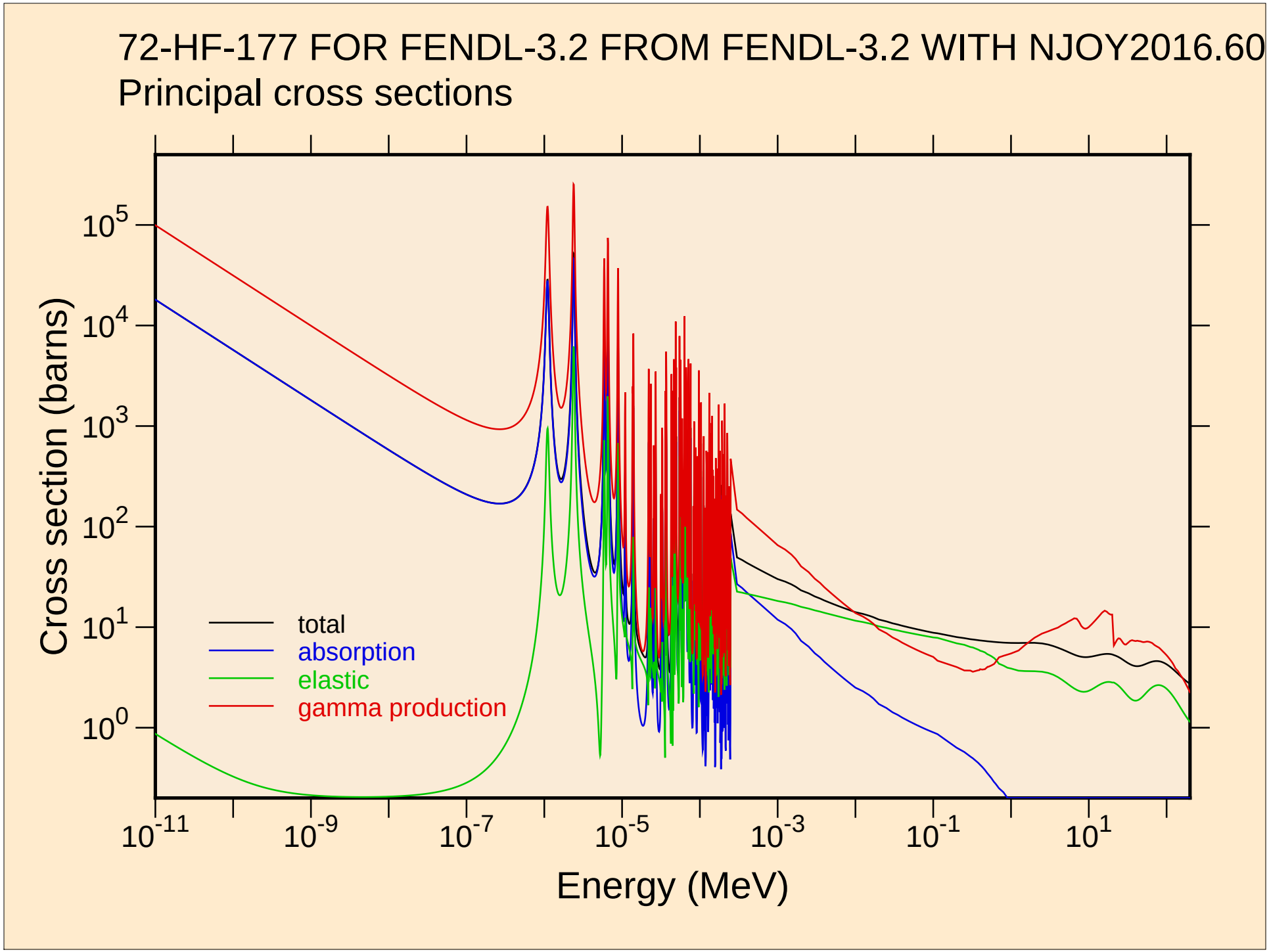
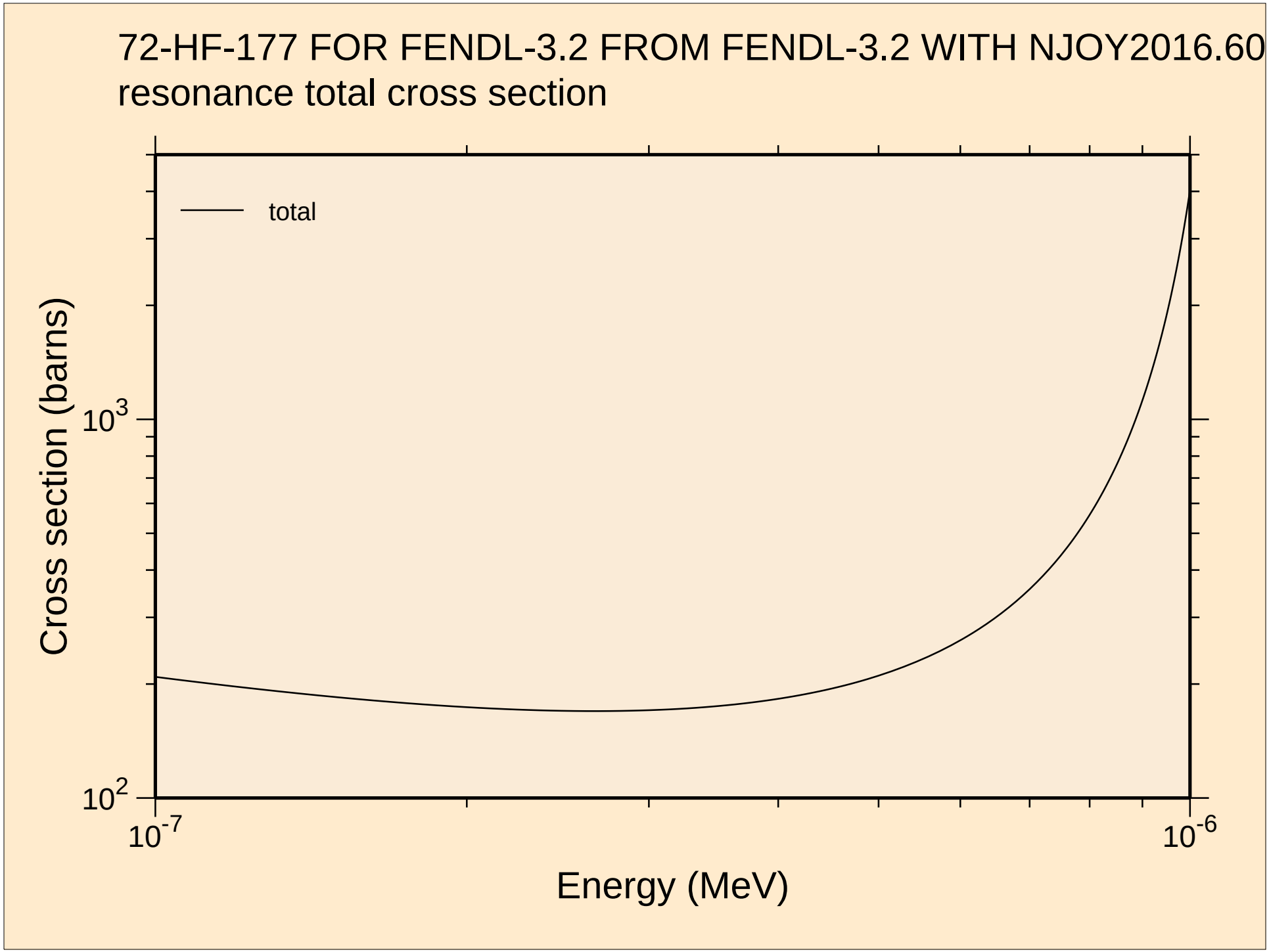
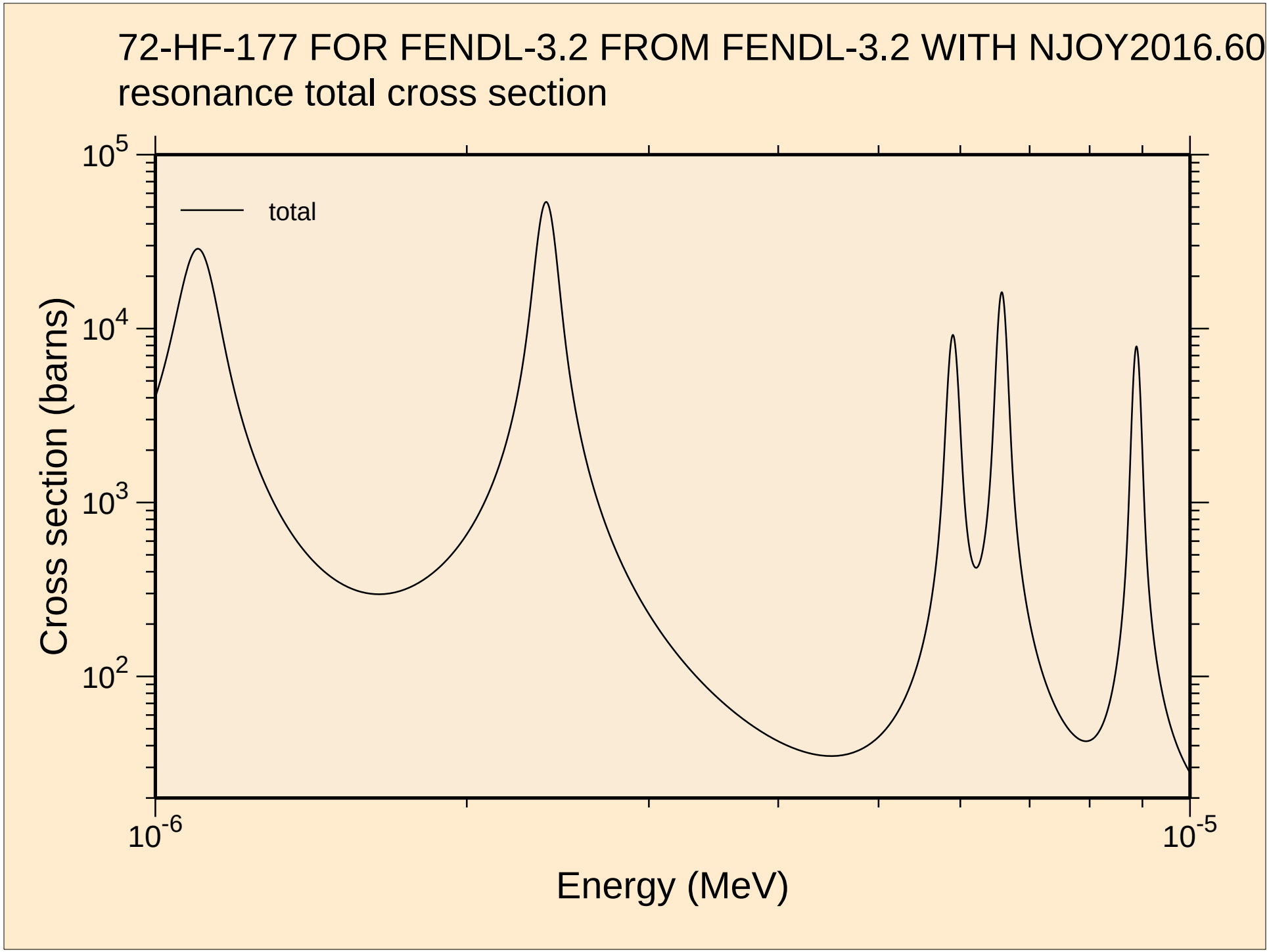
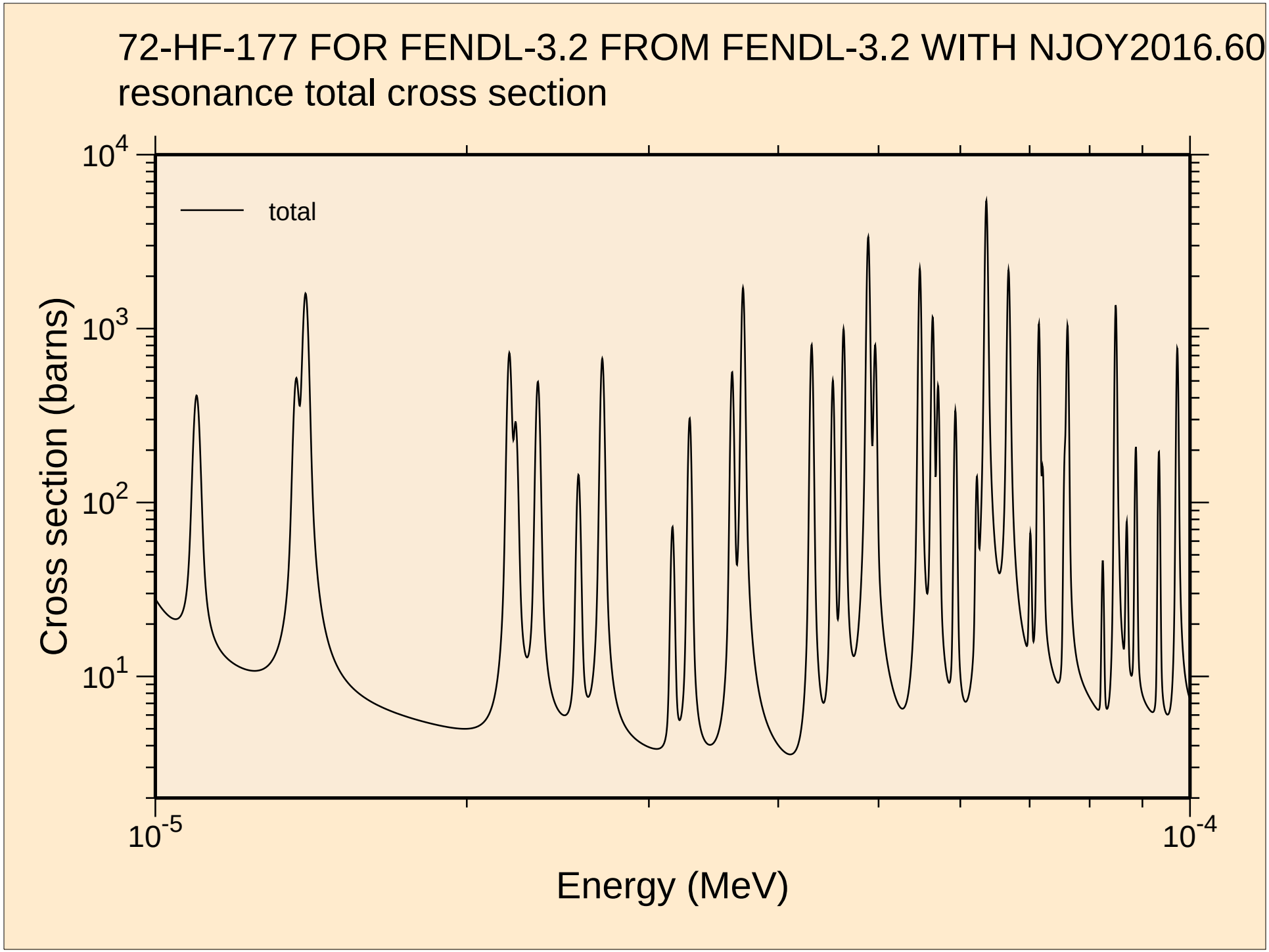
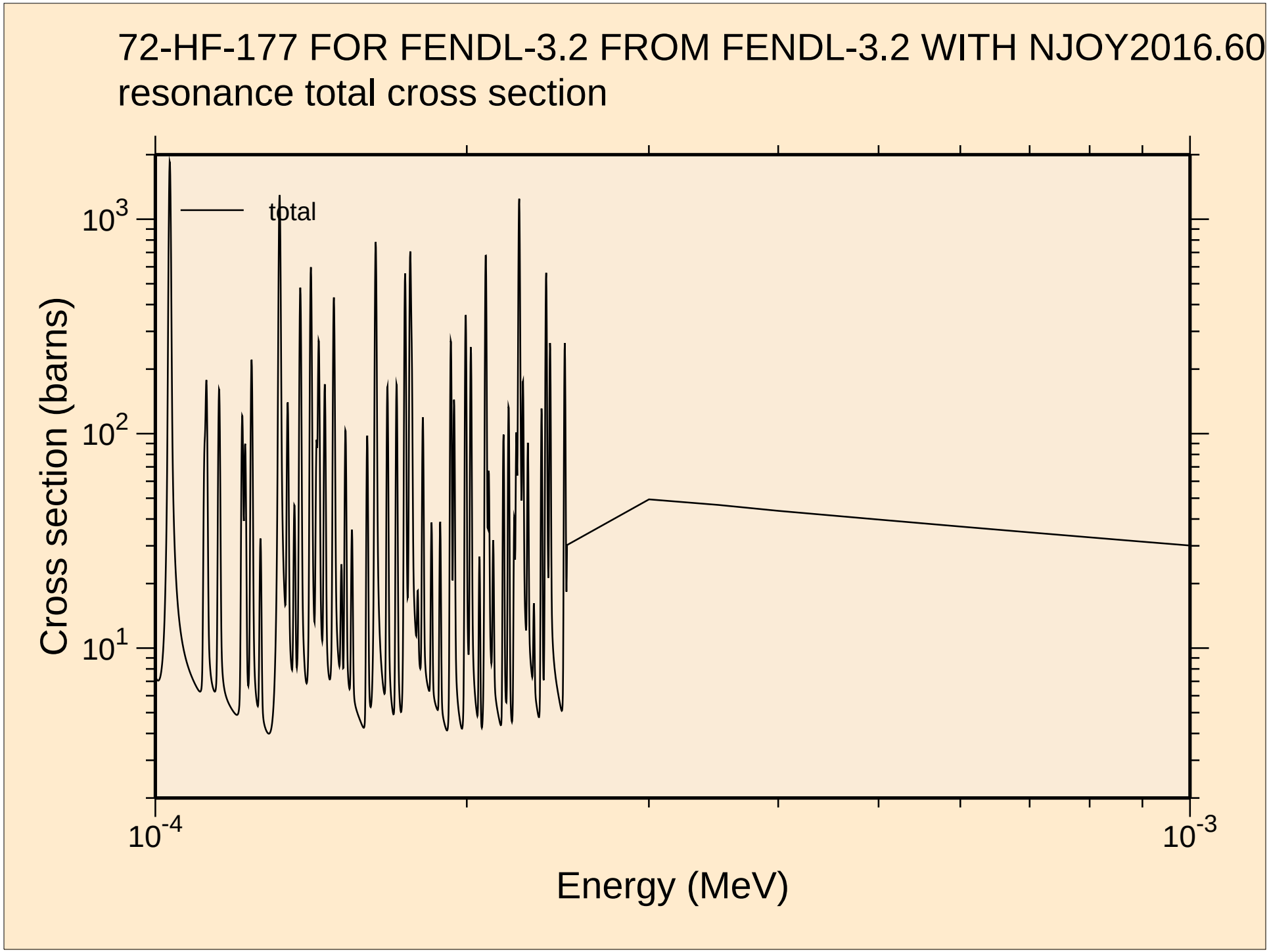
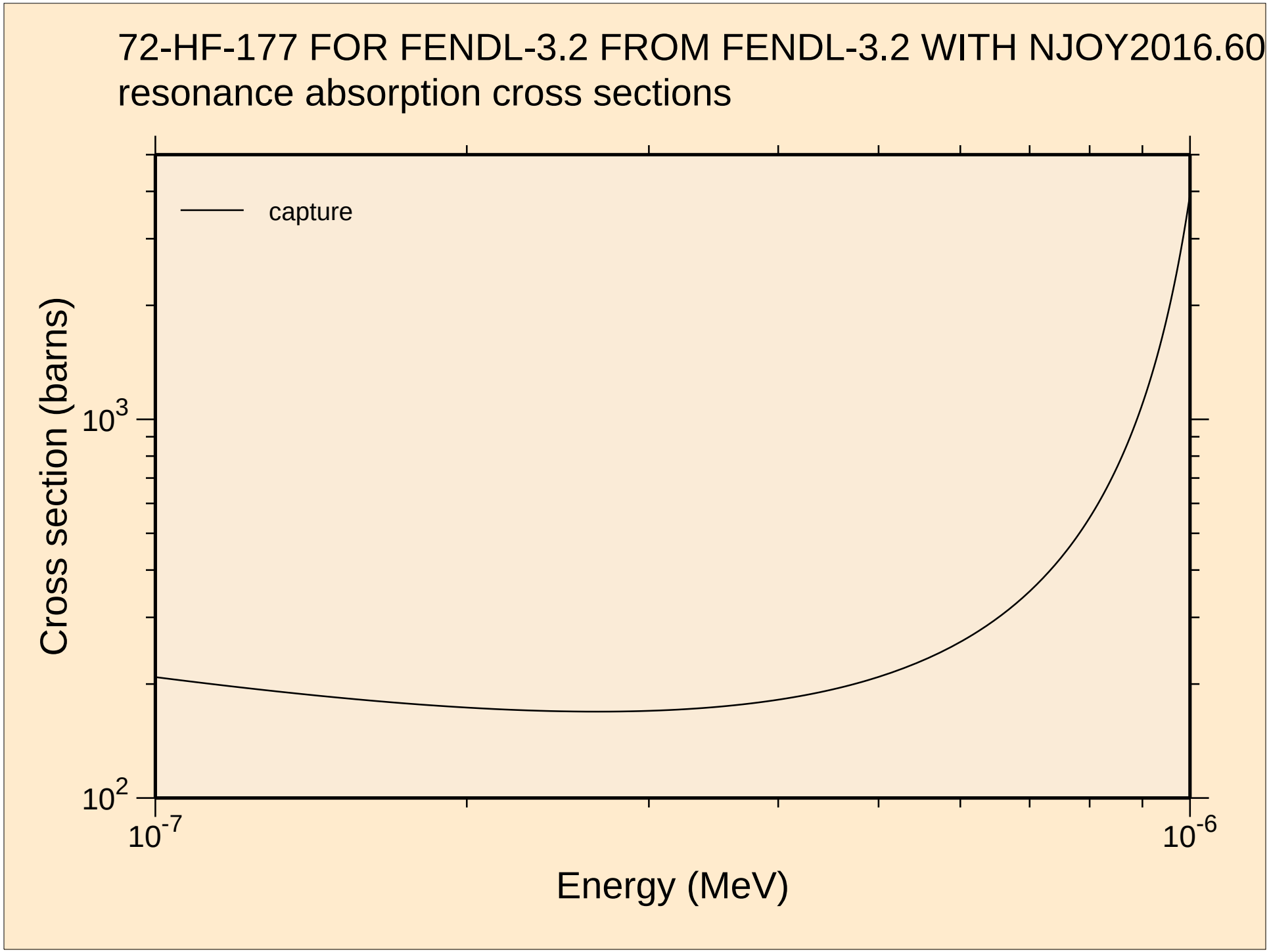

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Principal cross sections
Cross section (barns)
10^5
10^4
10^3
10^2
10^1
10^0
total
absorption
elastic
gamma production
10^{-11}
10^{-9}
10^{-7}
10^{-5}
10^{-3}
10^{-1}
10^1
Energy (MeV)

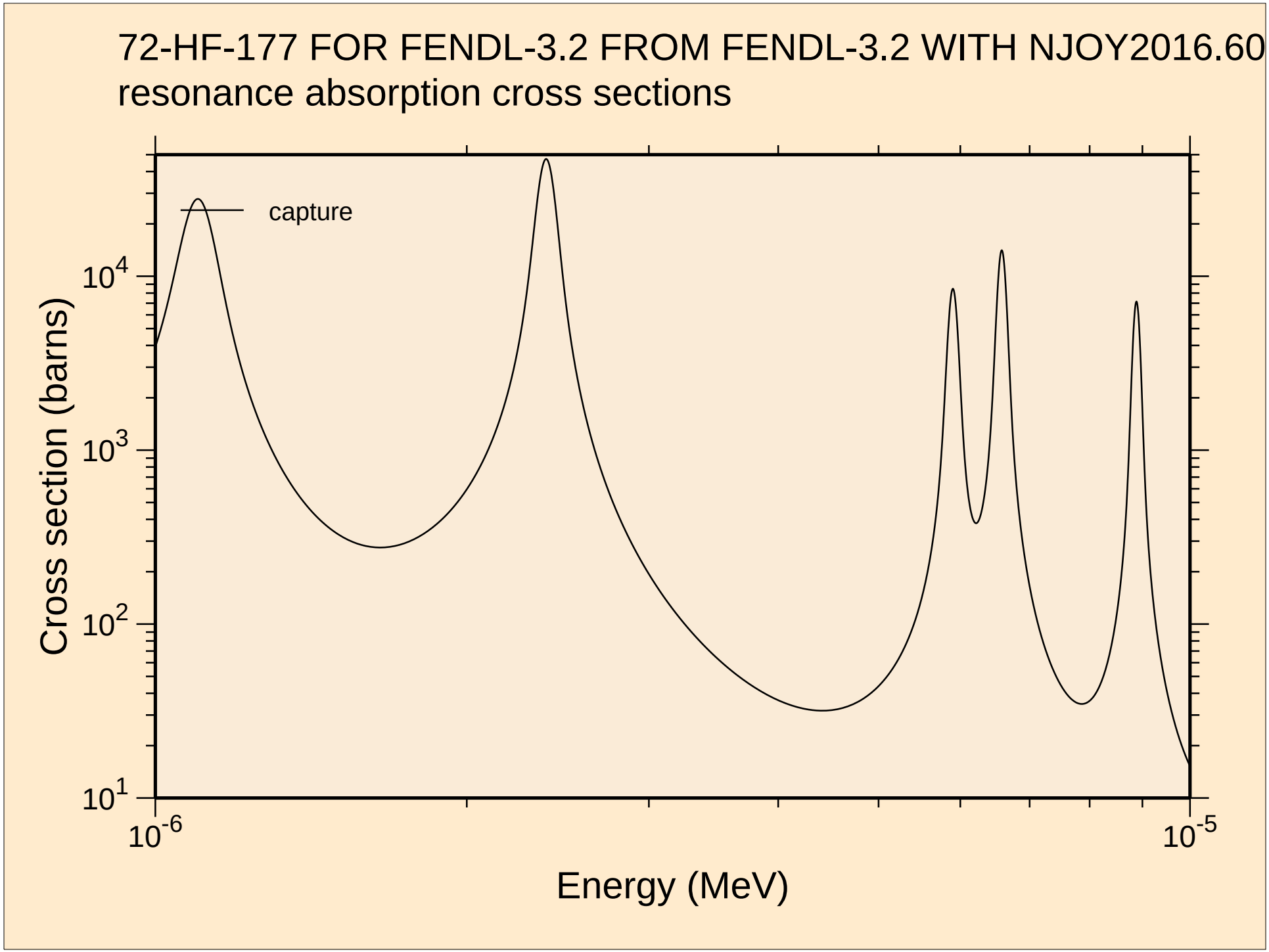

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^-7
10^-6
Energy (MeV)

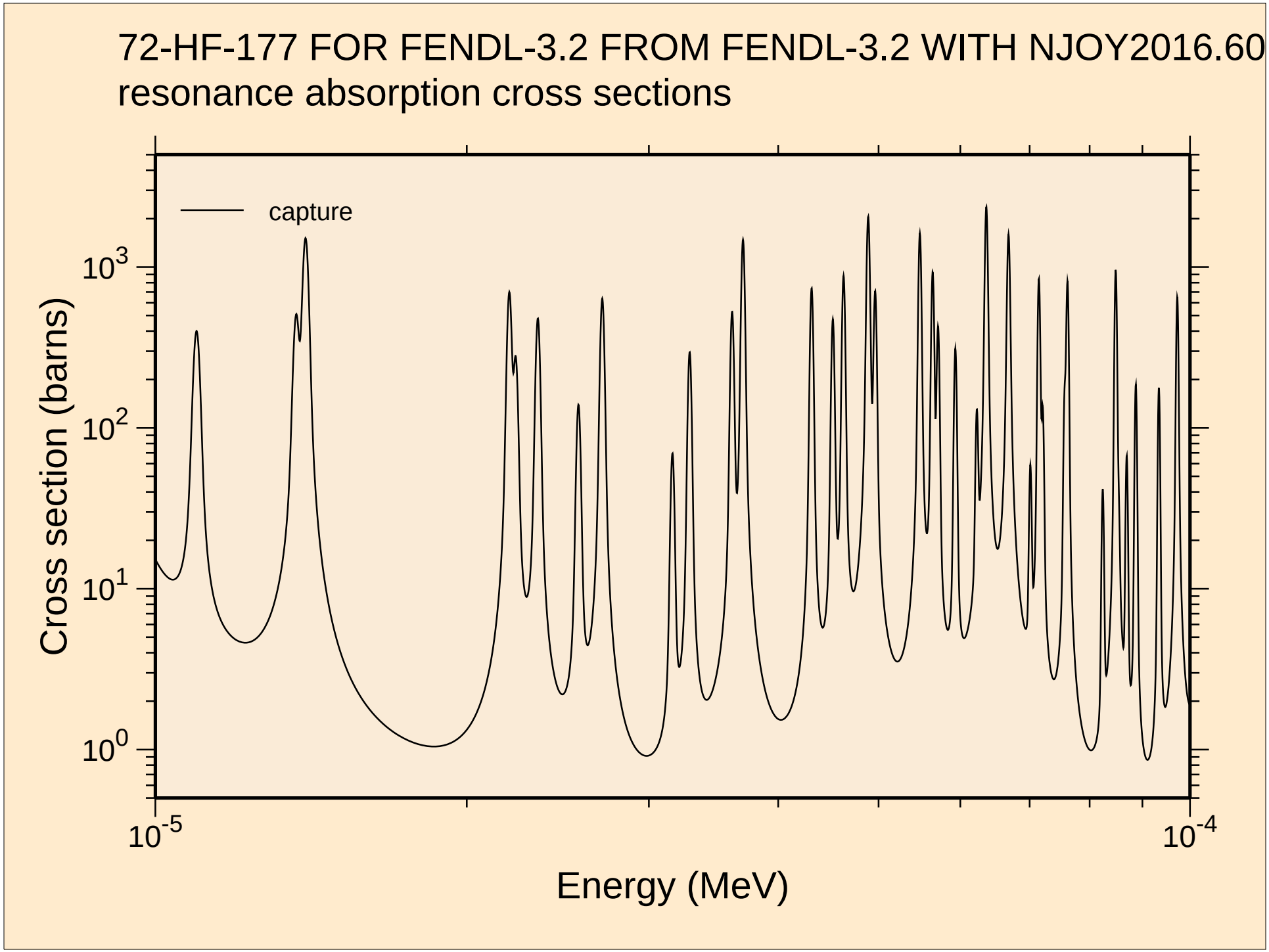

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance total cross section
total
Cross section (barns)
10^5
10^4
10^3
10^2
10^-6
10^-5
Energy (MeV)

