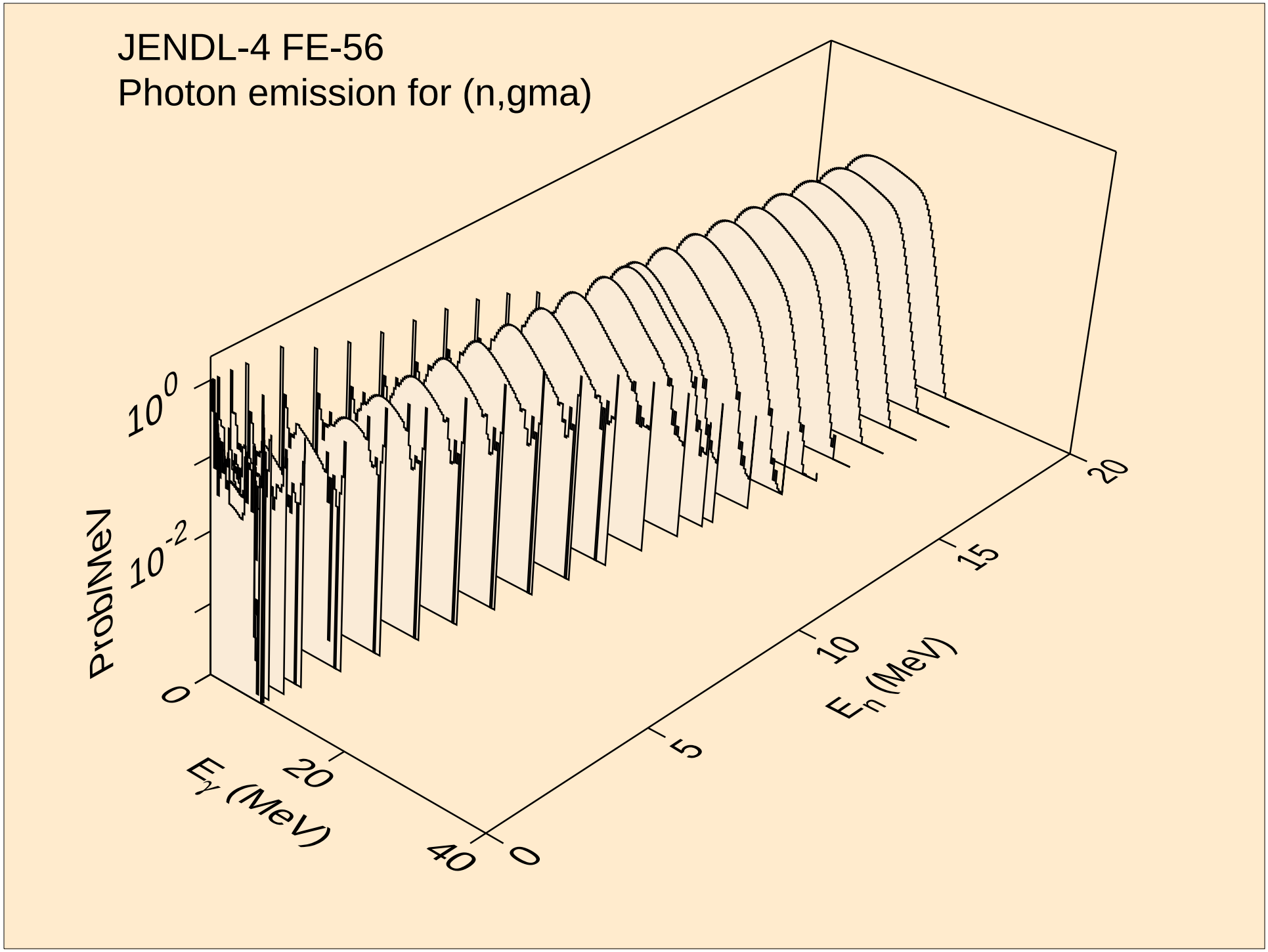

JENDL-4 FE-56
Photon emission for (n,2n)
Prob/MeV
10^-1
10^-3
0
5
10
E_γ (MeV)
10
12
14
16
18
20
E_n (MeV)

