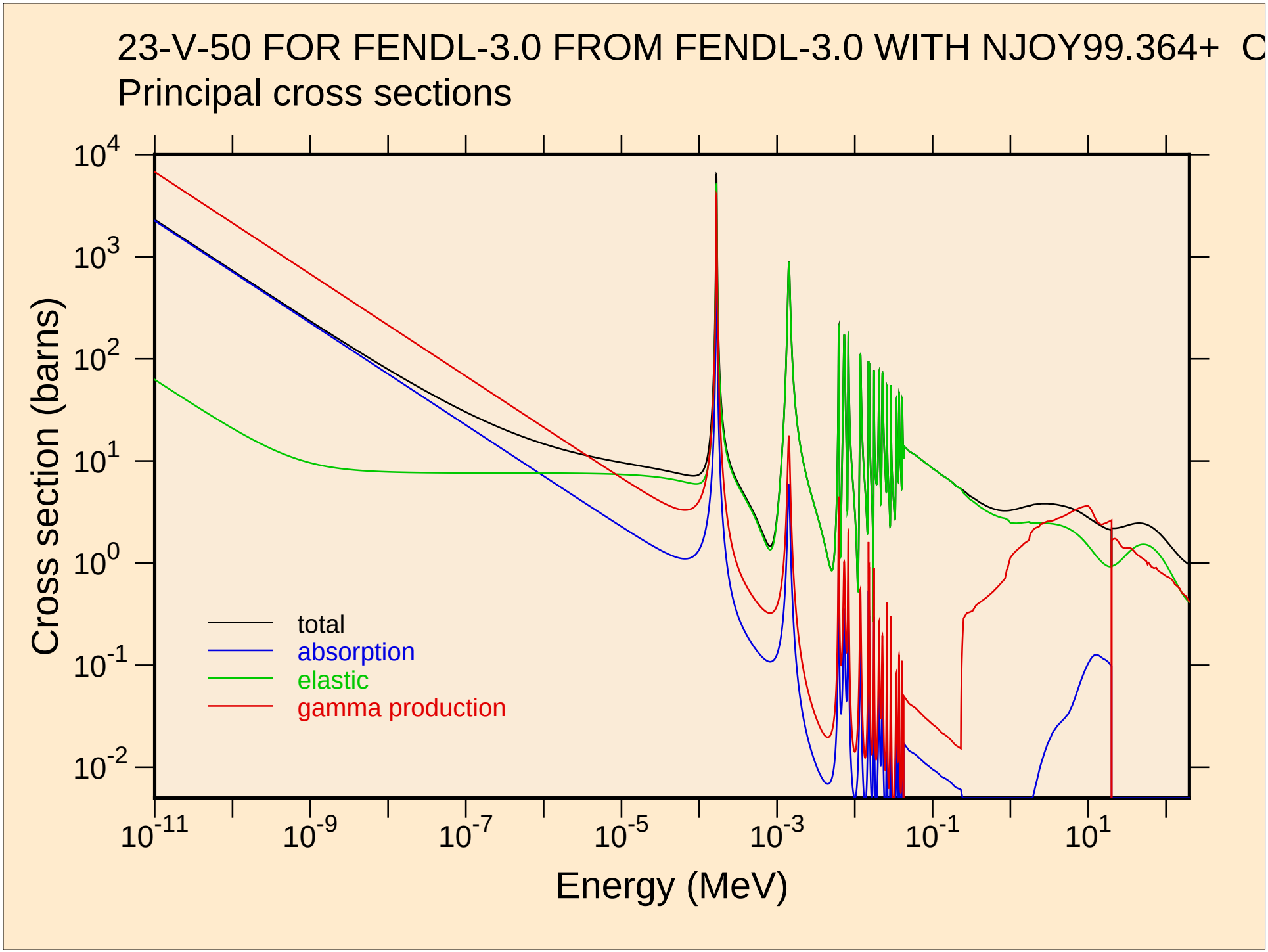
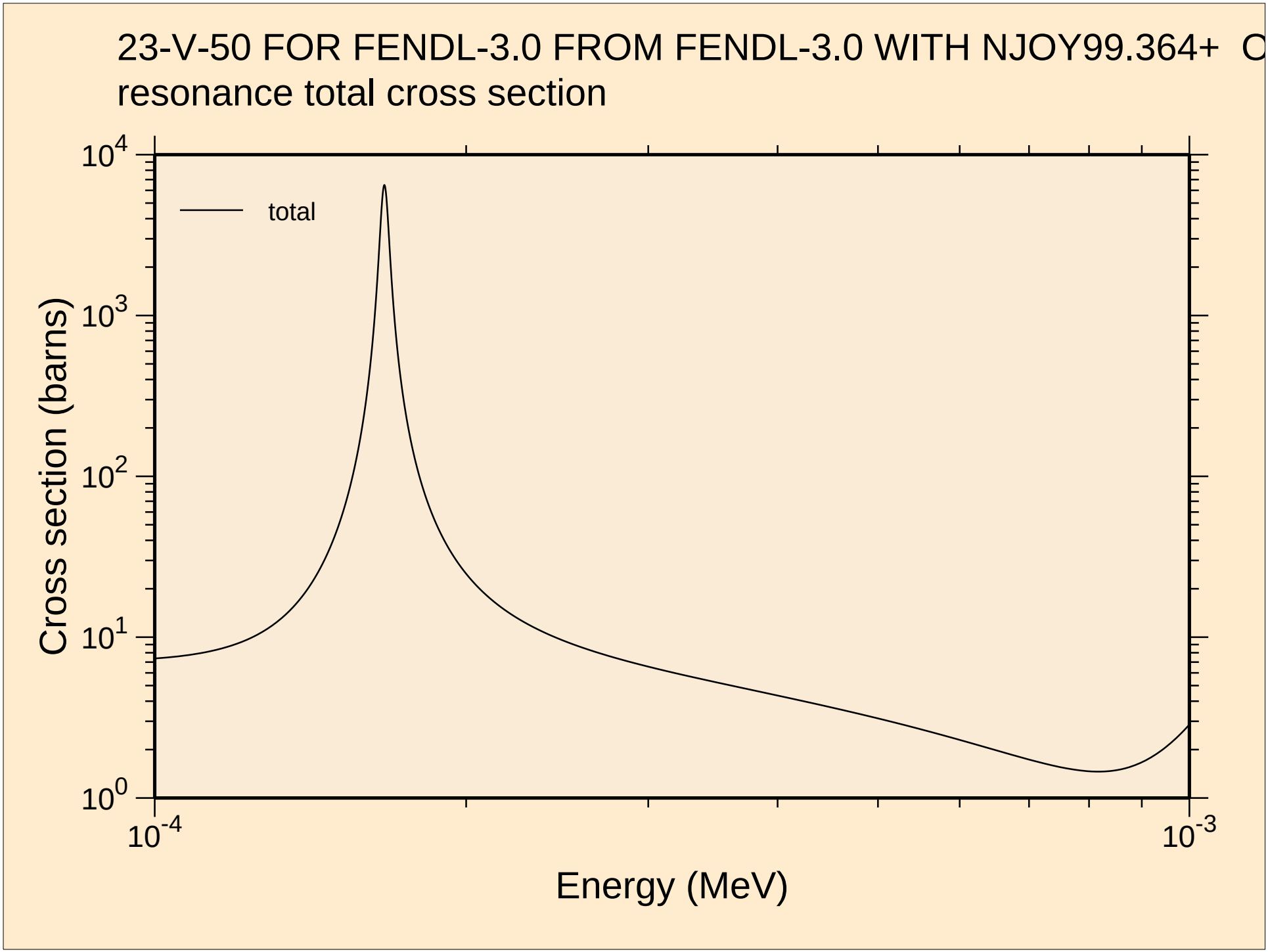
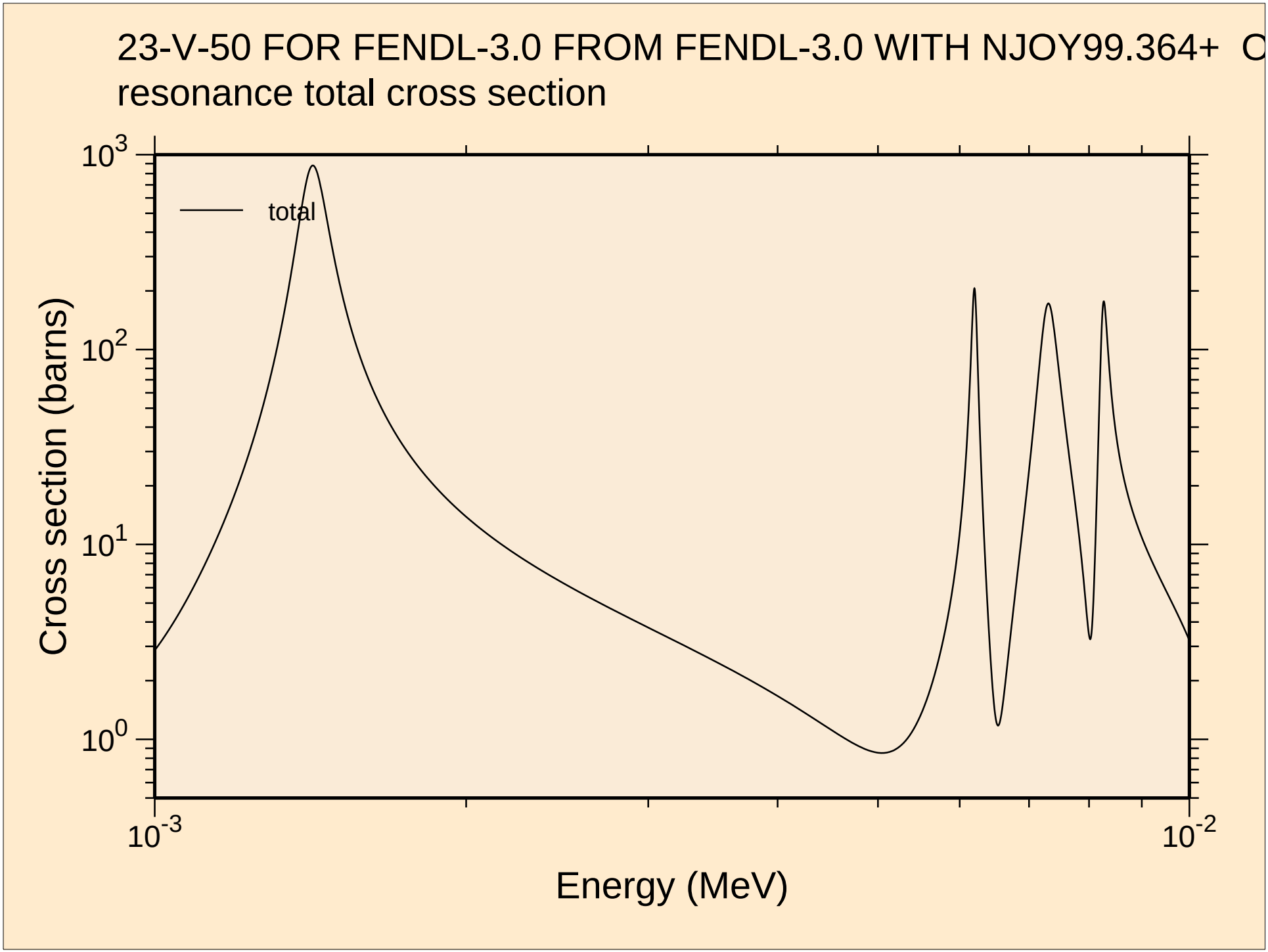
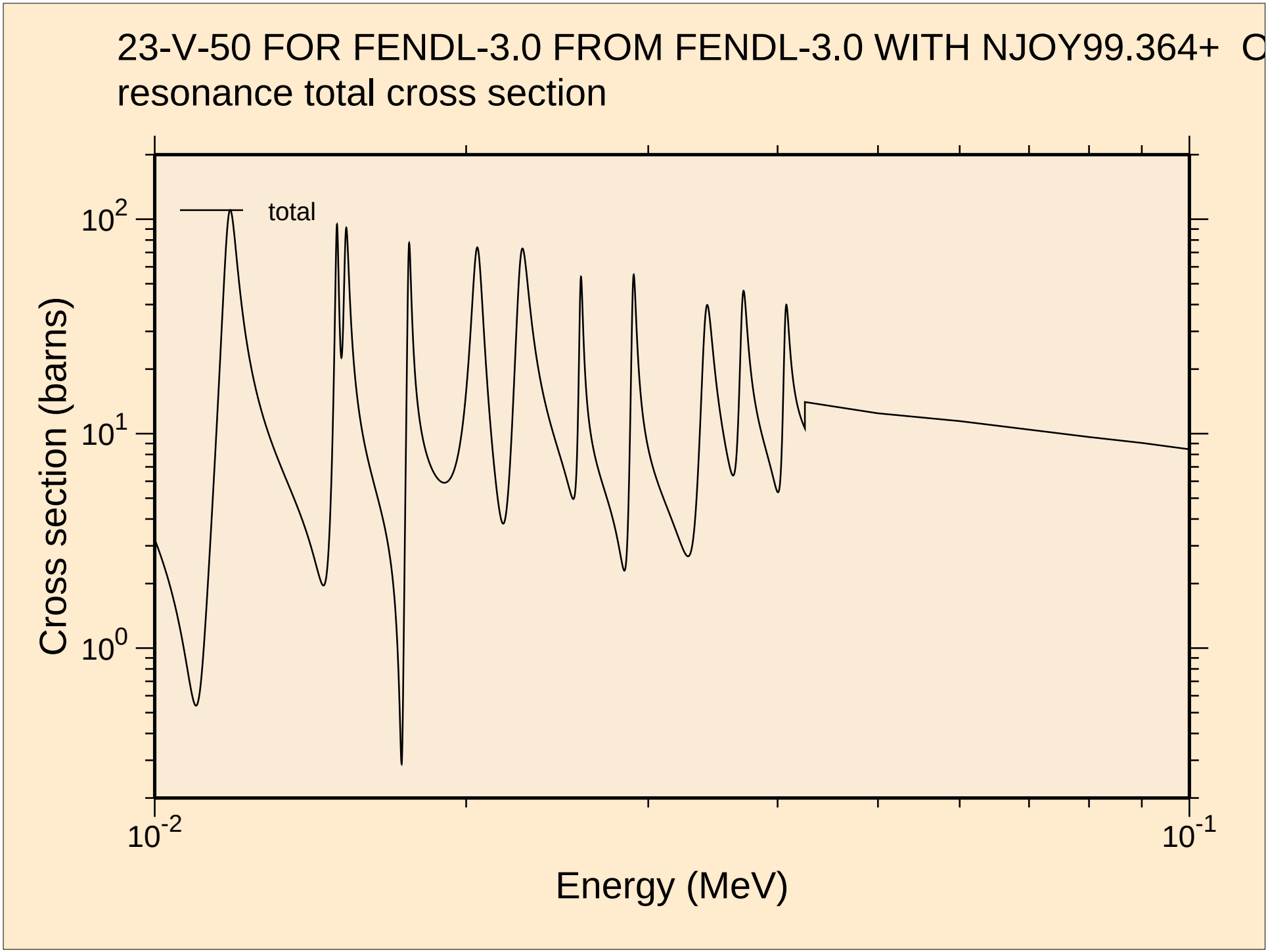
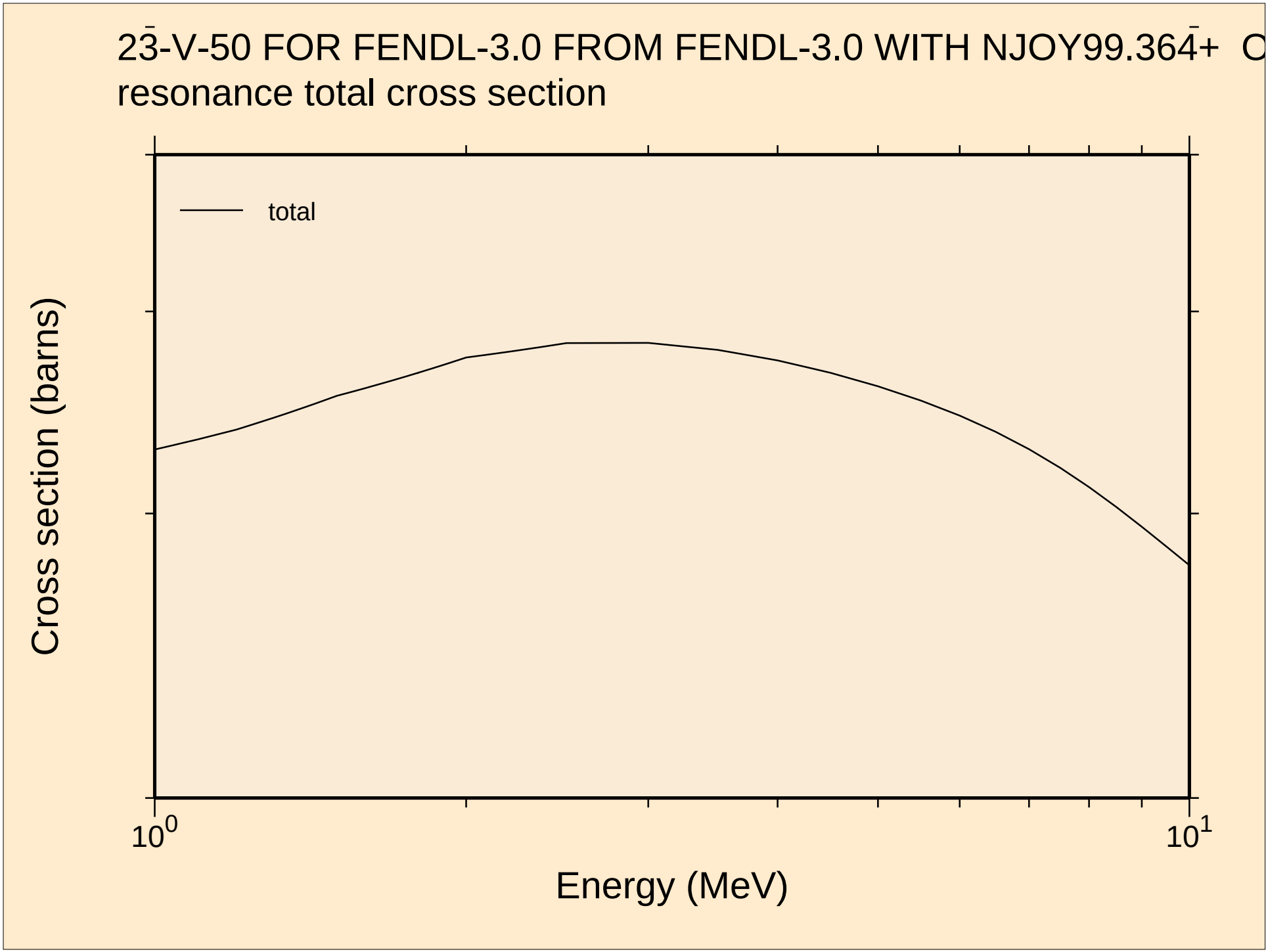
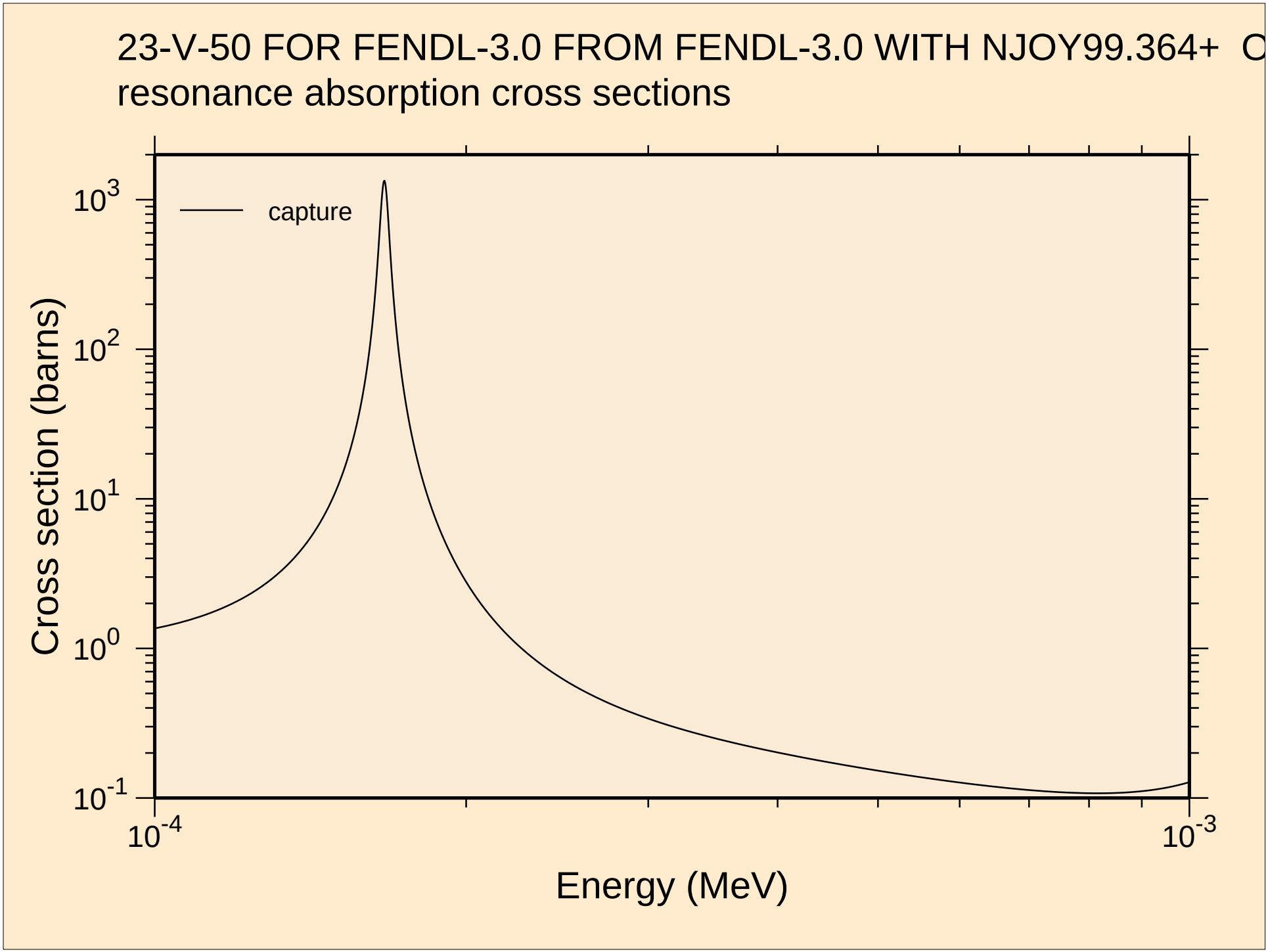

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
10^4
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

