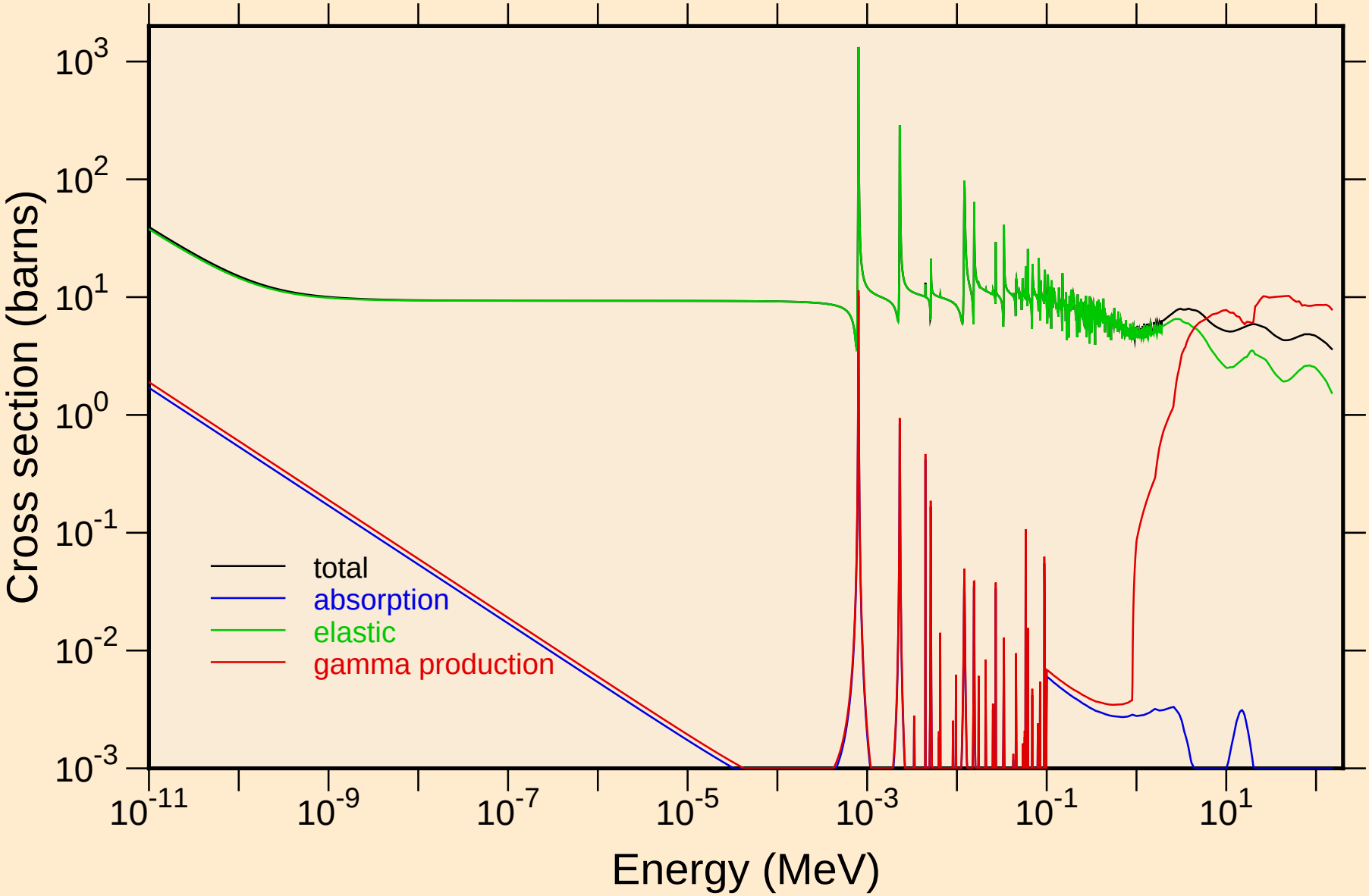
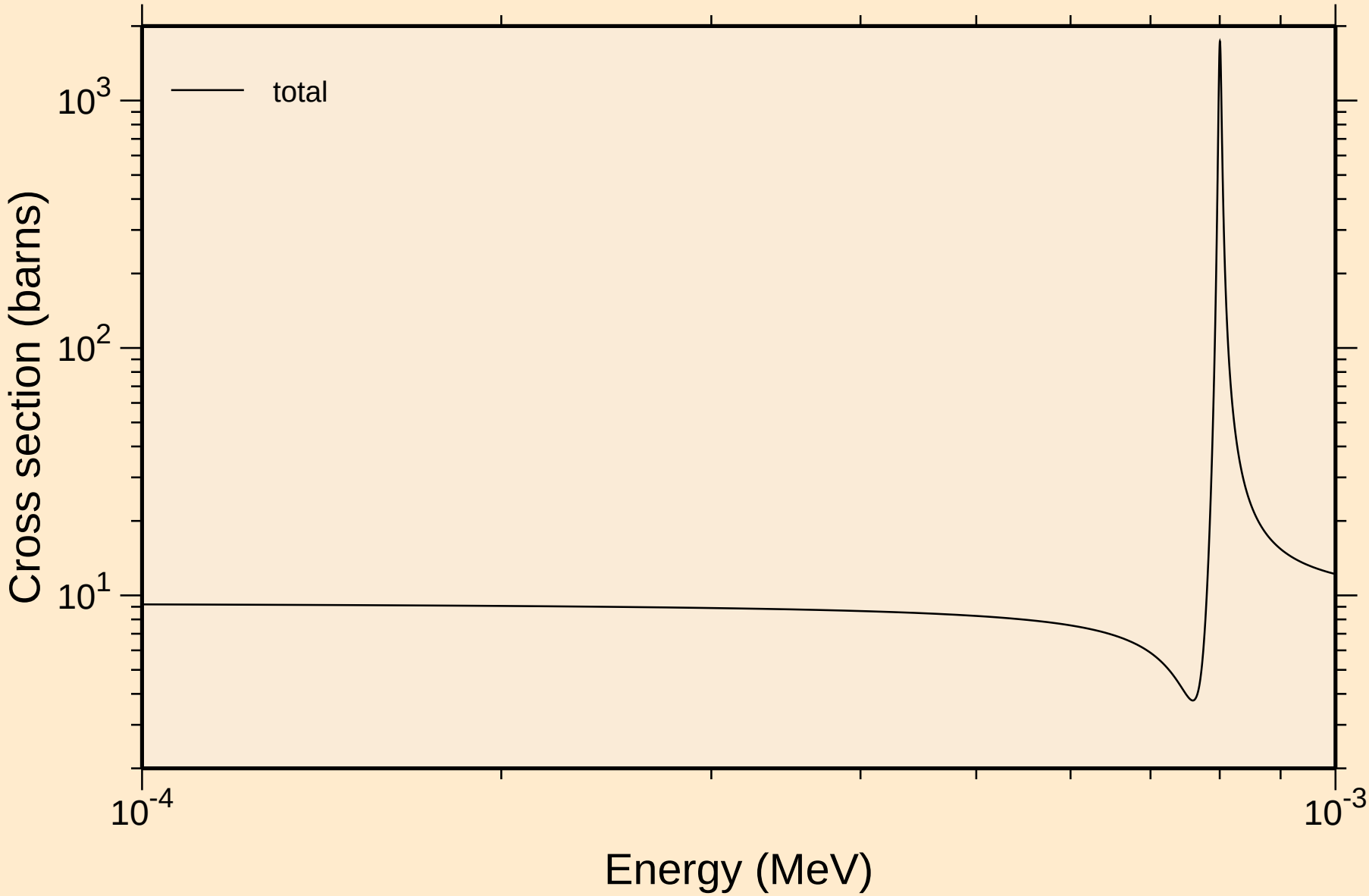
ADVANCE CALCULATIONS

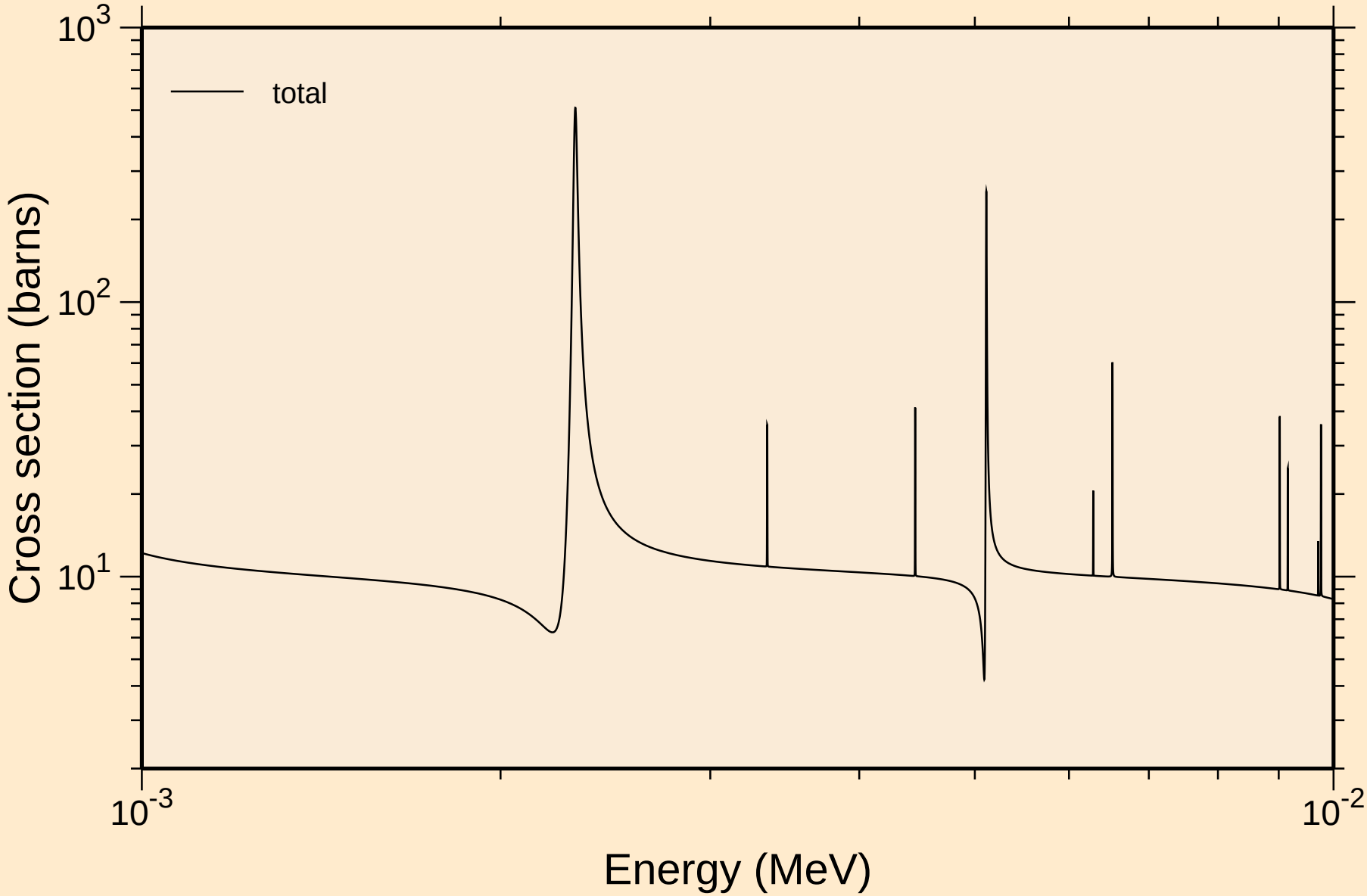
Principal cross sections



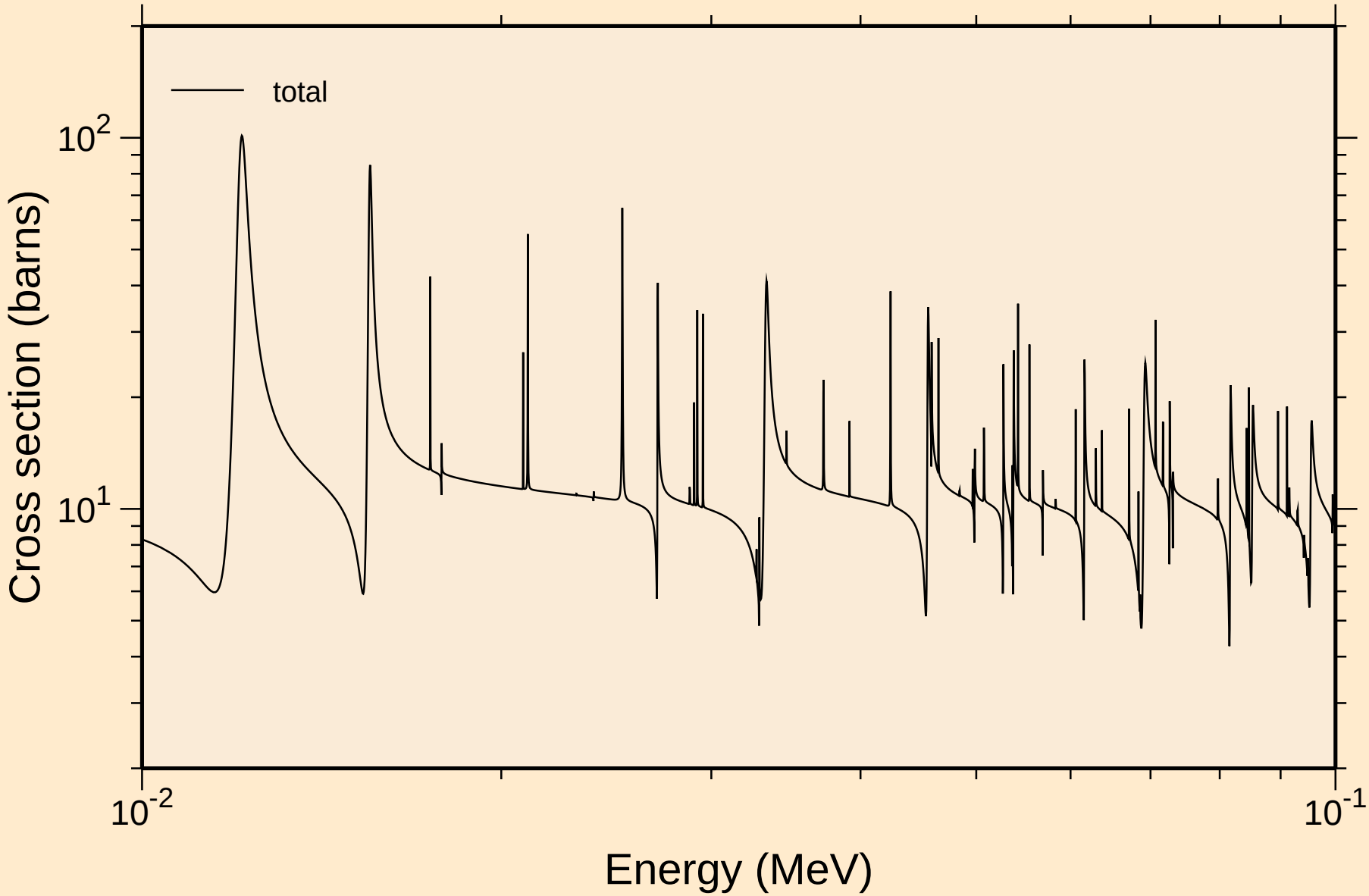
ADVANCE CALCULATIONS
resonance total cross section



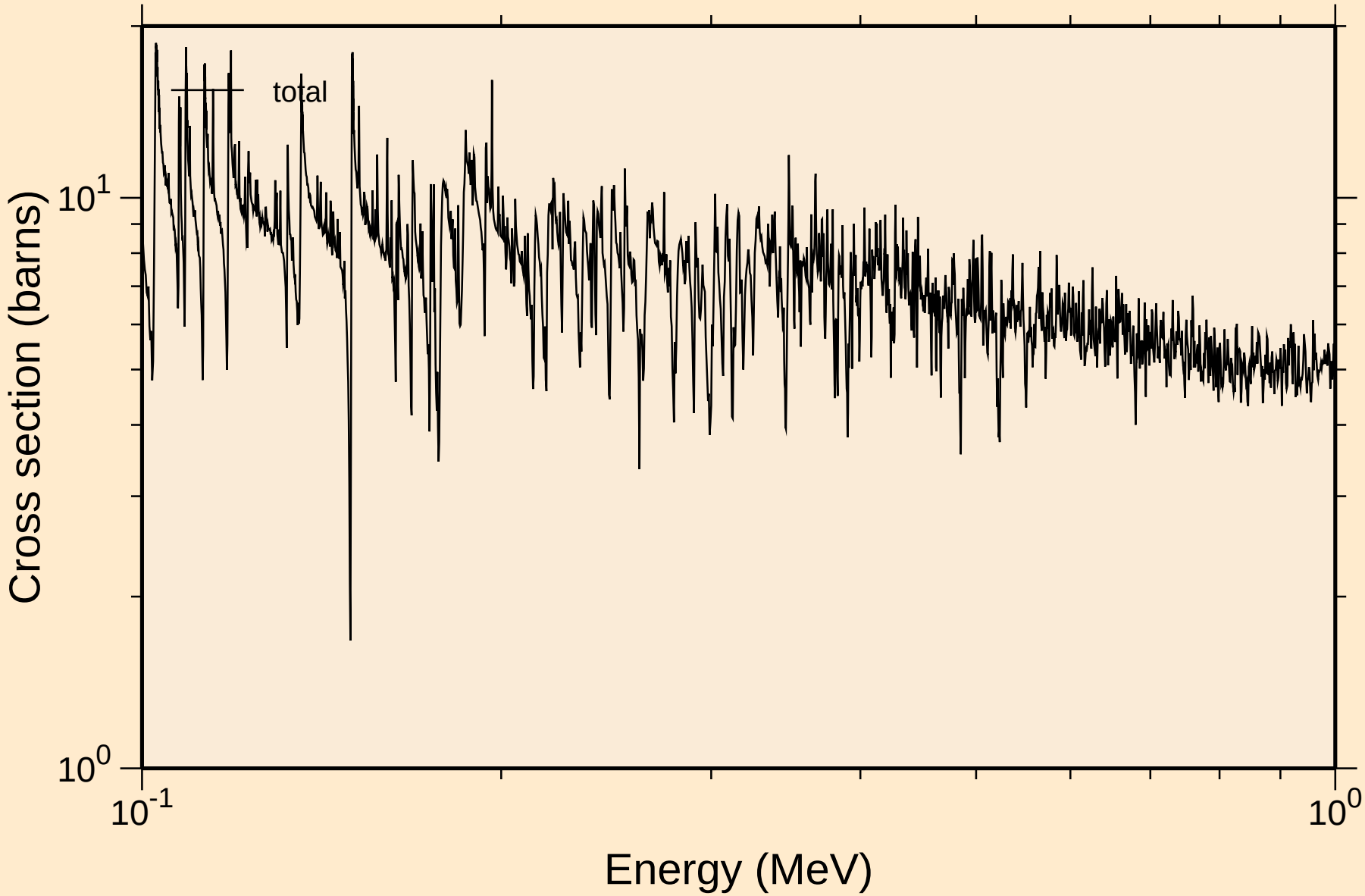
ADVANCE CALCULATIONS
resonance total cross section



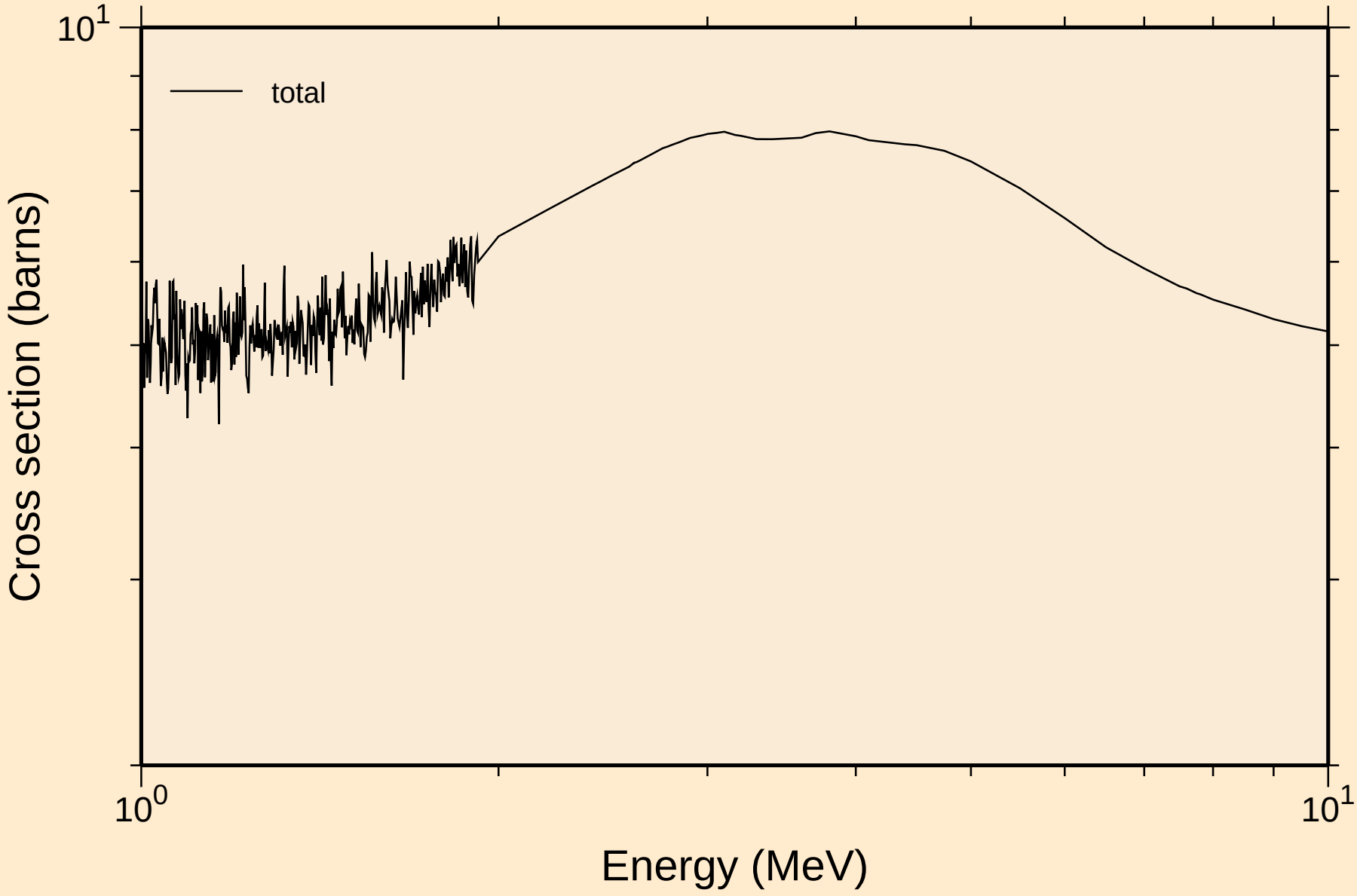
ADVANCE CALCULATIONS
resonance total cross section



