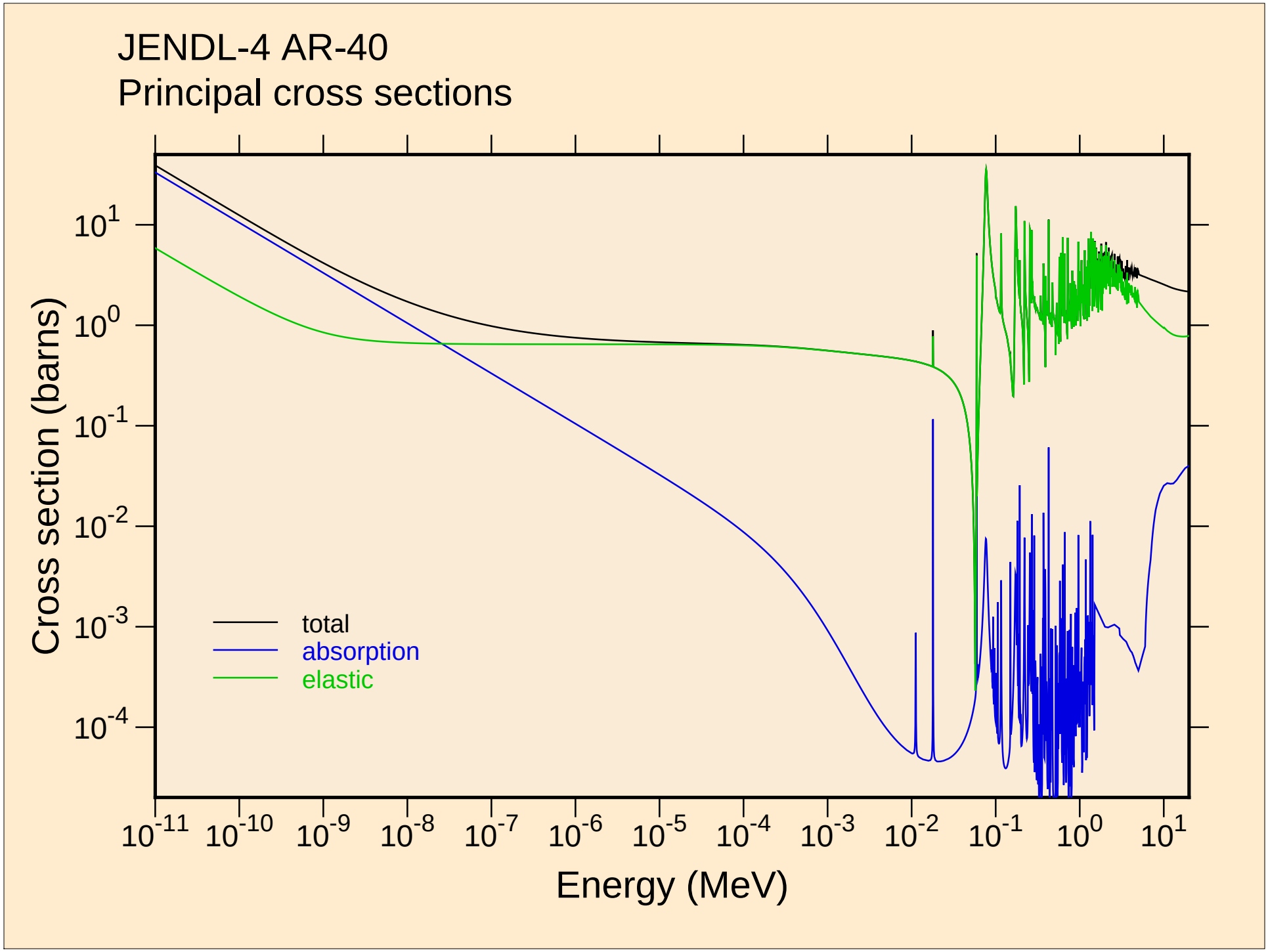
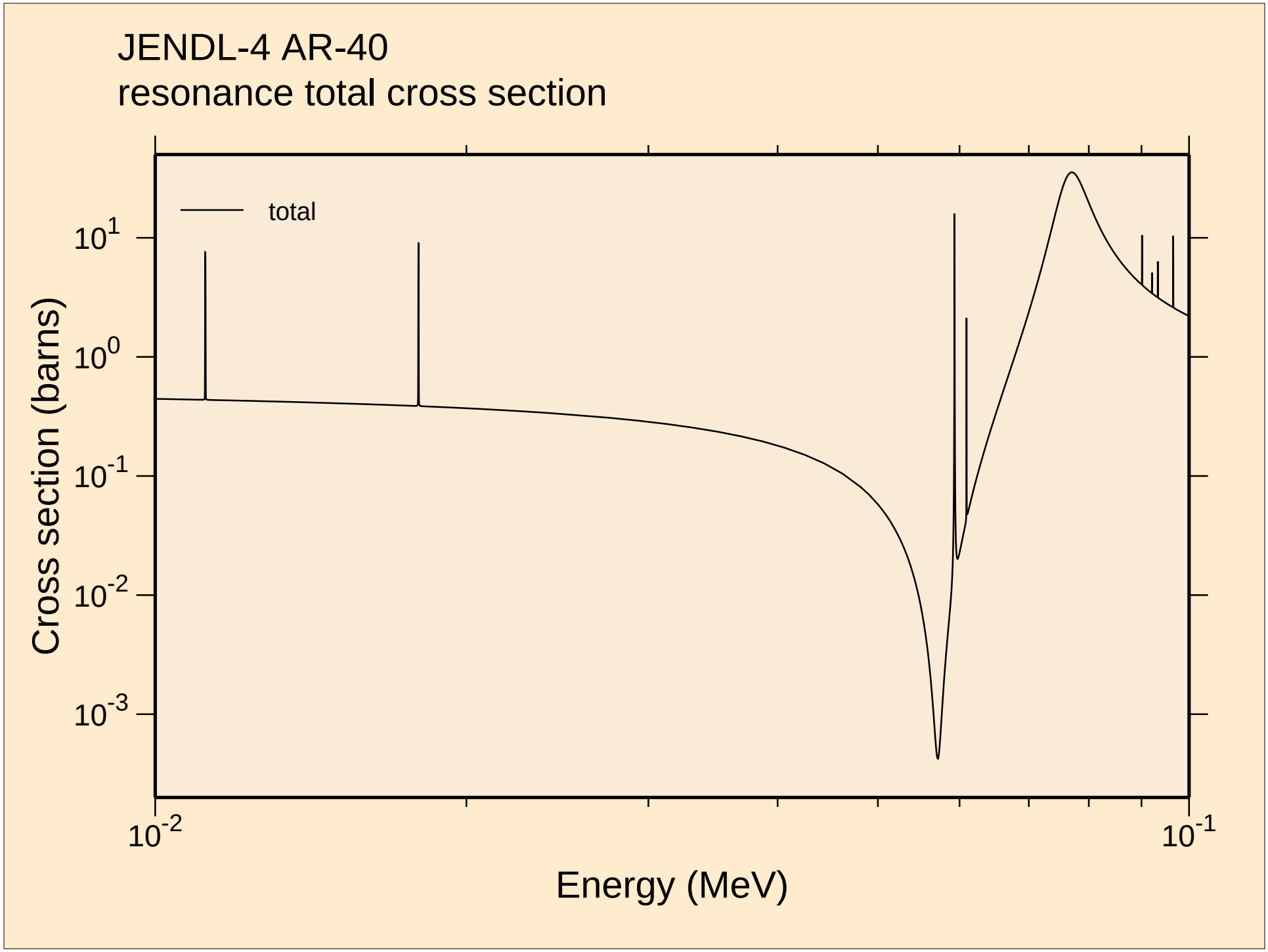
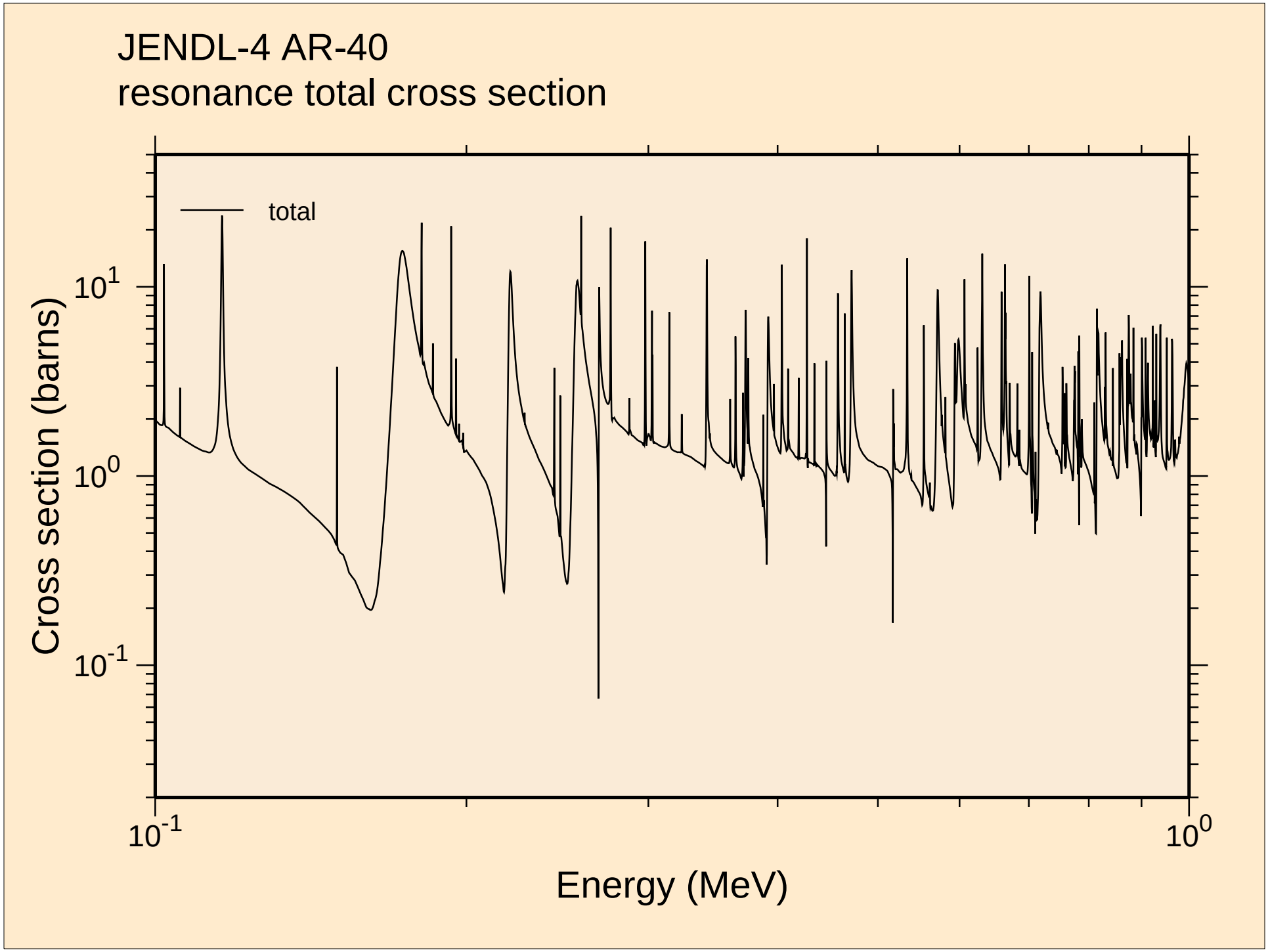
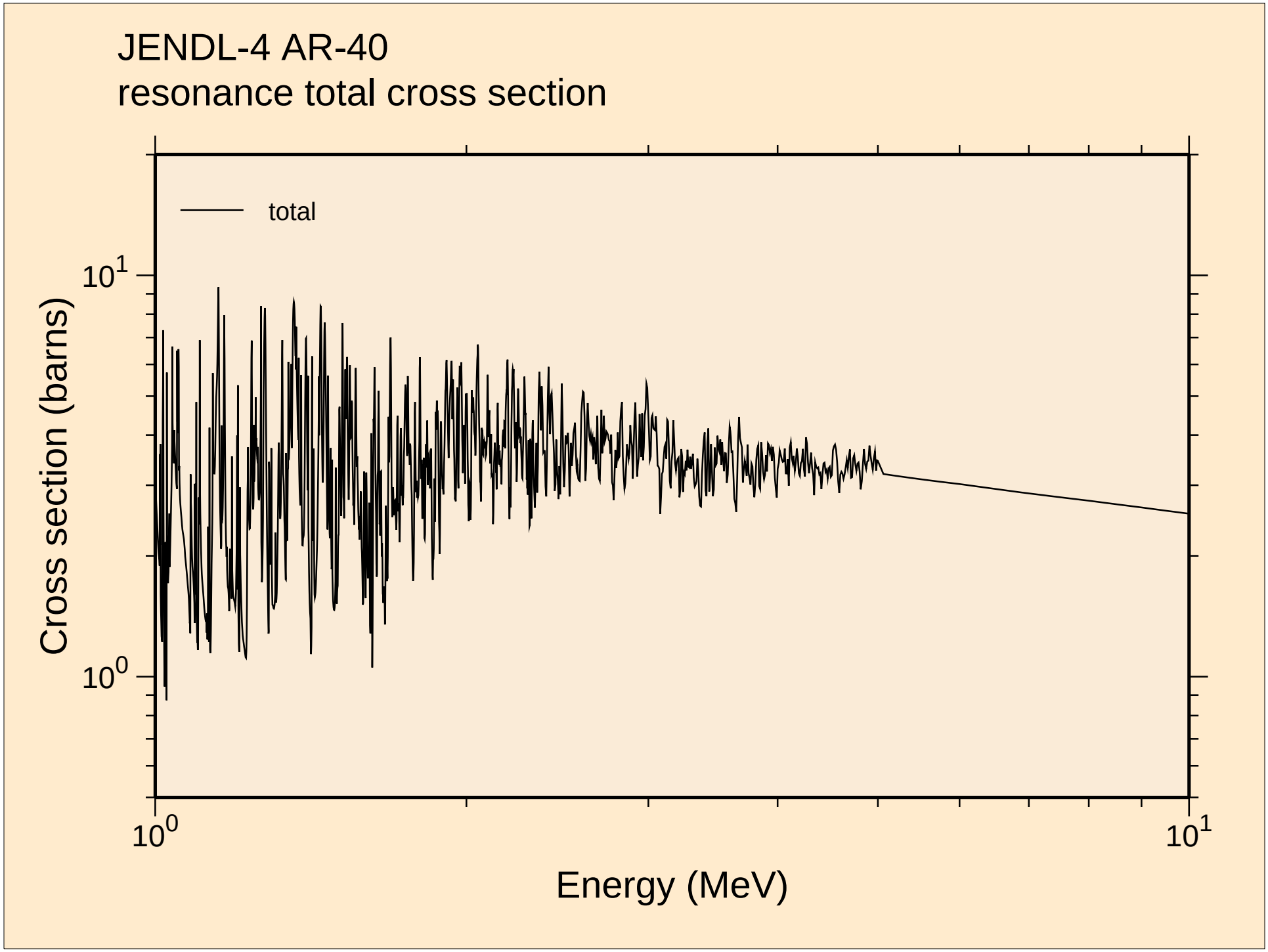
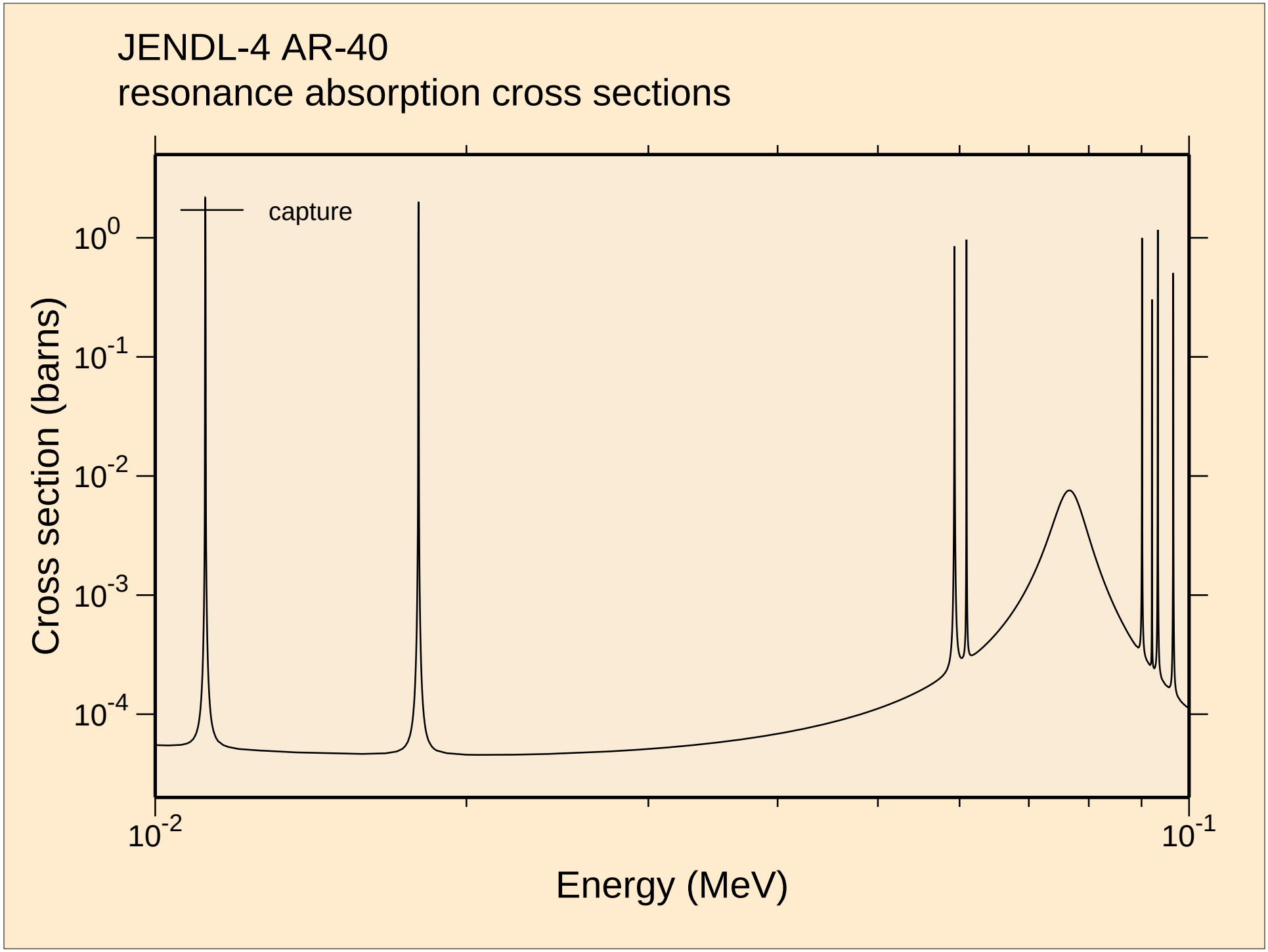
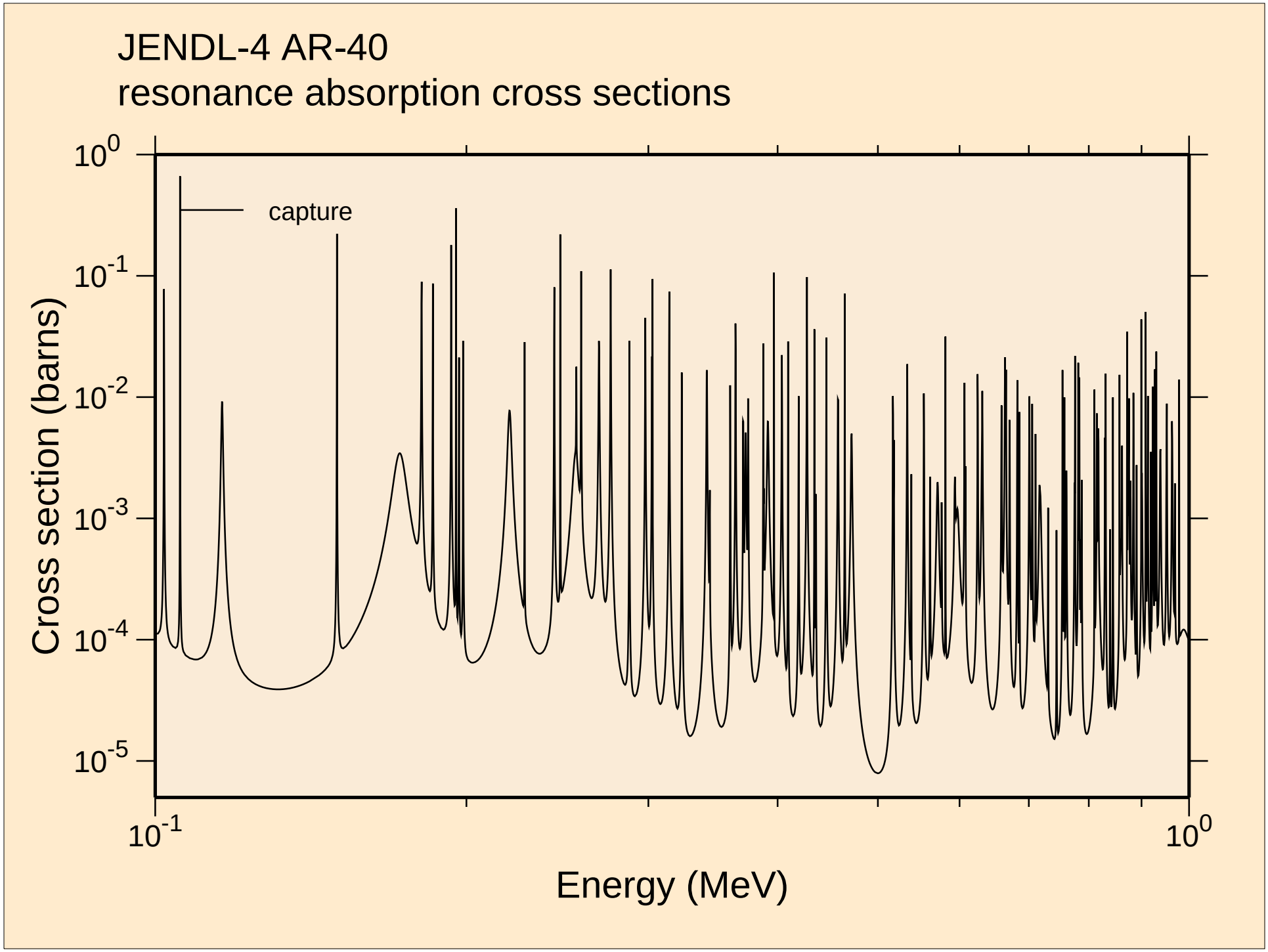

JENDL-4 AR-40
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

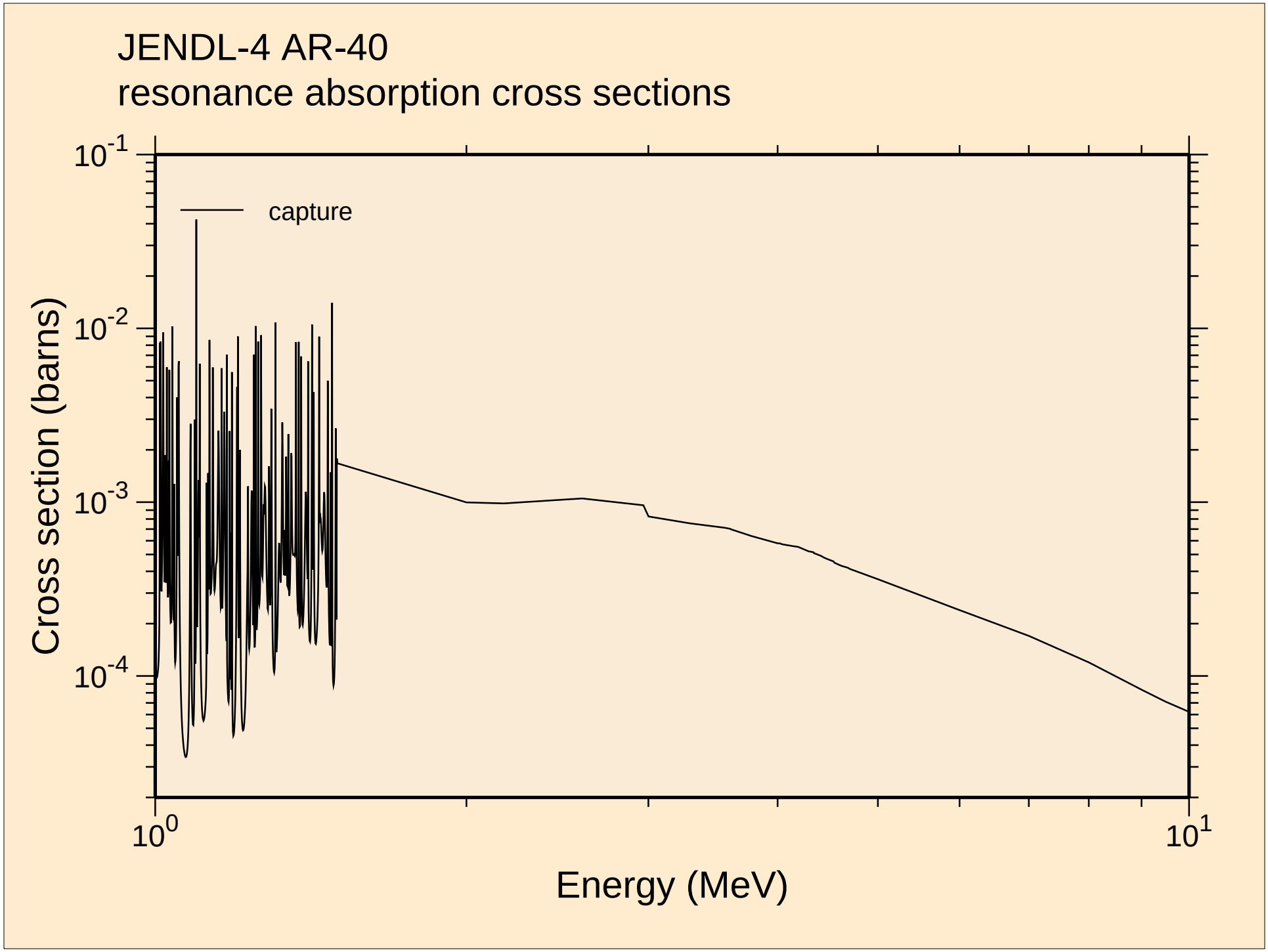

JENDL-4 AR-40
resonance total cross section
total
Cross section (barns)
10^1
10^0
10^-1
10^-2
10^-3
10^-2
10^-1
Energy (MeV)

