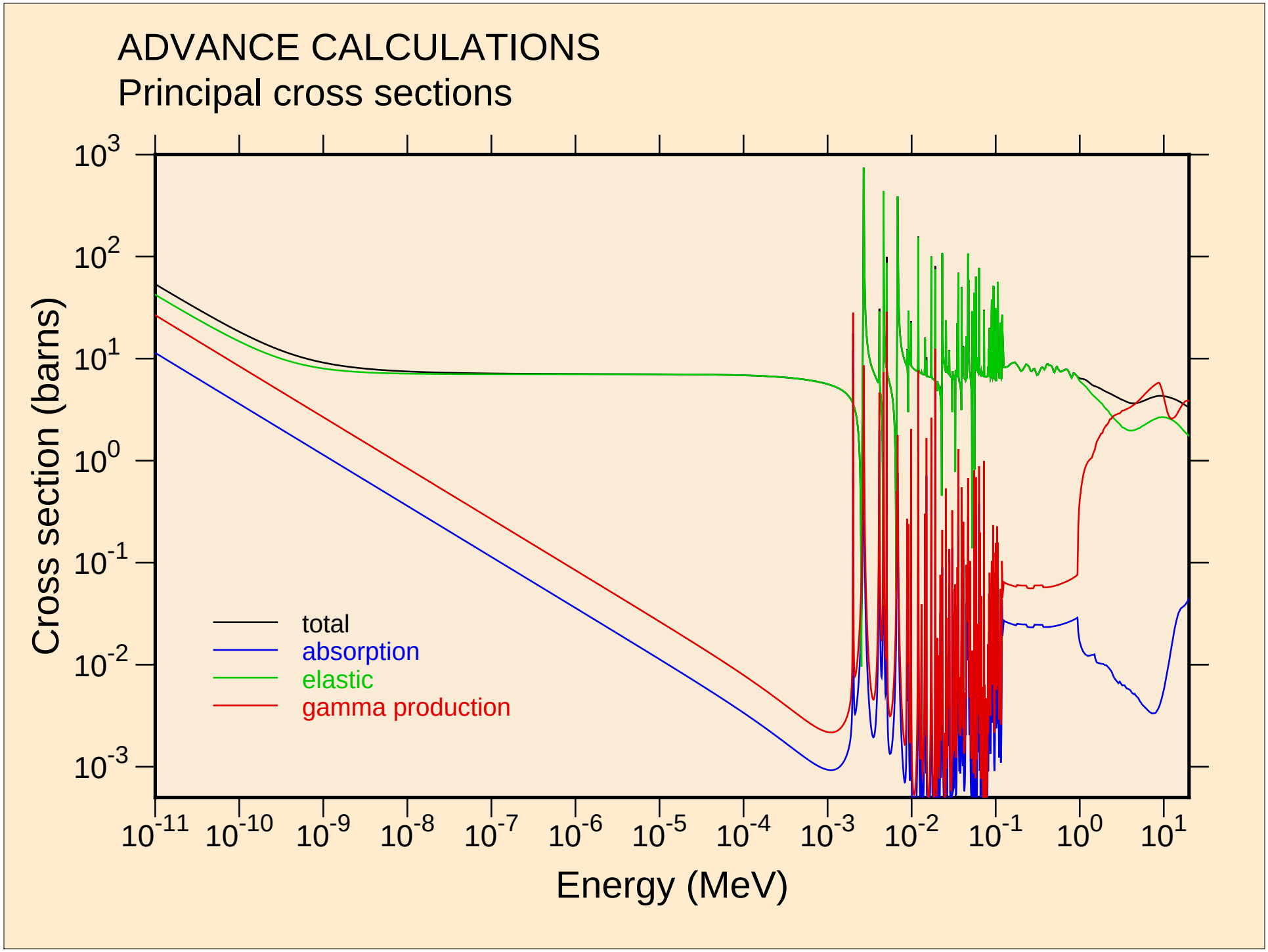
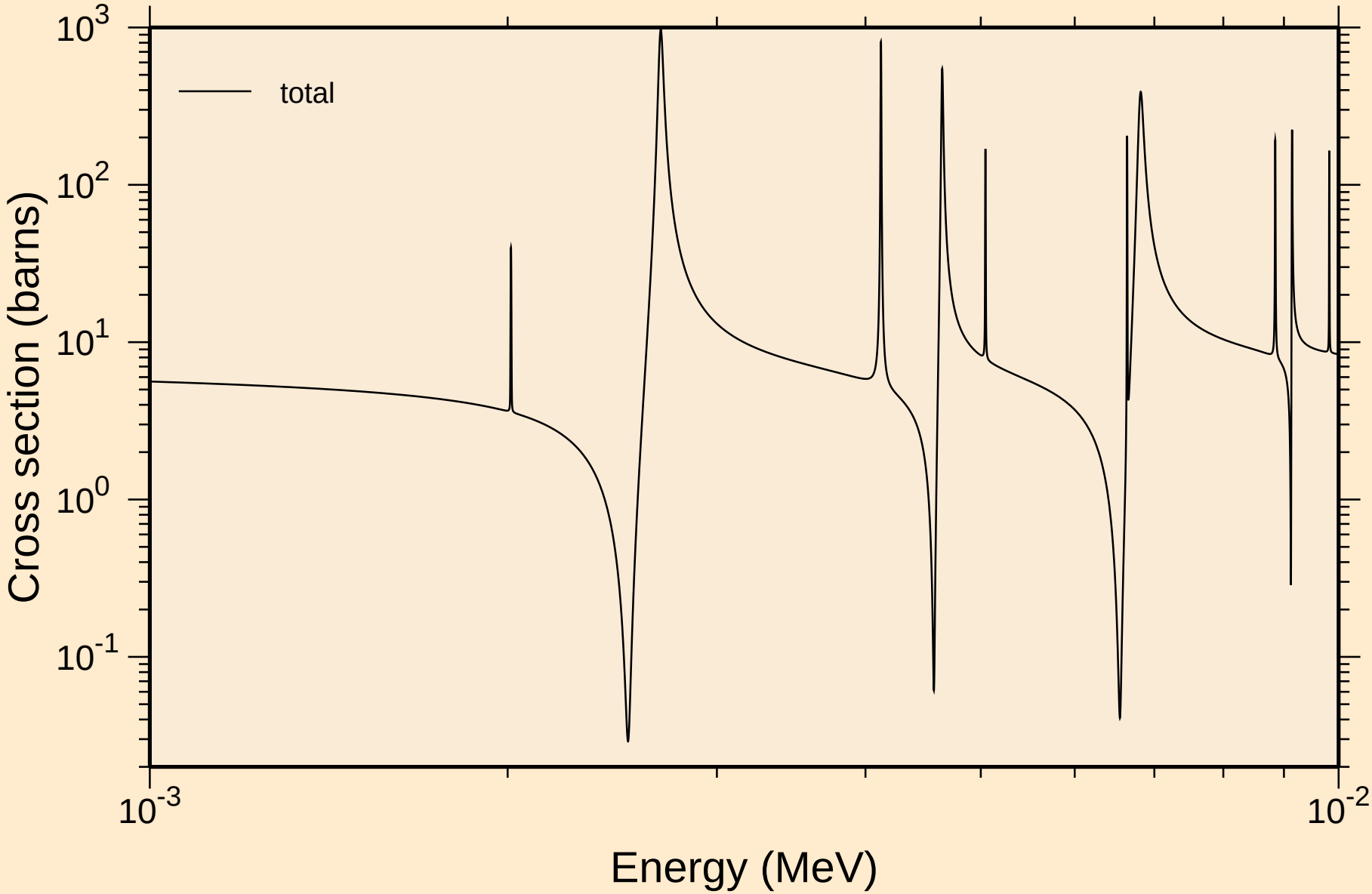
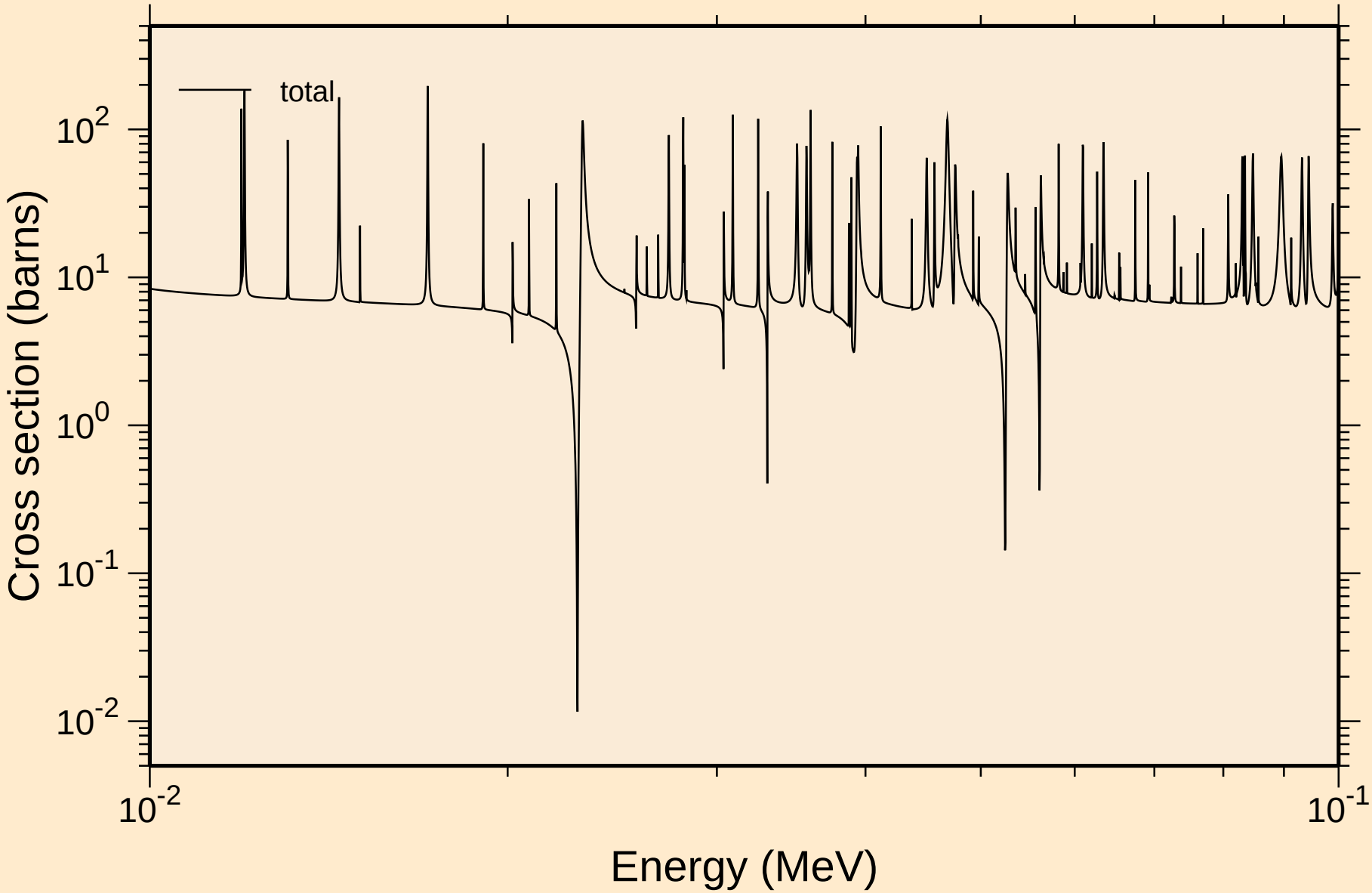

ADVANCE CALCULATIONS
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{3}
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

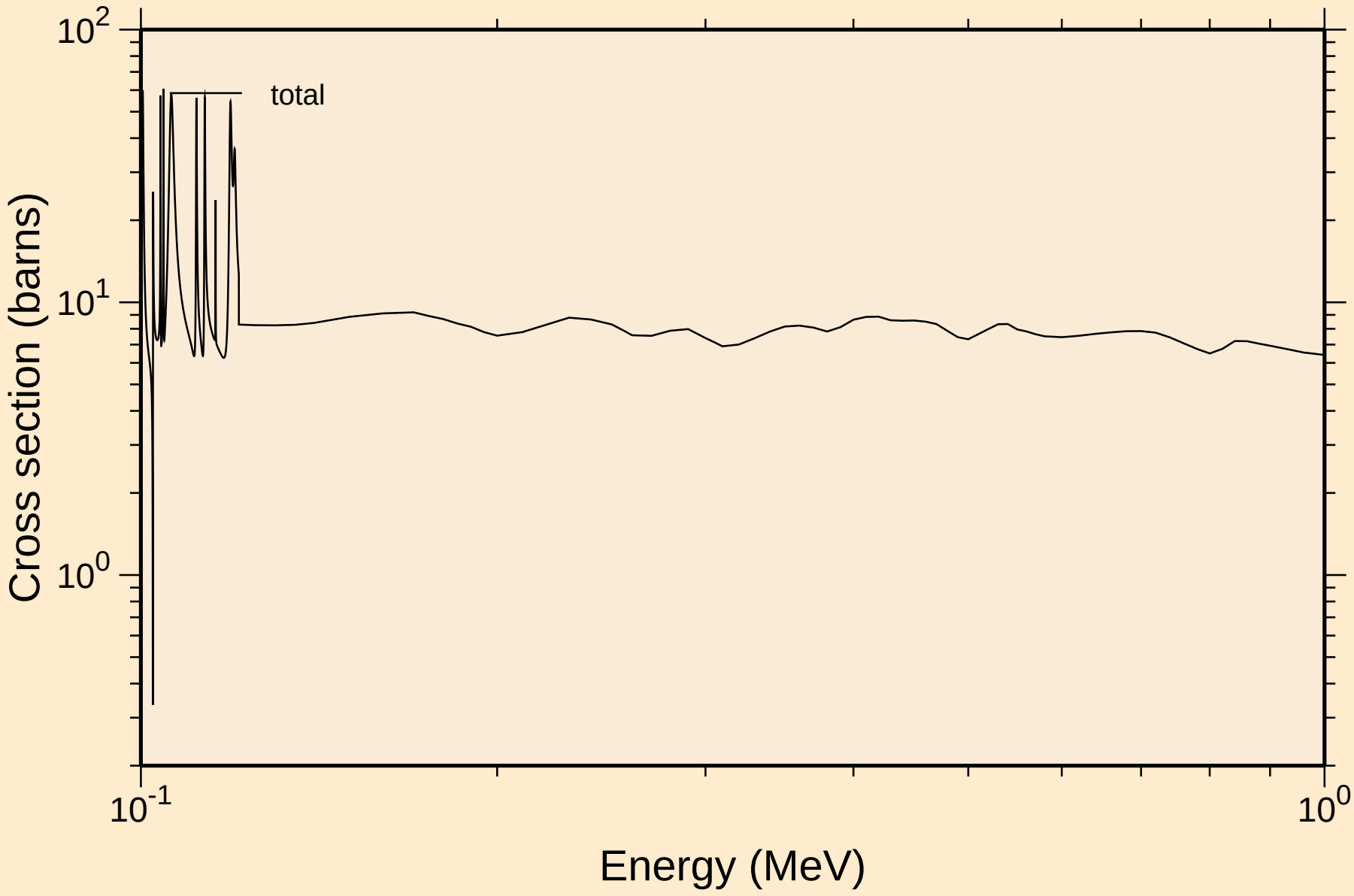
ADVANCE CALCULATIONS
resonance total cross section



ADVANCE CALCULATIONS
resonance total cross section

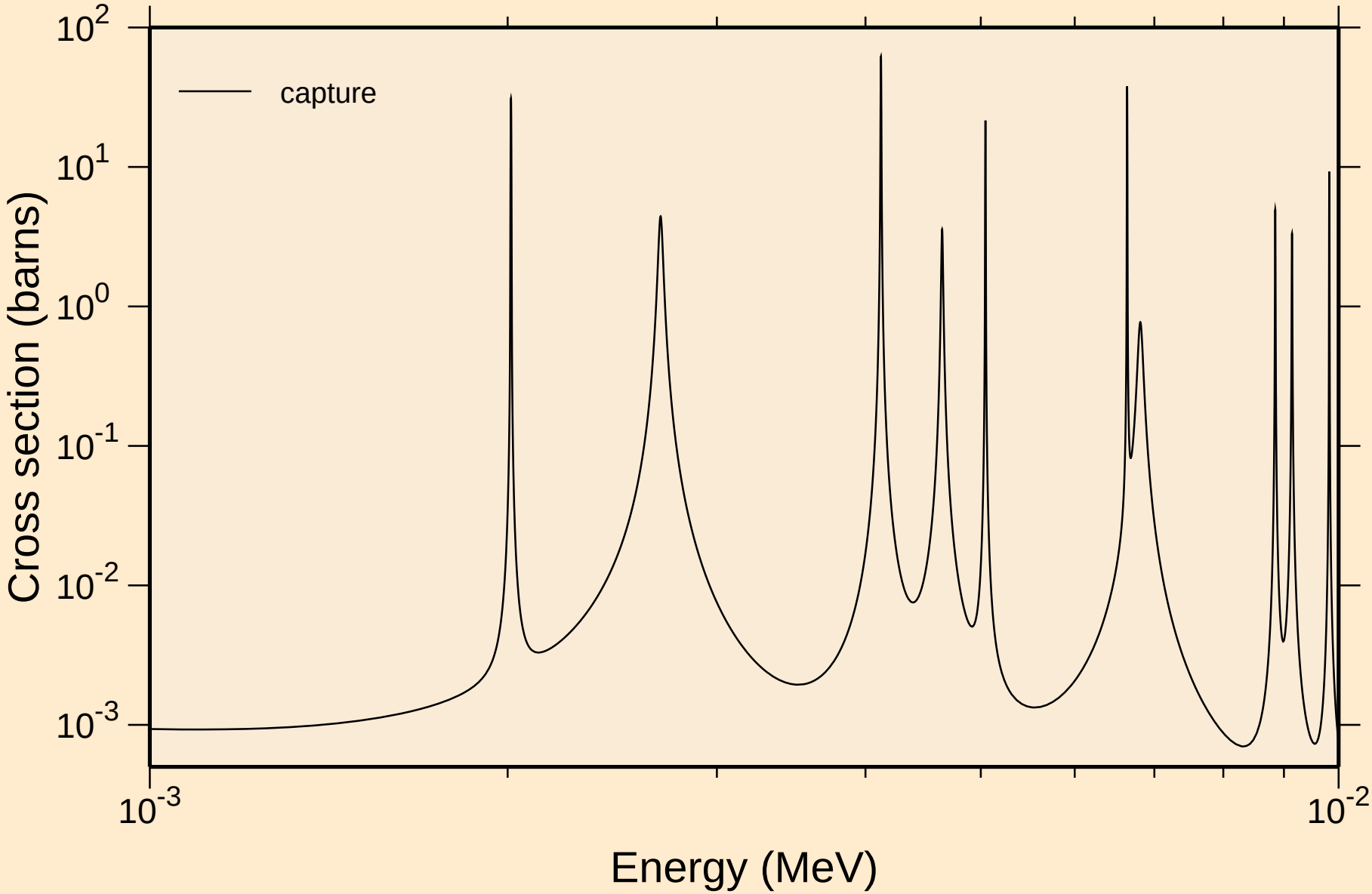


ADVANCE CALCULATIONS
resonance total cross section



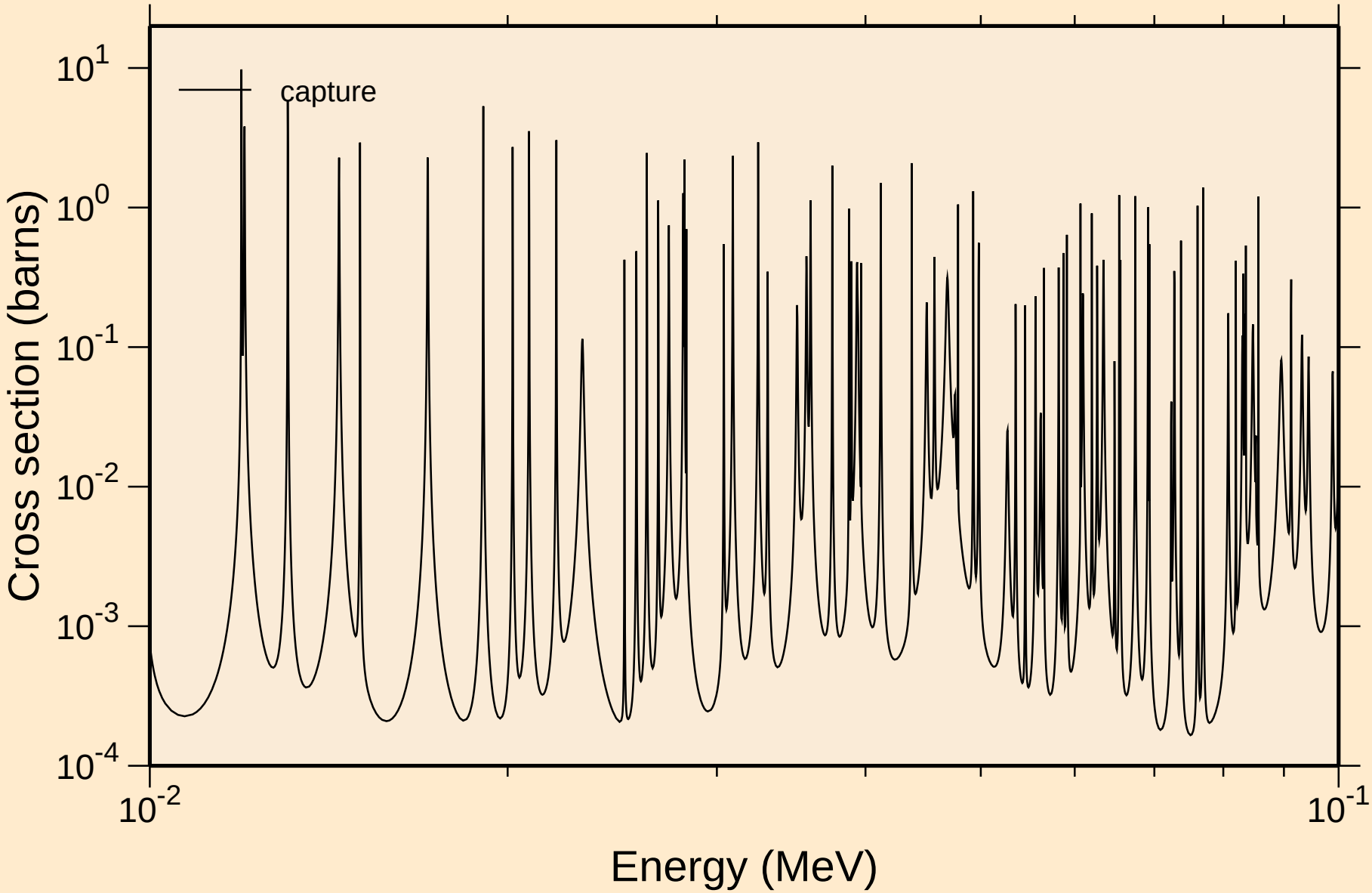
ADVANCE CALCULATIONS

resonance absorption cross sections

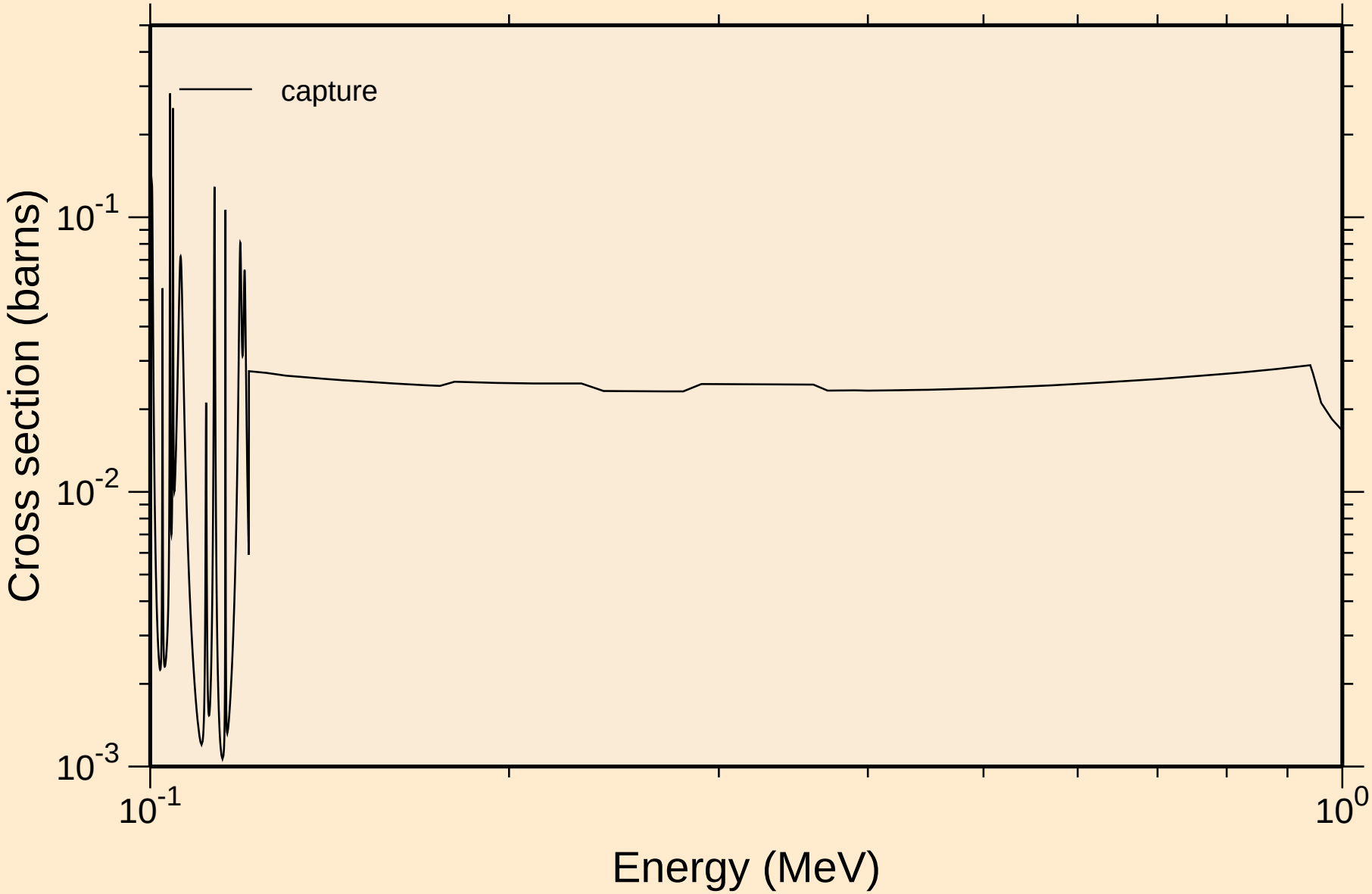


ADVANCE CALCULATIONS

resonance absorption cross sections

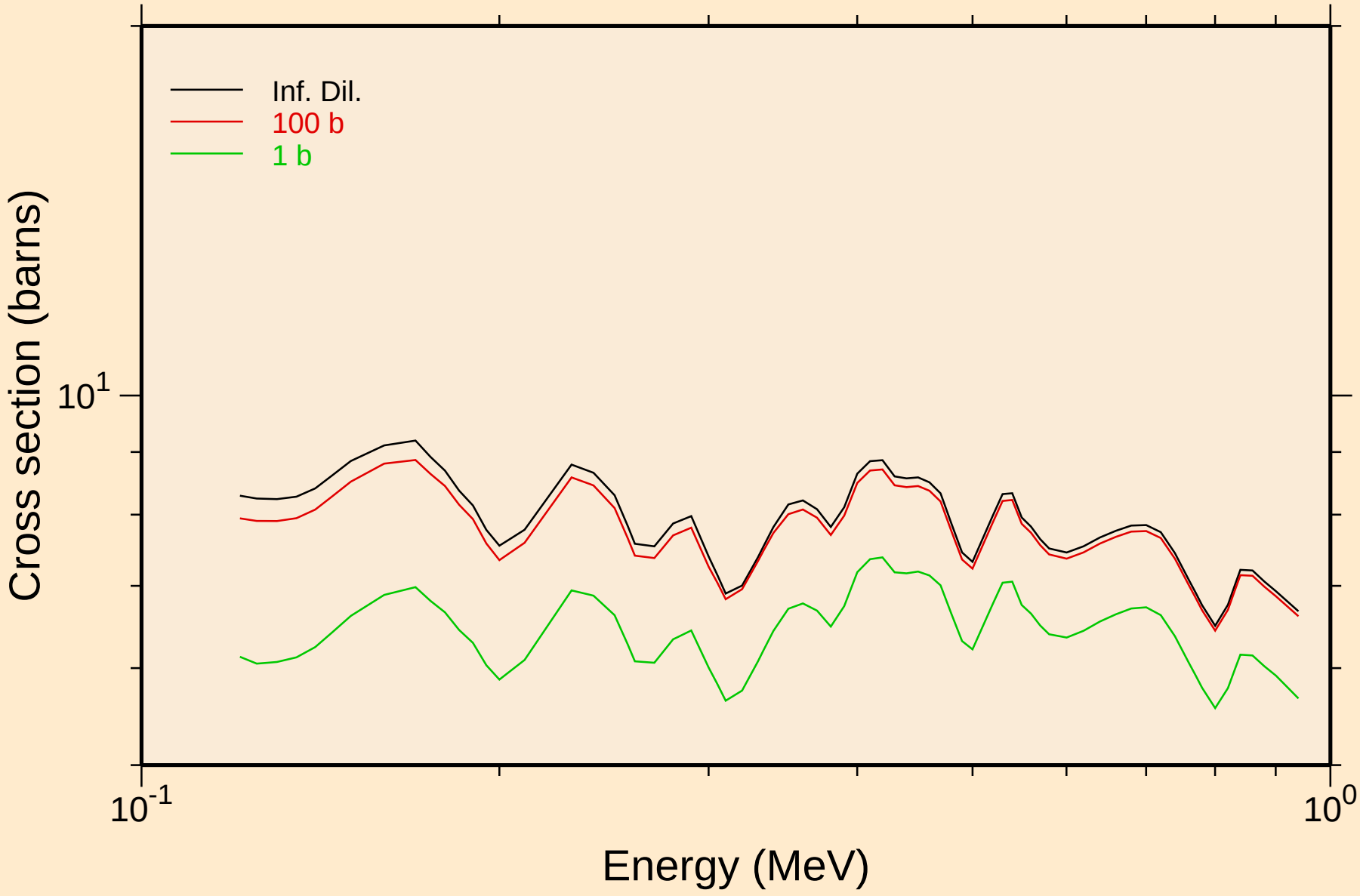


ADVANCE CALCULATIONS
resonance absorption cross sections



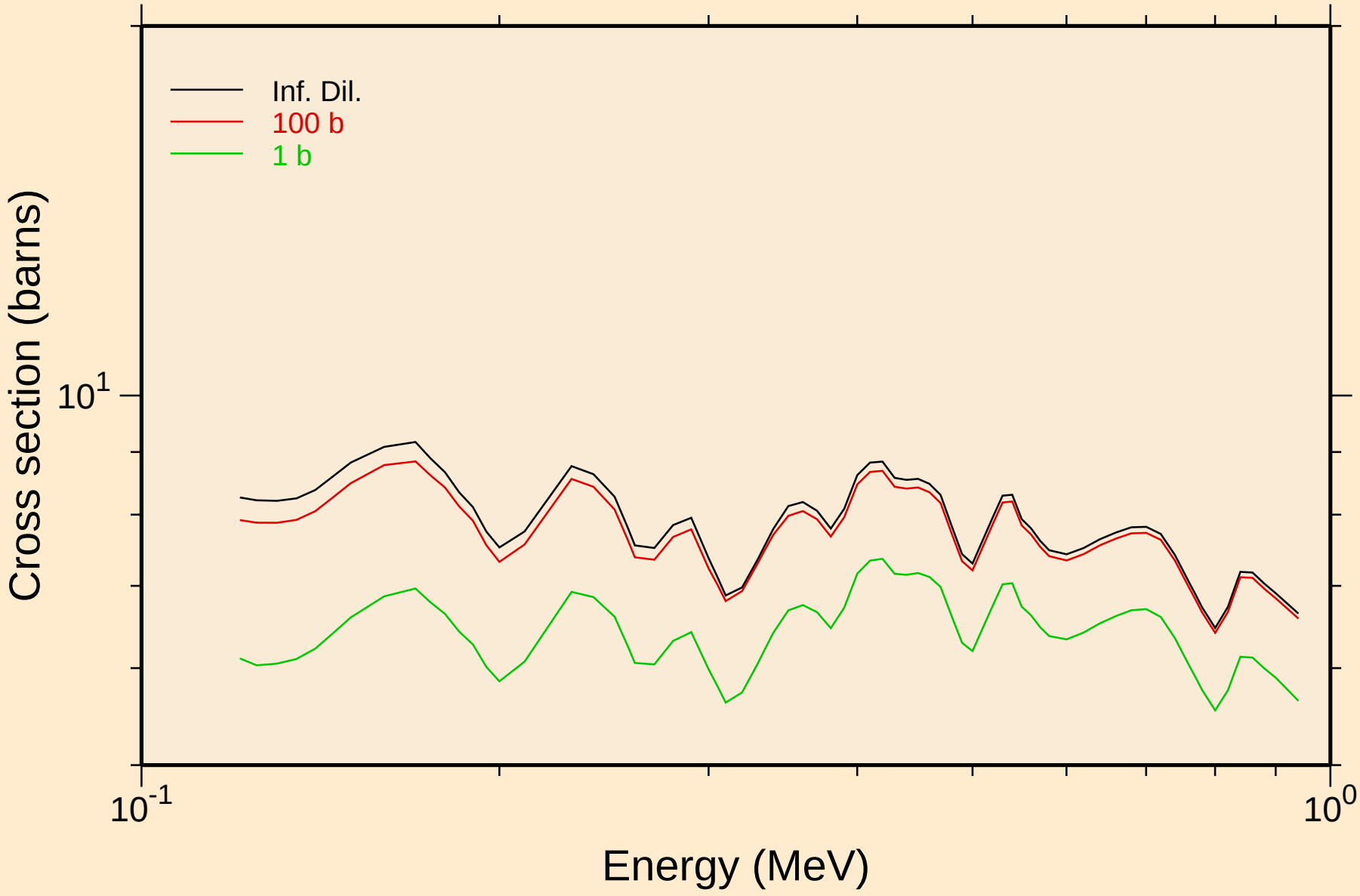
ADVANCE CALCULATIONS

UR total cross section



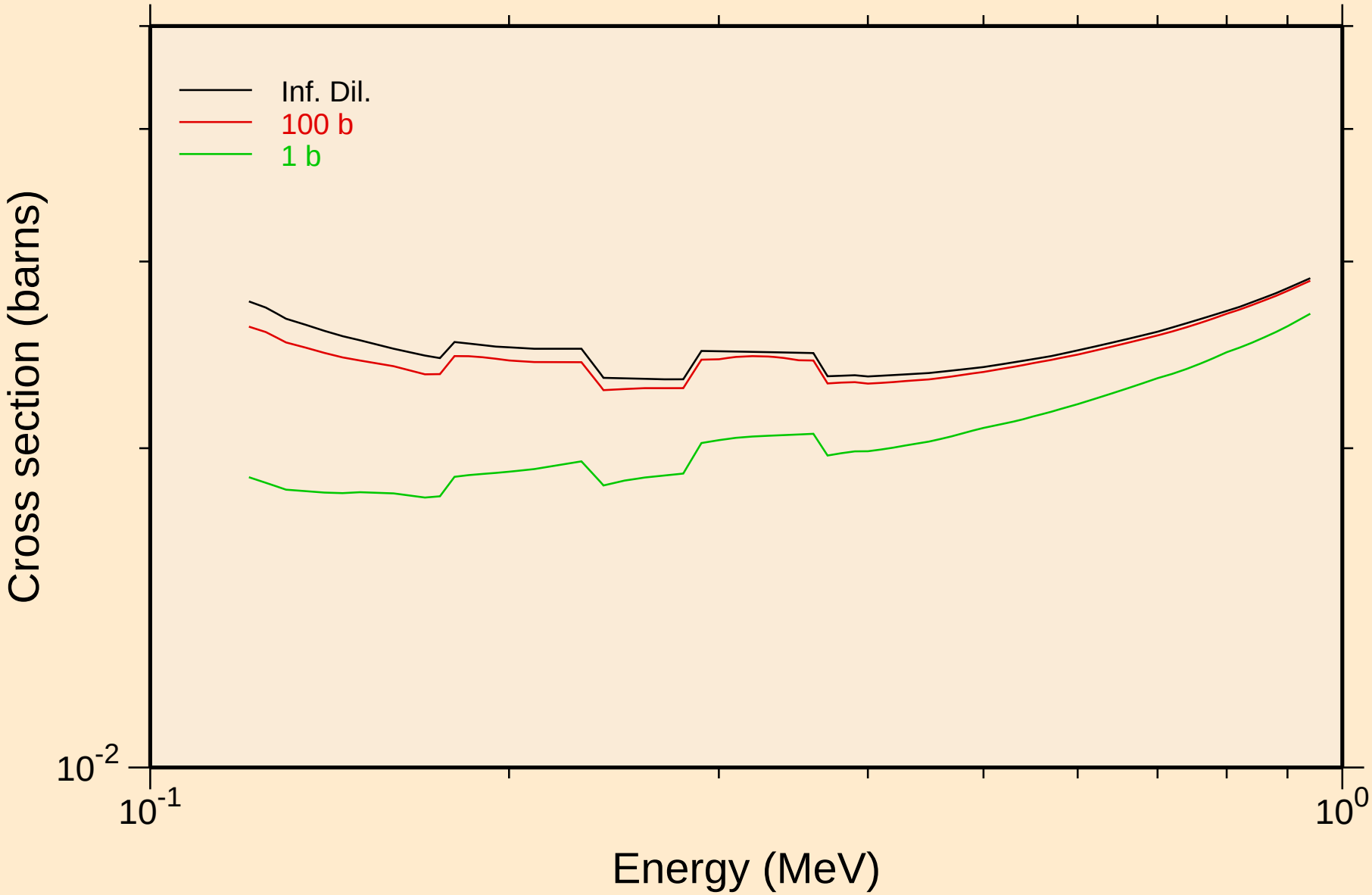
ADVANCE CALCULATIONS

UR elastic cross section



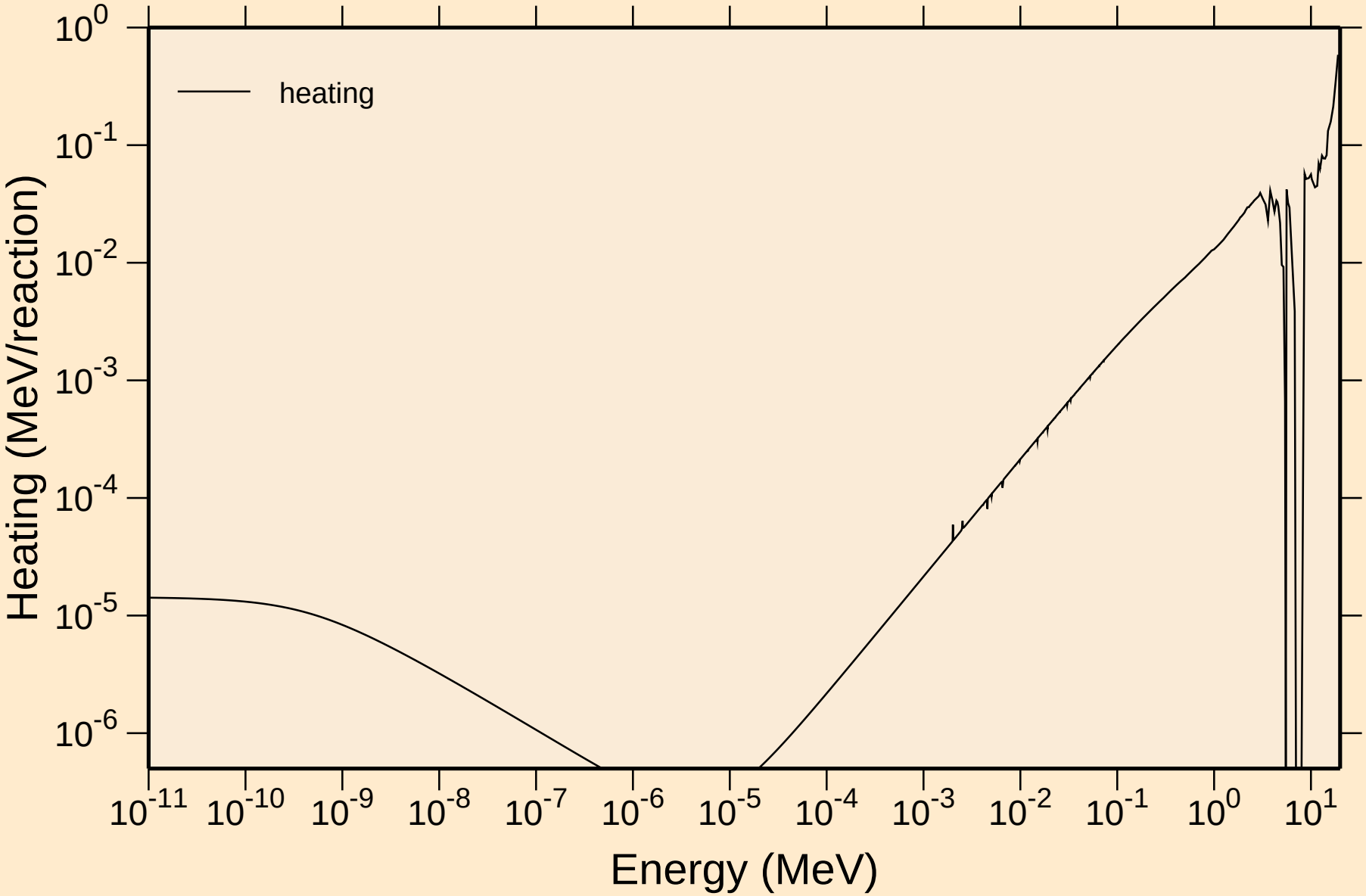
ADVANCE CALCULATIONS

UR capture cross section

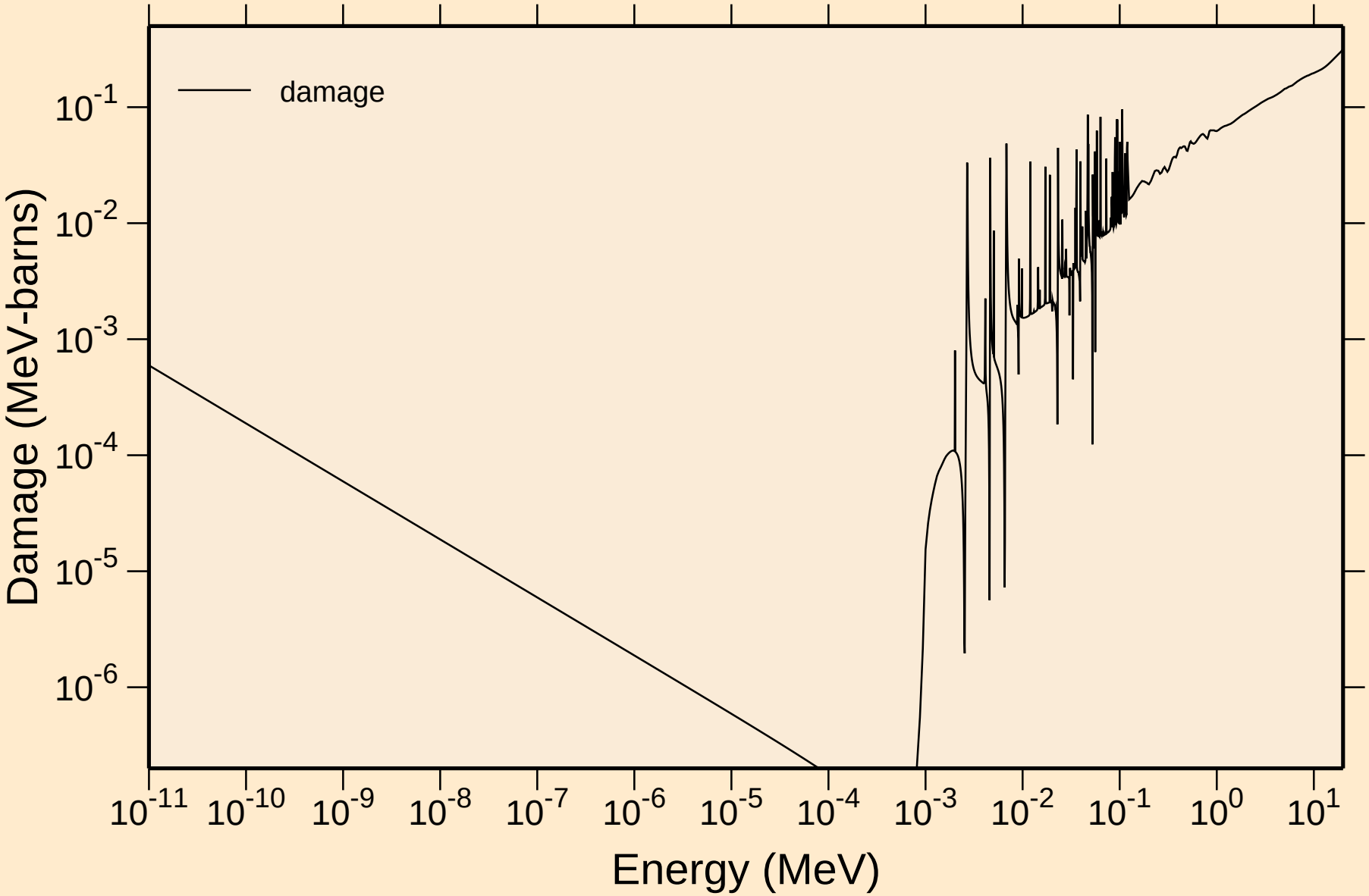


ADVANCE CALCULATIONS

Heating

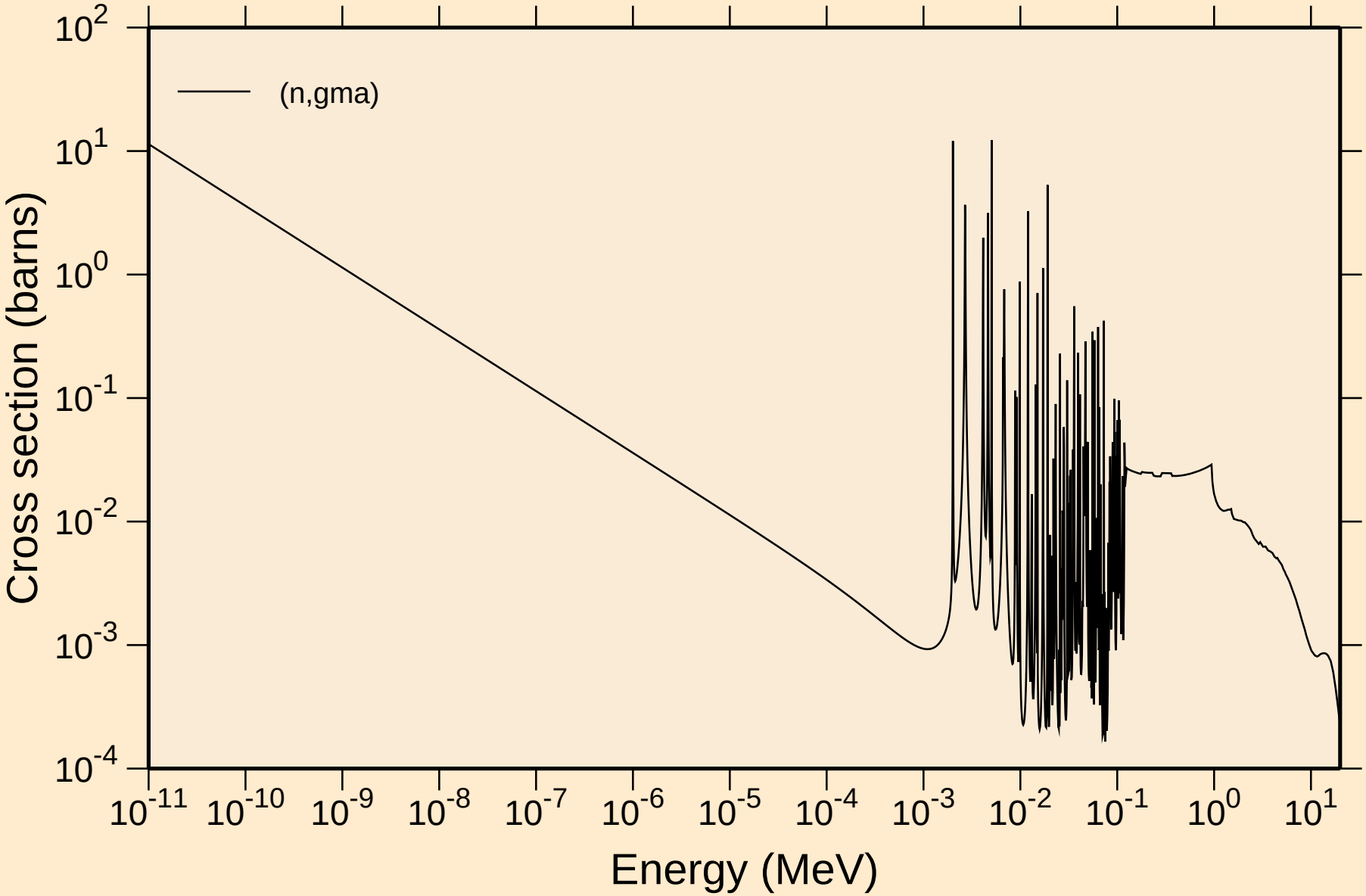


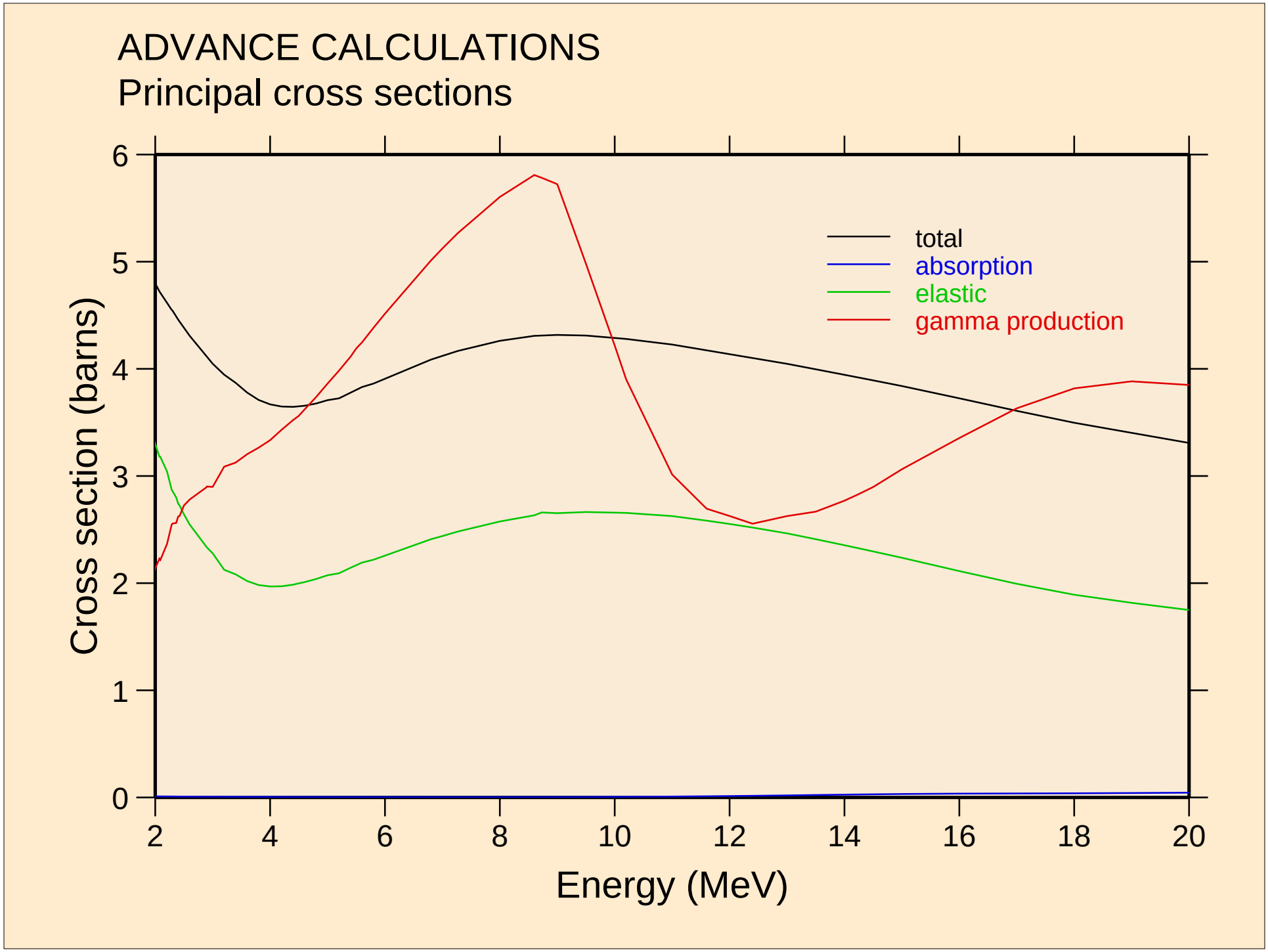
ADVANCE CALCULATIONS
Damage

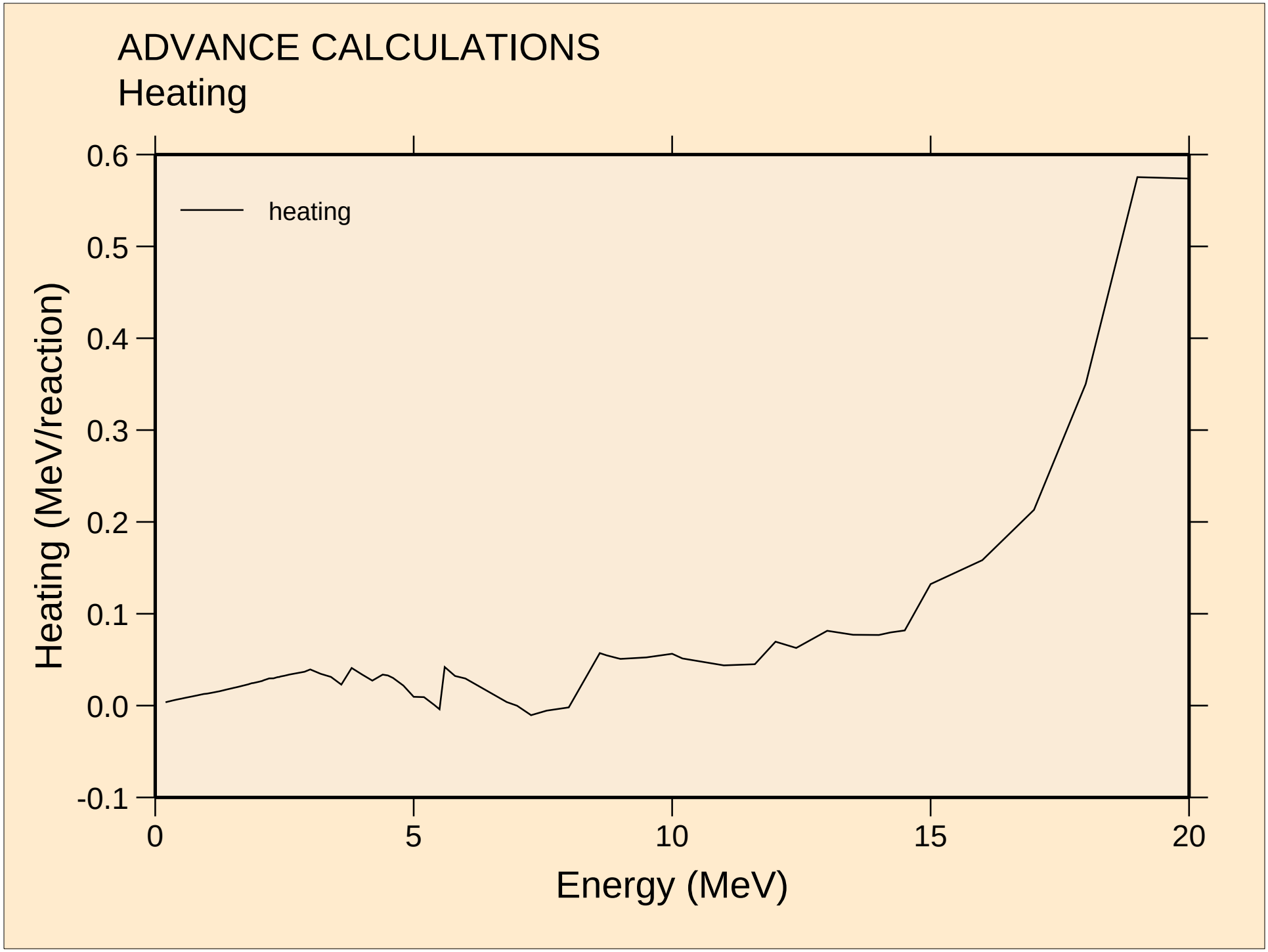


ADVANCE CALCULATIONS

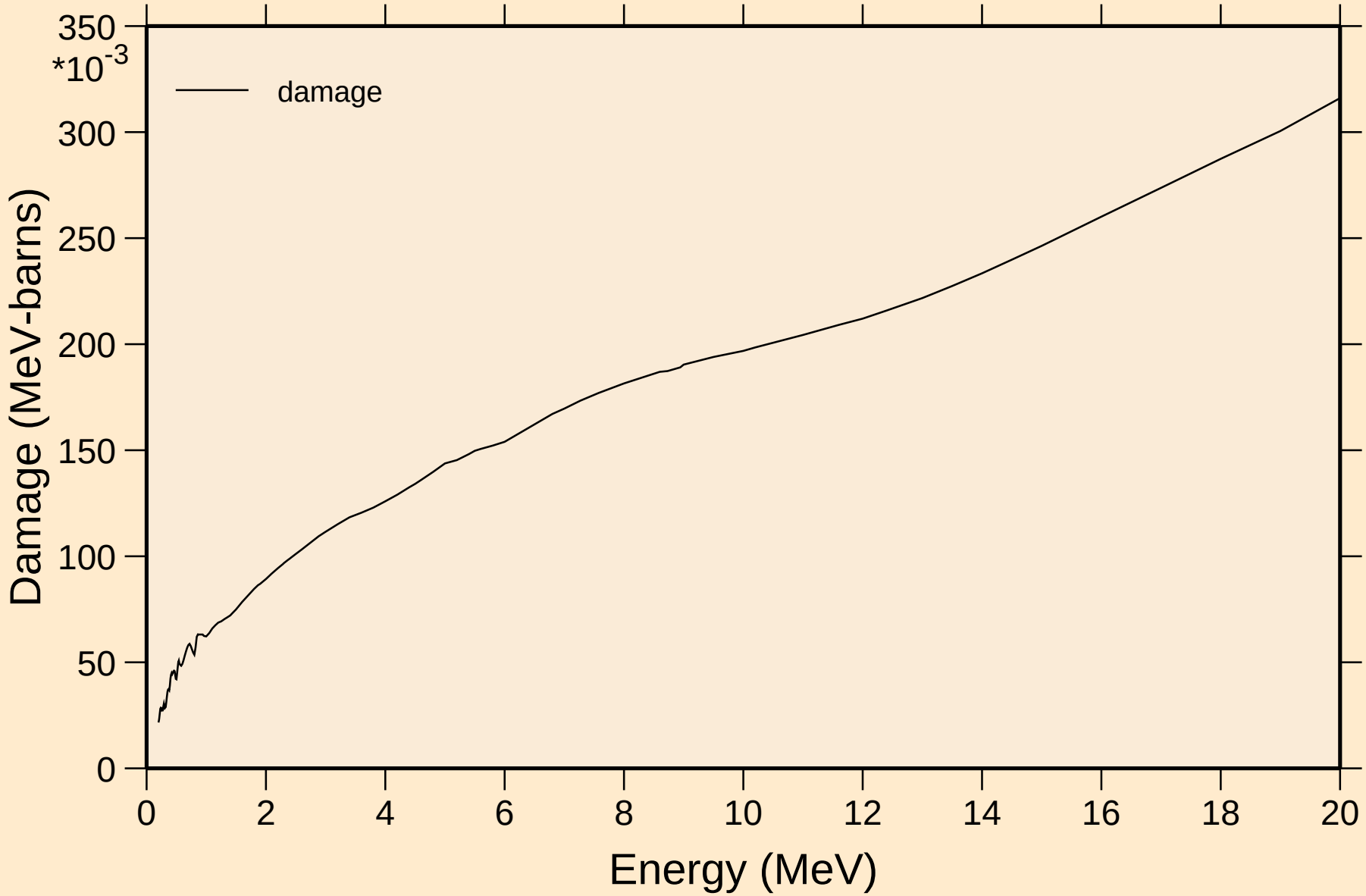
Non-threshold reactions




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

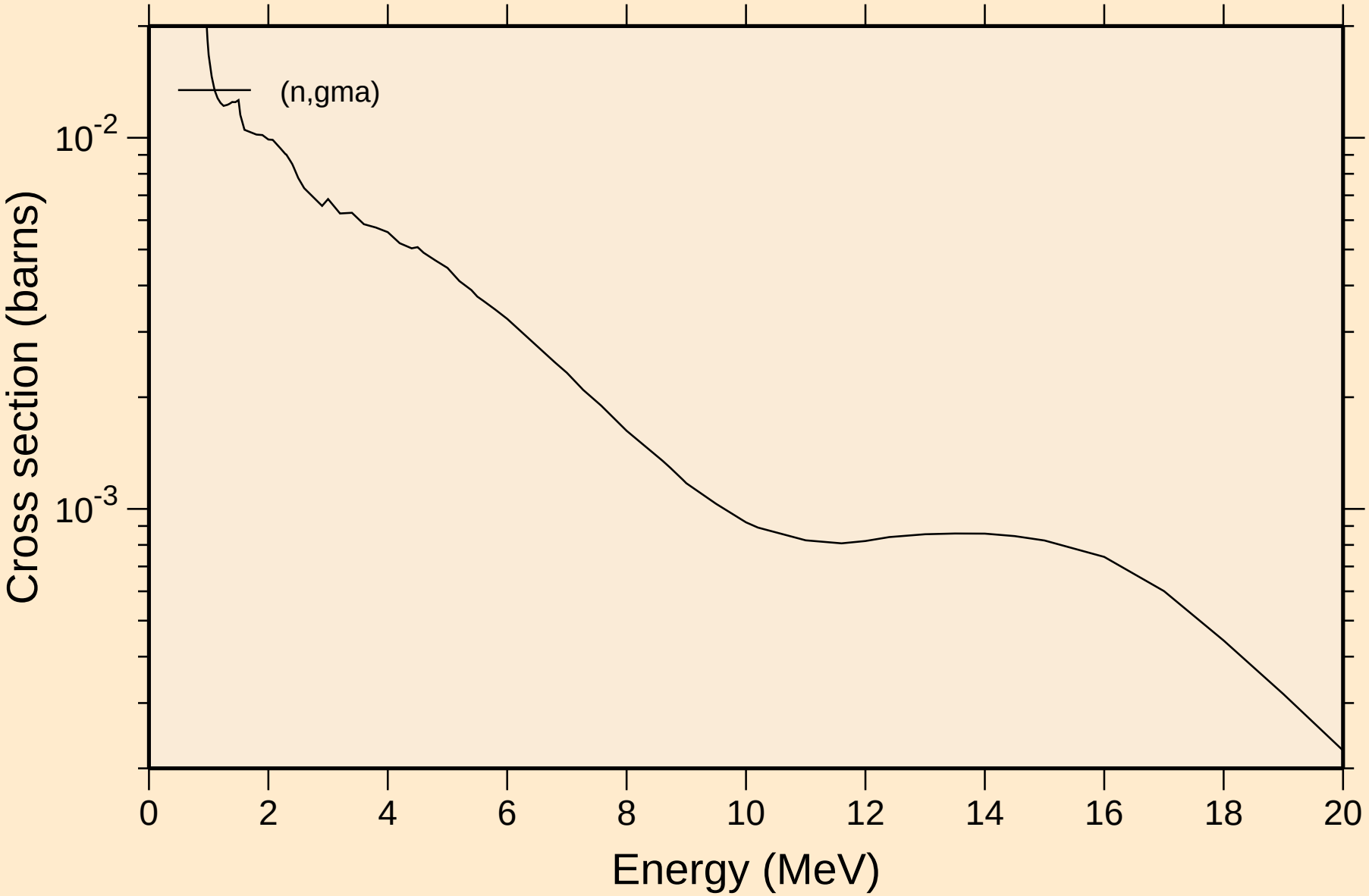

ADVANCE CALCULATIONS
Heating
heating
Heating (MeV/reaction)
0.6
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
0
5
10
15
20
Energy (MeV)

