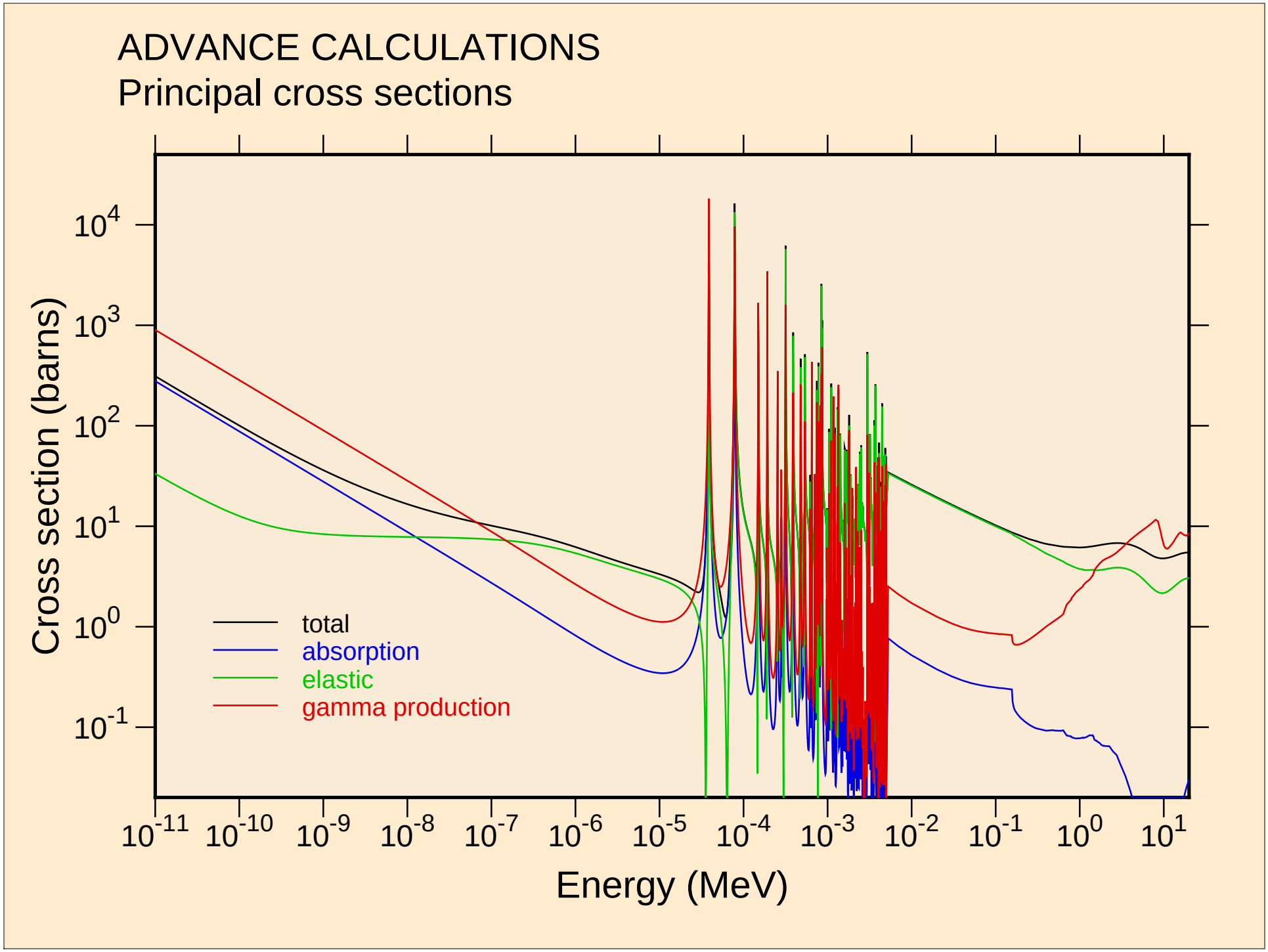
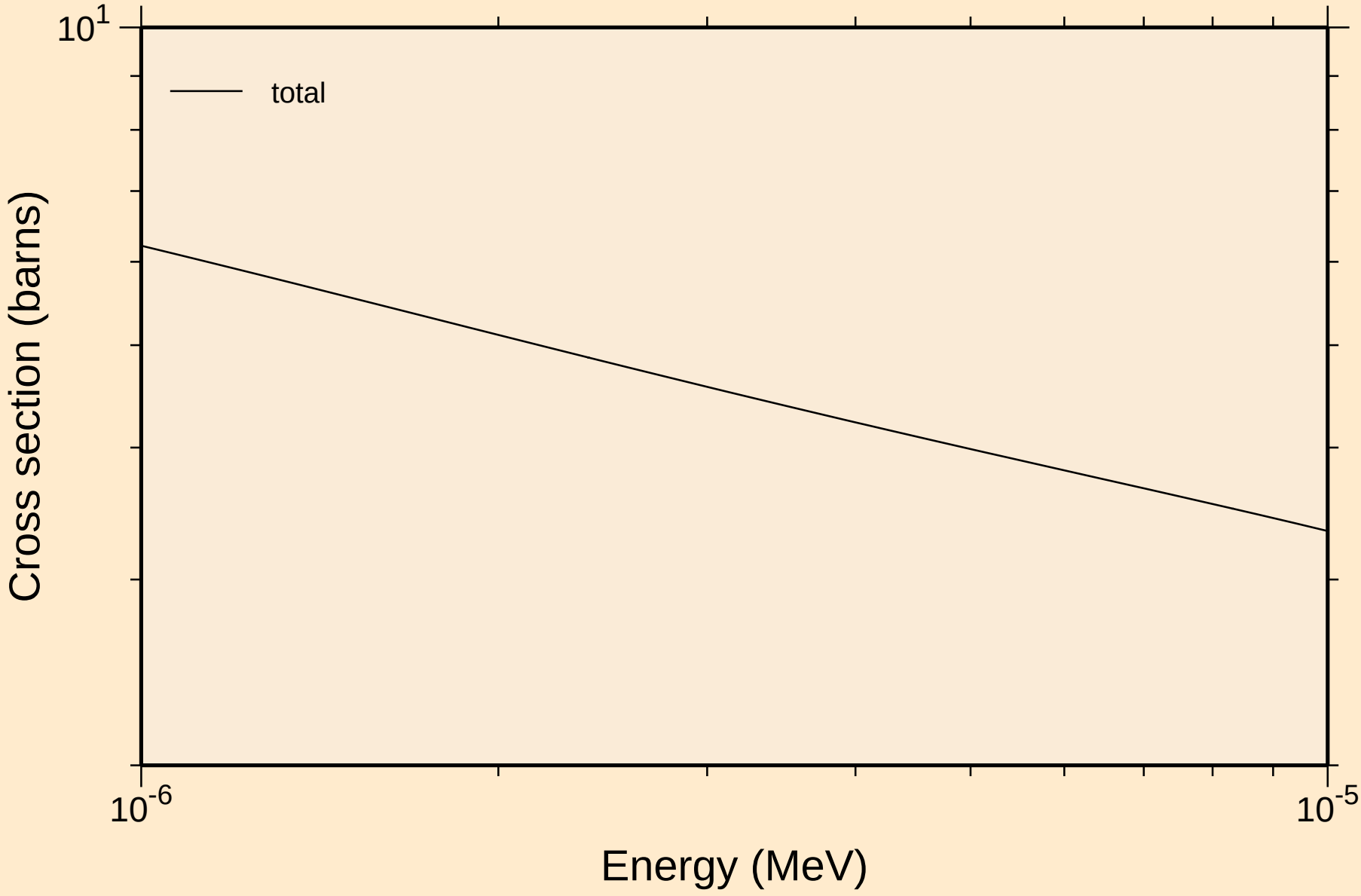
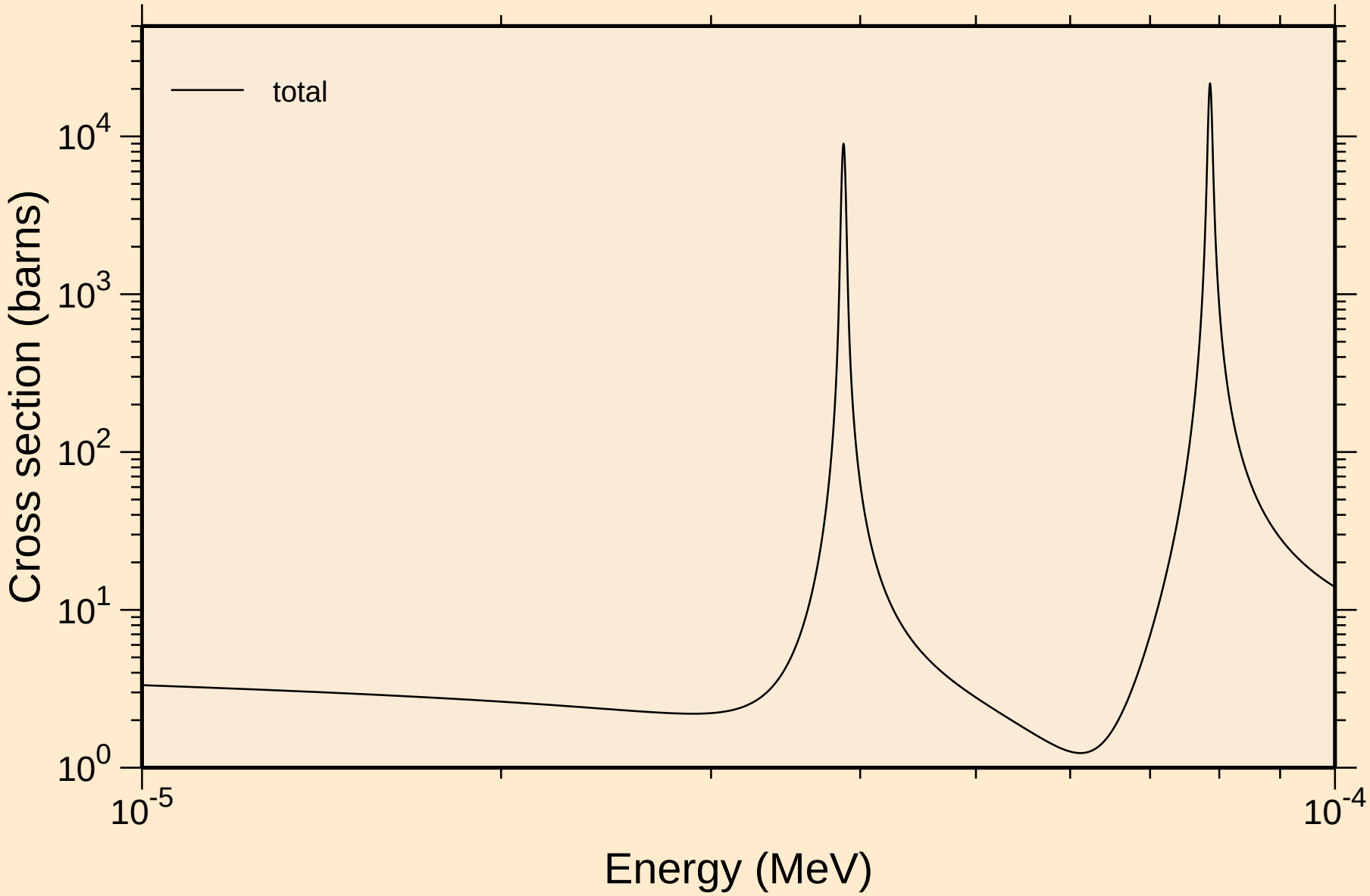

ADVANCE CALCULATIONS
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production

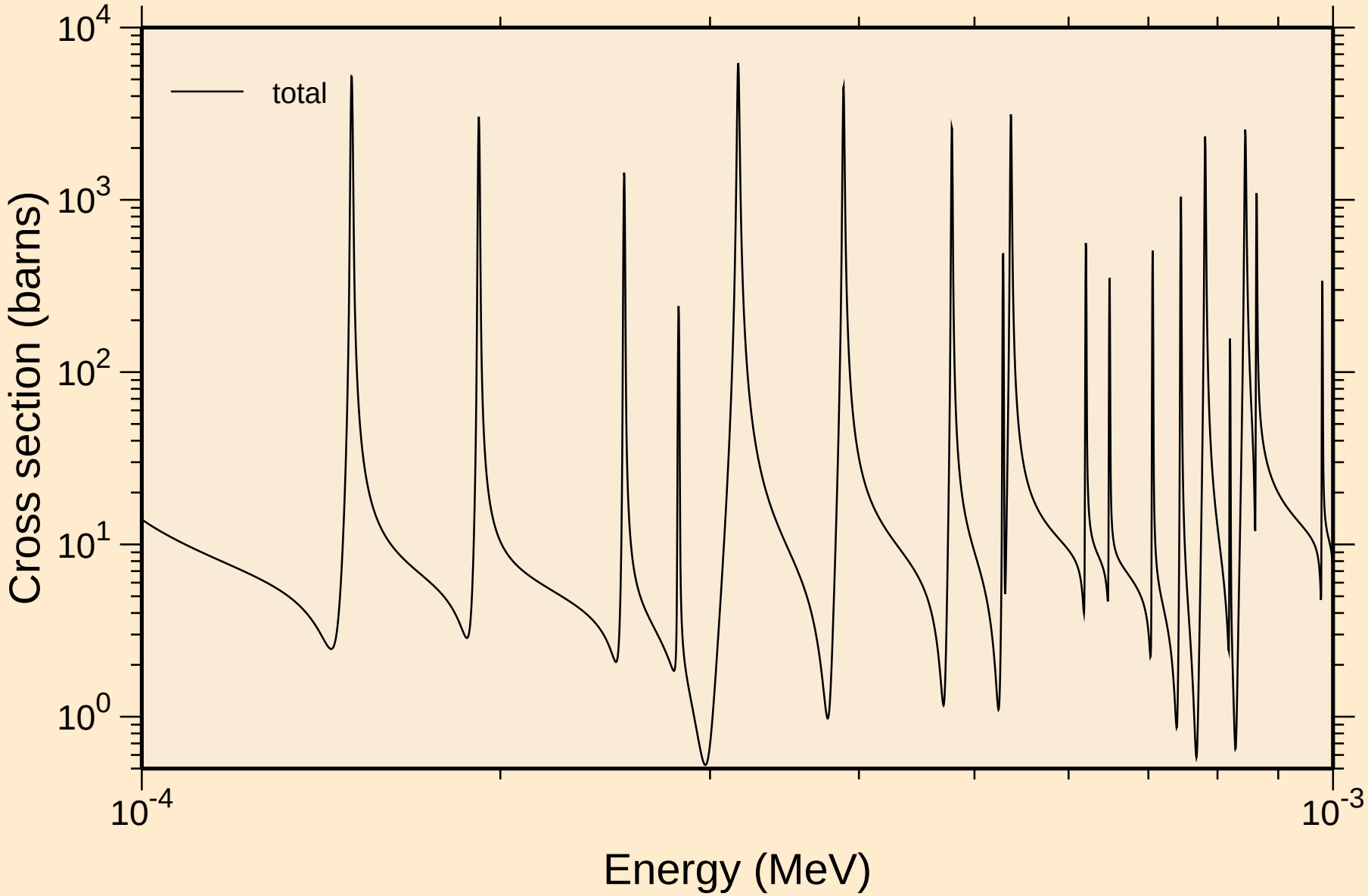
ADVANCE CALCULATIONS
resonance total cross section



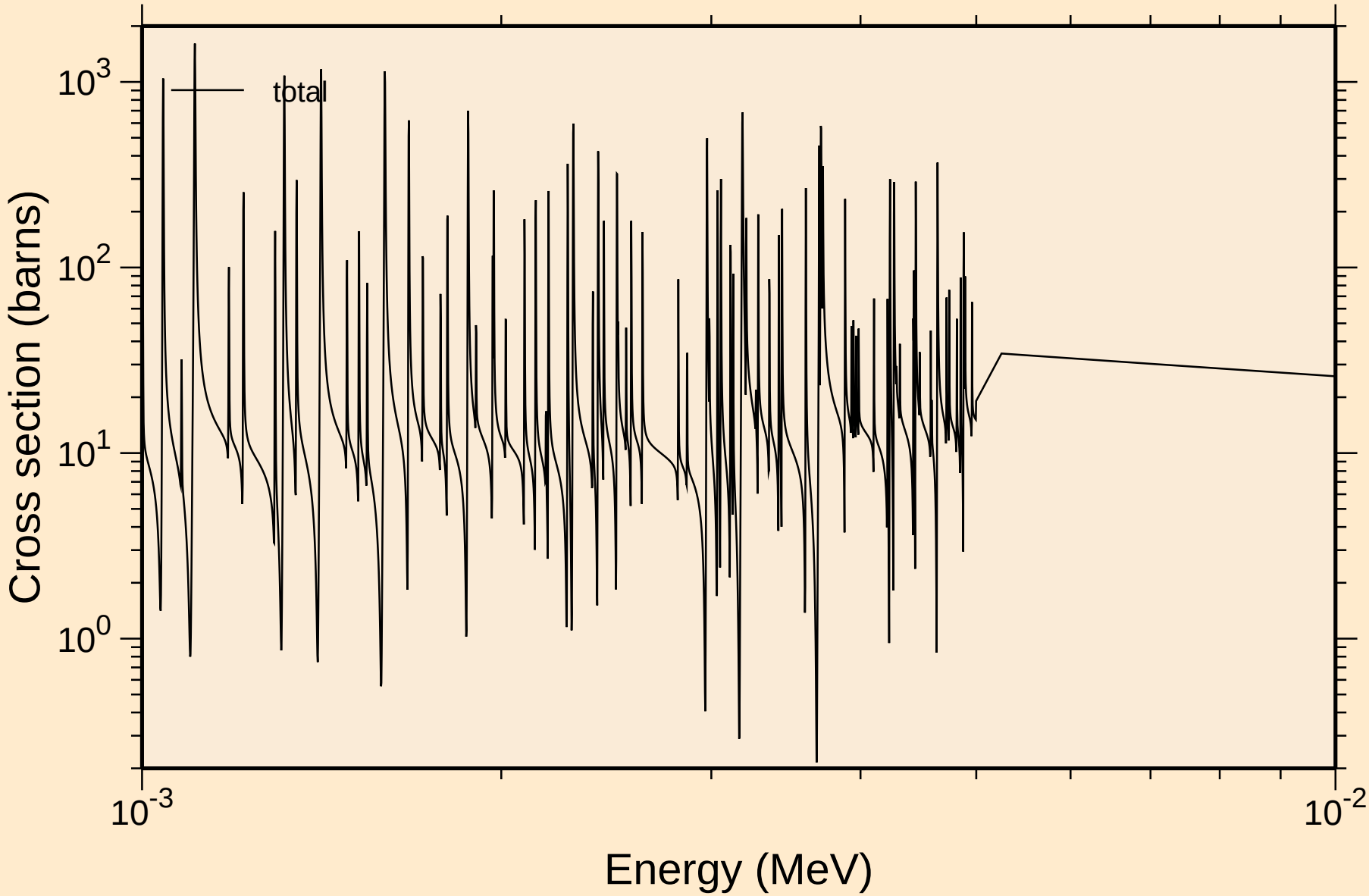
ADVANCE CALCULATIONS
resonance total cross section



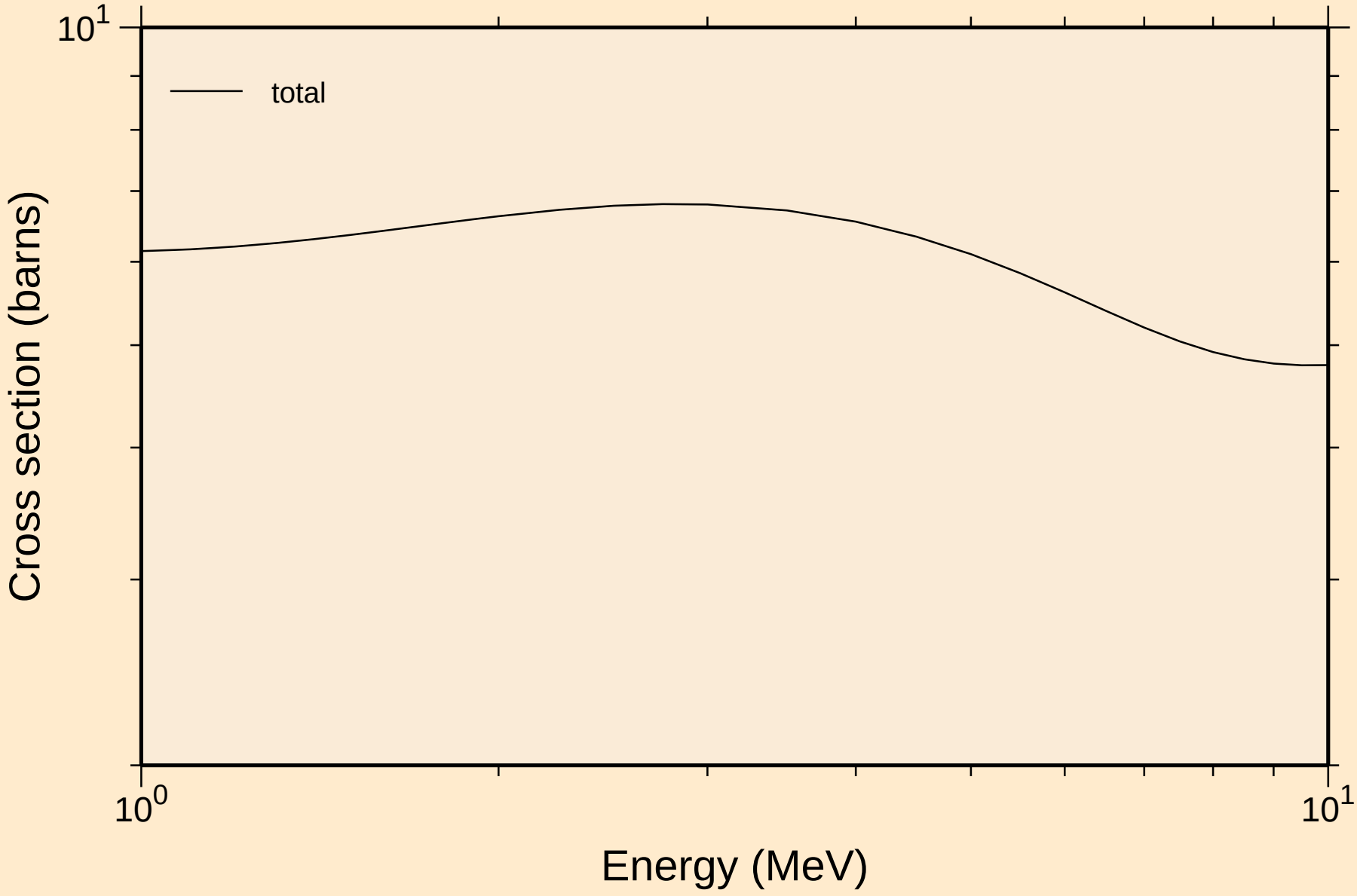
ADVANCE CALCULATIONS
resonance total cross section



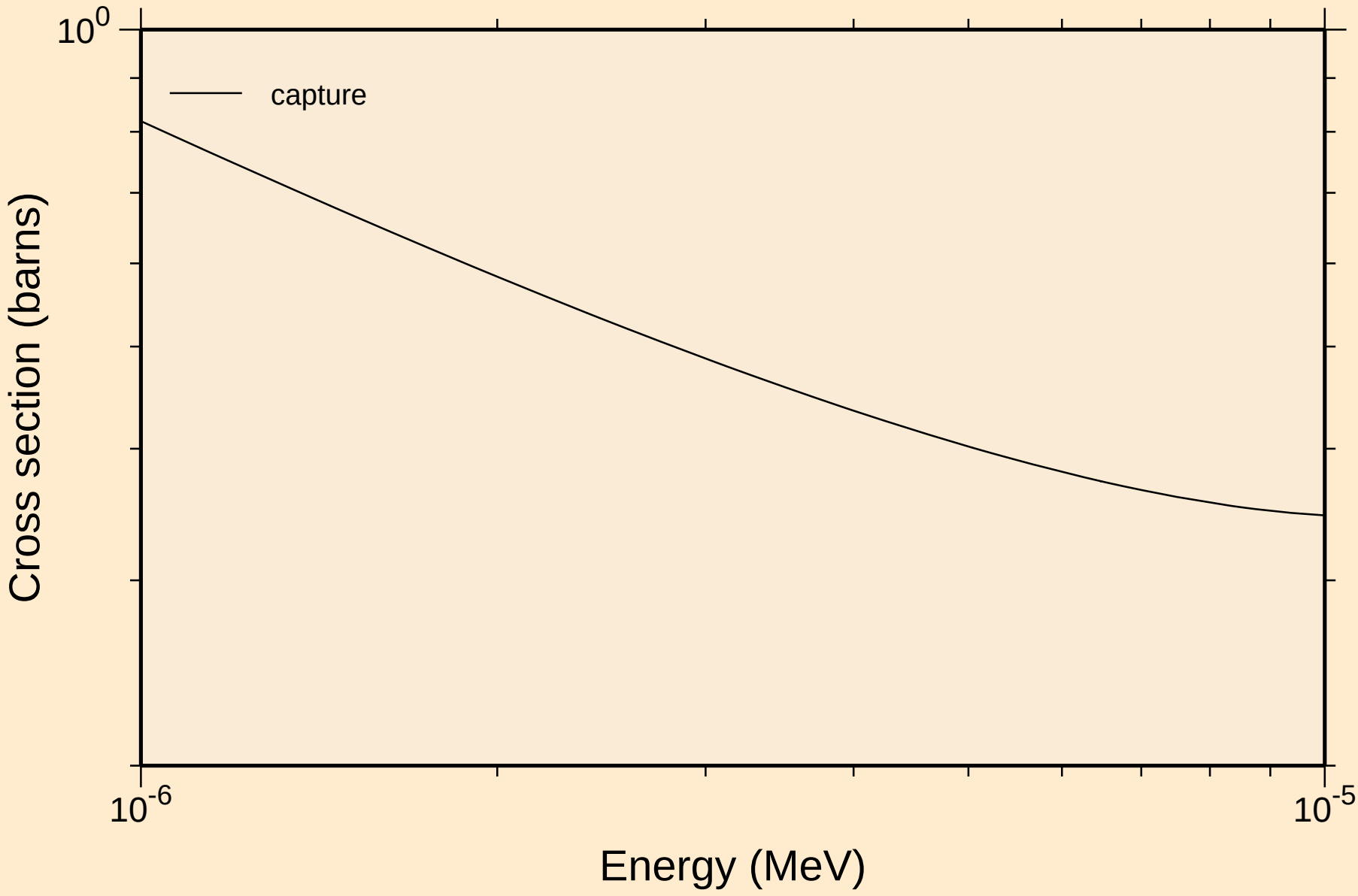
ADVANCE CALCULATIONS
resonance total cross section



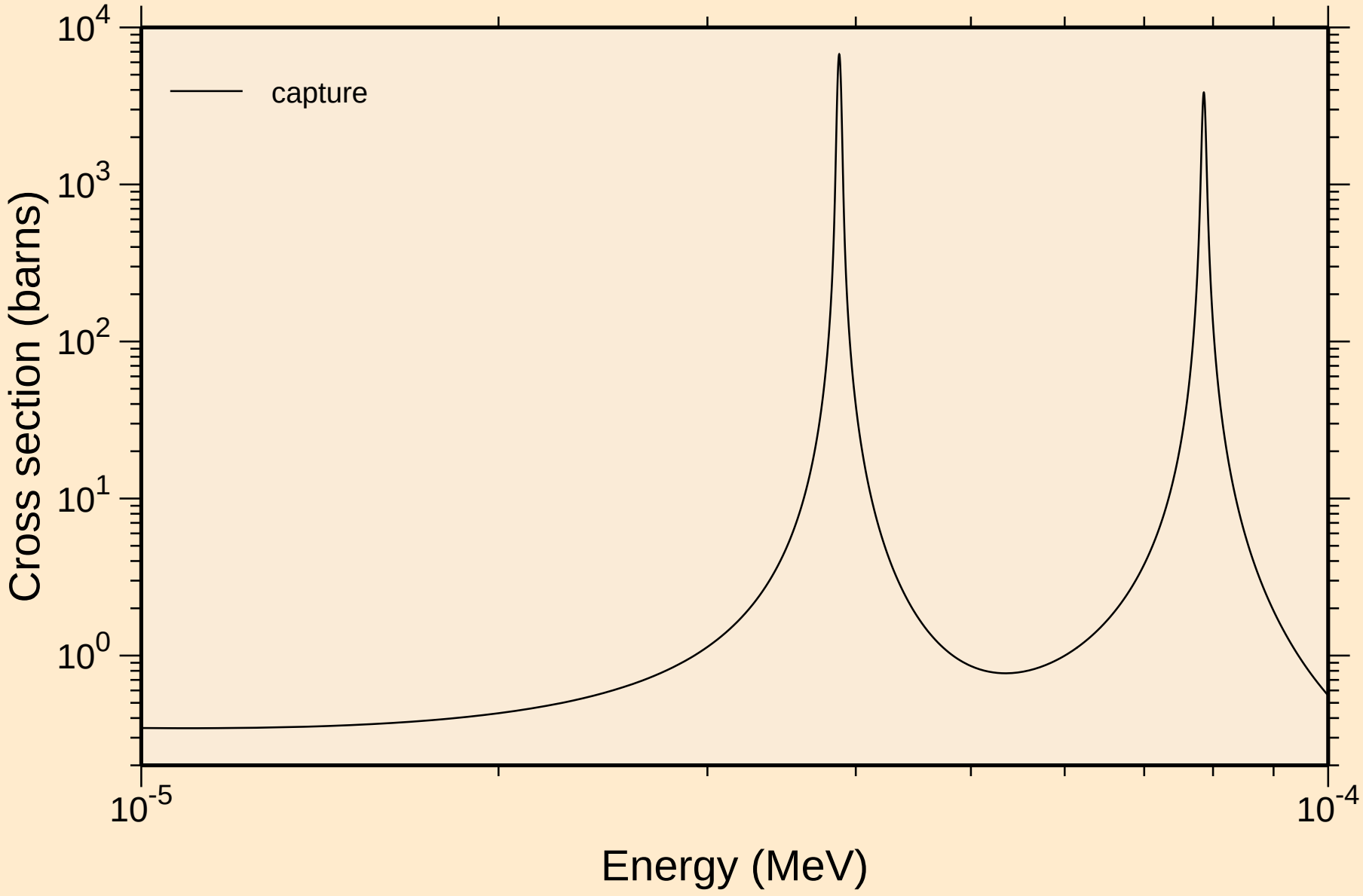
ADVANCE CALCULATIONS
resonance total cross section