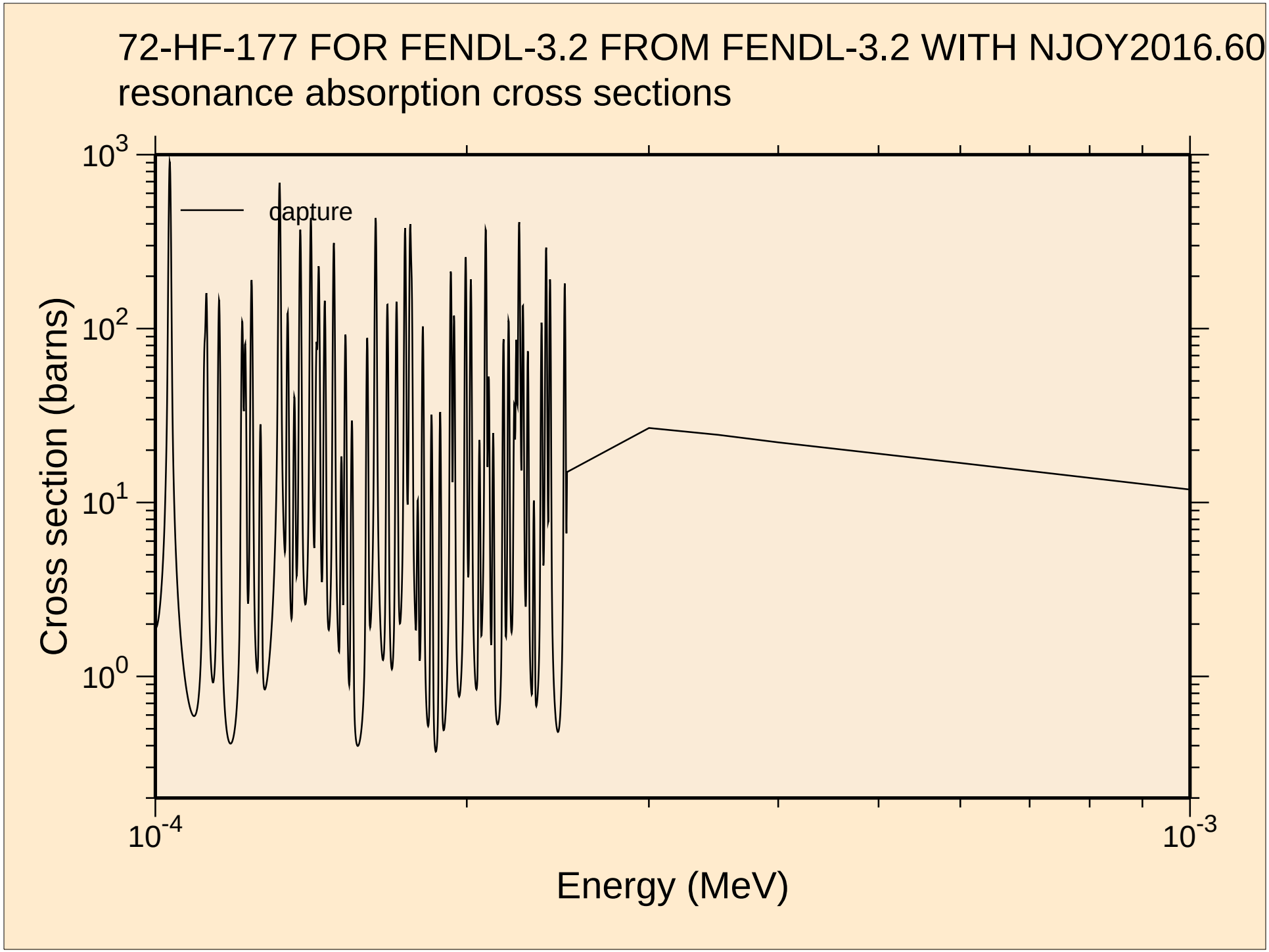

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance total cross section
total
Cross section (barns)
10^4
10^3
10^2
10^1
10^-5
10^-4
Energy (MeV)

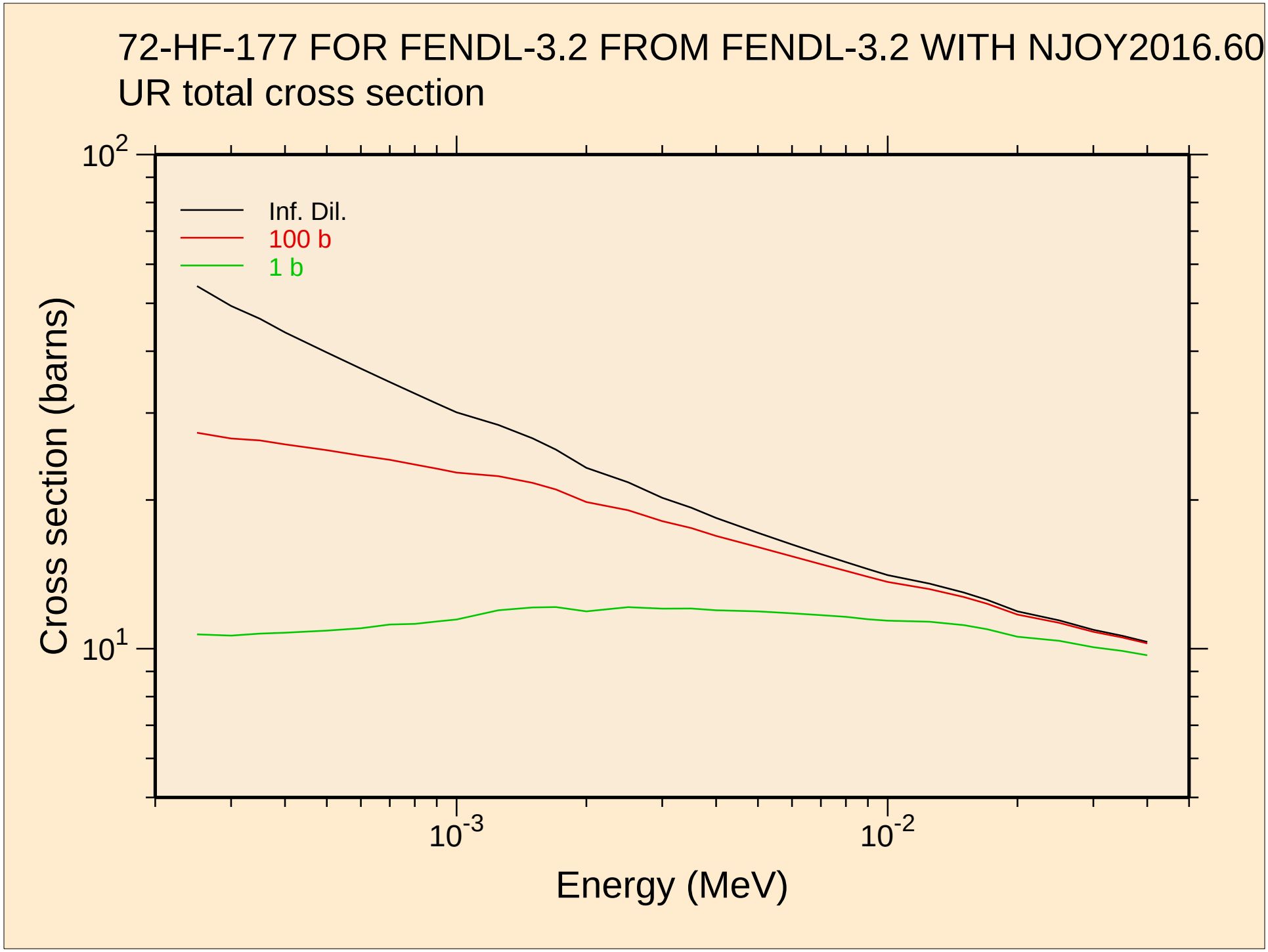

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^-4
10^-3
Energy (MeV)

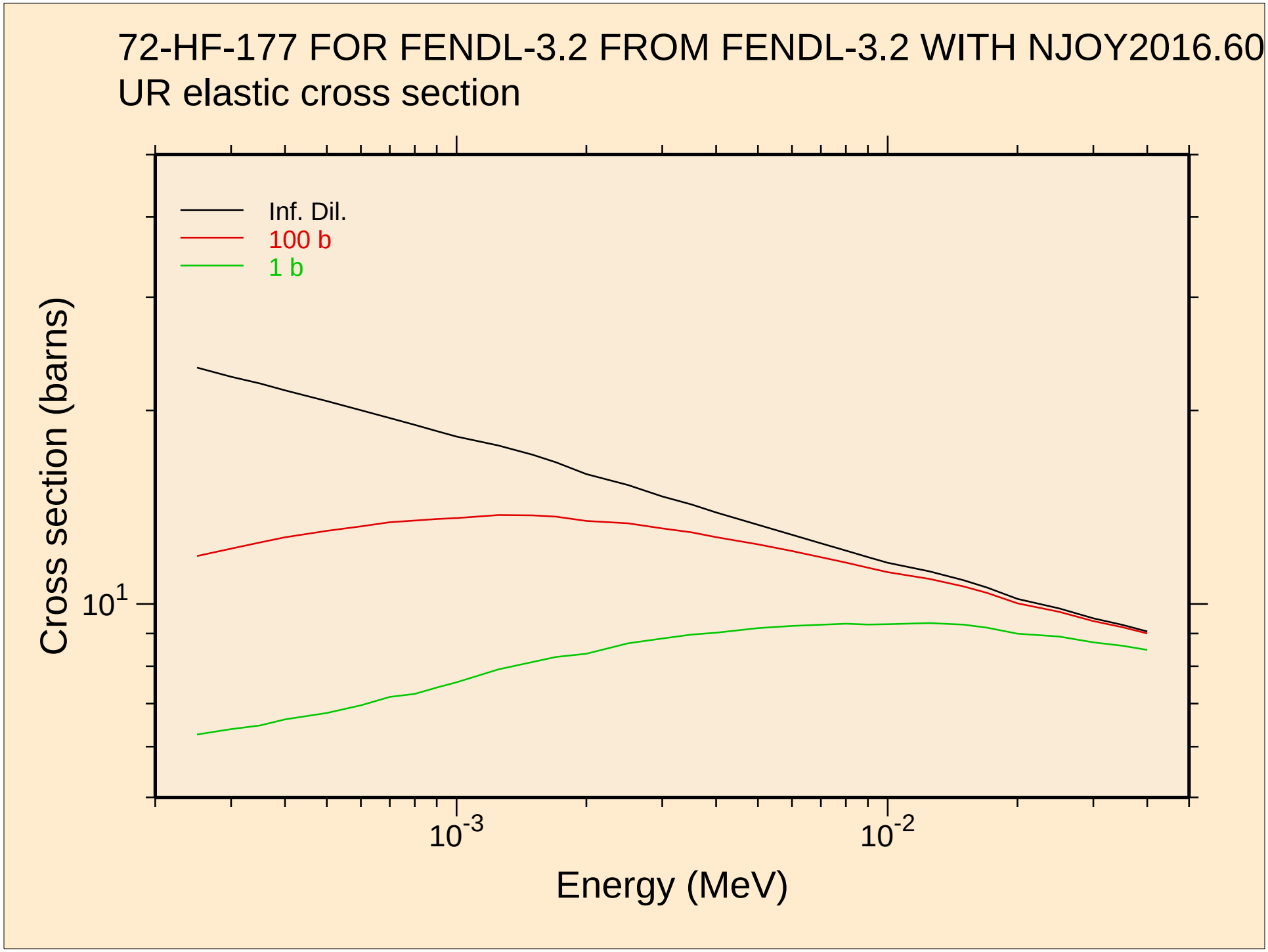

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance absorption cross sections
capture
Cross section (barns)
10^3
10^2
10^-7
10^-6
Energy (MeV)

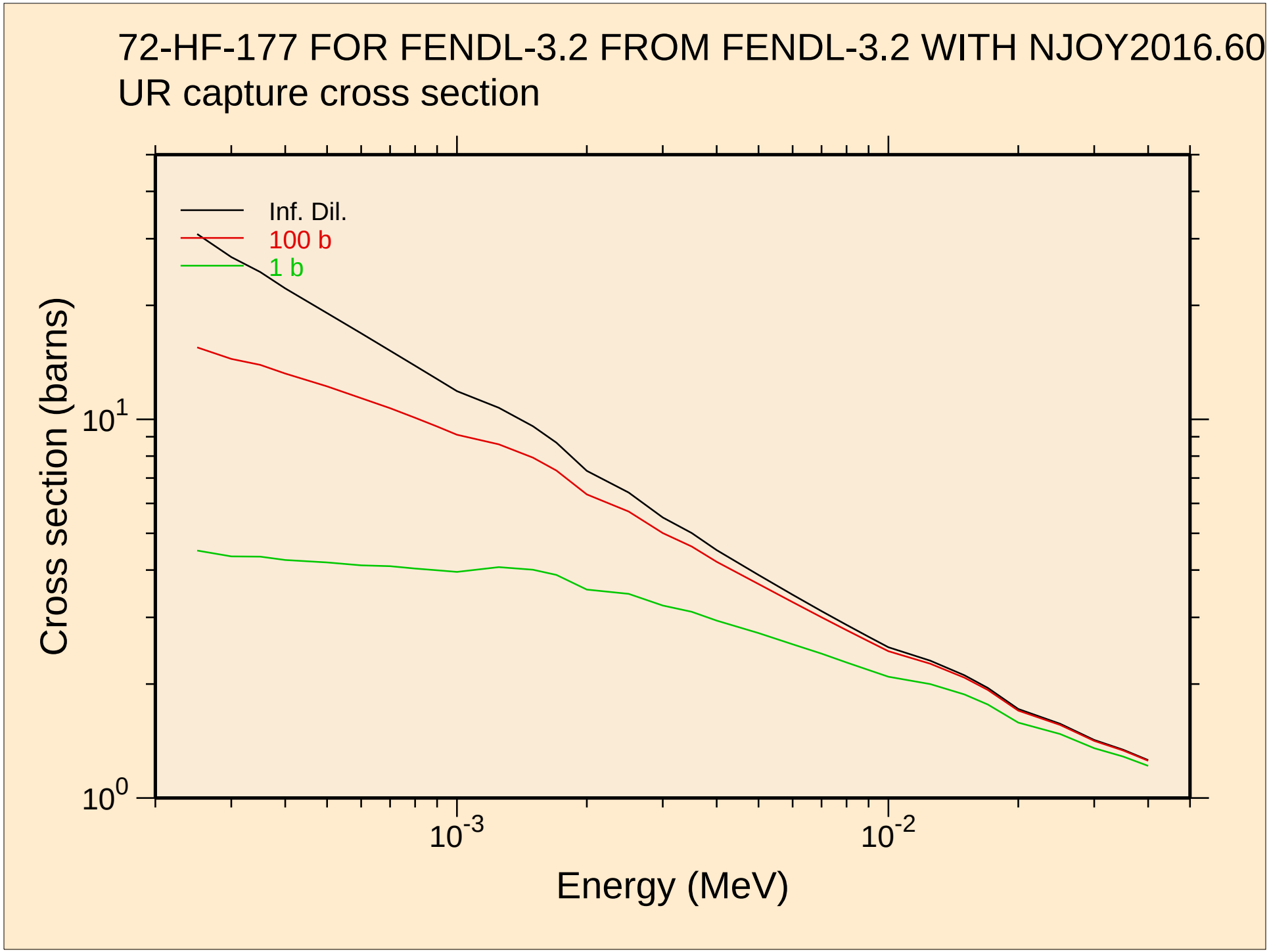

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance absorption cross sections
capture
Cross section (barns)
10^4
10^3
10^2
10^1
10^-6
10^-5
Energy (MeV)

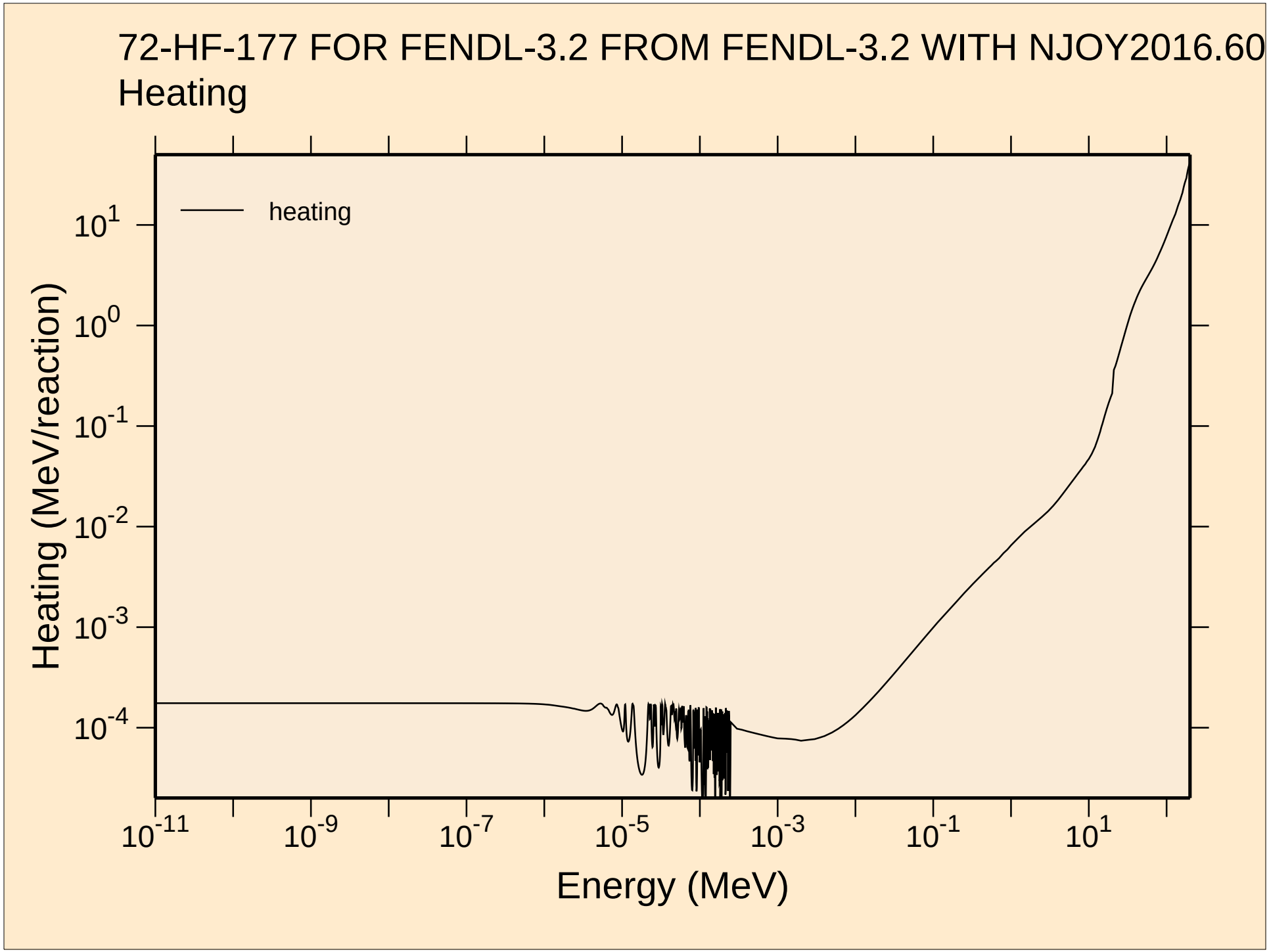

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance absorption cross sections
capture
Cross section (barns)
10^3
10^2
10^1
10^0
10^-5
10^-4
Energy (MeV)

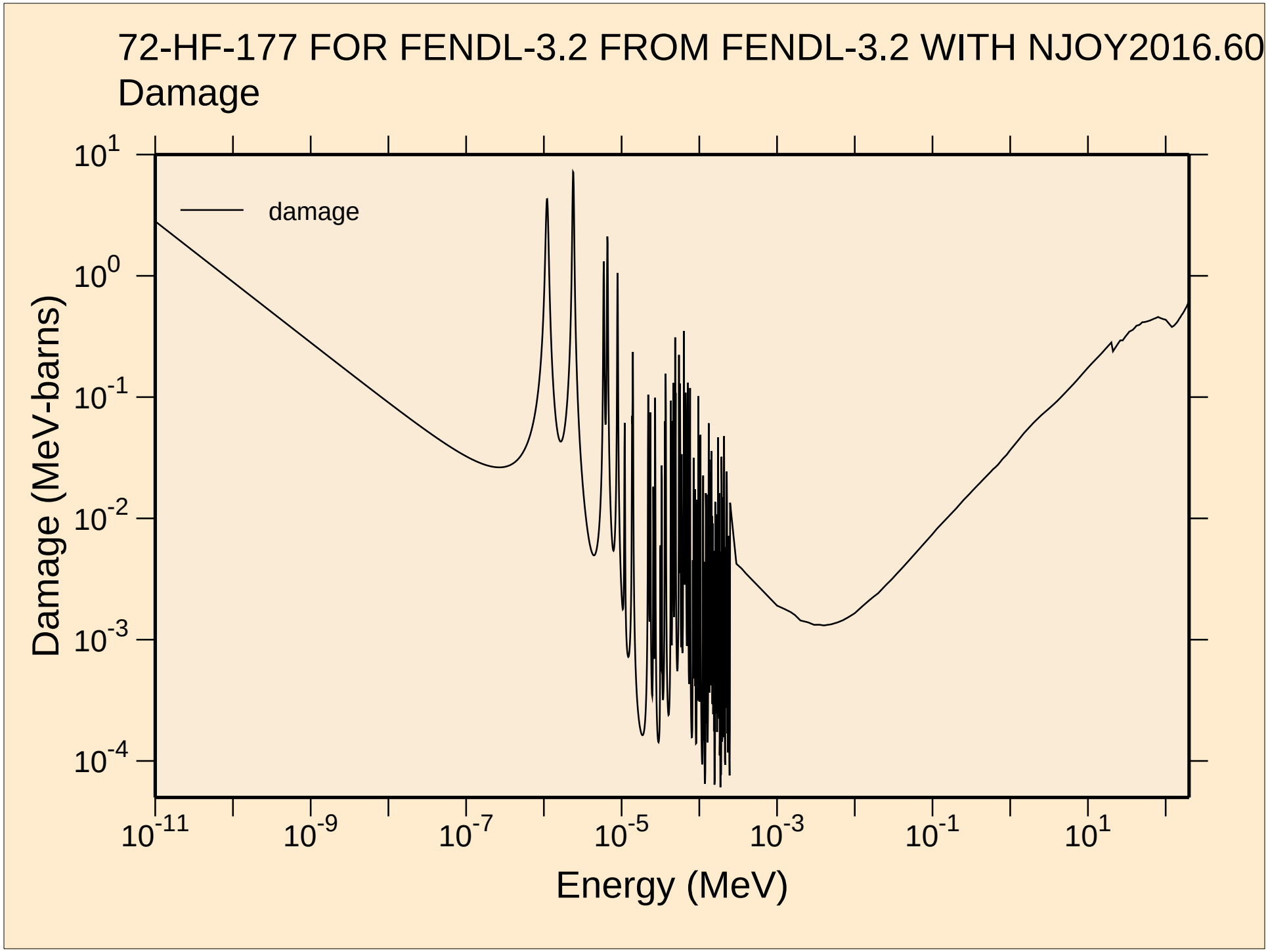

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
resonance absorption cross sections
capture
Cross section (barns)
10^3
10^2
10^1
10^0
10^-4
10^-3
Energy (MeV)

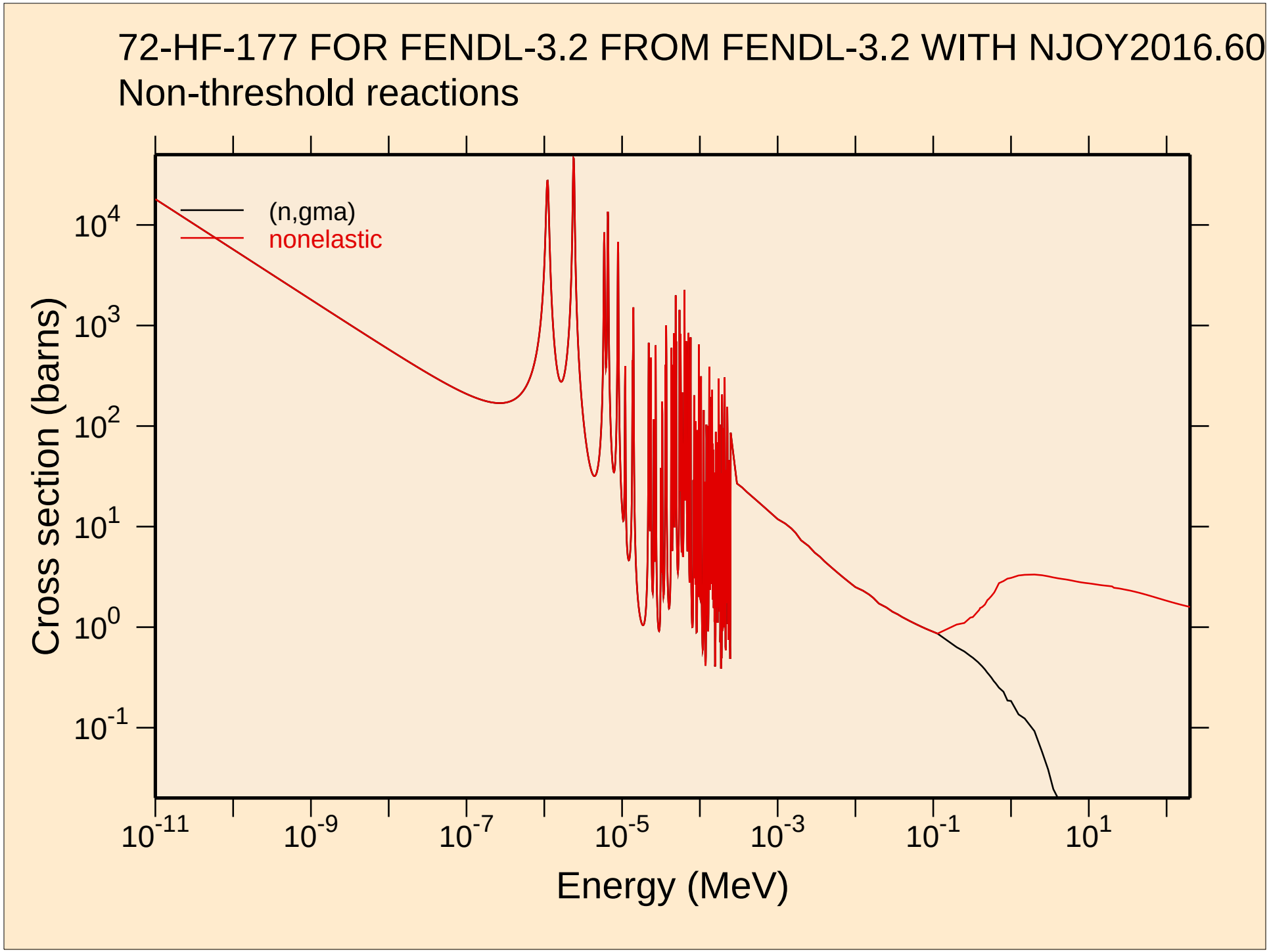

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
UR total cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^2
10^1
10^-3
10^-2
Energy (MeV)

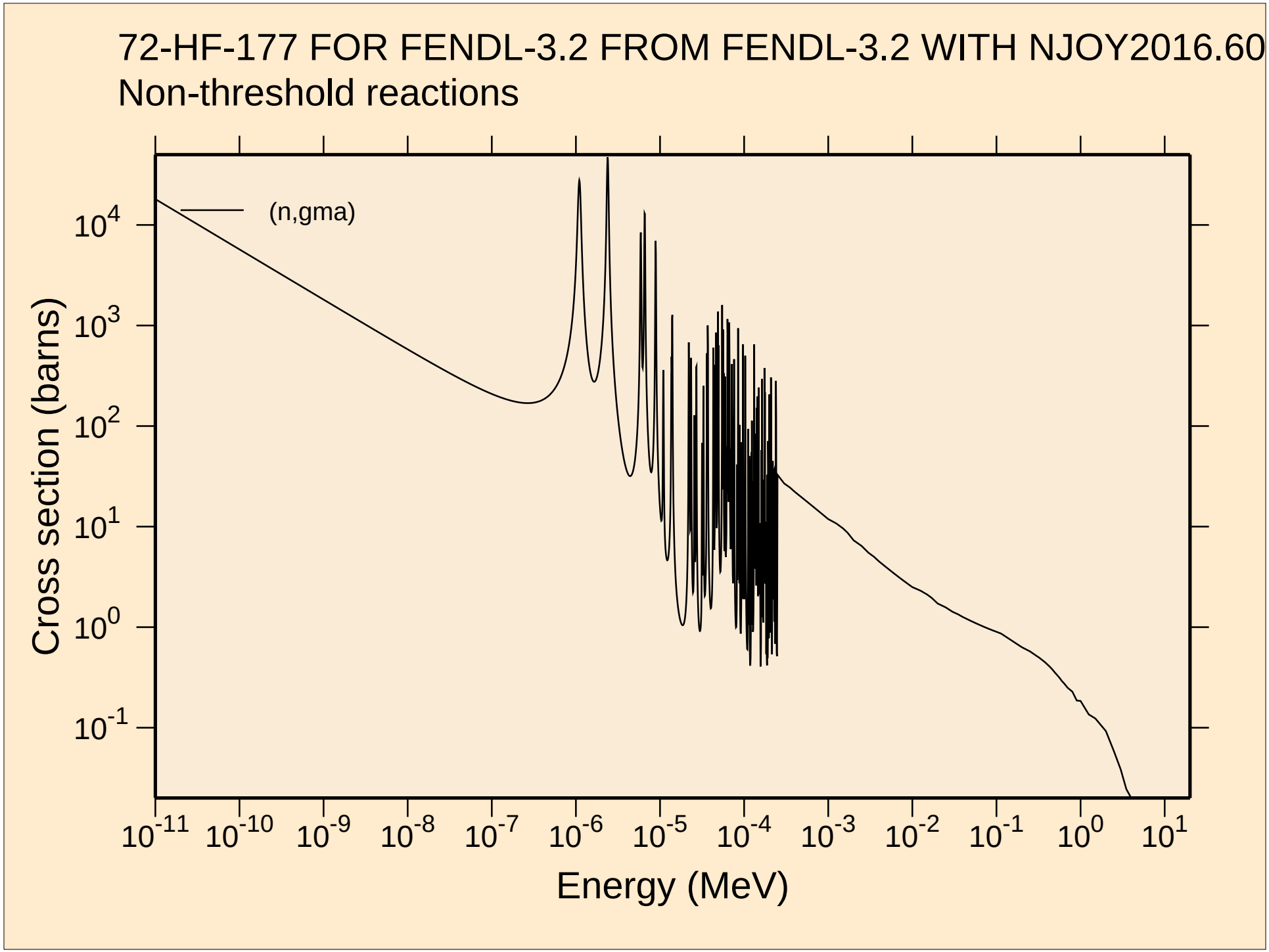

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
UR elastic cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^1
10^-3
10^-2
Energy (MeV)

