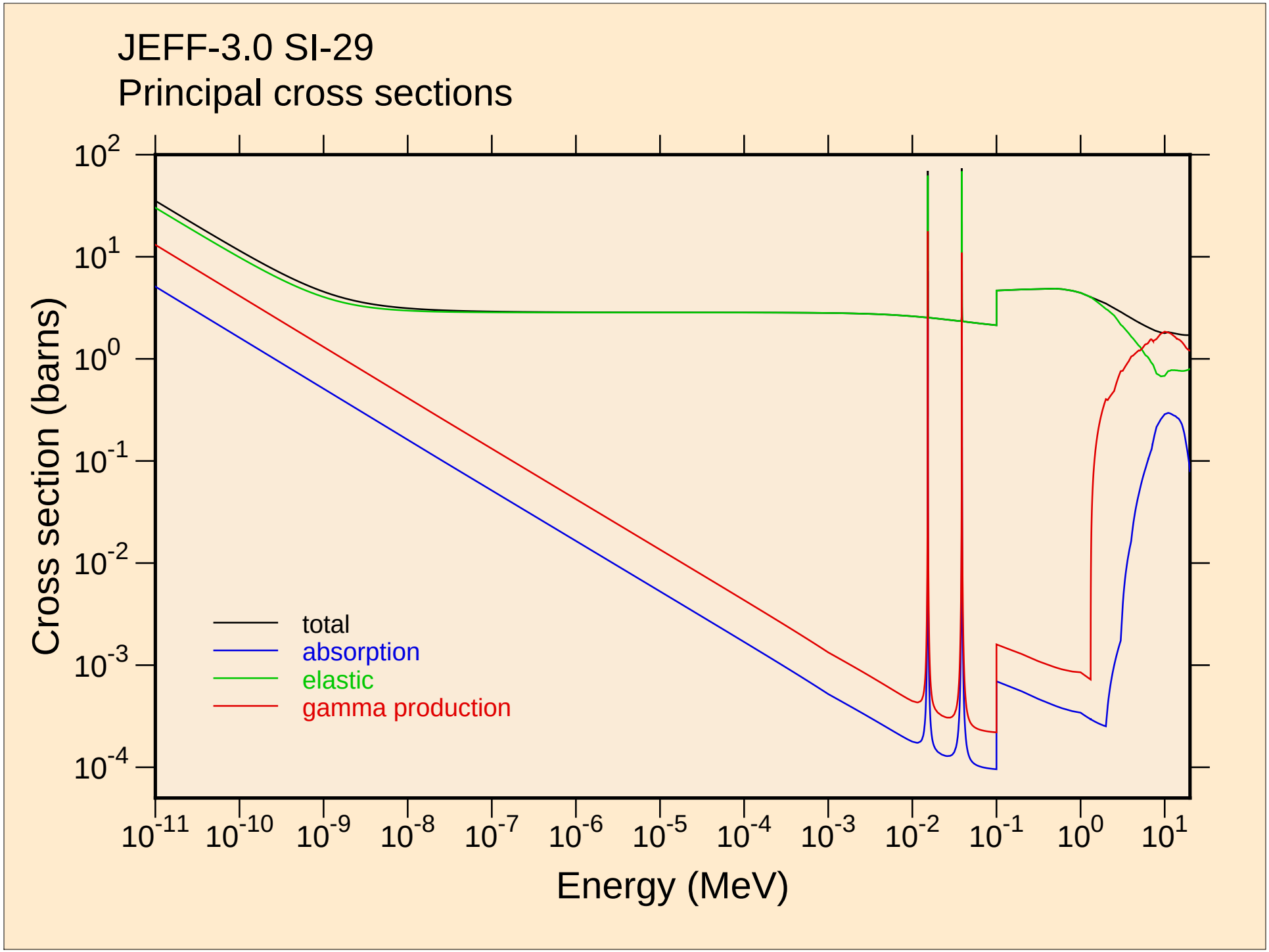
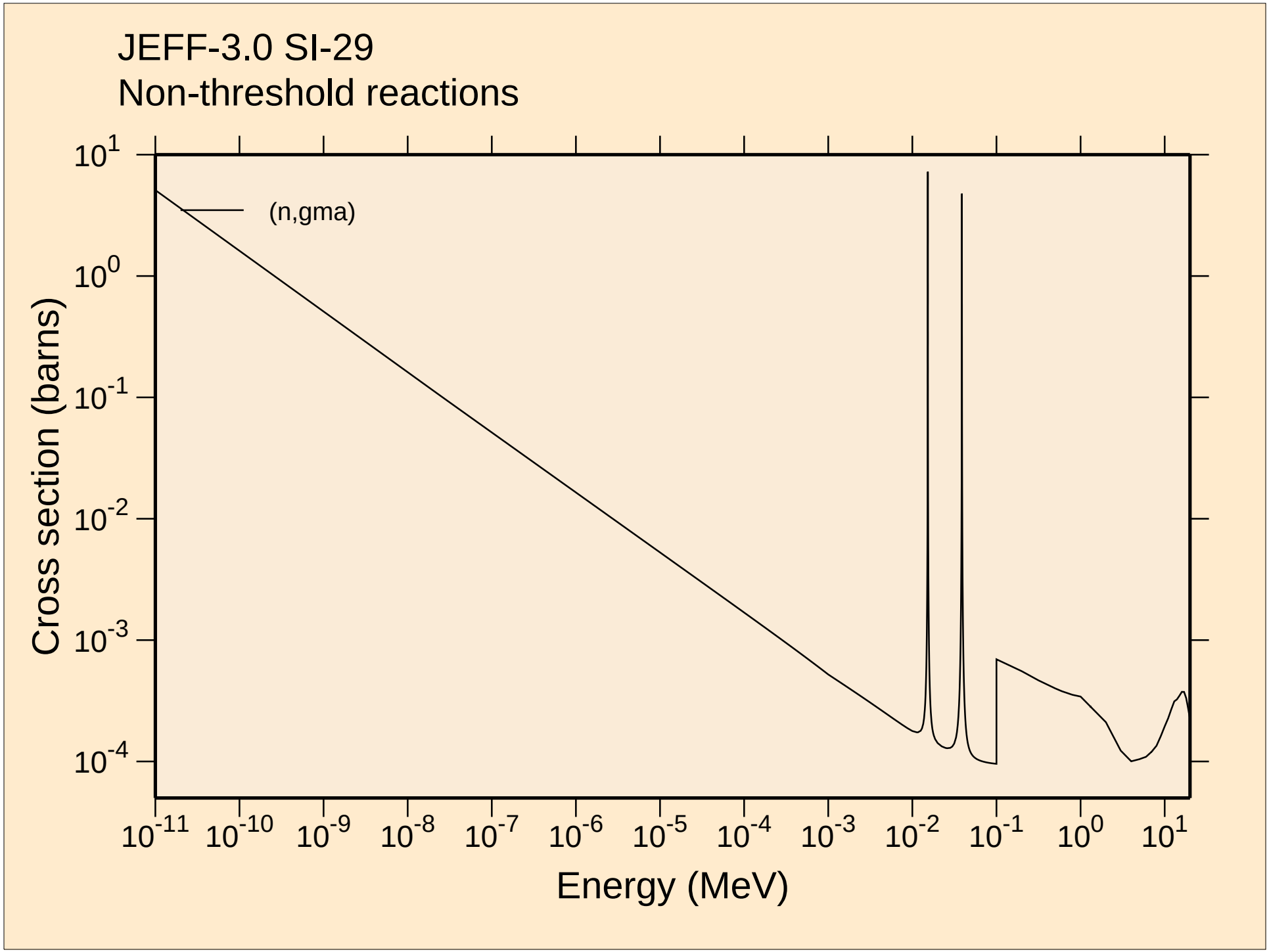
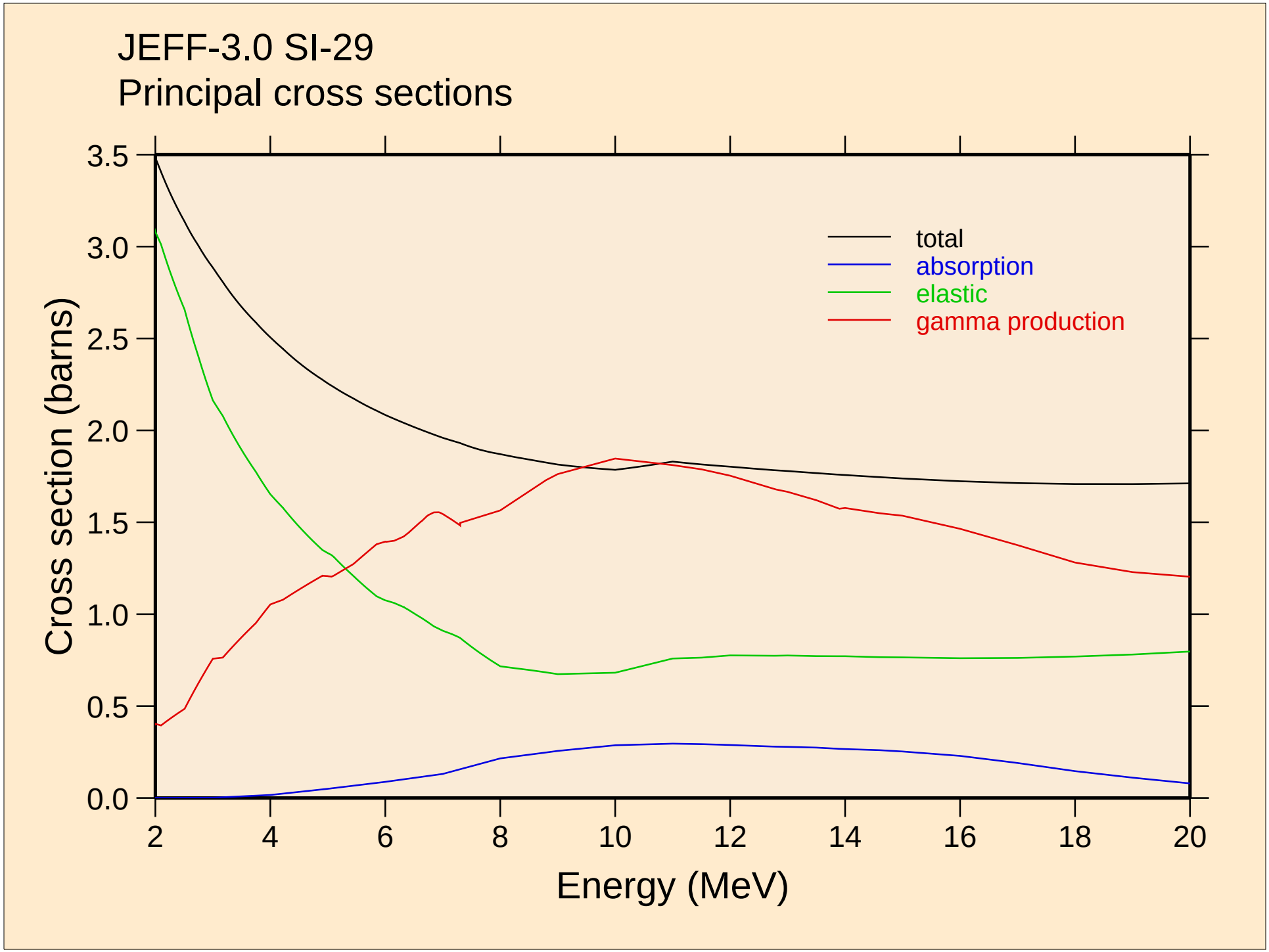
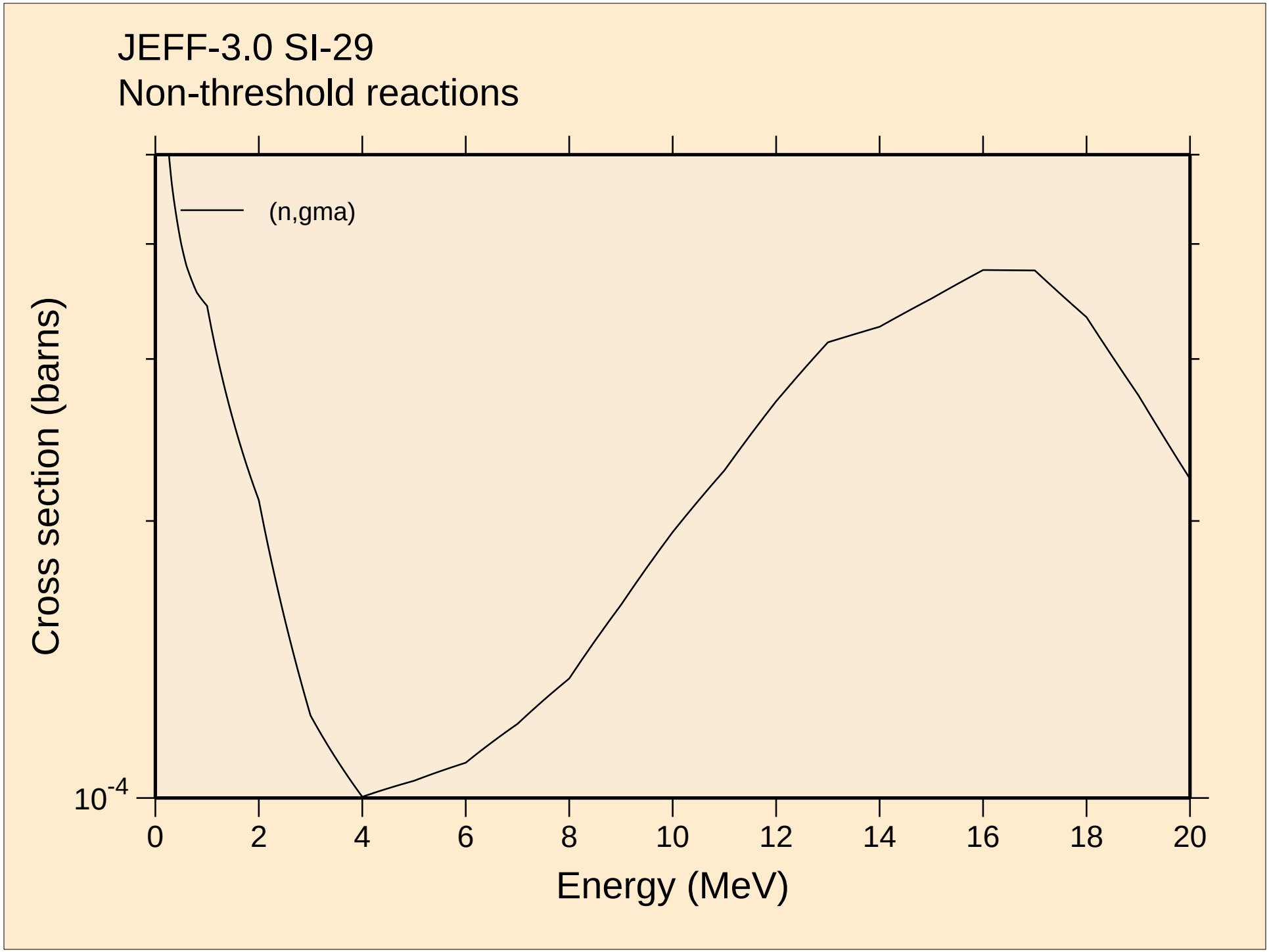
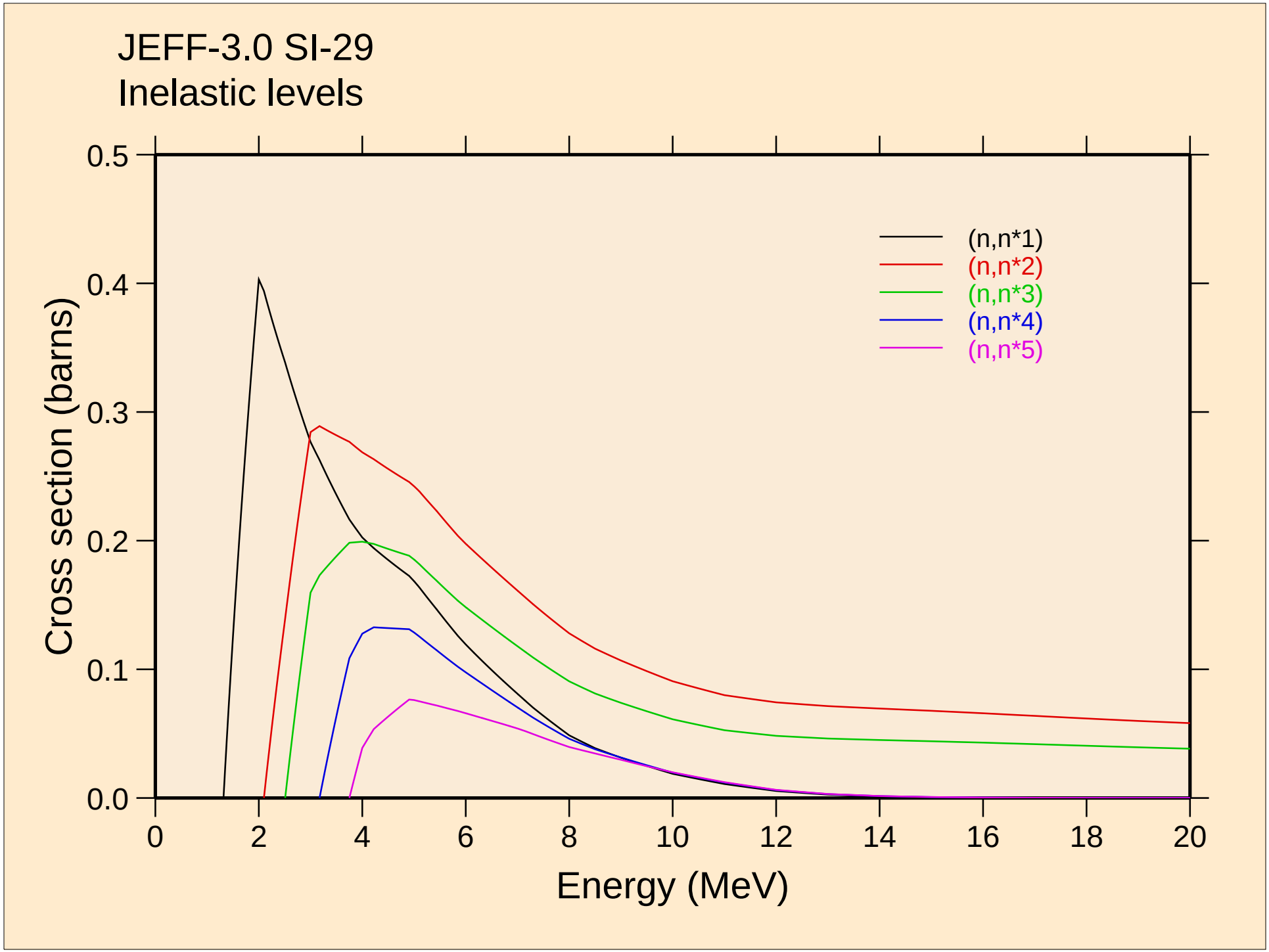
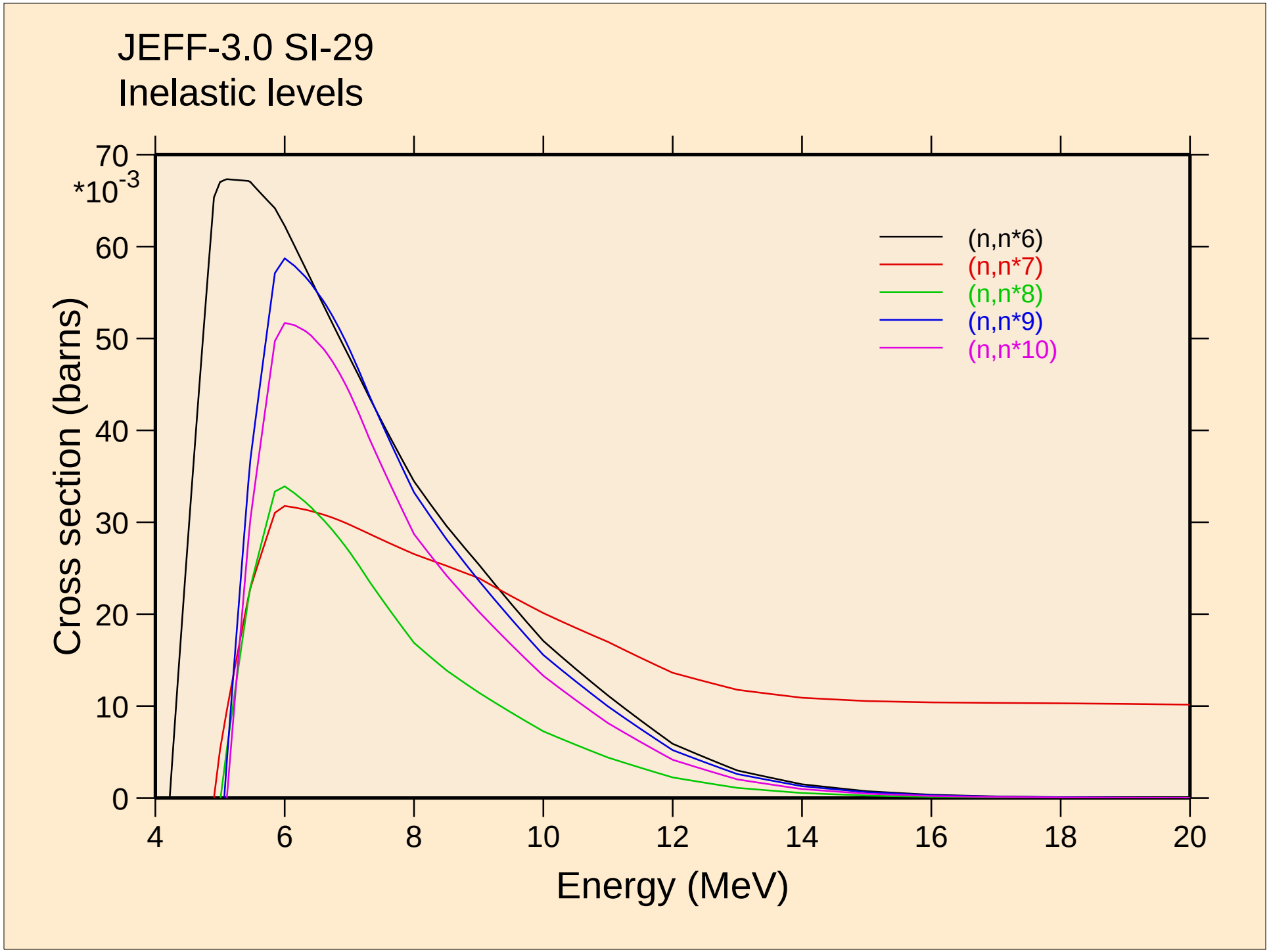

JEFF-3.0 SI-29
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production

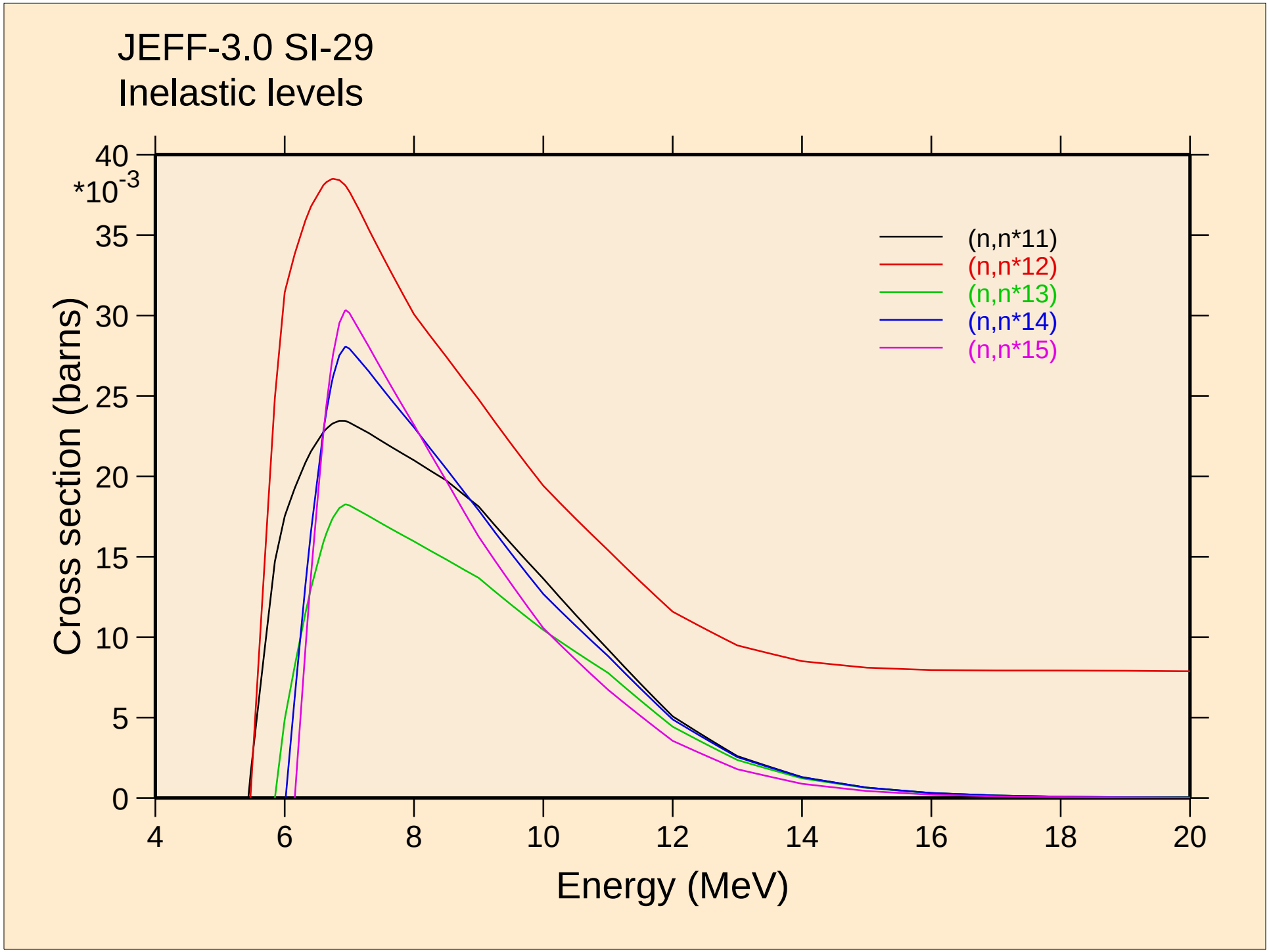

JEFF-3.0 SI-29
Non-threshold reactions
(n,gma)
Cross section (barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1