ADVANCE CALCULATIONS
resonance absorption cross sections

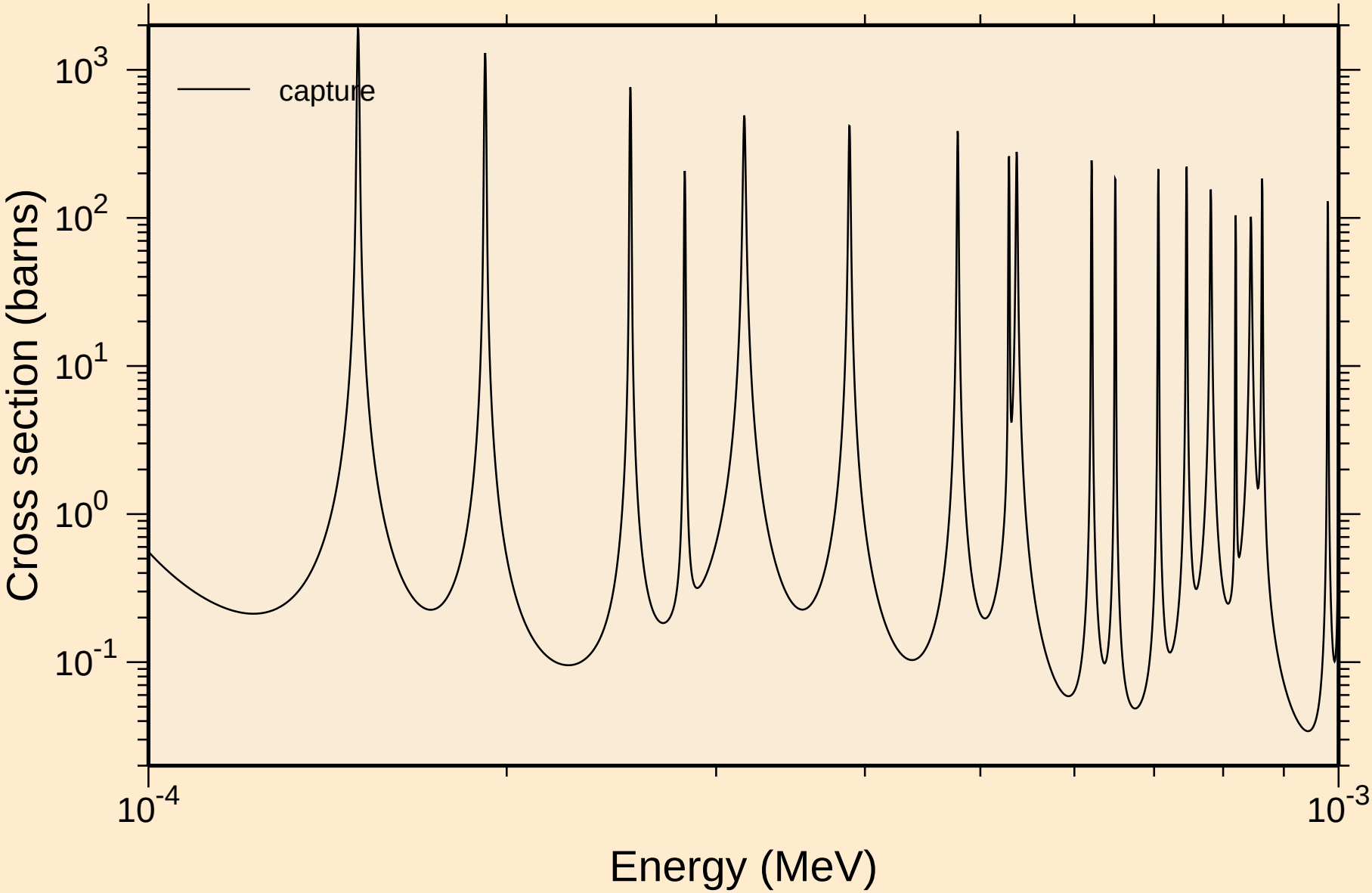


ADVANCE CALCULATIONS
resonance absorption cross sections



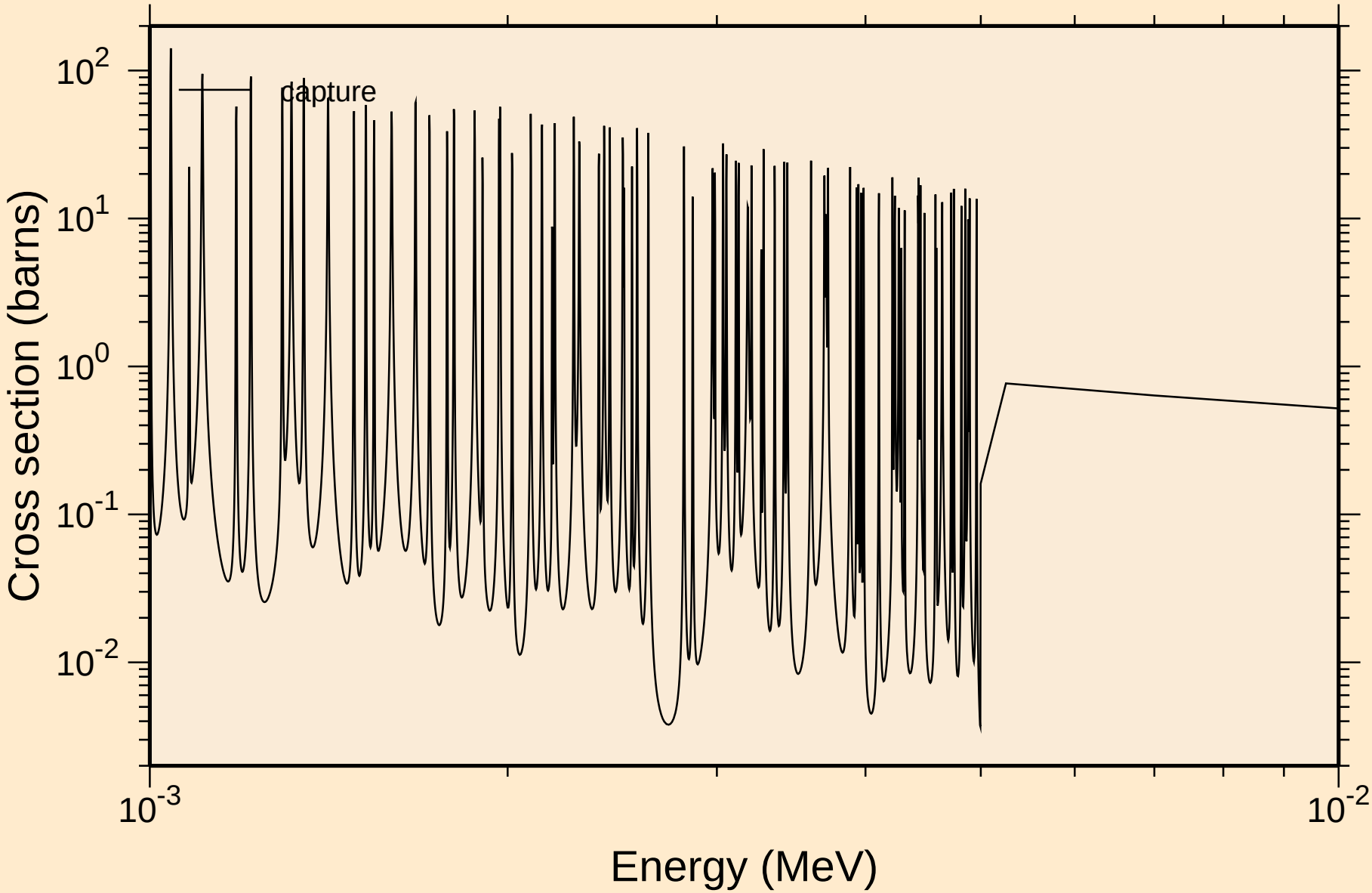
ADVANCE CALCULATIONS

resonance absorption cross sections

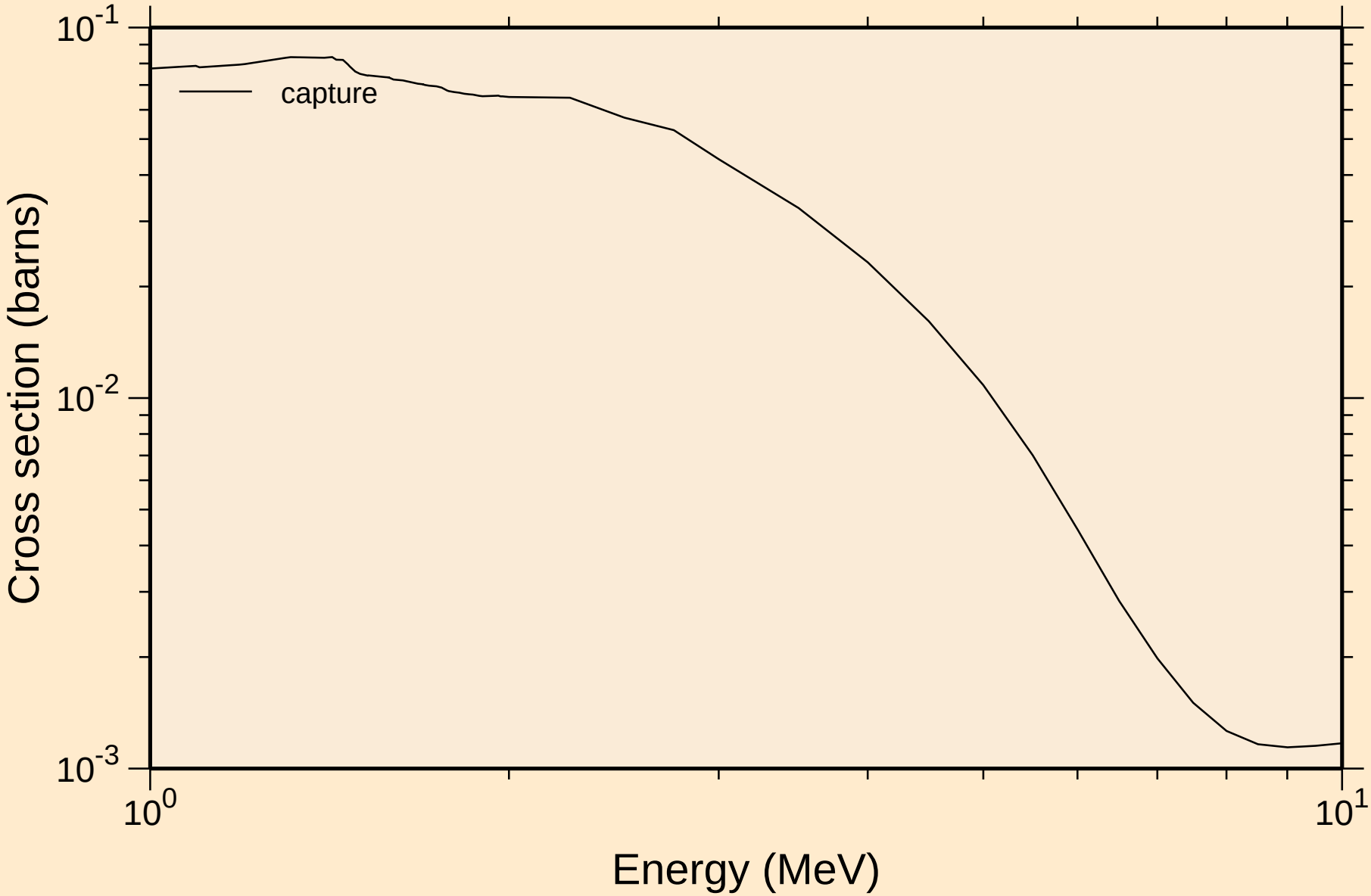


ADVANCE CALCULATIONS

resonance absorption cross sections

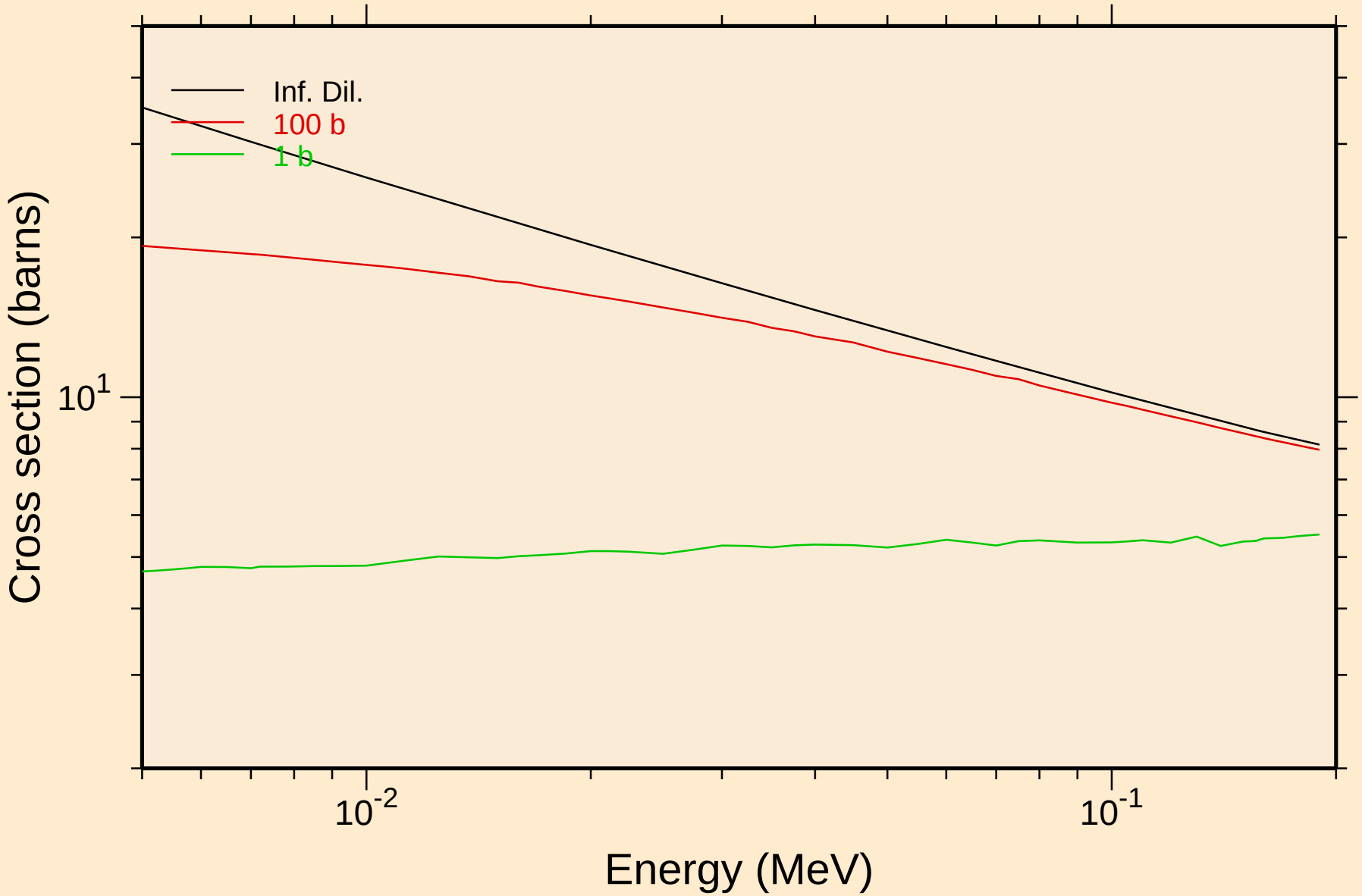


ADVANCE CALCULATIONS
resonance absorption cross sections



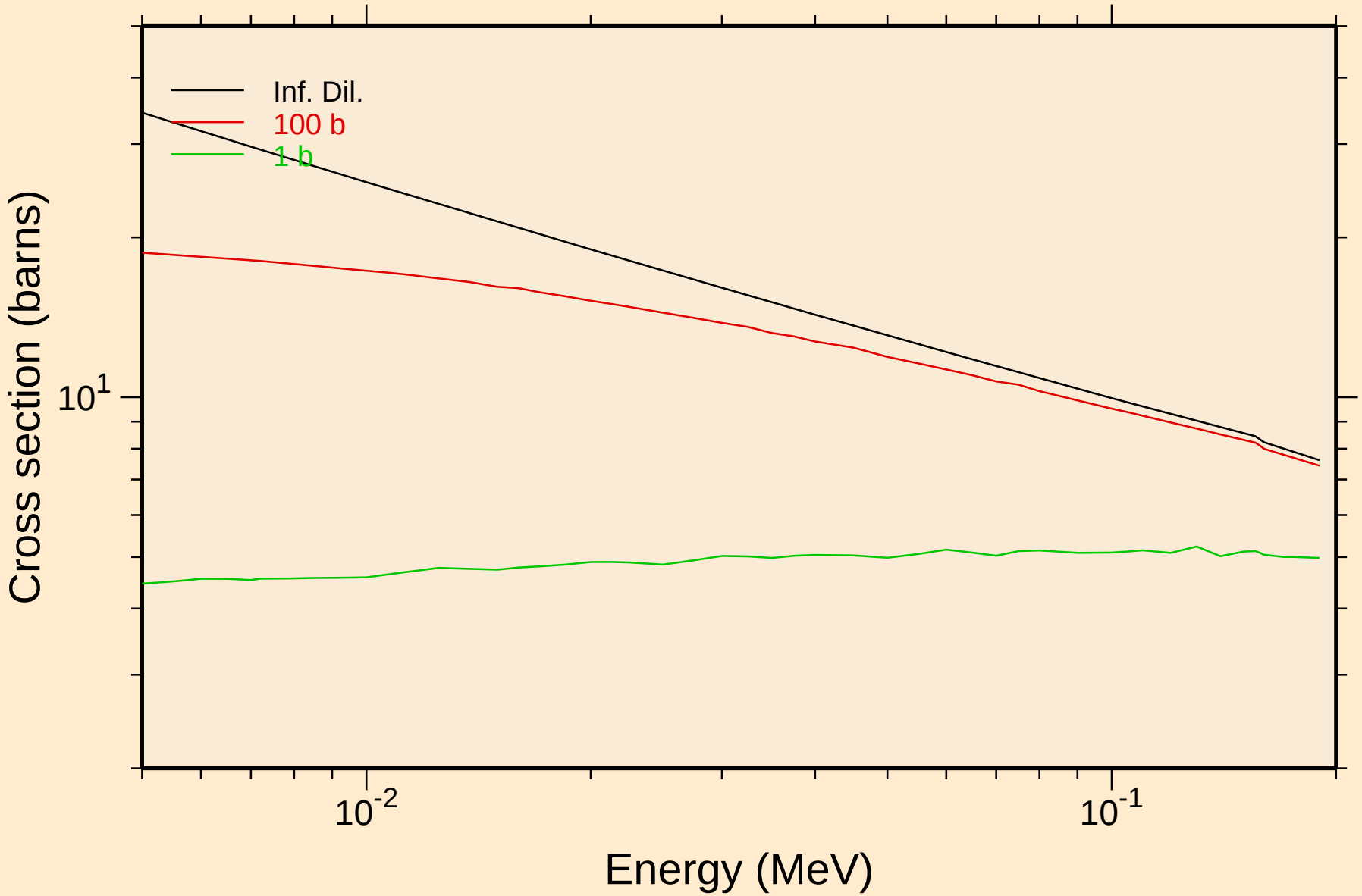
ADVANCE CALCULATIONS

UR total cross section



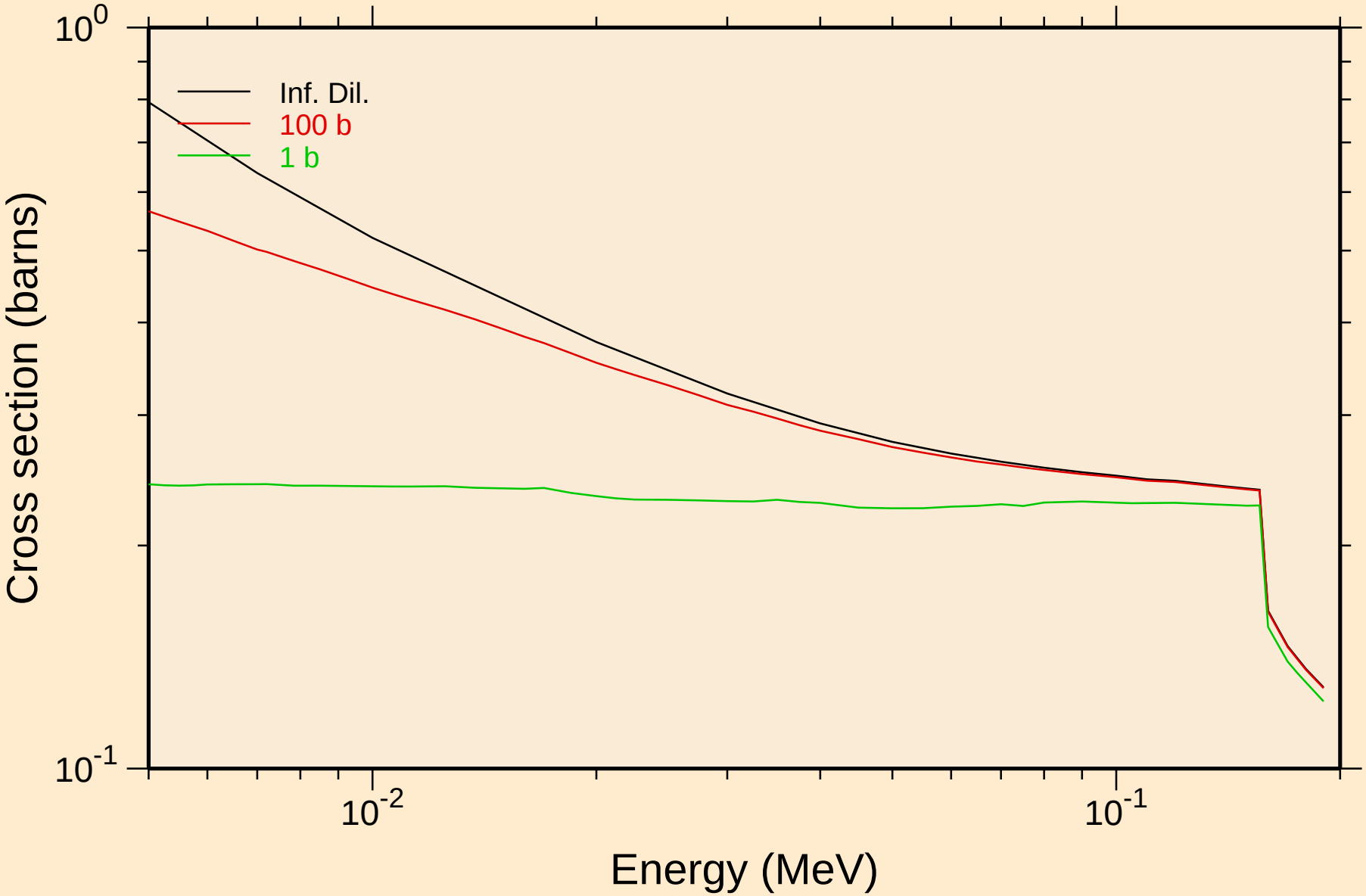
ADVANCE CALCULATIONS

UR elastic cross section

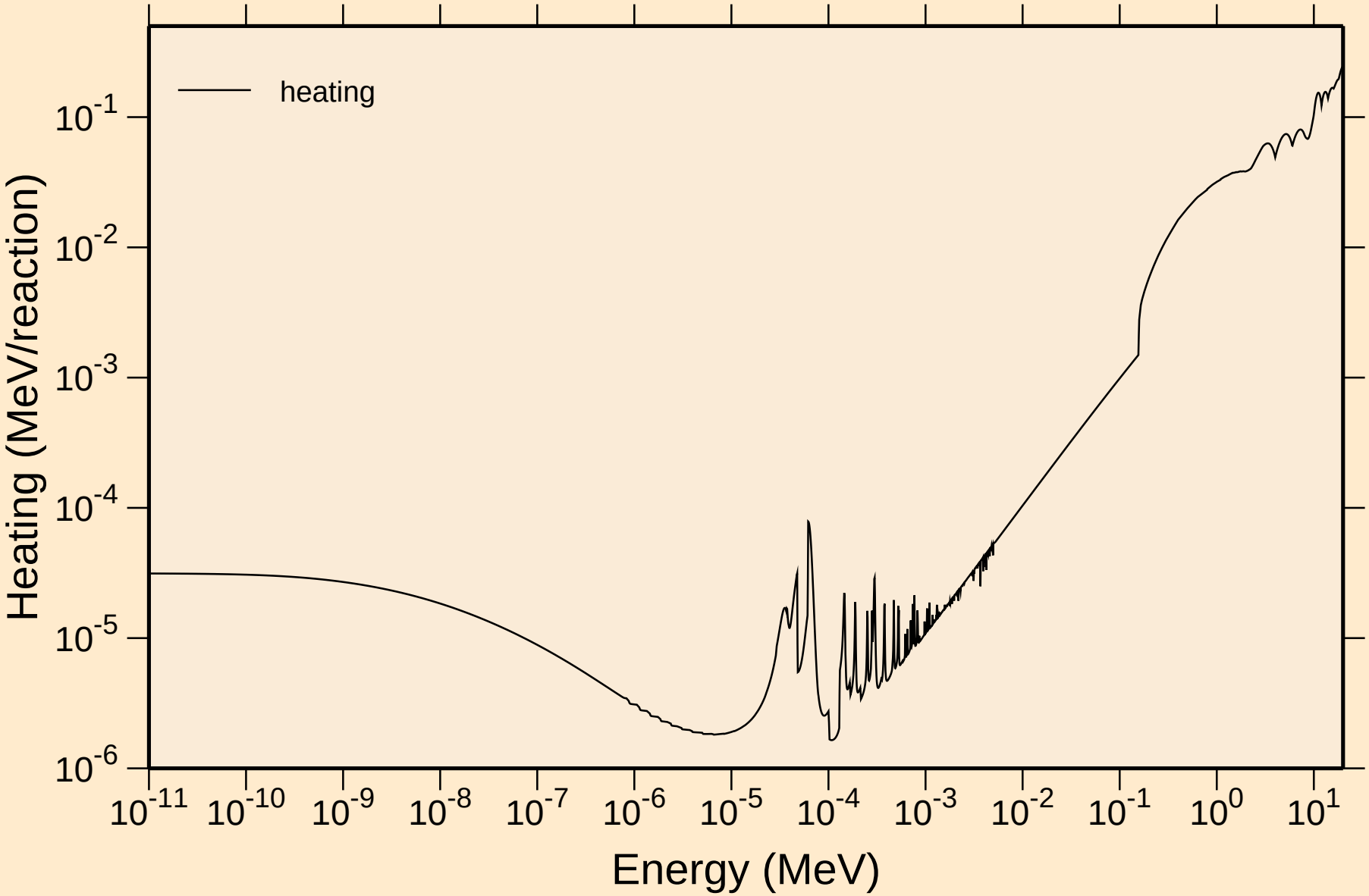


ADVANCE CALCULATIONS

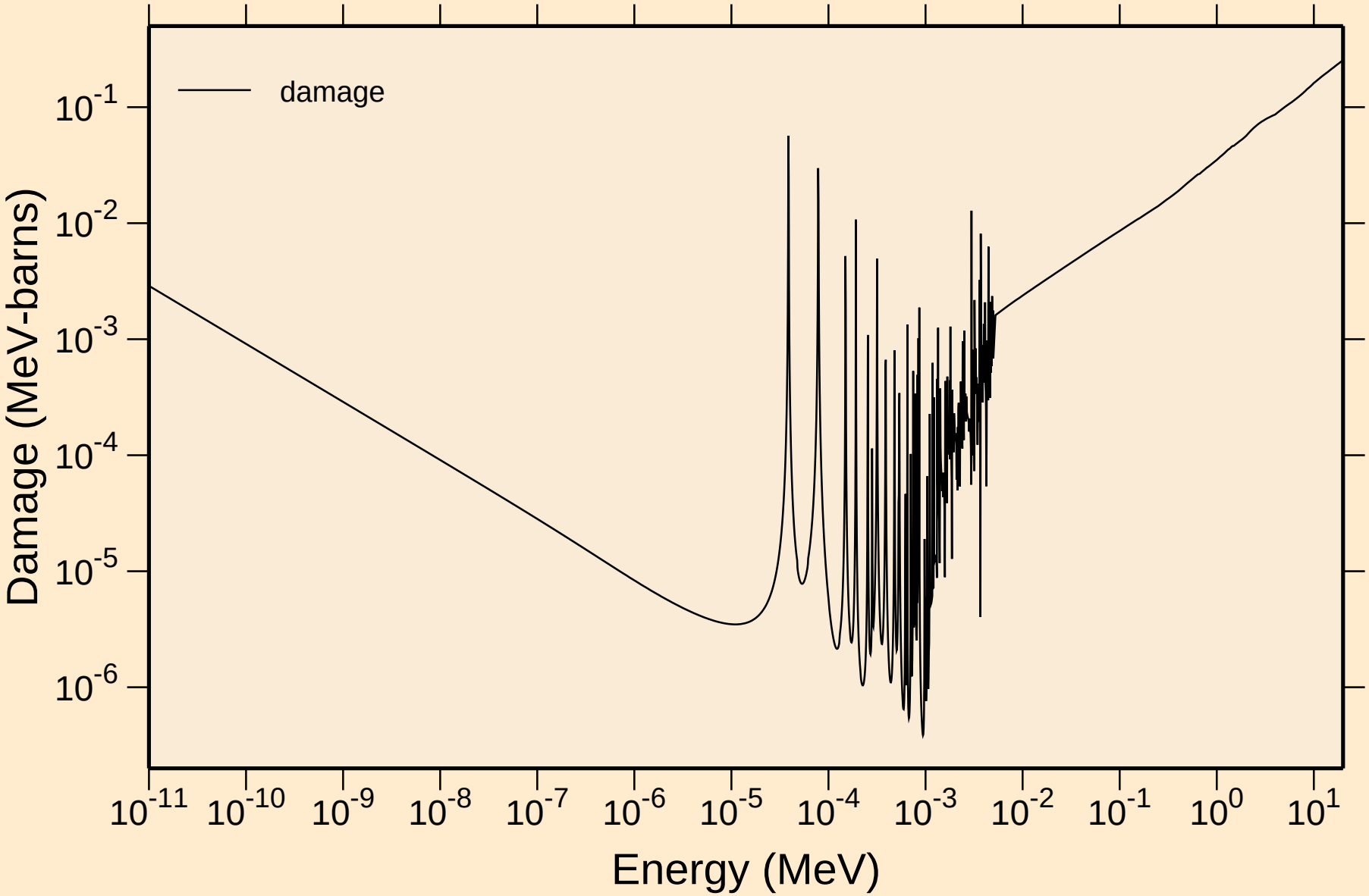
UR capture cross section



ADVANCE CALCULATIONS
Heating

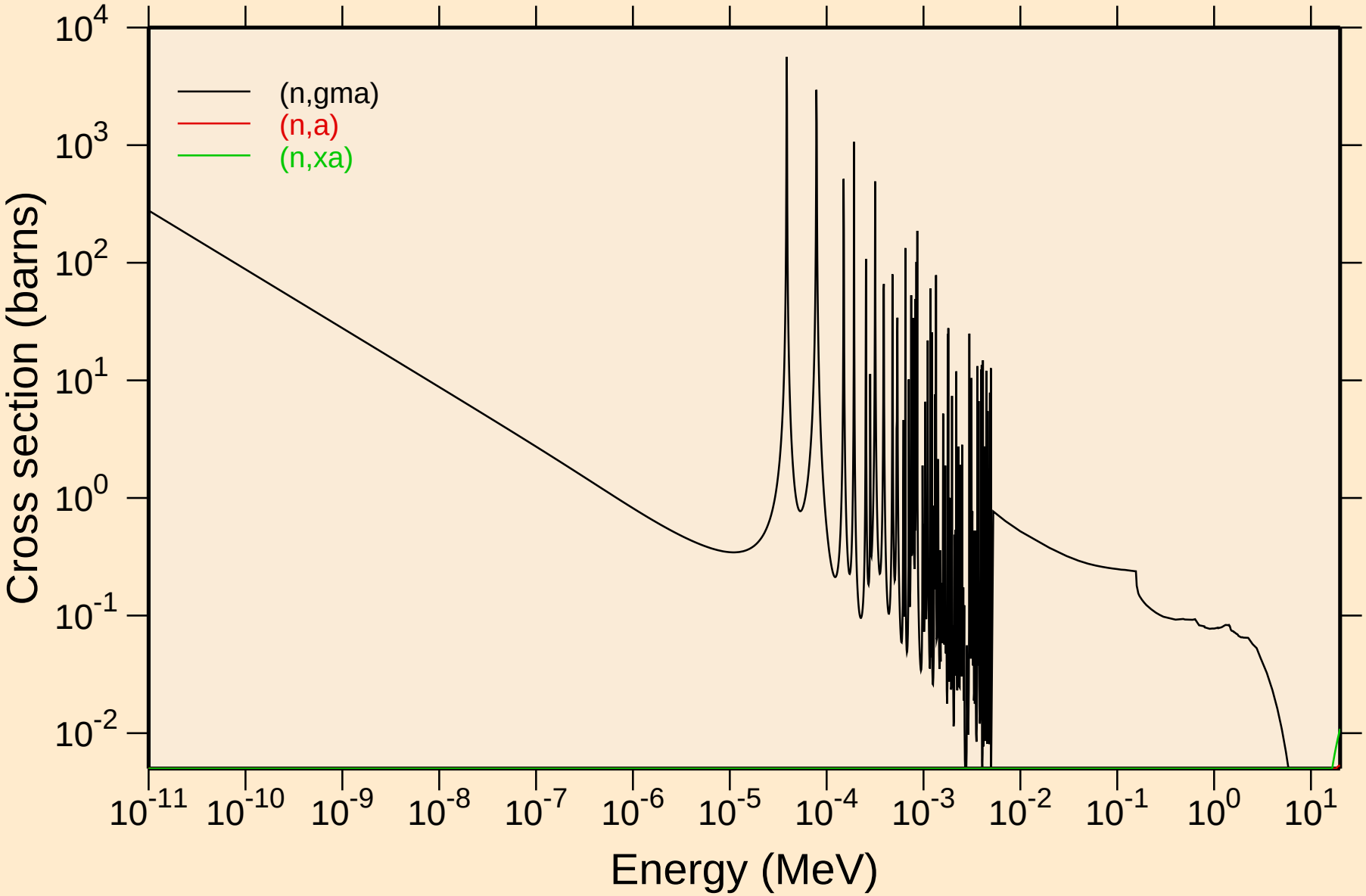


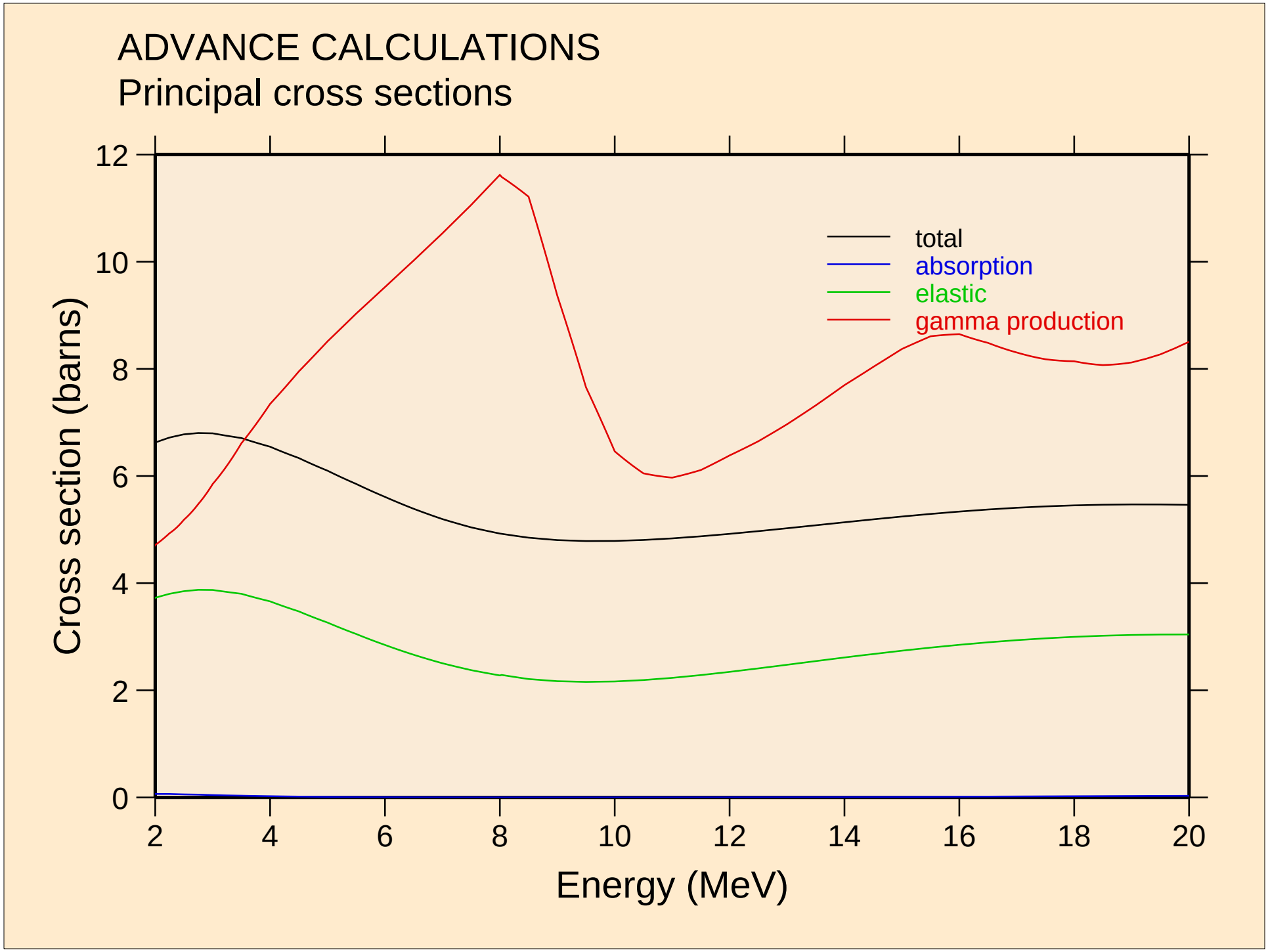
ADVANCE CALCULATIONS
Damage



ADVANCE CALCULATIONS

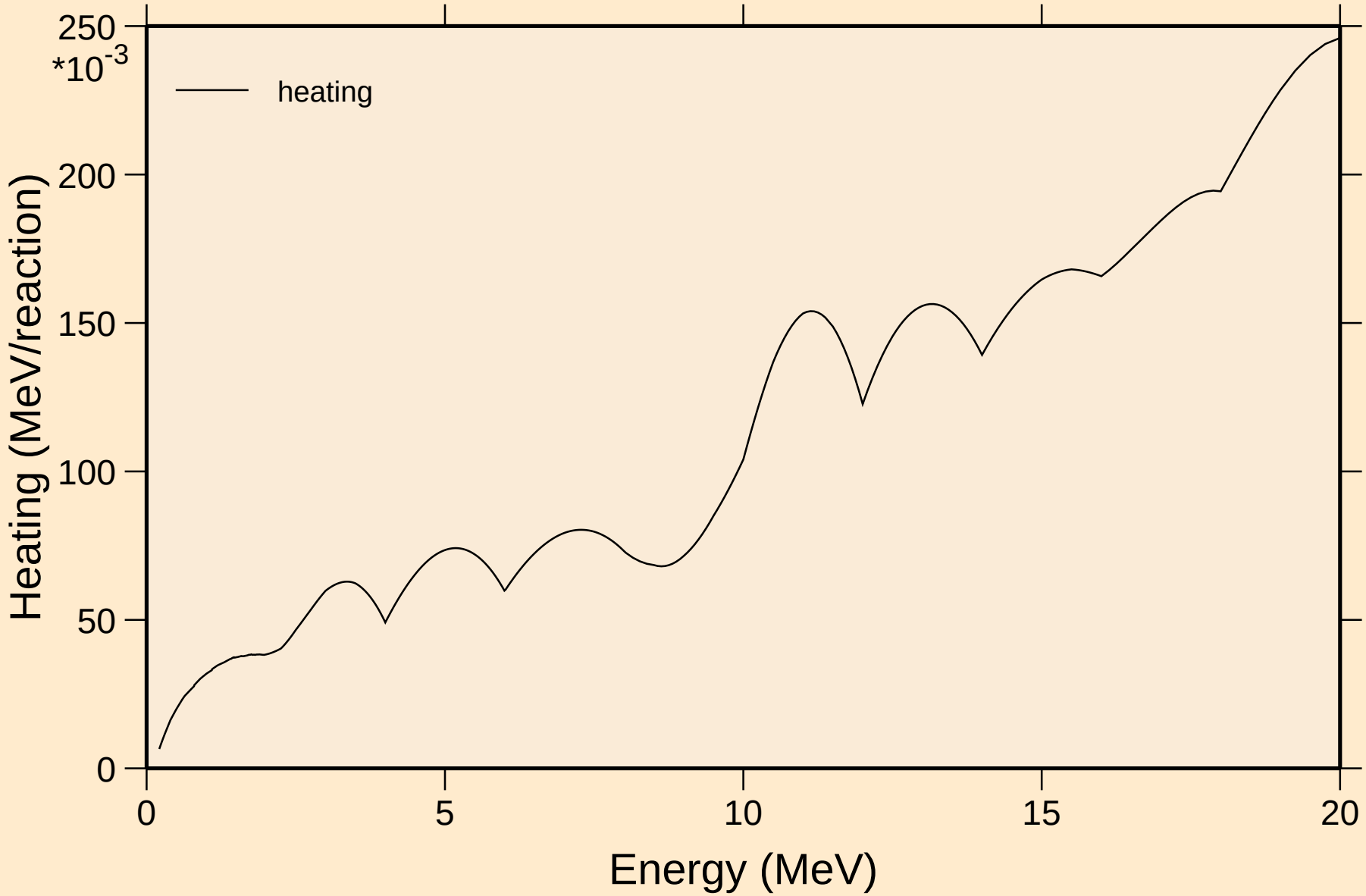
Non-threshold reactions




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

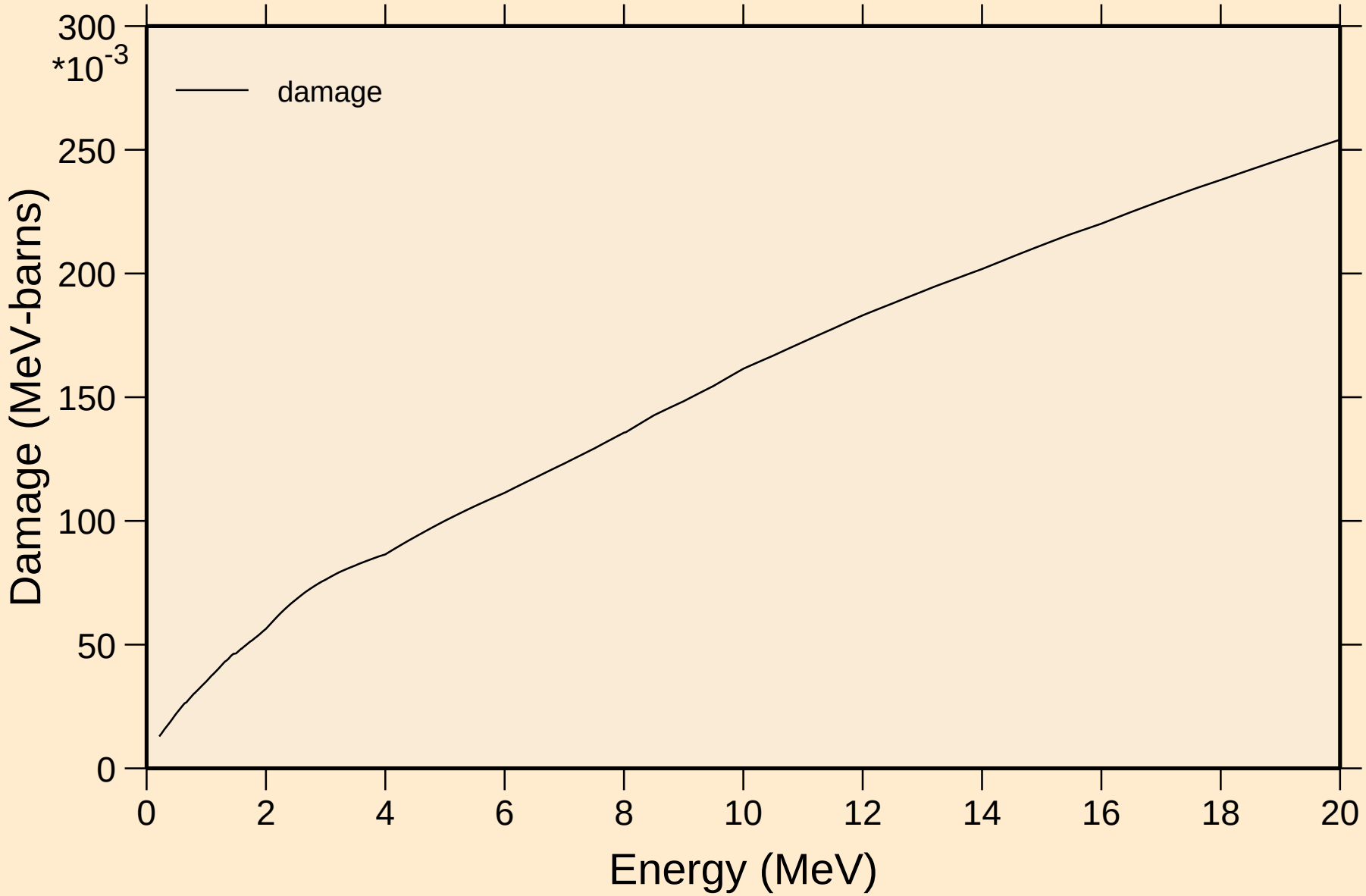
ADVANCE CALCULATIONS

Heating



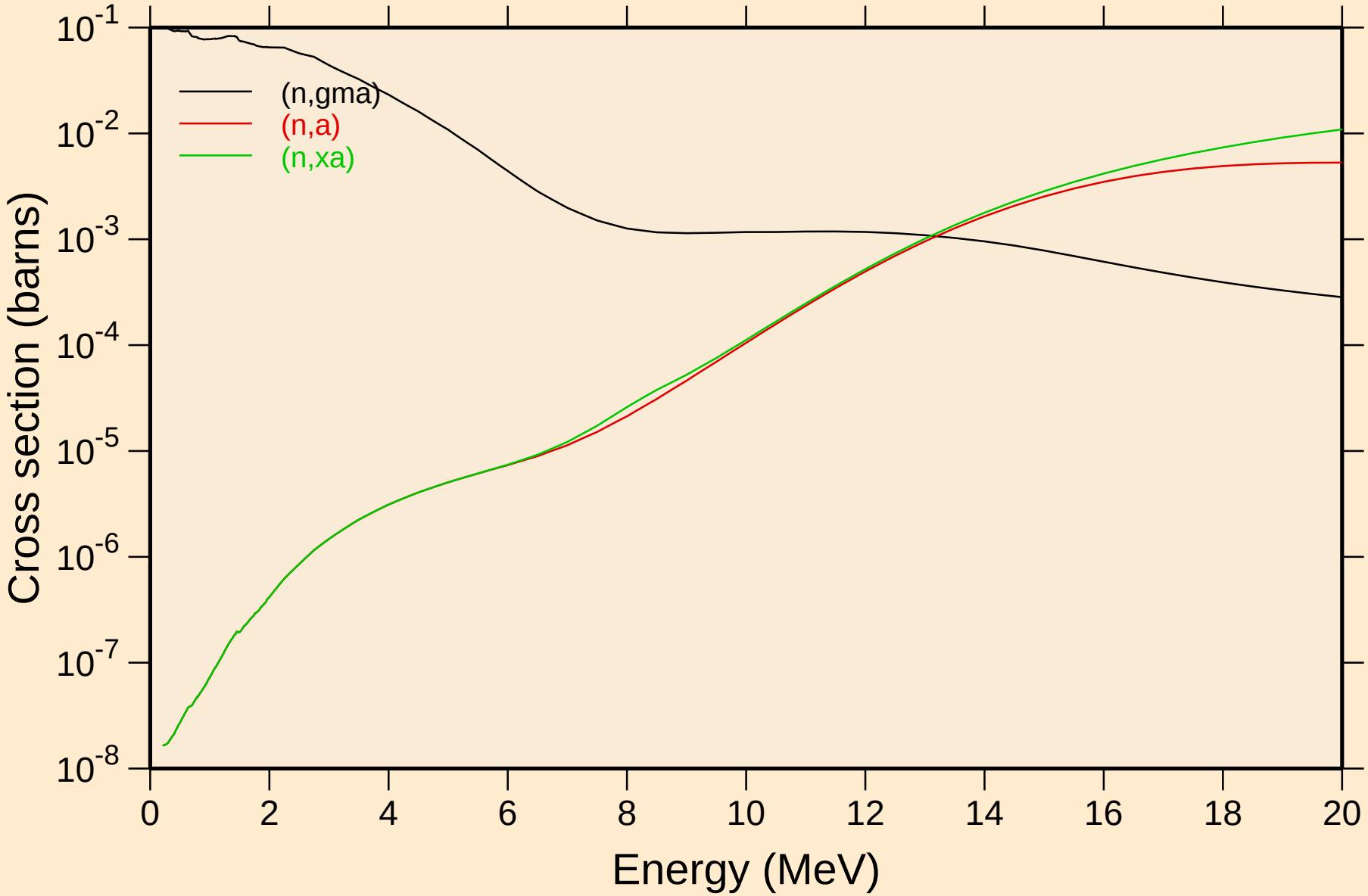
ADVANCE CALCULATIONS

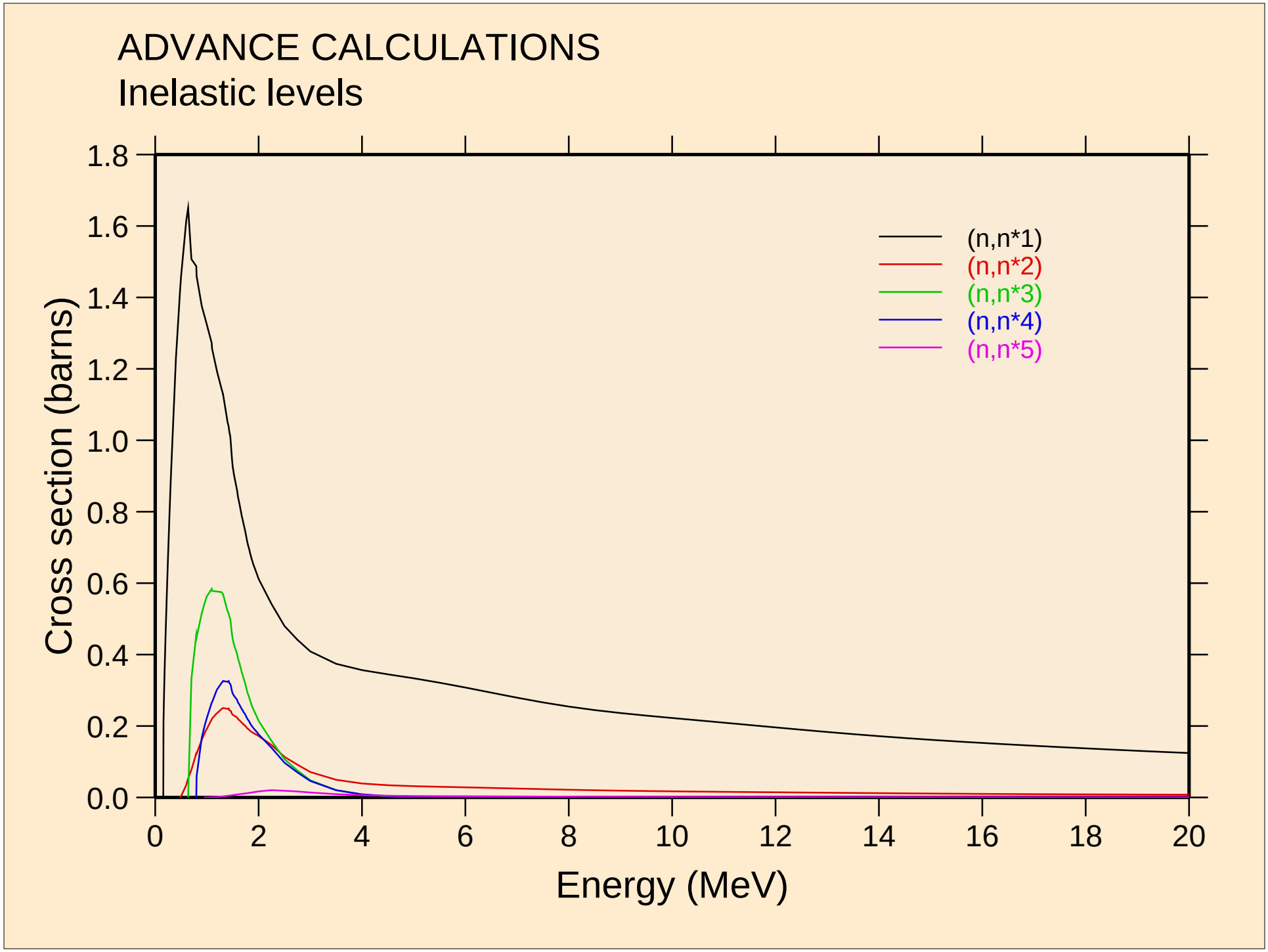
Damage



ADVANCE CALCULATIONS

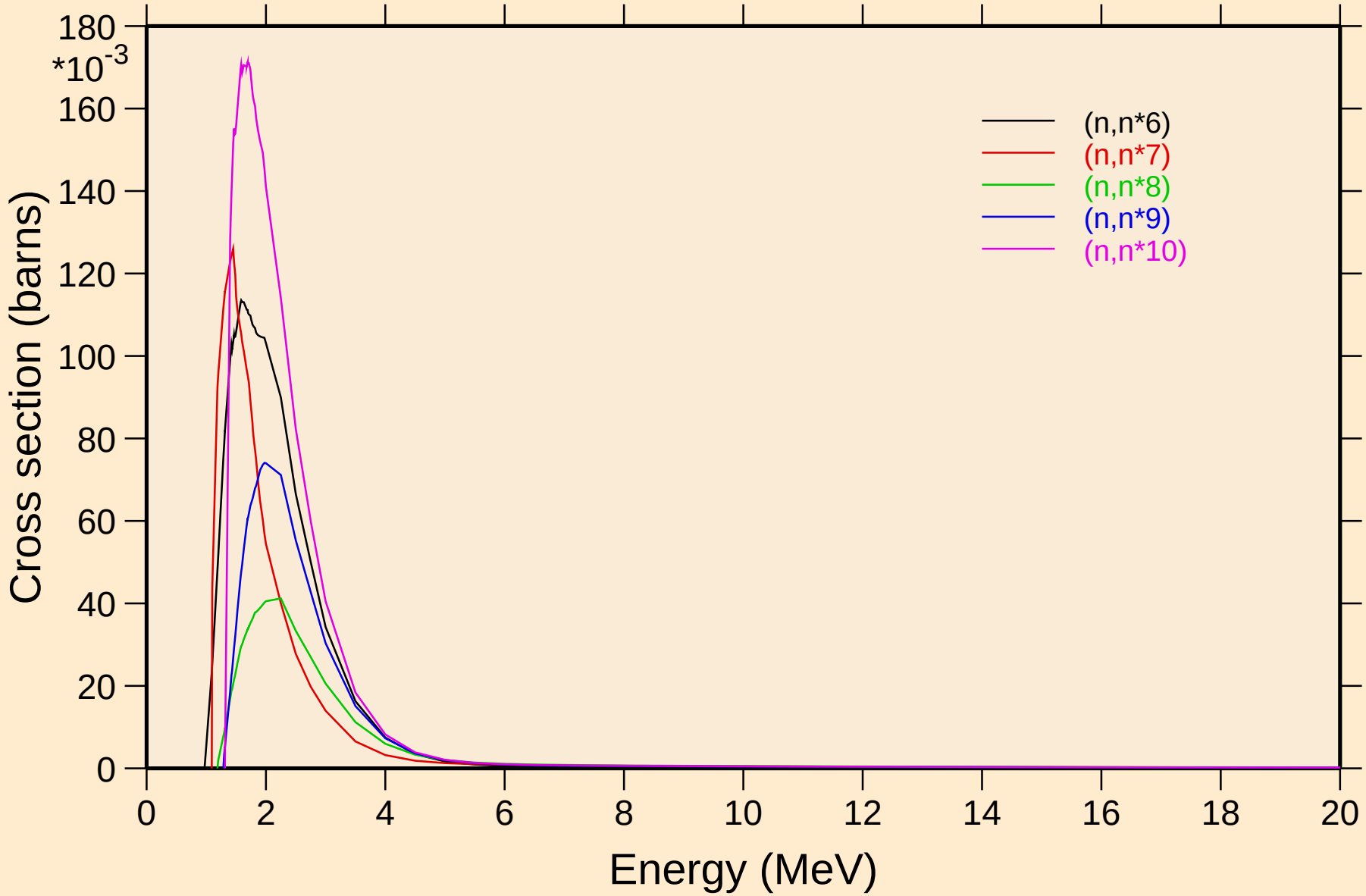
Non-threshold reactions




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
1.4
1.6
1.8
0
2
4
6
8
10
12
14
16
18
20

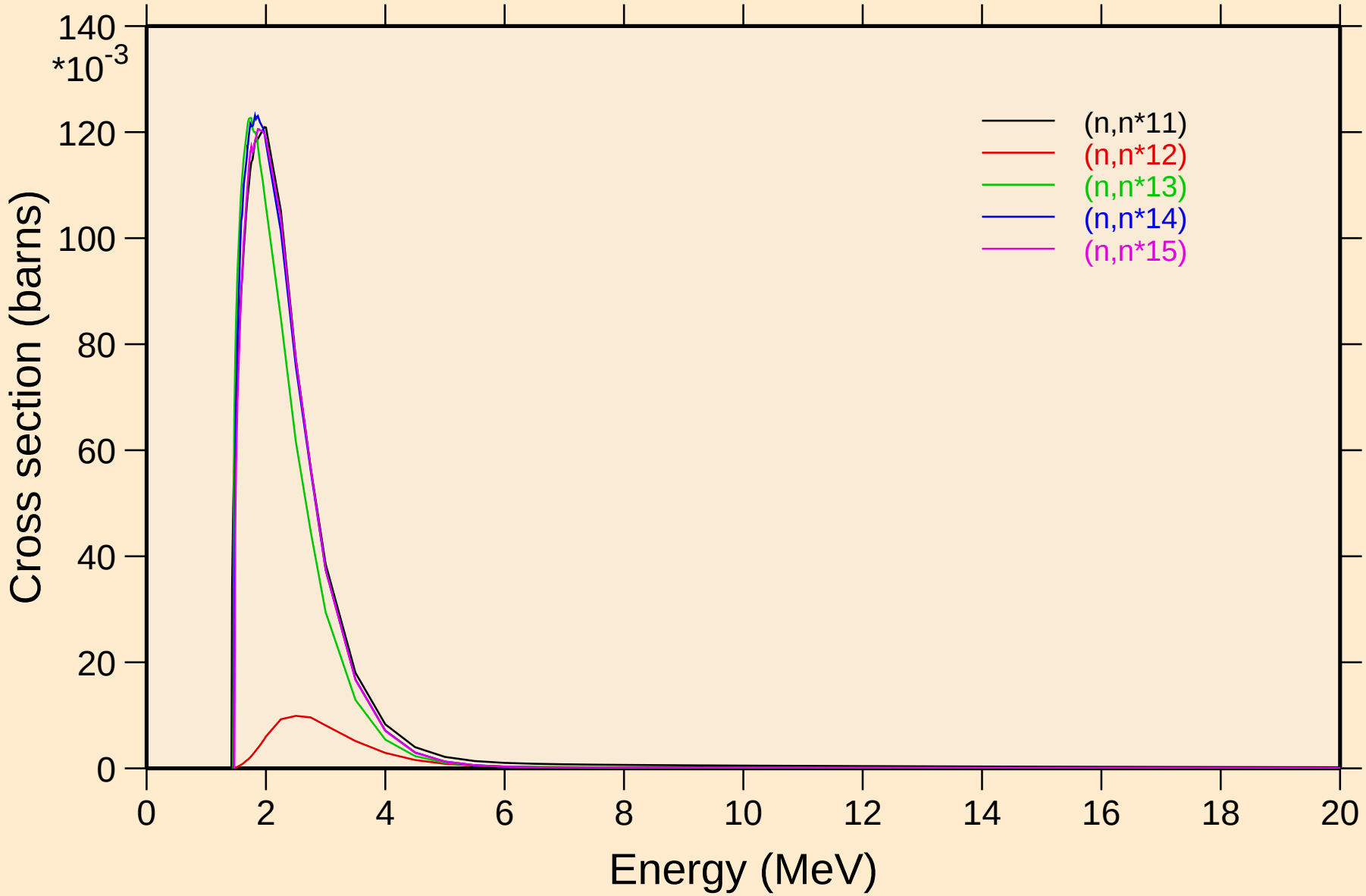
ADVANCE CALCULATIONS

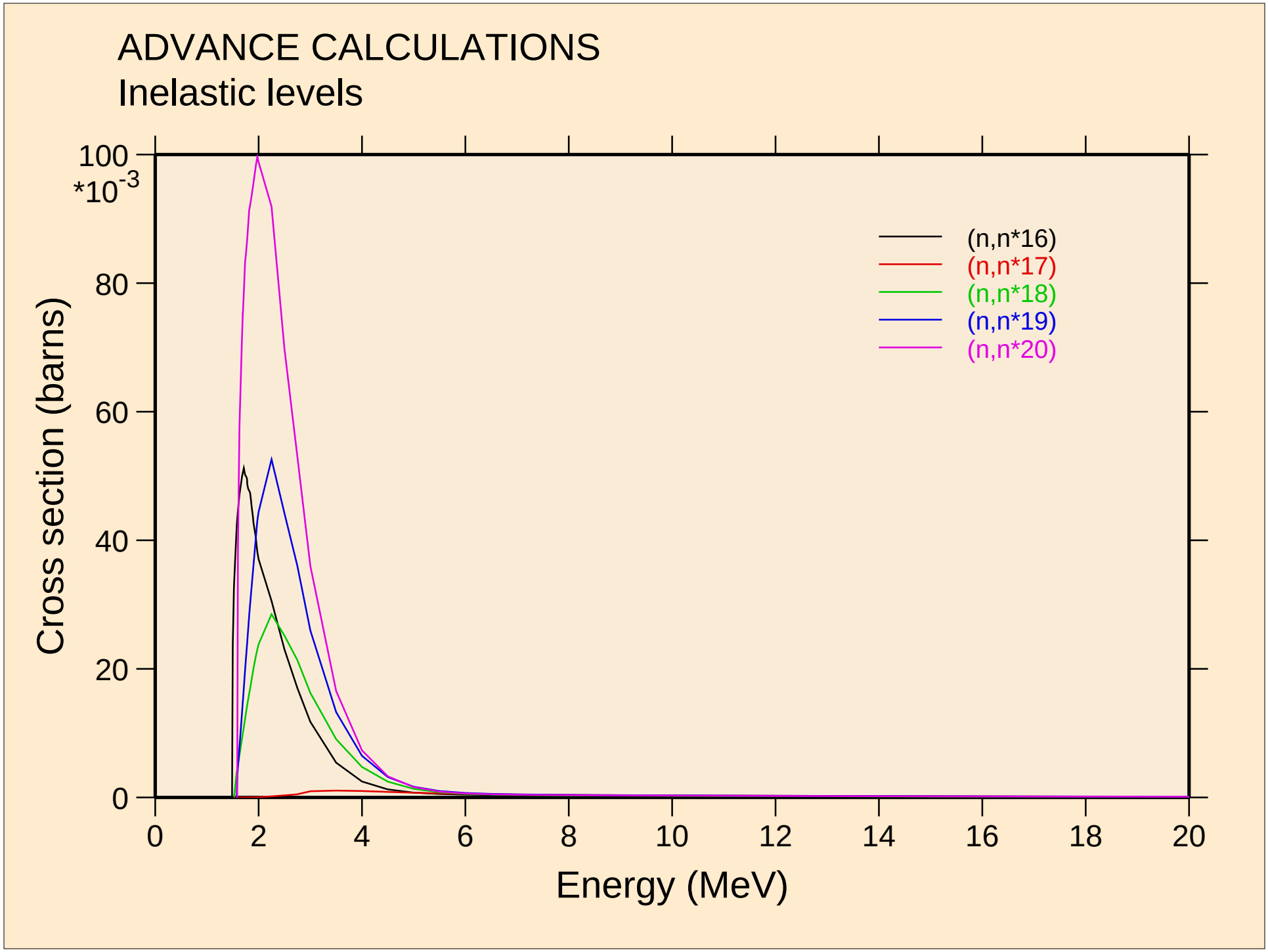
Inelastic levels



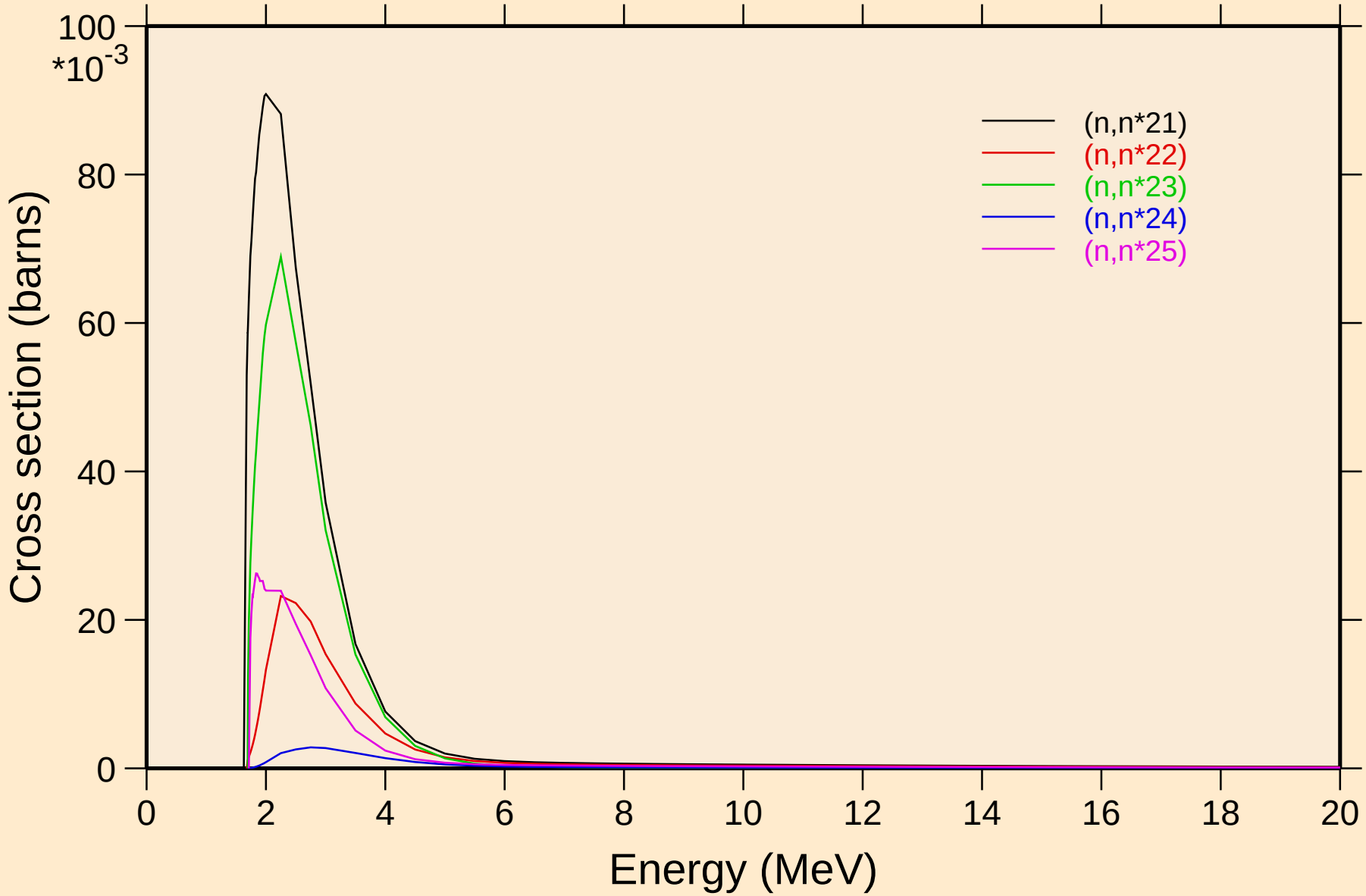
ADVANCE CALCULATIONS

Inelastic levels



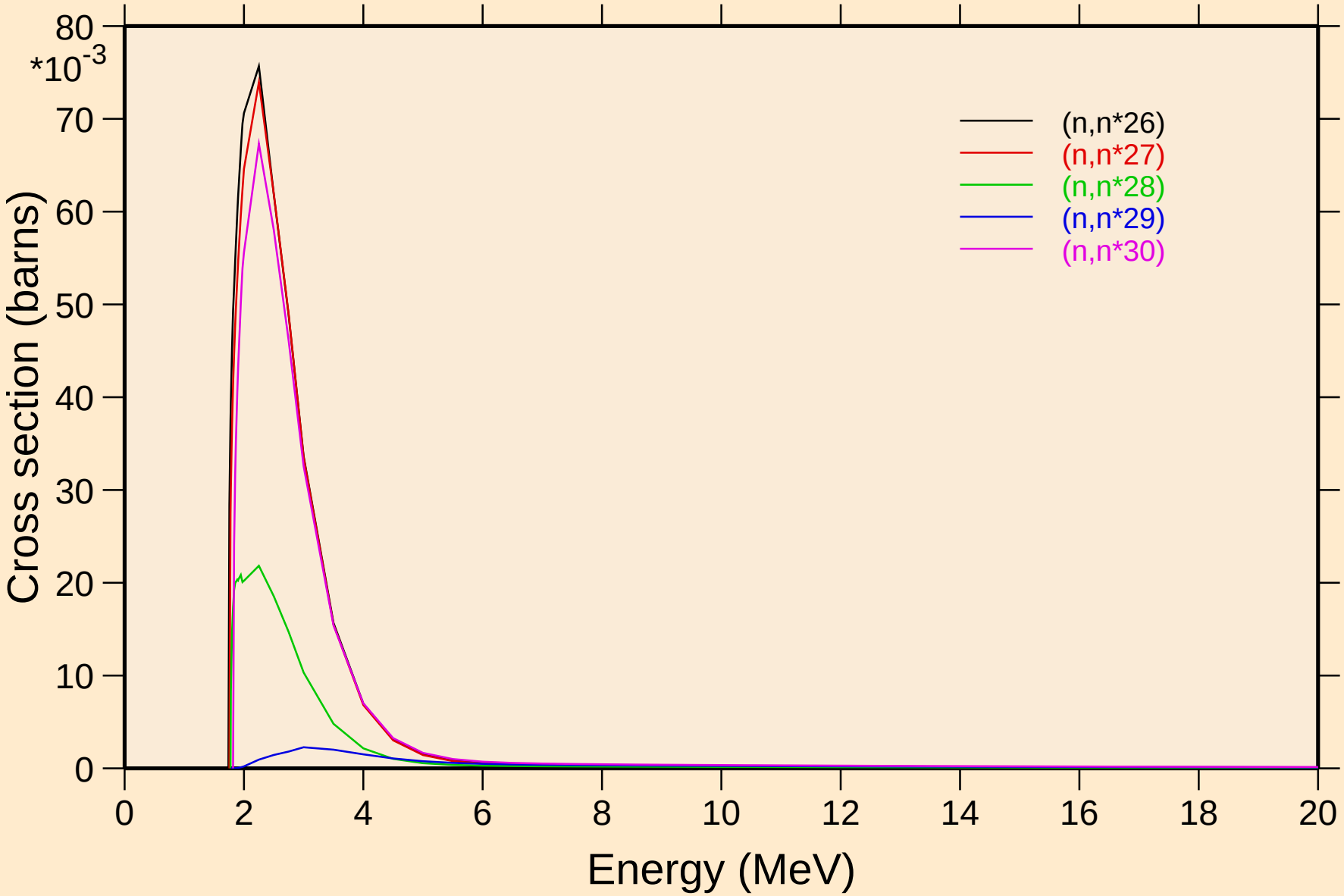

ADVANCE CALCULATIONS
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

ADVANCE CALCULATIONS
Inelastic levels



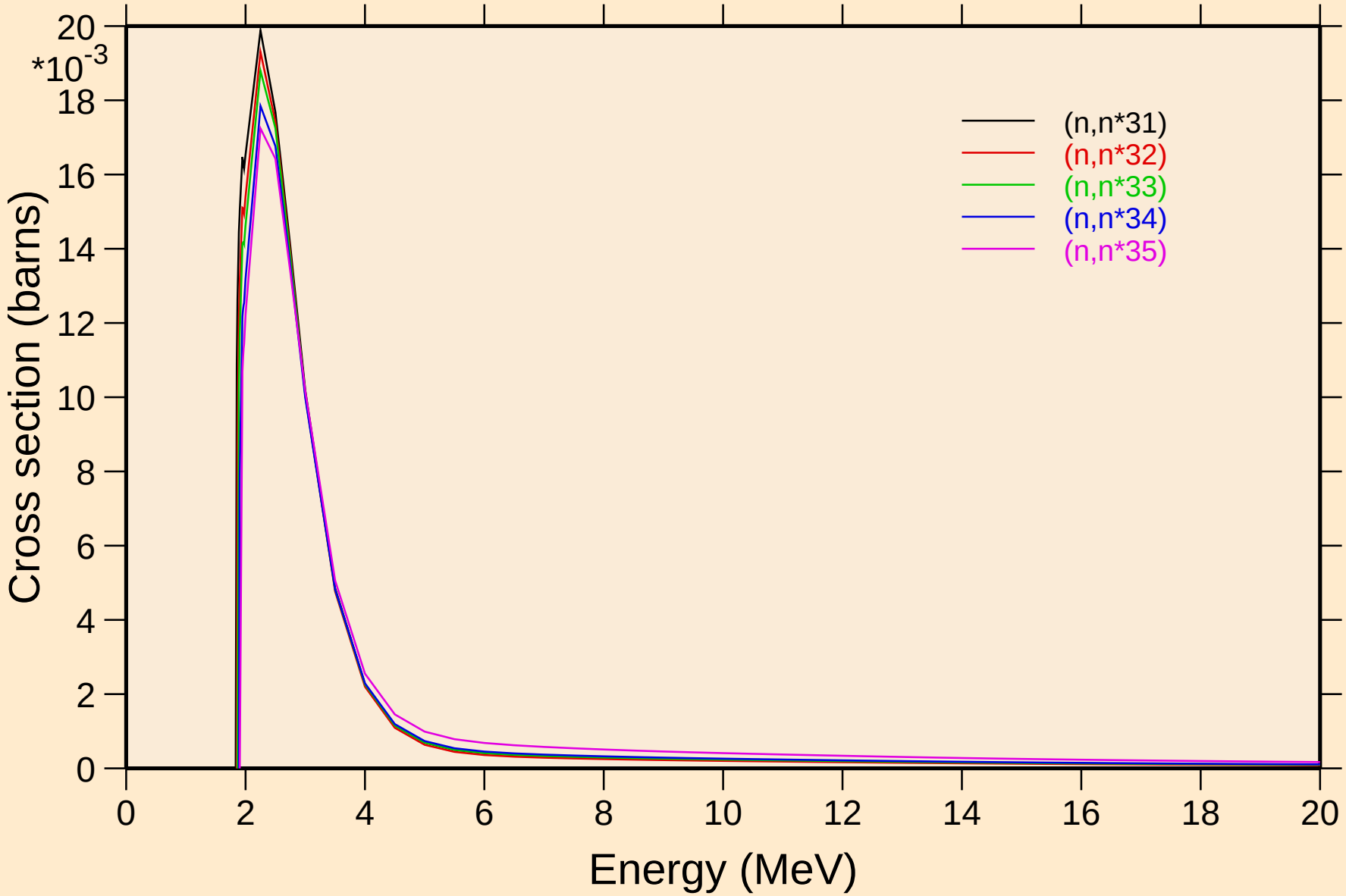
ADVANCE CALCULATIONS

Inelastic levels



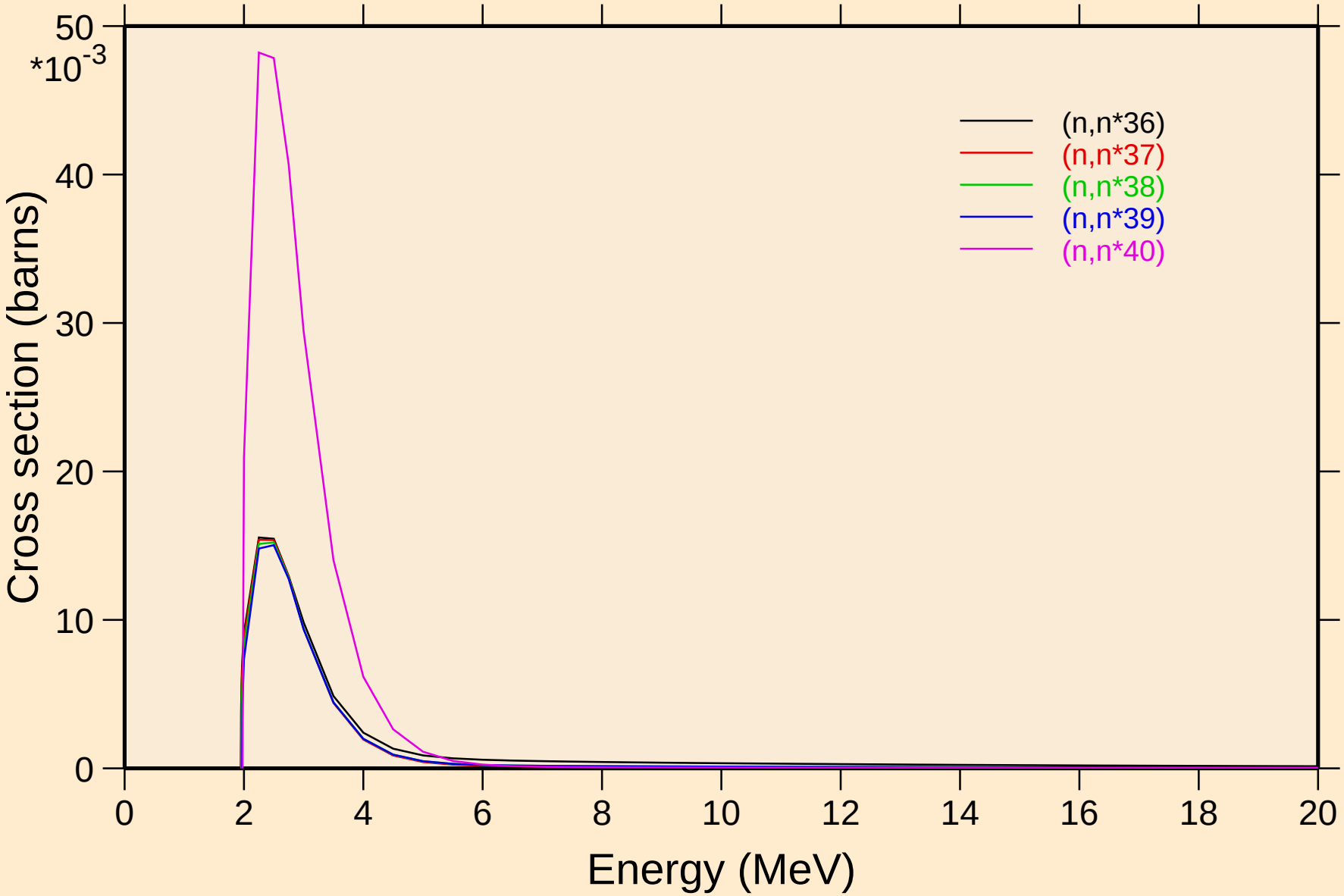
ADVANCE CALCULATIONS

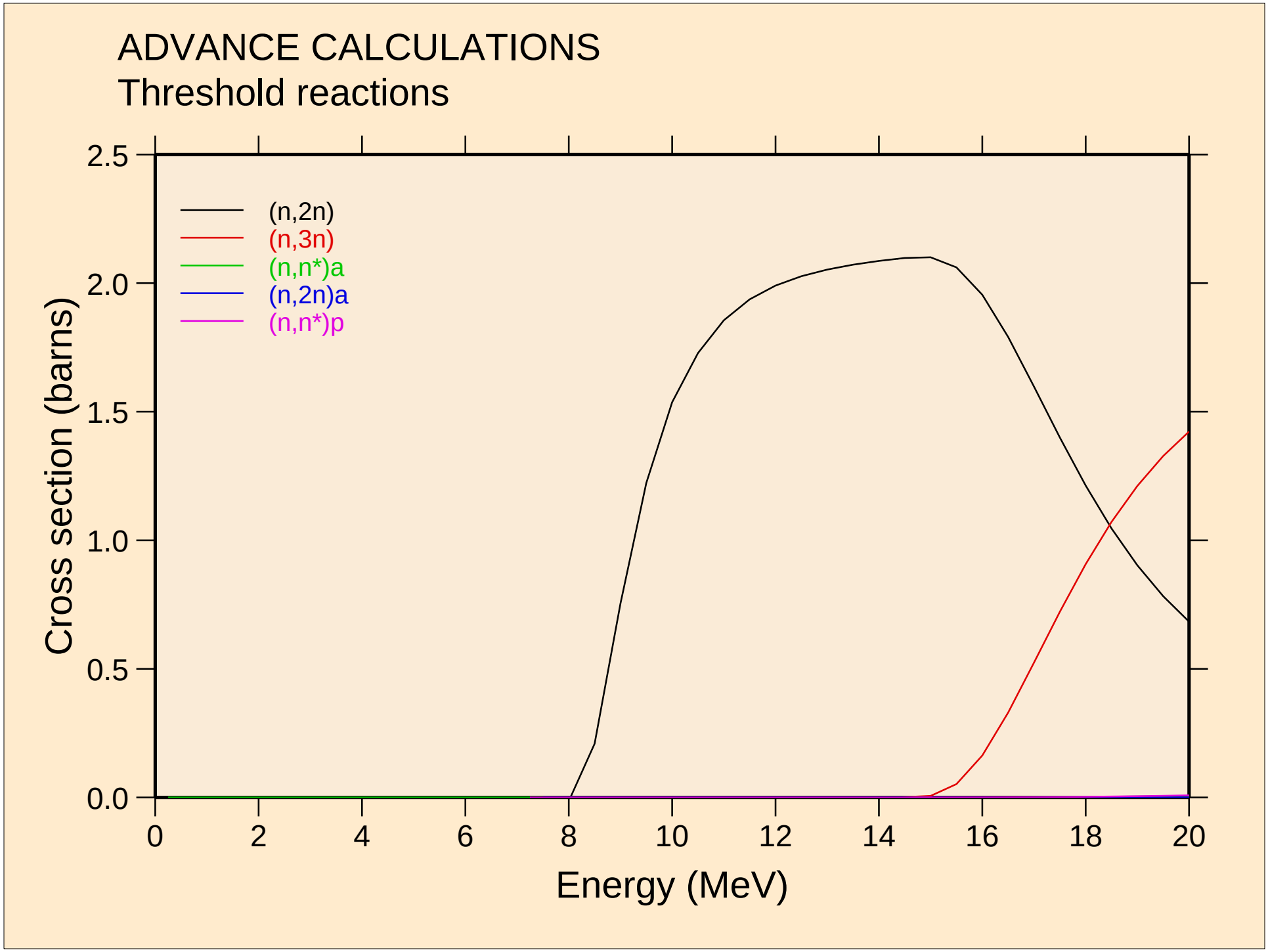
Inelastic levels

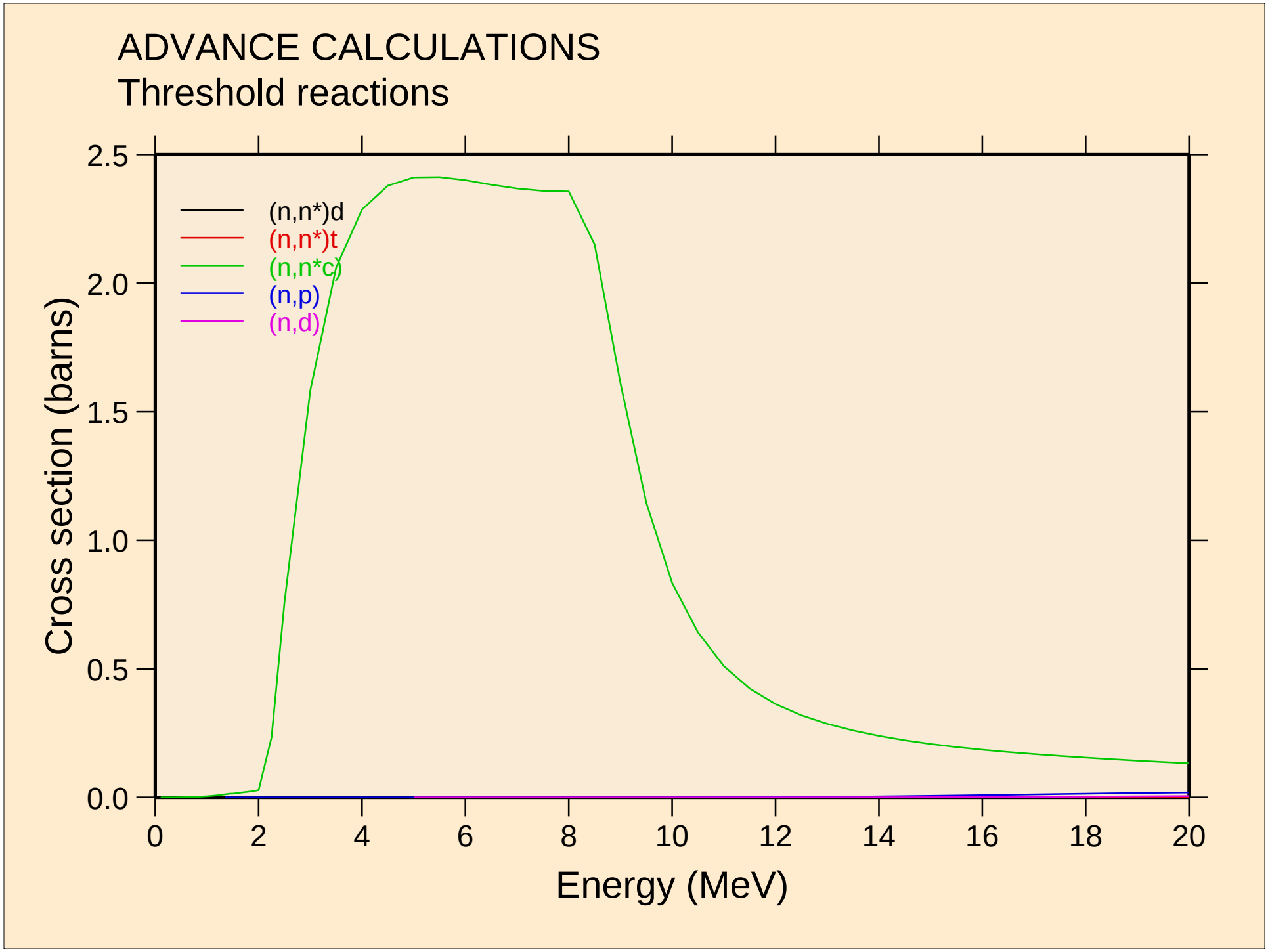


ADVANCE CALCULATIONS

Inelastic levels

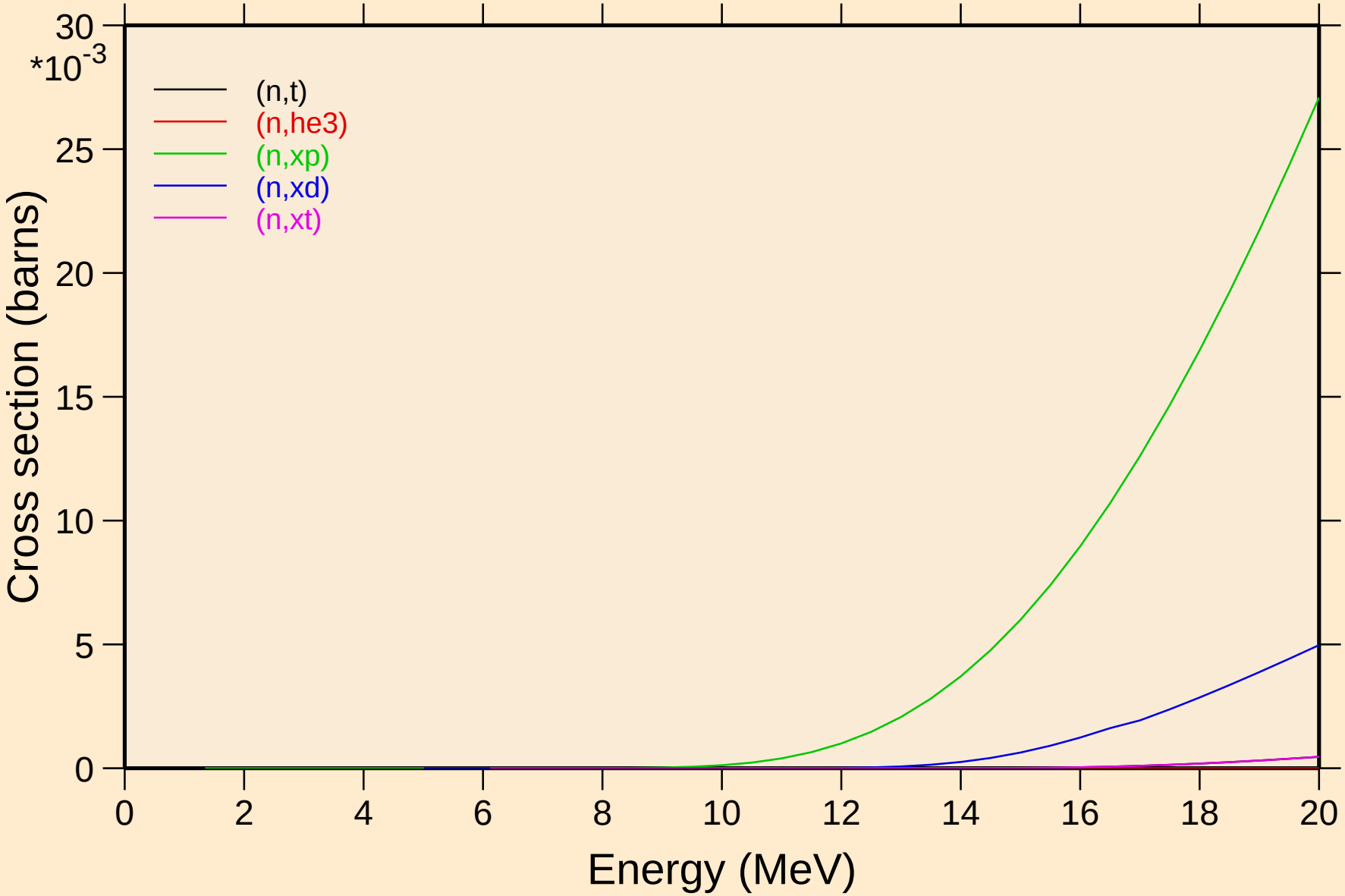



ADVANCE CALCULATIONS
Threshold reactions
(n,2n)
(n,3n)
(n,n*)a
(n,2n)a
(n,n*)p
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
2
4
6
8
10
12
14
16
18
20


ADVANCE CALCULATIONS
Threshold reactions
(n,n*)d
(n,n*)t
(n,n*c)
(n,p)
(n,d)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
2
4
6
8
10
12
14
16
18
20

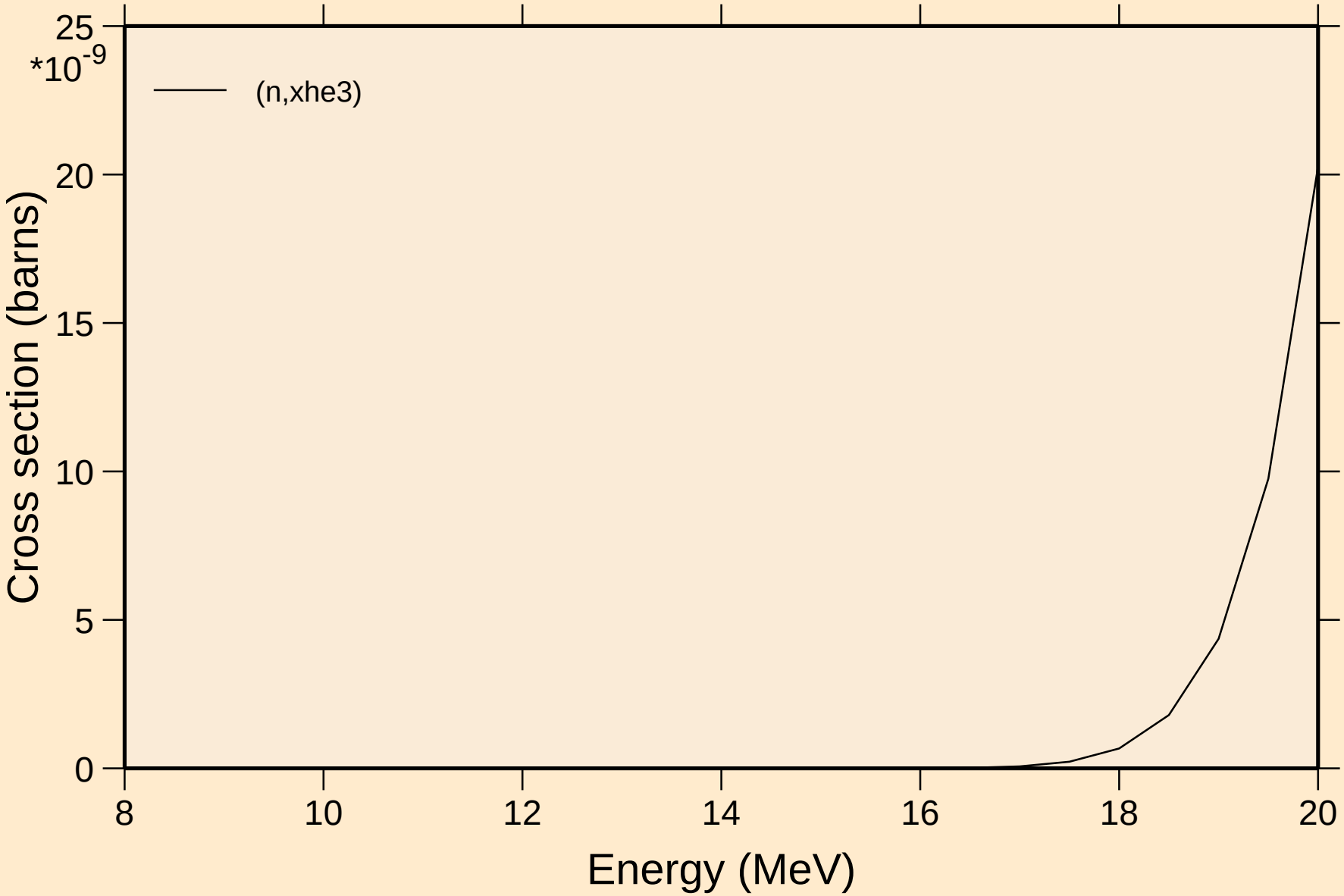
ADVANCE CALCULATIONS

Threshold reactions

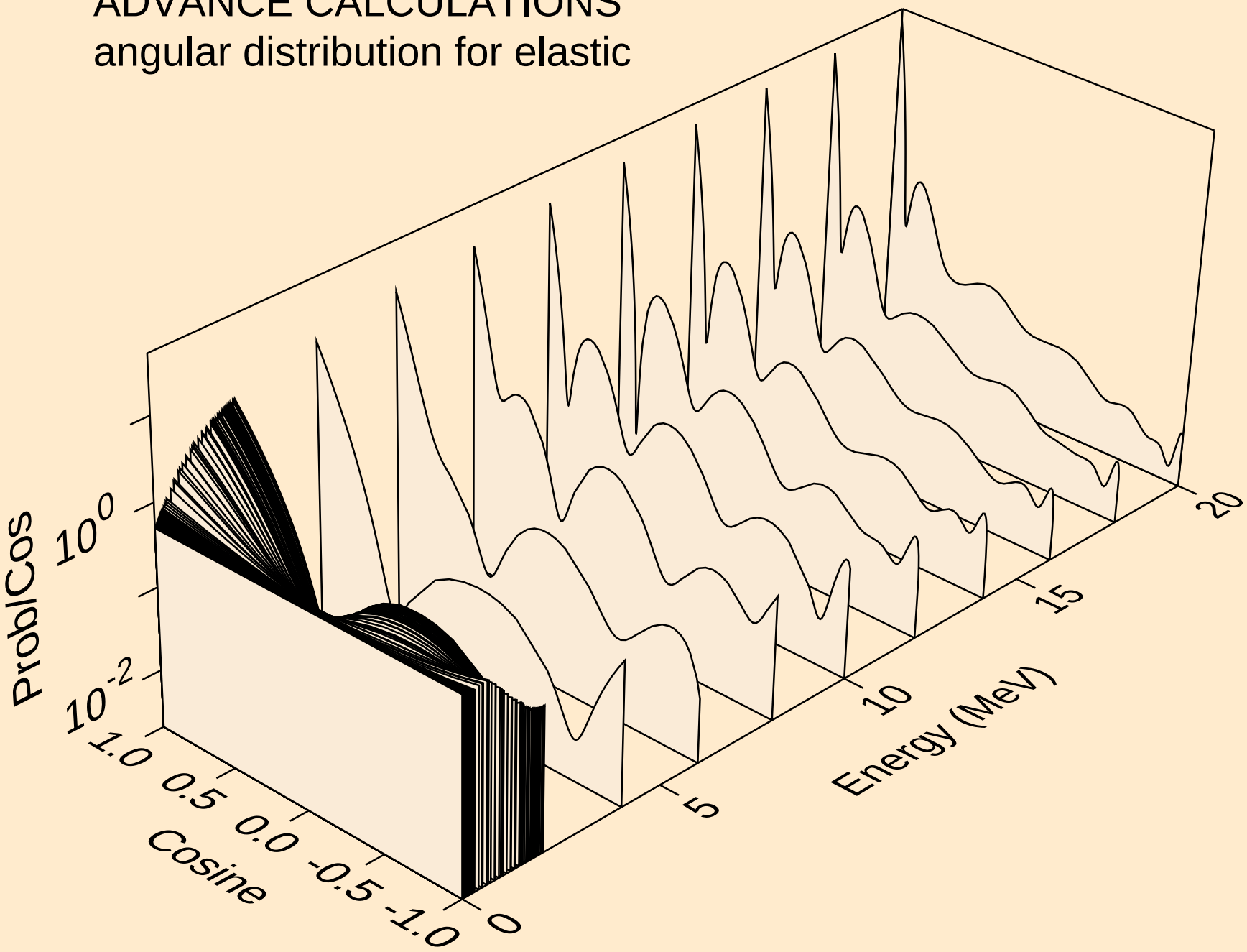


ADVANCE CALCULATIONS

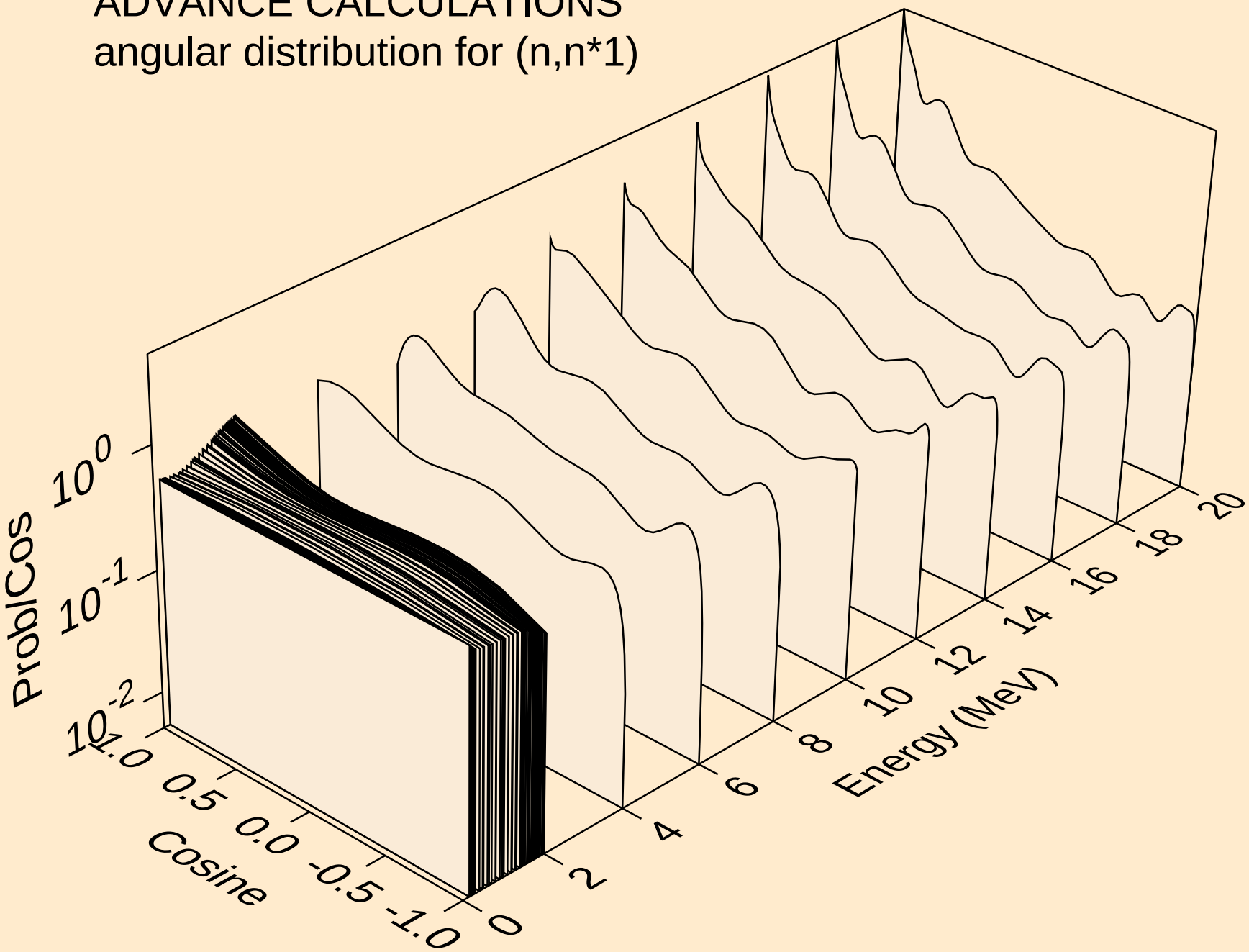
Threshold reactions



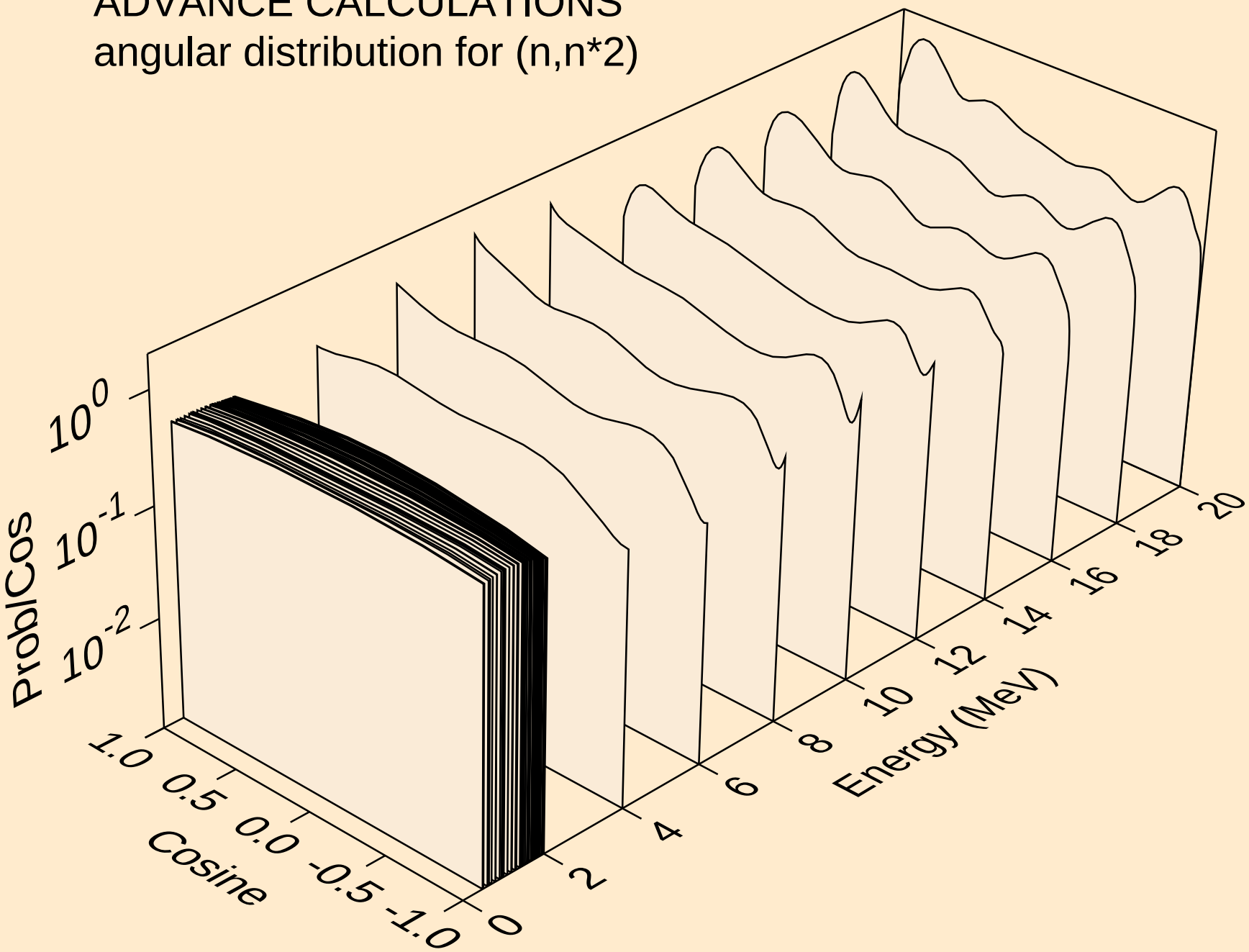
ADVANCE CALCULATIONS
angular distribution for elastic