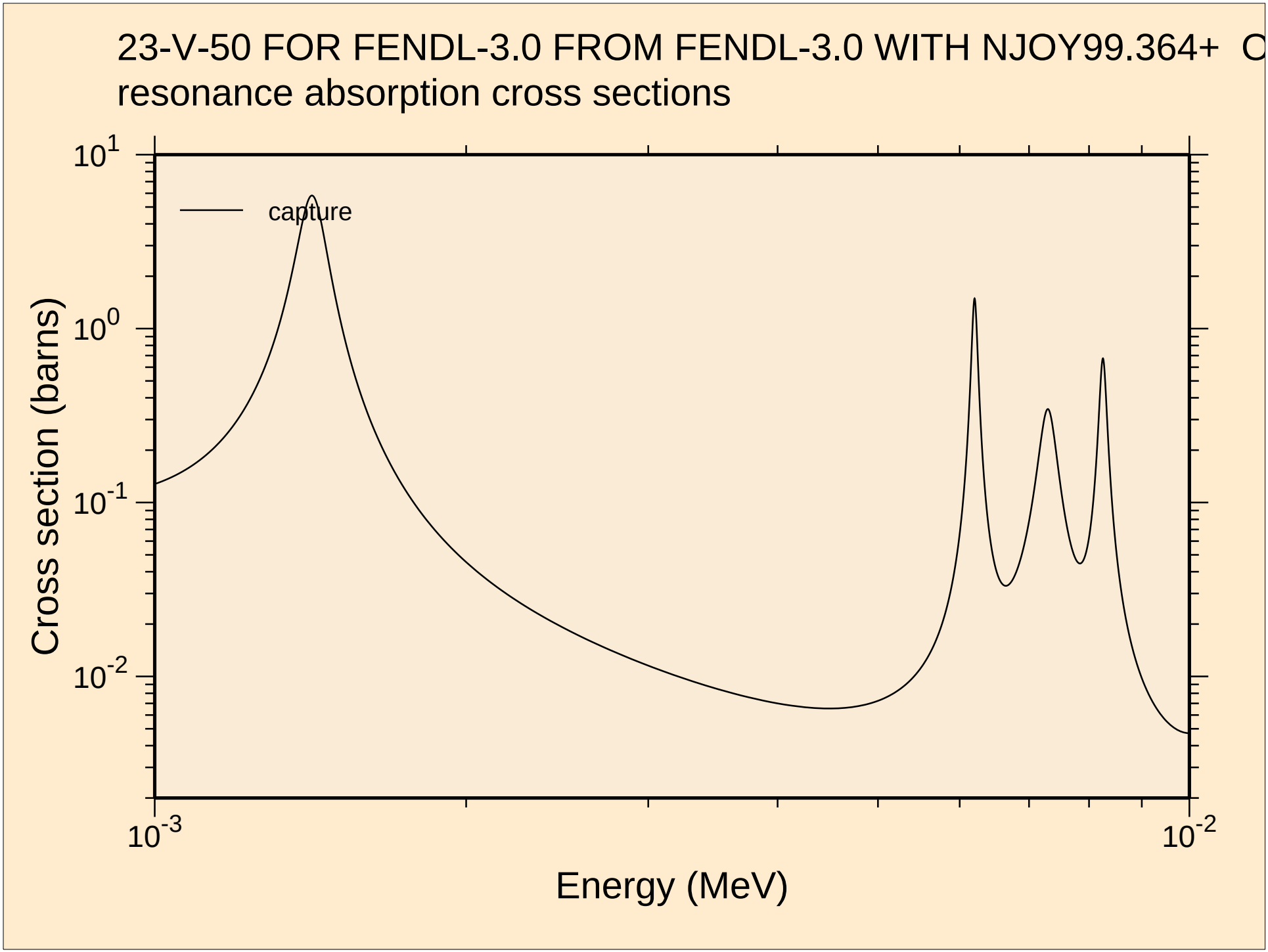

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance total cross section
total
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-4
10^-3
Energy (MeV)

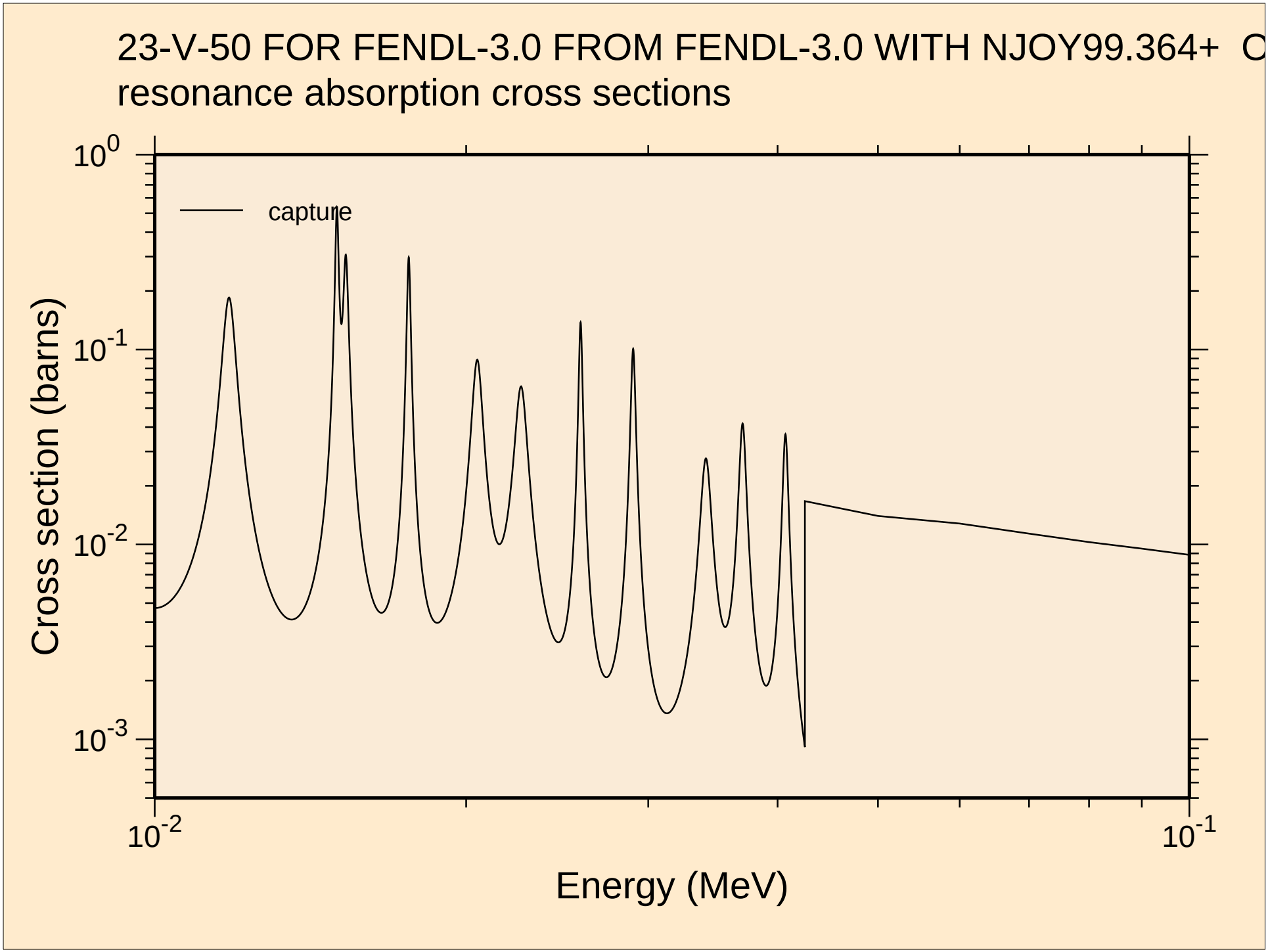

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^0
10^-3
10^-2
Energy (MeV)

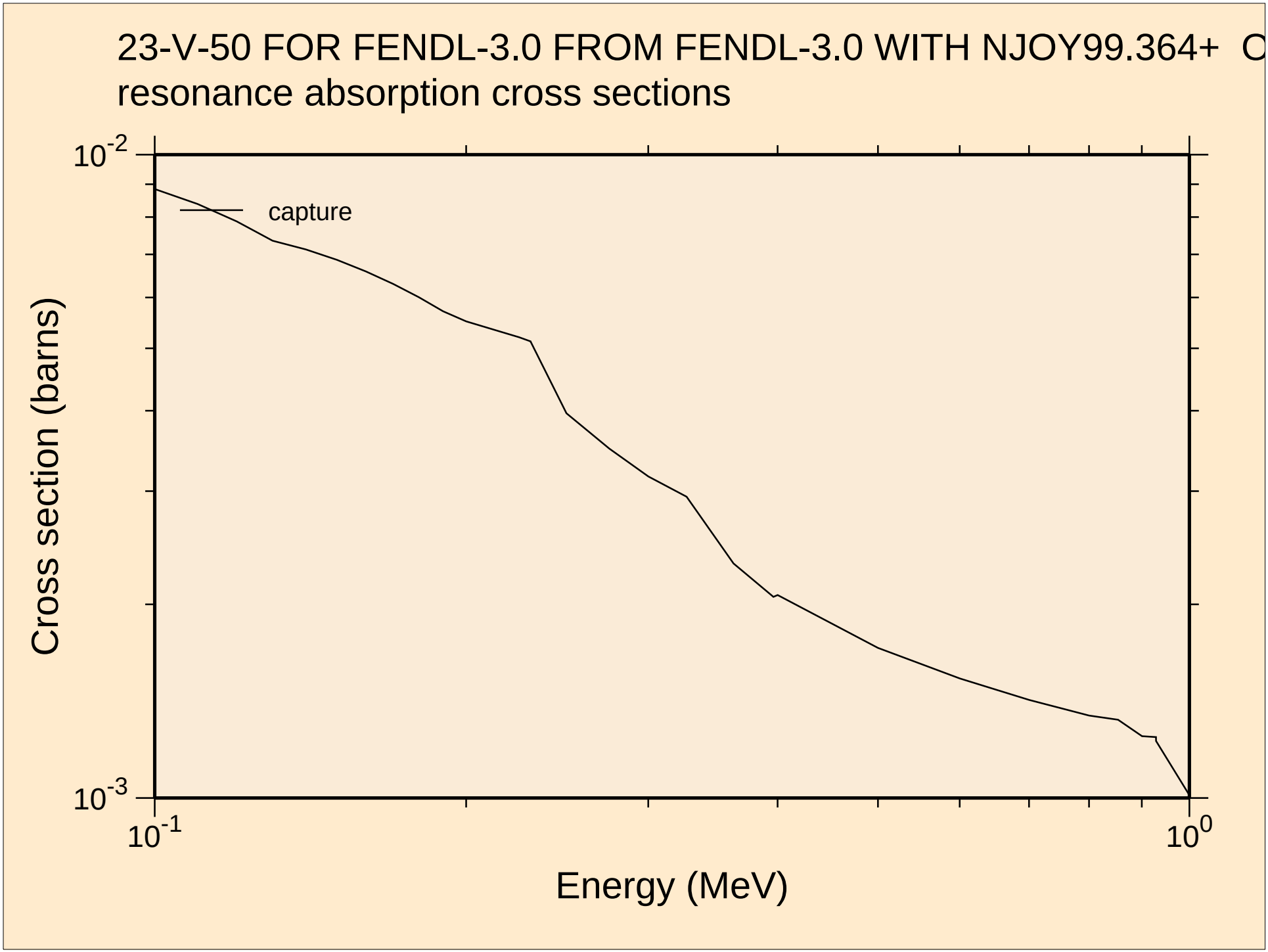

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^0
10^-2
10^-1
Energy (MeV)

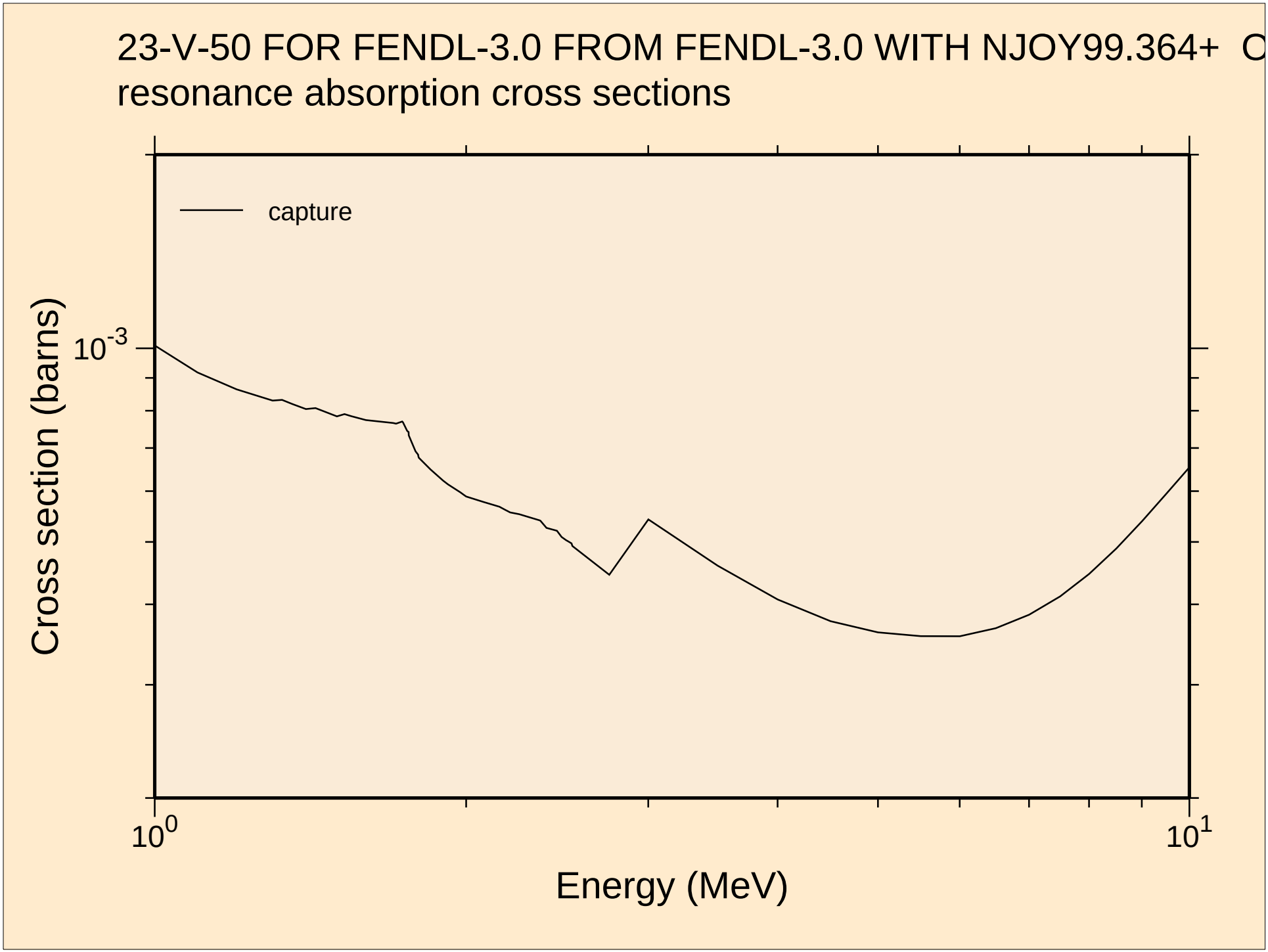

23̄-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364̄+ C
resonance total cross section
total
Cross section (barns)
10^0
10^1
Energy (MeV)

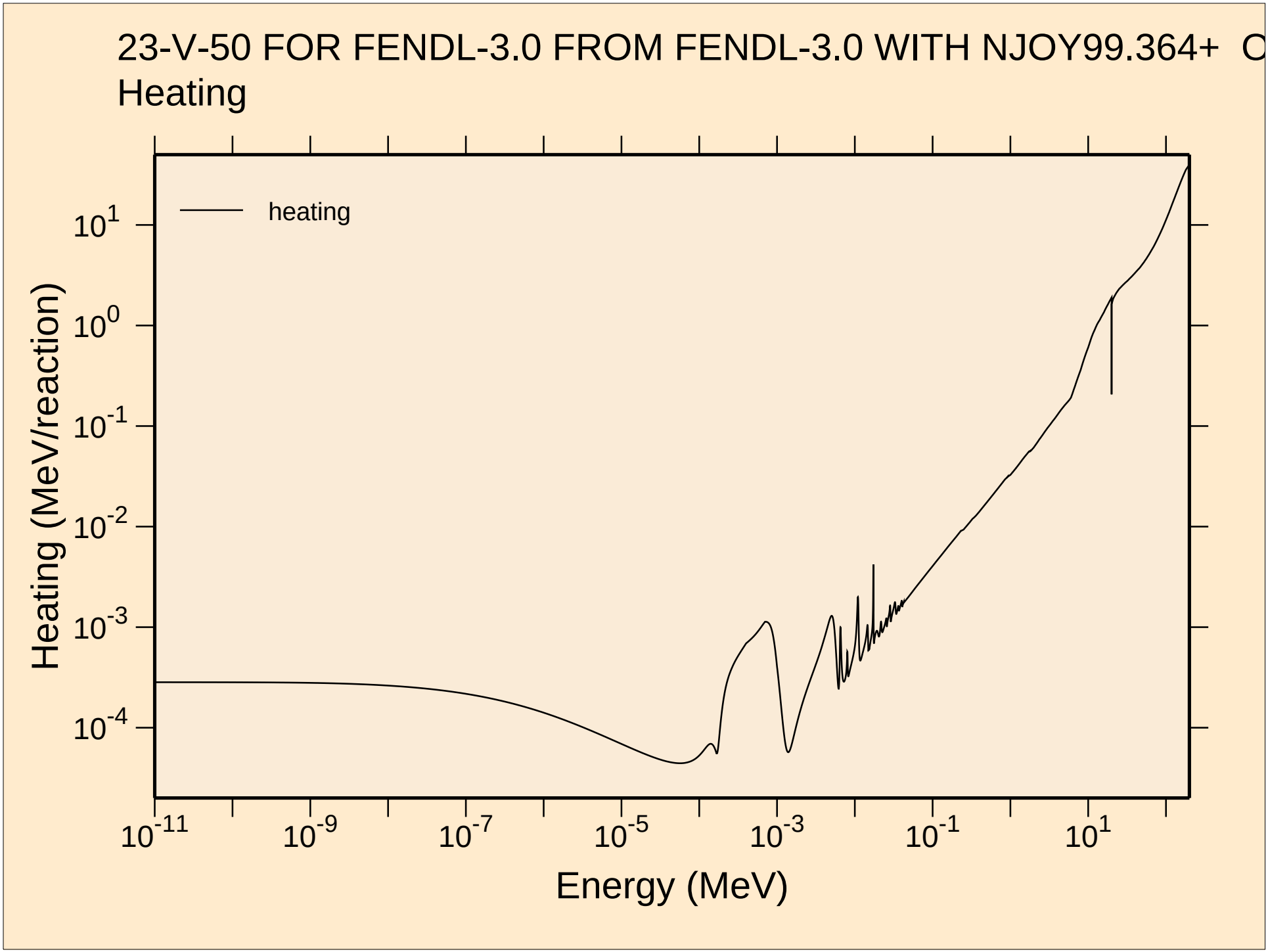

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance absorption cross sections
capture
Cross section (barns)
10^3
10^2
10^1
10^0
10^-1
10^-4
10^-3
Energy (MeV)

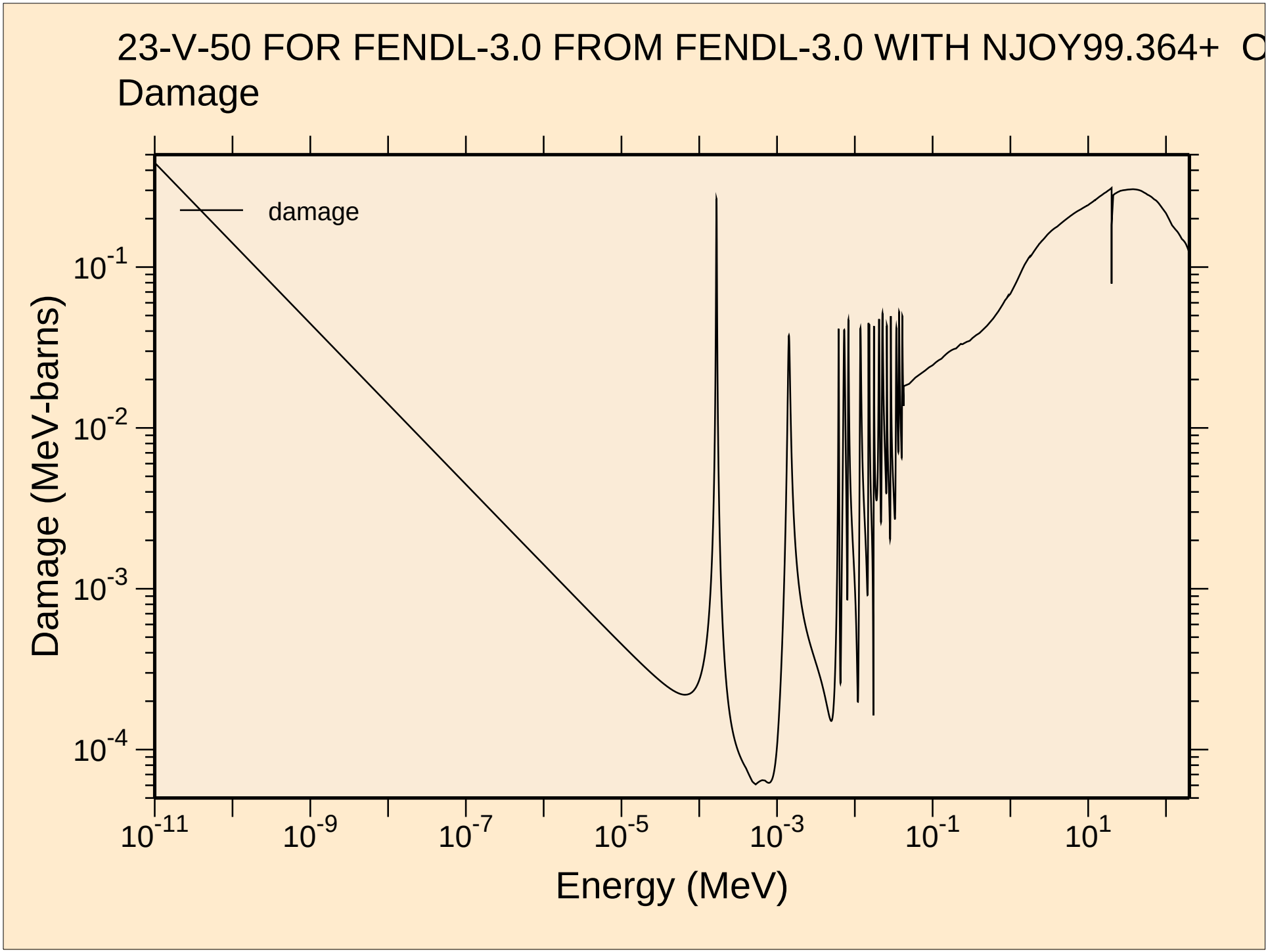

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance absorption cross sections
capture
Cross section (barns)
10^1
10^0
10^-1
10^-2
10^-3
10^-2
Energy (MeV)