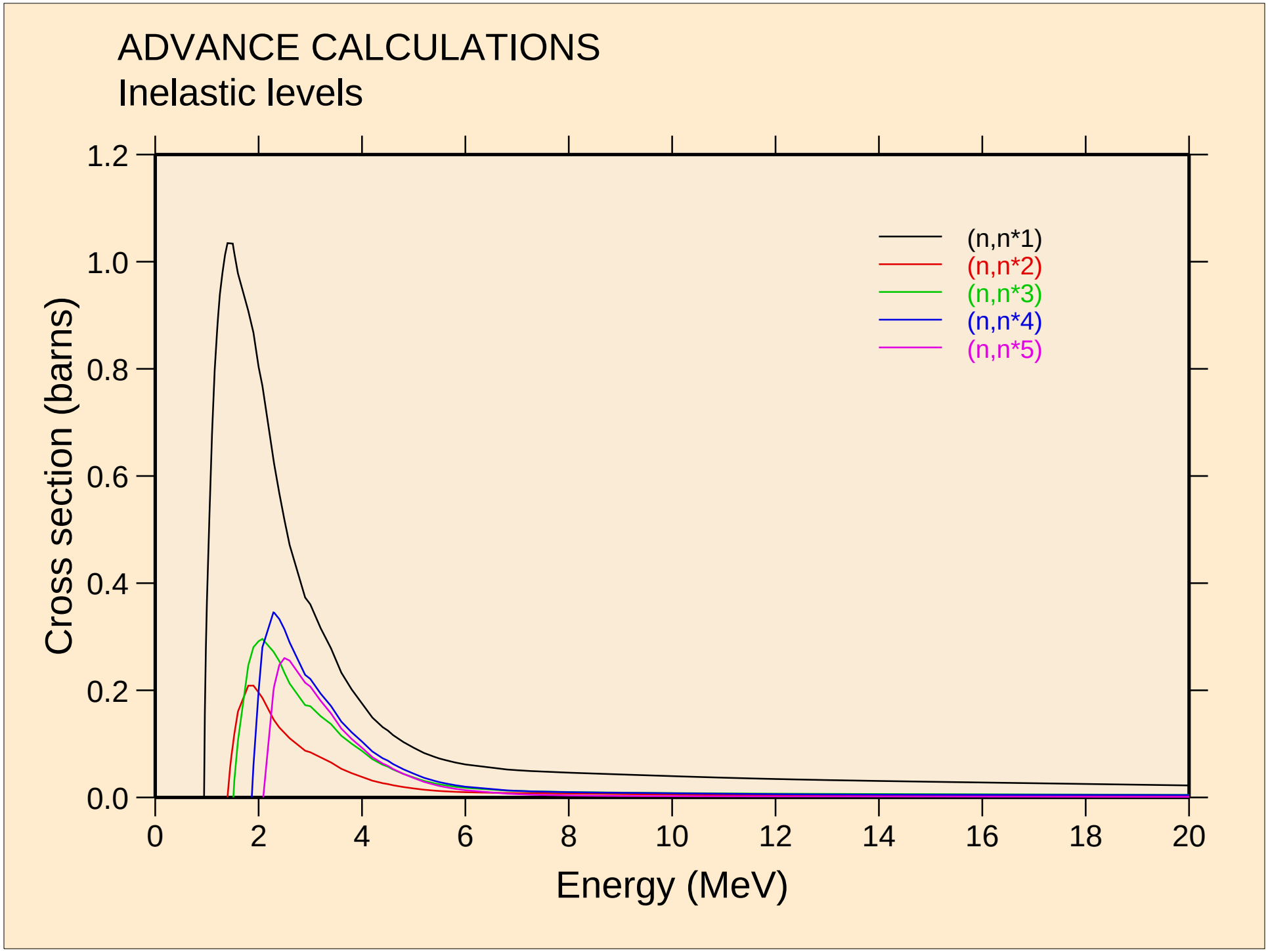
ADVANCE CALCULATIONS
Damage



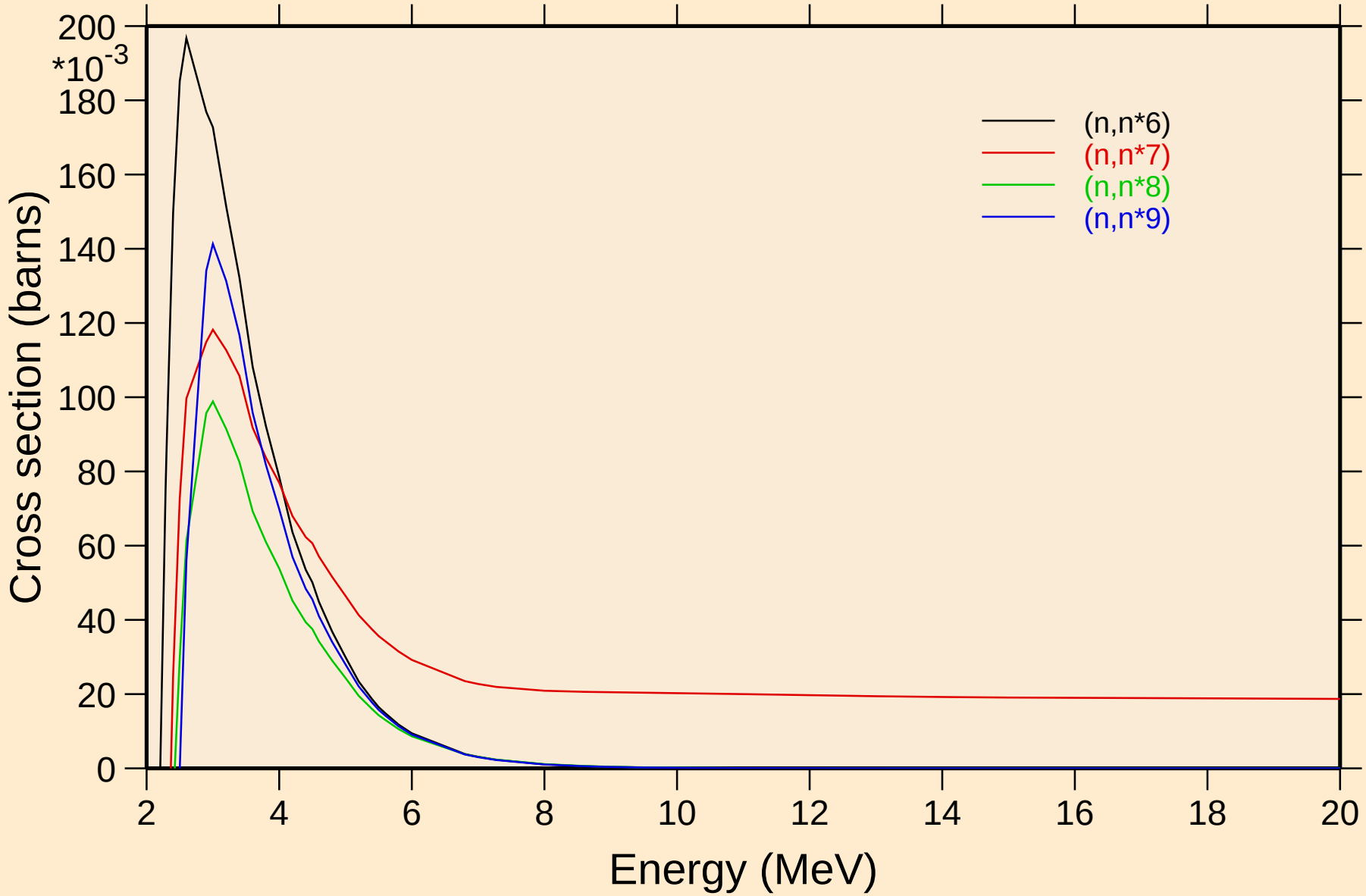
ADVANCE CALCULATIONS

Non-threshold reactions

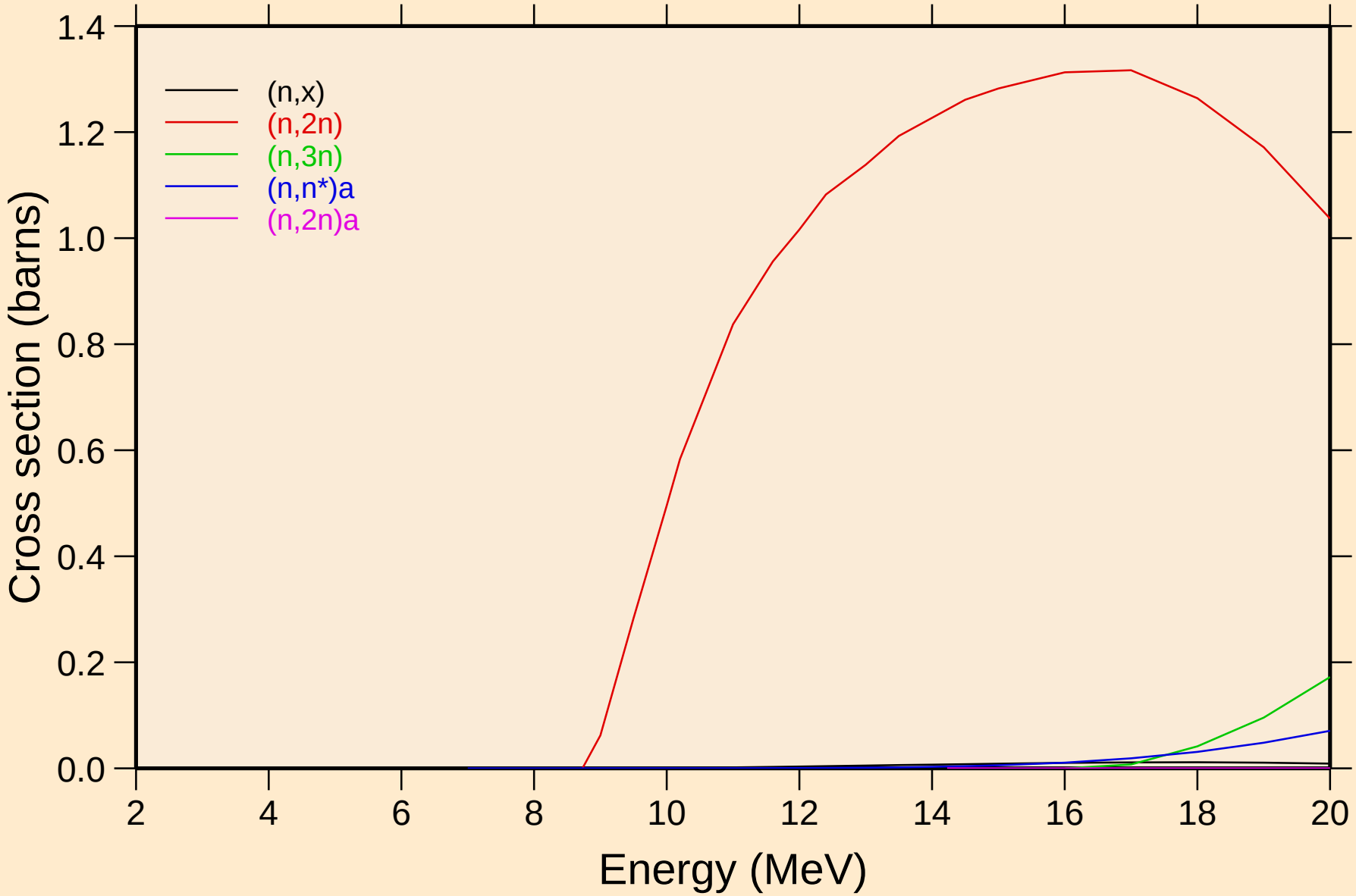


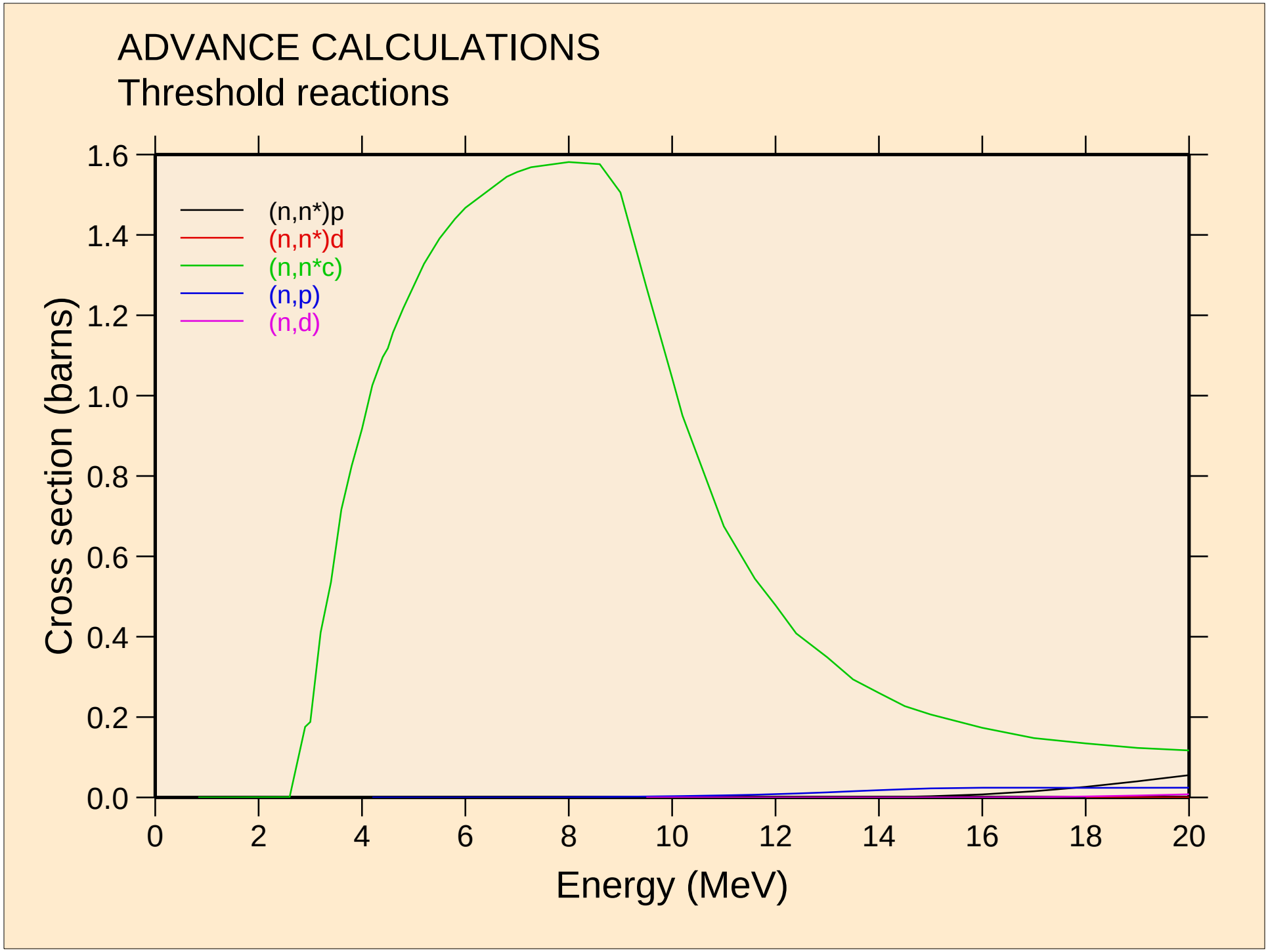

ADVANCE CALCULATIONS
Inelastic levels
Cross section (barns)
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
2
4
6
8
10
12
14
16
18
20

ADVANCE CALCULATIONS
Inelastic levels



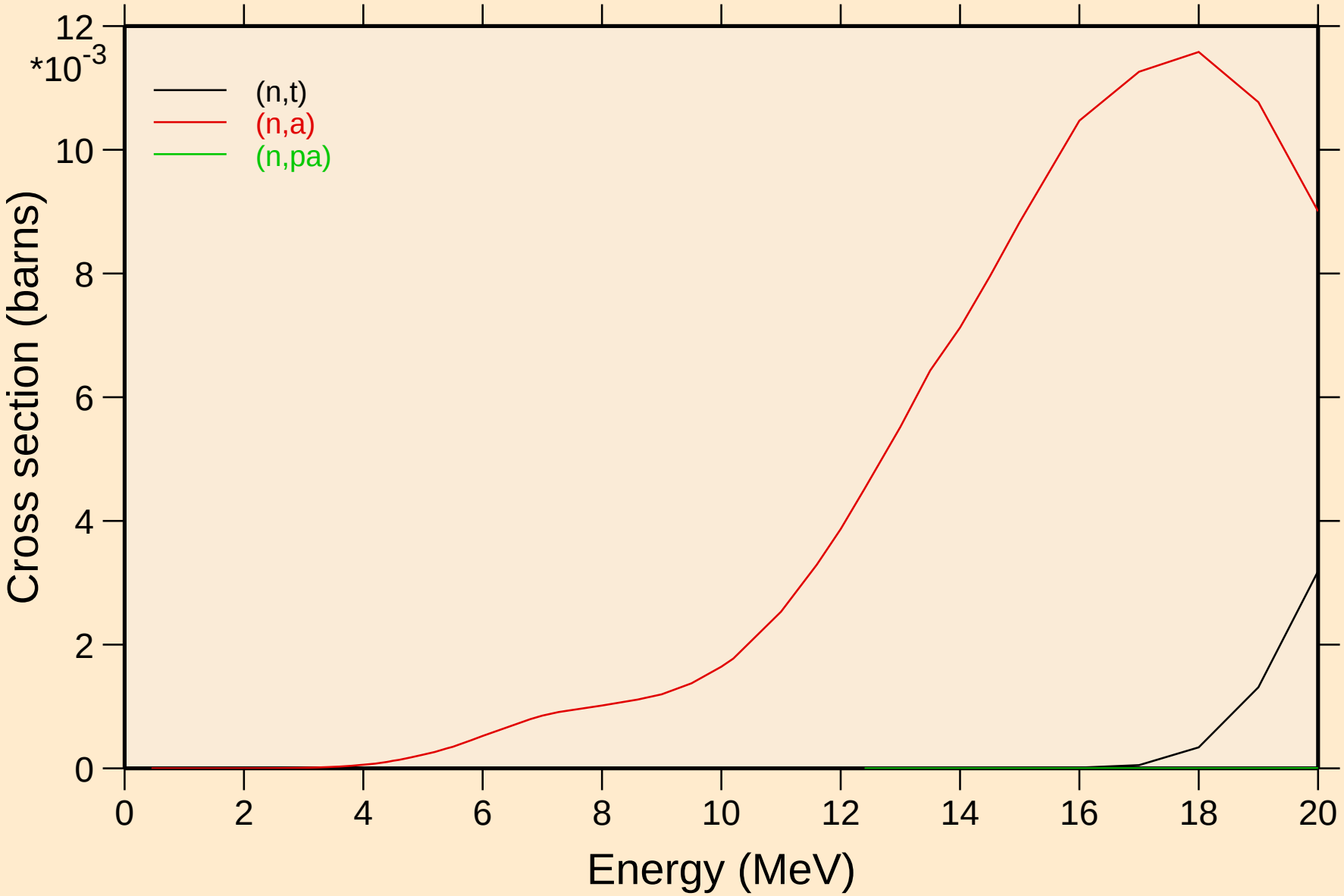
ADVANCE CALCULATIONS
Threshold reactions



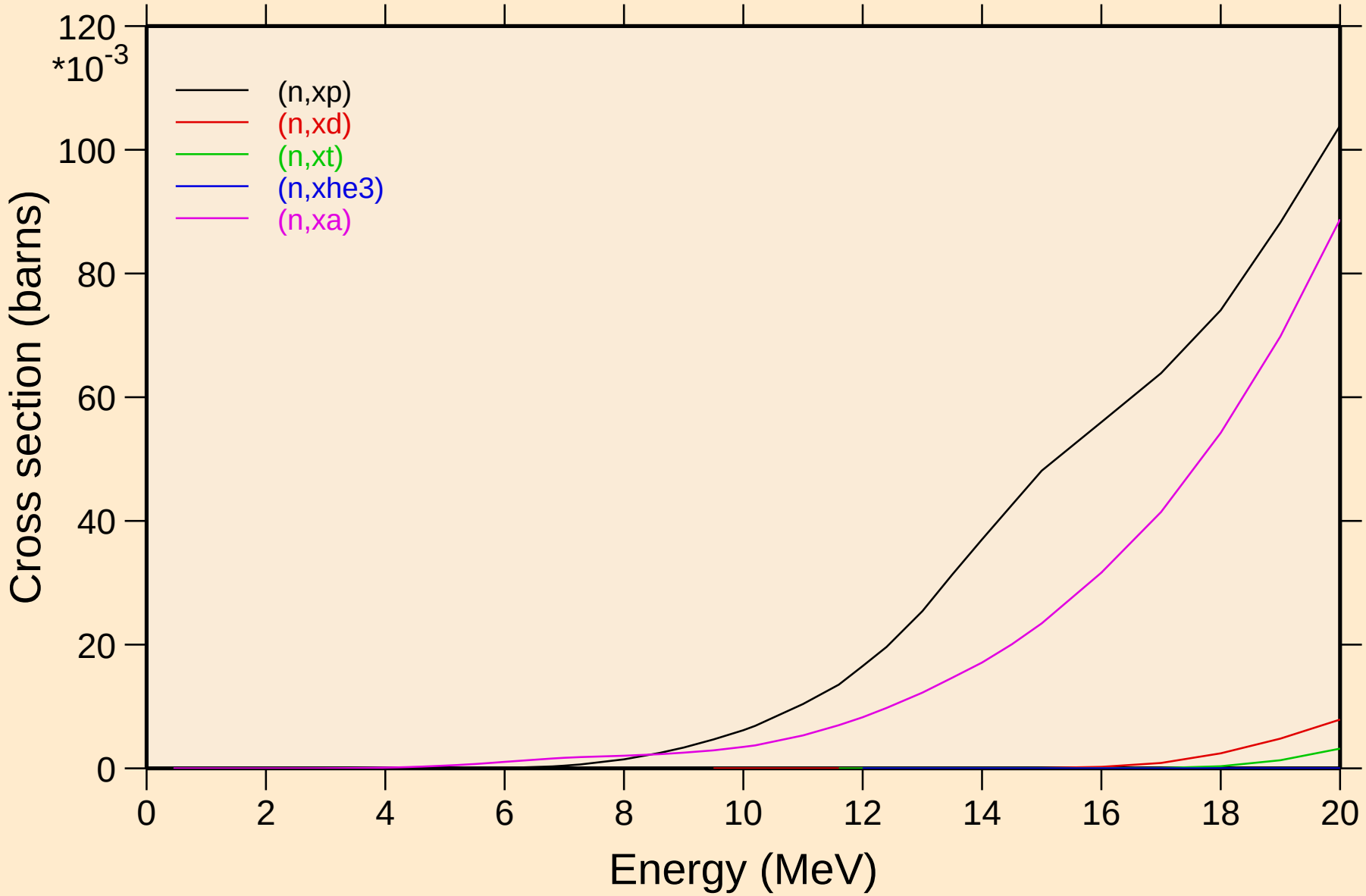

ADVANCE CALCULATIONS
Threshold reactions
(n,n*)p
(n,n*)d
(n,n*c)
(n,p)
(n,d)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
2
4
6
8
10
12
14
16
18
20

