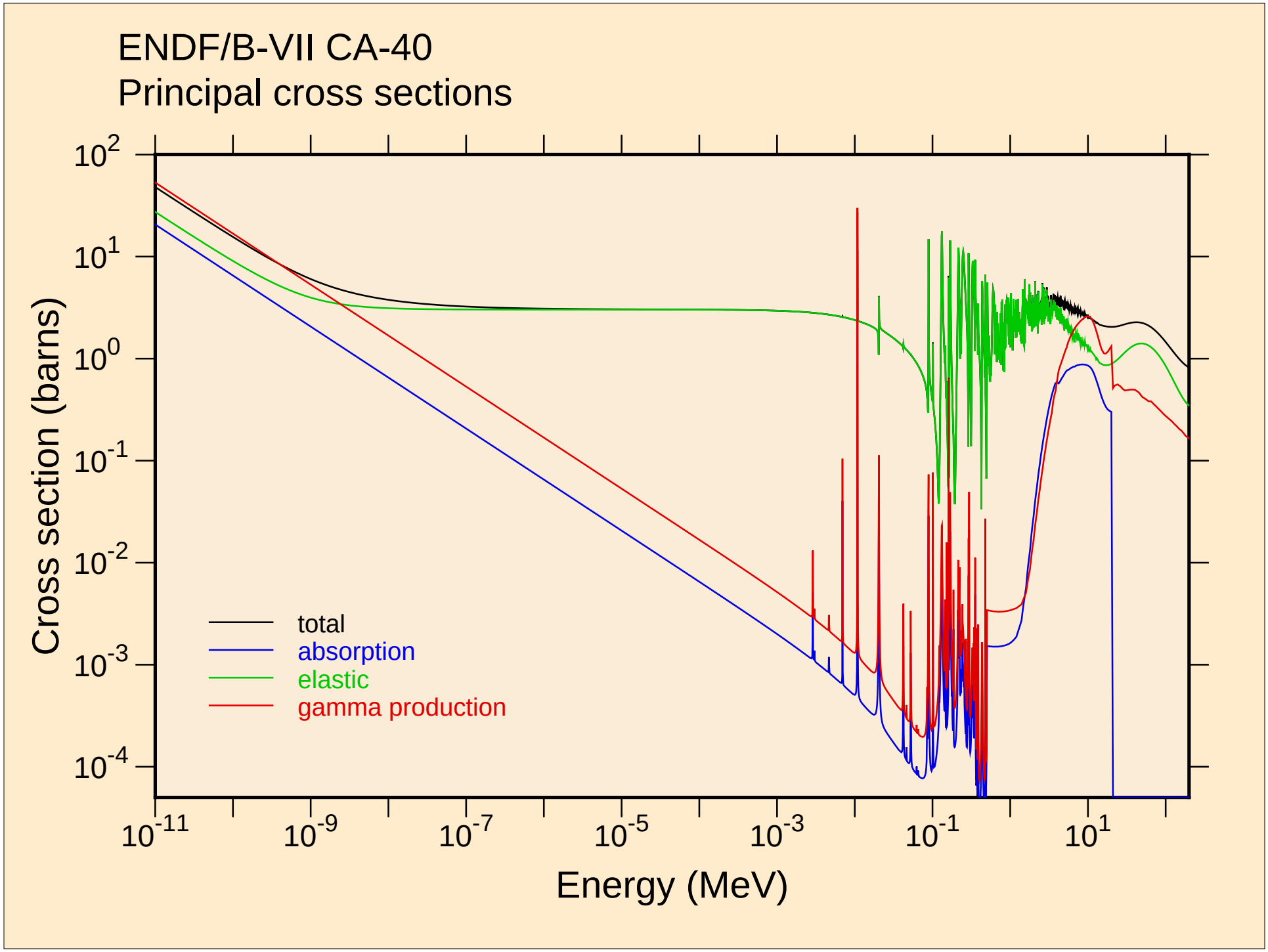
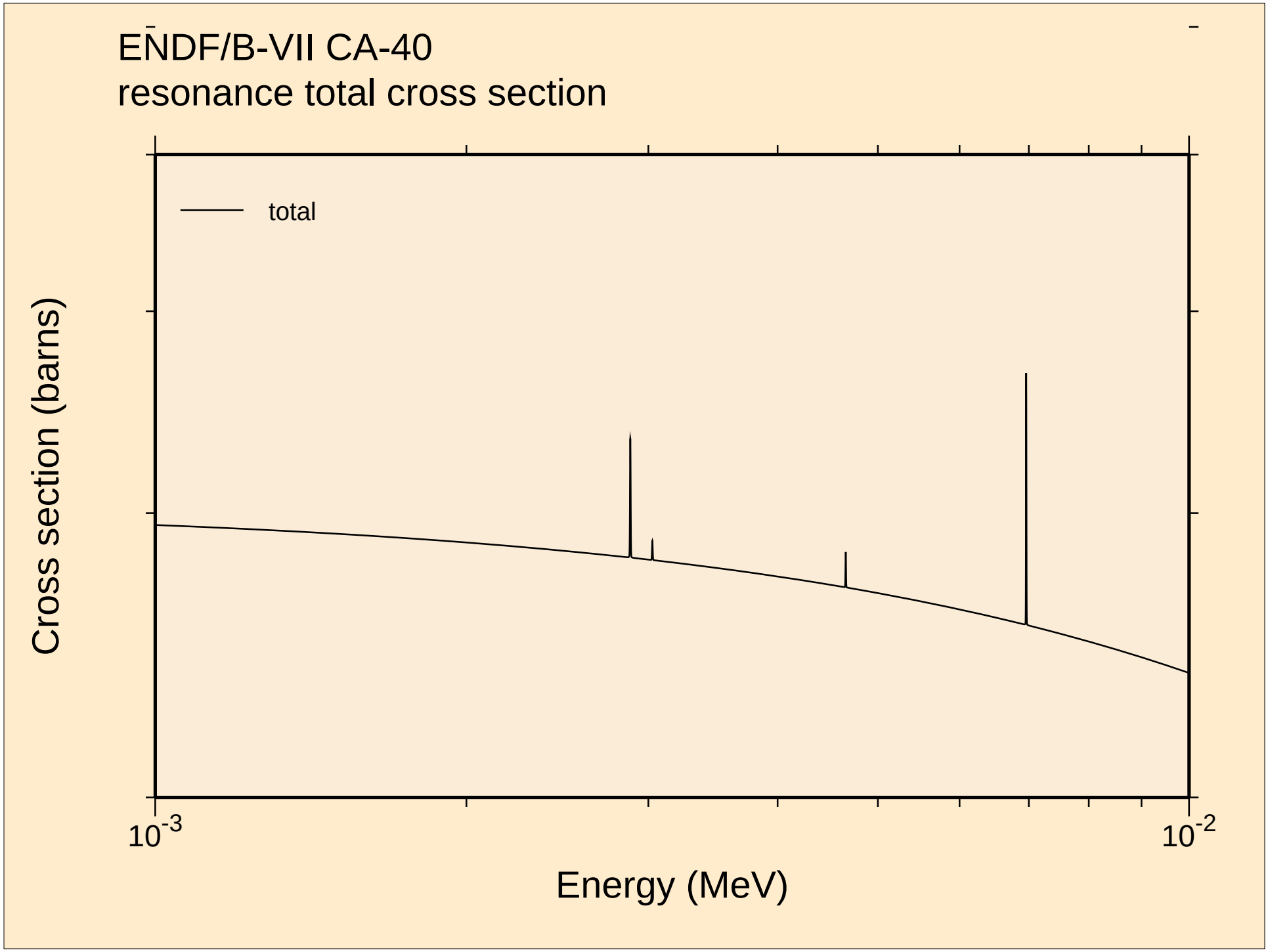
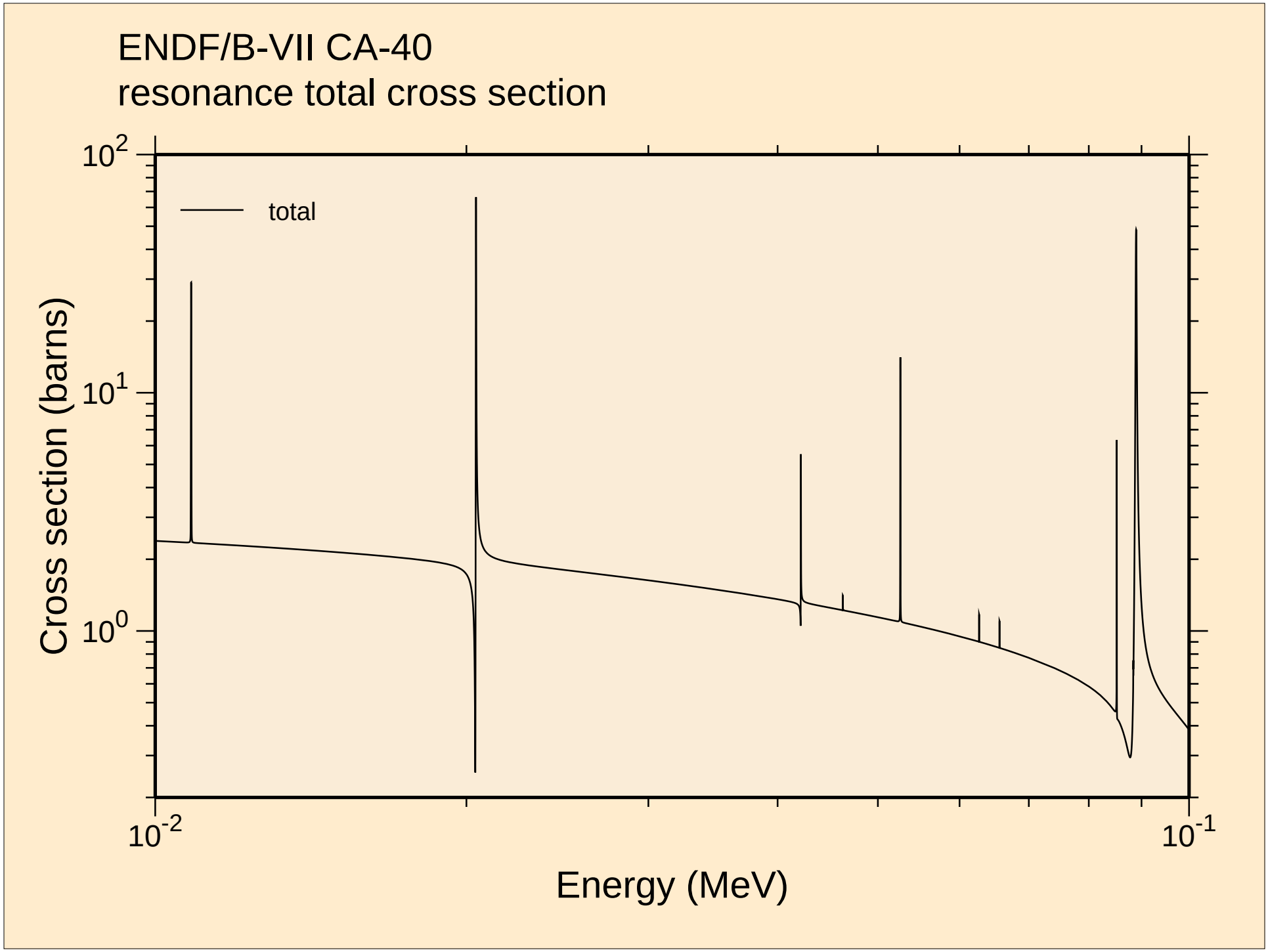
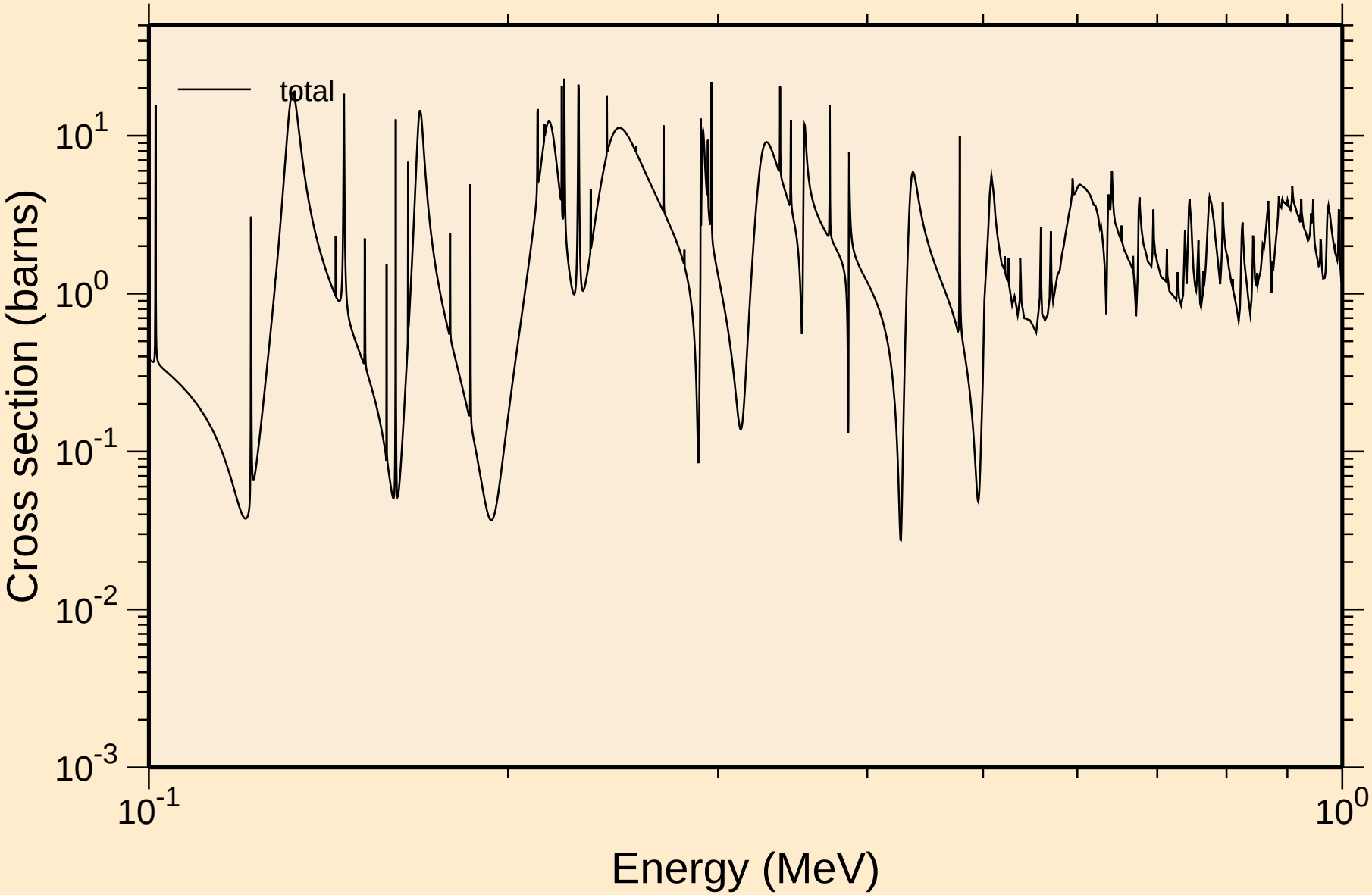
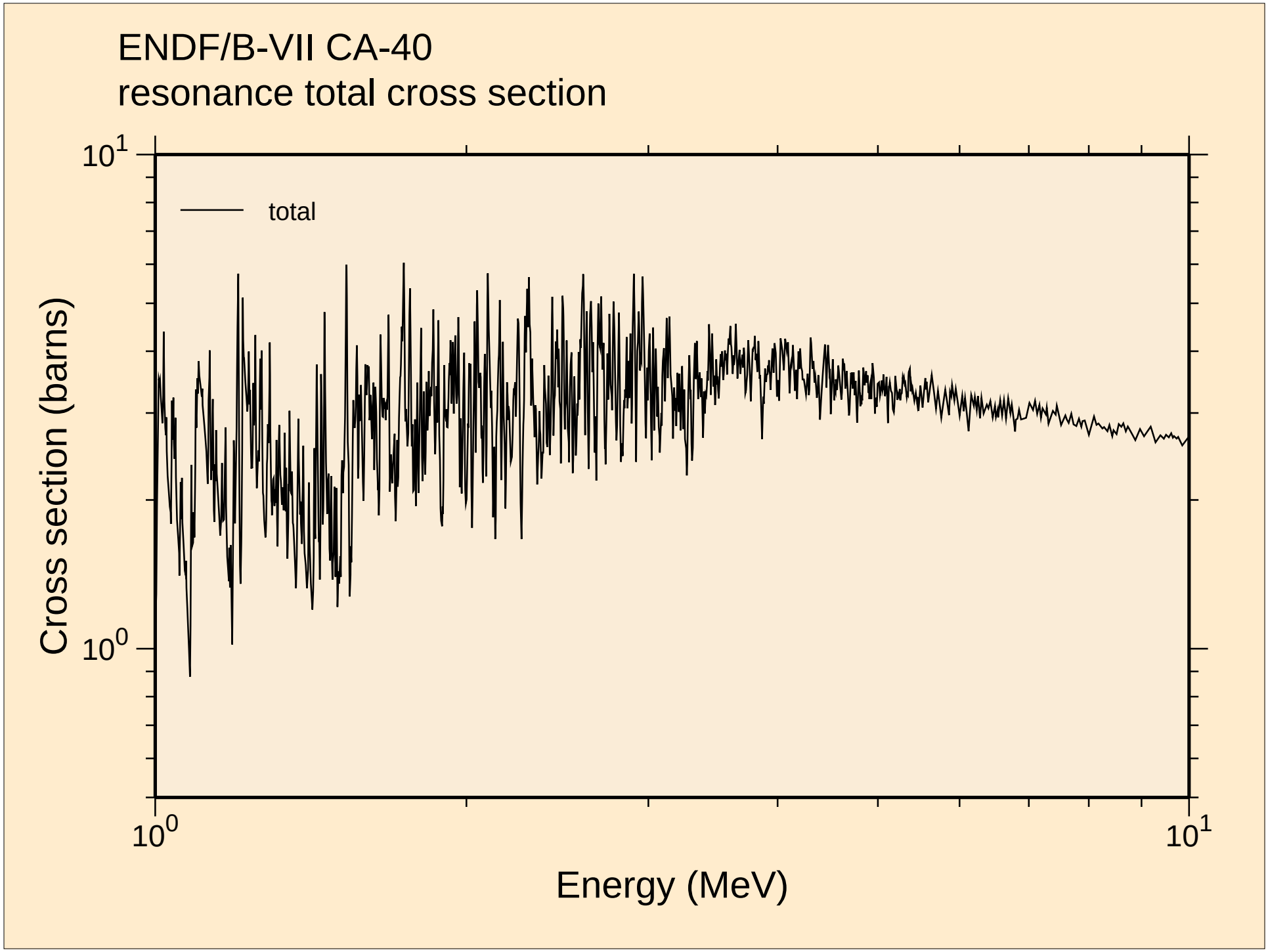

ENDF/B-VII CA-40
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^{2}
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-11}
10^{-9}
10^{-7}
10^{-5}
10^{-3}
10^{-1}
10^{1}


ENDF/B-VII CA-40
resonance total cross section
total
Cross section (barns)
10-3
10-2
Energy (MeV)

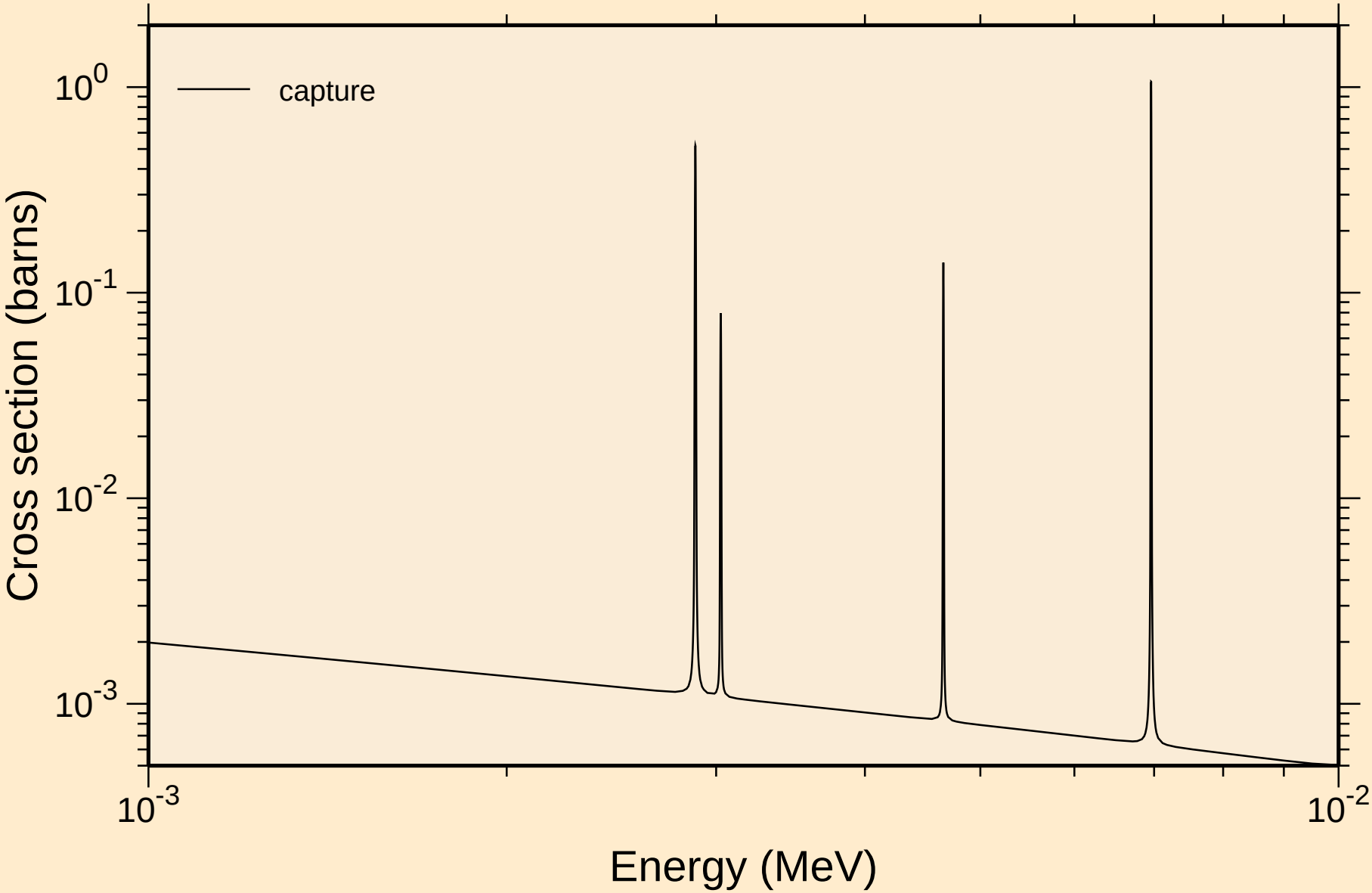

ENDF/B-VII CA-40
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^0
10^{-2}
10^{-1}
Energy (MeV)

ENDF/B-VII CA-40
resonance total cross section

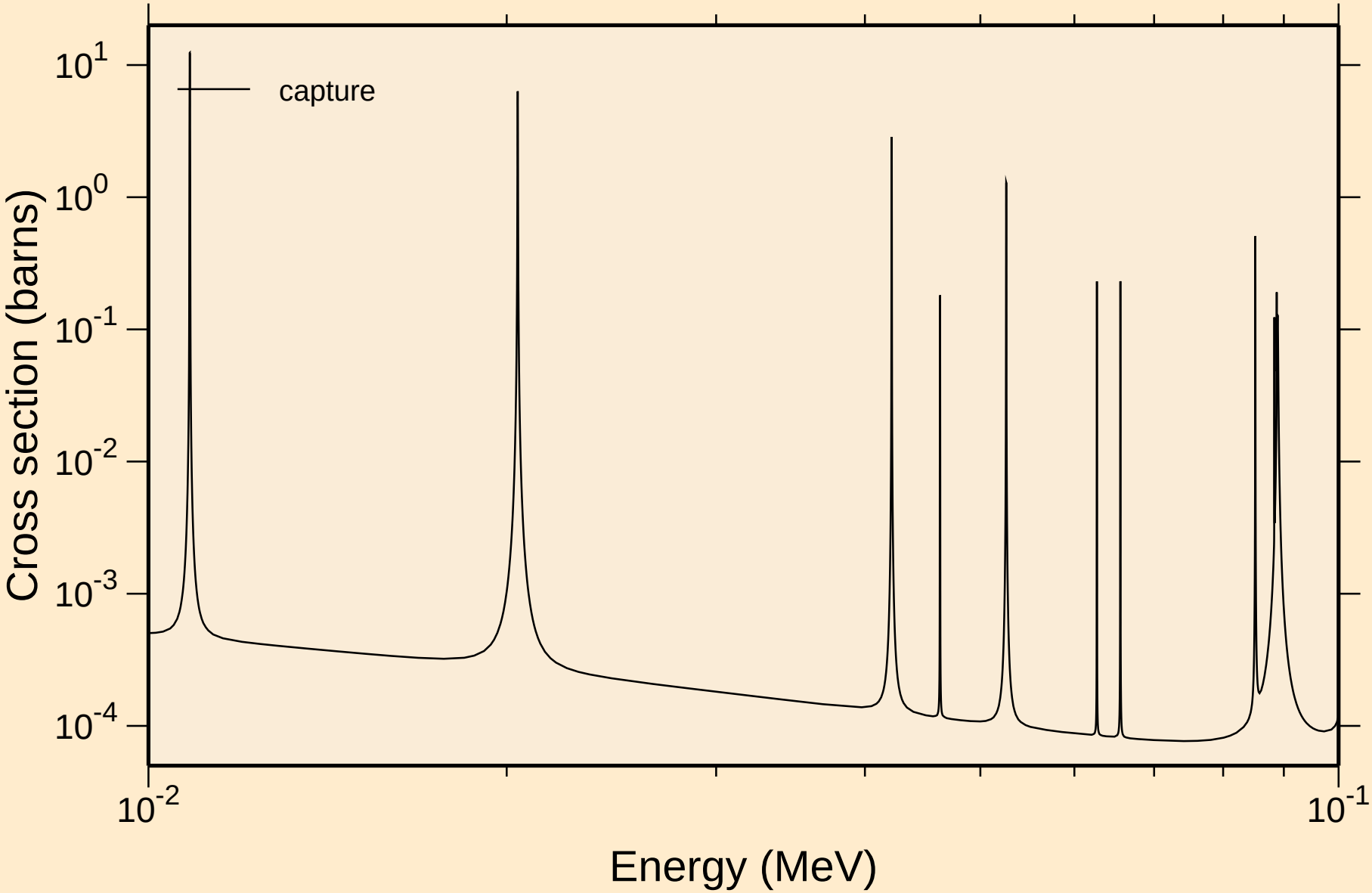



ENDF/B-VII CA-40
resonance total cross section
total
Cross section (barns)
Energy (MeV)
10^1
10^0
10^0
10^1

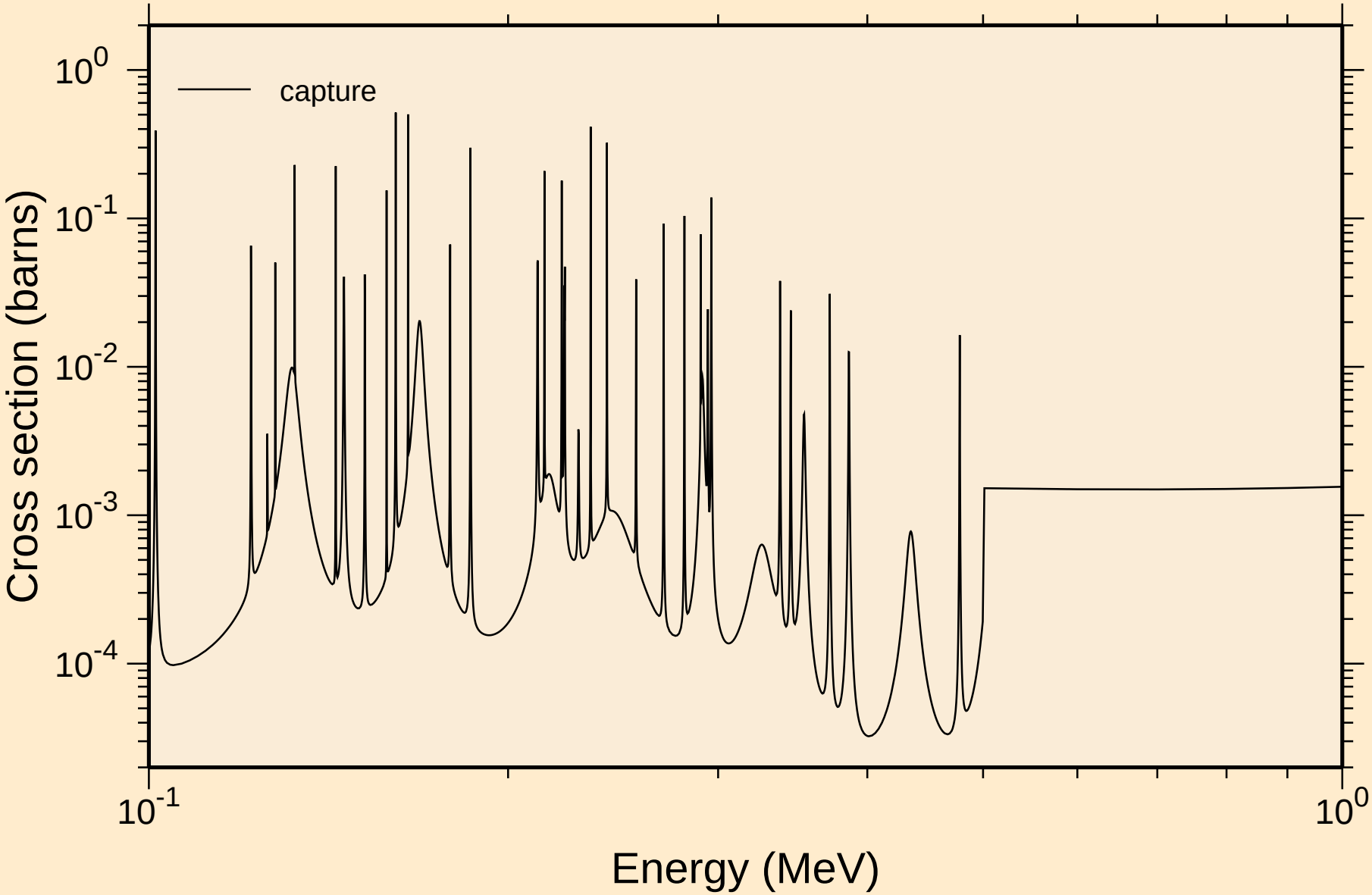
ENDF/B-VII CA-40
resonance absorption cross sections

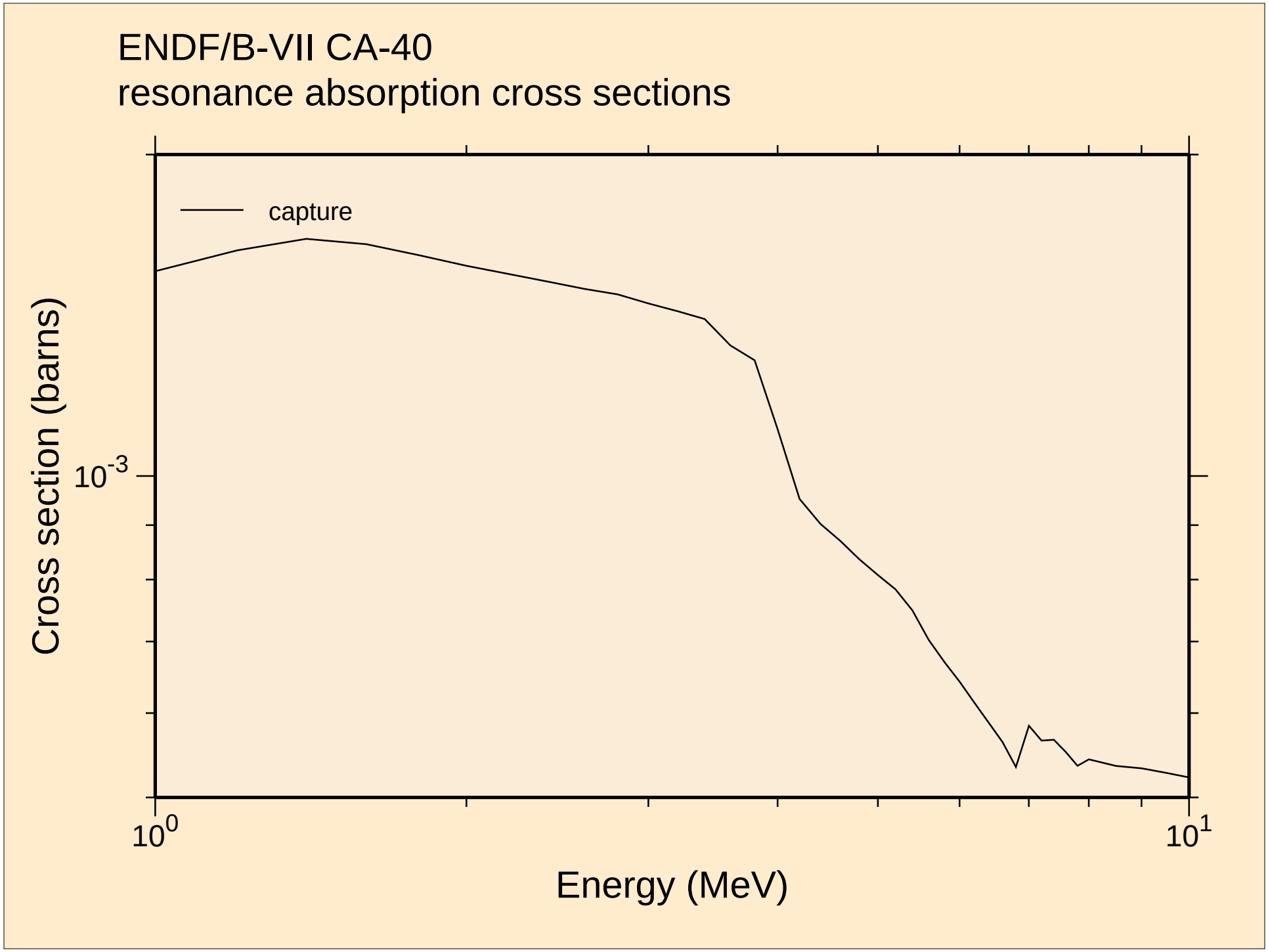


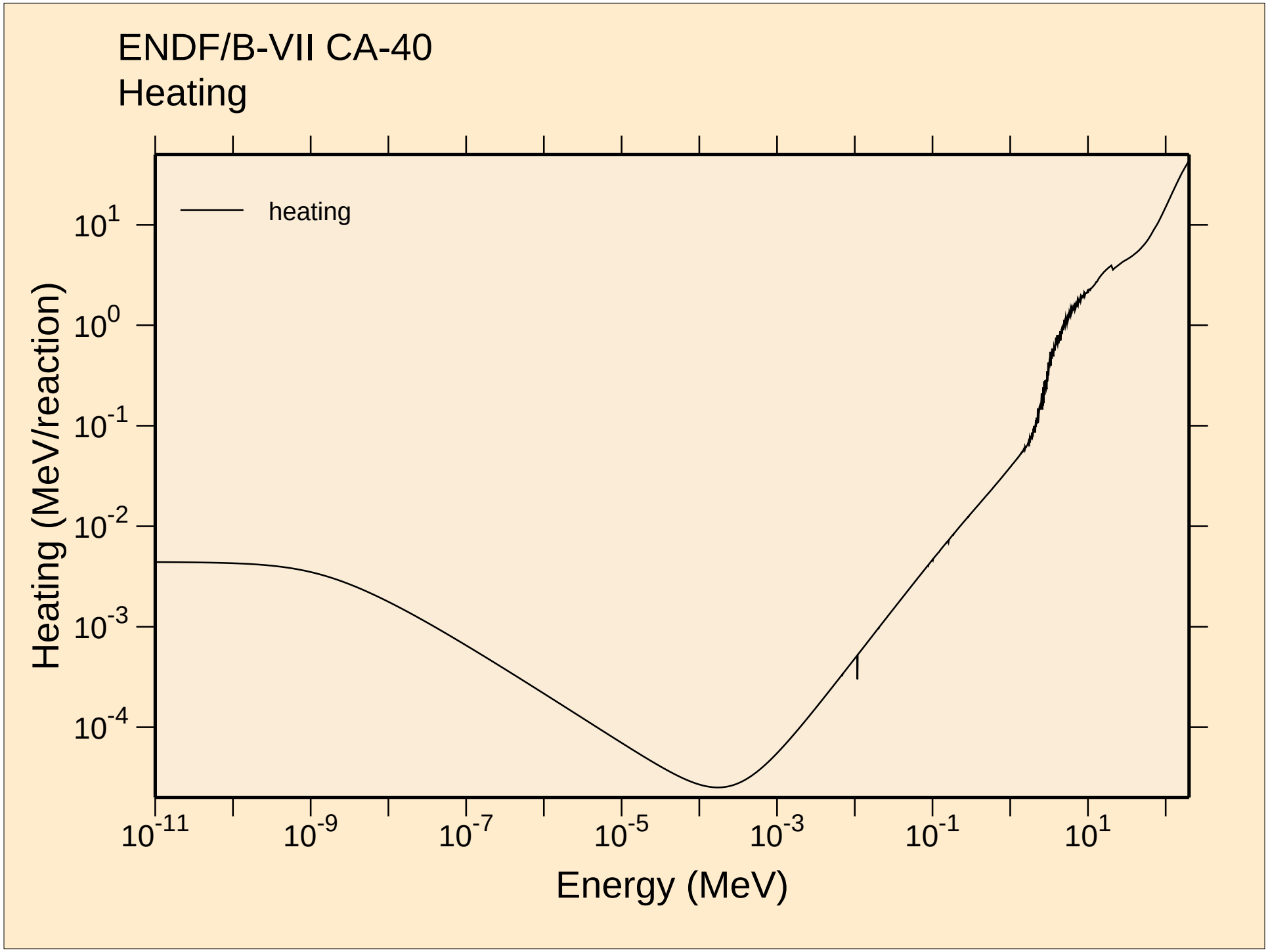
ENDF/B-VII CA-40
resonance absorption cross sections

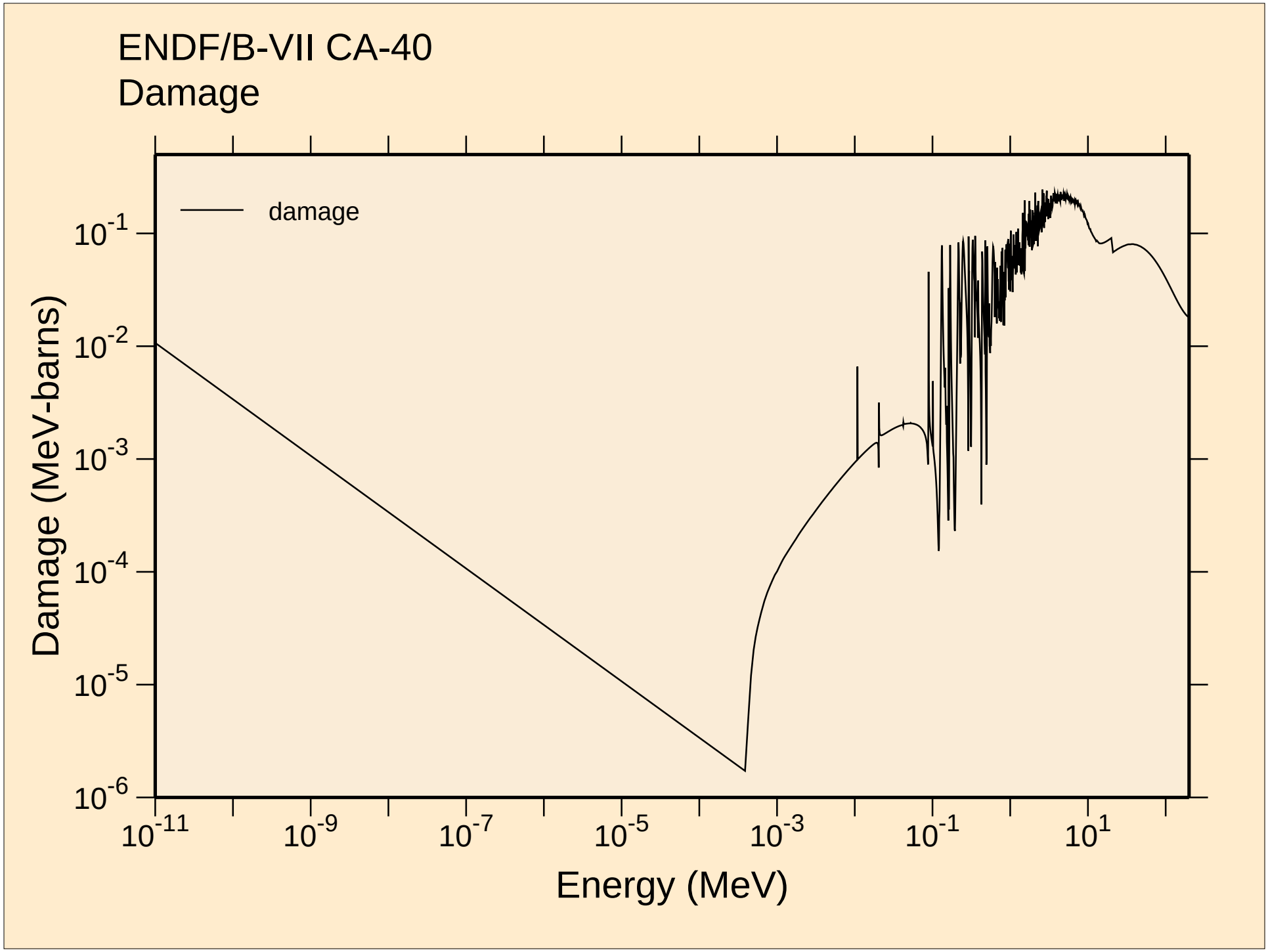


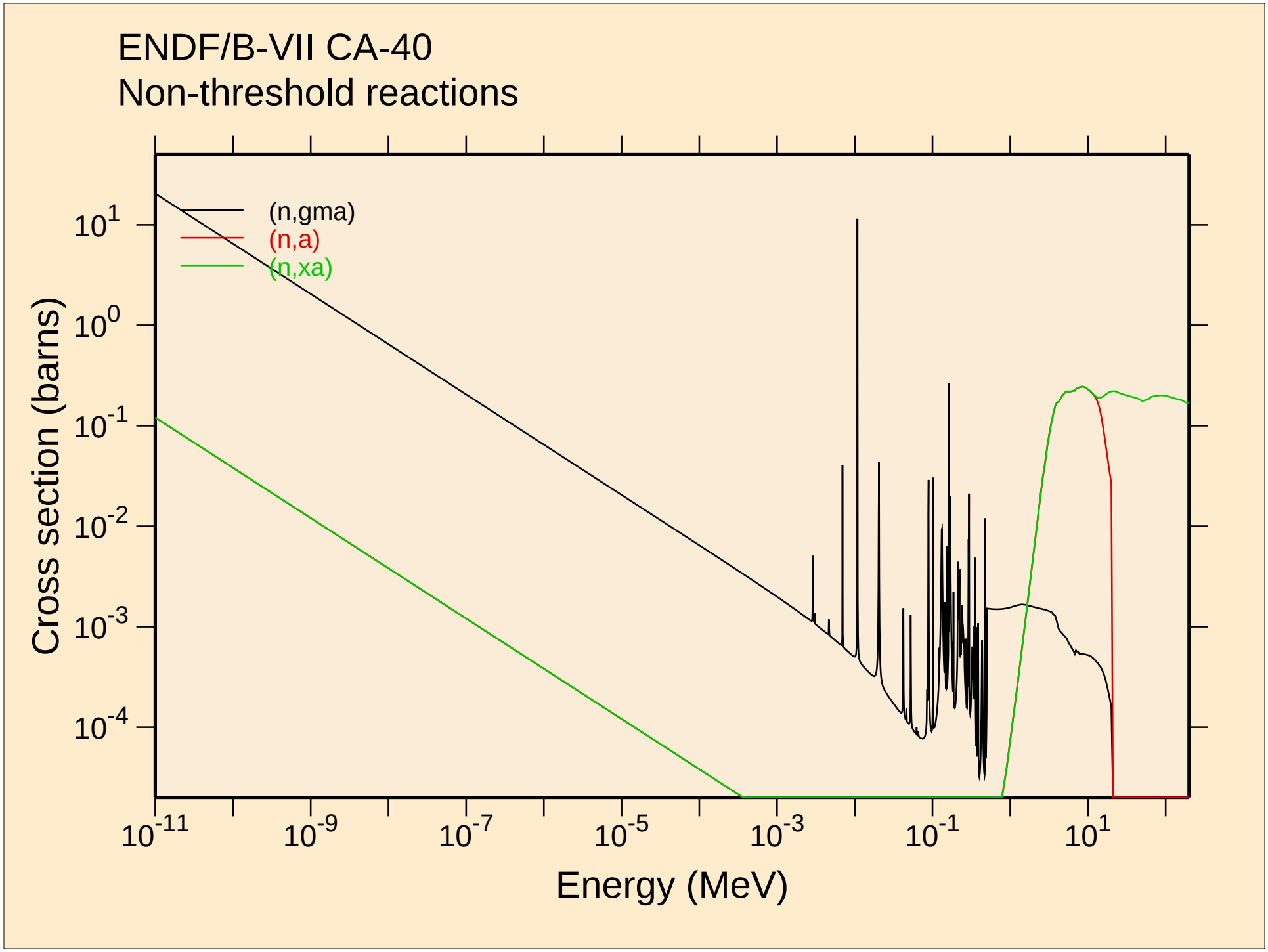
ENDF/B-VII CA-40
resonance absorption cross sections

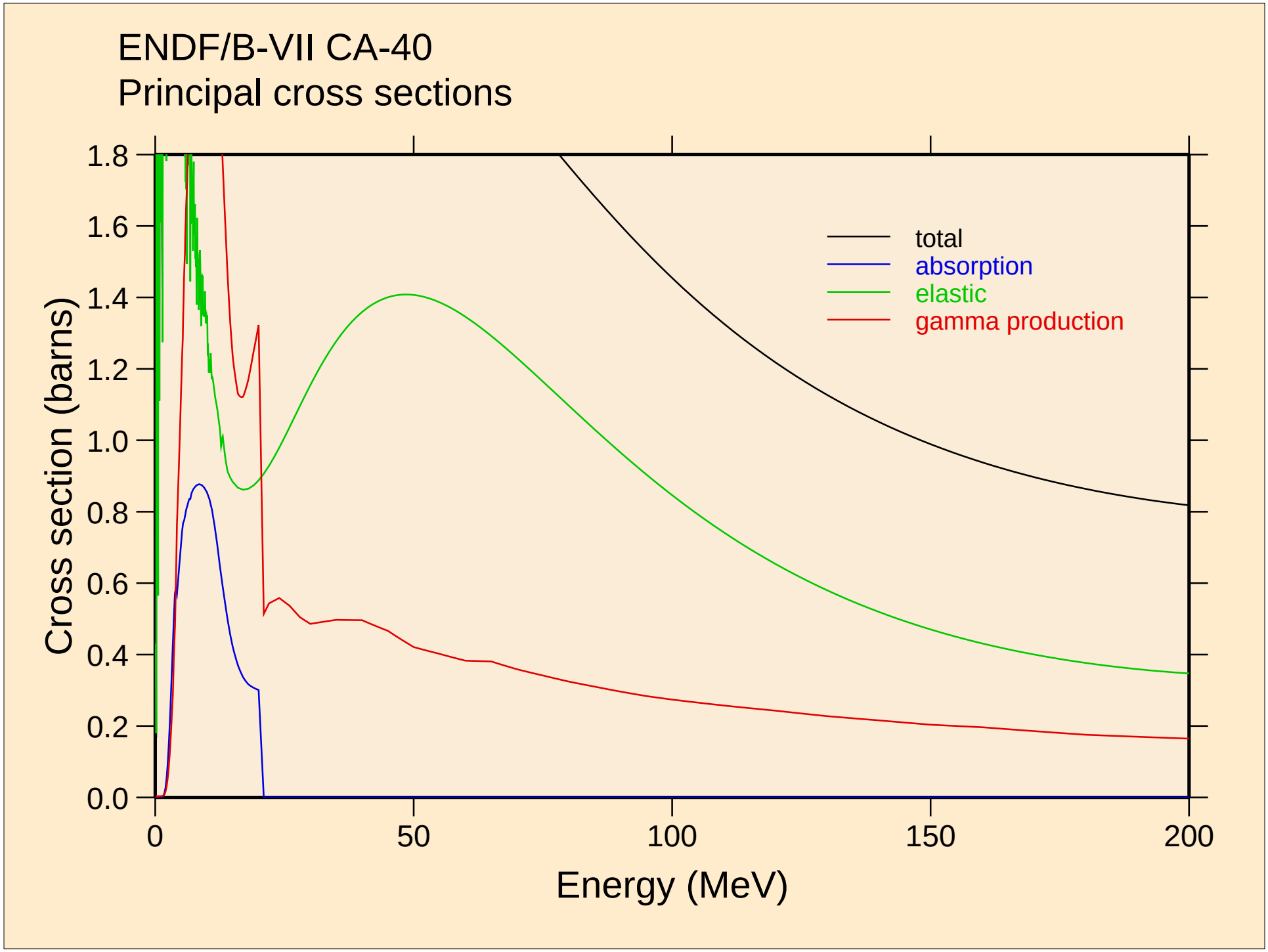


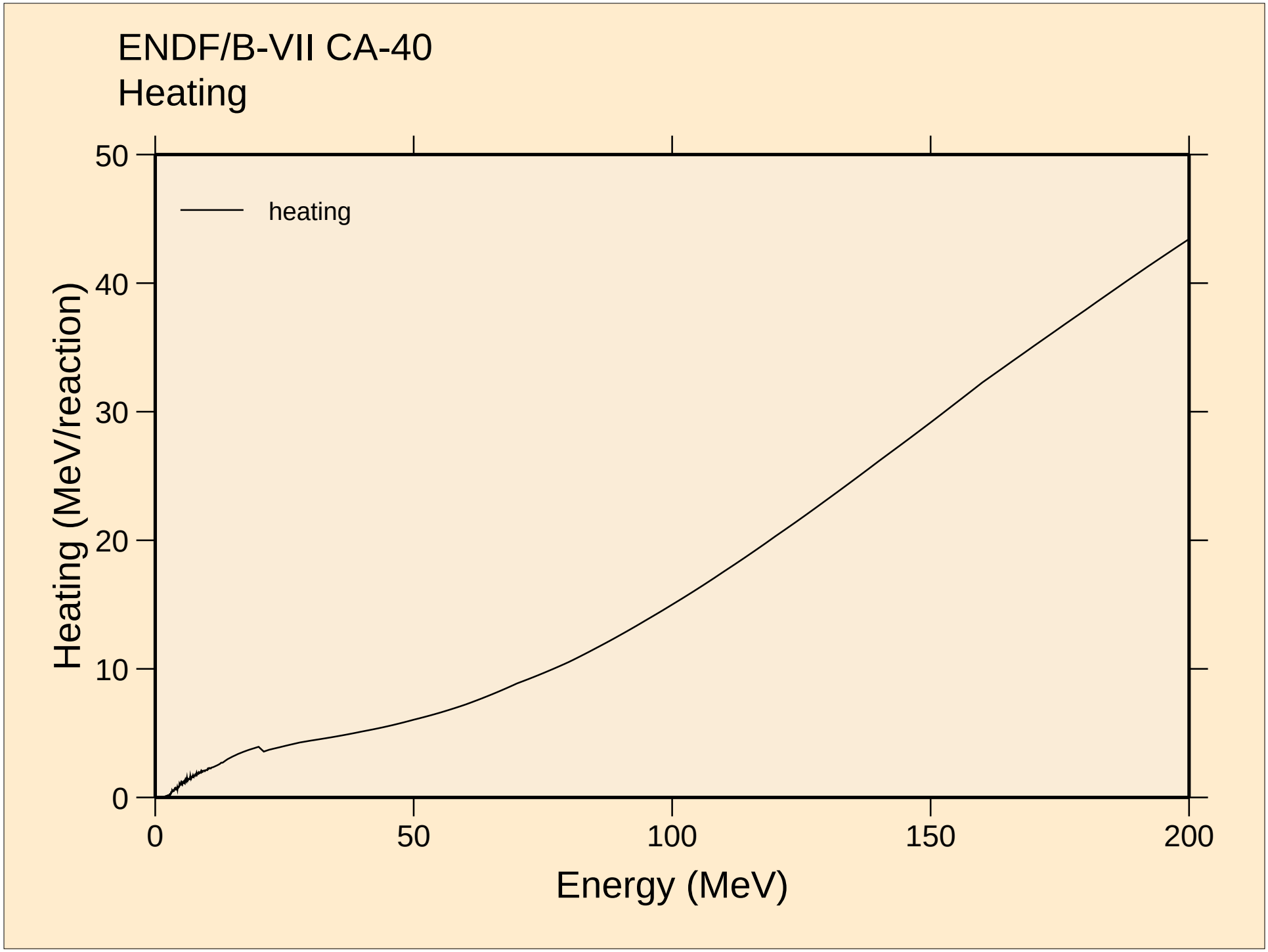

ENDF/B-VII CA-40
resonance absorption cross sections
capture
Cross section (barns)
10-3
100
101
Energy (MeV)

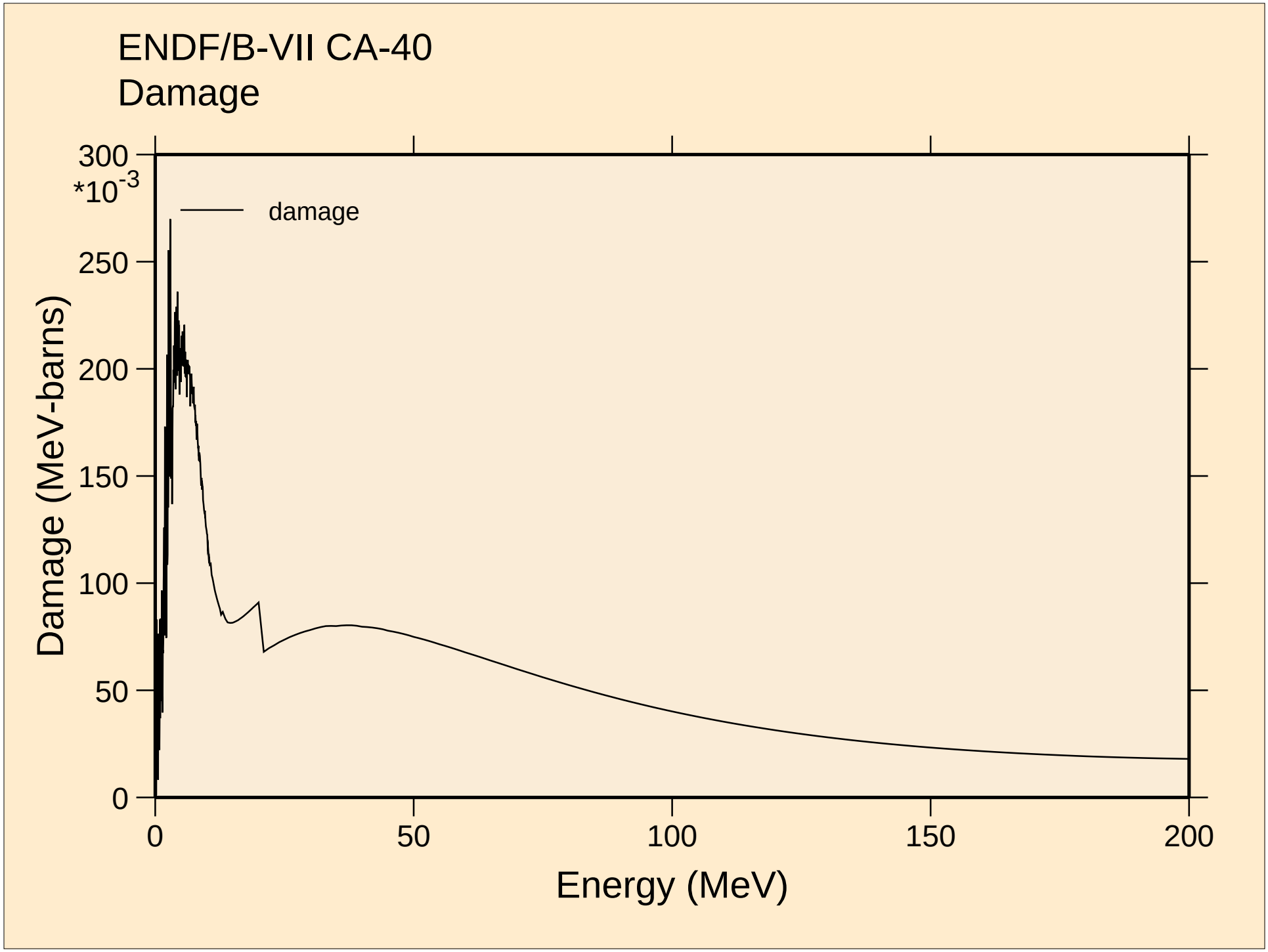

ENDF/B-VII CA-40
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

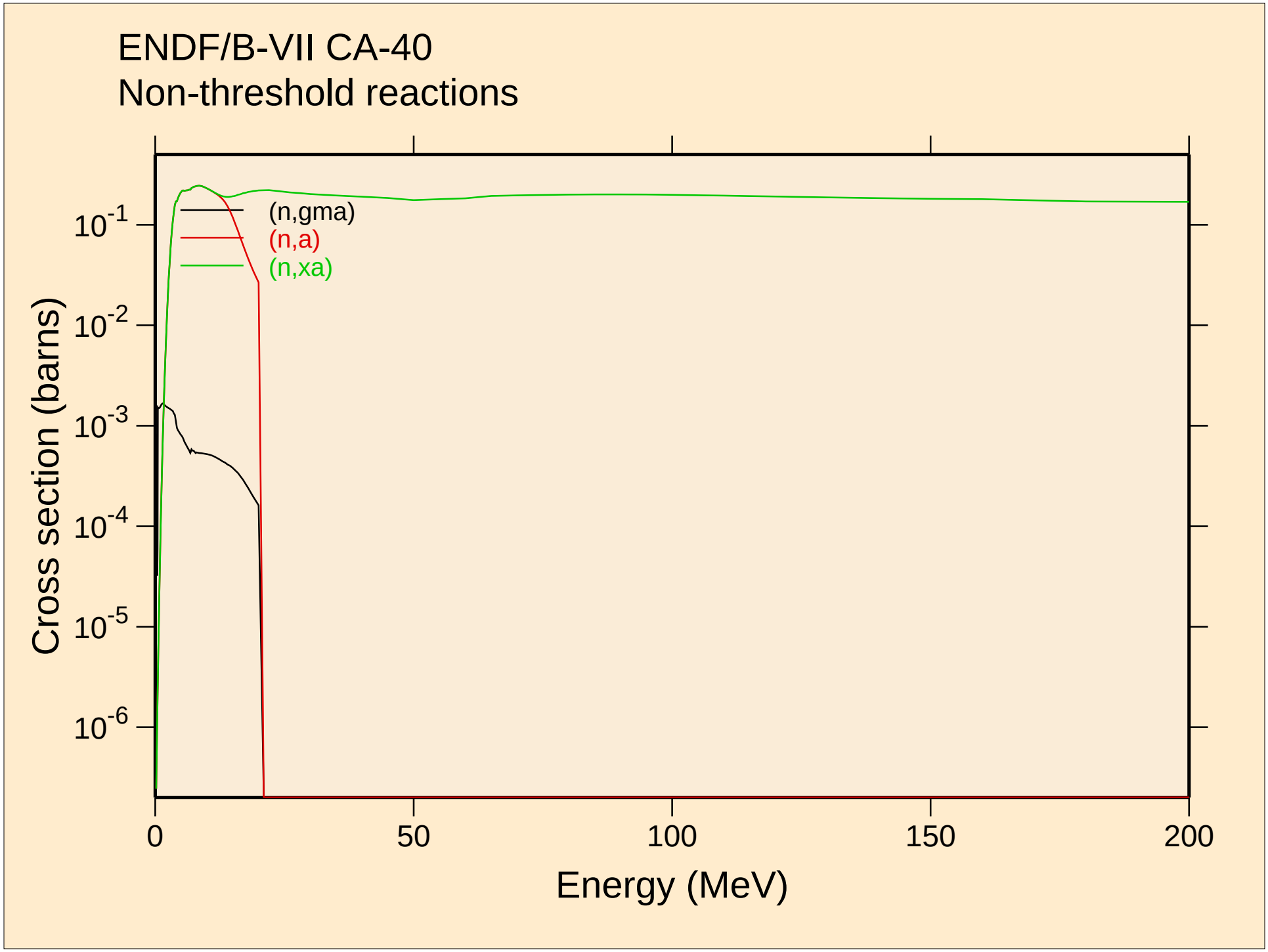

ENDF/B-VII CA-40
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^-1
10^-2
10^-3
10^-4
10^-5
10^-6
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

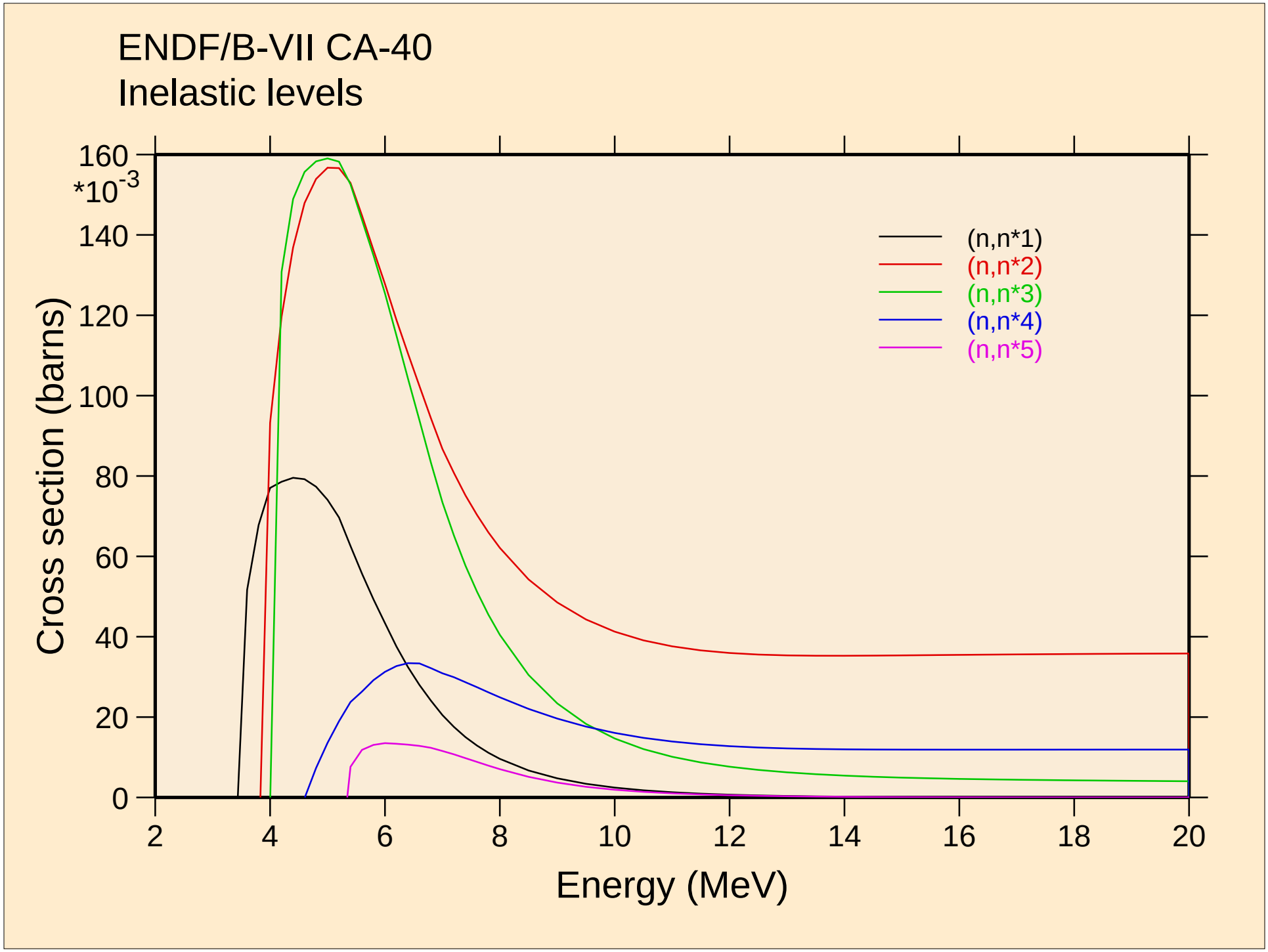

ENDF/B-VII CA-40
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

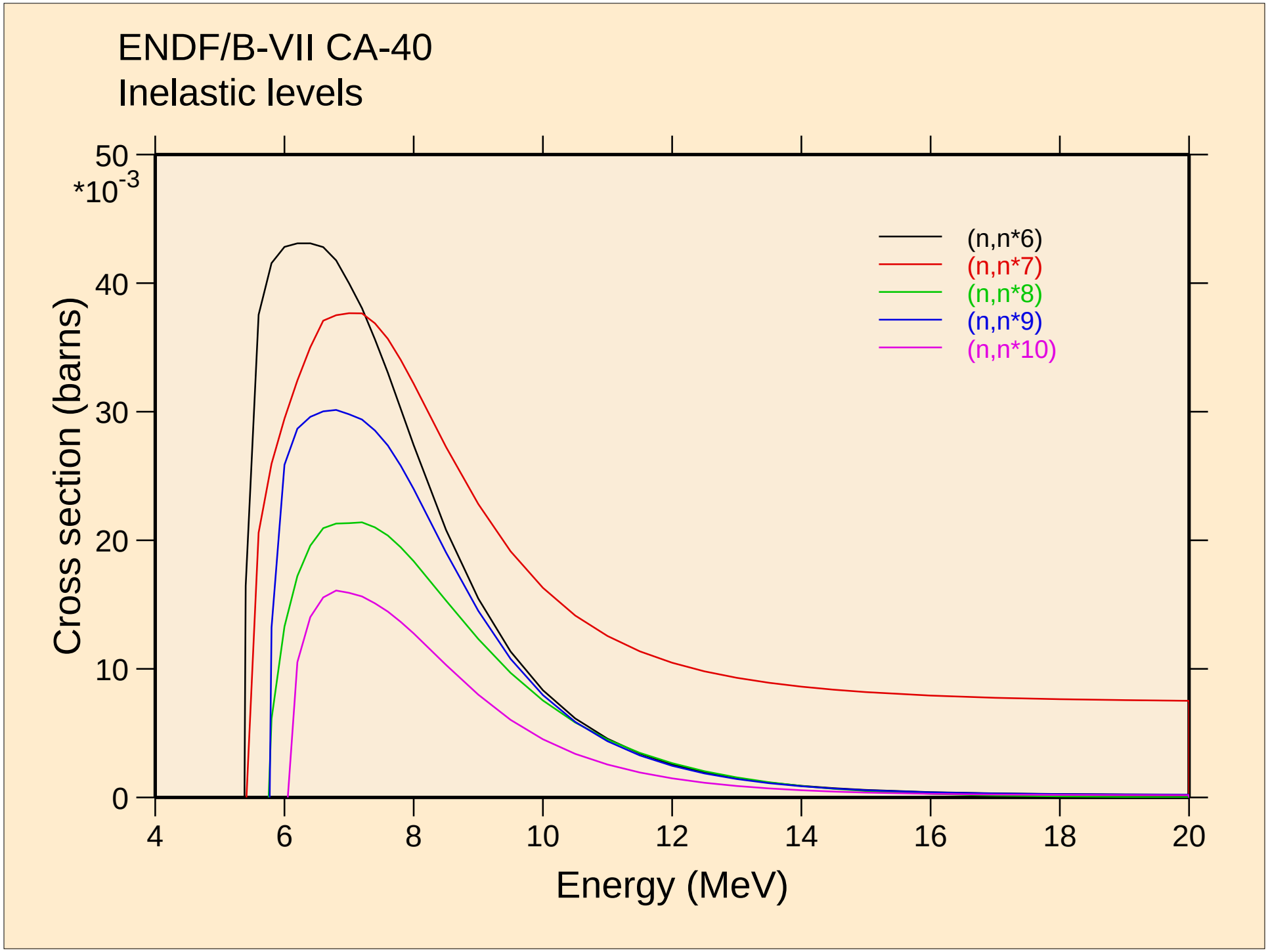

ENDF/B-VII CA-40
Principal cross sections
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
0
50
100
150
200
total
absorption
elastic
gamma production

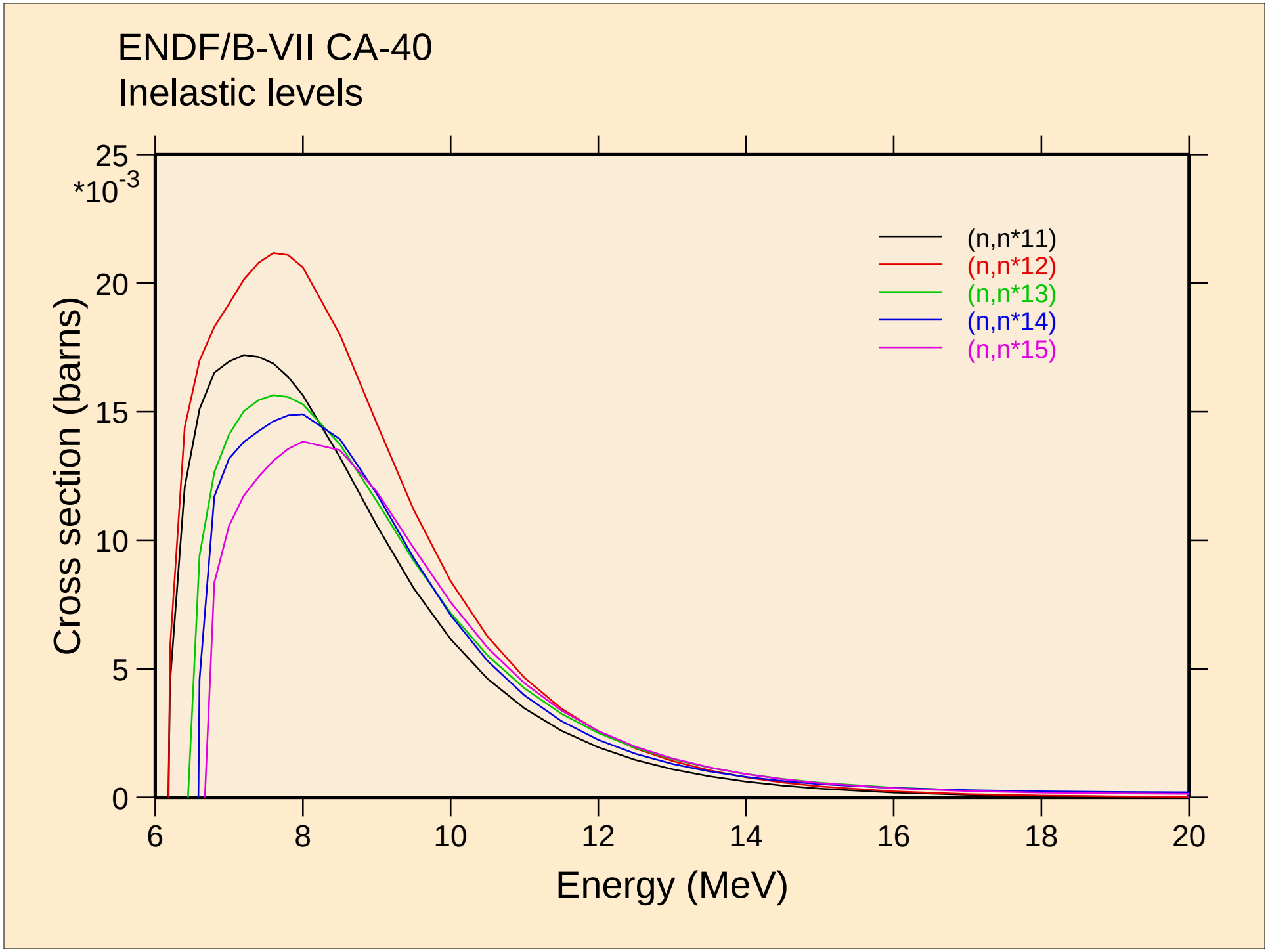

ENDF/B-VII CA-40
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
10
20
30
40
50
0
50
100
150
200

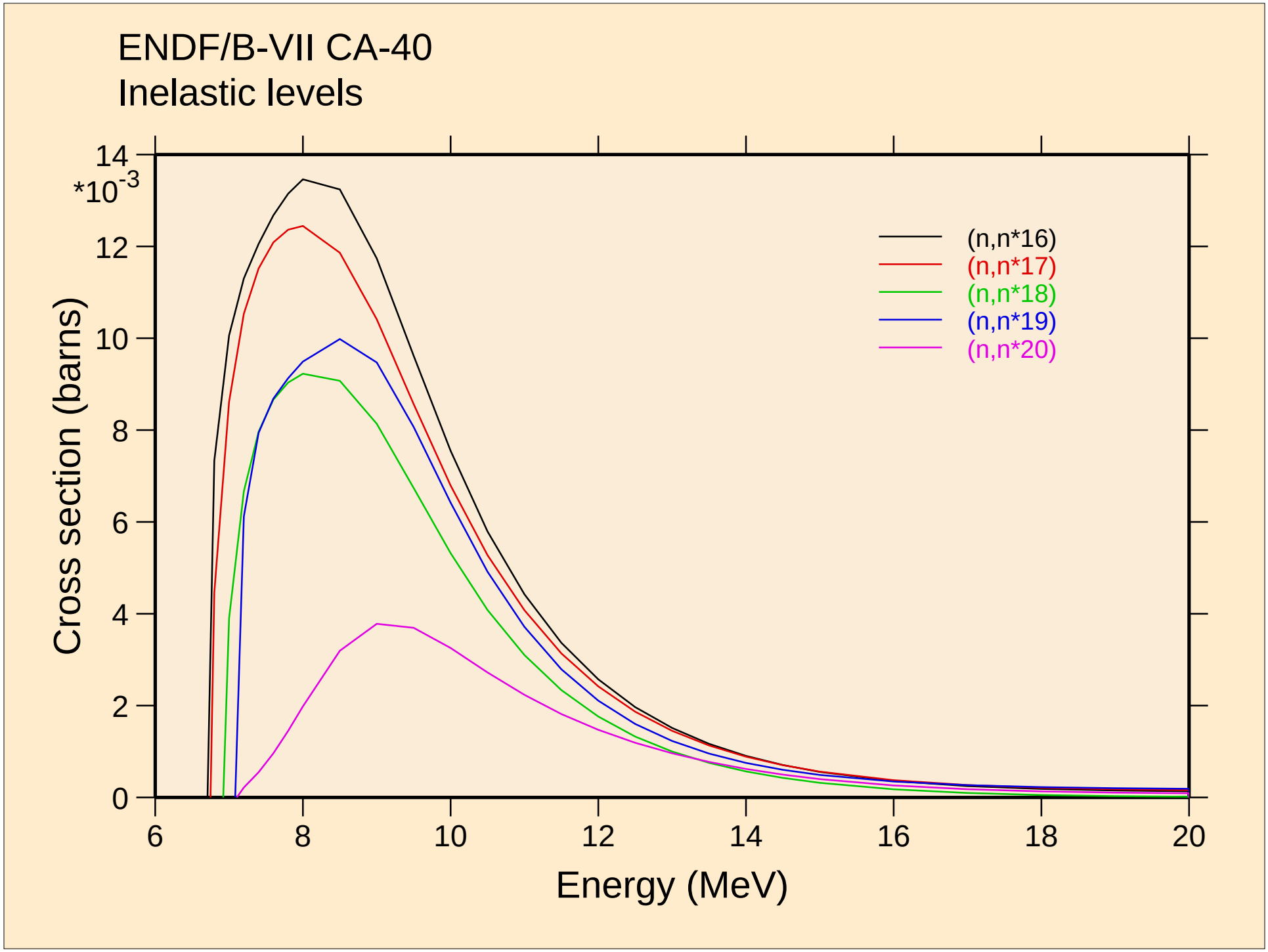

ENDF/B-VII CA-40
Damage
damage
*10-3
300
250
200
150
100
50
0
Damage (MeV-barns)
0
50
100
150
200
Energy (MeV)

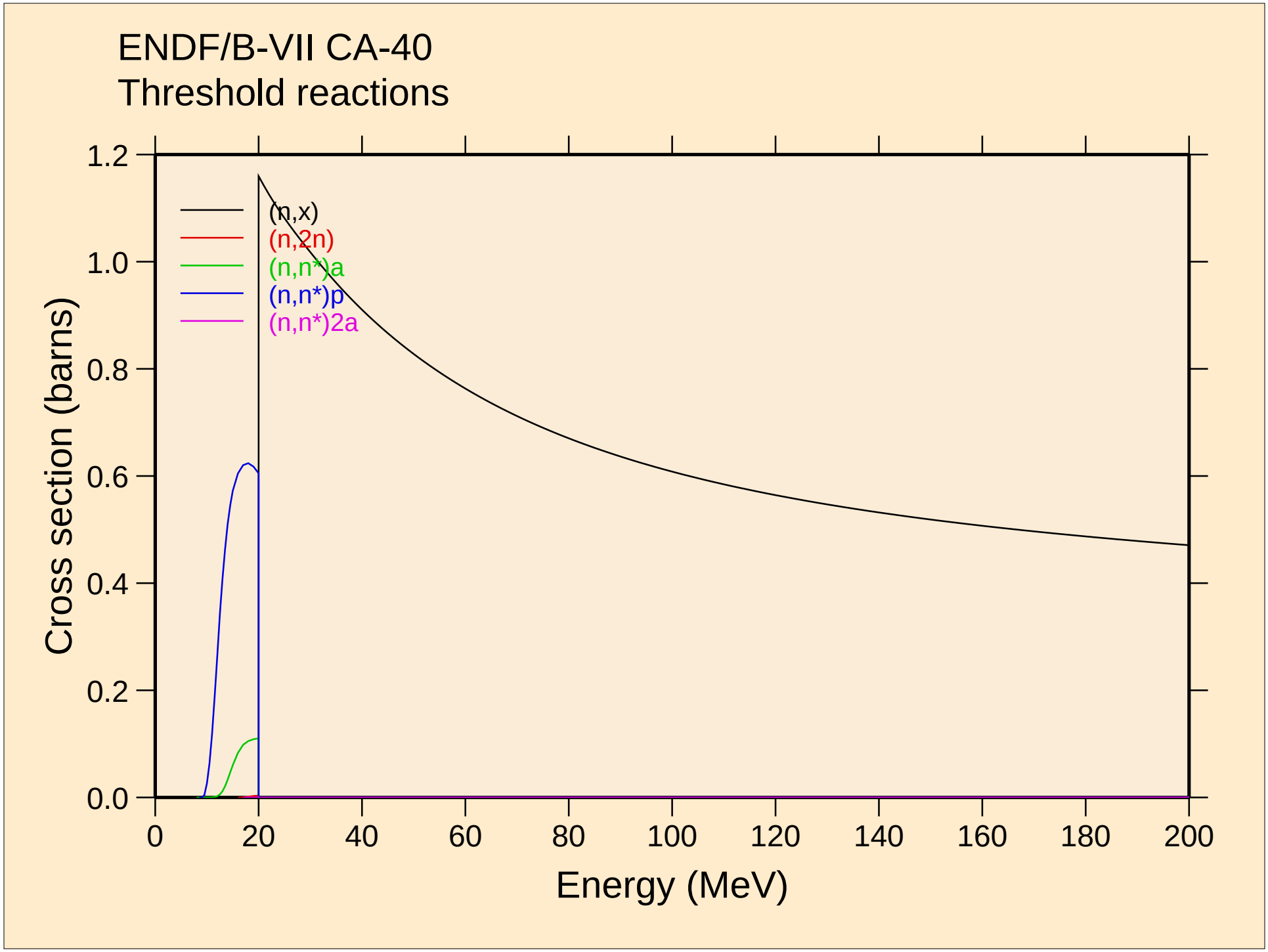

ENDF/B-VII CA-40
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
10-1
10-2
10-3
10-4
10-5
10-6
0
50
100
150
200
Energy (MeV)

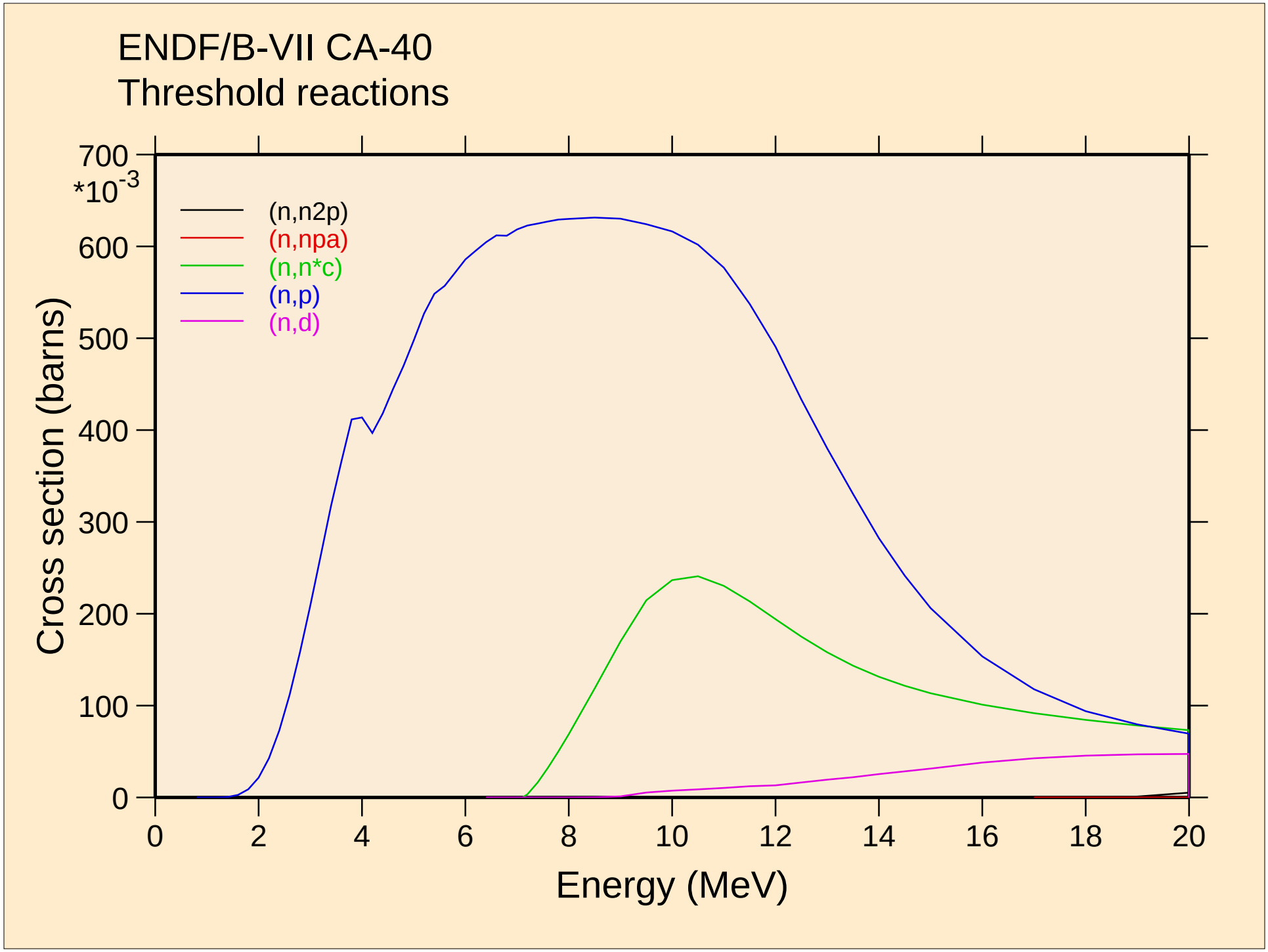

ENDF/B-VII CA-40
Inelastic levels
Cross section (barns)
*10^-3
160
140
120
100
80
60
40
20
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

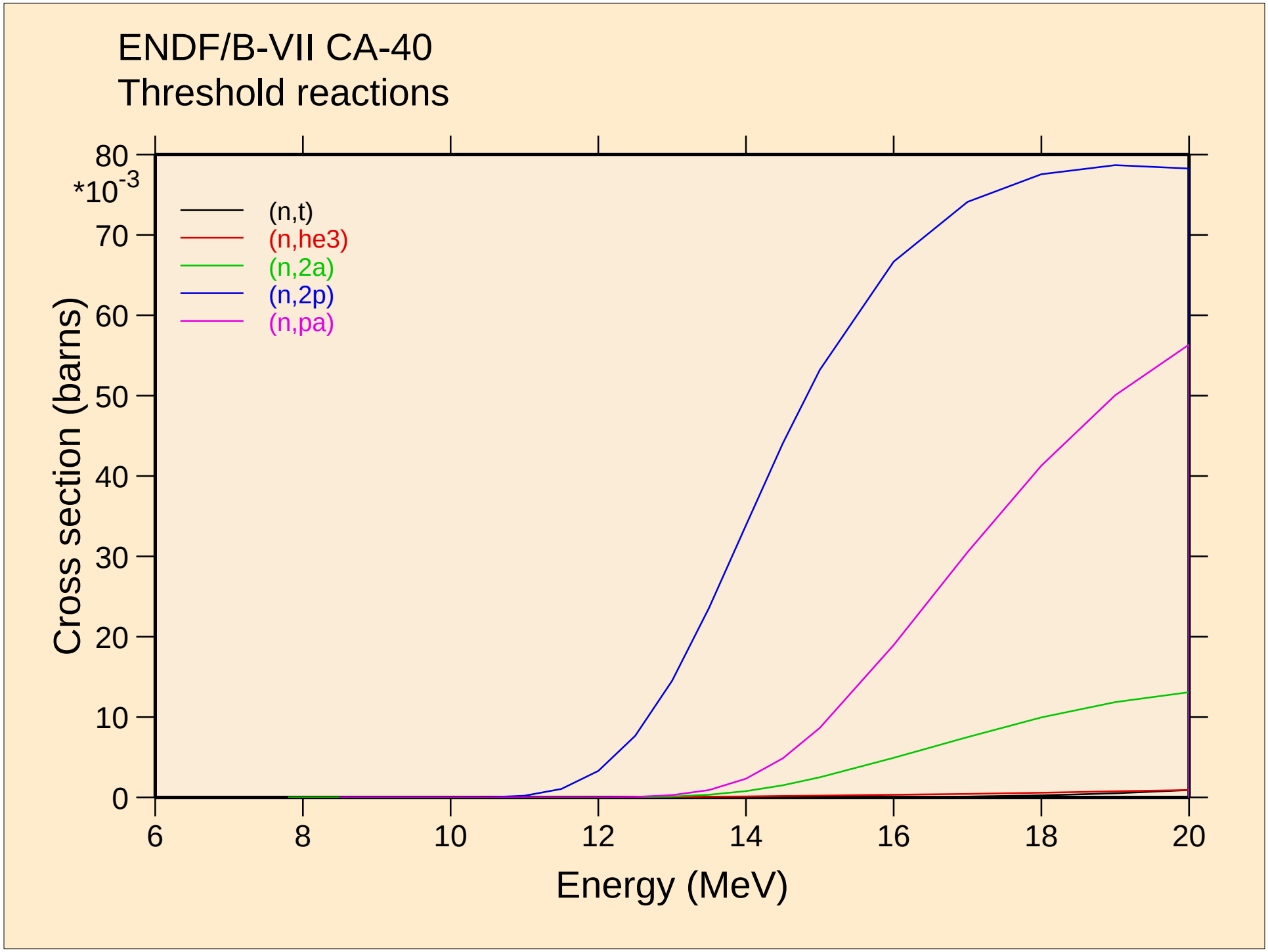

ENDF/B-VII CA-40
Inelastic levels
Cross section (barns)
*10^-3
50
40
30
20
10
0
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

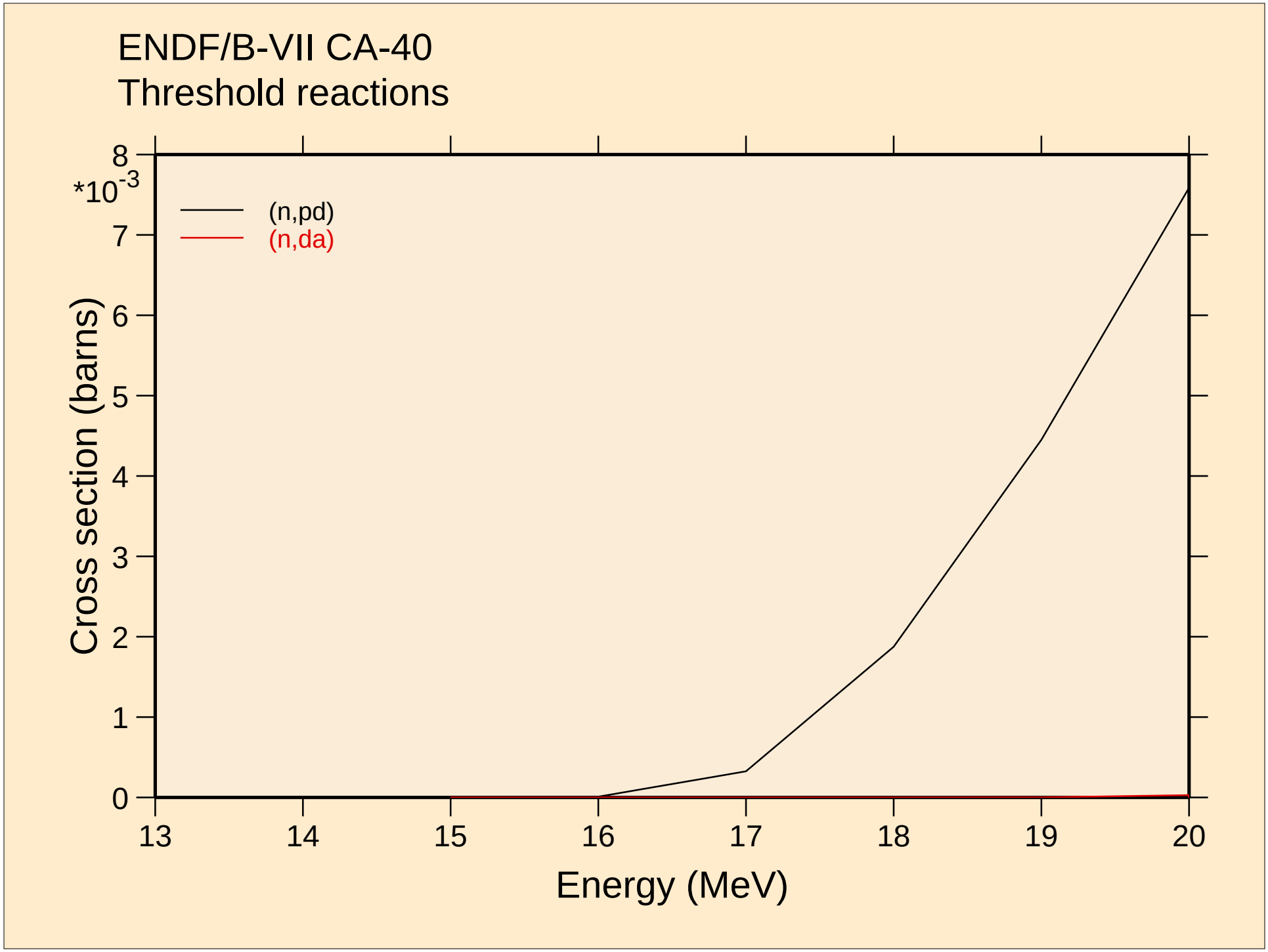

ENDF/B-VII CA-40
Inelastic levels
*10^-3
25
20
15
10
5
0
Cross section (barns)
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

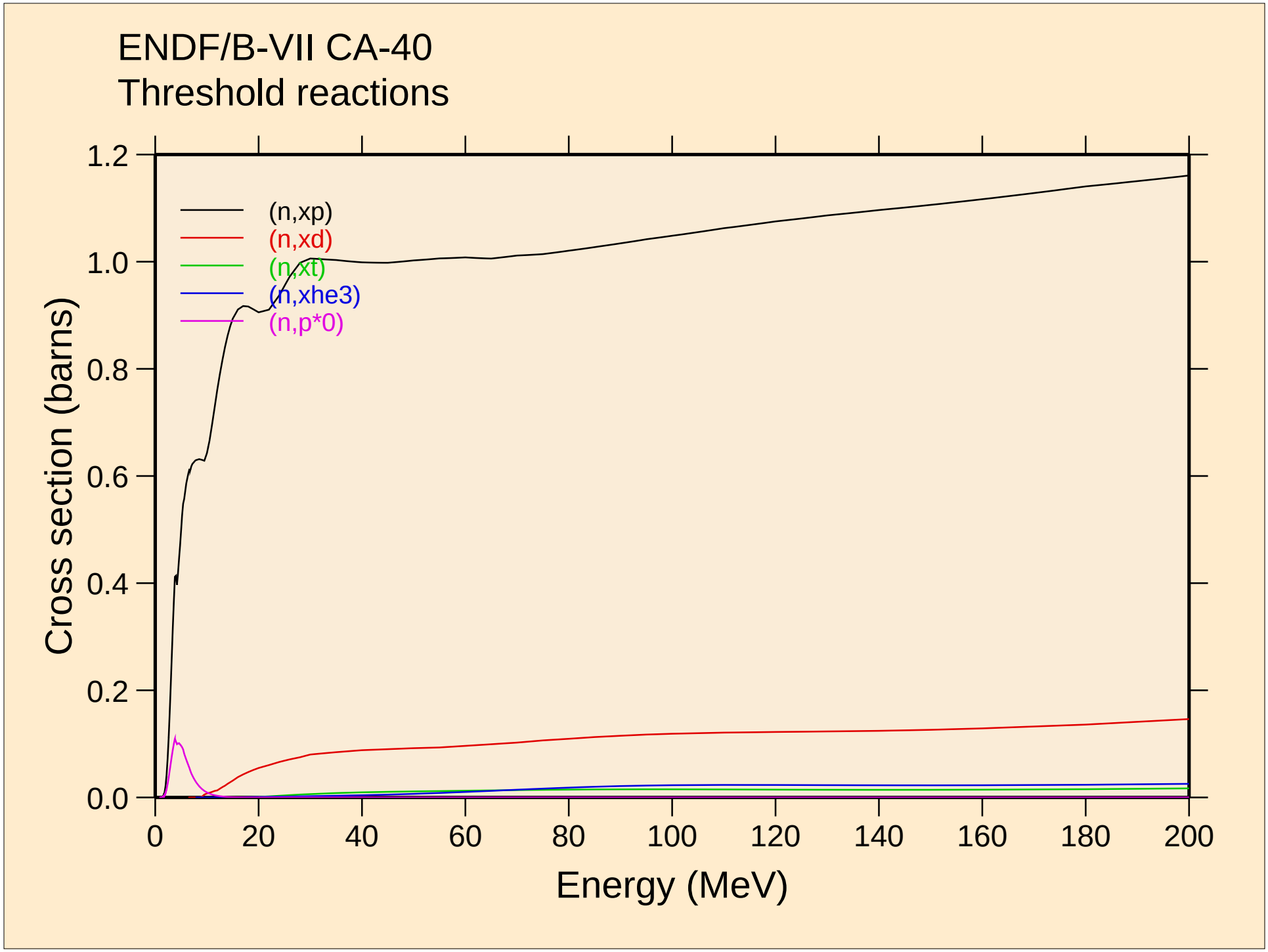

ENDF/B-VII CA-40
Inelastic levels
Cross section (barns)
*10^-3
14
12
10
8
6
4
2
0
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

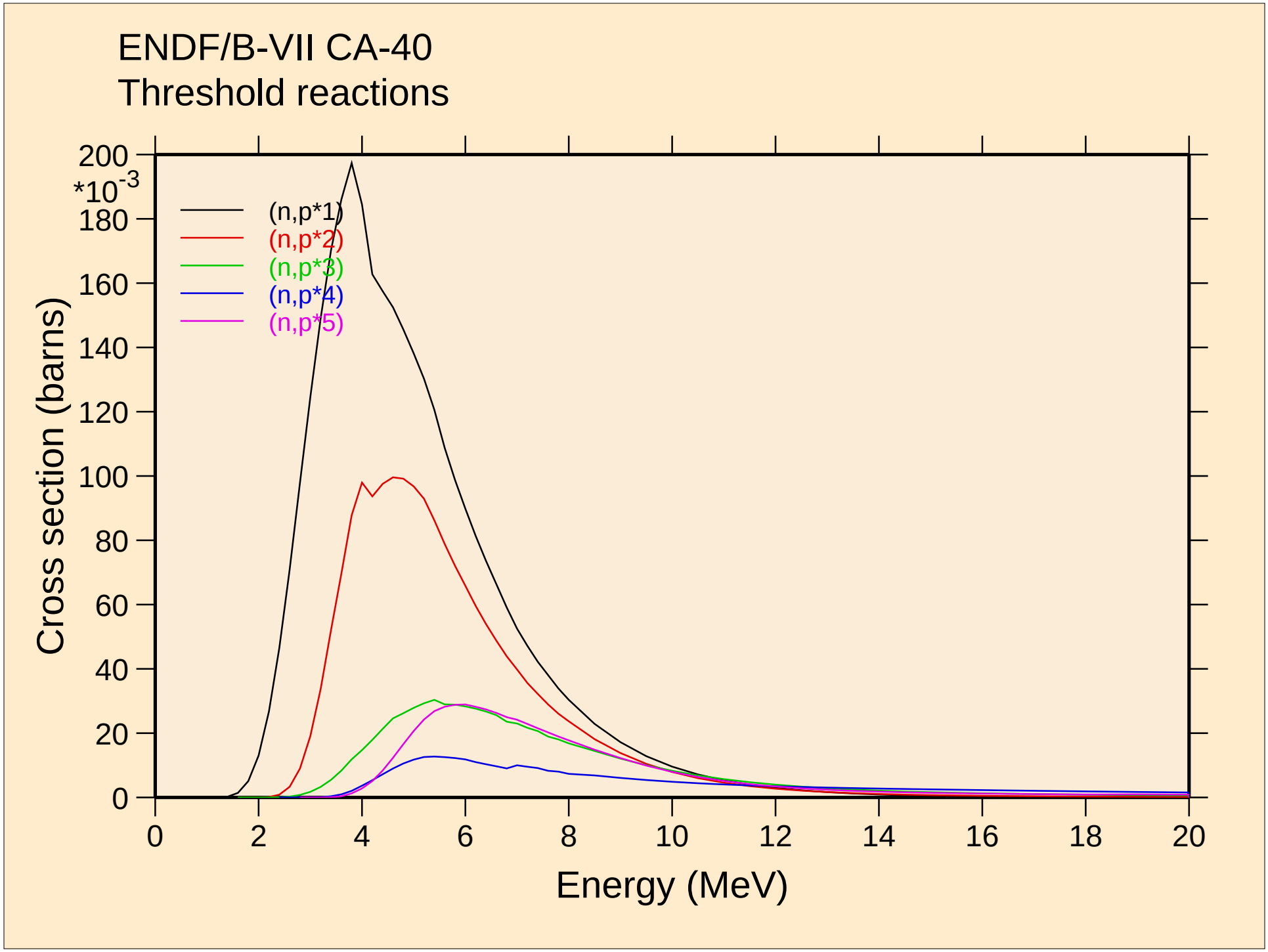

ENDF/B-VII CA-40
Threshold reactions
(n,x)
(n,2n)
(n,n*)a
(n,n*)p
(n,n*)2a
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
20
40
60
80
100
120
140
160
180
200