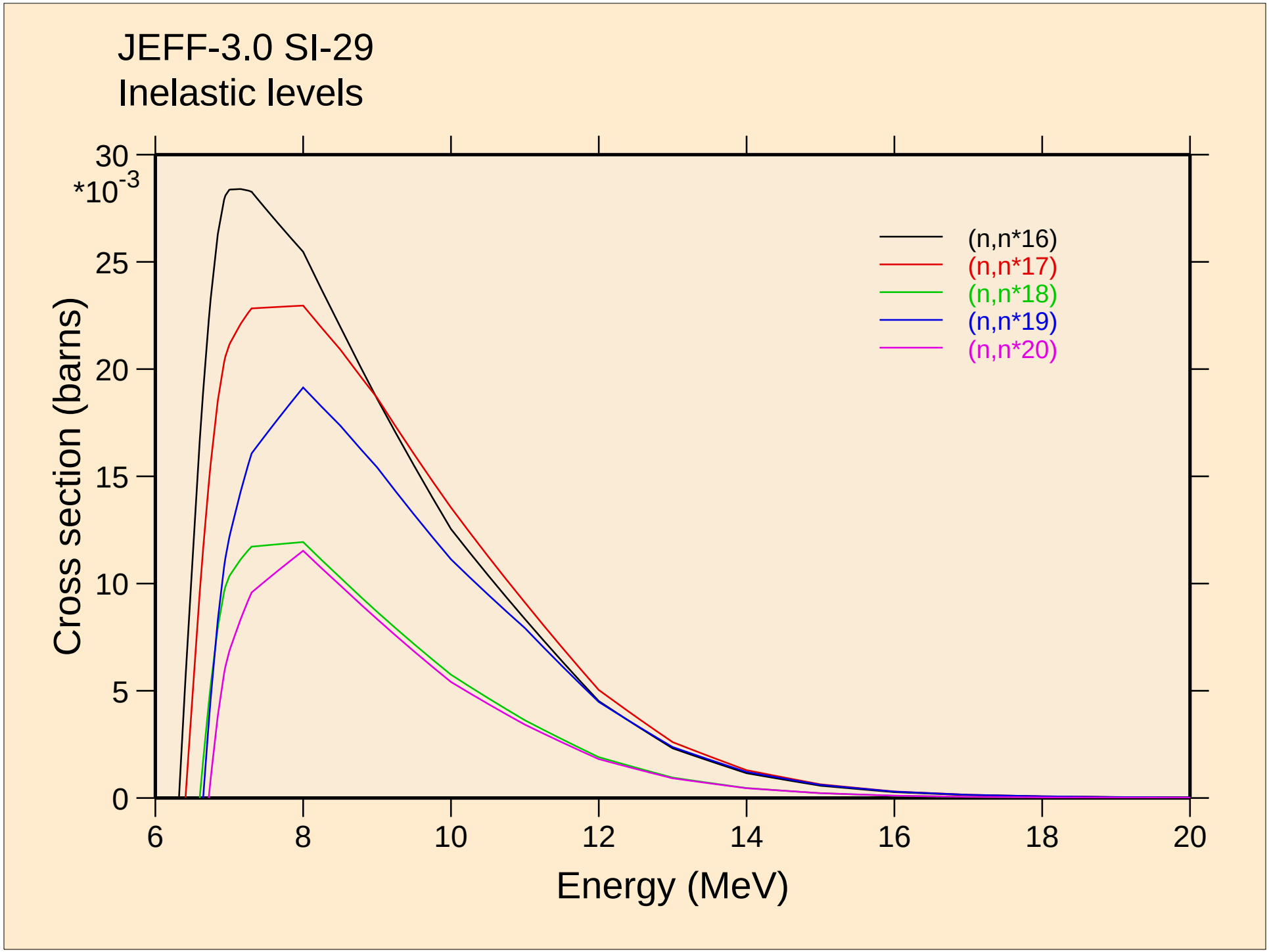

JEFF-3.0 SI-29
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
2
4
6
8
10
12
14
16
18
20

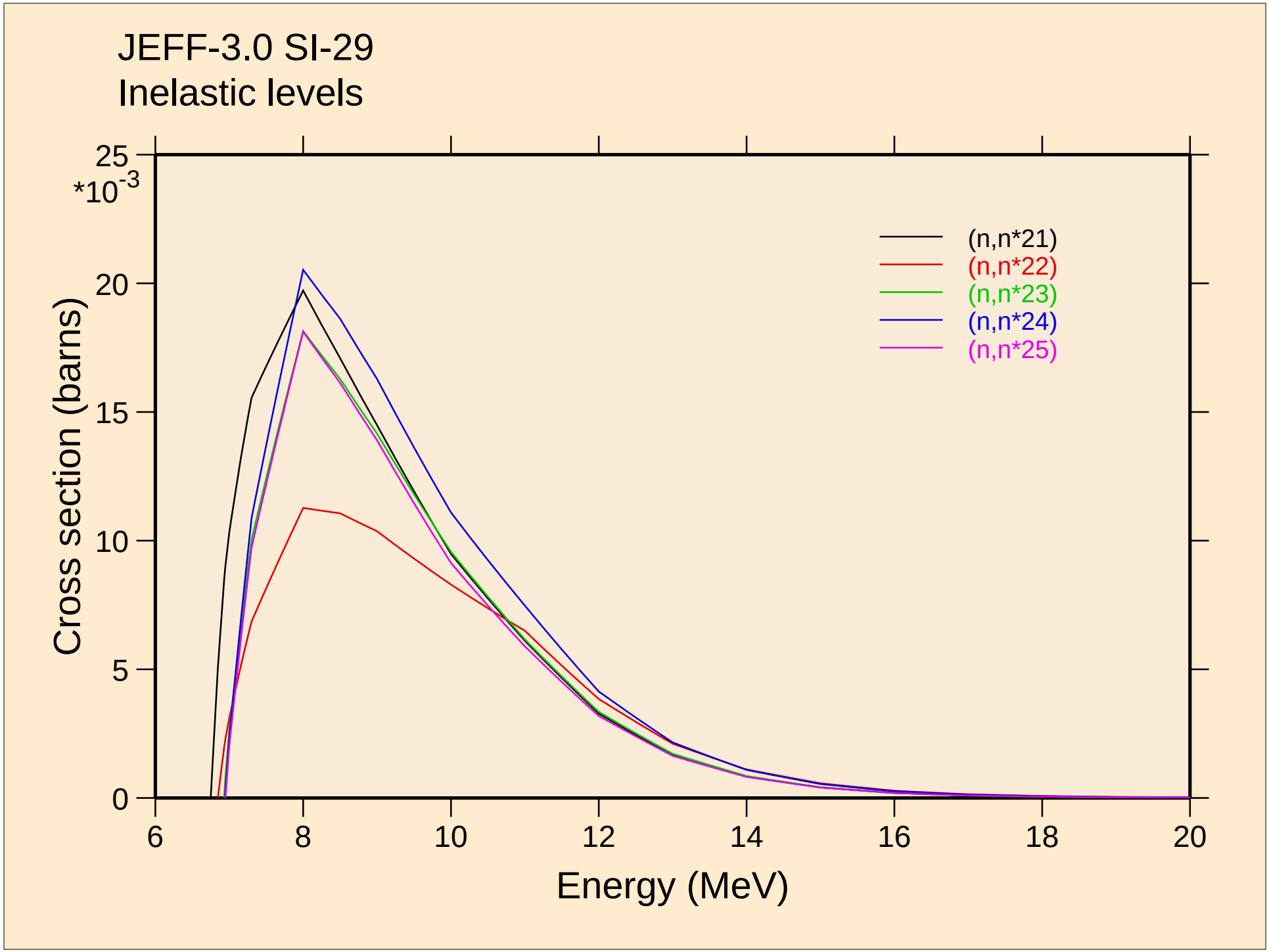

JEFF-3.0 SI-29
Non-threshold reactions
(n,gma)
Cross section (barns)
10-4
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

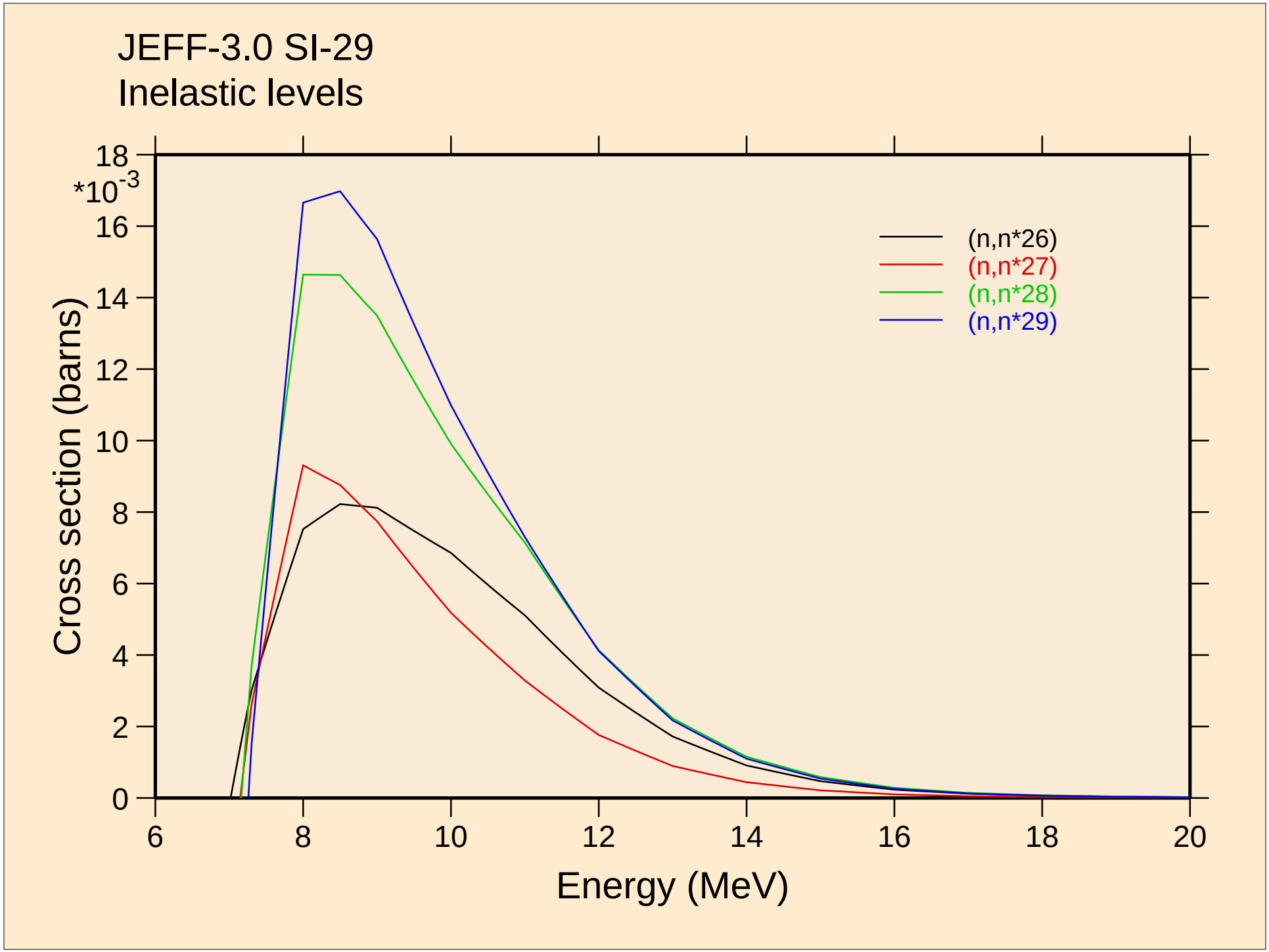

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0
2
4
6
8
10
12
14
16
18
20
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

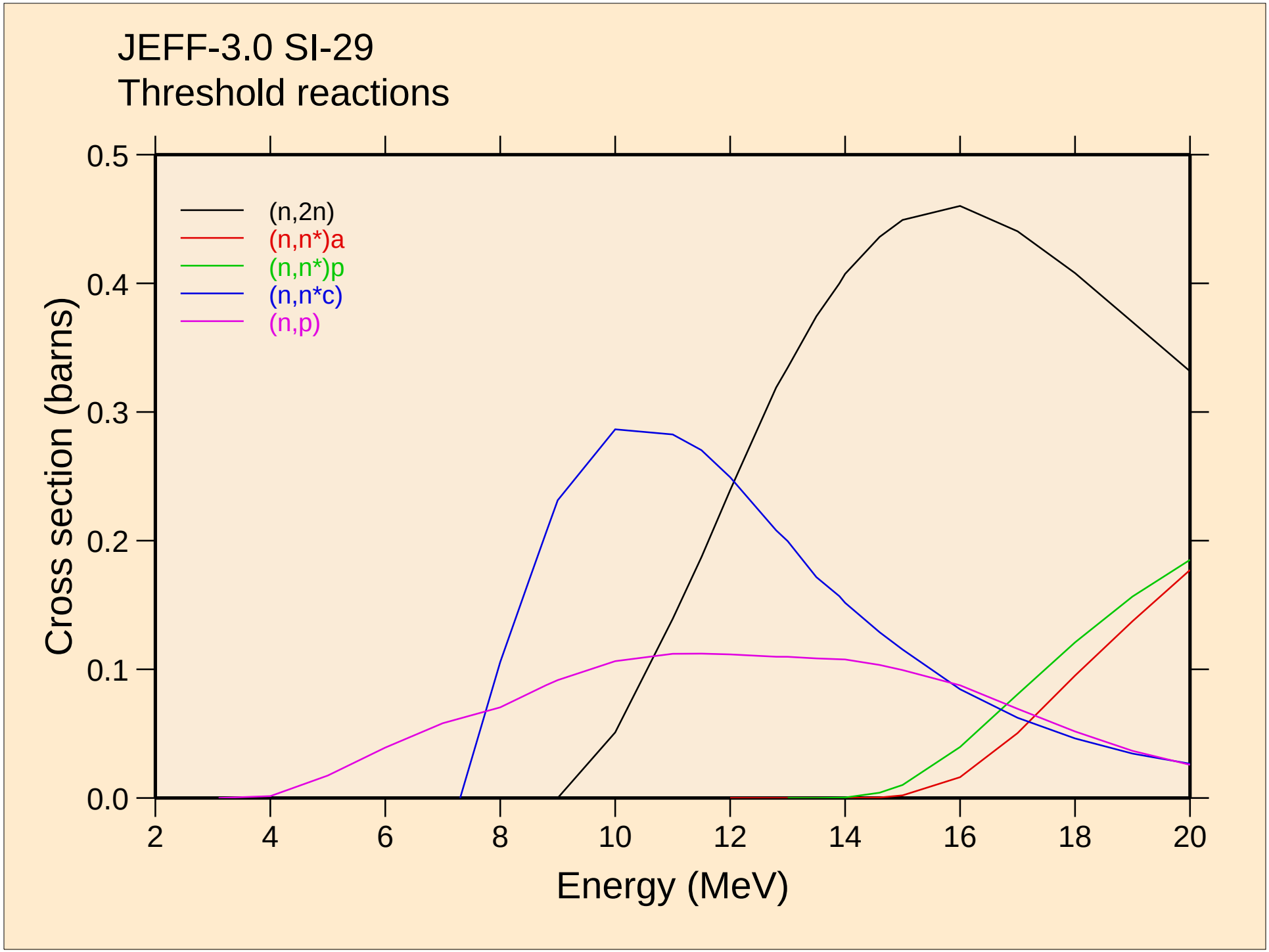

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
*10-3
70
60
50
40
30
20
10
0
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

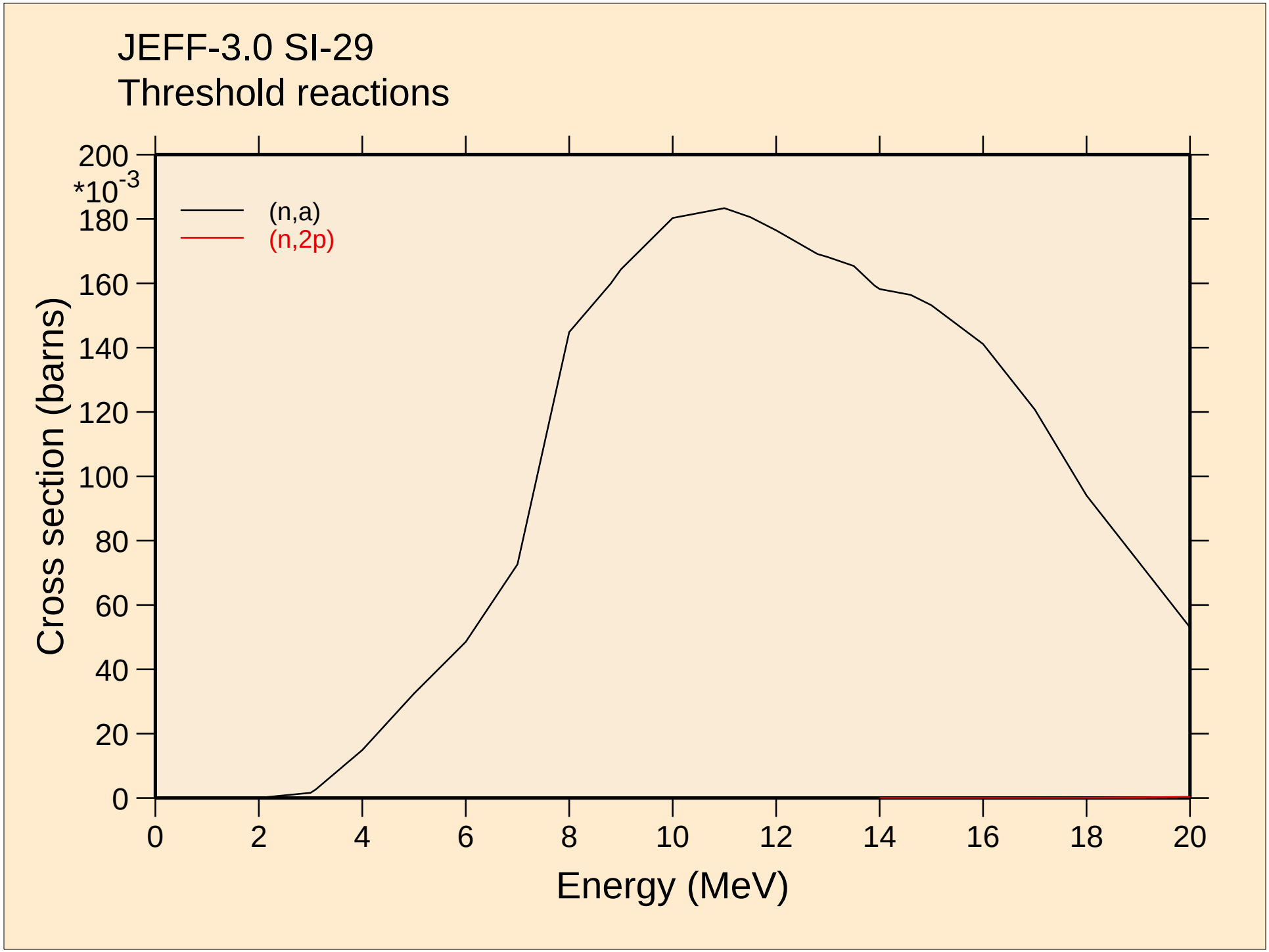

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
*10-3
40
35
30
25
20
15
10
5
0
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

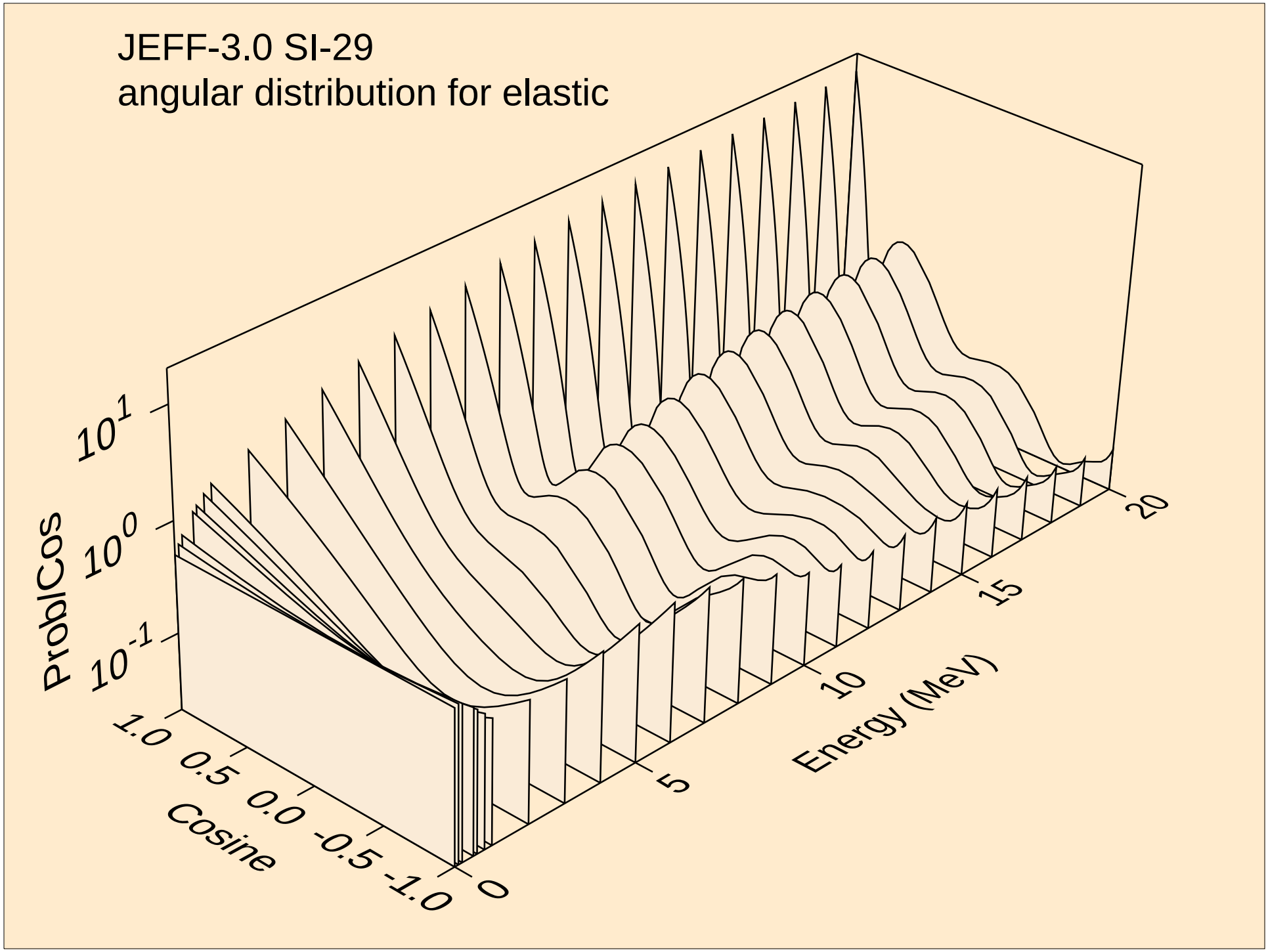

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
*10-3
30
25
20
15
10
5
0
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

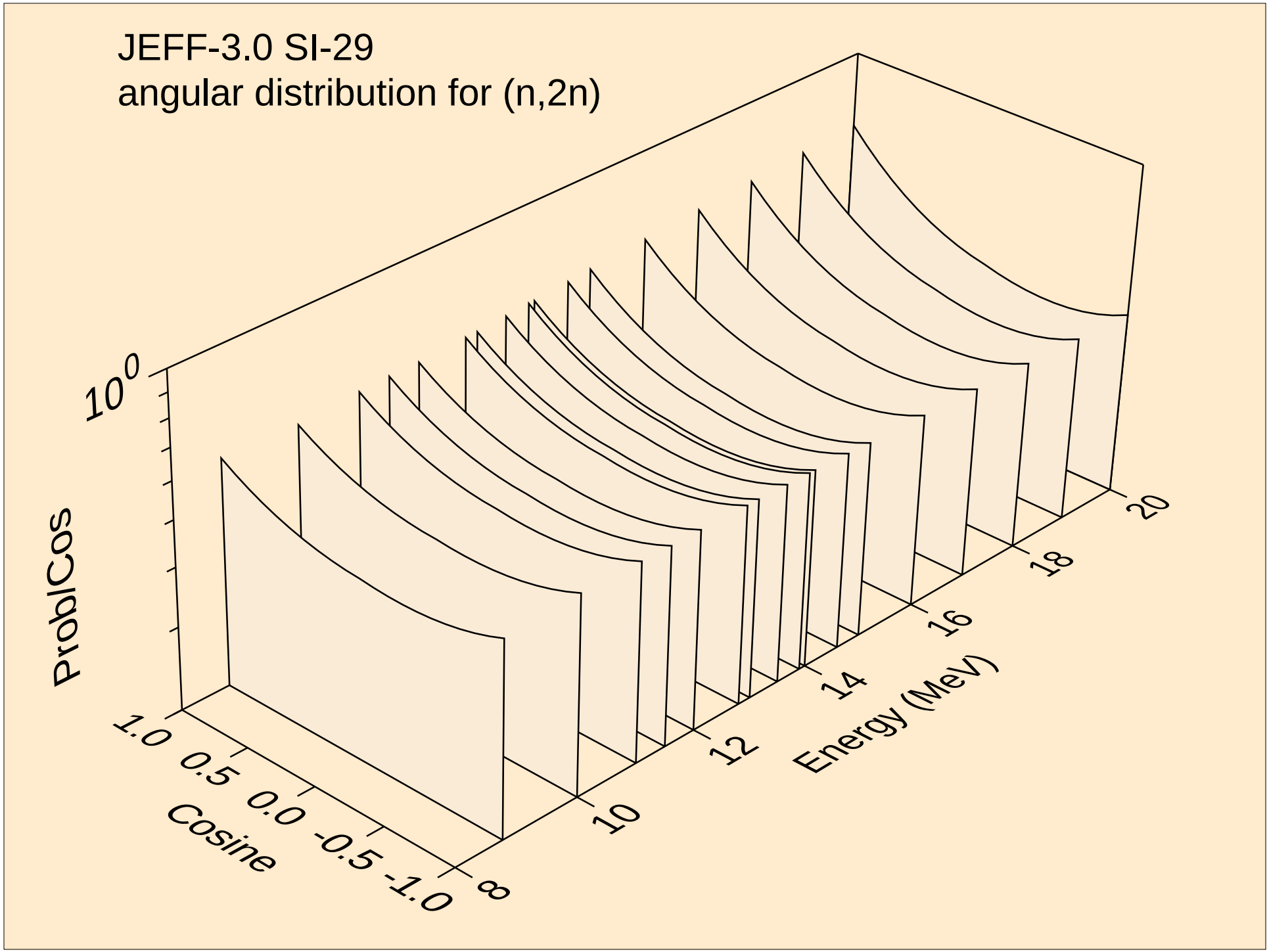

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
*10-3
25
20
15
10
5
0
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