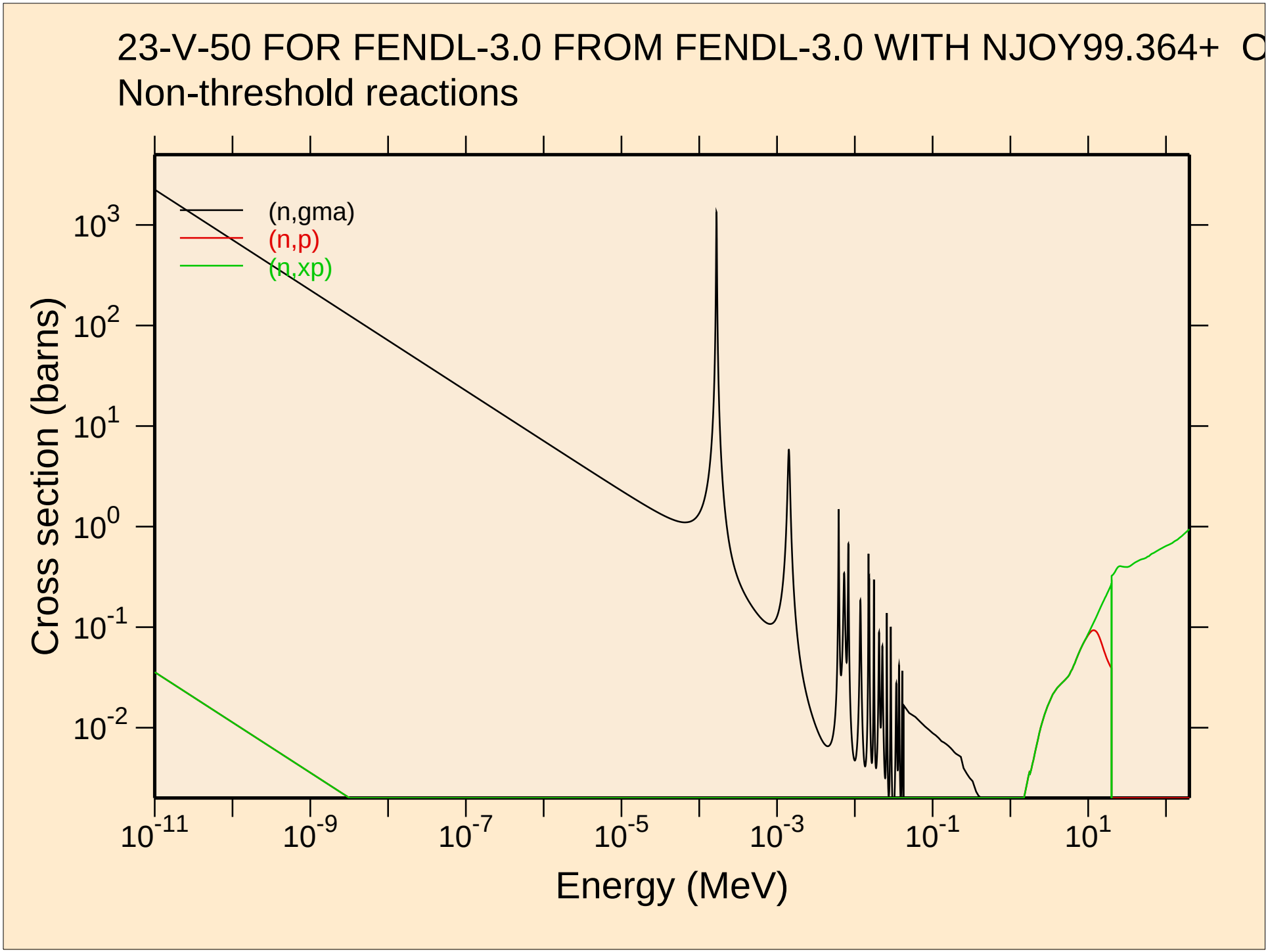

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance absorption cross sections
capture
Cross section (barns)
10^0
10^-1
10^-2
10^-3
10^-2
10^-1
Energy (MeV)

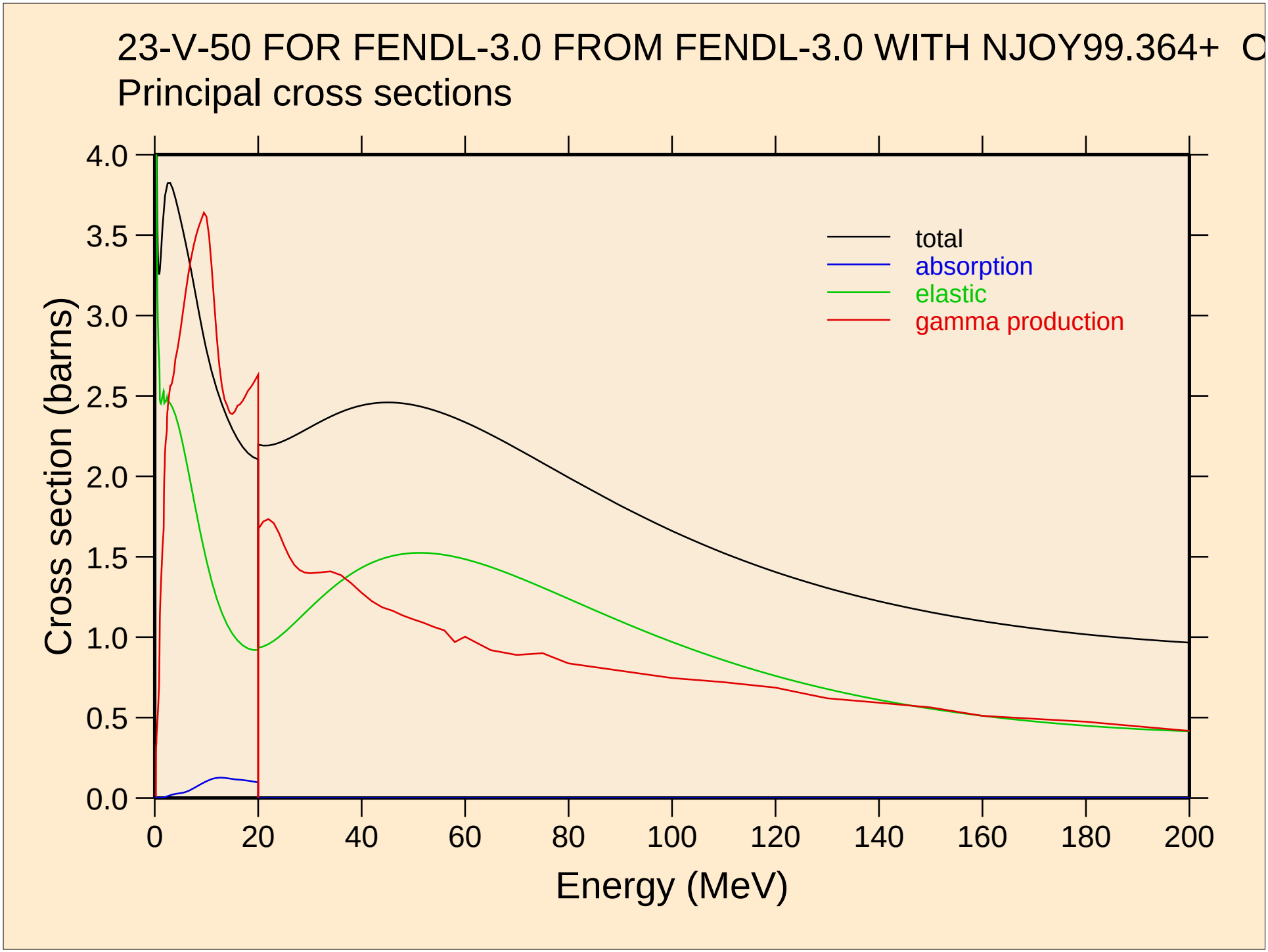

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance absorption cross sections
capture
Cross section (barns)
10-2
10-3
10-1
100
Energy (MeV)

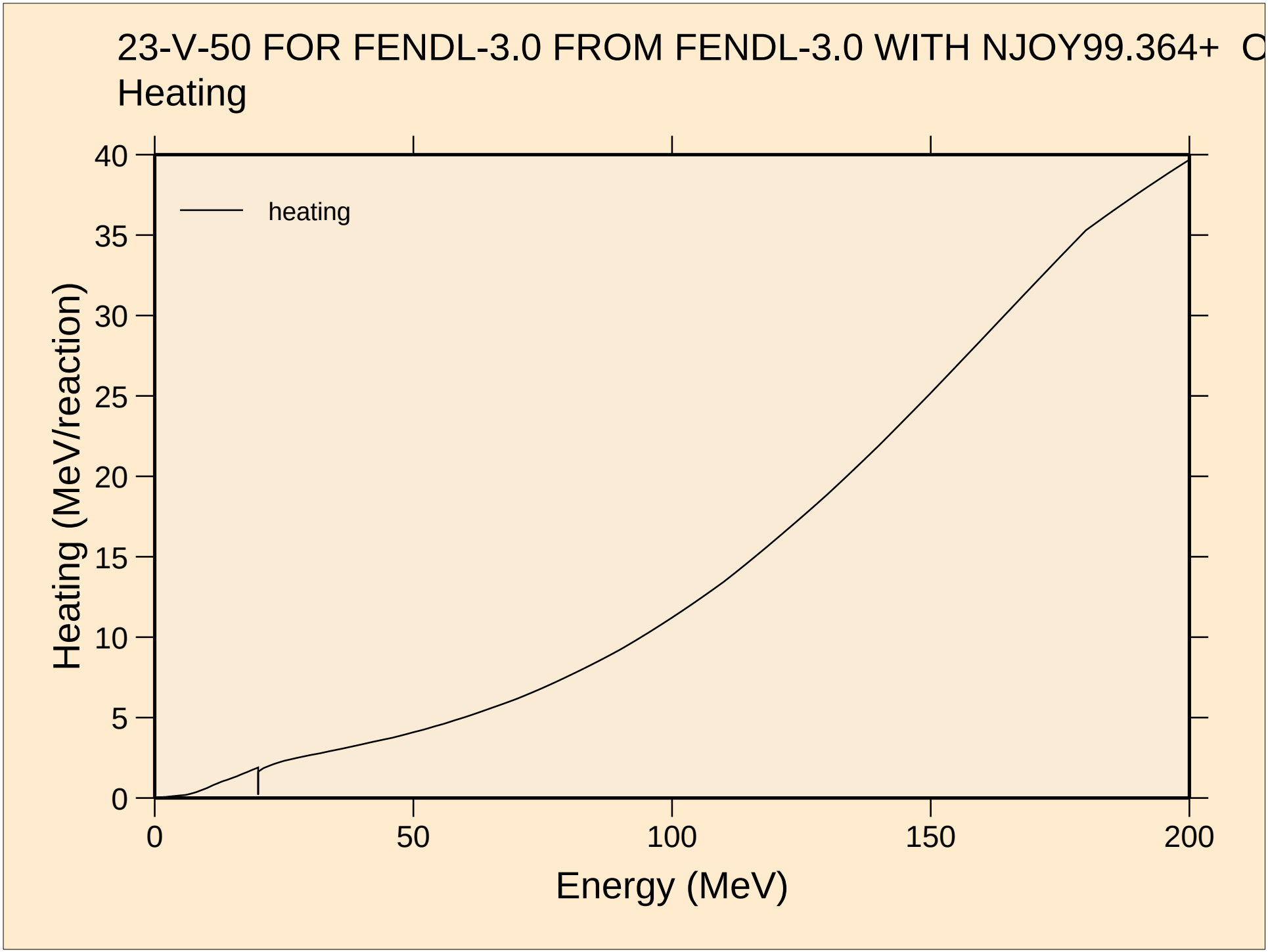

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
resonance absorption cross sections
capture
Cross section (barns)
10-3
100
101
Energy (MeV)

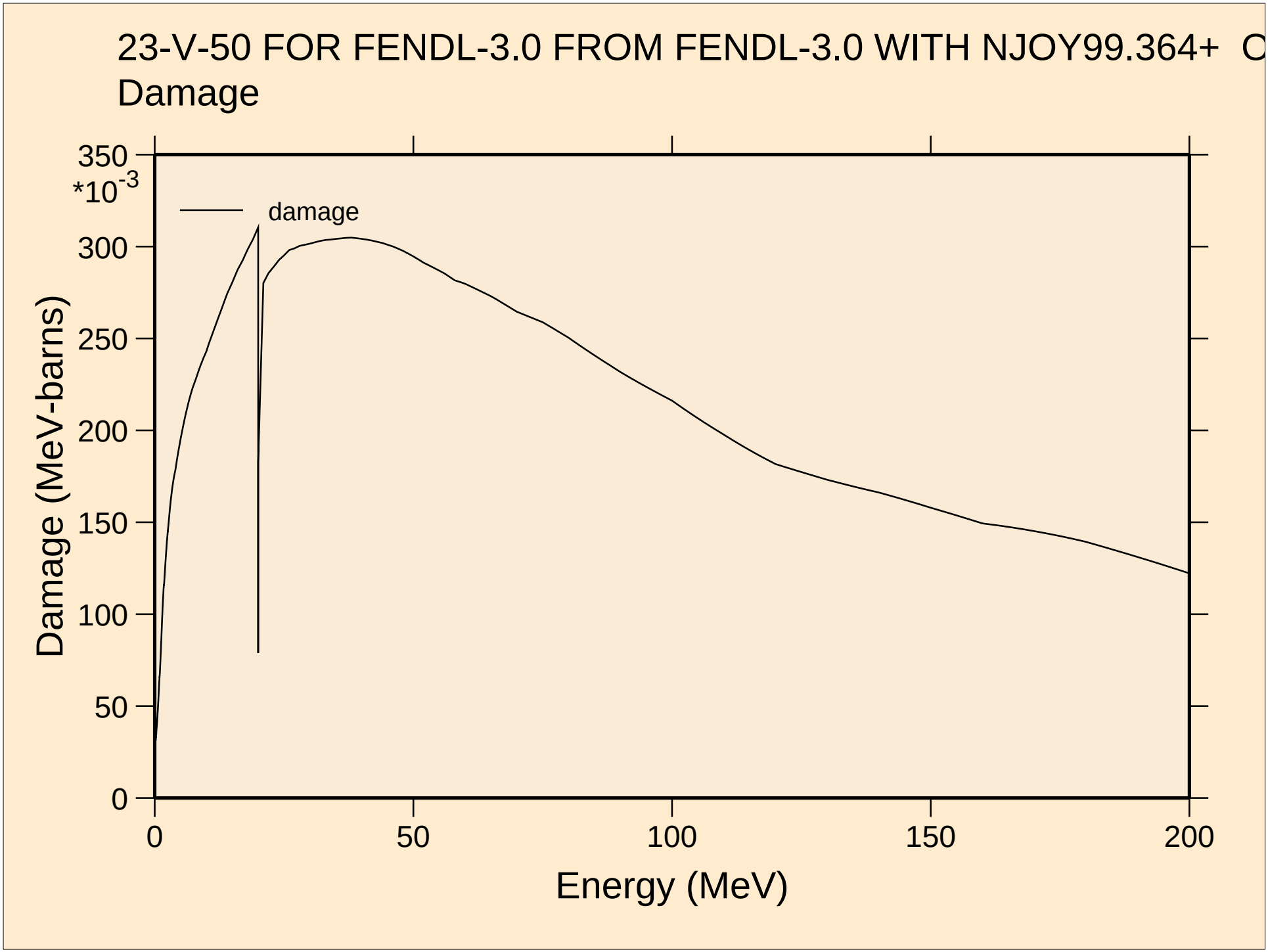

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Heating
heating
Heating (MeV/reaction)
10^{1}
10^{0}
10^{-1}
10^{-2}
10^{-3}
10^{-4}
10^{-11}
10^{-9}
10^{-7}
10^{-5}
10^{-3}
10^{-1}
10^{1}
Energy (MeV)

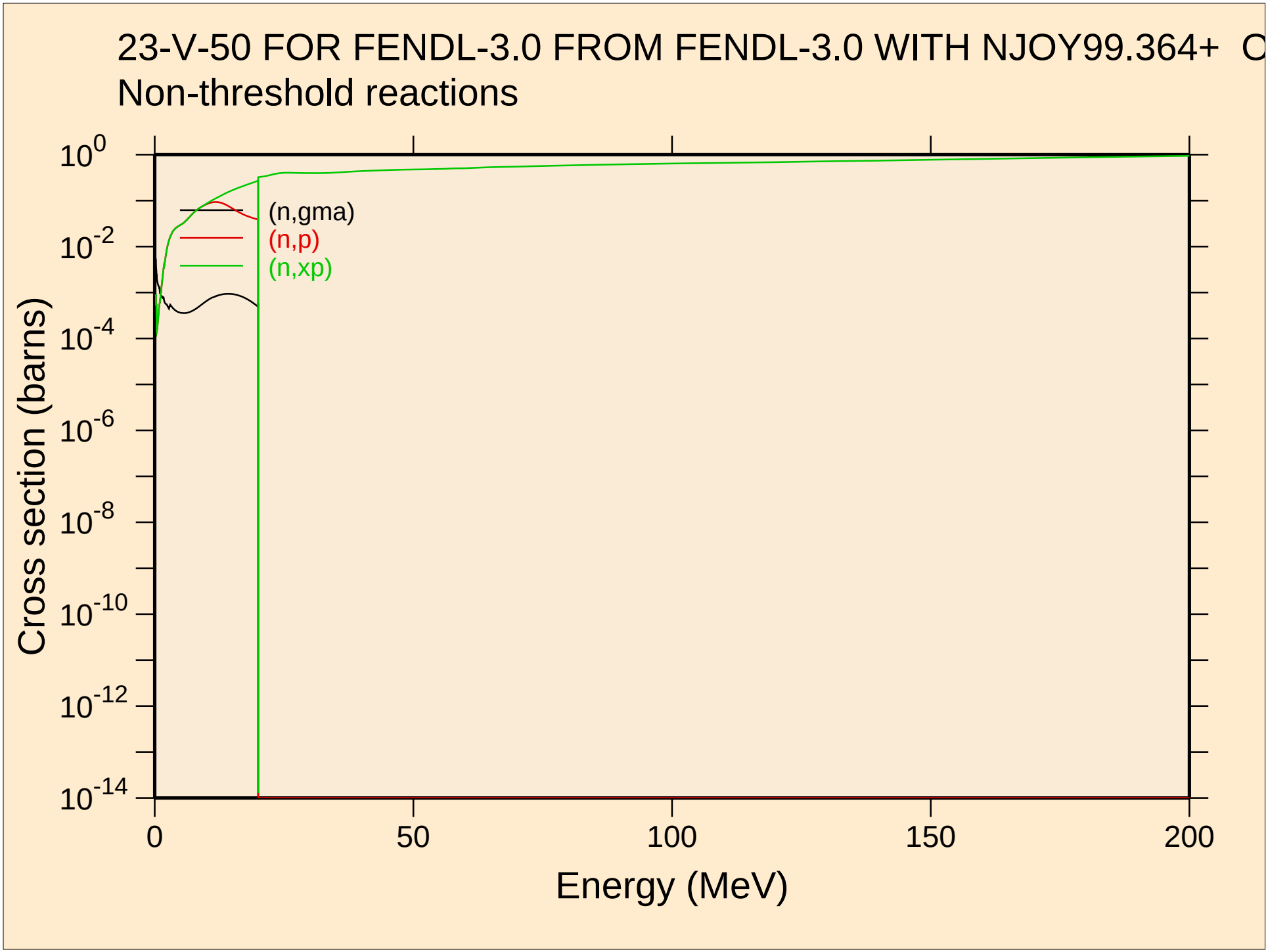

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Damage
damage
Damage (MeV-barns)
10-1
10-2
10-3
10-4
10-11
10-9
10-7
10-5
10-3
10-1
101
Energy (MeV)

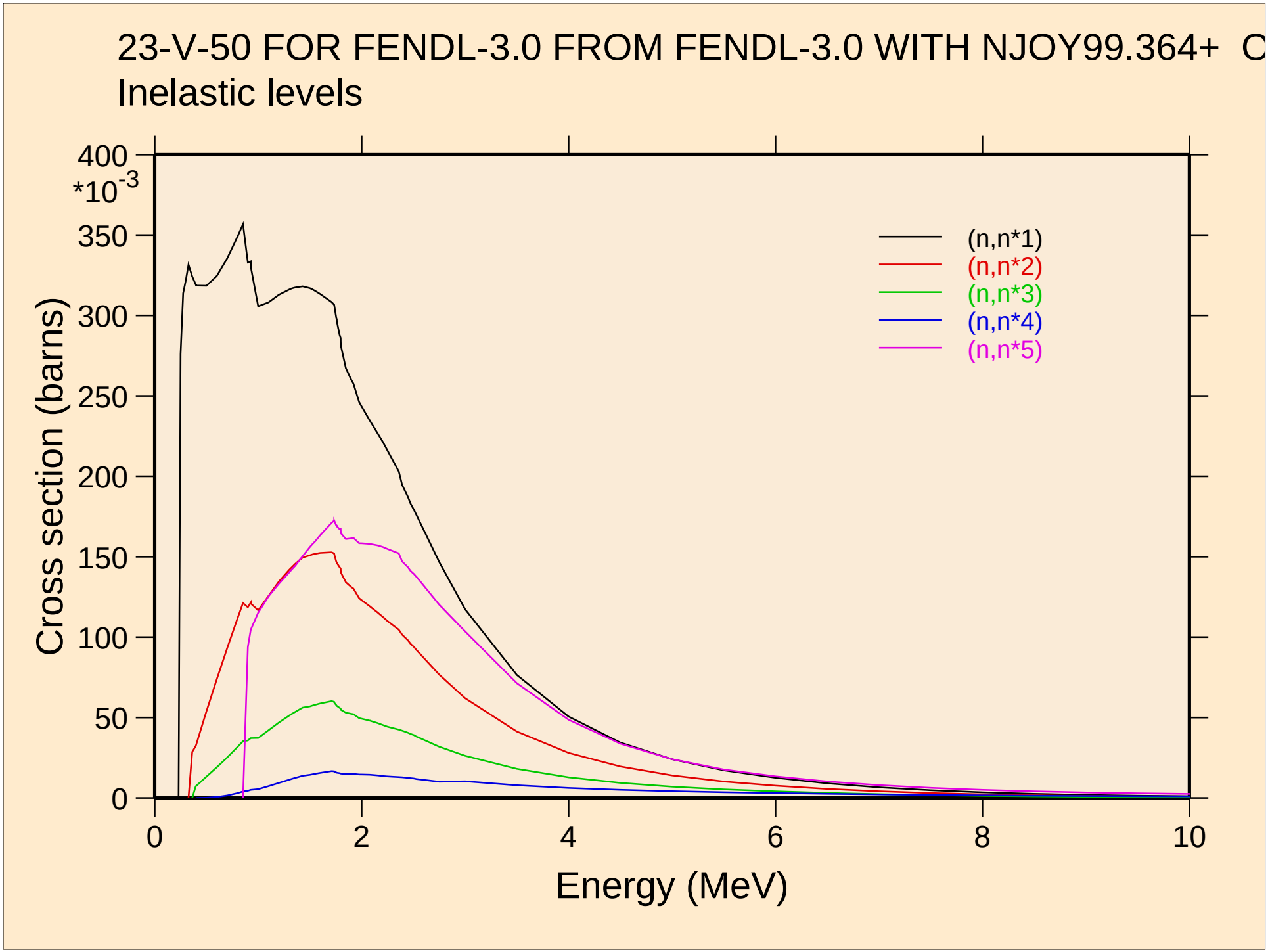

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Non-threshold reactions
(n,gma)
(n,p)
(n,xp)
Cross section (barns)
10^3
10^2
10^1
10^0
10^-1
10^-2
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1
Energy (MeV)