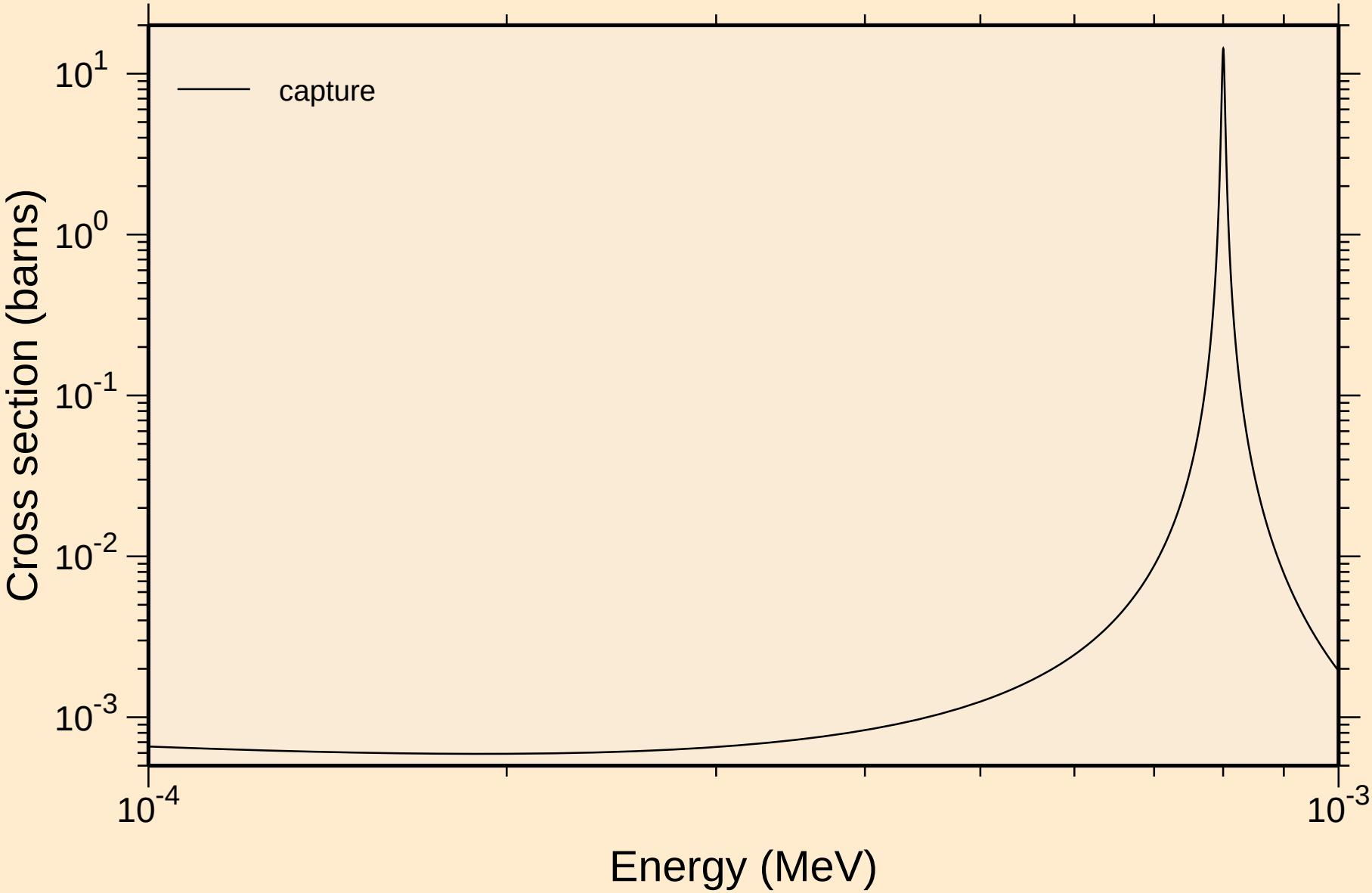
ADVANCE CALCULATIONS
resonance total cross section



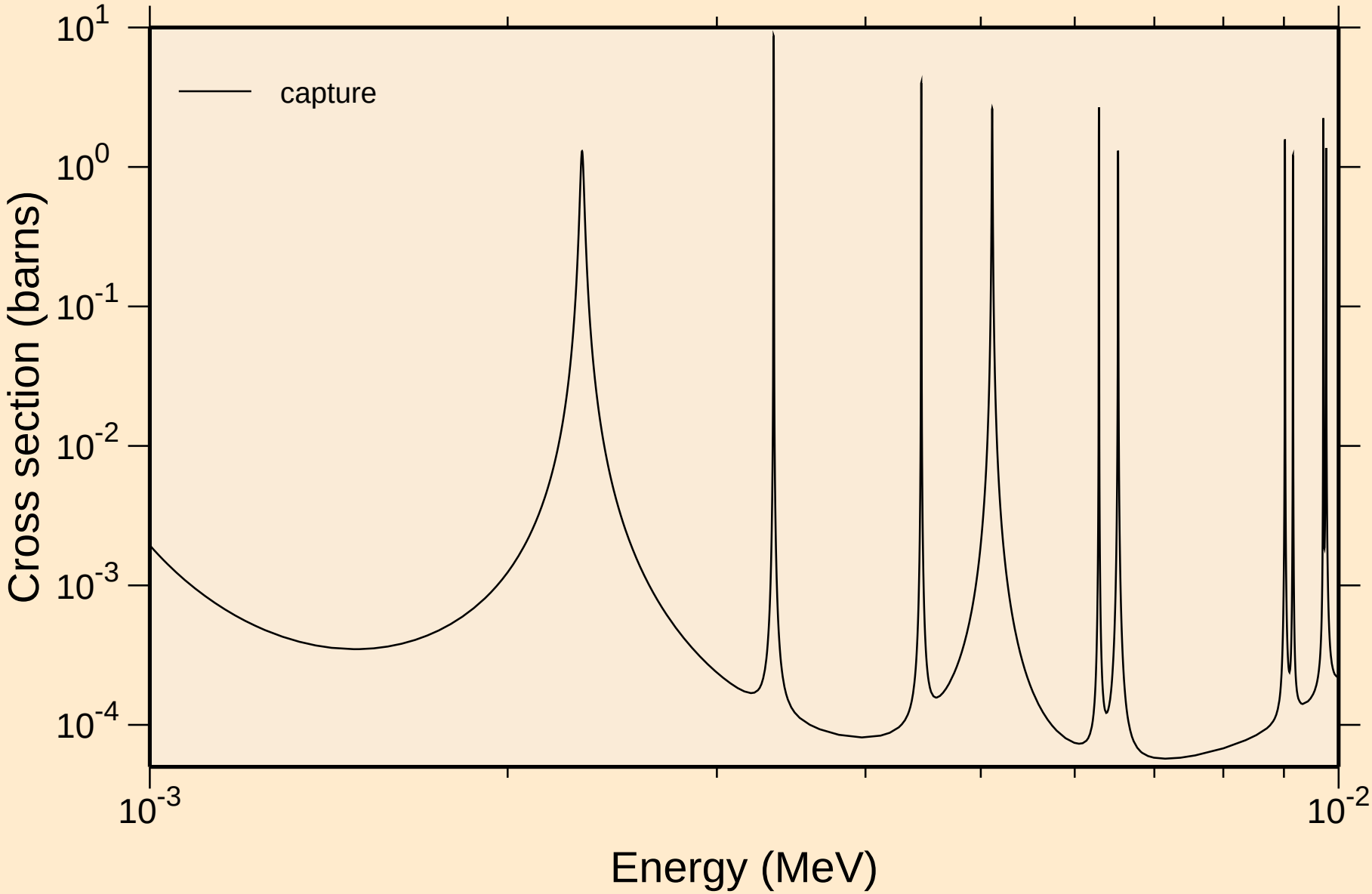
ADVANCE CALCULATIONS
resonance total cross section



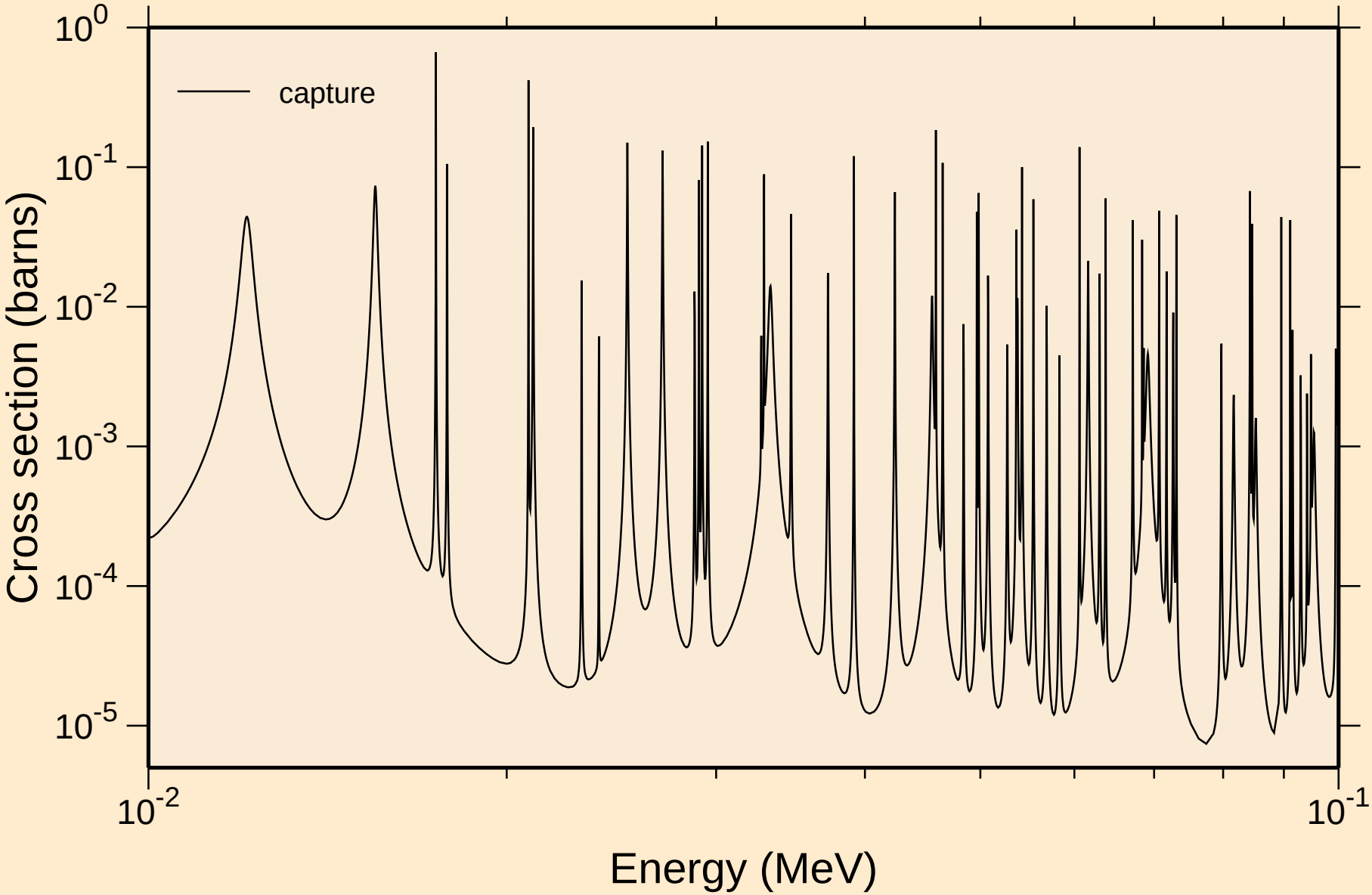
ADVANCE CALCULATIONS
resonance absorption cross sections



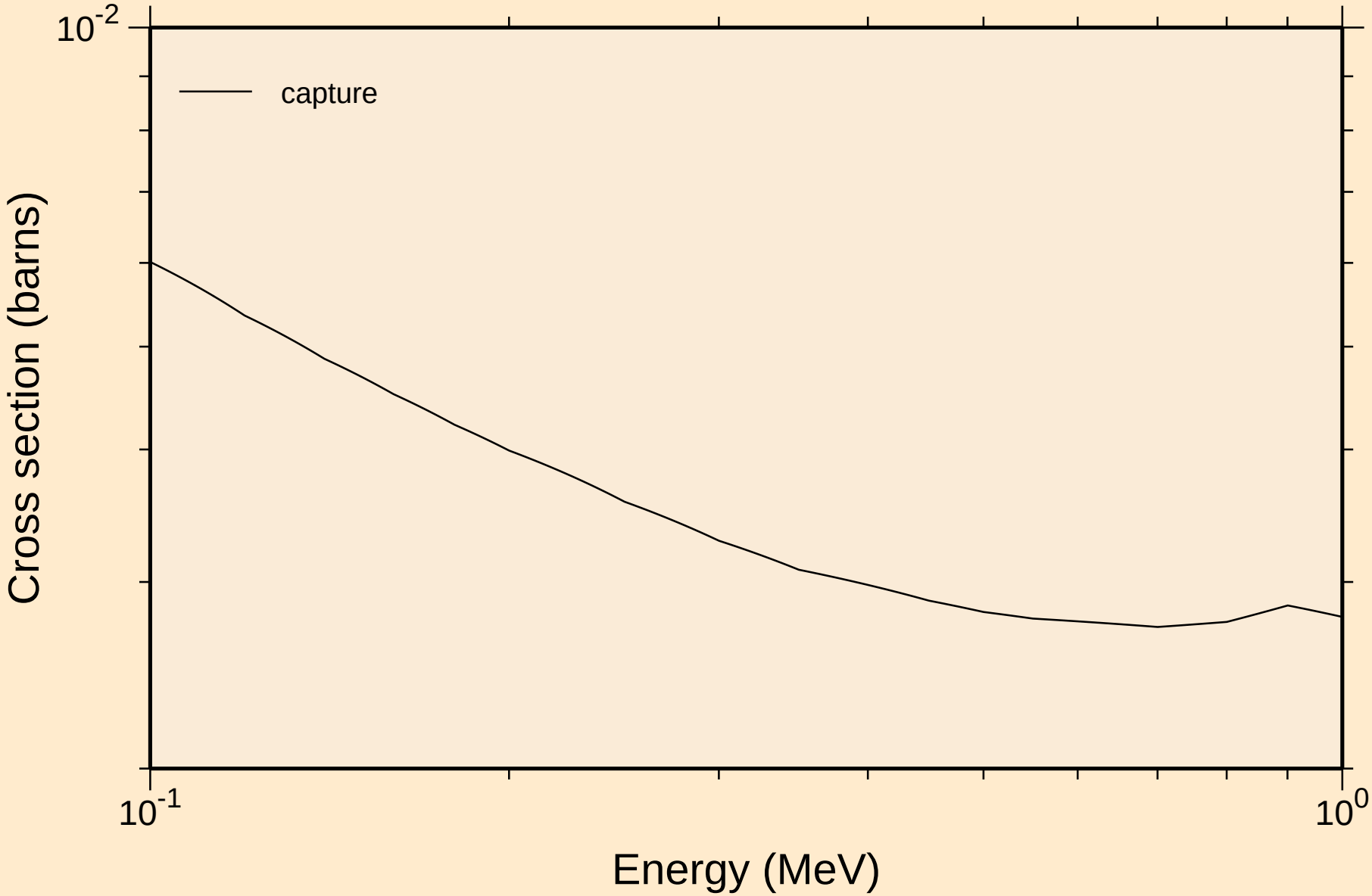
ADVANCE CALCULATIONS
resonance absorption cross sections



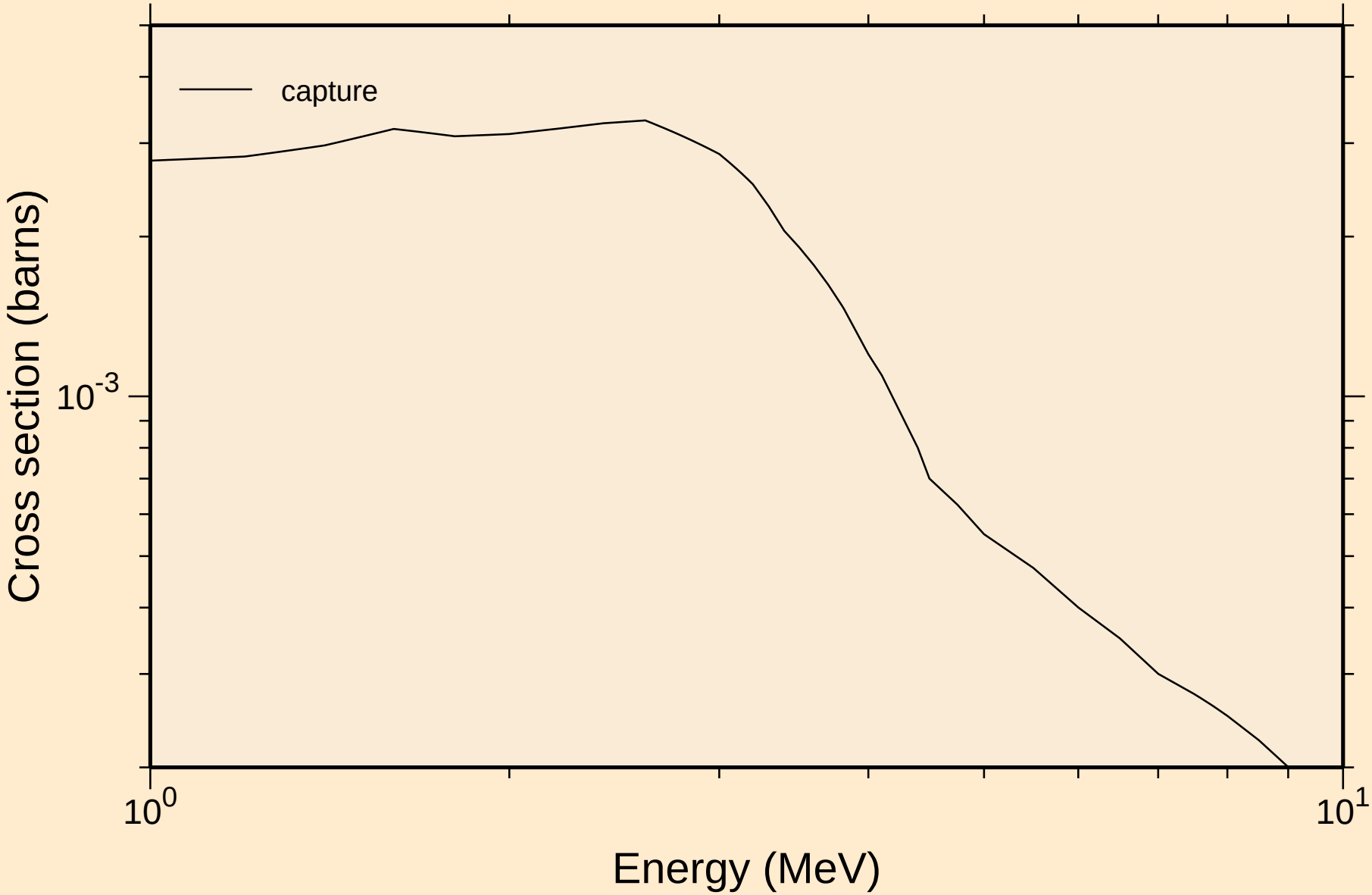
ADVANCE CALCULATIONS
resonance absorption cross sections