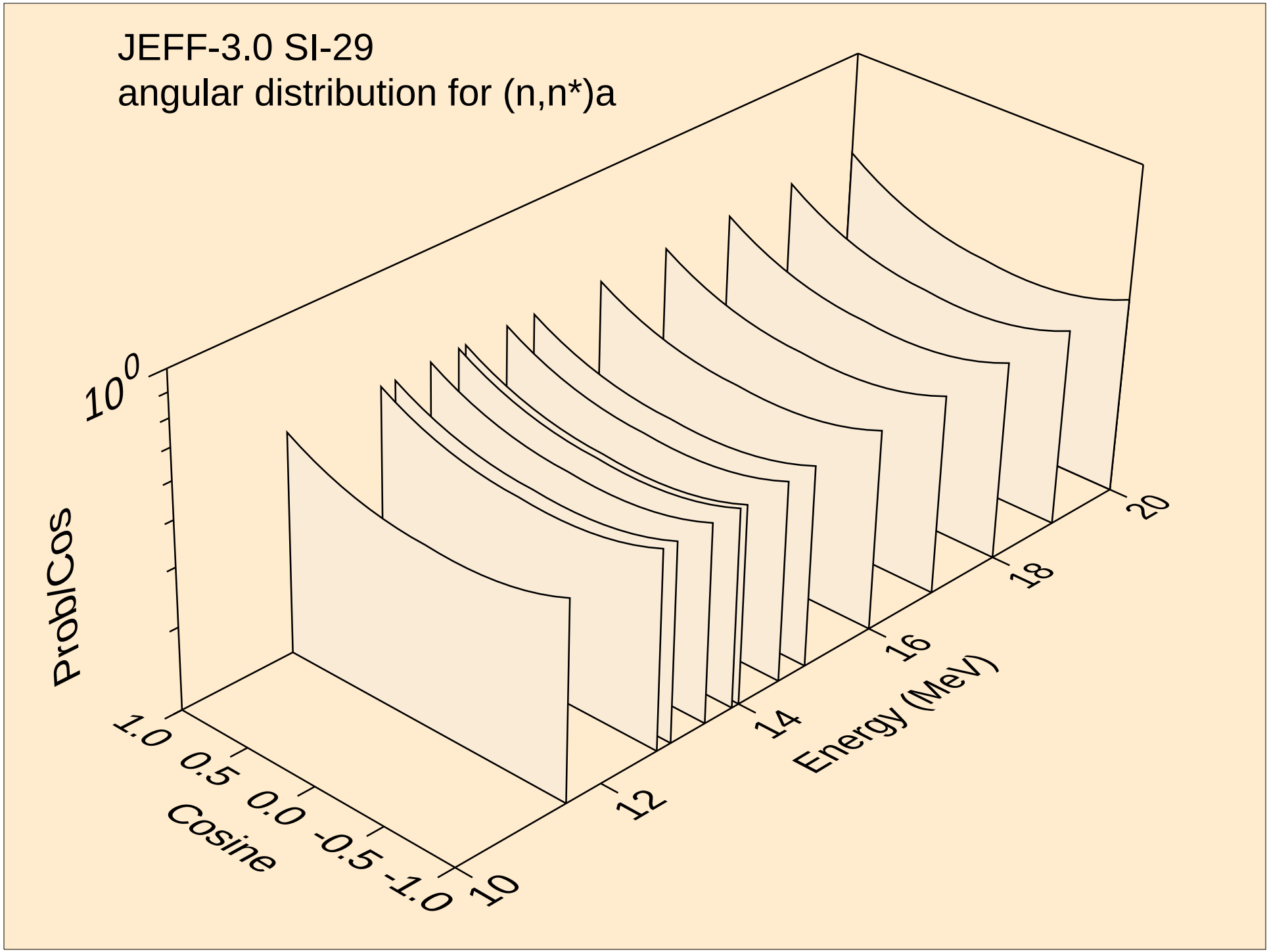

JEFF-3.0 SI-29
Inelastic levels
Cross section (barns)
*10-3
18
16
14
12
10
8
6
4
2
0
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*26)
(n,n*27)
(n,n*28)
(n,n*29)

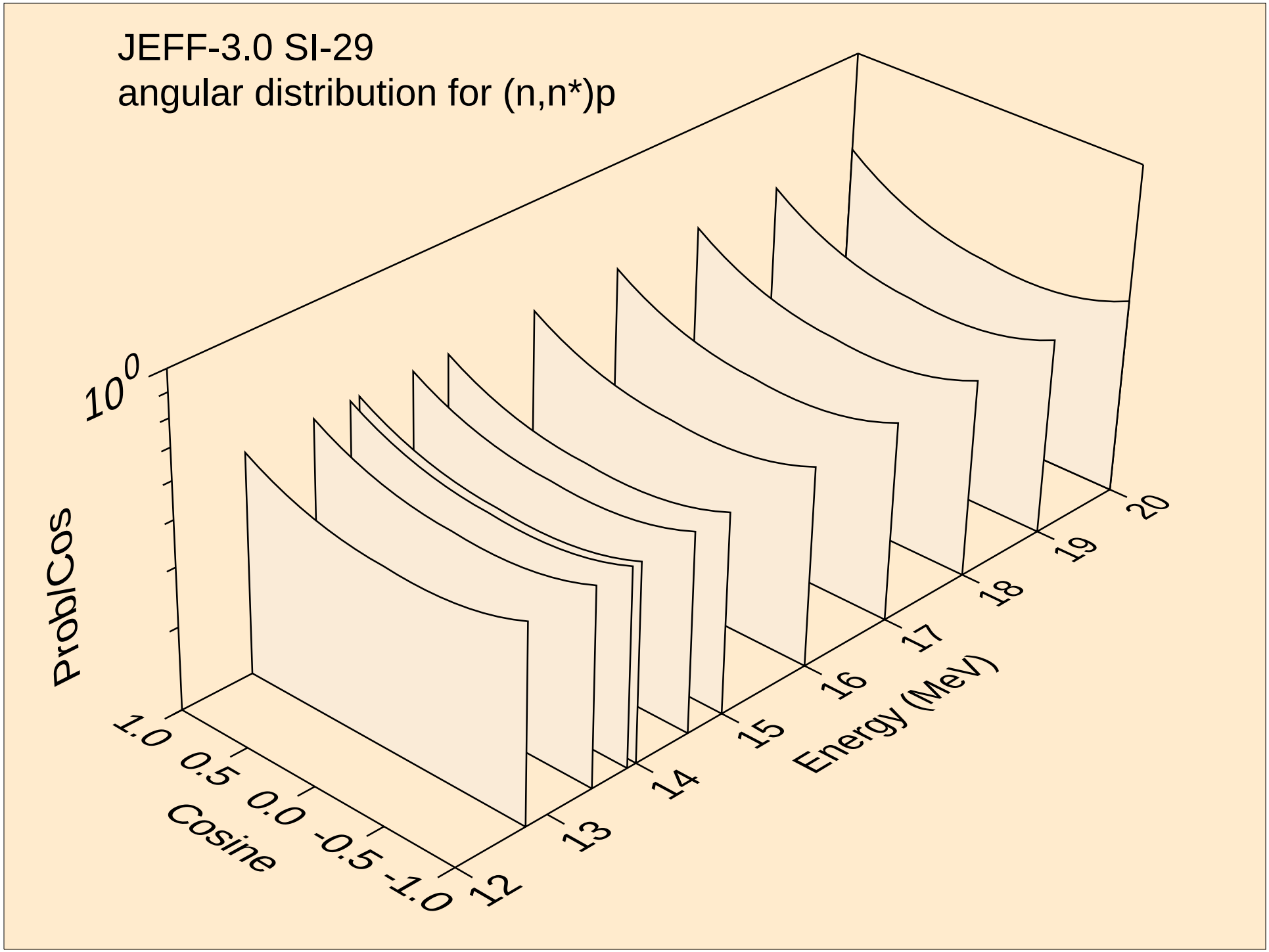

JEFF-3.0 SI-29
Threshold reactions
(n,2n)
(n,n*)a
(n,n*)p
(n,n*c)
(n,p)
Cross section (barns)
0.0
0.1
0.2
0.3
0.4
0.5
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

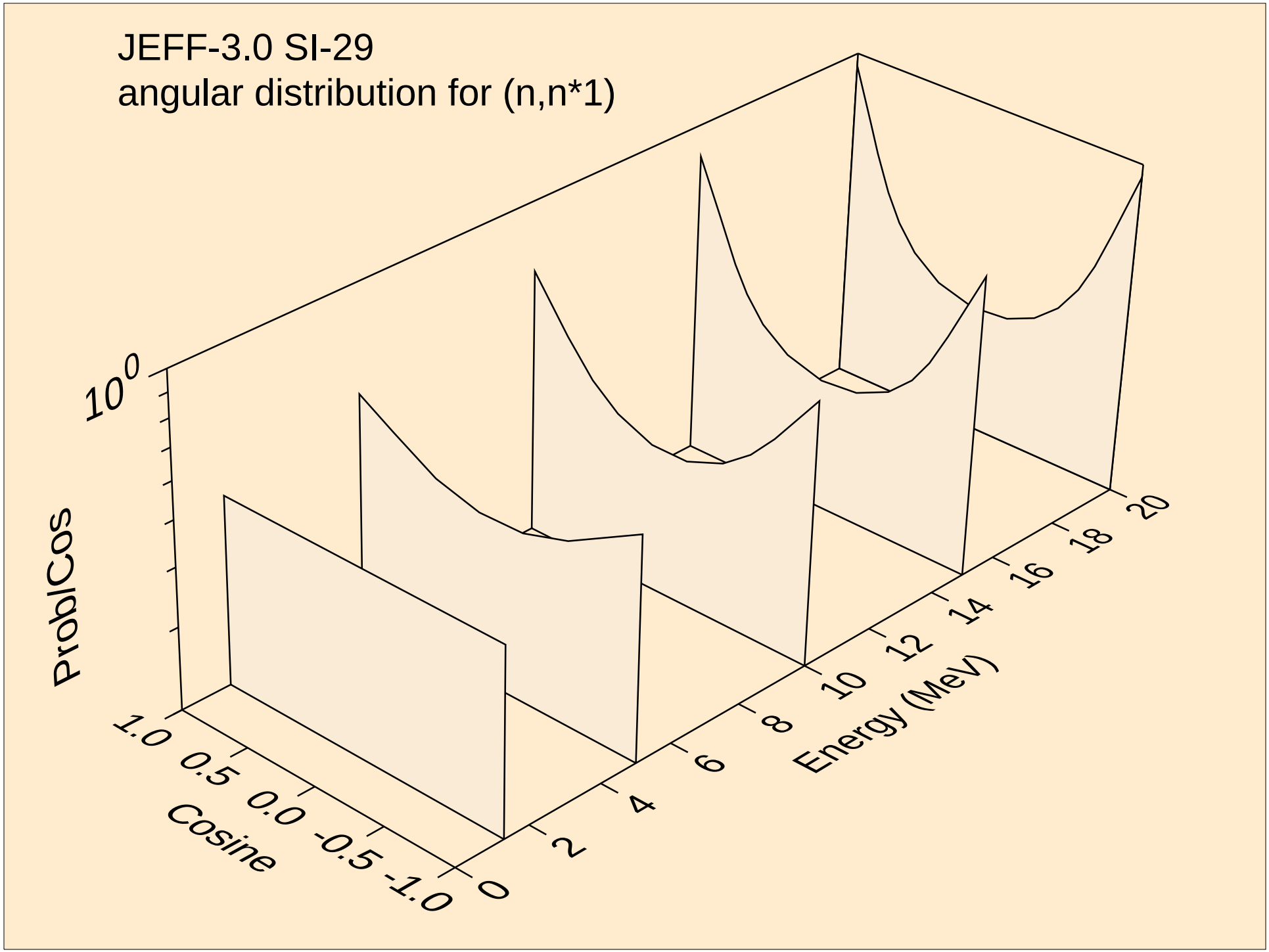

JEFF-3.0 SI-29
Threshold reactions
*10-3
(n,a)
(n,2p)
Cross section (barns)
Energy (MeV)
0
20
40
60
80
100
120
140
160
180
200
0
2
4
6
8
10
12
14
16
18
20

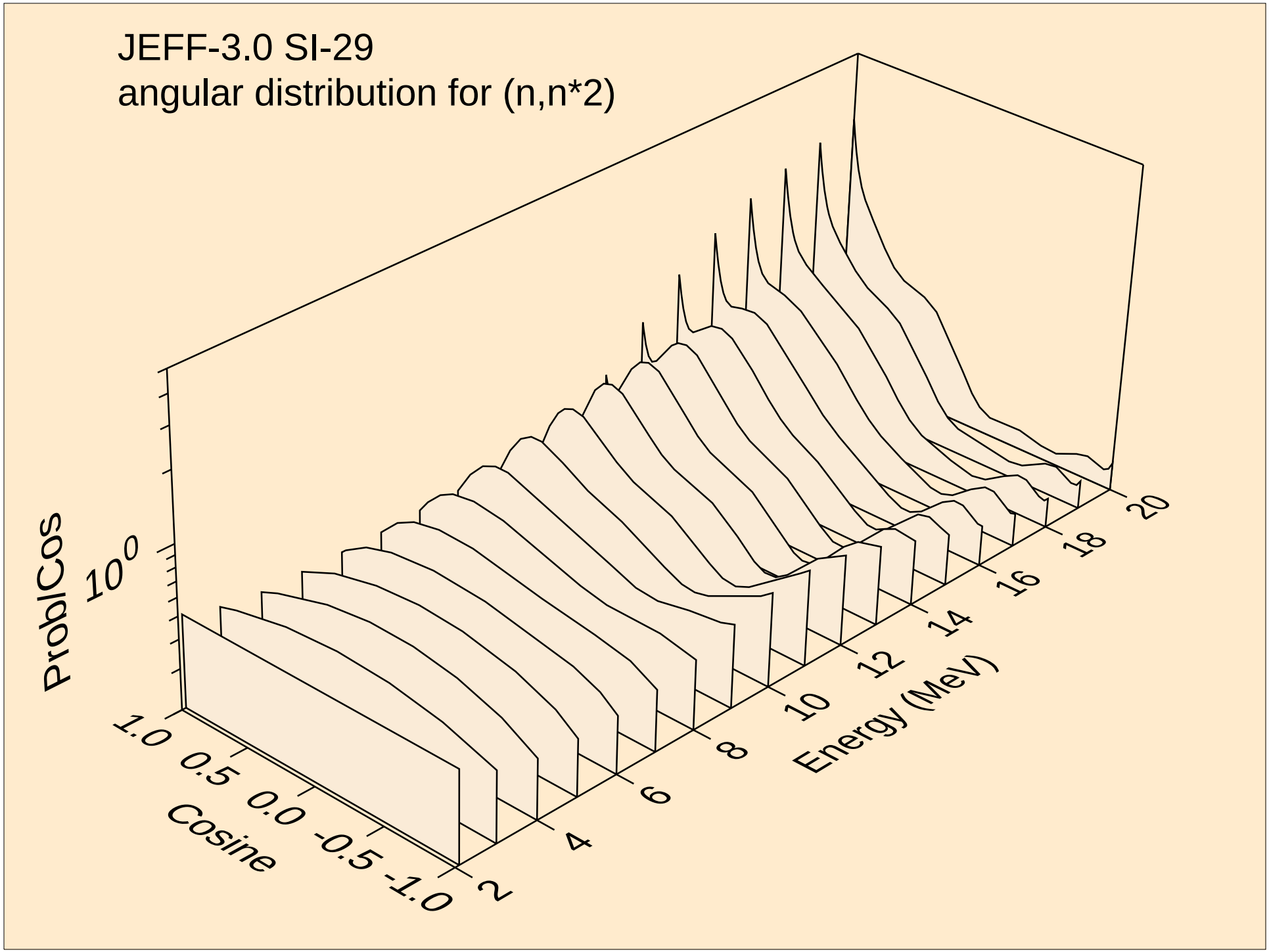

JEFF-3.0 SI-29
angular distribution for elastic
ProbICos
10^{1}
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

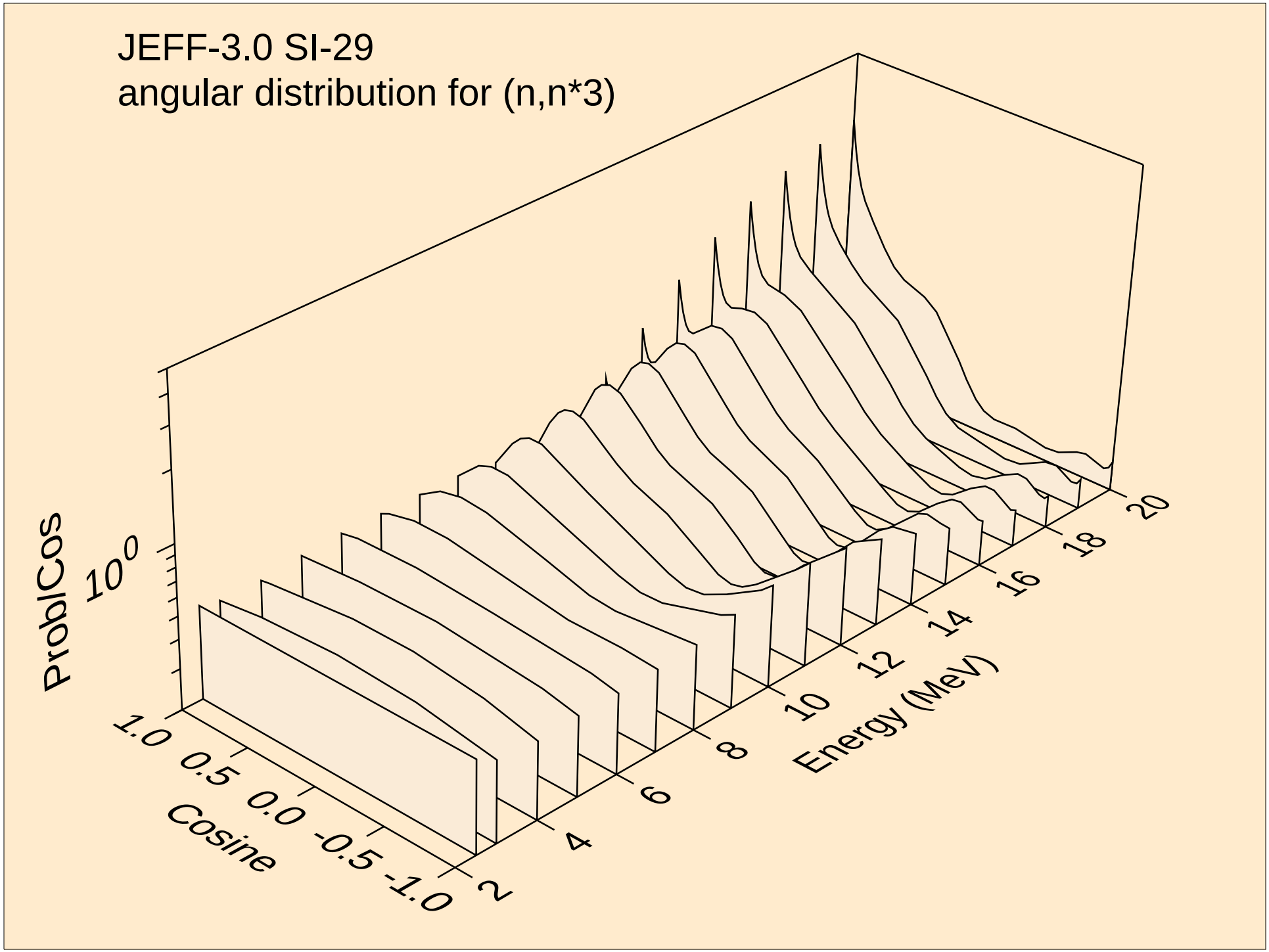

JEFF-3.0 SI-29
angular distribution for (n,2n)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
8
10
12
14
16
18
20
Energy (MeV)

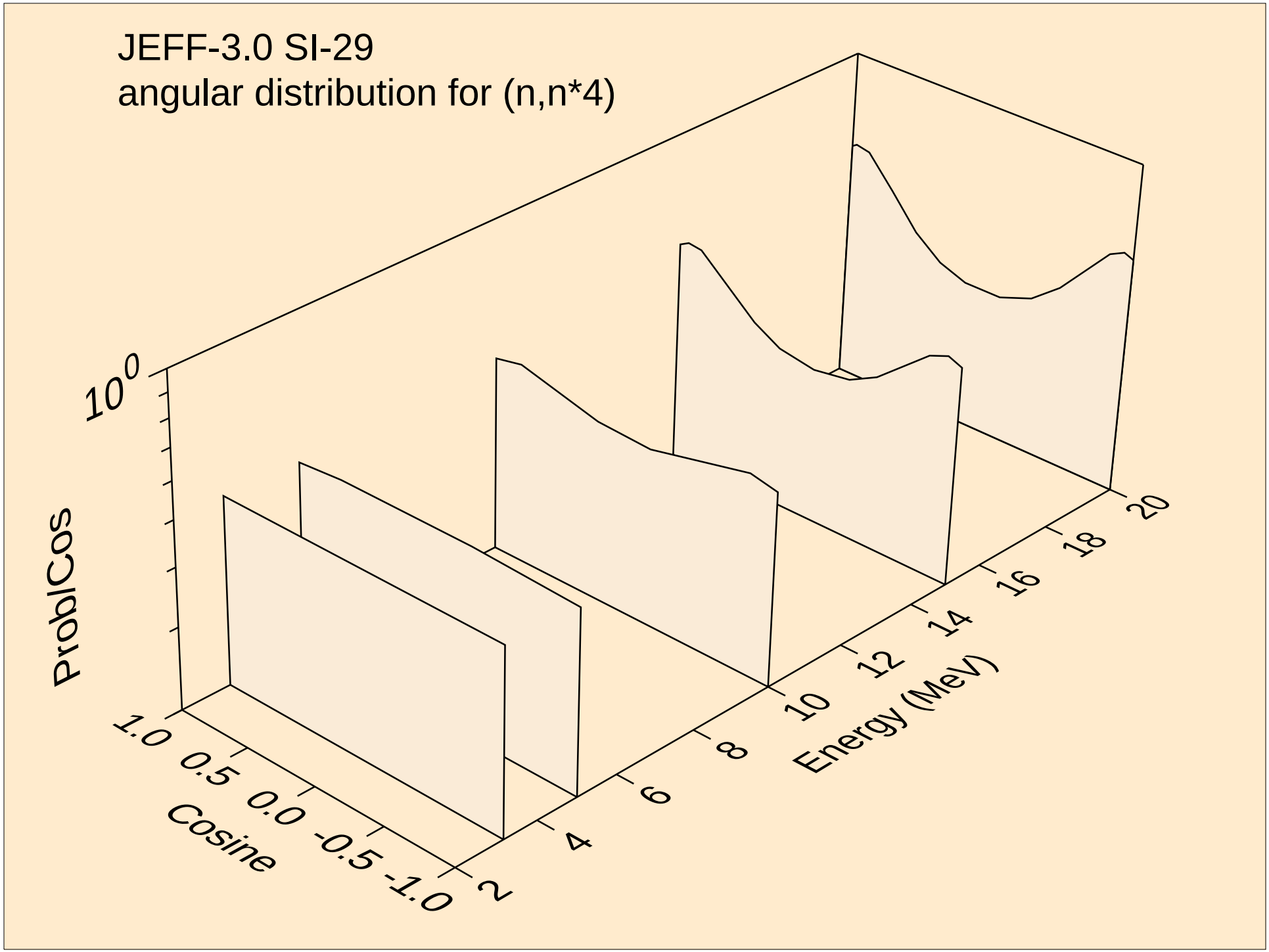

JEFF-3.0 SI-29
angular distribution for (n,n*)a
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

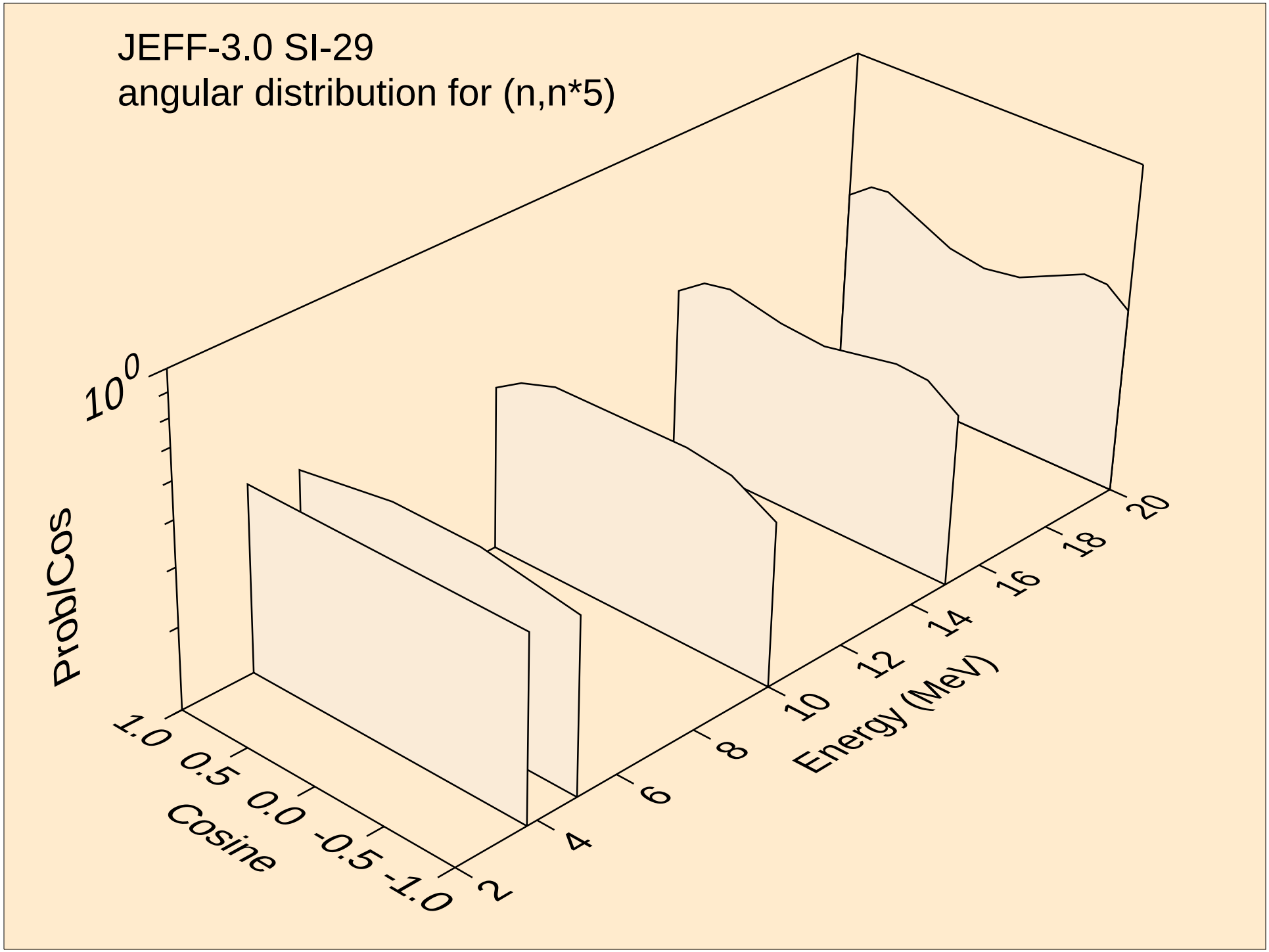

JEFF-3.0 SI-29
angular distribution for (n,n*)p
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
12
13
14
15
16
17
18
19
20
Energy (MeV)