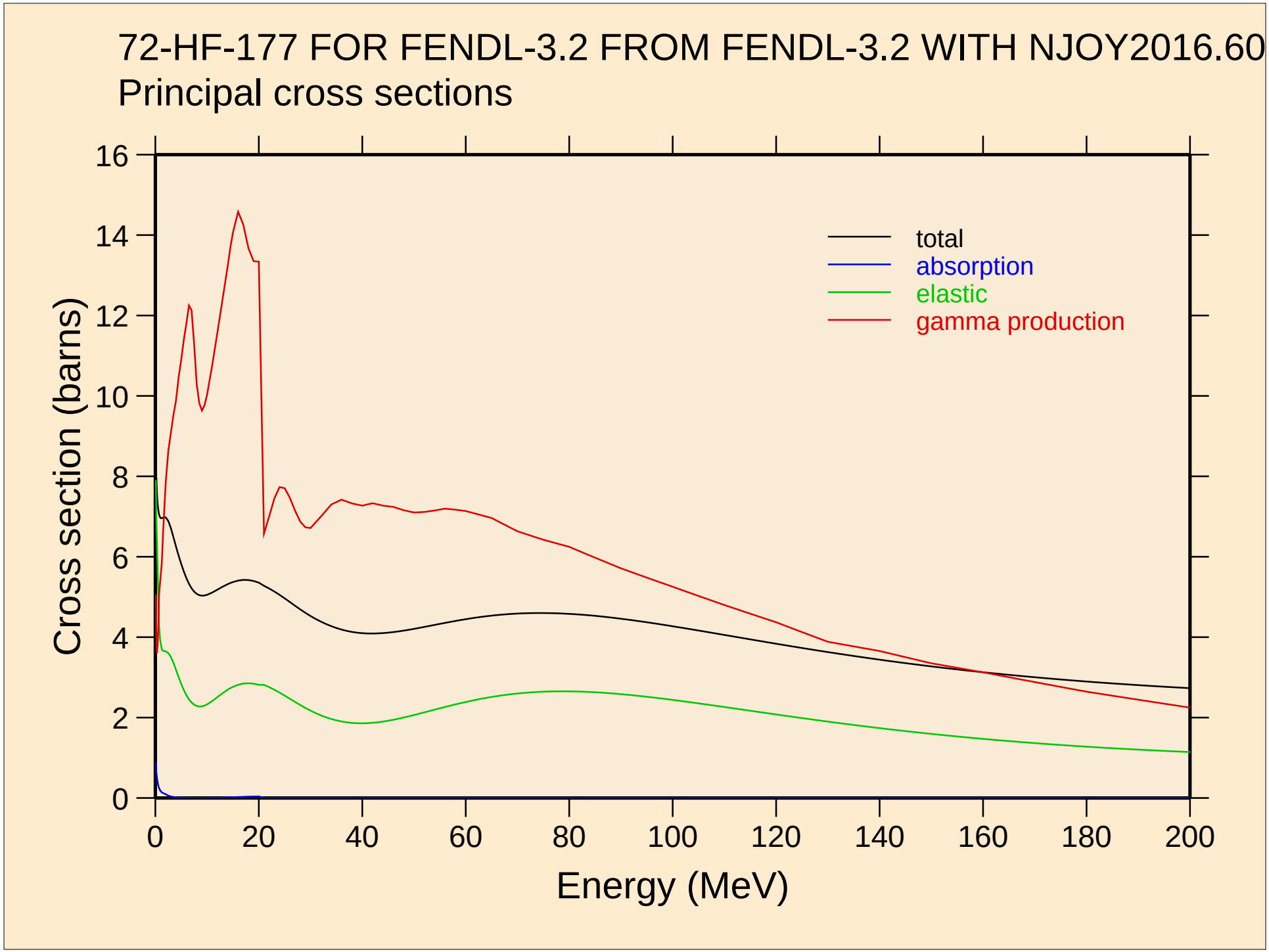

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
UR capture cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10^1
10^0
10^-3
10^-2
Energy (MeV)

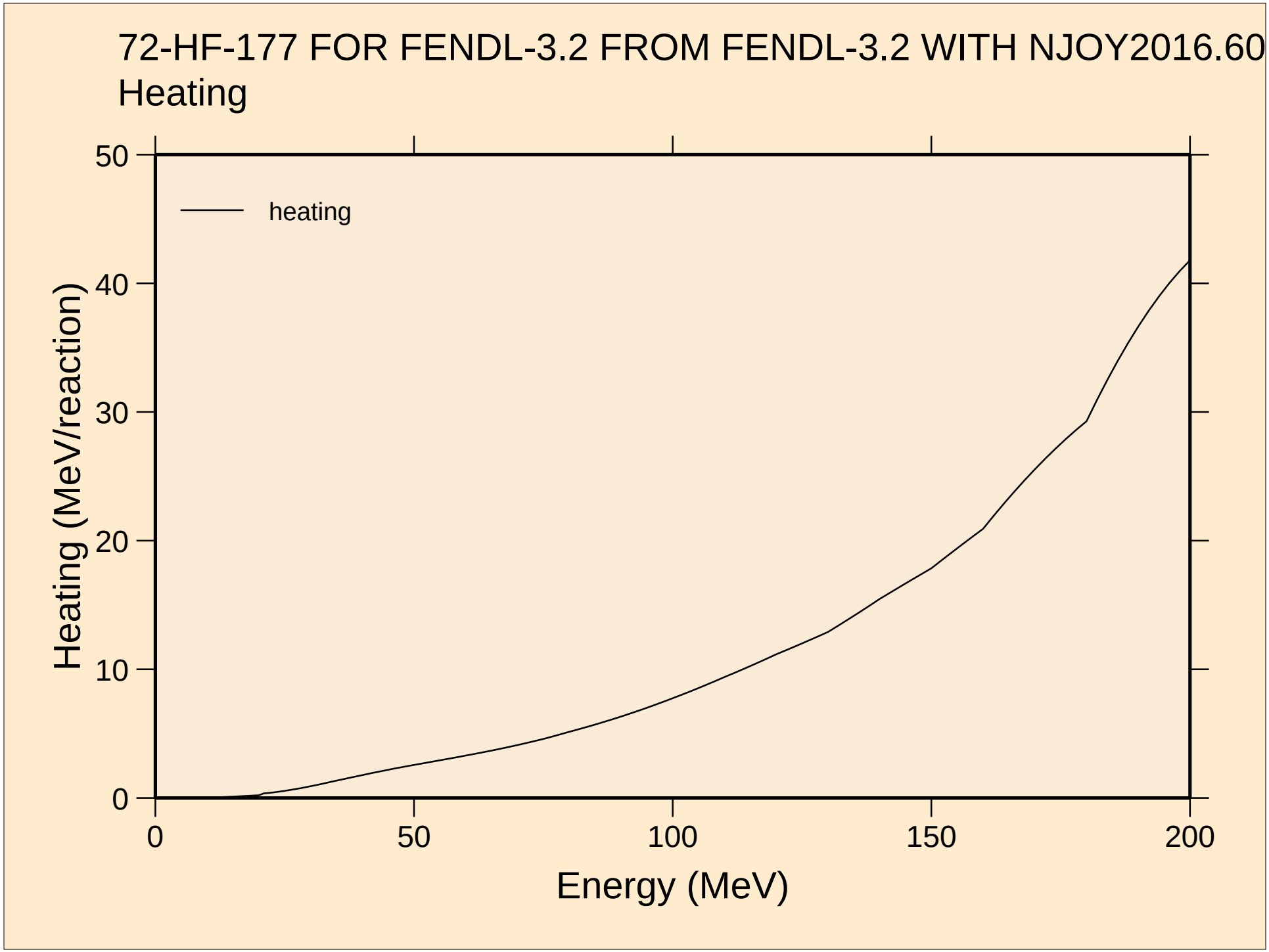

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Heating
heating
Heating (MeV/reaction)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1
Energy (MeV)

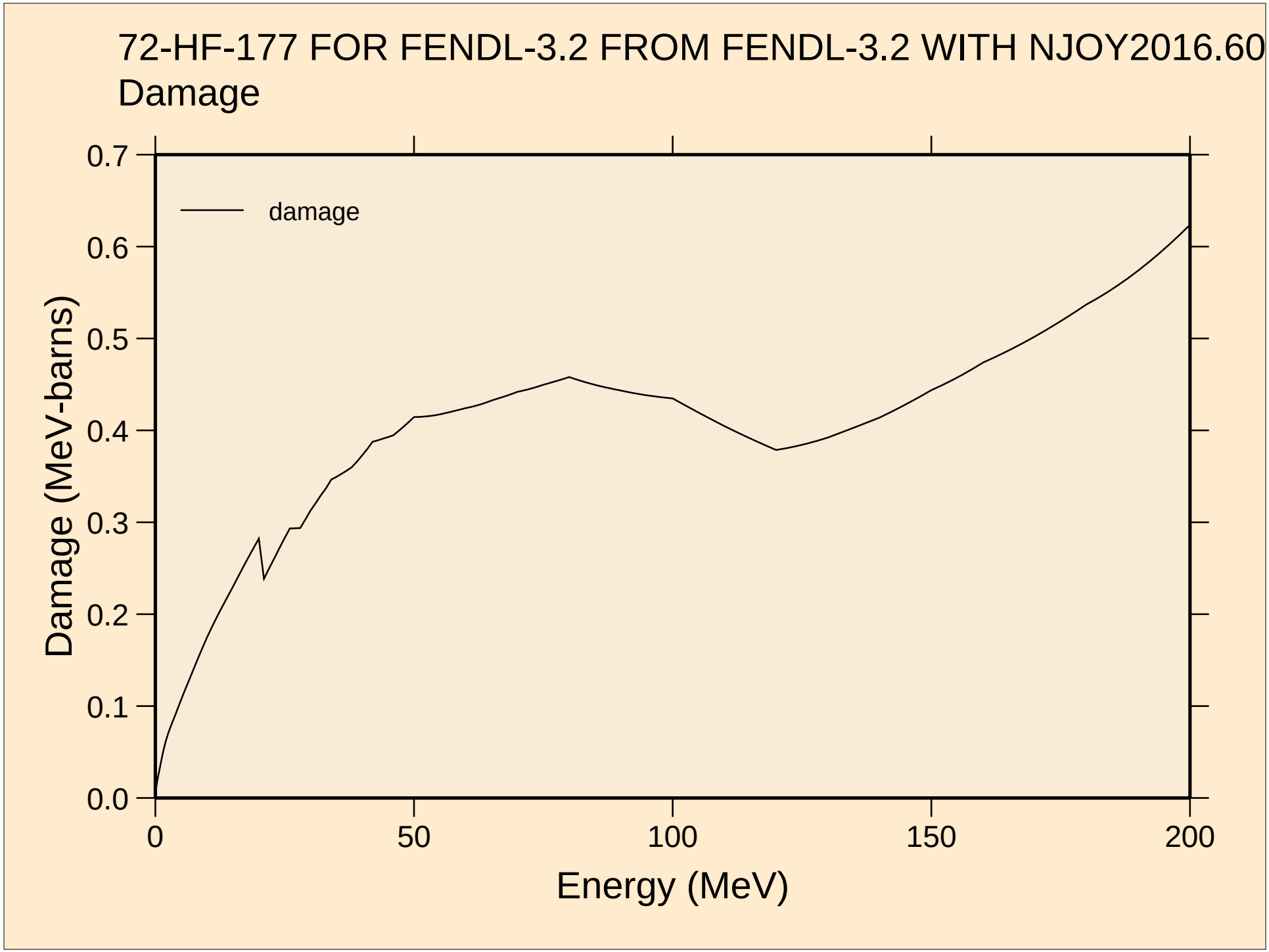

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Damage
damage
Damage (MeV-barns)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

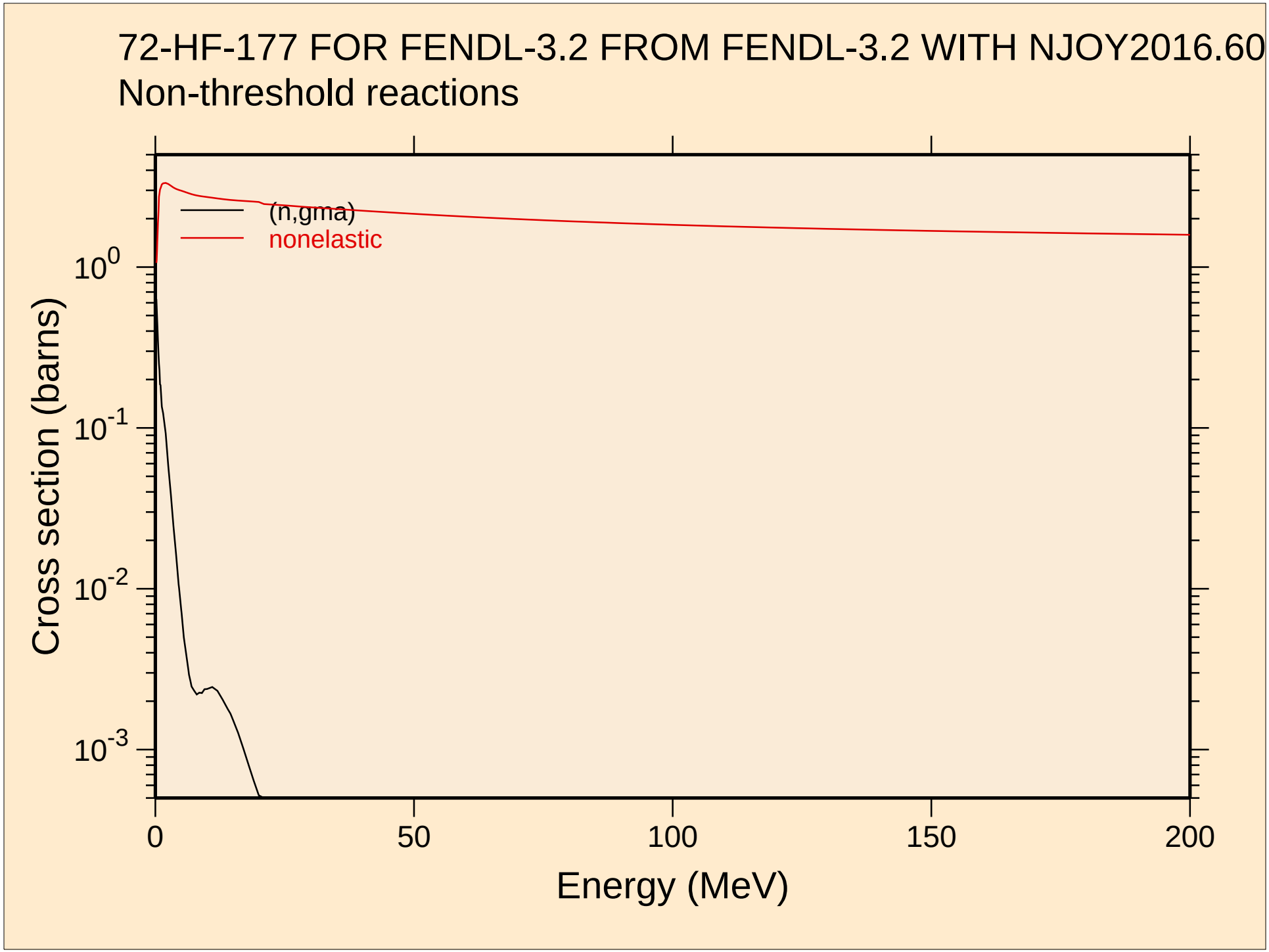

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Non-threshold reactions
(n,gma)
nonelastic
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1
Energy (MeV)

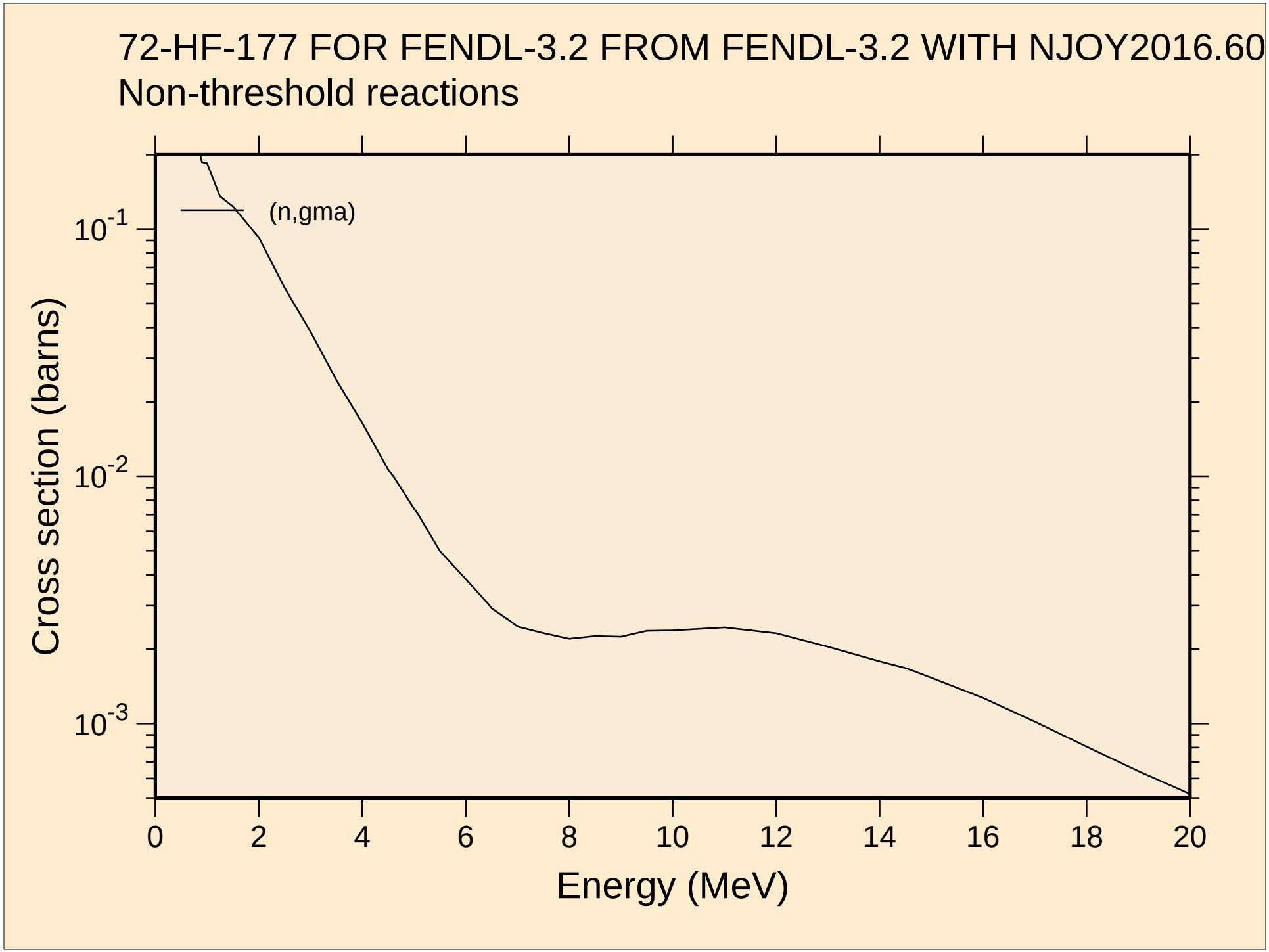

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Non-threshold reactions
(n,gma)
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-11 10^-10 10^-9 10^-8 10^-7 10^-6 10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1
Energy (MeV)

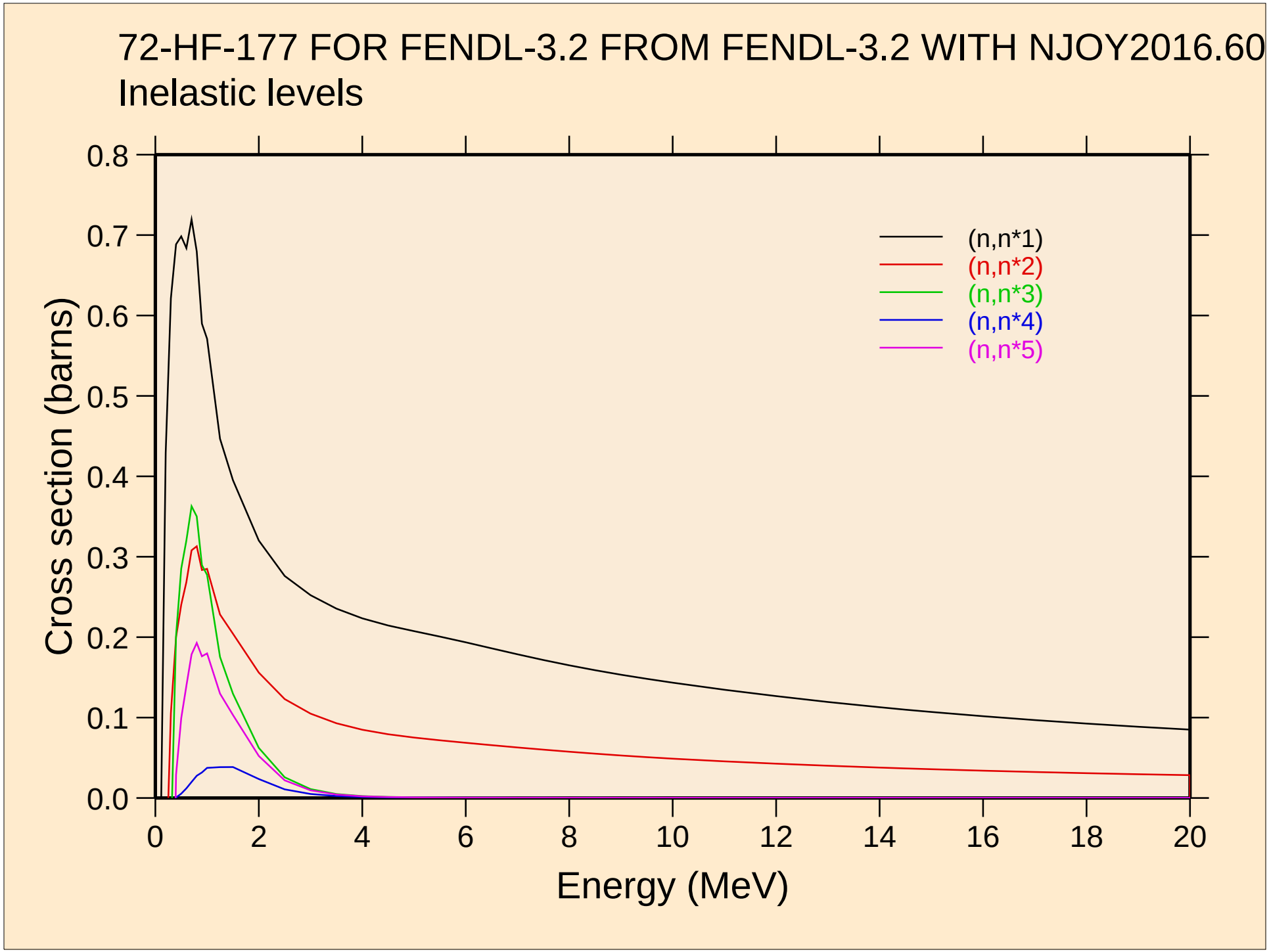

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0
2
4
6
8
10
12
14
16
0
20
40
60
80
100
120
140
160
180
200

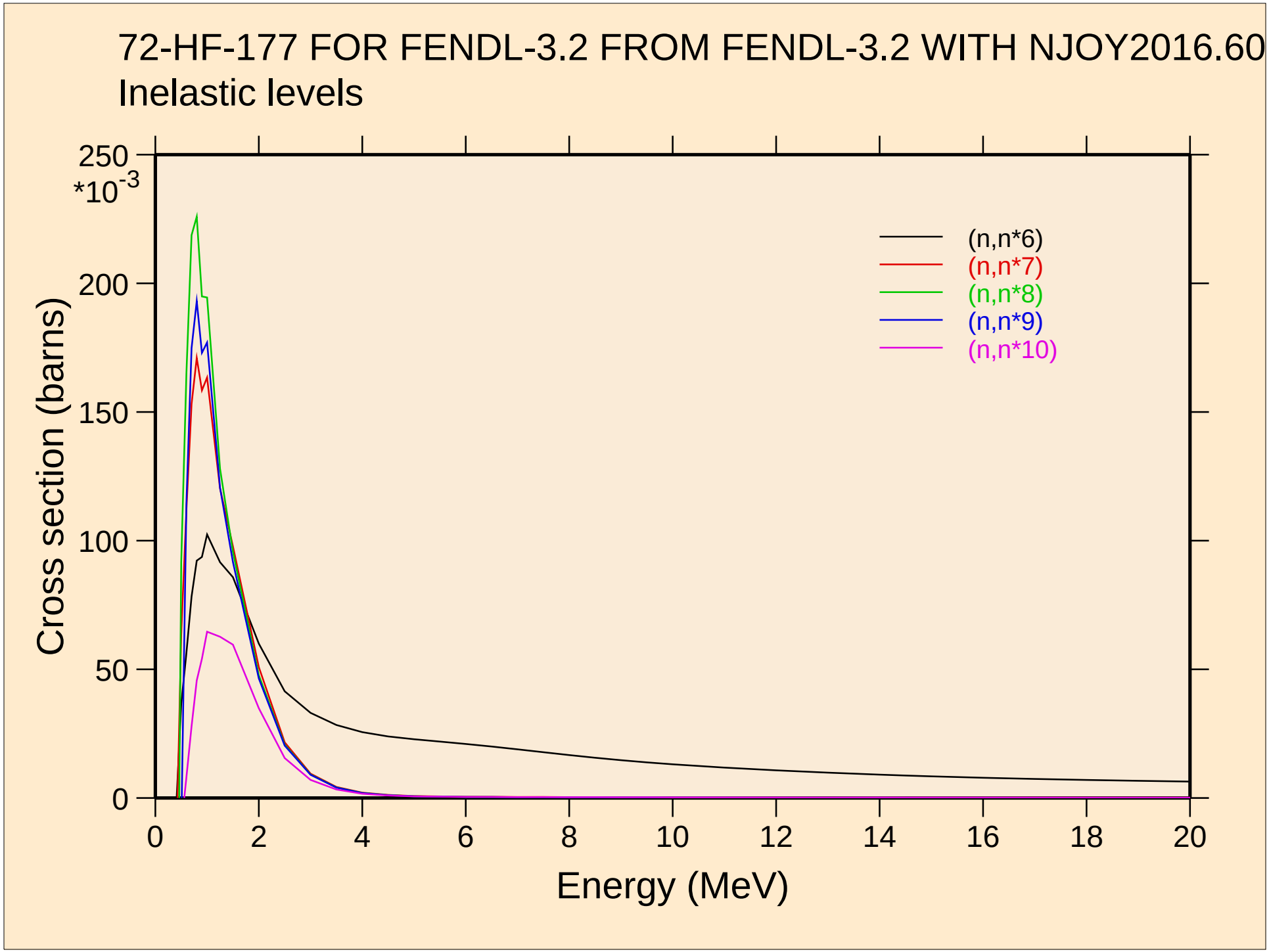

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
10
20
30
40
50
0
50
100
150
200

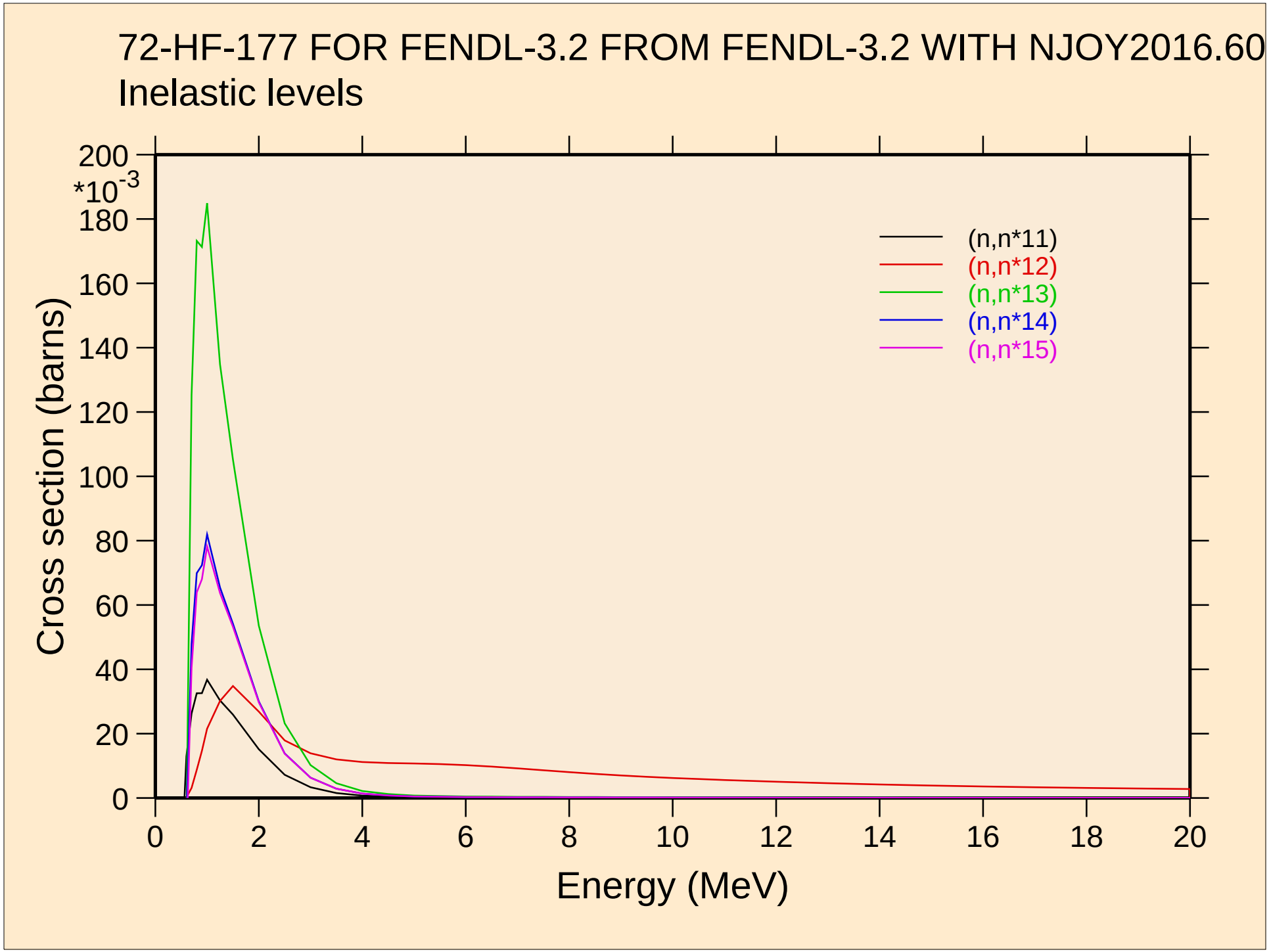

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Damage
damage
Damage (MeV-barns)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0
50
100
150
200
Energy (MeV)

