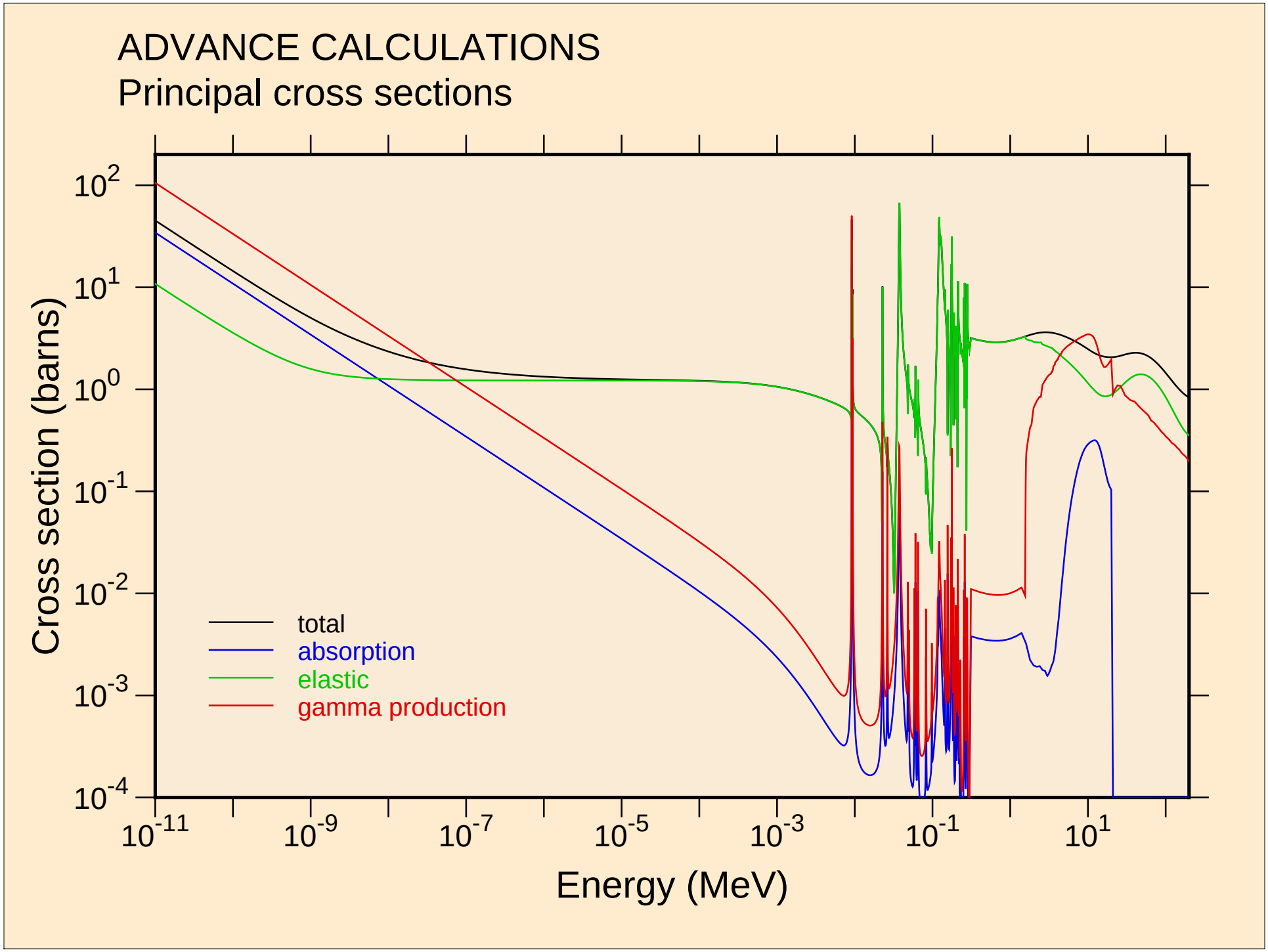
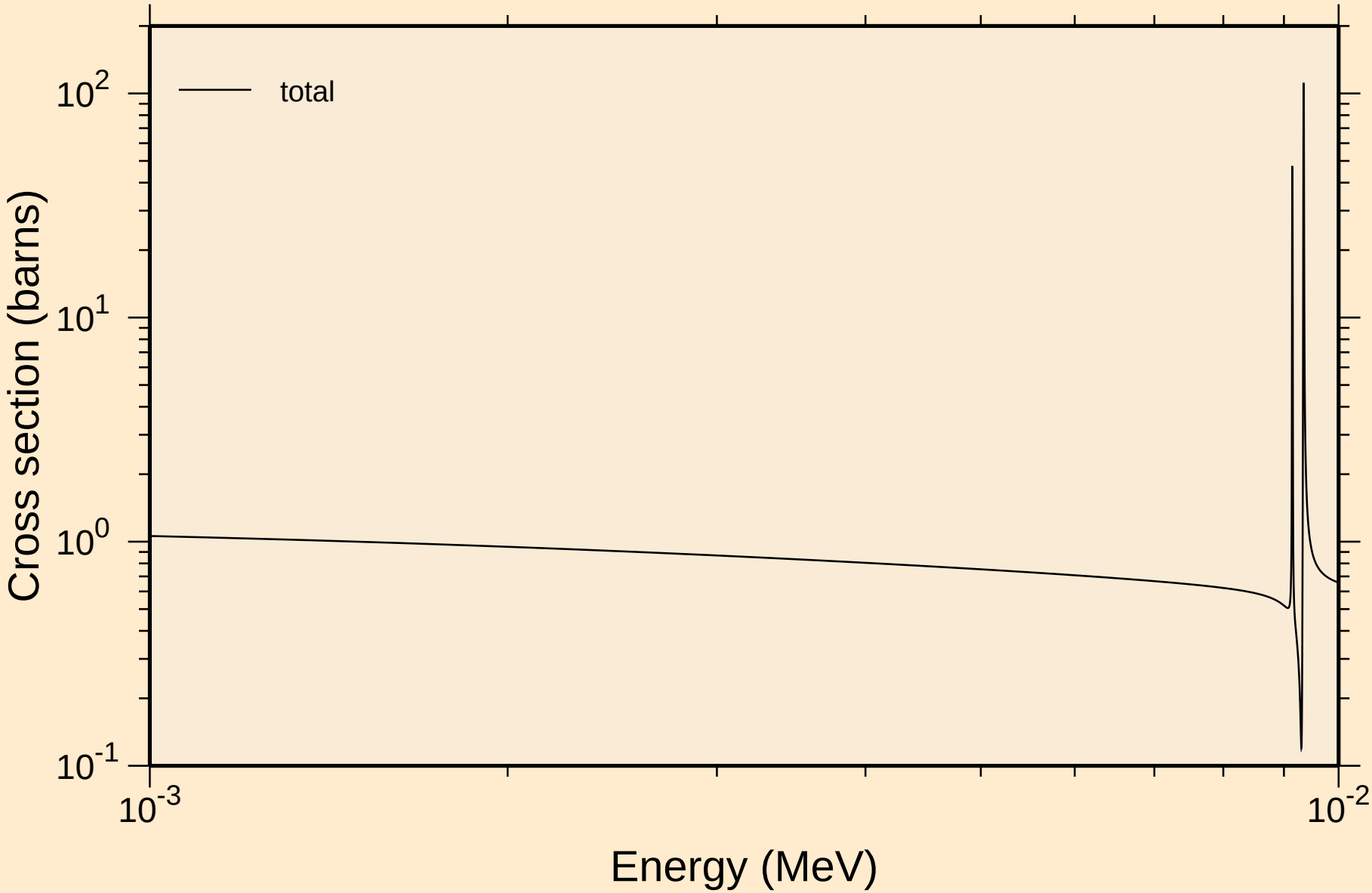
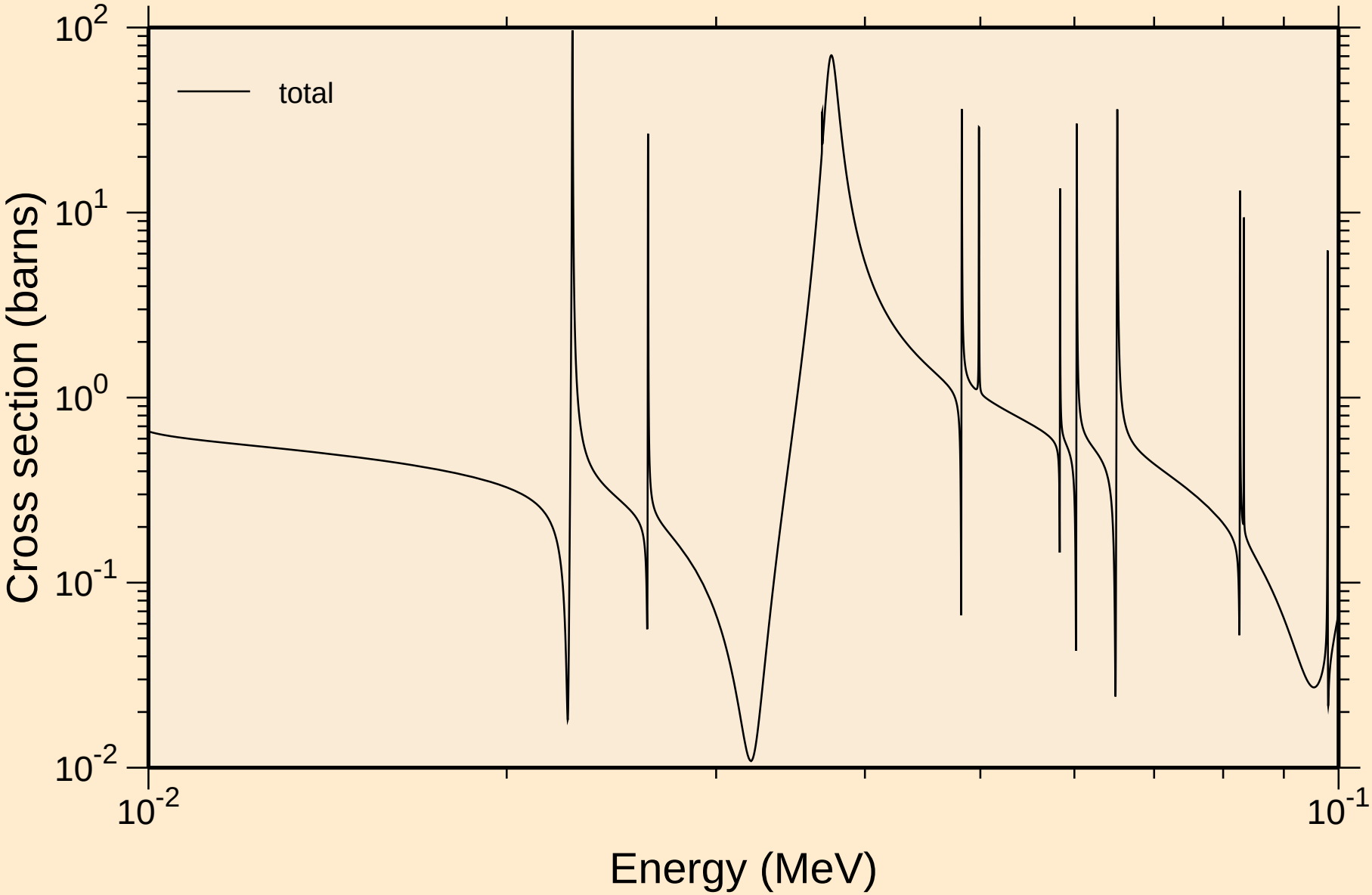

ADVANCE CALCULATIONS
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-11}
10^{-9}
10^{-7}
10^{-5}
10^{-3}
10^{-1}
10^{1}

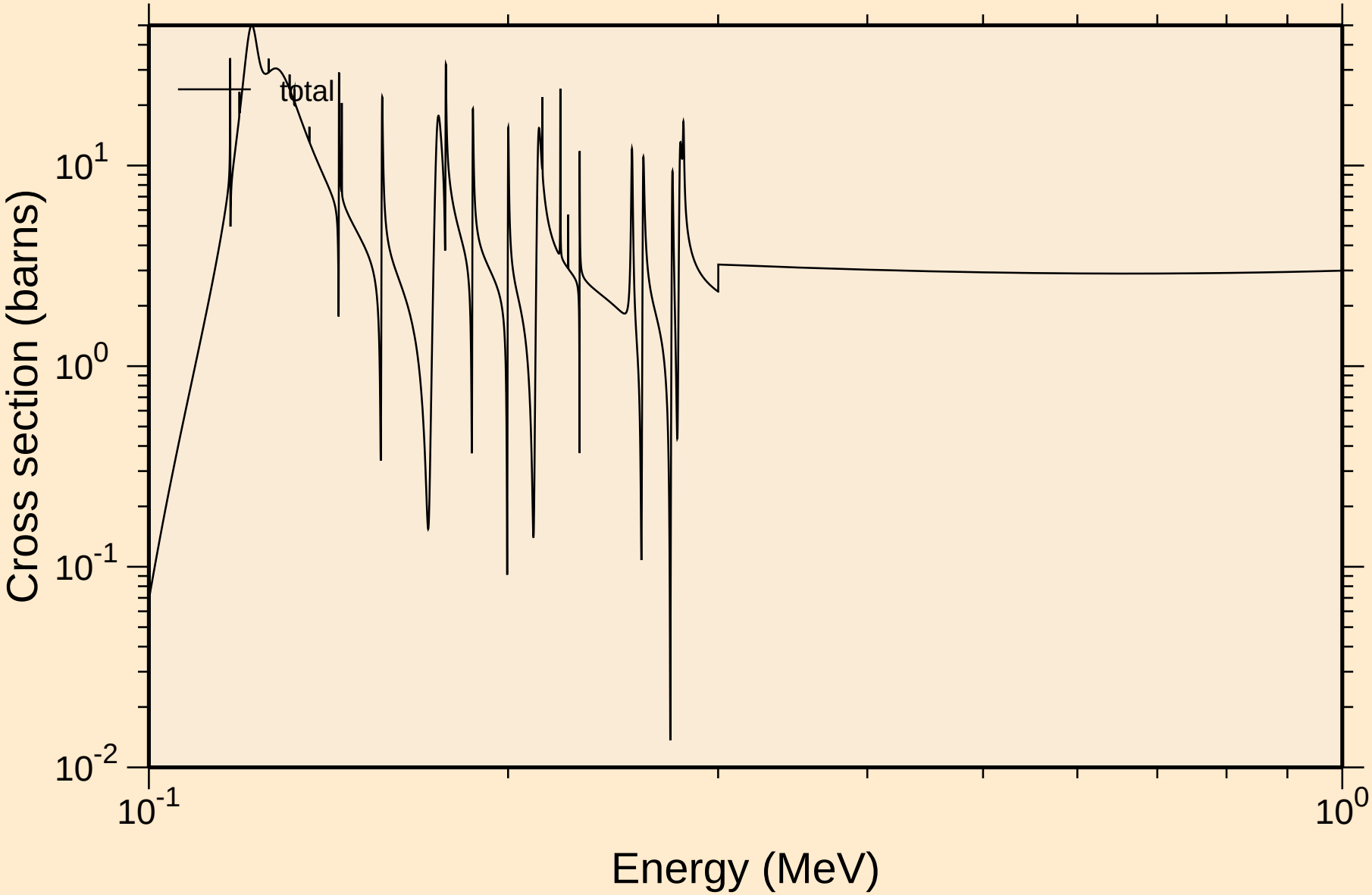
ADVANCE CALCULATIONS
resonance total cross section



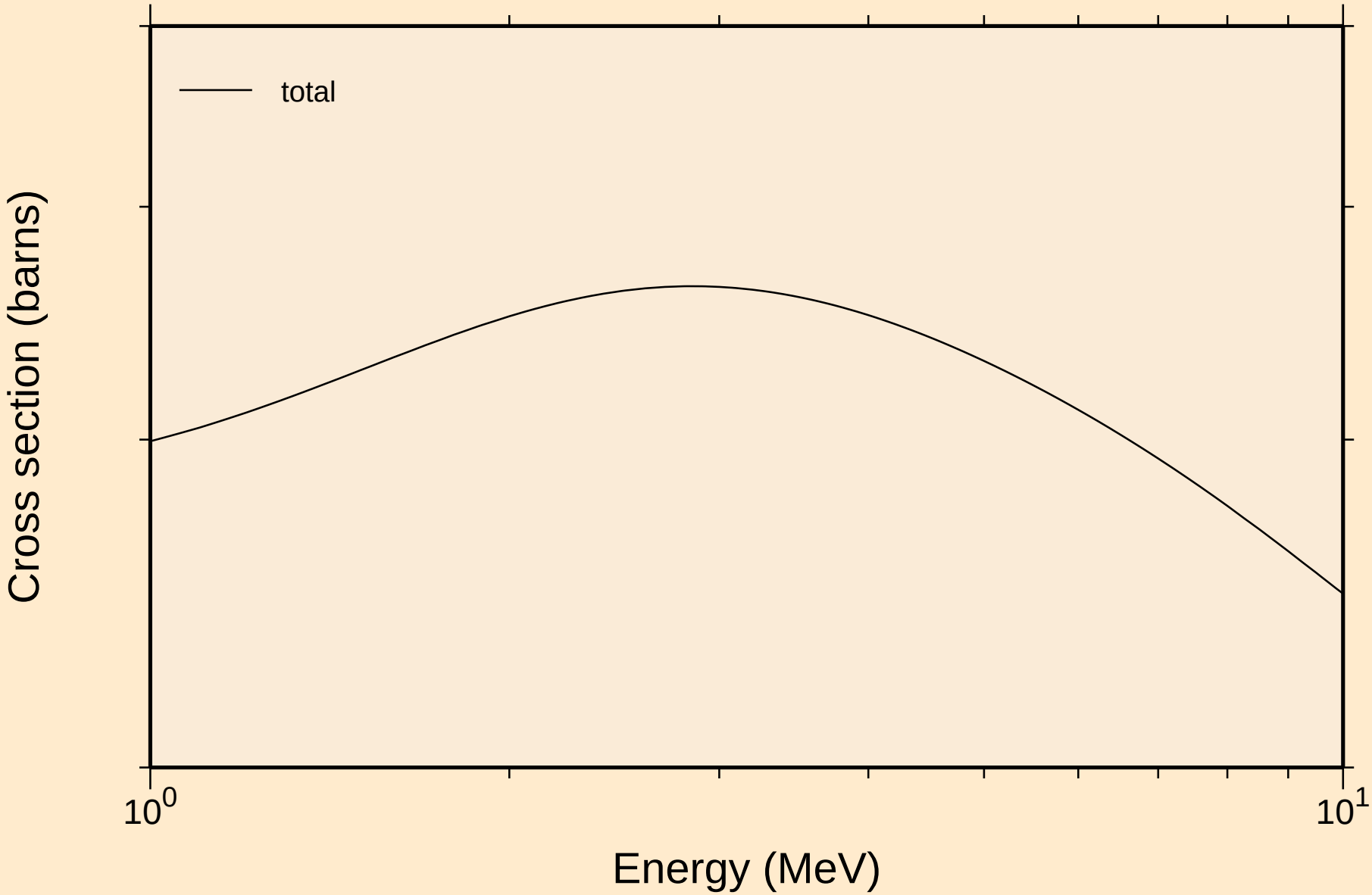
ADVANCE CALCULATIONS
resonance total cross section



ADVANCE CALCULATIONS
resonance total cross section

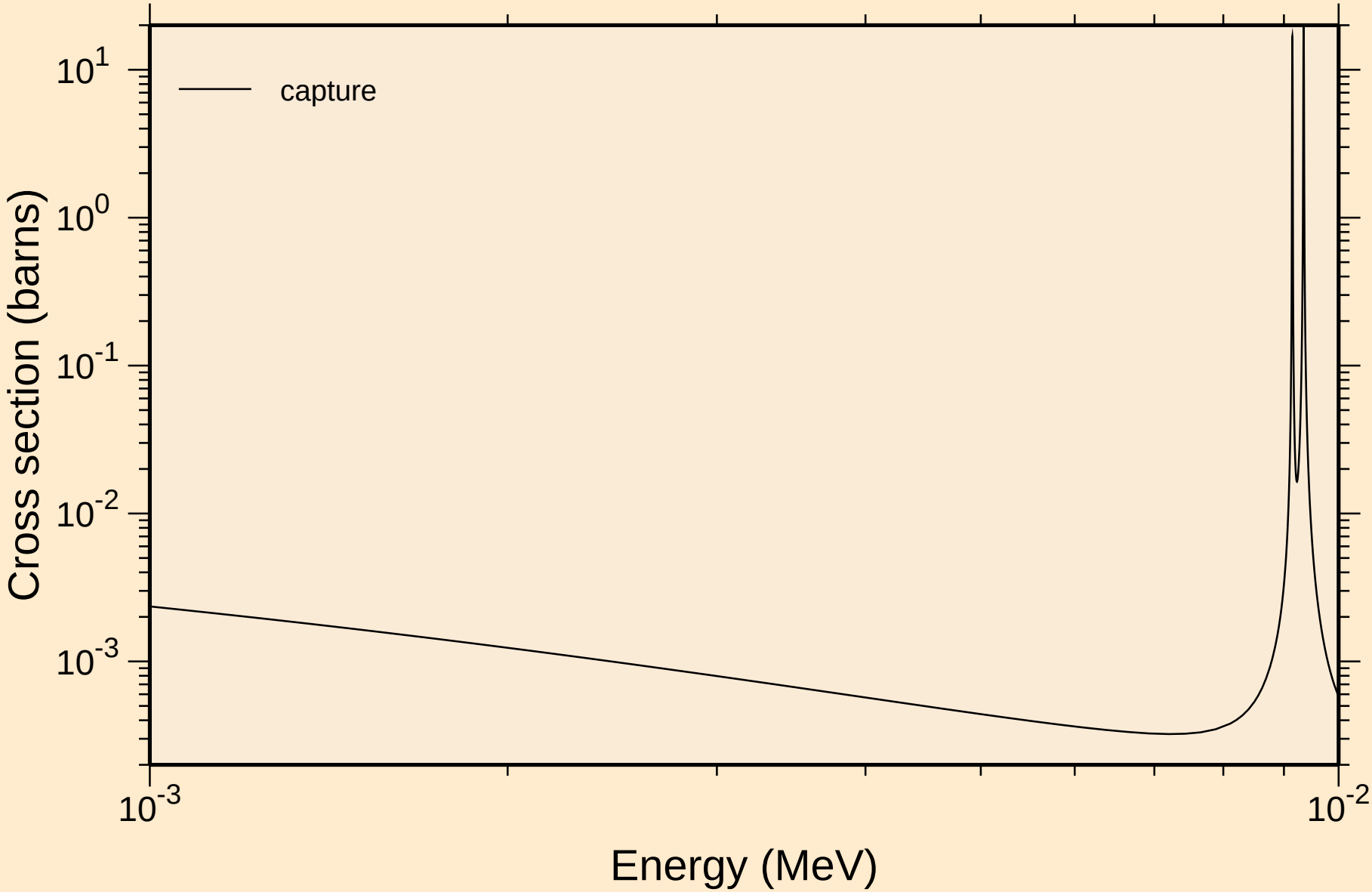


ADVANCE CALCULATIONS
resonance total cross section

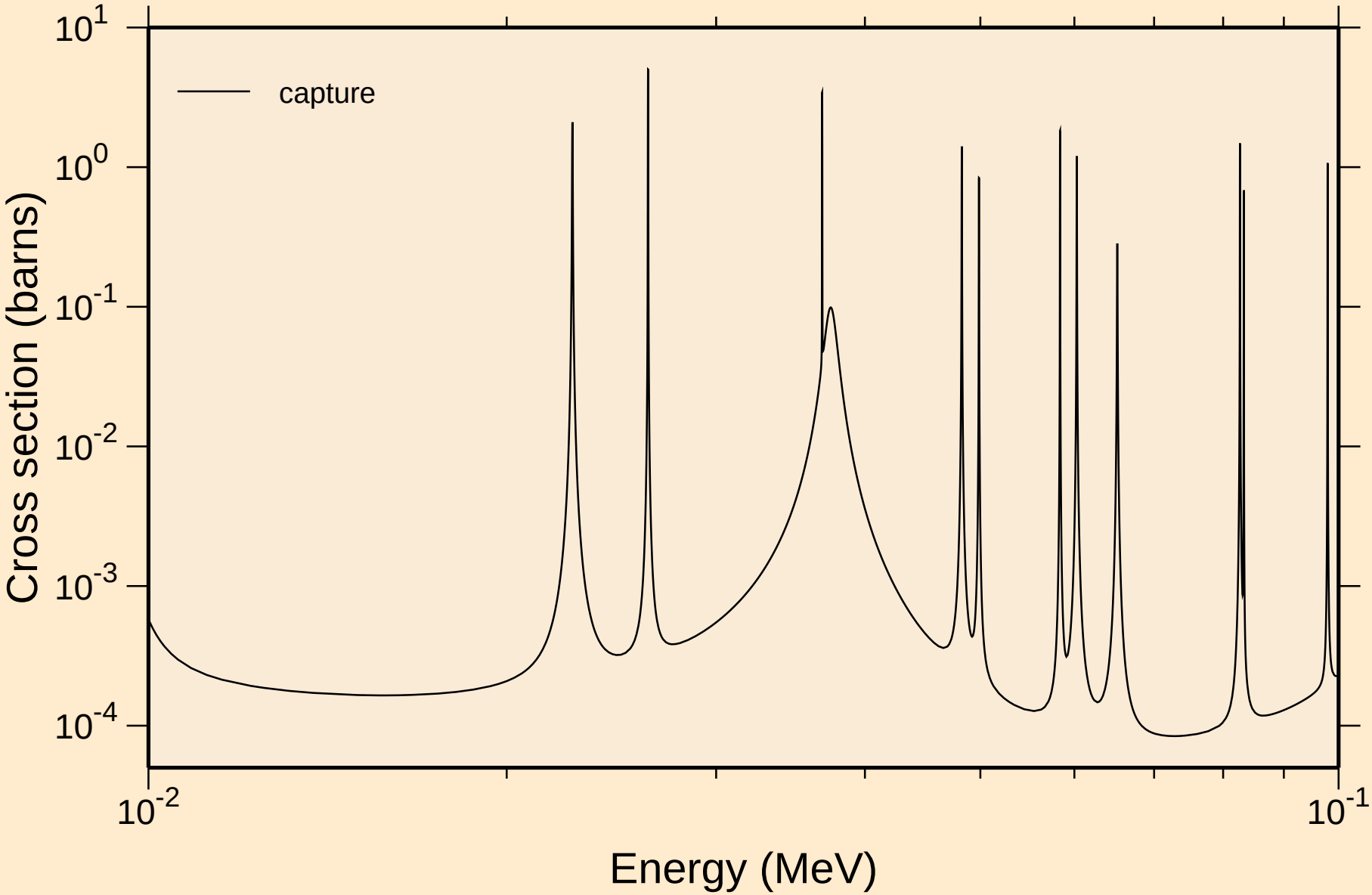


ADVANCE CALCULATIONS

resonance absorption cross sections

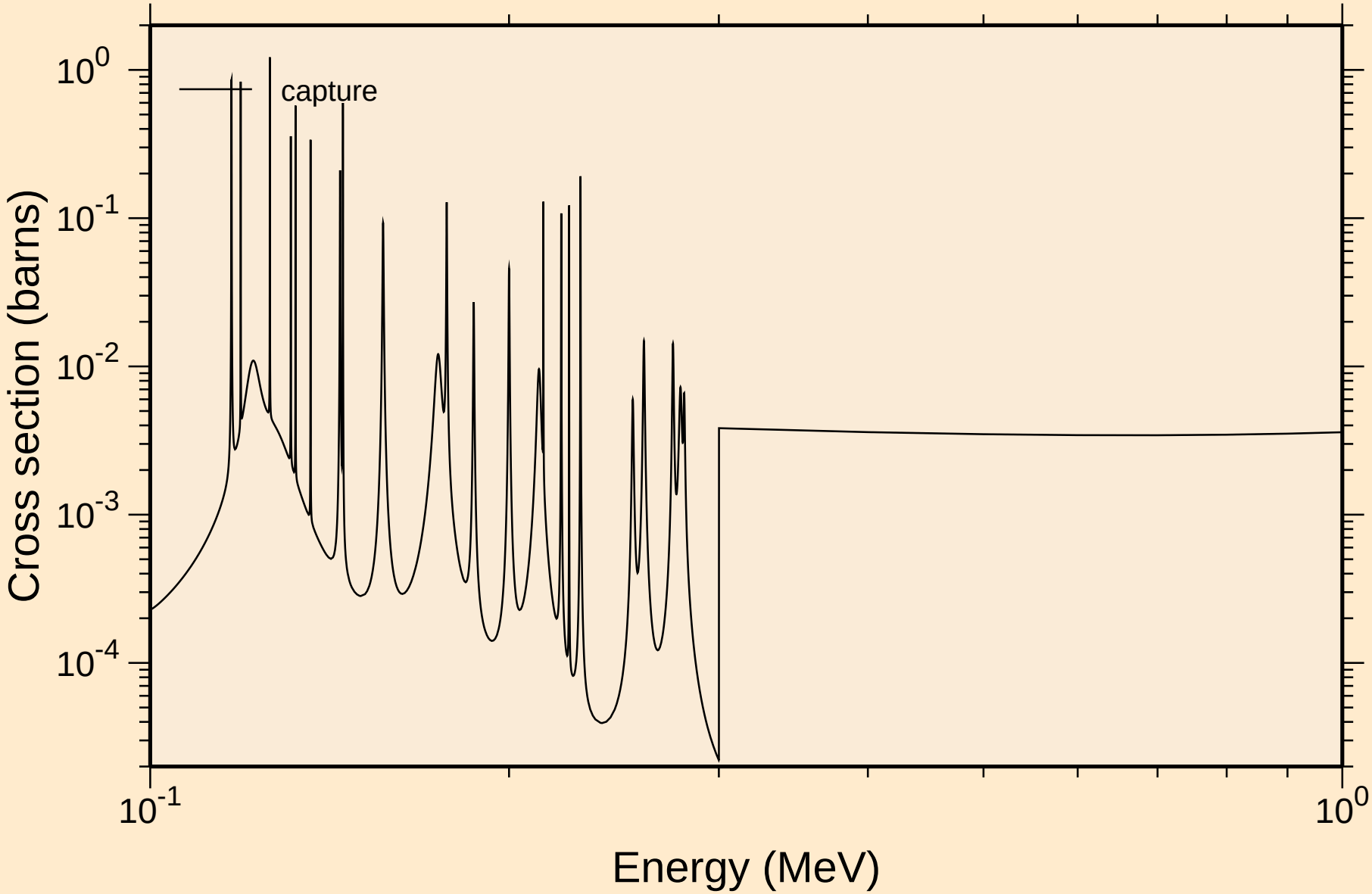


ADVANCE CALCULATIONS
resonance absorption cross sections

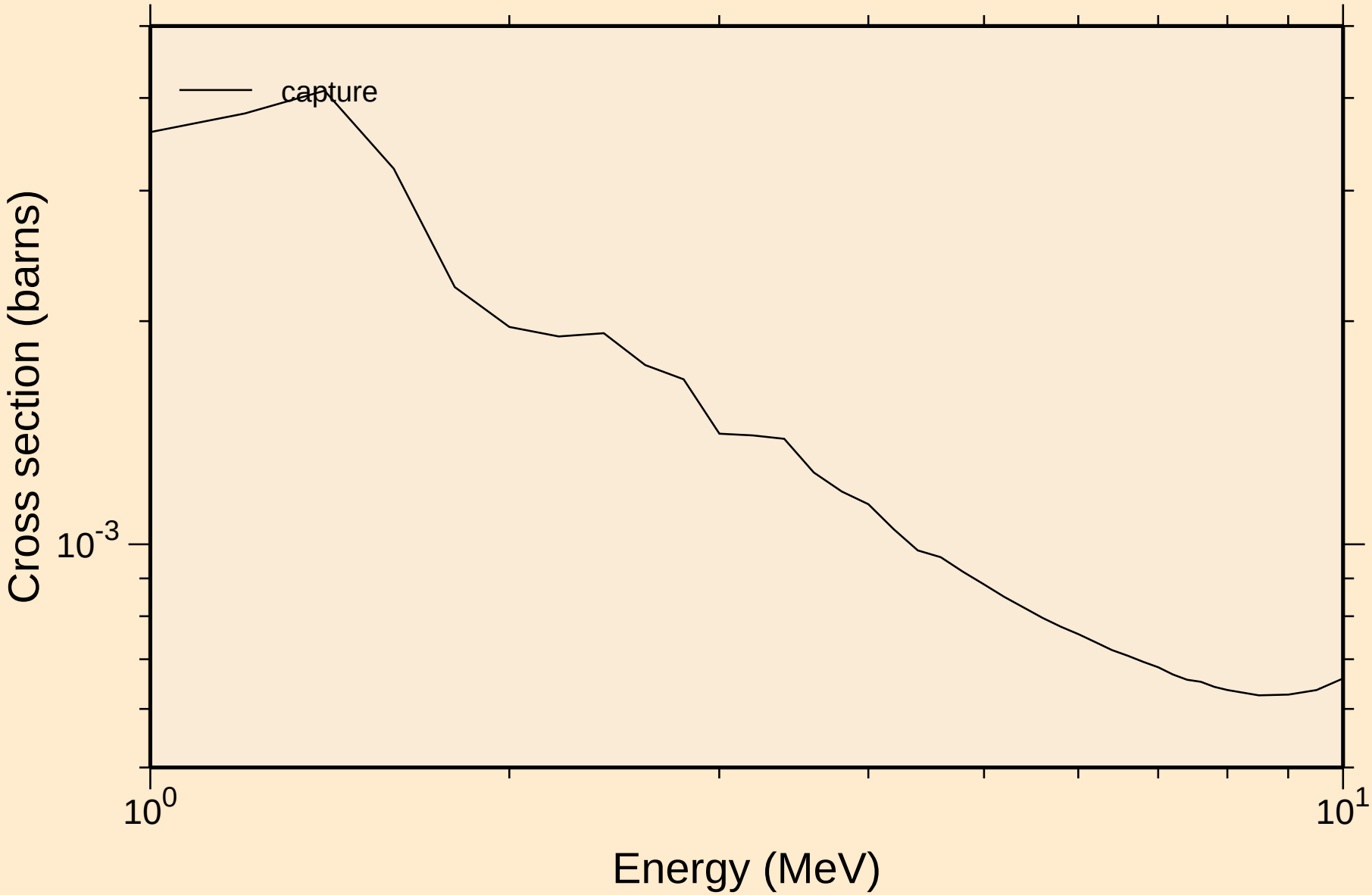


ADVANCE CALCULATIONS

resonance absorption cross sections

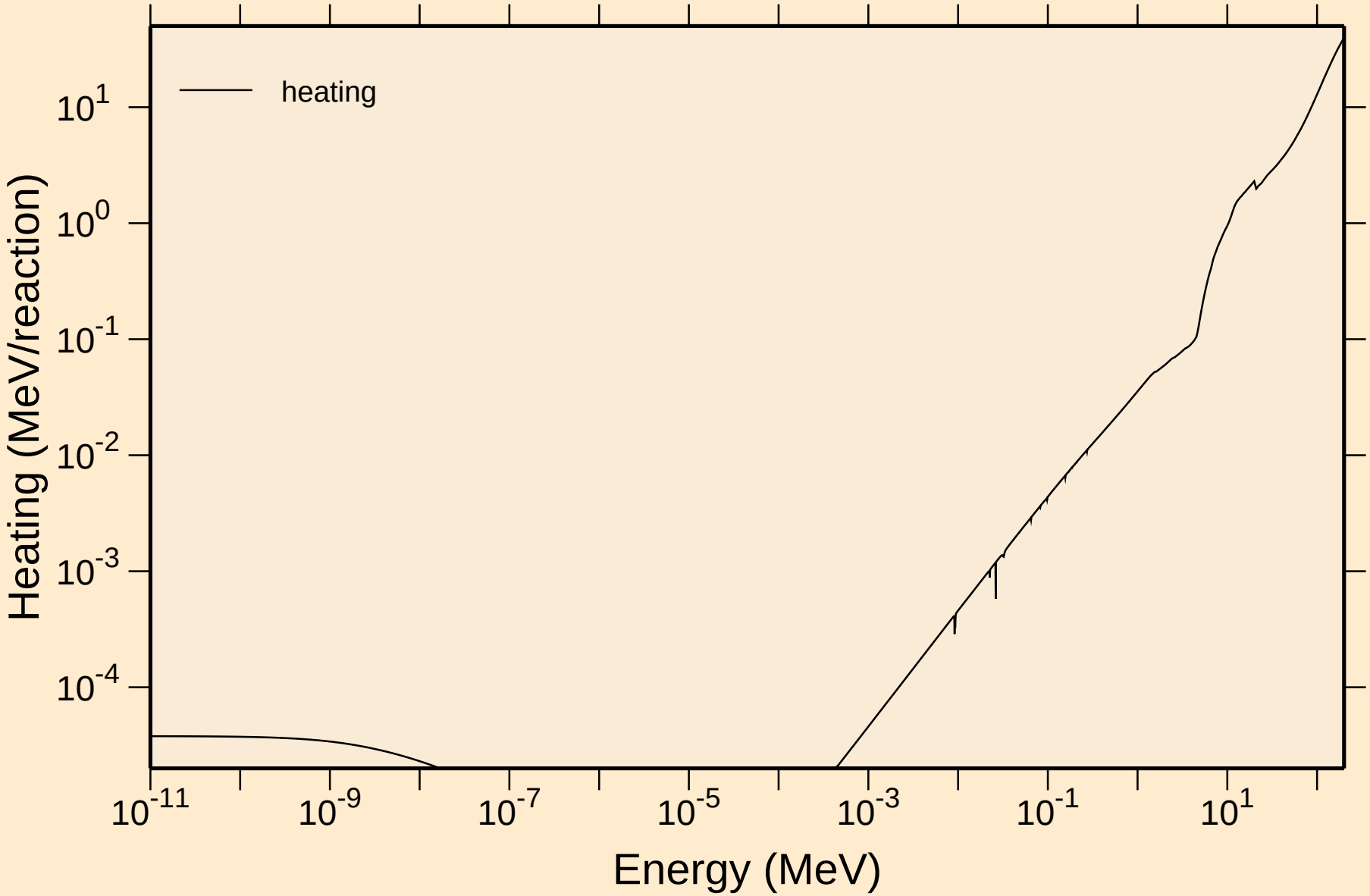


ADVANCE CALCULATIONS
resonance absorption cross sections

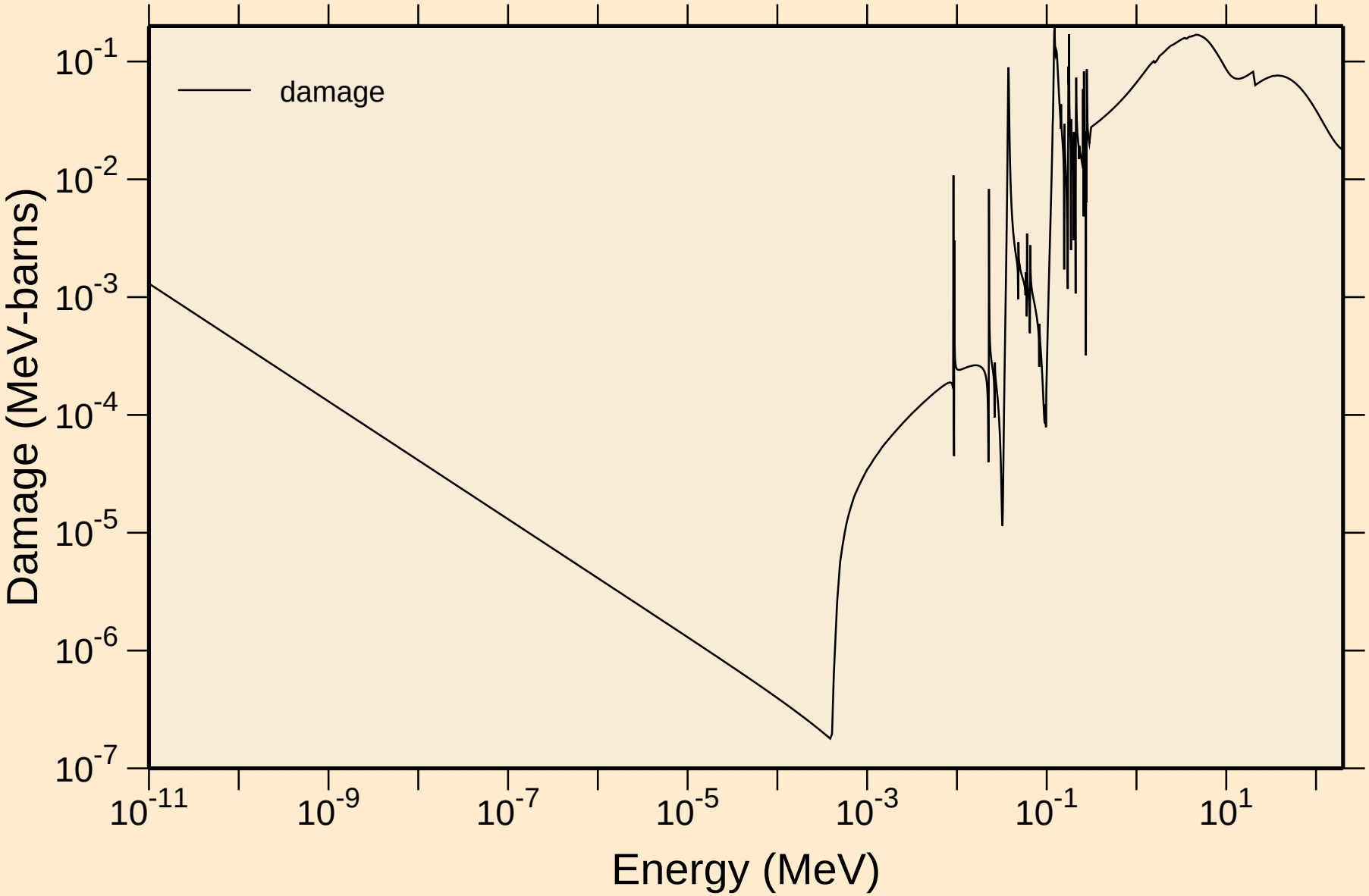


ADVANCE CALCULATIONS

Heating

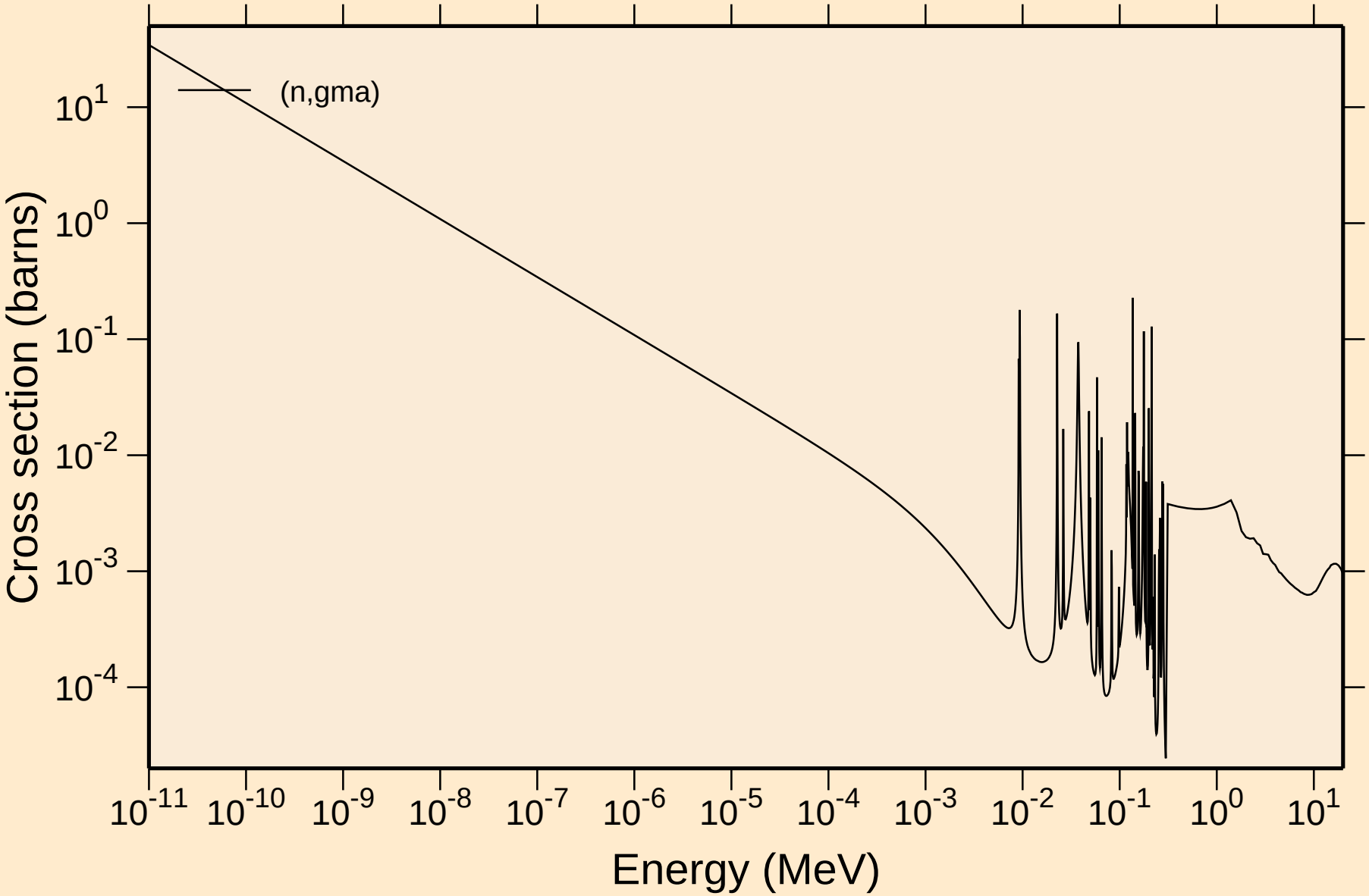


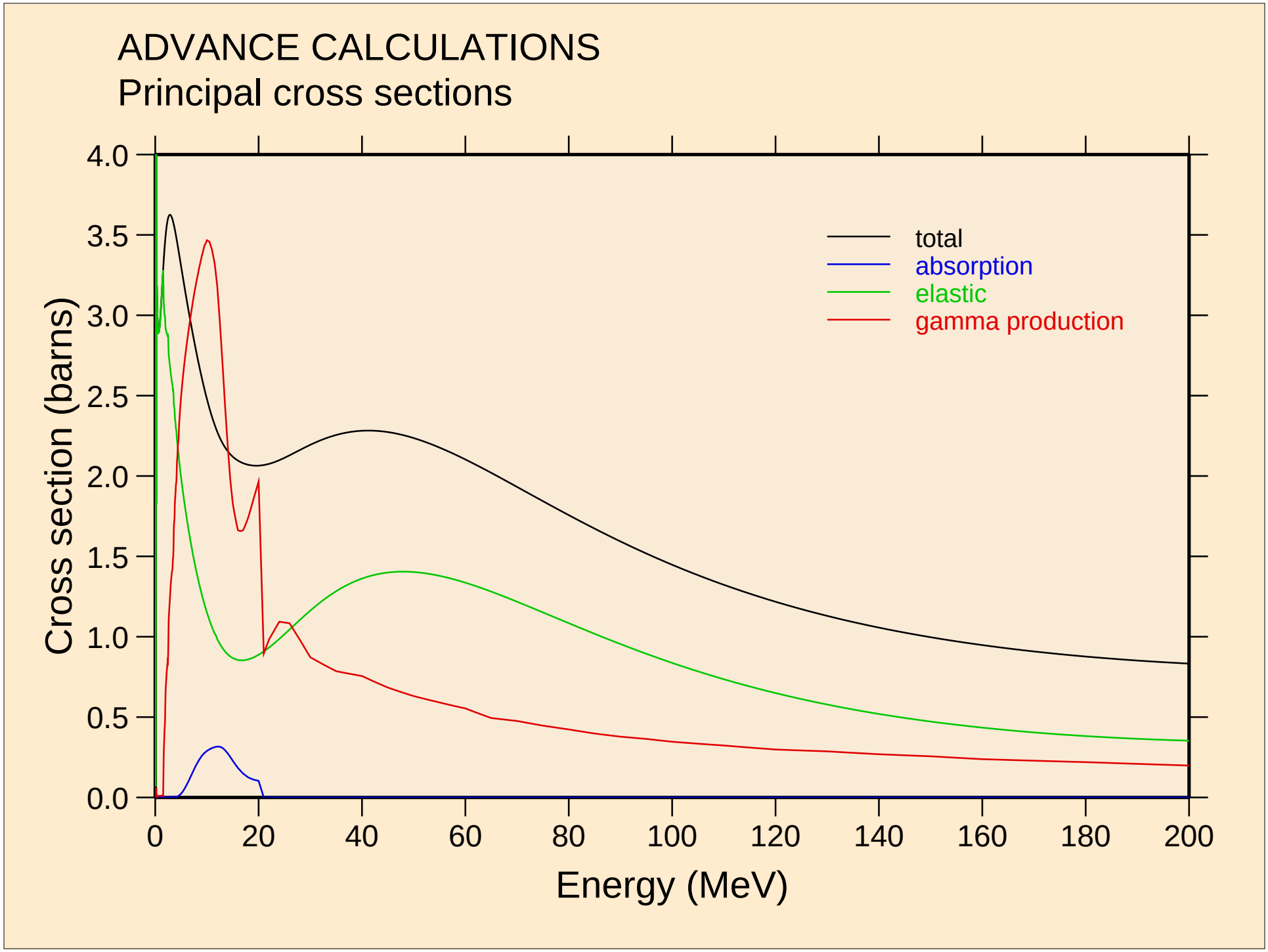
ADVANCE CALCULATIONS
Damage

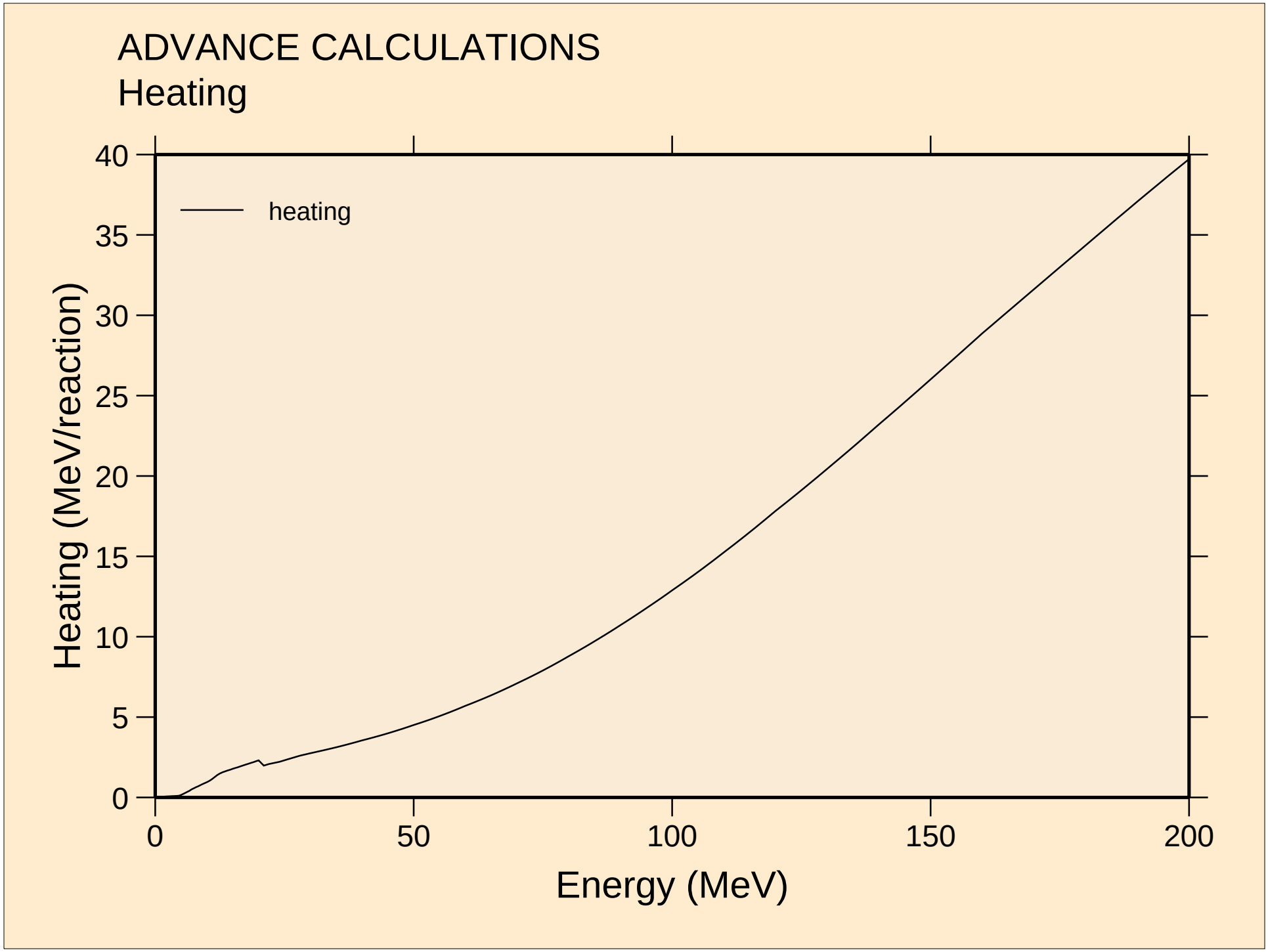


ADVANCE CALCULATIONS

Non-threshold reactions

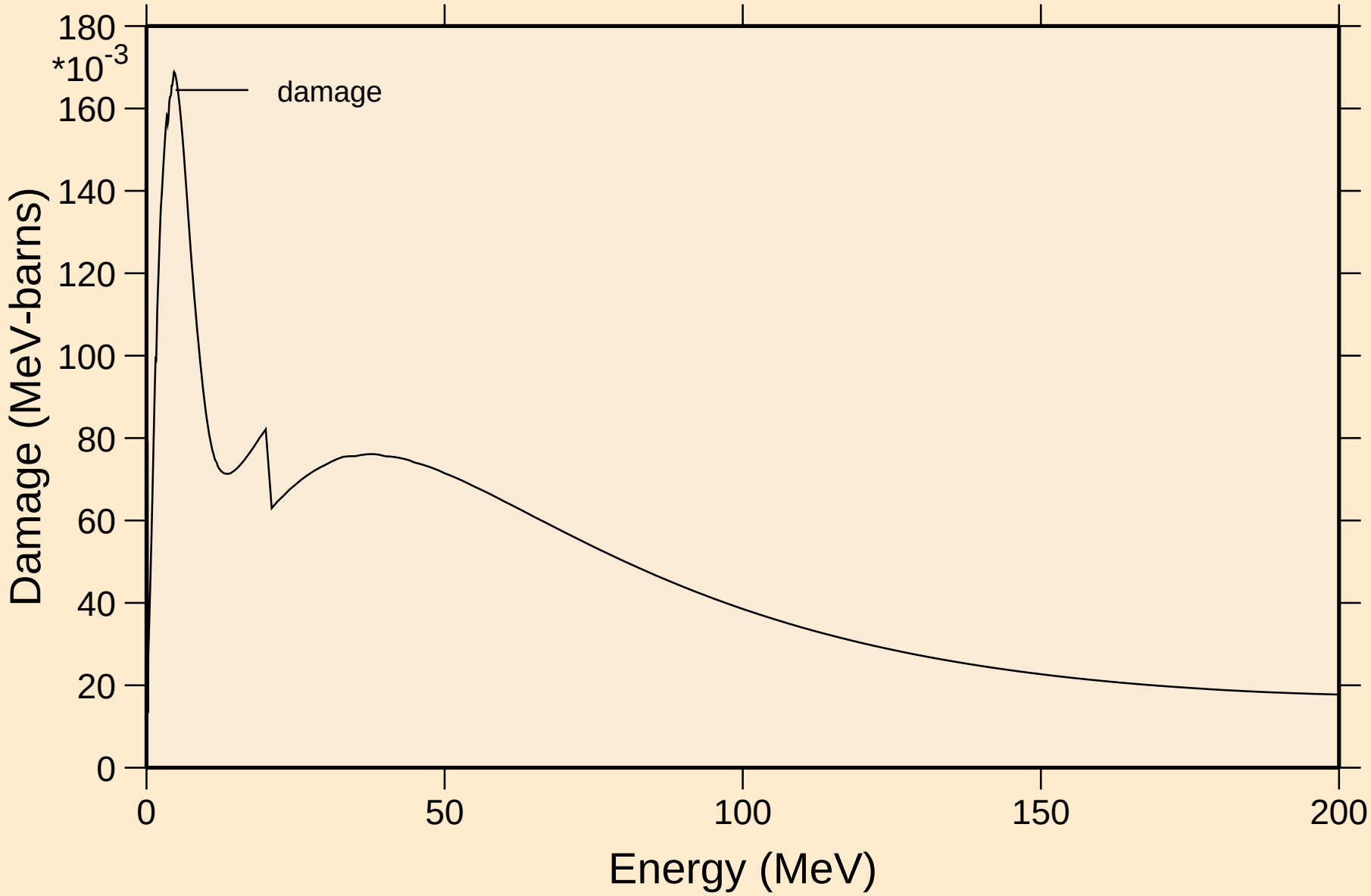



ADVANCE CALCULATIONS
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
20
40
60
80
100
120
140
160
180
200


ADVANCE CALCULATIONS
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
5
10
15
20
25
30
35
40
0
50
100
150
200

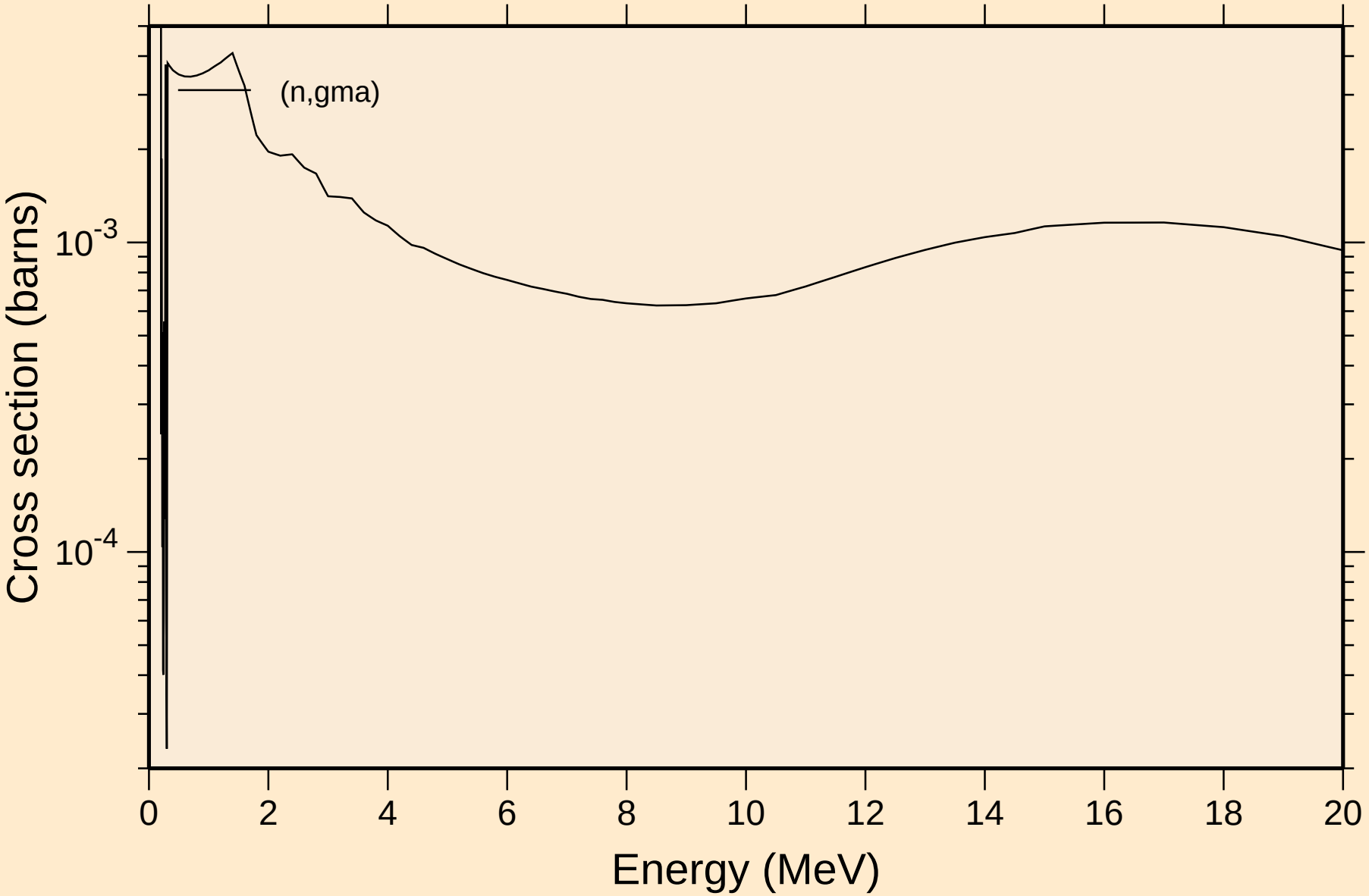
ADVANCE CALCULATIONS

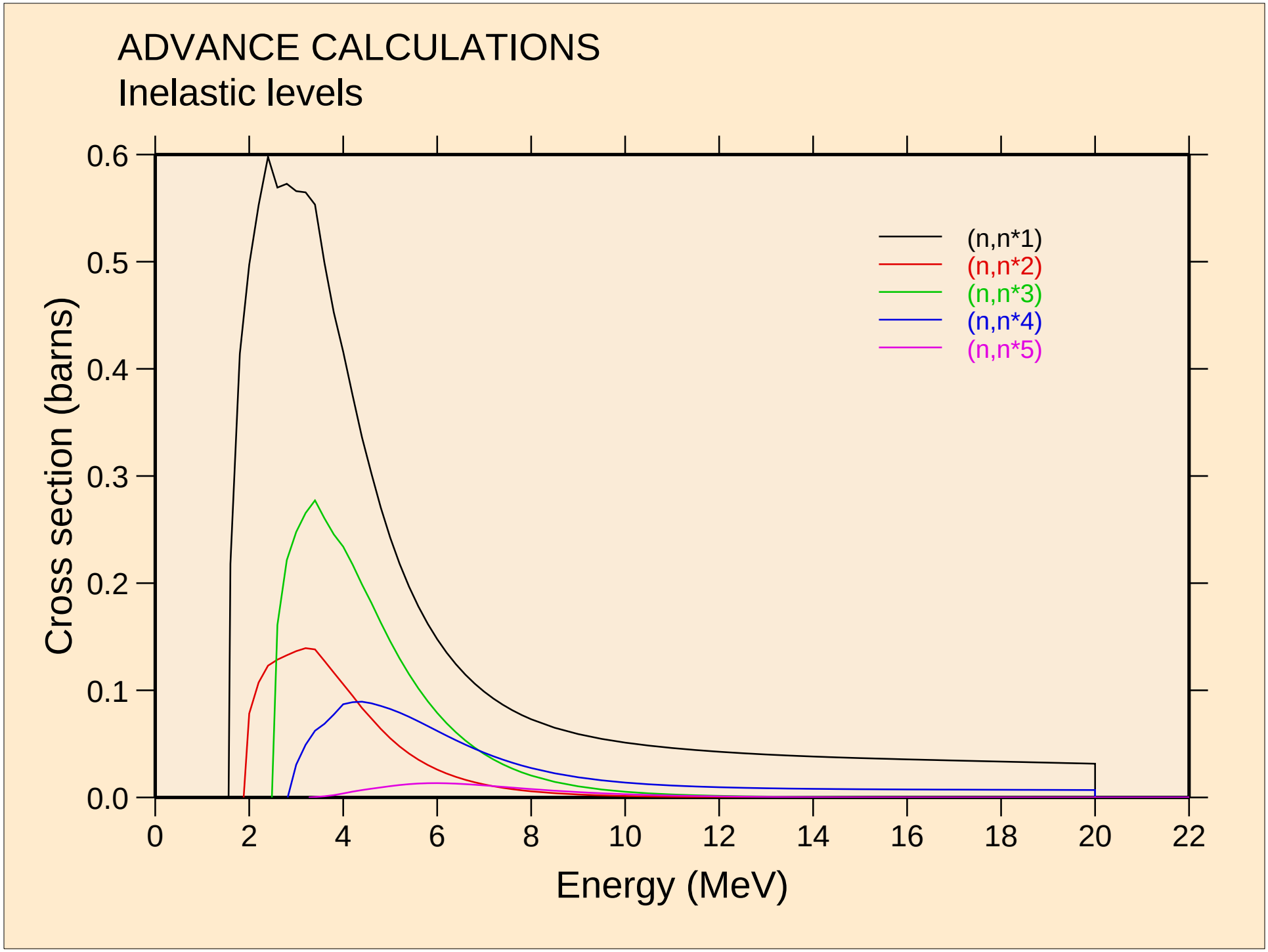
Damage

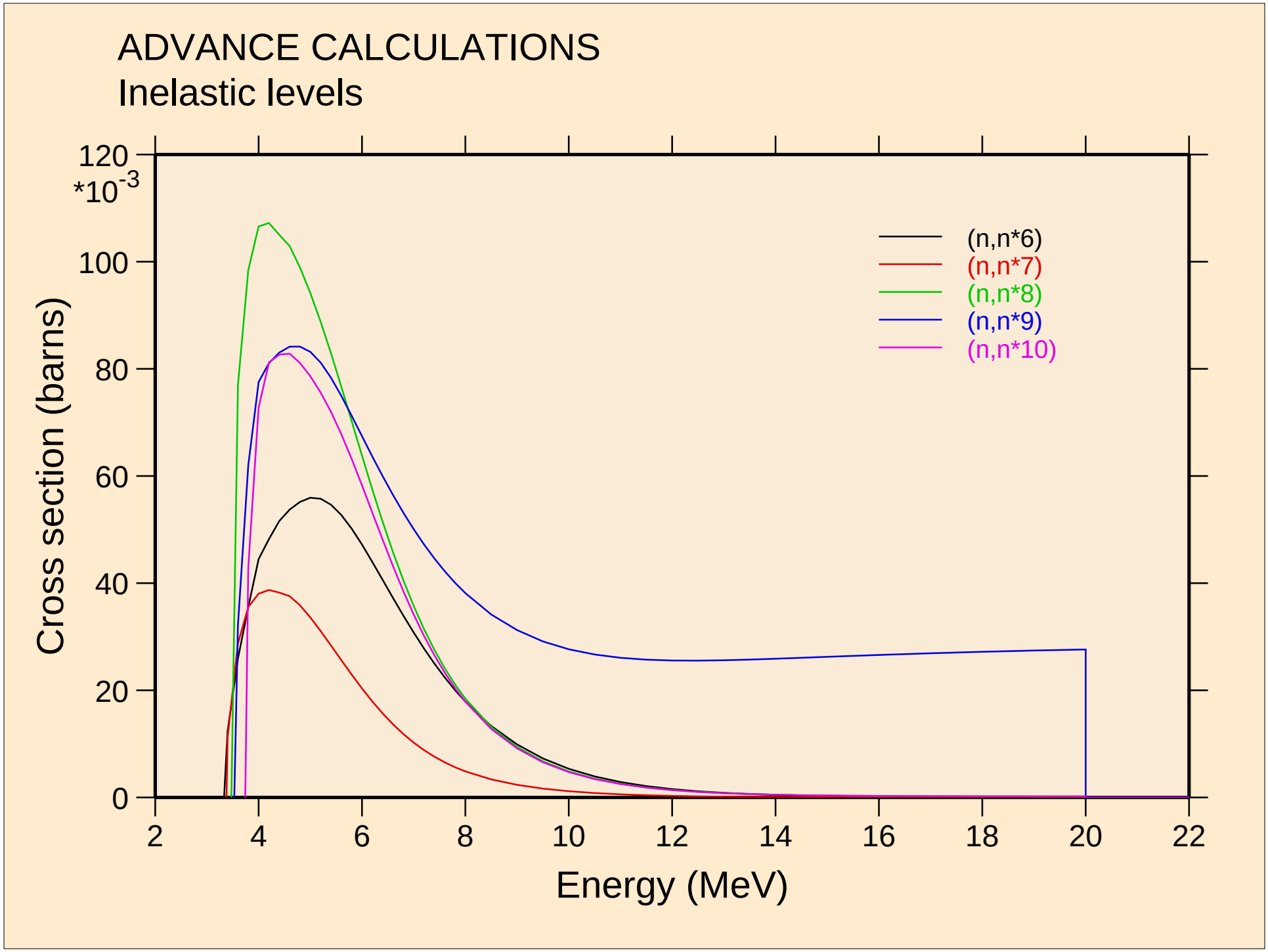


ADVANCE CALCULATIONS

Non-threshold reactions

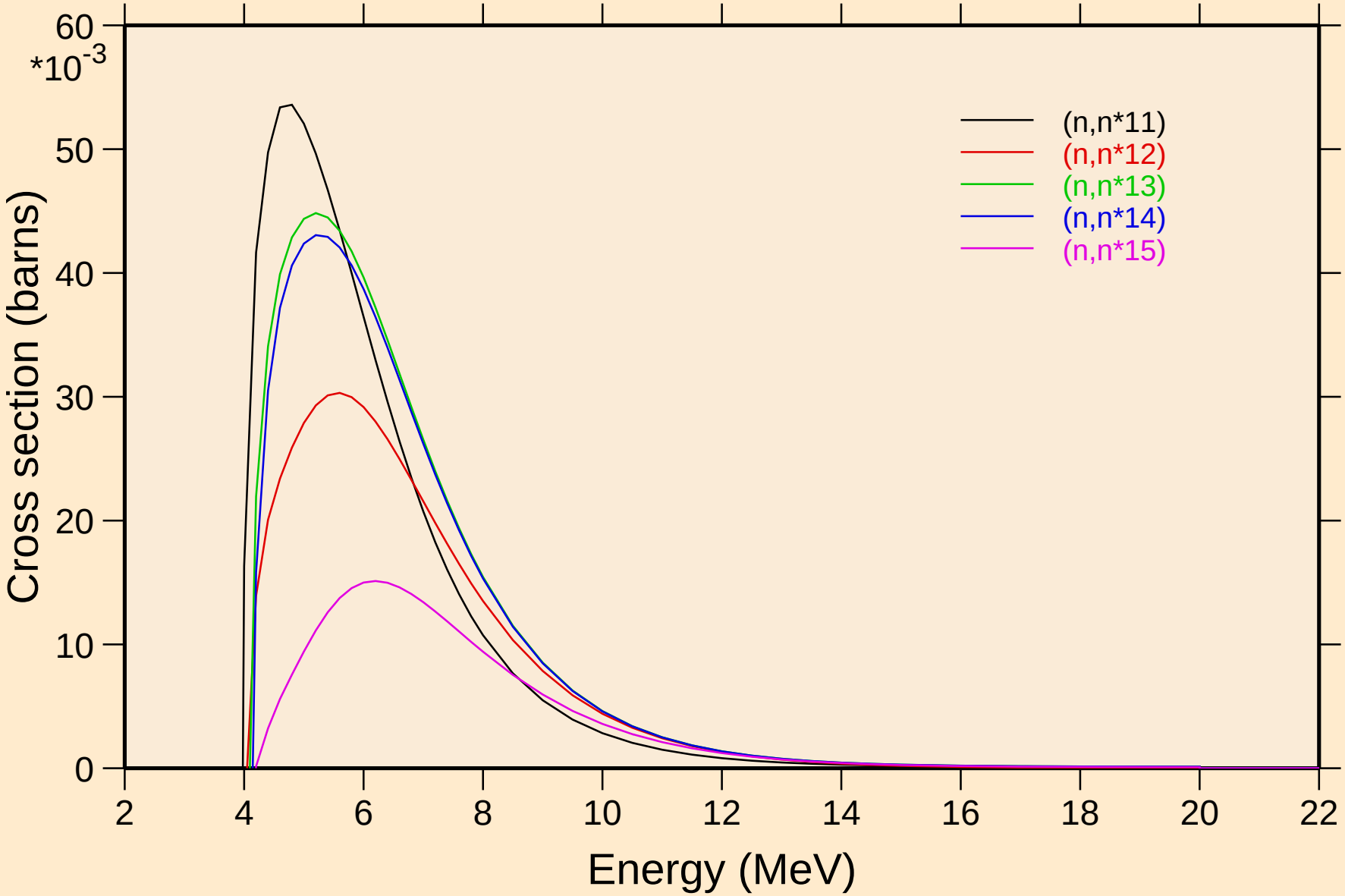



ADVANCE CALCULATIONS
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0
2
4
6
8
10
12
14
16
18
20
22
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)


ADVANCE CALCULATIONS
Inelastic levels
120
*10-3
100
80
60
40
20
0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
22
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

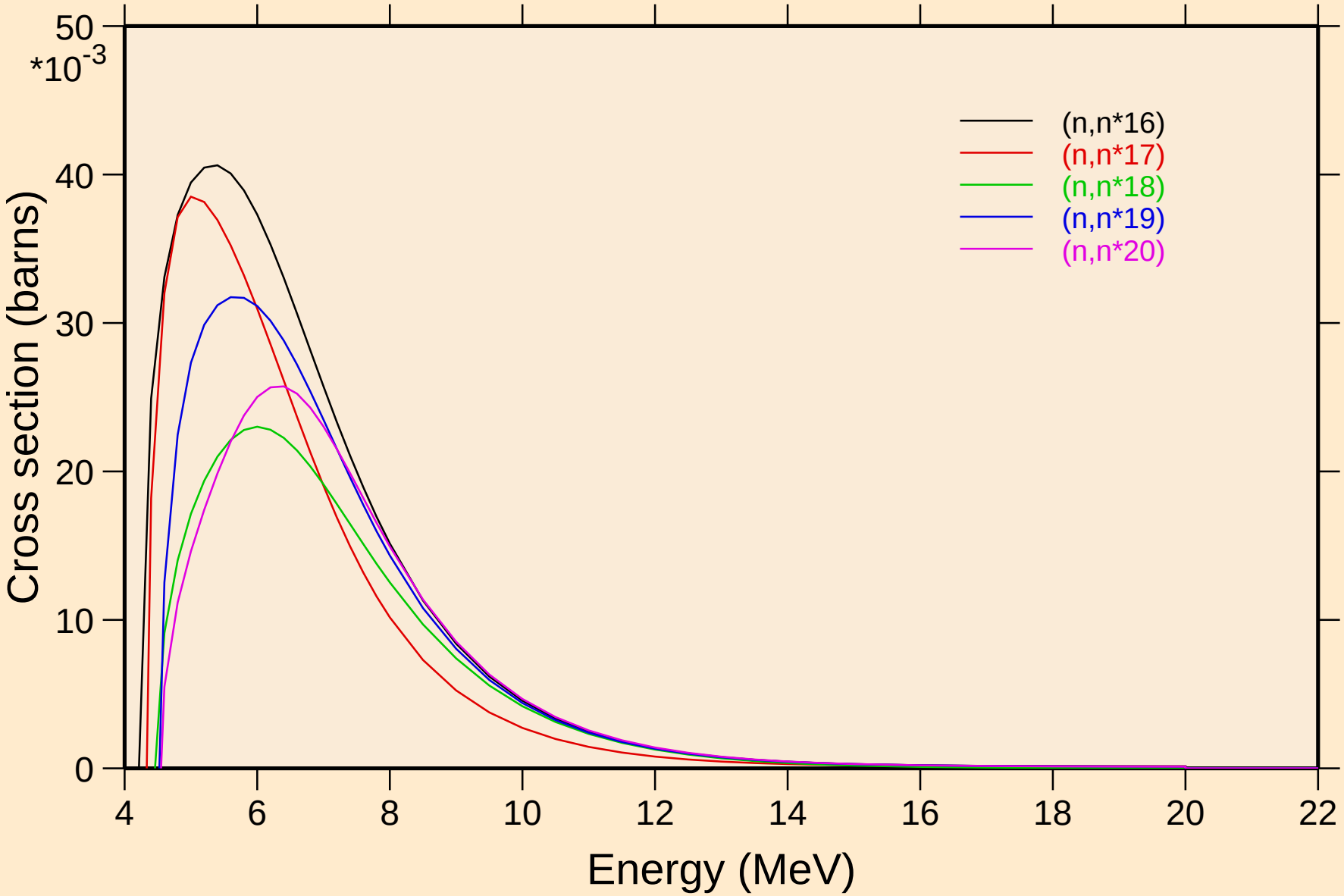
ADVANCE CALCULATIONS

Inelastic levels



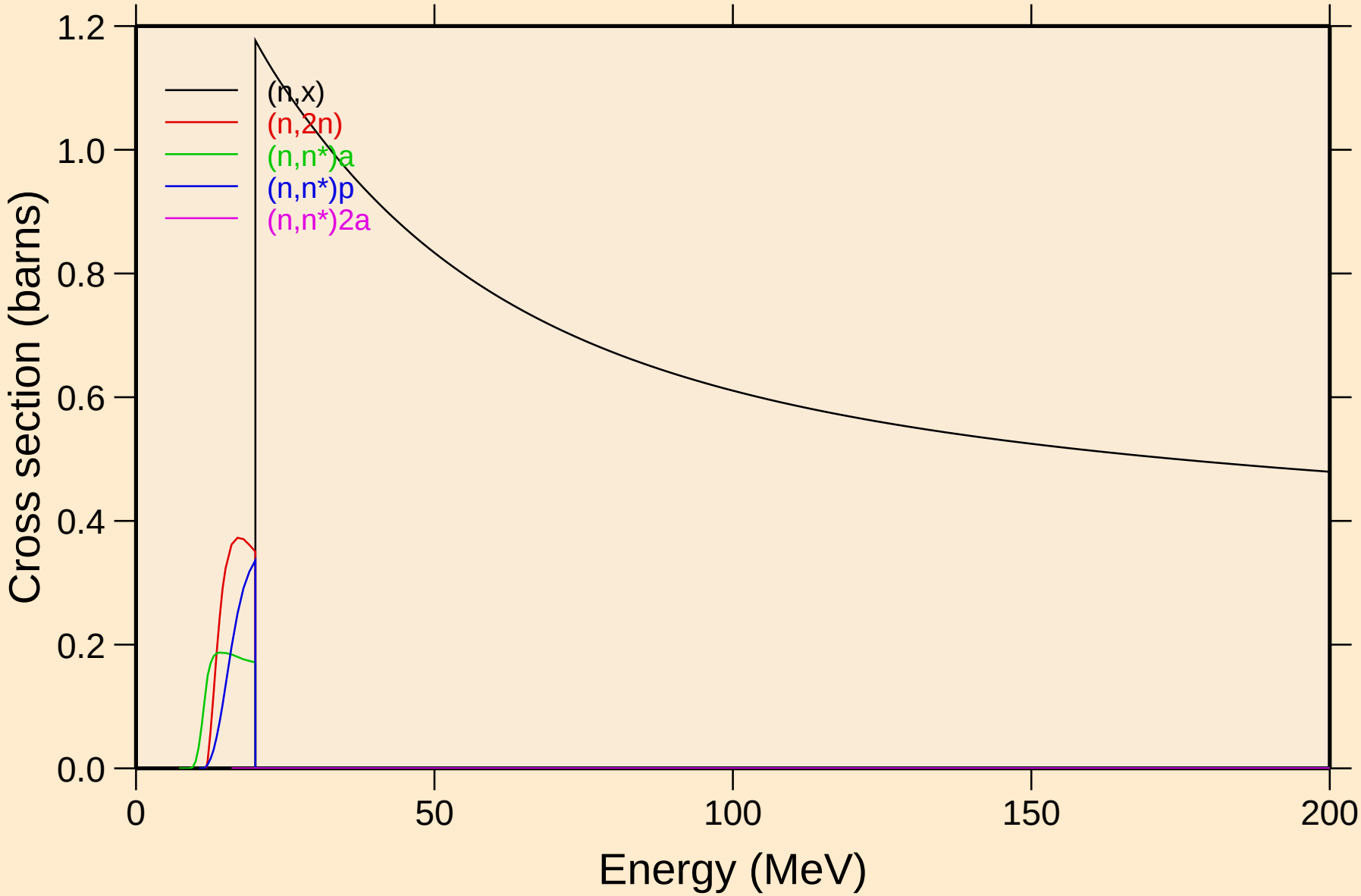
ADVANCE CALCULATIONS

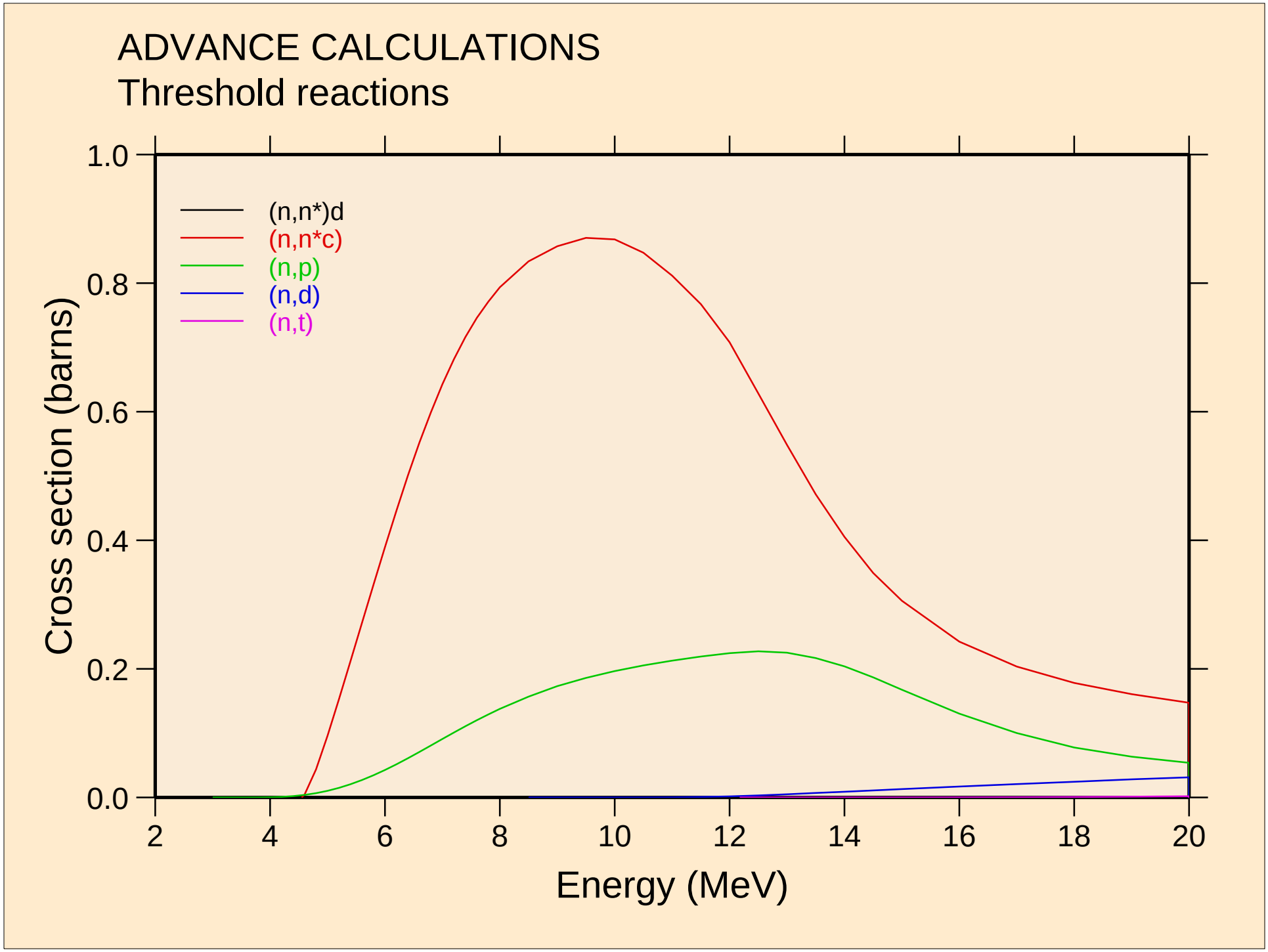
Inelastic levels



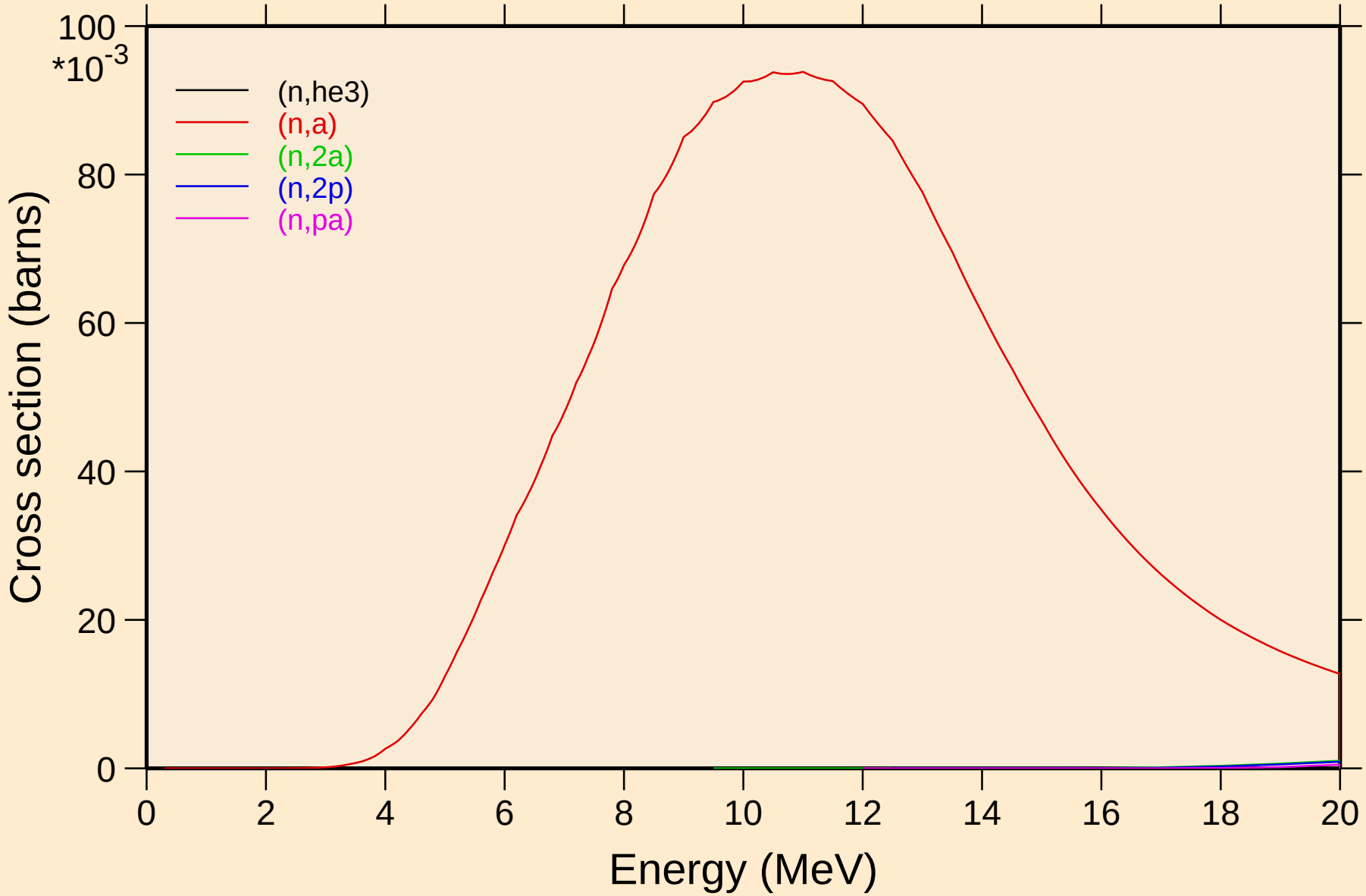
ADVANCE CALCULATIONS

Threshold reactions



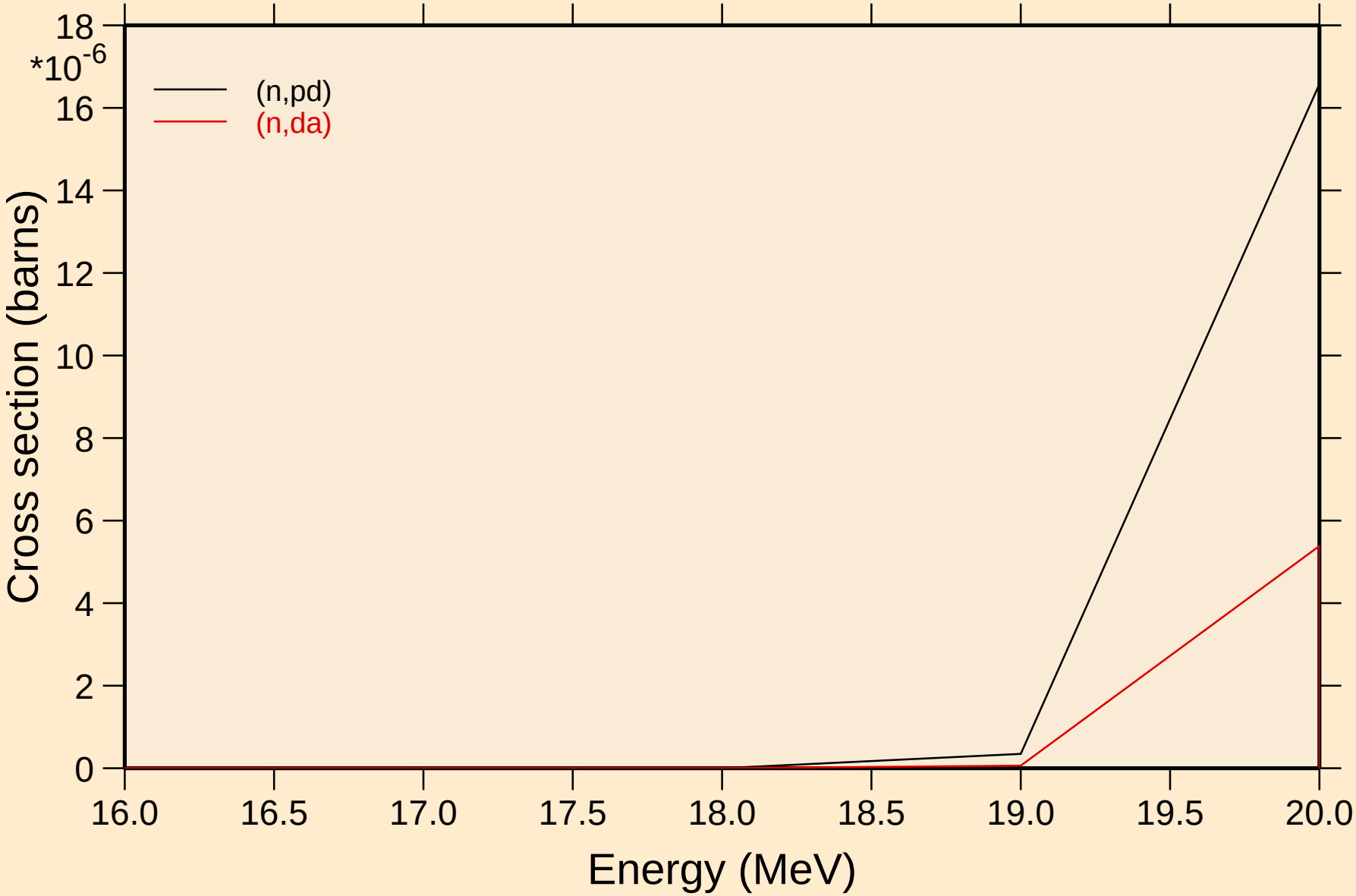

ADVANCE CALCULATIONS
Threshold reactions
(n,n*)d
(n,n*c)
(n,p)
(n,d)
(n,t)
Cross section (barns)
Energy (MeV)
1.0
0.8
0.6
0.4
0.2
0.0
2
4
6
8
10
12
14
16
18
20

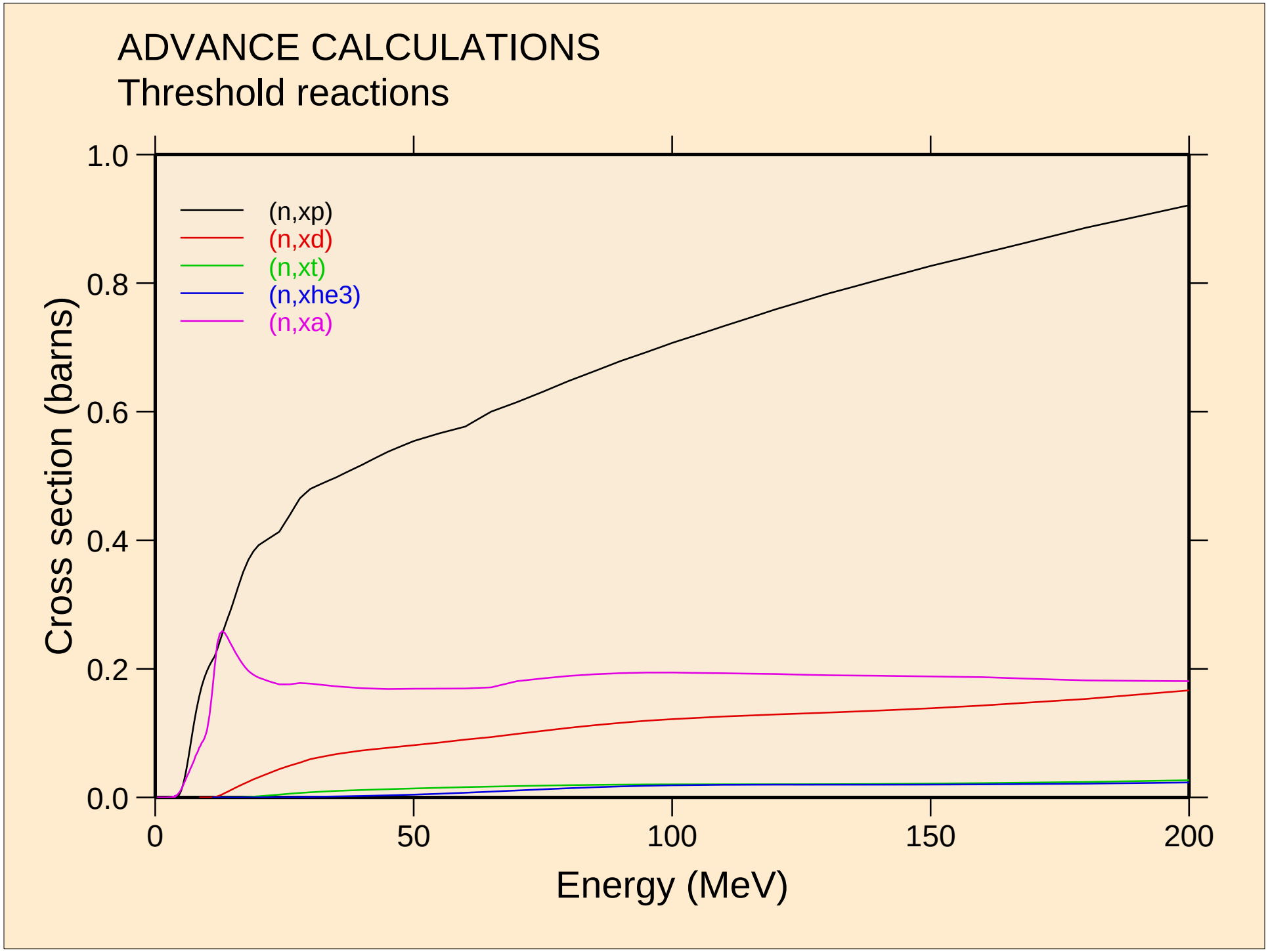
ADVANCE CALCULATIONS
Threshold reactions