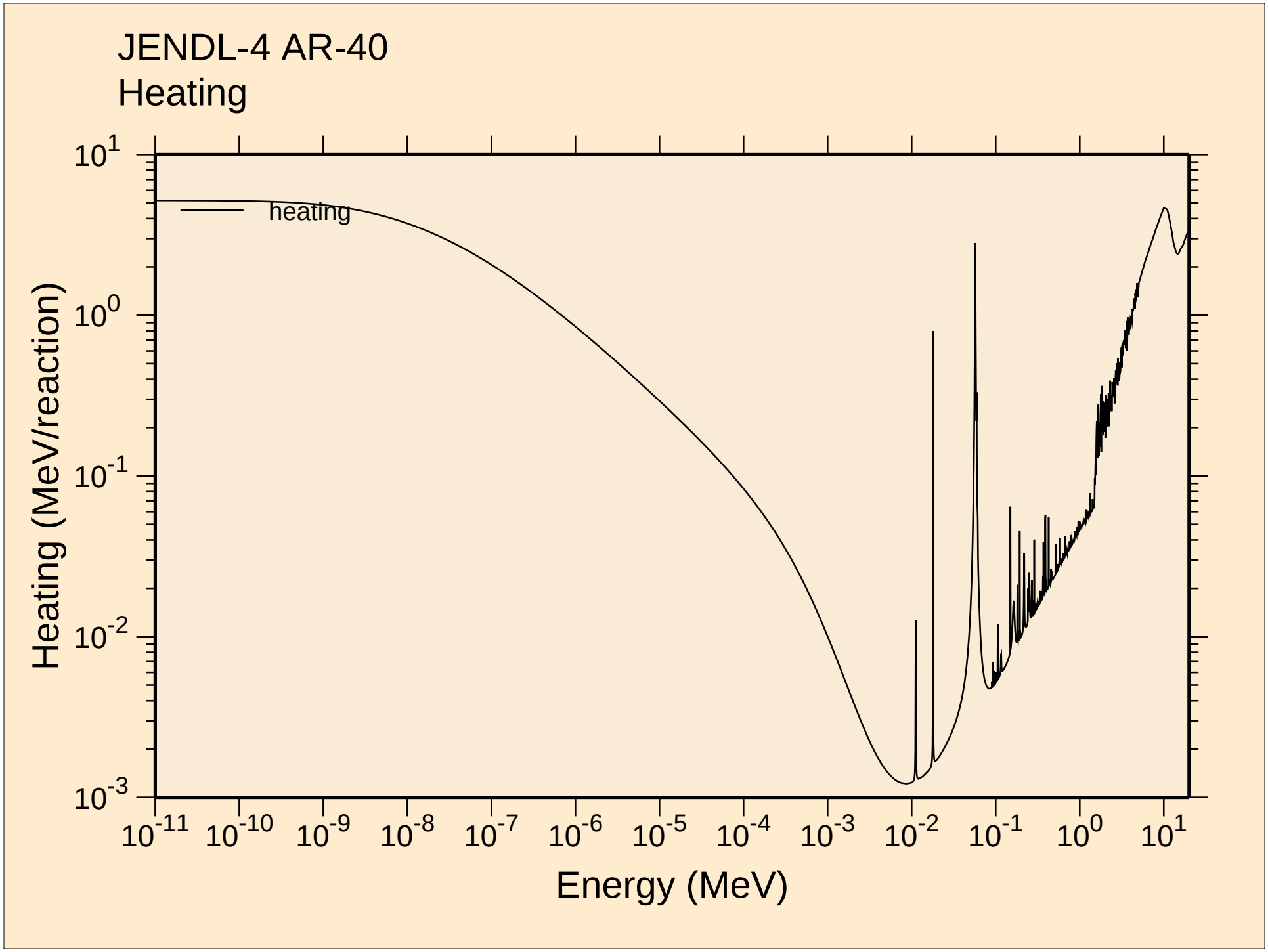

JENDL-4 AR-40
resonance total cross section
total
Cross section (barns)
10^{1}
10^{0}
10^{-1}
10^{-1}
10^{0}
Energy (MeV)

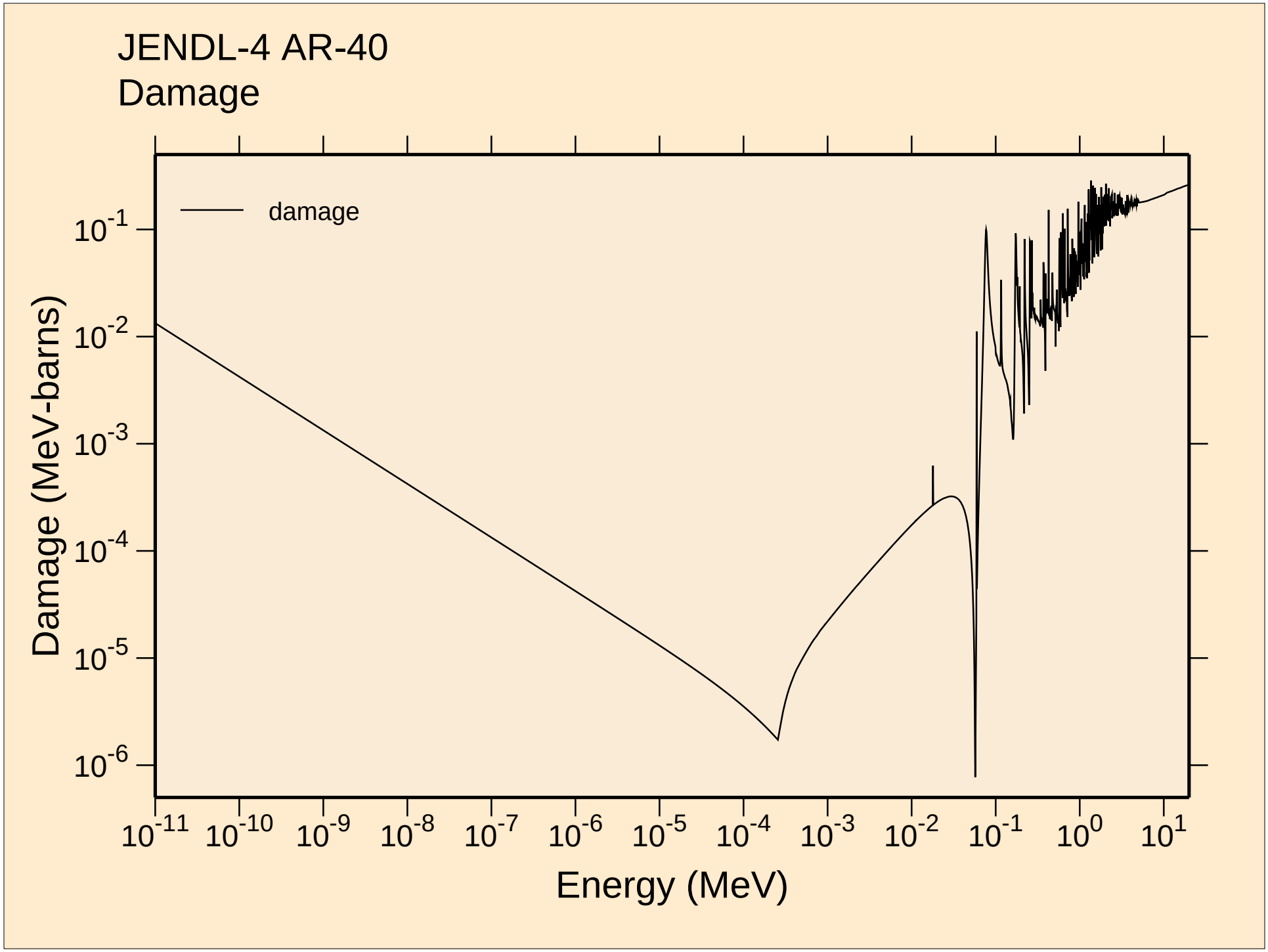

JENDL-4 AR-40
resonance total cross section
total
Cross section (barns)
10^1
10^0
10^0
10^1
Energy (MeV)

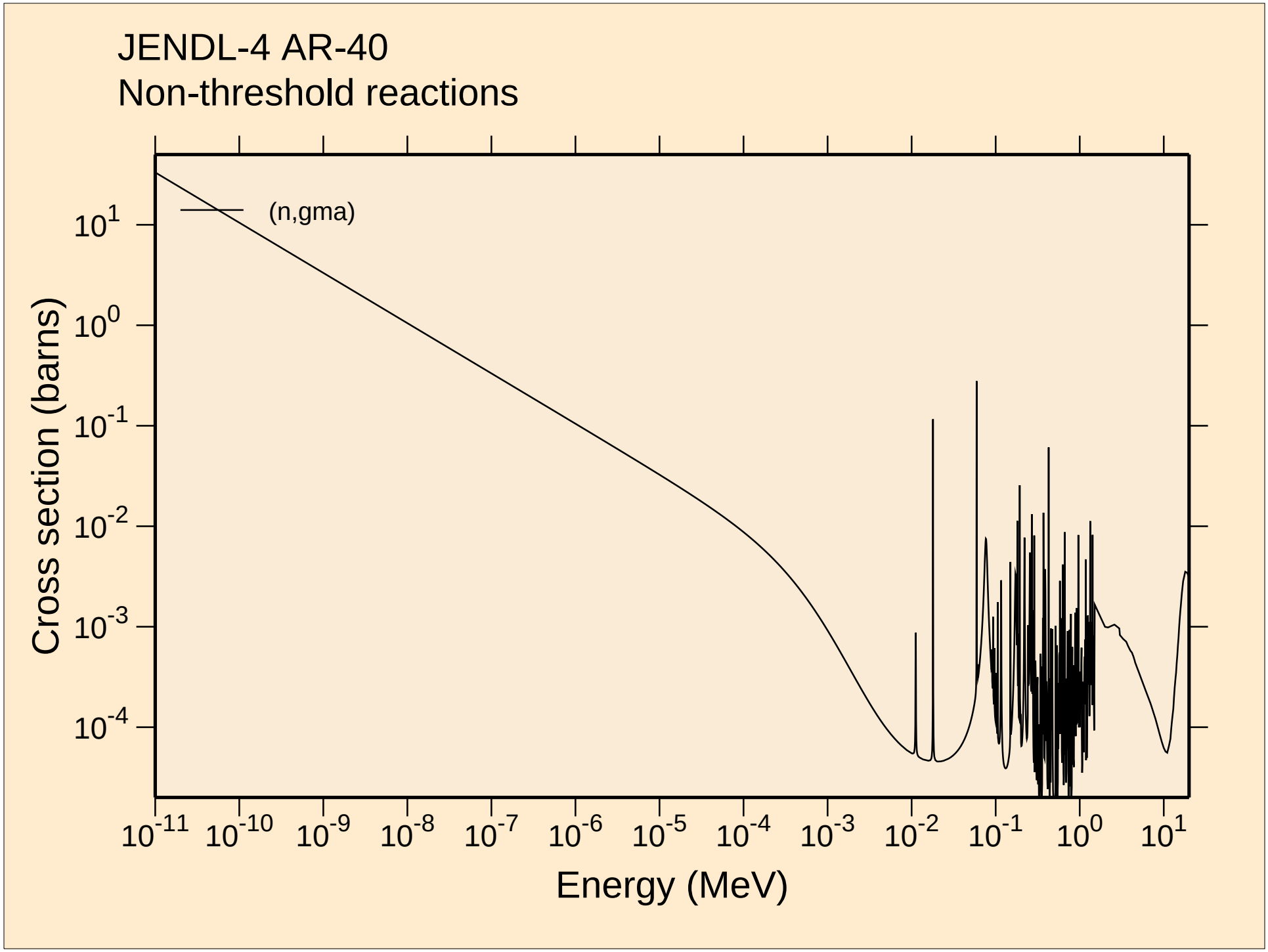

JENDL-4 AR-40
resonance absorption cross sections
capture
Cross section (barns)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-2}
10^{-1}
Energy (MeV)

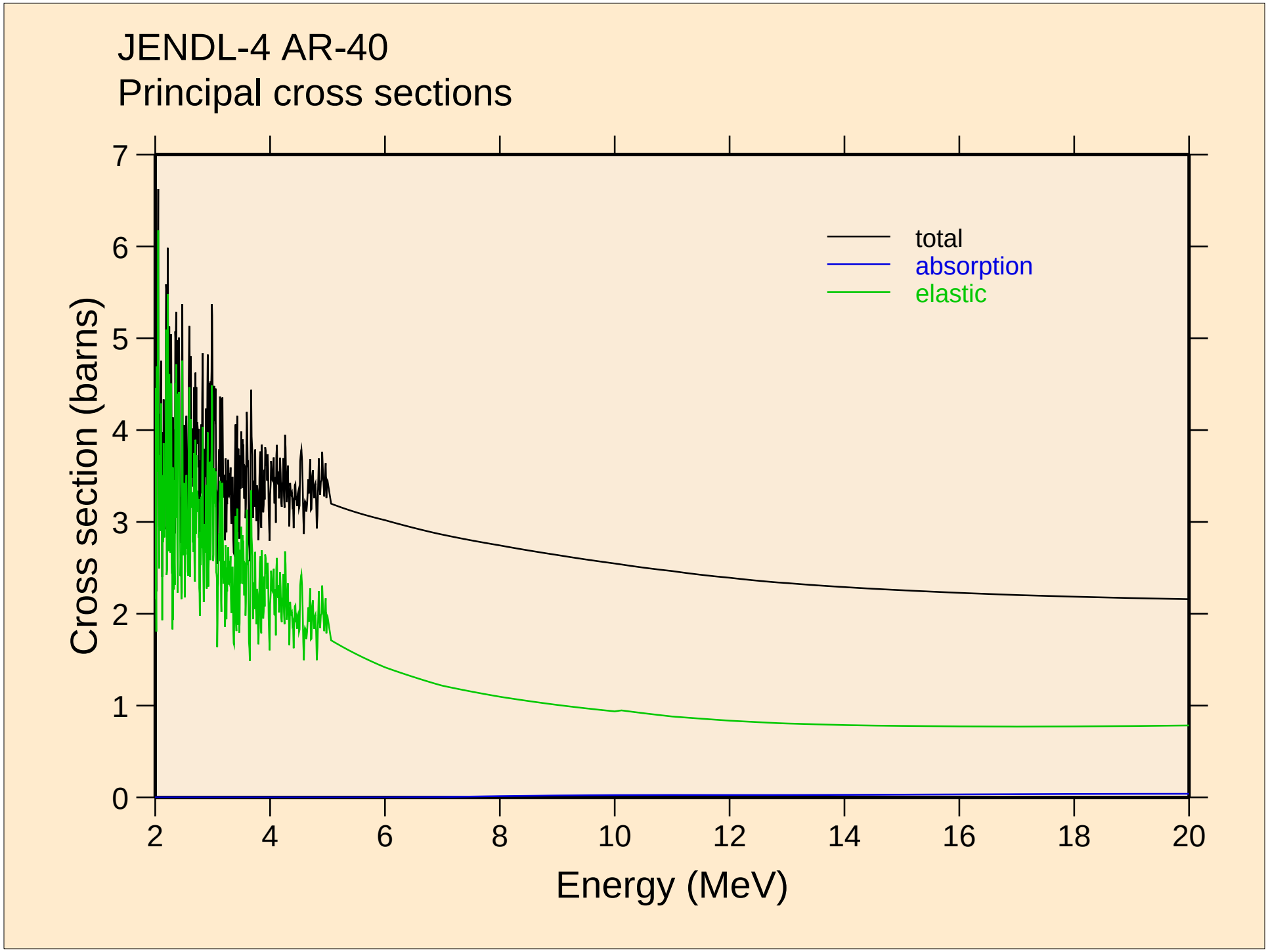

JENDL-4 AR-40
resonance absorption cross sections
capture
Cross section (barns)
Energy (MeV)
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-5}
10^{-1}
10^{0}

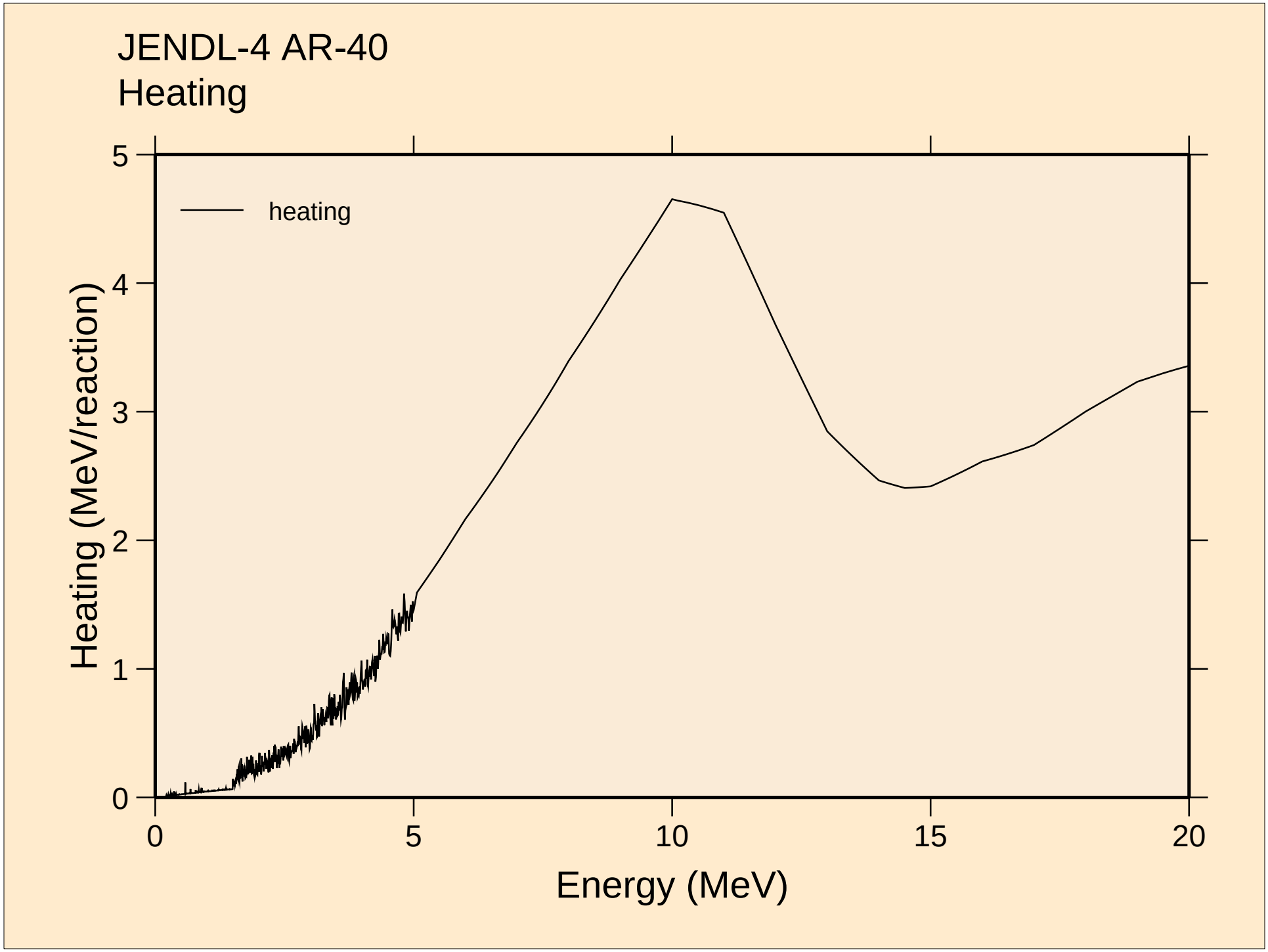

JENDL-4 AR-40
resonance absorption cross sections
capture
Cross section (barns)
10-1
10-2
10-3
10-4
100
101
Energy (MeV)

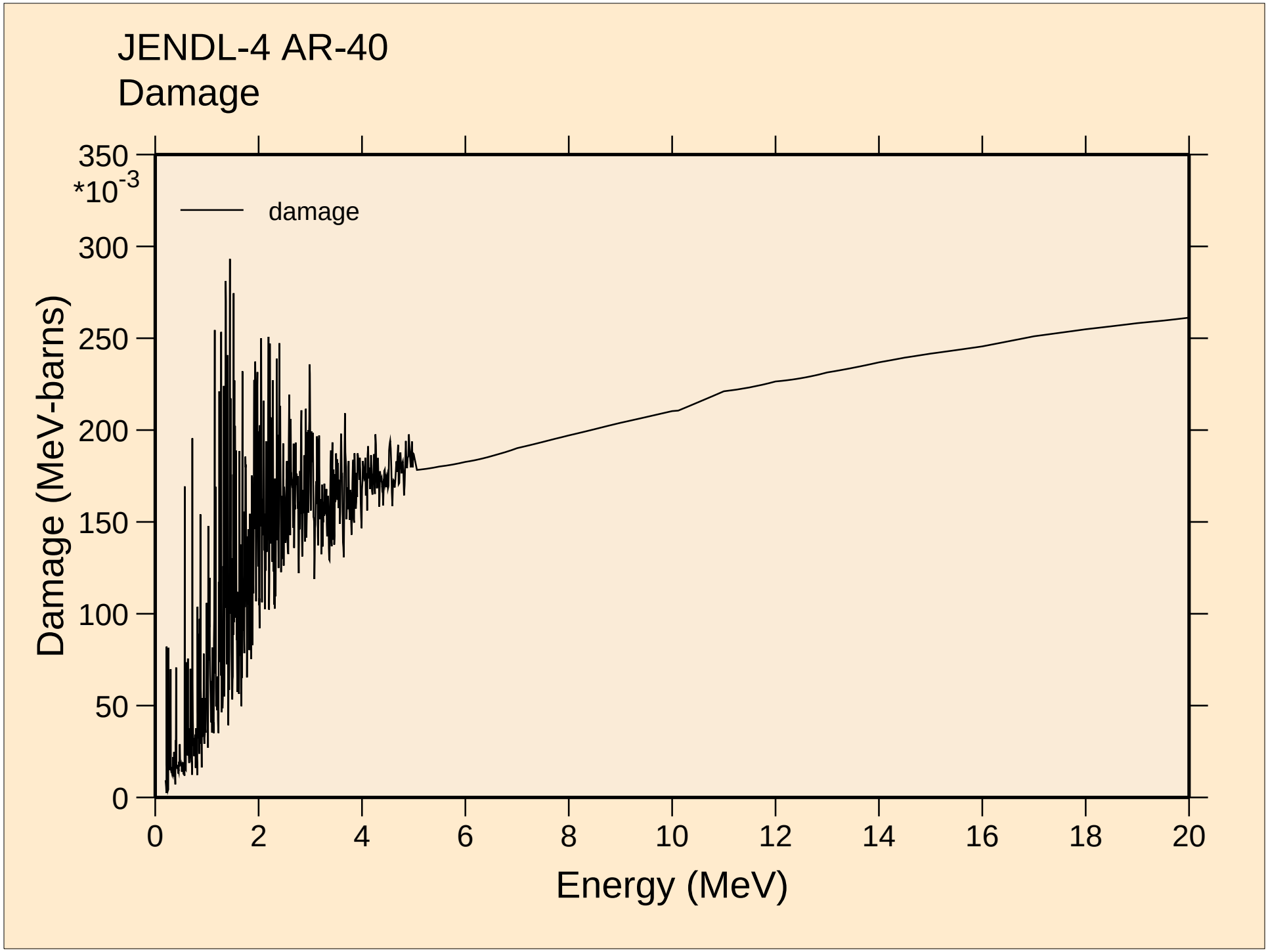

JENDL-4 AR-40
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-11} 10^{-10} 10^{-9} 10^{-8} 10^{-7} 10^{-6} 10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1}

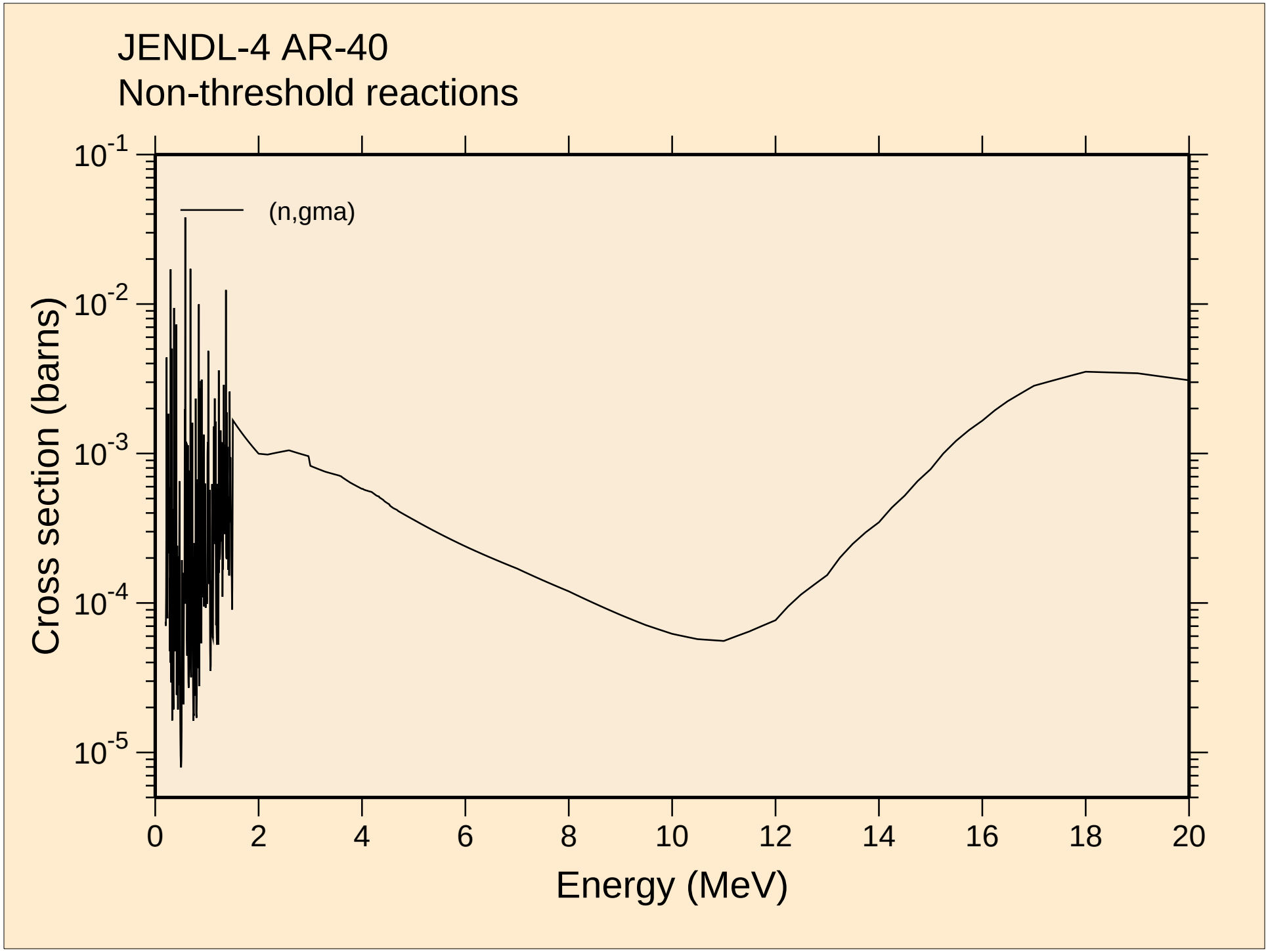

JENDL-4 AR-40
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10-1
10-2
10-3
10-4
10-5
10-6
10-11
10-10
10-9
10-8
10-7
10-6
10-5
10-4
10-3
10-2
10-1
100
101

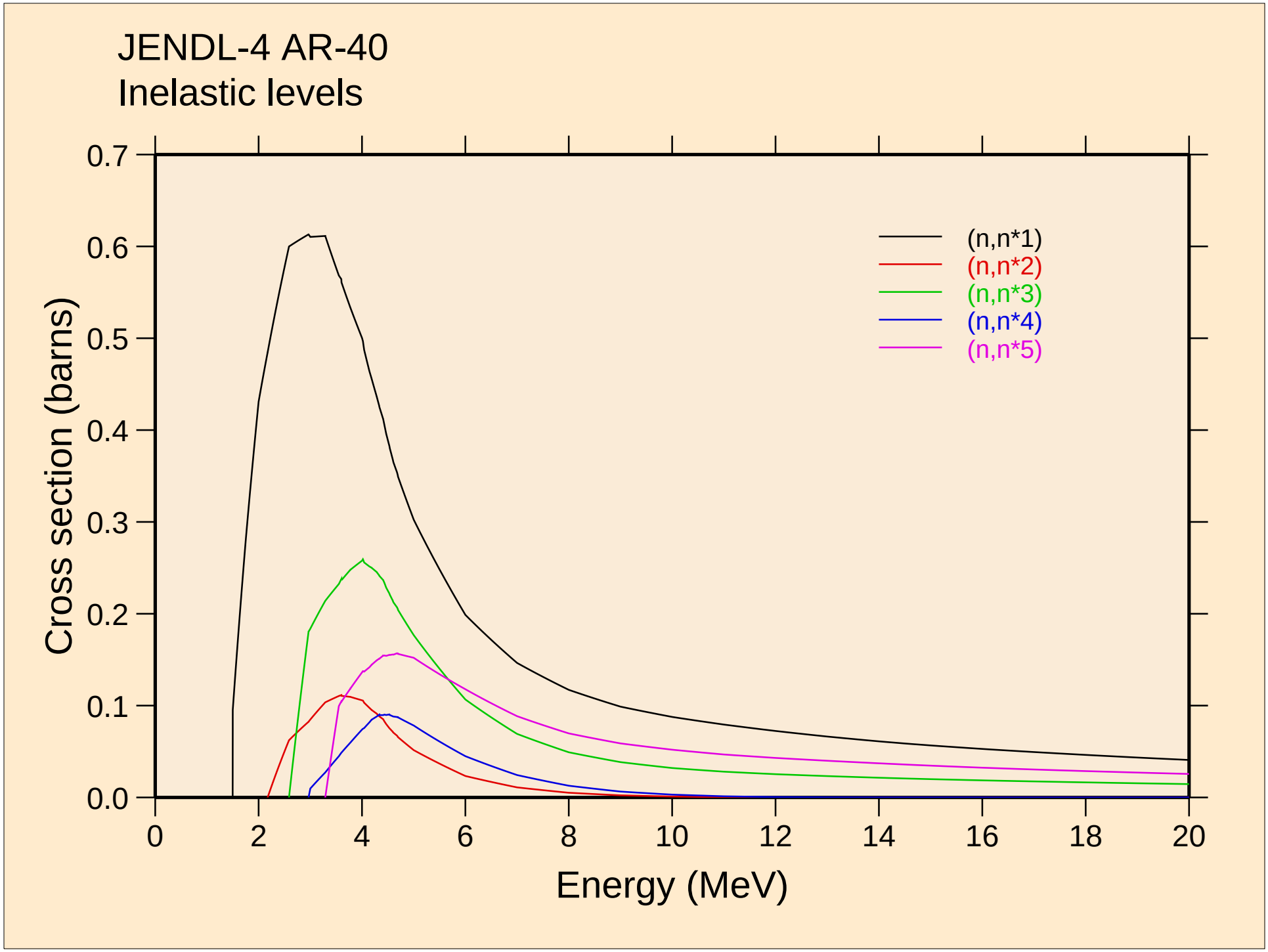

JENDL-4 AR-40
Non-threshold reactions
(n,gma)
Cross section (barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-10
10^-9
10^-8
10^-7
10^-6
10^-5
10^-4
10^-3
10^-2
10^-1
10^0
10^1