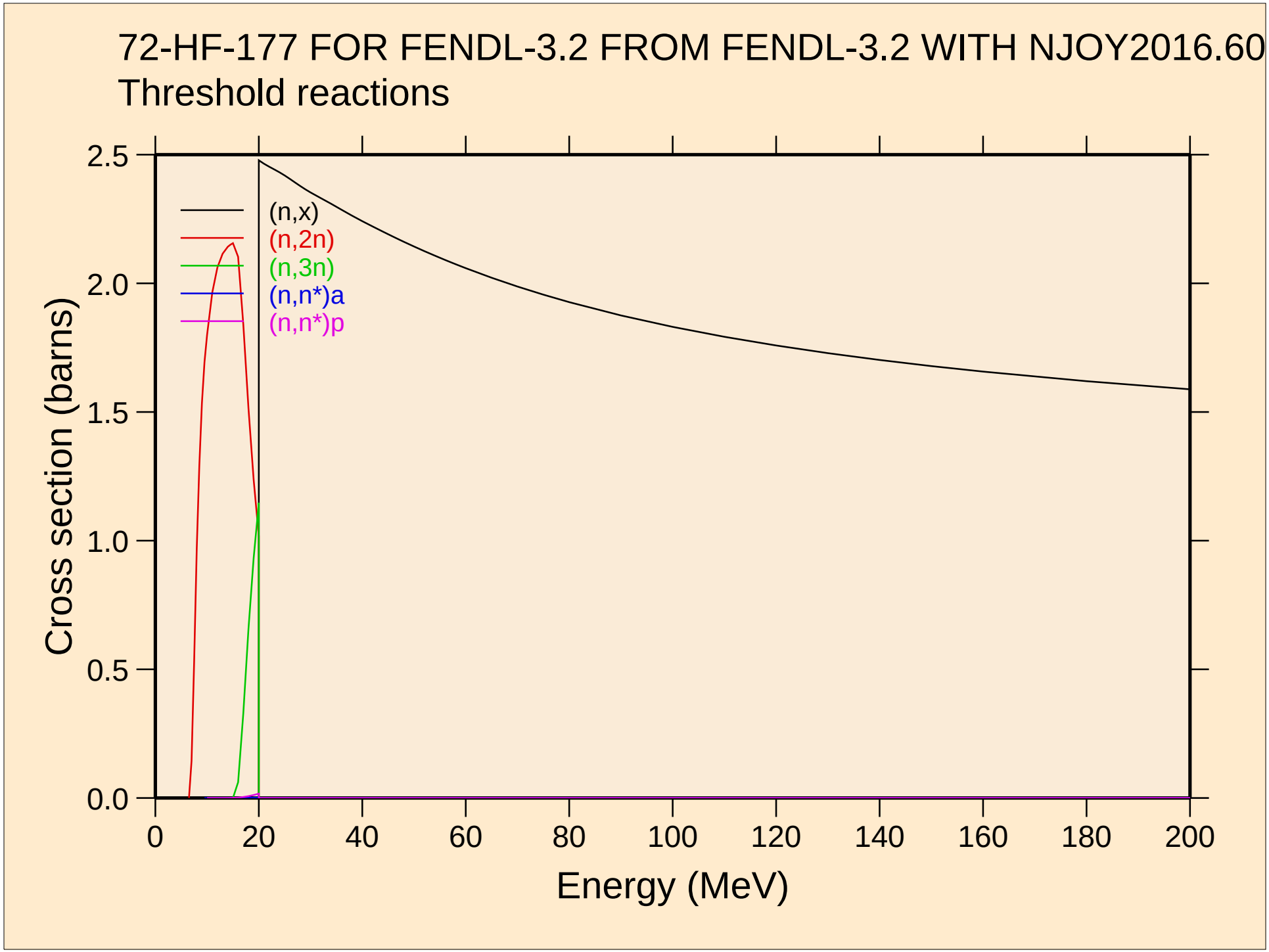

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Non-threshold reactions
(n,gma)
nonelastic
Cross section (barns)
10^0
10^-1
10^-2
10^-3
0
50
100
150
200
Energy (MeV)

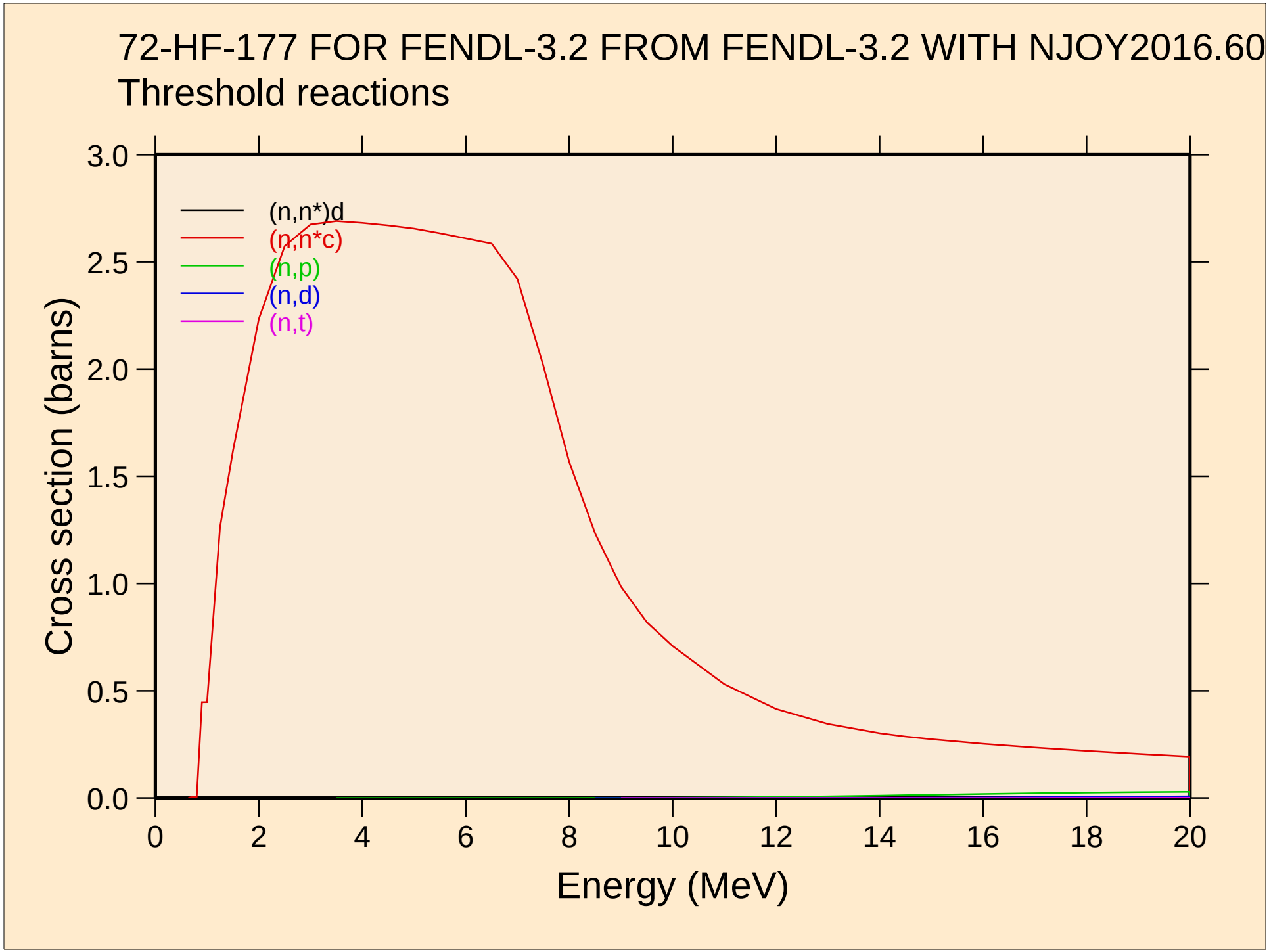

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Non-threshold reactions
(n,gma)
Cross section (barns)
10-1
10-2
10-3
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

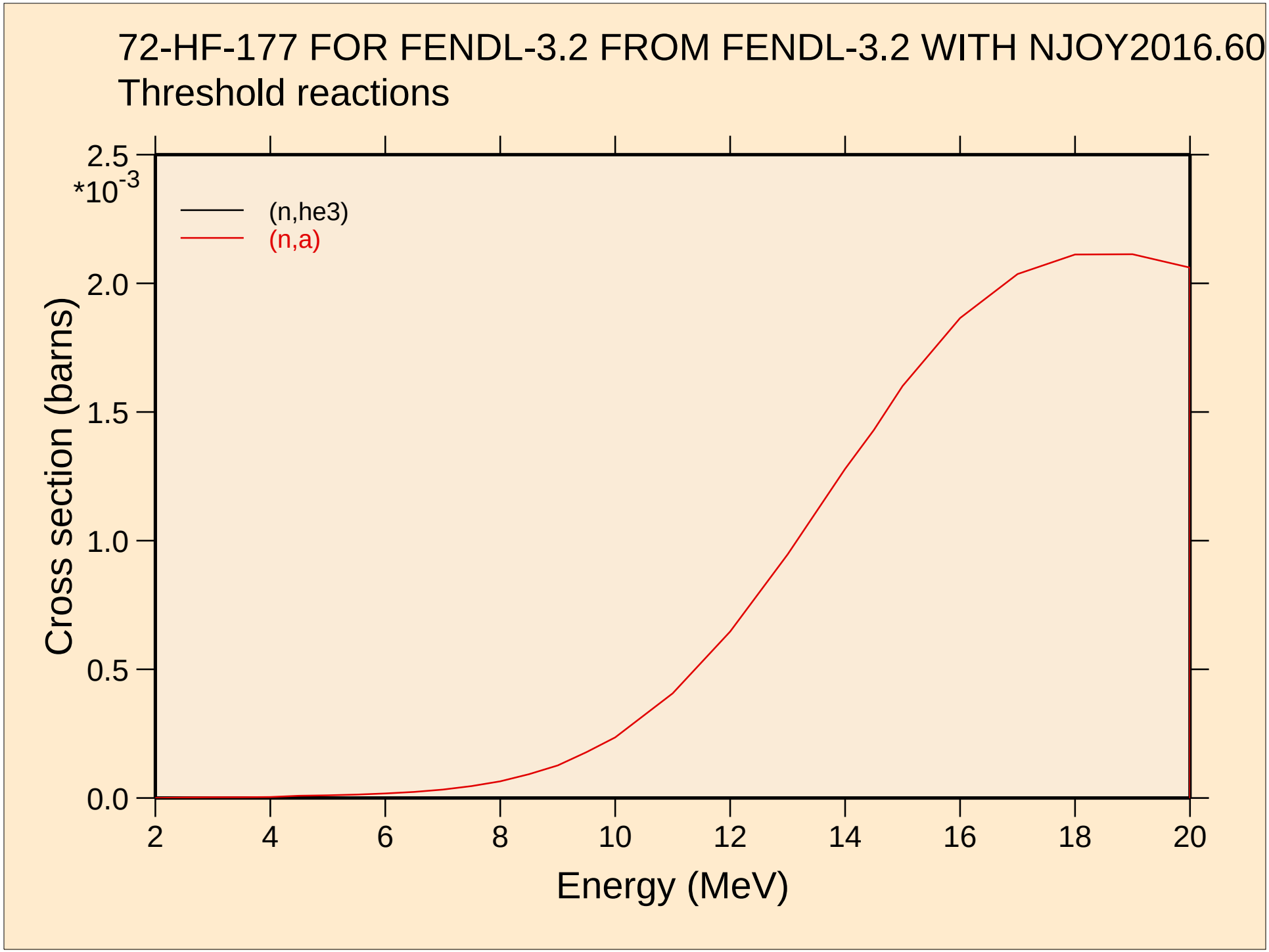

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Inelastic levels
Cross section (barns)
Energy (MeV)
0.0
0.1
0.2
0.3
0.4
0.5
0.6
0.7
0.8
0
2
4
6
8
10
12
14
16
18
20
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

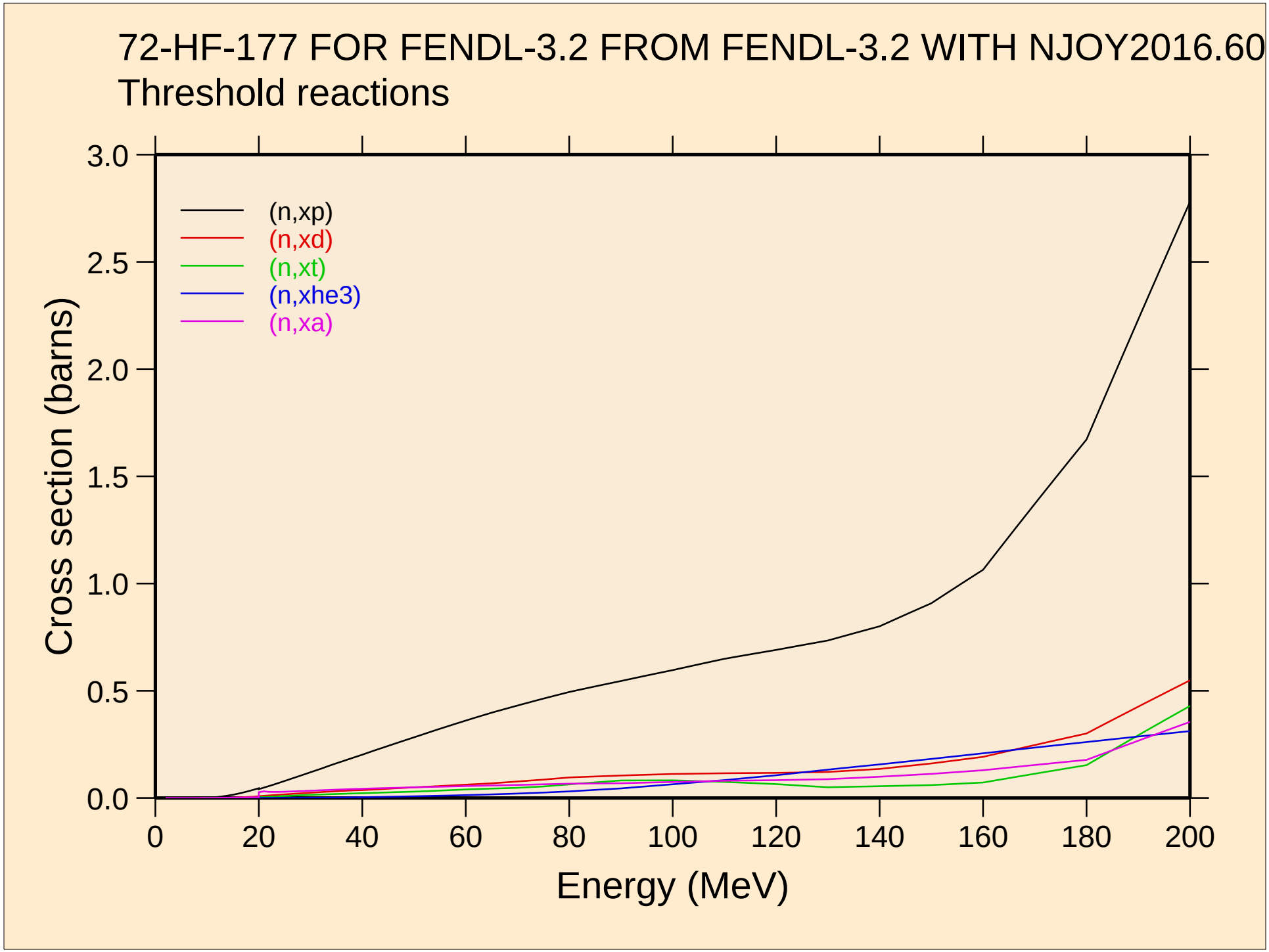

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Inelastic levels
Cross section (barns)
*10-3
250
200
150
100
50
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

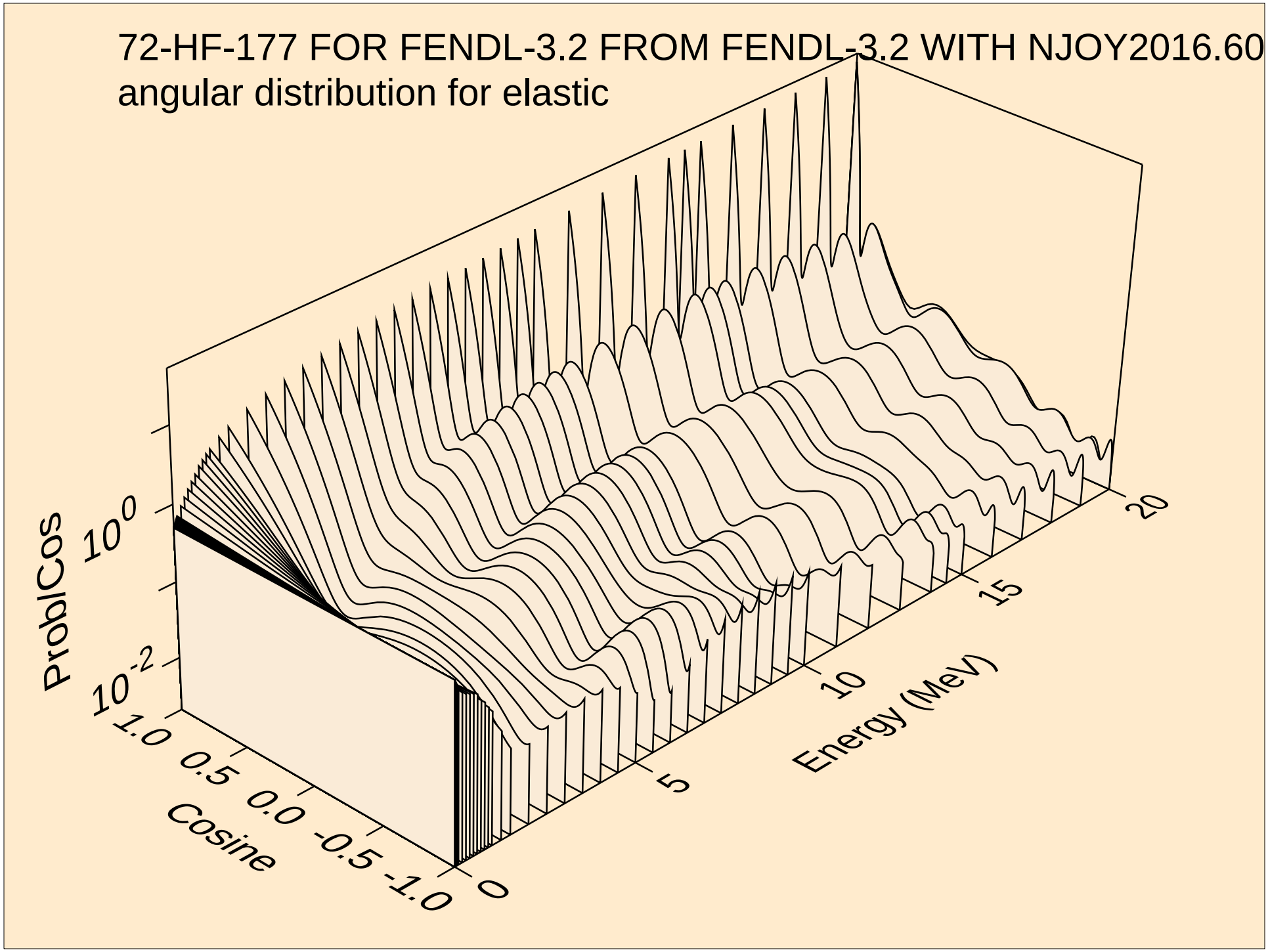

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Inelastic levels
Cross section (barns)
*10-3
200
180
160
140
120
100
80
60
40
20
0
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

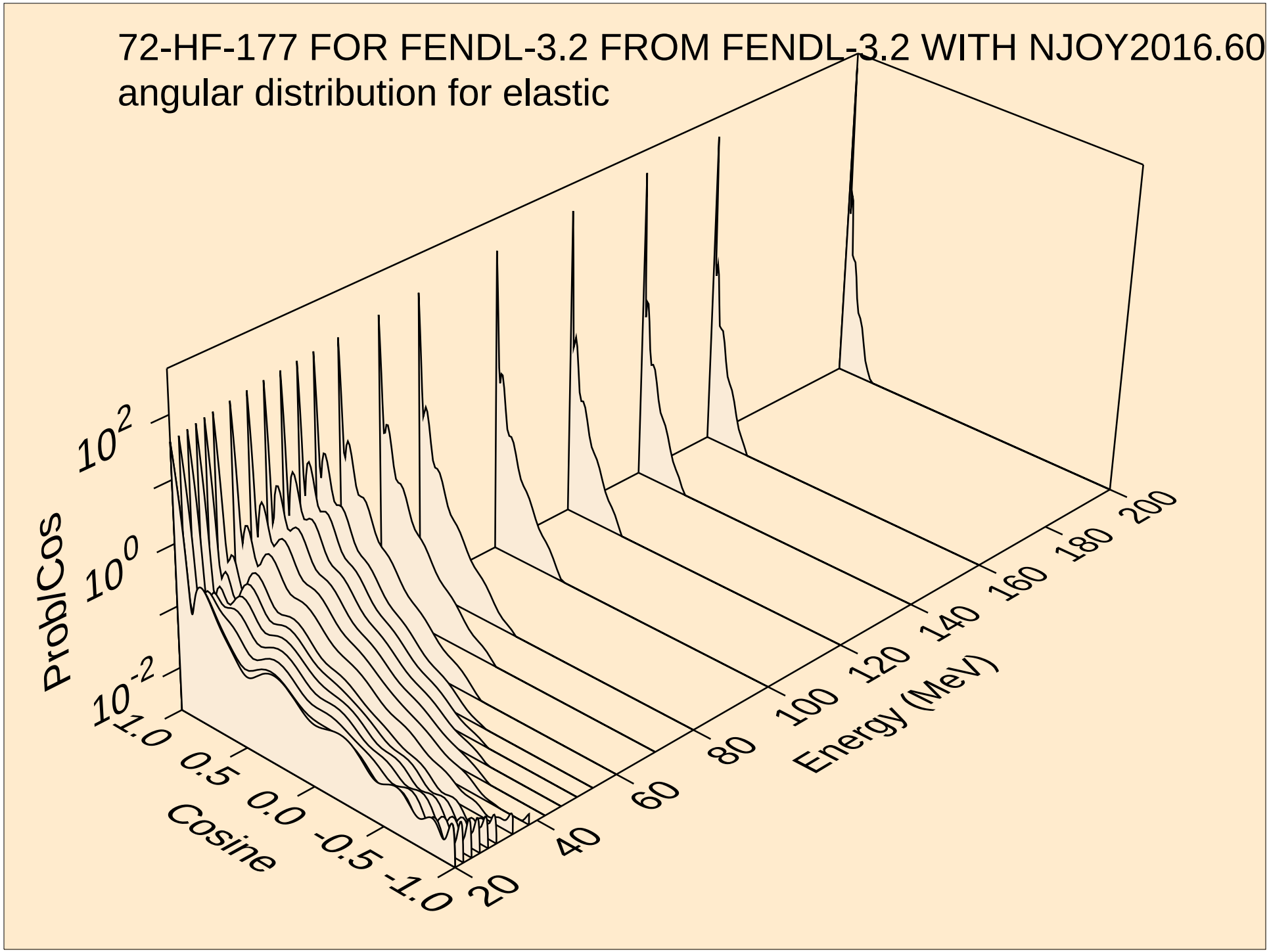

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Threshold reactions
(n,x)
(n,2n)
(n,3n)
(n,n*)a
(n,n*)p
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
0
20
40
60
80
100
120
140
160
180
200

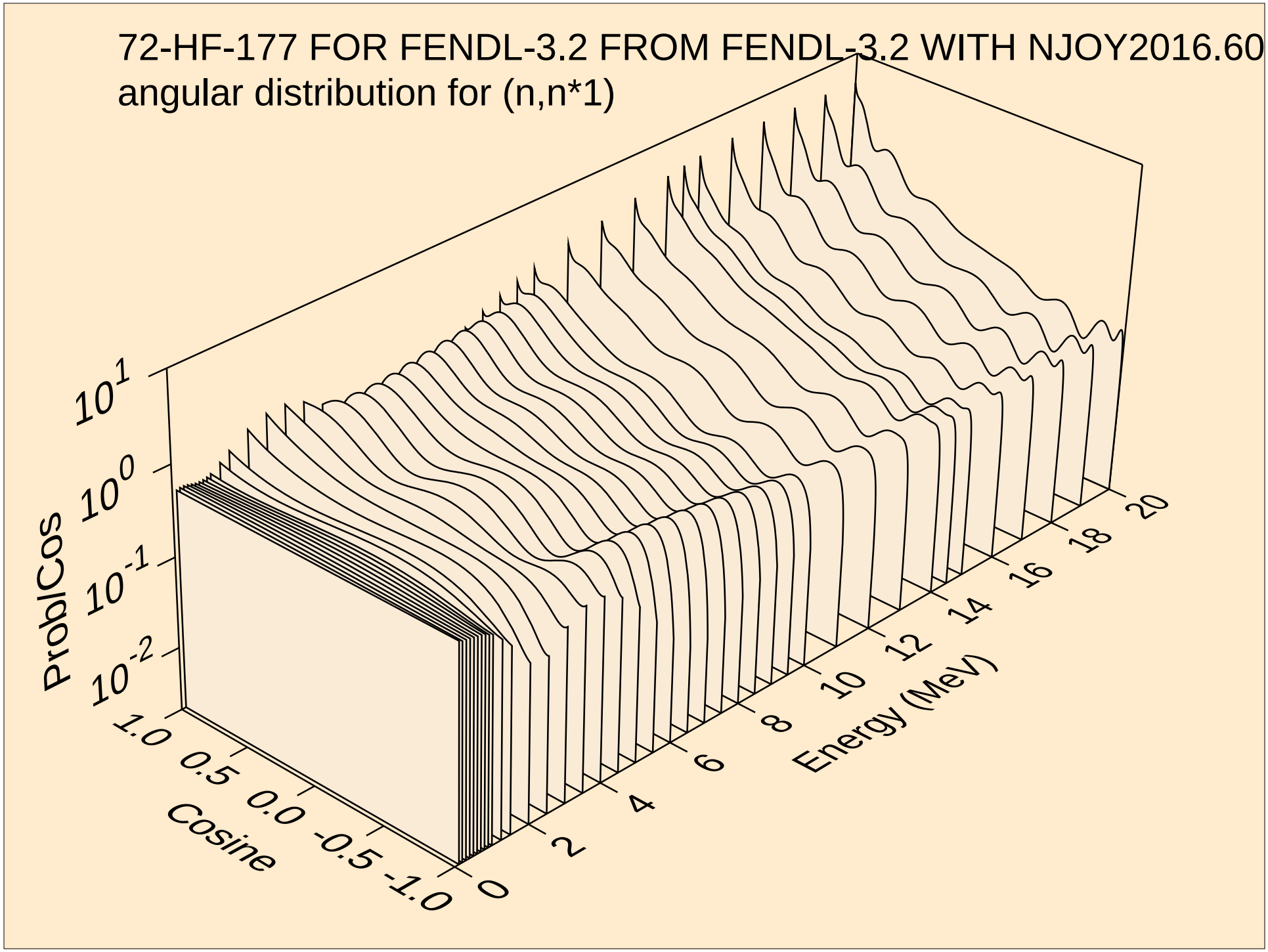

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Threshold reactions
(n,n*)d
(n,n*c)
(n,p)
(n,d)
(n,t)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
2
4
6
8
10
12
14
16
18
20