ADVANCE CALCULATIONS

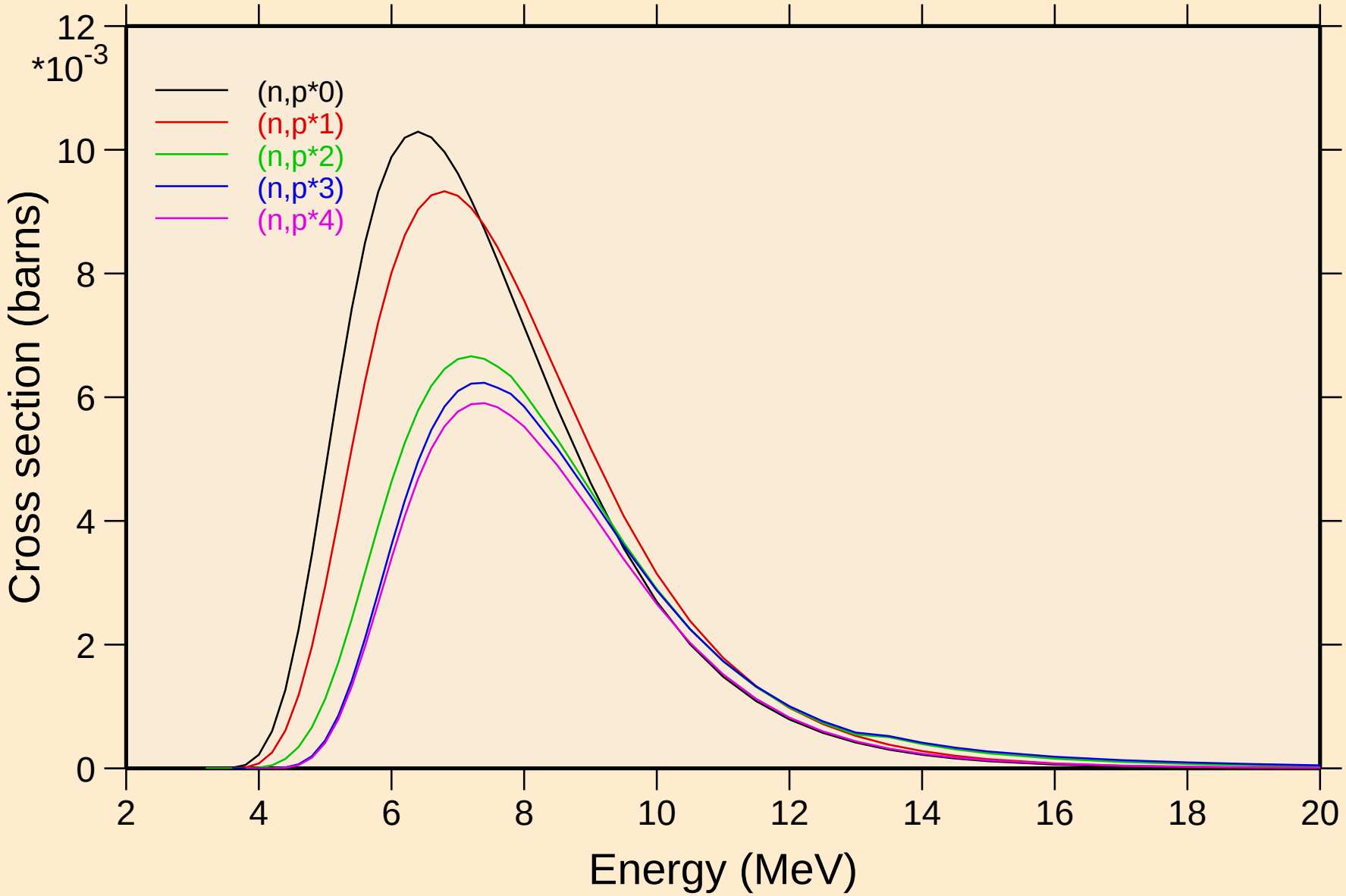
Threshold reactions




ADVANCE CALCULATIONS
Threshold reactions
(n,xp)
(n,xd)
(n,xt)
(n,xhe3)
(n,xa)
Cross section (barns)
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
Energy (MeV)

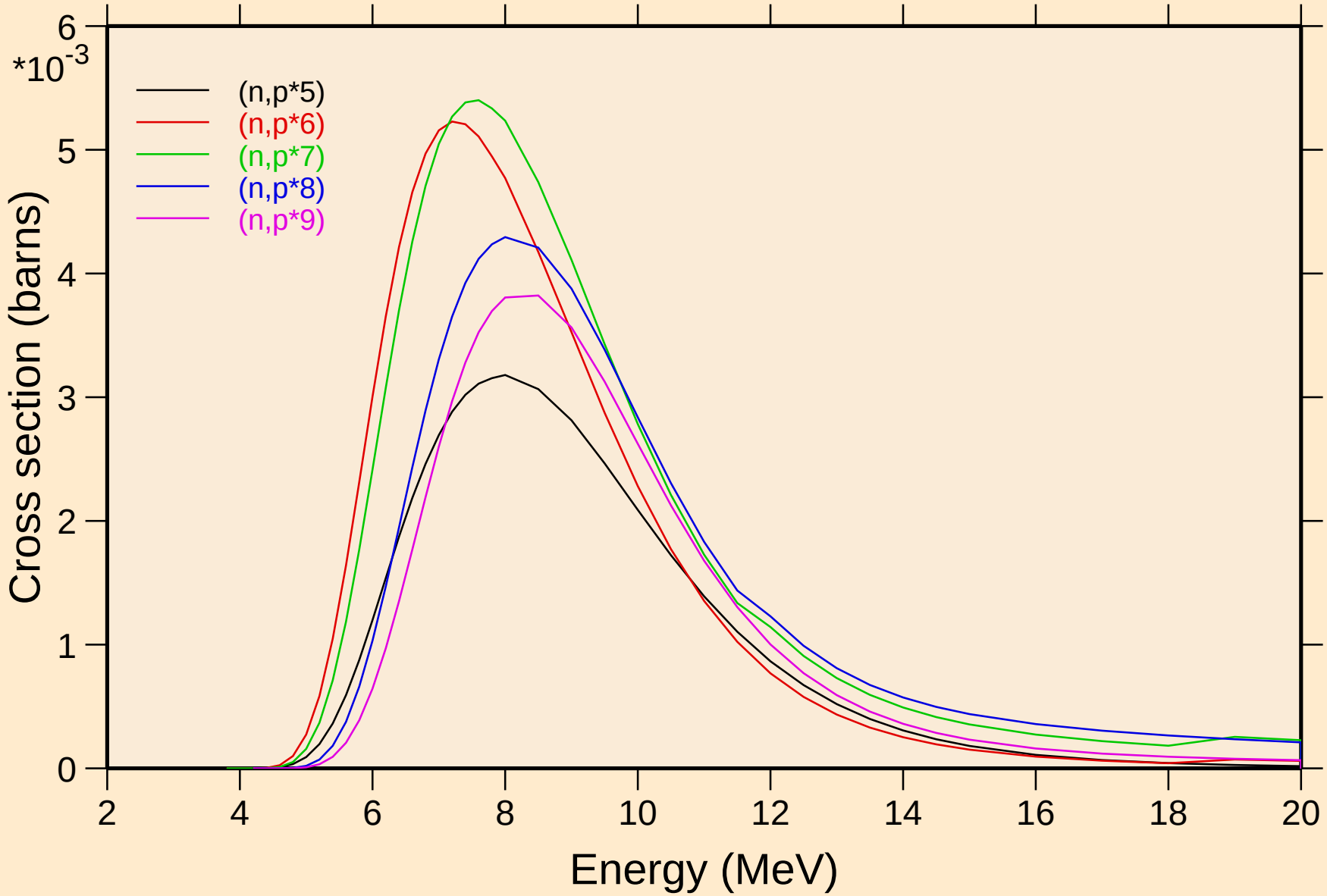
ADVANCE CALCULATIONS

Threshold reactions

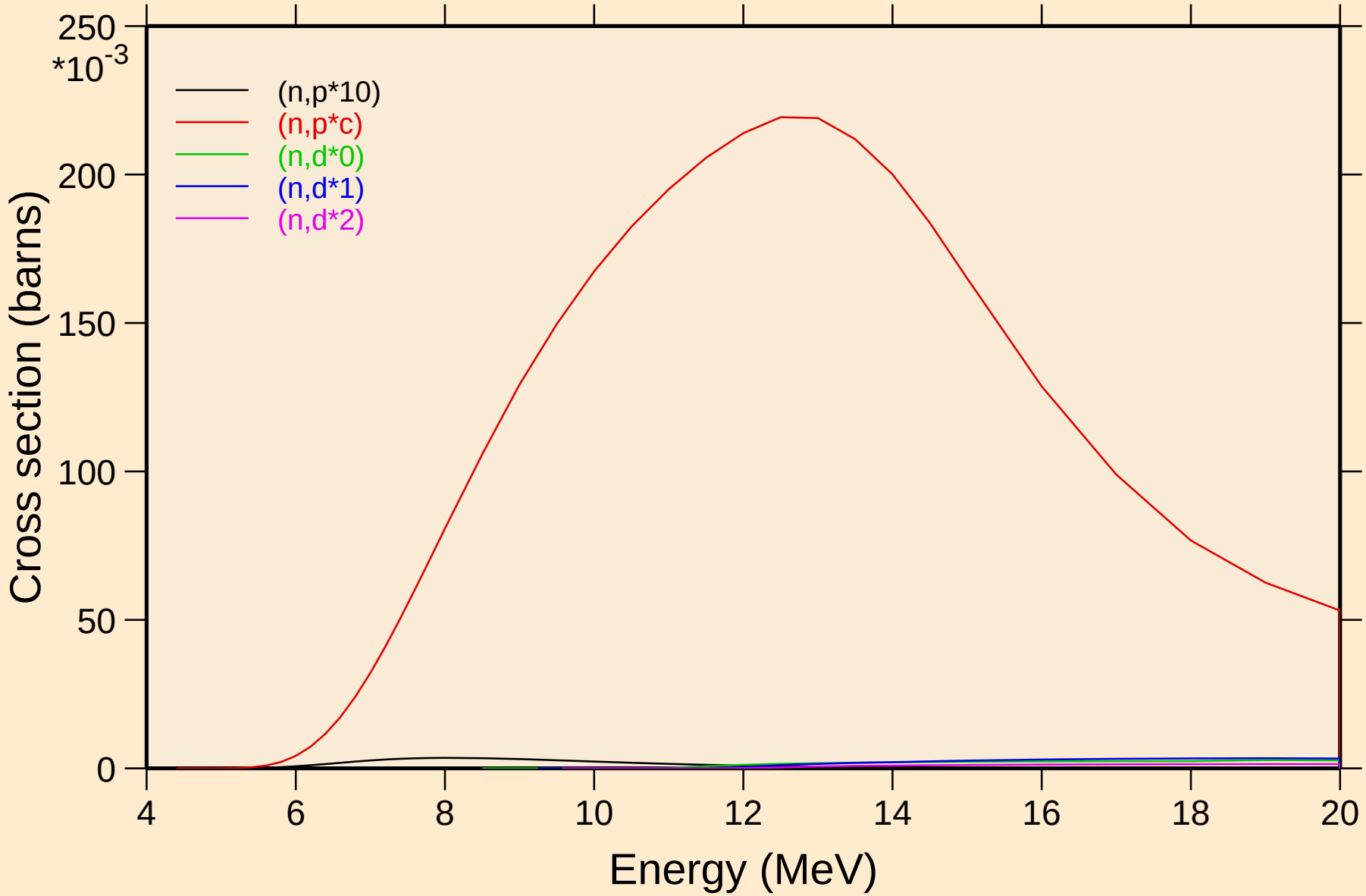


ADVANCE CALCULATIONS

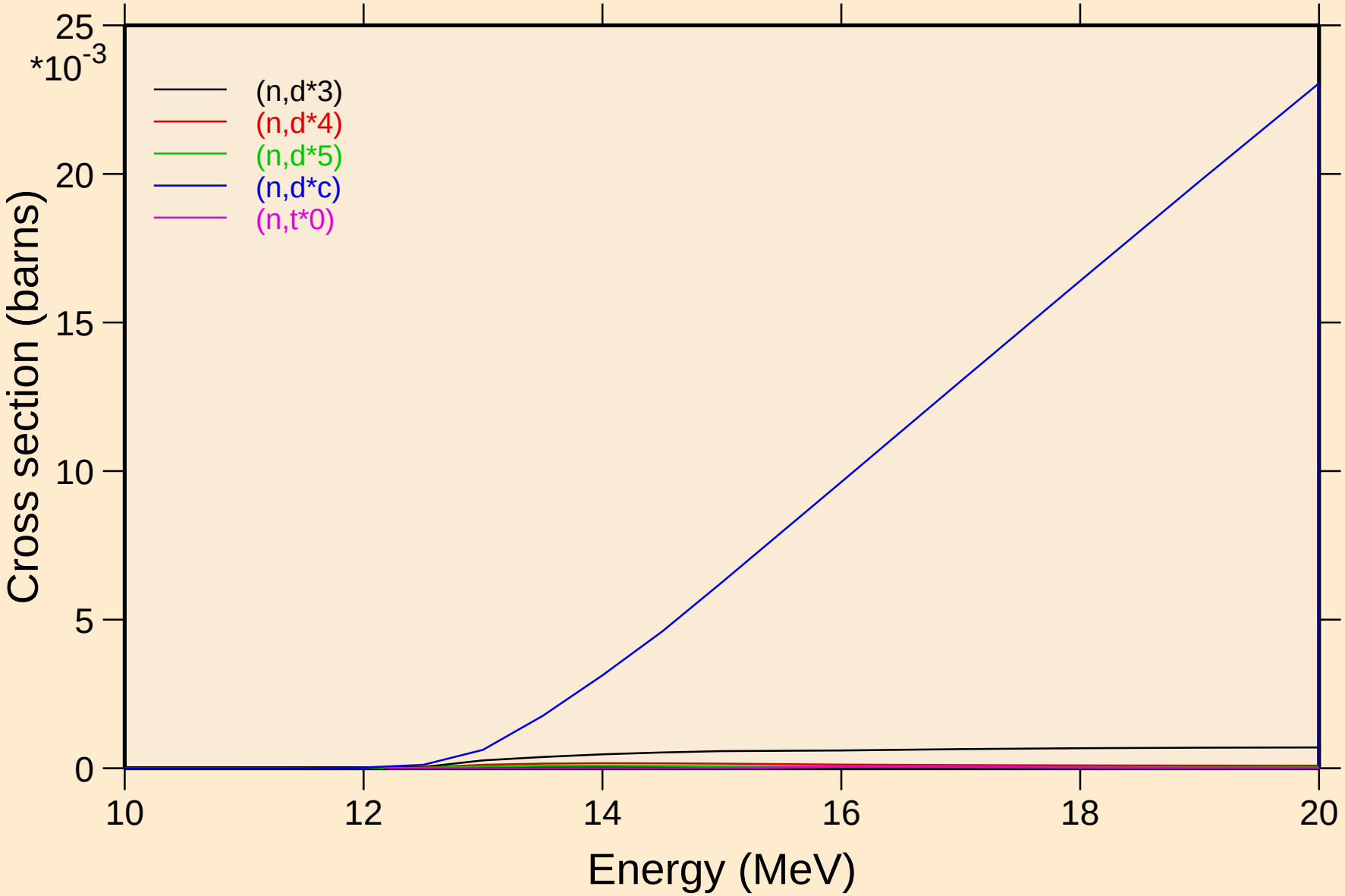
Threshold reactions



ADVANCE CALCULATIONS
Threshold reactions

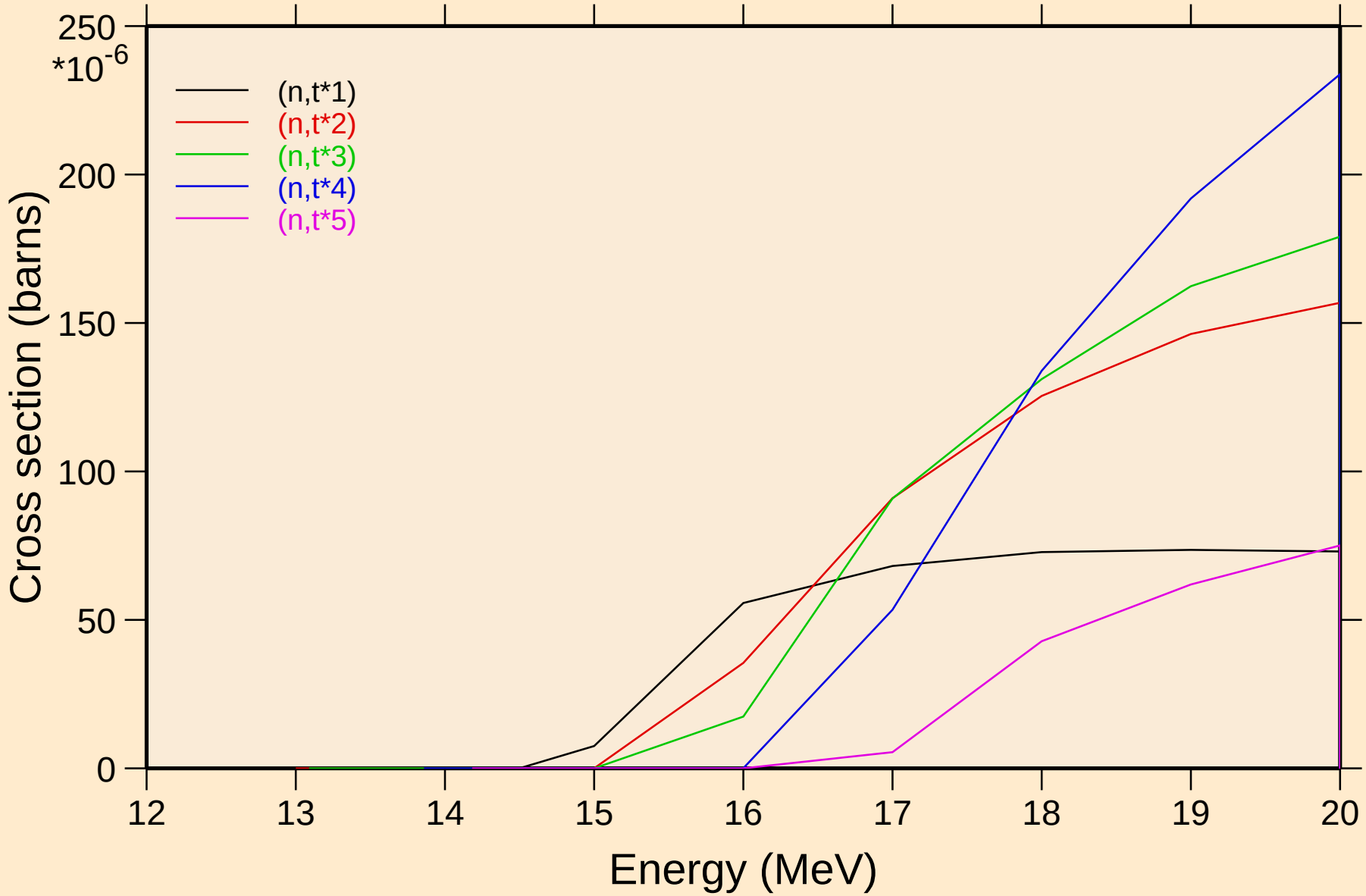


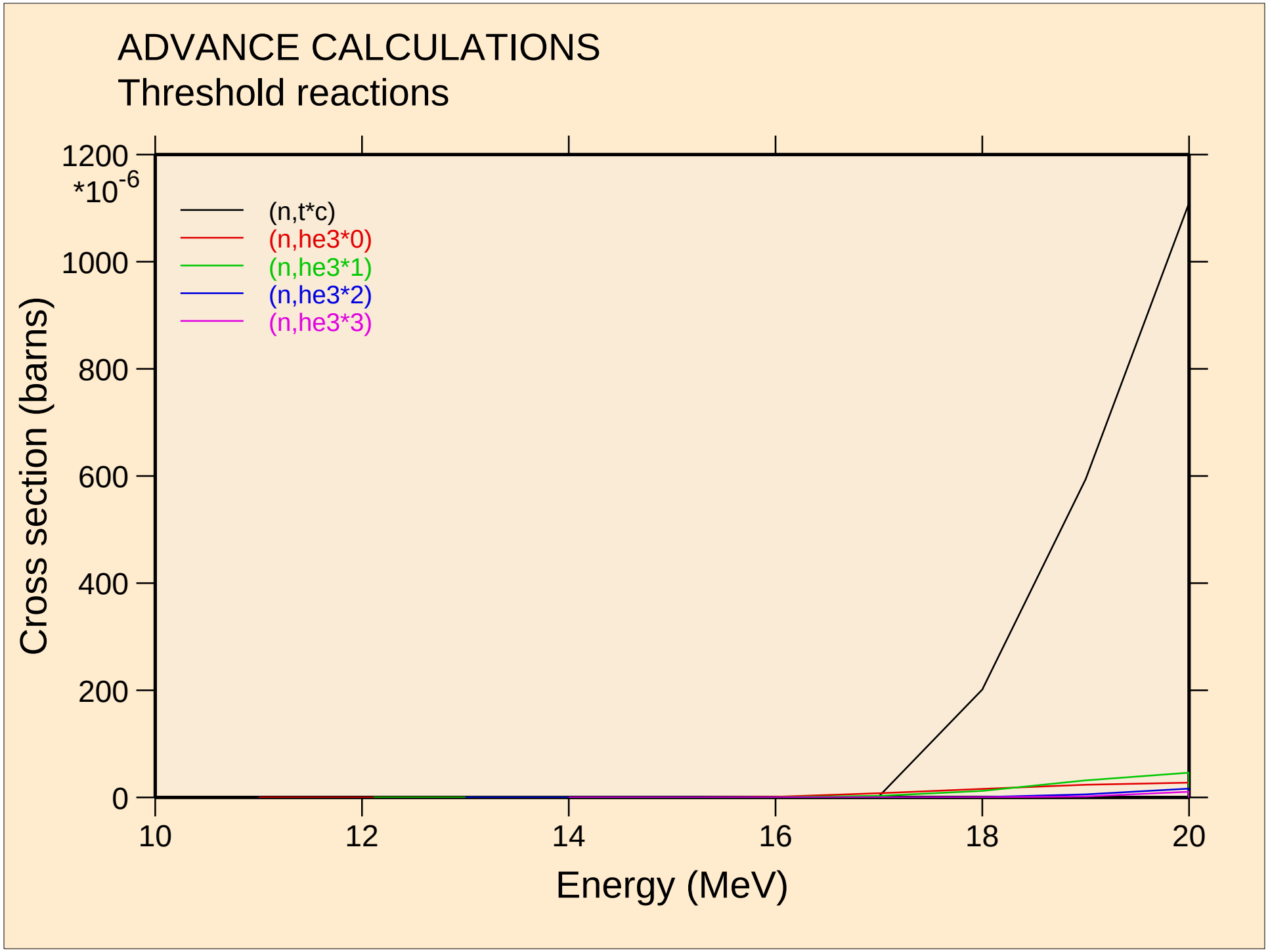
ADVANCE CALCULATIONS
Threshold reactions



ADVANCE CALCULATIONS

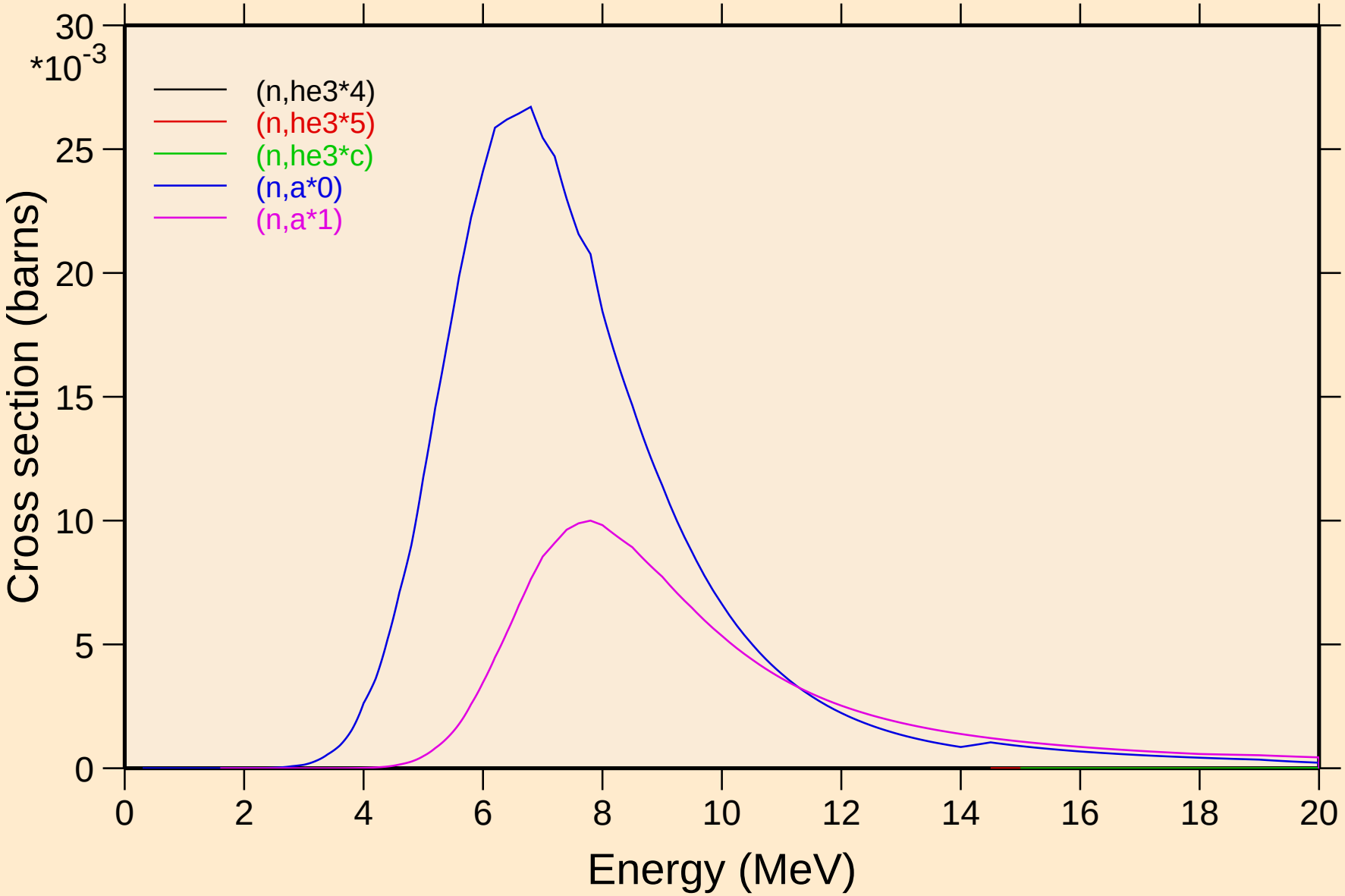
Threshold reactions




ADVANCE CALCULATIONS
Threshold reactions
1200
*10-6
1000
800
600
400
200
0
Cross section (barns)
(n,t*c)
(n,he3*0)
(n,he3*1)
(n,he3*2)
(n,he3*3)
10
12
14
16
18
20
Energy (MeV)

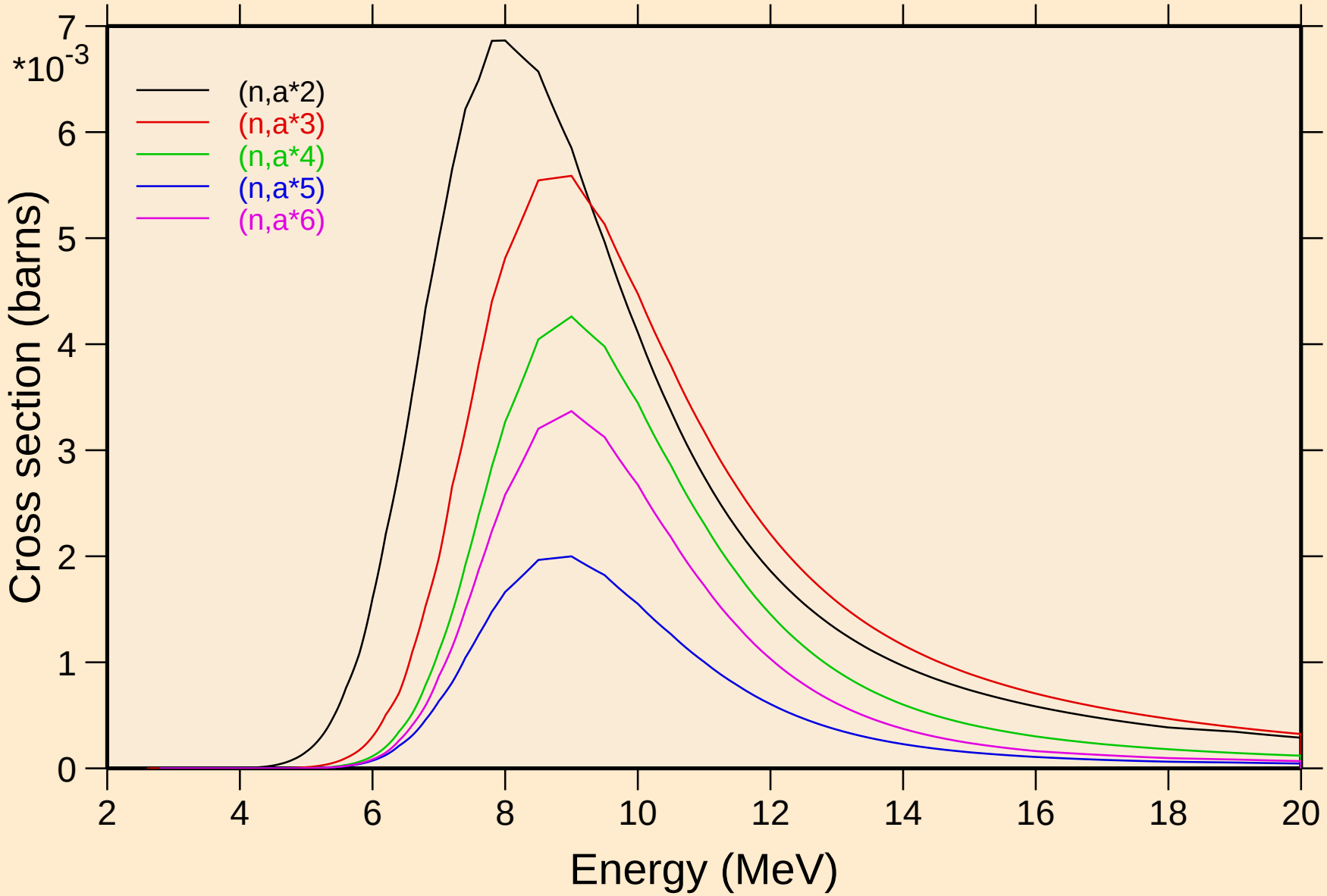
ADVANCE CALCULATIONS

Threshold reactions



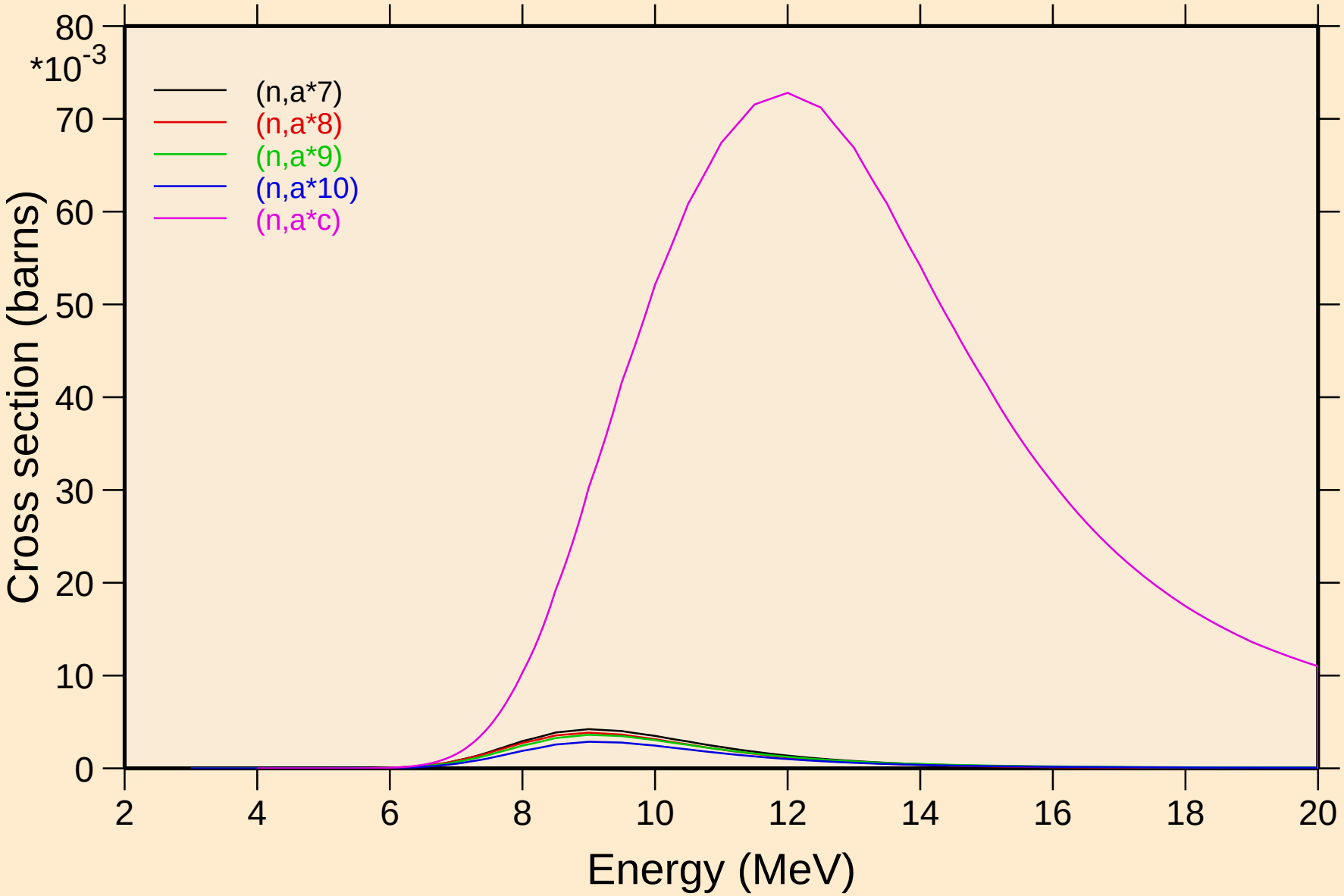
ADVANCE CALCULATIONS

Threshold reactions

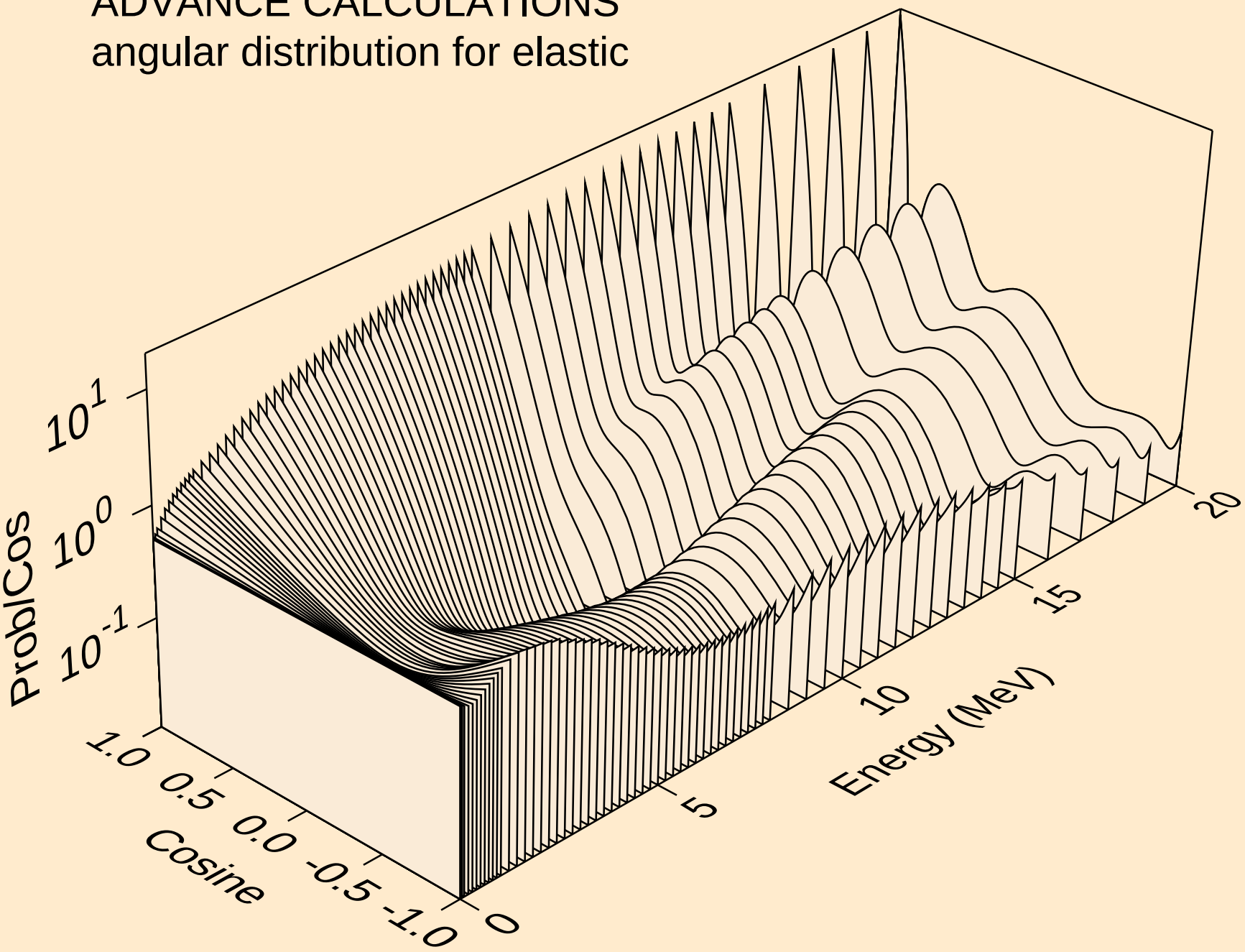


ADVANCE CALCULATIONS

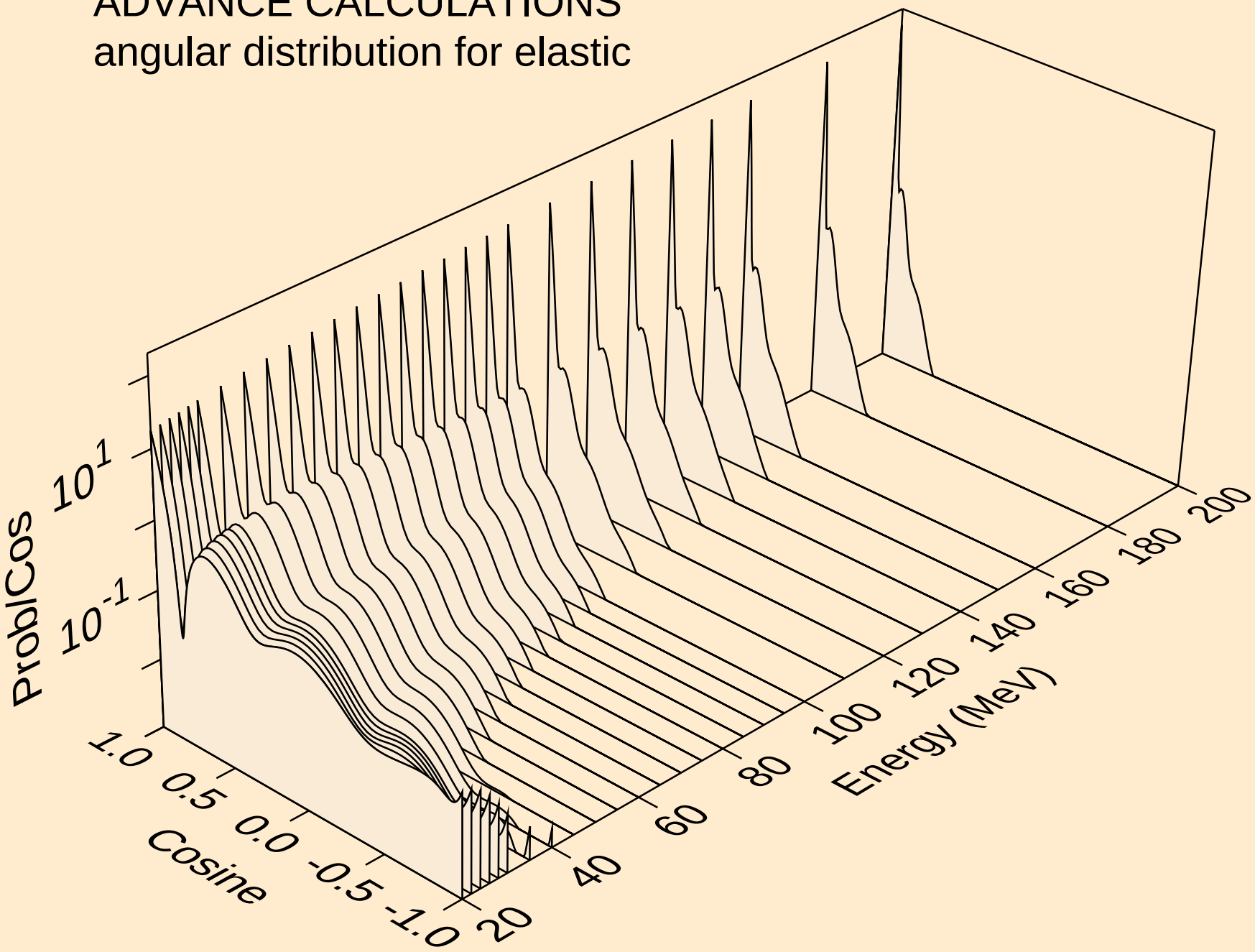
Threshold reactions



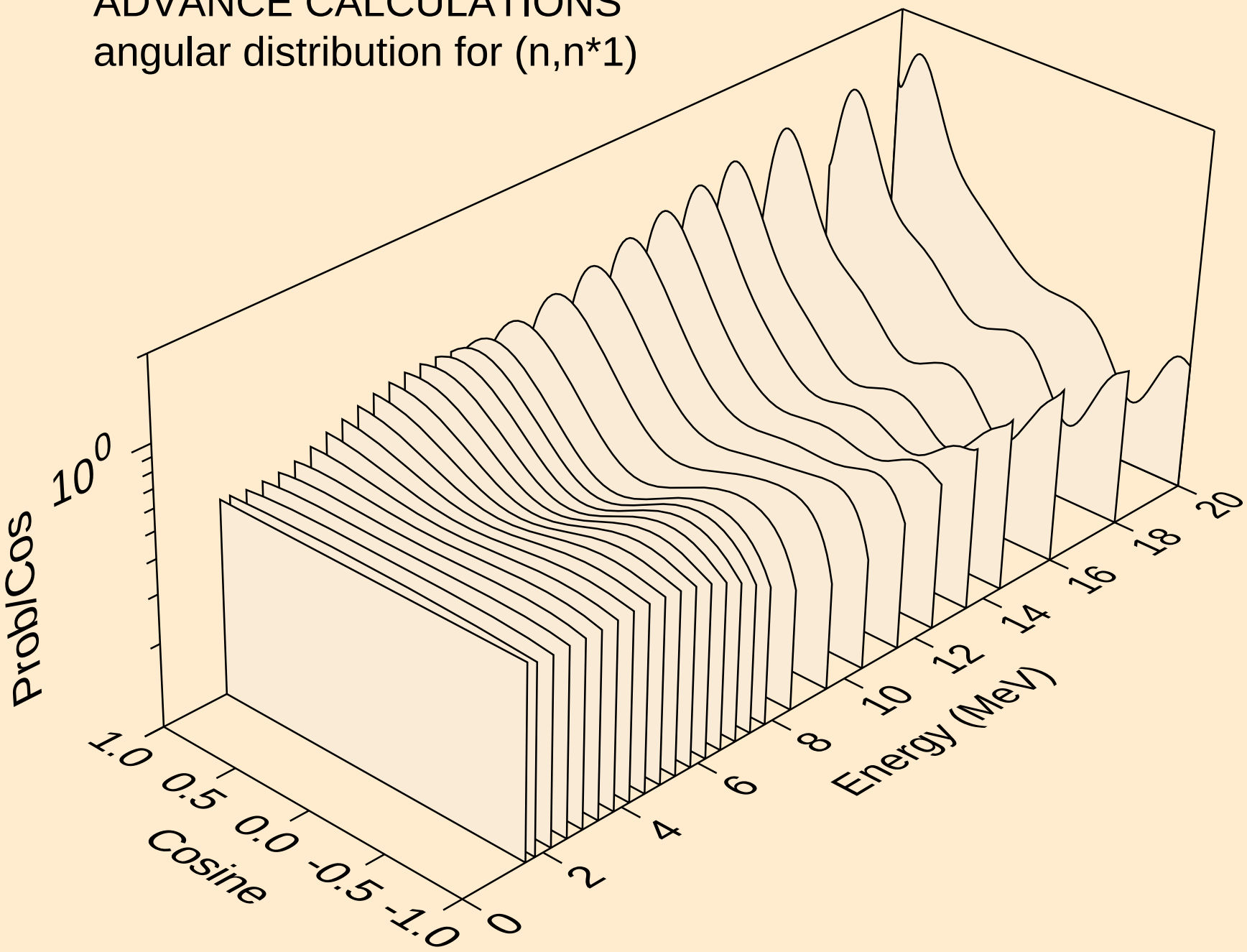
ADVANCE CALCULATIONS
angular distribution for elastic



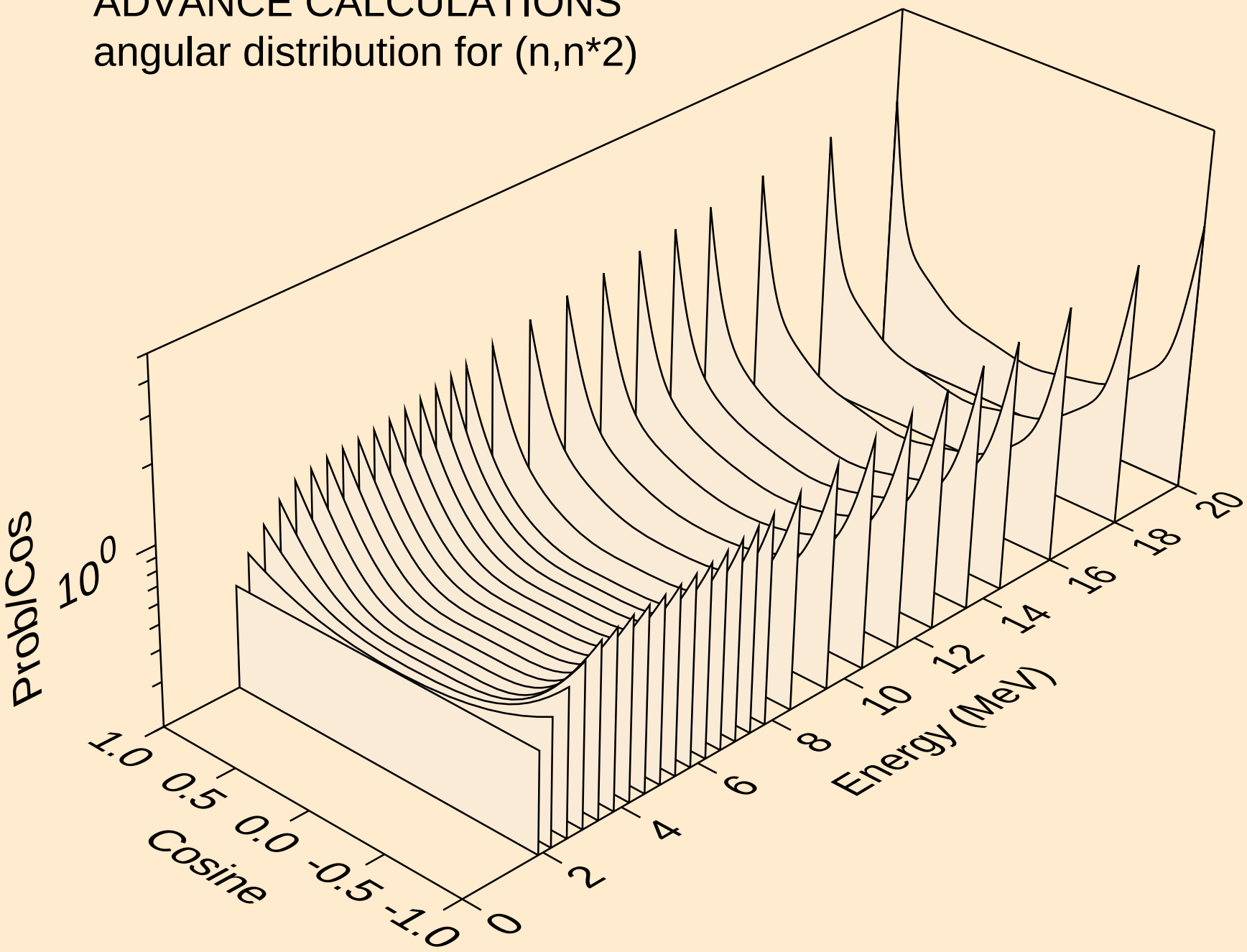
ADVANCE CALCULATIONS
angular distribution for elastic



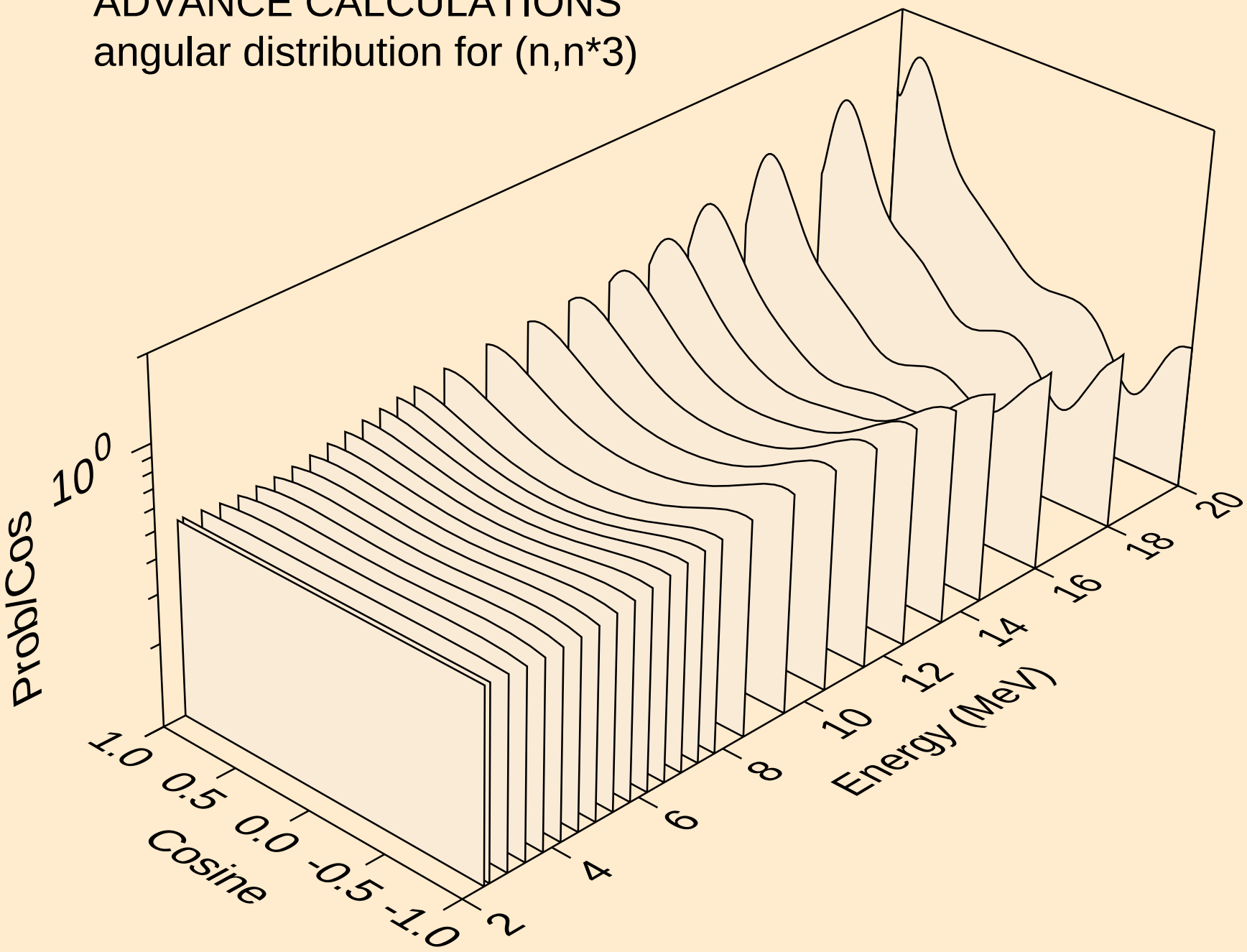
ADVANCE CALCULATIONS
angular distribution for (n,n*1)



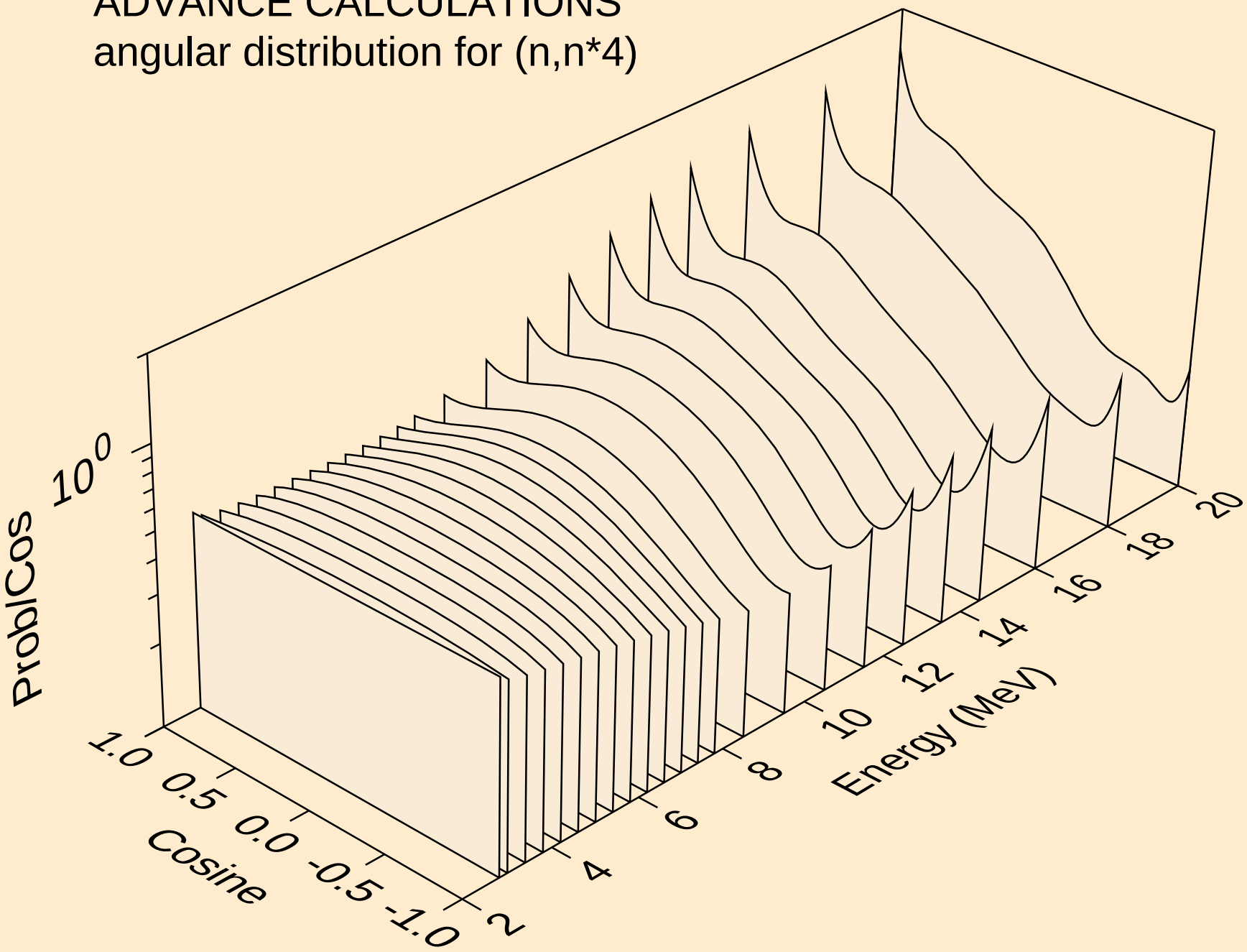
ADVANCE CALCULATIONS
angular distribution for (n,n*2)

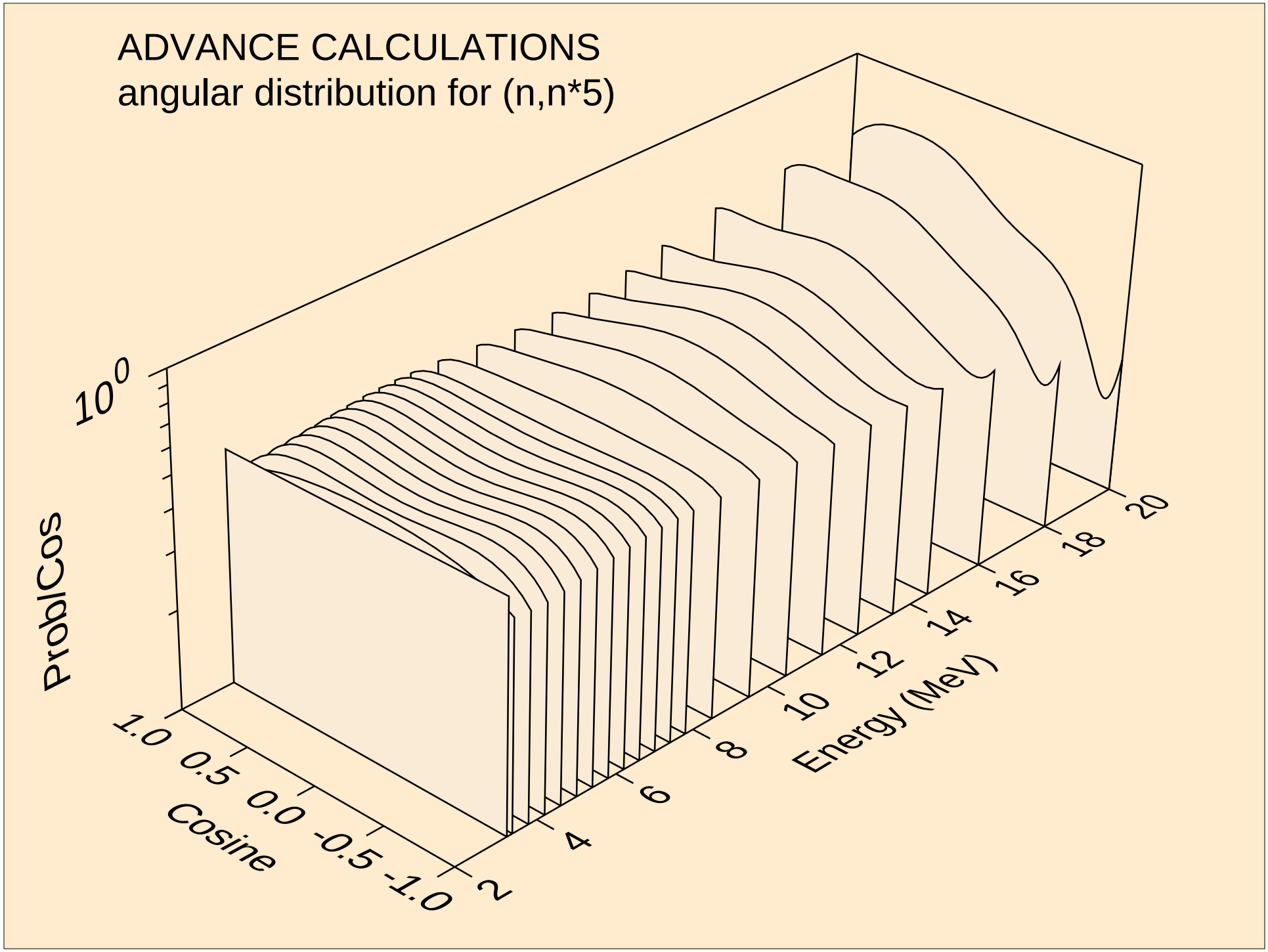


ADVANCE CALCULATIONS
angular distribution for (n,n*3)

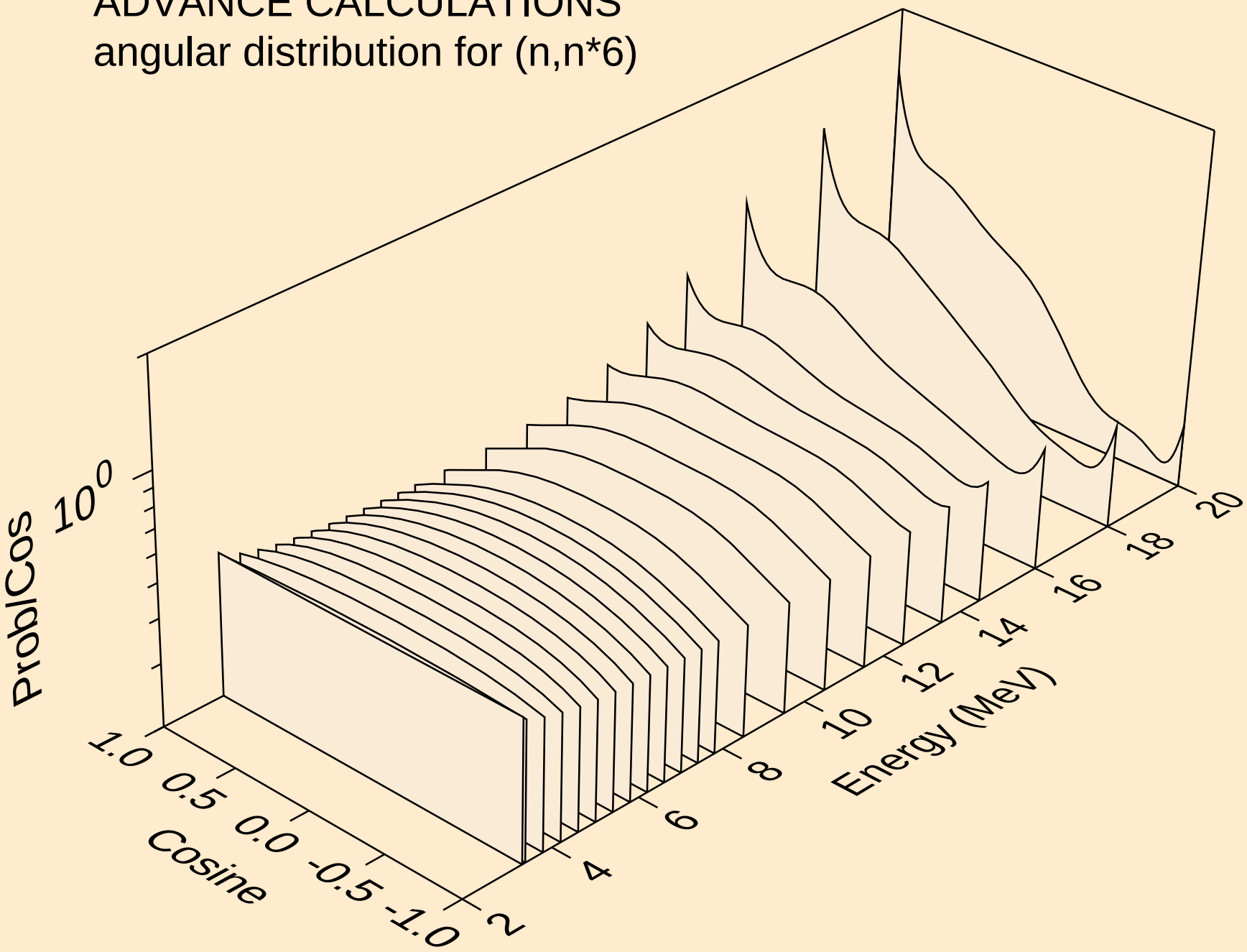


ADVANCE CALCULATIONS
angular distribution for (n,n*4)

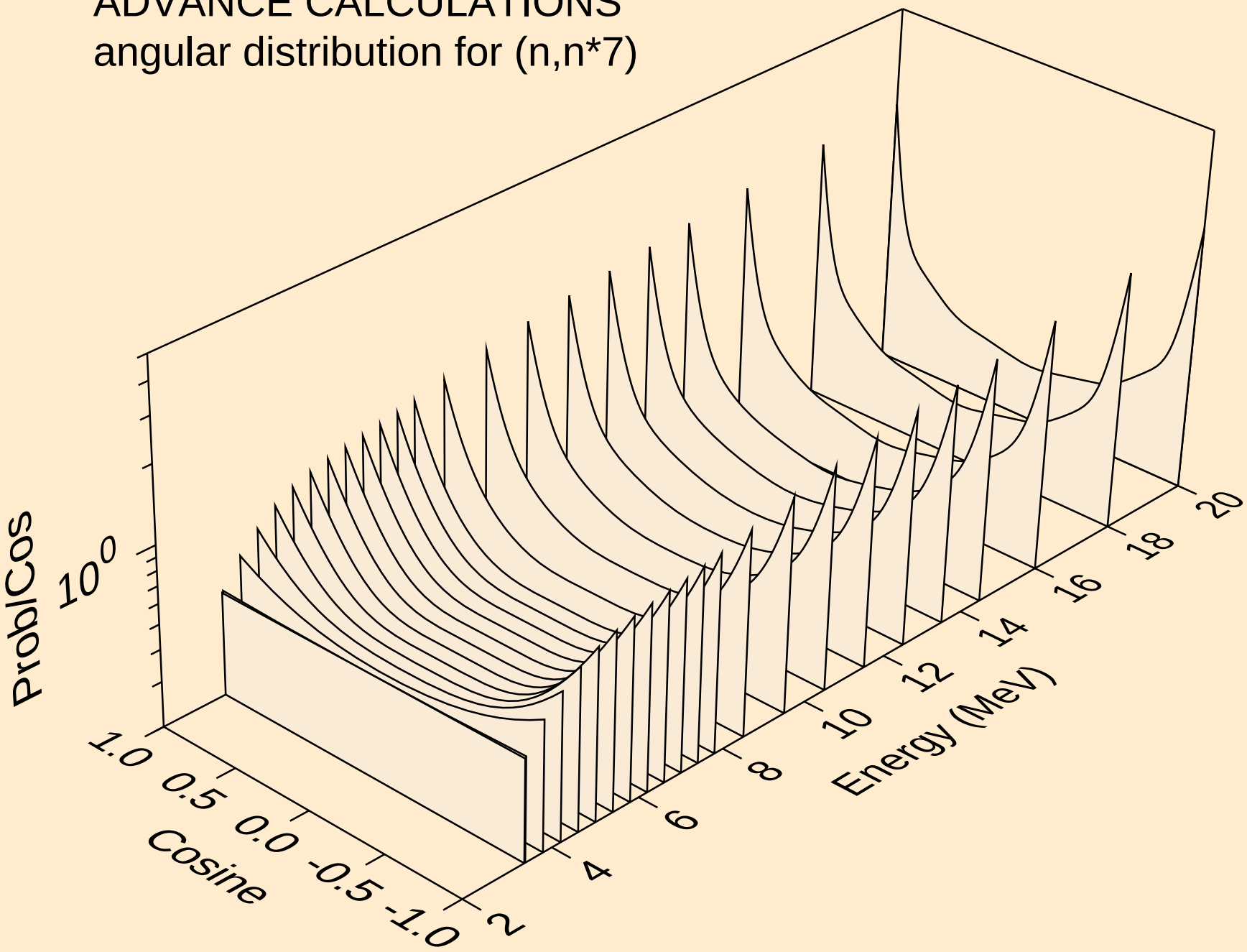



ADVANCE CALCULATIONS
angular distribution for (n,n*5)
10^0
ProblCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

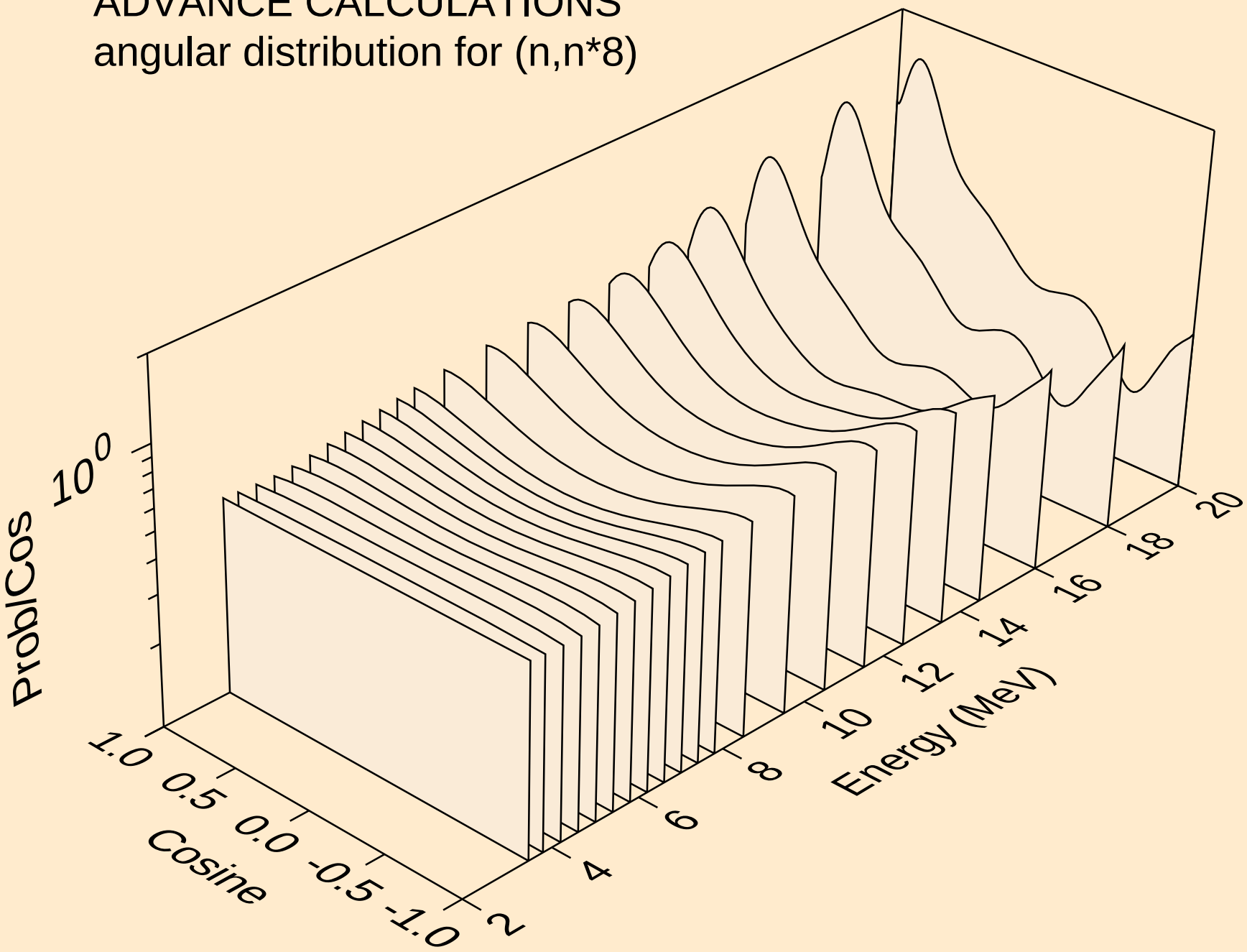
ADVANCE CALCULATIONS
angular distribution for (n,n*6)



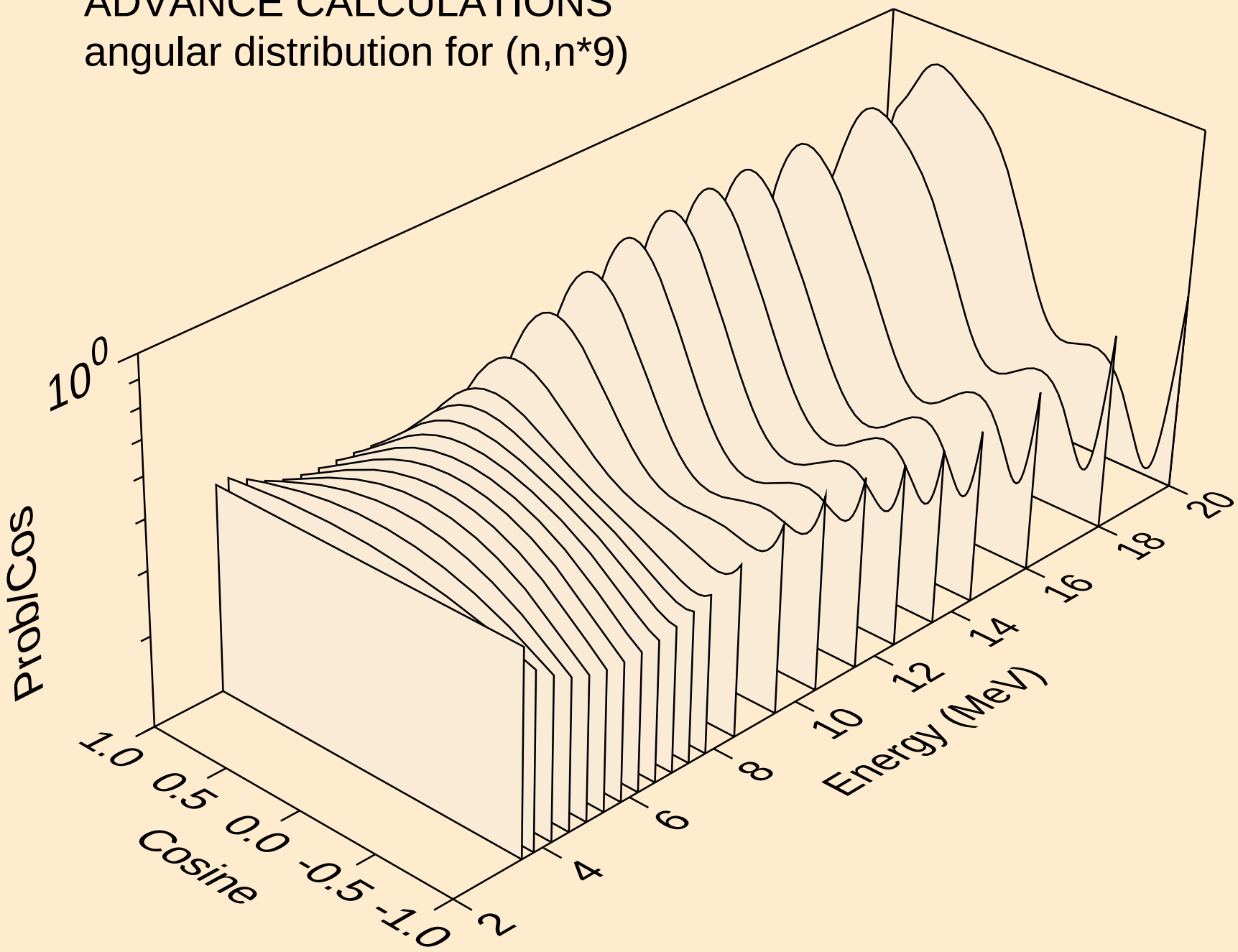
ADVANCE CALCULATIONS
angular distribution for (n,n*7)



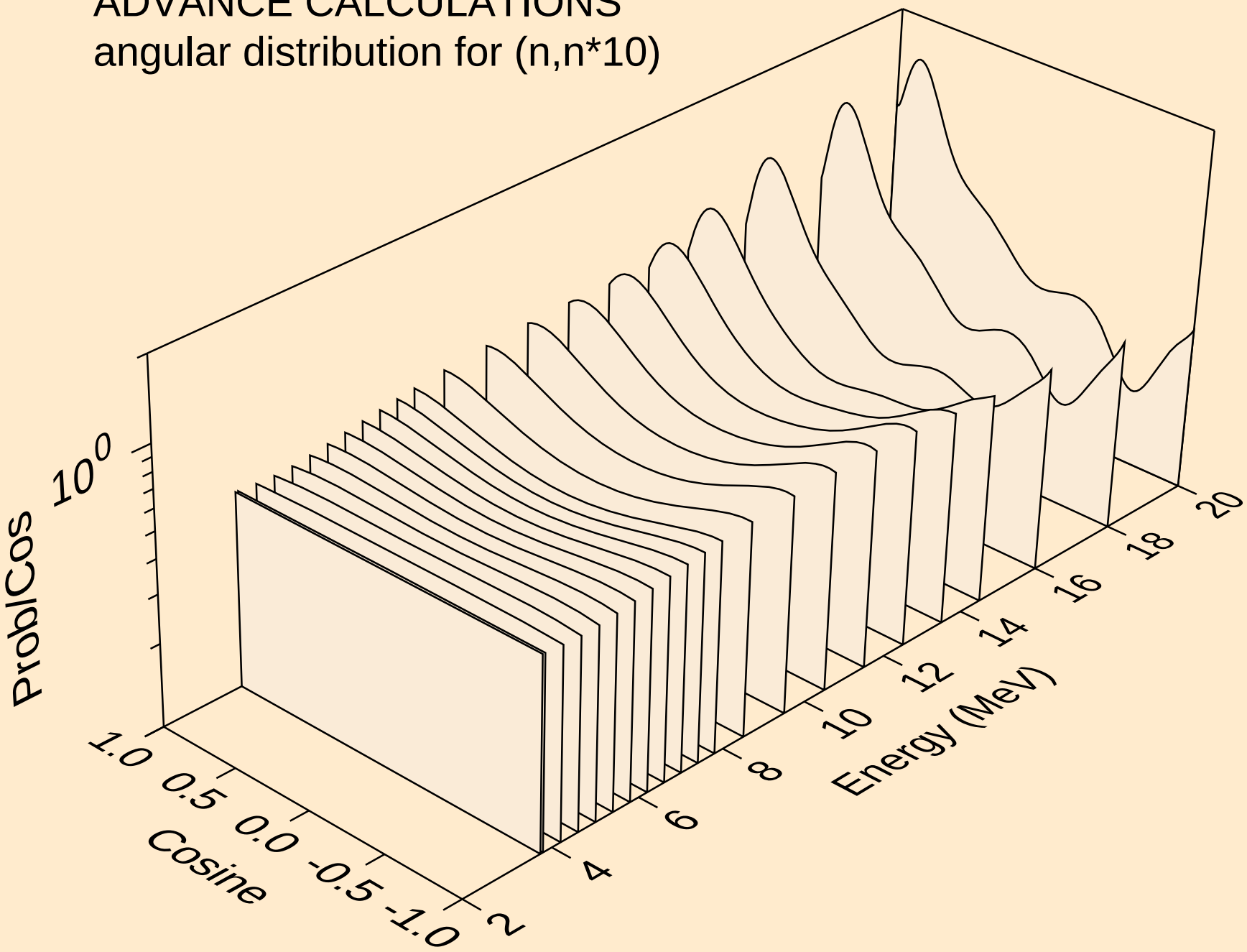
ADVANCE CALCULATIONS
angular distribution for (n,n*8)



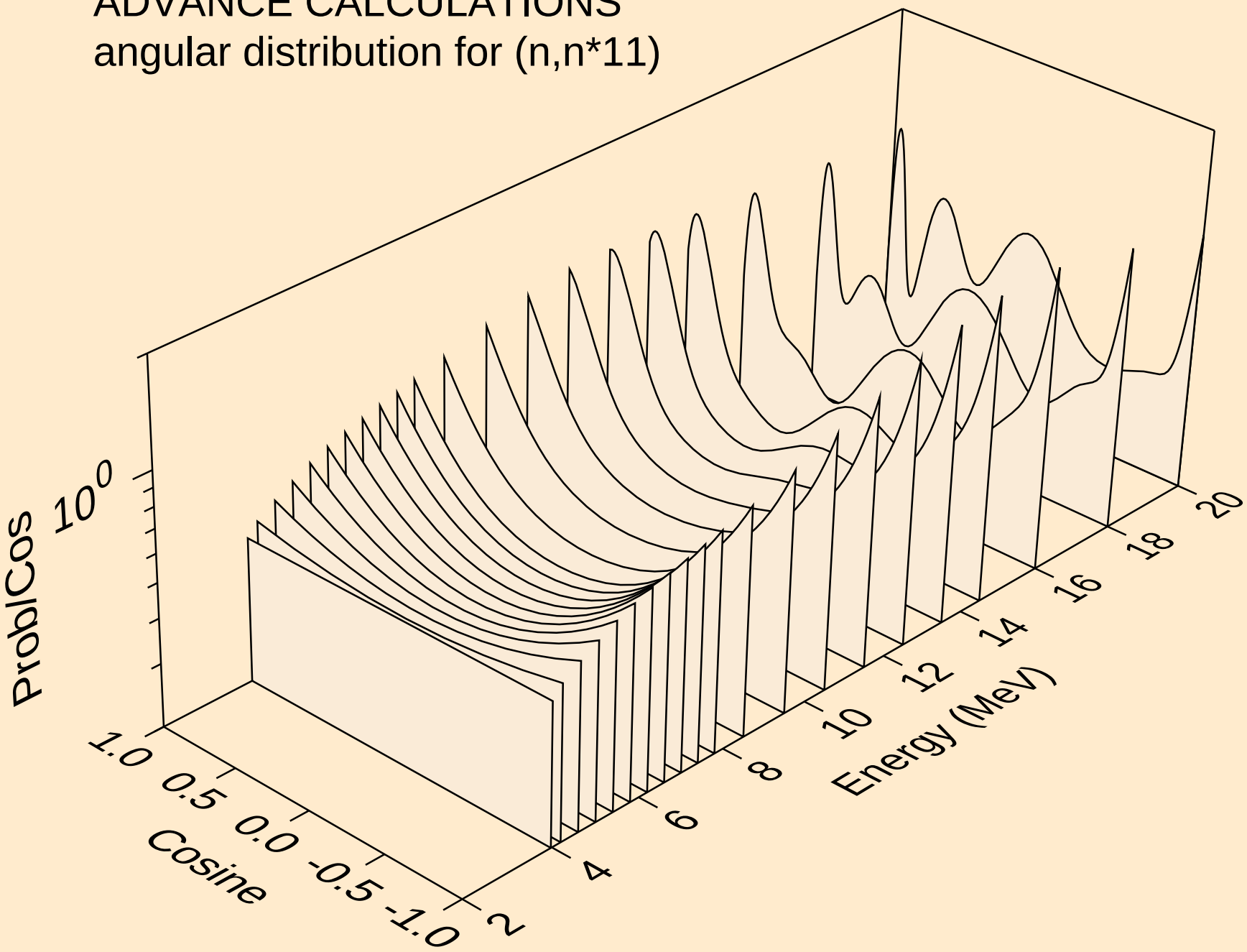
ADVANCE CALCULATIONS
angular distribution for (n,n*9)



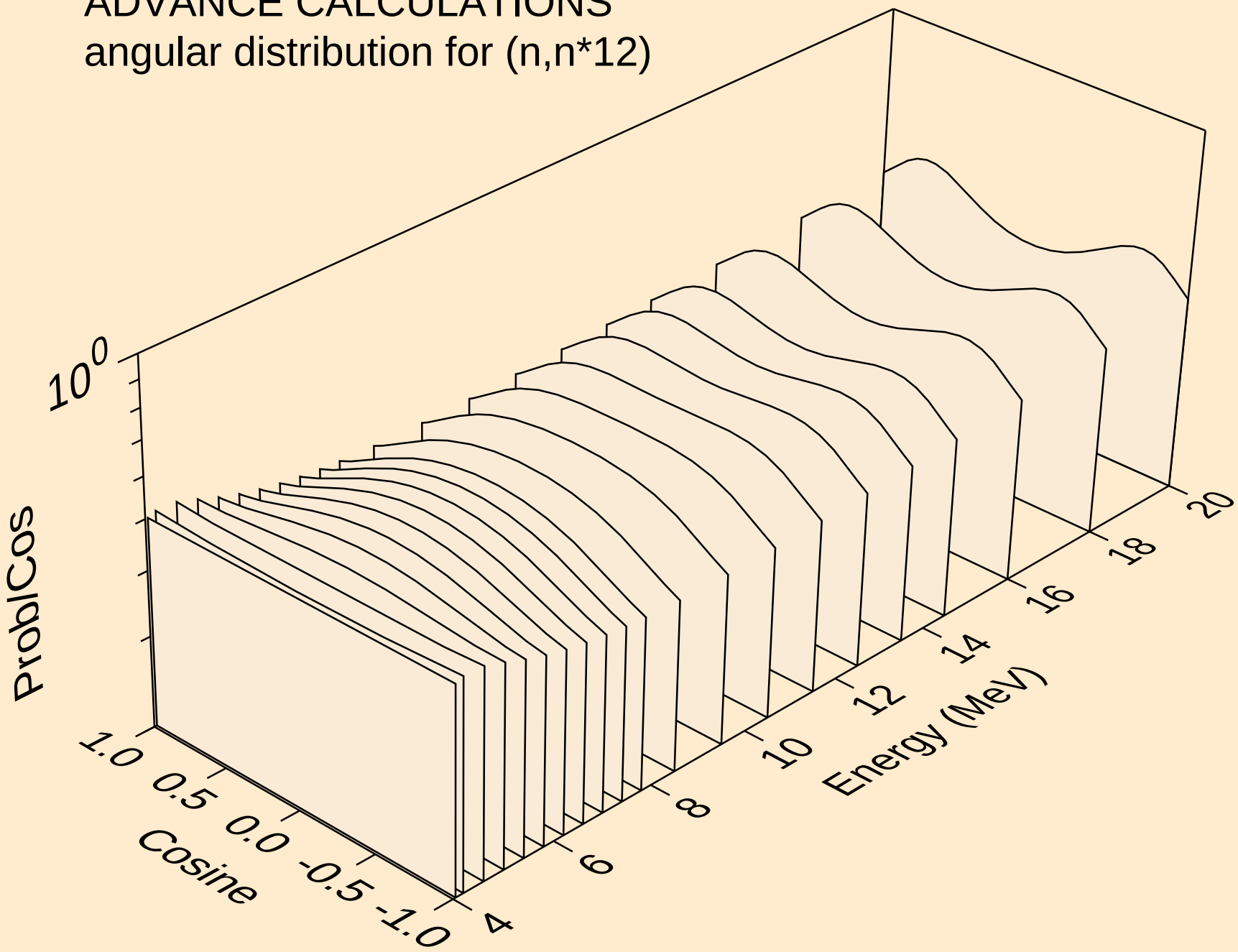
ADVANCE CALCULATIONS
angular distribution for (n,n*10)



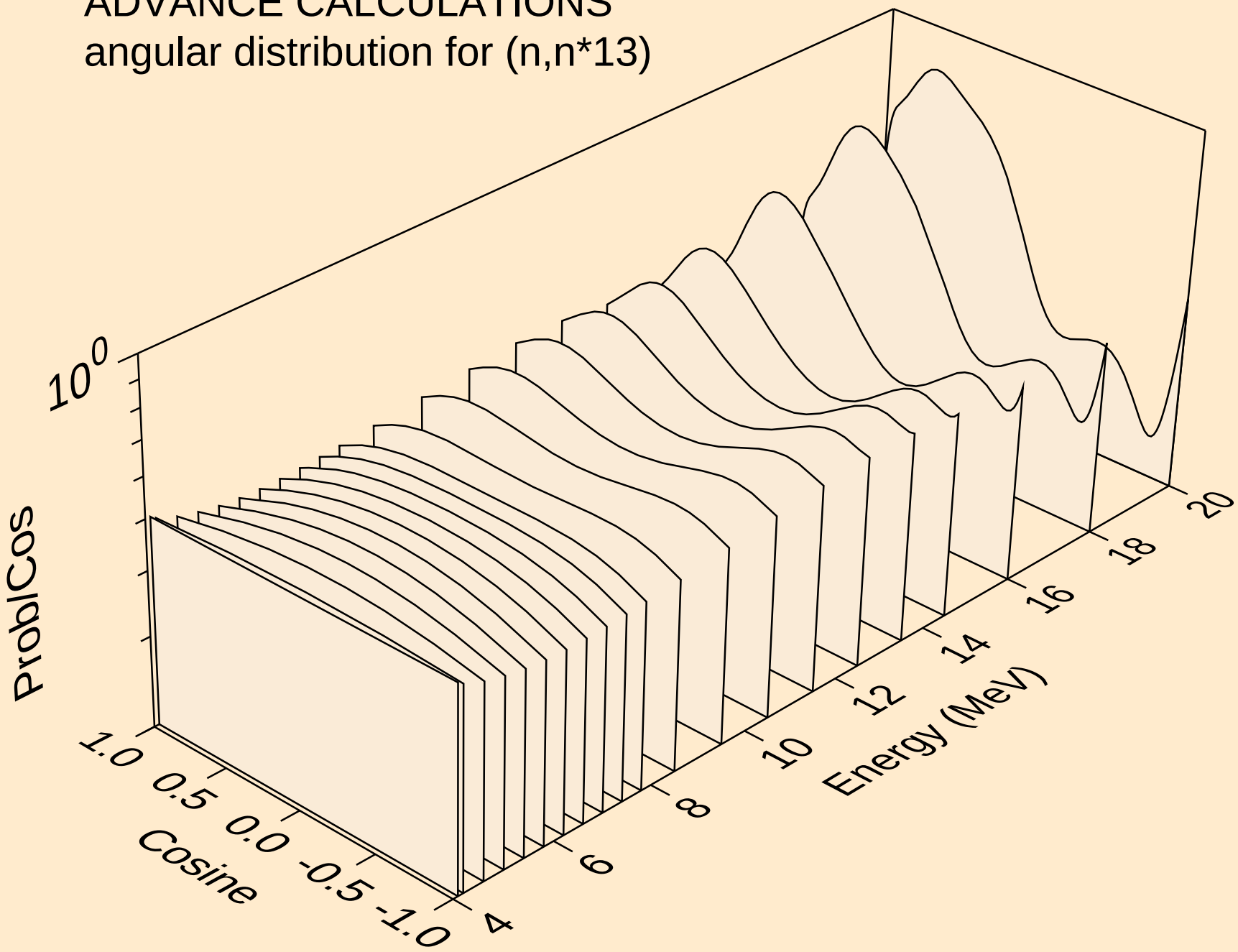
ADVANCE CALCULATIONS
angular distribution for (n,n*11)



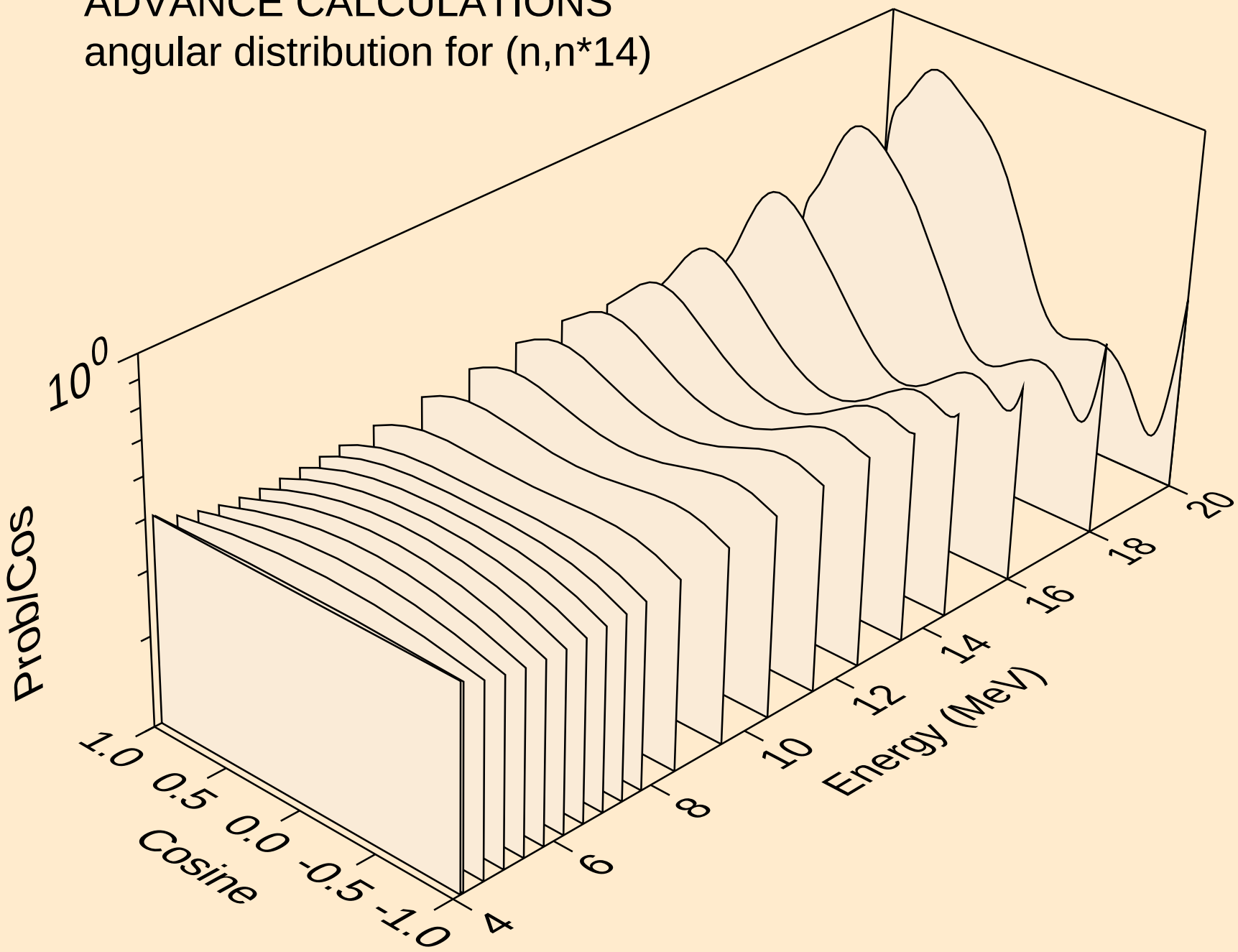
ADVANCE CALCULATIONS
angular distribution for (n,n*12)