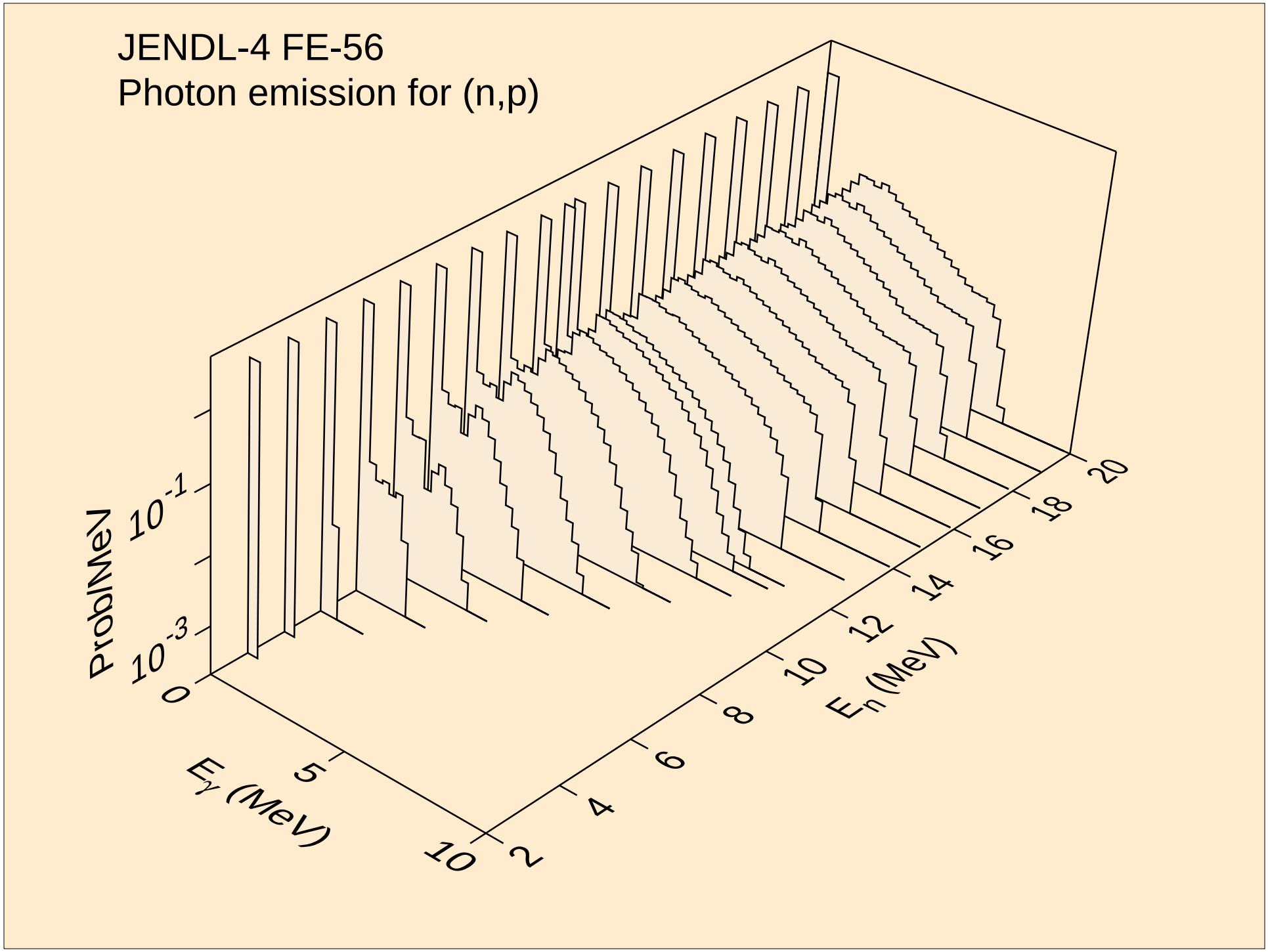
JENDL-4 FE-56
Photon emission for (n,n*)a