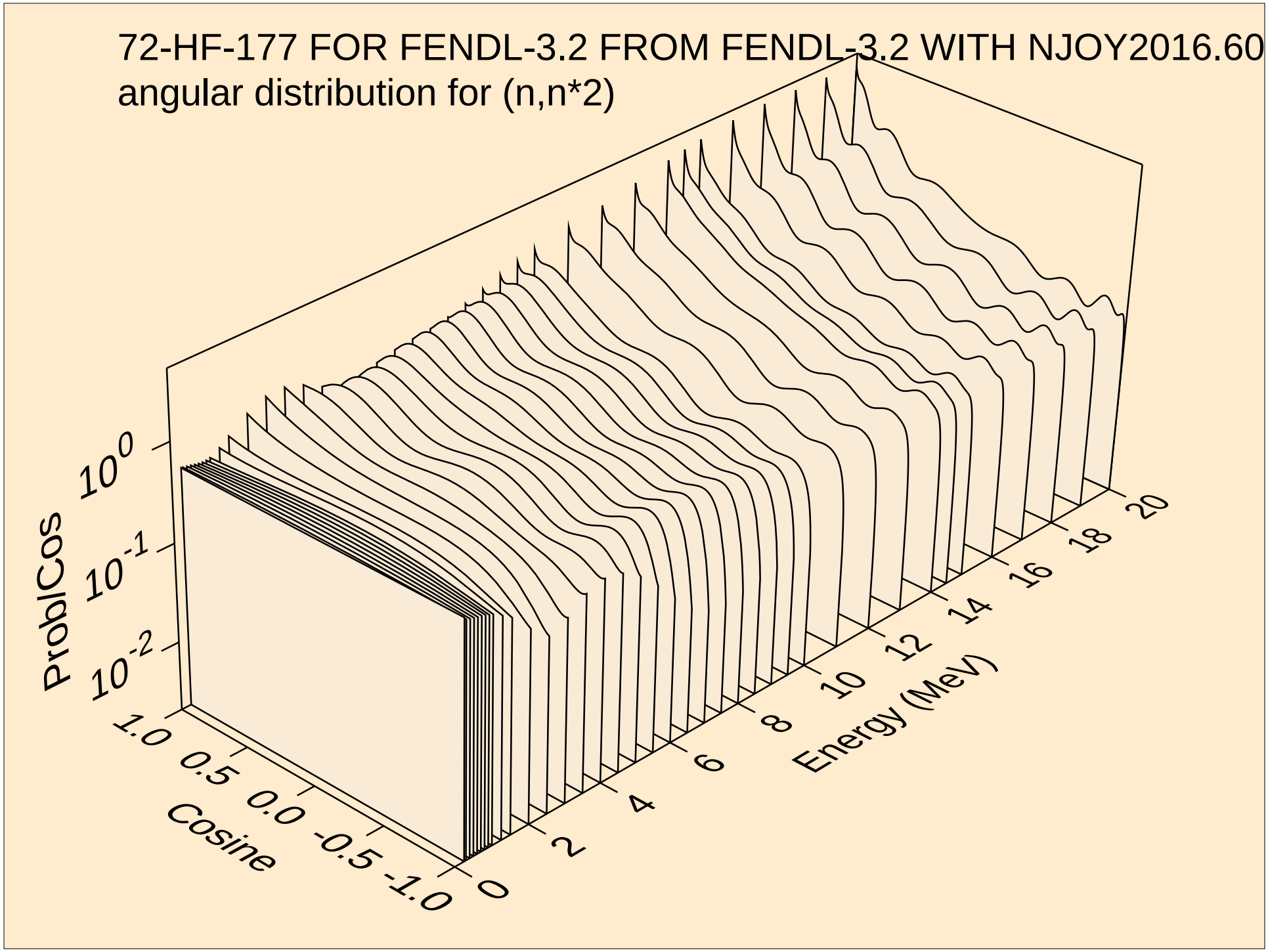

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Threshold reactions
(n,he3)
(n,a)
*10-3
2.5
2.0
1.5
1.0
0.5
0.0
Cross section (barns)
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

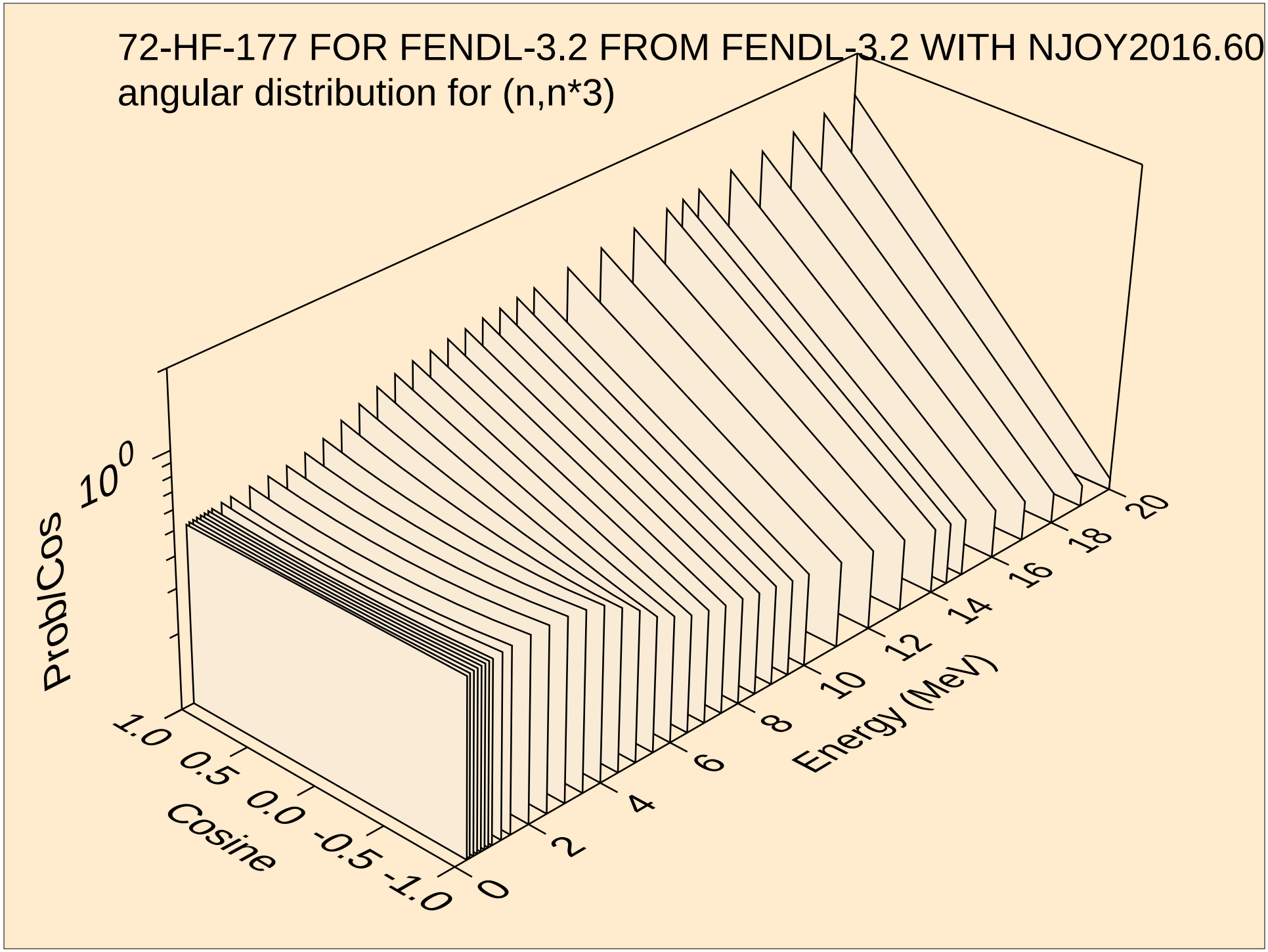

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Threshold reactions
(n,xp)
(n,xd)
(n,xt)
(n,xhe3)
(n,xa)
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
0
20
40
60
80
100
120
140
160
180
200

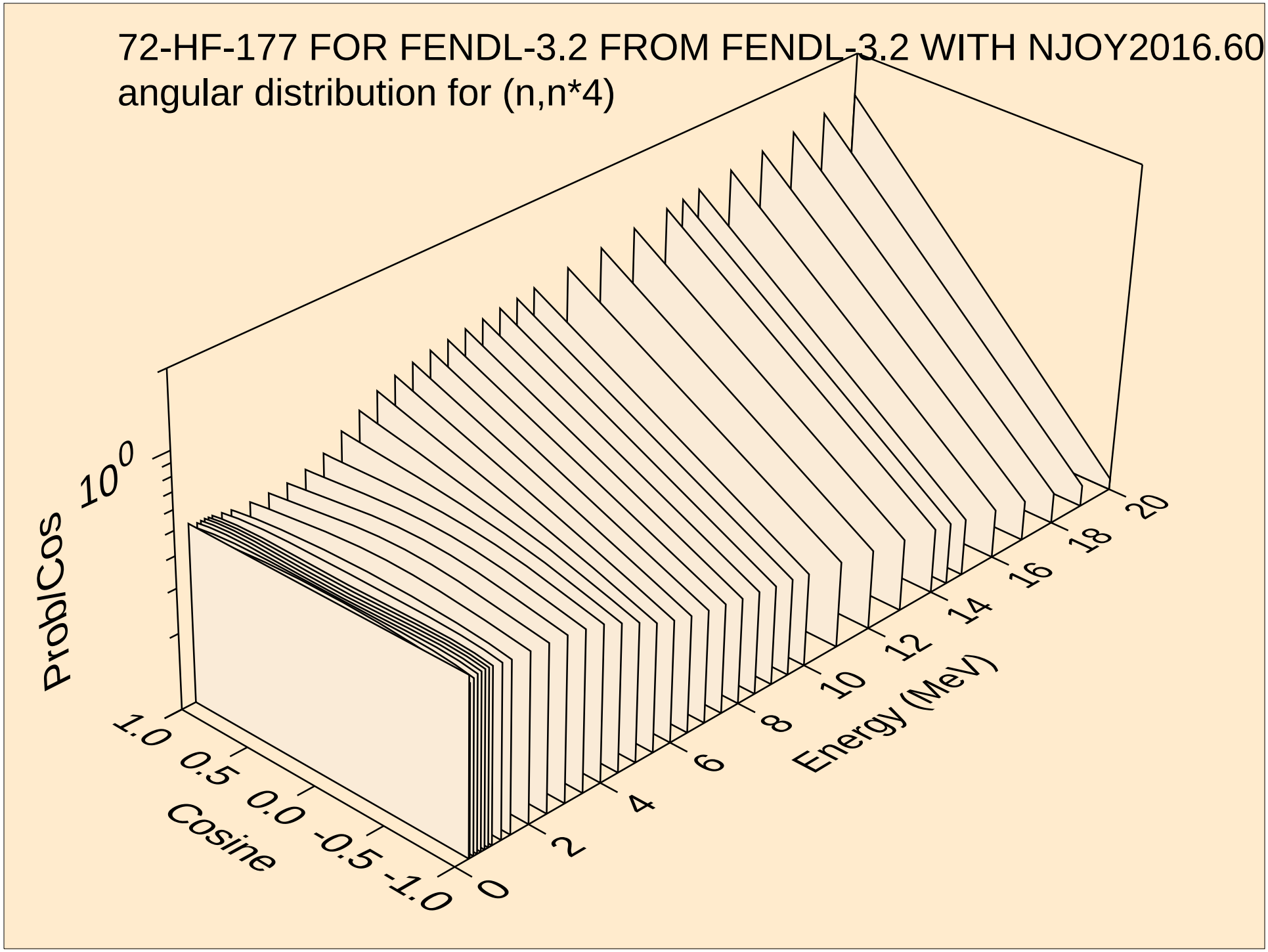

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for elastic
ProbICos
10^{0}
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

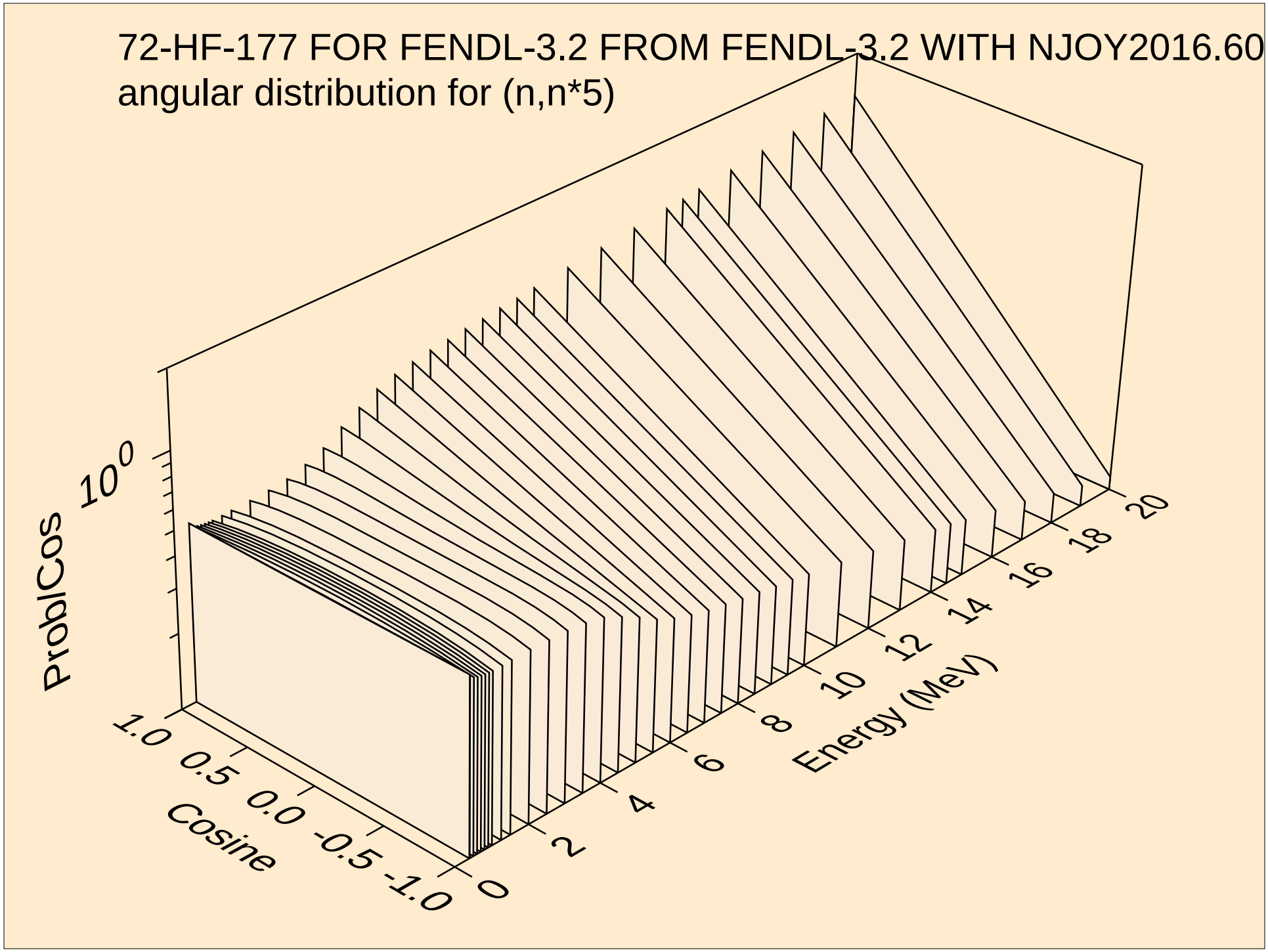

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for elastic
ProblCos
10^2
10^0
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

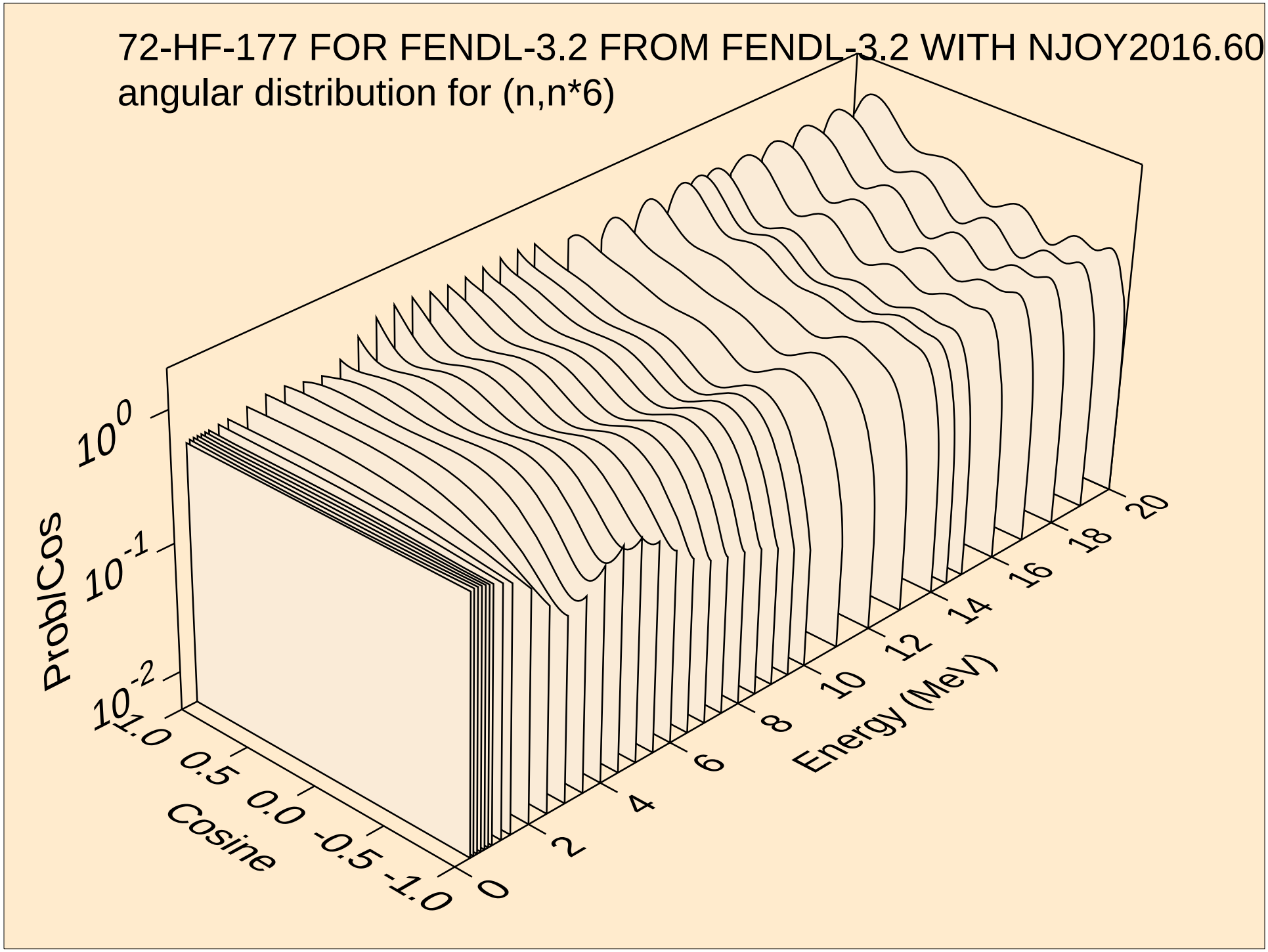

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*1)
Prob\Cos
10^1
10^0
10^-1
10^-2
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

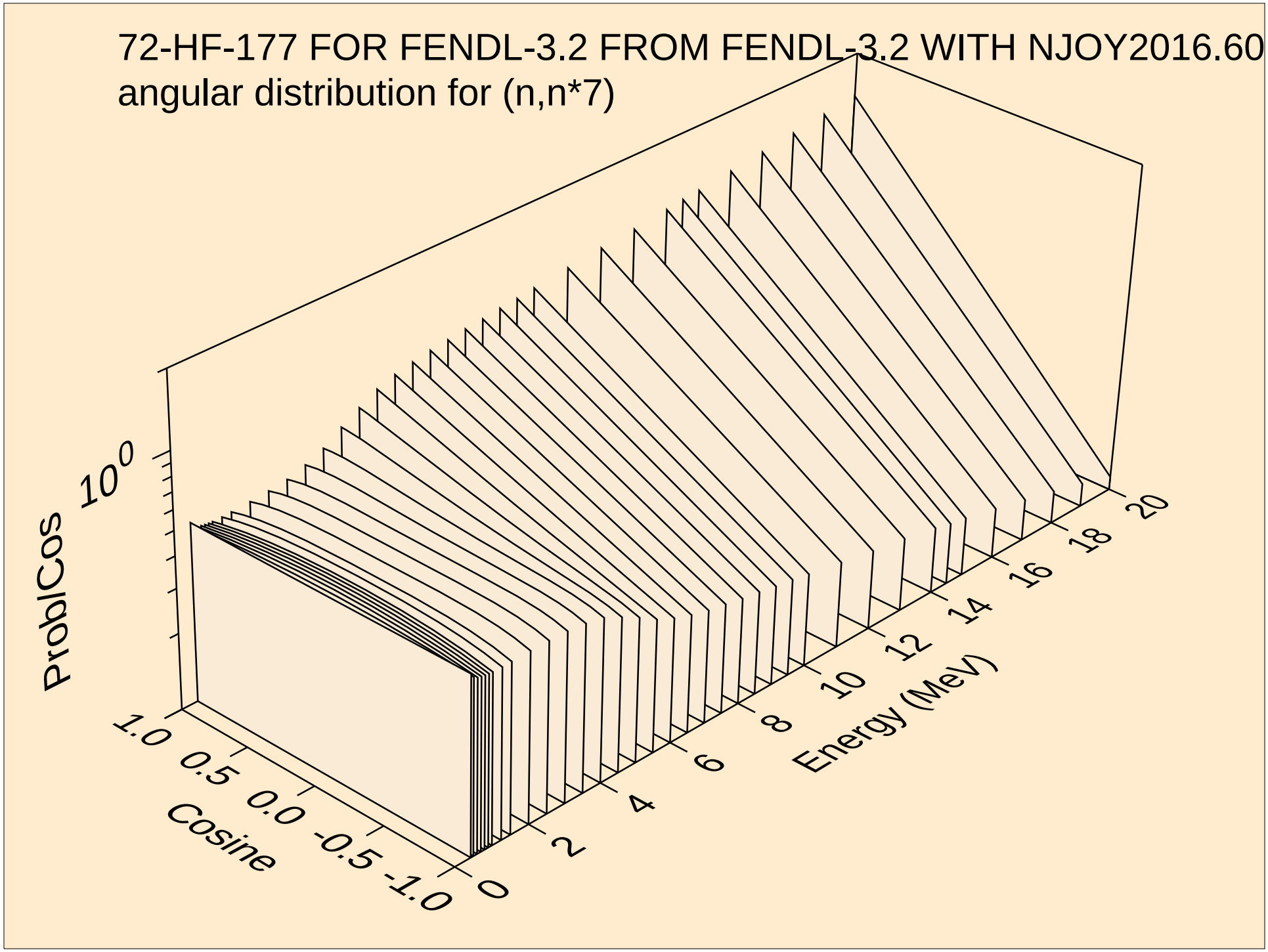

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*2)
ProbCos
10^{0}
10^{-1}
10^{-2}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

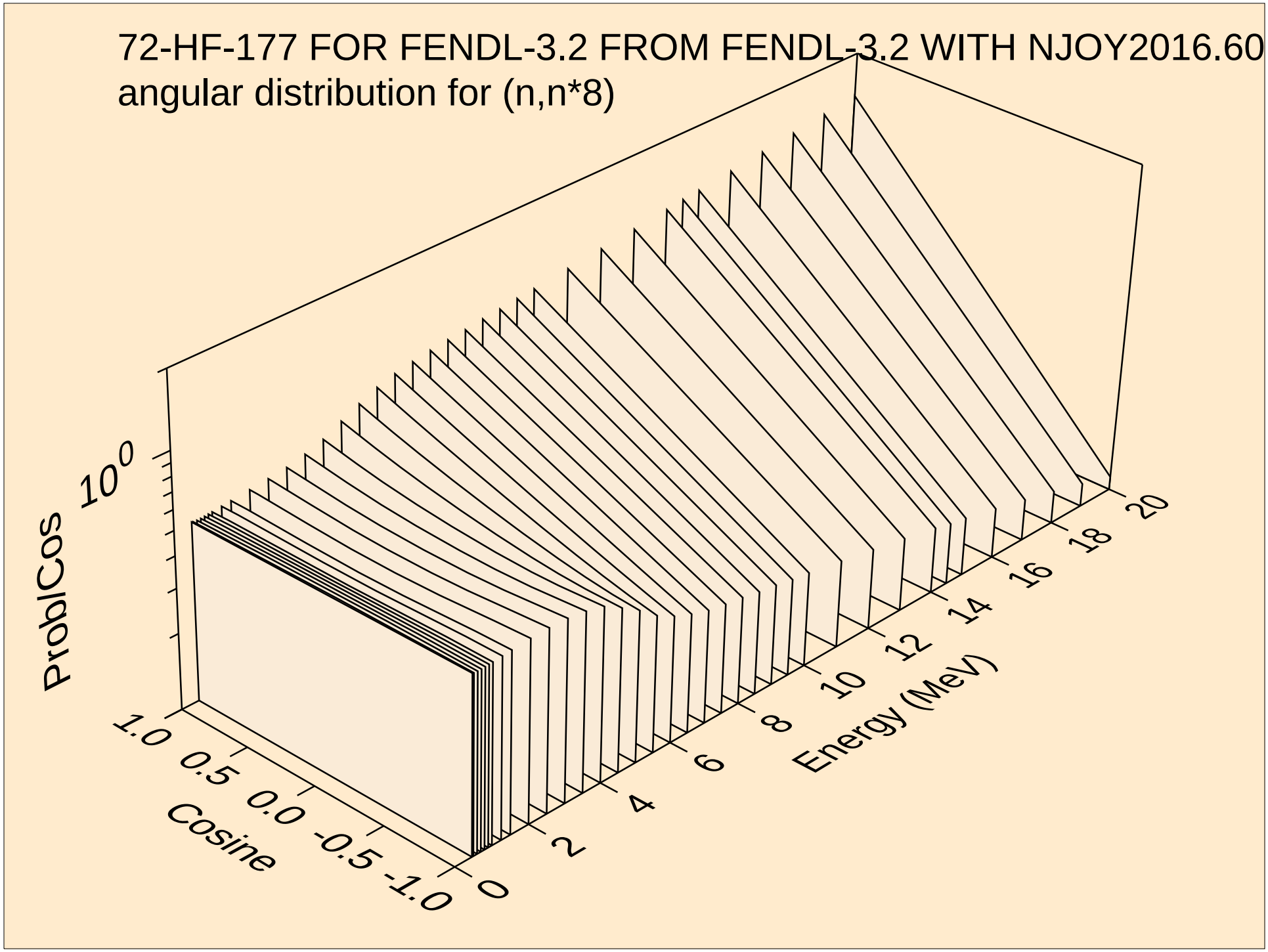

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*3)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

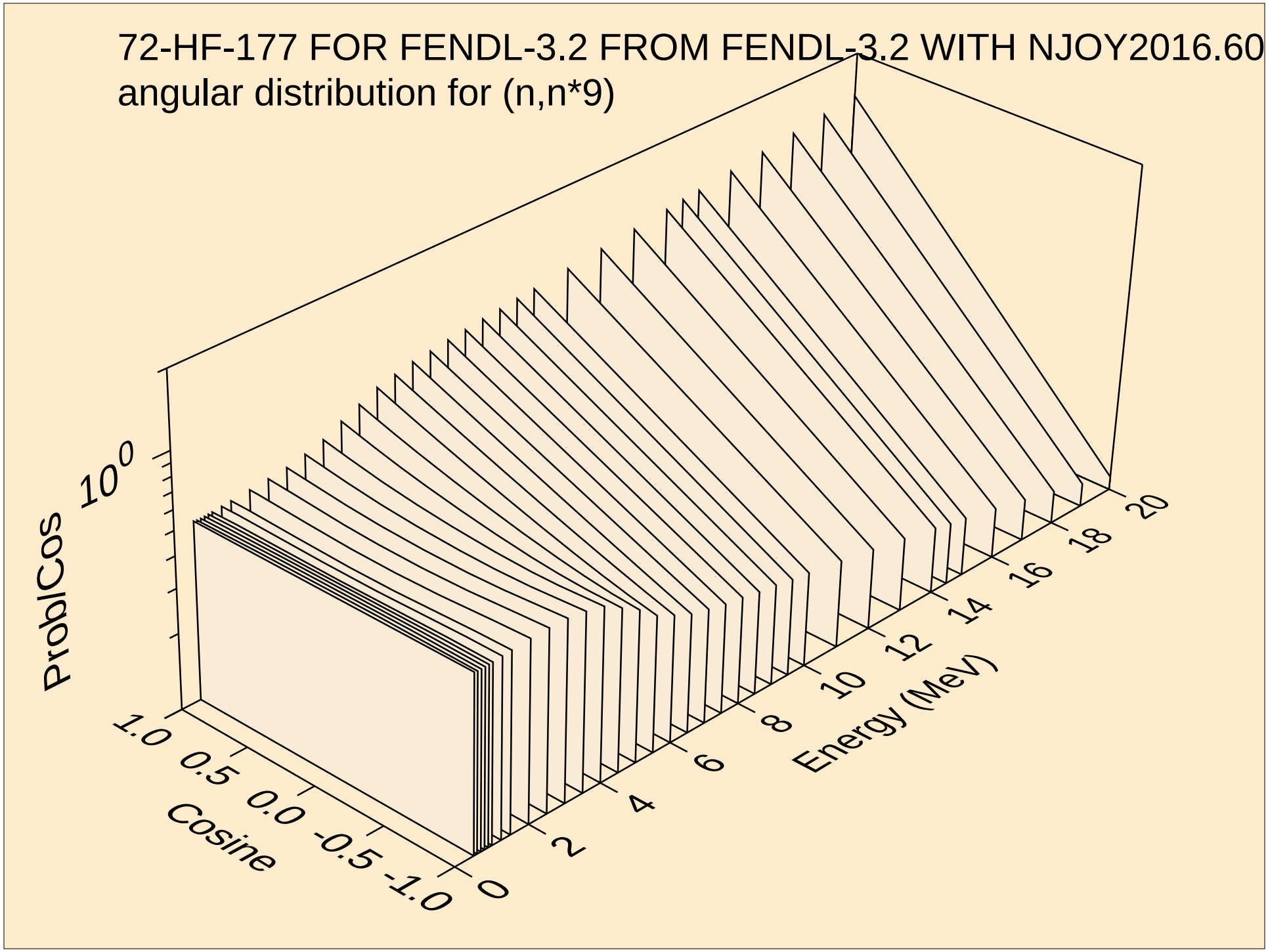

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*4)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