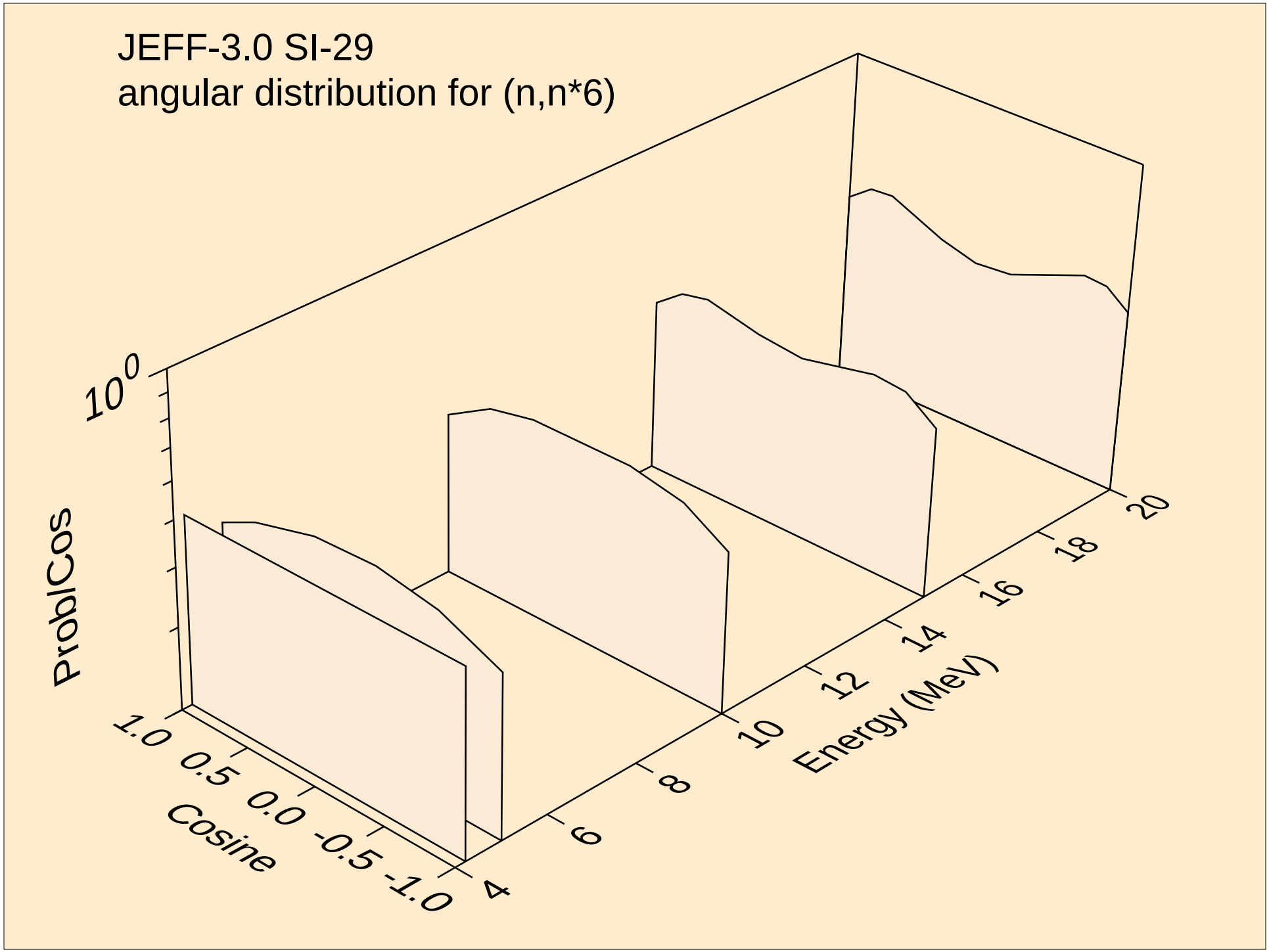

JEFF-3.0 SI-29
angular distribution for (n,n*1)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

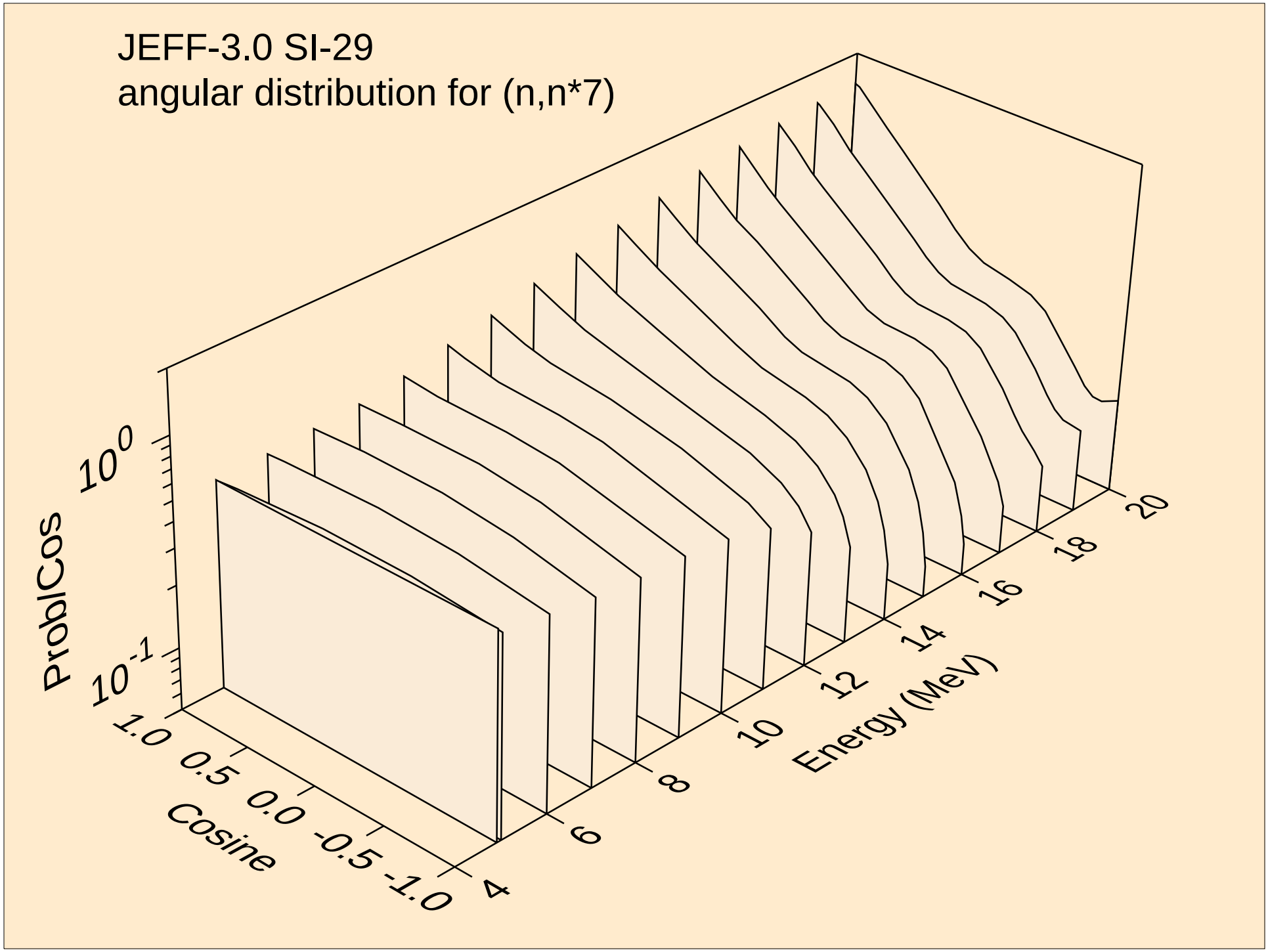

JEFF-3.0 SI-29
angular distribution for (n,n*2)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

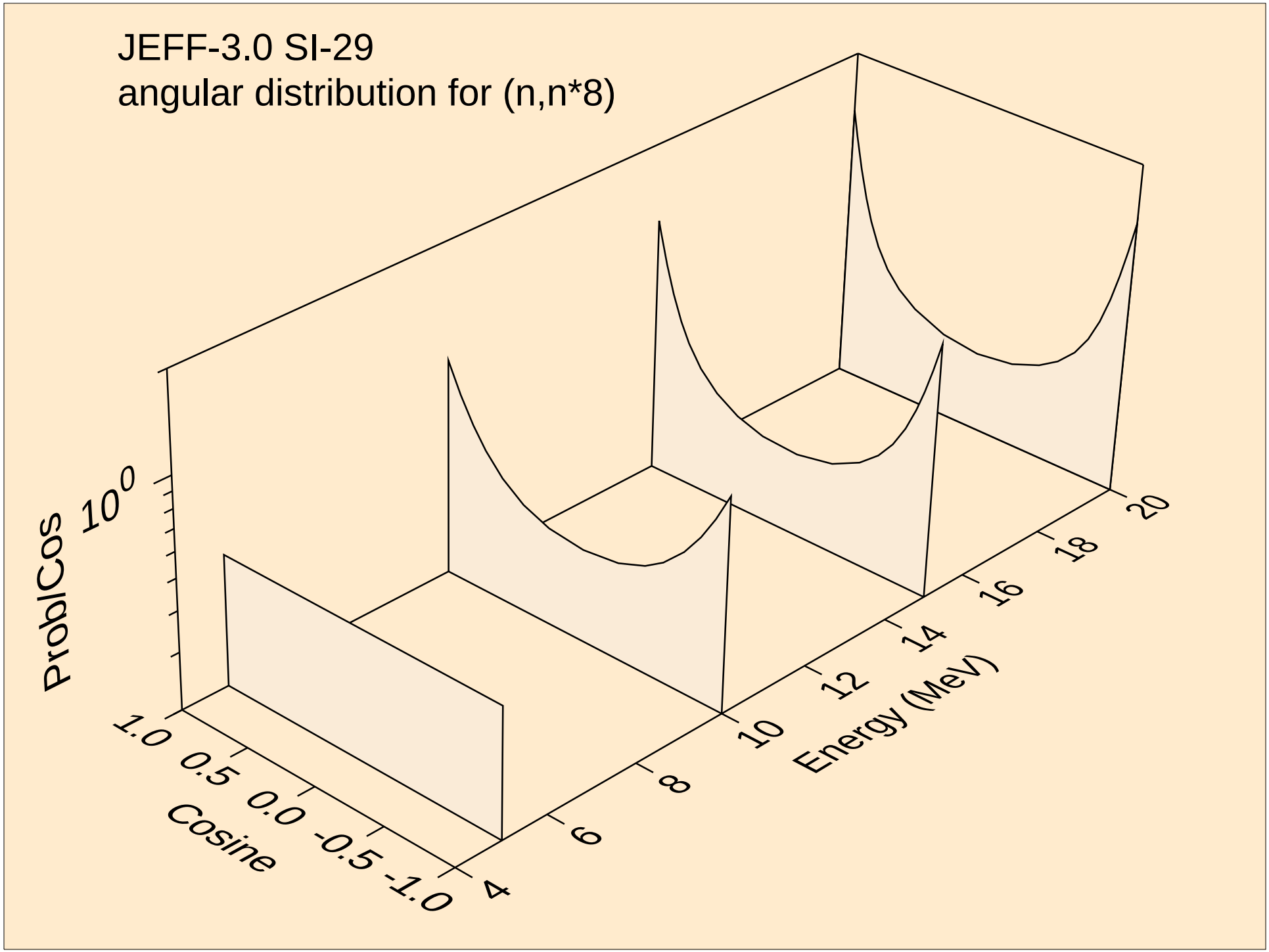

JEFF-3.0 SI-29
angular distribution for (n,n*3)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

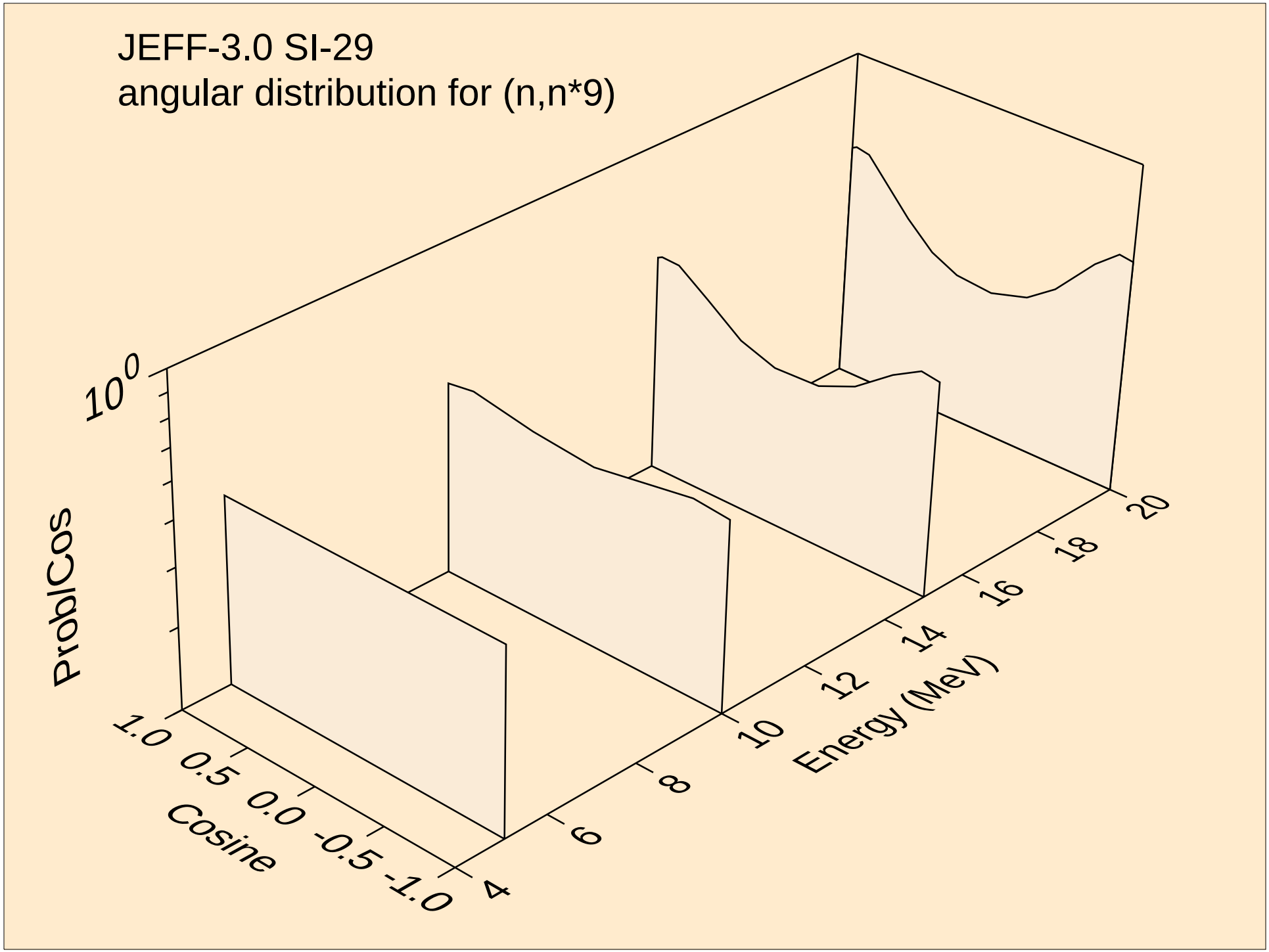

JEFF-3.0 SI-29
angular distribution for (n,n*4)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

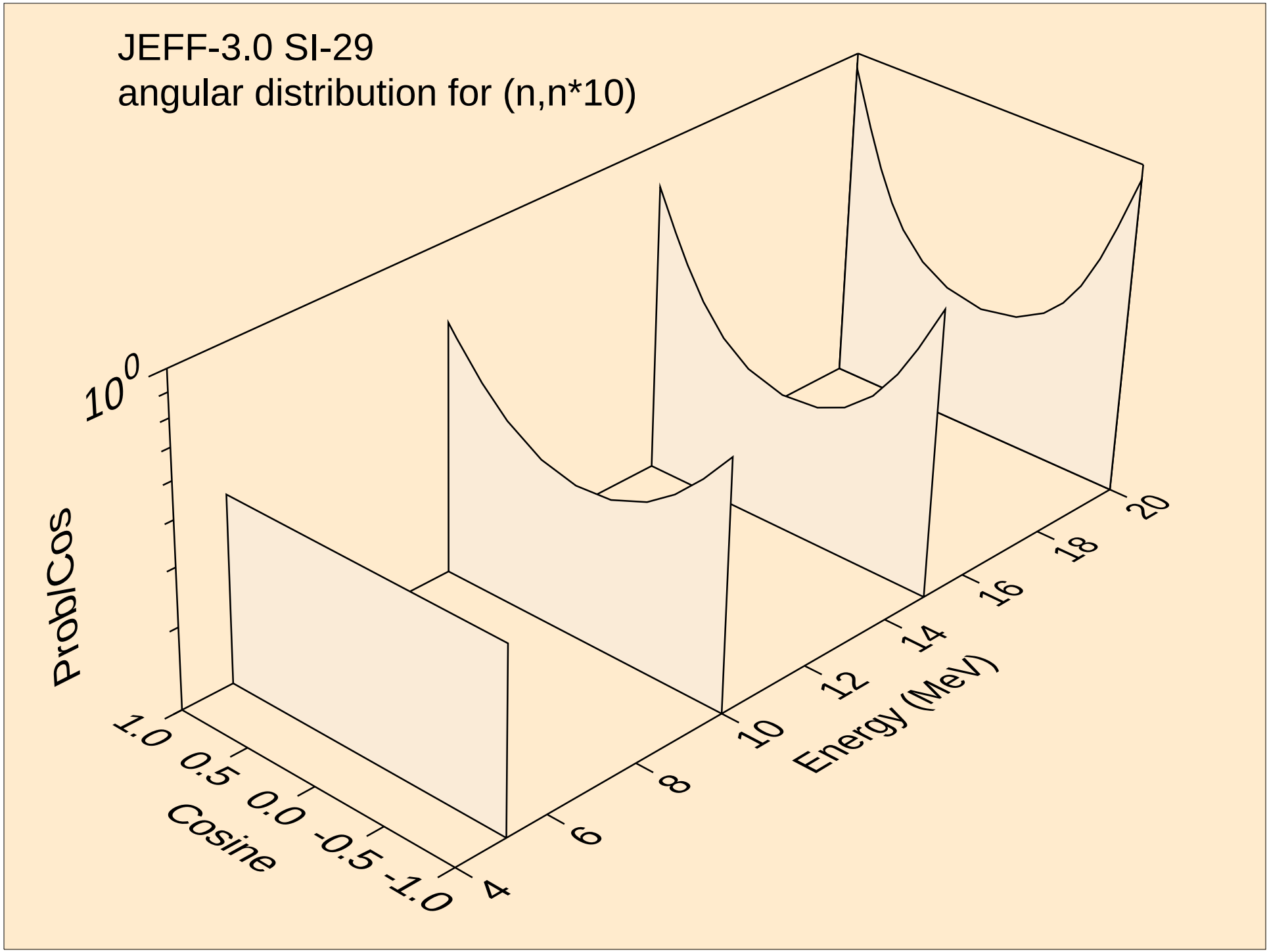

JEFF-3.0 SI-29
angular distribution for (n,n*5)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

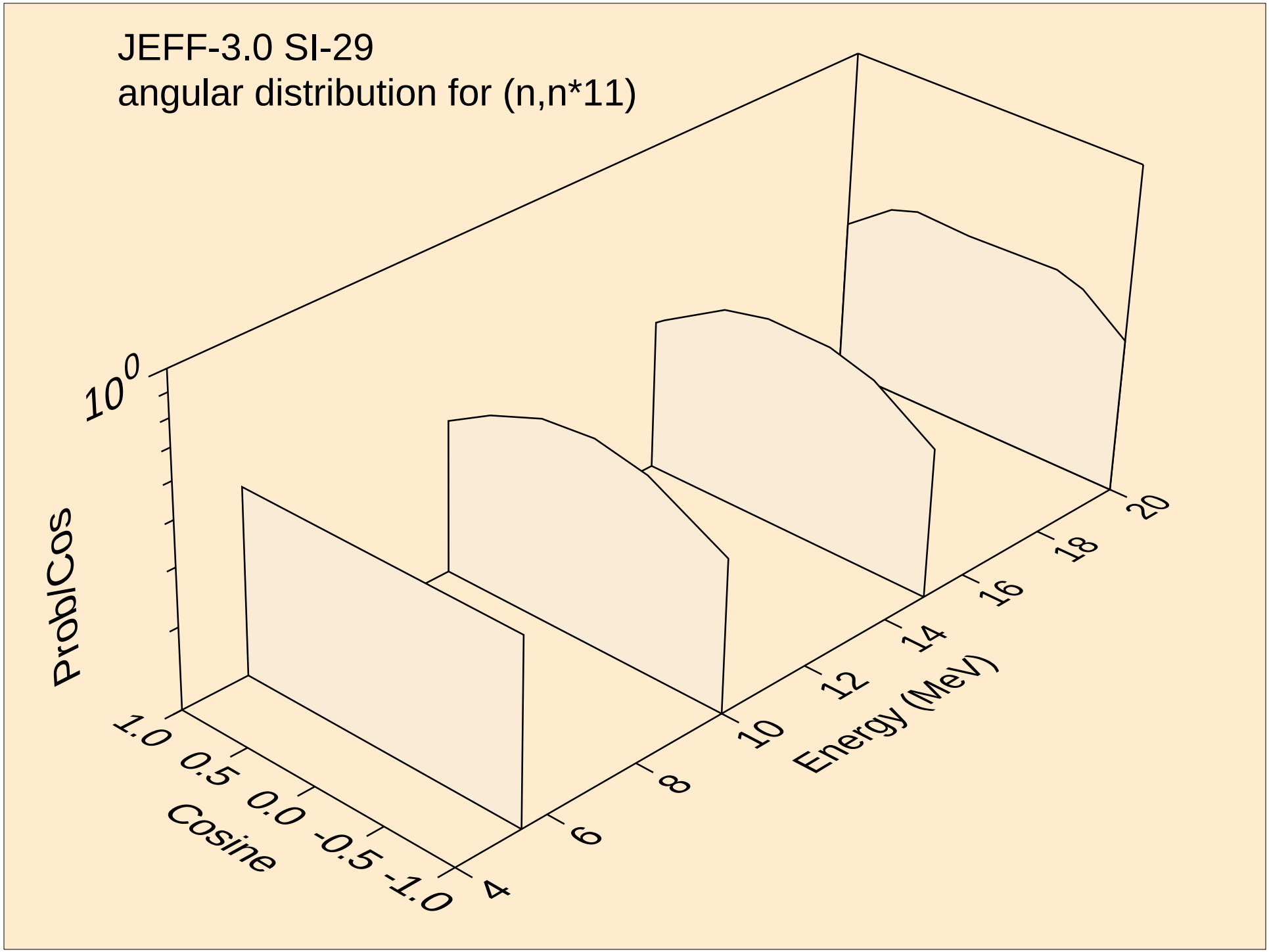

JEFF-3.0 SI-29
angular distribution for (n,n*6)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

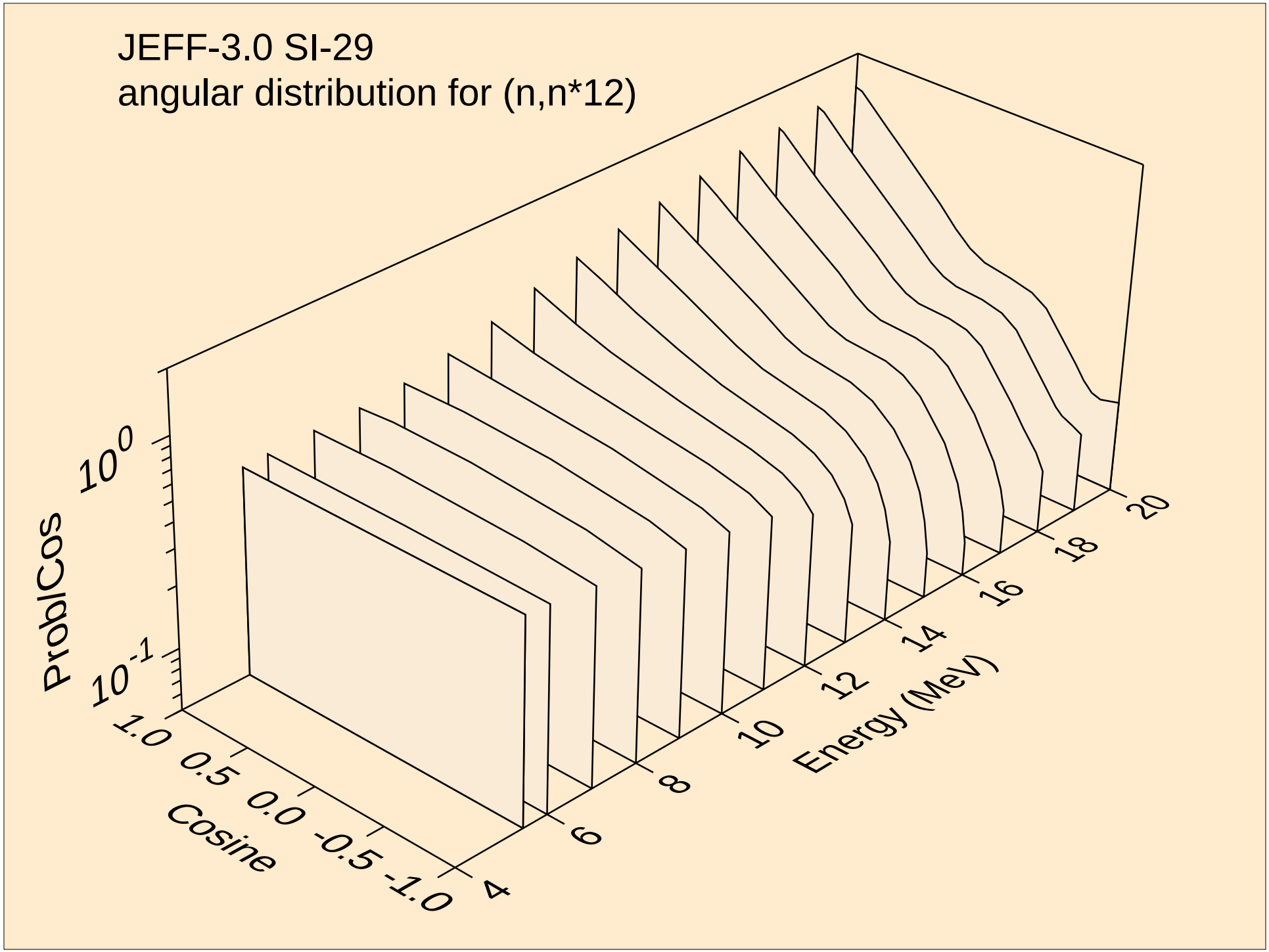

JEFF-3.0 SI-29
angular distribution for (n,n*7)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