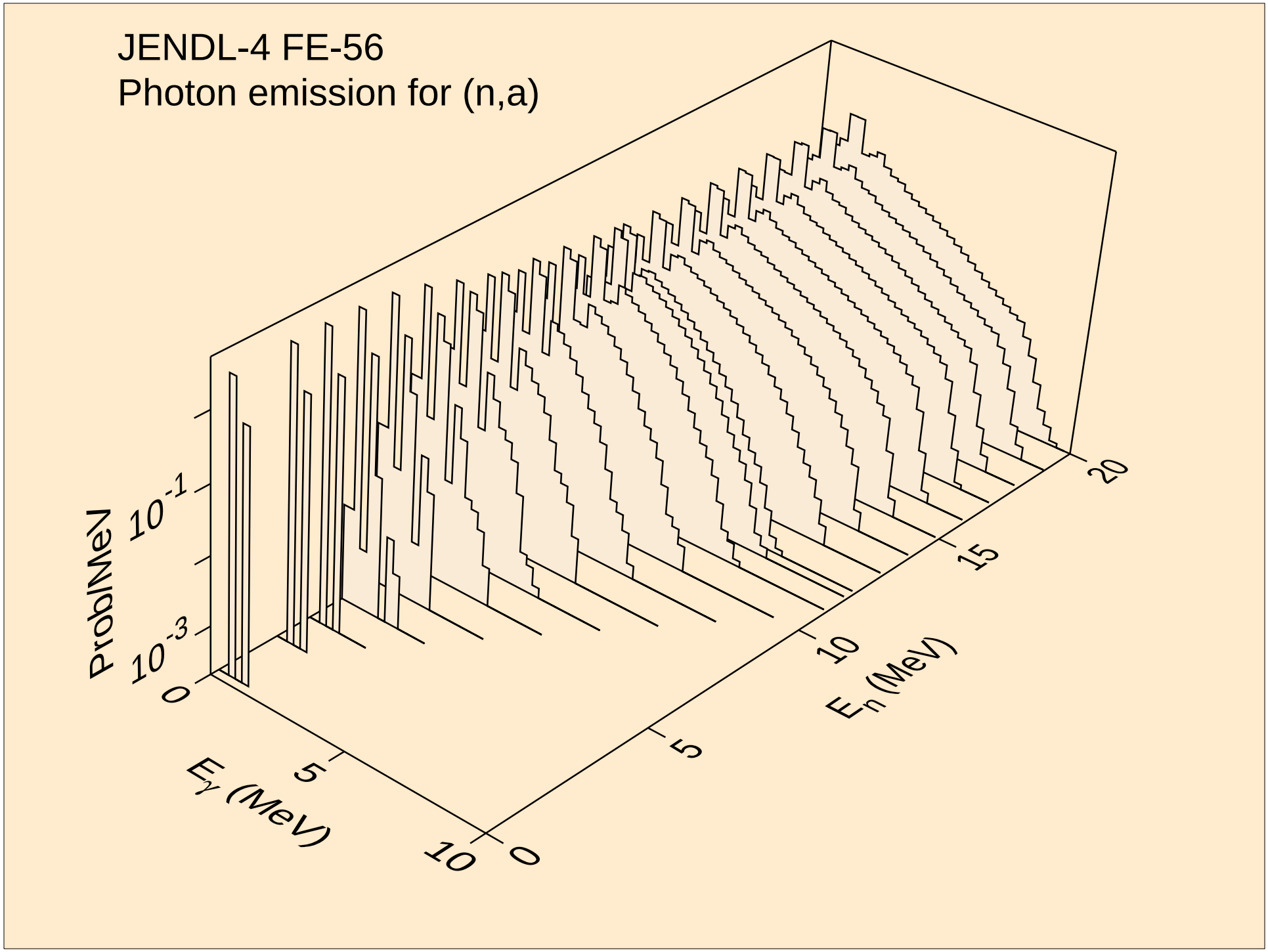


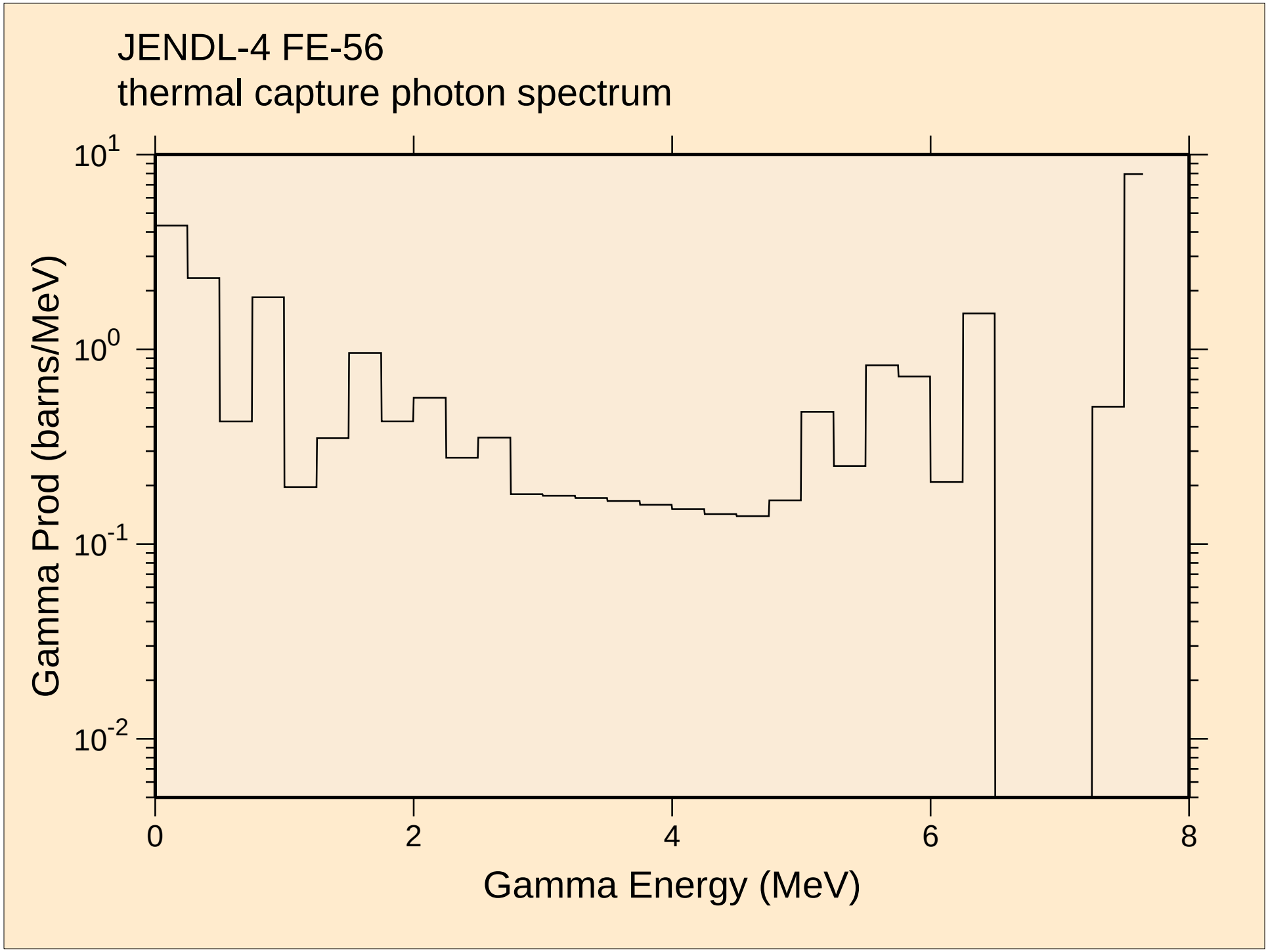

JENDL-4 FE-56
Photon emission for (n,n*)p
Prob/MeV
10^-1
10^-3
0
5
10
E_γ (MeV)
10
12
14
16
18
20
E_n (MeV)