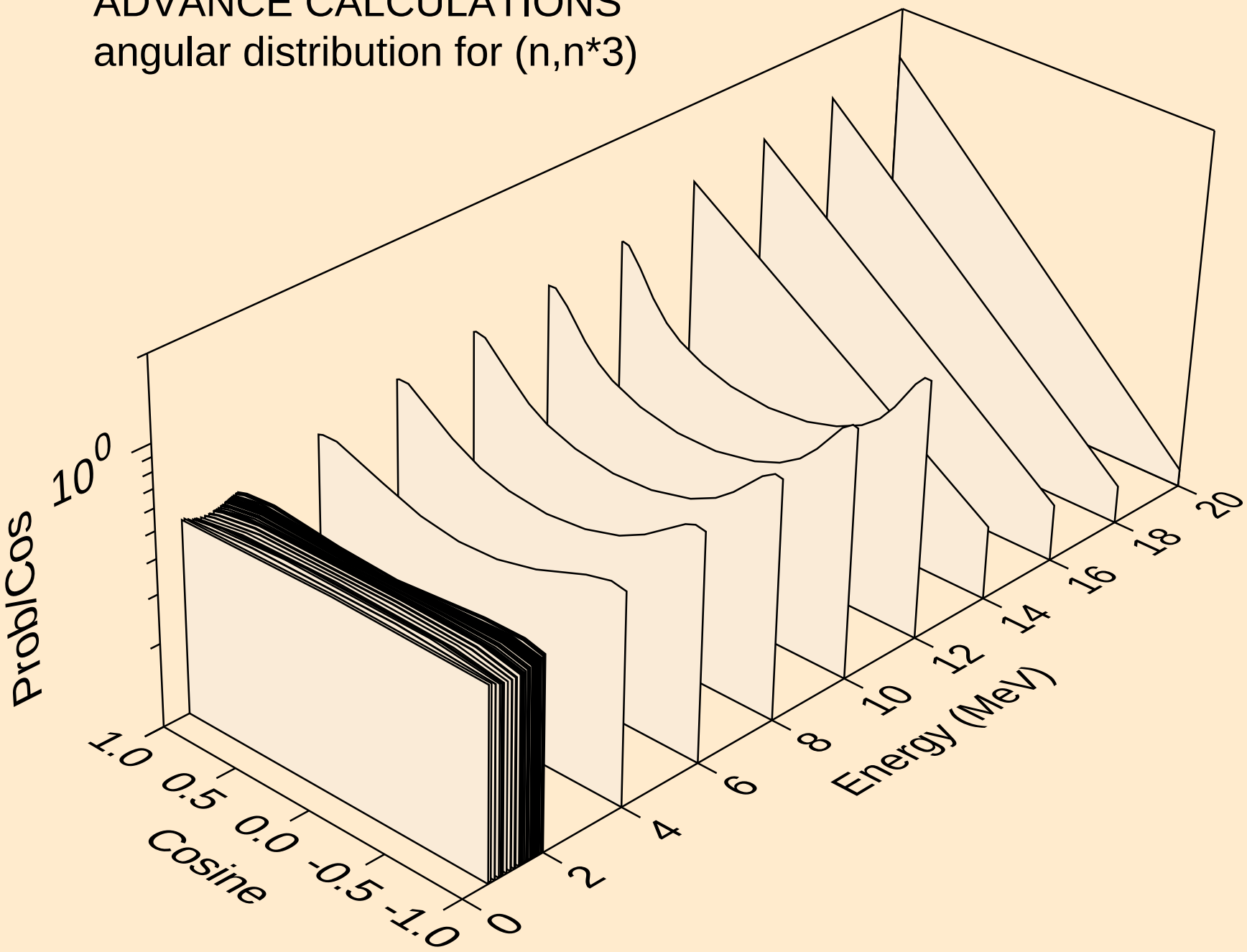
ADVANCE CALCULATIONS
angular distribution for (n,n*1)



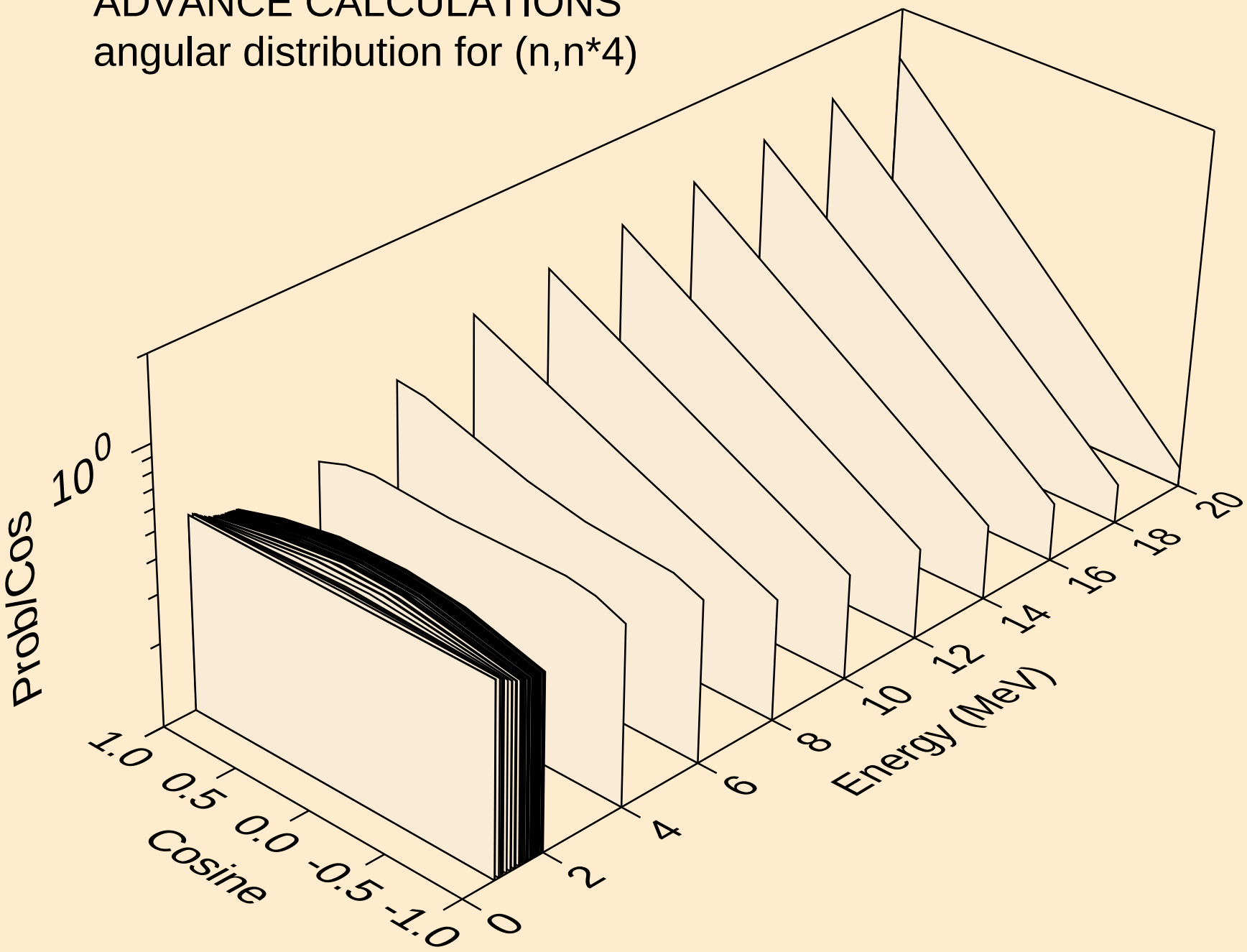
ADVANCE CALCULATIONS
angular distribution for (n,n*2)



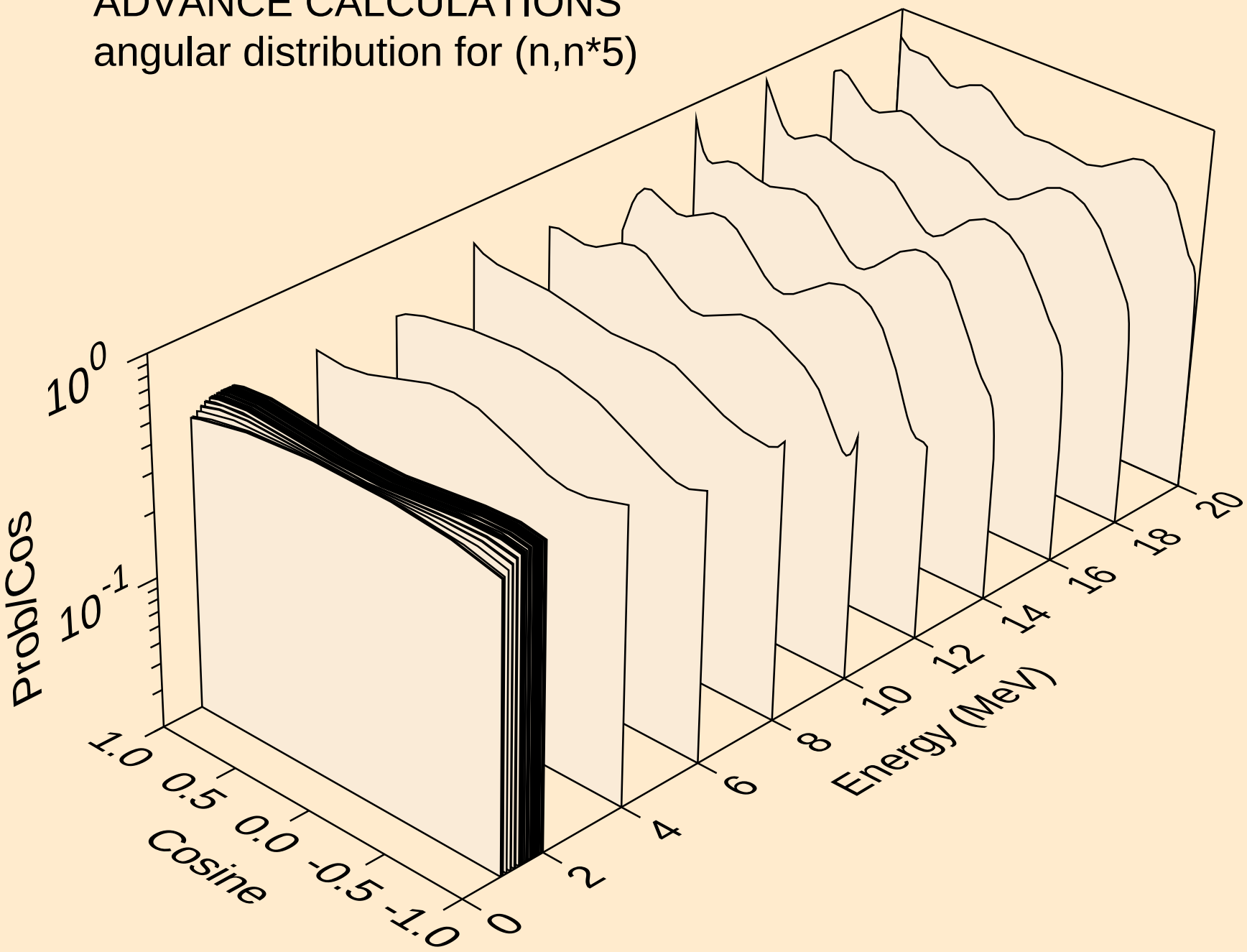
ADVANCE CALCULATIONS
angular distribution for (n,n*3)



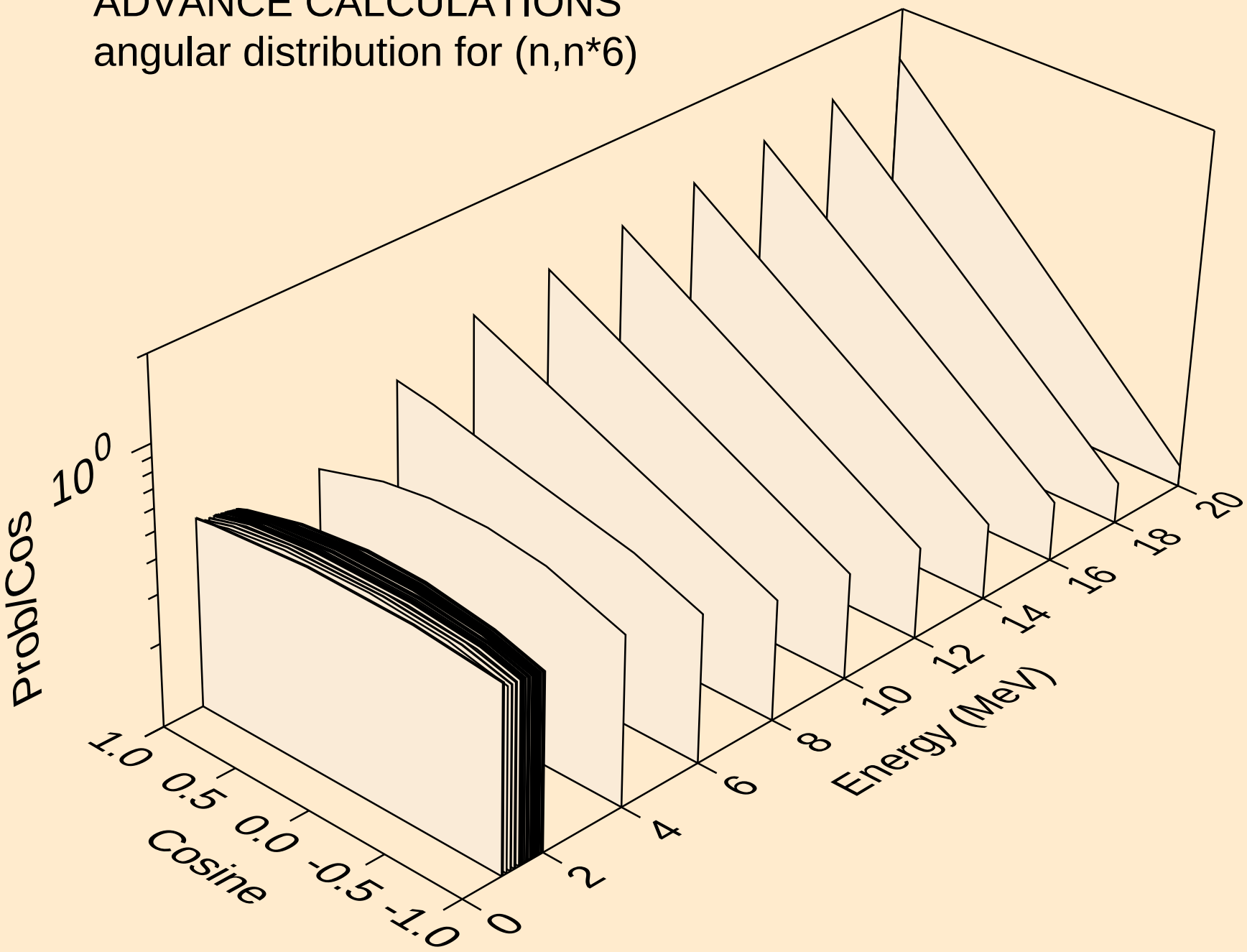
ADVANCE CALCULATIONS
angular distribution for (n,n*4)



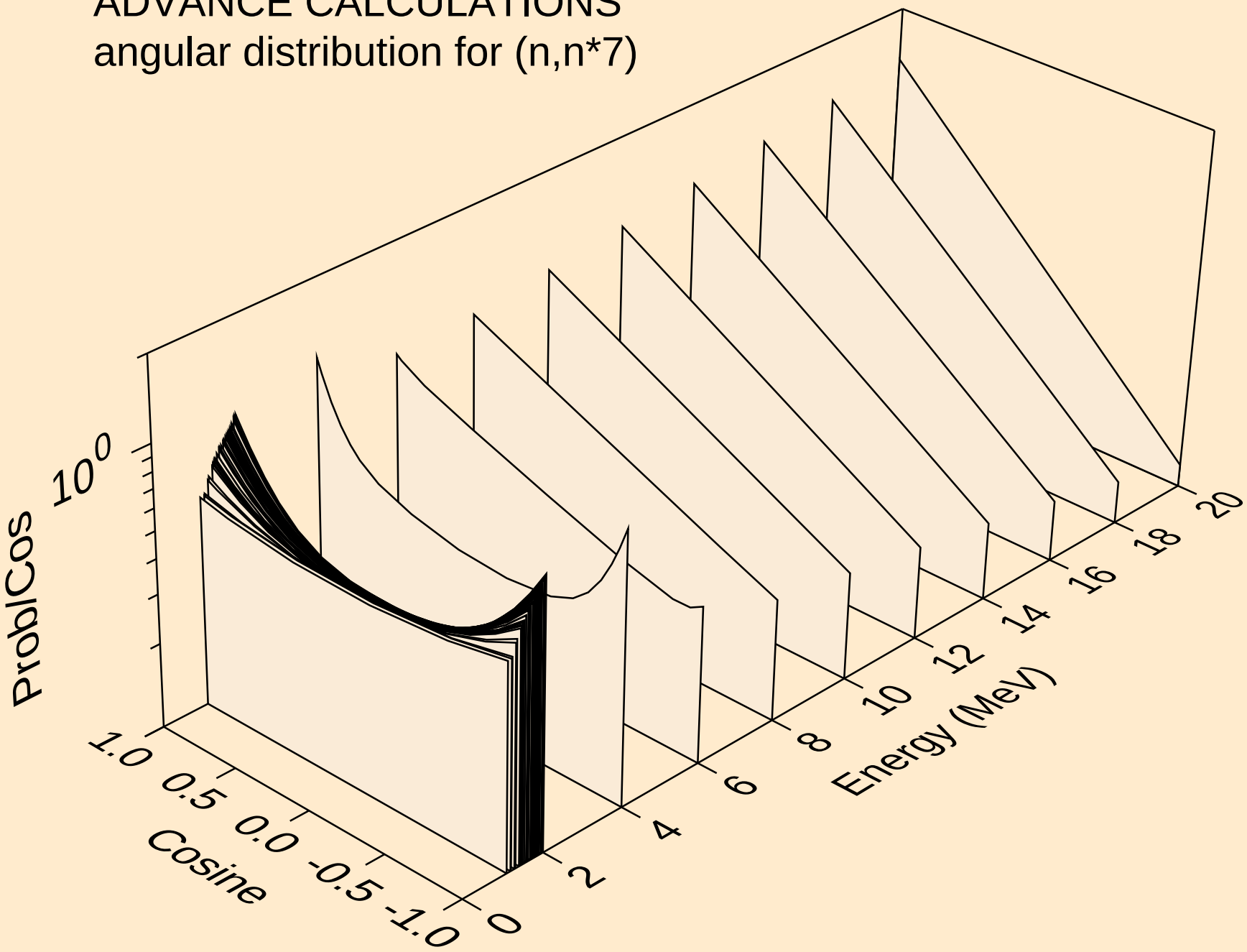
ADVANCE CALCULATIONS
angular distribution for (n,n*5)



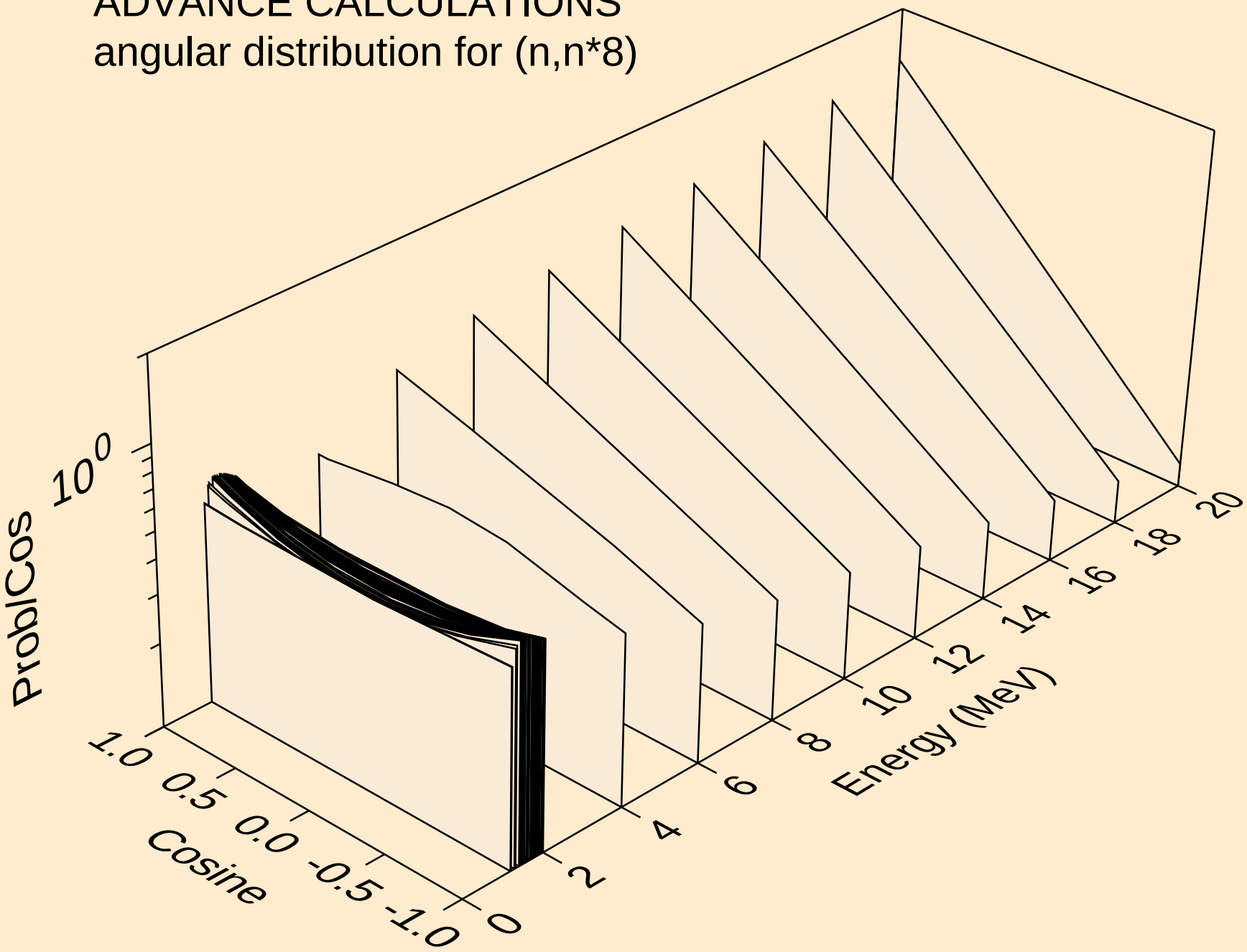
ADVANCE CALCULATIONS
angular distribution for (n,n*6)



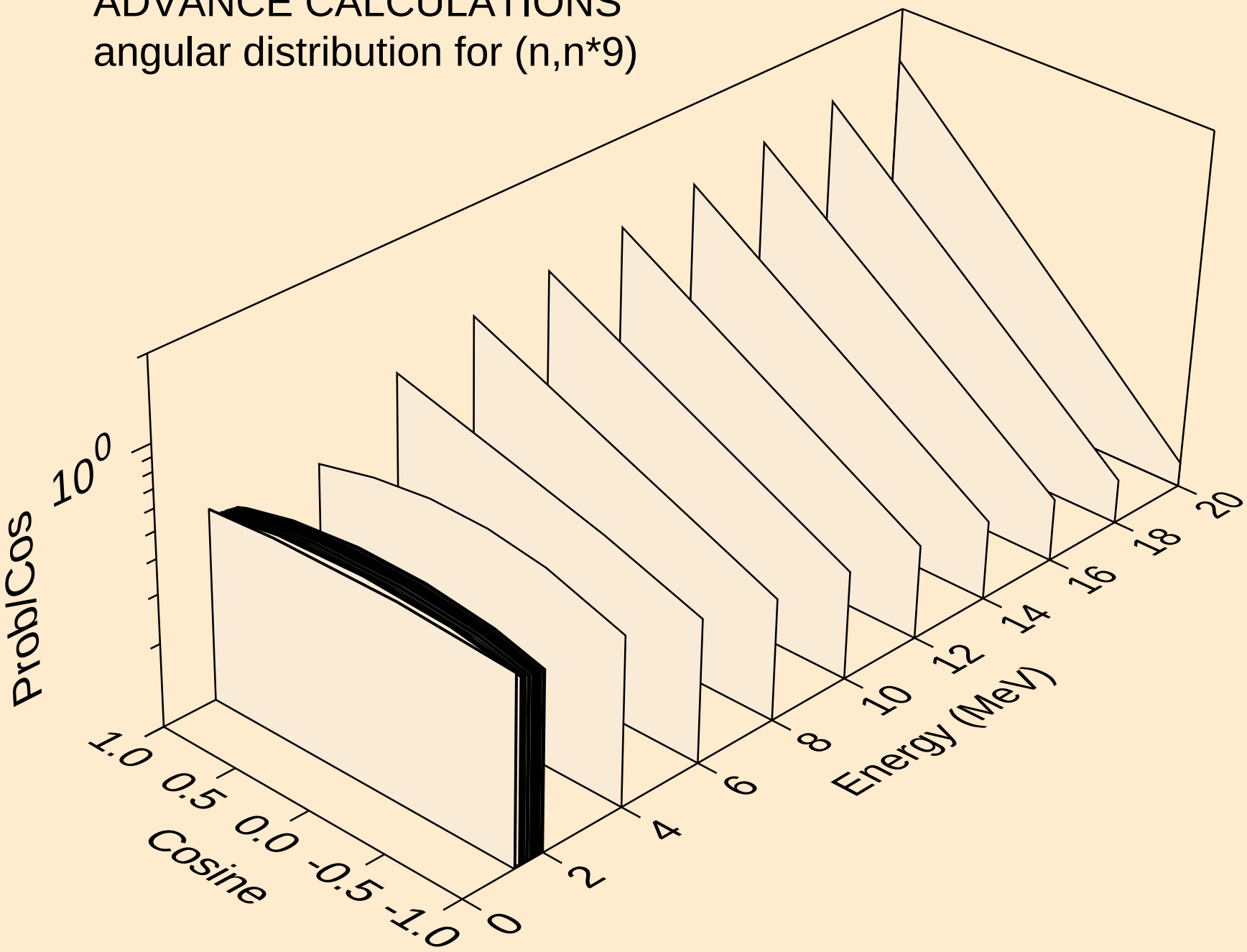
ADVANCE CALCULATIONS
angular distribution for (n,n*7)



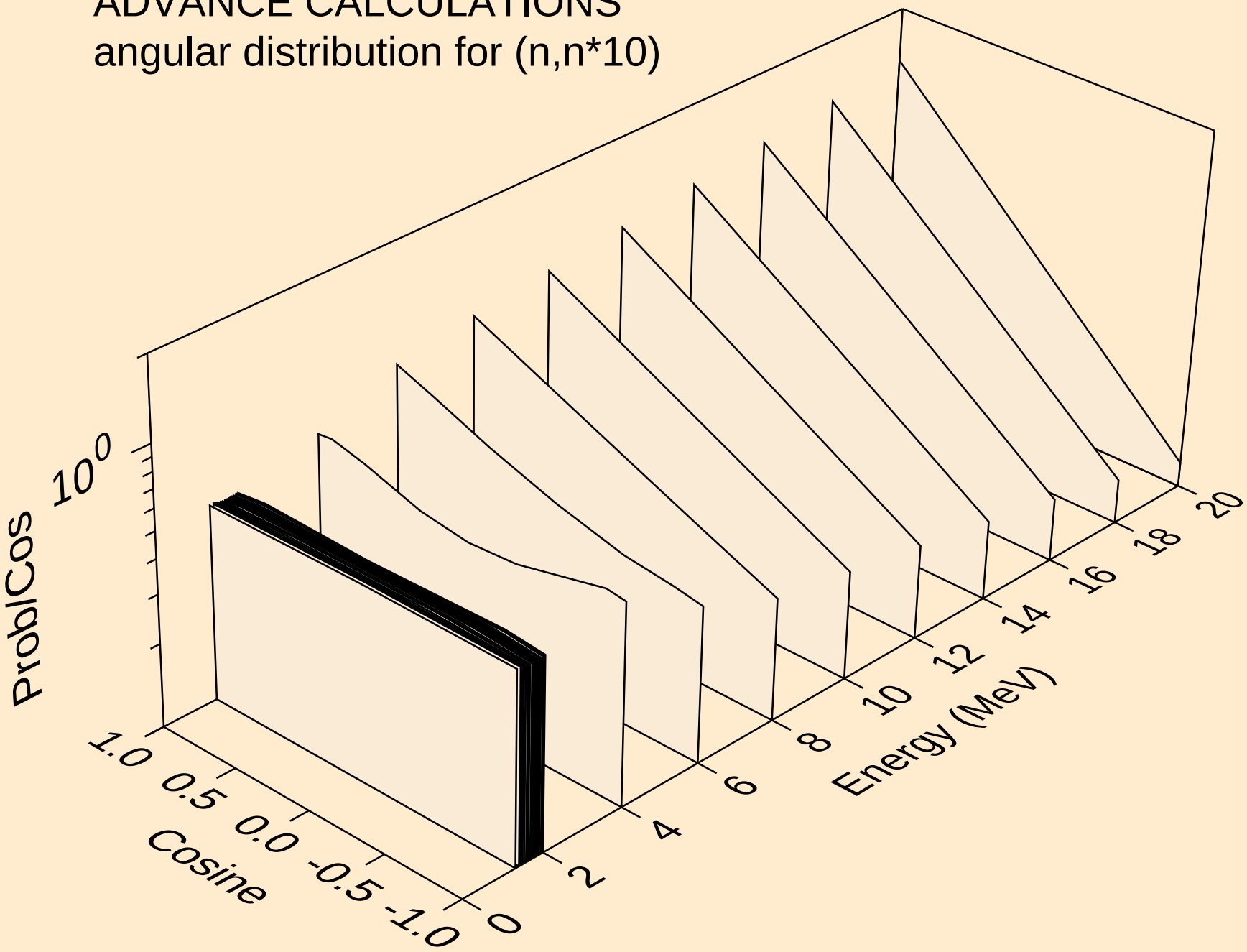
ADVANCE CALCULATIONS
angular distribution for (n,n*8)



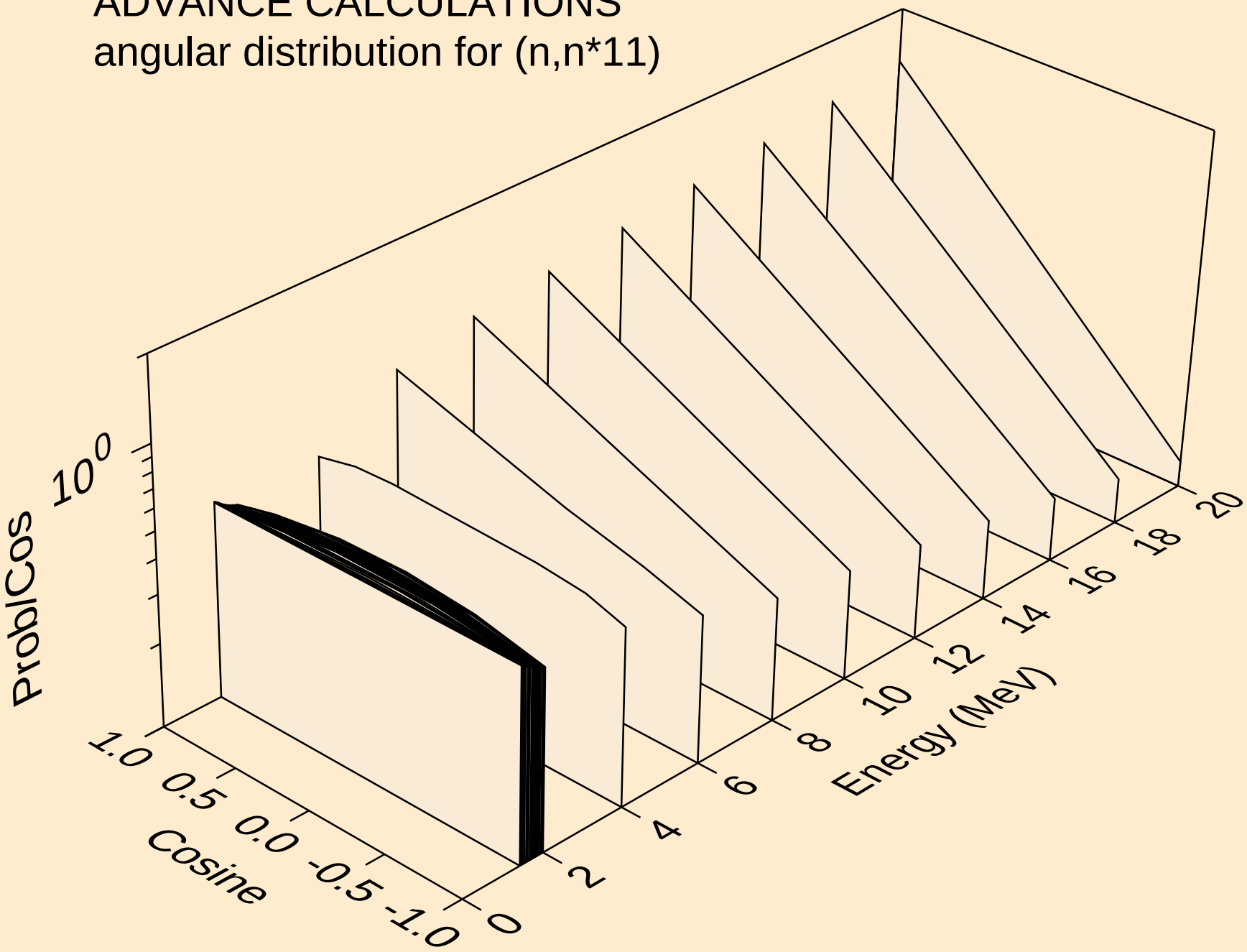
ADVANCE CALCULATIONS
angular distribution for (n,n*9)



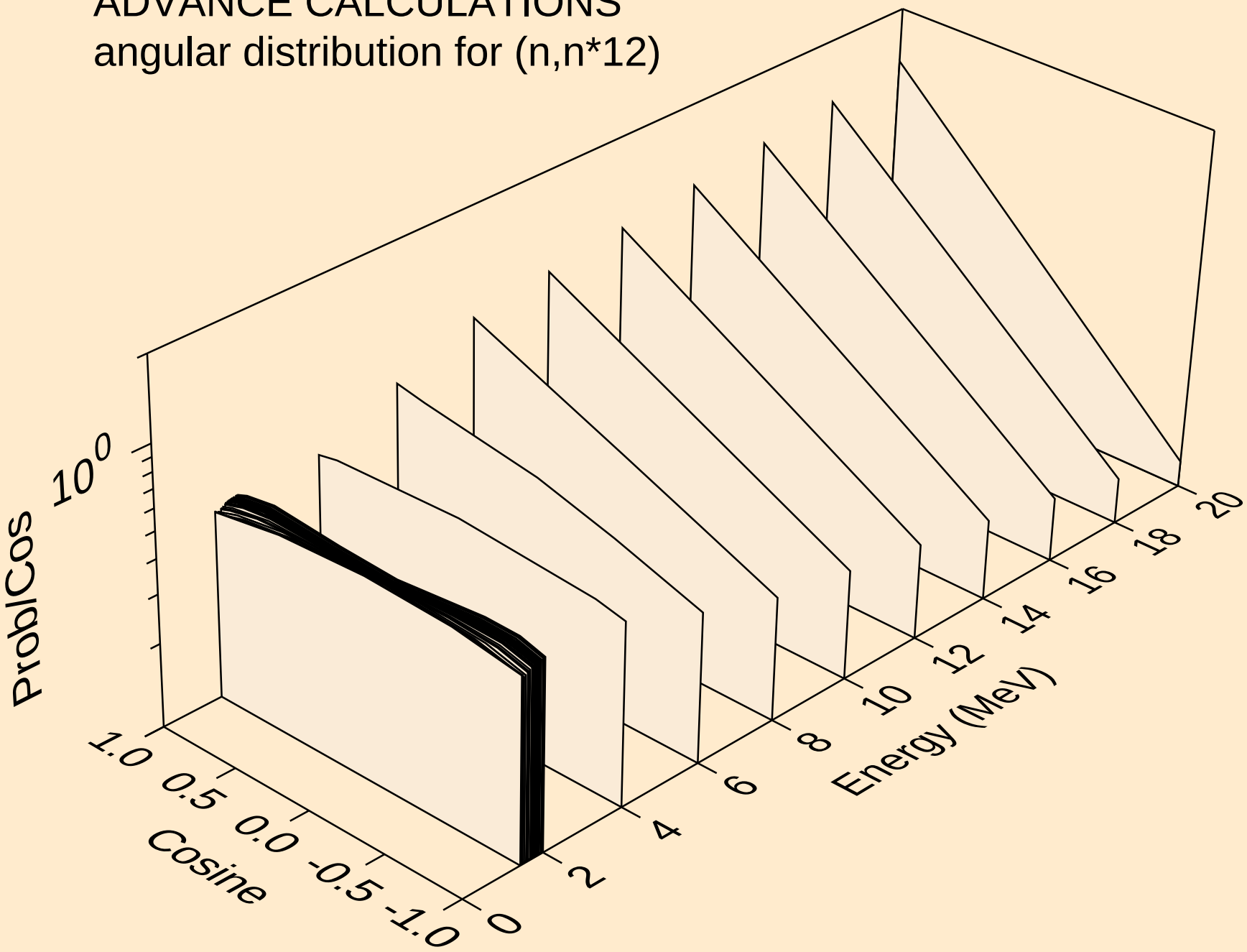
ADVANCE CALCULATIONS
angular distribution for (n,n*10)



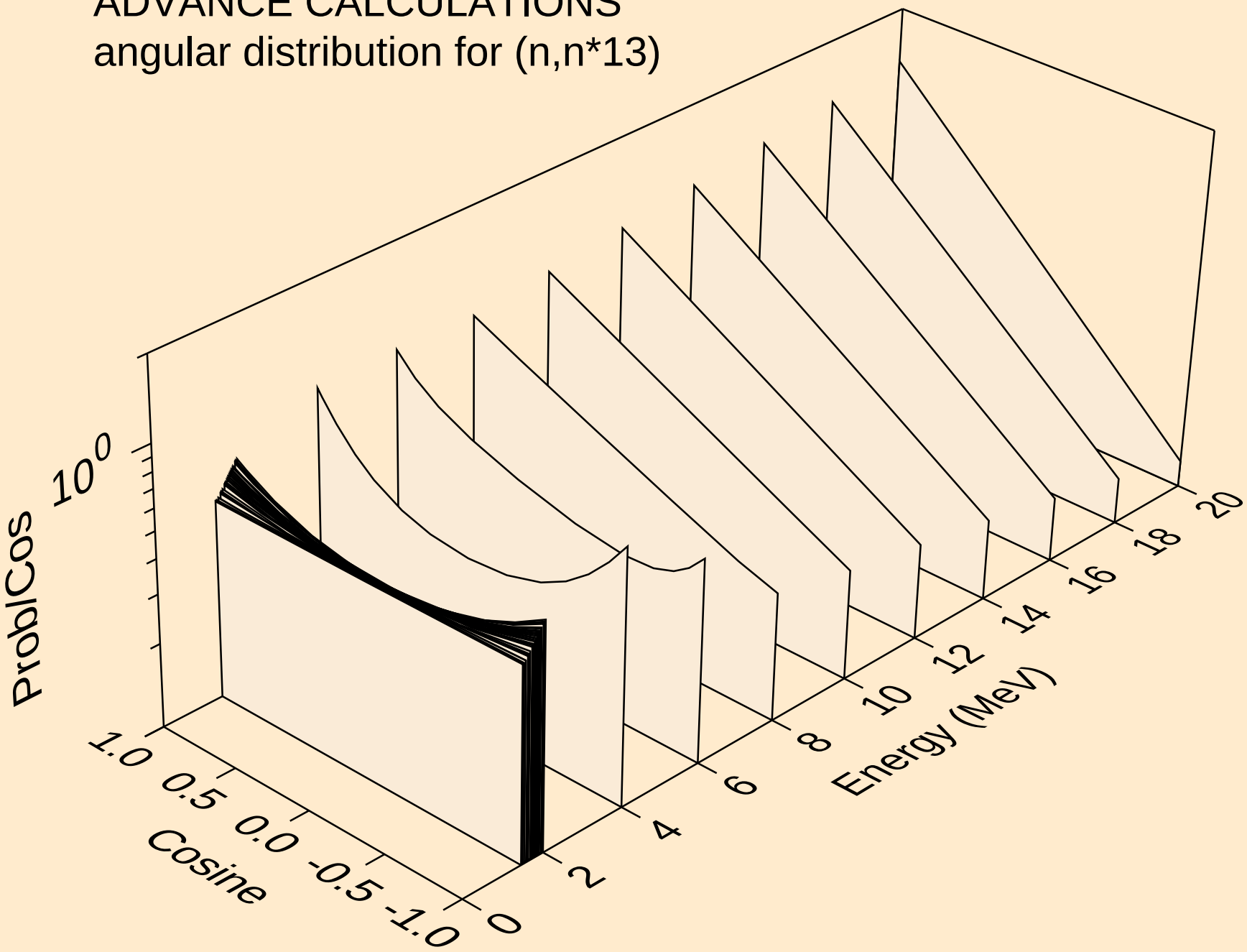
ADVANCE CALCULATIONS
angular distribution for (n,n*11)



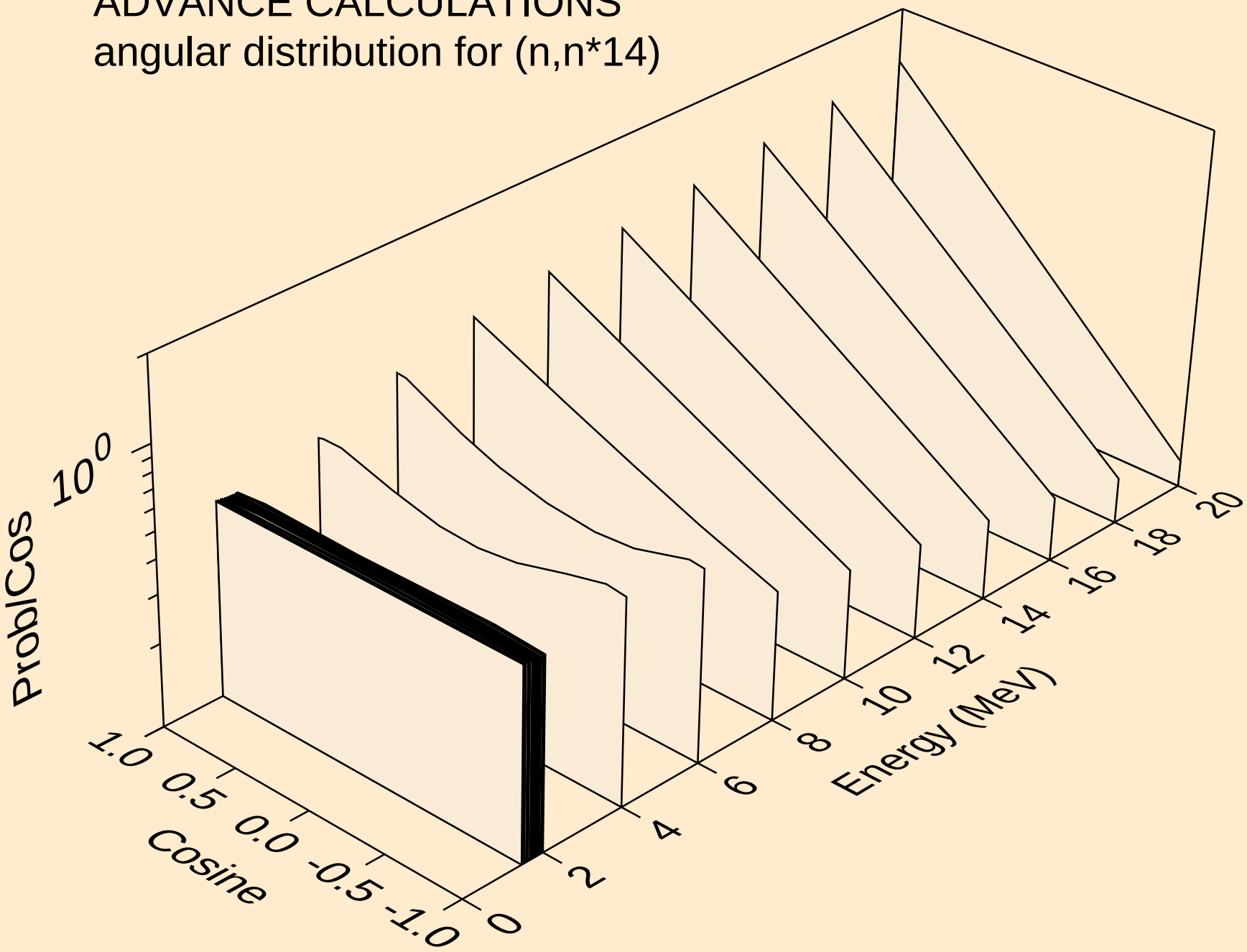
ADVANCE CALCULATIONS
angular distribution for (n,n*12)



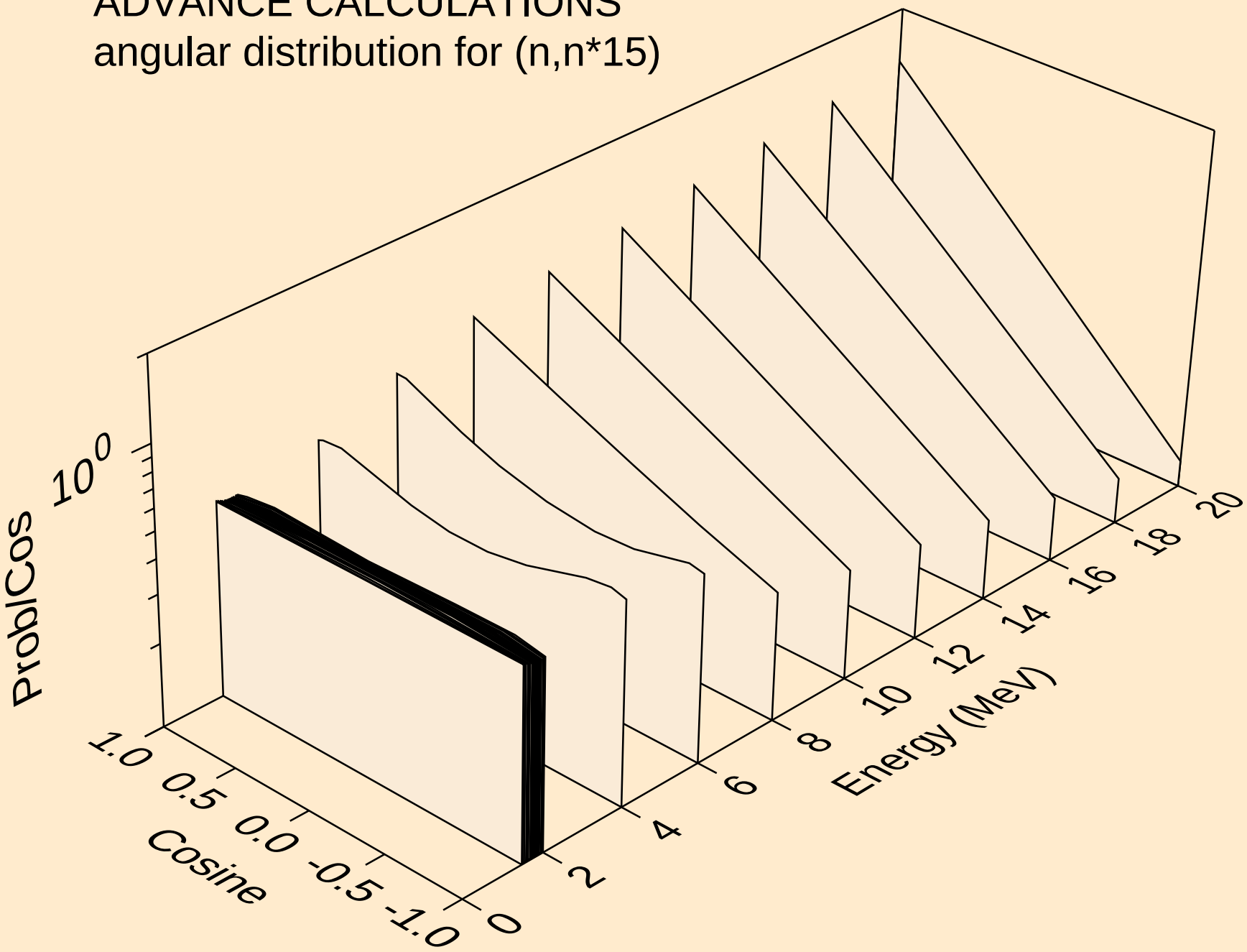
ADVANCE CALCULATIONS
angular distribution for (n,n*13)



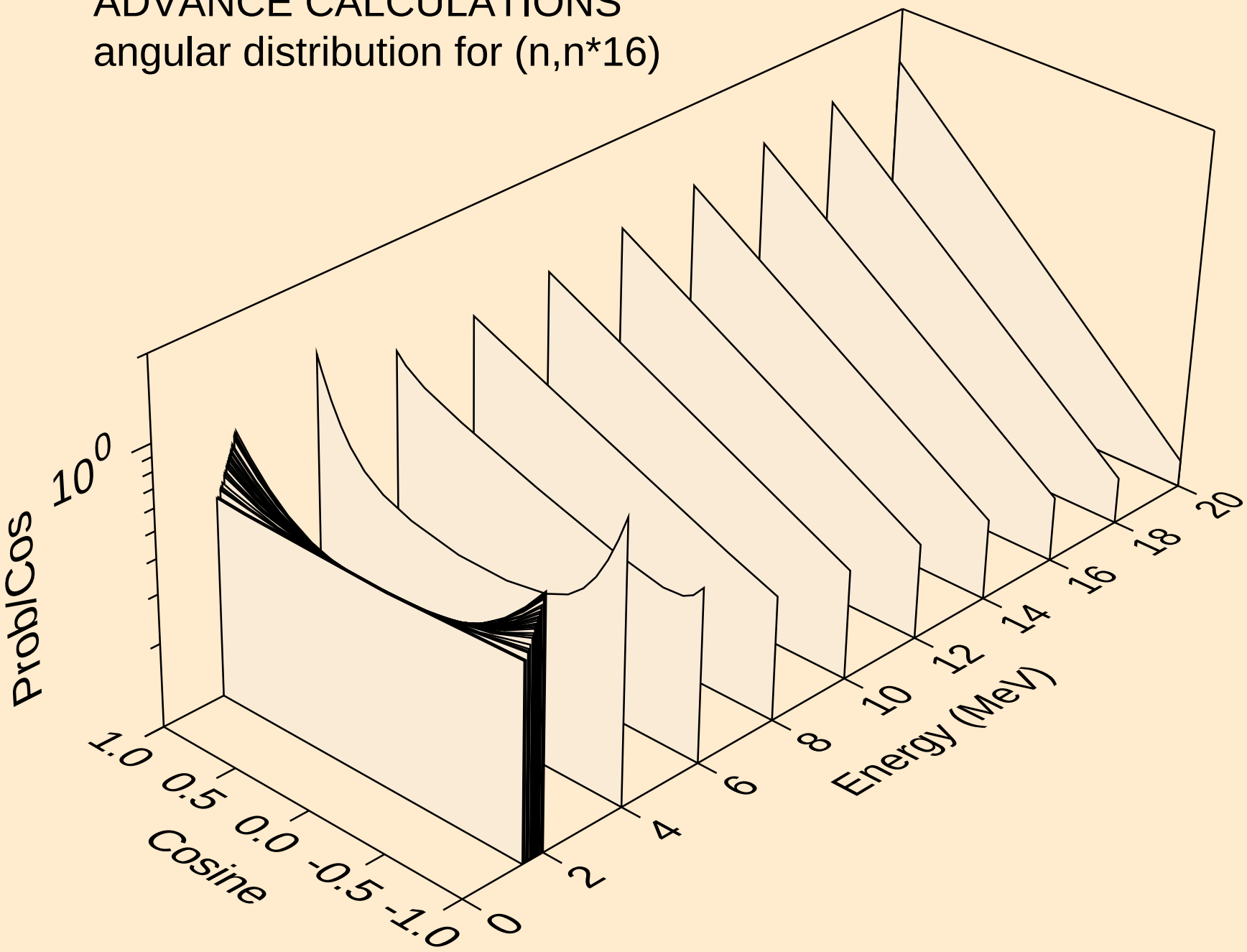
ADVANCE CALCULATIONS
angular distribution for (n,n*14)



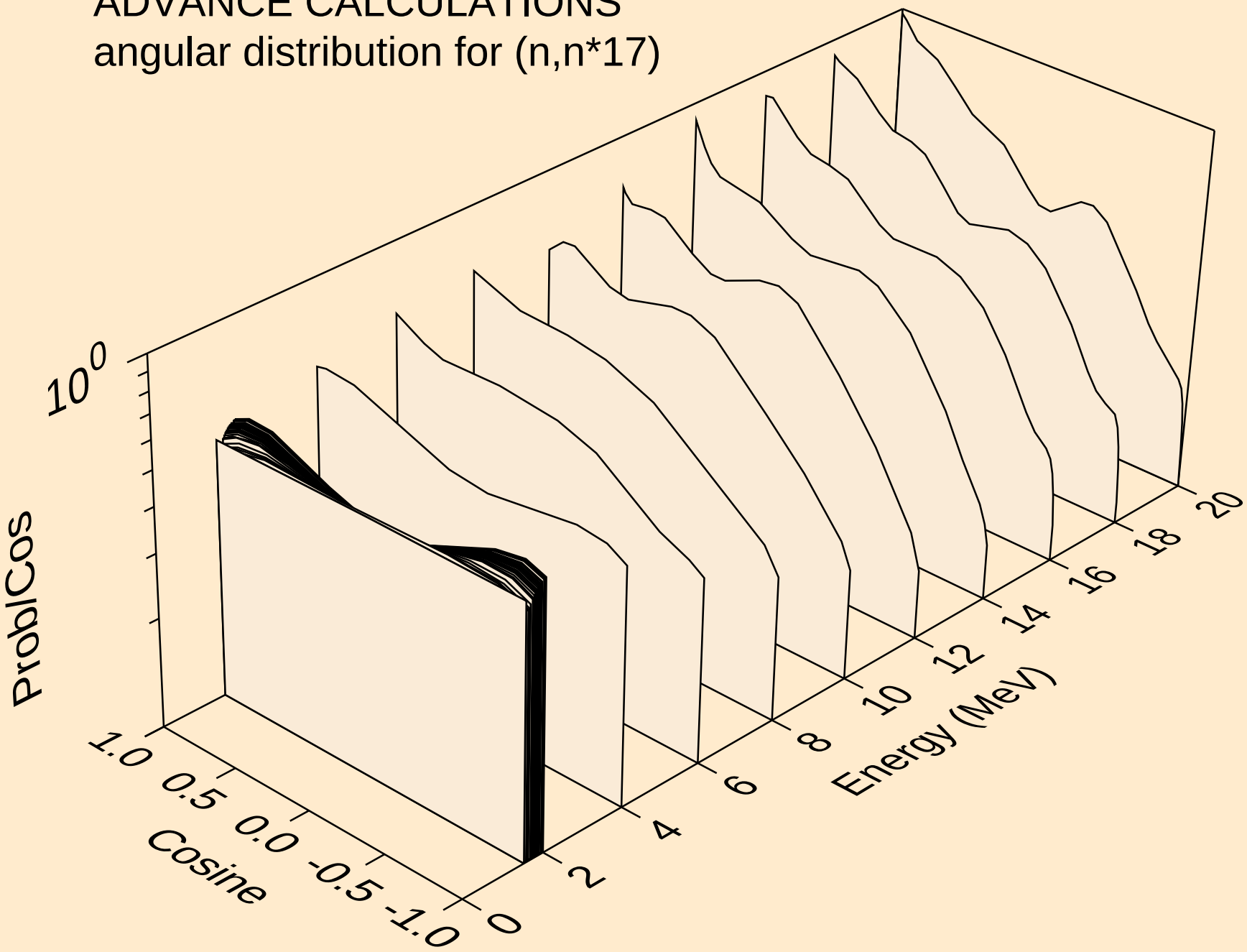
ADVANCE CALCULATIONS
angular distribution for (n,n*15)



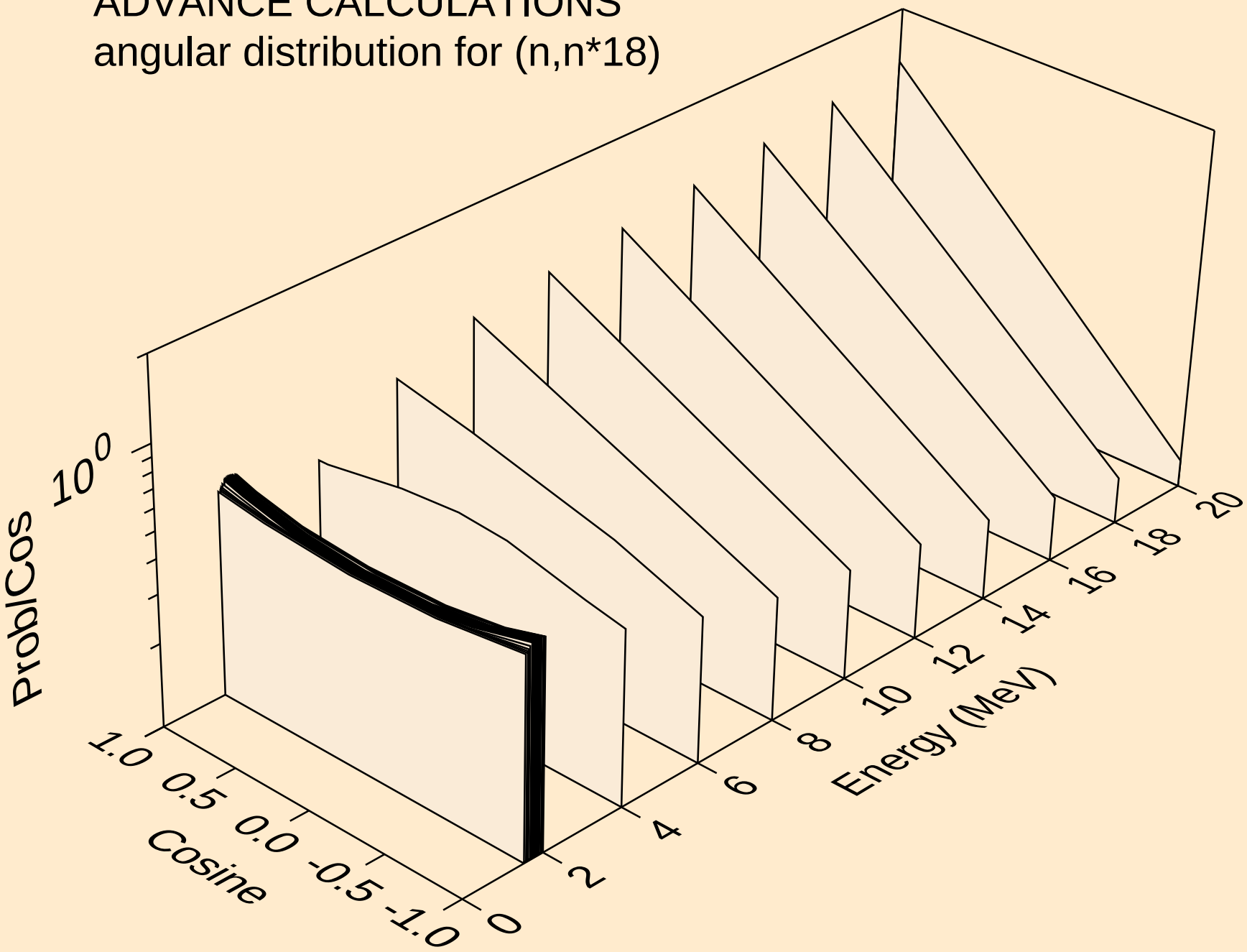
ADVANCE CALCULATIONS
angular distribution for (n,n*16)



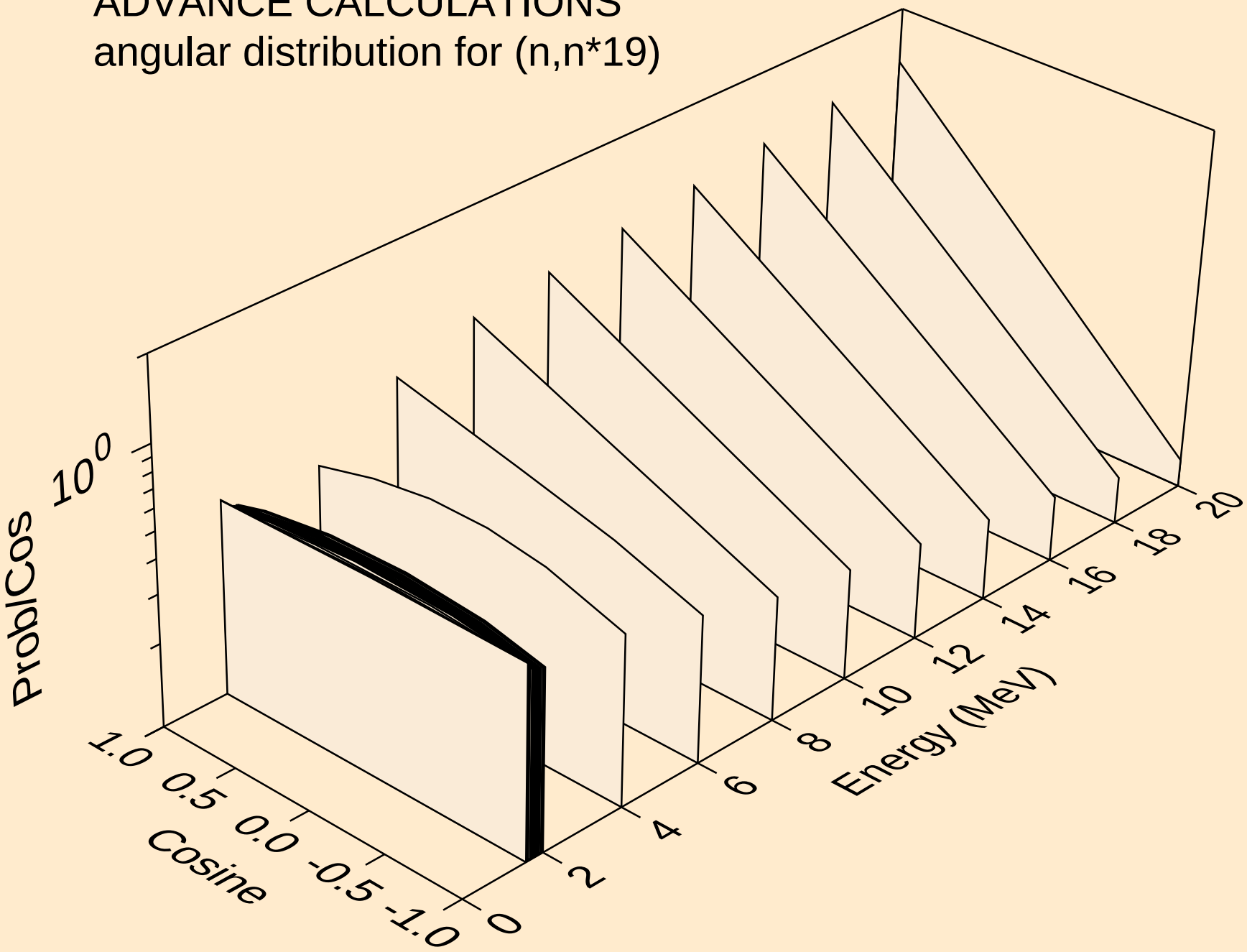
ADVANCE CALCULATIONS
angular distribution for (n,n*17)