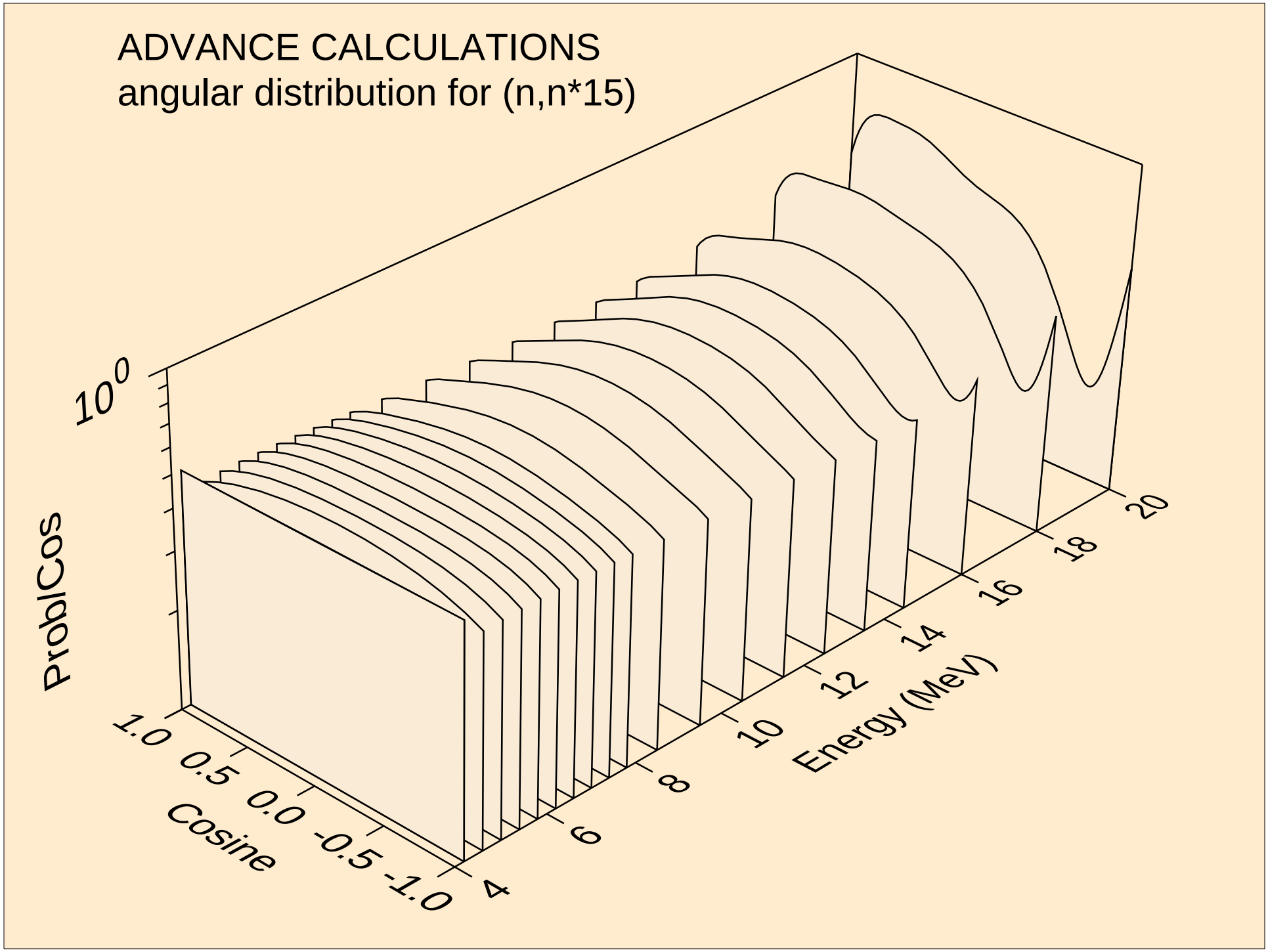


ADVANCE CALCULATIONS
angular distribution for (n,n*13)

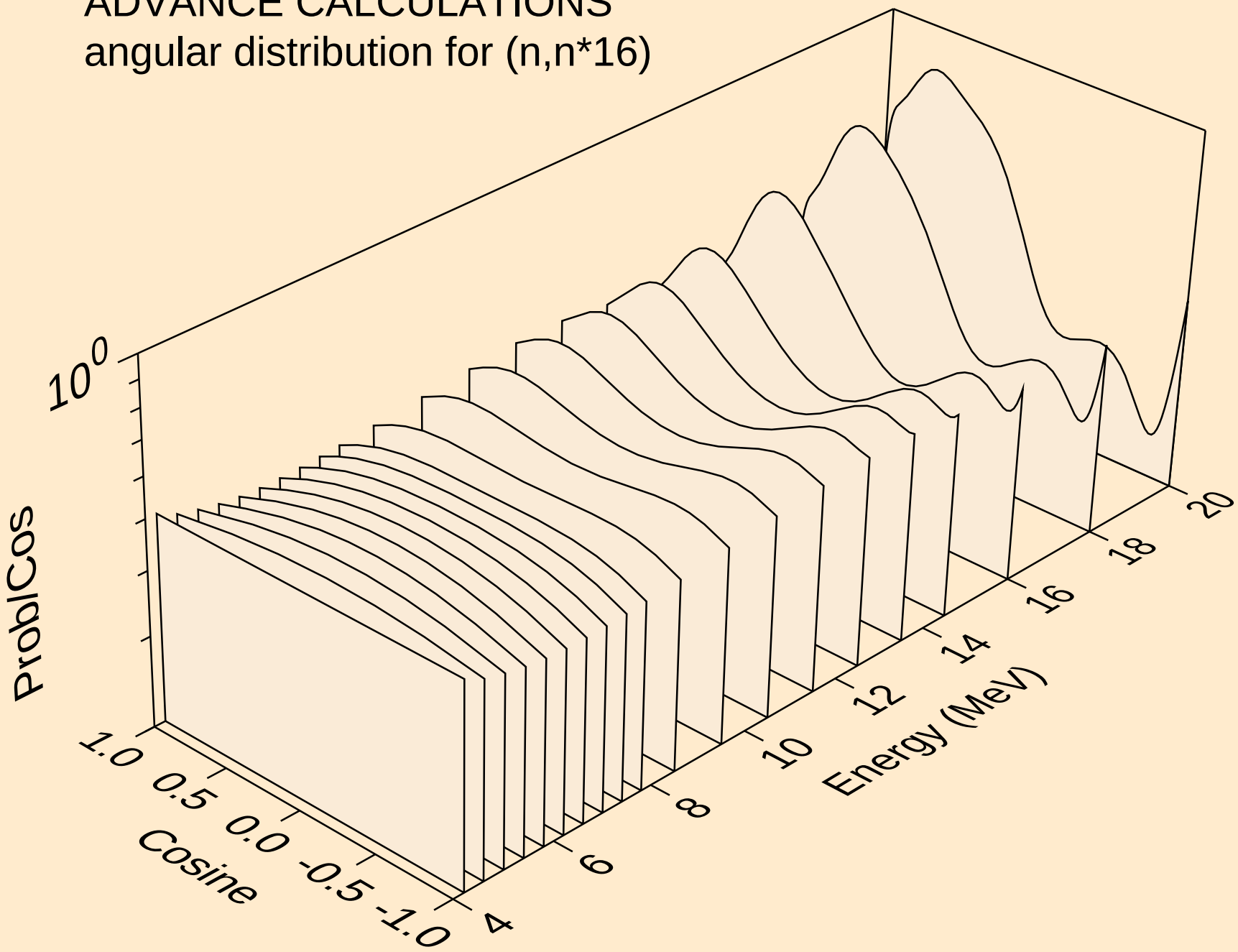


ADVANCE CALCULATIONS
angular distribution for (n,n*14)

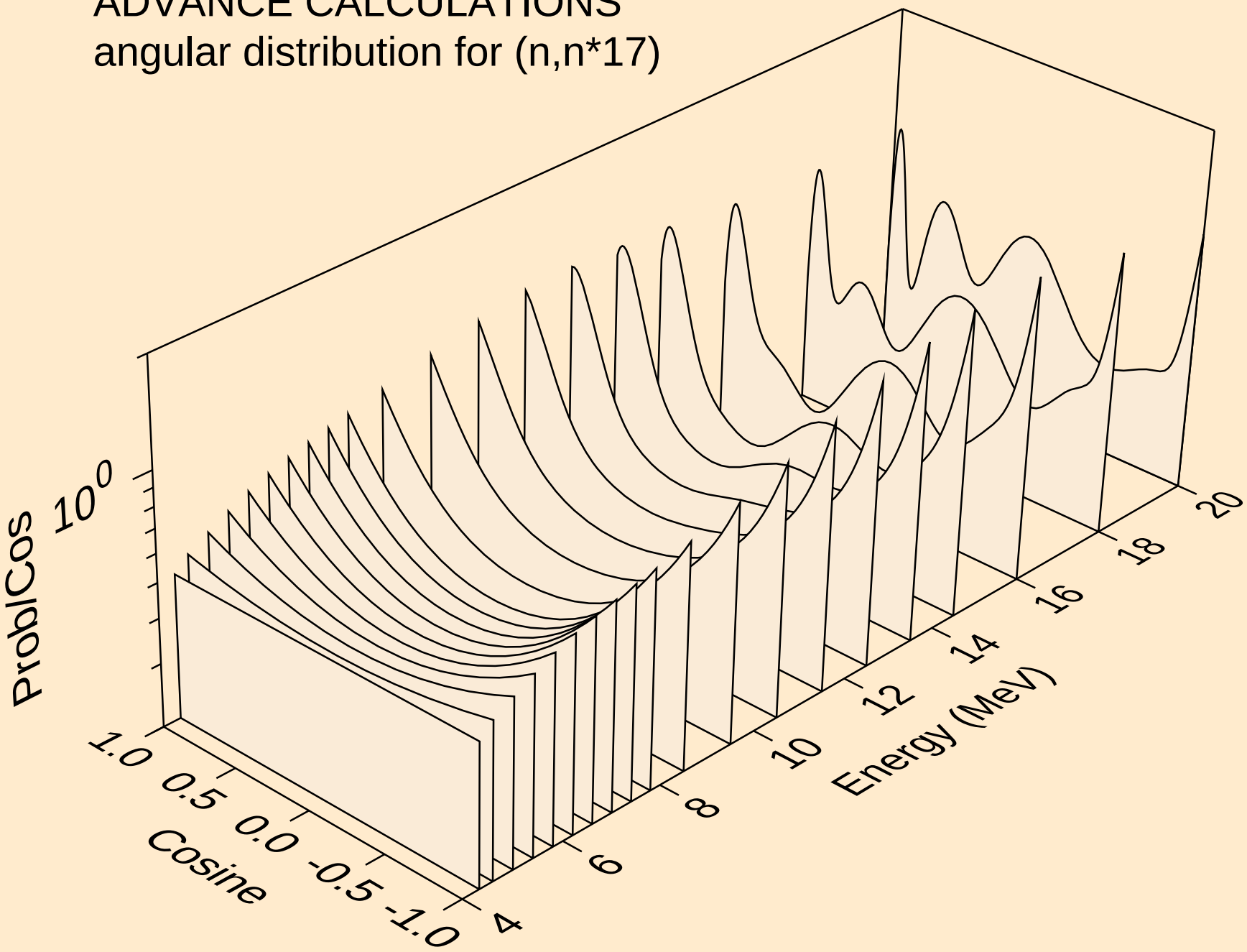



ADVANCE CALCULATIONS
angular distribution for (n,n*15)
10^0
ProblCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

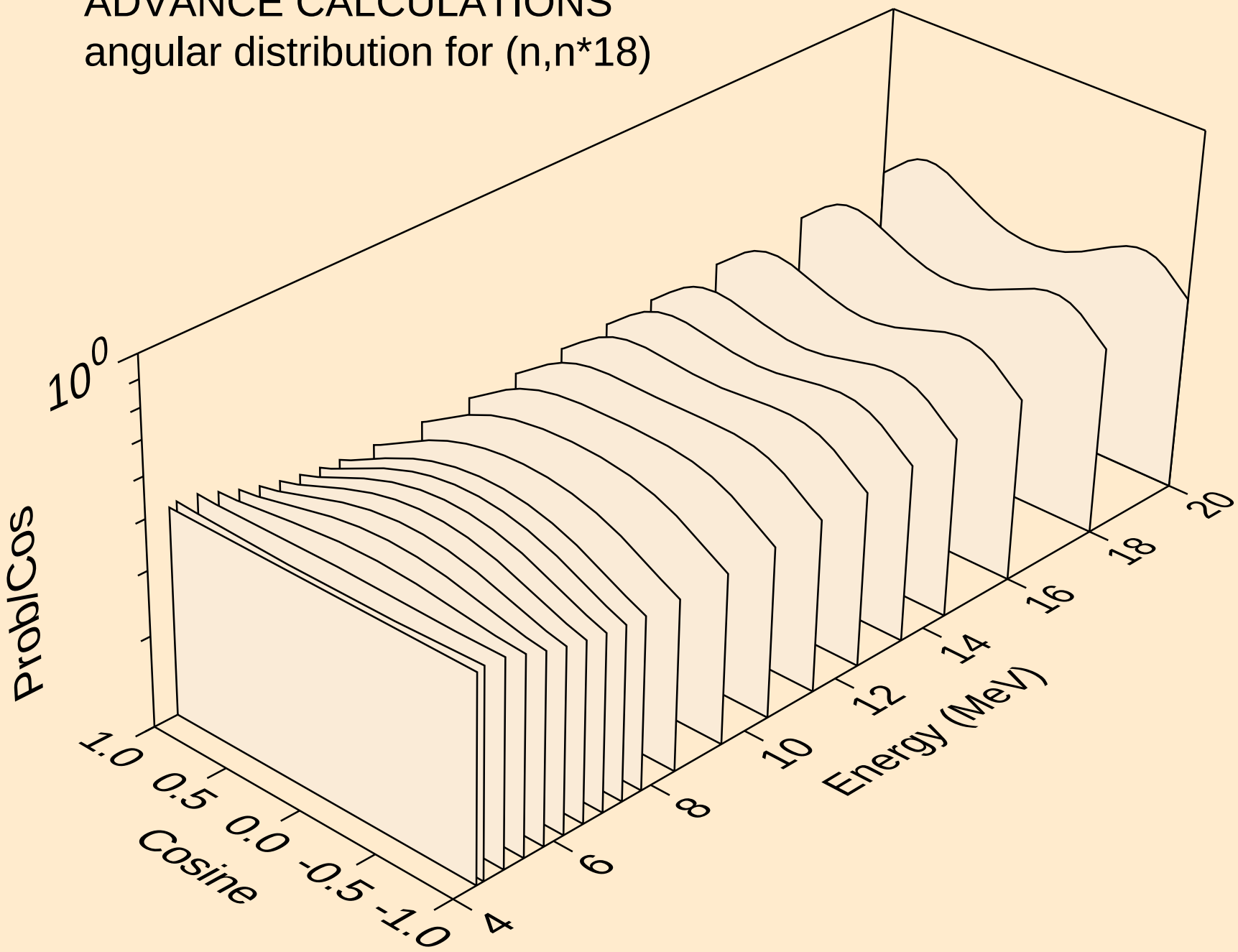
ADVANCE CALCULATIONS
angular distribution for (n,n*16)



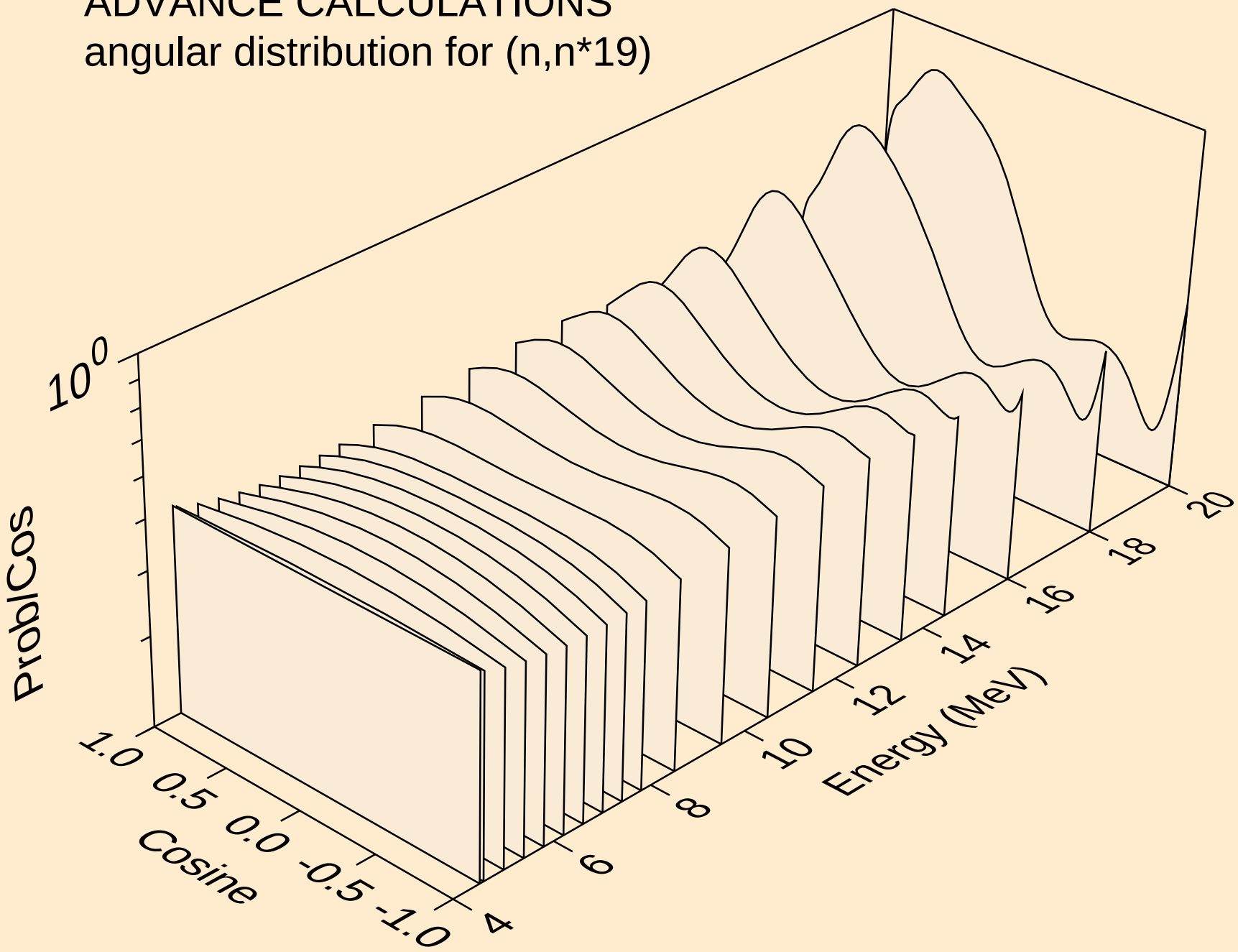
ADVANCE CALCULATIONS
angular distribution for (n,n*17)



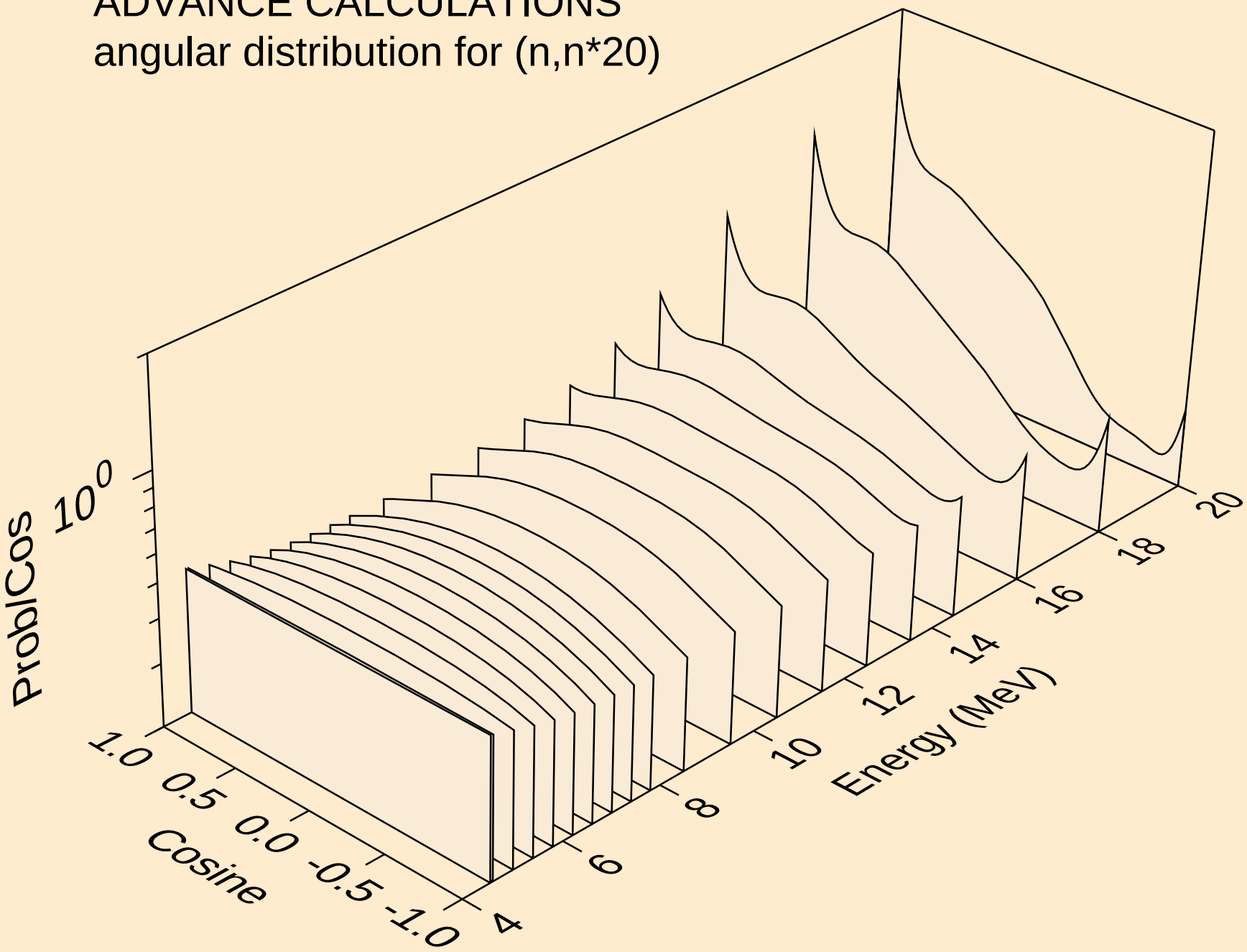
ADVANCE CALCULATIONS
angular distribution for (n,n*18)



ADVANCE CALCULATIONS
angular distribution for (n,n*19)

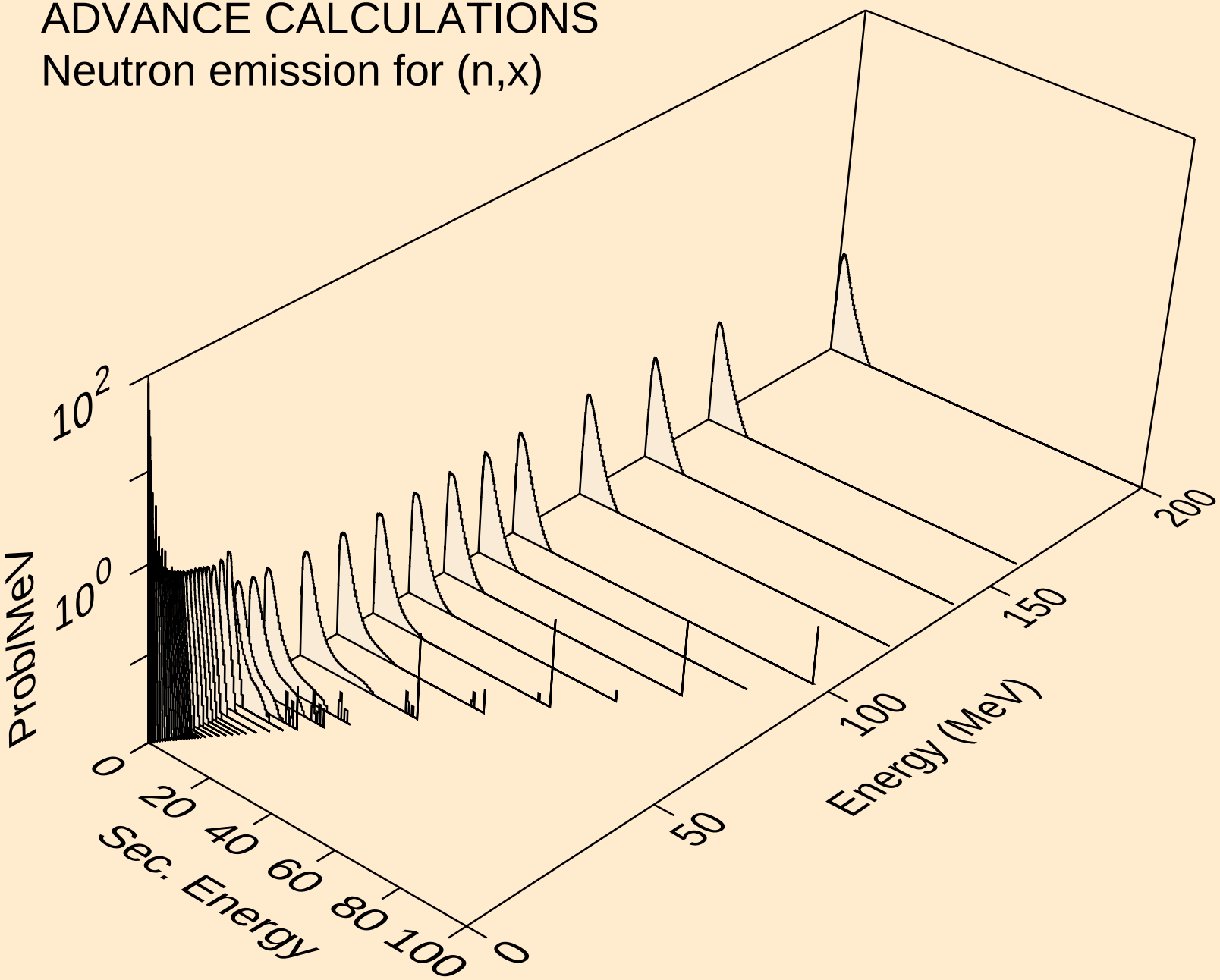


ADVANCE CALCULATIONS
angular distribution for (n,n*20)



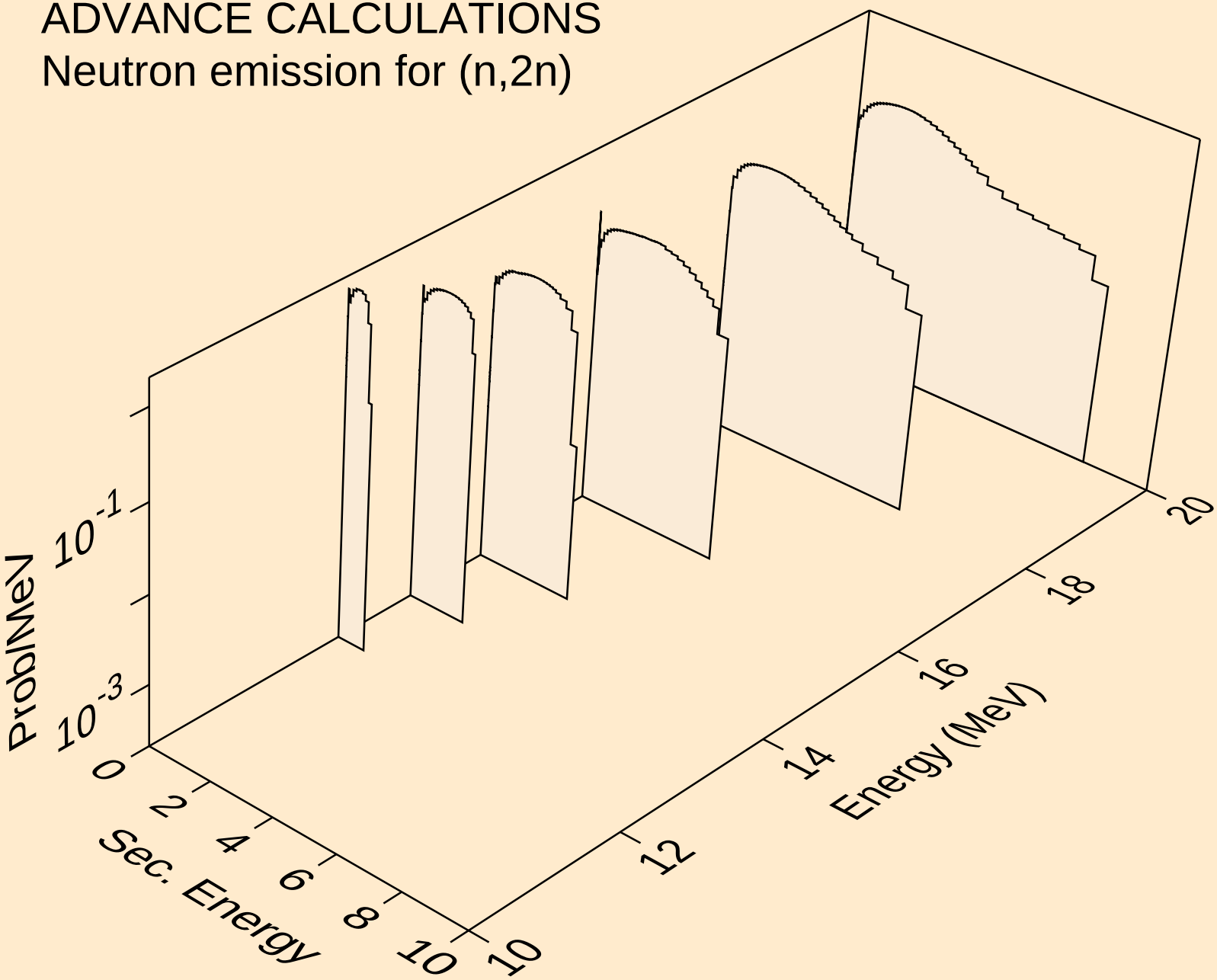
ADVANCE CALCULATIONS

Neutron emission for (n,x)



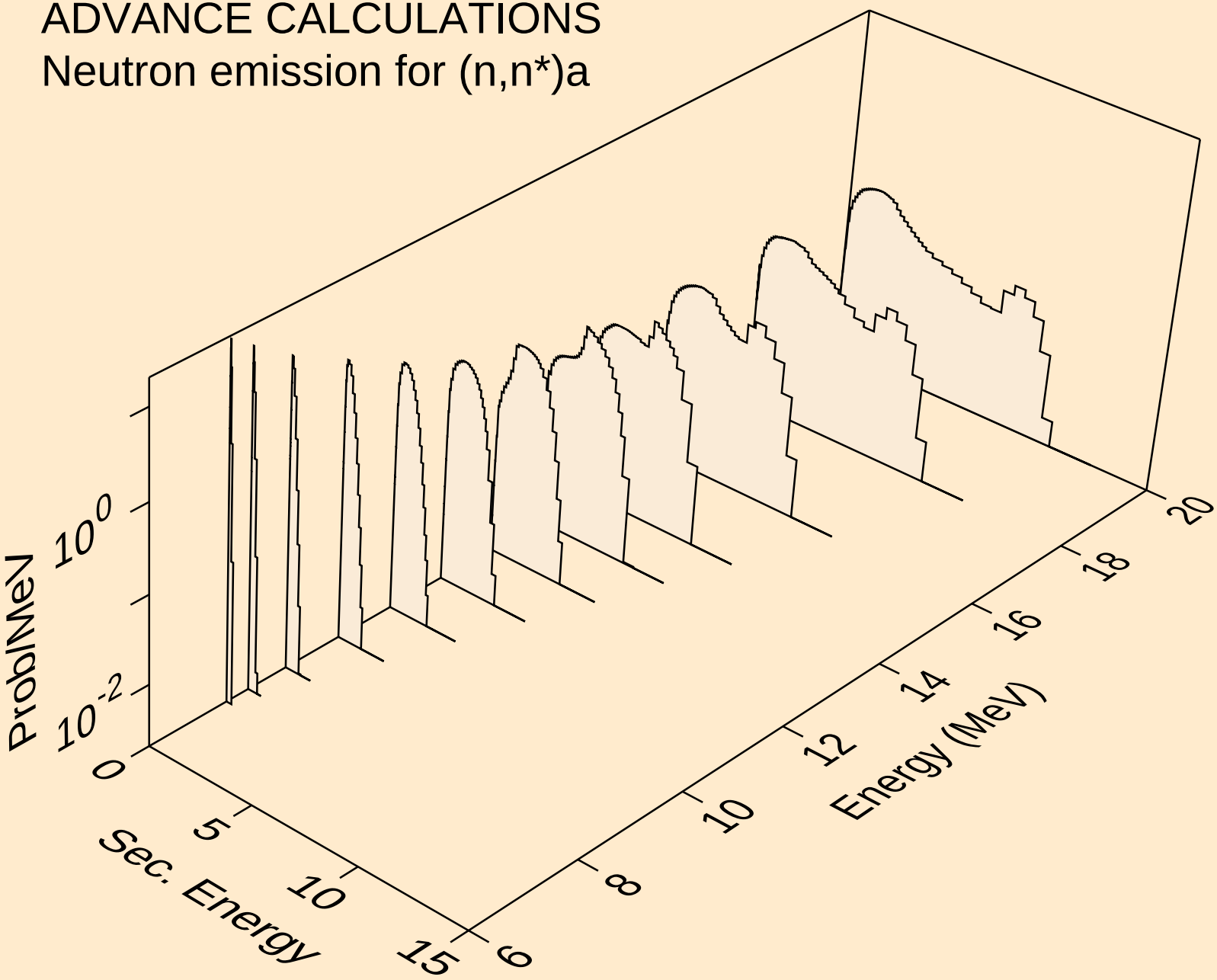
ADVANCE CALCULATIONS

Neutron emission for (n,2n)



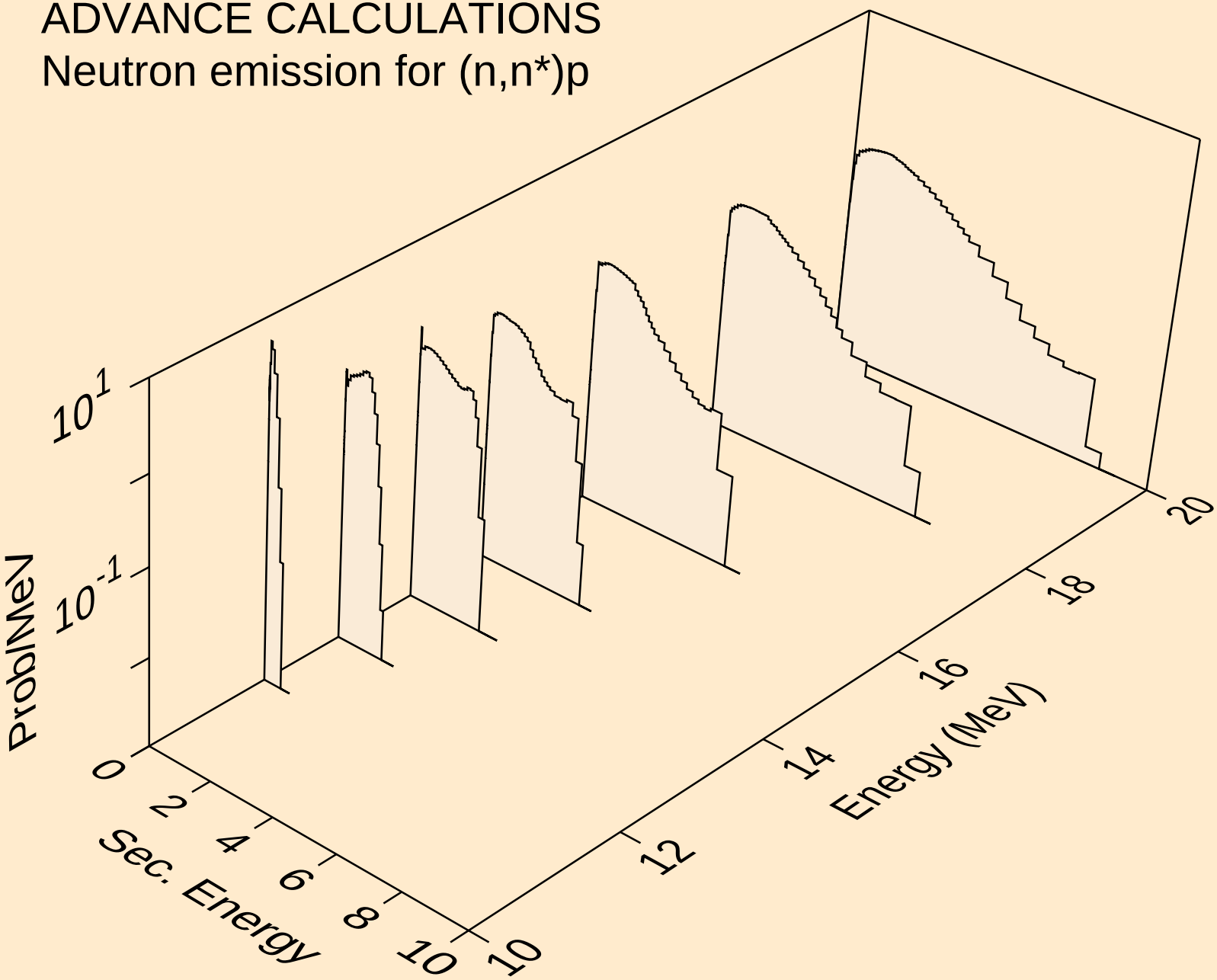
ADVANCE CALCULATIONS

Neutron emission for (n,n*)a



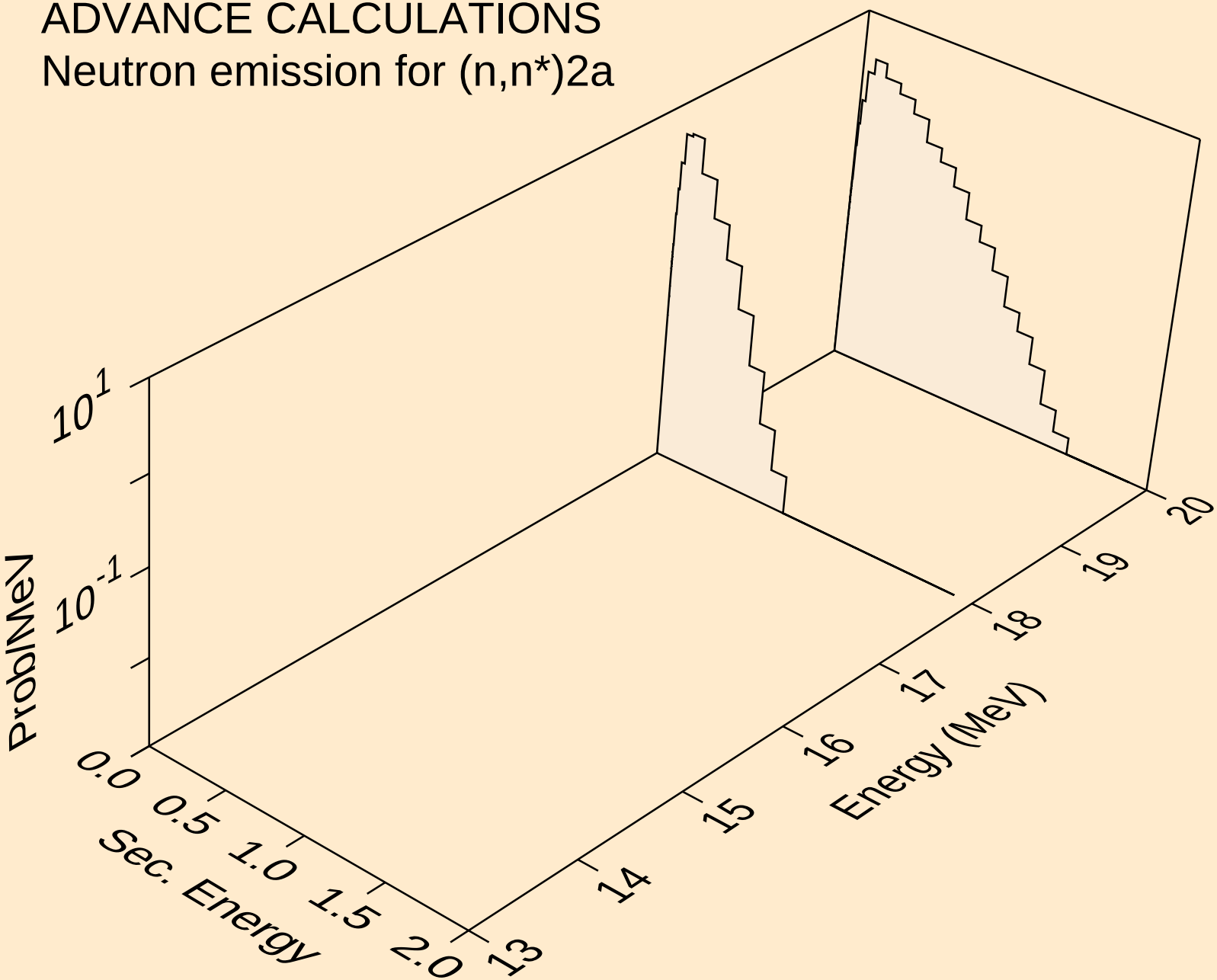
ADVANCE CALCULATIONS

Neutron emission for (n,n*)p



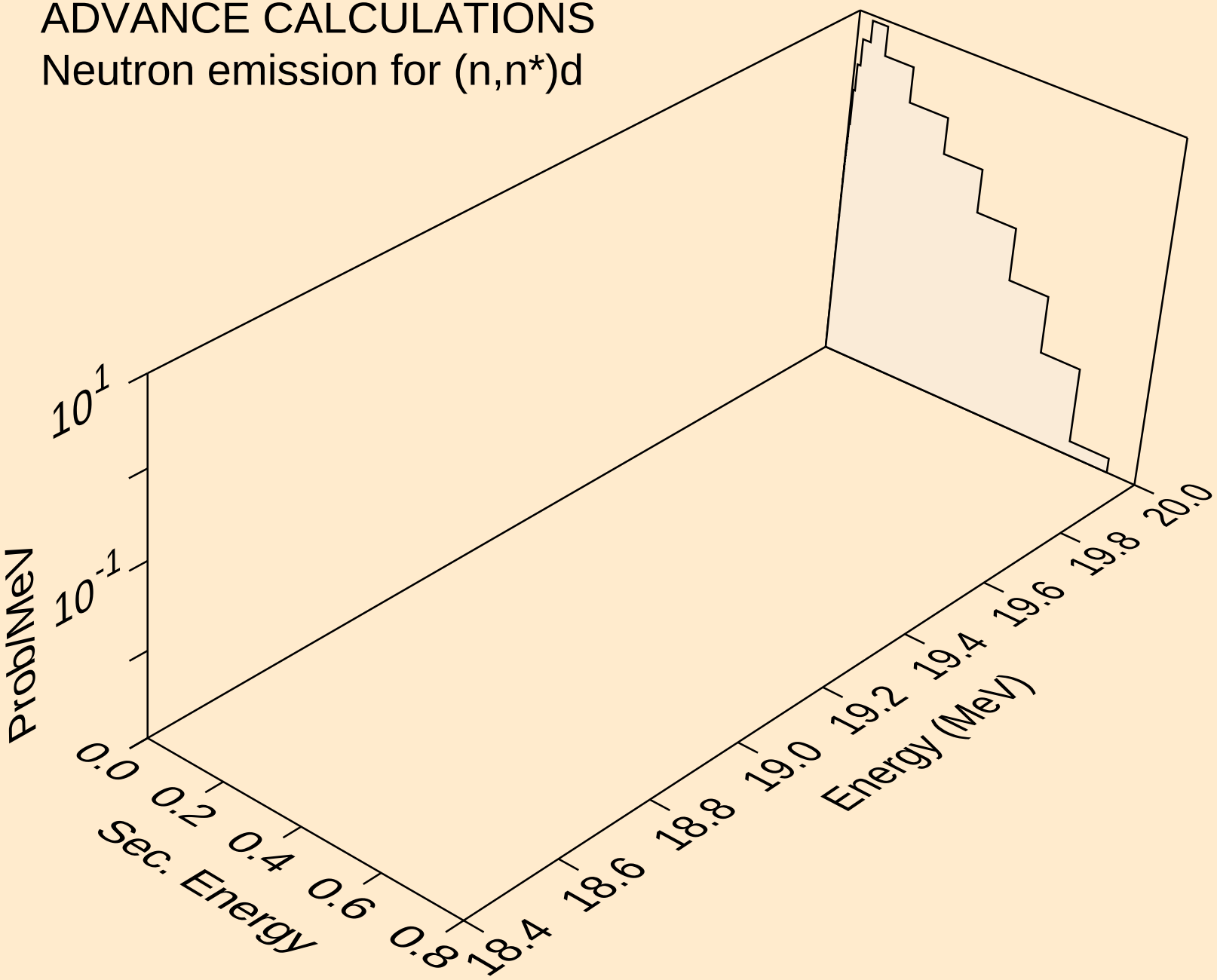
ADVANCE CALCULATIONS

Neutron emission for (n,n*)2a



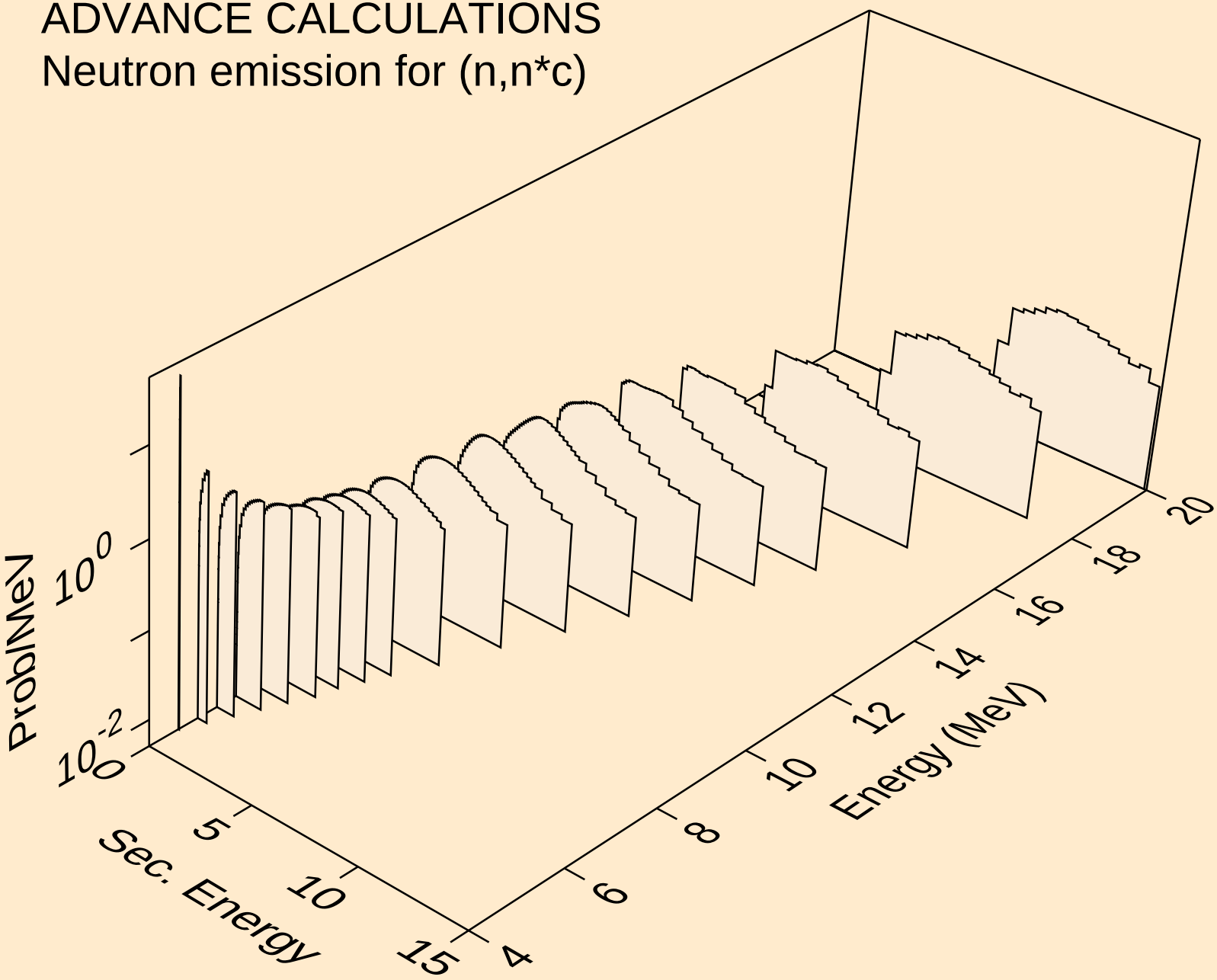
ADVANCE CALCULATIONS

Neutron emission for (n,n*)d



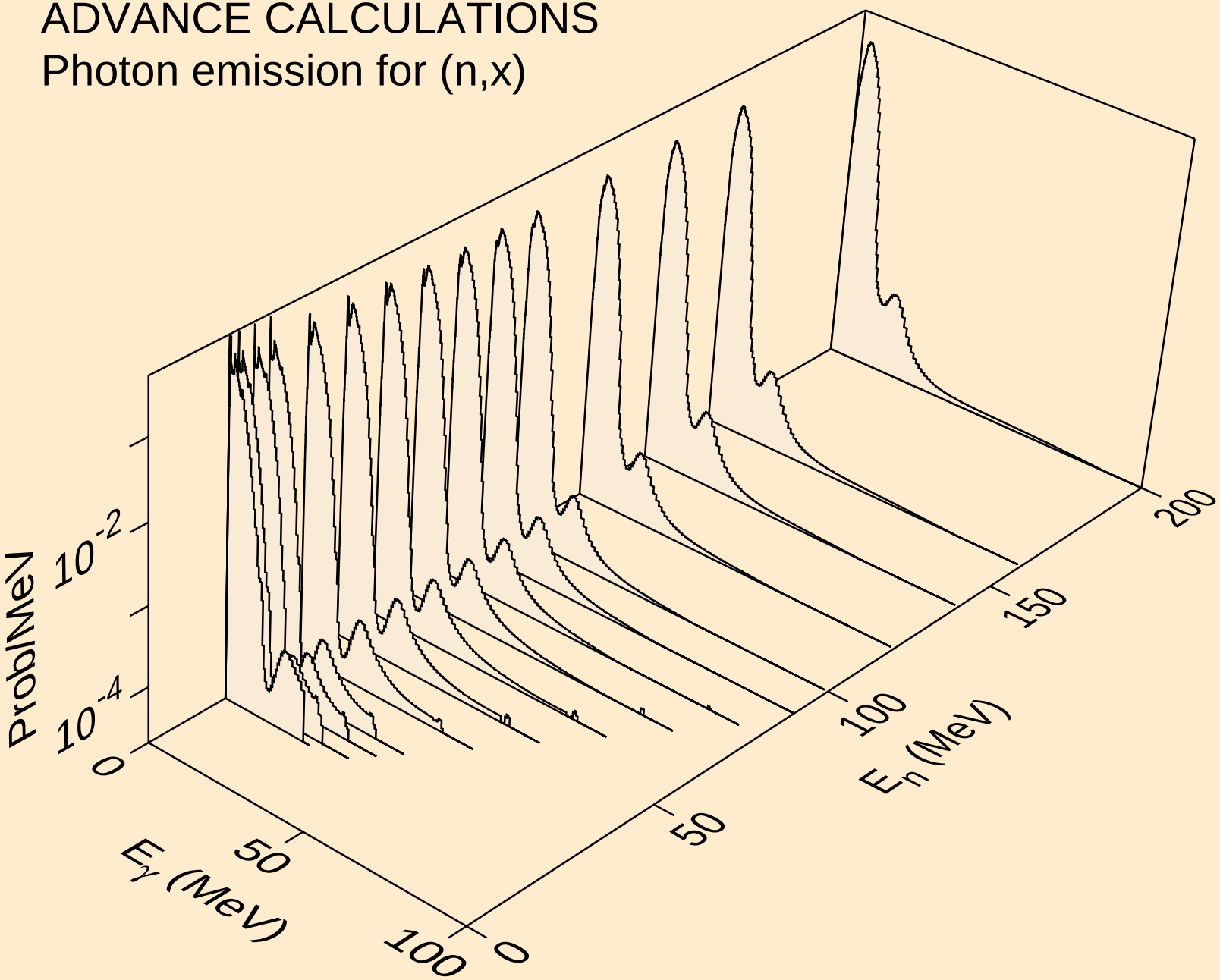
ADVANCE CALCULATIONS

Neutron emission for (n,n*c)



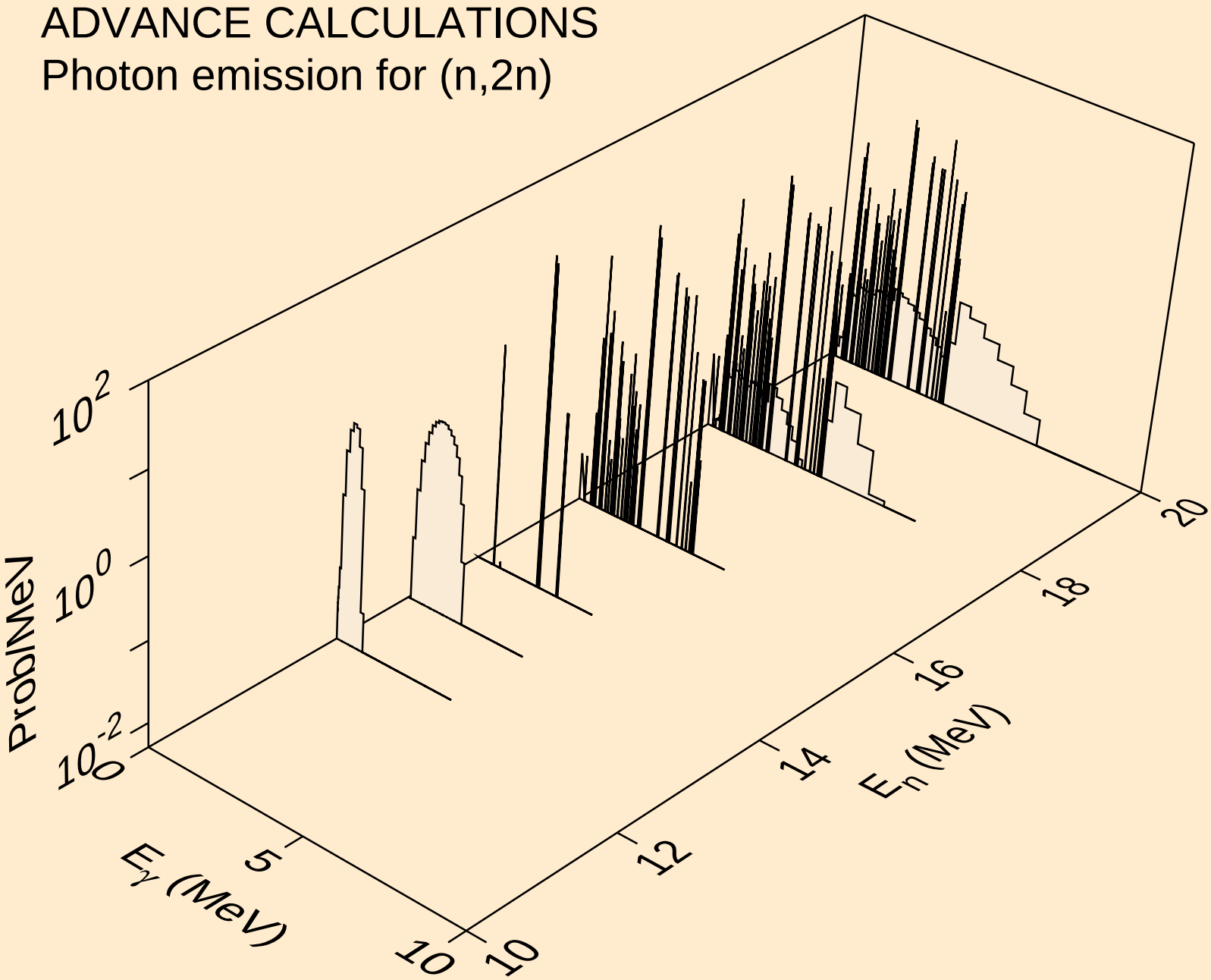
ADVANCE CALCULATIONS

Photon emission for (n,x)



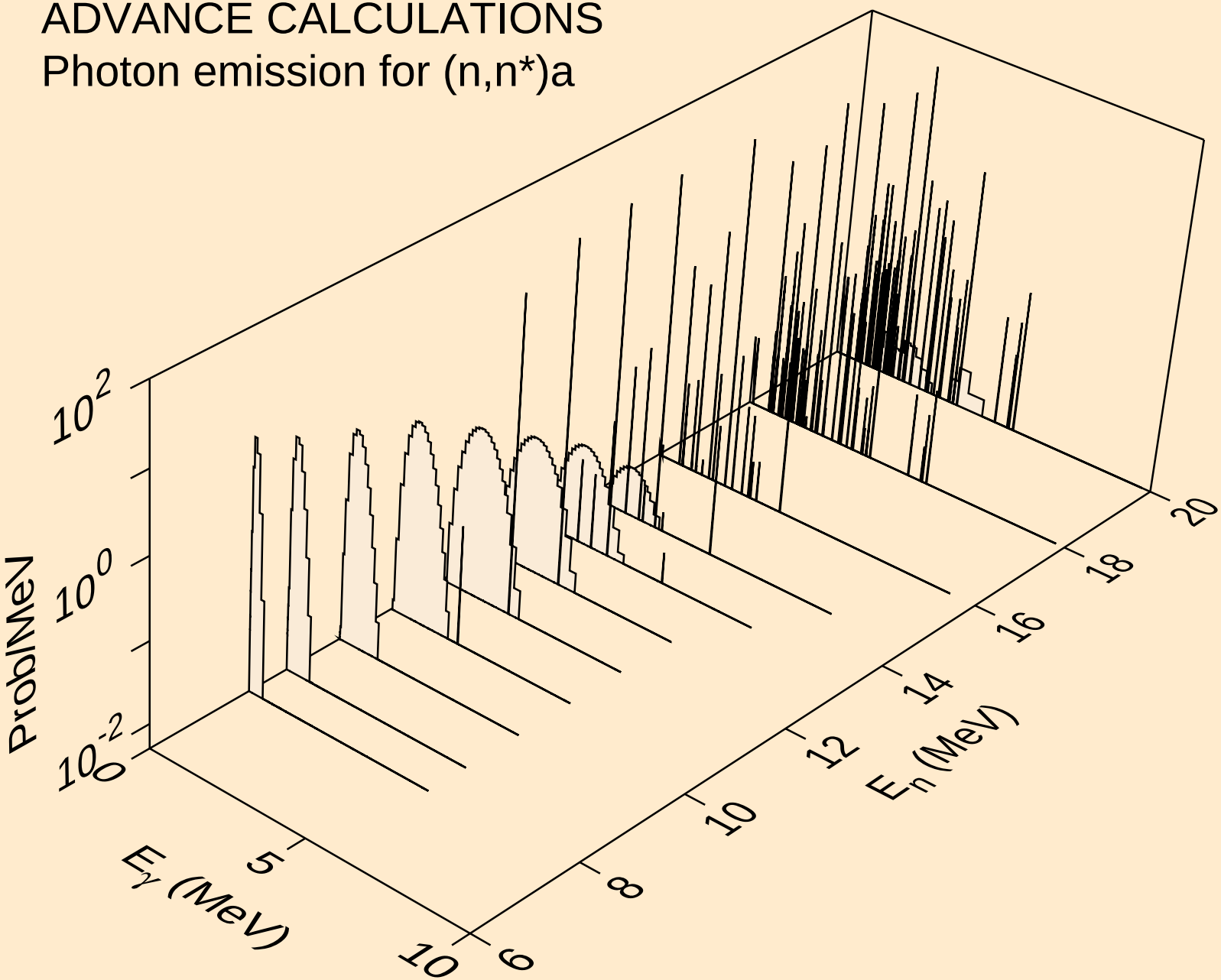
ADVANCE CALCULATIONS

Photon emission for (n,2n)



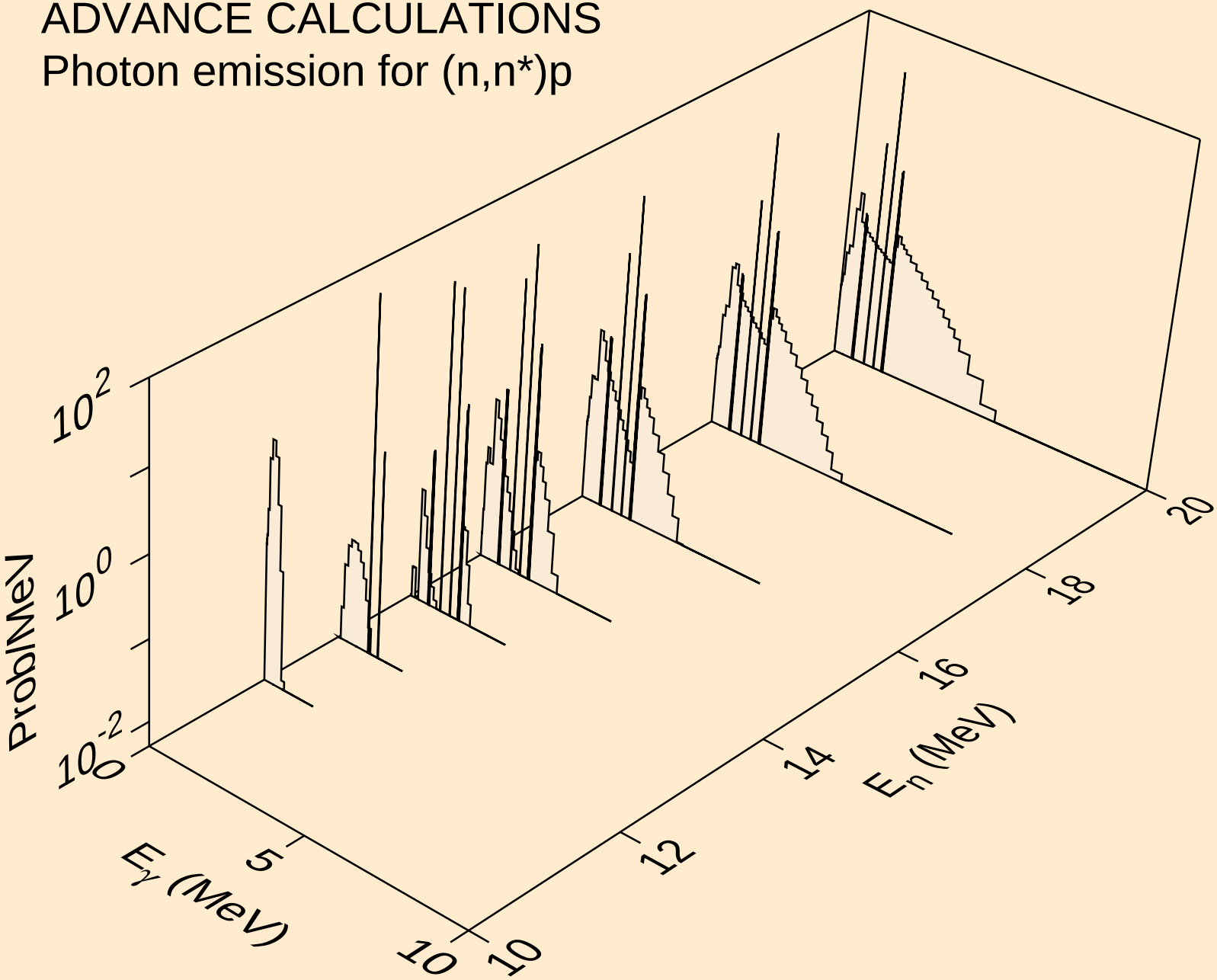
ADVANCE CALCULATIONS

Photon emission for (n,n*)a



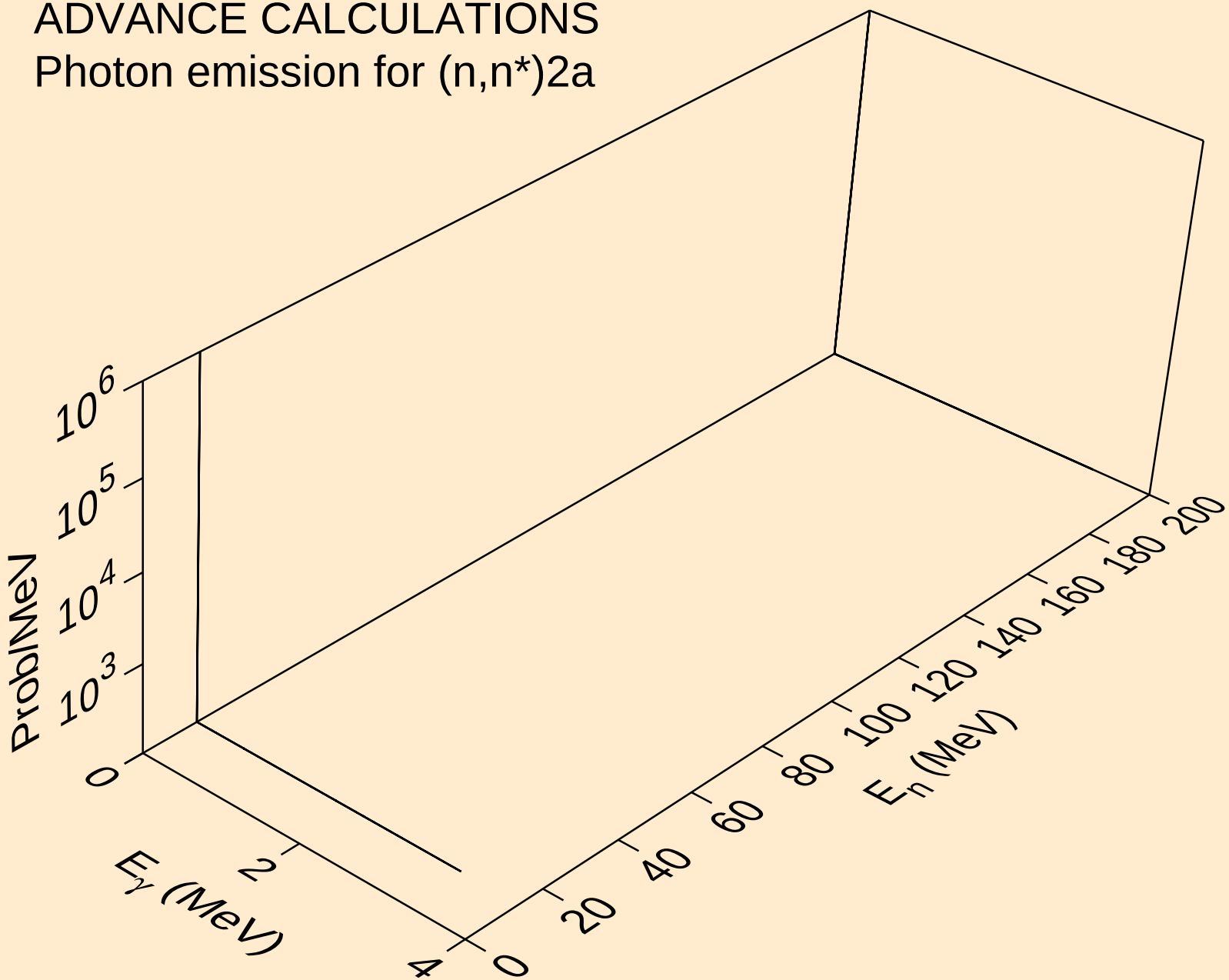
ADVANCE CALCULATIONS

Photon emission for (n,n*)p



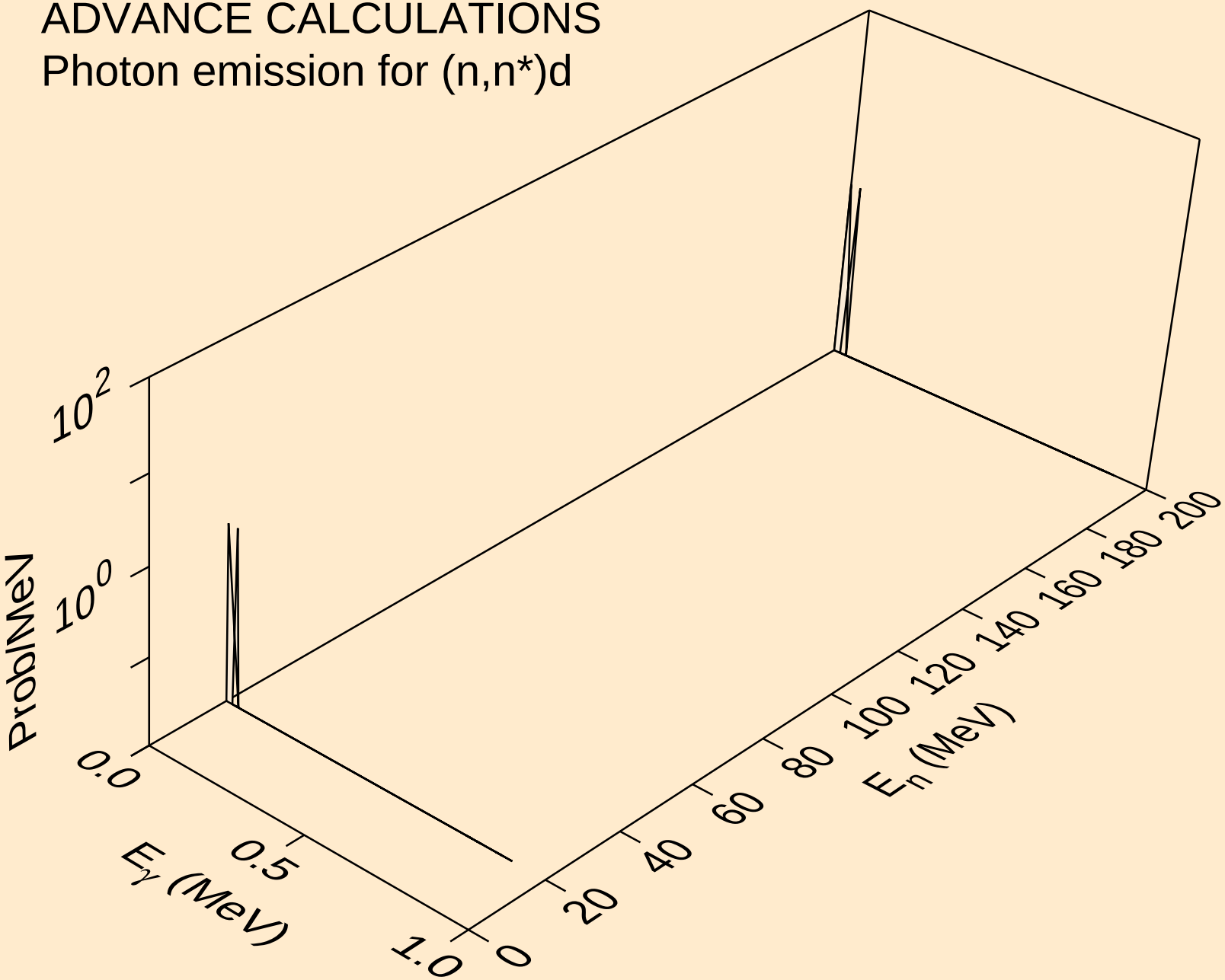
ADVANCE CALCULATIONS

Photon emission for (n,n*)2a



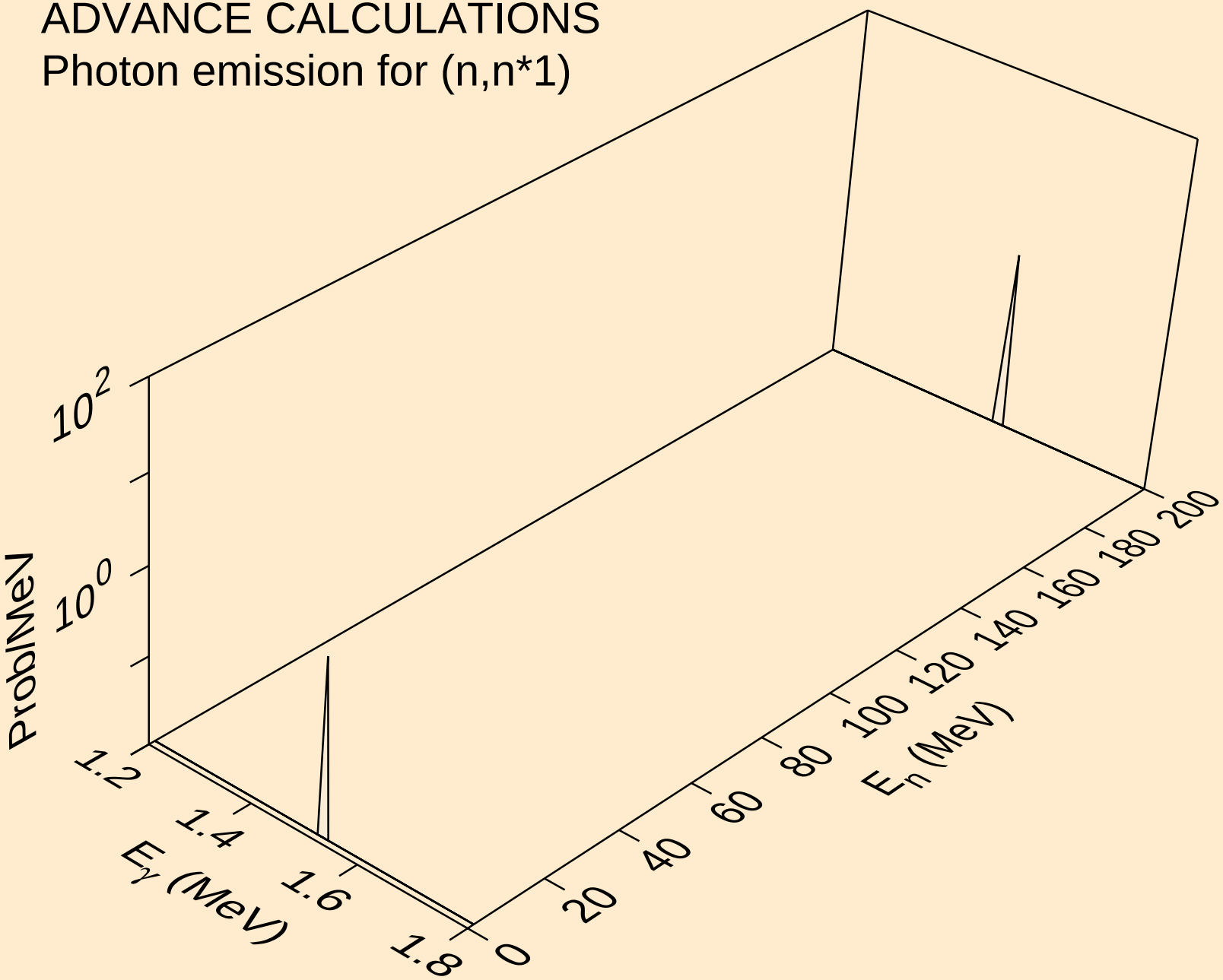
ADVANCE CALCULATIONS

Photon emission for (n,n*)d



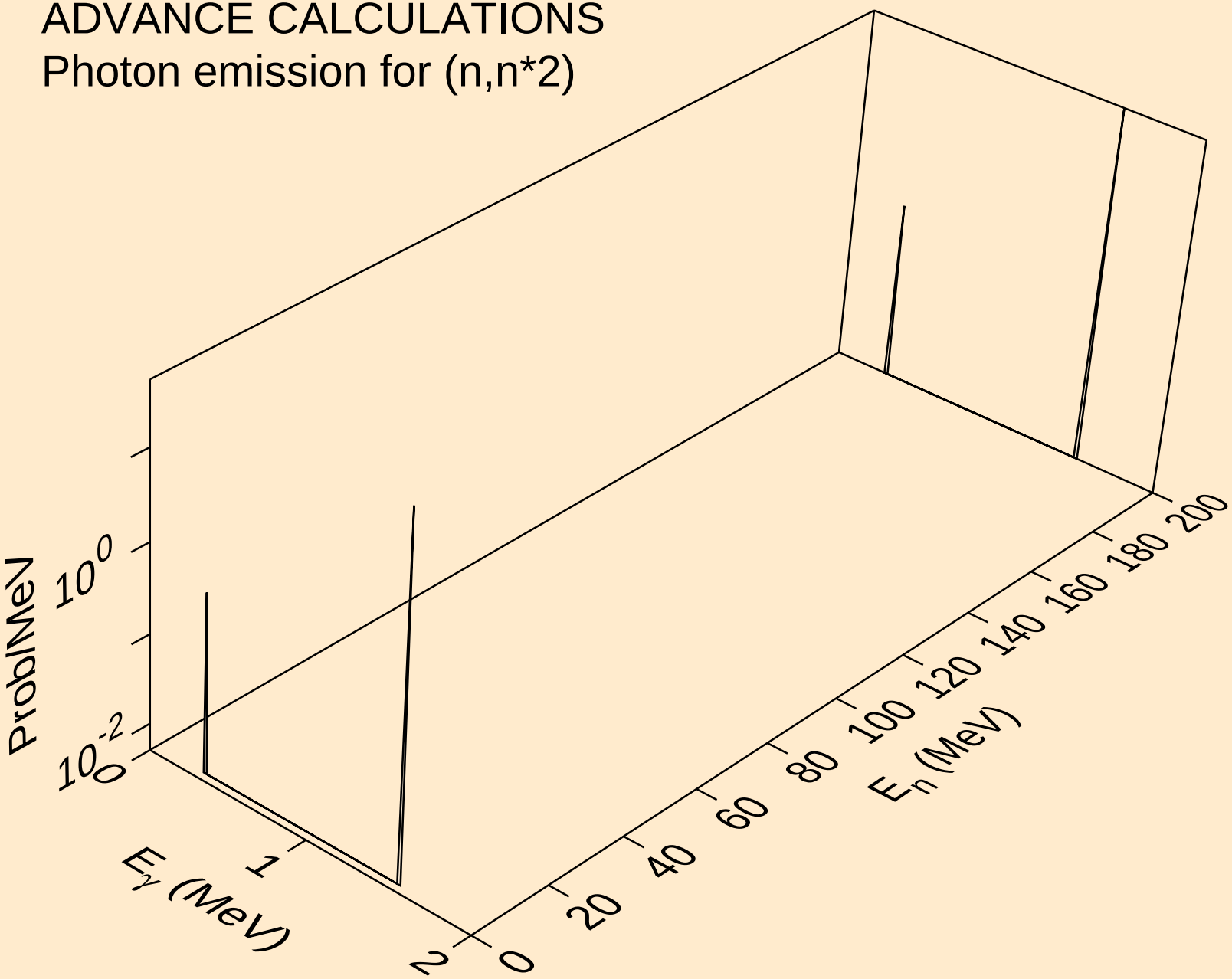
ADVANCE CALCULATIONS

Photon emission for (n,n*1)



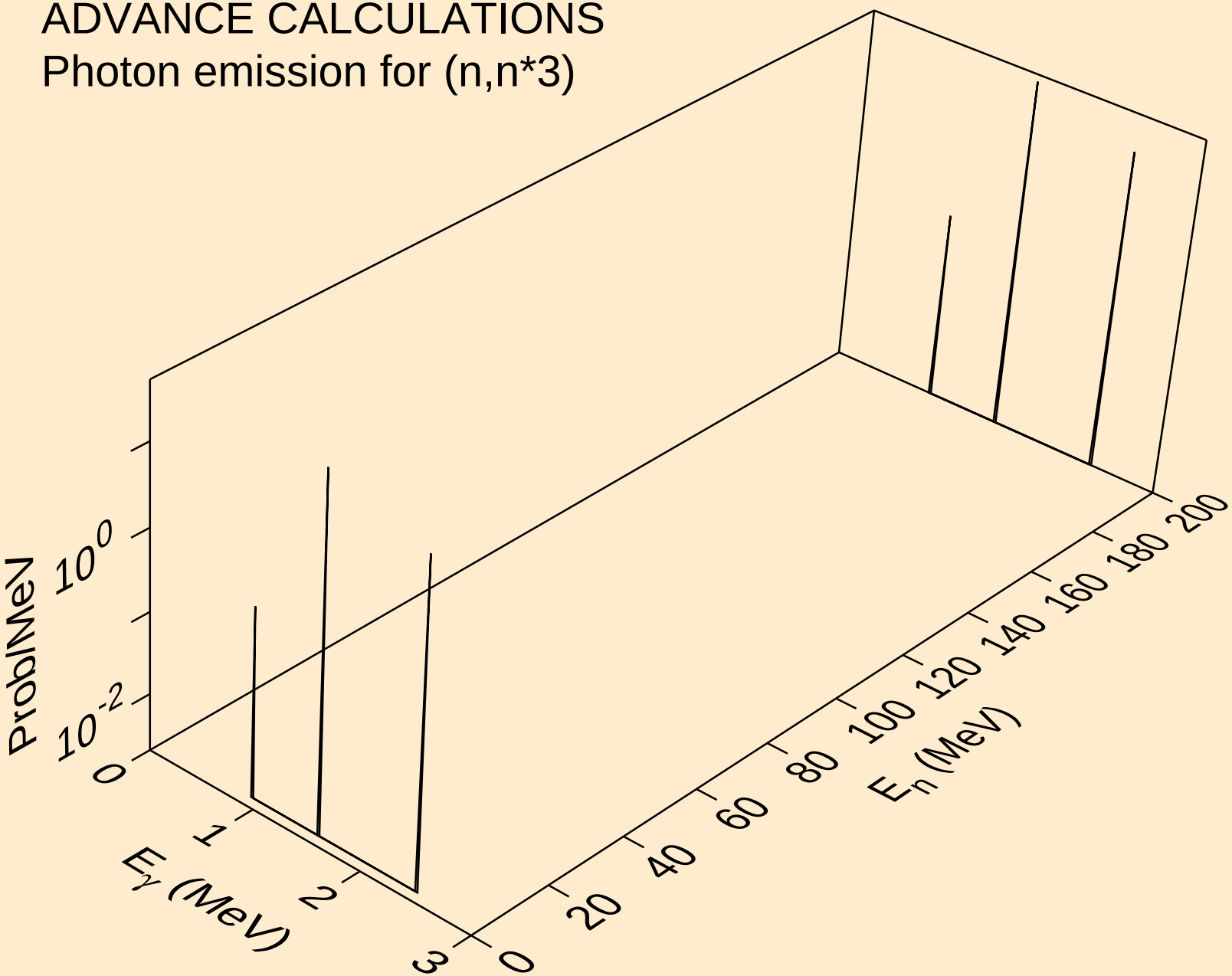
ADVANCE CALCULATIONS

Photon emission for (n,n*2)



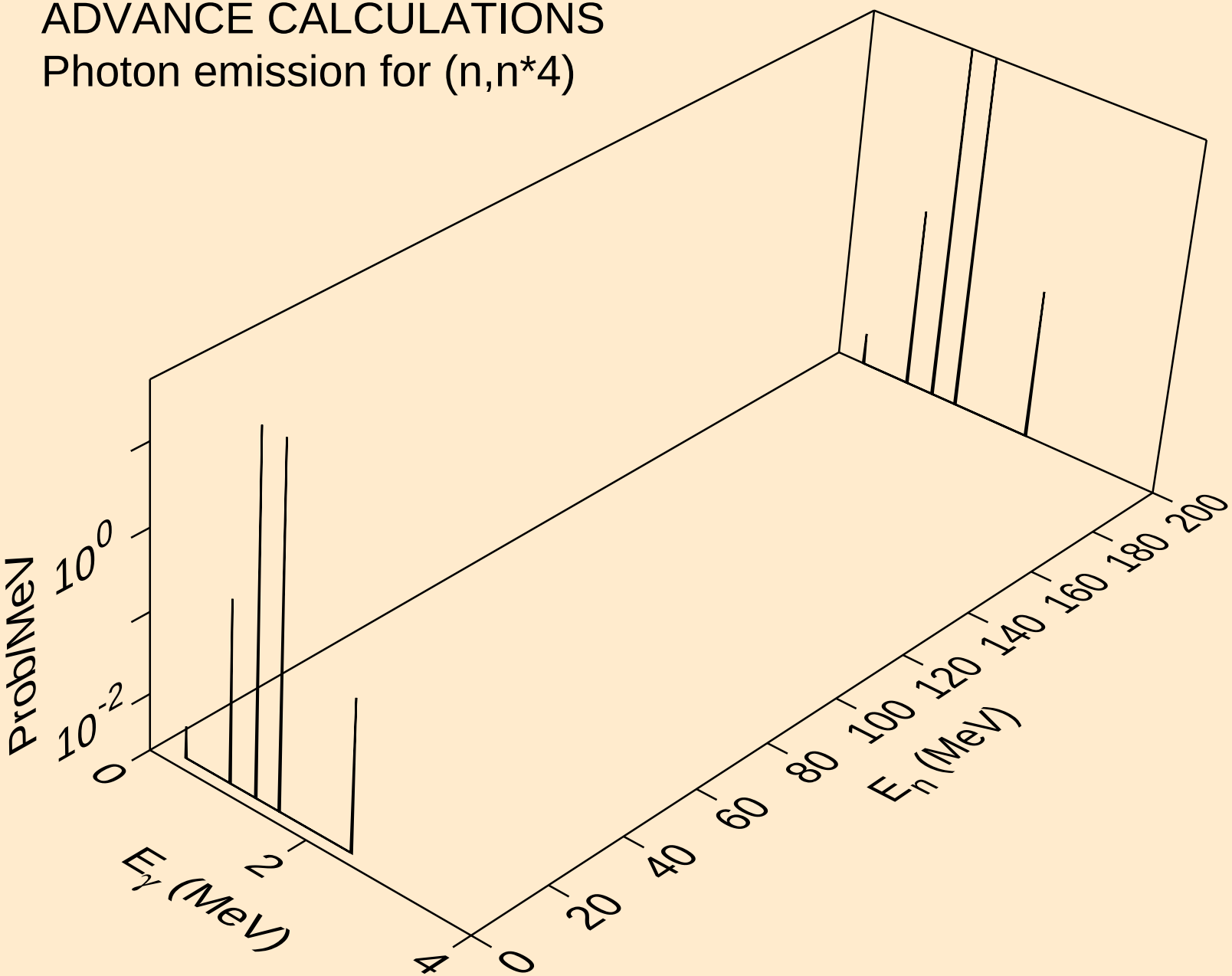
ADVANCE CALCULATIONS

Photon emission for (n,n*3)



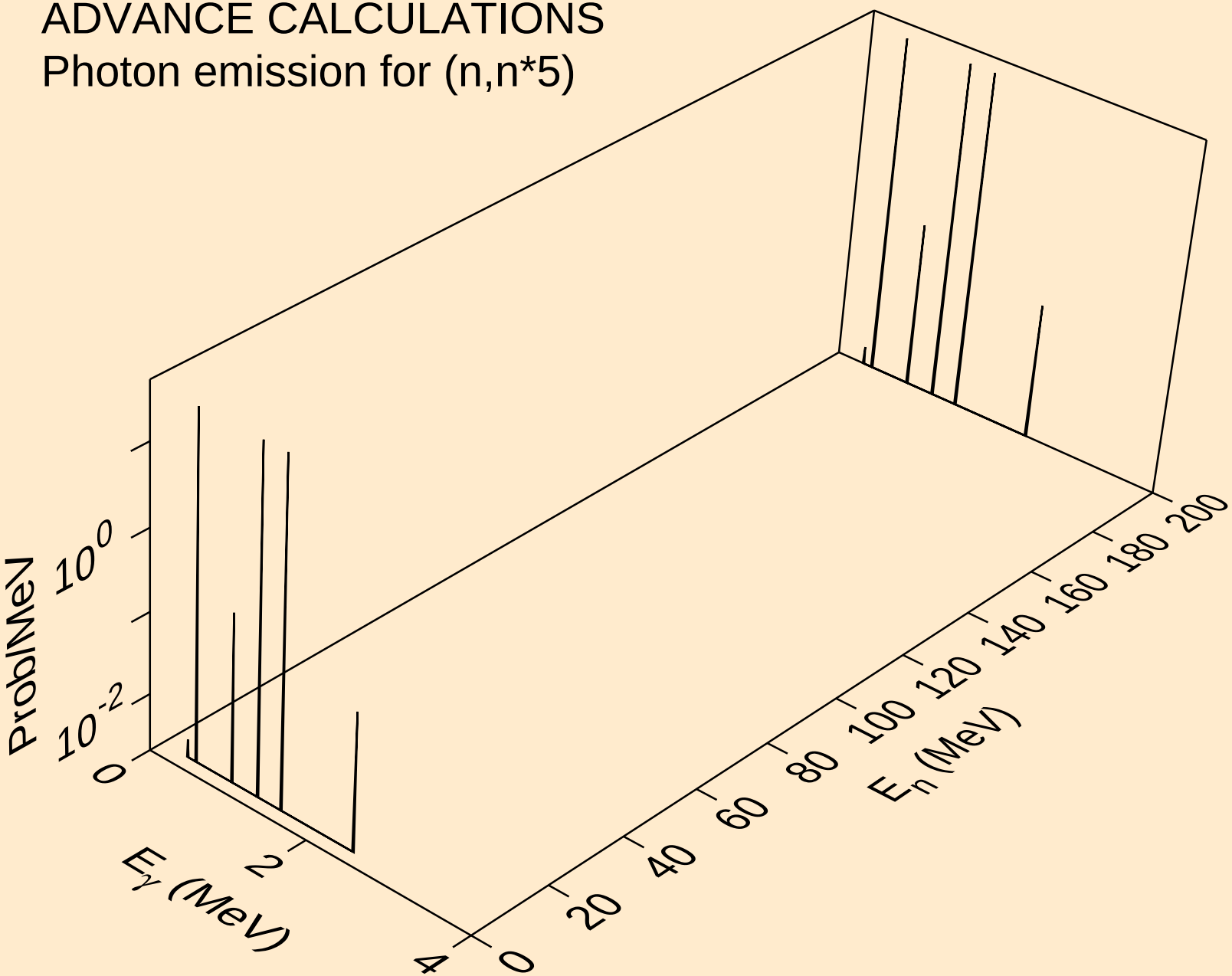
ADVANCE CALCULATIONS

Photon emission for (n,n*4)



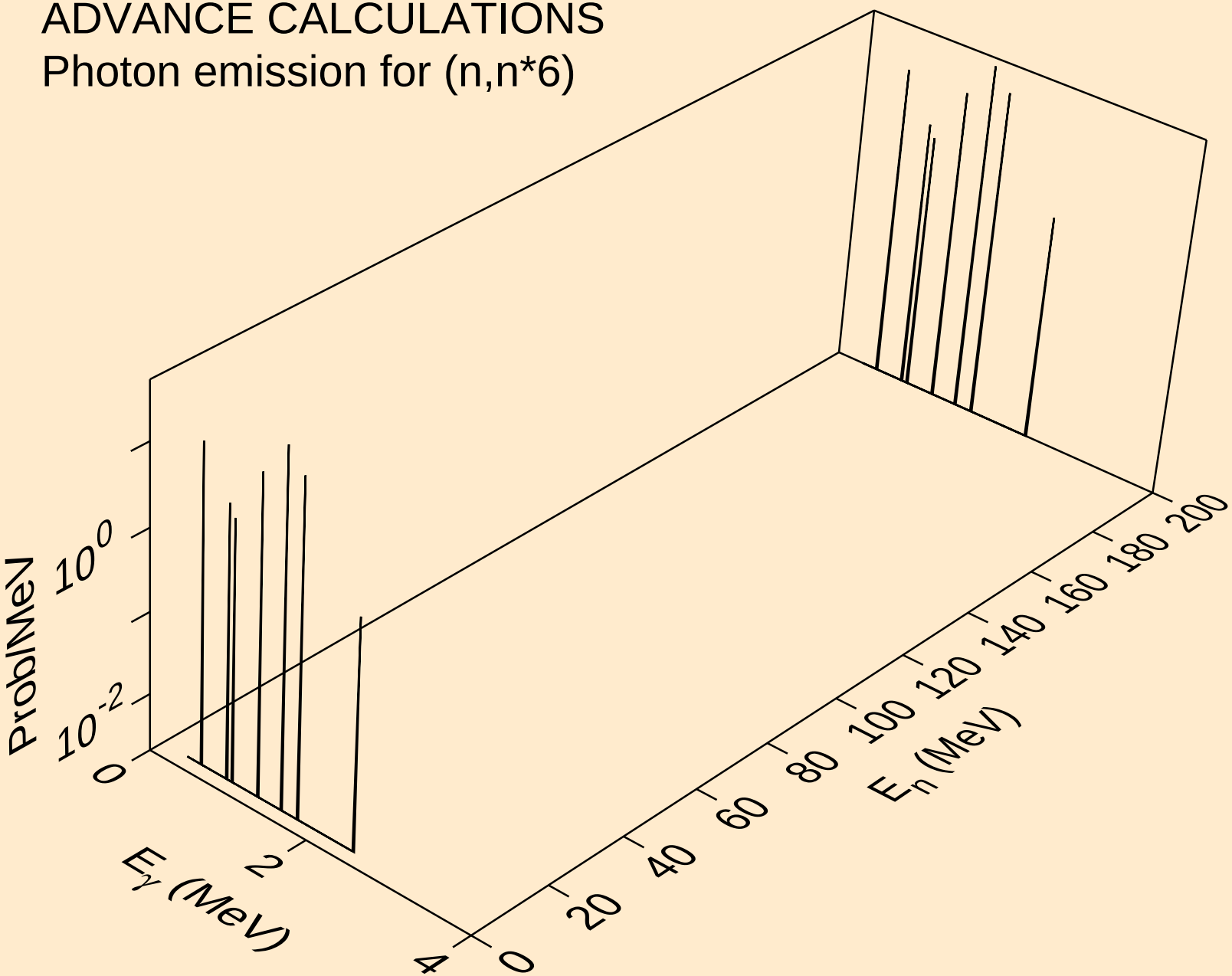
ADVANCE CALCULATIONS

Photon emission for (n,n*5)



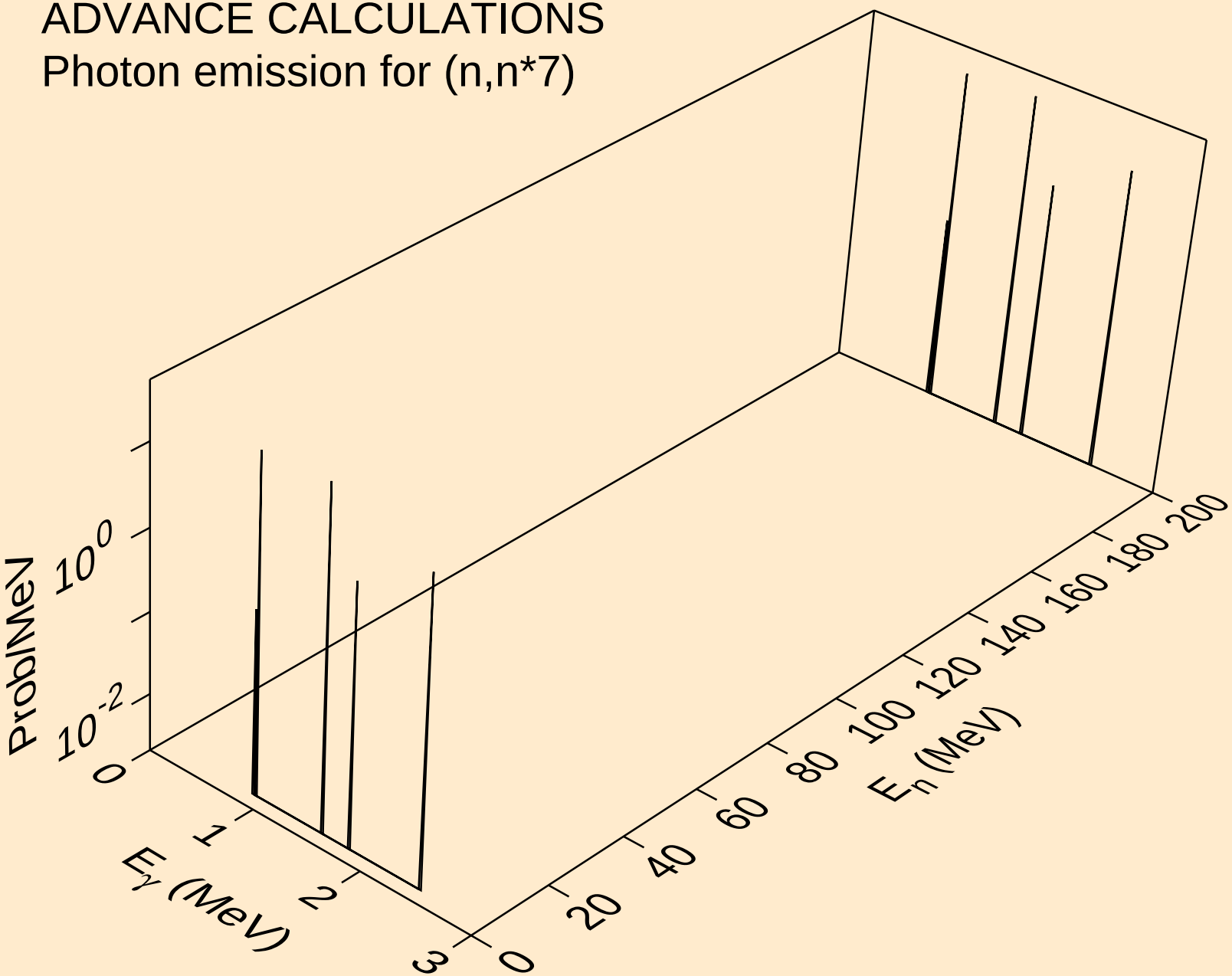
ADVANCE CALCULATIONS

Photon emission for (n,n*6)