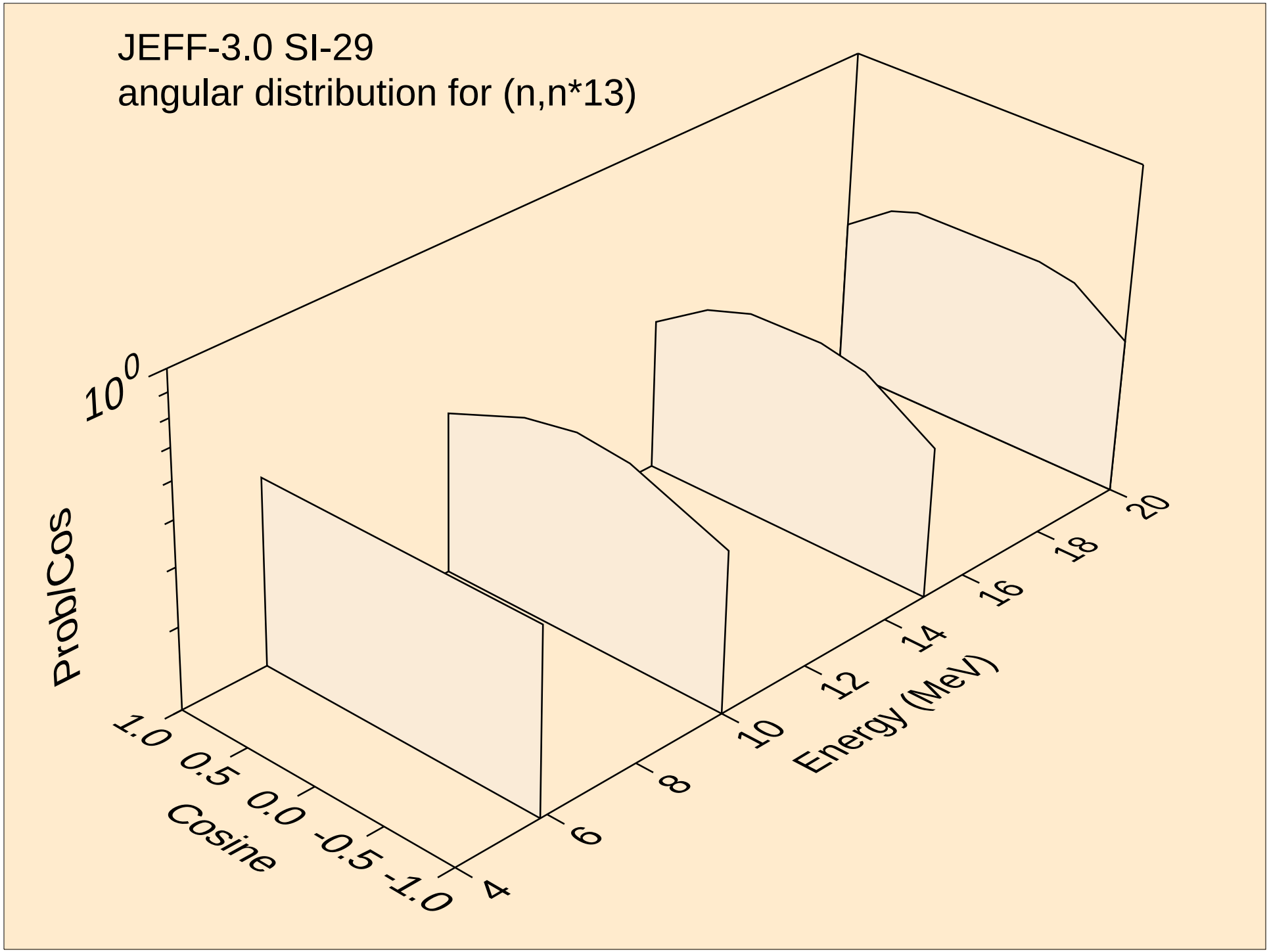

JEFF-3.0 SI-29
angular distribution for (n,n*8)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

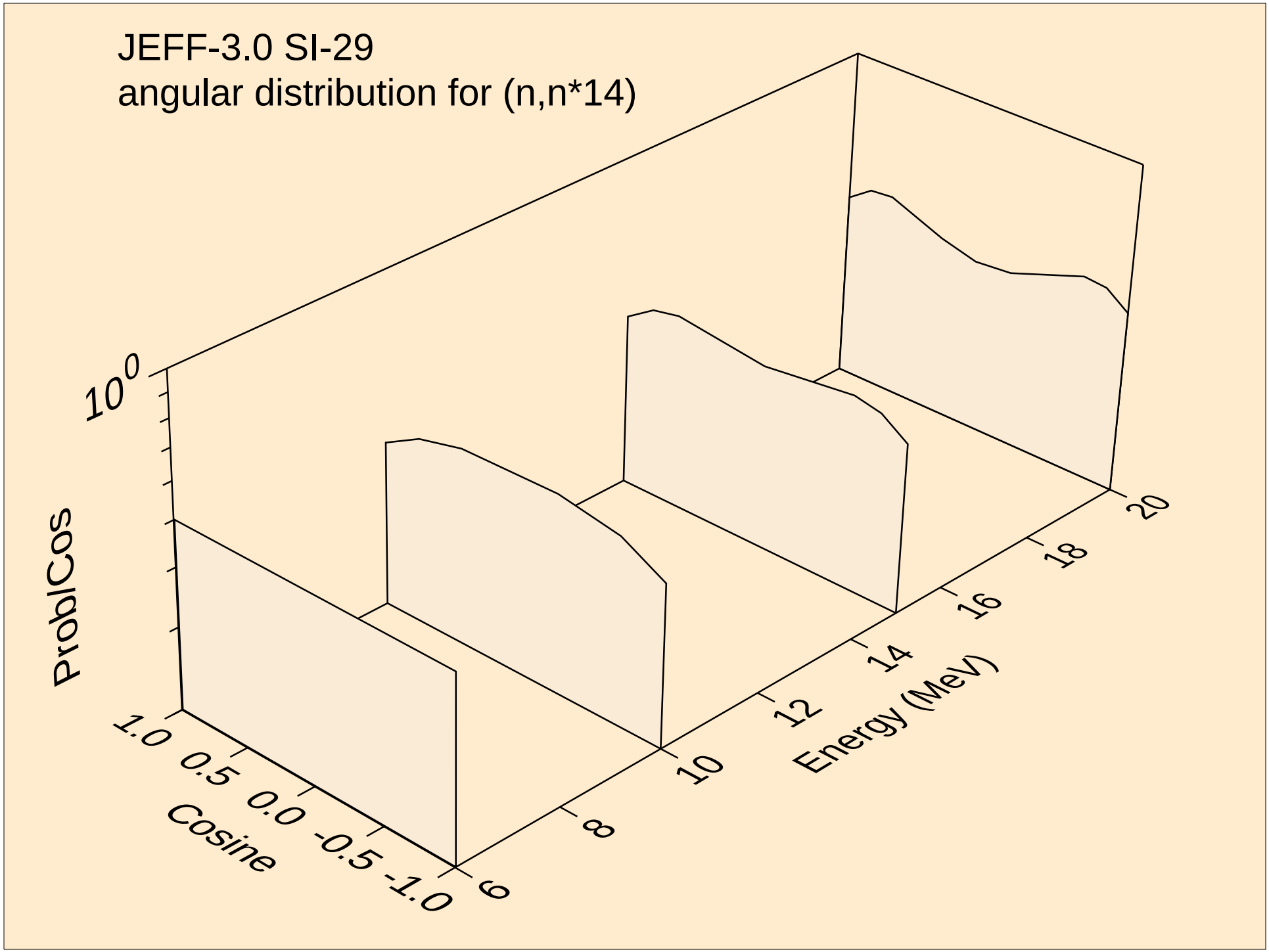

JEFF-3.0 SI-29
angular distribution for (n,n*9)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

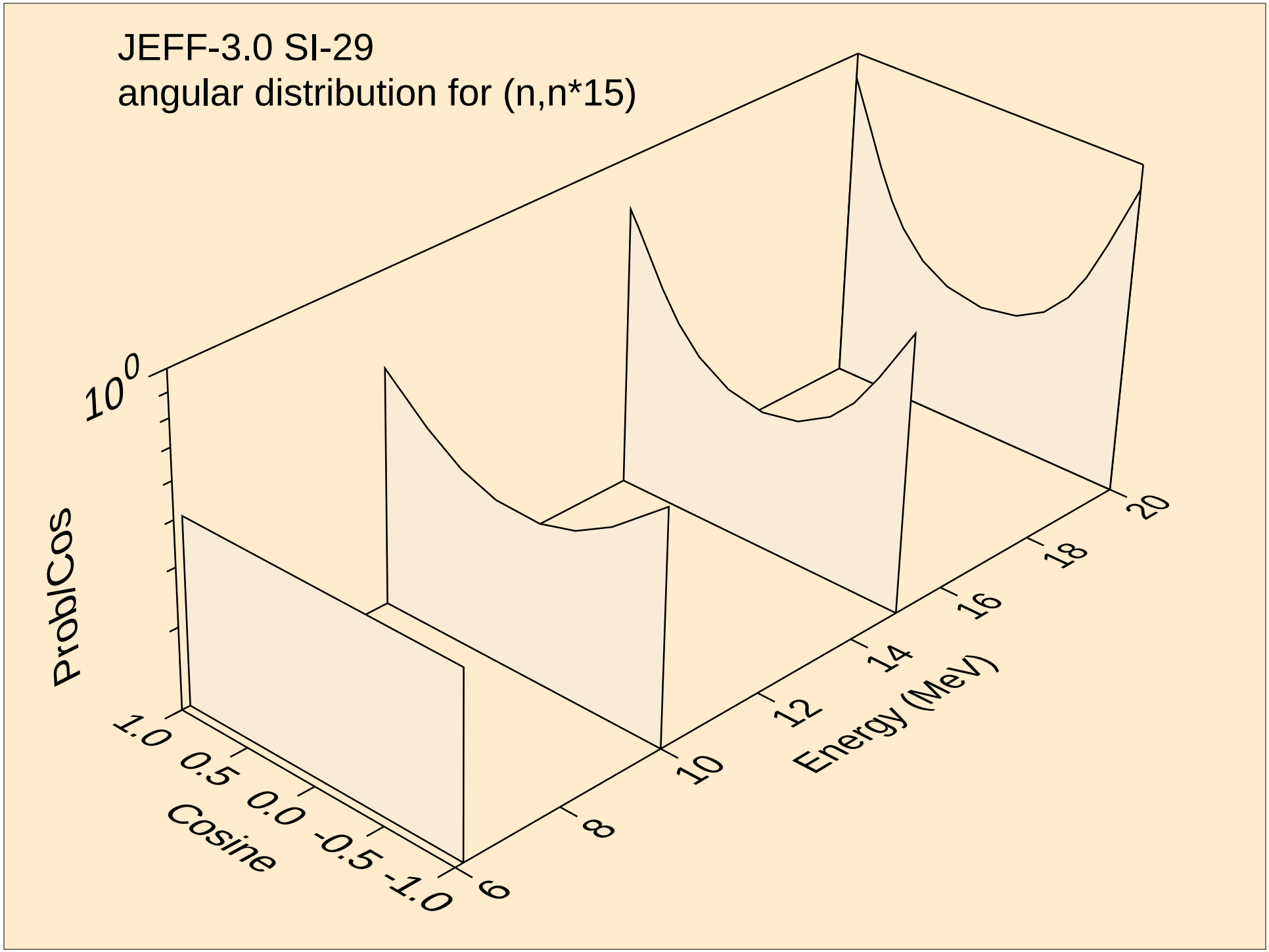

JEFF-3.0 SI-29
angular distribution for (n,n*10)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

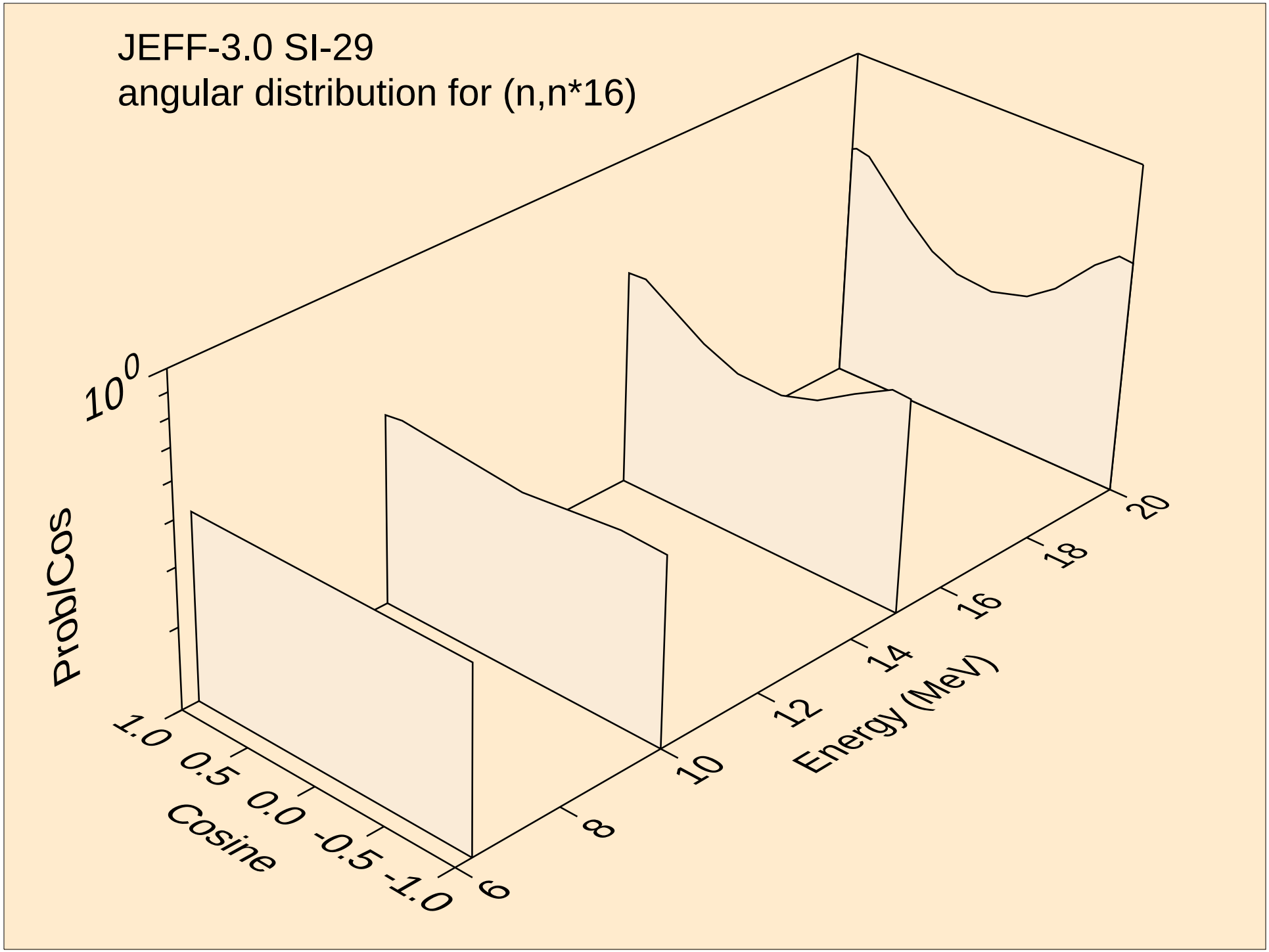

JEFF-3.0 SI-29
angular distribution for (n,n*11)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

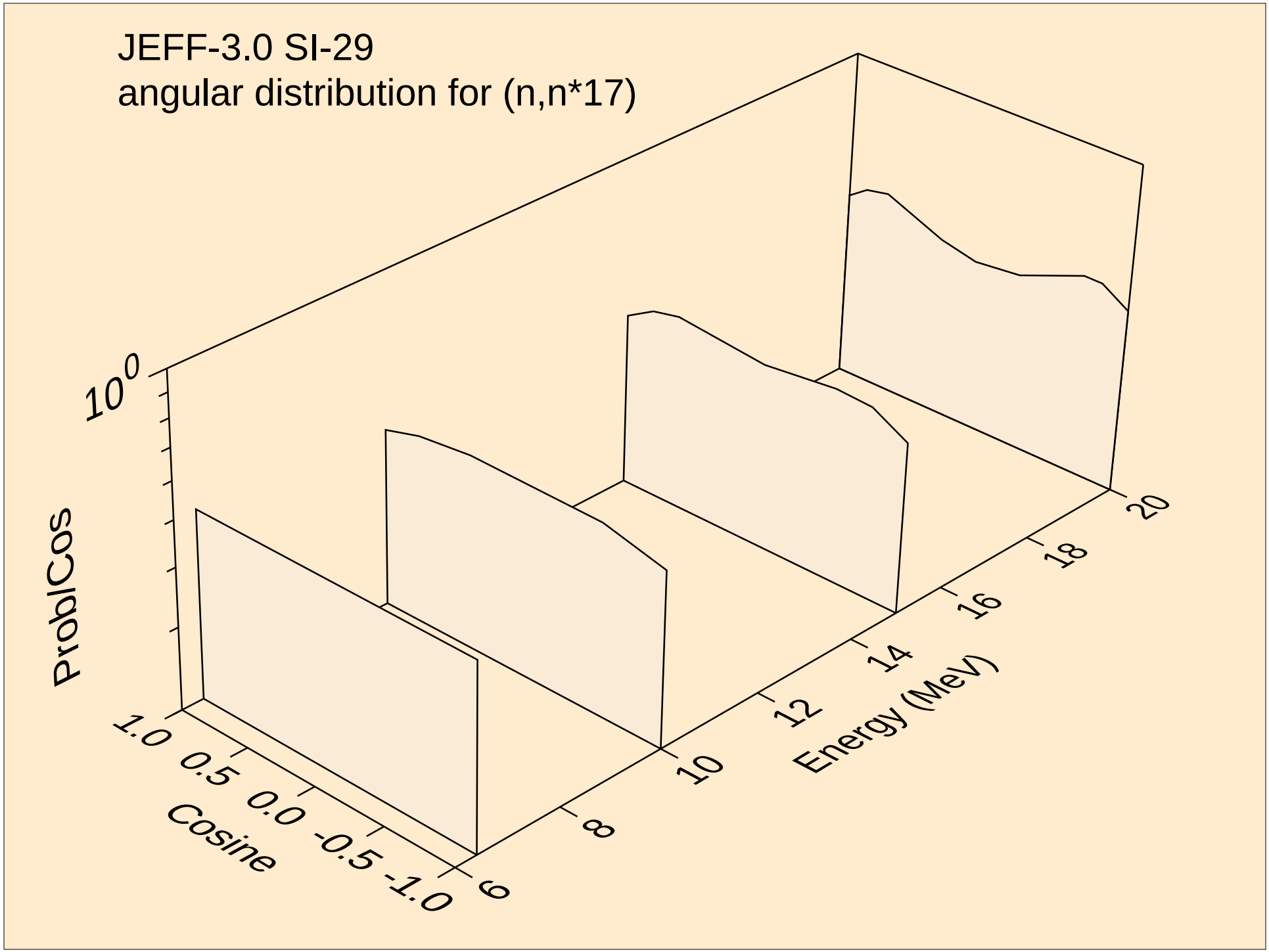

JEFF-3.0 SI-29
angular distribution for (n,n*12)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

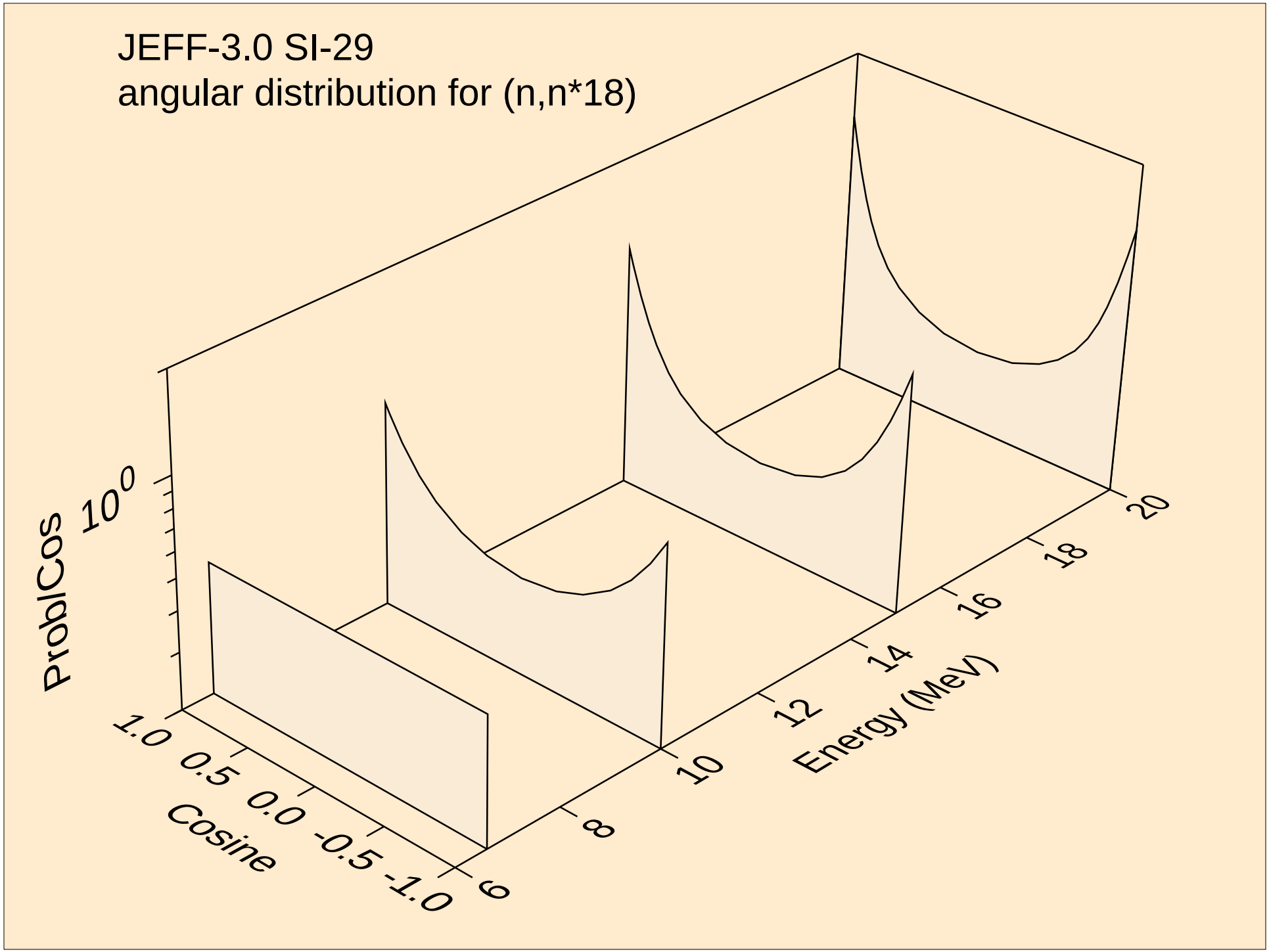

JEFF-3.0 SI-29
angular distribution for (n,n*13)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

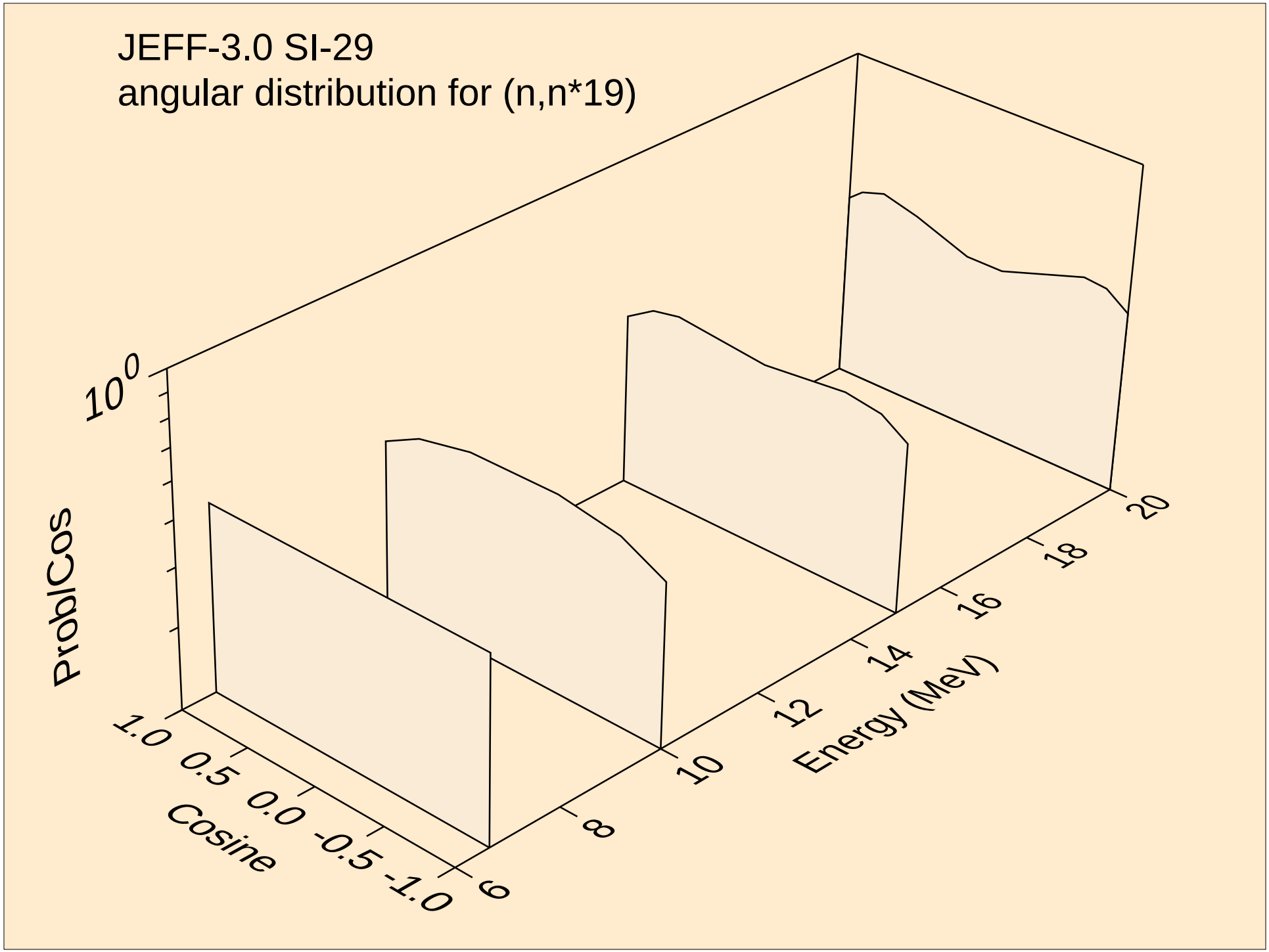

JEFF-3.0 SI-29
angular distribution for (n,n*14)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