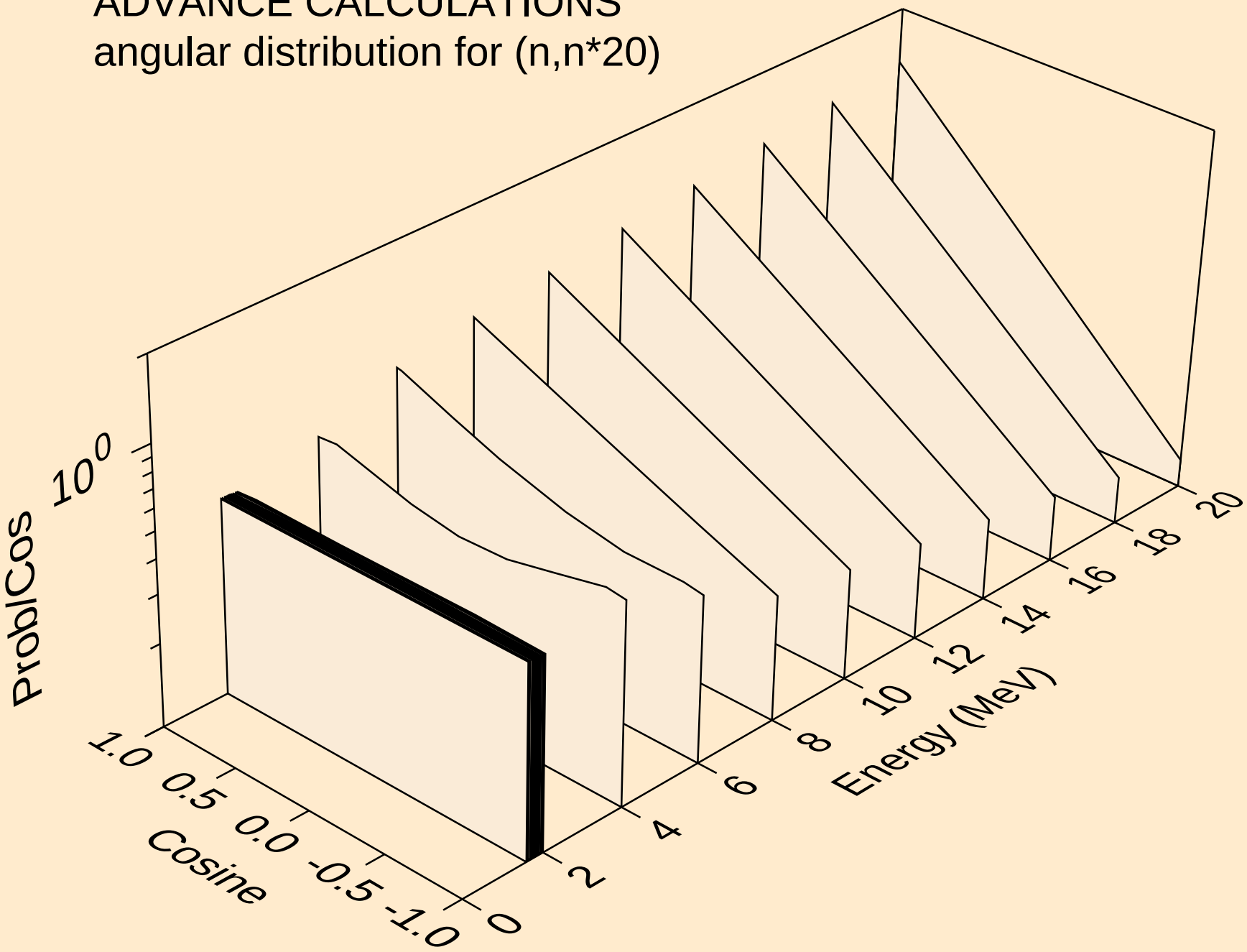
ADVANCE CALCULATIONS
angular distribution for (n,n*18)



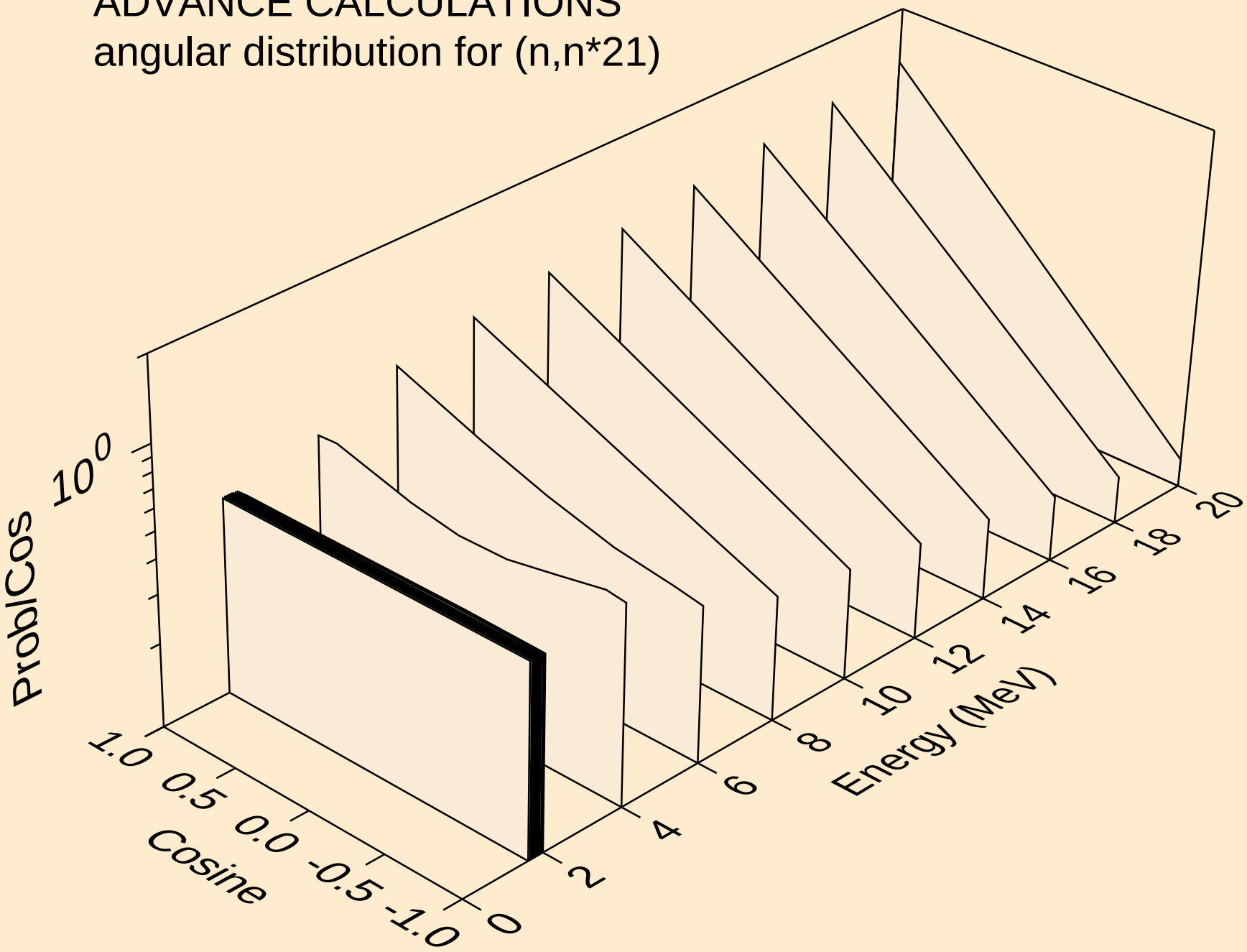
ADVANCE CALCULATIONS
angular distribution for (n,n*19)



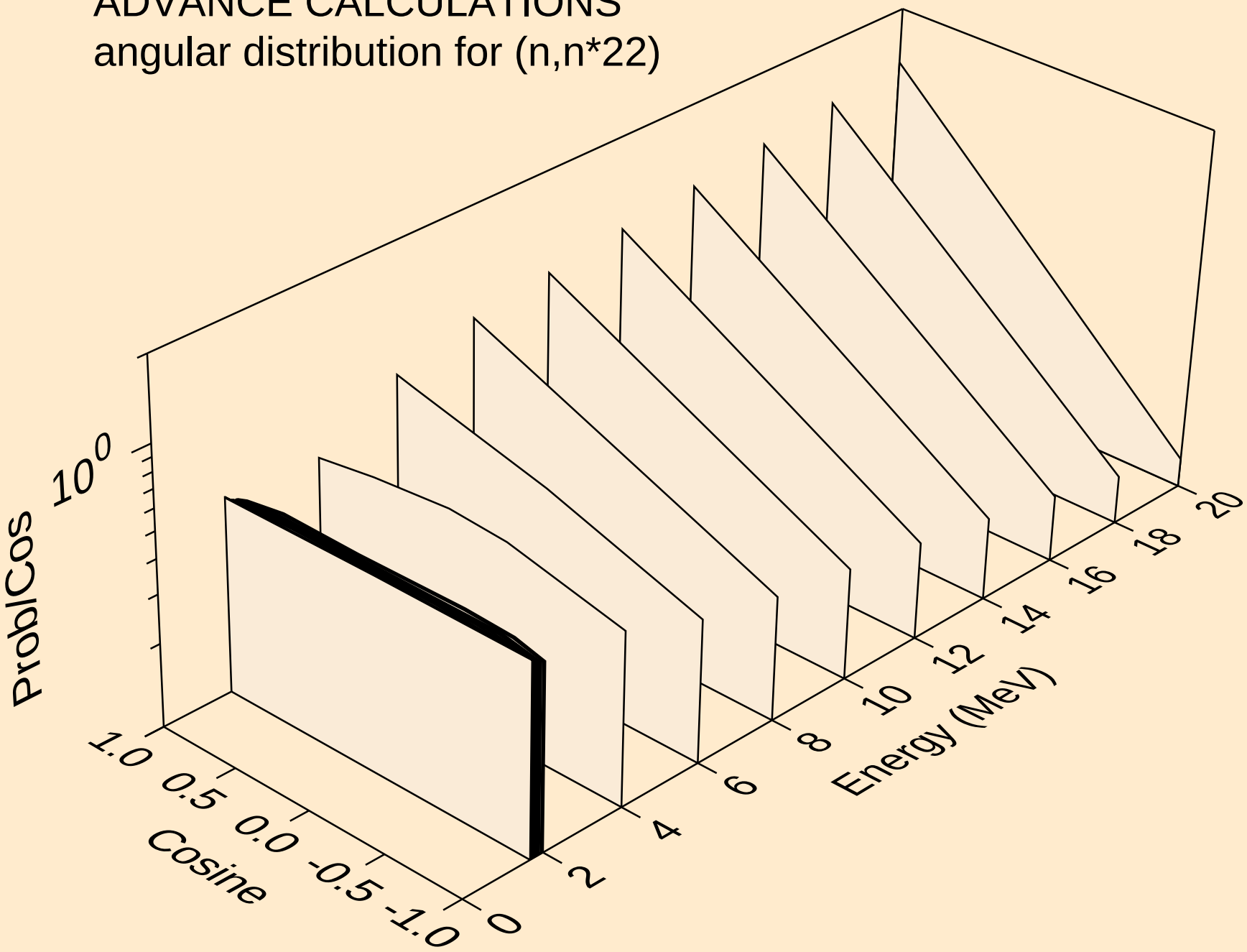
ADVANCE CALCULATIONS
angular distribution for (n,n*20)



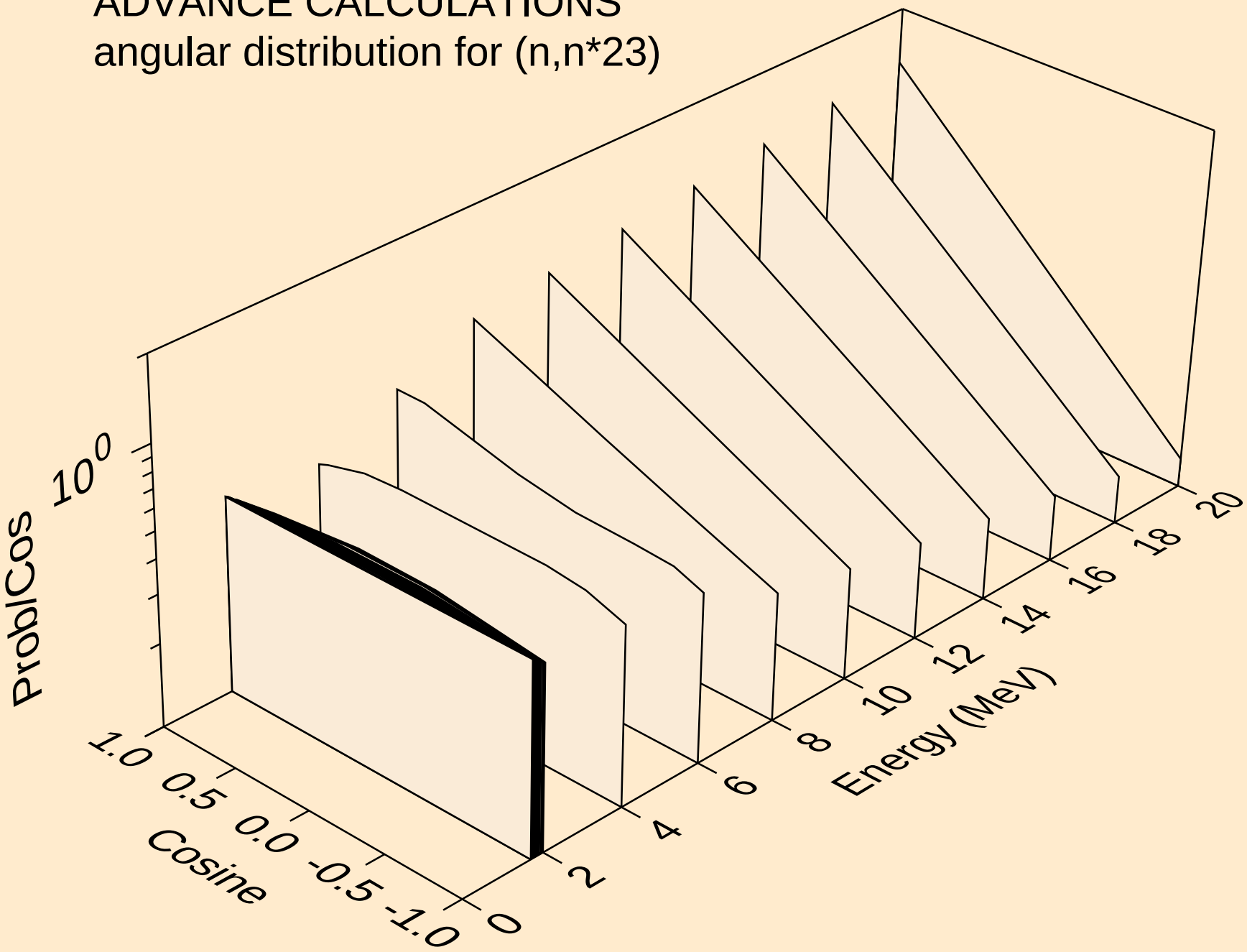
ADVANCE CALCULATIONS
angular distribution for (n,n*21)



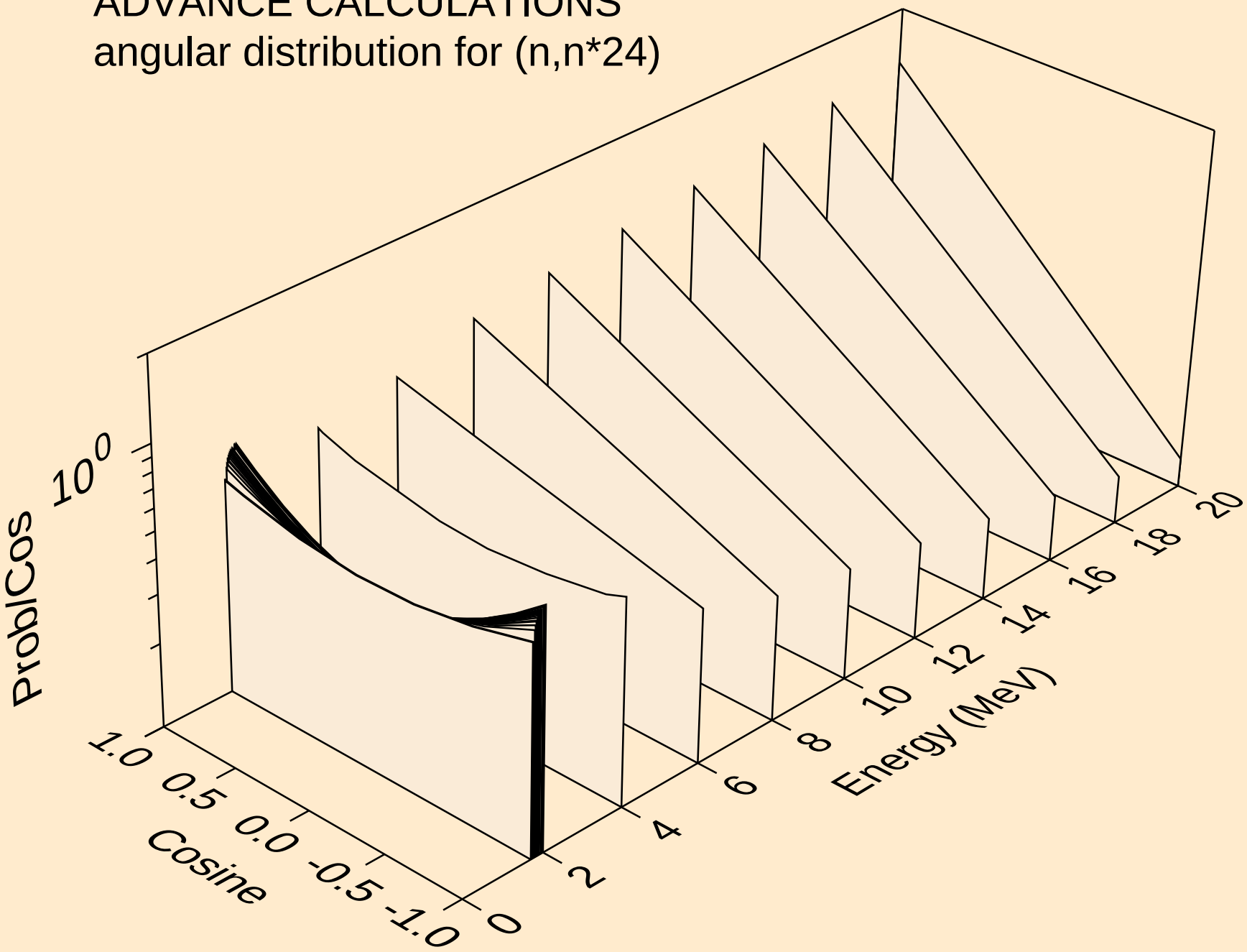
ADVANCE CALCULATIONS
angular distribution for (n,n*22)



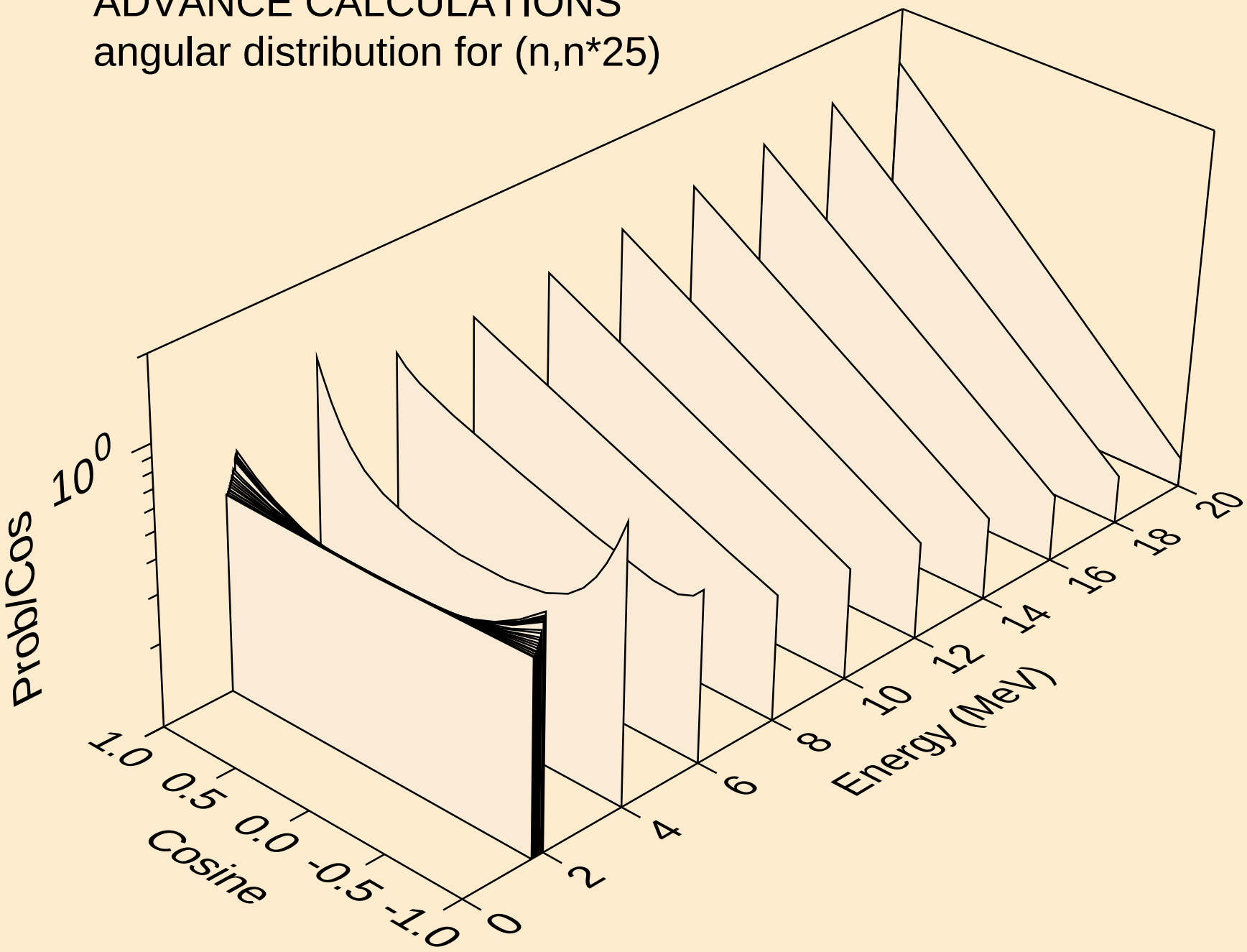
ADVANCE CALCULATIONS
angular distribution for (n,n*23)



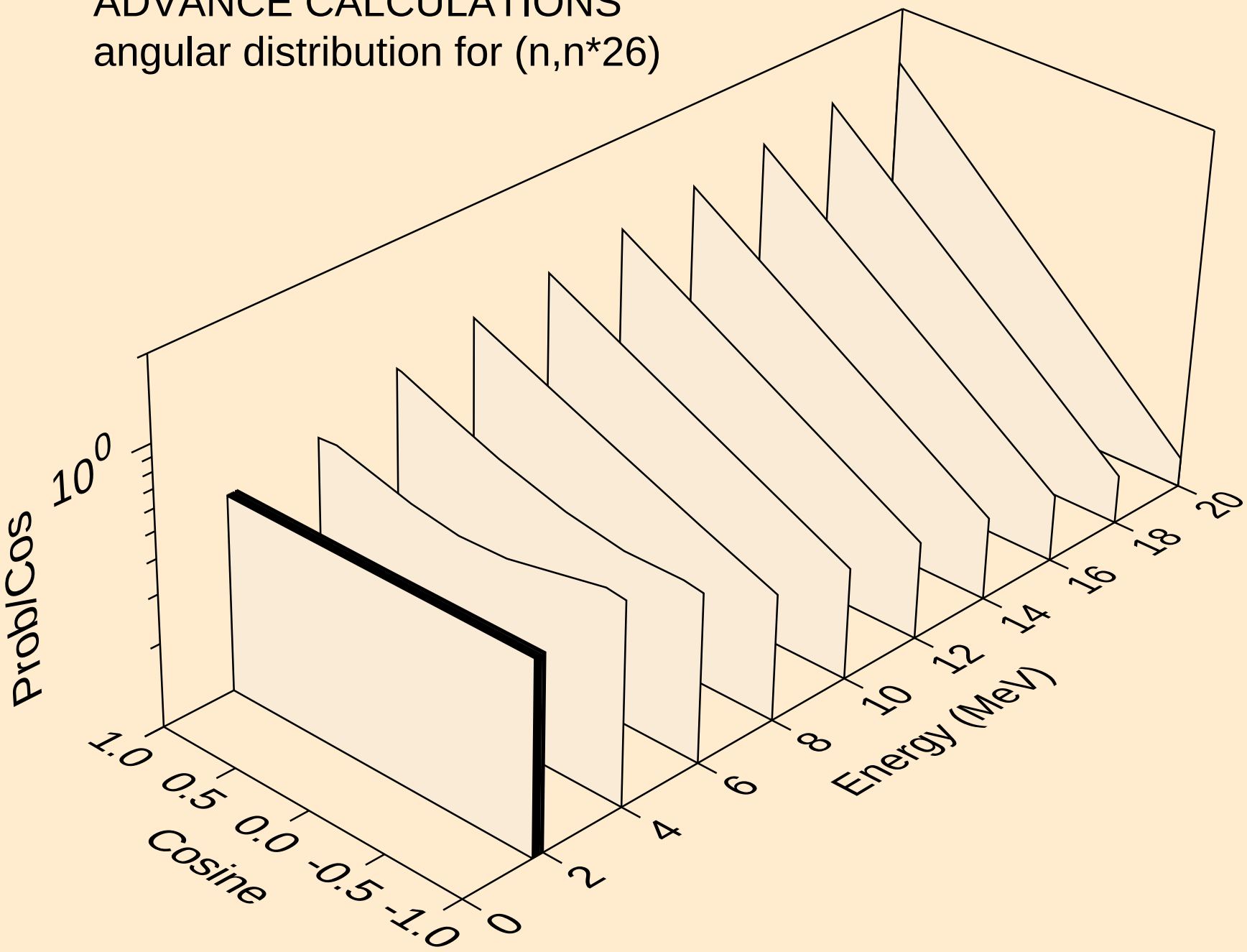
ADVANCE CALCULATIONS
angular distribution for (n,n*24)



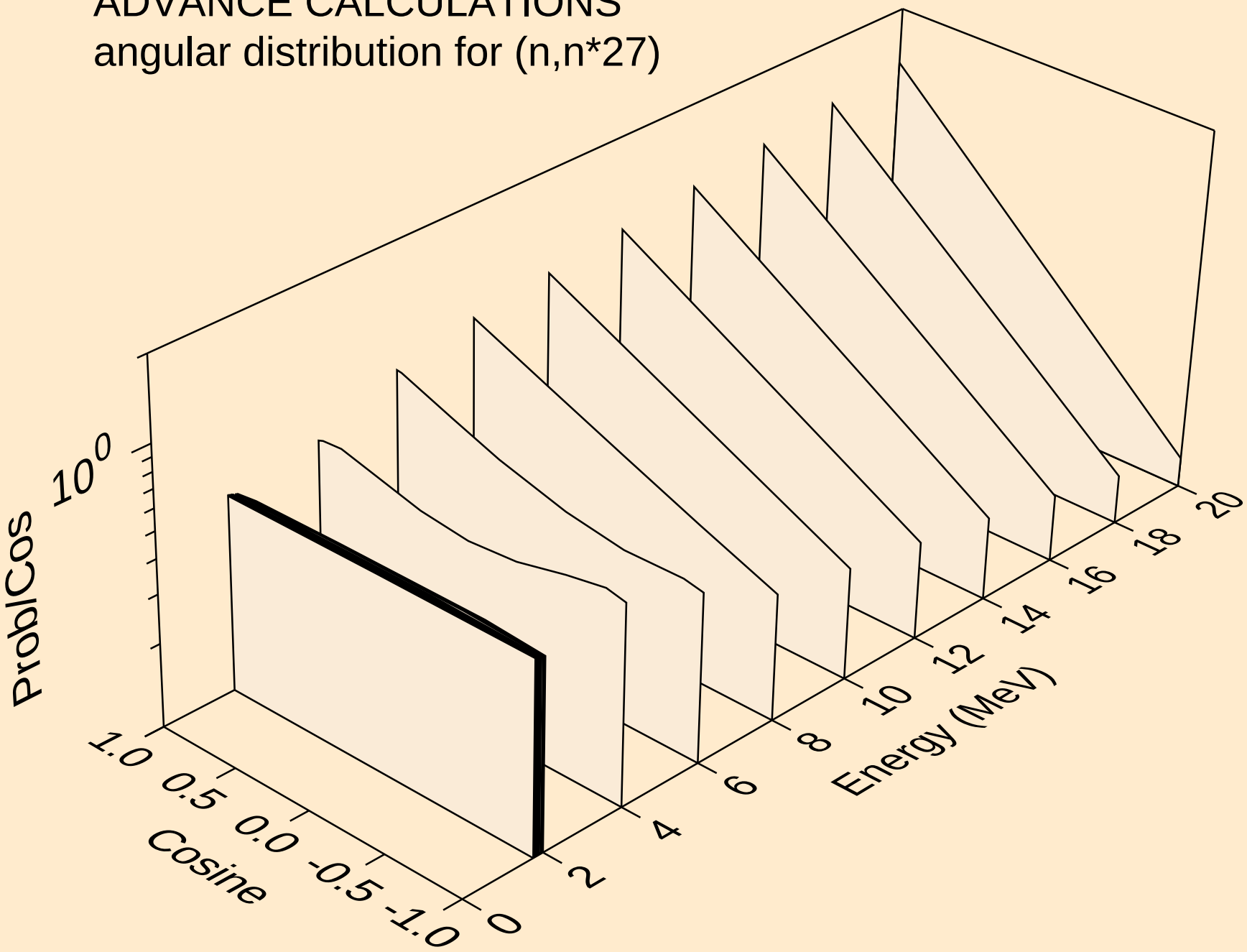
ADVANCE CALCULATIONS
angular distribution for (n,n*25)



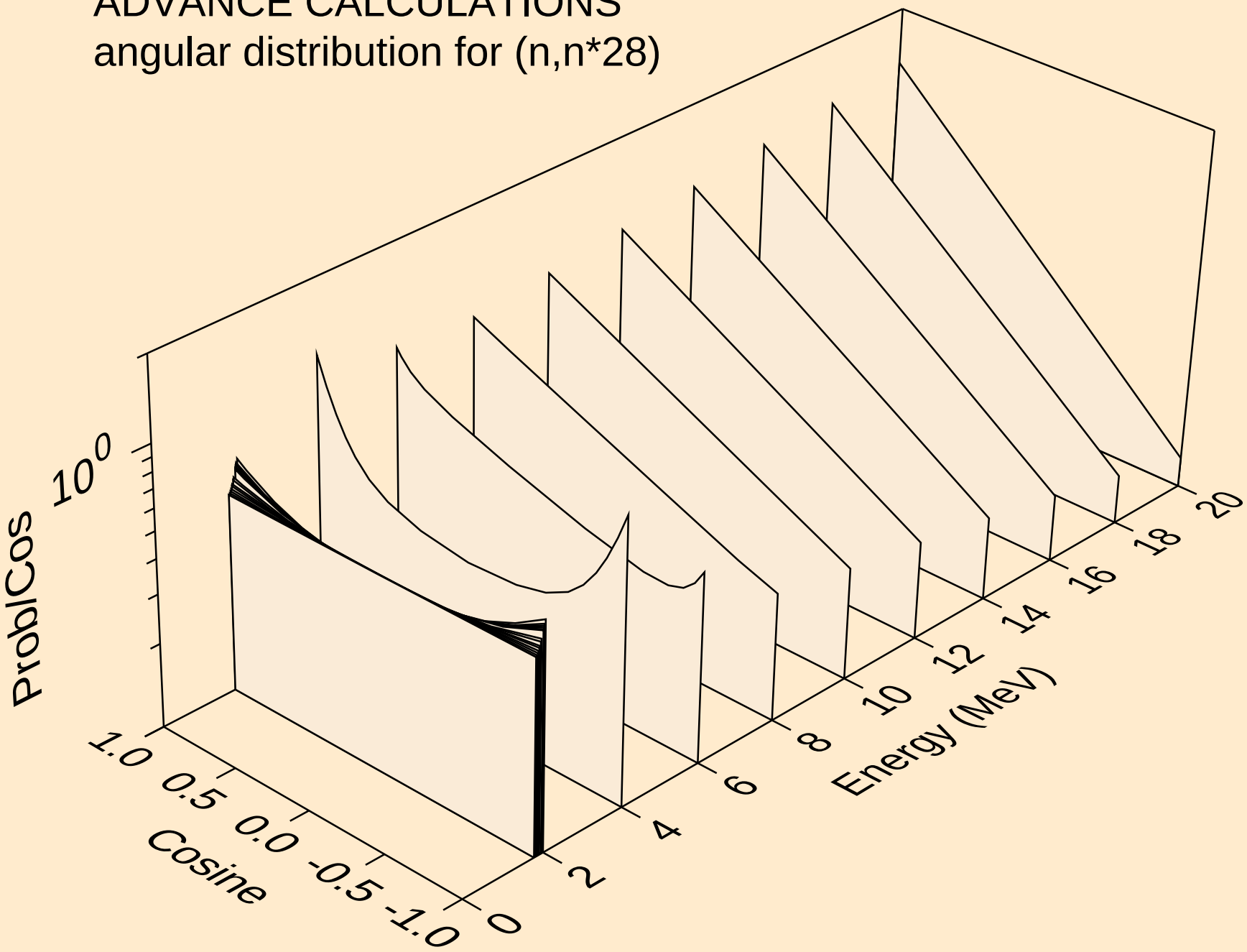
ADVANCE CALCULATIONS
angular distribution for (n,n*26)



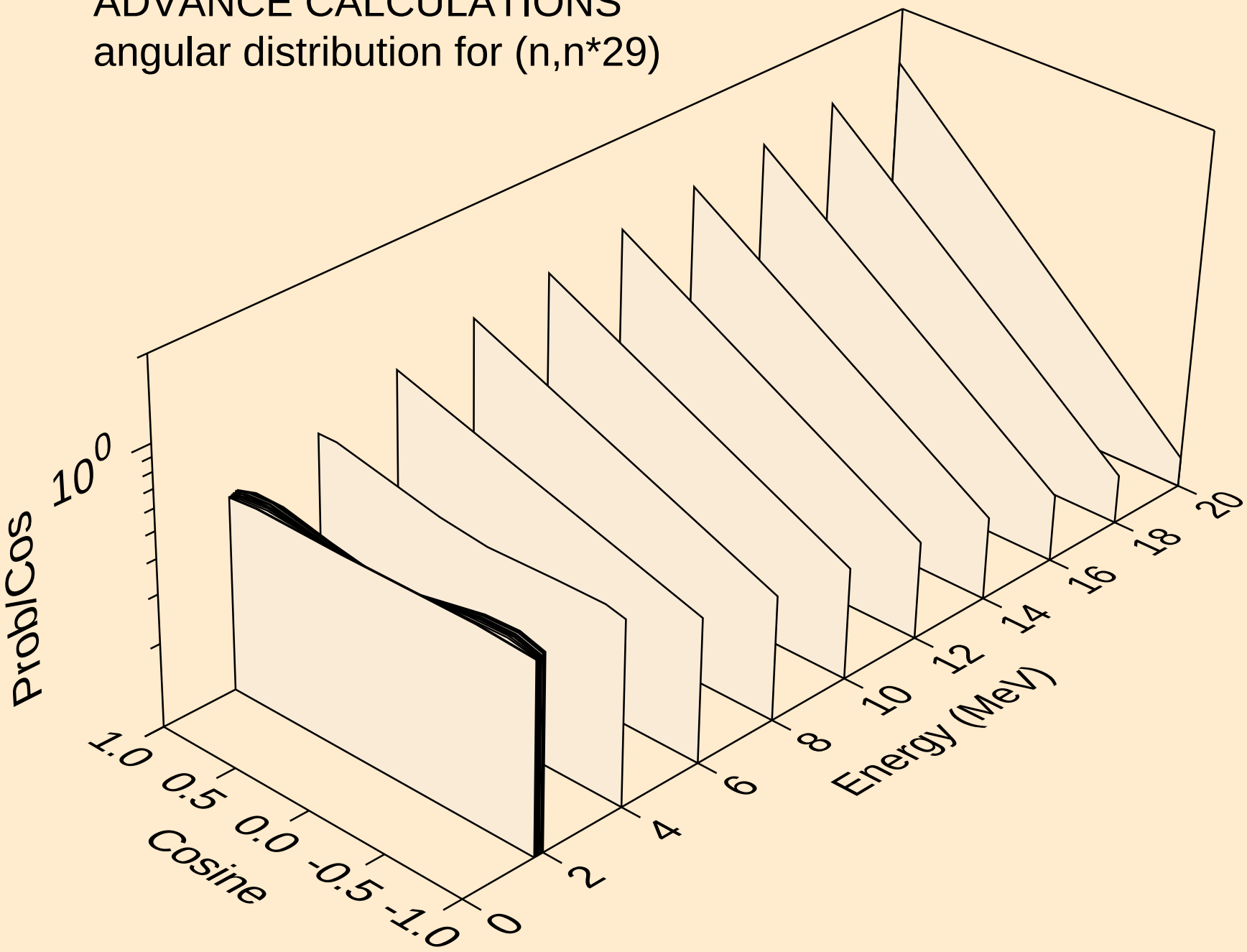
ADVANCE CALCULATIONS
angular distribution for (n,n*27)



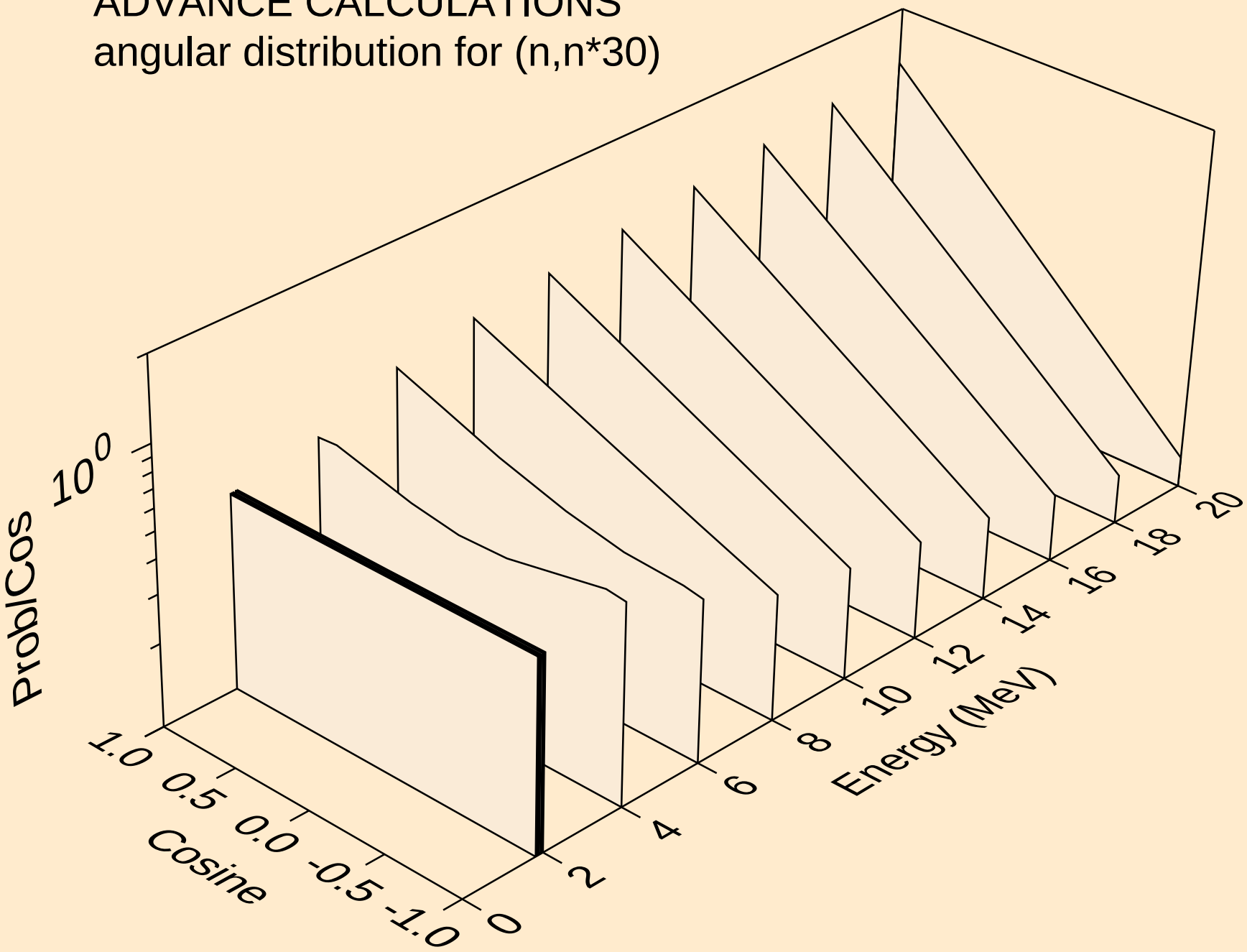
ADVANCE CALCULATIONS
angular distribution for (n,n*28)



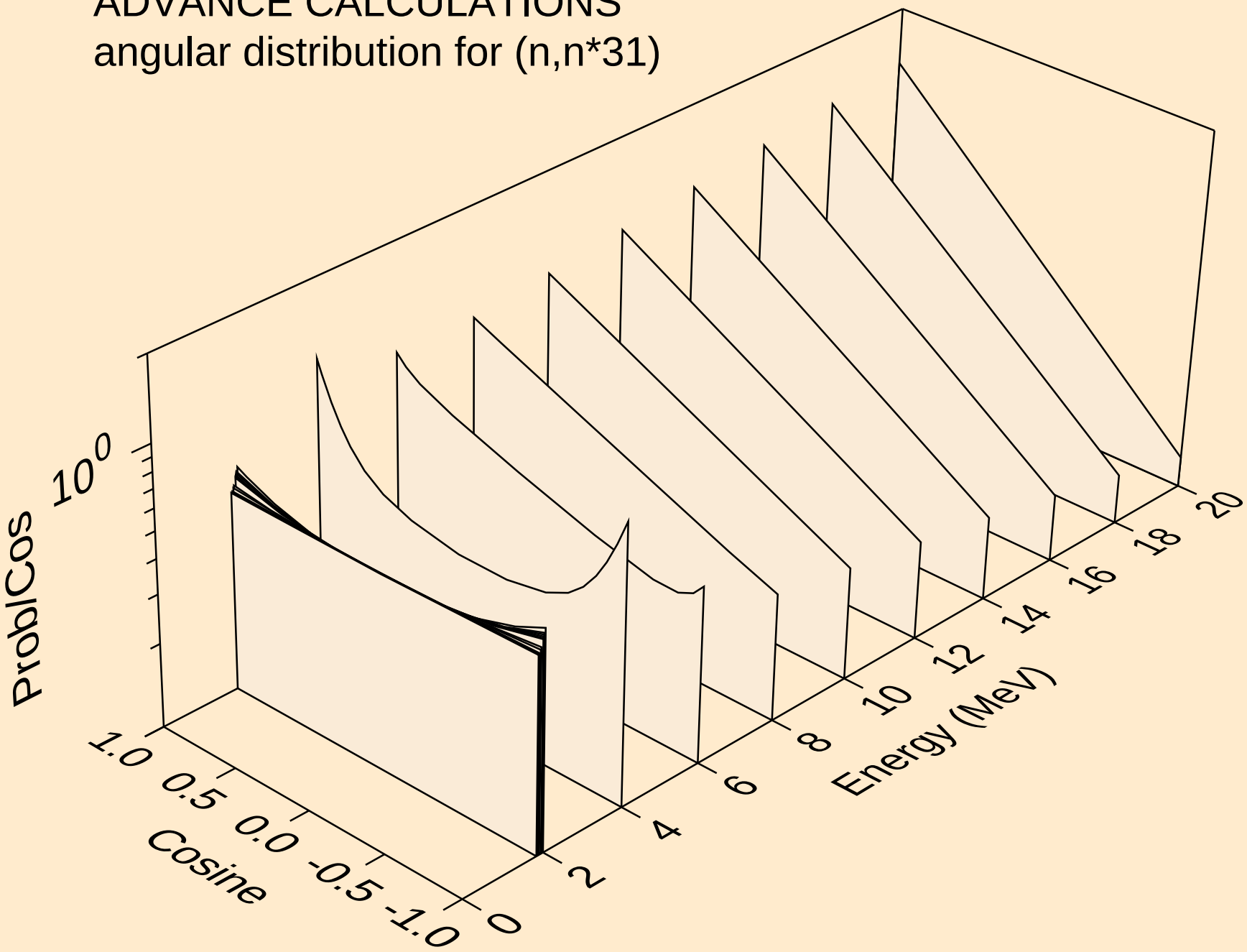
ADVANCE CALCULATIONS
angular distribution for (n,n*29)



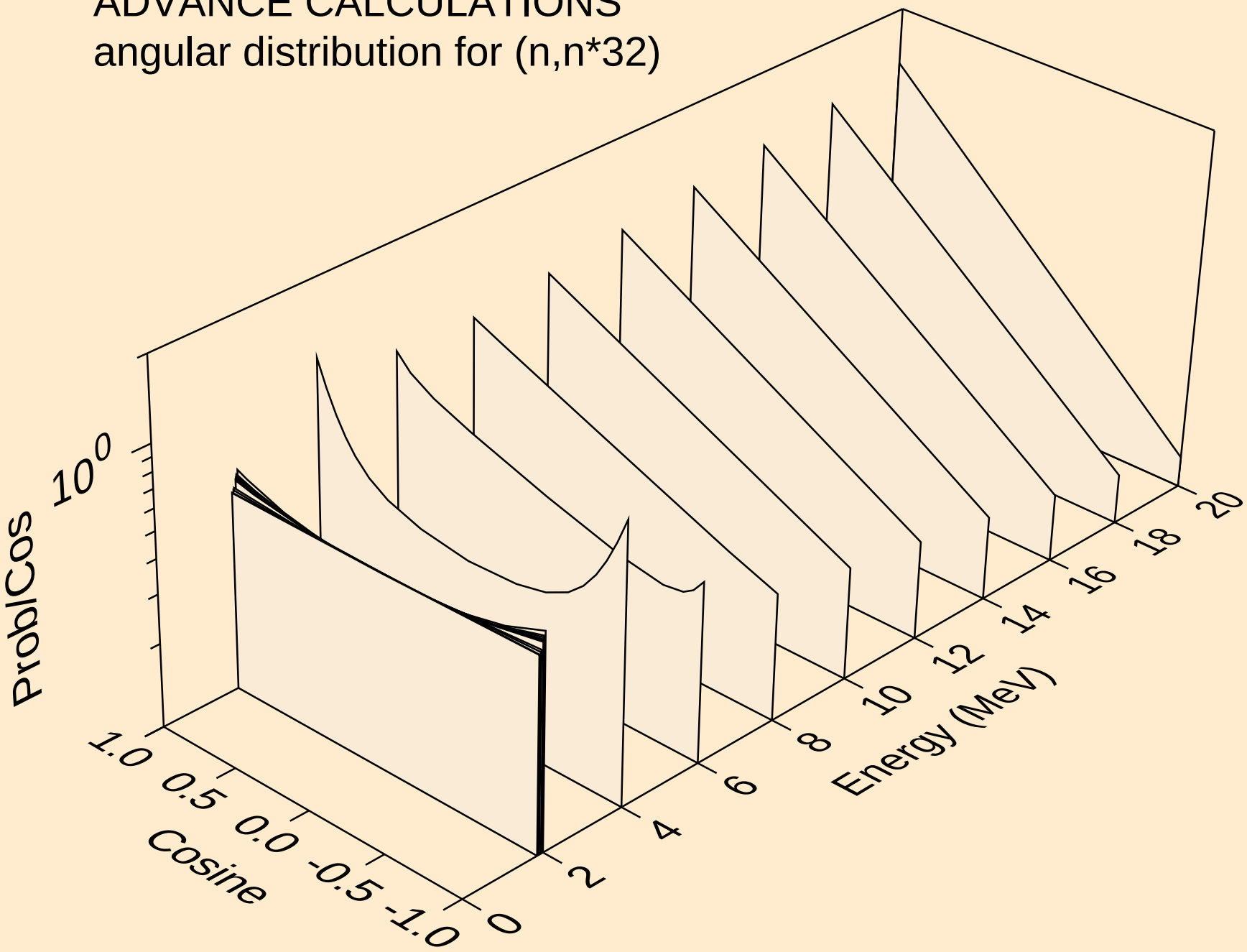
ADVANCE CALCULATIONS
angular distribution for (n,n*30)



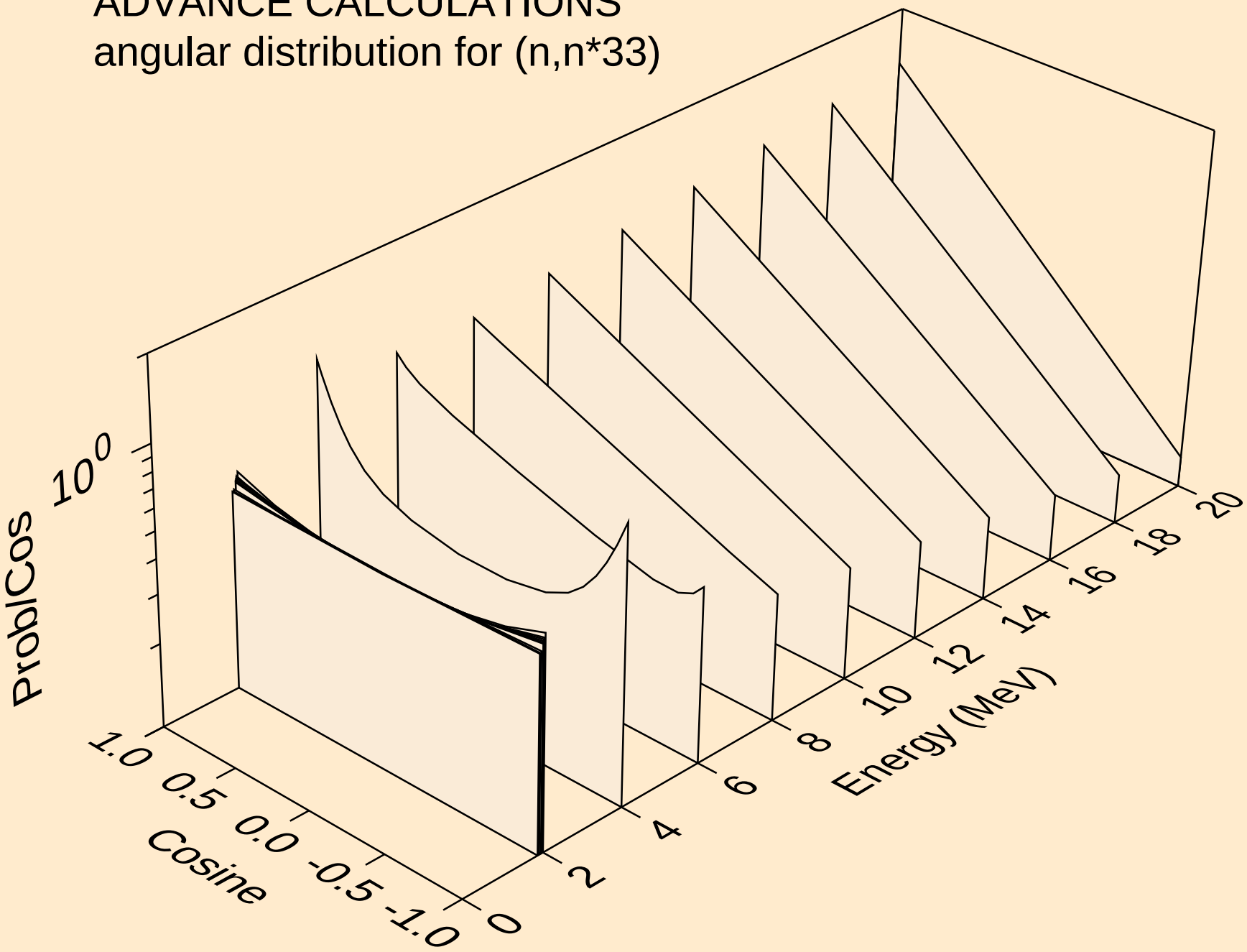
ADVANCE CALCULATIONS
angular distribution for (n,n*31)



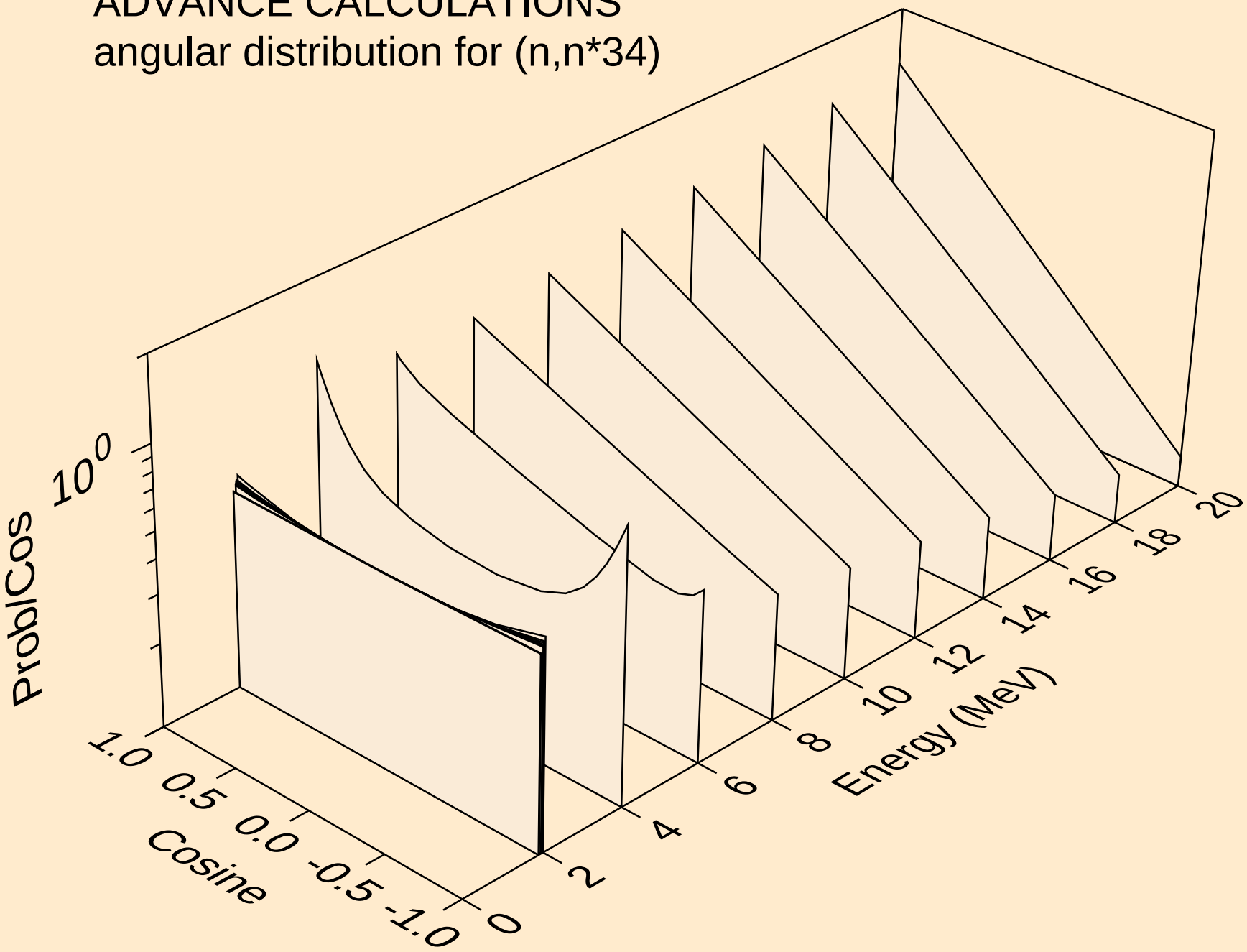
ADVANCE CALCULATIONS
angular distribution for (n,n*32)



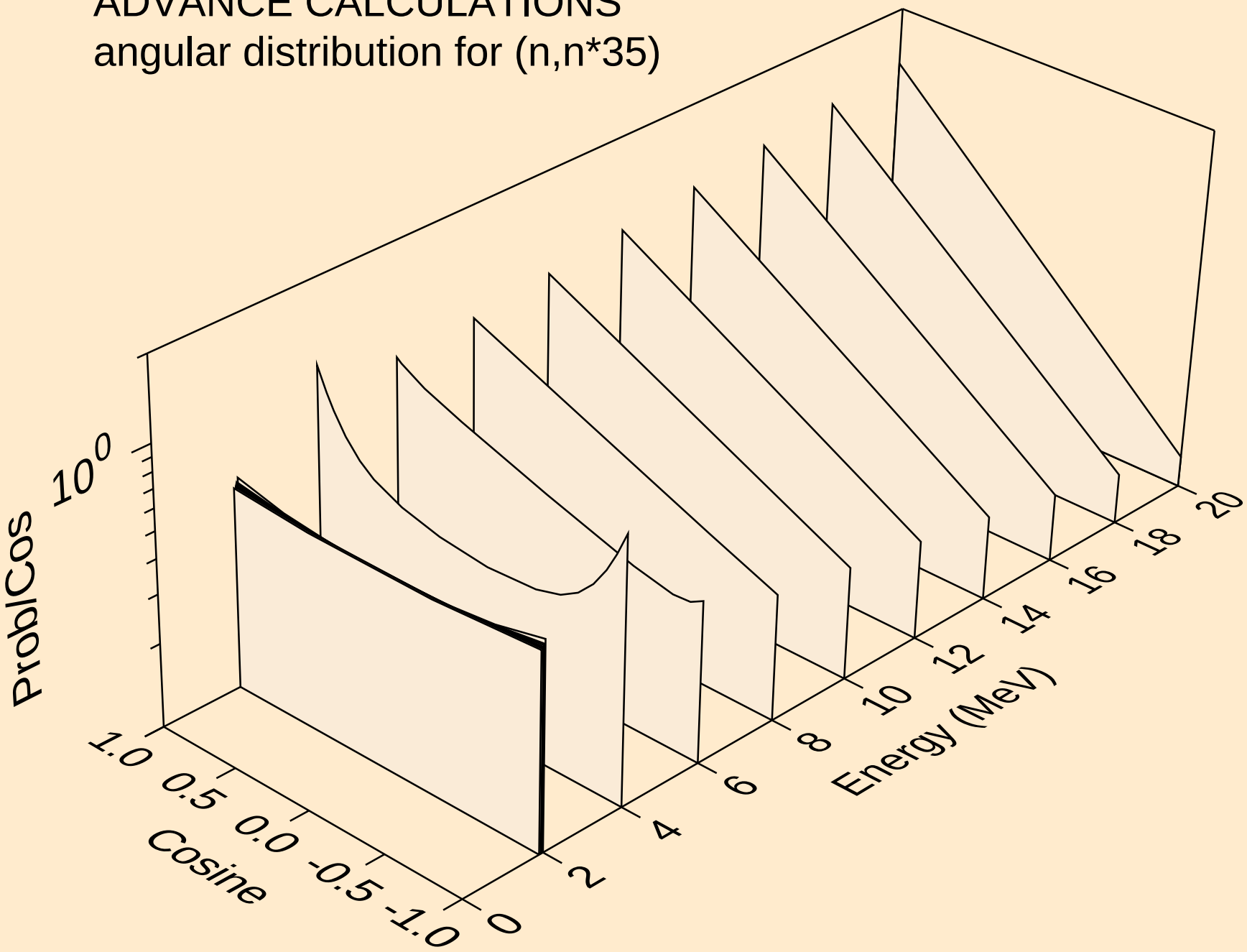
ADVANCE CALCULATIONS
angular distribution for (n,n*33)



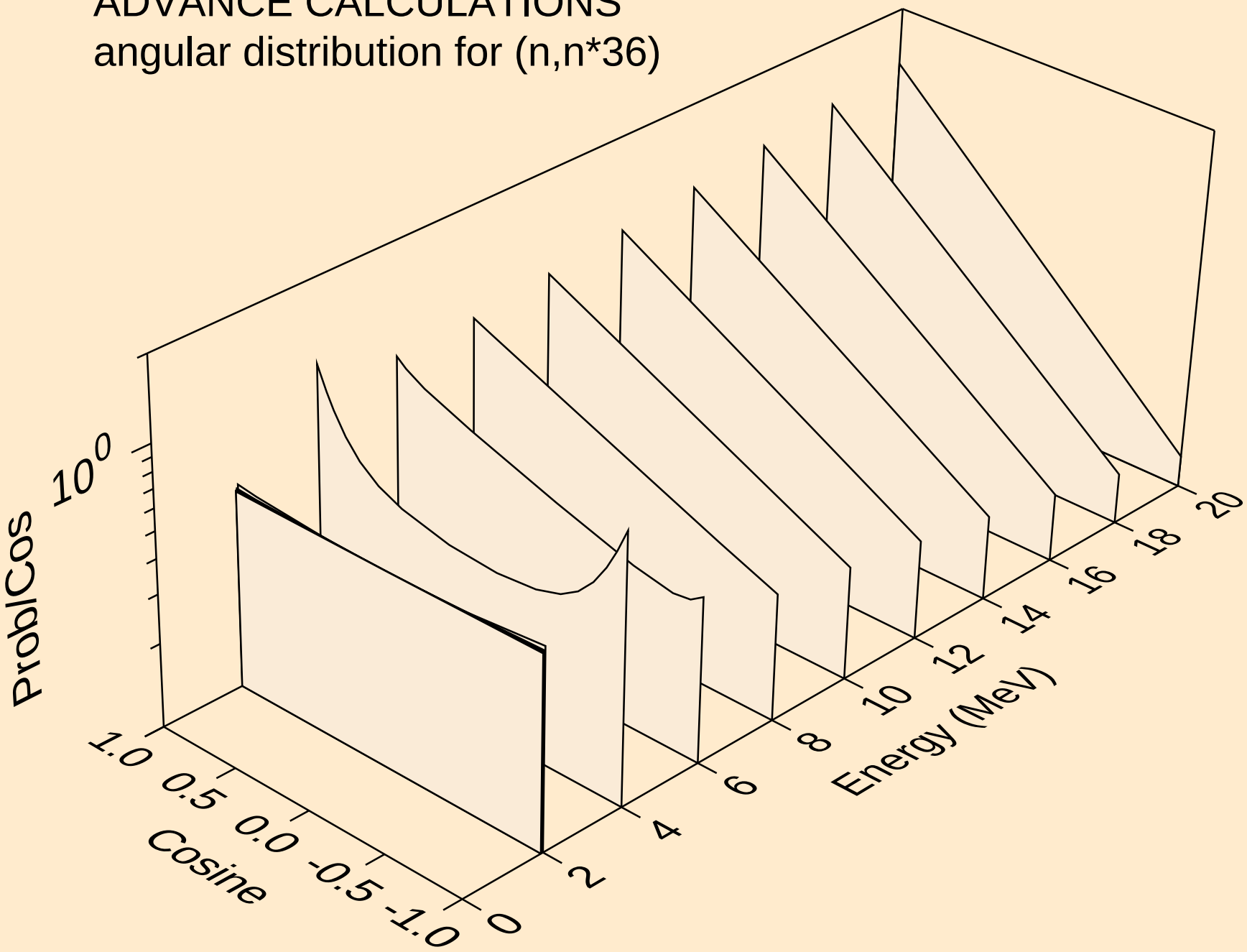
ADVANCE CALCULATIONS
angular distribution for (n,n*34)