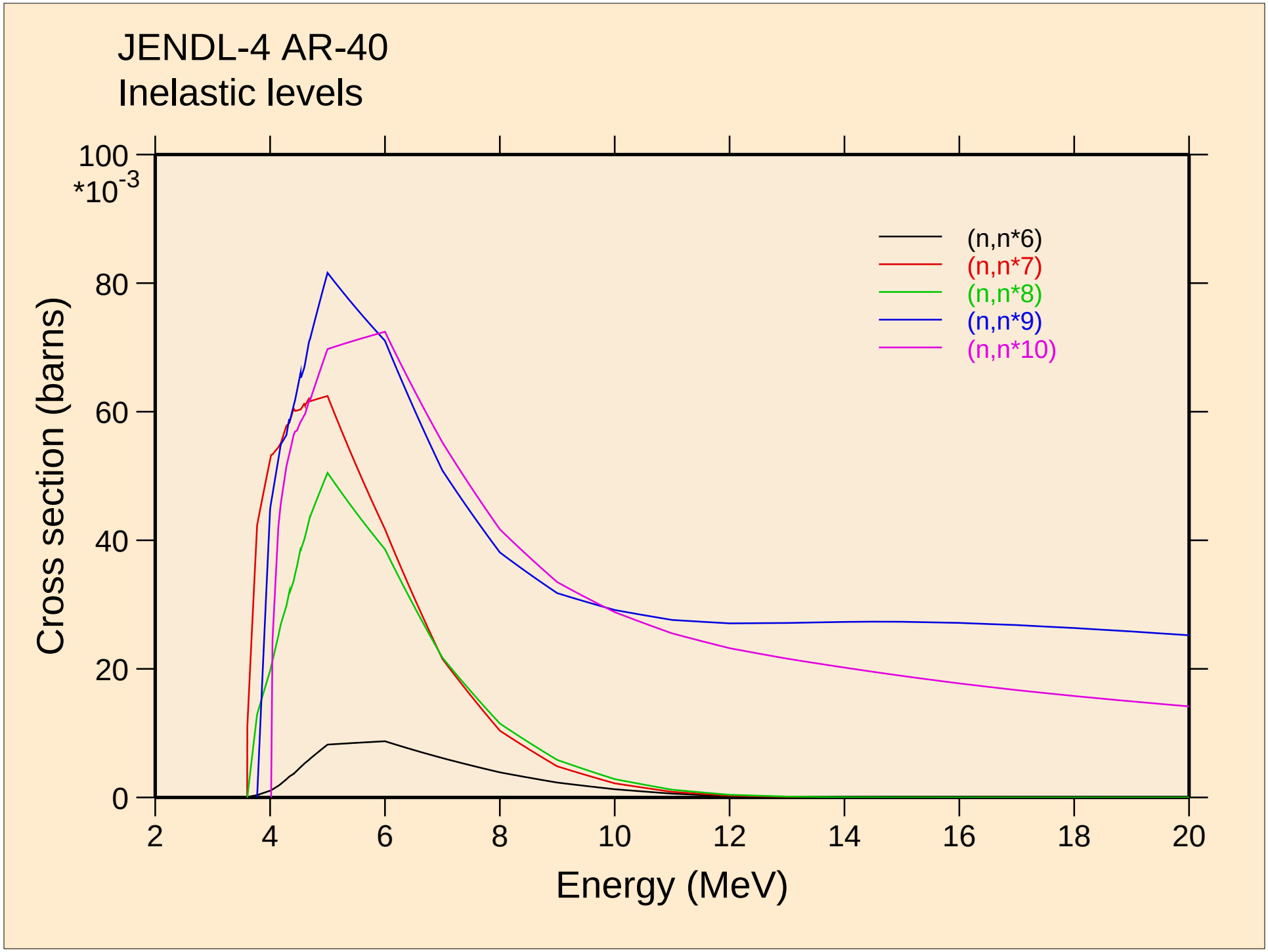

JENDL-4 AR-40
Principal cross sections
total
absorption
elastic
Cross section (barns)
Energy (MeV)
0
1
2
3
4
5
6
7
2
4
6
8
10
12
14
16
18
20

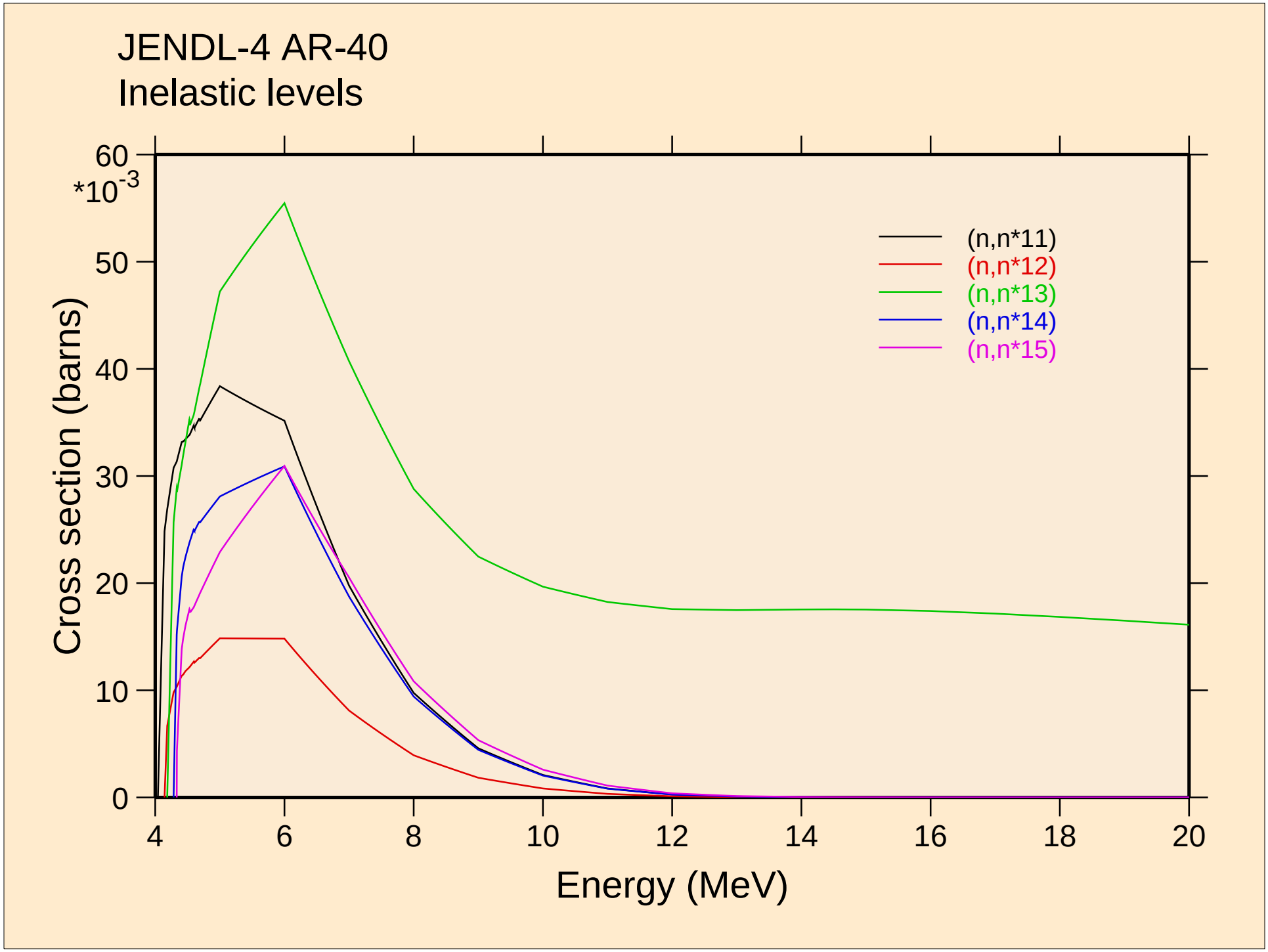

JENDL-4 AR-40
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
1
2
3
4
5
0
5
10
15
20

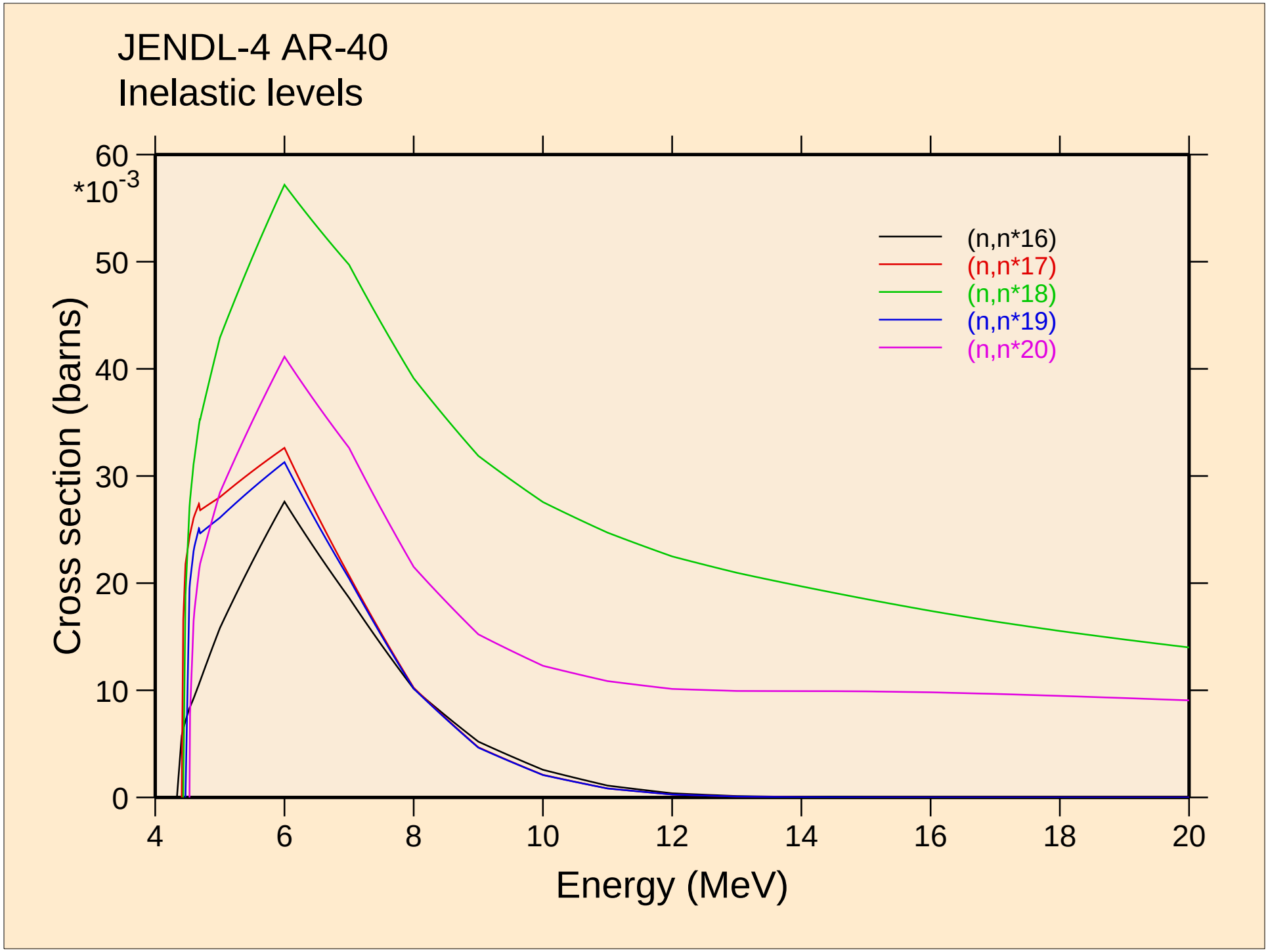

JENDL-4 AR-40
Damage
damage
*10-3
350
300
250
200
150
100
50
0
Damage (MeV-barns)
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

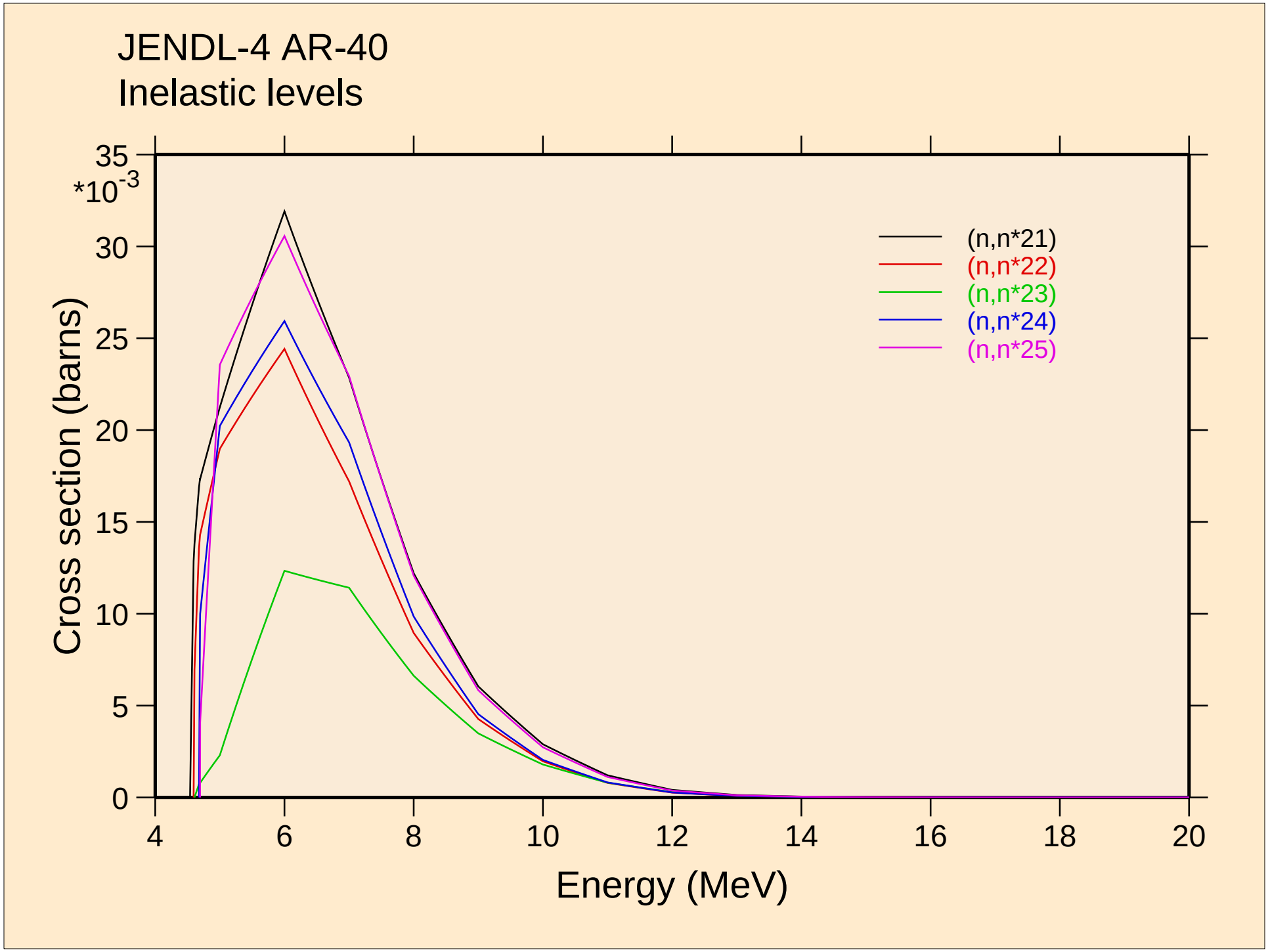

JENDL-4 AR-40
Non-threshold reactions
(n,gma)
Cross section (barns)
Energy (MeV)
10-1
10-2
10-3
10-4
10-5
0
2
4
6
8
10
12
14
16
18
20

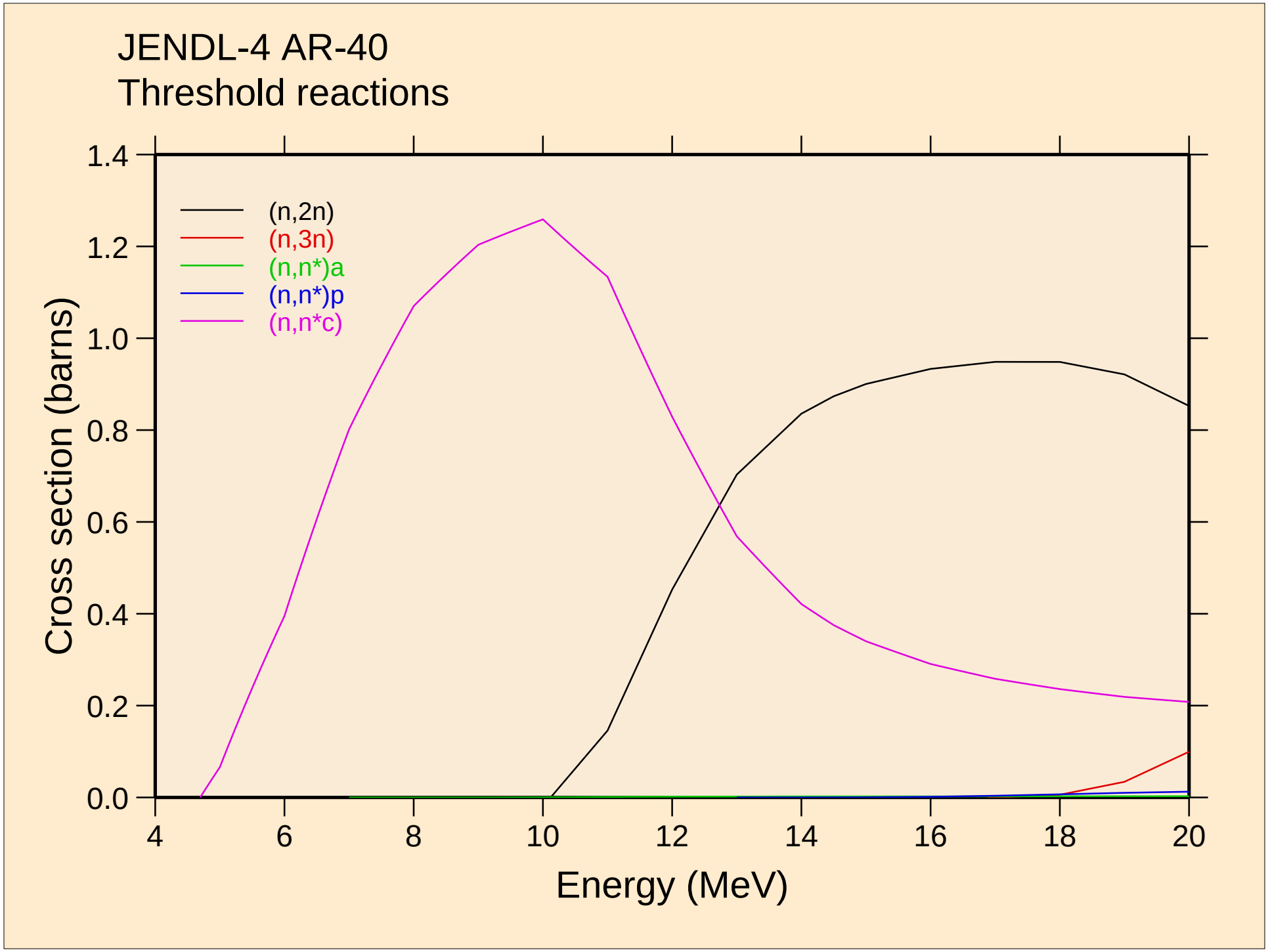

JENDL-4 AR-40
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
2
4
6
8
10
12
14
16
18
20
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

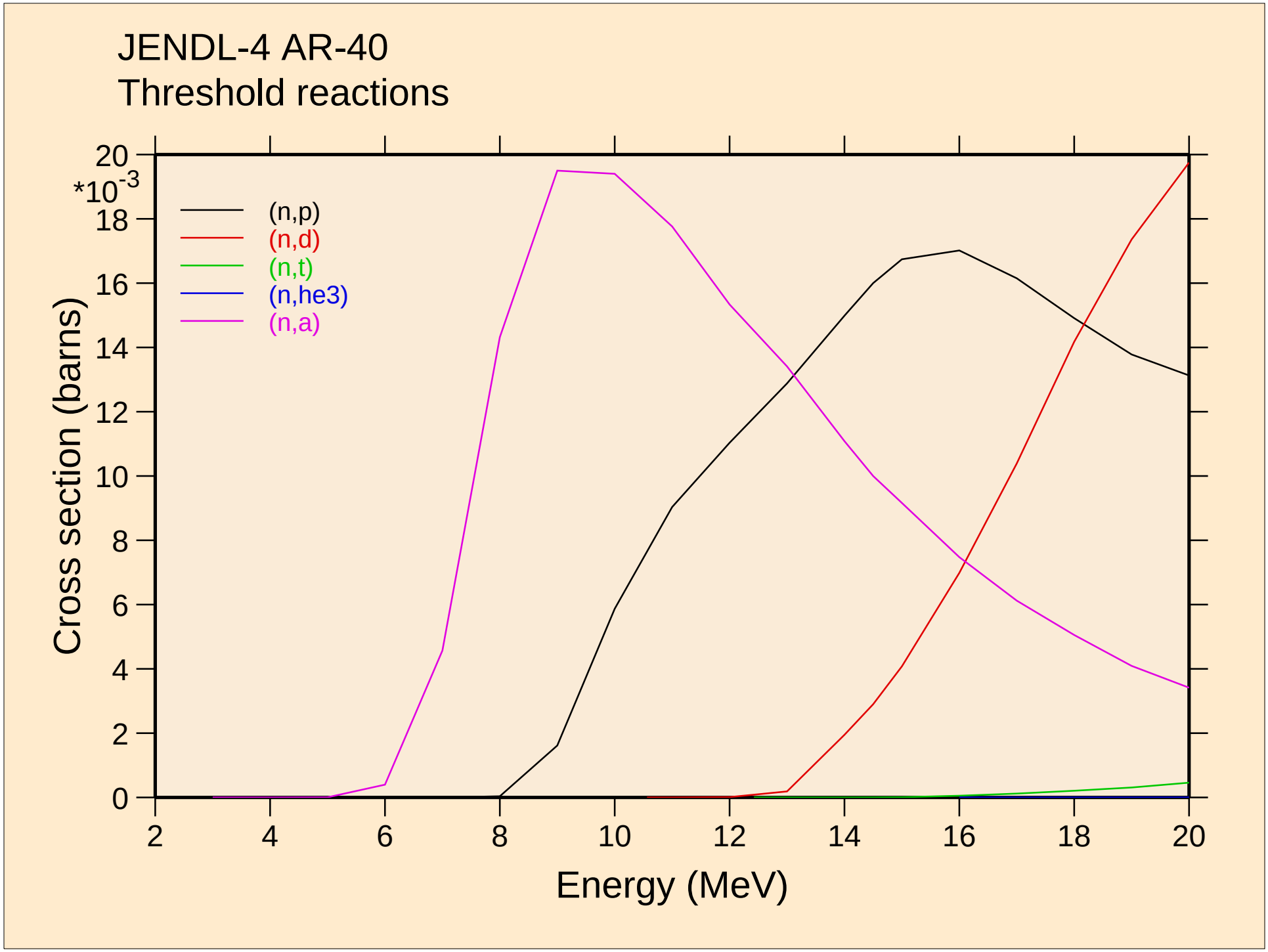

JENDL-4 AR-40
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

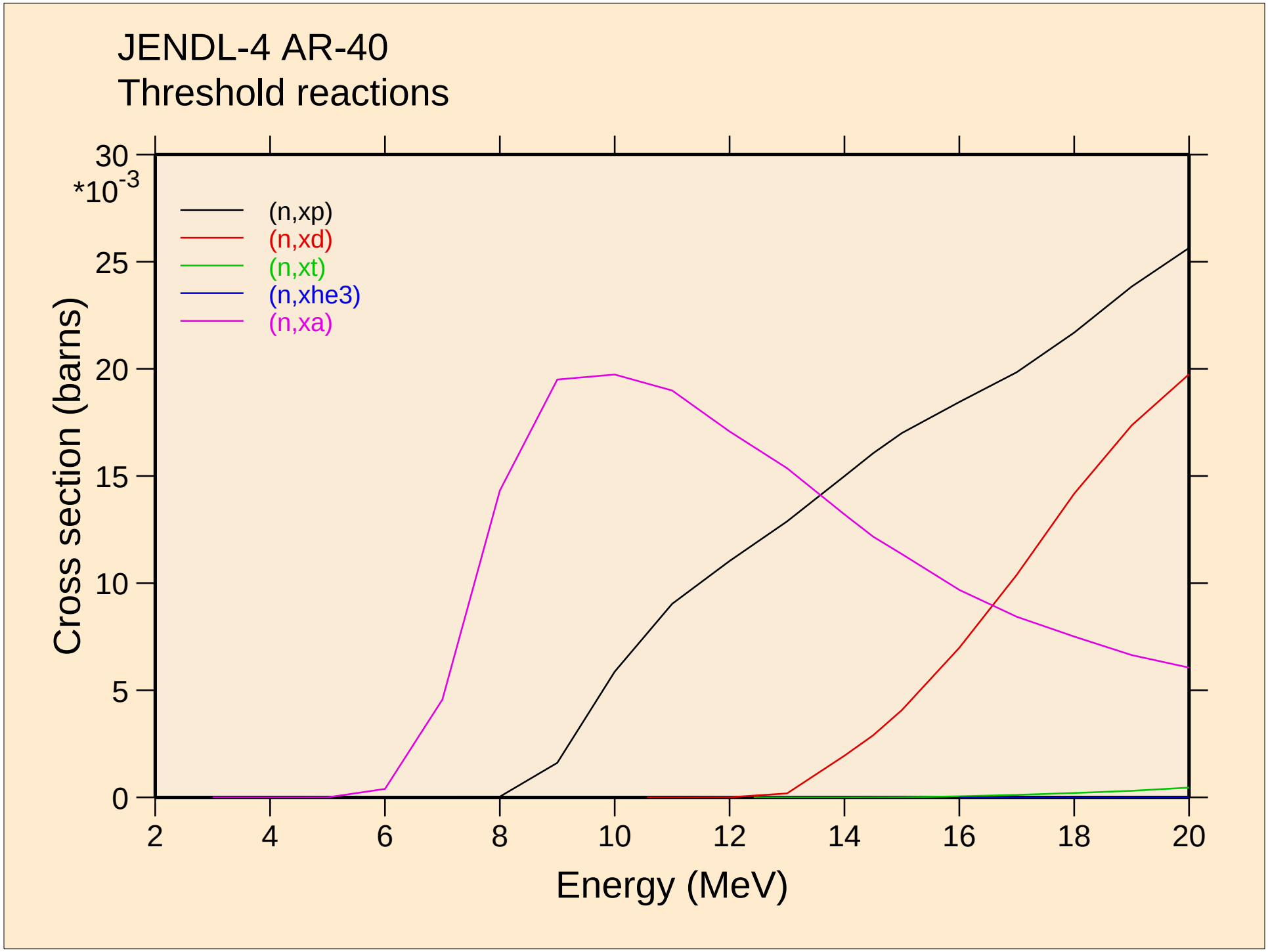

JENDL-4 AR-40
Inelastic levels
Cross section (barns)
*10^-3
60
50
40
30
20
10
0
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