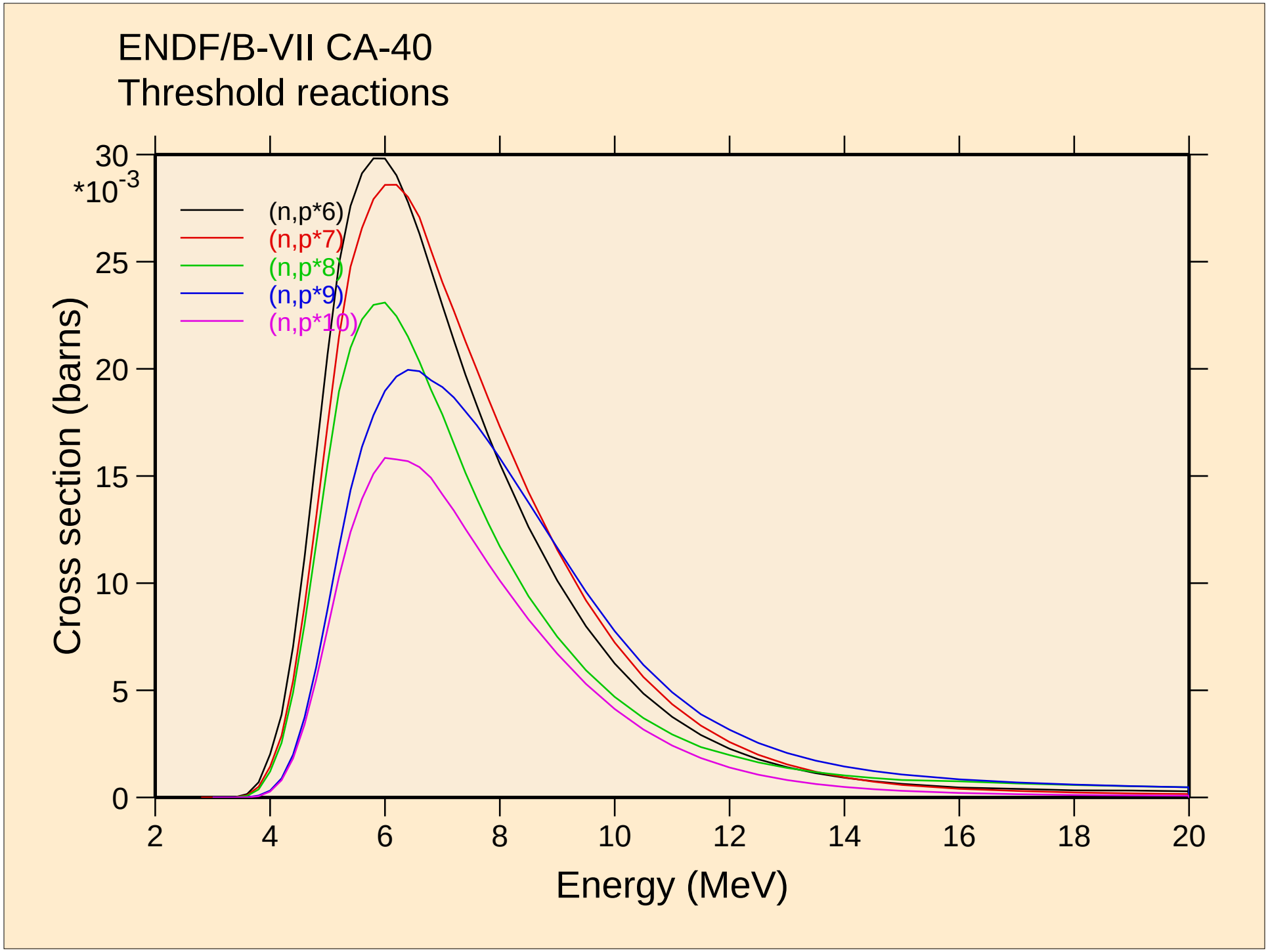

ENDF/B-VII CA-40
Threshold reactions
(n,n2p)
(n,npa)
(n,n*c)
(n,p)
(n,d)
Cross section (barns)
*10-3
700
600
500
400
300
200
100
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

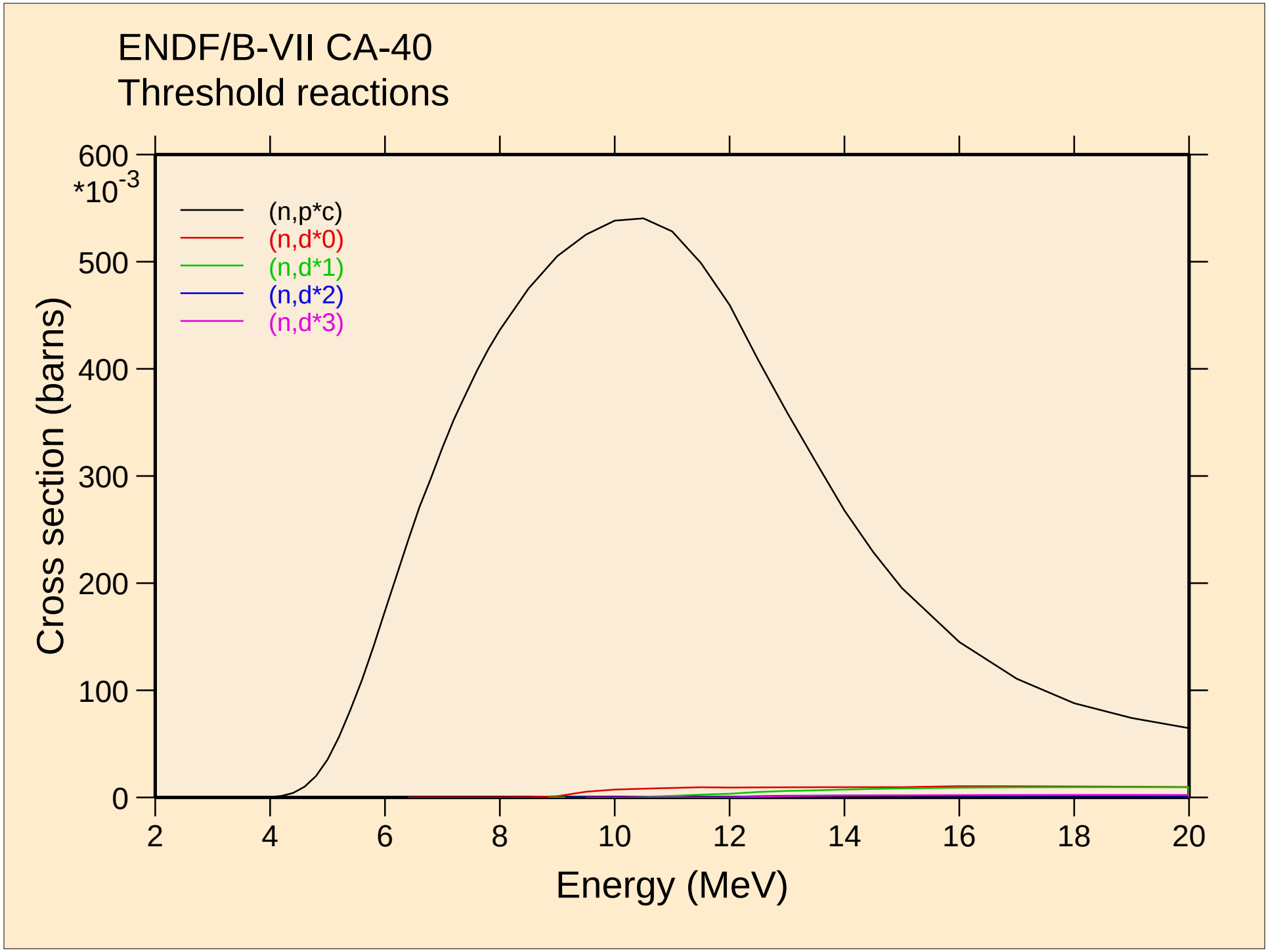

ENDF/B-VII CA-40
Threshold reactions
*10-3
(n,t)
(n,he3)
(n,2a)
(n,2p)
(n,pa)
Cross section (barns)
Energy (MeV)
0
10
20
30
40
50
60
70
80
6
8
10
12
14
16
18
20

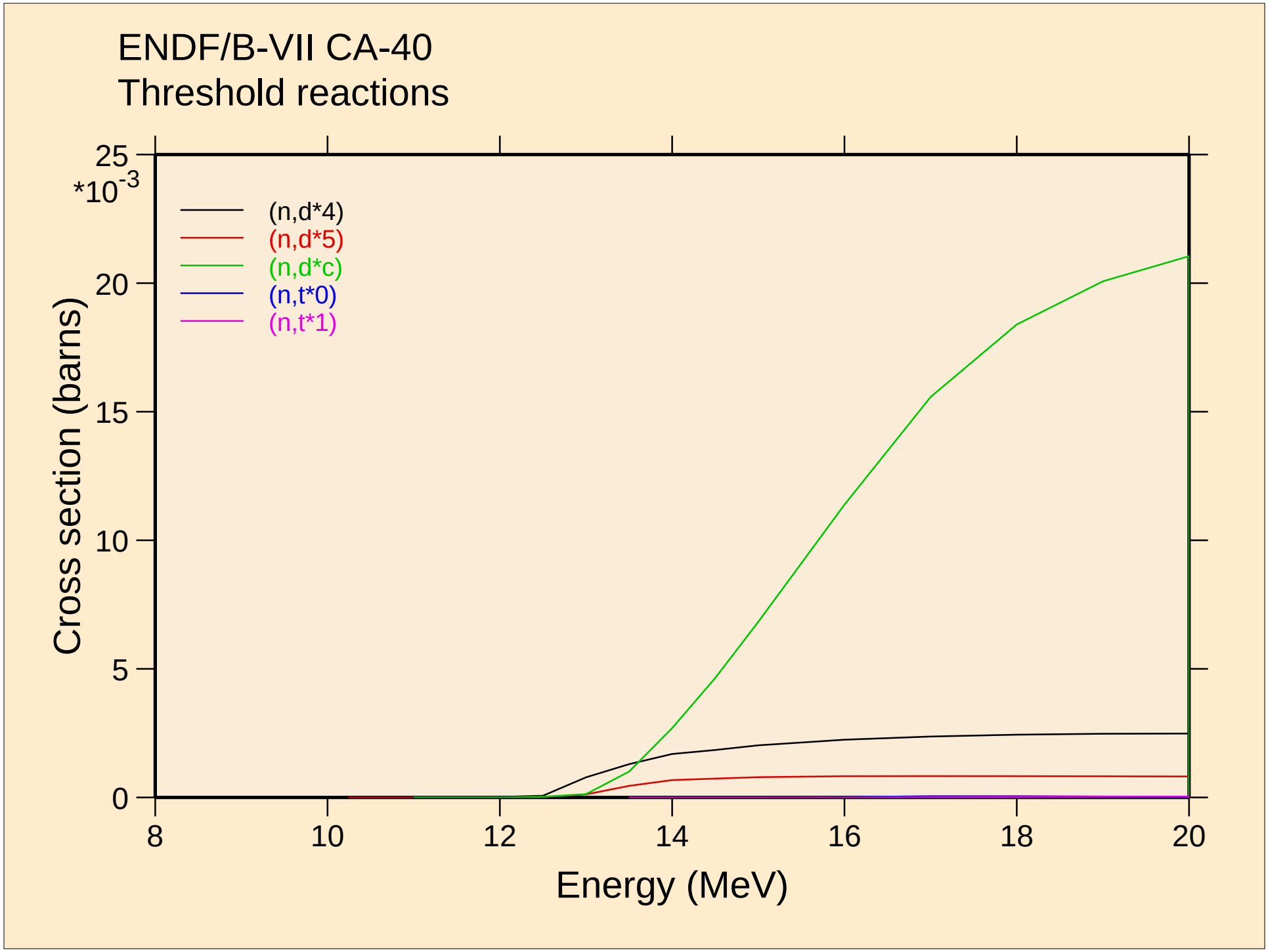

ENDF/B-VII CA-40
Threshold reactions
*10-3
(n,pd)
(n,da)
Cross section (barns)
0
1
2
3
4
5
6
7
8
13
14
15
16
17
18
19
20
Energy (MeV)

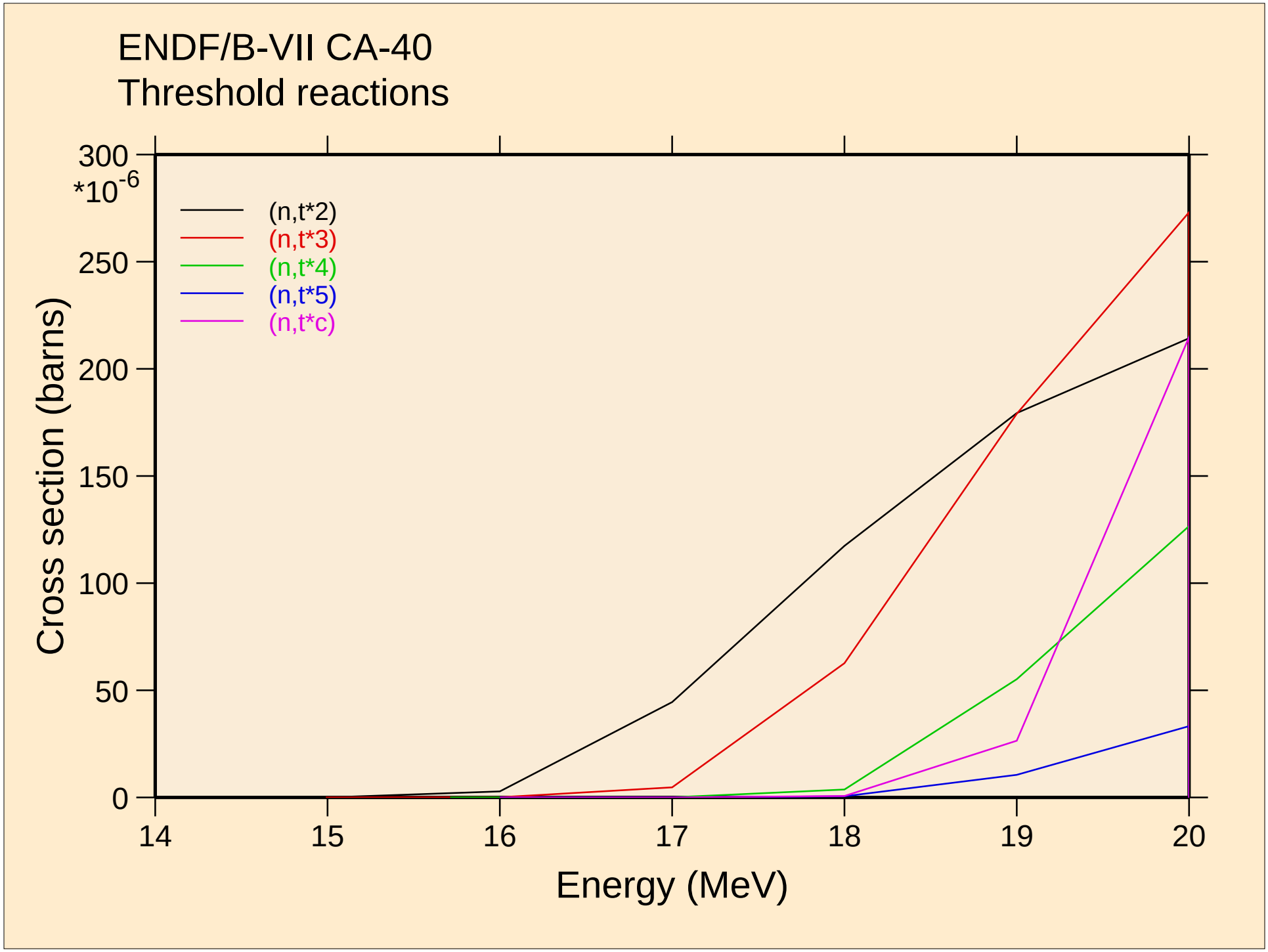

ENDF/B-VII CA-40
Threshold reactions
(n,xp)
(n,xd)
(n,xt)
(n,xhe3)
(n,p*0)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
20
40
60
80
100
120
140
160
180
200

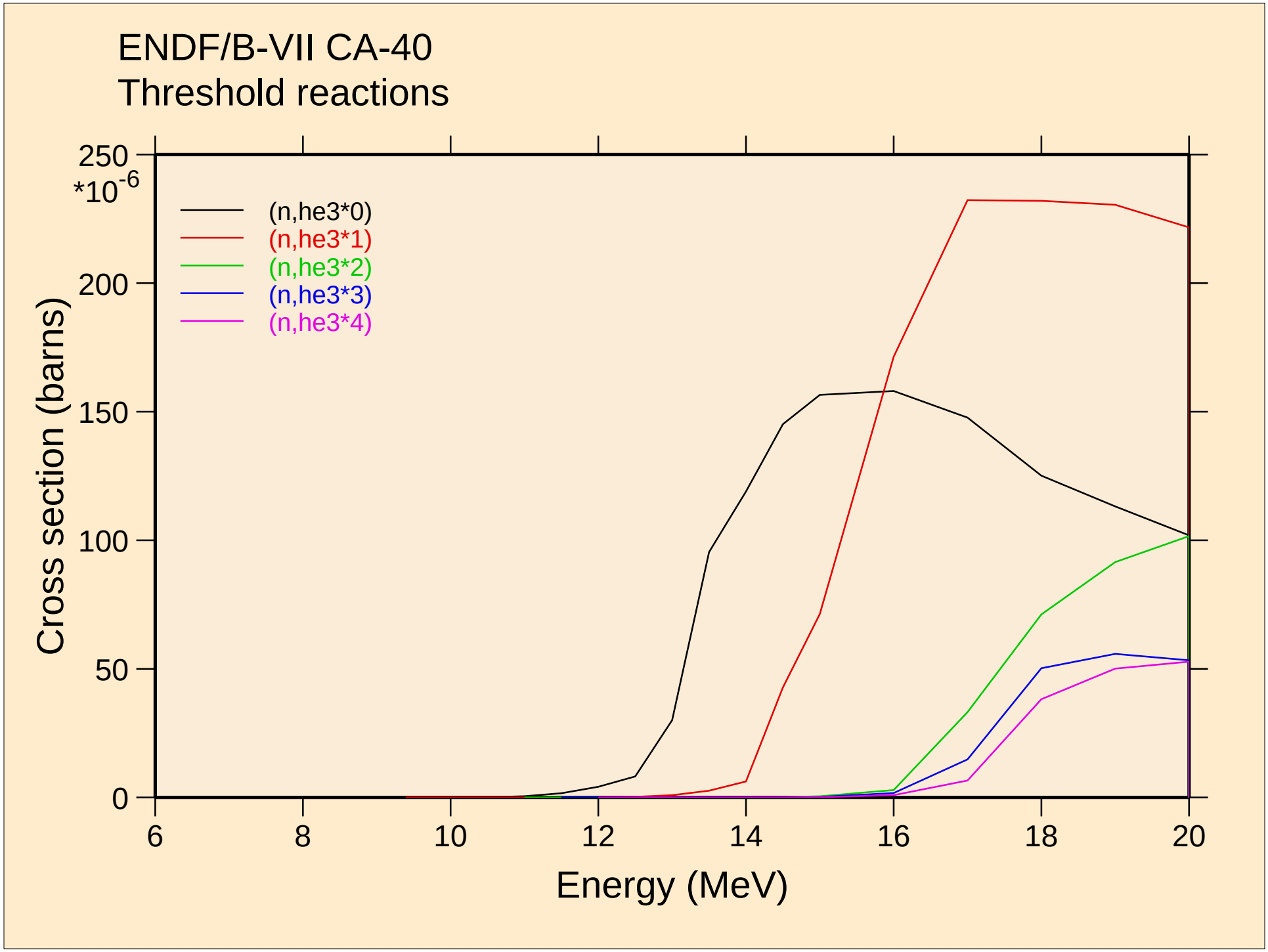

ENDF/B-VII CA-40
Threshold reactions
Cross section (barns)
*10^-3
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,p*1)
(n,p*2)
(n,p*3)
(n,p*4)
(n,p*5)

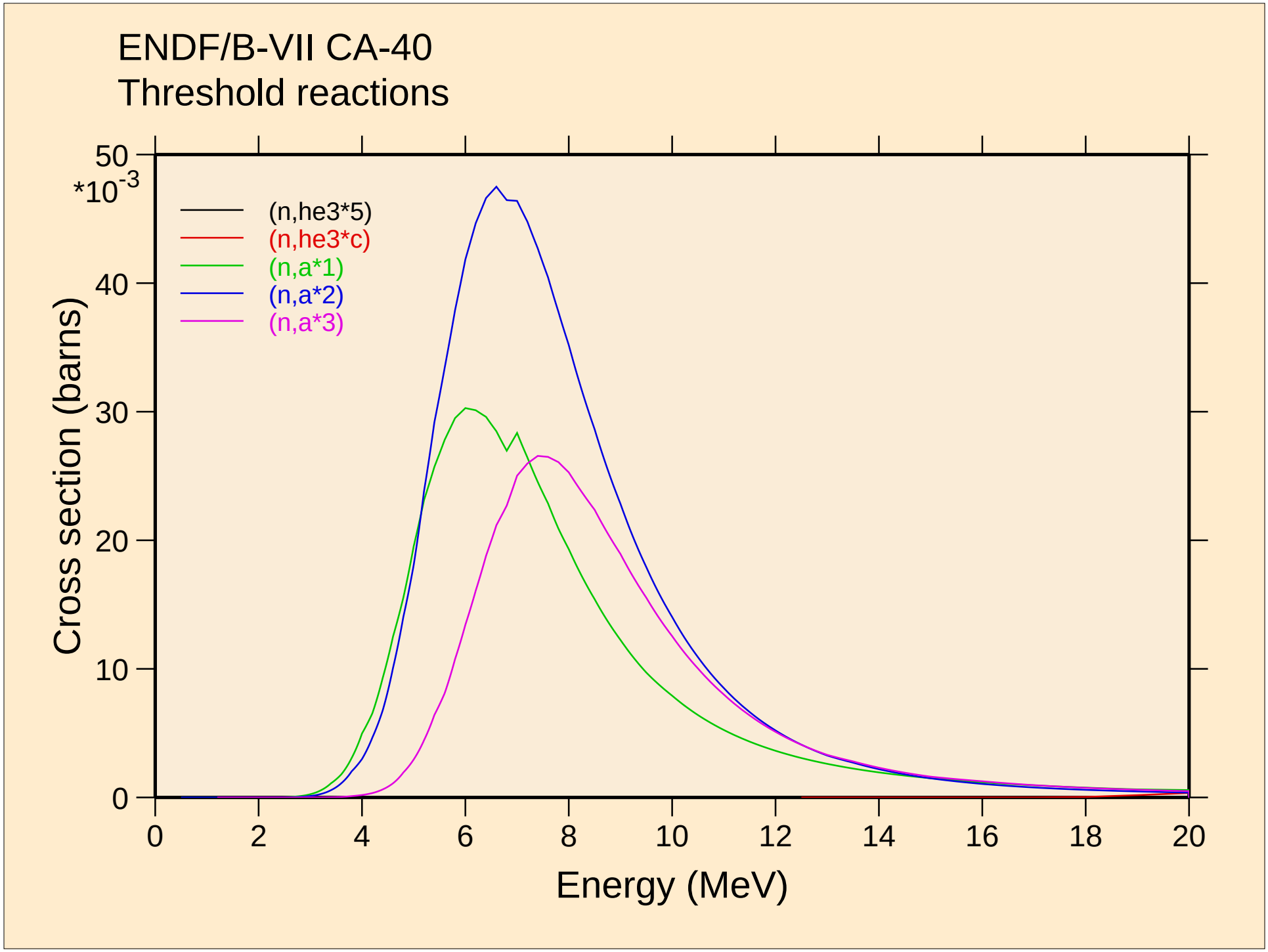

ENDF/B-VII CA-40
Threshold reactions
*10^-3
(n,p*6)
(n,p*7)
(n,p*8)
(n,p*9)
(n,p*10)
Cross section (barns)
Energy (MeV)
0
5
10
15
20
25
30
2
4
6
8
10
12
14
16
18
20

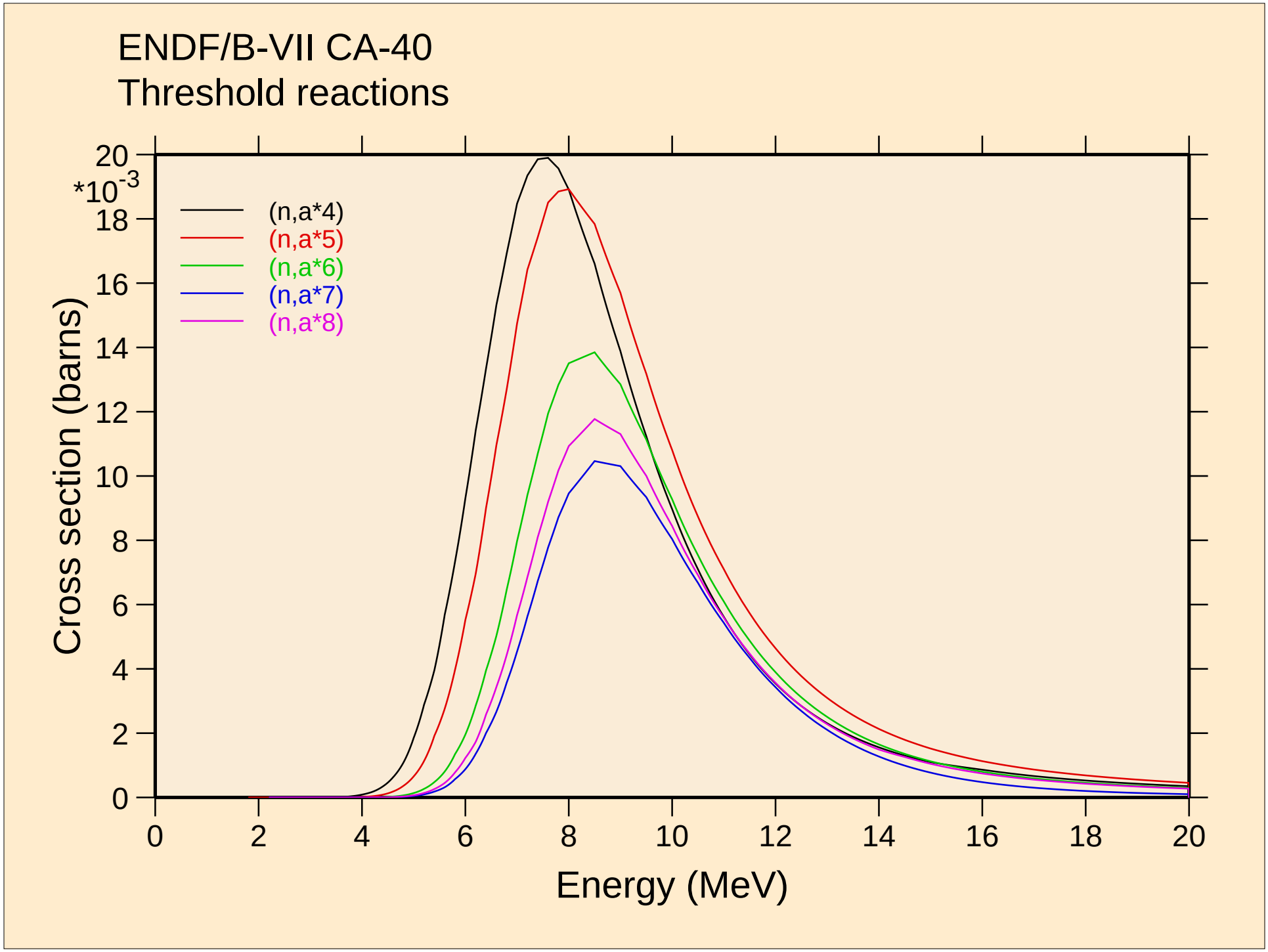

ENDF/B-VII CA-40
Threshold reactions
600
*10-3
500
400
300
200
100
0
Cross section (barns)
(n,p*c)
(n,d*0)
(n,d*1)
(n,d*2)
(n,d*3)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

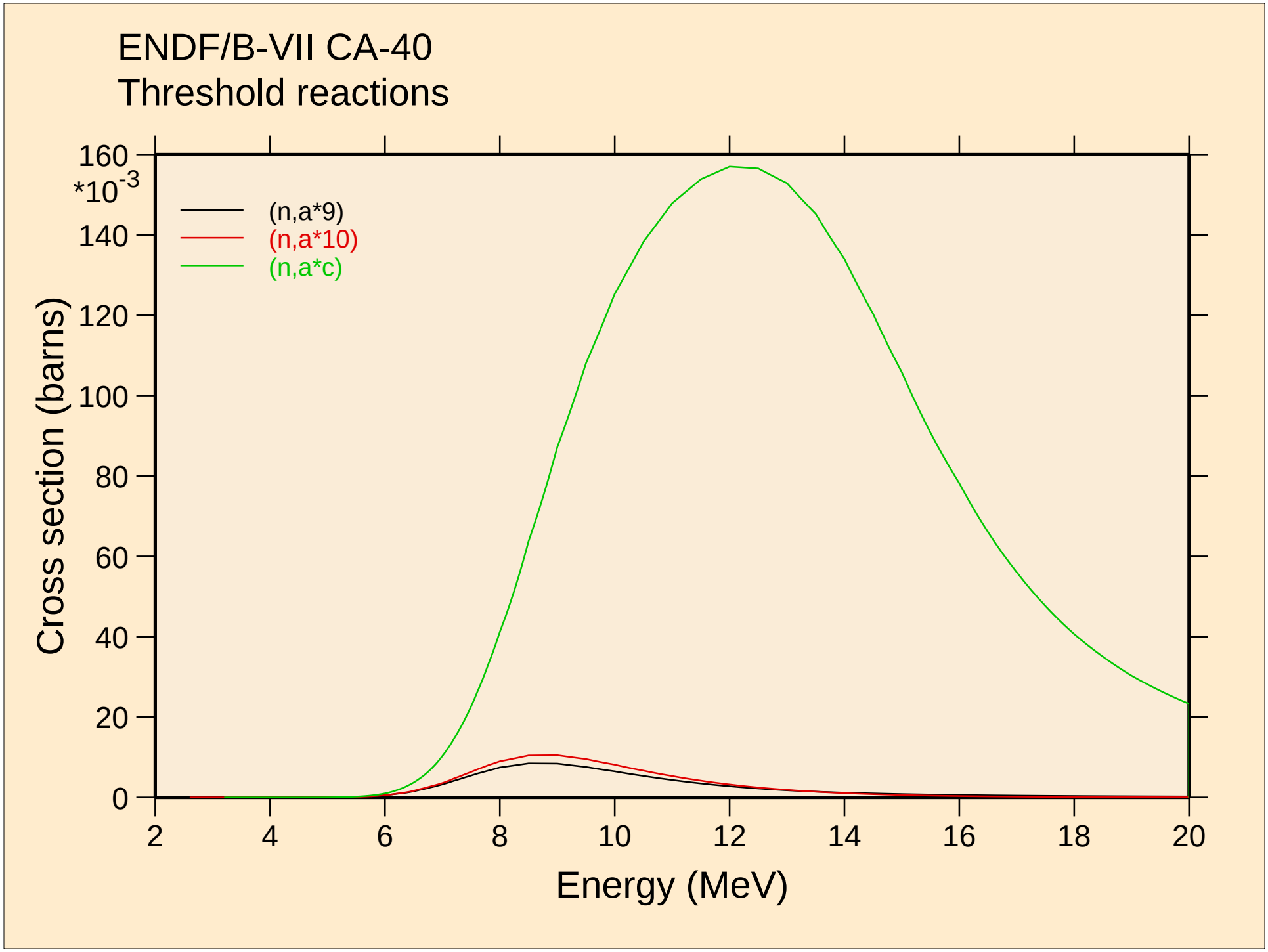

ENDF/B-VII CA-40
Threshold reactions
*10^-3
25
20
15
10
5
0
Cross section (barns)
(n,d*4)
(n,d*5)
(n,d*c)
(n,t*0)
(n,t*1)
8
10
12
14
16
18
20
Energy (MeV)

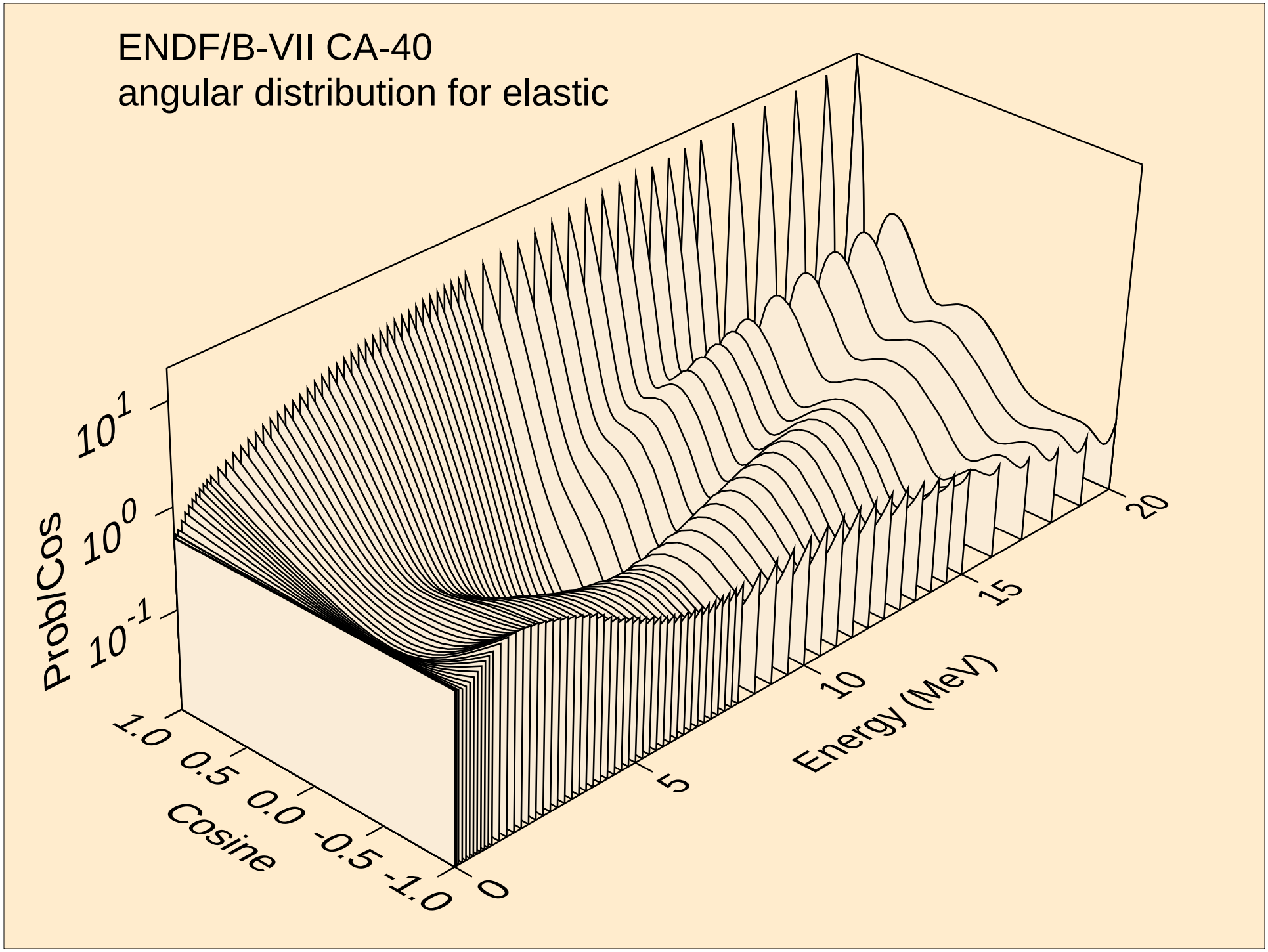

ENDF/B-VII CA-40
Threshold reactions
300
*10-6
250
200
150
100
50
0
Cross section (barns)
(n,t*2)
(n,t*3)
(n,t*4)
(n,t*5)
(n,t*c)
14
15
16
17
18
19
20
Energy (MeV)

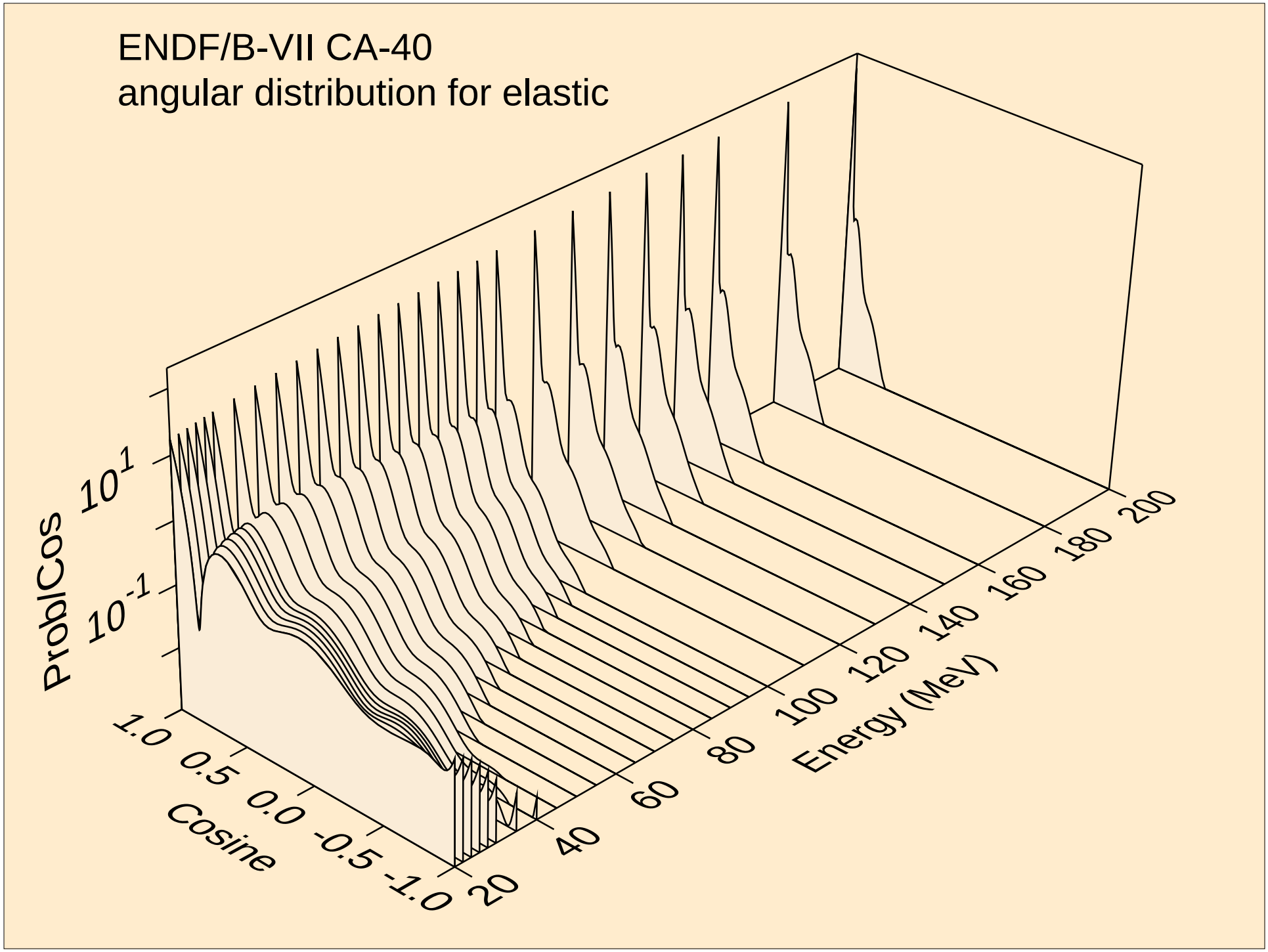

ENDF/B-VII CA-40
Threshold reactions
*10^-6
(n,he3*0)
(n,he3*1)
(n,he3*2)
(n,he3*3)
(n,he3*4)
Cross section (barns)
Energy (MeV)
0
50
100
150
200
250
6
8
10
12
14
16
18
20

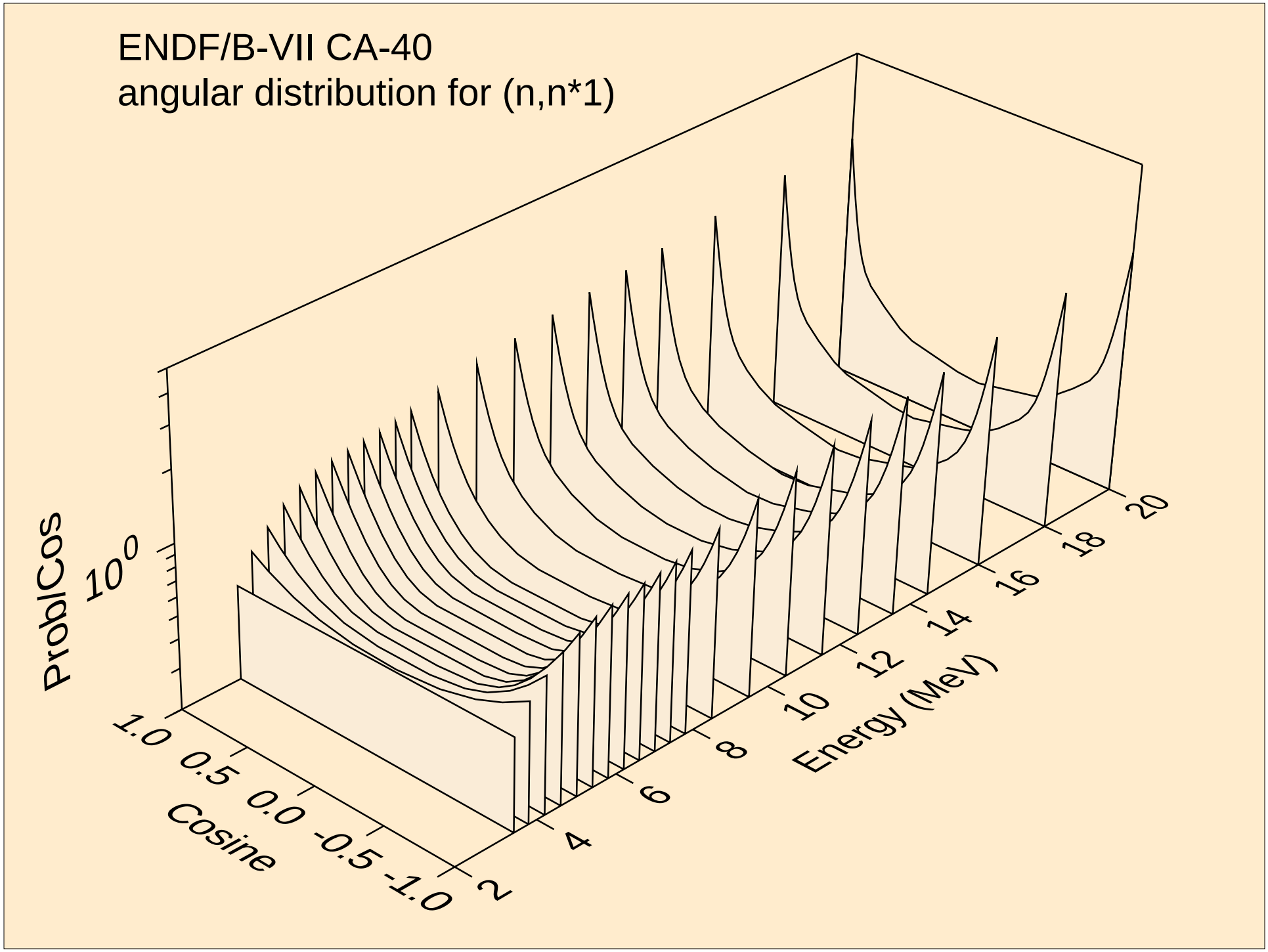

ENDF/B-VII CA-40
Threshold reactions
*10^-3
(n,he3*5)
(n,he3*c)
(n,a*1)
(n,a*2)
(n,a*3)
Cross section (barns)
Energy (MeV)
0
10
20
30
40
50
0
2
4
6
8
10
12
14
16
18
20

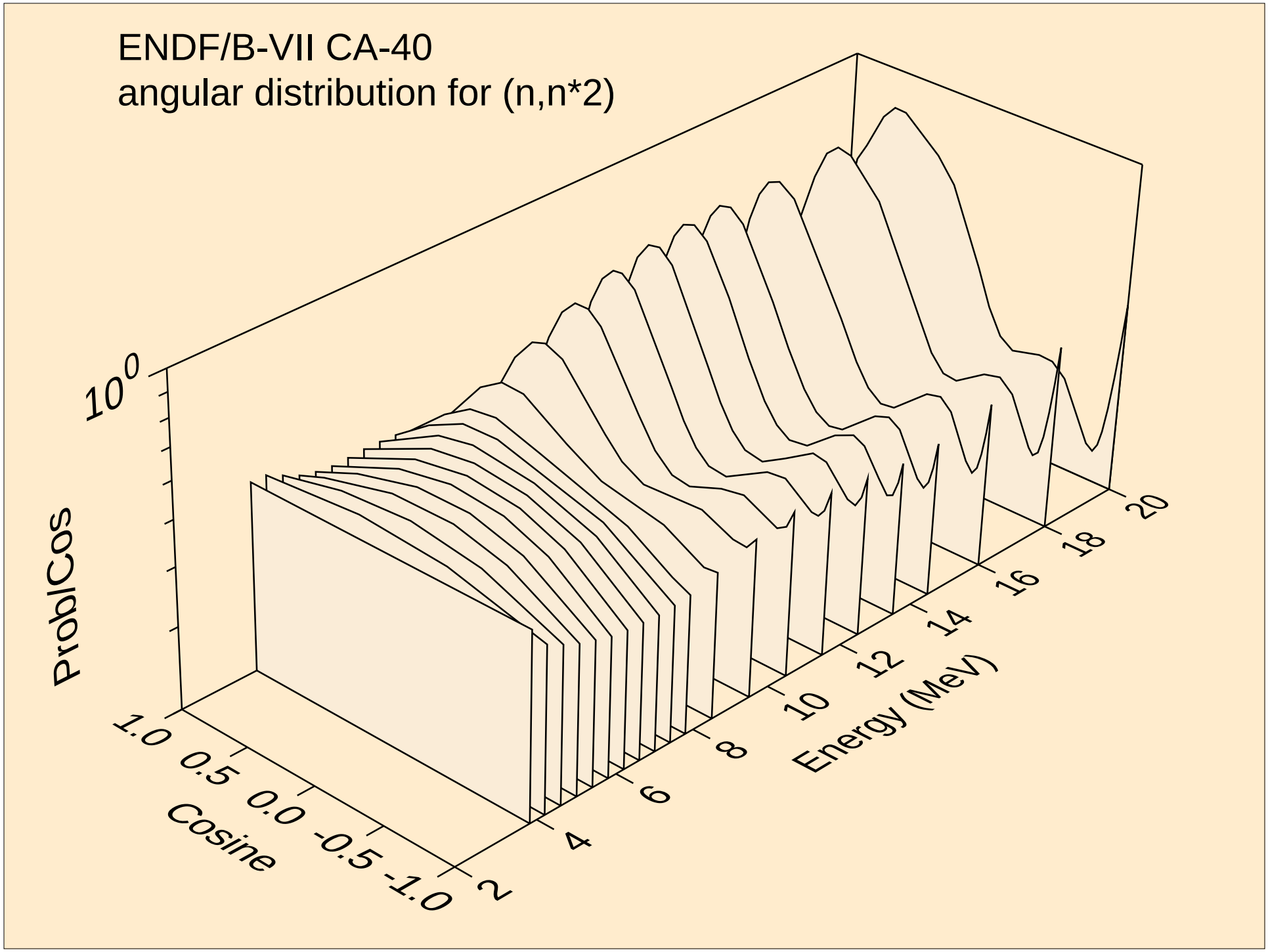

ENDF/B-VII CA-40
Threshold reactions
*10-3
(n,a*4)
(n,a*5)
(n,a*6)
(n,a*7)
(n,a*8)
Cross section (barns)
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

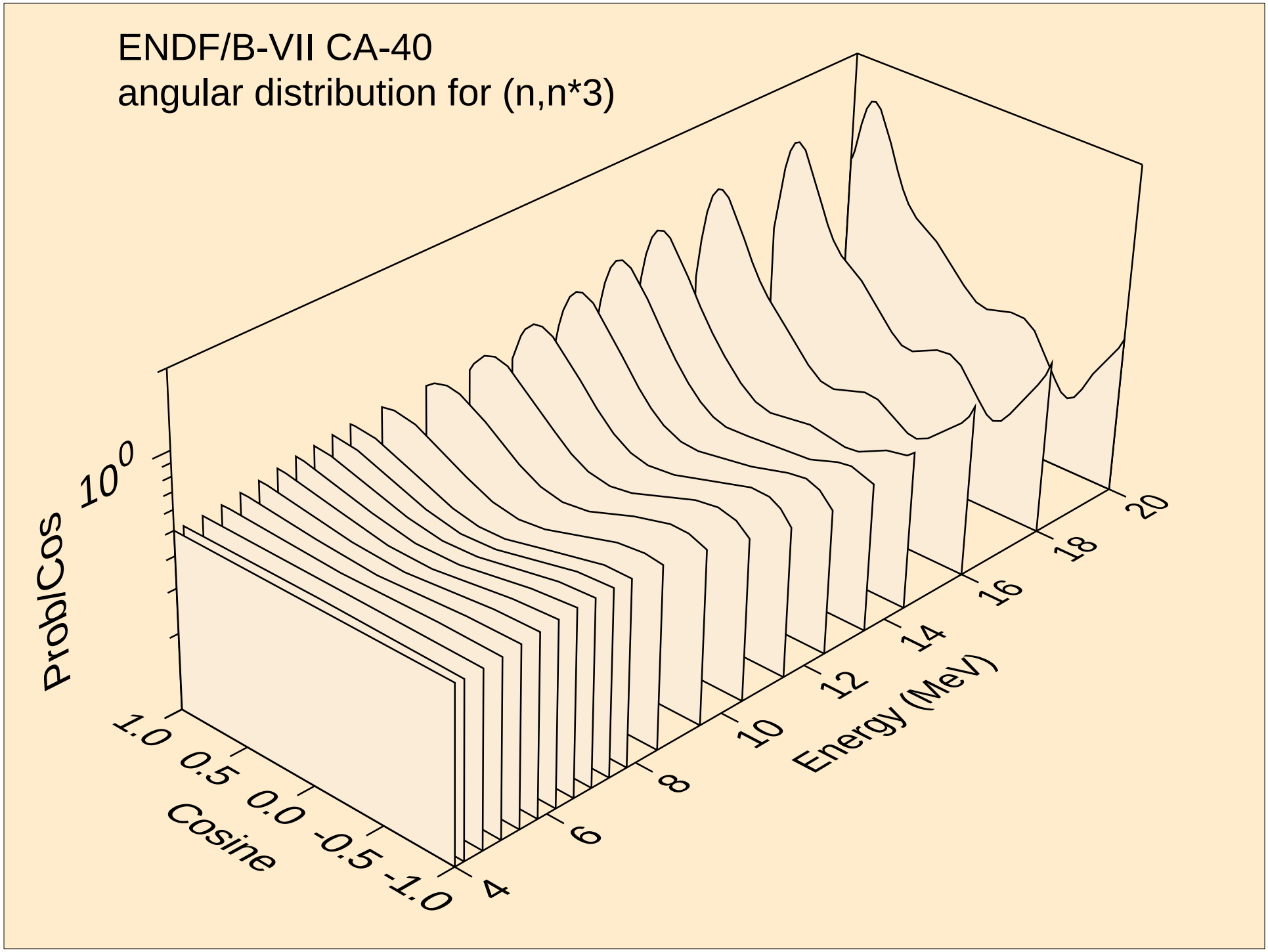

ENDF/B-VII CA-40
Threshold reactions
(n,a*9)
(n,a*10)
(n,a*c)
*10-3
160
140
120
100
80
60
40
20
0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

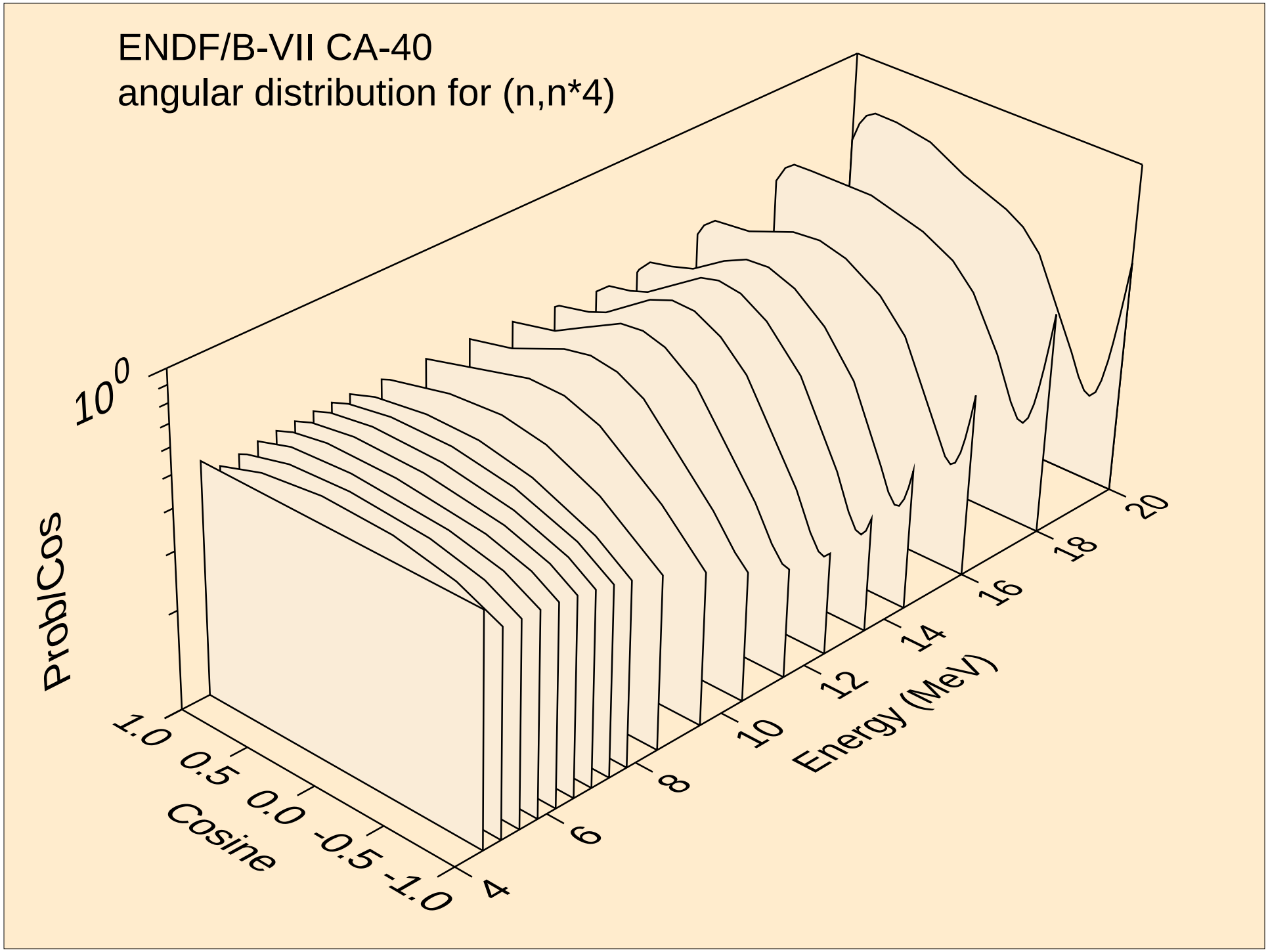

ENDF/B-VII CA-40
angular distribution for elastic
ProblCos
10^{1}
10^{0}
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
5
10
15
20

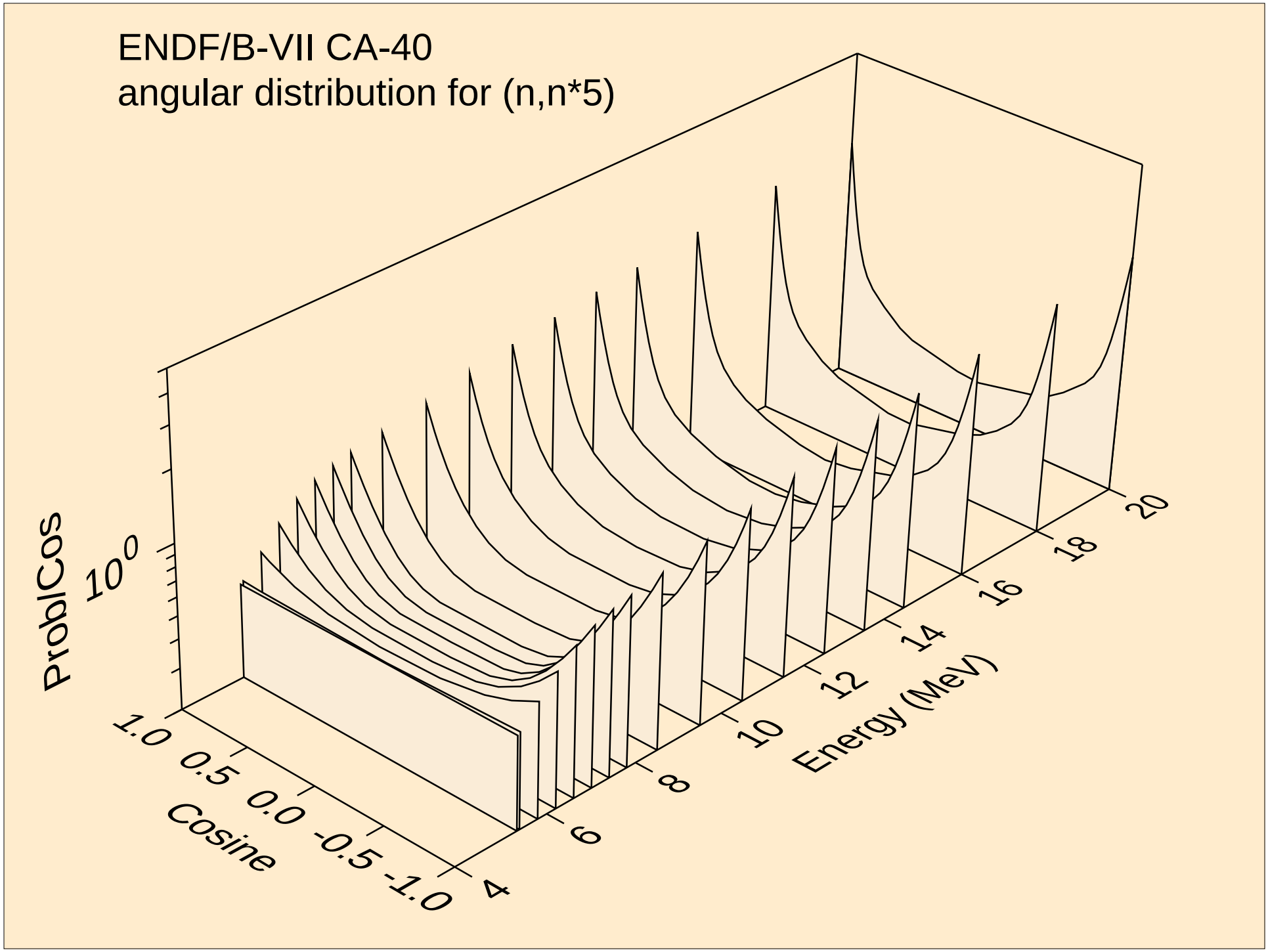

ENDF/B-VII CA-40
angular distribution for elastic
ProbCos
10^{1}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

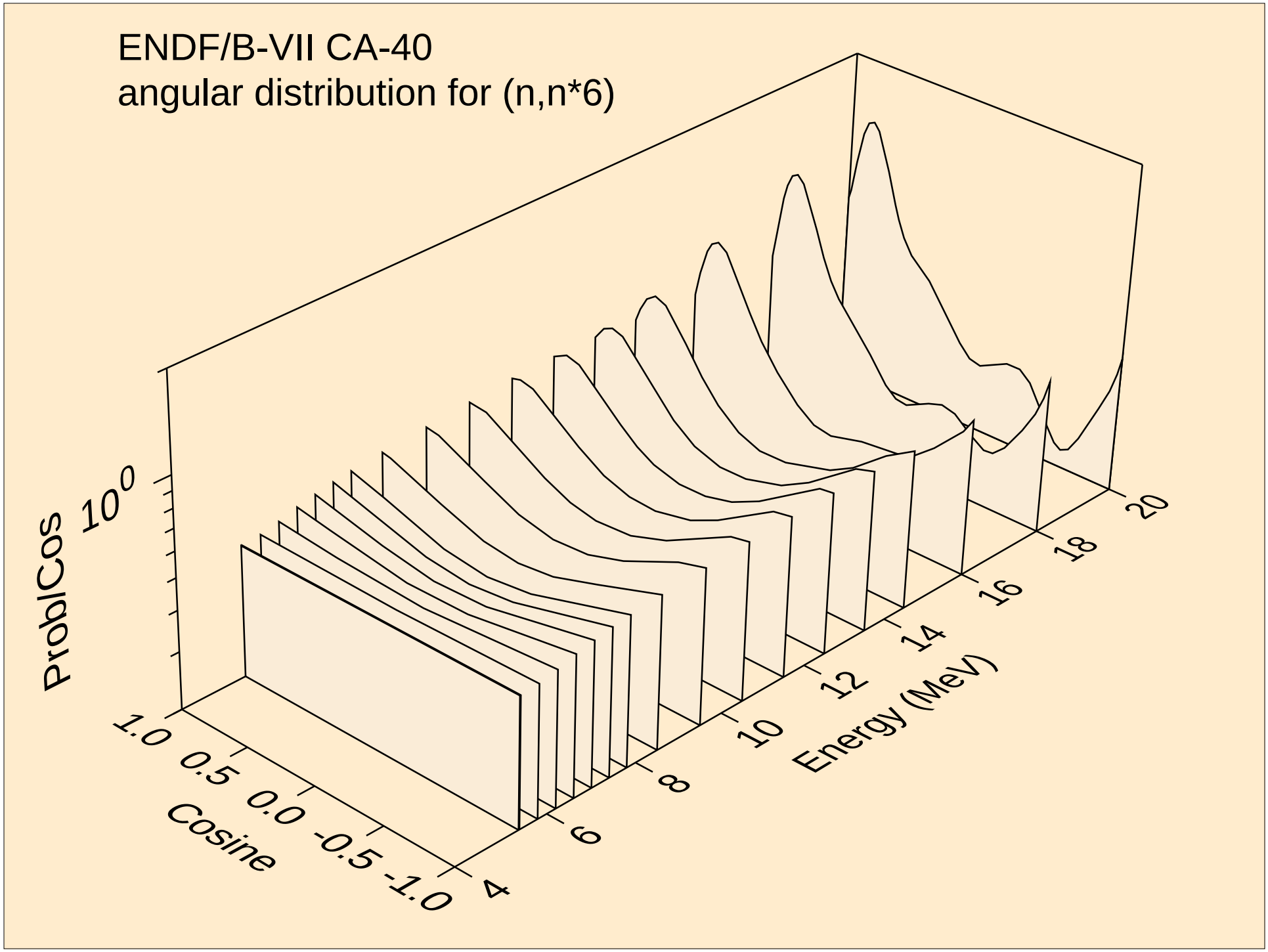

ENDF/B-VII CA-40
angular distribution for (n,n*1)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

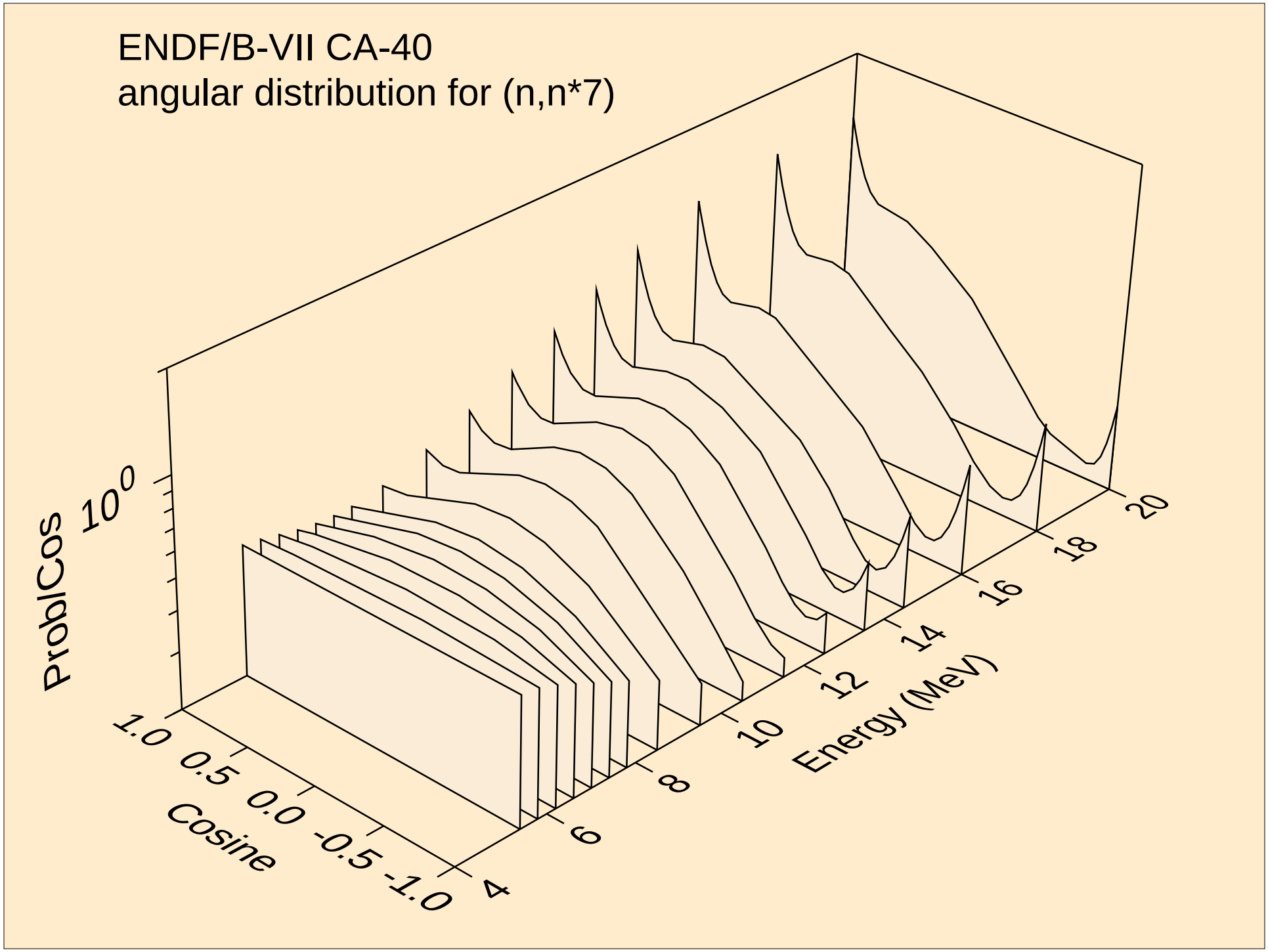

ENDF/B-VII CA-40
angular distribution for (n,n*2)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

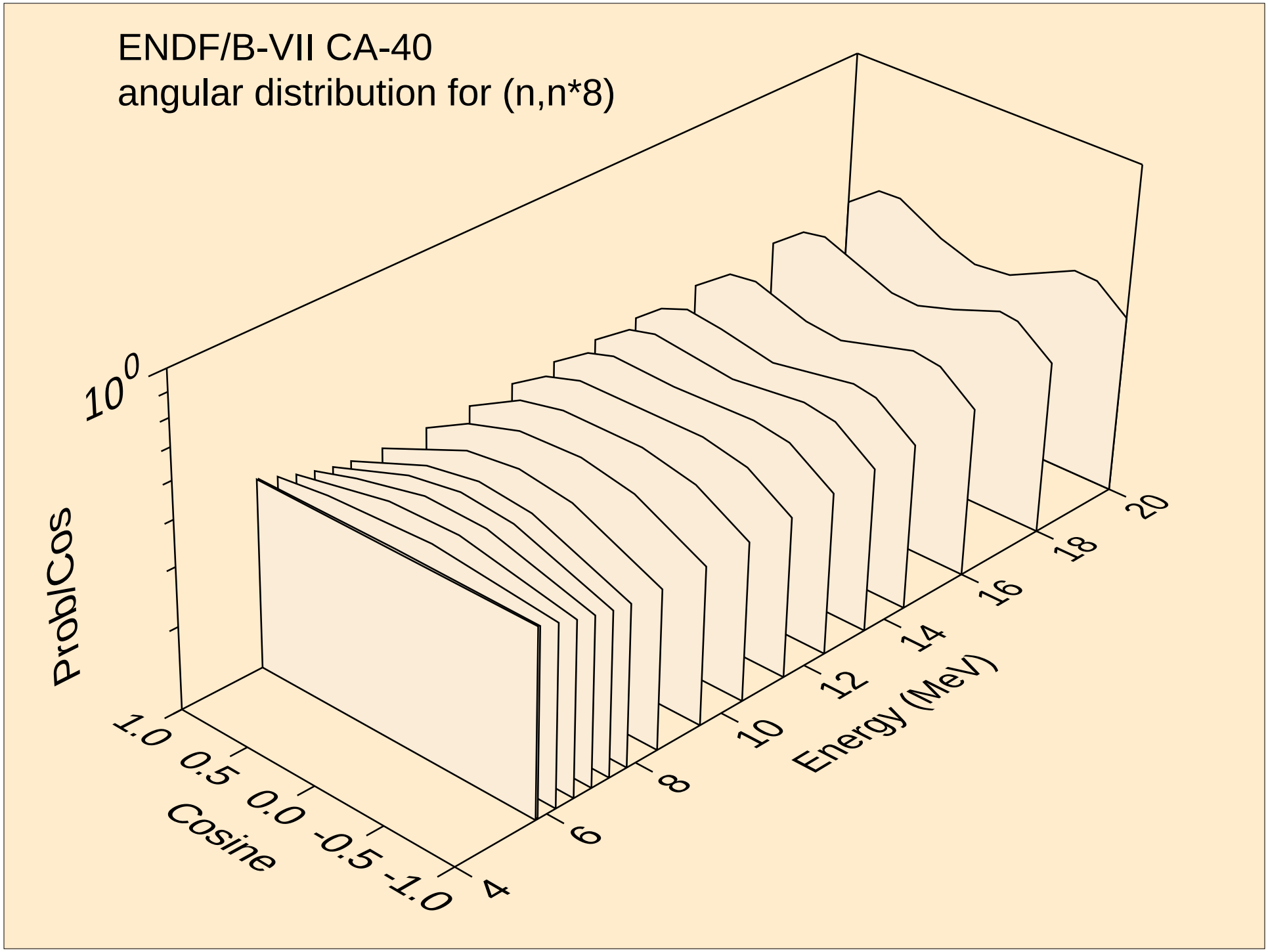

ENDF/B-VII CA-40
angular distribution for (n,n*3)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

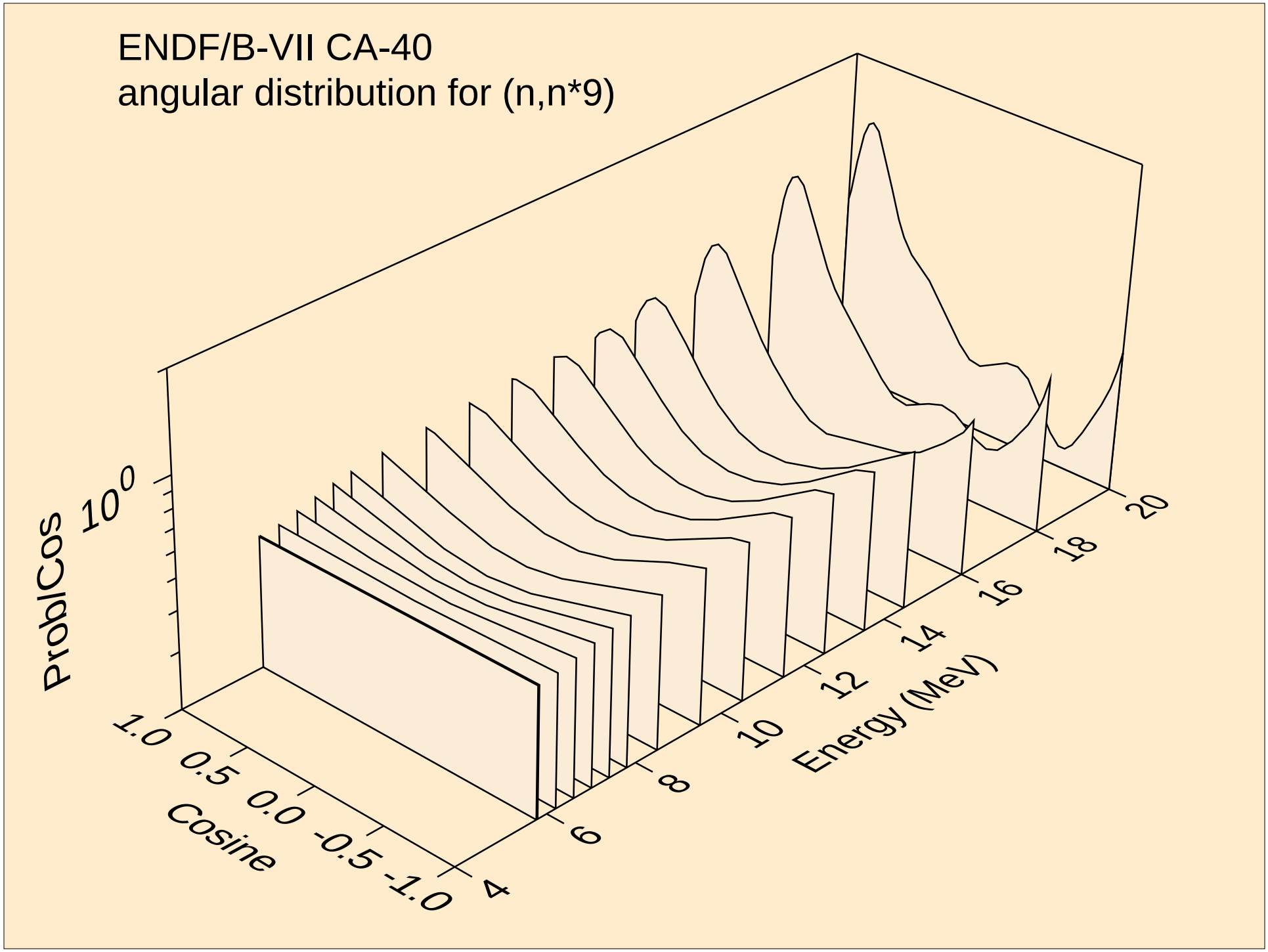

ENDF/B-VII CA-40
angular distribution for (n,n*4)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

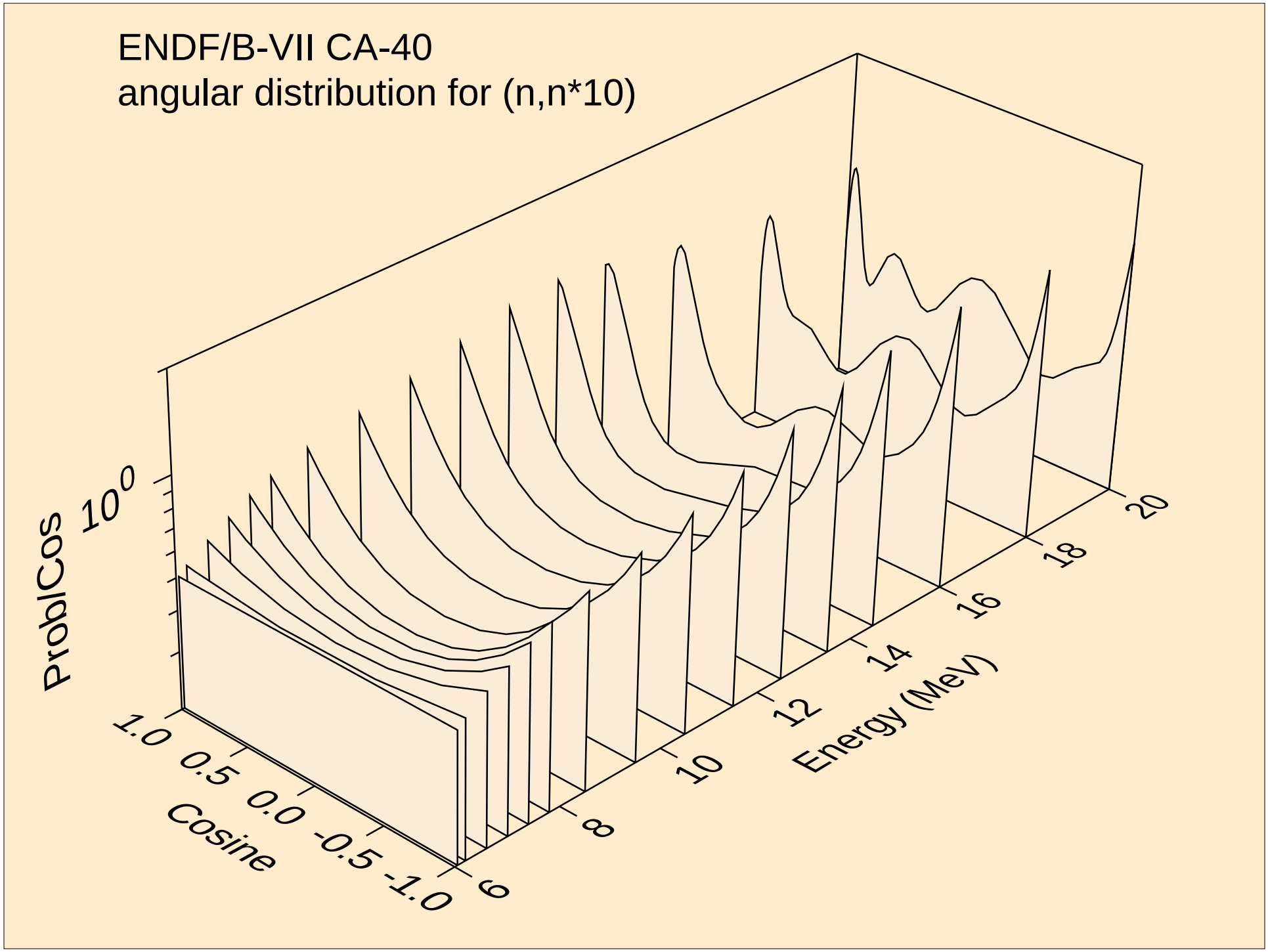

ENDF/B-VII CA-40
angular distribution for (n,n*5)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

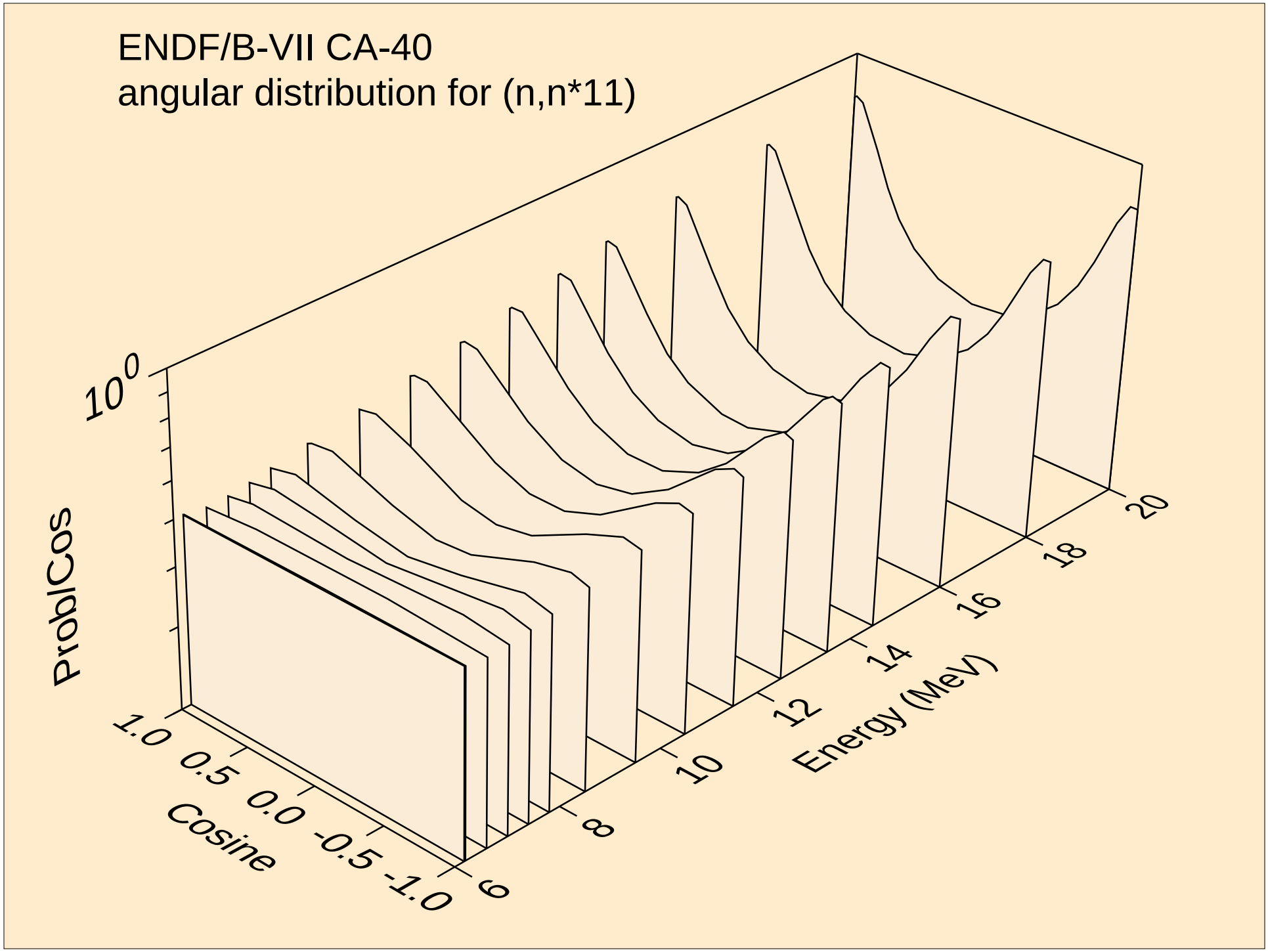

ENDF/B-VII CA-40
angular distribution for (n,n*6)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

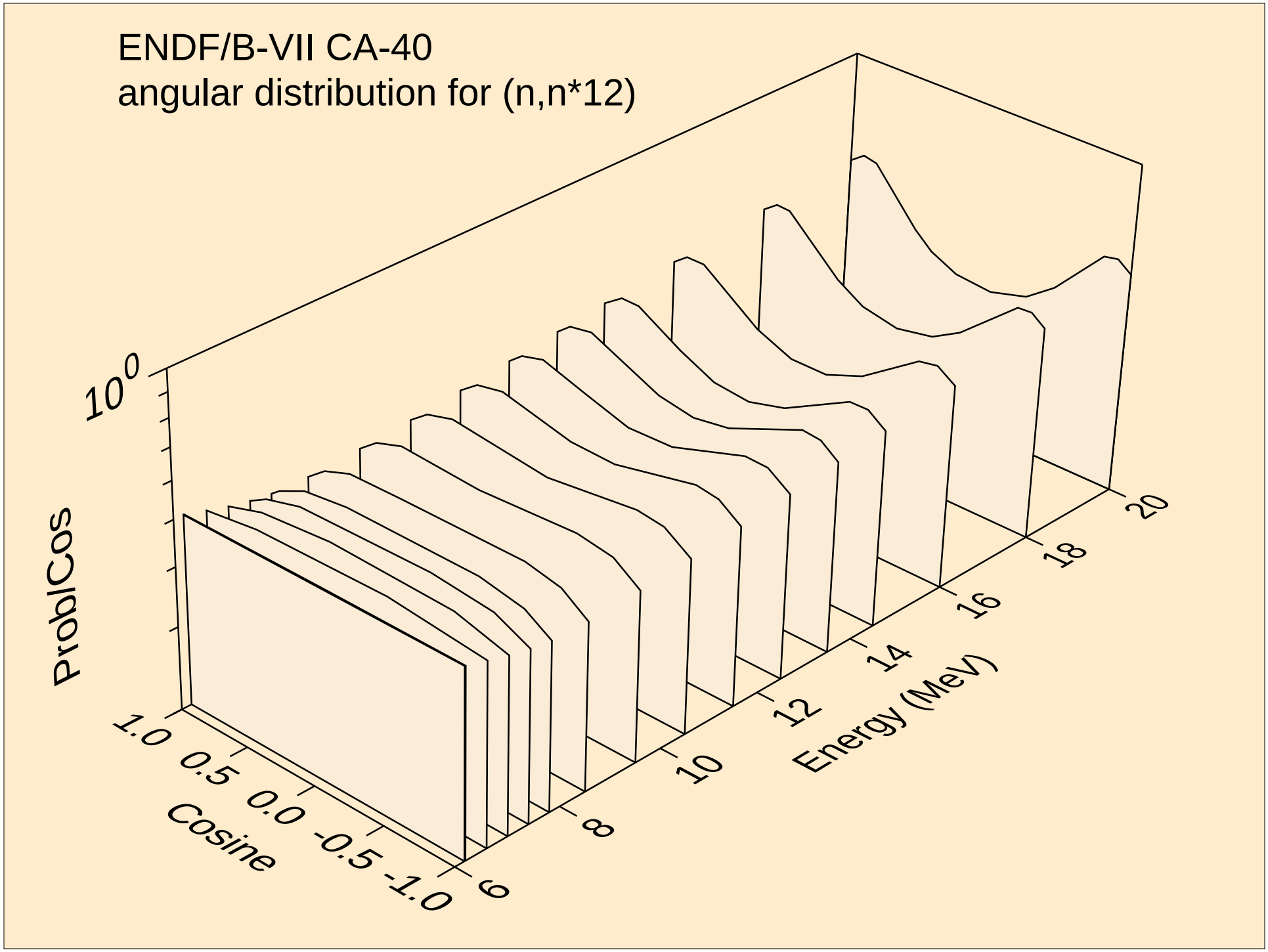

ENDF/B-VII CA-40
angular distribution for (n,n*7)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

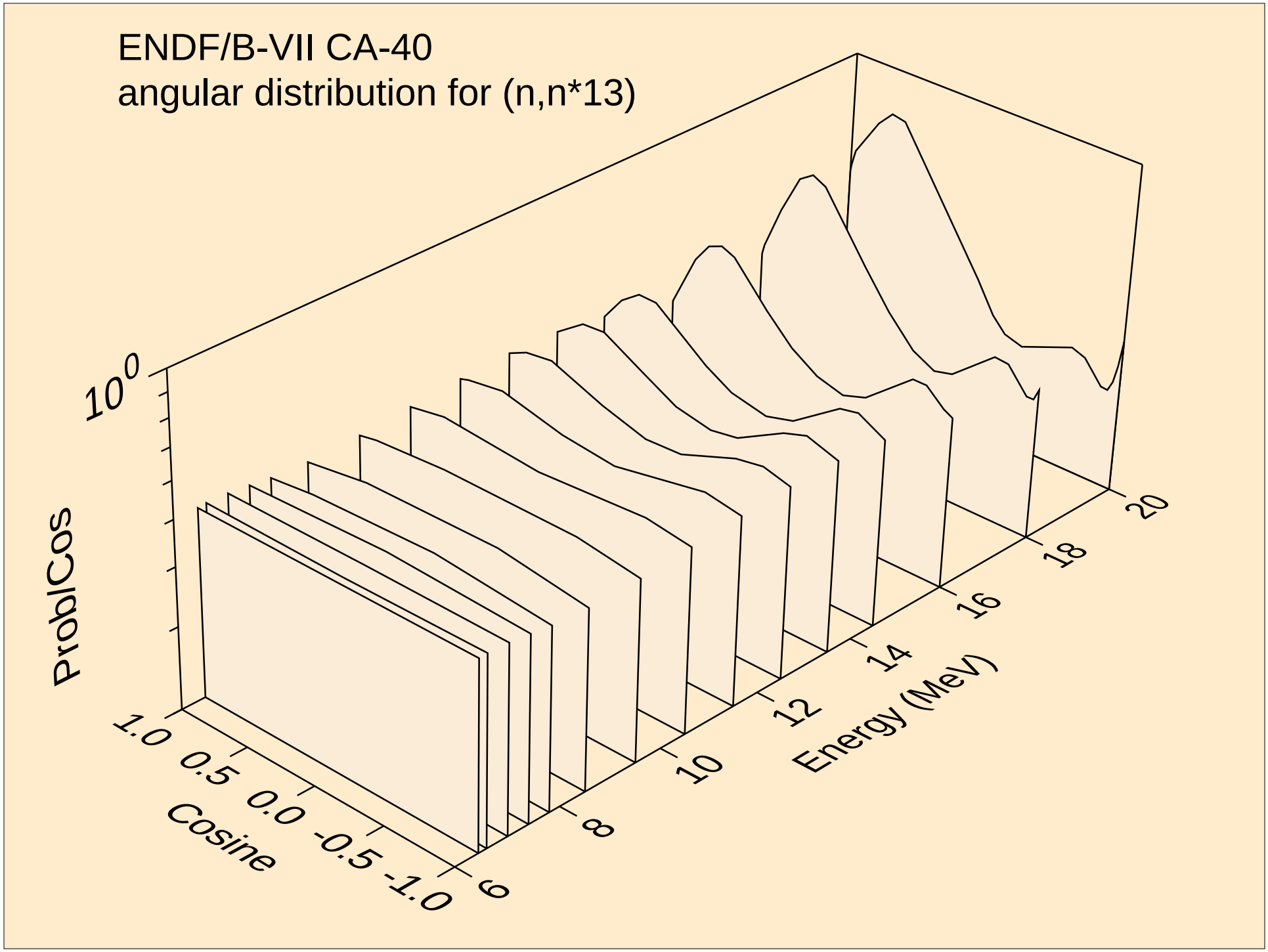

ENDF/B-VII CA-40
angular distribution for (n,n*8)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

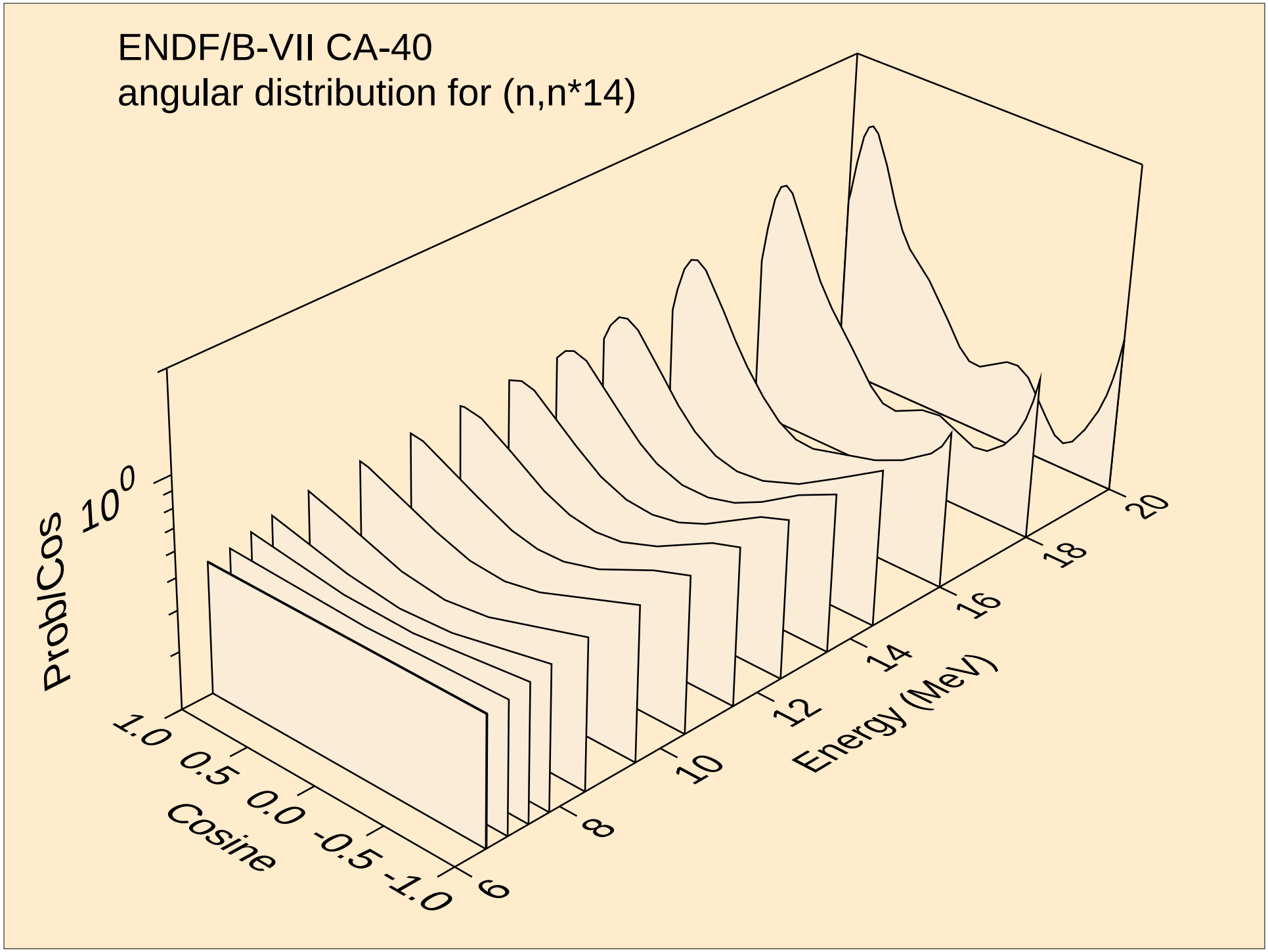

ENDF/B-VII CA-40
angular distribution for (n,n*9)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

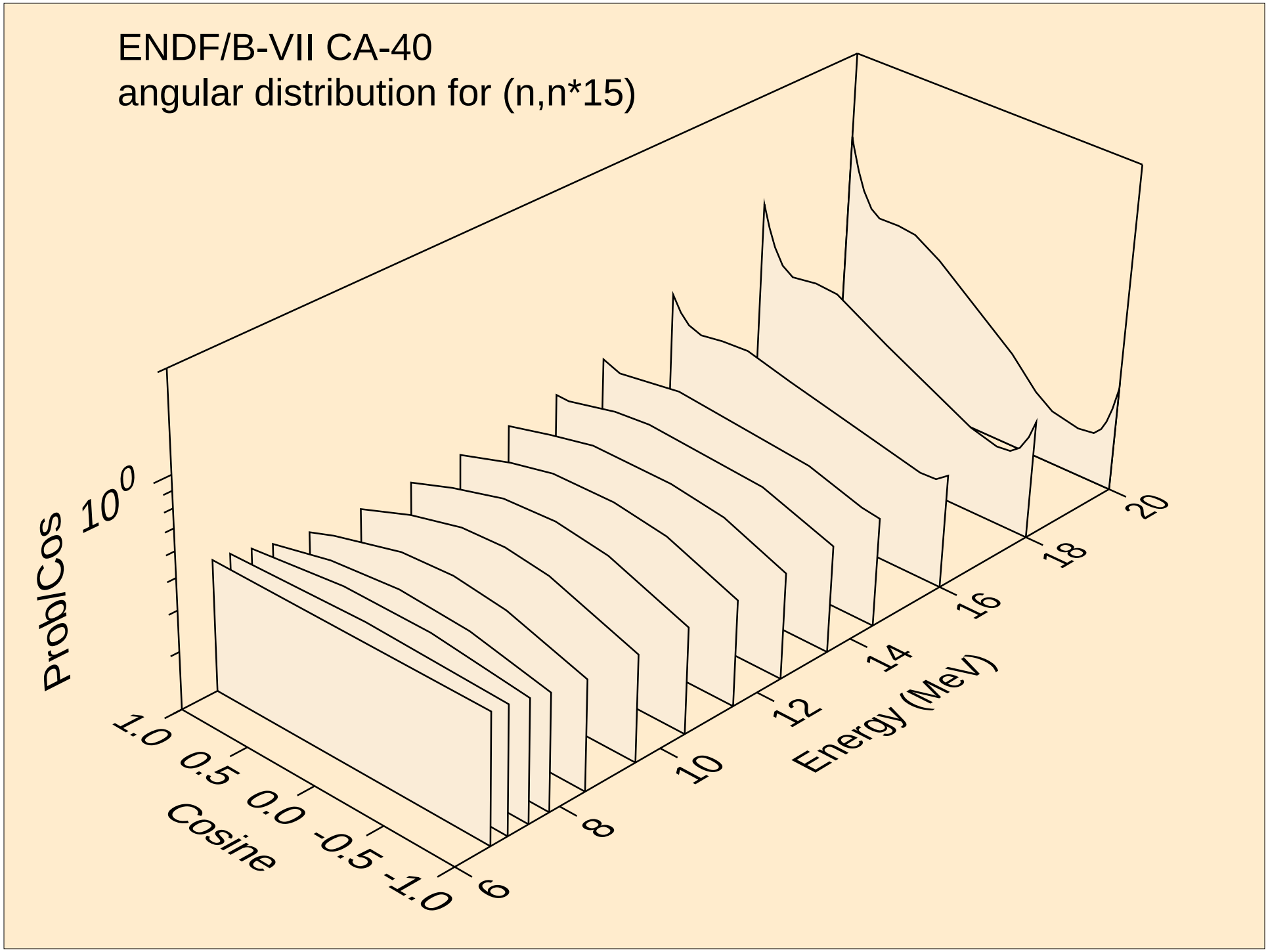

ENDF/B-VII CA-40
angular distribution for (n,n*10)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