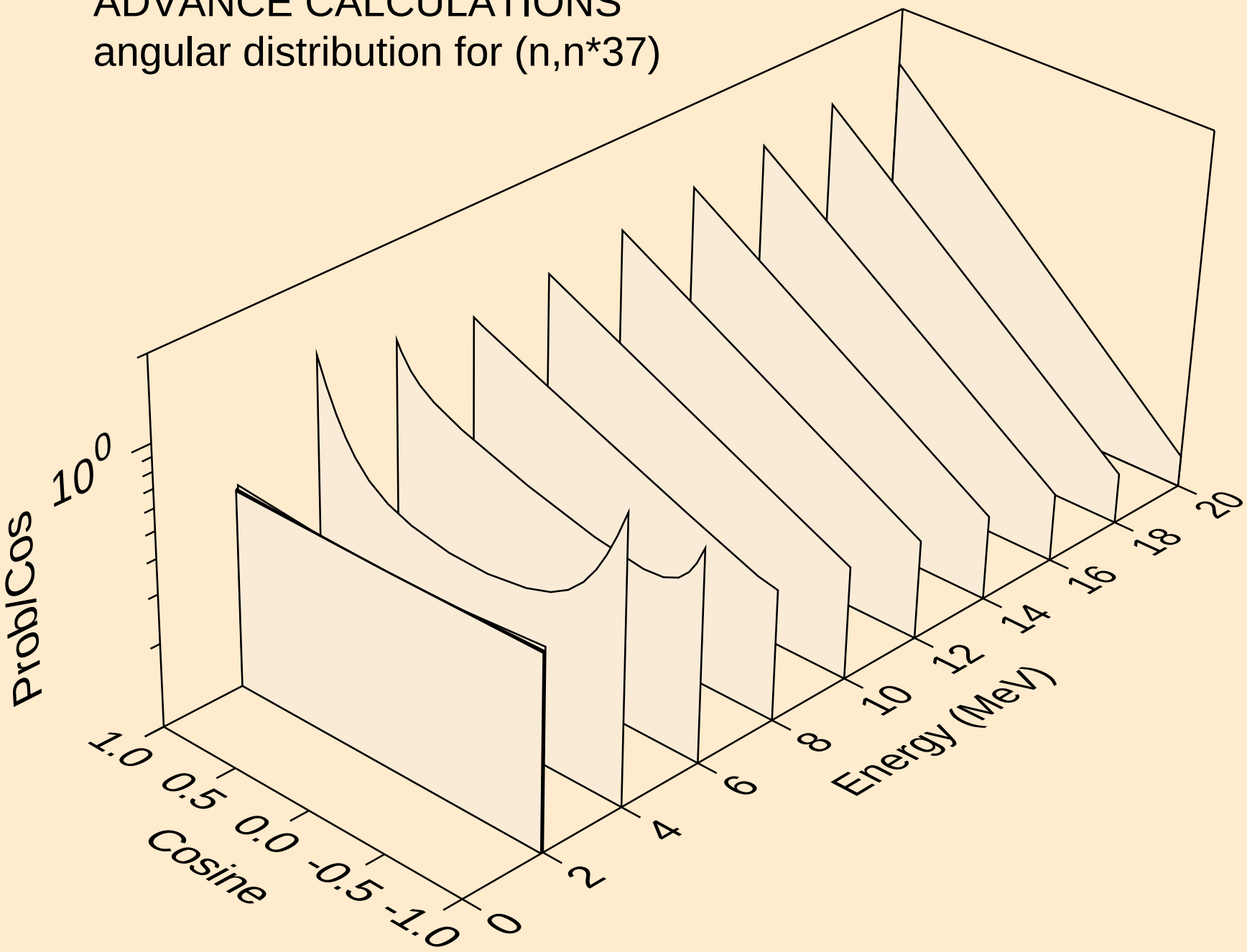
ADVANCE CALCULATIONS
angular distribution for (n,n*35)



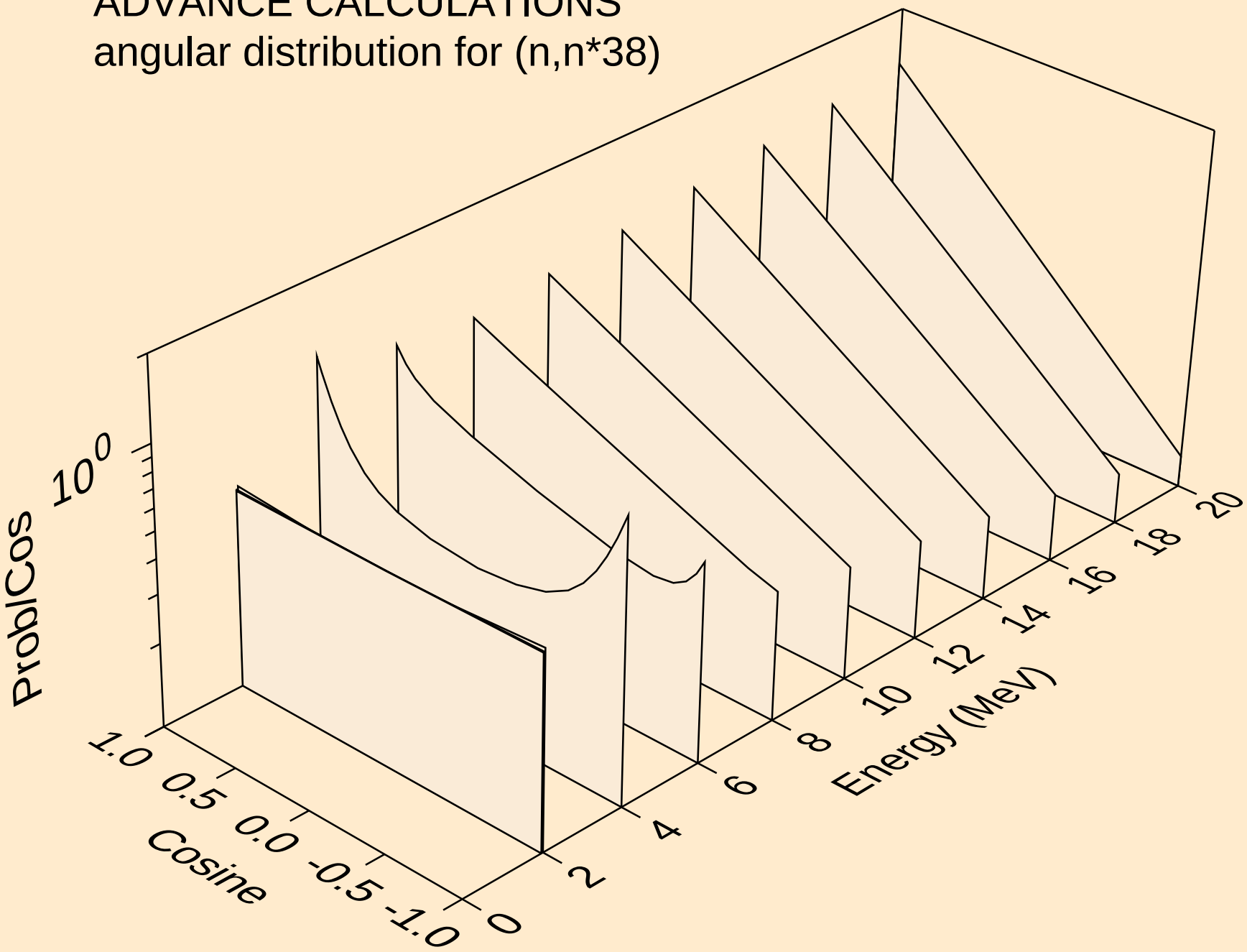
ADVANCE CALCULATIONS
angular distribution for (n,n*36)



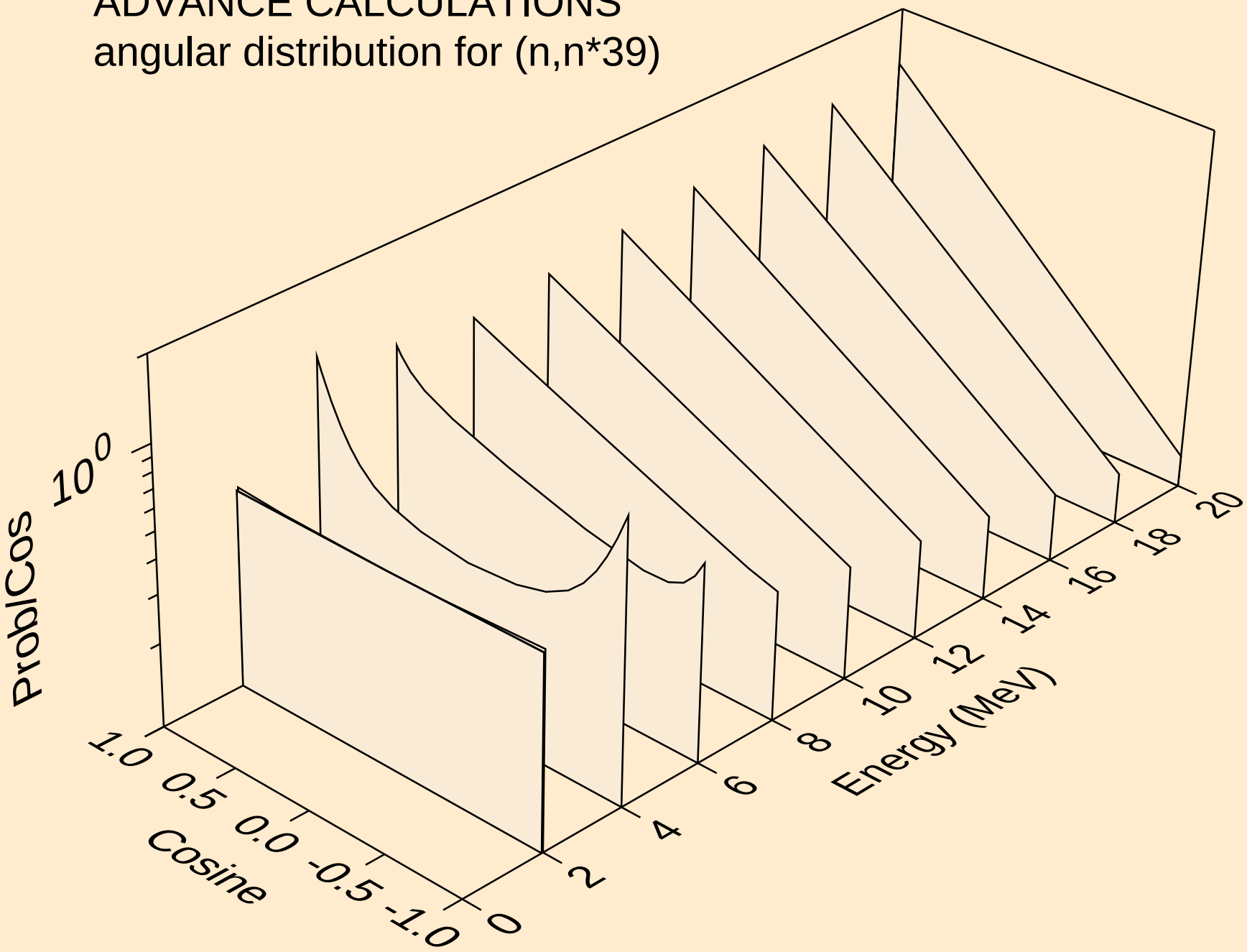
ADVANCE CALCULATIONS
angular distribution for (n,n*37)



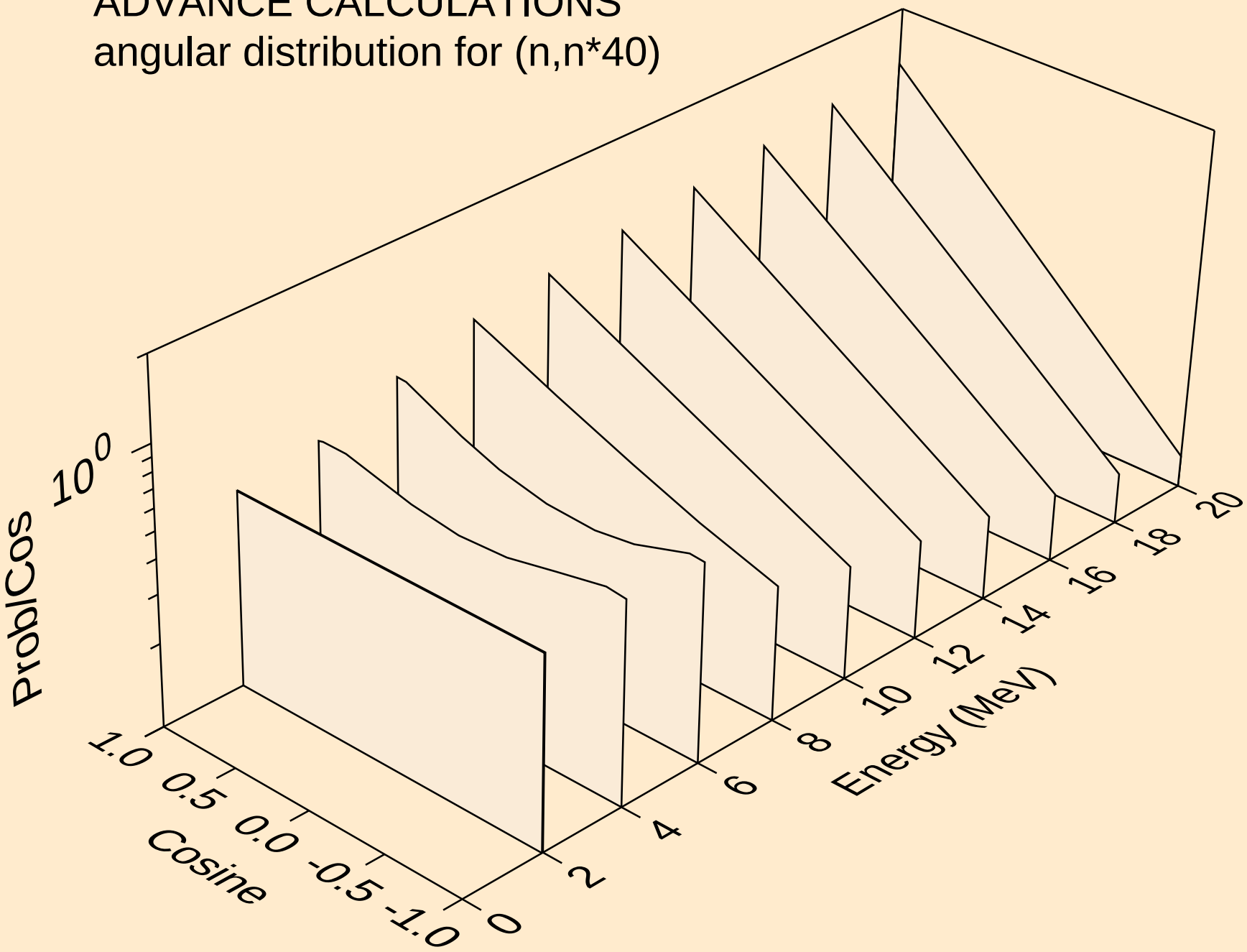
ADVANCE CALCULATIONS
angular distribution for (n,n*38)



ADVANCE CALCULATIONS
angular distribution for (n,n*39)

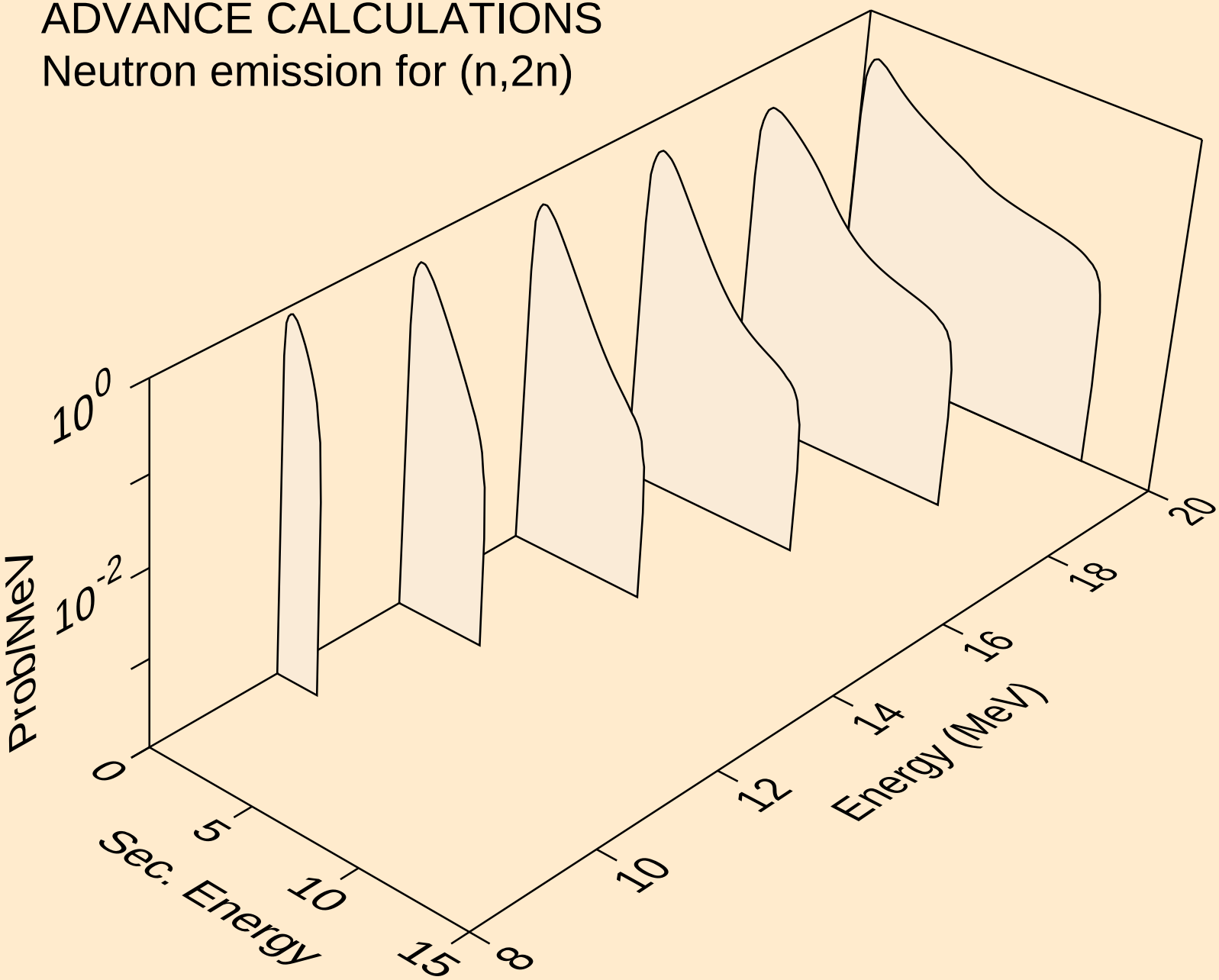


ADVANCE CALCULATIONS
angular distribution for (n,n*40)



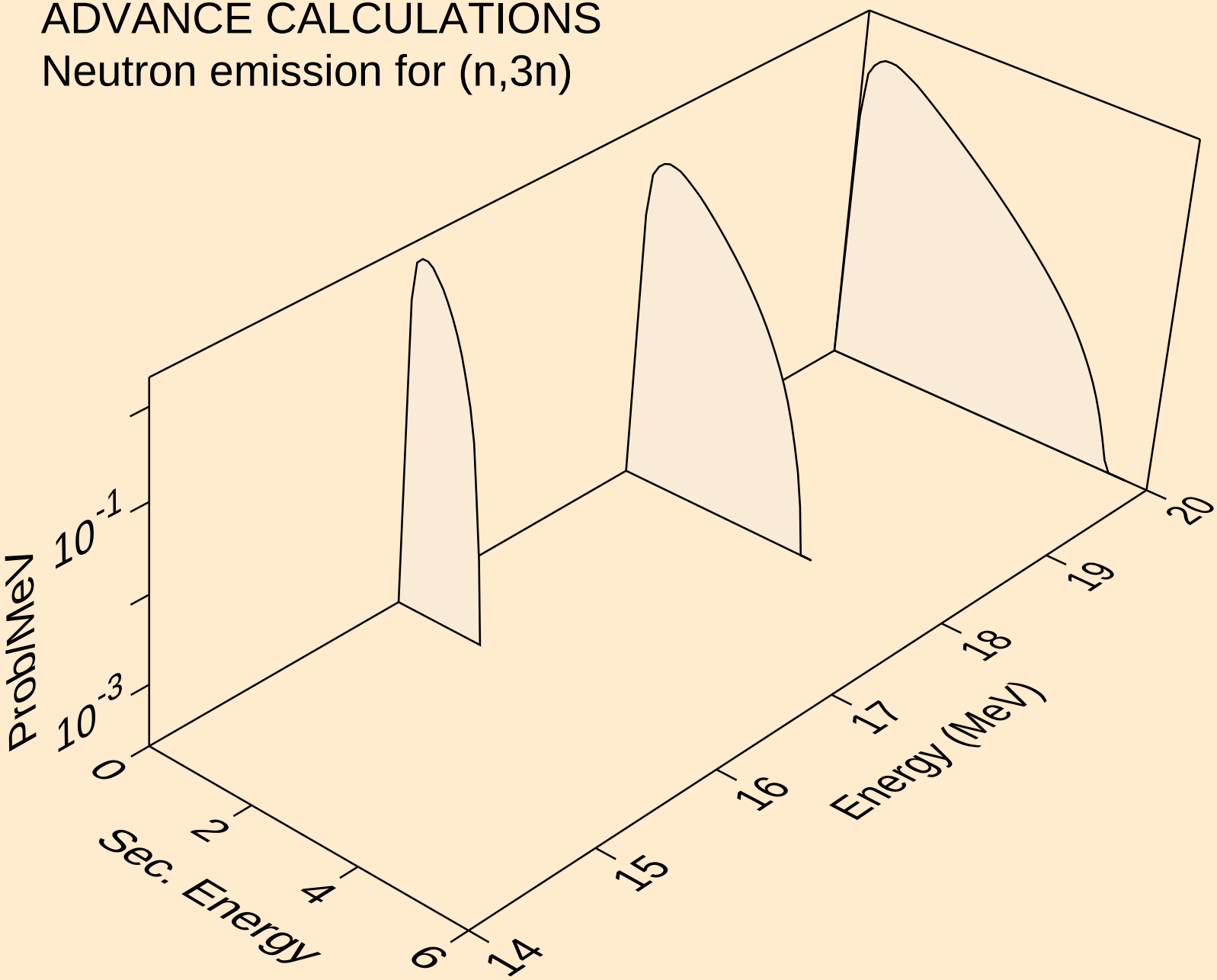
ADVANCE CALCULATIONS

Neutron emission for (n,2n)



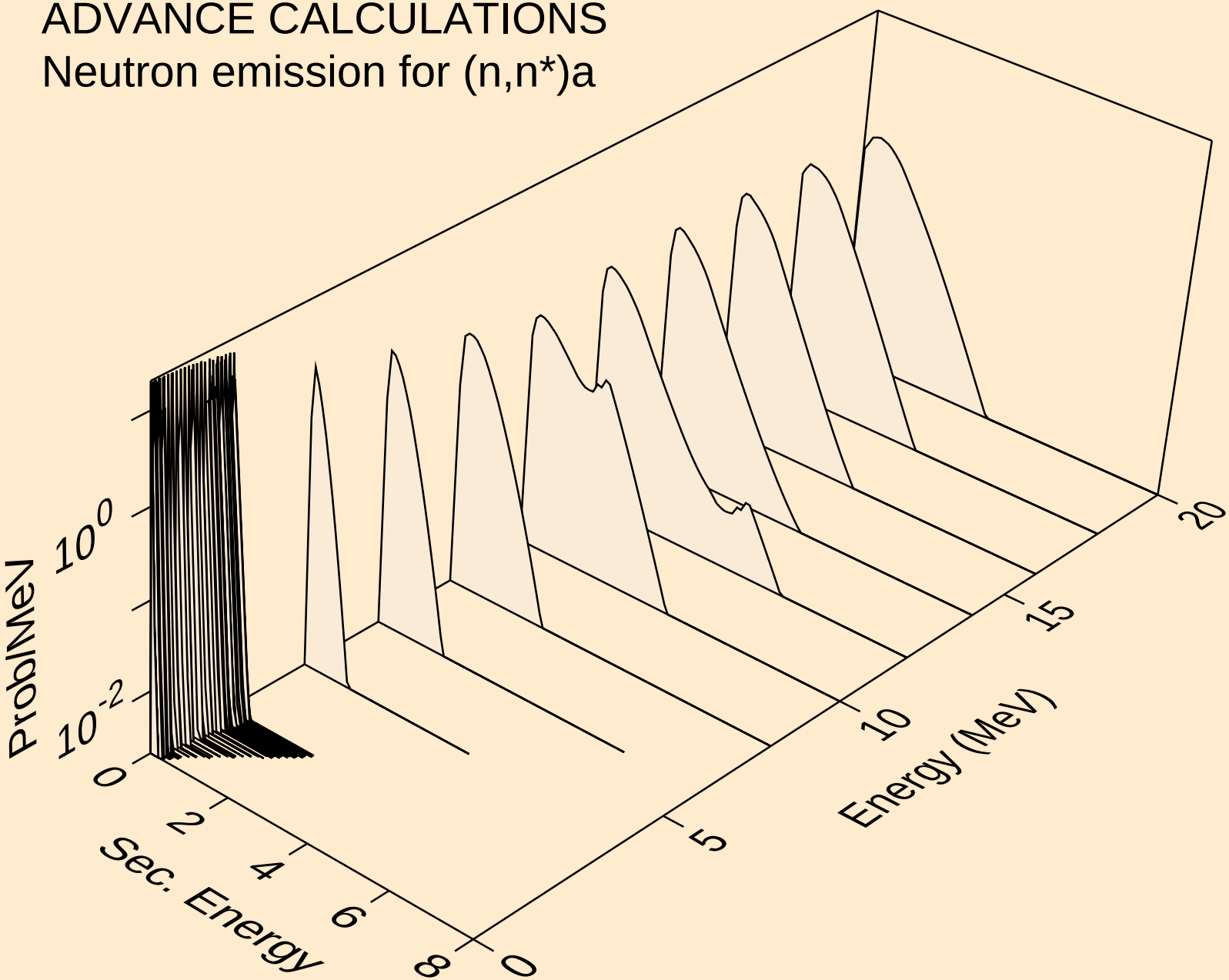
ADVANCE CALCULATIONS

Neutron emission for (n,3n)



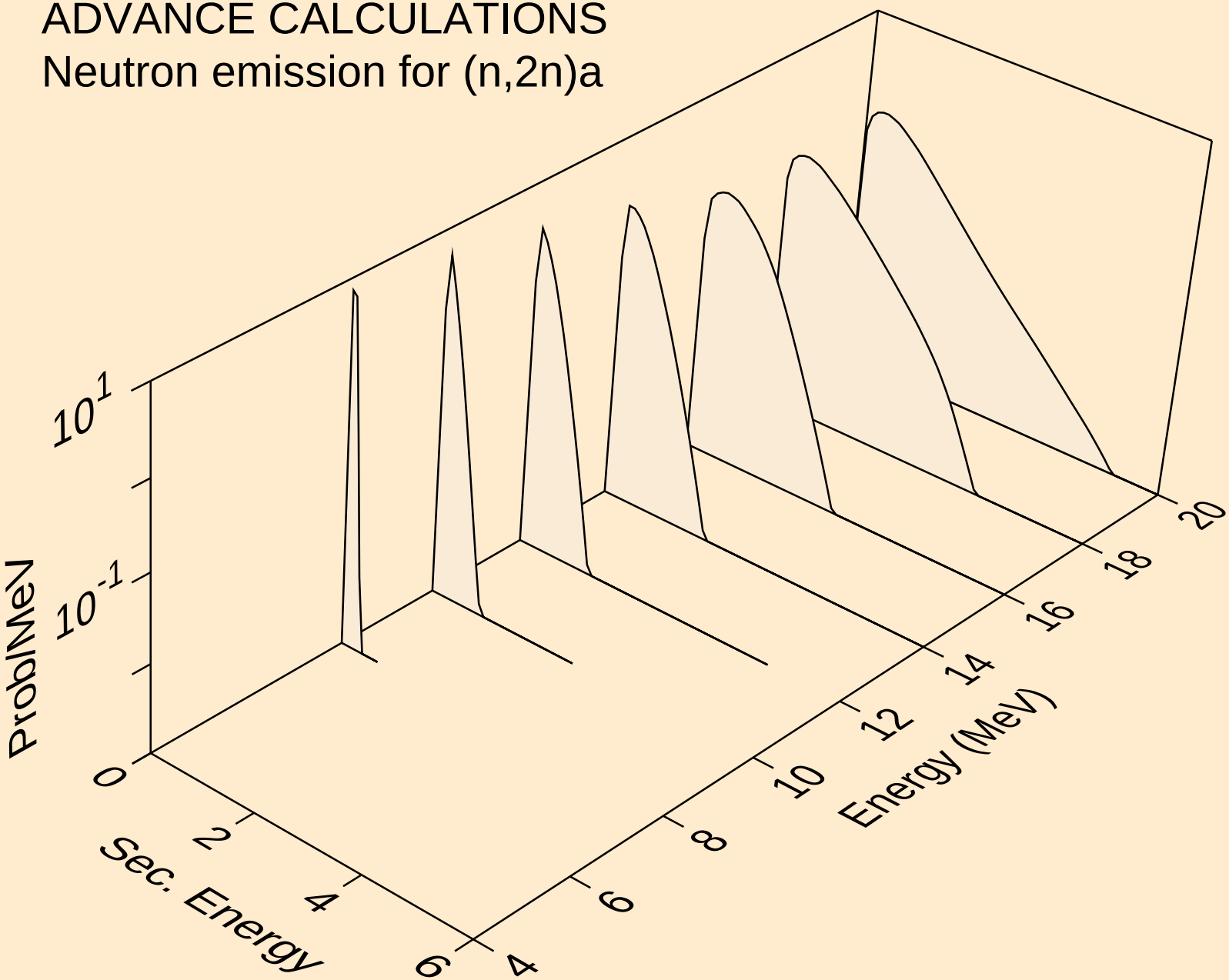
ADVANCE CALCULATIONS

Neutron emission for (n,n*)a



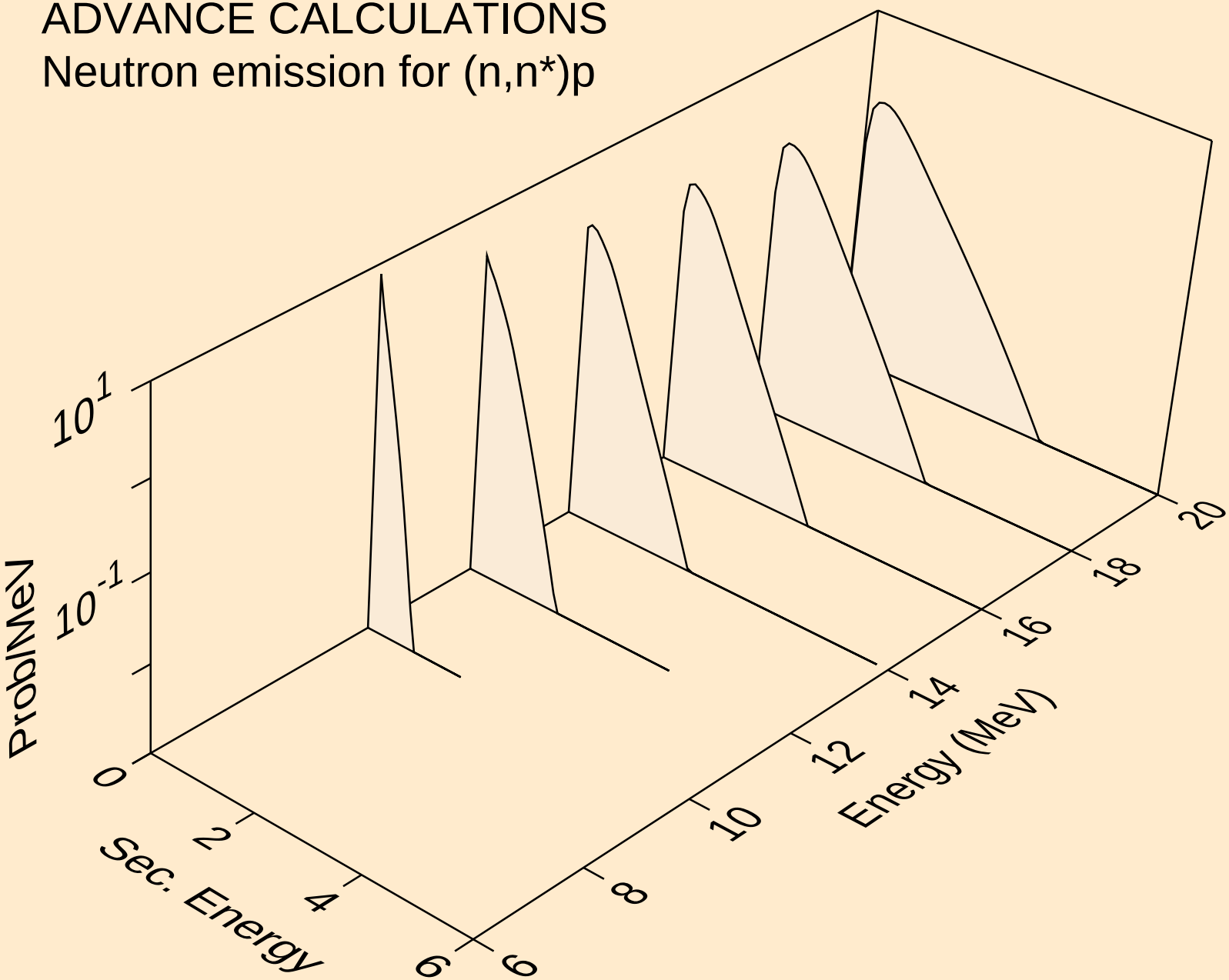
ADVANCE CALCULATIONS

Neutron emission for (n,2n)a



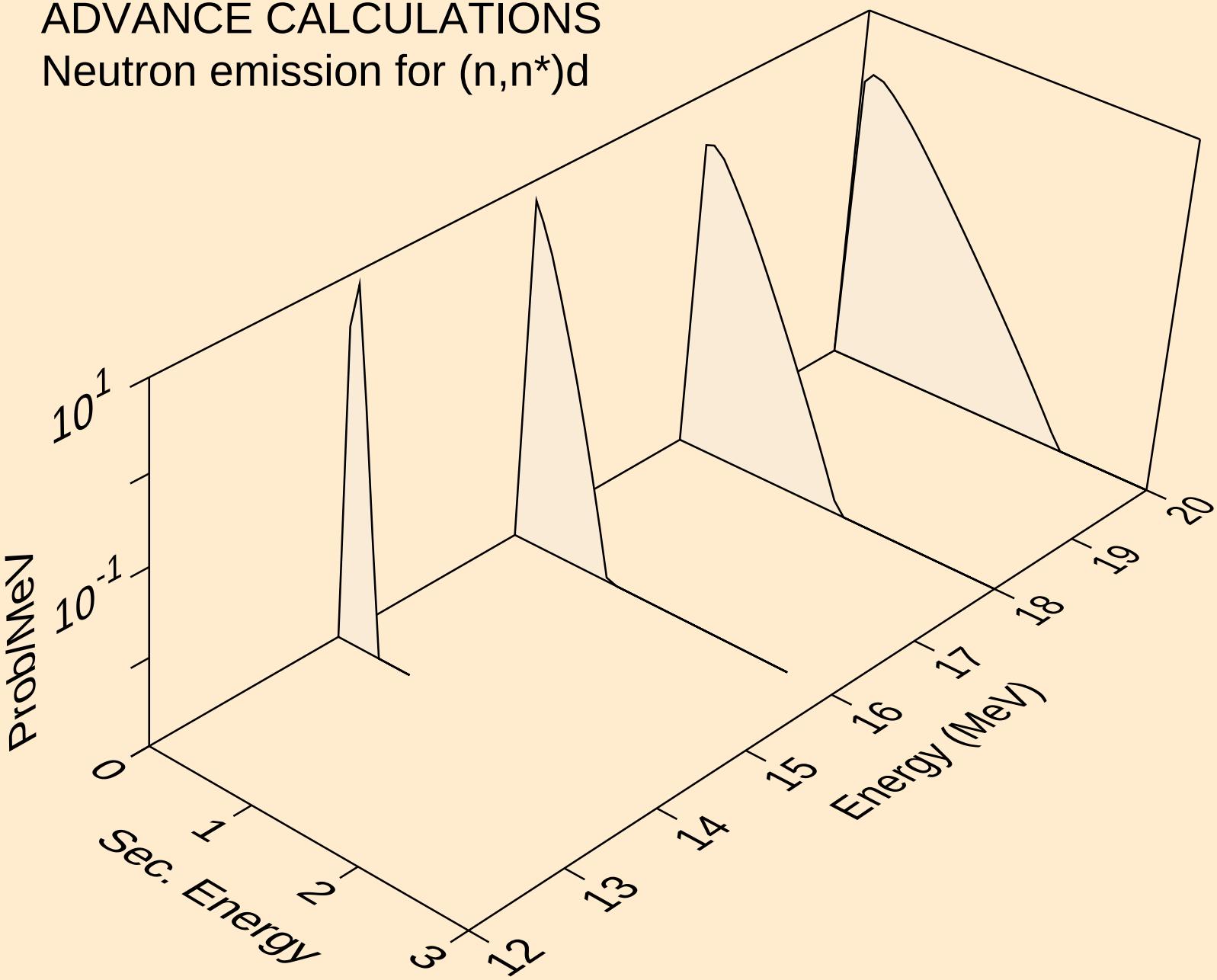
ADVANCE CALCULATIONS

Neutron emission for (n,n*)p



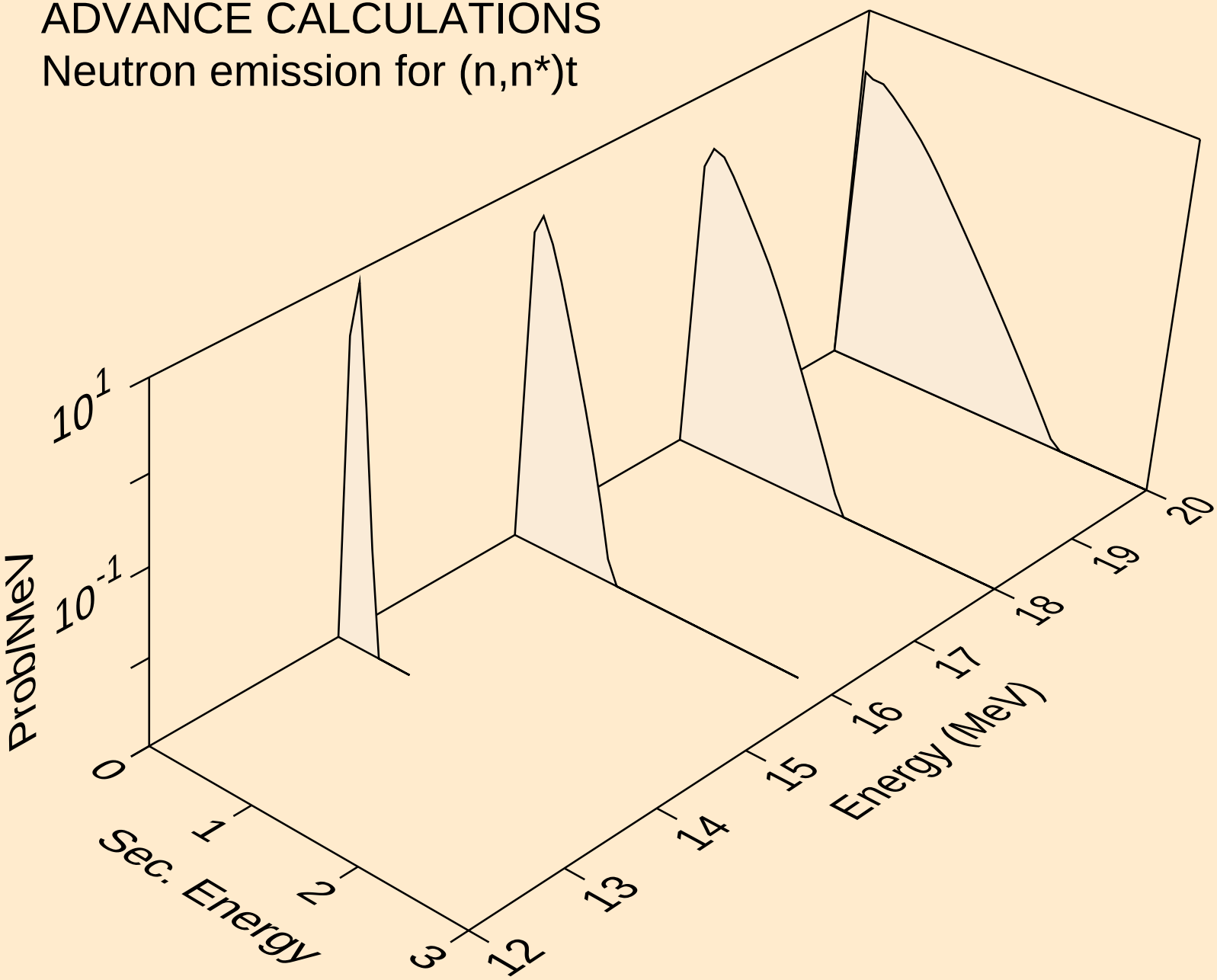
ADVANCE CALCULATIONS

Neutron emission for (n,n*)d



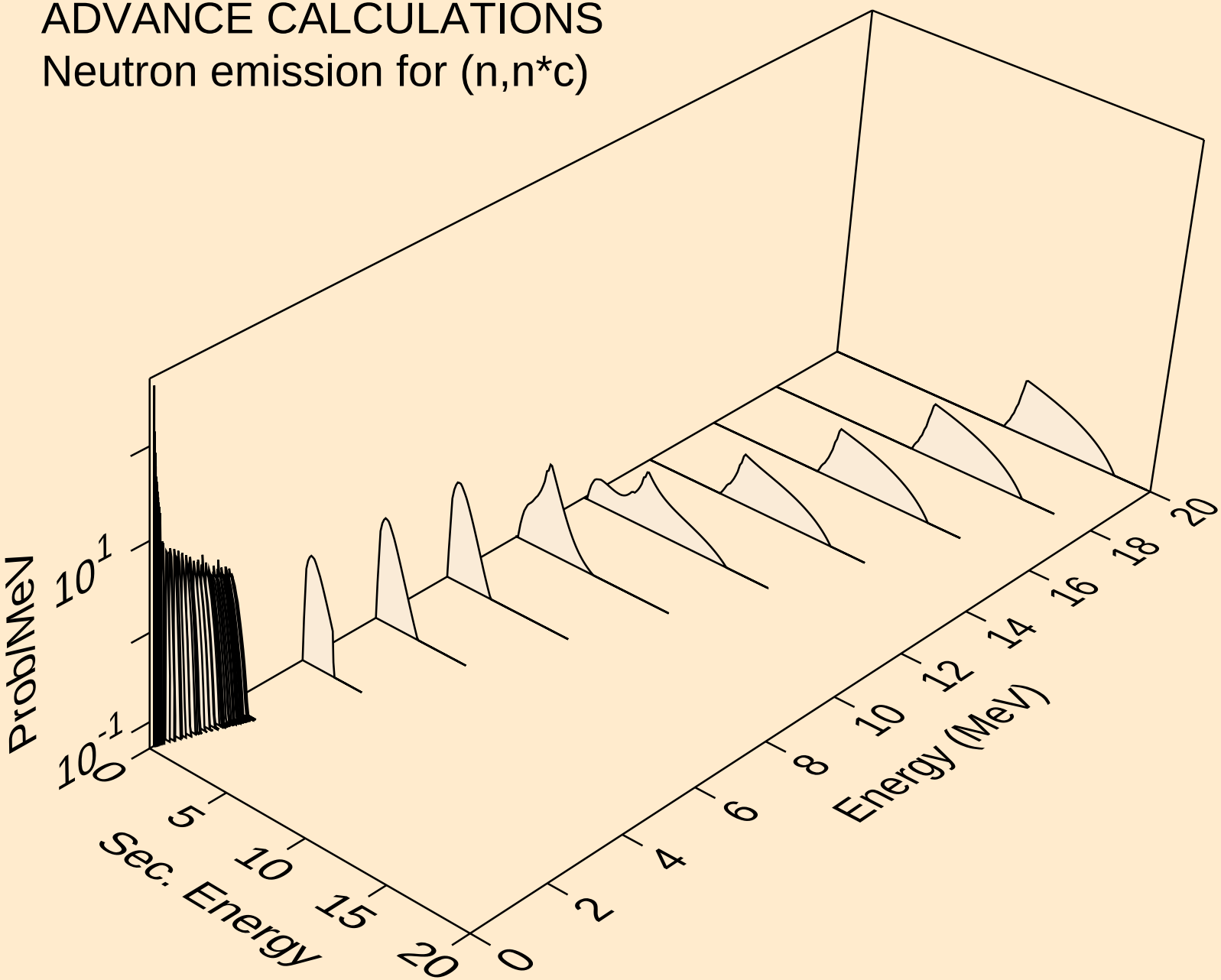
ADVANCE CALCULATIONS

Neutron emission for (n,n*)t



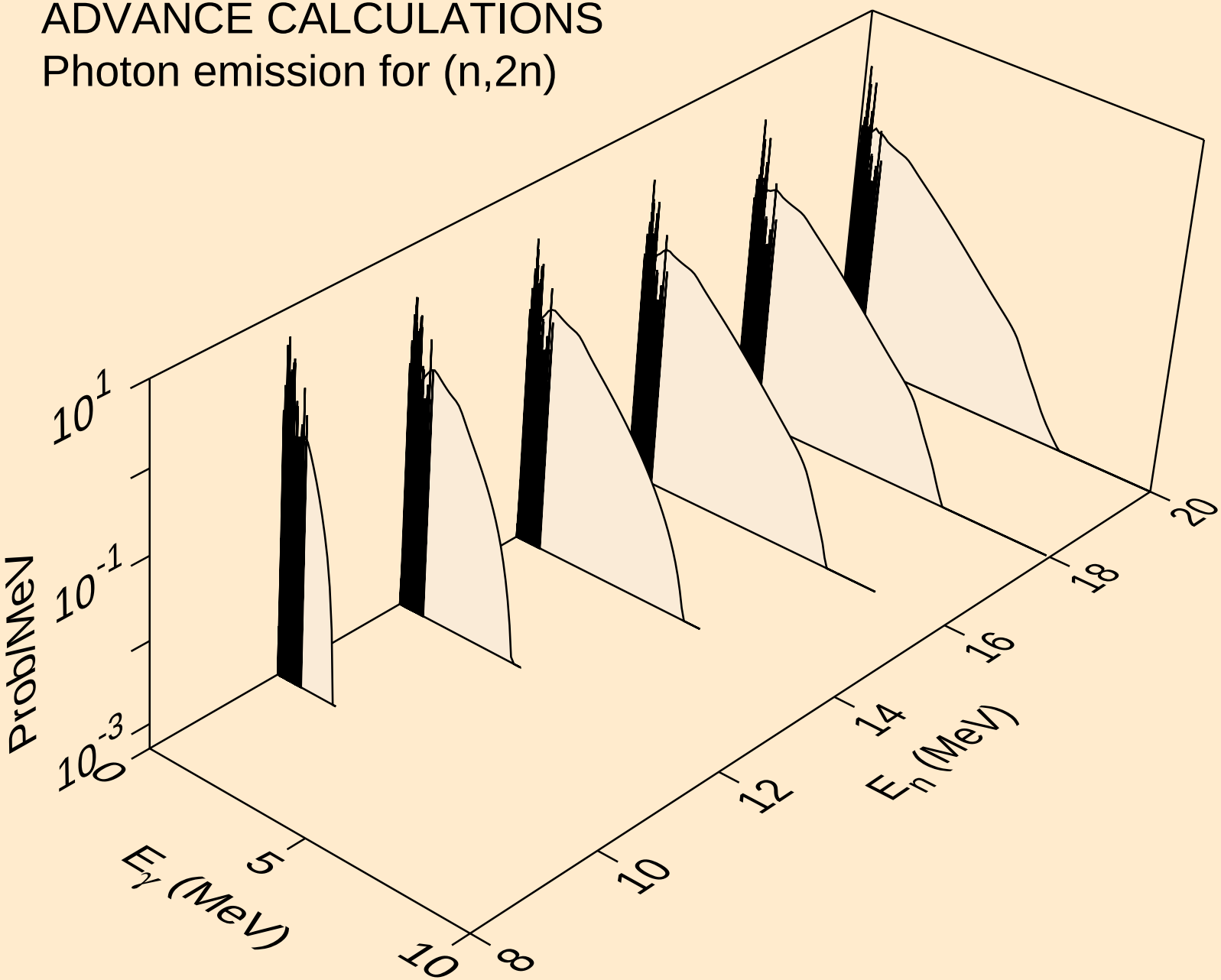
ADVANCE CALCULATIONS

Neutron emission for (n,n*c)



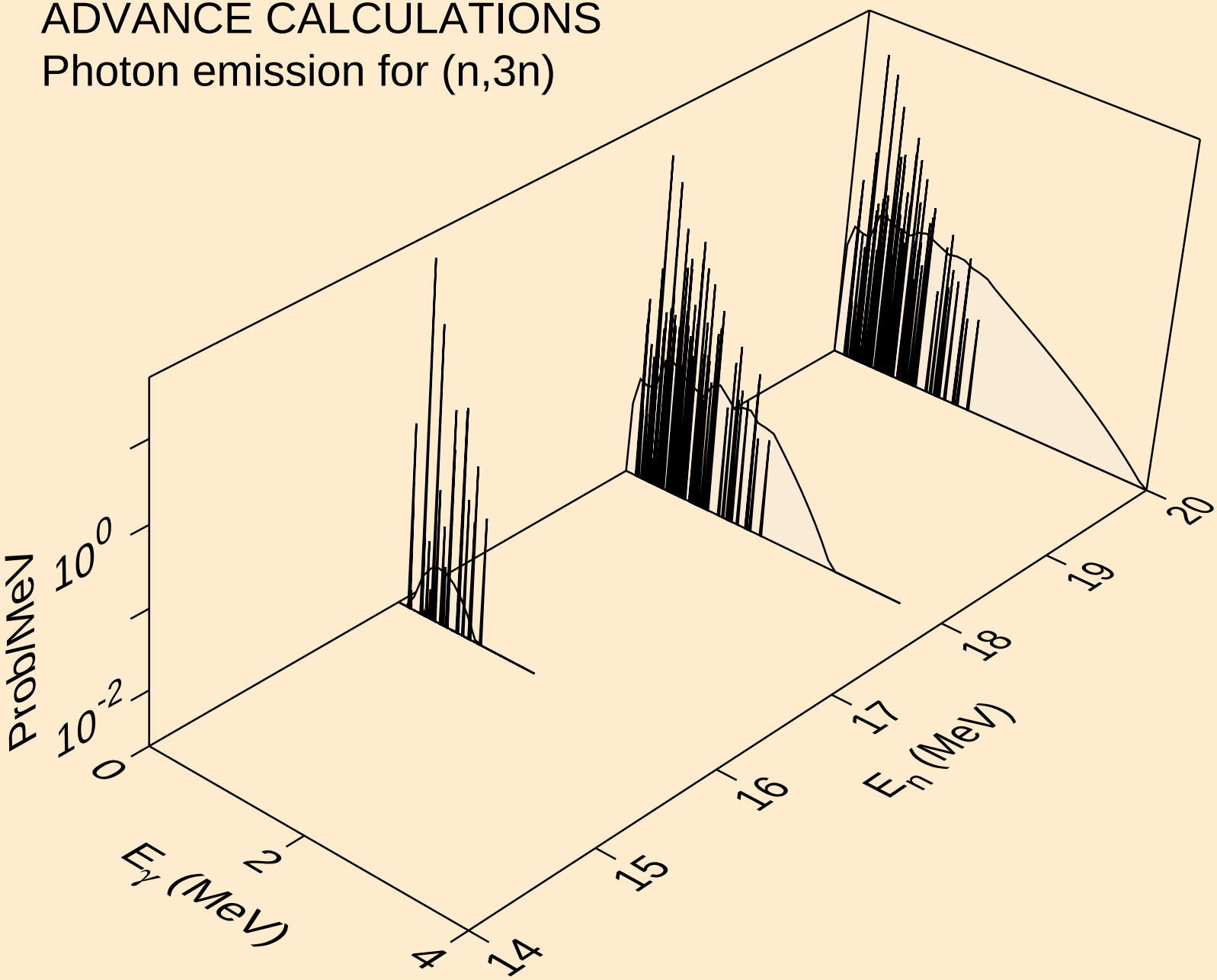
ADVANCE CALCULATIONS

Photon emission for (n,2n)



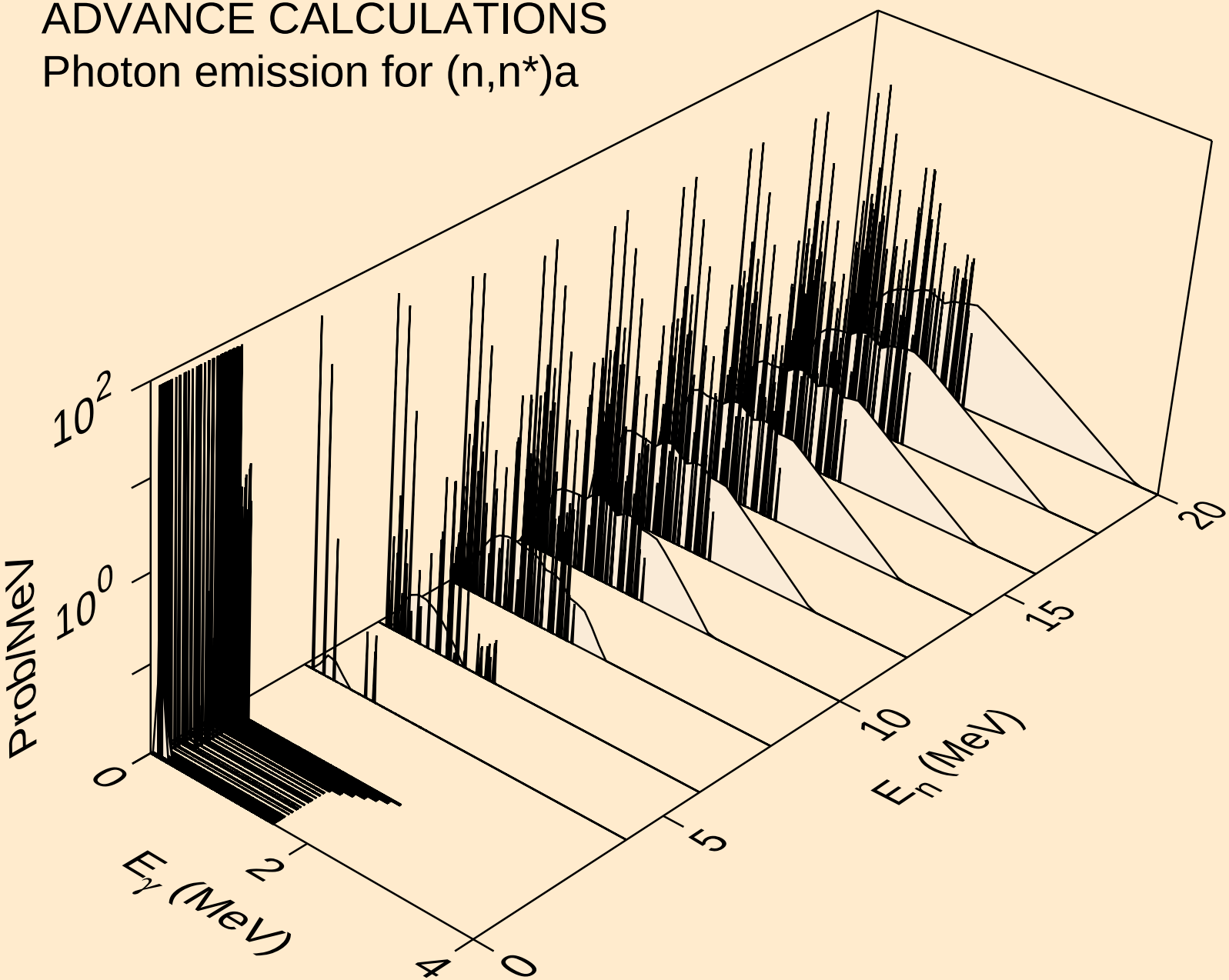
ADVANCE CALCULATIONS

Photon emission for (n,3n)