ADVANCE CALCULATIONS
resonance absorption cross sections

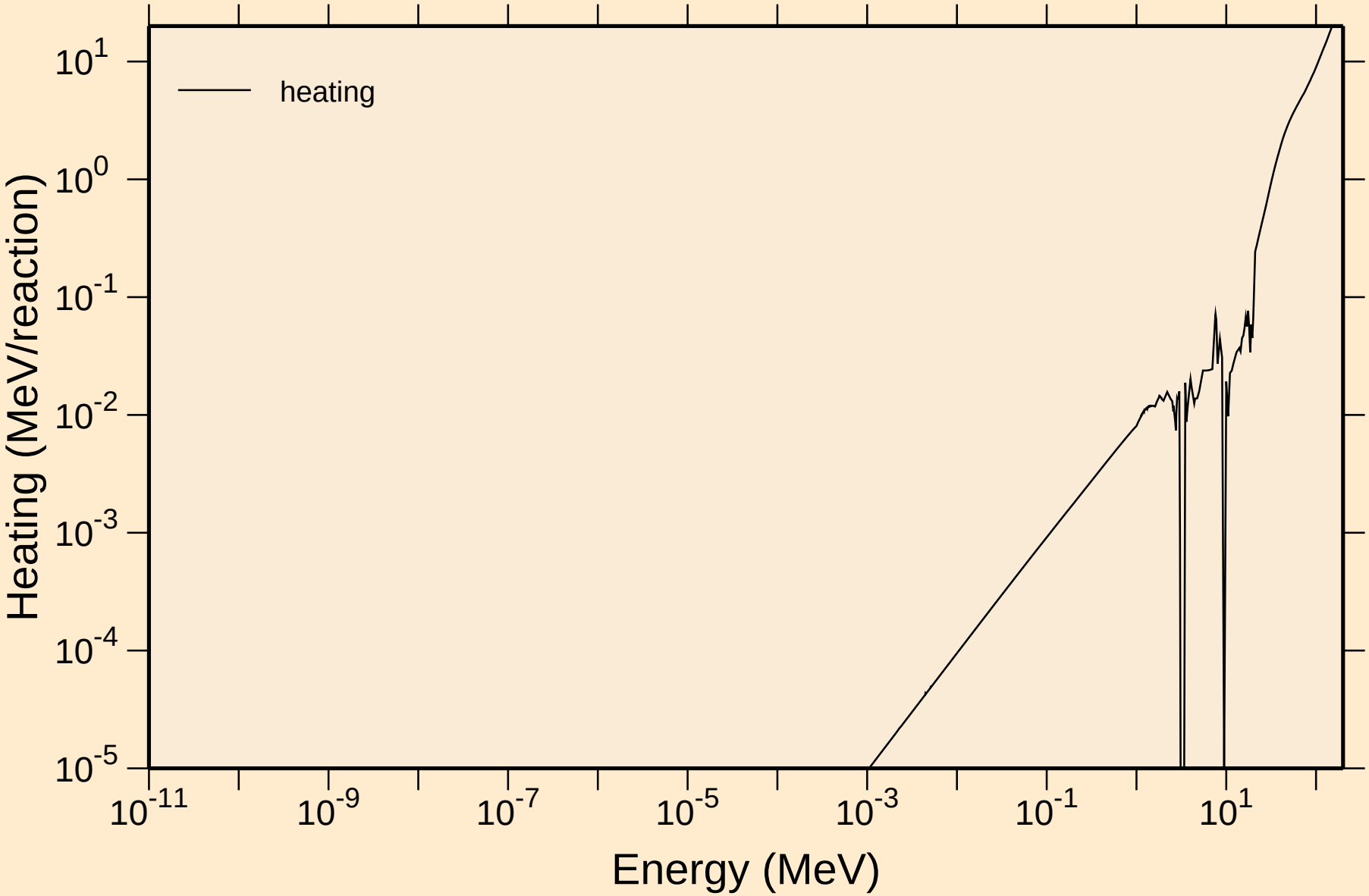


ADVANCE CALCULATIONS
resonance absorption cross sections

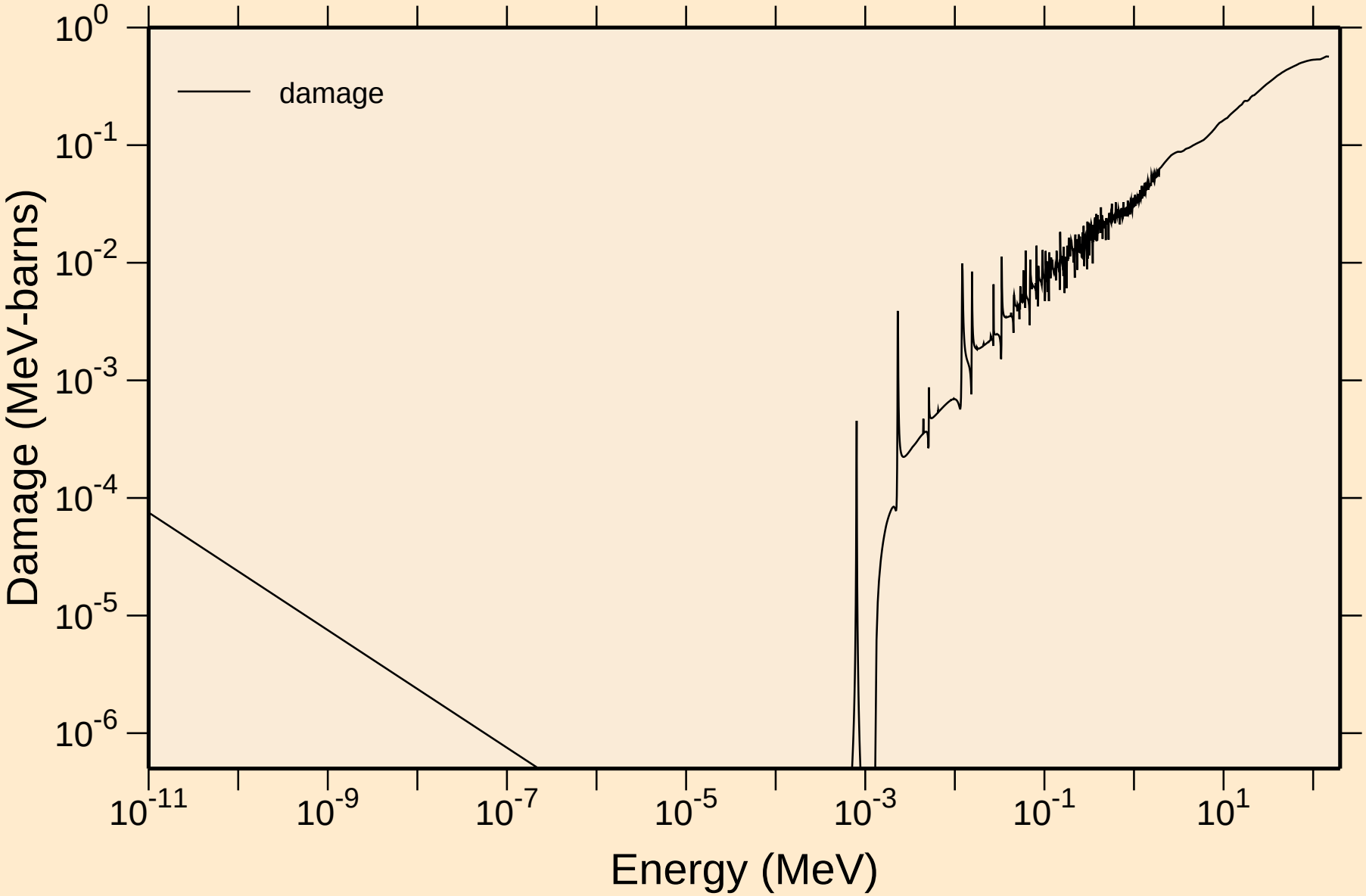


ADVANCE CALCULATIONS

Heating

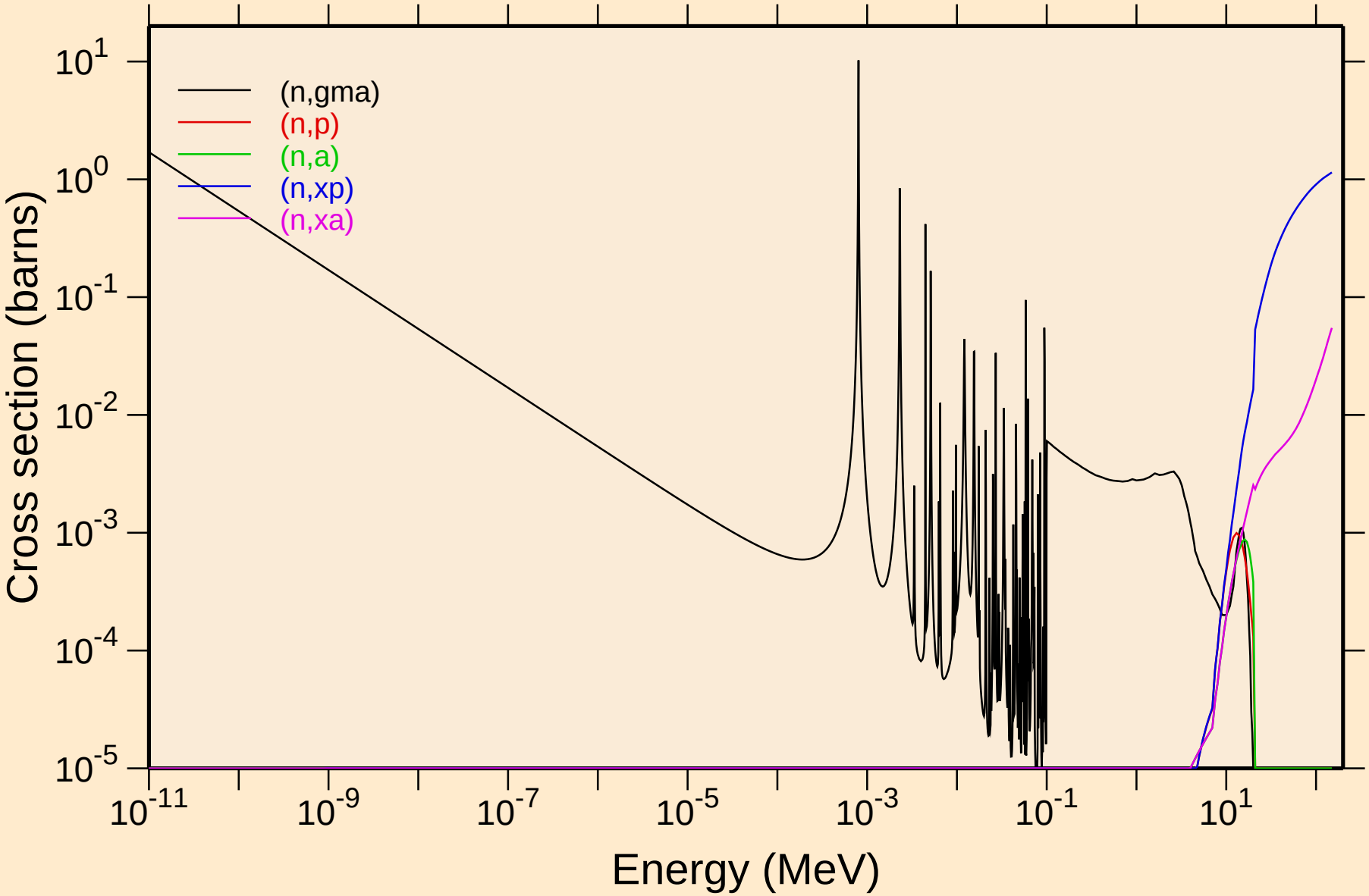


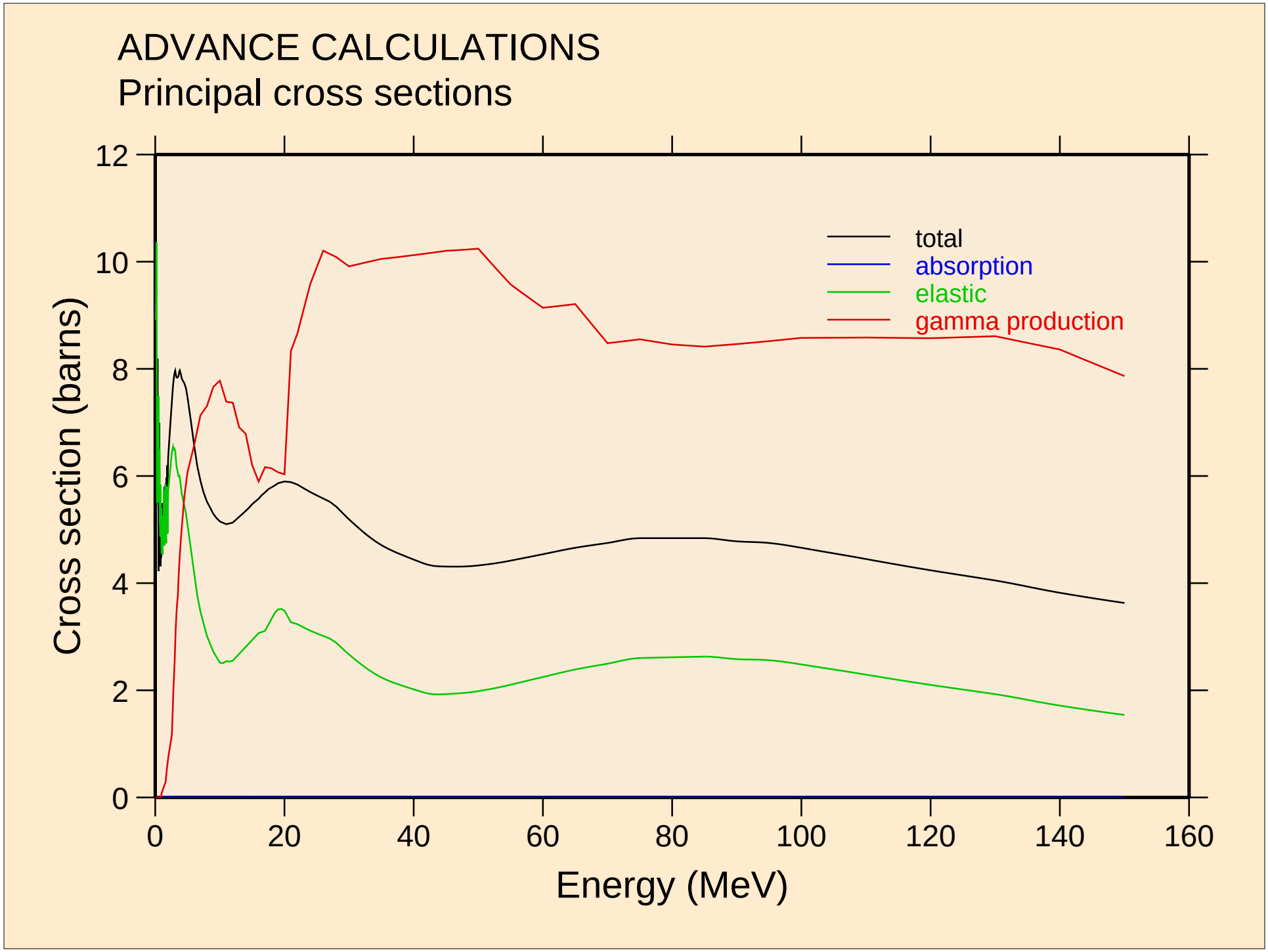
ADVANCE CALCULATIONS
Damage



ADVANCE CALCULATIONS

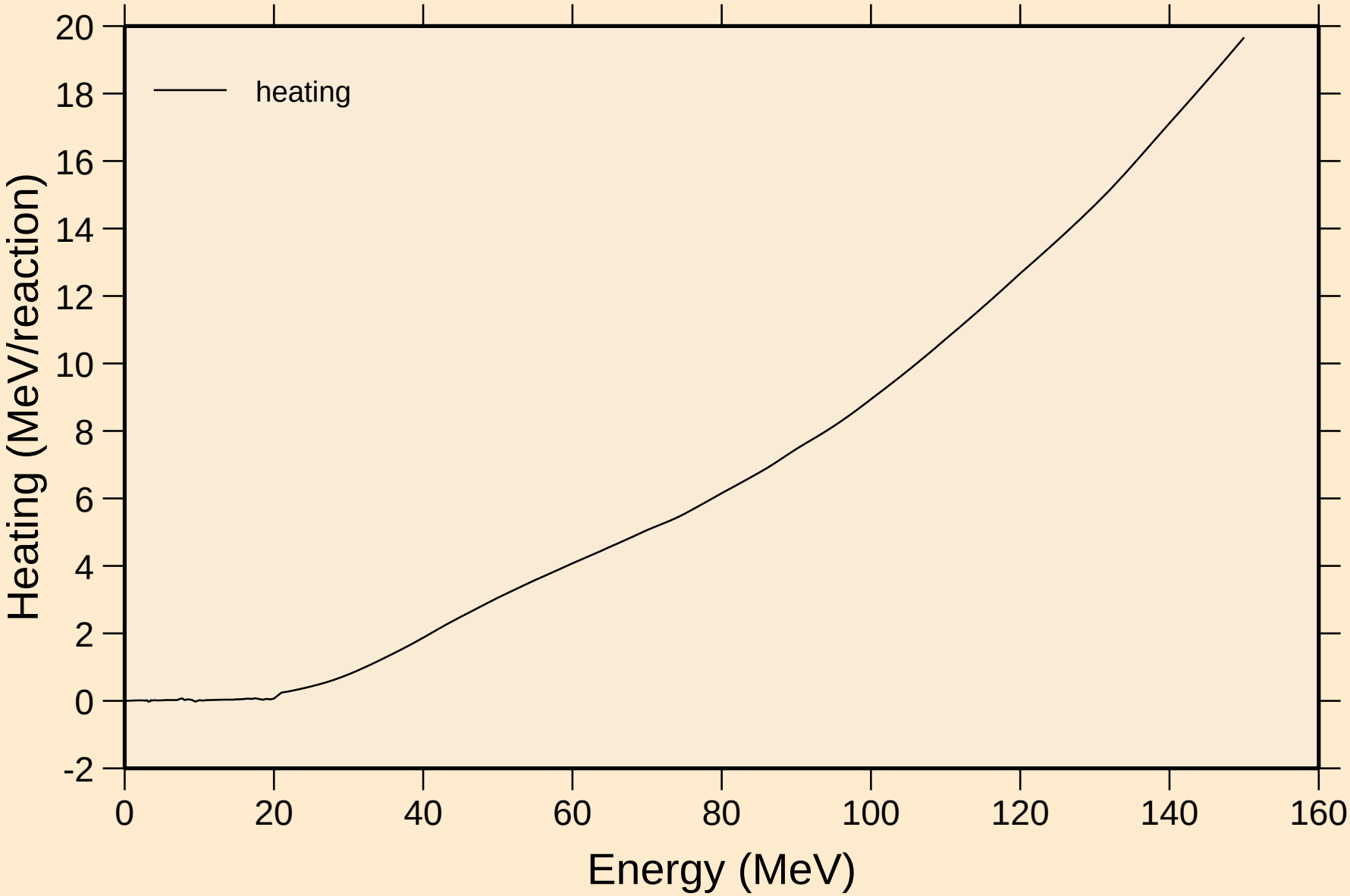
Non-threshold reactions



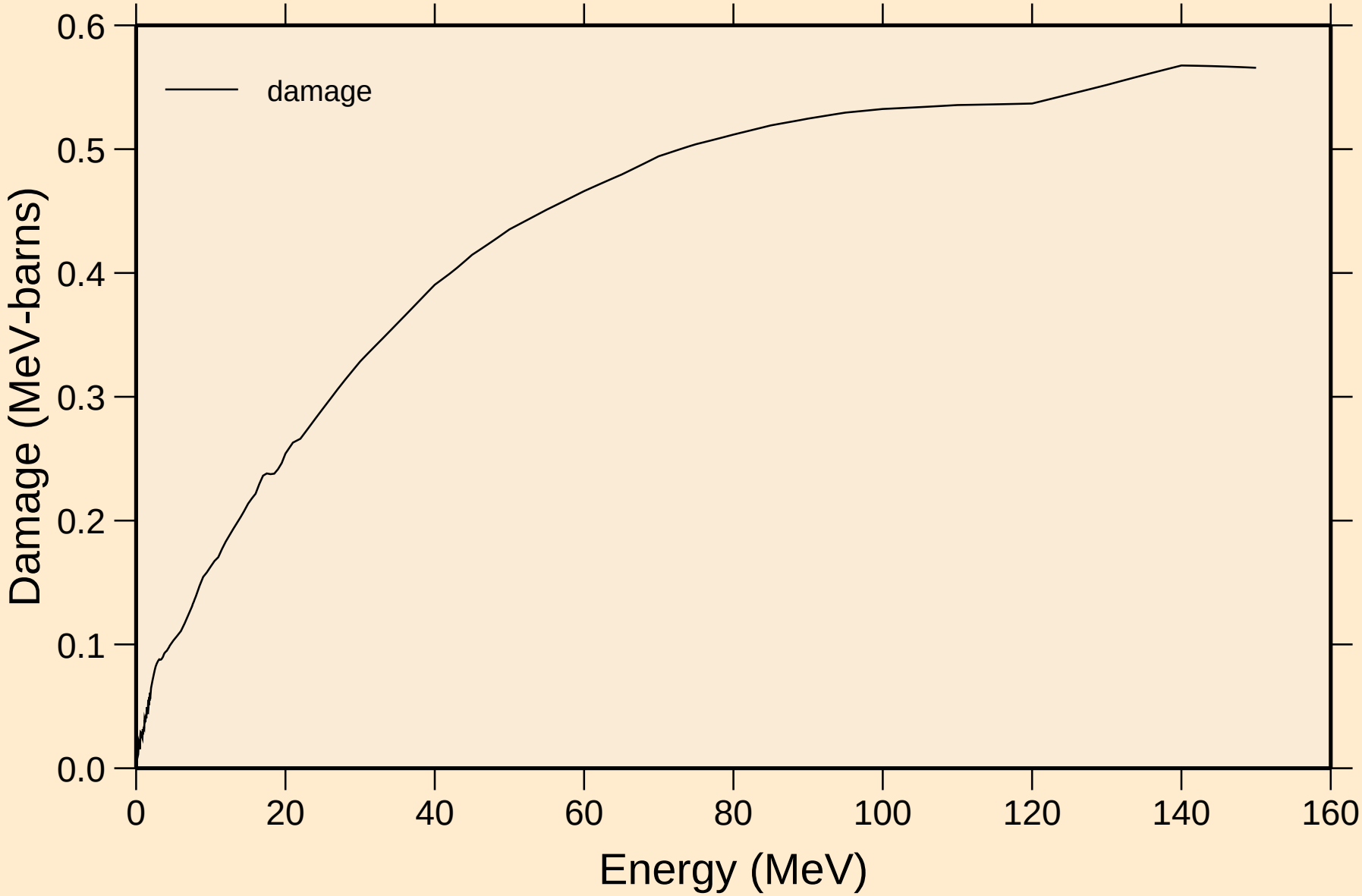

ADVANCE CALCULATIONS
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140
160