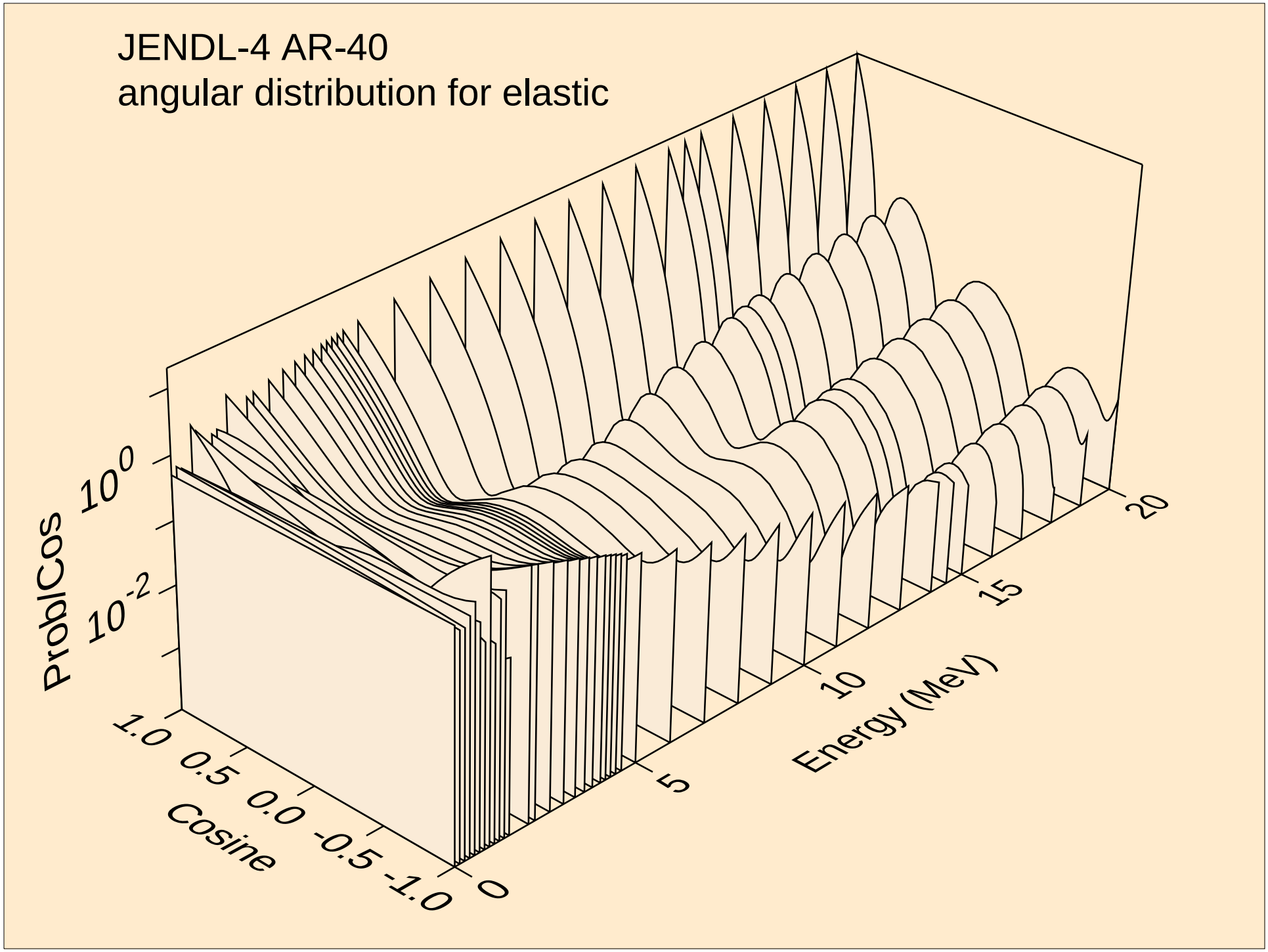

JENDL-4 AR-40
Inelastic levels
Cross section (barns)
*10-3
60
50
40
30
20
10
0
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

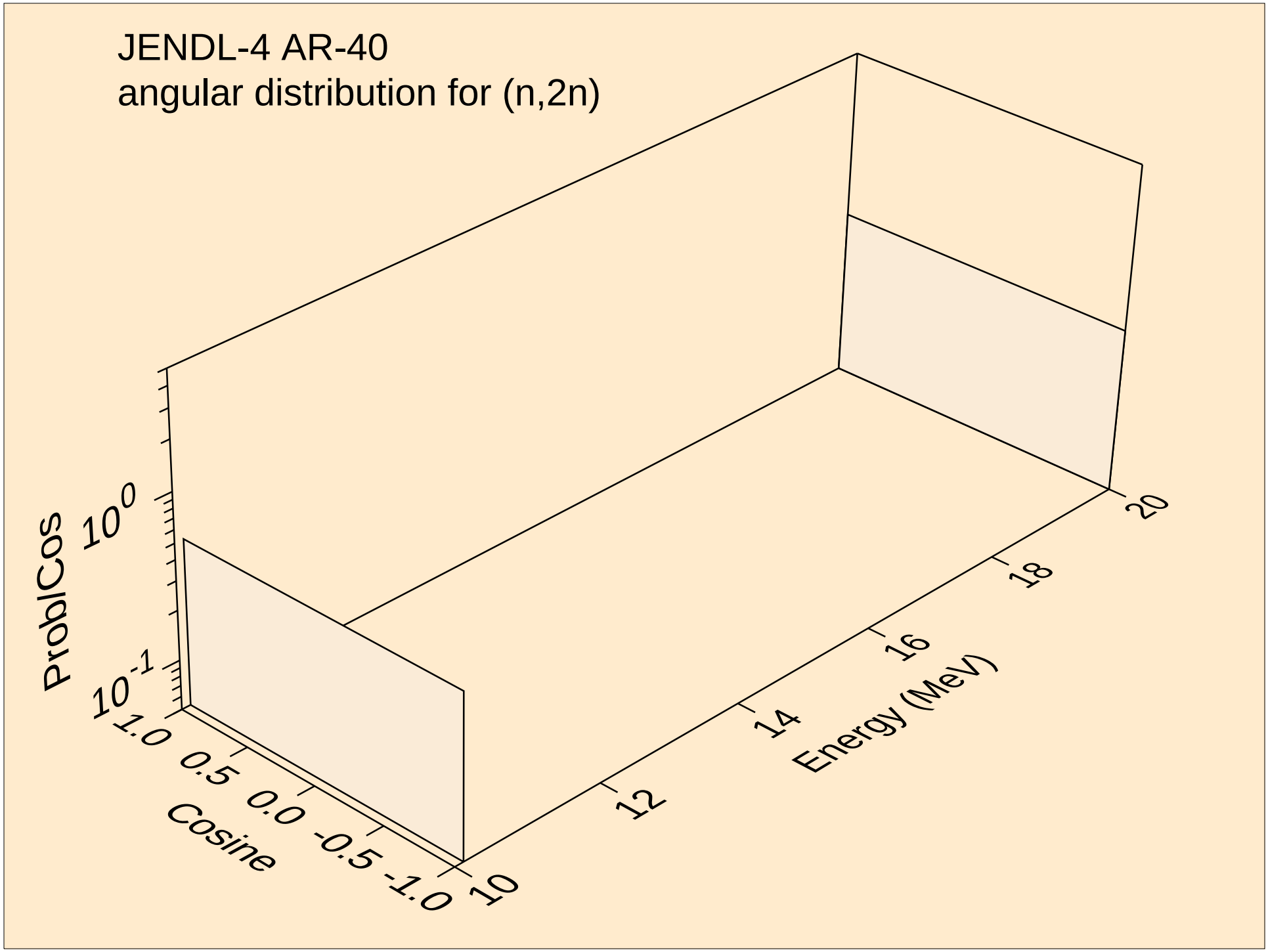

JENDL-4 AR-40
Inelastic levels
*10-3
35
30
25
20
15
10
5
0
Cross section (barns)
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

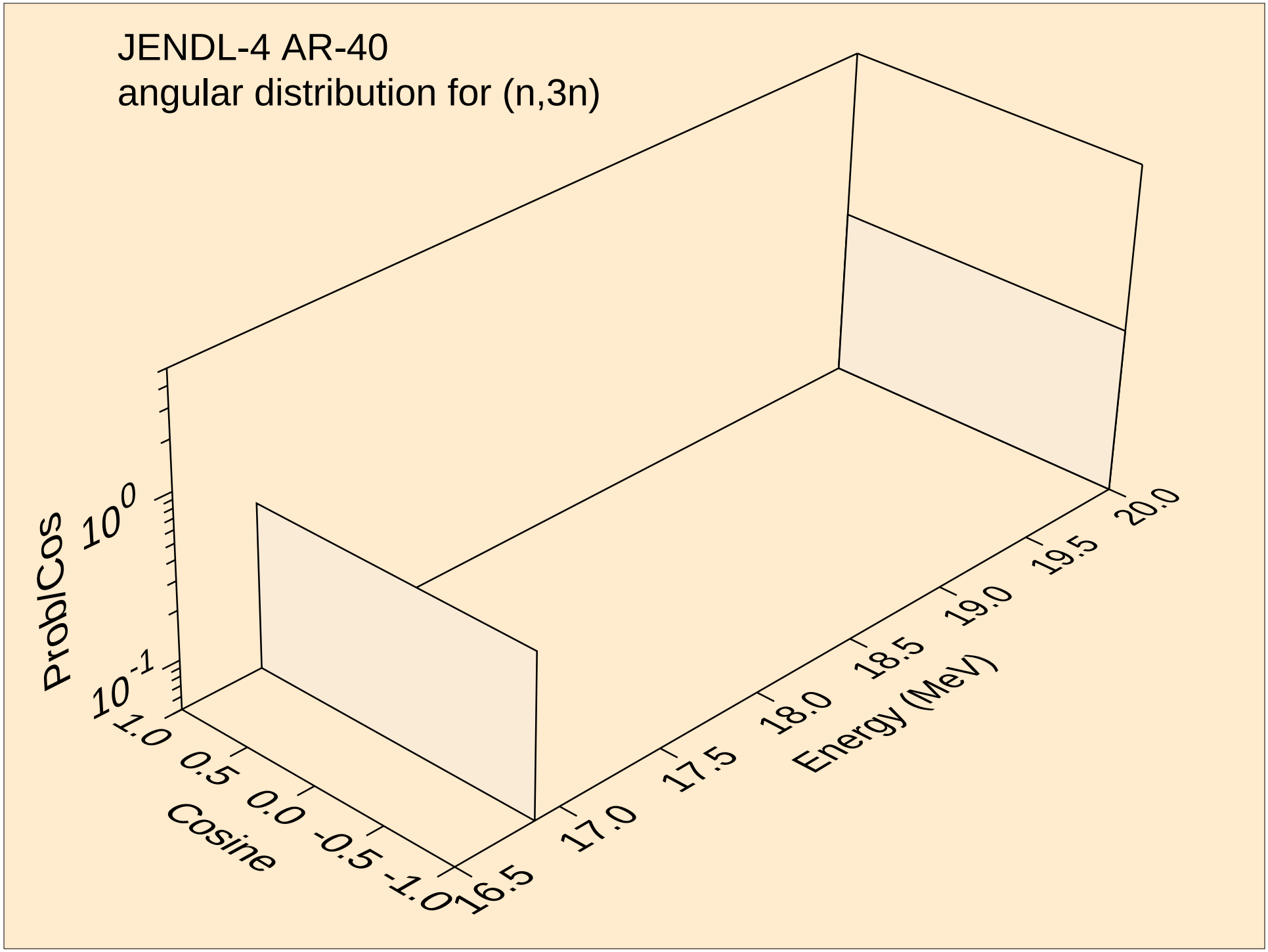

JENDL-4 AR-40
Threshold reactions
(n,2n)
(n,3n)
(n,n*)a
(n,n*)p
(n,n*c)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
4
6
8
10
12
14
16
18
20

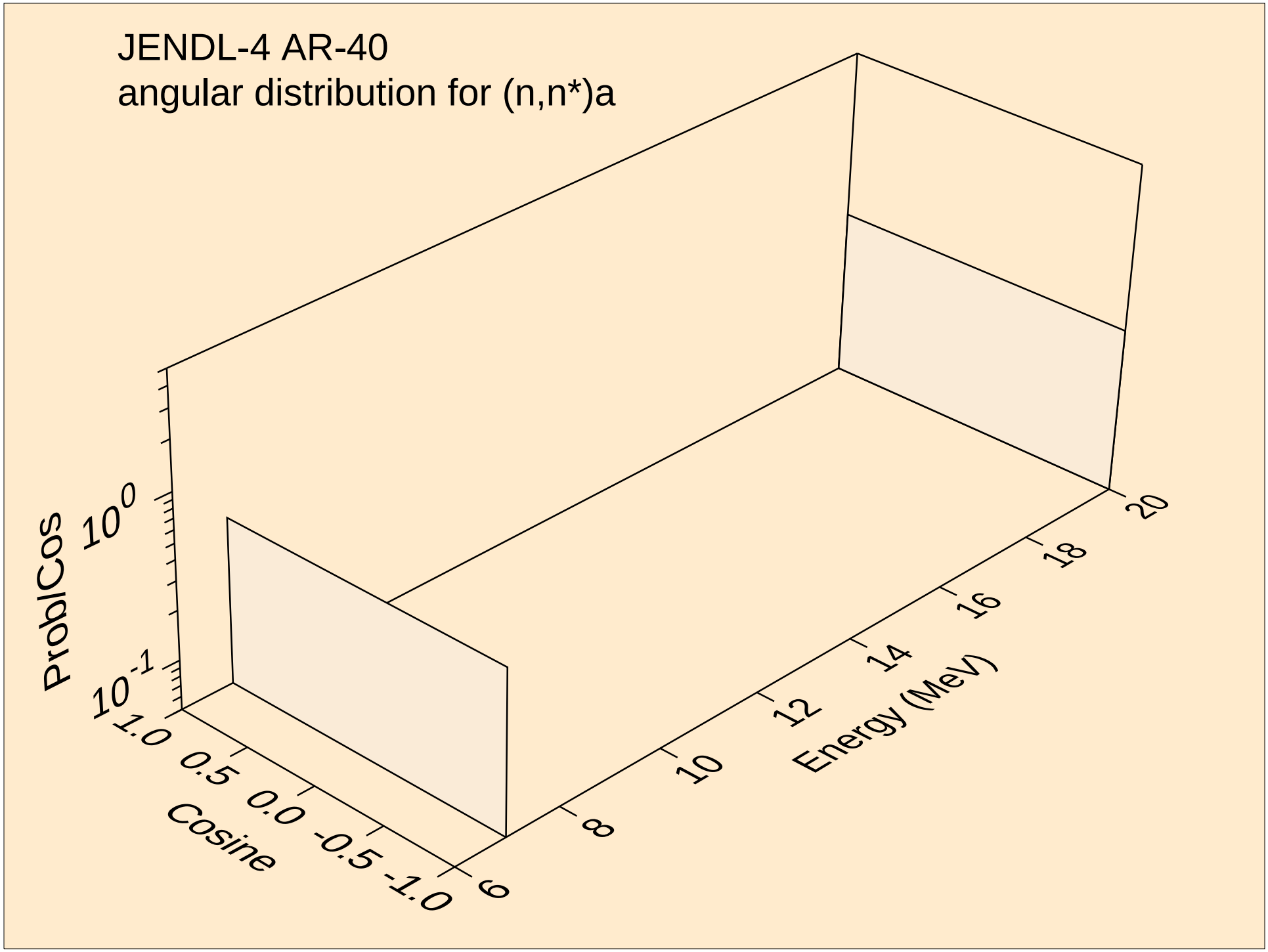

JENDL-4 AR-40
Threshold reactions
*10-3
(n,p)
(n,d)
(n,t)
(n,he3)
(n,a)
Cross section (barns)
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

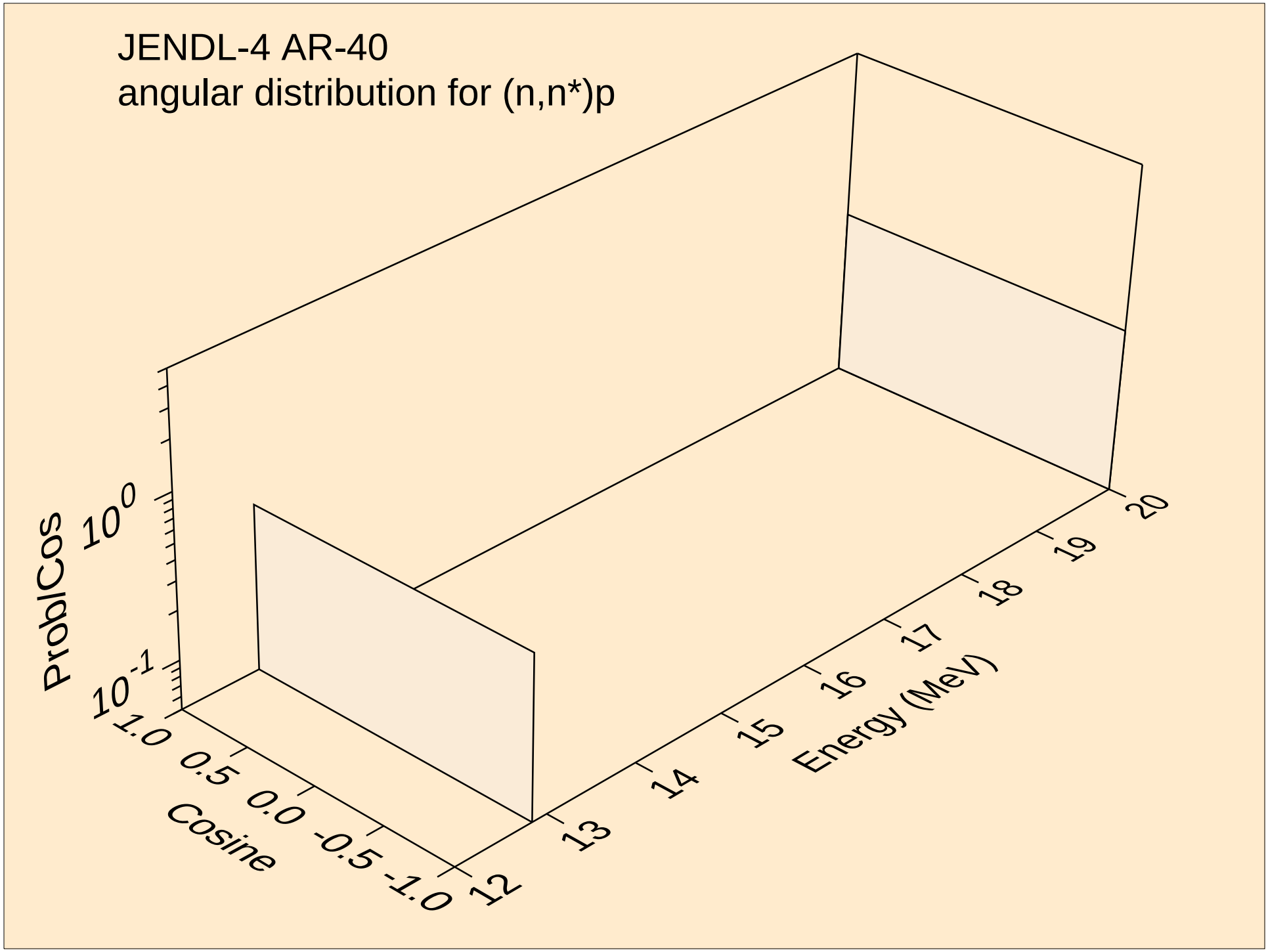

JENDL-4 AR-40
Threshold reactions
*10-3
30
25
20
15
10
5
0
Cross section (barns)
(n,xp)
(n,xd)
(n,xt)
(n,xhe3)
(n,xa)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

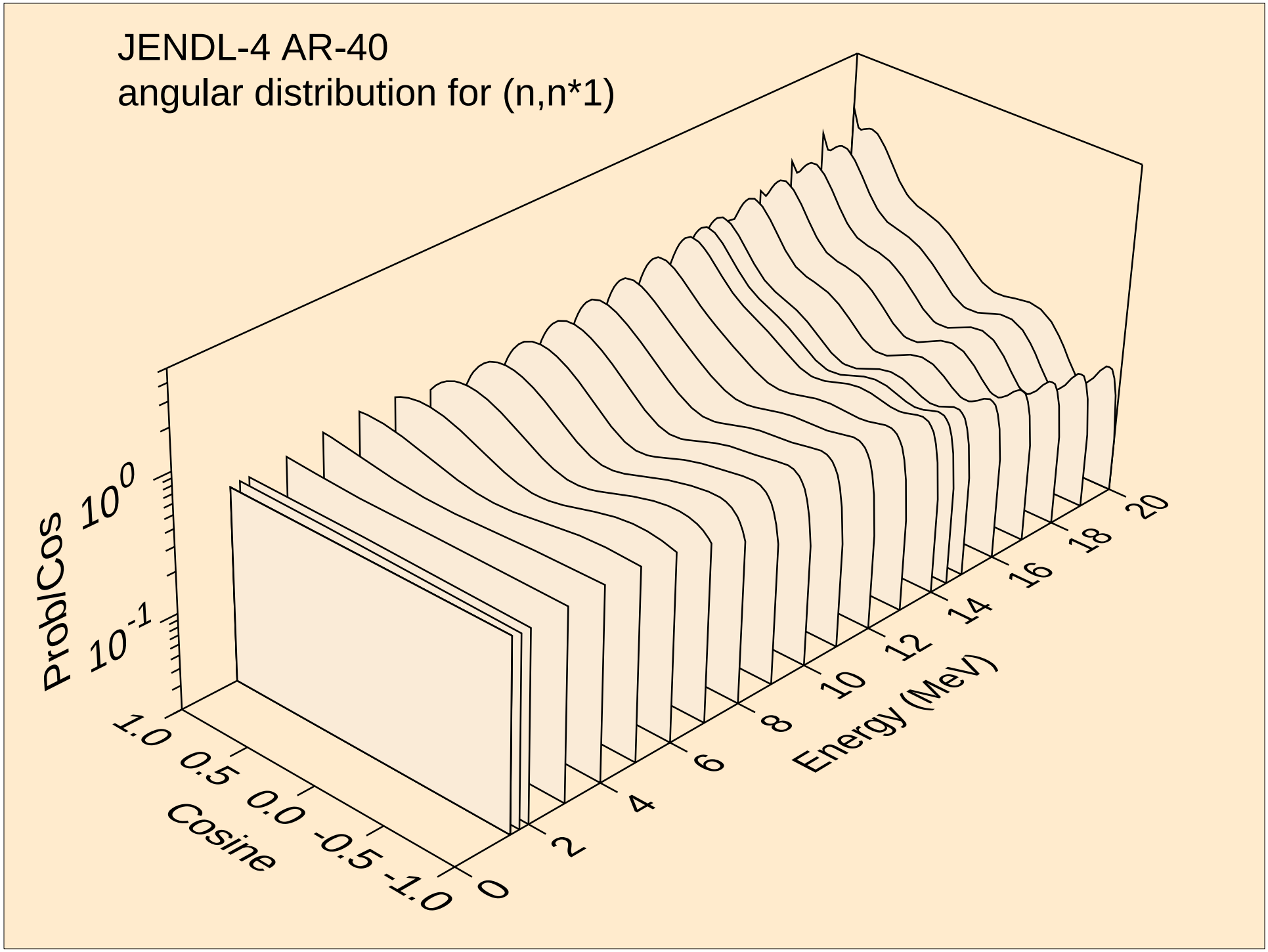

JENDL-4 AR-40
angular distribution for elastic
ProblCos
10^0
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

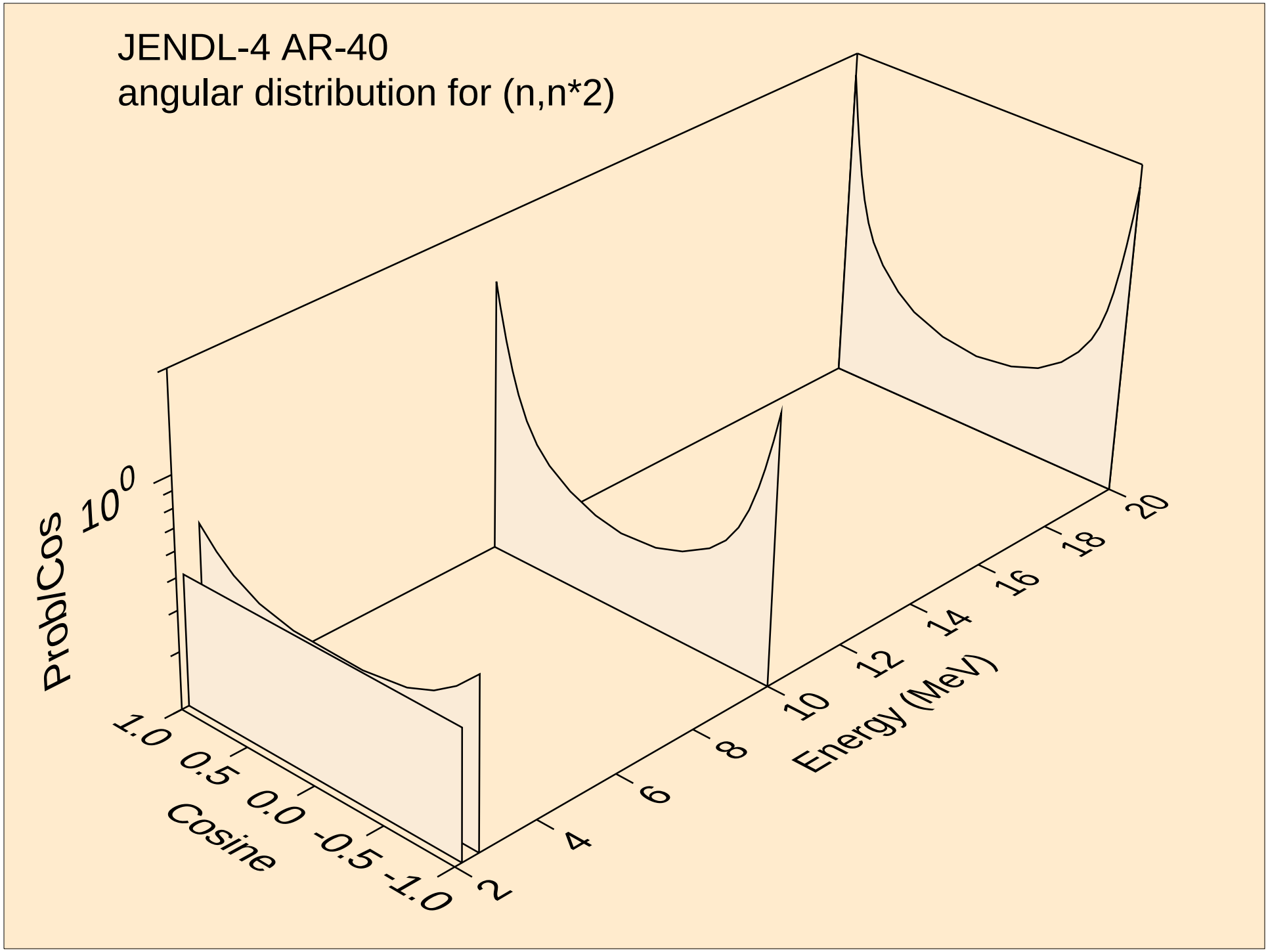

JENDL-4 AR-40
angular distribution for (n,2n)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
10
12
14
16
18
20
Energy (MeV)