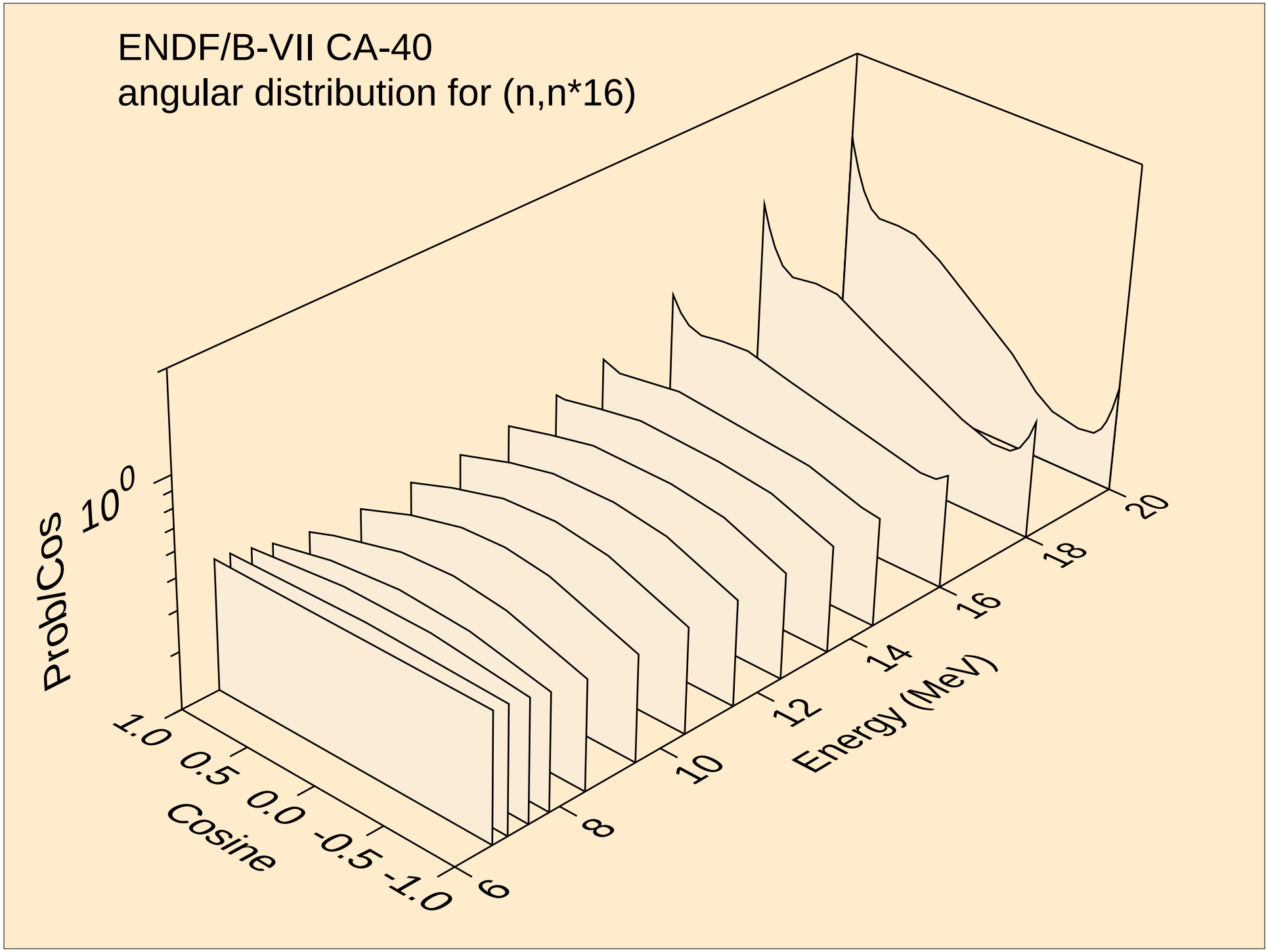

ENDF/B-VII CA-40
angular distribution for (n,n*11)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

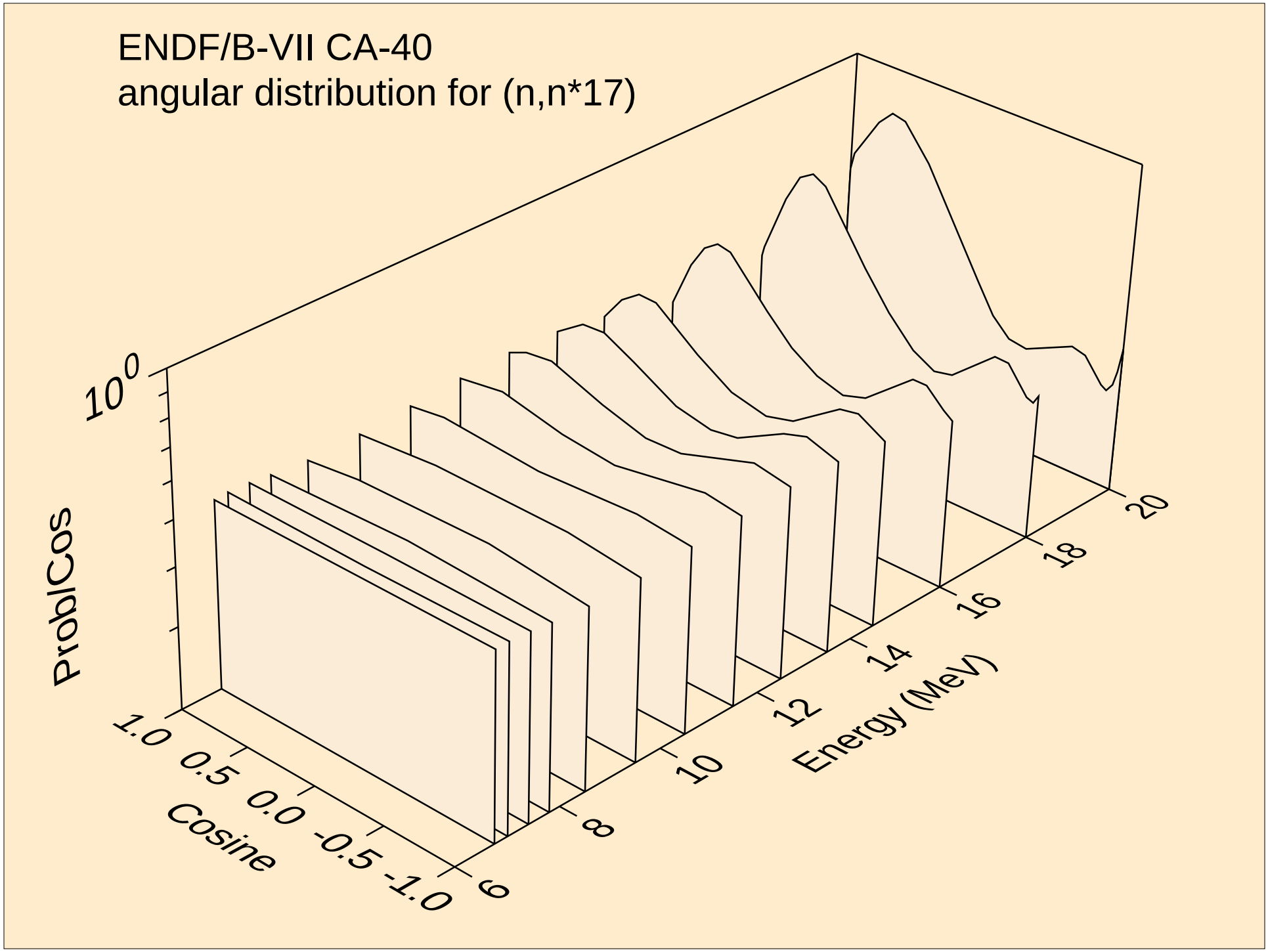

ENDF/B-VII CA-40
angular distribution for (n,n*12)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

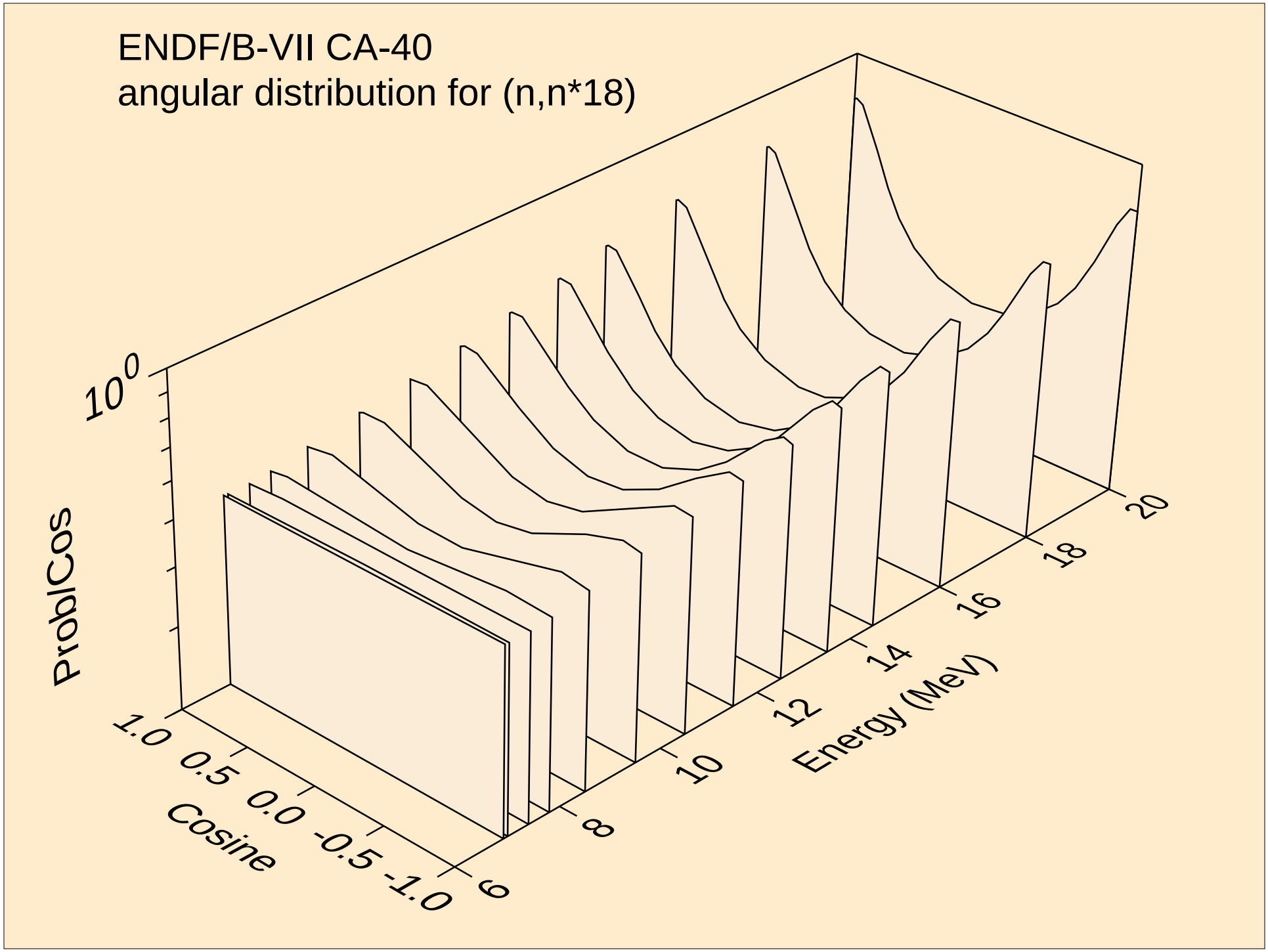

ENDF/B-VII CA-40
angular distribution for (n,n*13)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

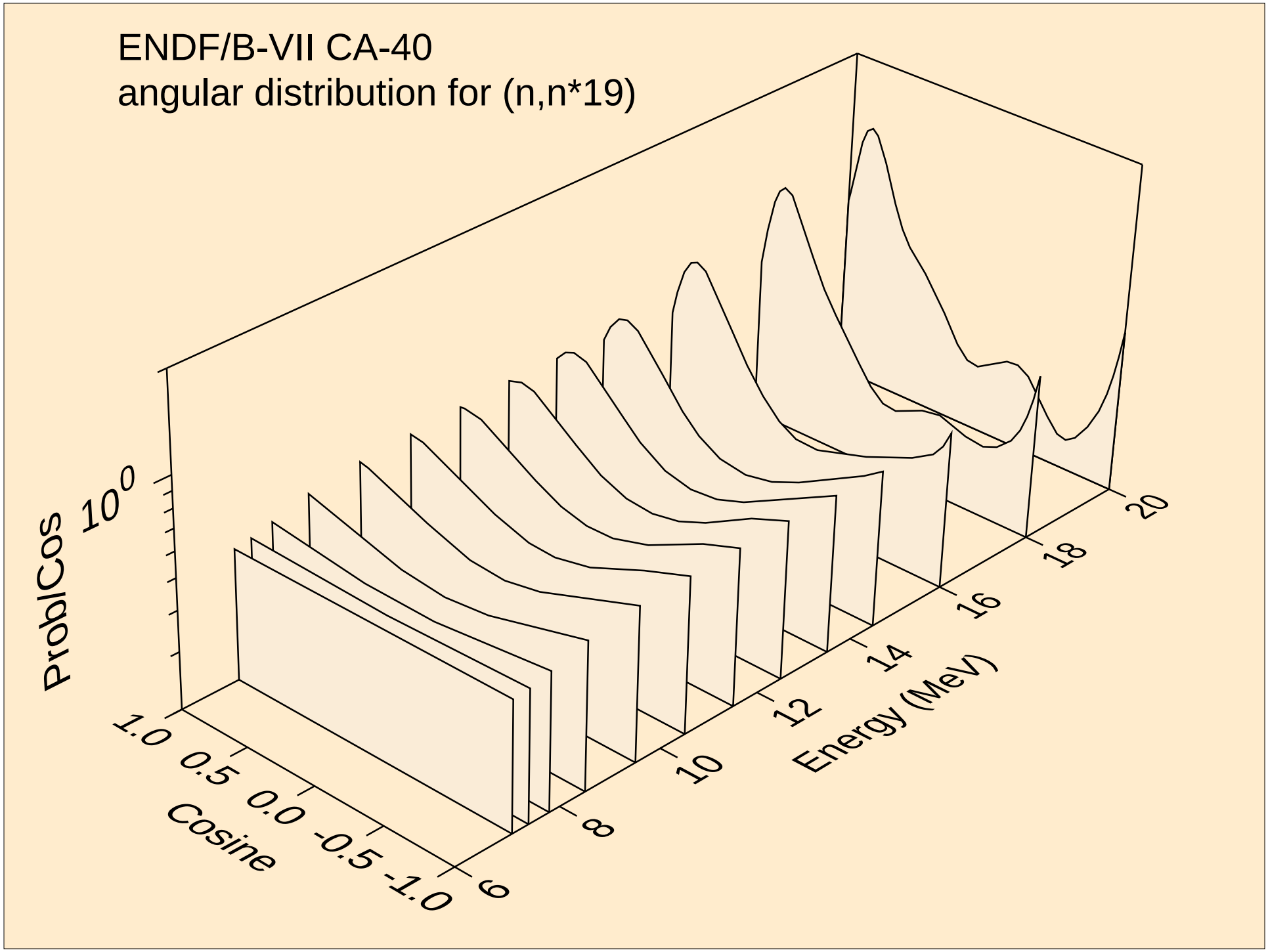

ENDF/B-VII CA-40
angular distribution for (n,n*14)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

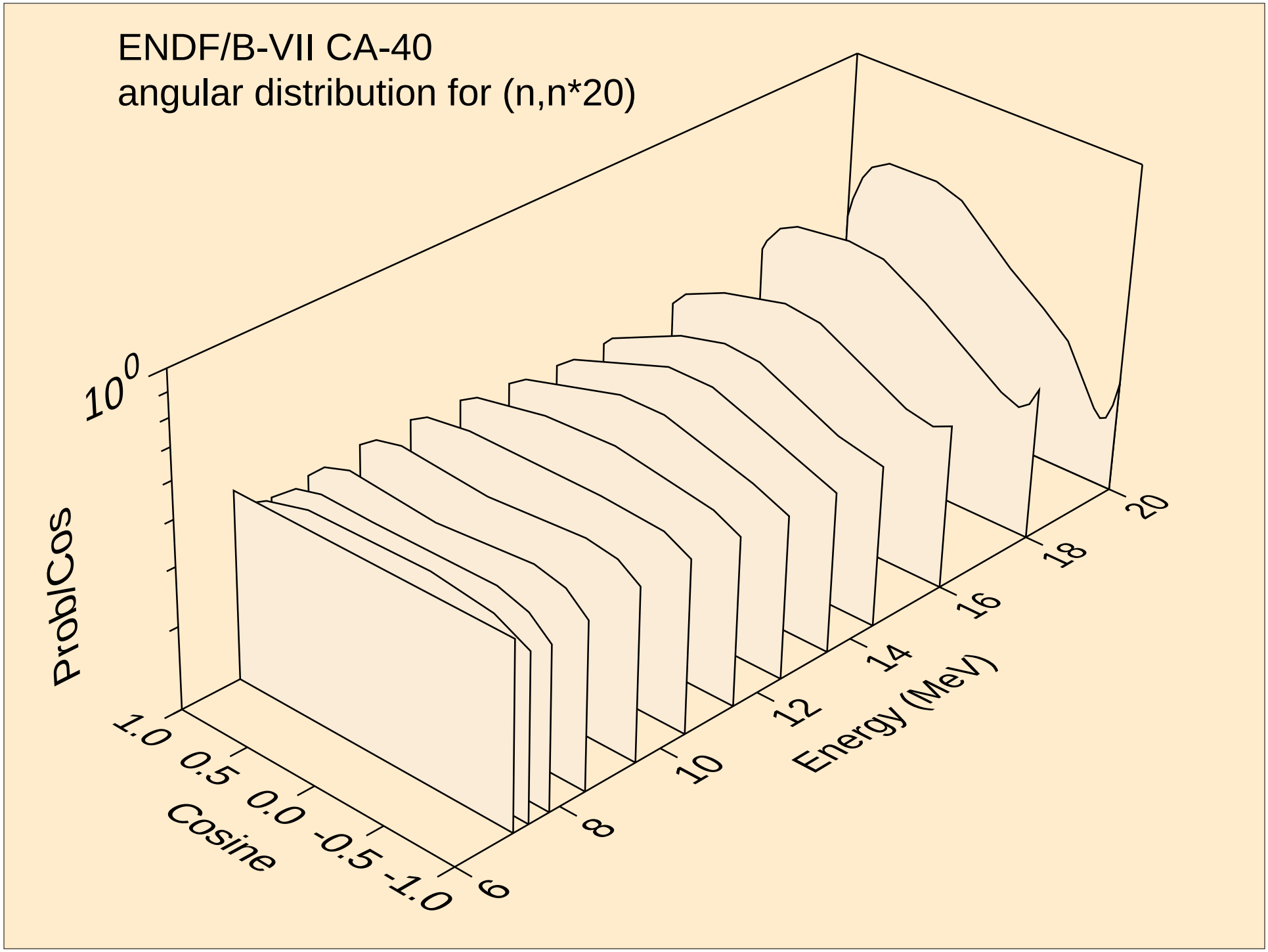

ENDF/B-VII CA-40
angular distribution for (n,n*15)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

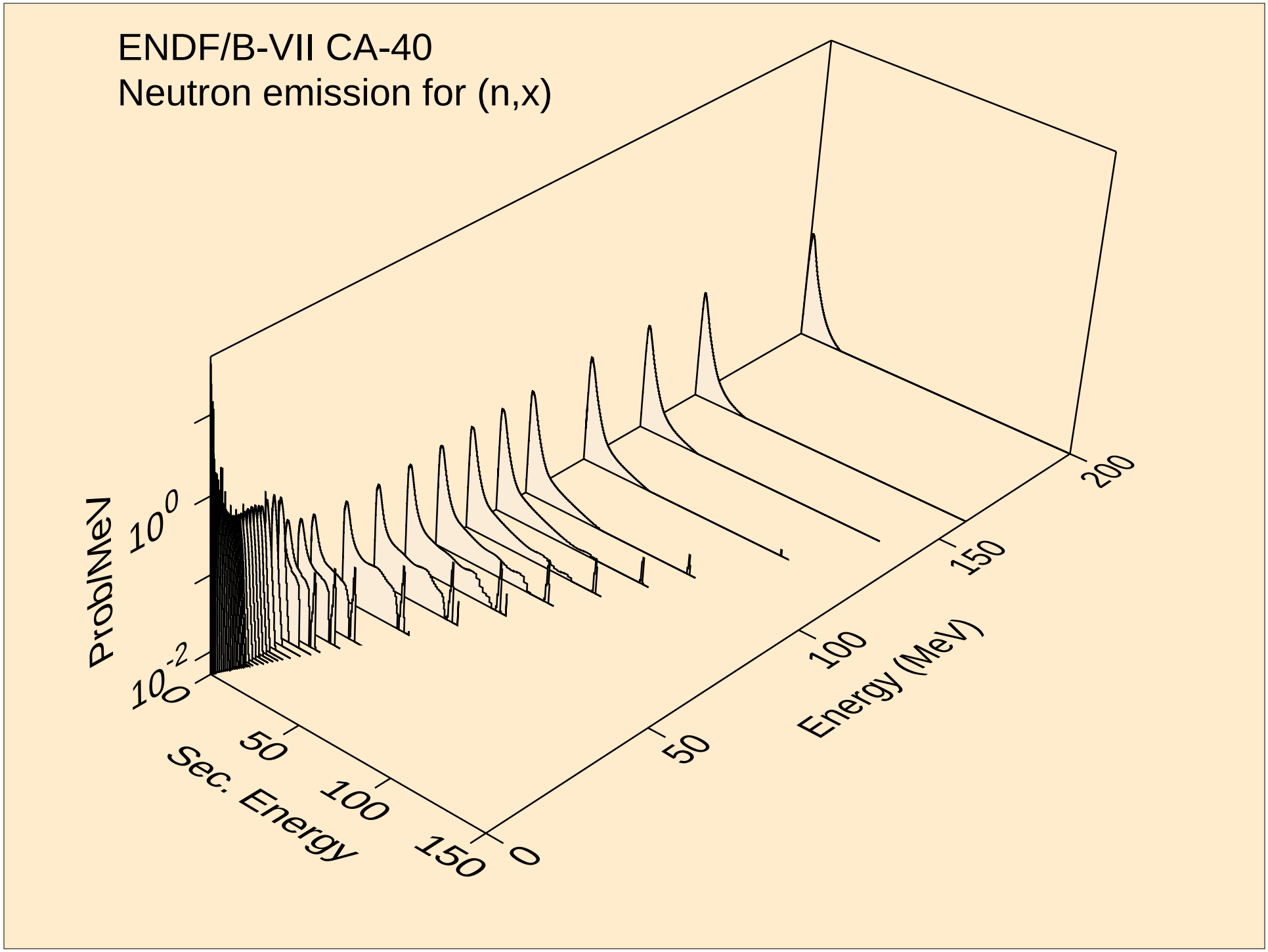

ENDF/B-VII CA-40
angular distribution for (n,n*16)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

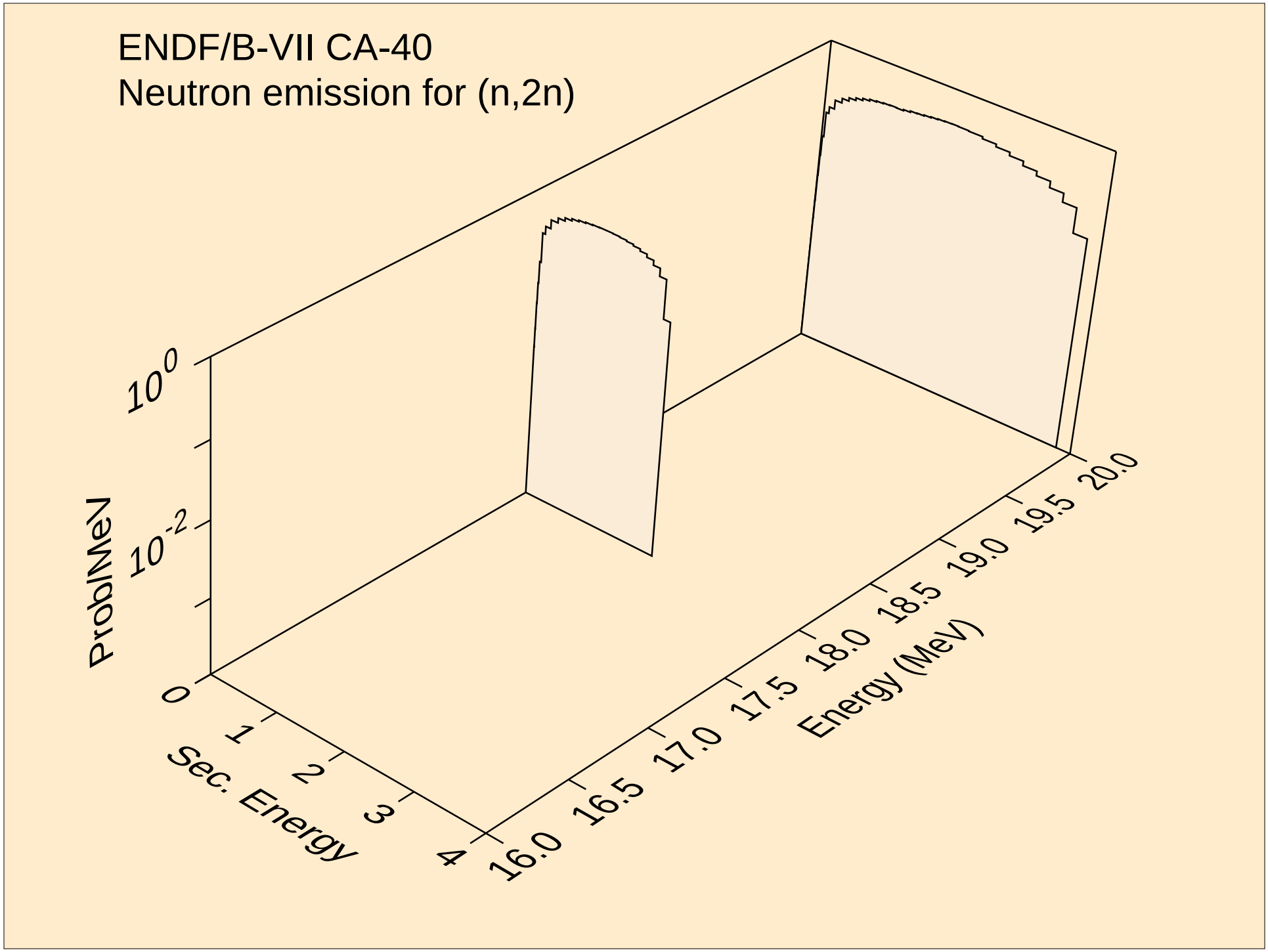

ENDF/B-VII CA-40
angular distribution for (n,n*17)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

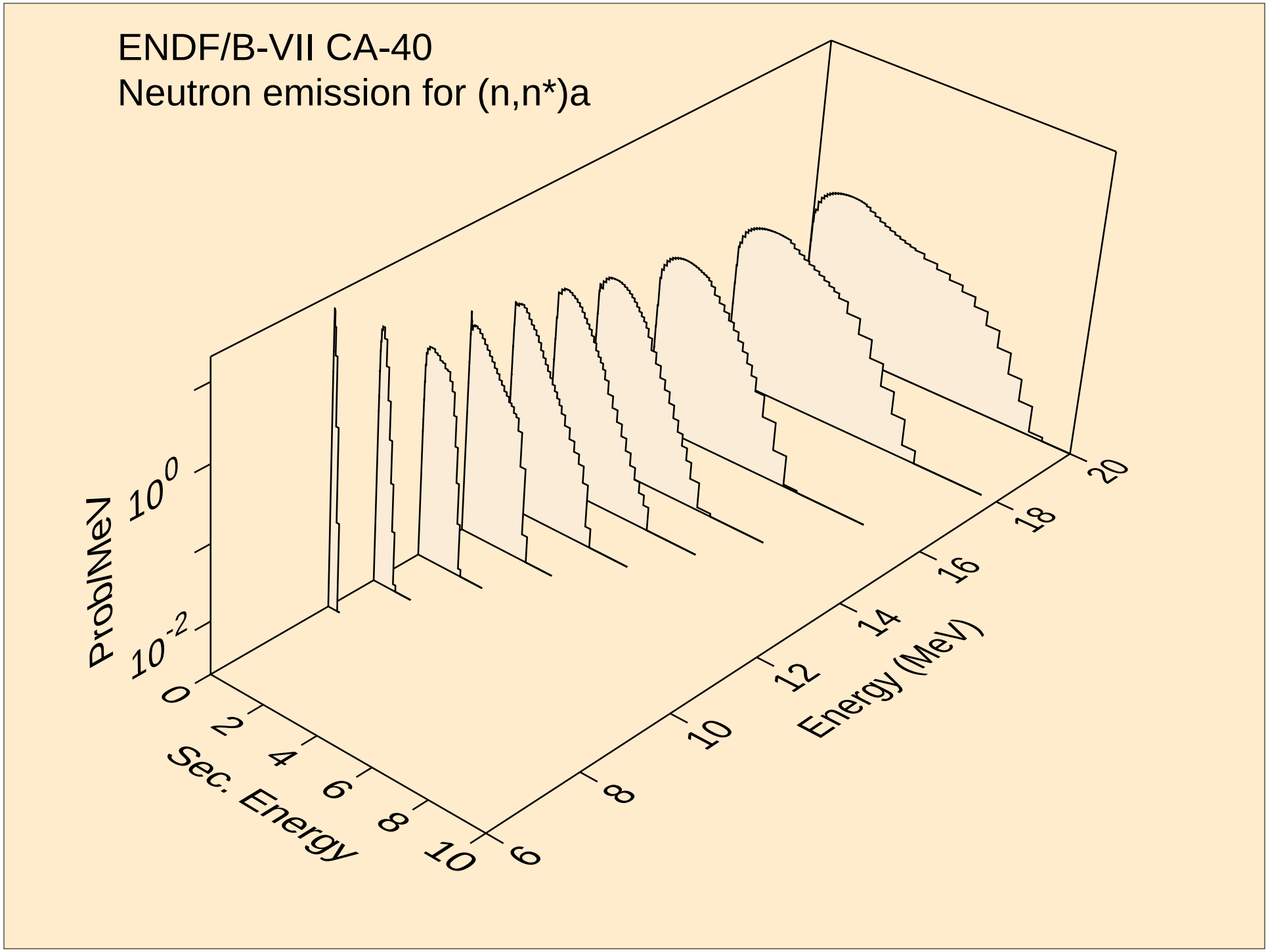

ENDF/B-VII CA-40
angular distribution for (n,n*18)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

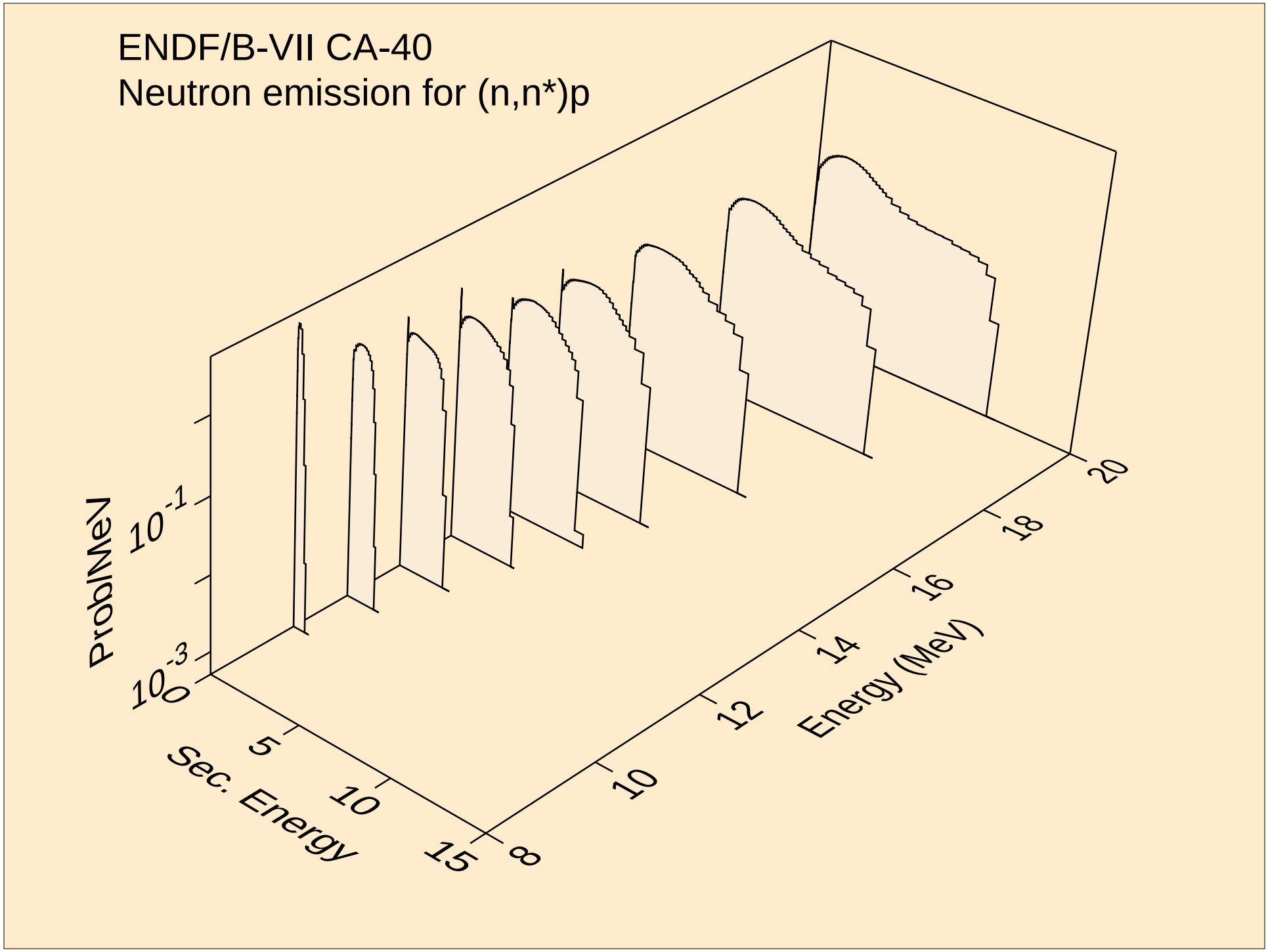

ENDF/B-VII CA-40
angular distribution for (n,n*19)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

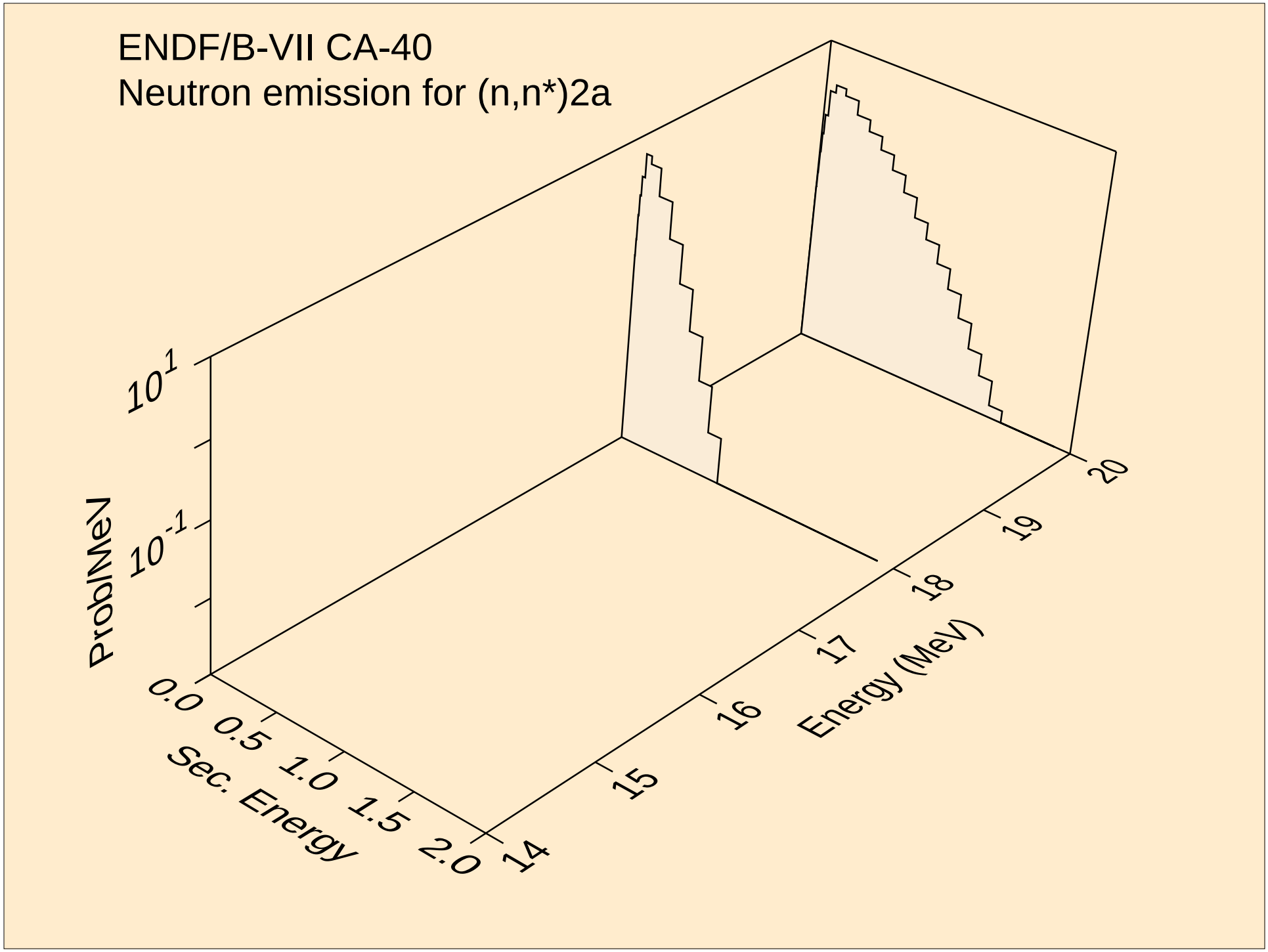

ENDF/B-VII CA-40
angular distribution for (n,n*20)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

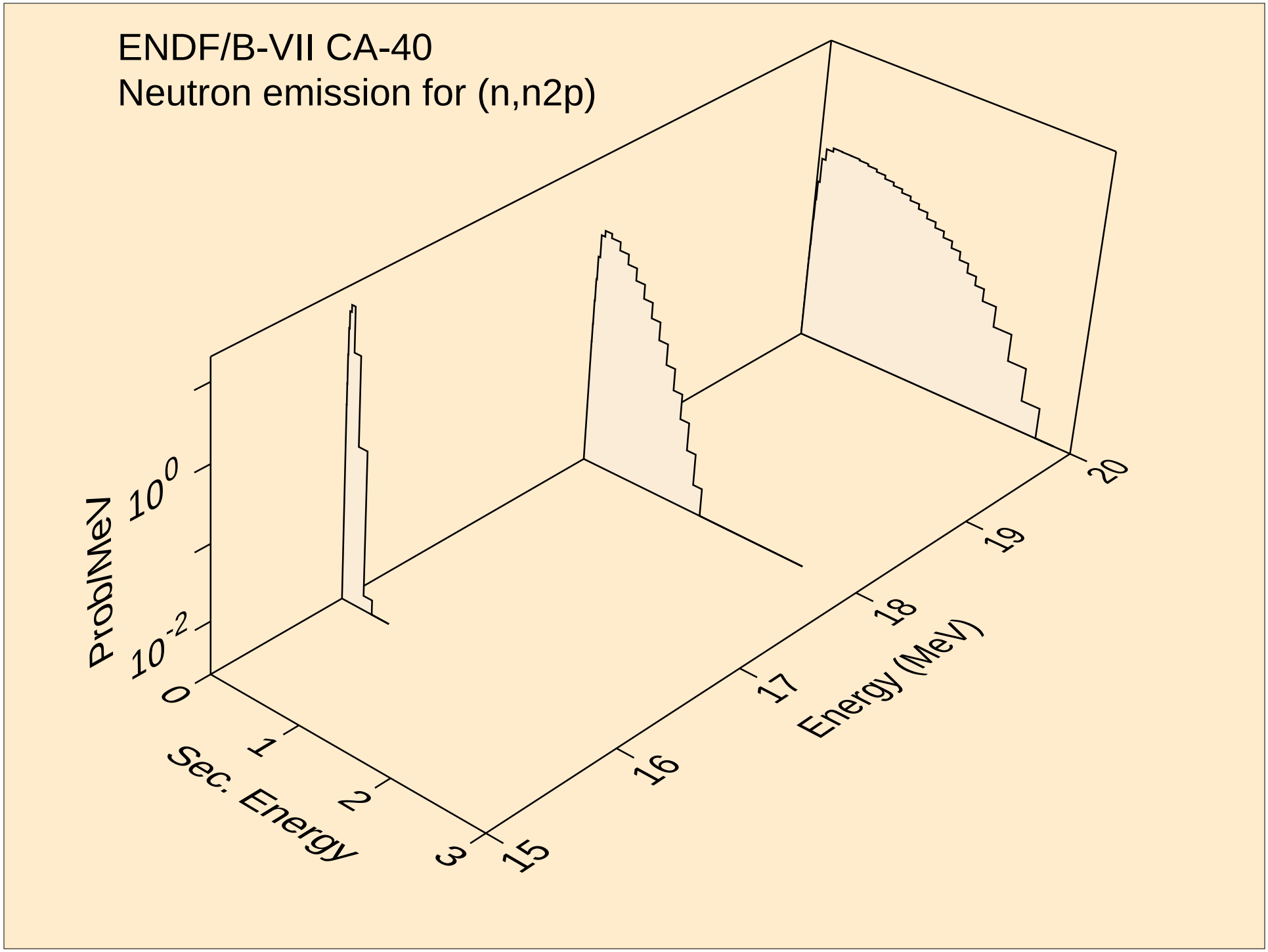

ENDF/B-VII CA-40
Neutron emission for (n,x)
Prob/MeV
10^0
10^{-2}
0
50
100
150
Sec. Energy
0
50
100
150
200
Energy (MeV)

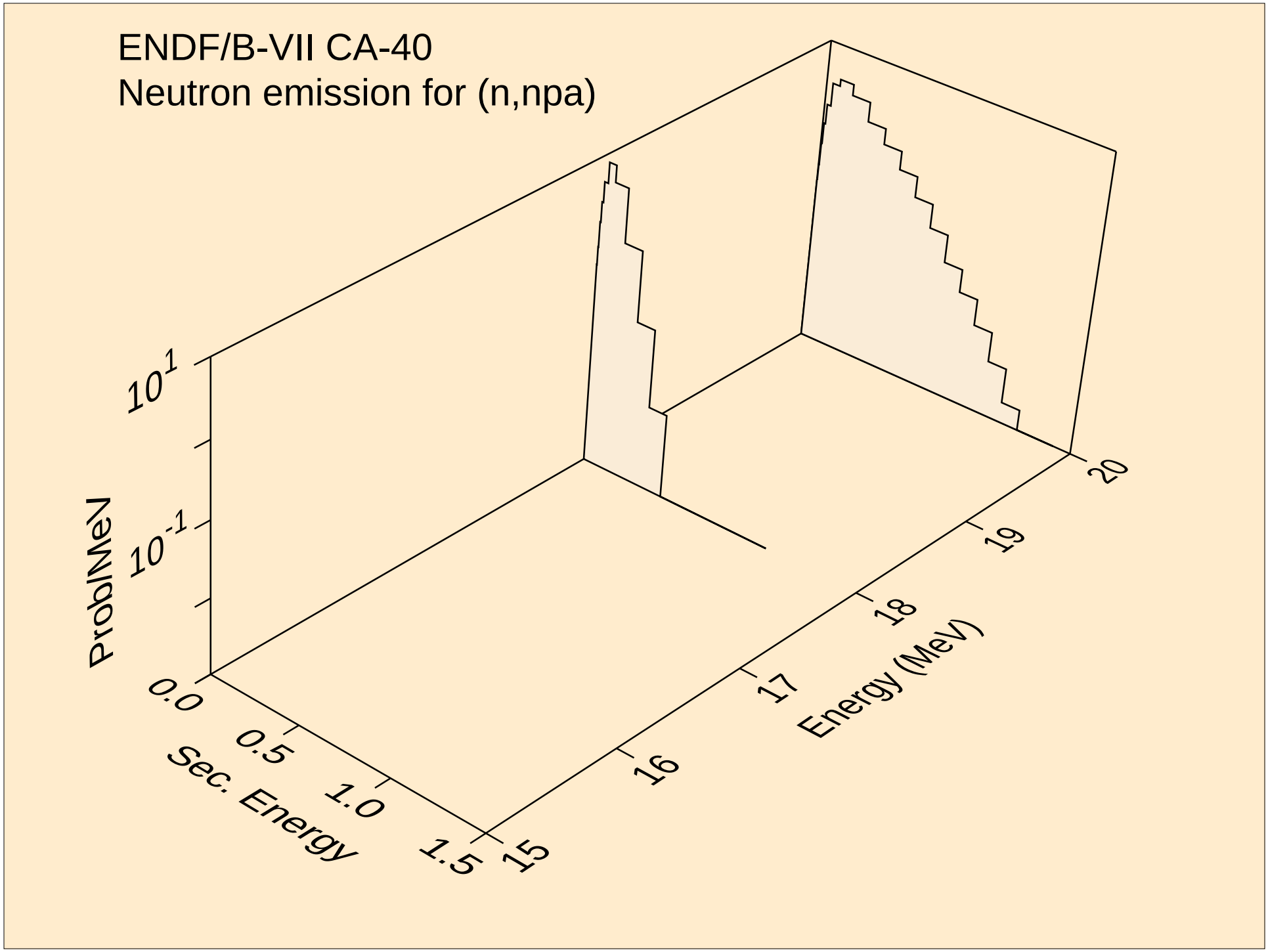

ENDF/B-VII CA-40
Neutron emission for (n,2n)
Prob/MeV
10^0
10^{-2}
0
1
2
3
4
Sec. Energy
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)

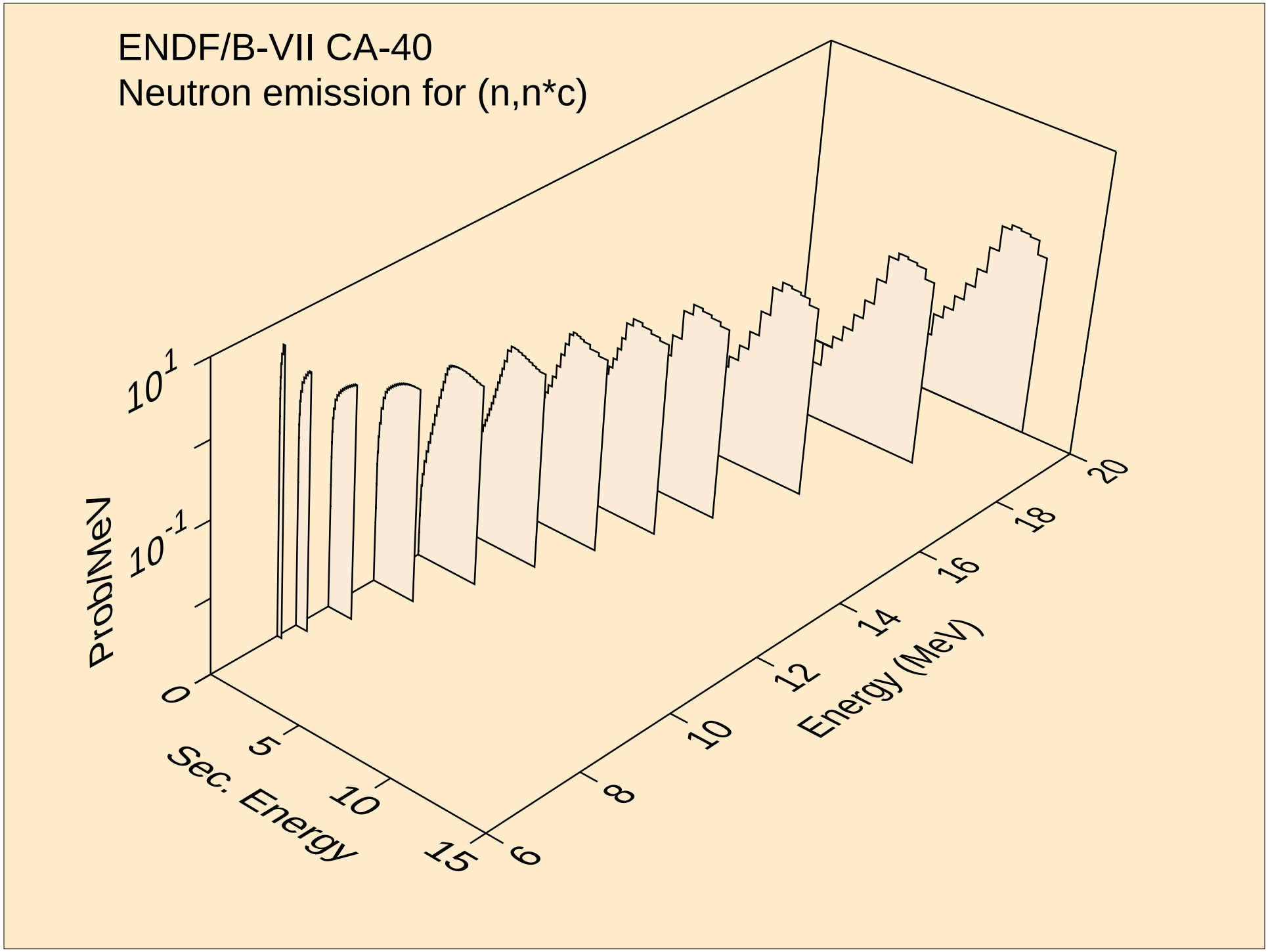

ENDF/B-VII CA-40
Neutron emission for (n,n*)a
Prob/MeV
10^0
10^{-2}
0
2
4
6
8
10
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
Neutron emission for (n,n*)p
Prob/MeV
10^-1
10^-3
0
5
10
15
Sec. Energy
8
10
12
14
16
18
20
Energy (MeV)

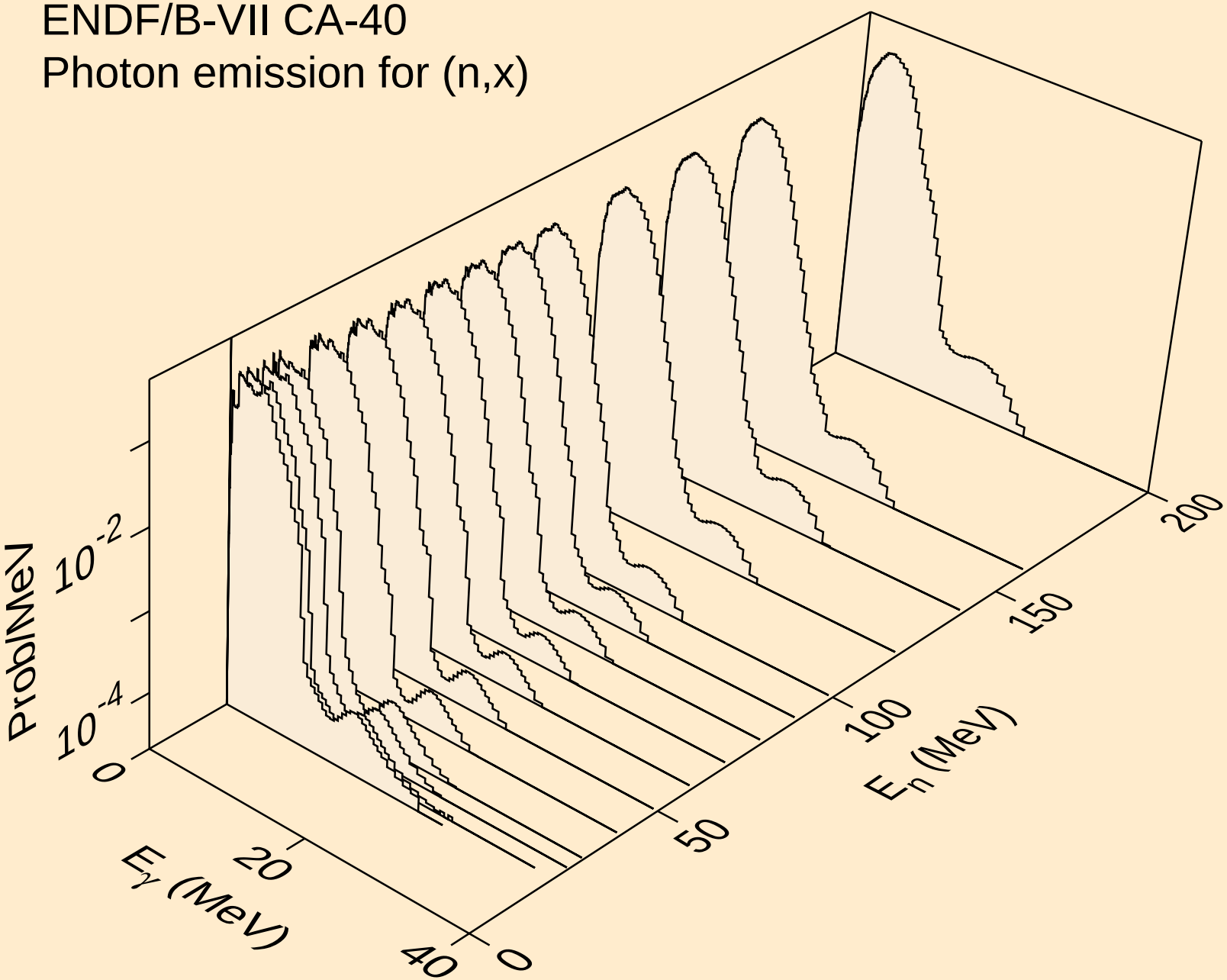

ENDF/B-VII CA-40
Neutron emission for (n,n*)2a
Prob/MeV
10^1
10^-1
0.0
0.5
1.0
1.5
2.0
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)


ENDF/B-VII CA-40
Neutron emission for (n,n2p)
Prob/MeV
10^0
10^{-2}
0
1
2
3
Sec. Energy
15
16
17
18
19
20
Energy (MeV)

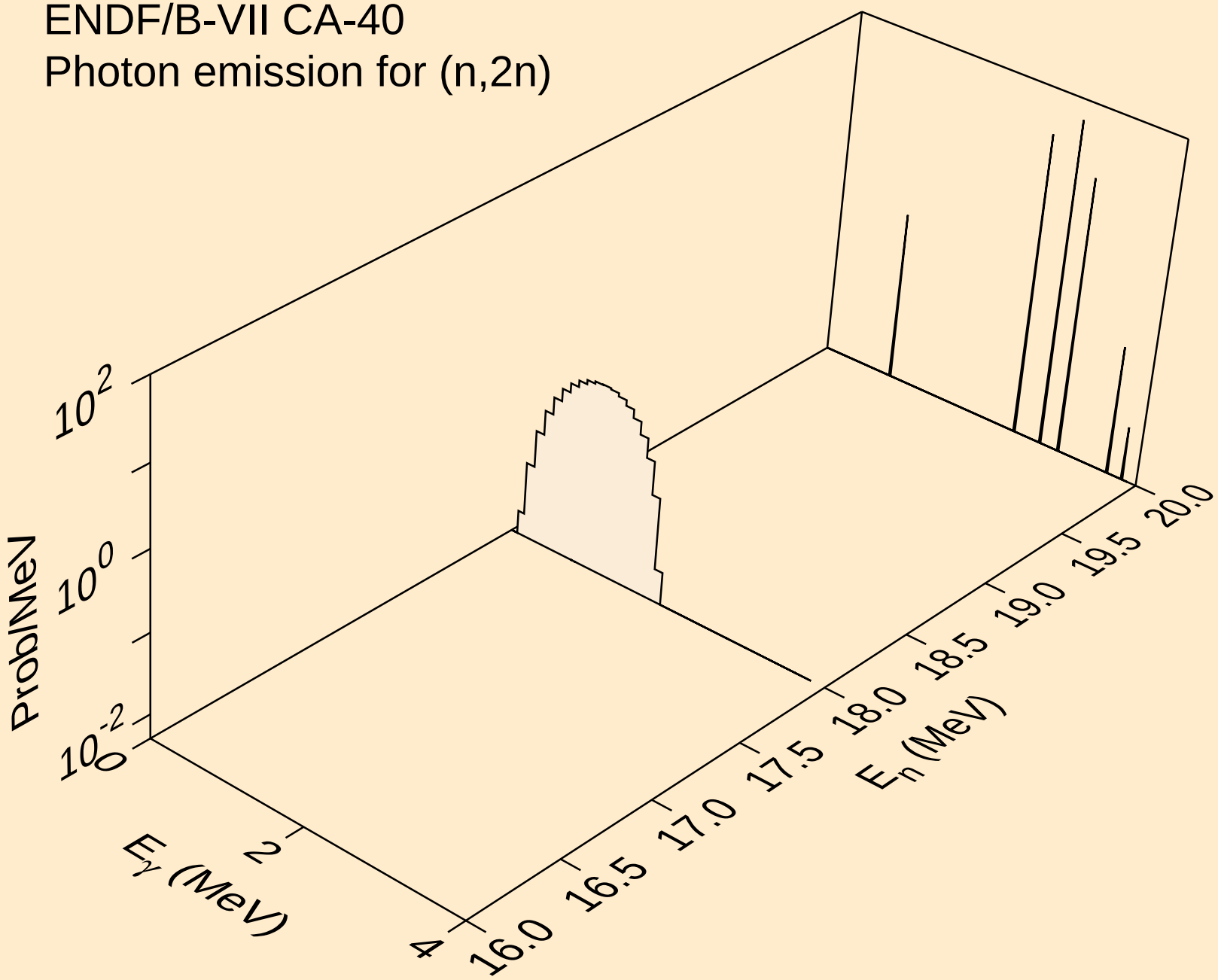

ENDF/B-VII CA-40
Neutron emission for (n,npa)
Prob/MeV
10^{1}
10^{-1}
0.0
0.5
1.0
1.5
Sec. Energy
15
16
17
18
19
20
Energy (MeV)


ENDF/B-VII CA-40
Neutron emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

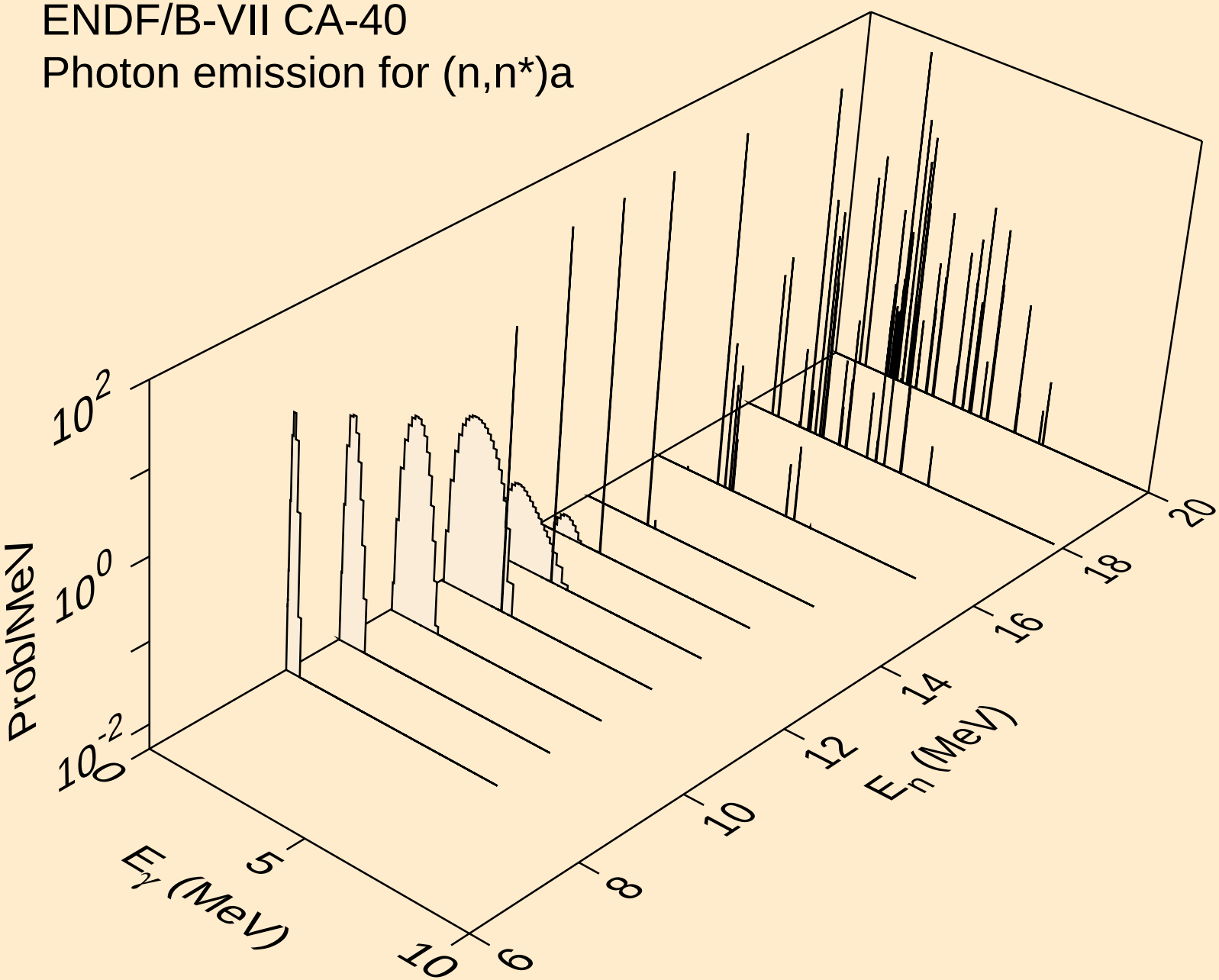
ENDF/B-VII CA-40
Photon emission for (n,x)

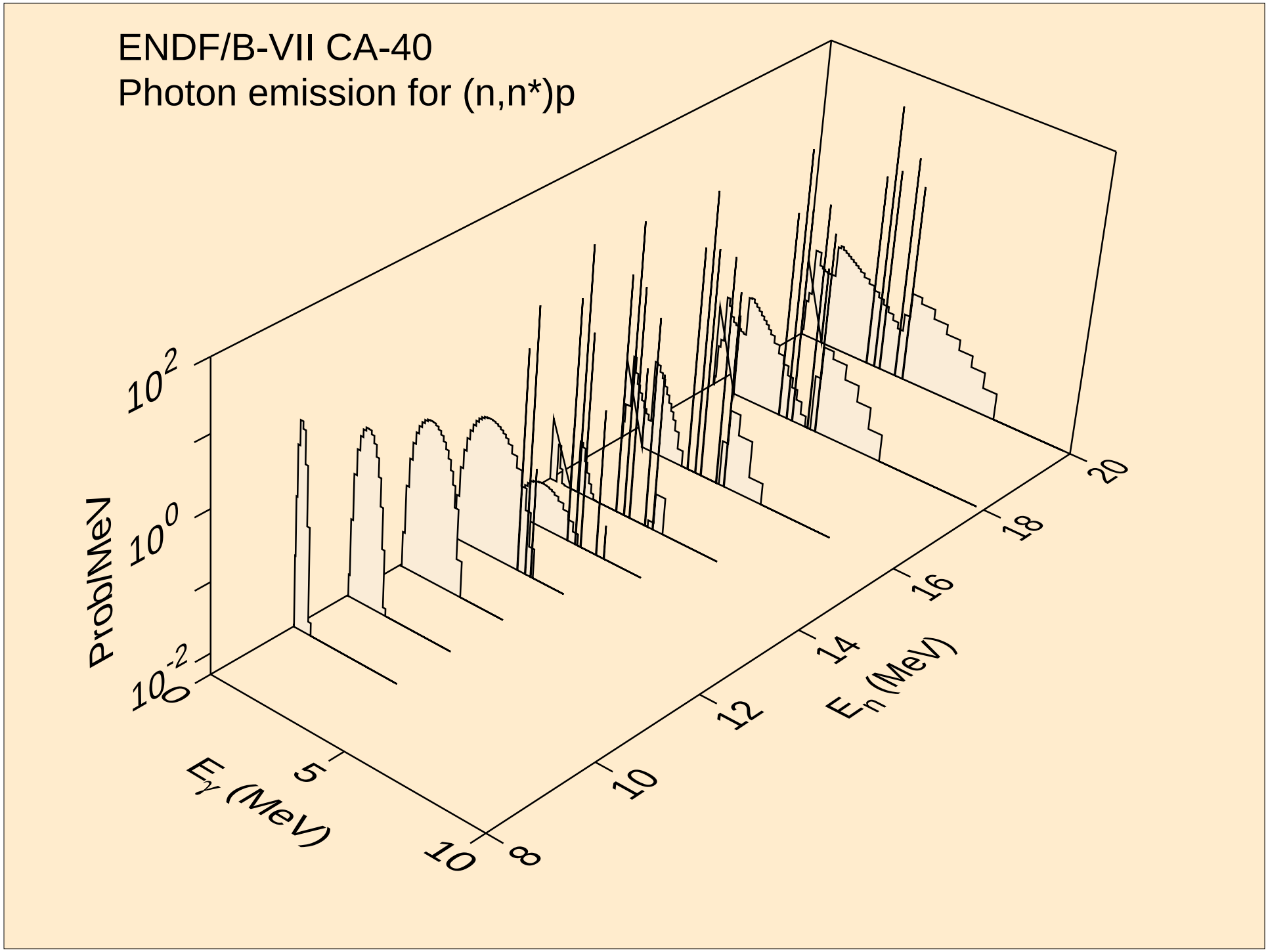


ENDF/B-VII CA-40
Photon emission for (n,2n)

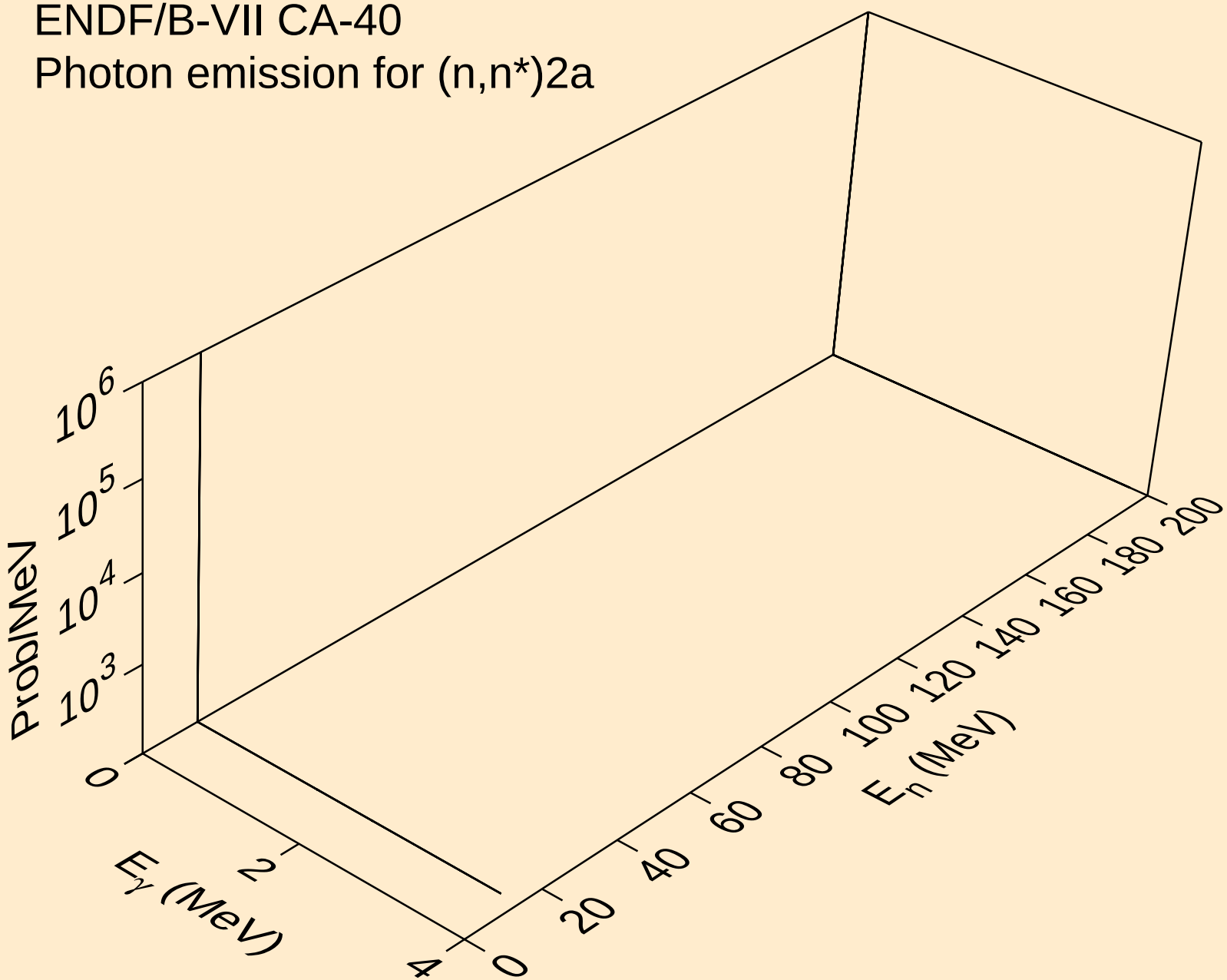


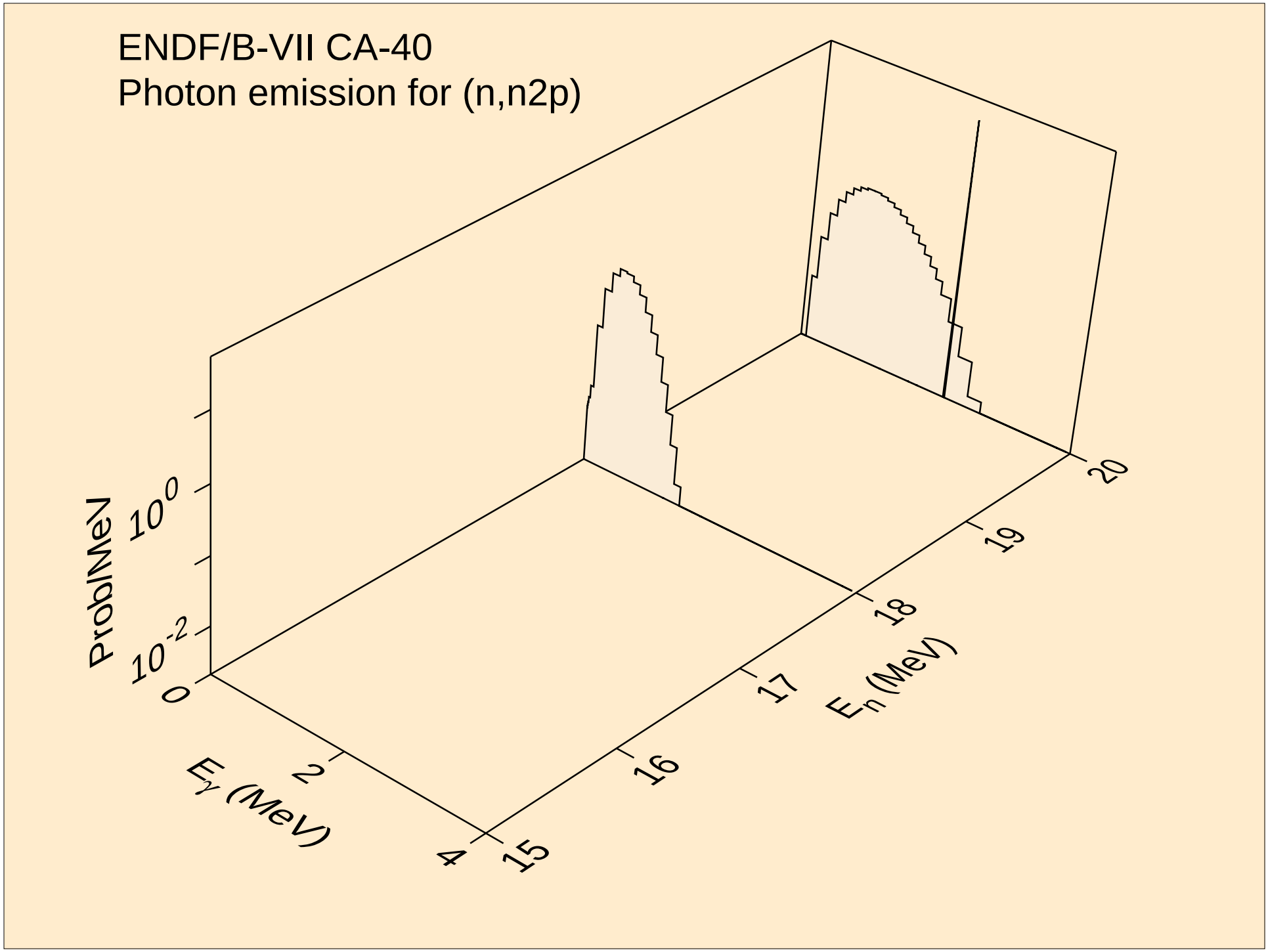
ENDF/B-VII CA-40
Photon emission for (n,n*)a



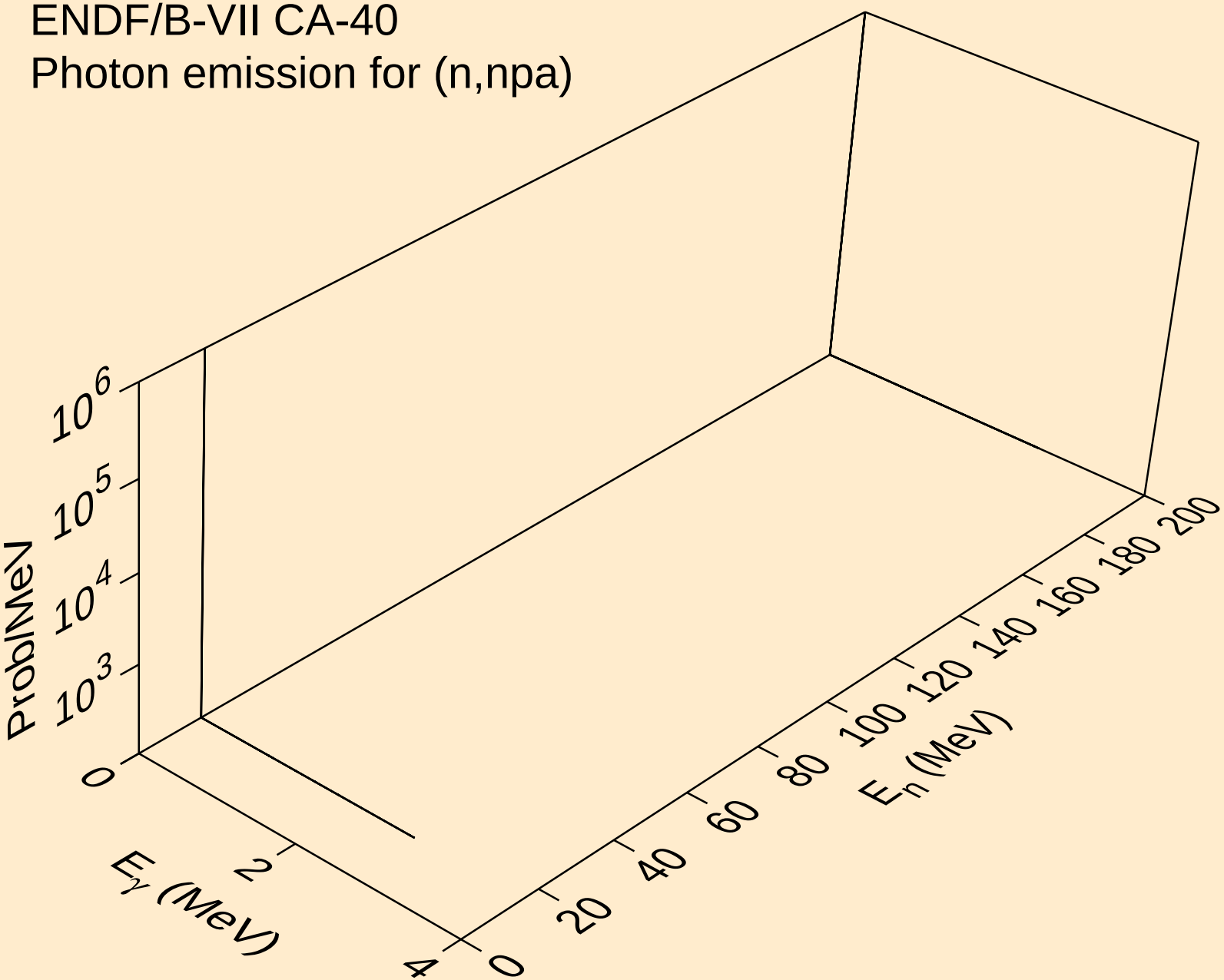

ENDF/B-VII CA-40
Photon emission for (n,n*)p
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
5
10
E_n (MeV)
8
10
12
14
16
18
20

ENDF/B-VII CA-40
Photon emission for (n,n*)2a

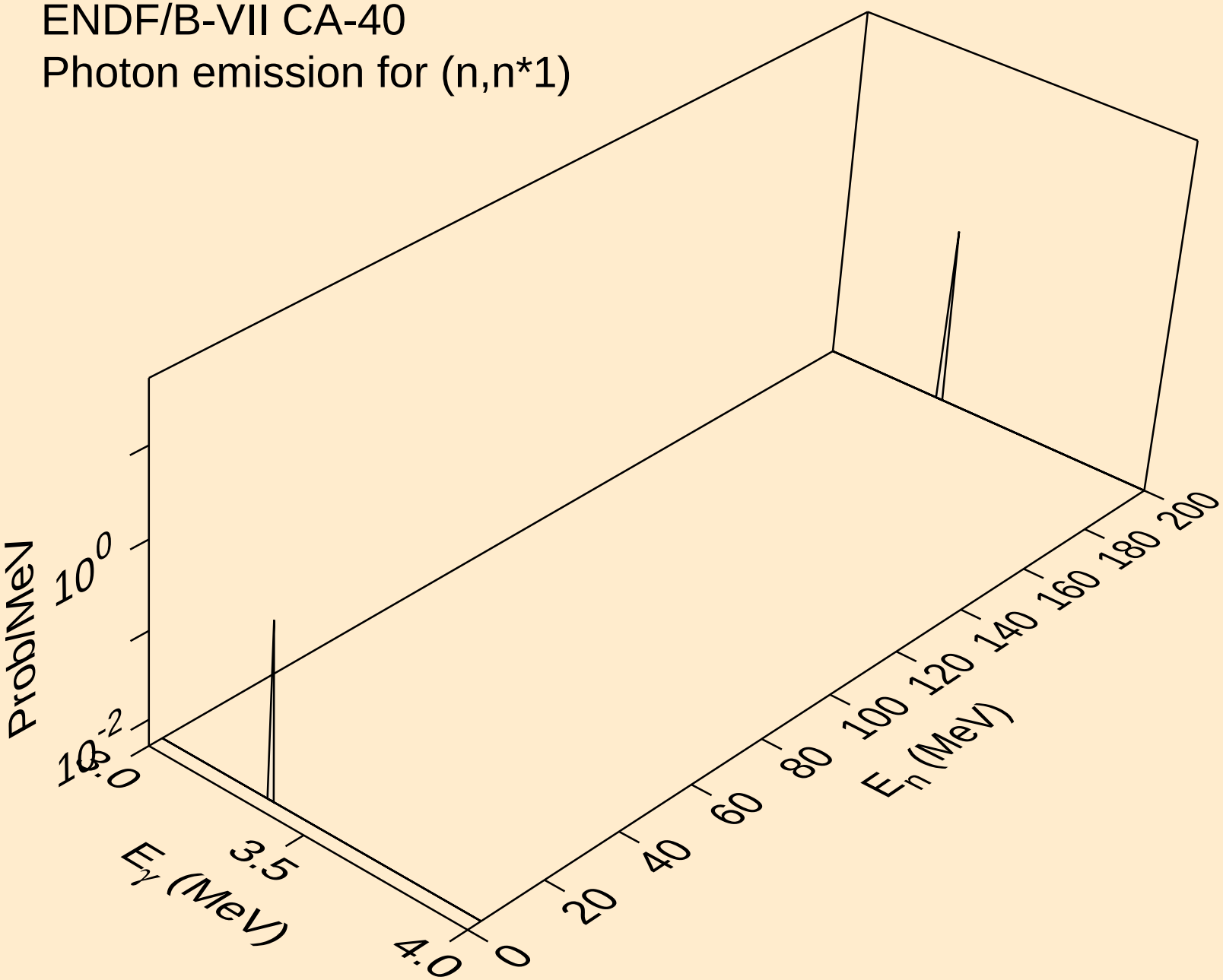



ENDF/B-VII CA-40
Photon emission for (n,n2p)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
15
16
17
18
19
20
E_n (MeV)

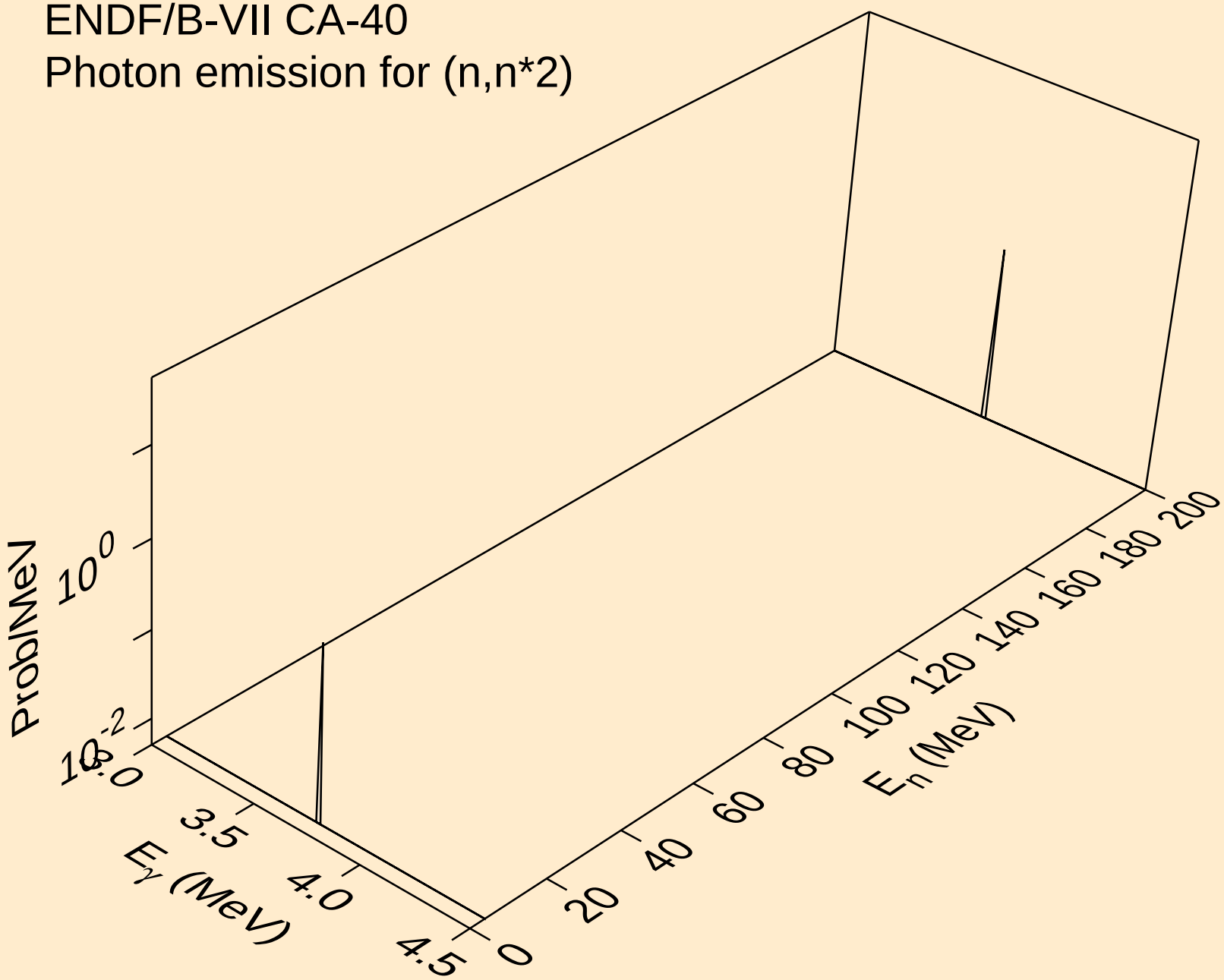
ENDF/B-VII CA-40
Photon emission for (n,npa)

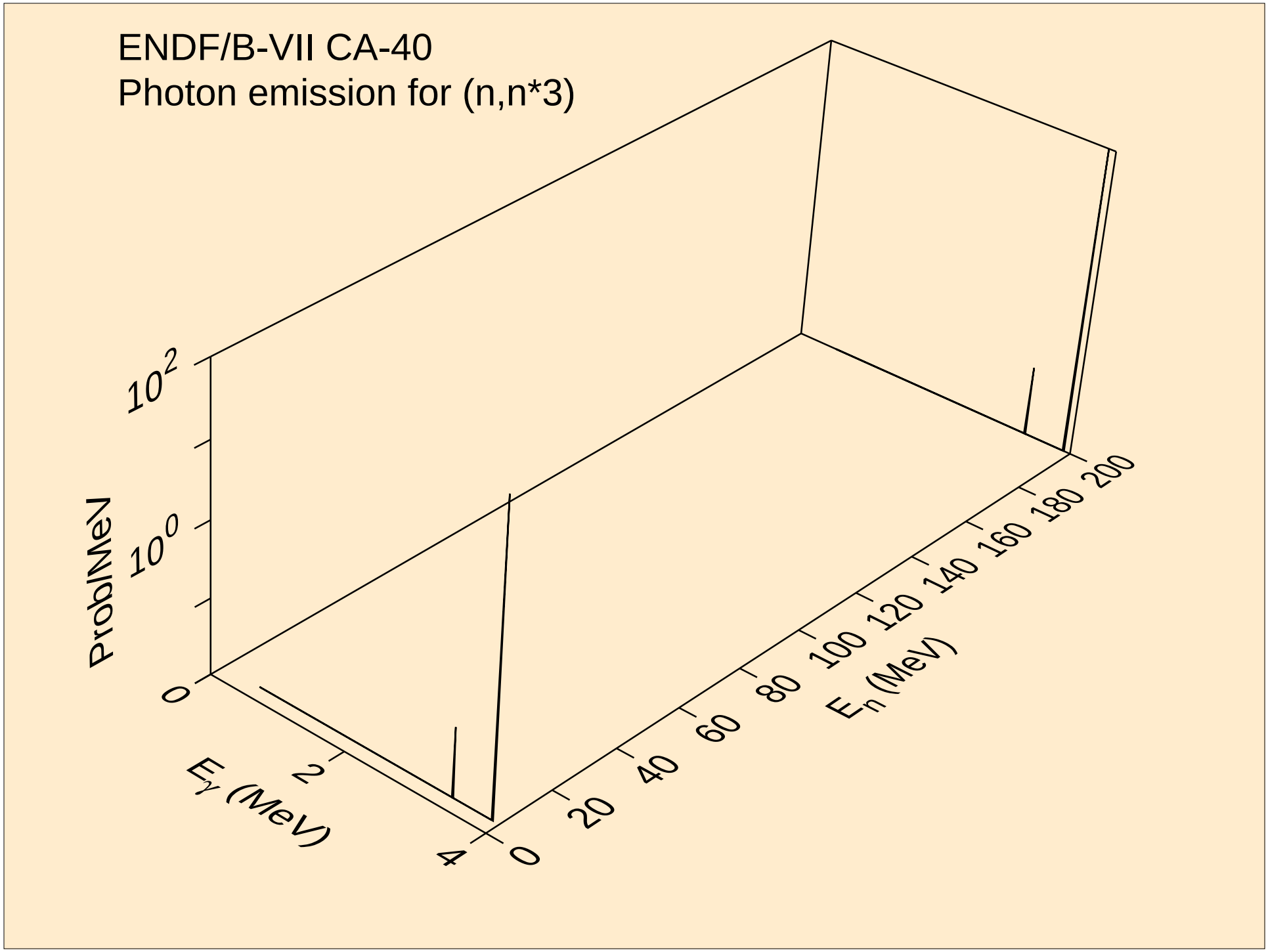


ENDF/B-VII CA-40
Photon emission for (n,n*1)

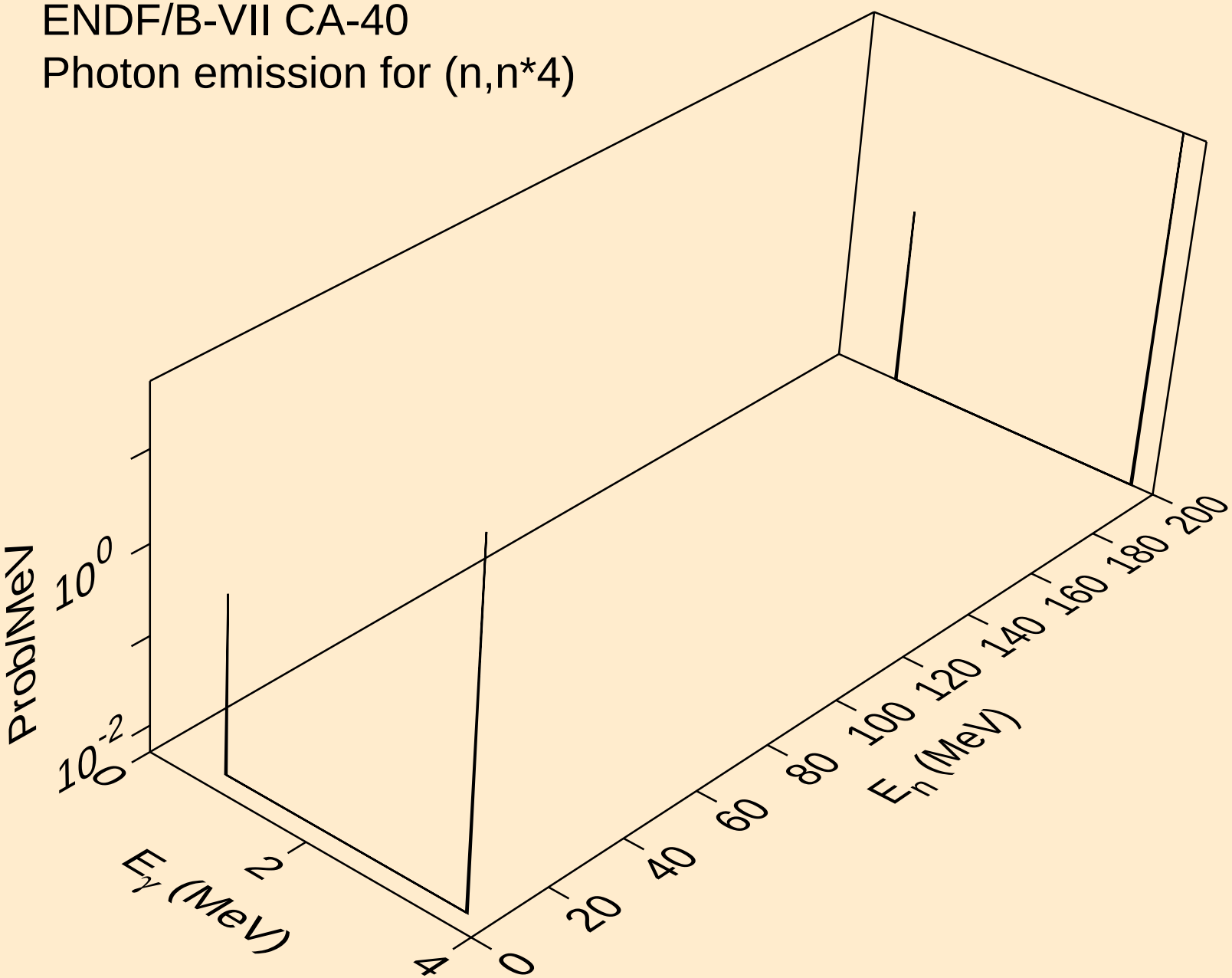


ENDF/B-VII CA-40
Photon emission for (n,n*2)

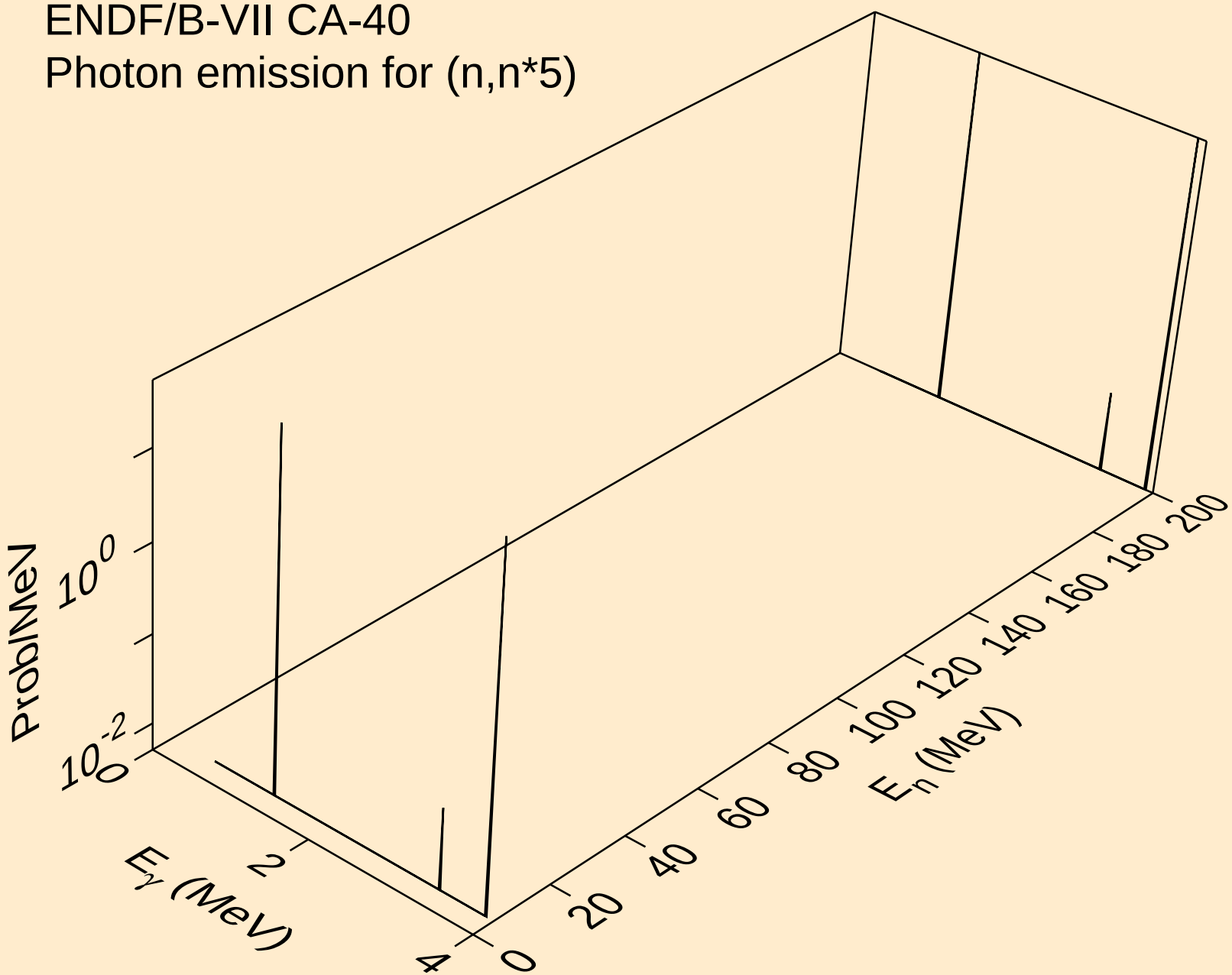



ENDF/B-VII CA-40
Photon emission for (n,n*3)
Prob/MeV
10^2
10^0
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

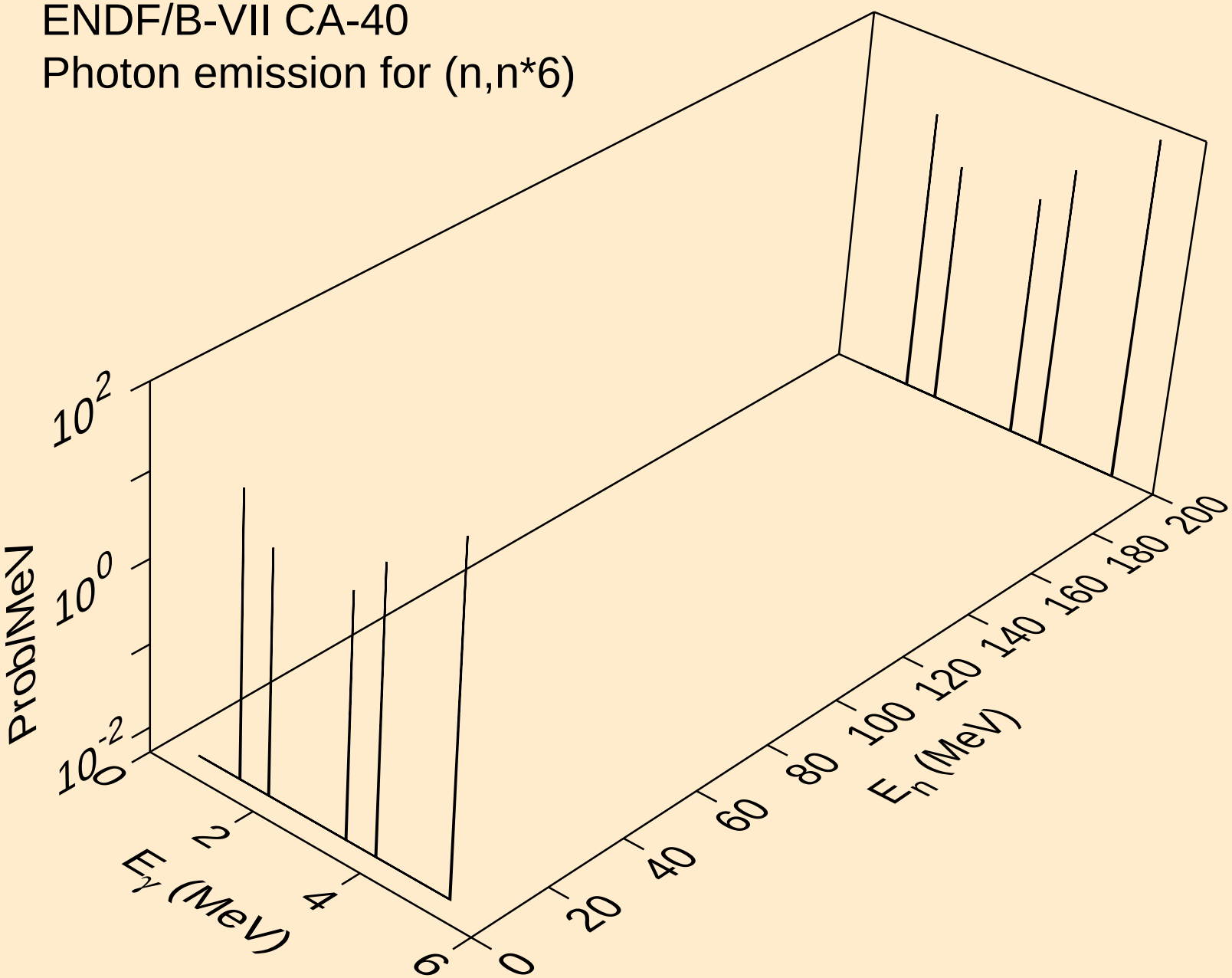
ENDF/B-VII CA-40
Photon emission for (n,n*4)