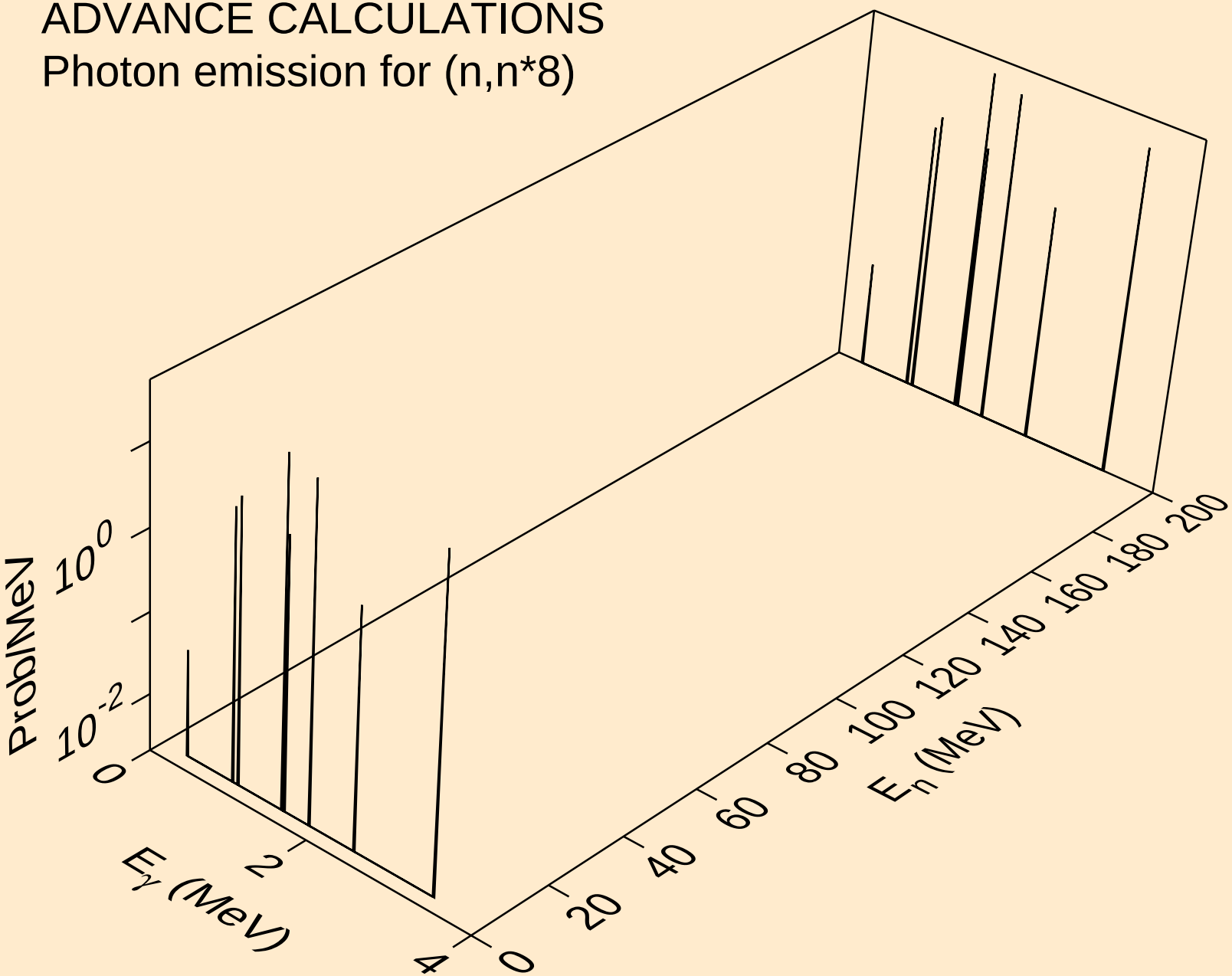
ADVANCE CALCULATIONS

Photon emission for (n,n*7)



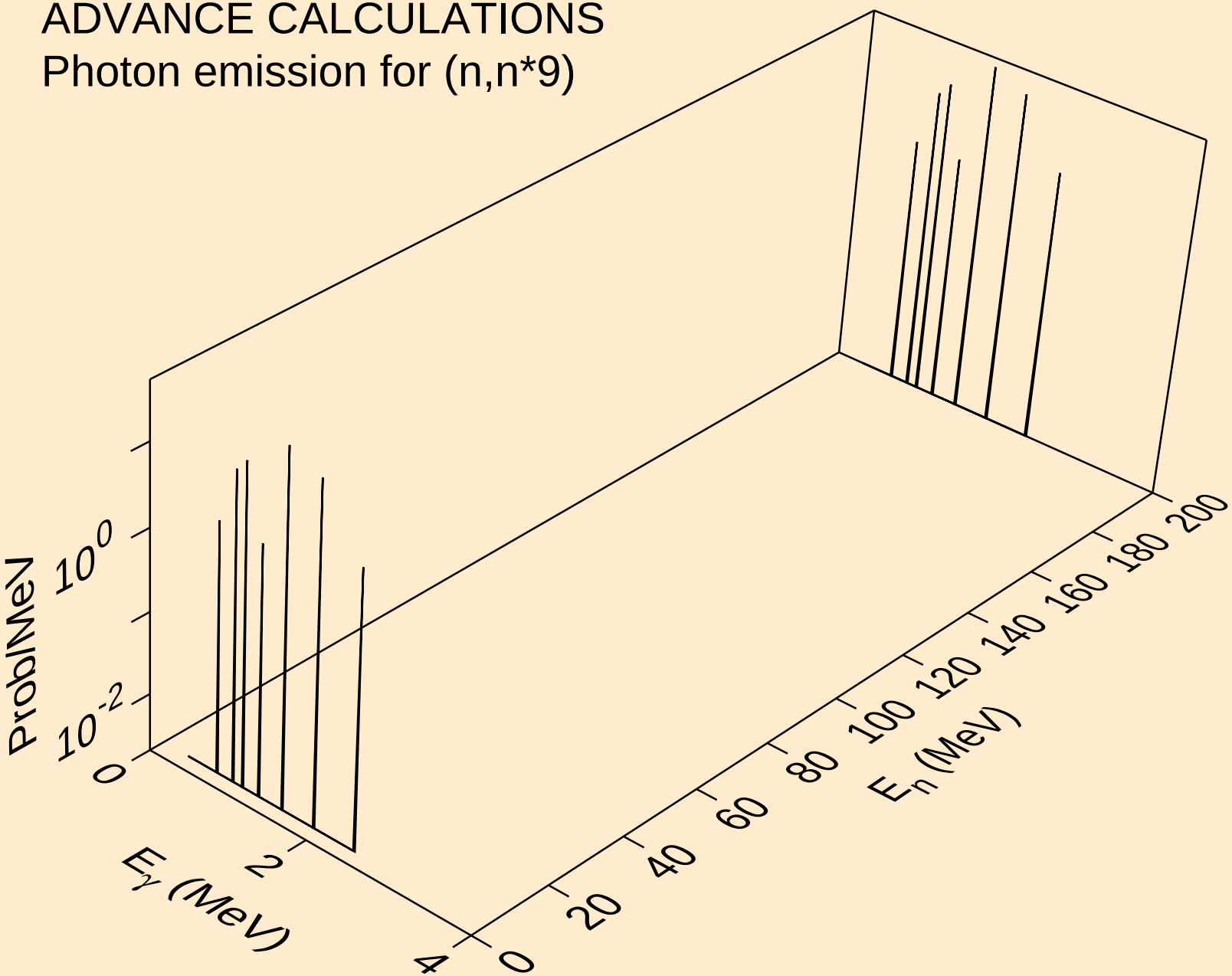
ADVANCE CALCULATIONS

Photon emission for (n,n*8)



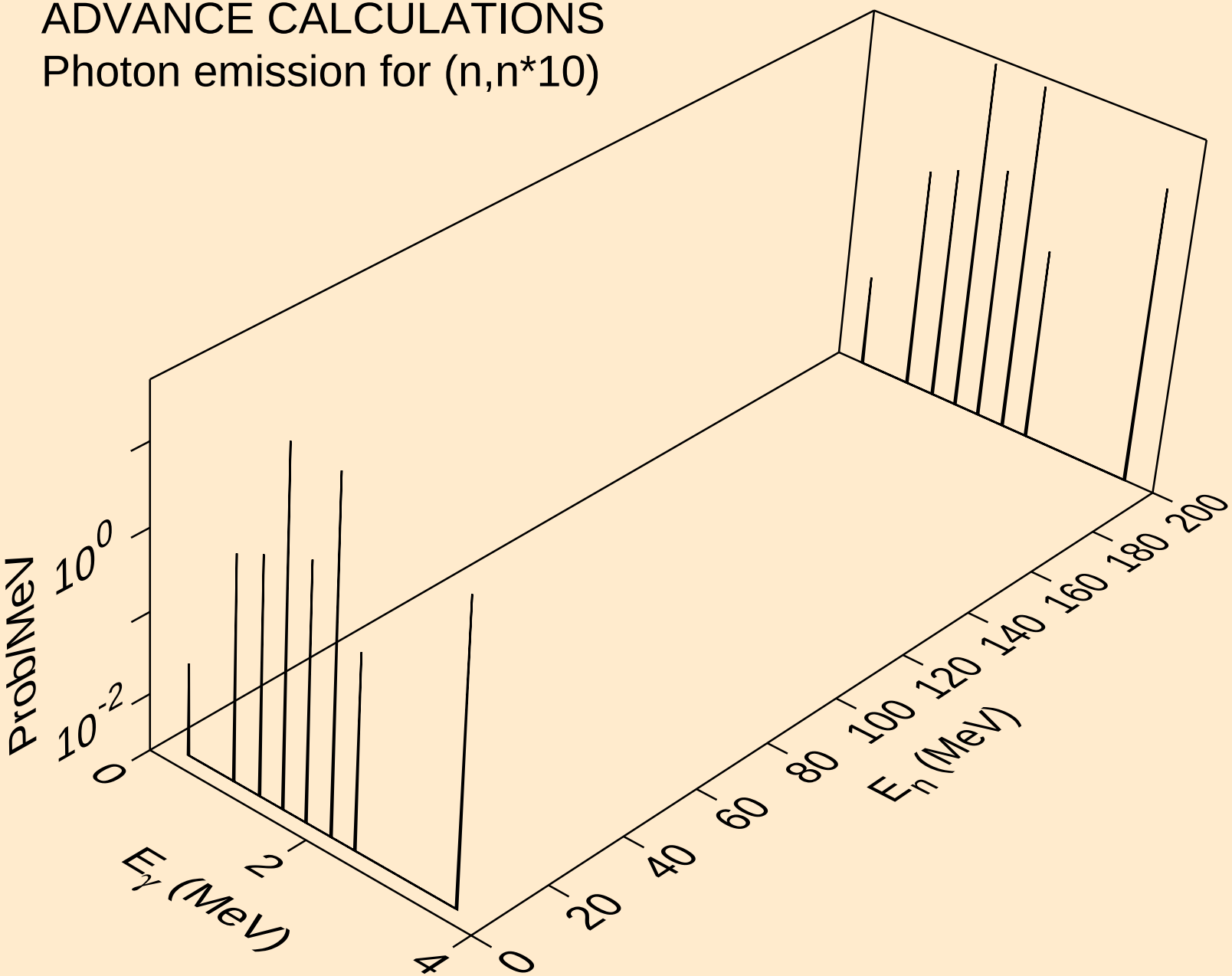
ADVANCE CALCULATIONS

Photon emission for (n,n*9)



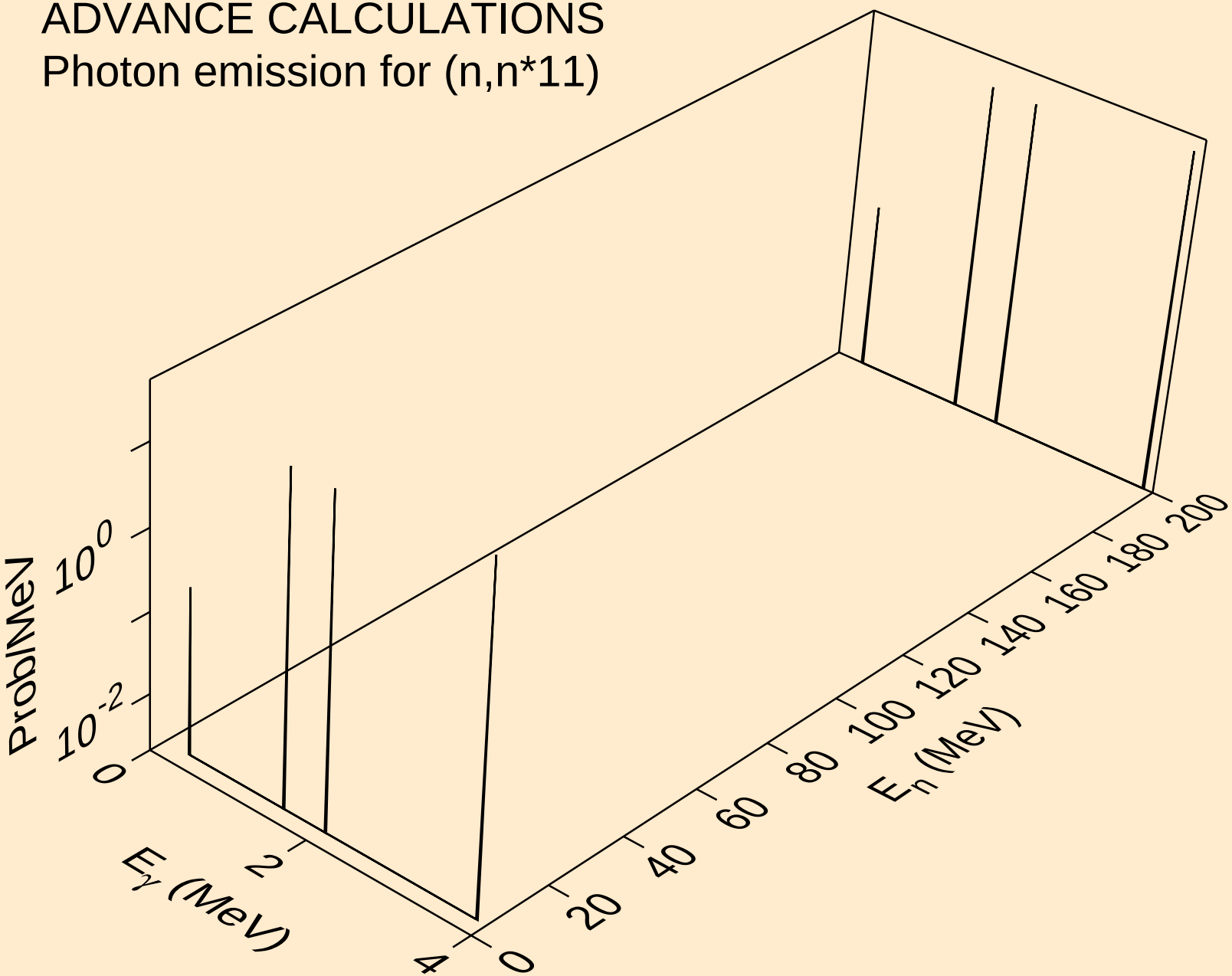
ADVANCE CALCULATIONS

Photon emission for (n,n*10)



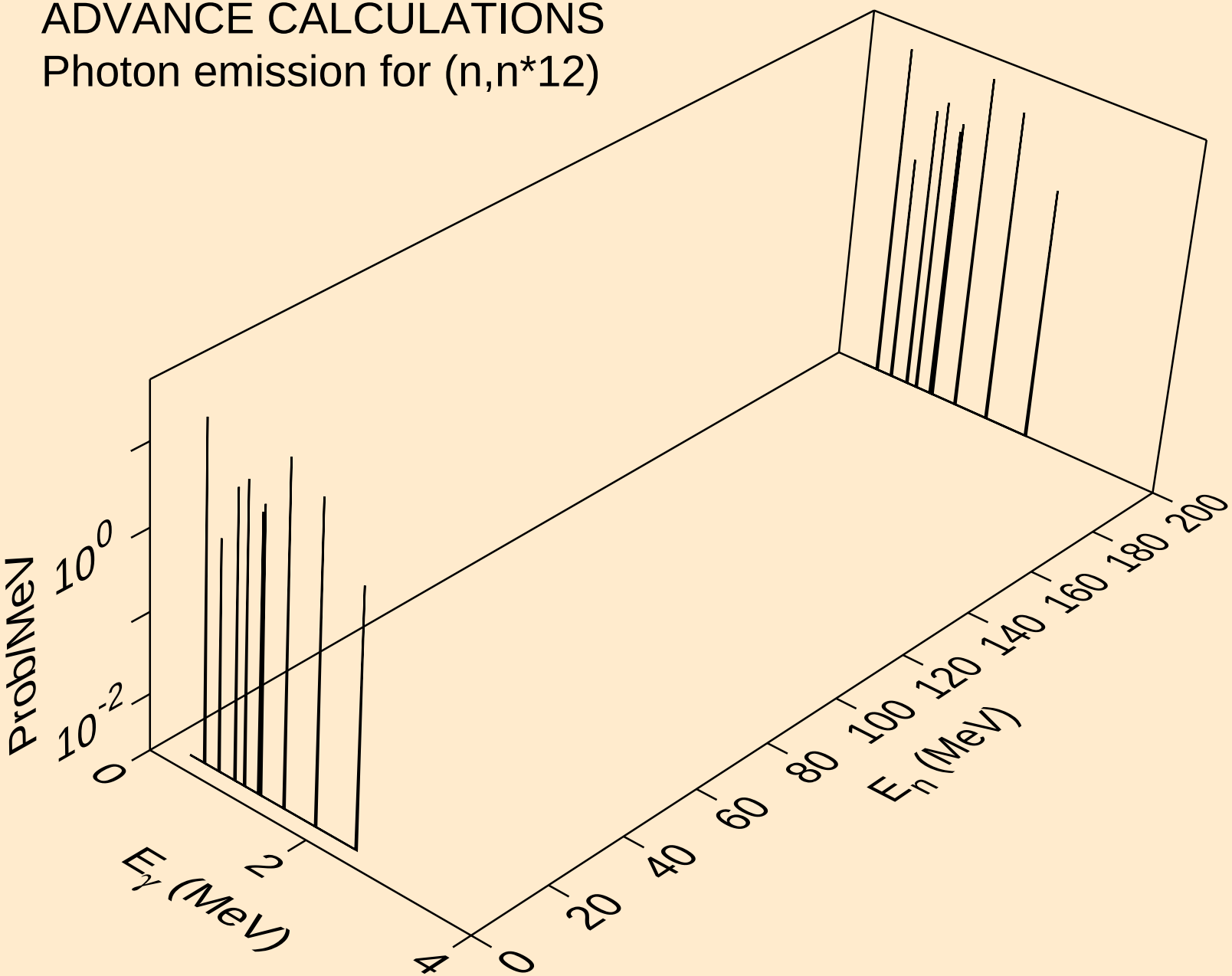
ADVANCE CALCULATIONS

Photon emission for (n,n*11)



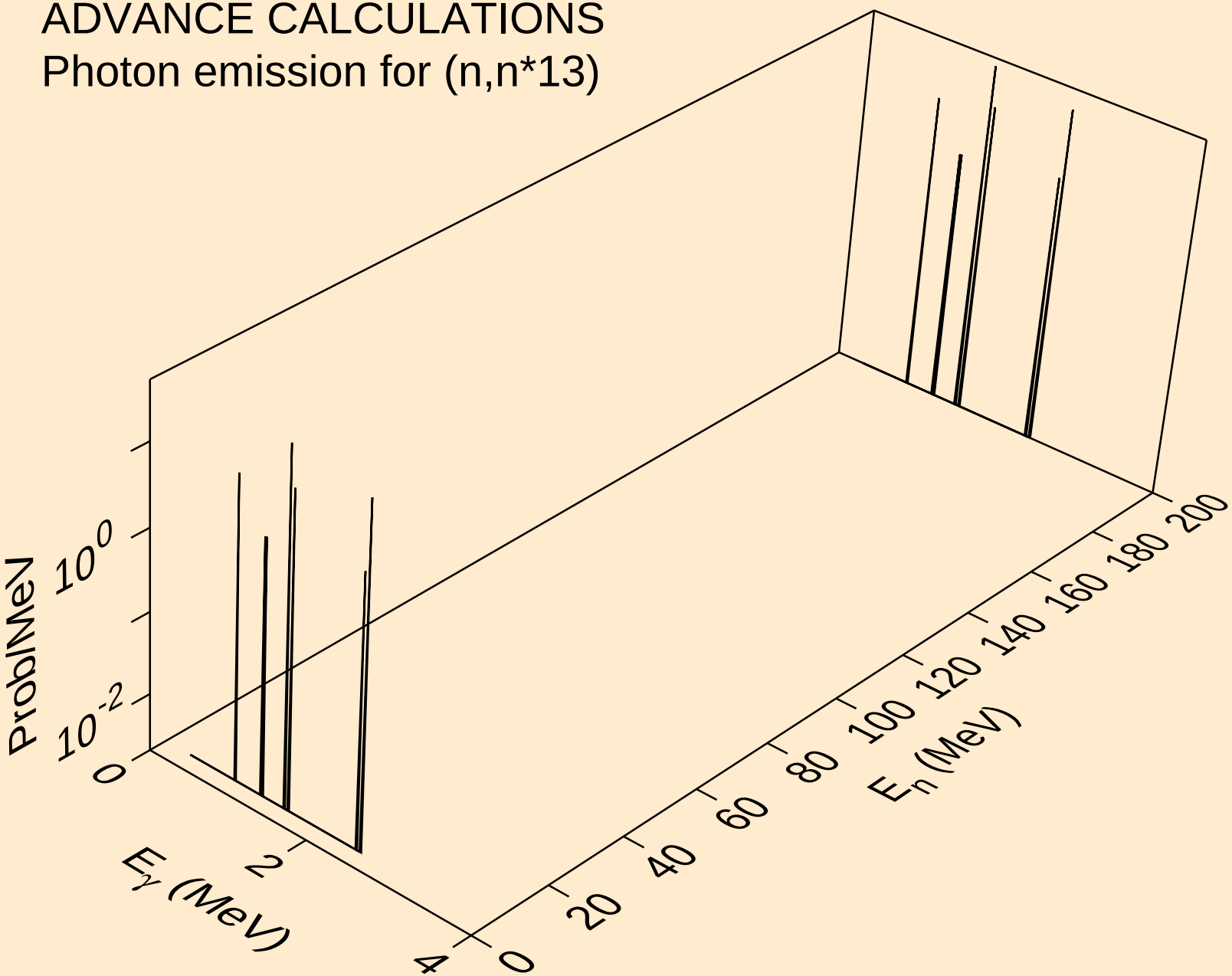
ADVANCE CALCULATIONS

Photon emission for (n,n*12)



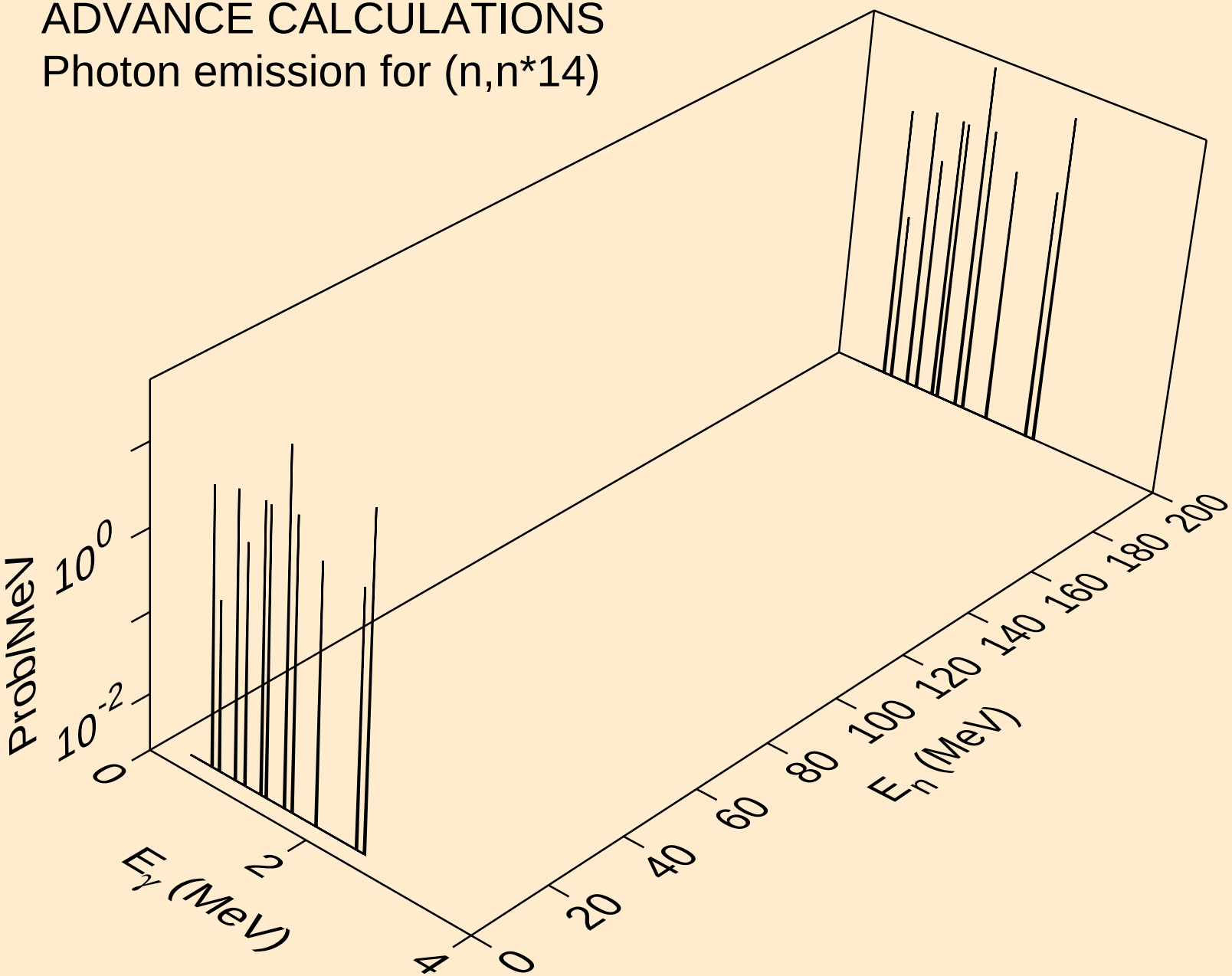
ADVANCE CALCULATIONS

Photon emission for (n,n*13)



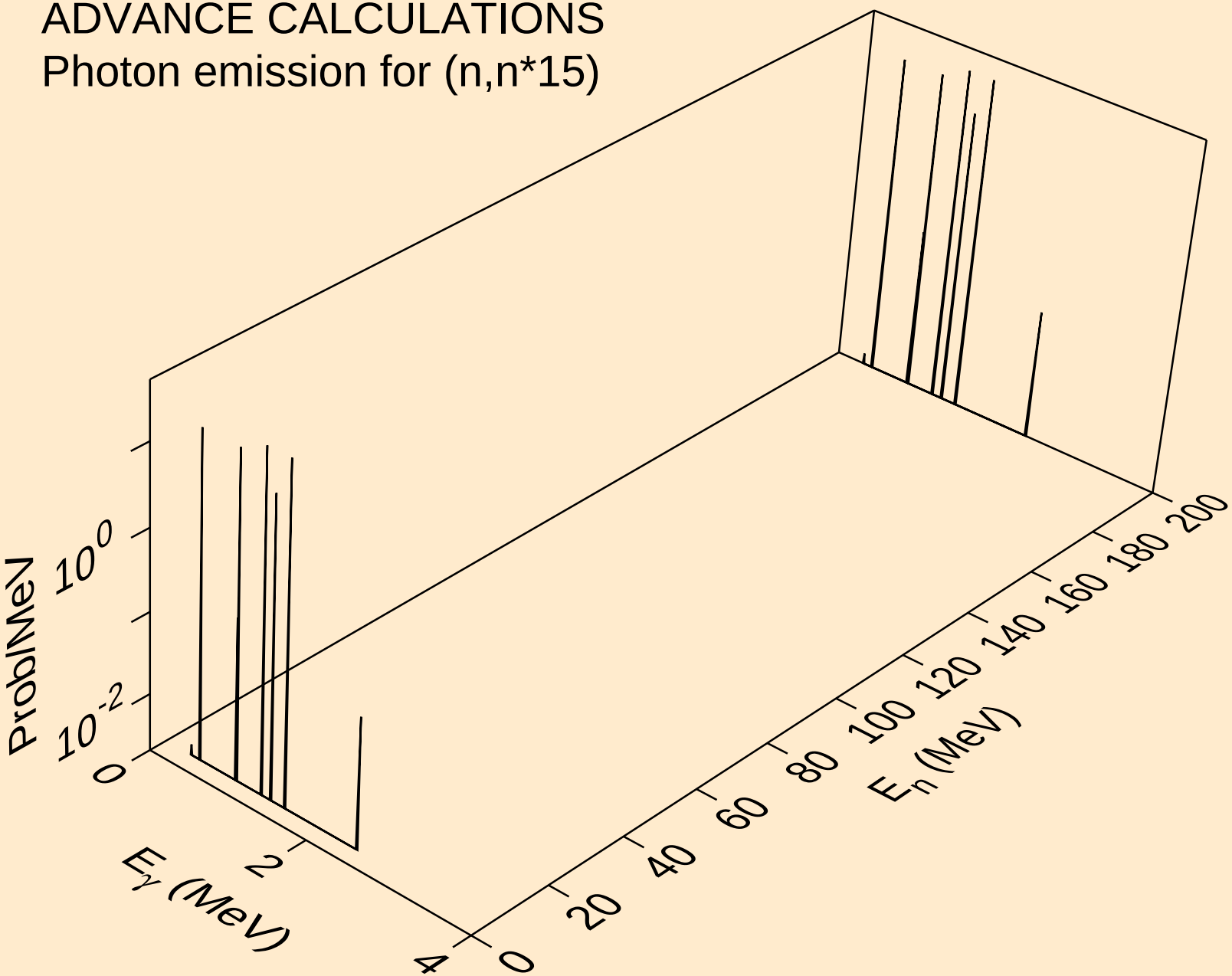
ADVANCE CALCULATIONS

Photon emission for (n,n*14)



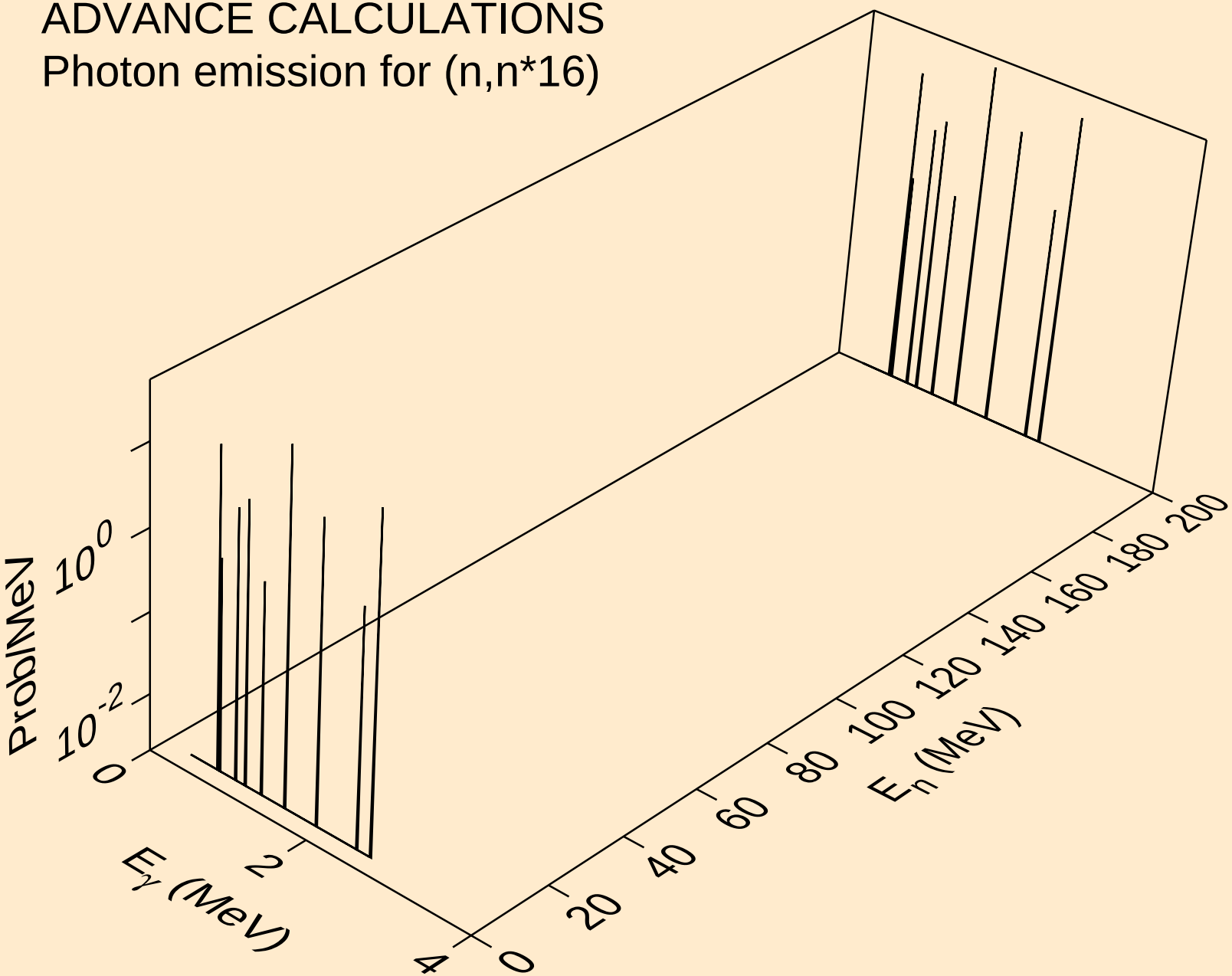
ADVANCE CALCULATIONS

Photon emission for (n,n*15)



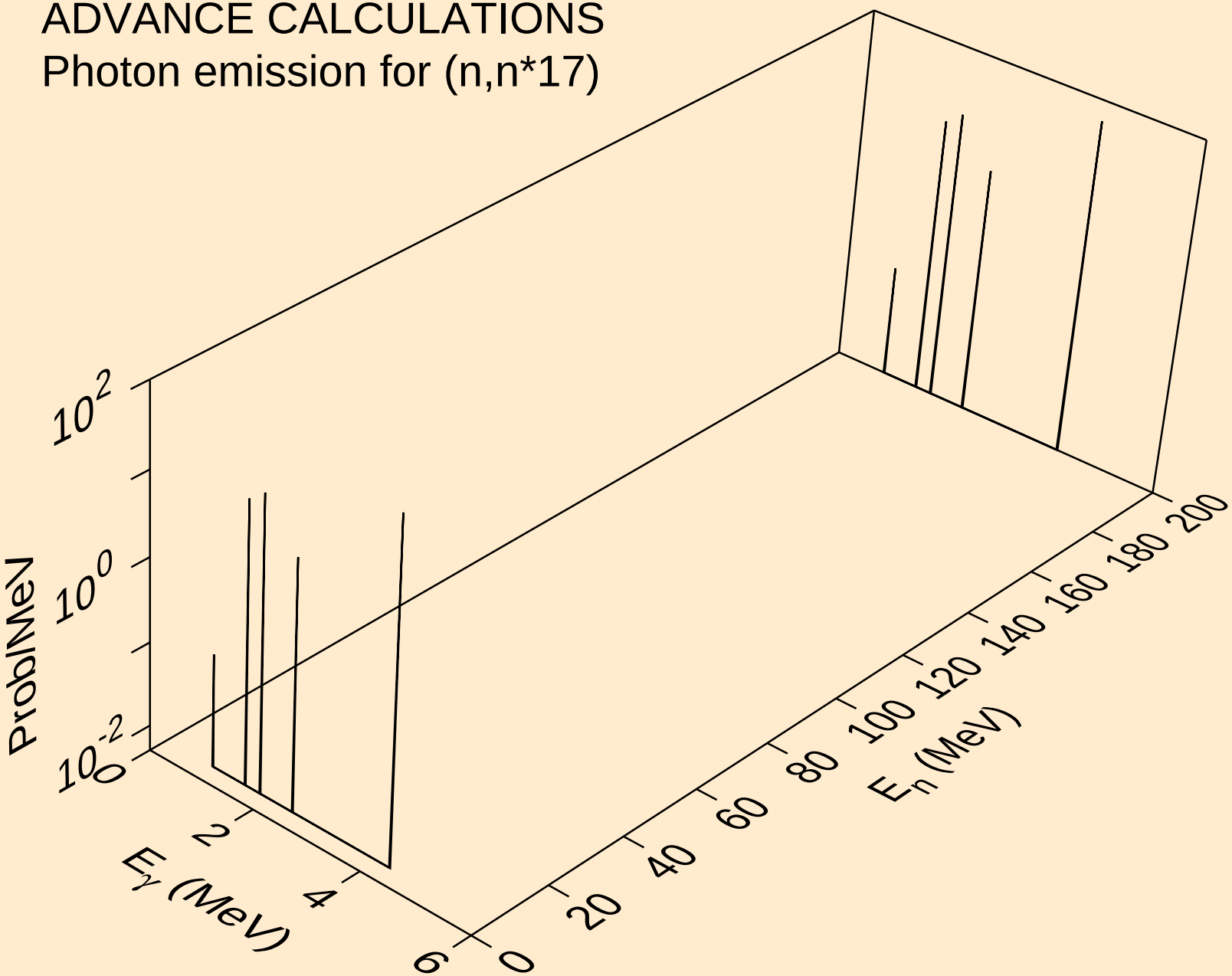
ADVANCE CALCULATIONS

Photon emission for (n,n*16)



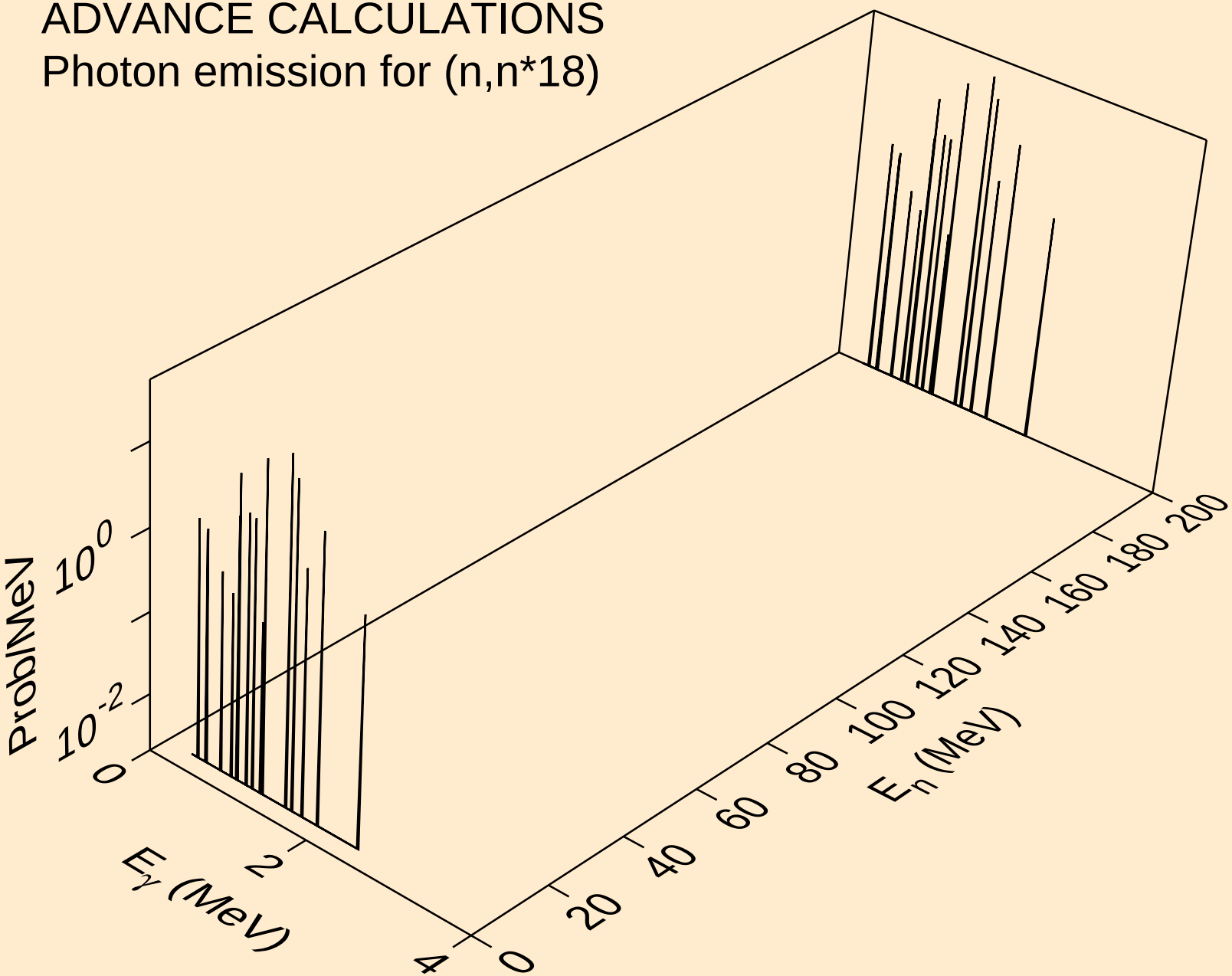
ADVANCE CALCULATIONS

Photon emission for (n,n*17)



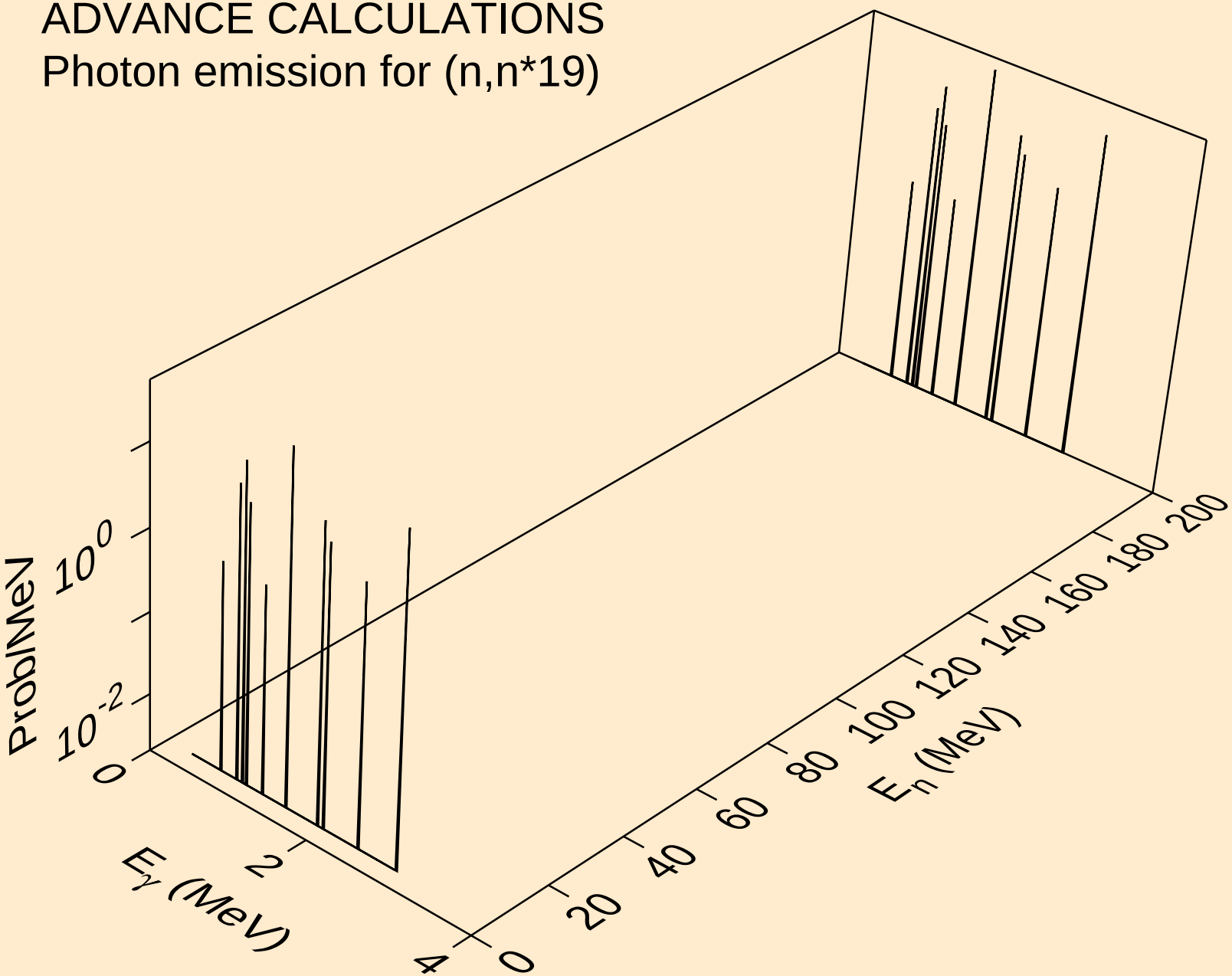
ADVANCE CALCULATIONS

Photon emission for (n,n*18)



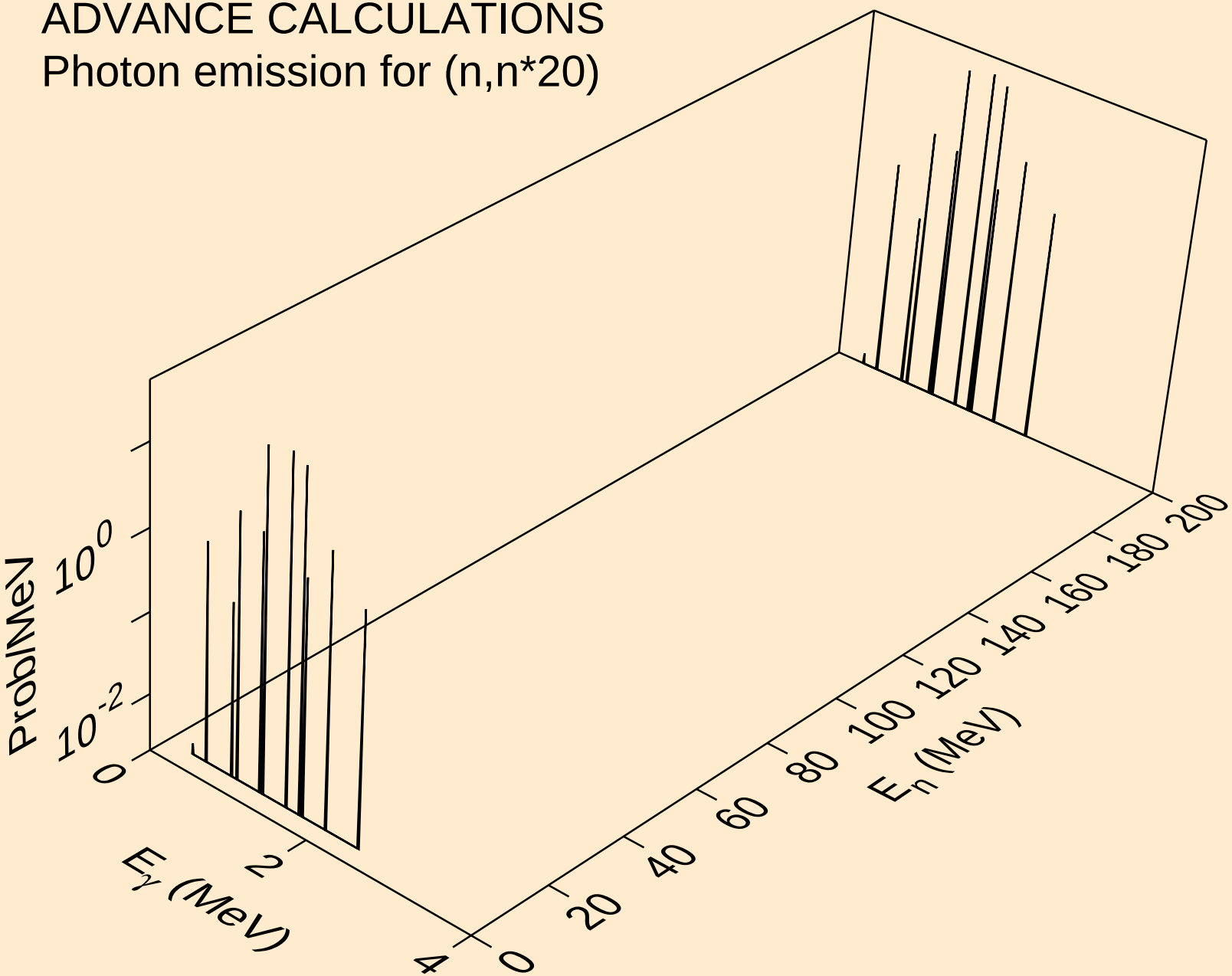
ADVANCE CALCULATIONS

Photon emission for (n,n*19)



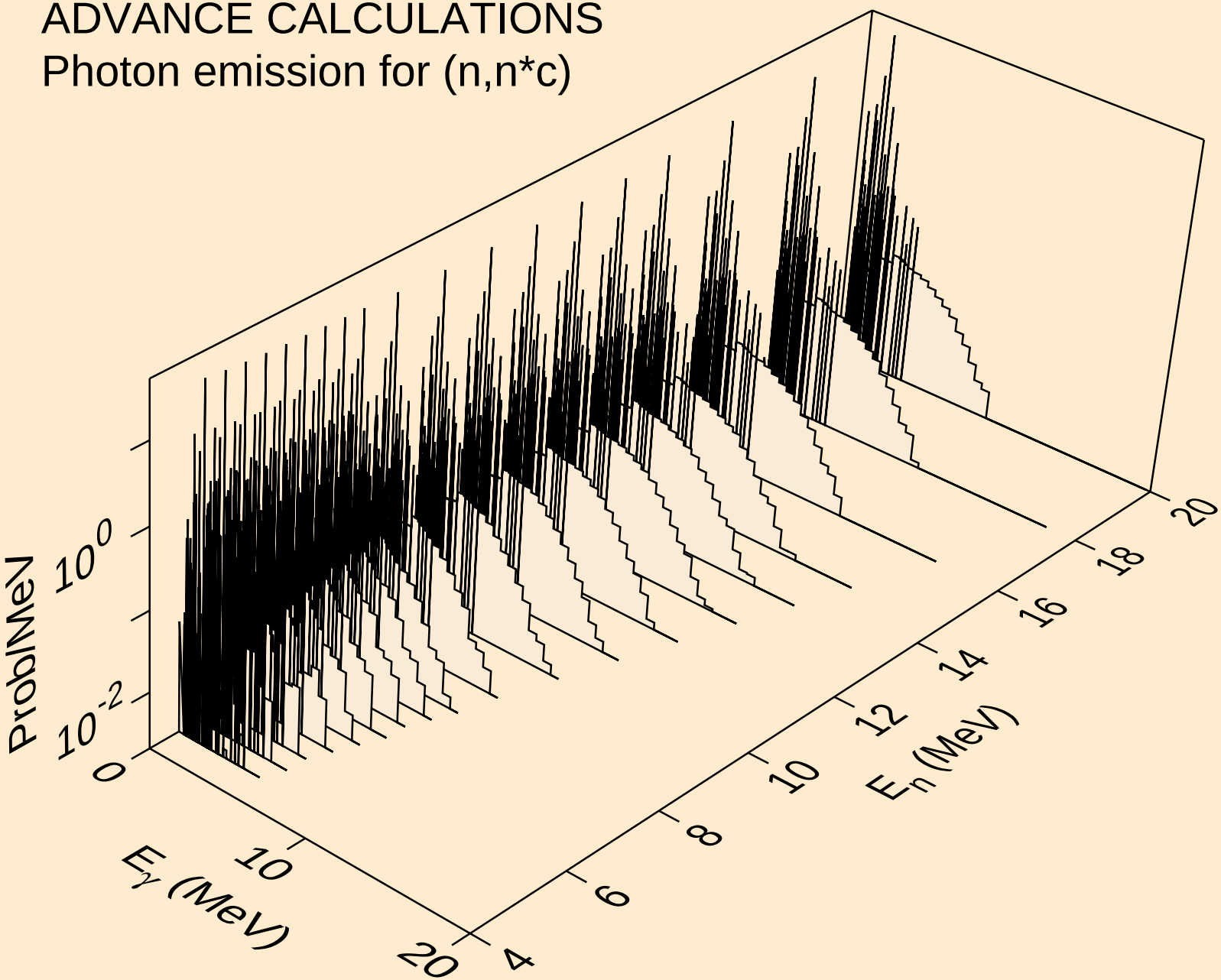
ADVANCE CALCULATIONS

Photon emission for (n,n*20)



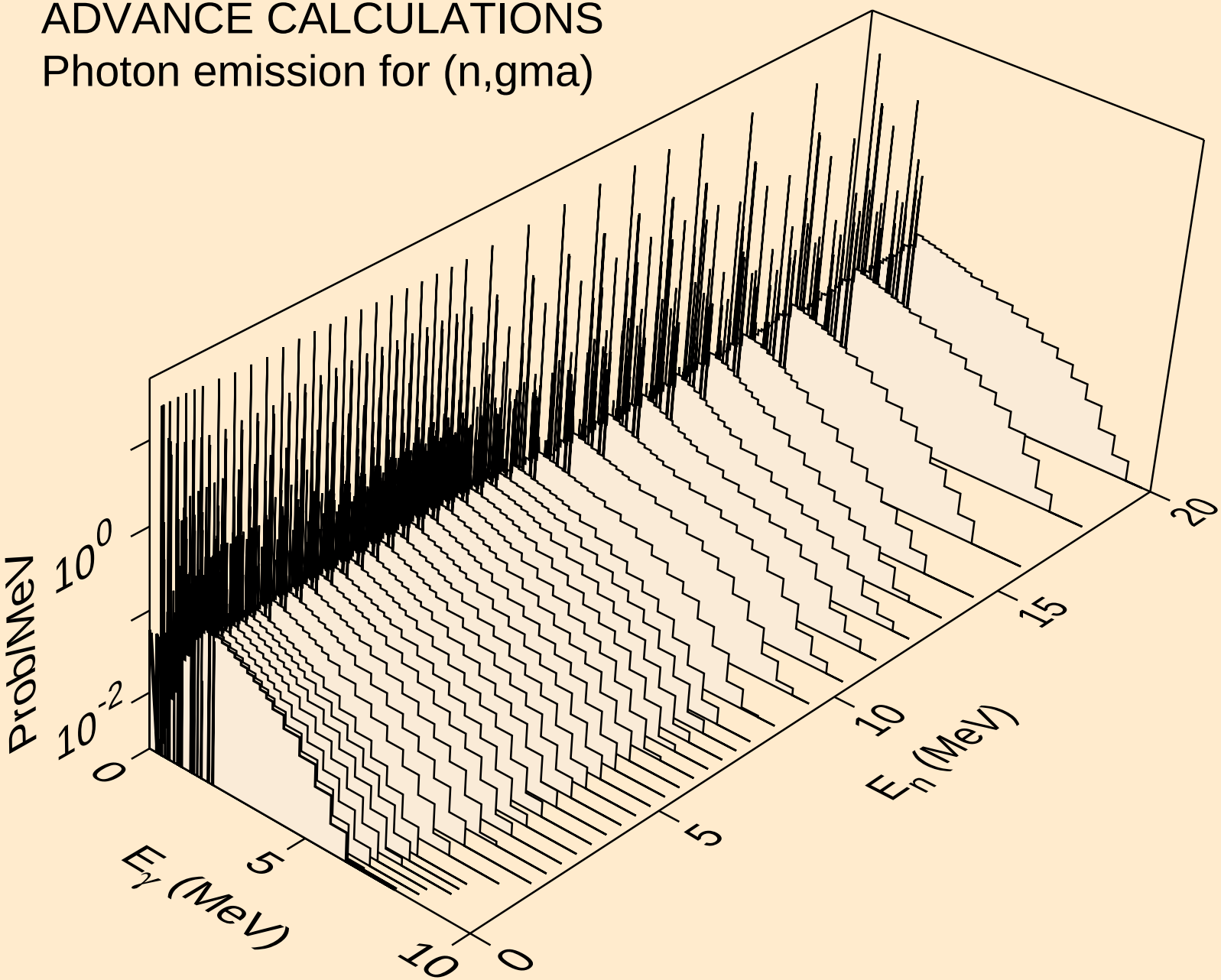
ADVANCE CALCULATIONS

Photon emission for (n,n*c)



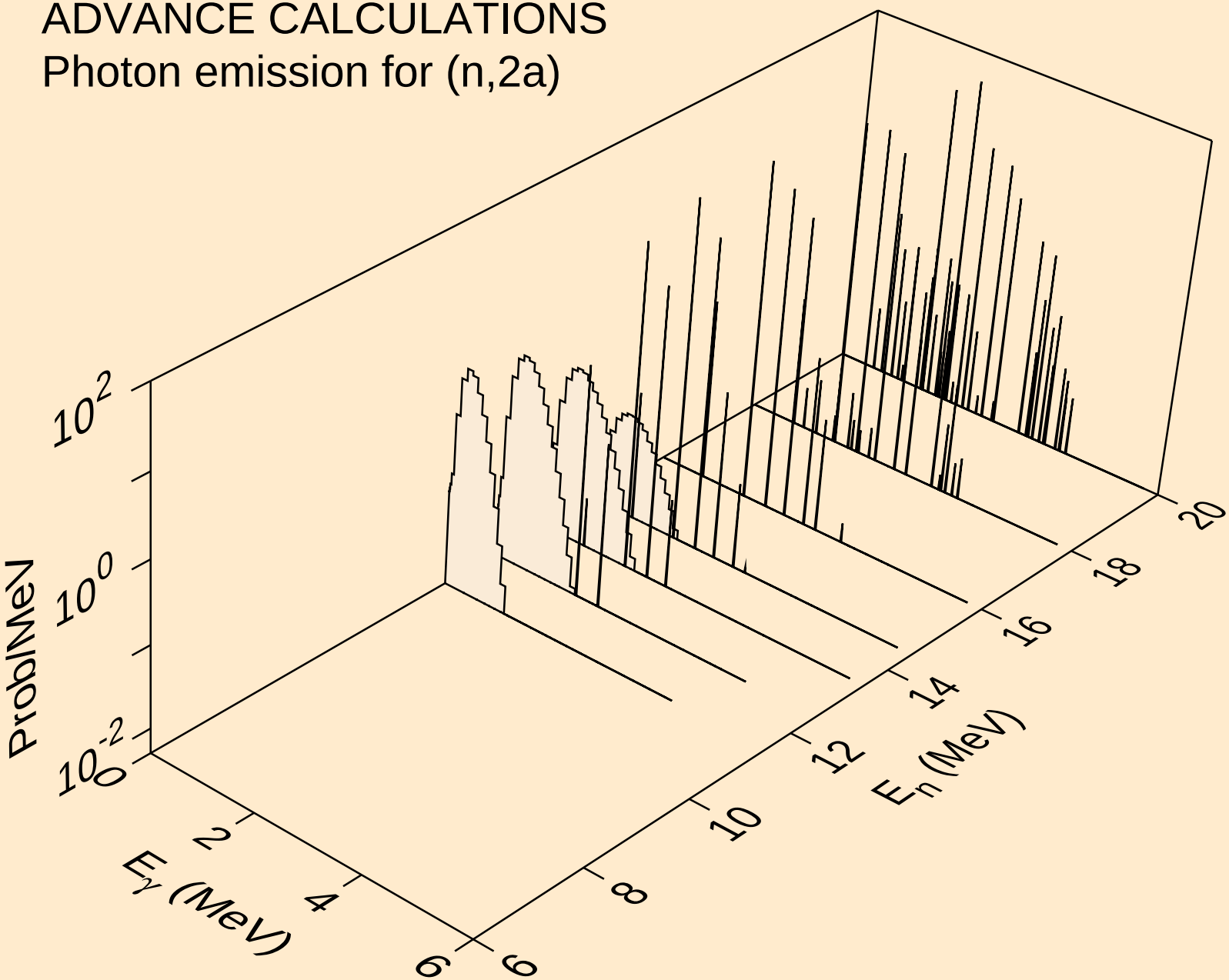
ADVANCE CALCULATIONS

Photon emission for (n,gma)



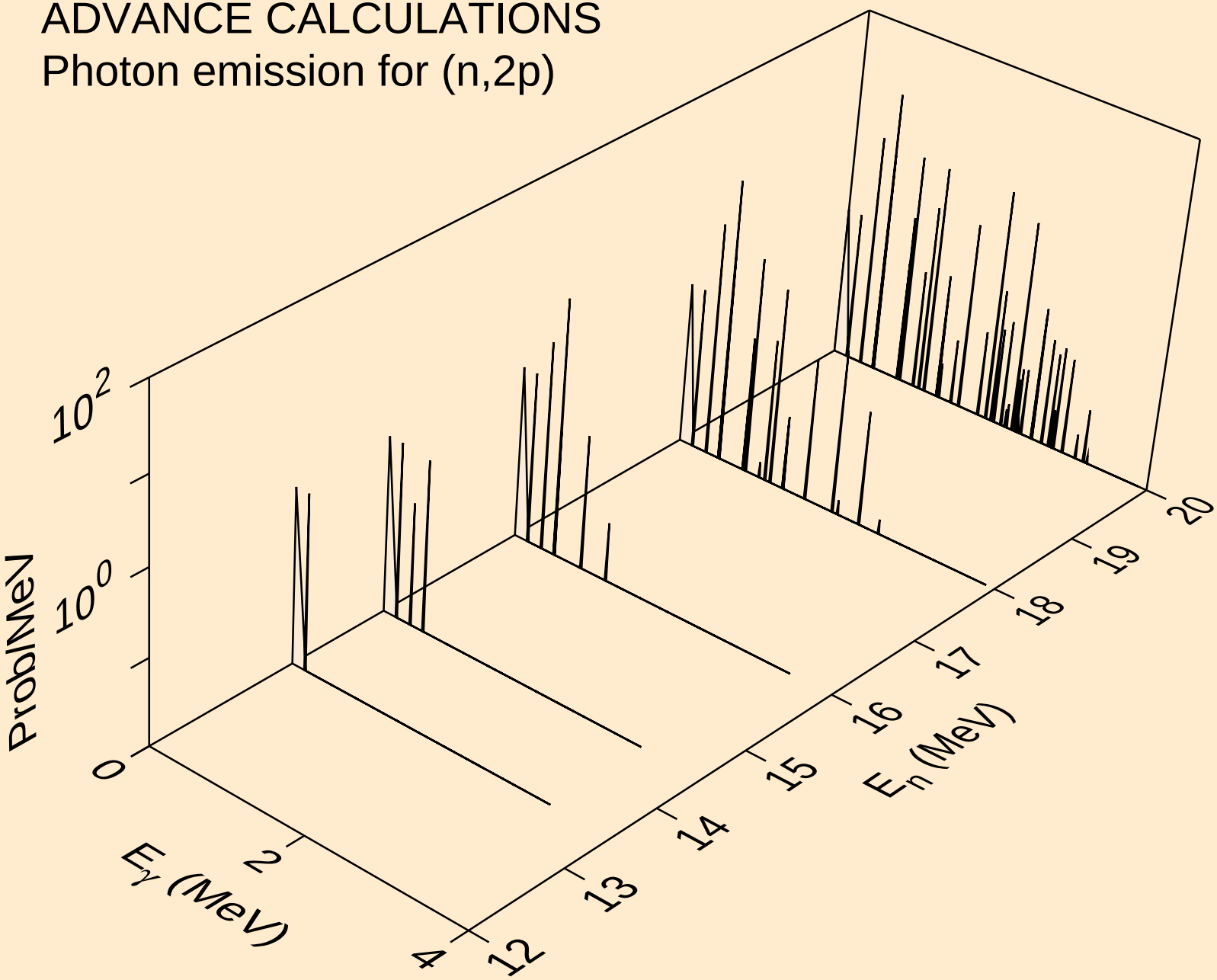
ADVANCE CALCULATIONS

Photon emission for (n,2a)



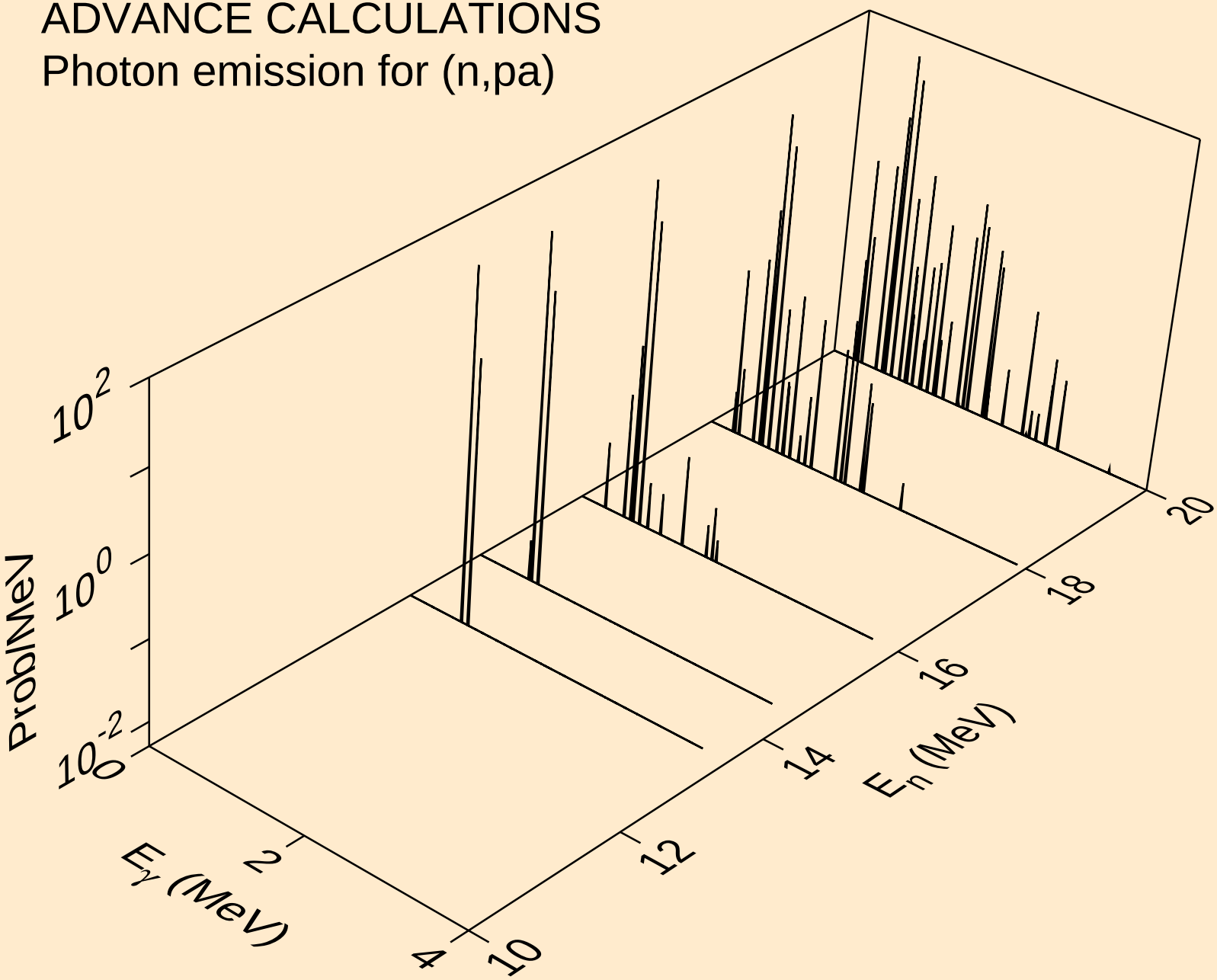
ADVANCE CALCULATIONS

Photon emission for (n,2p)



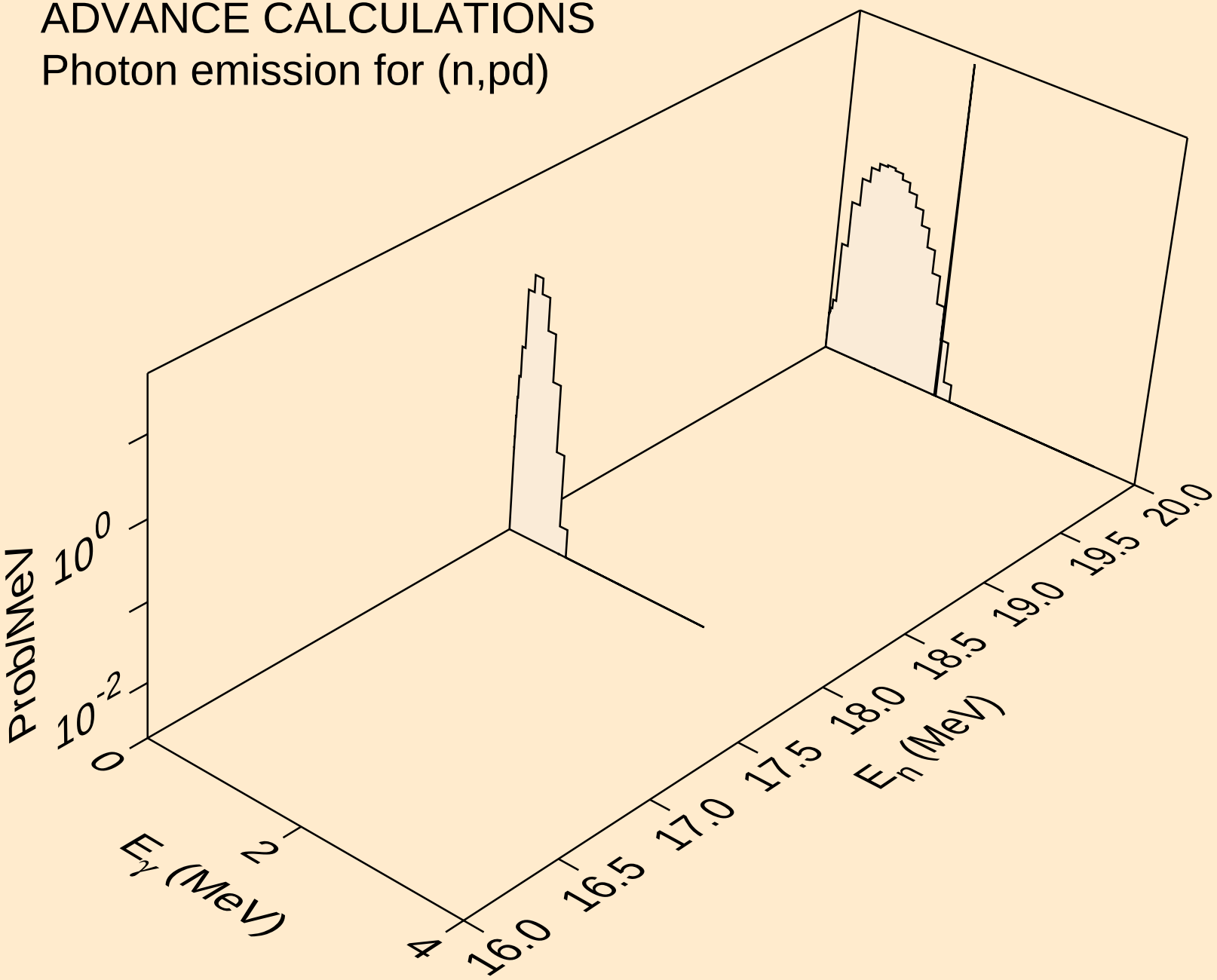
ADVANCE CALCULATIONS

Photon emission for (n,pa)



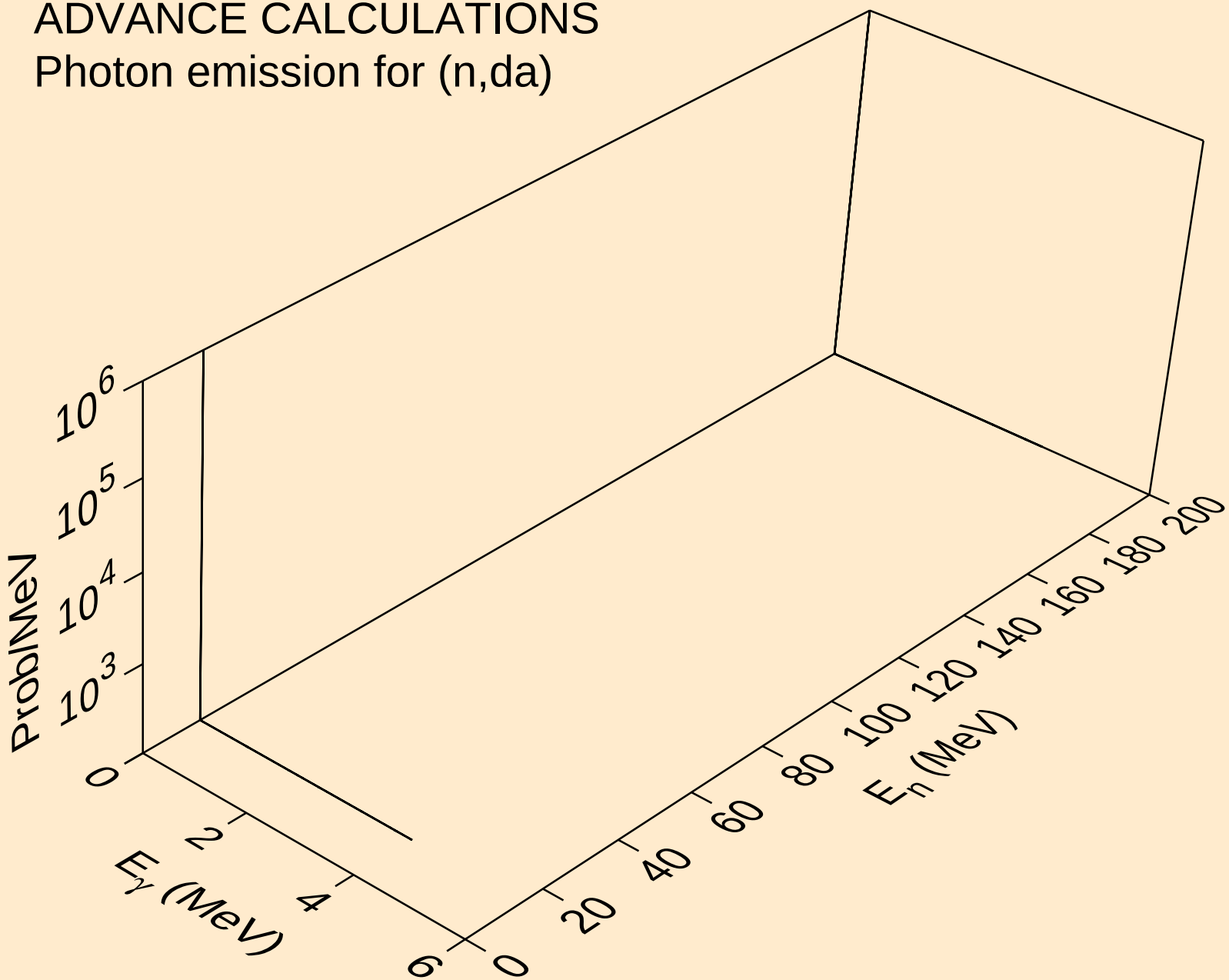
ADVANCE CALCULATIONS

Photon emission for (n,pd)



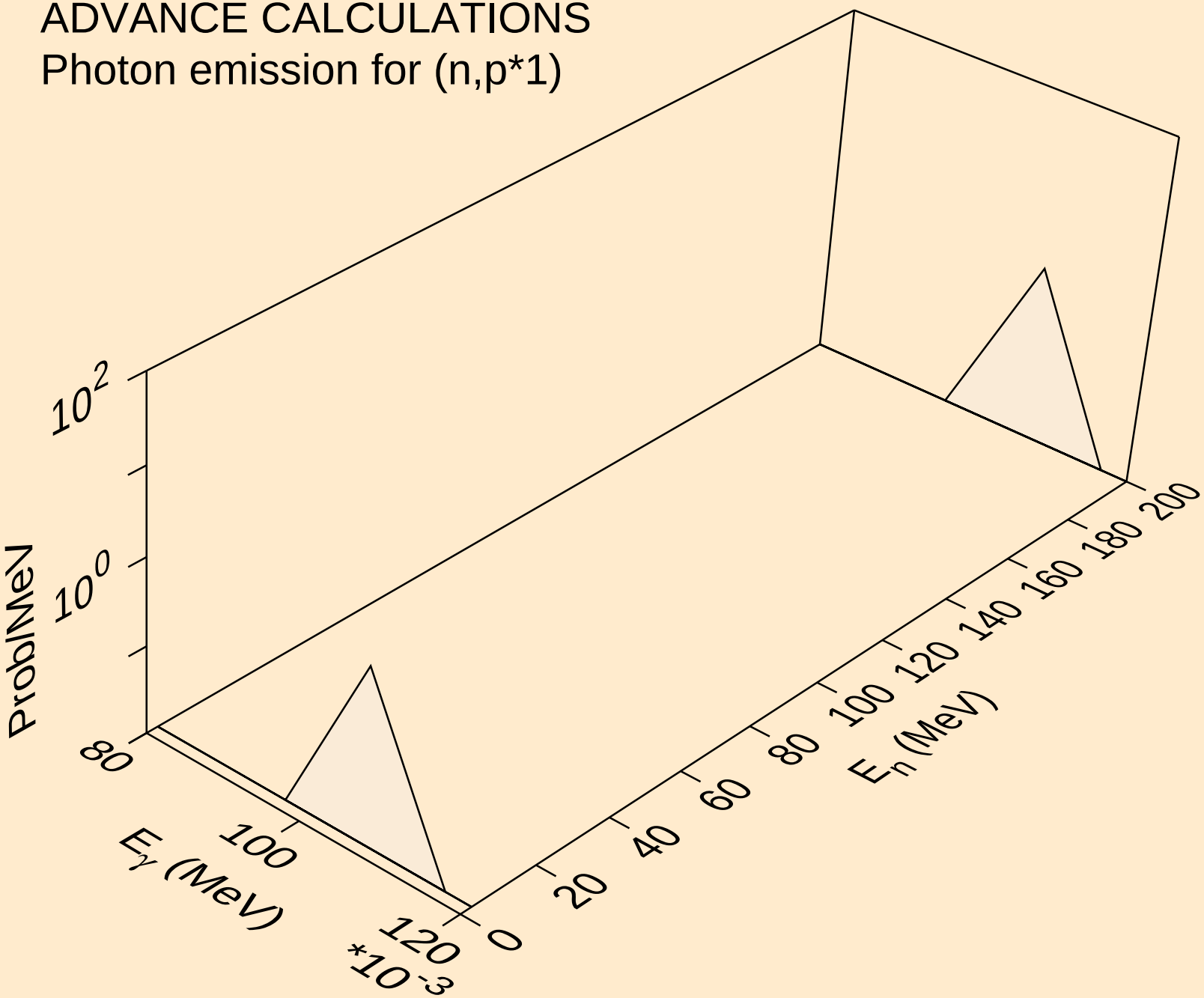
ADVANCE CALCULATIONS

Photon emission for (n,da)



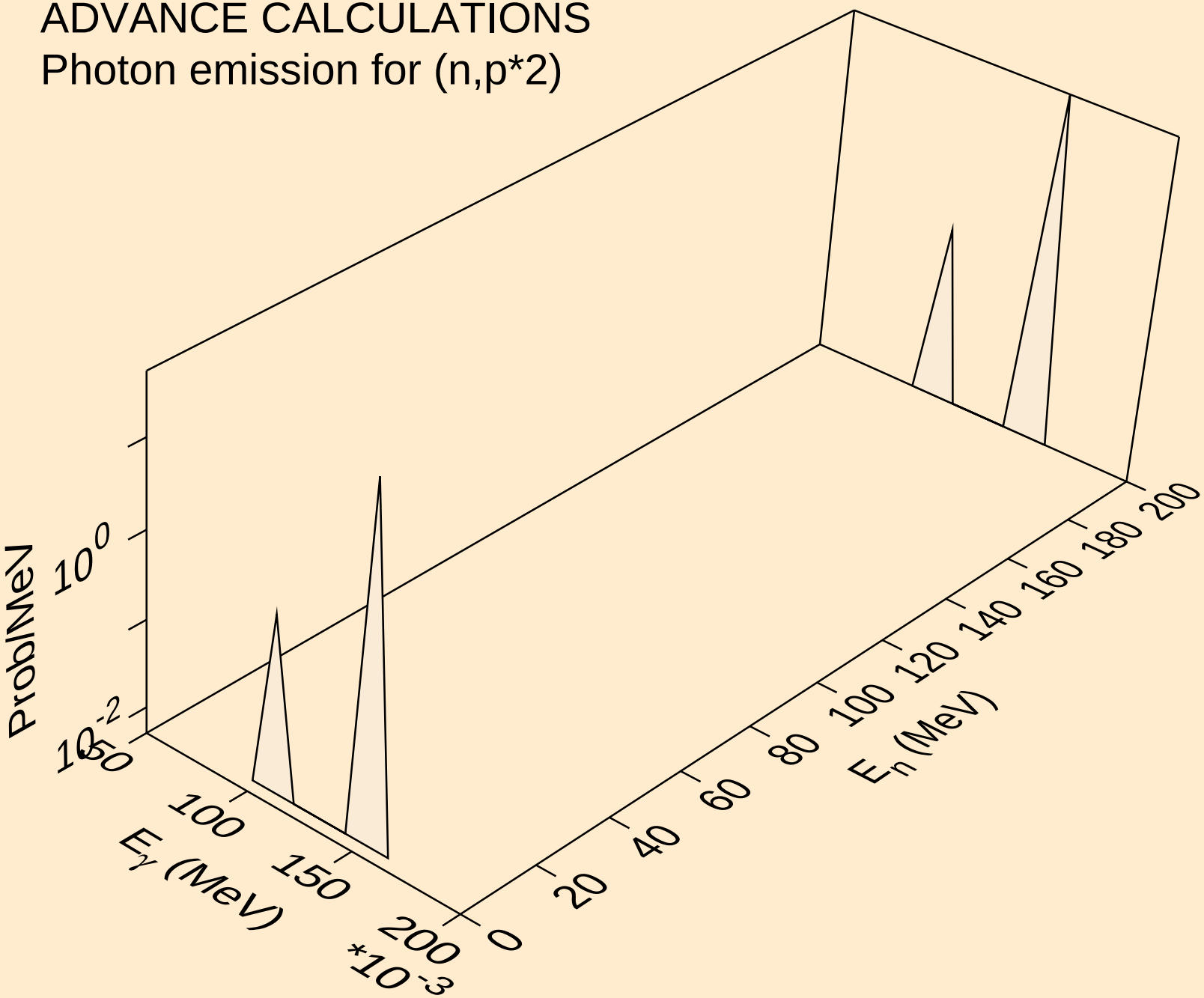
ADVANCE CALCULATIONS

Photon emission for (n,p*1)



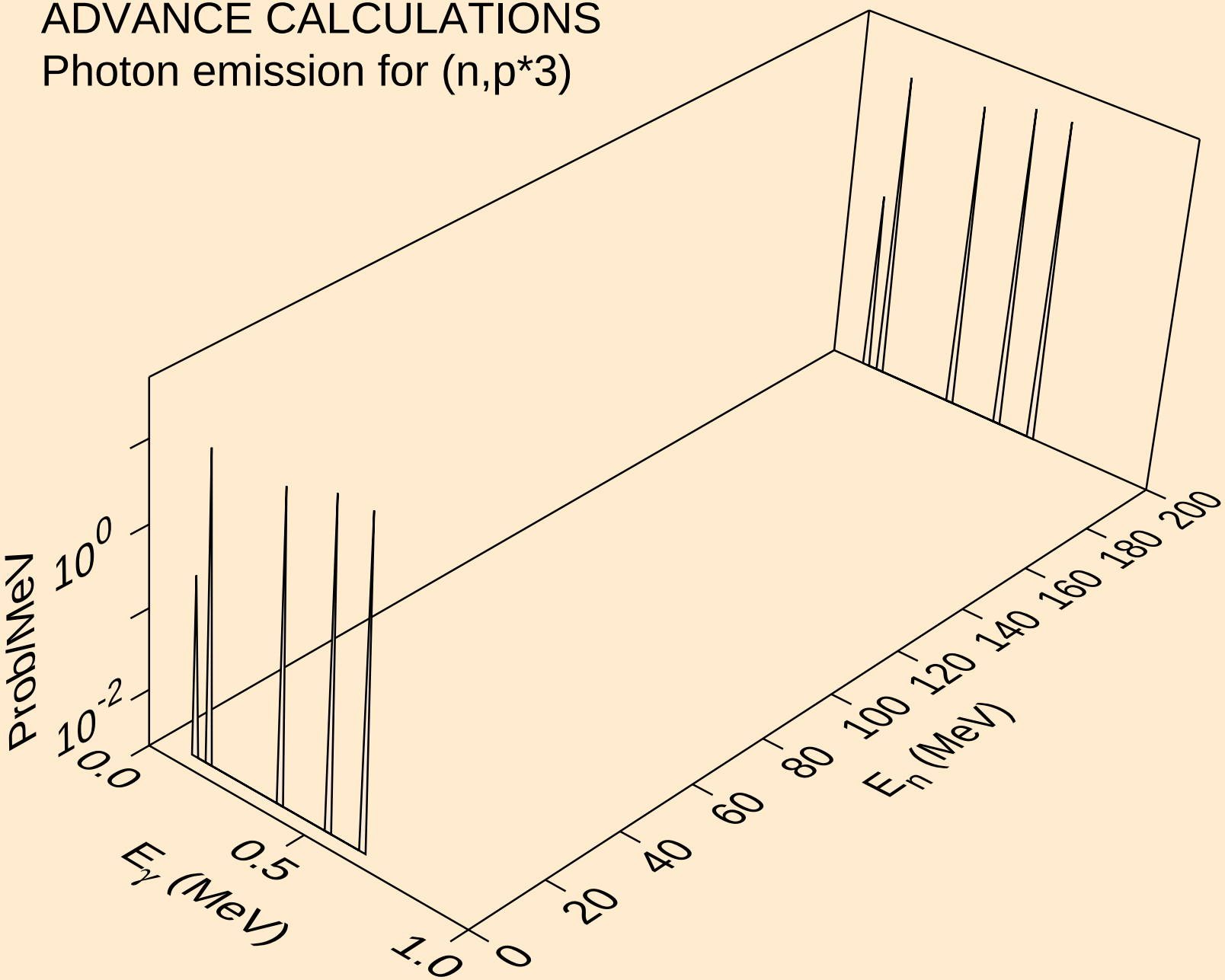
ADVANCE CALCULATIONS

Photon emission for (n,p*2)



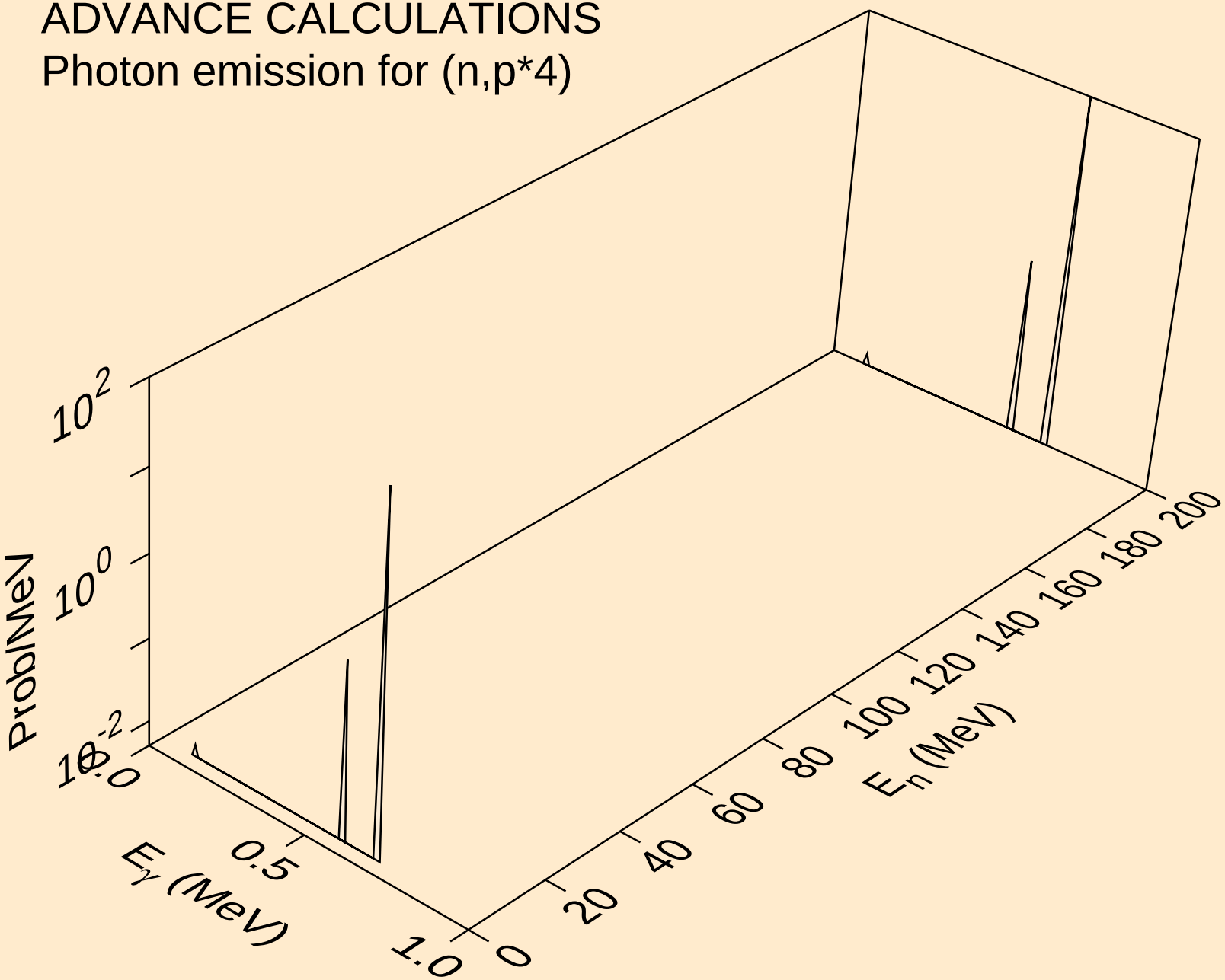
ADVANCE CALCULATIONS

Photon emission for (n,p*3)



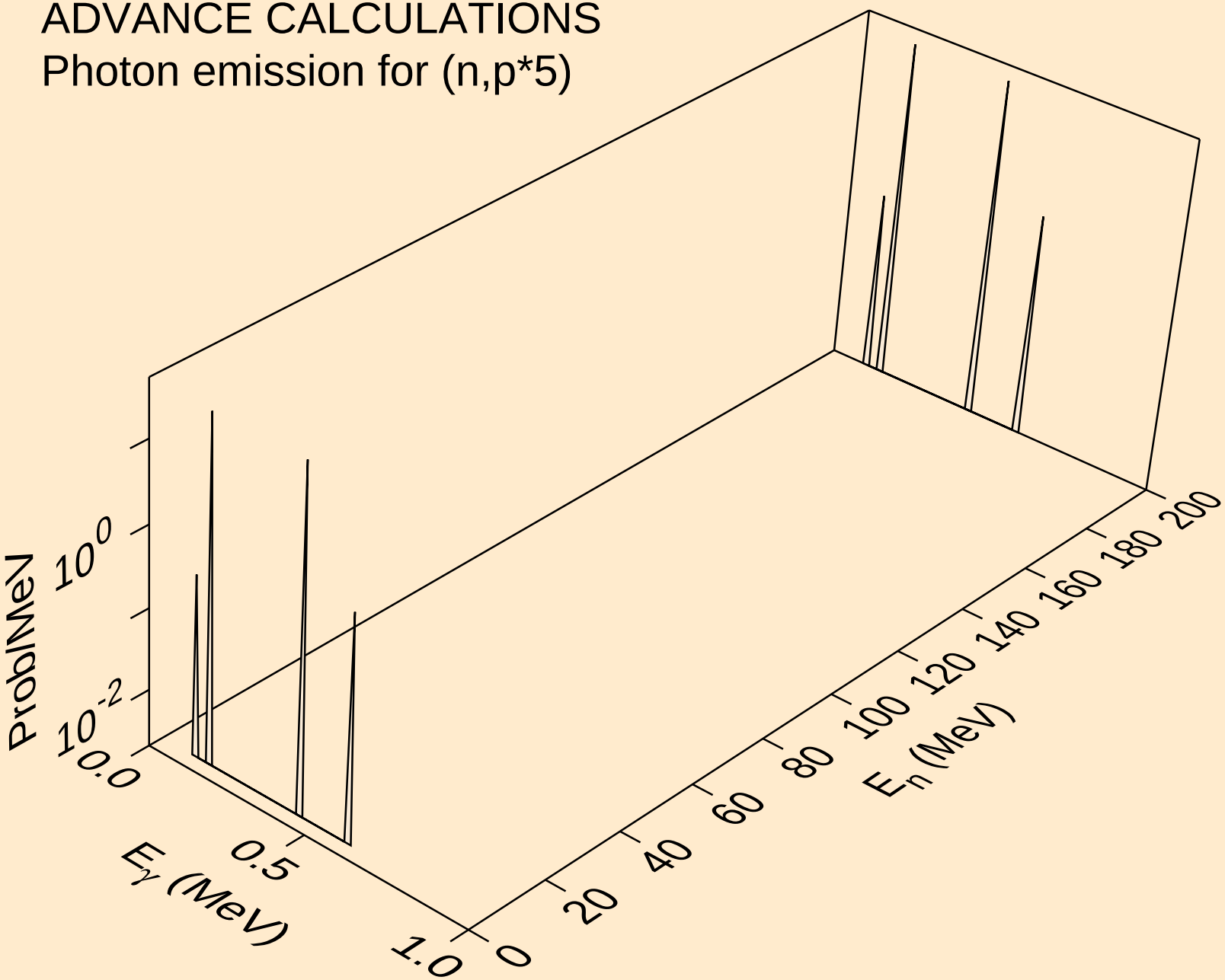
ADVANCE CALCULATIONS

Photon emission for (n,p*4)