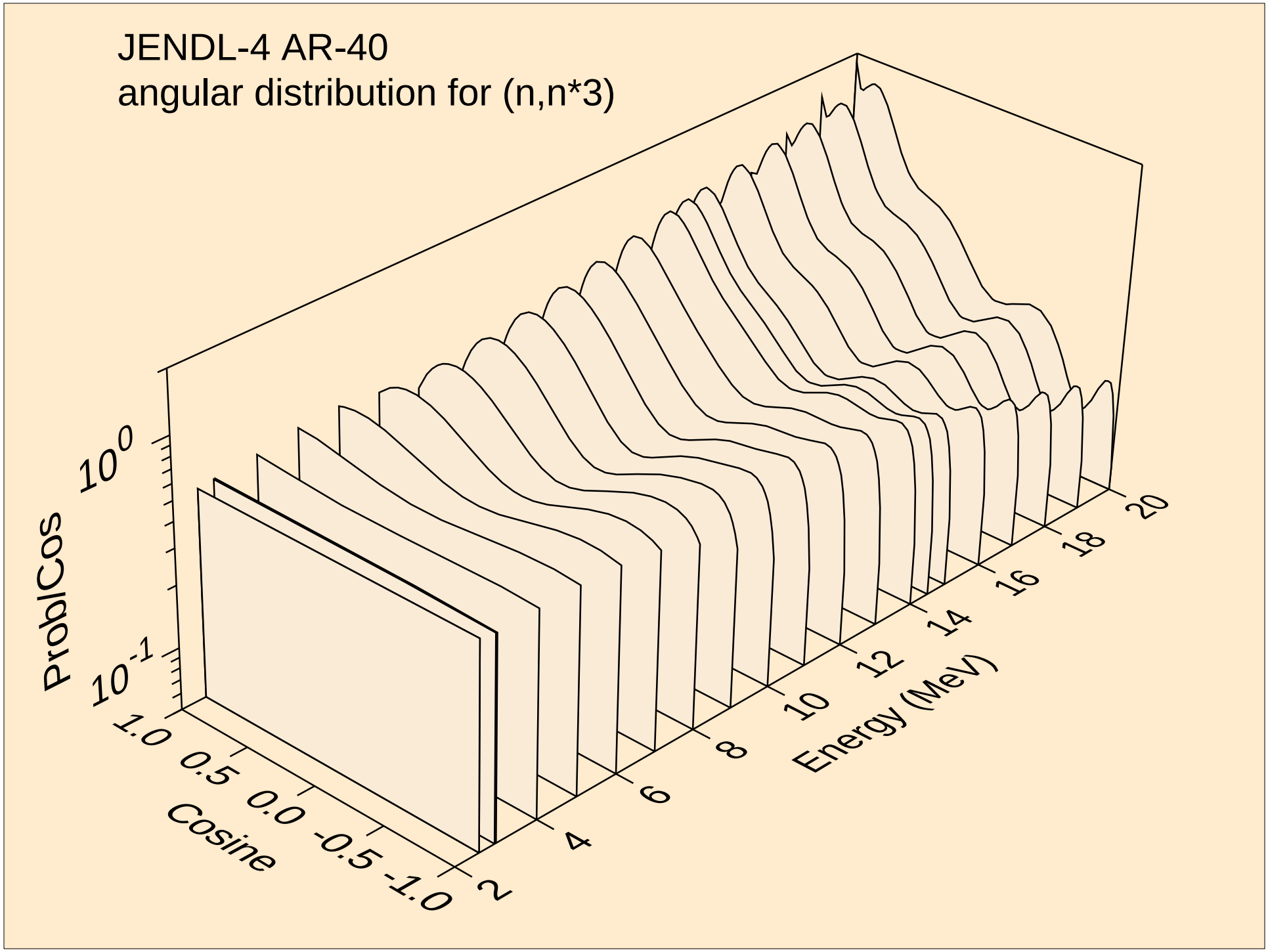

JENDL-4 AR-40
angular distribution for (n,3n)
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)

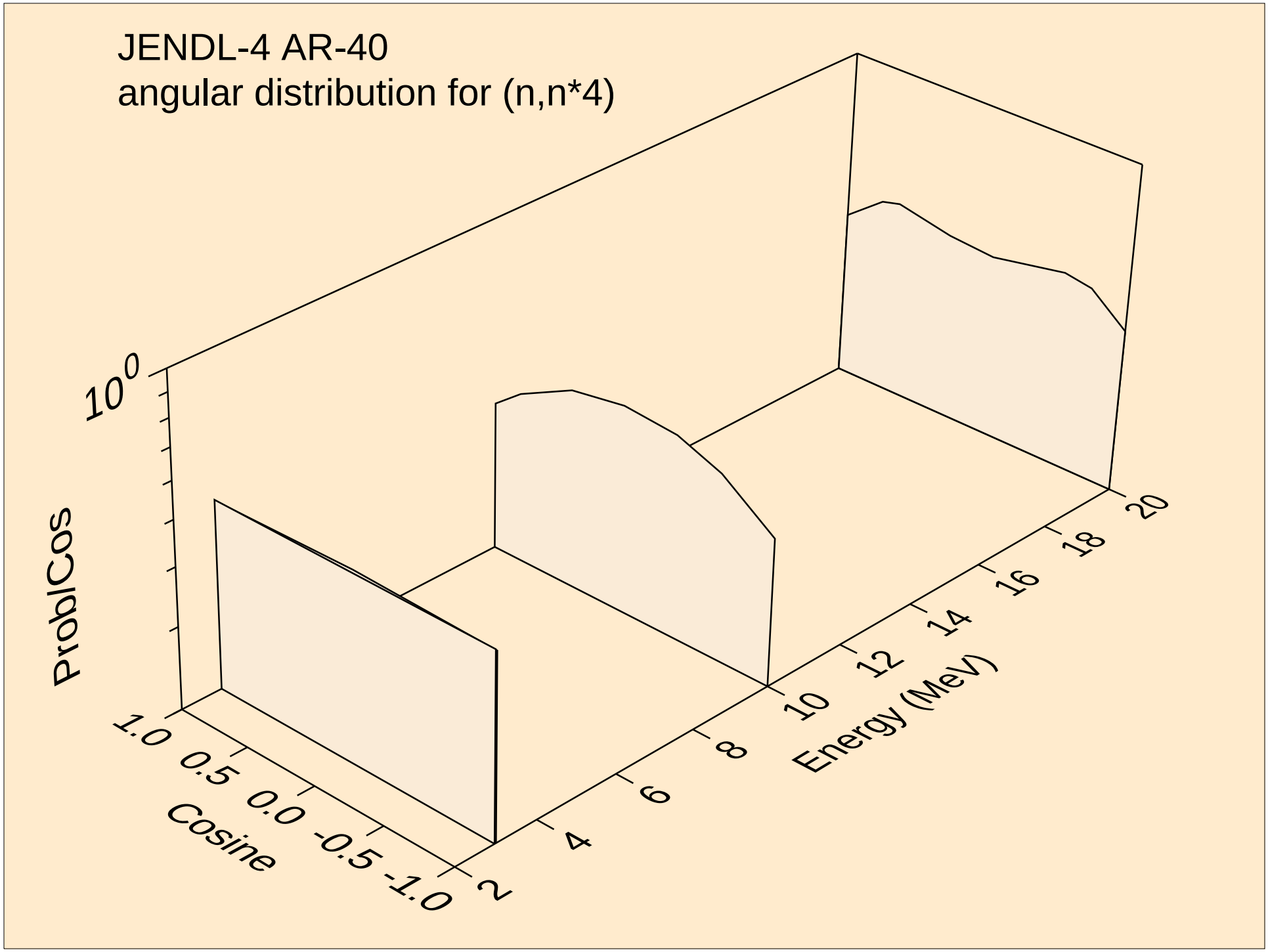

JENDL-4 AR-40
angular distribution for (n,n*)a
ProblCos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
6
8
10
12
14
16
18
20
Energy (MeV)

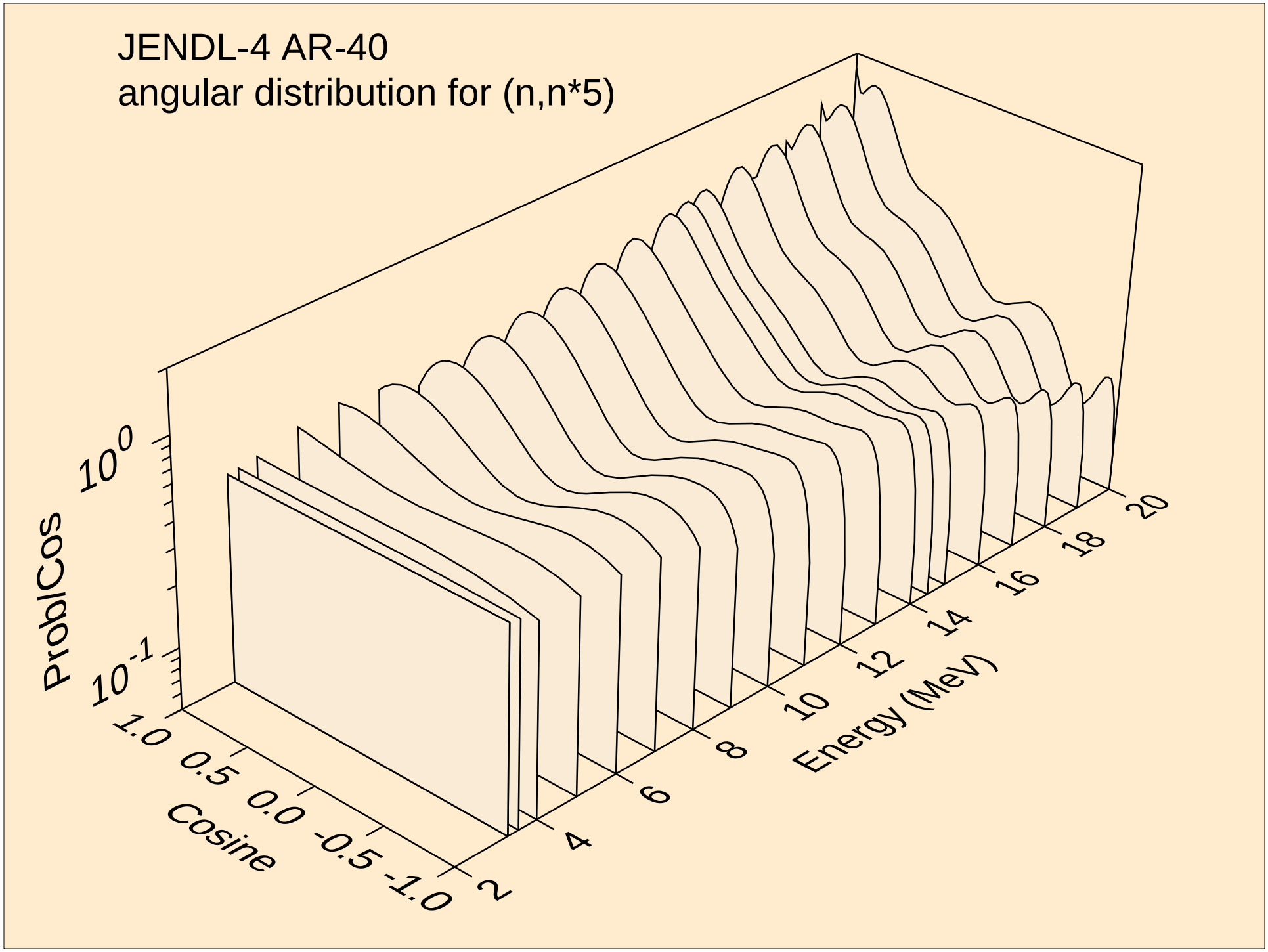

JENDL-4 AR-40
angular distribution for (n,n*)p
ProbCos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
12
13
14
15
16
17
18
19
20
Energy (MeV)

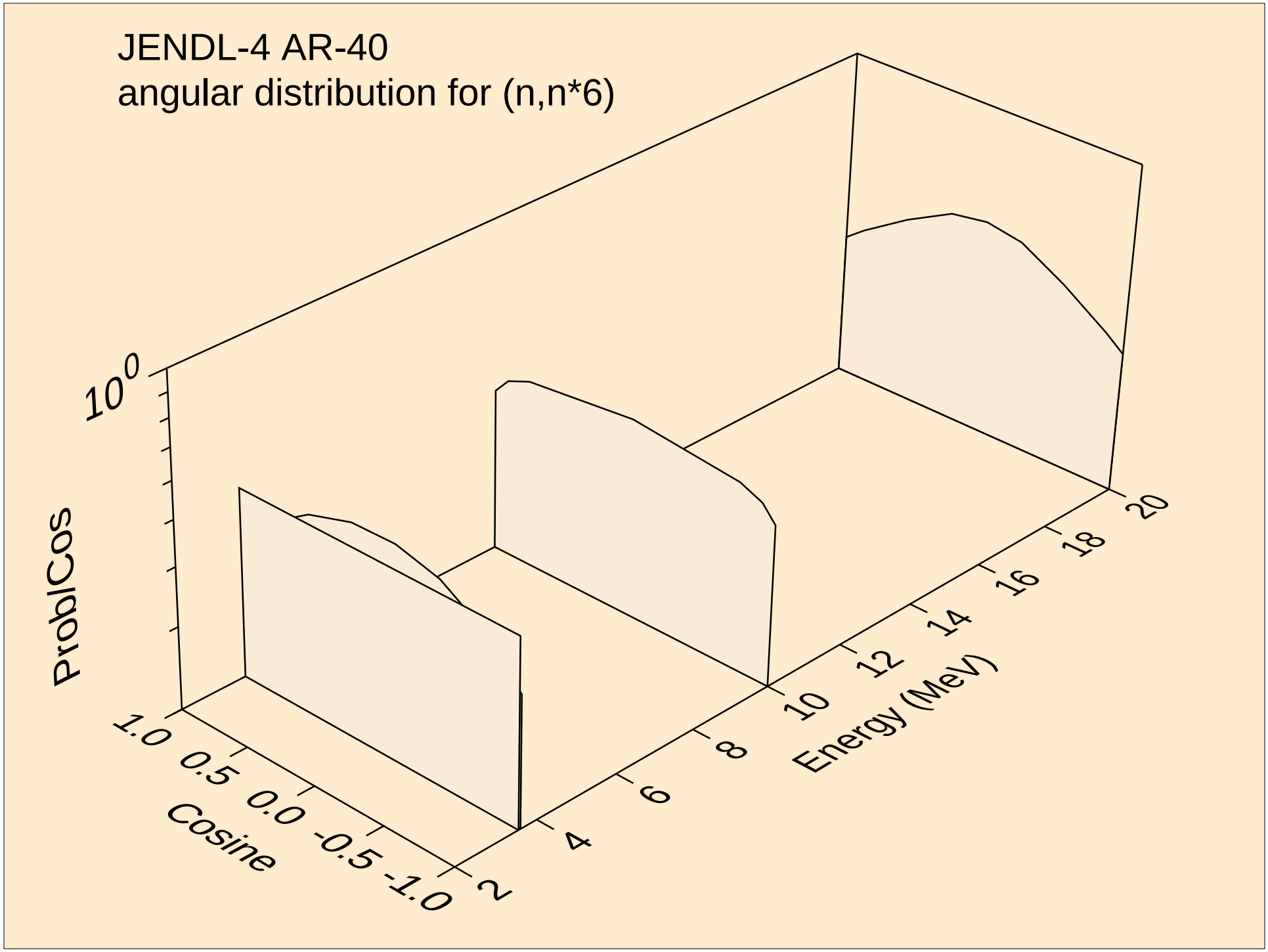

JENDL-4 AR-40
angular distribution for (n,n*1)
Prob/Cos
10^0
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

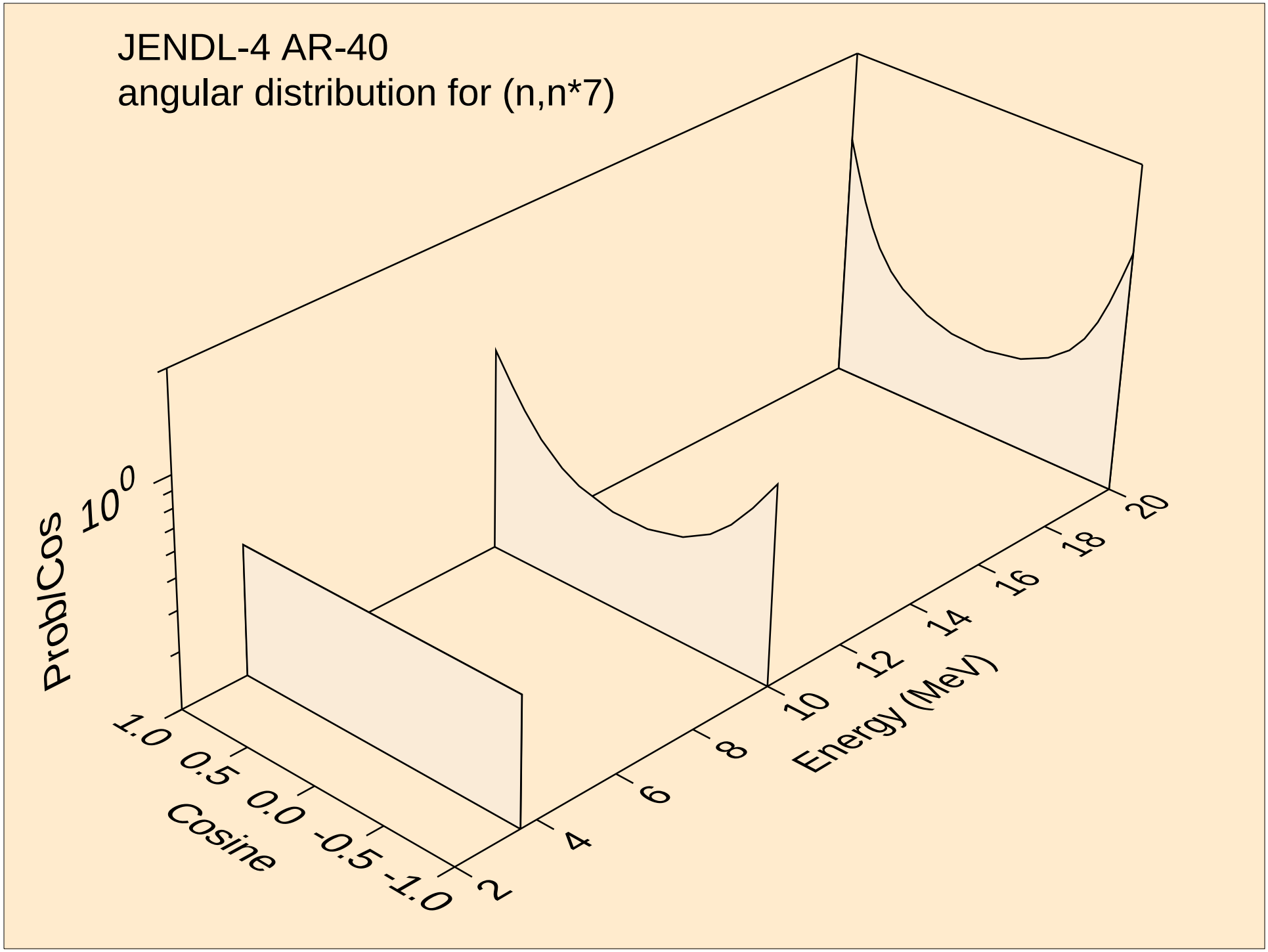

JENDL-4 AR-40
angular distribution for (n,n*2)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

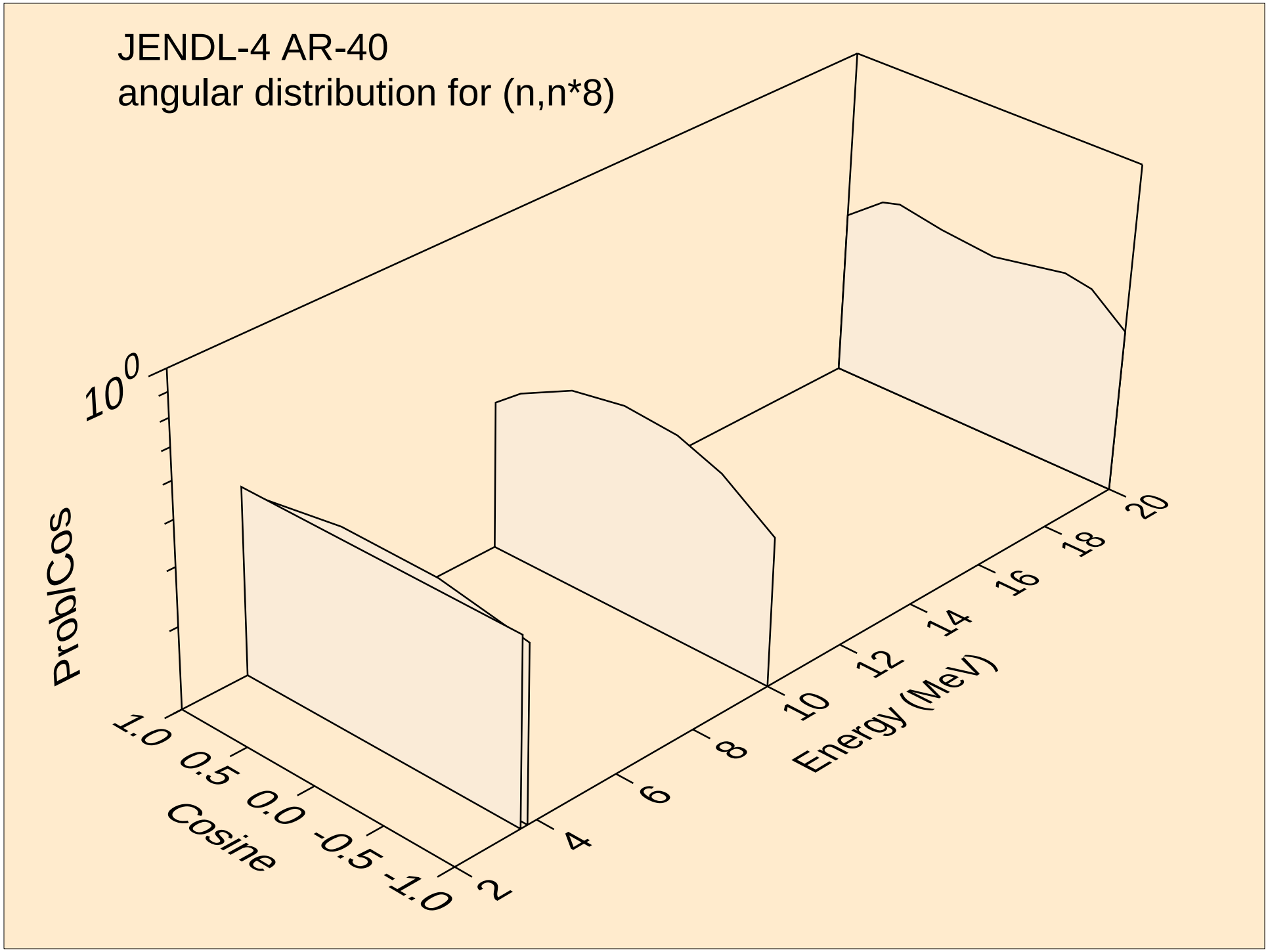

JENDL-4 AR-40
angular distribution for (n,n*3)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

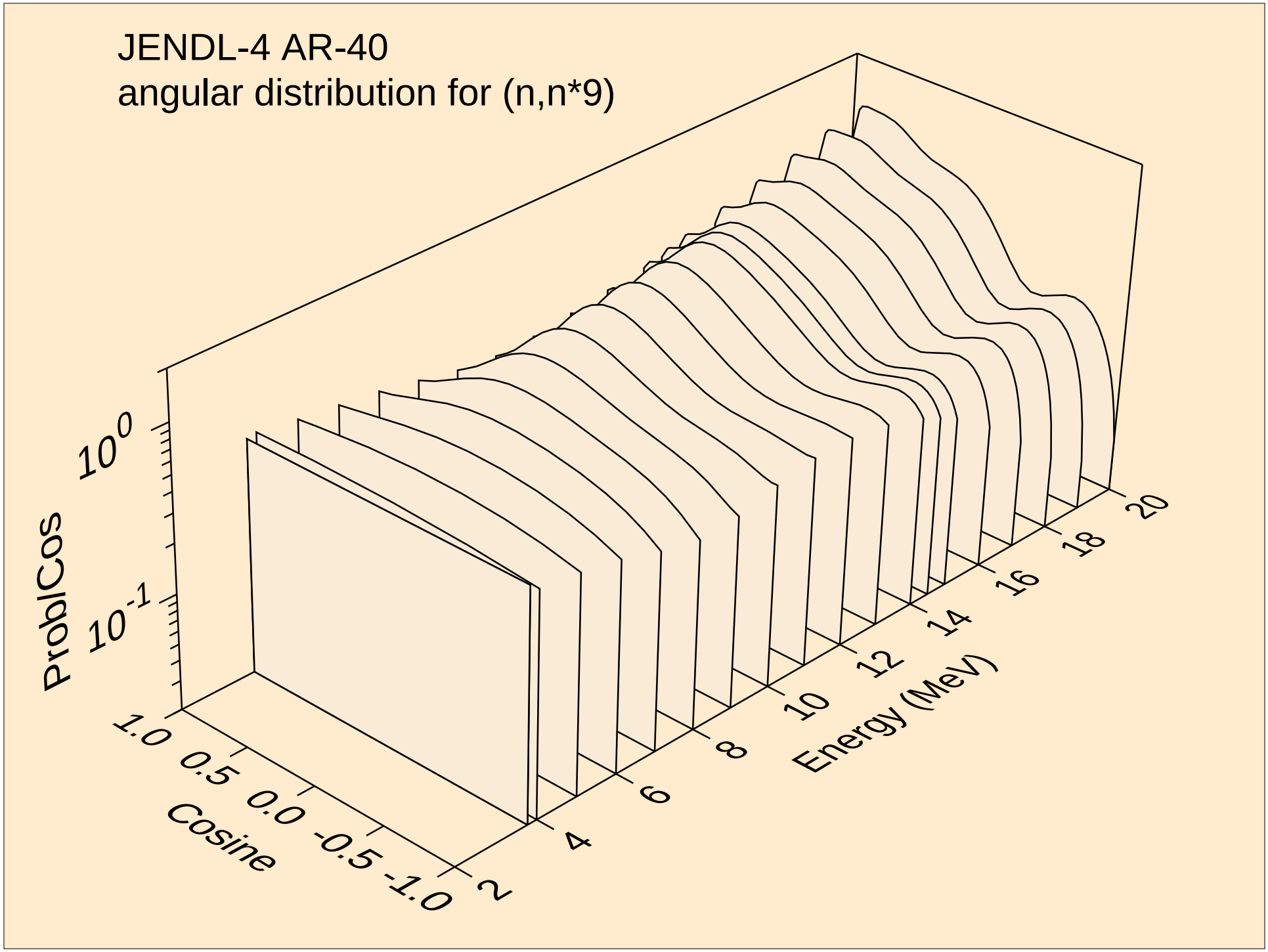

JENDL-4 AR-40
angular distribution for (n,n*4)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