ADVANCE CALCULATIONS

Heating

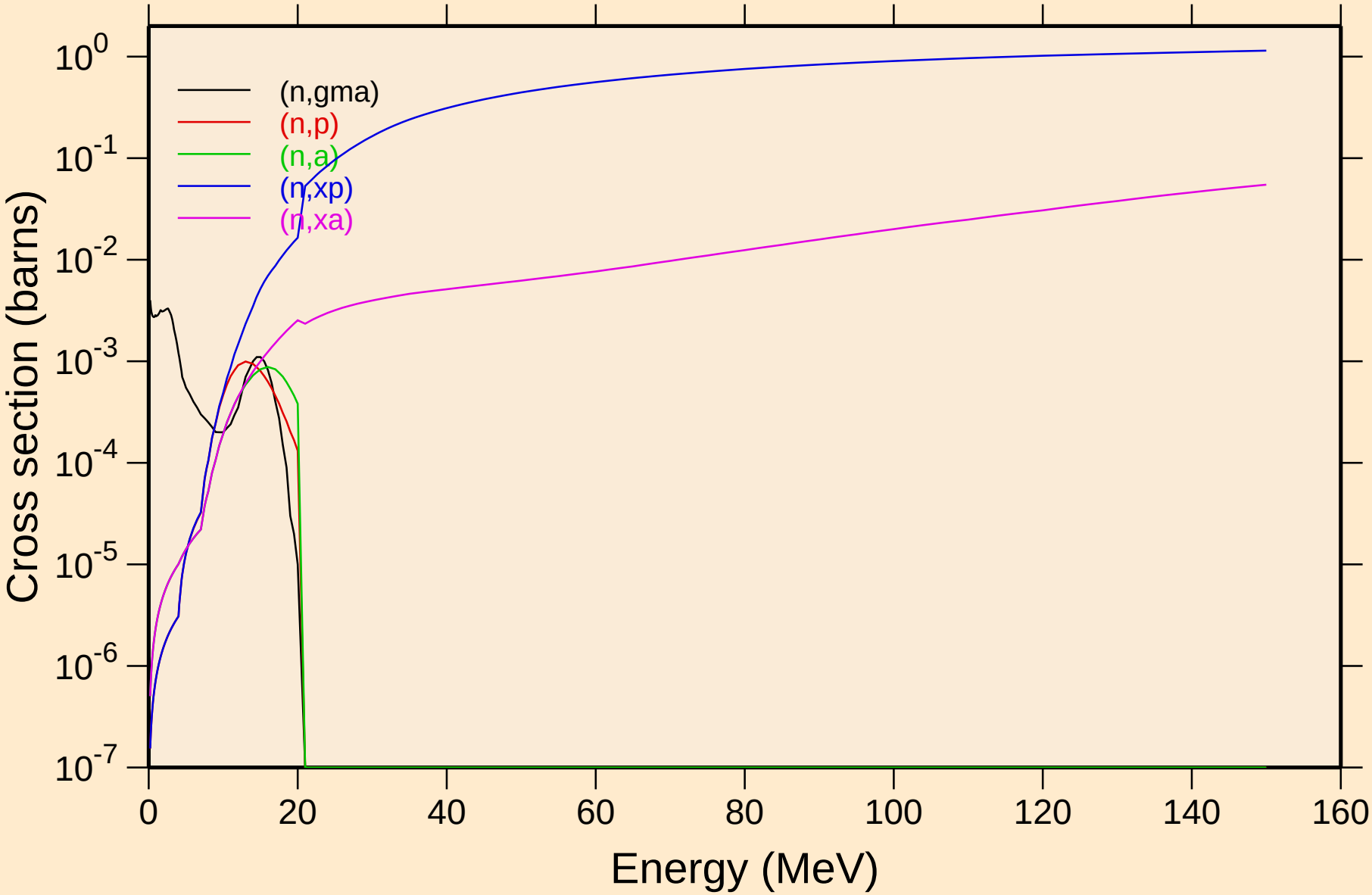


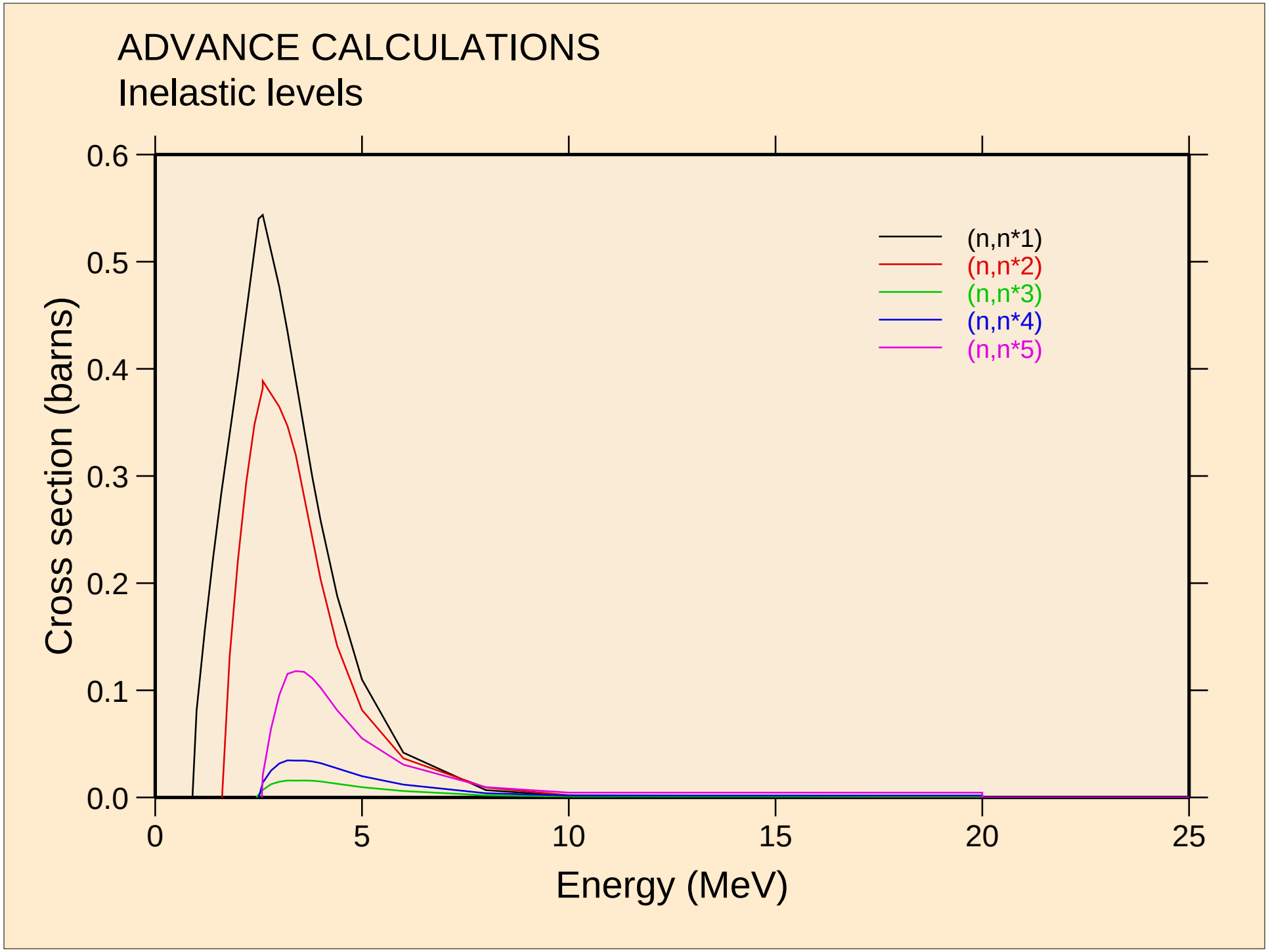
ADVANCE CALCULATIONS
Damage



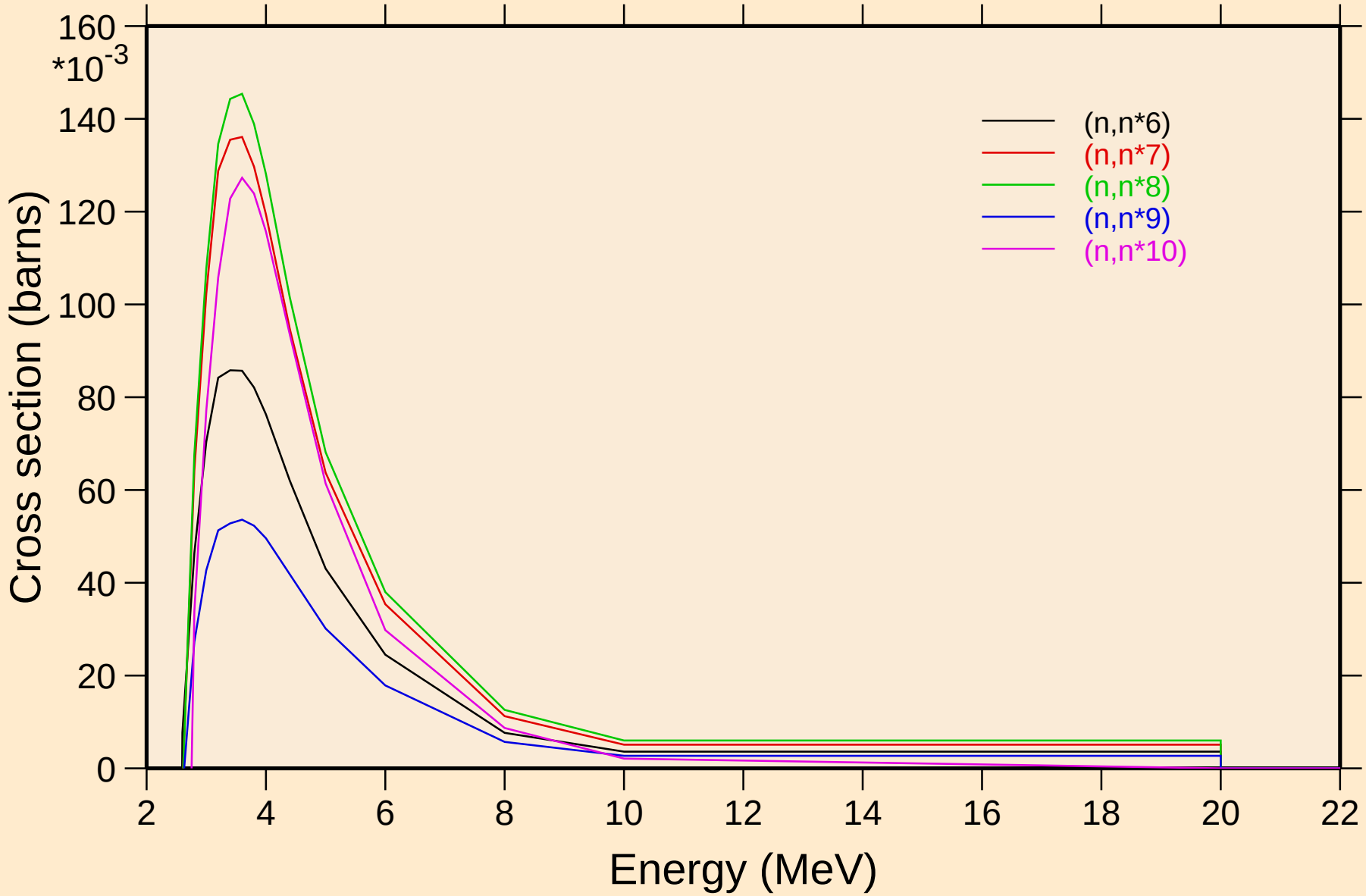
ADVANCE CALCULATIONS

Non-threshold reactions

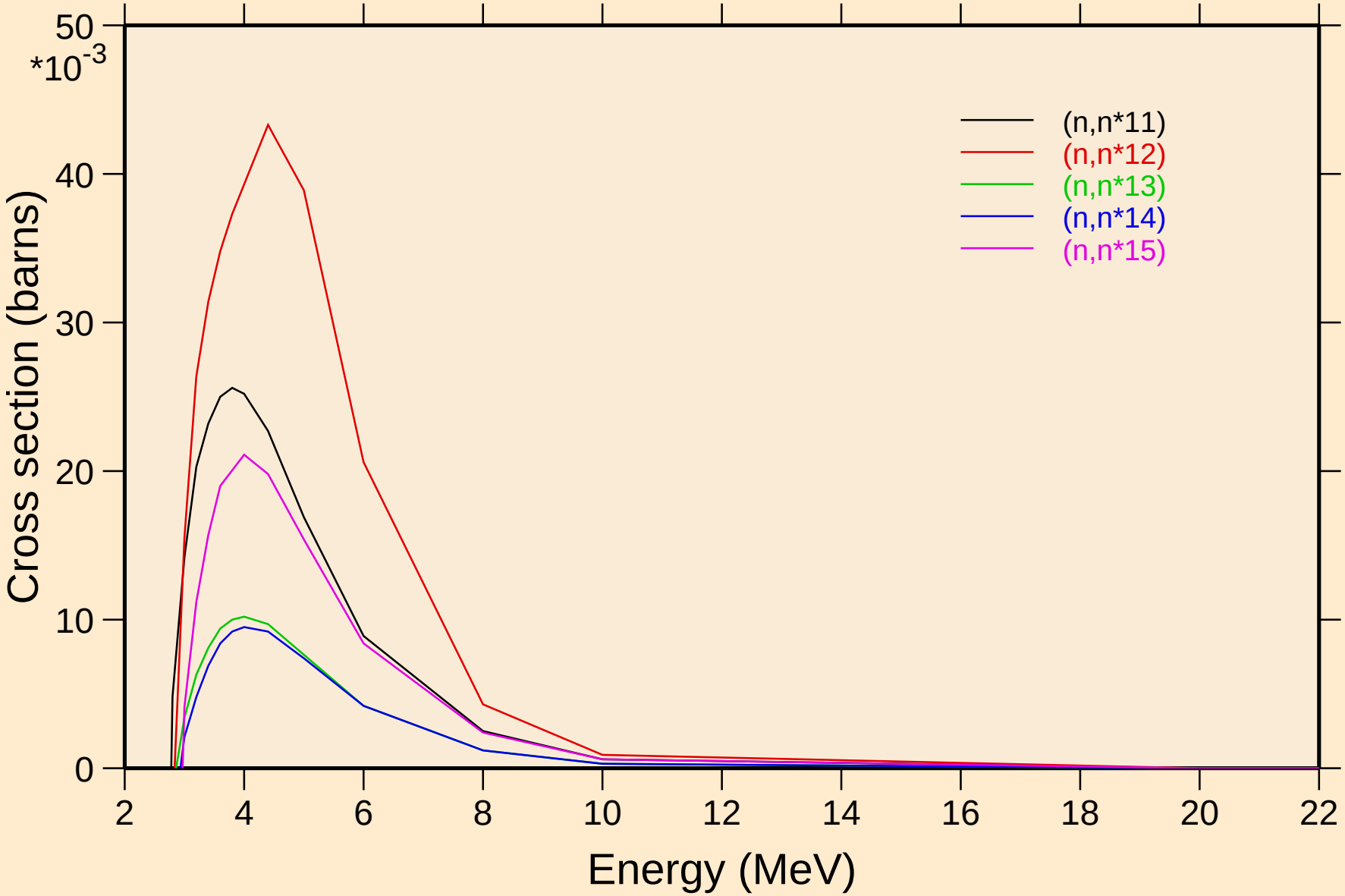



ADVANCE CALCULATIONS
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0
5
10
15
20
25
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