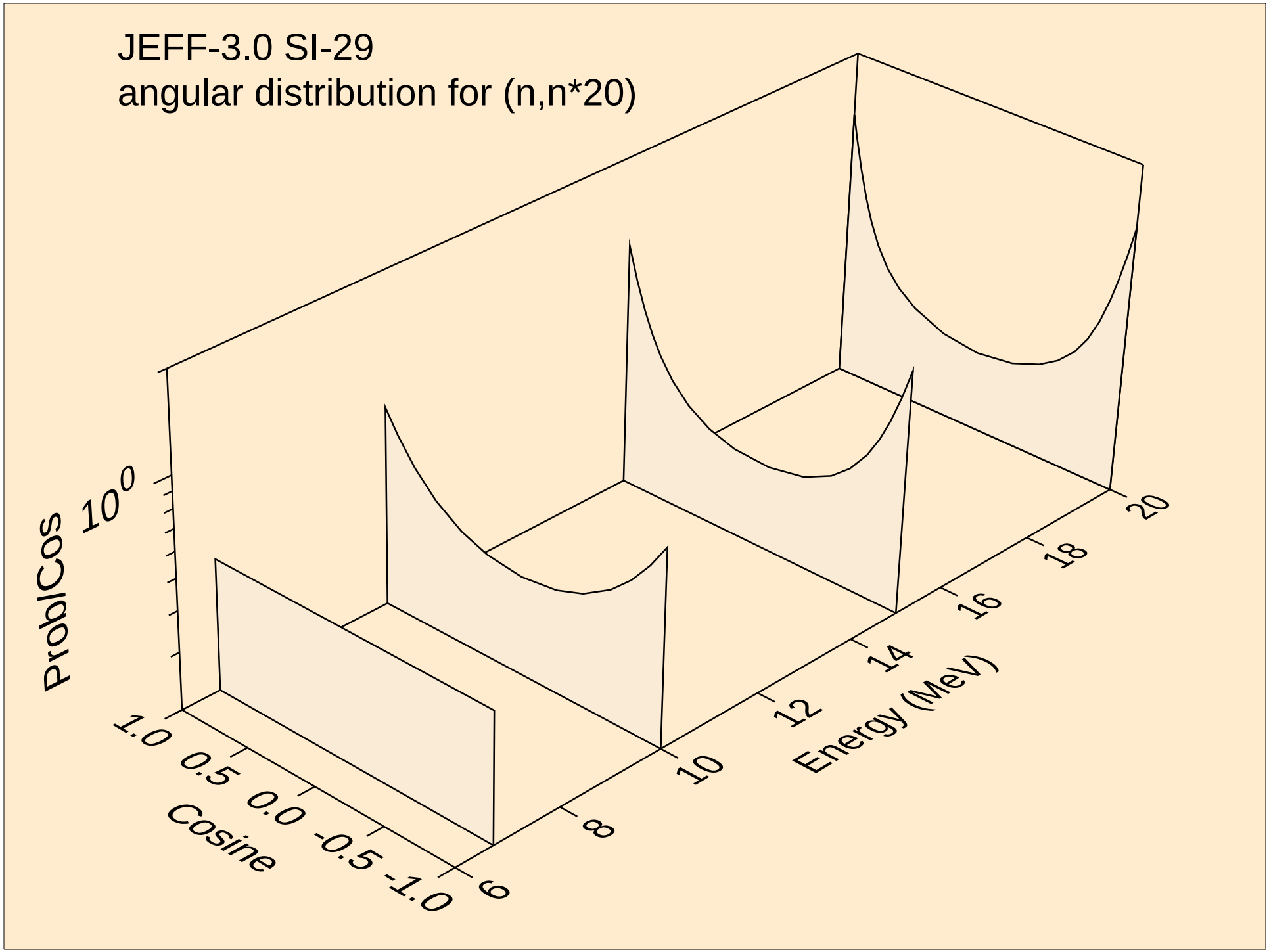

JEFF-3.0 SI-29
angular distribution for (n,n*15)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

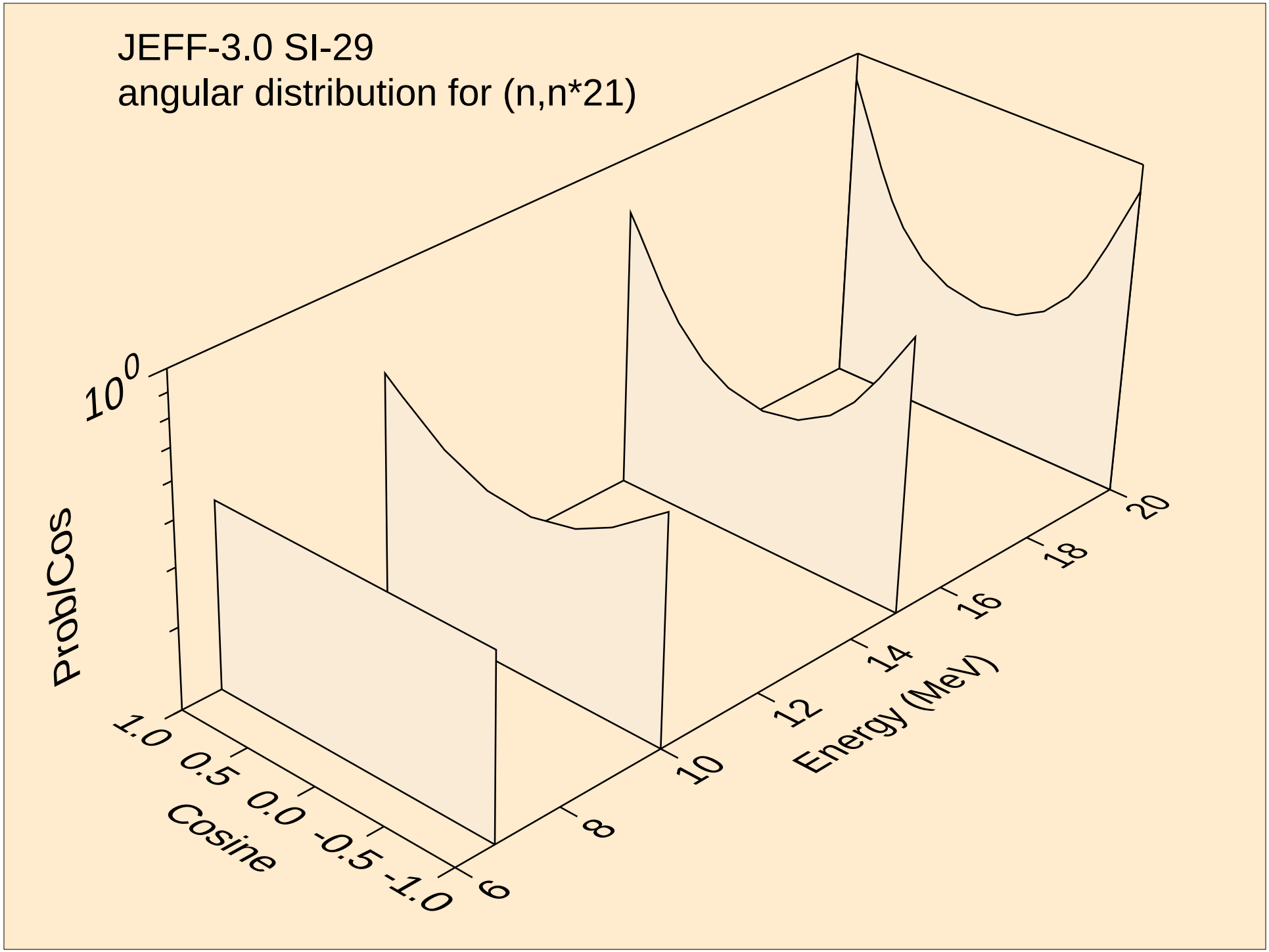

JEFF-3.0 SI-29
angular distribution for (n,n*16)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

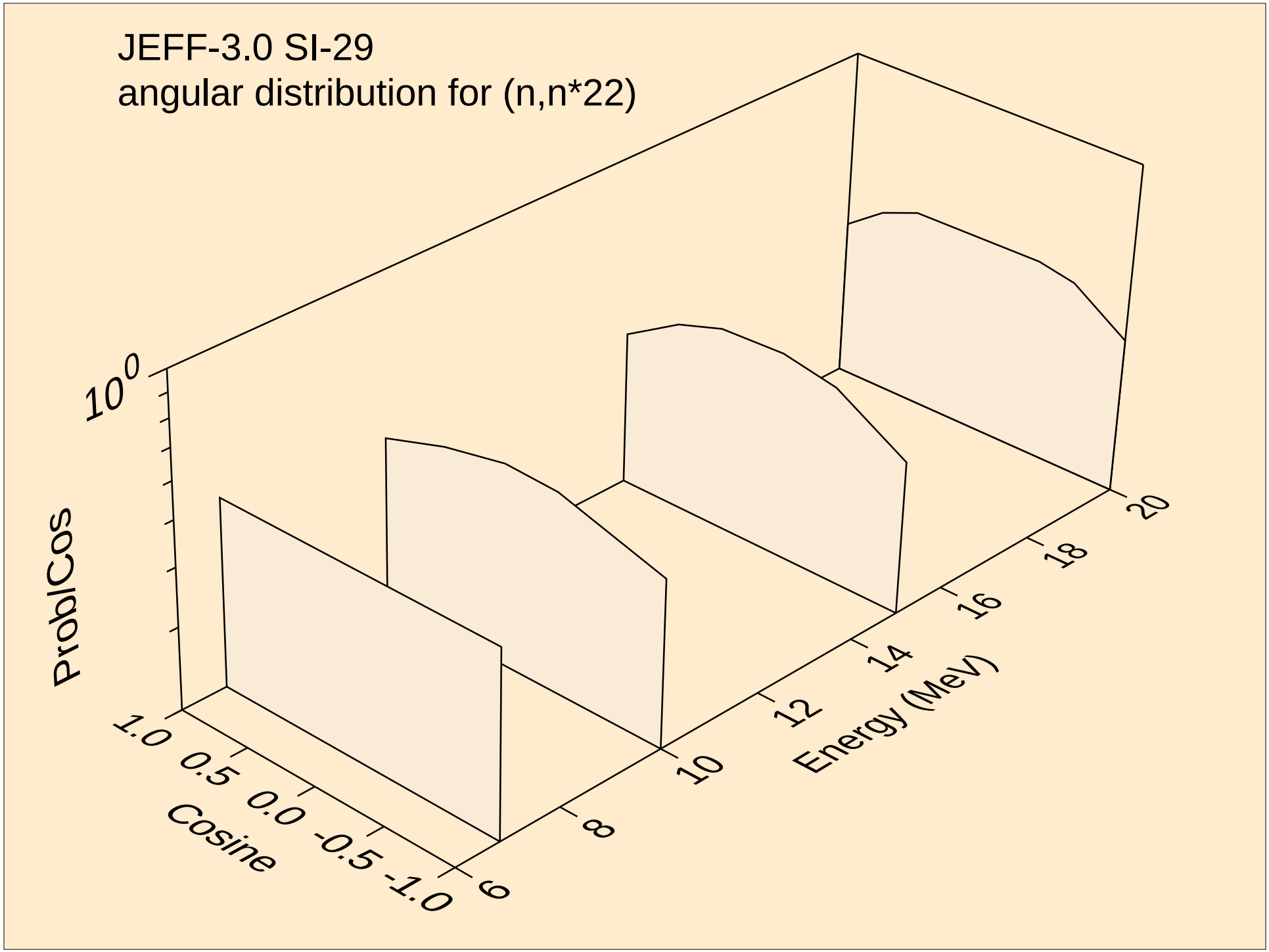

JEFF-3.0 SI-29
angular distribution for (n,n*17)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

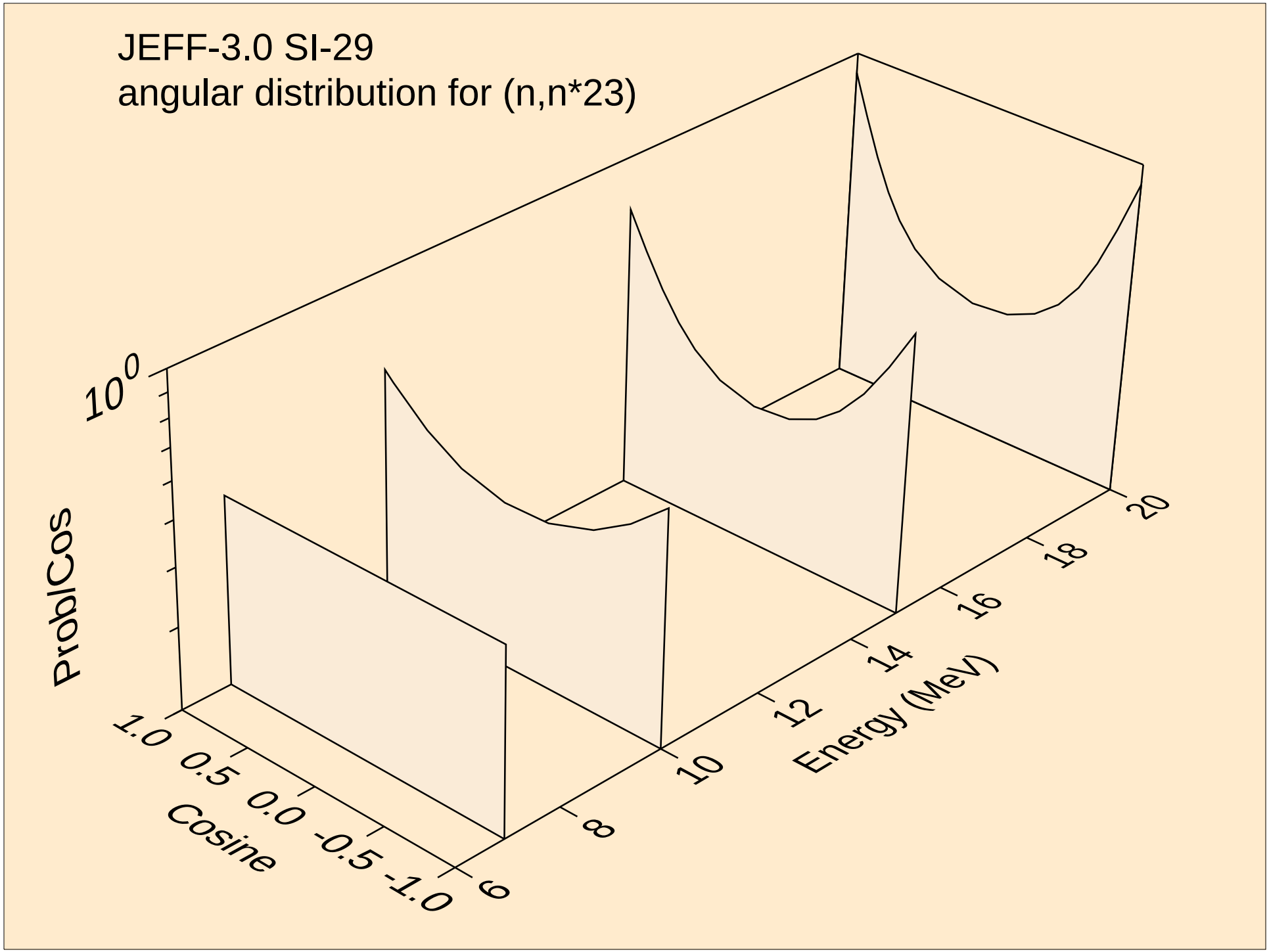

JEFF-3.0 SI-29
angular distribution for (n,n*18)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

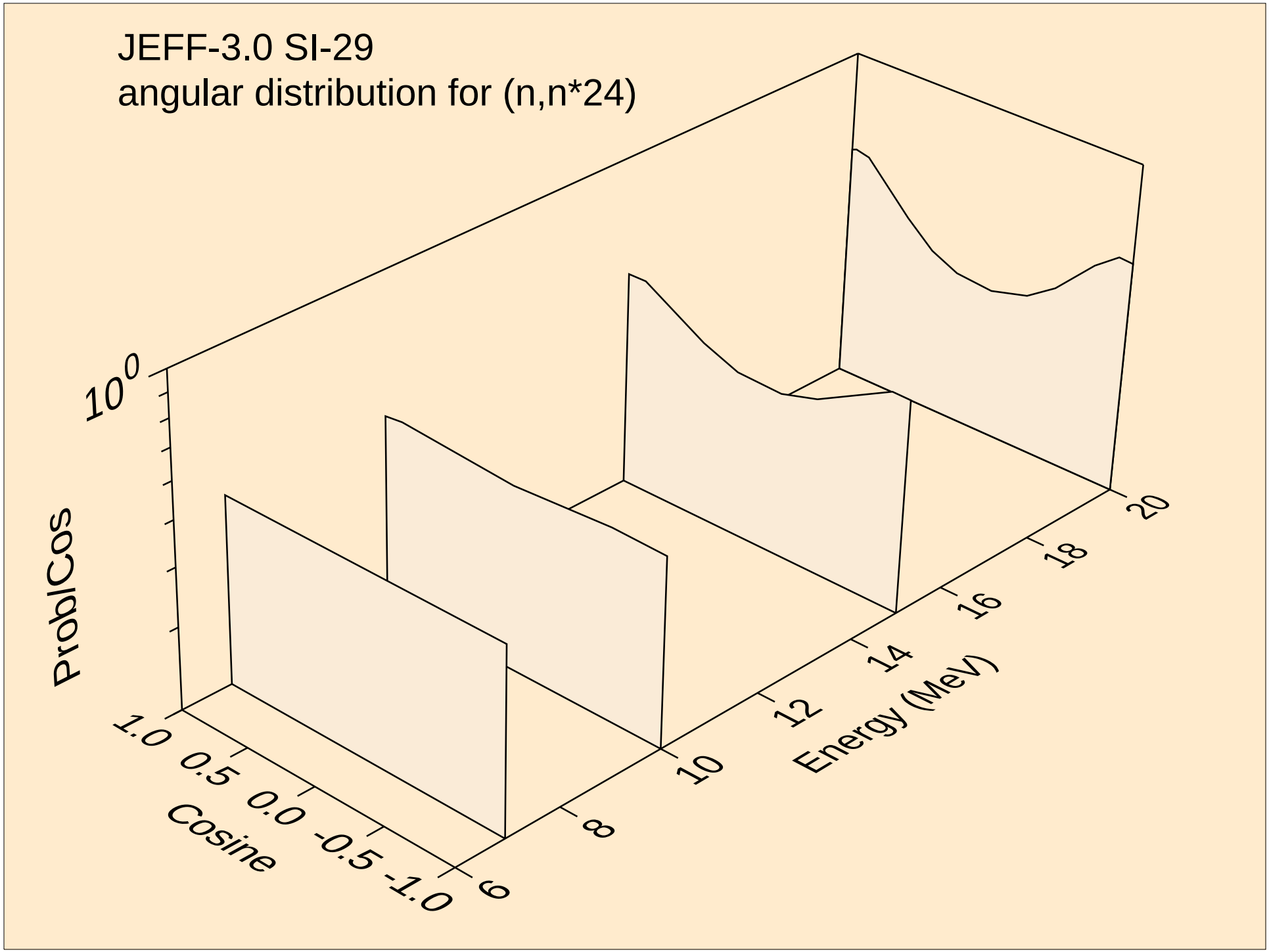

JEFF-3.0 SI-29
angular distribution for (n,n*19)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

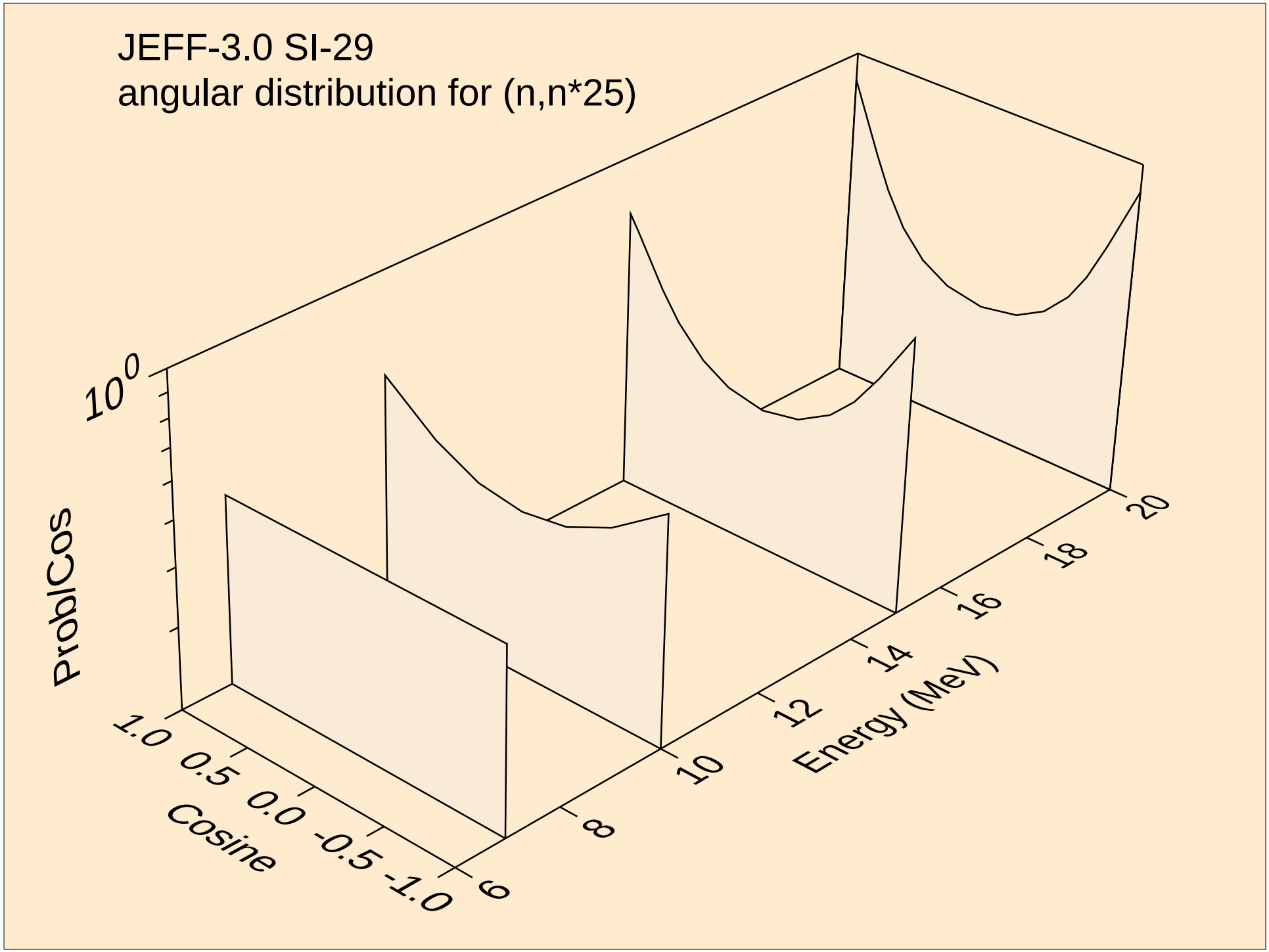

JEFF-3.0 SI-29
angular distribution for (n,n*20)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

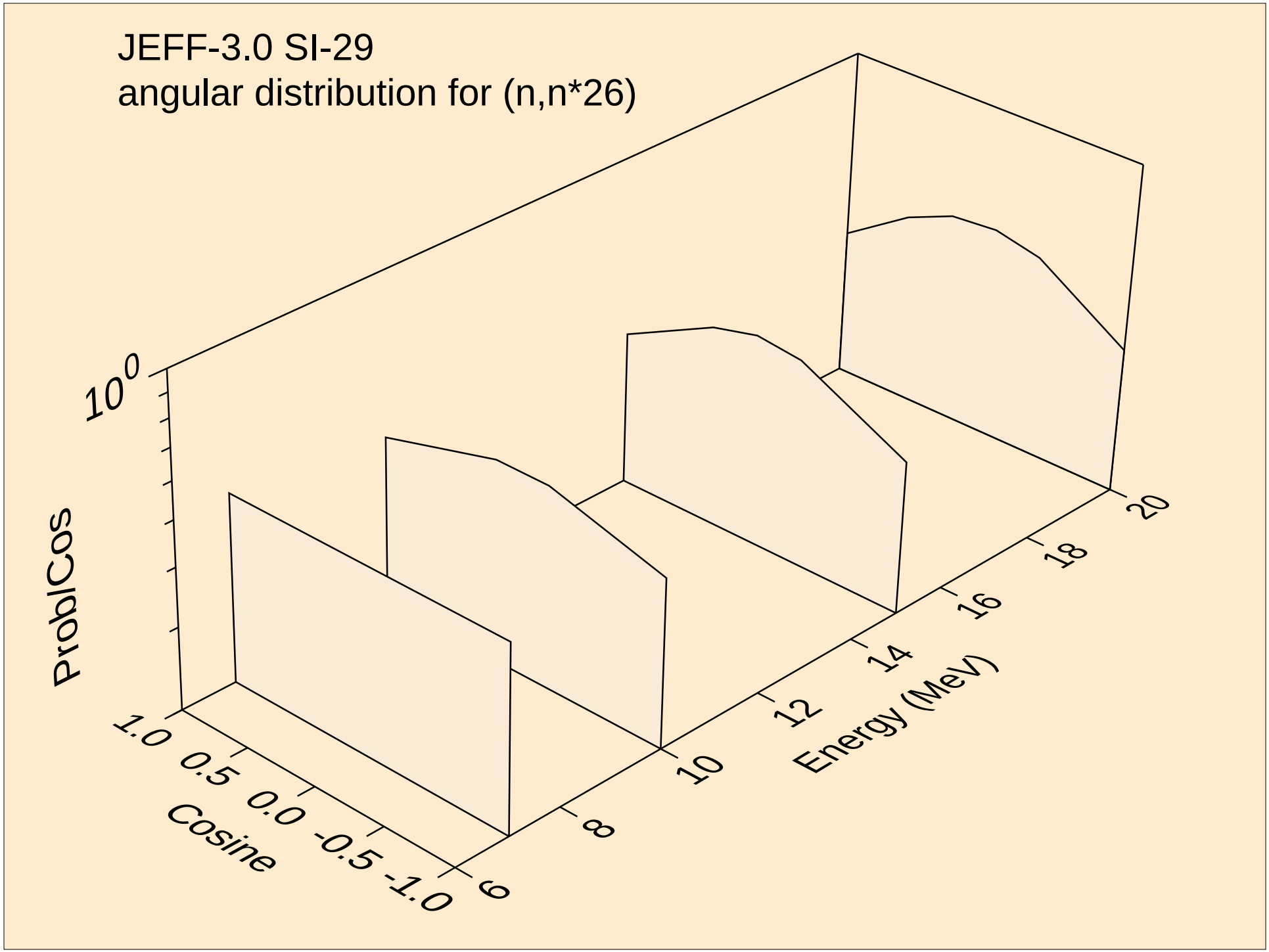

JEFF-3.0 SI-29
angular distribution for (n,n*21)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