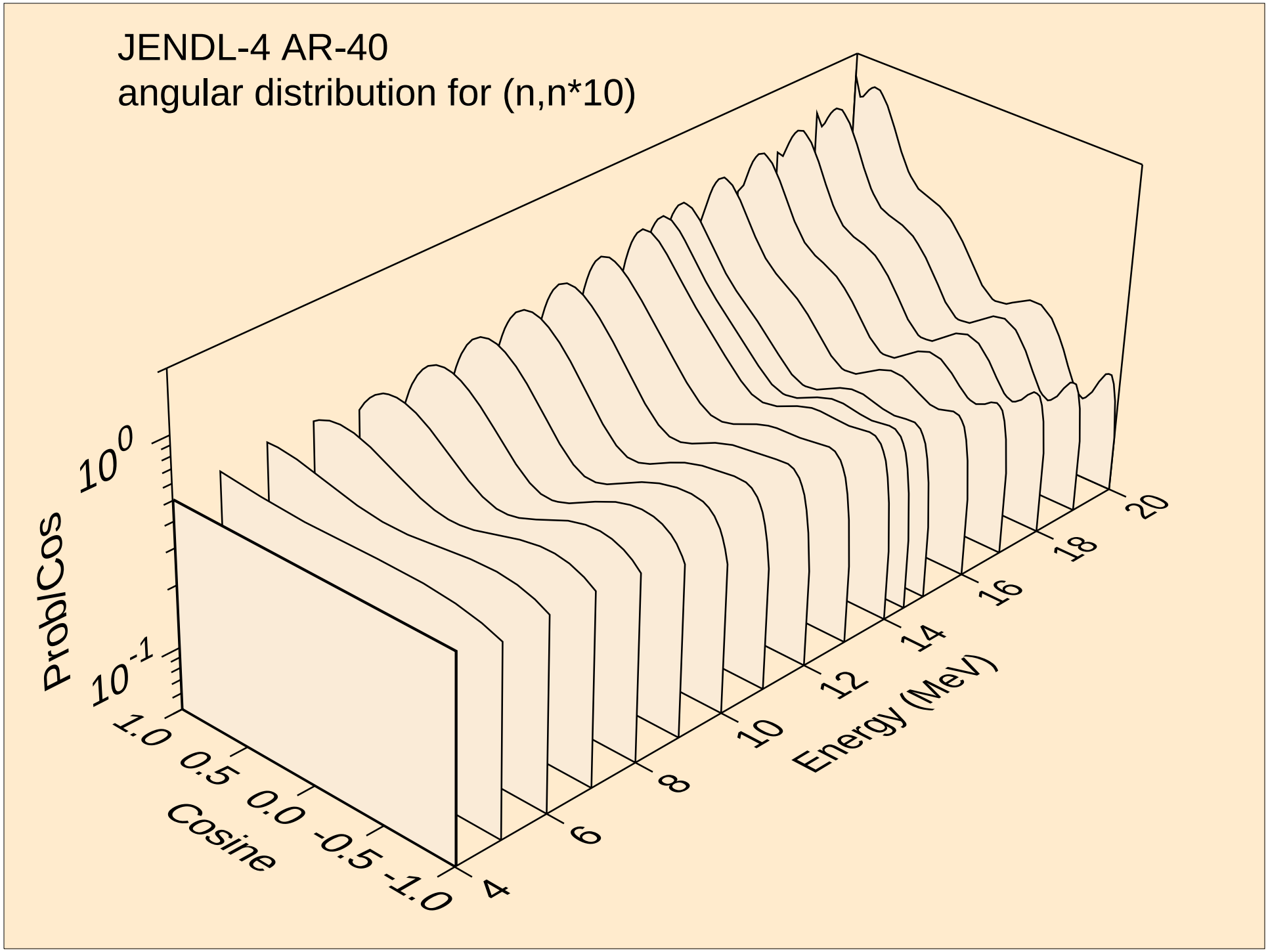

JENDL-4 AR-40
angular distribution for (n,n*5)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

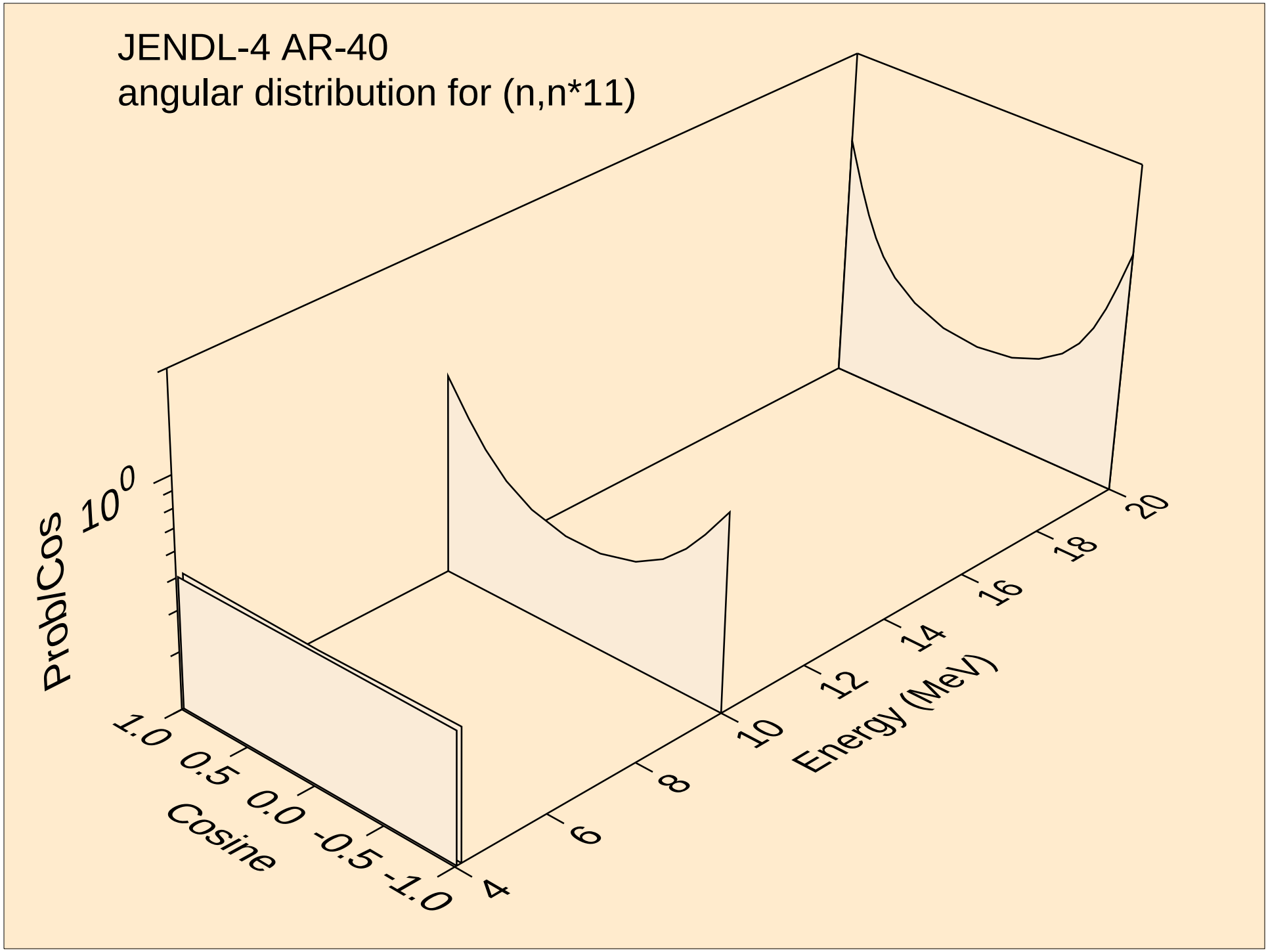

JENDL-4 AR-40
angular distribution for (n,n*6)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

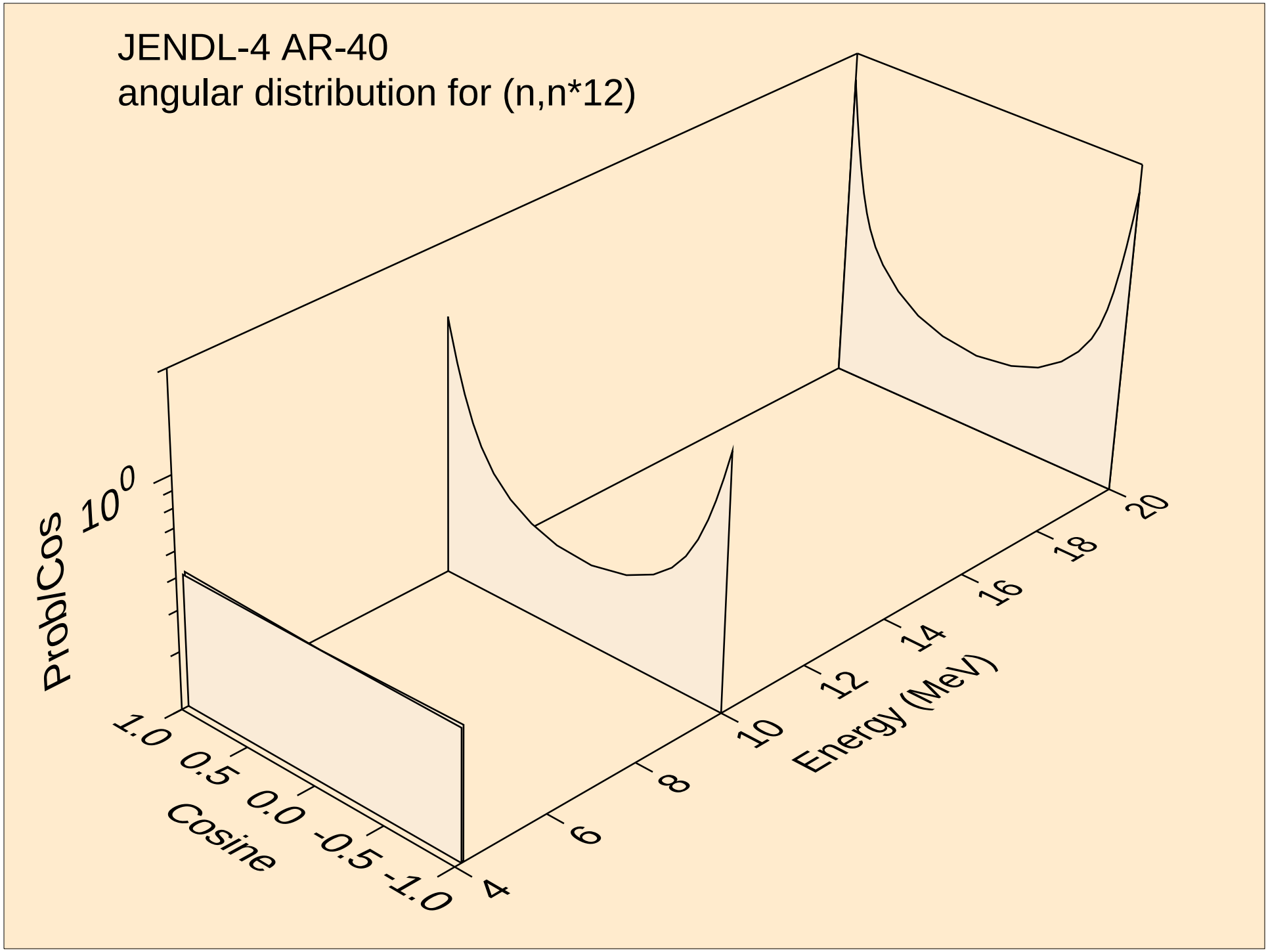

JENDL-4 AR-40
angular distribution for (n,n*7)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

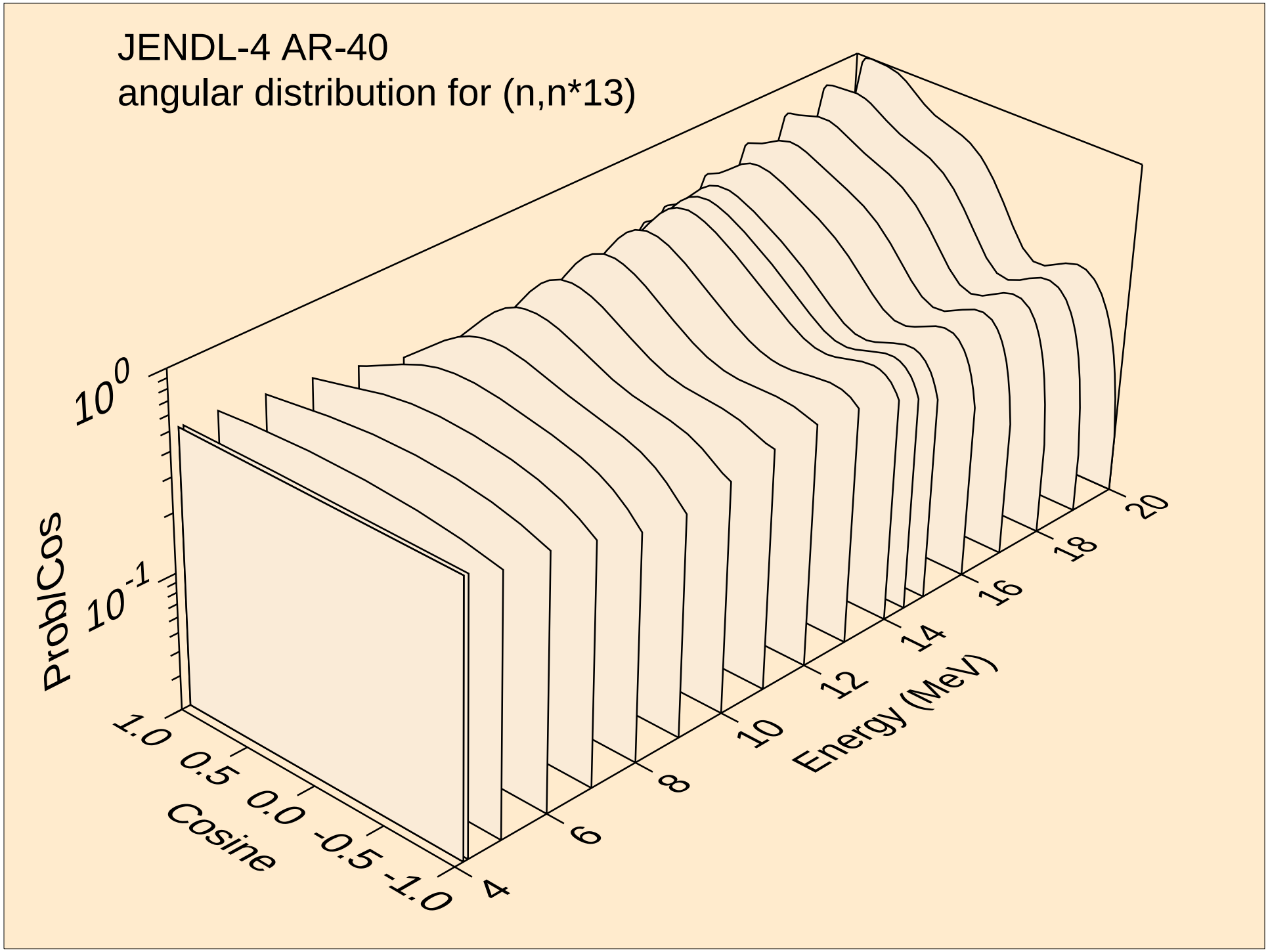

JENDL-4 AR-40
angular distribution for (n,n*8)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

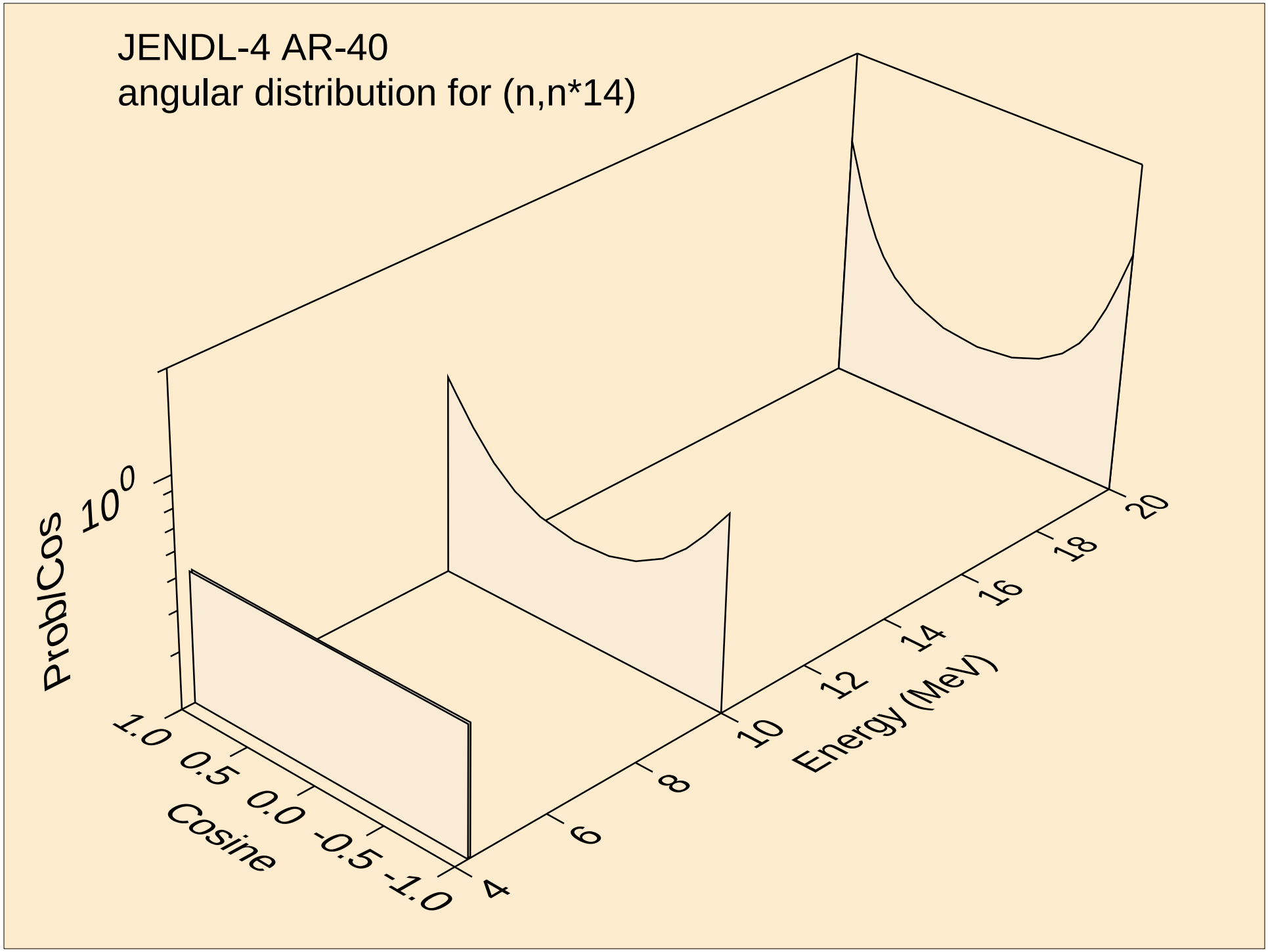

JENDL-4 AR-40
angular distribution for (n,n*9)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
2
4
6
8
10
12
14
16
18
20

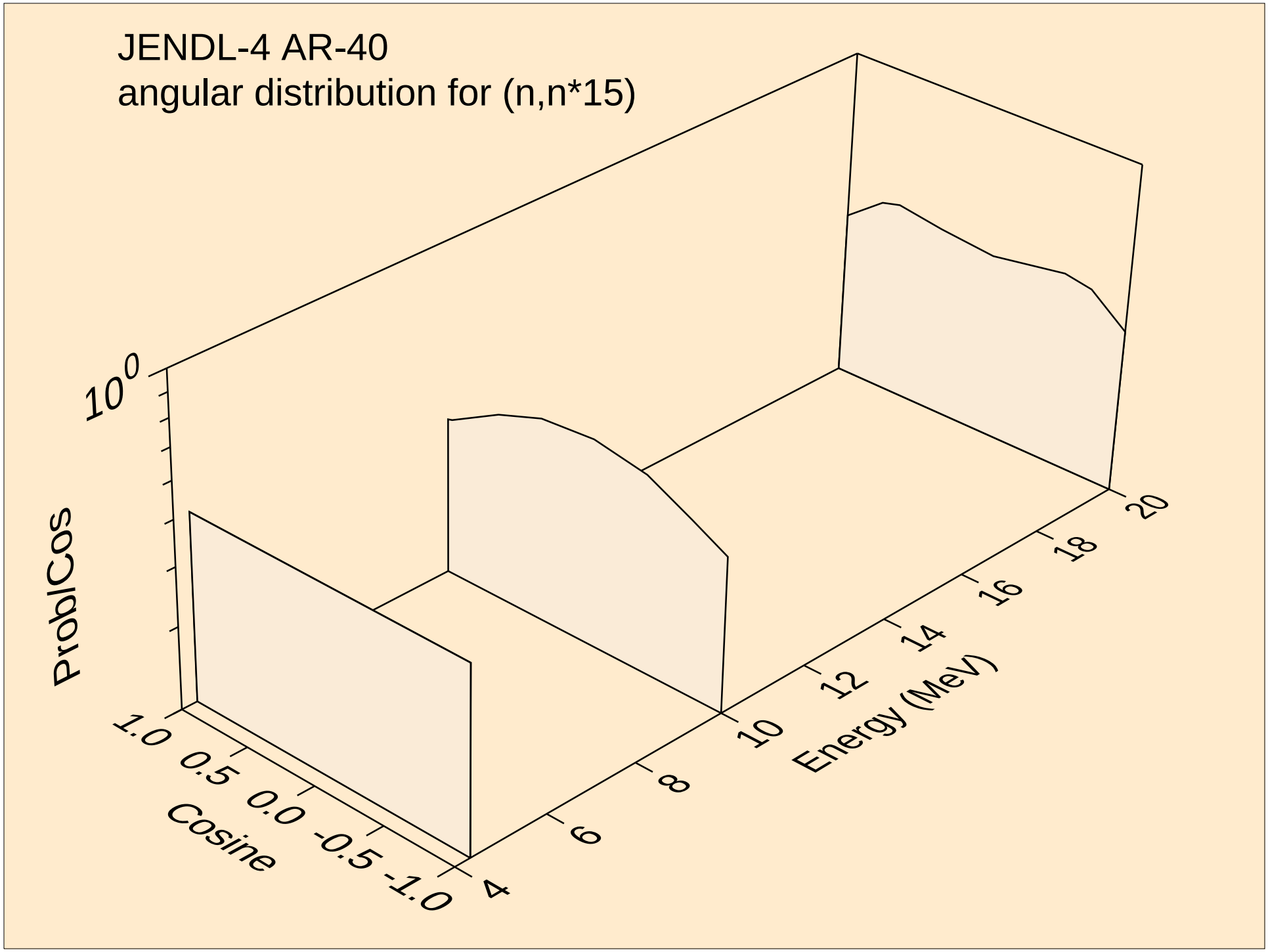

JENDL-4 AR-40
angular distribution for (n,n*10)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
4
6
8
10
12
14
16
18
20

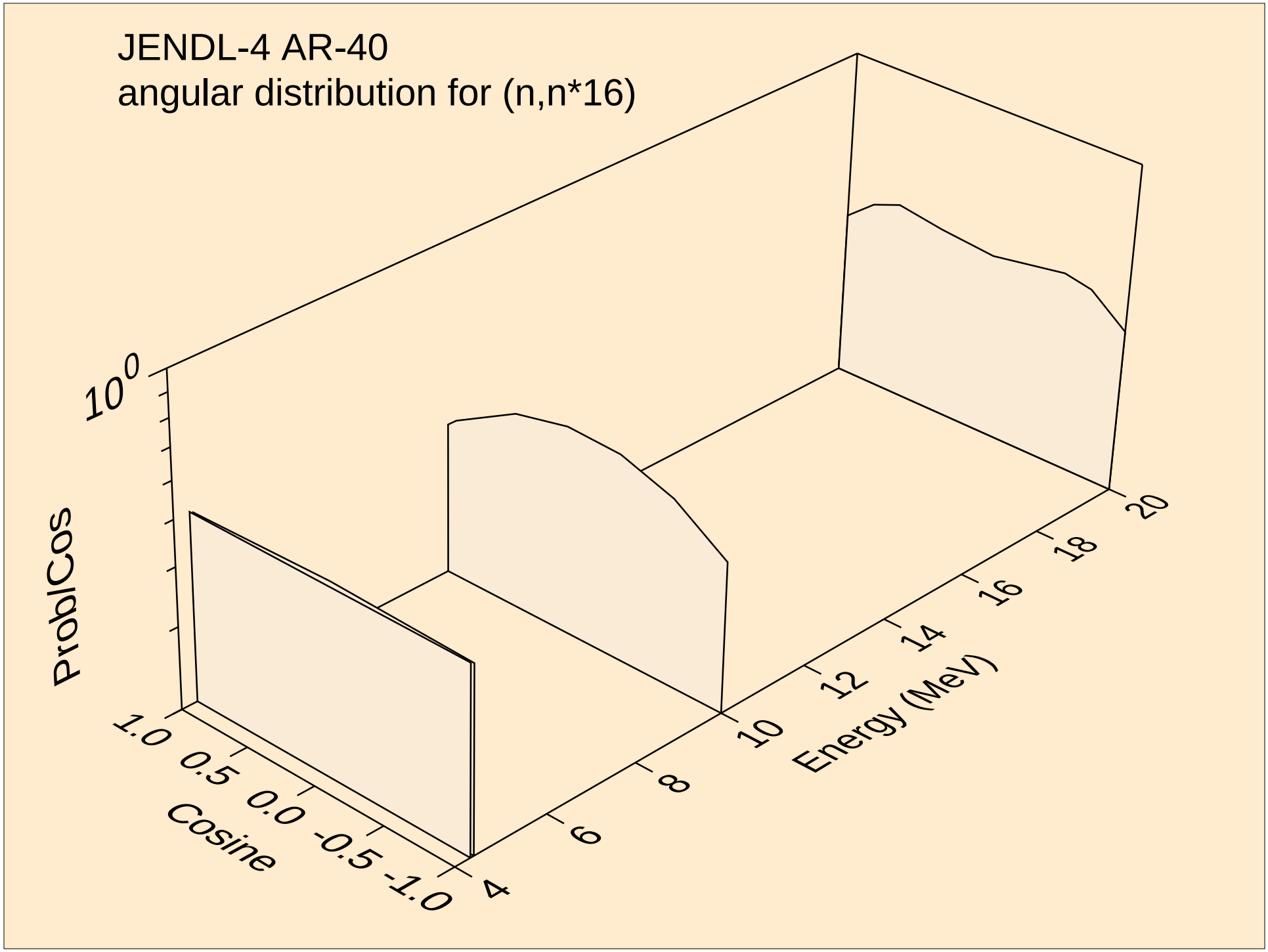

JENDL-4 AR-40
angular distribution for (n,n*11)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

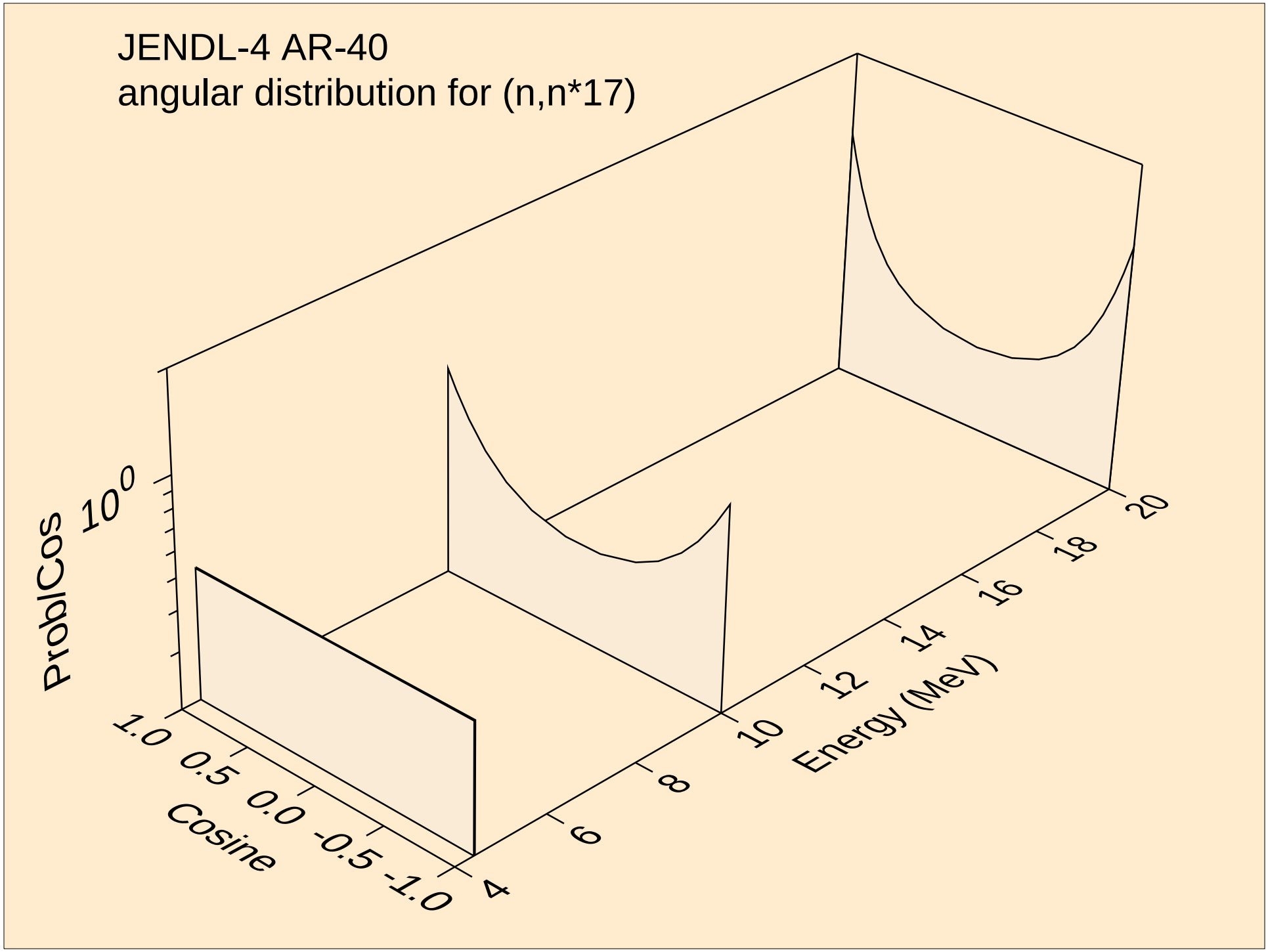

JENDL-4 AR-40
angular distribution for (n,n*12)
ProbCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