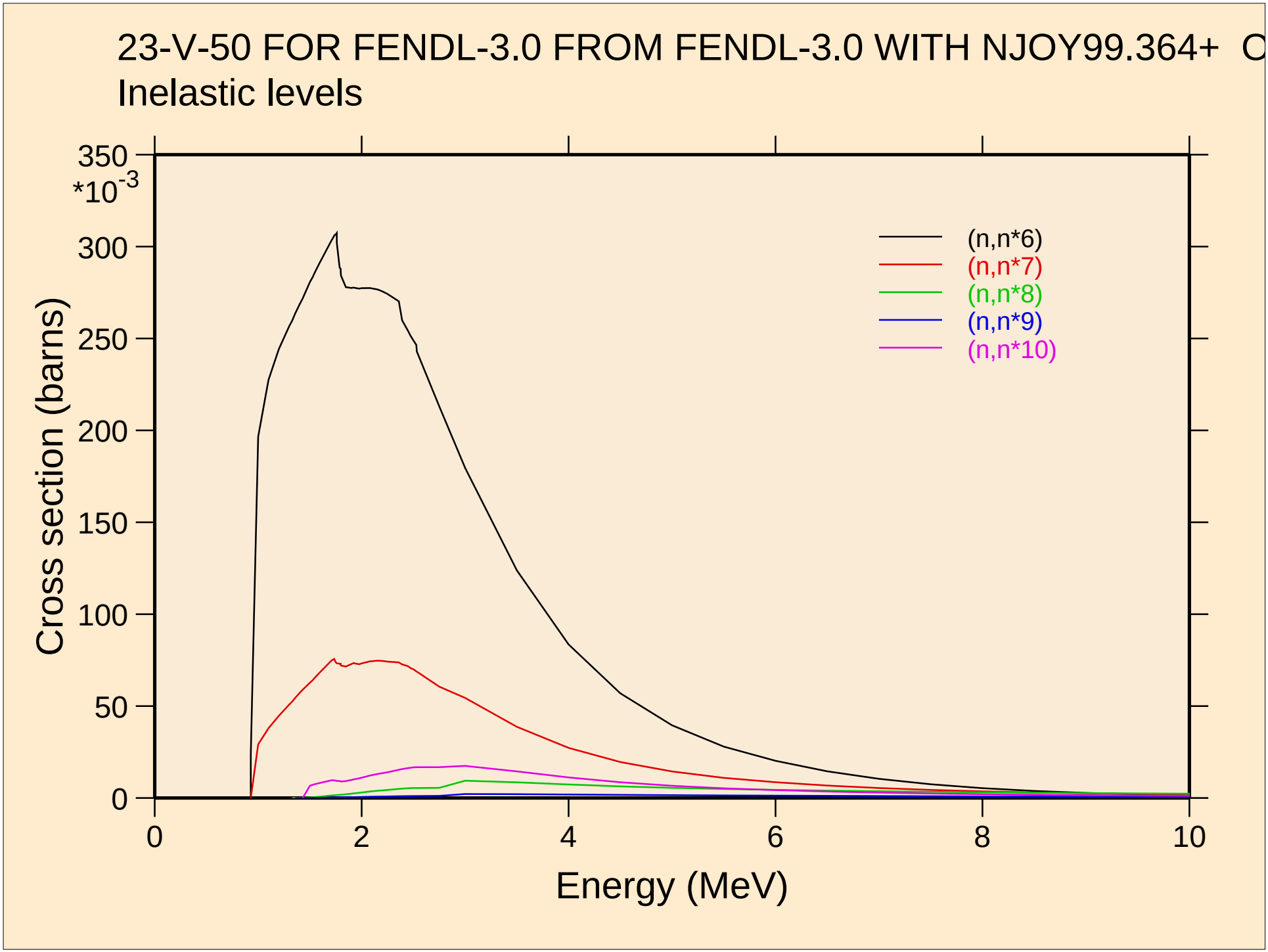

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
20
40
60
80
100
120
140
160
180
200

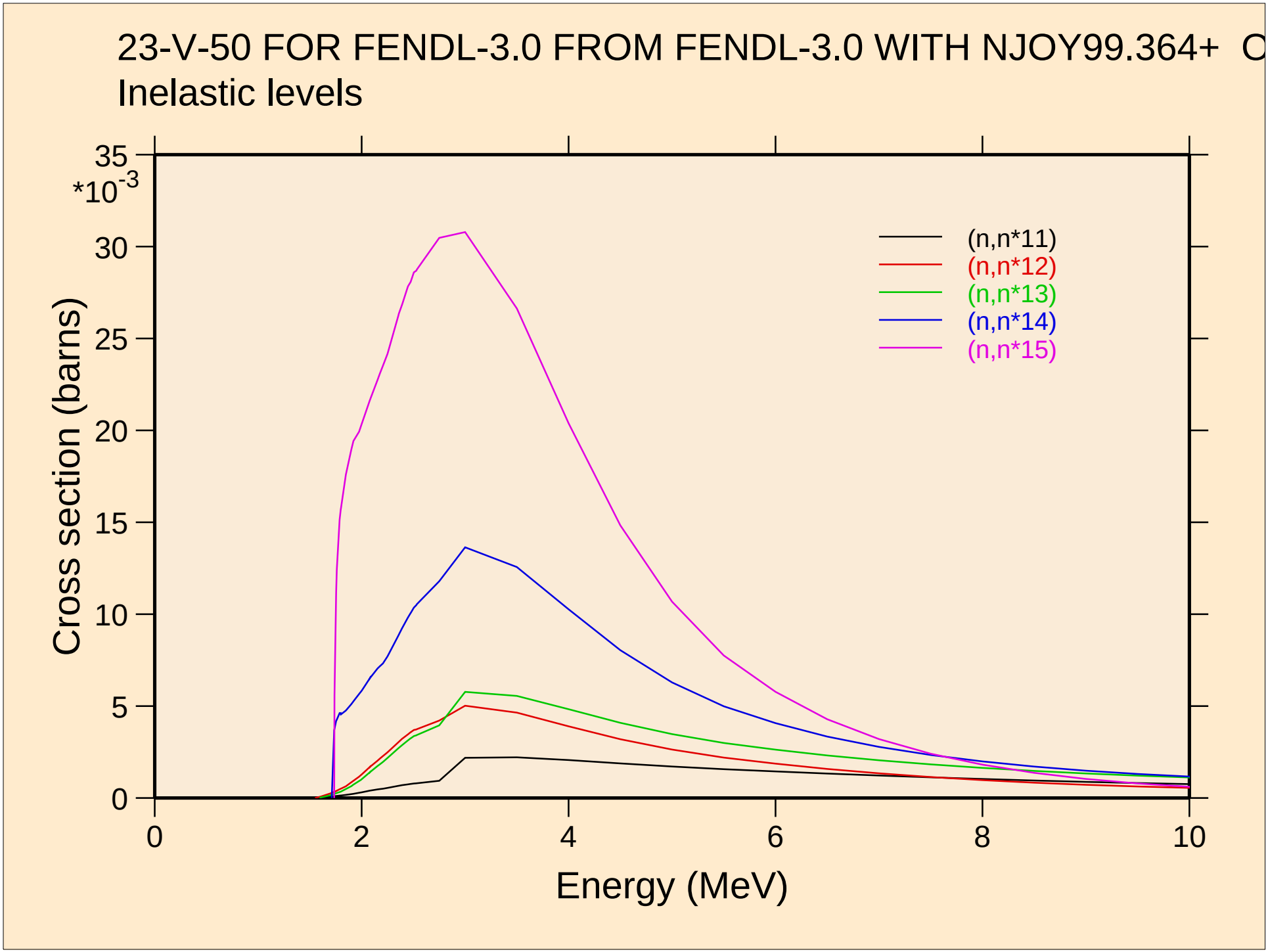

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
5
10
15
20
25
30
35
40
0
50
100
150
200

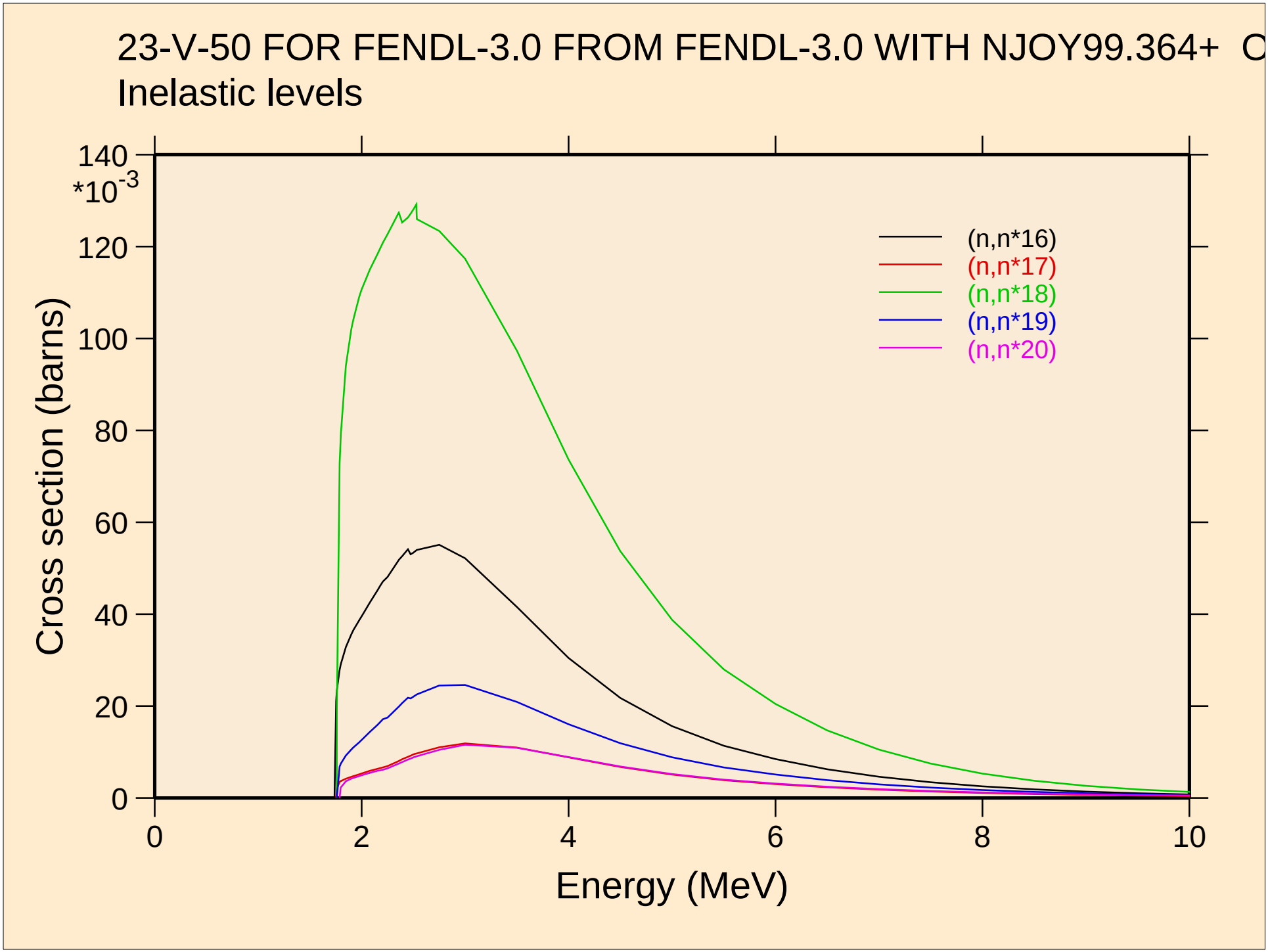

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Damage
350
*10-3
damage
300
250
200
150
100
50
0
Damage (MeV-barns)
0
50
100
150
200
Energy (MeV)

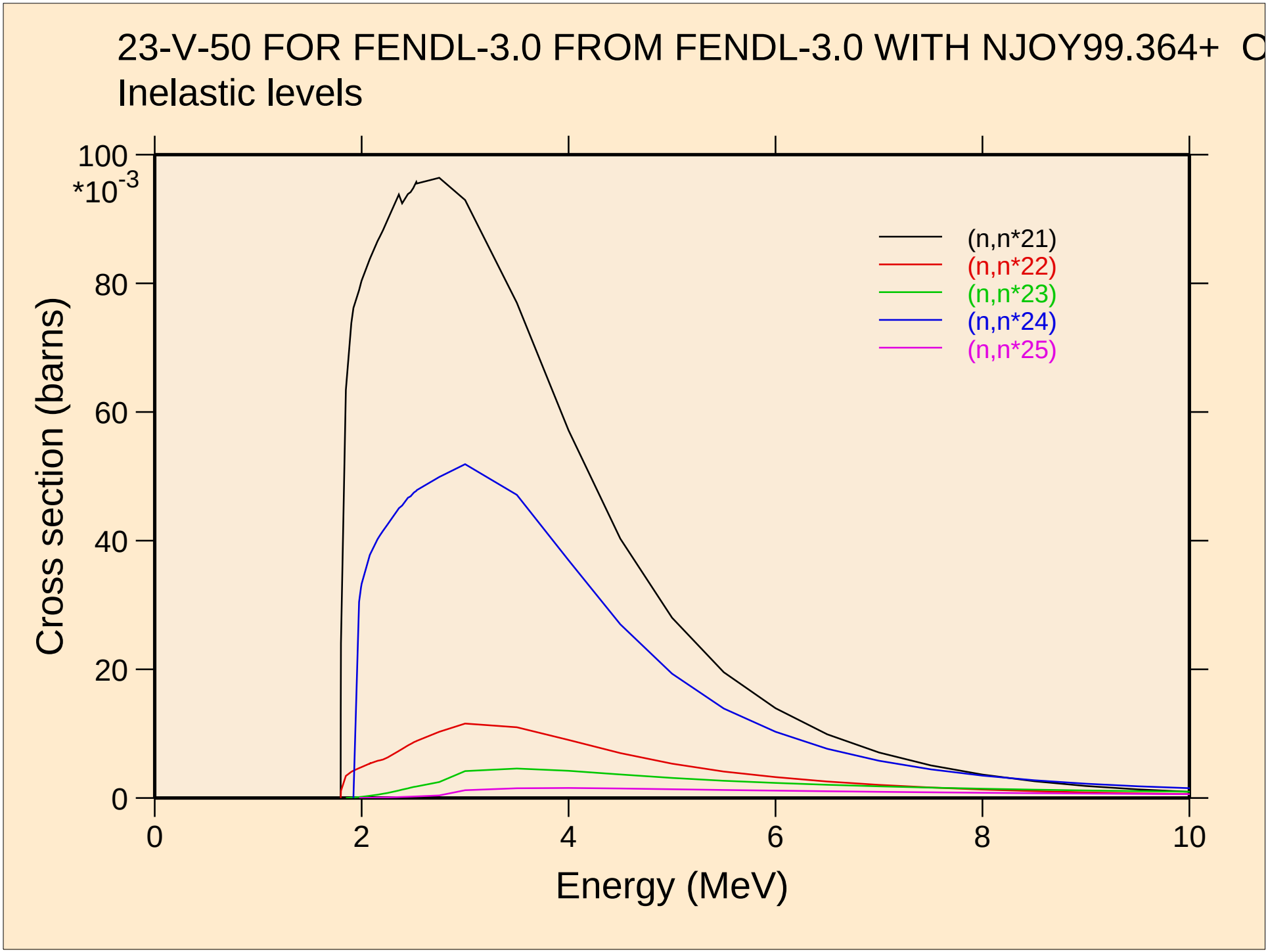

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Non-threshold reactions
Cross section (barns)
Energy (MeV)
(n,gma)
(n,p)
(n,xp)
10^0
10^-2
10^-4
10^-6
10^-8
10^-10
10^-12
10^-14
0
50
100
150
200

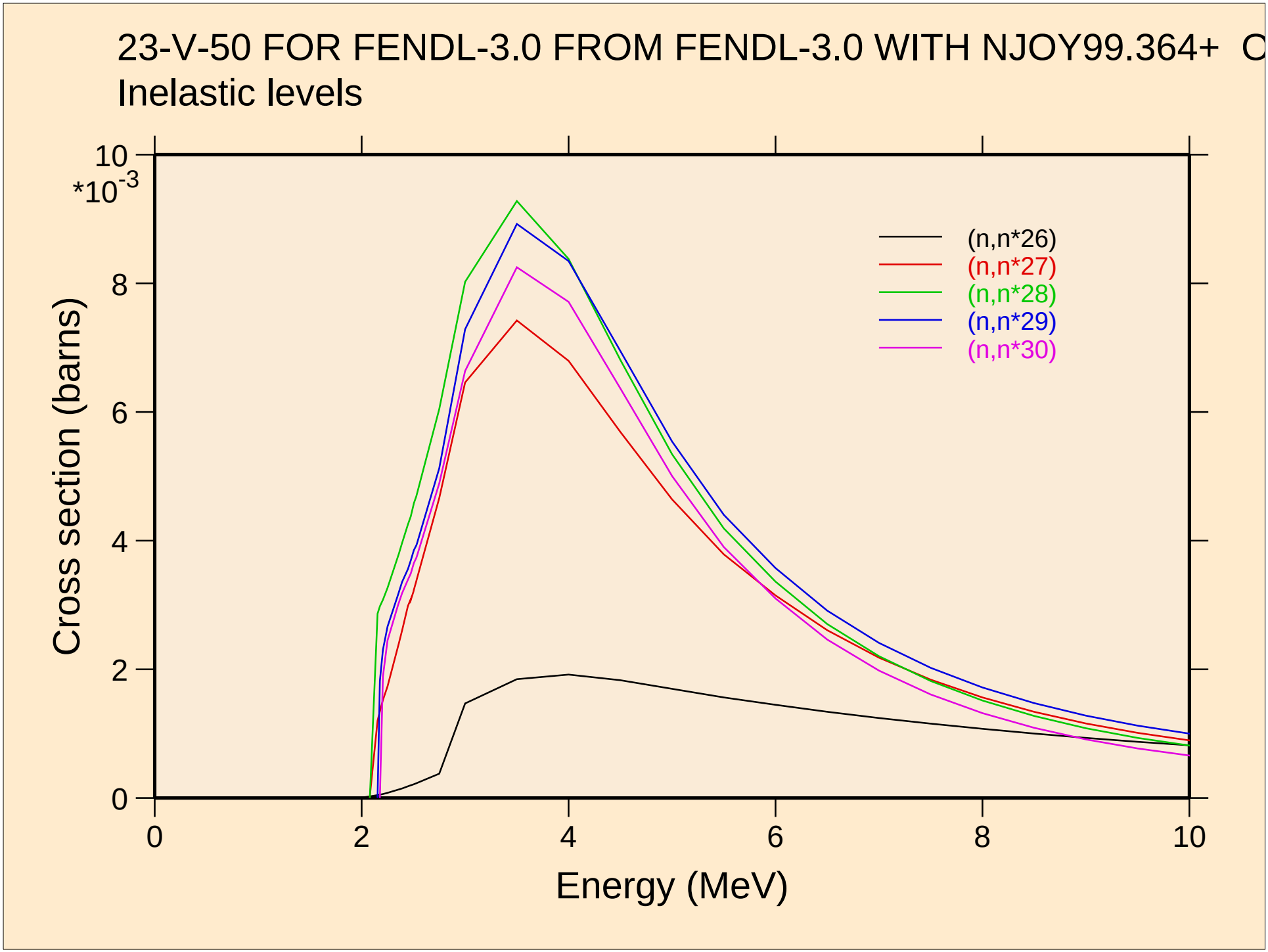

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
400
*10-3
350
300
250
200
150
100
50
0
Cross section (barns)
0
2
4
6
8
10
Energy (MeV)
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