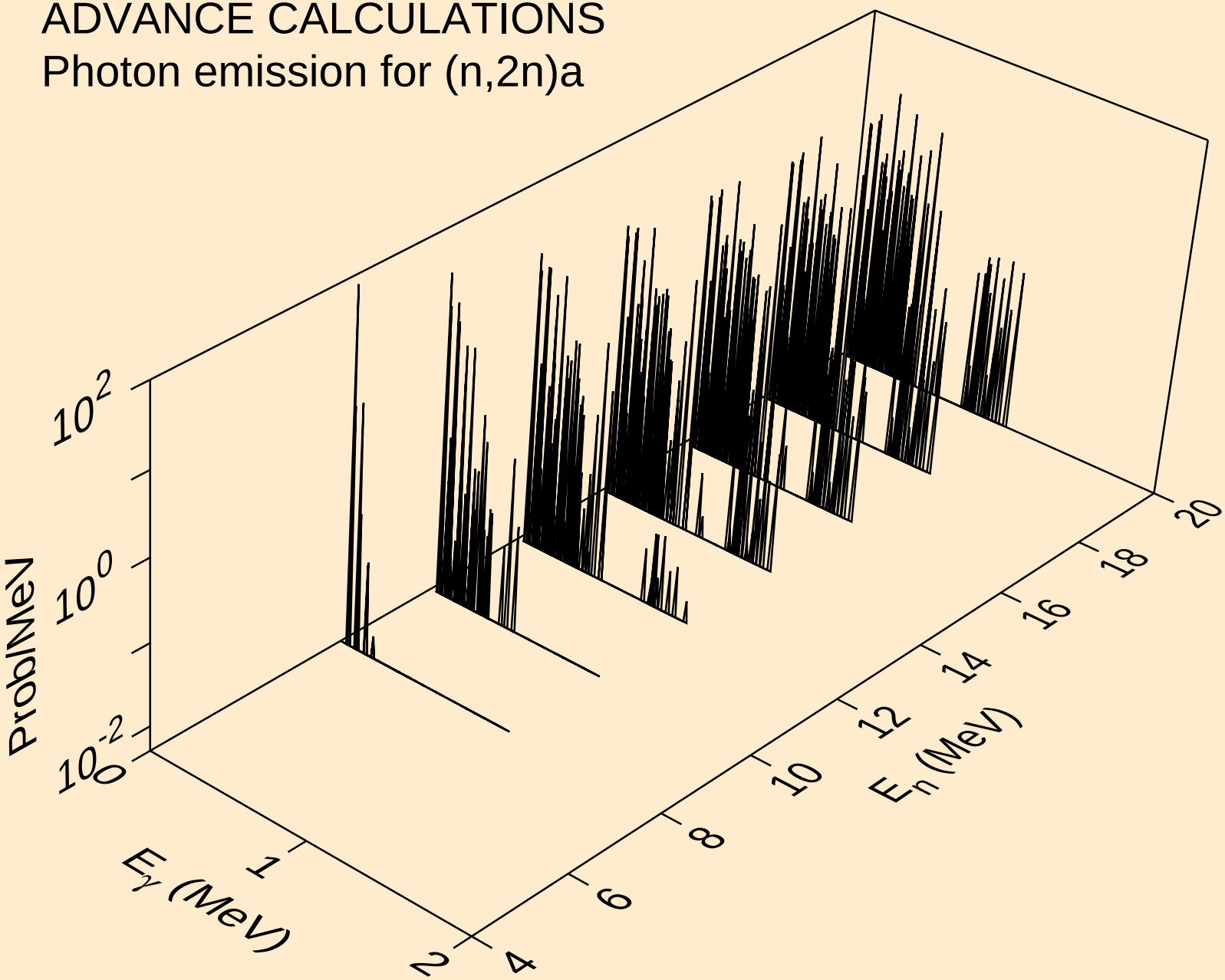
ADVANCE CALCULATIONS

Photon emission for (n,n*)a



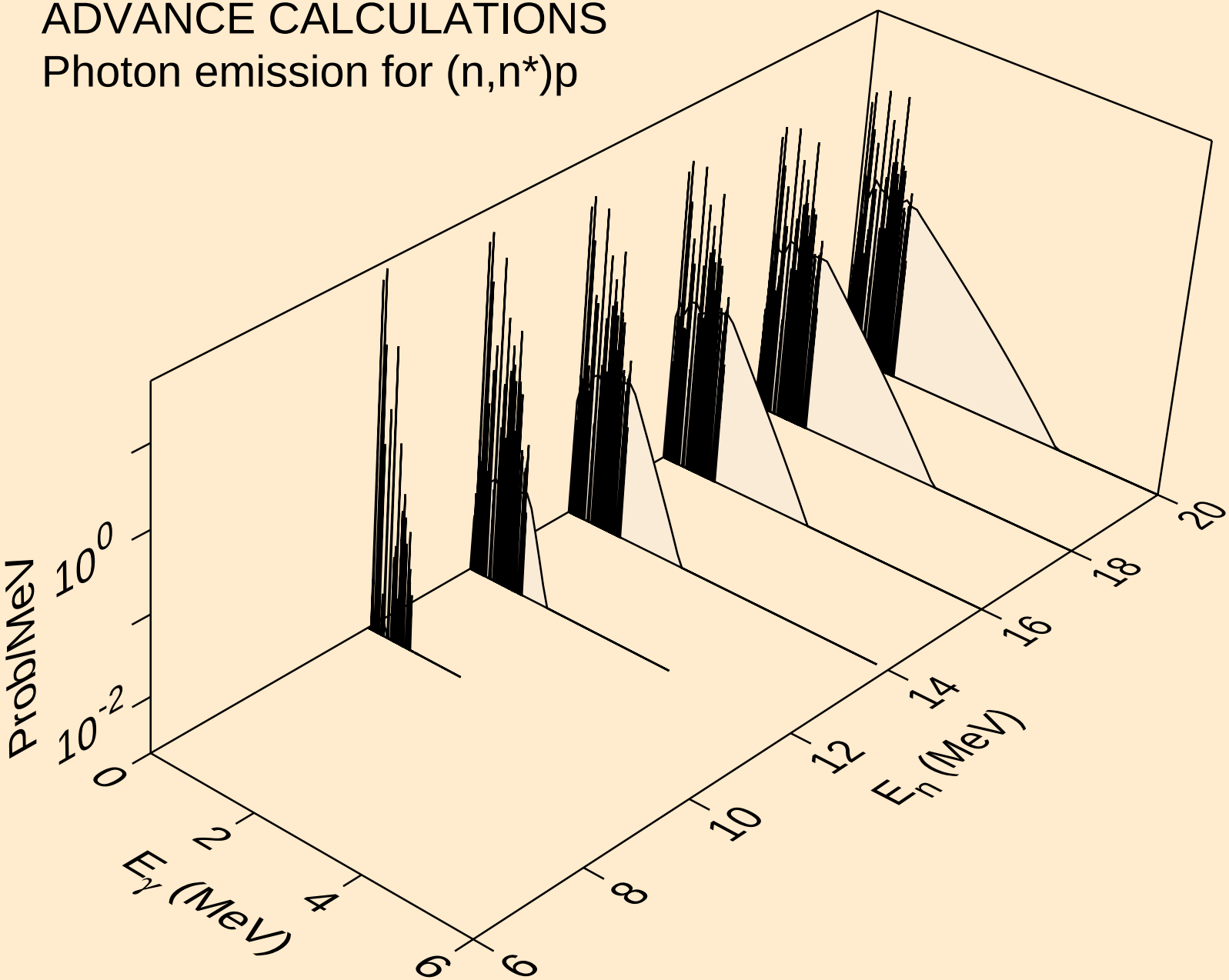
ADVANCE CALCULATIONS

Photon emission for (n,2n)a



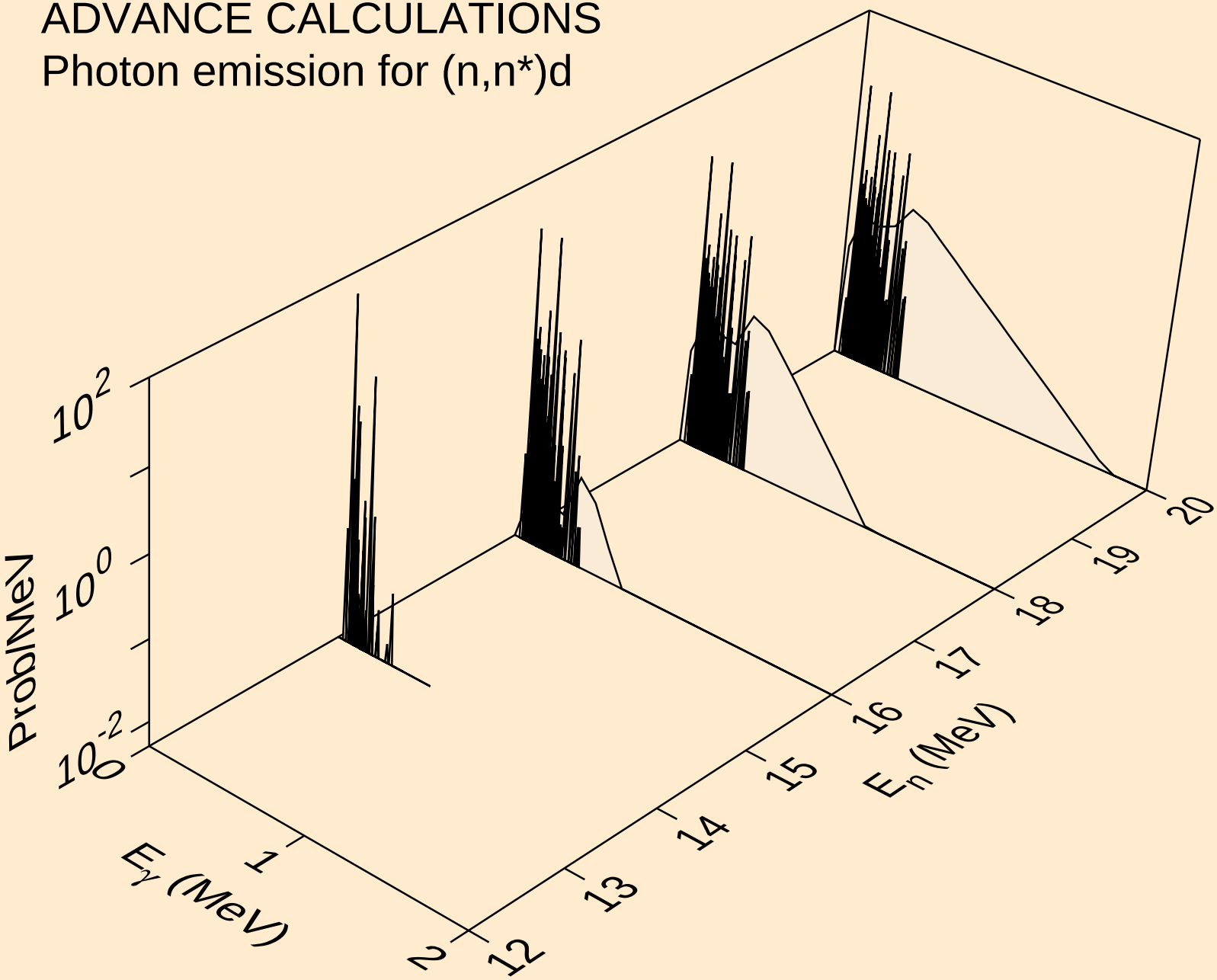
ADVANCE CALCULATIONS

Photon emission for (n,n*)p



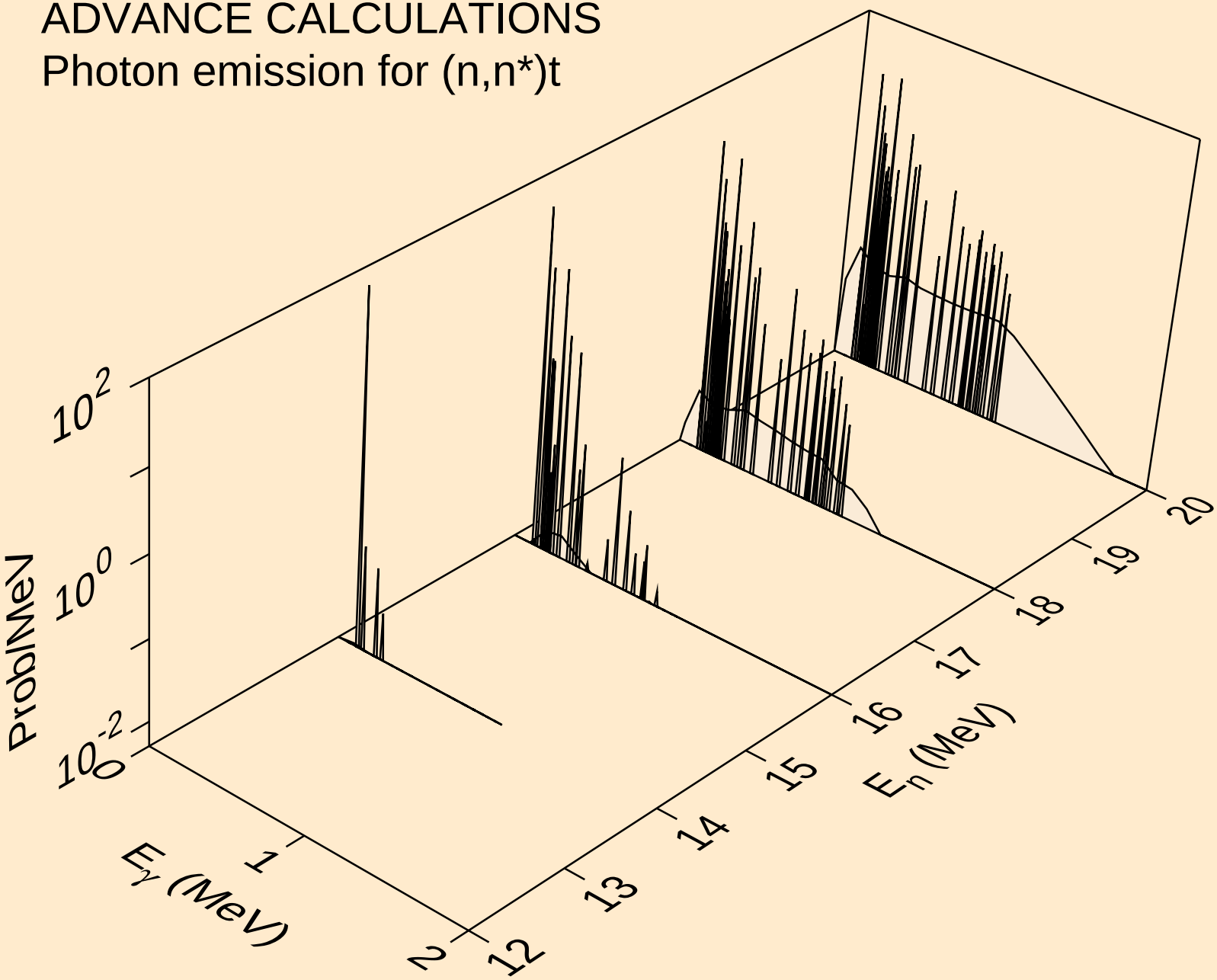
ADVANCE CALCULATIONS

Photon emission for (n,n*)d



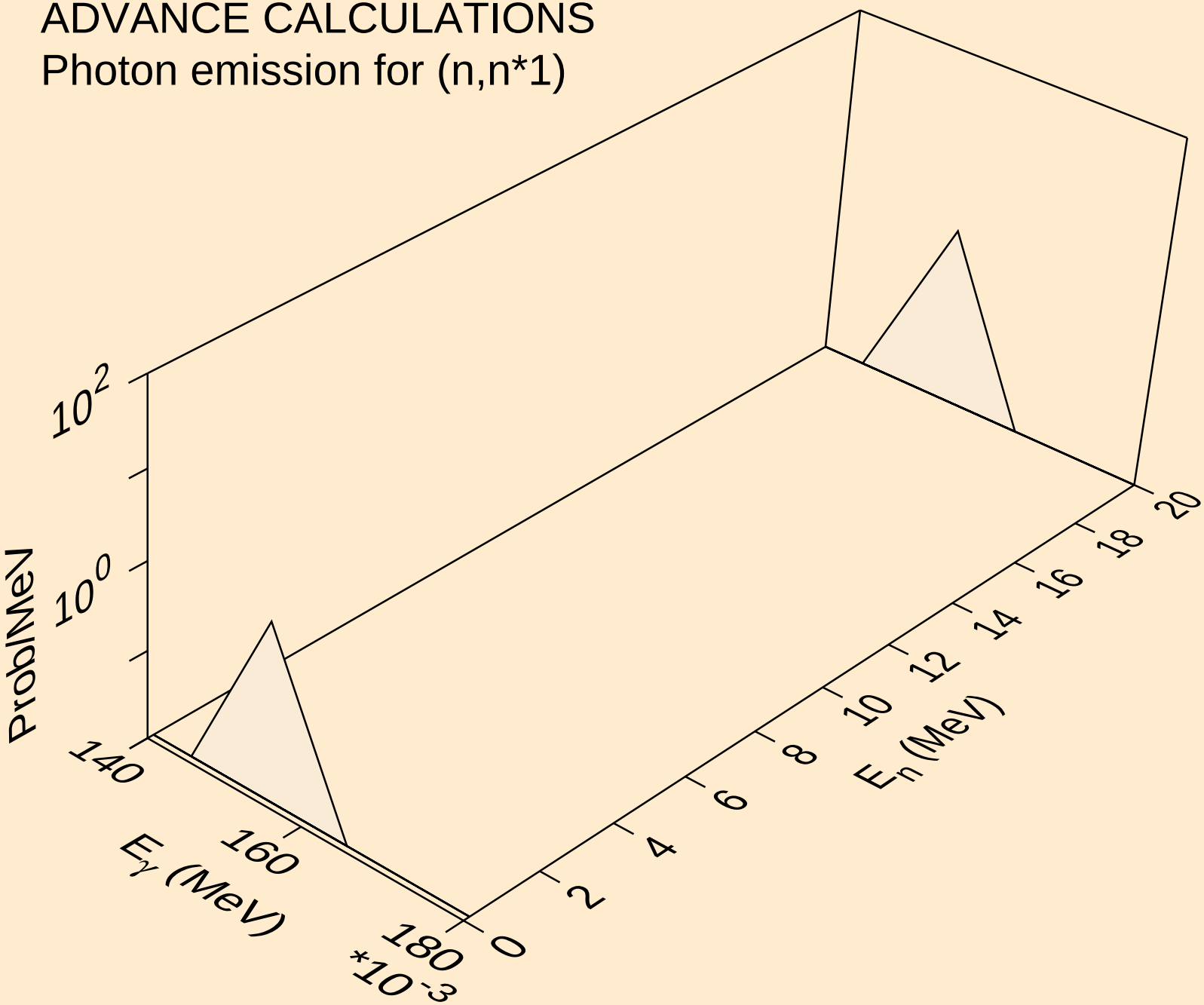
ADVANCE CALCULATIONS

Photon emission for (n,n*)t



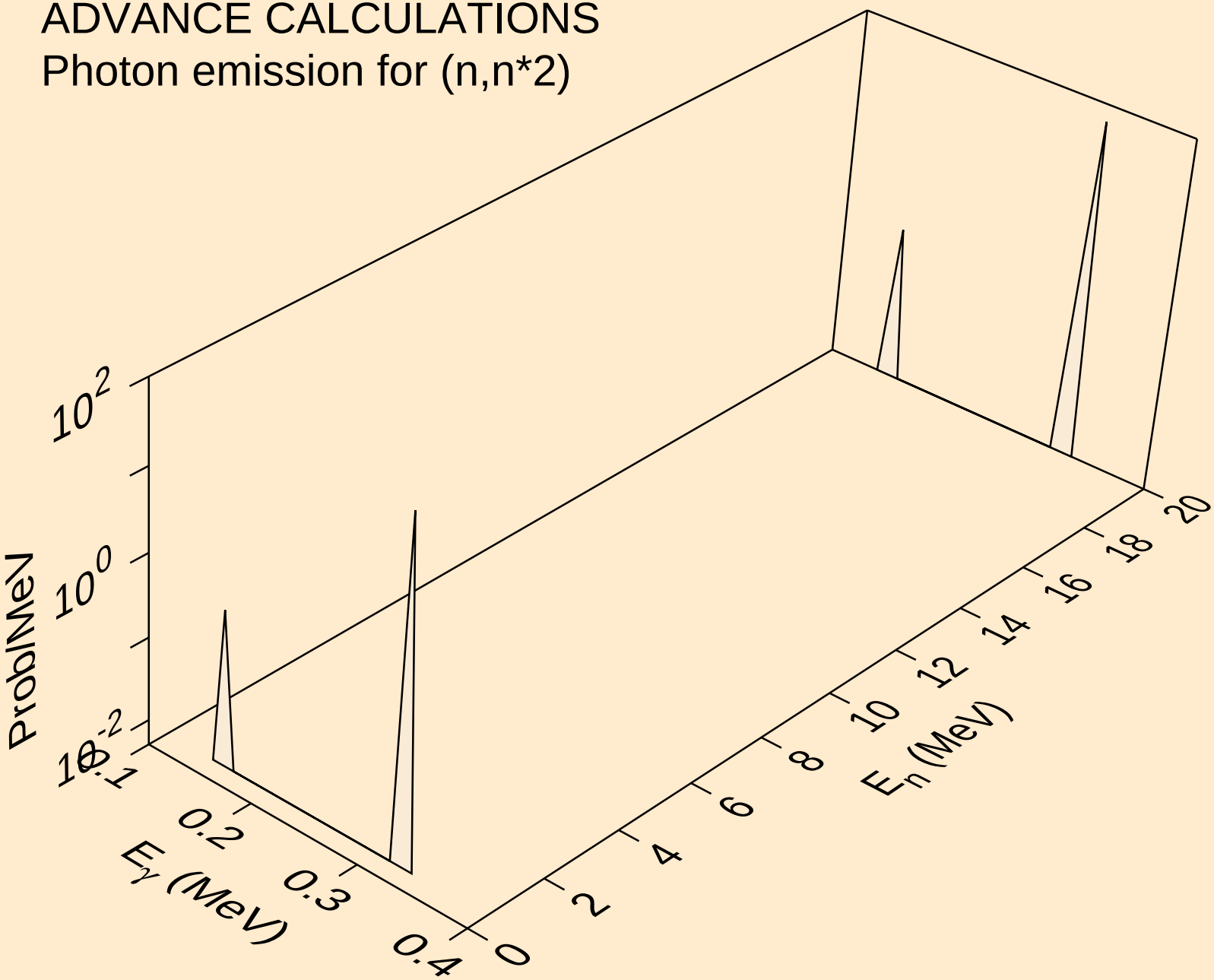
ADVANCE CALCULATIONS

Photon emission for (n,n*1)



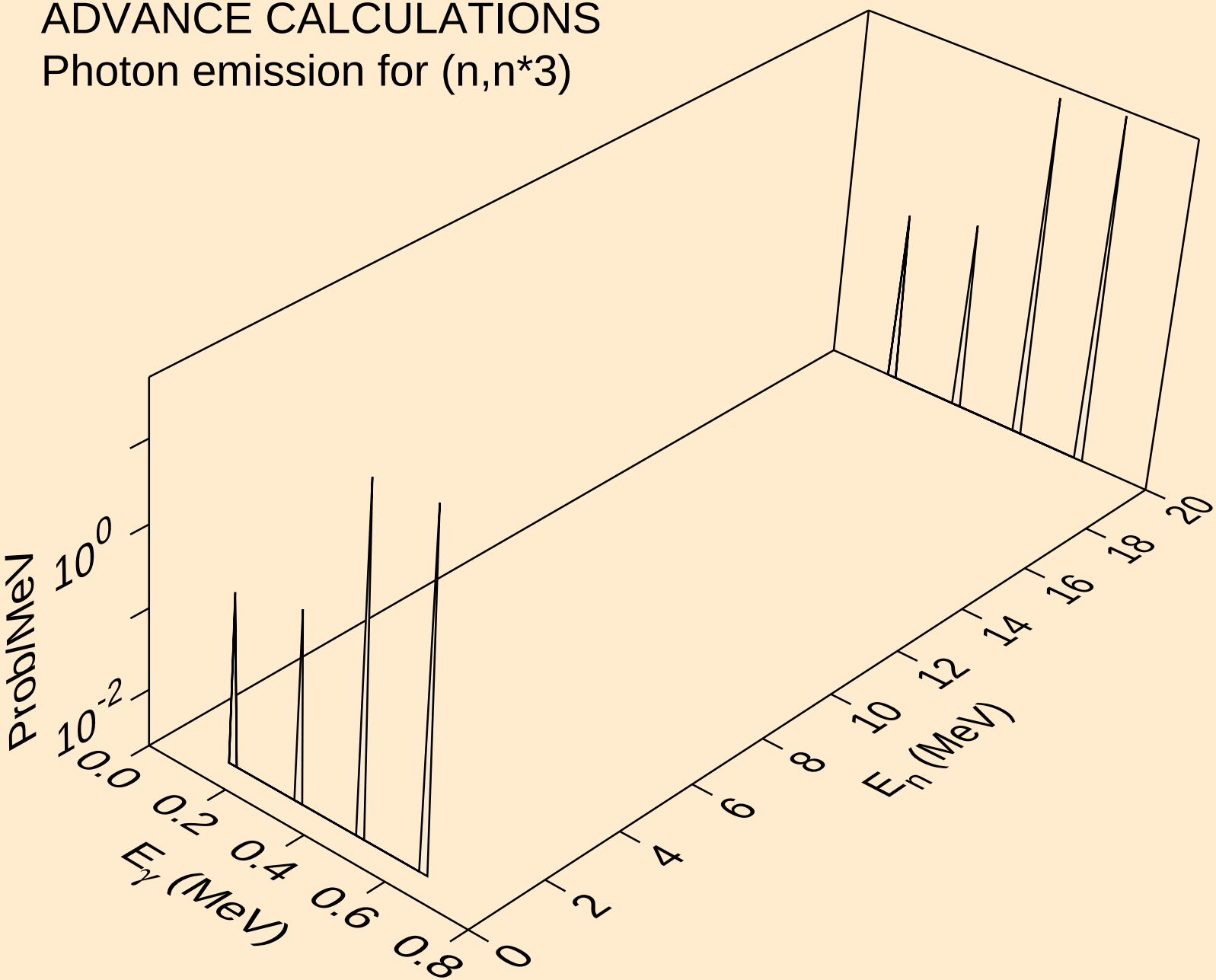
ADVANCE CALCULATIONS

Photon emission for (n,n*2)



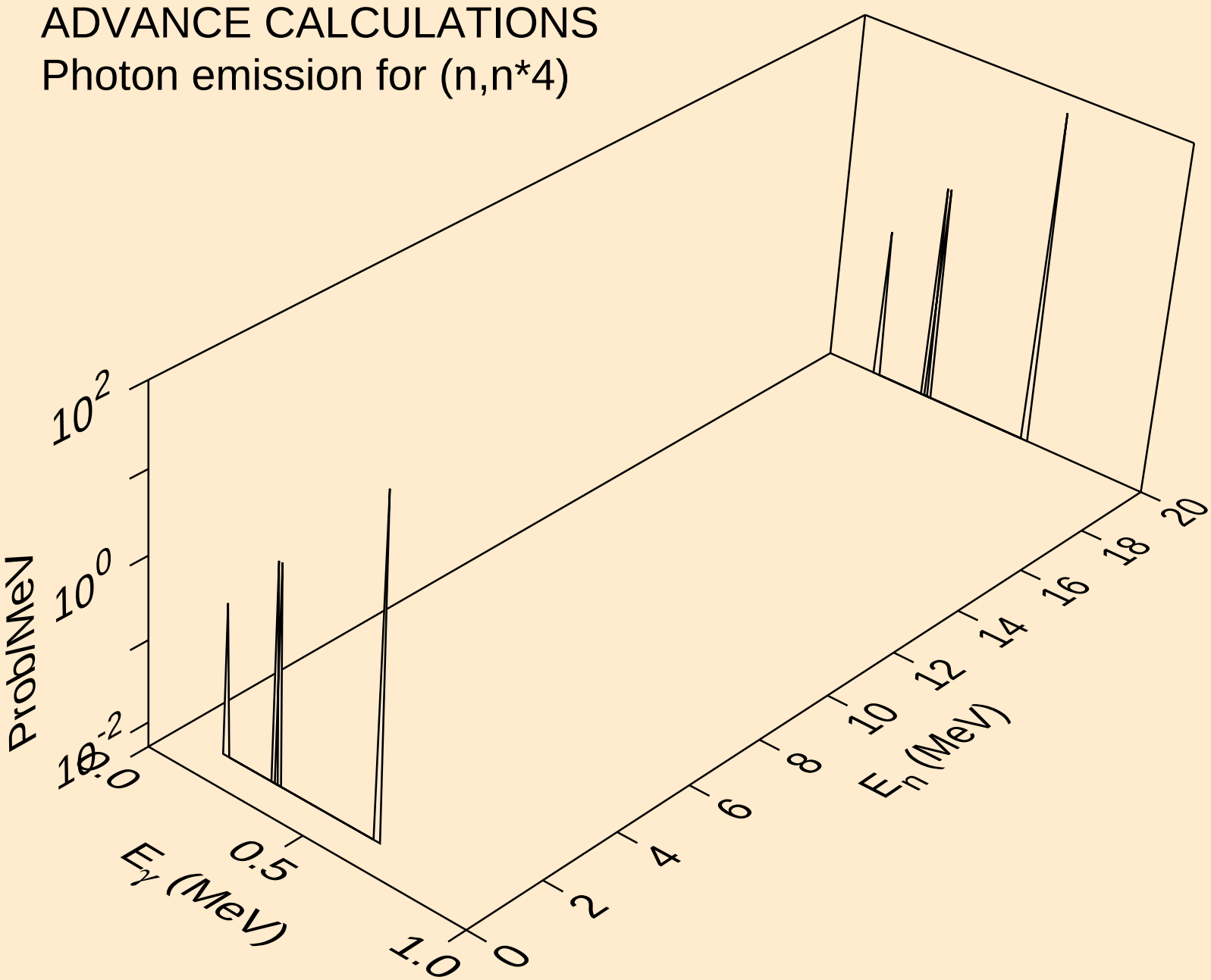
ADVANCE CALCULATIONS

Photon emission for (n,n*3)



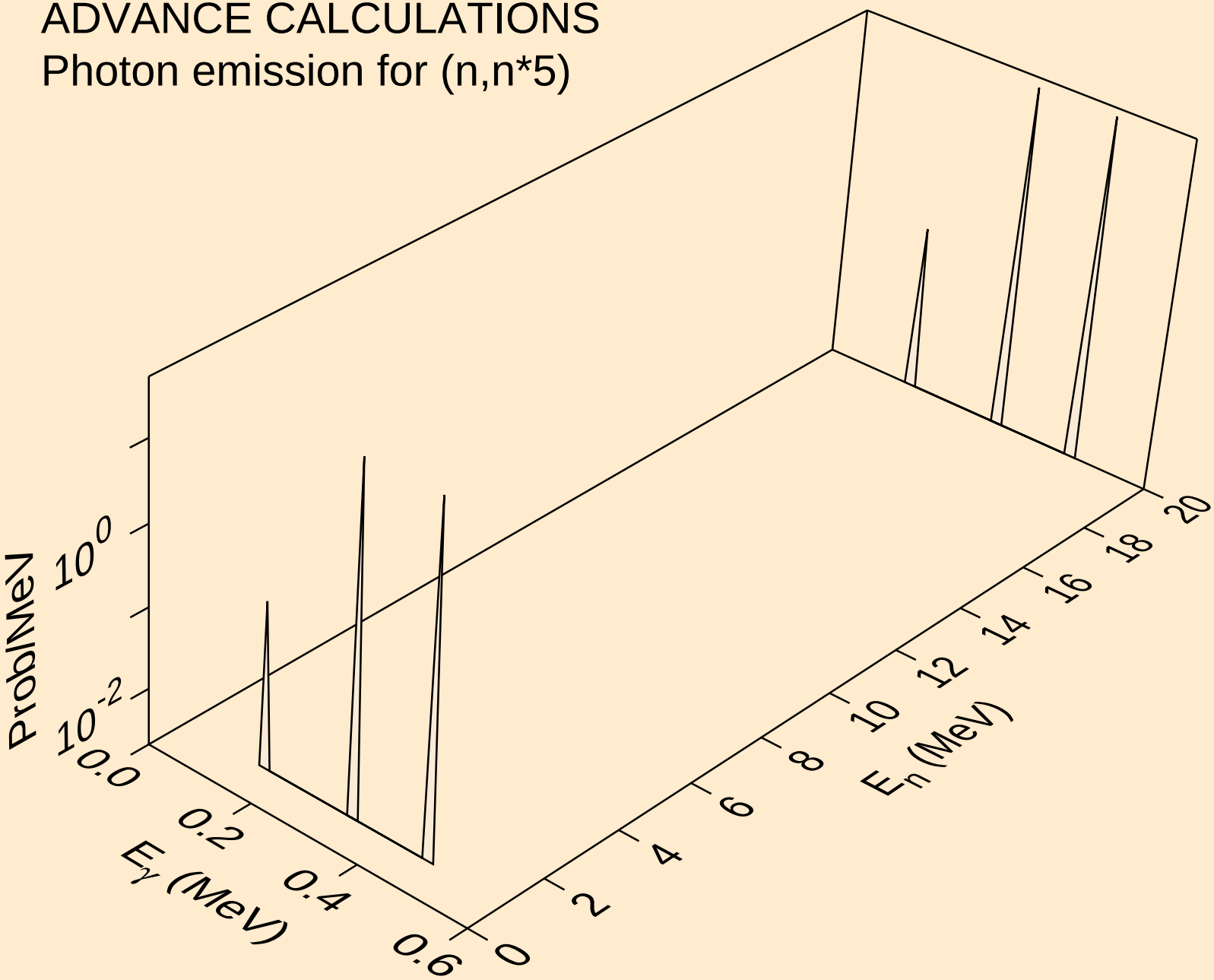
ADVANCE CALCULATIONS

Photon emission for (n,n*4)



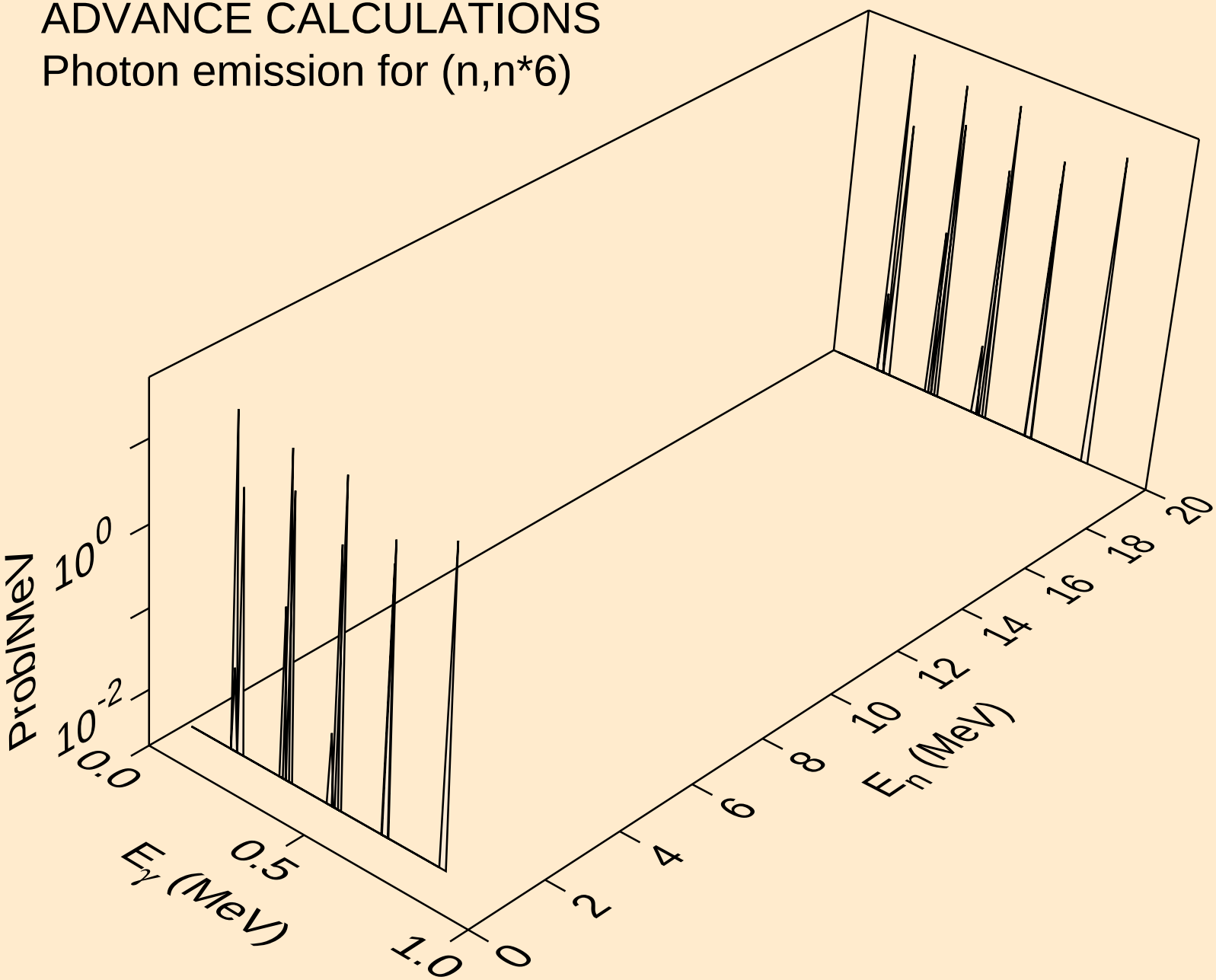
ADVANCE CALCULATIONS

Photon emission for (n,n*5)



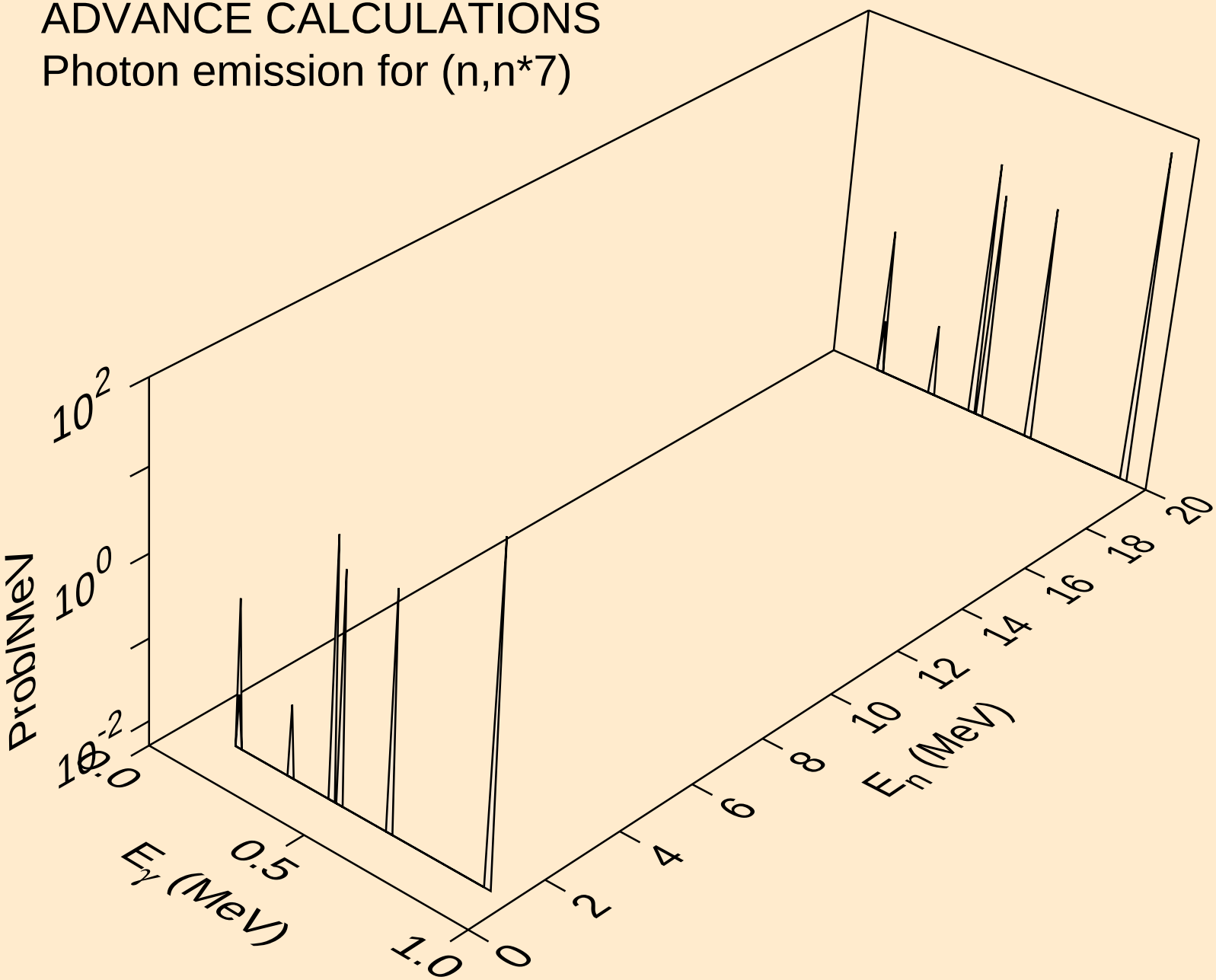
ADVANCE CALCULATIONS

Photon emission for (n,n*6)



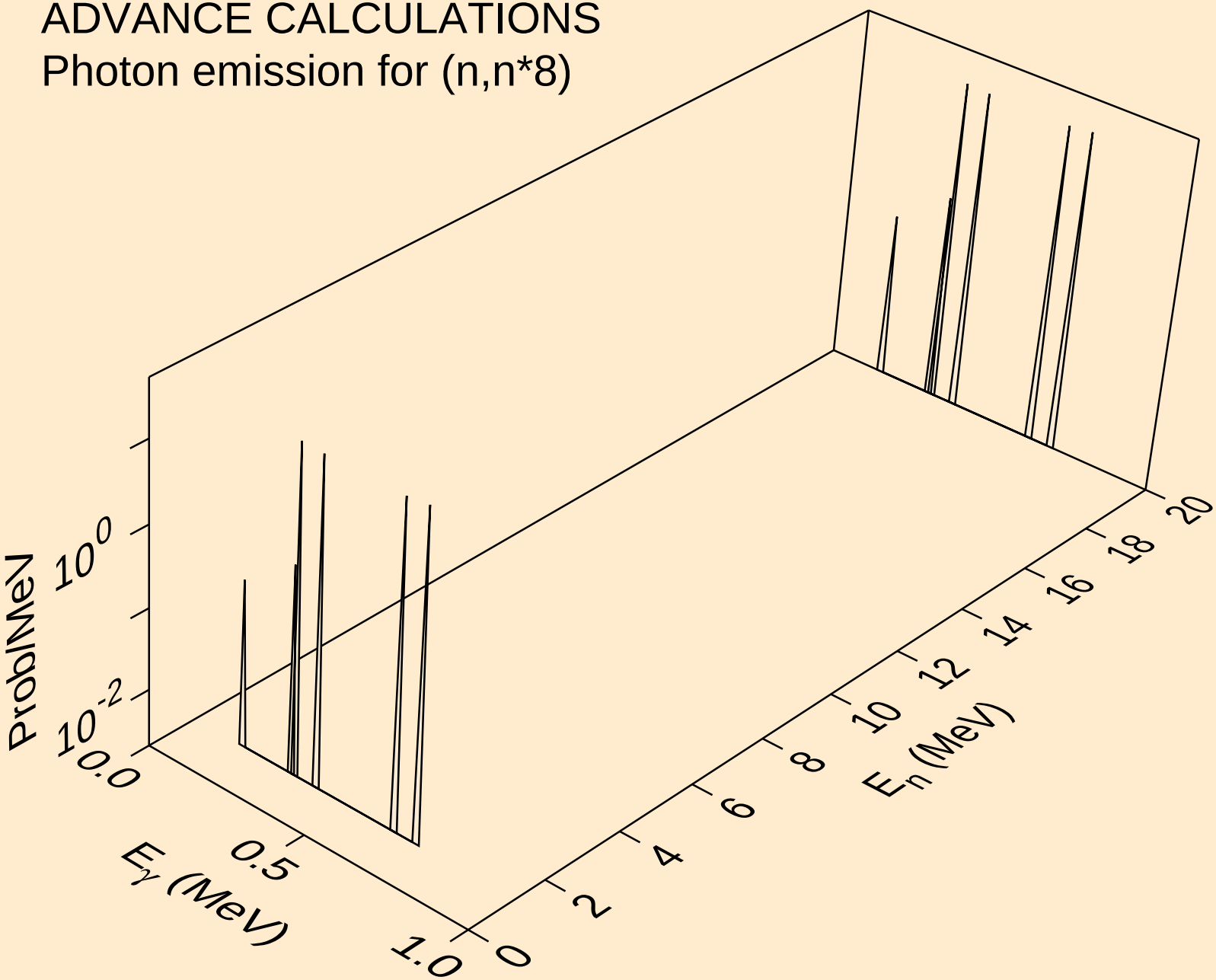
ADVANCE CALCULATIONS

Photon emission for (n,n*7)



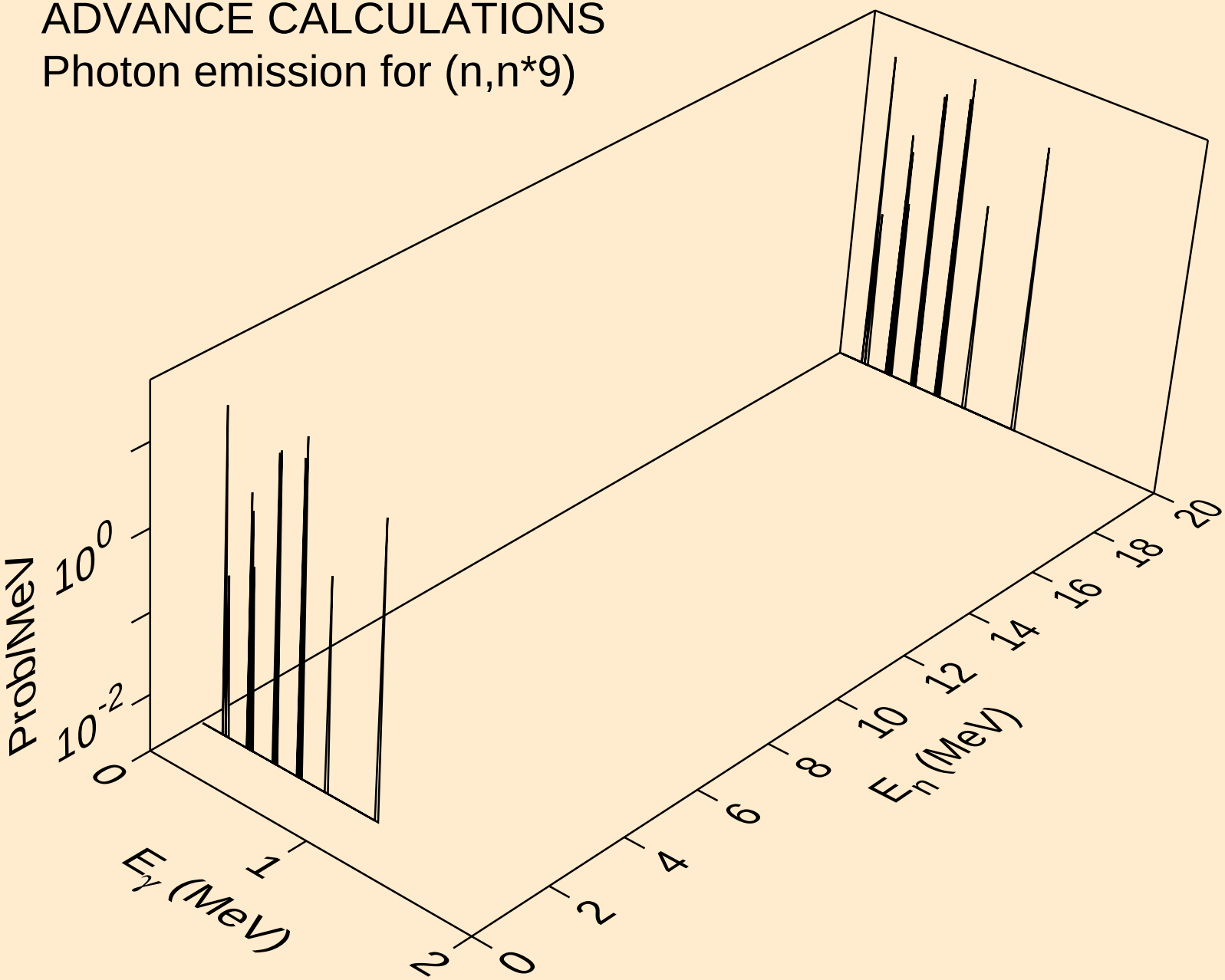
ADVANCE CALCULATIONS

Photon emission for (n,n*8)



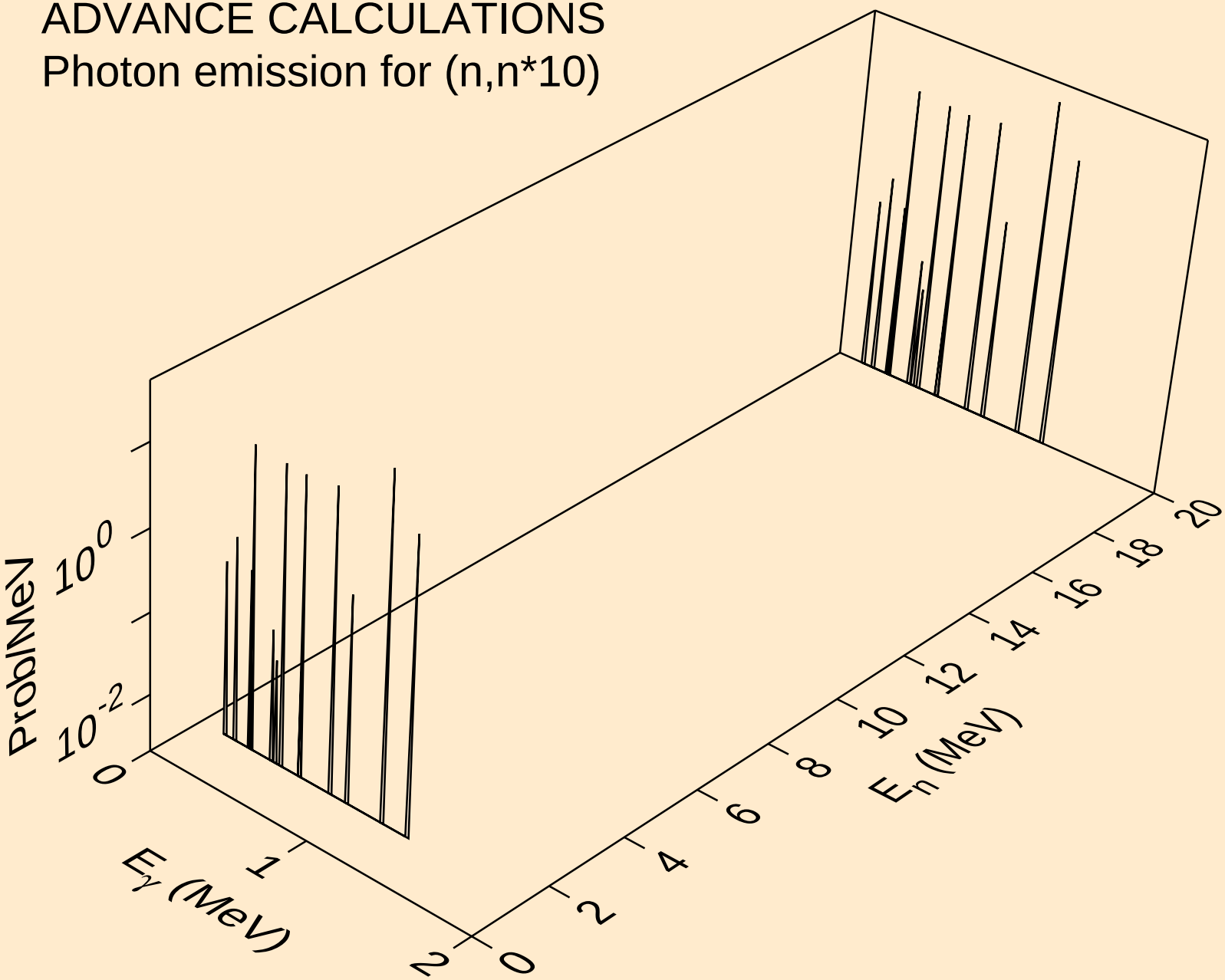
ADVANCE CALCULATIONS

Photon emission for (n,n*9)



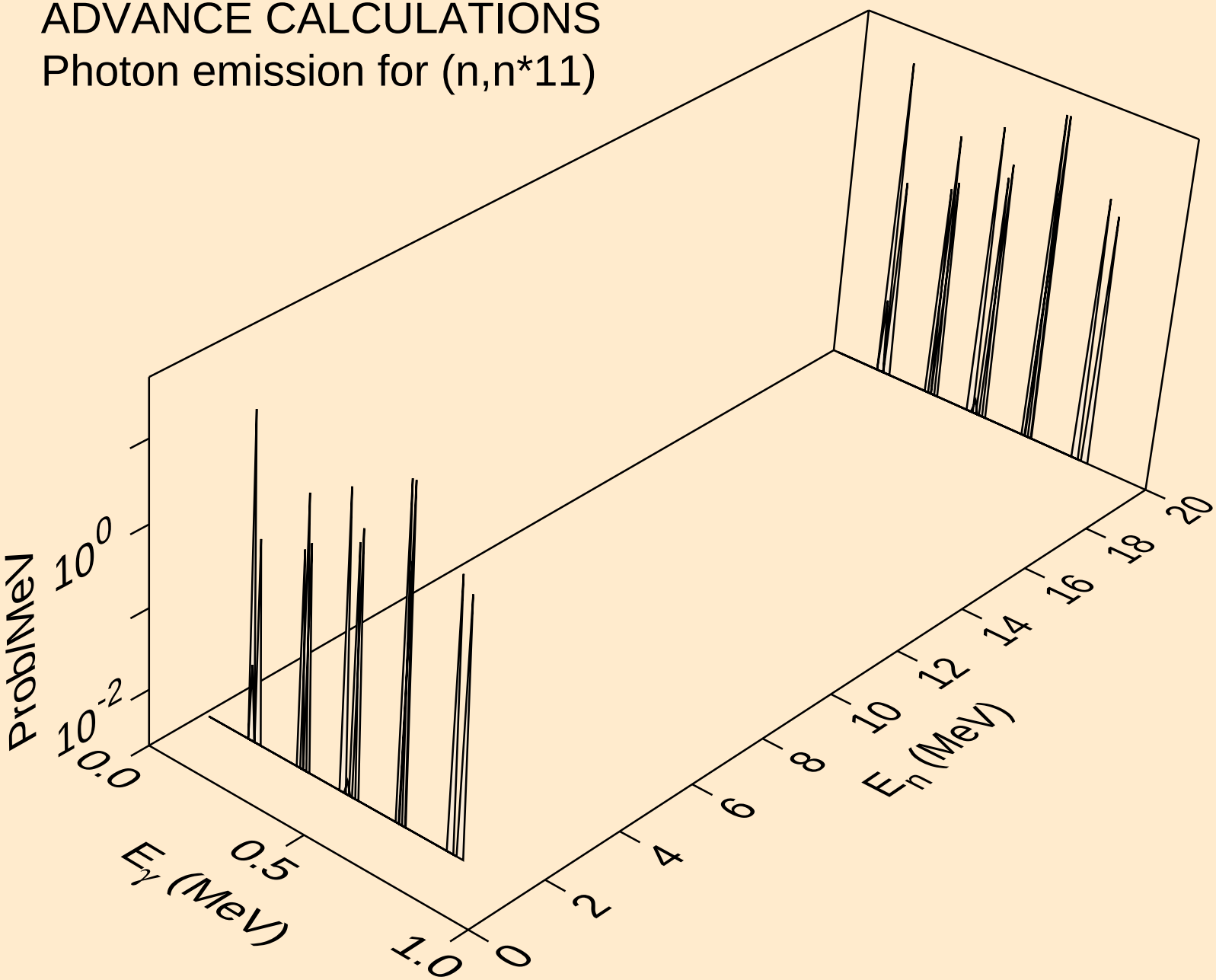
ADVANCE CALCULATIONS

Photon emission for (n,n*10)



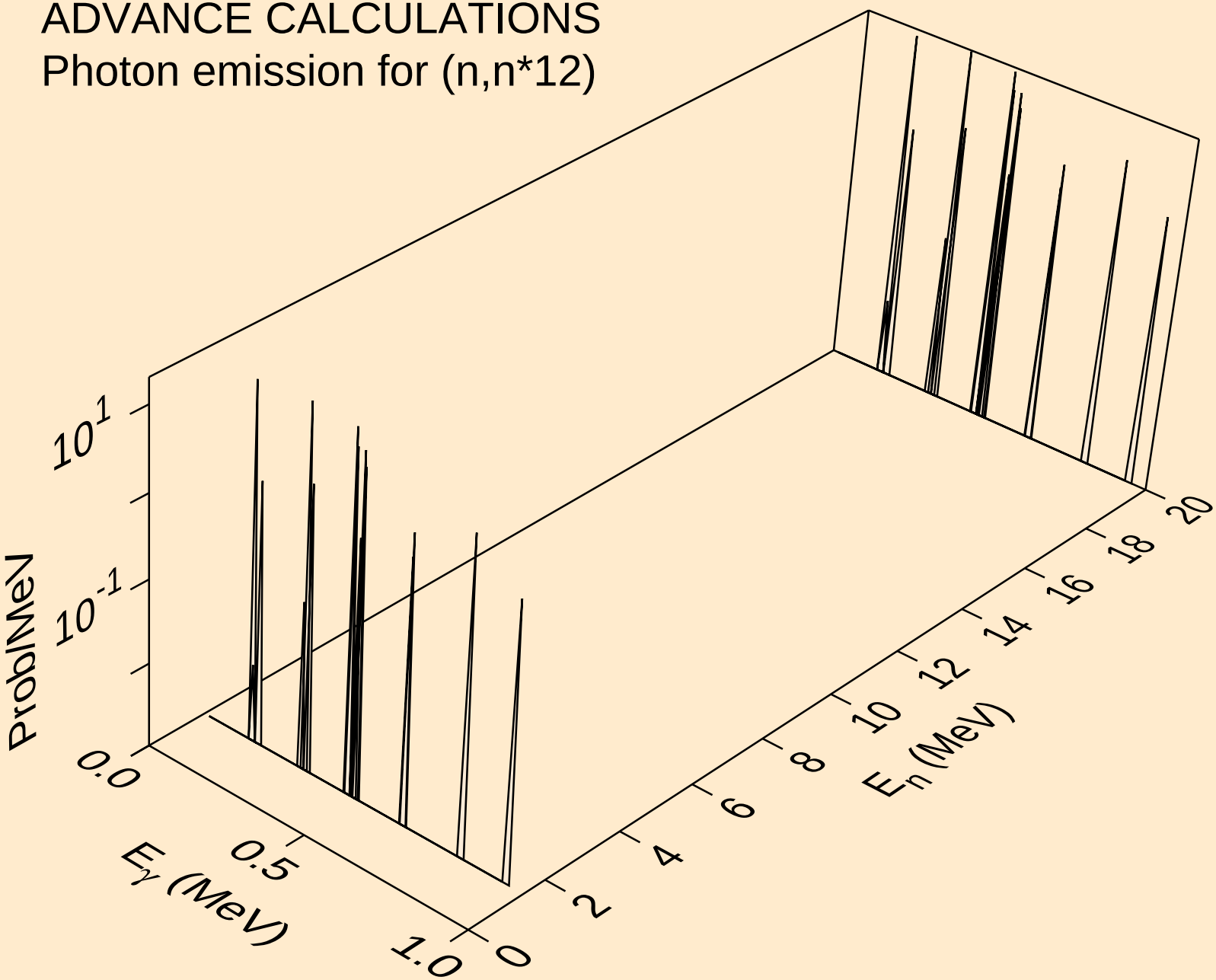
ADVANCE CALCULATIONS

Photon emission for (n,n*11)



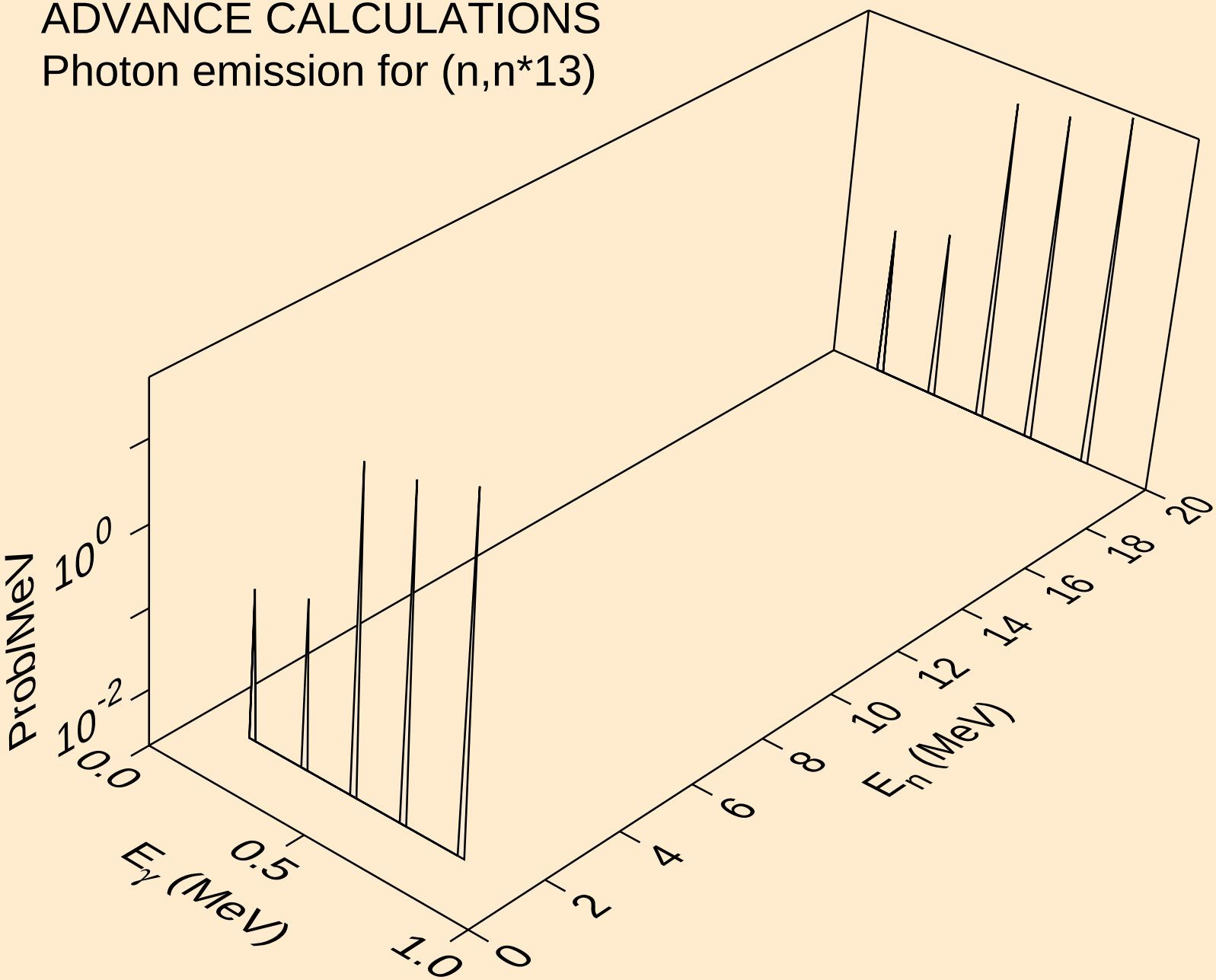
ADVANCE CALCULATIONS

Photon emission for (n,n*12)



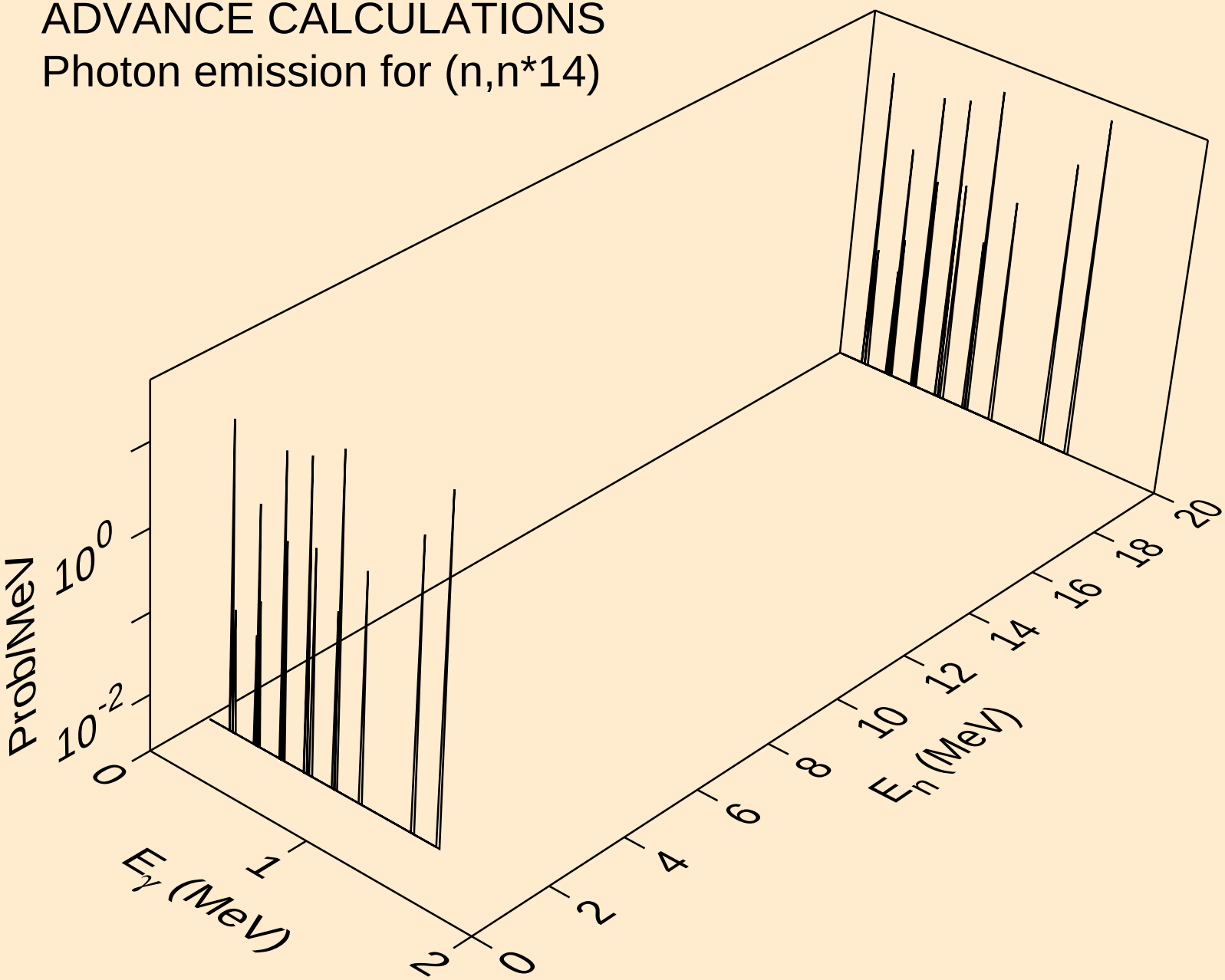
ADVANCE CALCULATIONS

Photon emission for (n,n*13)



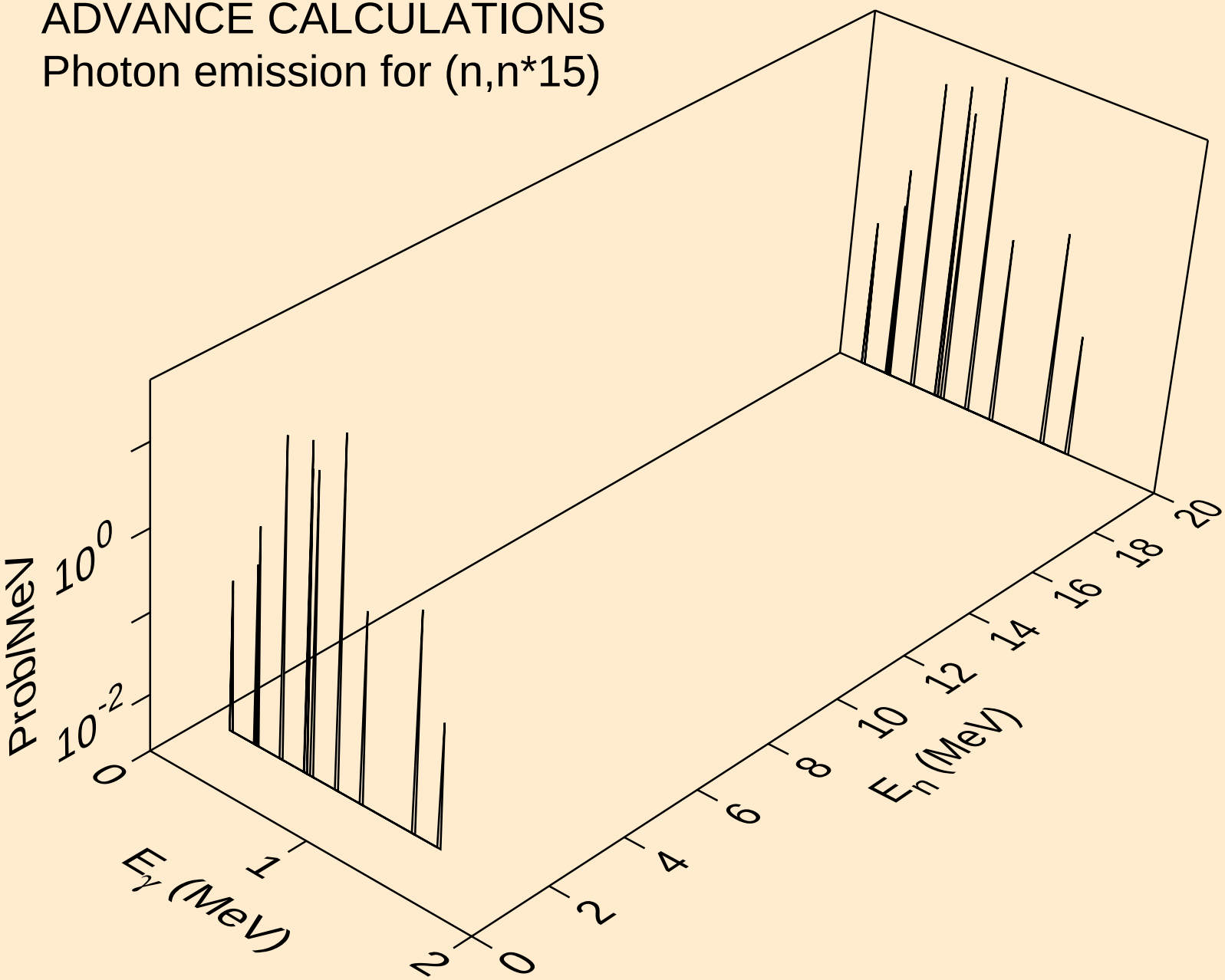
ADVANCE CALCULATIONS

Photon emission for (n,n*14)



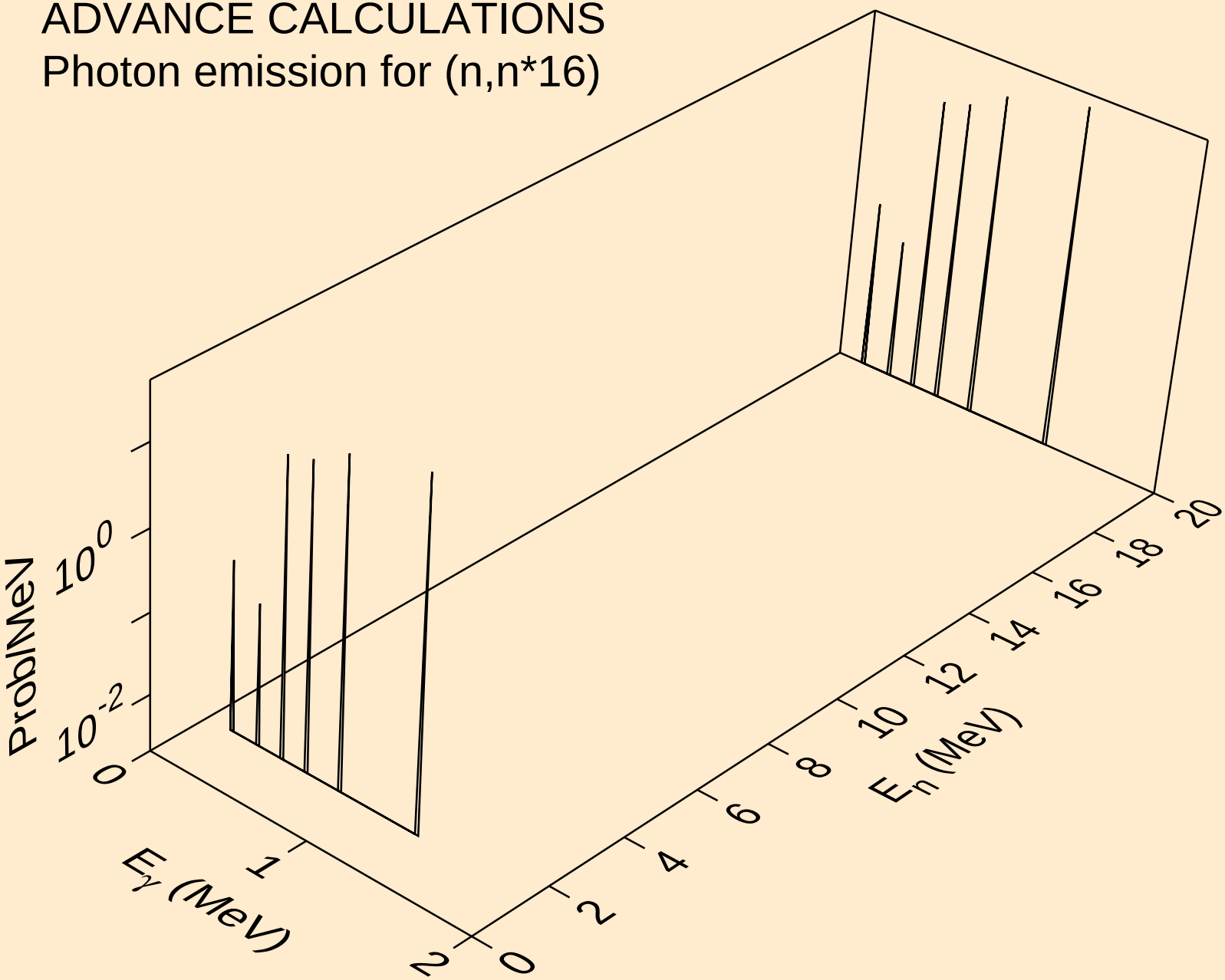
ADVANCE CALCULATIONS

Photon emission for (n,n*15)



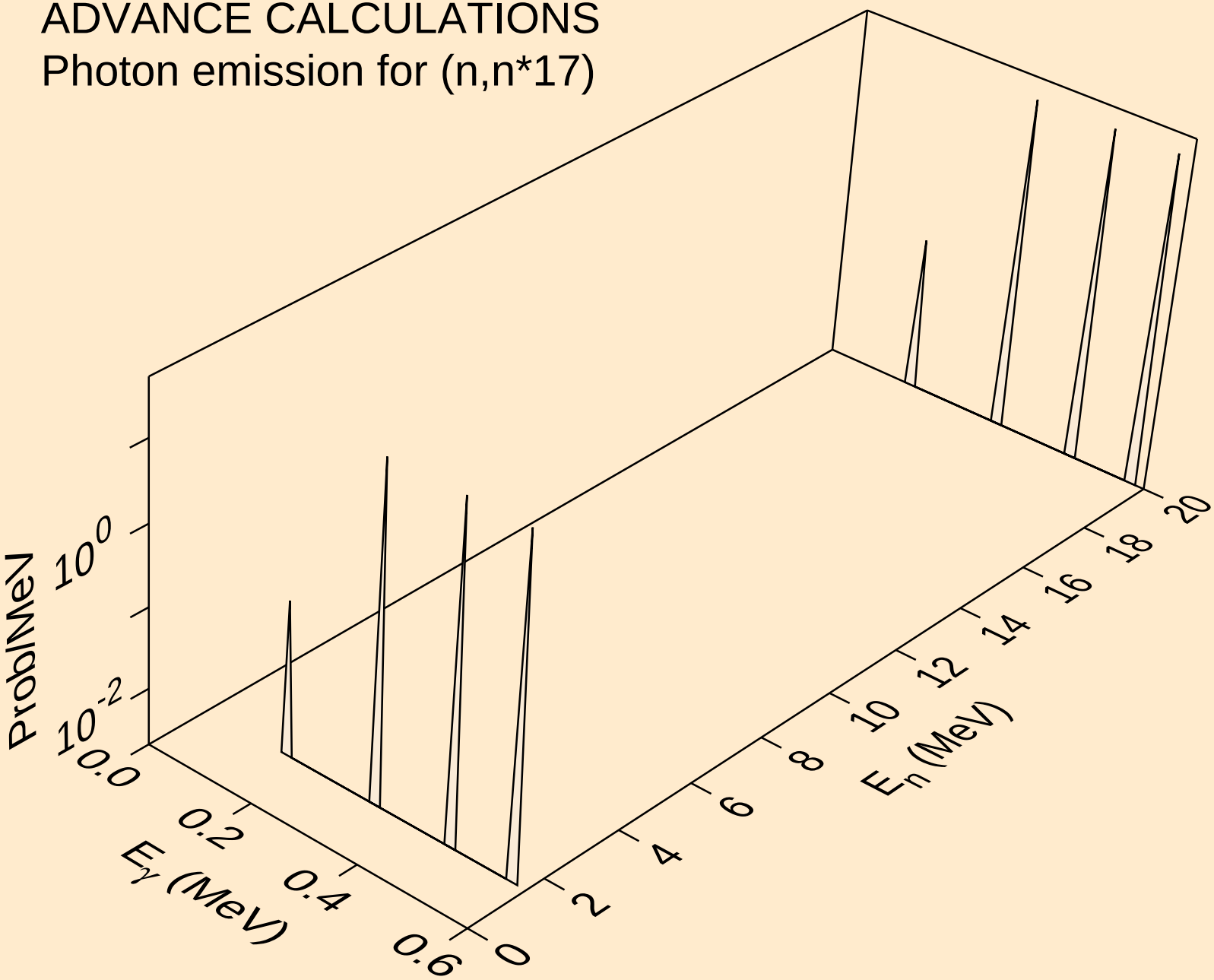
ADVANCE CALCULATIONS

Photon emission for (n,n*16)