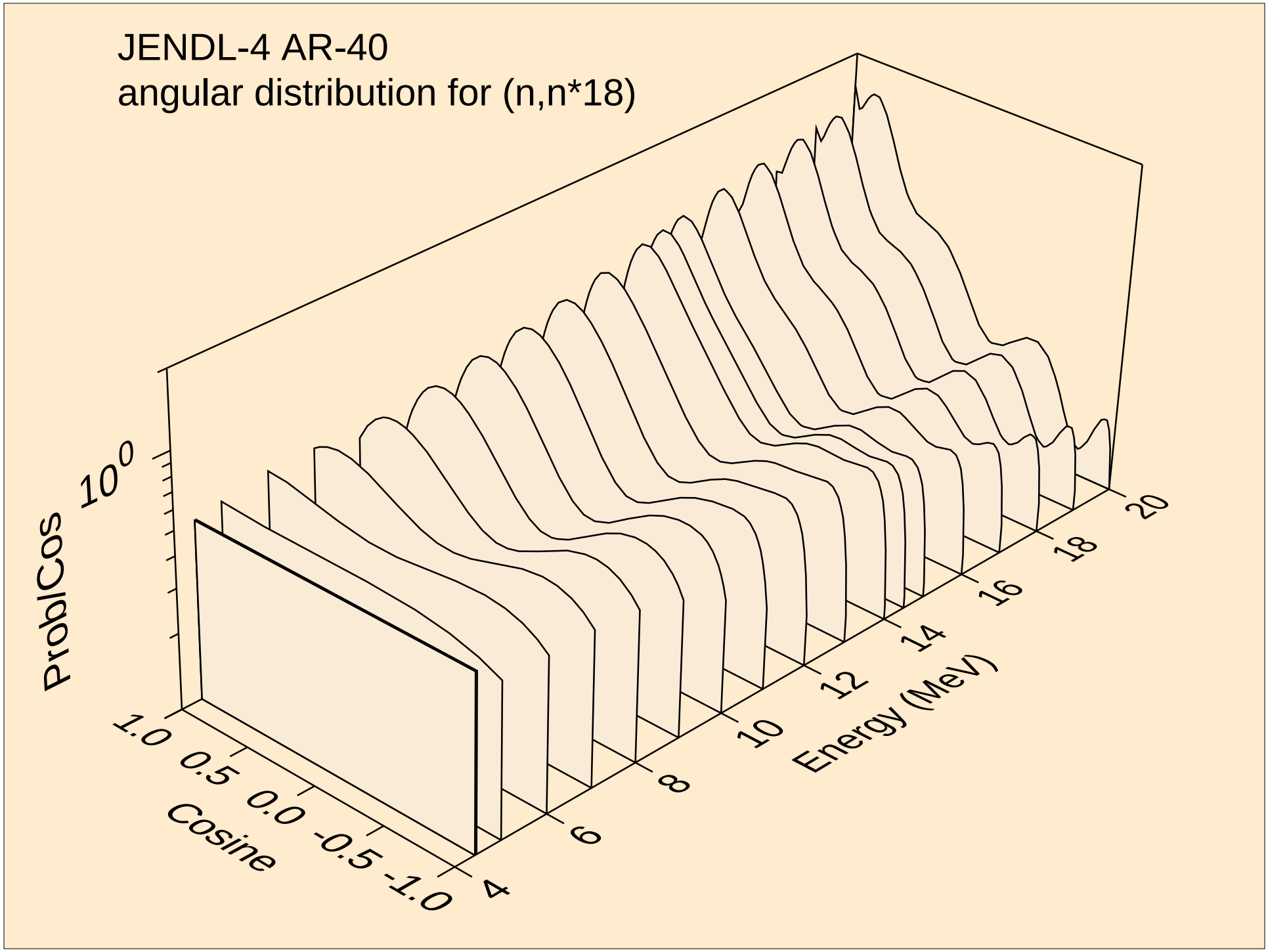

JENDL-4 AR-40
angular distribution for (n,n*13)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
4
6
8
10
12
14
16
18
20

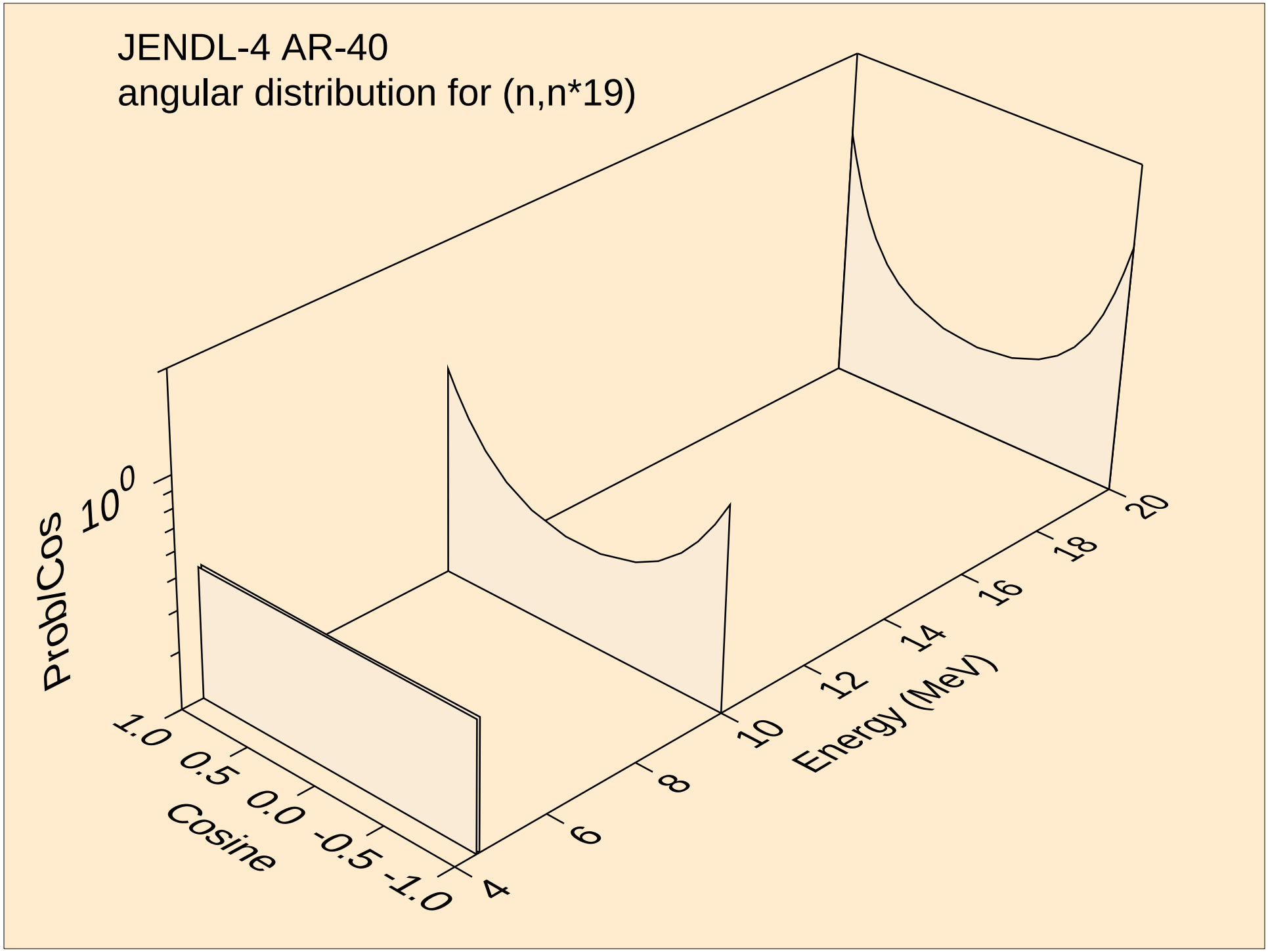

JENDL-4 AR-40
angular distribution for (n,n*14)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

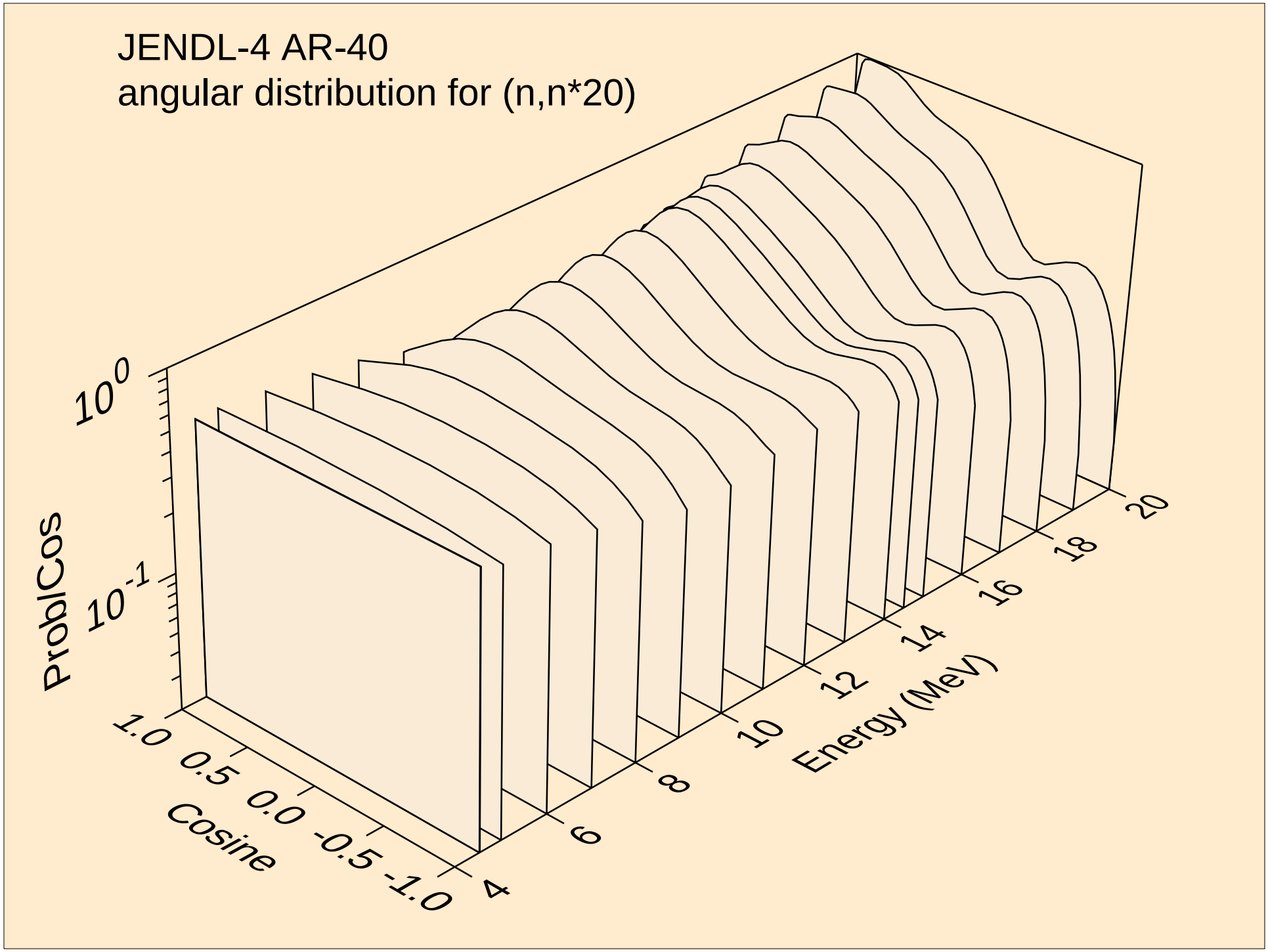

JENDL-4 AR-40
angular distribution for (n,n*15)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

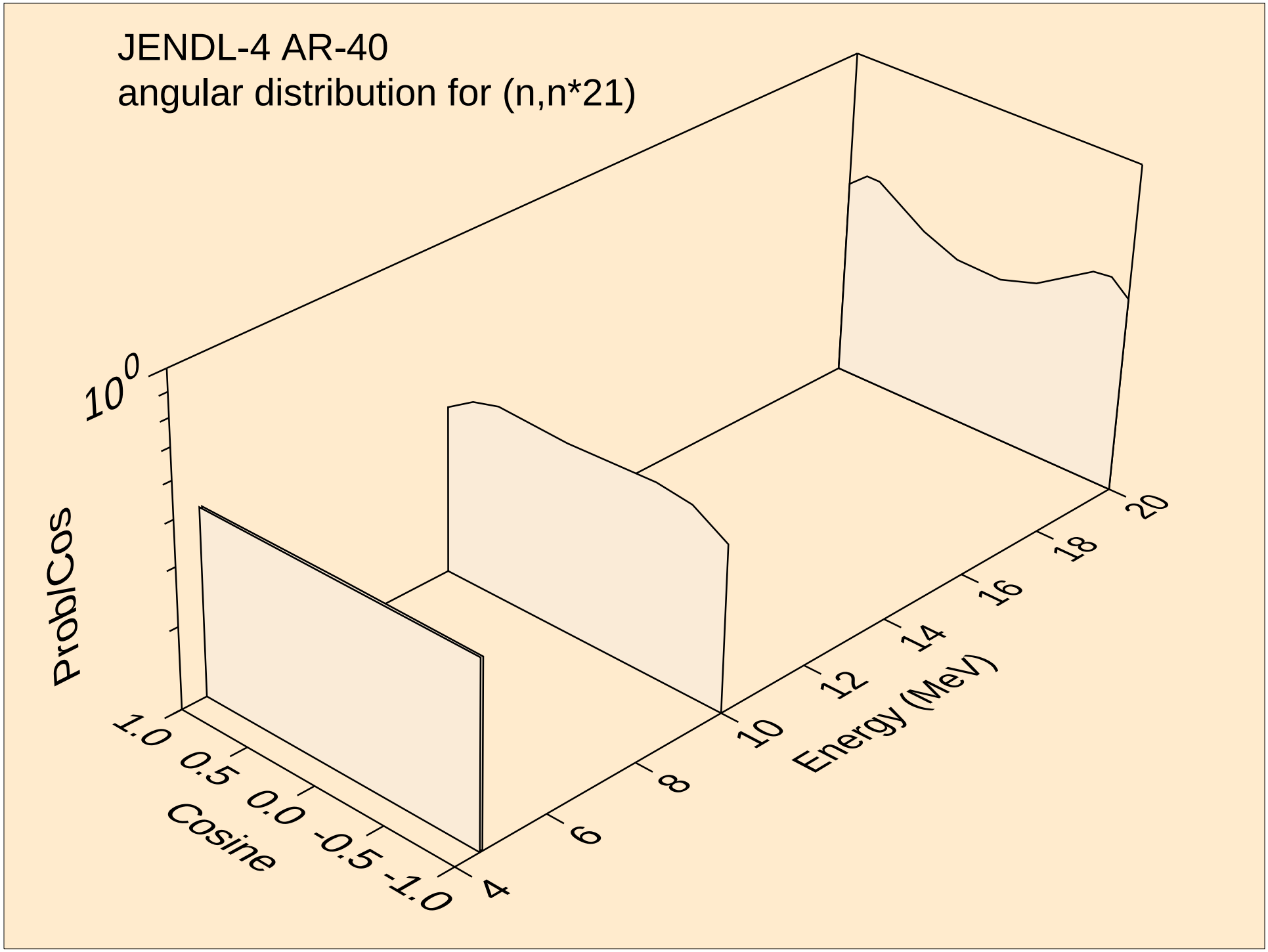

JENDL-4 AR-40
angular distribution for (n,n*16)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

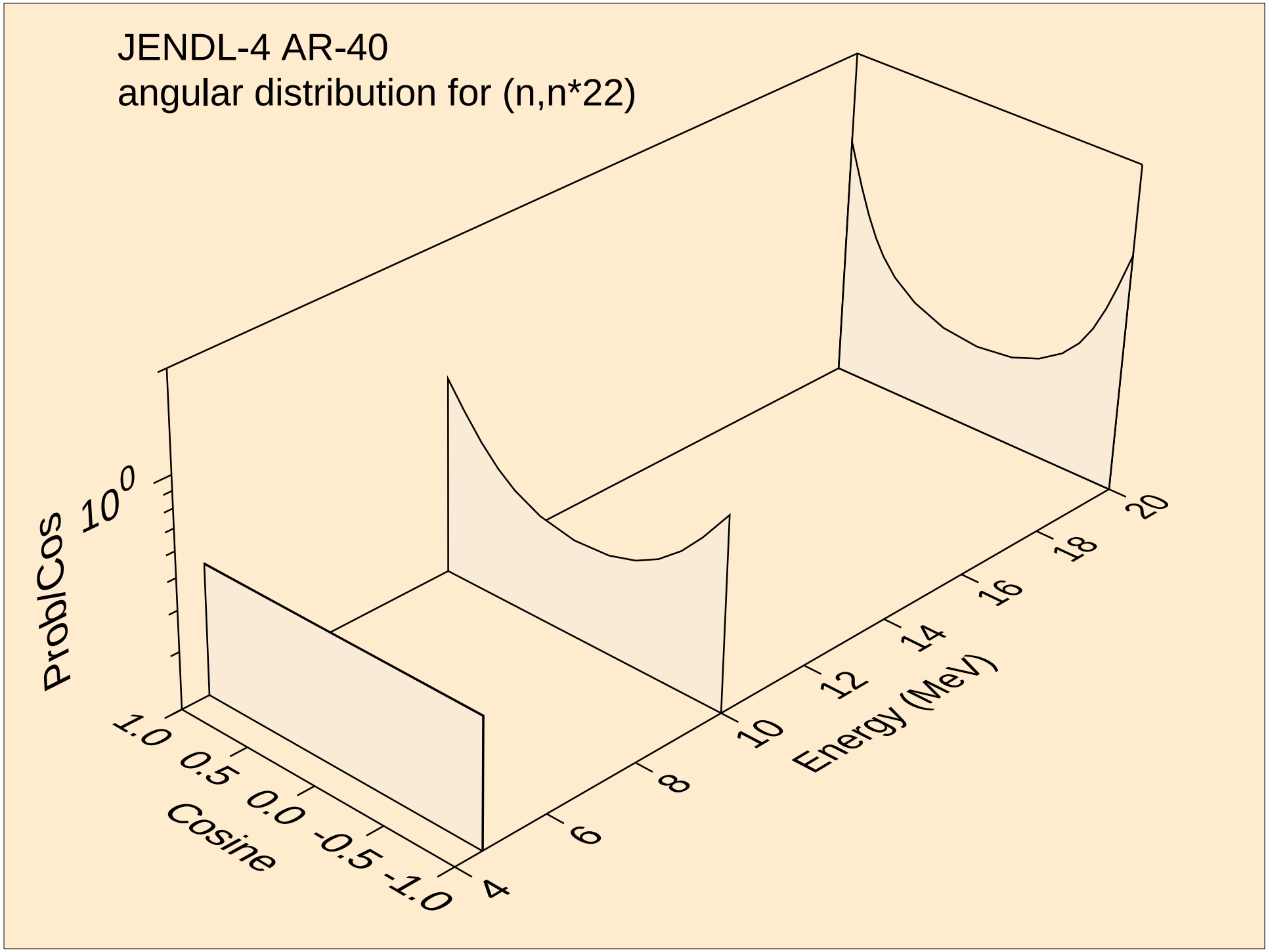

JENDL-4 AR-40
angular distribution for (n,n*17)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

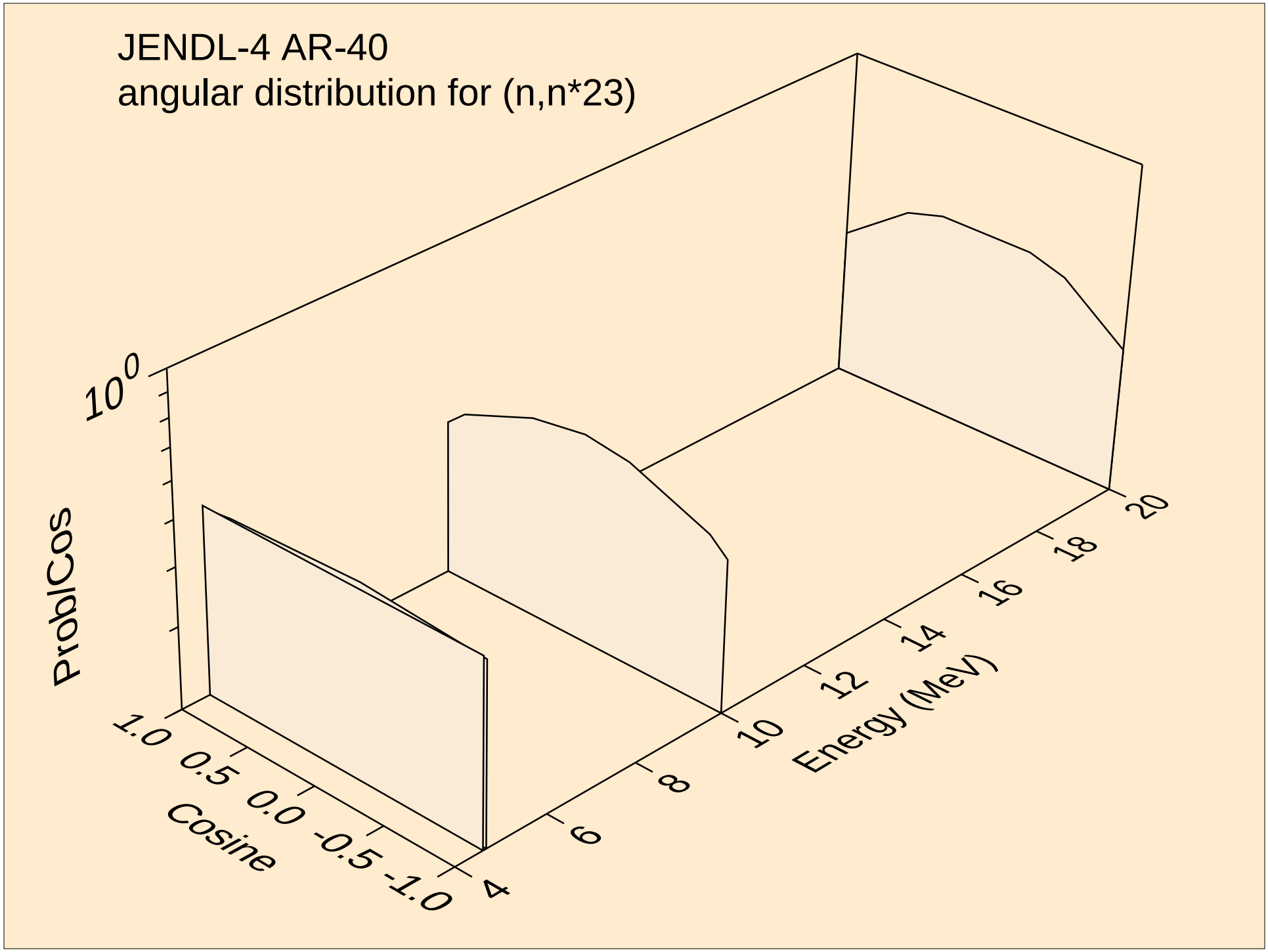

JENDL-4 AR-40
angular distribution for (n,n*18)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

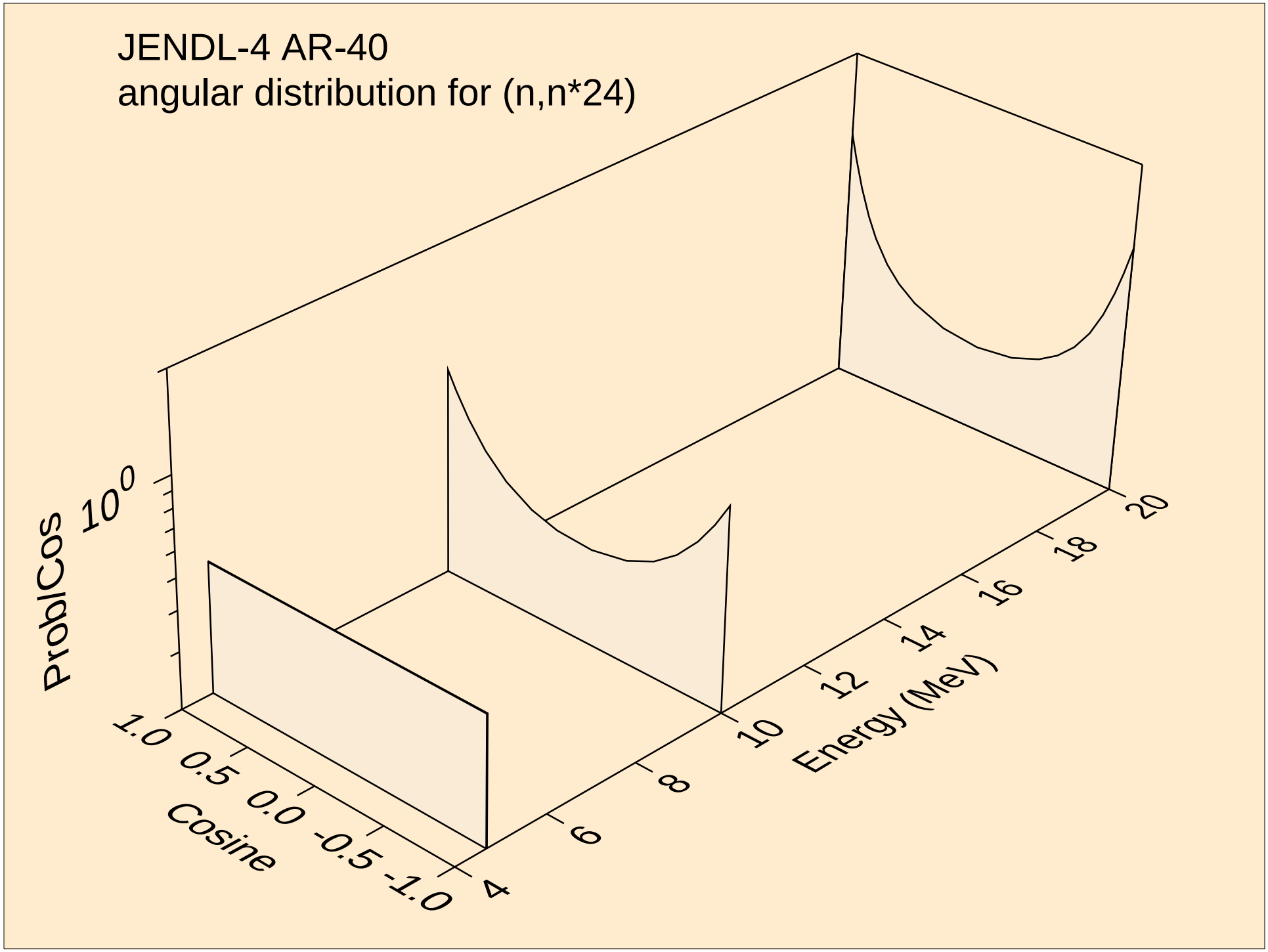

JENDL-4 AR-40
angular distribution for (n,n*19)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