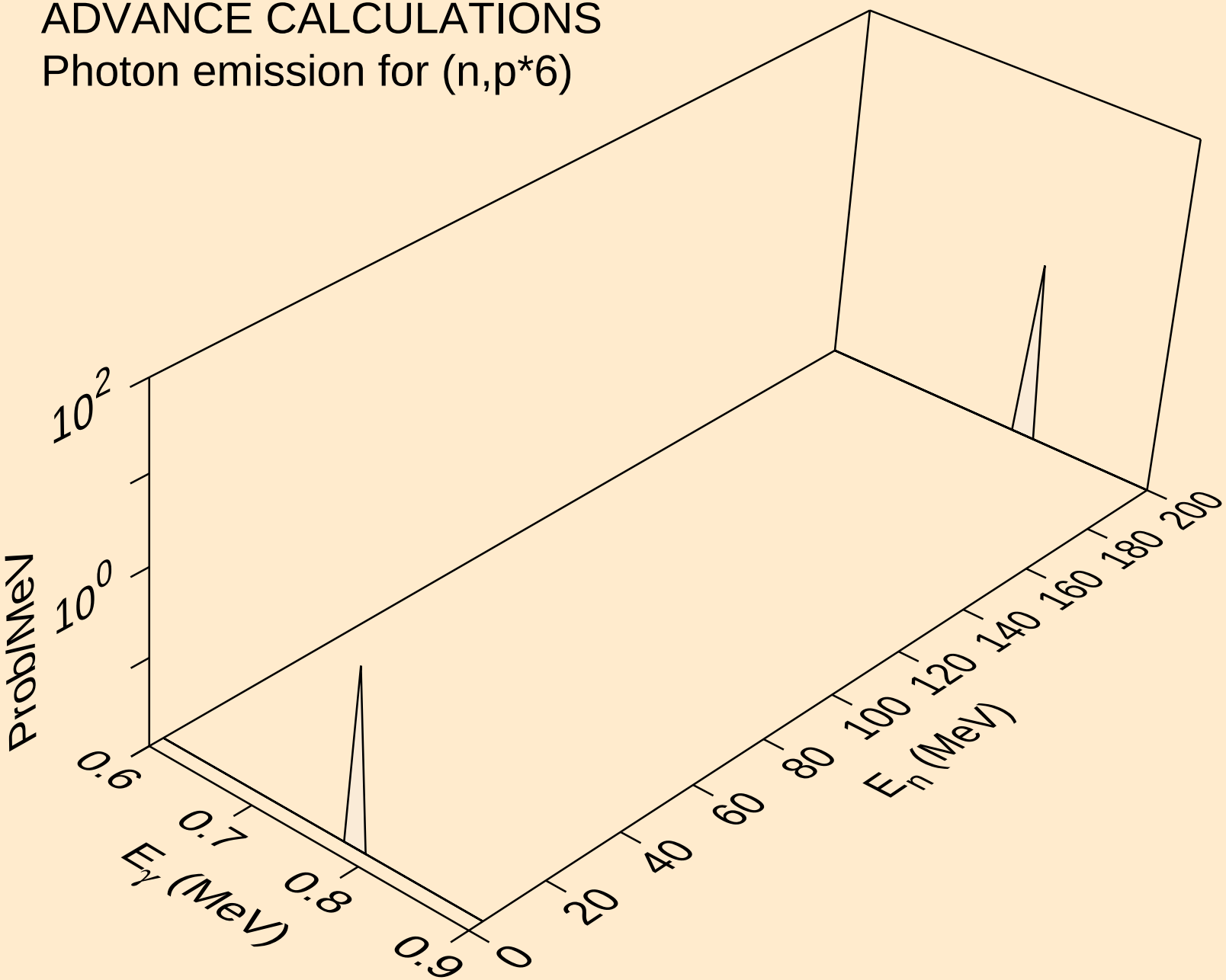
ADVANCE CALCULATIONS

Photon emission for (n,p*5)



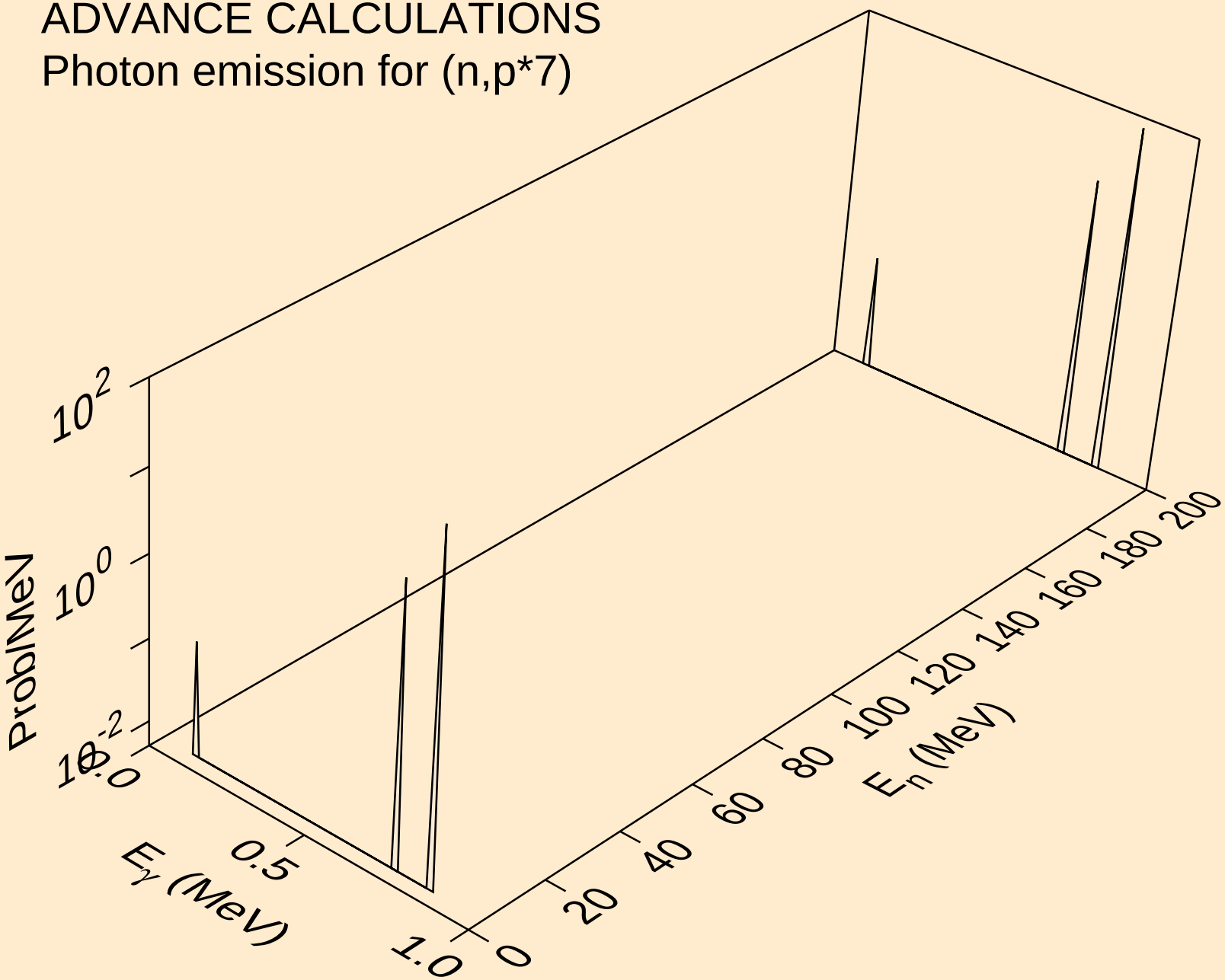
ADVANCE CALCULATIONS

Photon emission for (n,p*6)



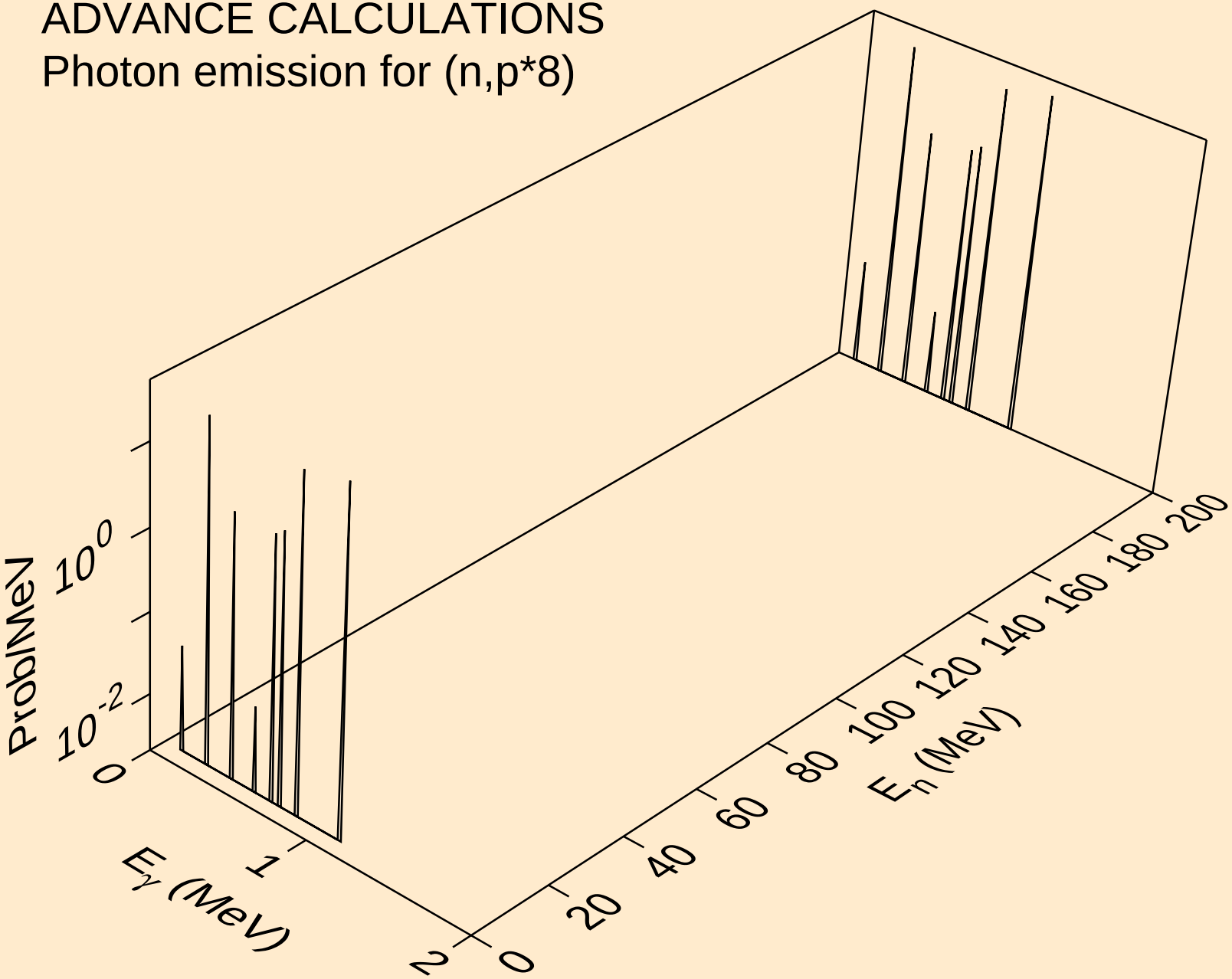
ADVANCE CALCULATIONS

Photon emission for (n,p*7)



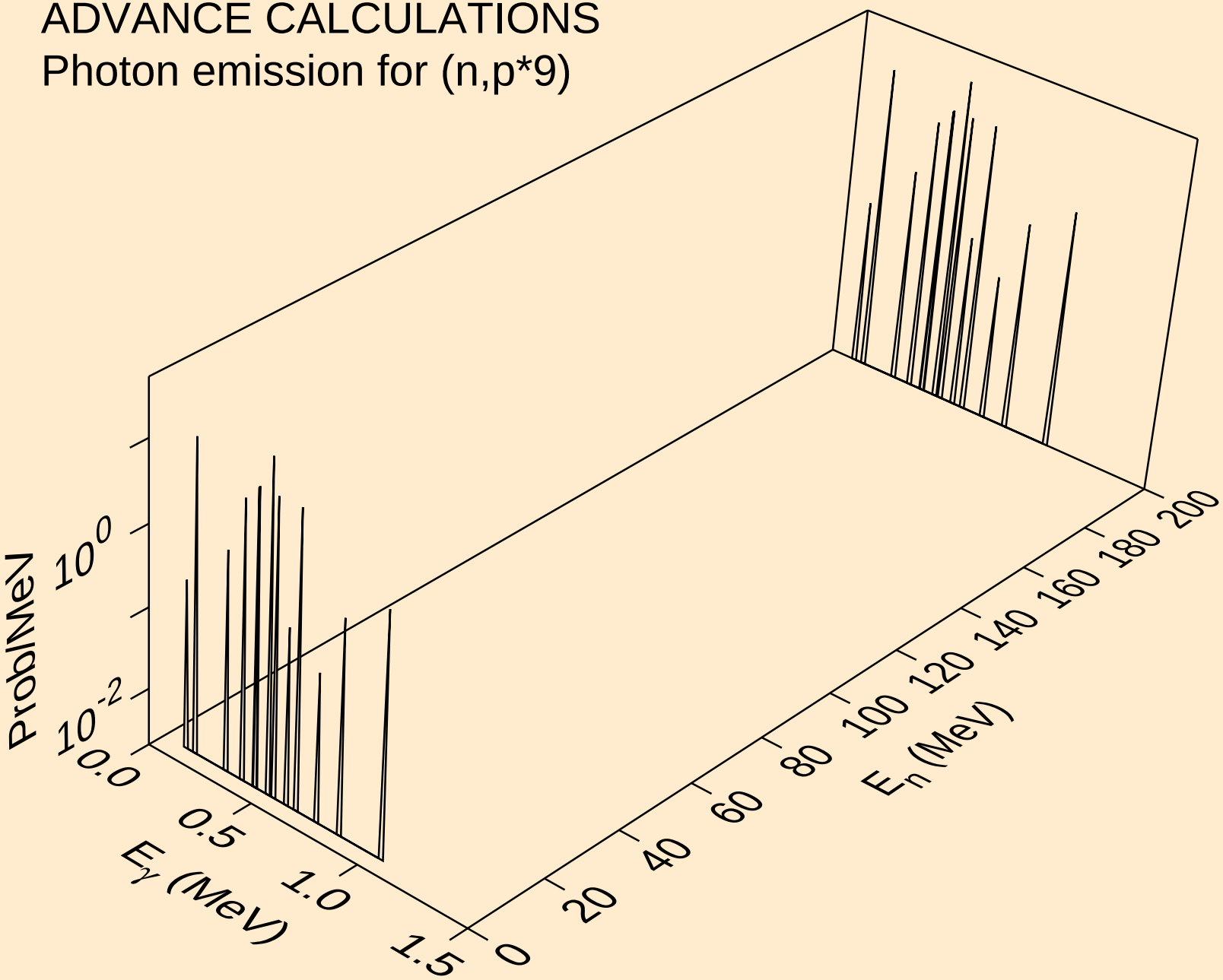
ADVANCE CALCULATIONS

Photon emission for (n,p*8)



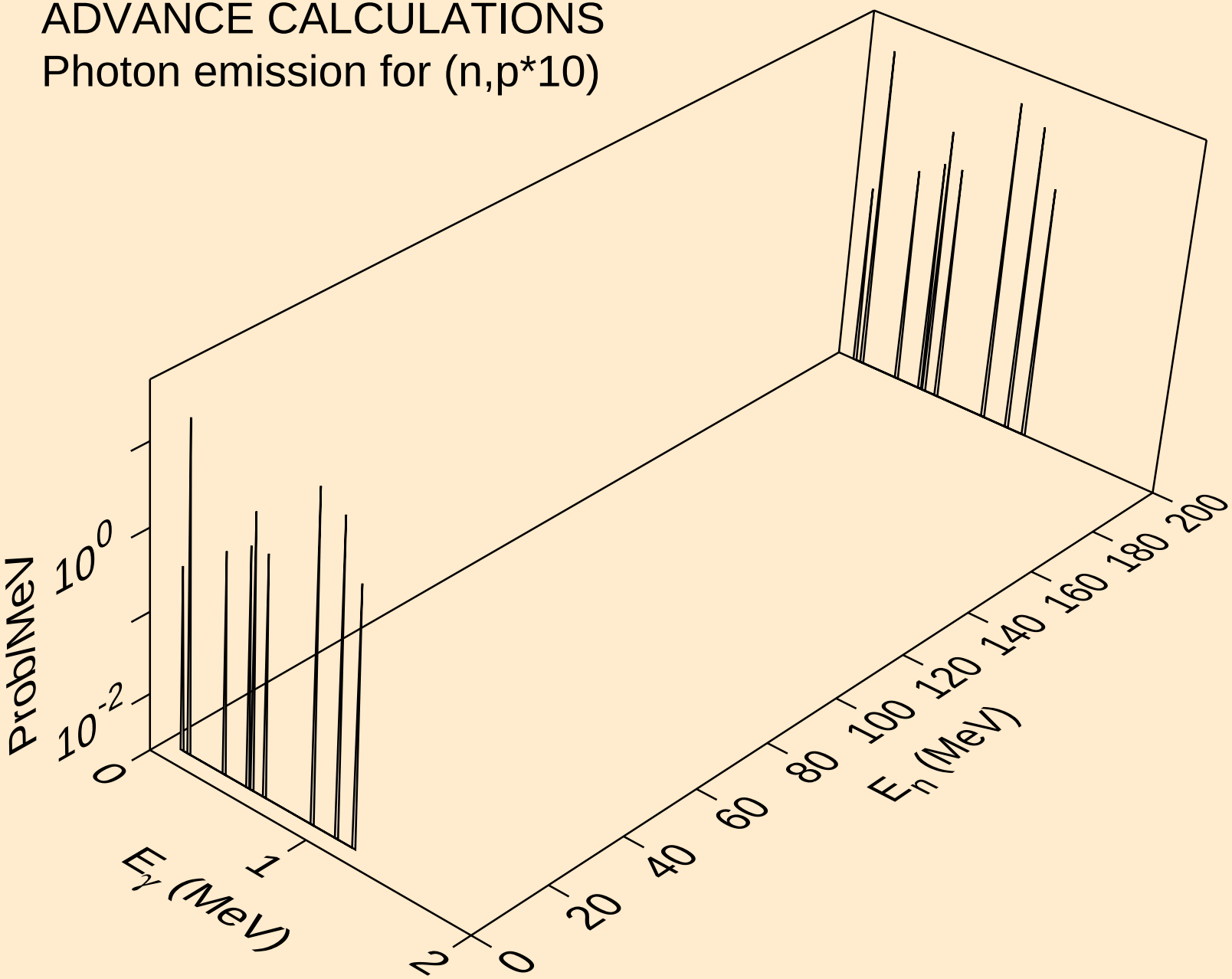
ADVANCE CALCULATIONS

Photon emission for (n,p*9)



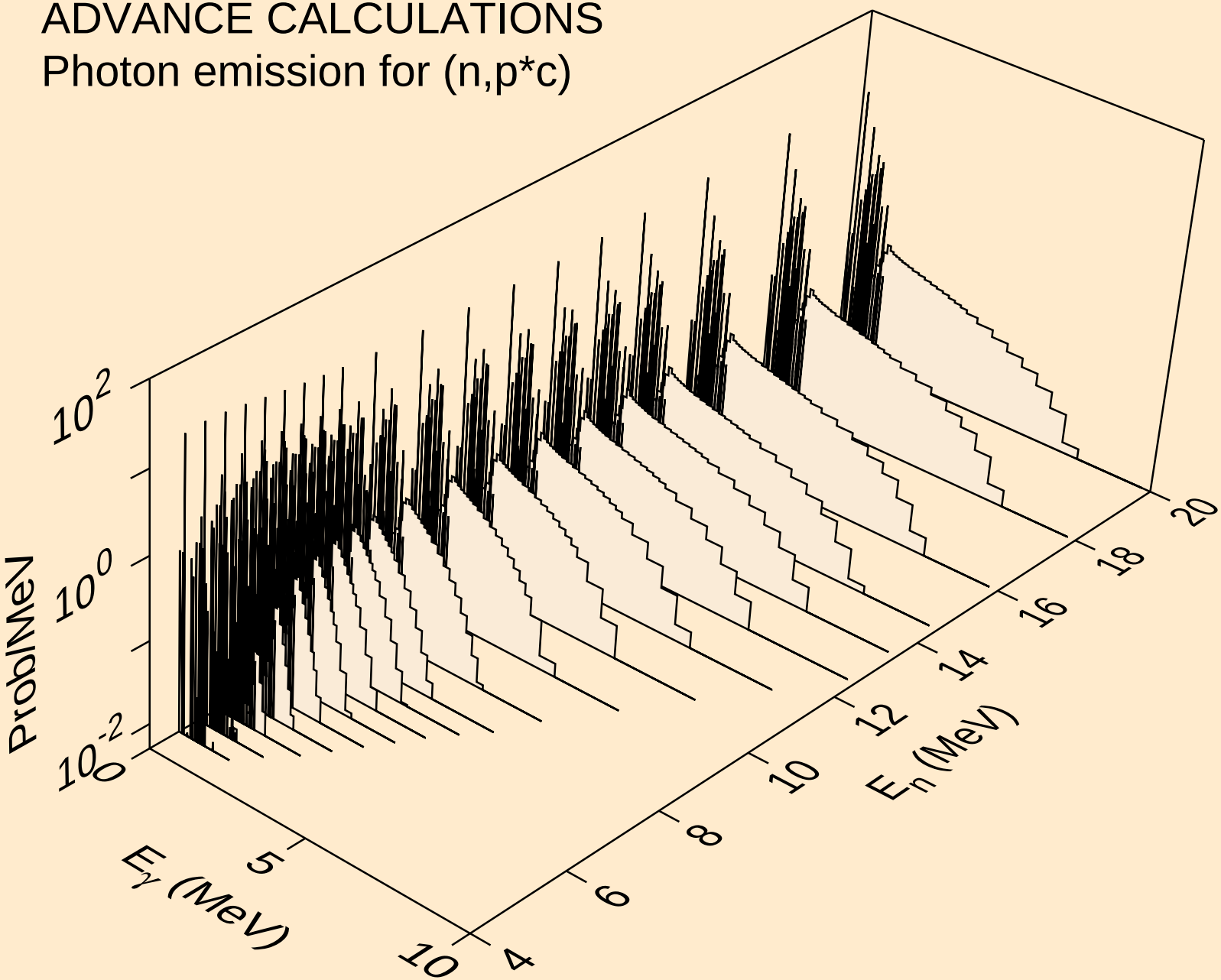
ADVANCE CALCULATIONS

Photon emission for (n,p*10)



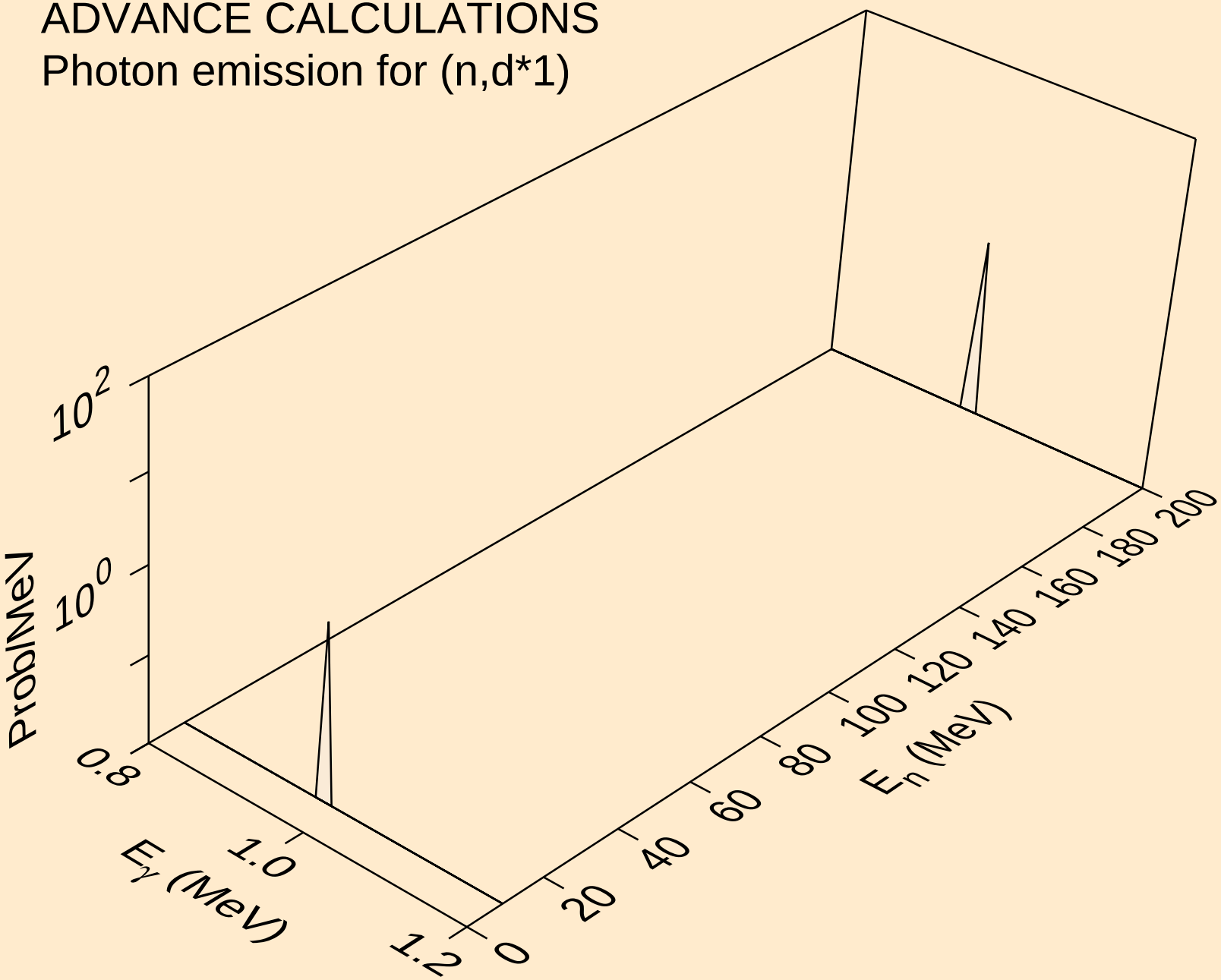
ADVANCE CALCULATIONS

Photon emission for (n,p*c)



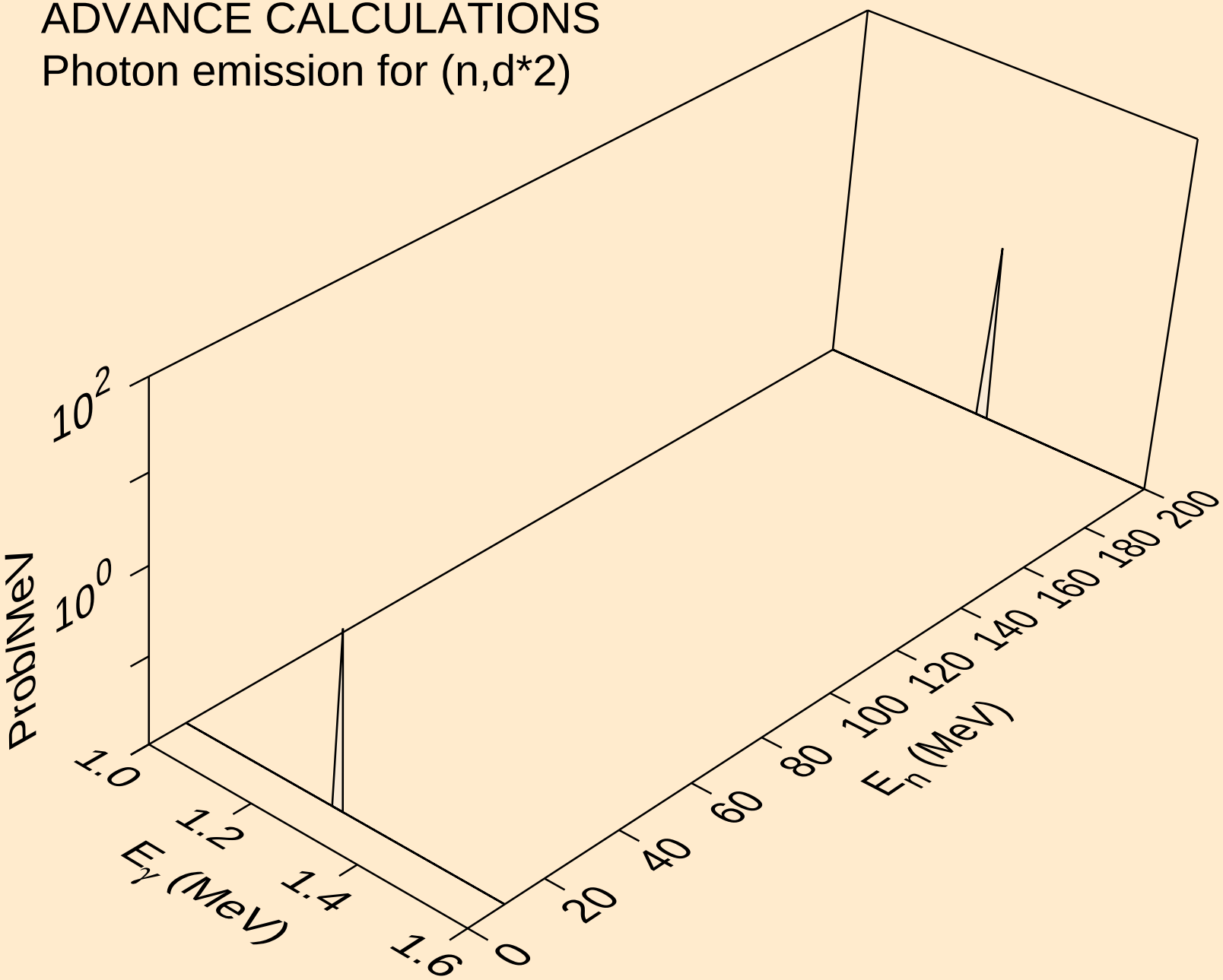
ADVANCE CALCULATIONS

Photon emission for (n,d*1)



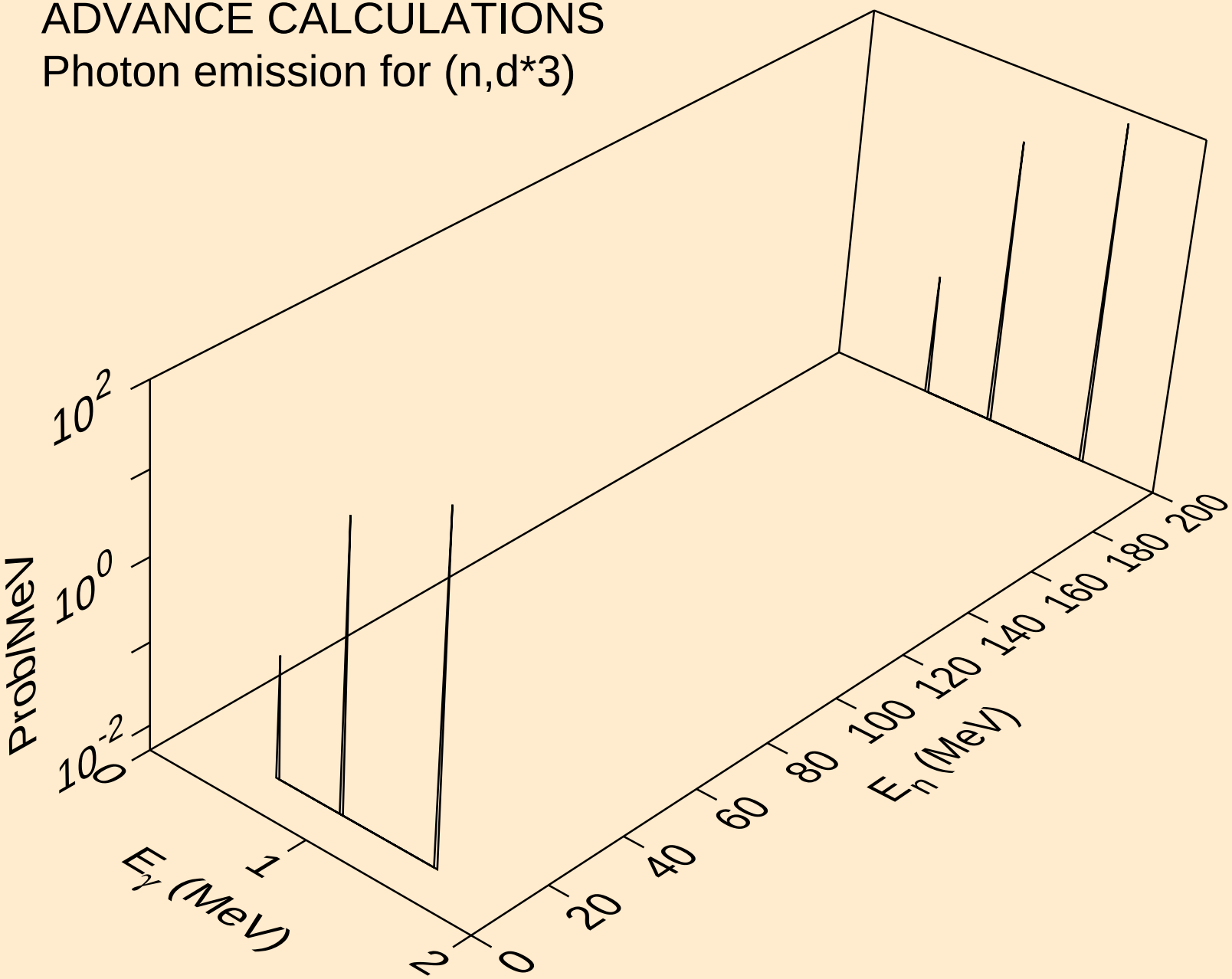
ADVANCE CALCULATIONS

Photon emission for (n,d*2)



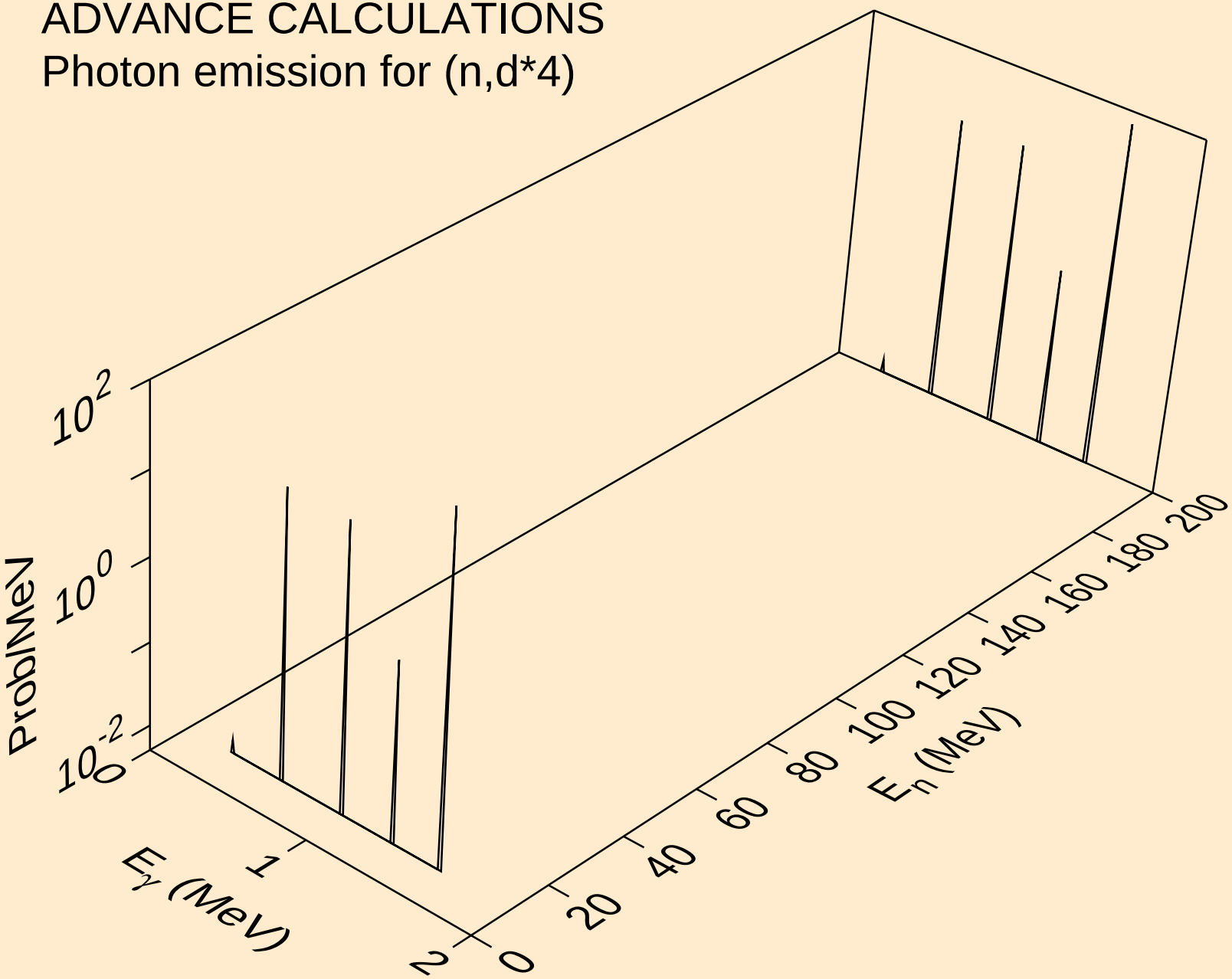
ADVANCE CALCULATIONS

Photon emission for (n,d*3)



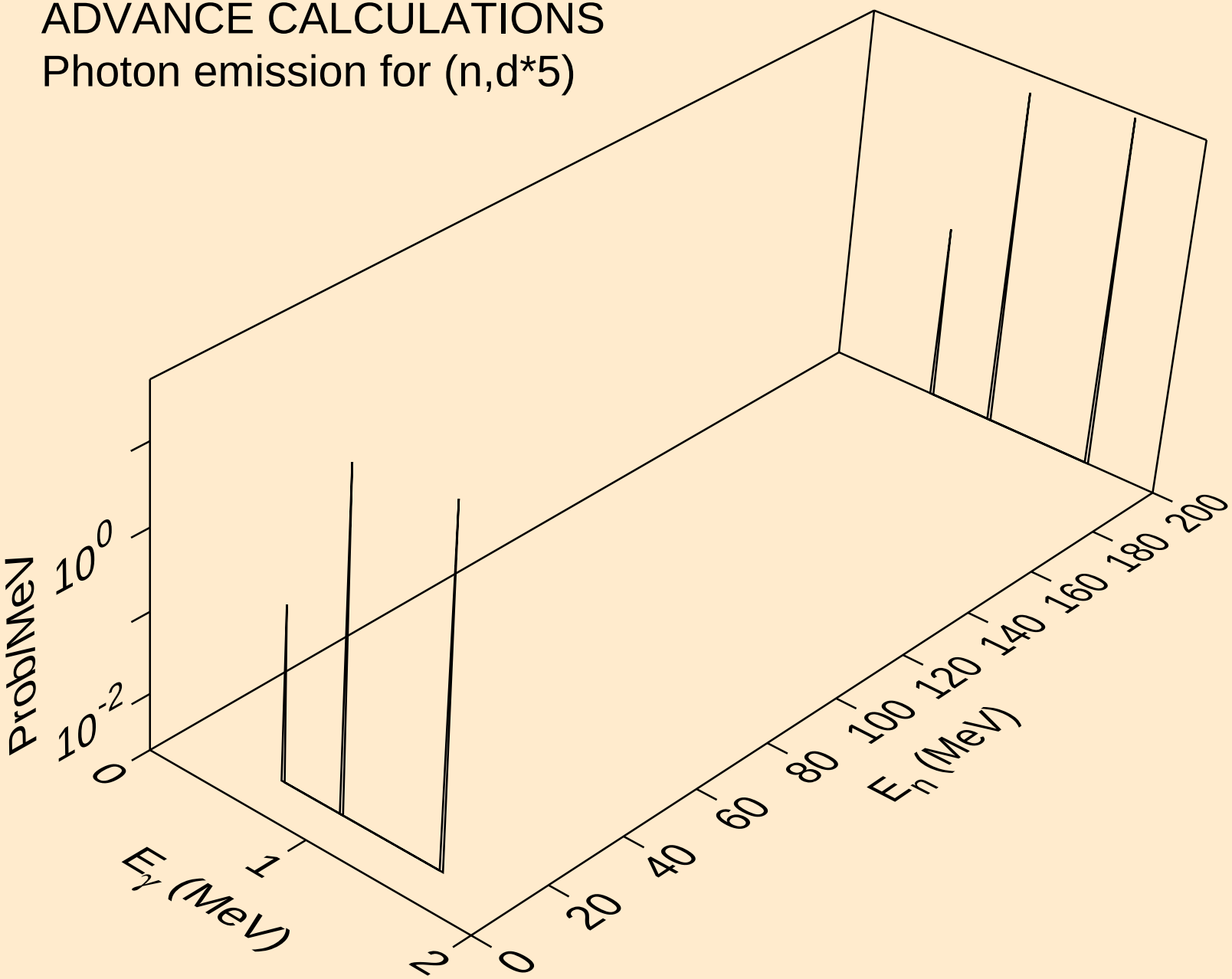
ADVANCE CALCULATIONS

Photon emission for (n,d*4)



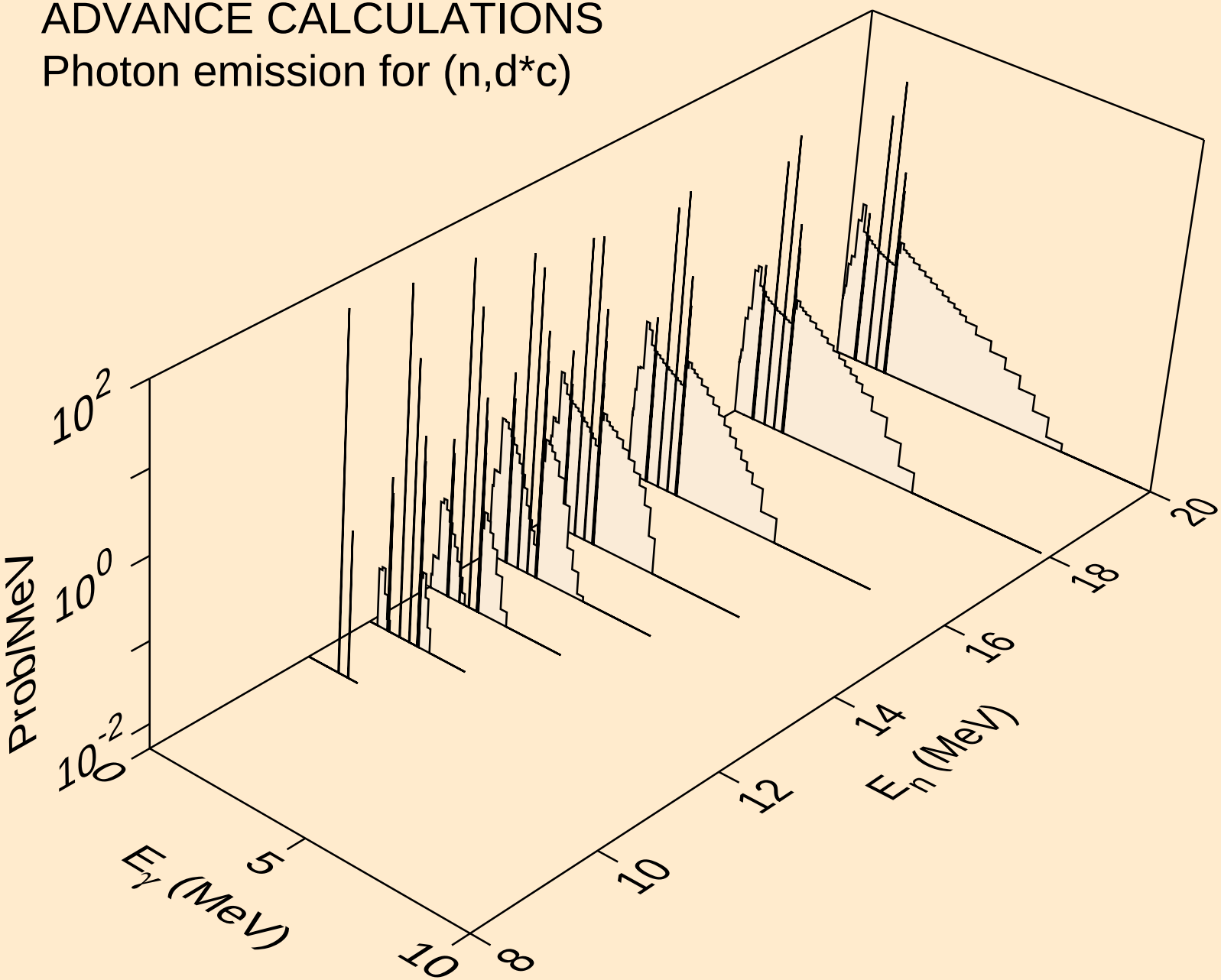
ADVANCE CALCULATIONS

Photon emission for (n,d*5)



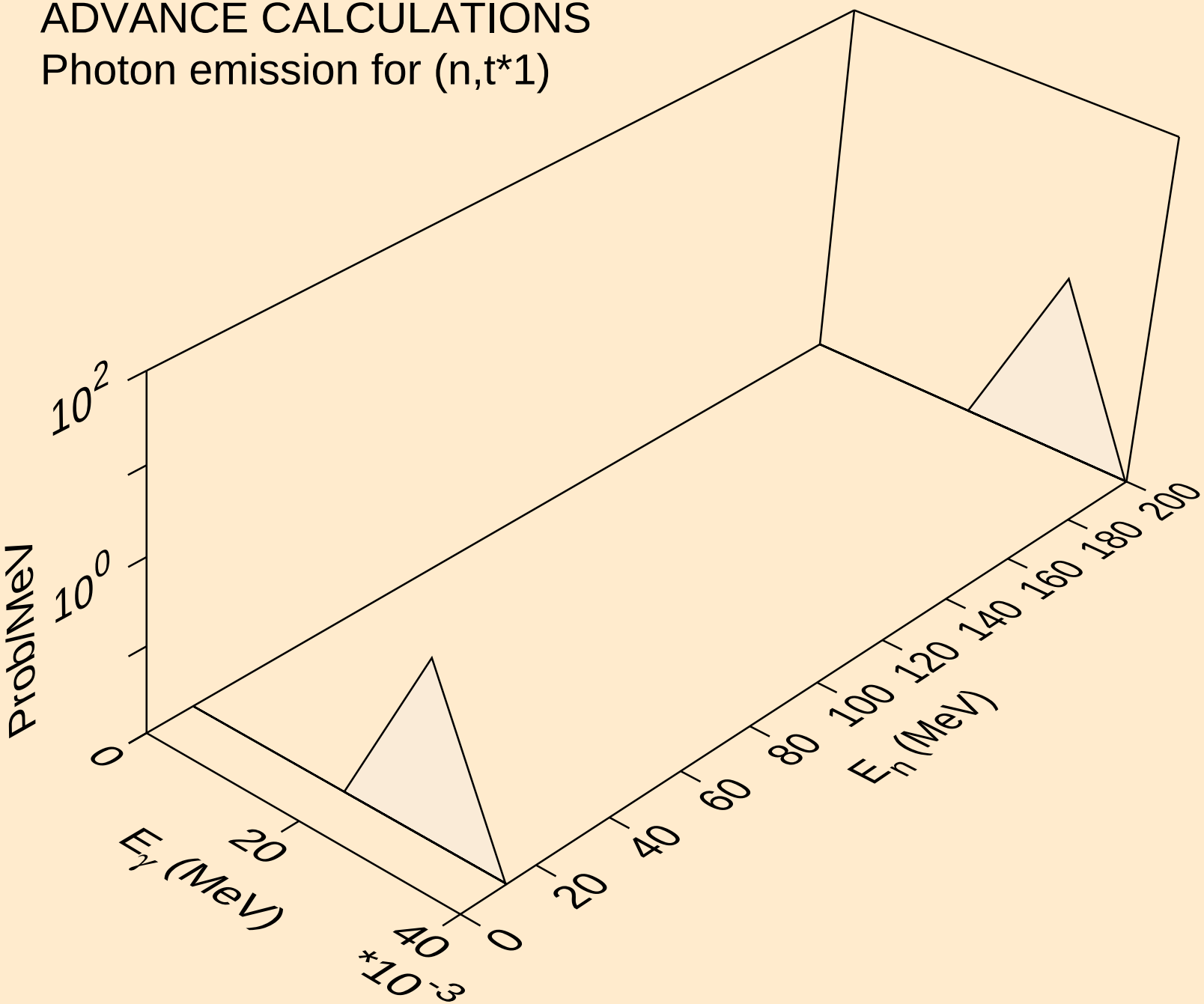
ADVANCE CALCULATIONS

Photon emission for (n,d*c)



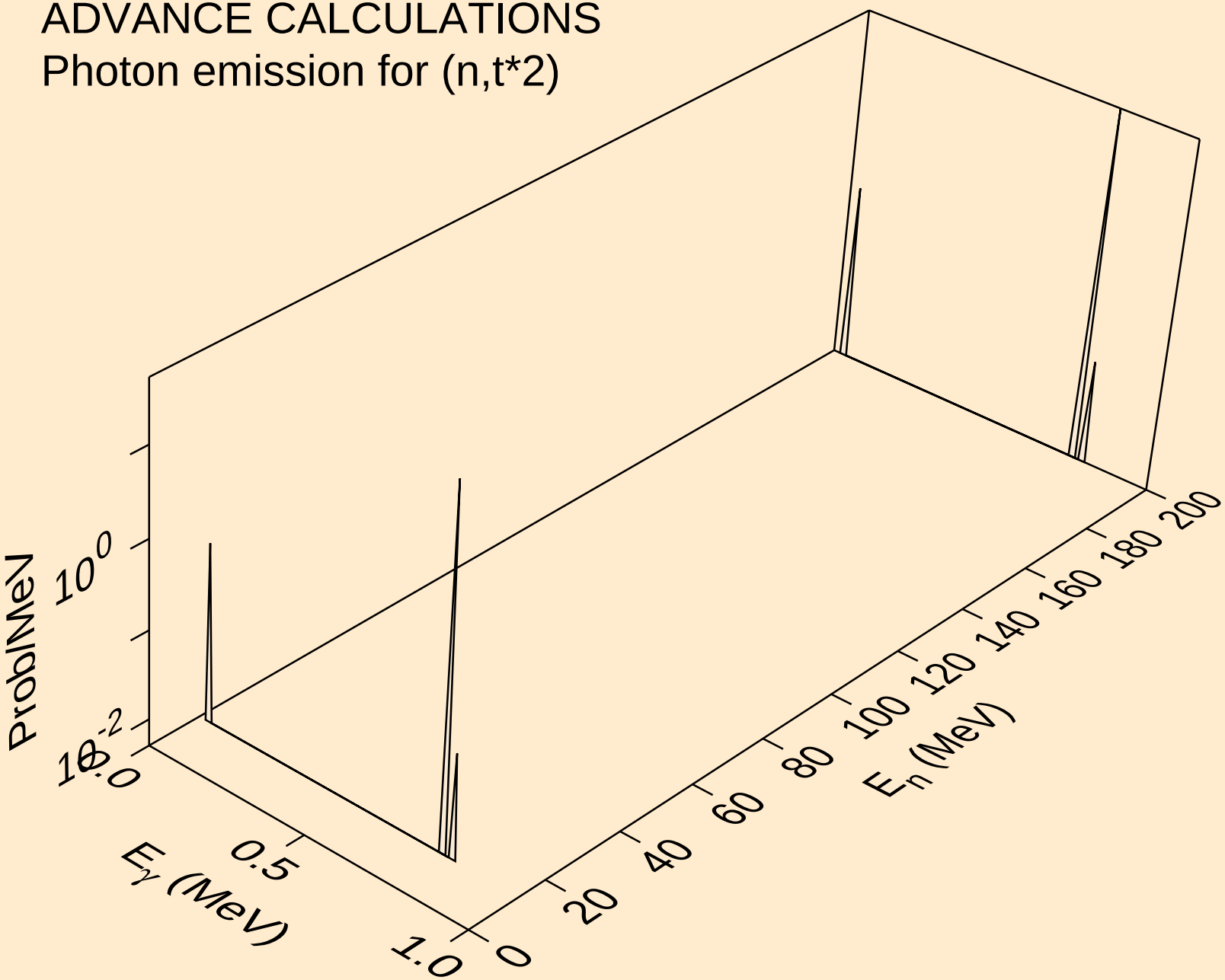
ADVANCE CALCULATIONS

Photon emission for (n,t*1)



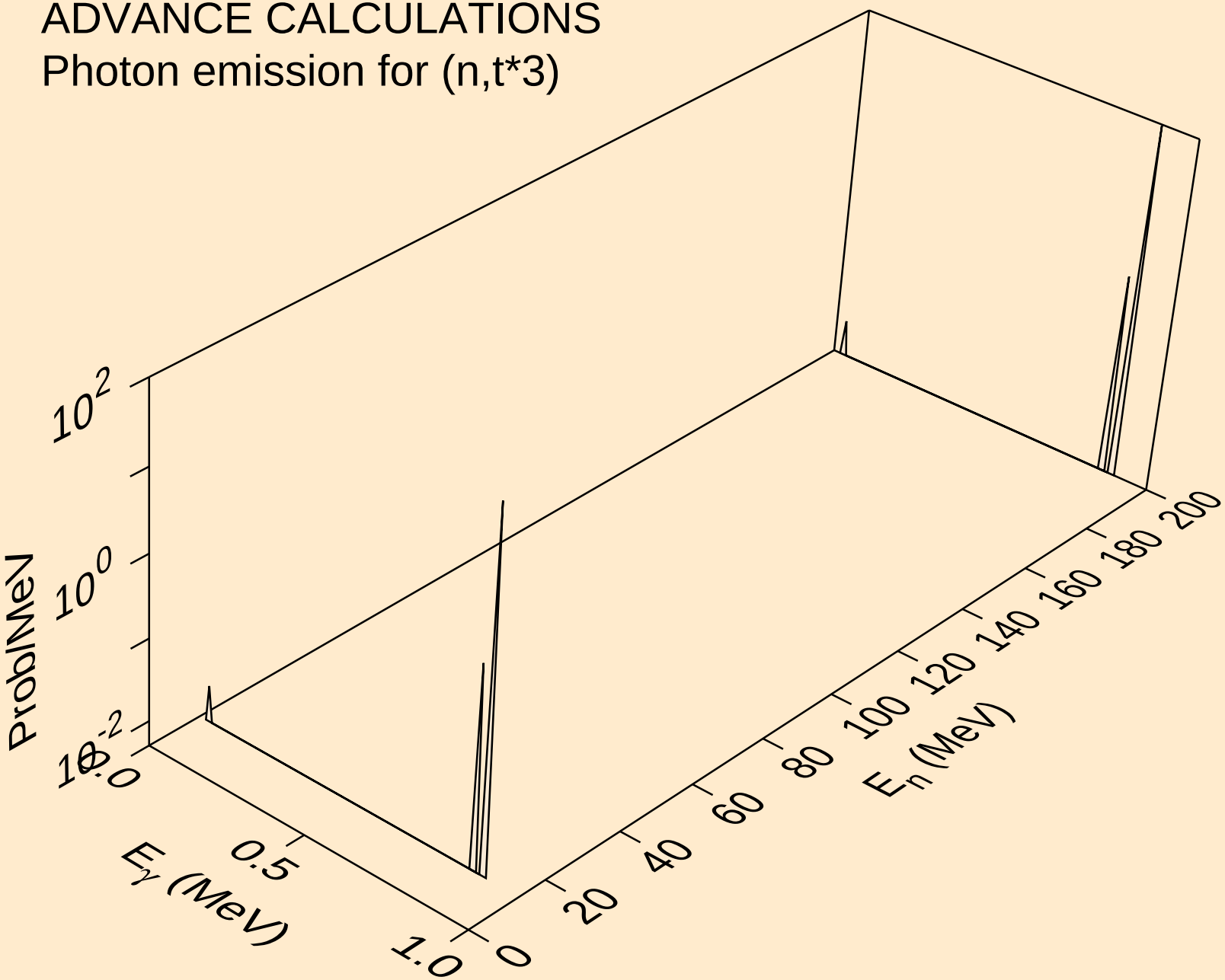
ADVANCE CALCULATIONS

Photon emission for (n,t*2)



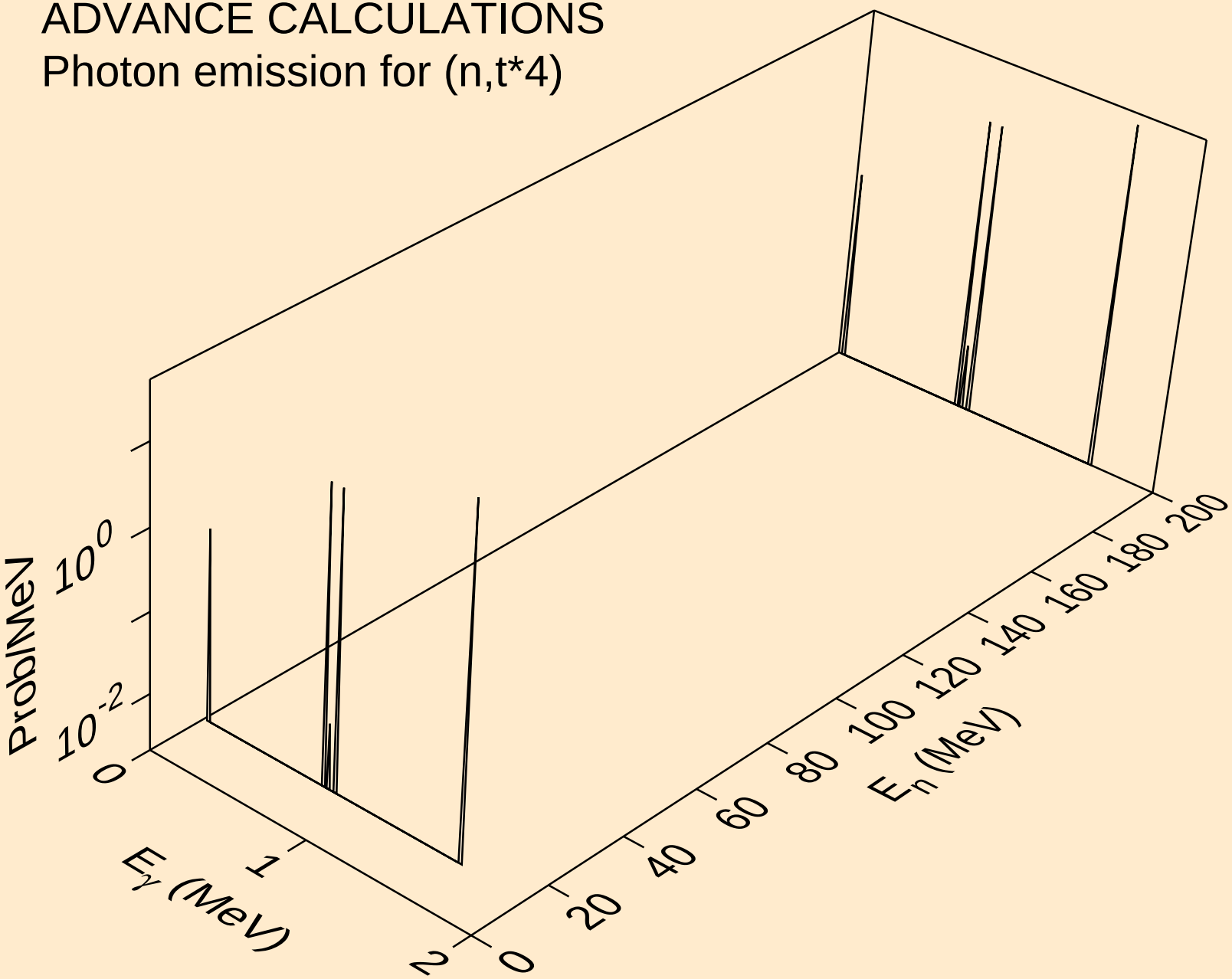
ADVANCE CALCULATIONS

Photon emission for (n,t*3)



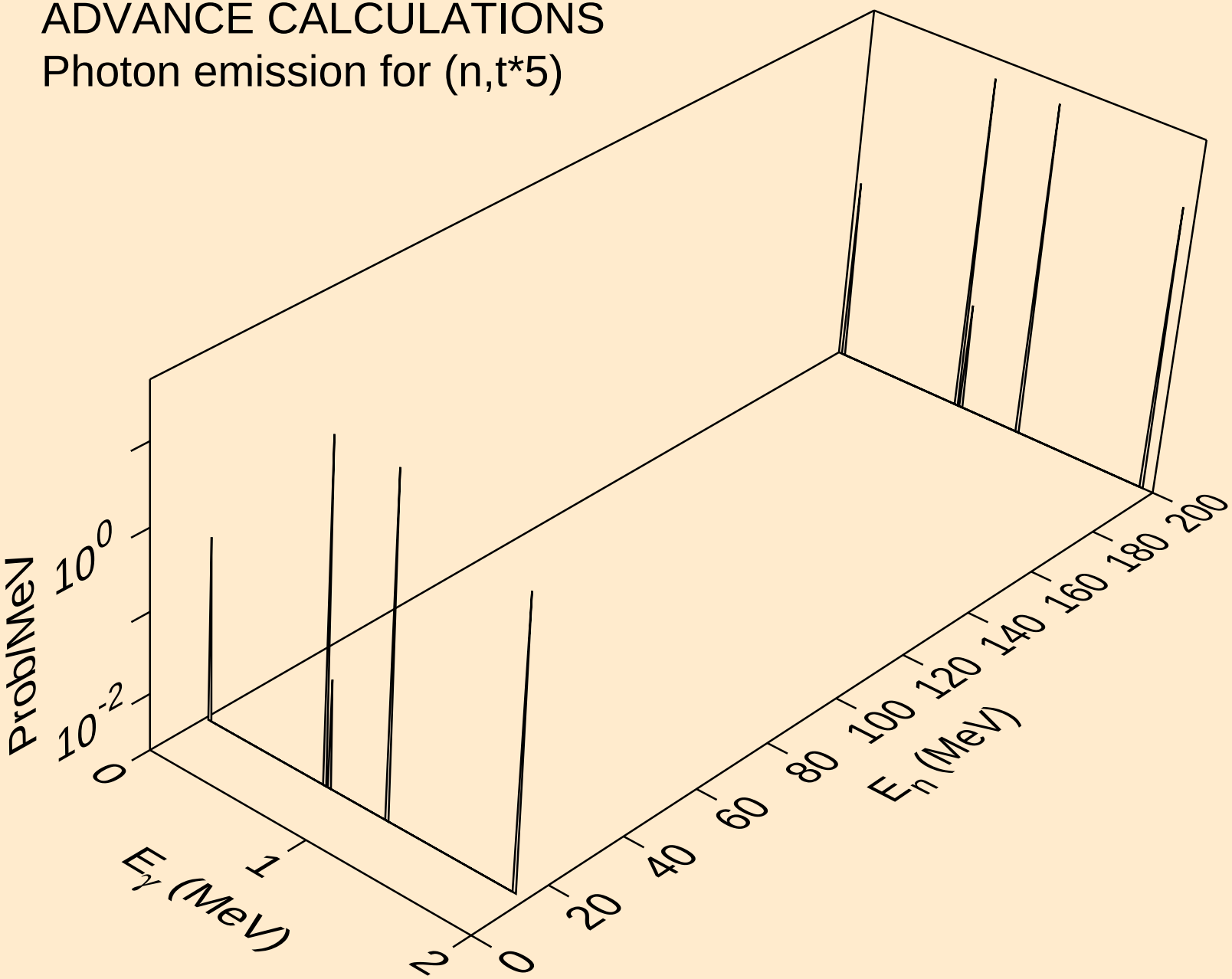
ADVANCE CALCULATIONS

Photon emission for (n,t*4)



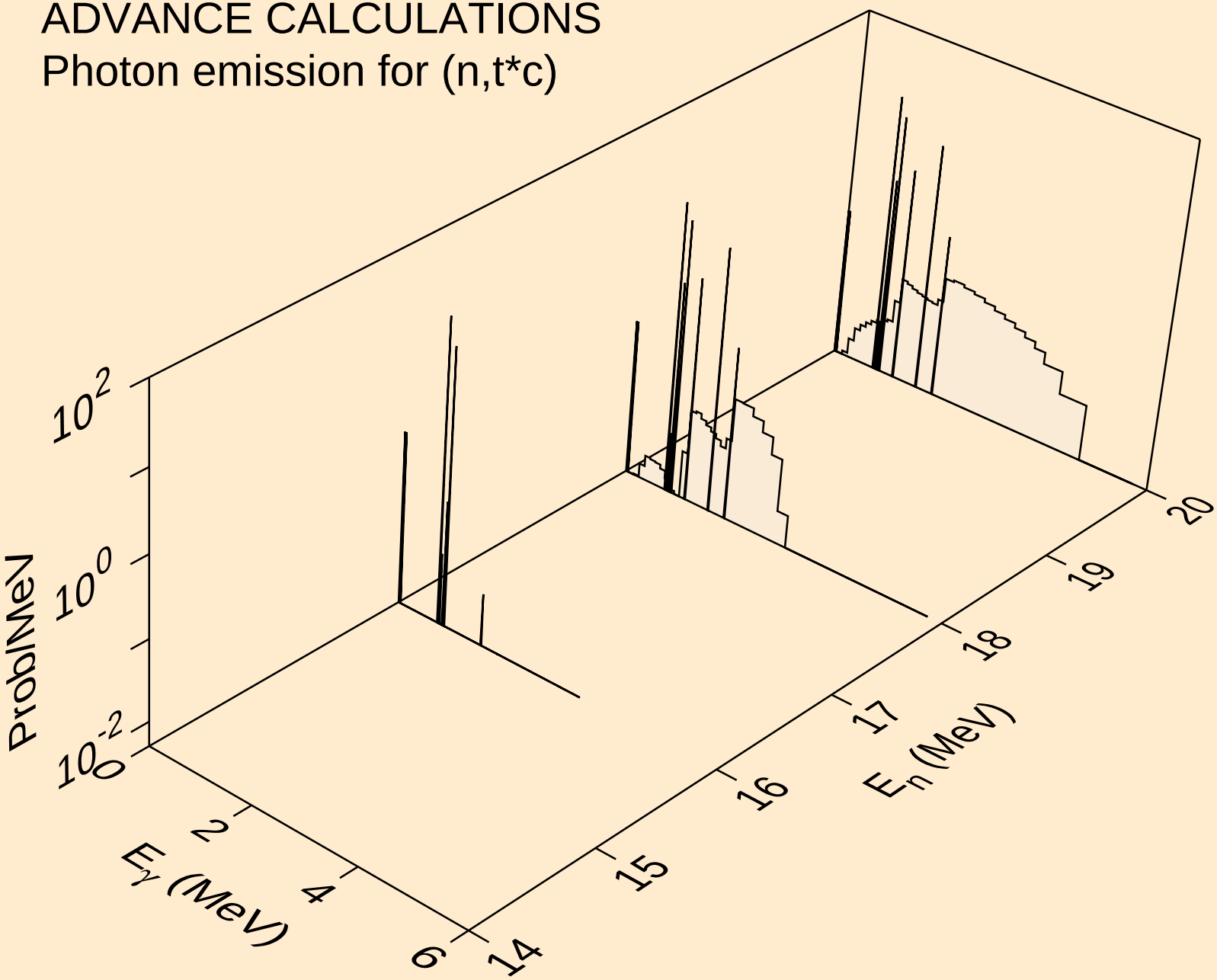
ADVANCE CALCULATIONS

Photon emission for (n,t*5)



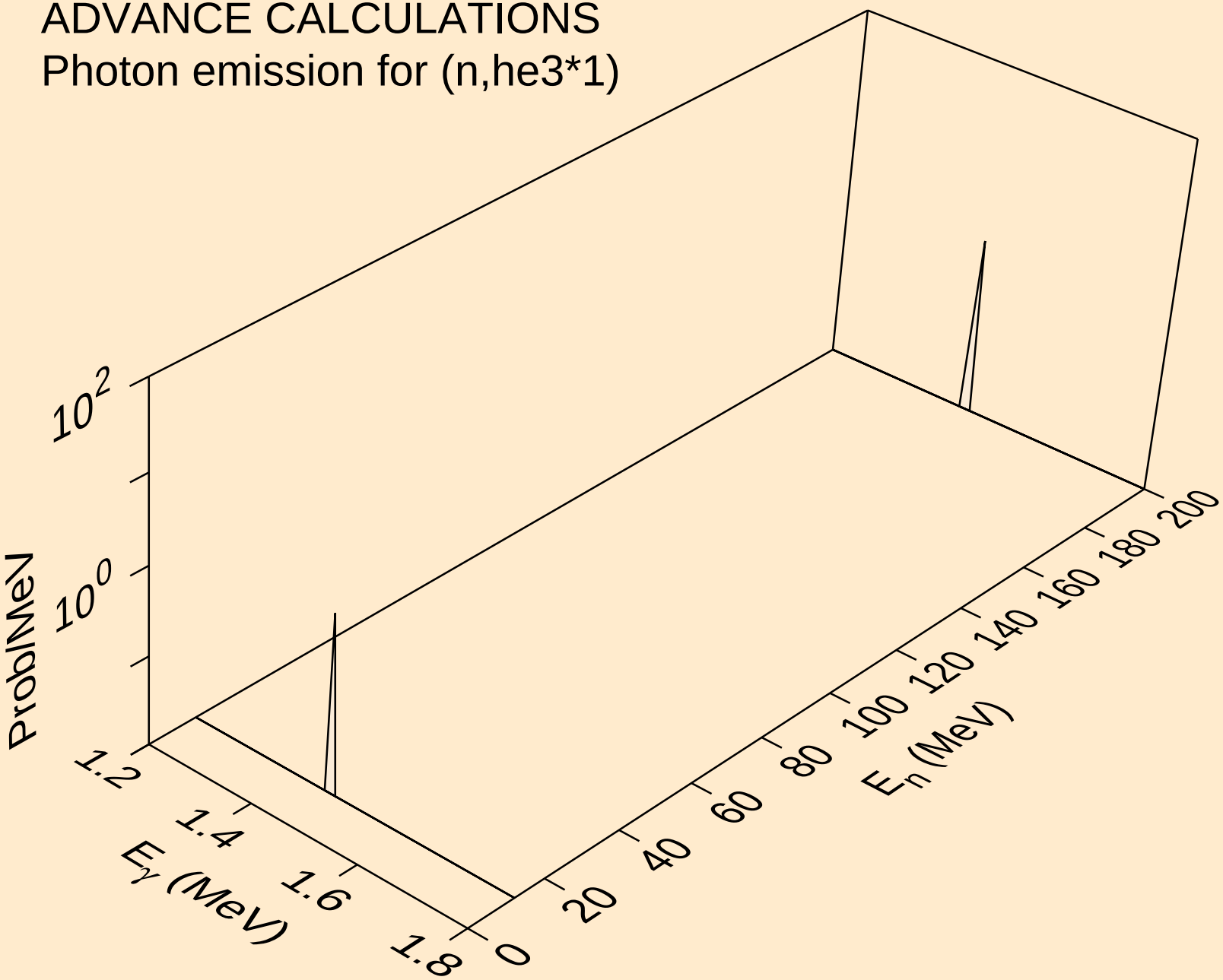
ADVANCE CALCULATIONS

Photon emission for (n,t*c)



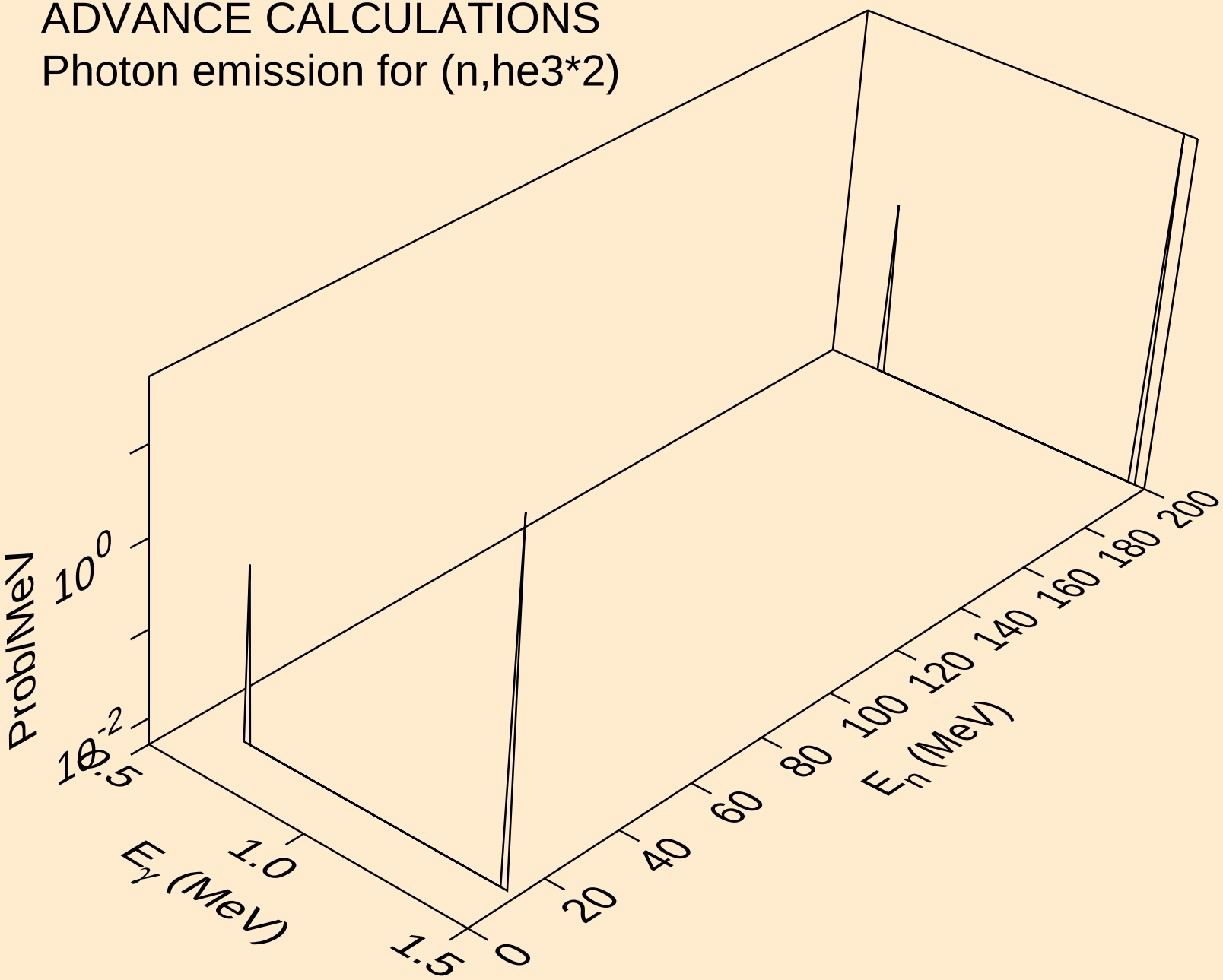
ADVANCE CALCULATIONS

Photon emission for (n,he3*1)



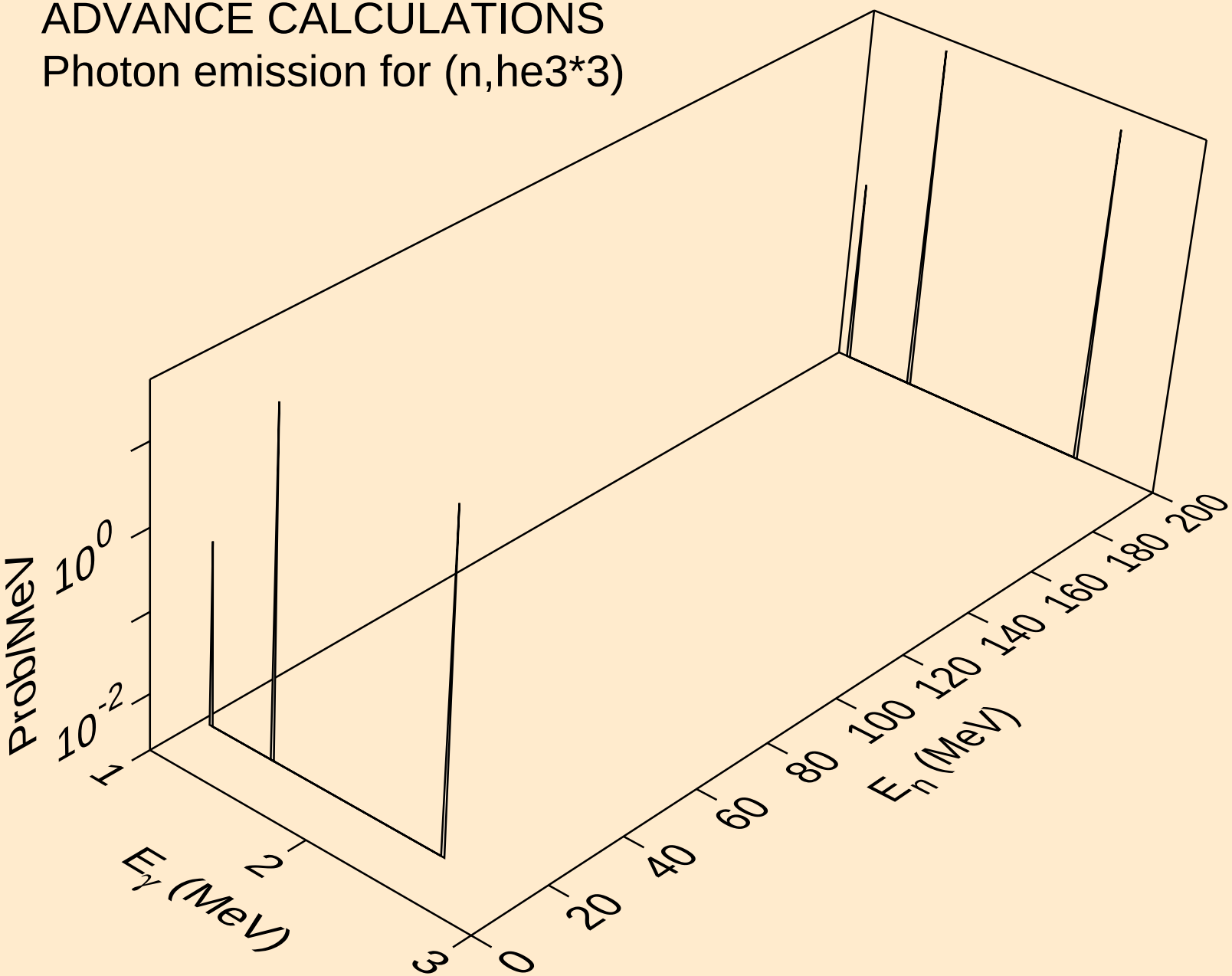
ADVANCE CALCULATIONS

Photon emission for (n,he3*2)



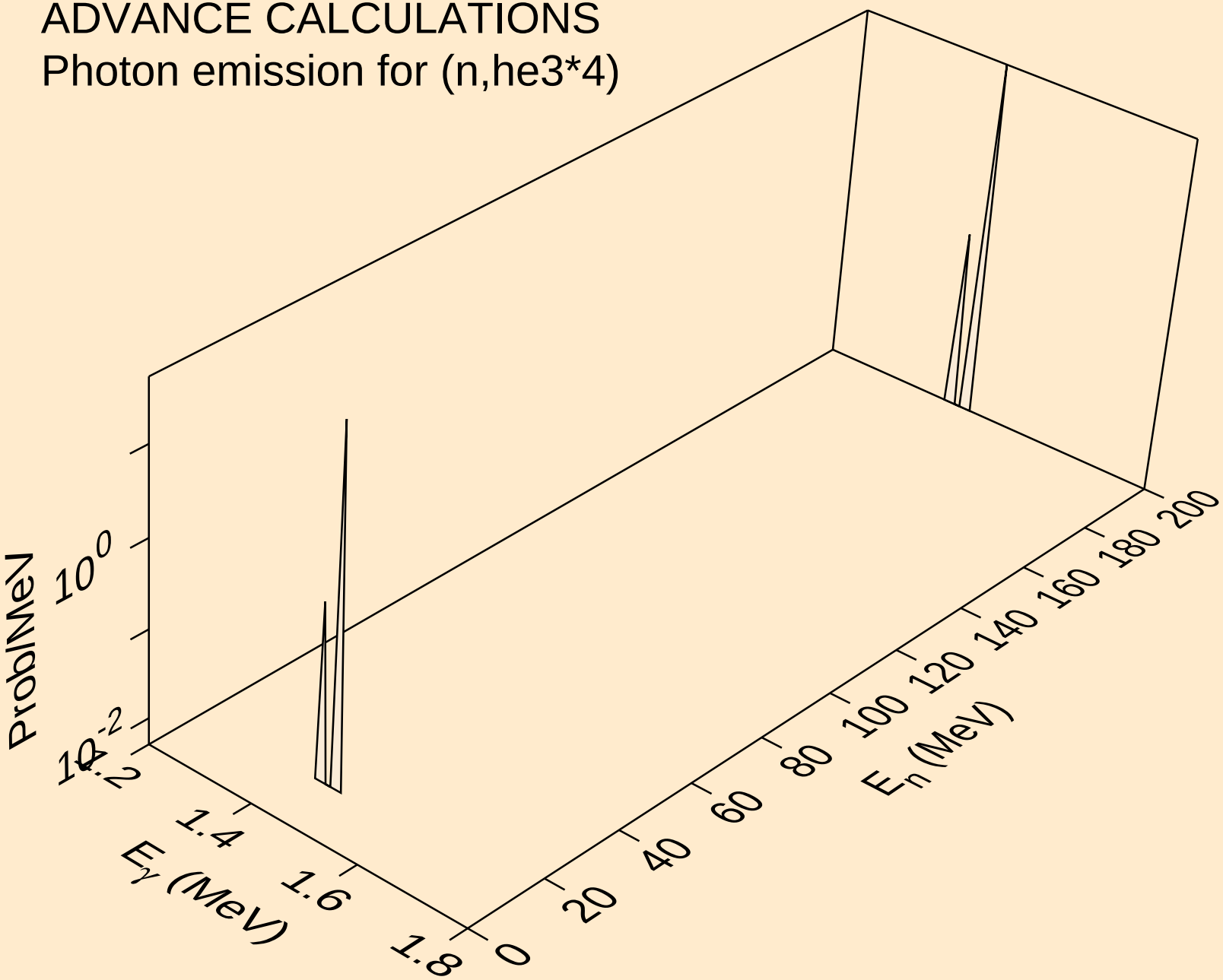
ADVANCE CALCULATIONS

Photon emission for (n,he3*3)



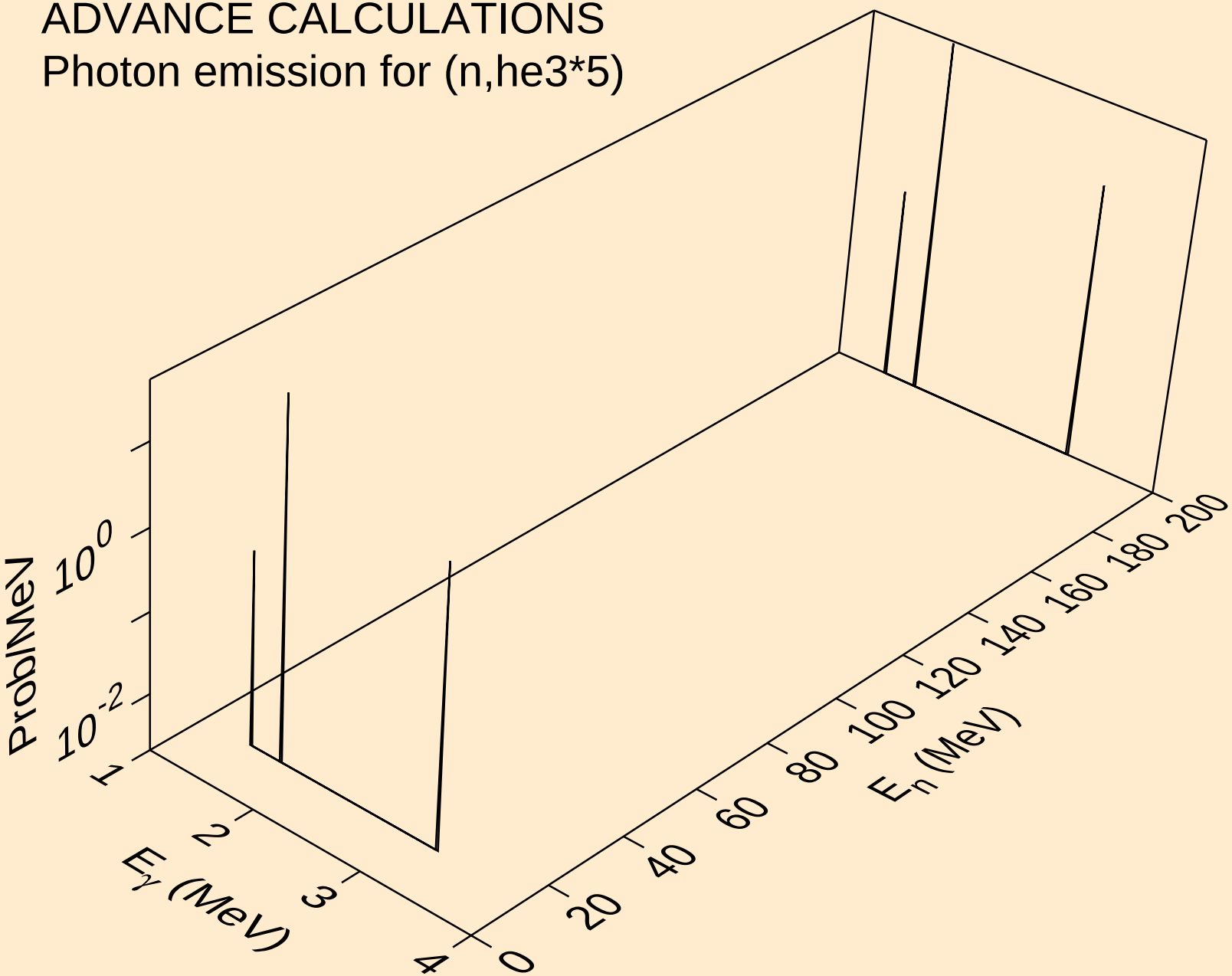
ADVANCE CALCULATIONS

Photon emission for (n,he3*4)



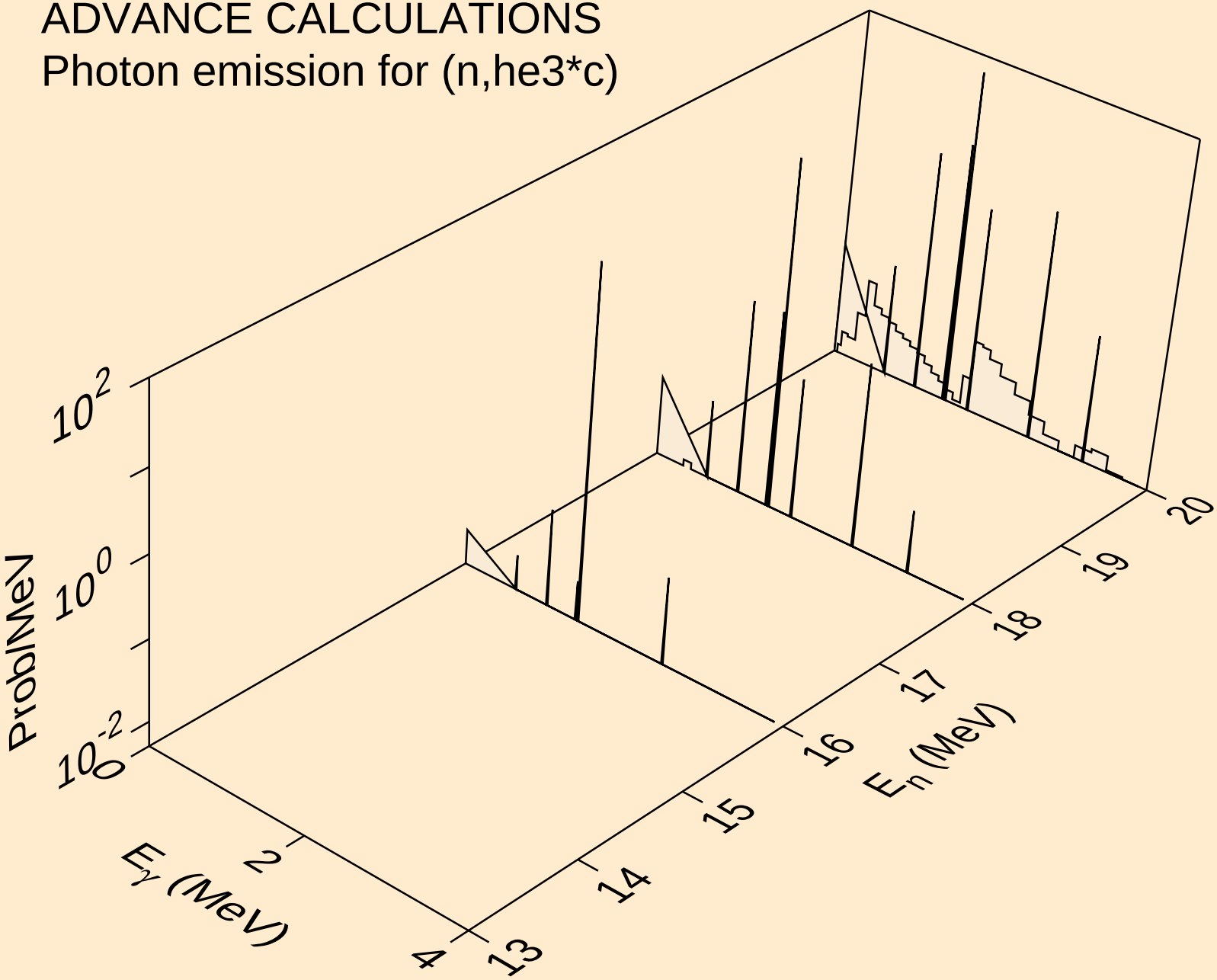
ADVANCE CALCULATIONS

Photon emission for (n,he3*5)



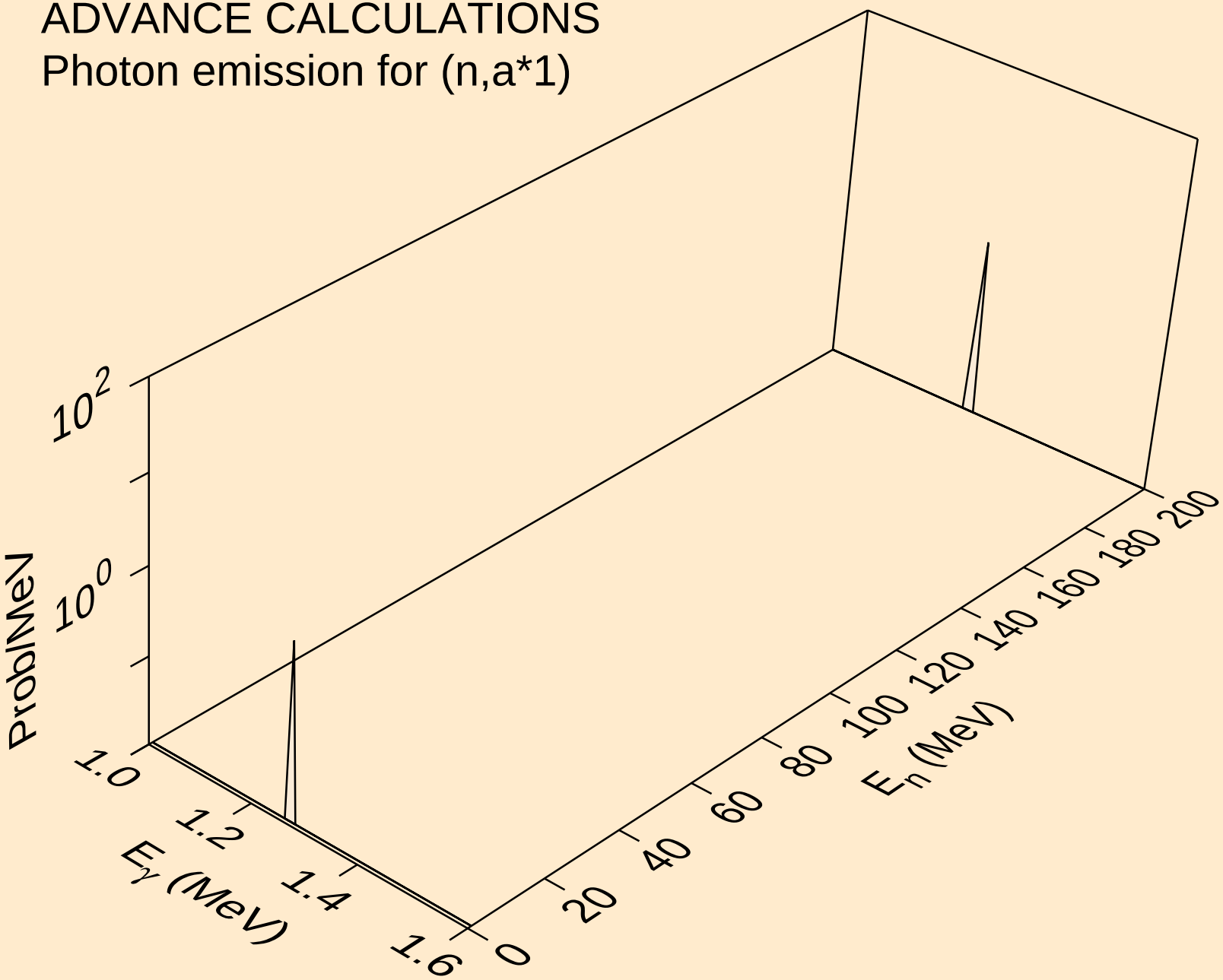
ADVANCE CALCULATIONS

Photon emission for (n,he3*c)



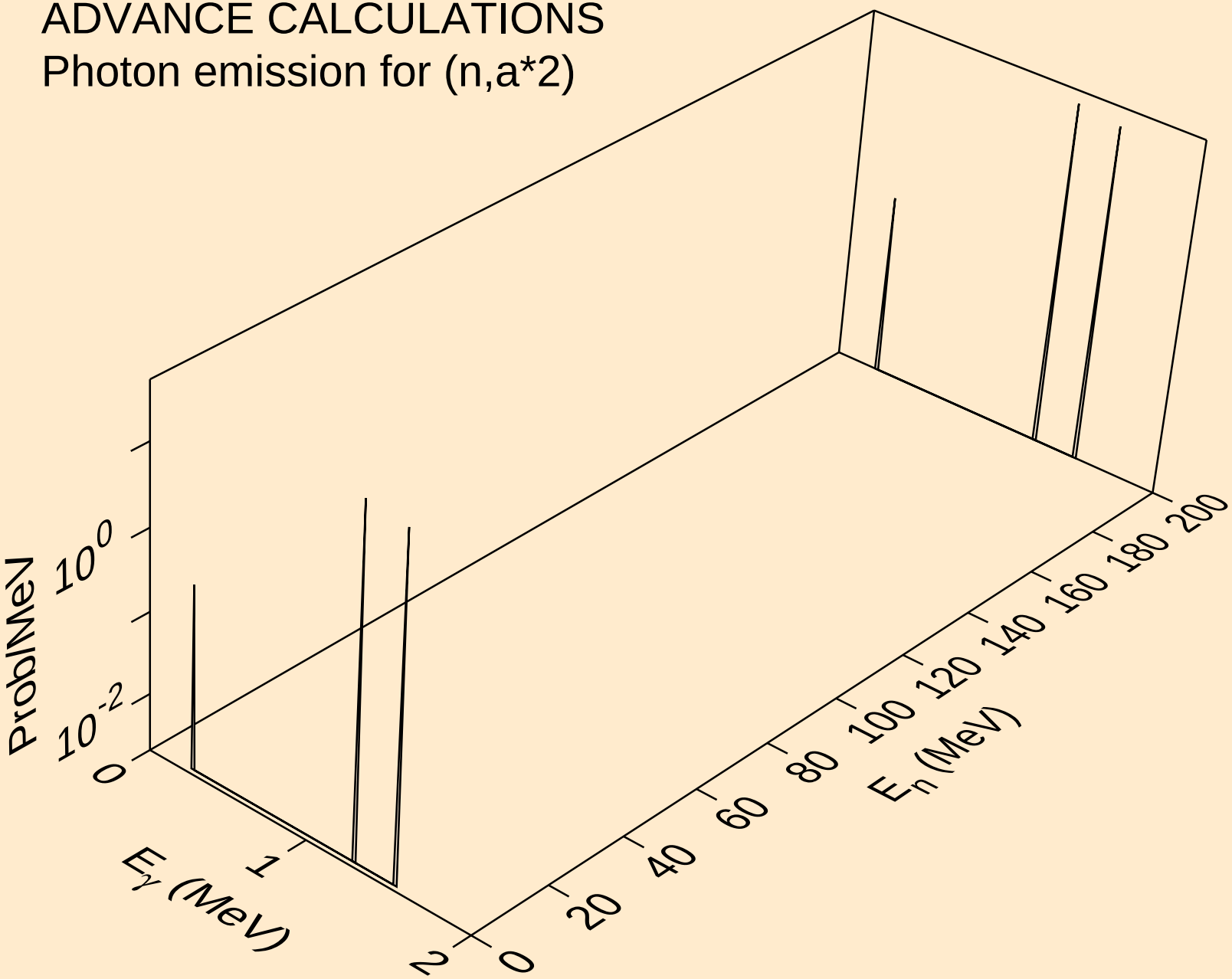
ADVANCE CALCULATIONS

Photon emission for (n,a*1)