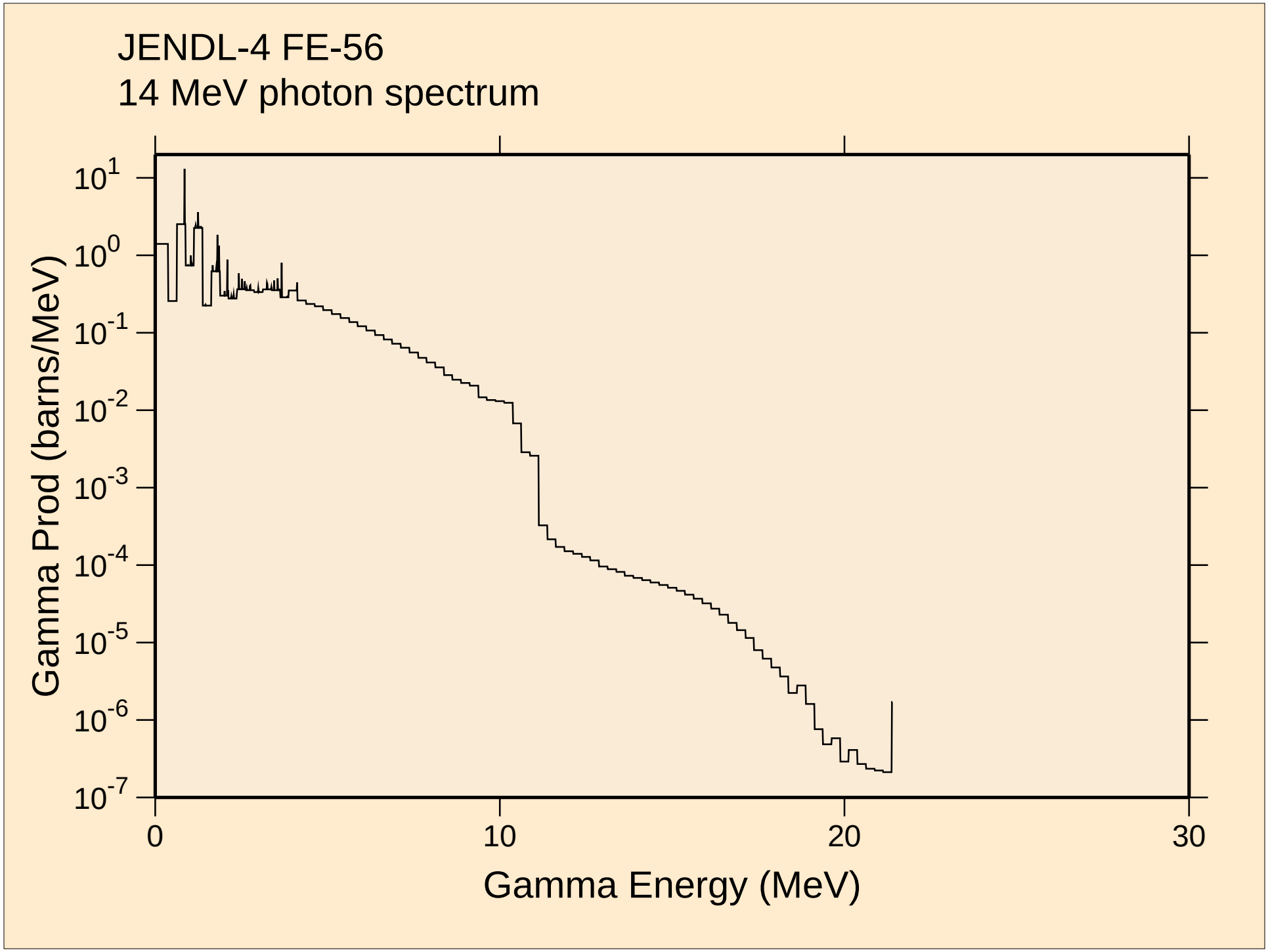

JENDL-4 FE-56
Photon emission for (n,n*c)
Prob/MeV
10^0
10^{-2}
0
10
20
E_γ (MeV)
4
6
8
10
12
14
16
18
20
E_n (MeV)