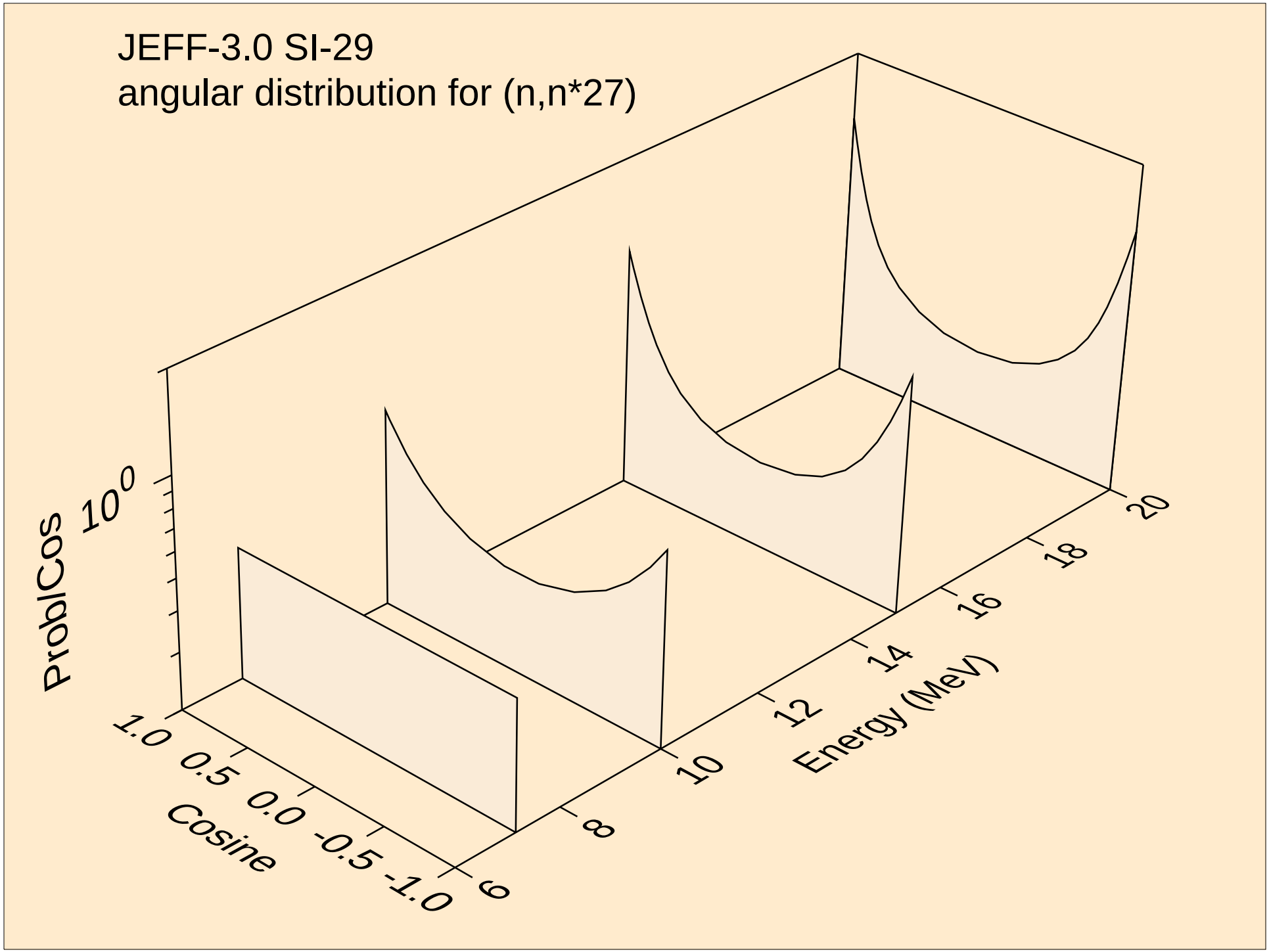

JEFF-3.0 SI-29
angular distribution for (n,n*22)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

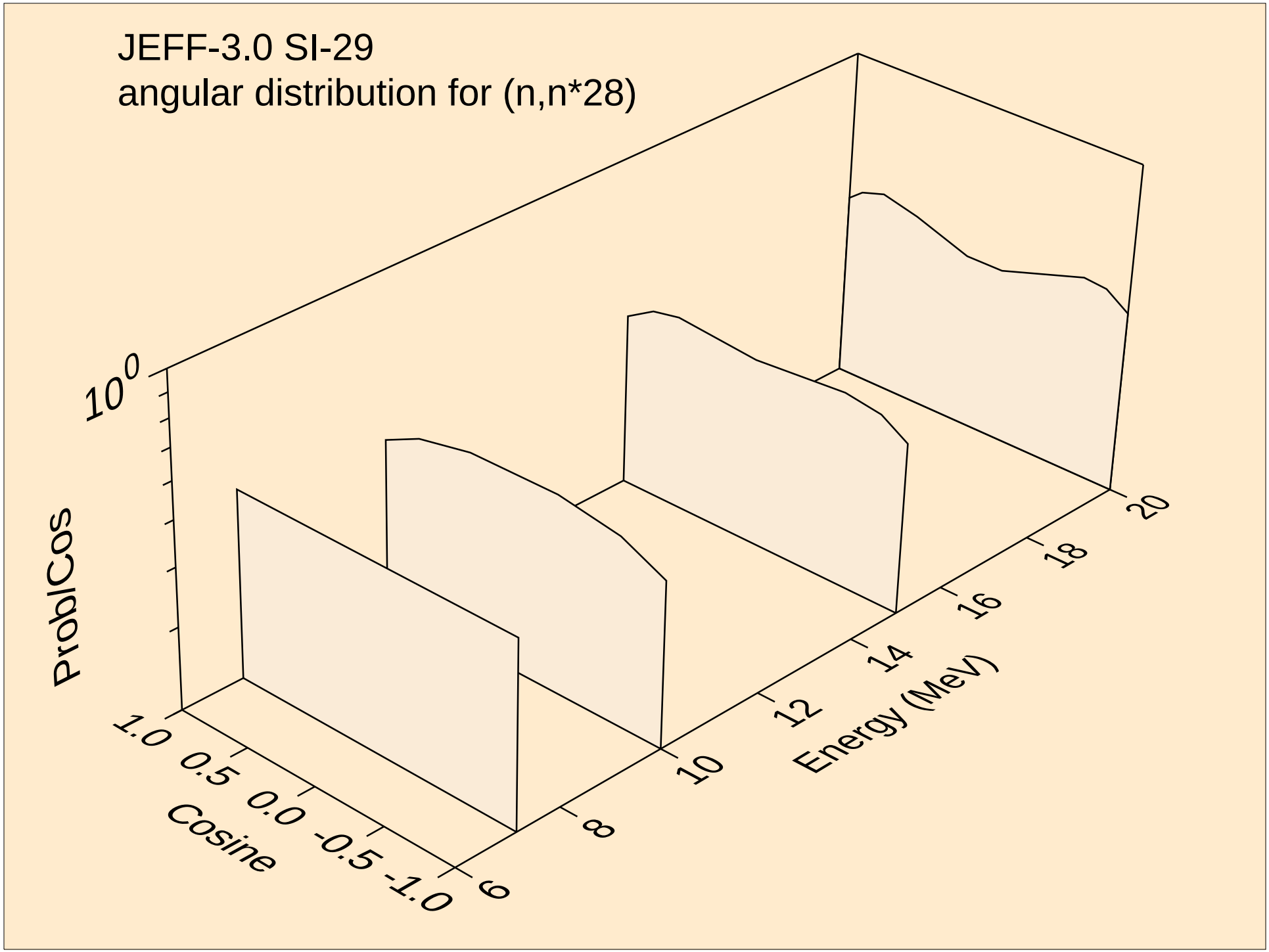

JEFF-3.0 SI-29
angular distribution for (n,n*23)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

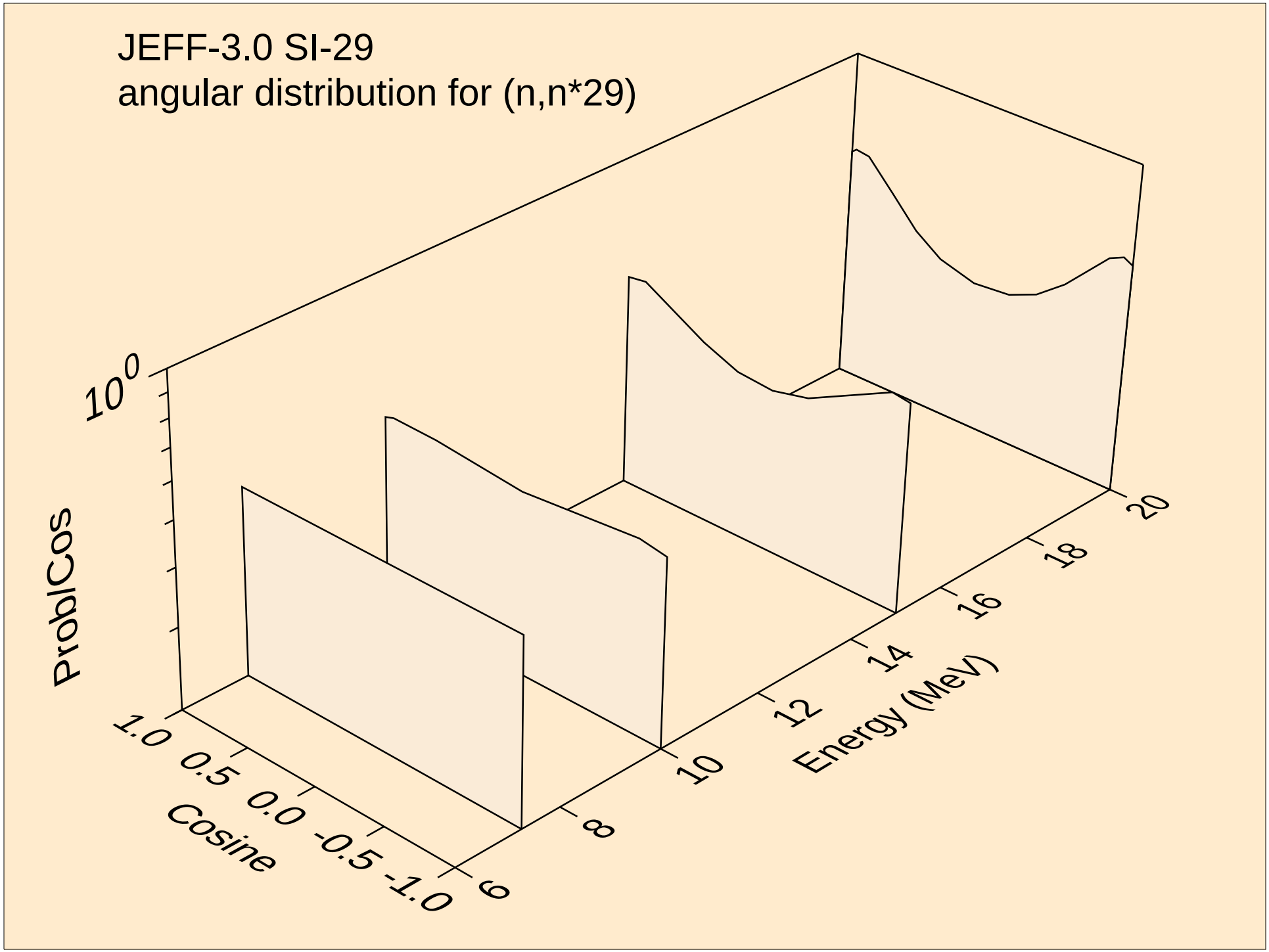

JEFF-3.0 SI-29
angular distribution for (n,n*24)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

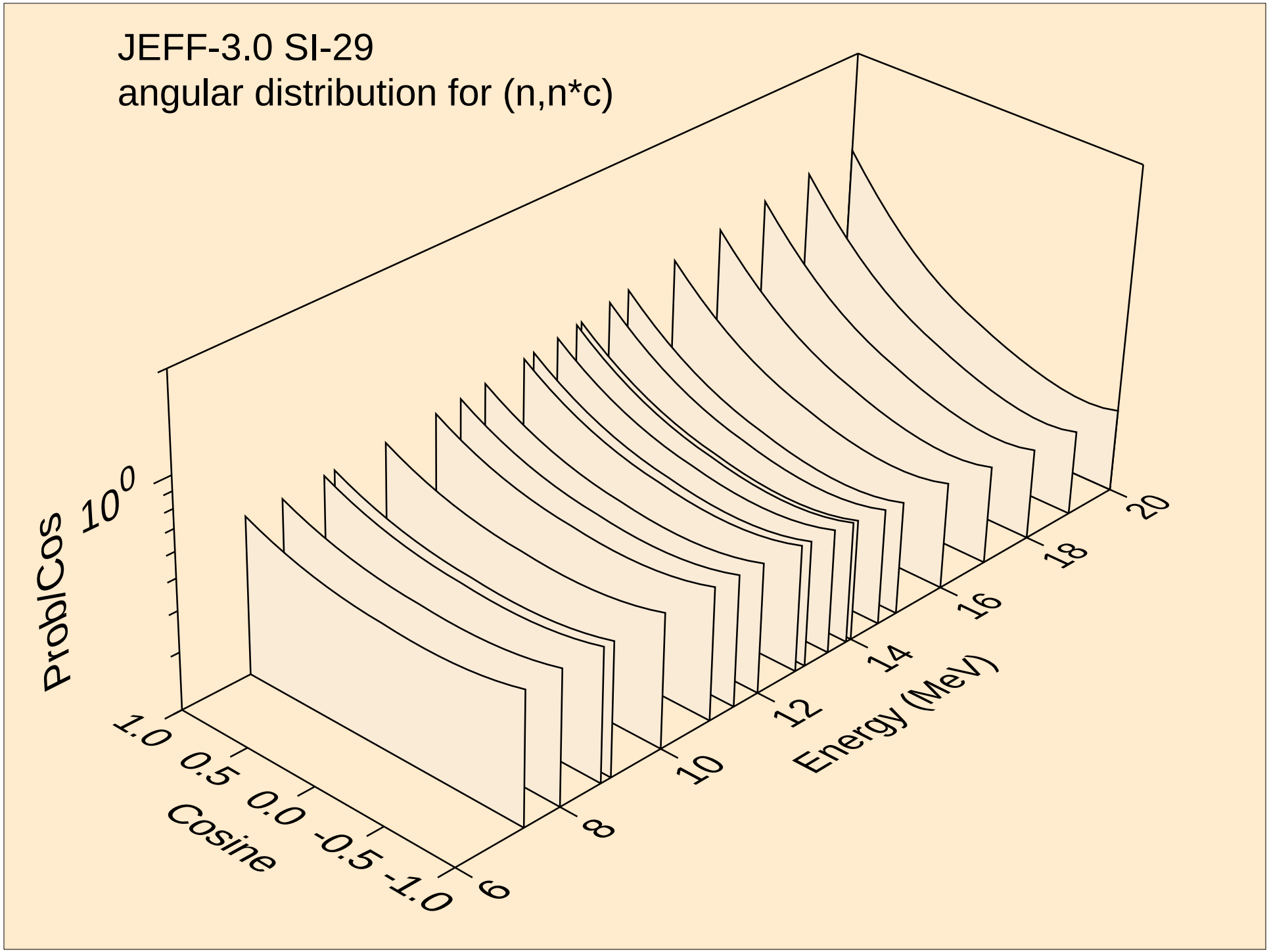

JEFF-3.0 SI-29
angular distribution for (n,n*25)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

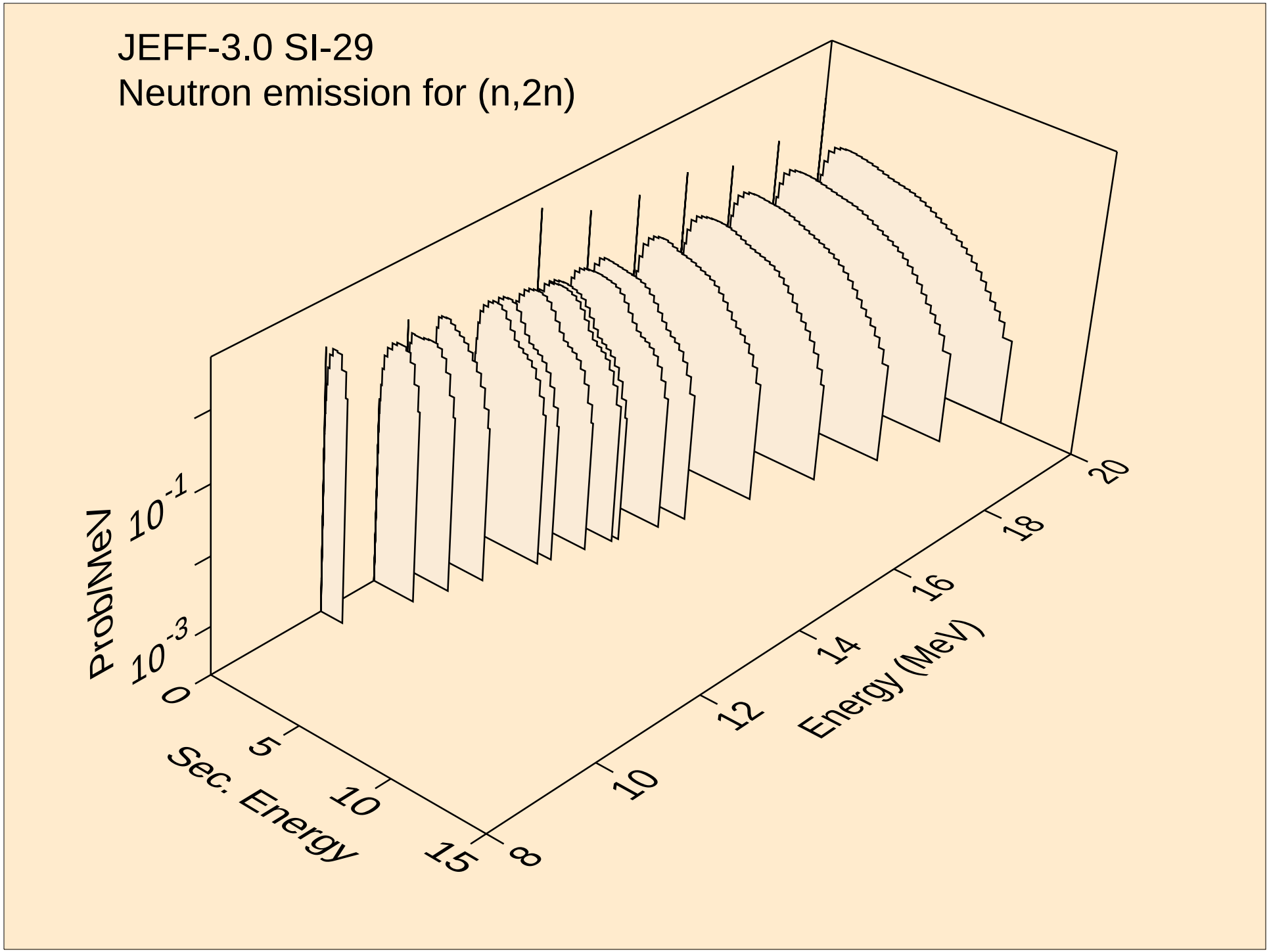

JEFF-3.0 SI-29
angular distribution for (n,n*26)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

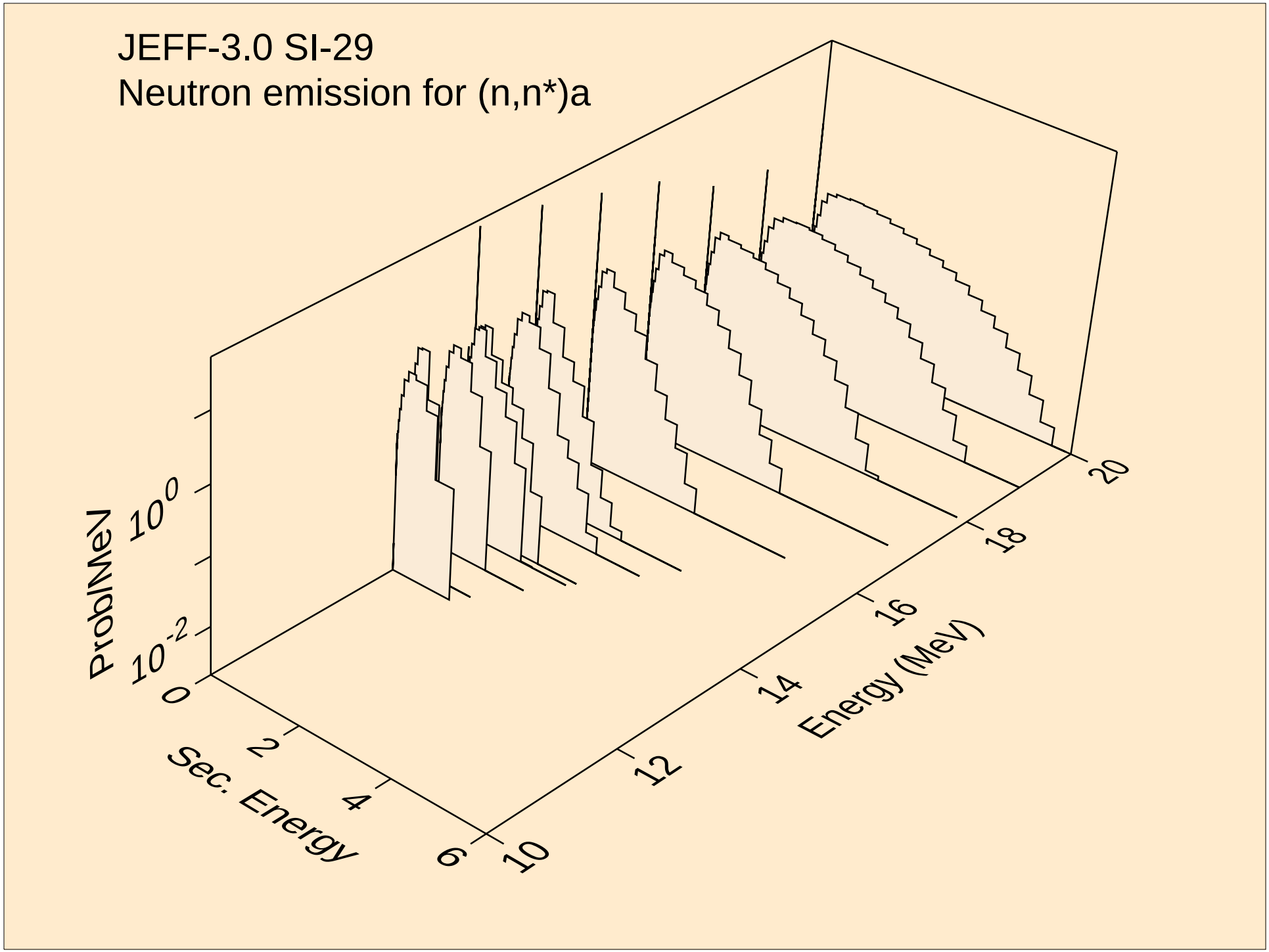

JEFF-3.0 SI-29
angular distribution for (n,n*27)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

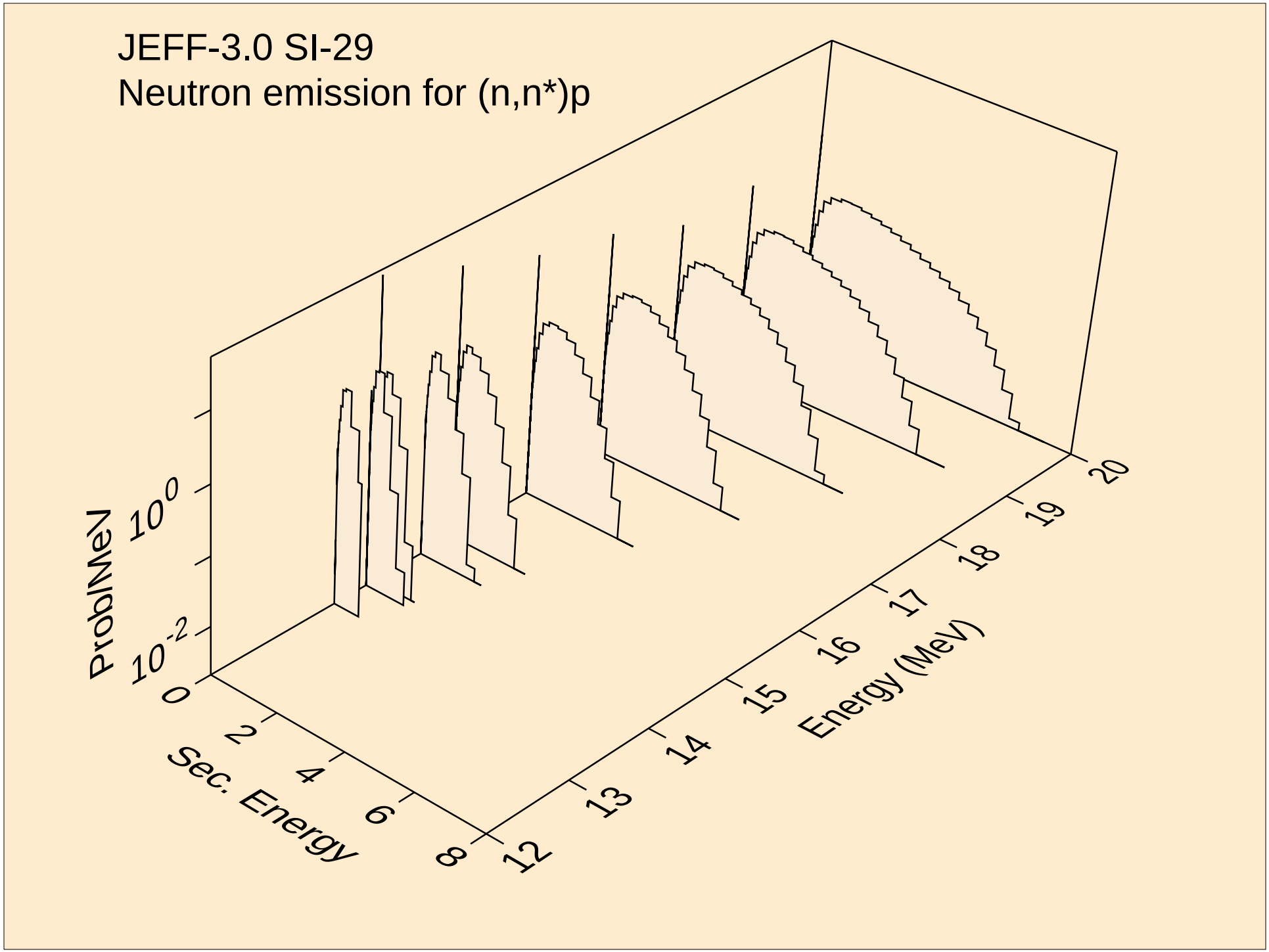

JEFF-3.0 SI-29
angular distribution for (n,n*28)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