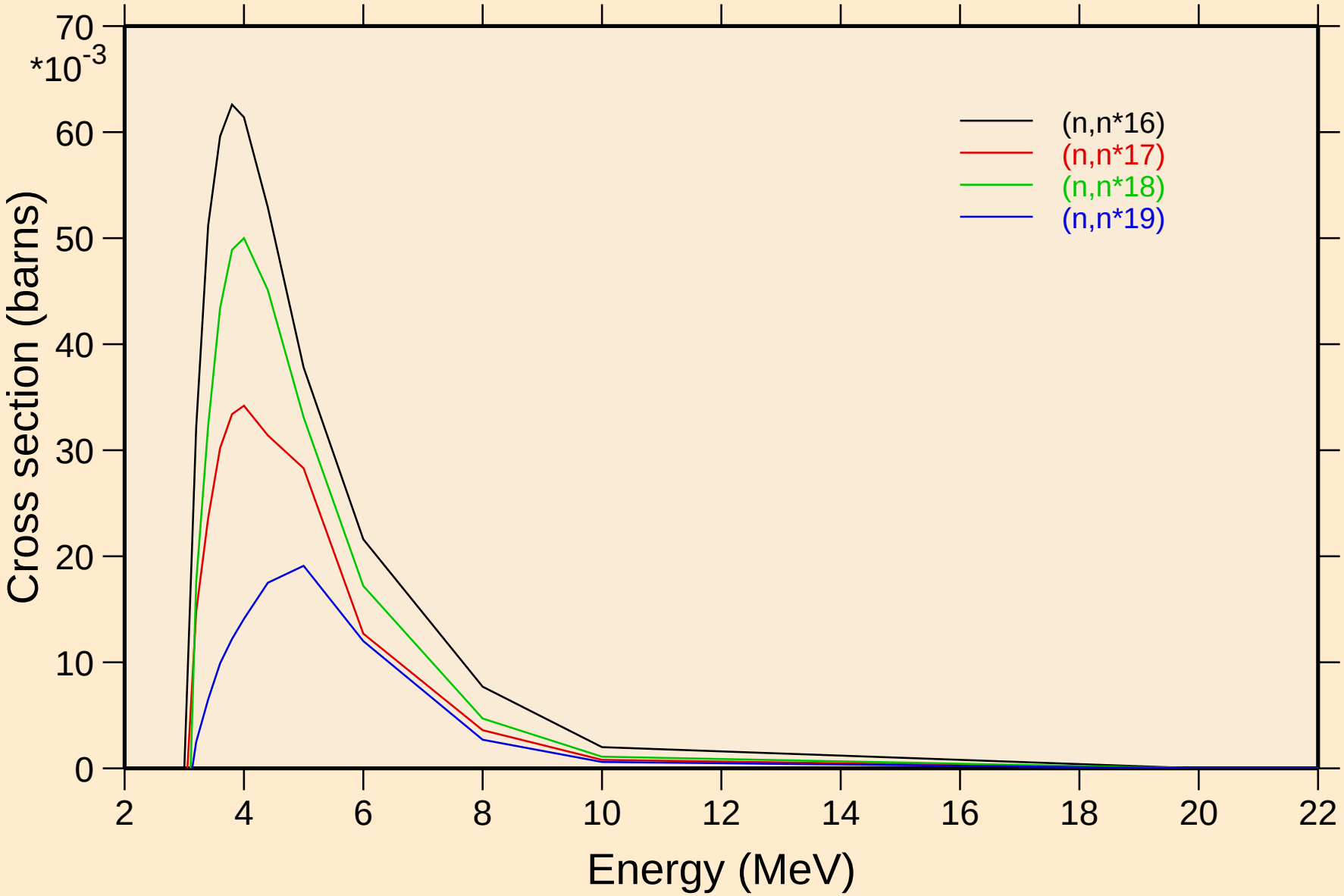
ADVANCE CALCULATIONS
Inelastic levels



ADVANCE CALCULATIONS
Inelastic levels

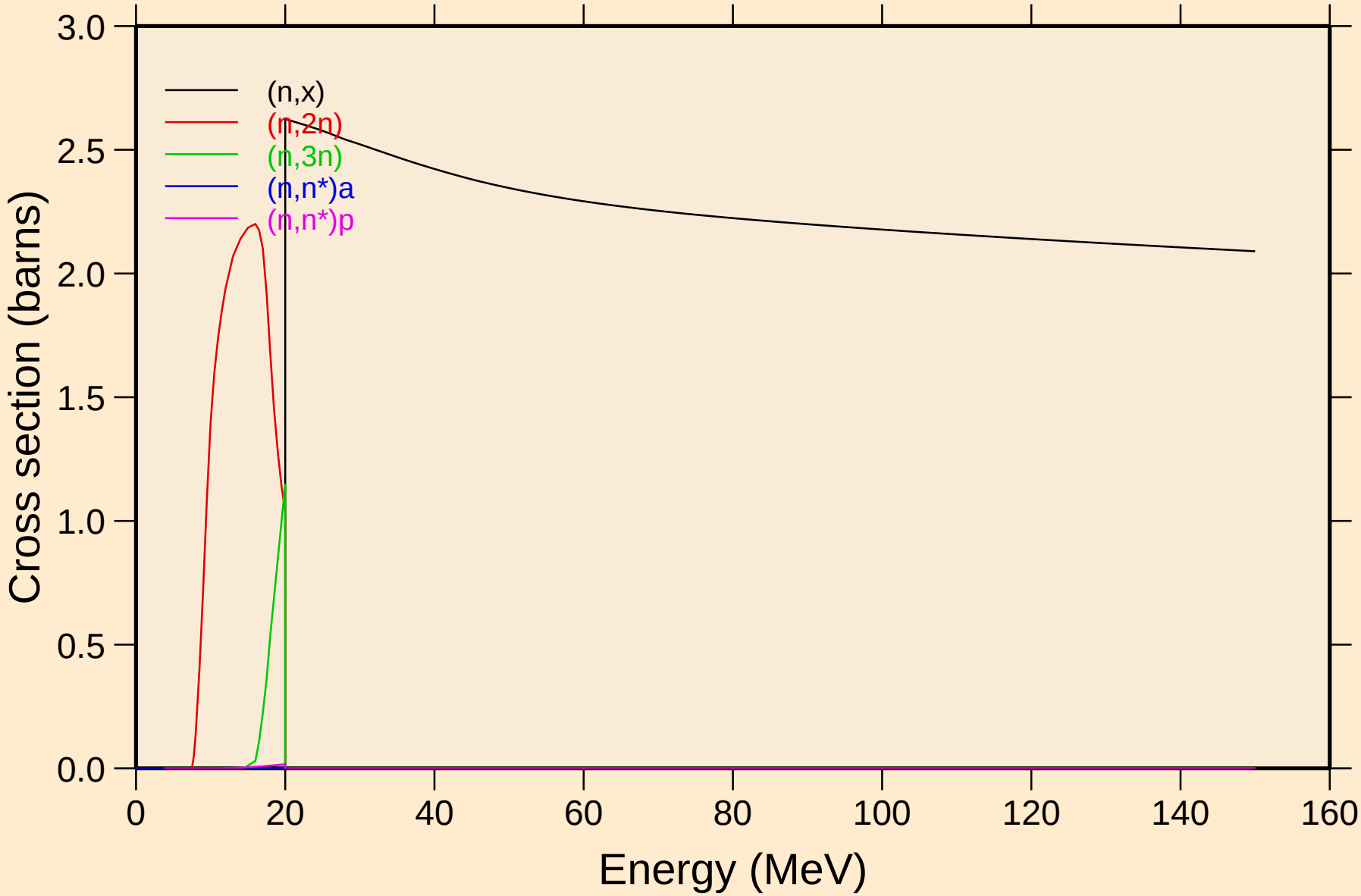


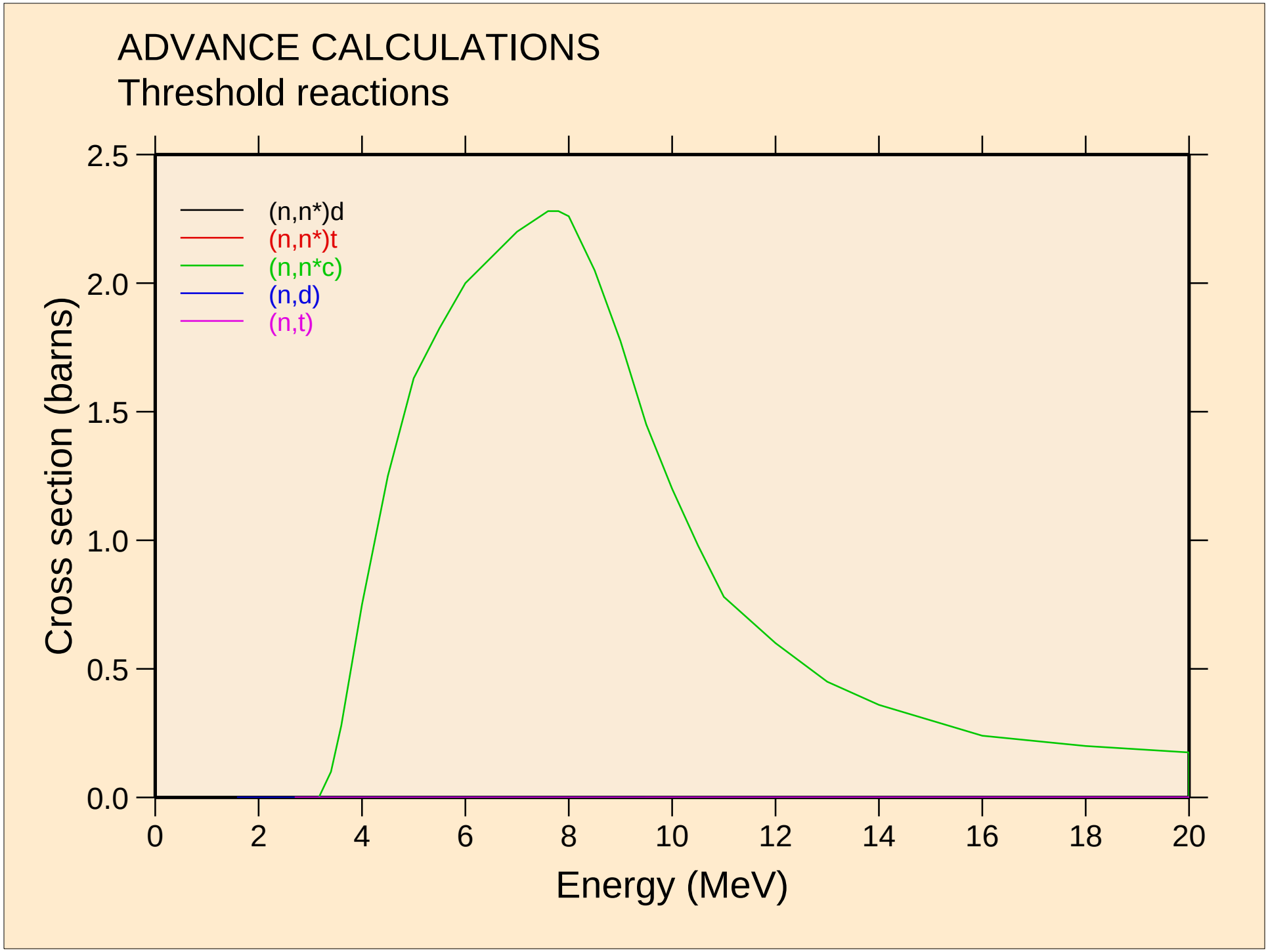
ADVANCE CALCULATIONS
Inelastic levels



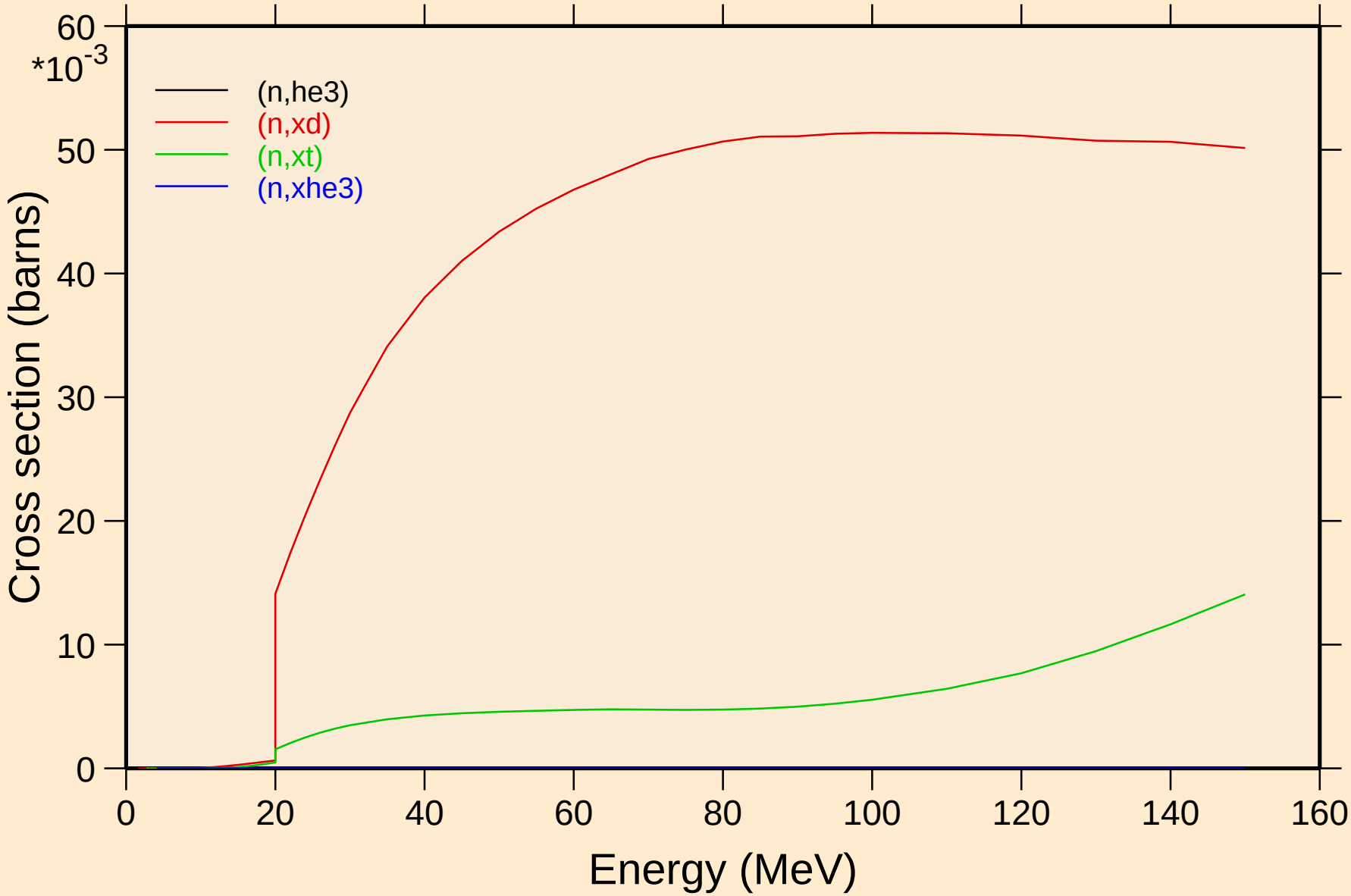
ADVANCE CALCULATIONS

Threshold reactions

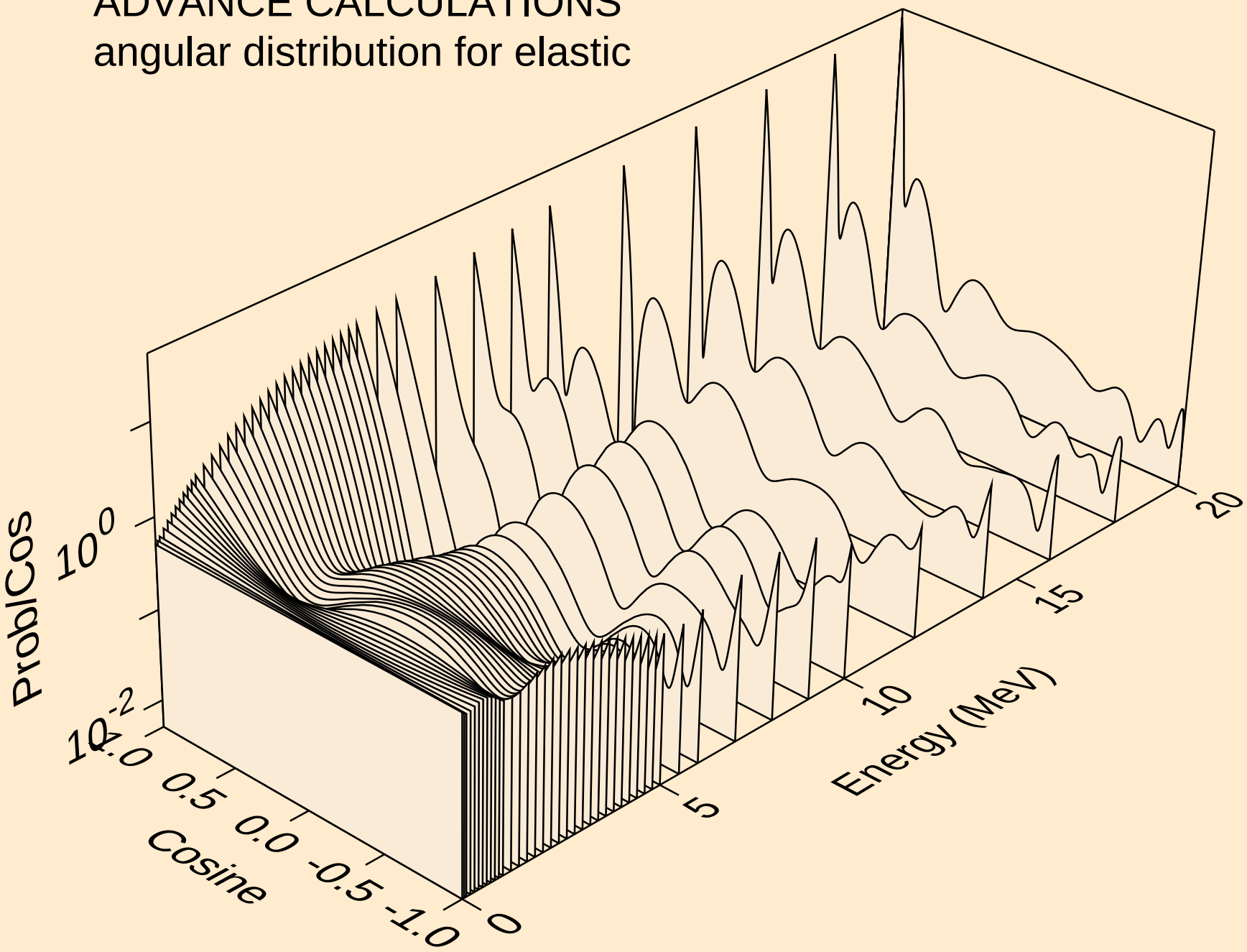



ADVANCE CALCULATIONS
Threshold reactions
(n,n*)d
(n,n*)t
(n,n*c)
(n,d)
(n,t)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
2
4
6
8
10
12
14
16
18
20

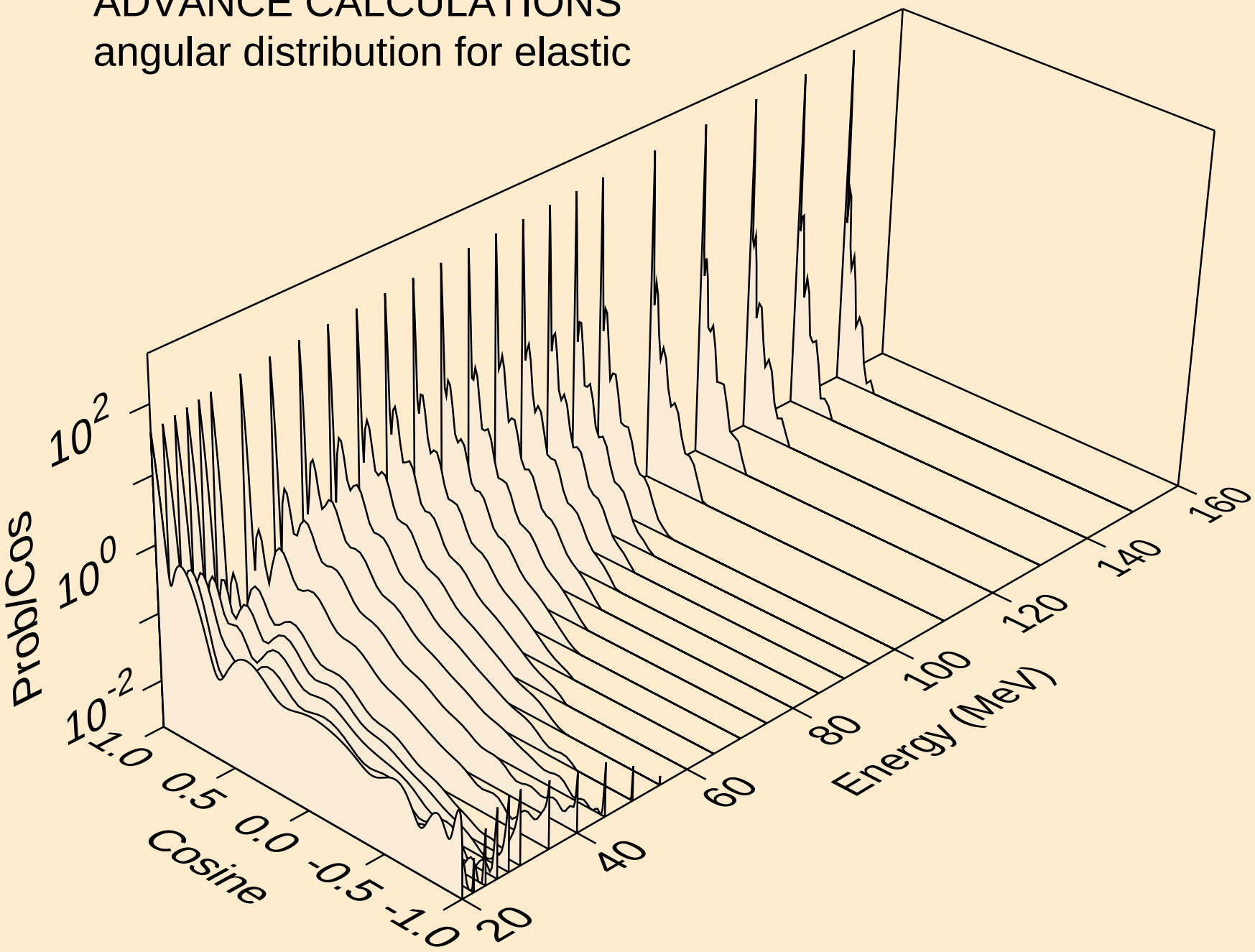
ADVANCE CALCULATIONS
Threshold reactions



ADVANCE CALCULATIONS
angular distribution for elastic

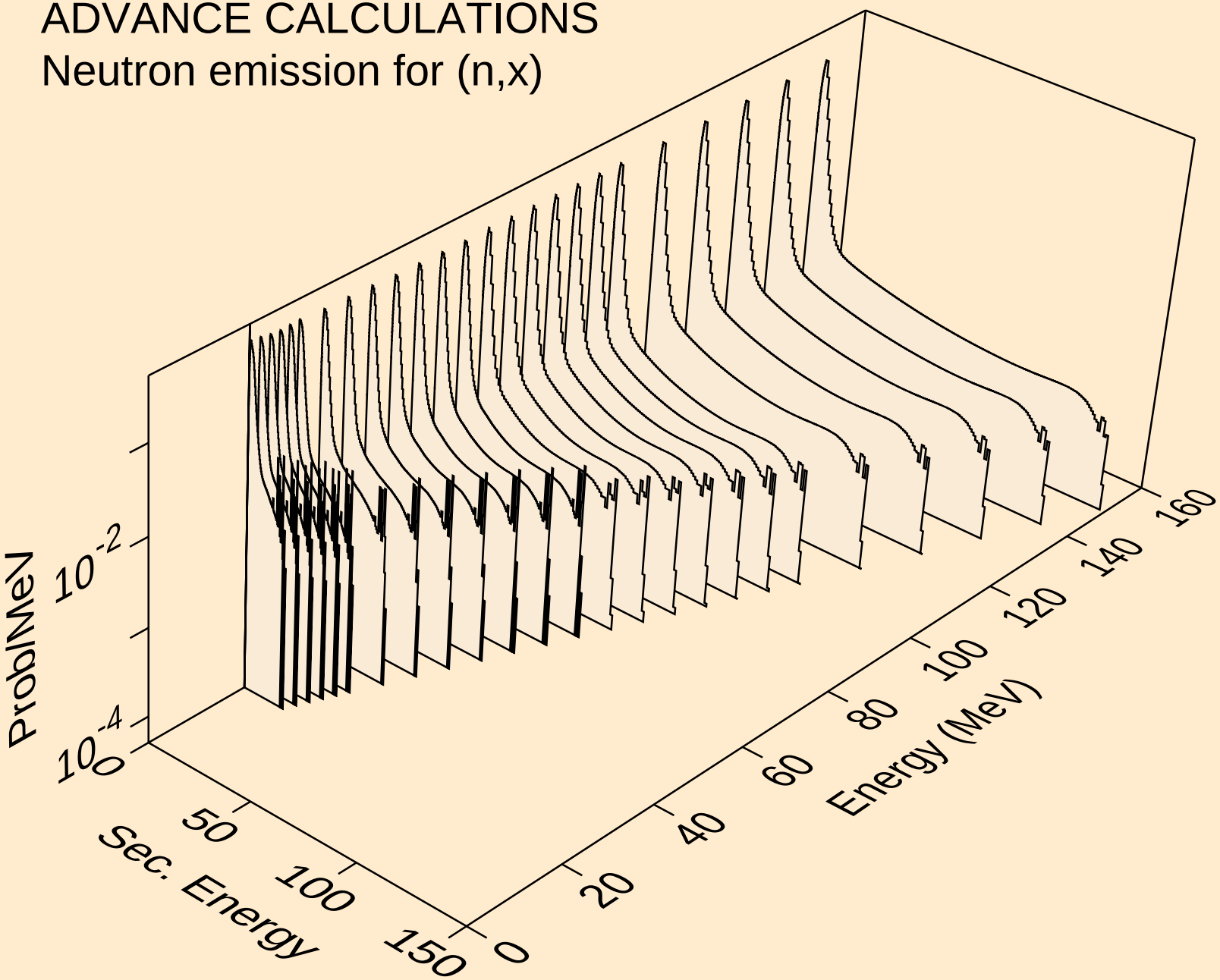


ADVANCE CALCULATIONS
angular distribution for elastic



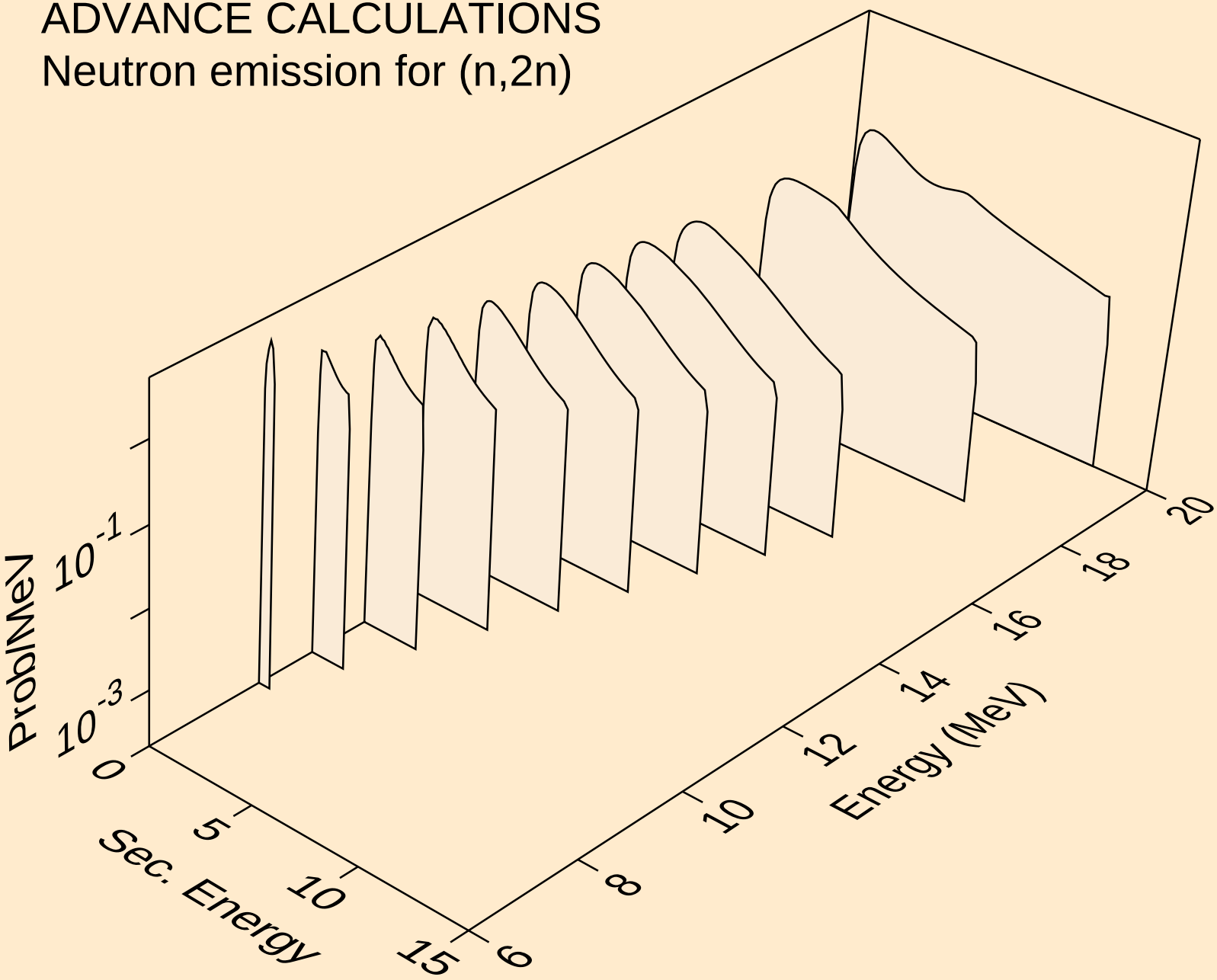
ADVANCE CALCULATIONS

Neutron emission for (n,x)