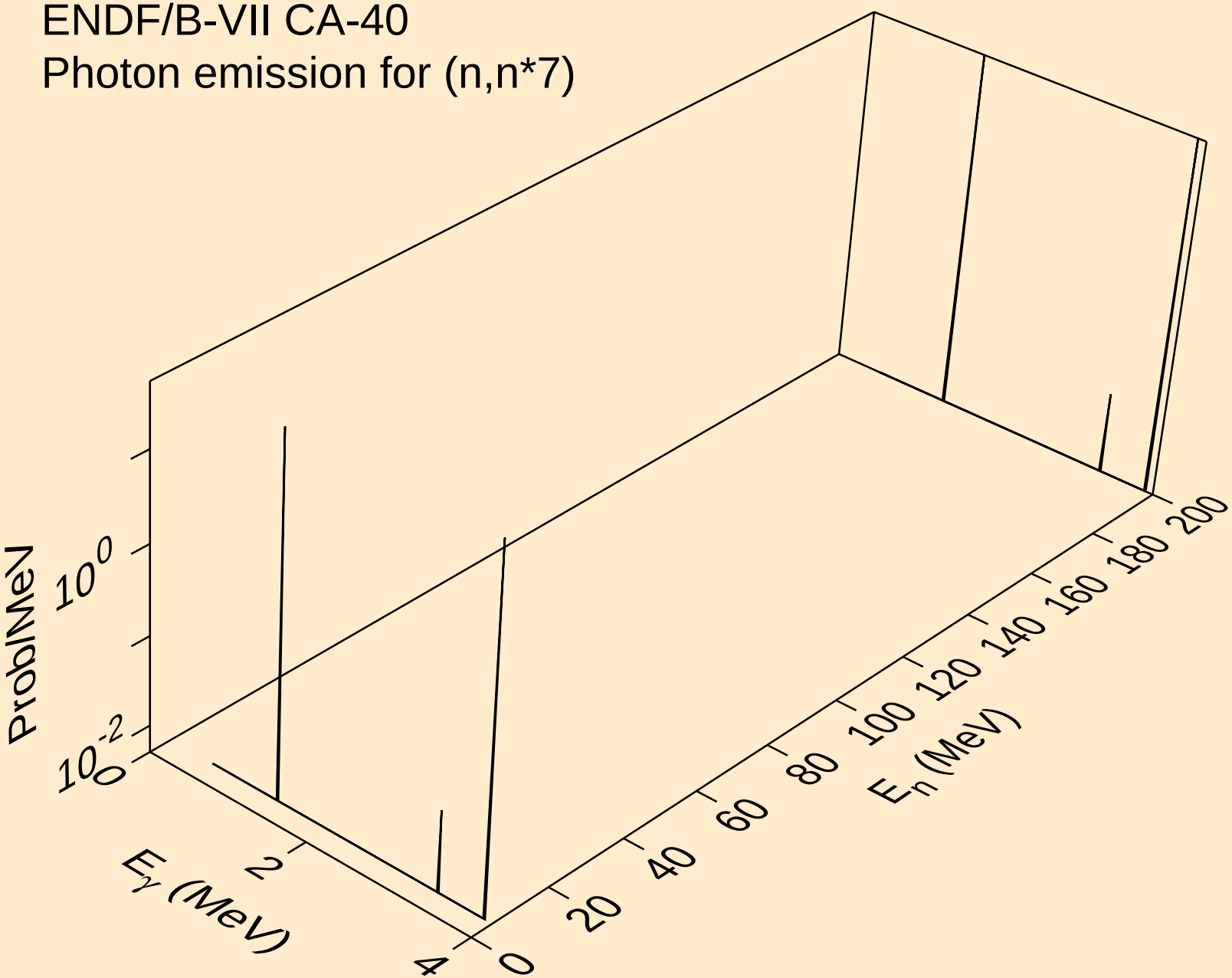
ENDF/B-VII CA-40
Photon emission for (n,n*5)

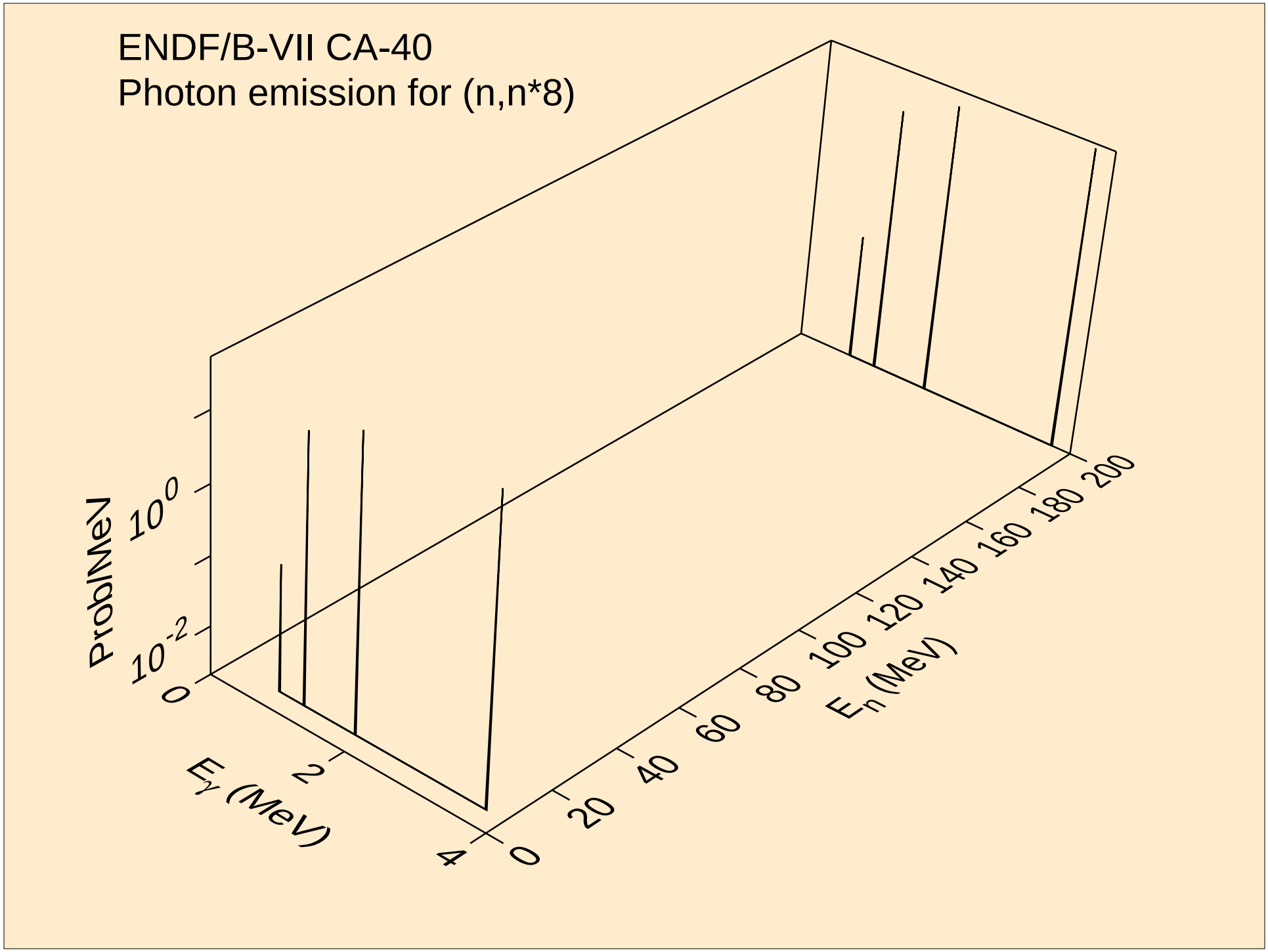


ENDF/B-VII CA-40
Photon emission for (n,n*6)

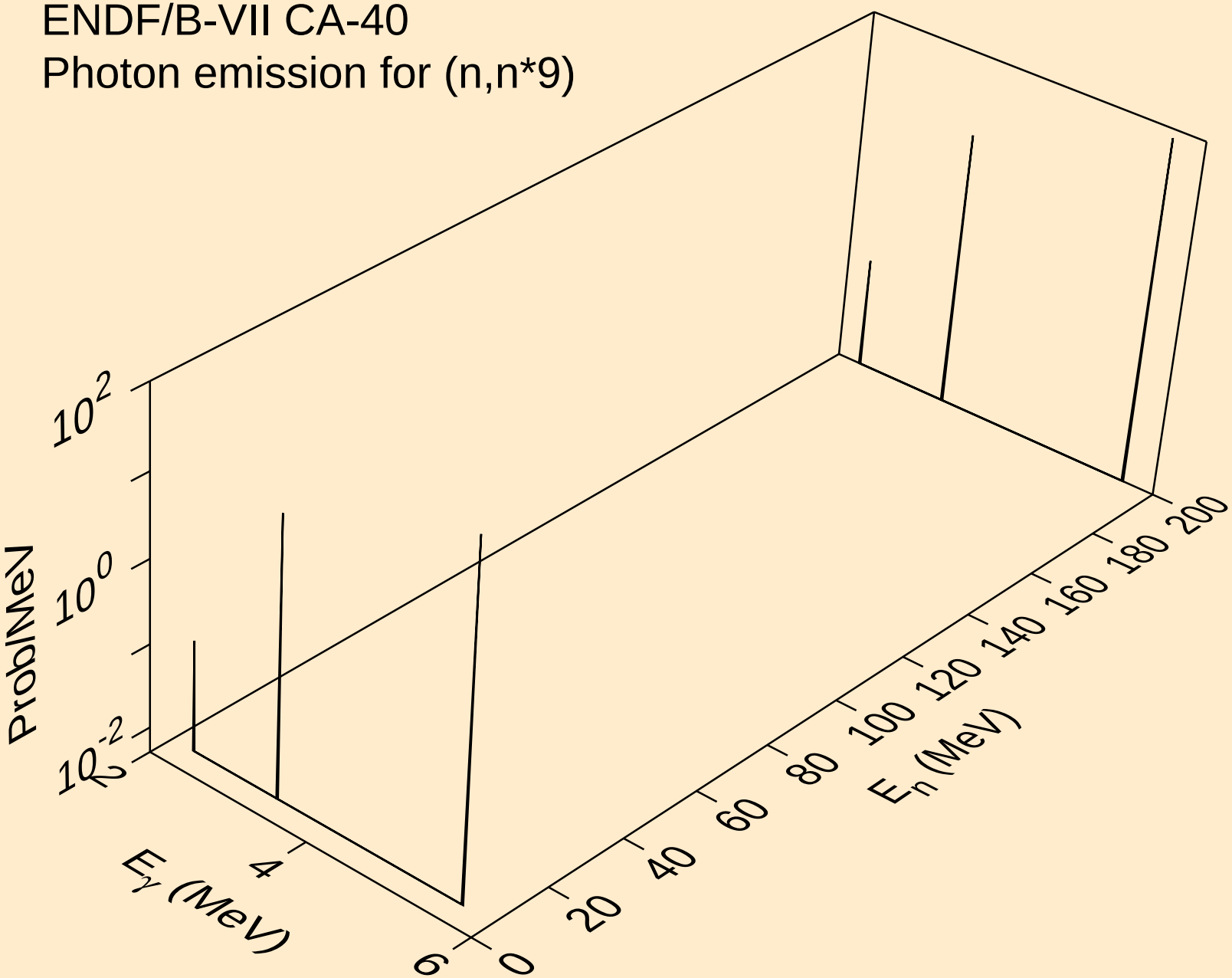


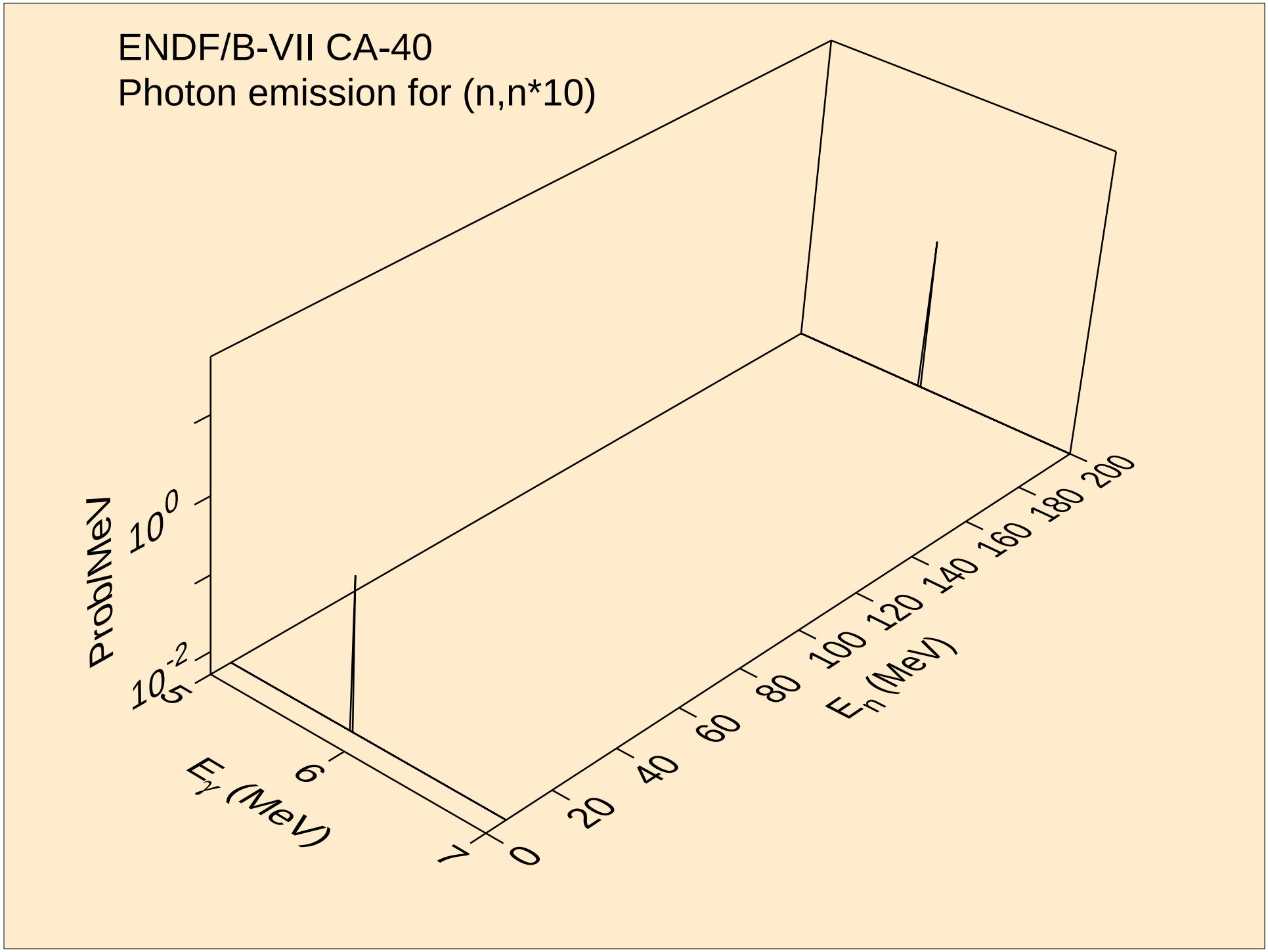
ENDF/B-VII CA-40
Photon emission for (n,n*7)



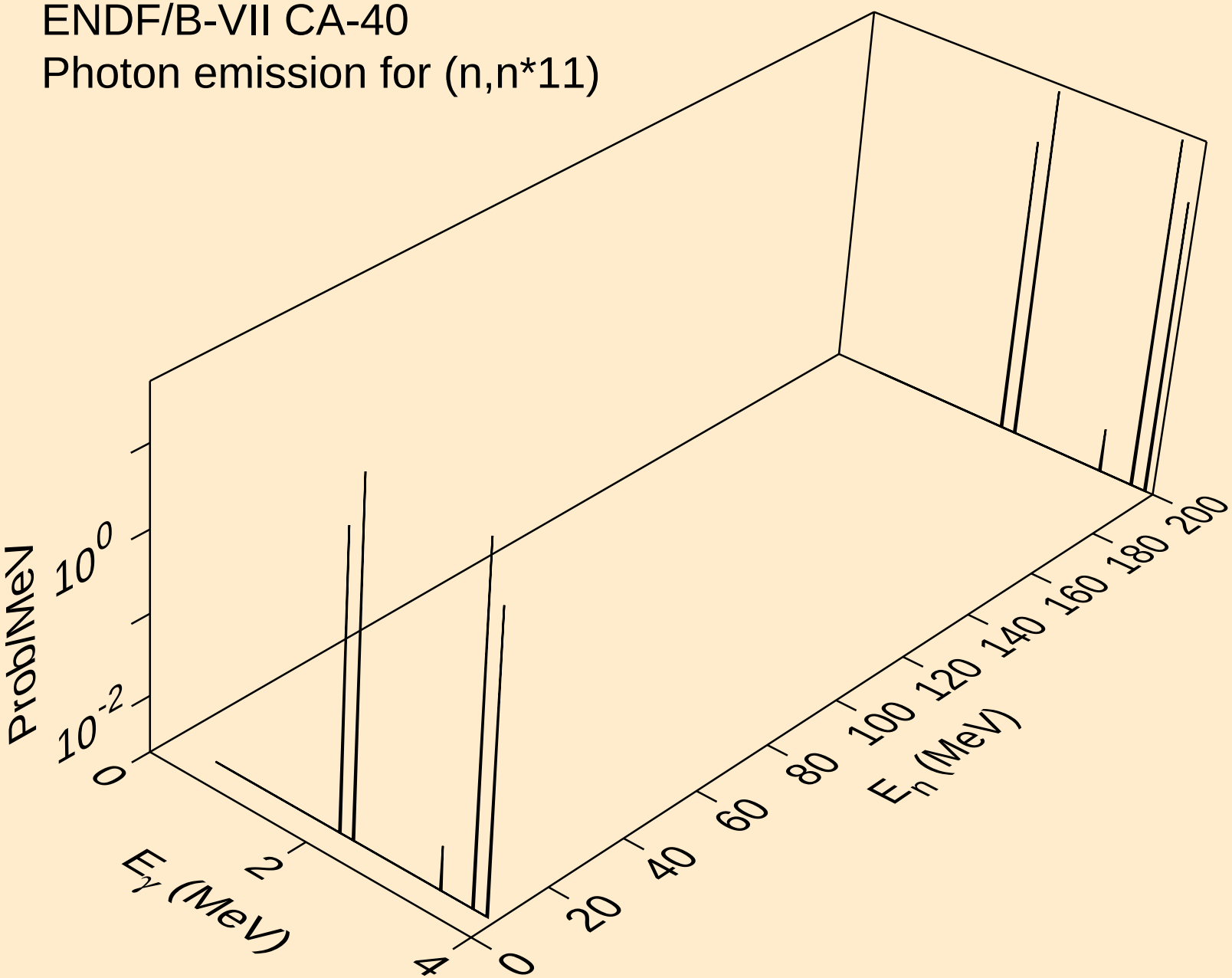

ENDF/B-VII CA-40
Photon emission for (n,n*8)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

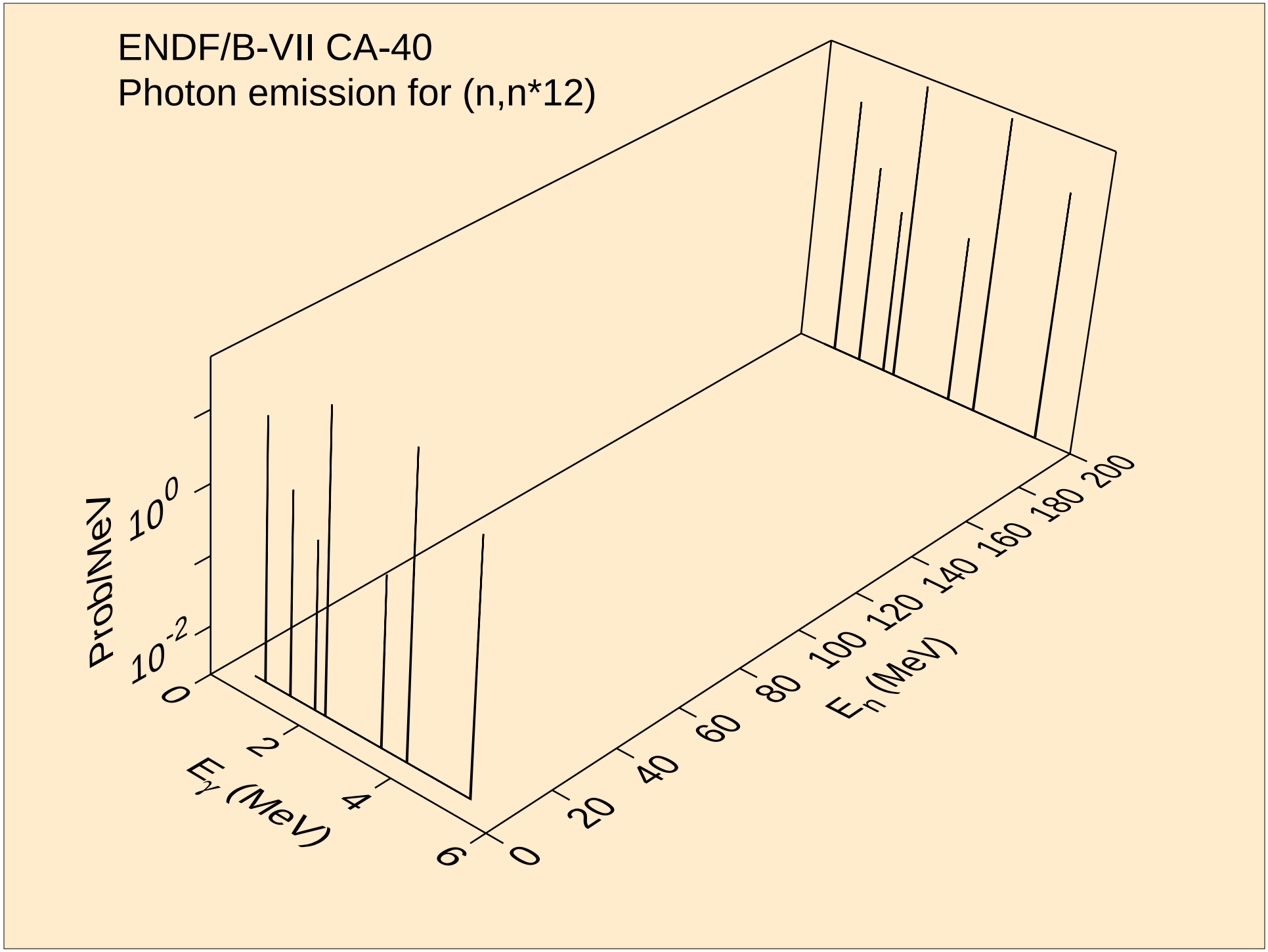
ENDF/B-VII CA-40
Photon emission for (n,n*9)

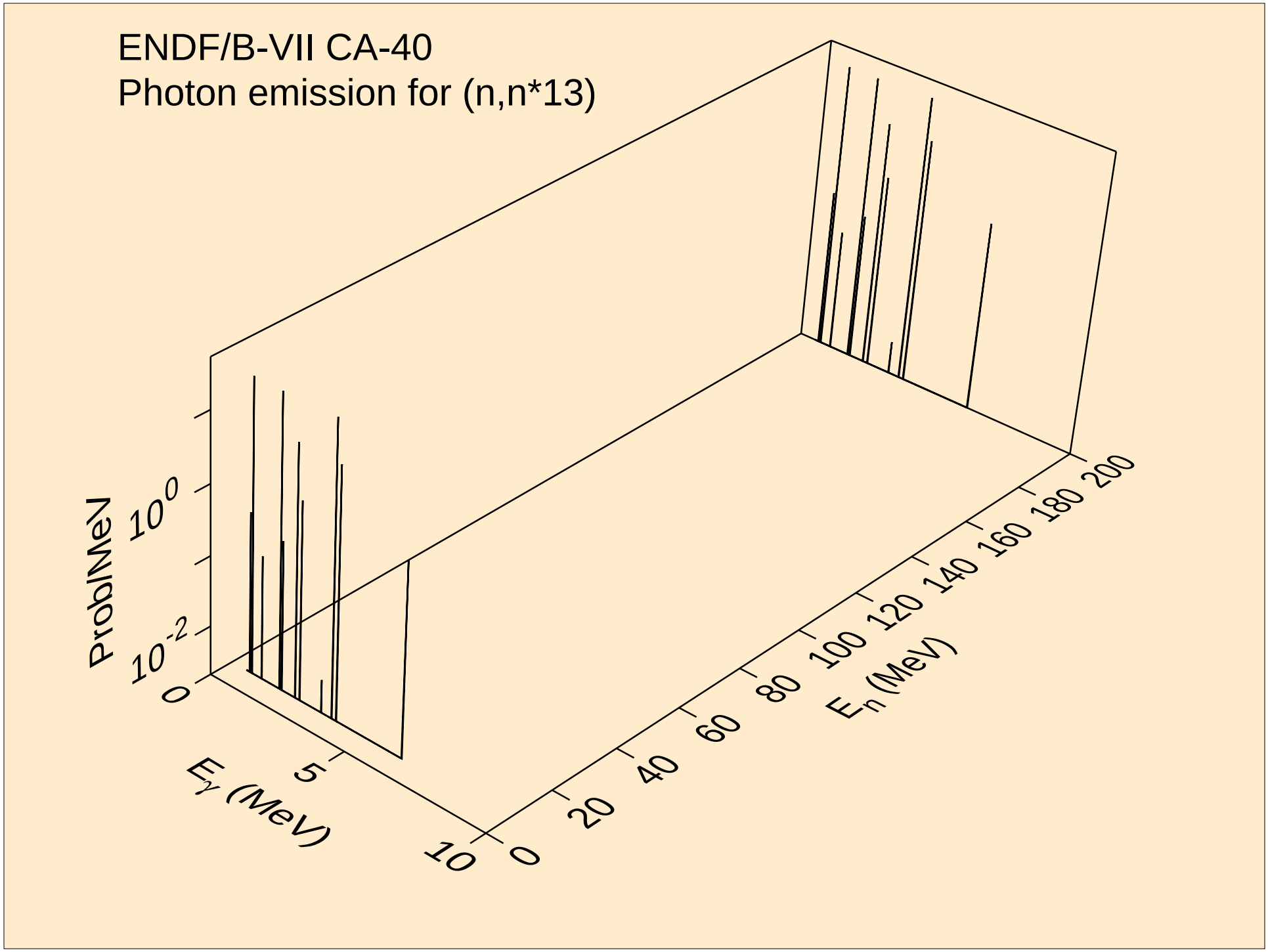



ENDF/B-VII CA-40
Photon emission for (n,n*10)
Prob/MeV
10^0
10^{-2}
E_γ (MeV)
0
6
12
E_n (MeV)
0
20
40
60
80
100
120
140
160
180
200

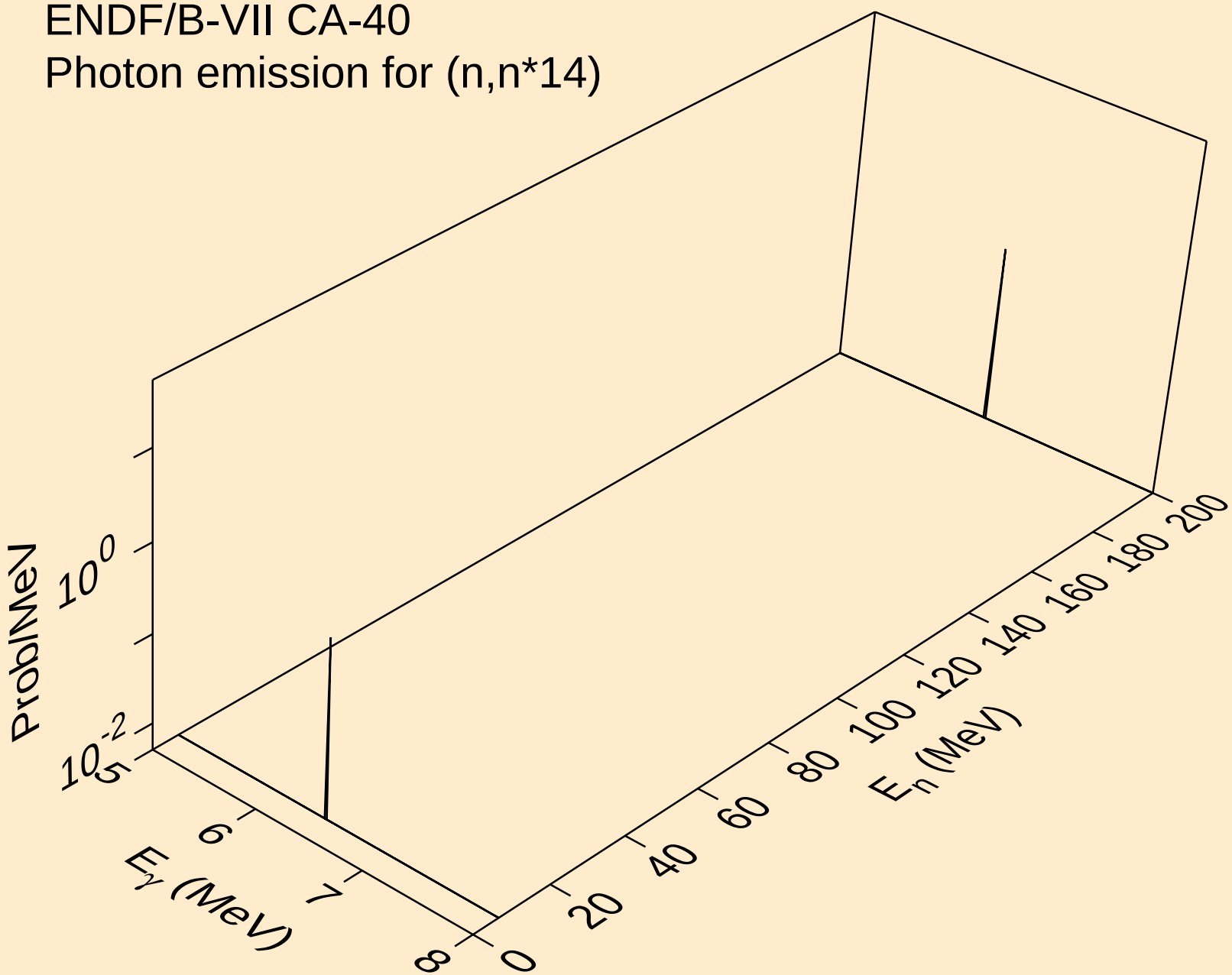
ENDF/B-VII CA-40
Photon emission for (n,n*11)

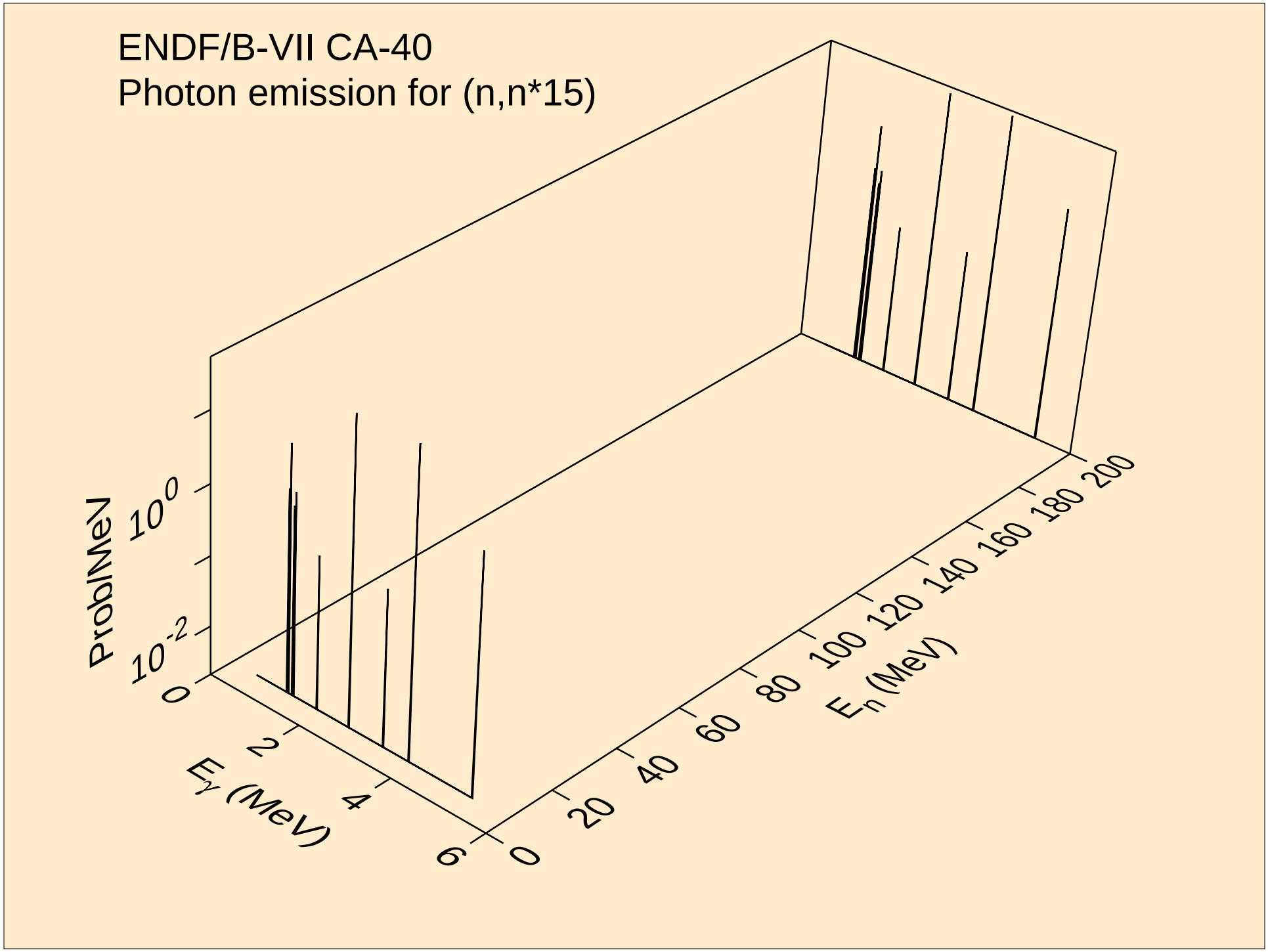


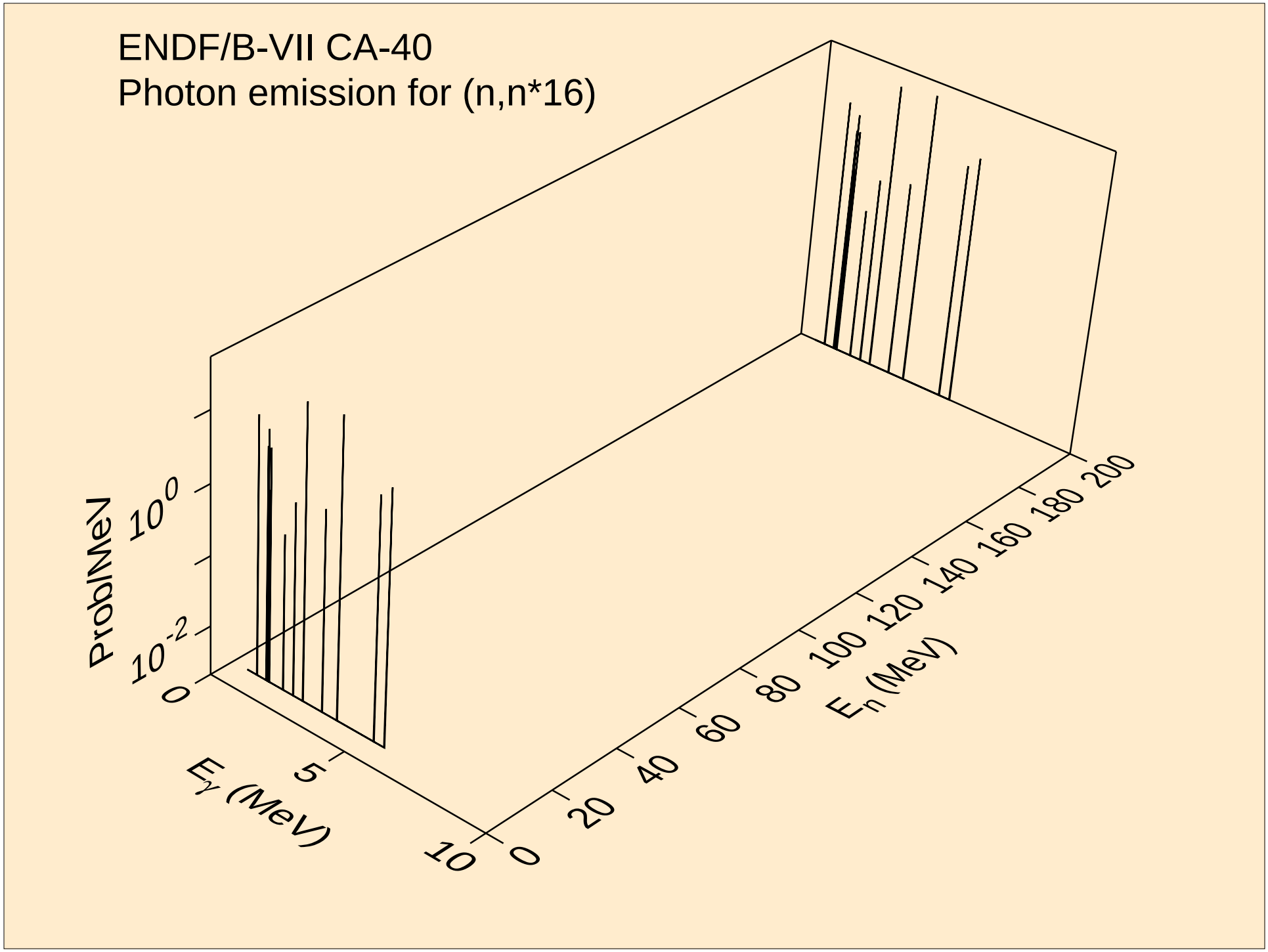

ENDF/B-VII CA-40
Photon emission for (n,n*12)
Prob/MeV
10^0
10^{-2}
0
2
4
6
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

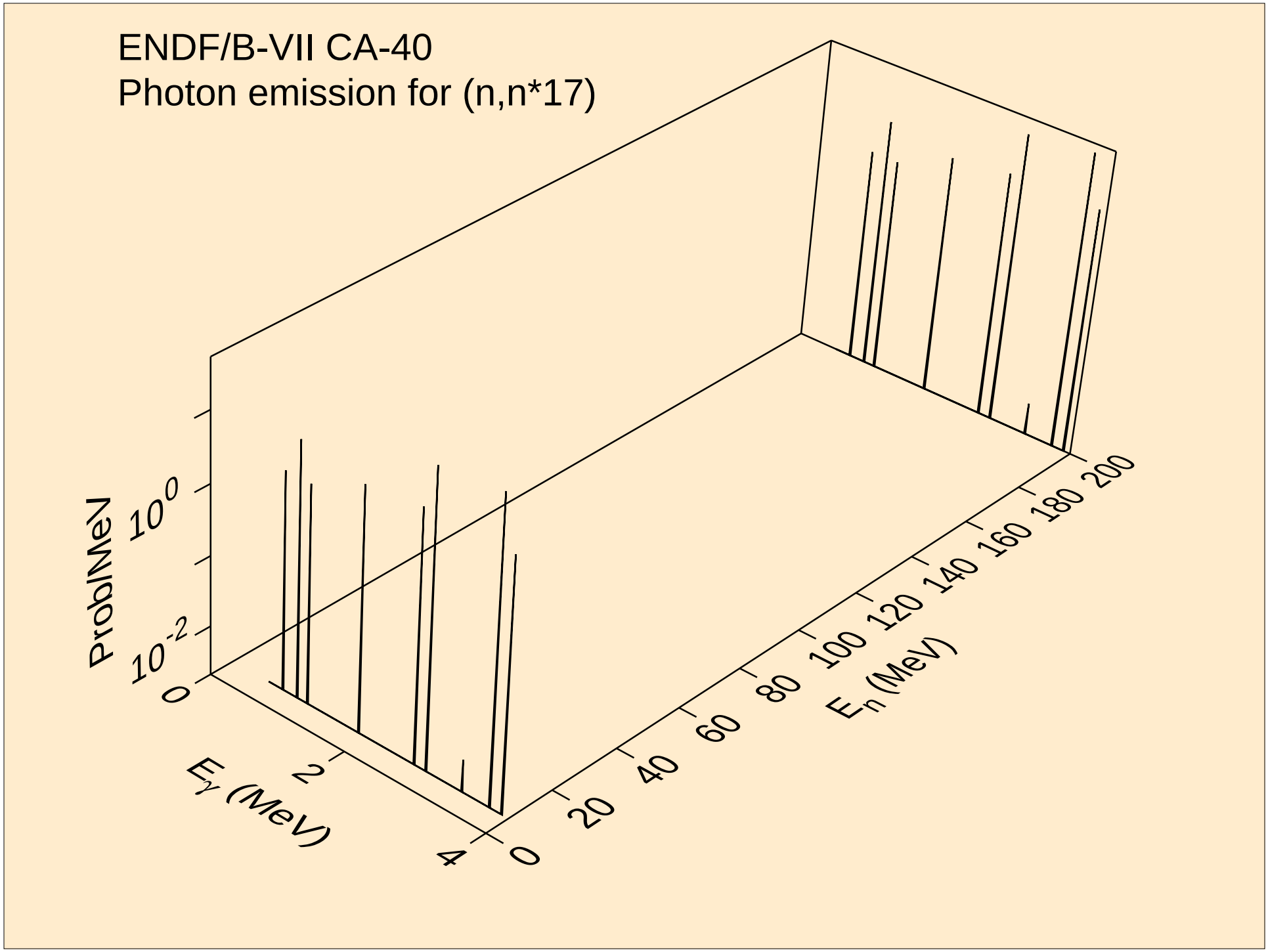

ENDF/B-VII CA-40
Photon emission for (n,n*13)
Prob/MeV
10^0
10^{-2}
0
5
10
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

ENDF/B-VII CA-40
Photon emission for (n,n*14)

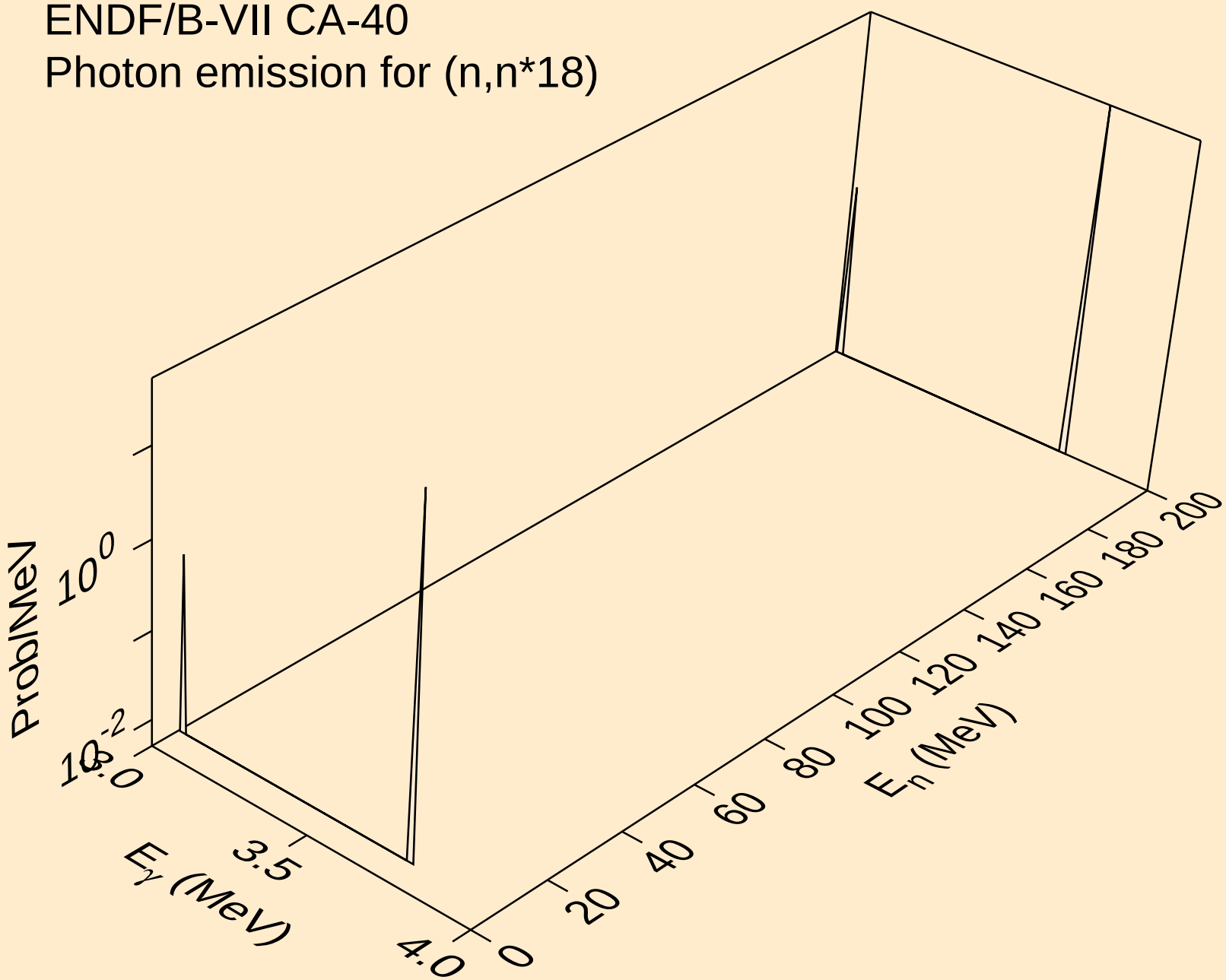


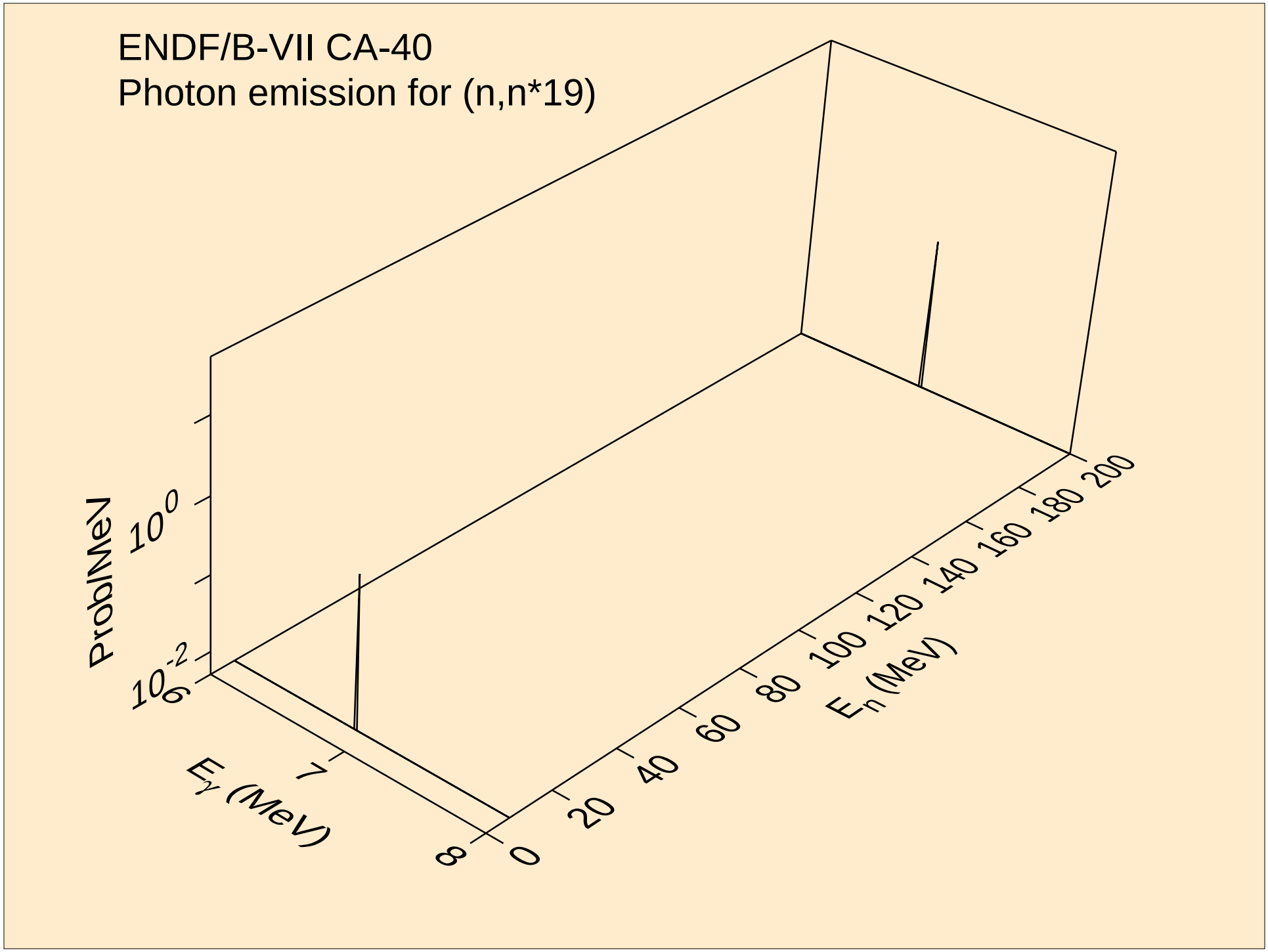

ENDF/B-VII CA-40
Photon emission for (n,n*15)
Prob/MeV
10^0
10^{-2}
0
2
4
6
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)


ENDF/B-VII CA-40
Photon emission for (n,n*16)
Prob/MeV
10^0
10^{-2}
0
5
10
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

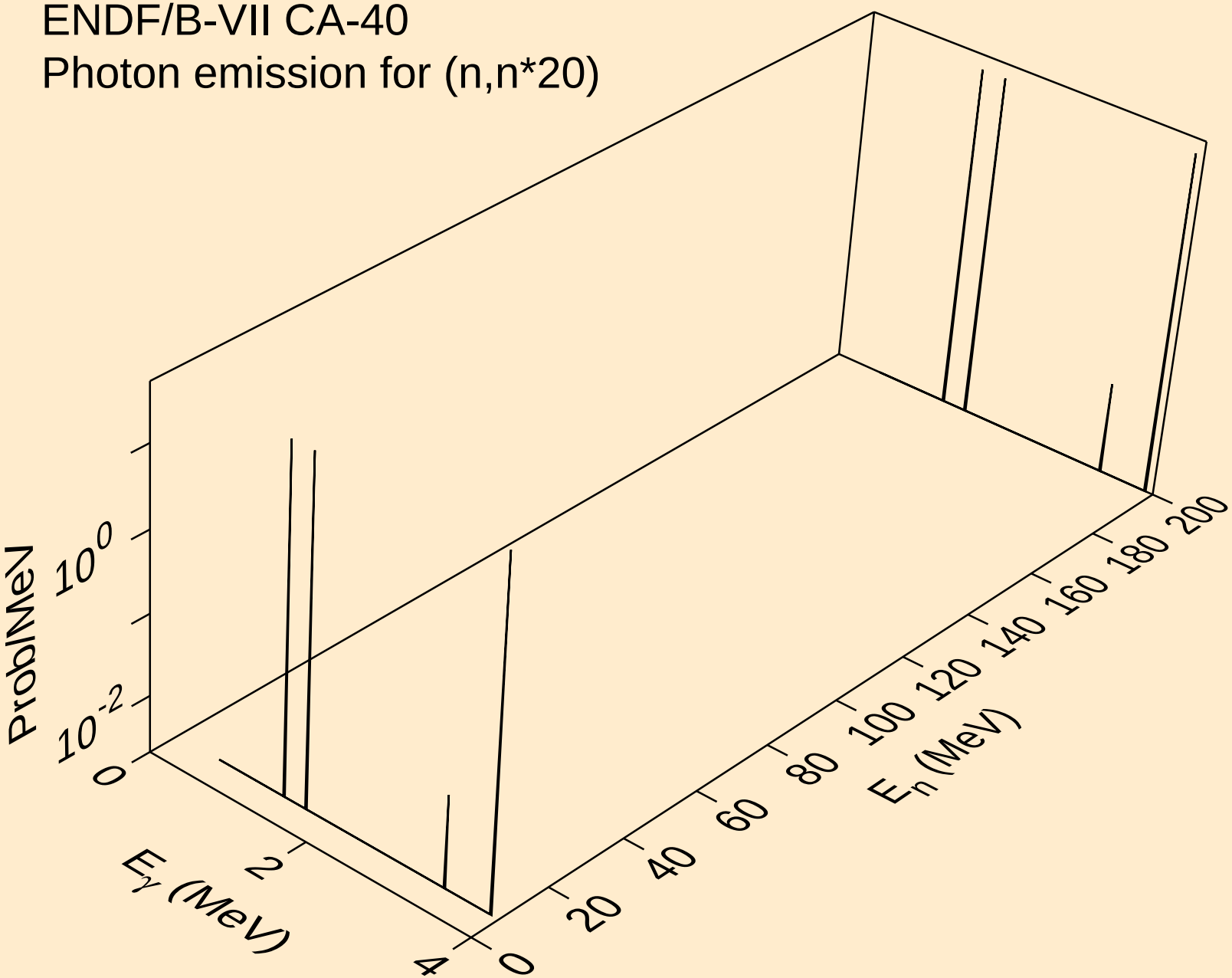

ENDF/B-VII CA-40
Photon emission for (n,n*17)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

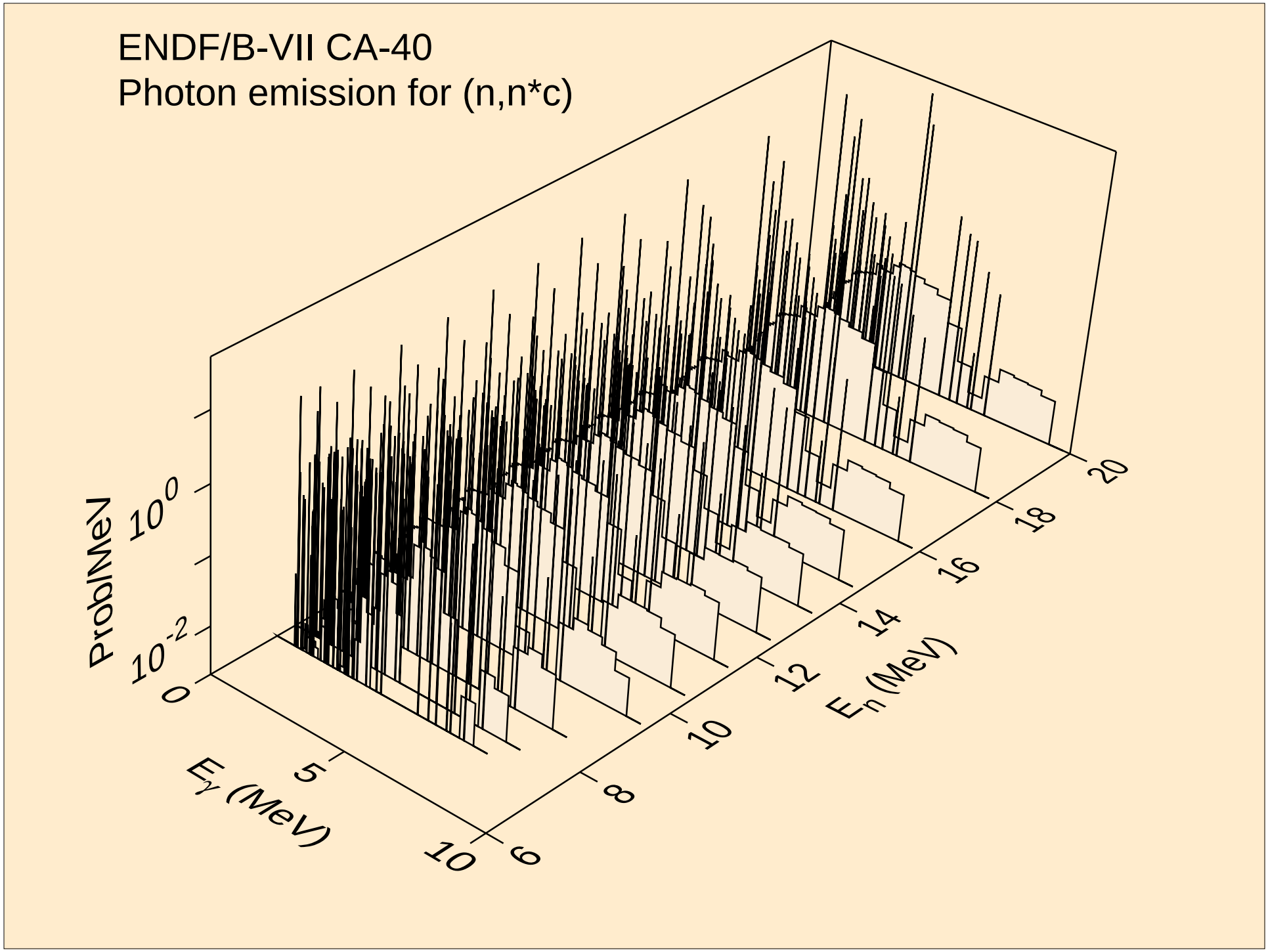
ENDF/B-VII CA-40
Photon emission for (n,n*18)

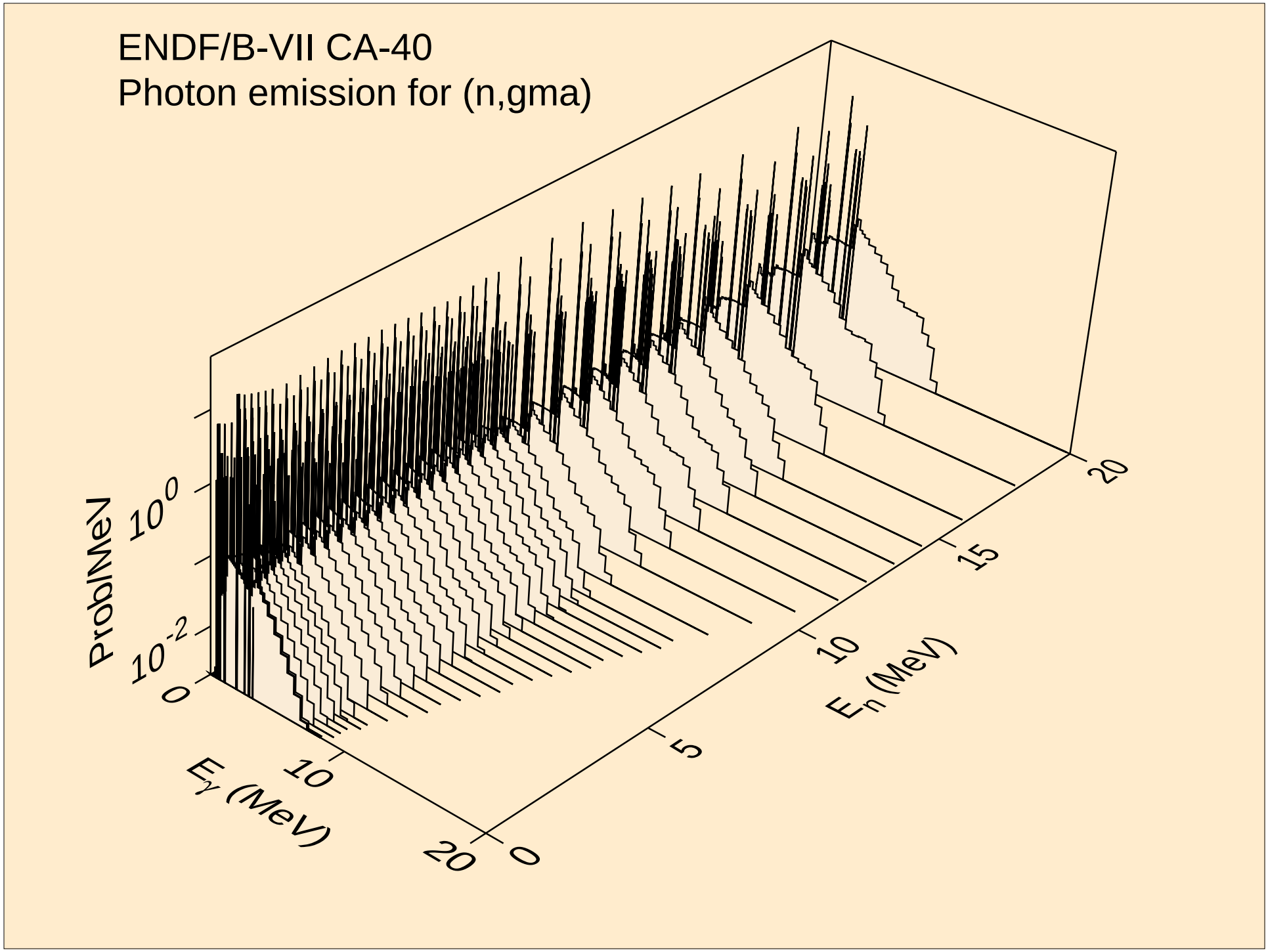



ENDF/B-VII CA-40
Photon emission for (n,n*19)
Prob/MeV
10^{0}
10^{-2}
6
7
8
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

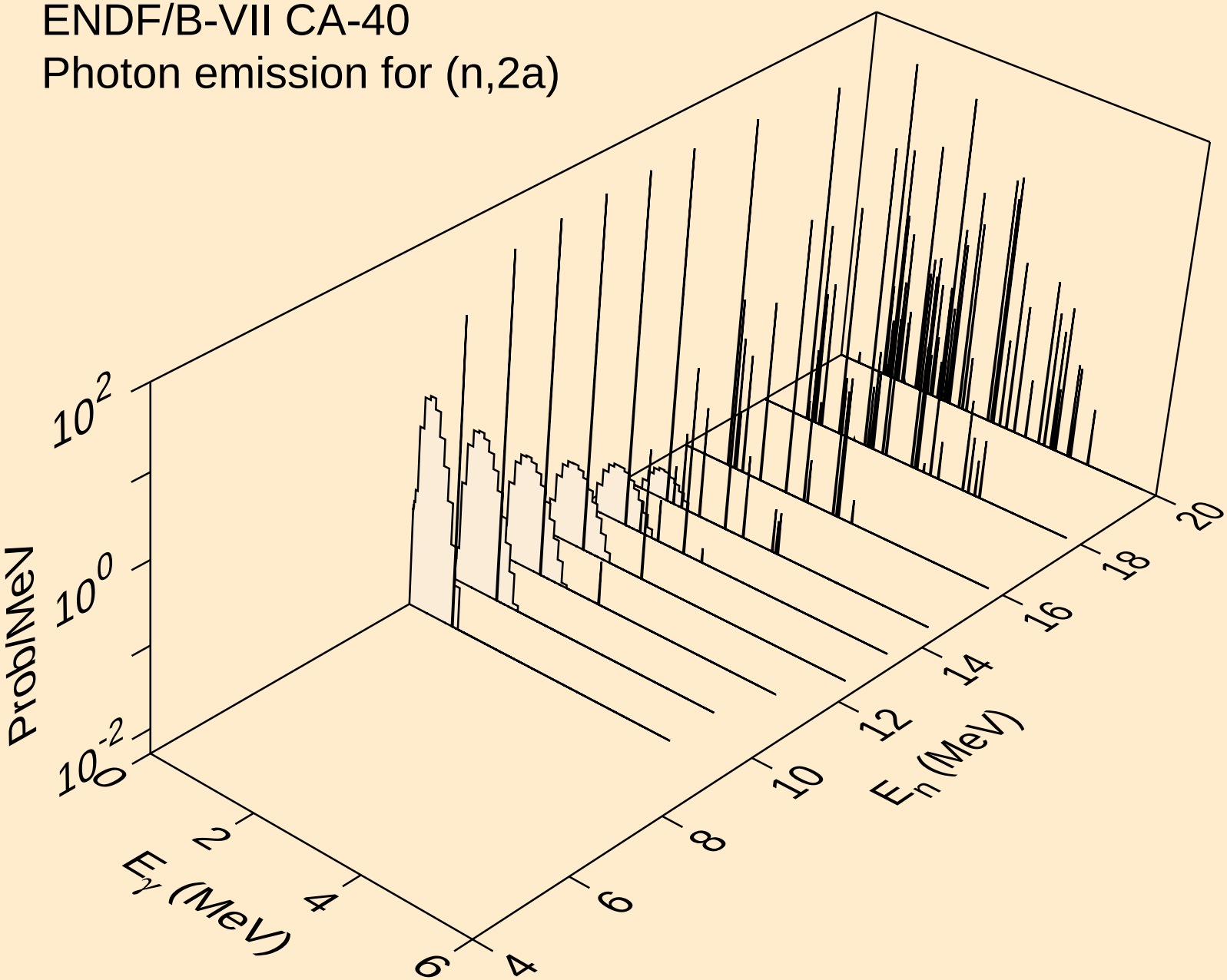
ENDF/B-VII CA-40
Photon emission for (n,n*20)

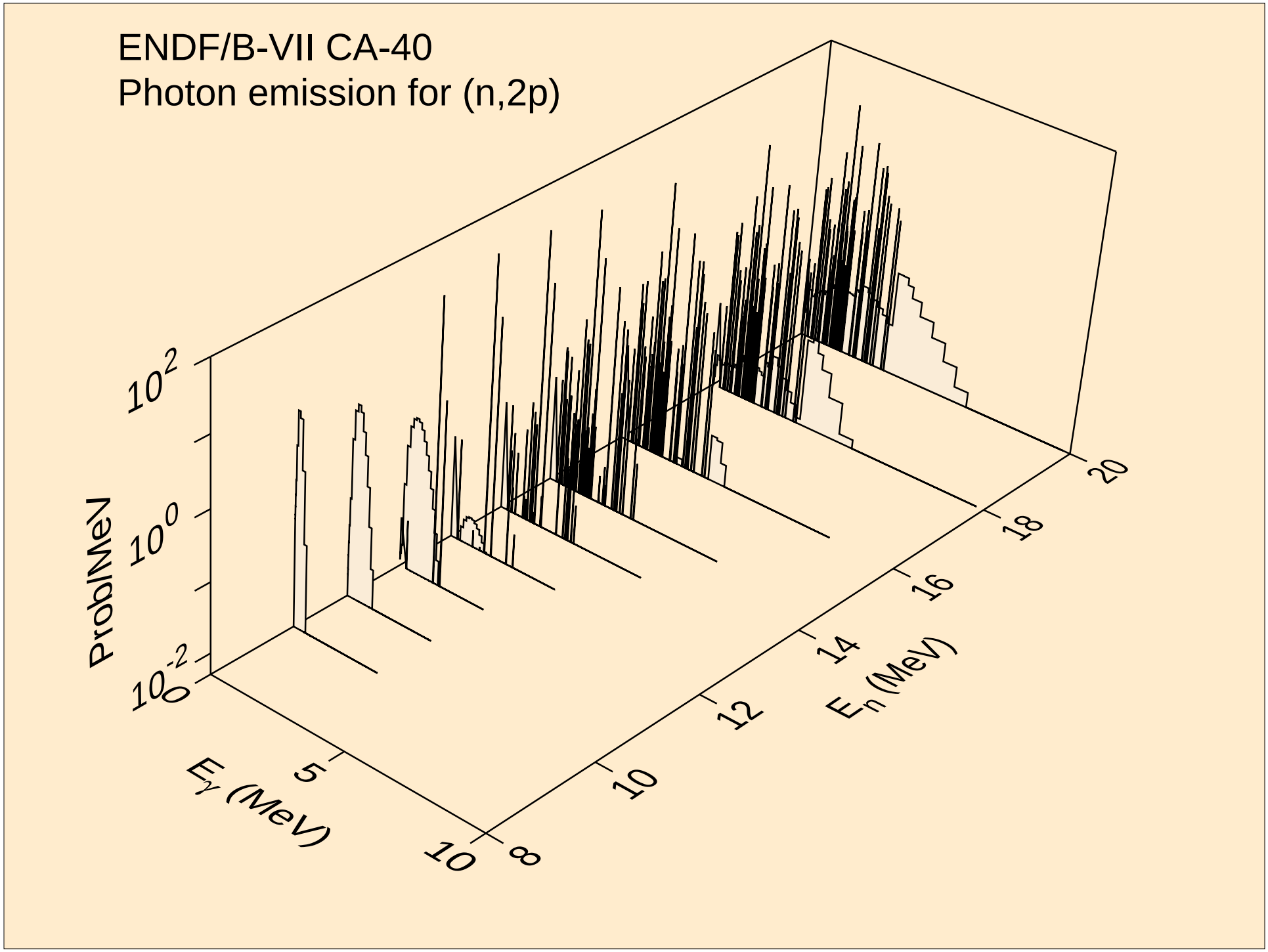


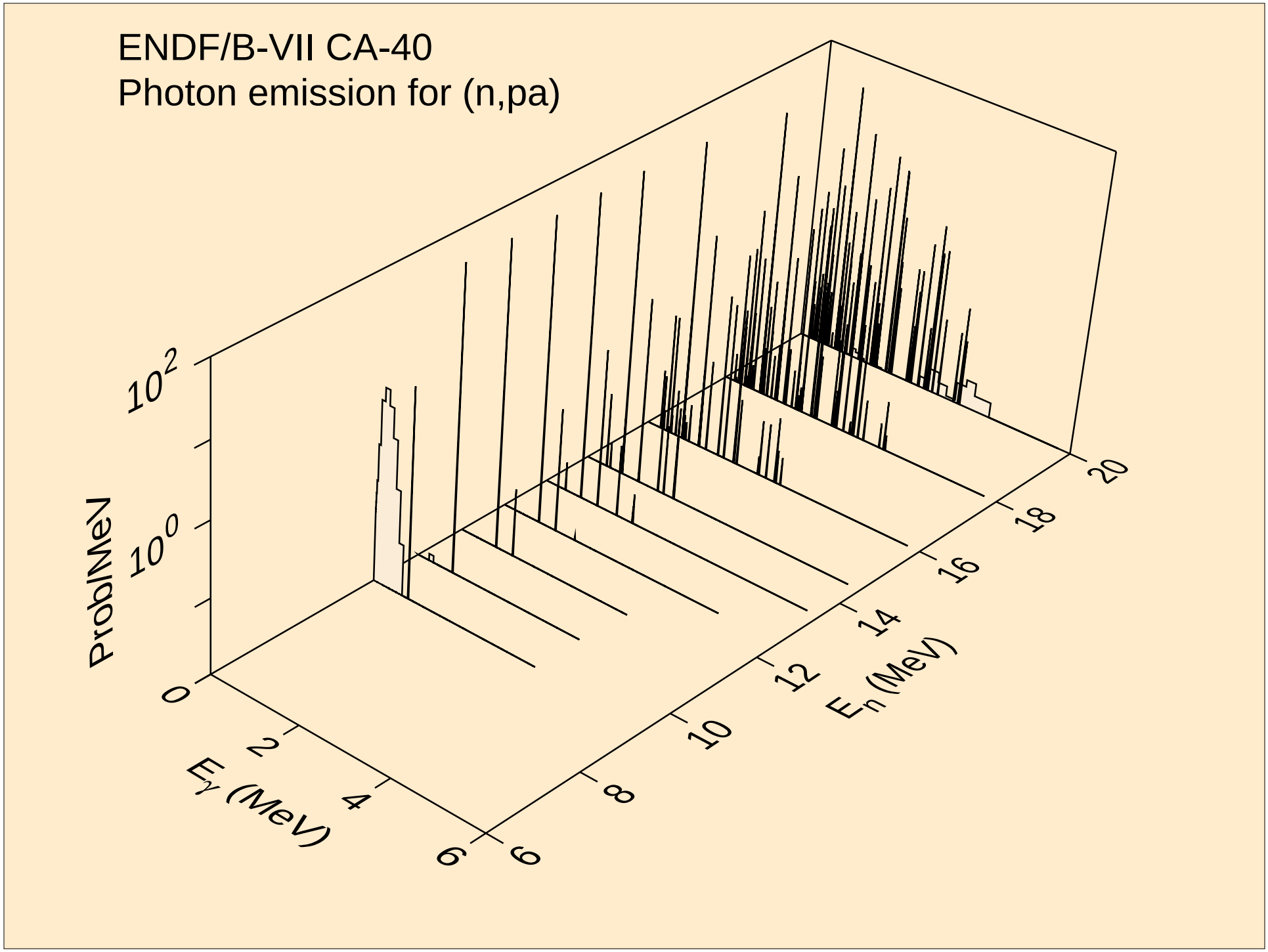

ENDF/B-VII CA-40
Photon emission for (n,n*c)
Prob/MeV
10^0
10^{-2}
0
5
10
E_γ (MeV)
6
8
10
12
14
16
18
20
E_n (MeV)

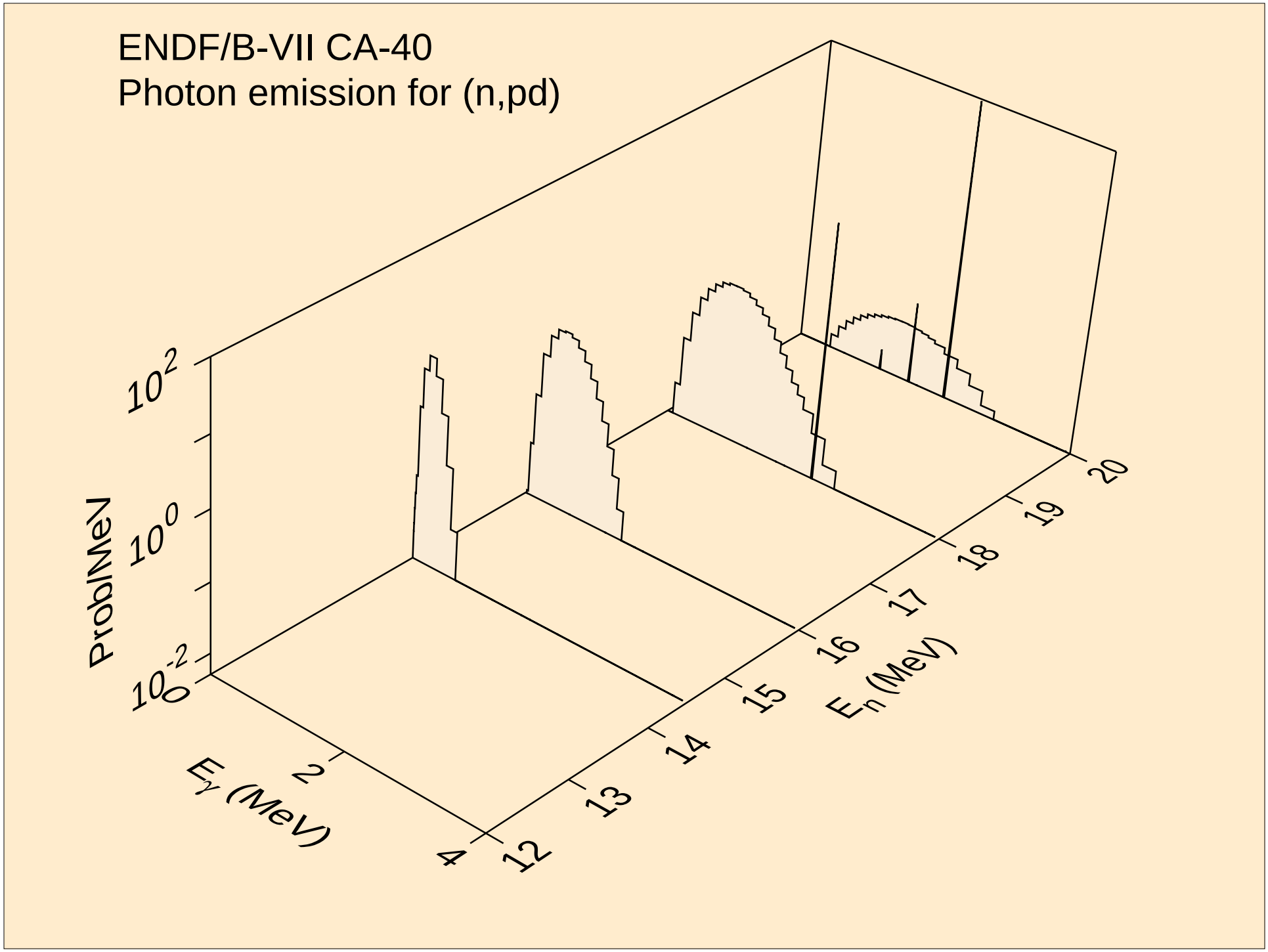

ENDF/B-VII CA-40
Photon emission for (n,gma)
Prob/MeV
10^0
10^{-2}
0
E_γ (MeV)
10
20
0
5
10
15
20
E_n (MeV)

ENDF/B-VII CA-40
Photon emission for (n,2a)

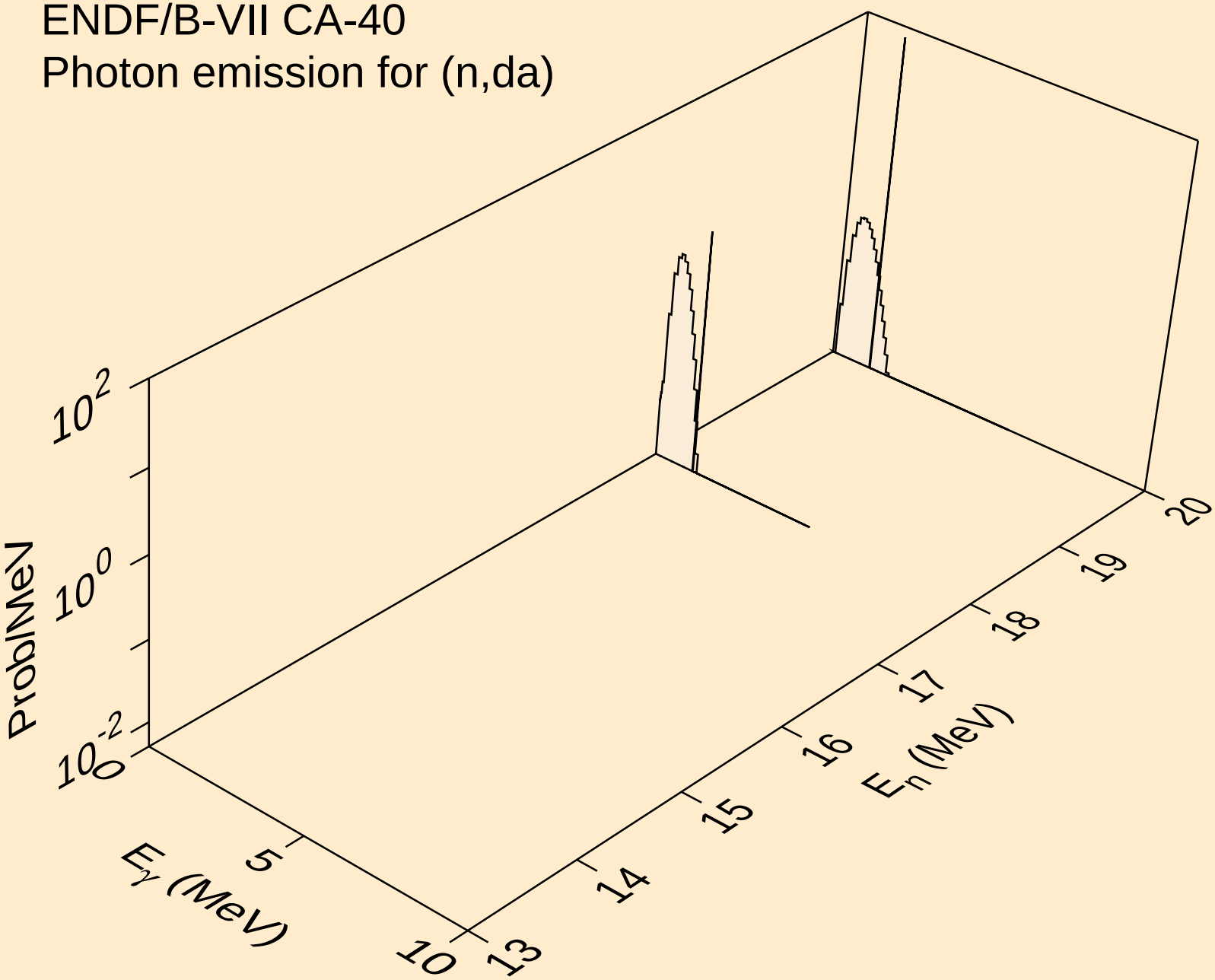



ENDF/B-VII CA-40
Photon emission for (n,2p)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
5
10
E_γ (MeV)
8
10
12
14
16
18
20
E_n (MeV)

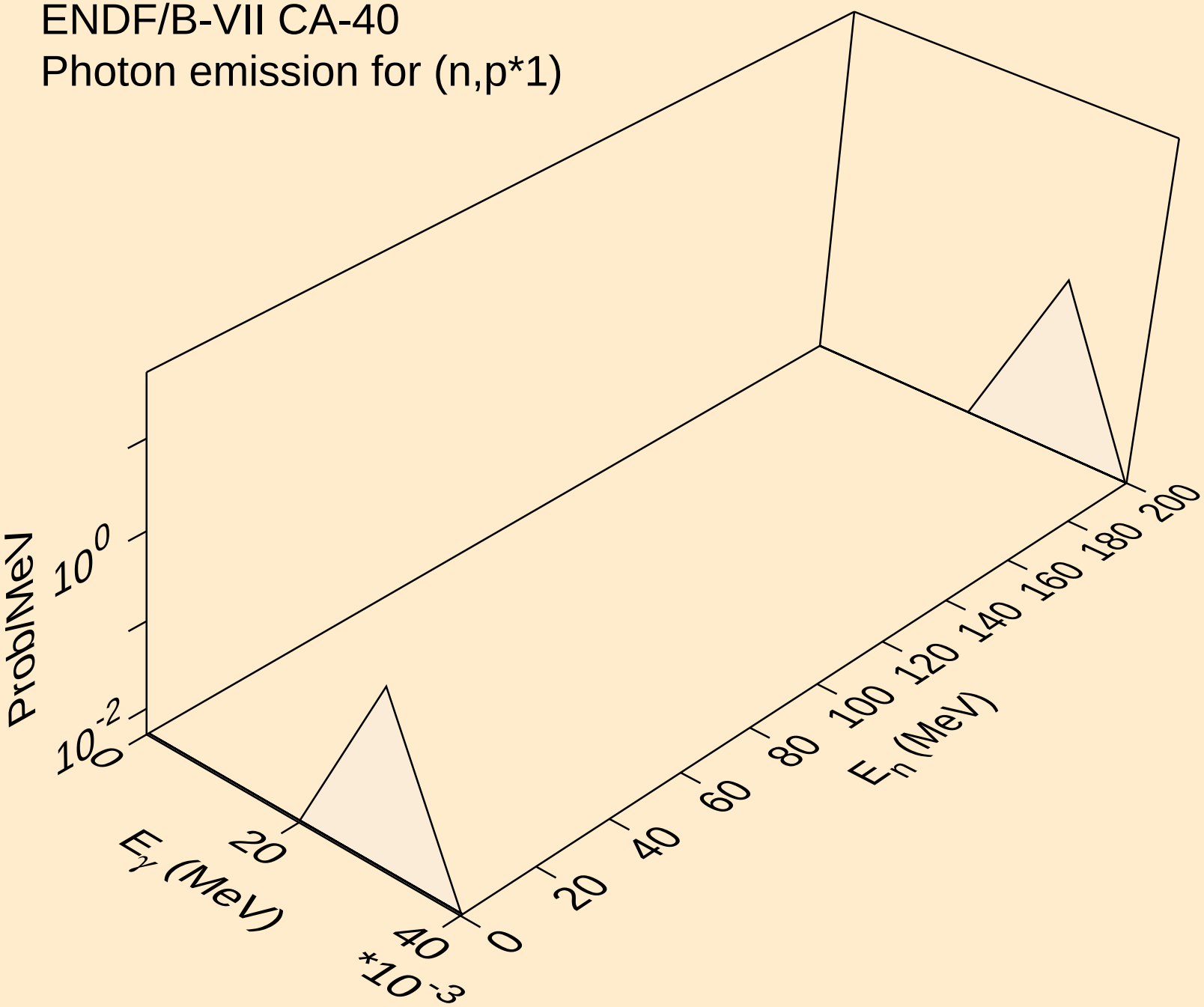

ENDF/B-VII CA-40
Photon emission for (n,pa)
Prob/MeV
10^2
10^0
0
2
4
6
E_γ (MeV)
6
8
10
12
14
16
18
20
E_n (MeV)


ENDF/B-VII CA-40
Photon emission for (n,pd)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
2
4
E_n (MeV)
12
13
14
15
16
17
18
19
20

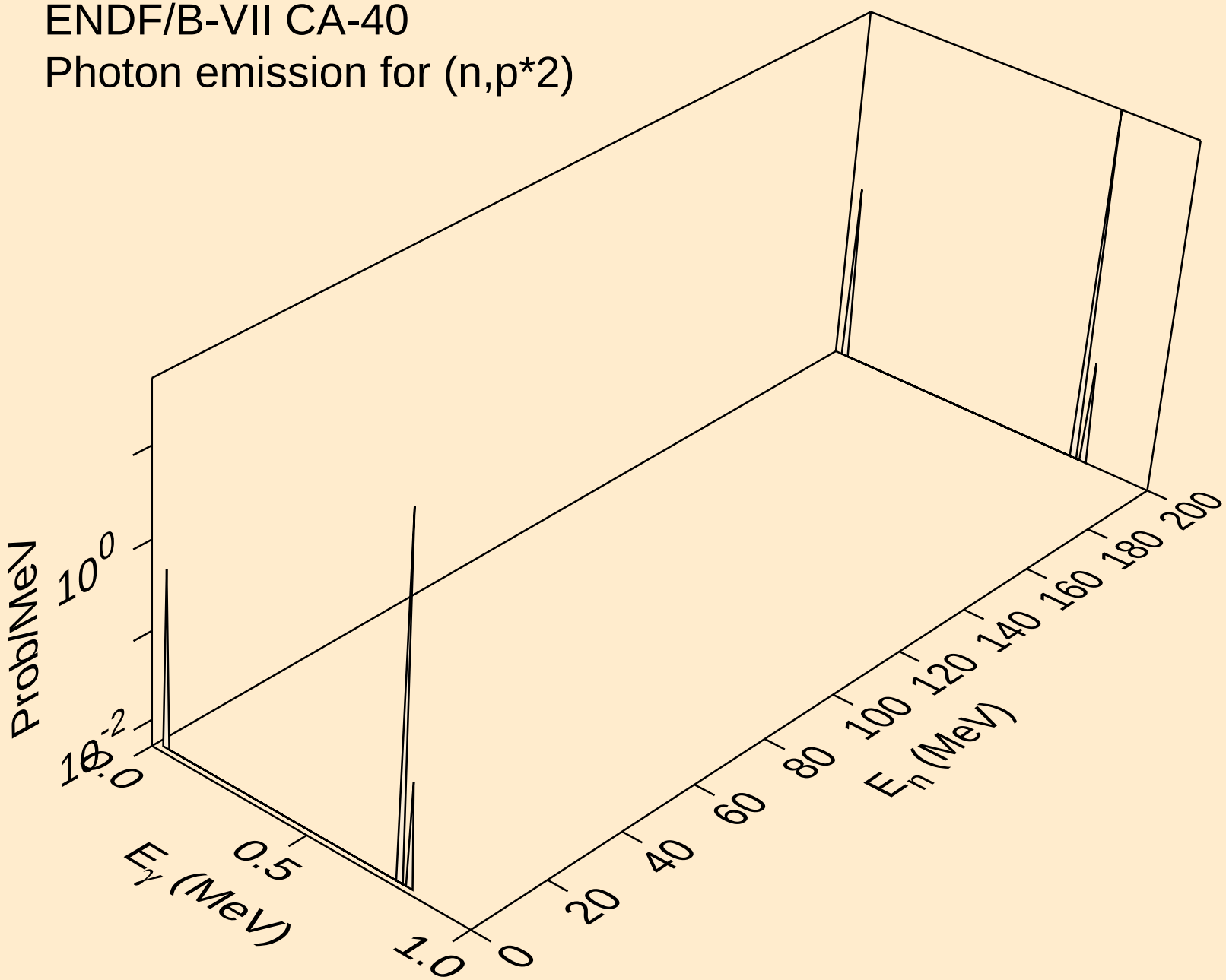
ENDF/B-VII CA-40
Photon emission for (n,da)



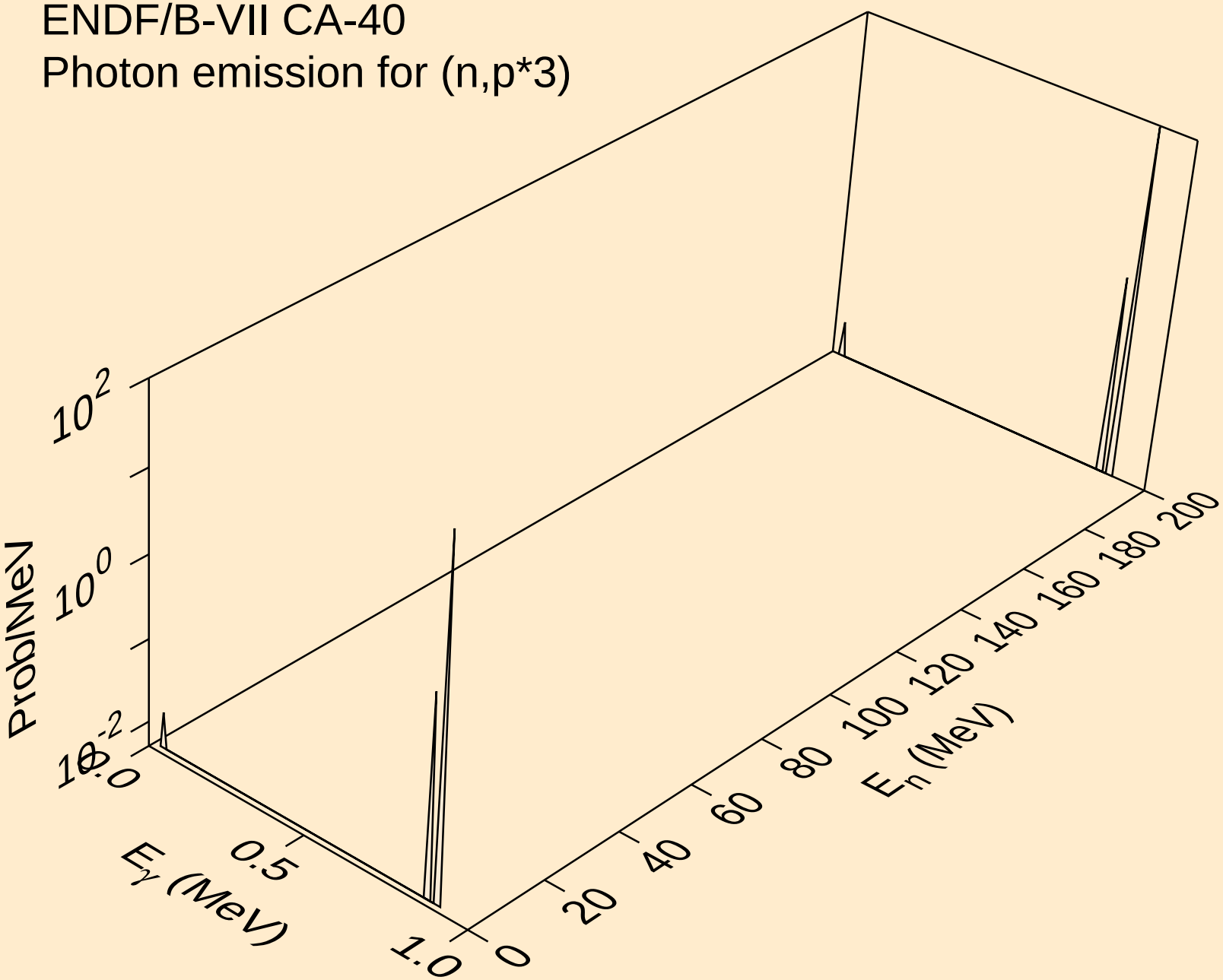
ENDF/B-VII CA-40
Photon emission for (n,p*1)

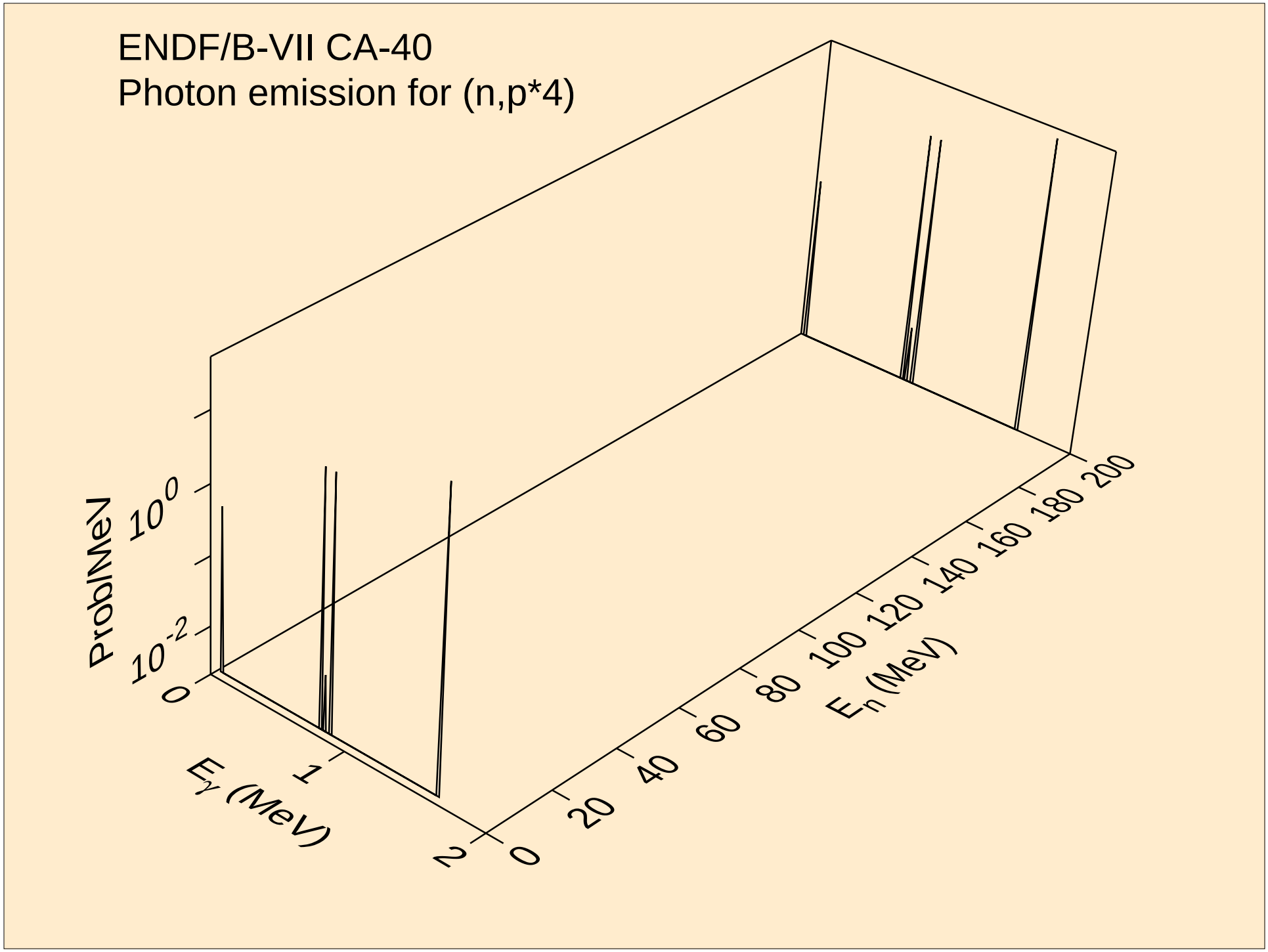


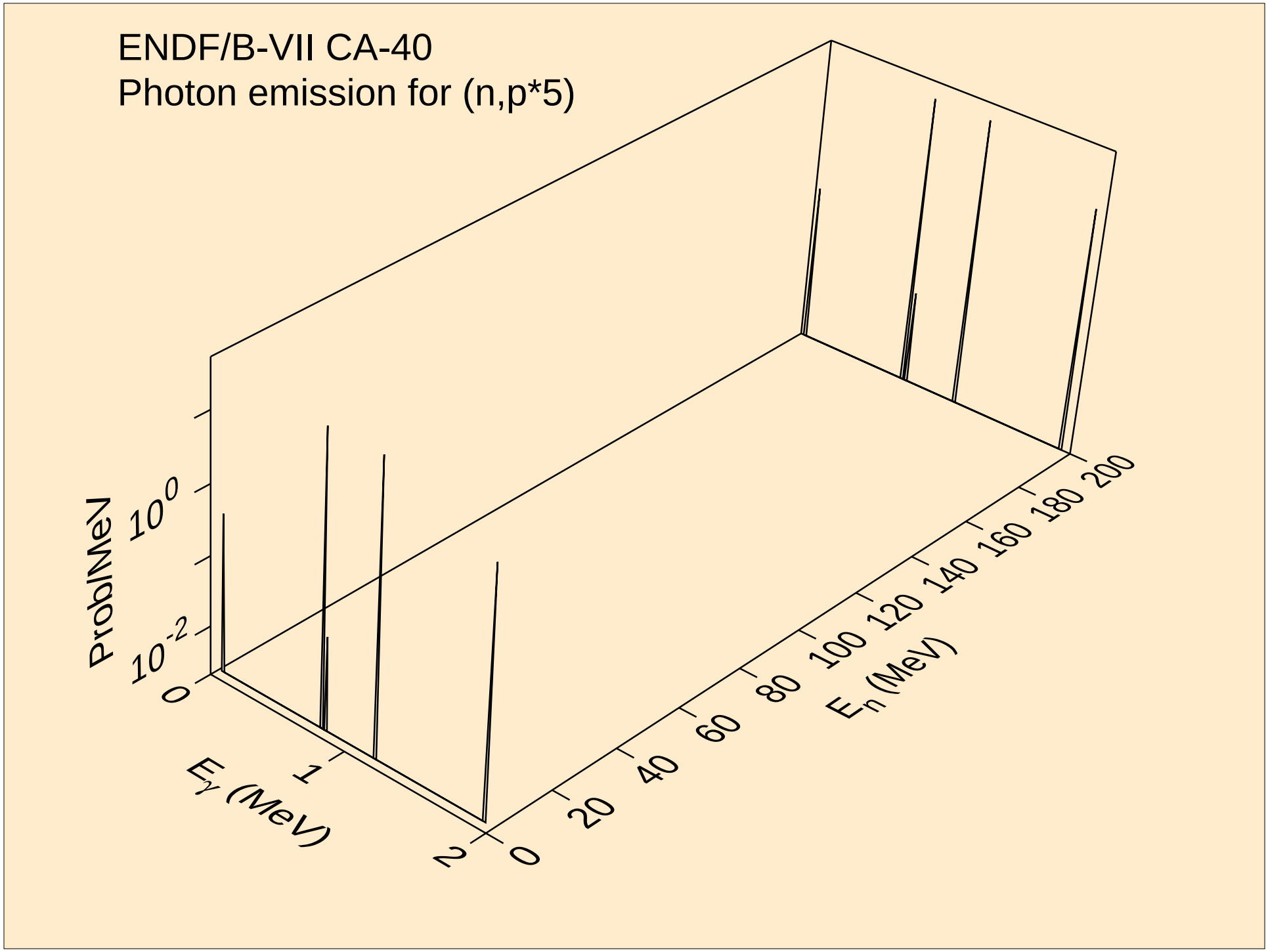
ENDF/B-VII CA-40
Photon emission for (n,p*2)