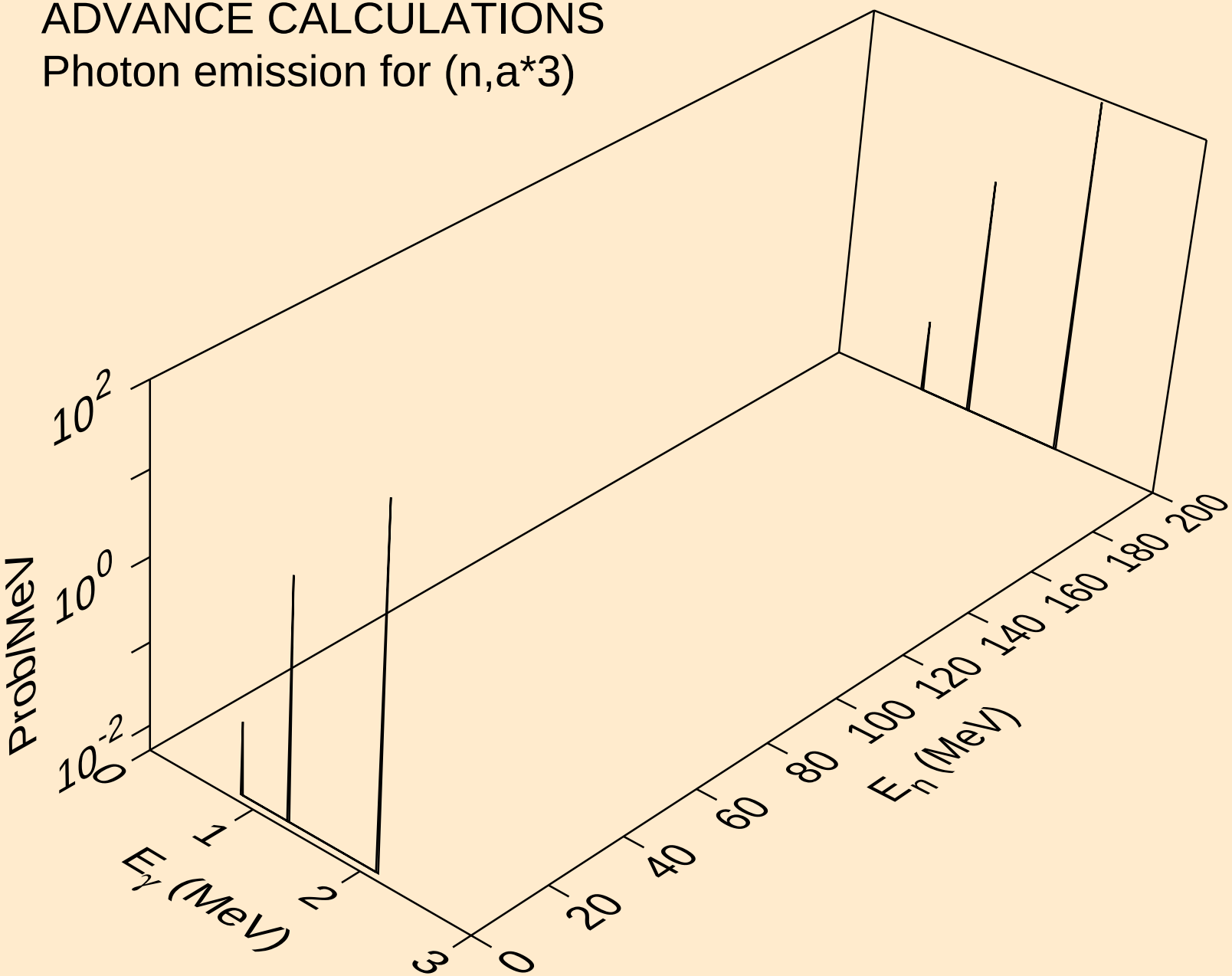
ADVANCE CALCULATIONS

Photon emission for (n,a*2)



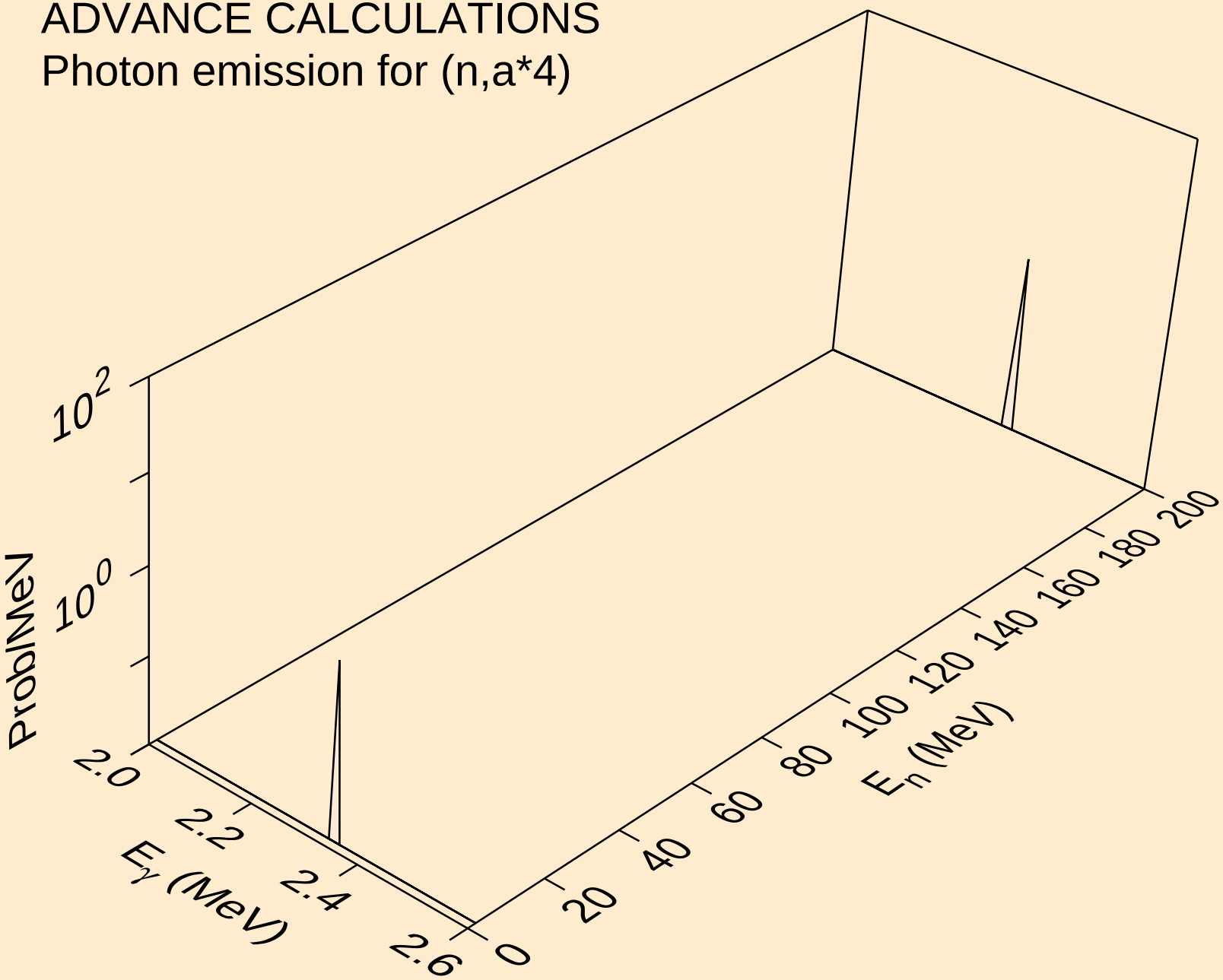
ADVANCE CALCULATIONS

Photon emission for (n,a*3)



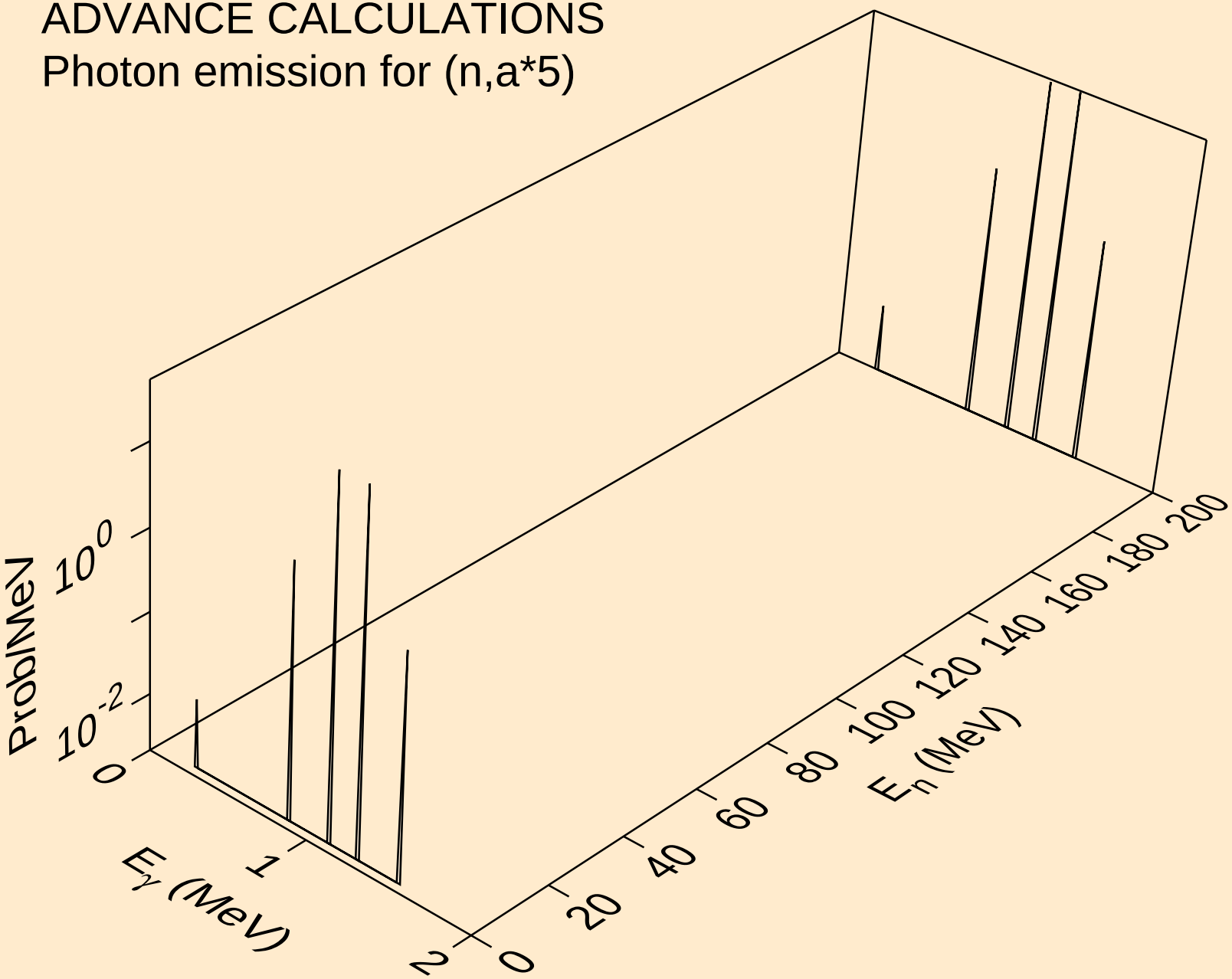
ADVANCE CALCULATIONS

Photon emission for (n,a*4)



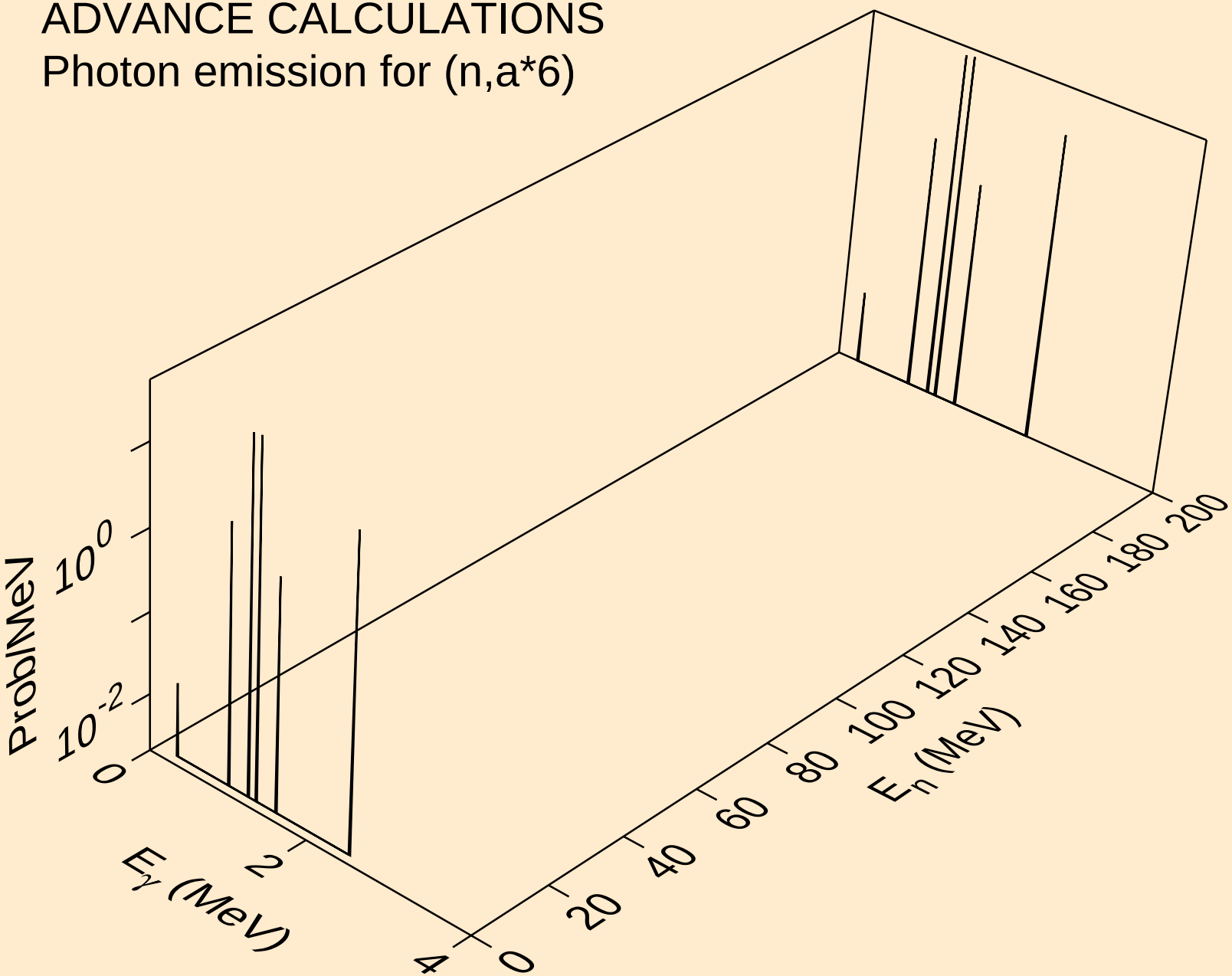
ADVANCE CALCULATIONS

Photon emission for (n,a*5)



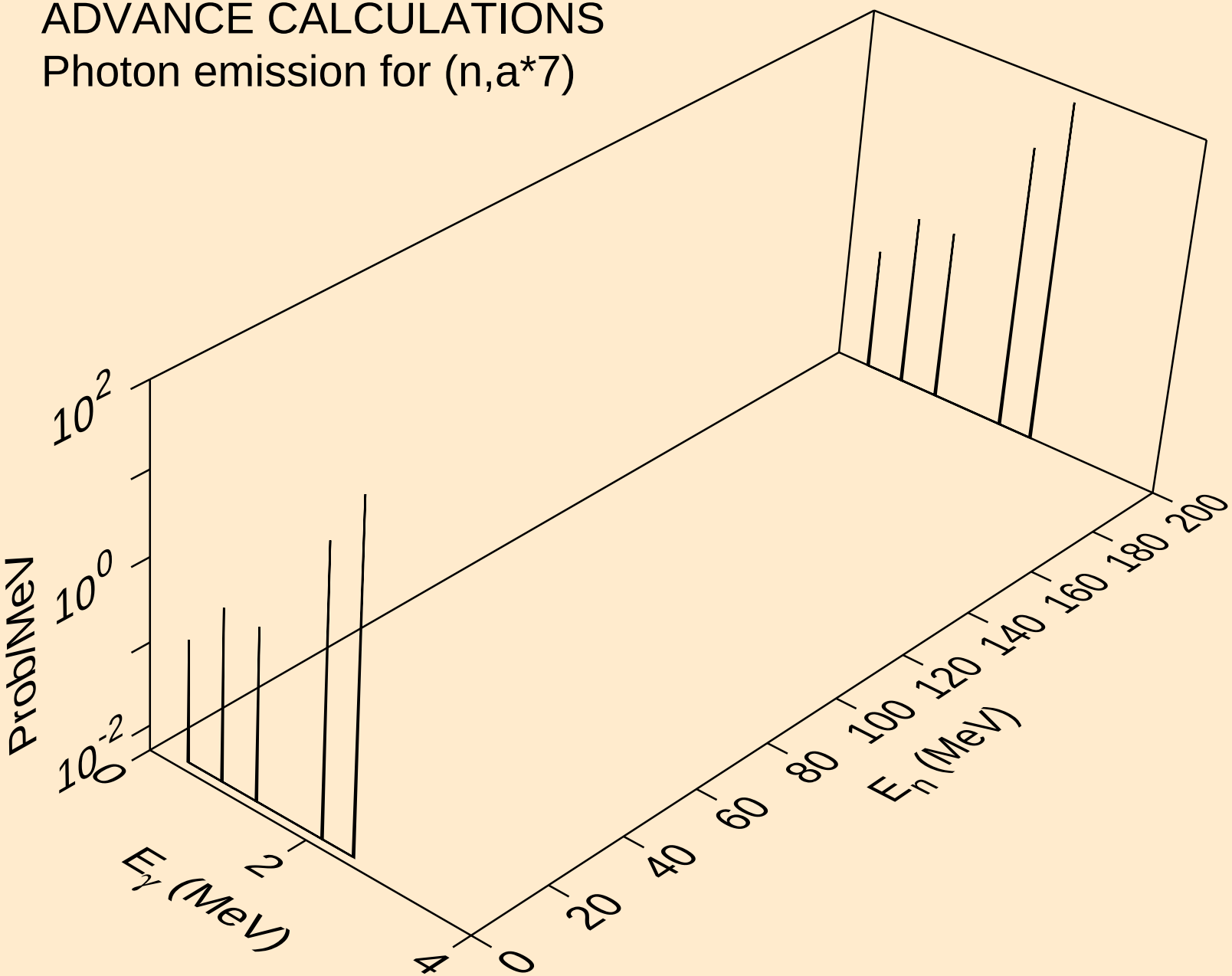
ADVANCE CALCULATIONS

Photon emission for (n,a*6)



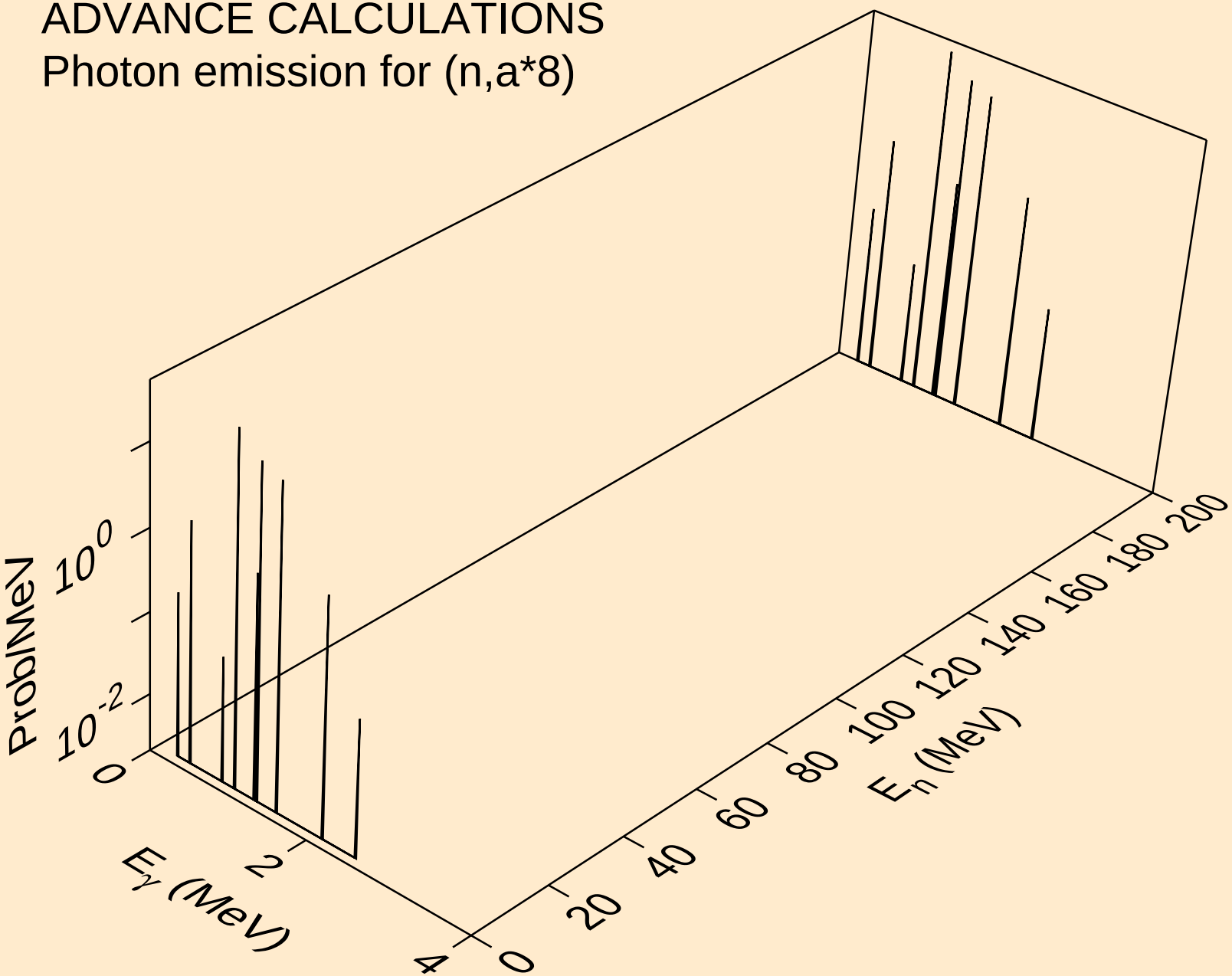
ADVANCE CALCULATIONS

Photon emission for (n,a*7)



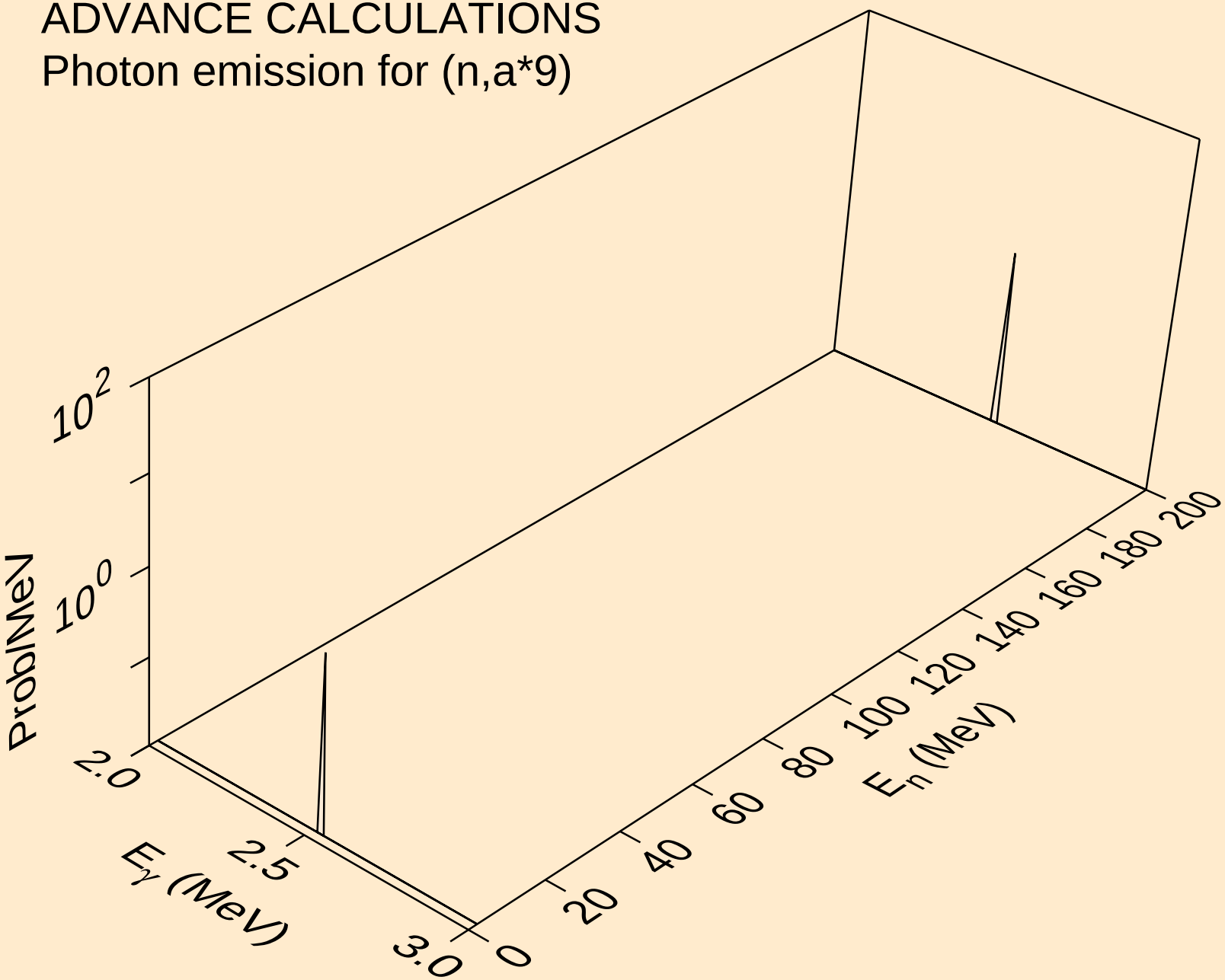
ADVANCE CALCULATIONS

Photon emission for (n,a*8)



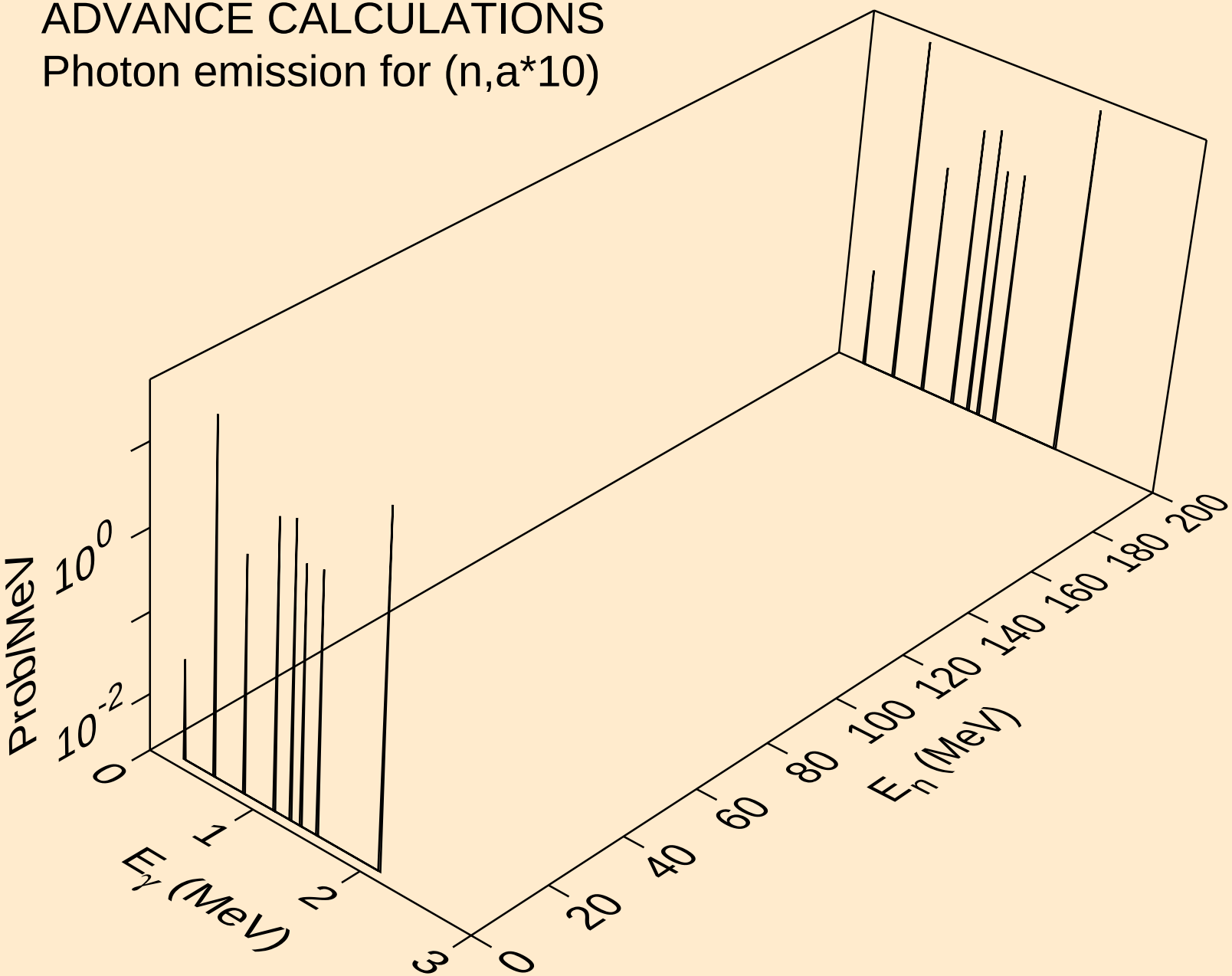
ADVANCE CALCULATIONS

Photon emission for (n,a*9)



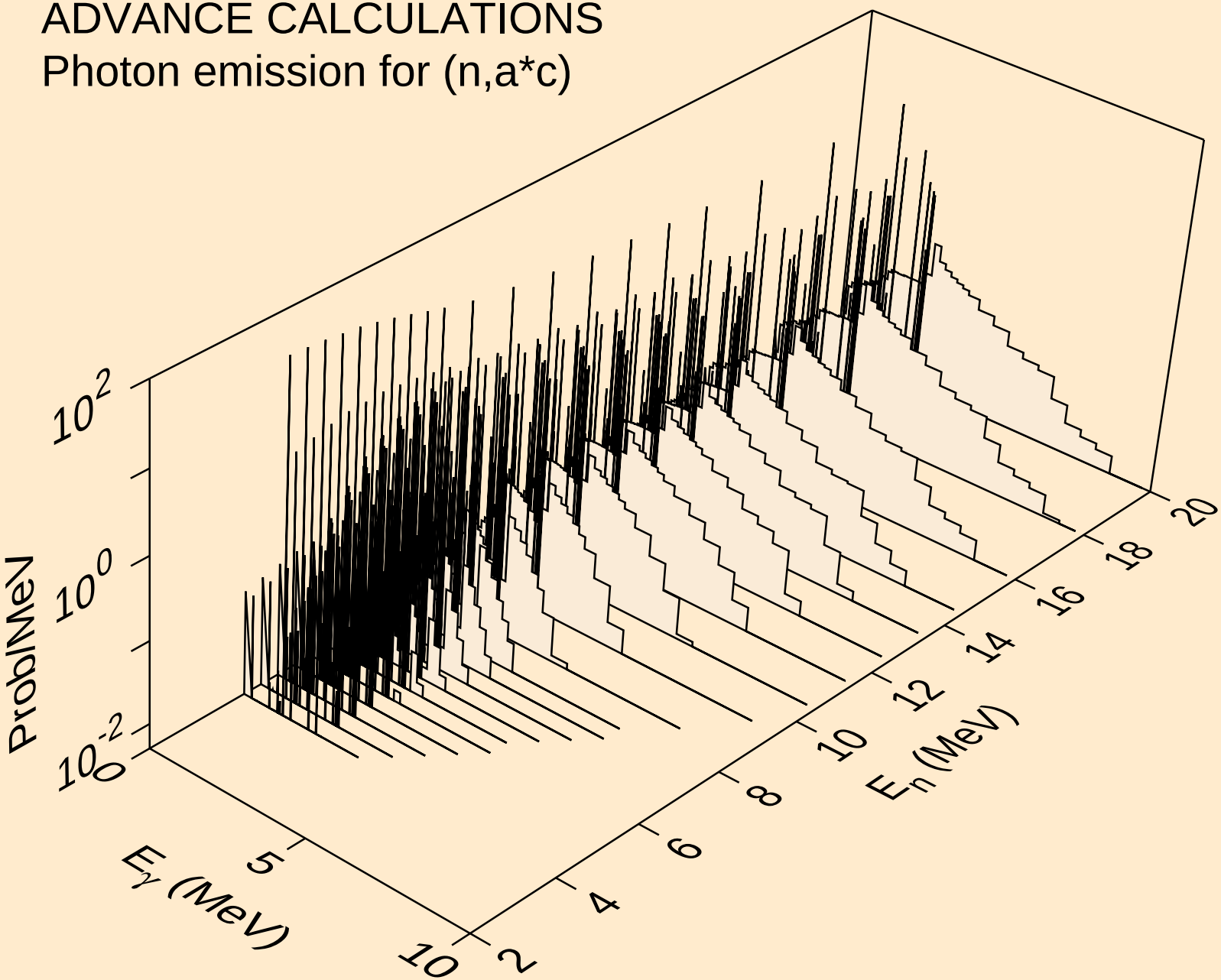
ADVANCE CALCULATIONS

Photon emission for (n,a*10)

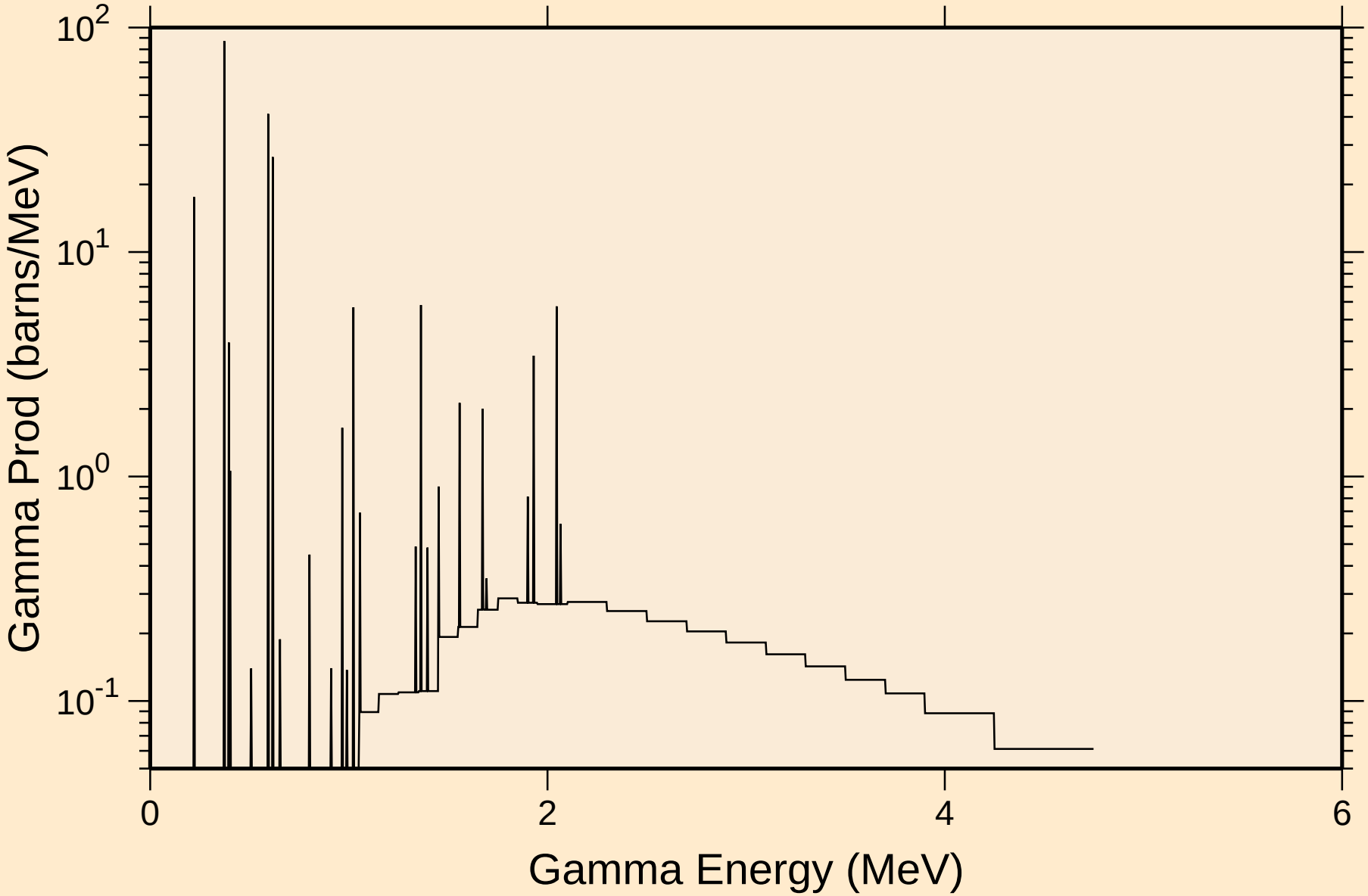


ADVANCE CALCULATIONS

Photon emission for (n,a*c)

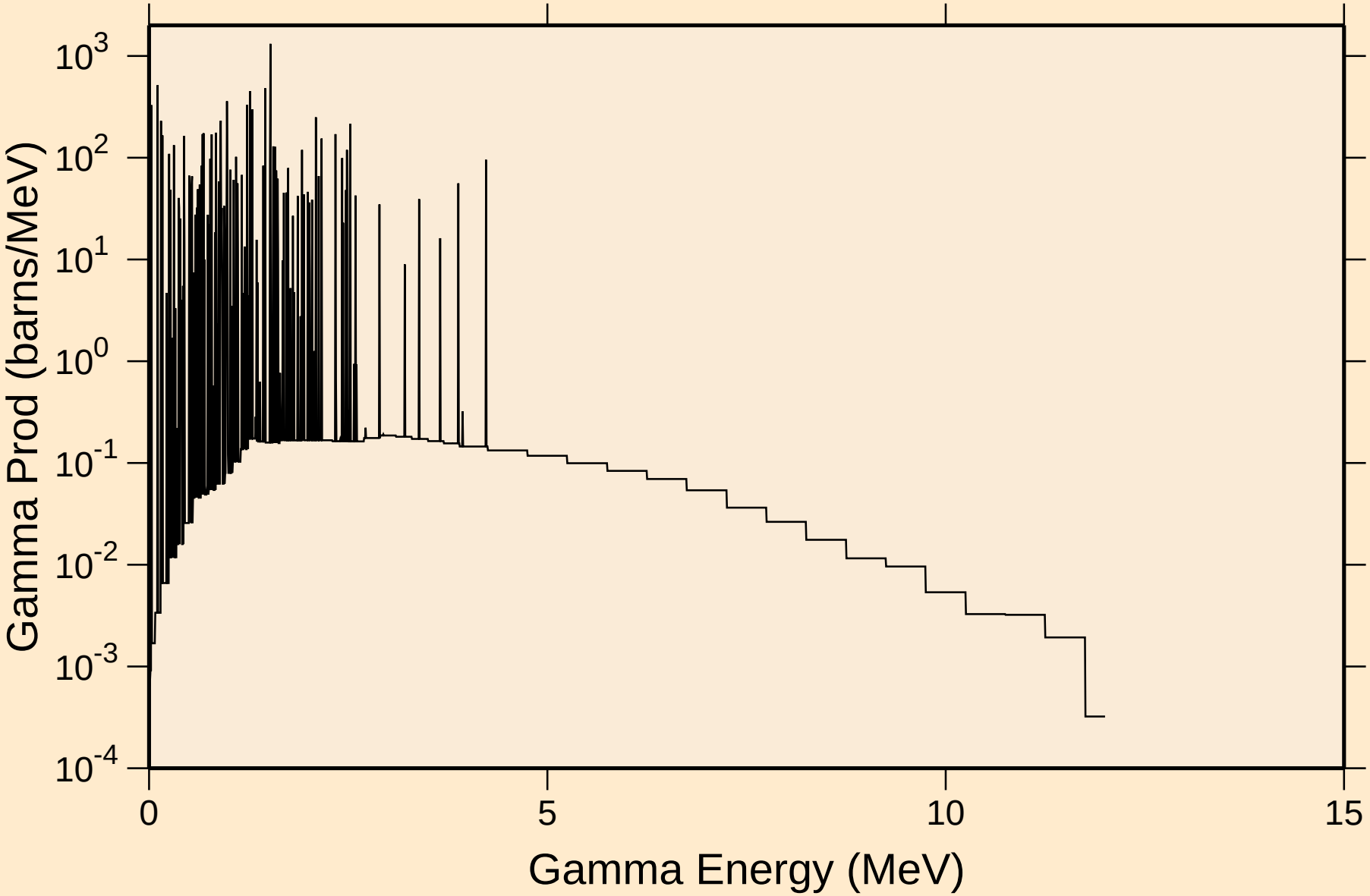


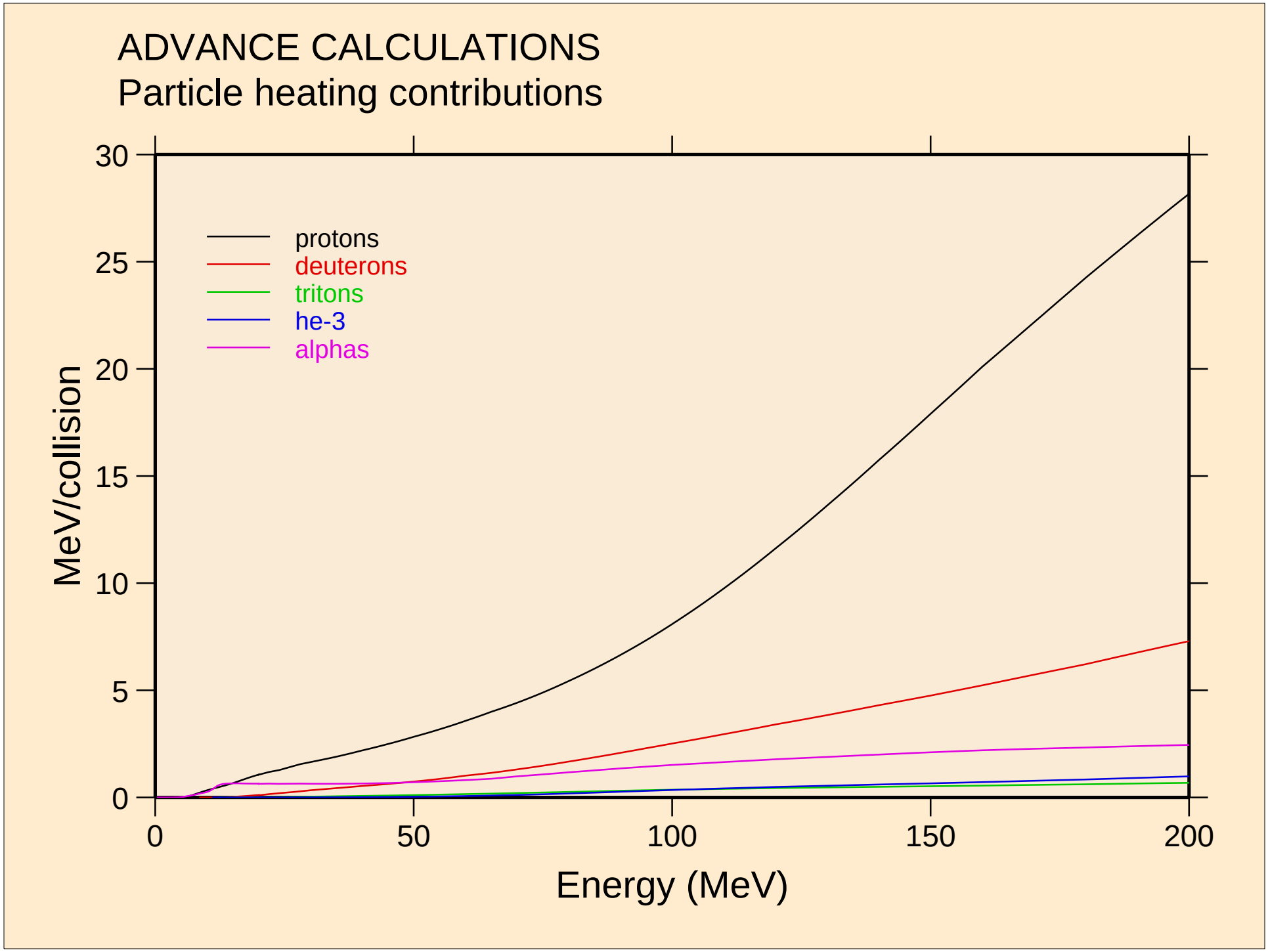
ADVANCE CALCULATIONS
thermal capture photon spectrum



ADVANCE CALCULATIONS

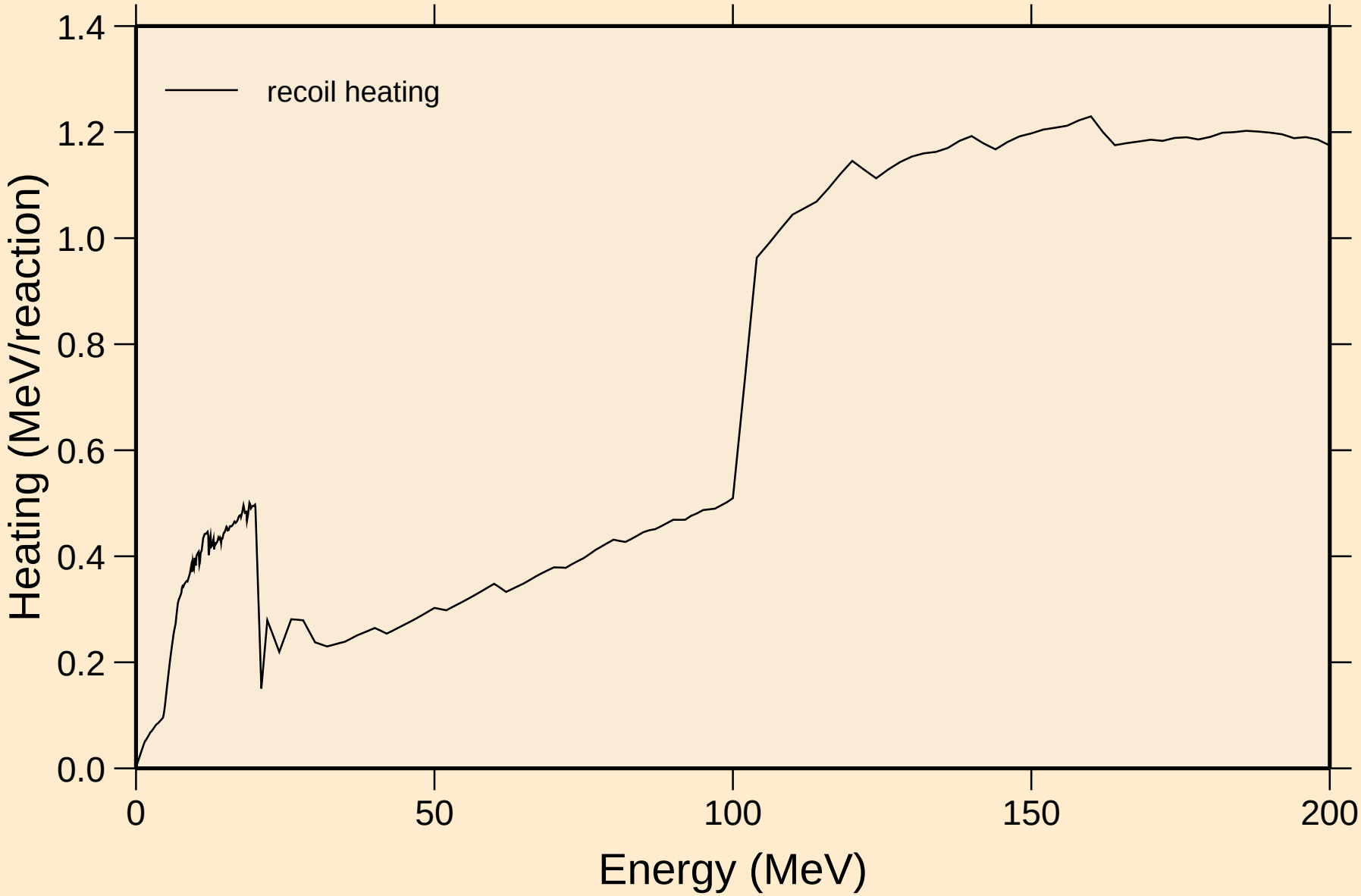
14 MeV photon spectrum

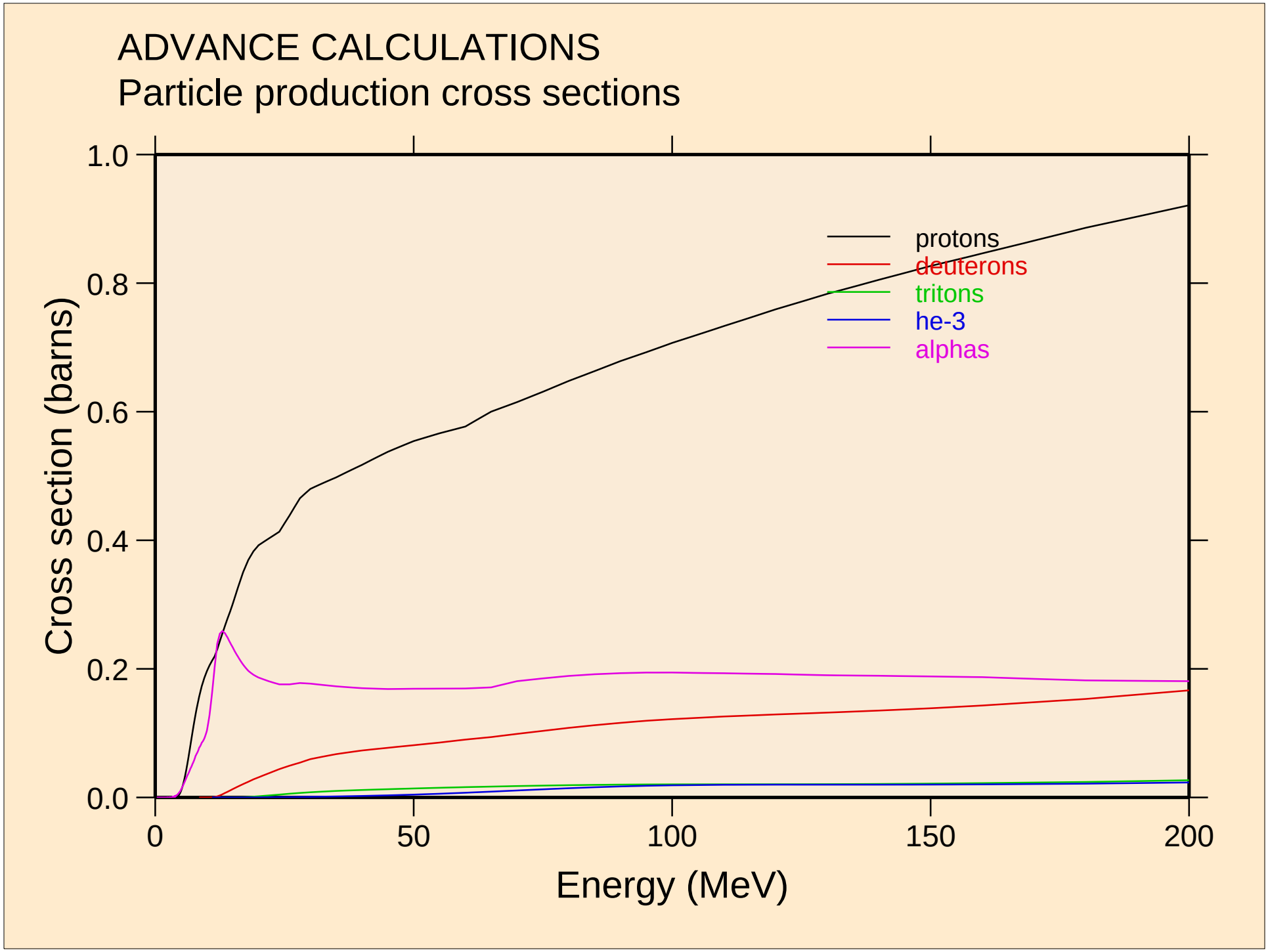



ADVANCE CALCULATIONS
Particle heating contributions
protons
deuterons
tritons
he-3
alphas
MeV/collision
Energy (MeV)
0
5
10
15
20
25
30
0
50
100
150
200

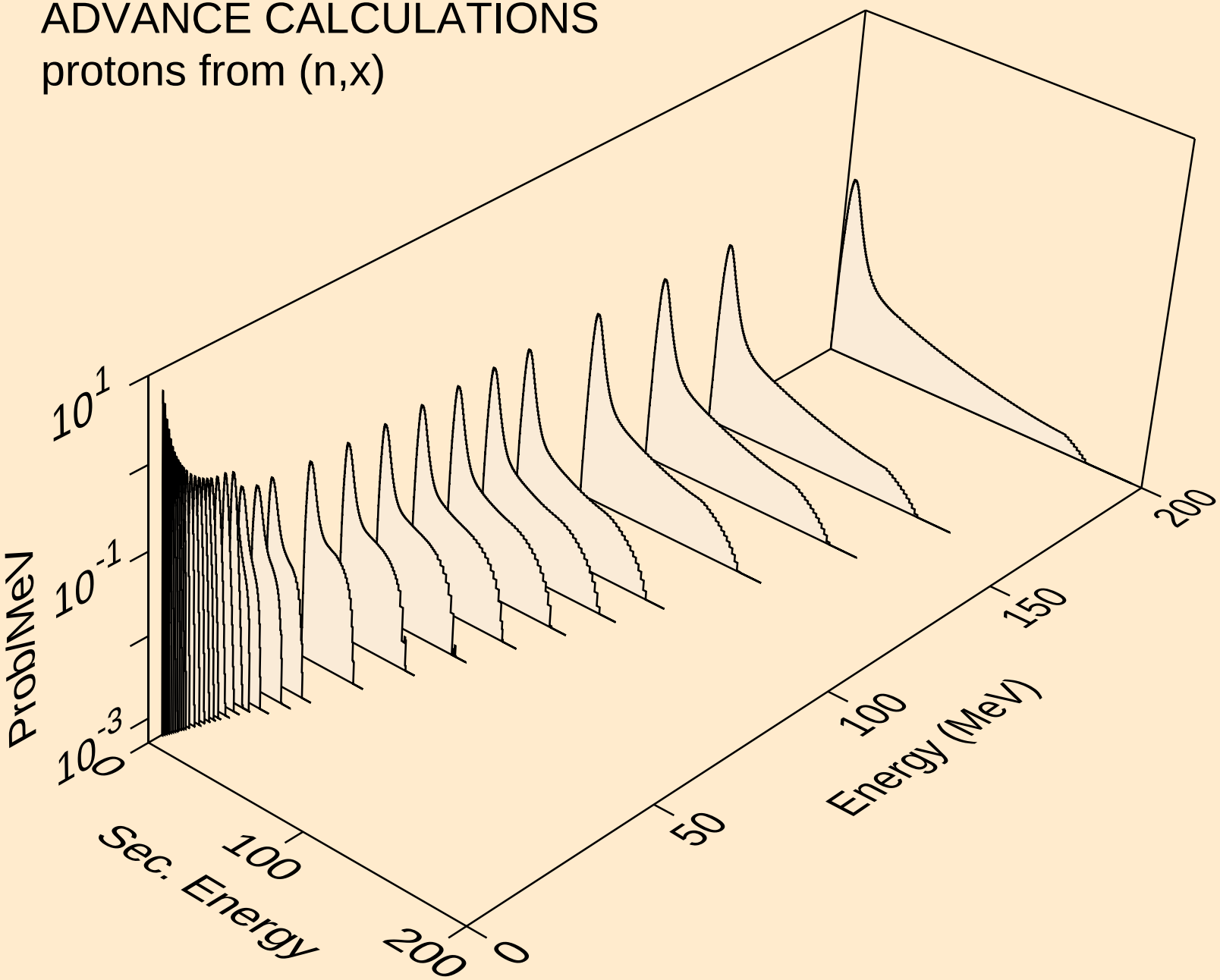
ADVANCE CALCULATIONS

Recoil Heating

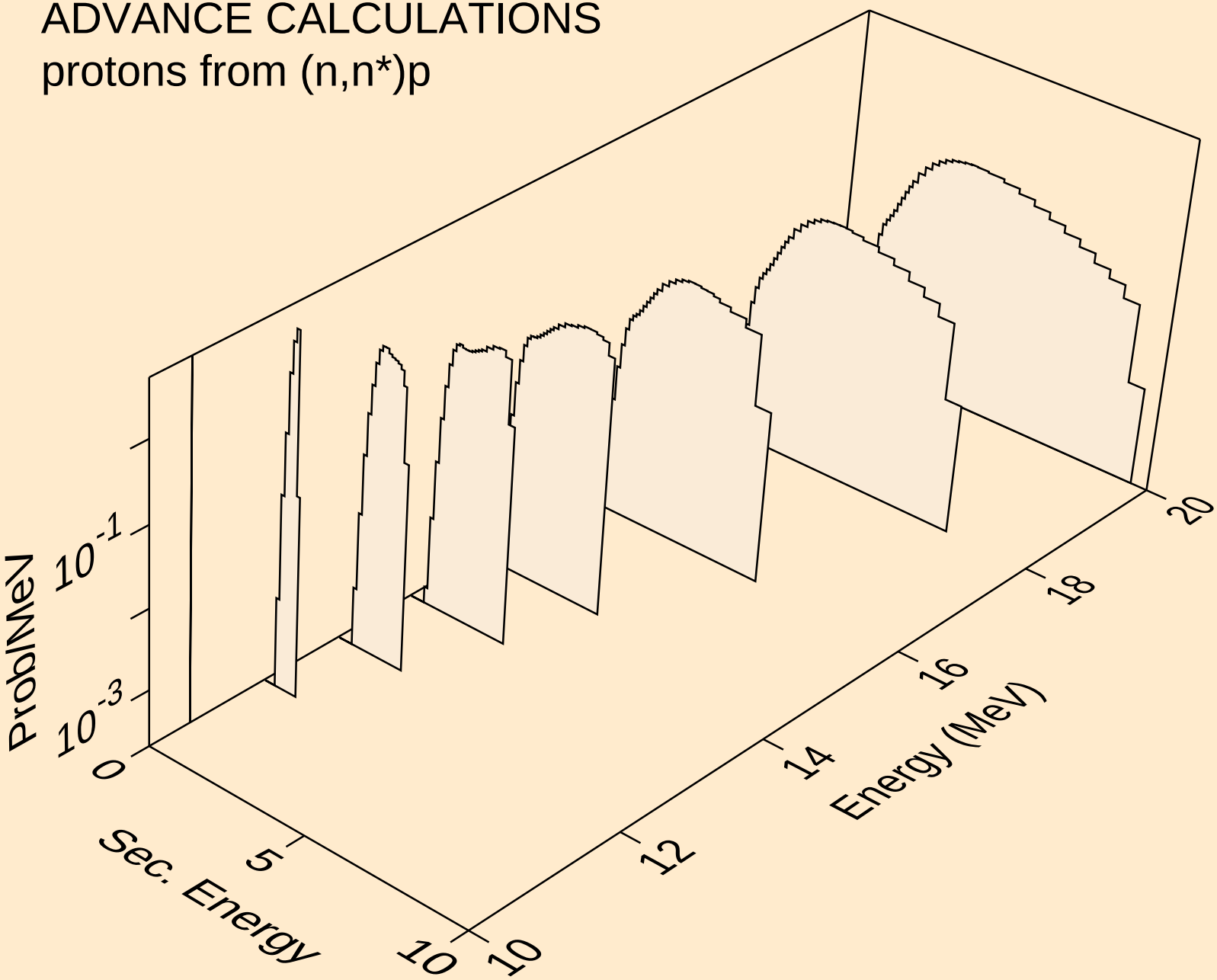



ADVANCE CALCULATIONS
Particle production cross sections
Cross section (barns)
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200
Energy (MeV)
protons
deuterons
tritons
he-3
alphas

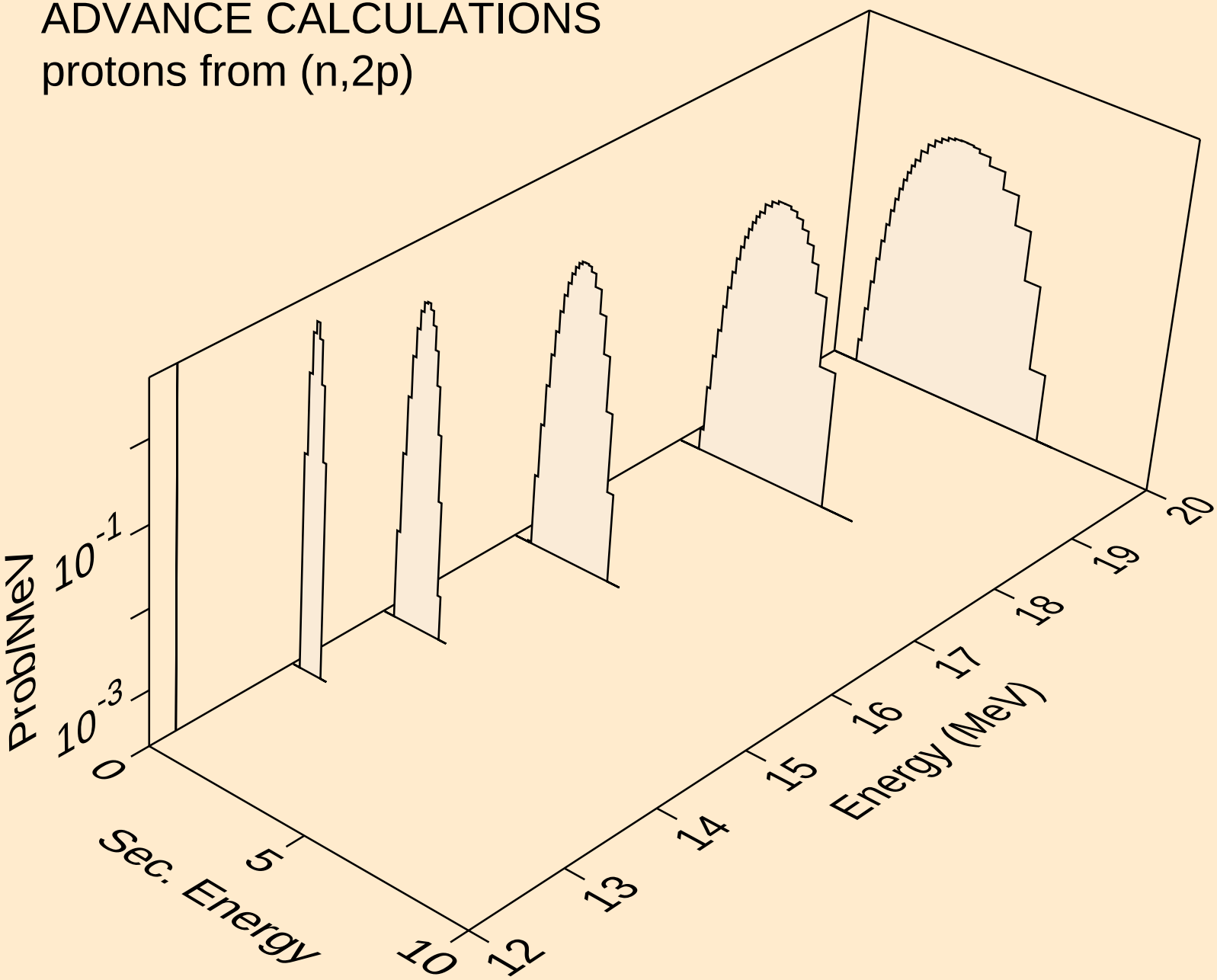
ADVANCE CALCULATIONS
protons from (n,x)



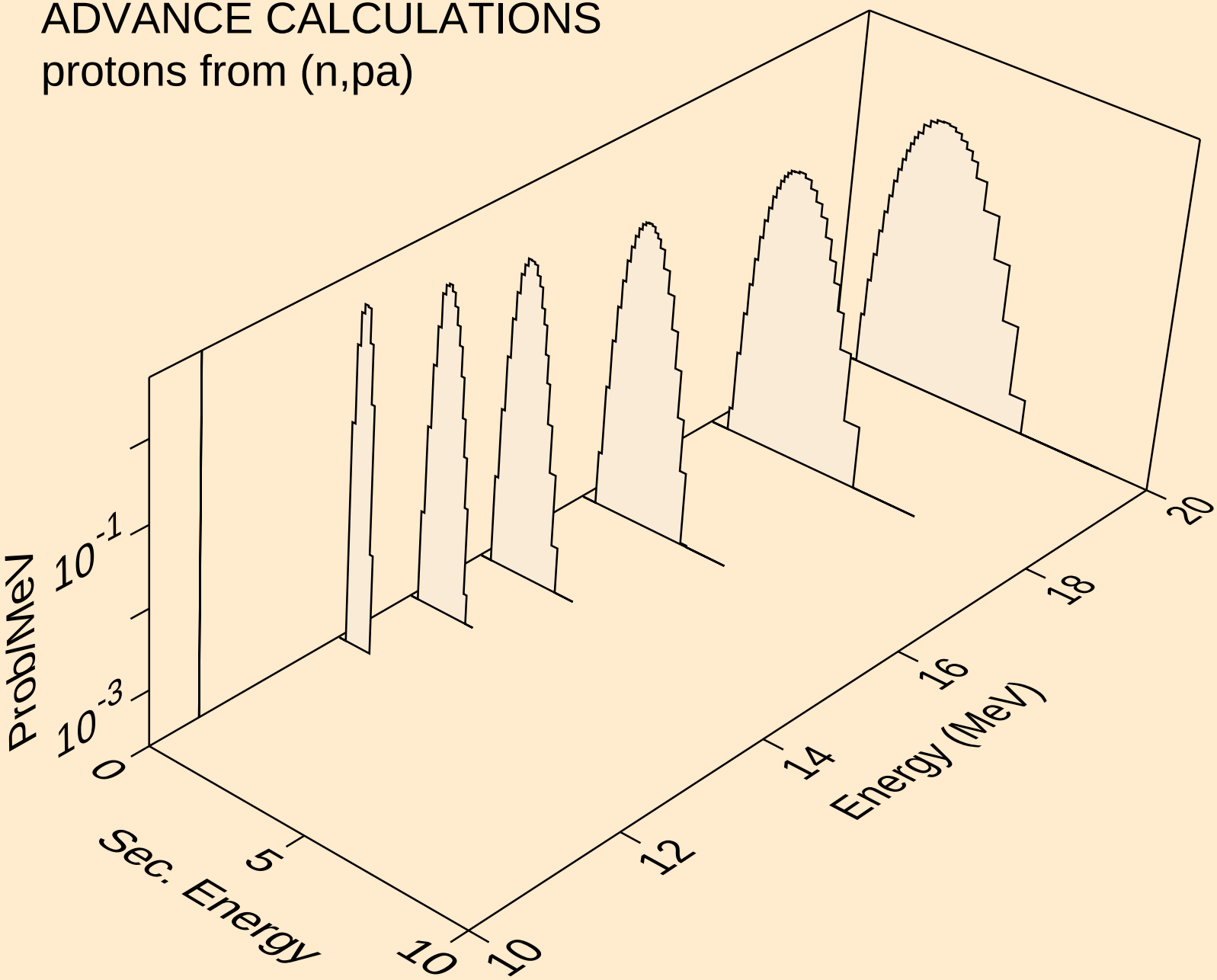
ADVANCE CALCULATIONS
protons from (n,n*)p



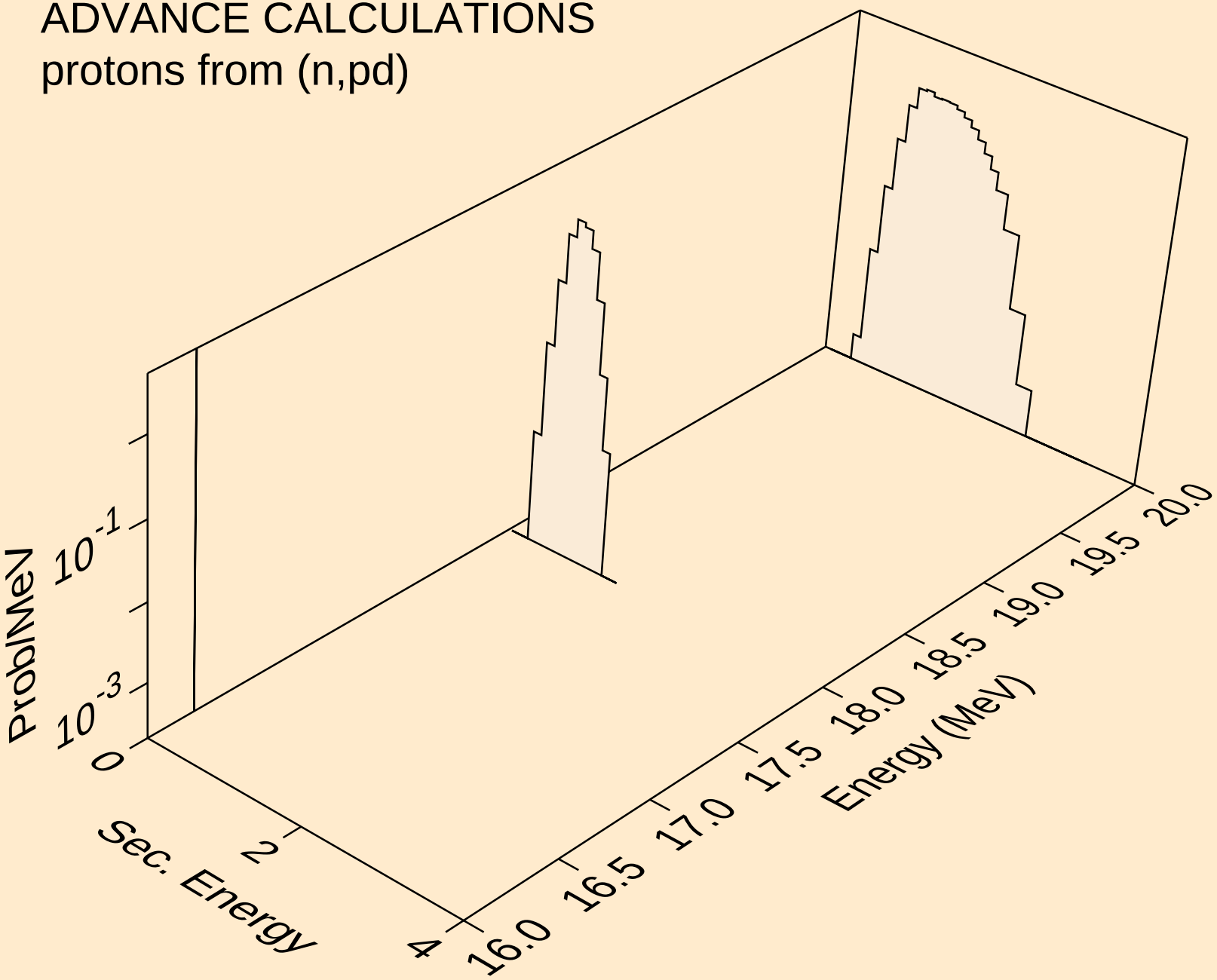
ADVANCE CALCULATIONS
protons from (n,2p)



ADVANCE CALCULATIONS
protons from (n,pa)

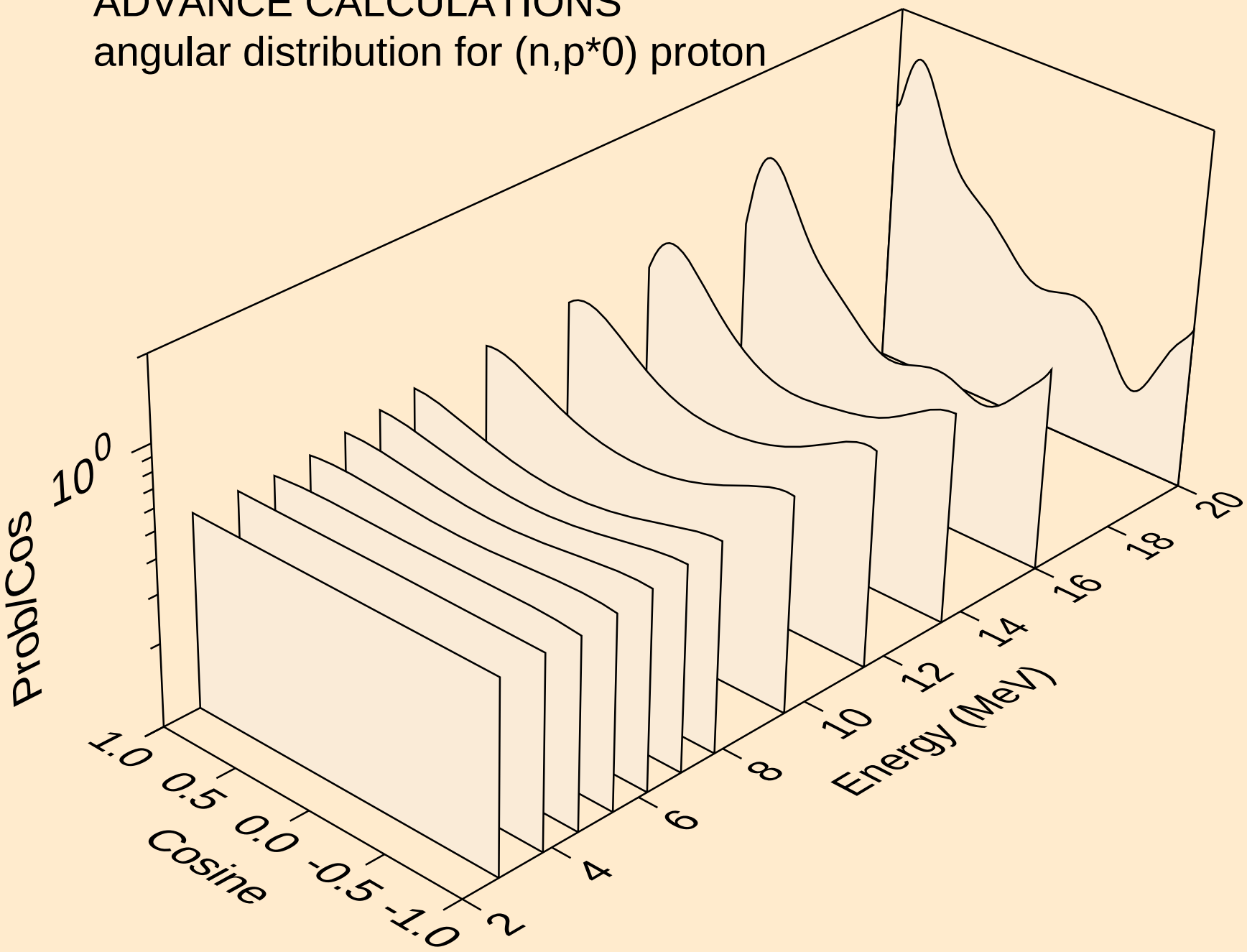


ADVANCE CALCULATIONS
protons from (n,pd)