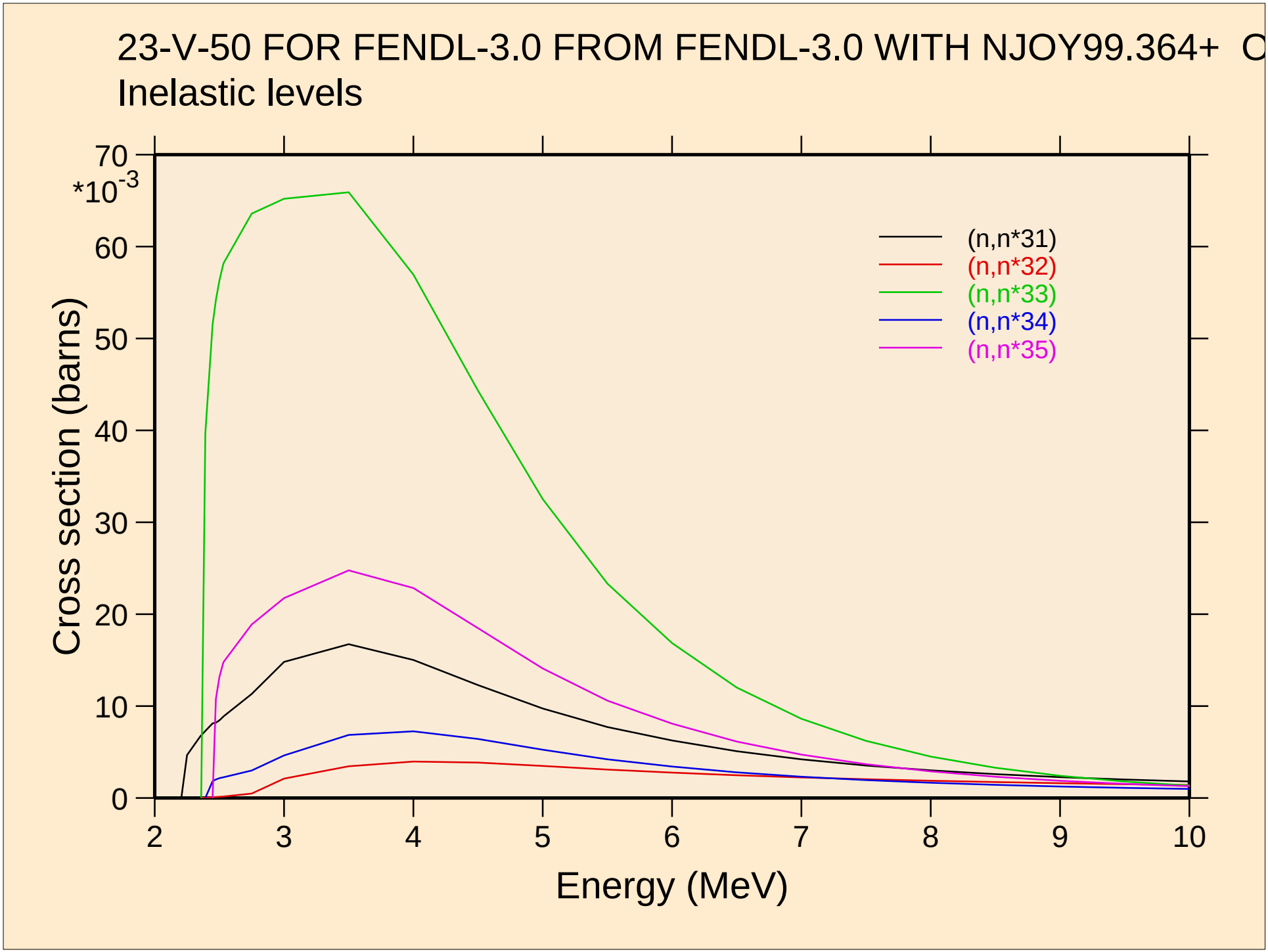

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
350
*10-3
300
250
200
150
100
50
0
Cross section (barns)
0
2
4
6
8
10
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

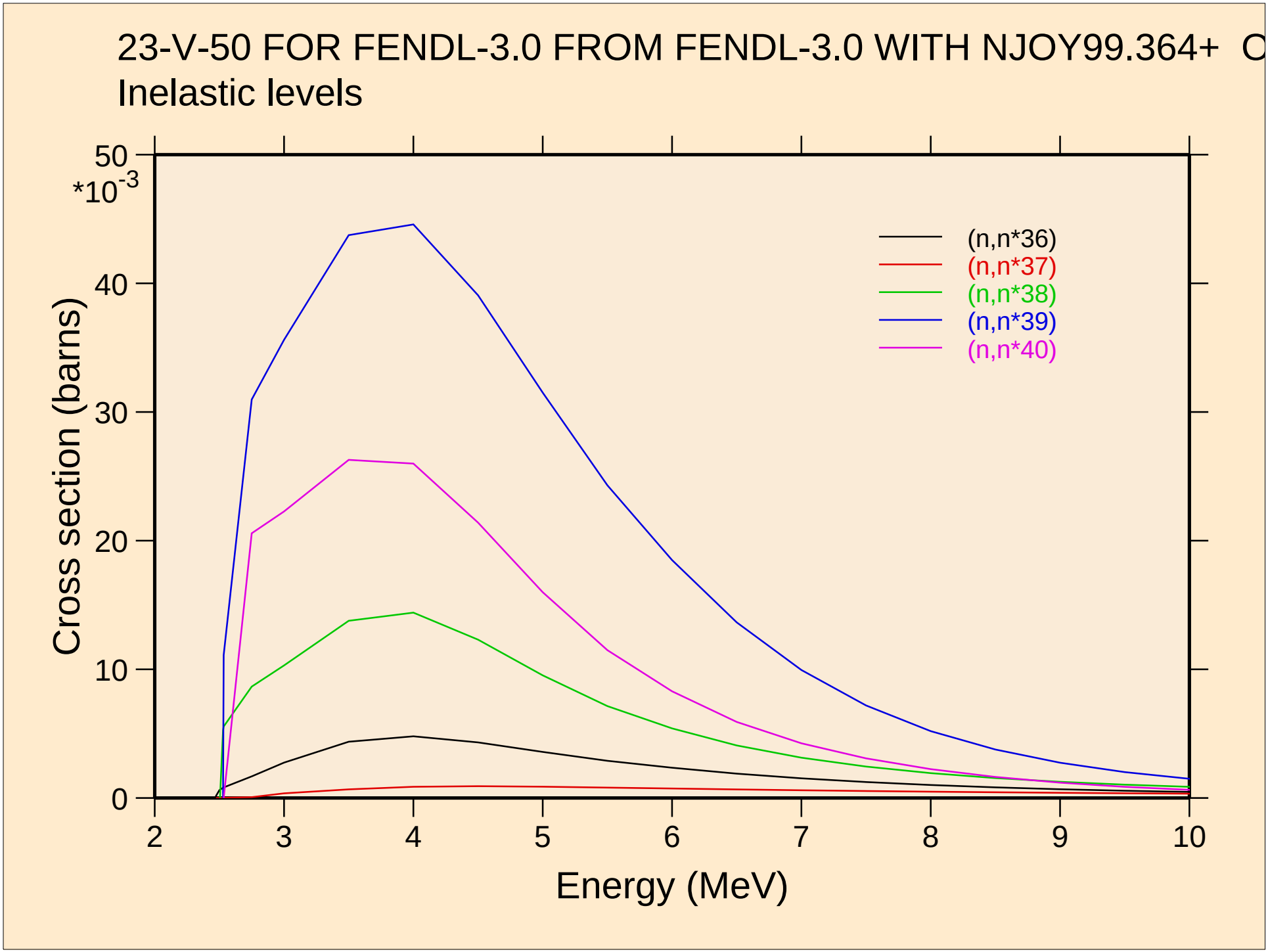

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
Cross section (barns)
*10-3
35
30
25
20
15
10
5
0
0
2
4
6
8
10
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

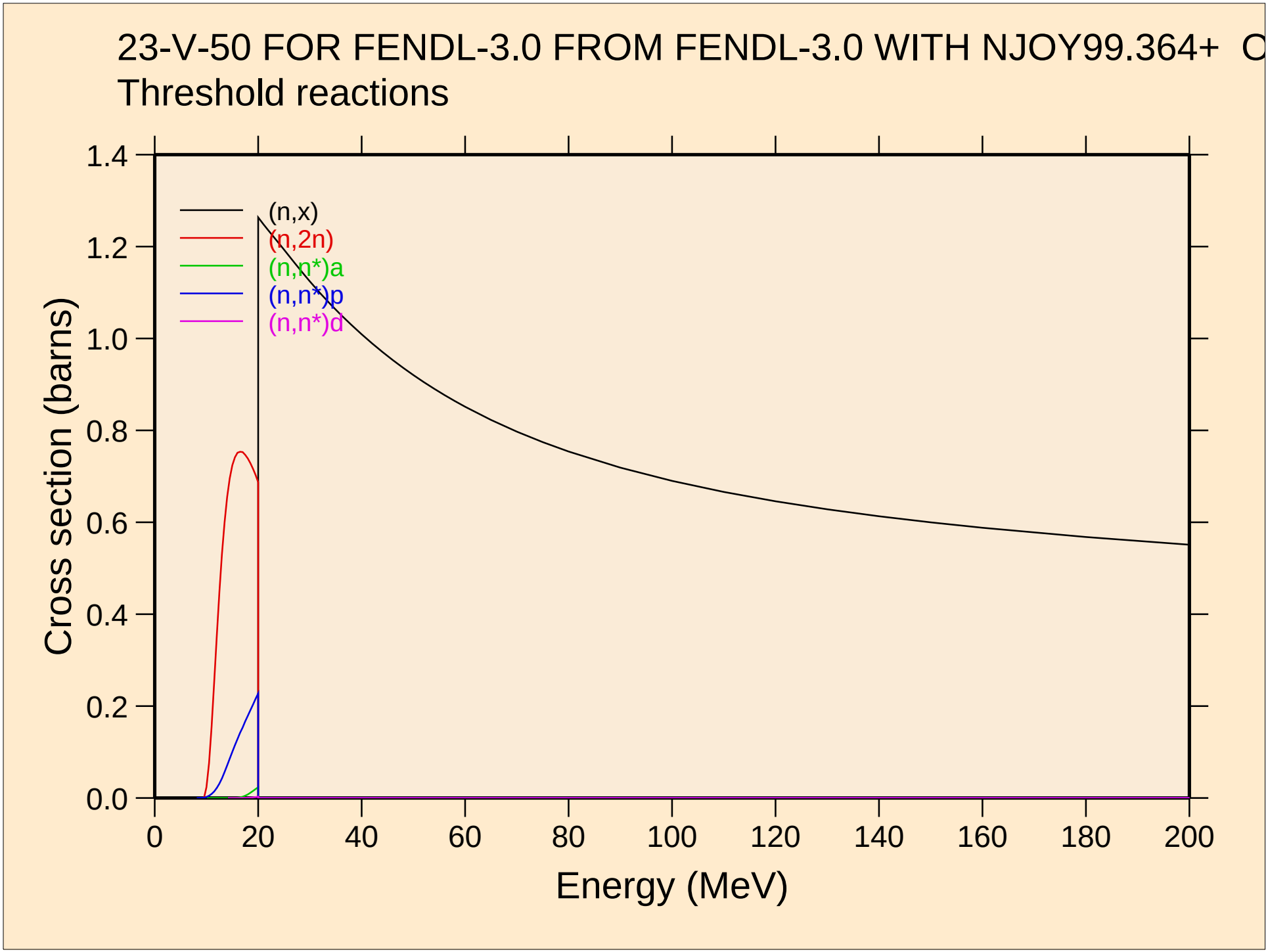

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
140
*10-3
120
100
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

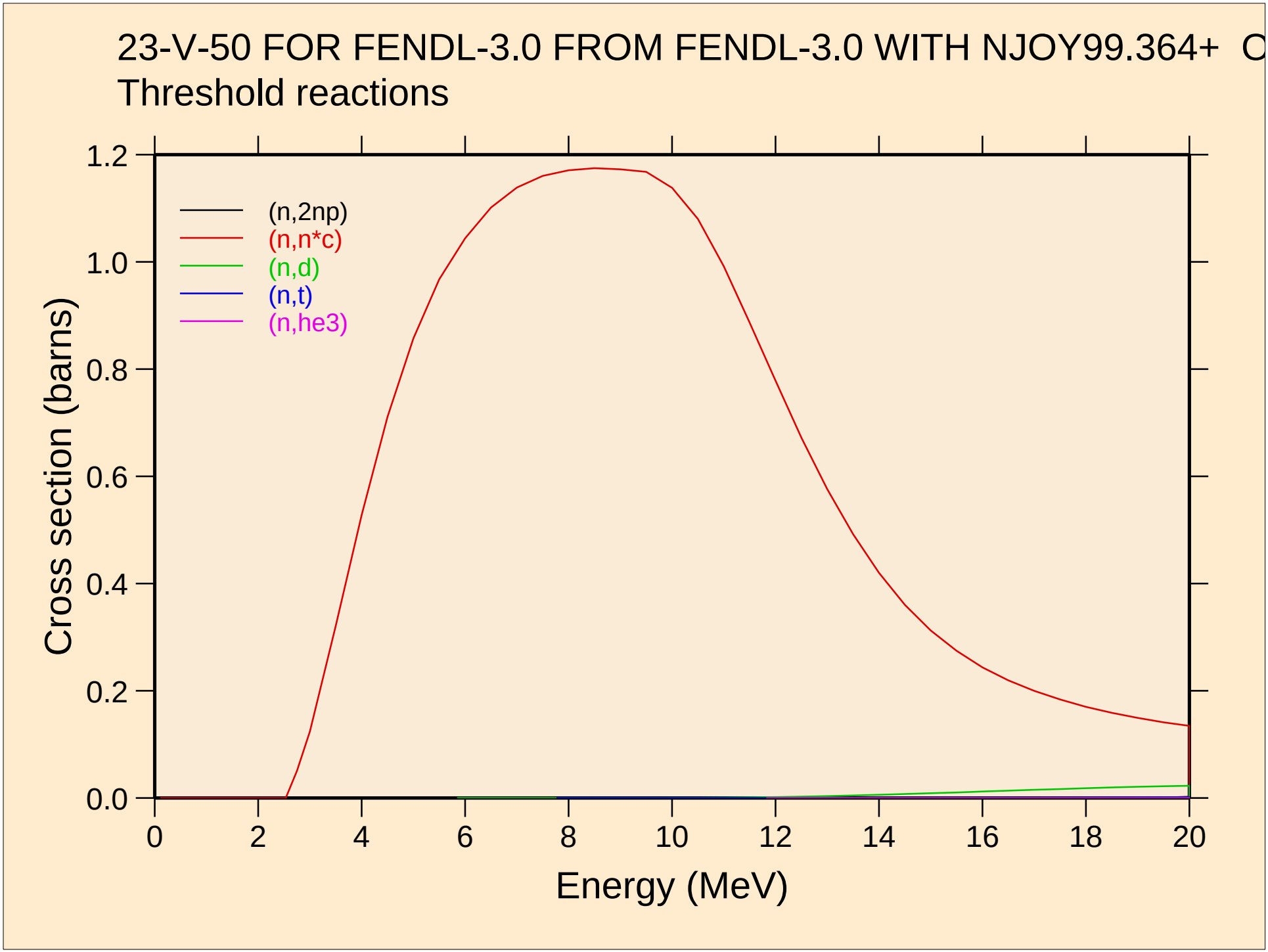

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
100
*10-3
80
60
40
20
0
Cross section (barns)
0
2
4
6
8
10
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

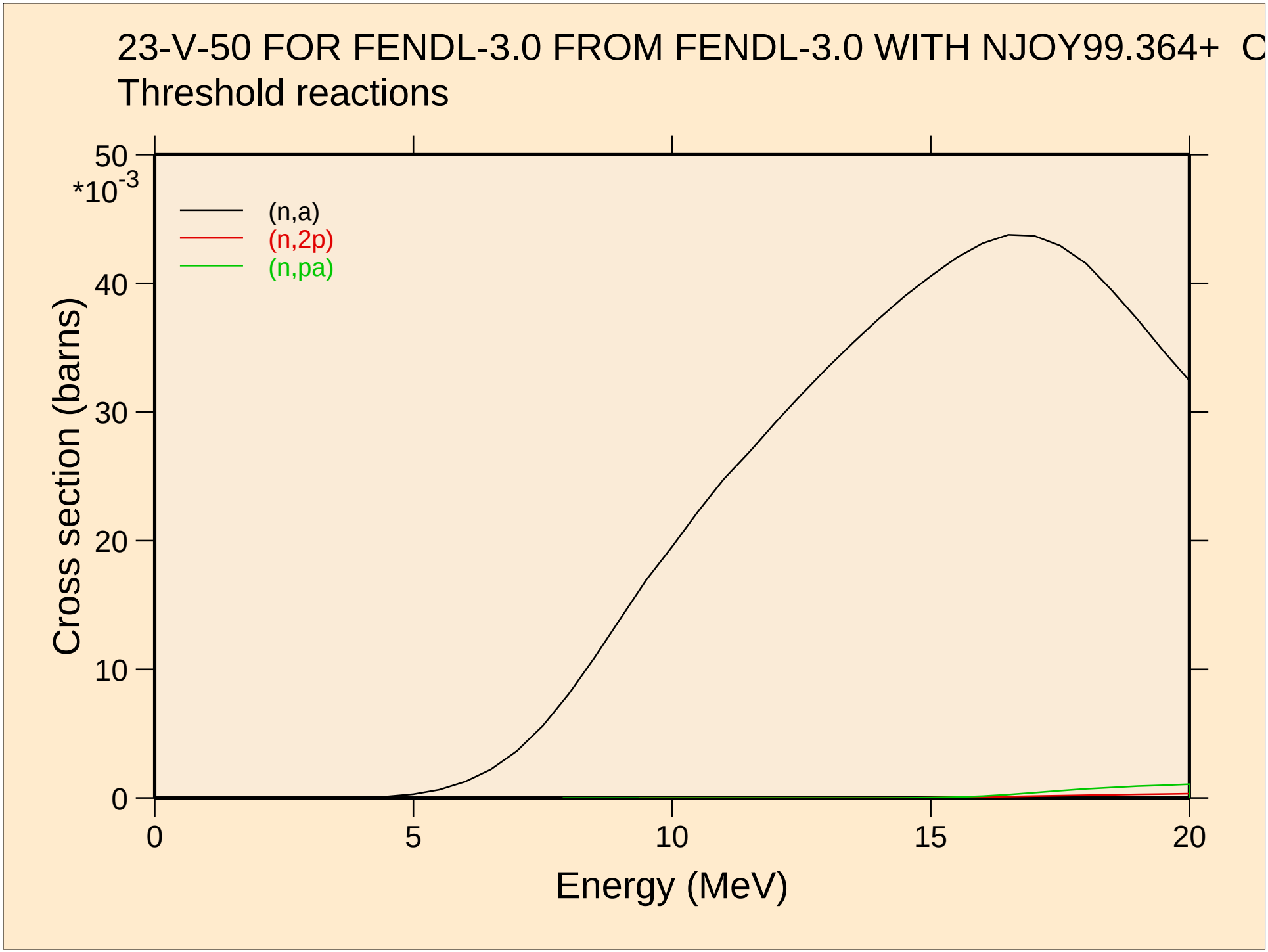

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
10
*10-3
8
6
4
2
0
Cross section (barns)
0
2
4
6
8
10
Energy (MeV)
(n,n*26)
(n,n*27)
(n,n*28)
(n,n*29)
(n,n*30)

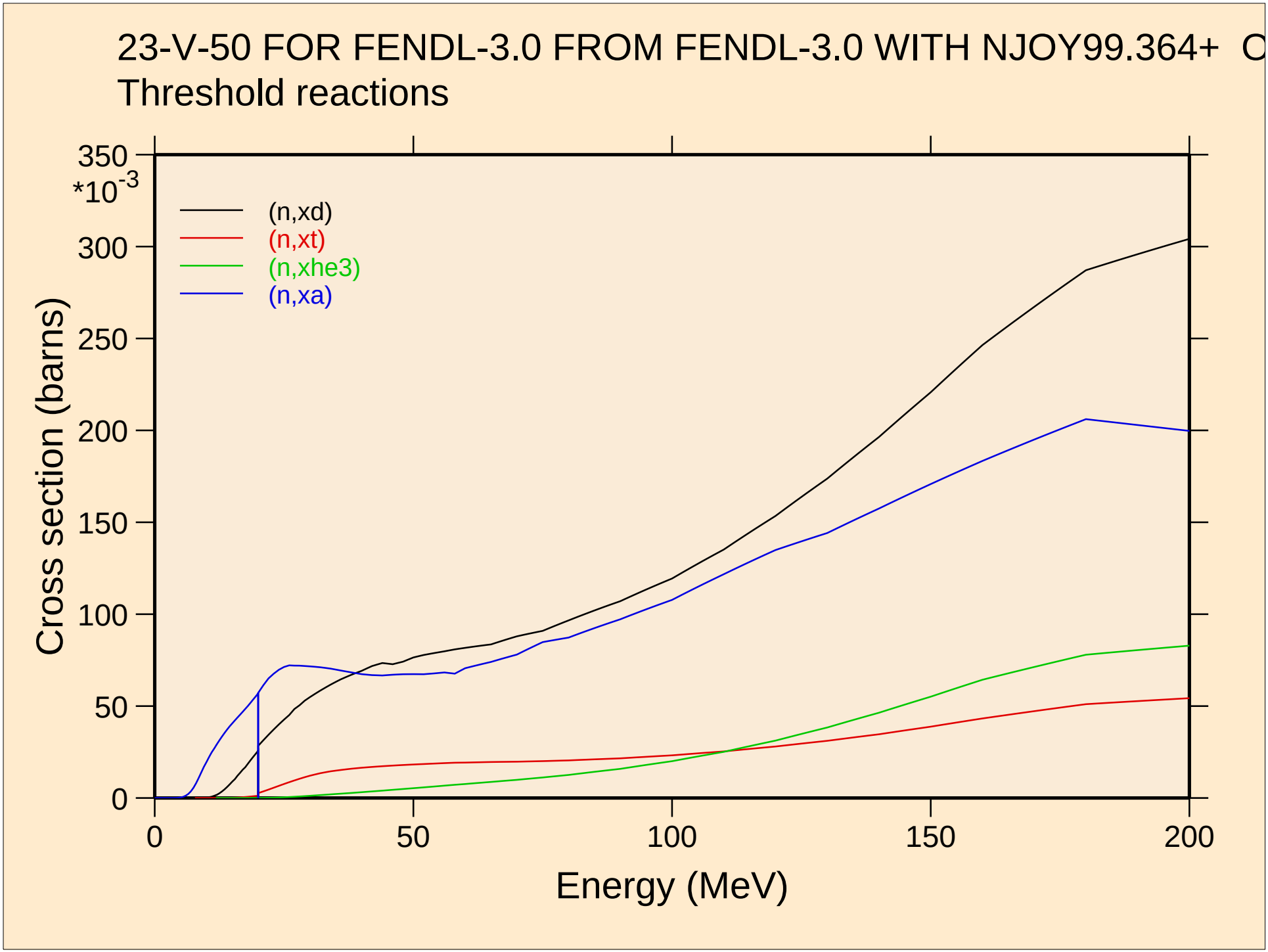

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
Cross section (barns)
*10-3
70
60
50
40
30
20
10
0
2
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*31)
(n,n*32)
(n,n*33)
(n,n*34)
(n,n*35)