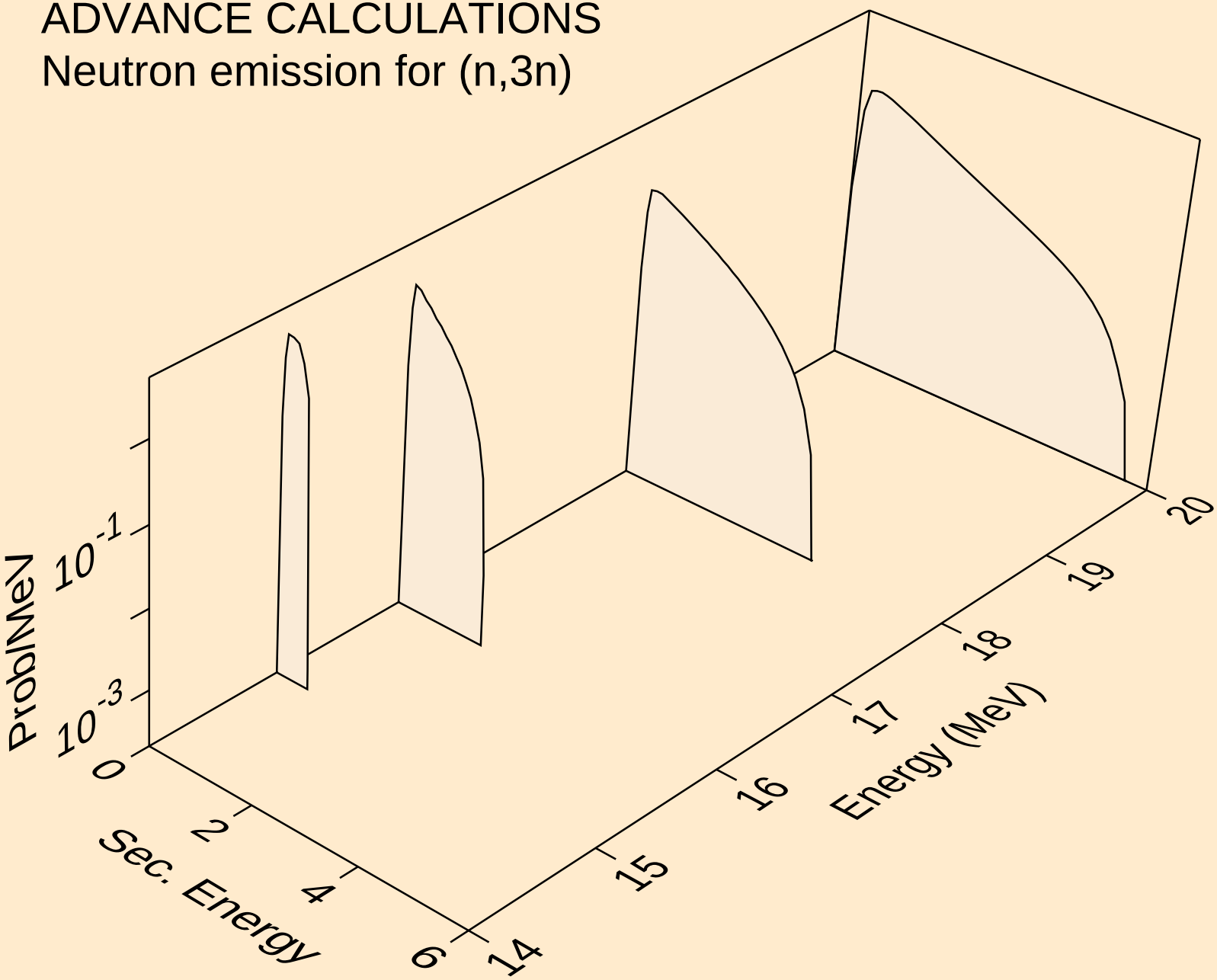
ADVANCE CALCULATIONS

Neutron emission for (n,2n)



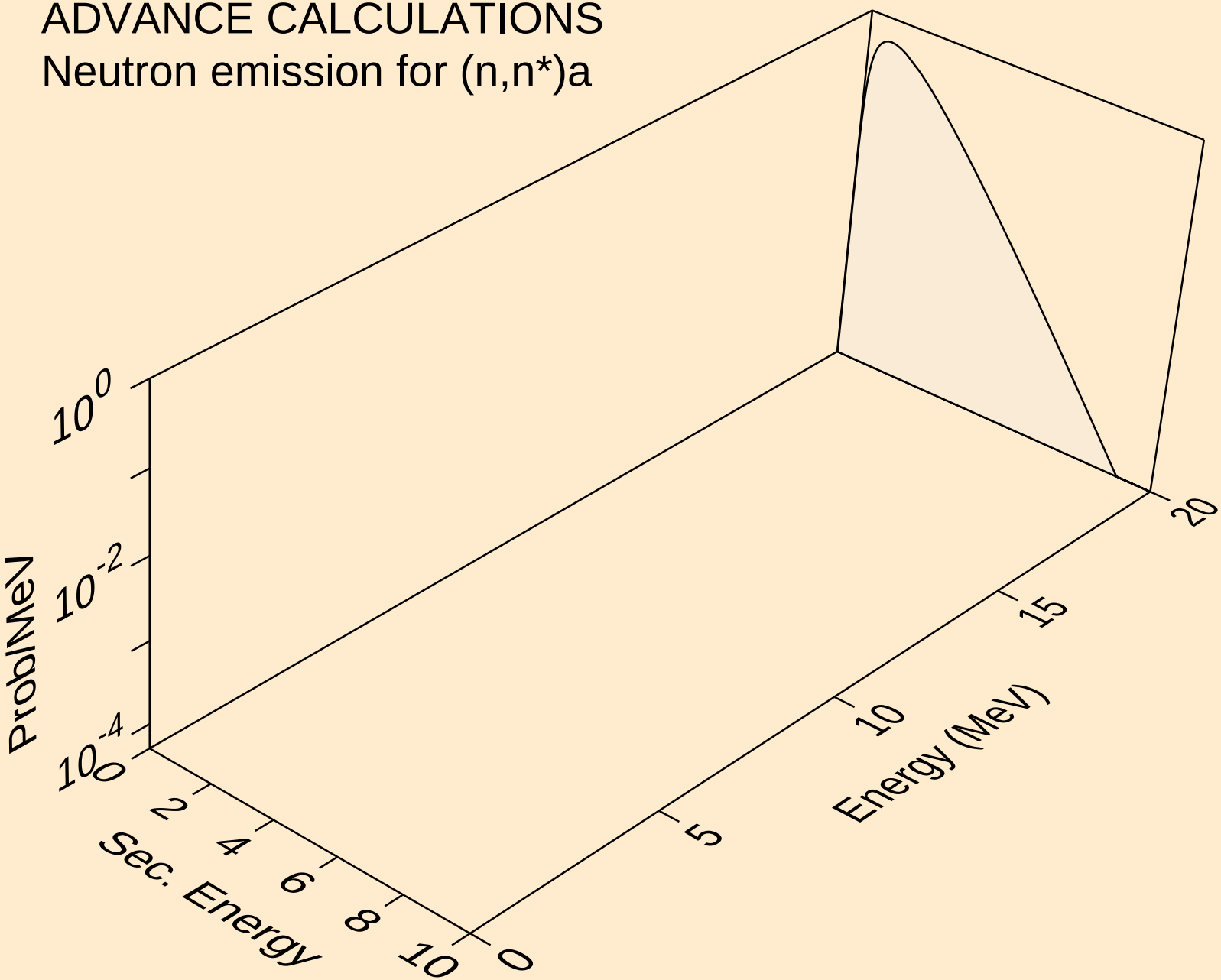
ADVANCE CALCULATIONS

Neutron emission for (n,3n)



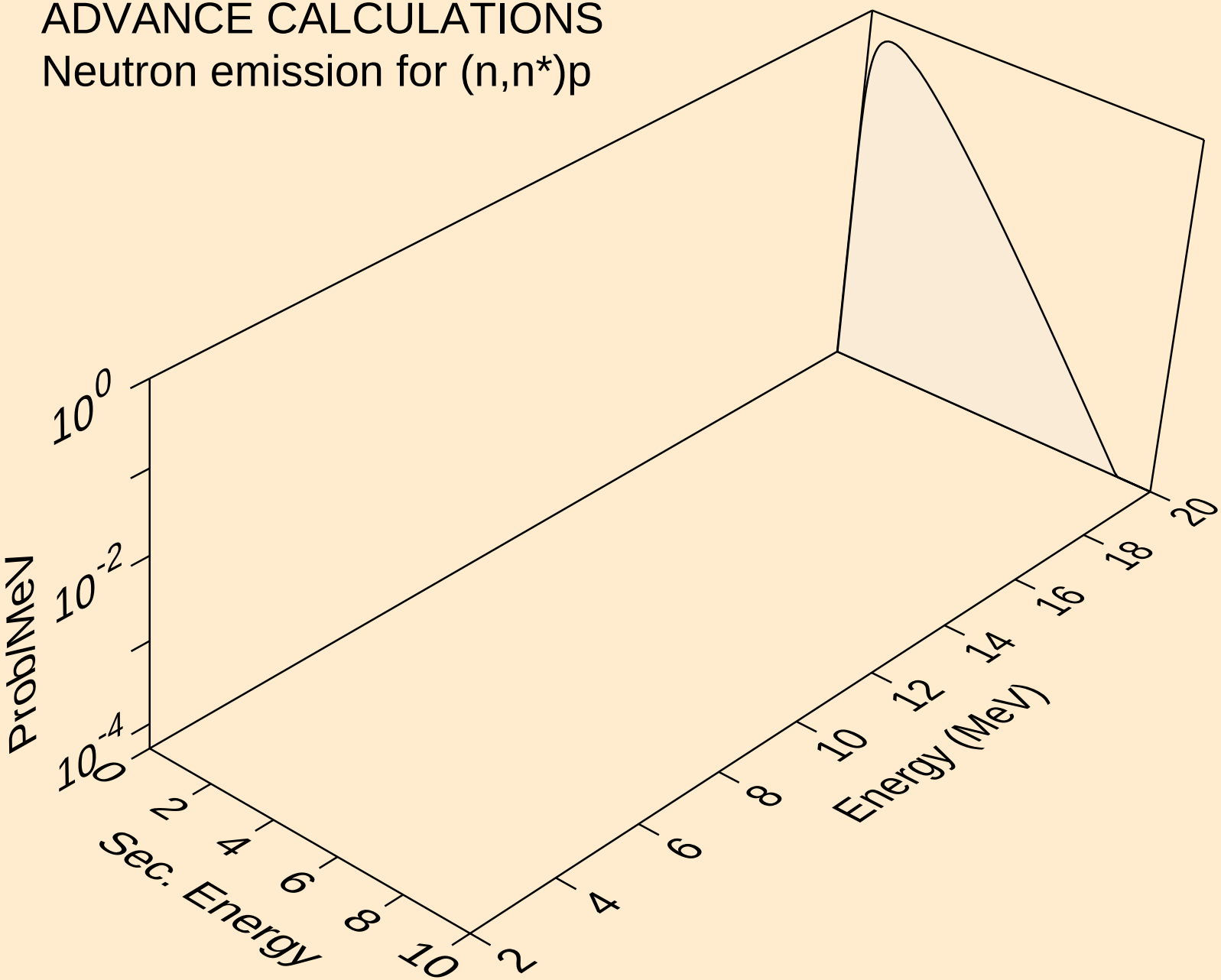
ADVANCE CALCULATIONS

Neutron emission for (n,n*)a



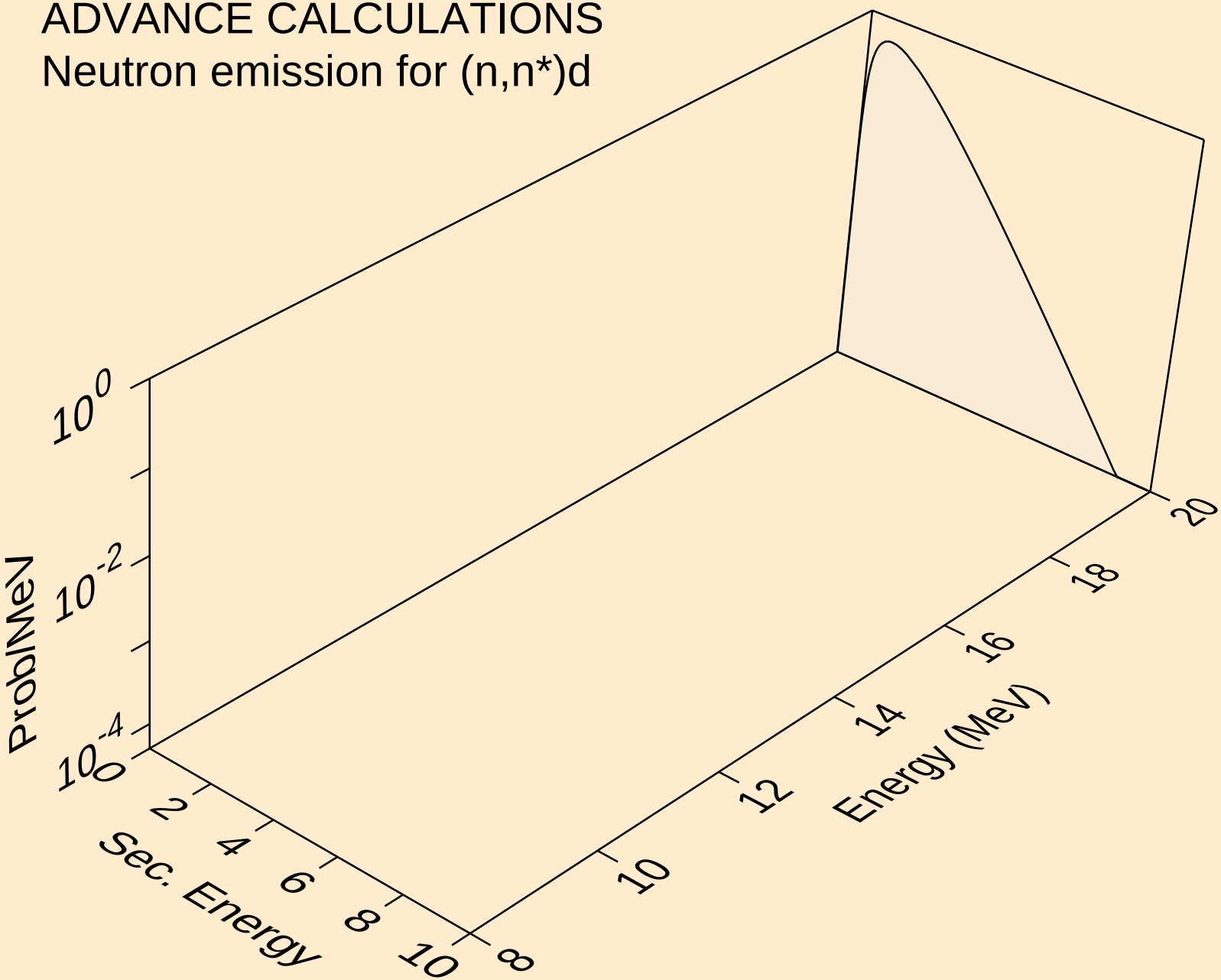
ADVANCE CALCULATIONS

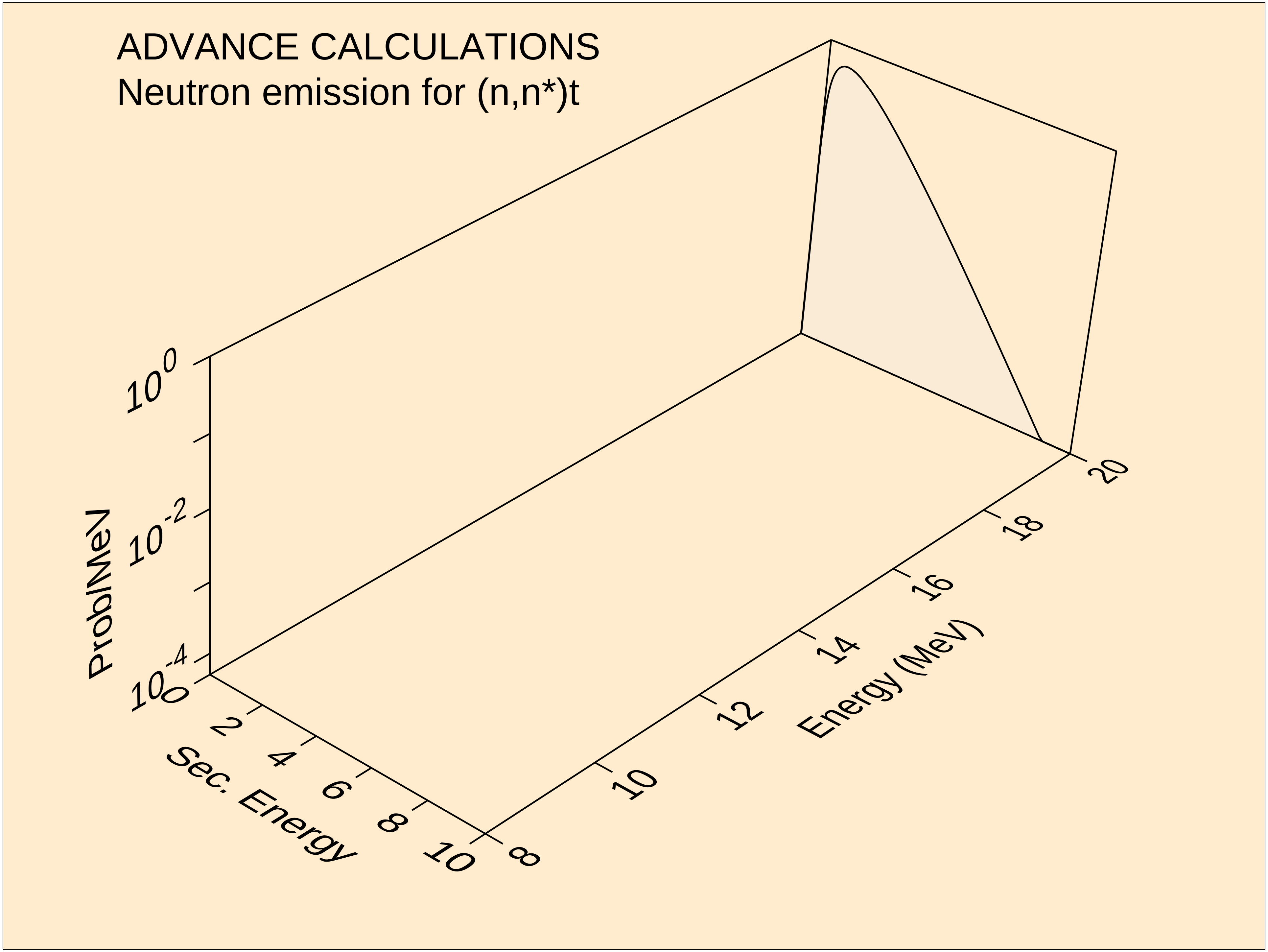
Neutron emission for (n,n*)p



ADVANCE CALCULATIONS

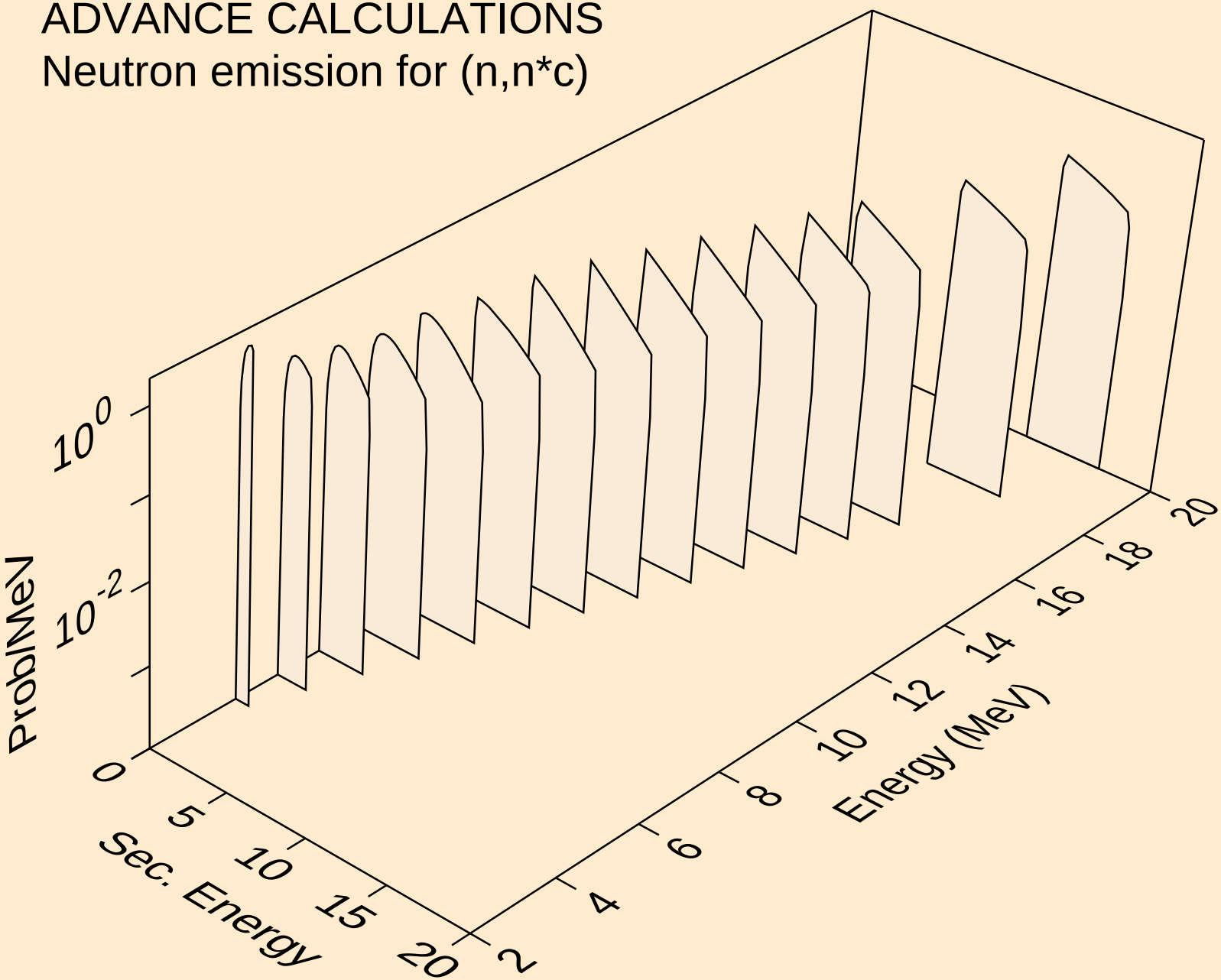
Neutron emission for (n,n*)d




ADVANCE CALCULATIONS
Neutron emission for (n,n*)t
ProblMeV
10^{0}
10^{-2}
10^{-4}
0
2
4
6
8
10
Sec. Energy
8
10
12
14
16
18
20
Energy (MeV)