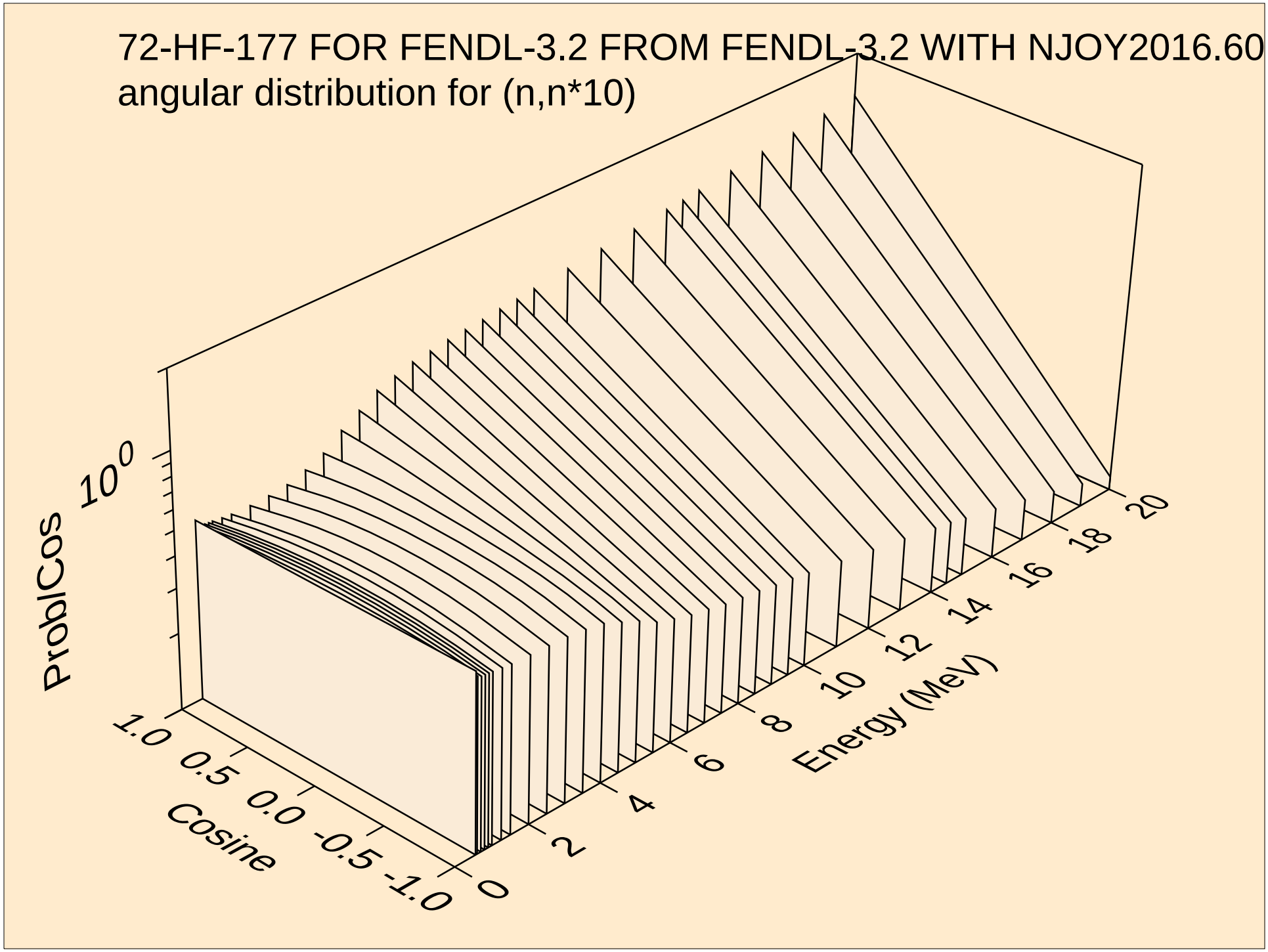

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*5)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

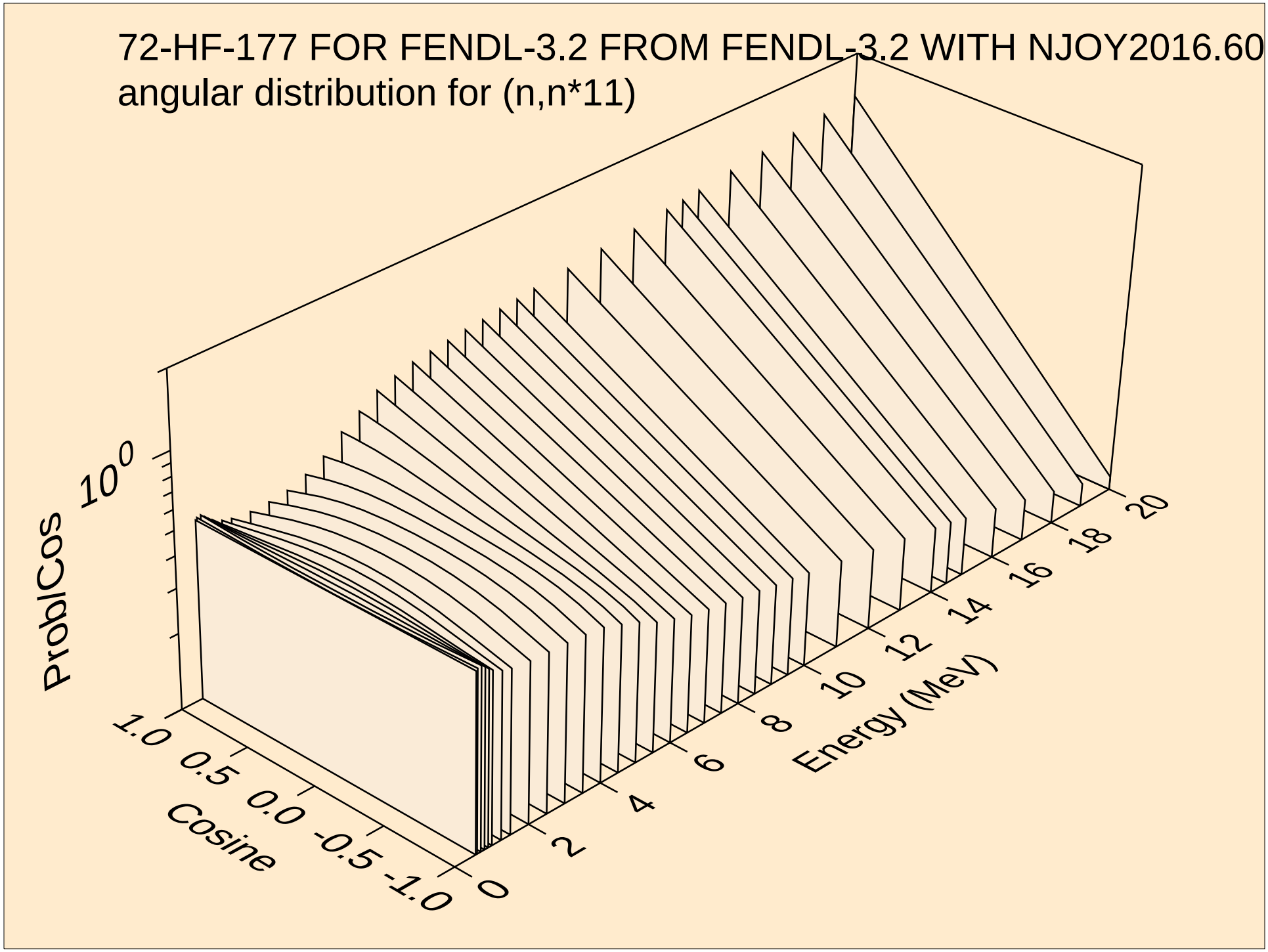

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*6)
ProbCos
10^{0}
10^{-1}
10^{-2}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

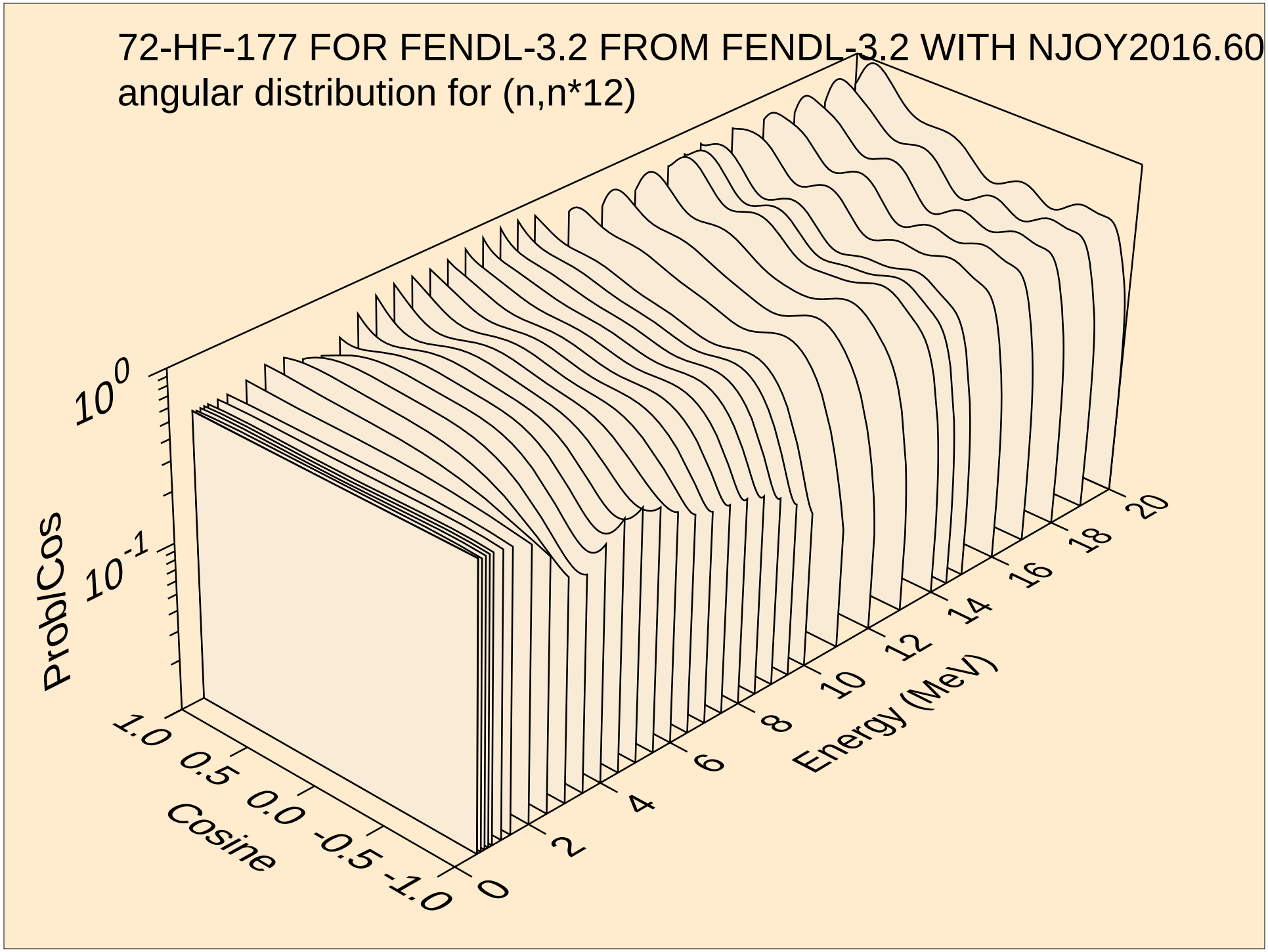

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*7)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

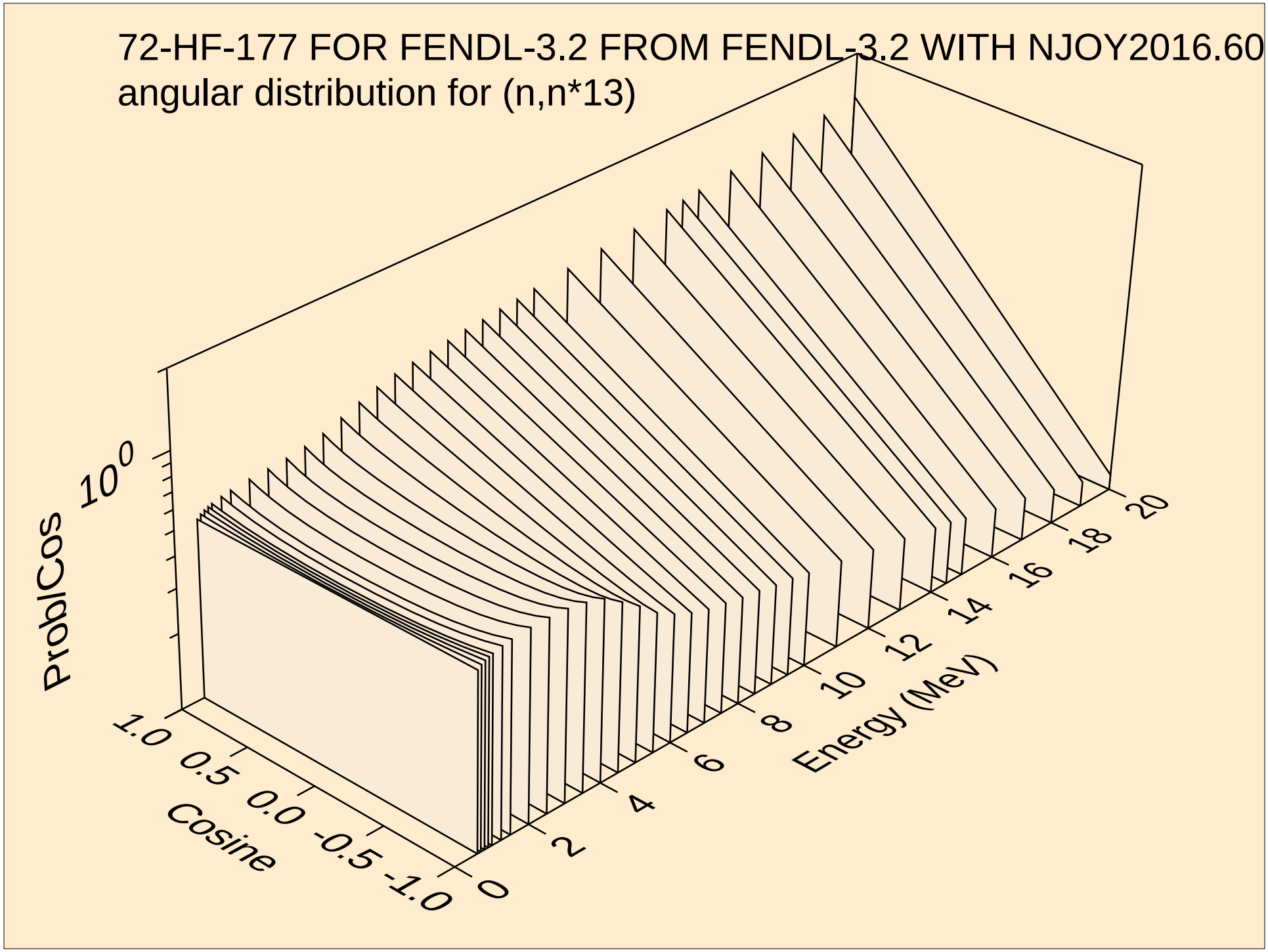

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*8)
ProblCos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

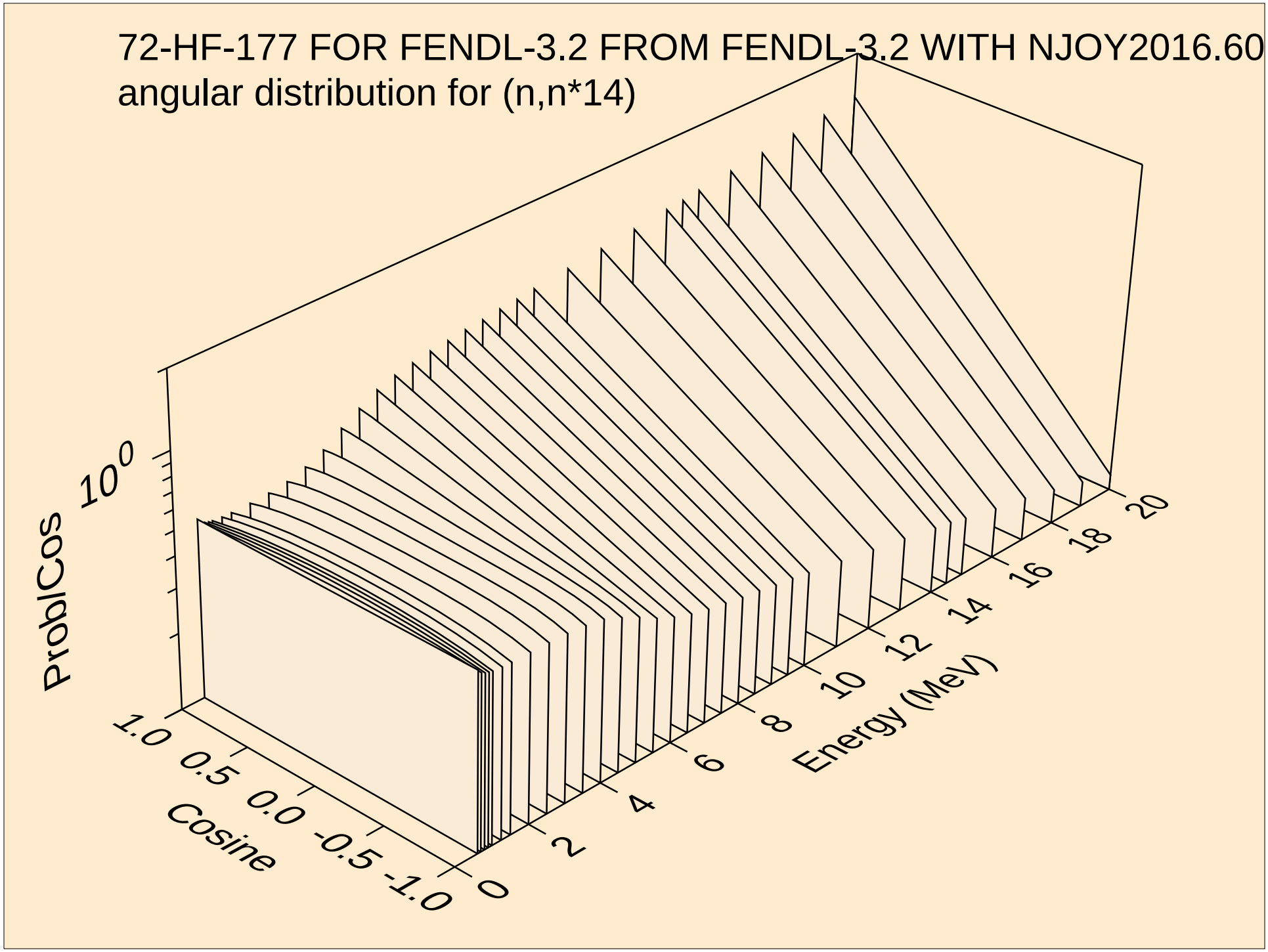

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*9)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

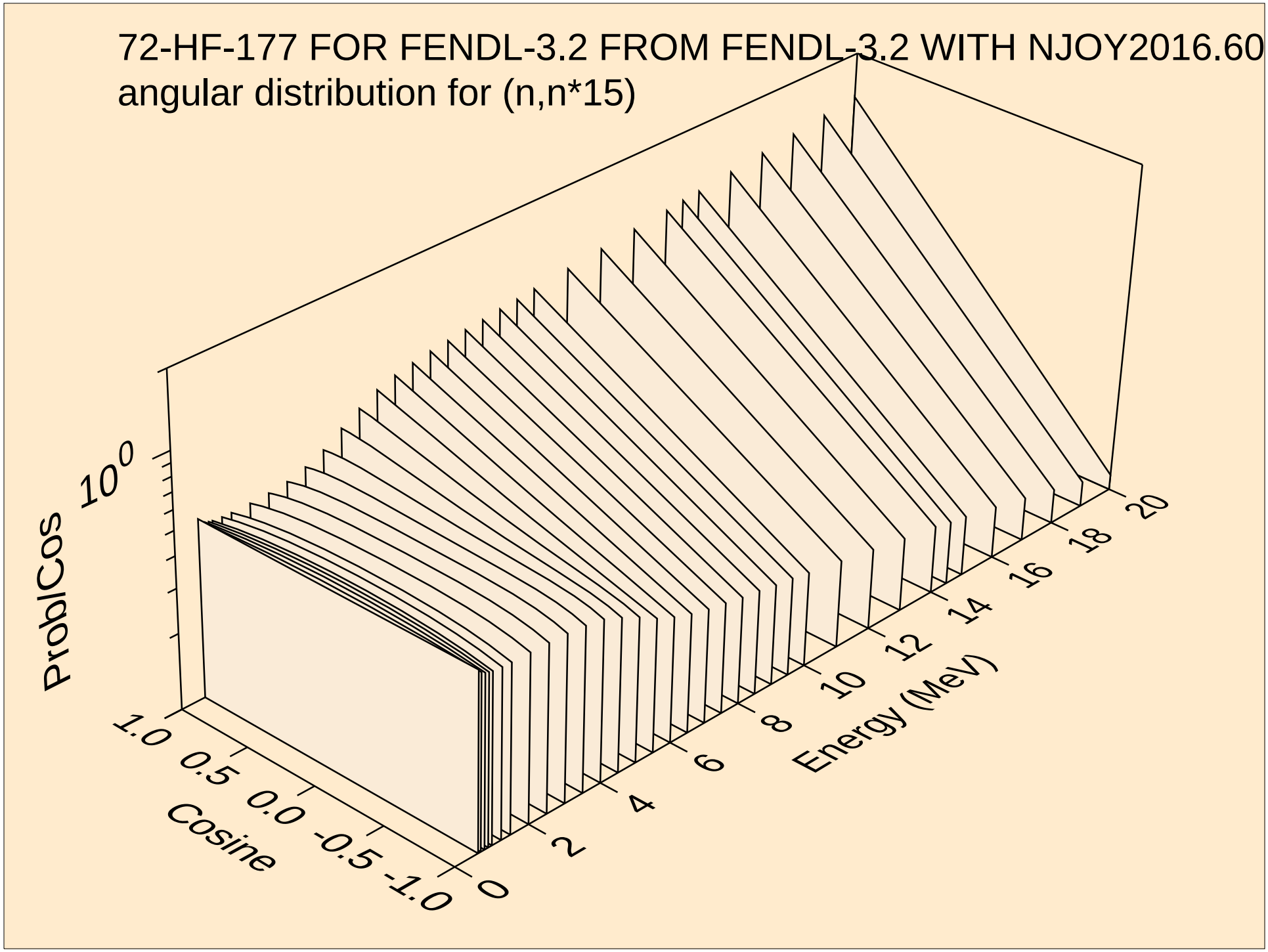

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*10)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

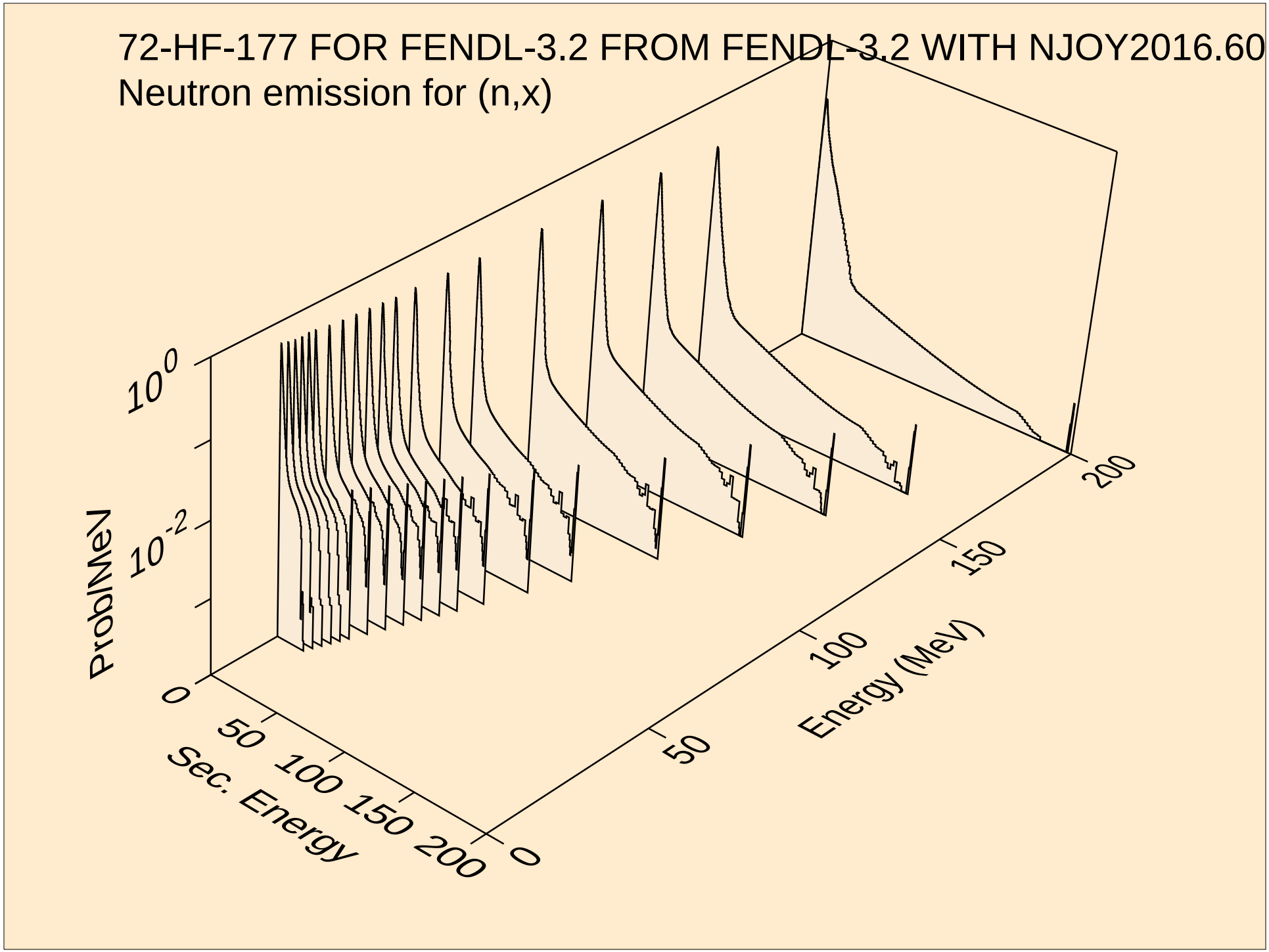

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*11)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

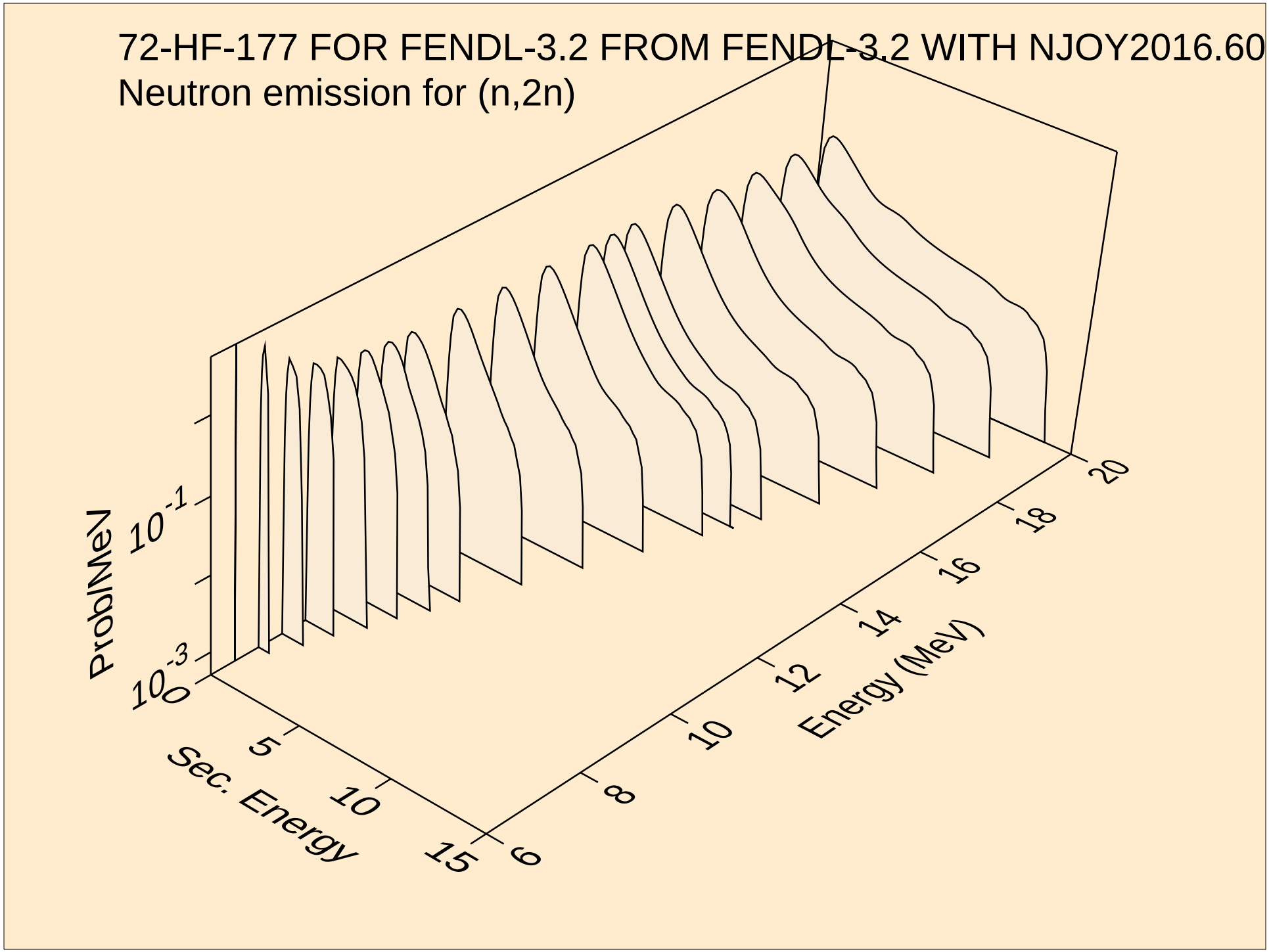

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*12)
ProbICos
10^{0}
10^{-1}
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
20