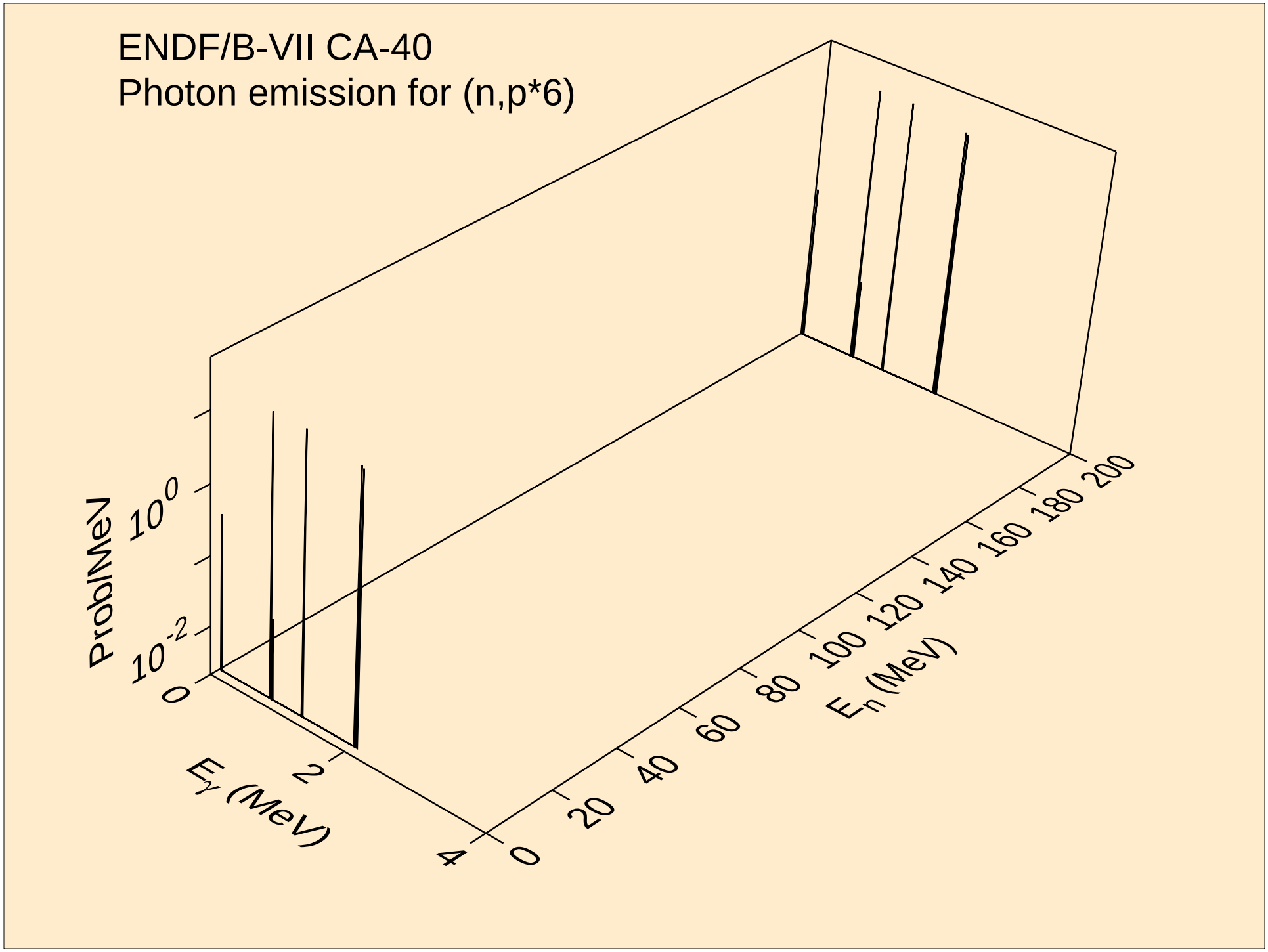


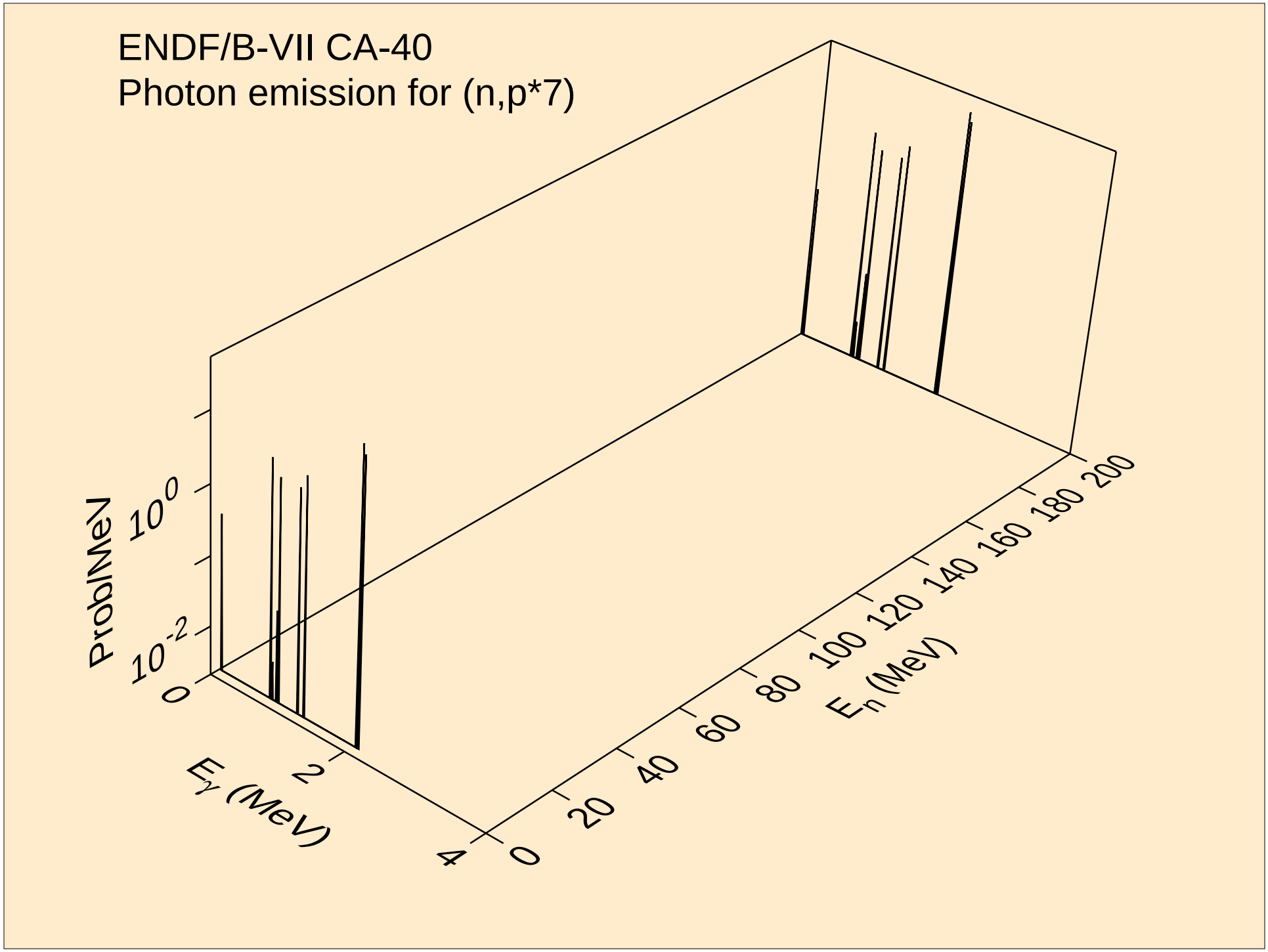
ENDF/B-VII CA-40
Photon emission for (n,p*3)

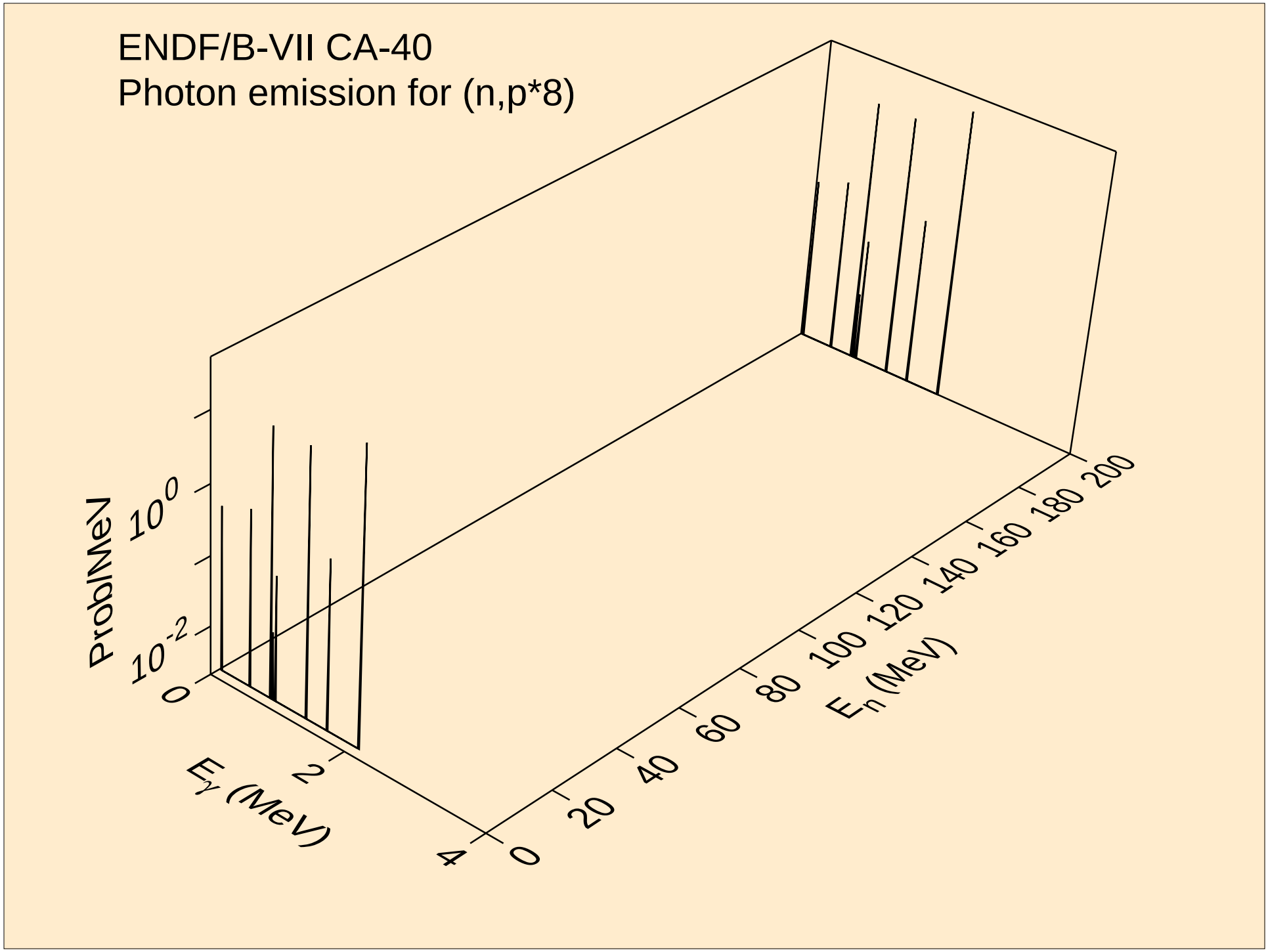



ENDF/B-VII CA-40
Photon emission for (n,p*4)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

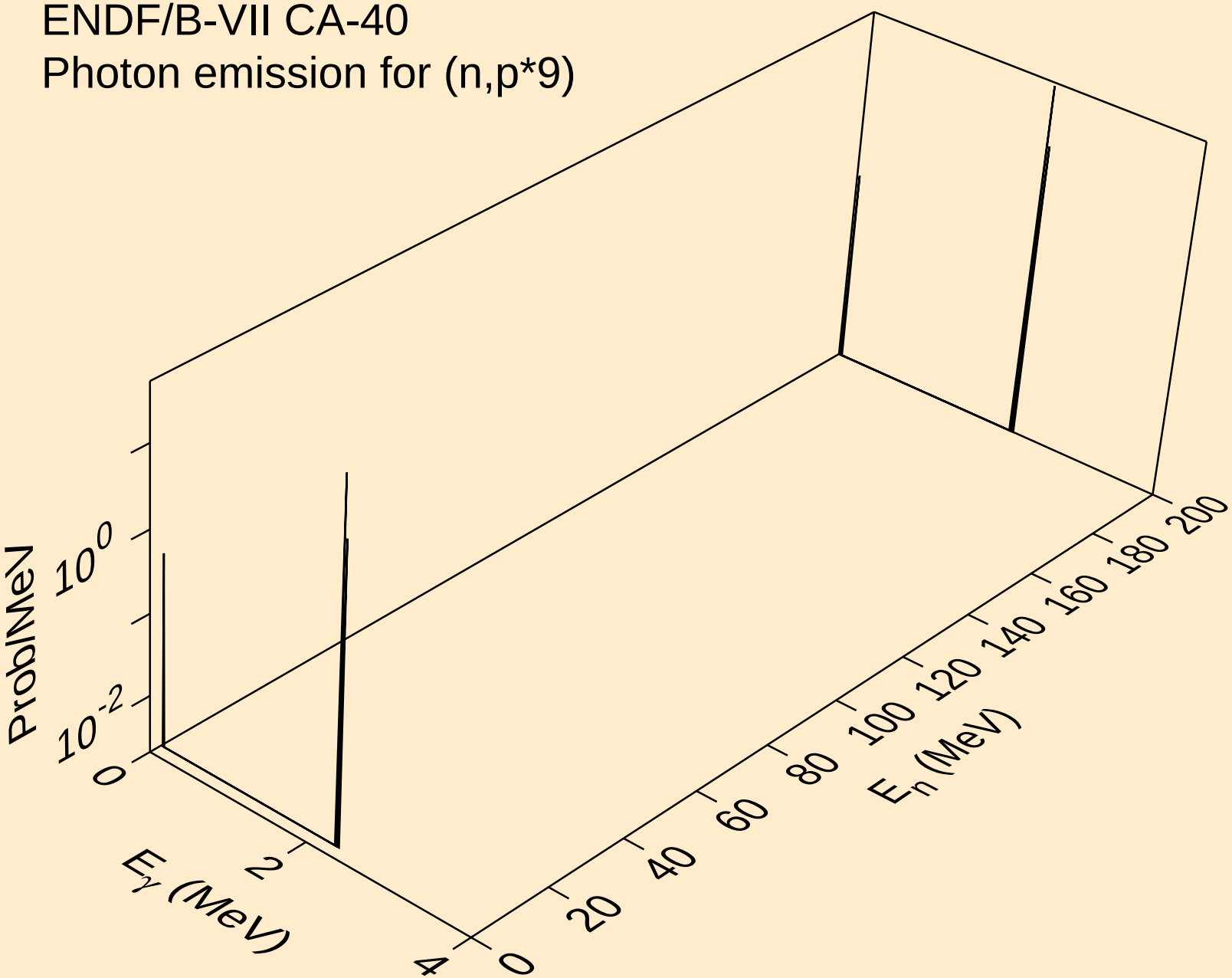

ENDF/B-VII CA-40
Photon emission for (n,p*5)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)


ENDF/B-VII CA-40
Photon emission for (n,p*6)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

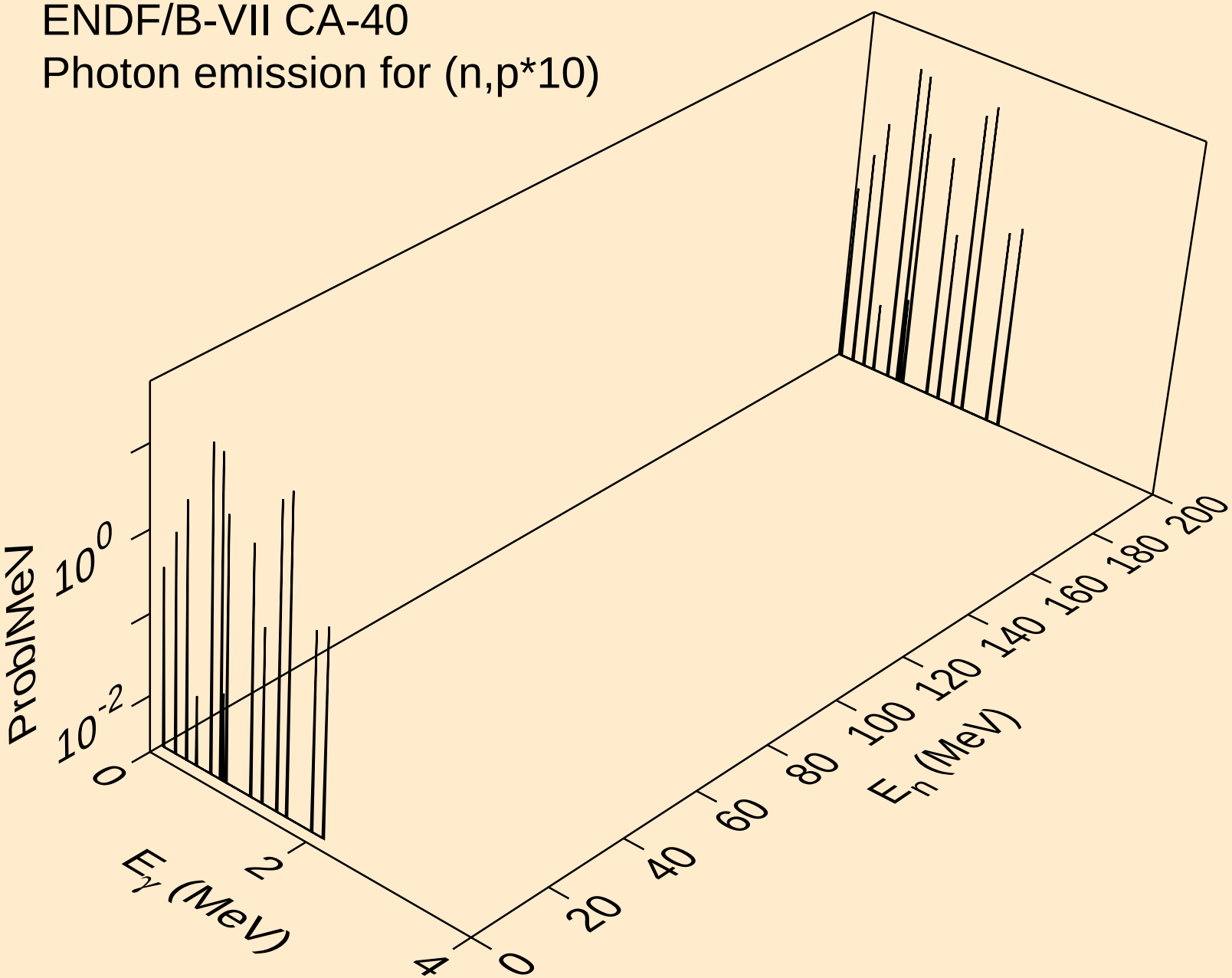

ENDF/B-VII CA-40
Photon emission for (n,p*7)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

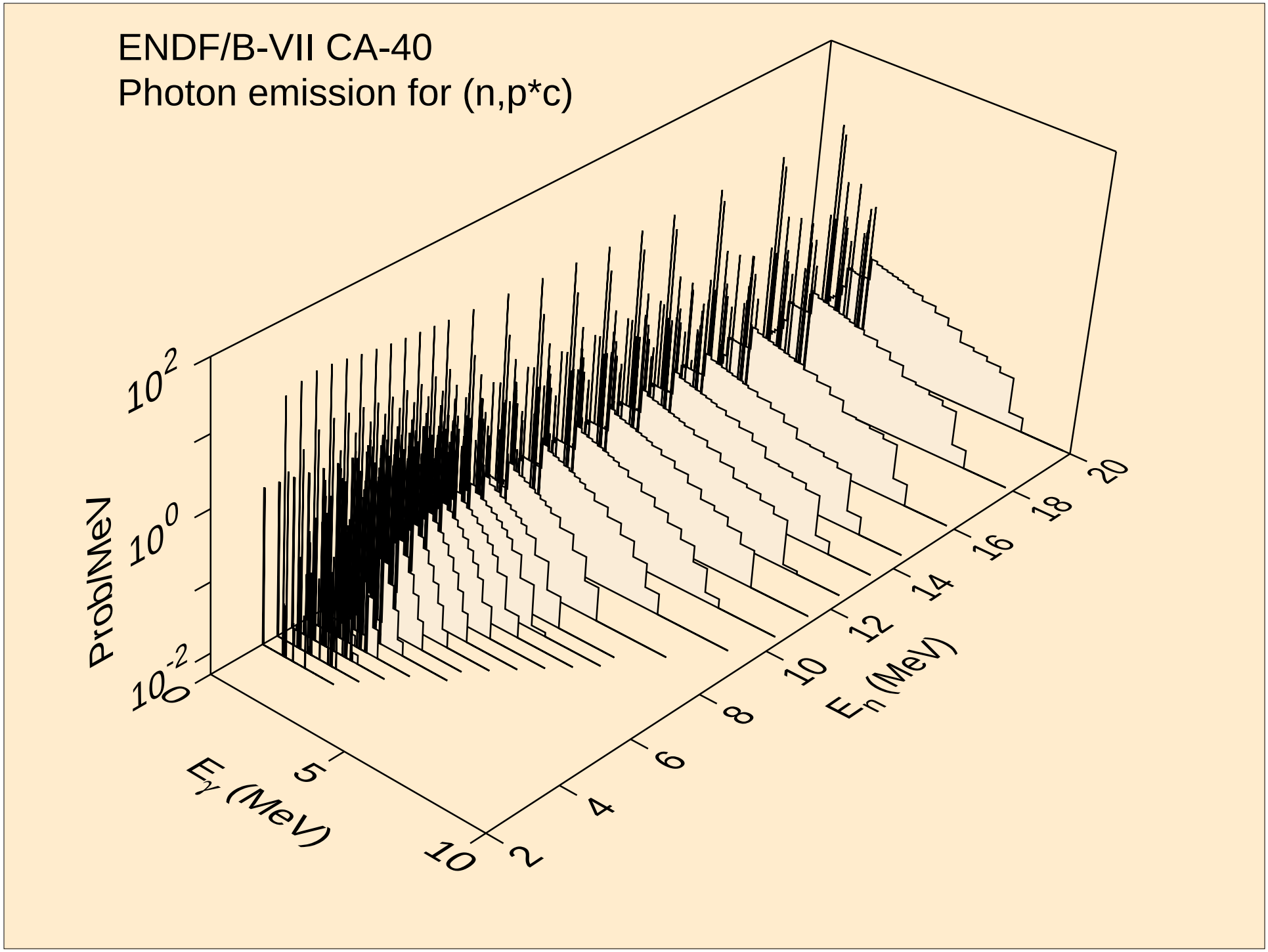

ENDF/B-VII CA-40
Photon emission for (n,p*8)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

ENDF/B-VII CA-40
Photon emission for (n,p*9)

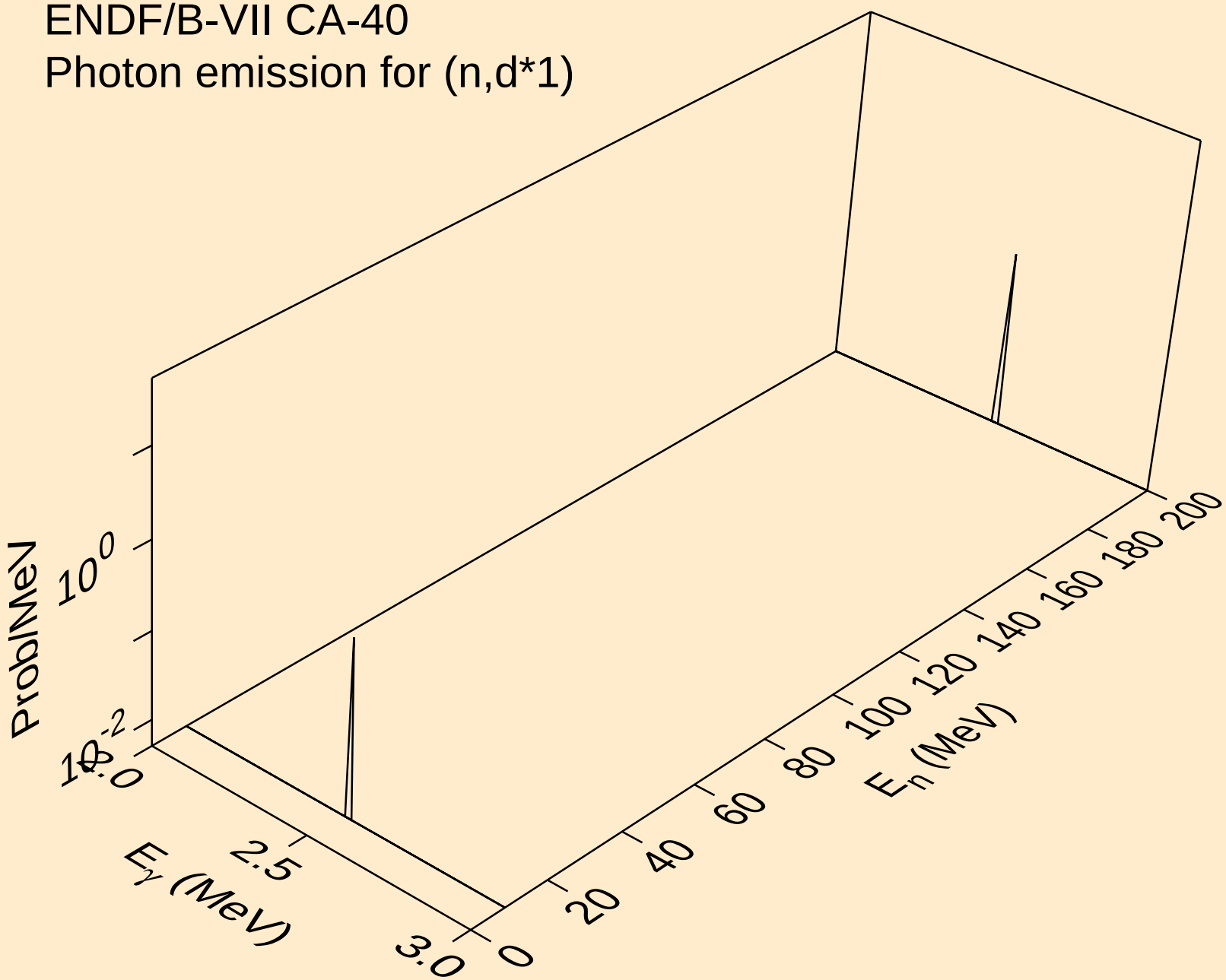


ENDF/B-VII CA-40
Photon emission for (n,p*10)

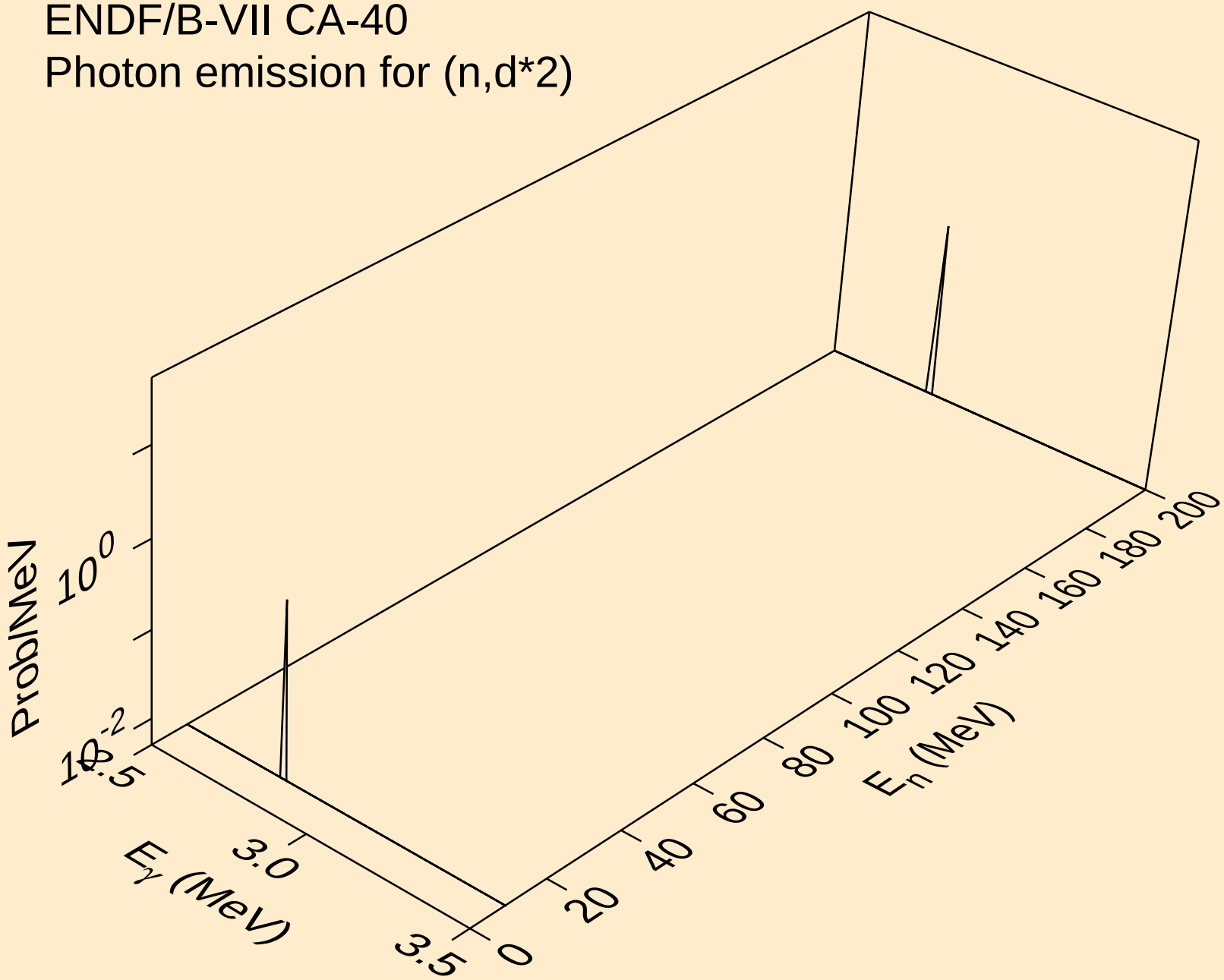


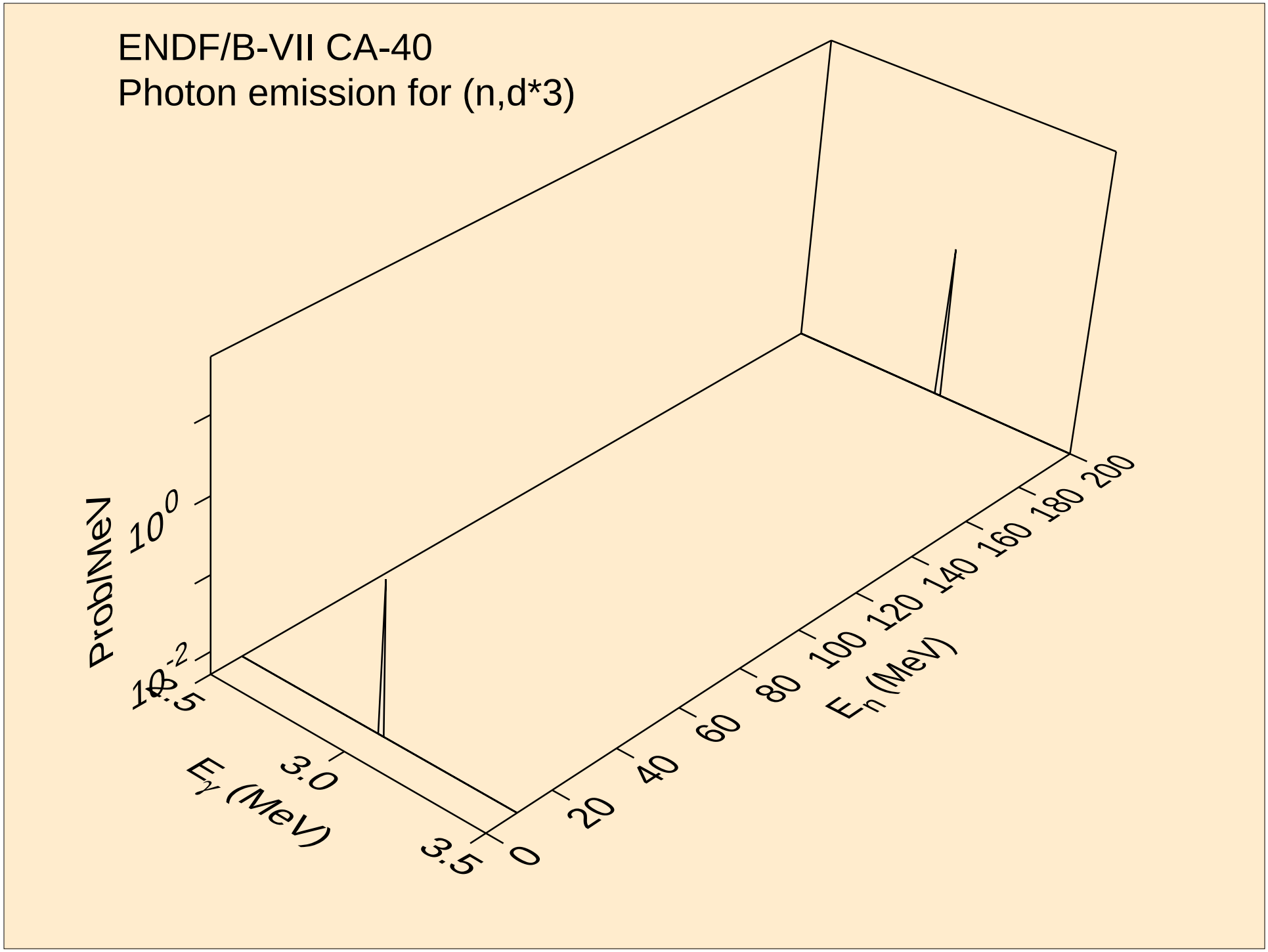

ENDF/B-VII CA-40
Photon emission for (n,p*c)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
5
10
E_n (MeV)
2
4
6
8
10
12
14
16
18
20

ENDF/B-VII CA-40
Photon emission for (n,d*1)

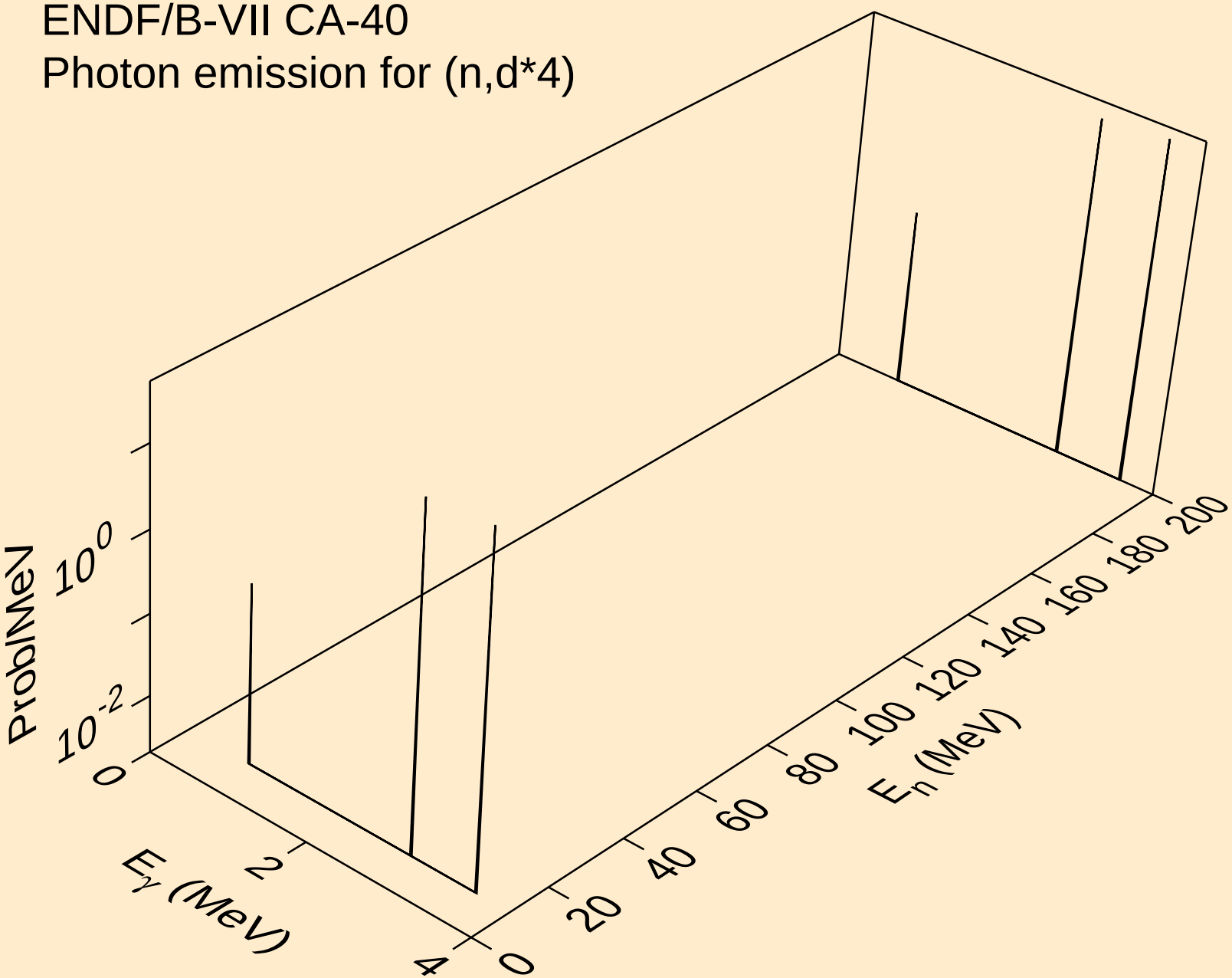


ENDF/B-VII CA-40
Photon emission for (n,d*2)

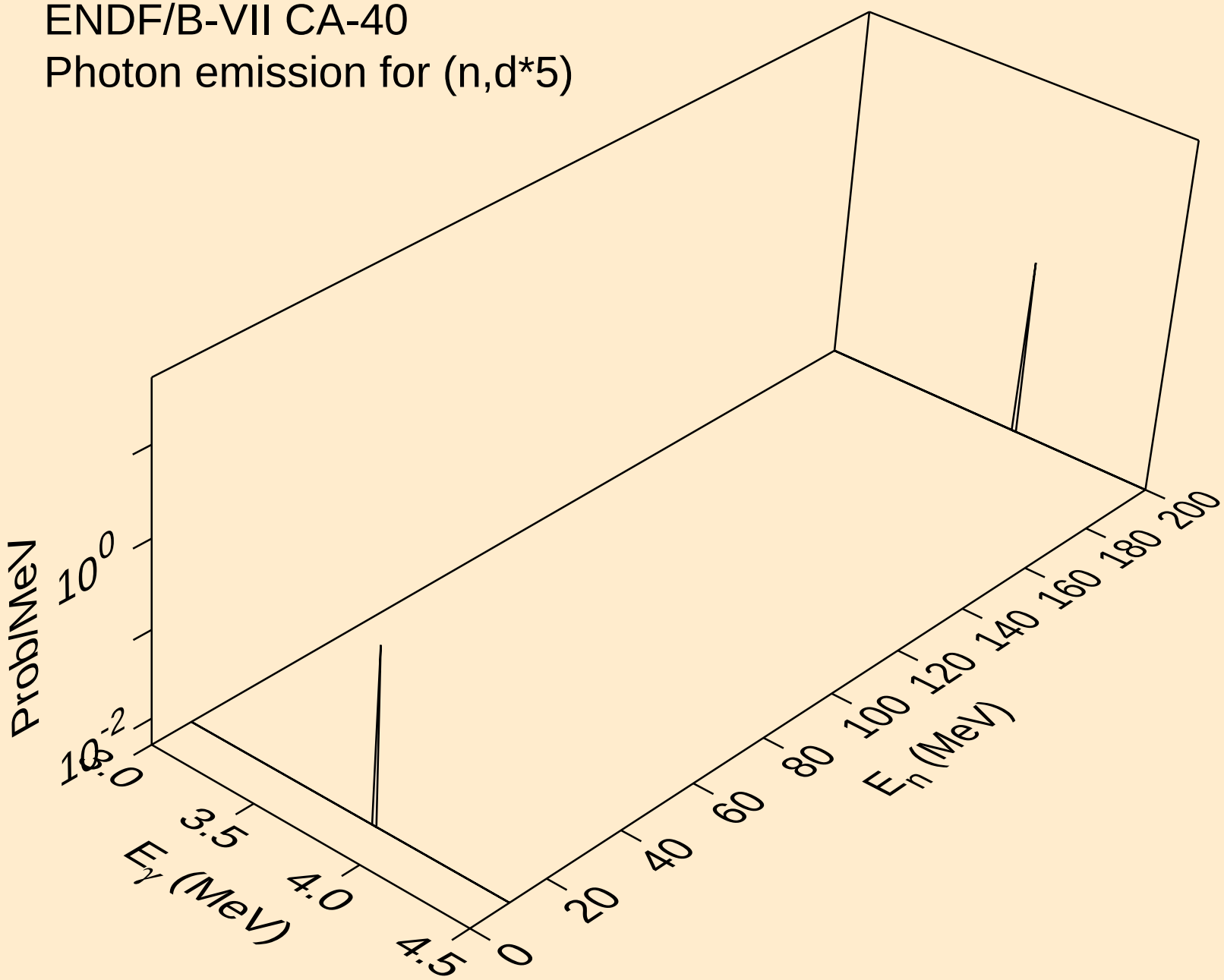


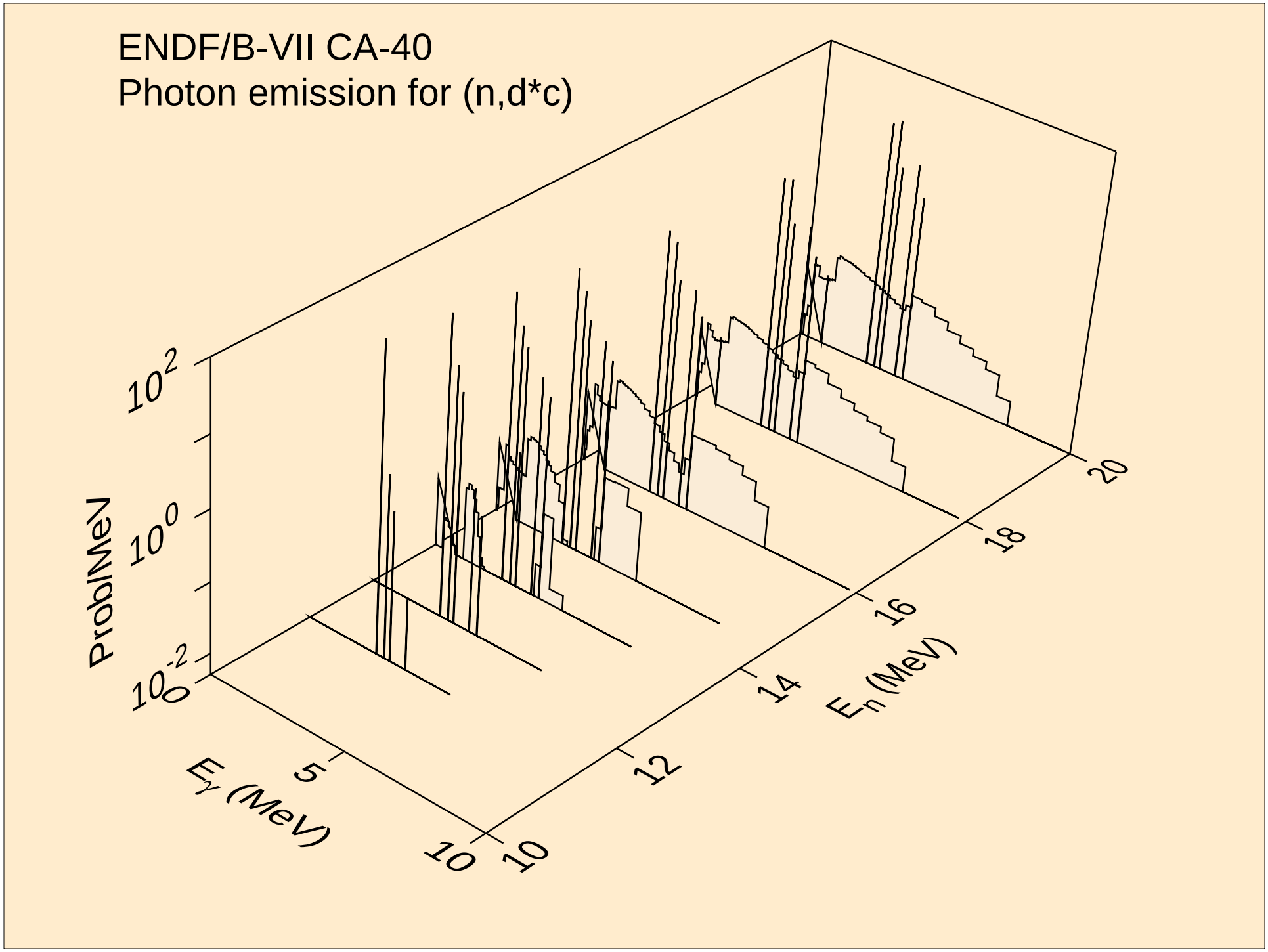

ENDF/B-VII CA-40
Photon emission for (n,d*3)
Prob/MeV
10^0
10^{-2}
E_γ (MeV)
3.5
3.0
3.5
E_n (MeV)
0
20
40
60
80
100
120
140
160
180
200

ENDF/B-VII CA-40
Photon emission for (n,d*4)

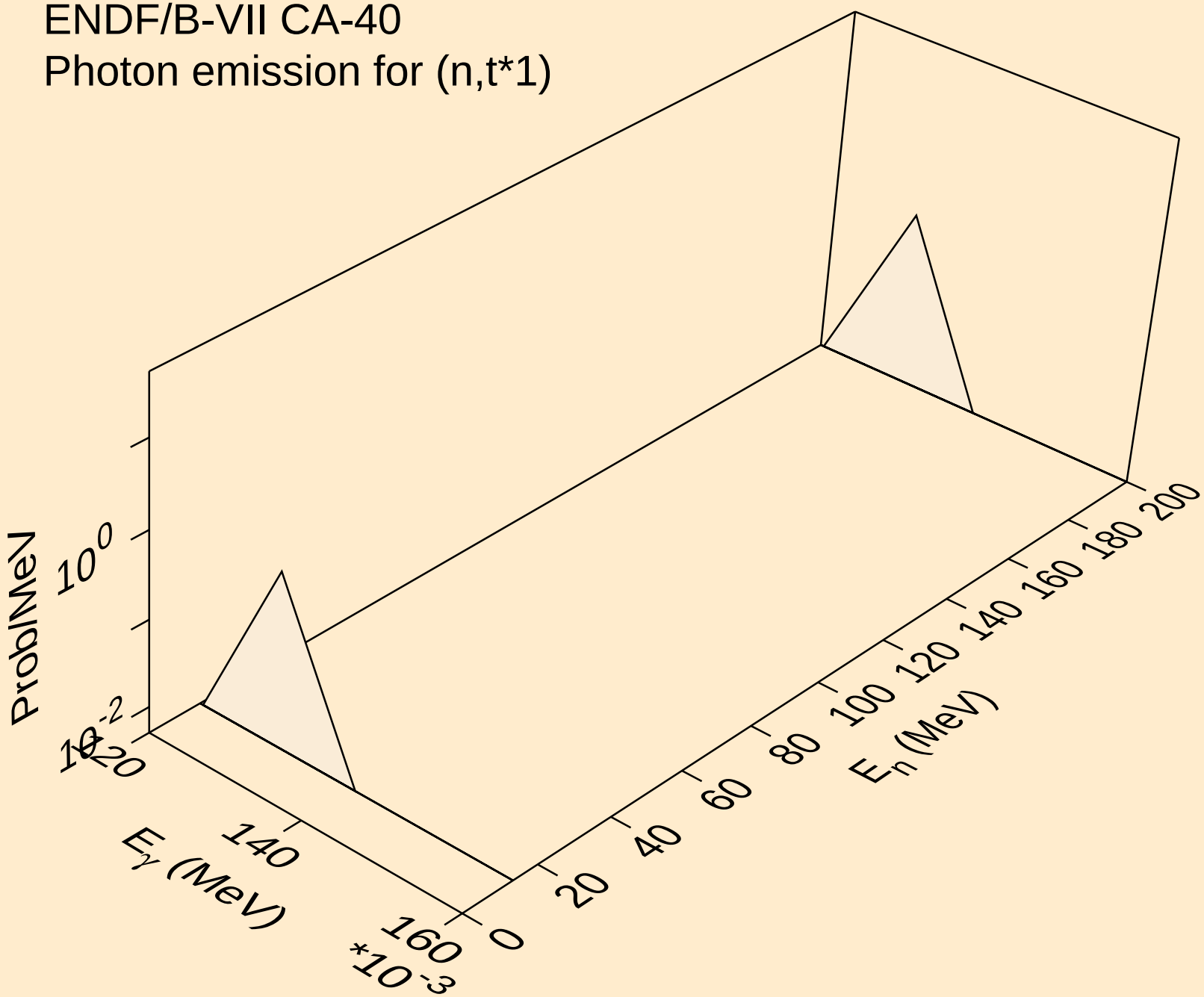


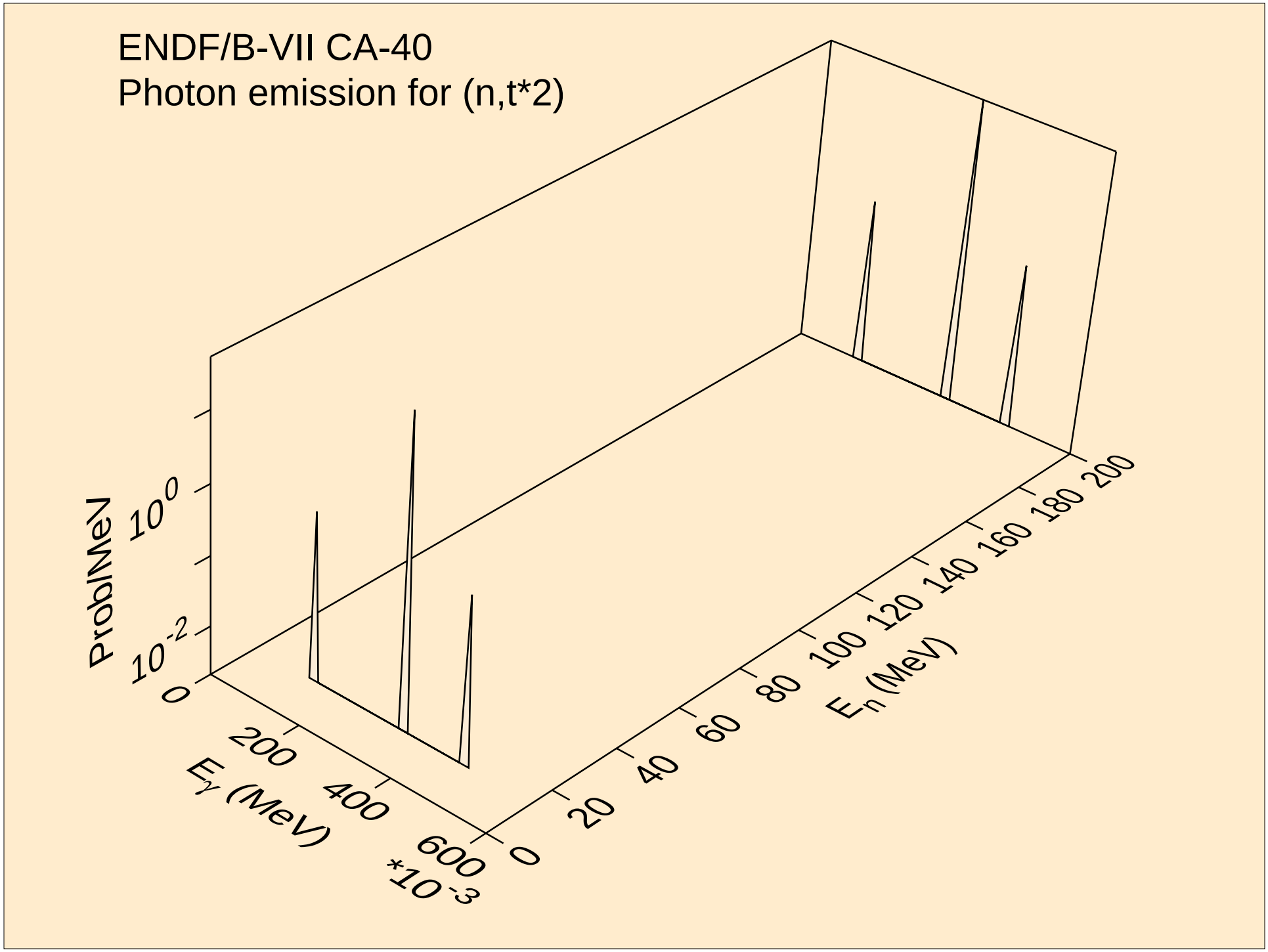
ENDF/B-VII CA-40
Photon emission for (n,d*5)

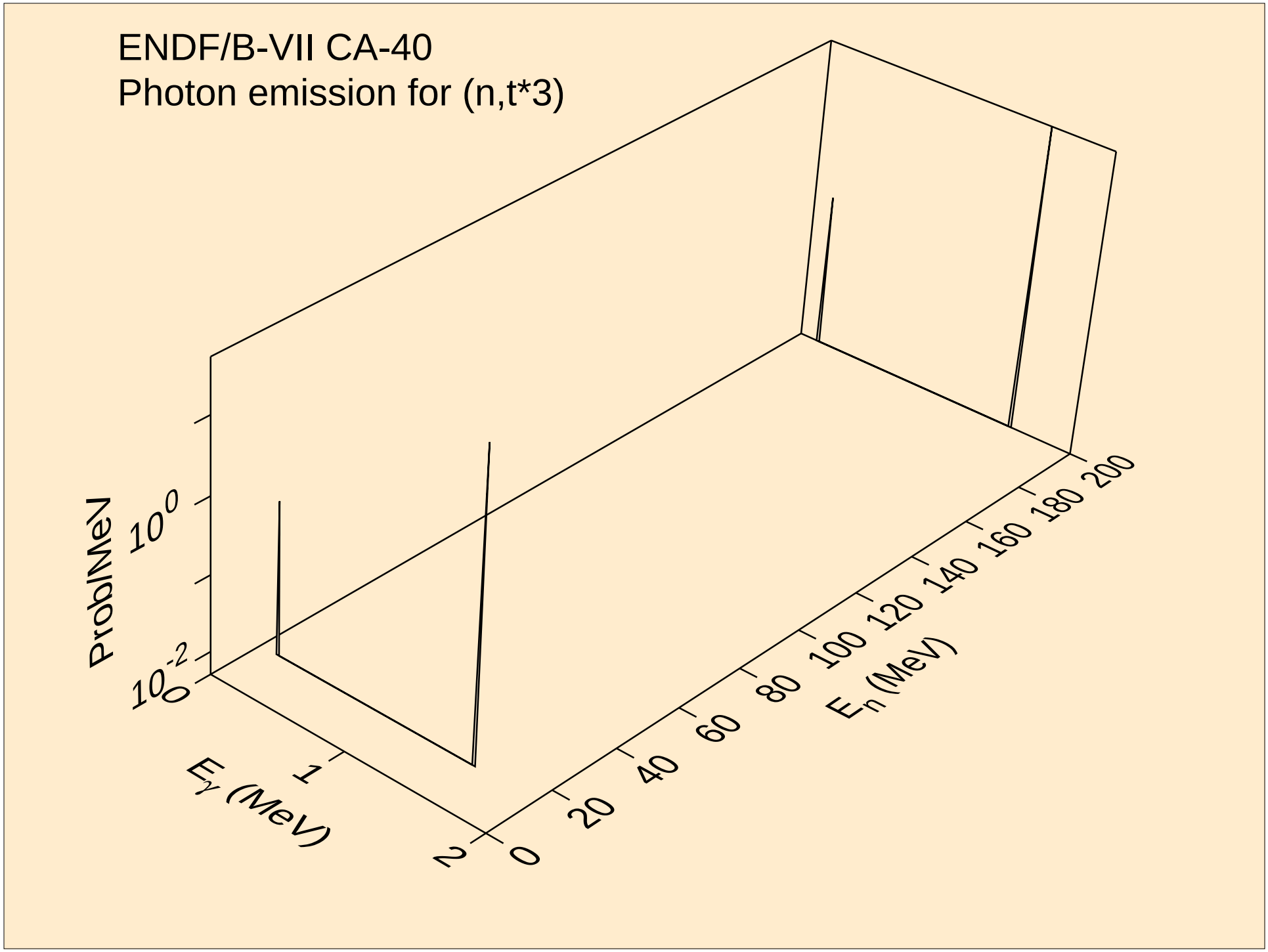


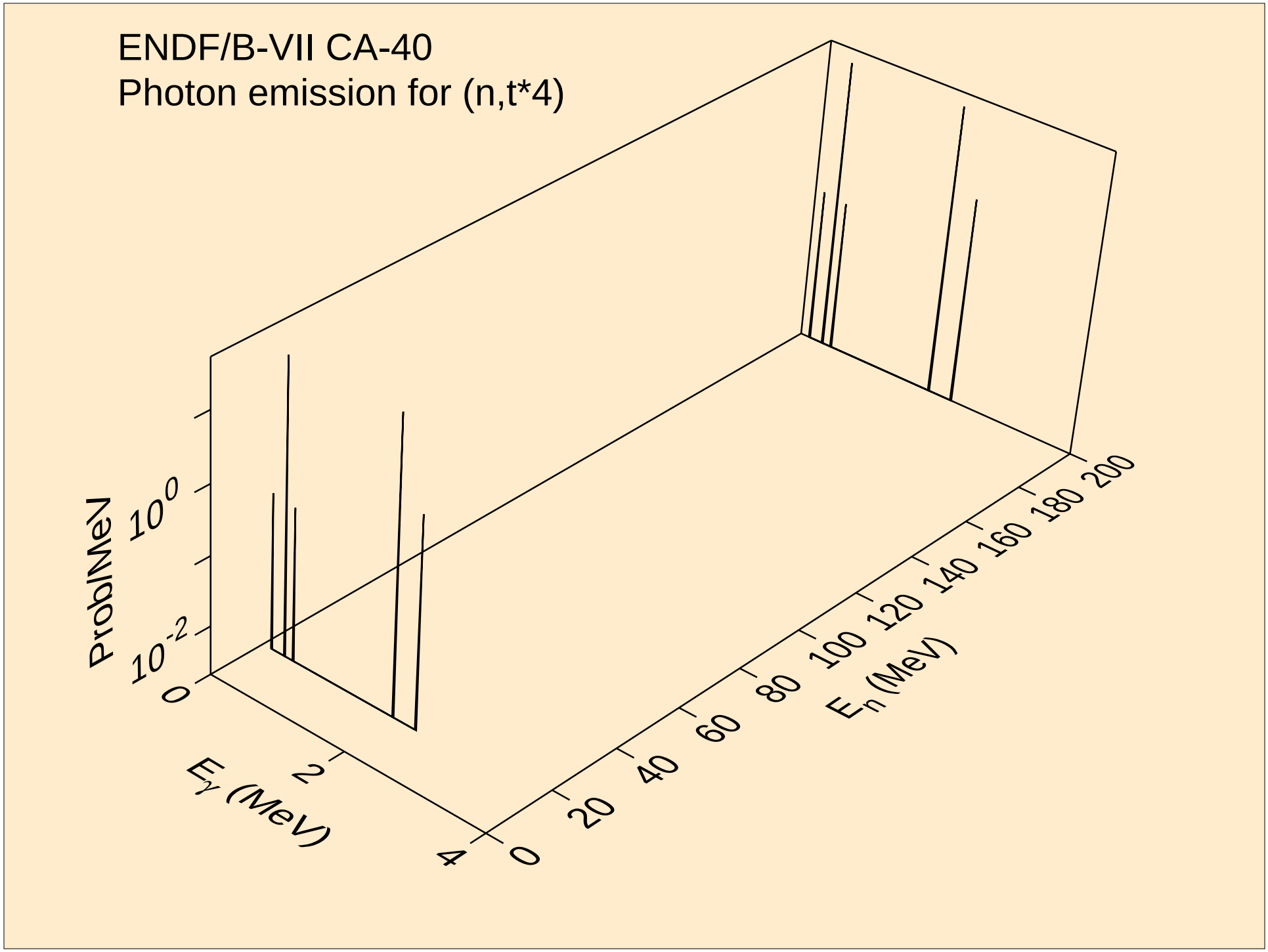

ENDF/B-VII CA-40
Photon emission for (n,d*c)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
5
10
E_γ (MeV)
10
12
14
16
18
20
E_n (MeV)

ENDF/B-VII CA-40
Photon emission for (n,t*1)

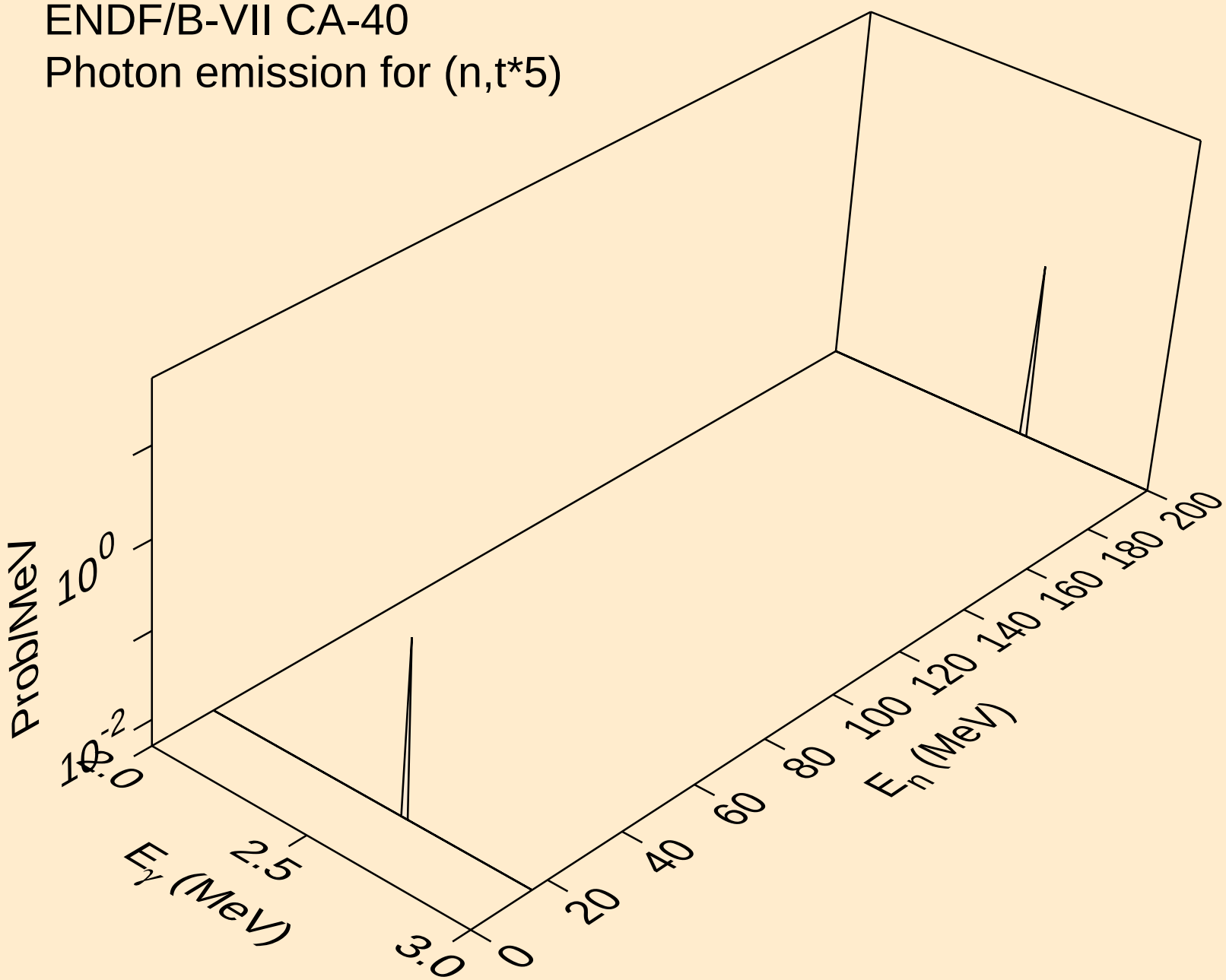



ENDF/B-VII CA-40
Photon emission for (n,t*2)
Prob/MeV
10^0
10^{-2}
0
200
400
600
E_γ (MeV)
$*10^{-3}$
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

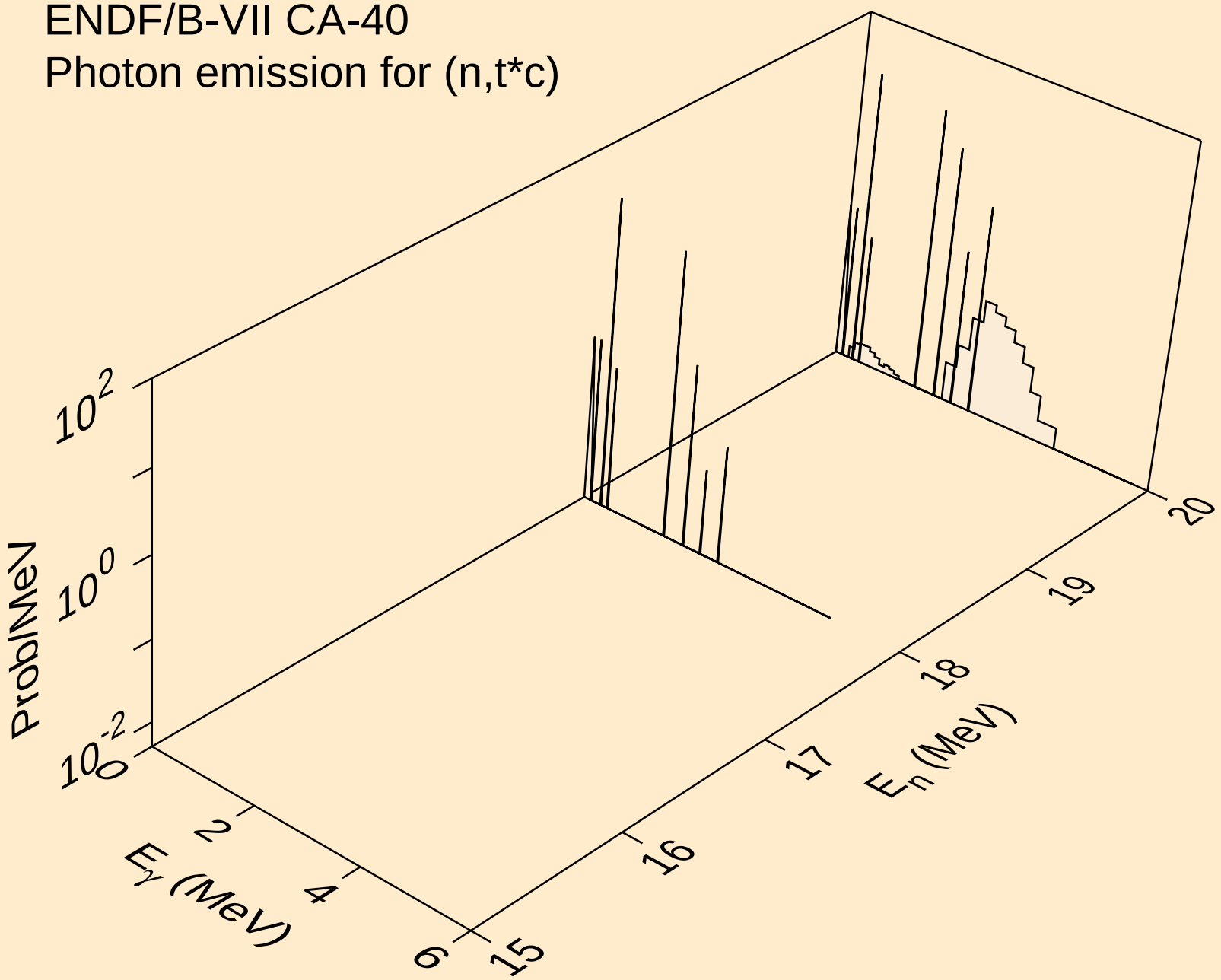

ENDF/B-VII CA-40
Photon emission for (n,t*3)
Prob/MeV
10^0
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)


ENDF/B-VII CA-40
Photon emission for (n,t*4)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

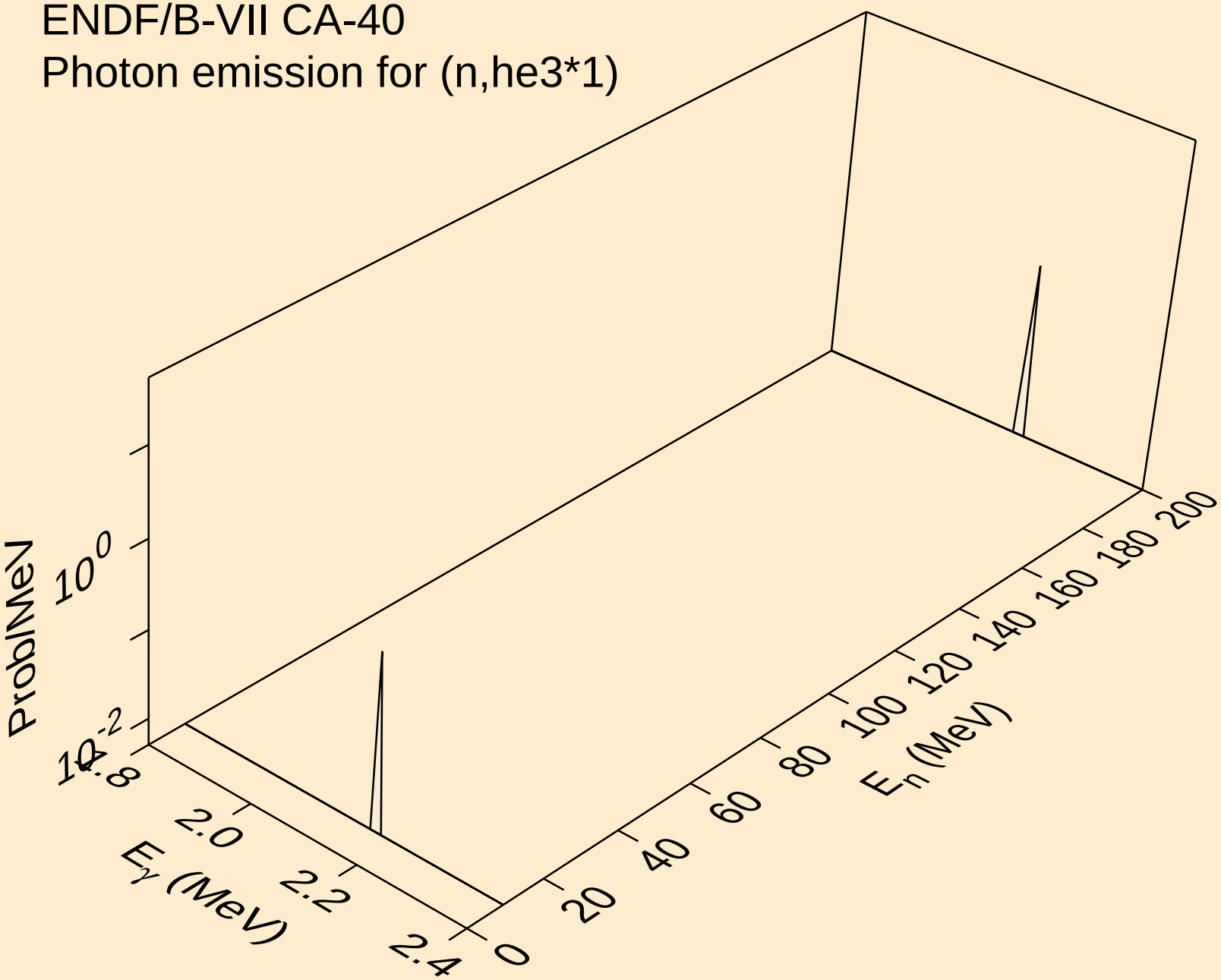
ENDF/B-VII CA-40
Photon emission for (n,t*5)



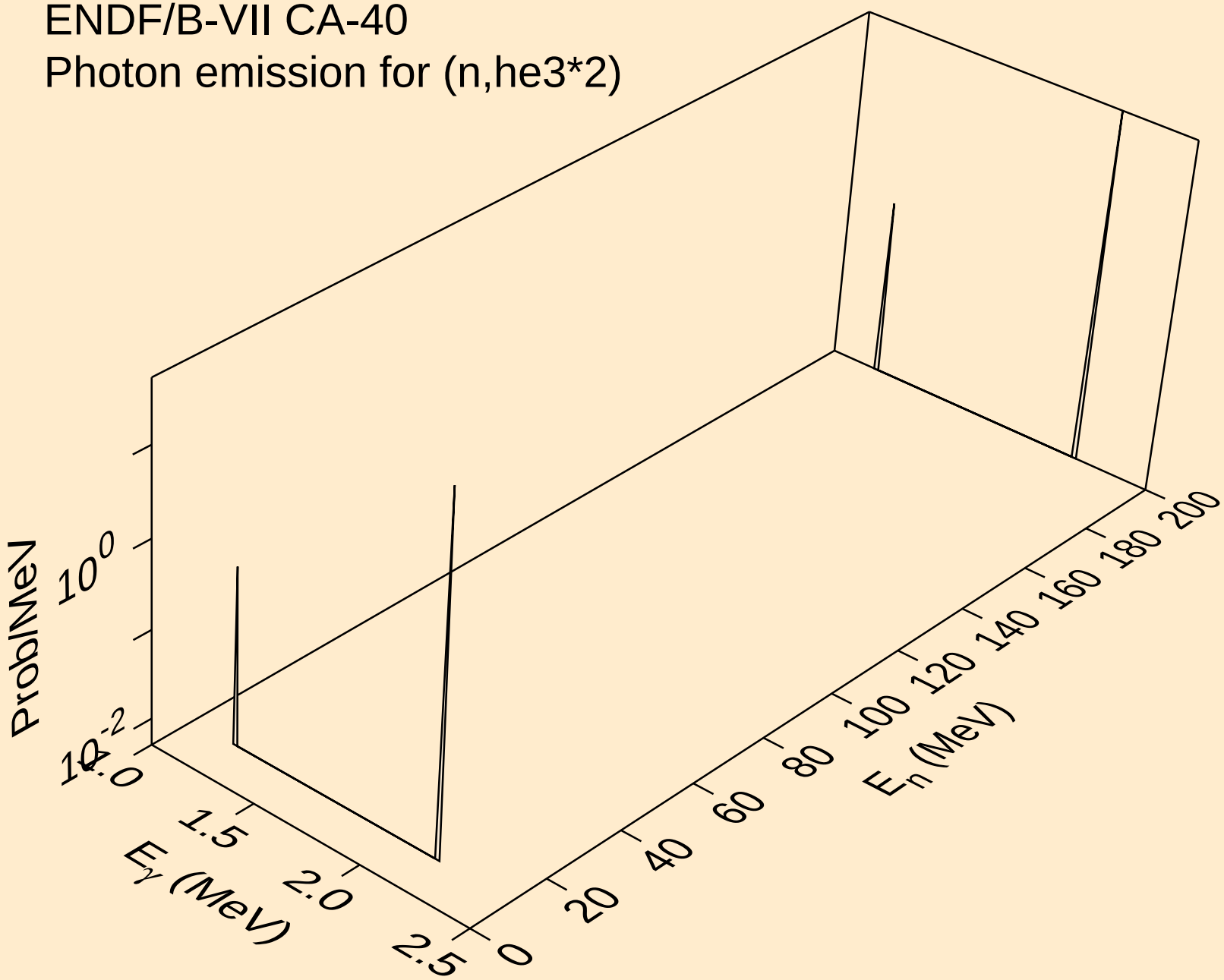
ENDF/B-VII CA-40
Photon emission for (n,t*c)



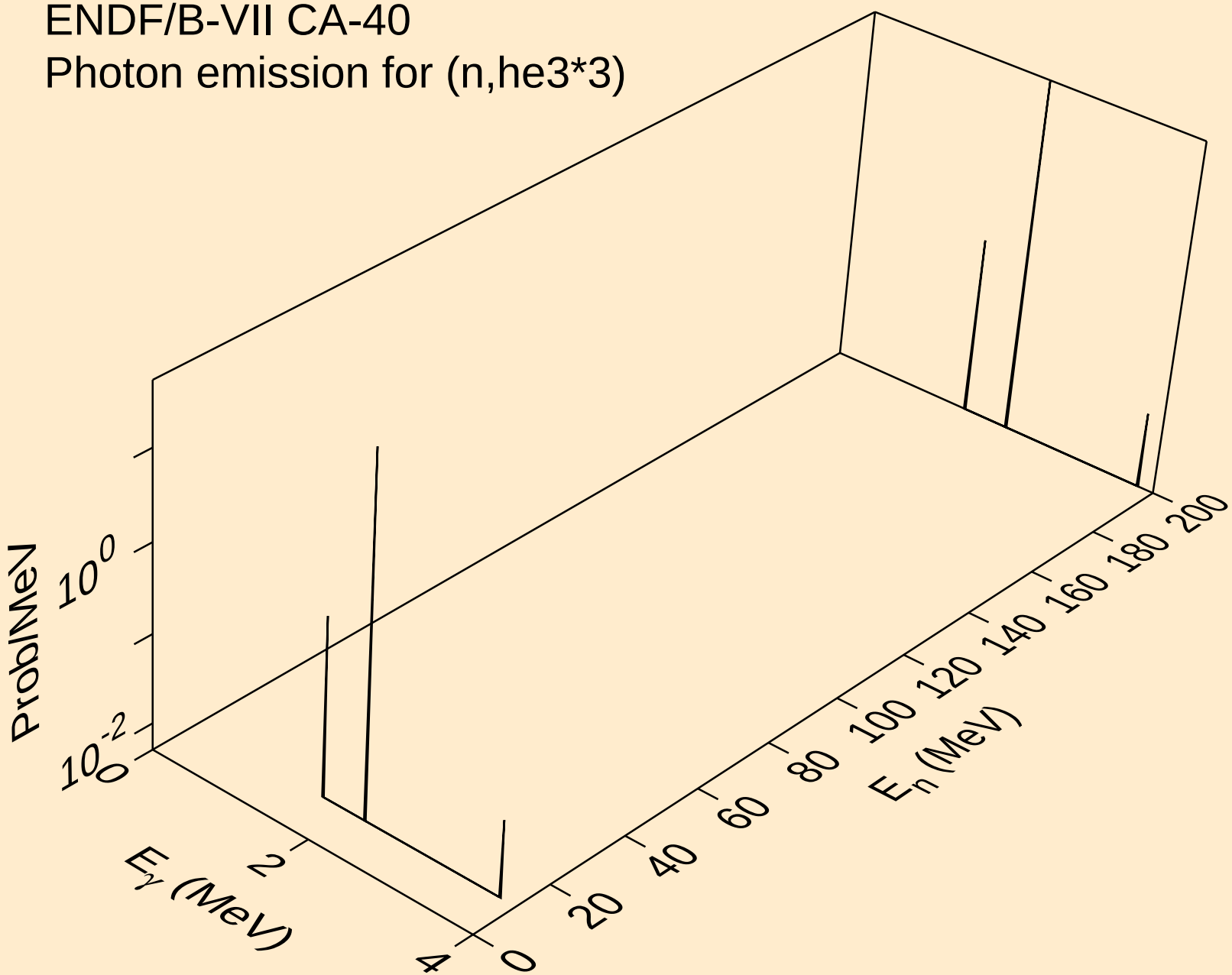
ENDF/B-VII CA-40
Photon emission for (n,he3*1)



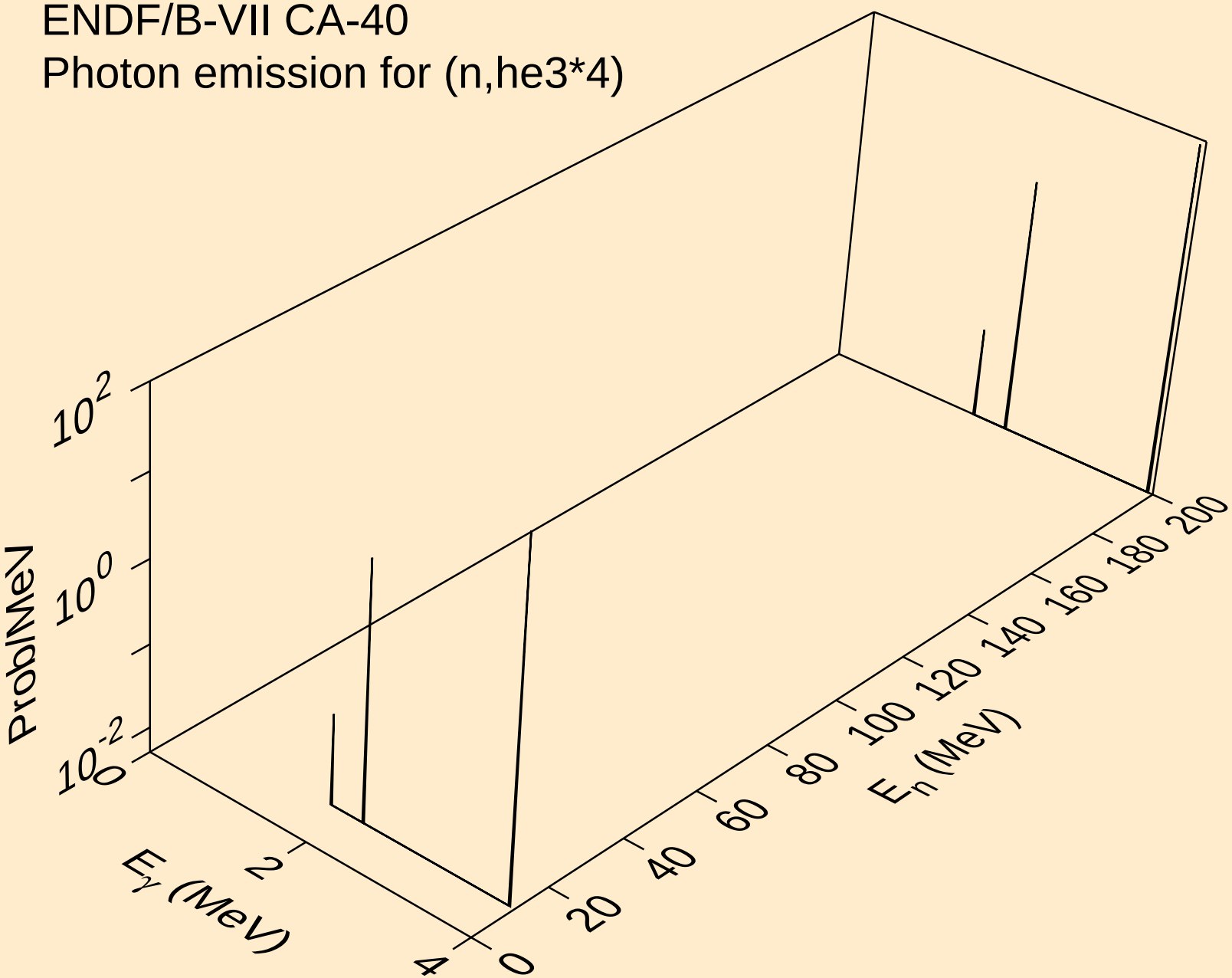
ENDF/B-VII CA-40
Photon emission for (n,he3*2)



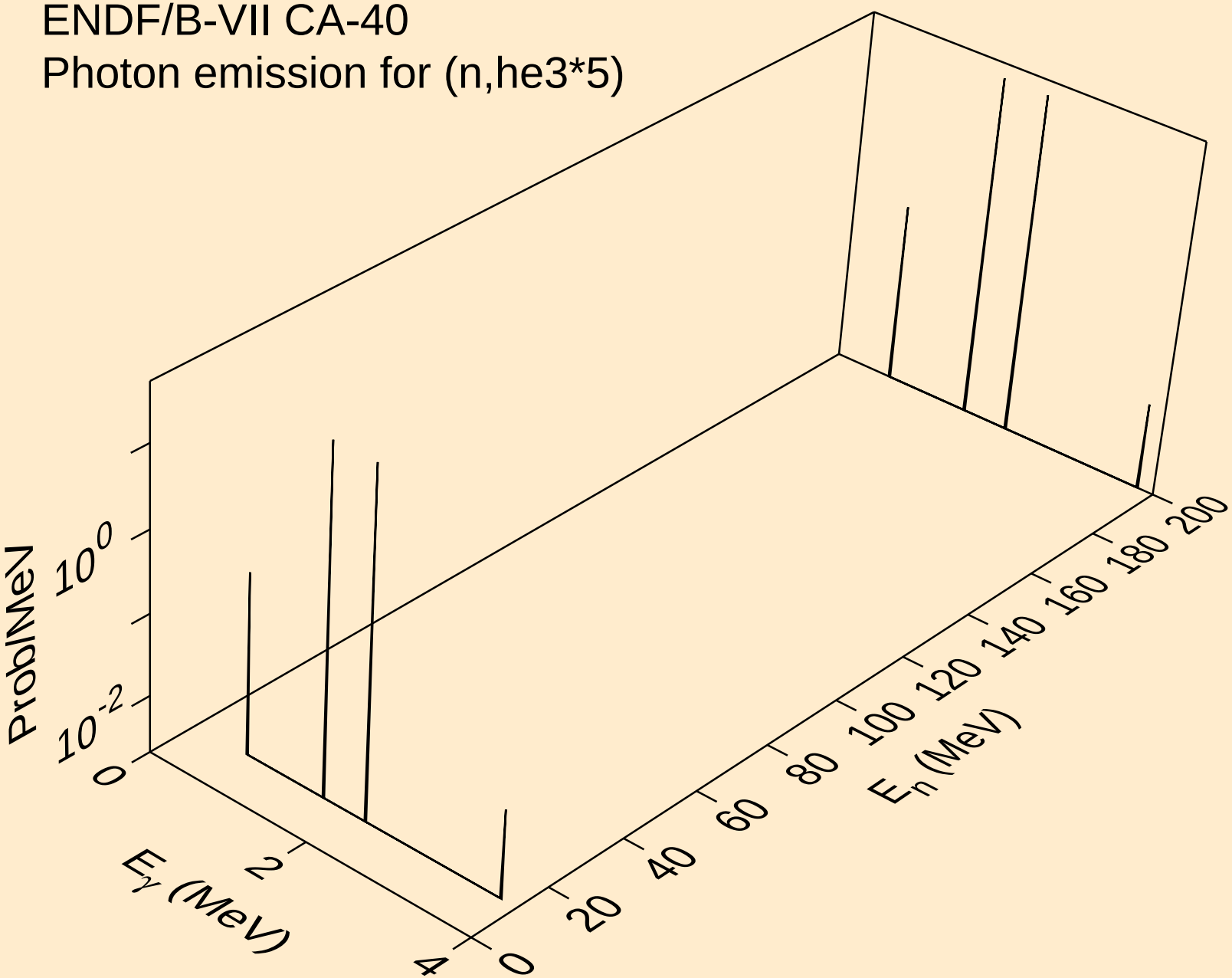
ENDF/B-VII CA-40
Photon emission for (n,he3*3)



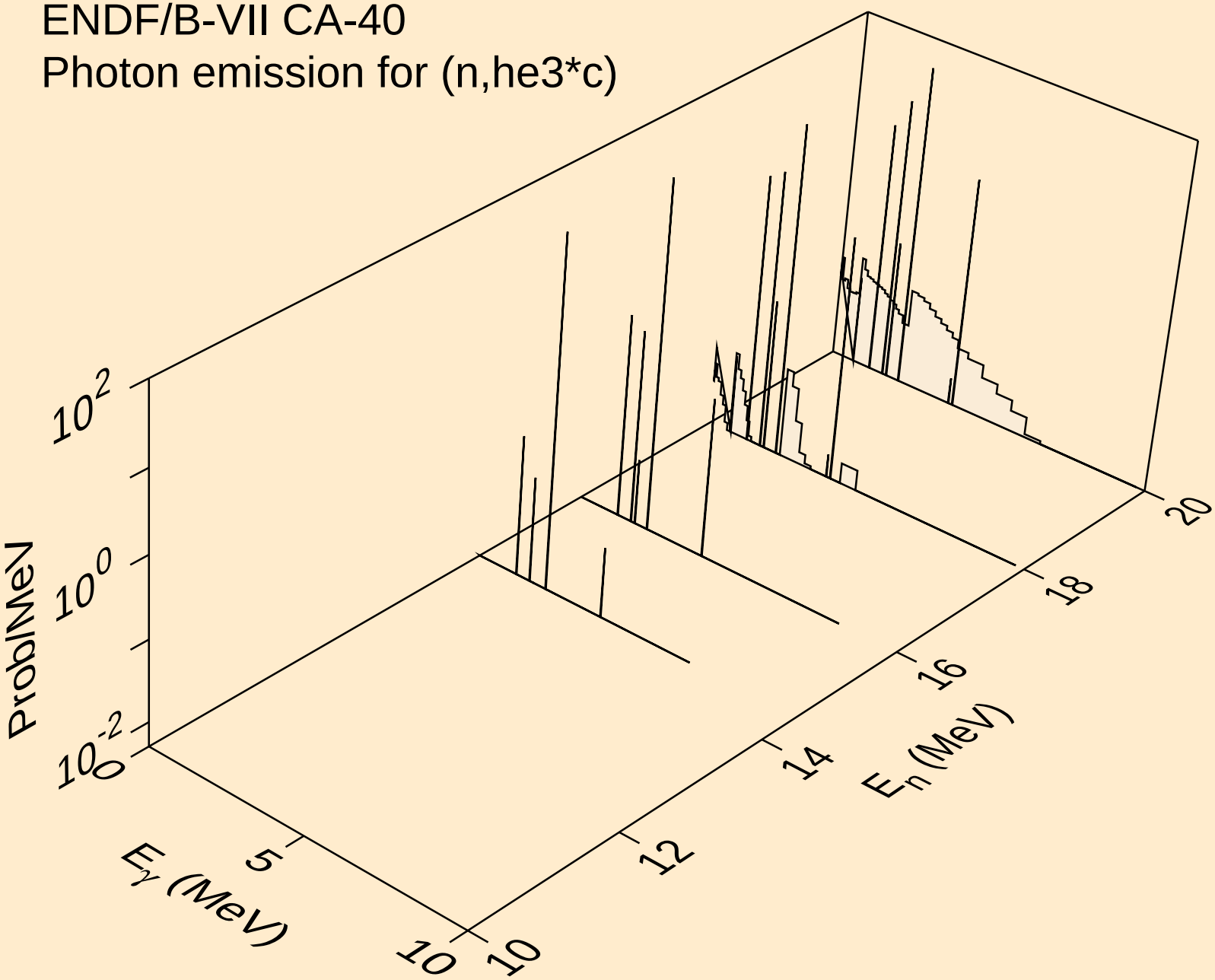
ENDF/B-VII CA-40
Photon emission for (n,he3*4)



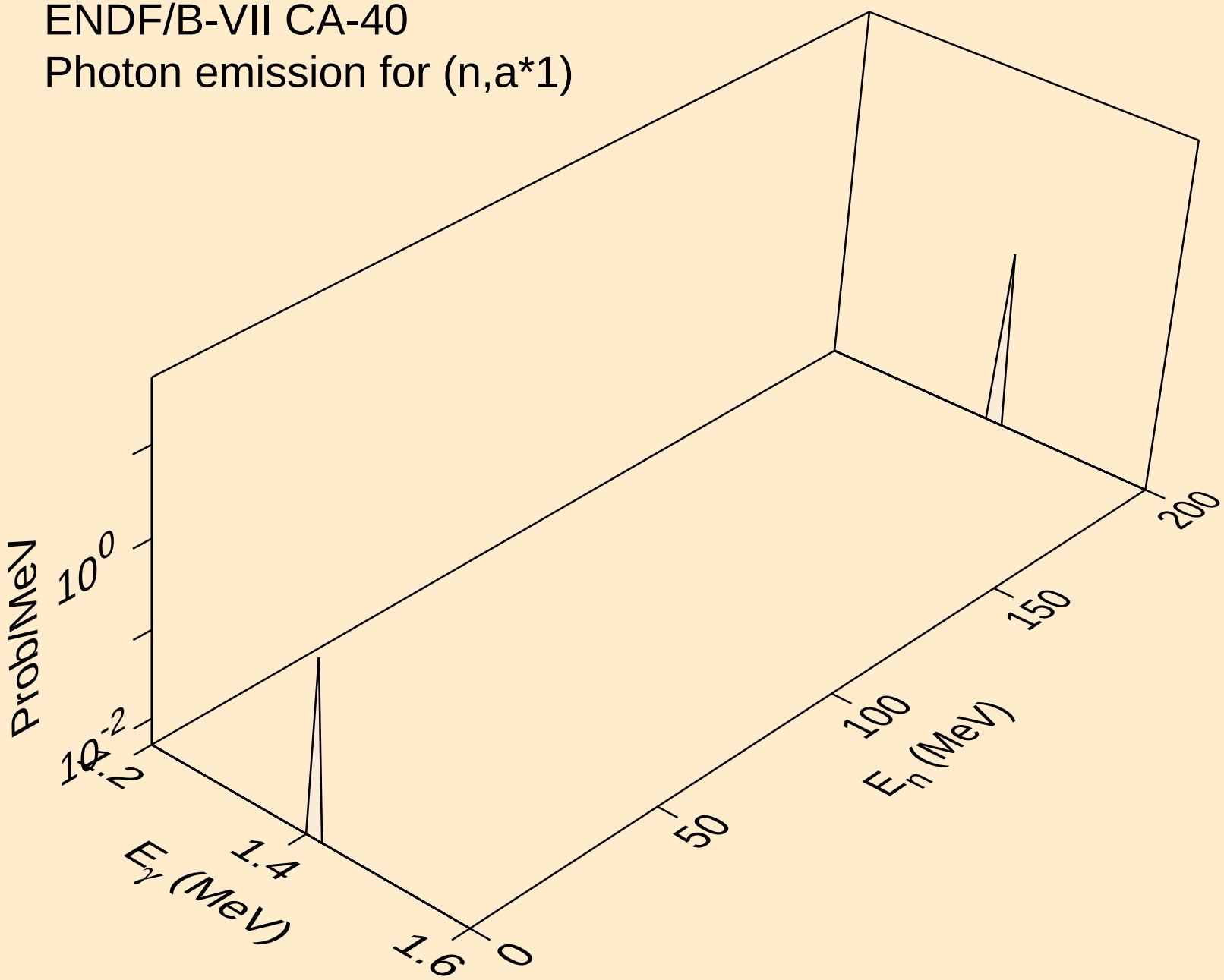
ENDF/B-VII CA-40
Photon emission for (n,he3*5)



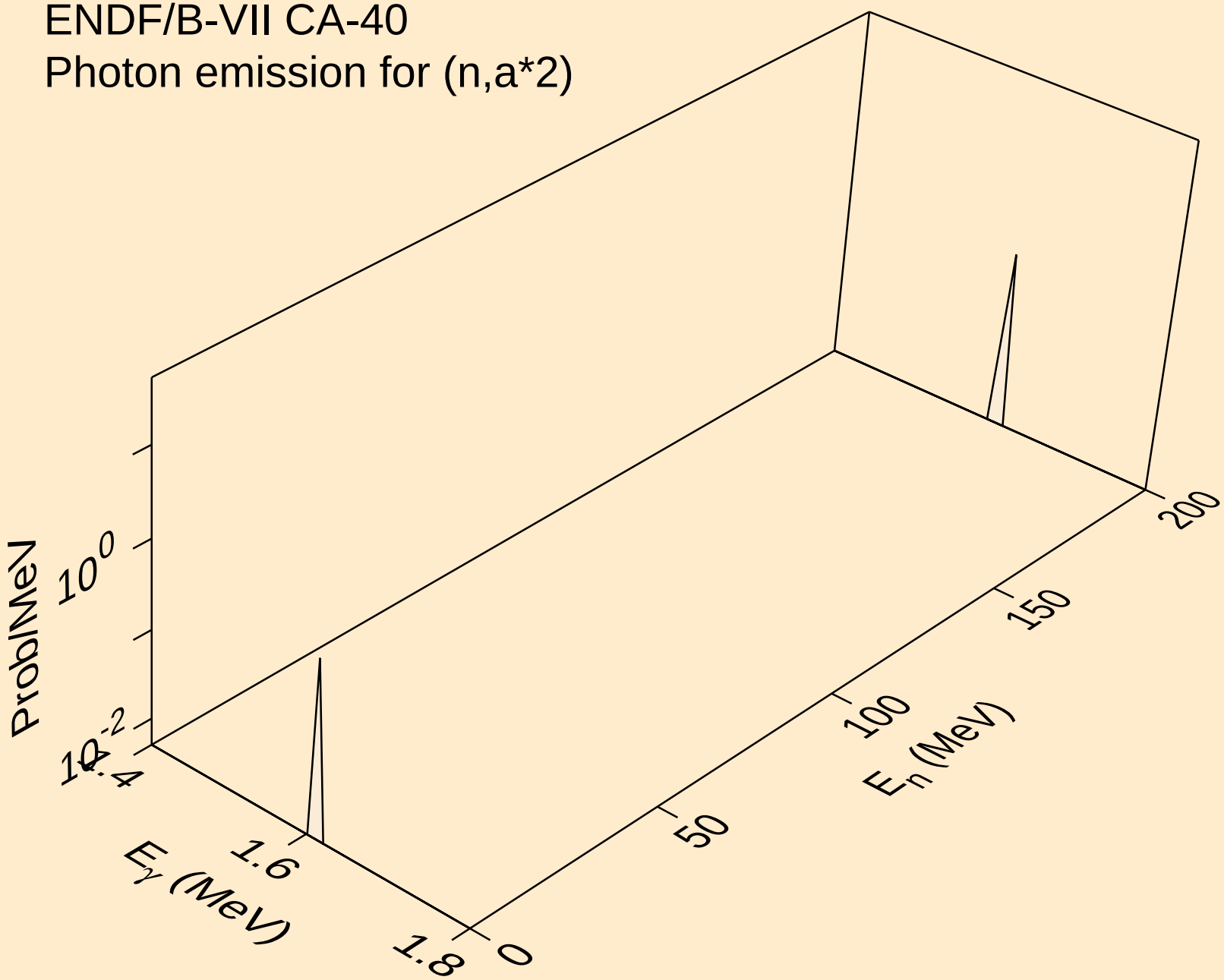
ENDF/B-VII CA-40
Photon emission for (n,he3*c)