ADVANCE CALCULATIONS

Threshold reactions

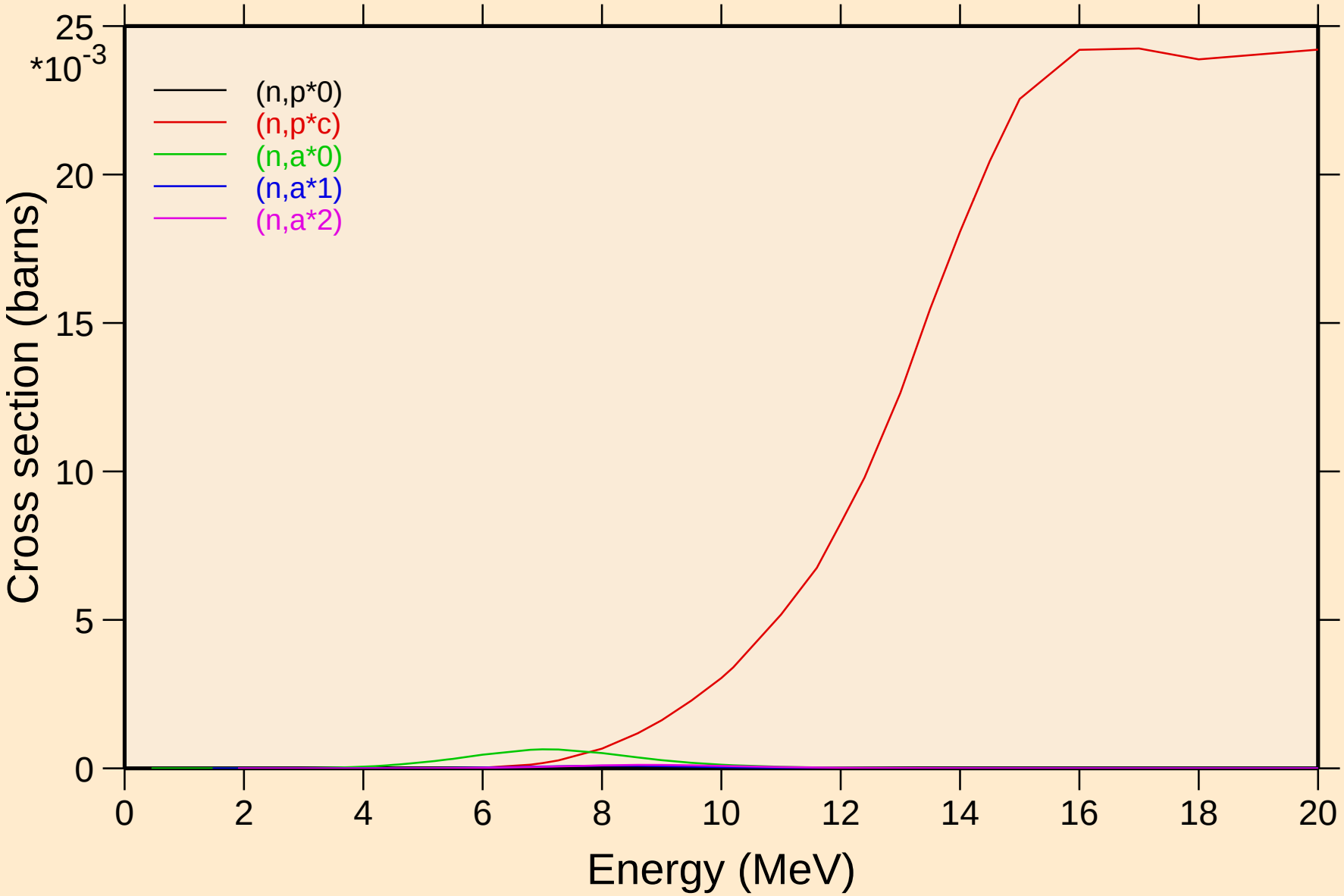


ADVANCE CALCULATIONS
Threshold reactions



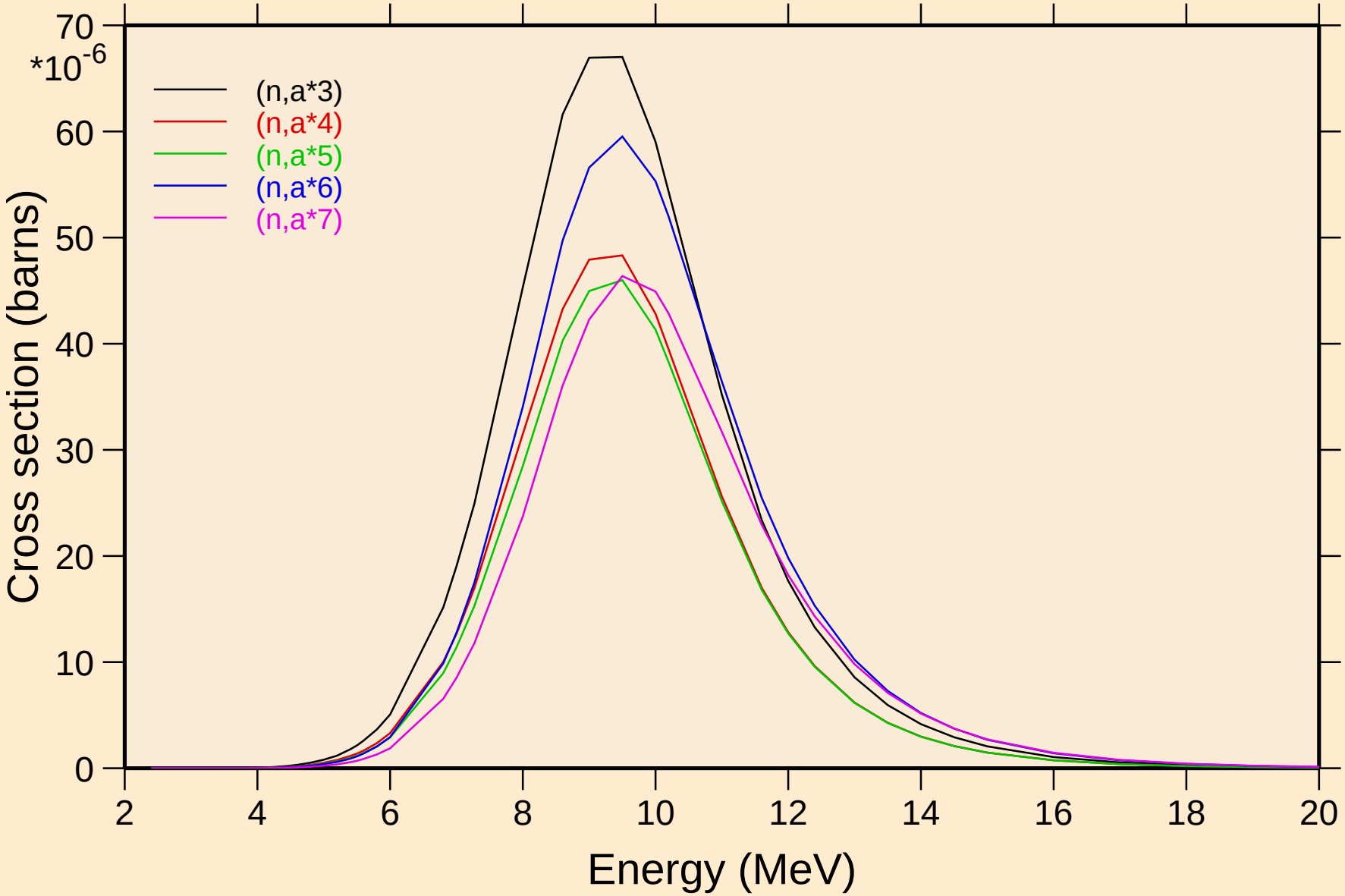
ADVANCE CALCULATIONS

Threshold reactions



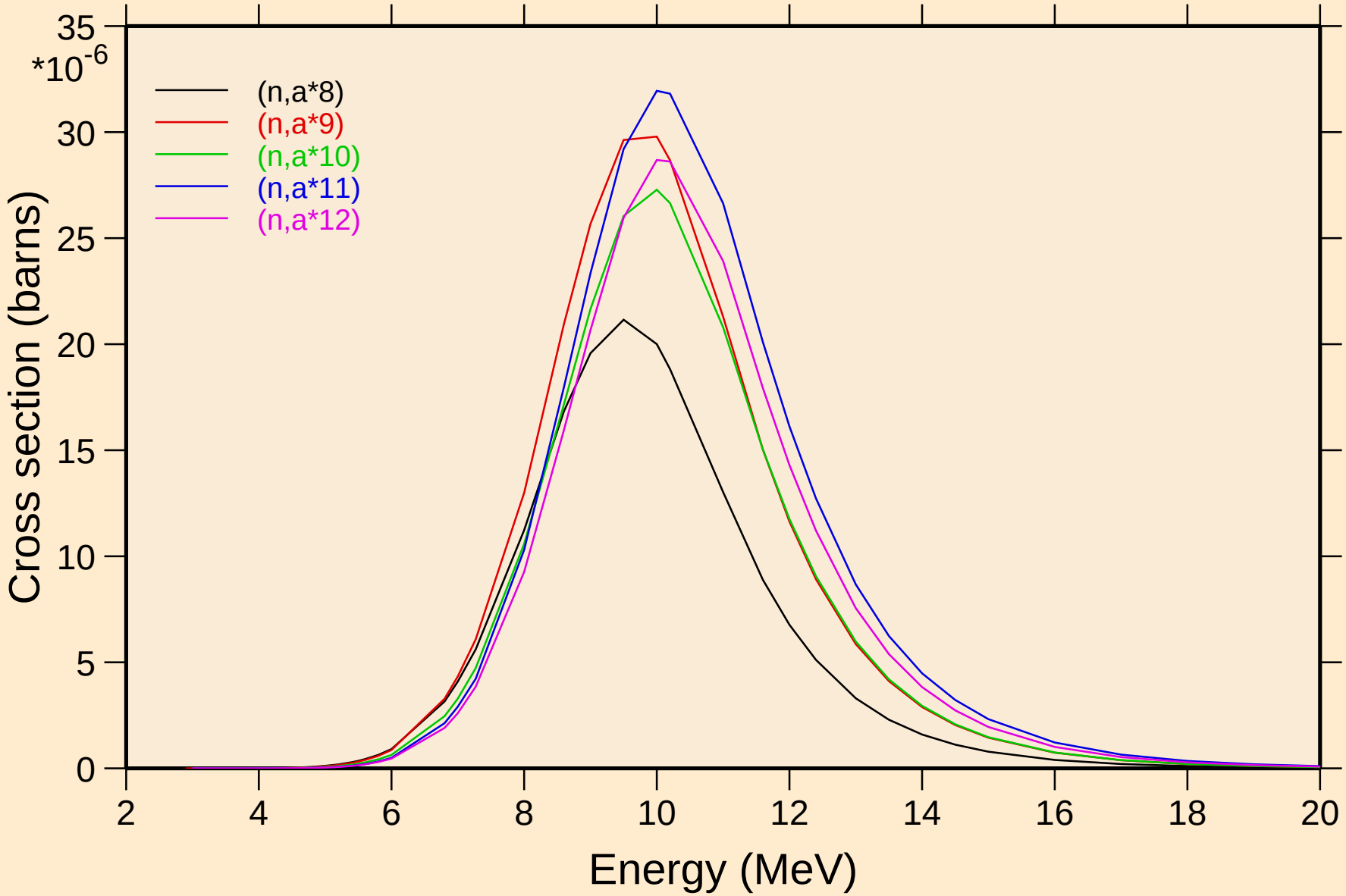
ADVANCE CALCULATIONS

Threshold reactions



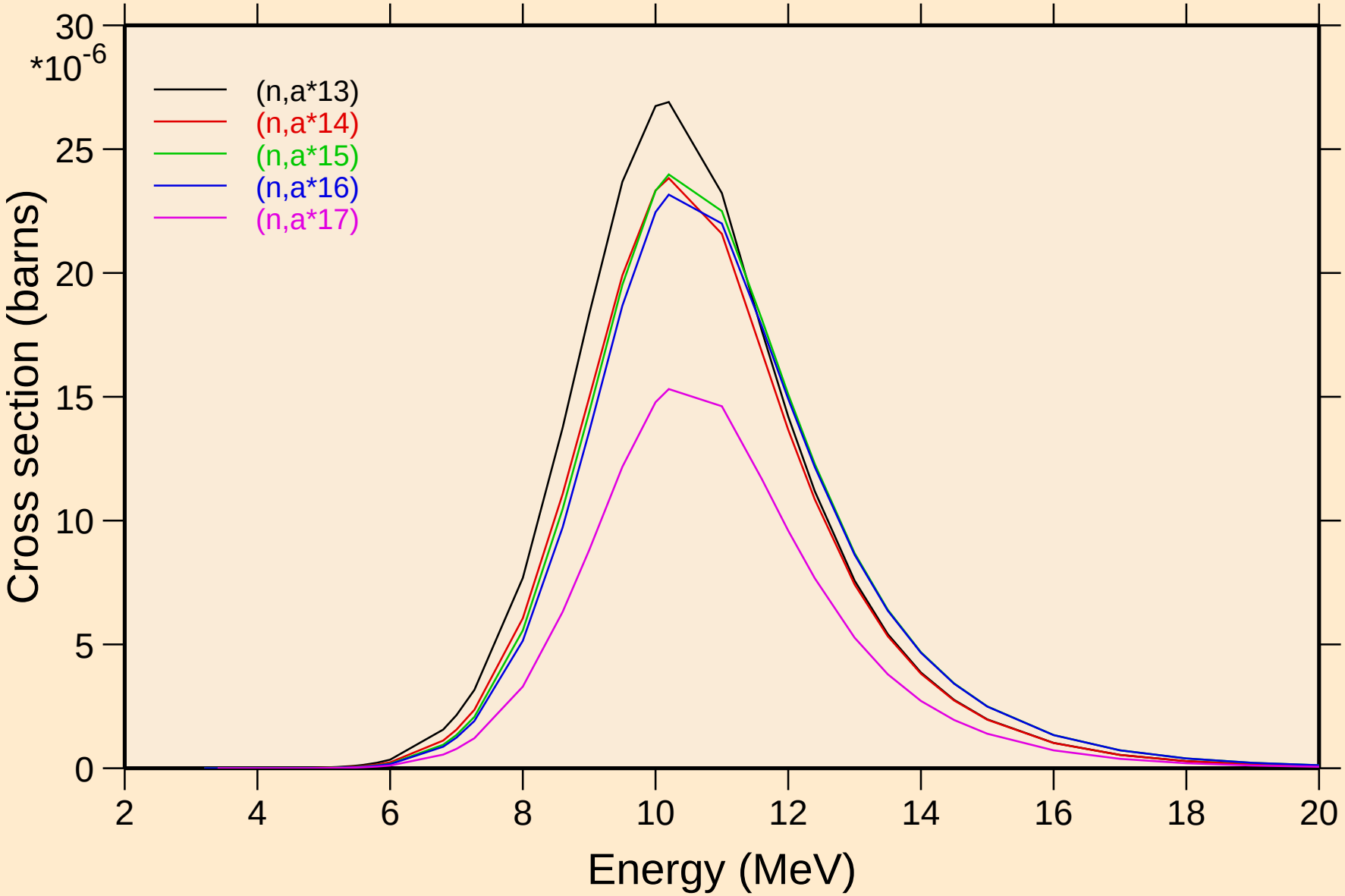
ADVANCE CALCULATIONS

Threshold reactions



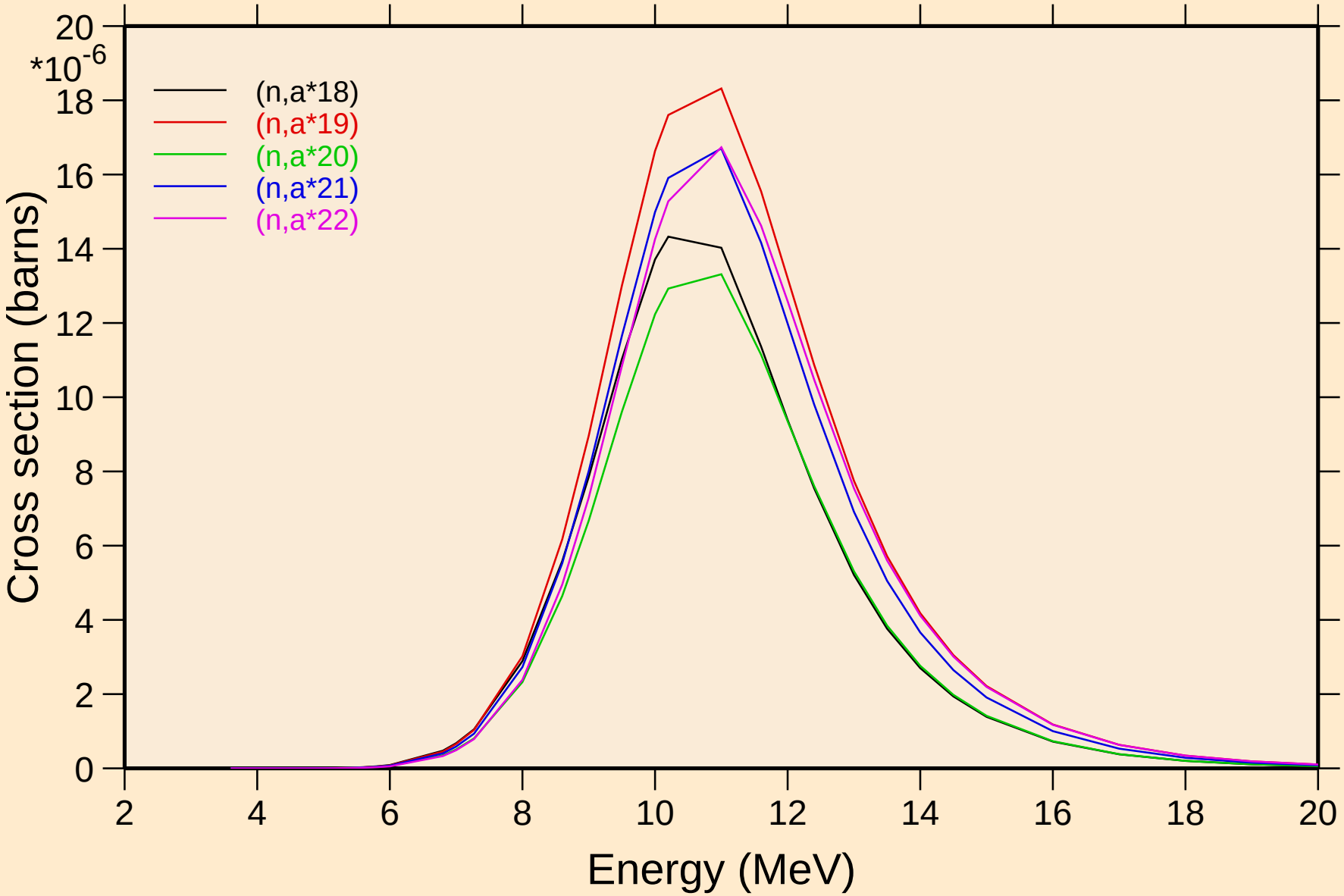
ADVANCE CALCULATIONS

Threshold reactions



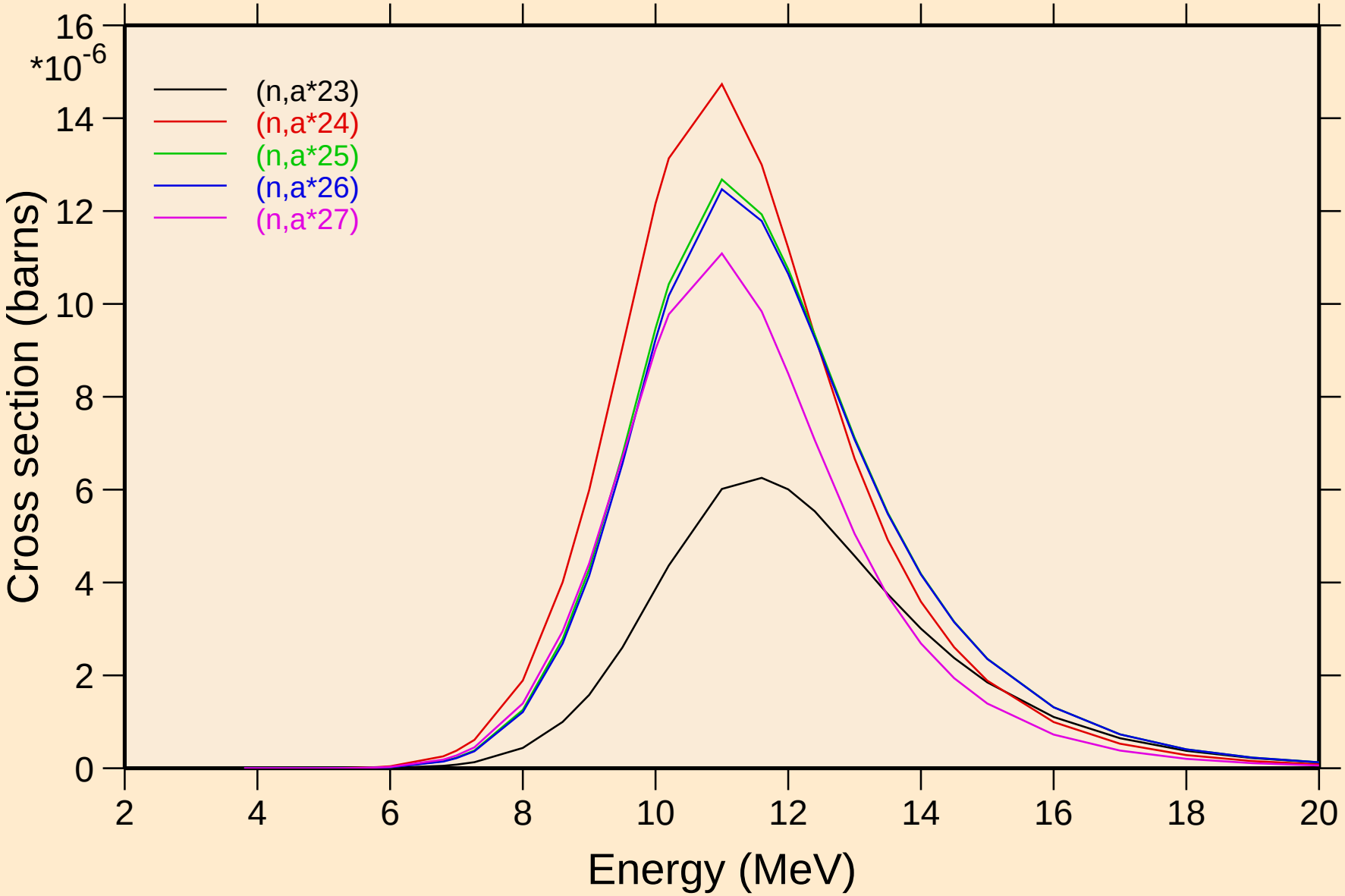
ADVANCE CALCULATIONS

Threshold reactions



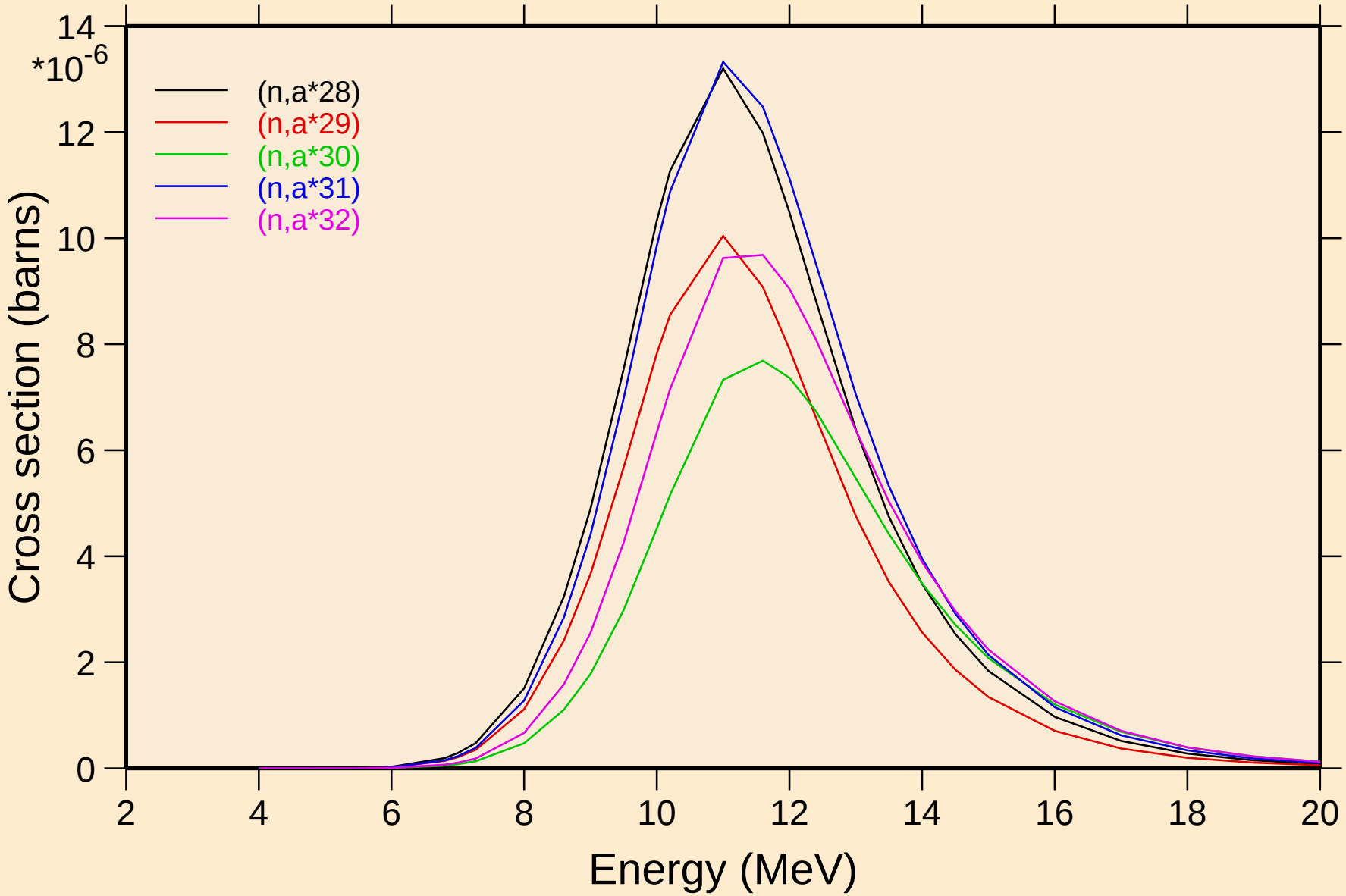
ADVANCE CALCULATIONS

Threshold reactions



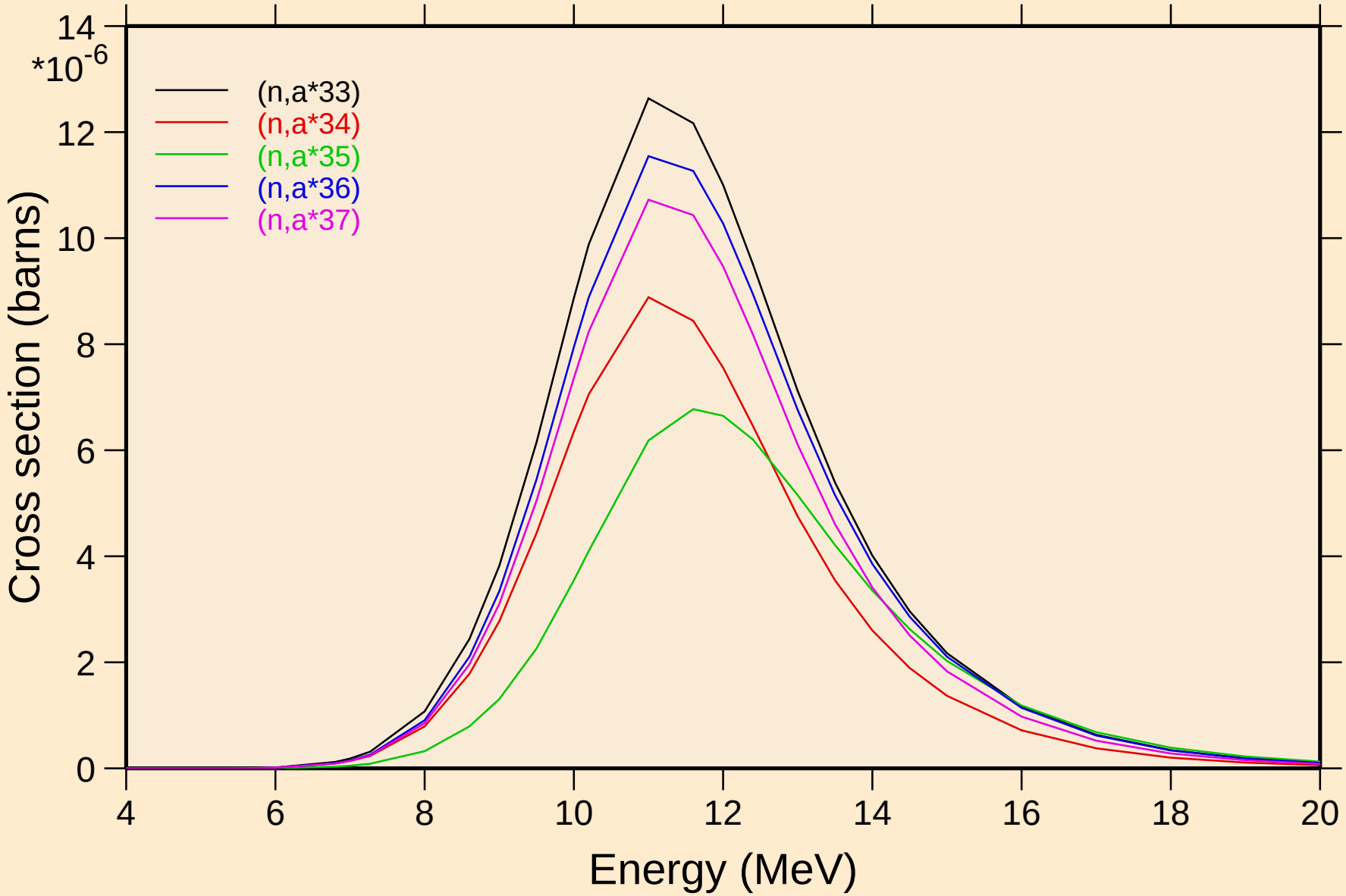
ADVANCE CALCULATIONS

Threshold reactions



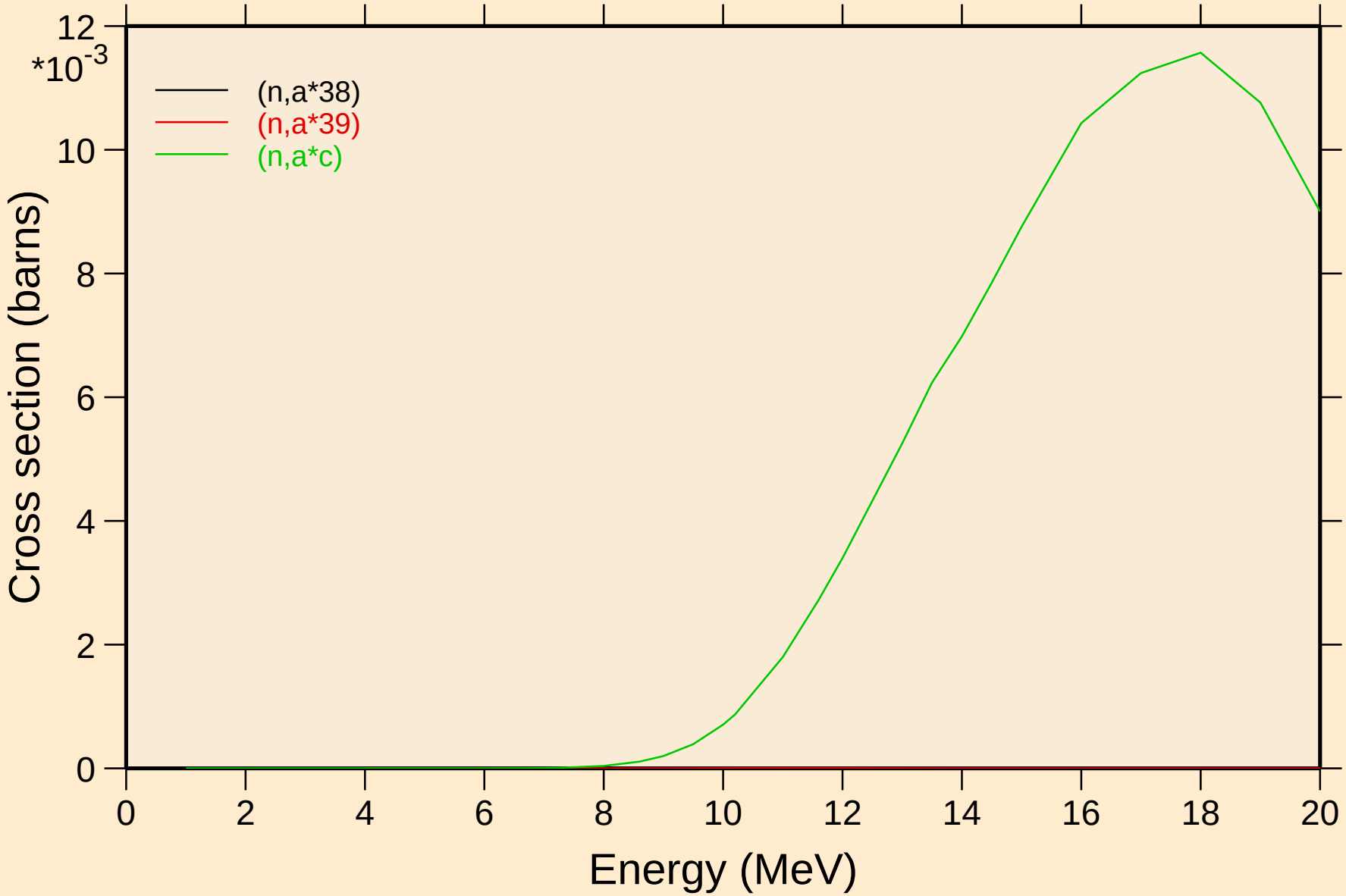
ADVANCE CALCULATIONS

Threshold reactions

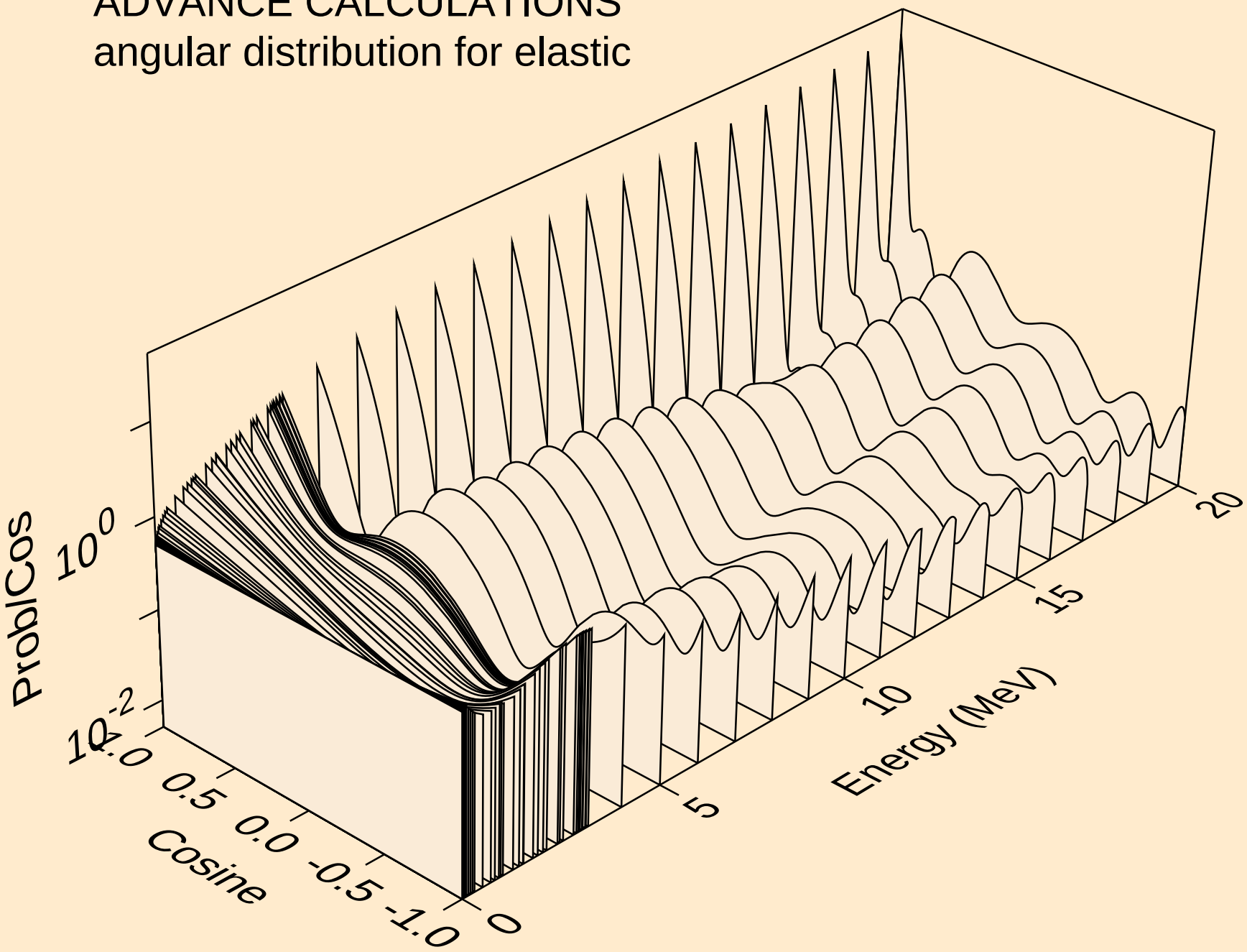


ADVANCE CALCULATIONS

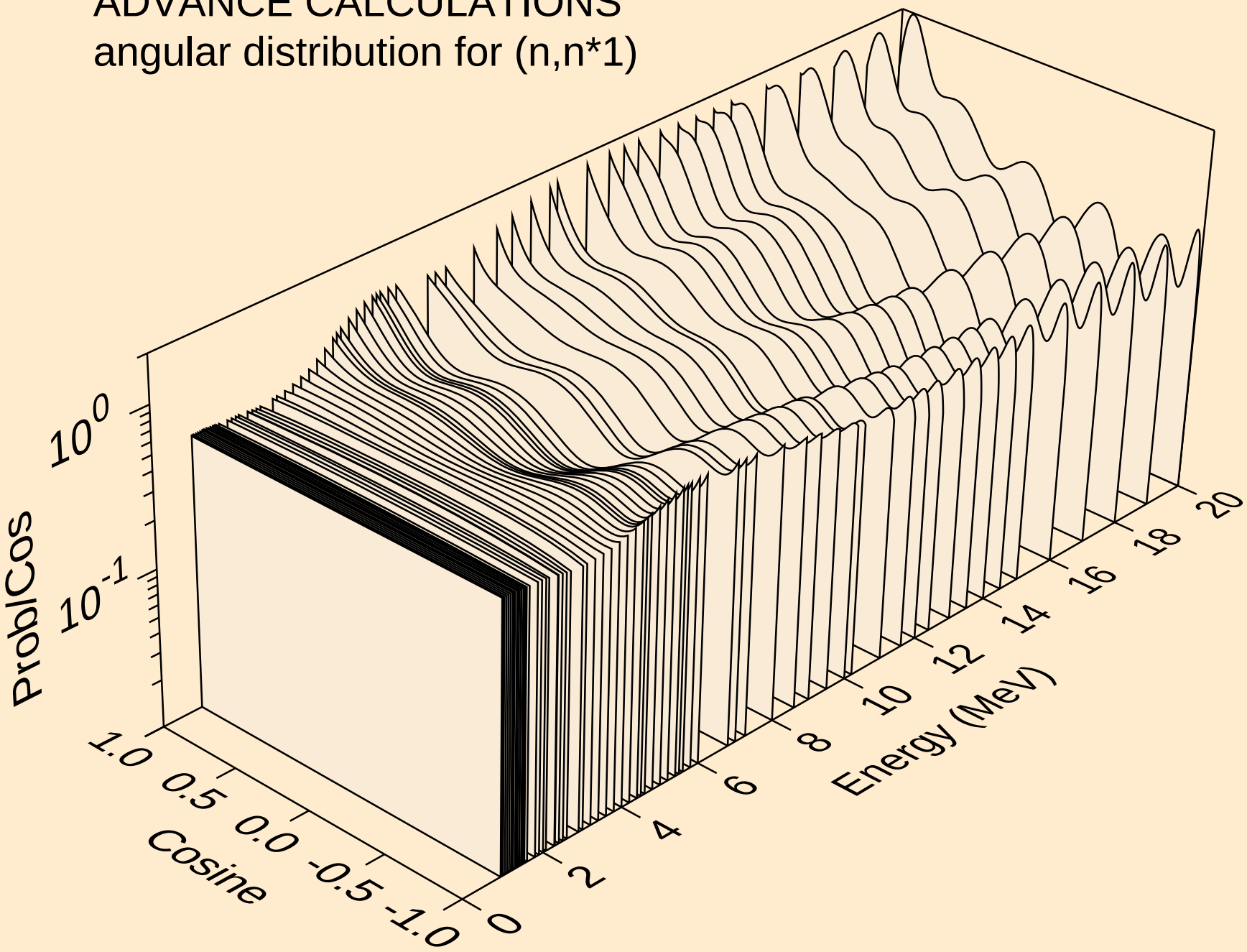
Threshold reactions



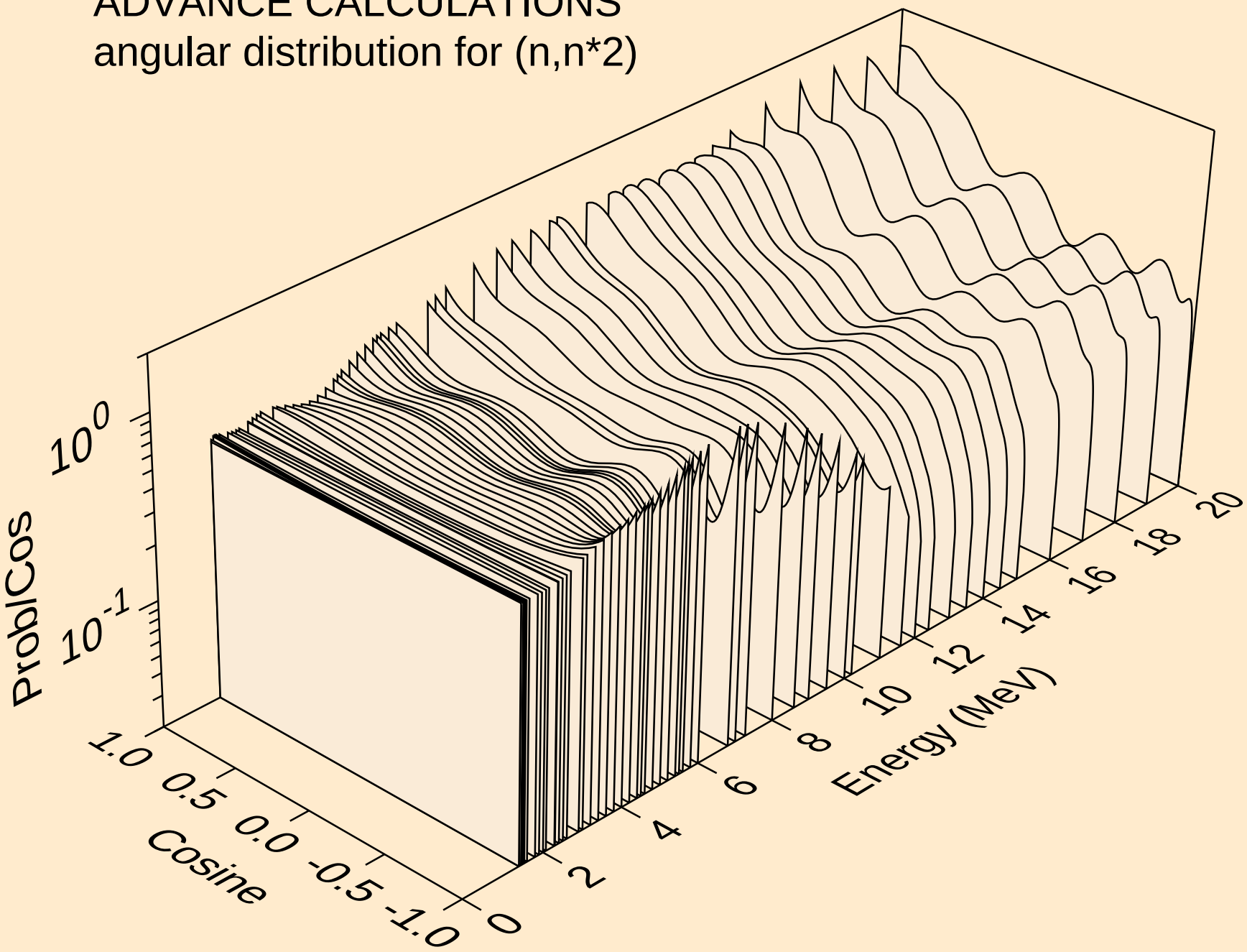
ADVANCE CALCULATIONS
angular distribution for elastic



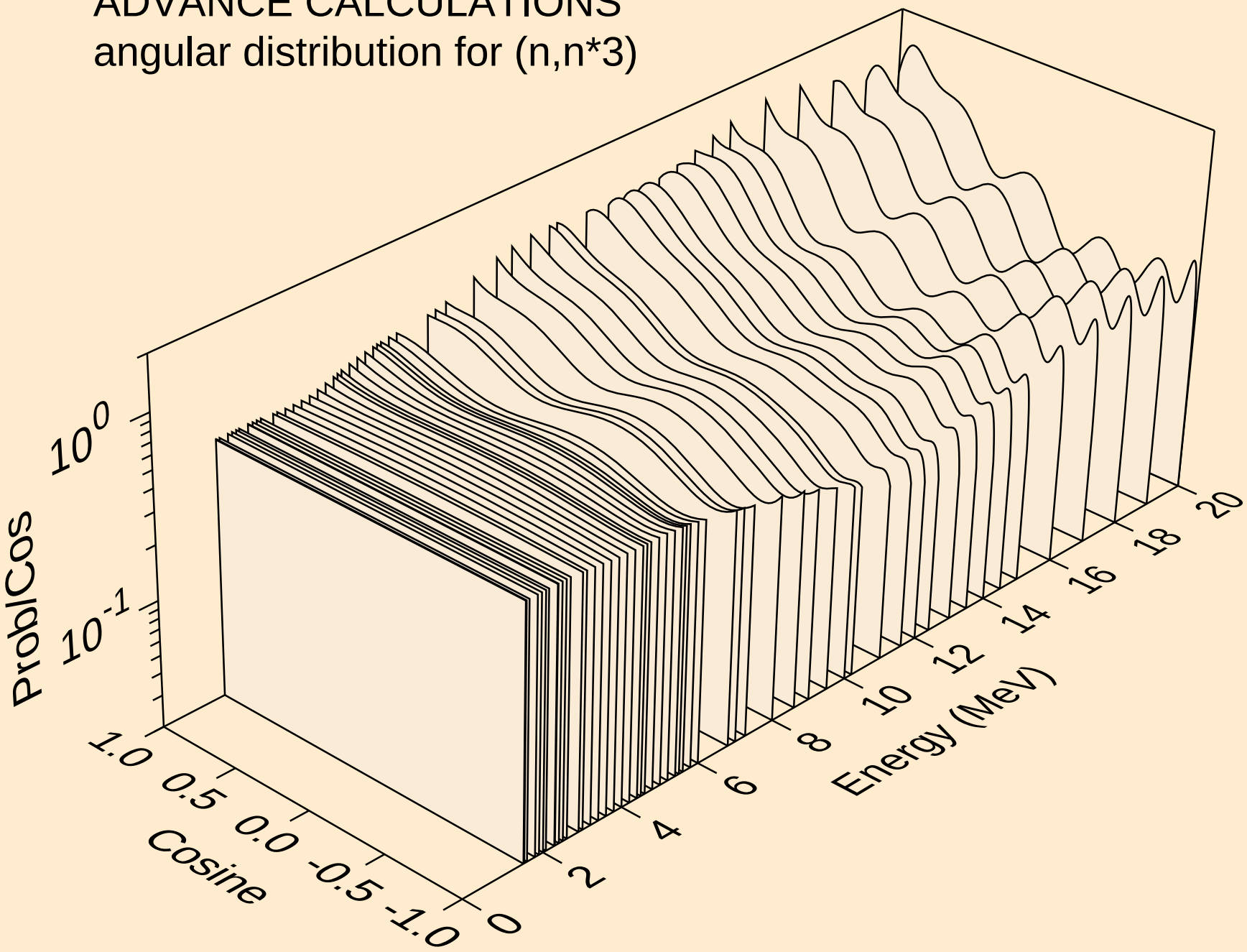
ADVANCE CALCULATIONS
angular distribution for (n,n*1)



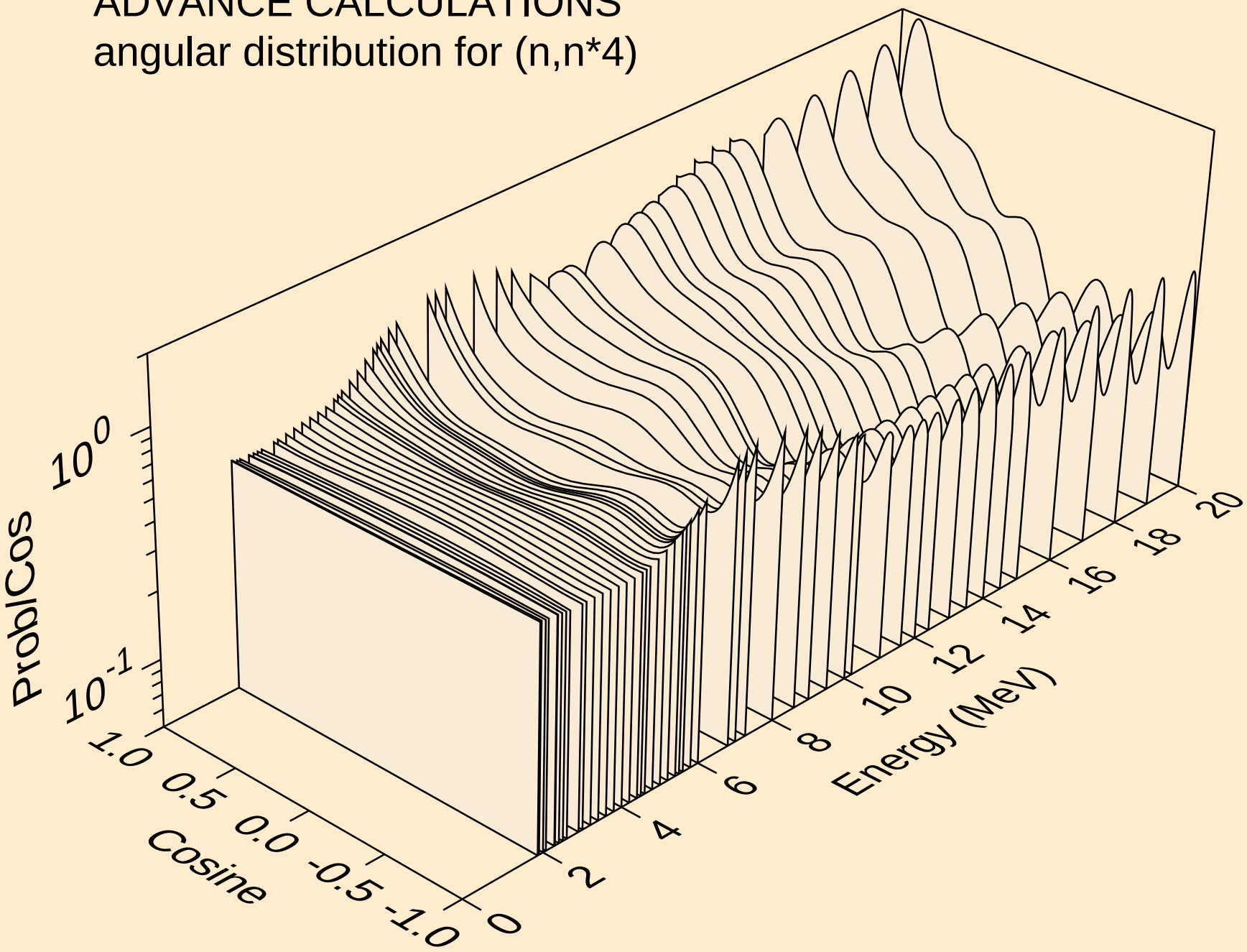
ADVANCE CALCULATIONS
angular distribution for (n,n*2)



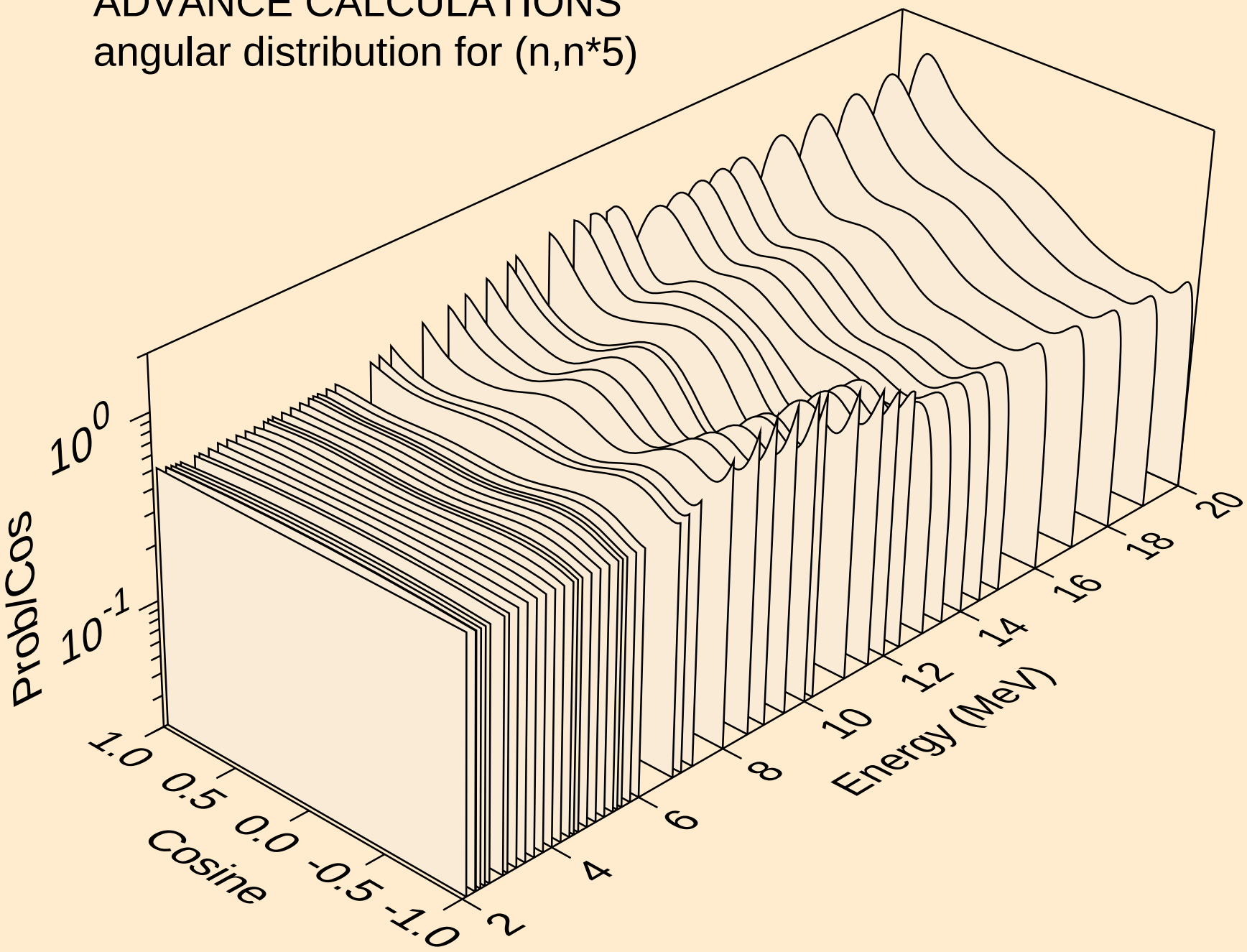
ADVANCE CALCULATIONS
angular distribution for (n,n*3)



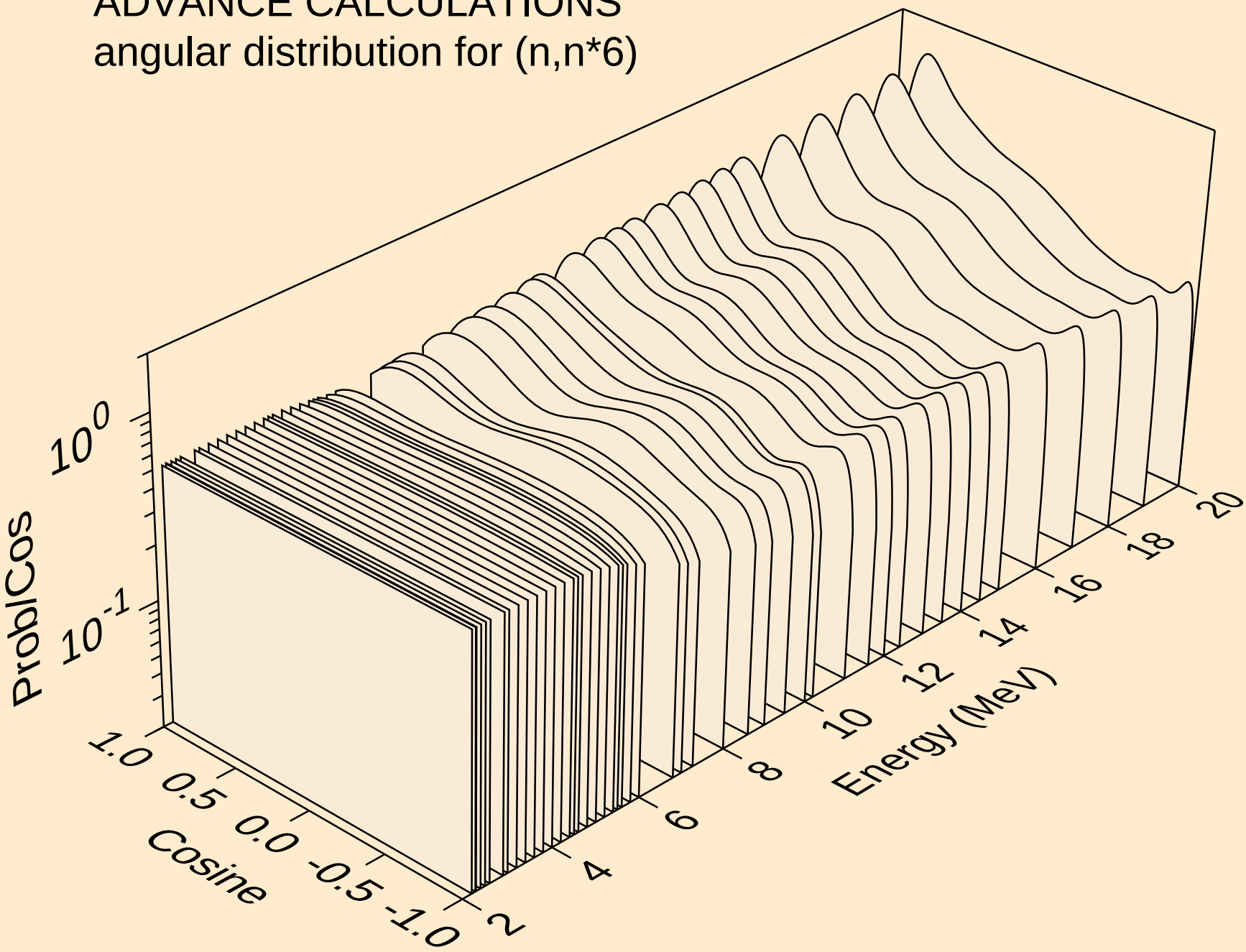
ADVANCE CALCULATIONS
angular distribution for (n,n*4)



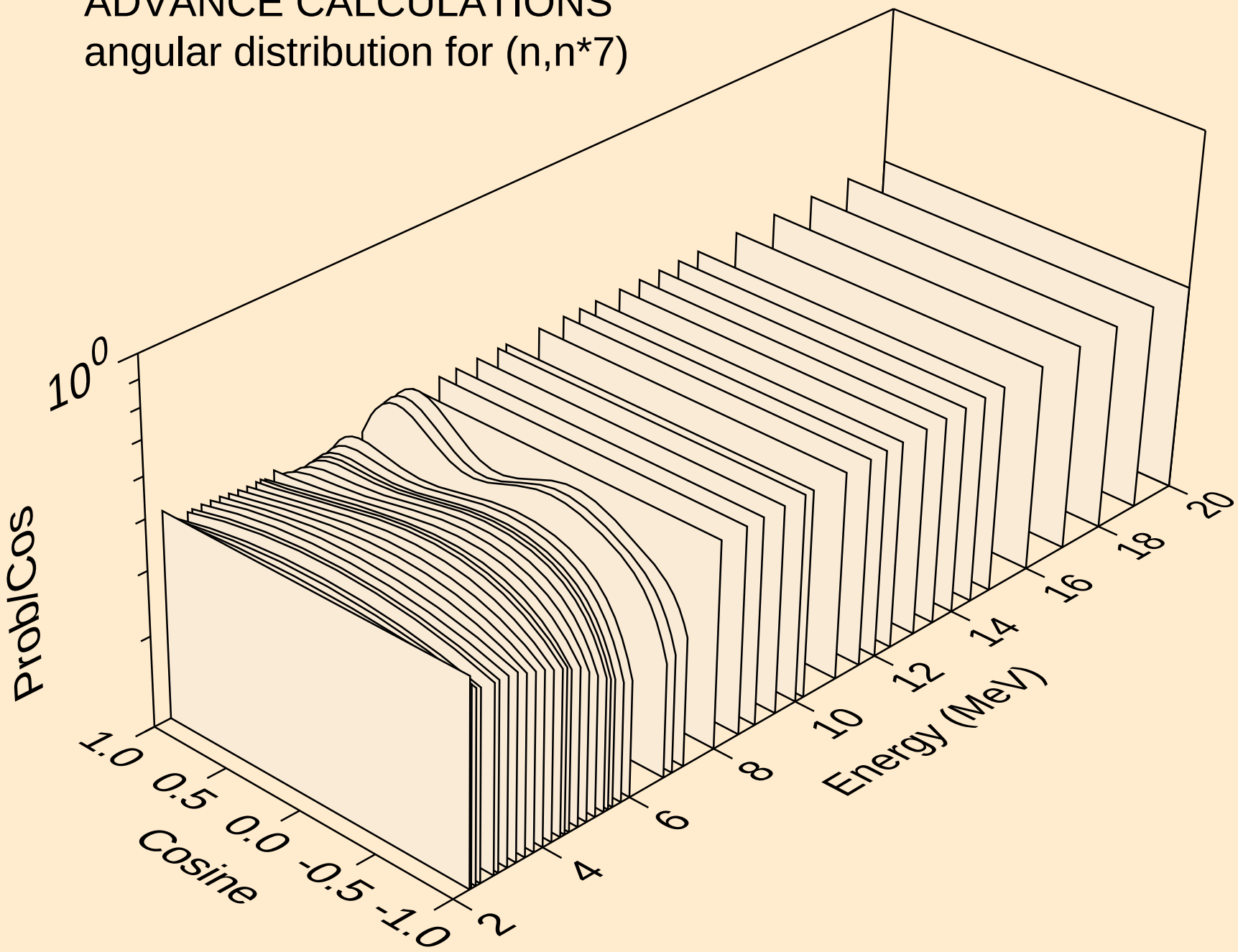
ADVANCE CALCULATIONS
angular distribution for (n,n*5)



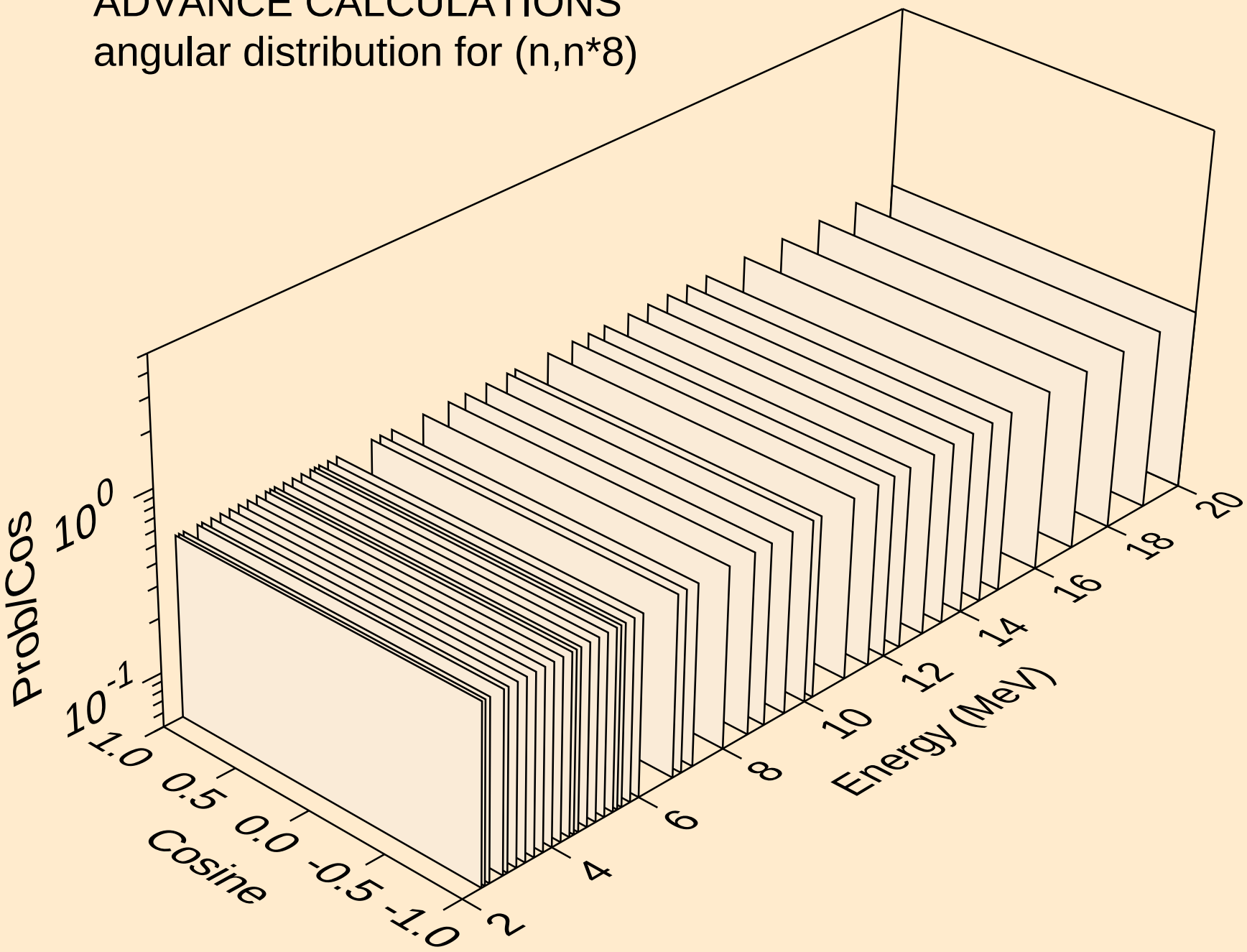
ADVANCE CALCULATIONS
angular distribution for (n,n*6)



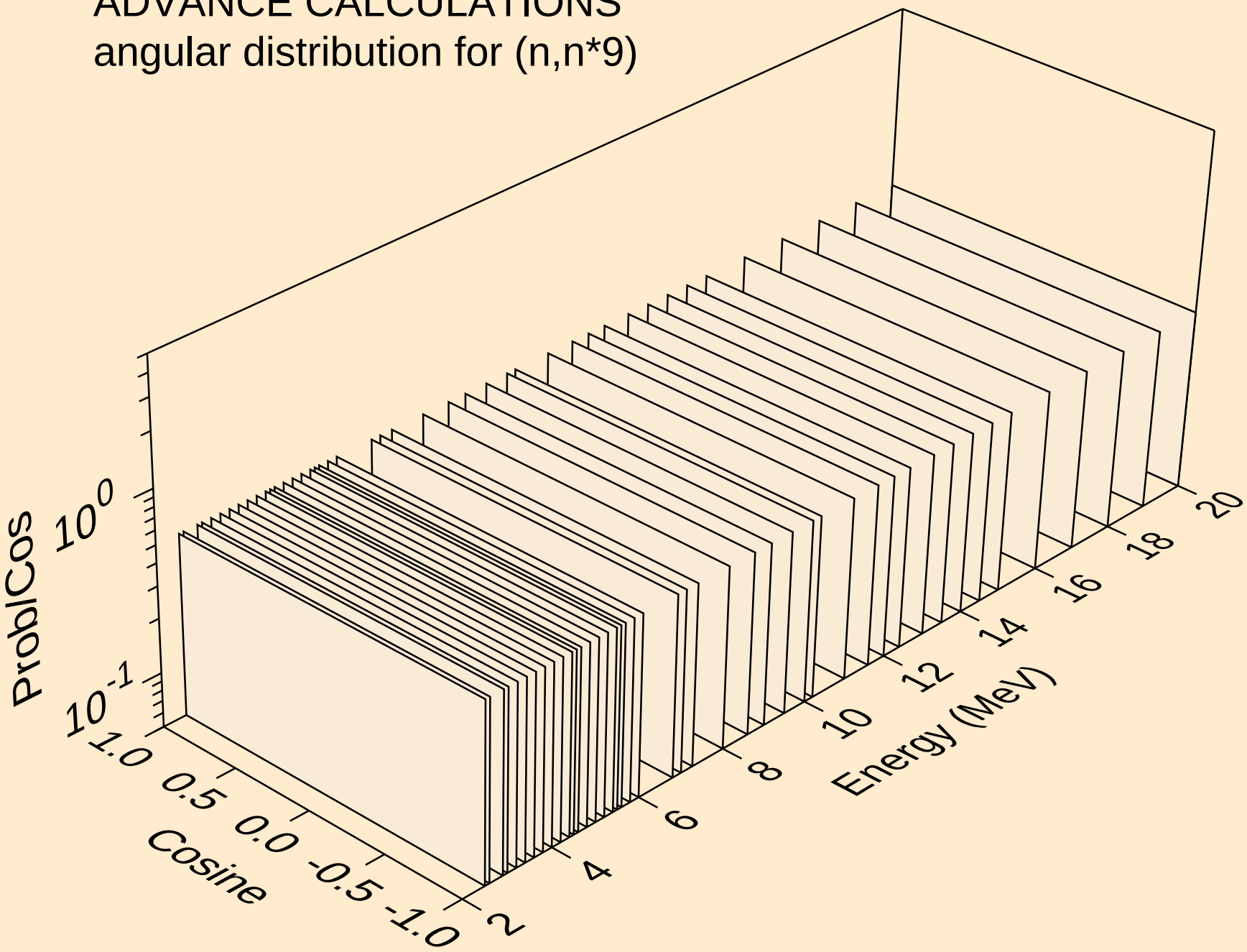
ADVANCE CALCULATIONS
angular distribution for (n,n*7)



ADVANCE CALCULATIONS
angular distribution for (n,n*8)

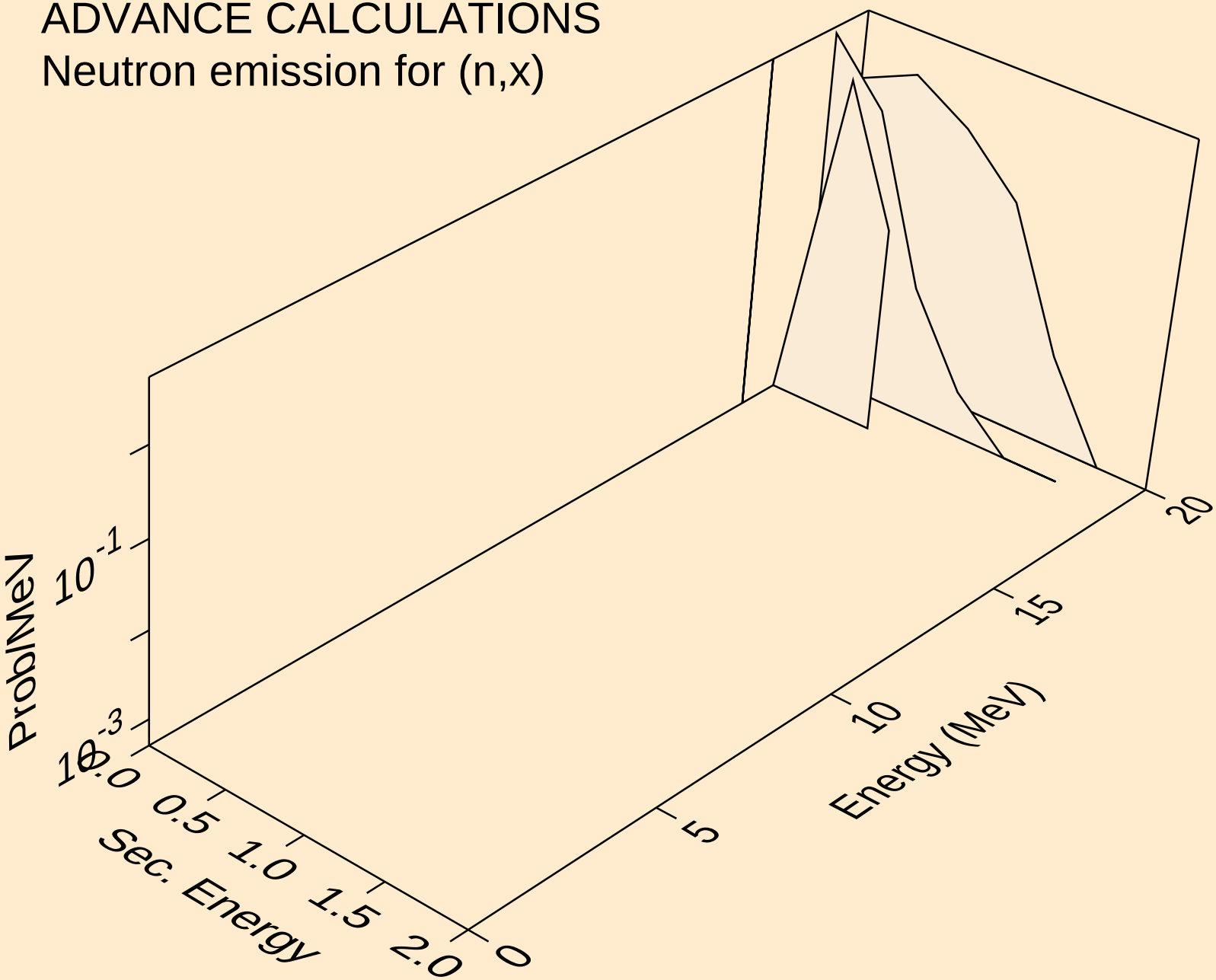


ADVANCE CALCULATIONS
angular distribution for (n,n*9)



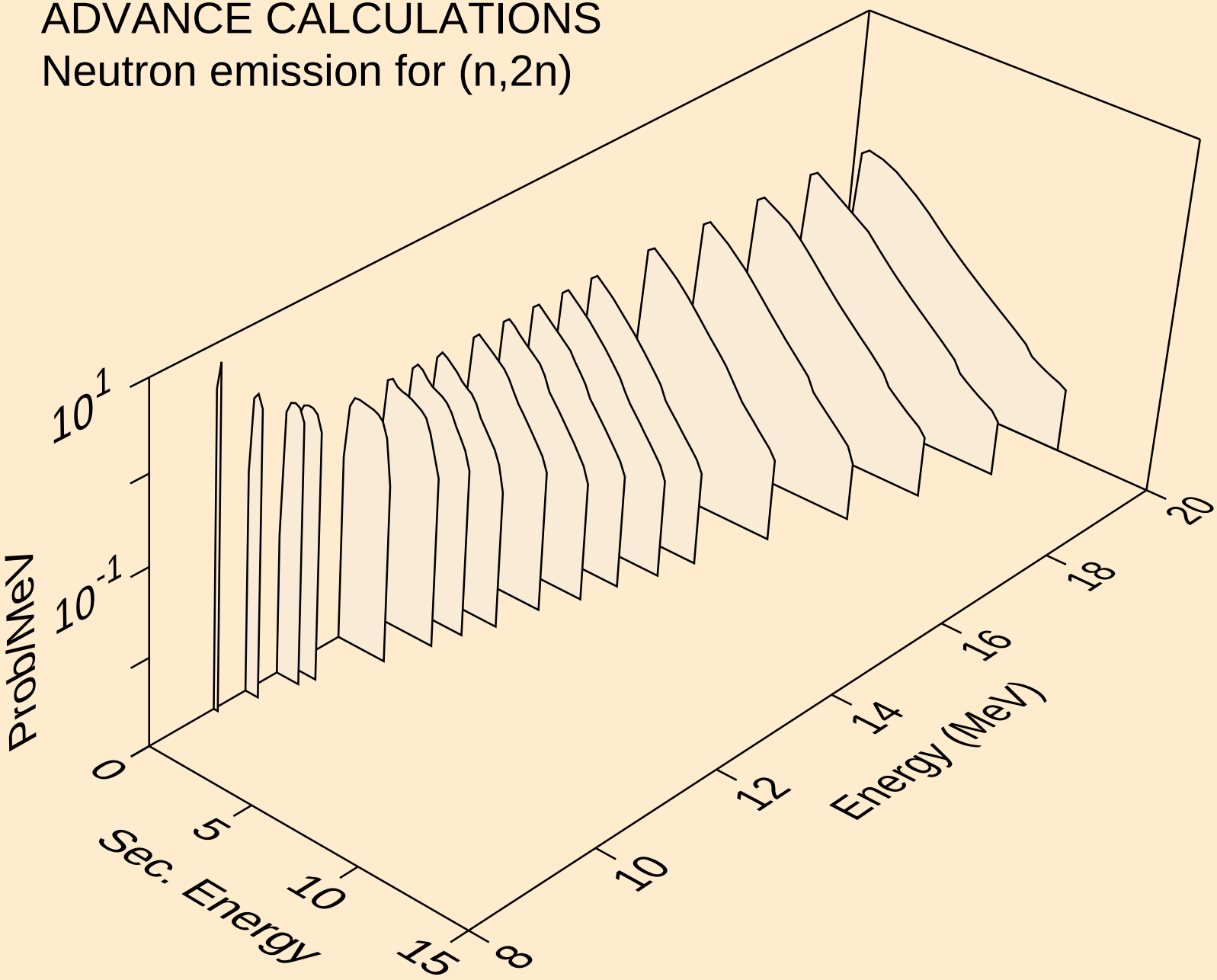
ADVANCE CALCULATIONS

Neutron emission for (n,x)



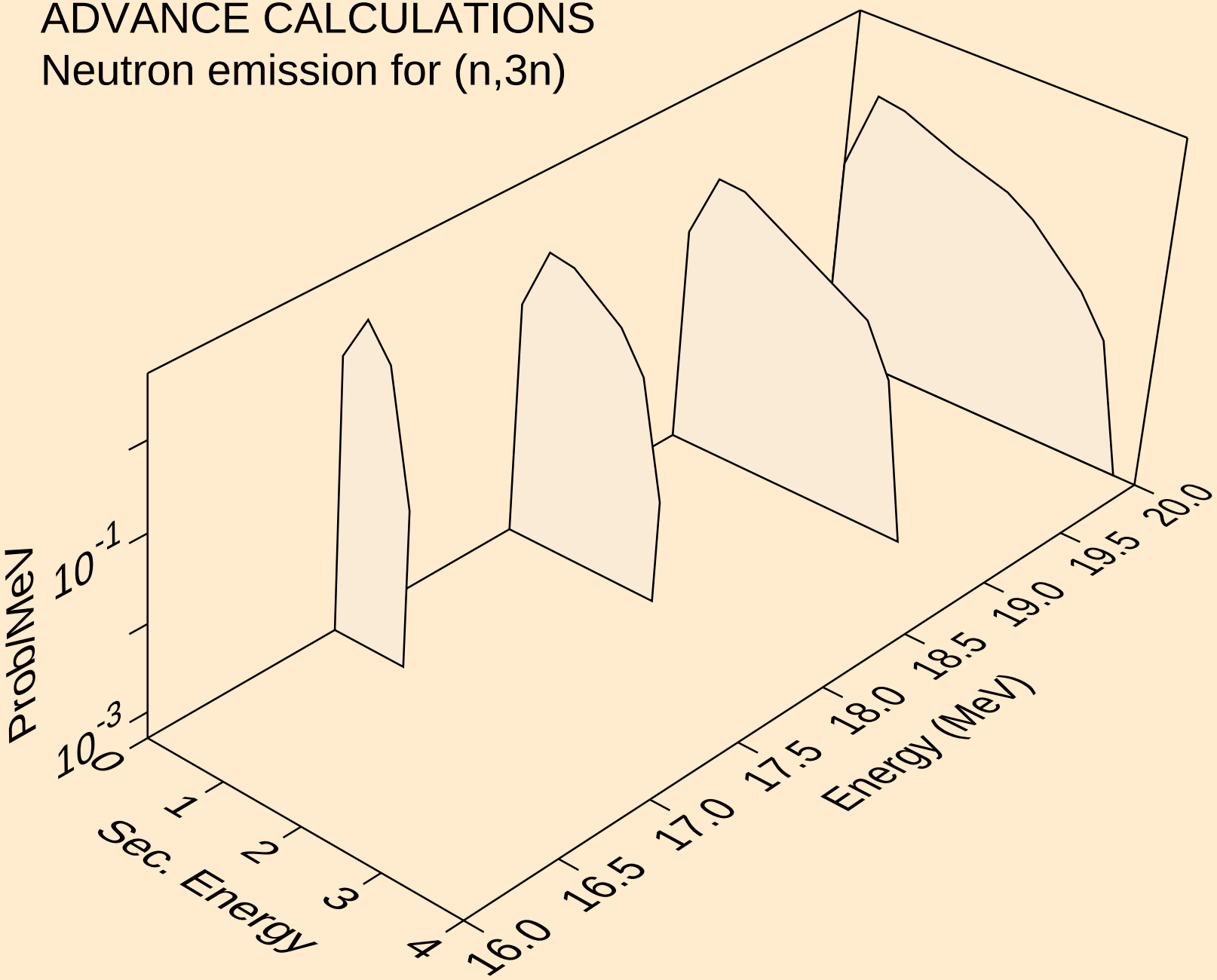
ADVANCE CALCULATIONS

Neutron emission for (n,2n)



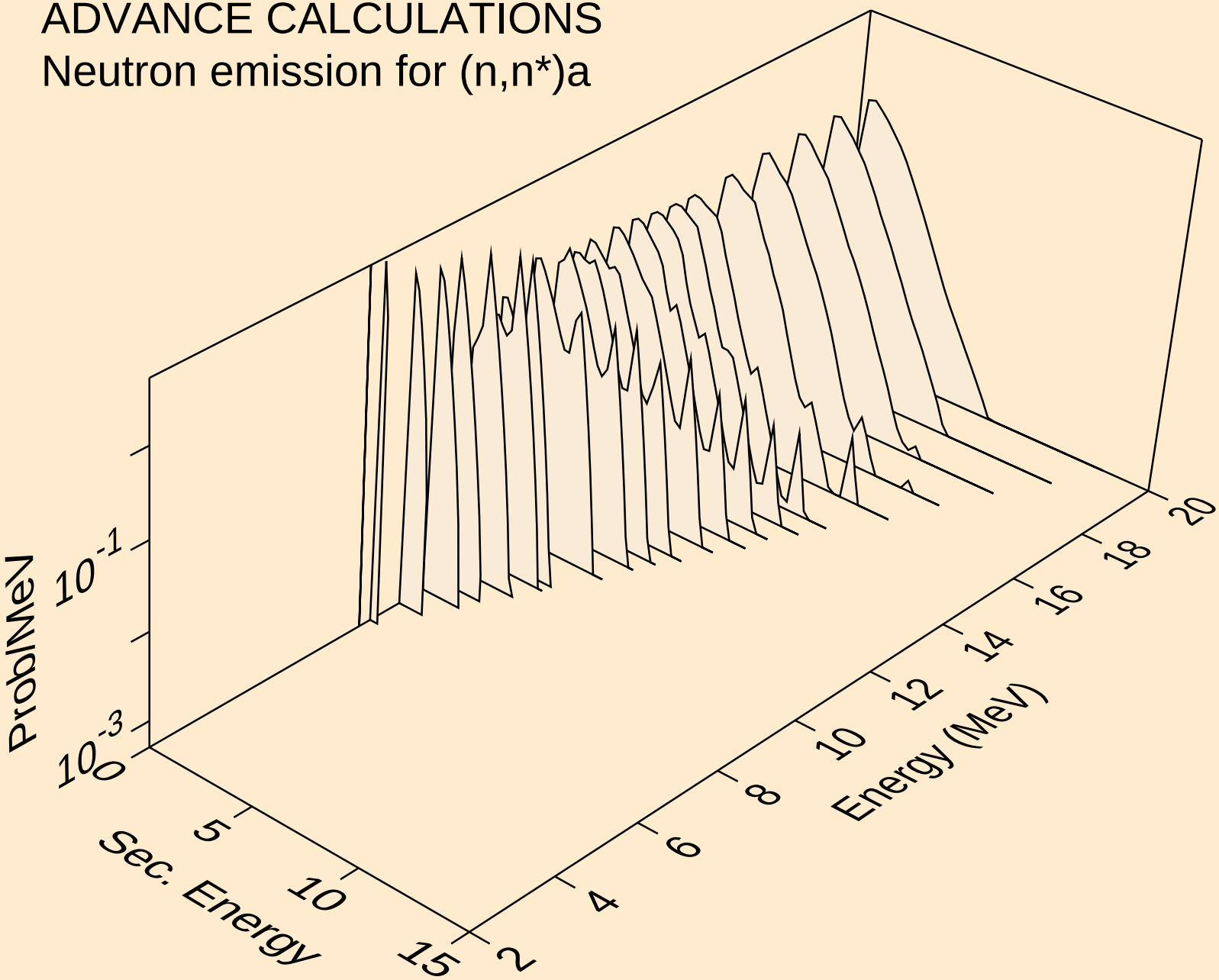
ADVANCE CALCULATIONS

Neutron emission for (n,3n)