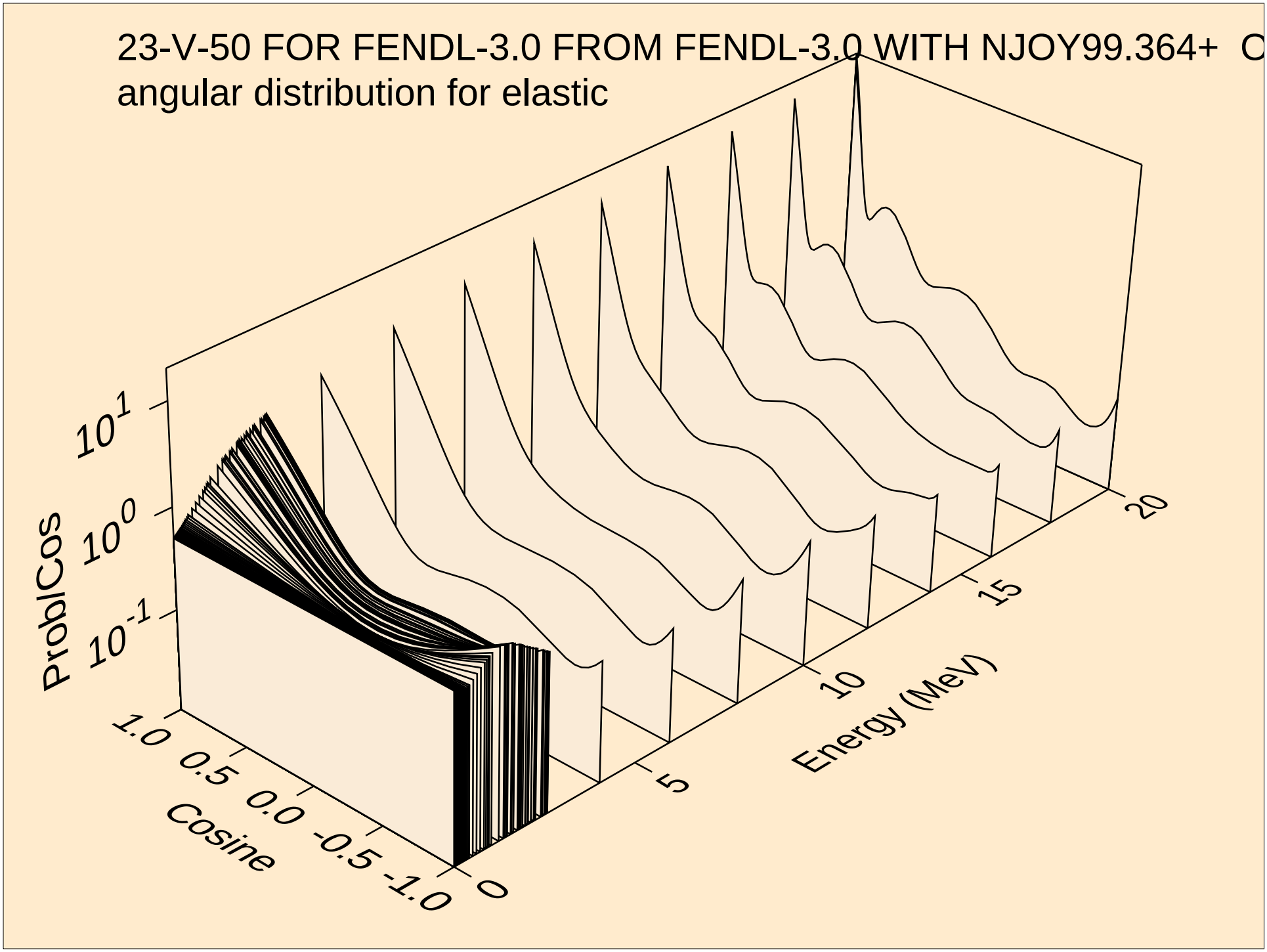

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Inelastic levels
Cross section (barns)
*10-3
50
40
30
20
10
0
2
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*36)
(n,n*37)
(n,n*38)
(n,n*39)
(n,n*40)

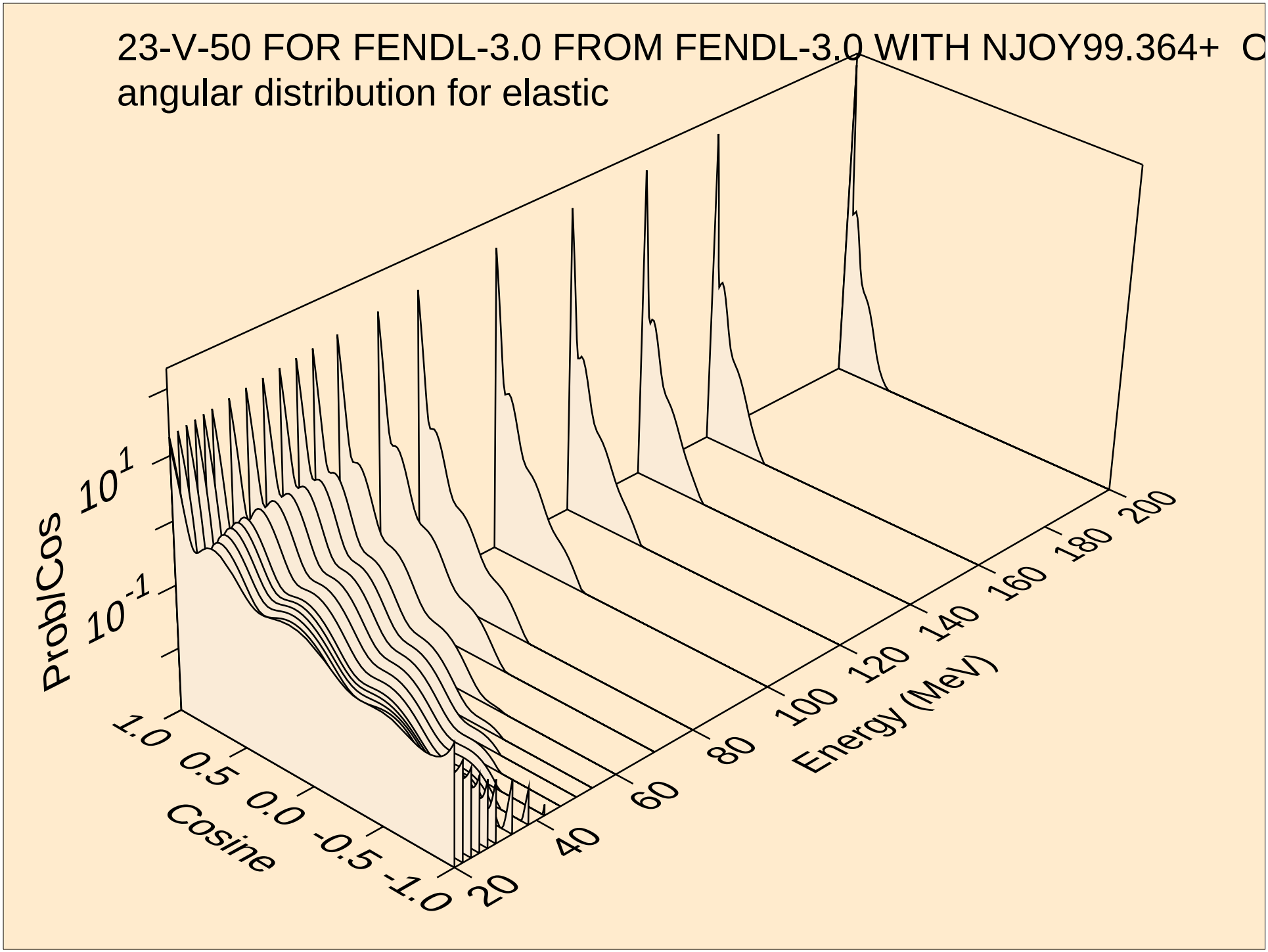

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Threshold reactions
(n,x)
(n,2n)
(n,n*)a
(n,n*)p
(n,n*)d
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
20
40
60
80
100
120
140
160
180
200

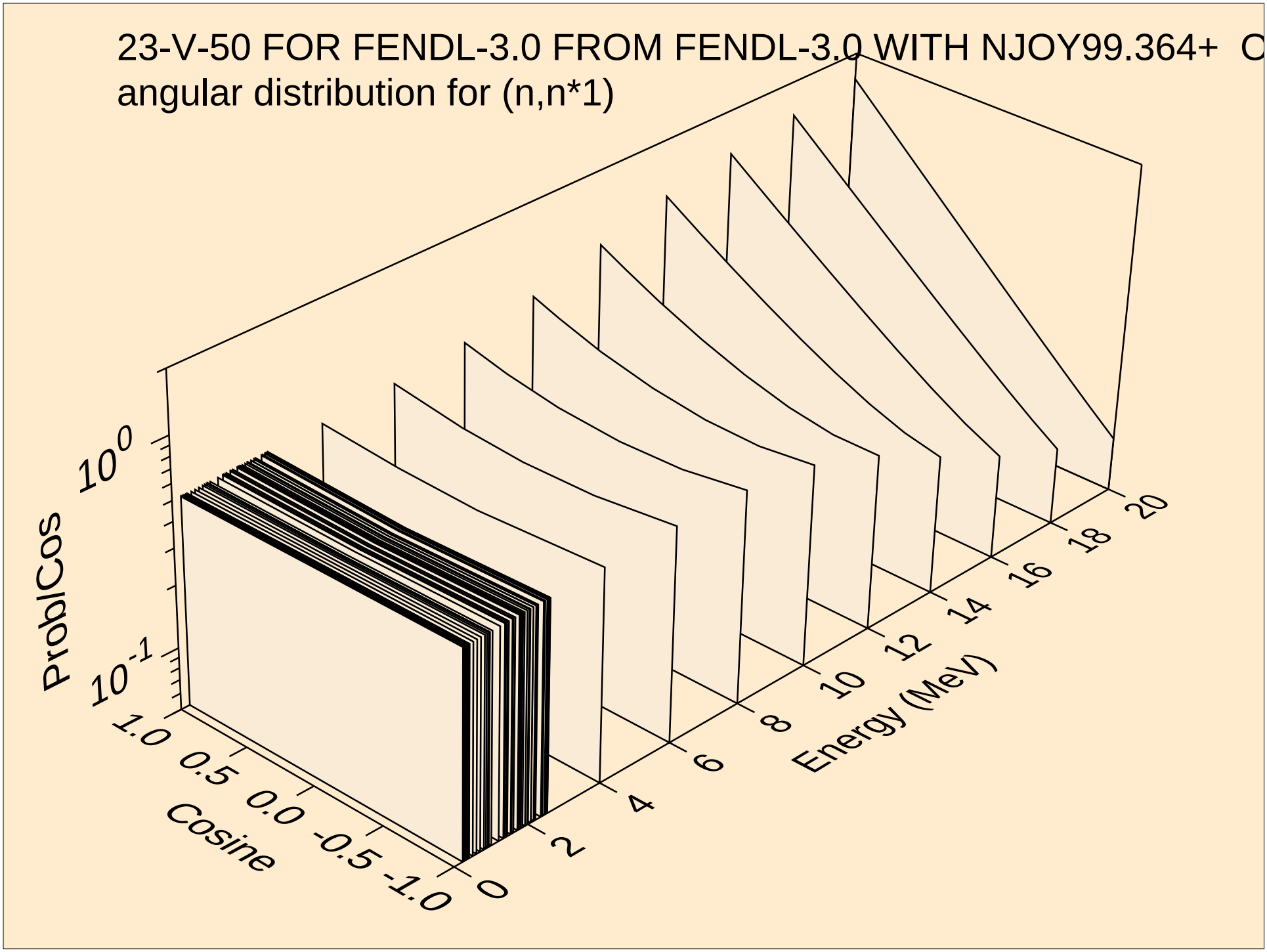

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Threshold reactions
(n,2np)
(n,n*c)
(n,d)
(n,t)
(n,he3)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
2
4
6
8
10
12
14
16
18
20

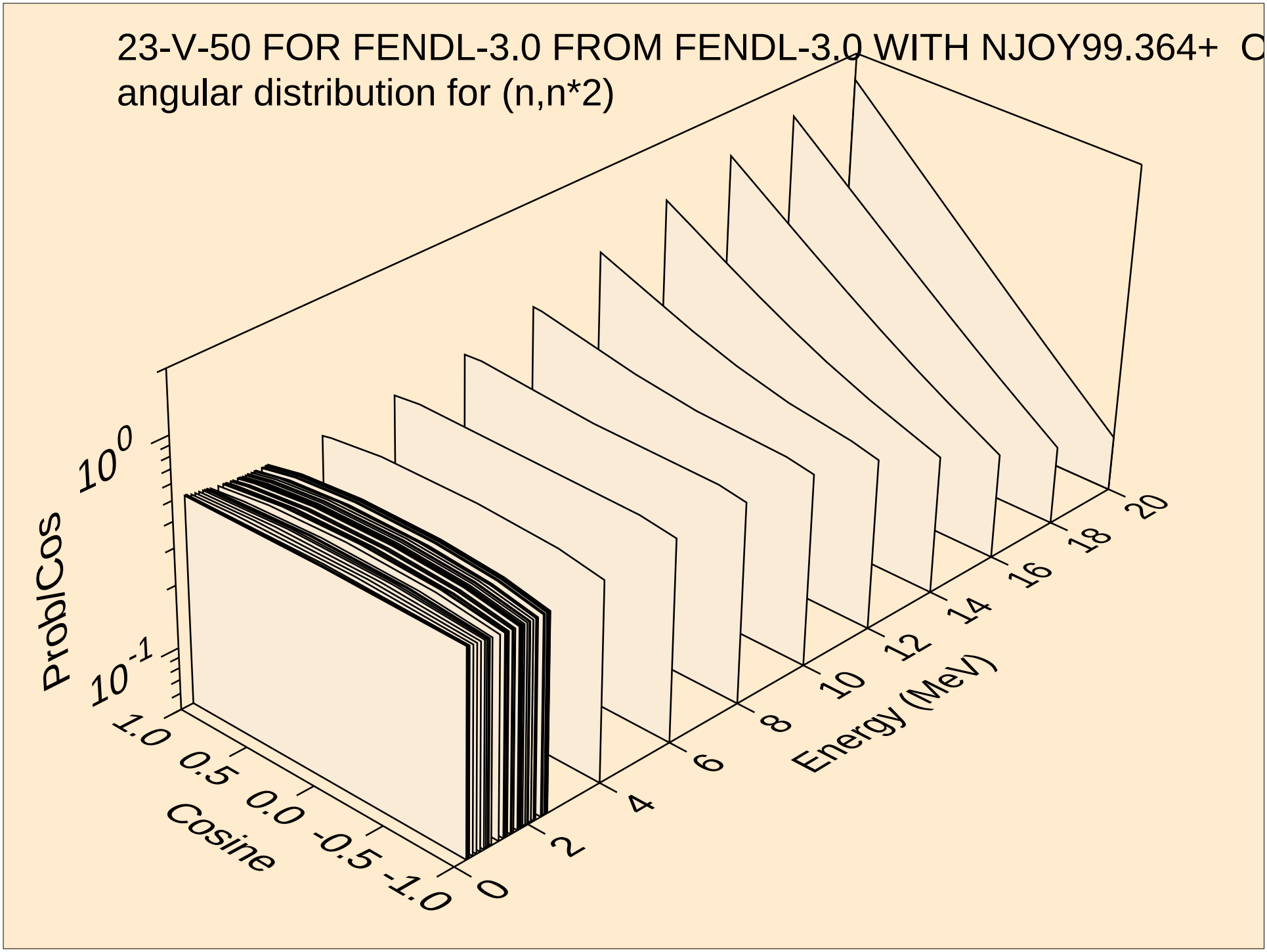

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Threshold reactions
50
*10-3
40
30
20
10
0
Cross section (barns)
(n,a)
(n,2p)
(n,pa)
0
5
10
15
20
Energy (MeV)

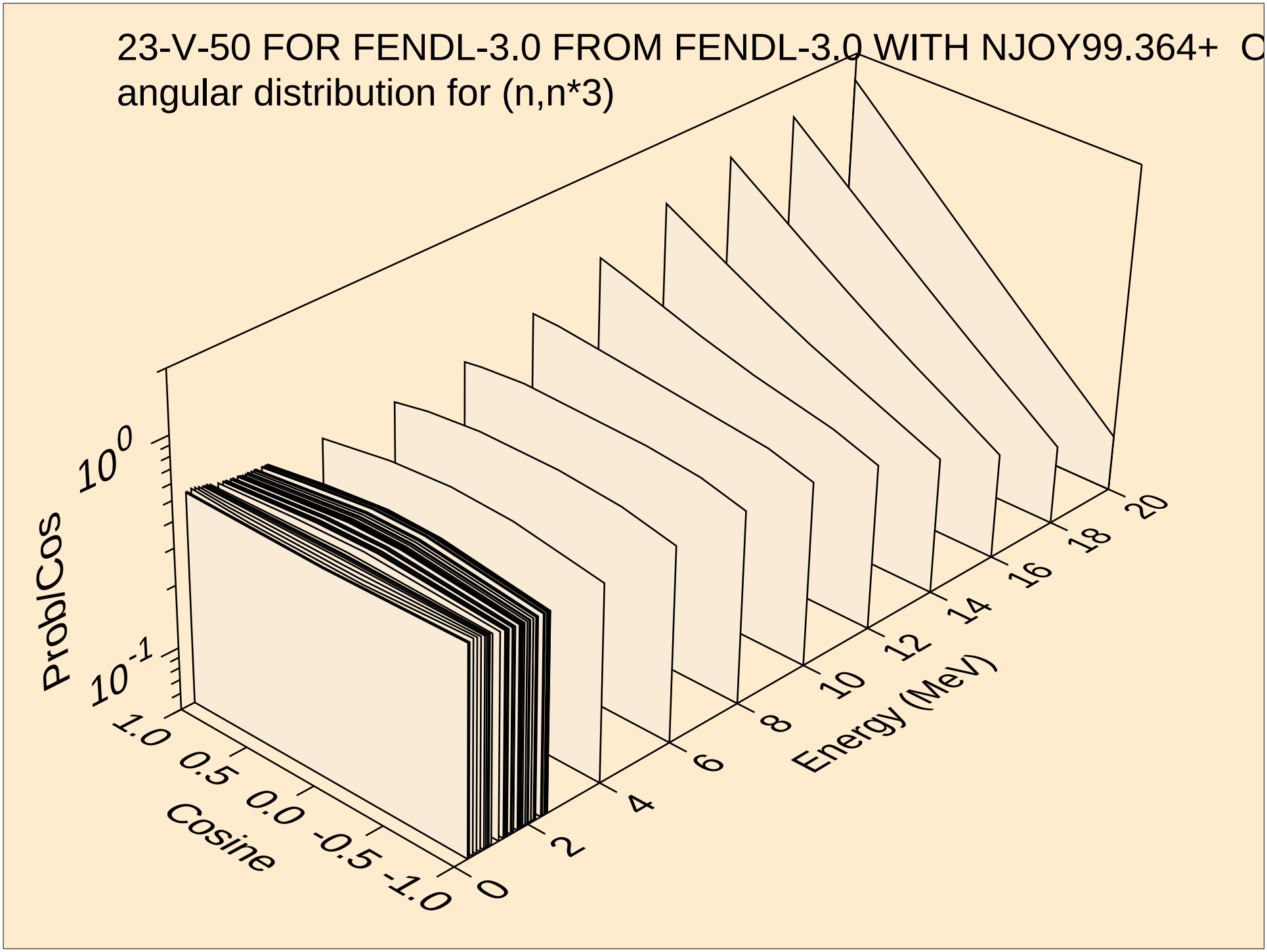

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Threshold reactions
350
*10-3
300
250
200
150
100
50
0
Cross section (barns)
(n,xd)
(n,xt)
(n,xhe3)
(n,xa)
0
50
100
150
200
Energy (MeV)

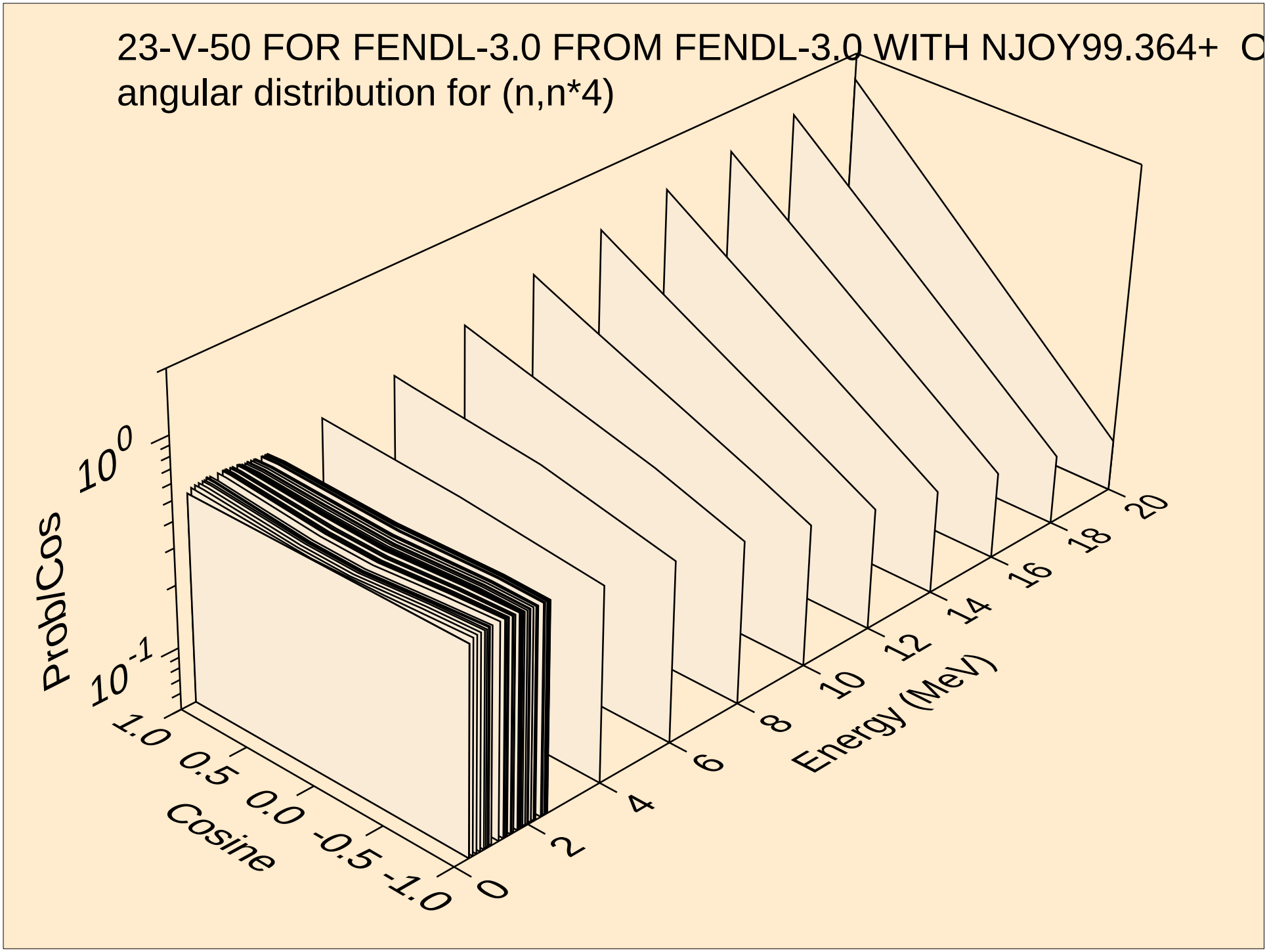

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for elastic
ProbICos
10^{1}
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