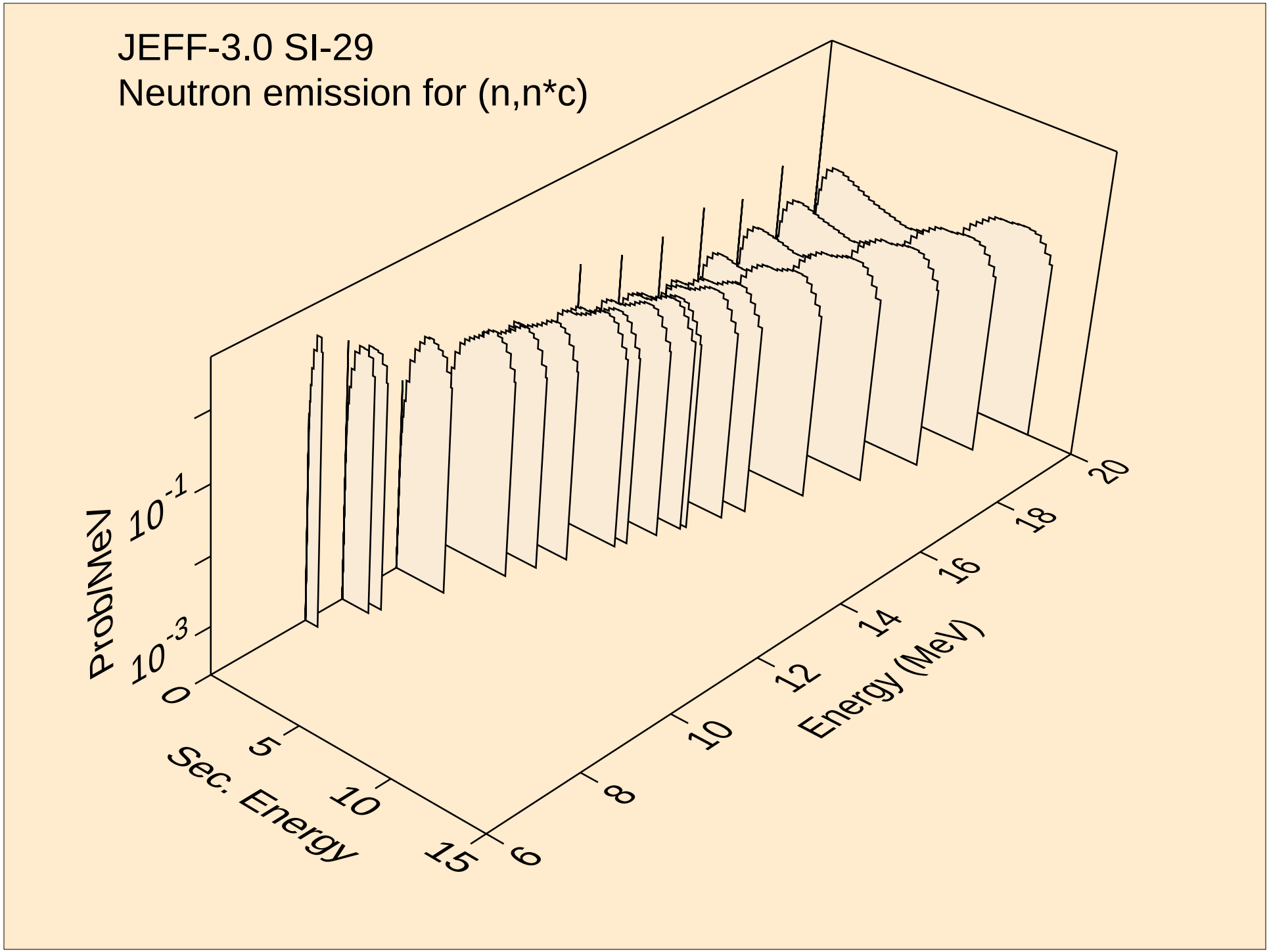

JEFF-3.0 SI-29
angular distribution for (n,n*29)
10^0
ProbICos
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

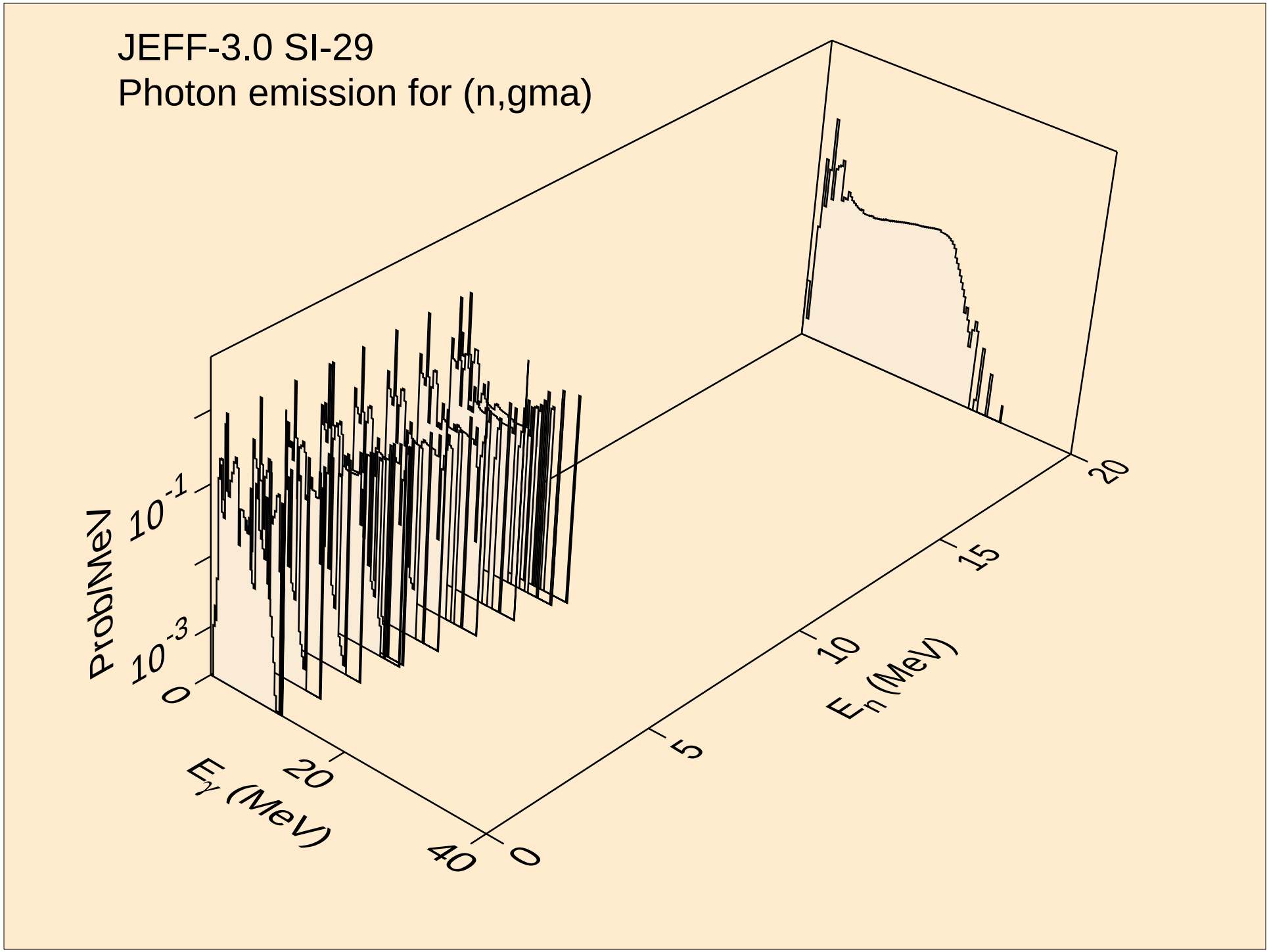

JEFF-3.0 SI-29
angular distribution for (n,n*c)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

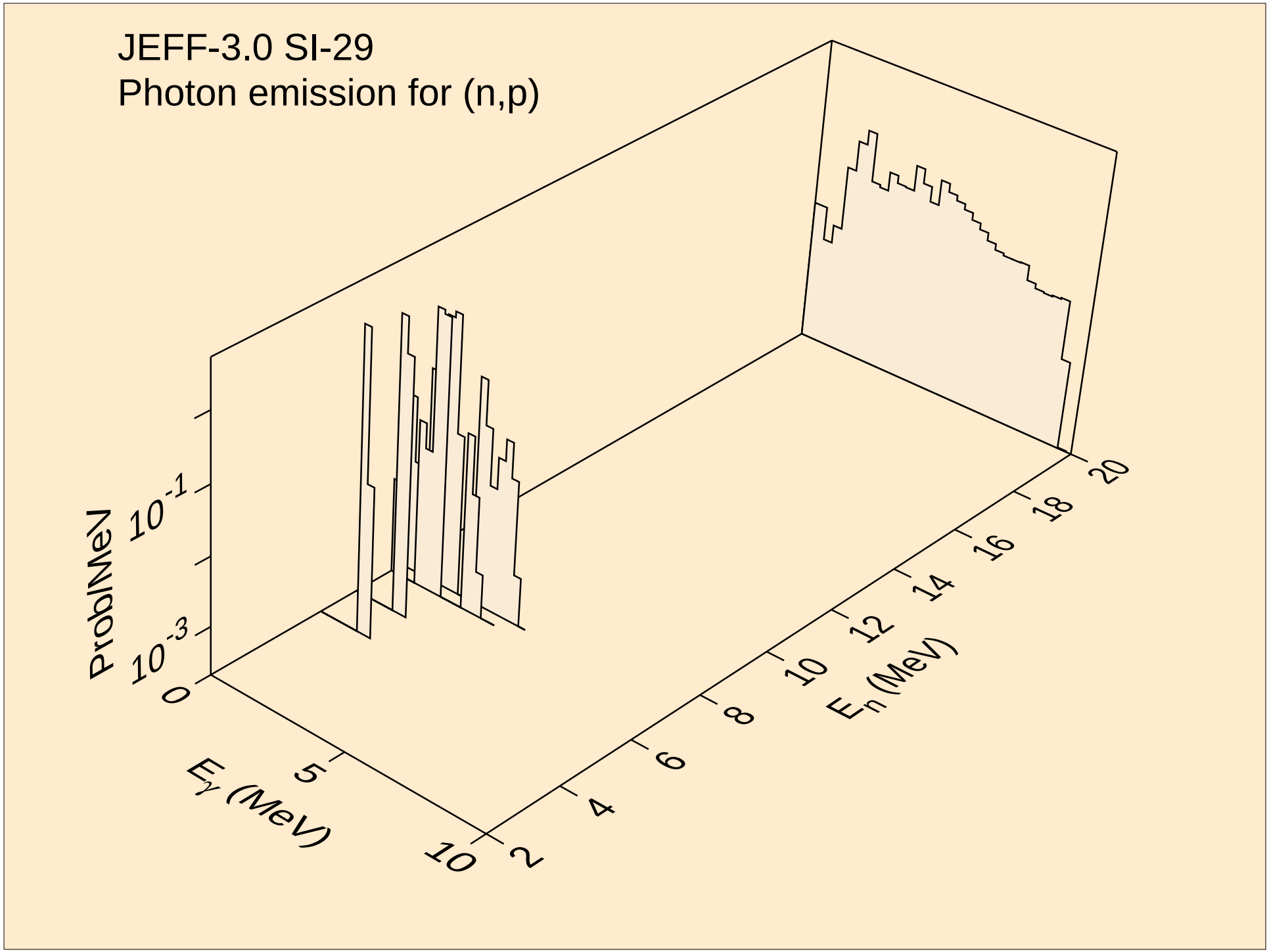

JEFF-3.0 SI-29
Neutron emission for (n,2n)
Prob/MeV
10-1
10-3
0
Sec. Energy
5
10
15
8
10
12
14
16
18
20
Energy (MeV)

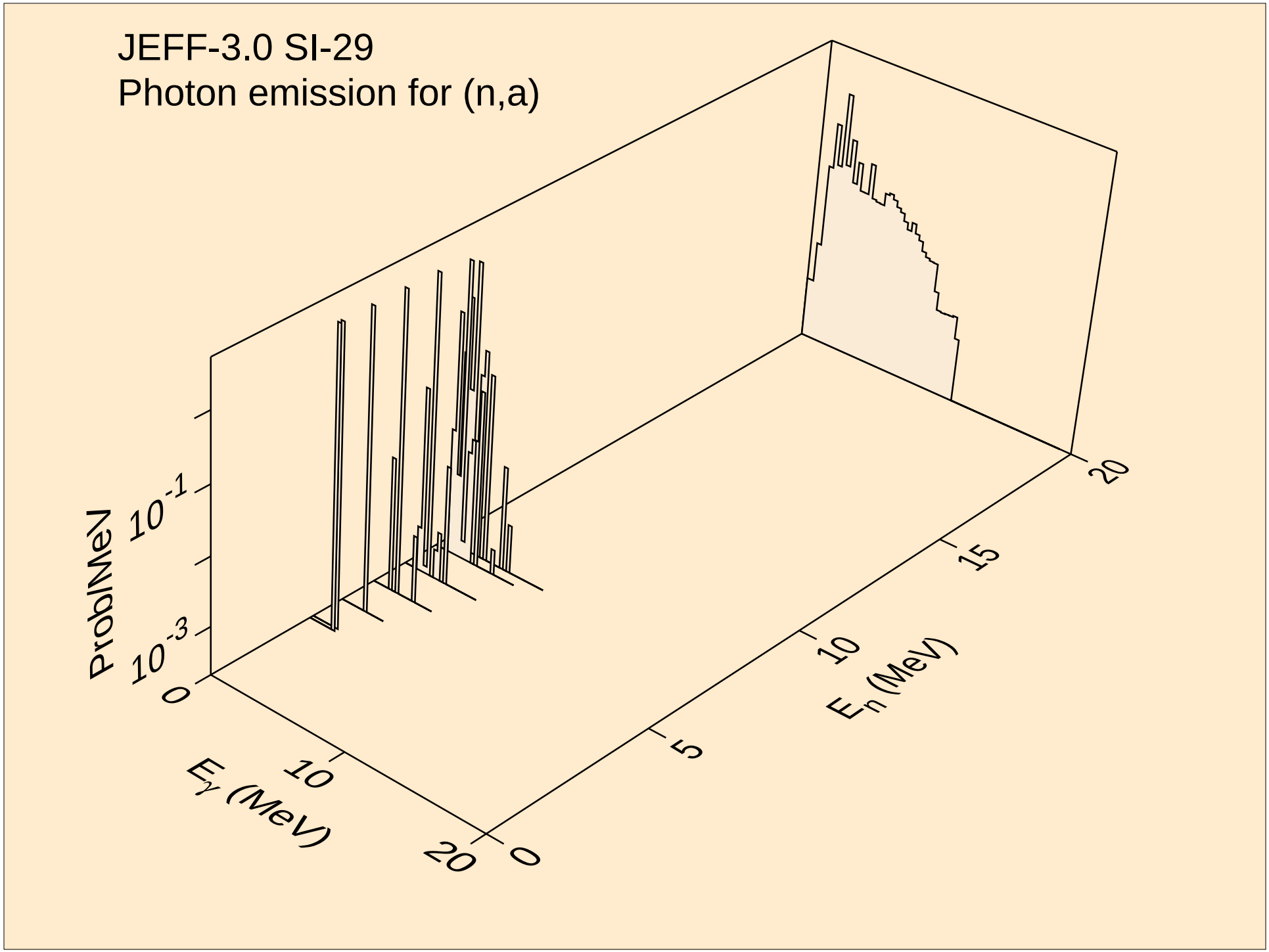

JEFF-3.0 SI-29
Neutron emission for (n,n*)a
Prob/MeV
10^{0}
10^{-2}
0
2
4
6
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

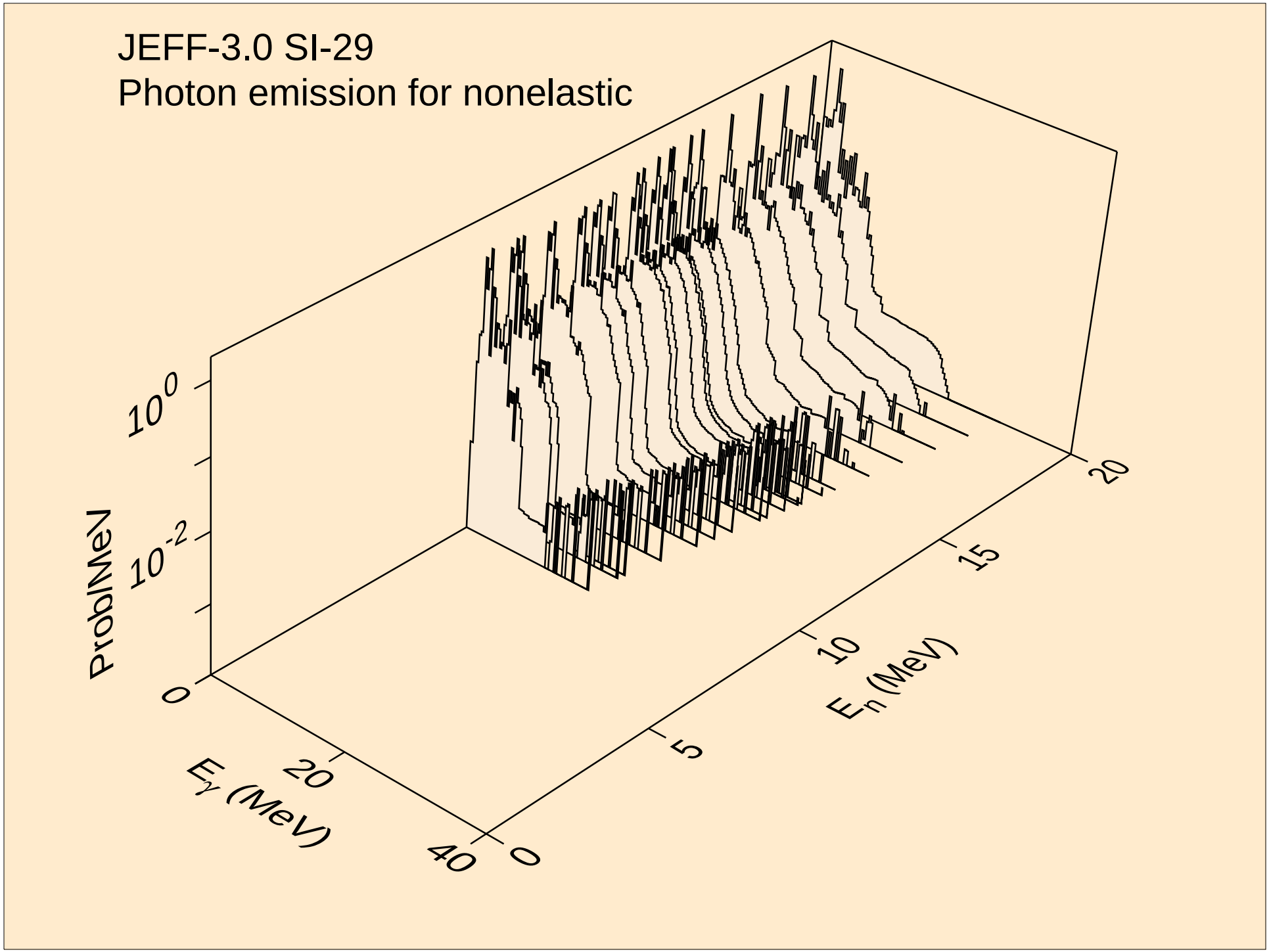

JEFF-3.0 SI-29
Neutron emission for (n,n*)p
Prob/MeV
10^{0}
10^{-2}
0
2
4
6
8
Sec. Energy
12
13
14
15
16
17
18
19
20
Energy (MeV)

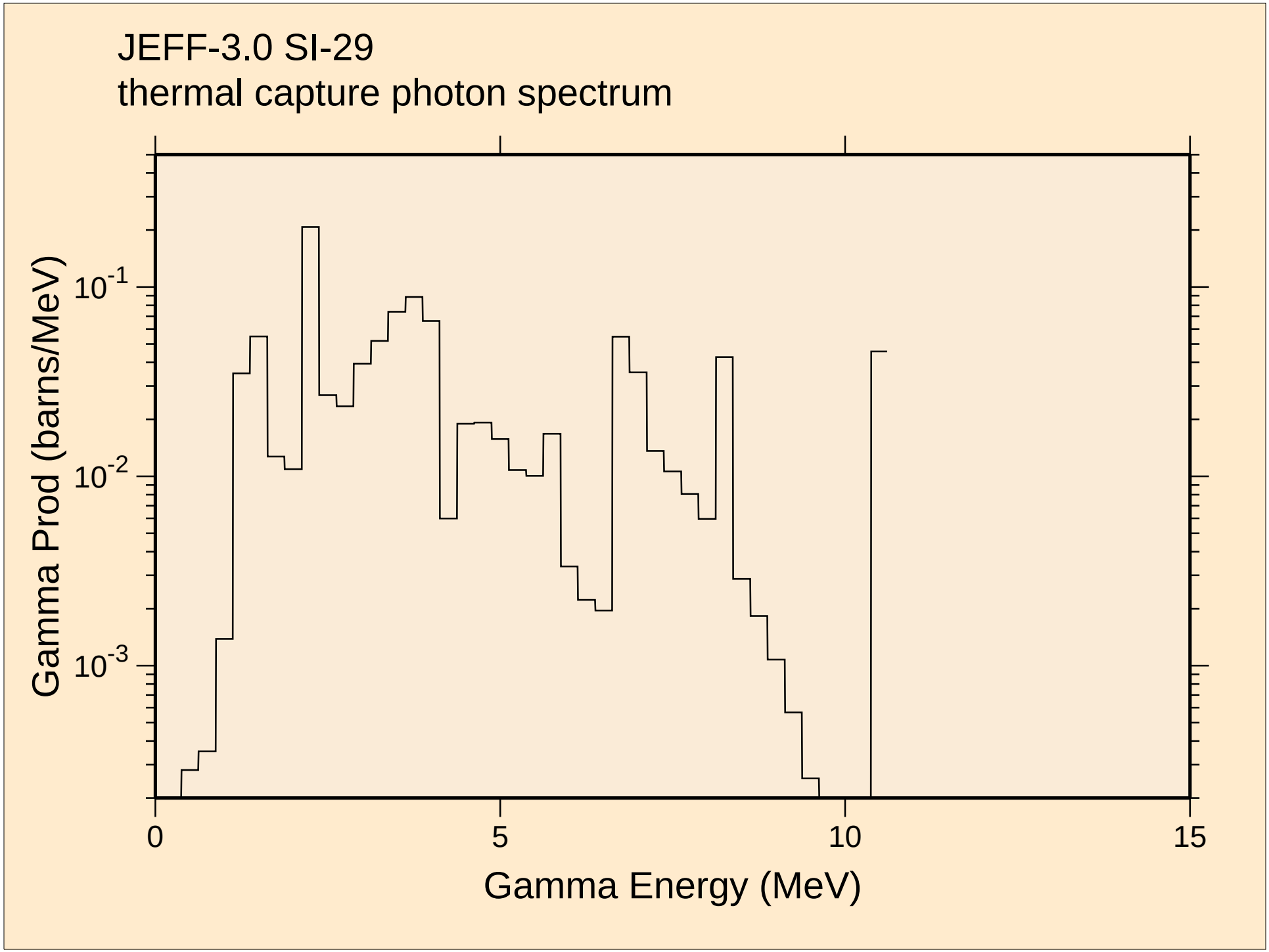

JEFF-3.0 SI-29
Neutron emission for (n,n*c)
Prob/MeV
10-1
10-3
0
Sec. Energy
5
10
15
6
8
10
12
14
16
18
20
Energy (MeV)

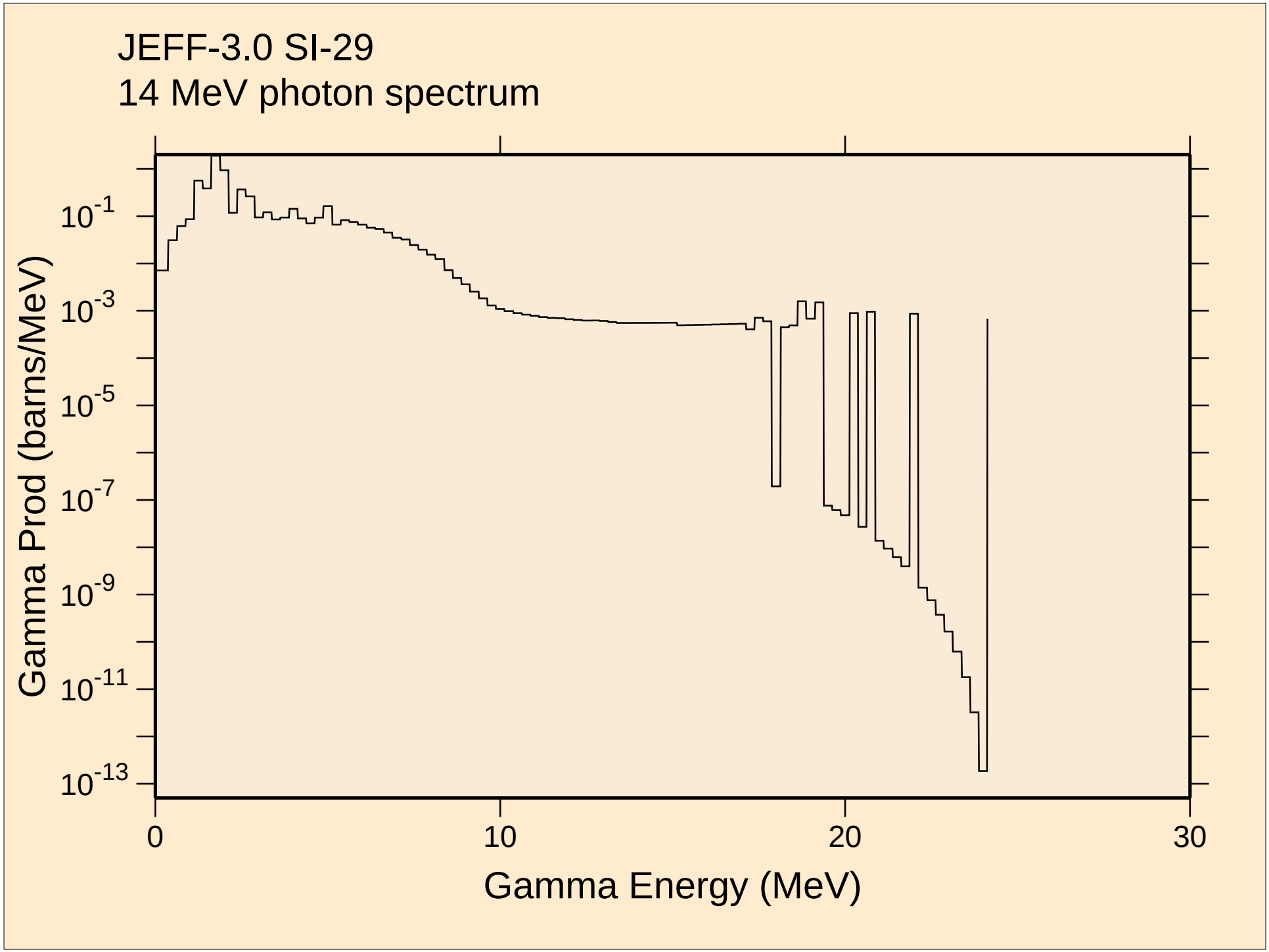

JEFF-3.0 SI-29
Photon emission for (n,gma)
Prob/MeV
10-1
10-3
0
Eγ (MeV)
20
40
0
5
10
15
20
En (MeV)


JEFF-3.0 SI-29
Photon emission for (n,p)
Prob/MeV
10-1
10-3
0
Eγ (MeV)
5
10
2
4
6
8
10
12
14
16
18
20
En (MeV)


JEFF-3.0 SI-29
Photon emission for (n,a)
Prob/MeV
10-1
10-3
0
10
20
Eγ (MeV)
0
5
10
15
20
En (MeV)


JEFF-3.0 SI-29
Photon emission for nonelastic
Prob/MeV
10^{0}
10^{-2}
0
20
40
E_γ (MeV)
0
5
10
15
20
E_n (MeV)


JEFF-3.0 SI-29
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10-1
10-2
10-3
0
5
10
15
Gamma Energy (MeV)


JEFF-3.0 SI-29
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10-1
10-3
10-5
10-7
10-9
10-11
10-13
0
10
20
30
Gamma Energy (MeV)