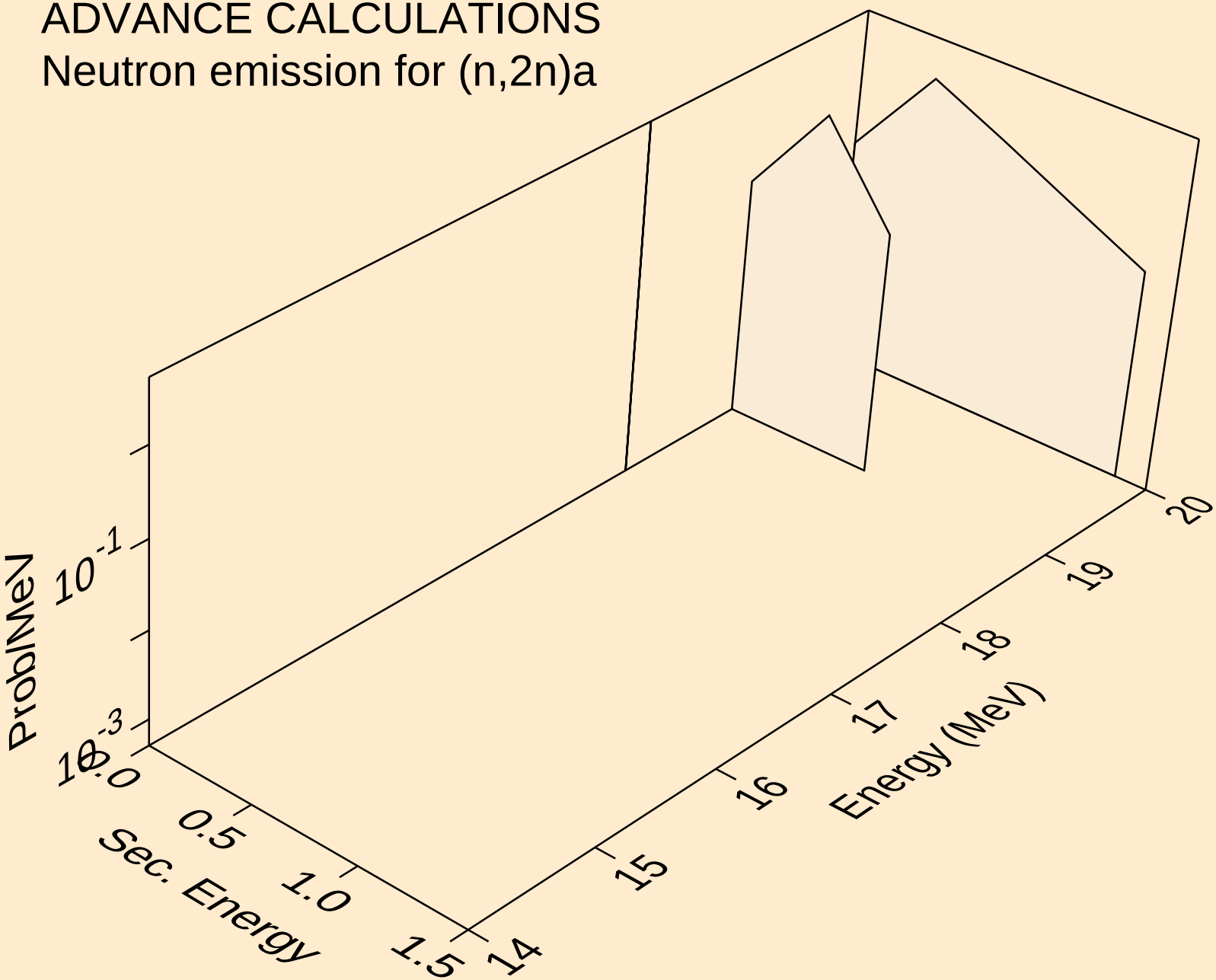
ADVANCE CALCULATIONS

Neutron emission for (n,n*)a



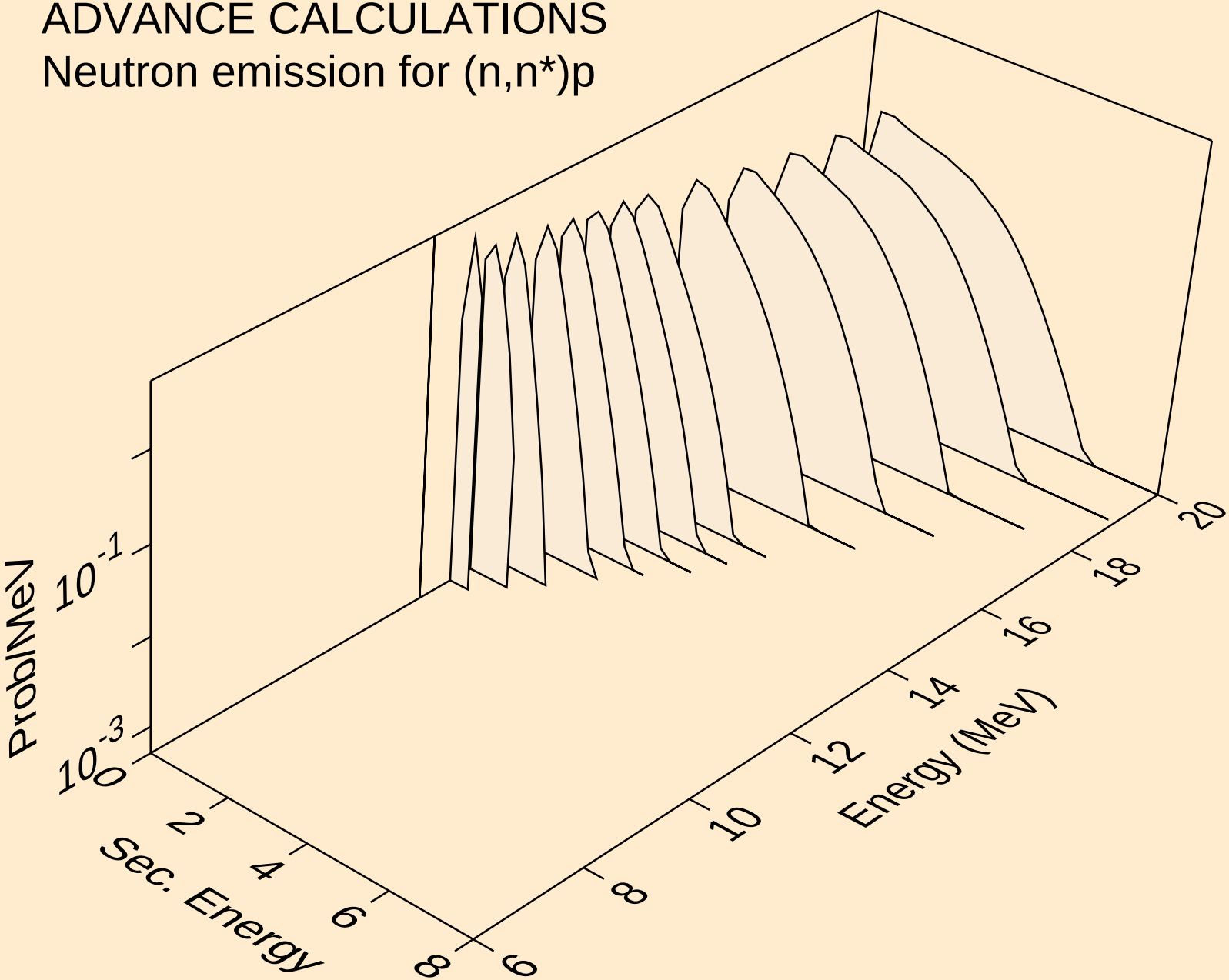
ADVANCE CALCULATIONS

Neutron emission for (n,2n)a



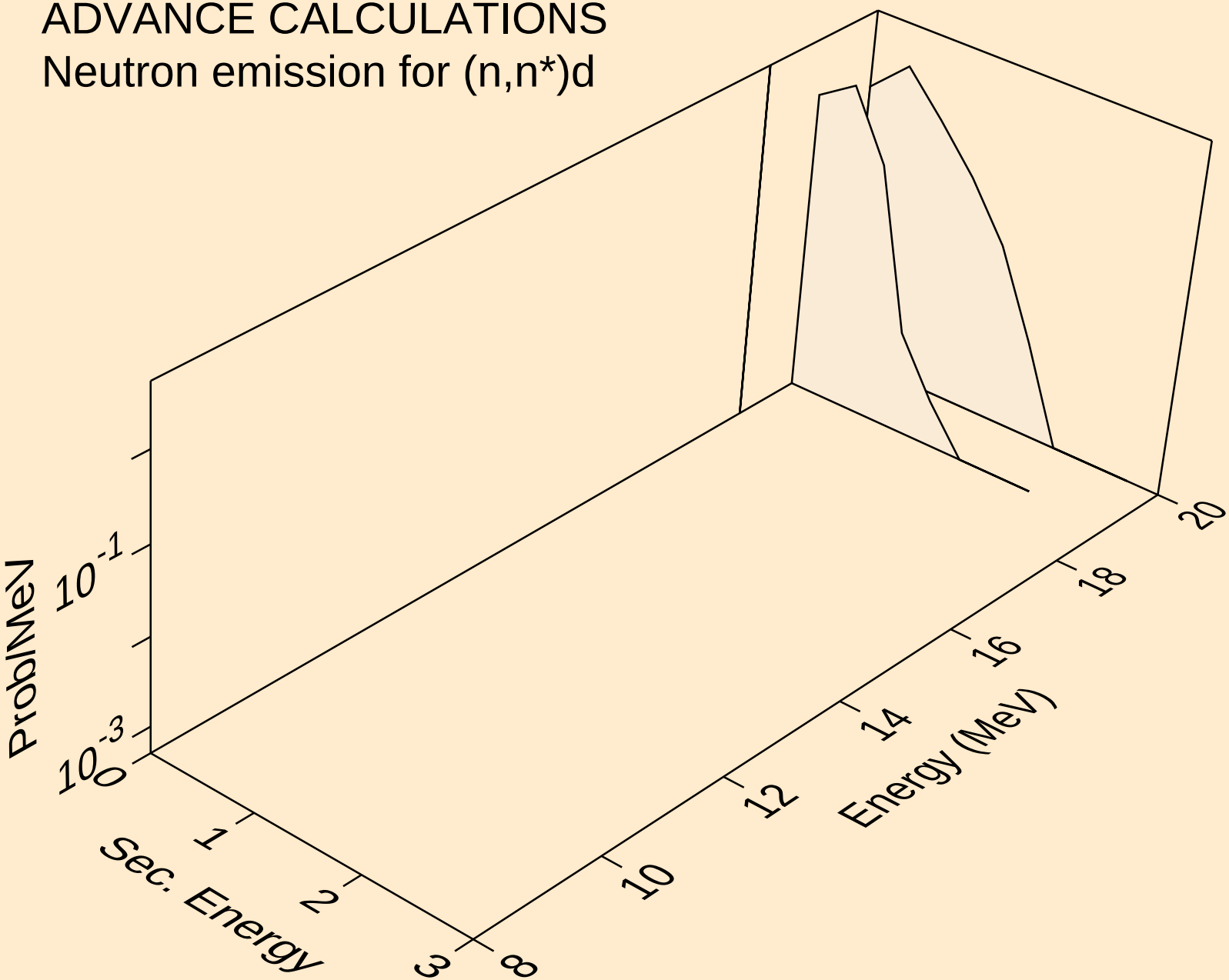
ADVANCE CALCULATIONS

Neutron emission for (n,n*)p



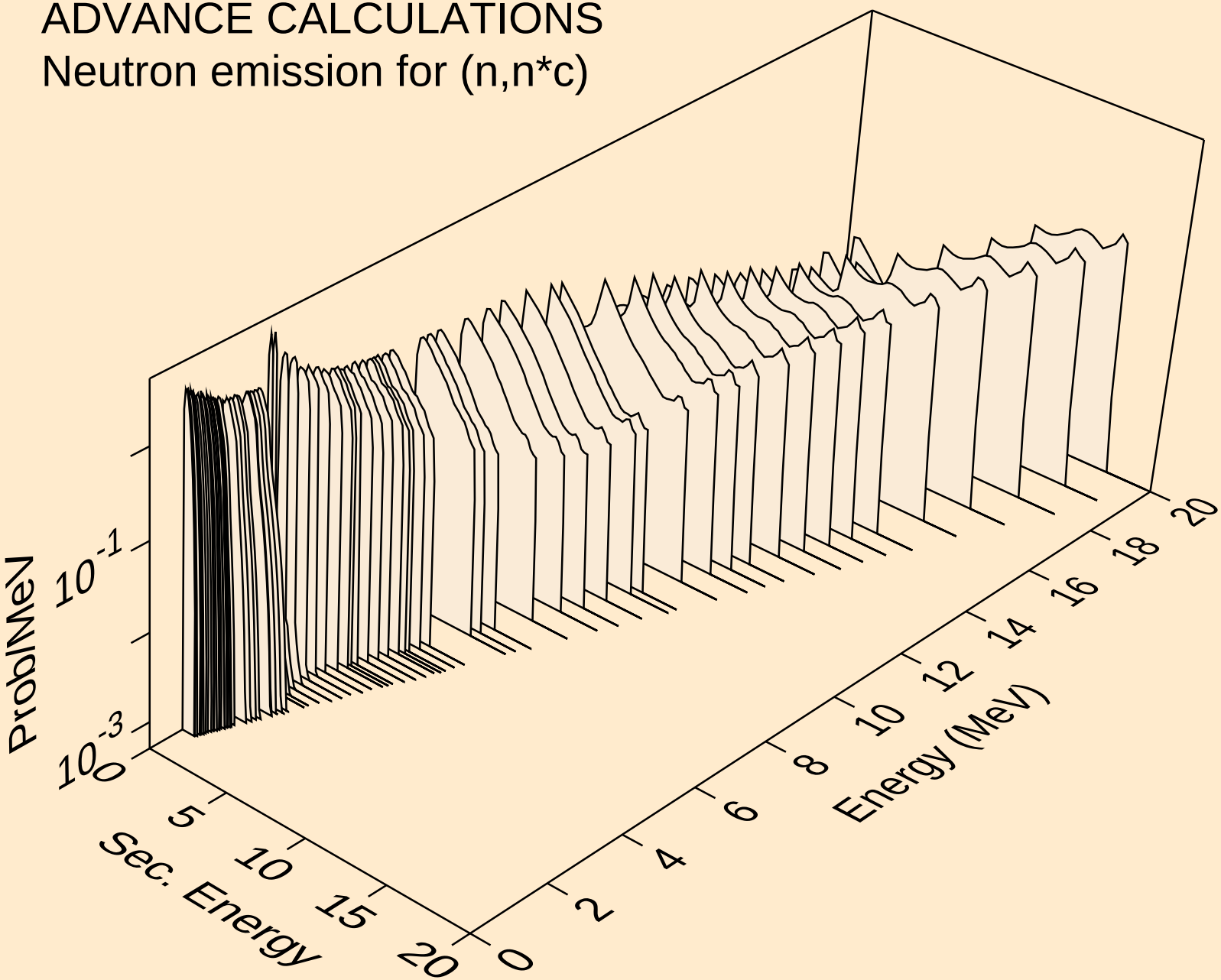
ADVANCE CALCULATIONS

Neutron emission for (n,n*)d



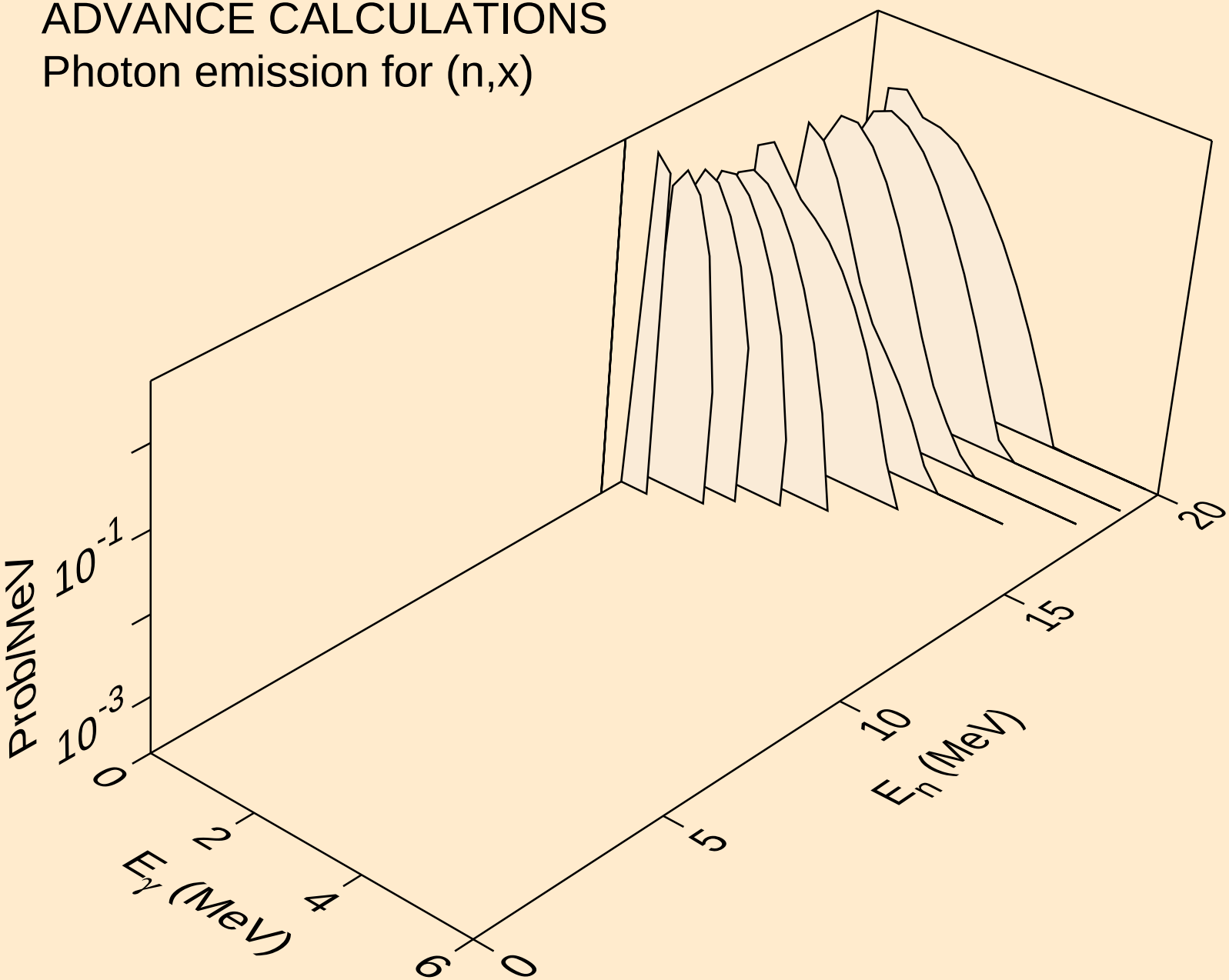
ADVANCE CALCULATIONS

Neutron emission for (n,n*c)



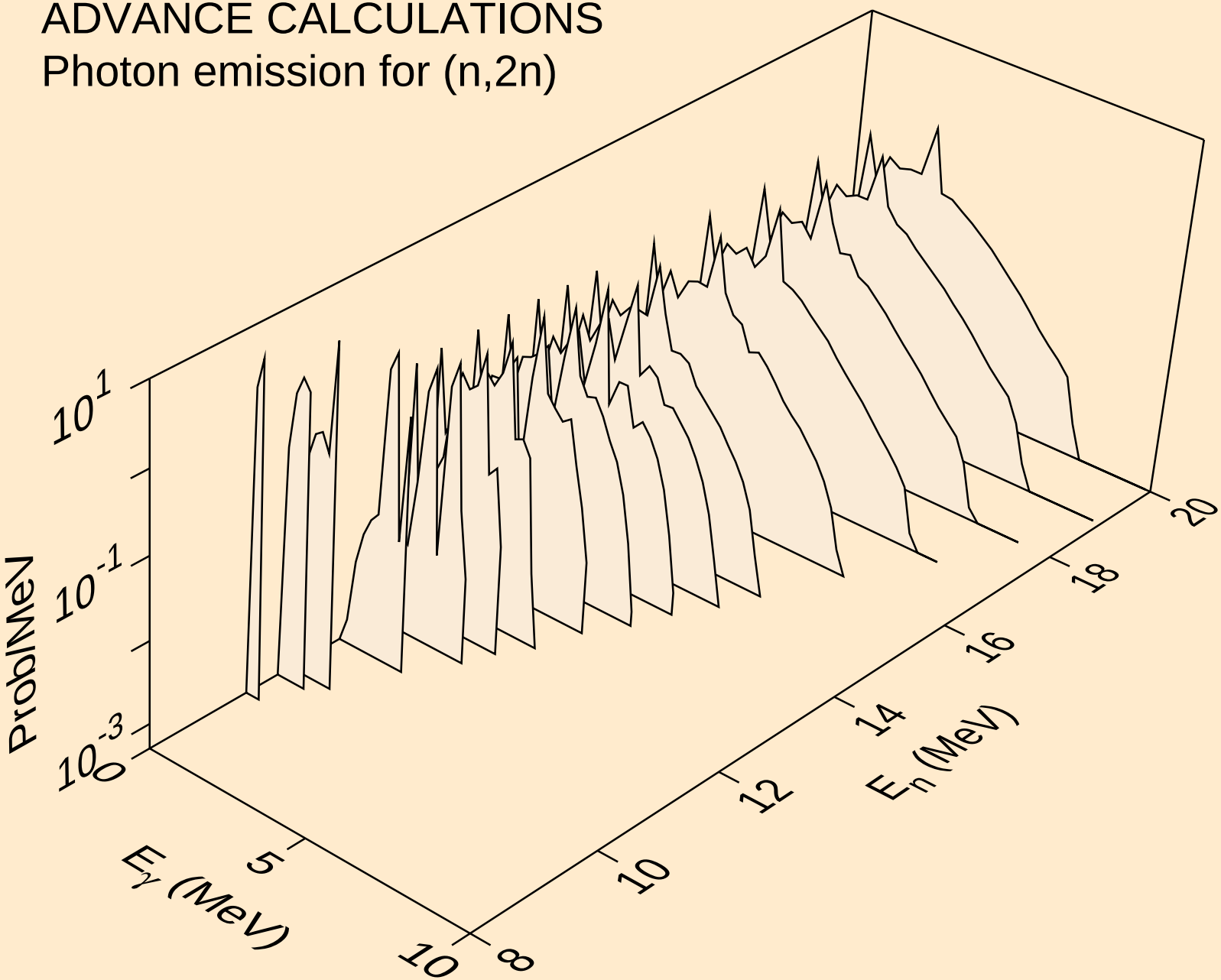
ADVANCE CALCULATIONS

Photon emission for (n,x)



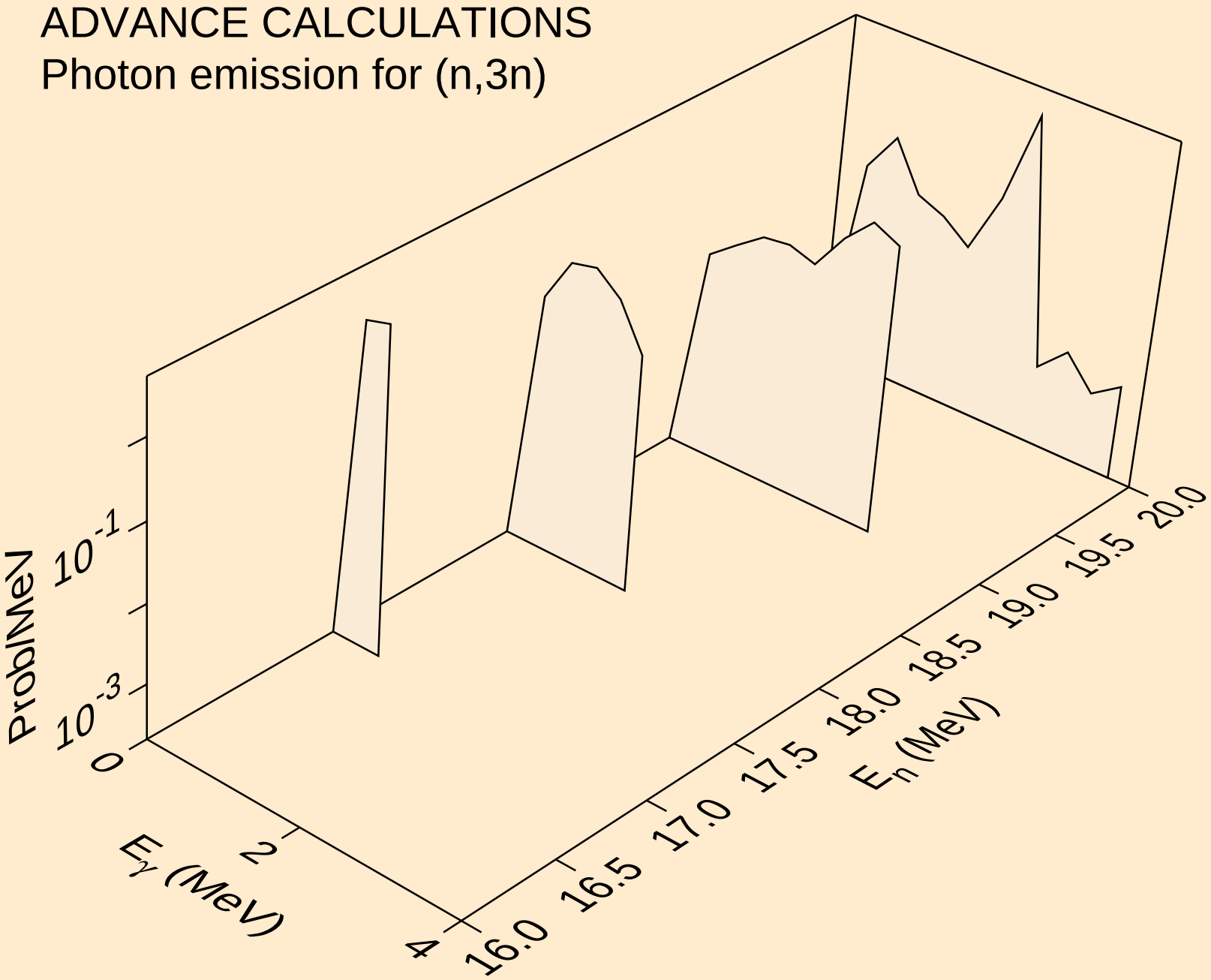
ADVANCE CALCULATIONS

Photon emission for (n,2n)



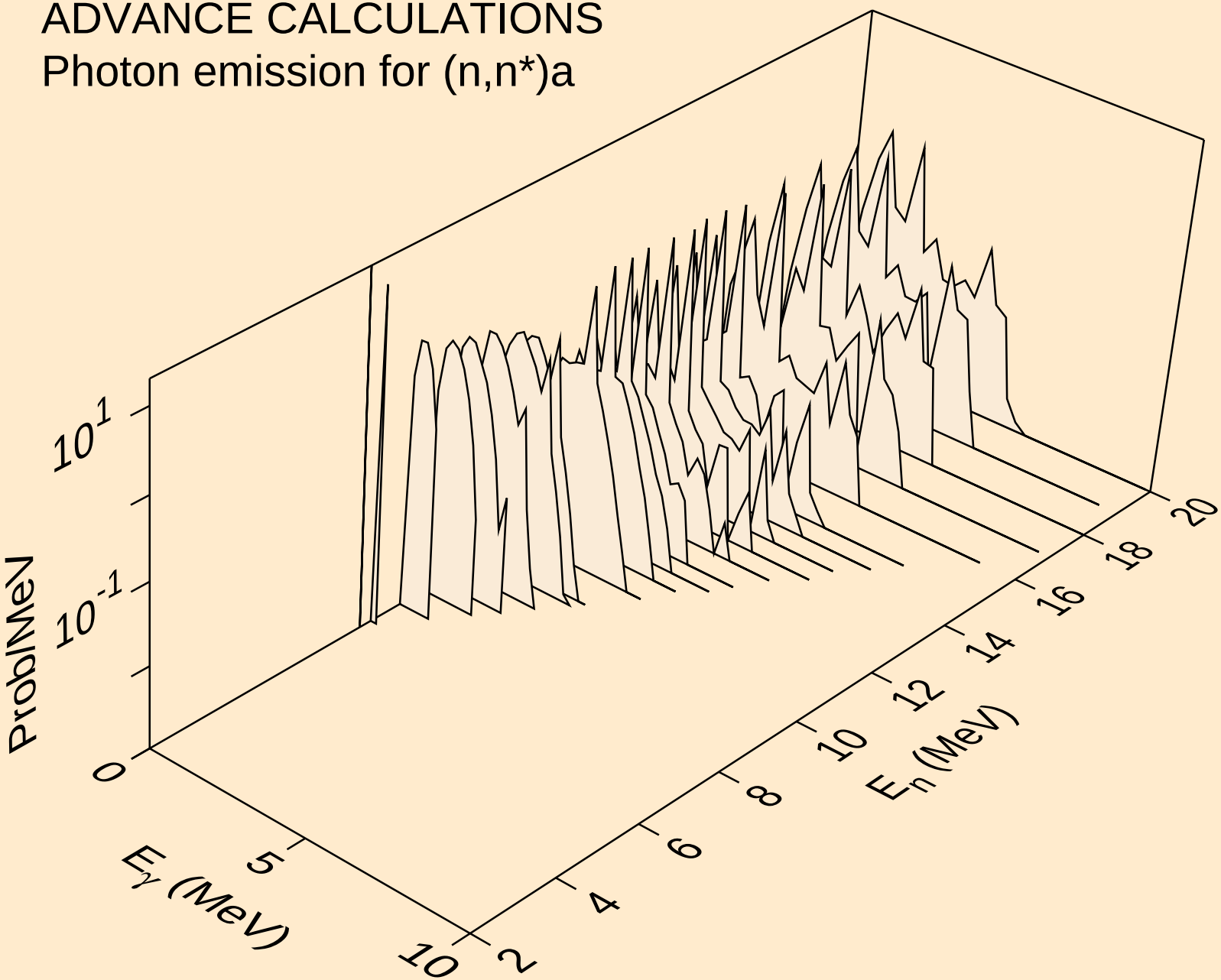
ADVANCE CALCULATIONS

Photon emission for (n,3n)



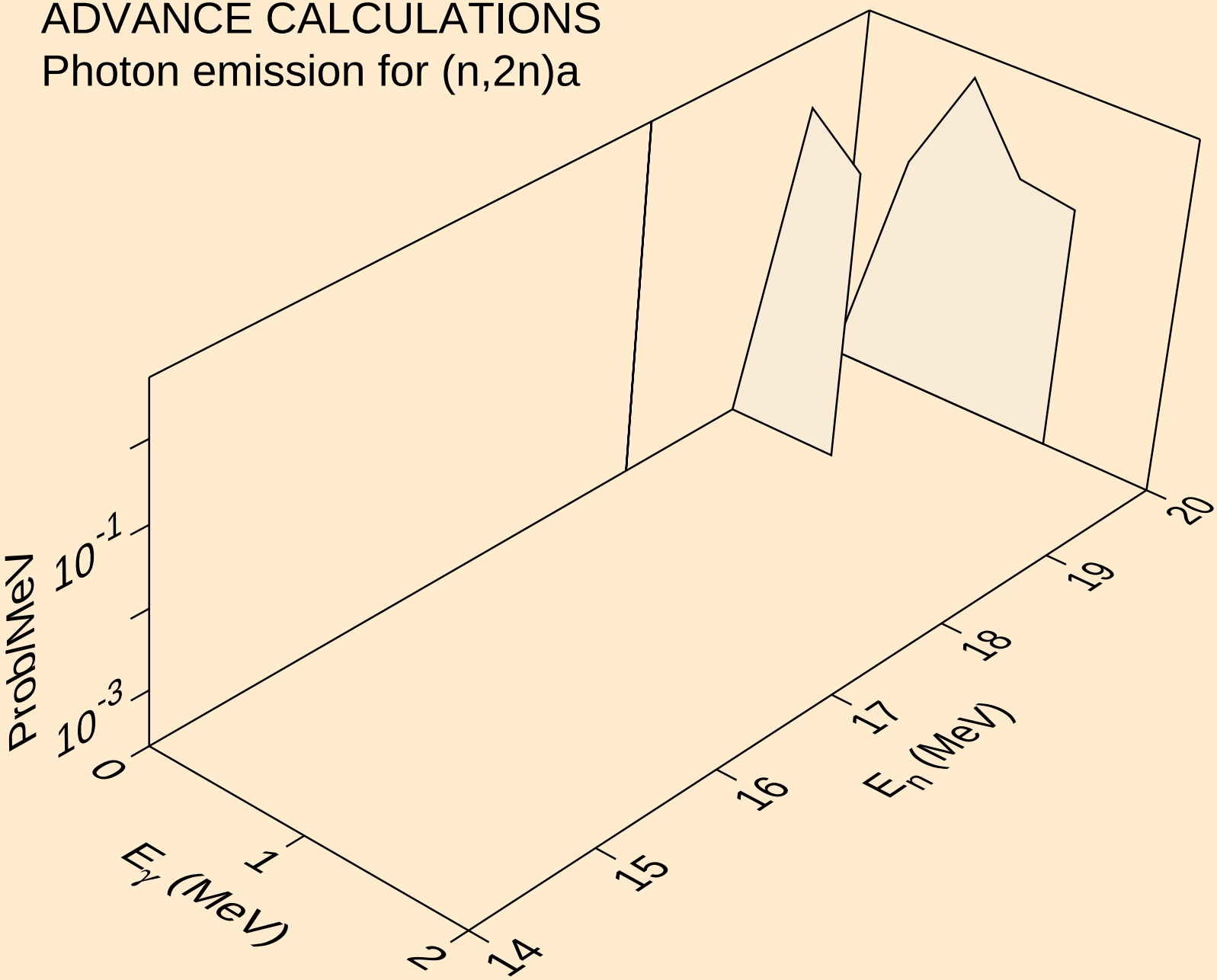
ADVANCE CALCULATIONS

Photon emission for (n,n*)a



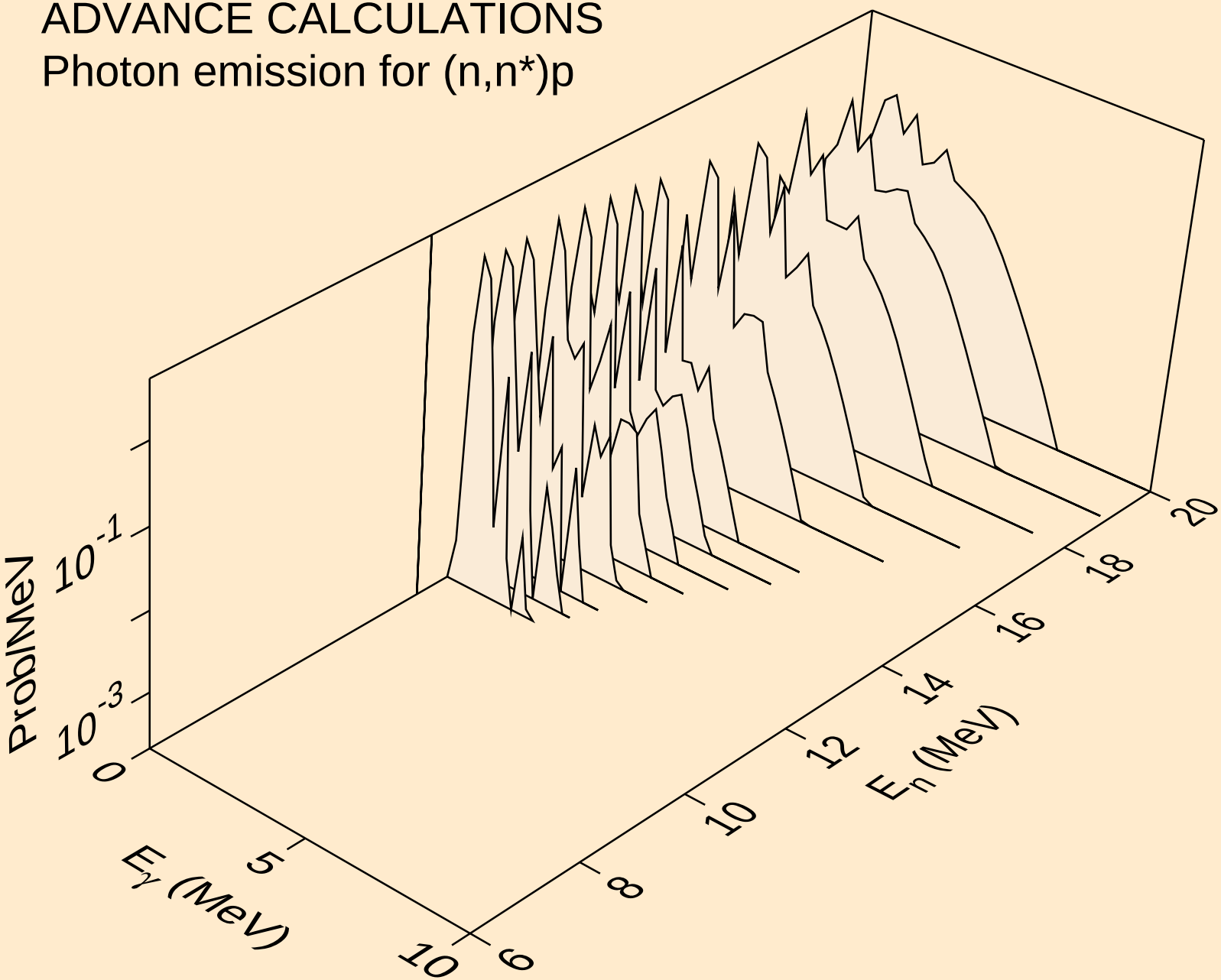
ADVANCE CALCULATIONS

Photon emission for (n,2n)a



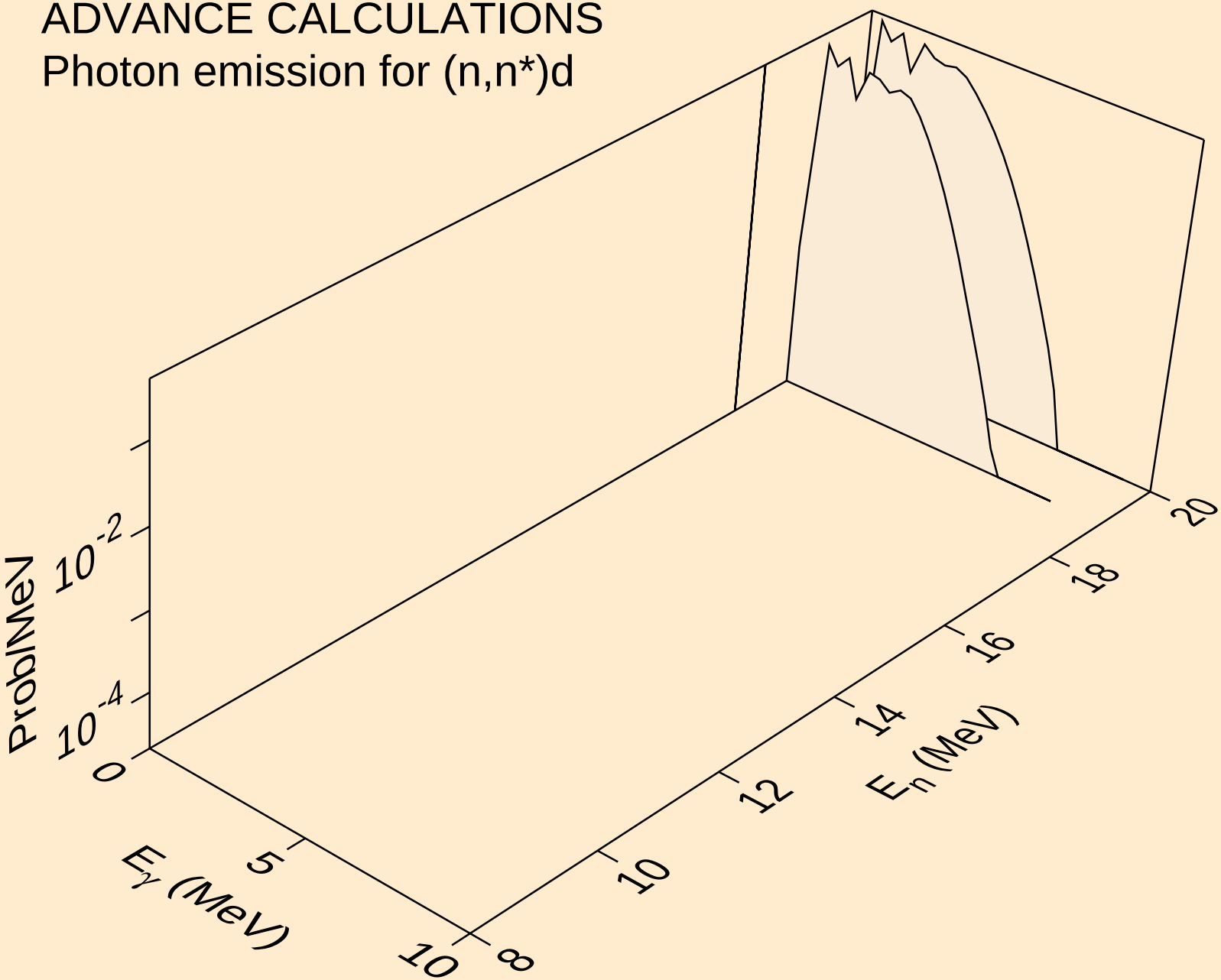
ADVANCE CALCULATIONS

Photon emission for (n,n*)p



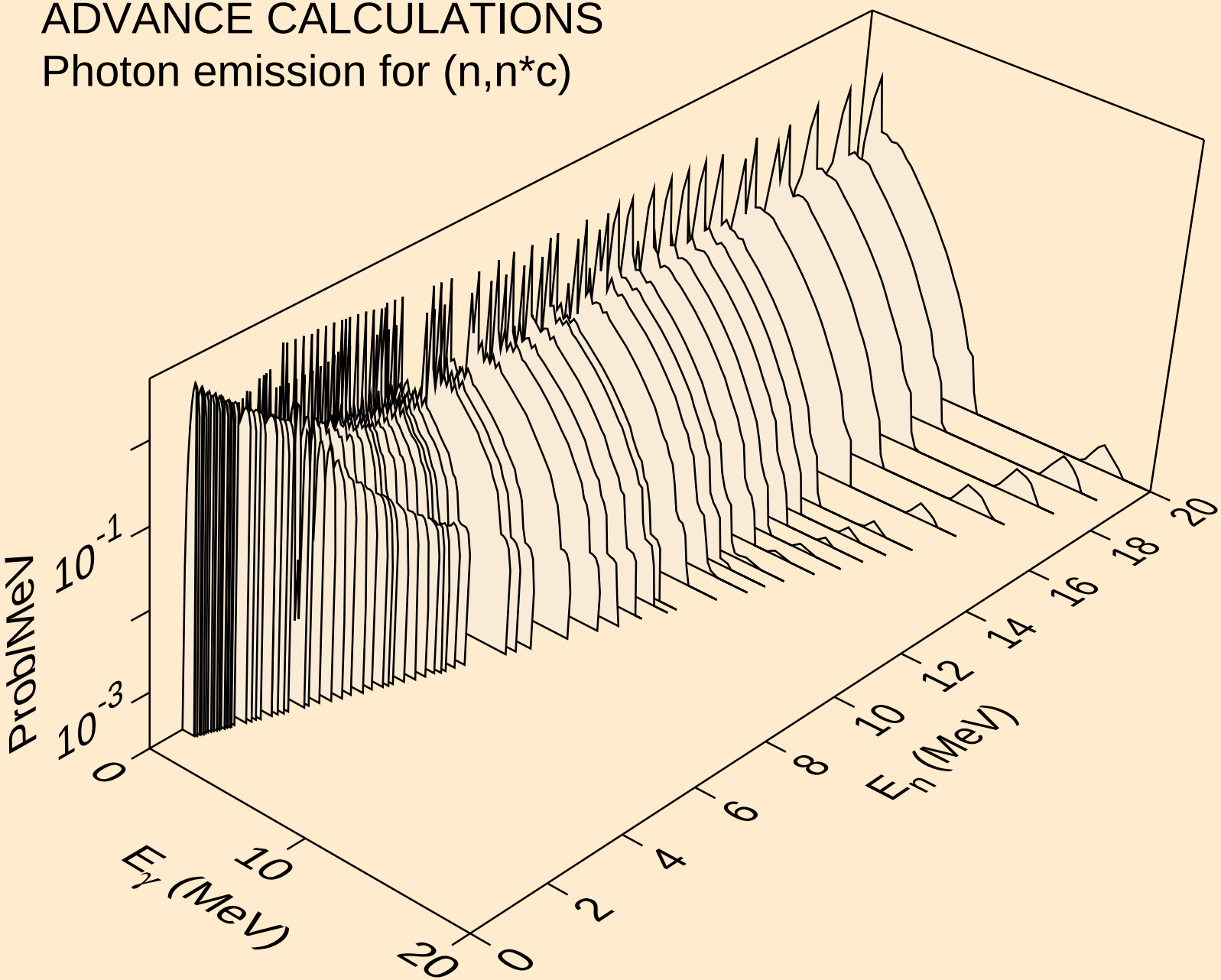
ADVANCE CALCULATIONS

Photon emission for (n,n*)d



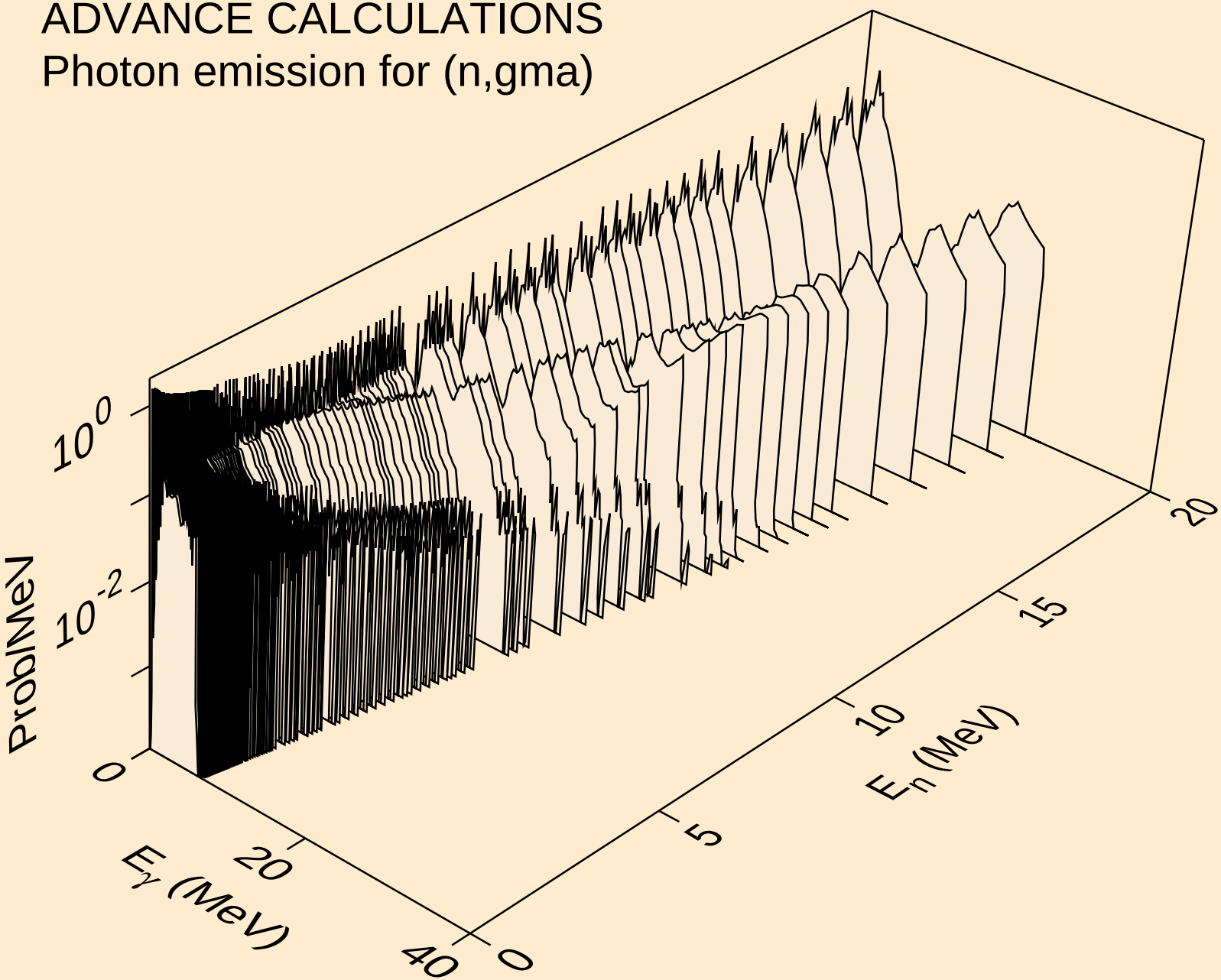
ADVANCE CALCULATIONS

Photon emission for (n,n*c)



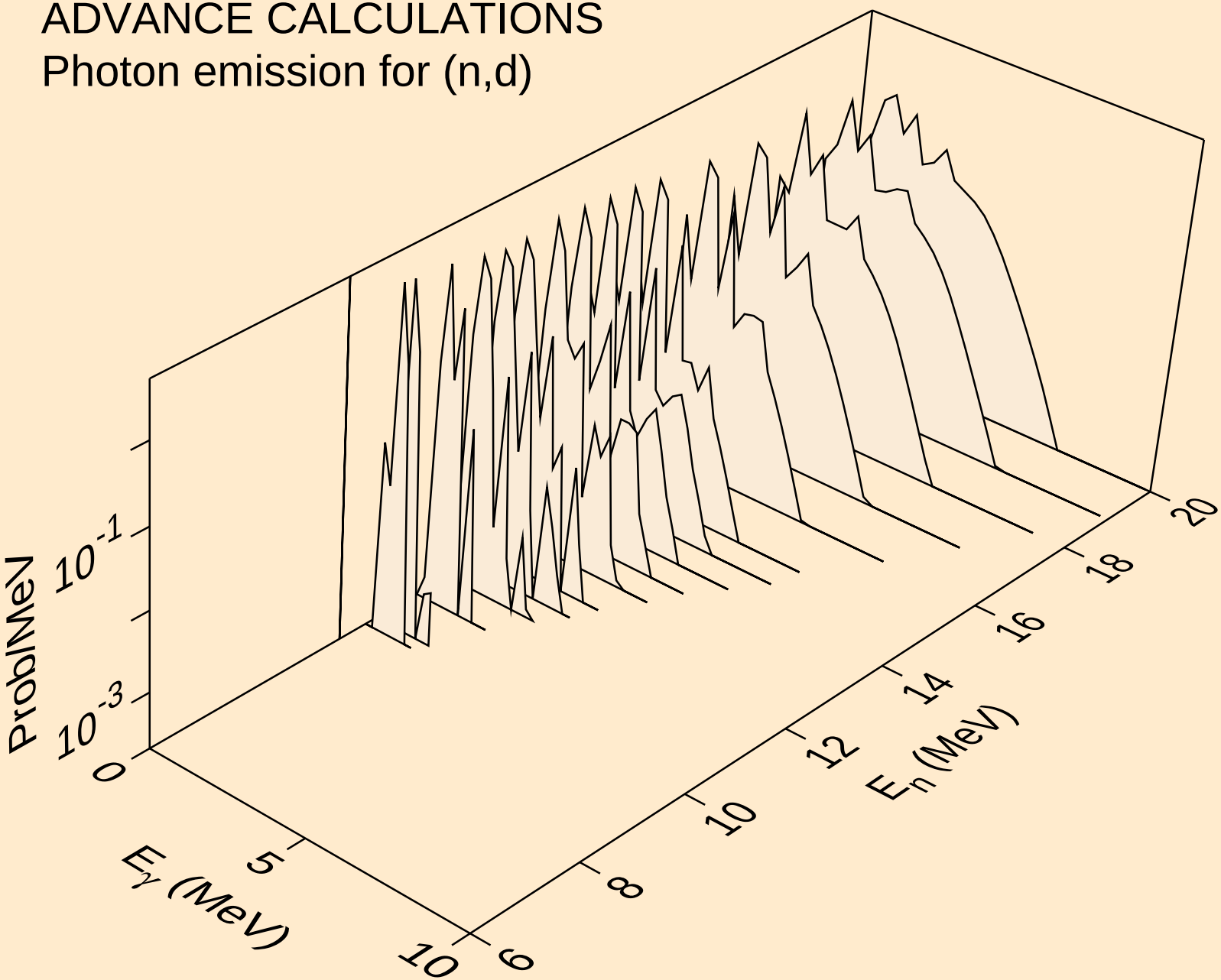
ADVANCE CALCULATIONS

Photon emission for (n,gma)



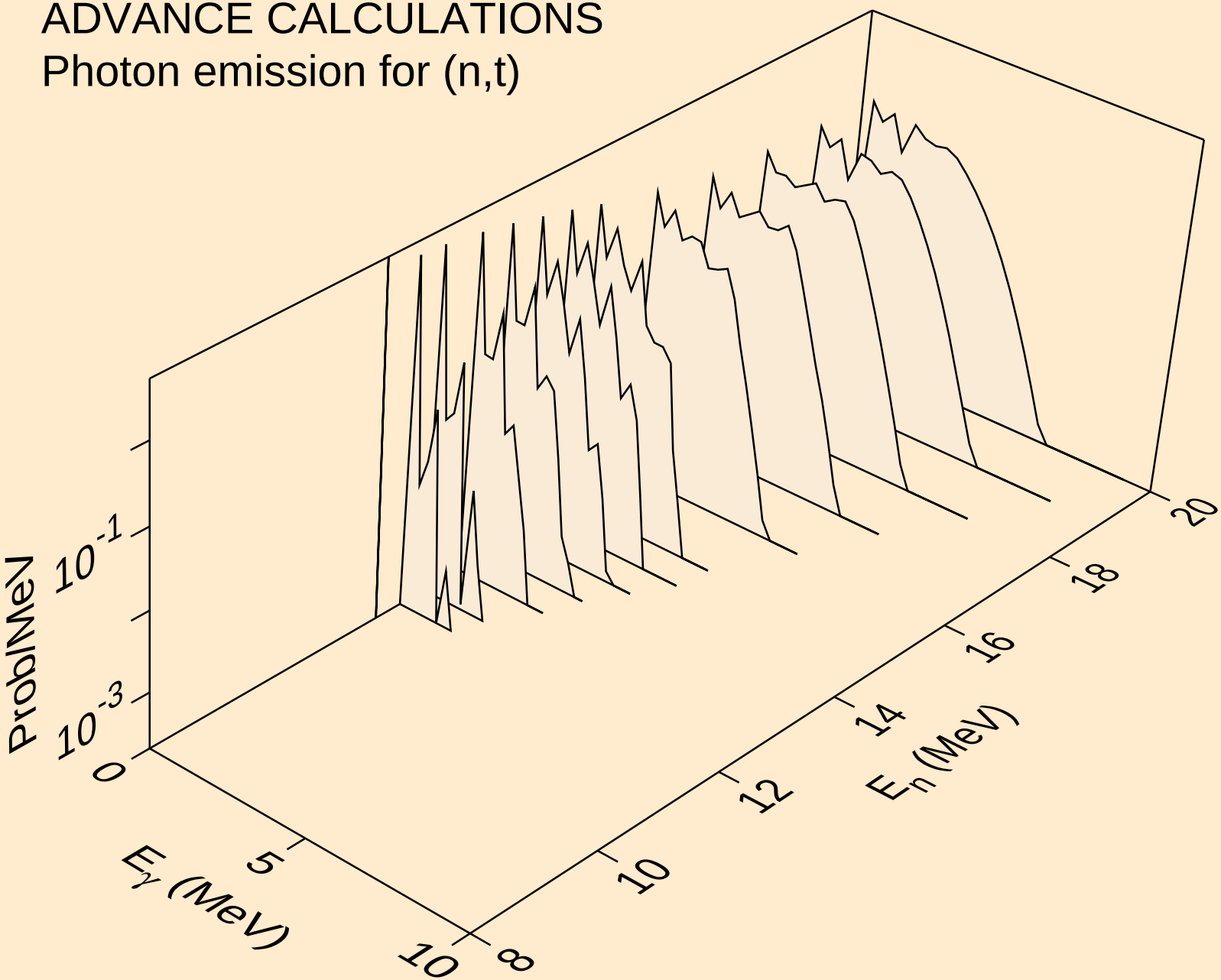
ADVANCE CALCULATIONS

Photon emission for (n,d)



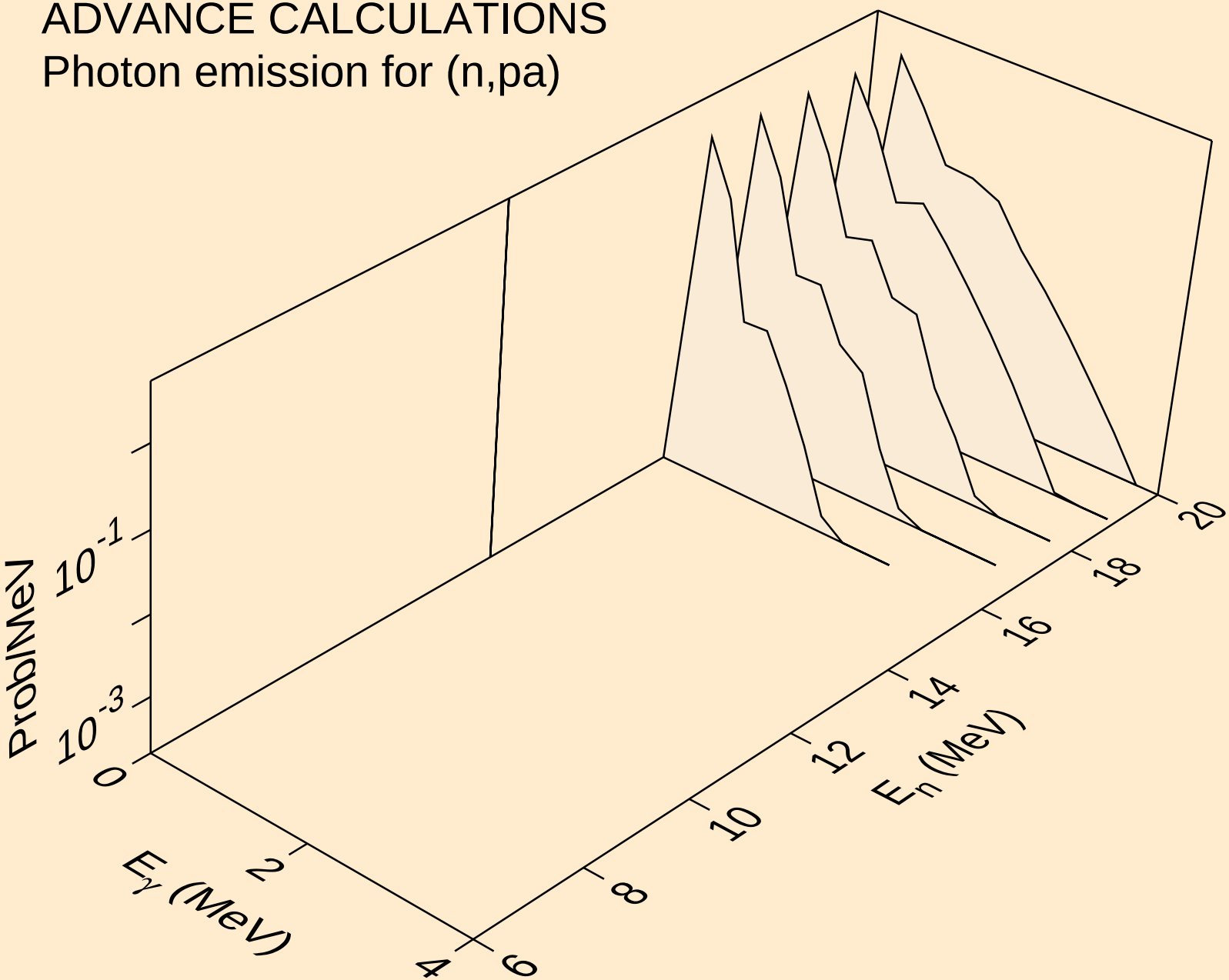
ADVANCE CALCULATIONS

Photon emission for (n,t)