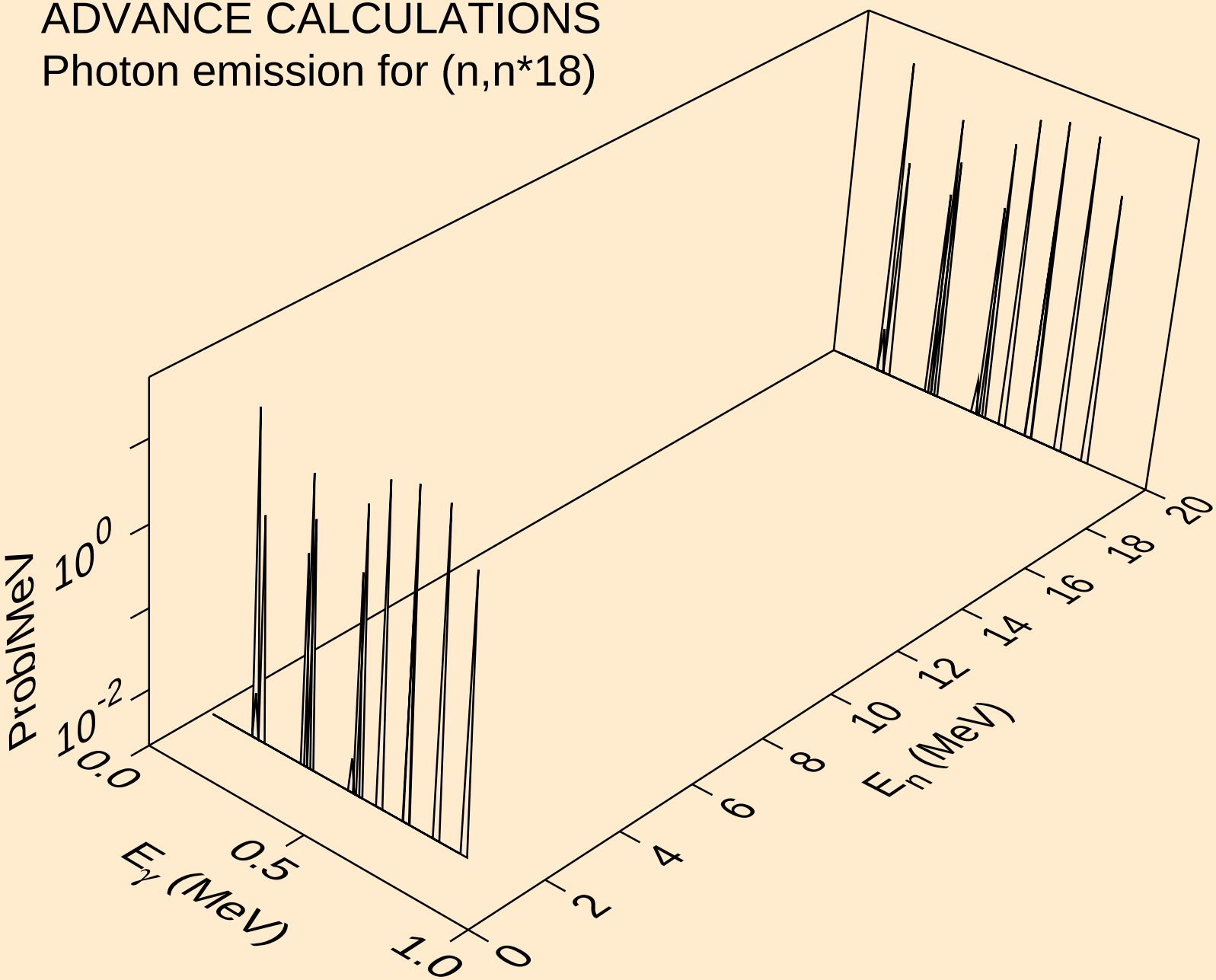
ADVANCE CALCULATIONS

Photon emission for (n,n*17)



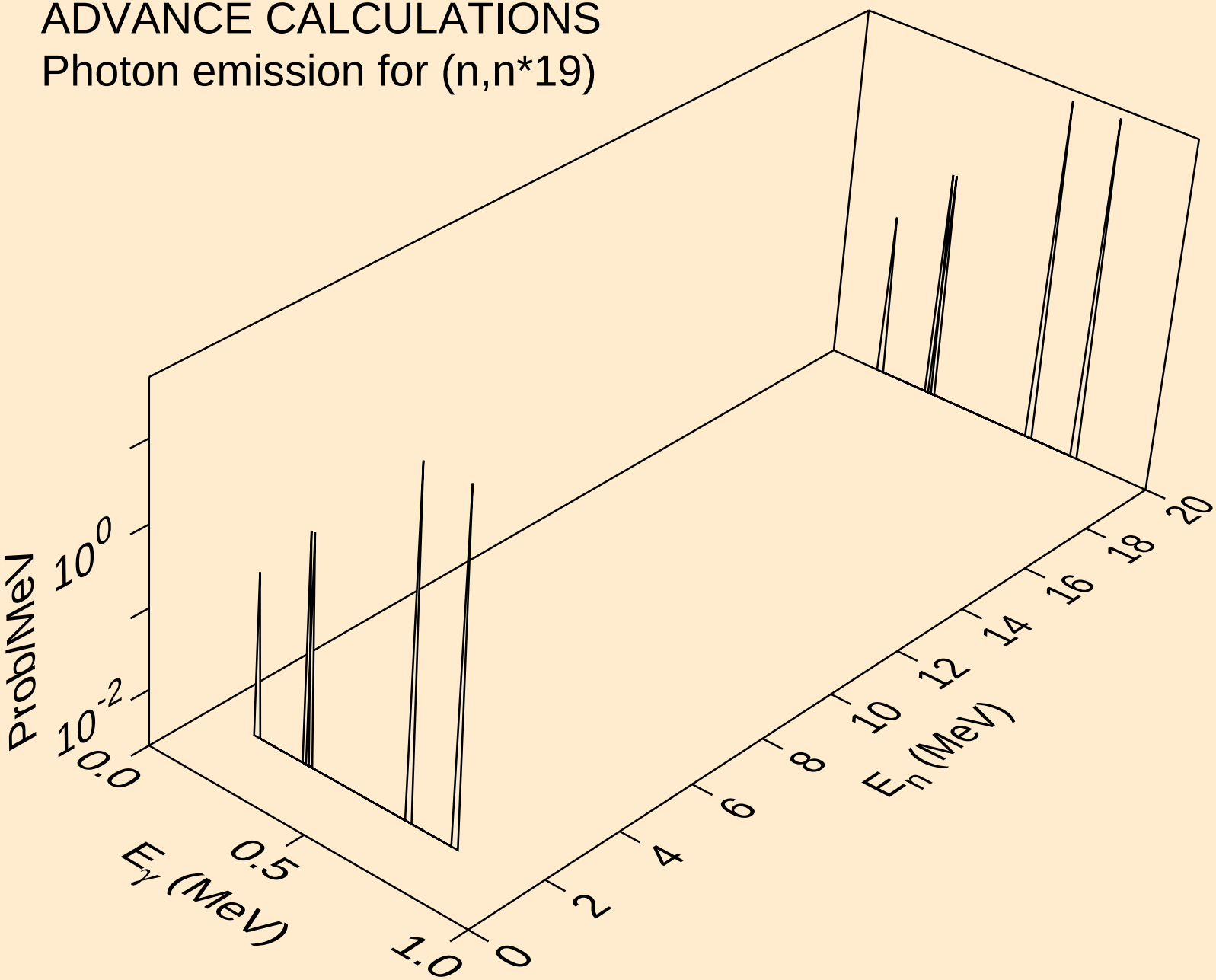
ADVANCE CALCULATIONS

Photon emission for (n,n*18)



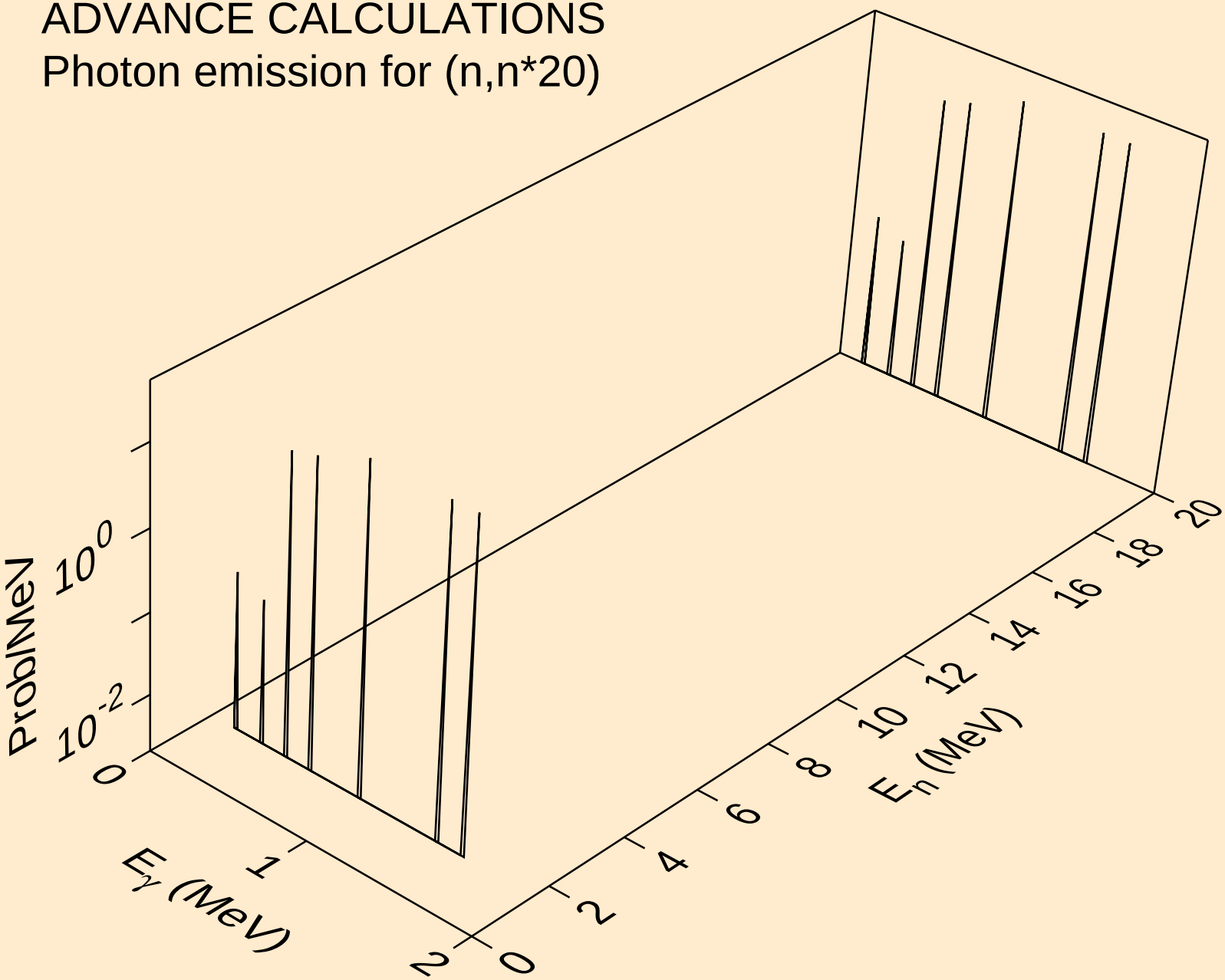
ADVANCE CALCULATIONS

Photon emission for (n,n*19)



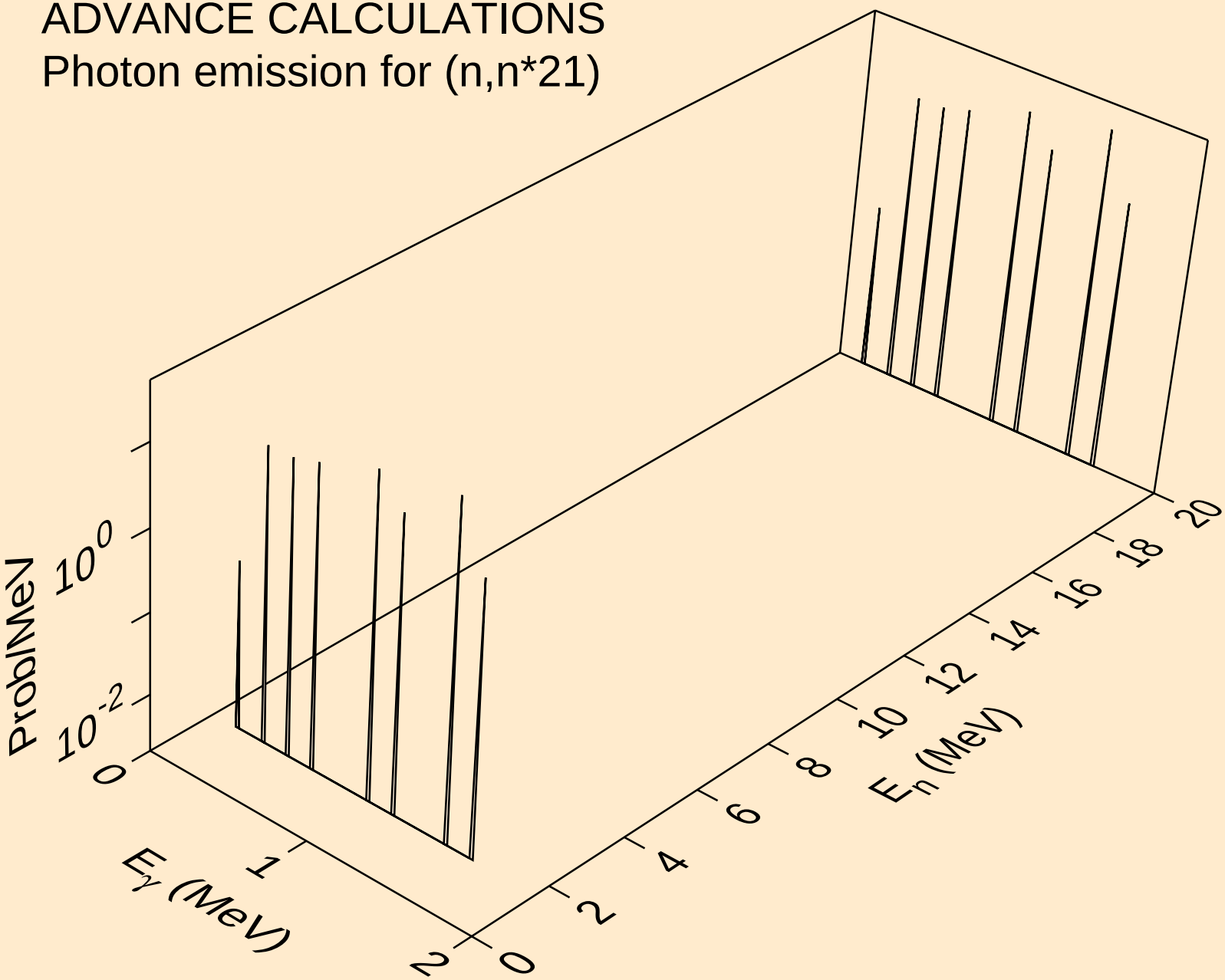
ADVANCE CALCULATIONS

Photon emission for (n,n*20)



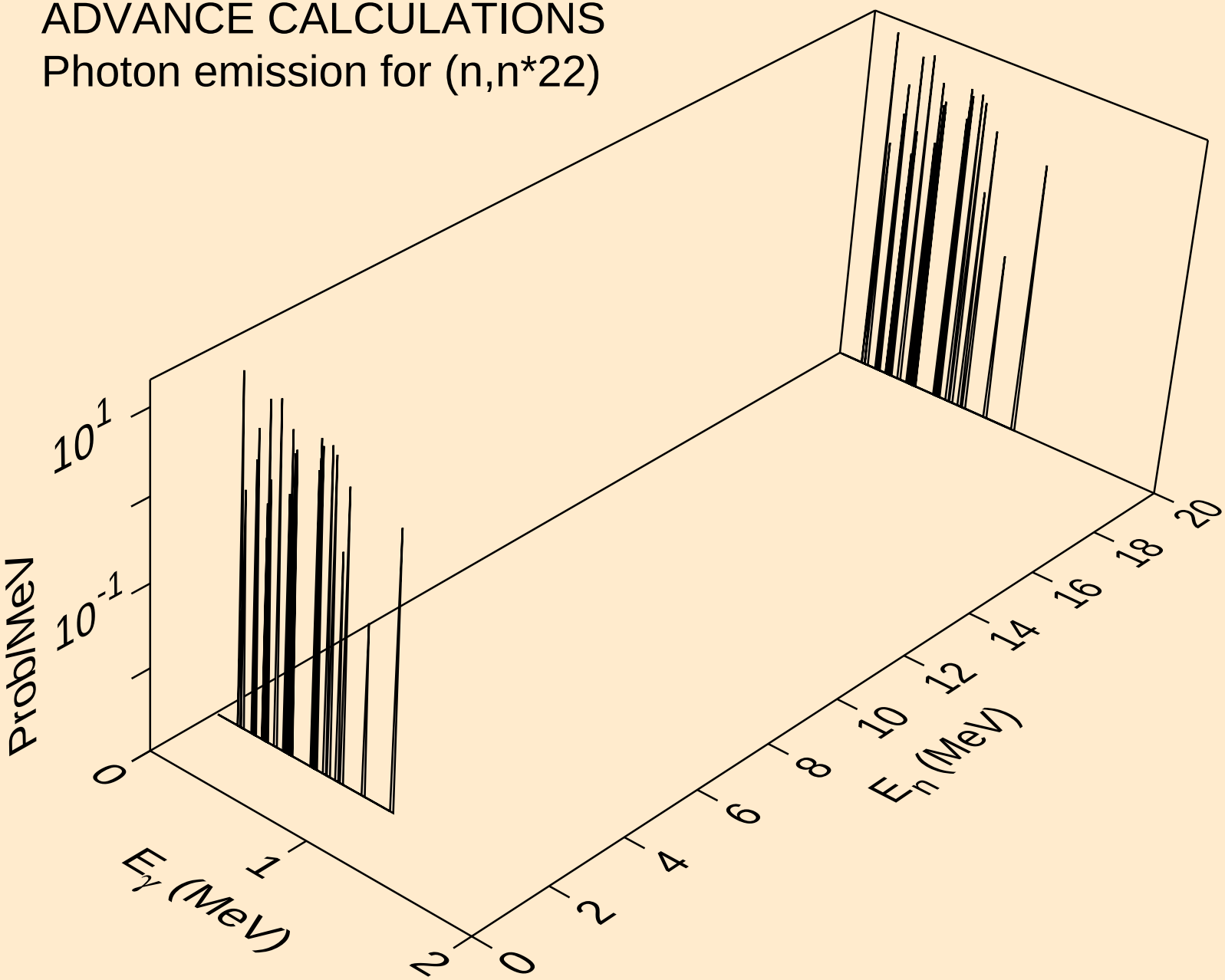
ADVANCE CALCULATIONS

Photon emission for (n,n*21)



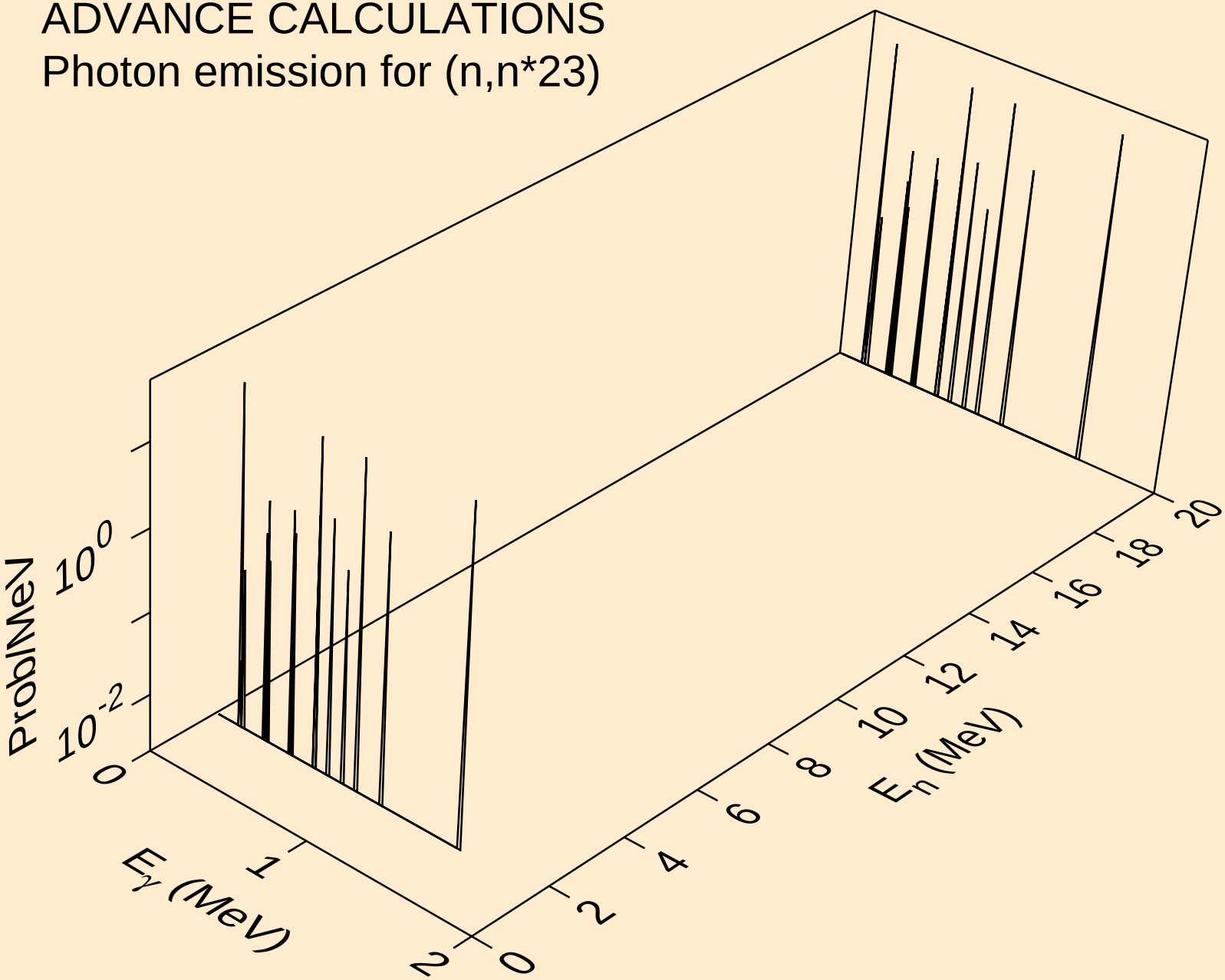
ADVANCE CALCULATIONS

Photon emission for (n,n*22)



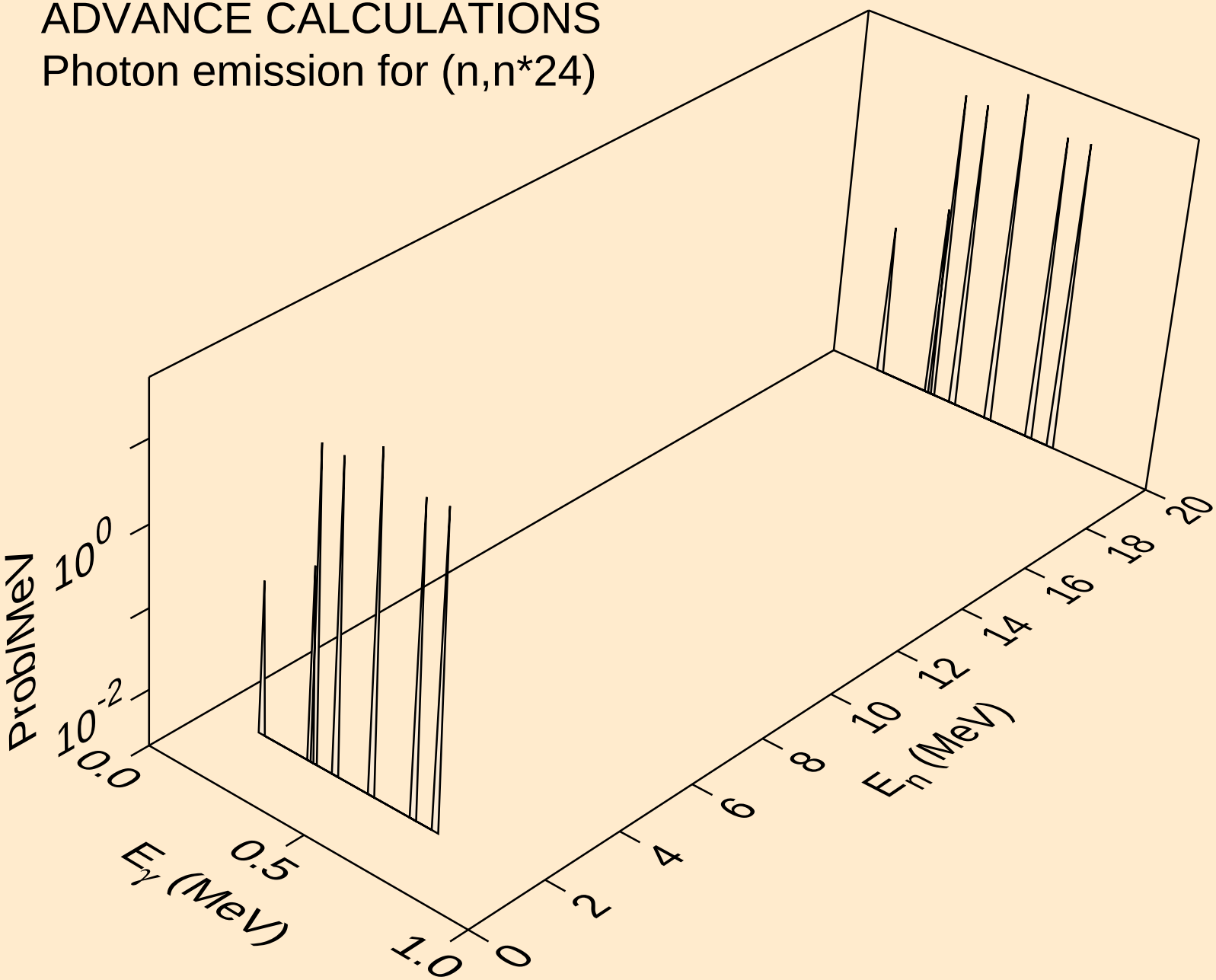
ADVANCE CALCULATIONS

Photon emission for (n,n*23)



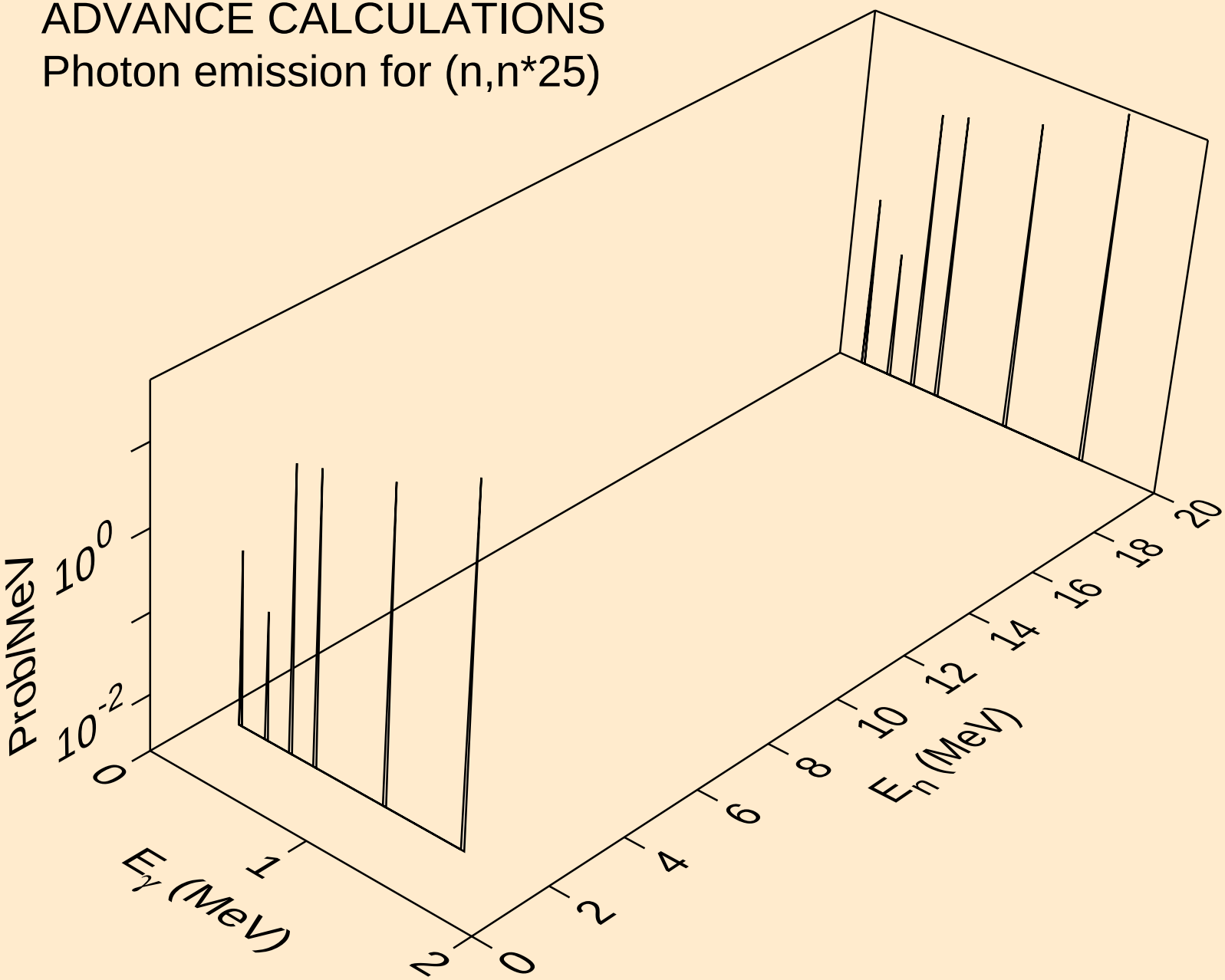
ADVANCE CALCULATIONS

Photon emission for (n,n*24)



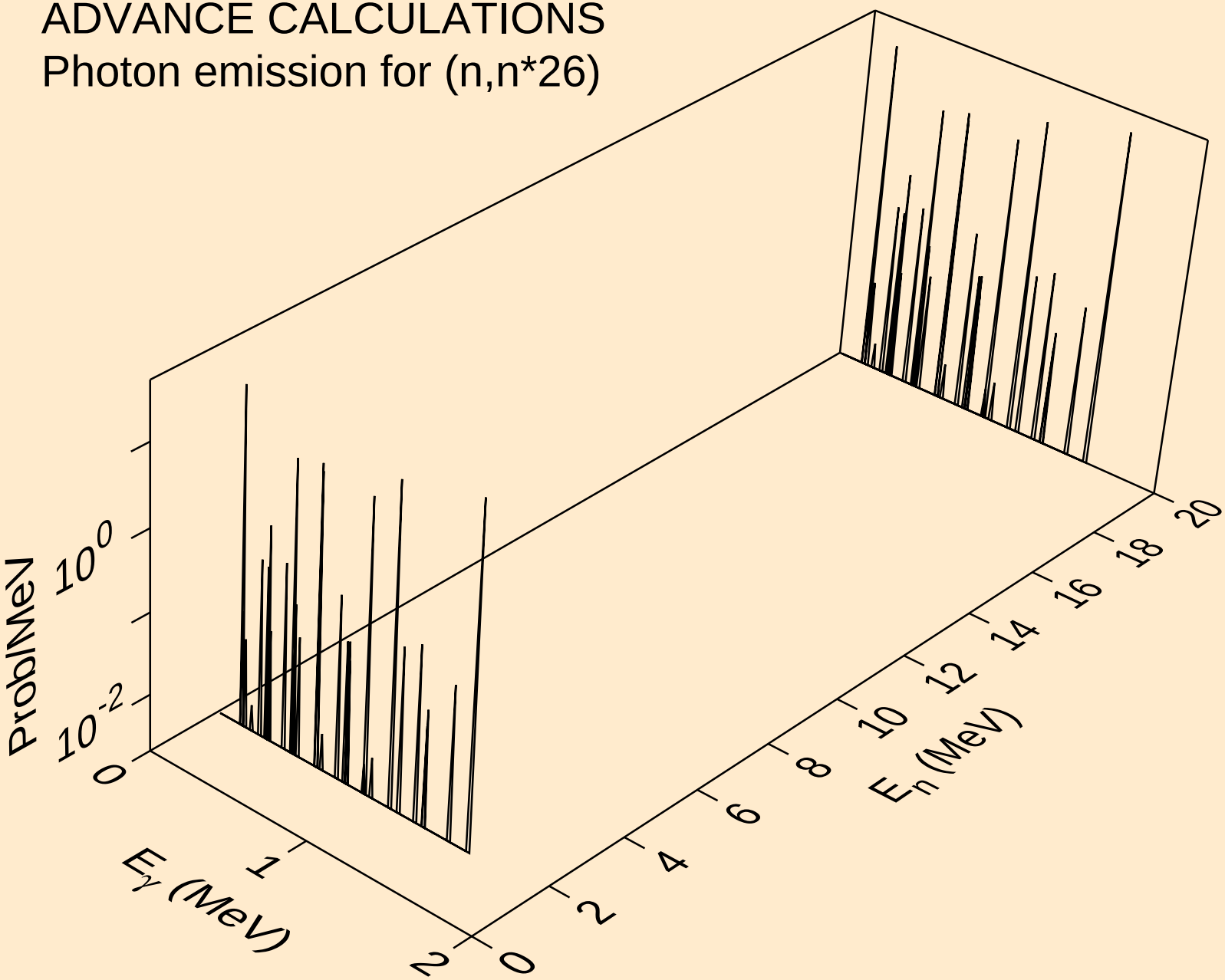
ADVANCE CALCULATIONS

Photon emission for (n,n*25)



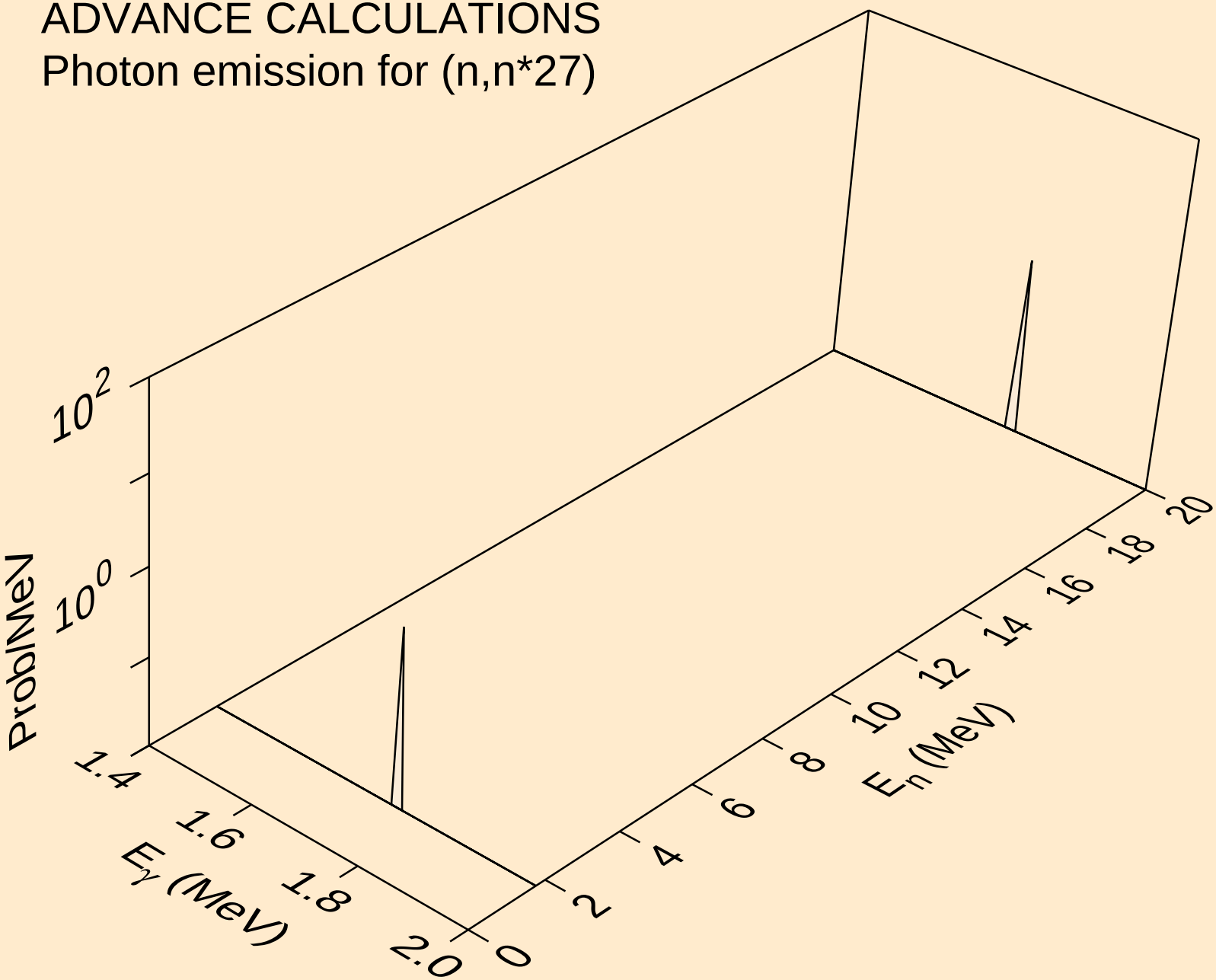
ADVANCE CALCULATIONS

Photon emission for (n,n*26)



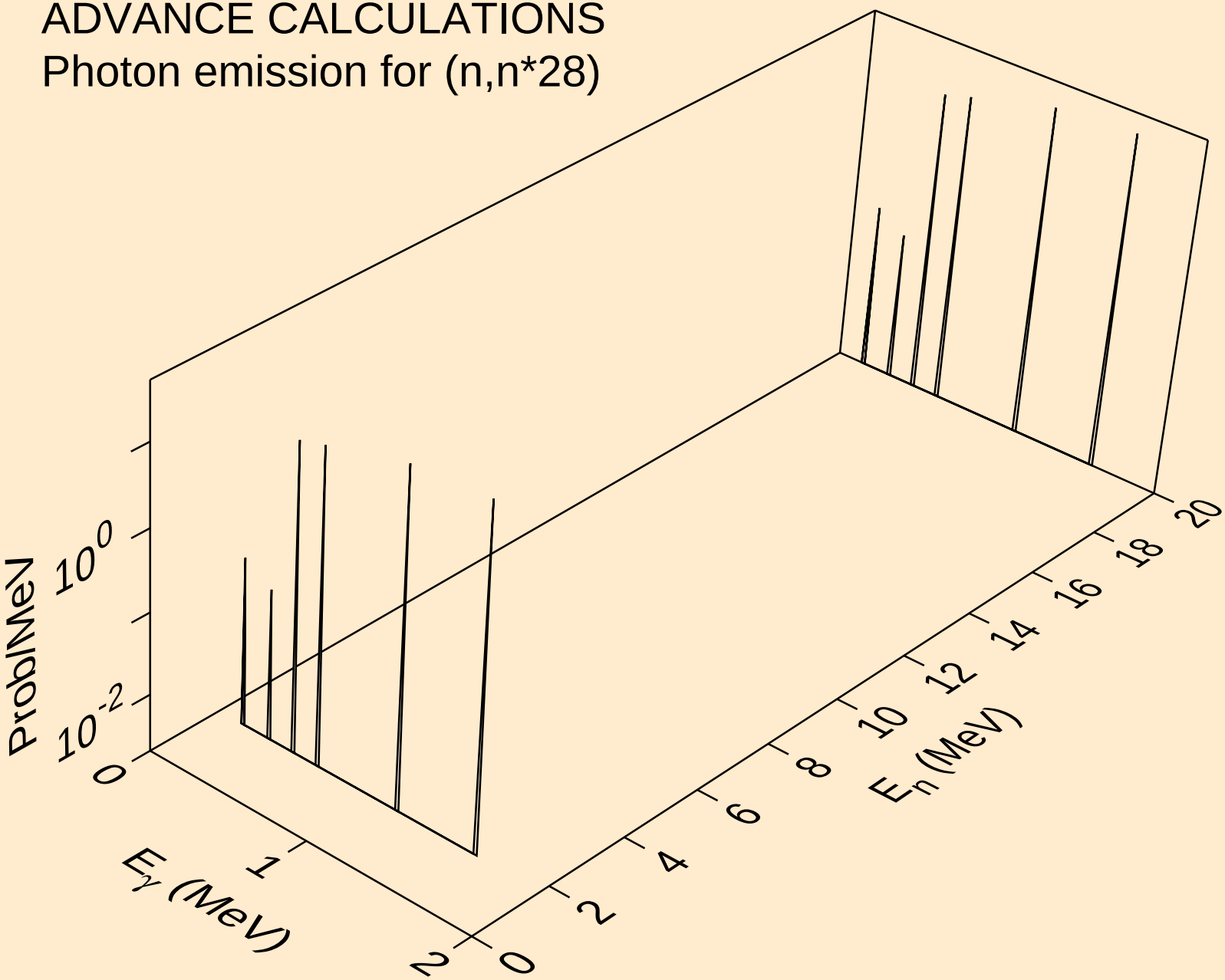
ADVANCE CALCULATIONS

Photon emission for (n,n*27)



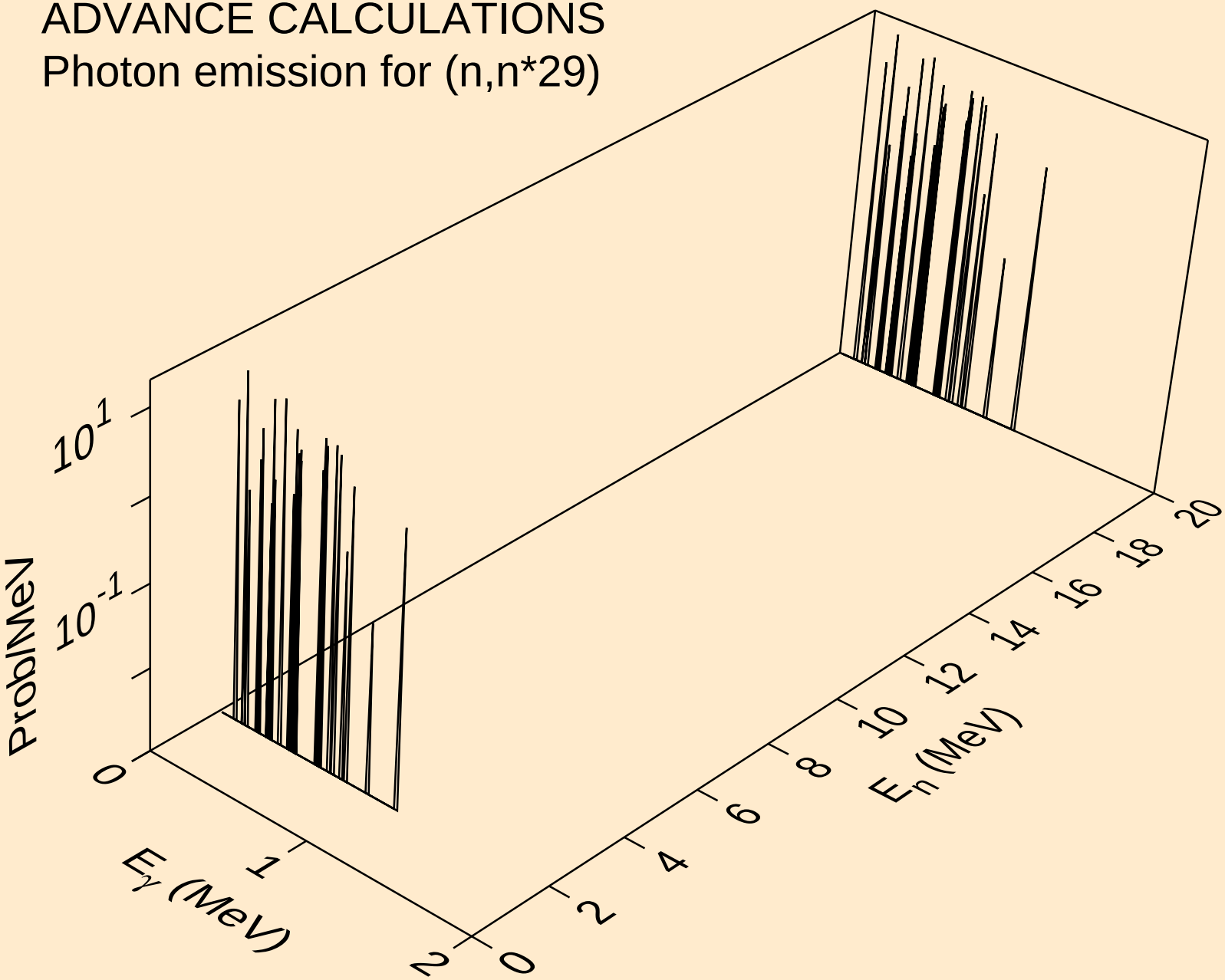
ADVANCE CALCULATIONS

Photon emission for (n,n*28)



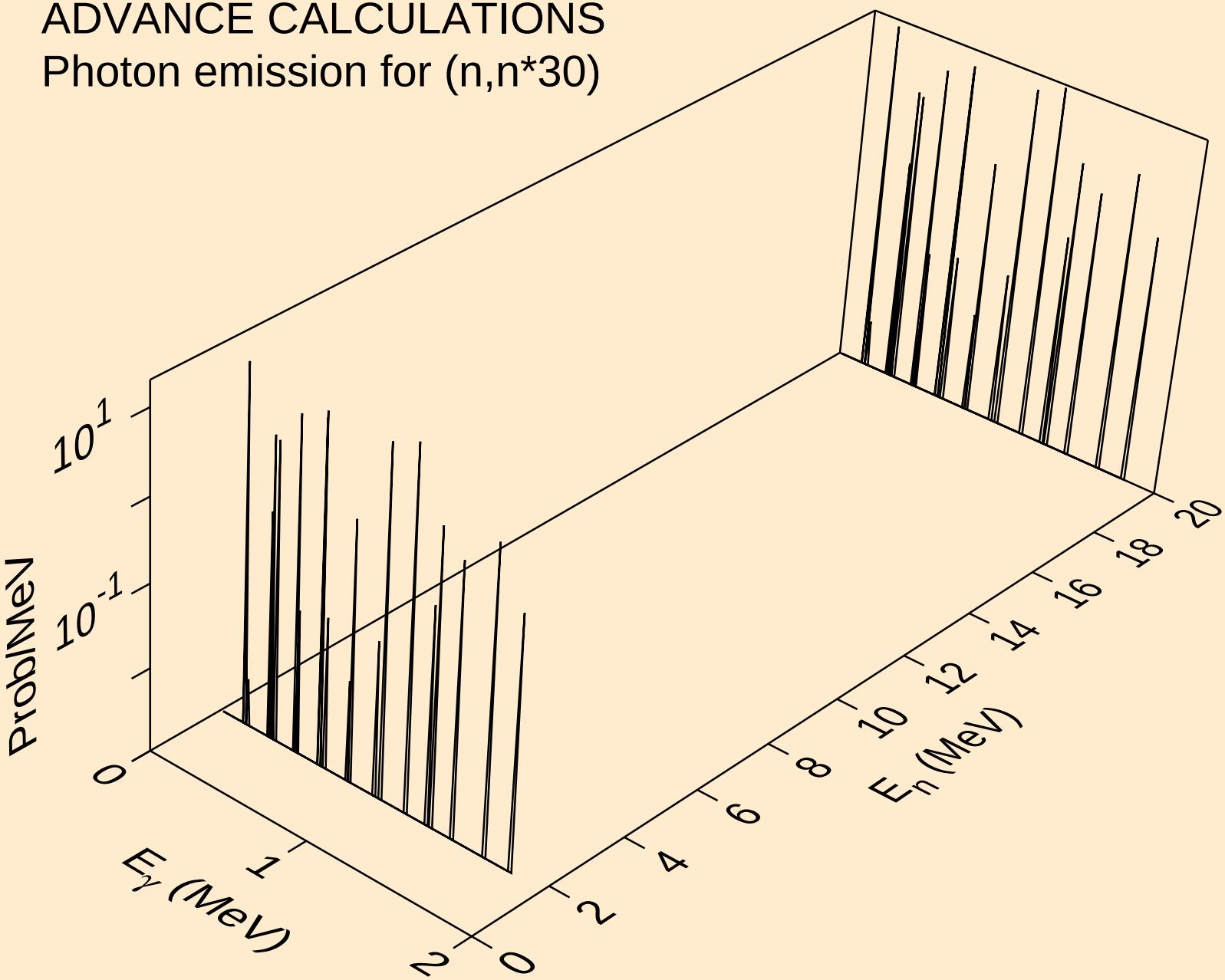
ADVANCE CALCULATIONS

Photon emission for (n,n*29)



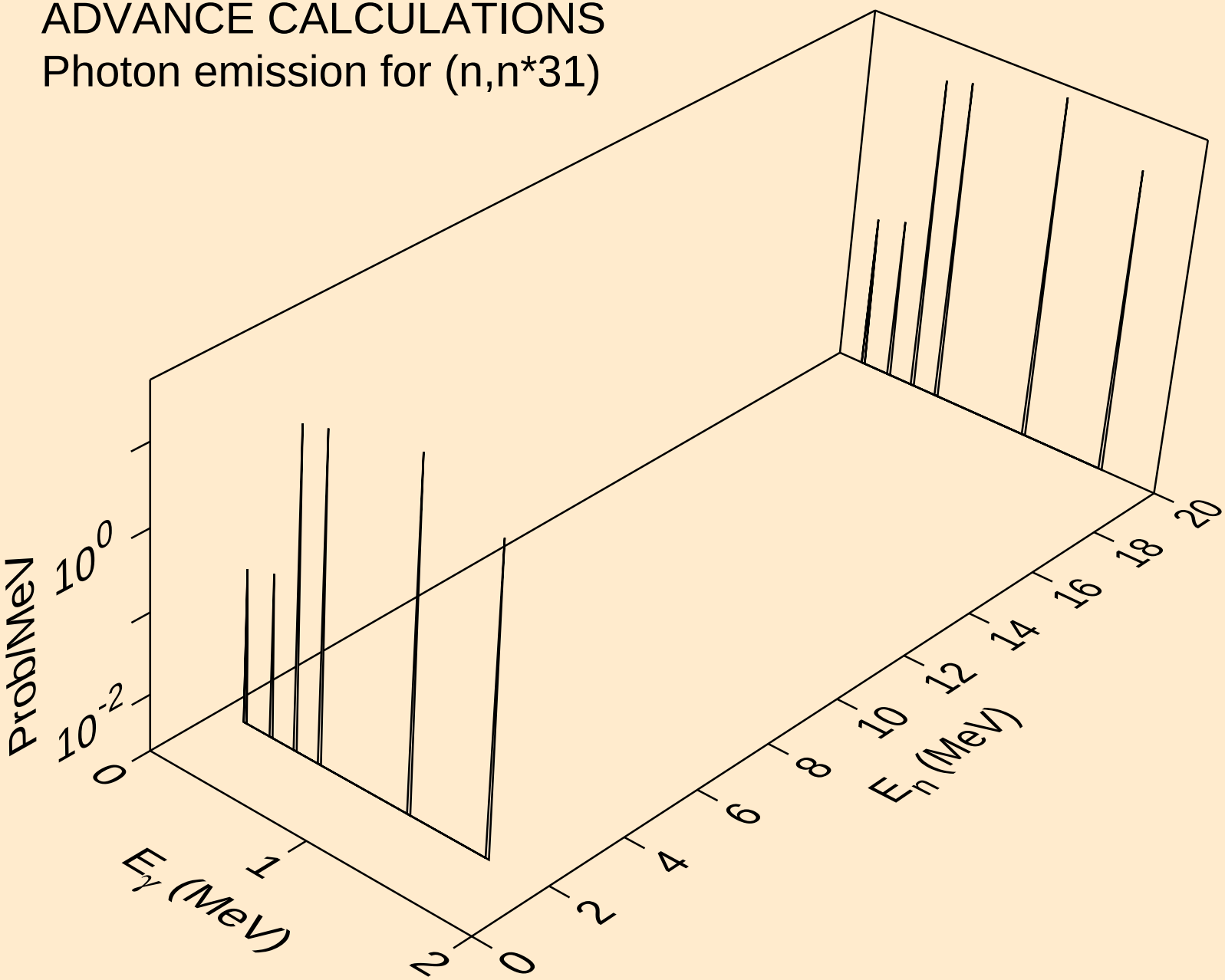
ADVANCE CALCULATIONS

Photon emission for (n,n*30)



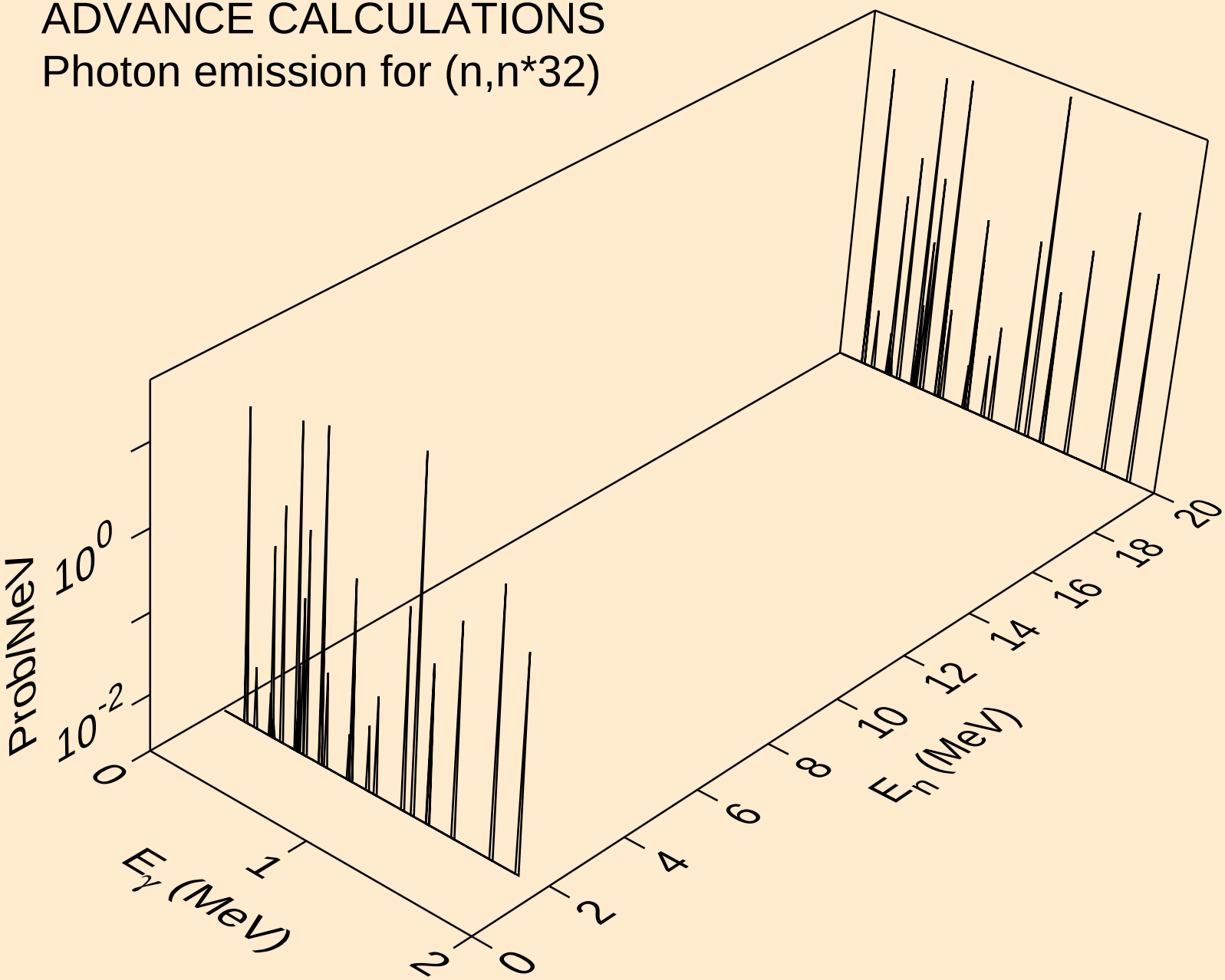
ADVANCE CALCULATIONS

Photon emission for (n,n*31)



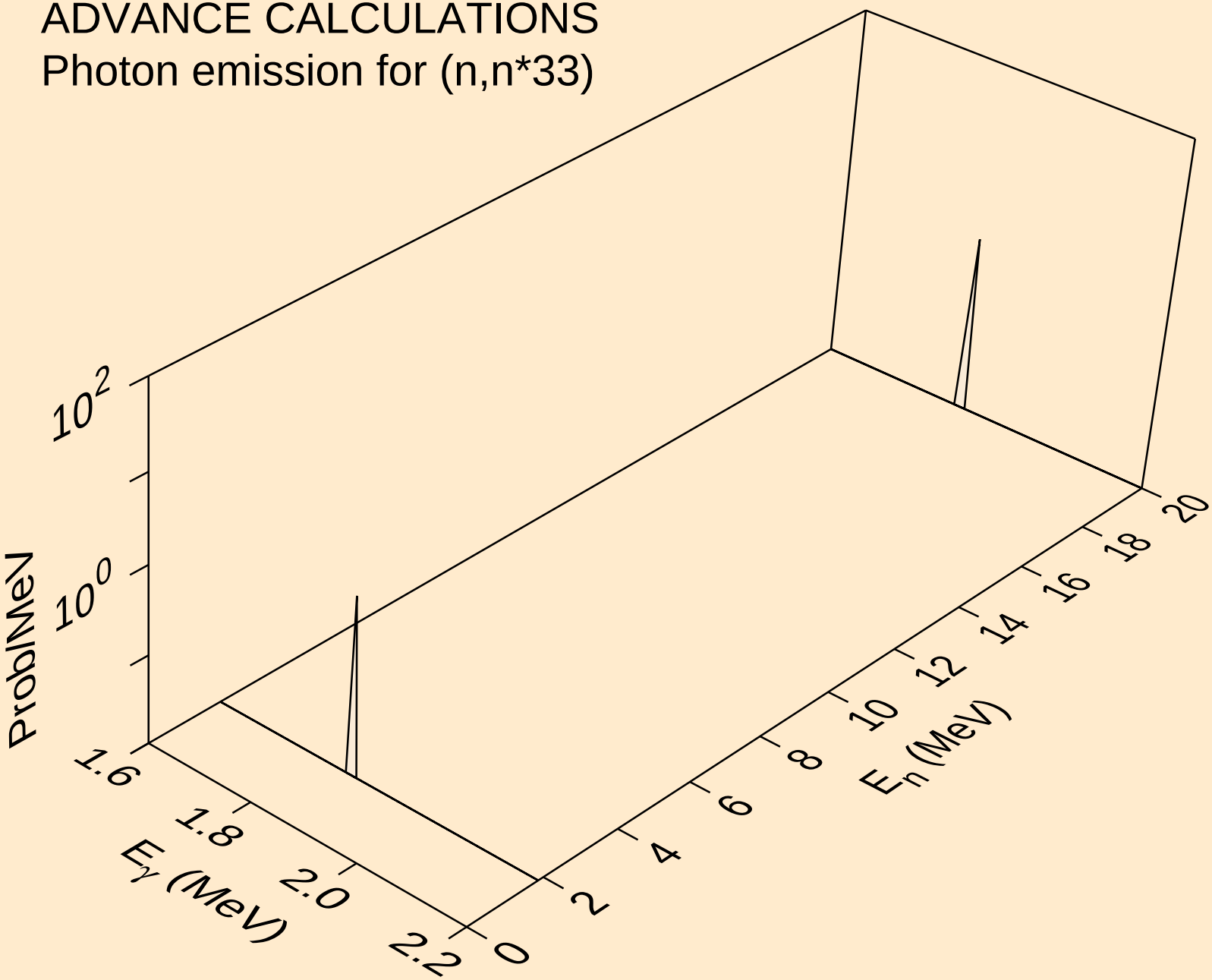
ADVANCE CALCULATIONS

Photon emission for (n,n*32)



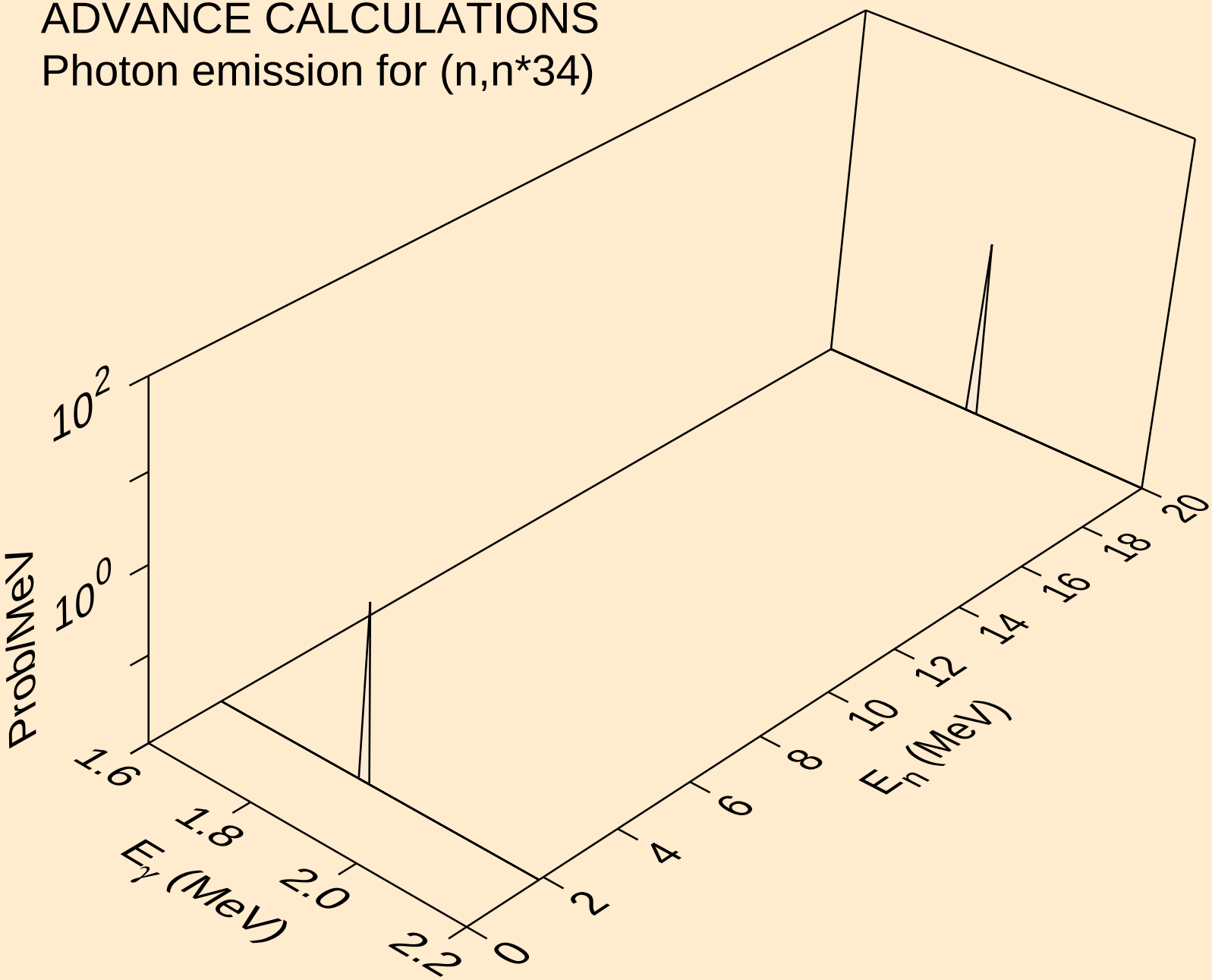
ADVANCE CALCULATIONS

Photon emission for (n,n*33)