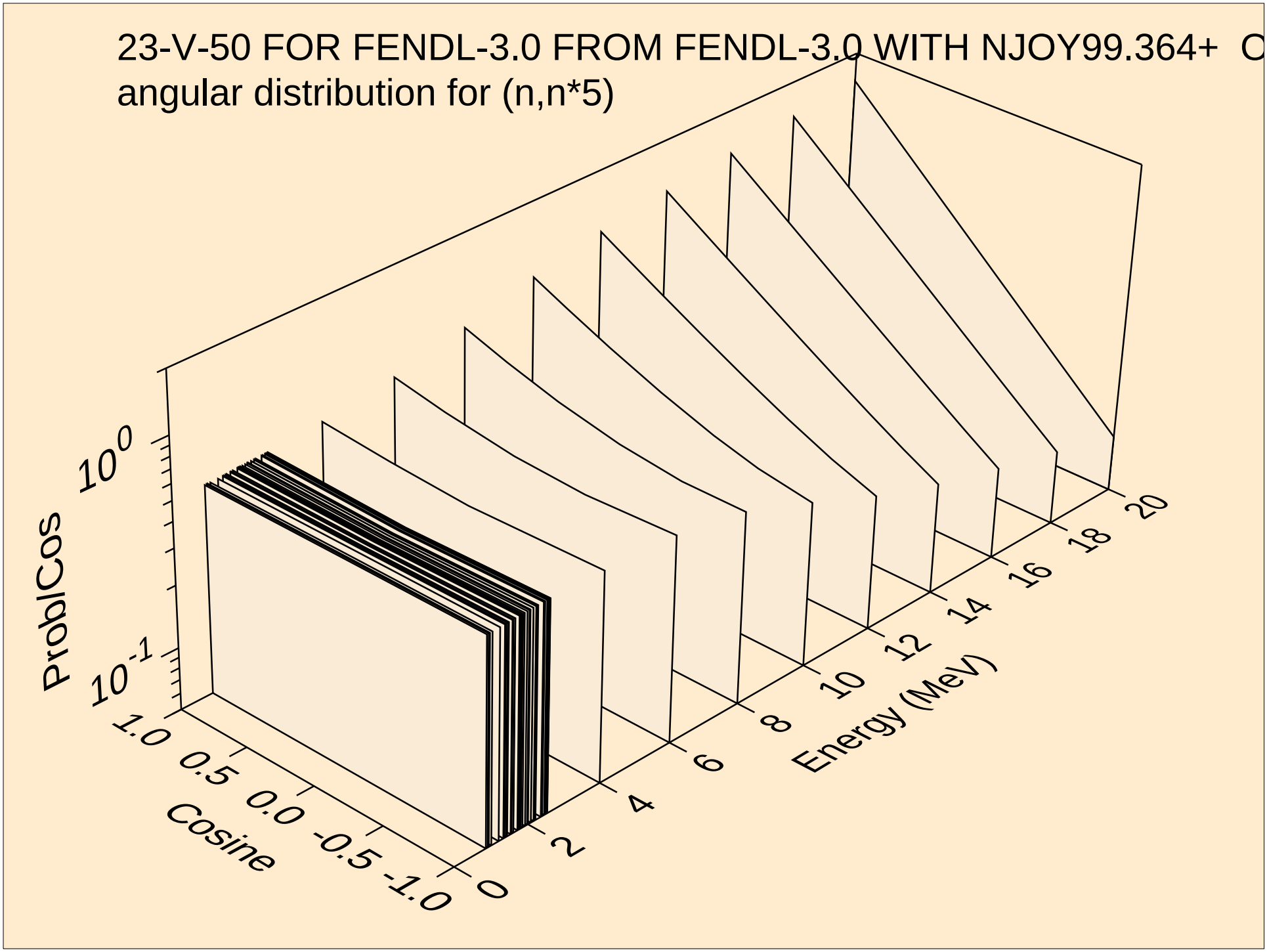

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for elastic
Prob\Cos
10^1
10^-1
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

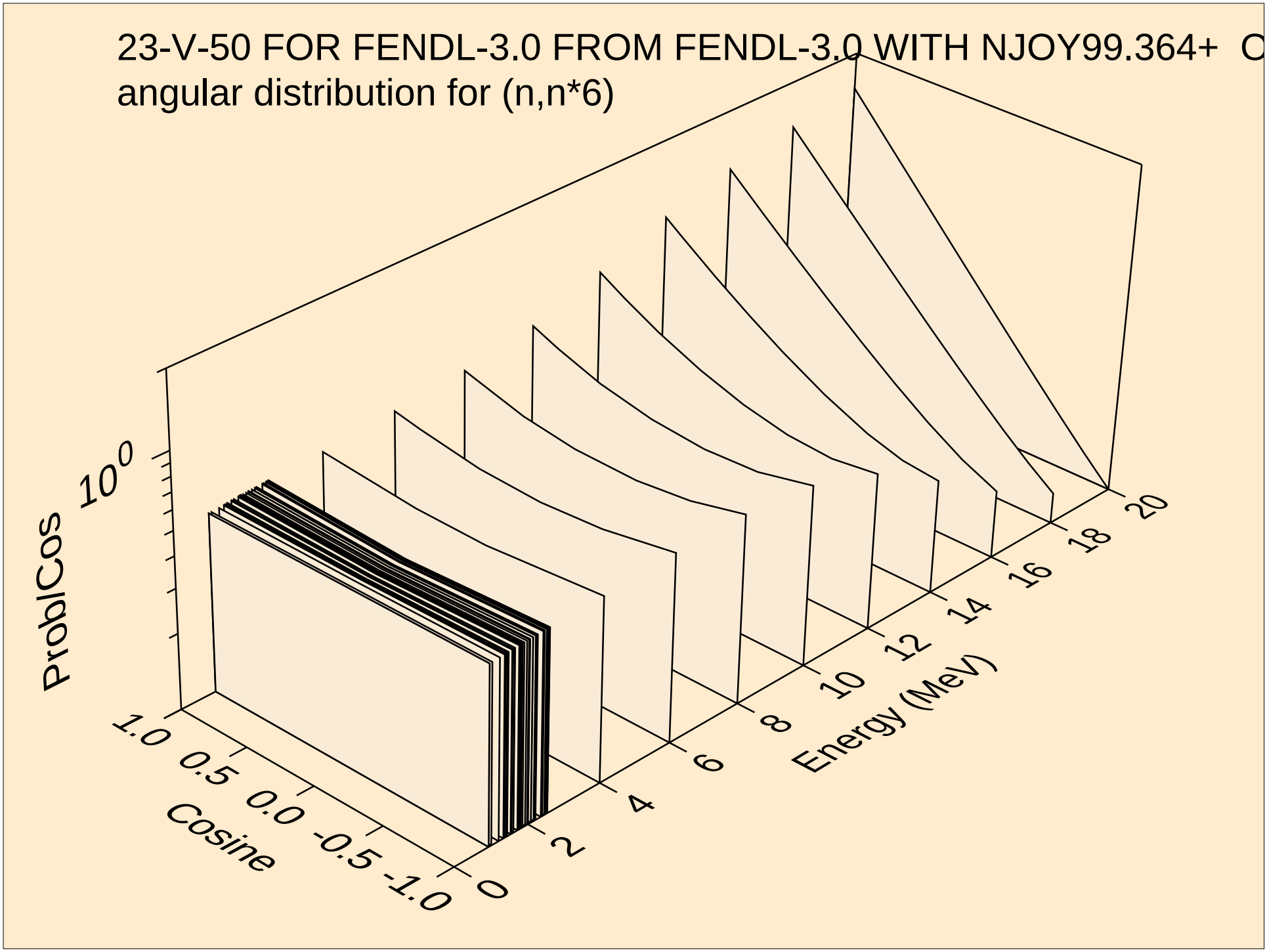

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*1)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

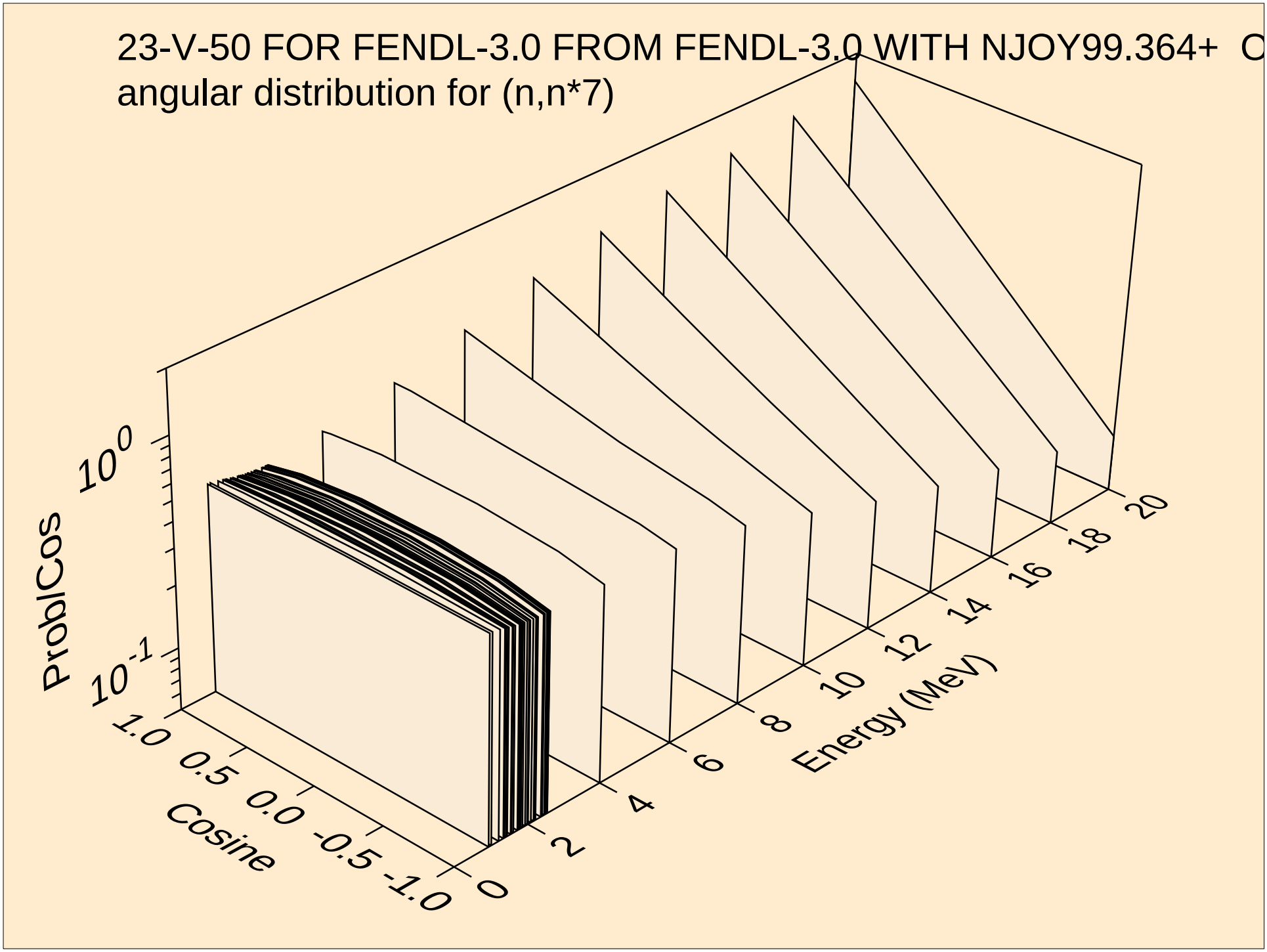

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*2)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

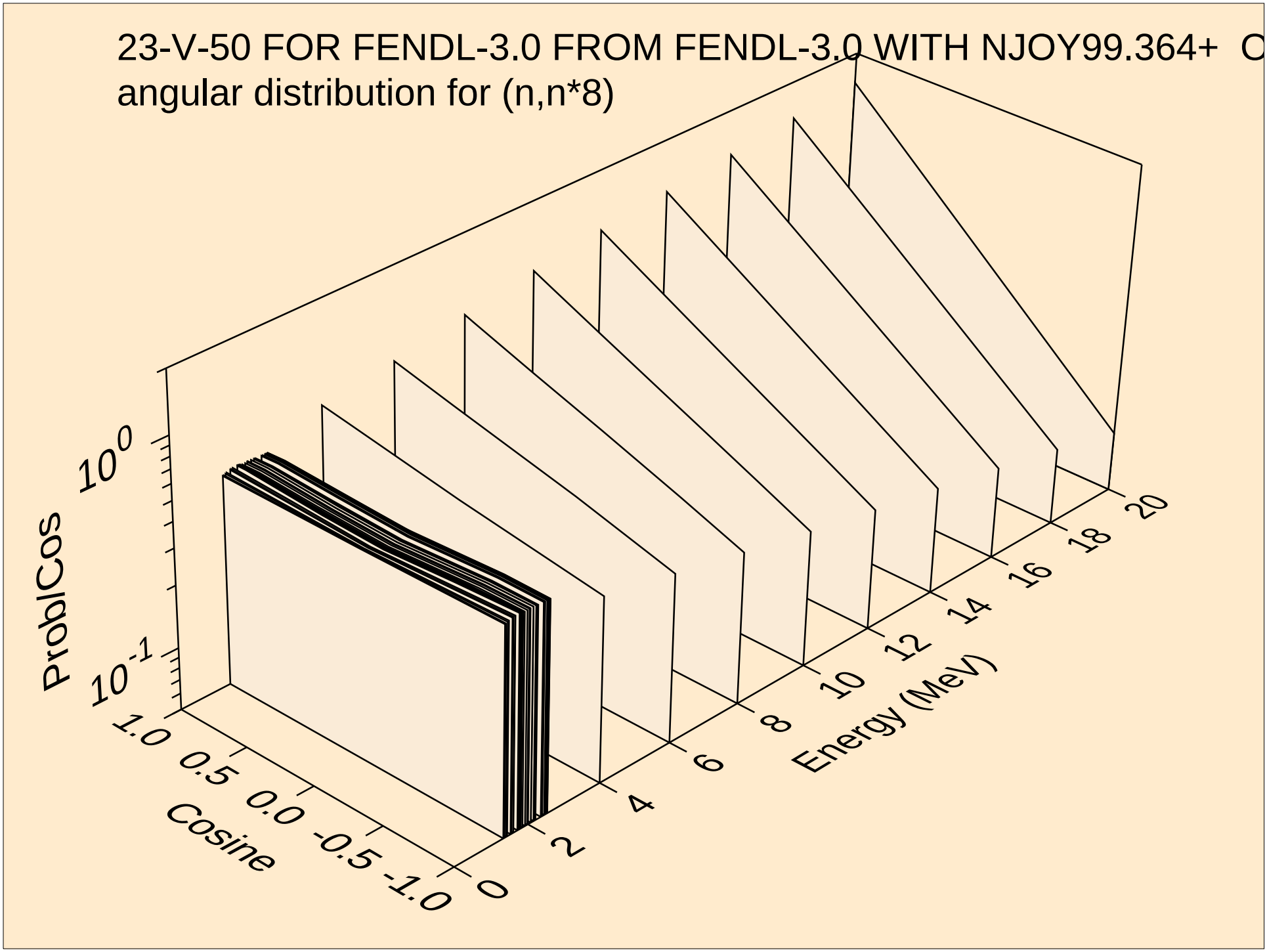

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*3)
ProbICos
10^0
10^-1
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

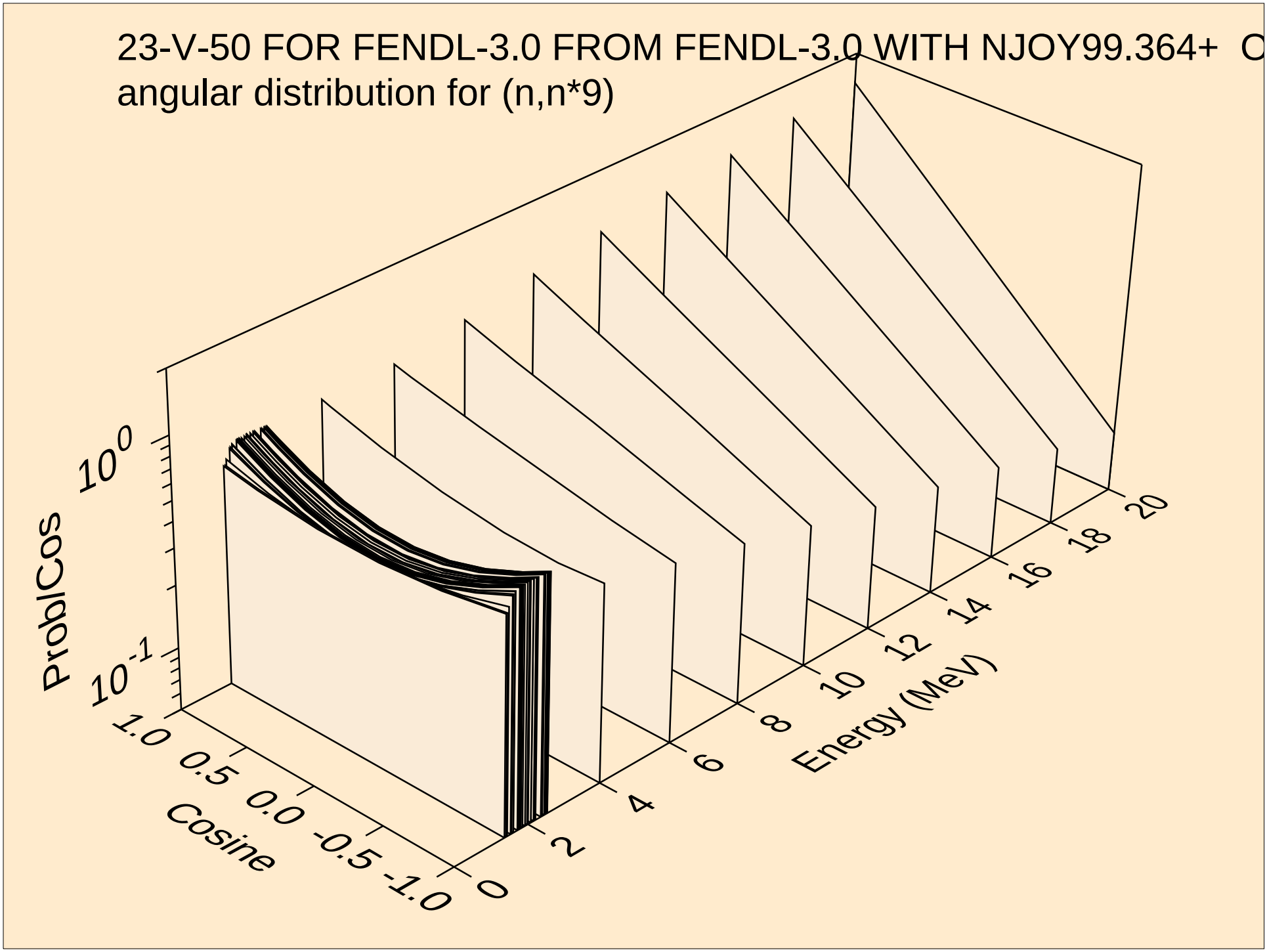

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*4)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

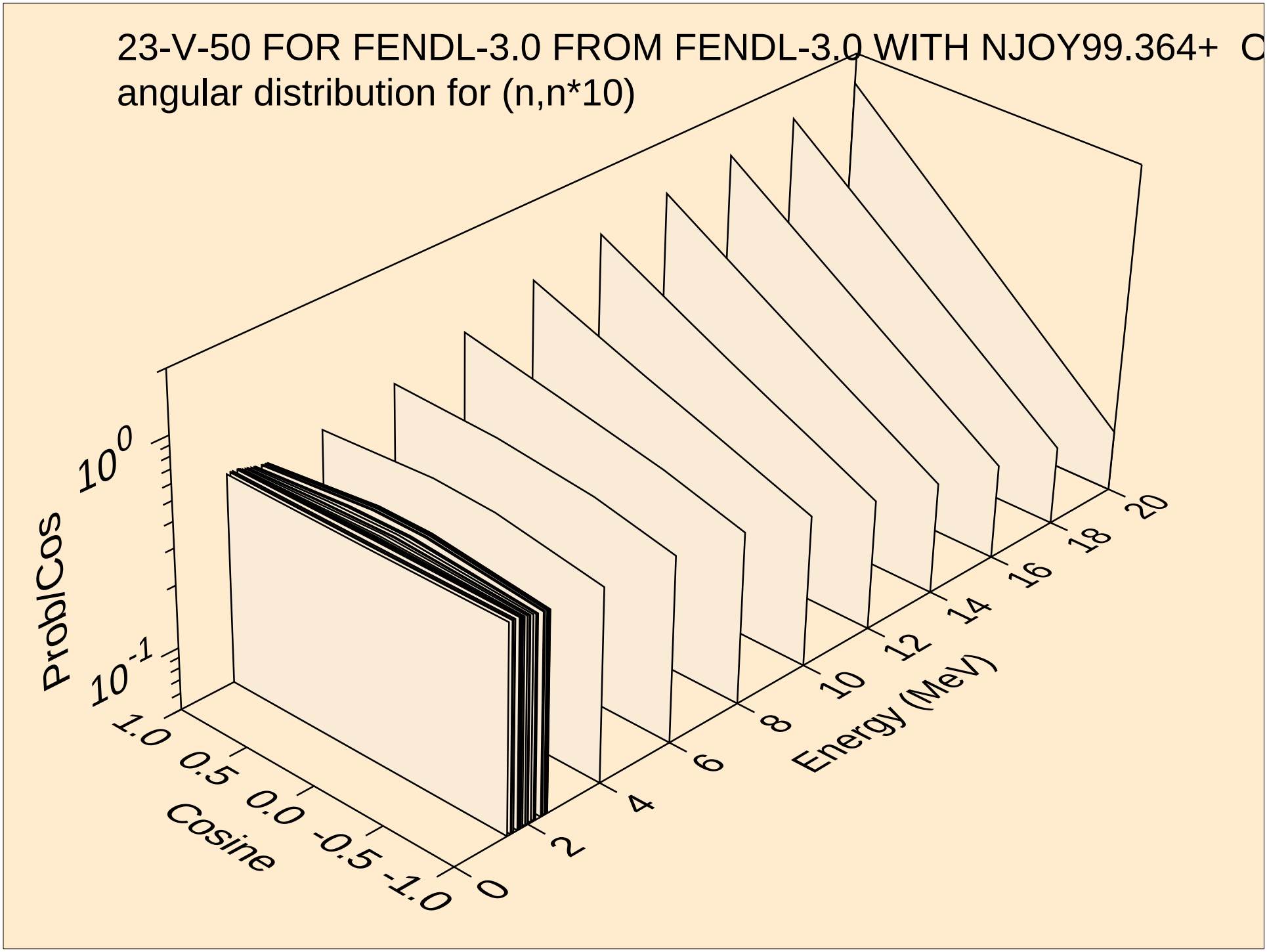

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*5)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