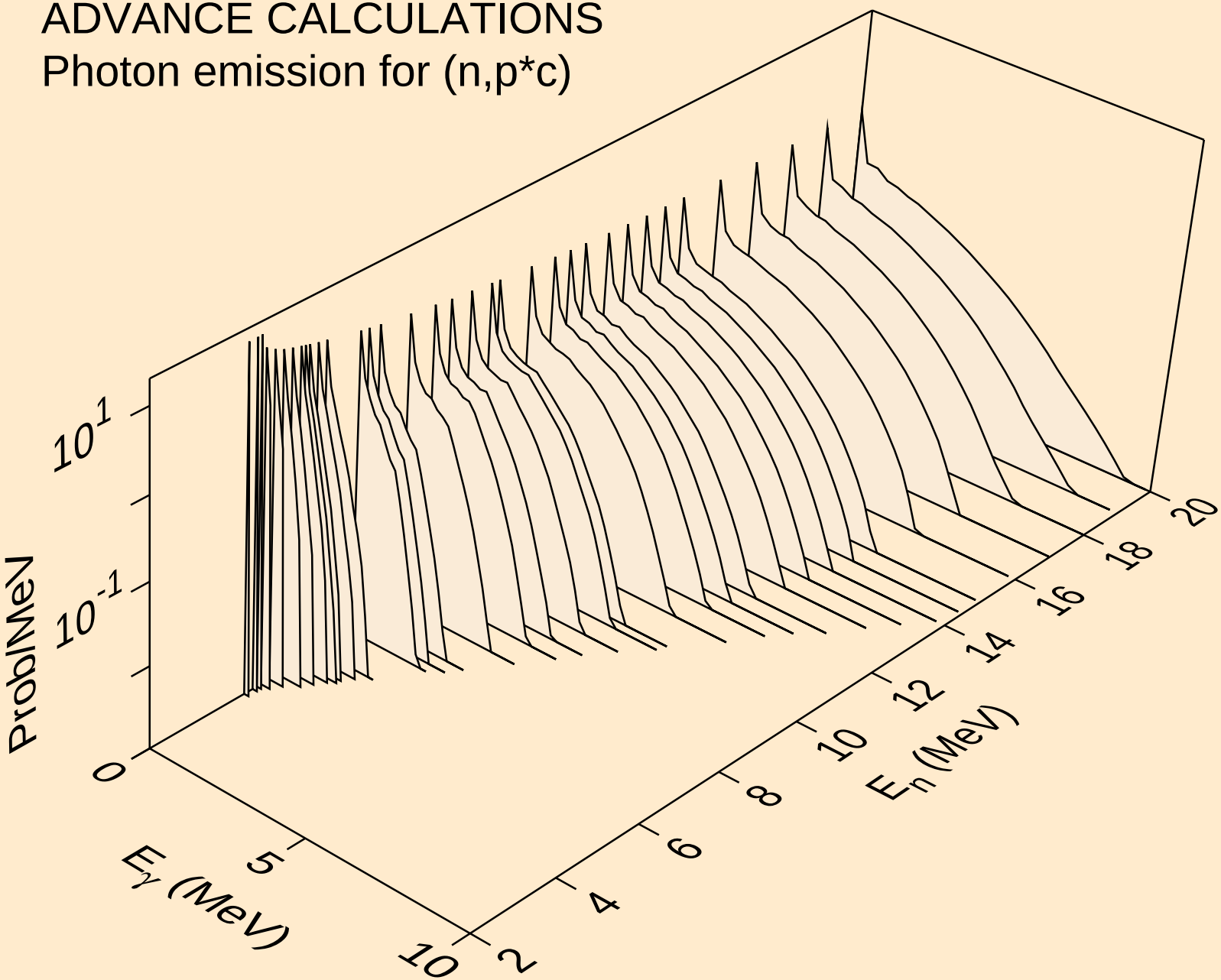
ADVANCE CALCULATIONS

Photon emission for (n,pa)



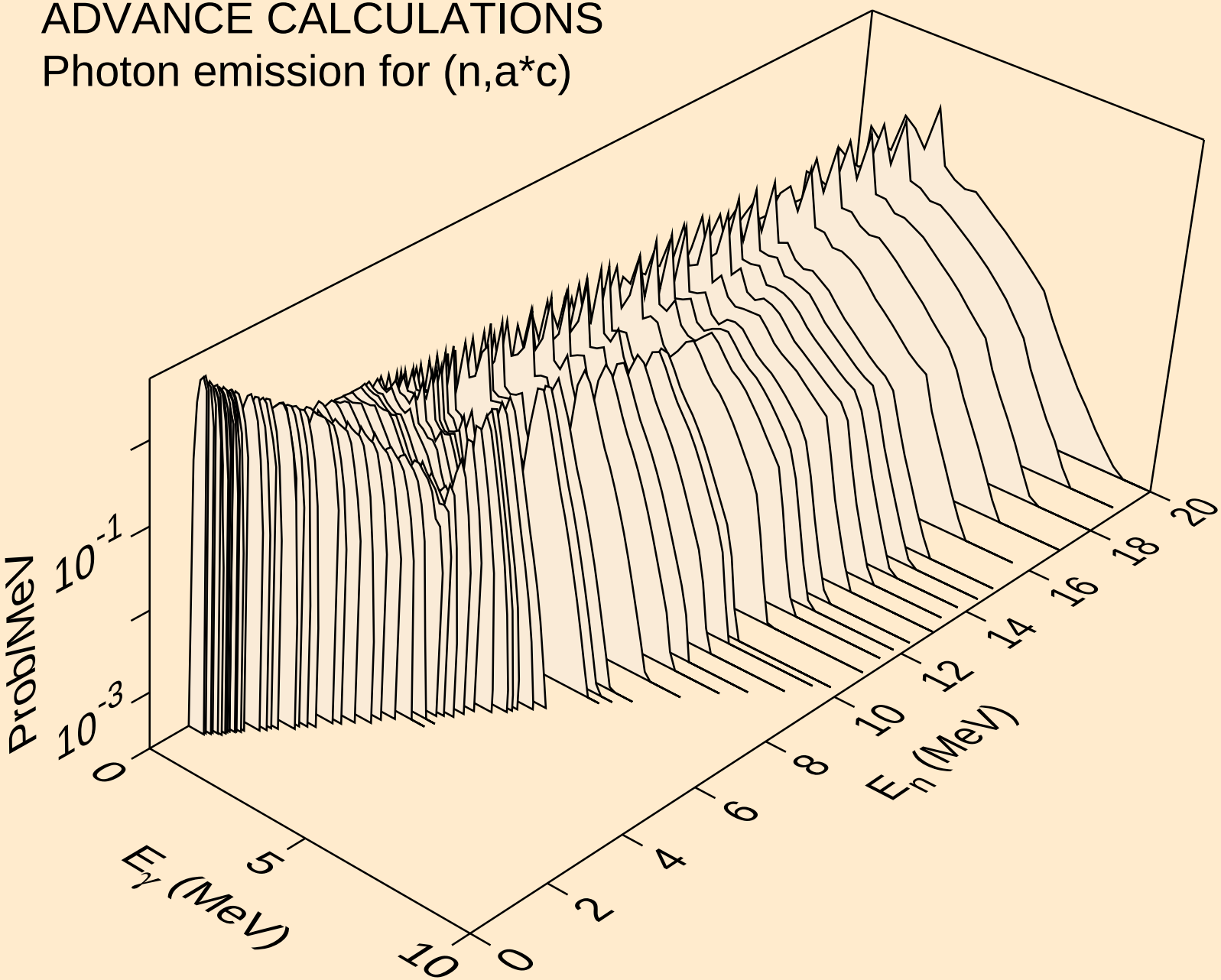
ADVANCE CALCULATIONS

Photon emission for (n,p*c)

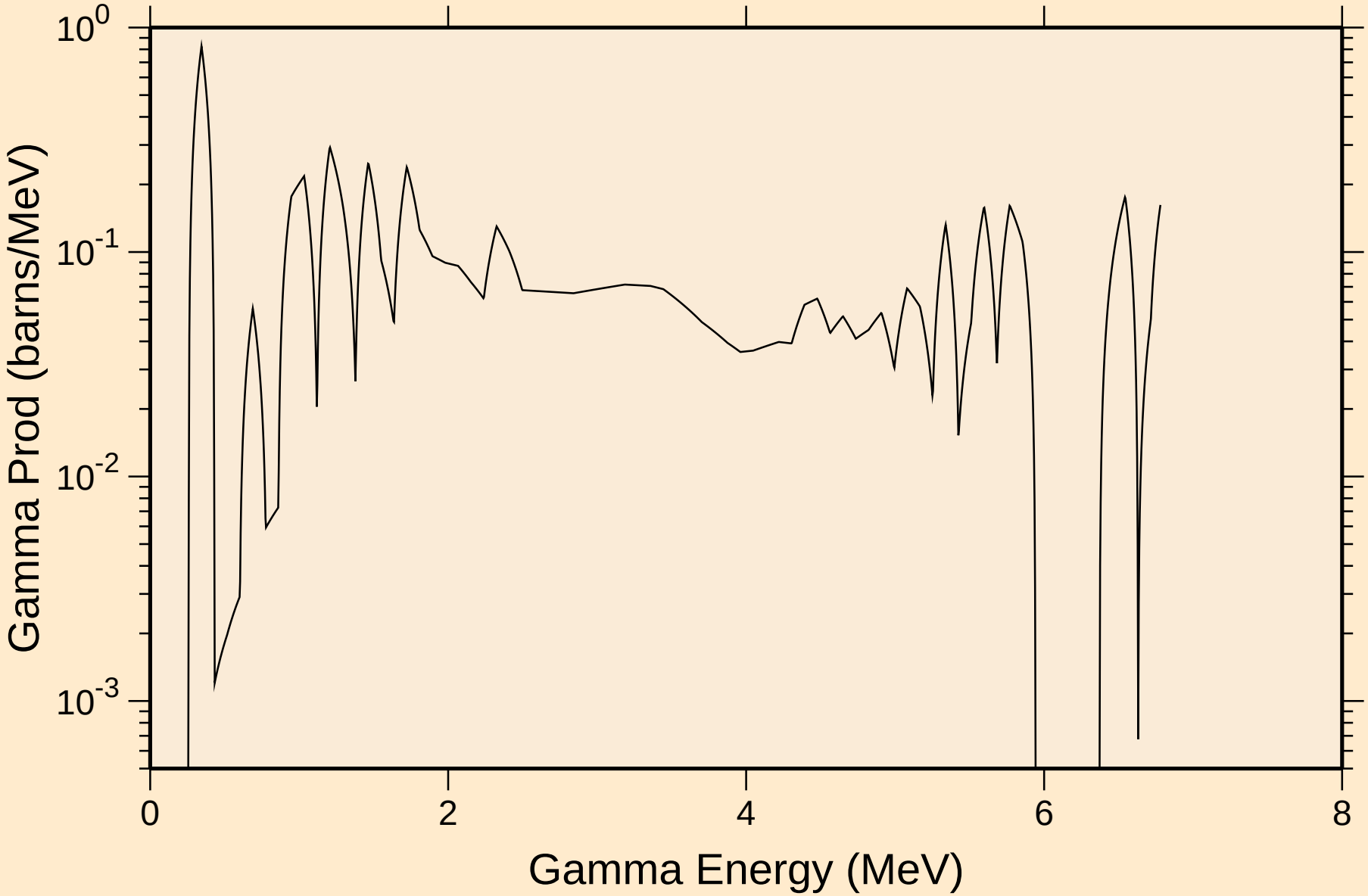


ADVANCE CALCULATIONS

Photon emission for (n,a*c)

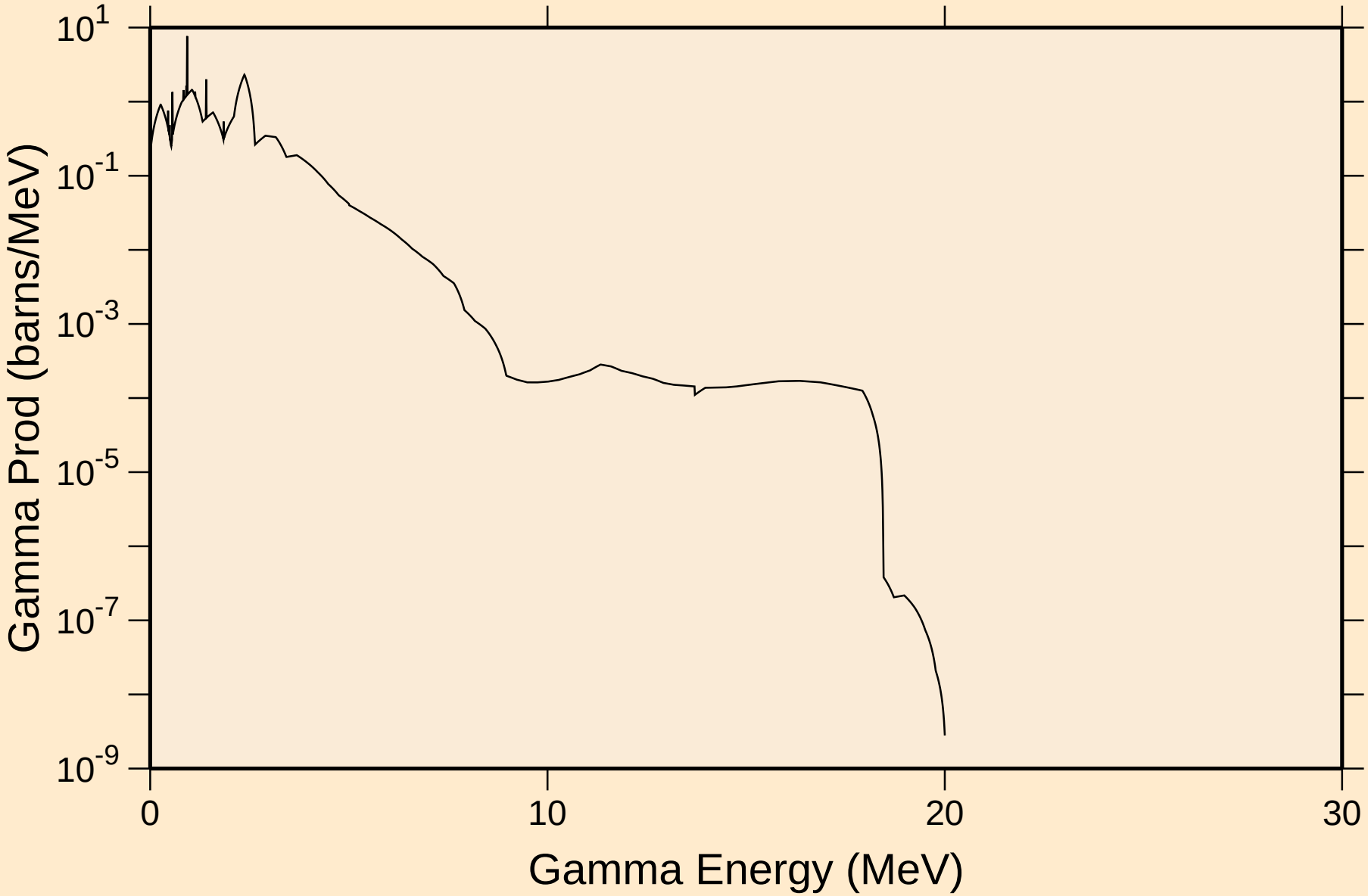


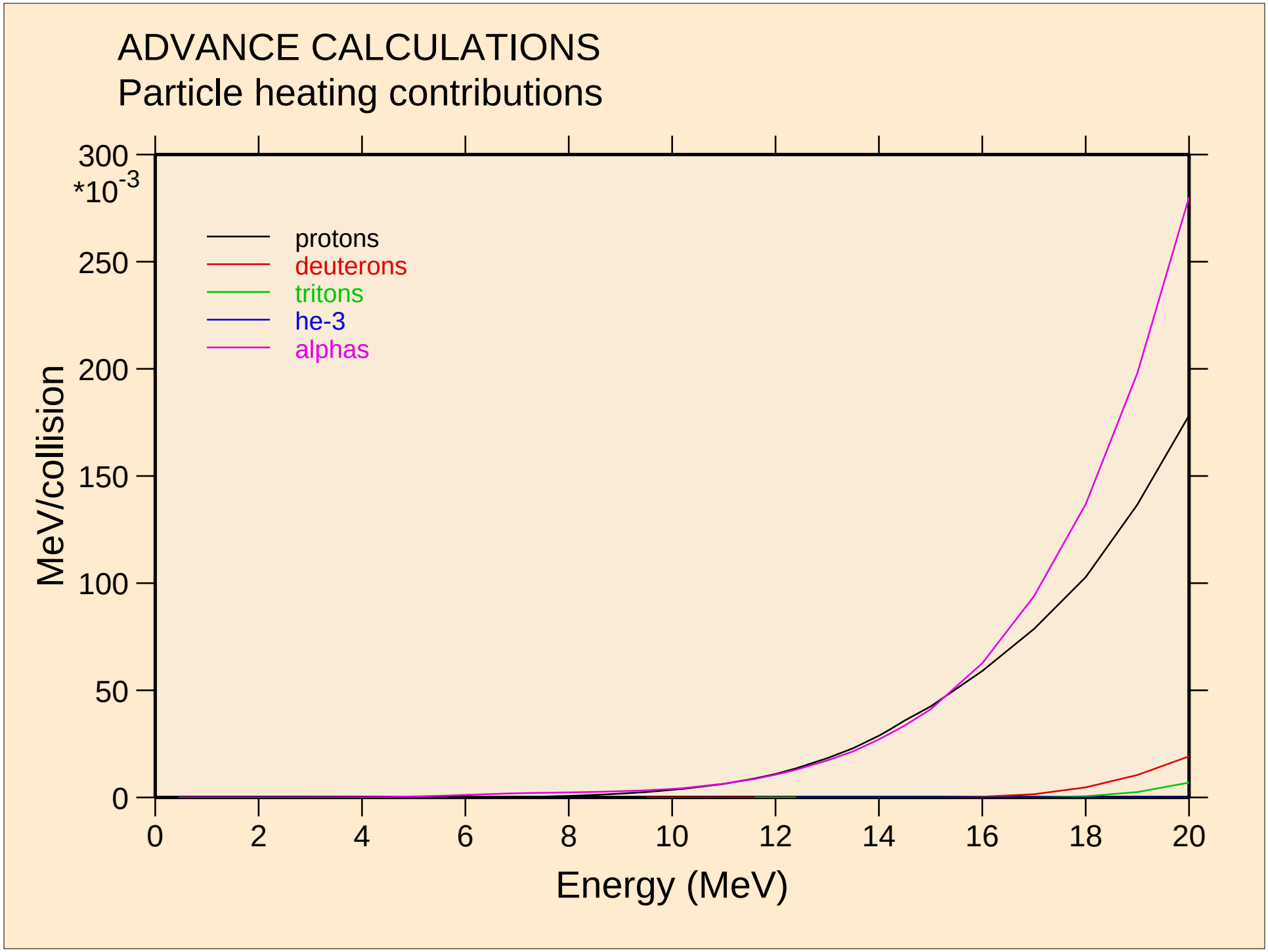
ADVANCE CALCULATIONS
thermal capture photon spectrum

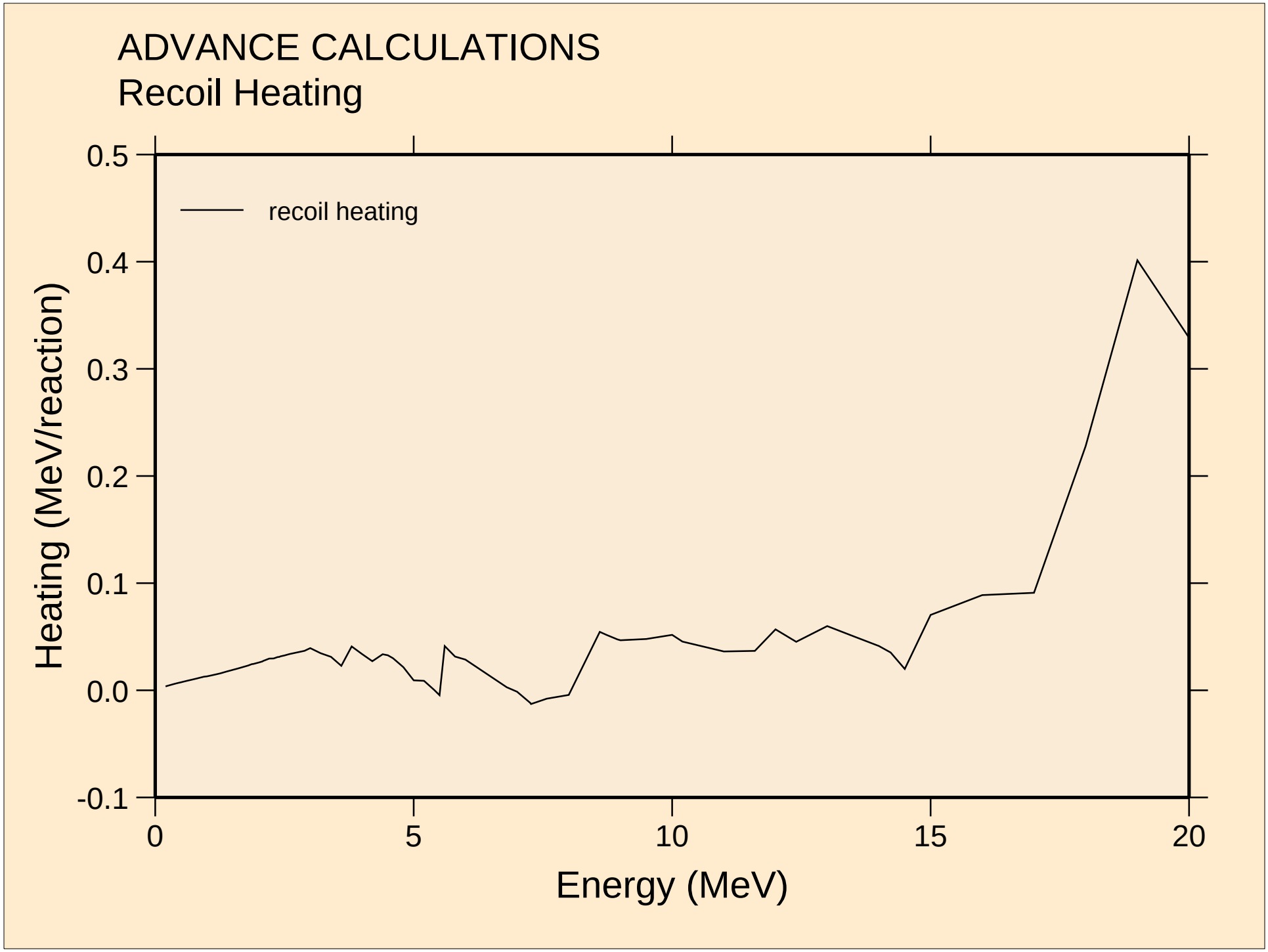


ADVANCE CALCULATIONS

14 MeV photon spectrum

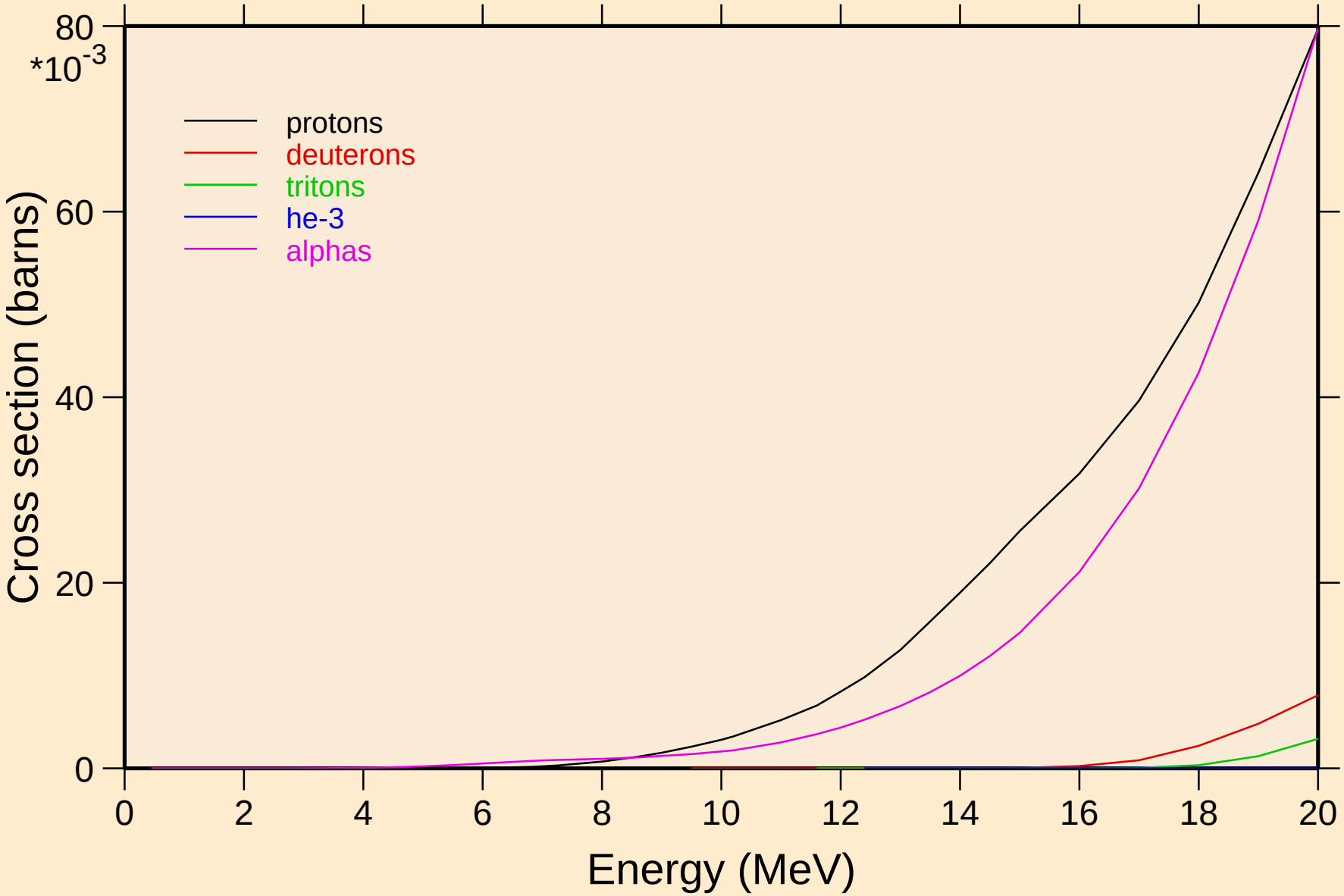



ADVANCE CALCULATIONS
Particle heating contributions
300
*10-3
250
200
150
100
50
0
MeV/collision
protons
deuterons
tritons
he-3
alphas
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

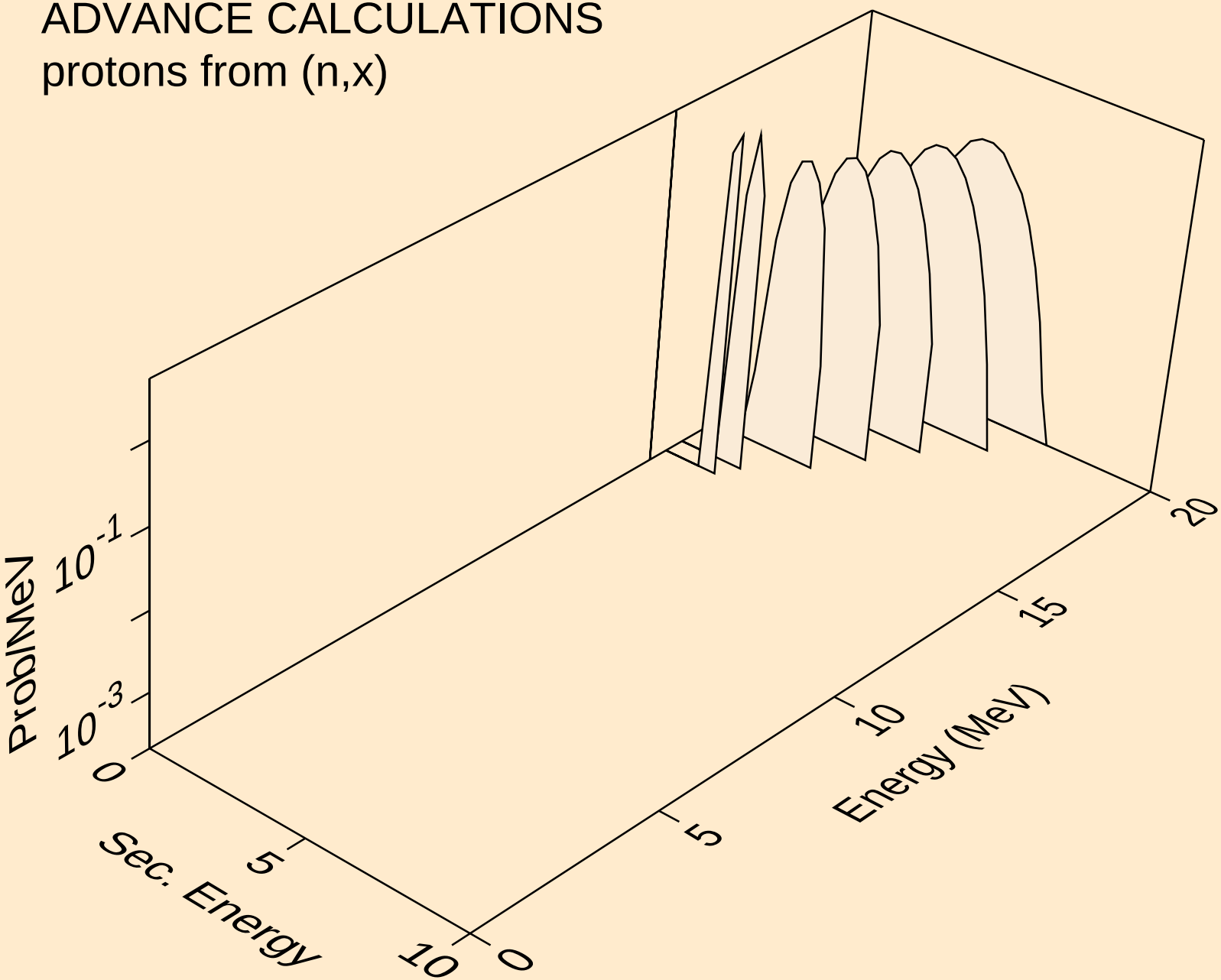

ADVANCE CALCULATIONS
Recoil Heating
recoil heating
Heating (MeV/reaction)
0.5
0.4
0.3
0.2
0.1
0.0
-0.1
0
5
10
15
20
Energy (MeV)

ADVANCE CALCULATIONS

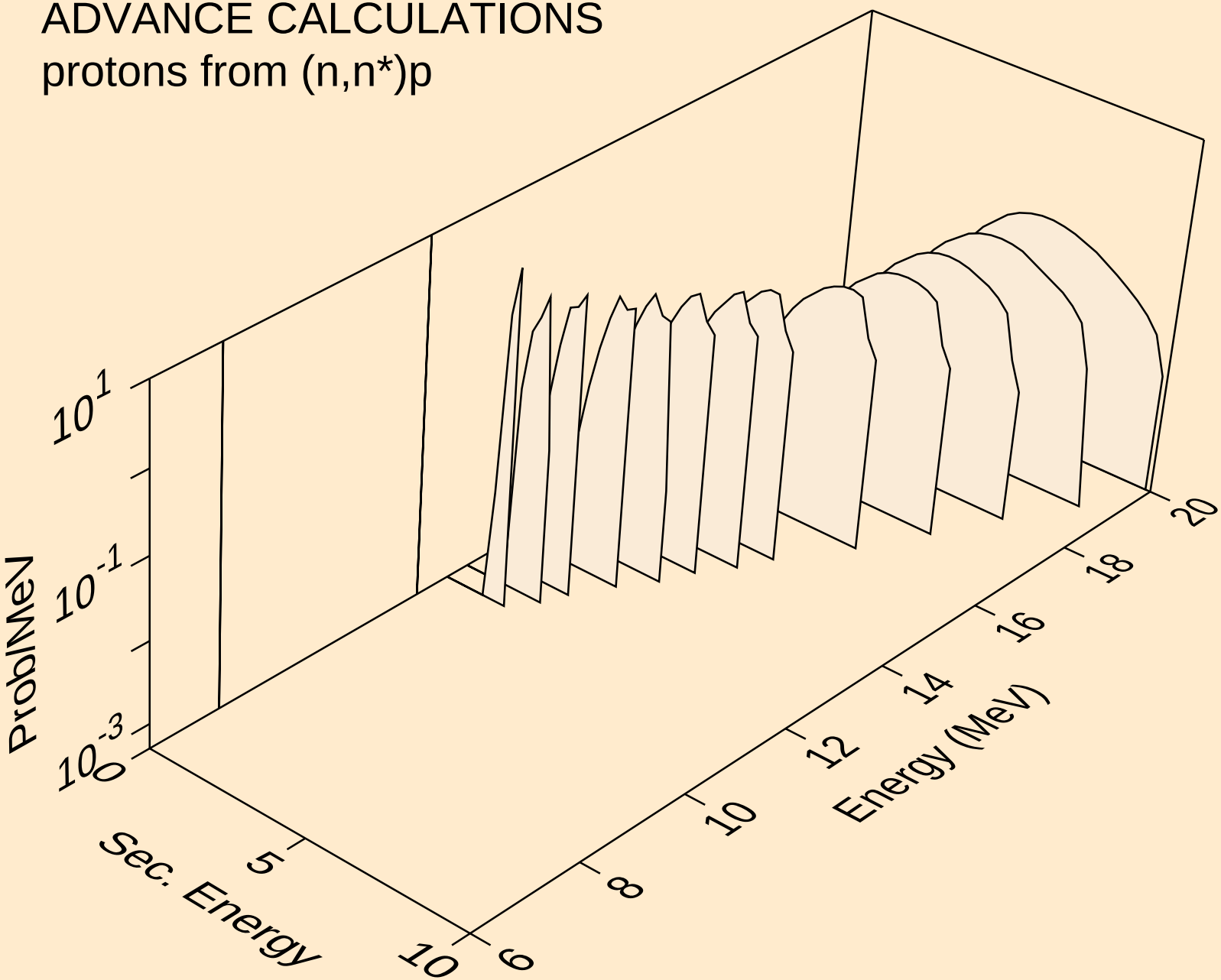
Particle production cross sections



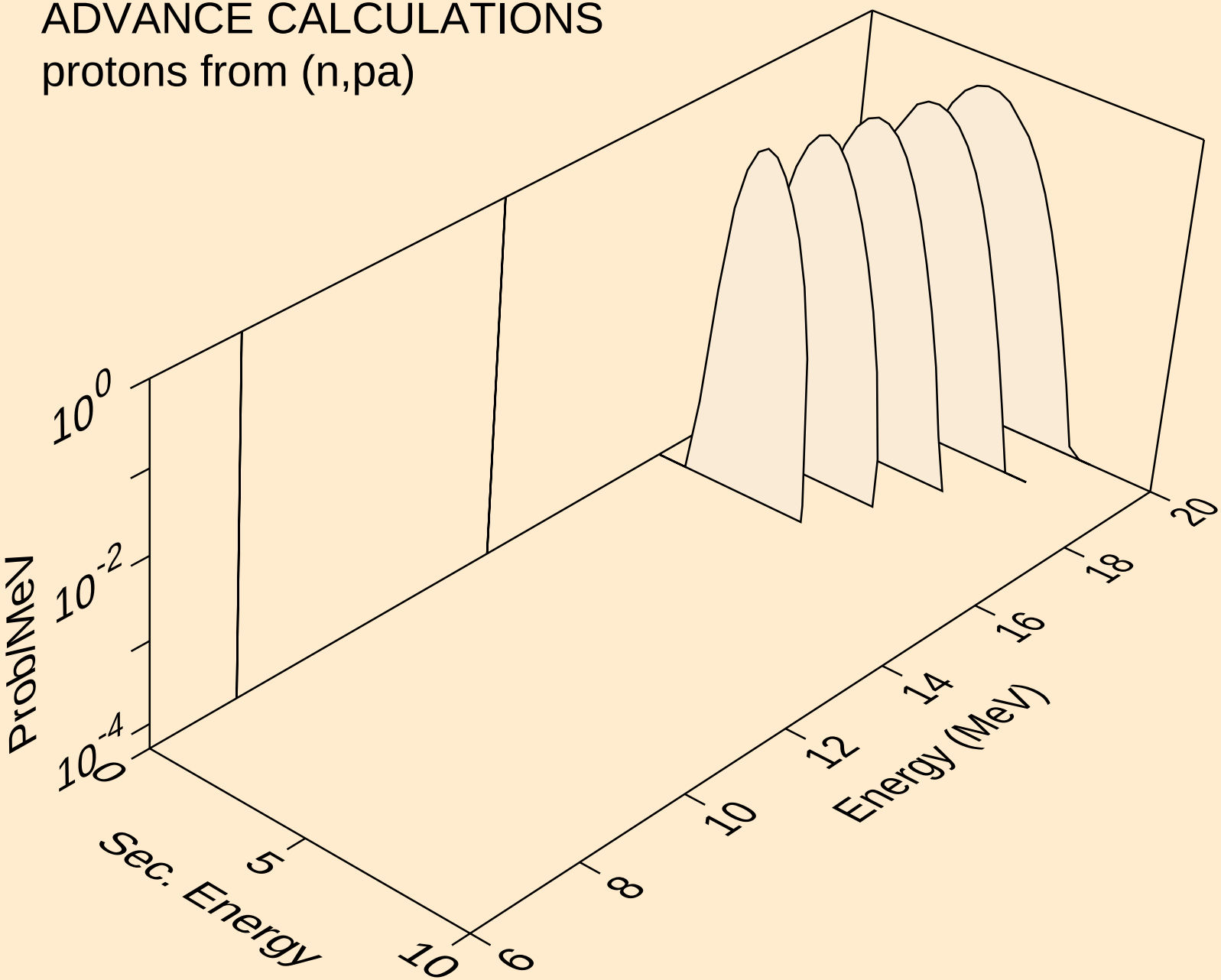
ADVANCE CALCULATIONS
protons from (n,x)



ADVANCE CALCULATIONS
protons from (n,n*)p

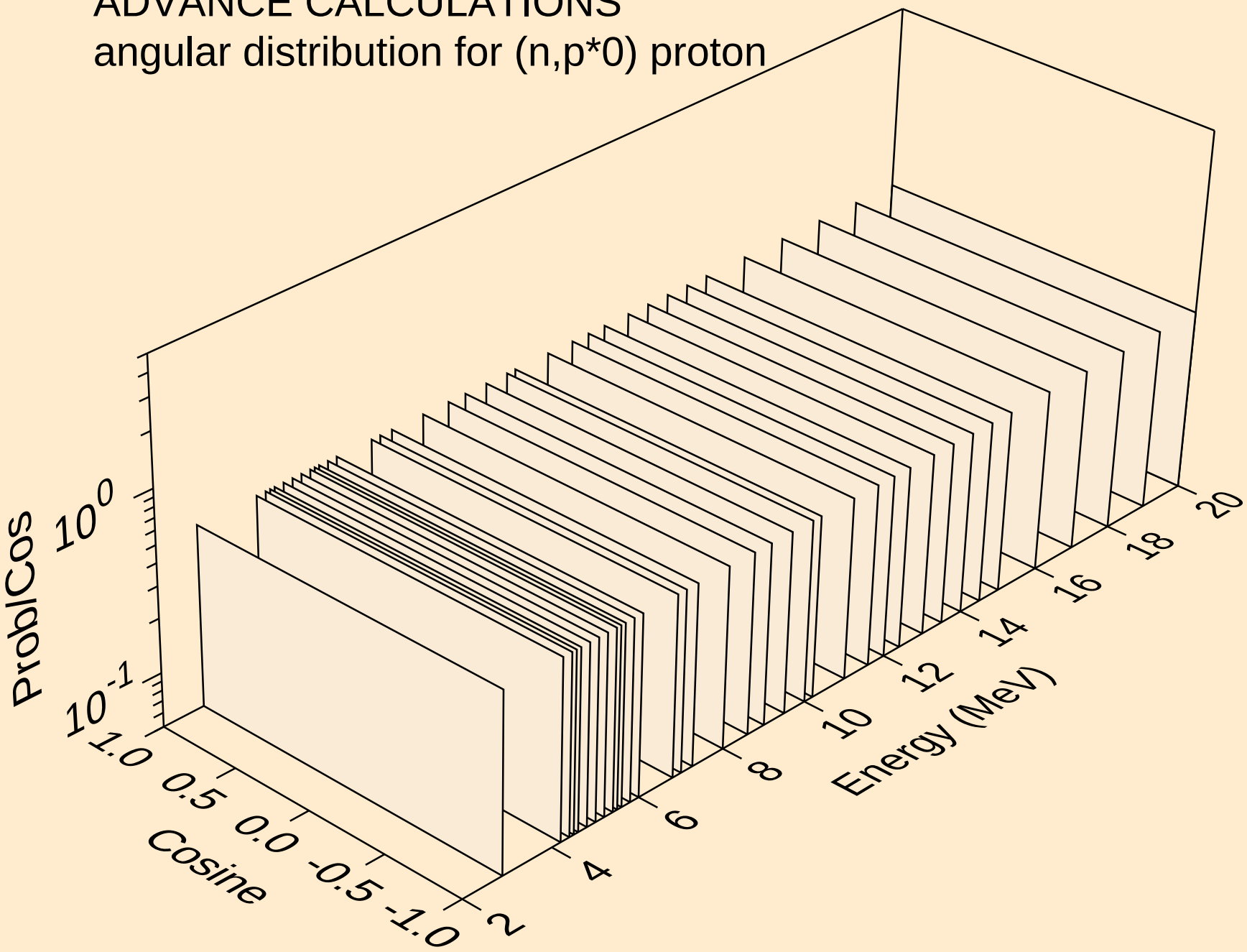


ADVANCE CALCULATIONS
protons from (n,pa)

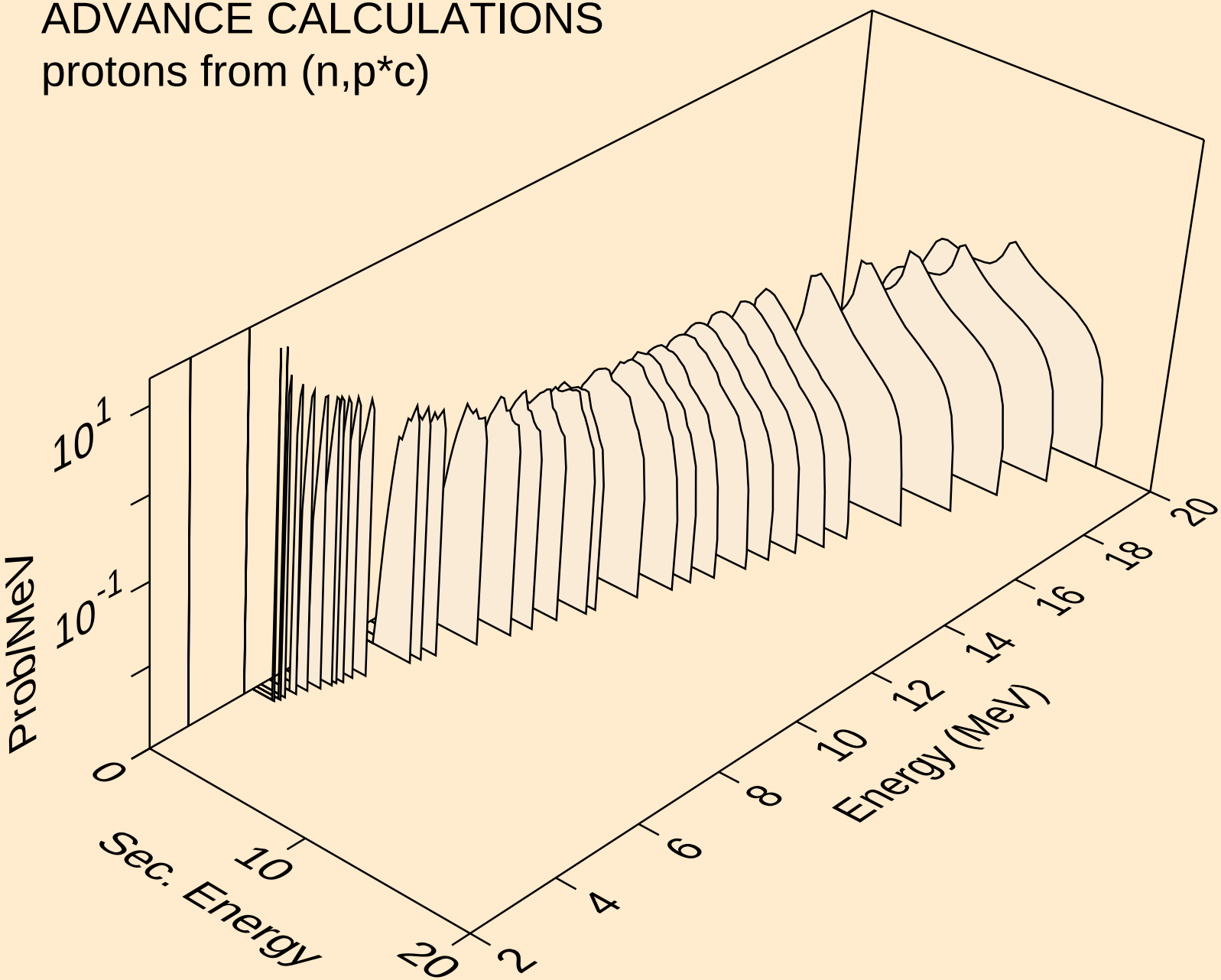


ADVANCE CALCULATIONS

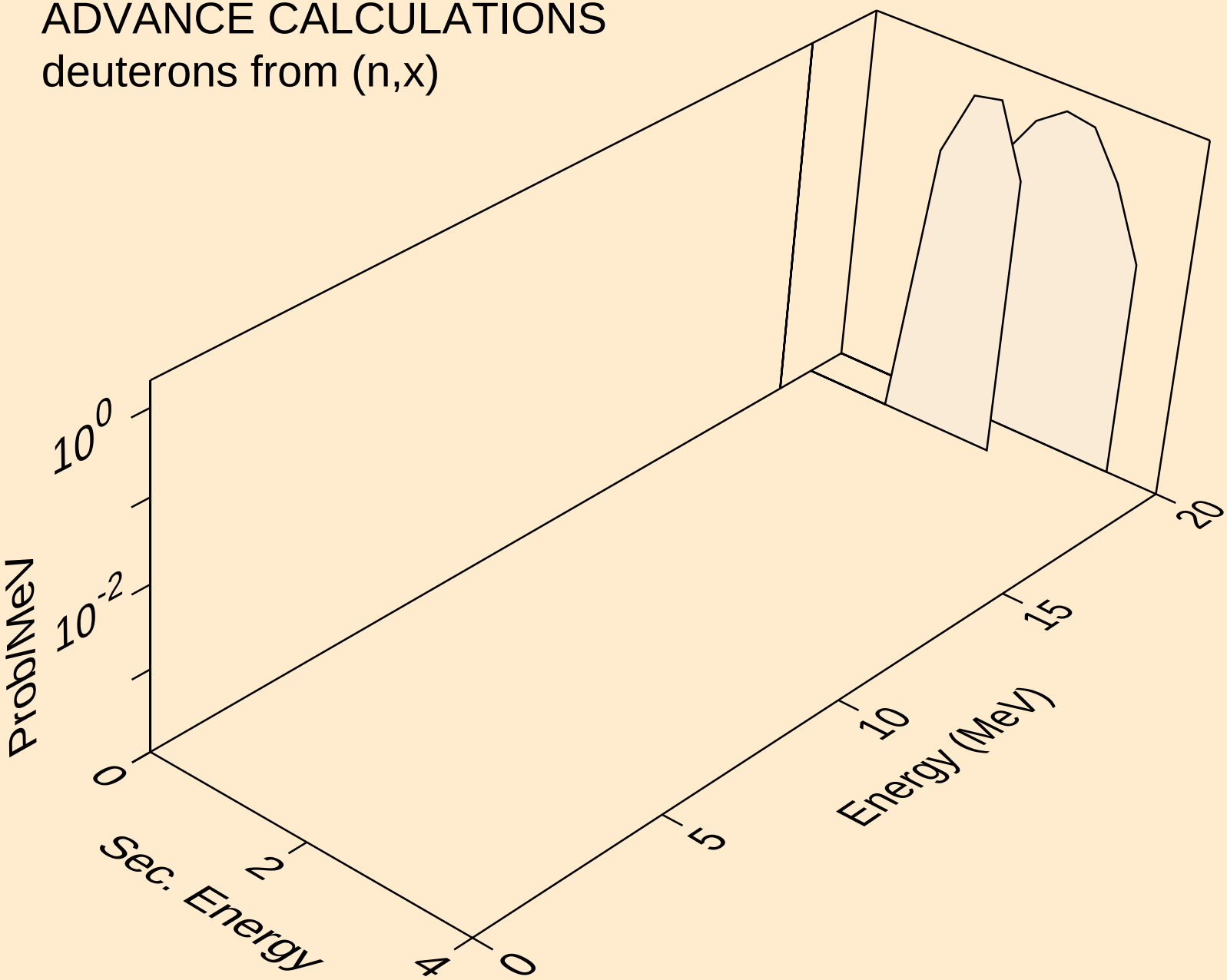
angular distribution for (n,p*0) proton



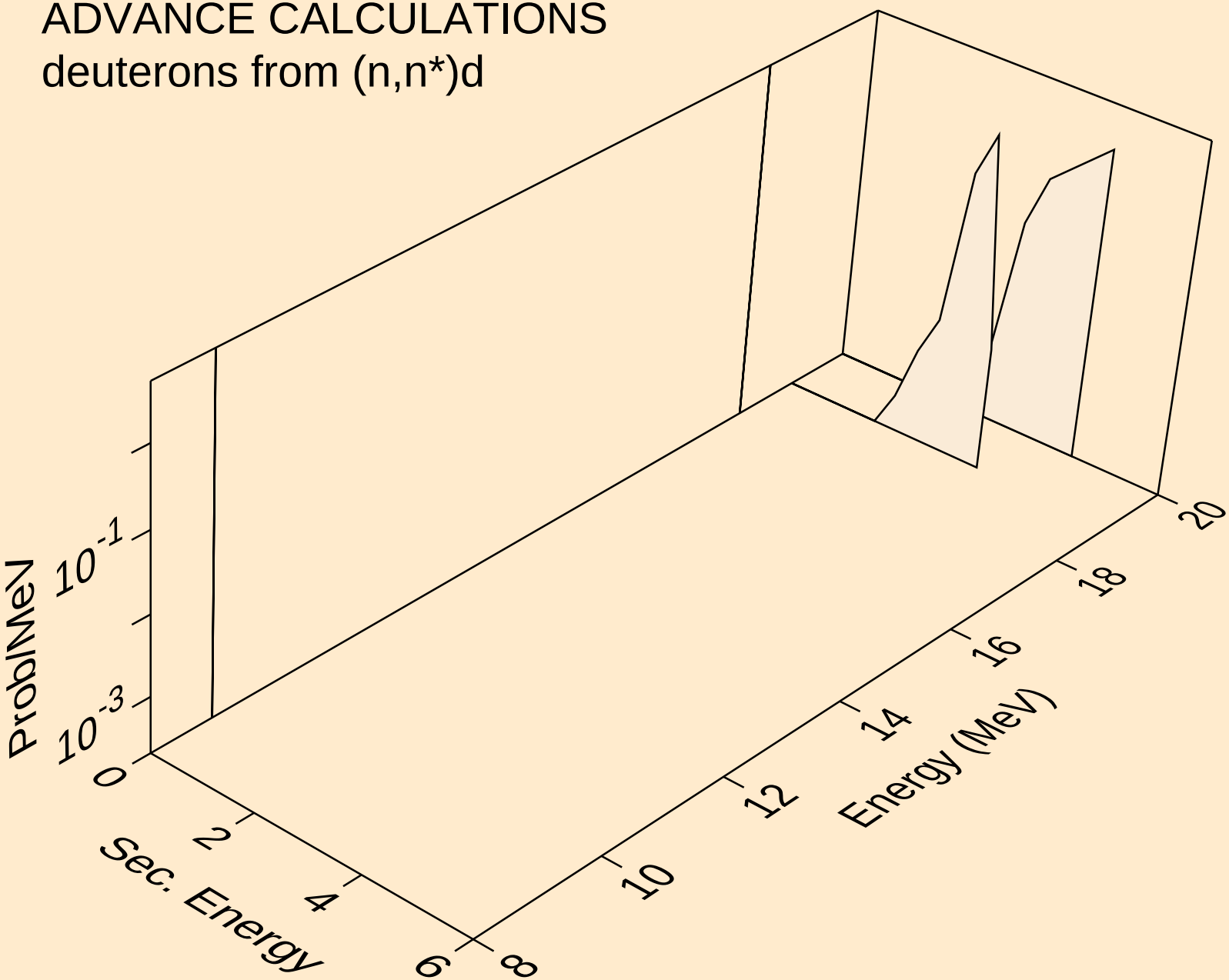
ADVANCE CALCULATIONS
protons from (n,p*c)



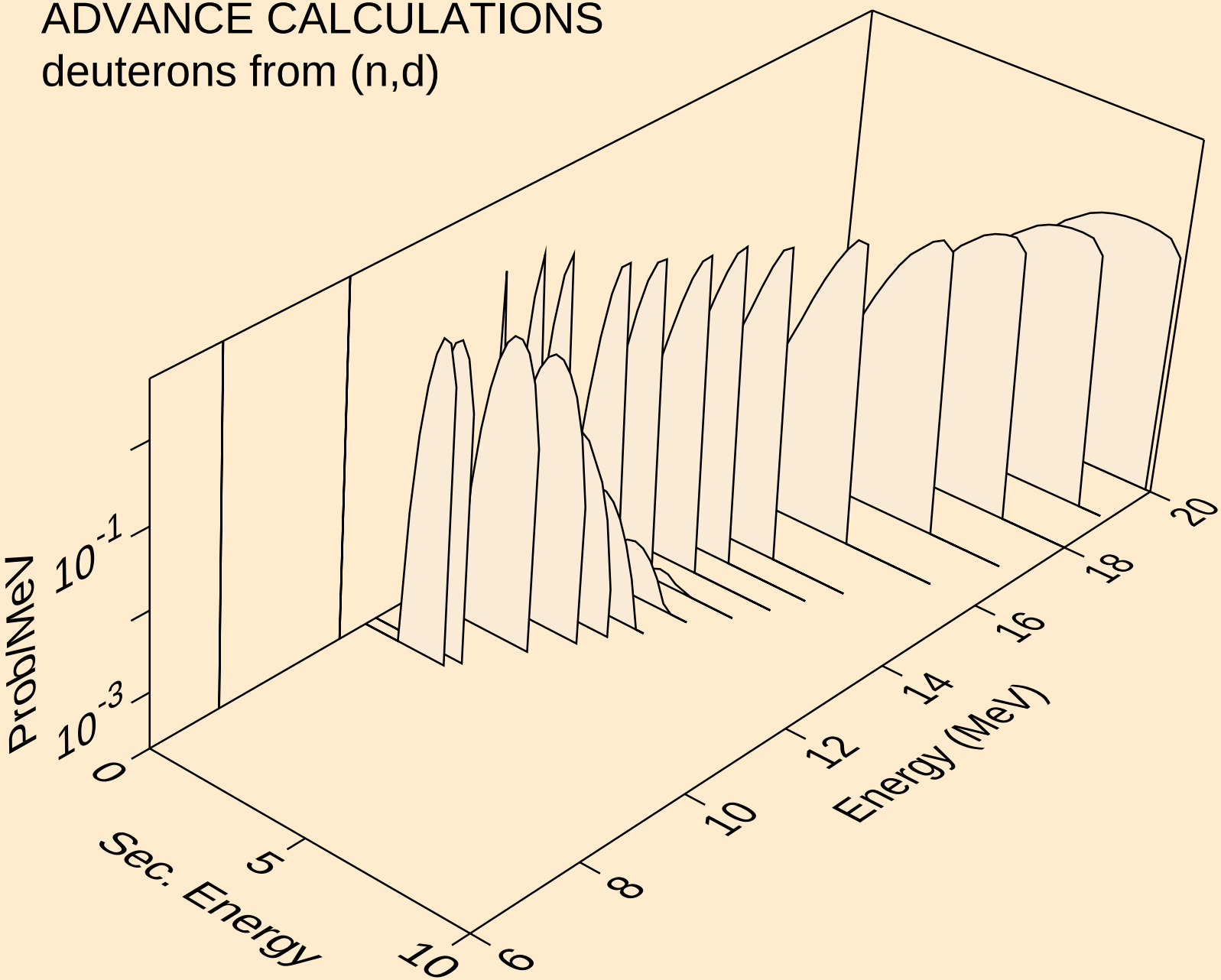
ADVANCE CALCULATIONS
deuterons from (n,x)



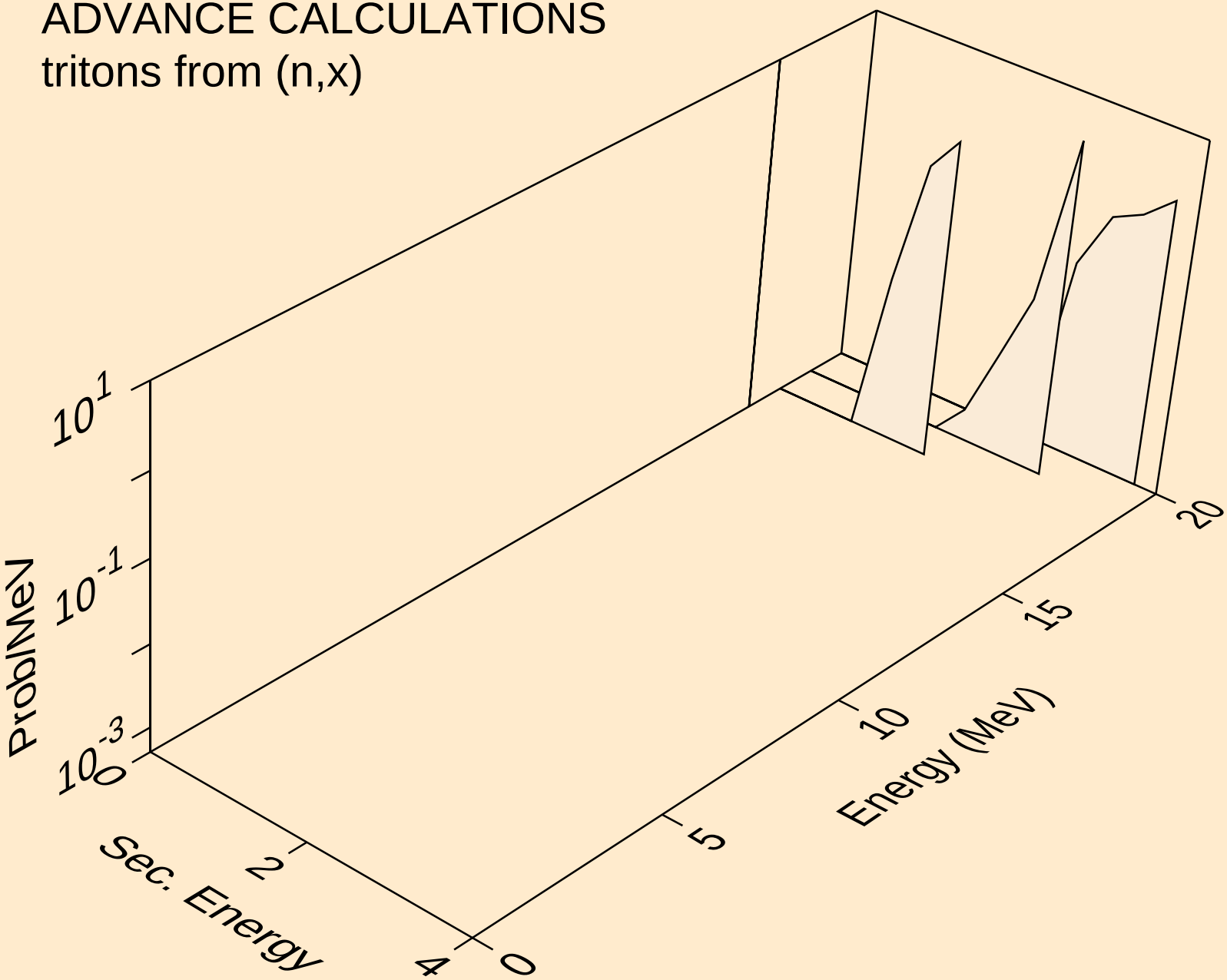
ADVANCE CALCULATIONS
deuterons from (n,n*)d