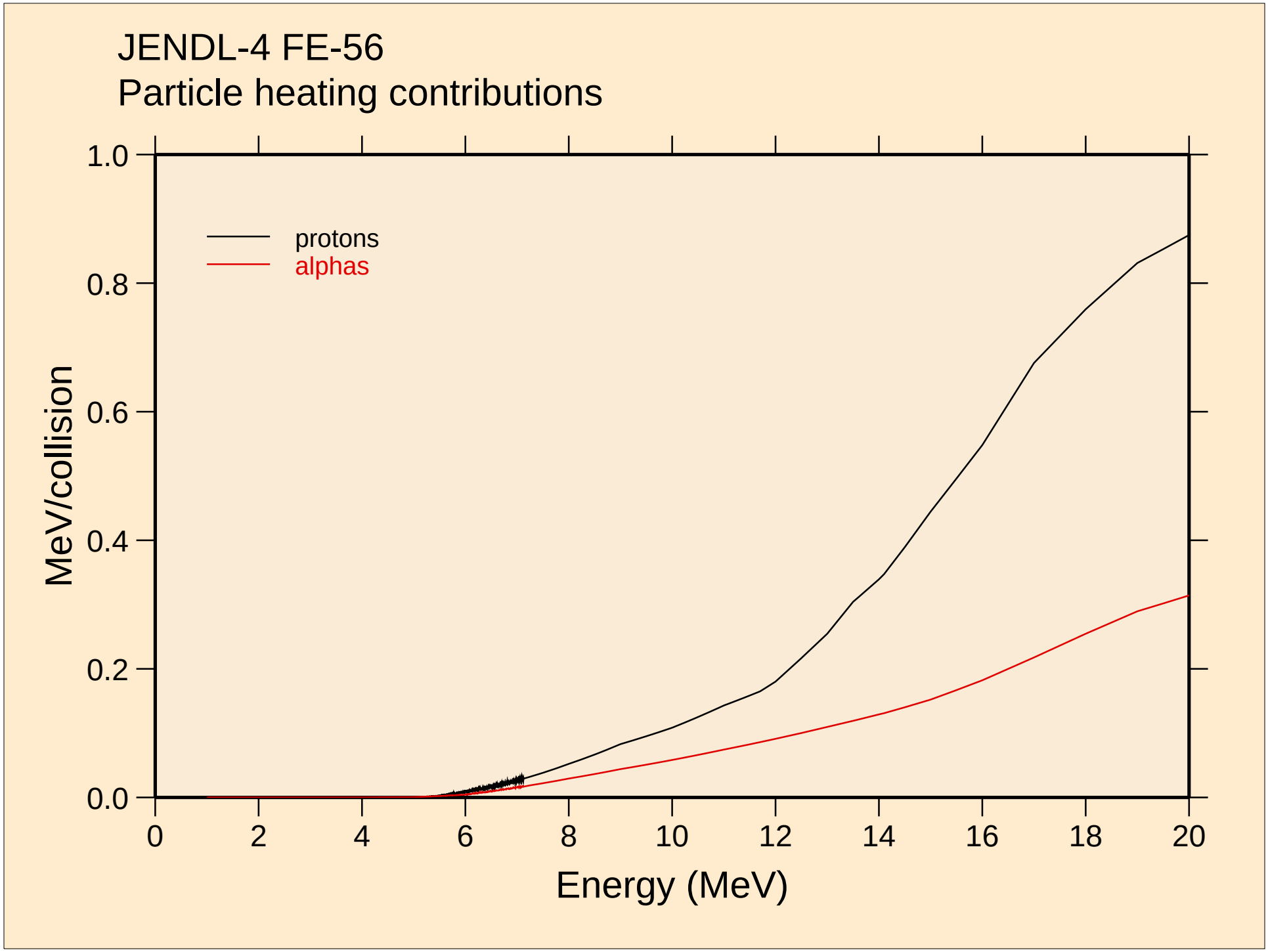

JENDL-4 FE-56
Photon emission for (n,gma)
Prob/MeV
10^0
10^{-2}
0
20
40
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