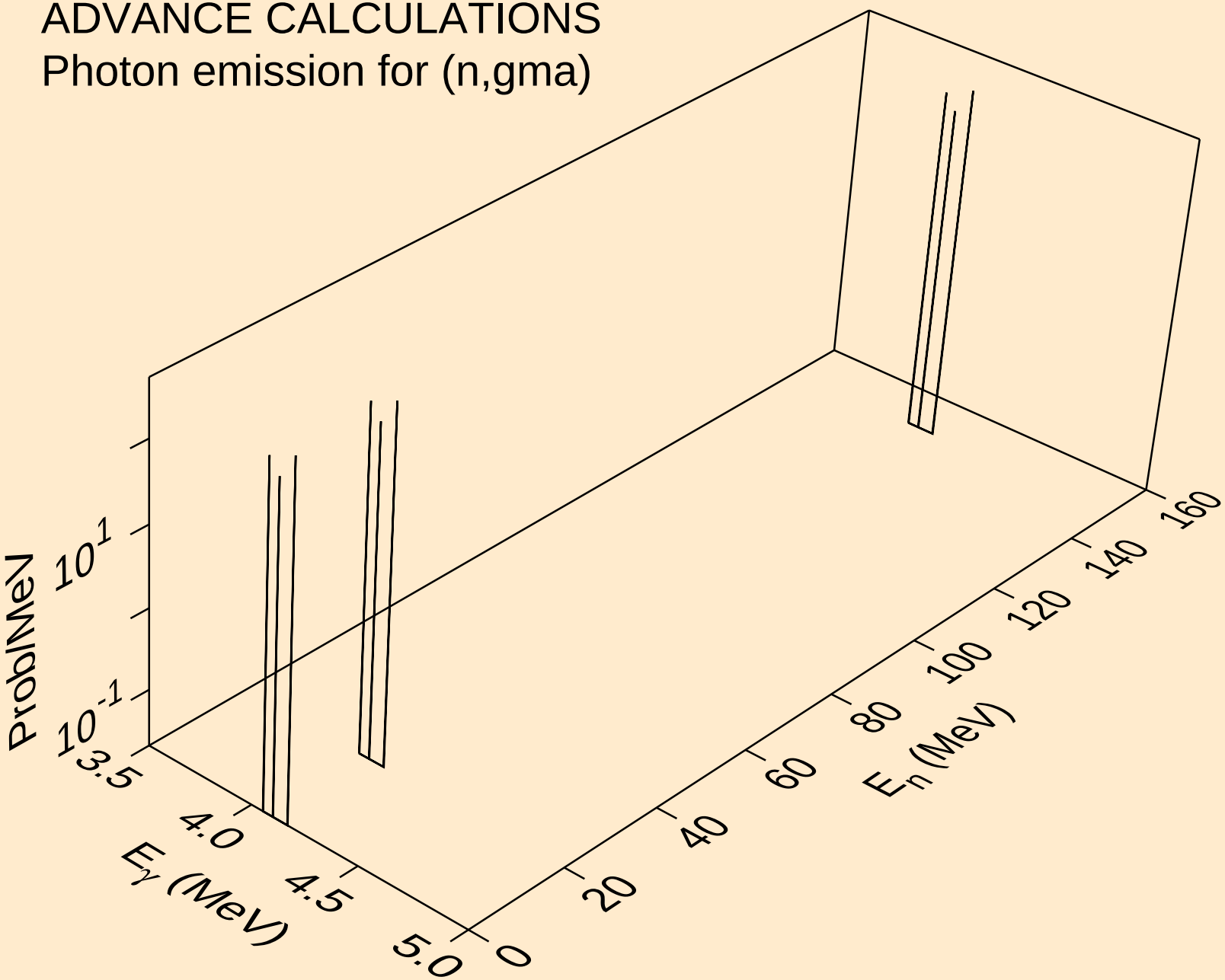
ADVANCE CALCULATIONS

Neutron emission for (n,n*c)



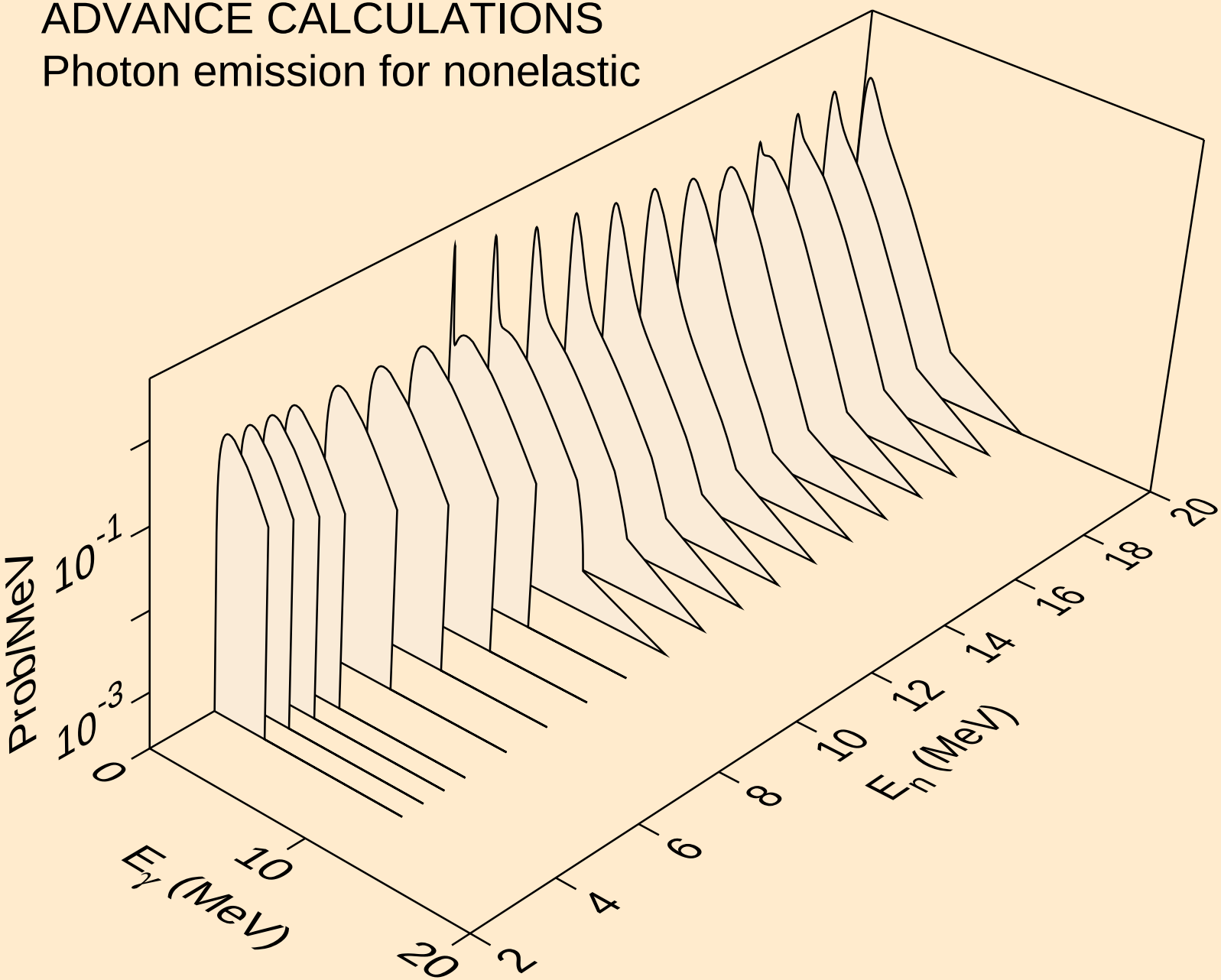
ADVANCE CALCULATIONS

Photon emission for (n,gma)



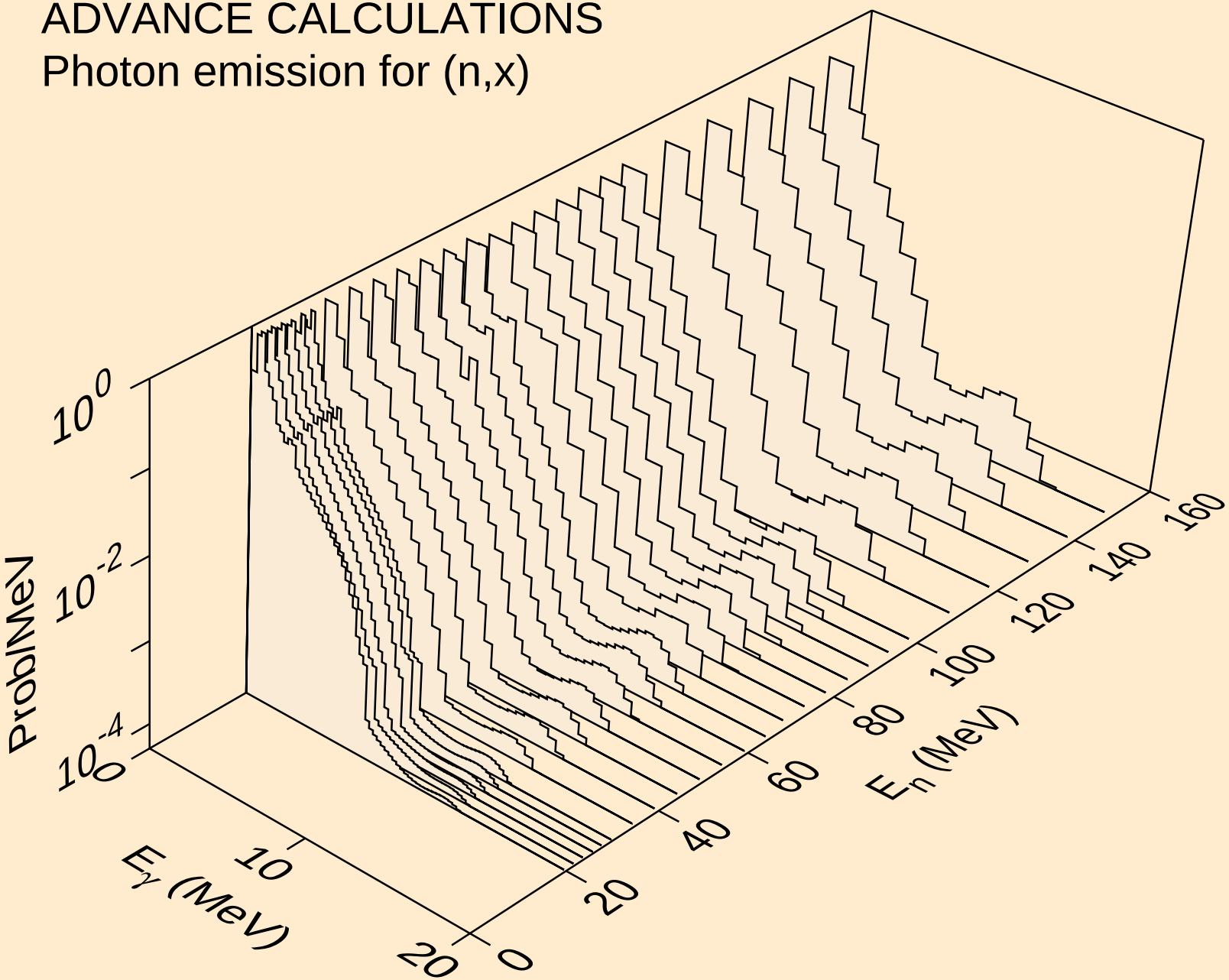
ADVANCE CALCULATIONS

Photon emission for nonelastic

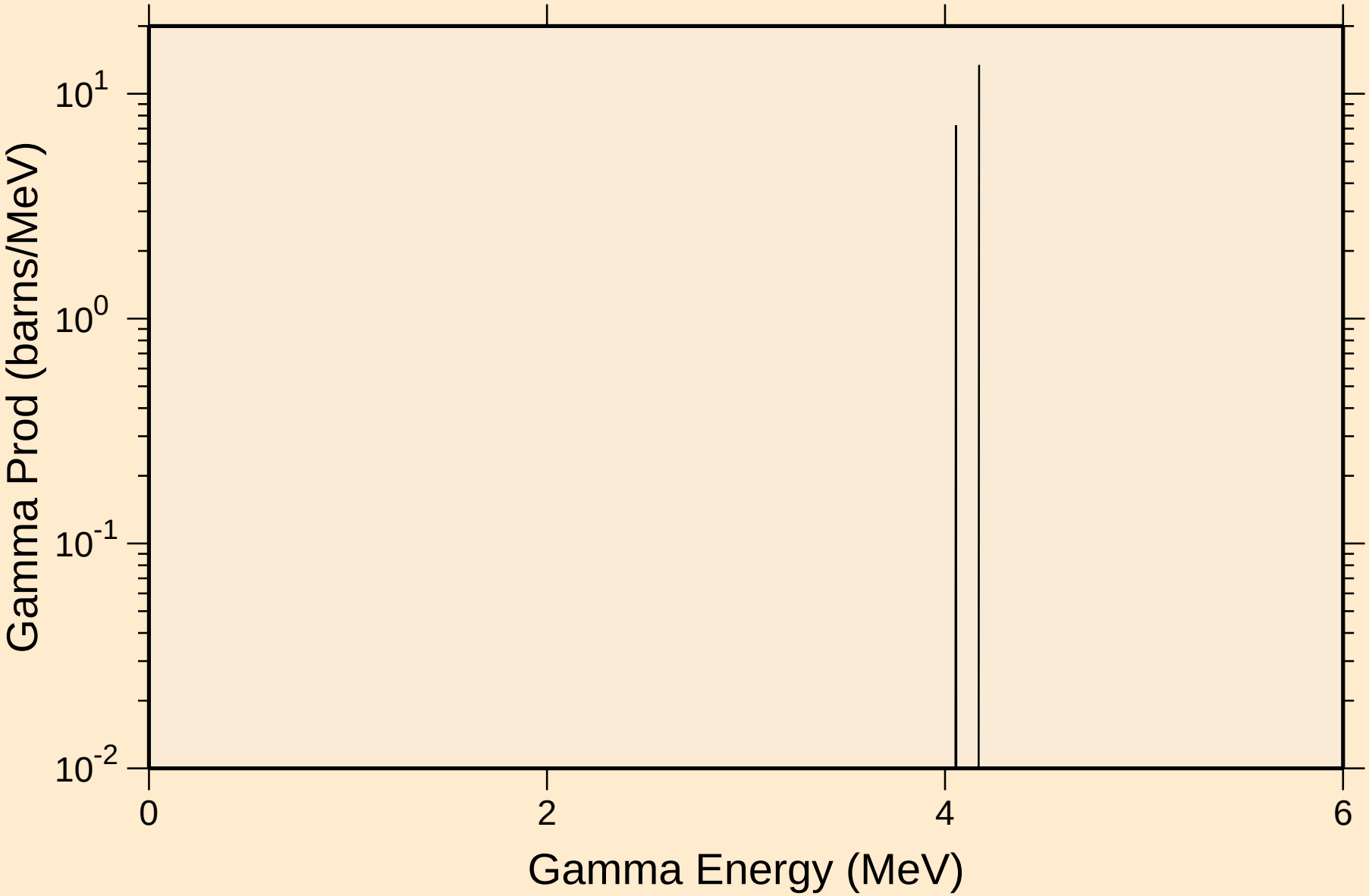


ADVANCE CALCULATIONS

Photon emission for (n,x)

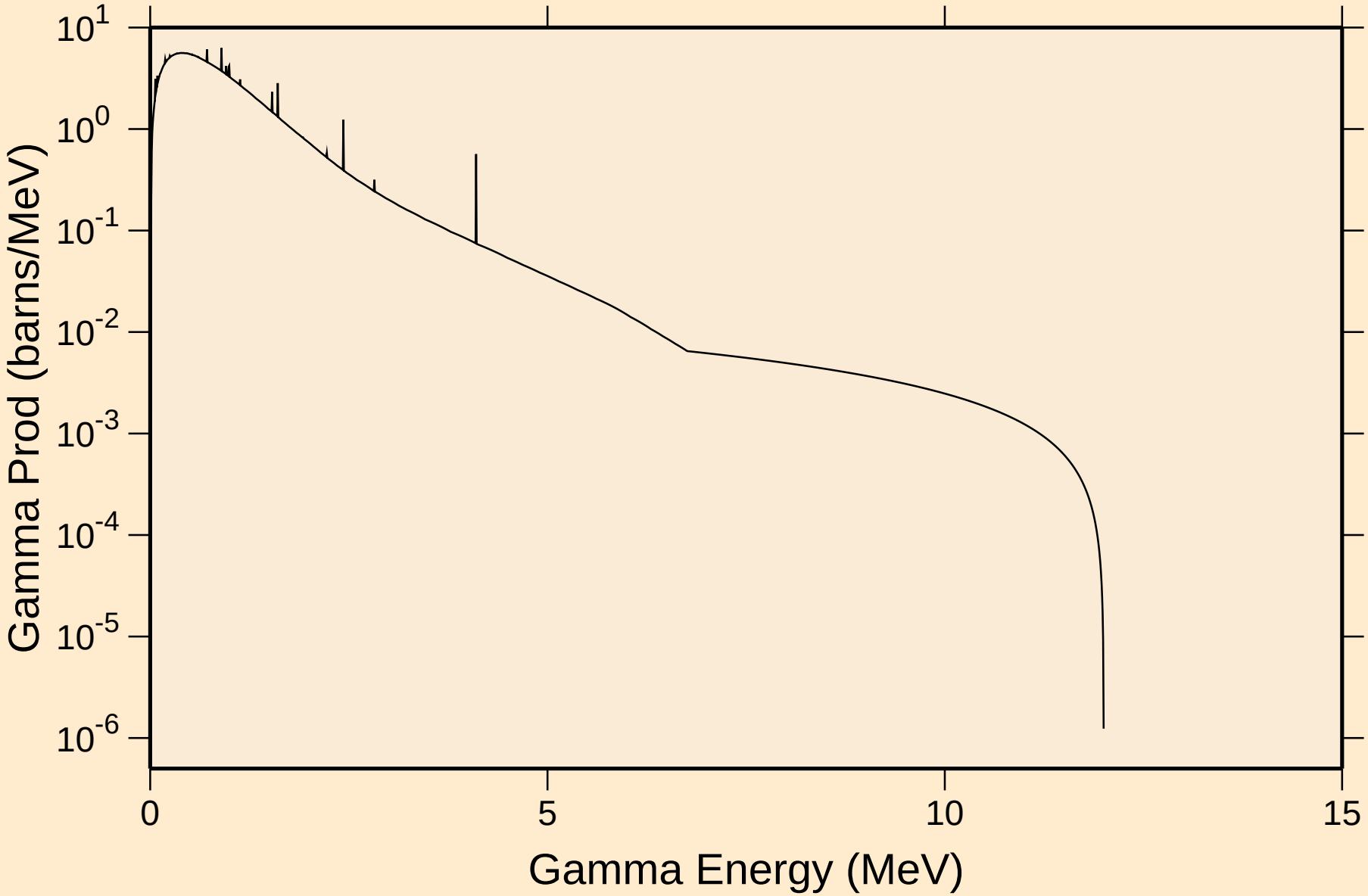


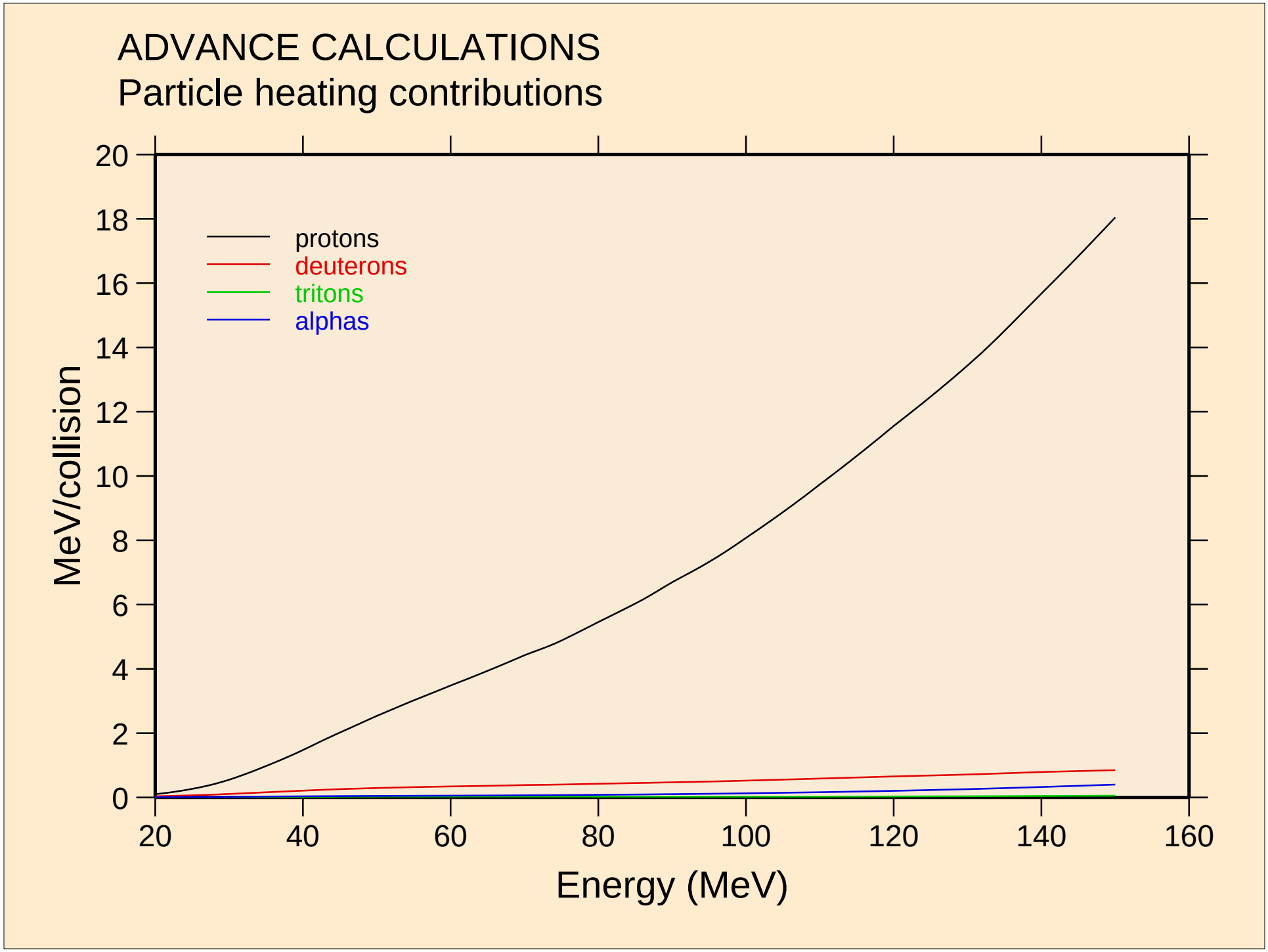
ADVANCE CALCULATIONS
thermal capture photon spectrum