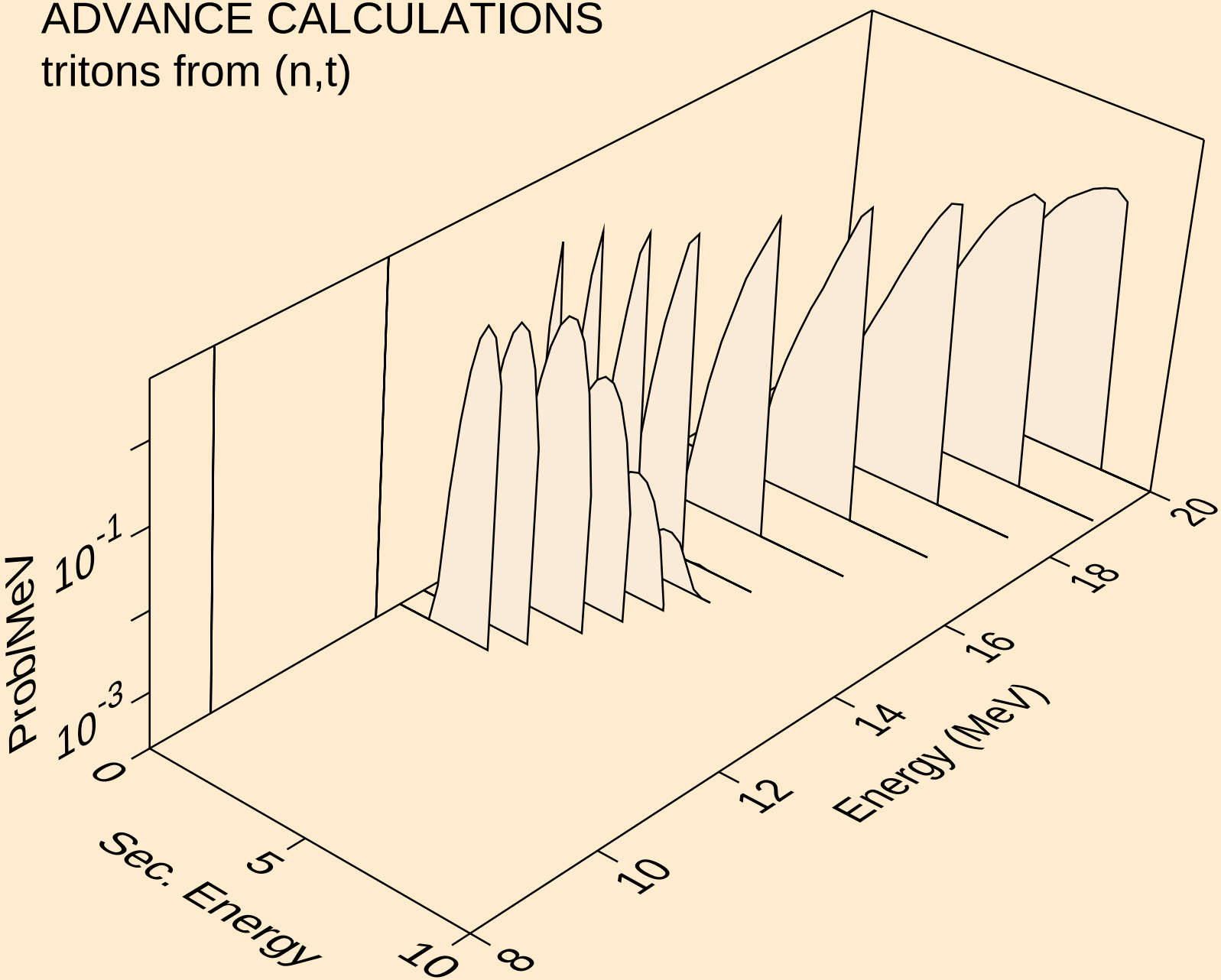
ADVANCE CALCULATIONS
deuterons from (n,d)



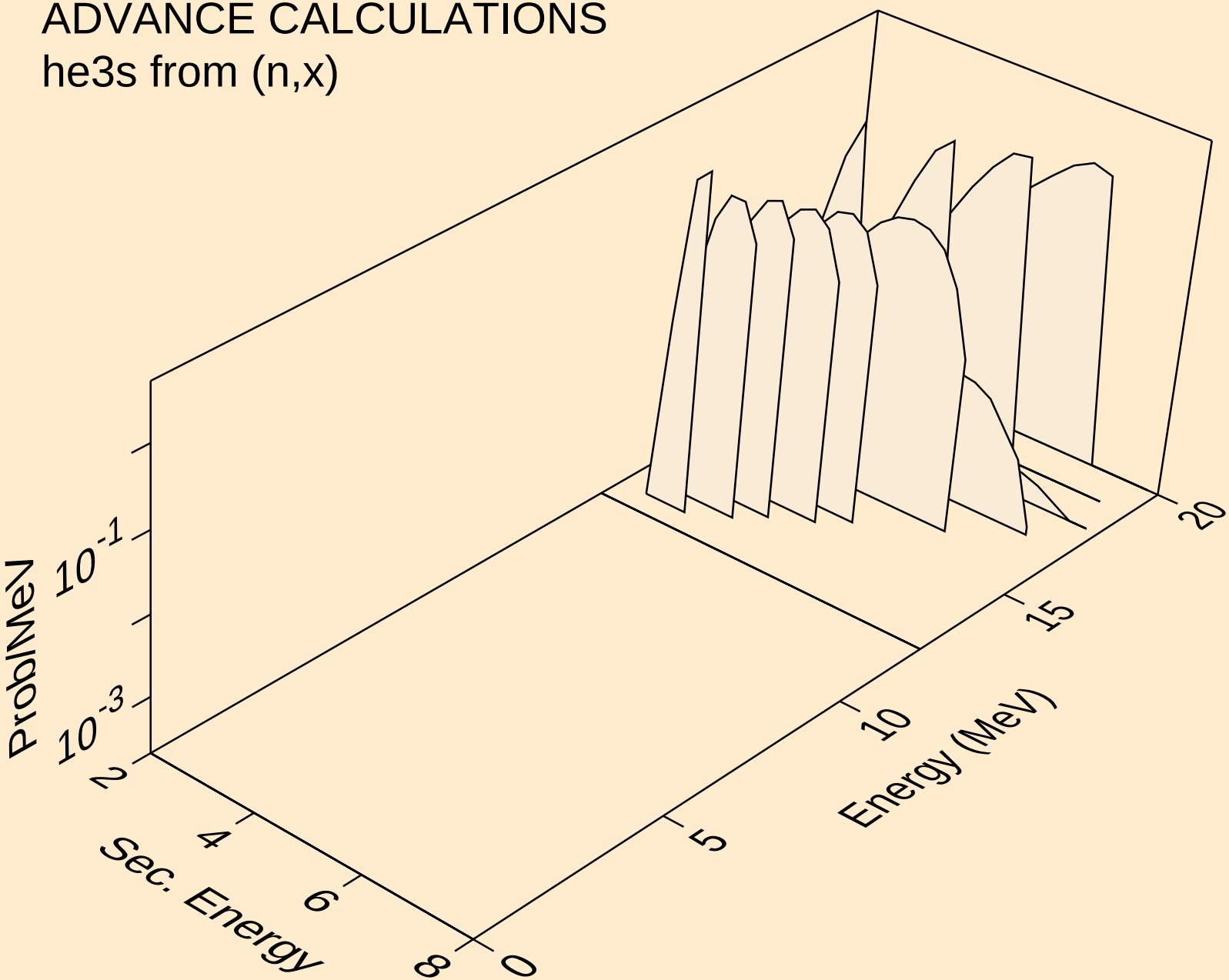
ADVANCE CALCULATIONS
tritons from (n,x)



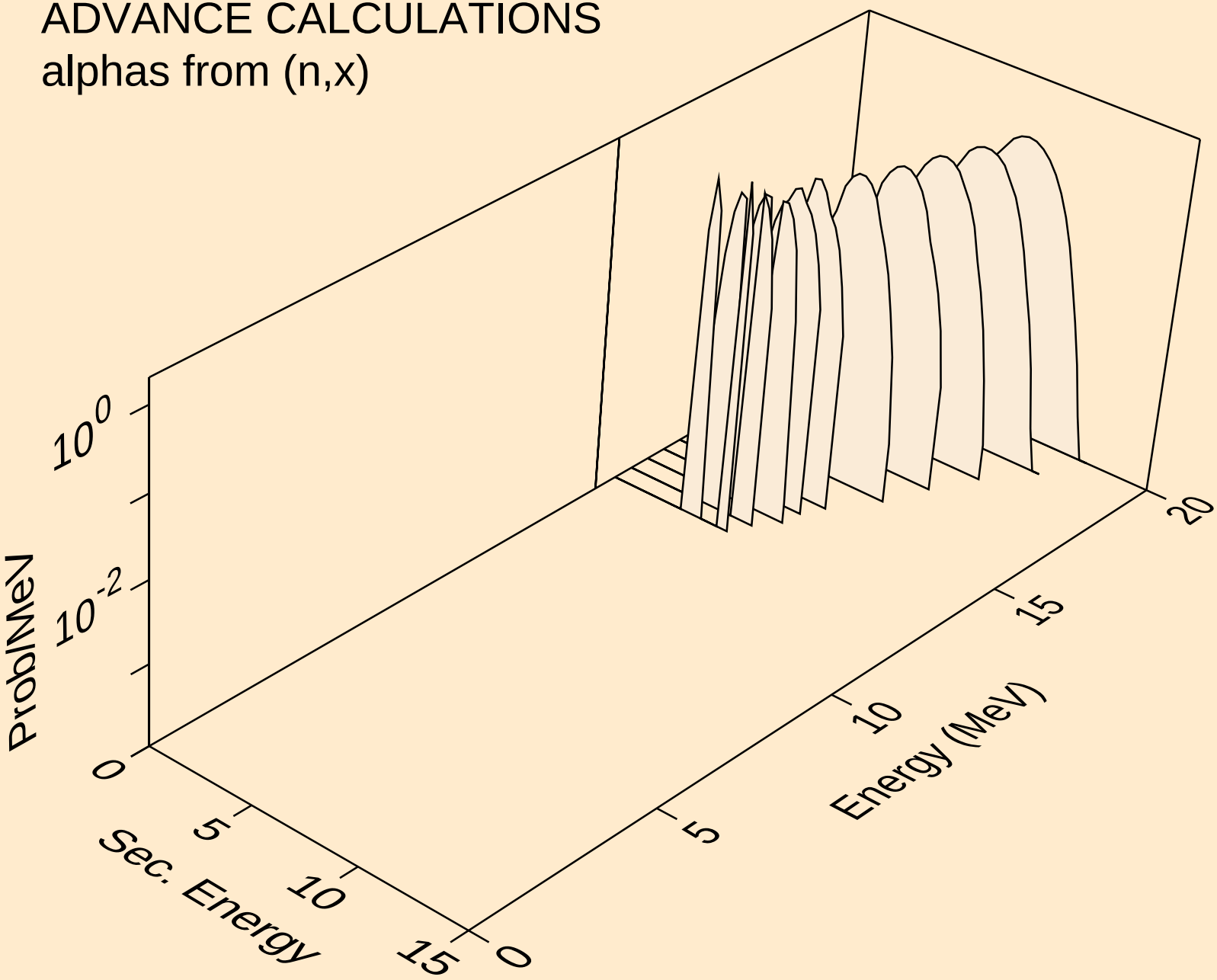
ADVANCE CALCULATIONS
tritons from (n,t)



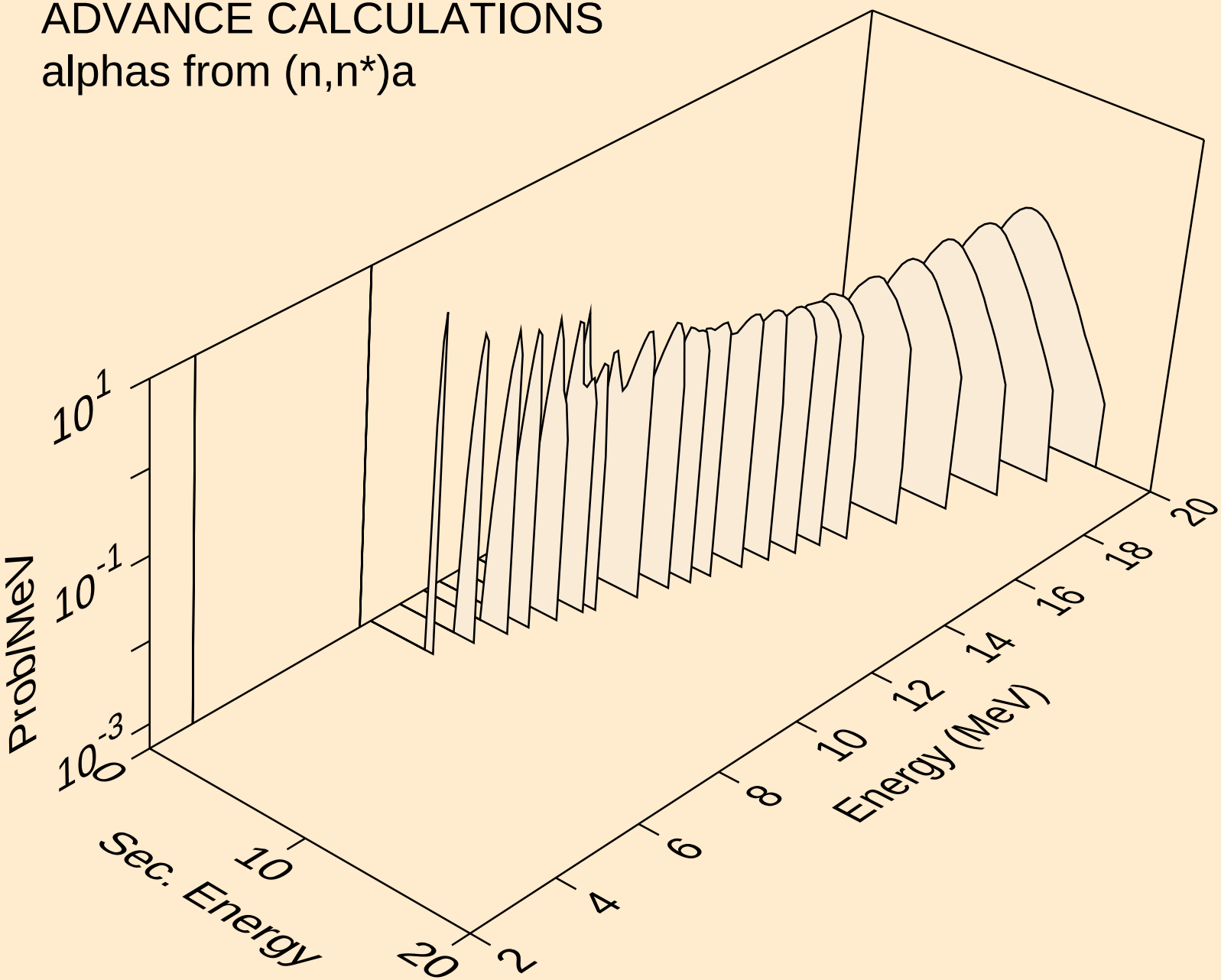
ADVANCE CALCULATIONS
he3s from (n,x)



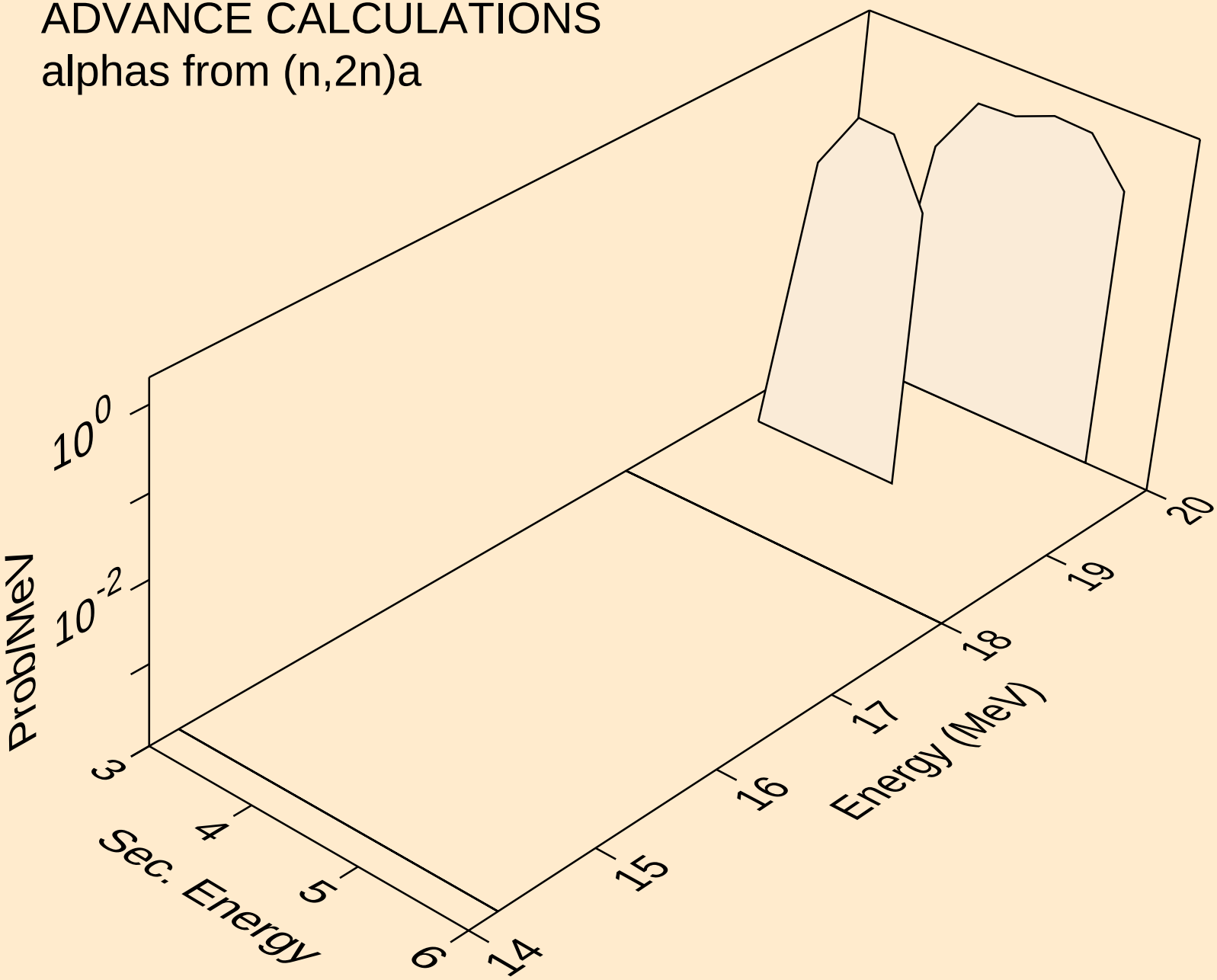
ADVANCE CALCULATIONS
alphas from (n,x)



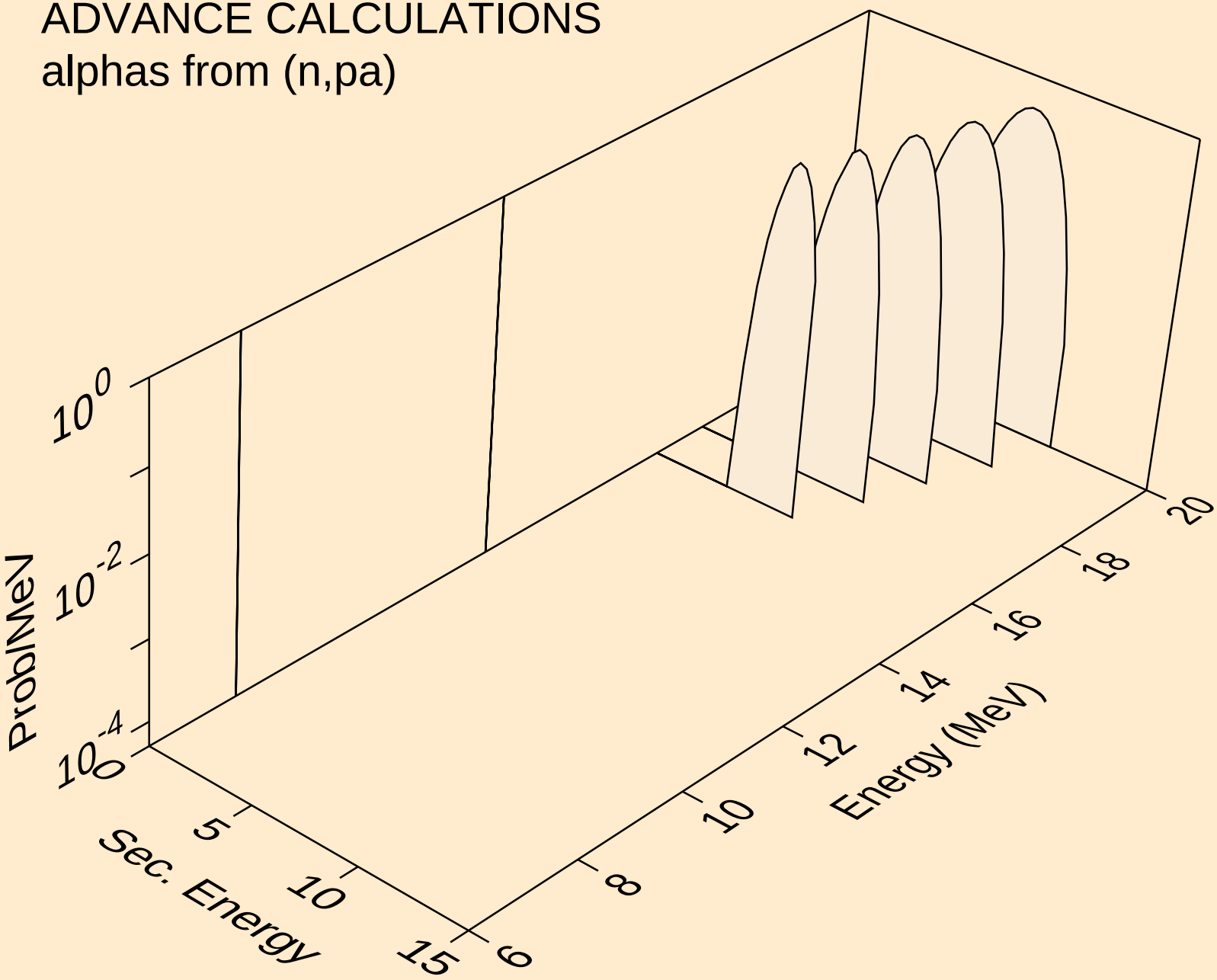
ADVANCE CALCULATIONS
alphas from (n,n*)a



ADVANCE CALCULATIONS
alphas from (n,2n)a

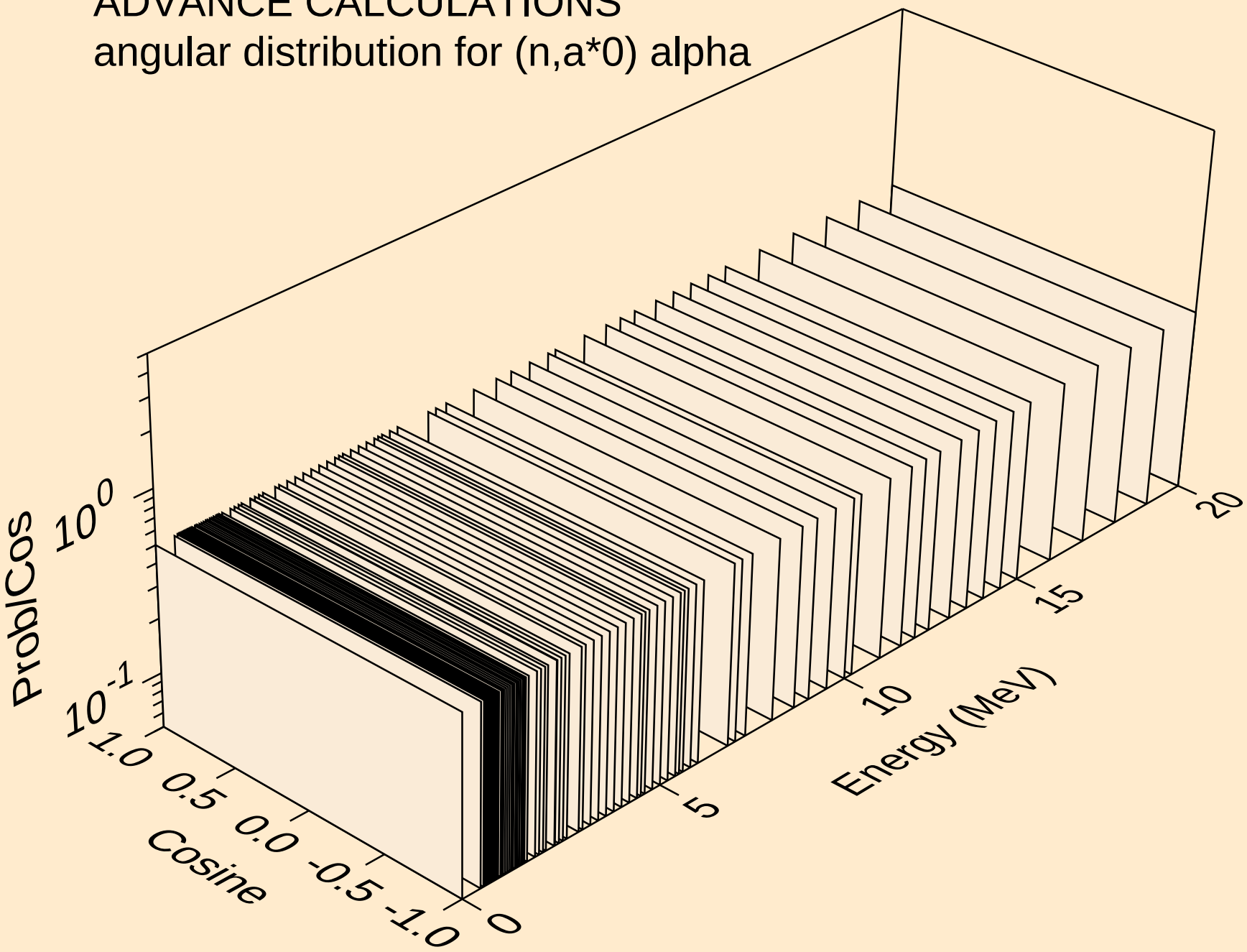


ADVANCE CALCULATIONS
alphas from (n,pa)