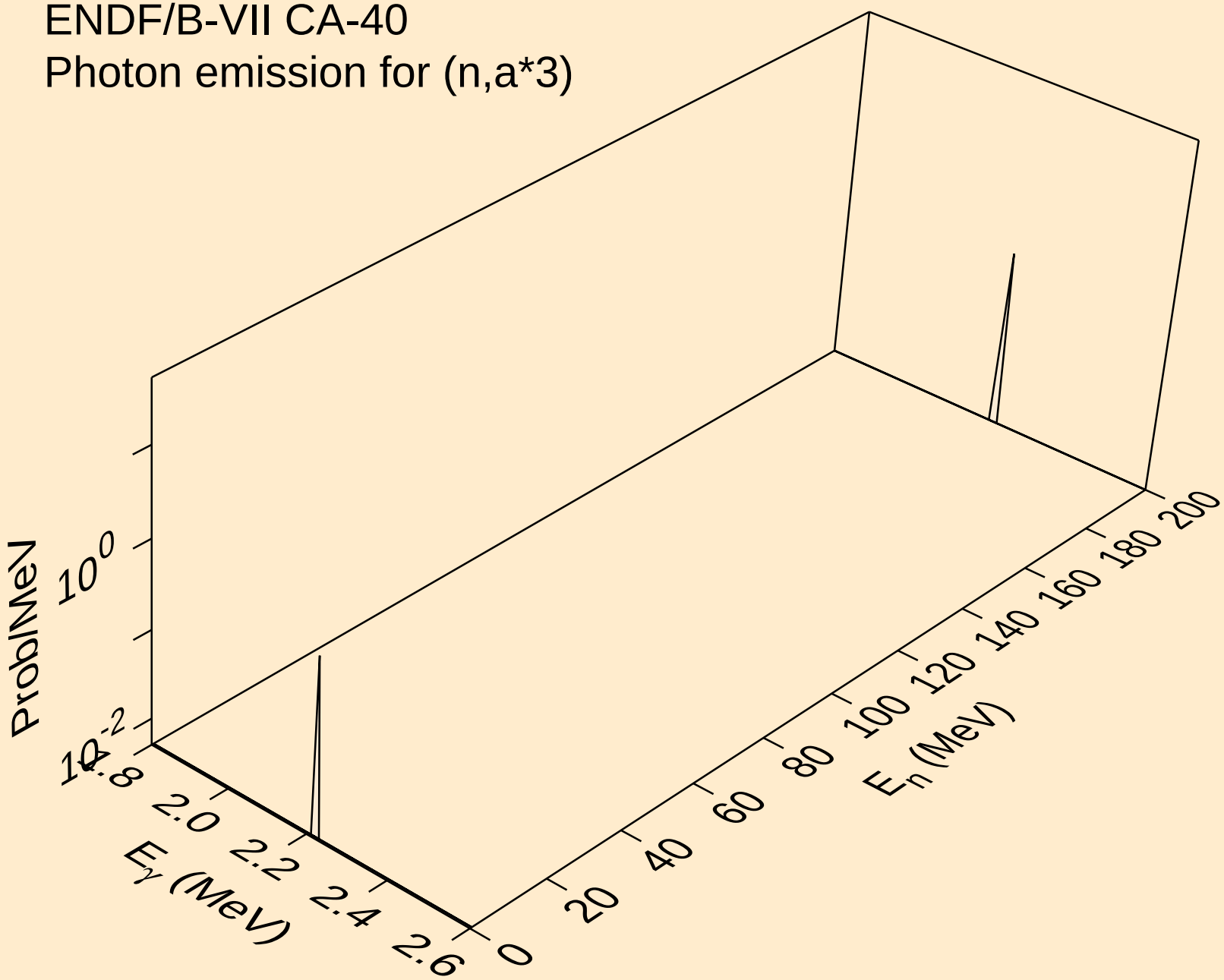
ENDF/B-VII CA-40
Photon emission for (n,a*1)



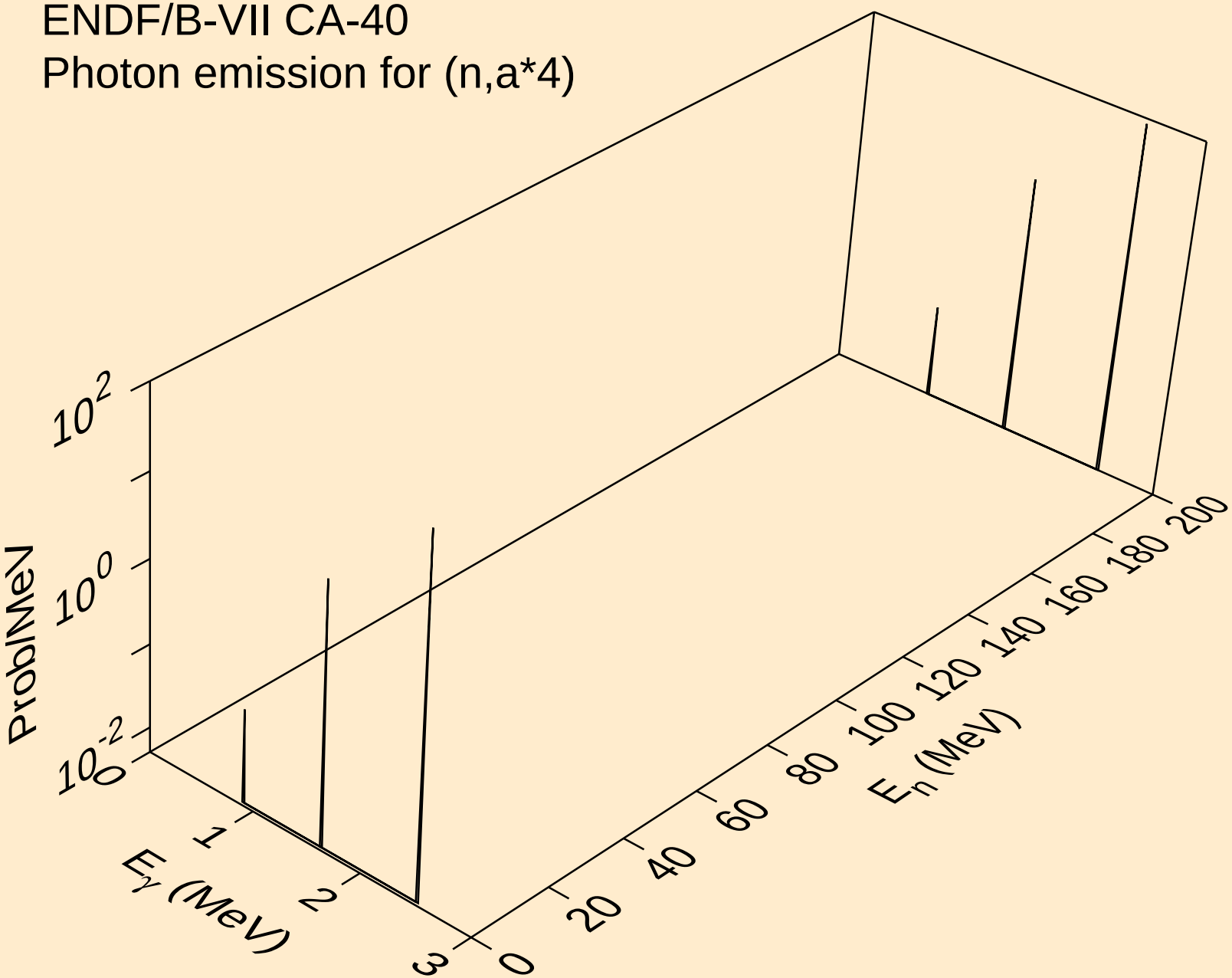
ENDF/B-VII CA-40
Photon emission for (n,a*2)



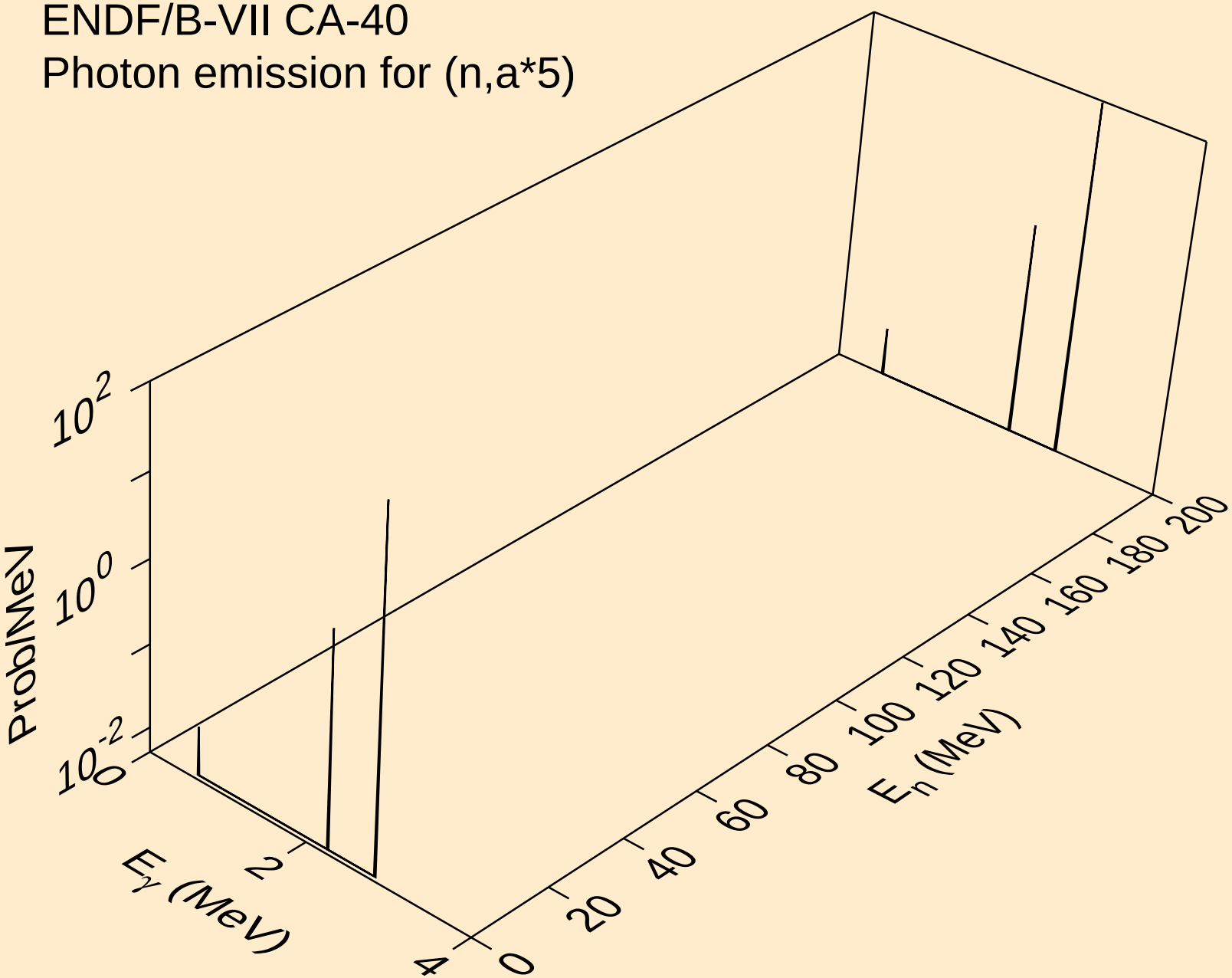
ENDF/B-VII CA-40
Photon emission for (n,a*3)



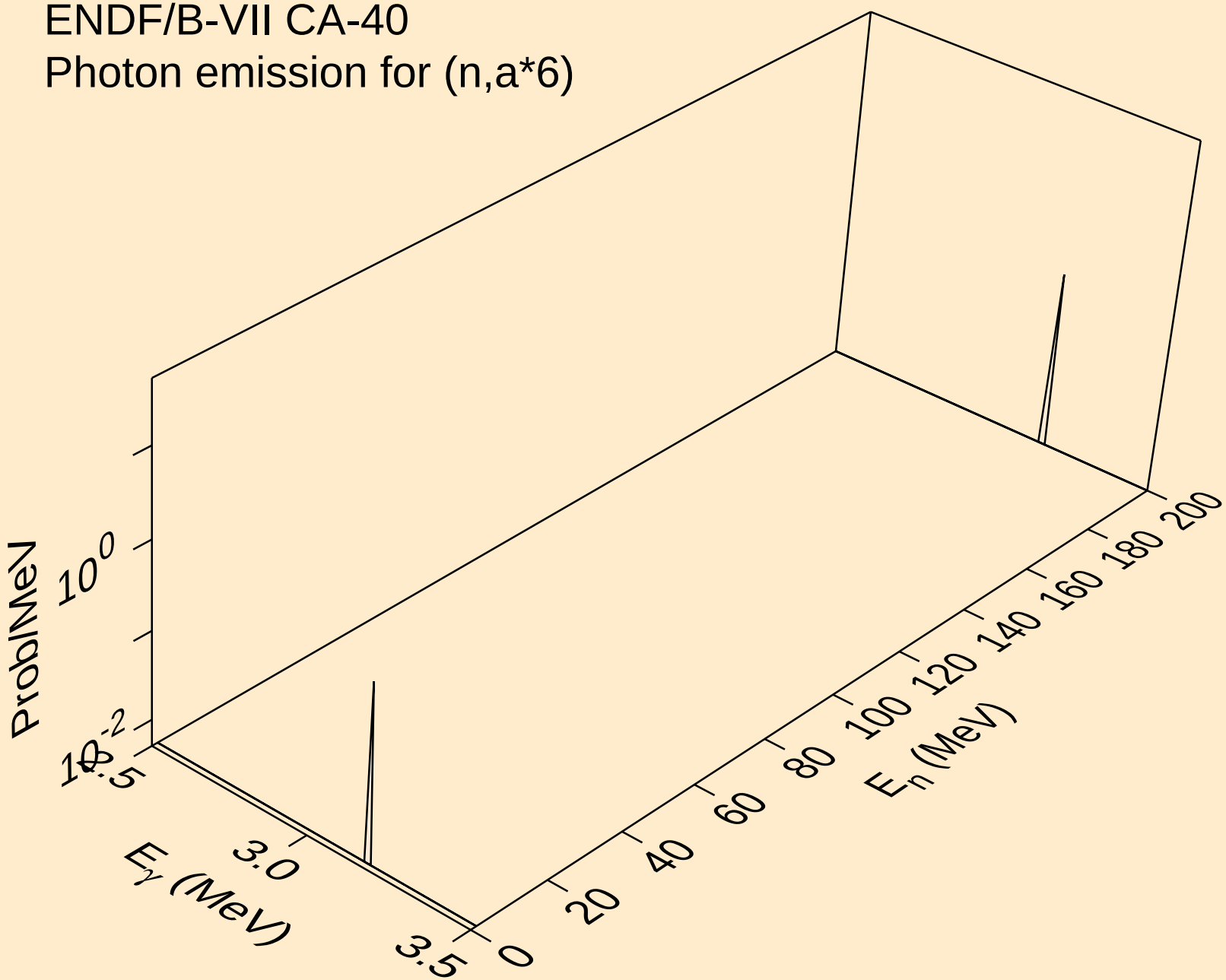
ENDF/B-VII CA-40
Photon emission for (n,a*4)



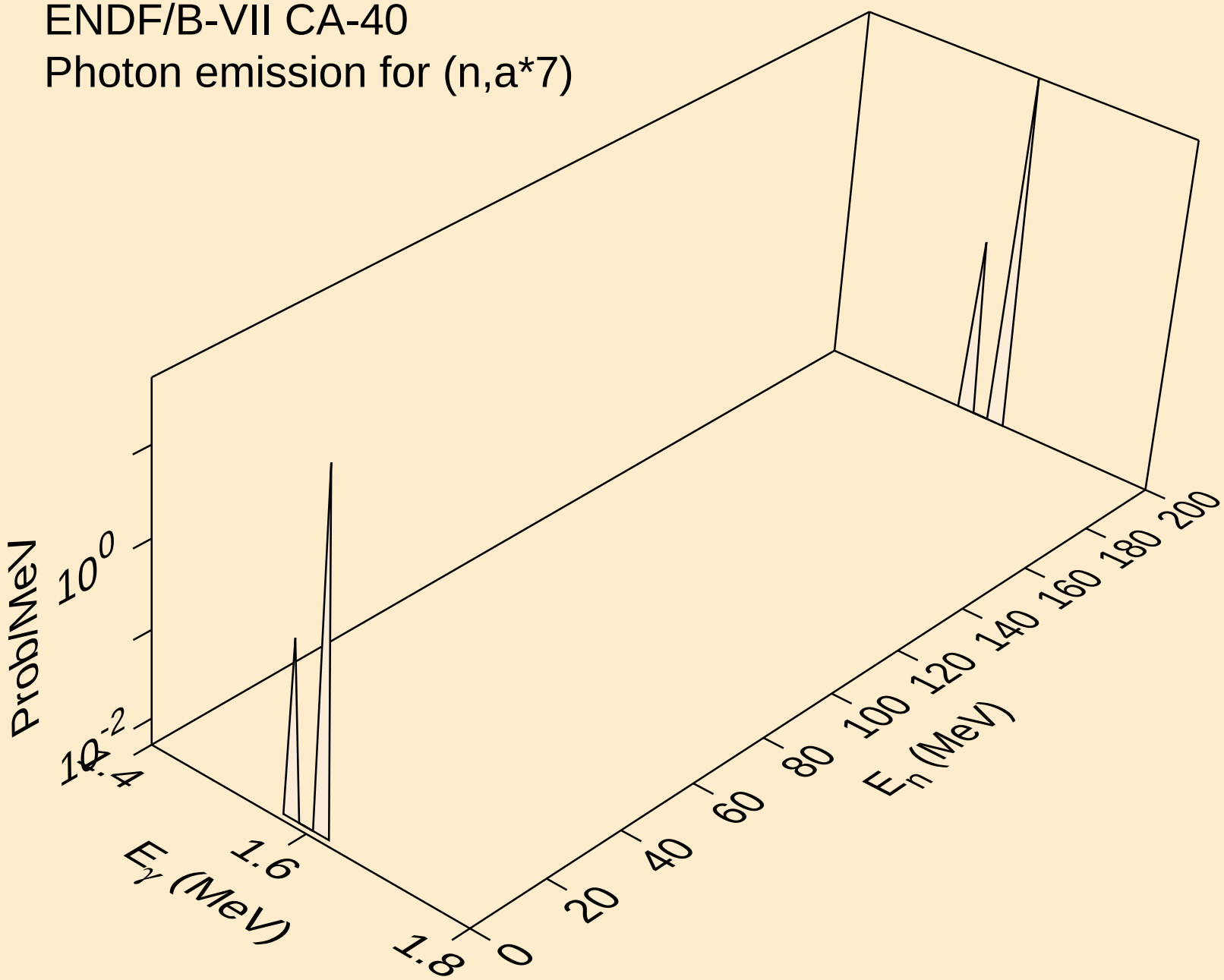
ENDF/B-VII CA-40
Photon emission for (n,a*5)

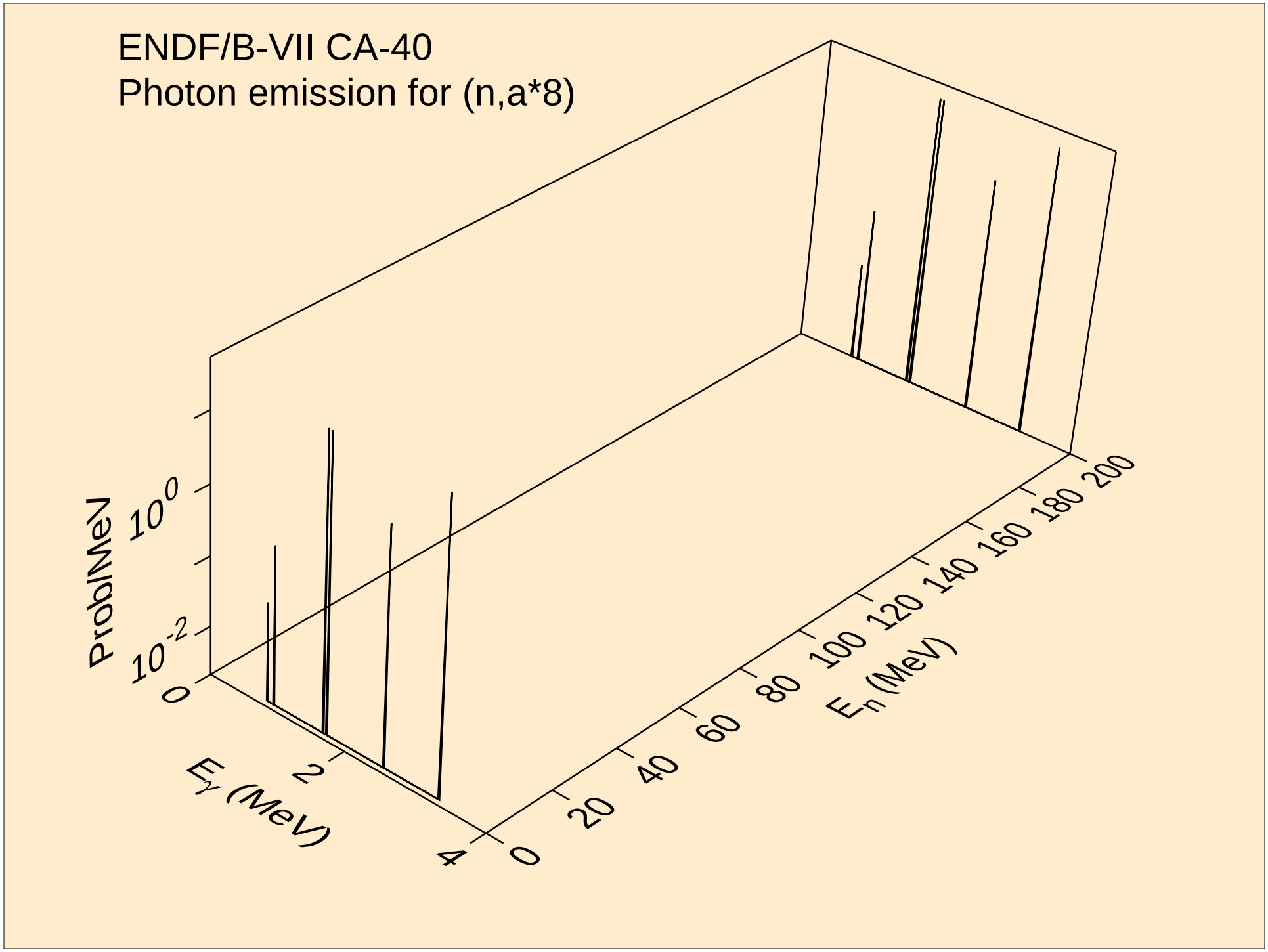


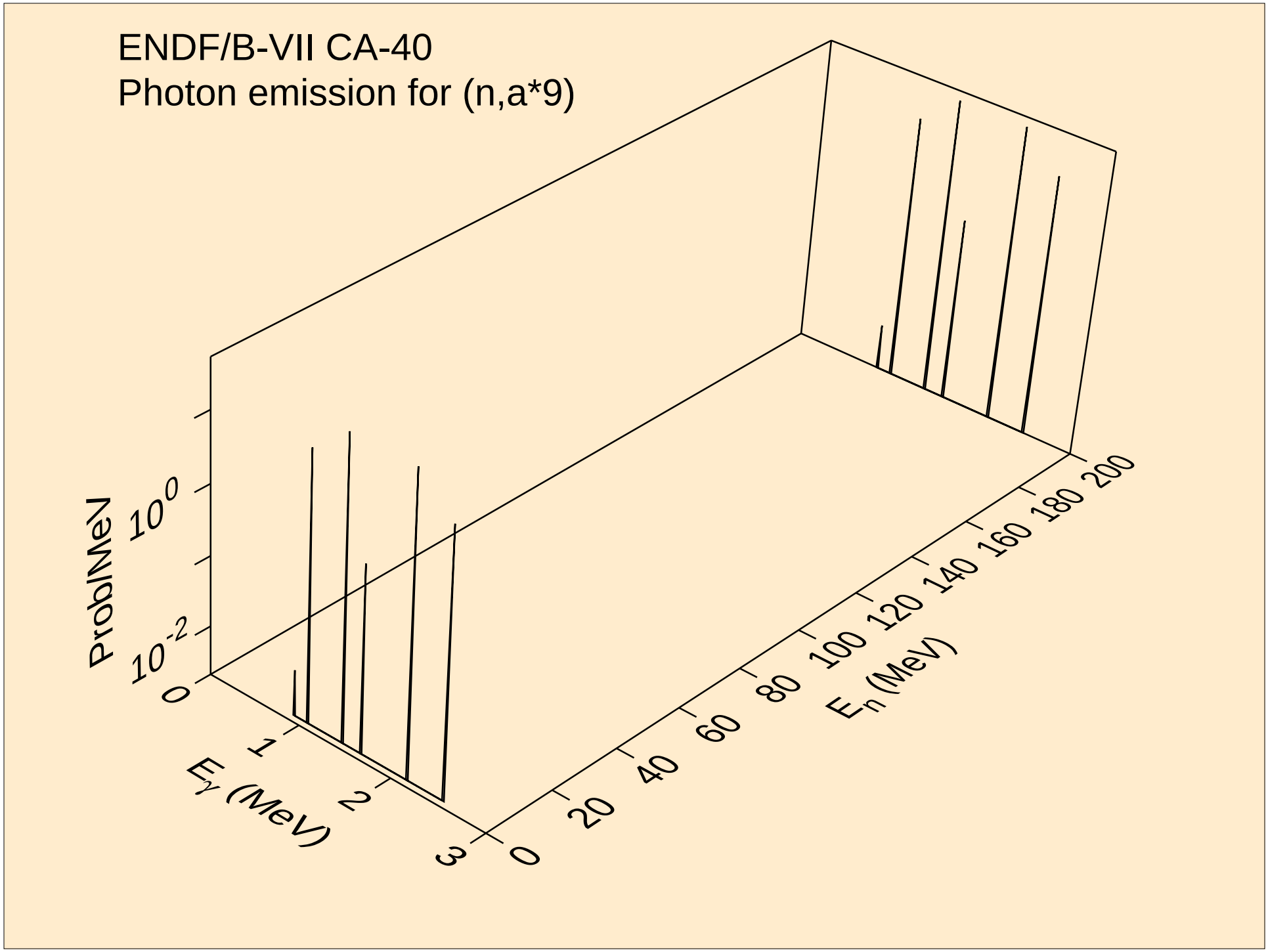
ENDF/B-VII CA-40
Photon emission for (n,a*6)

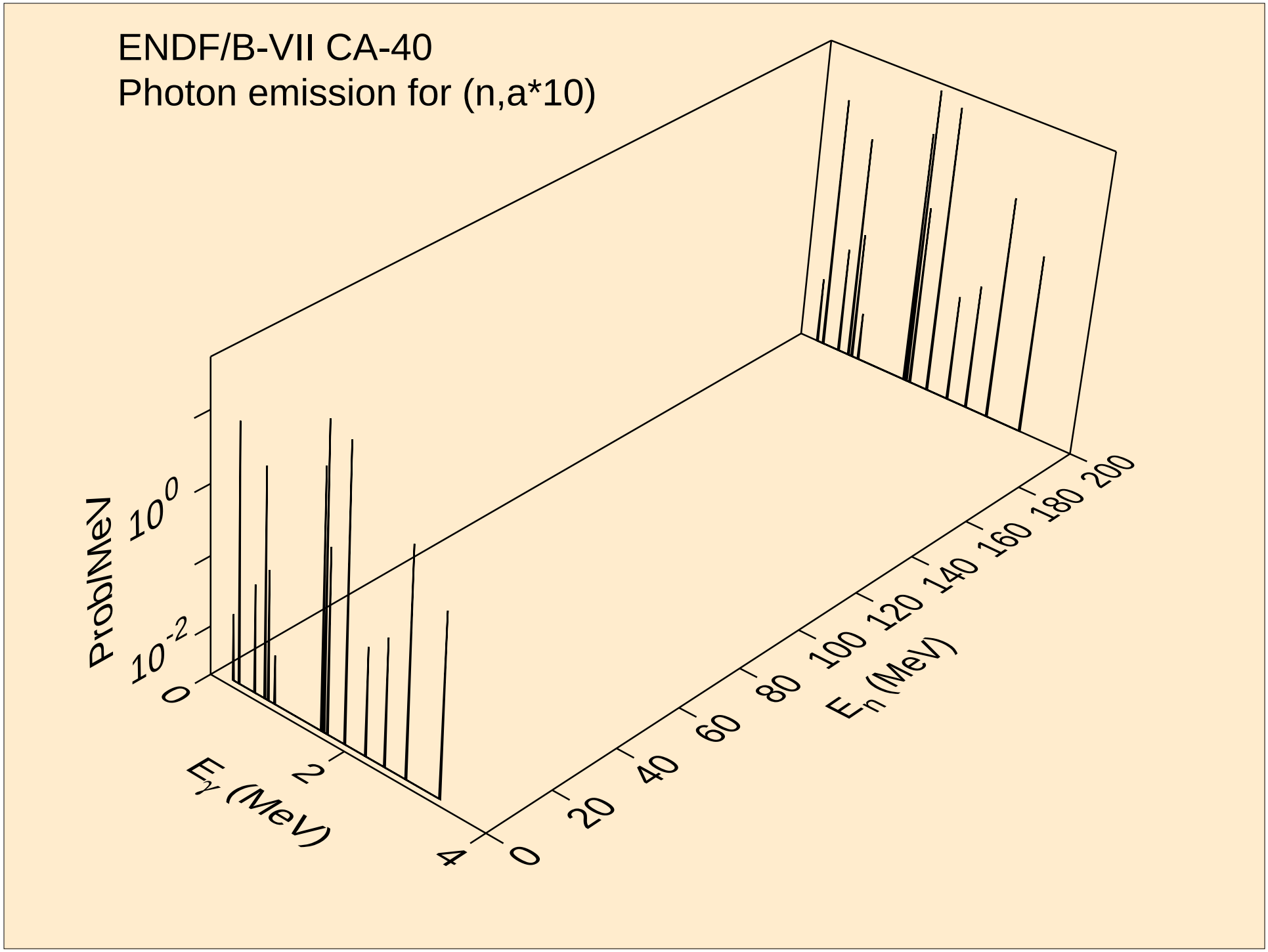


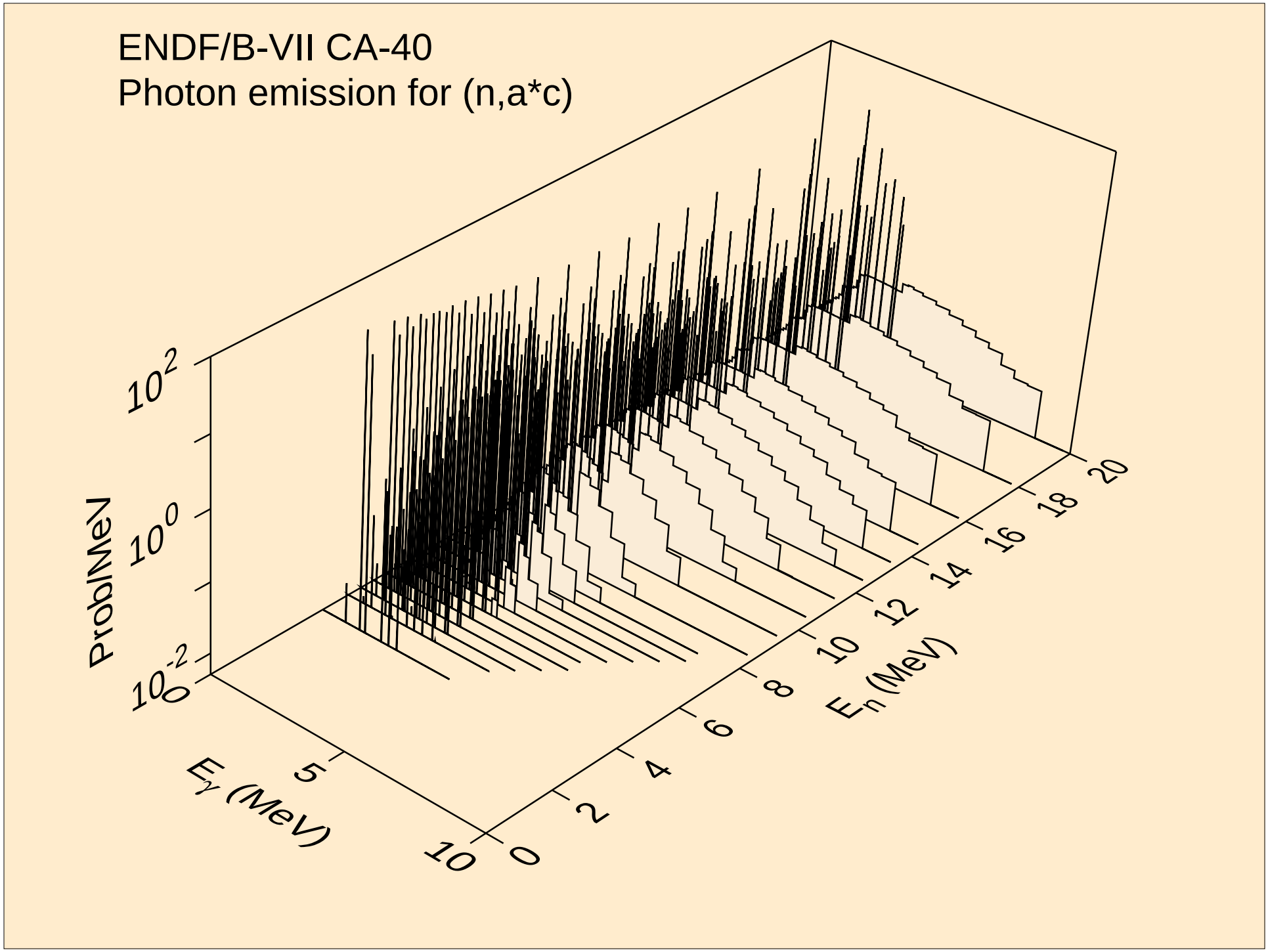
ENDF/B-VII CA-40
Photon emission for (n,a*7)

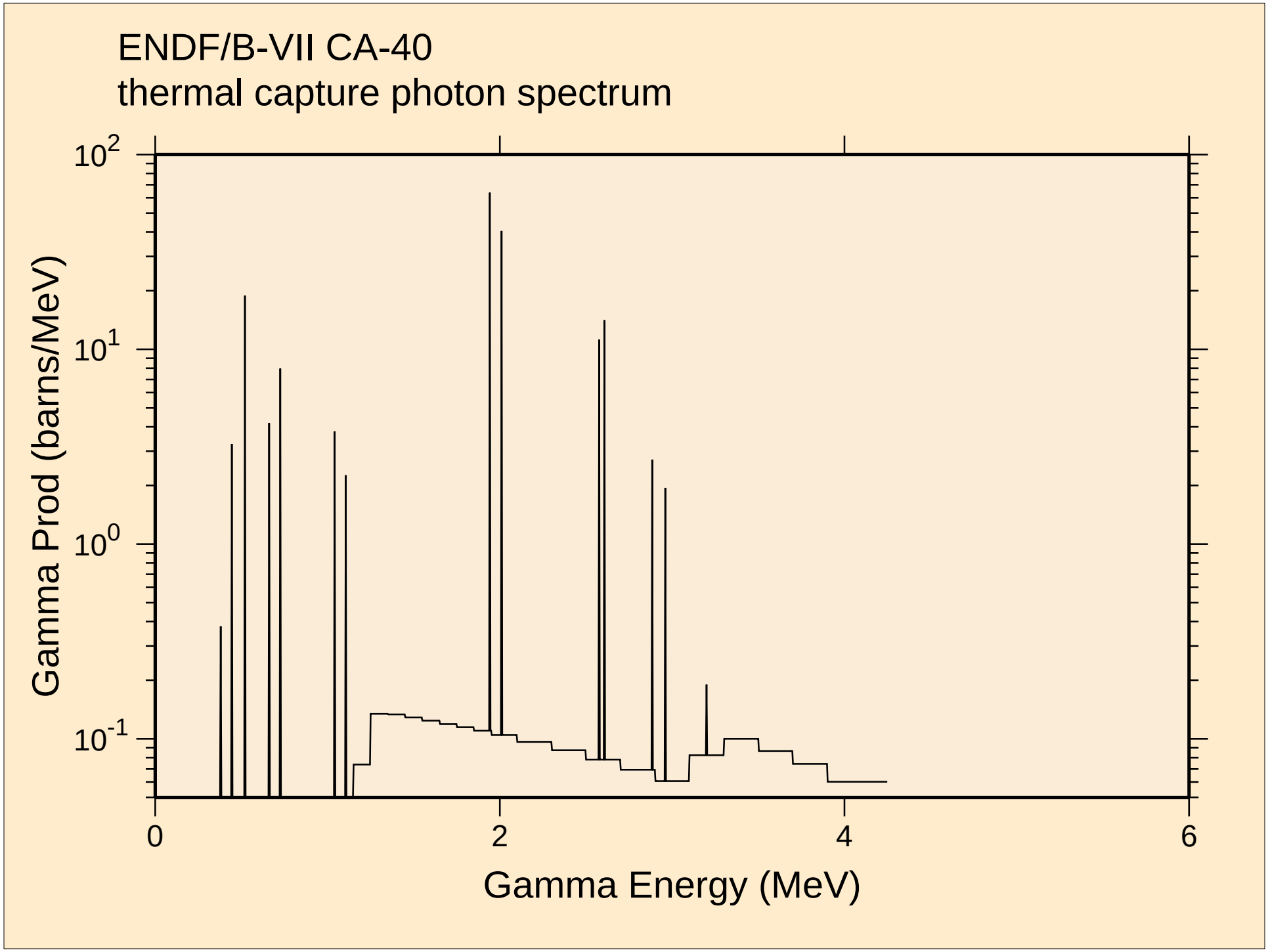


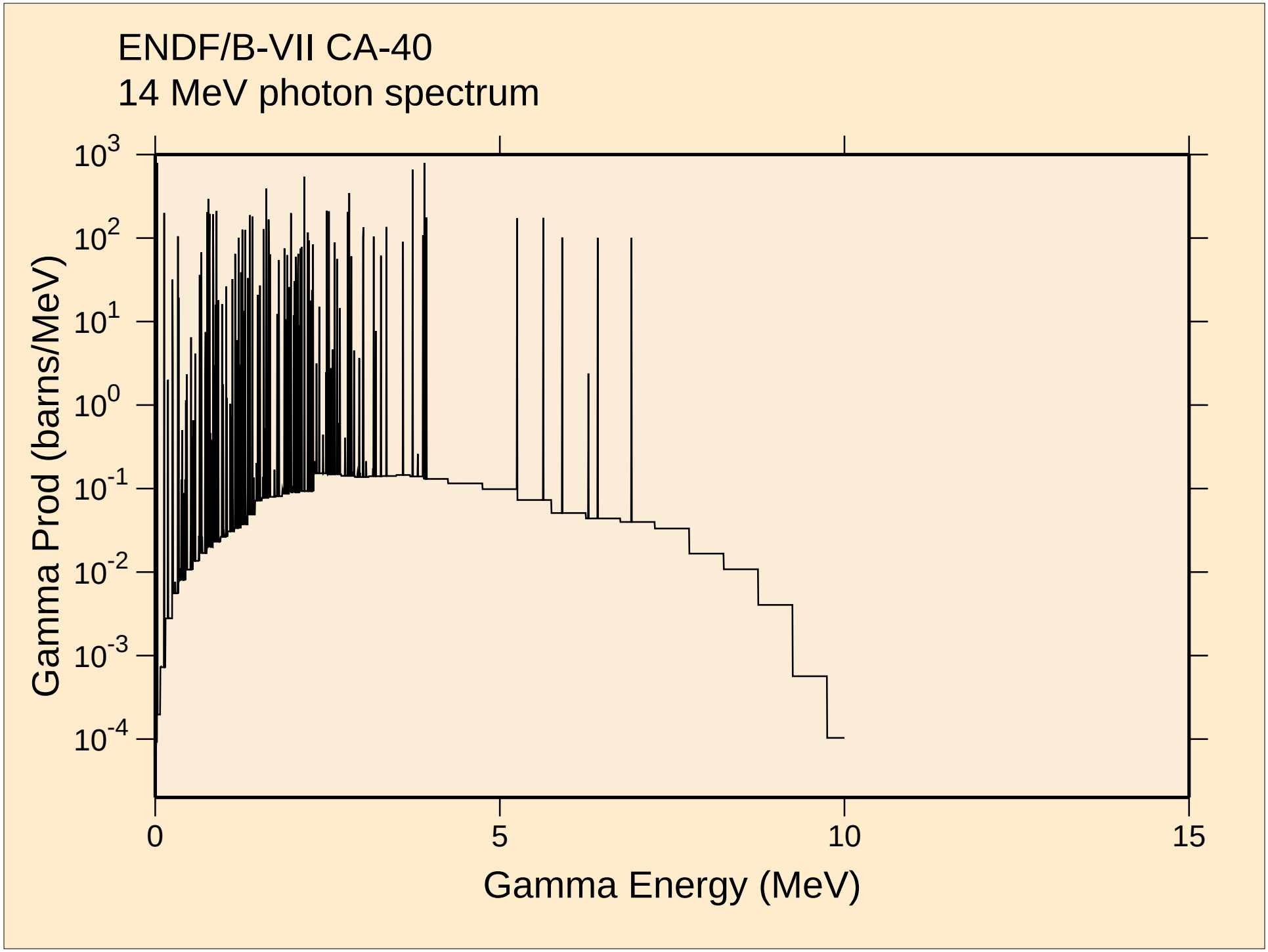

ENDF/B-VII CA-40
Photon emission for (n,a*8)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

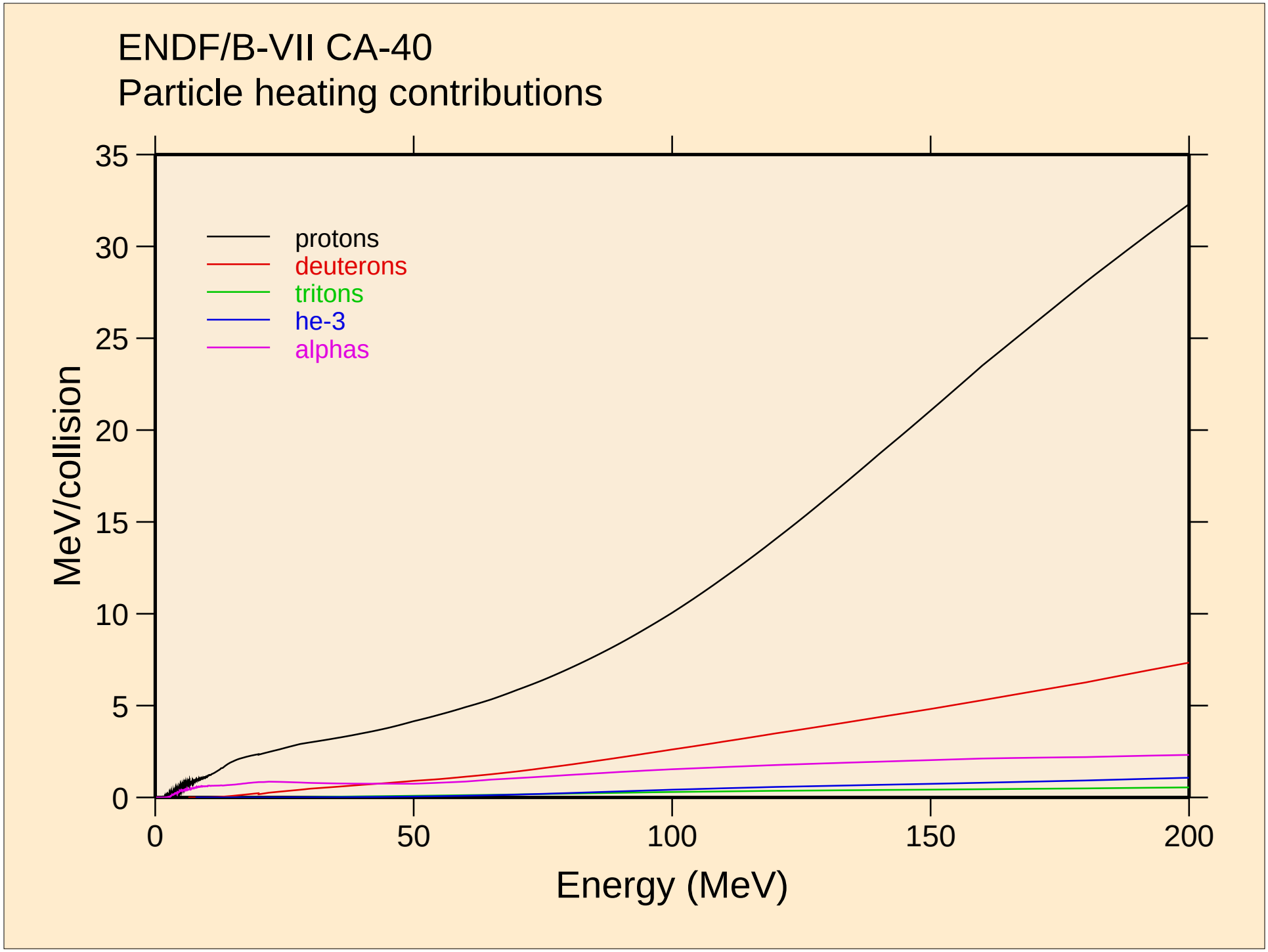

ENDF/B-VII CA-40
Photon emission for (n,a*9)
Prob/MeV
10^0
10^{-2}
0
1
2
3
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

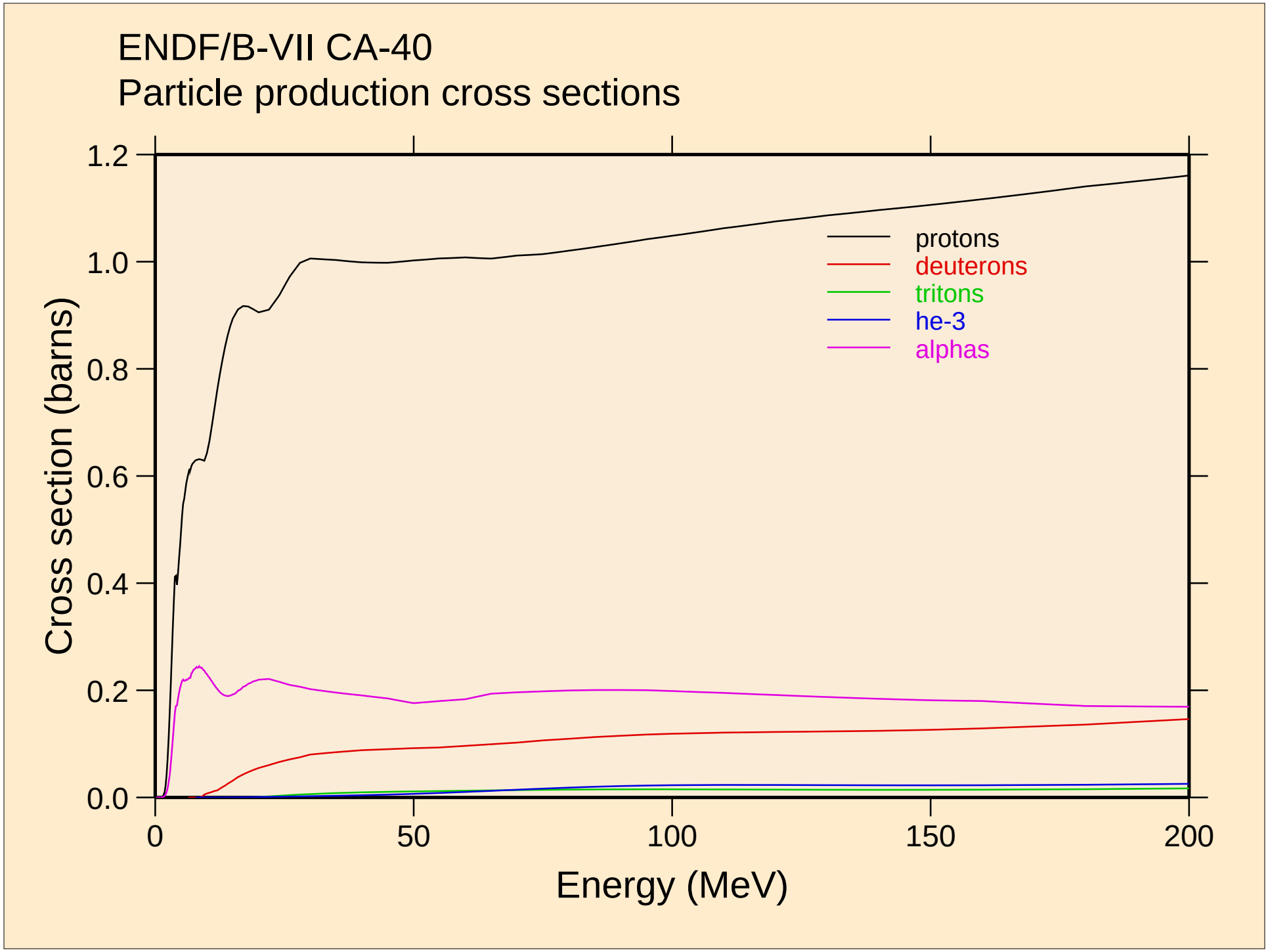

ENDF/B-VII CA-40
Photon emission for (n,a*10)
Prob/MeV
10^0
10^{-2}
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

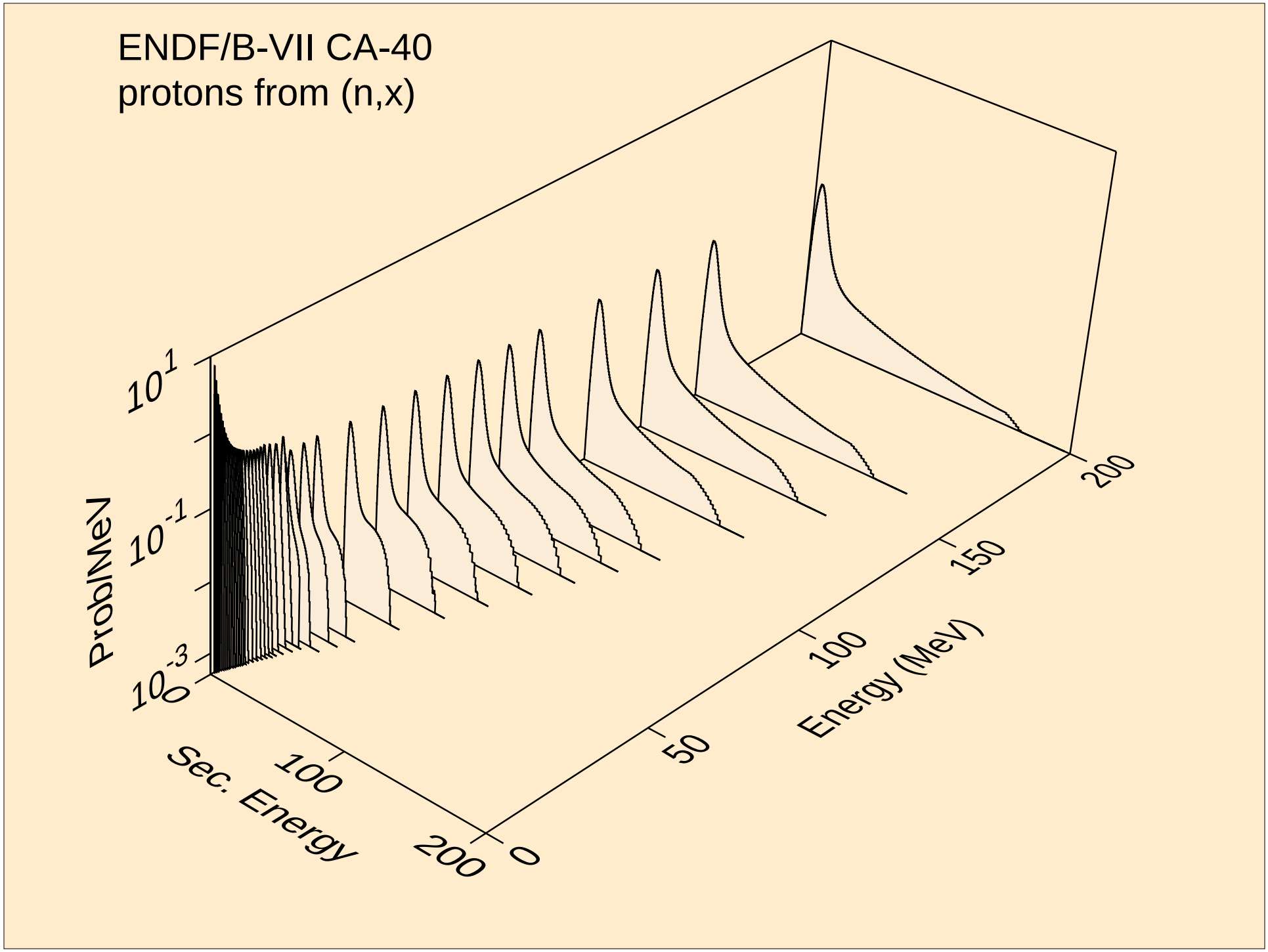

ENDF/B-VII CA-40
Photon emission for (n,a*c)
Prob/MeV
10^{2}
10^{0}
10^{-2}
E_γ (MeV)
0
5
10
E_n (MeV)
0
2
4
6
8
10
12
14
16
18
20

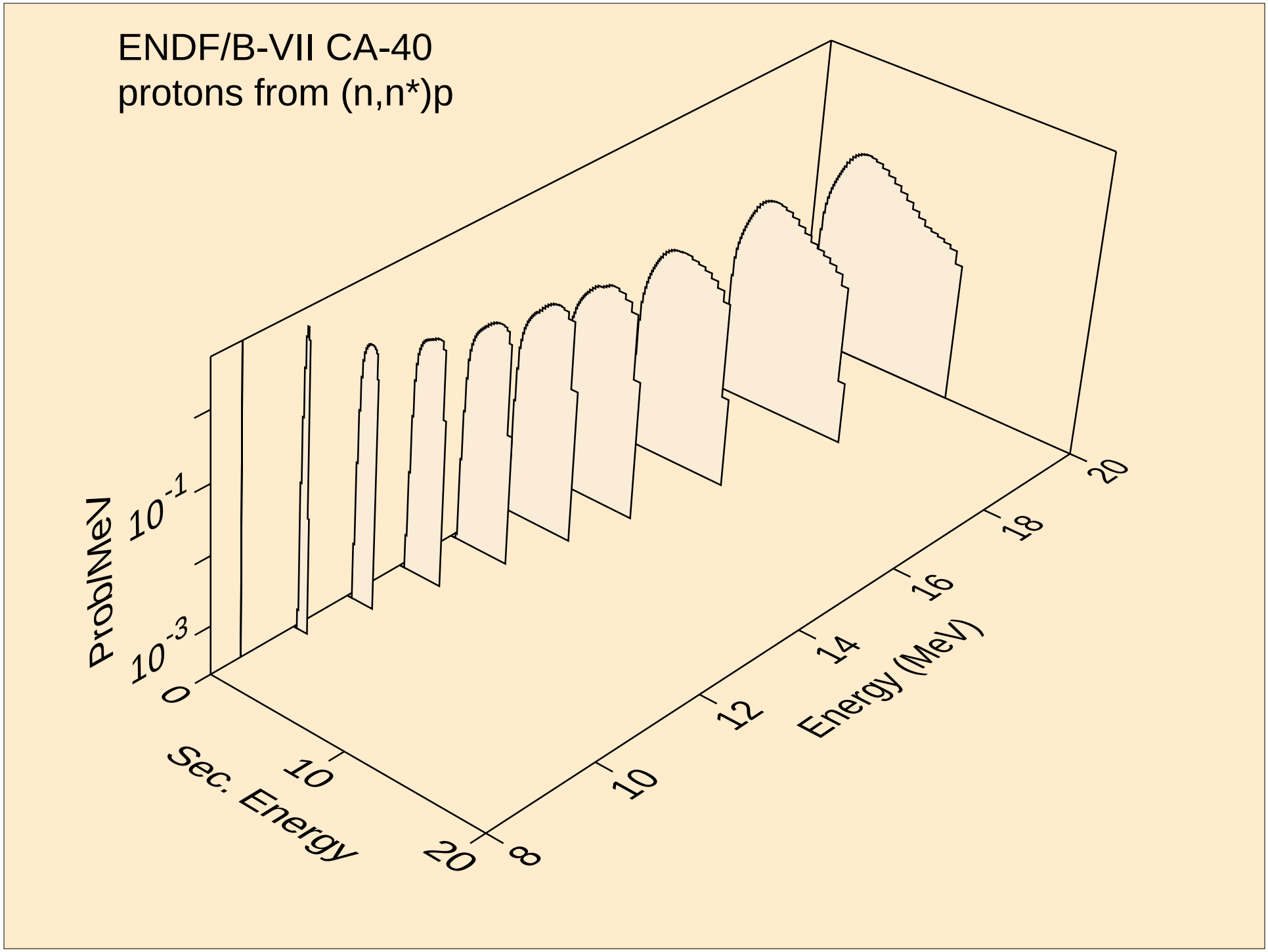

ENDF/B-VII CA-40
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^2
10^1
10^0
10^{-1}
0
2
4
6
Gamma Energy (MeV)

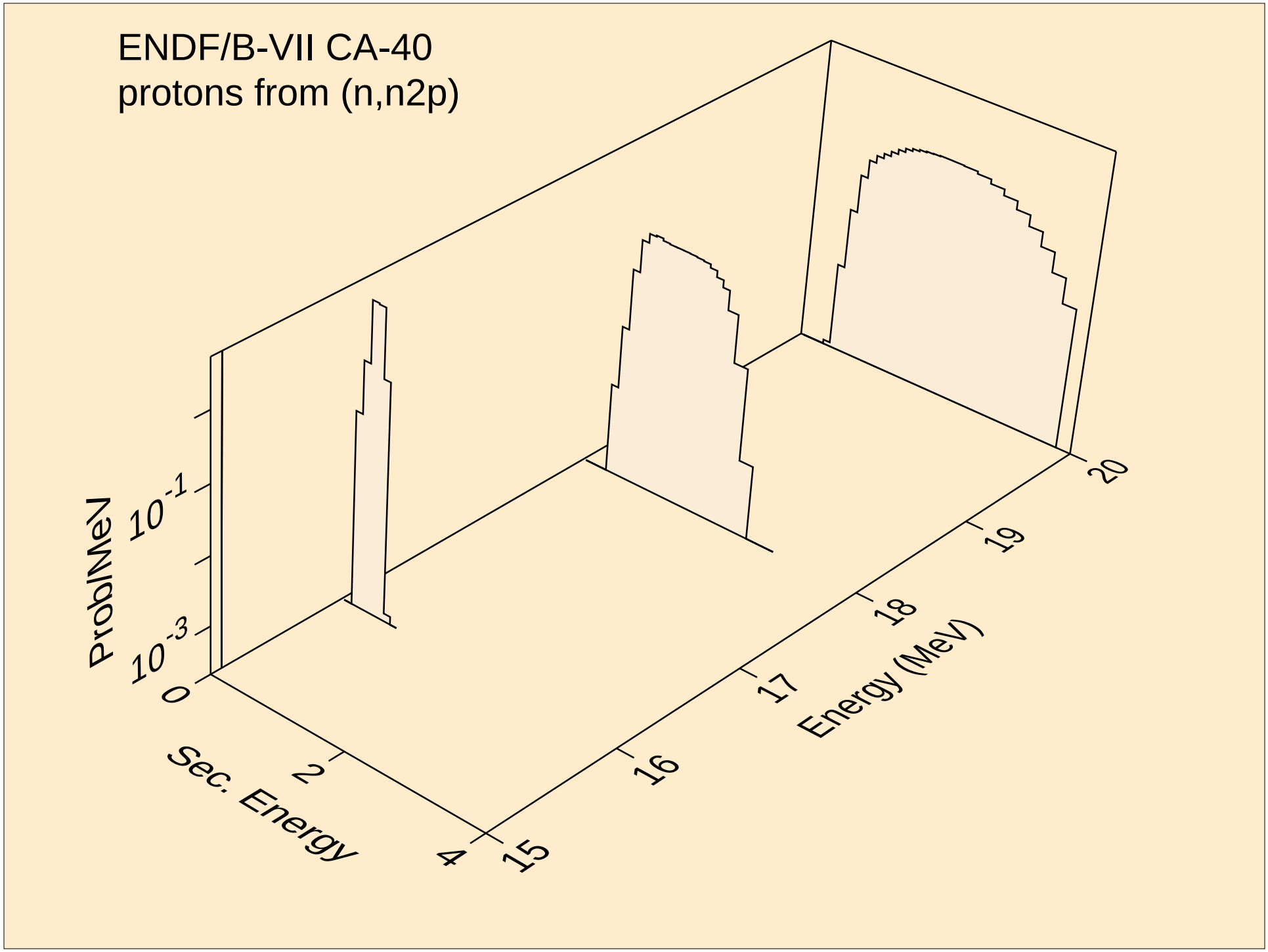

ENDF/B-VII CA-40
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-3
10^-4
0
5
10
15
Gamma Energy (MeV)

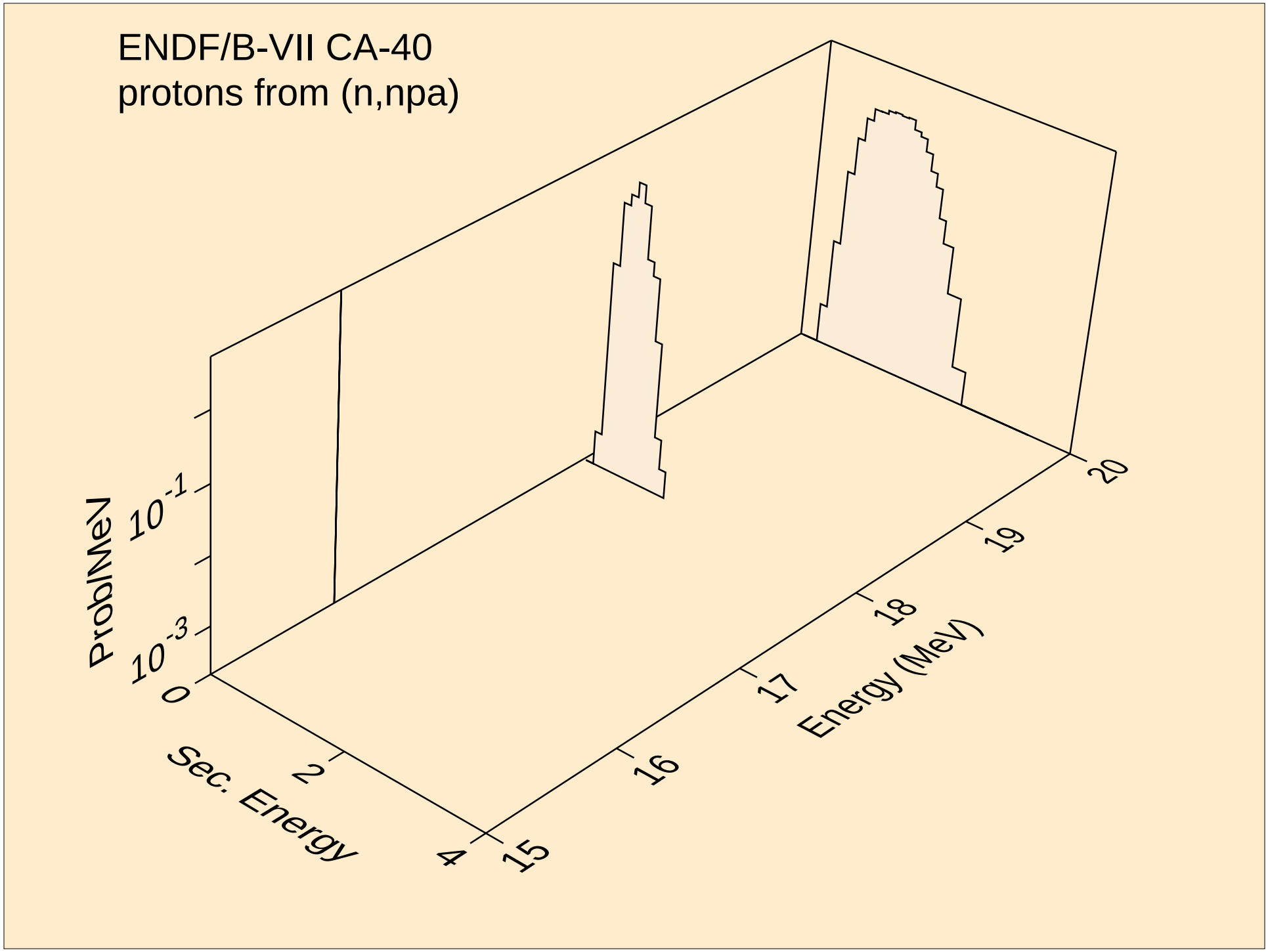

ENDF/B-VII CA-40
Particle heating contributions
protons
deuterons
tritons
he-3
alphas
MeV/collision
Energy (MeV)
0
5
10
15
20
25
30
35
0
50
100
150
200

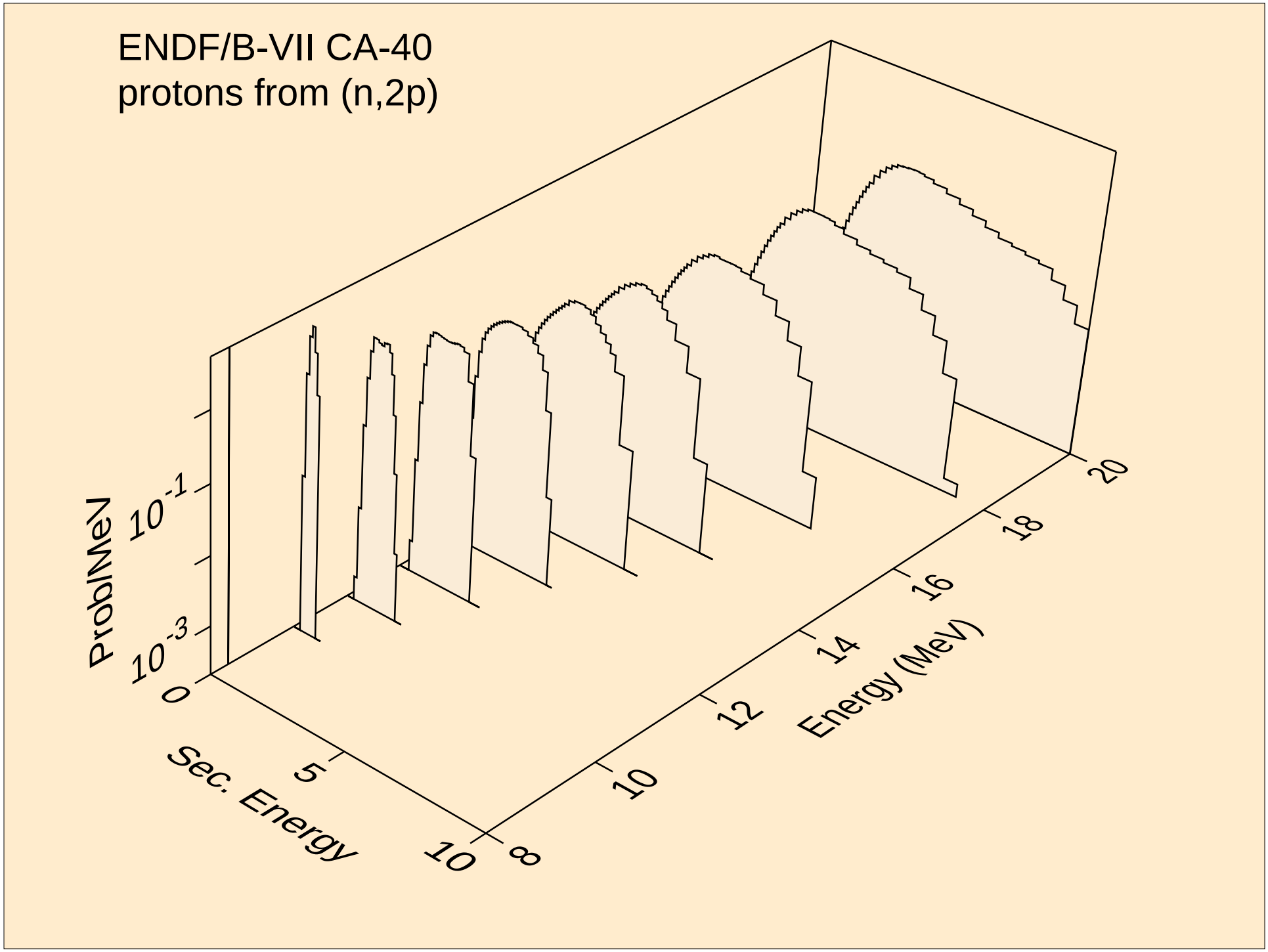

ENDF/B-VII CA-40
Particle production cross sections
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
50
100
150
200
protons
deuterons
tritons
he-3
alphas

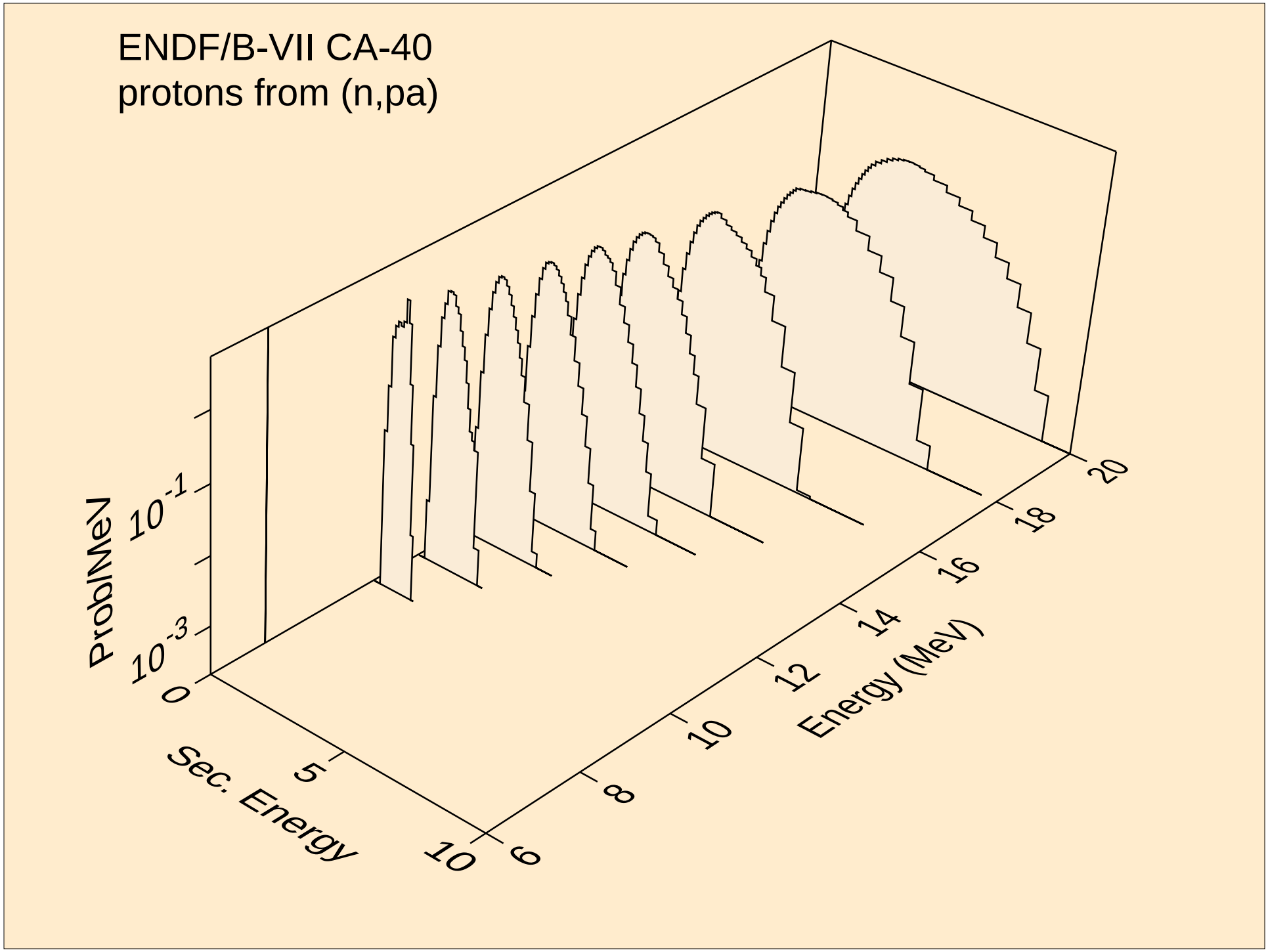

ENDF/B-VII CA-40
protons from (n,x)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
100
200
Sec. Energy
0
50
100
150
200
Energy (MeV)

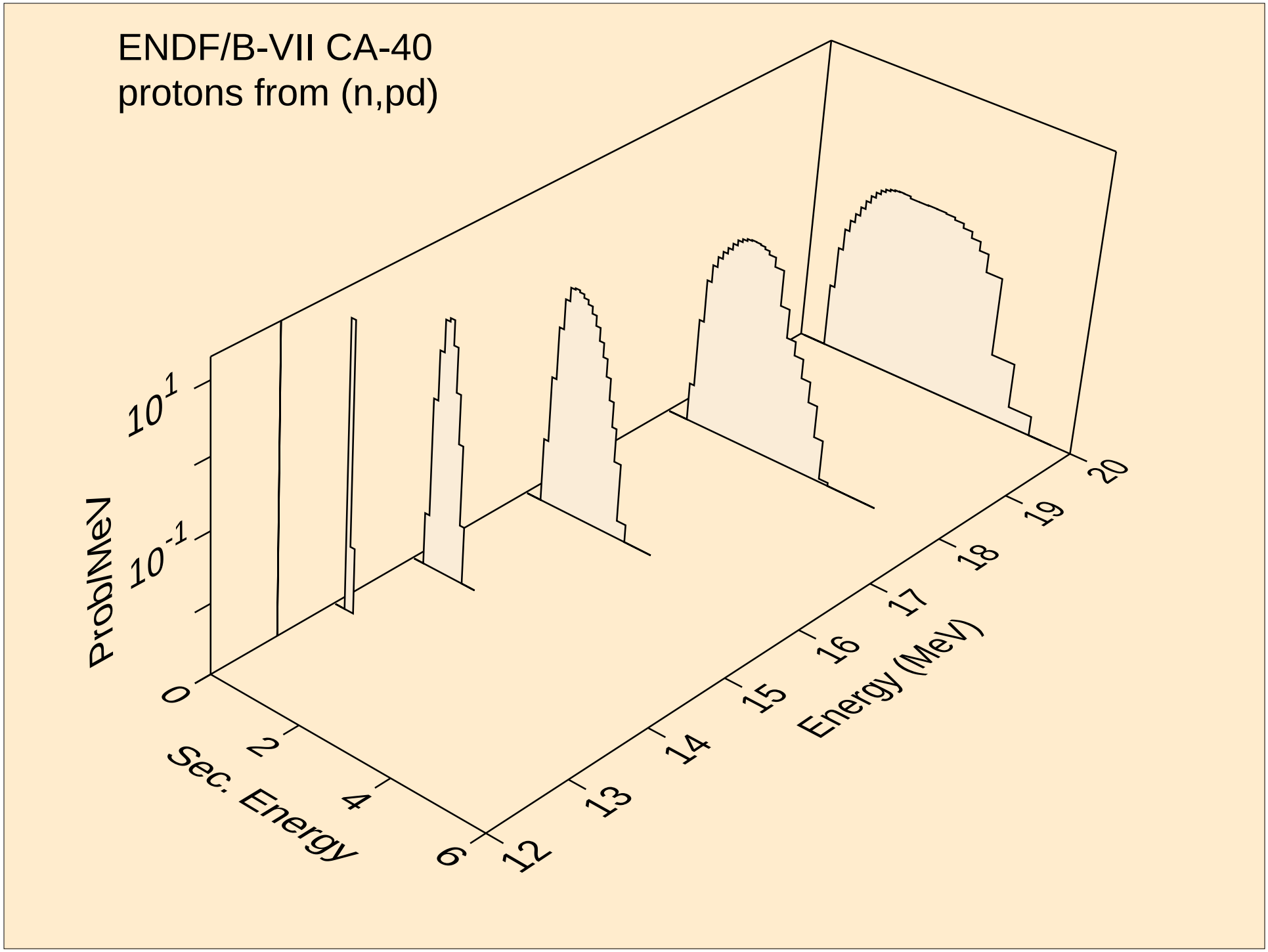

ENDF/B-VII CA-40
protons from (n,n*)p
Prob/MeV
10^-1
10^-3
0
Sec. Energy
10
20
8
10
12
14
16
18
20
Energy (MeV)

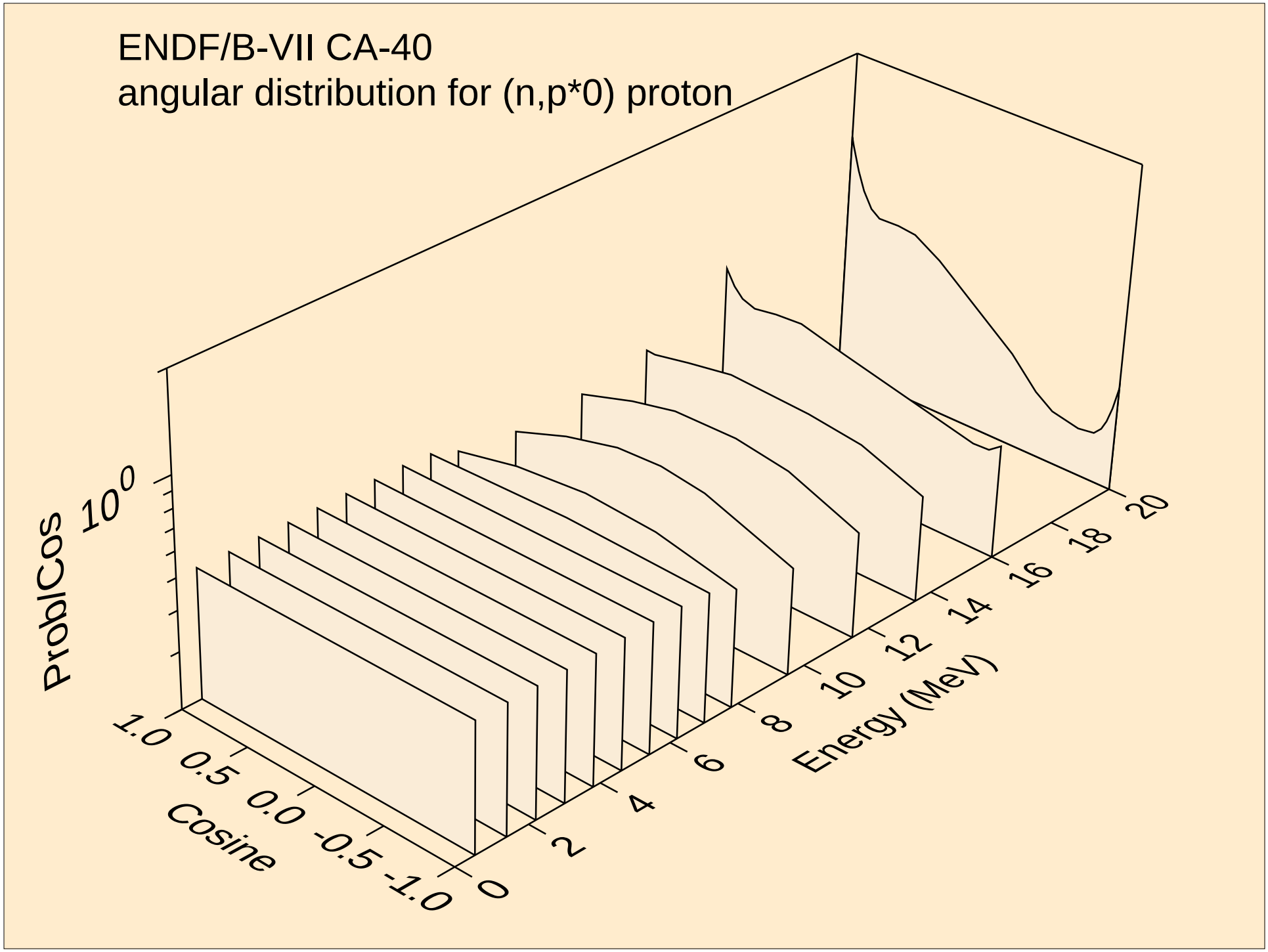

ENDF/B-VII CA-40
protons from (n,n2p)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
2
4
15
16
17
18
19
20
Energy (MeV)

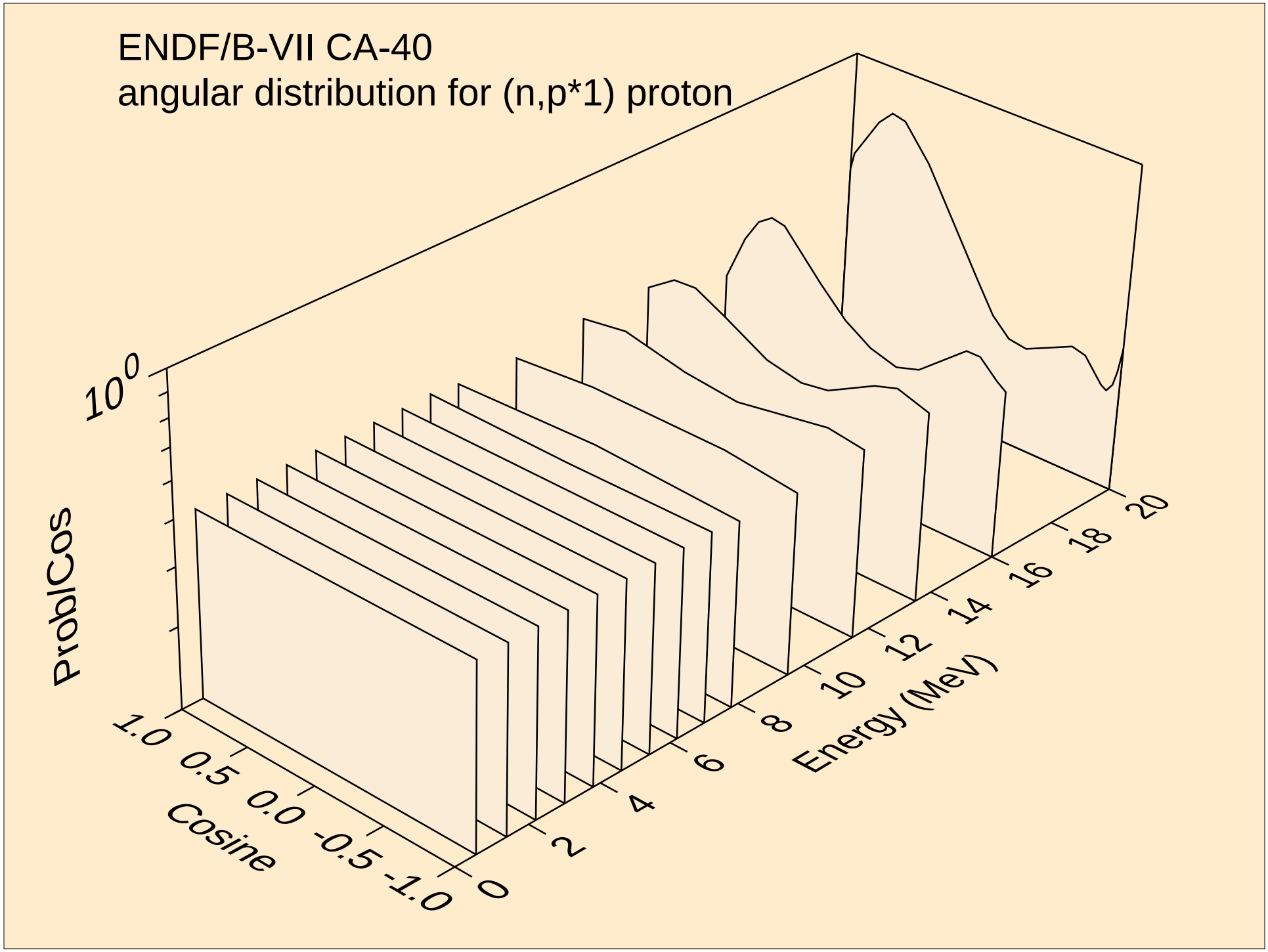

ENDF/B-VII CA-40
protons from (n,npa)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
2
4
15
16
17
18
19
20
Energy (MeV)

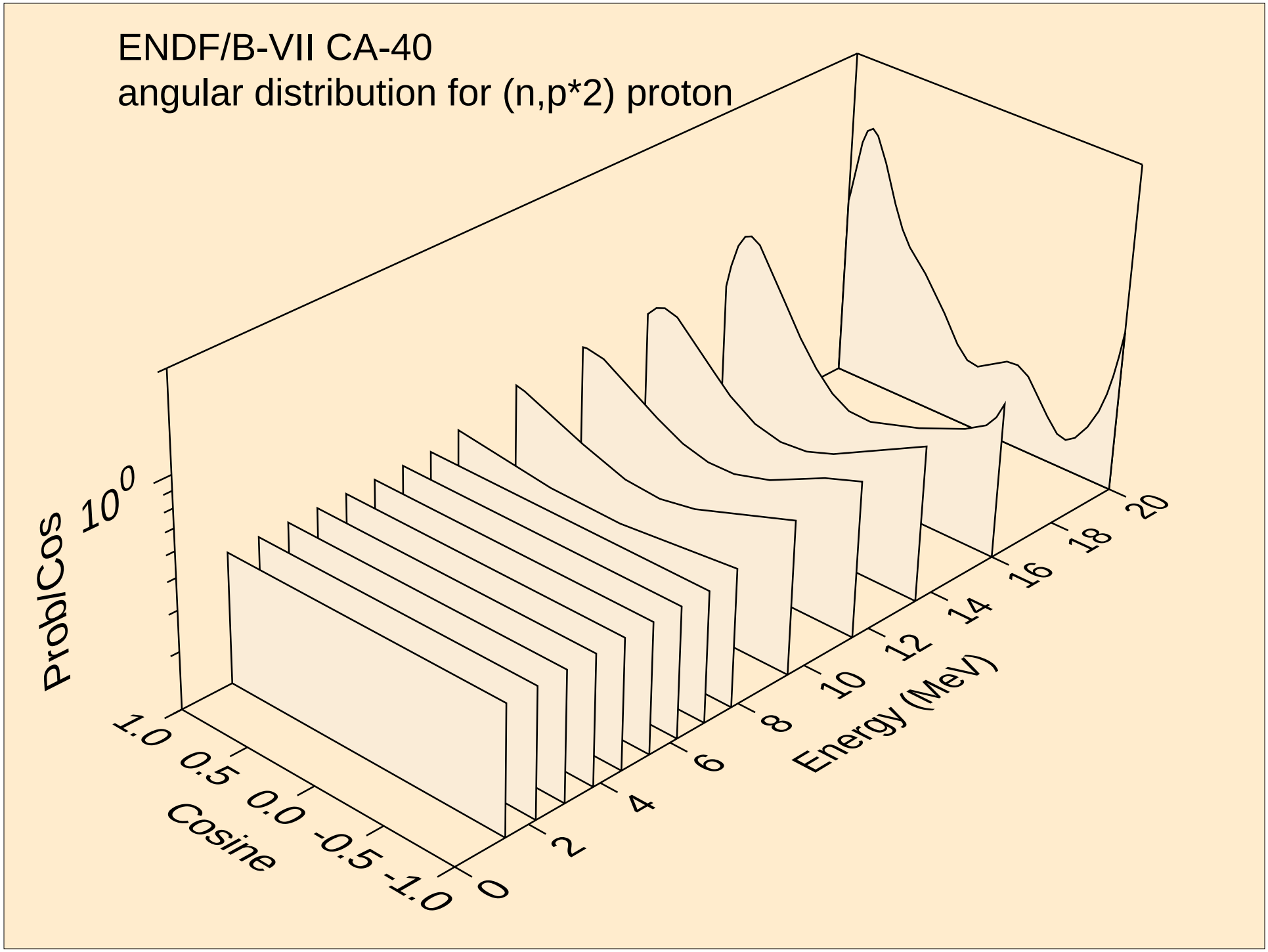

ENDF/B-VII CA-40
protons from (n,2p)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
5
10
8
10
12
14
16
18
20
Energy (MeV)

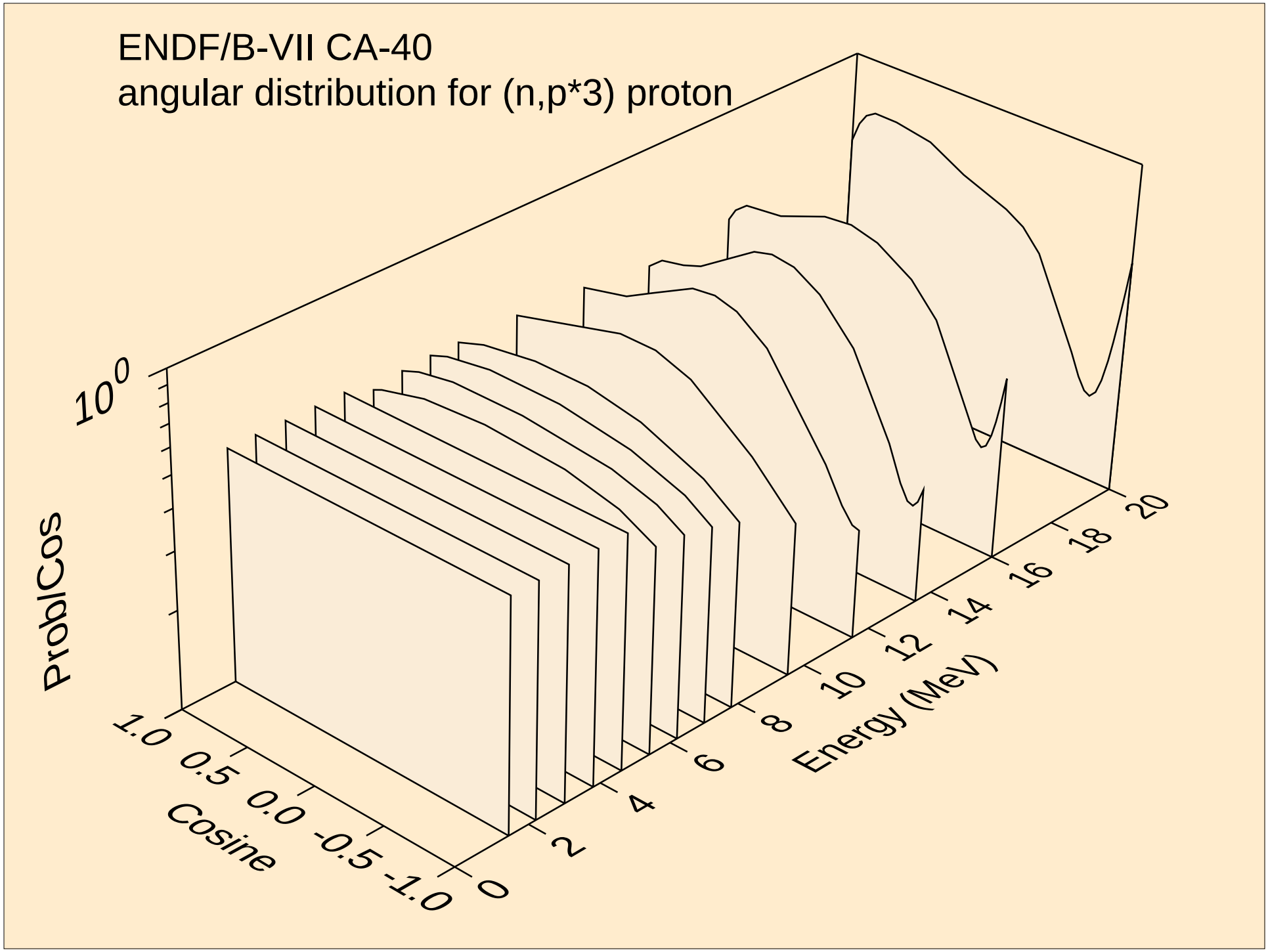

ENDF/B-VII CA-40
protons from (n,pa)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
5
10
6
8
10
12
14
16
18
20
Energy (MeV)

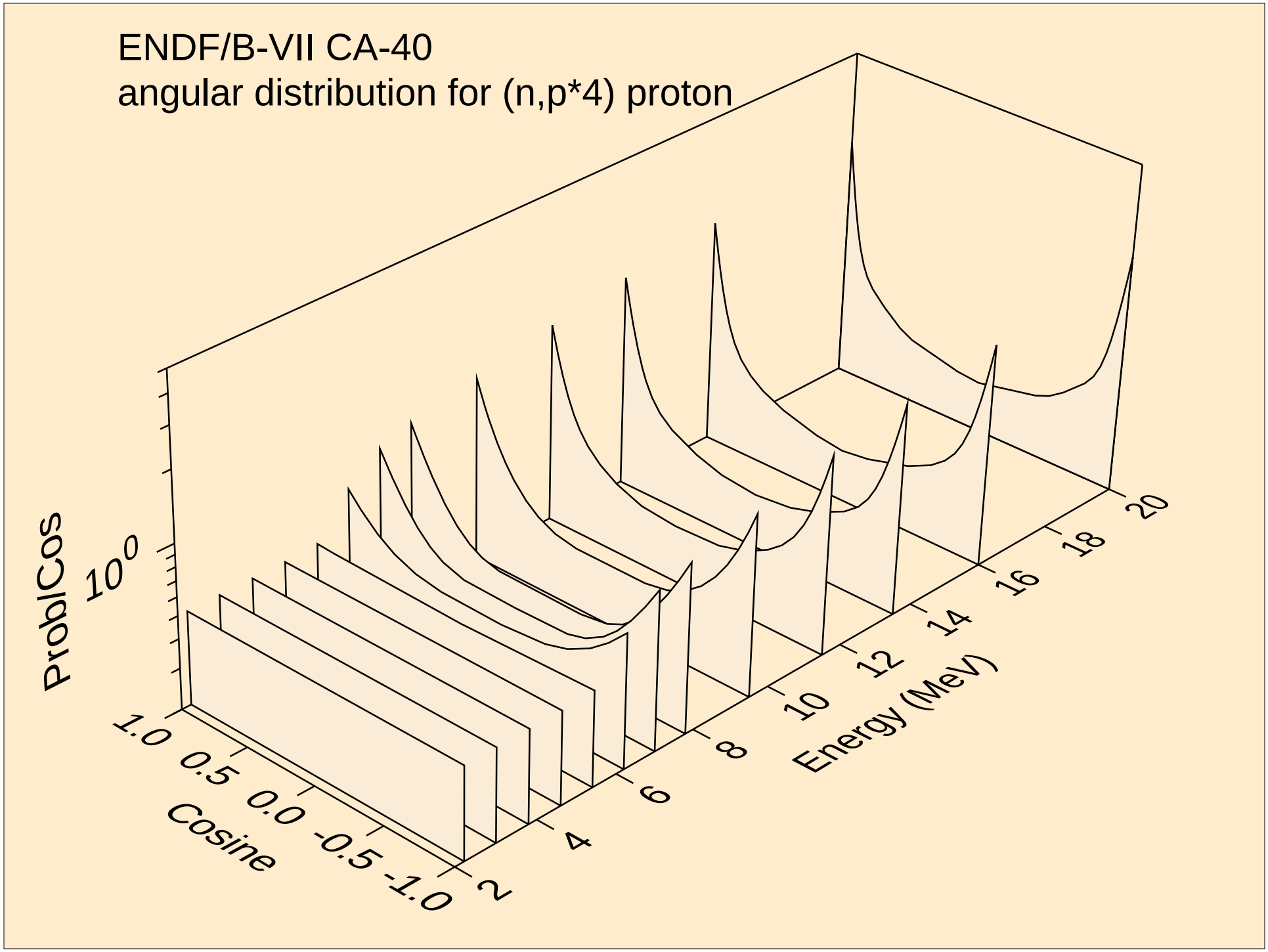

ENDF/B-VII CA-40
protons from (n,pd)
Prob/MeV
10^1
10^-1
0
2
4
6
Sec. Energy
12
13
14
15
16
17
18
19
20
Energy (MeV)

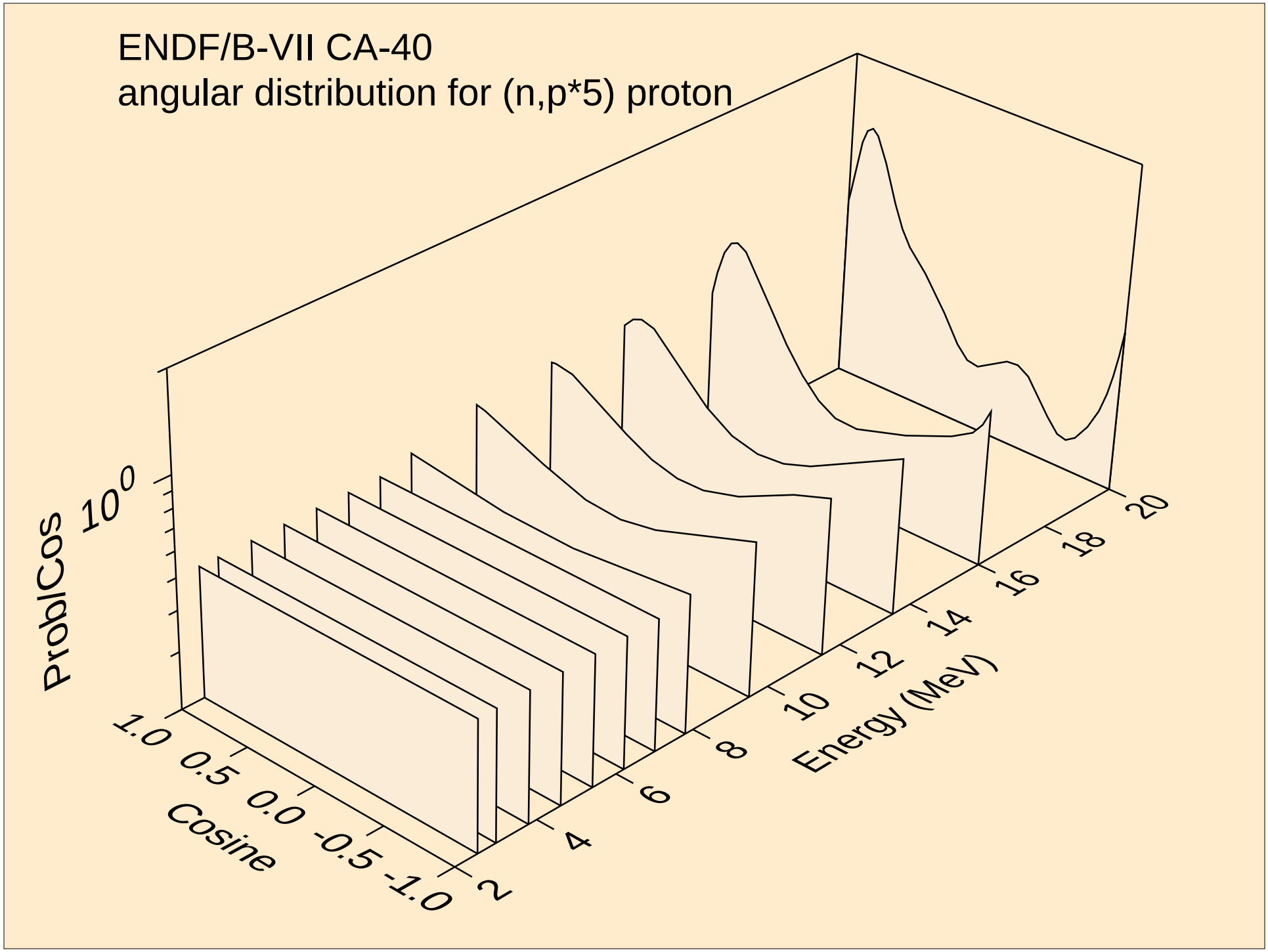

ENDF/B-VII CA-40
angular distribution for (n,p*0) proton
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