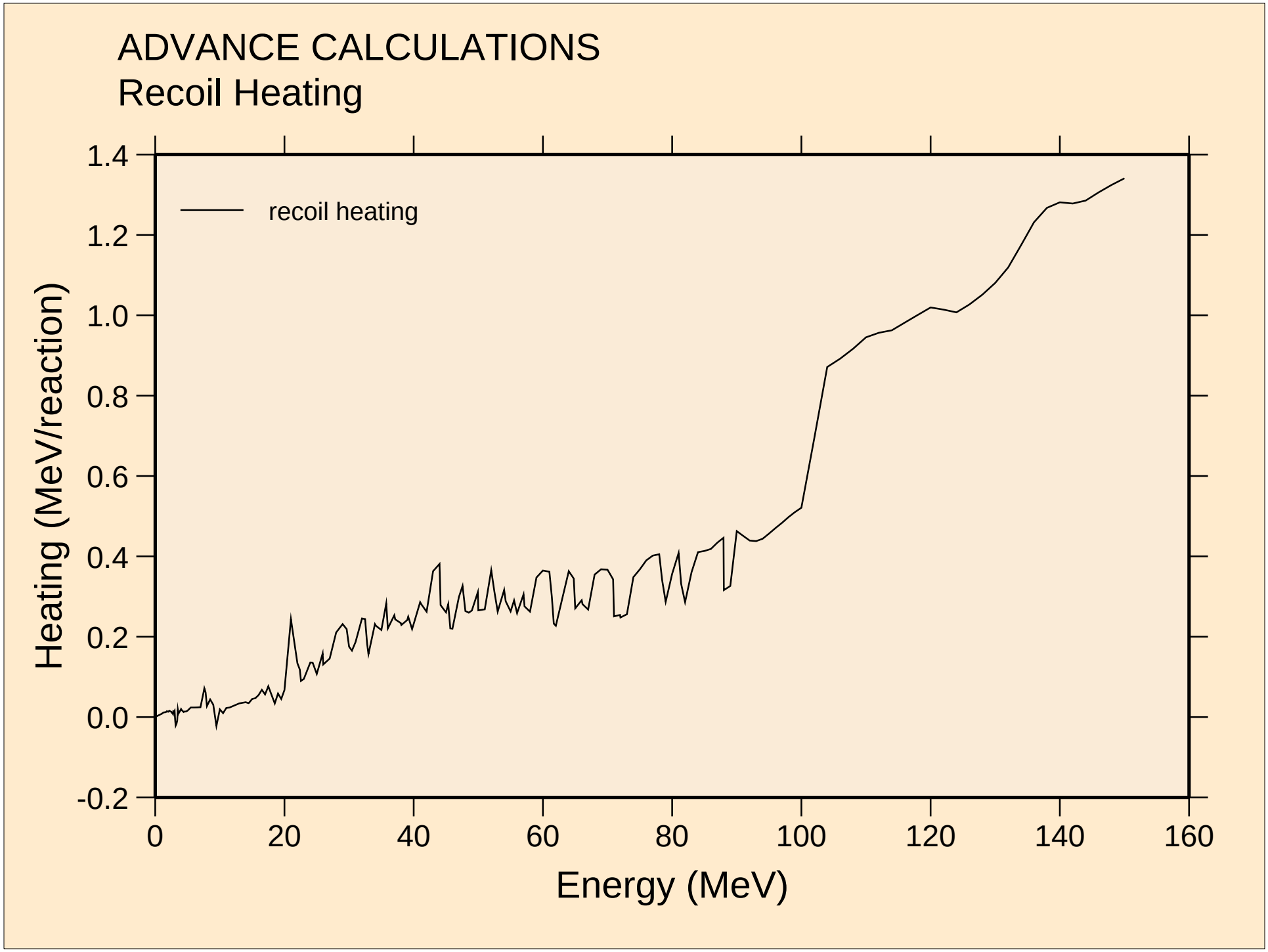


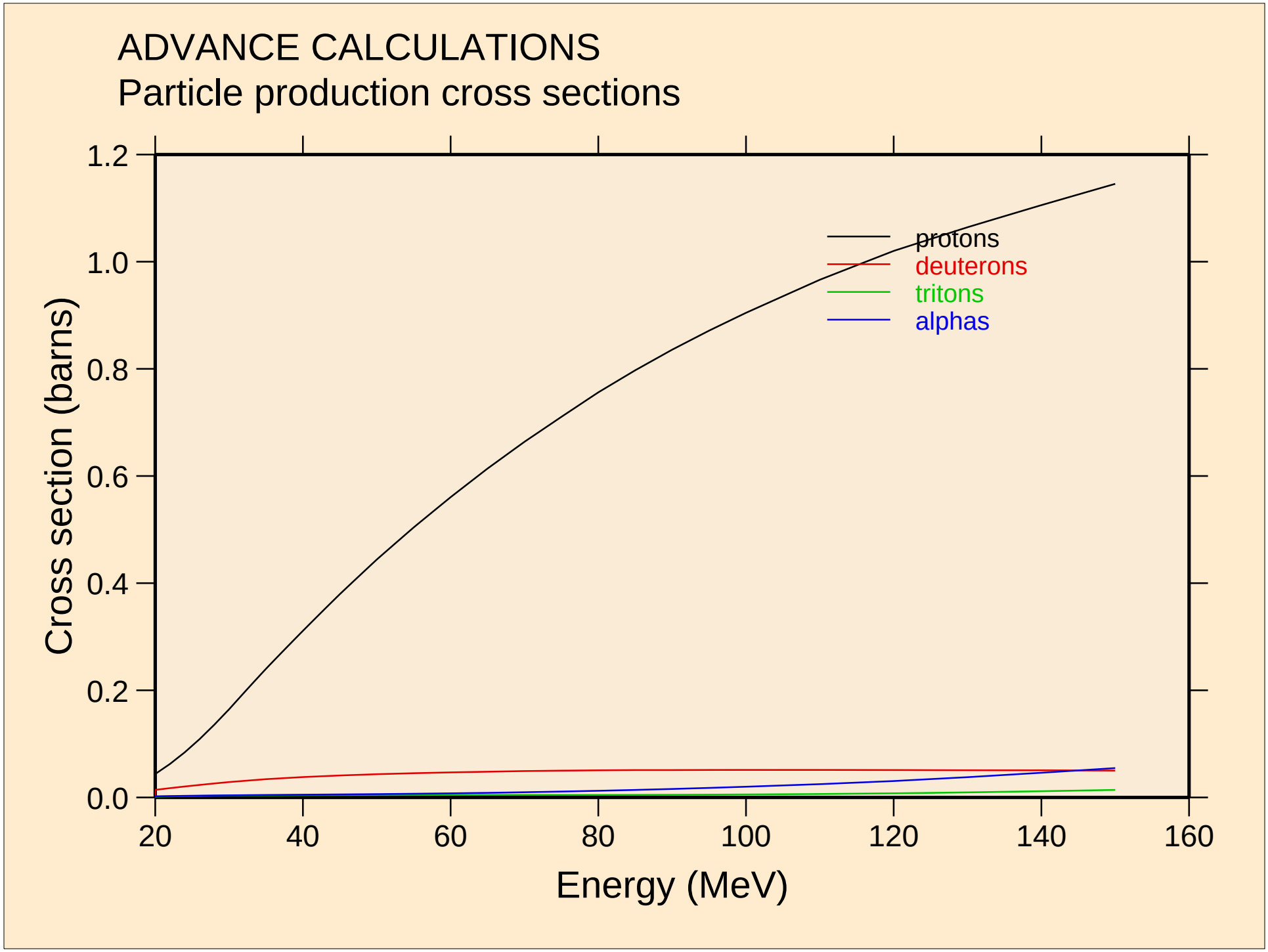
ADVANCE CALCULATIONS

14 MeV photon spectrum

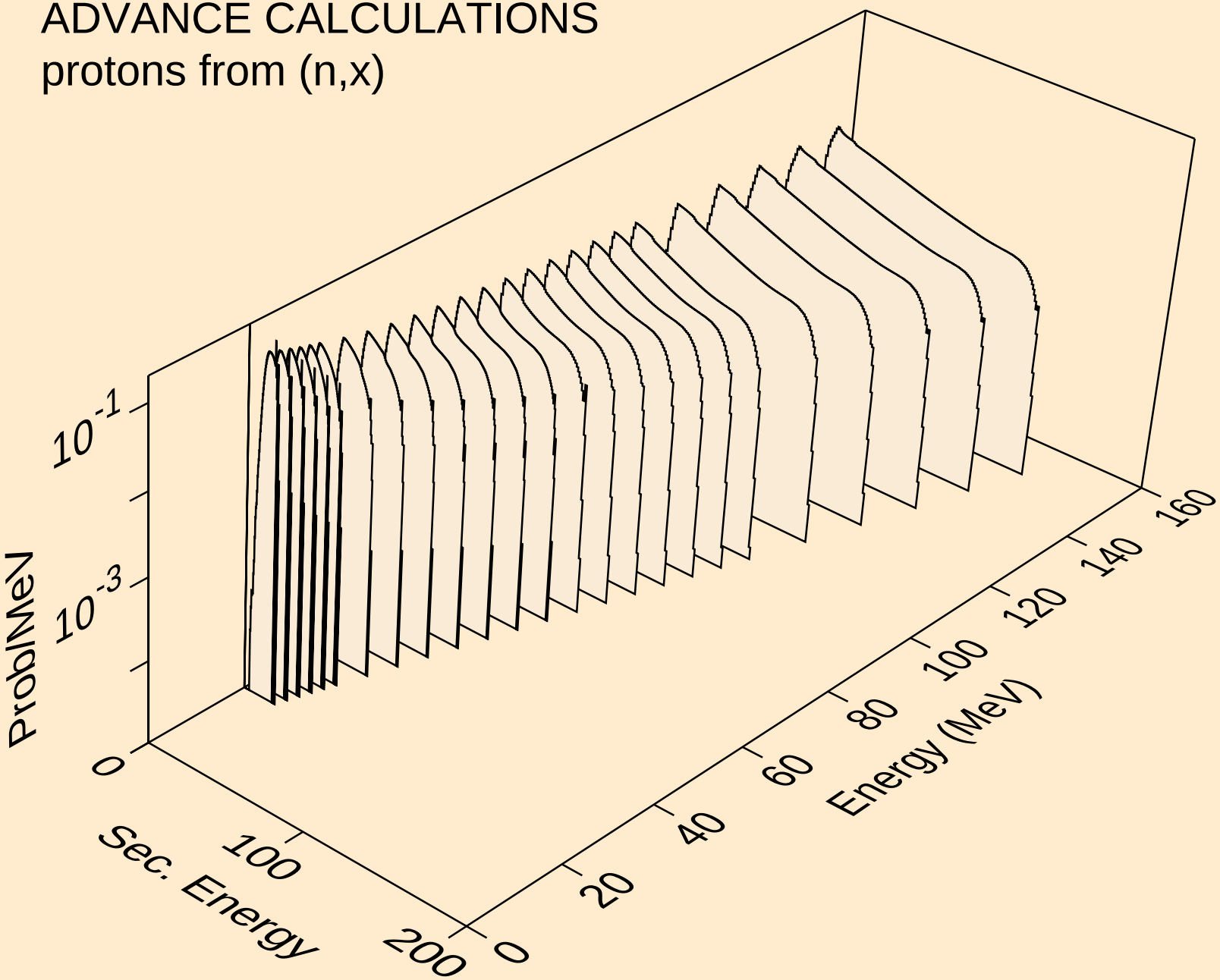



ADVANCE CALCULATIONS
Particle heating contributions
protons
deuterons
tritons
alphas
MeV/collision
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20
20
40
60
80
100
120
140
160

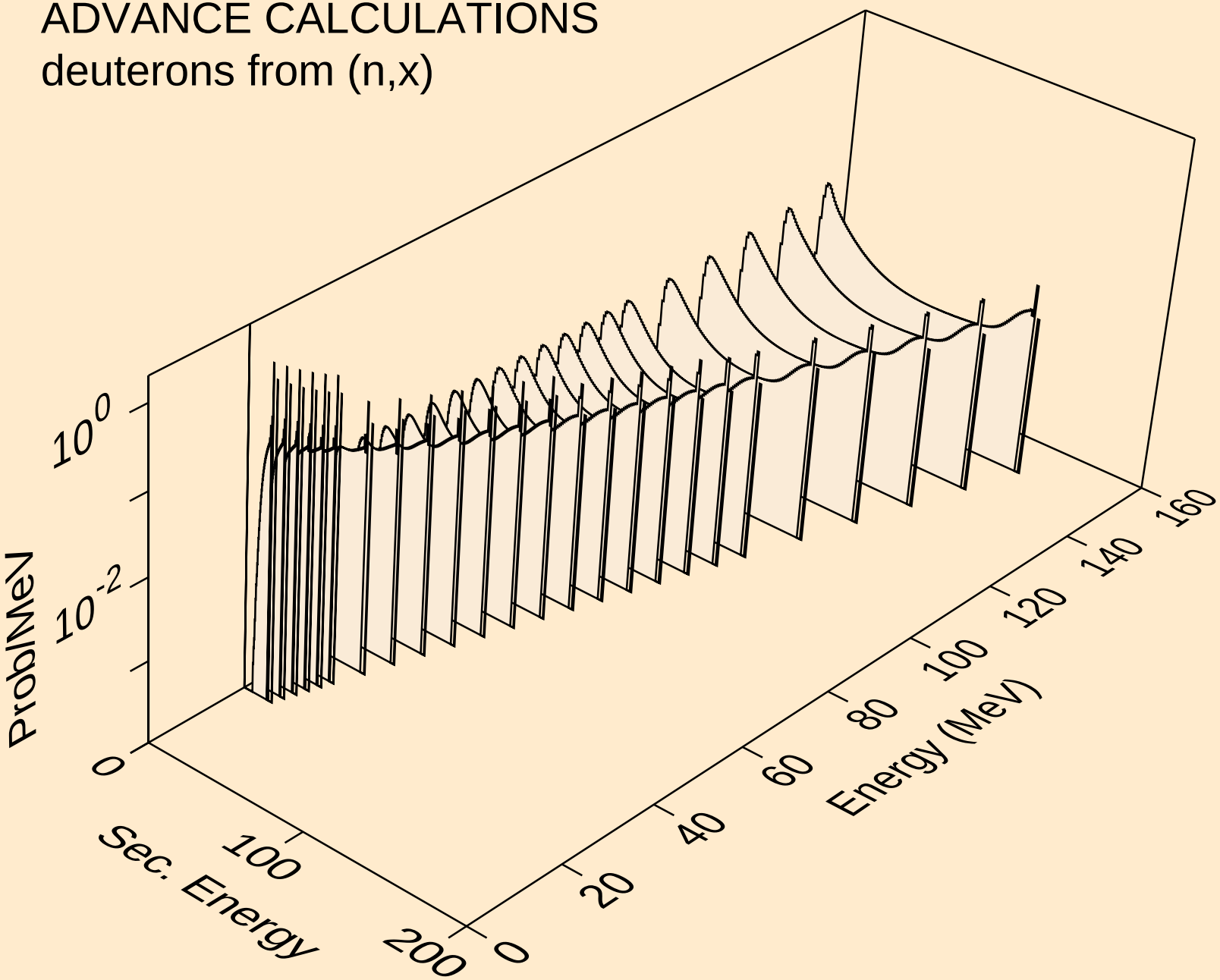

ADVANCE CALCULATIONS
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
-0.2
0
20
40
60
80
100
120
140
160


ADVANCE CALCULATIONS
Particle production cross sections
protons
deuterons
tritons
alphas
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
20
40
60
80
100
120
140
160

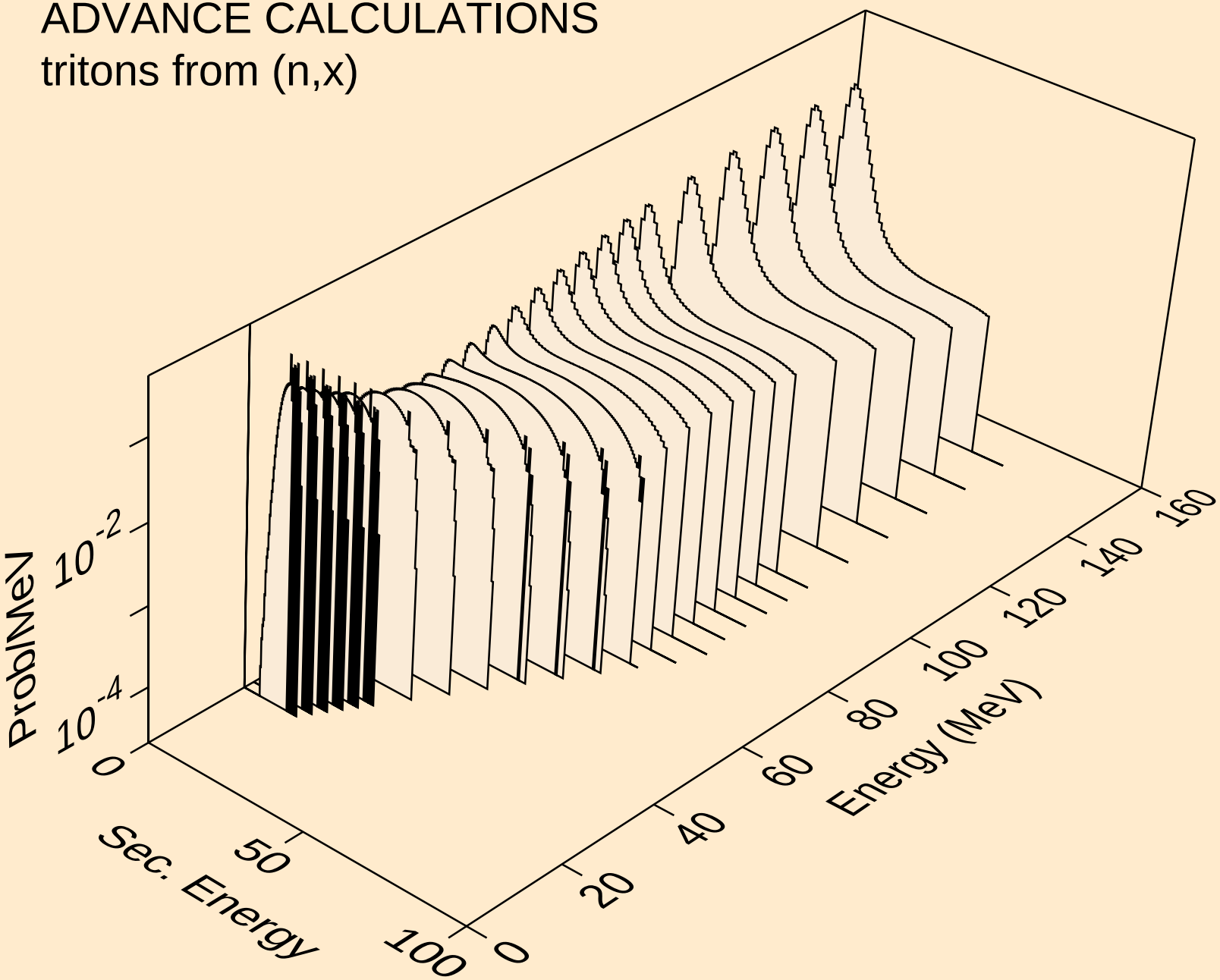
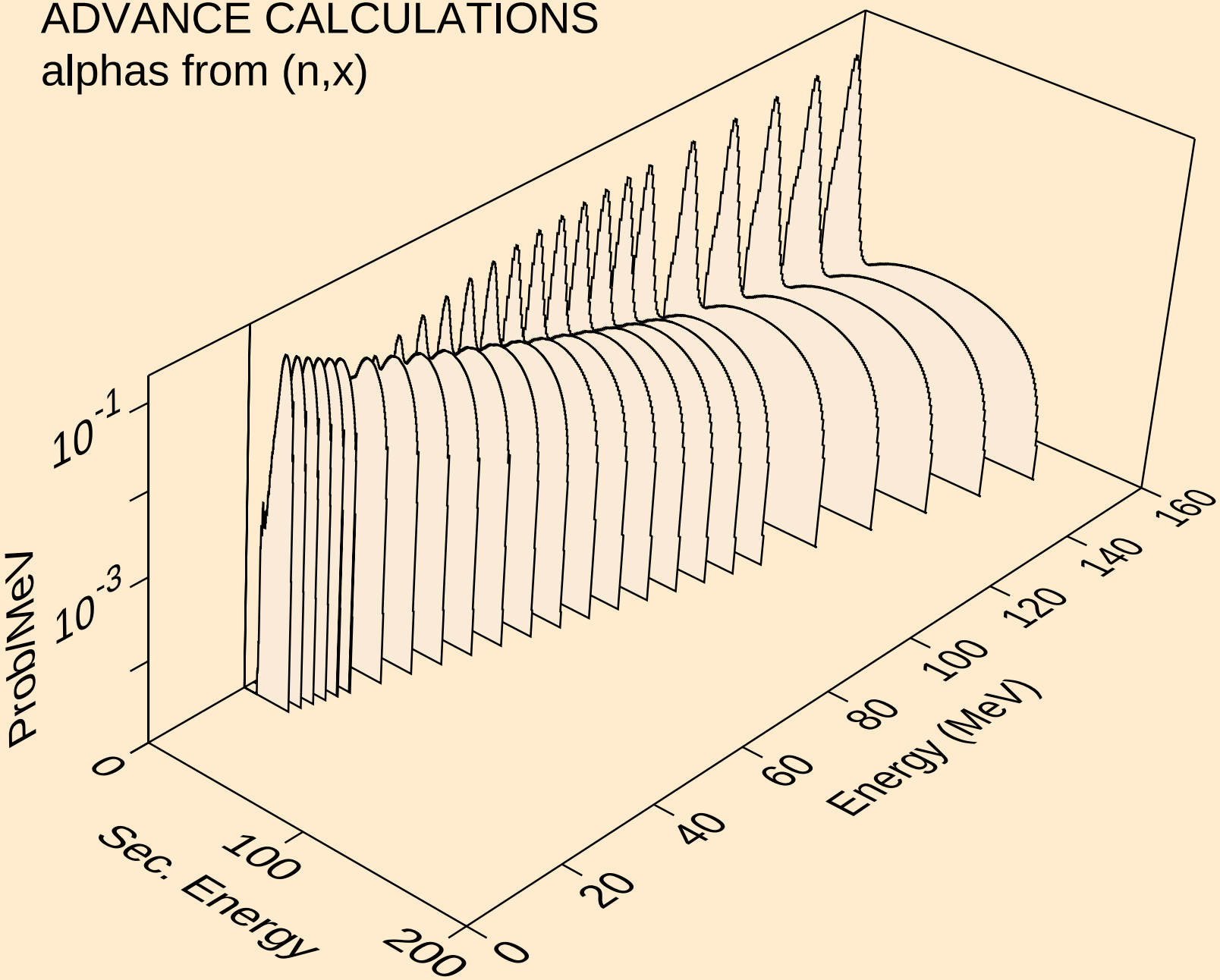
ADVANCE CALCULATIONS
protons from (n,x)



ADVANCE CALCULATIONS
deuterons from (n,x)



ADVANCE CALCULATIONS
tritons from (n,x)



ADVANCE CALCULATIONS
alphas from (n,x)