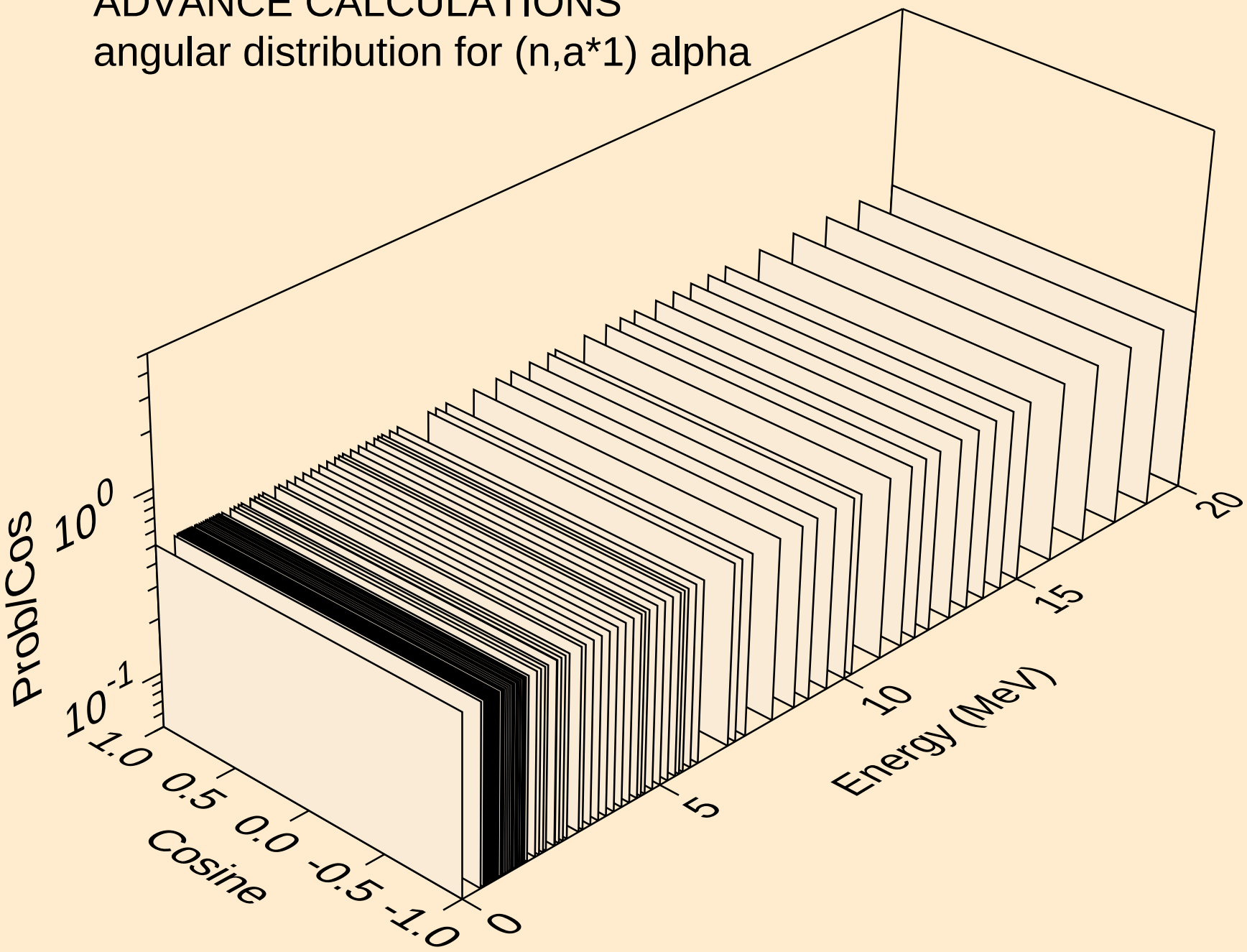
ADVANCE CALCULATIONS

angular distribution for (n,a*0) alpha



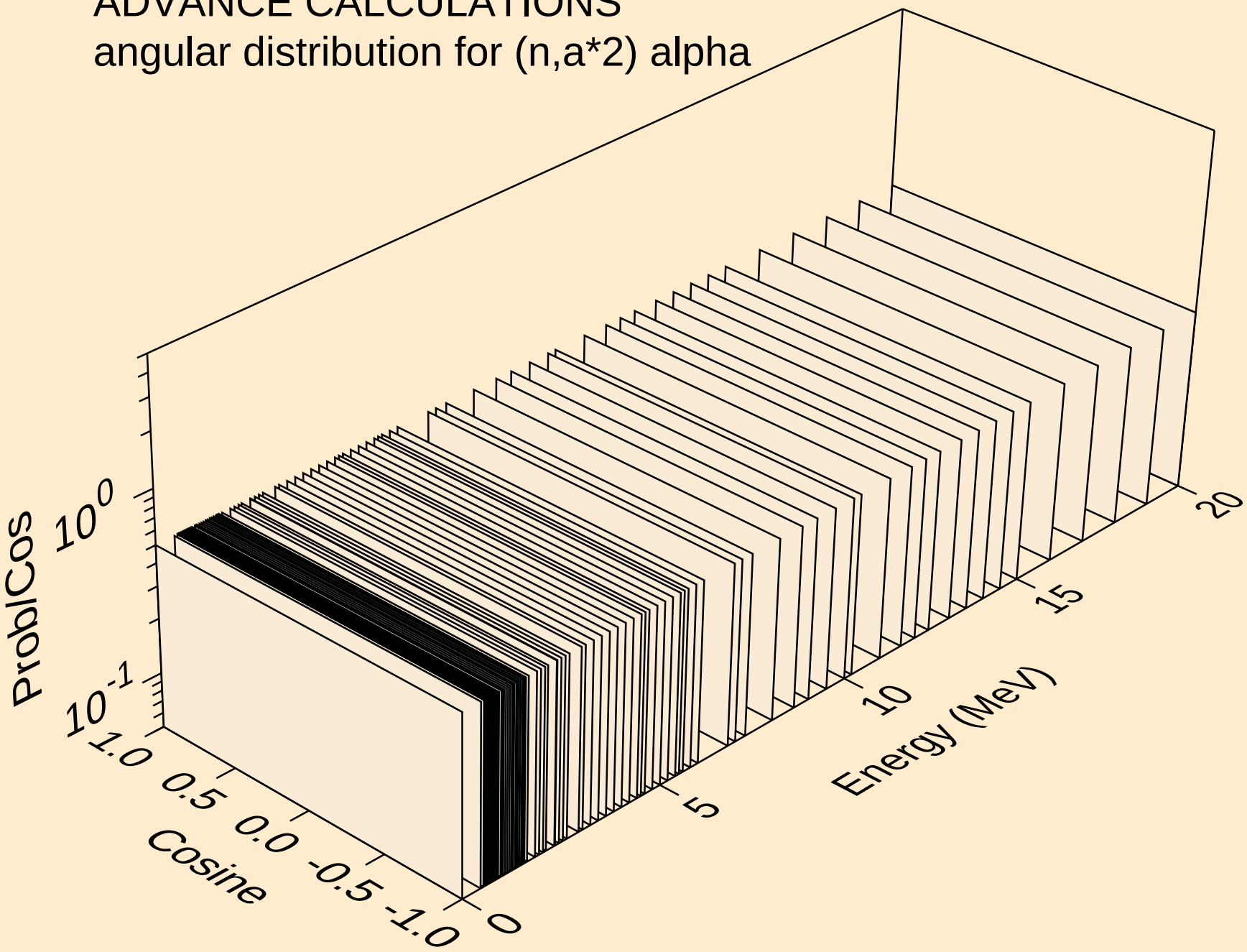
ADVANCE CALCULATIONS

angular distribution for (n,a*1) alpha



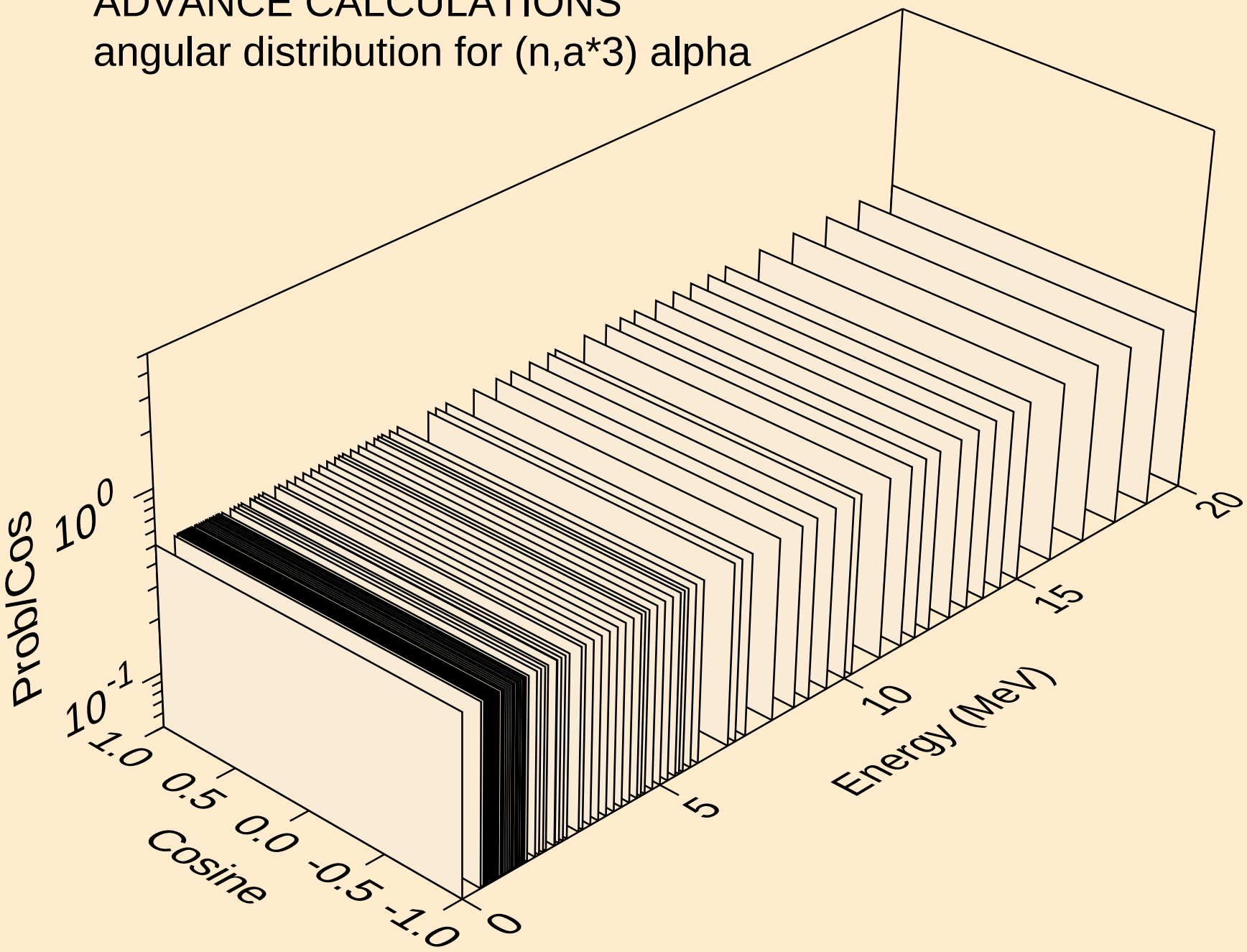
ADVANCE CALCULATIONS

angular distribution for (n,a*2) alpha



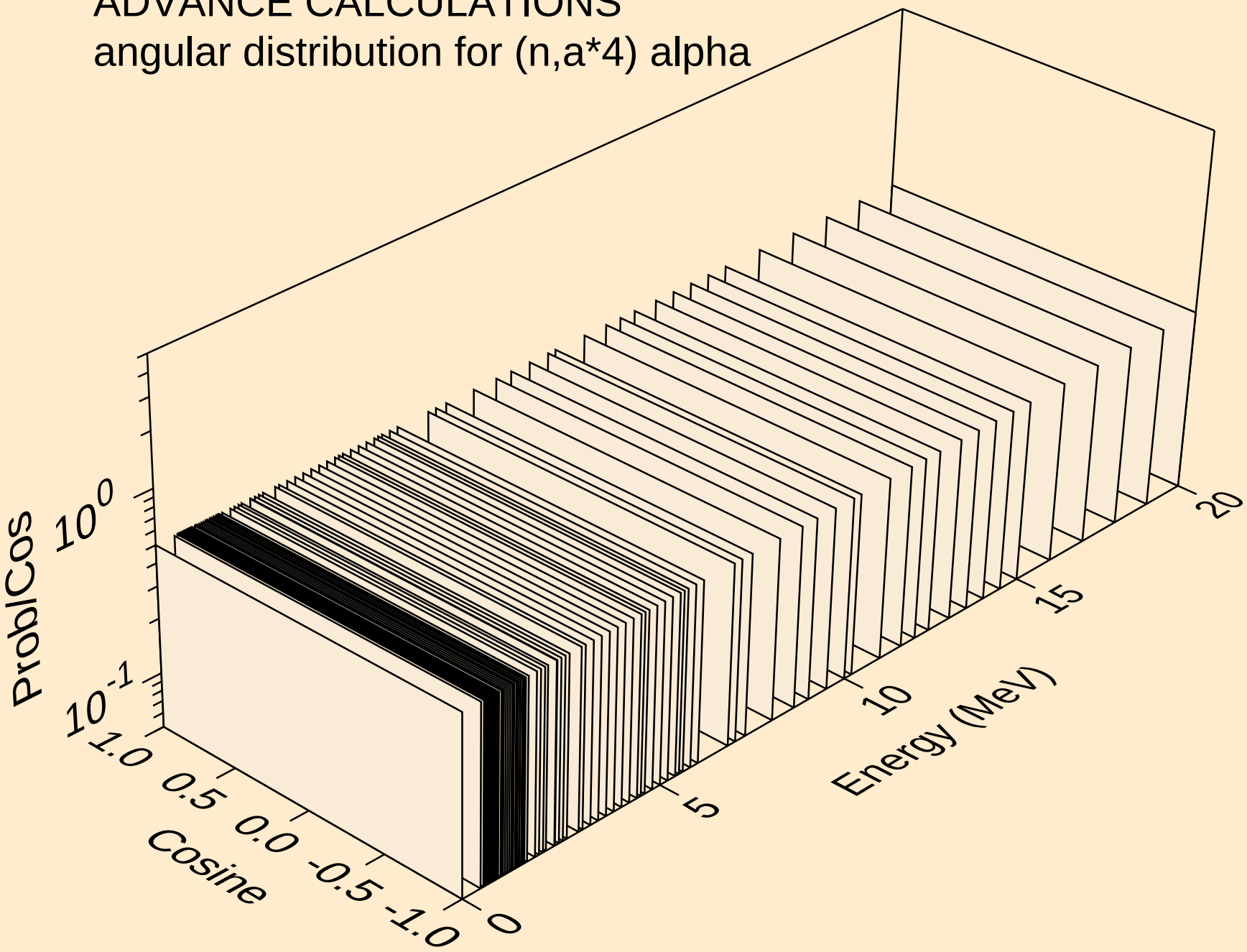
ADVANCE CALCULATIONS

angular distribution for (n,a*3) alpha



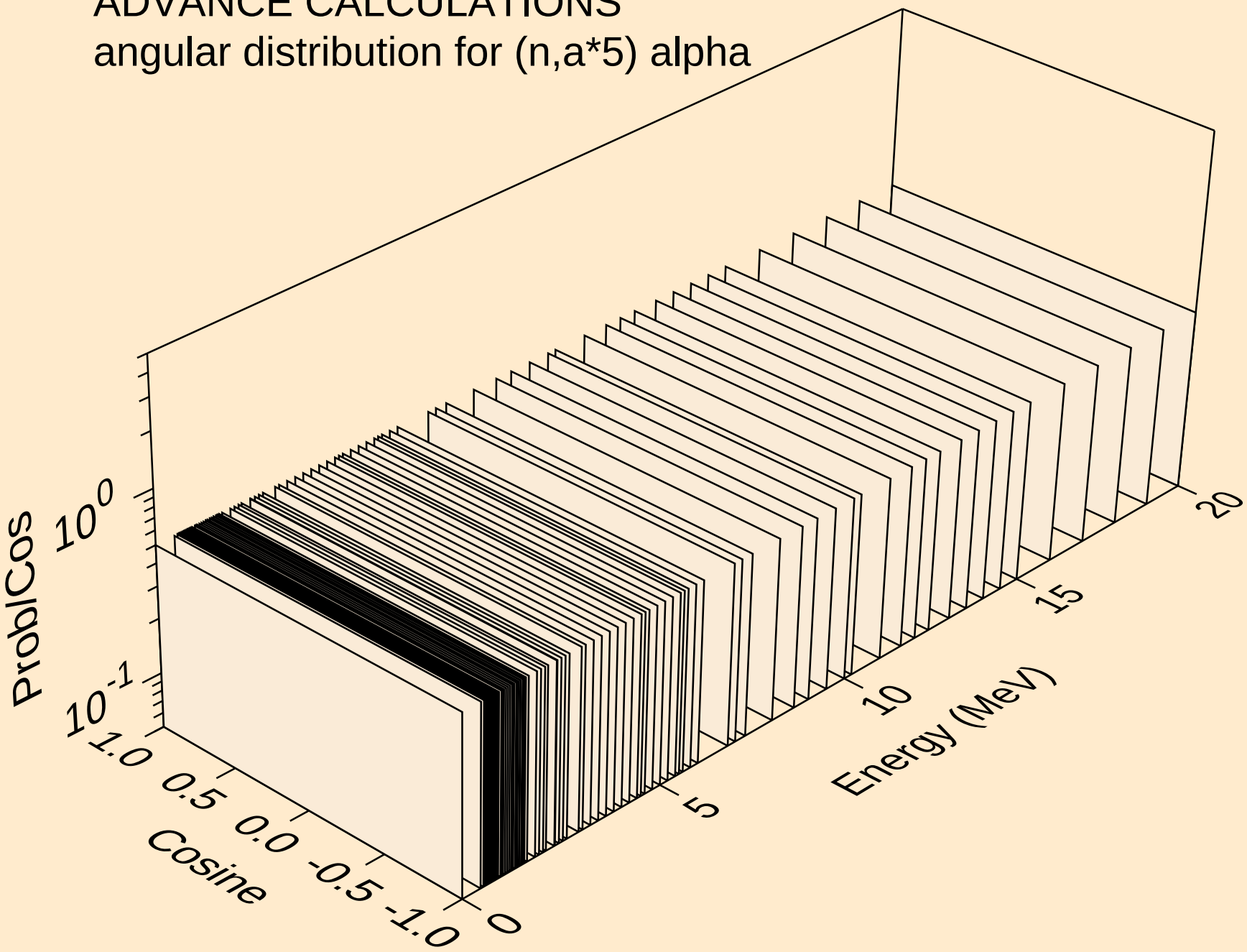
ADVANCE CALCULATIONS

angular distribution for (n,a*4) alpha



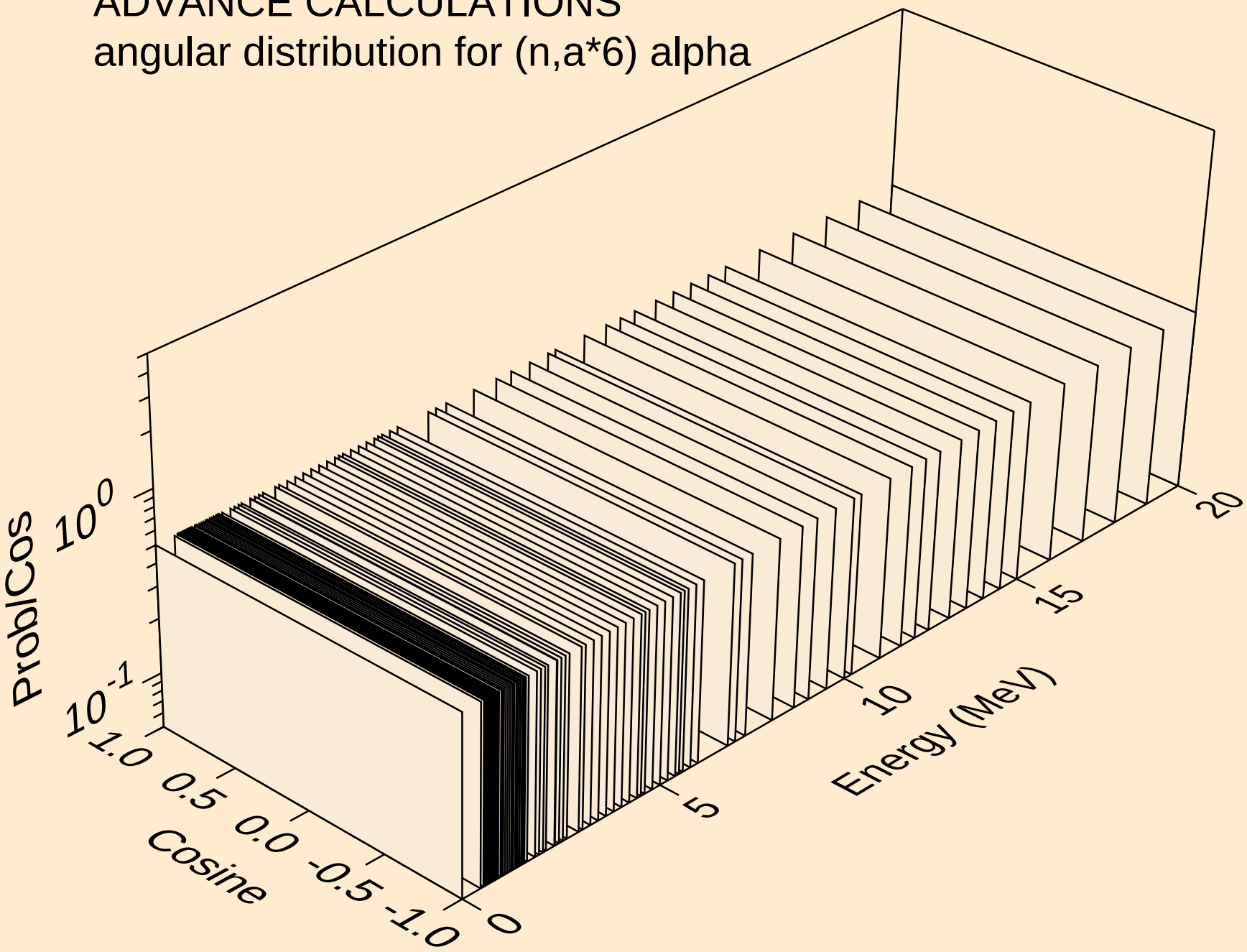
ADVANCE CALCULATIONS

angular distribution for (n,a*5) alpha



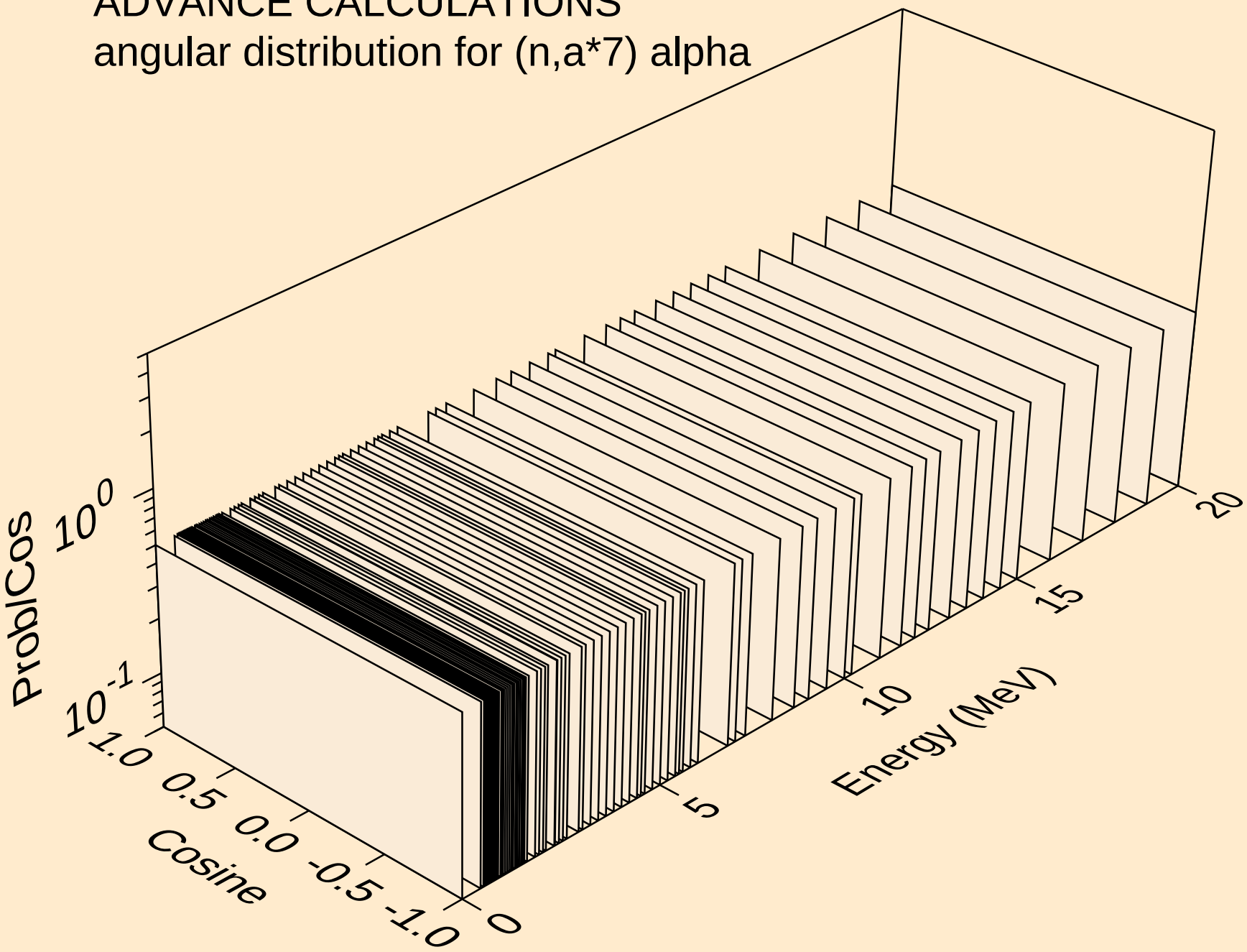
ADVANCE CALCULATIONS

angular distribution for (n,a*6) alpha



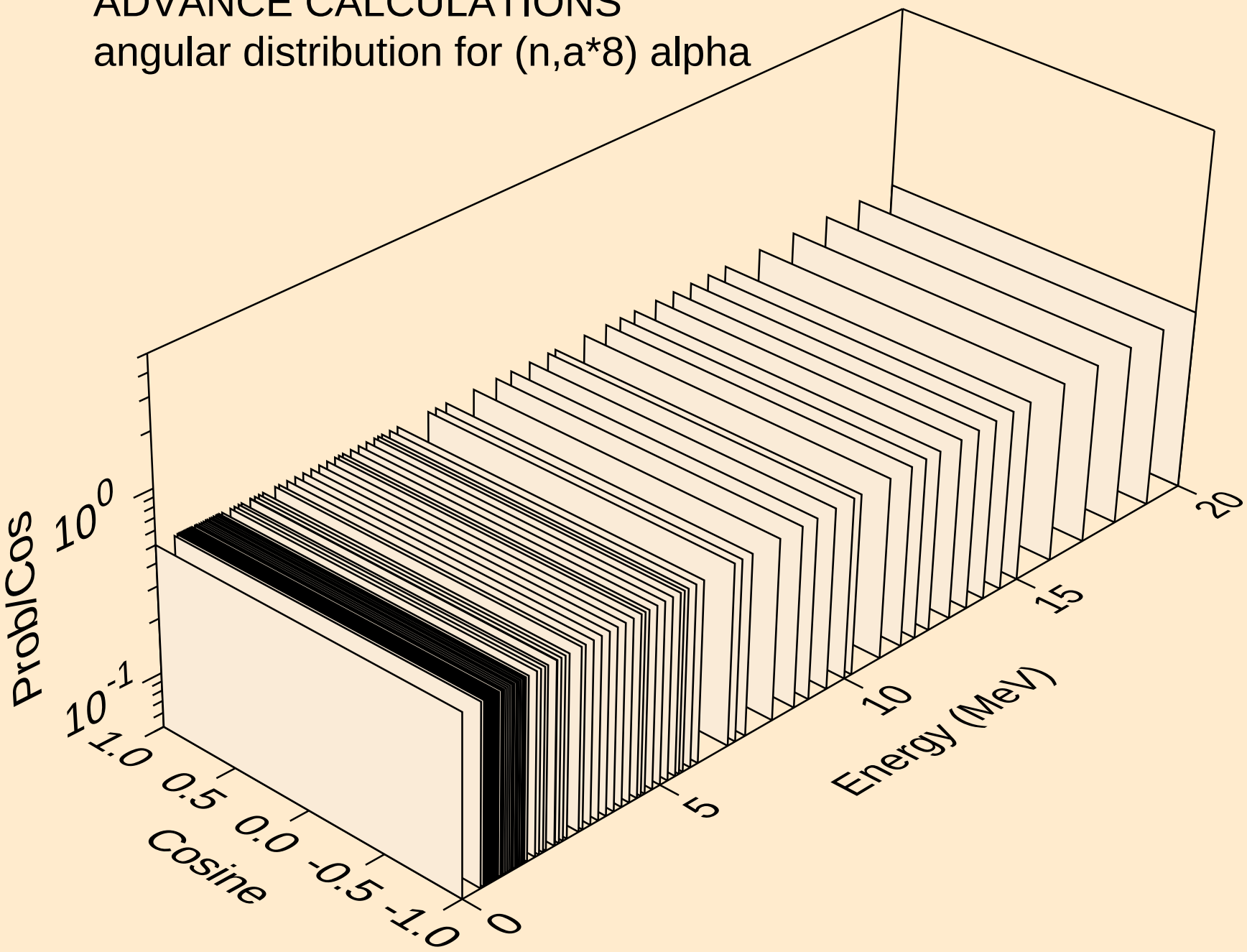
ADVANCE CALCULATIONS

angular distribution for (n,a*7) alpha



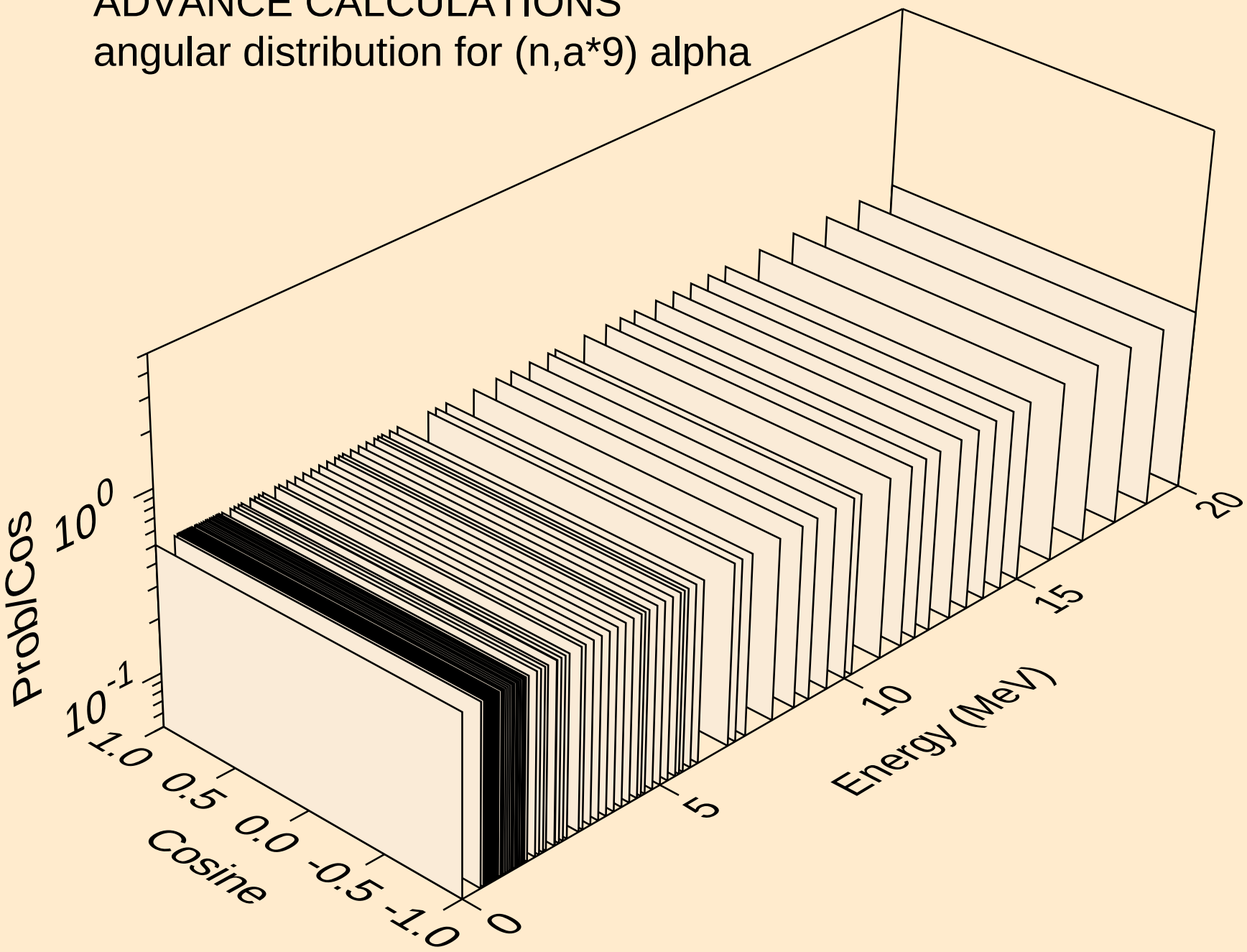
ADVANCE CALCULATIONS

angular distribution for (n,a*8) alpha



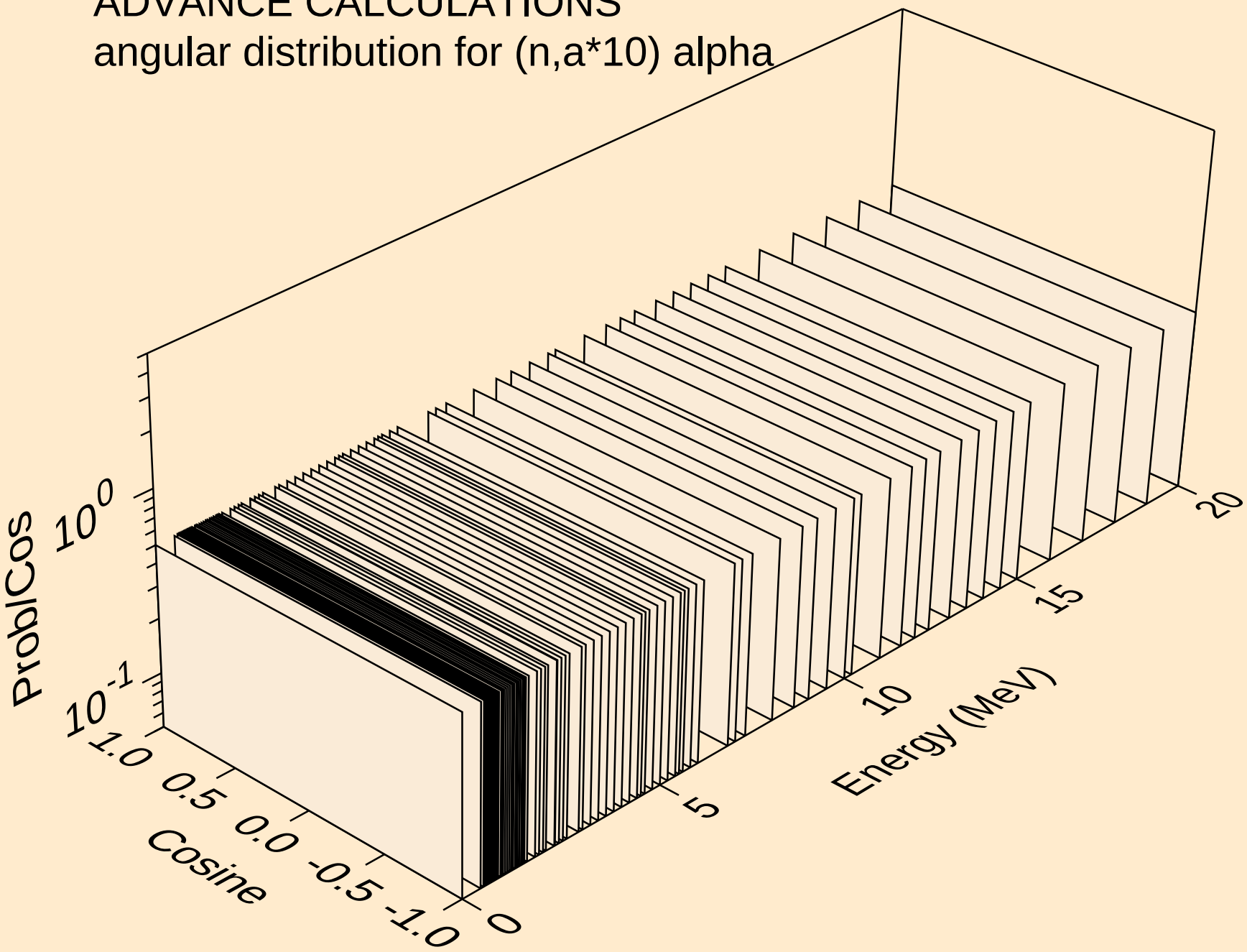
ADVANCE CALCULATIONS

angular distribution for (n,a*9) alpha



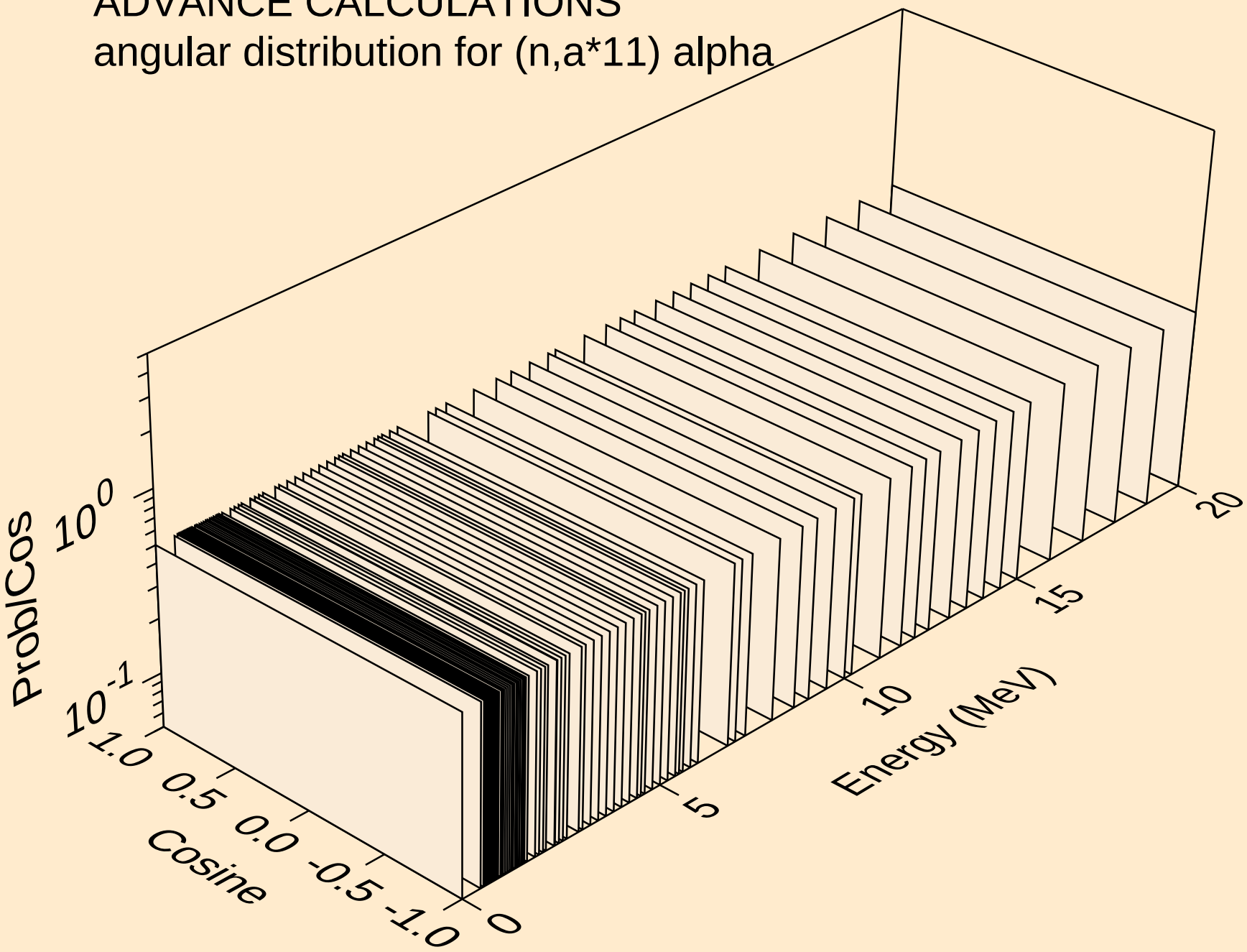
ADVANCE CALCULATIONS

angular distribution for (n,a*10) alpha



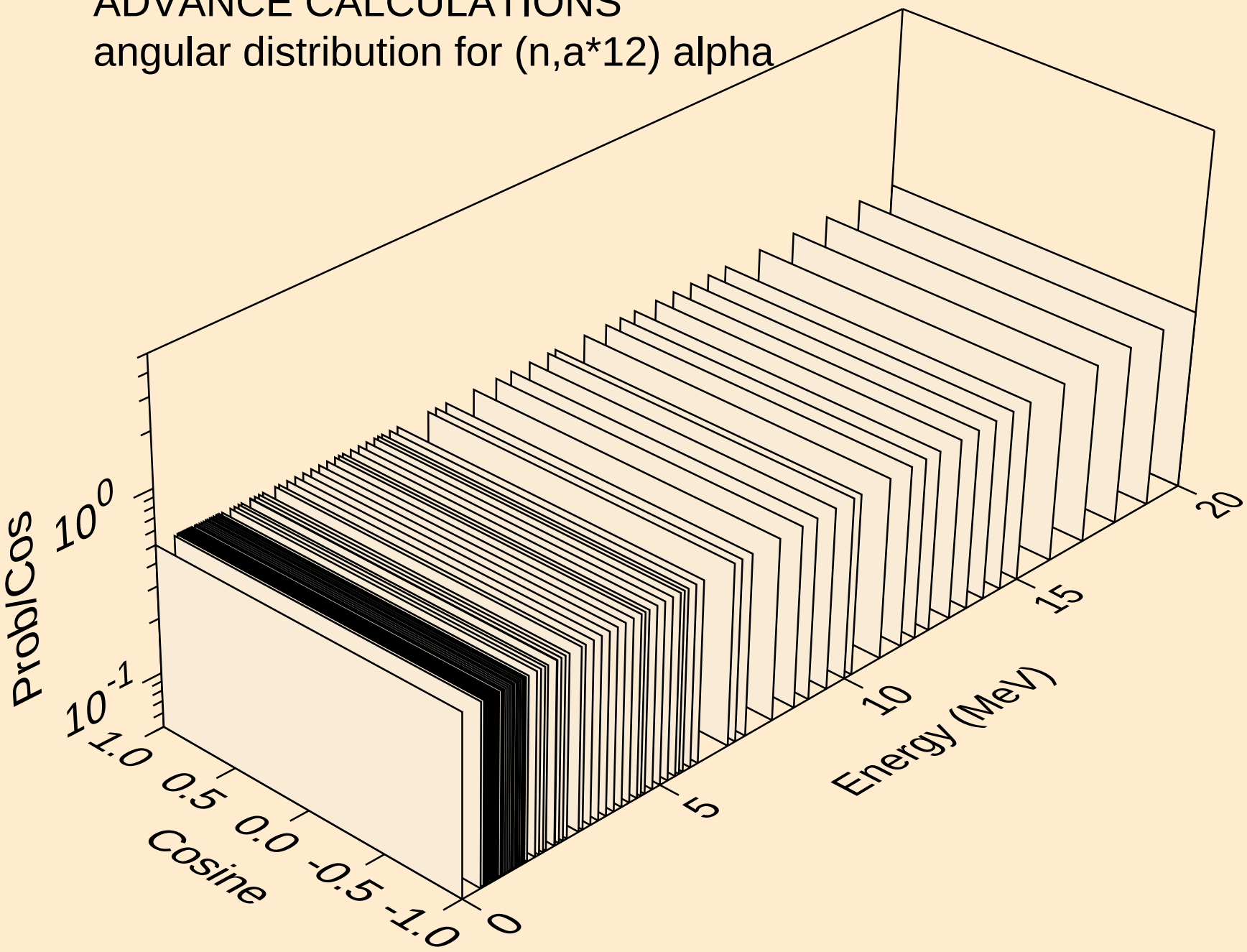
ADVANCE CALCULATIONS

angular distribution for (n,a*11) alpha



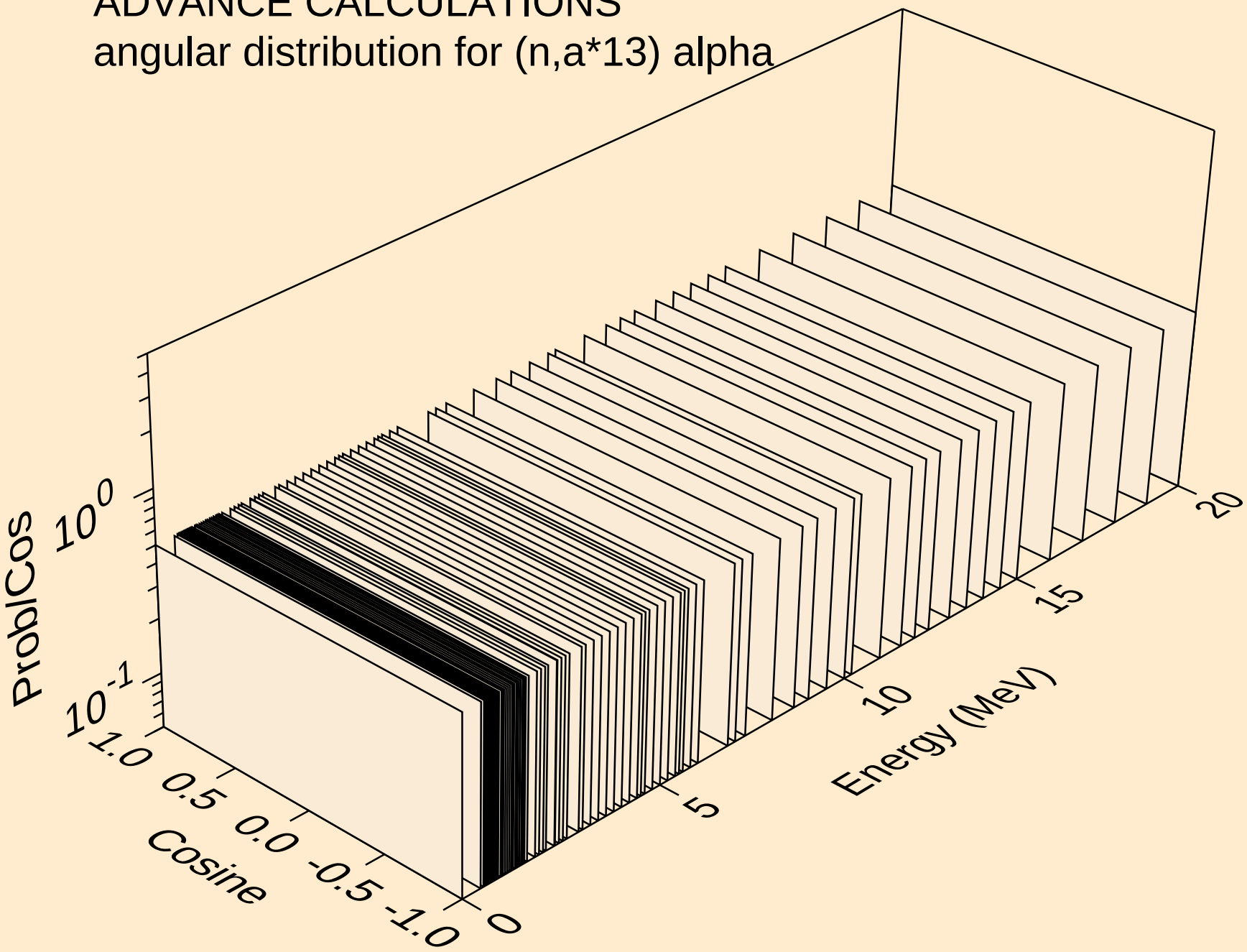
ADVANCE CALCULATIONS

angular distribution for (n,a*12) alpha



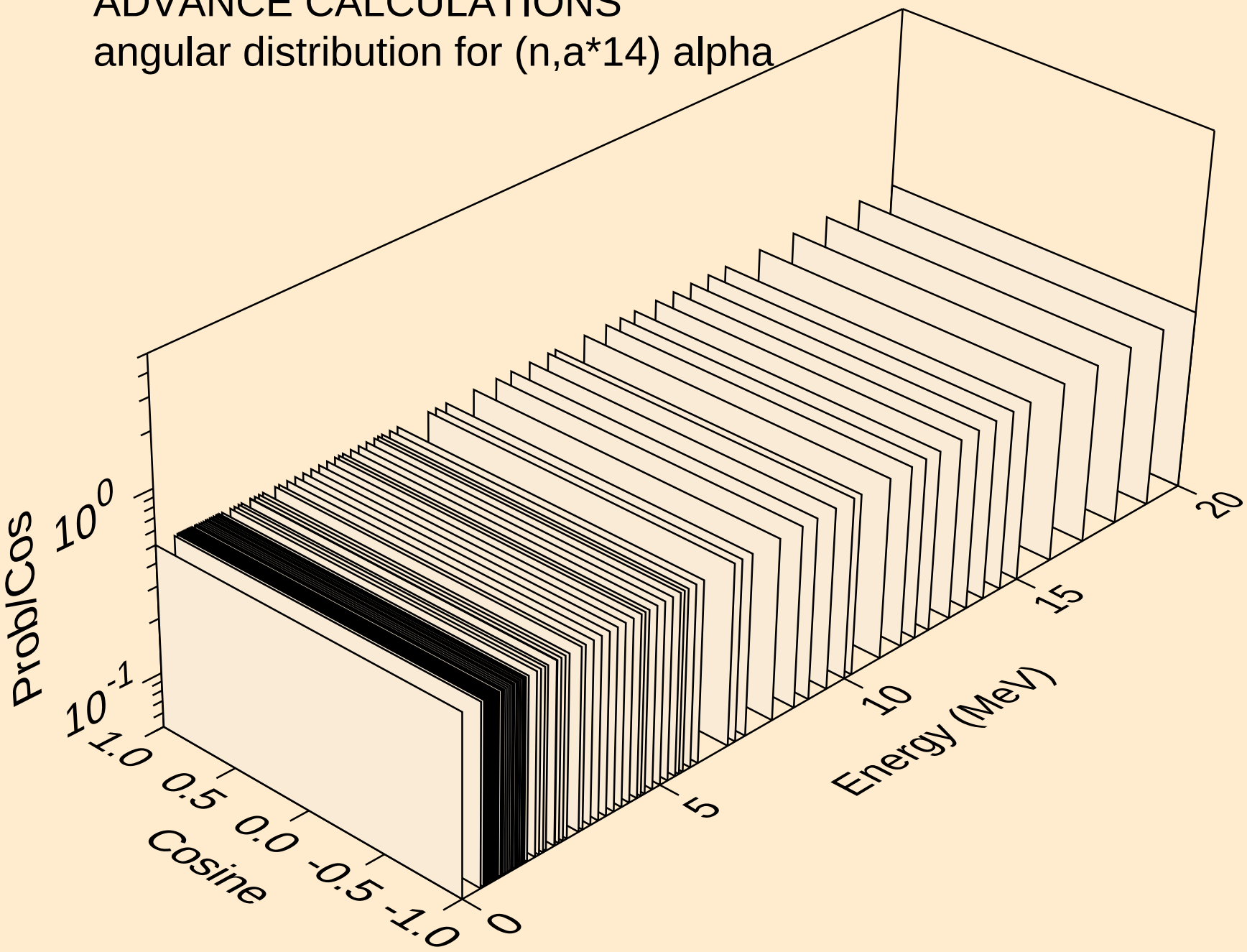
ADVANCE CALCULATIONS

angular distribution for (n,a*13) alpha



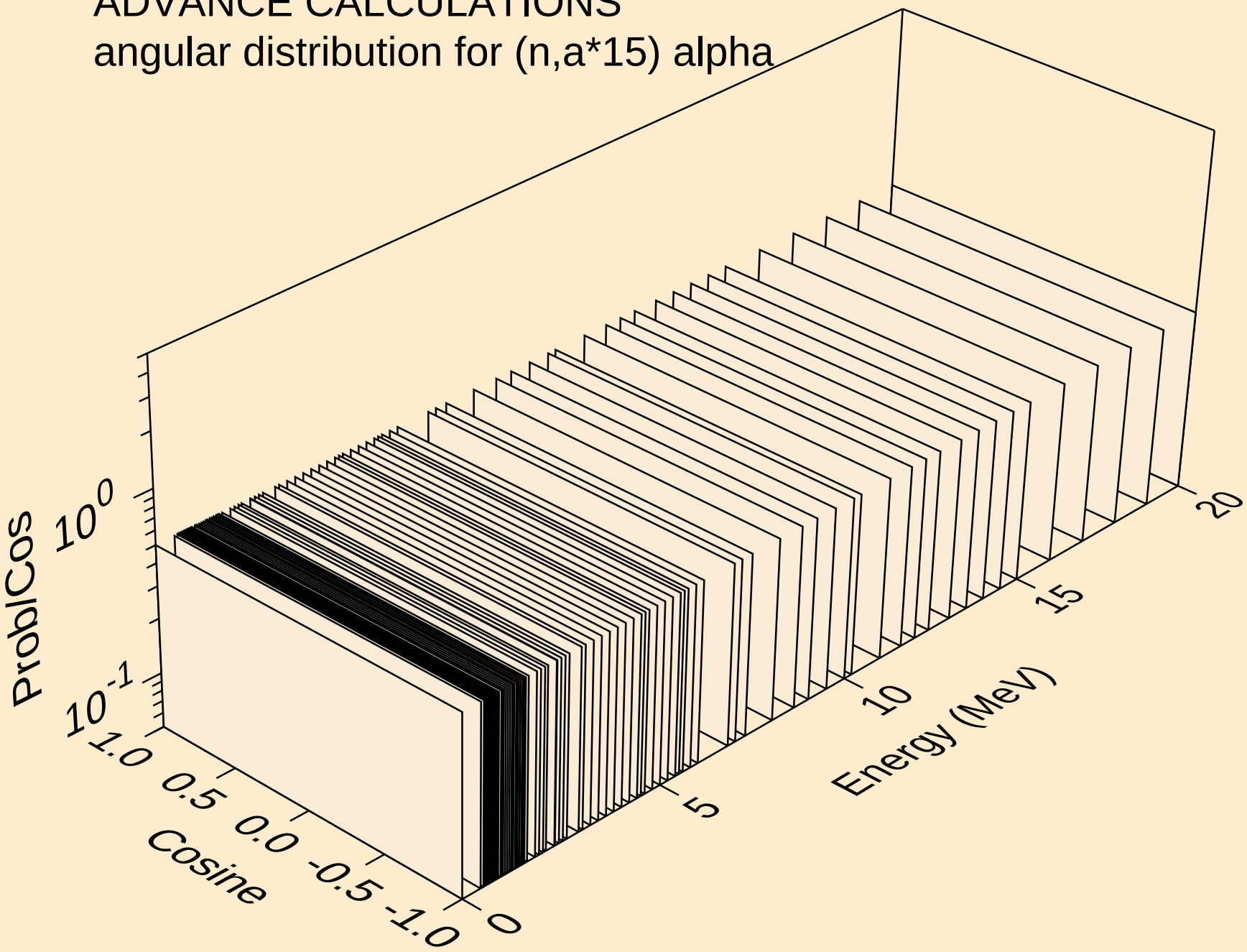
ADVANCE CALCULATIONS

angular distribution for (n,a*14) alpha



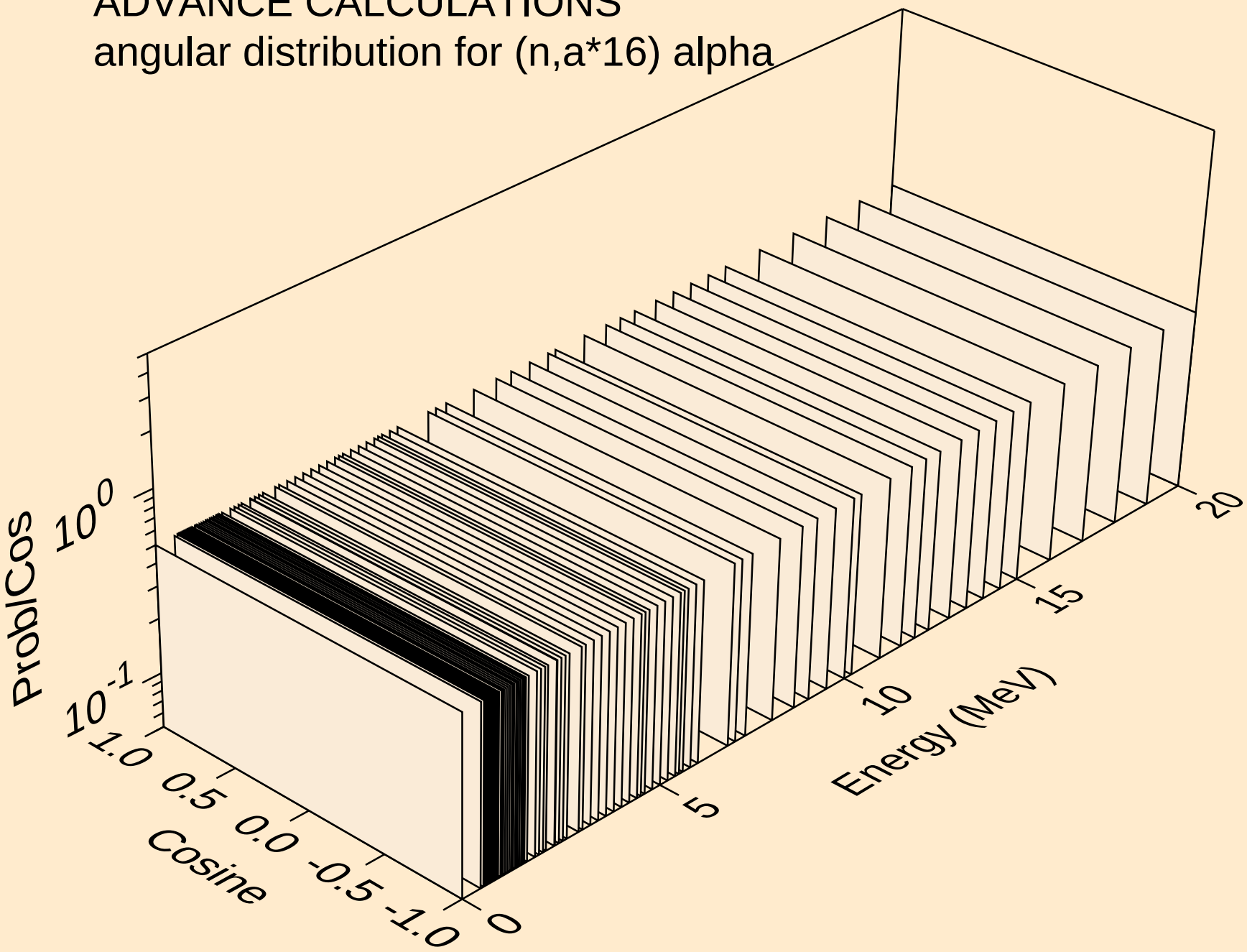
ADVANCE CALCULATIONS

angular distribution for (n,a*15) alpha



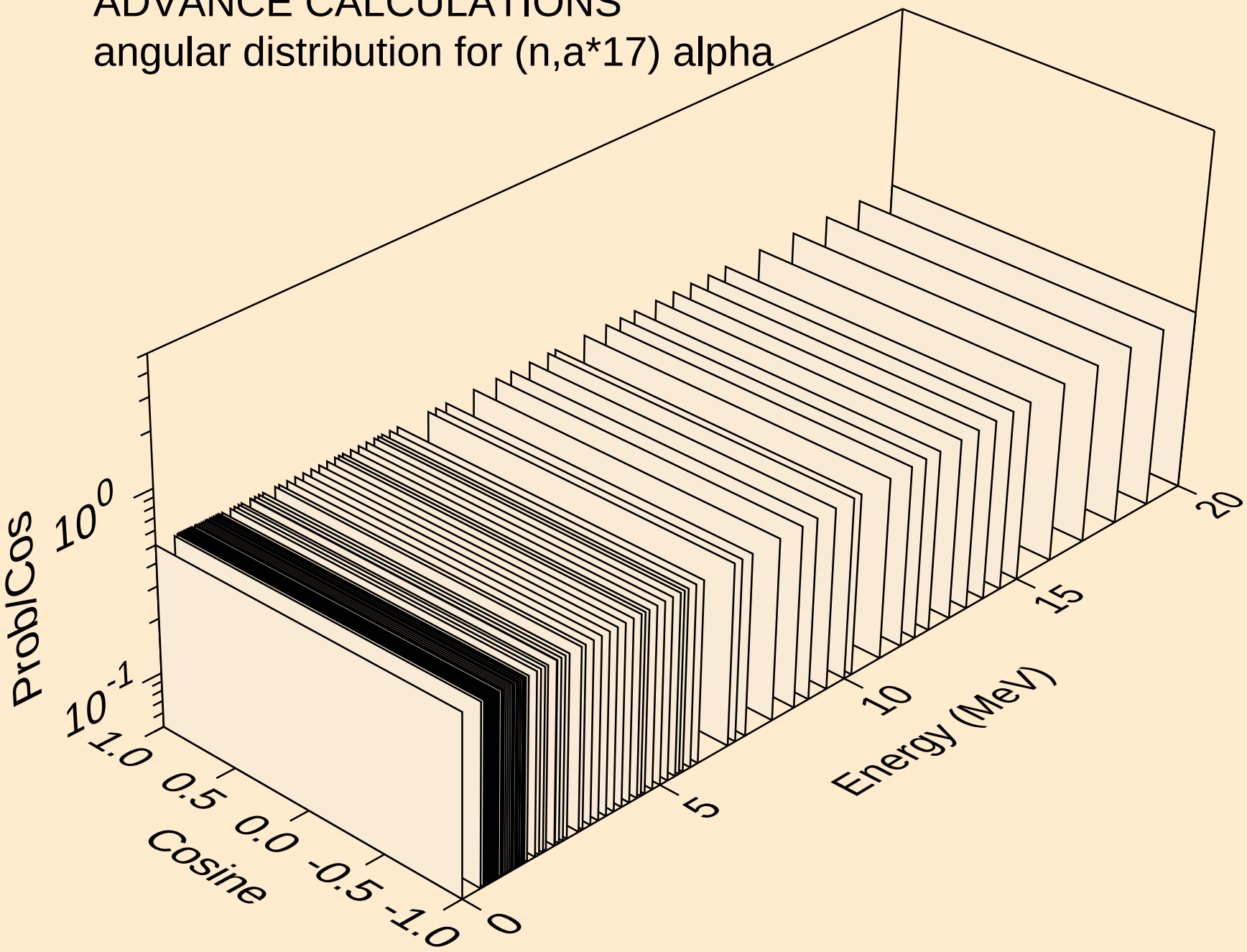
ADVANCE CALCULATIONS

angular distribution for (n,a*16) alpha



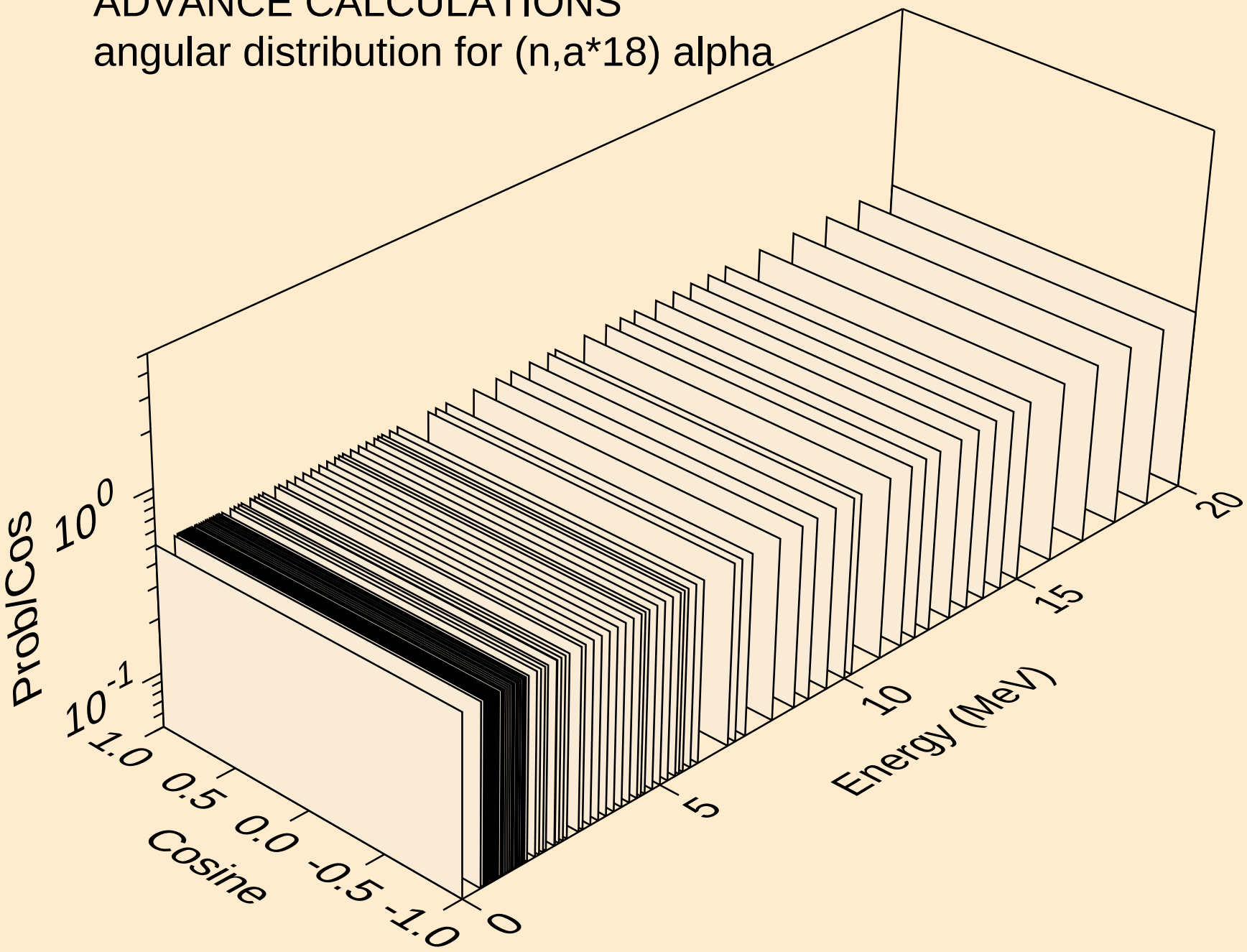
ADVANCE CALCULATIONS

angular distribution for (n,a*17) alpha



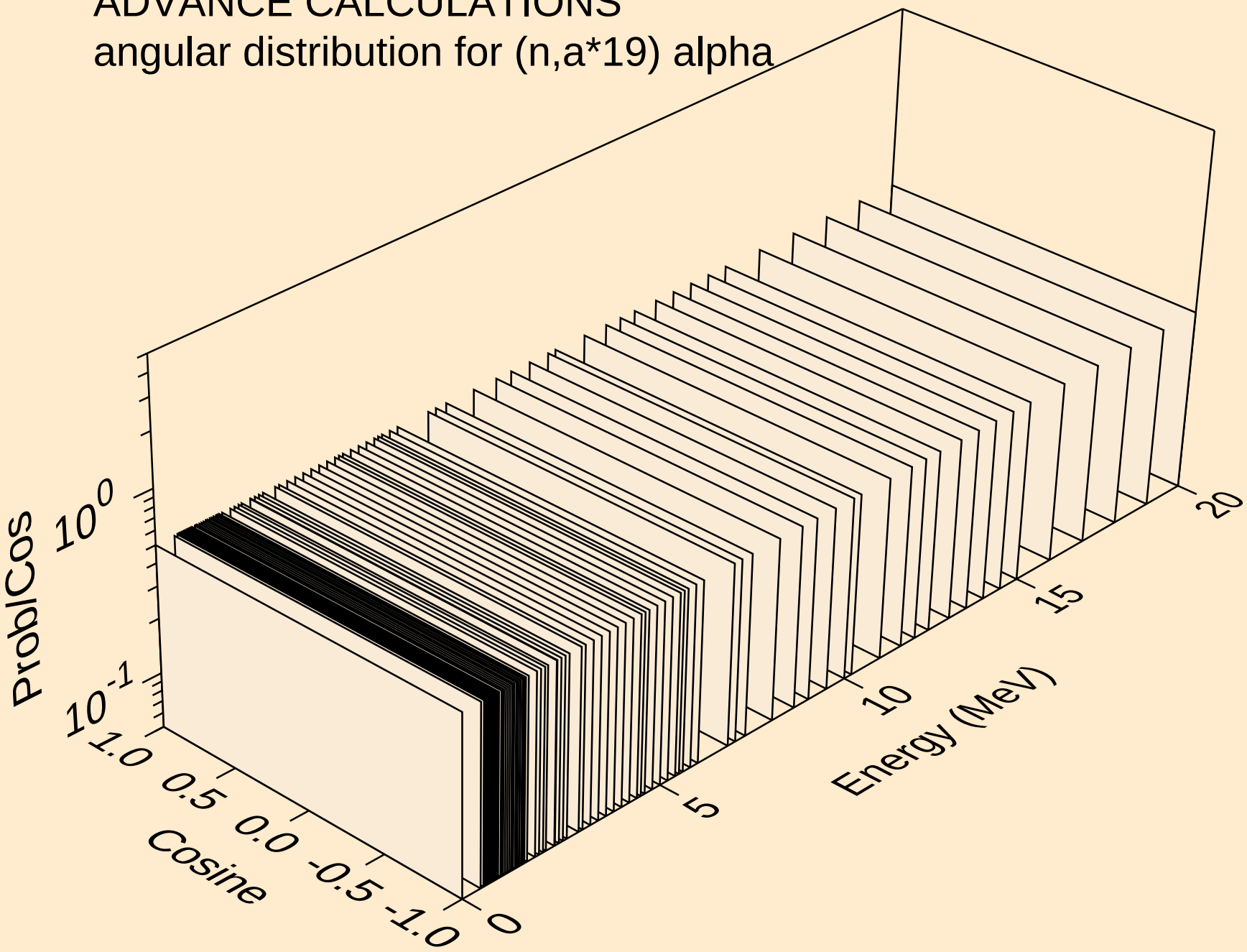
ADVANCE CALCULATIONS

angular distribution for (n,a*18) alpha



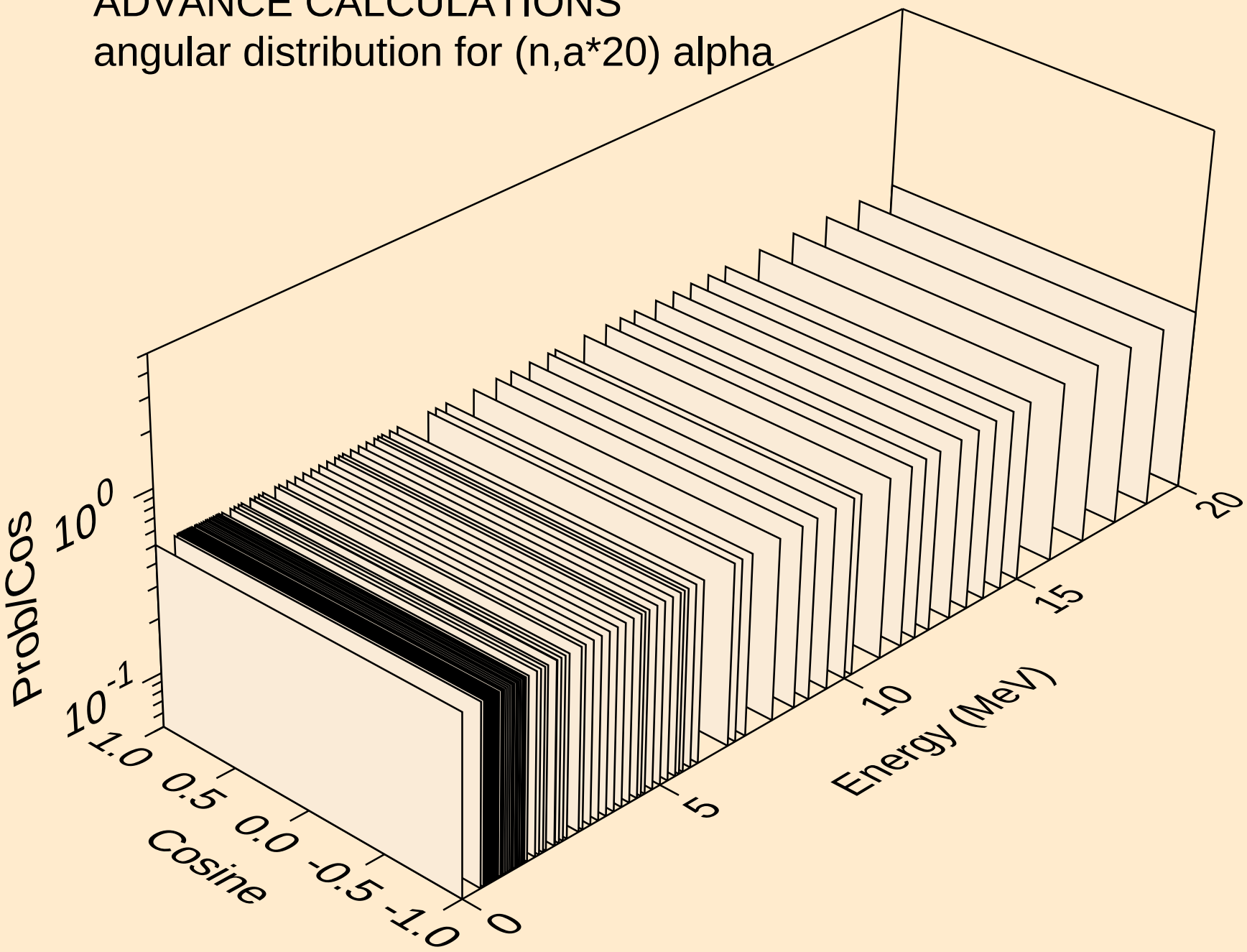
ADVANCE CALCULATIONS

angular distribution for (n,a*19) alpha



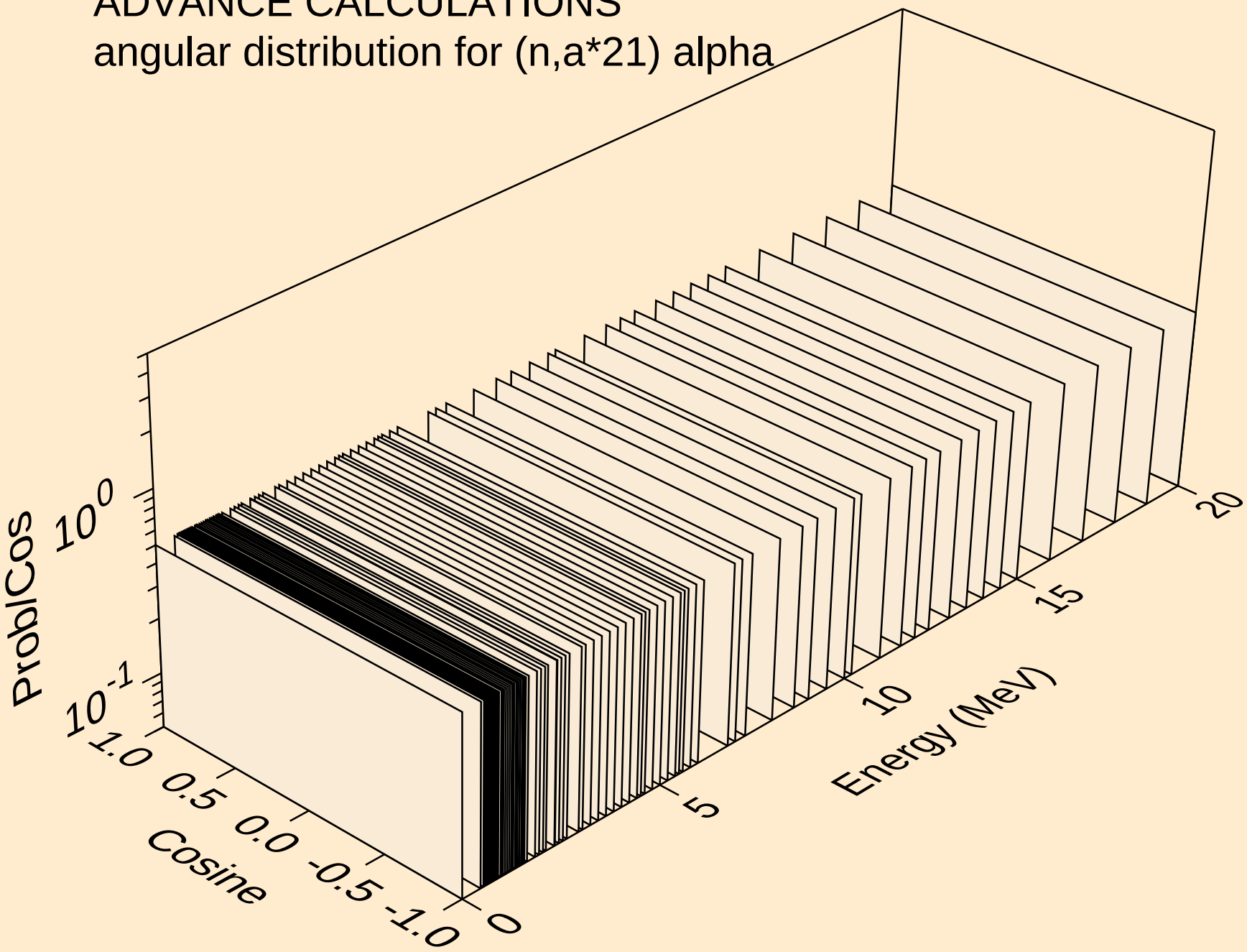