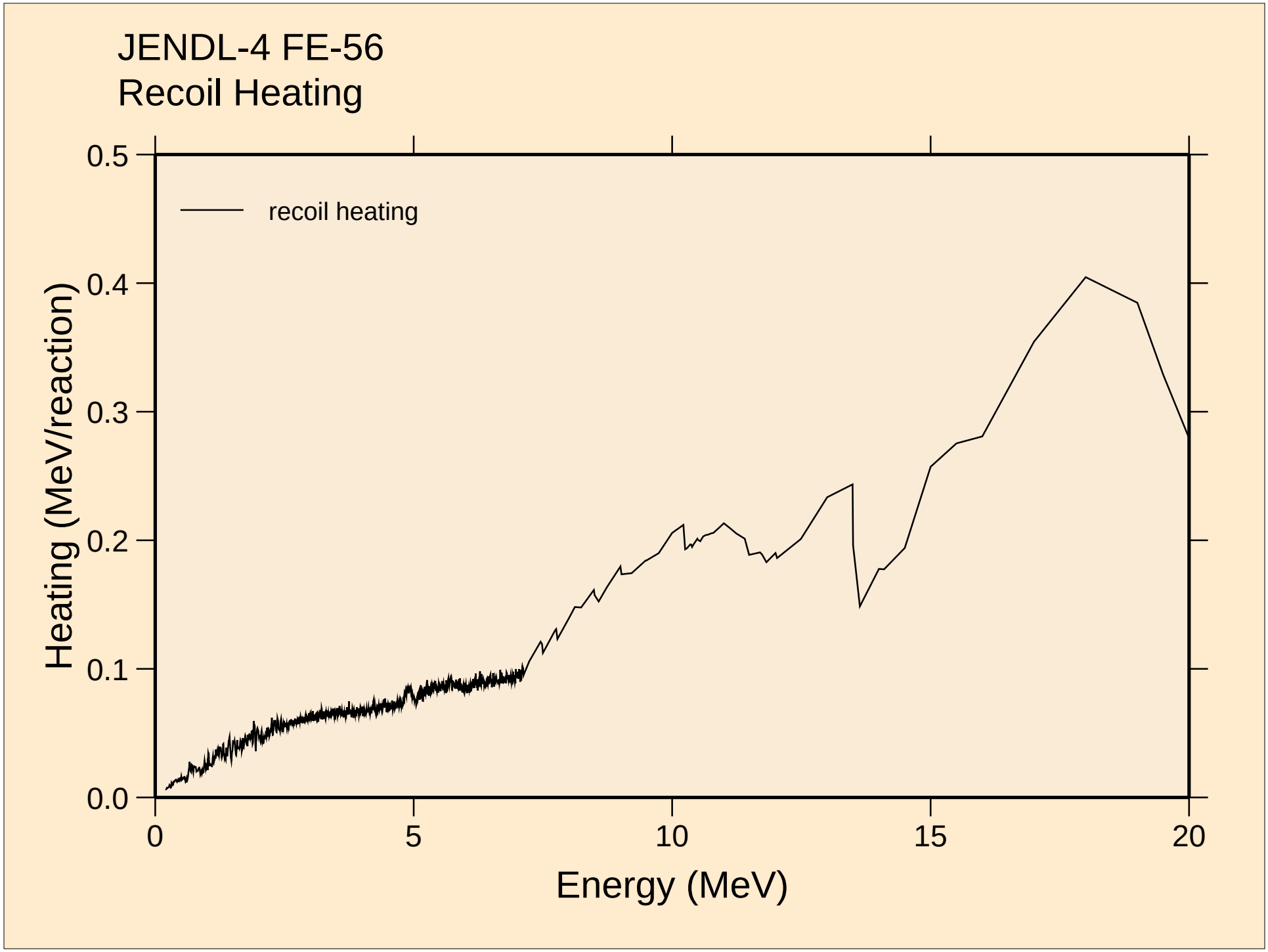

JENDL-4 FE-56
Photon emission for (n,p)
Prob/MeV
10^{-1}
10^{-3}
0
5
10
E_γ (MeV)
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