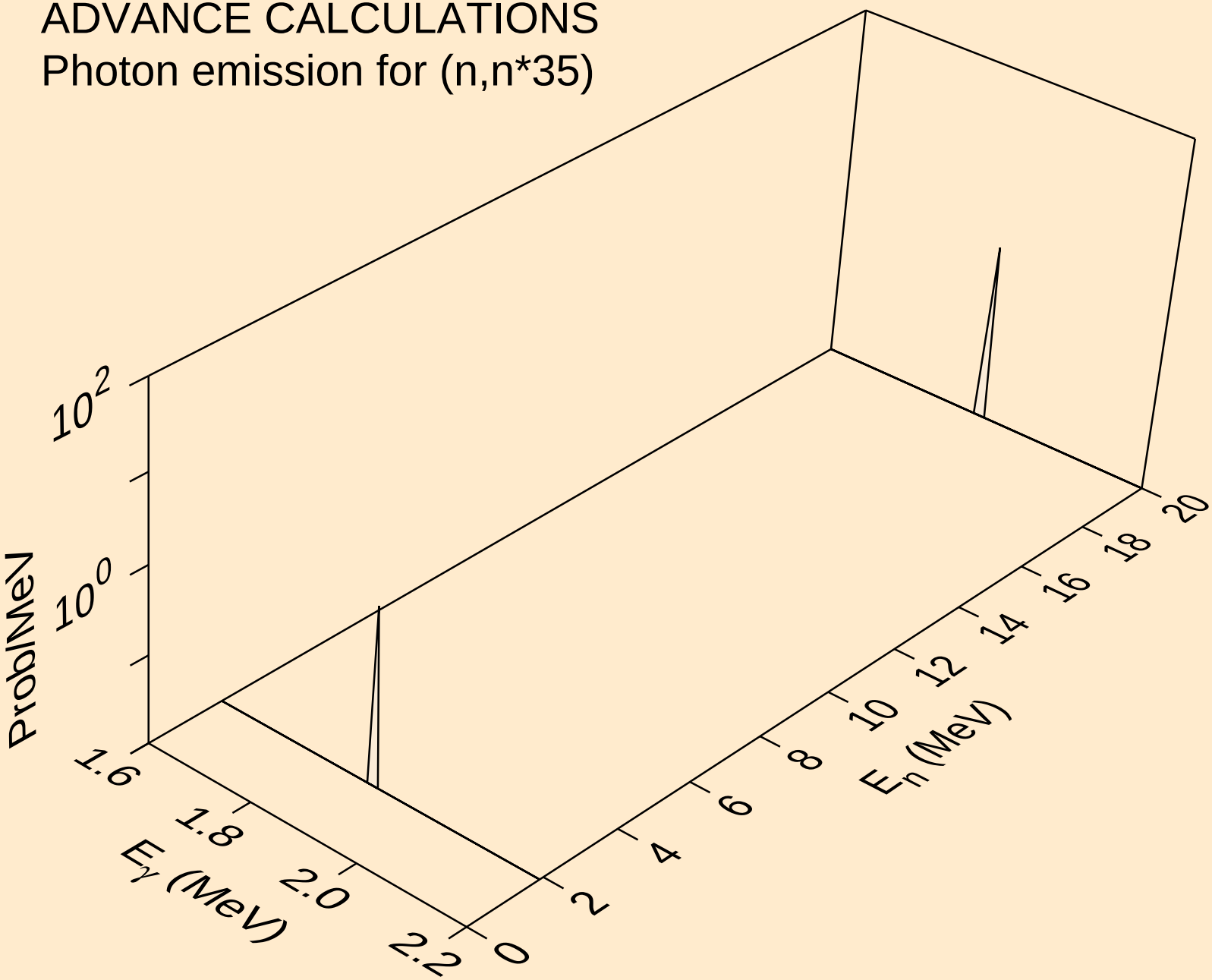
ADVANCE CALCULATIONS

Photon emission for (n,n*34)



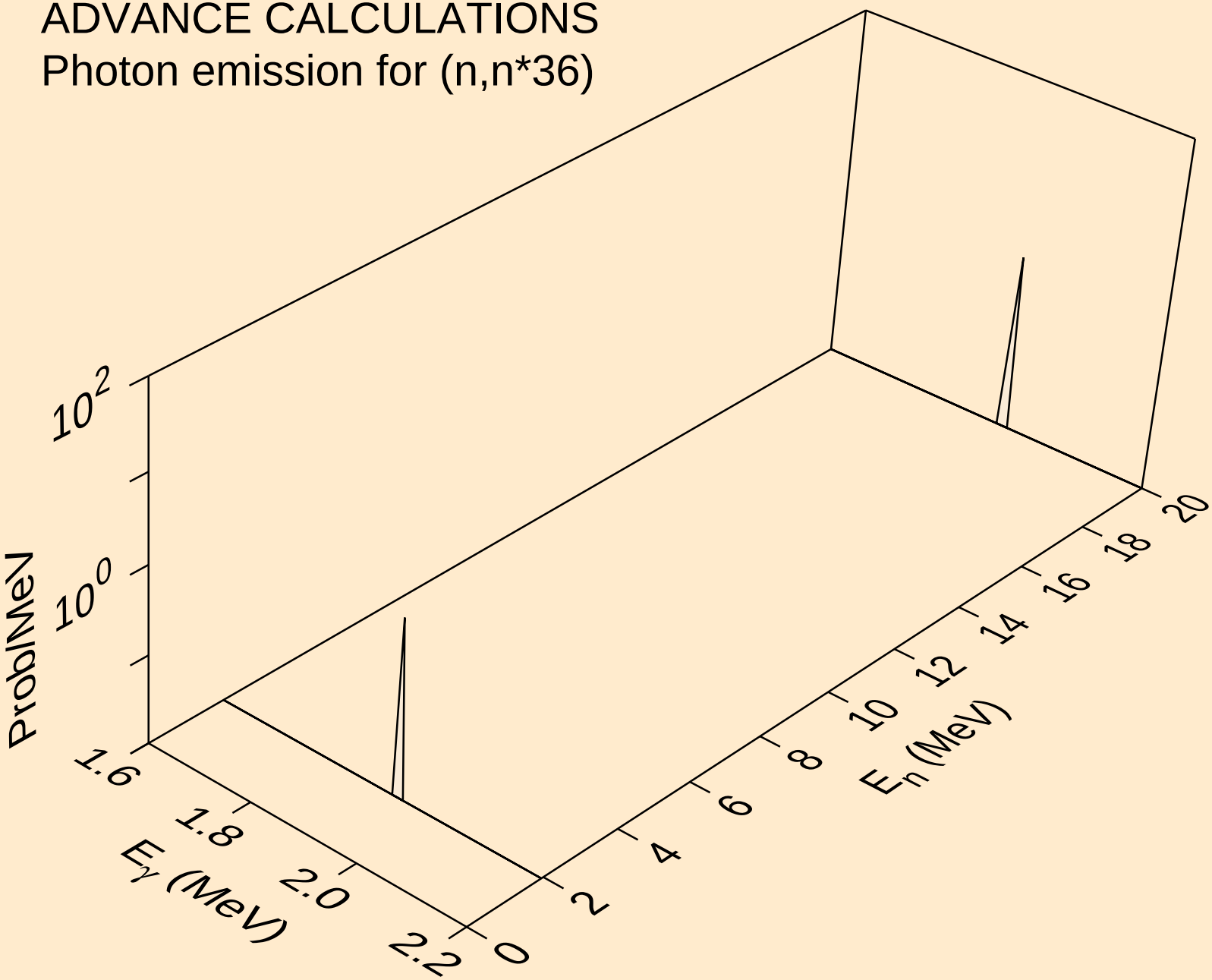
ADVANCE CALCULATIONS

Photon emission for (n,n*35)



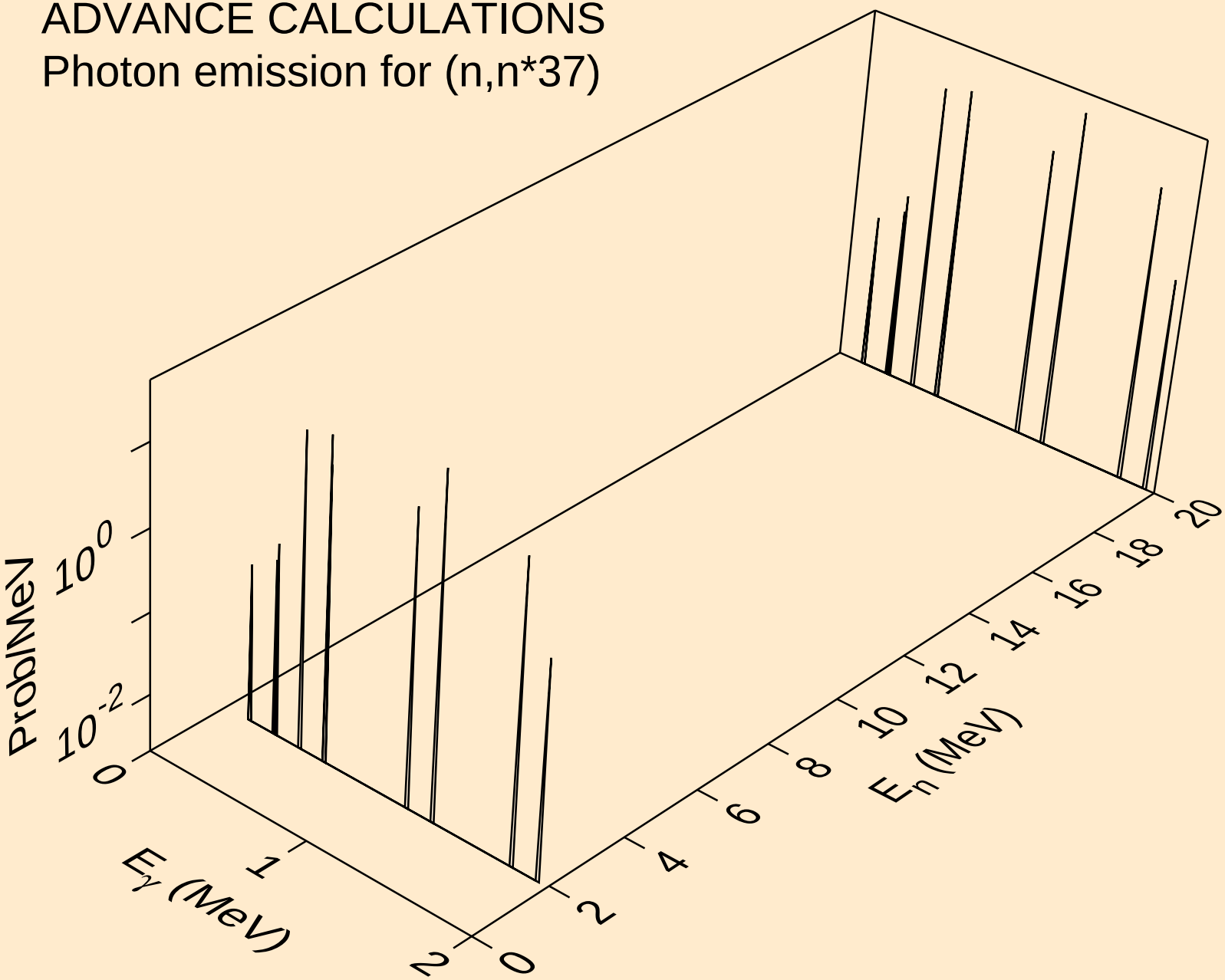
ADVANCE CALCULATIONS

Photon emission for (n,n*36)



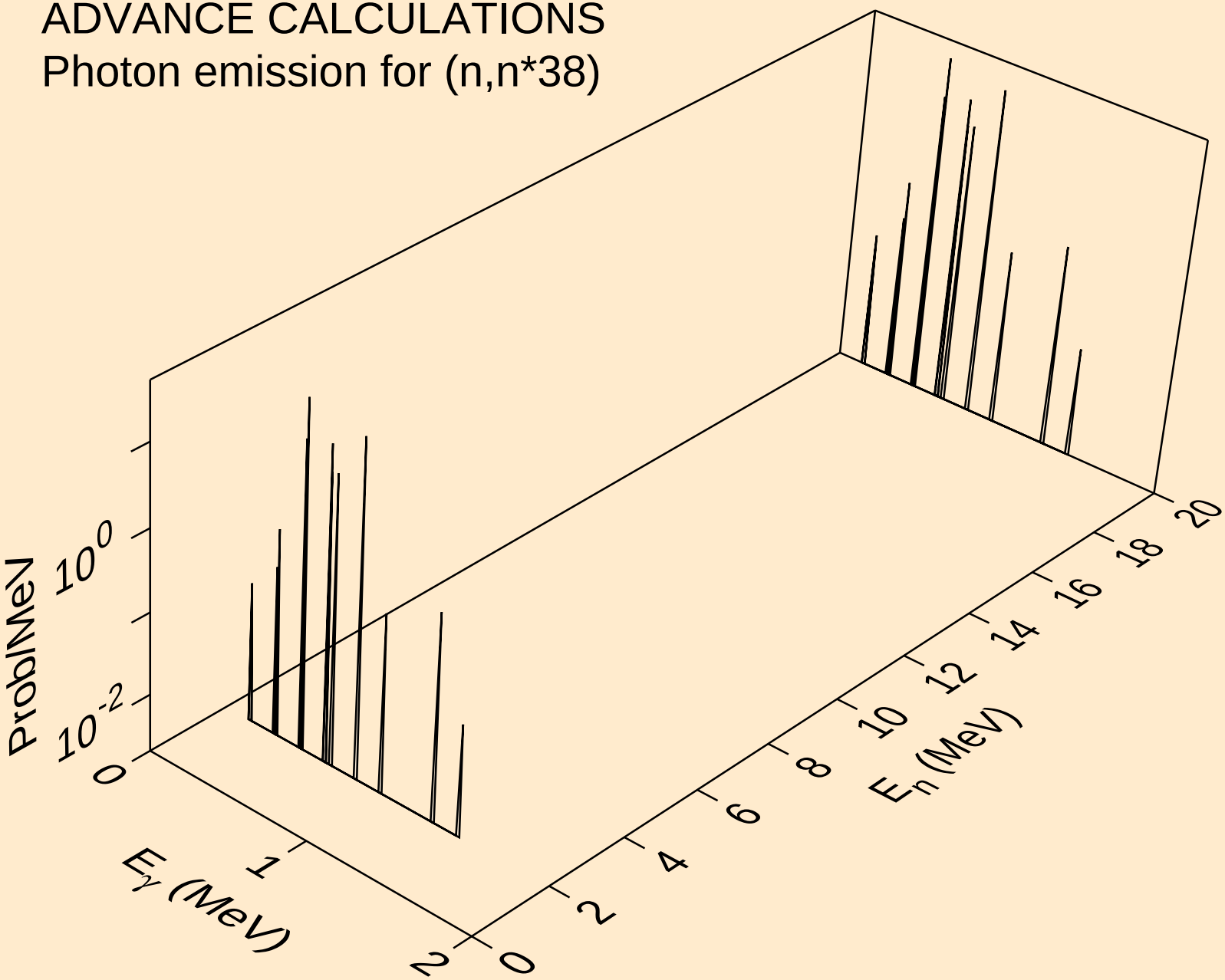
ADVANCE CALCULATIONS

Photon emission for (n,n*37)



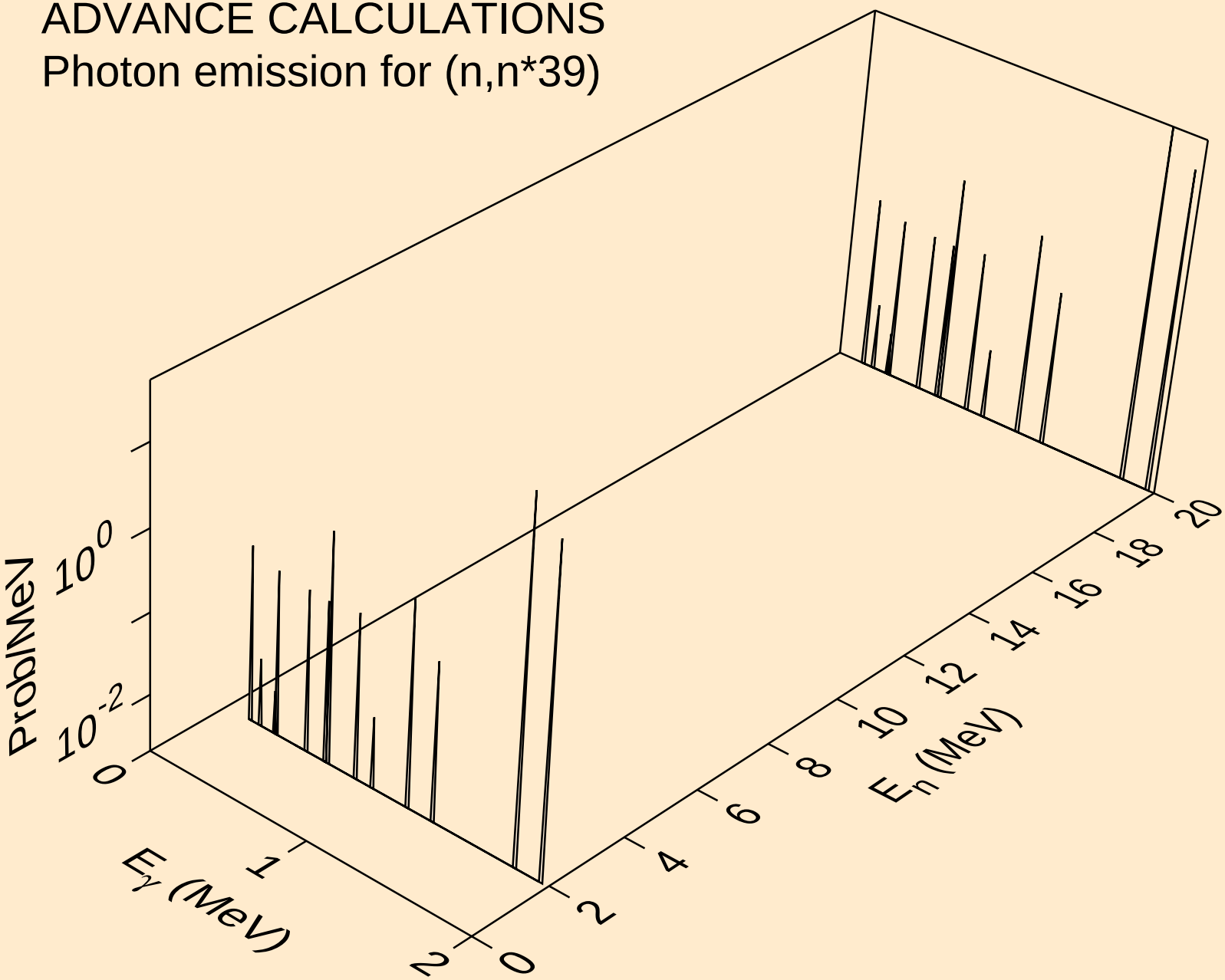
ADVANCE CALCULATIONS

Photon emission for (n,n*38)



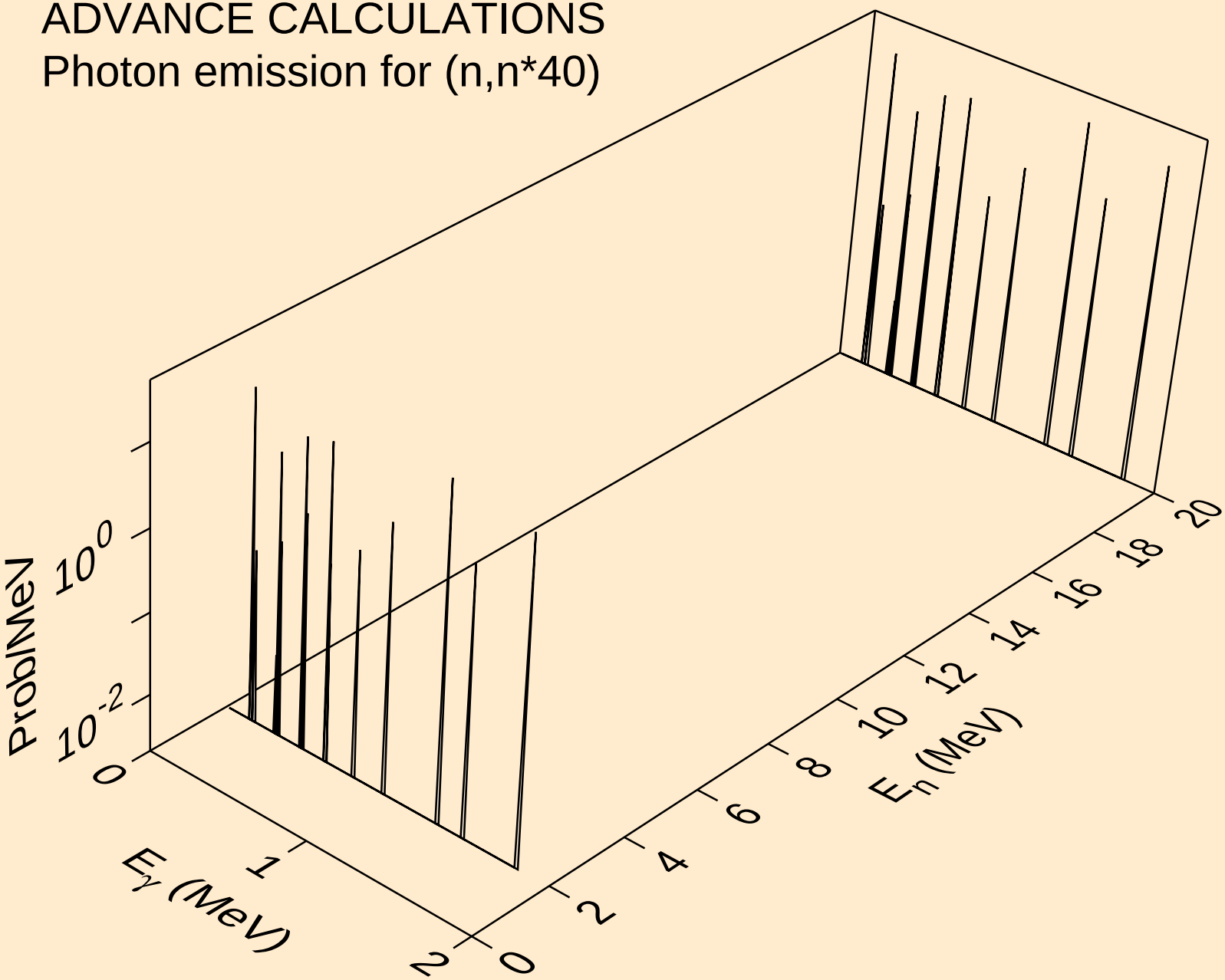
ADVANCE CALCULATIONS

Photon emission for (n,n*39)



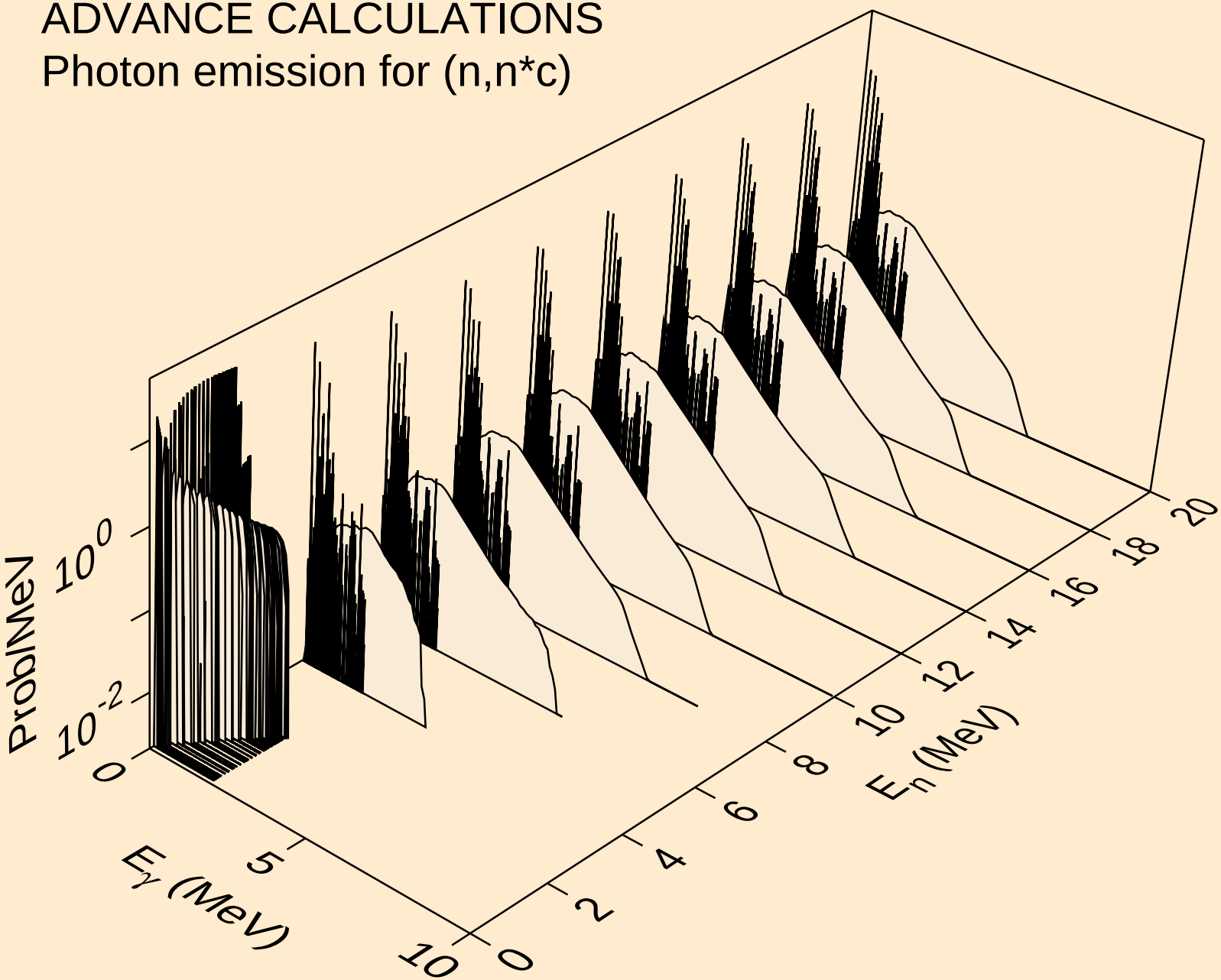
ADVANCE CALCULATIONS

Photon emission for (n,n*40)



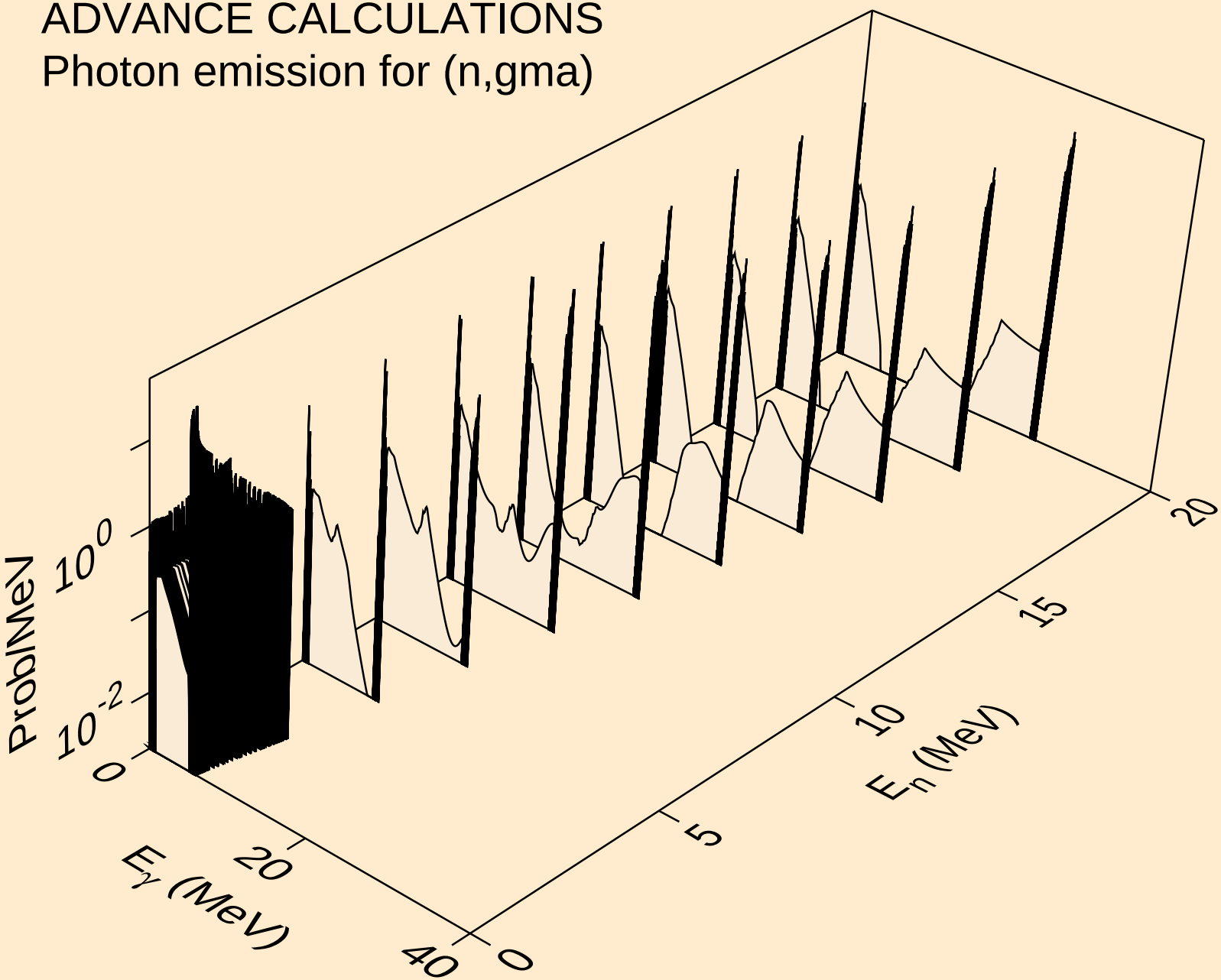
ADVANCE CALCULATIONS

Photon emission for (n,n*c)

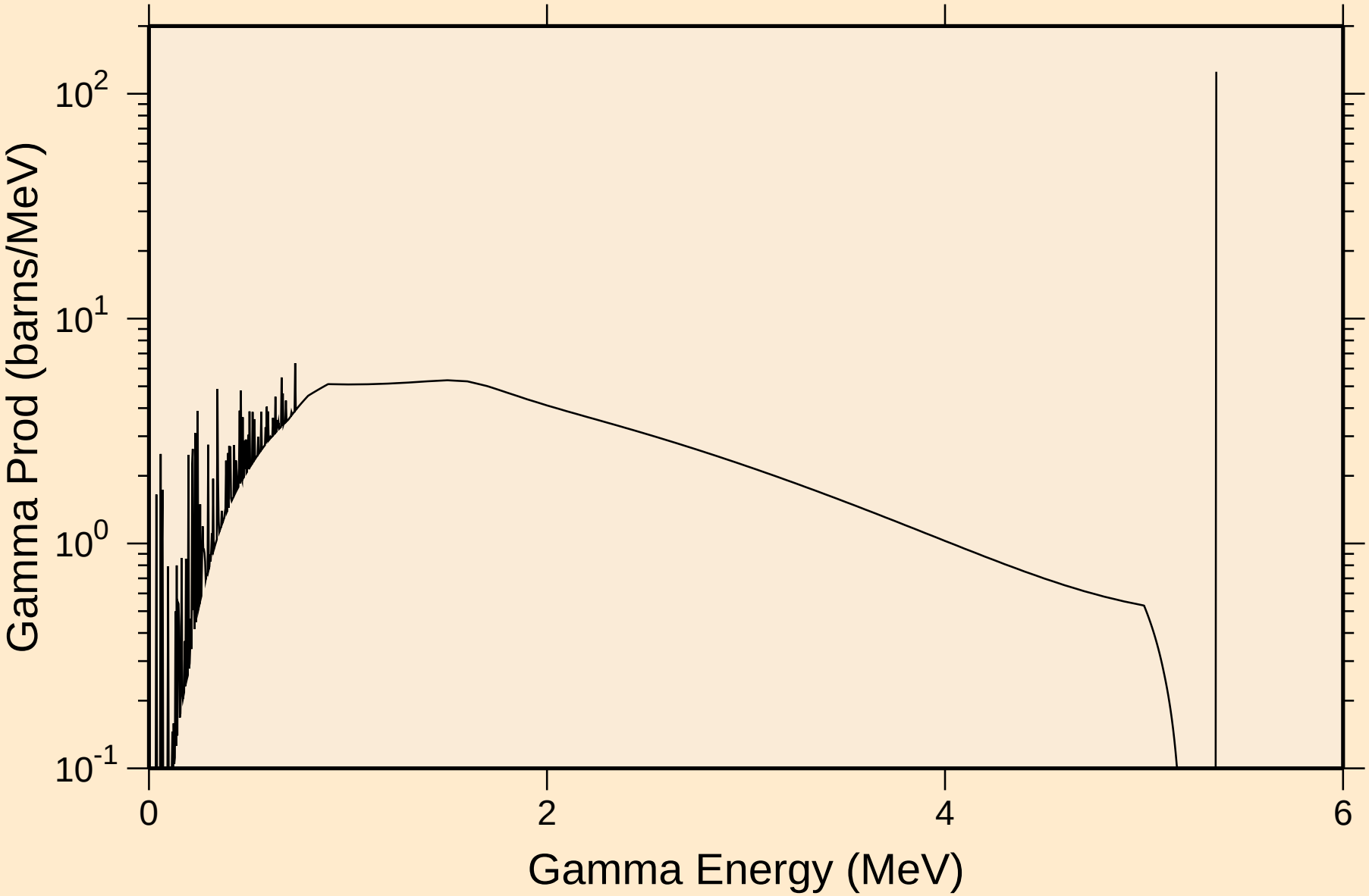


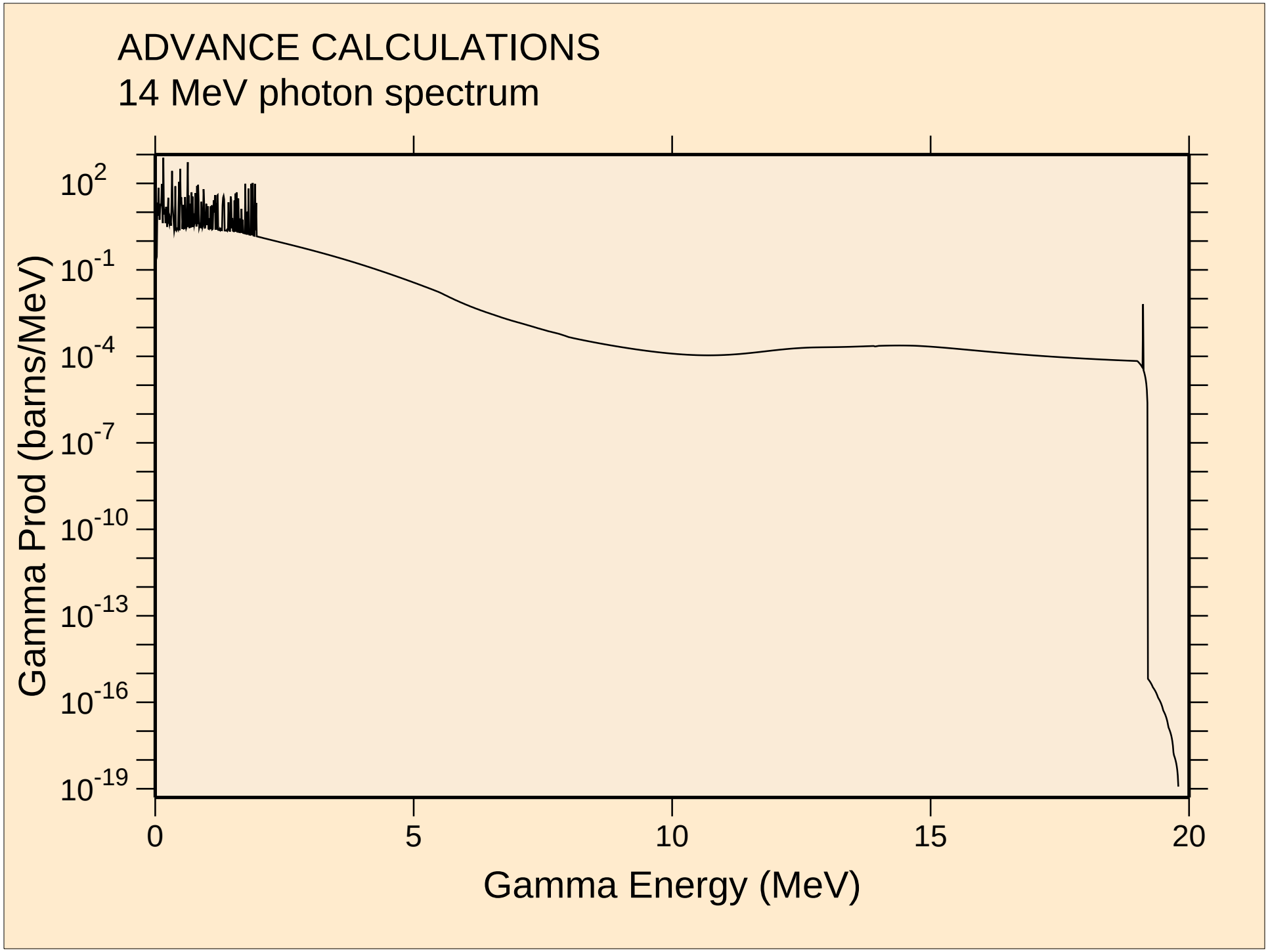
ADVANCE CALCULATIONS

Photon emission for (n,gma)



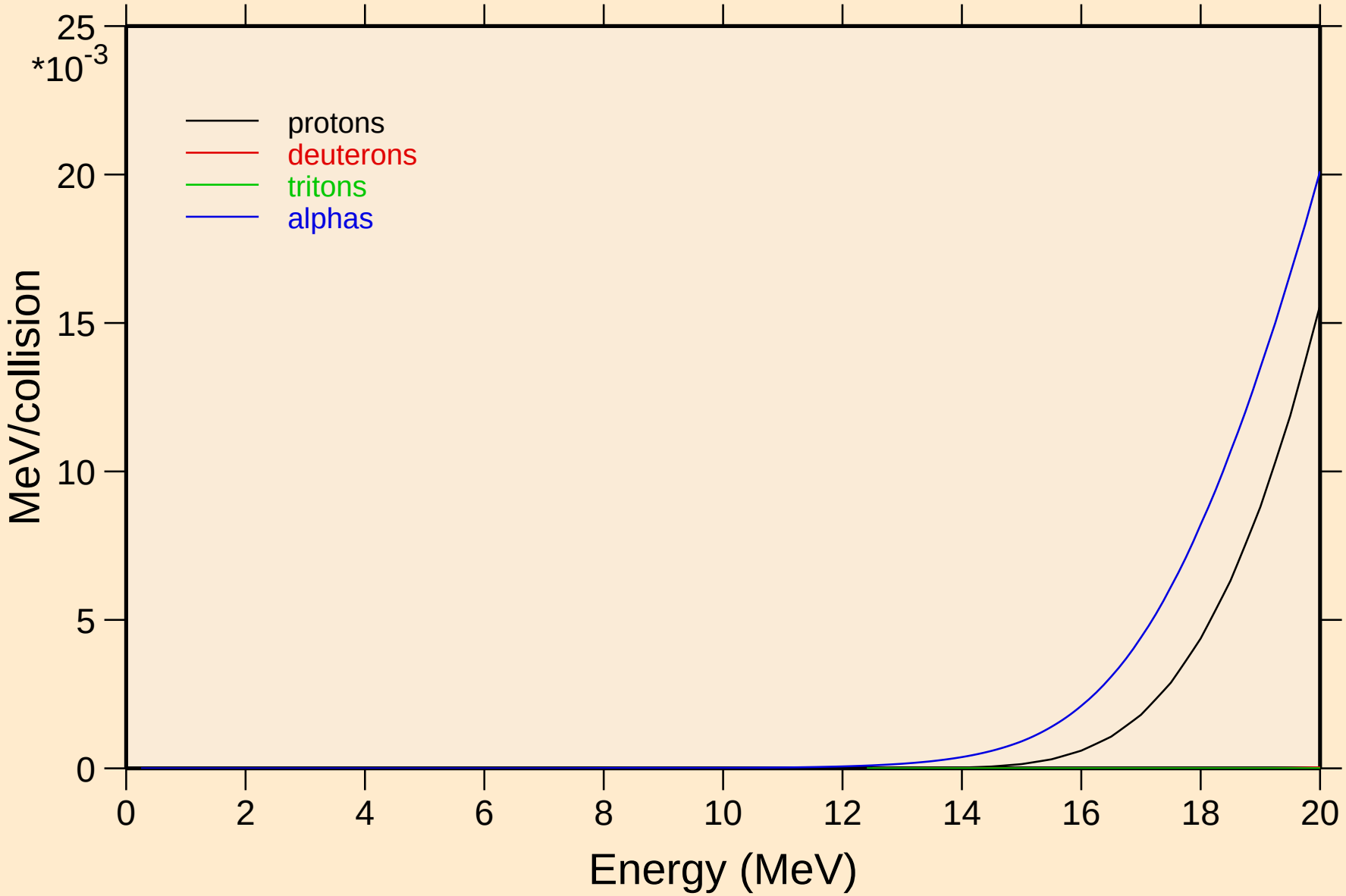
ADVANCE CALCULATIONS
thermal capture photon spectrum




ADVANCE CALCULATIONS
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^2
10^-1
10^-4
10^-7
10^-10
10^-13
10^-16
10^-19
0
5
10
15
20
Gamma Energy (MeV)

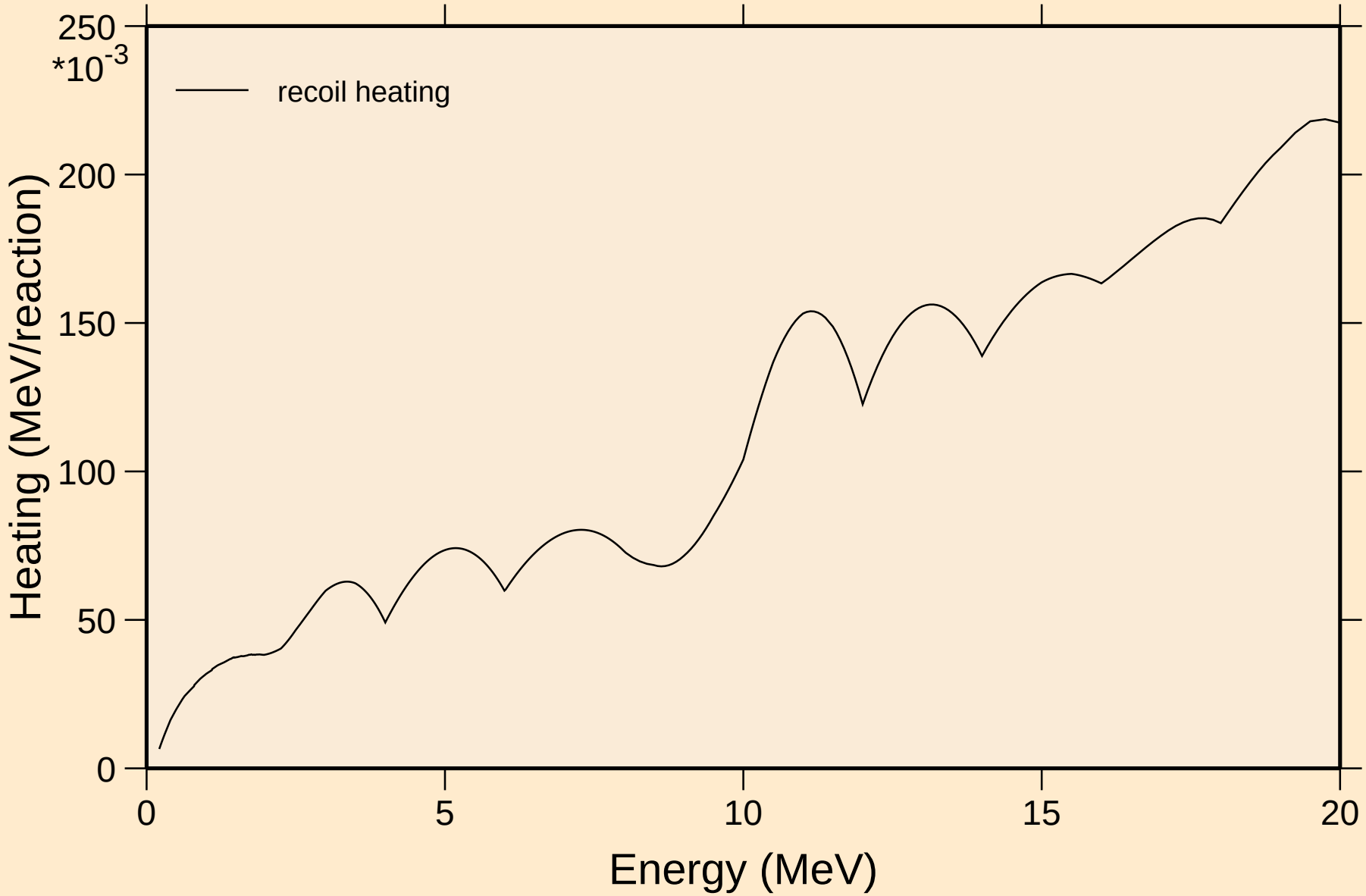
ADVANCE CALCULATIONS

Particle heating contributions



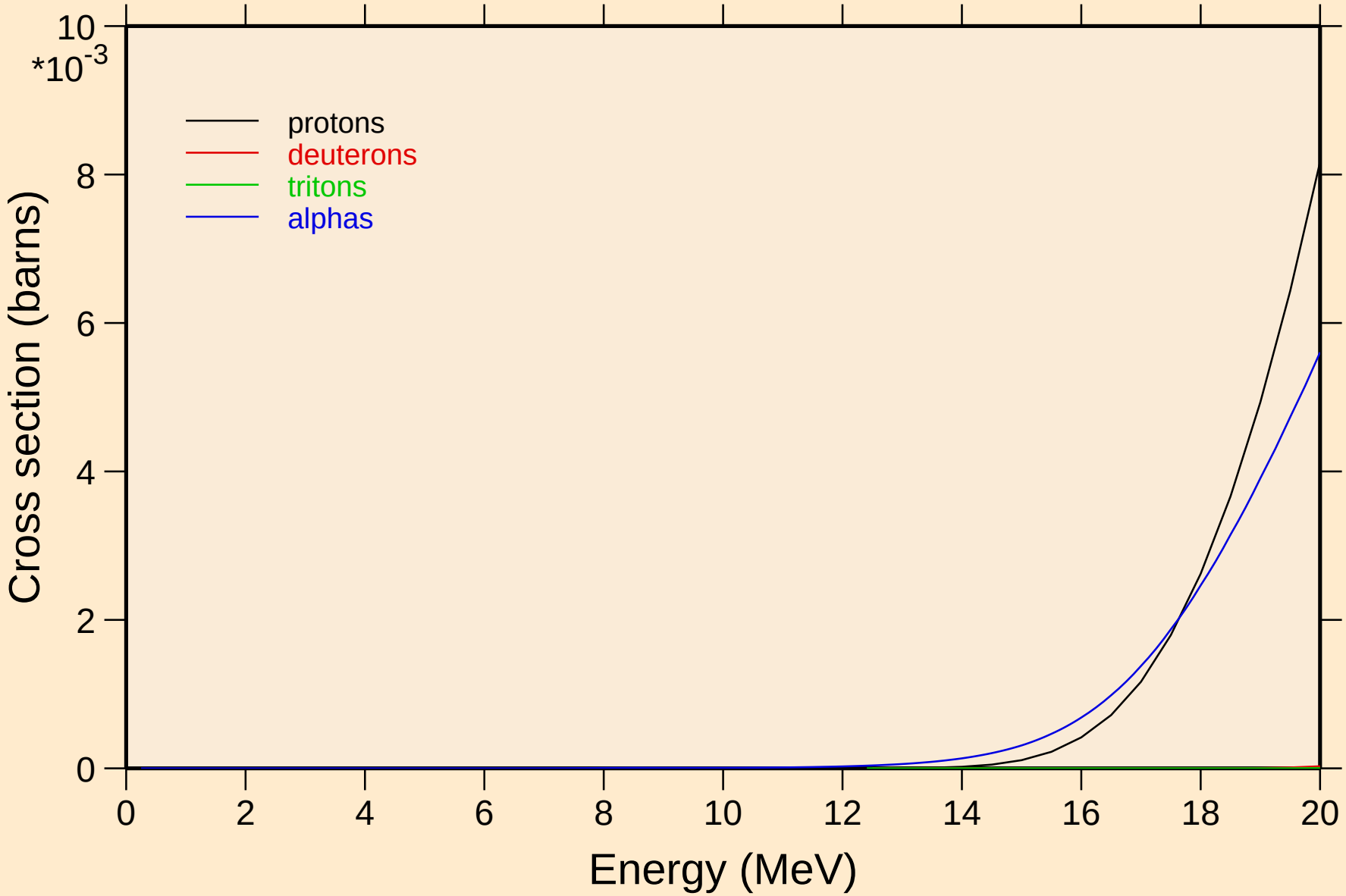
ADVANCE CALCULATIONS

Recoil Heating

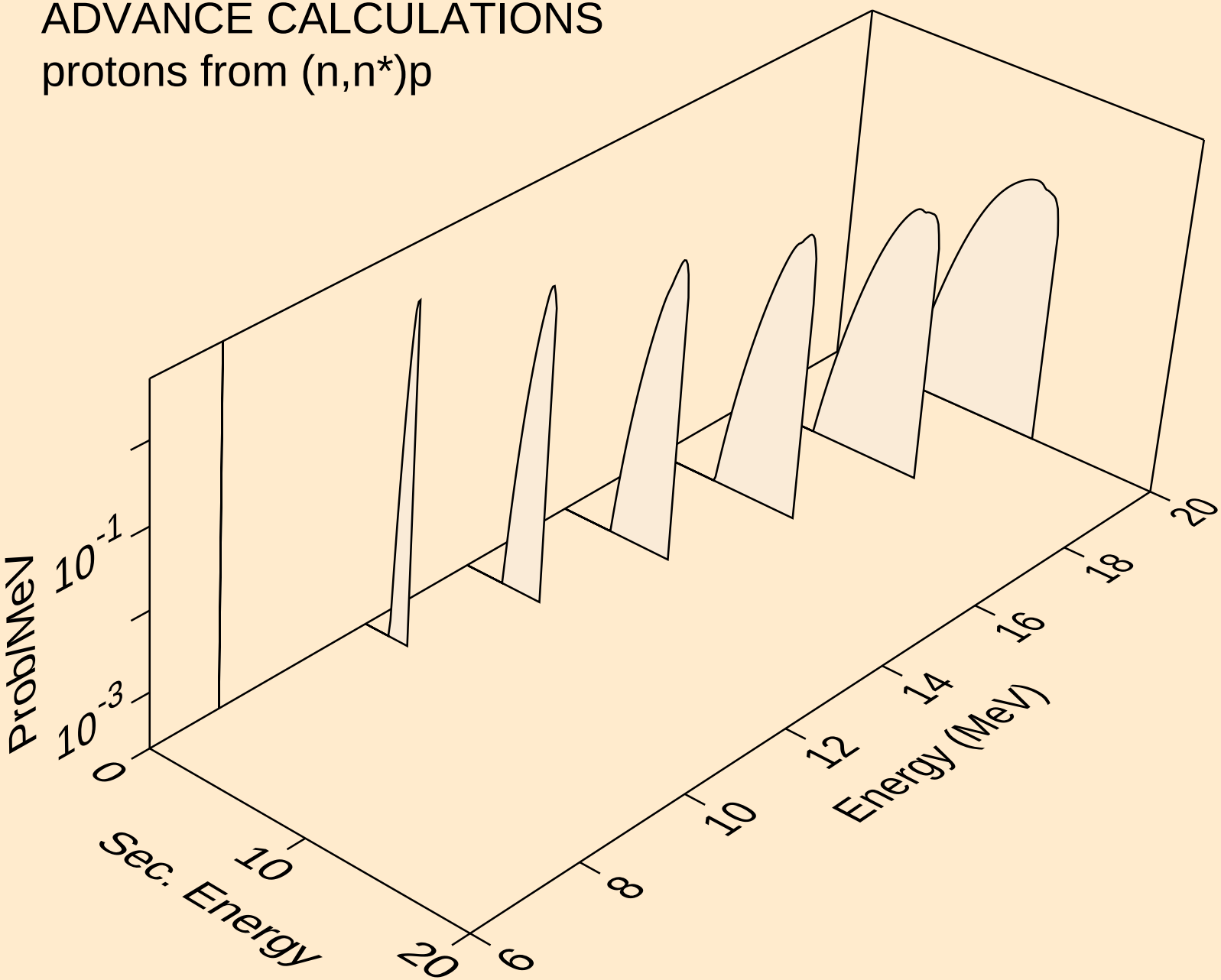


ADVANCE CALCULATIONS

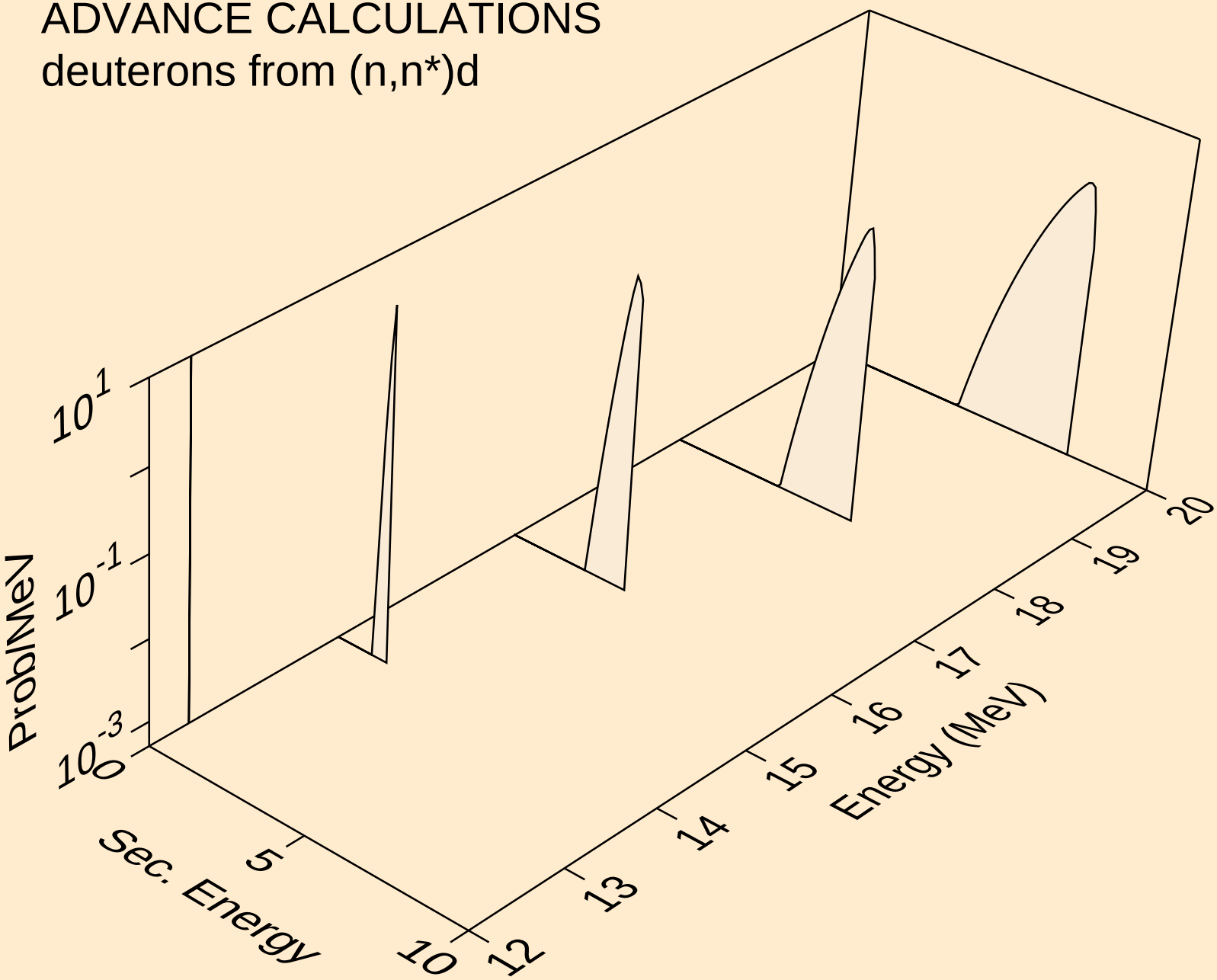
Particle production cross sections



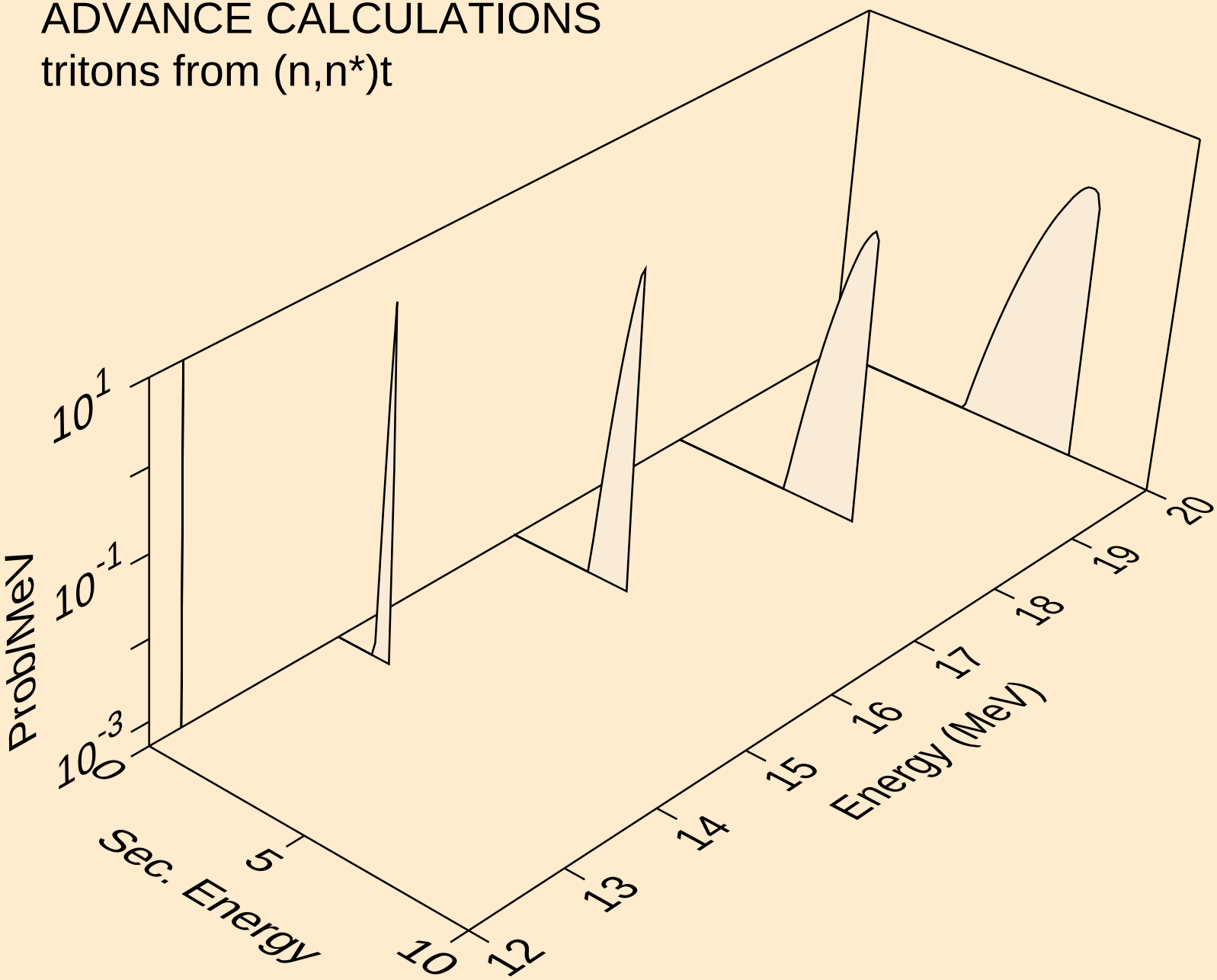
ADVANCE CALCULATIONS
protons from (n,n*)p



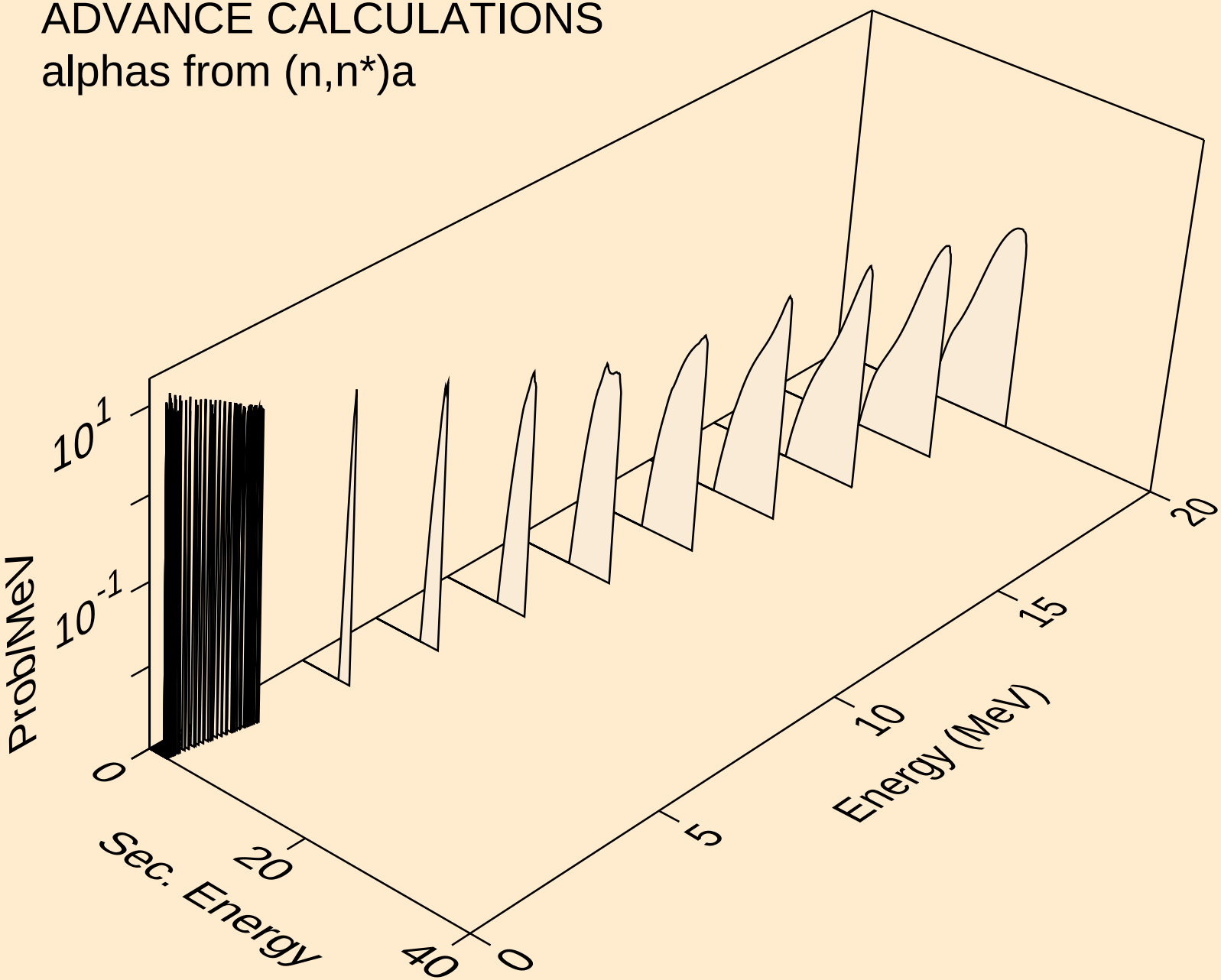
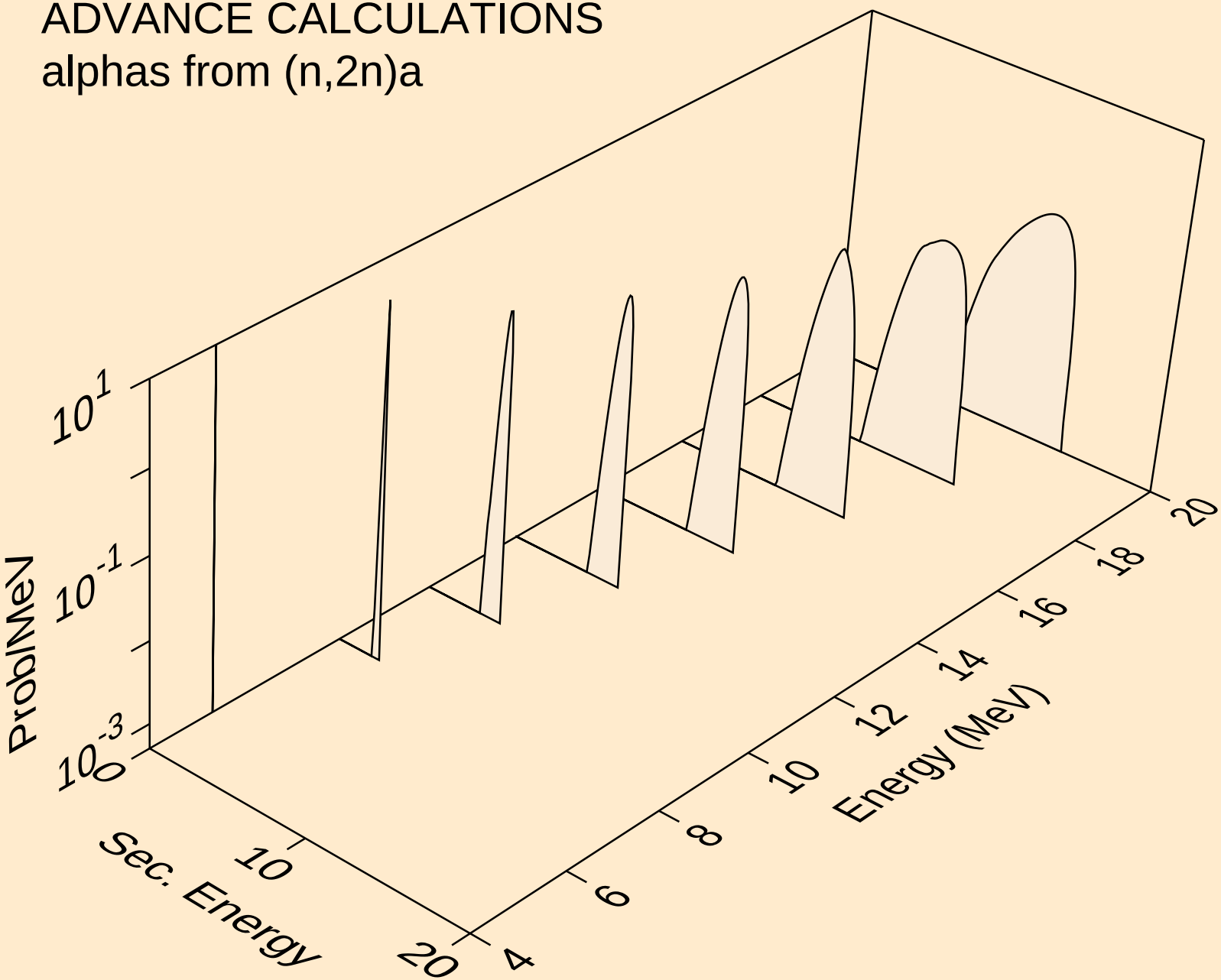
ADVANCE CALCULATIONS
deuterons from (n,n*)d



ADVANCE CALCULATIONS
tritons from (n,n*)t



ADVANCE CALCULATIONS
alphas from (n,n*)a



ADVANCE CALCULATIONS
alphas from (n,2n)a