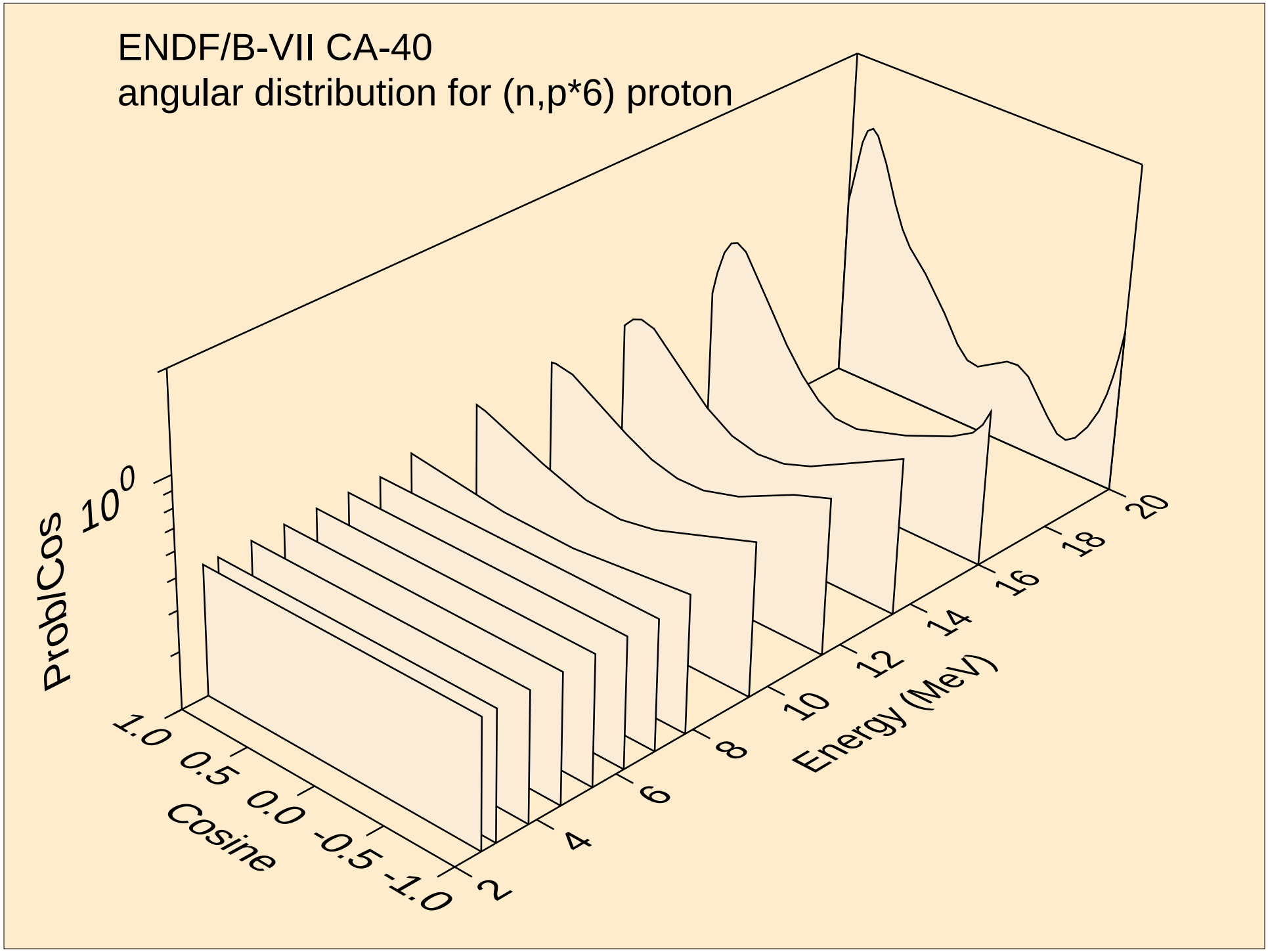

ENDF/B-VII CA-40
angular distribution for (n,p*1) proton
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

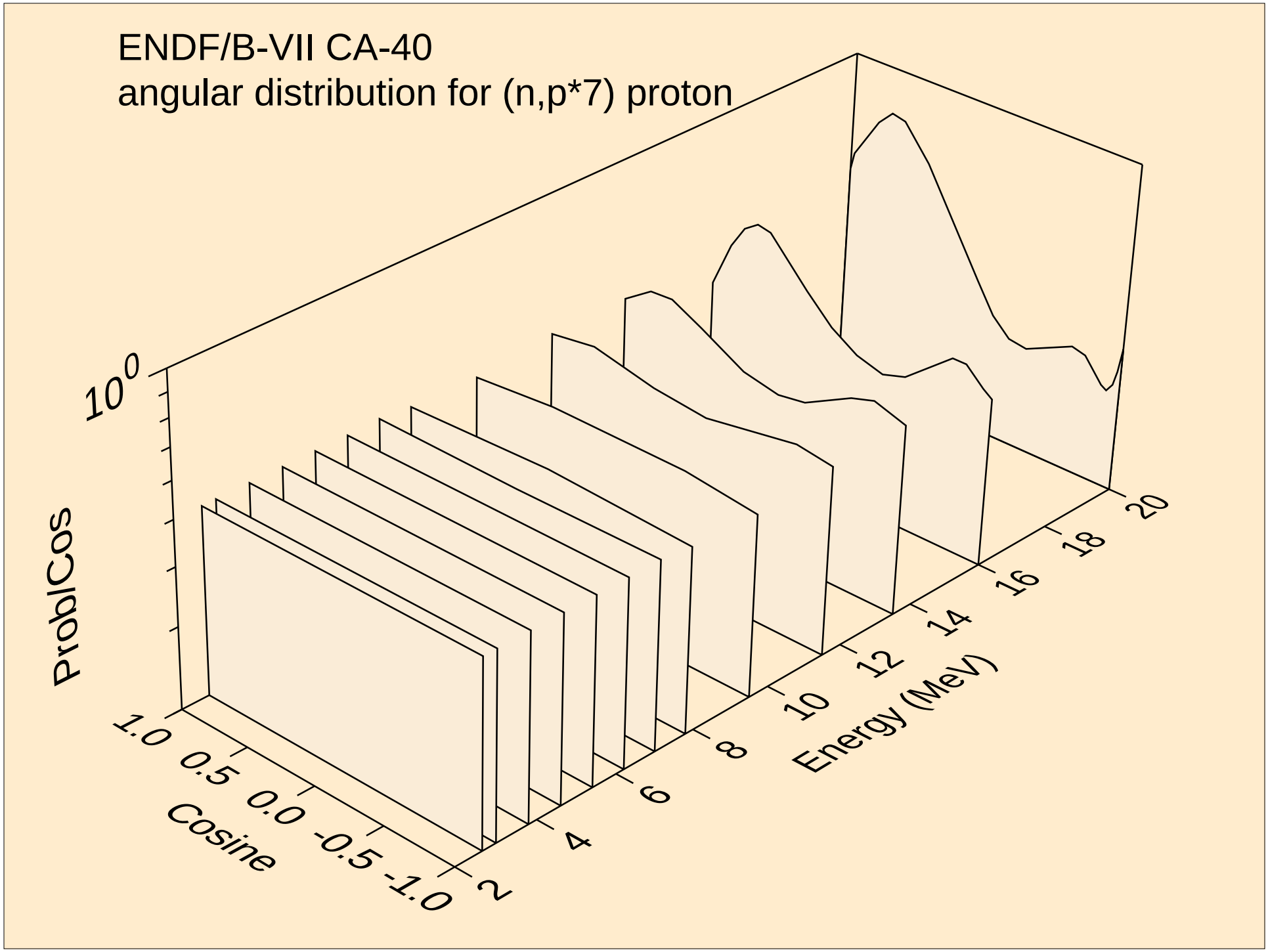

ENDF/B-VII CA-40
angular distribution for (n,p*2) proton
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

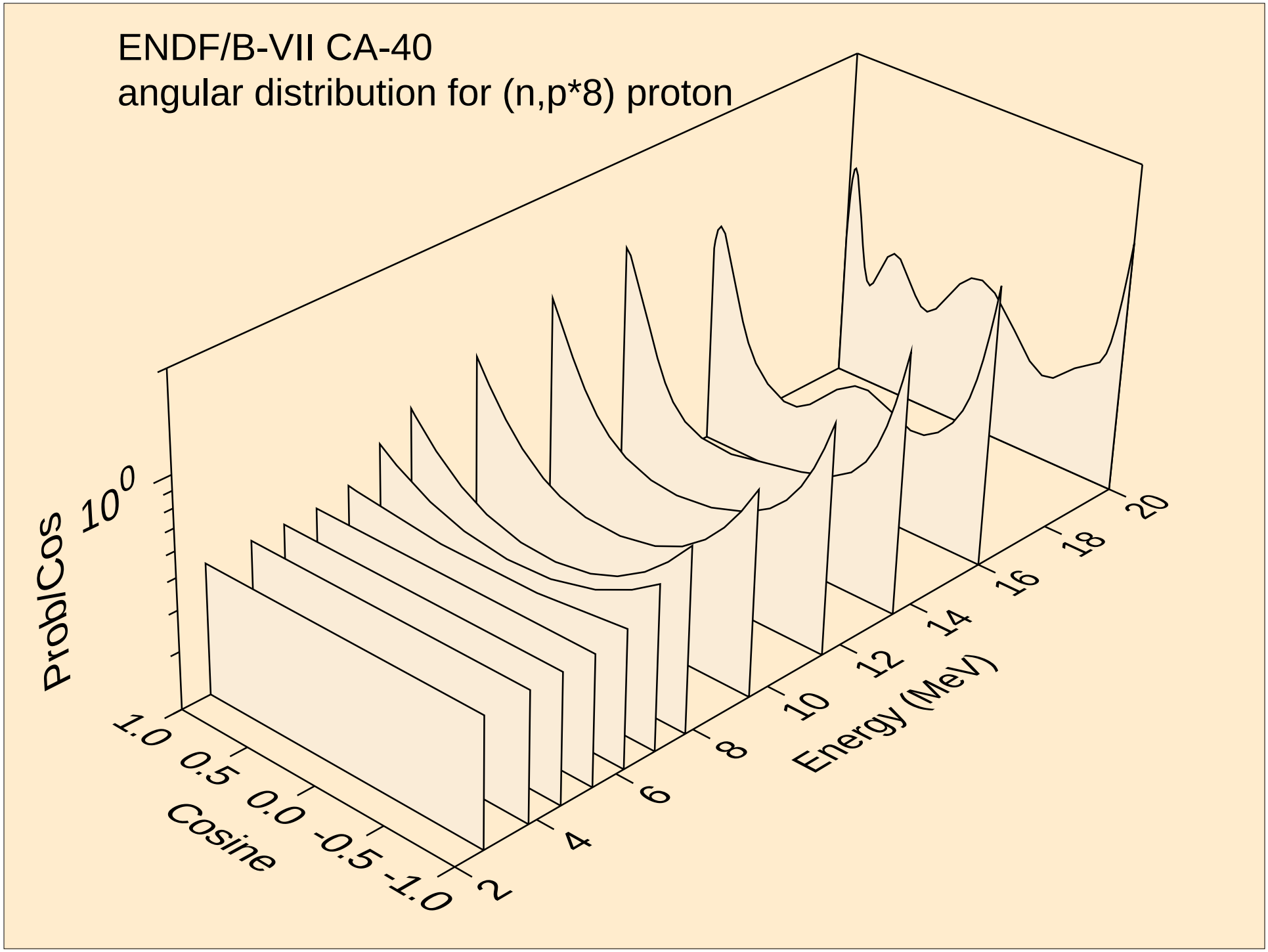

ENDF/B-VII CA-40
angular distribution for (n,p*3) proton
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

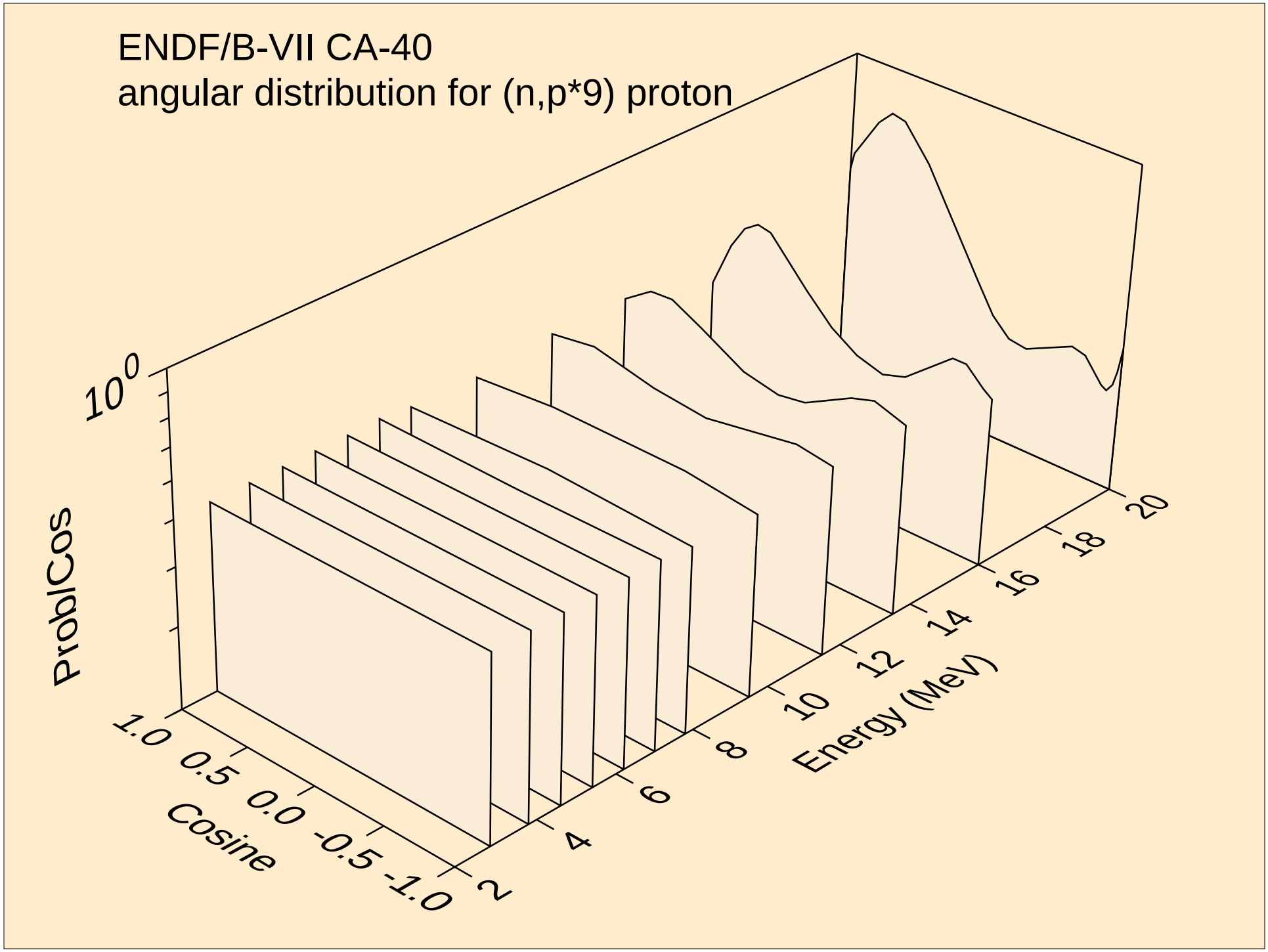

ENDF/B-VII CA-40
angular distribution for (n,p*4) proton
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

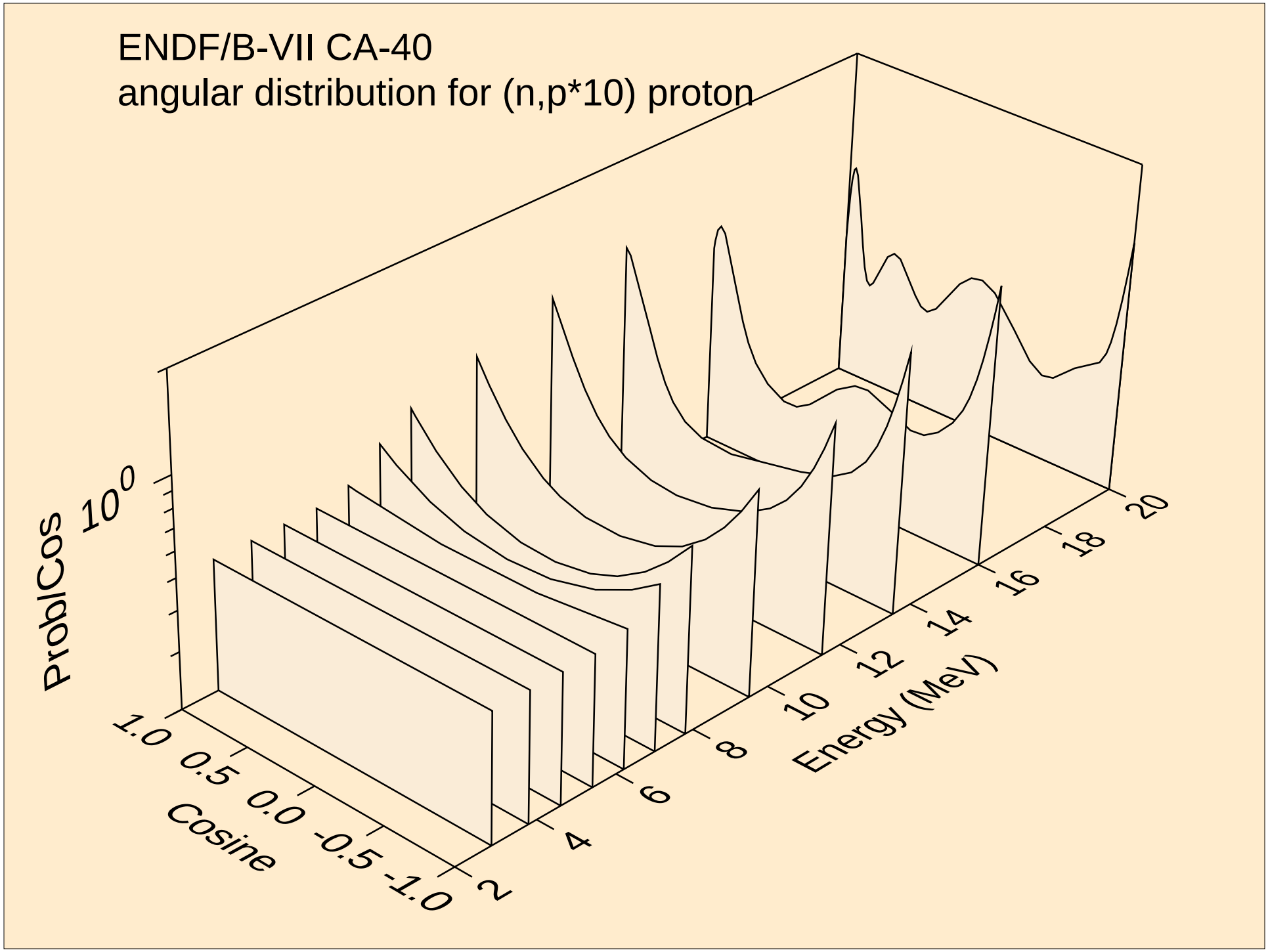

ENDF/B-VII CA-40
angular distribution for (n,p*5) proton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

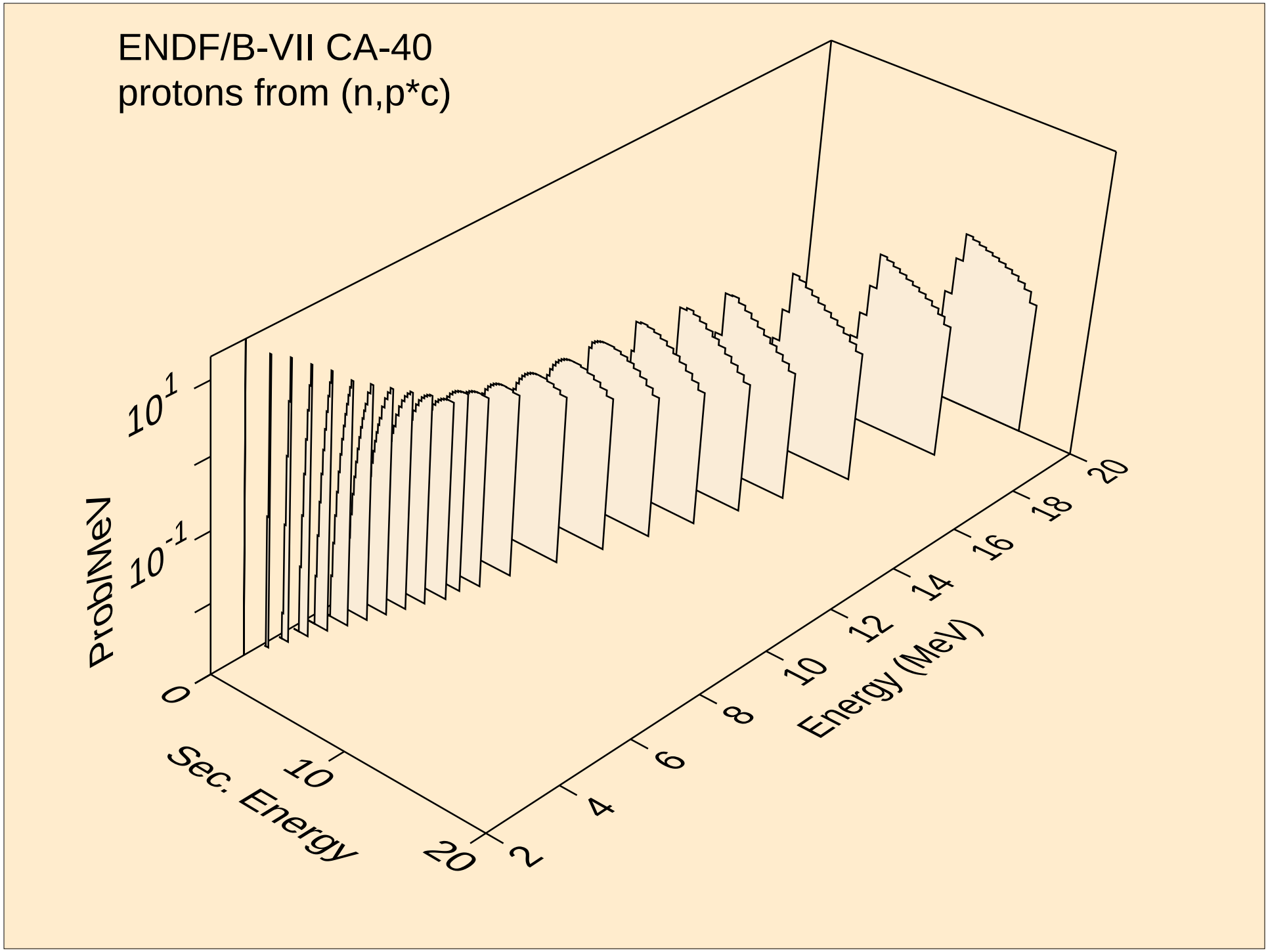

ENDF/B-VII CA-40
angular distribution for (n,p*6) proton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

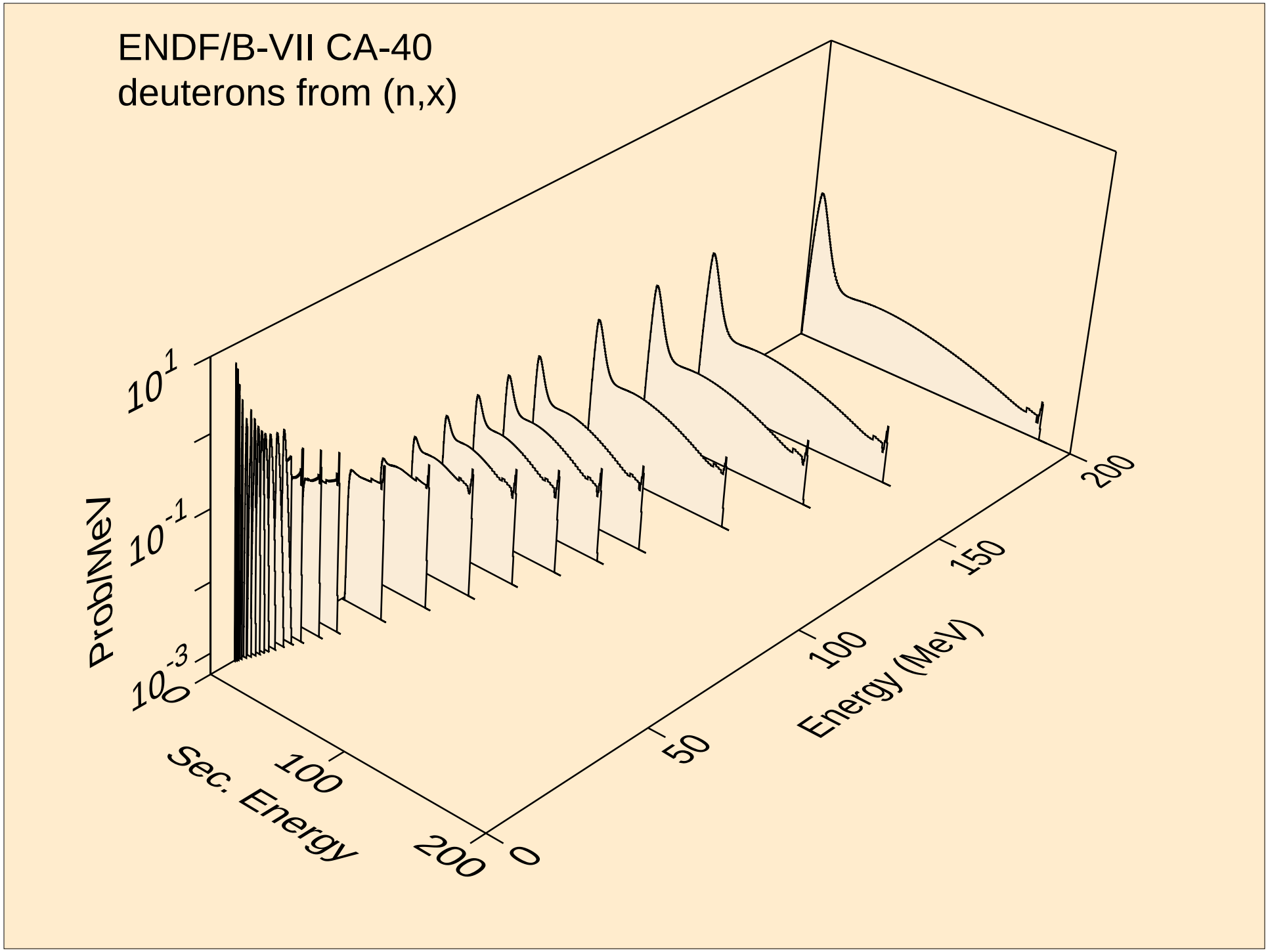

ENDF/B-VII CA-40
angular distribution for (n,p*7) proton
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

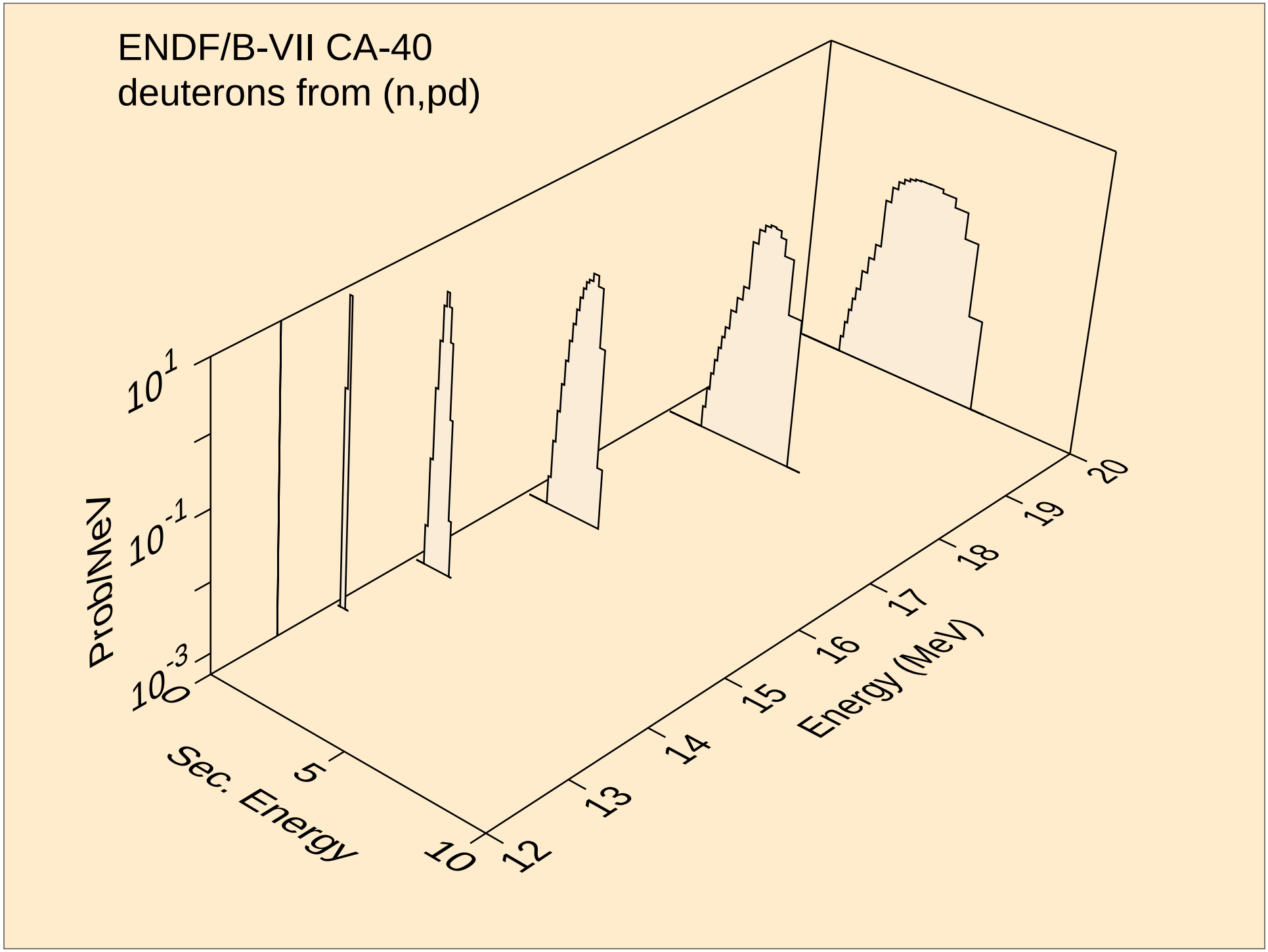

ENDF/B-VII CA-40
angular distribution for (n,p*8) proton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

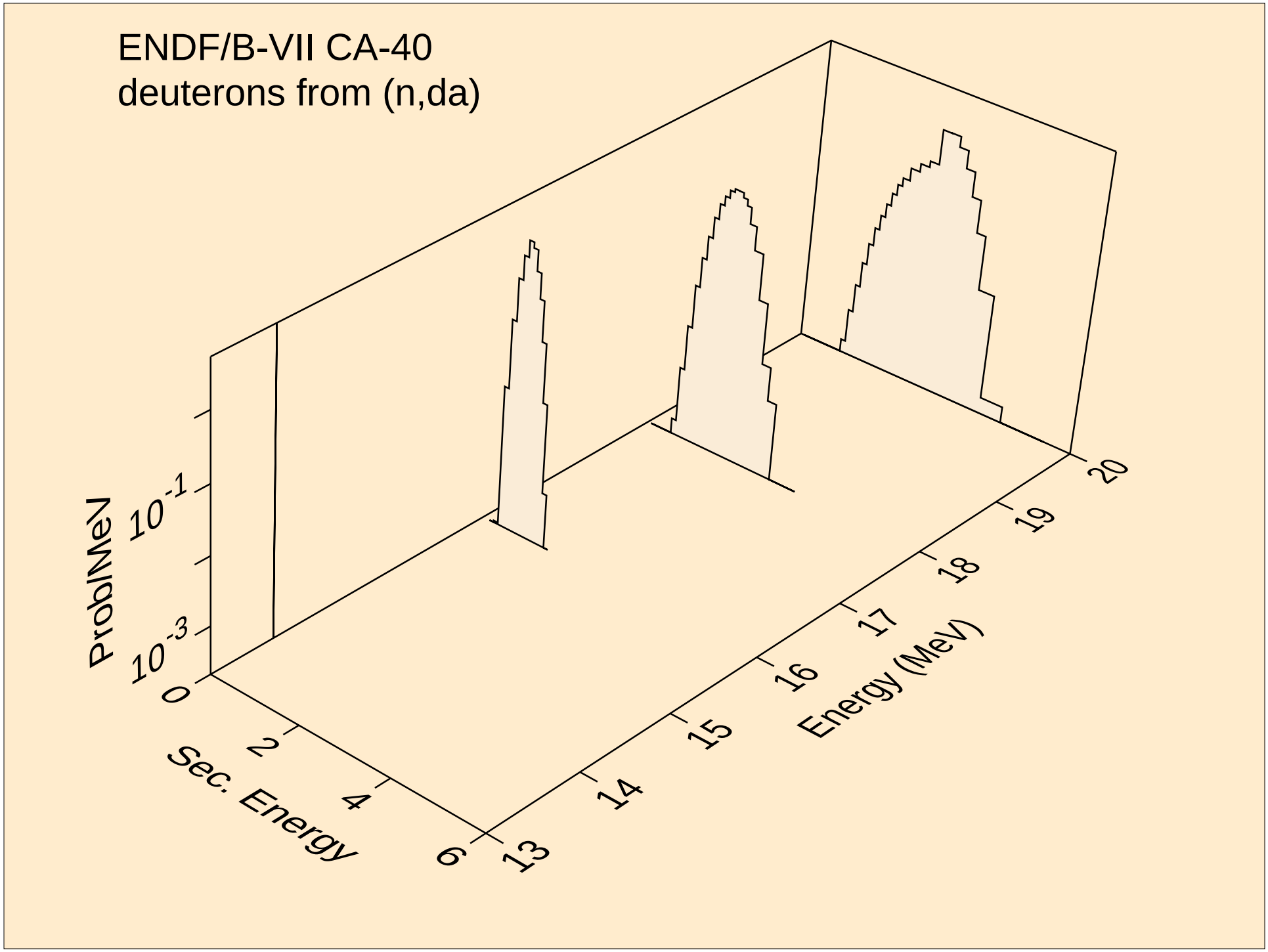

ENDF/B-VII CA-40
angular distribution for (n,p*9) proton
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

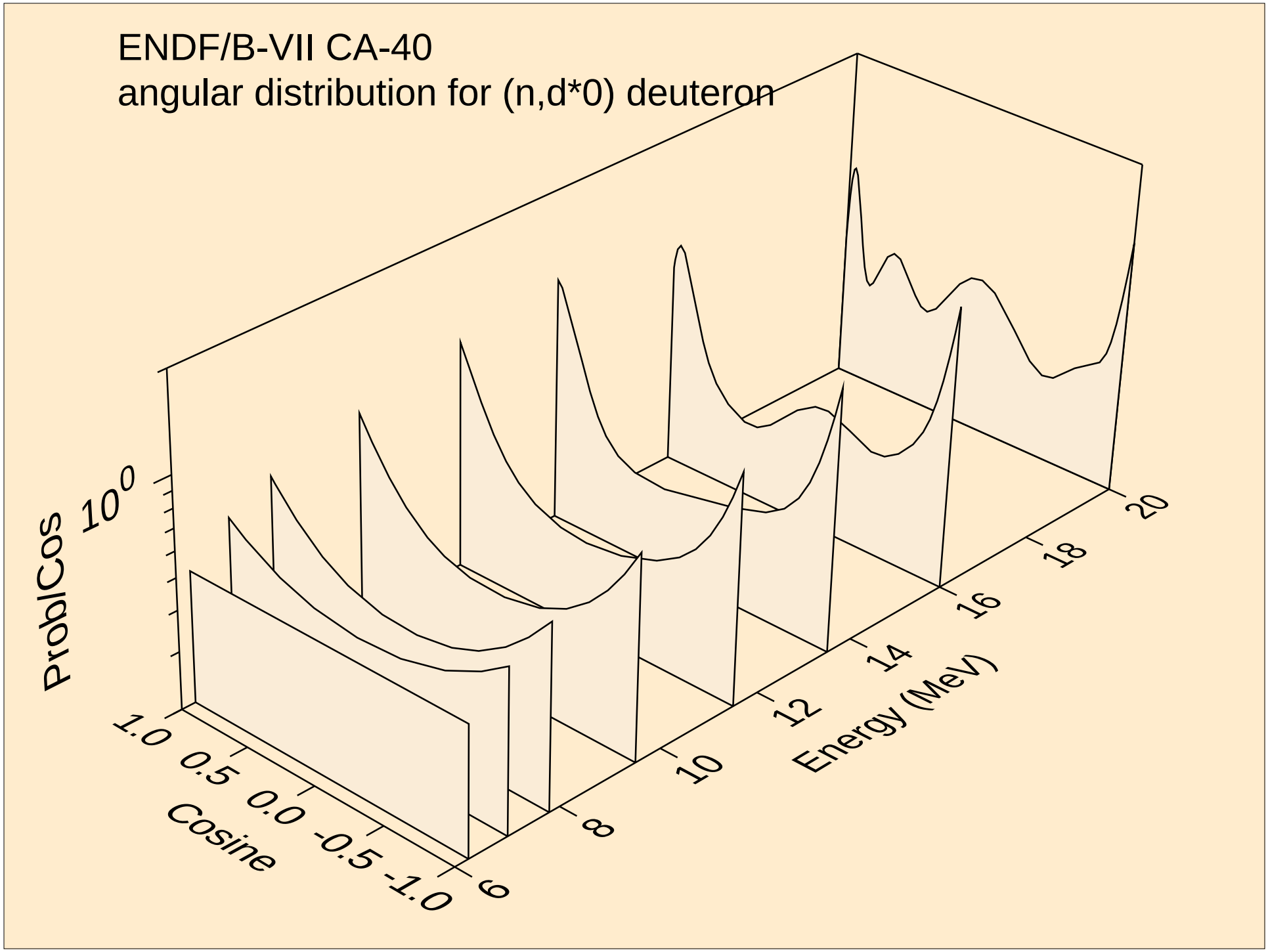

ENDF/B-VII CA-40
angular distribution for (n,p*10) proton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

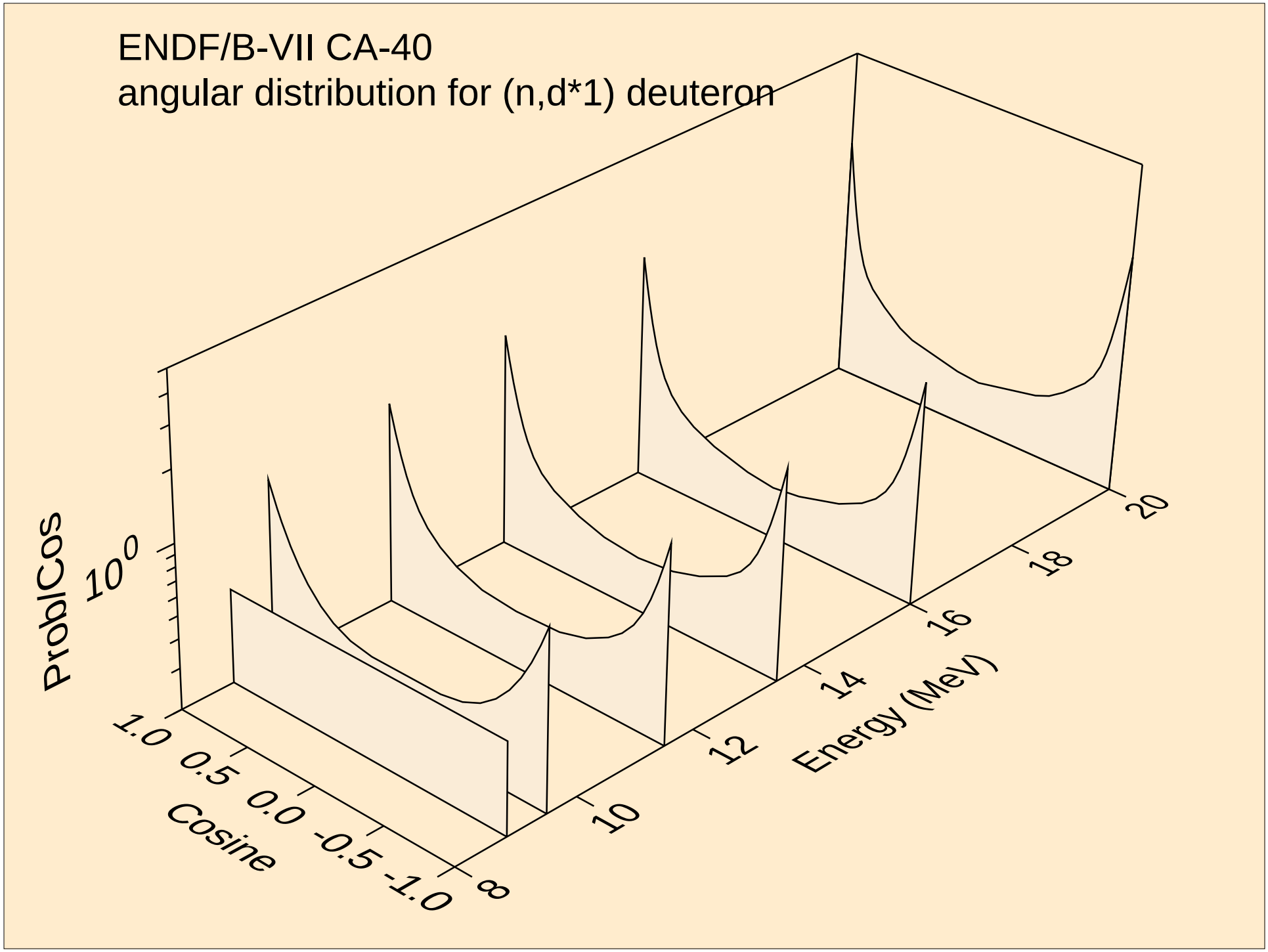

ENDF/B-VII CA-40
protons from (n,p*c)
Prob/MeV
10^{1}
10^{-1}
0
10
20
Sec. Energy
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

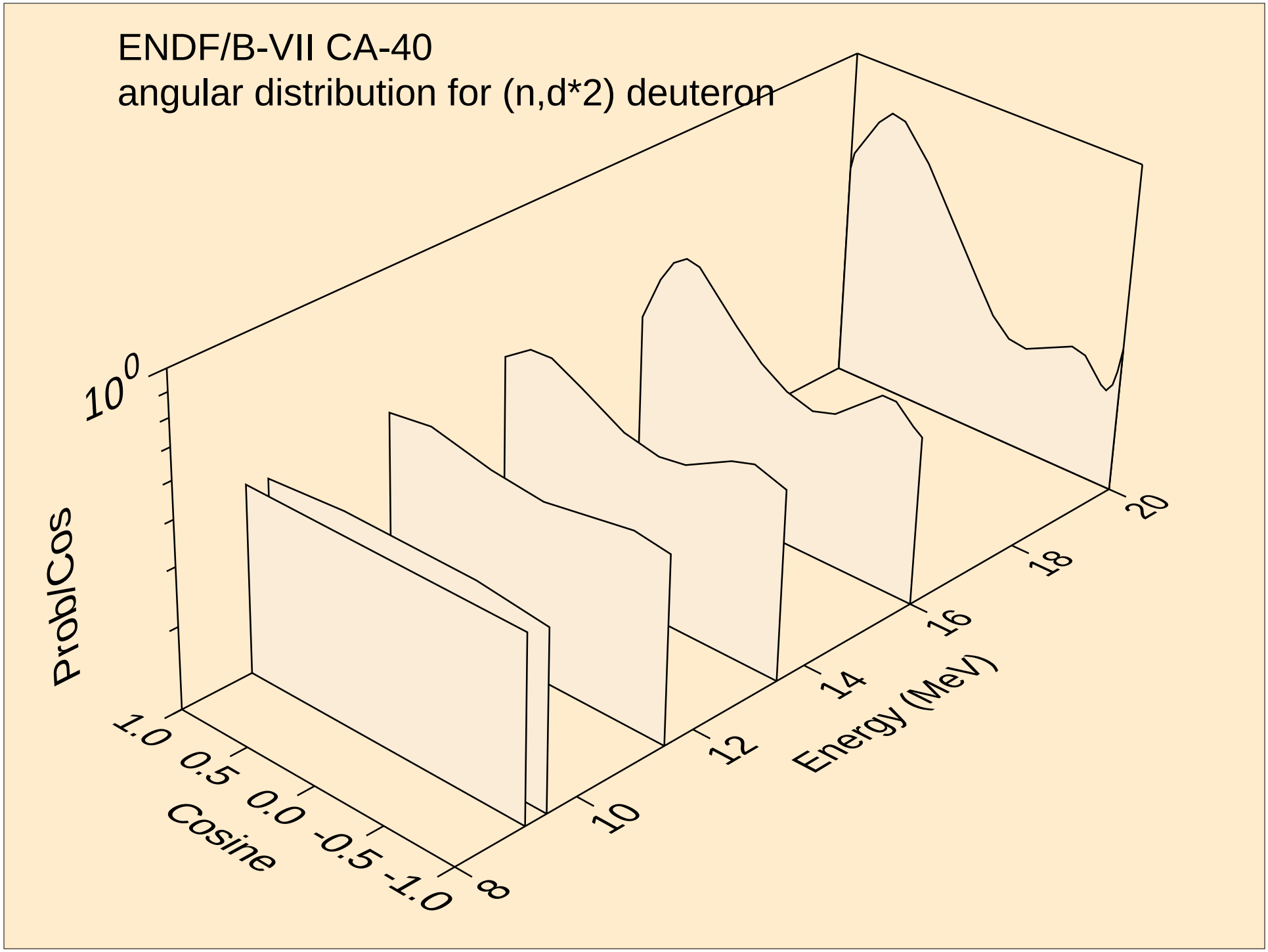

ENDF/B-VII CA-40
deuterons from (n,x)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
100
200
Sec. Energy
0
50
100
150
200
Energy (MeV)

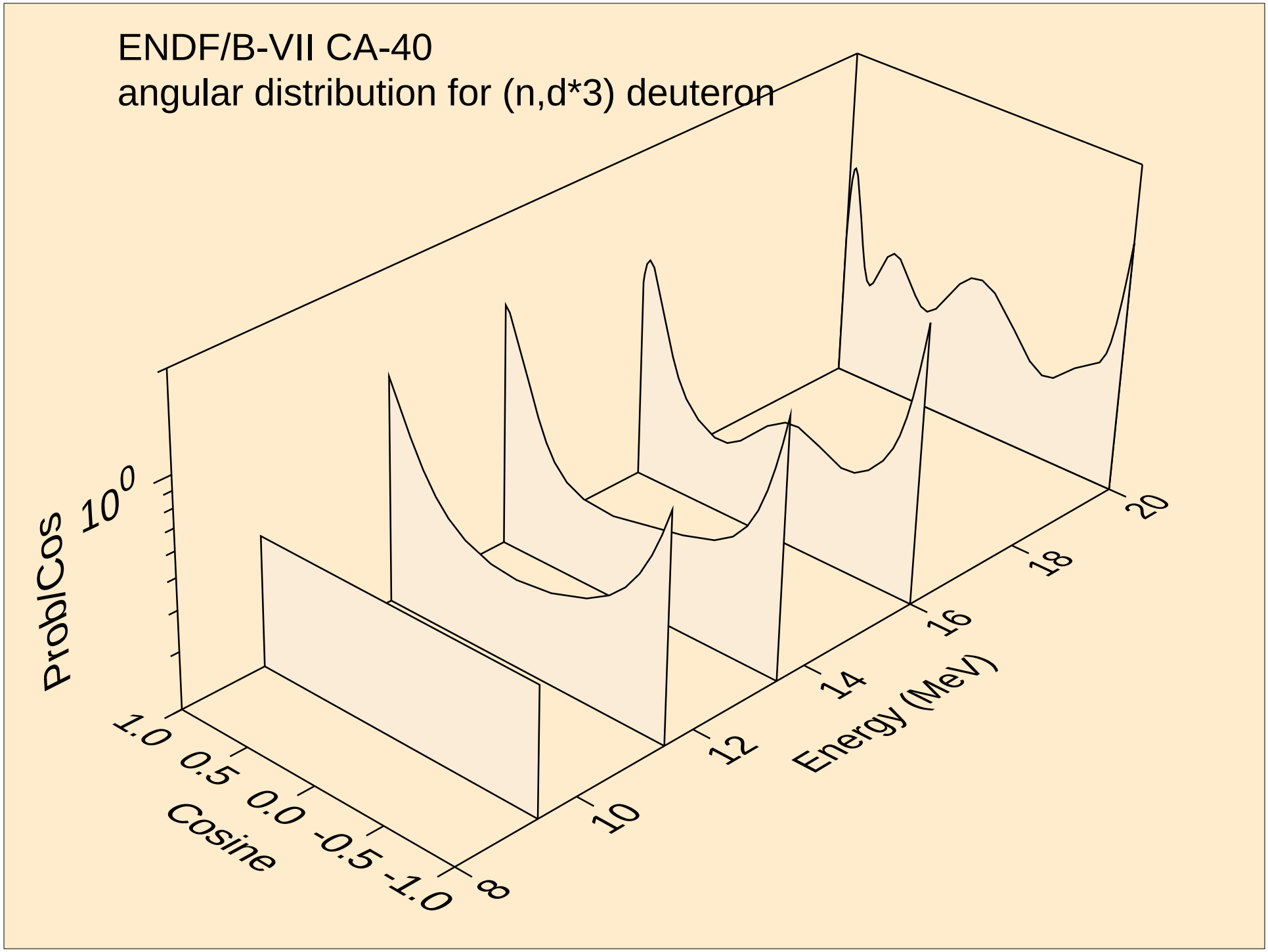

ENDF/B-VII CA-40
deuterons from (n,pd)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
Sec. Energy
0
5
10
Energy (MeV)
12
13
14
15
16
17
18
19
20

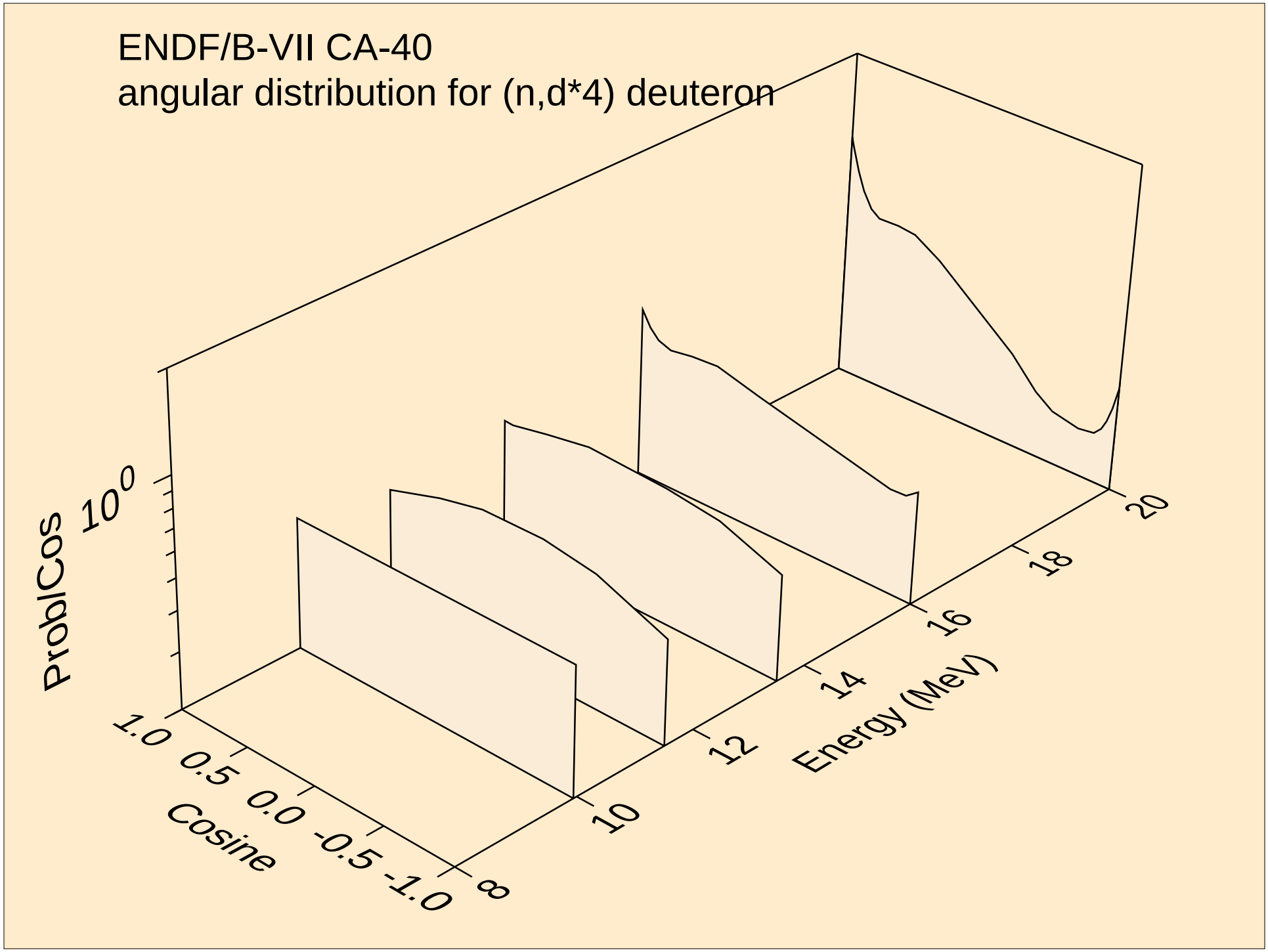

ENDF/B-VII CA-40
deuterons from (n,da)
Prob/MeV
10^-1
10^-3
0
2
4
6
Sec. Energy
13
14
15
16
17
18
19
20
Energy (MeV)

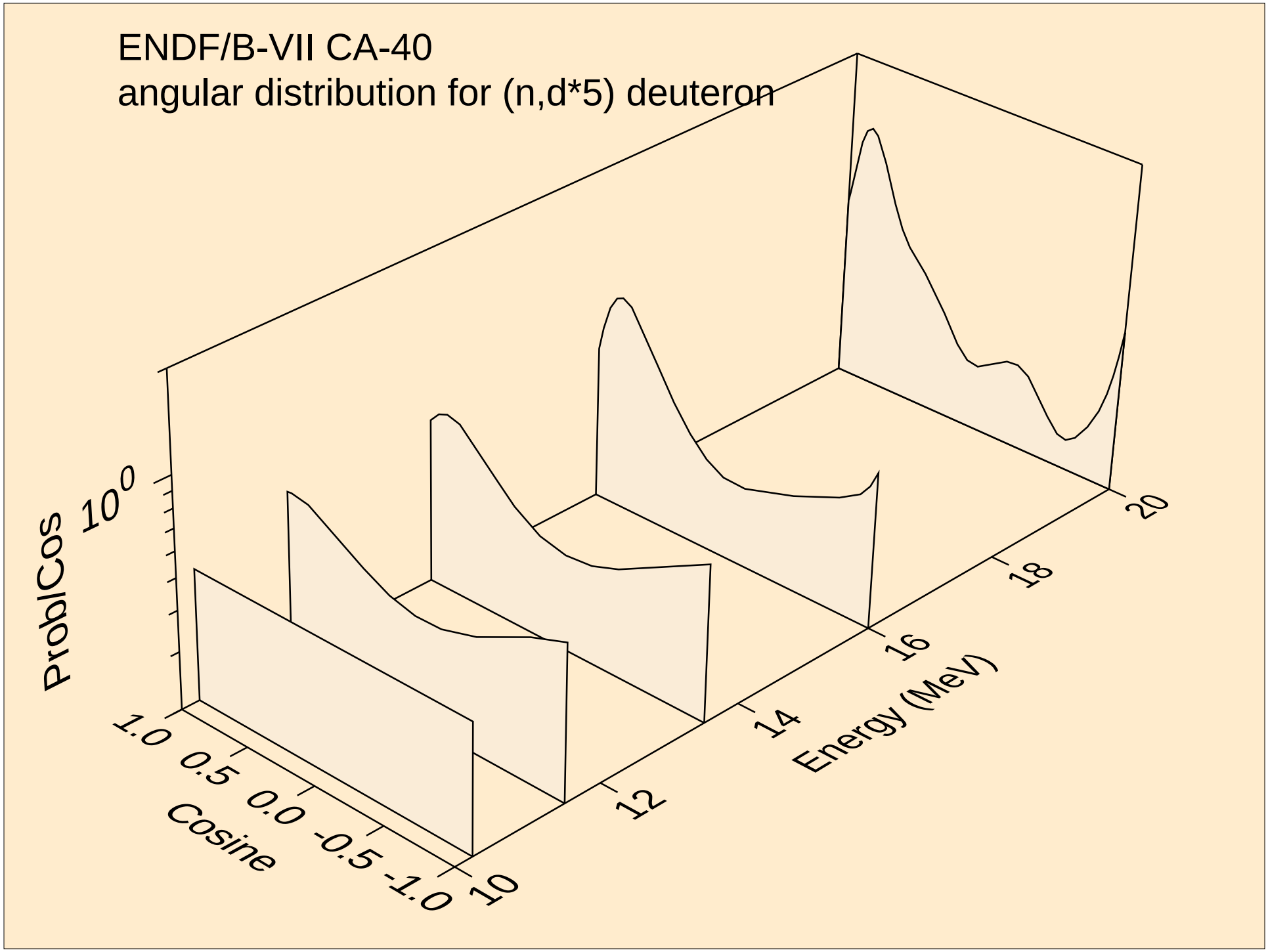

ENDF/B-VII CA-40
angular distribution for (n,d*0) deuteron
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

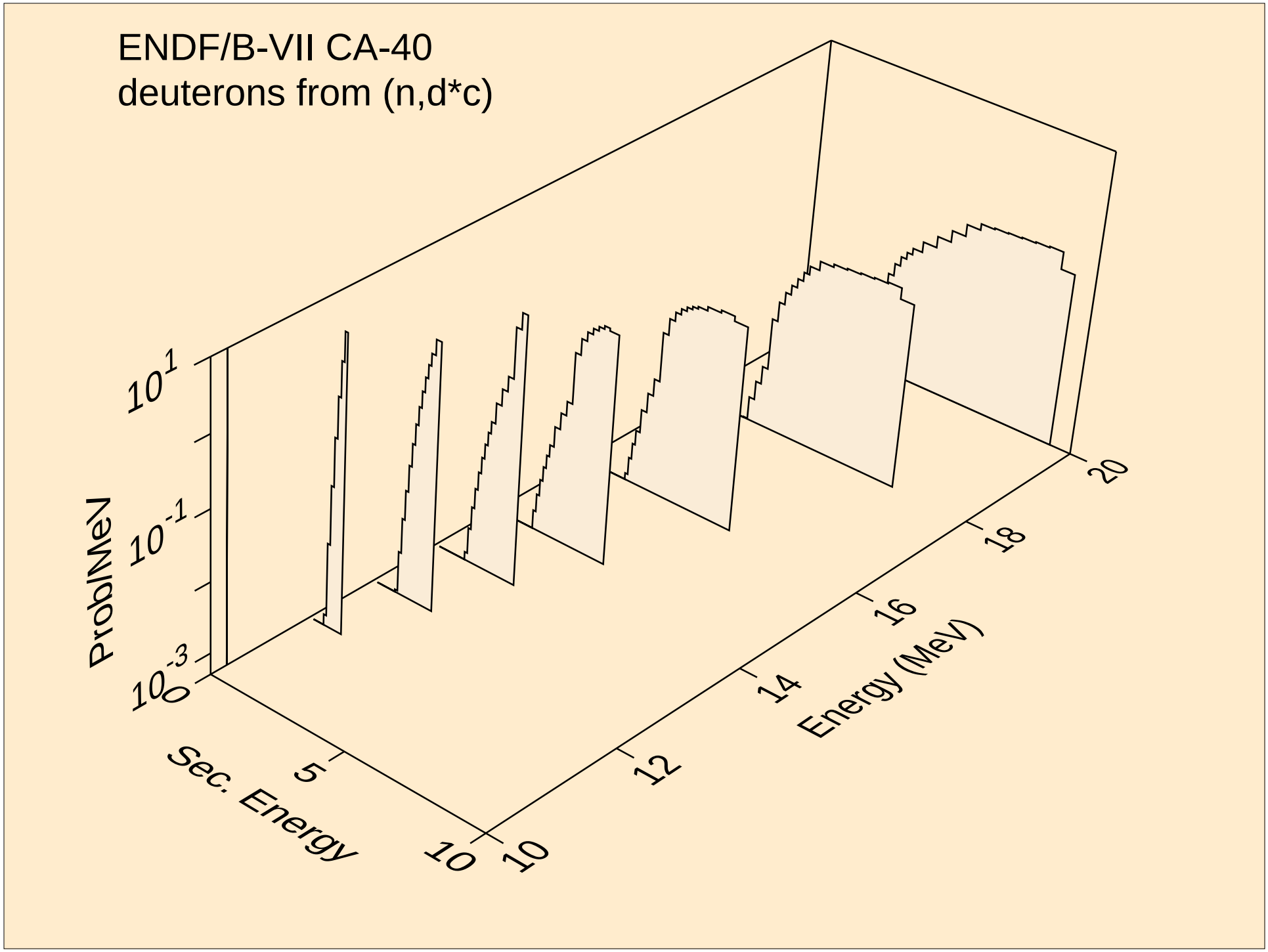

ENDF/B-VII CA-40
angular distribution for (n,d*1) deuteron
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

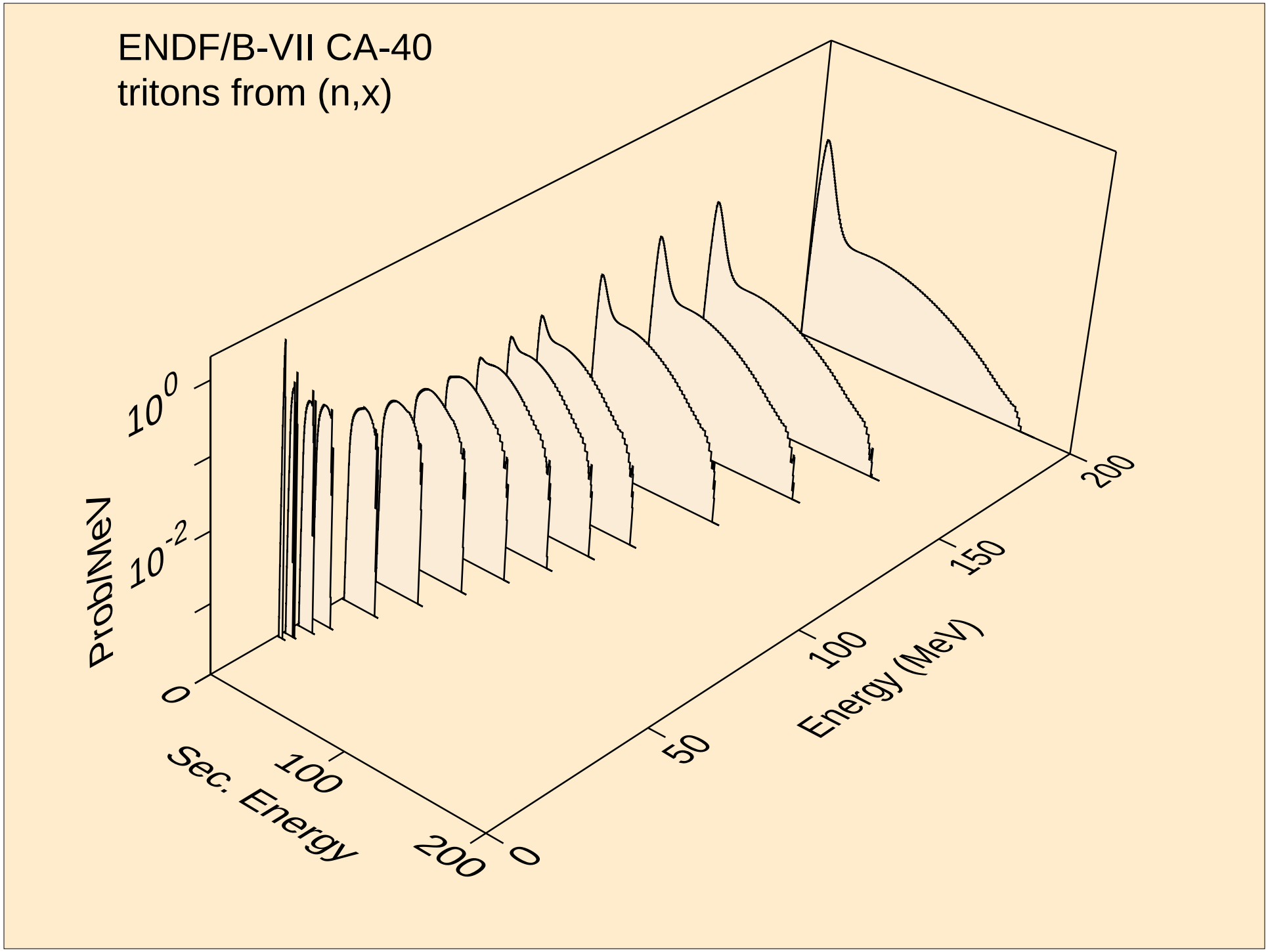

ENDF/B-VII CA-40
angular distribution for (n,d*2) deuteron
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

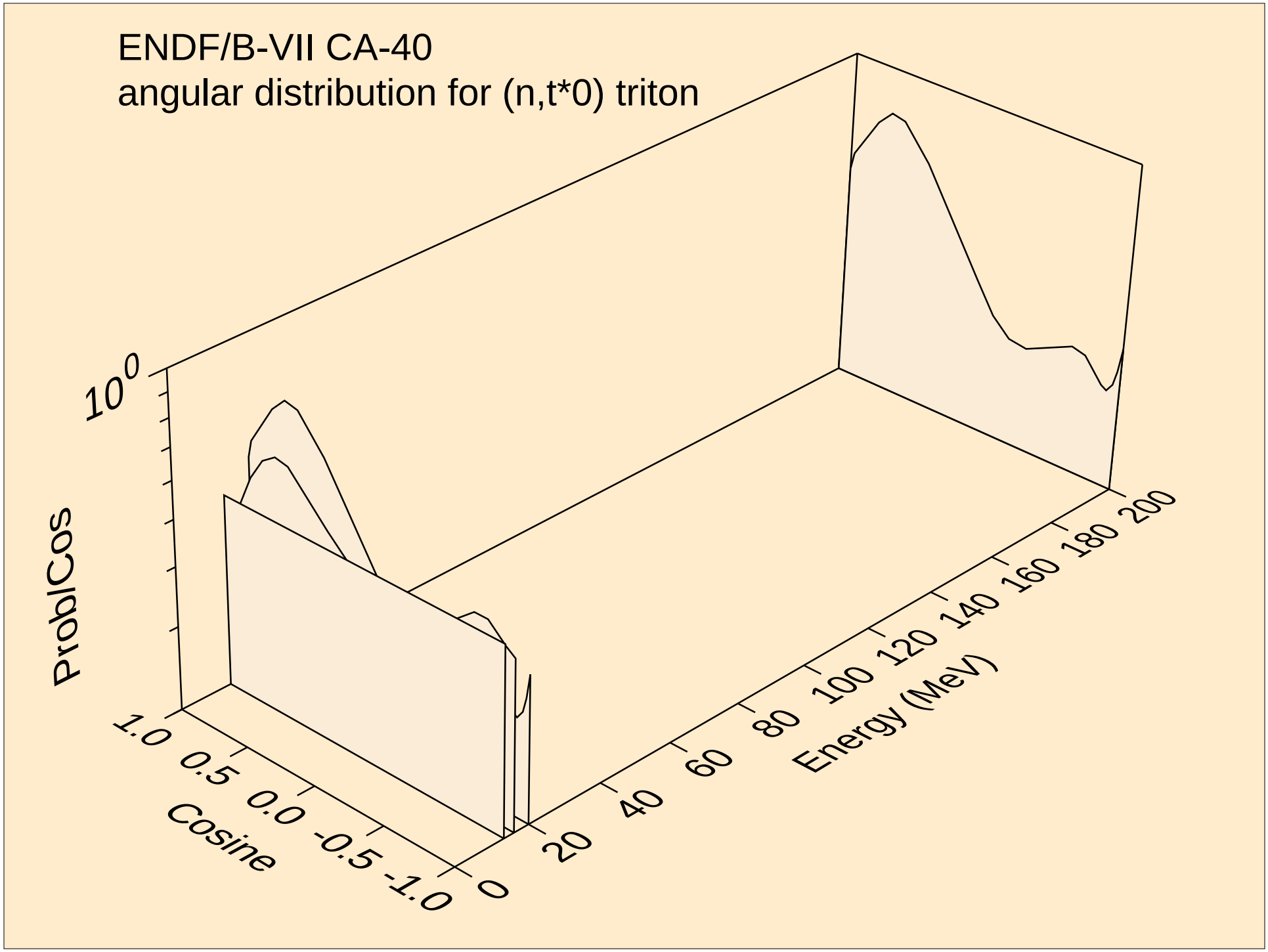

ENDF/B-VII CA-40
angular distribution for (n,d*3) deuteron
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

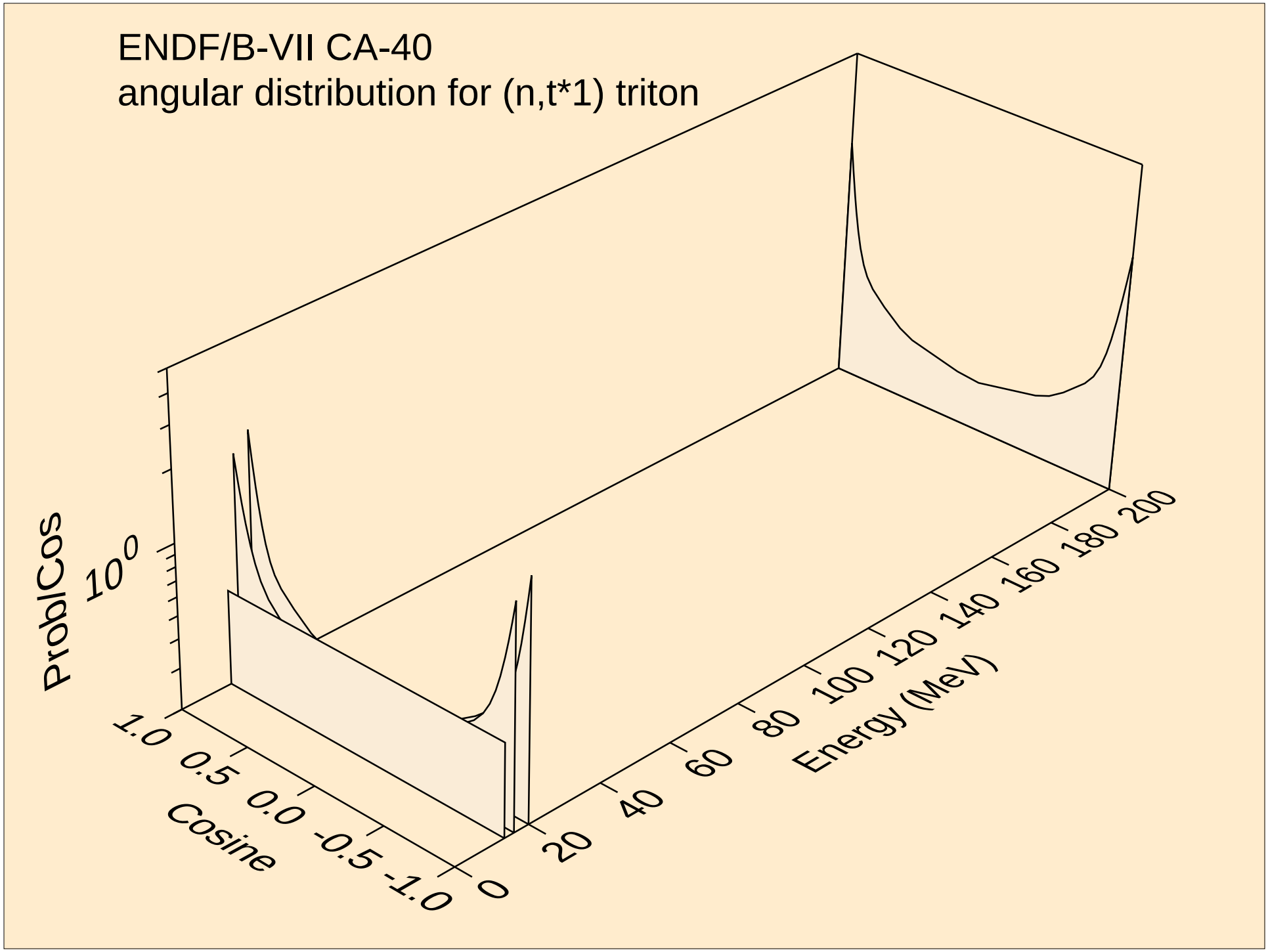

ENDF/B-VII CA-40
angular distribution for (n,d*4) deuteron
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

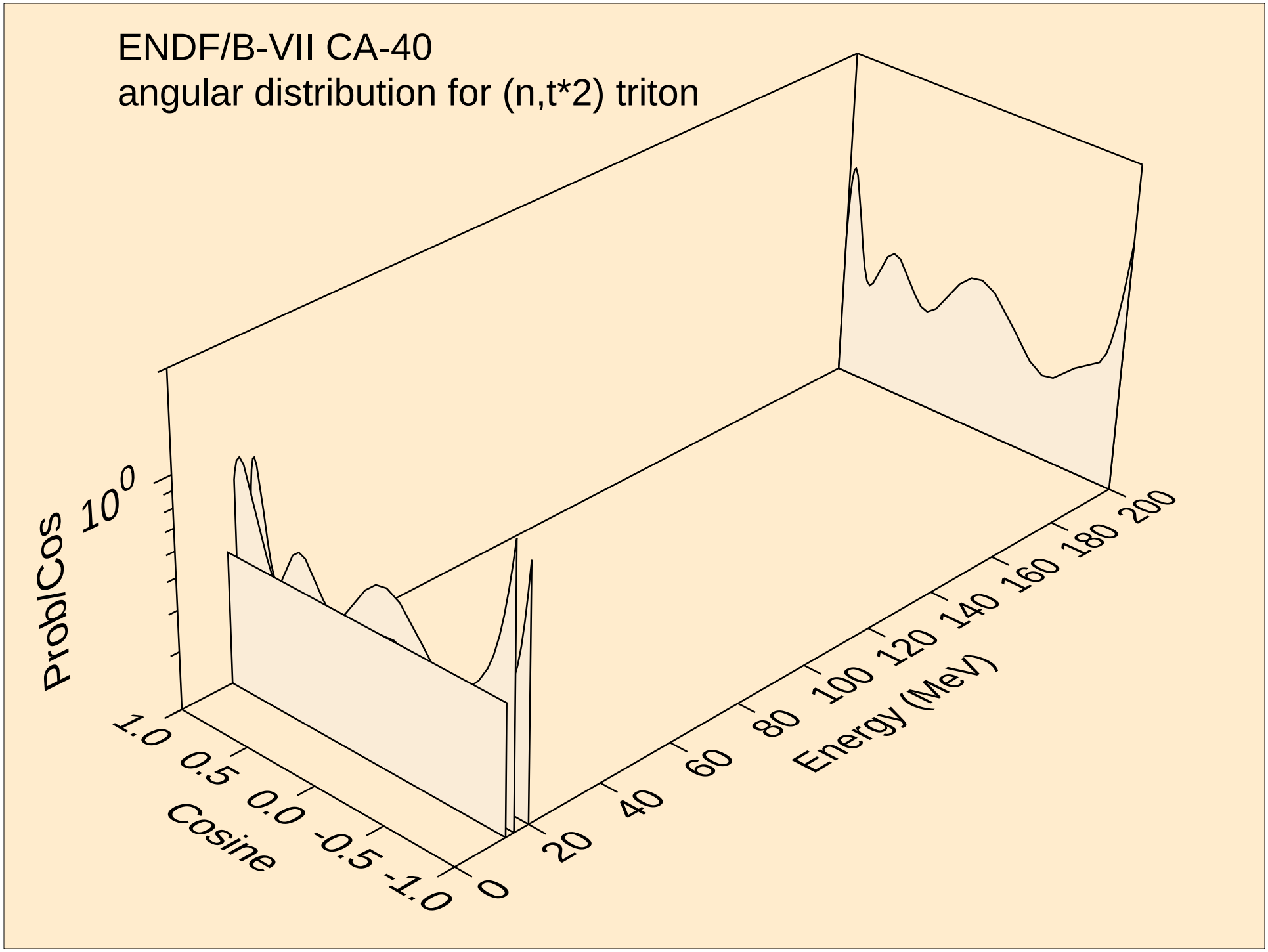

ENDF/B-VII CA-40
angular distribution for (n,d*5) deuteron
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

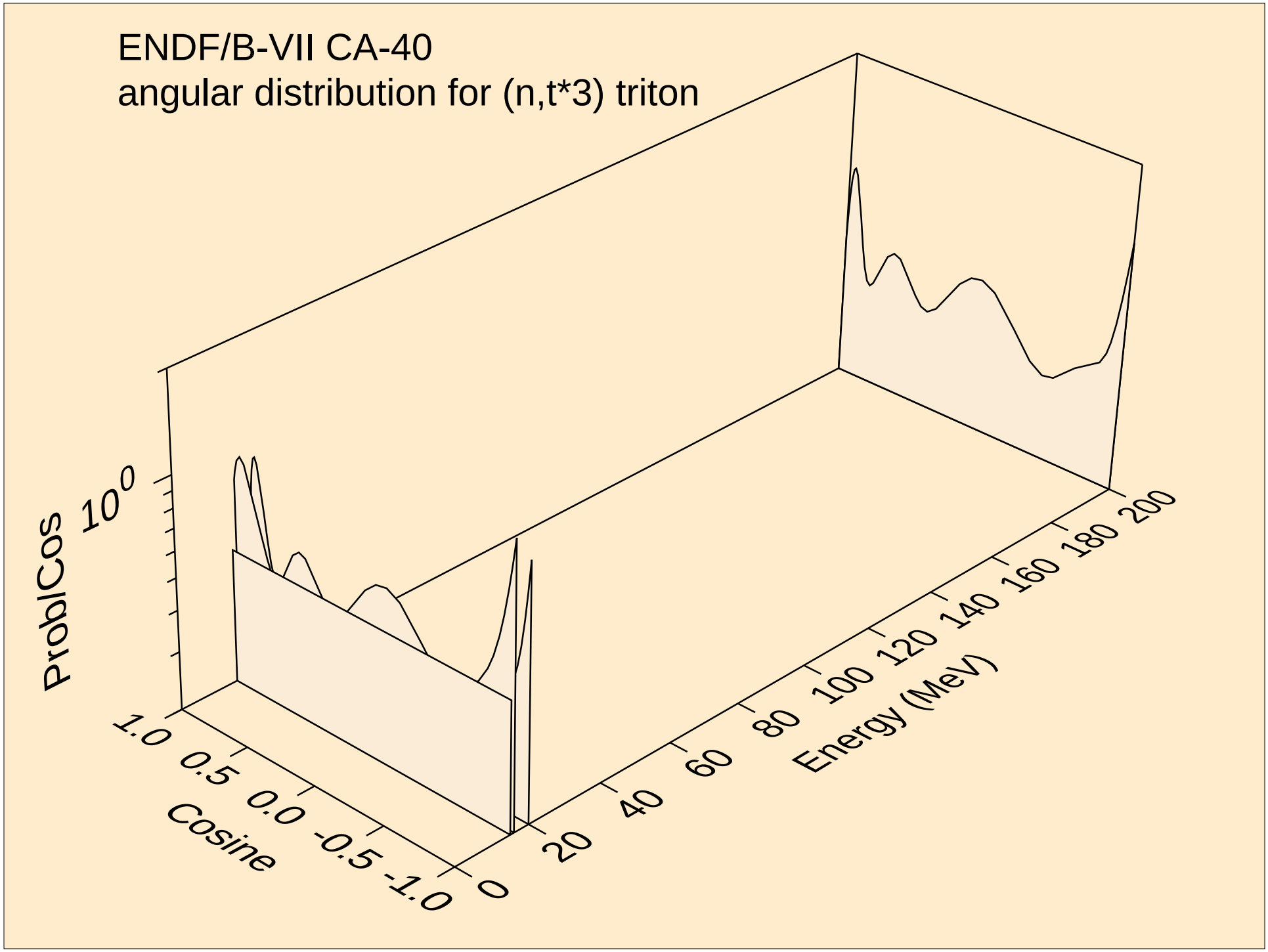

ENDF/B-VII CA-40
deuterons from (n,d*c)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
5
10
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

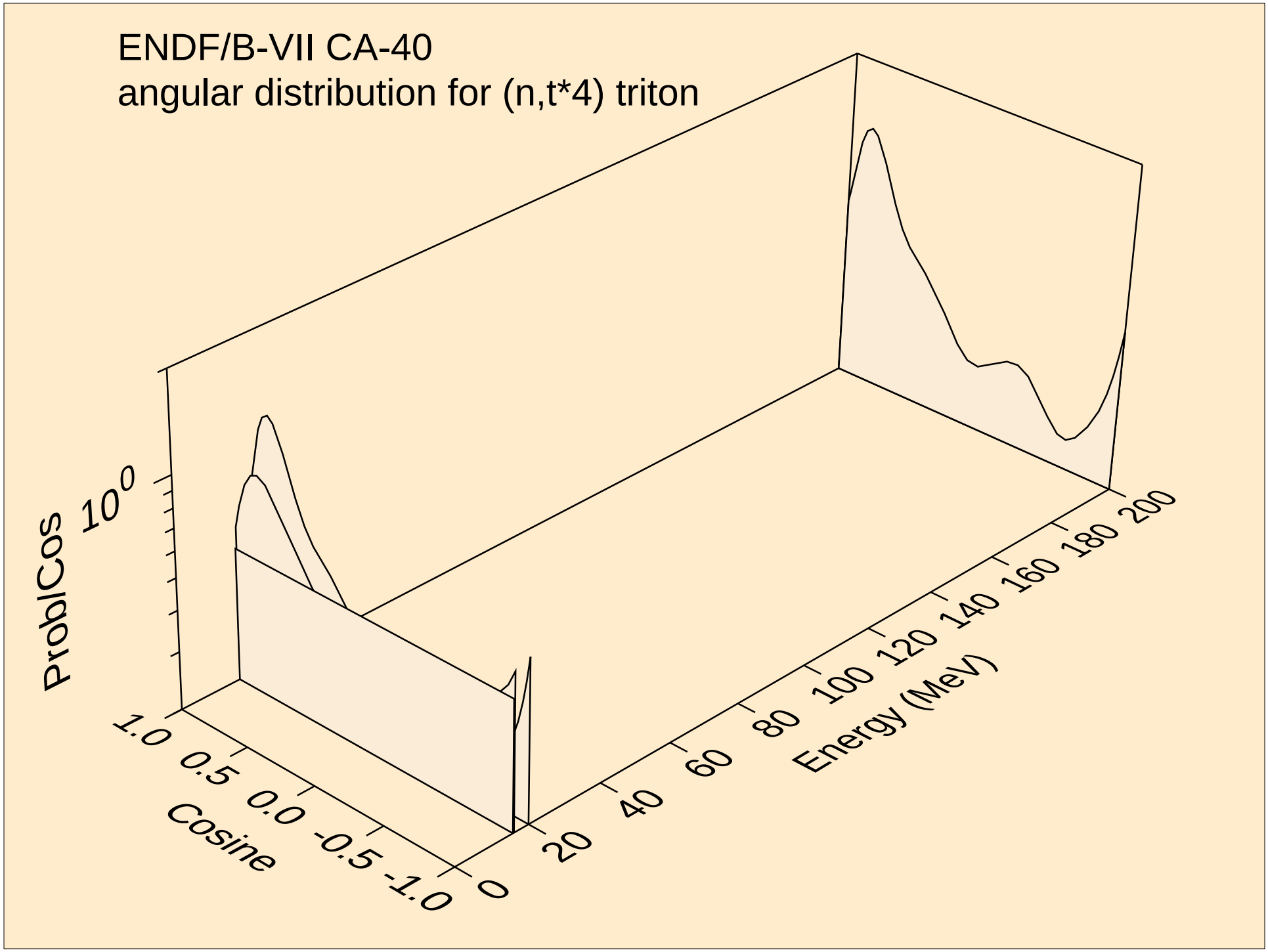

ENDF/B-VII CA-40
tritons from (n,x)
Prob/MeV
10^0
10^{-2}
0
100
200
Sec. Energy
0
50
100
150
200
Energy (MeV)

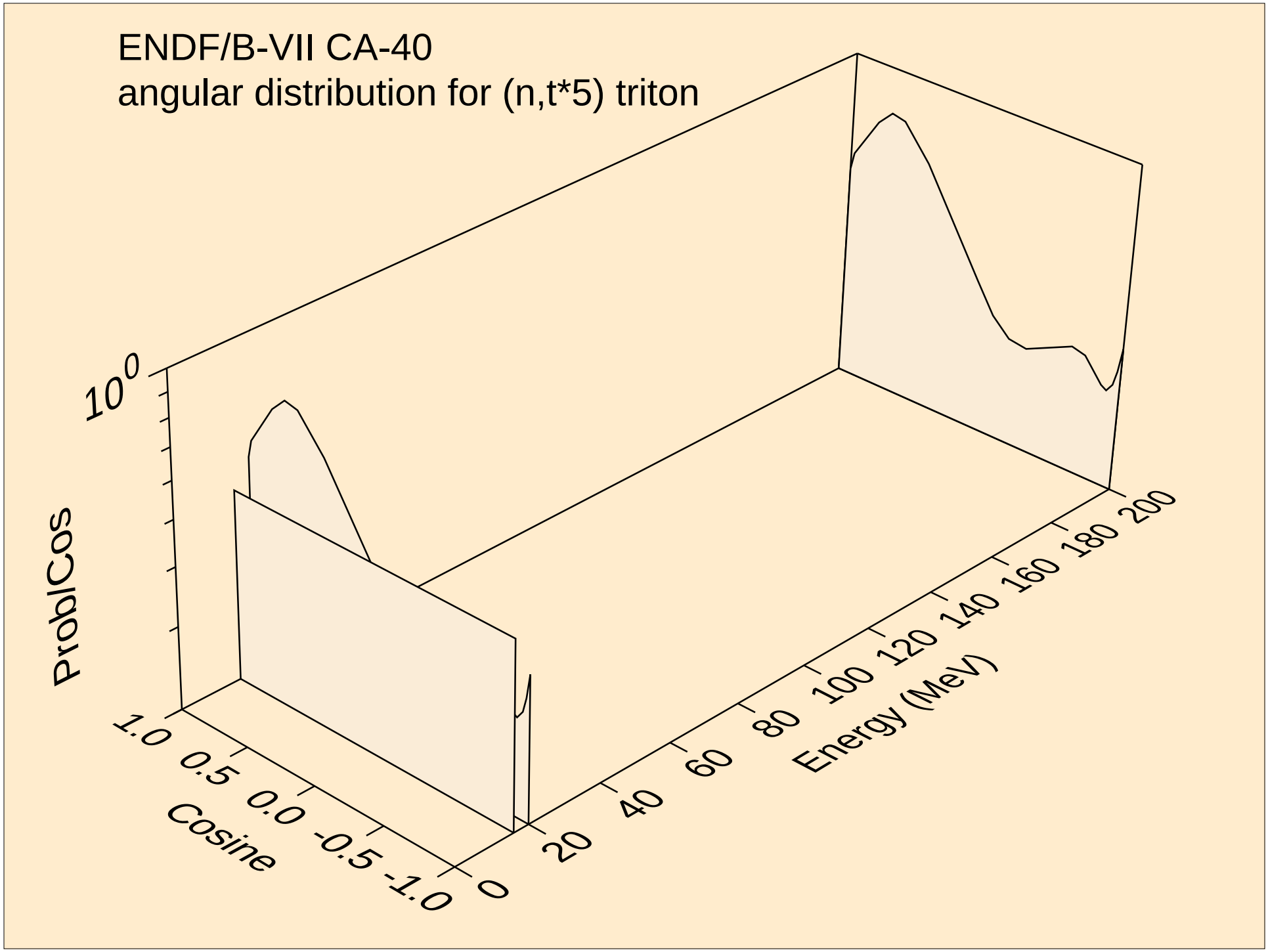

ENDF/B-VII CA-40
angular distribution for (n,t*0) triton
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

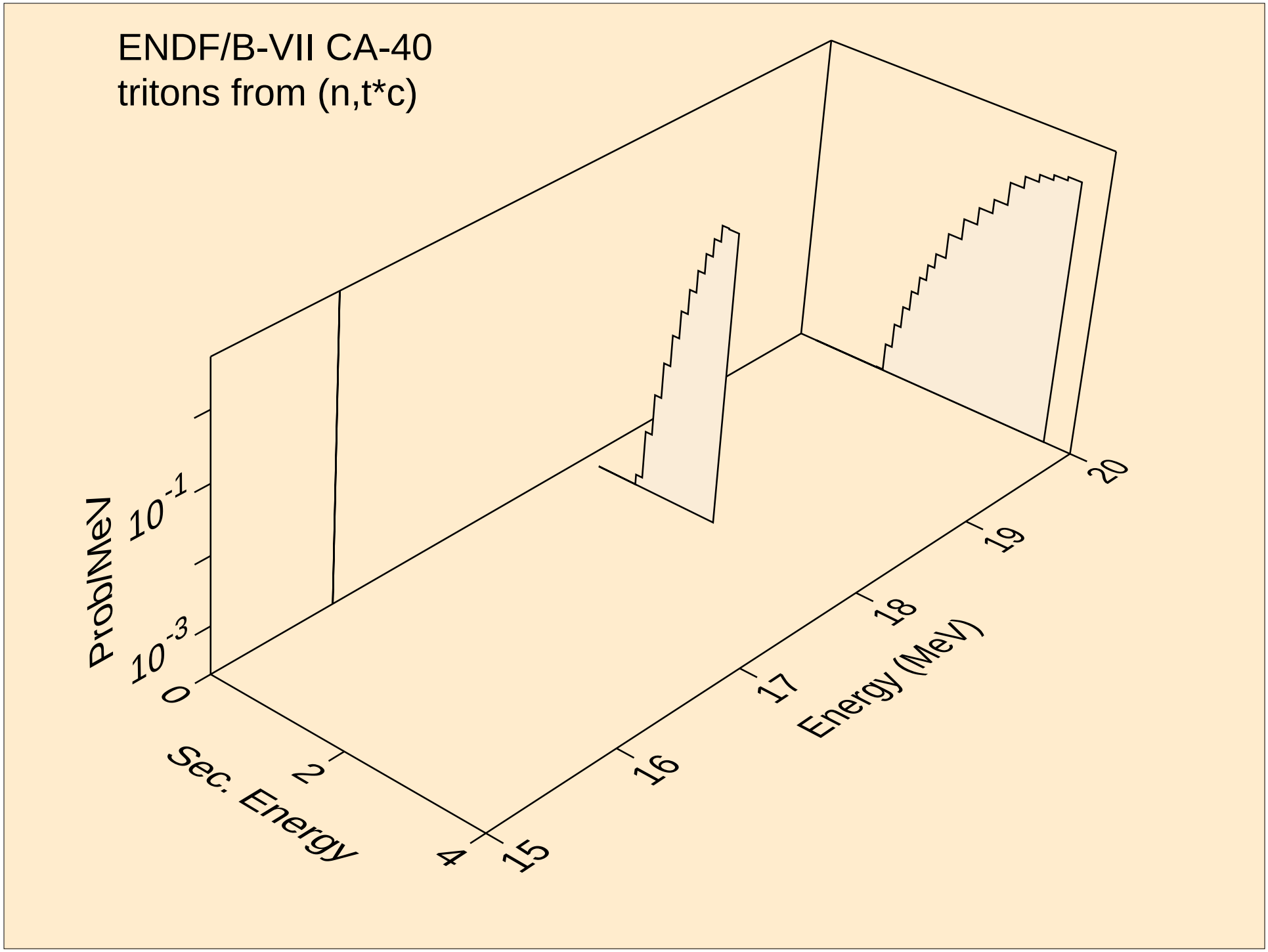

ENDF/B-VII CA-40
angular distribution for (n,t*1) triton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

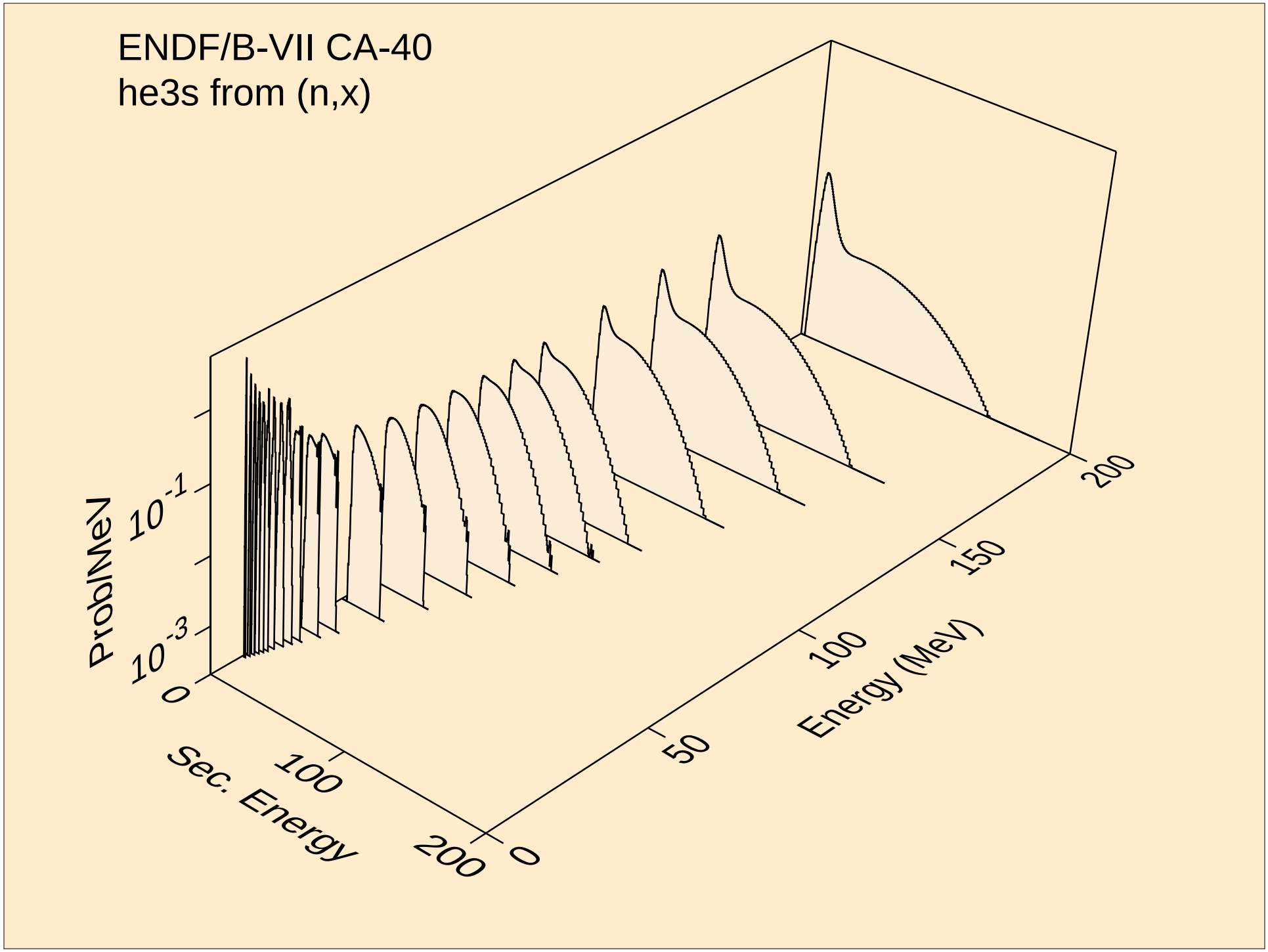

ENDF/B-VII CA-40
angular distribution for (n,t*2) triton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