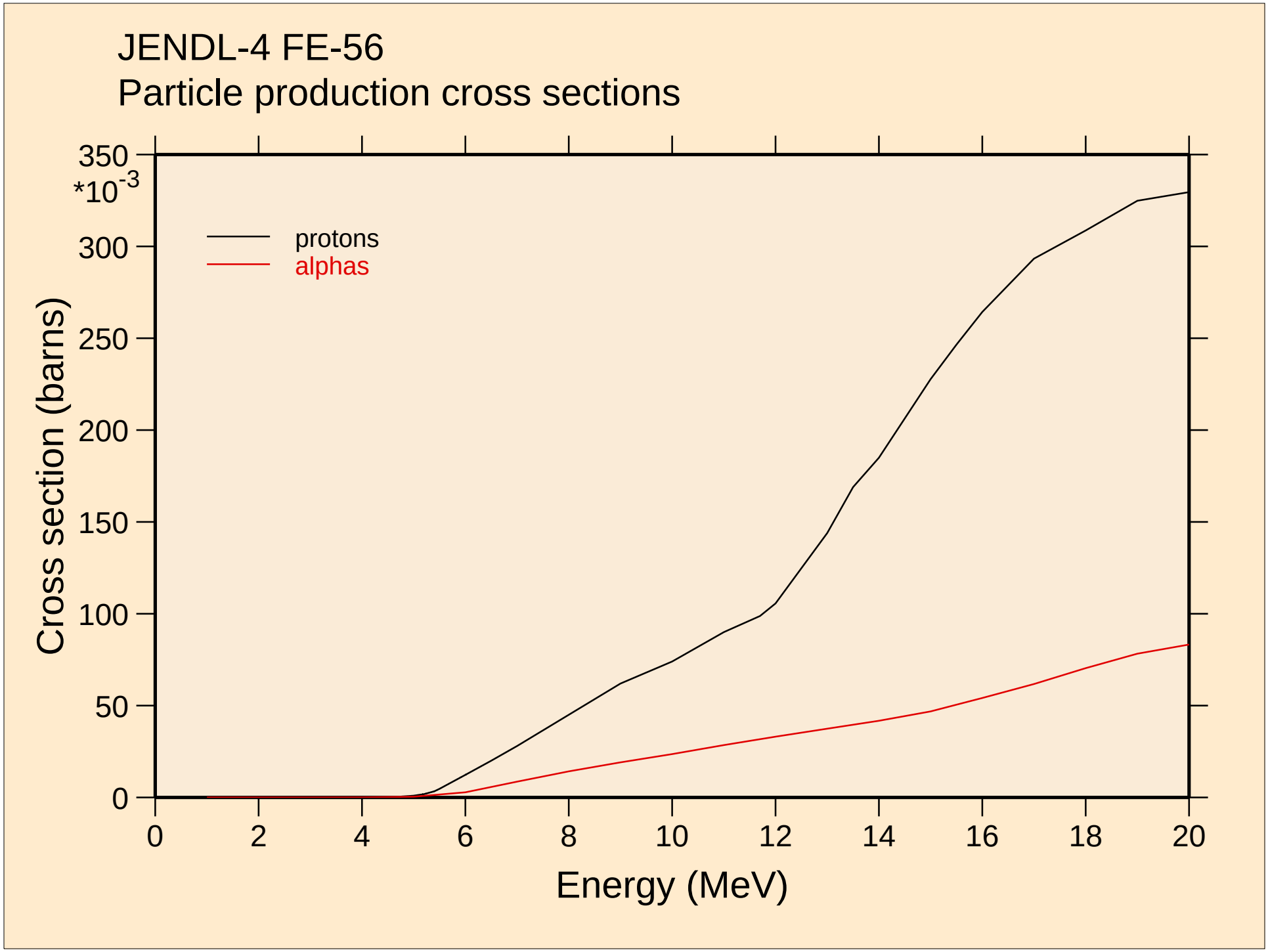

JENDL-4 FE-56
Photon emission for (n,a)
Prob/MeV
10^-1
10^-3
0
5
10
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

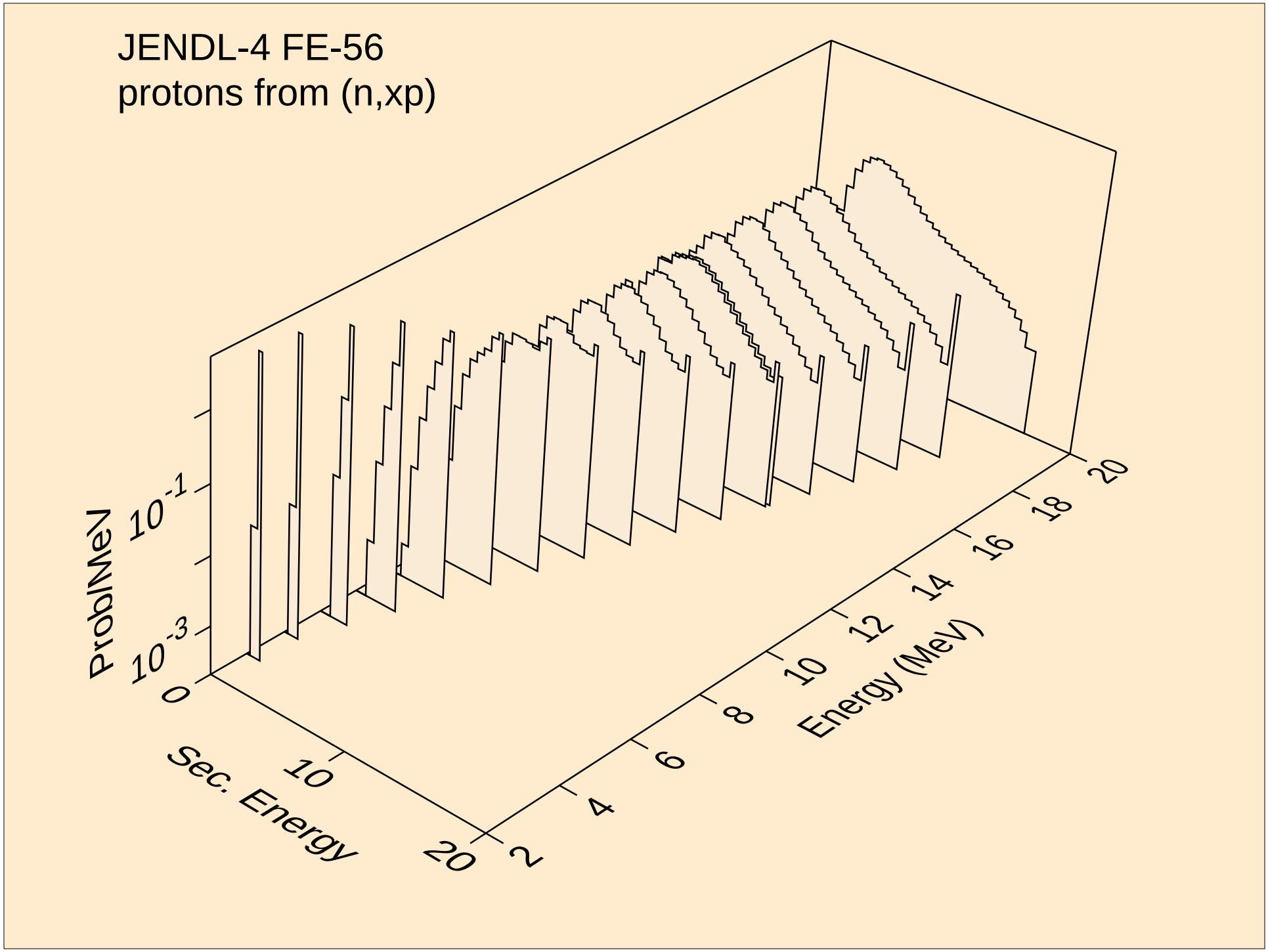

JENDL-4 FE-56
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^1
10^0
10^-1
10^-2
0
2
4
6
8
Gamma Energy (MeV)