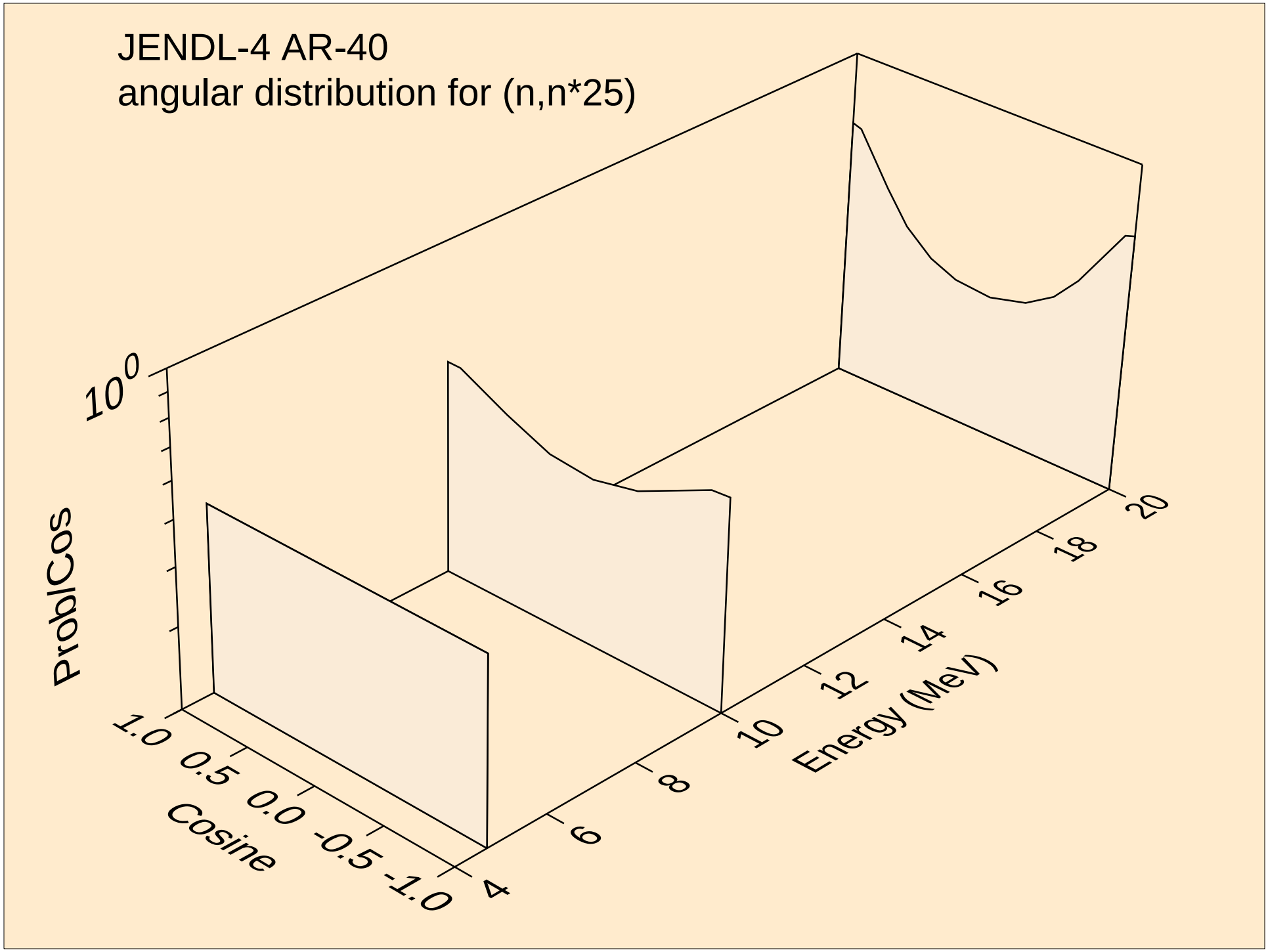

JENDL-4 AR-40
angular distribution for (n,n*20)
ProbCos
10^0
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
4
6
8
10
12
14
16
18
20

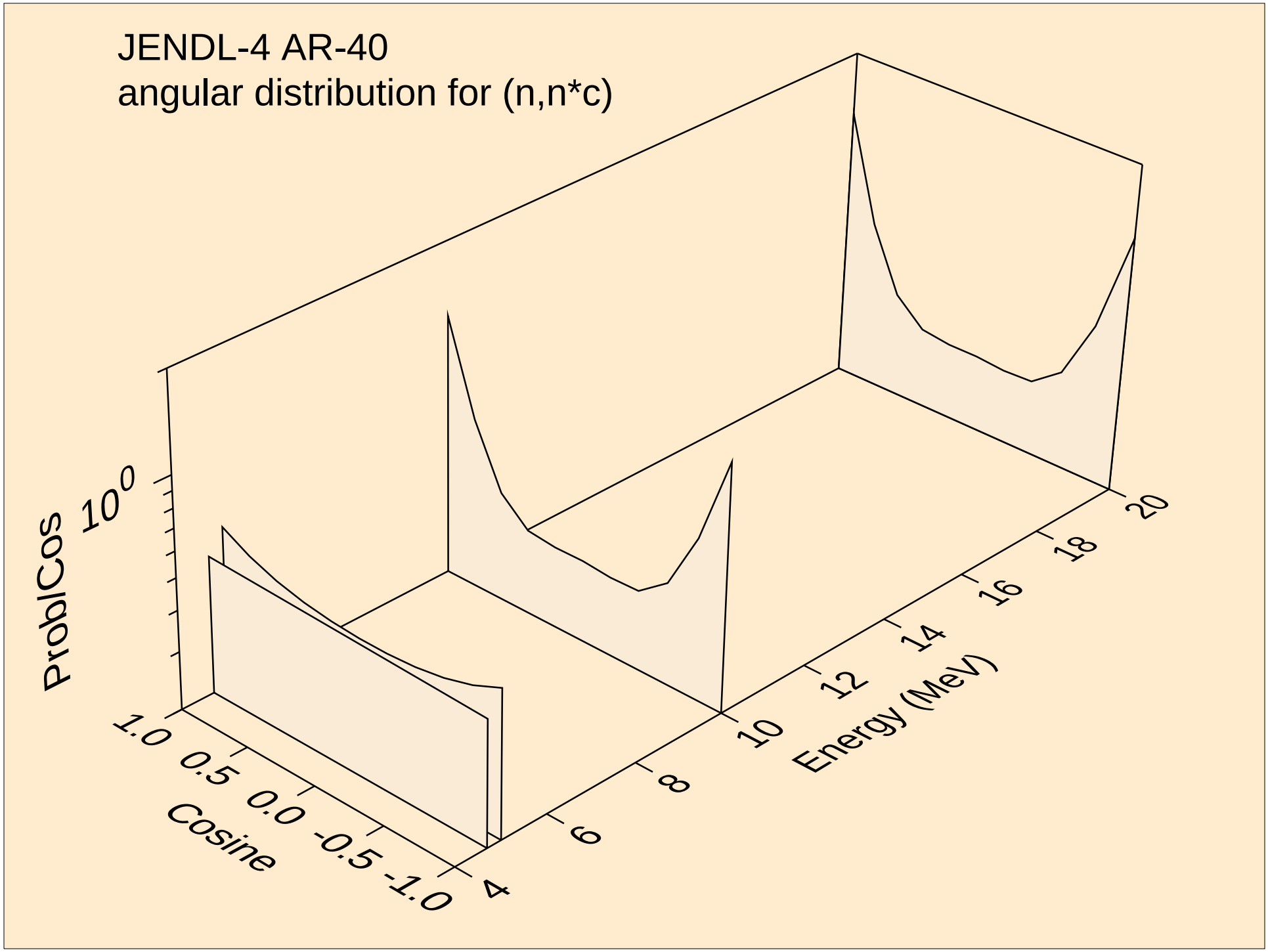

JENDL-4 AR-40
angular distribution for (n,n*21)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

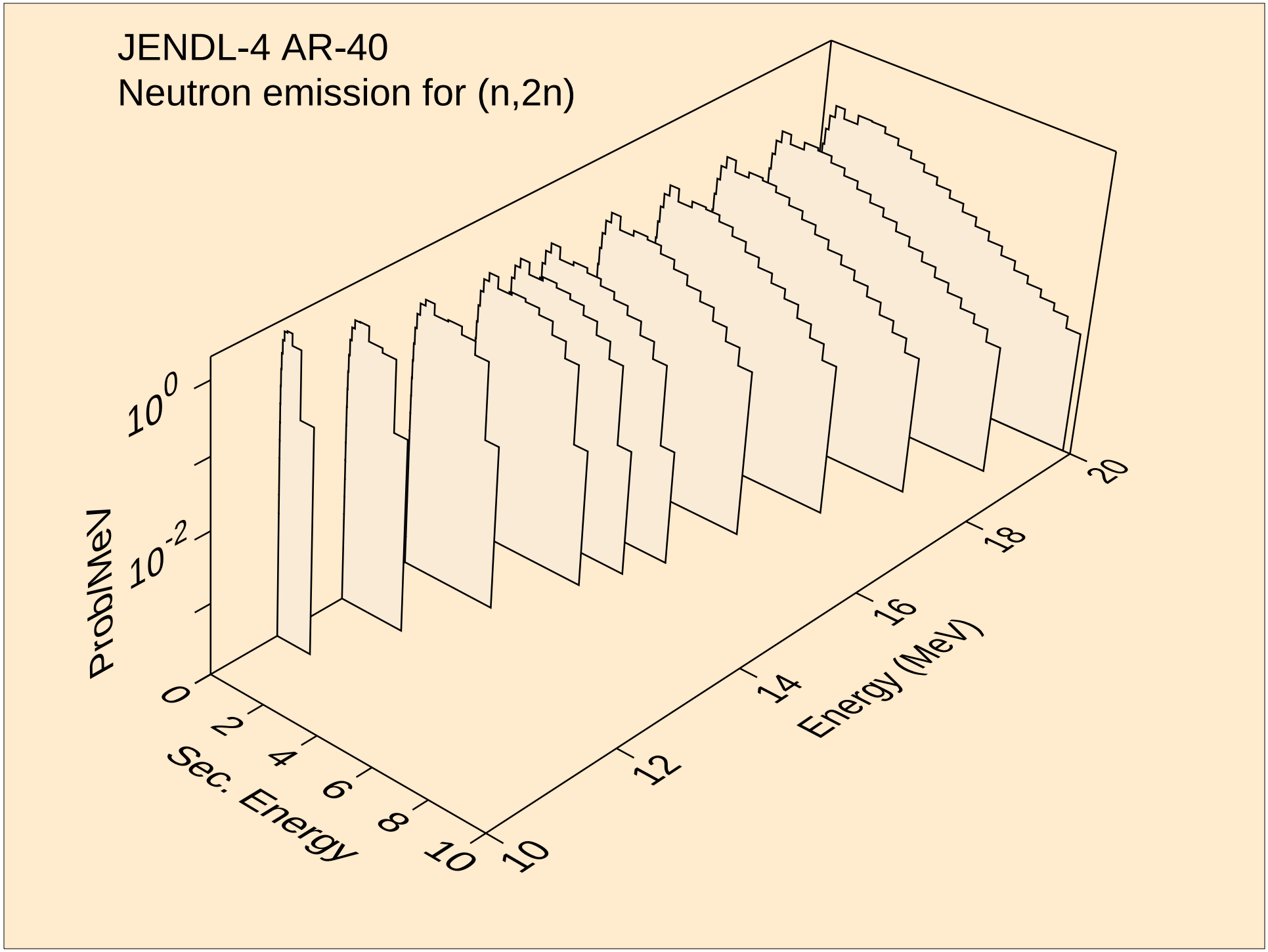

JENDL-4 AR-40
angular distribution for (n,n*22)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

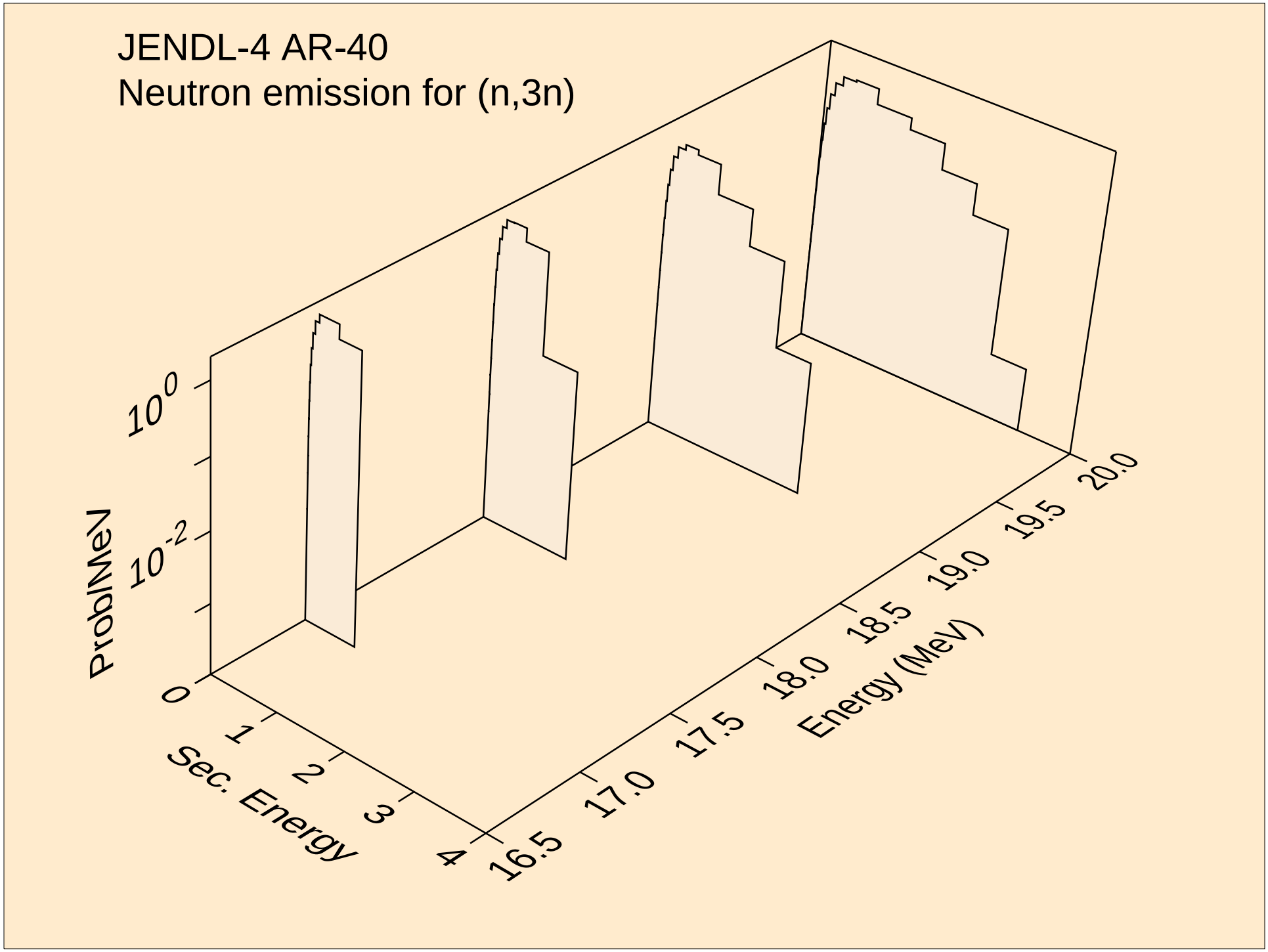

JENDL-4 AR-40
angular distribution for (n,n*23)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

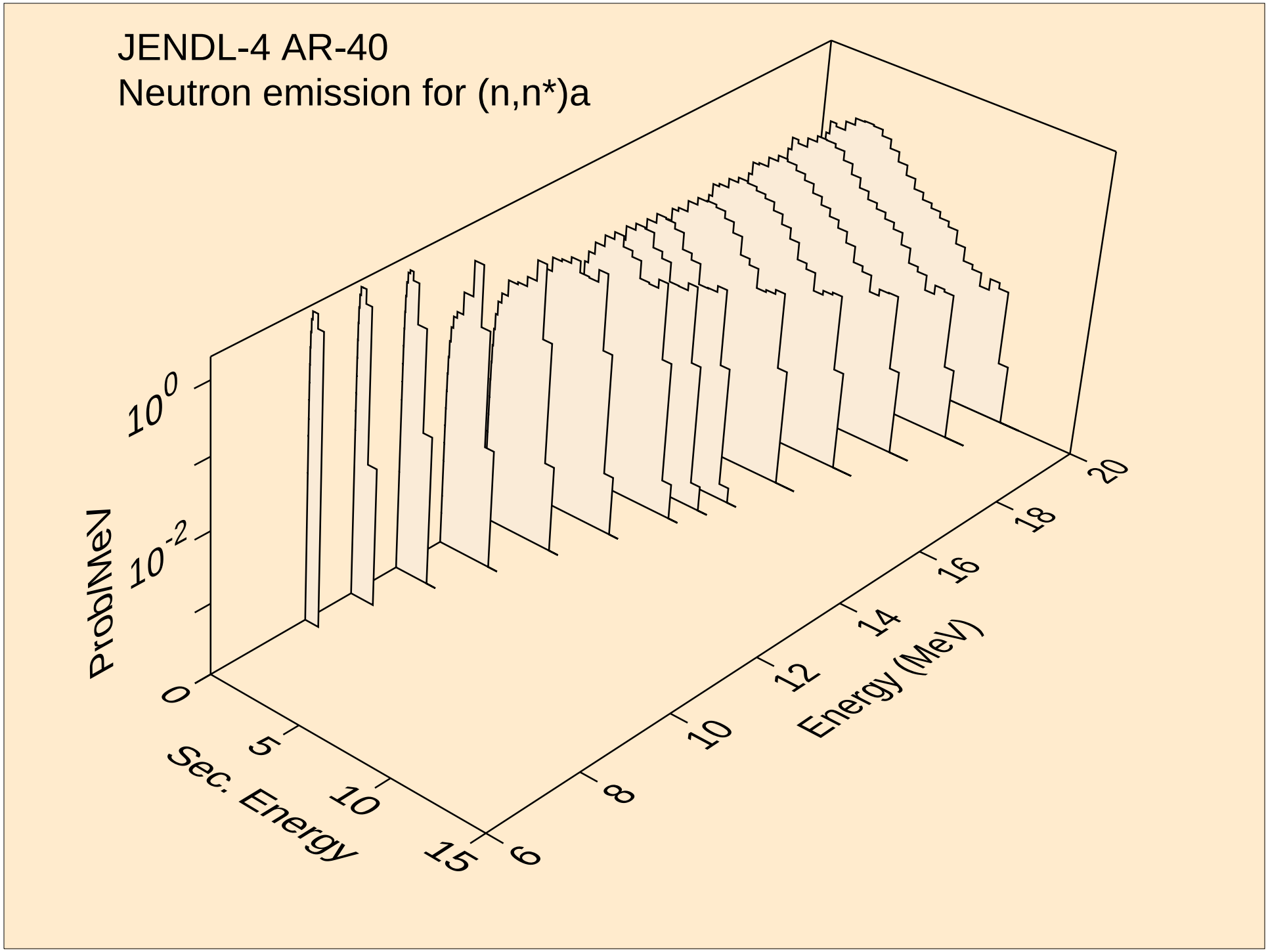

JENDL-4 AR-40
angular distribution for (n,n*24)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

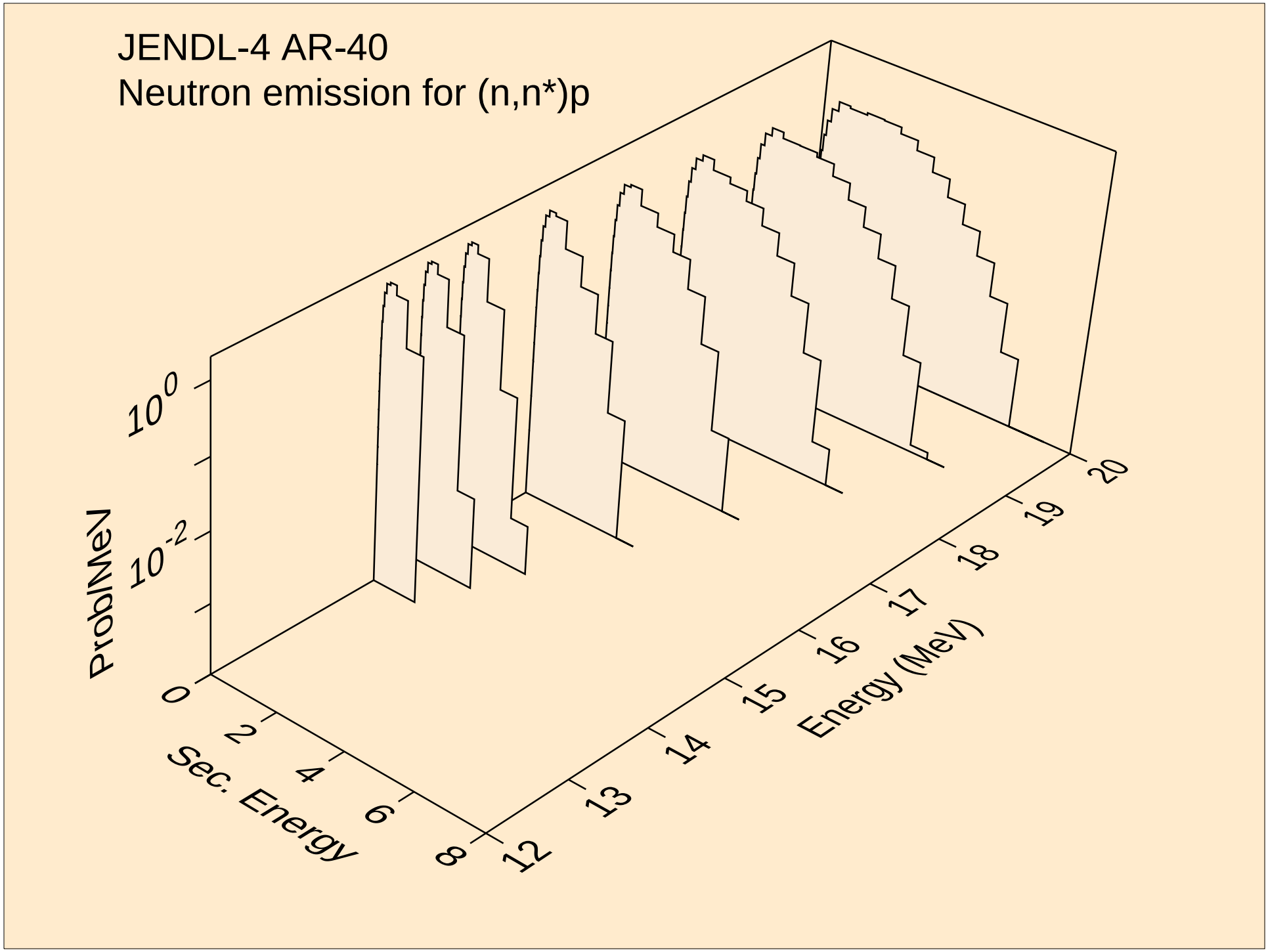

JENDL-4 AR-40
angular distribution for (n,n*25)
10^0
ProbCos
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)

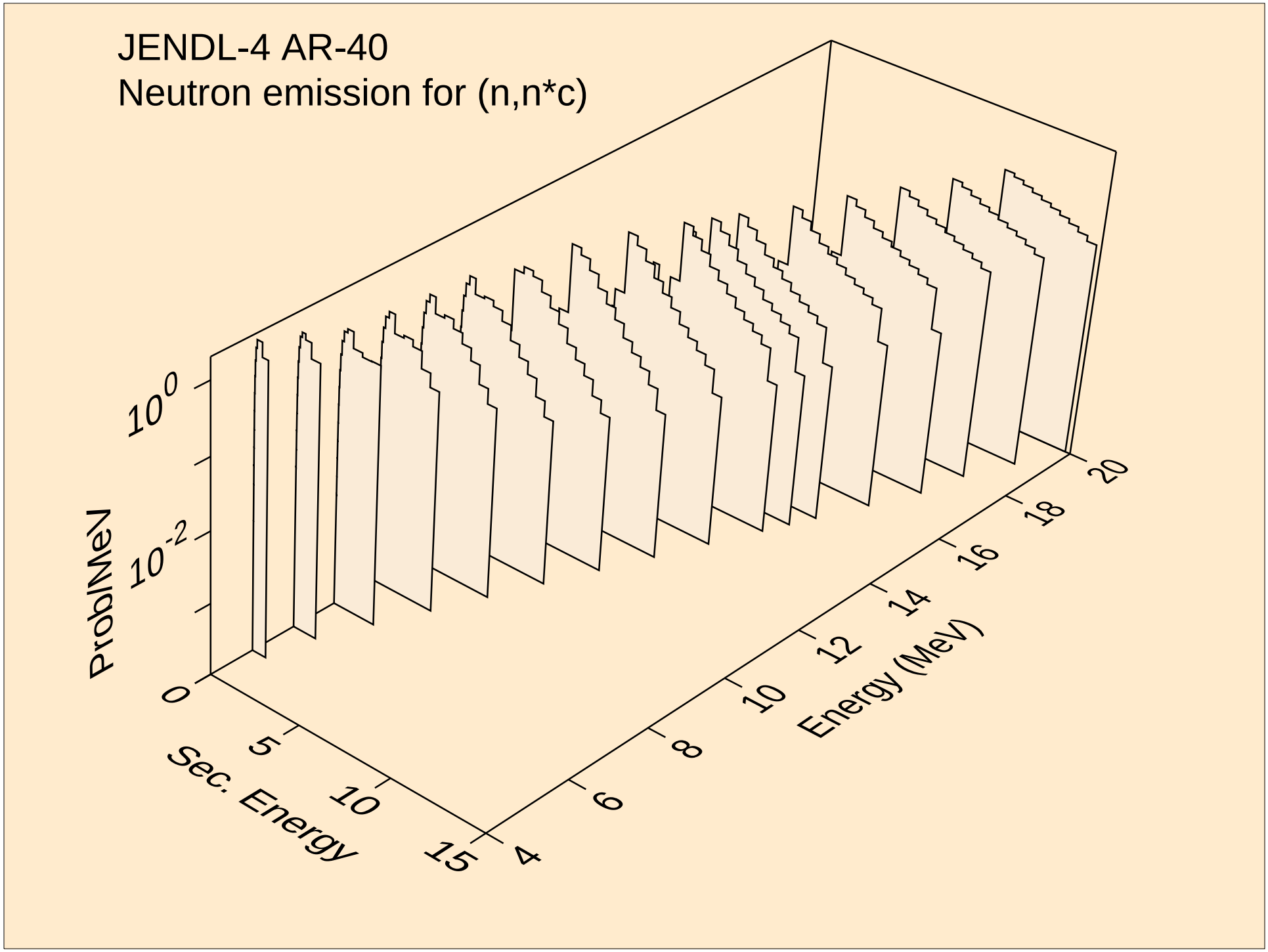

JENDL-4 AR-40
angular distribution for (n,n*c)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
4
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 AR-40
Neutron emission for (n,2n)
Prob/MeV
10^0
10^{-2}
0
2
4
6
8
10
Sec. Energy
10
12
14
16
18
20
Energy (MeV)


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


JENDL-4 AR-40
Neutron emission for (n,n*)a
Prob/MeV
10^0
10^{-2}
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)


JENDL-4 AR-40
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)


JENDL-4 AR-40
Neutron emission for (n,n*c)
Prob/MeV
10^0
10^{-2}
0
5
10
15
Sec. Energy
4
6
8
10
12
14
16
18
20
Energy (MeV)