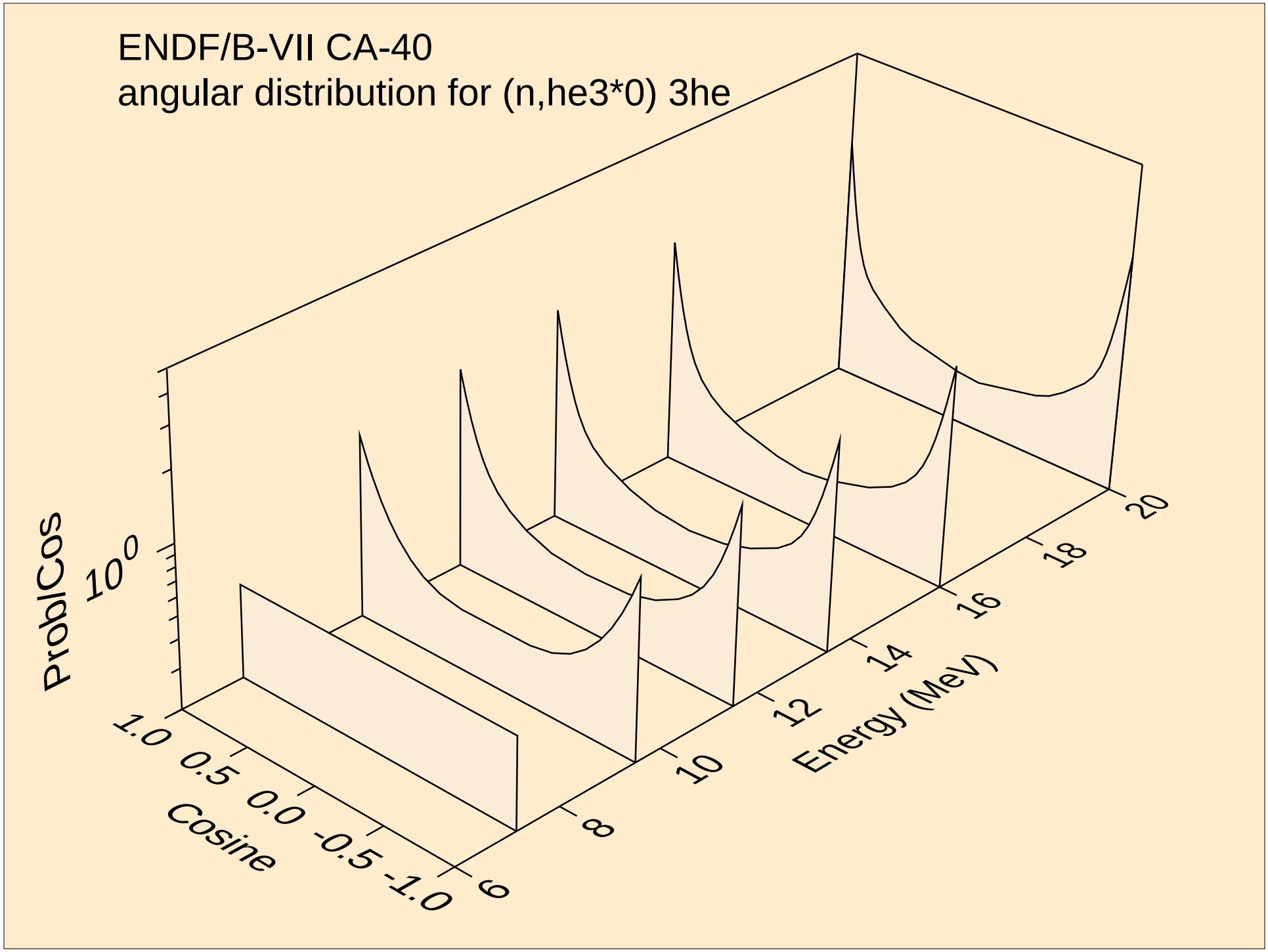

ENDF/B-VII CA-40
angular distribution for (n,t*3) triton
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

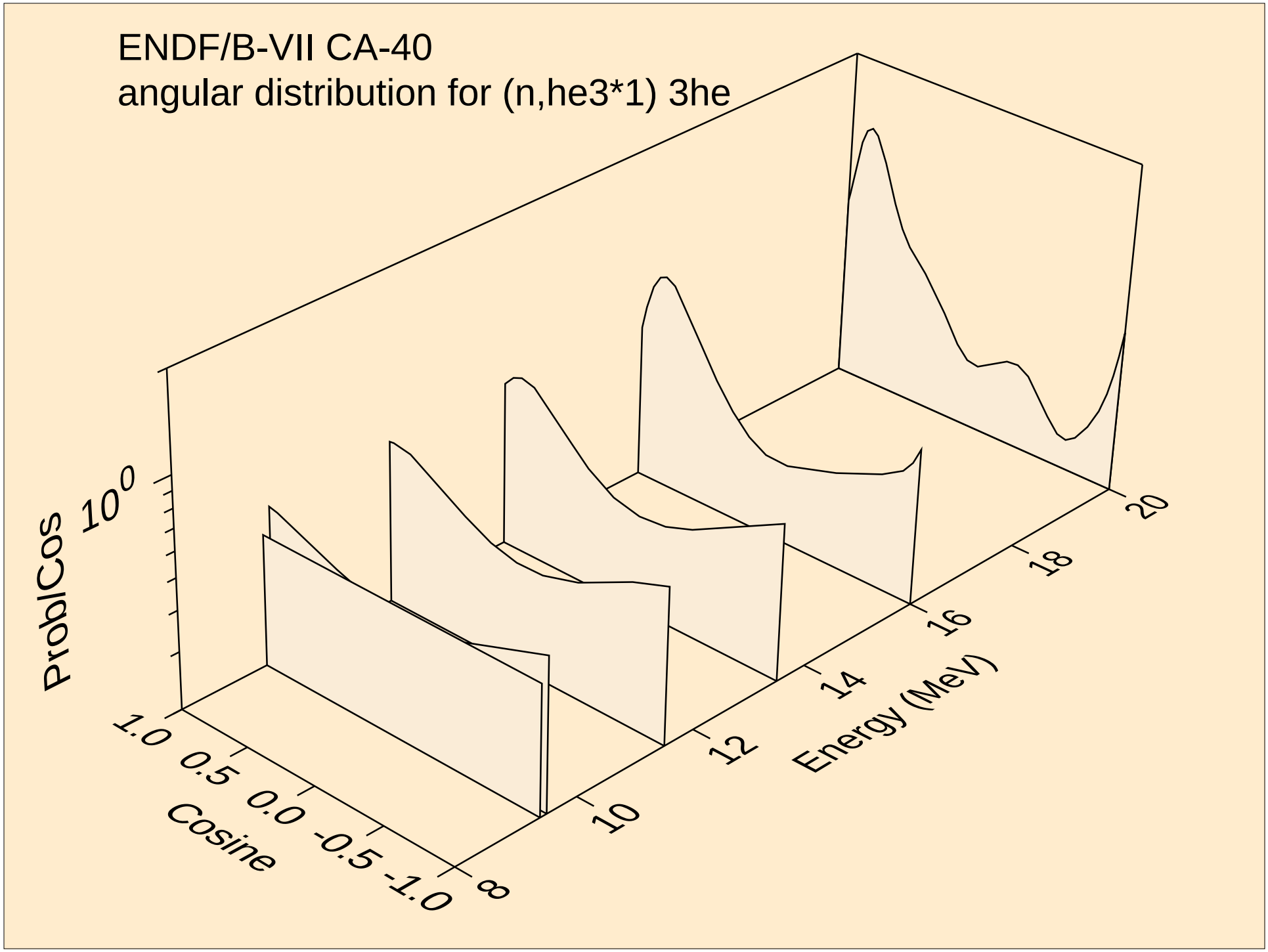

ENDF/B-VII CA-40
angular distribution for (n,t*4) triton
Prob/Cos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

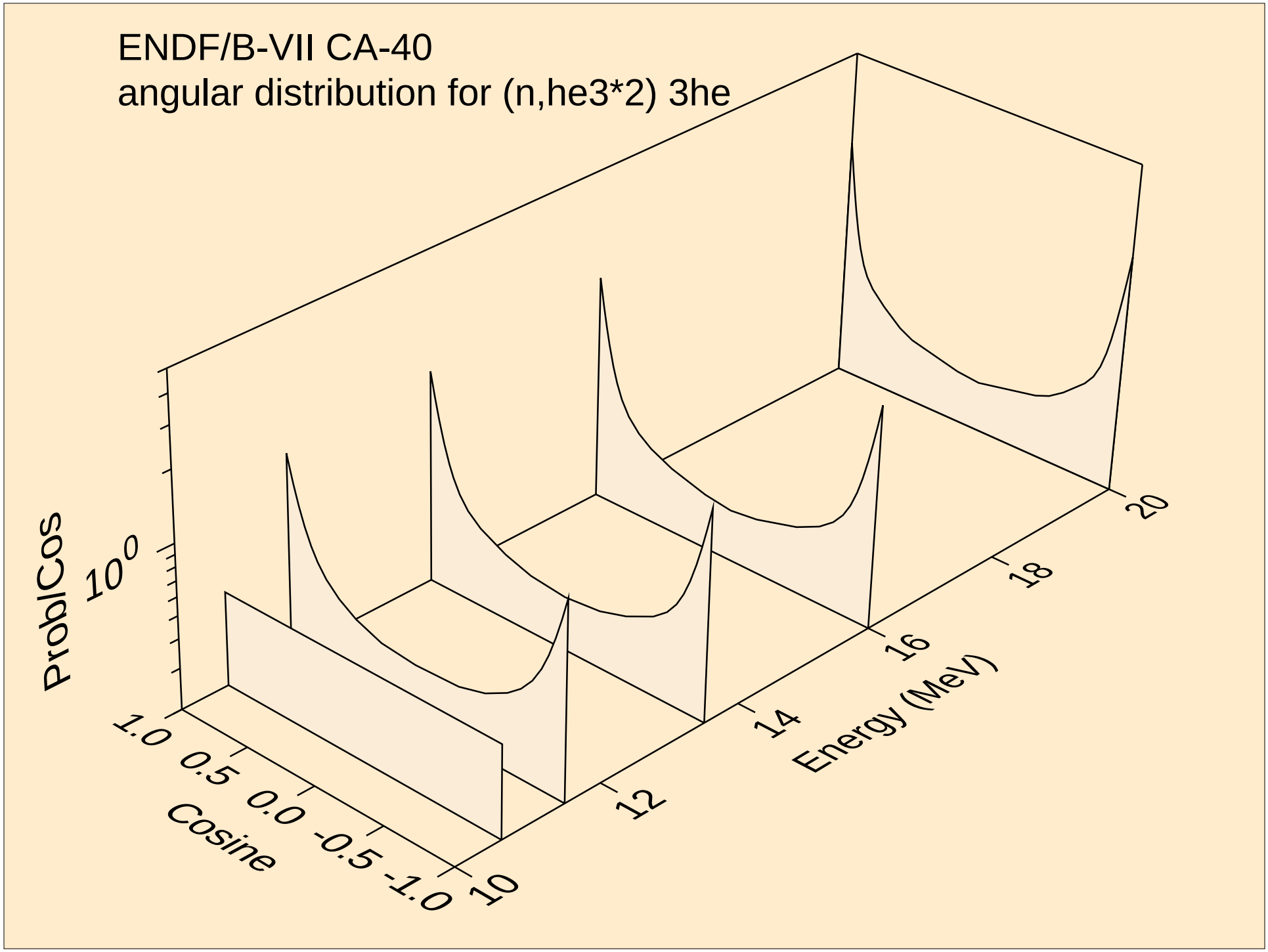

ENDF/B-VII CA-40
angular distribution for (n,t*5) triton
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

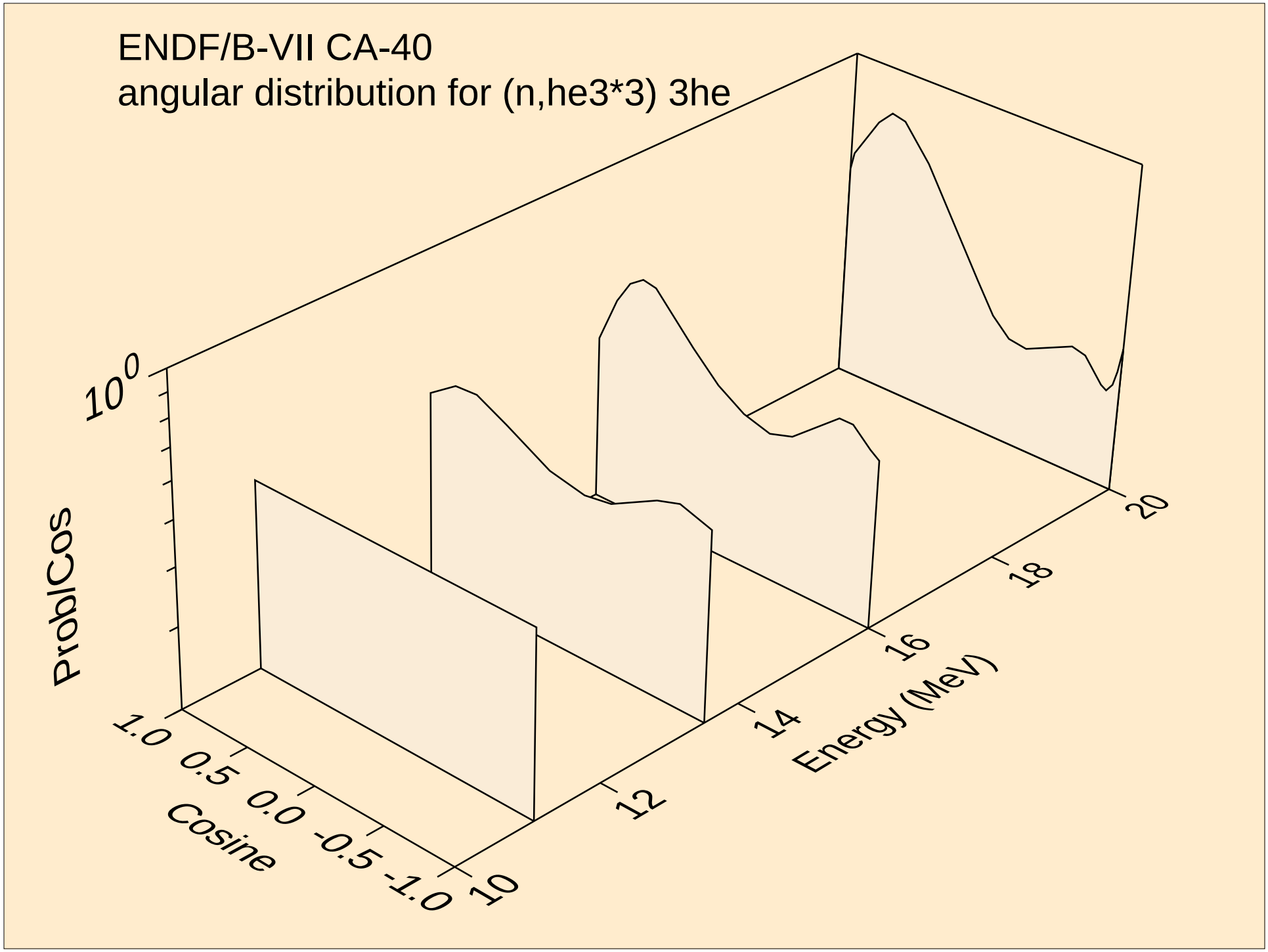

ENDF/B-VII CA-40
tritons from (n,t*c)
Prob/MeV
10^-1
10^-3
0
2
4
Sec. Energy
15
16
17
18
19
20
Energy (MeV)

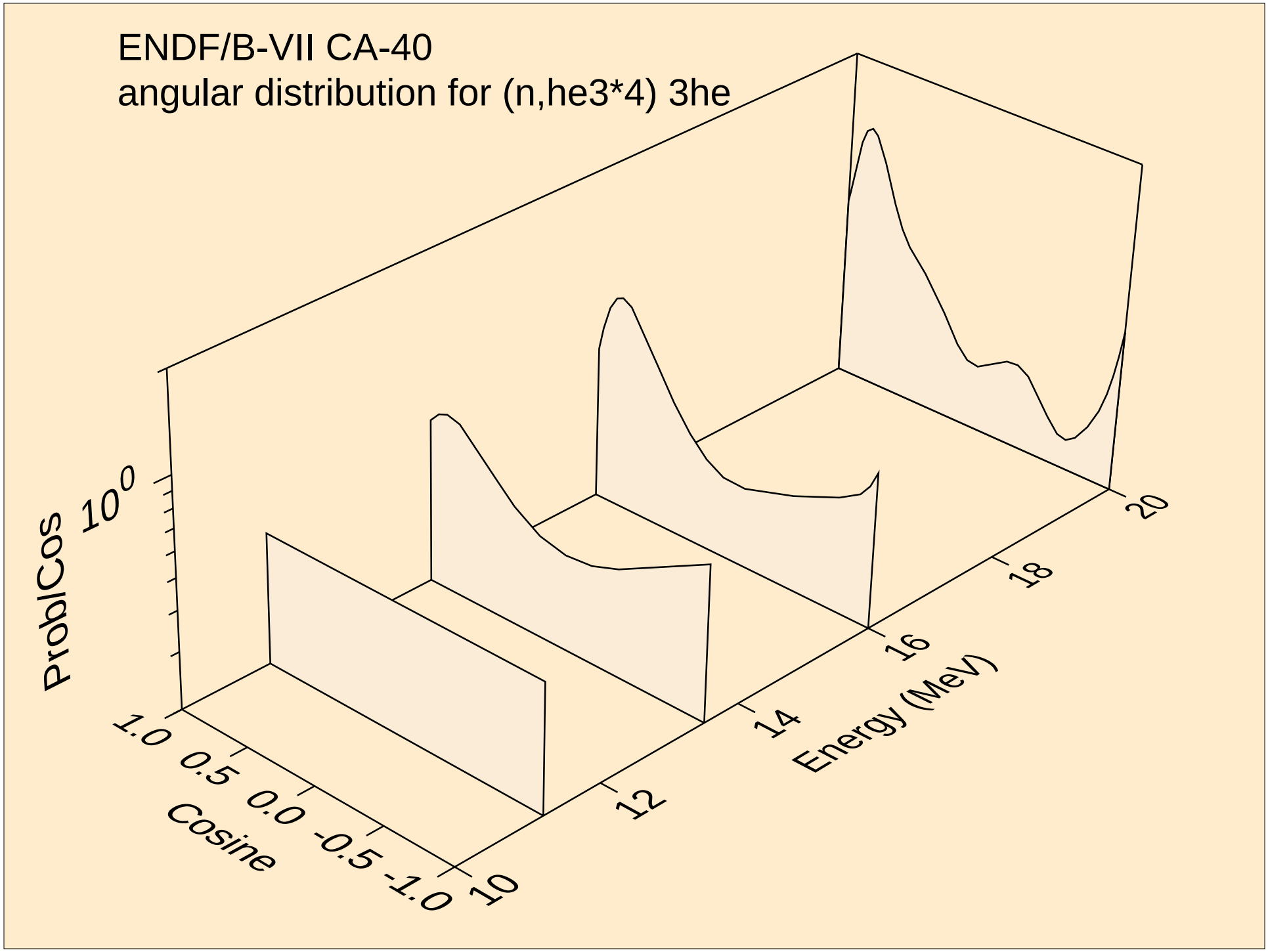

ENDF/B-VII CA-40
he3s from (n,x)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)

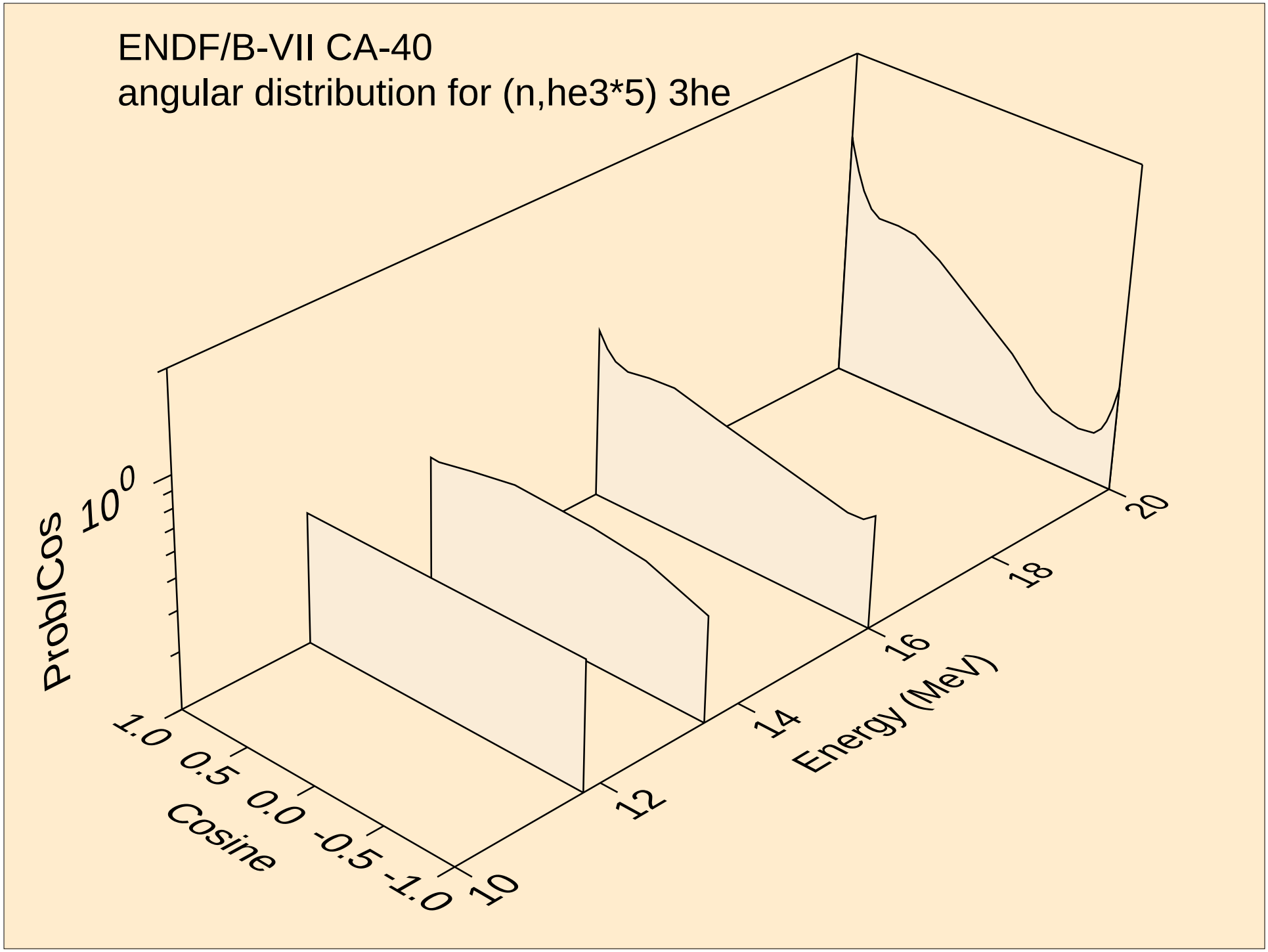

ENDF/B-VII CA-40
angular distribution for (n,he3*0) 3he
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

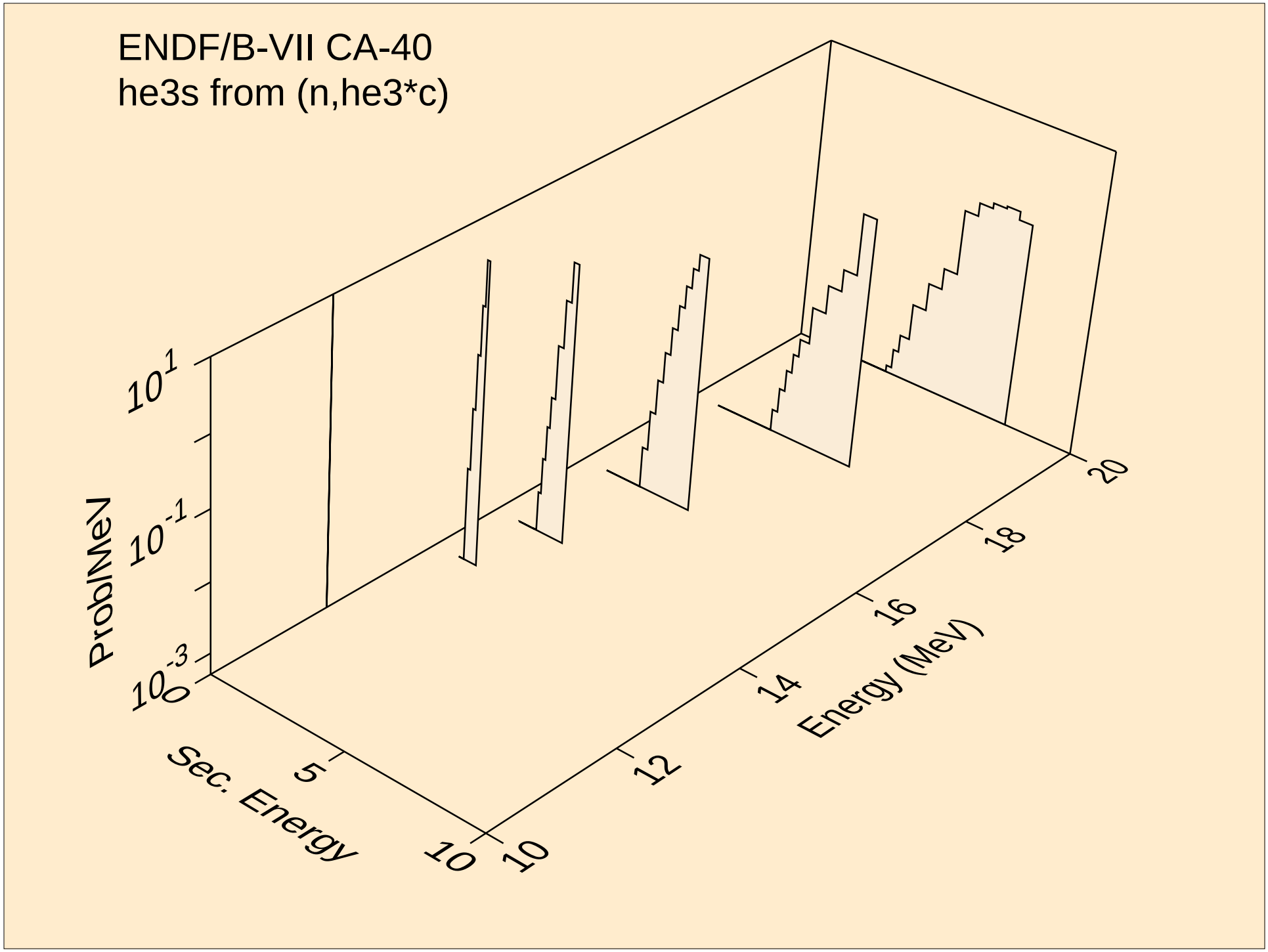

ENDF/B-VII CA-40
angular distribution for (n,he3*1) 3he
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

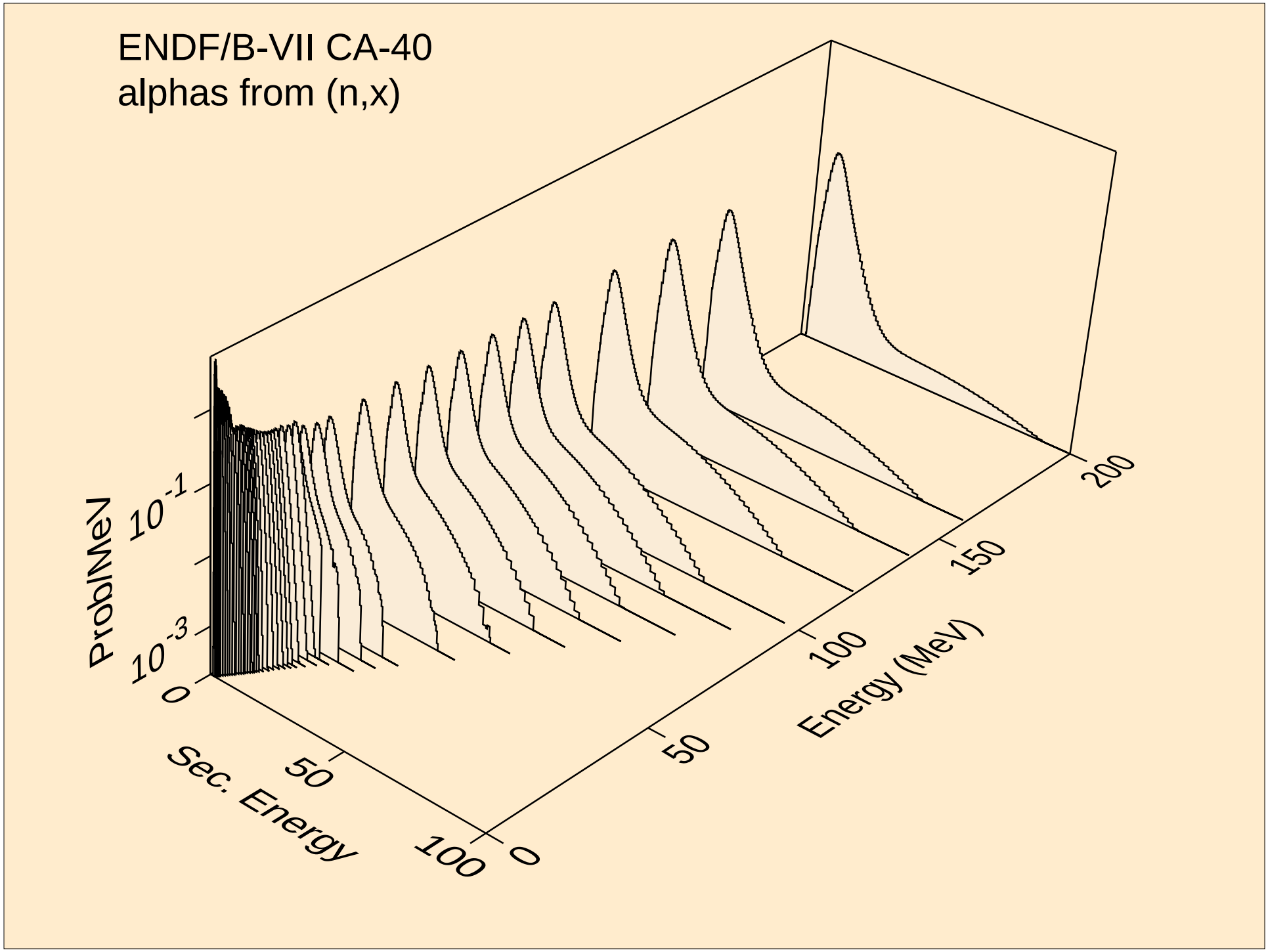

ENDF/B-VII CA-40
angular distribution for (n,he3*2) 3he
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

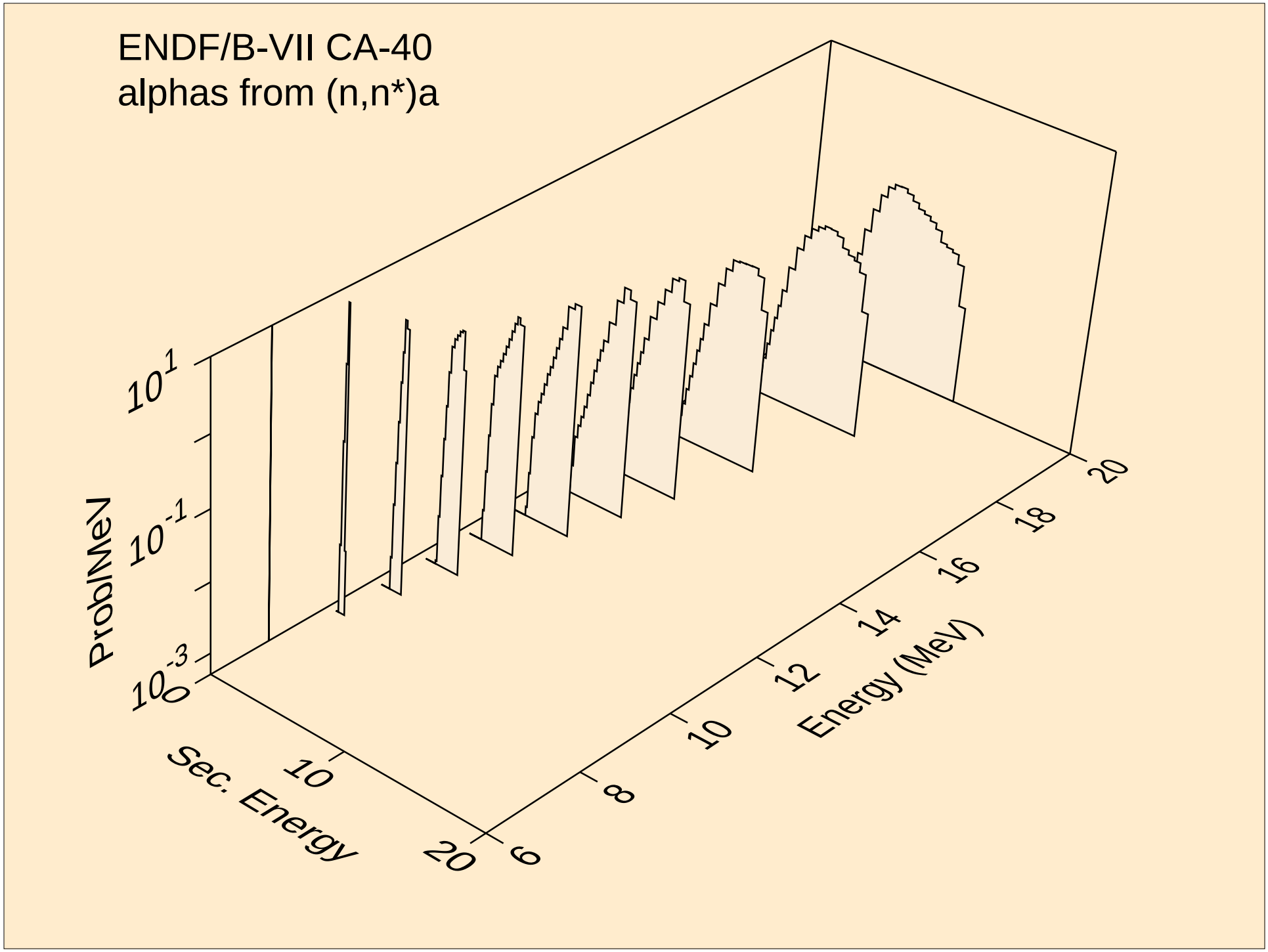

ENDF/B-VII CA-40
angular distribution for (n,he3*3) 3he
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

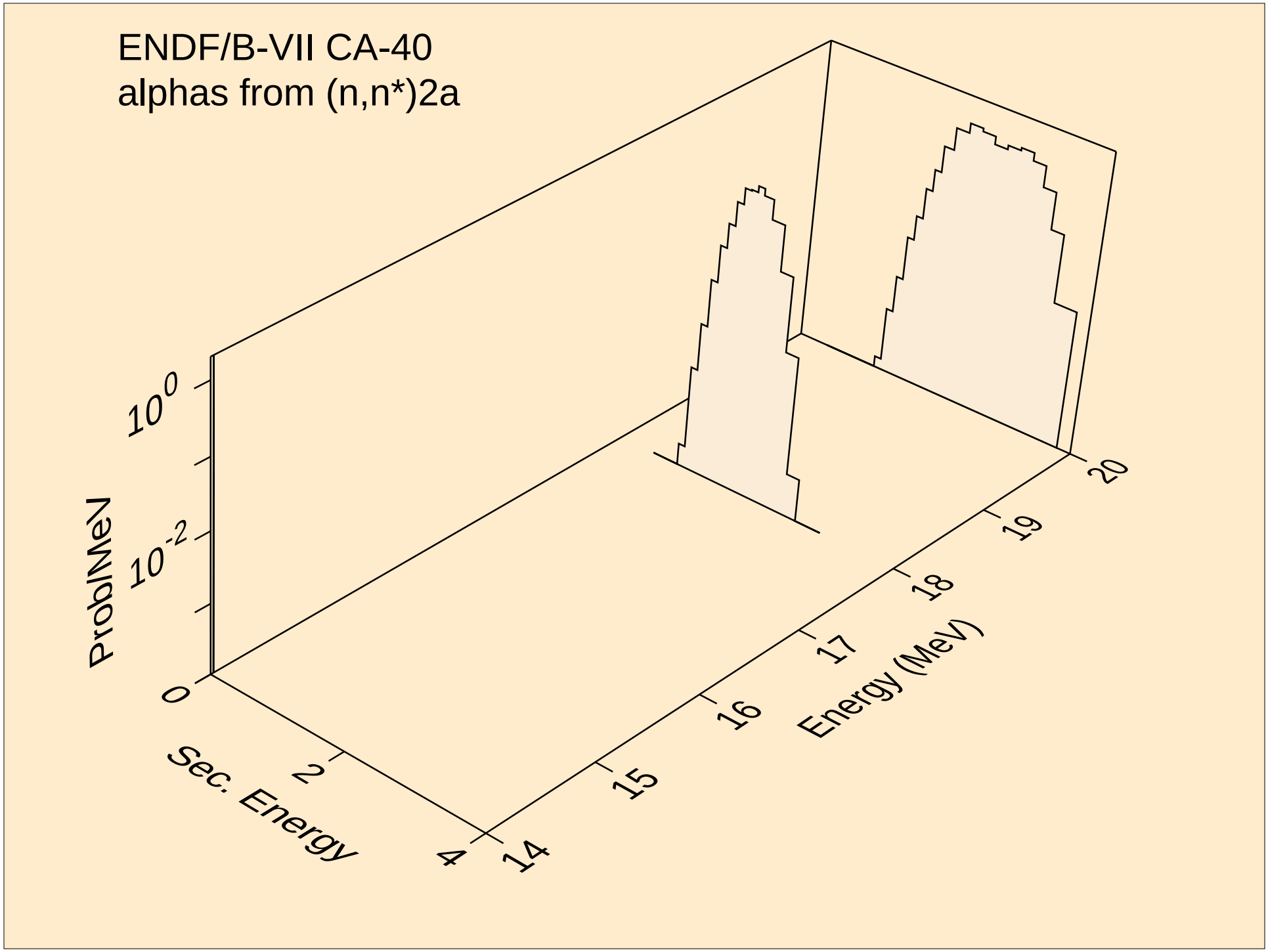

ENDF/B-VII CA-40
angular distribution for (n,he3*4) 3he
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

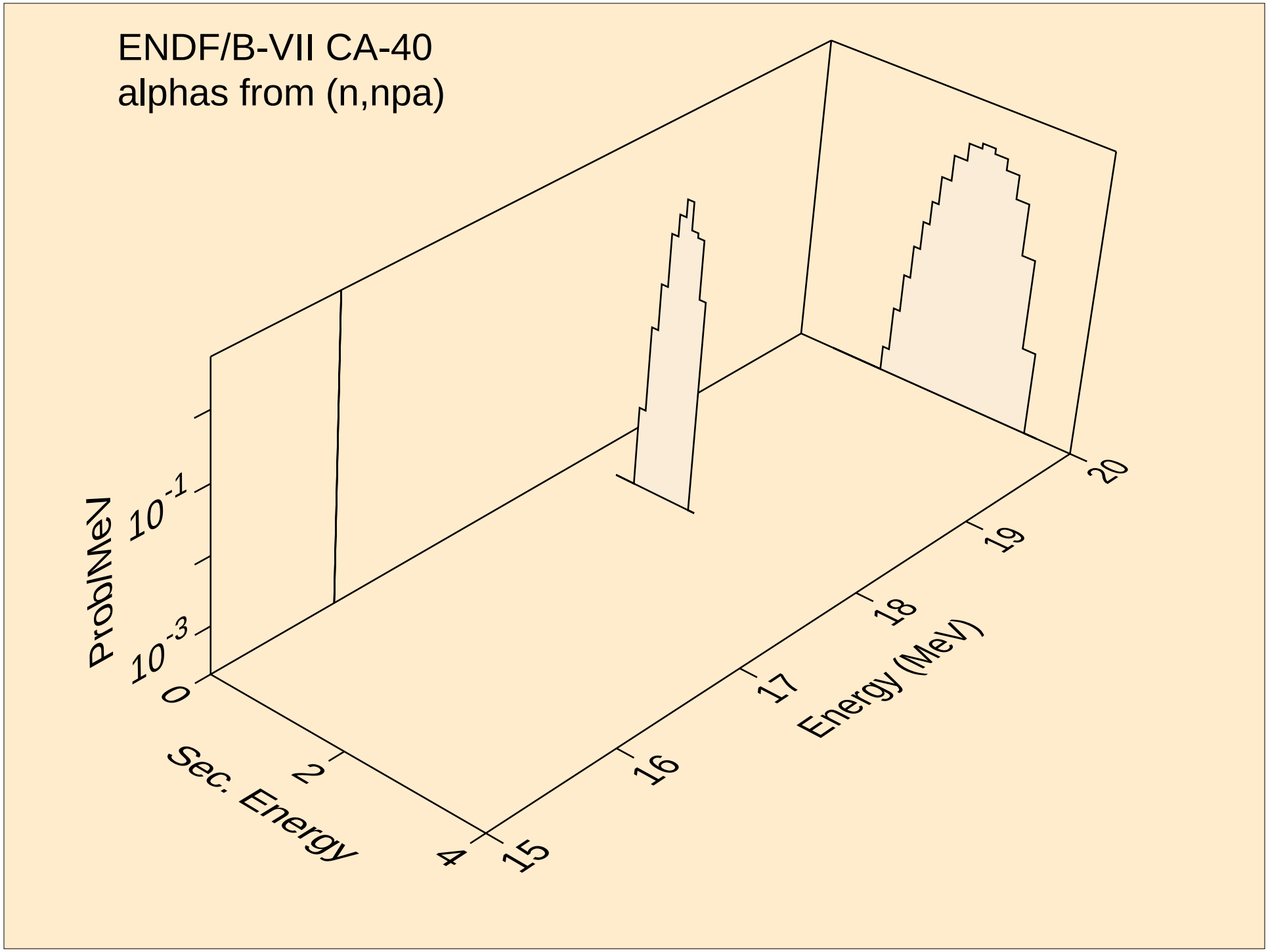

ENDF/B-VII CA-40
angular distribution for (n,he3*5) 3he
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

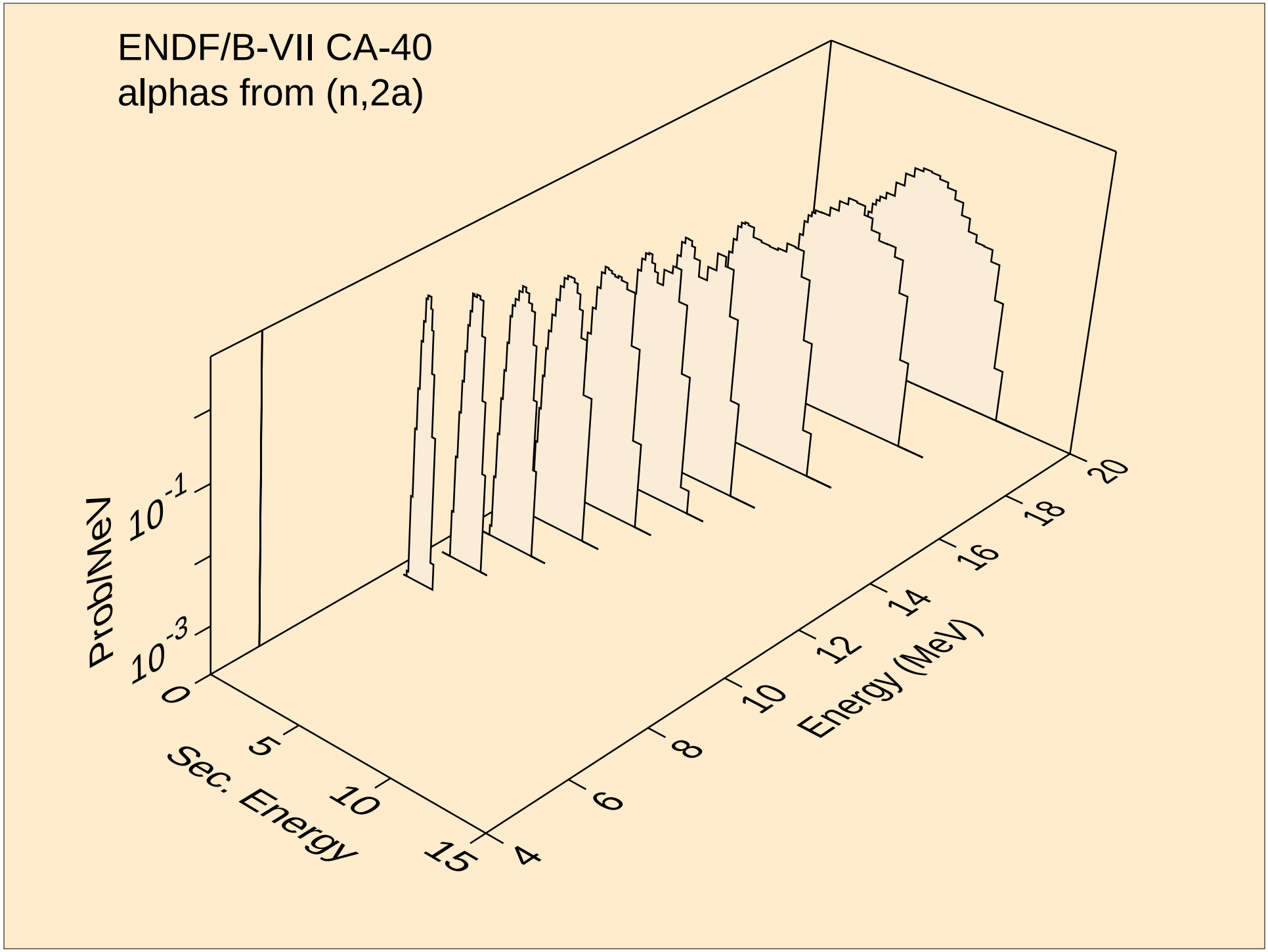

ENDF/B-VII CA-40
he3s from (n,he3*c)
Prob/MeV
10^{1}
10^{-1}
10^{-3}
0
5
10
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

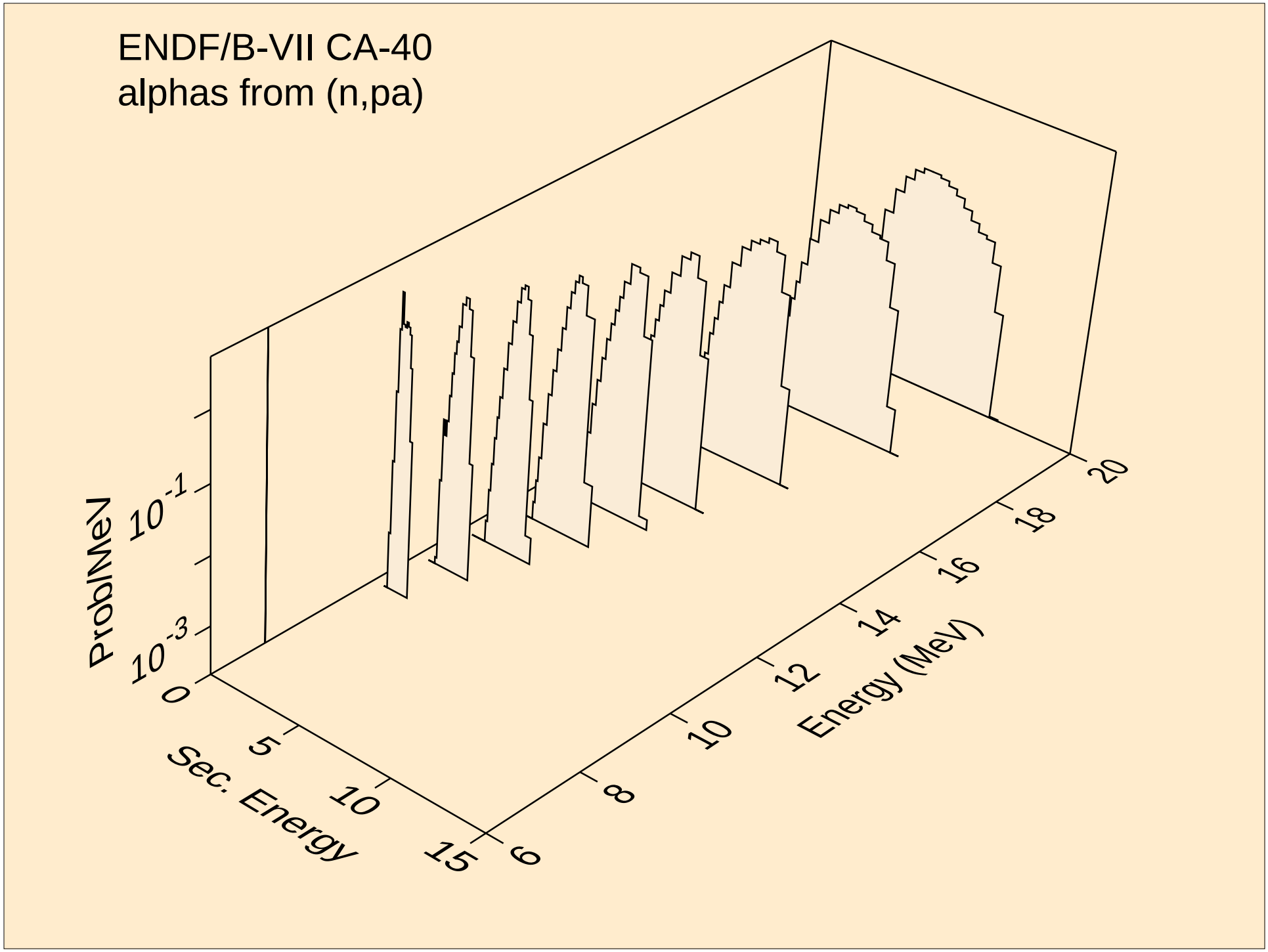

ENDF/B-VII CA-40
alphas from (n,x)
Prob/MeV
10^{-1}
10^{-3}
0
Sec. Energy
50
100
0
50
100
150
200
Energy (MeV)

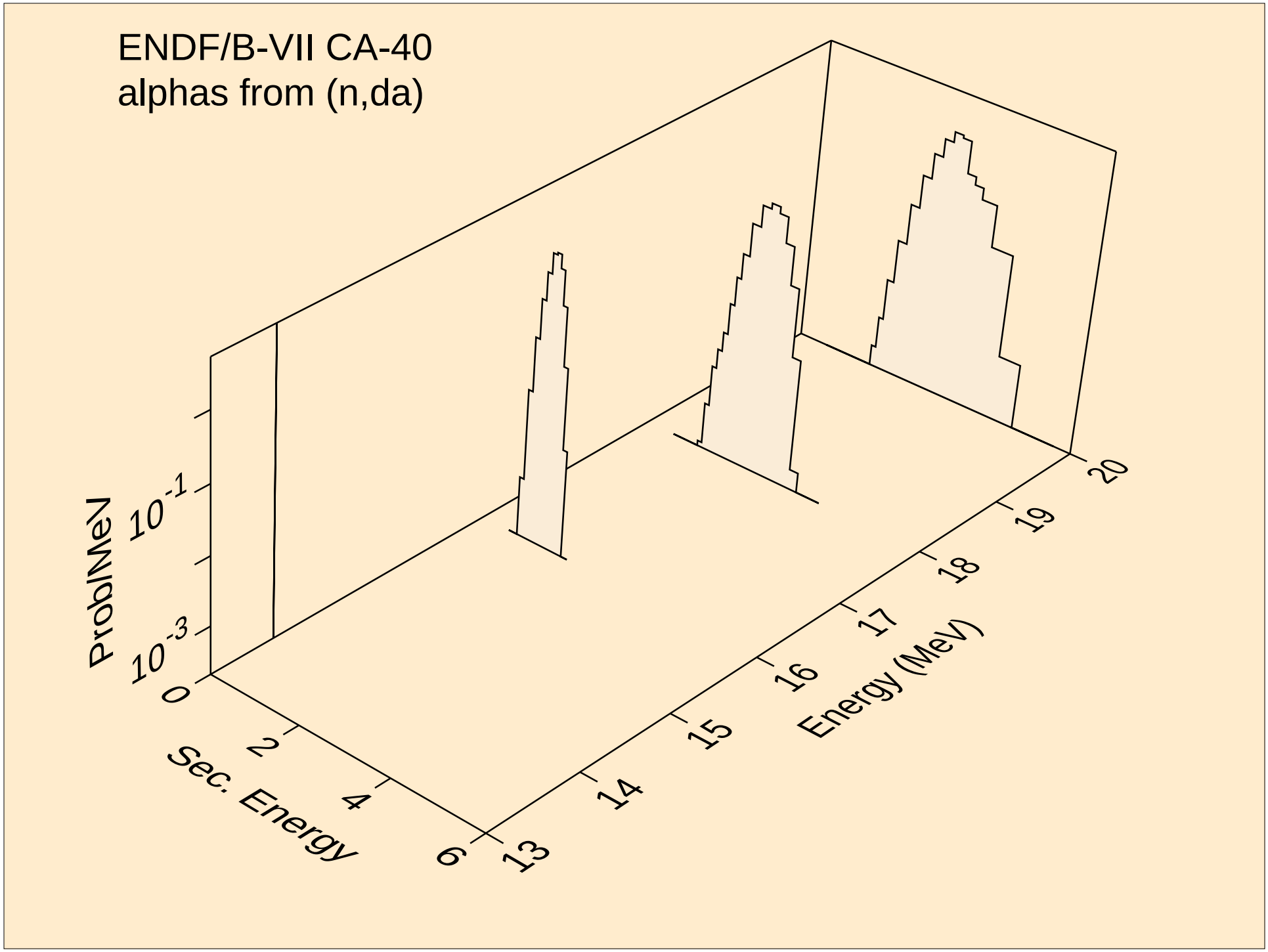

ENDF/B-VII CA-40
alphas from (n,n*)a
Prob/MeV
10^1
10^-1
10^-3
0
10
20
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

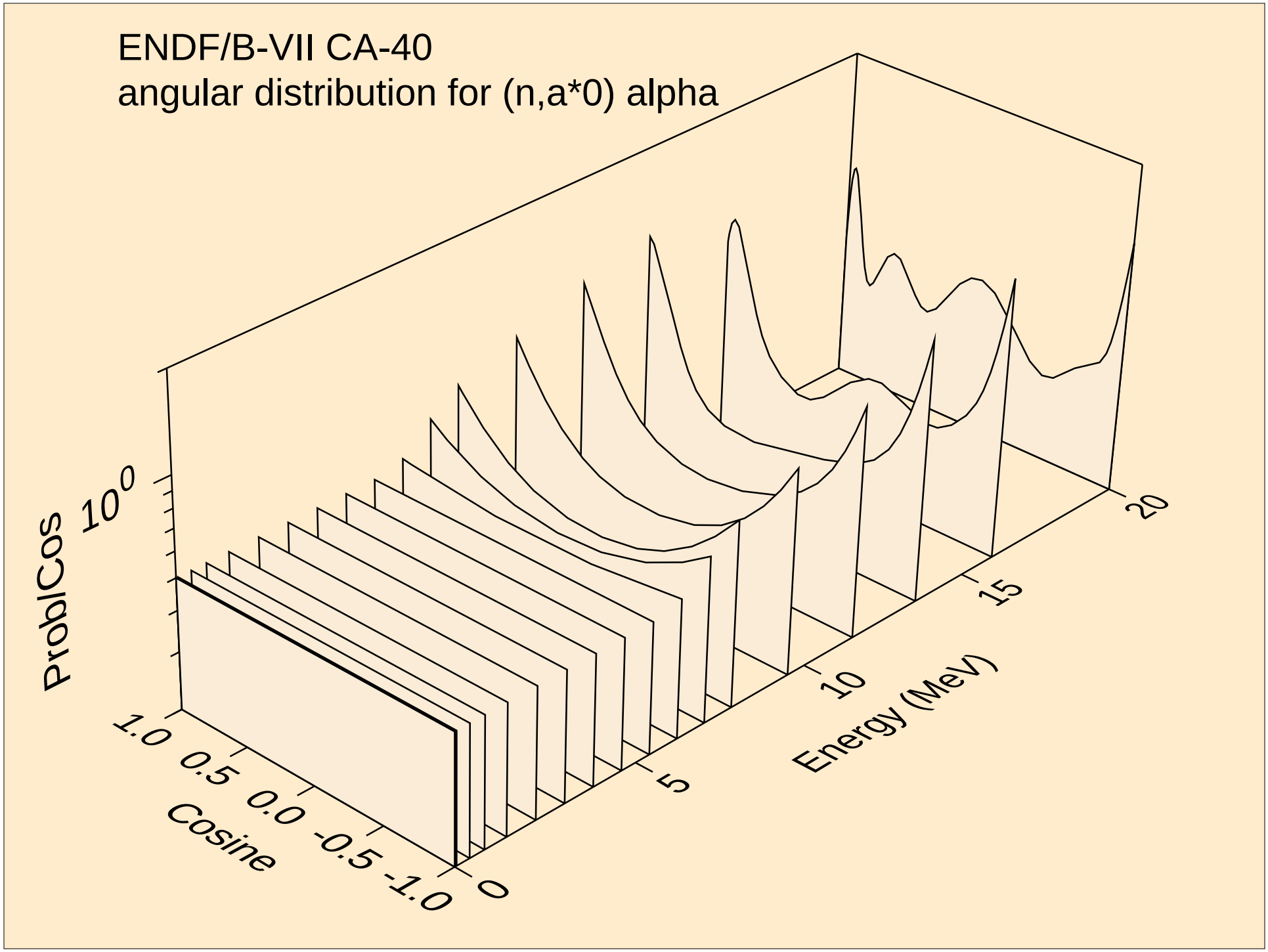

ENDF/B-VII CA-40
alphas from (n,n*)2a
Prob/MeV
10^0
10^{-2}
0
Sec. Energy
2
4
14
15
16
17
18
19
20
Energy (MeV)

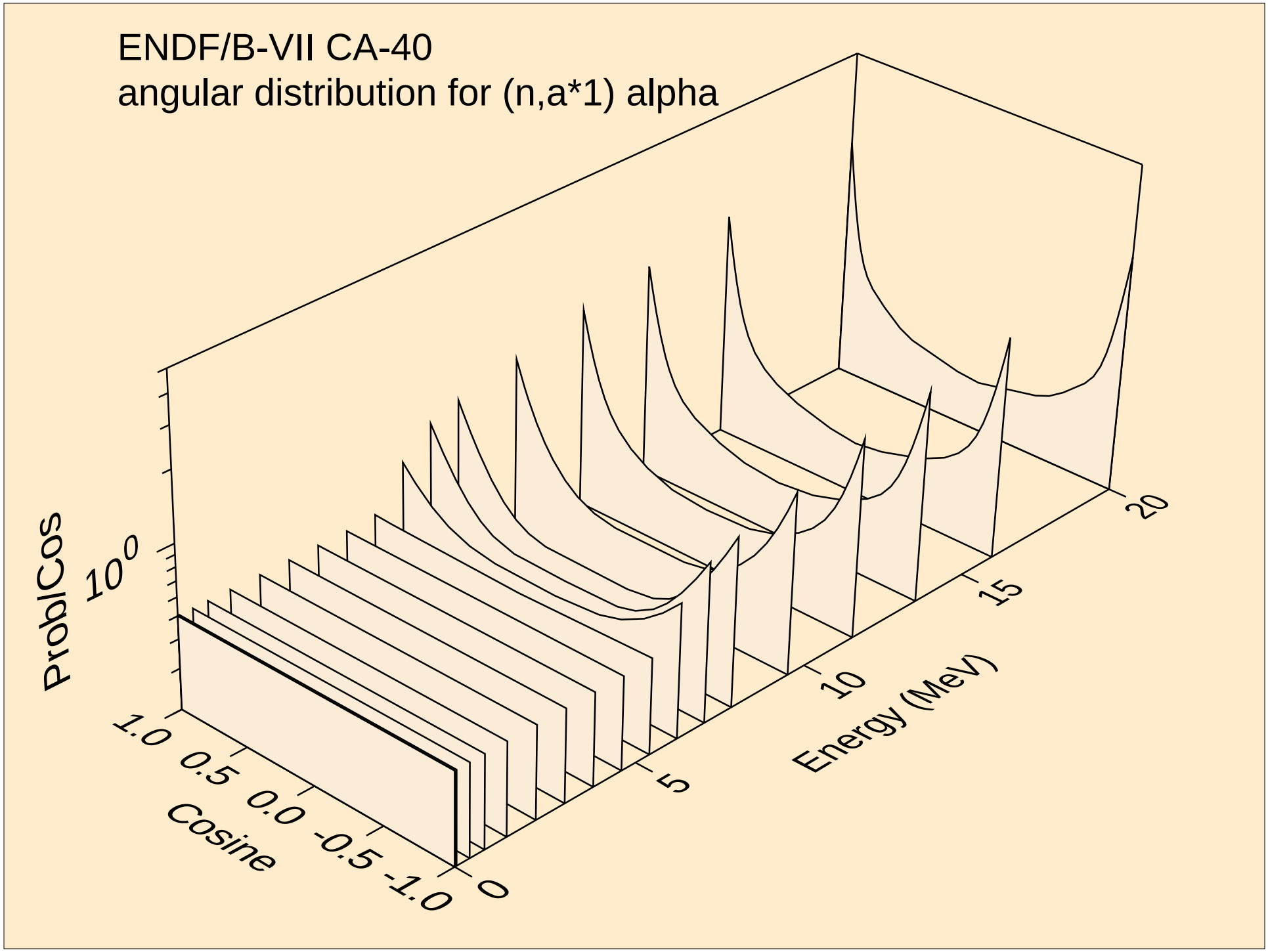

ENDF/B-VII CA-40
alphas from (n,npa)
Prob/MeV
10^-1
10^-3
0
Sec. Energy
2
4
15
16
17
18
19
20
Energy (MeV)

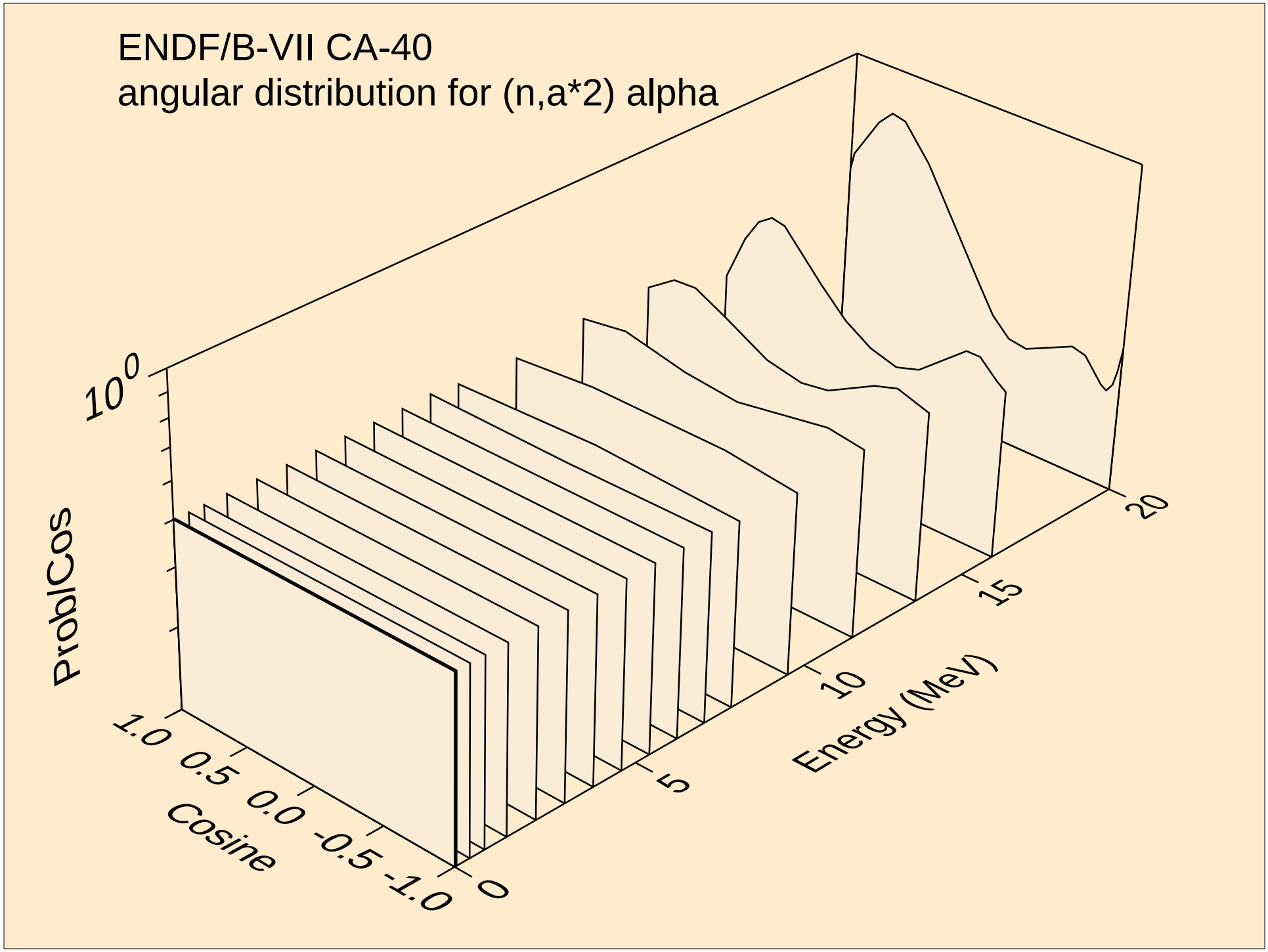

ENDF/B-VII CA-40
alphas from (n,2a)
Prob/MeV
10^-1
10^-3
0
5
10
15
Sec. Energy
4
6
8
10
12
14
16
18
20
Energy (MeV)

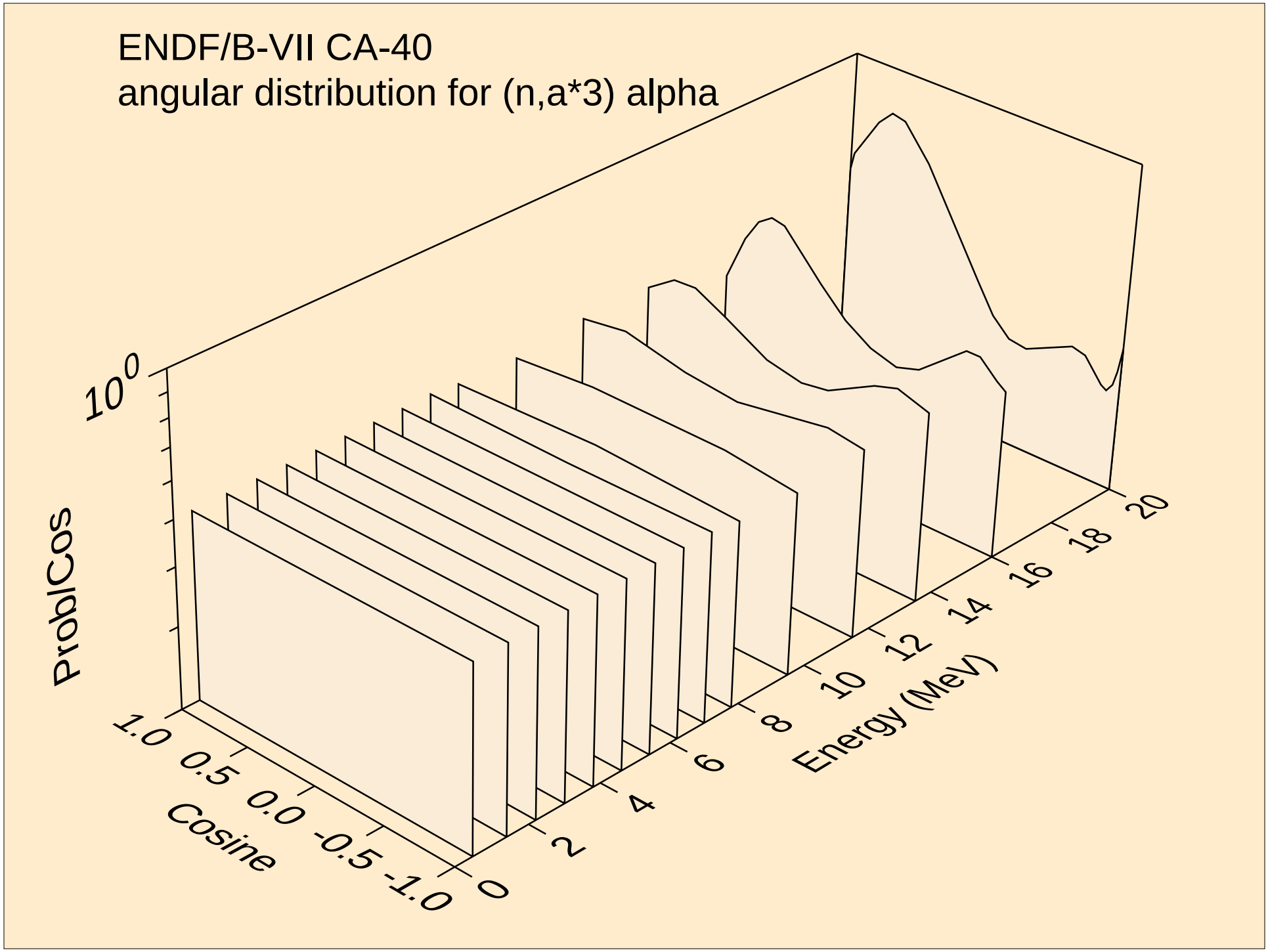

ENDF/B-VII CA-40
alphas from (n,pa)
Prob/MeV
10^{-1}
10^{-3}
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

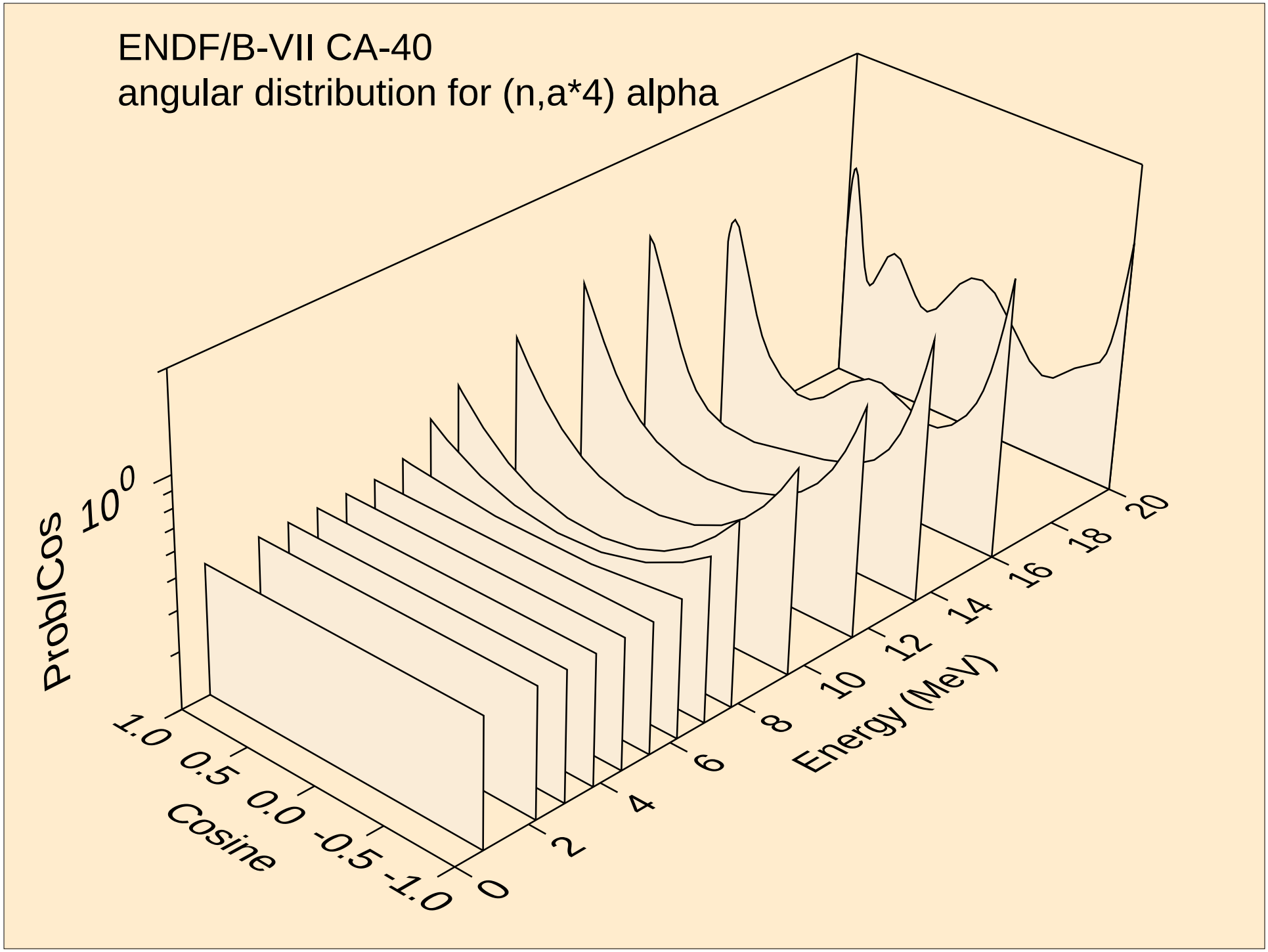

ENDF/B-VII CA-40
alphas from (n,da)
Prob/MeV
10^-1
10^-3
0
2
4
6
Sec. Energy
13
14
15
16
17
18
19
20
Energy (MeV)

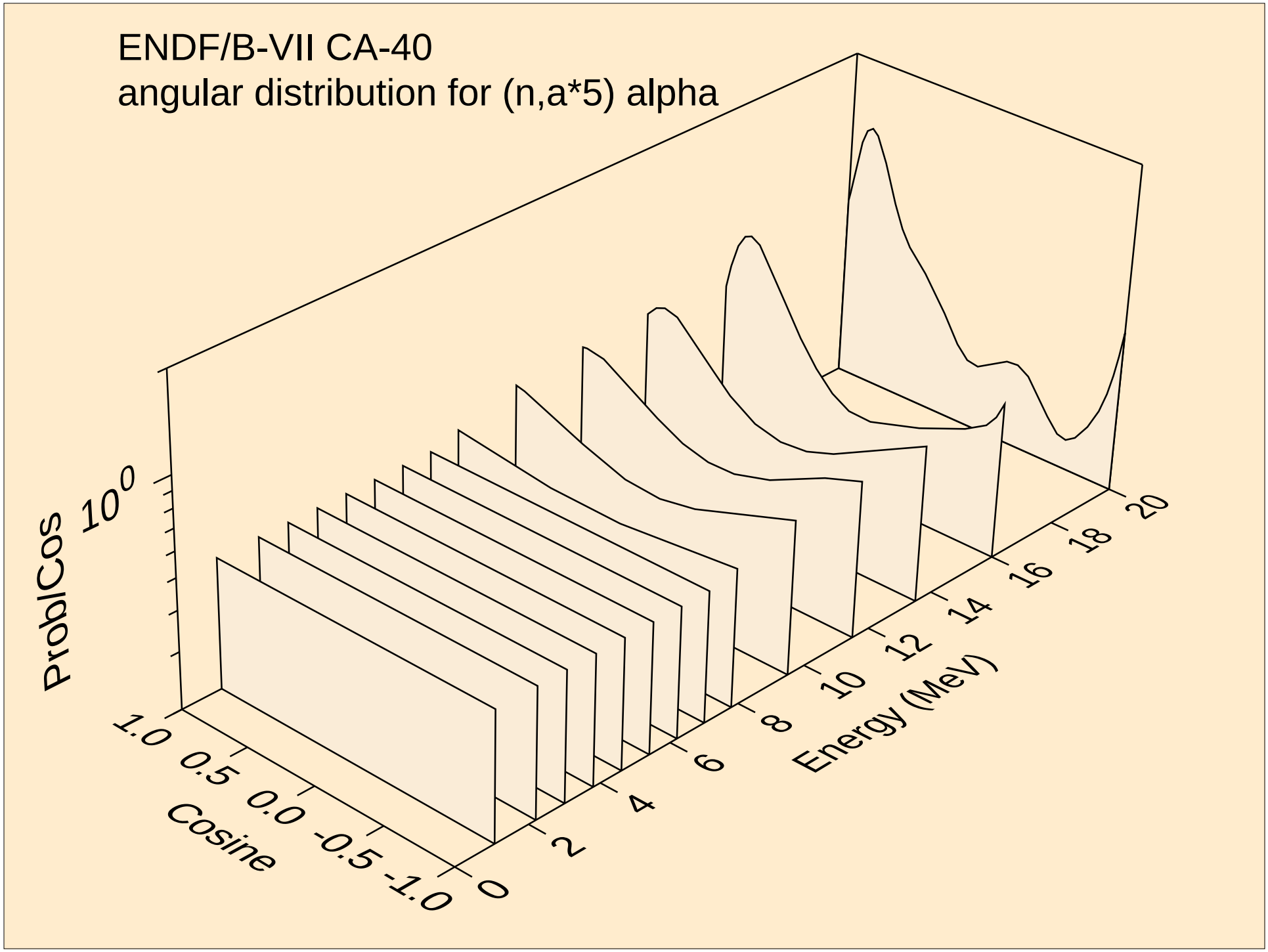

ENDF/B-VII CA-40
angular distribution for (n,a*0) alpha
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

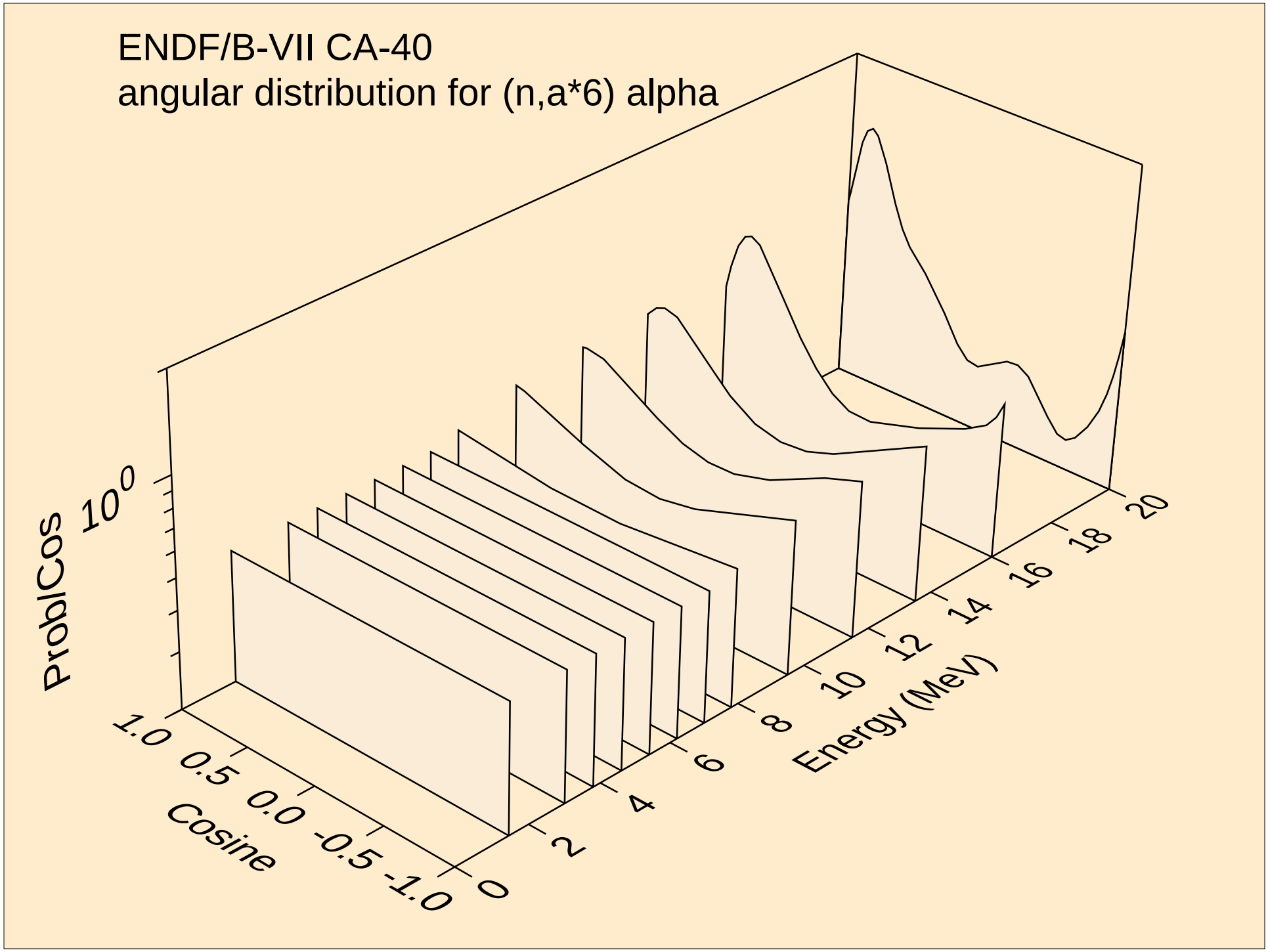

ENDF/B-VII CA-40
angular distribution for (n,a*1) alpha
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

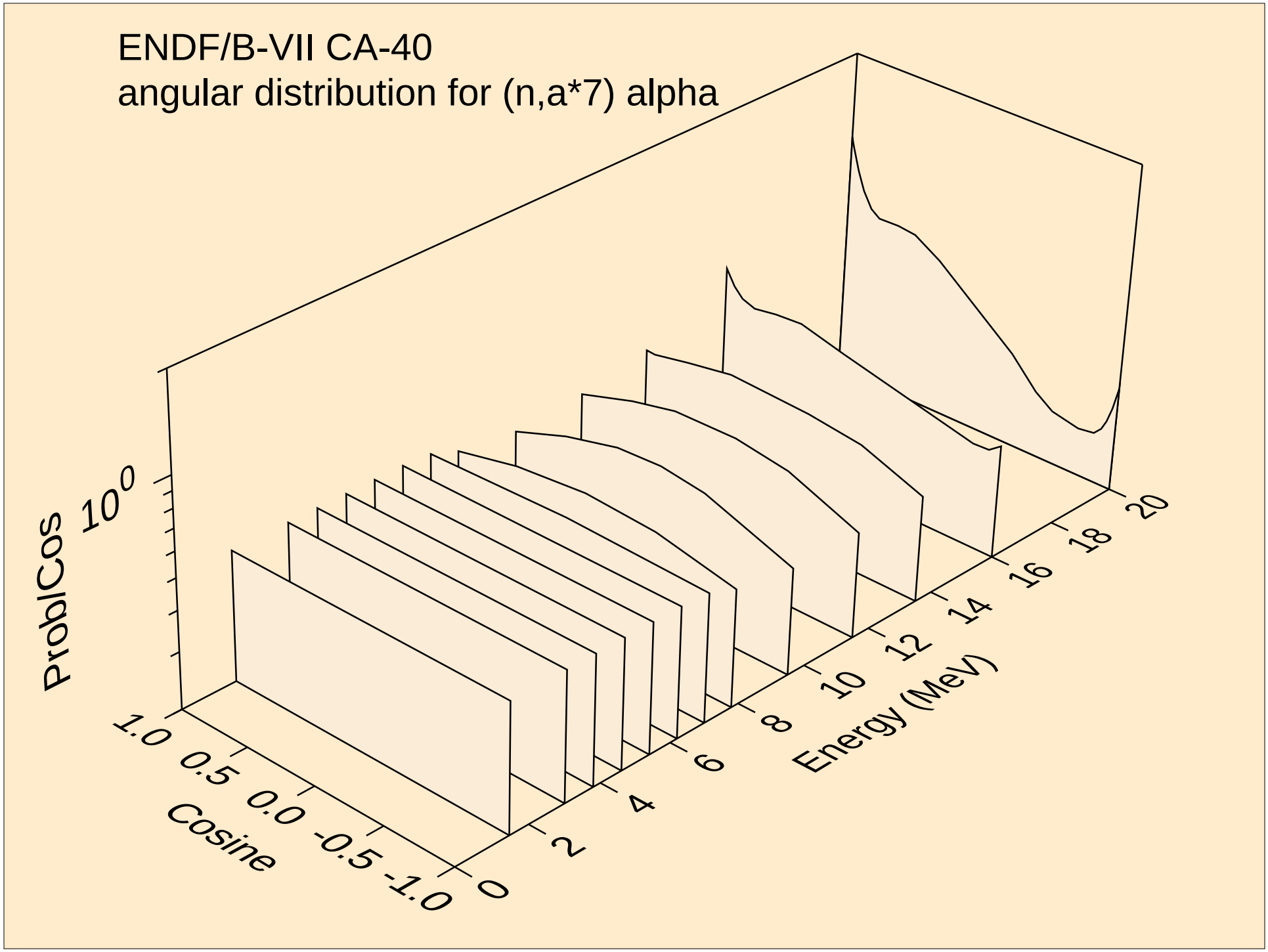

ENDF/B-VII CA-40
angular distribution for (n,a*2) alpha
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

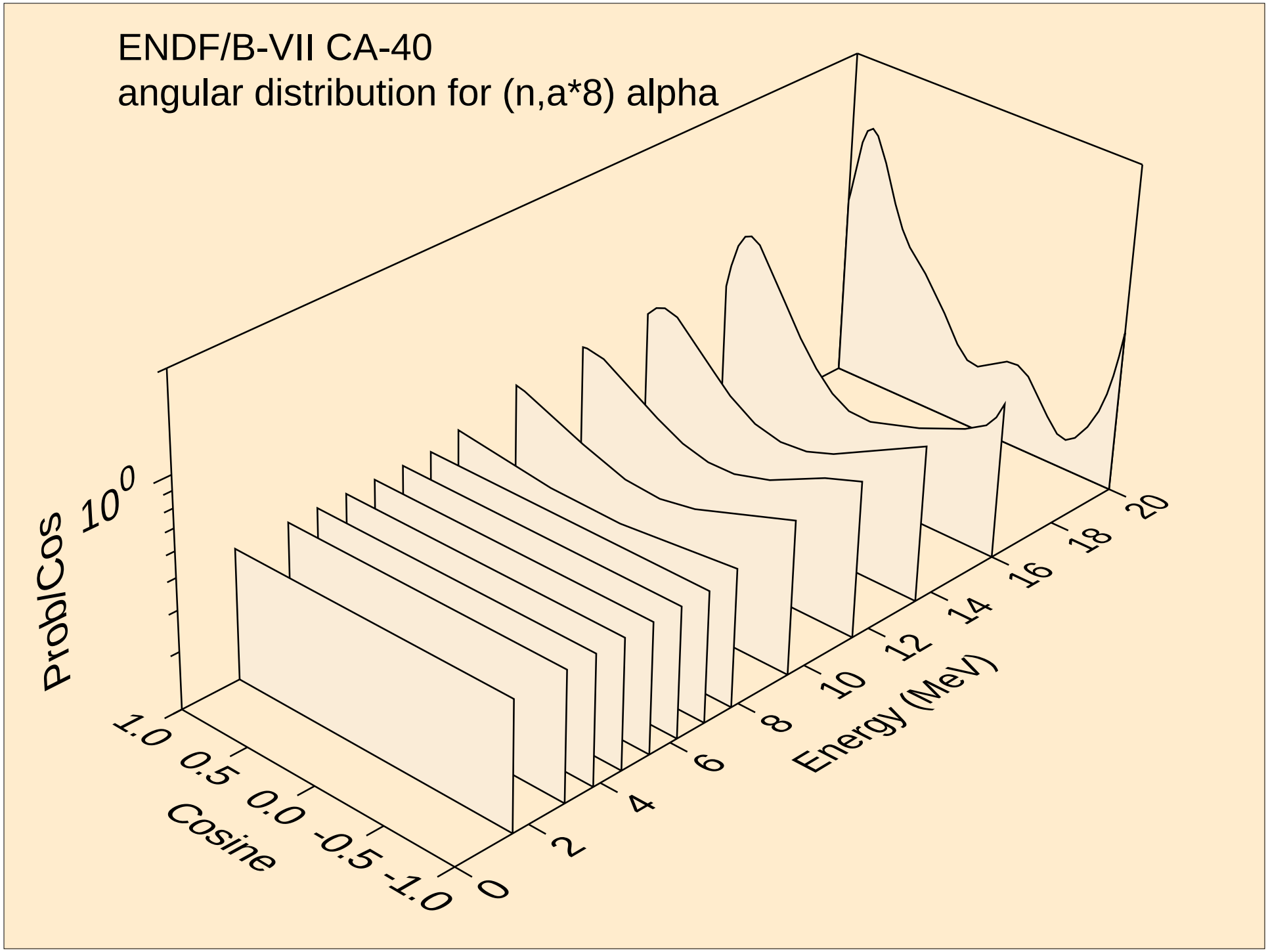

ENDF/B-VII CA-40
angular distribution for (n,a*3) alpha
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

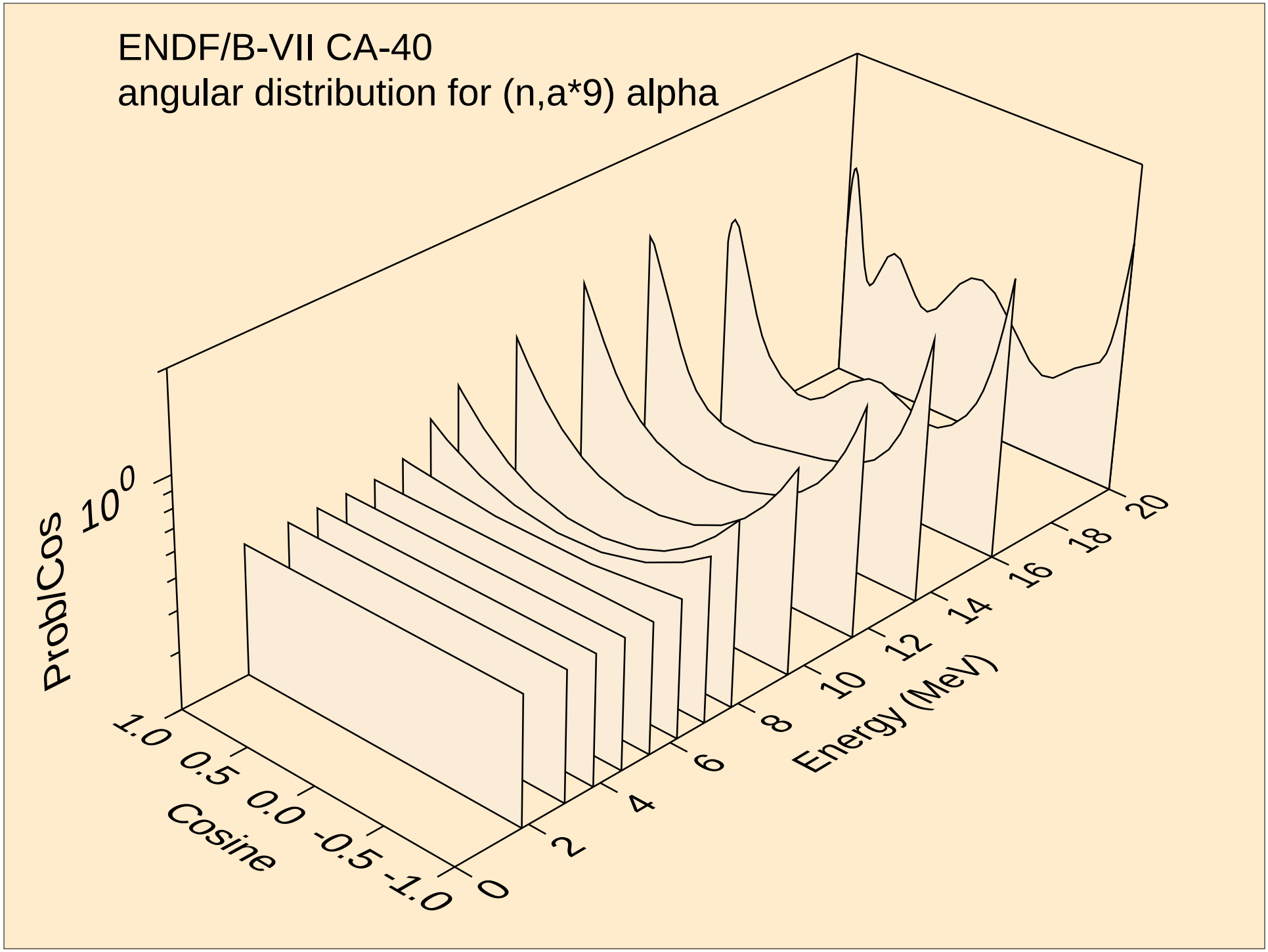

ENDF/B-VII CA-40
angular distribution for (n,a*4) alpha
ProbCos
10^0
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

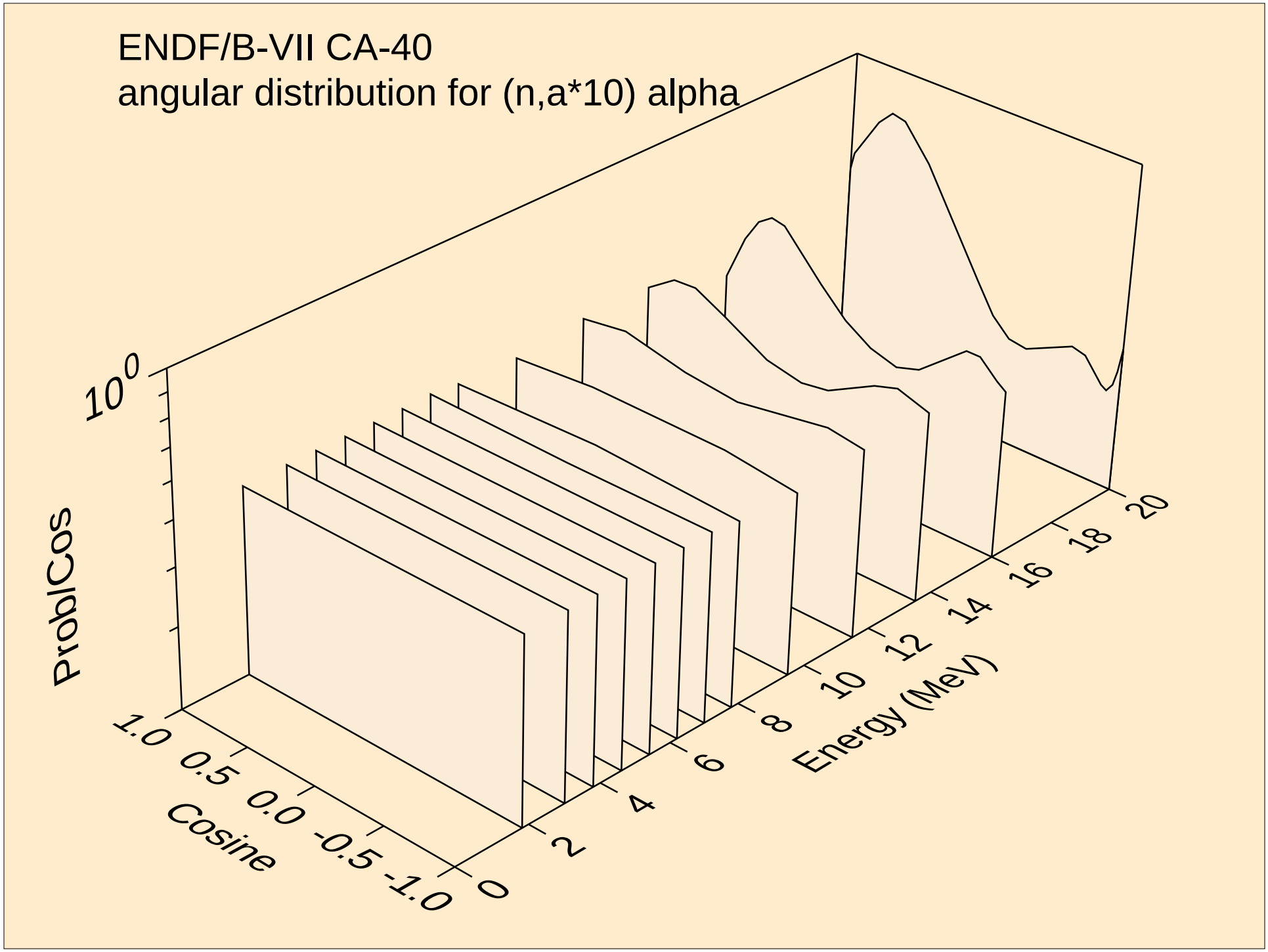

ENDF/B-VII CA-40
angular distribution for (n,a*5) alpha
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

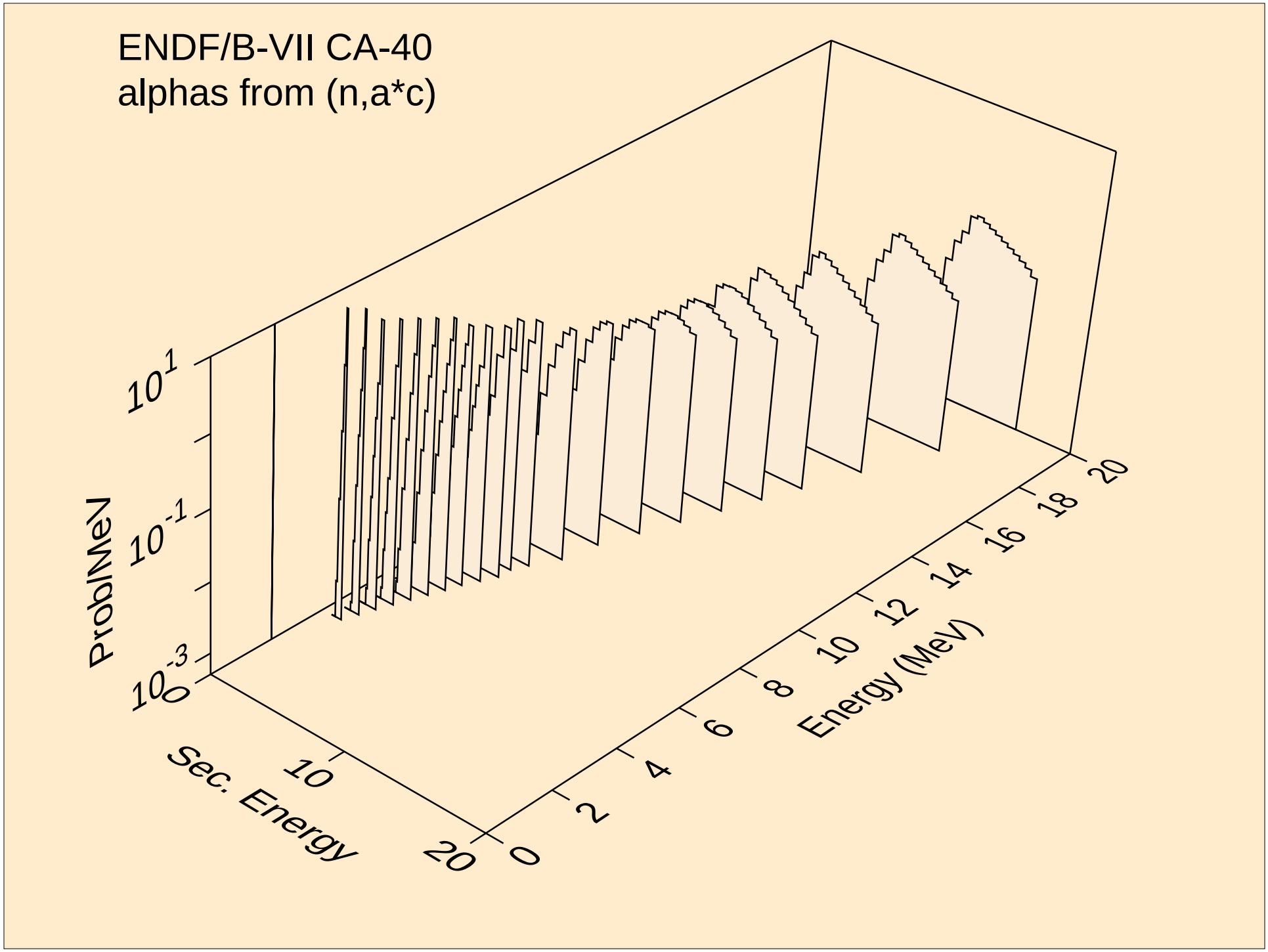

ENDF/B-VII CA-40
angular distribution for (n,a*6) alpha
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
angular distribution for (n,a*7) alpha
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
angular distribution for (n,a*8) alpha
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
angular distribution for (n,a*9) alpha
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
angular distribution for (n,a*10) alpha
10^0
Prob/Cos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)


ENDF/B-VII CA-40
alphas from (n,a*c)
Prob/MeV
10^1
10^-1
10^-3
Sec. Energy
0
10
20
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20