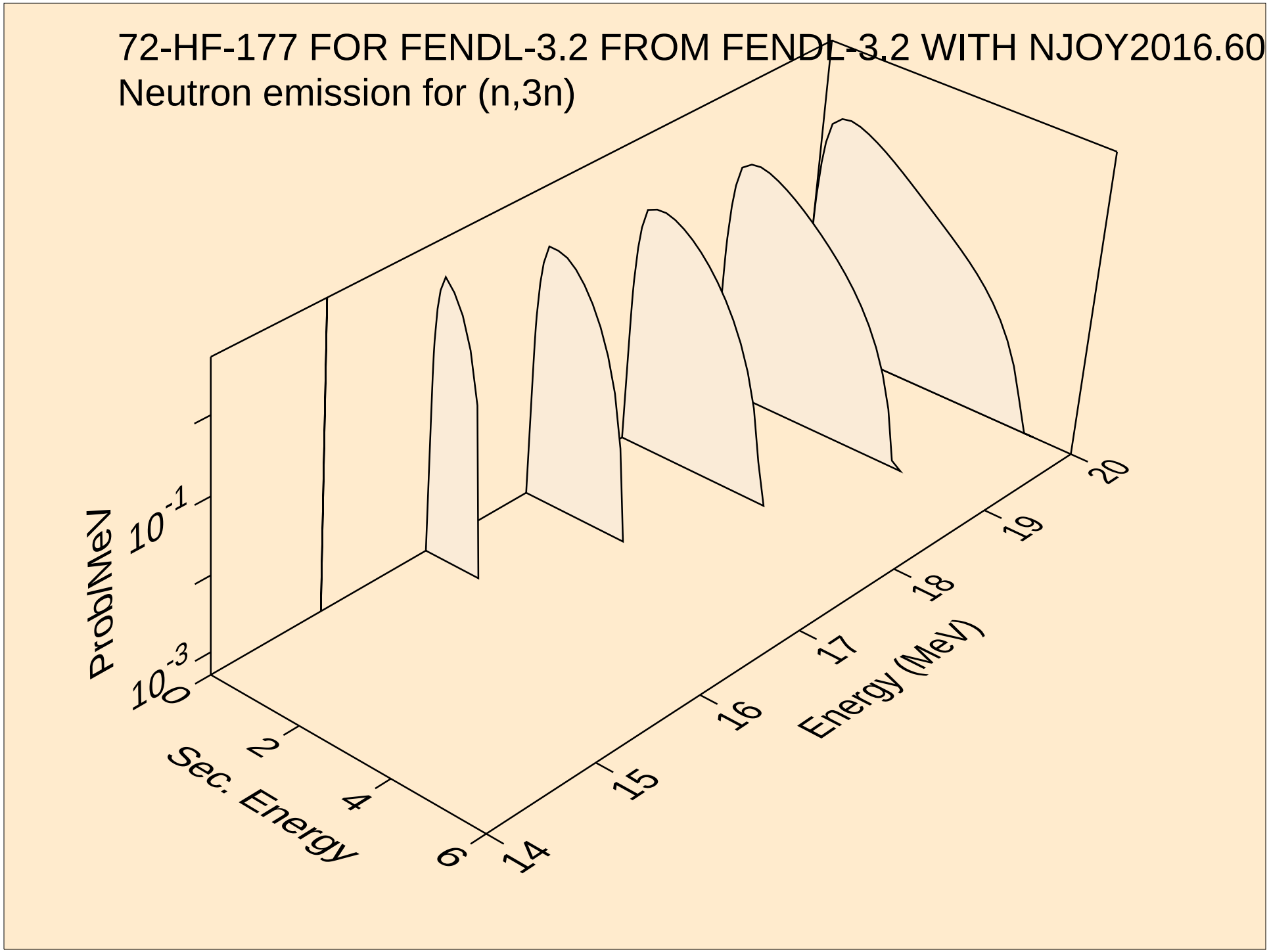

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*13)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

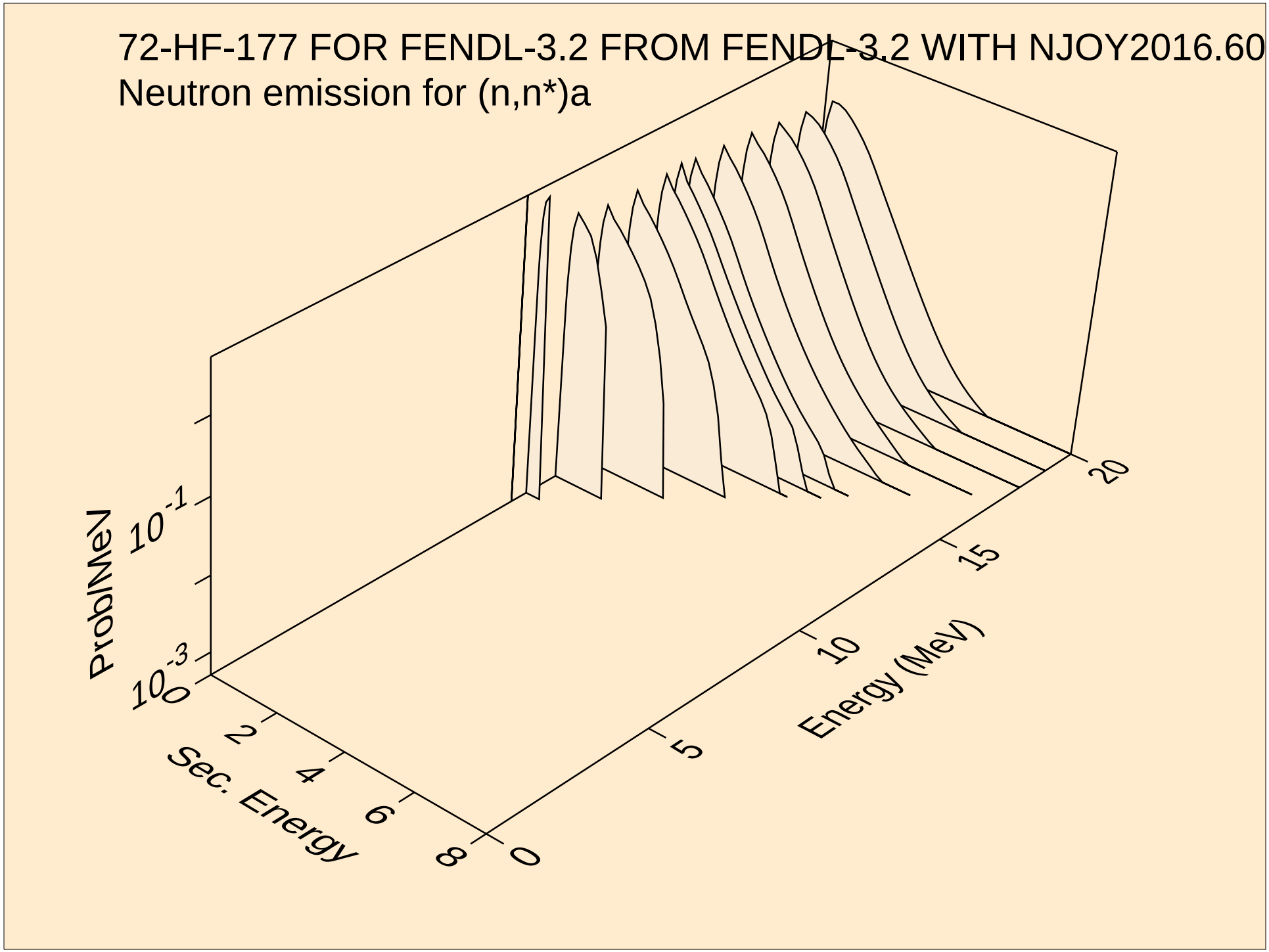

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*14)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

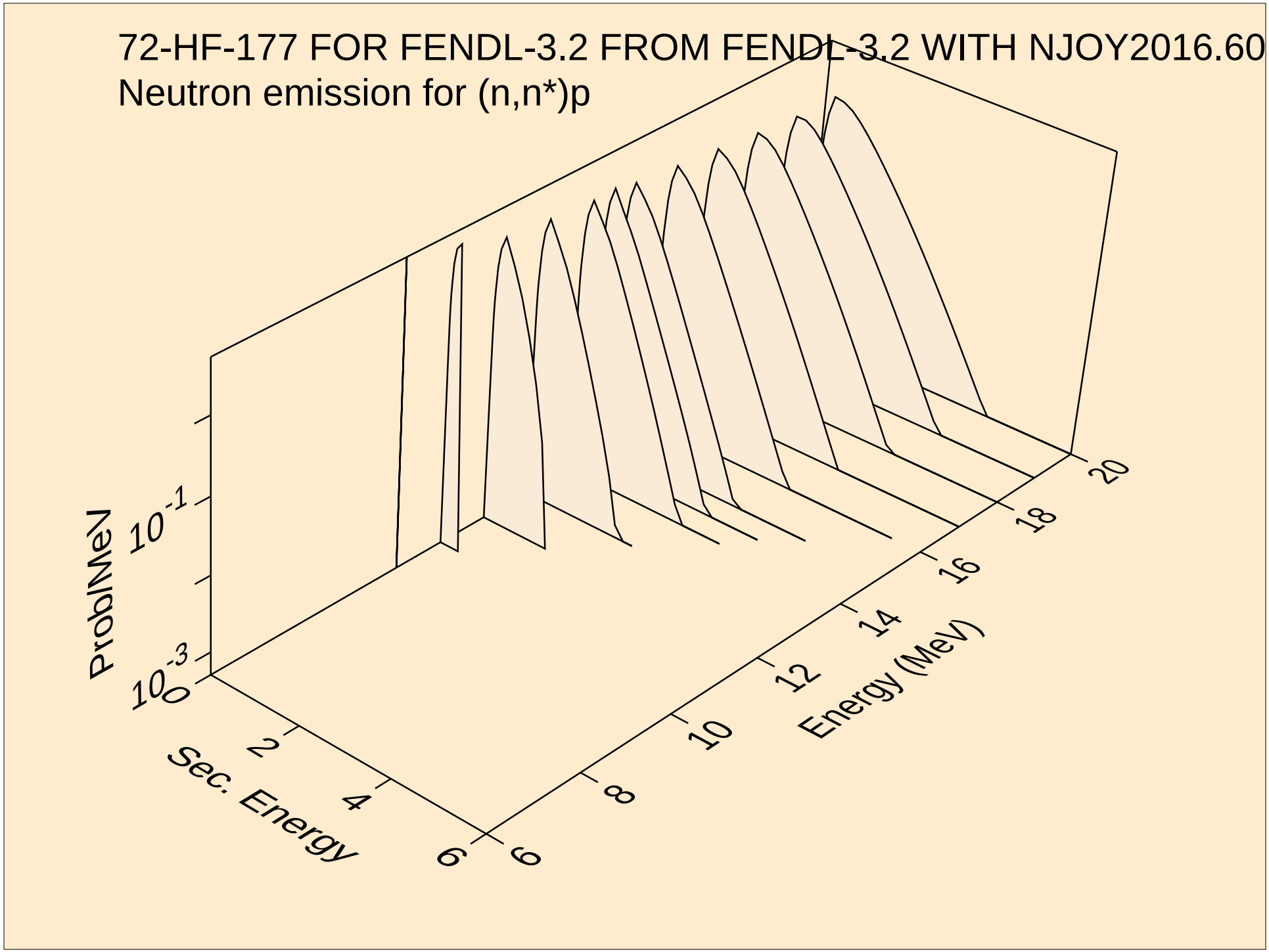

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
angular distribution for (n,n*15)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

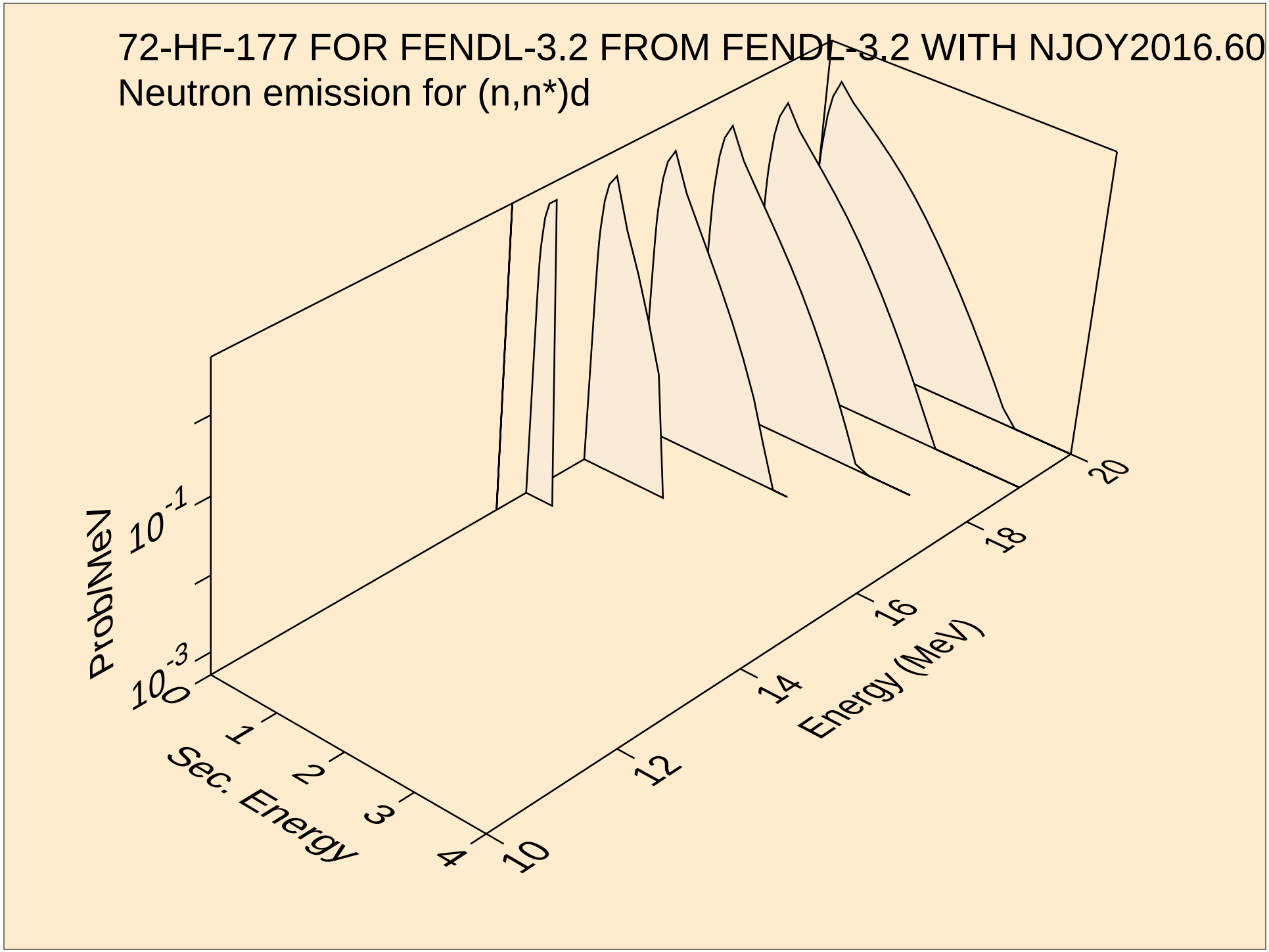

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,x)
Prob/MeV
10^0
10^-2
0
50
100
150
200
Sec. Energy
0
50
100
150
200
Energy (MeV)

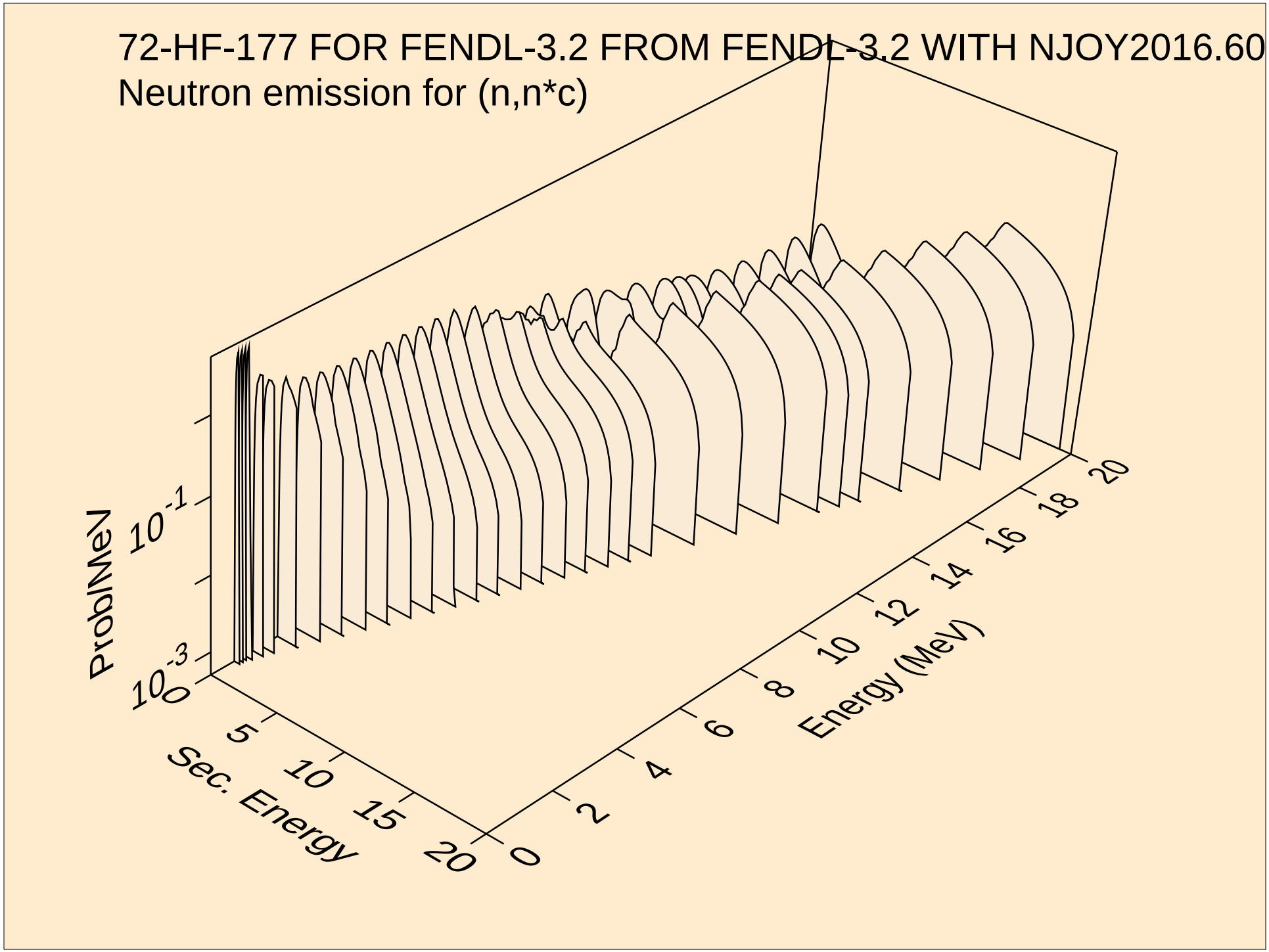

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,2n)
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

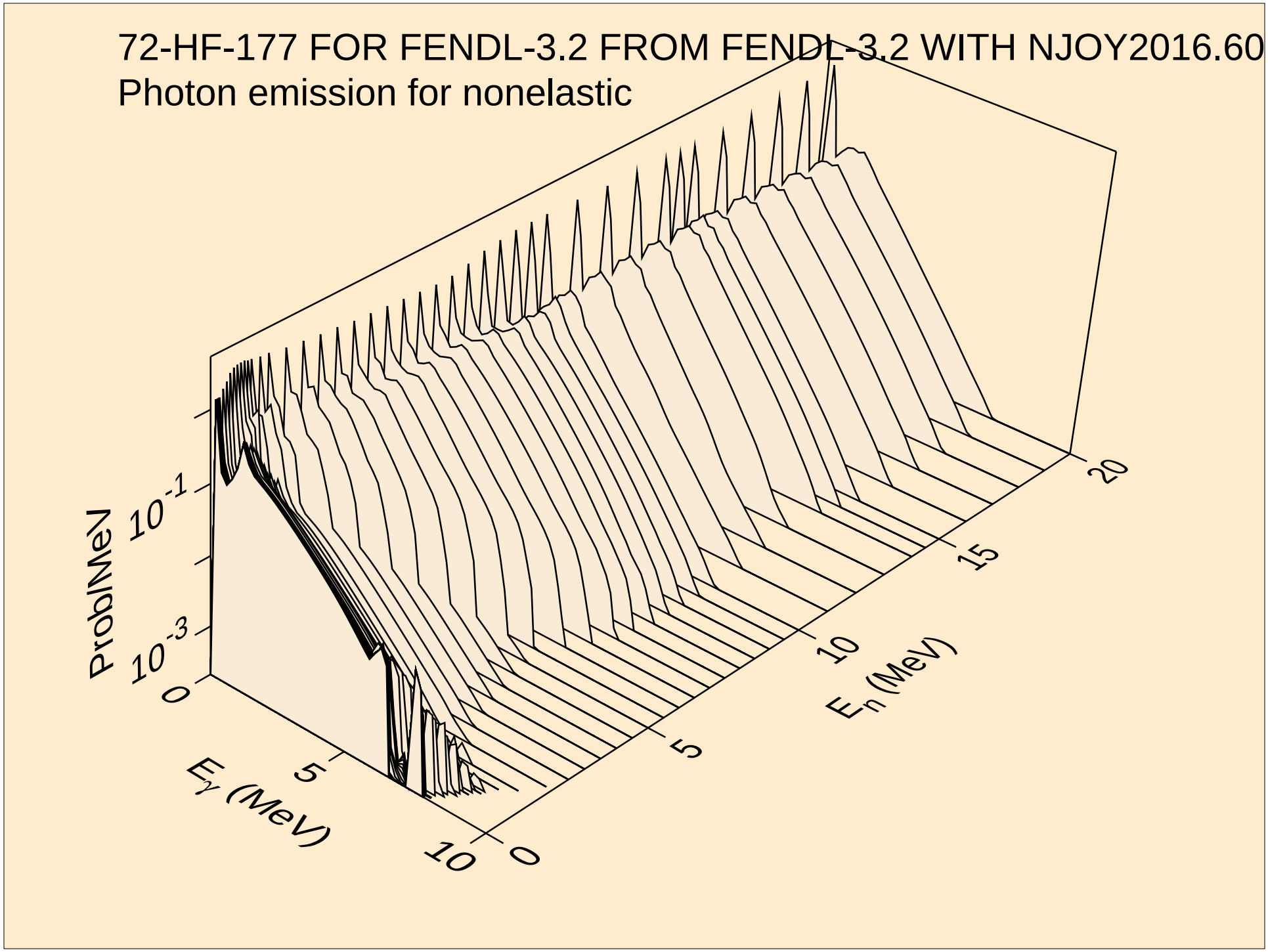

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,3n)
Prob/MeV
10-1
10-3
0
2
4
6
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)

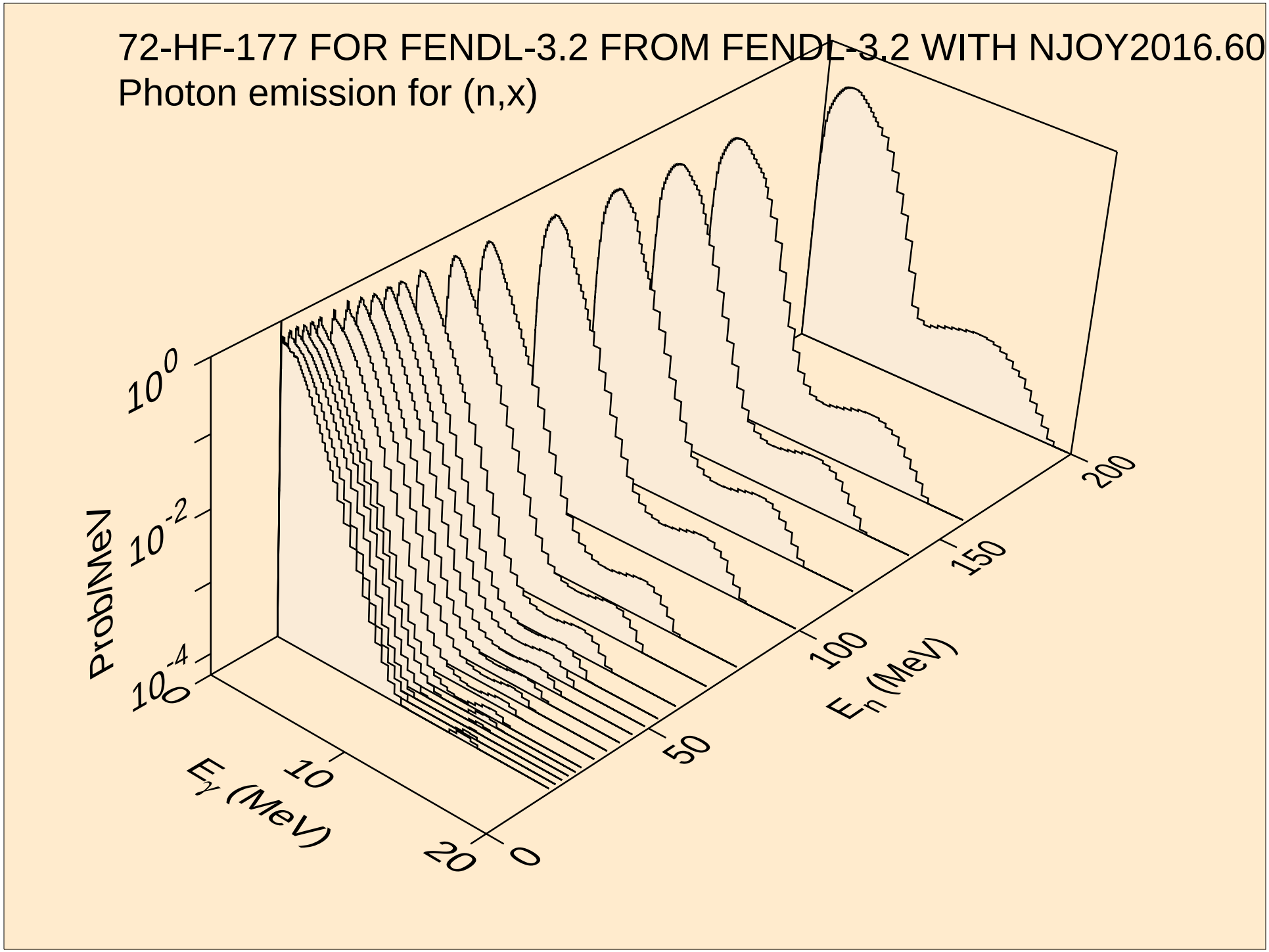

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,n*)a
Prob/MeV
10-1
10-3
0
2
4
6
8
Sec. Energy
0
5
10
15
20
Energy (MeV)

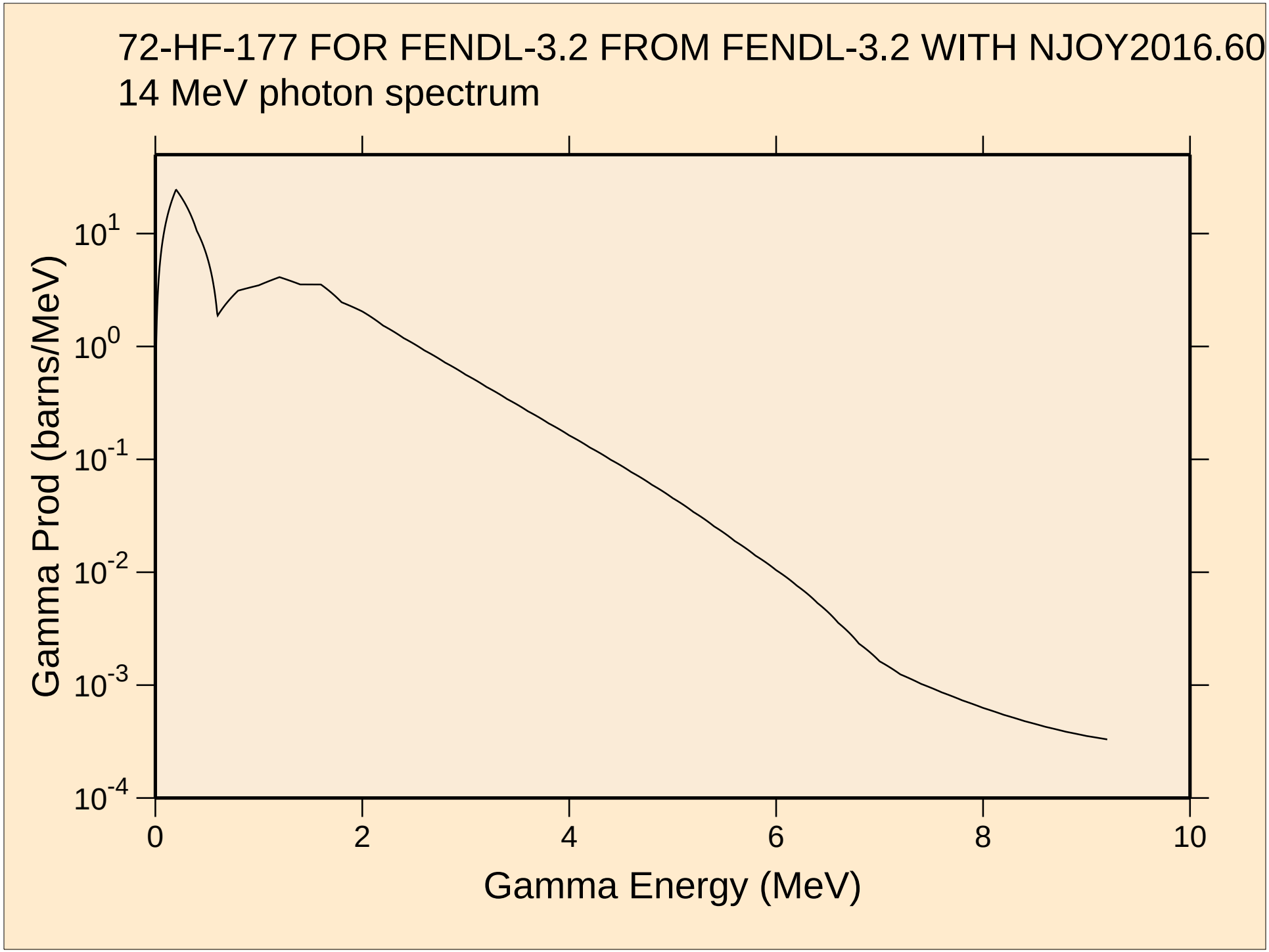

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,n*)p
Prob/MeV
10-1
10-3
0
2
4
6
Sec. Energy
8
10
12
14
16
18
20
Energy (MeV)