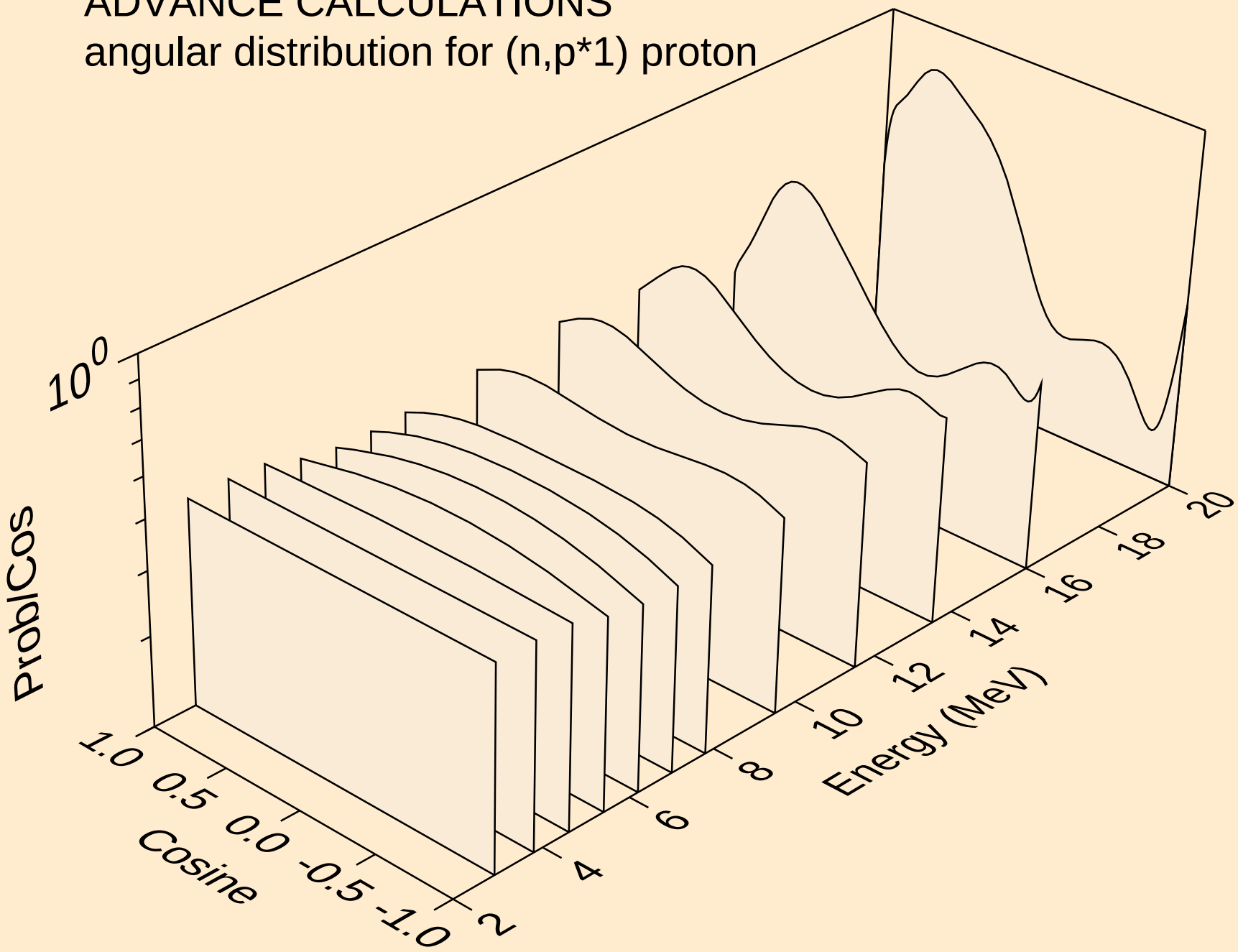
ADVANCE CALCULATIONS

angular distribution for (n,p*0) proton



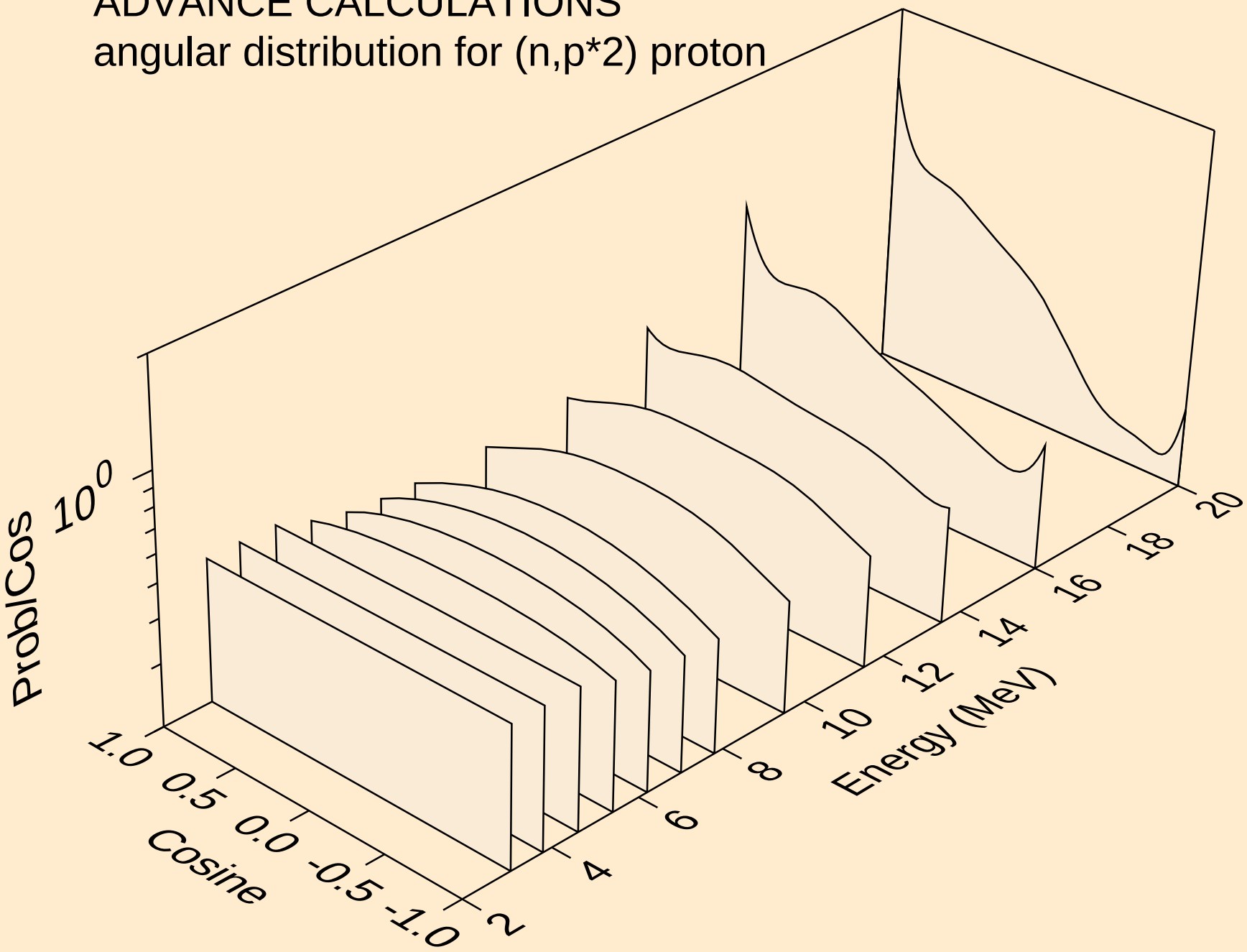
ADVANCE CALCULATIONS

angular distribution for (n,p*1) proton



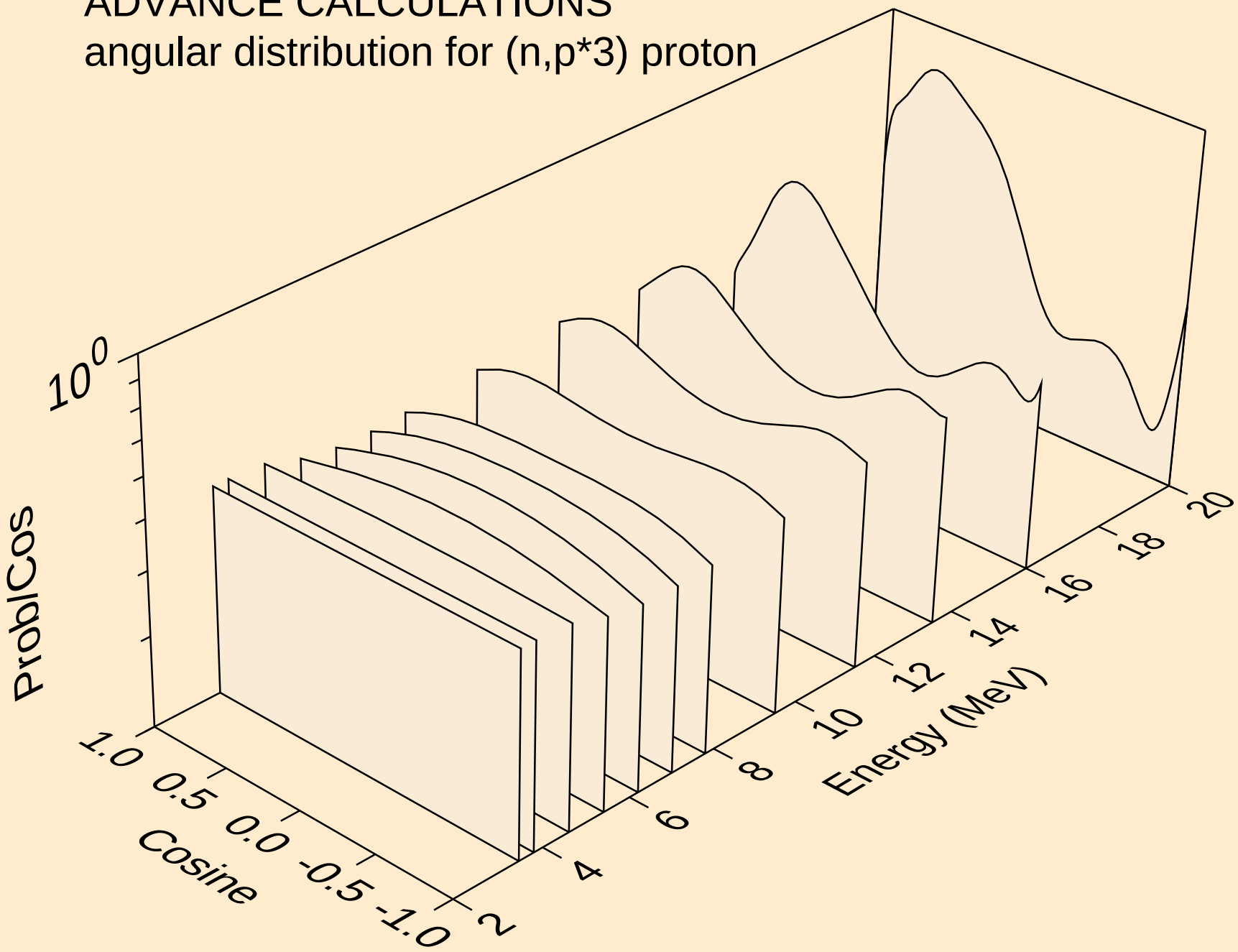
ADVANCE CALCULATIONS

angular distribution for (n,p*2) proton



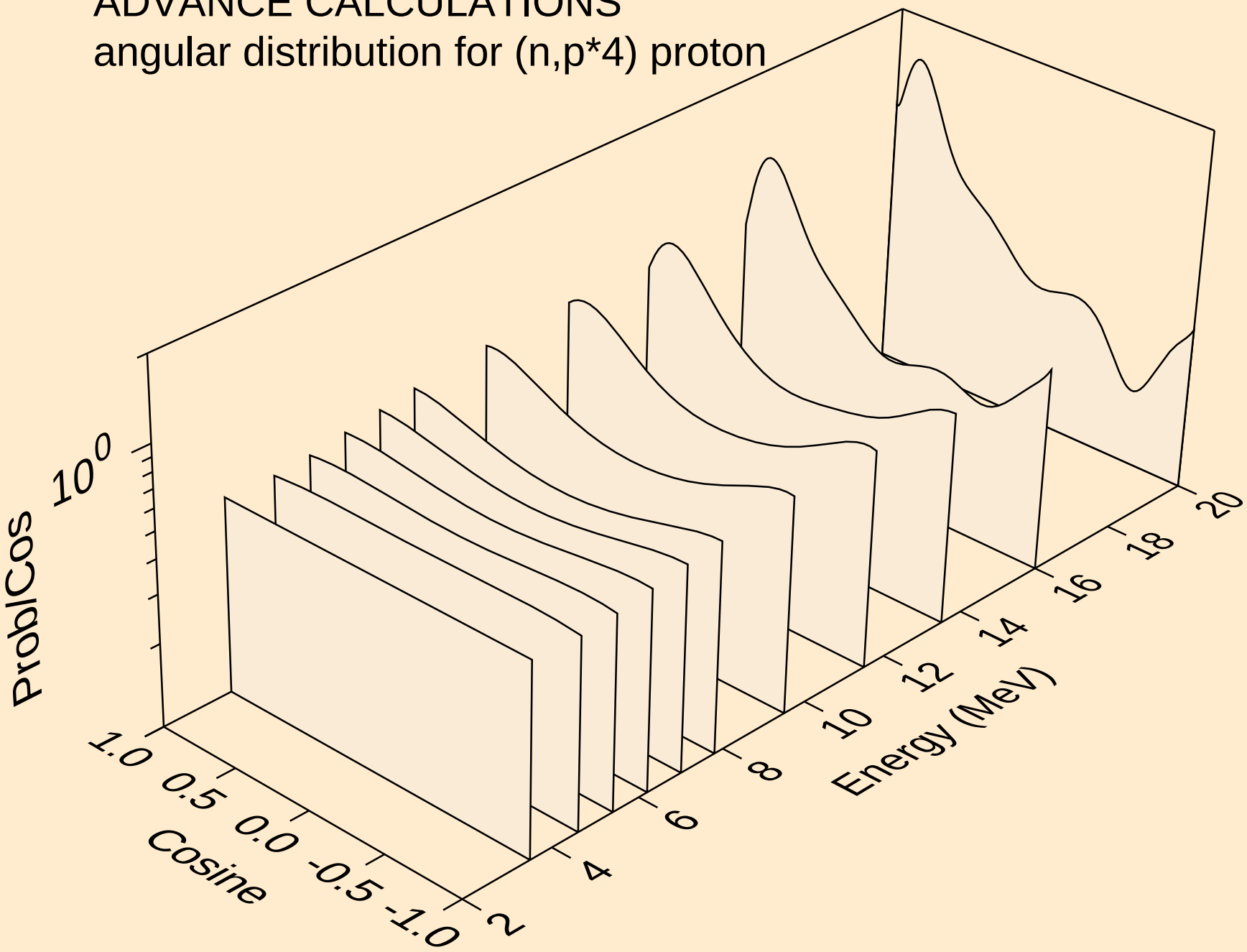
ADVANCE CALCULATIONS

angular distribution for (n,p*3) proton

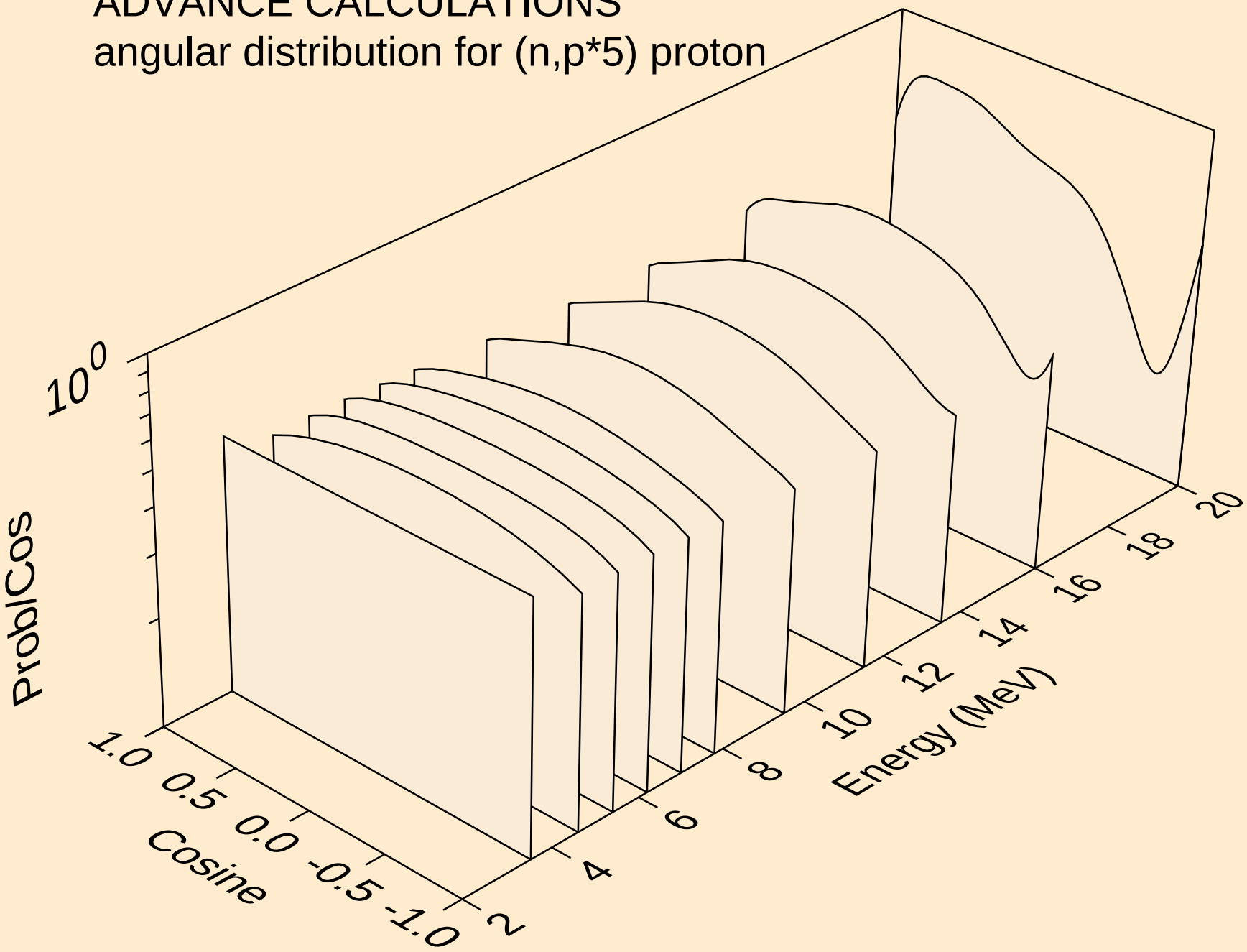


ADVANCE CALCULATIONS

angular distribution for (n,p*4) proton

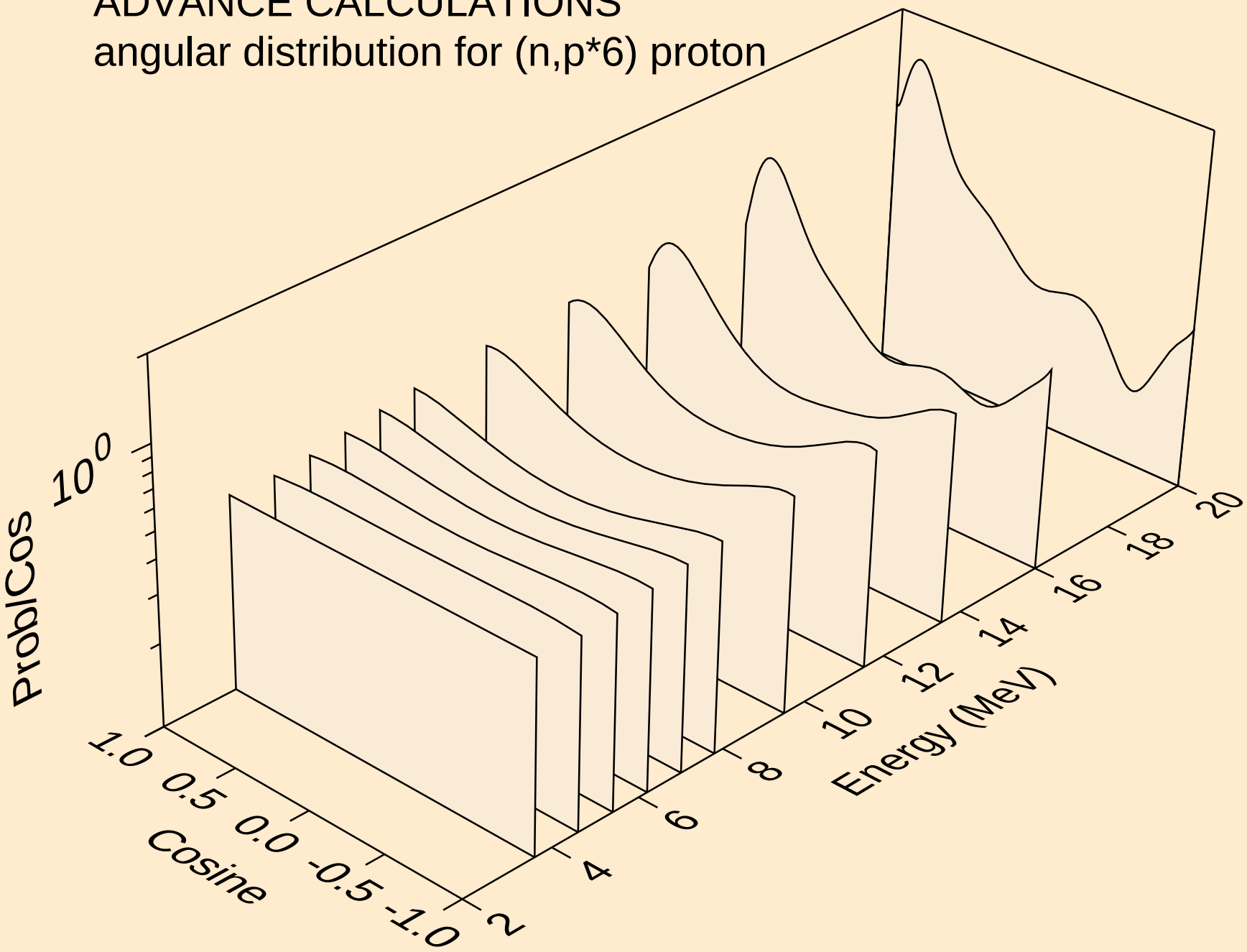


ADVANCE CALCULATIONS
angular distribution for (n,p*5) proton

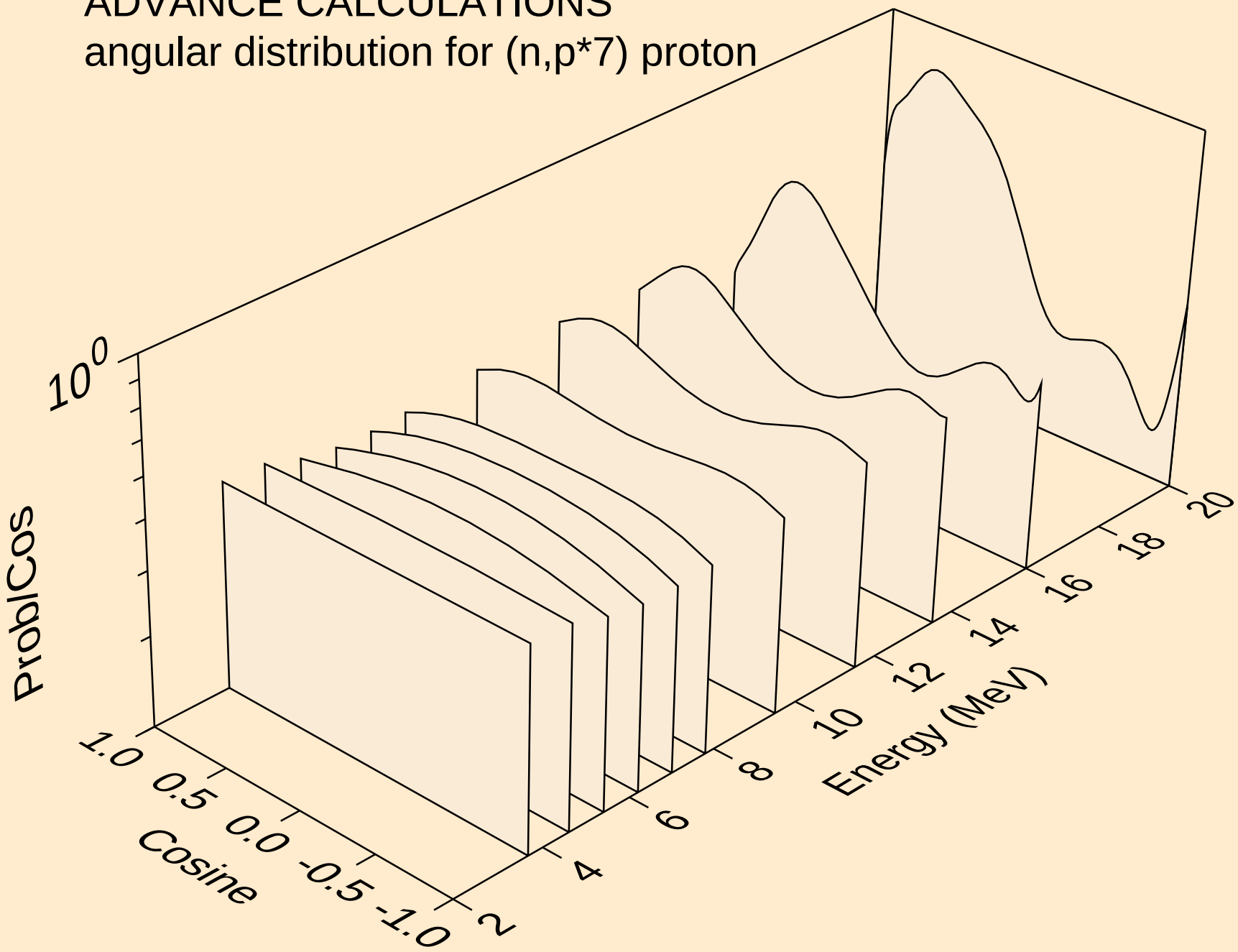


ADVANCE CALCULATIONS

angular distribution for (n,p*6) proton

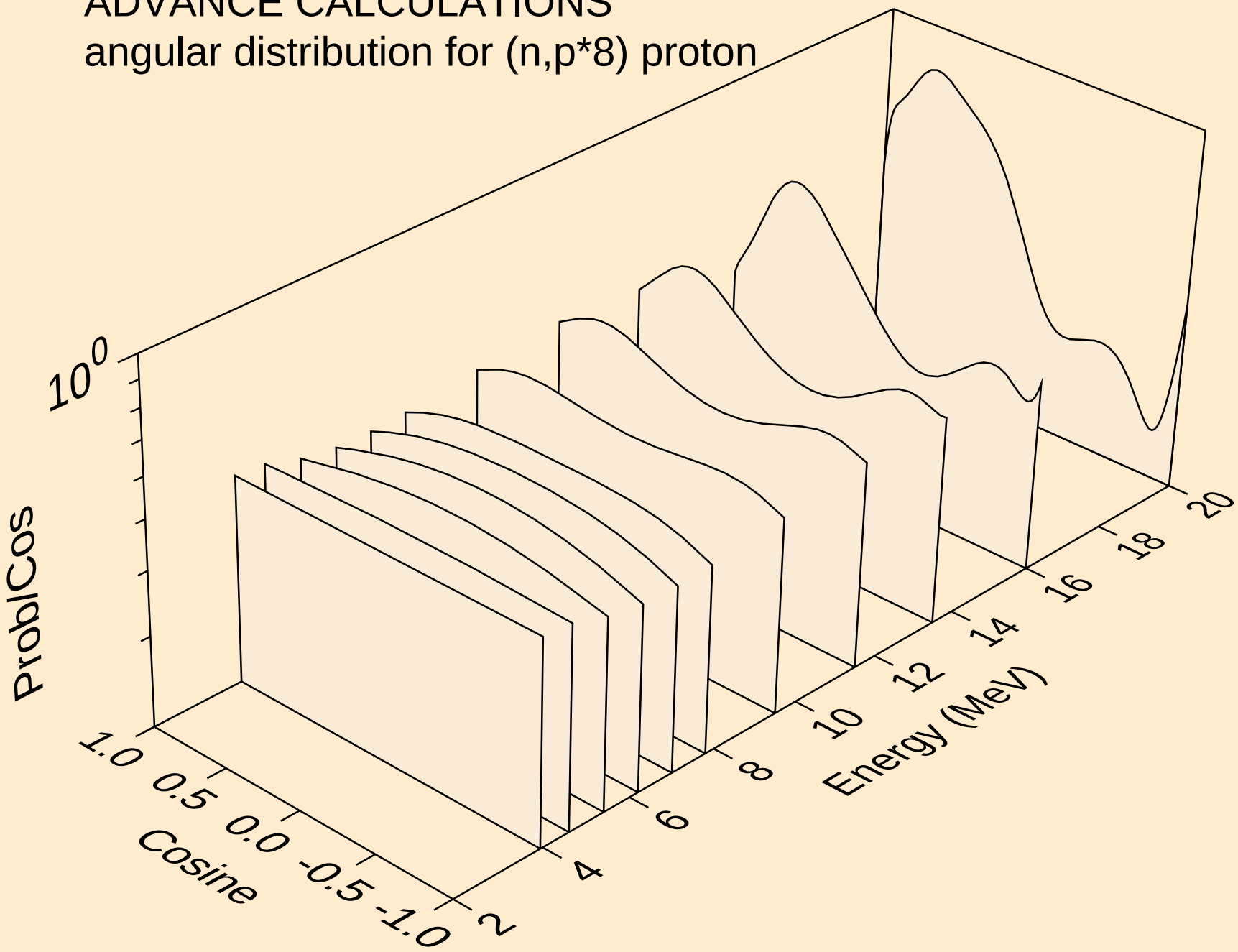


ADVANCE CALCULATIONS
angular distribution for (n,p*7) proton



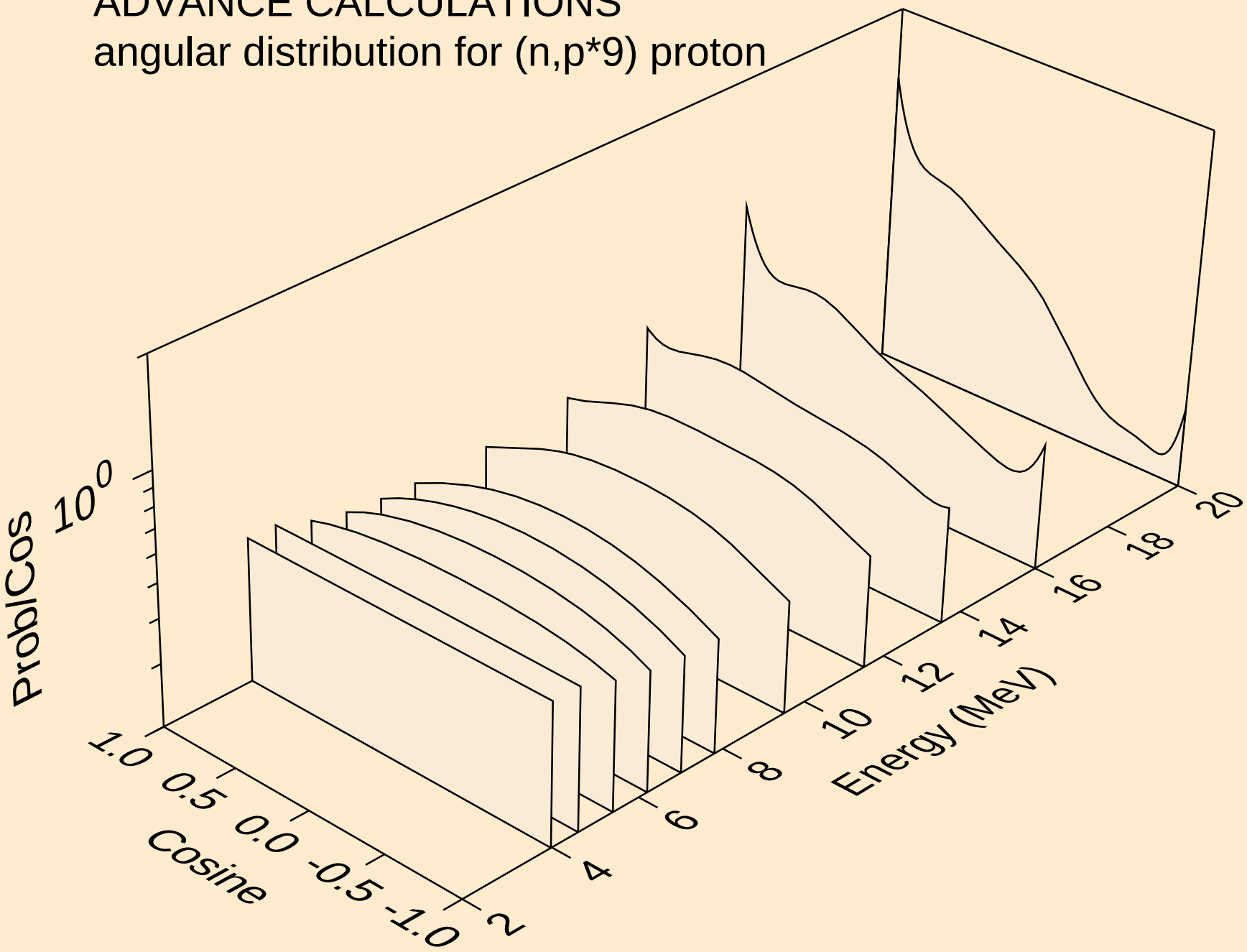
ADVANCE CALCULATIONS

angular distribution for (n,p*8) proton



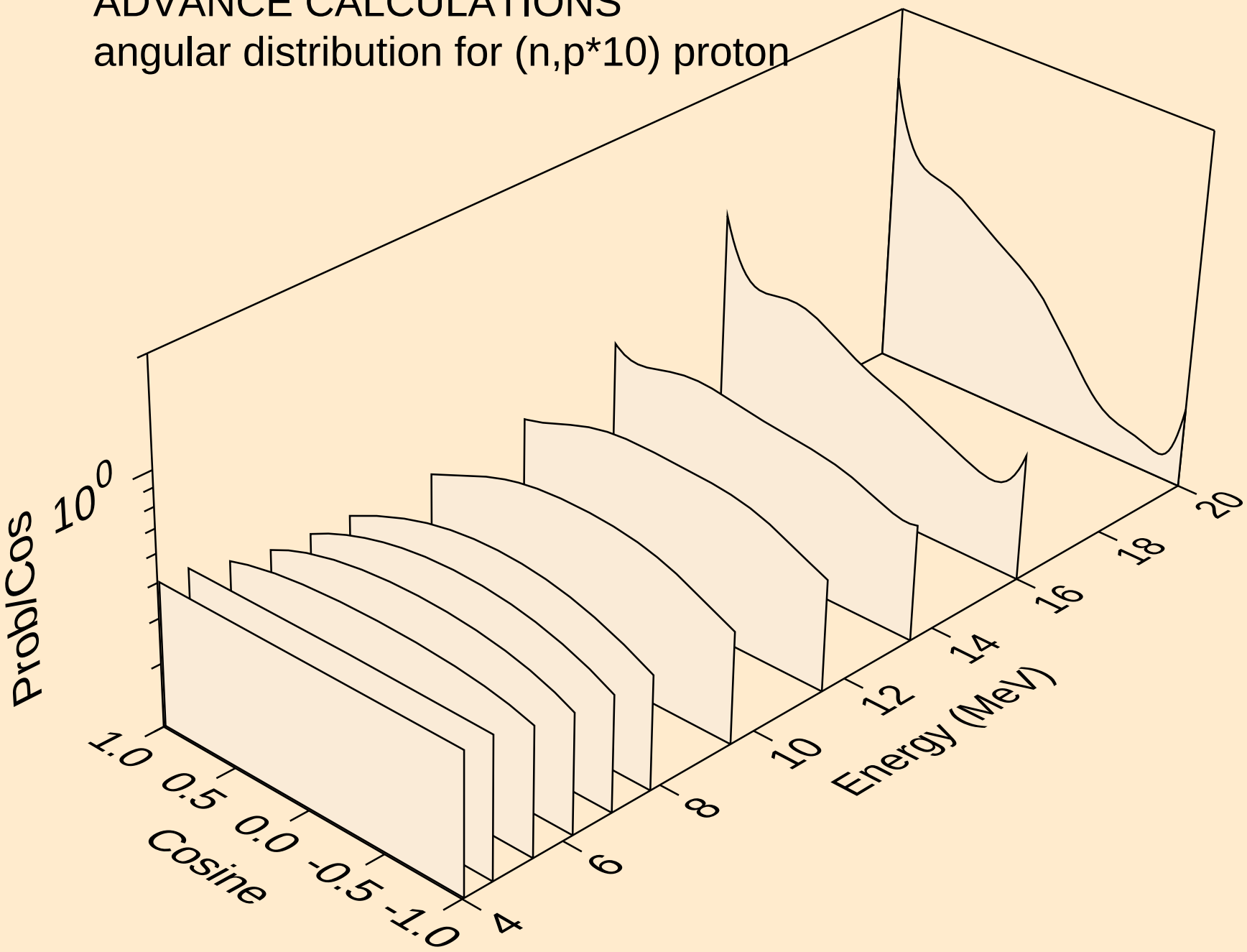
ADVANCE CALCULATIONS

angular distribution for (n,p*9) proton

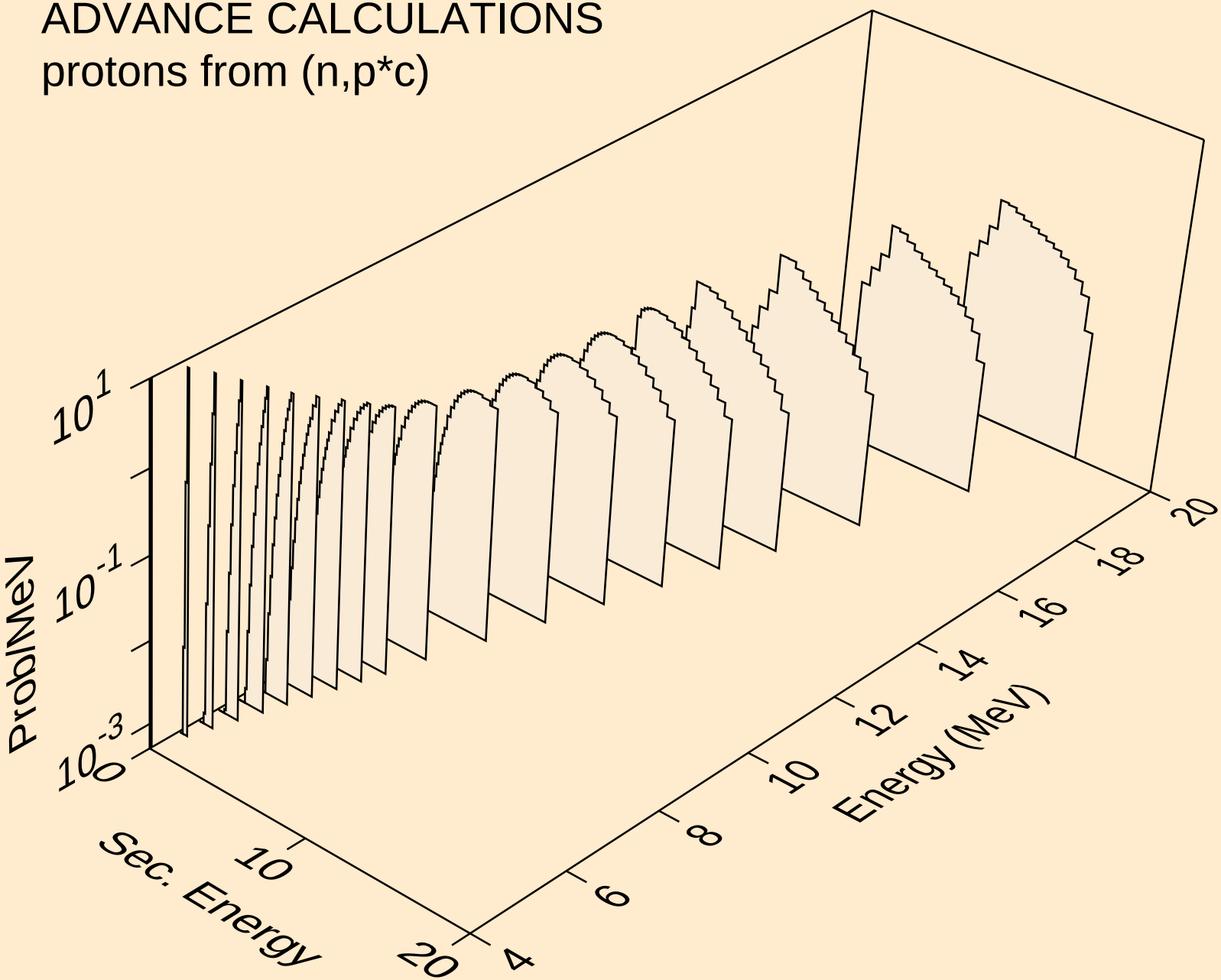


ADVANCE CALCULATIONS

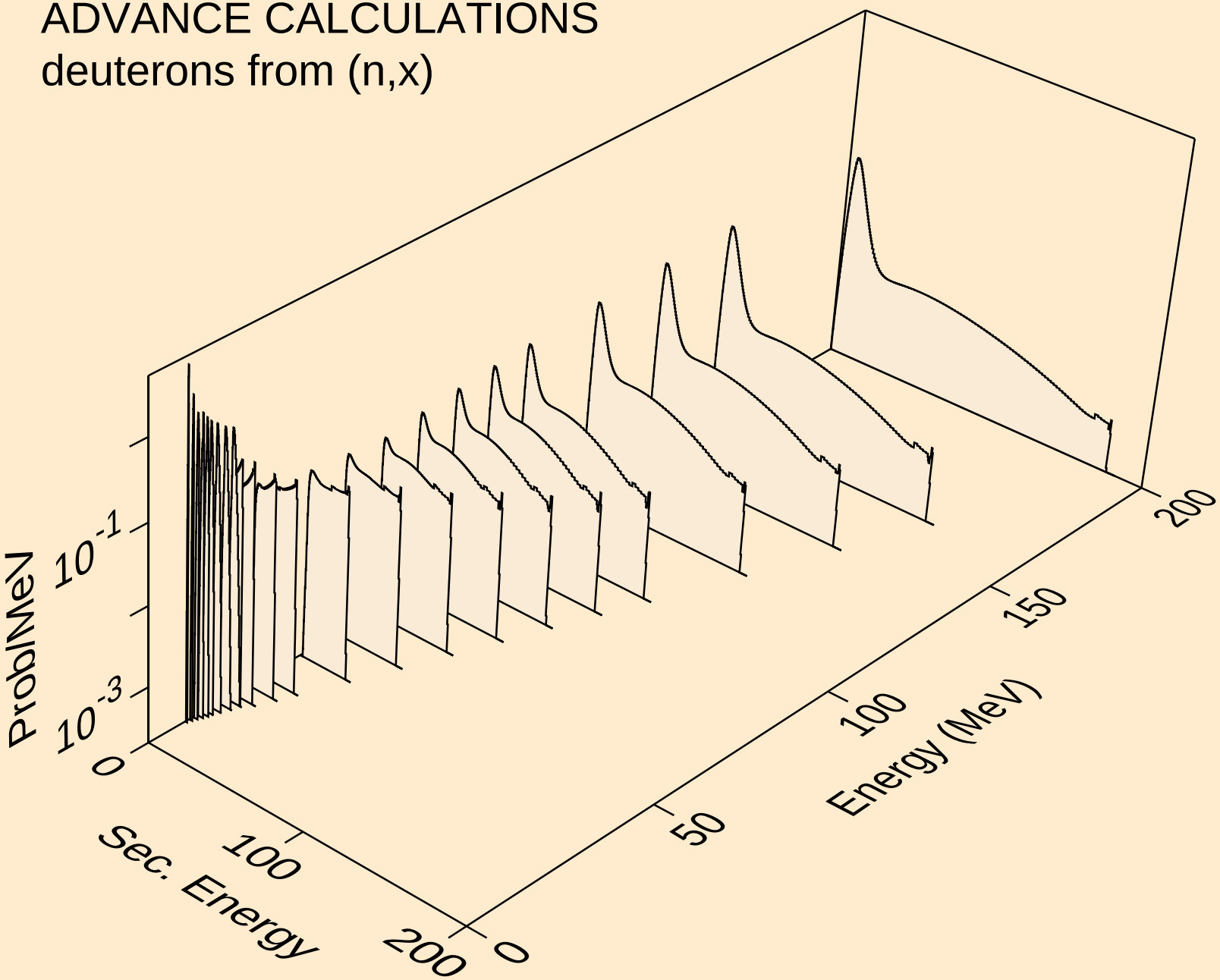
angular distribution for (n,p*10) proton



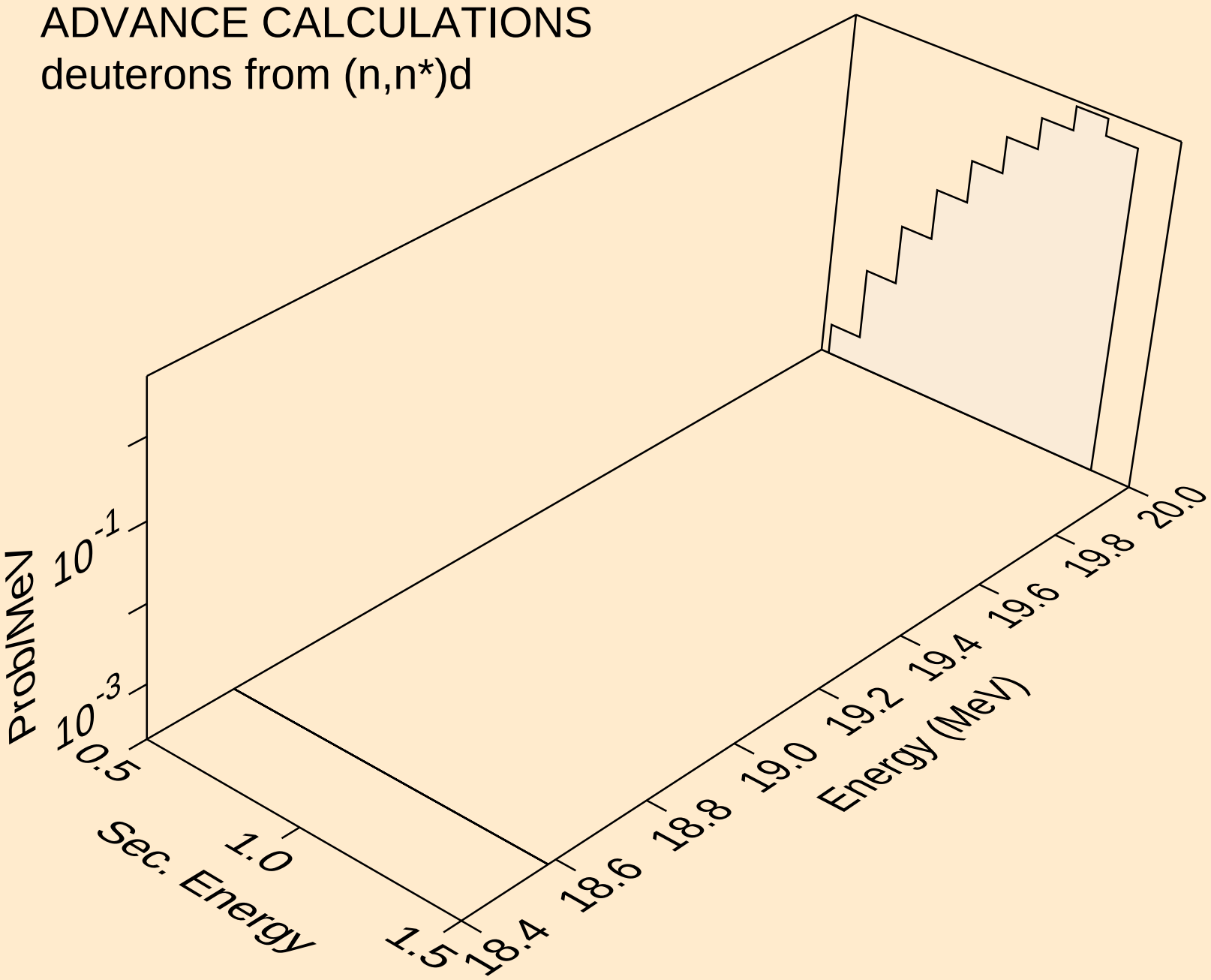
ADVANCE CALCULATIONS
protons from (n,p*c)



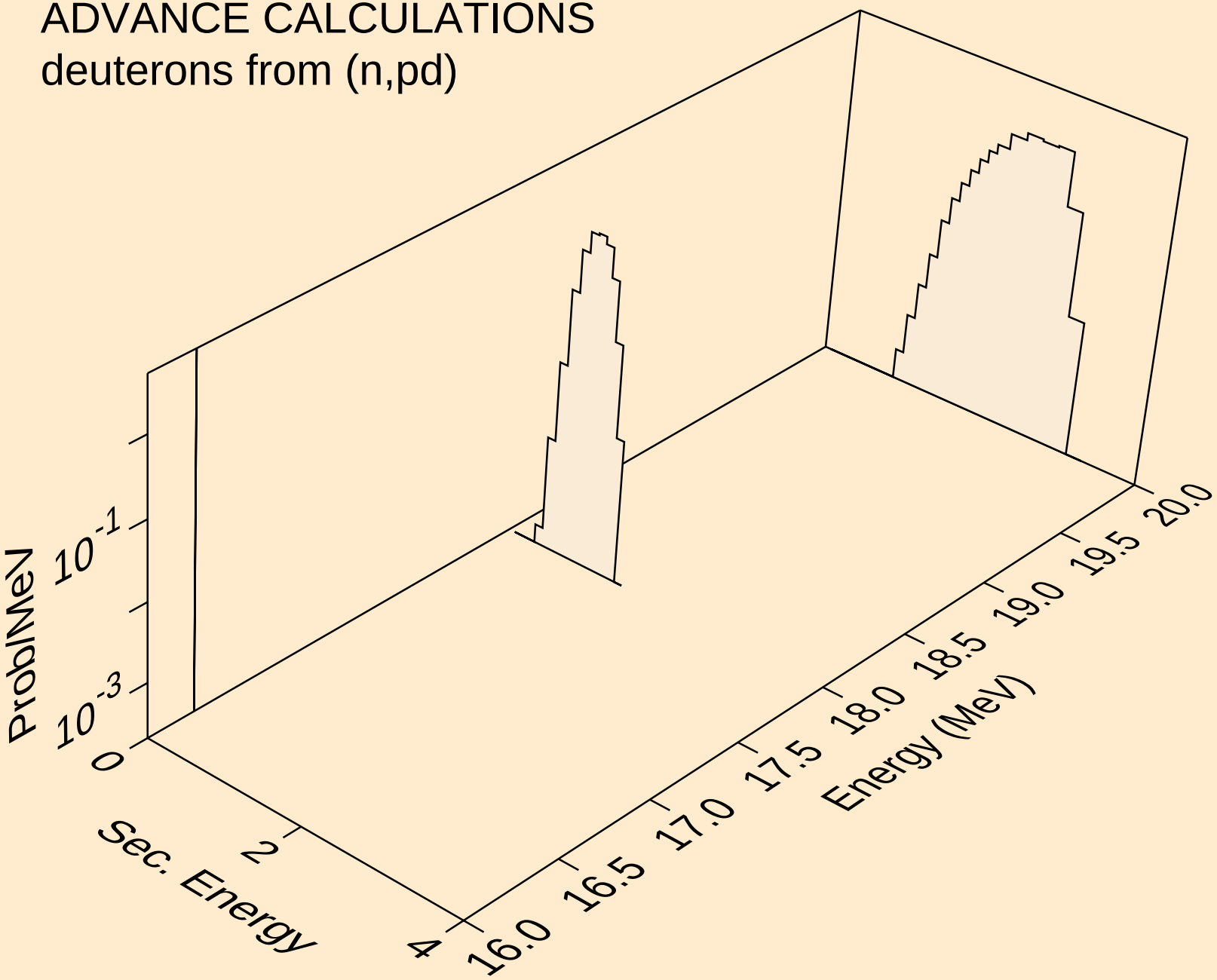
ADVANCE CALCULATIONS
deuterons from (n,x)



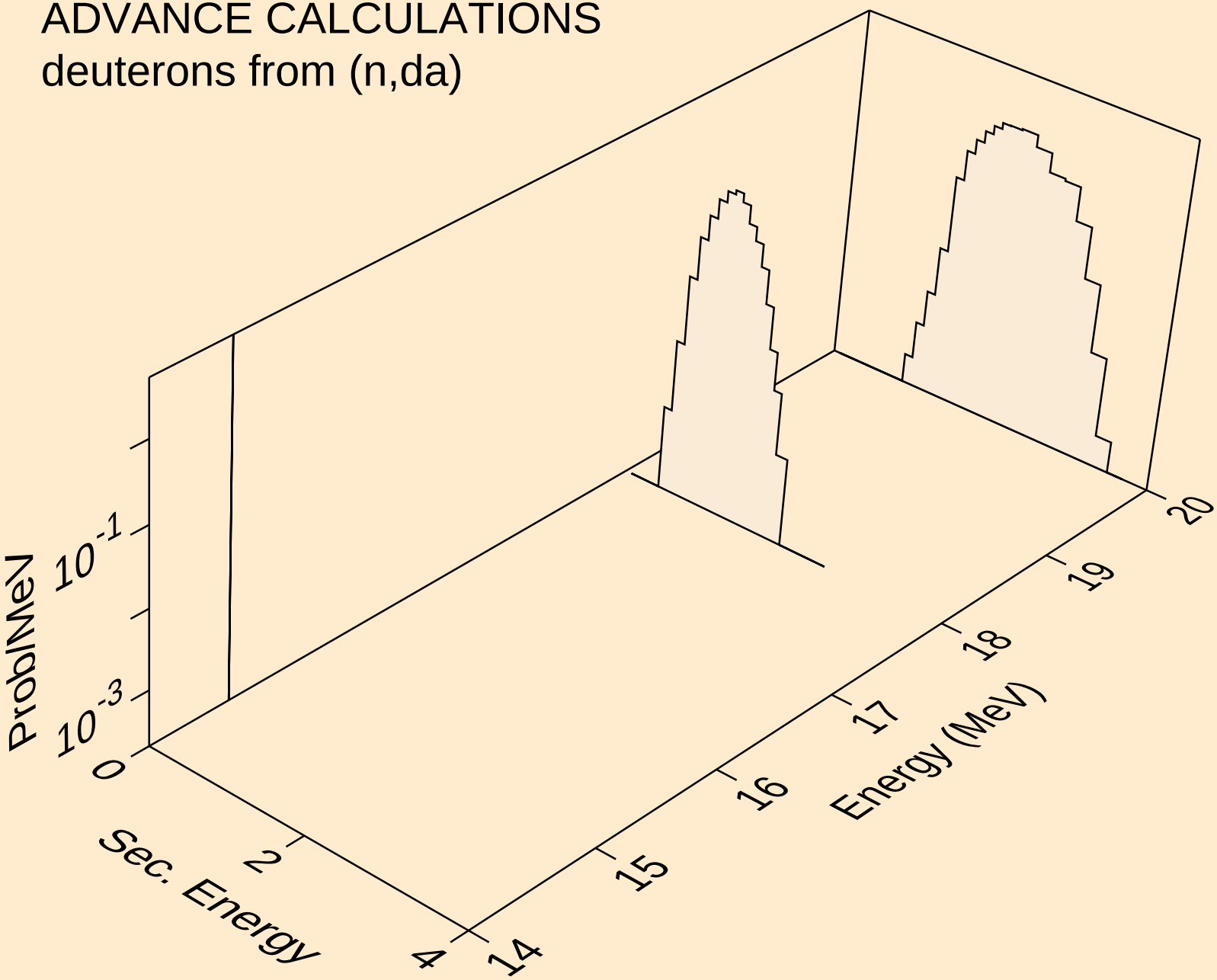
ADVANCE CALCULATIONS
deuterons from (n,n*)d



ADVANCE CALCULATIONS
deuterons from (n,pd)

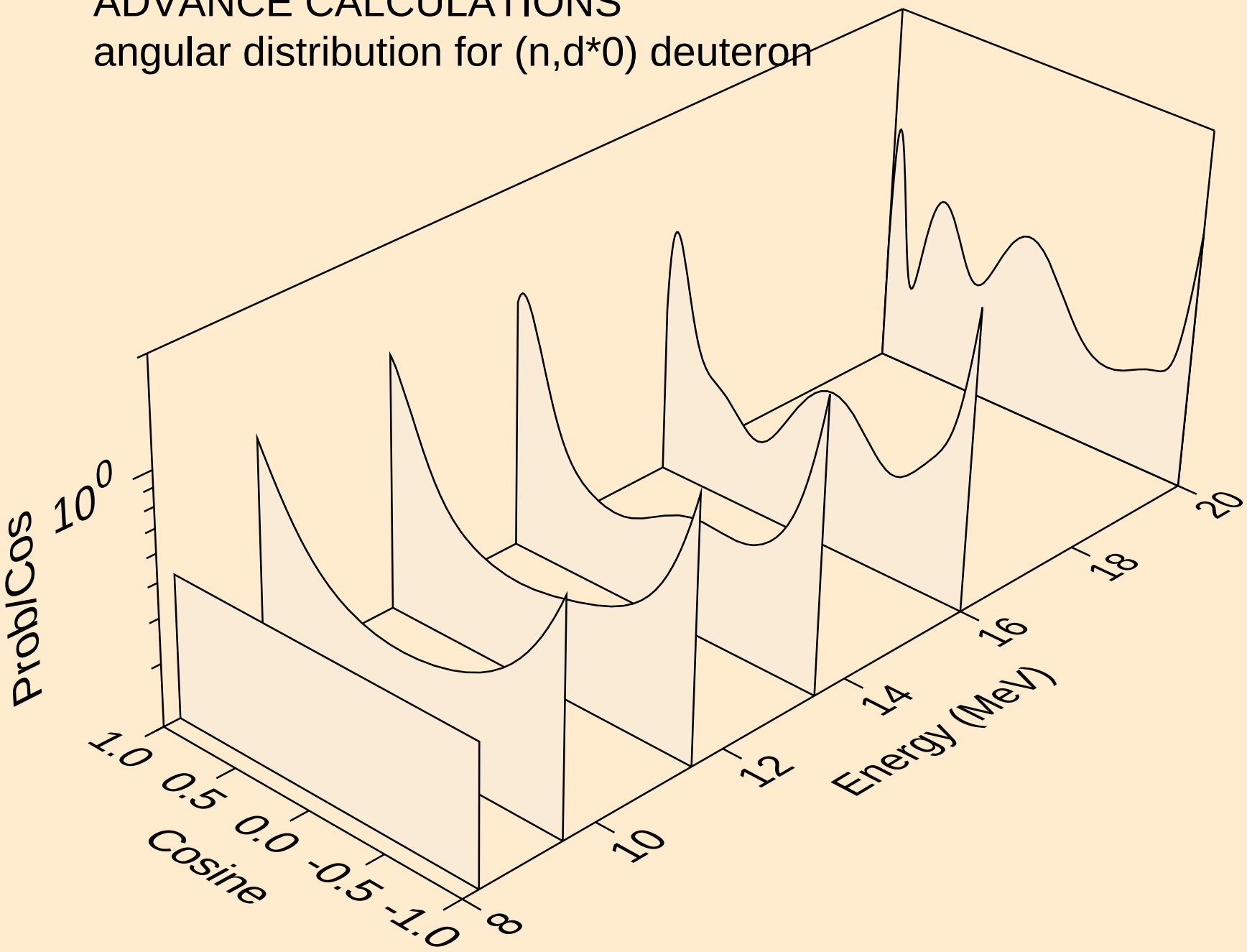


ADVANCE CALCULATIONS
deuterons from (n,da)



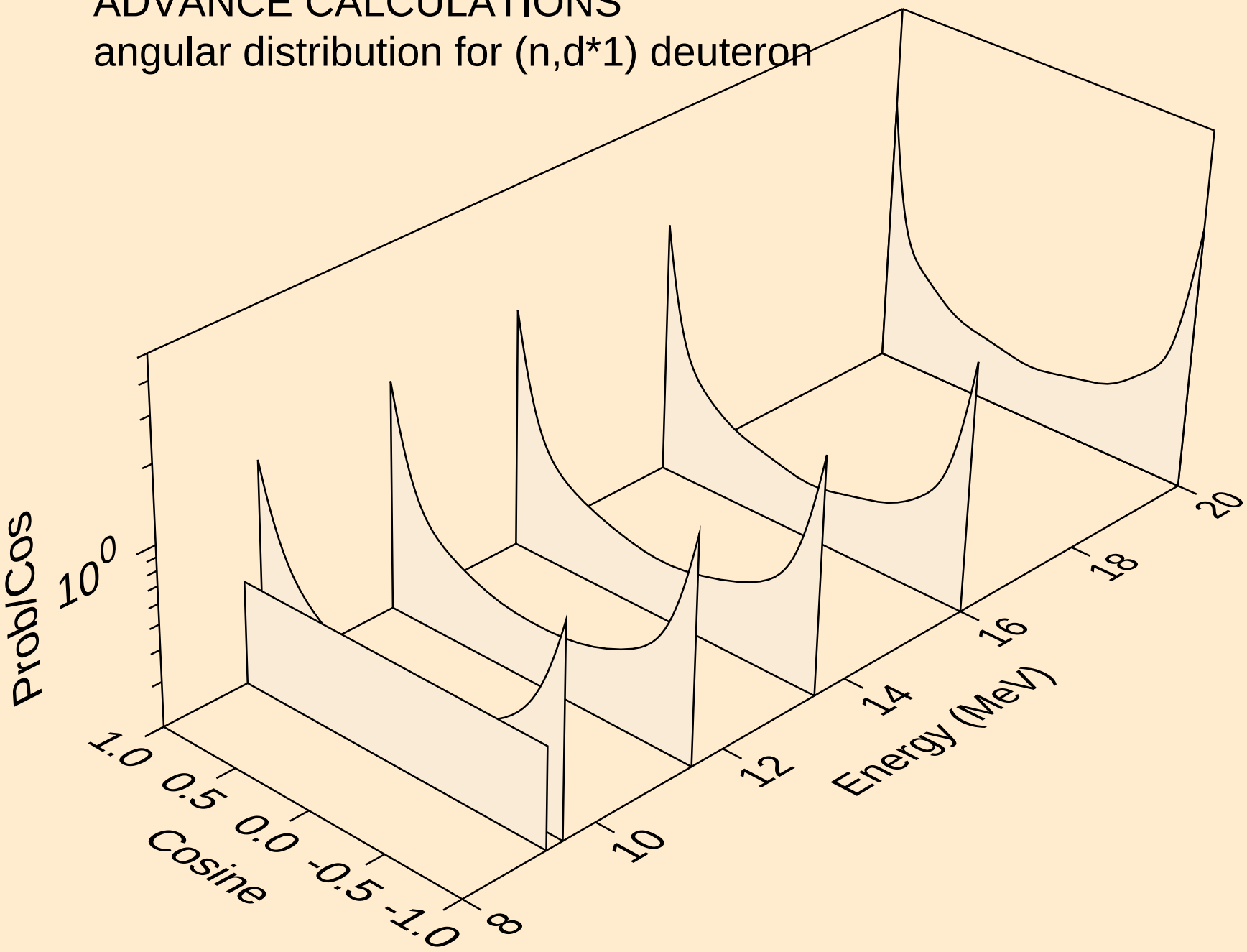
ADVANCE CALCULATIONS

angular distribution for (n,d*0) deuteron



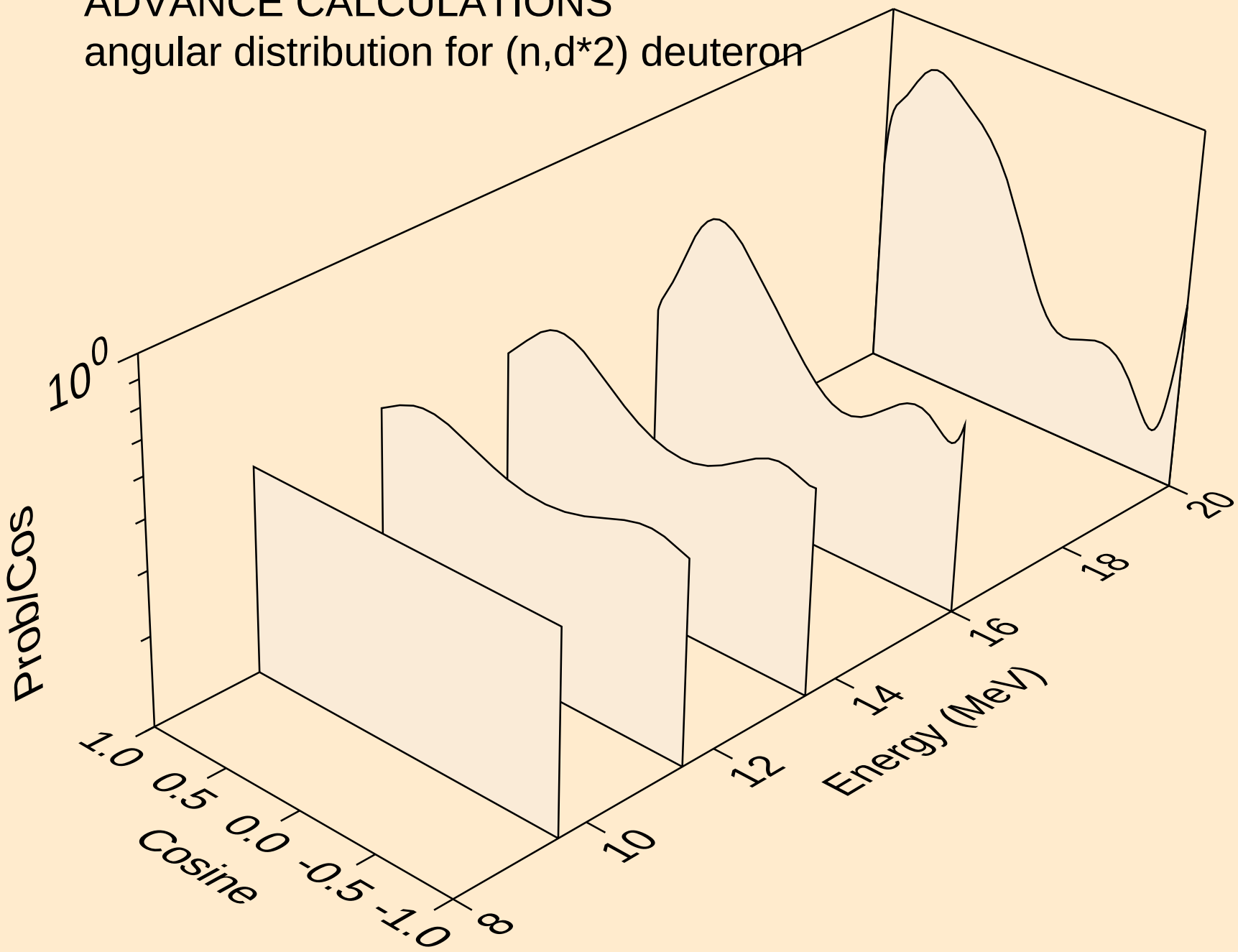
ADVANCE CALCULATIONS

angular distribution for (n,d*1) deuteron



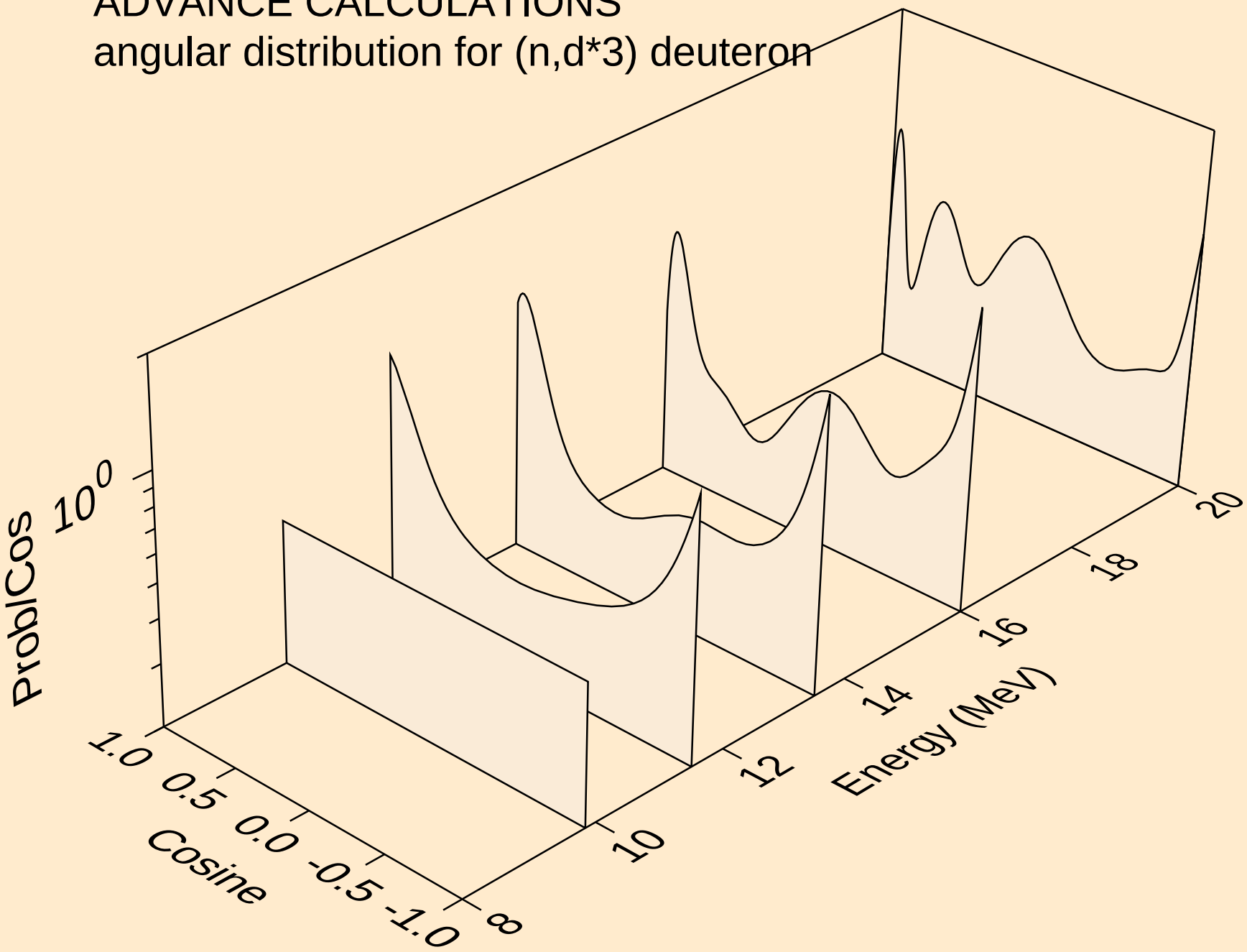
ADVANCE CALCULATIONS

angular distribution for (n,d*2) deuteron



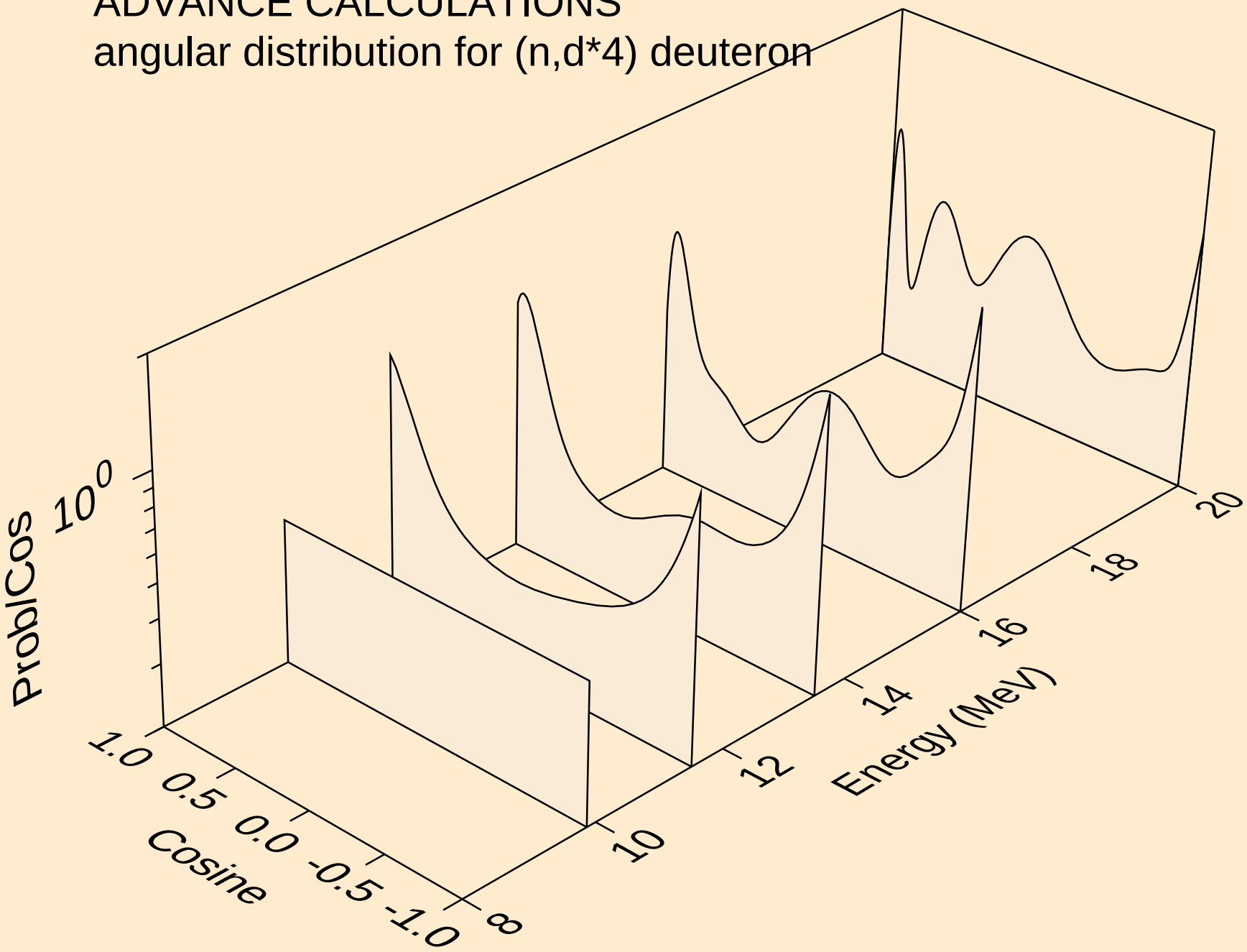
ADVANCE CALCULATIONS

angular distribution for (n,d*3) deuteron



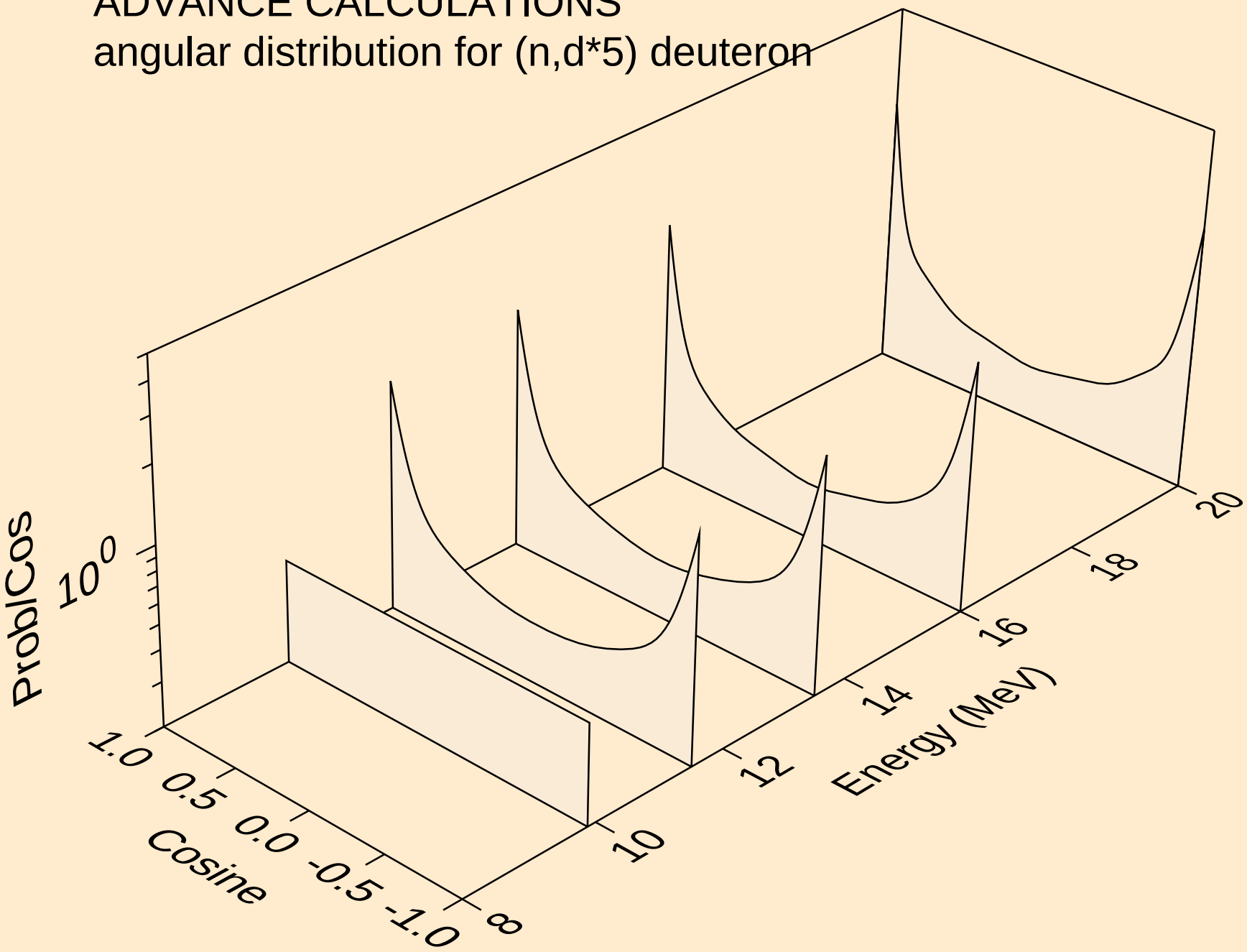
ADVANCE CALCULATIONS

angular distribution for (n,d*4) deuteron

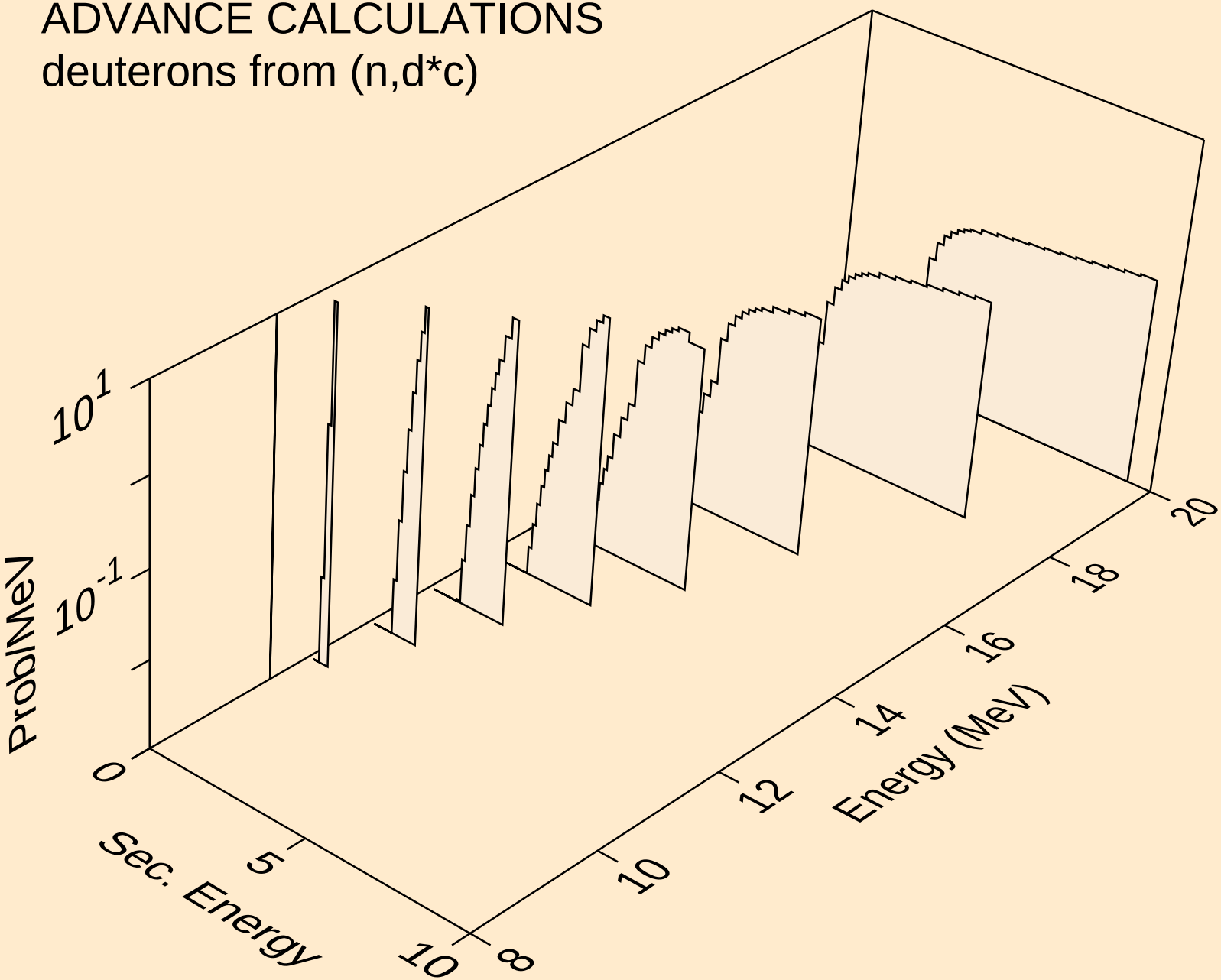


ADVANCE CALCULATIONS

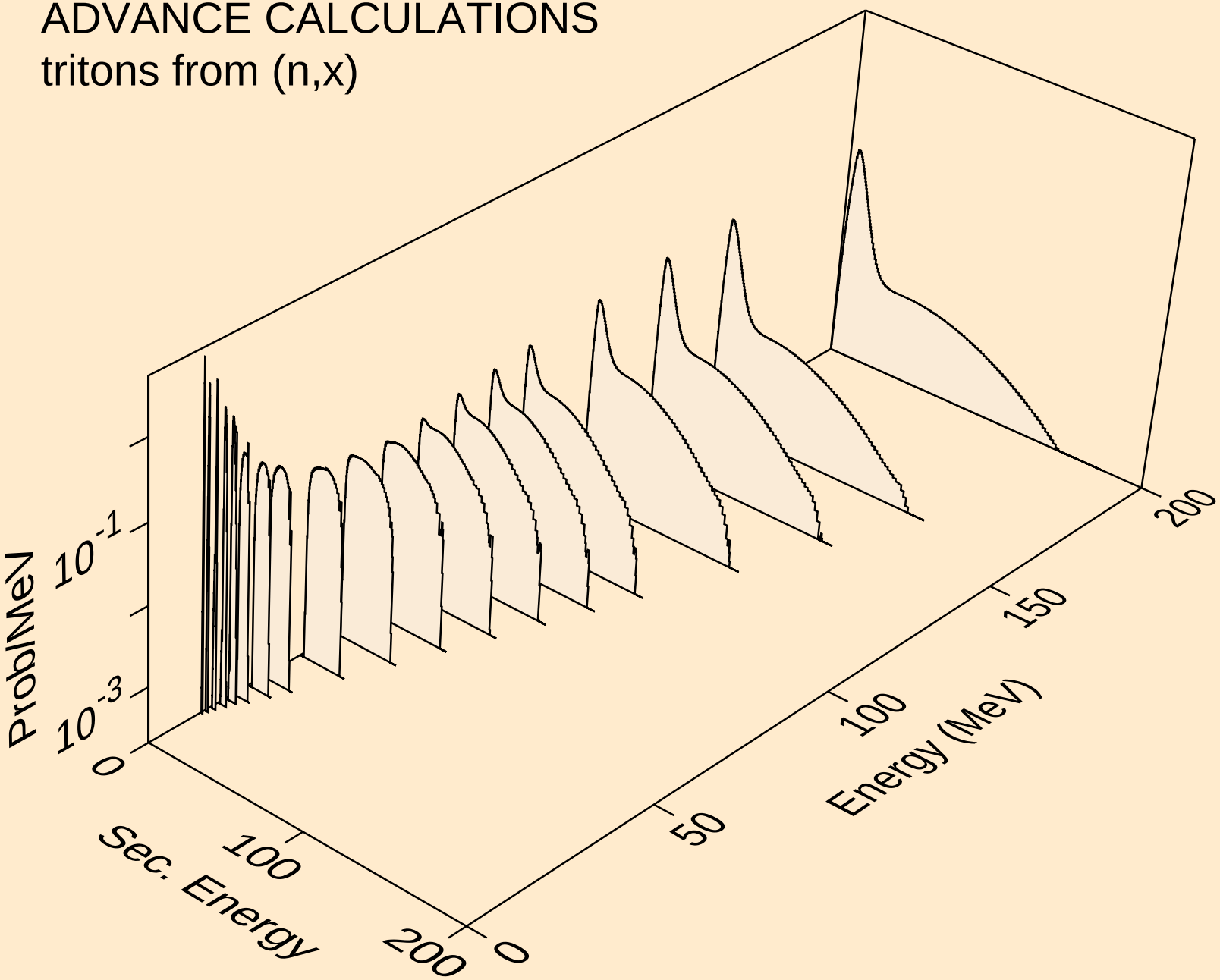
angular distribution for (n,d*5) deuteron



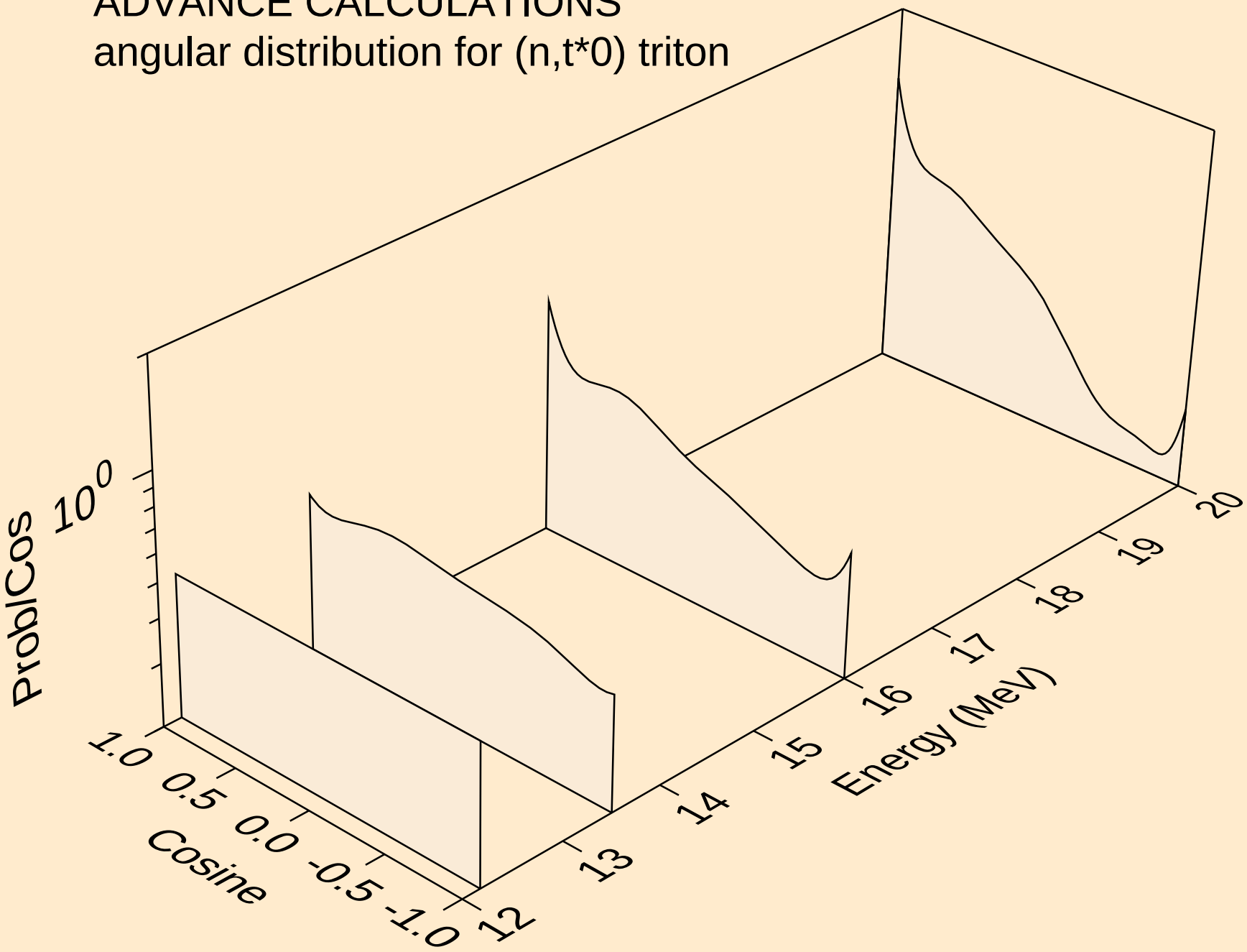
ADVANCE CALCULATIONS
deuterons from (n,d*c)



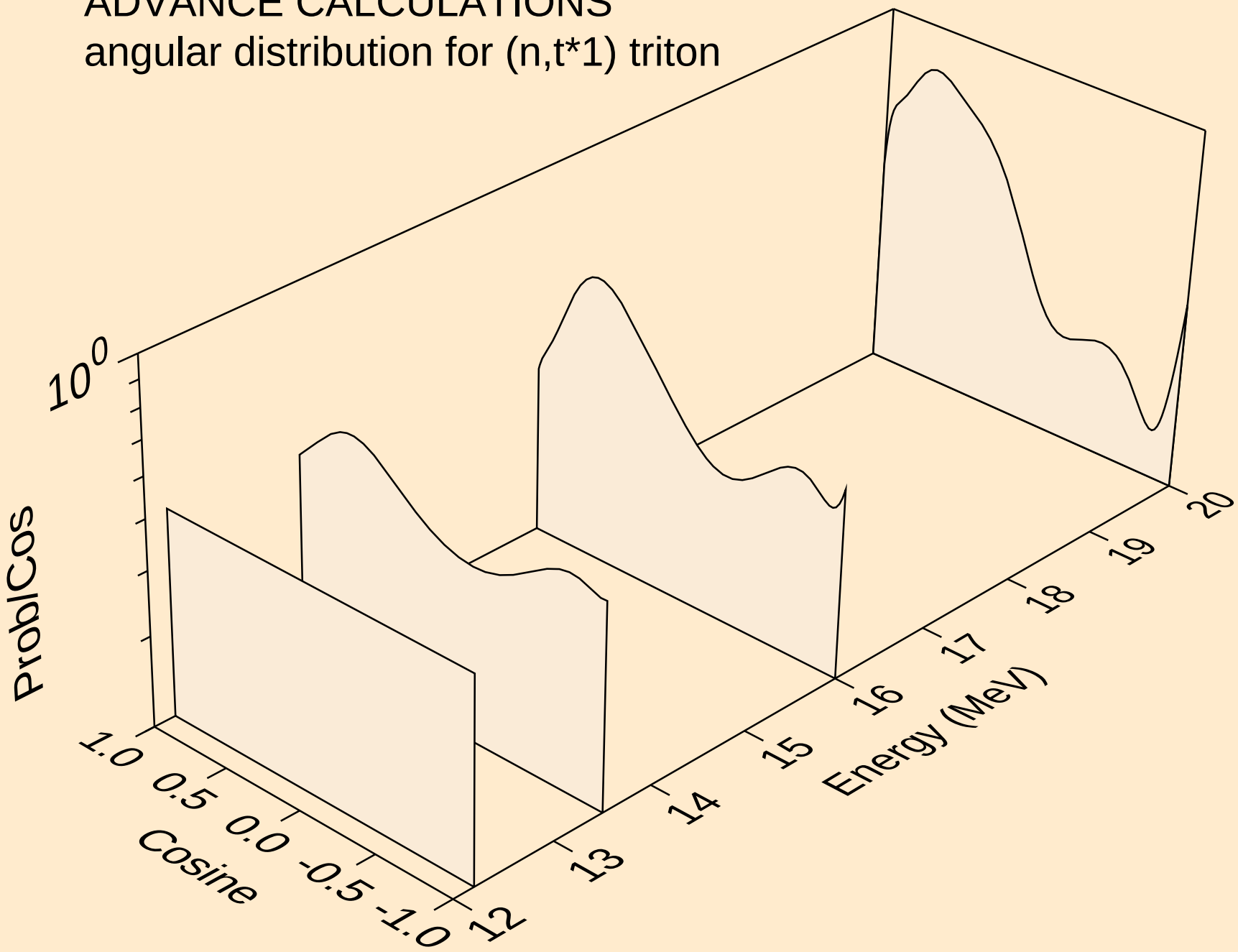
ADVANCE CALCULATIONS
tritons from (n,x)



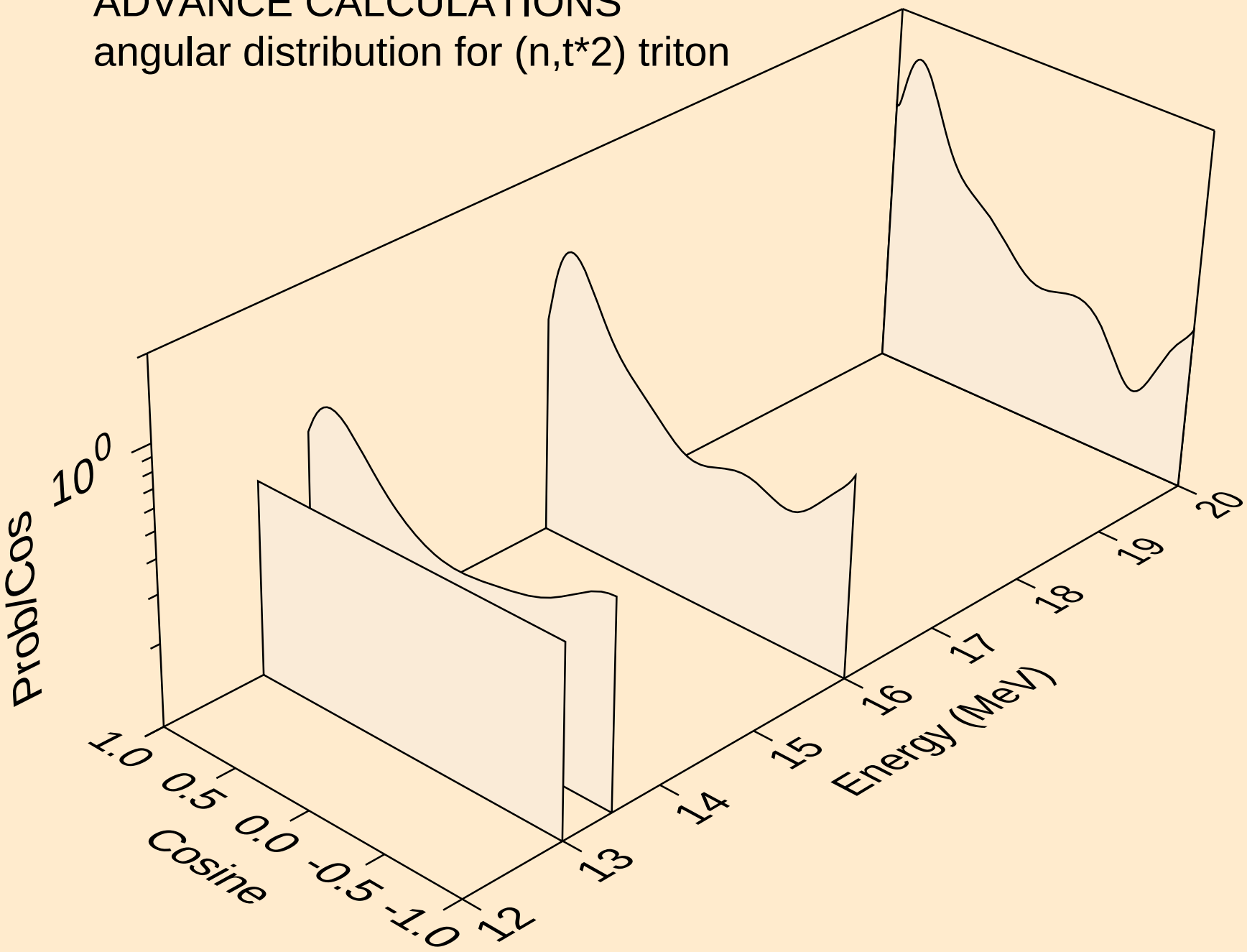
ADVANCE CALCULATIONS
angular distribution for (n,t*0) triton



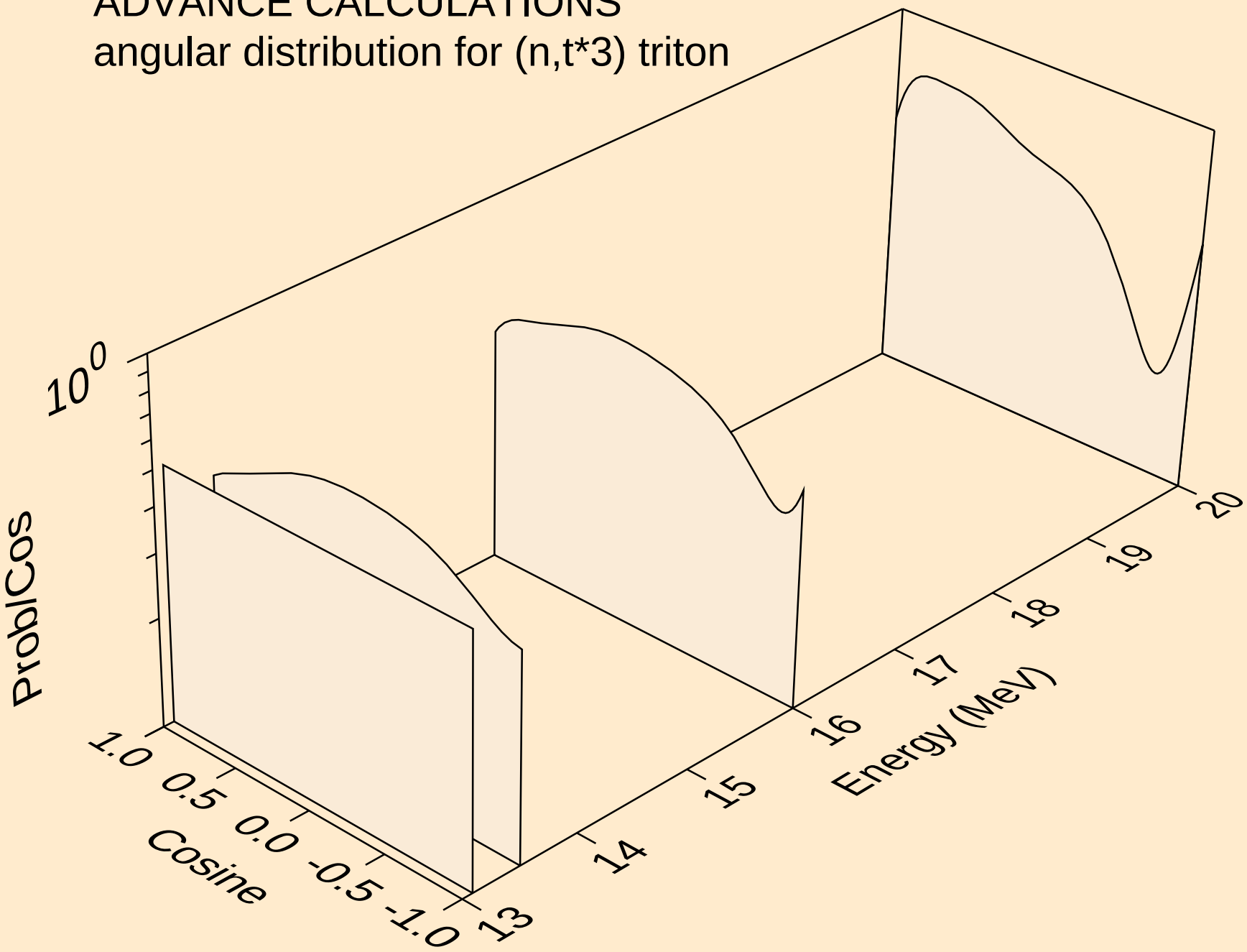
ADVANCE CALCULATIONS
angular distribution for (n,t*1) triton



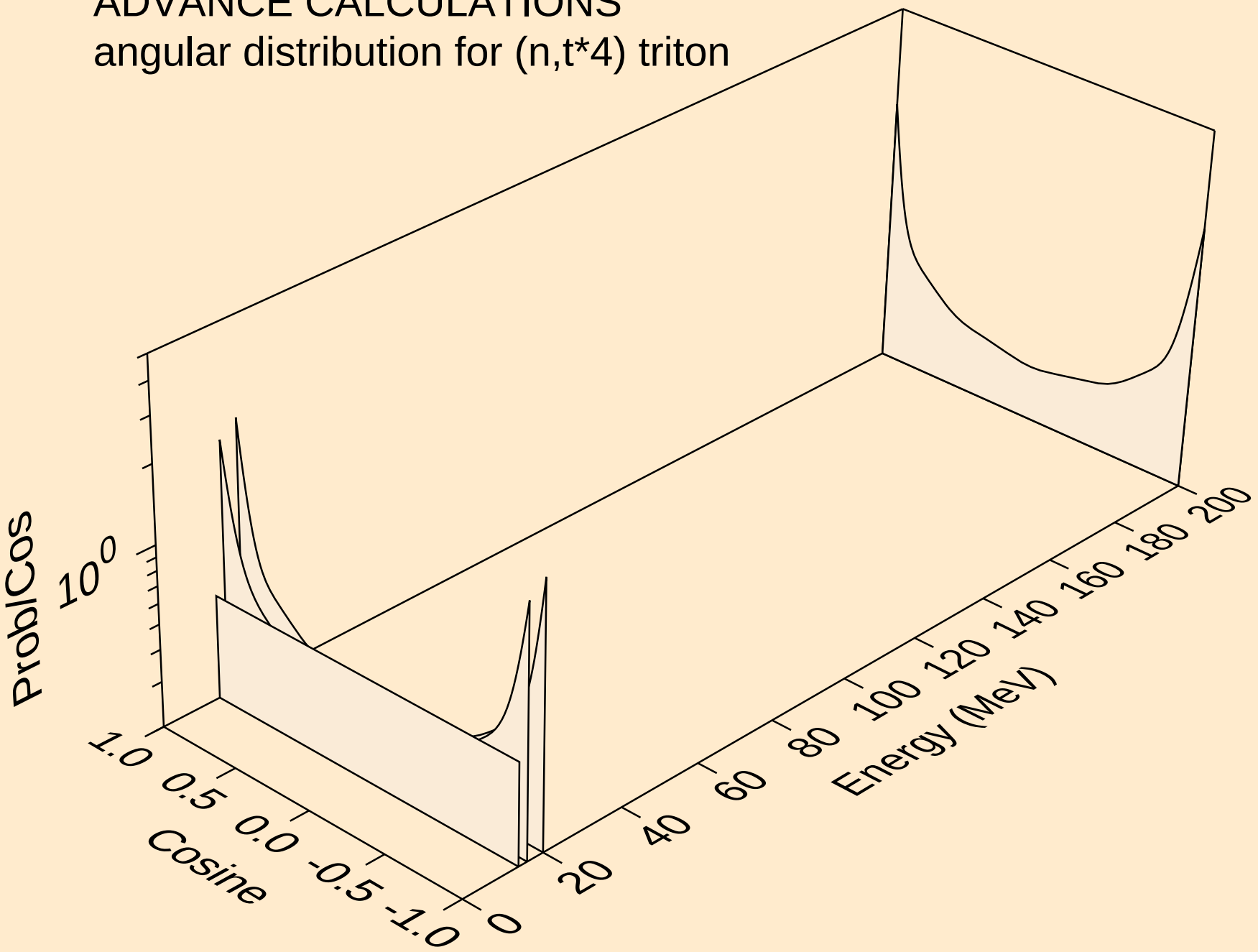
ADVANCE CALCULATIONS
angular distribution for (n,t*2) triton



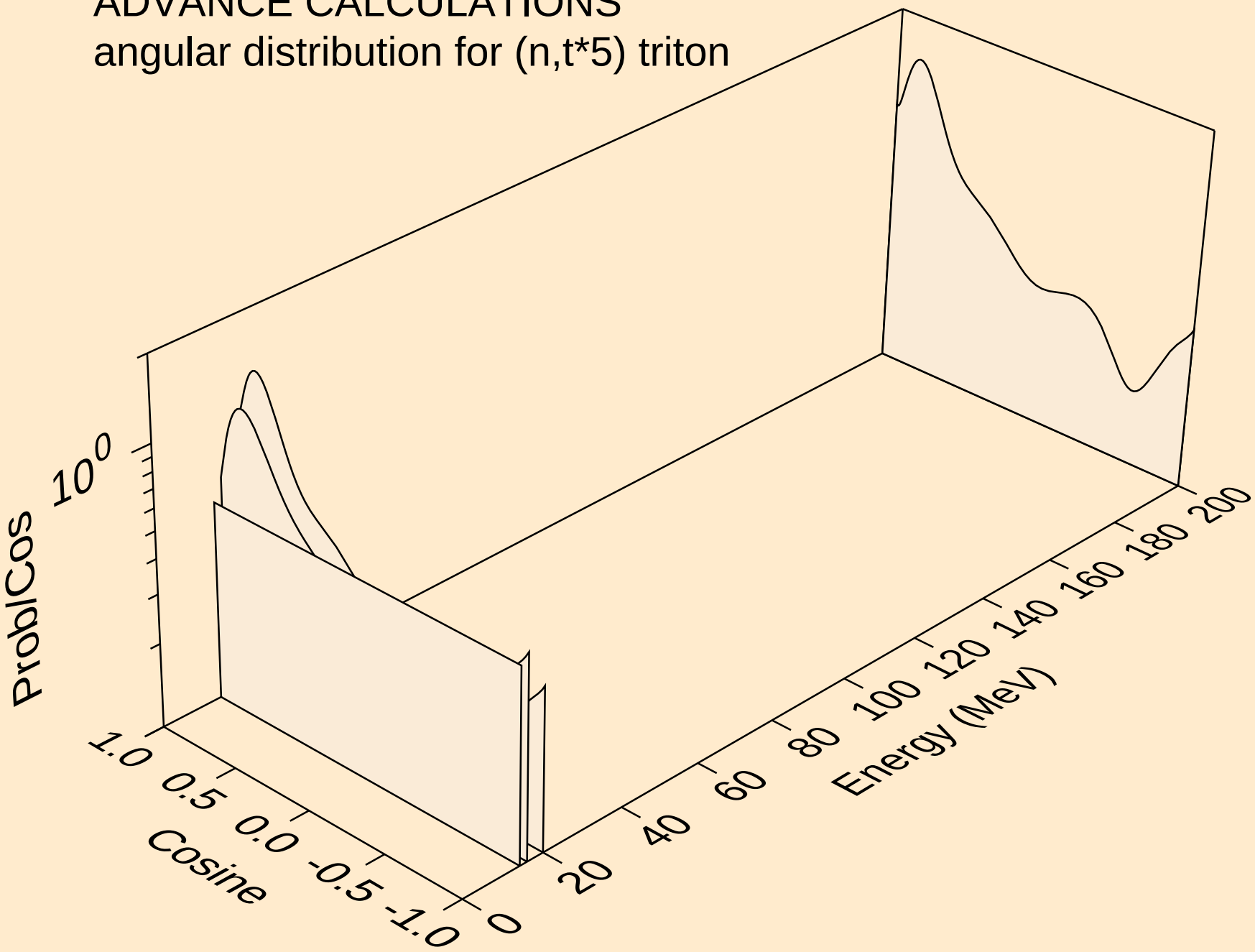
ADVANCE CALCULATIONS
angular distribution for (n,t*3) triton



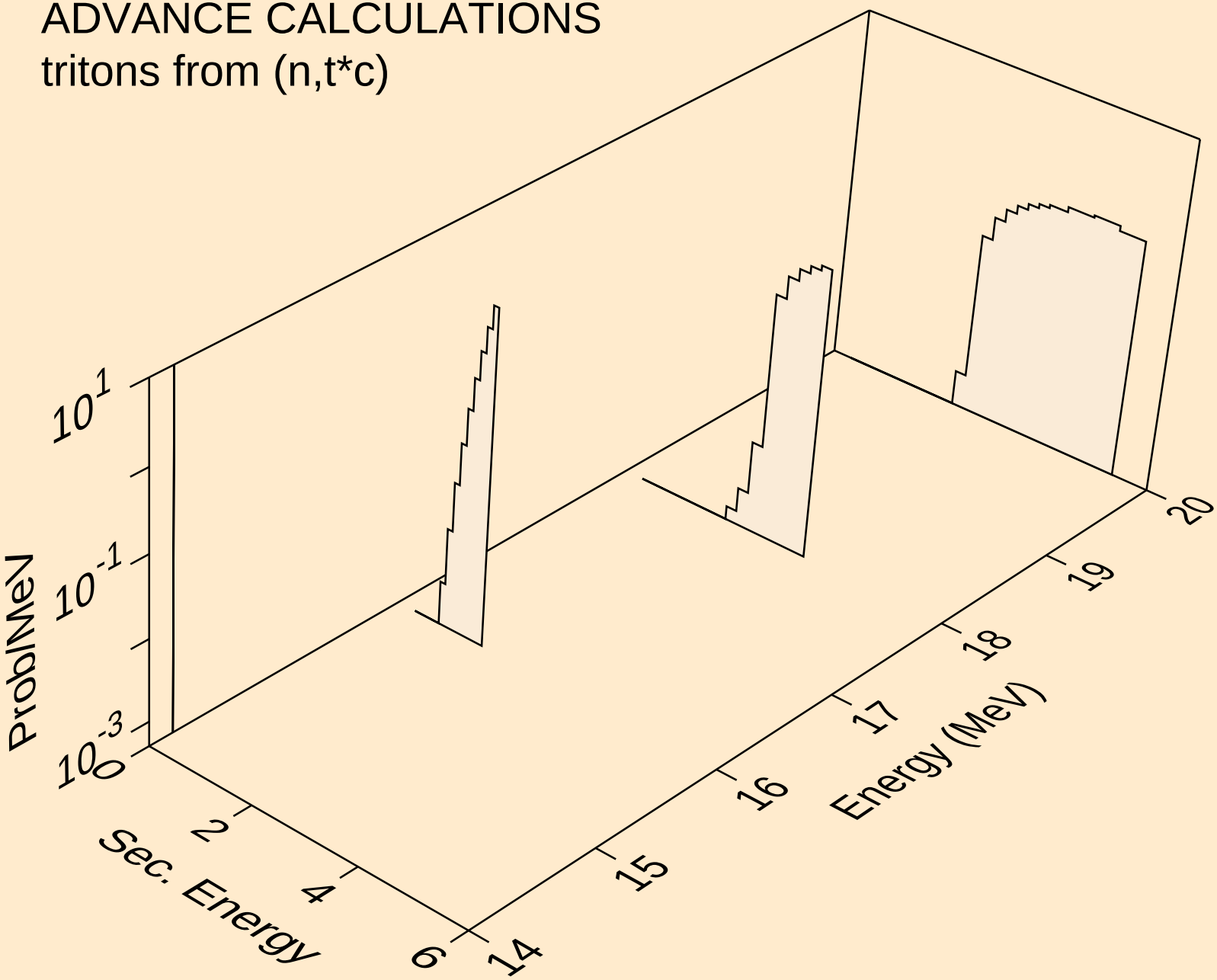
ADVANCE CALCULATIONS
angular distribution for (n,t*4) triton



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

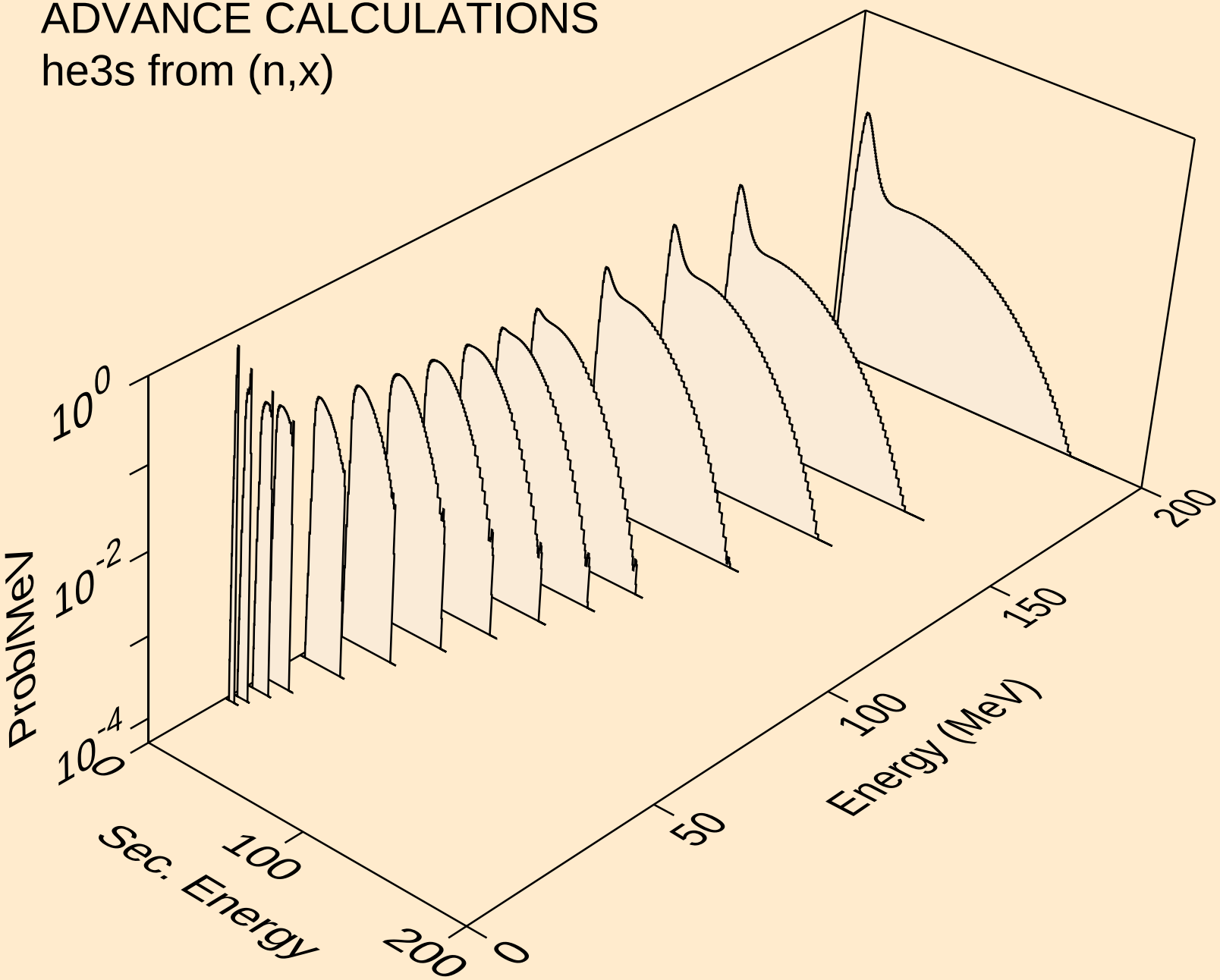


ADVANCE CALCULATIONS
tritons from (n,t*c)