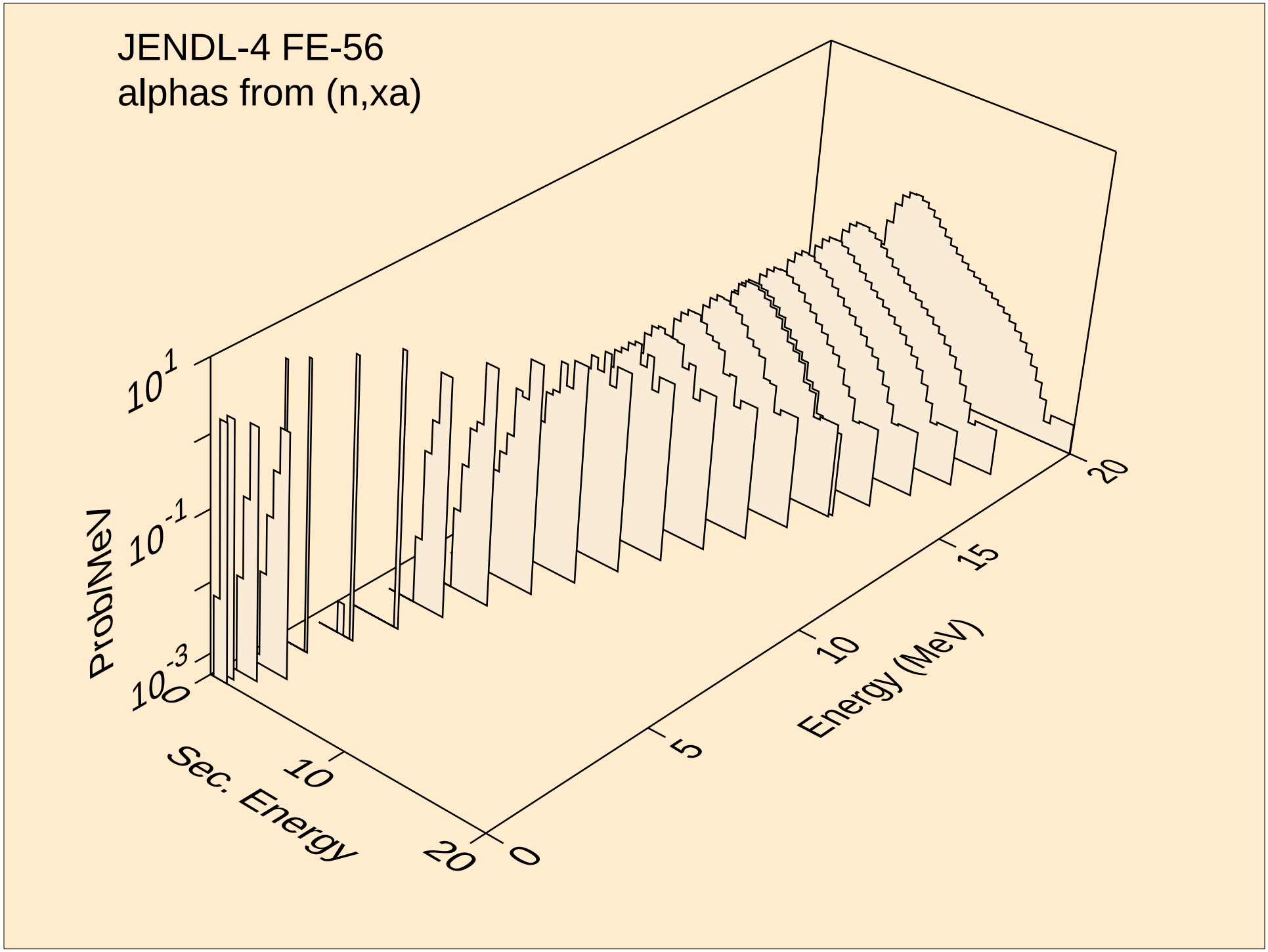

JENDL-4 FE-56
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-7
0
10
20
30
Gamma Energy (MeV)


JENDL-4 FE-56
Particle heating contributions
protons
alphas
MeV/collision
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
0
2
4
6
8
10
12
14
16
18
20


JENDL-4 FE-56
Recoil Heating
recoil heating
Heating (MeV/reaction)
0.0
0.1
0.2
0.3
0.4
0.5
0
5
10
15
20
Energy (MeV)


JENDL-4 FE-56
Particle production cross sections
Cross section (barns)
*10-3
350
300
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
protons
alphas


JENDL-4 FE-56
protons from (n,xp)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
10
20
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 FE-56
alphas from (n,xa)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
Sec. Energy
0
10
20
Energy (MeV)
0
5
10
15
20