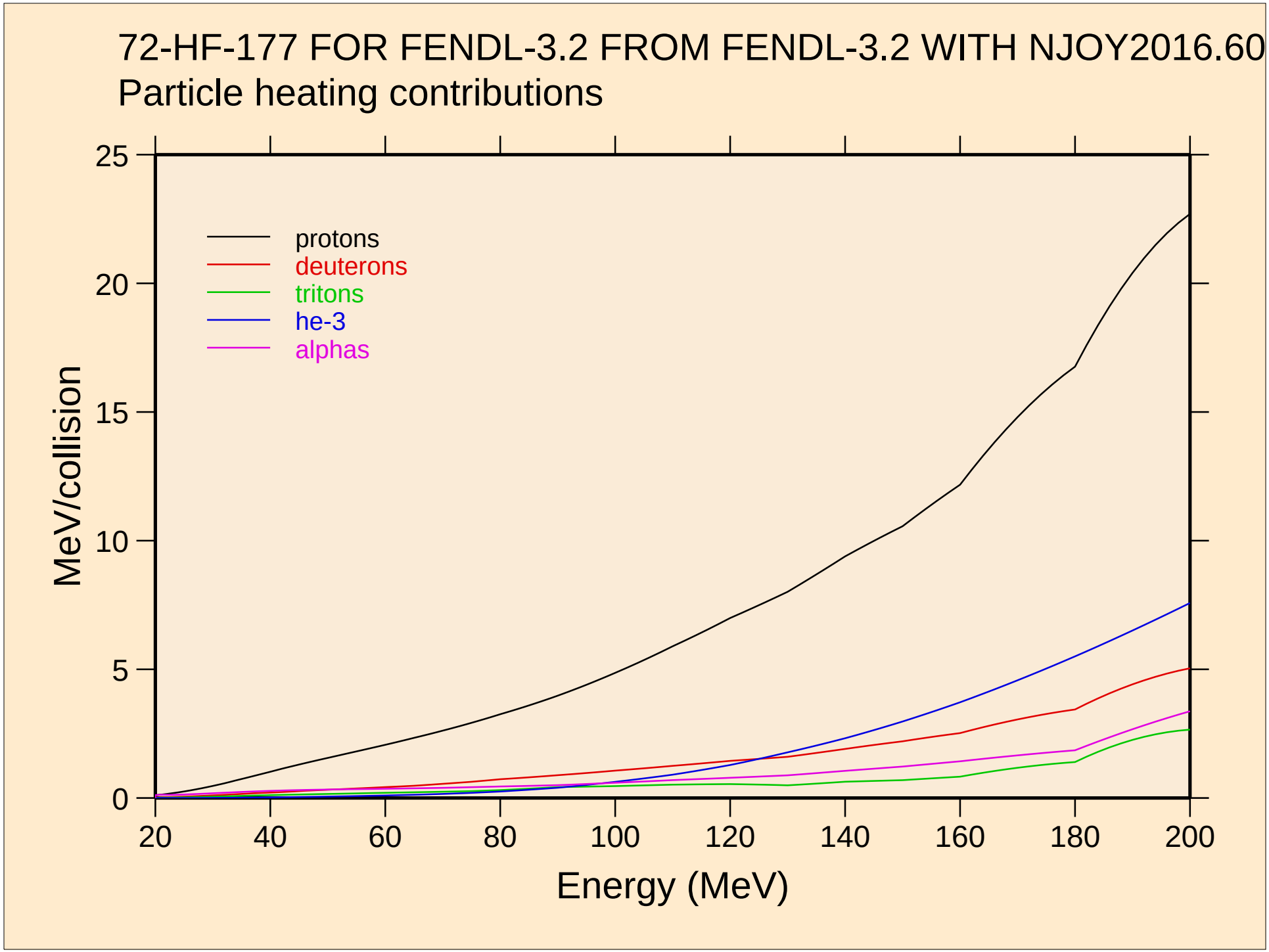

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,n*)d
Prob/MeV
10-1
10-3
0
1
2
3
4
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

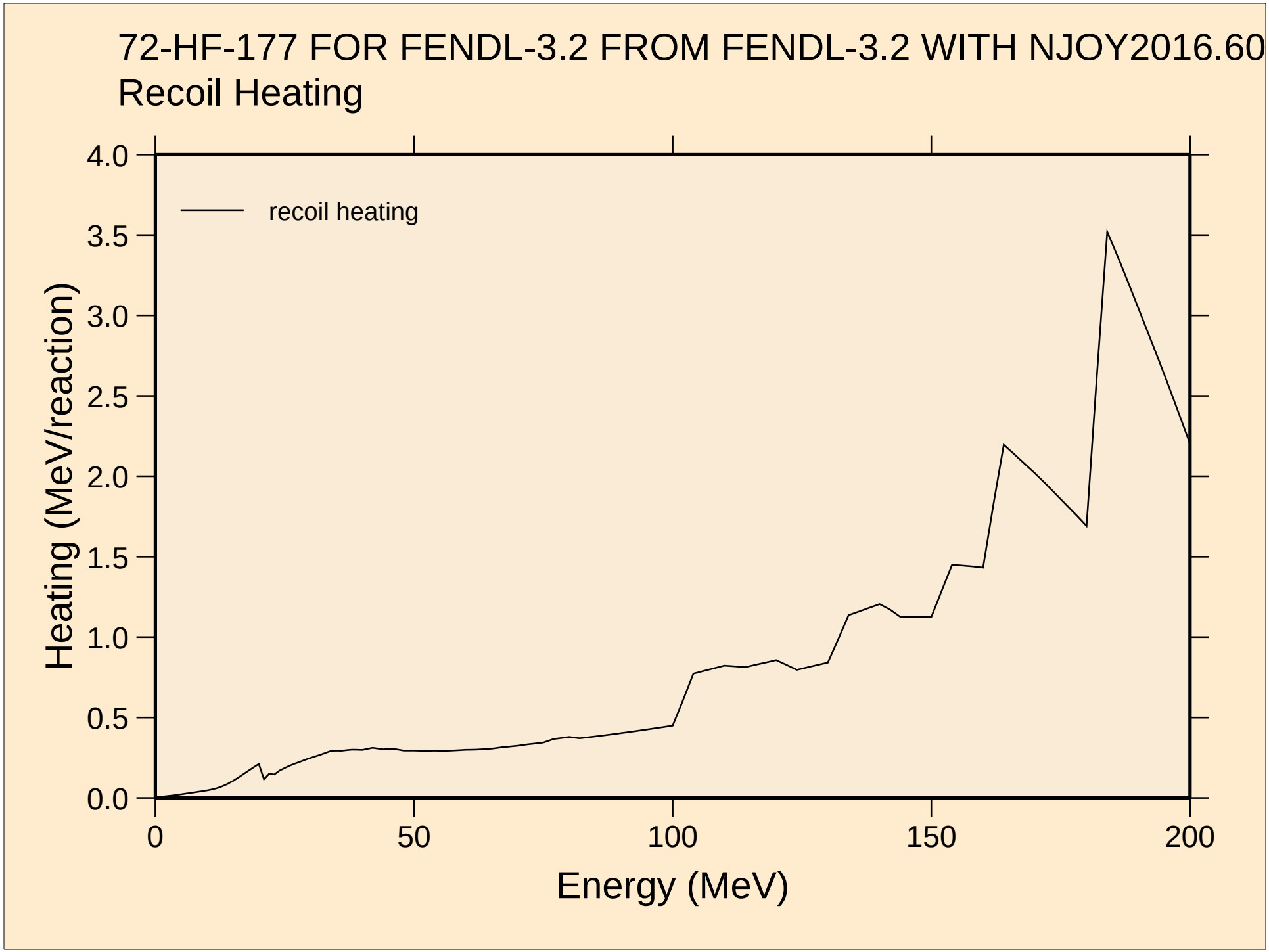

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Neutron emission for (n,n*c)
Prob/MeV
10-1
10-3
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

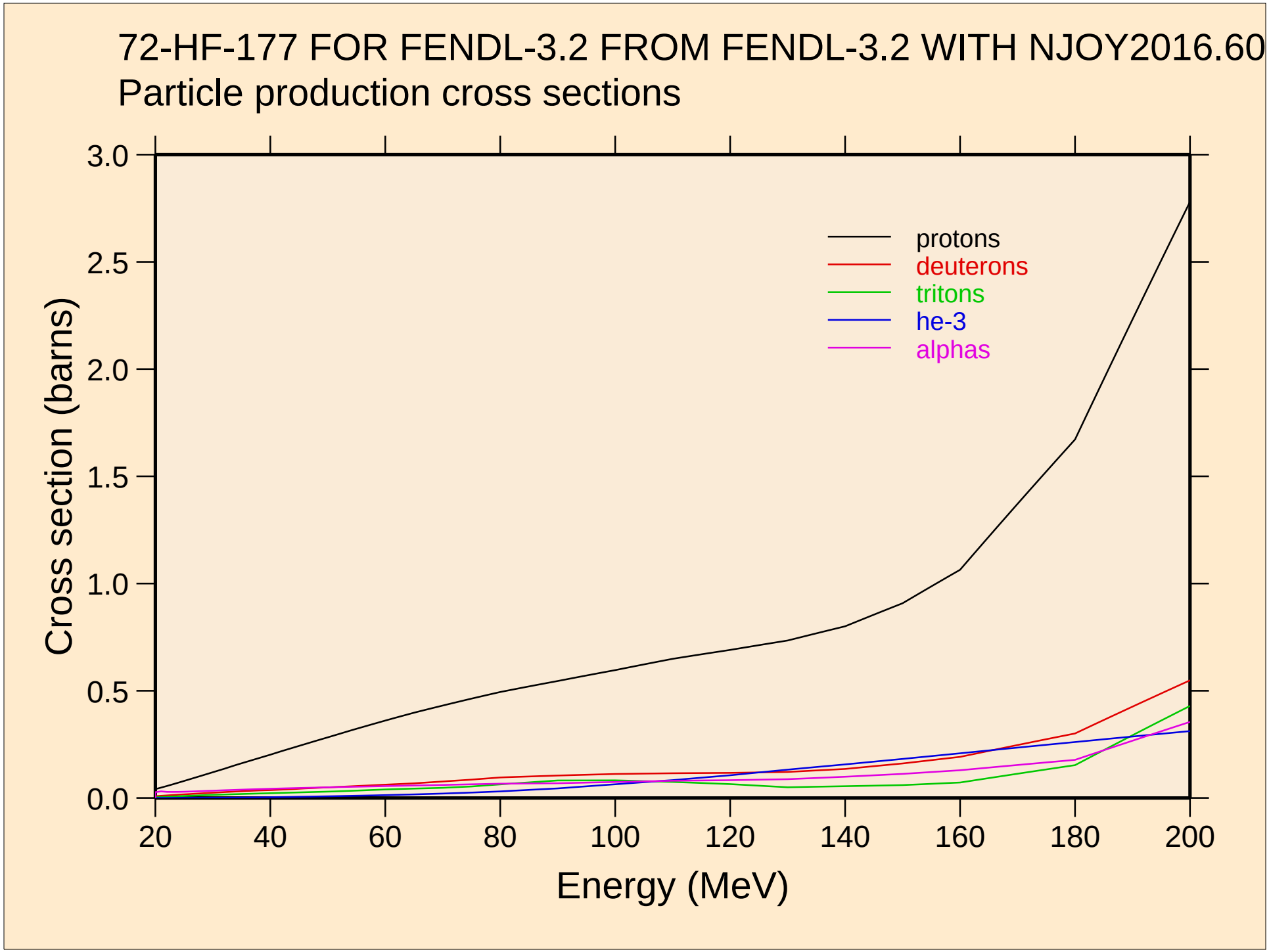

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Photon emission for nonelastic
Prob/MeV
10-1
10-3
0
5
10
Eγ (MeV)
0
5
10
15
20
En (MeV)

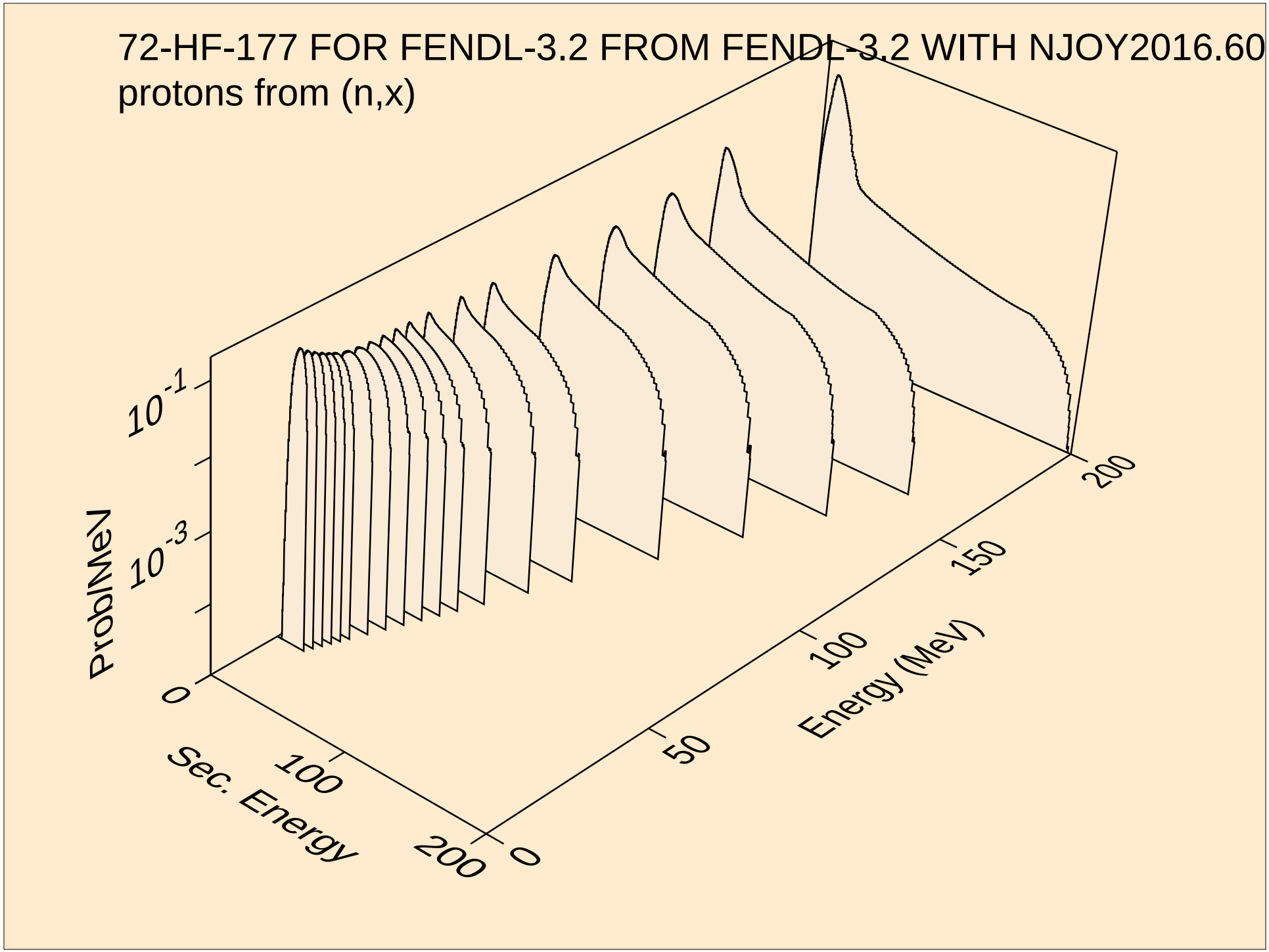

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Photon emission for (n,x)
Prob/MeV
10^{0}
10^{-2}
10^{-4}
0
10
20
E_γ (MeV)
0
50
100
150
200
E_n (MeV)

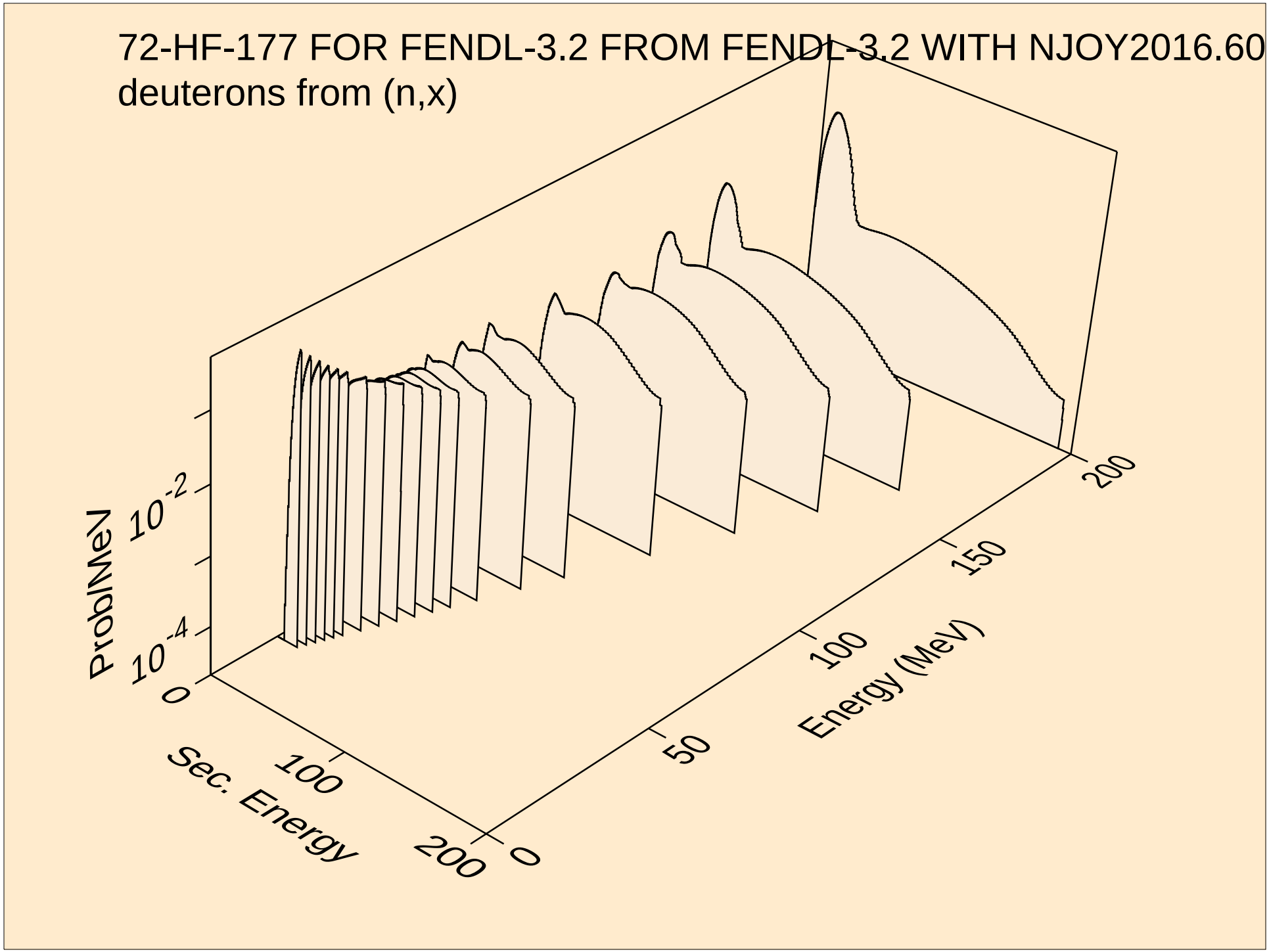

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
0
2
4
6
8
10
Gamma Energy (MeV)

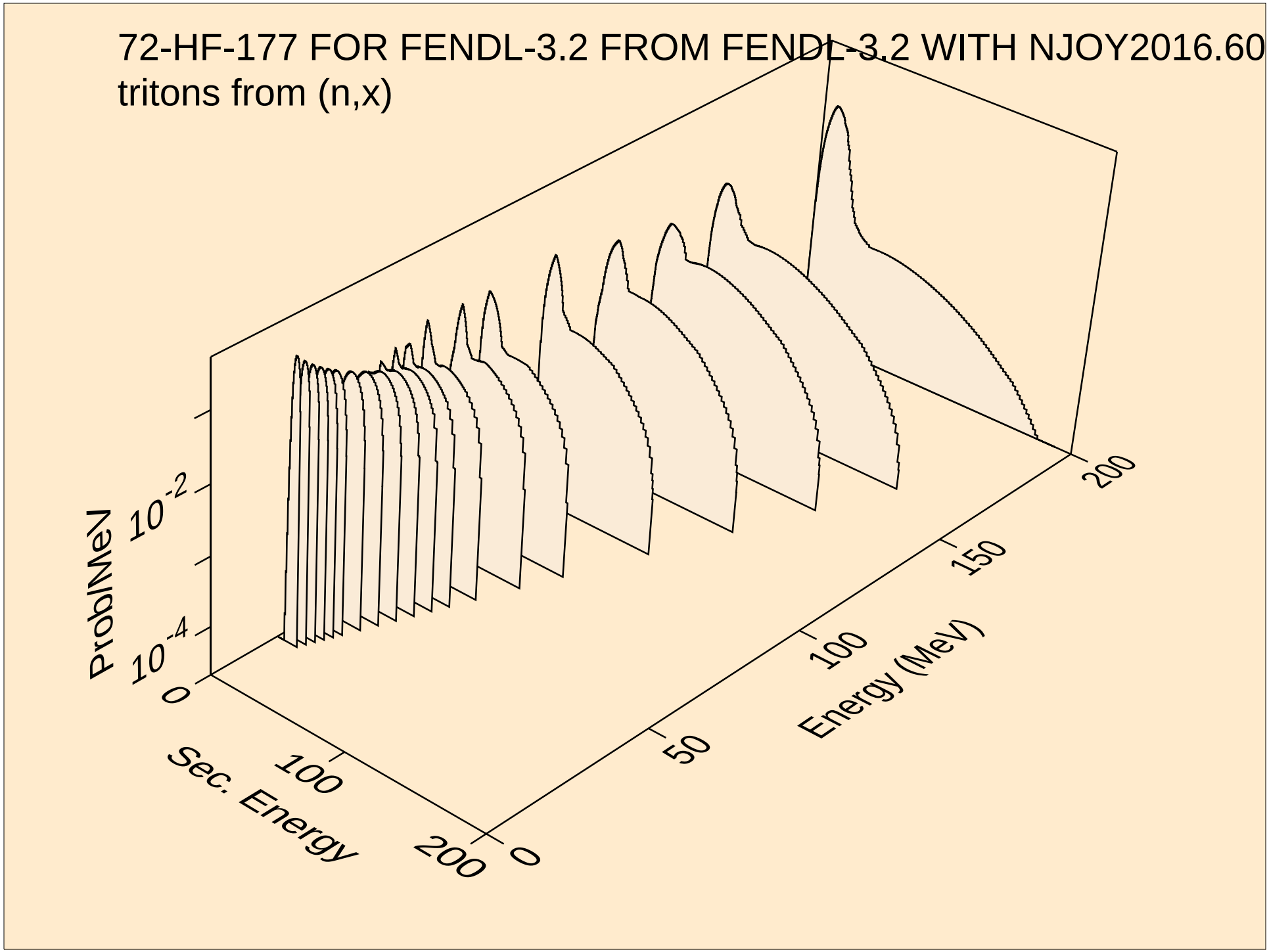

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Particle heating contributions
protons
deuterons
tritons
he-3
alphas
MeV/collision
Energy (MeV)
0
5
10
15
20
25
20
40
60
80
100
120
140
160
180
200

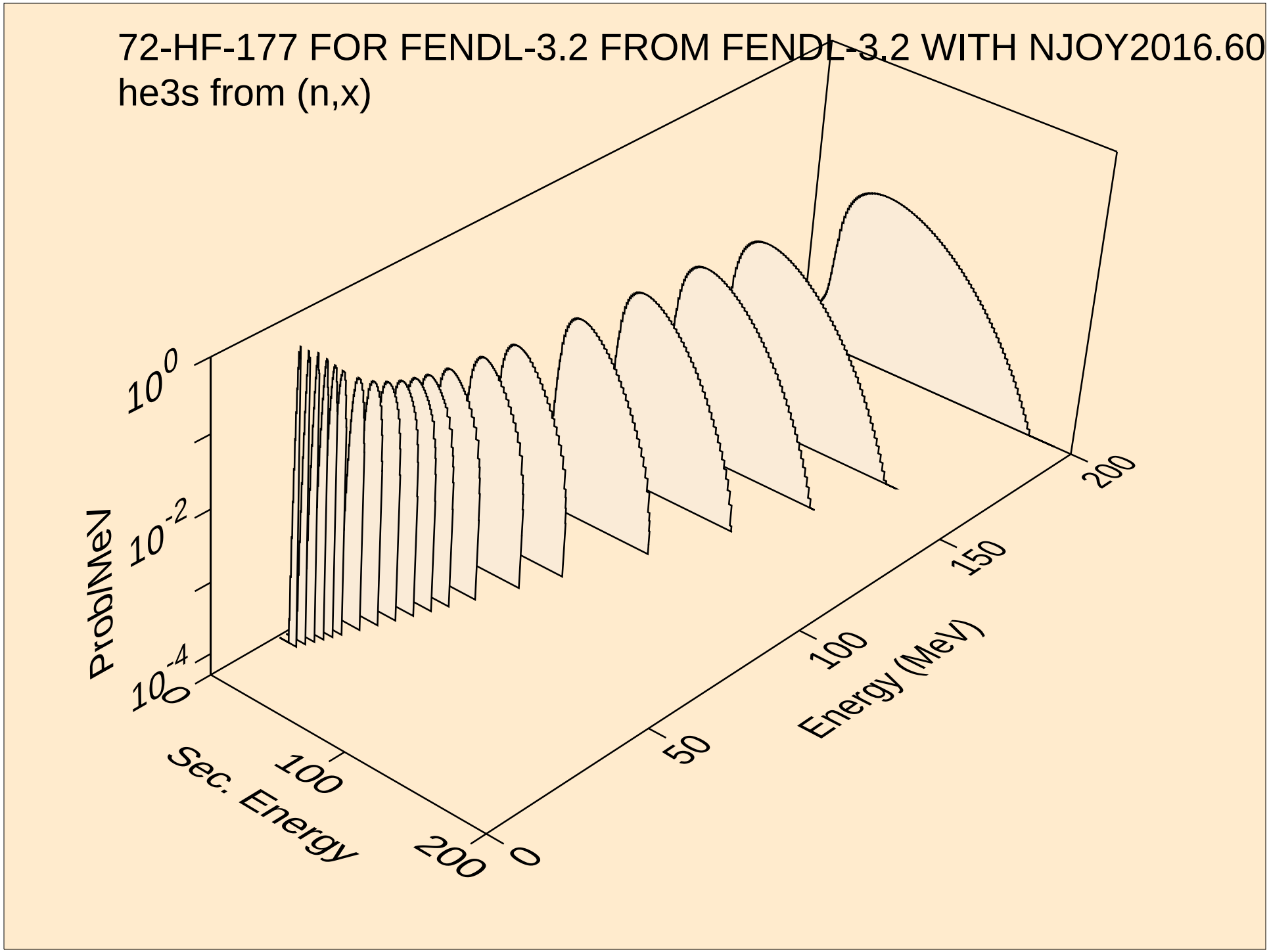

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
50
100
150
200

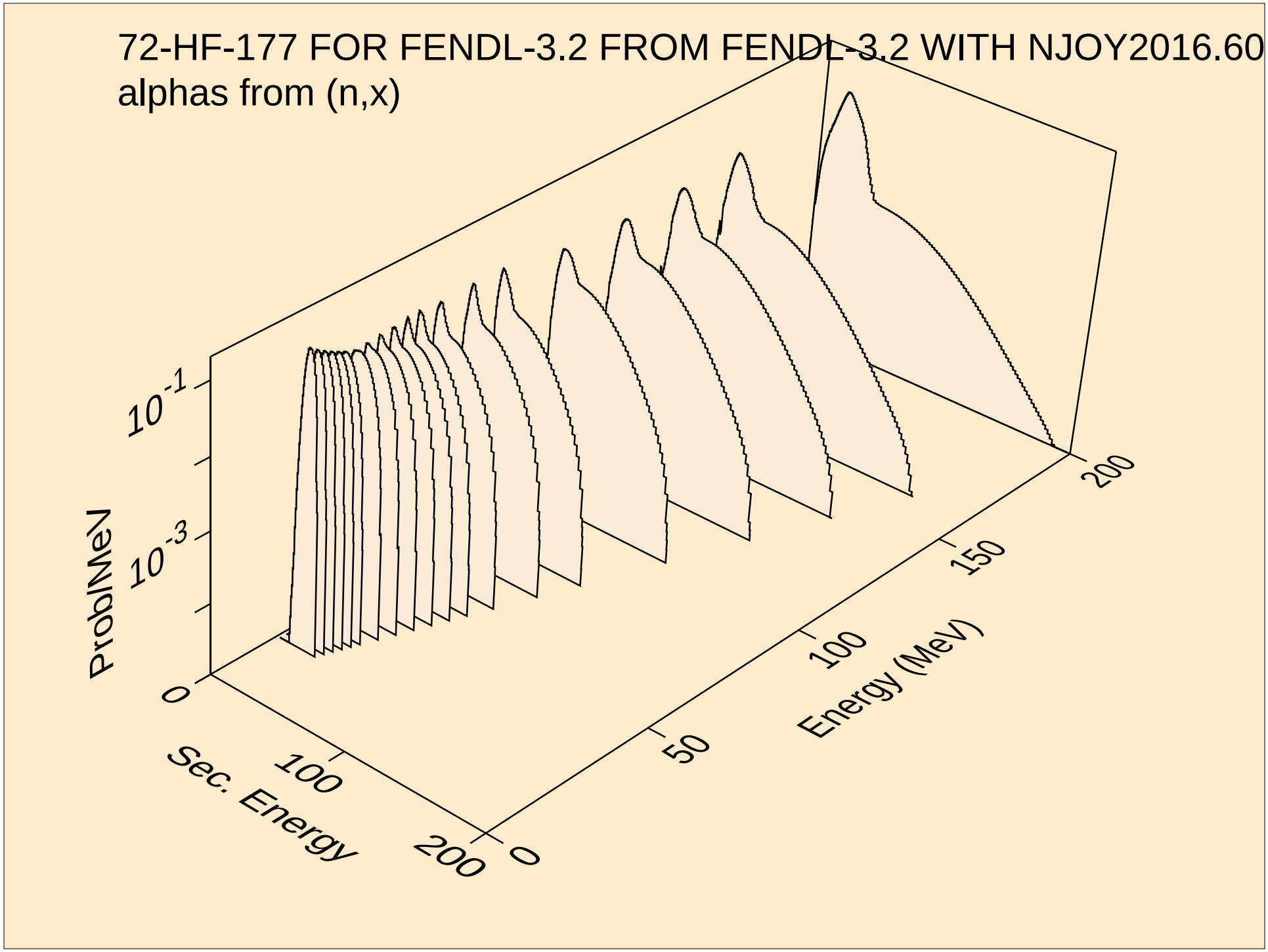

72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
Particle production cross sections
Cross section (barns)
Energy (MeV)
protons
deuterons
tritons
he-3
alphas
0.0
0.5
1.0
1.5
2.0
2.5
3.0
20
40
60
80
100
120
140
160
180
200


72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
protons from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
deuterons from (n,x)
Prob/MeV
10-2
10-4
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
tritons from (n,x)
Prob/MeV
10-2
10-4
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
he3s from (n,x)
Prob/MeV
10^0
10^-2
10^-4
Sec. Energy
0
100
200
Energy (MeV)
0
50
100
150
200


72-HF-177 FOR FENDL-3.2 FROM FENDL-3.2 WITH NJOY2016.60
alphas from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
50
100
Energy (MeV)
150
200