ADVANCE CALCULATIONS

angular distribution for (n,a*20) alpha



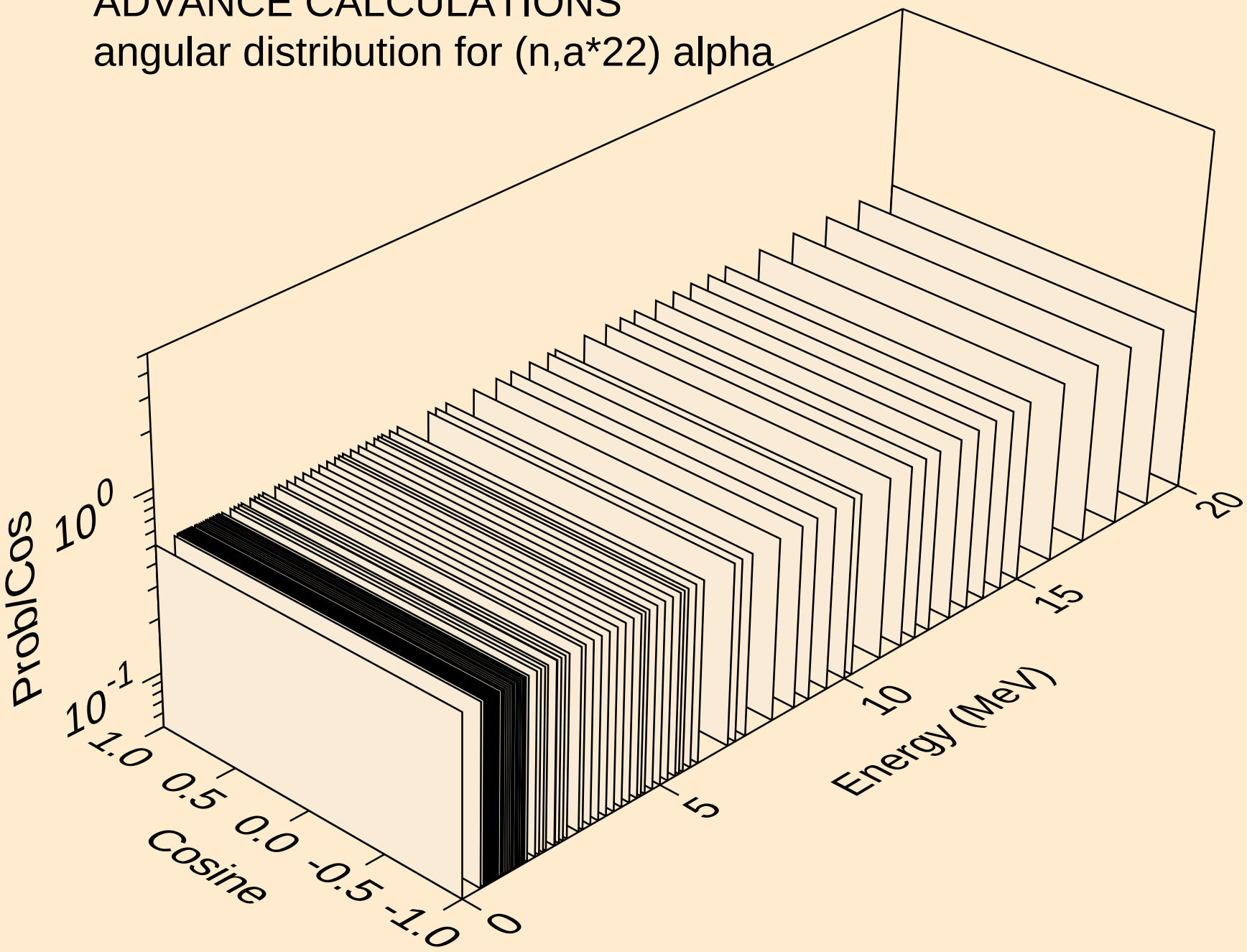
ADVANCE CALCULATIONS

angular distribution for (n,a*21) alpha



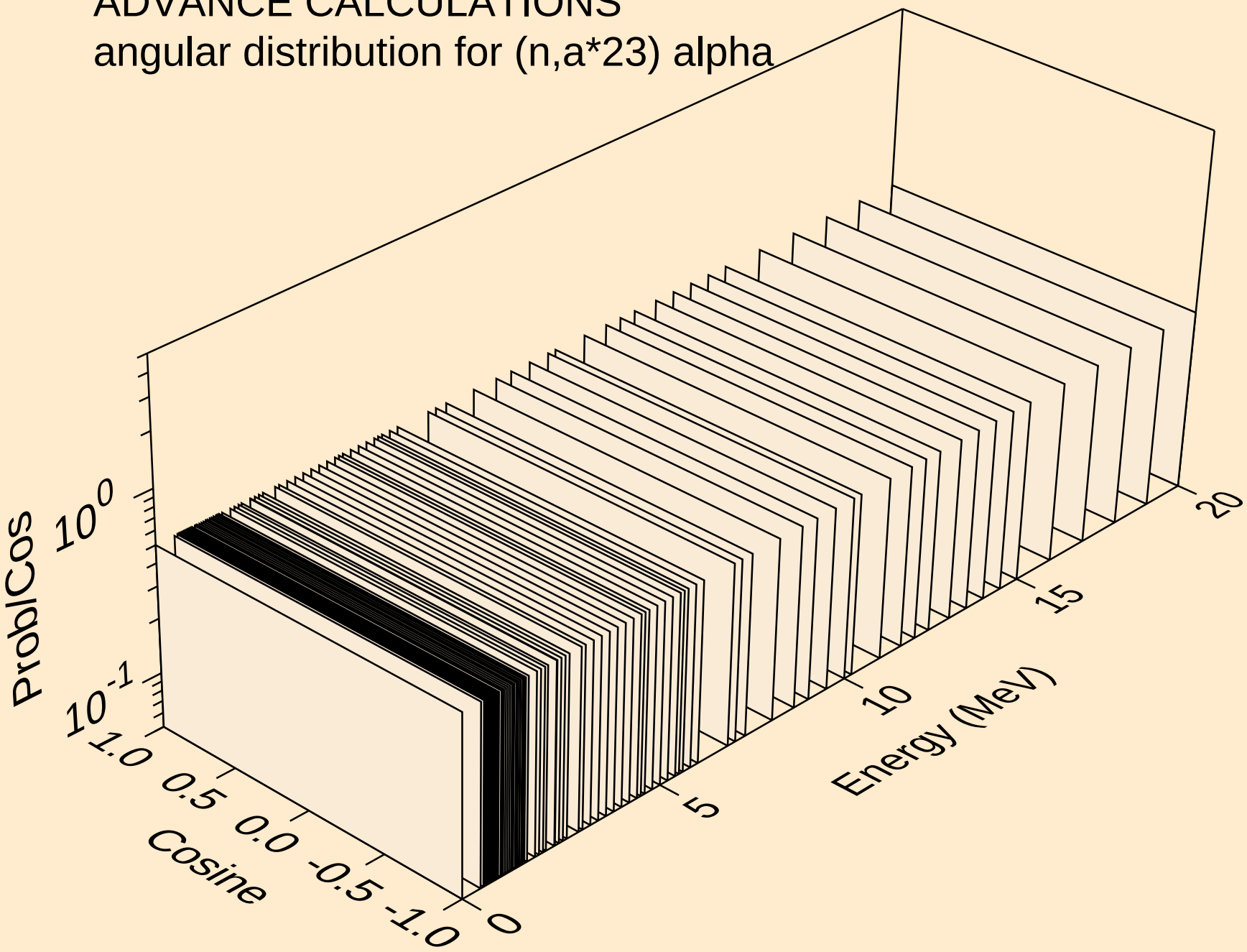
ADVANCE CALCULATIONS

angular distribution for (n,a*22) alpha



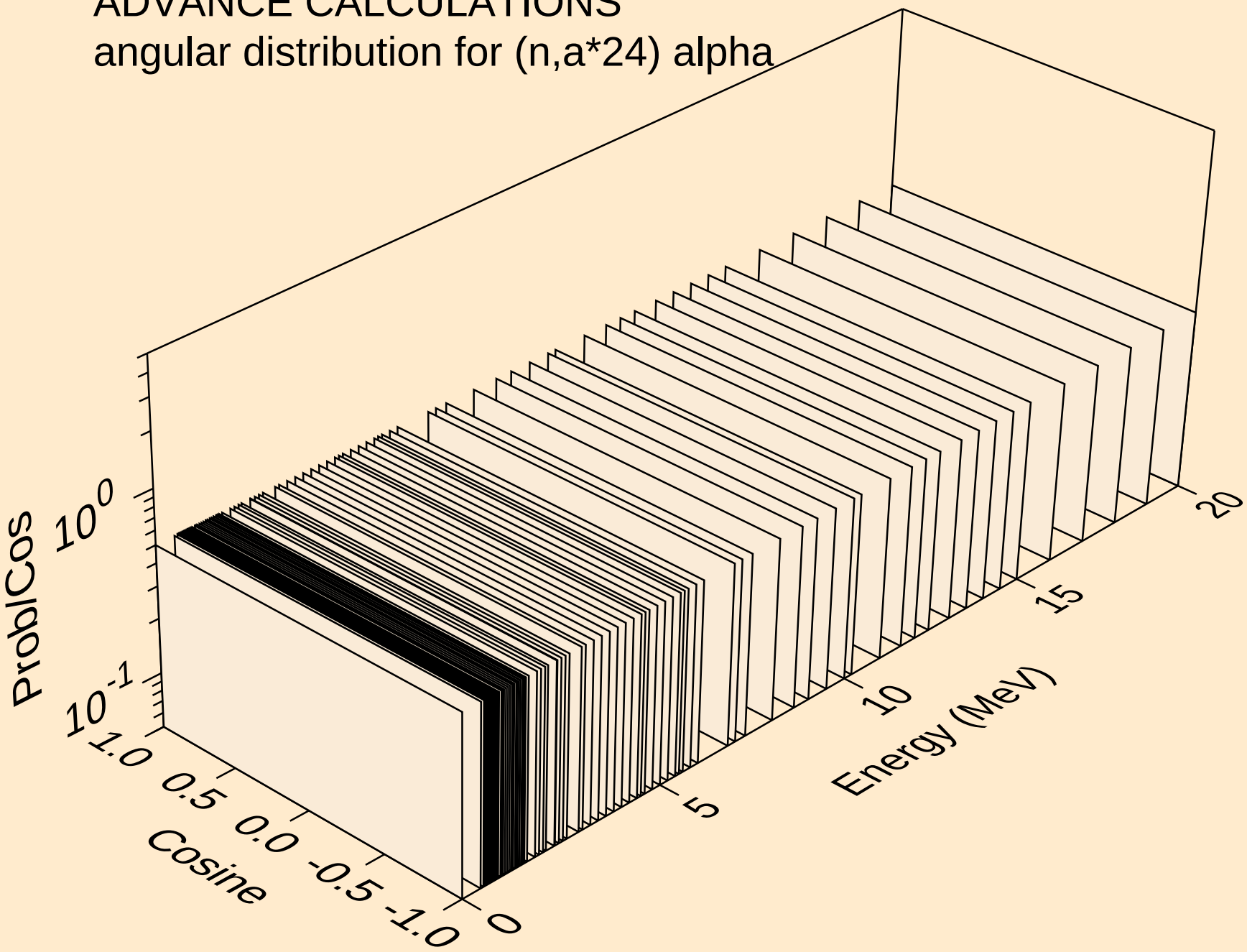
ADVANCE CALCULATIONS

angular distribution for (n,a*23) alpha



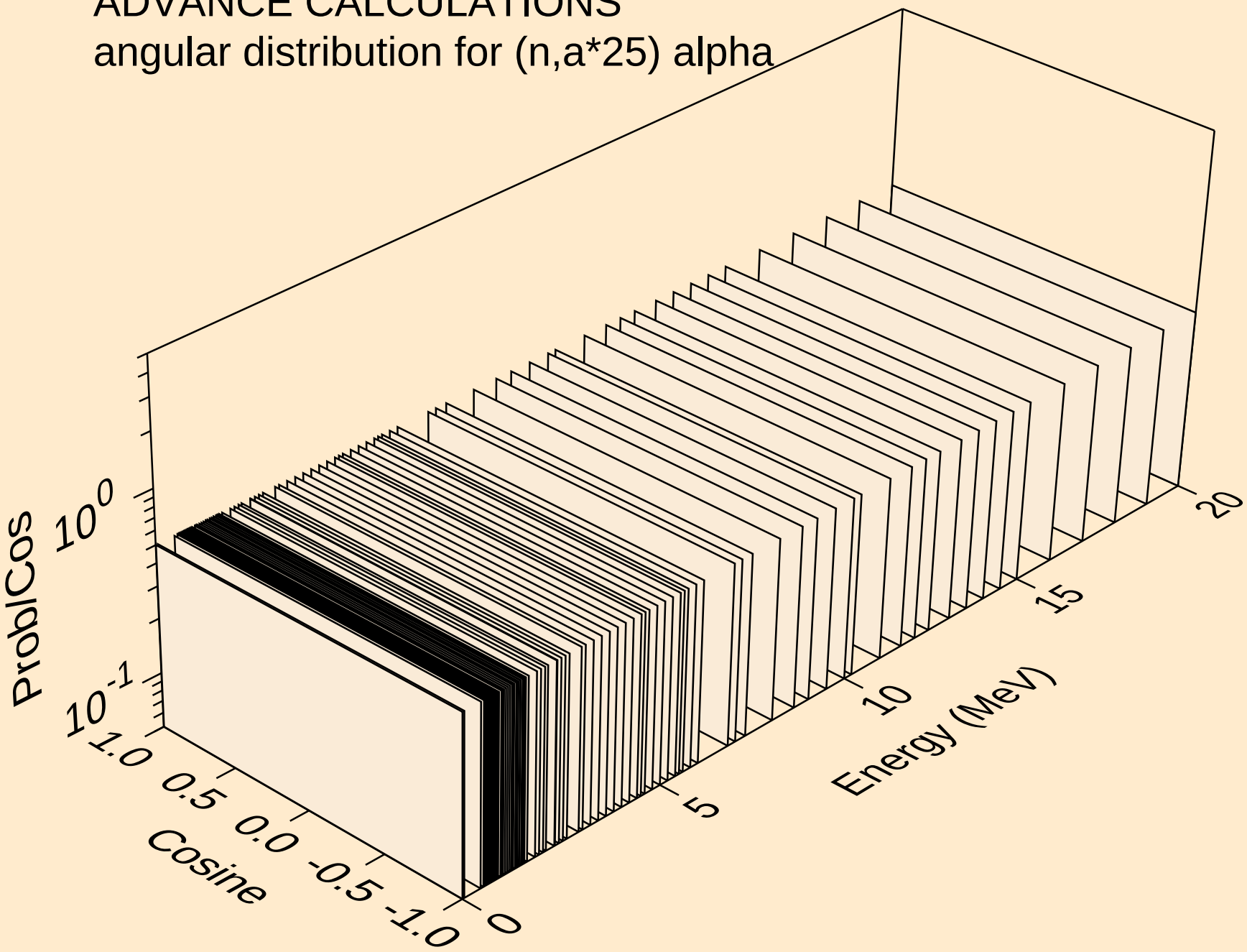
ADVANCE CALCULATIONS

angular distribution for (n,a*24) alpha



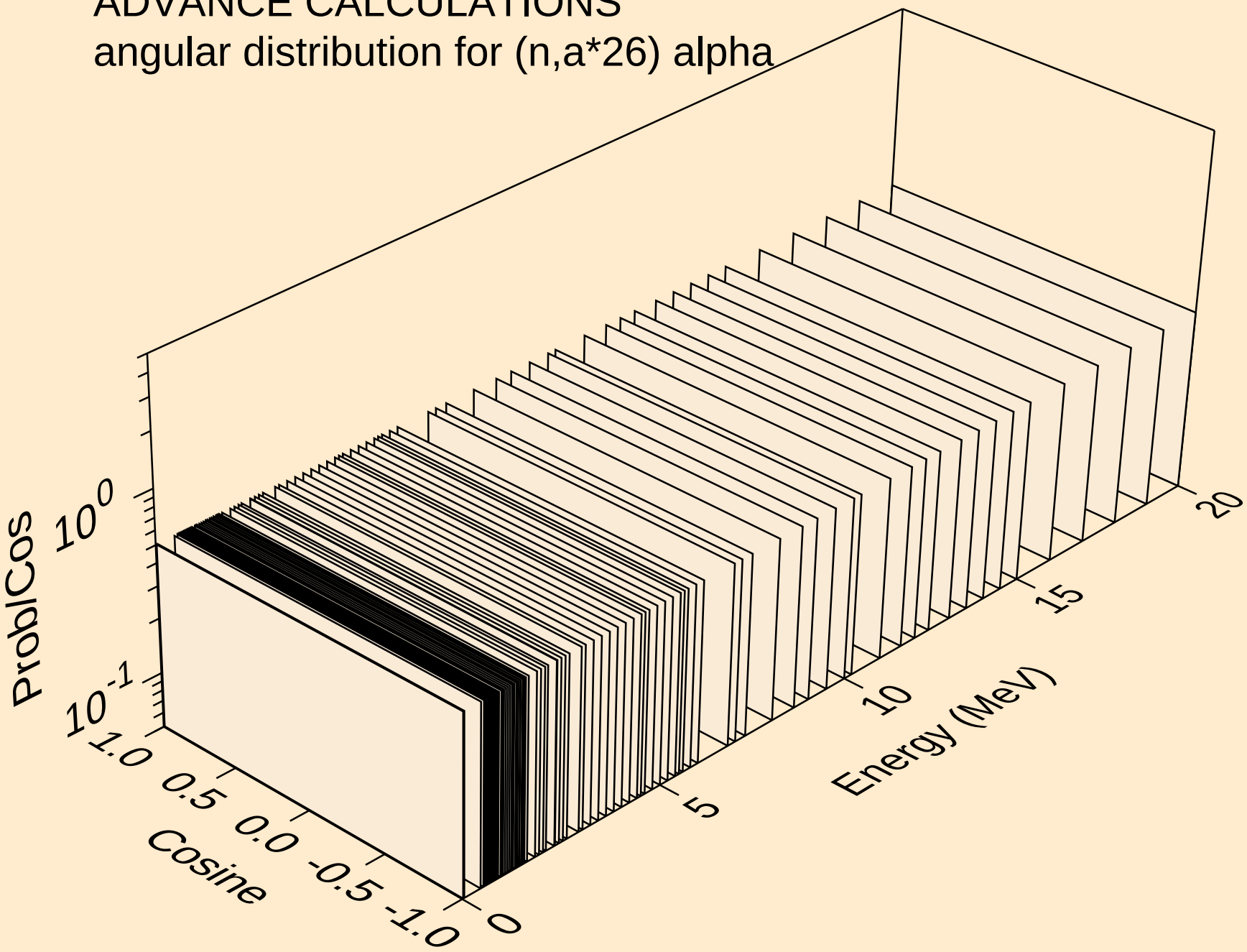
ADVANCE CALCULATIONS

angular distribution for (n,a*25) alpha



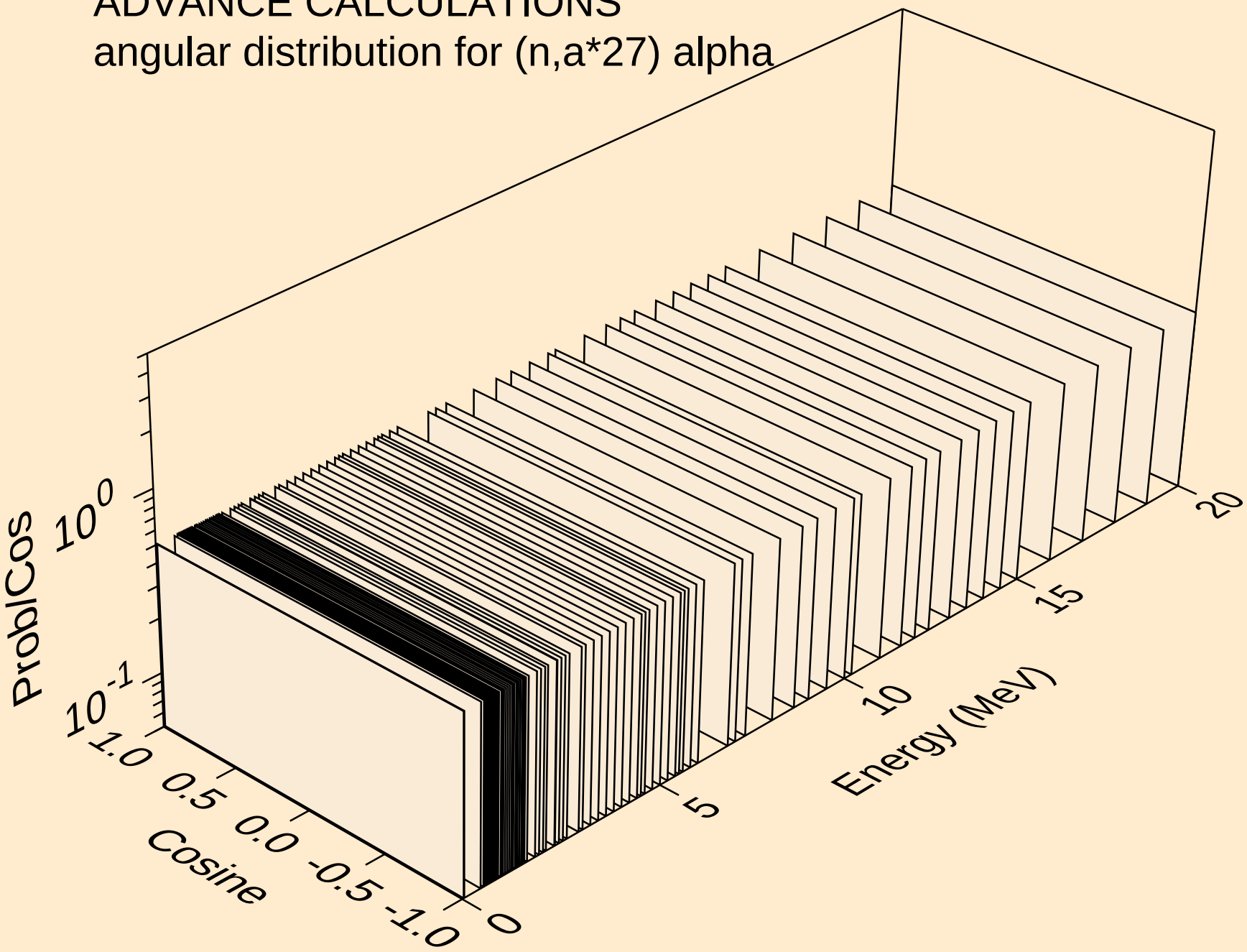
ADVANCE CALCULATIONS

angular distribution for (n,a*26) alpha



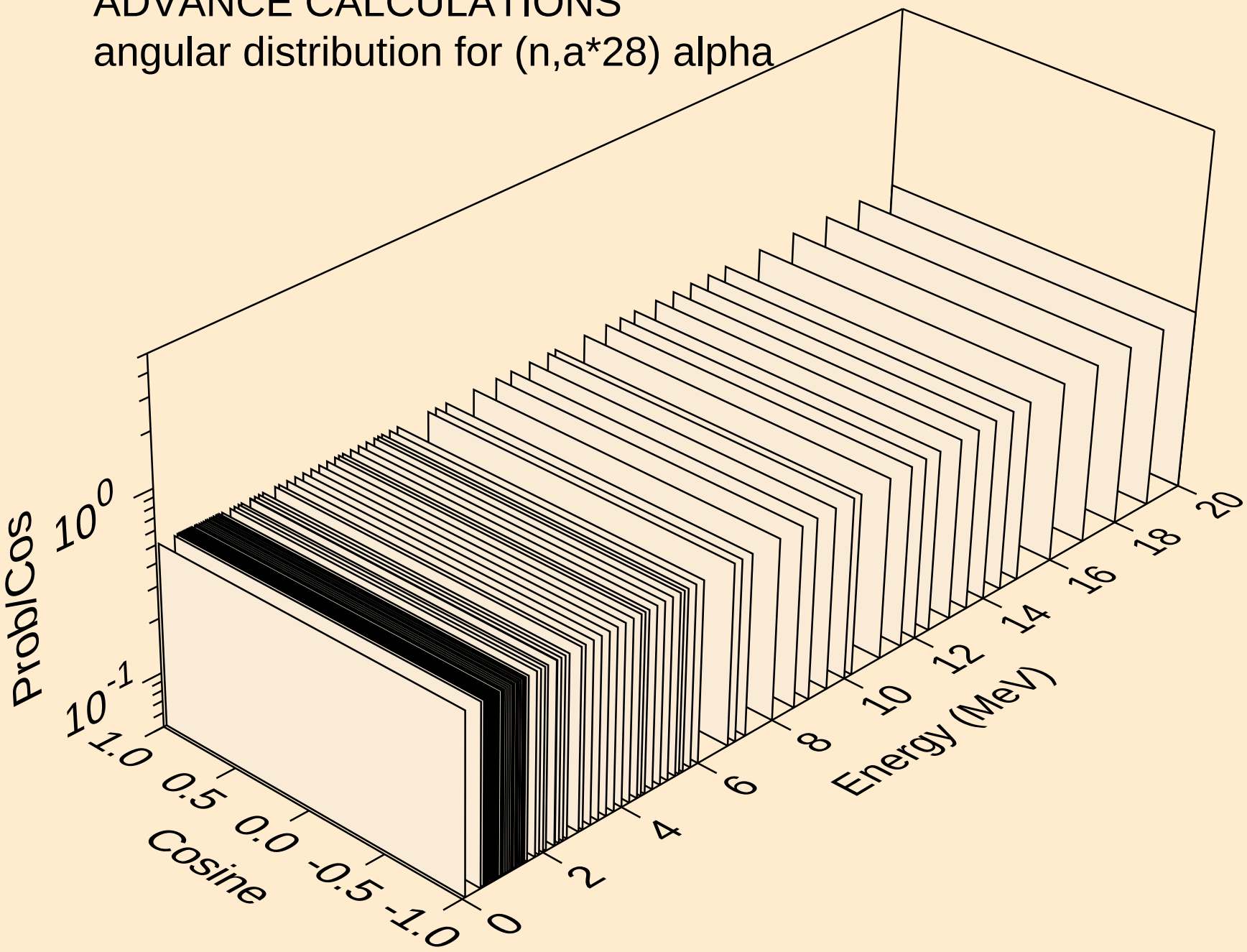
ADVANCE CALCULATIONS

angular distribution for (n,a*27) alpha



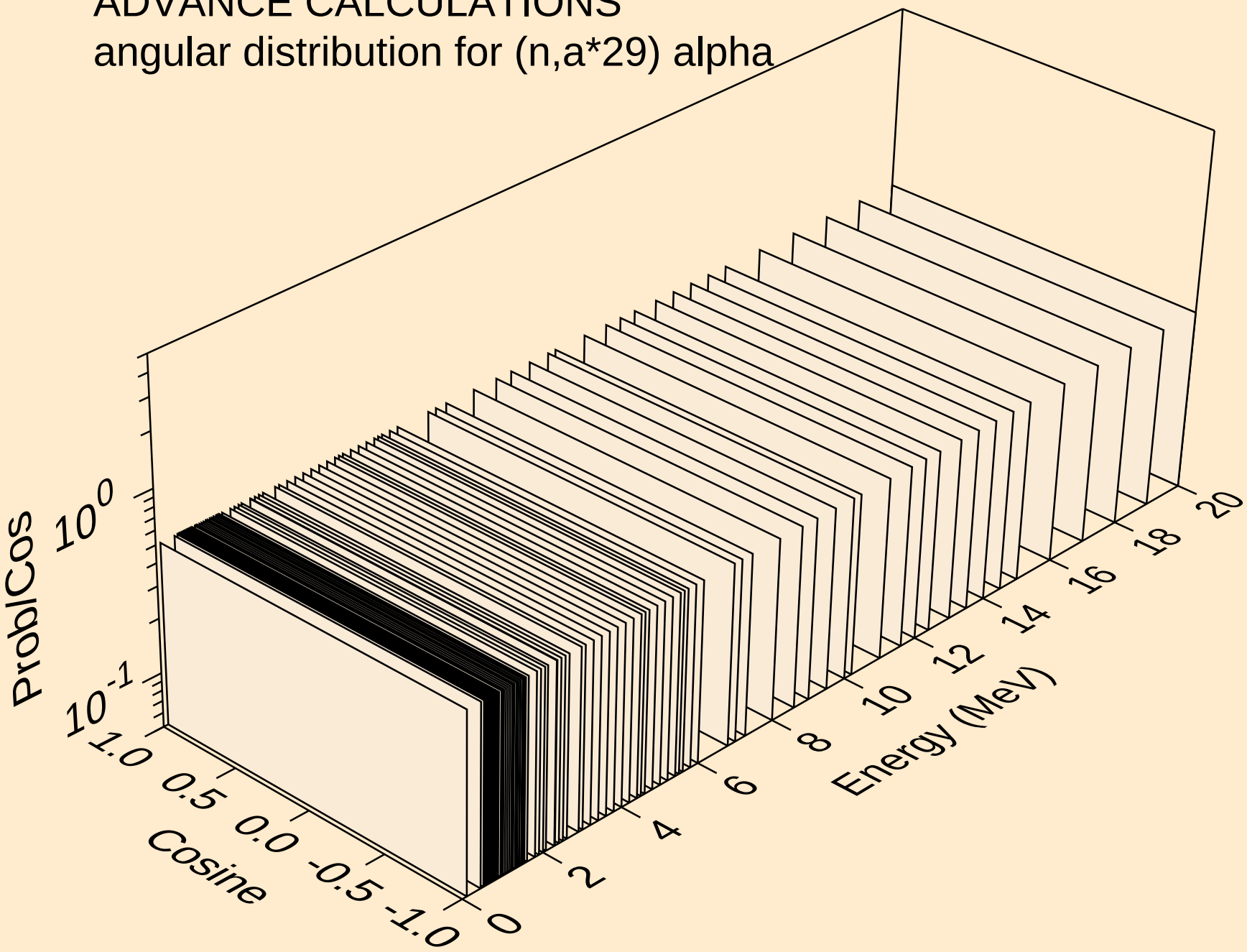
ADVANCE CALCULATIONS

angular distribution for (n,a*28) alpha



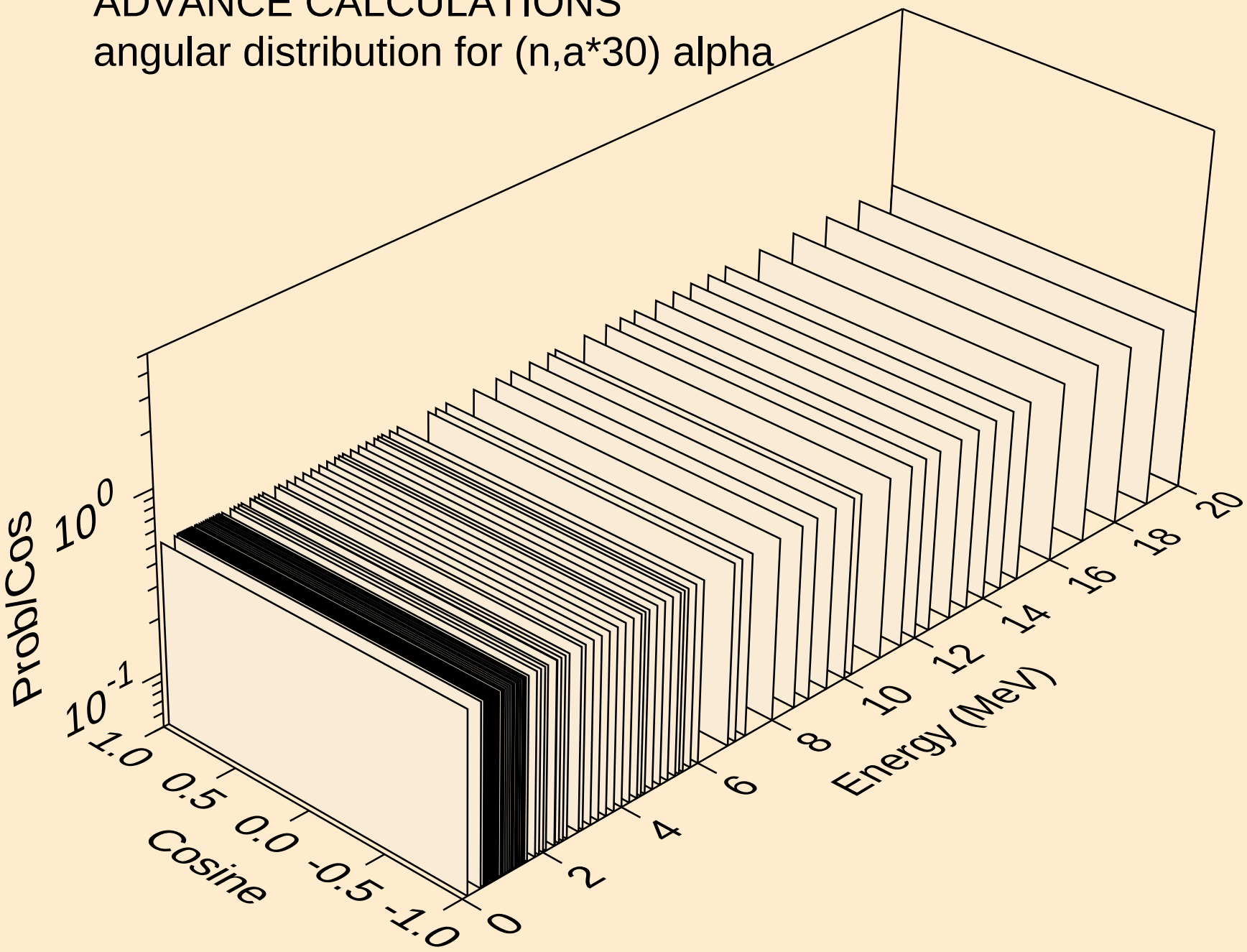
ADVANCE CALCULATIONS

angular distribution for (n,a*29) alpha



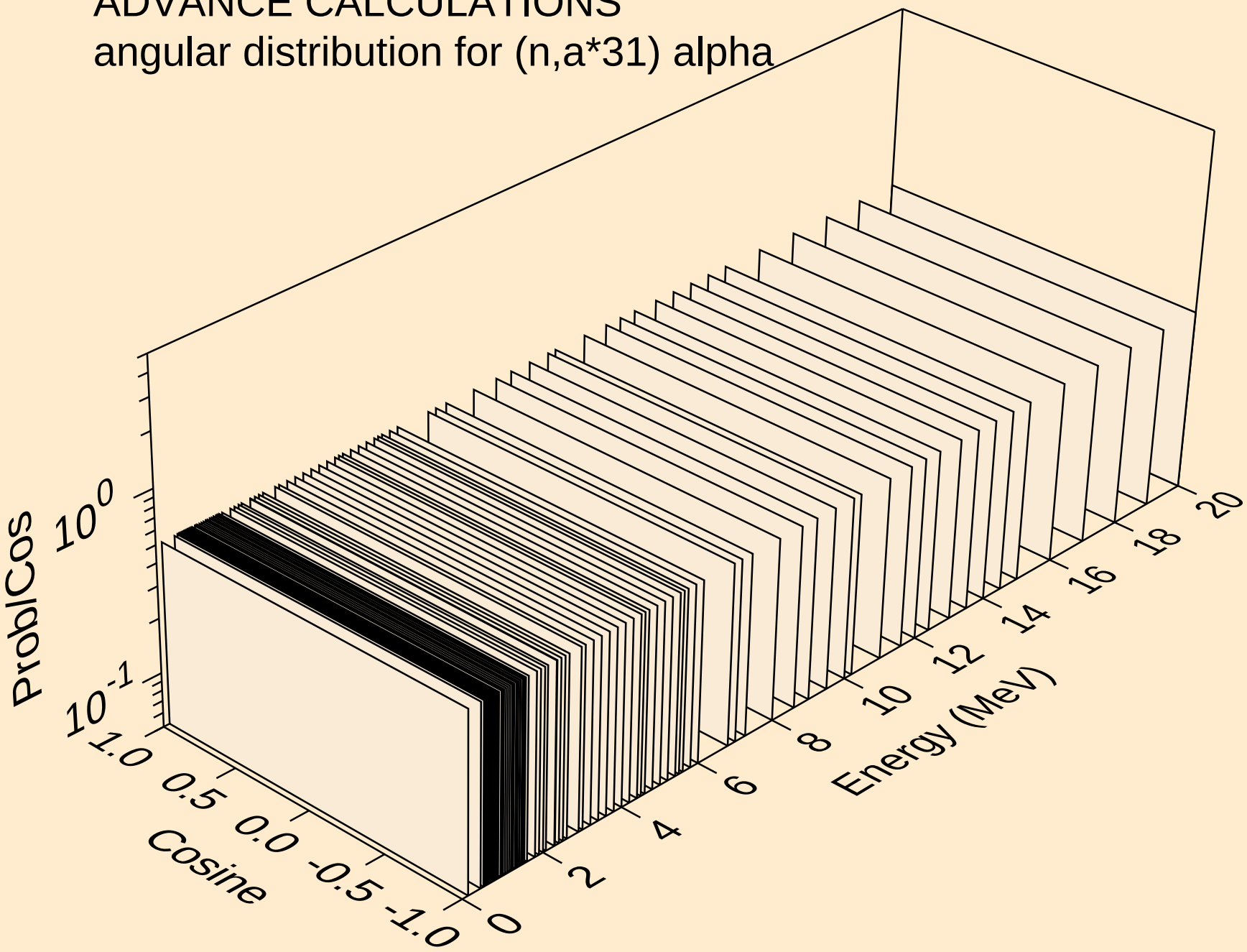
ADVANCE CALCULATIONS

angular distribution for (n,a*30) alpha



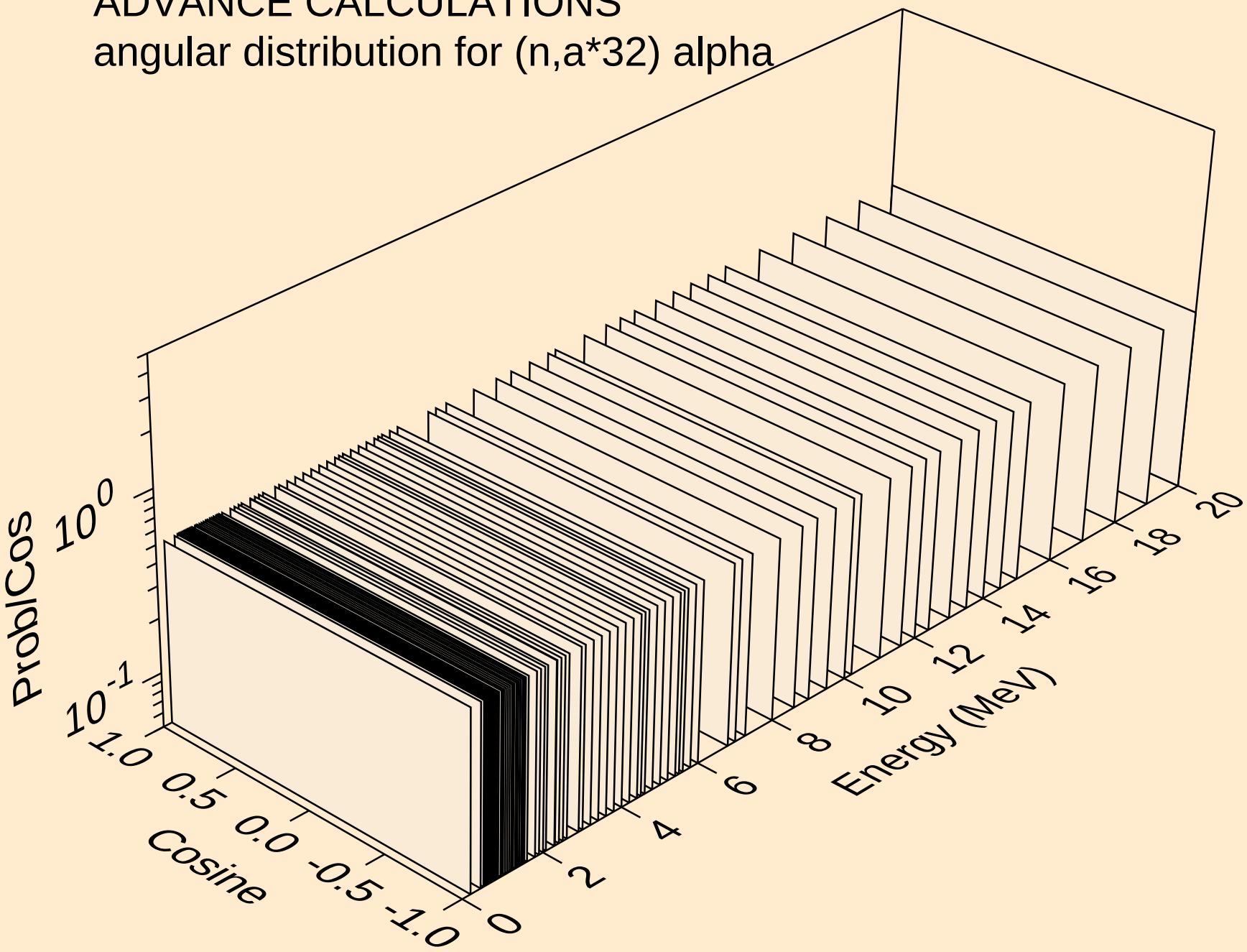
ADVANCE CALCULATIONS

angular distribution for (n,a*31) alpha



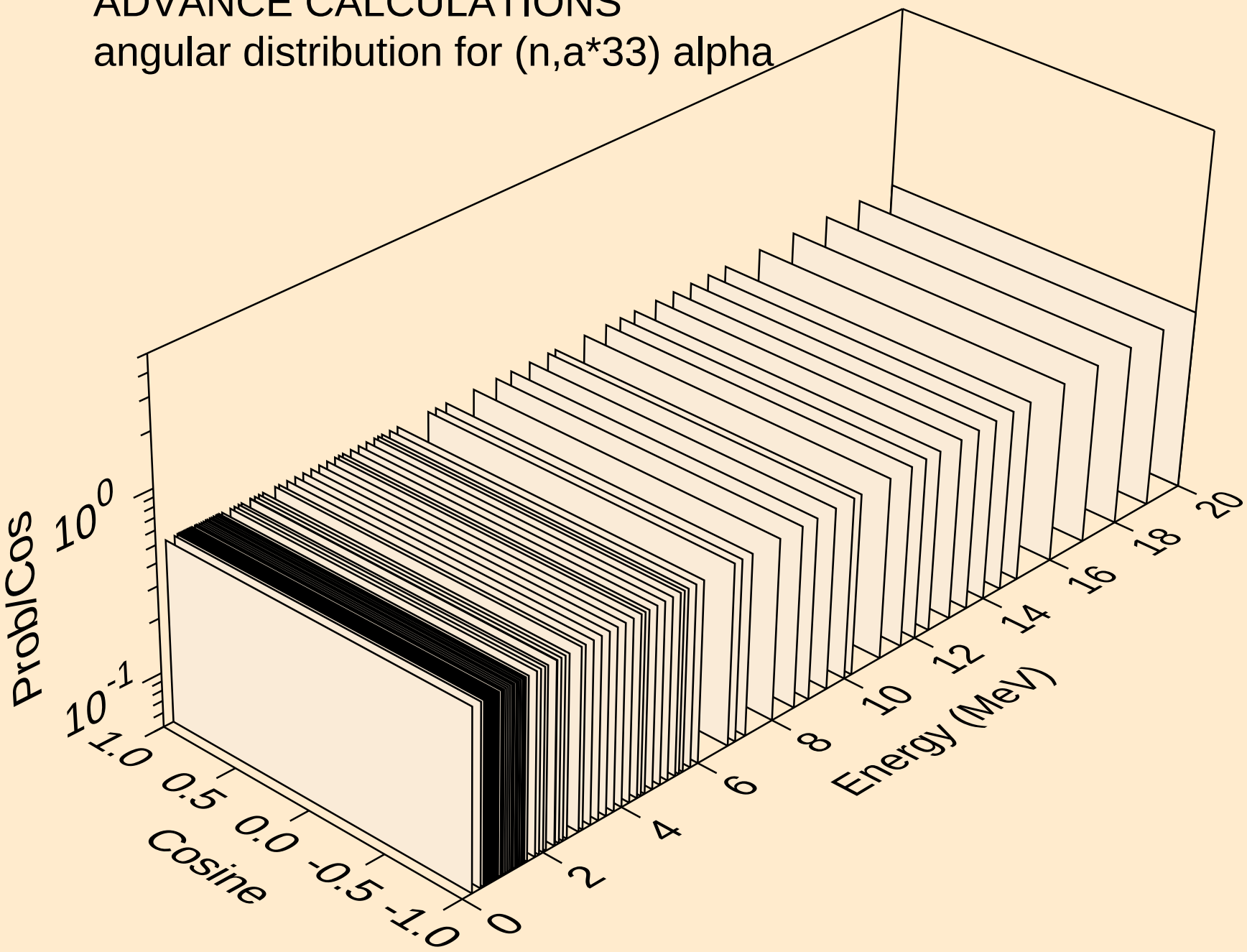
ADVANCE CALCULATIONS

angular distribution for (n,a*32) alpha



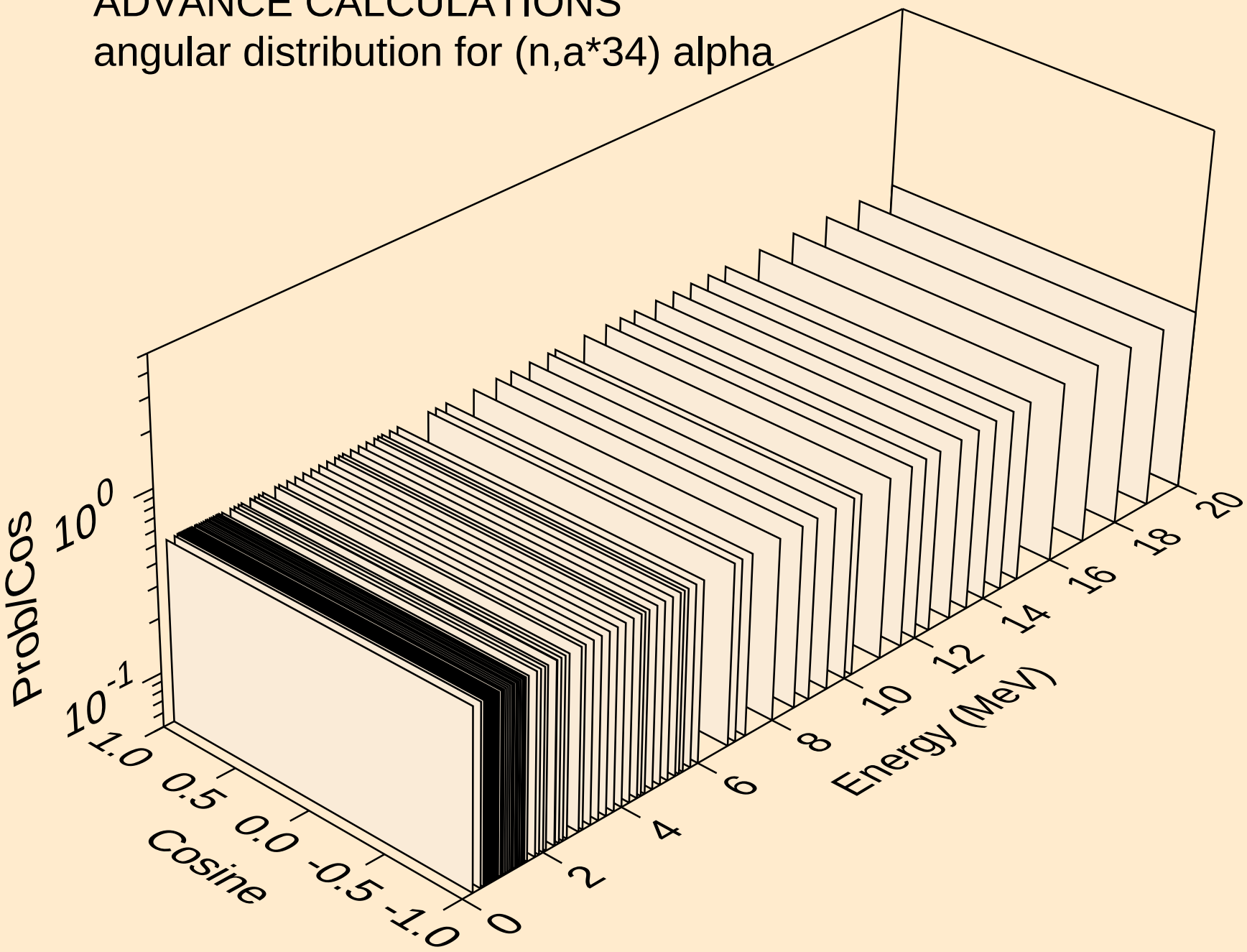
ADVANCE CALCULATIONS

angular distribution for (n,a*33) alpha



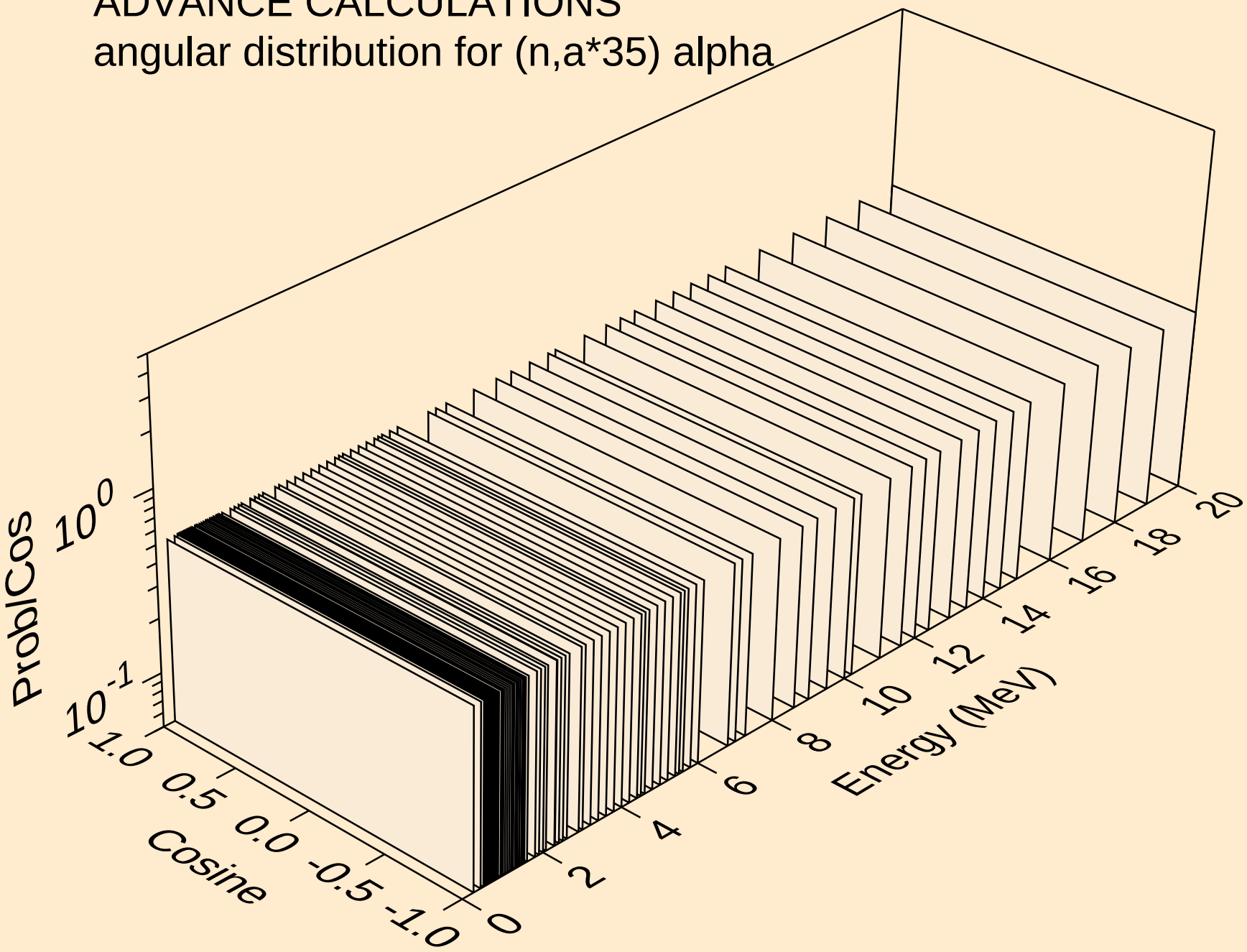
ADVANCE CALCULATIONS

angular distribution for (n,a*34) alpha



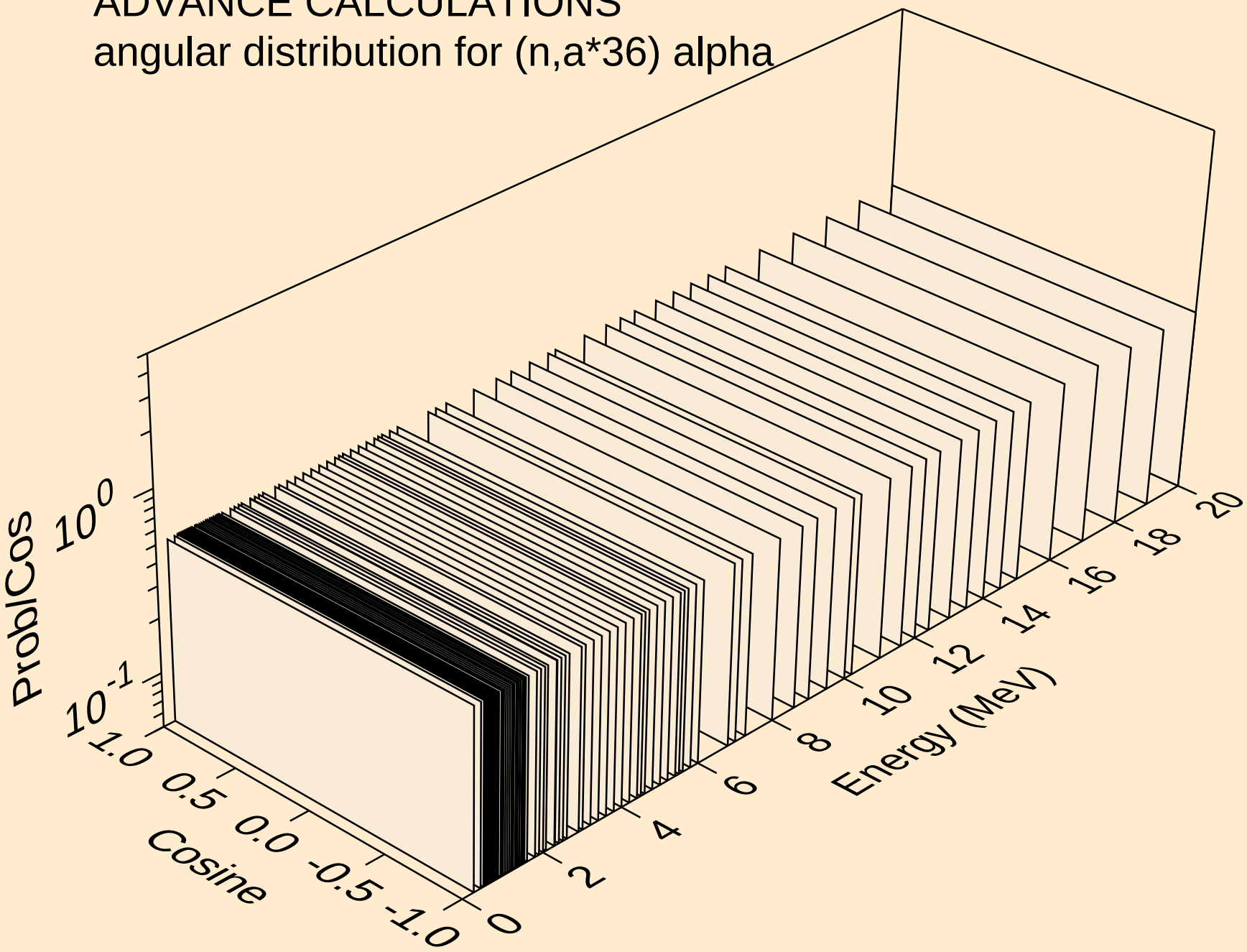
ADVANCE CALCULATIONS

angular distribution for (n,a*35) alpha



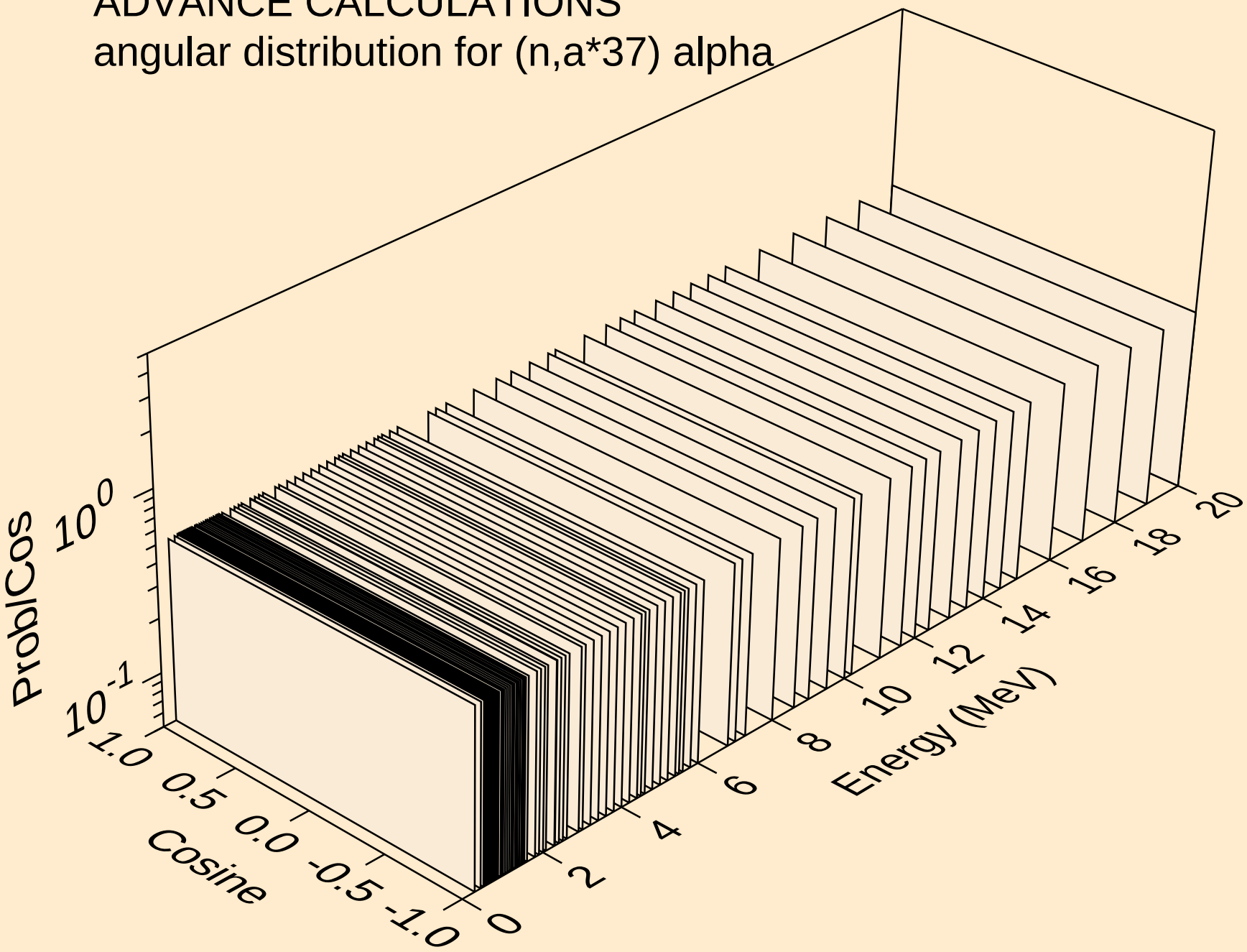
ADVANCE CALCULATIONS

angular distribution for (n,a*36) alpha



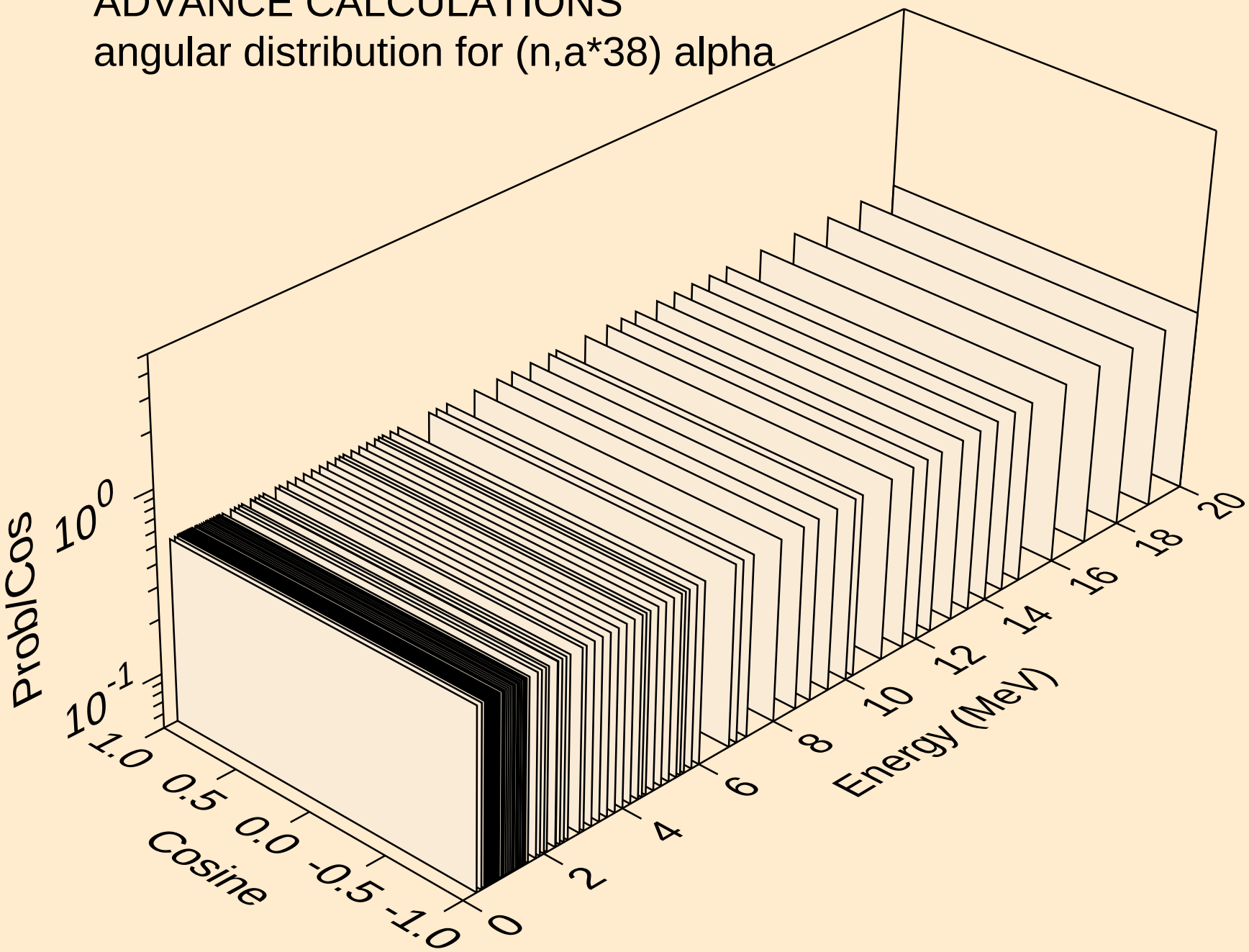
ADVANCE CALCULATIONS

angular distribution for (n,a*37) alpha



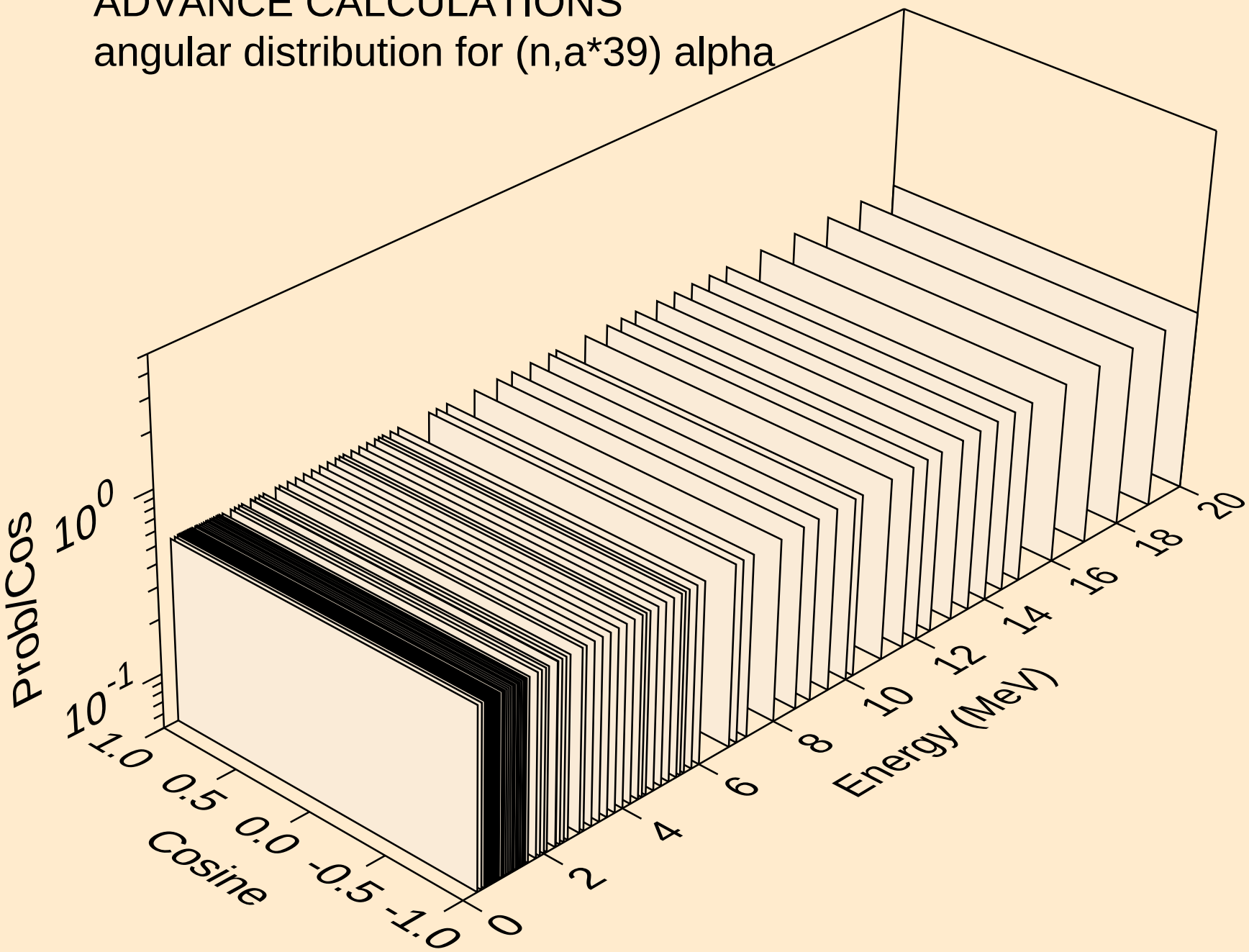
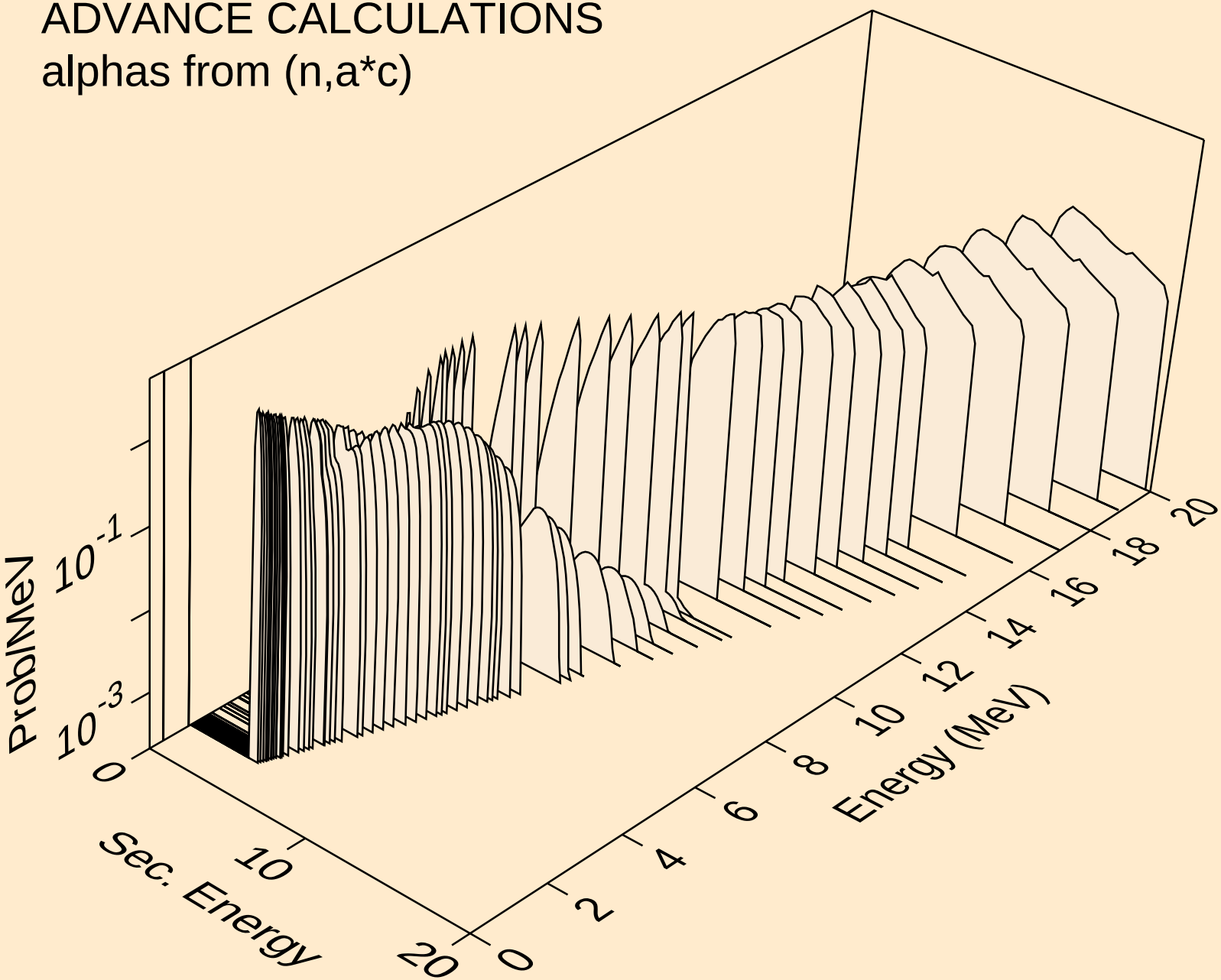
ADVANCE CALCULATIONS

angular distribution for (n,a*38) alpha



ADVANCE CALCULATIONS

angular distribution for (n,a*39) alpha



ADVANCE CALCULATIONS
alphas from (n,a*c)