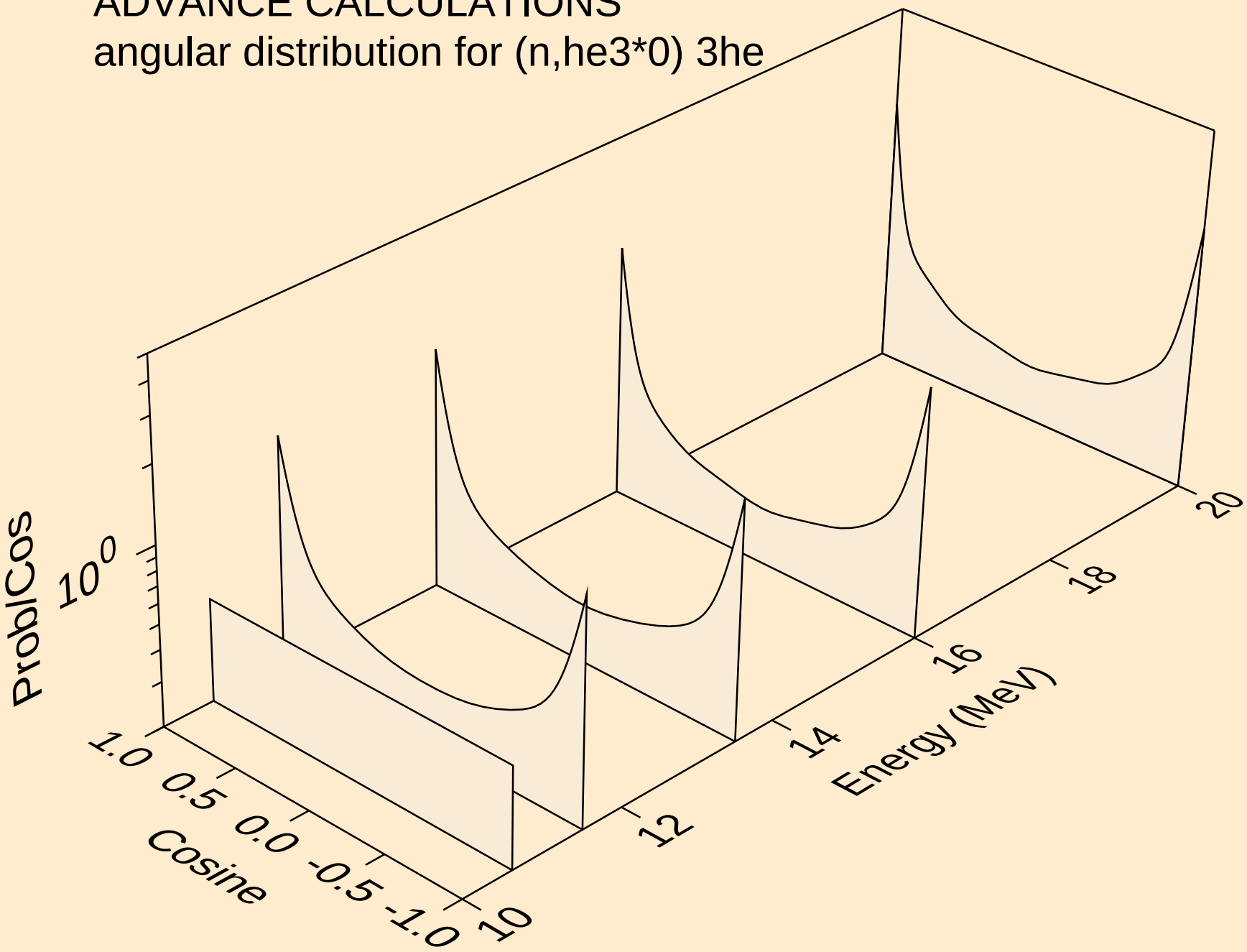


ADVANCE CALCULATIONS

he3s from (n,x)

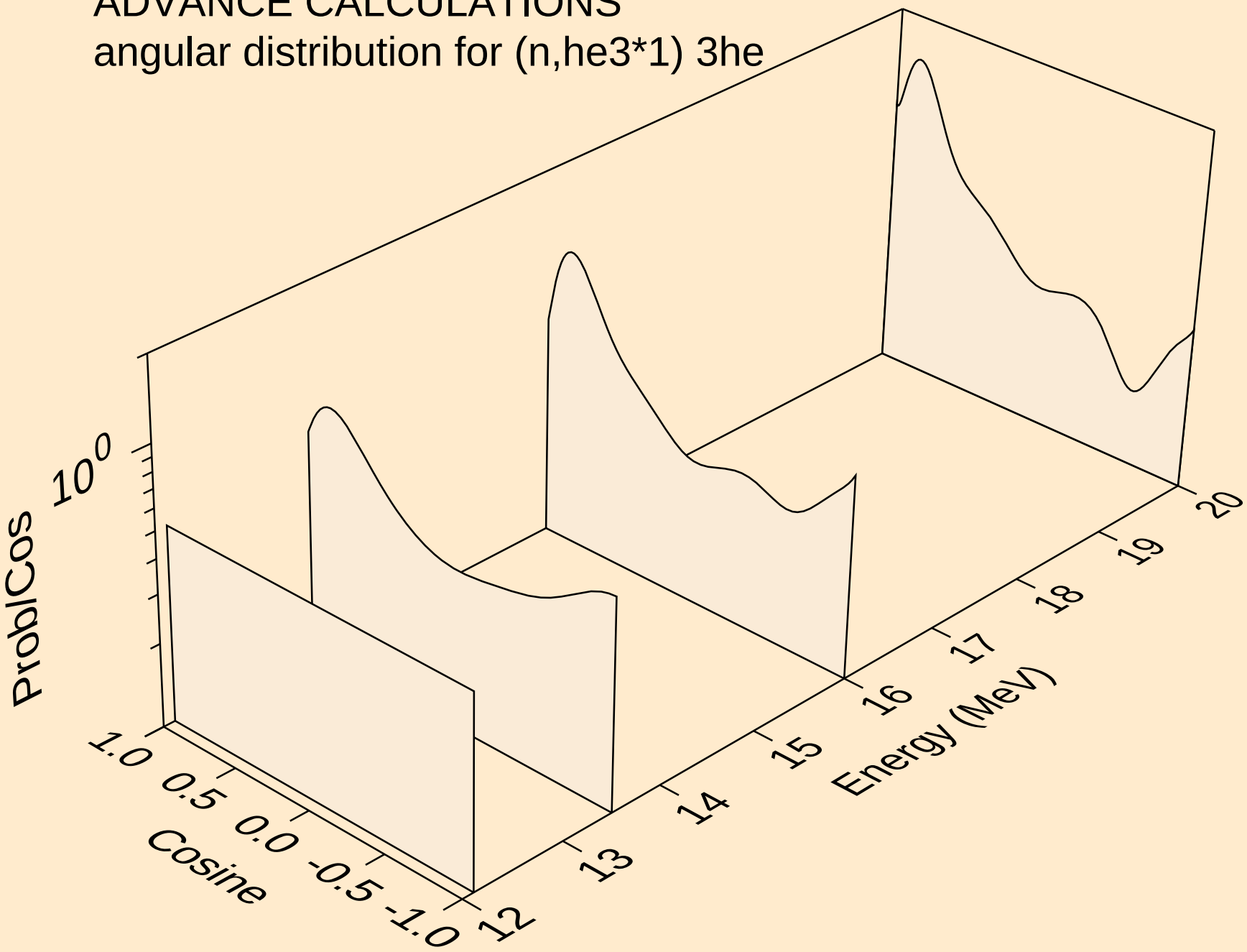


ADVANCE CALCULATIONS
angular distribution for (n,he3*0) 3he



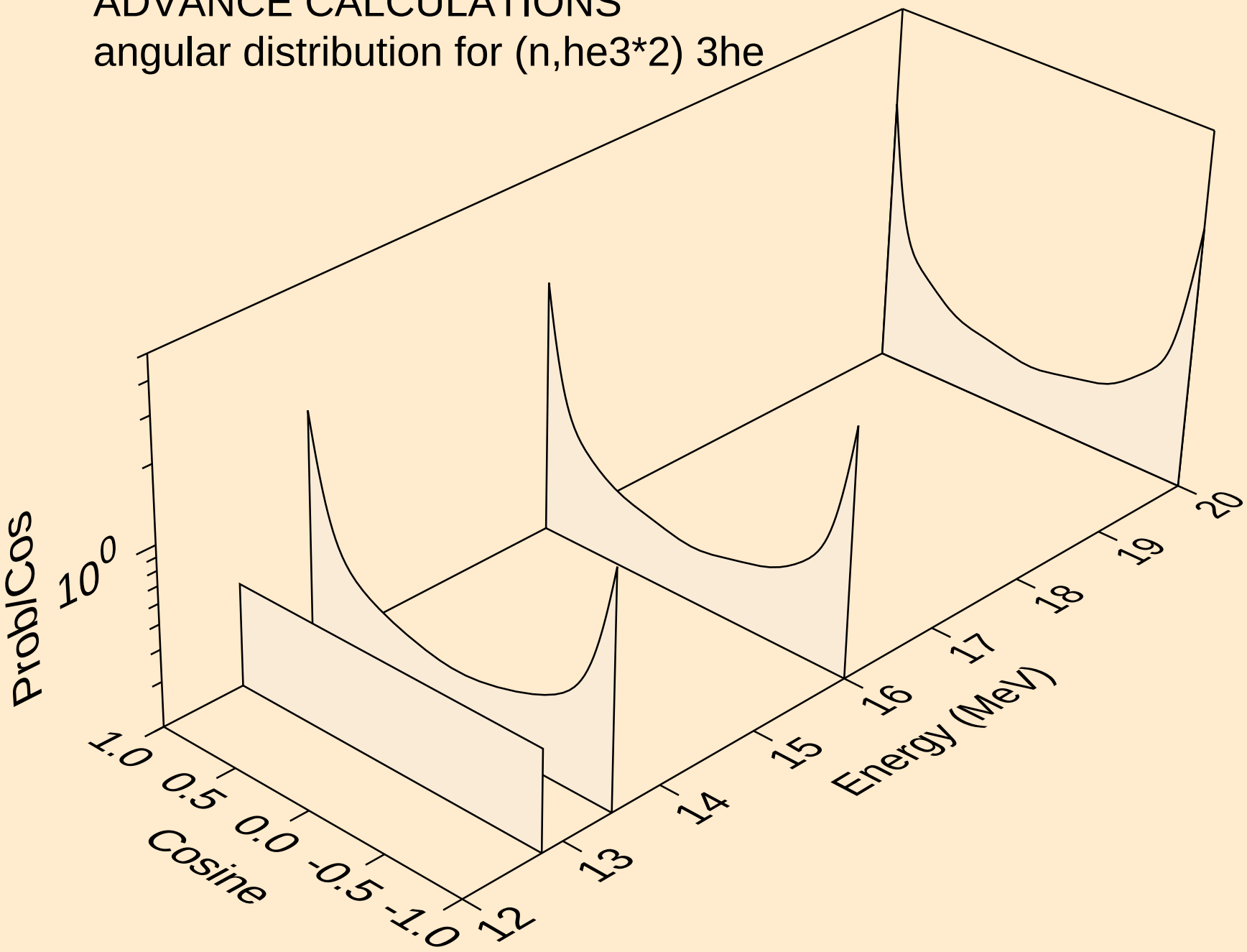
ADVANCE CALCULATIONS

angular distribution for (n,he3*1) 3he

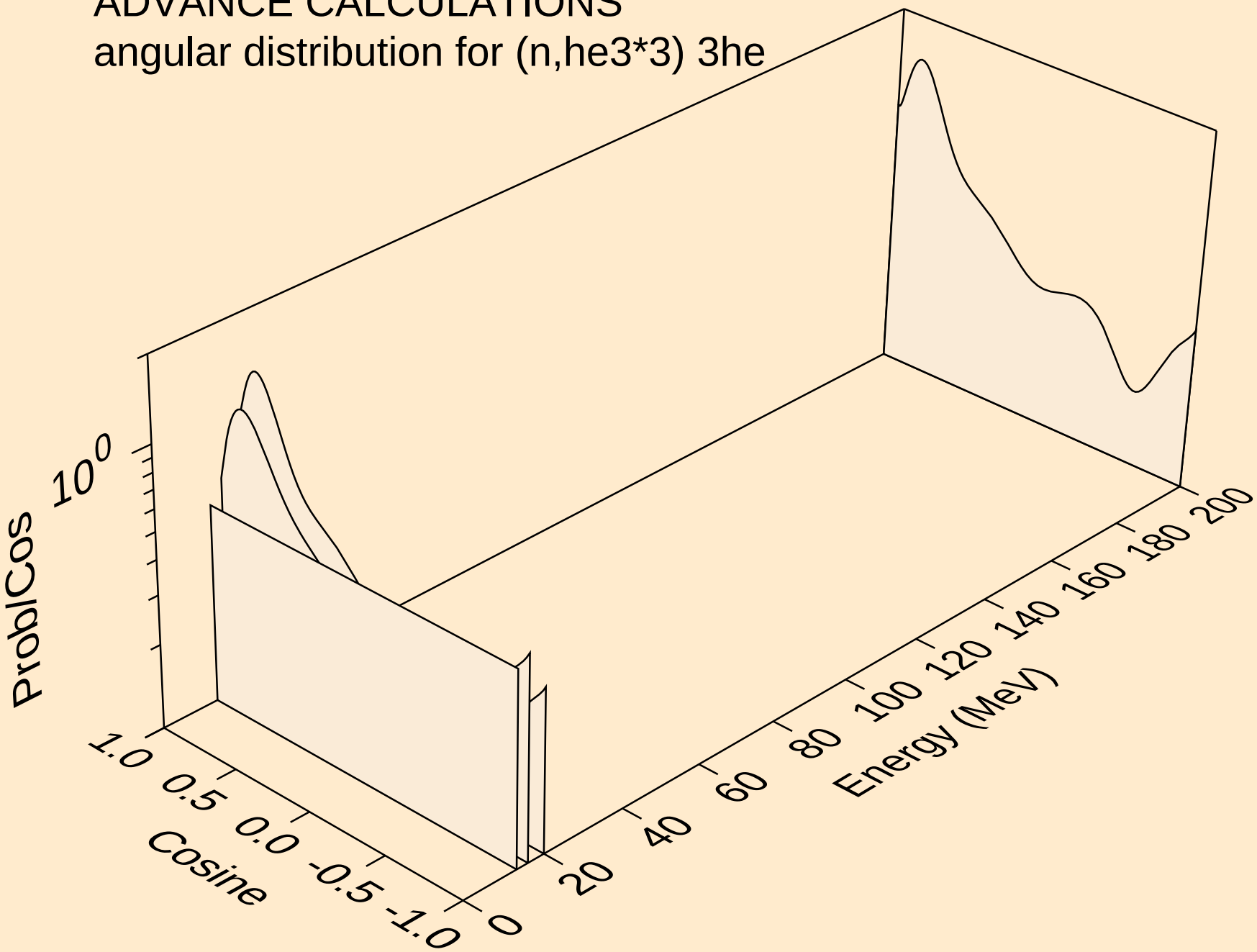


ADVANCE CALCULATIONS

angular distribution for (n,he3*2) 3he

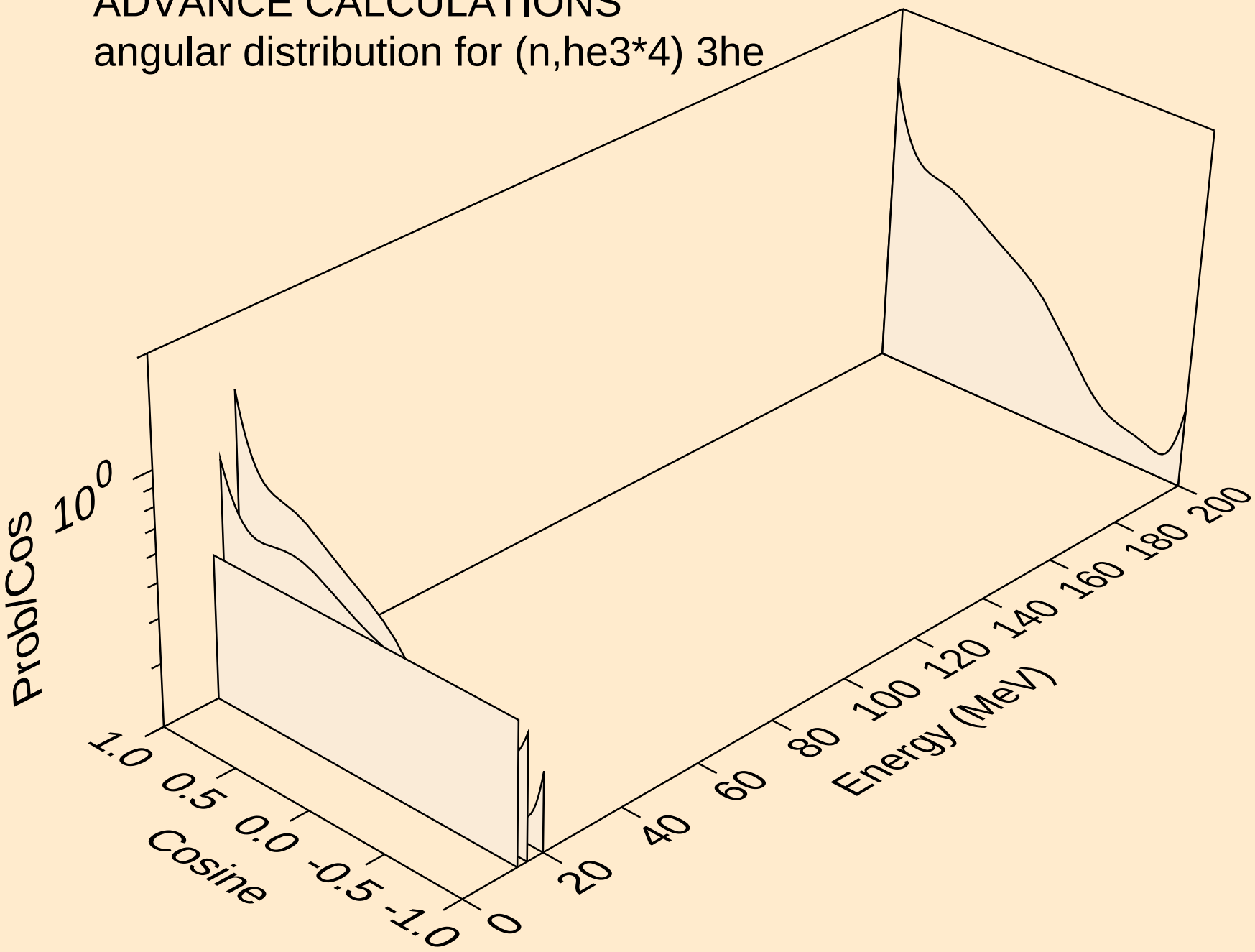


ADVANCE CALCULATIONS
angular distribution for (n,he3*3) 3he

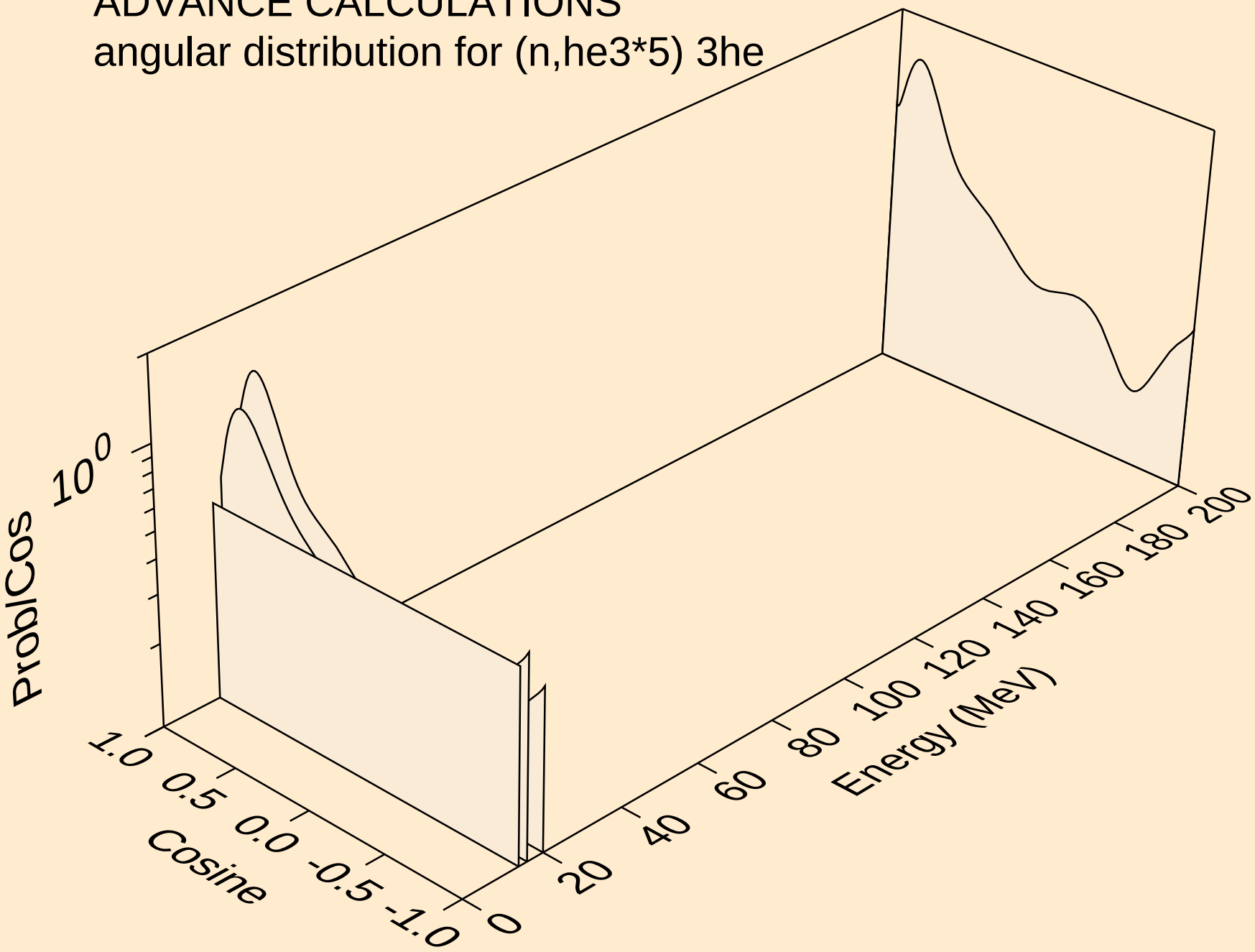


ADVANCE CALCULATIONS

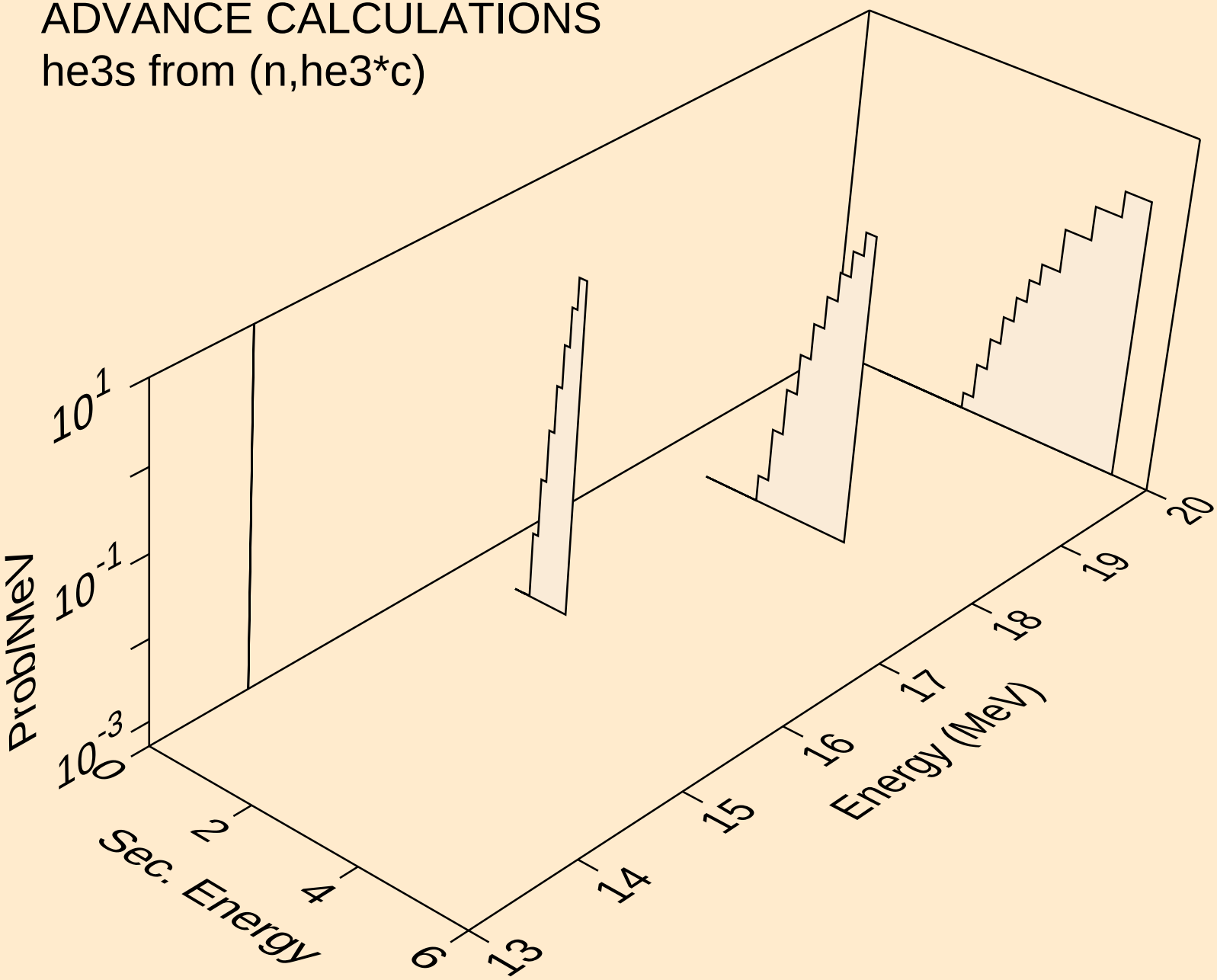
angular distribution for (n,he3*4) 3he



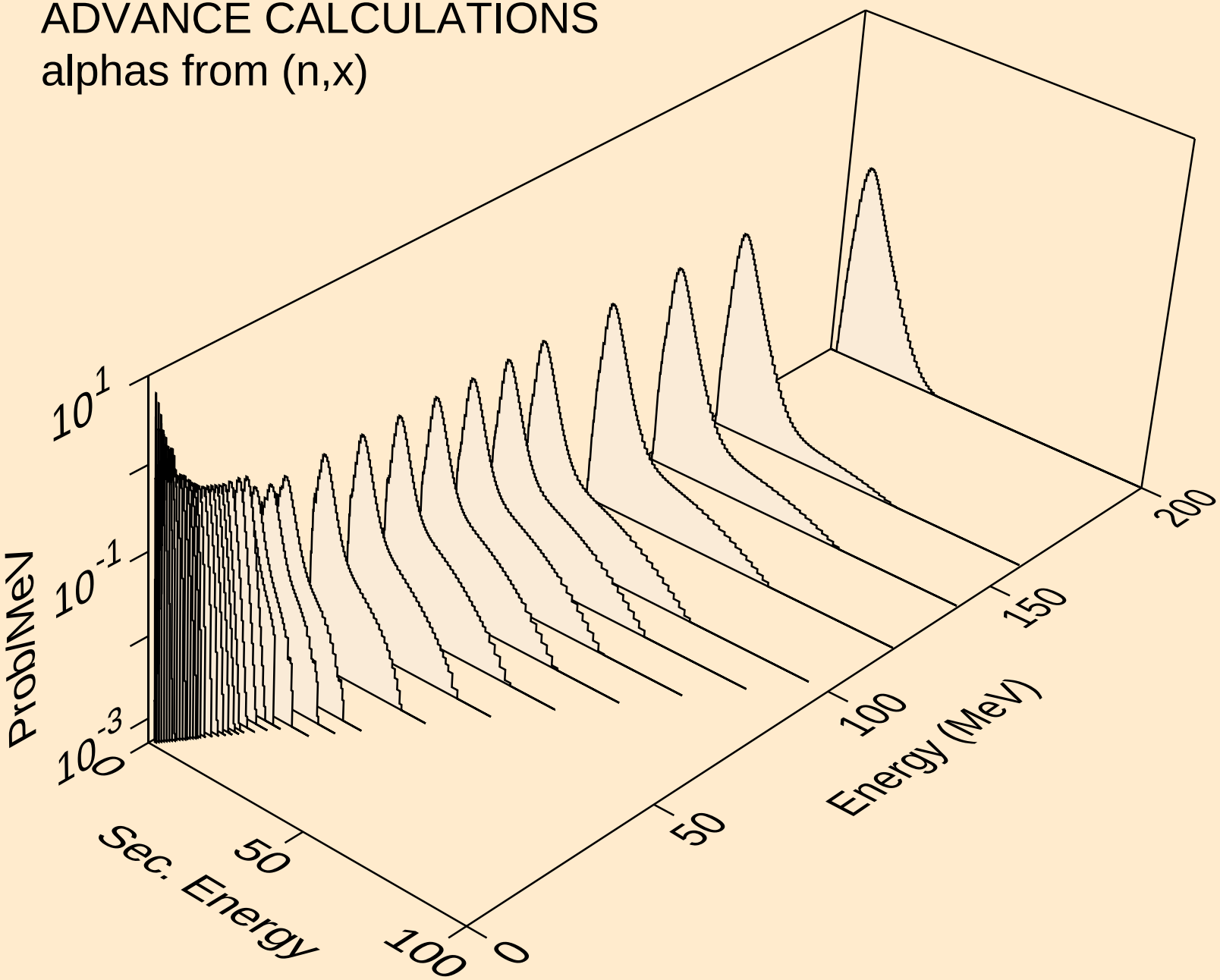
ADVANCE CALCULATIONS
angular distribution for (n,he3*5) 3he



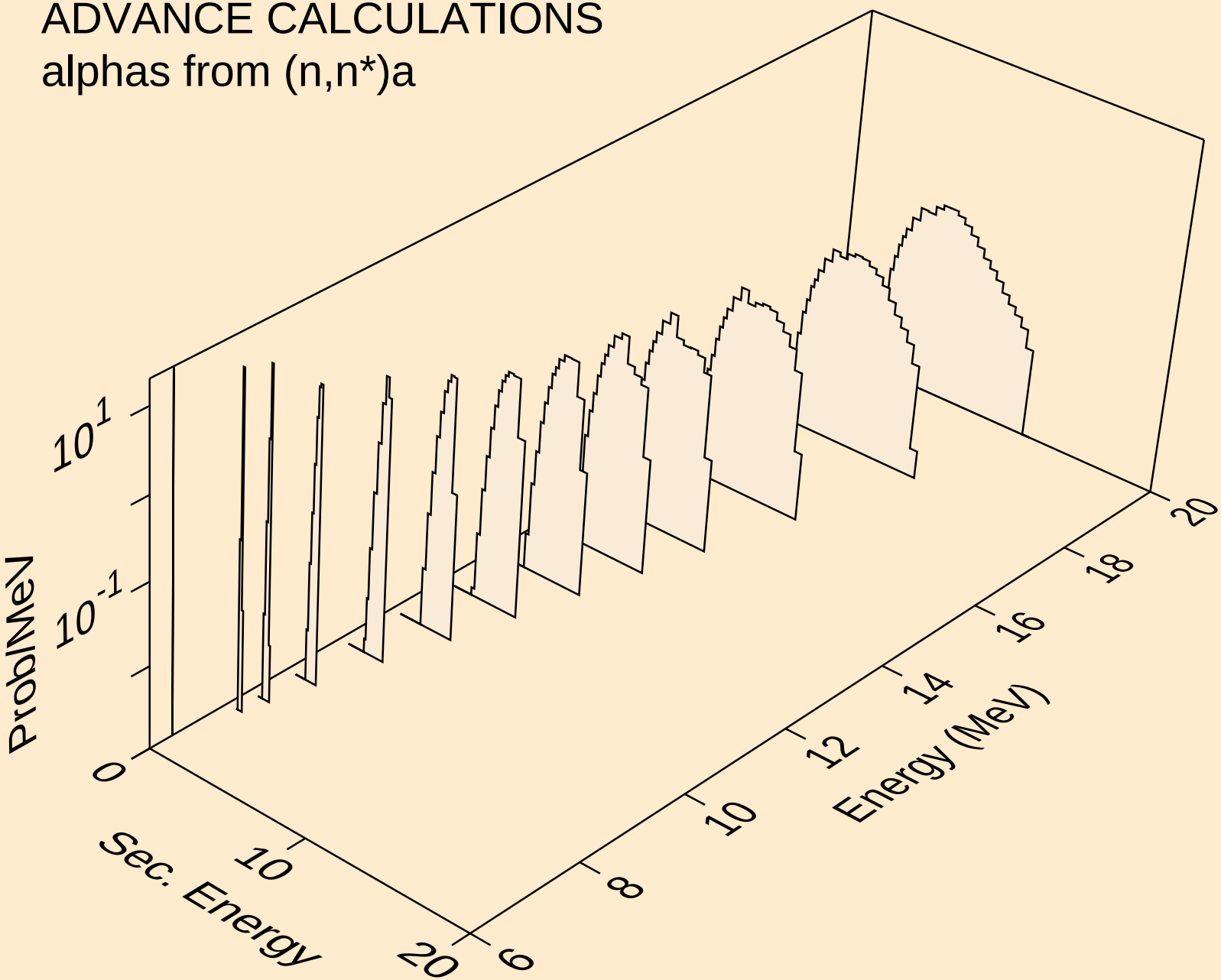
ADVANCE CALCULATIONS
he3s from (n,he3*c)



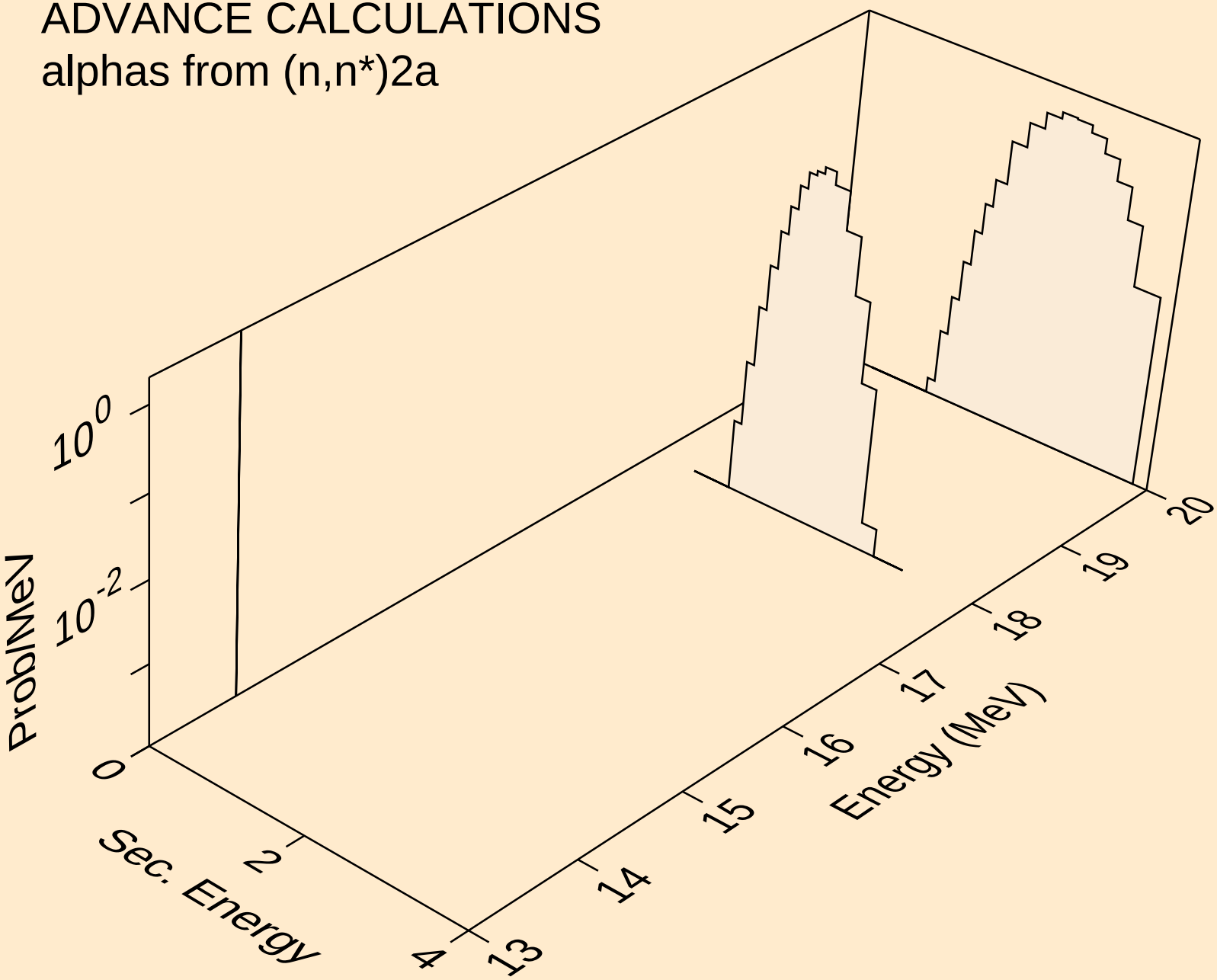
ADVANCE CALCULATIONS
alphas from (n,x)



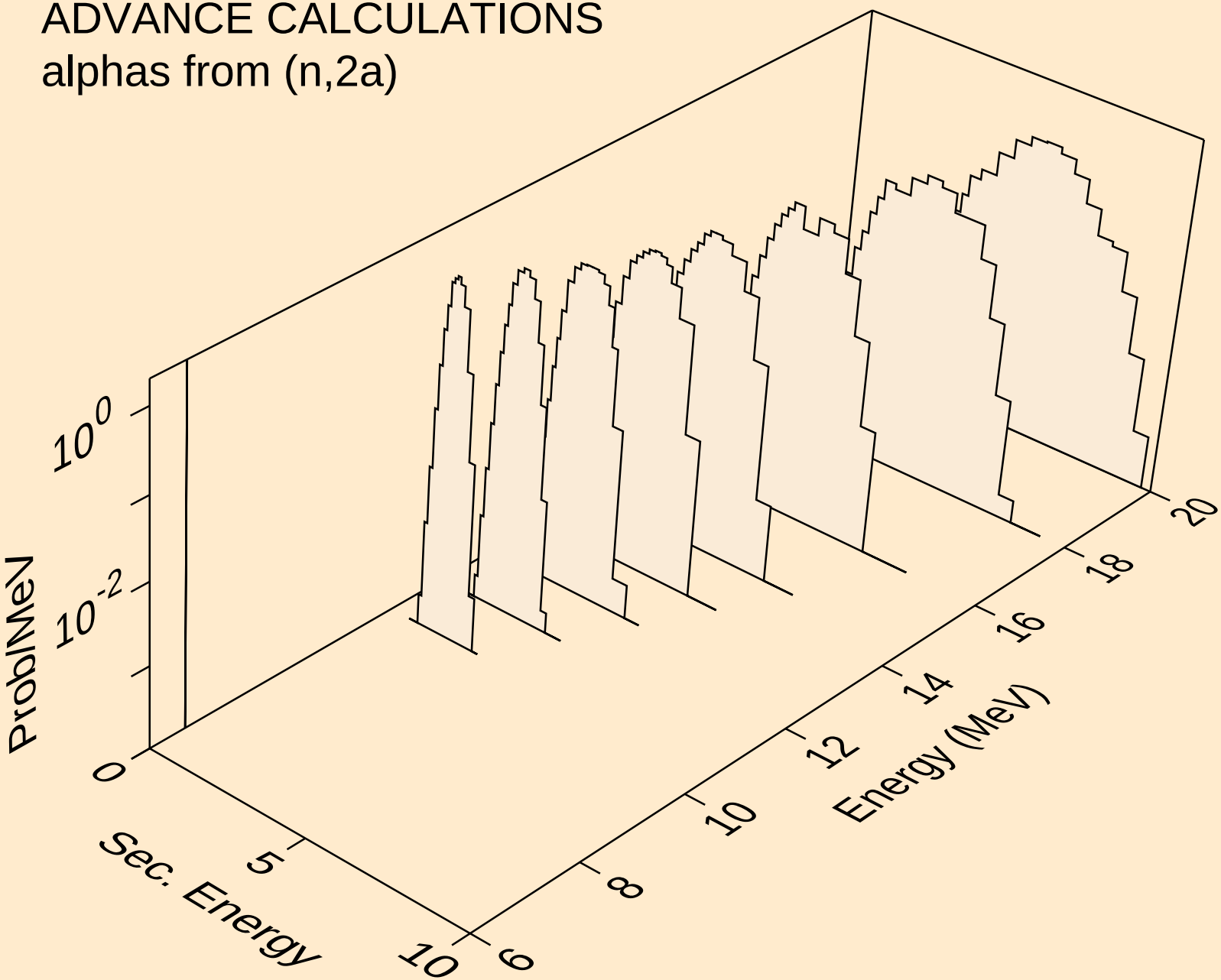
ADVANCE CALCULATIONS
alphas from (n,n*)a



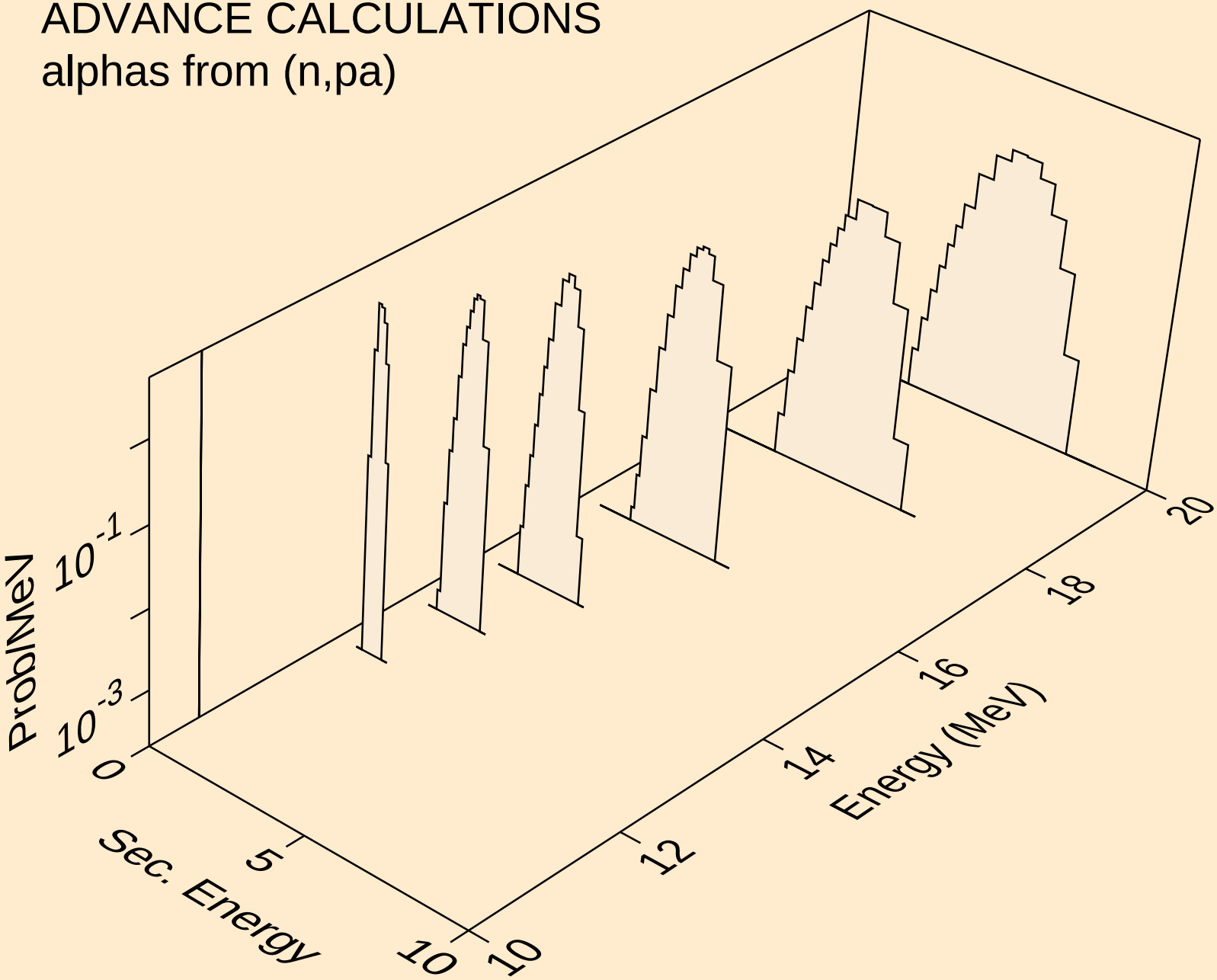
ADVANCE CALCULATIONS
alphas from (n,n*)2a



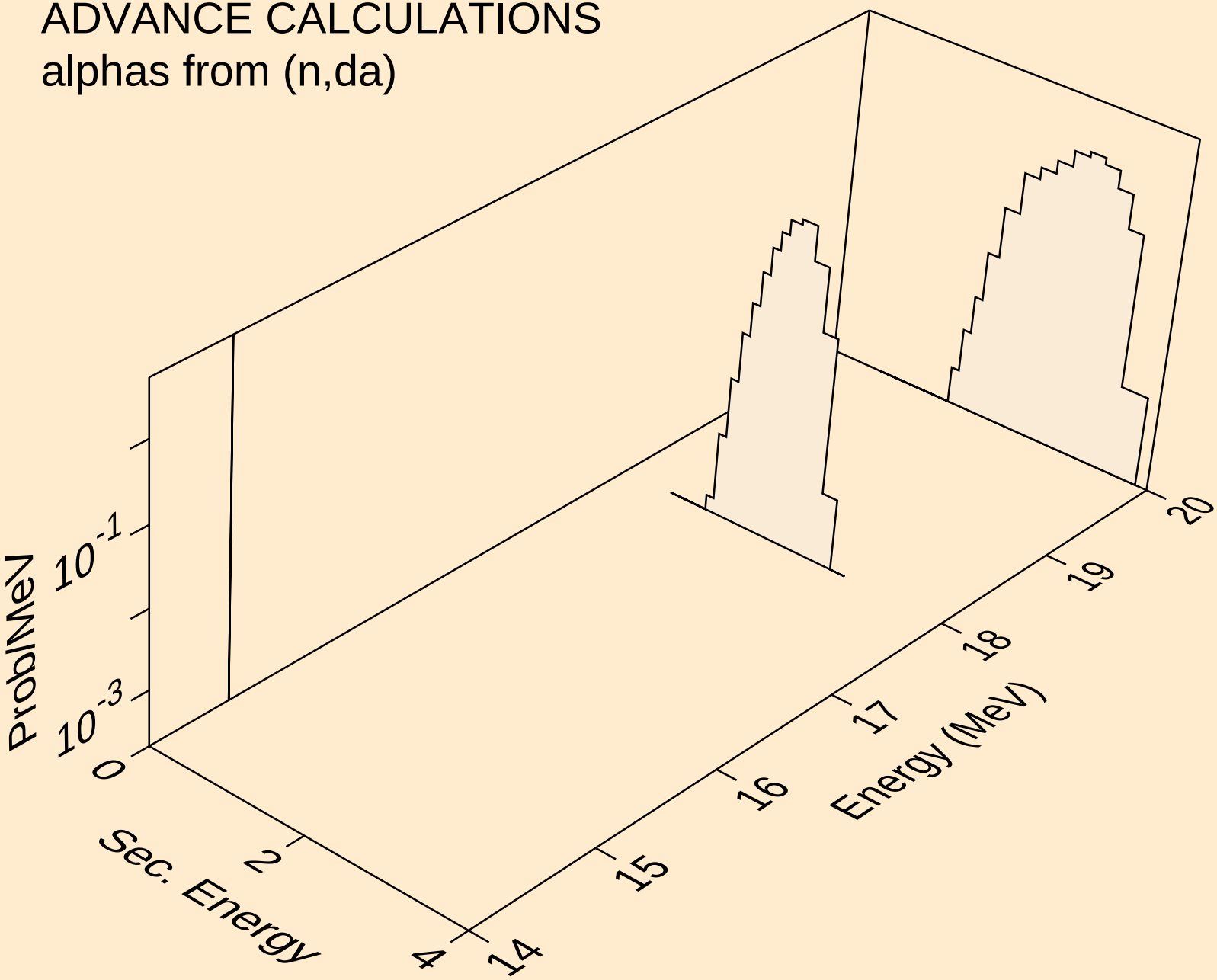
ADVANCE CALCULATIONS
alphas from (n,2a)



ADVANCE CALCULATIONS
alphas from (n,pa)

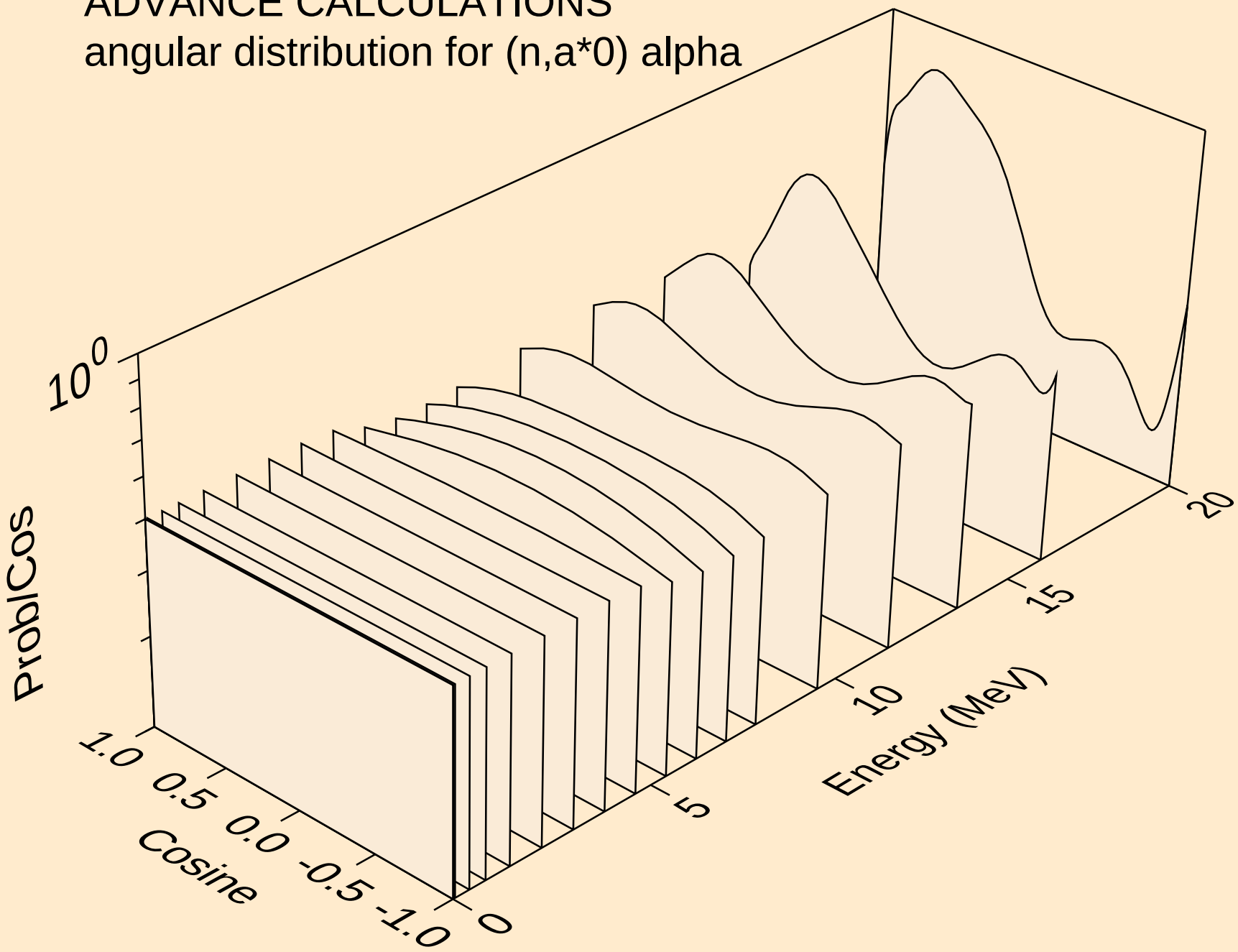


ADVANCE CALCULATIONS
alphas from (n,da)



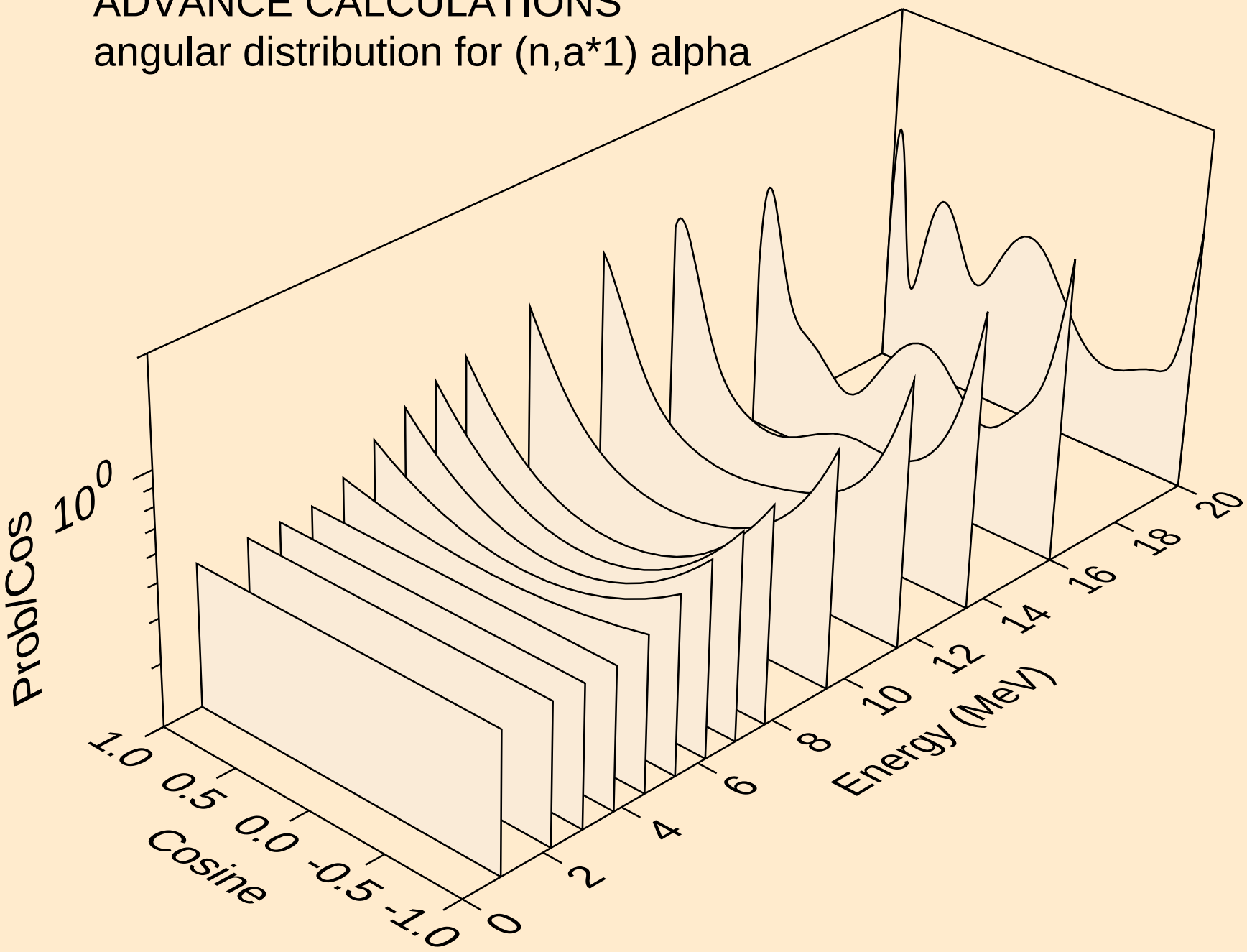
ADVANCE CALCULATIONS

angular distribution for (n,a*0) alpha



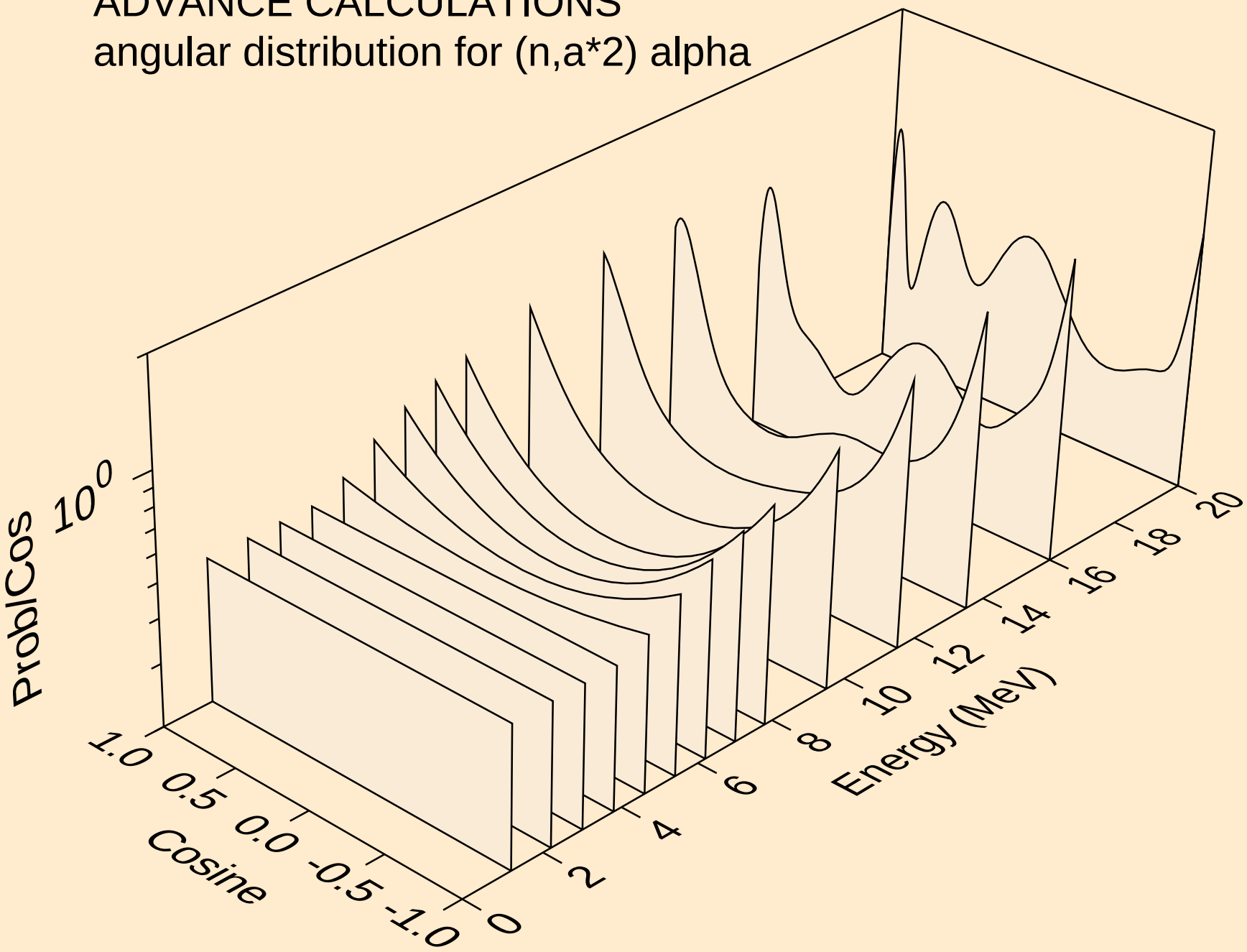
ADVANCE CALCULATIONS

angular distribution for (n,a*1) alpha



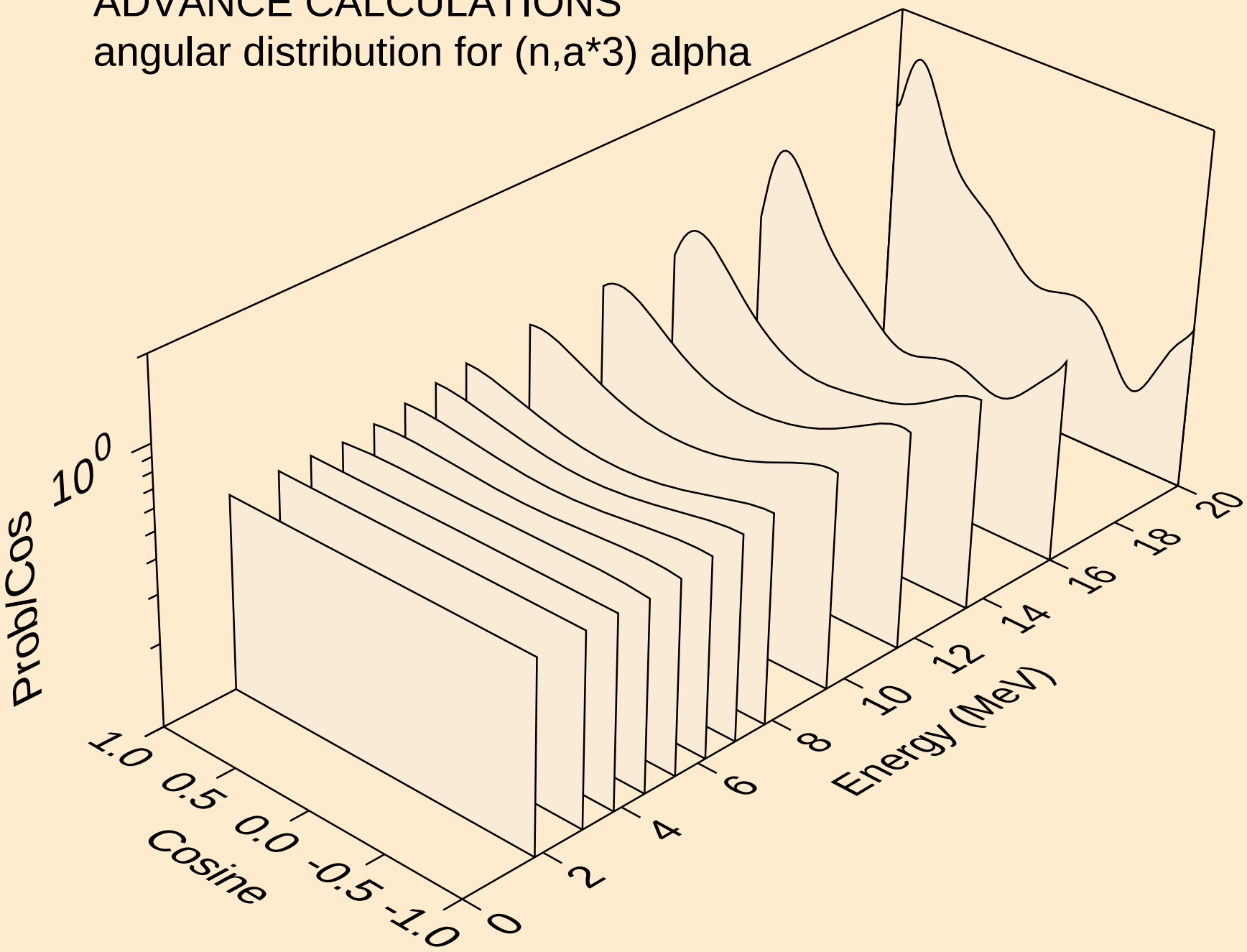
ADVANCE CALCULATIONS

angular distribution for (n,a*2) alpha



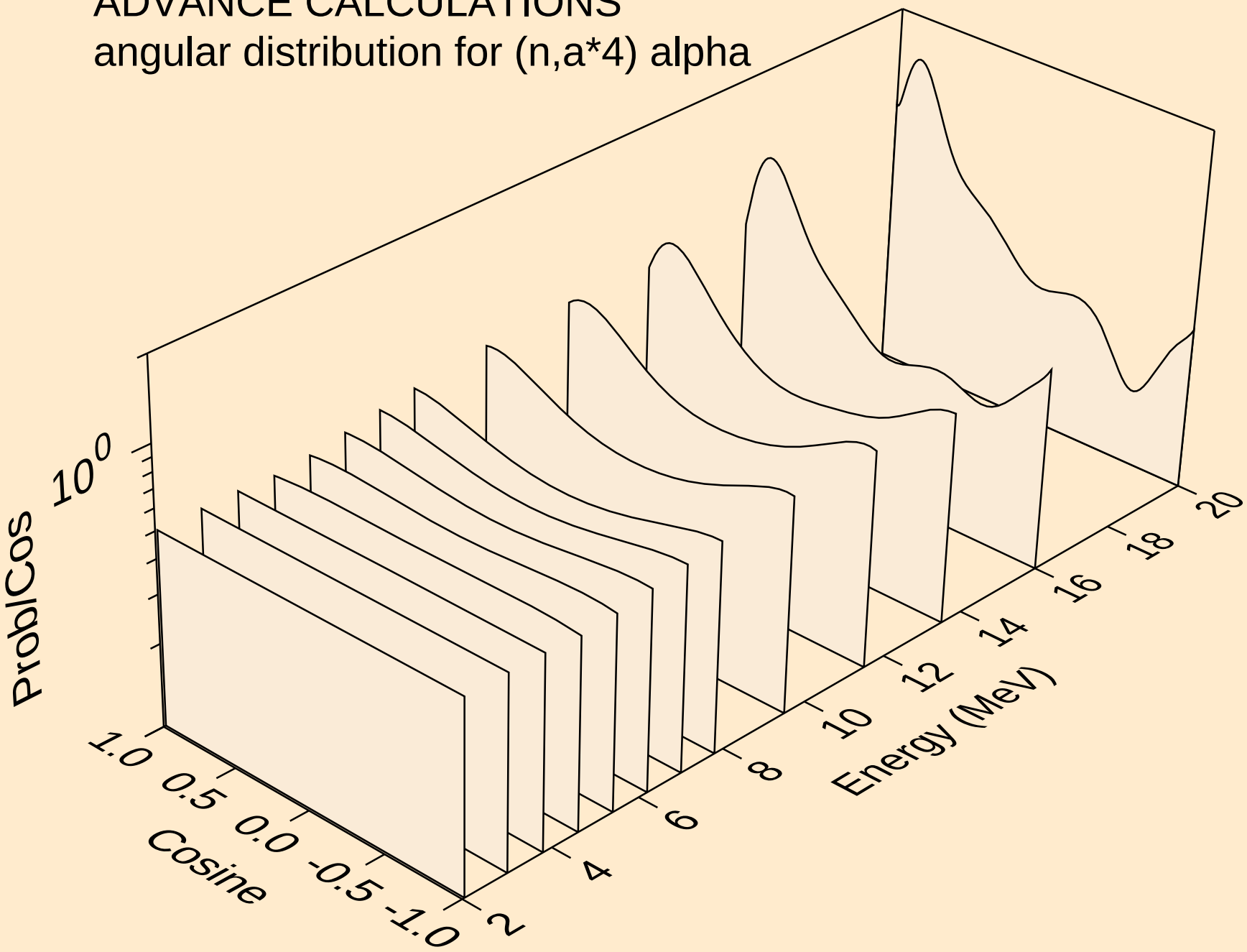
ADVANCE CALCULATIONS

angular distribution for (n,a*3) alpha

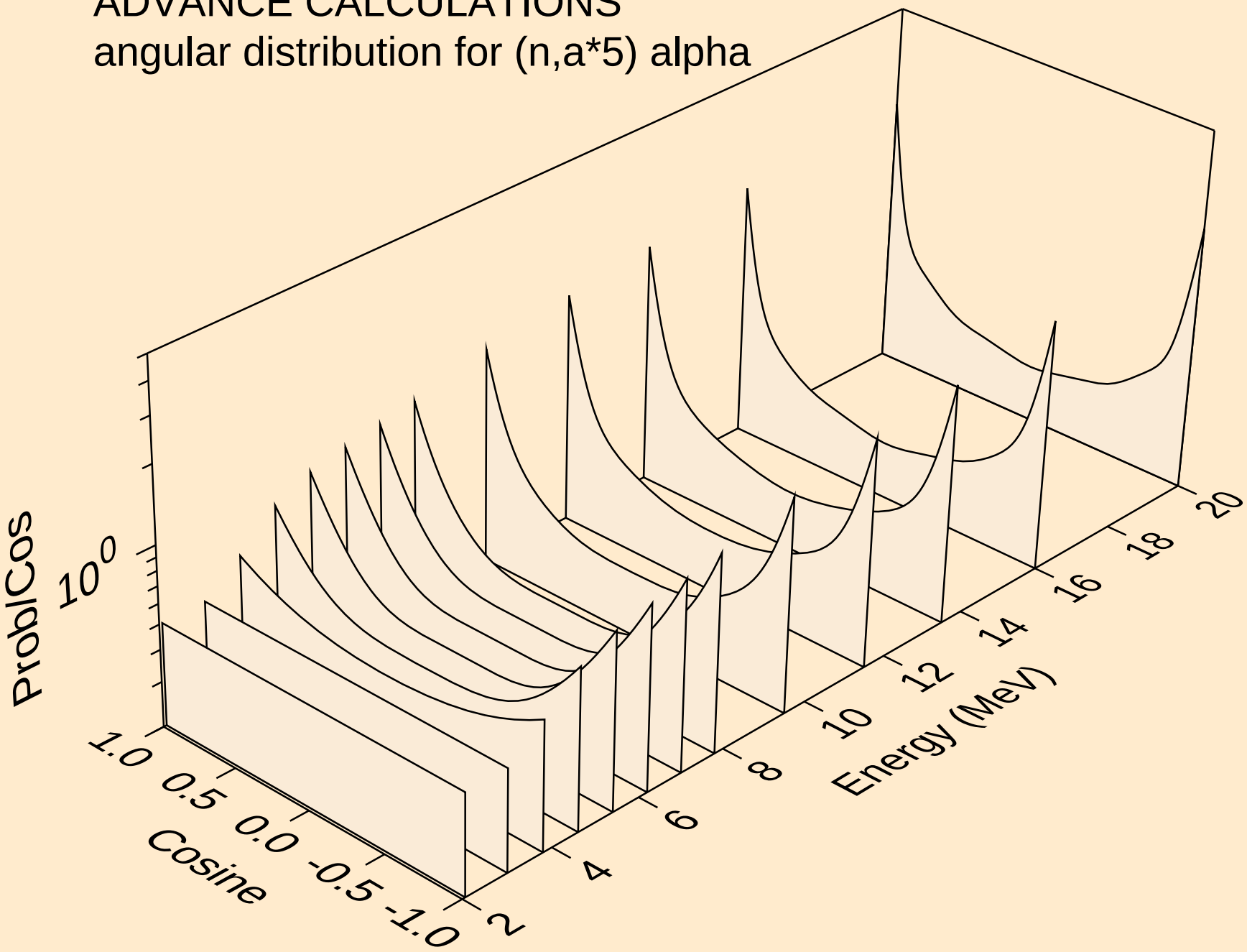


ADVANCE CALCULATIONS

angular distribution for (n,a*4) alpha

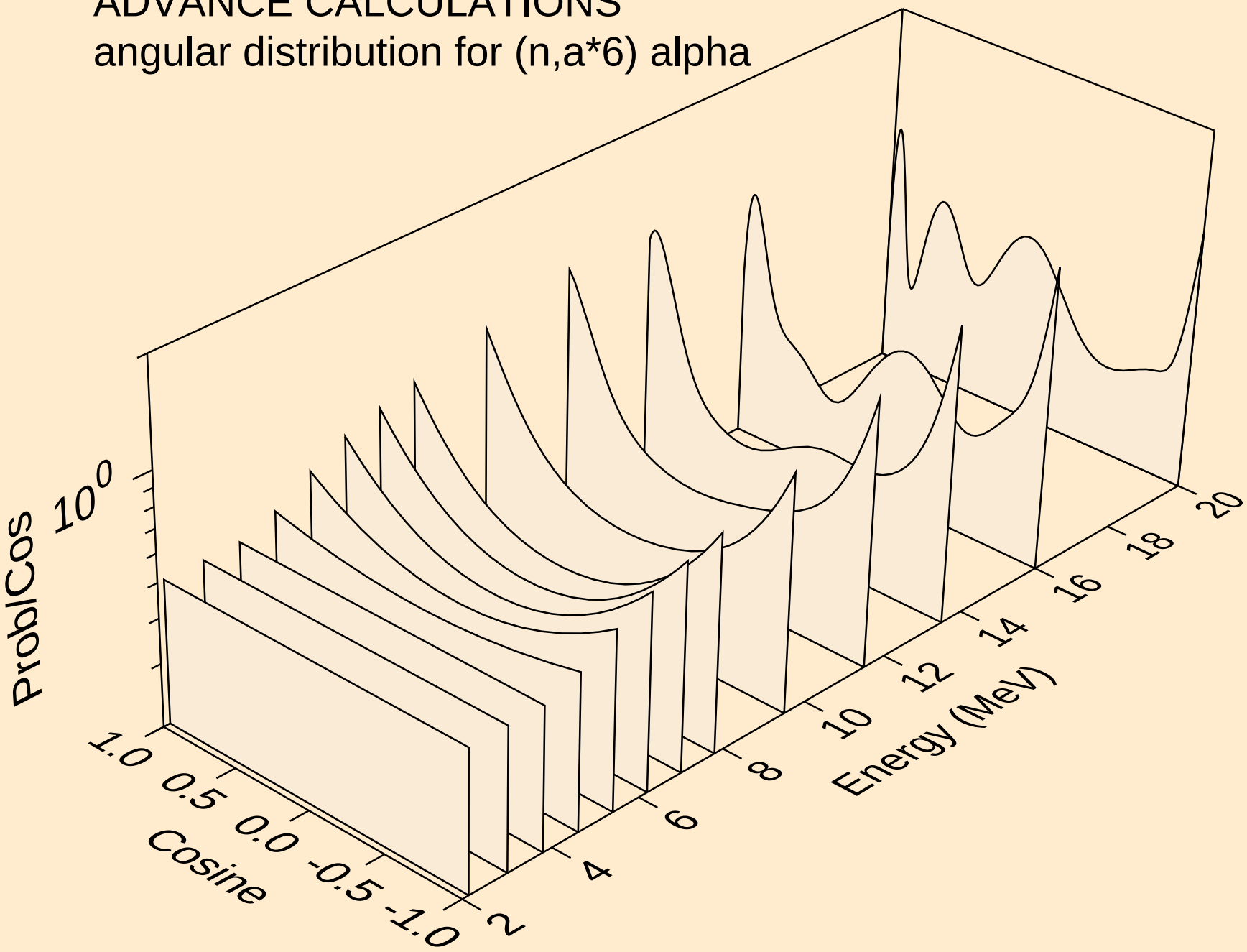


ADVANCE CALCULATIONS
angular distribution for (n,a*5) alpha



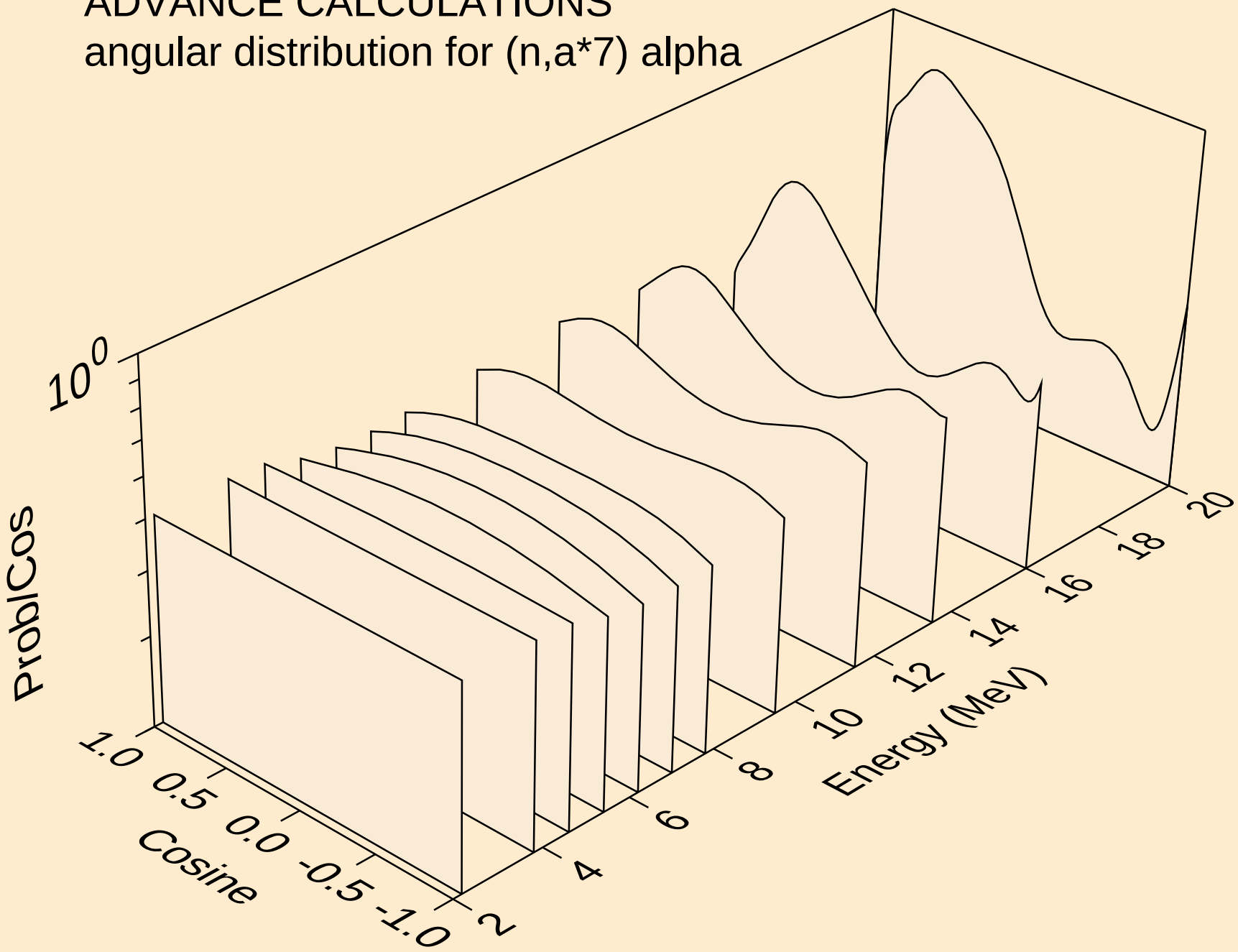
ADVANCE CALCULATIONS

angular distribution for (n,a*6) alpha



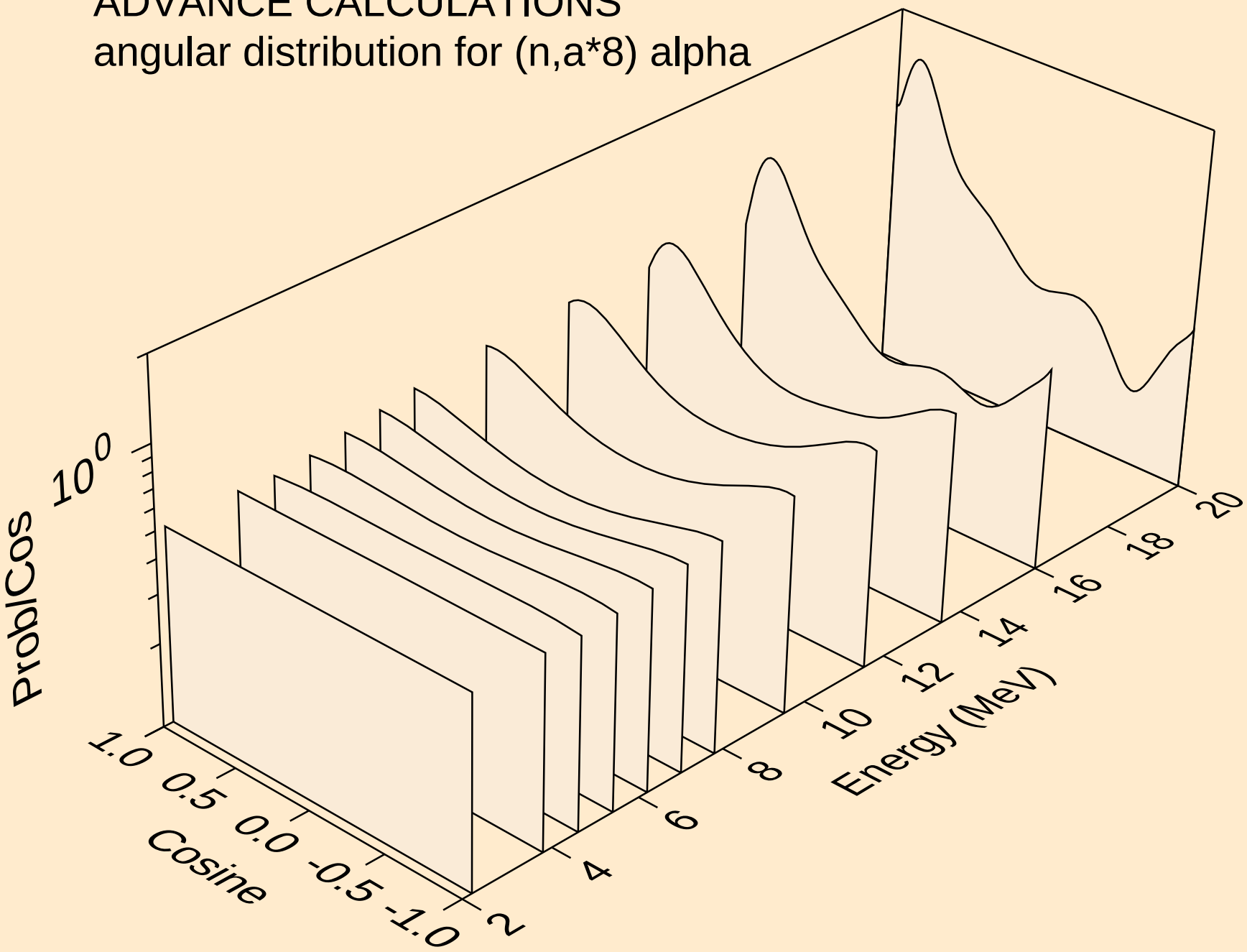
ADVANCE CALCULATIONS

angular distribution for (n,a*7) alpha



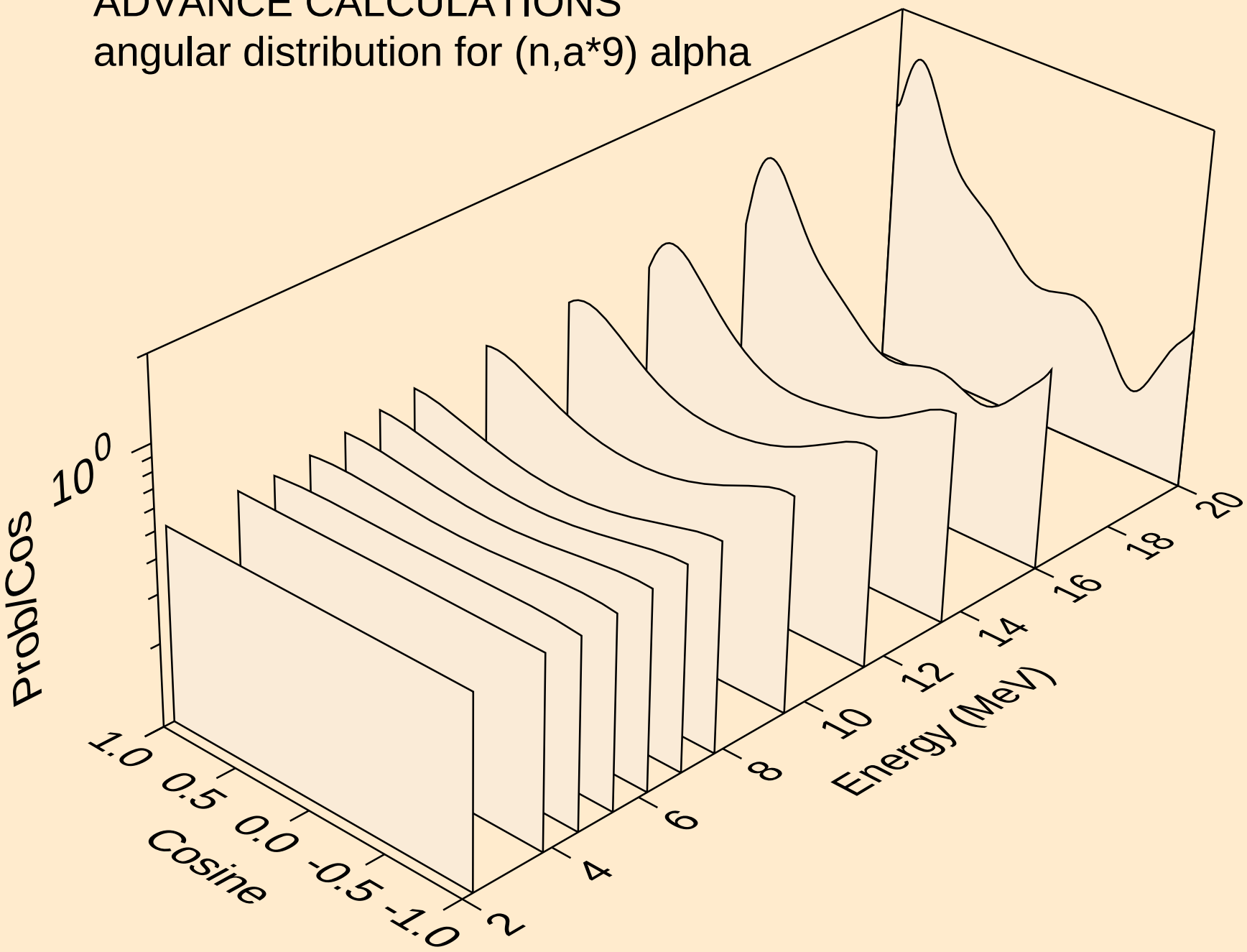
ADVANCE CALCULATIONS

angular distribution for (n,a*8) alpha



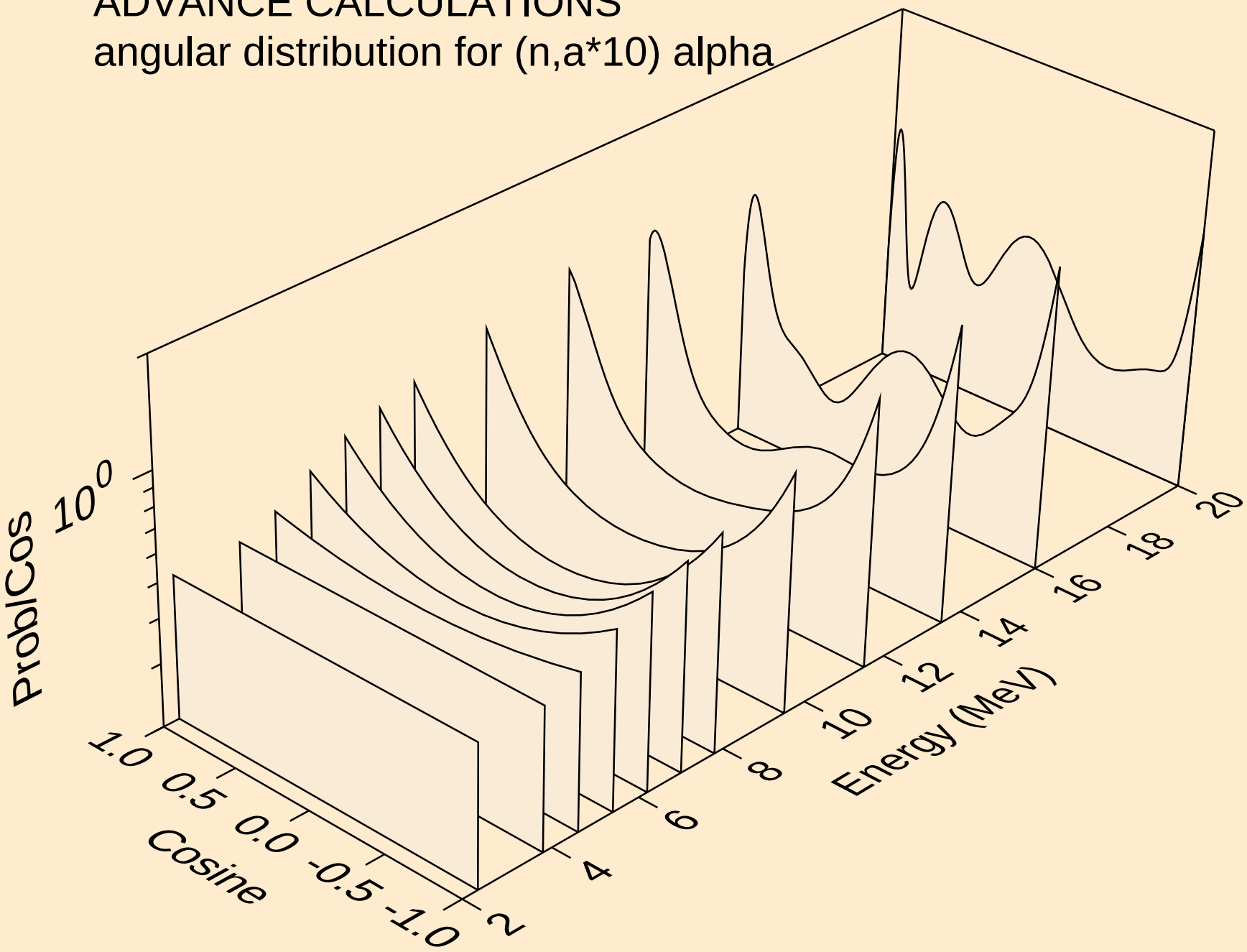
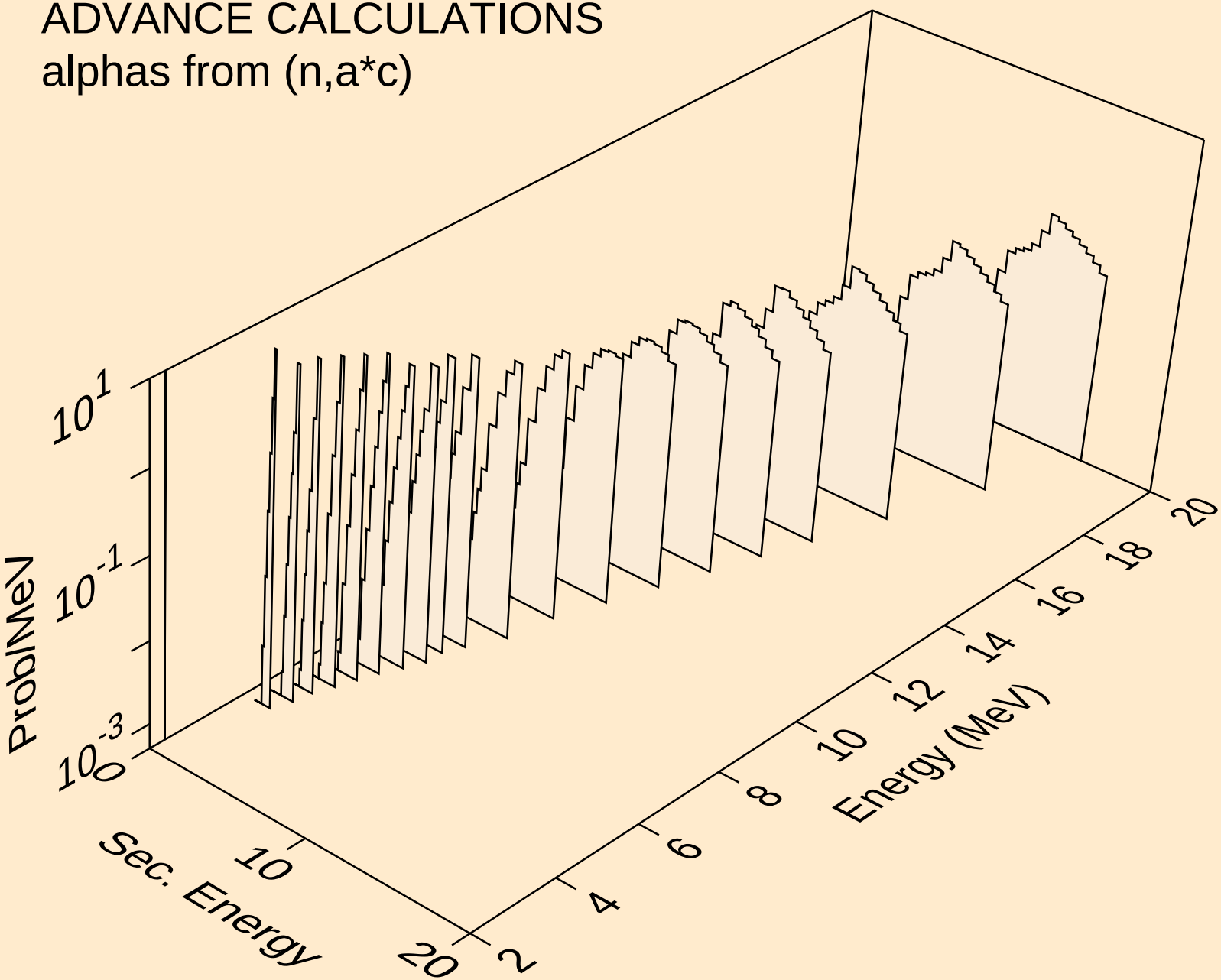
ADVANCE CALCULATIONS

angular distribution for (n,a*9) alpha



ADVANCE CALCULATIONS

angular distribution for (n,a*10) alpha



ADVANCE CALCULATIONS
alphas from (n,a*c)