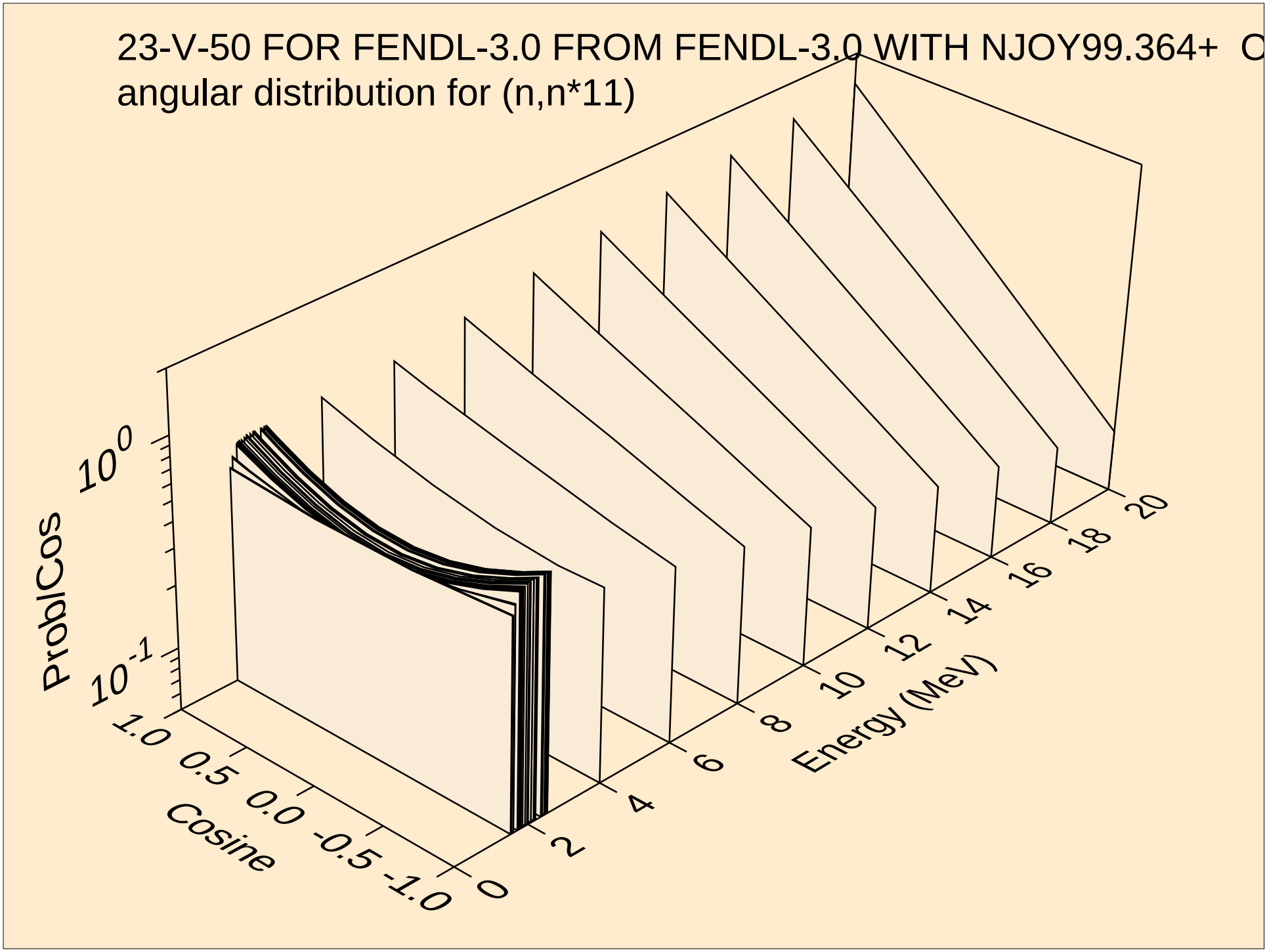

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*6)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

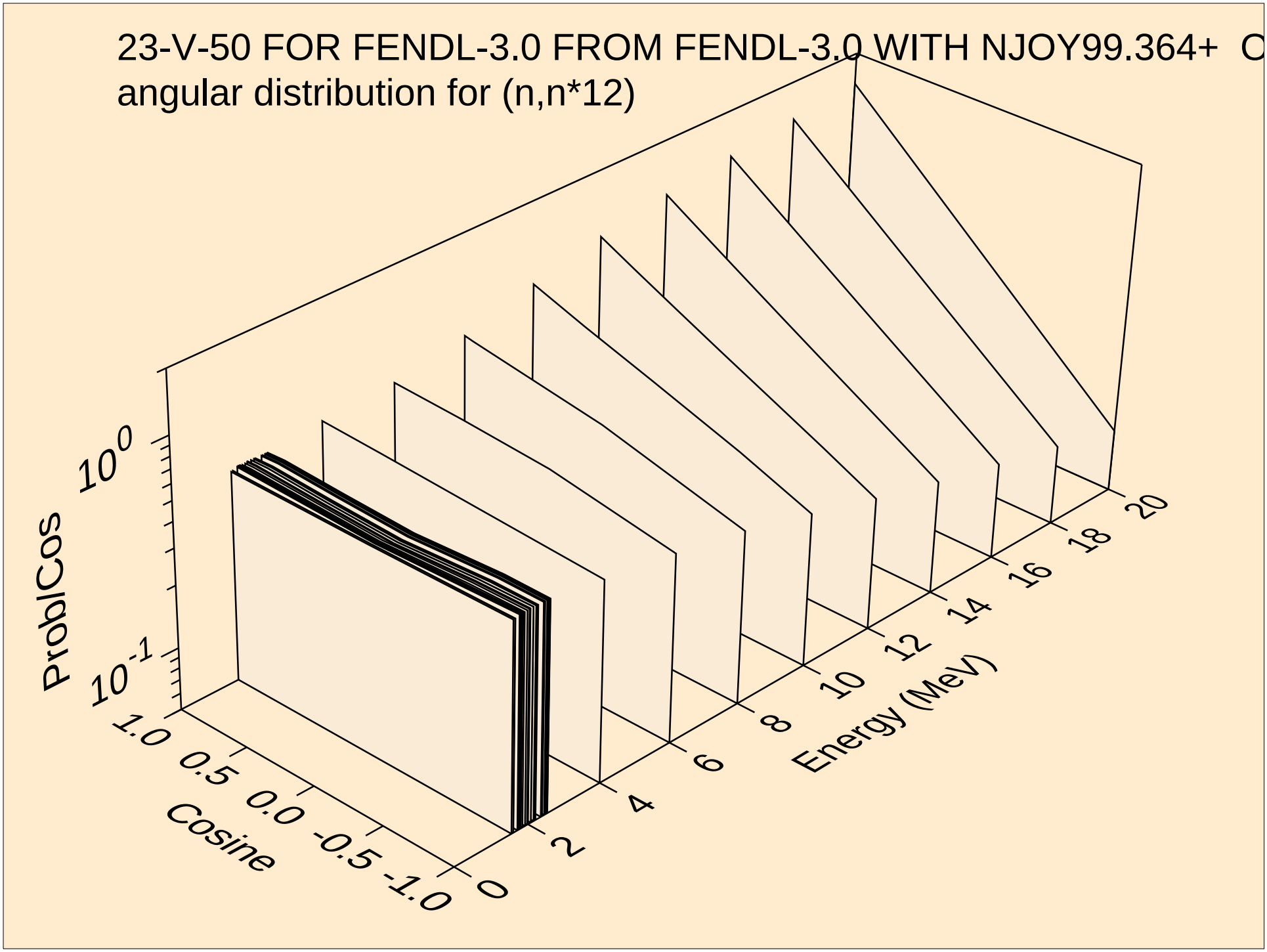

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*7)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

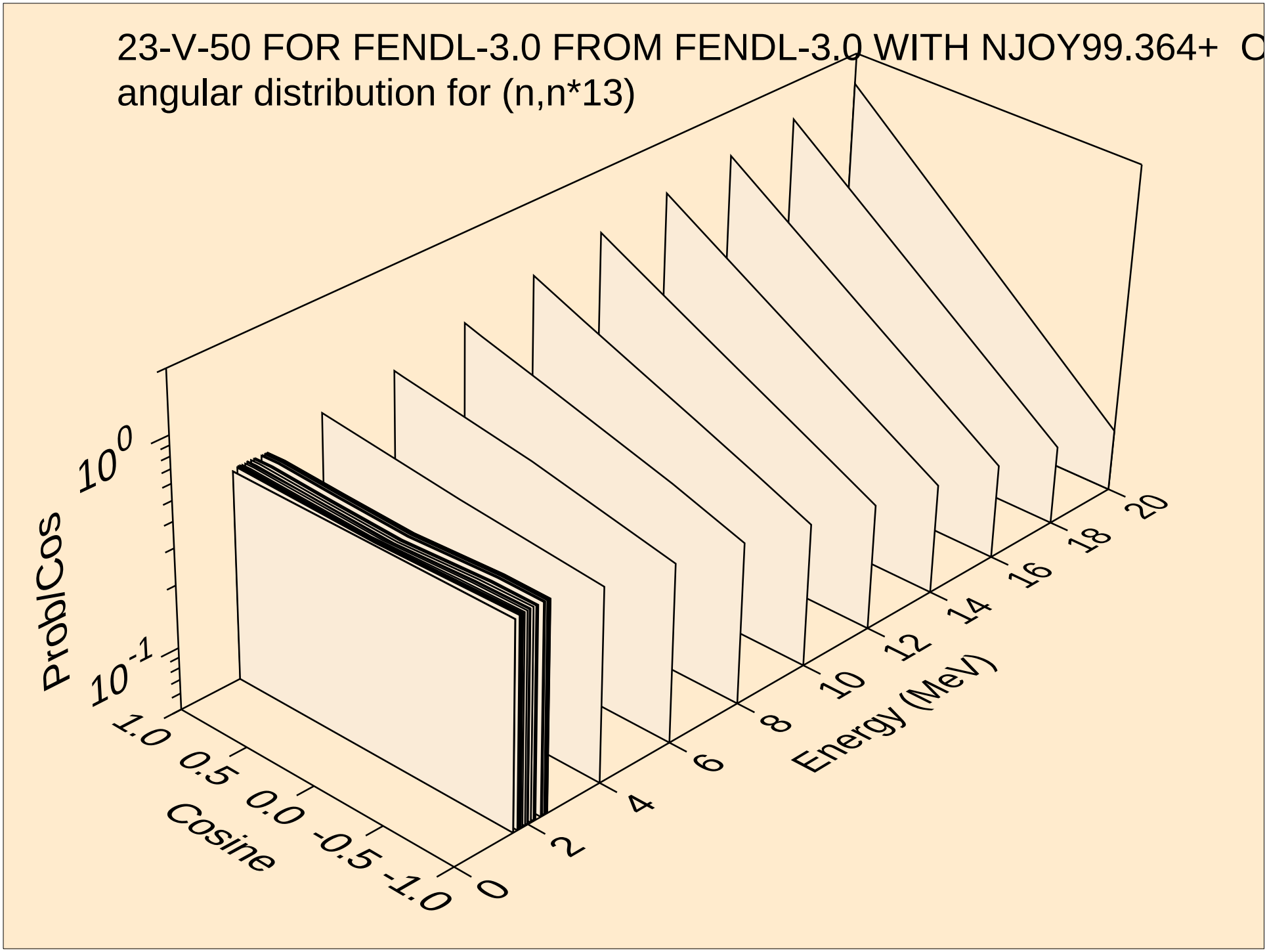

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*8)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

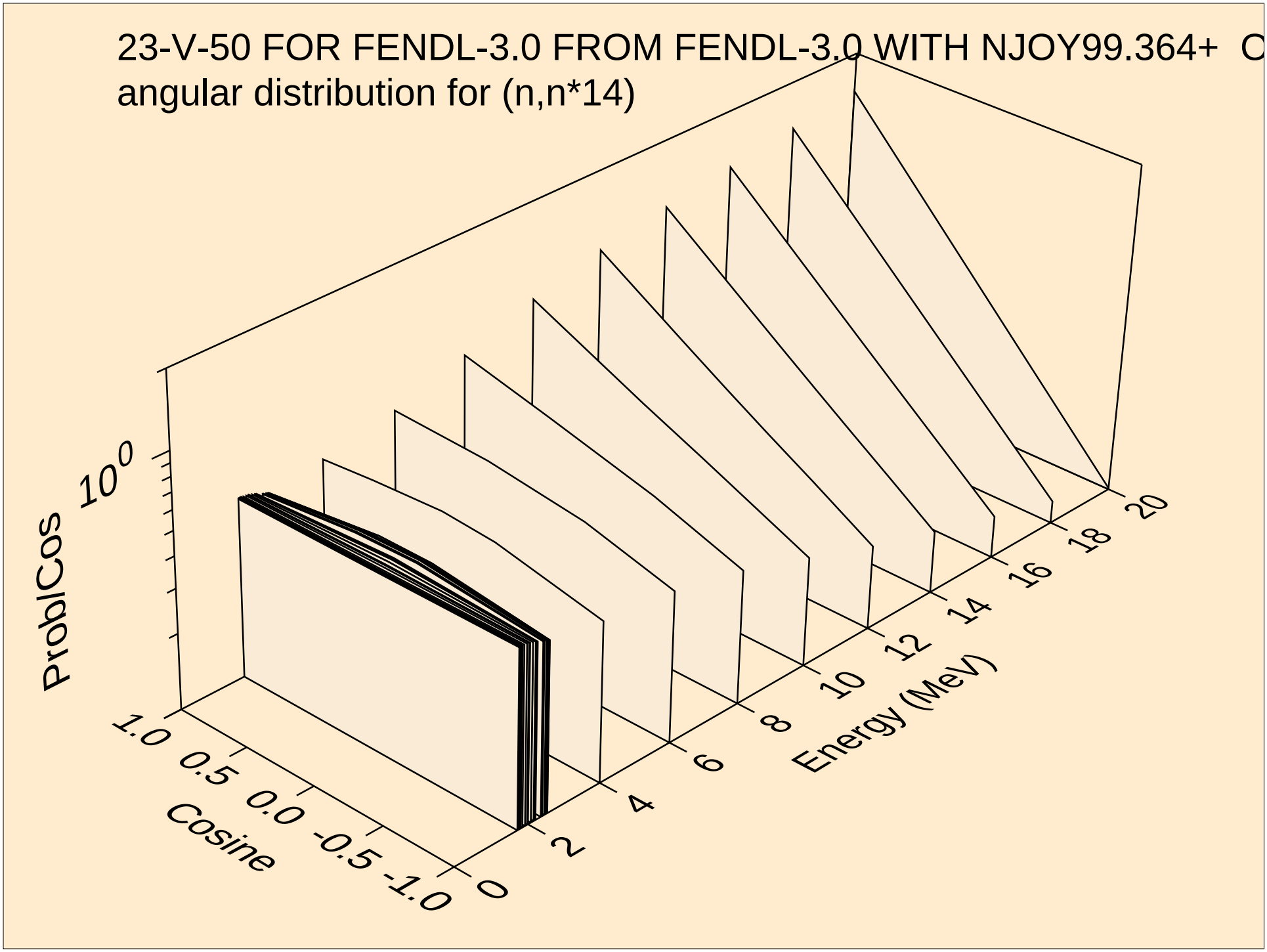

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*9)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

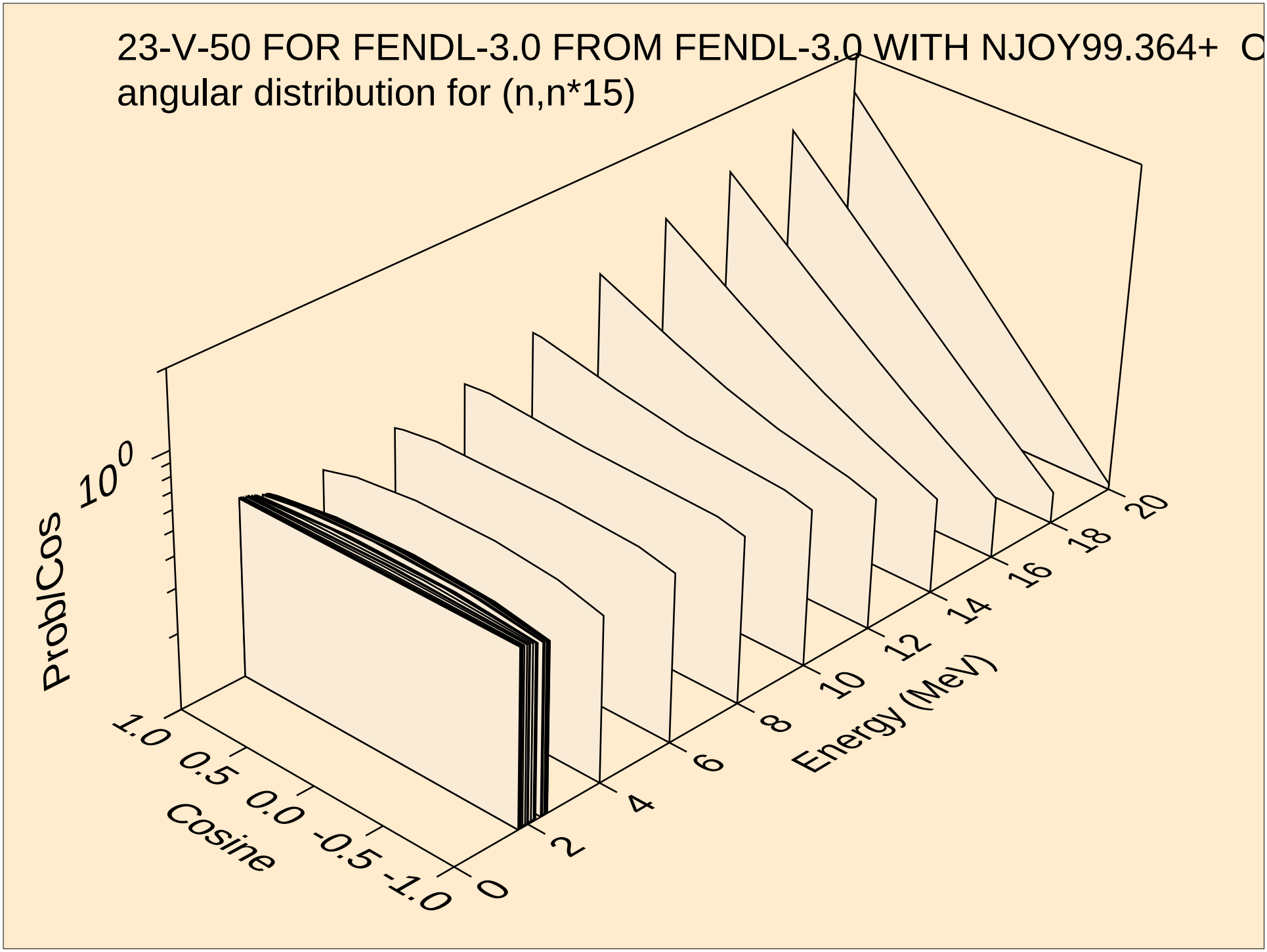

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*10)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

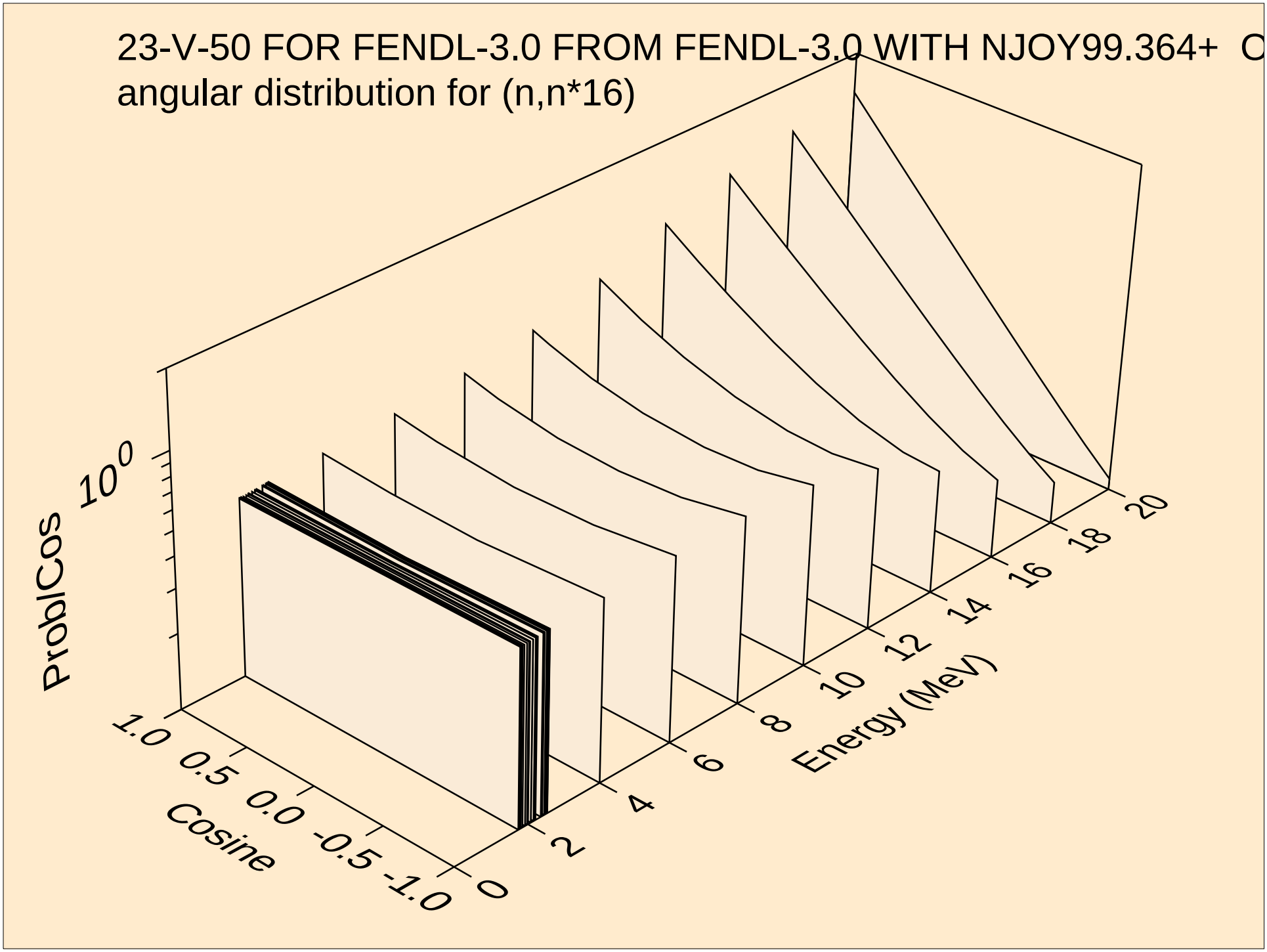

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*11)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

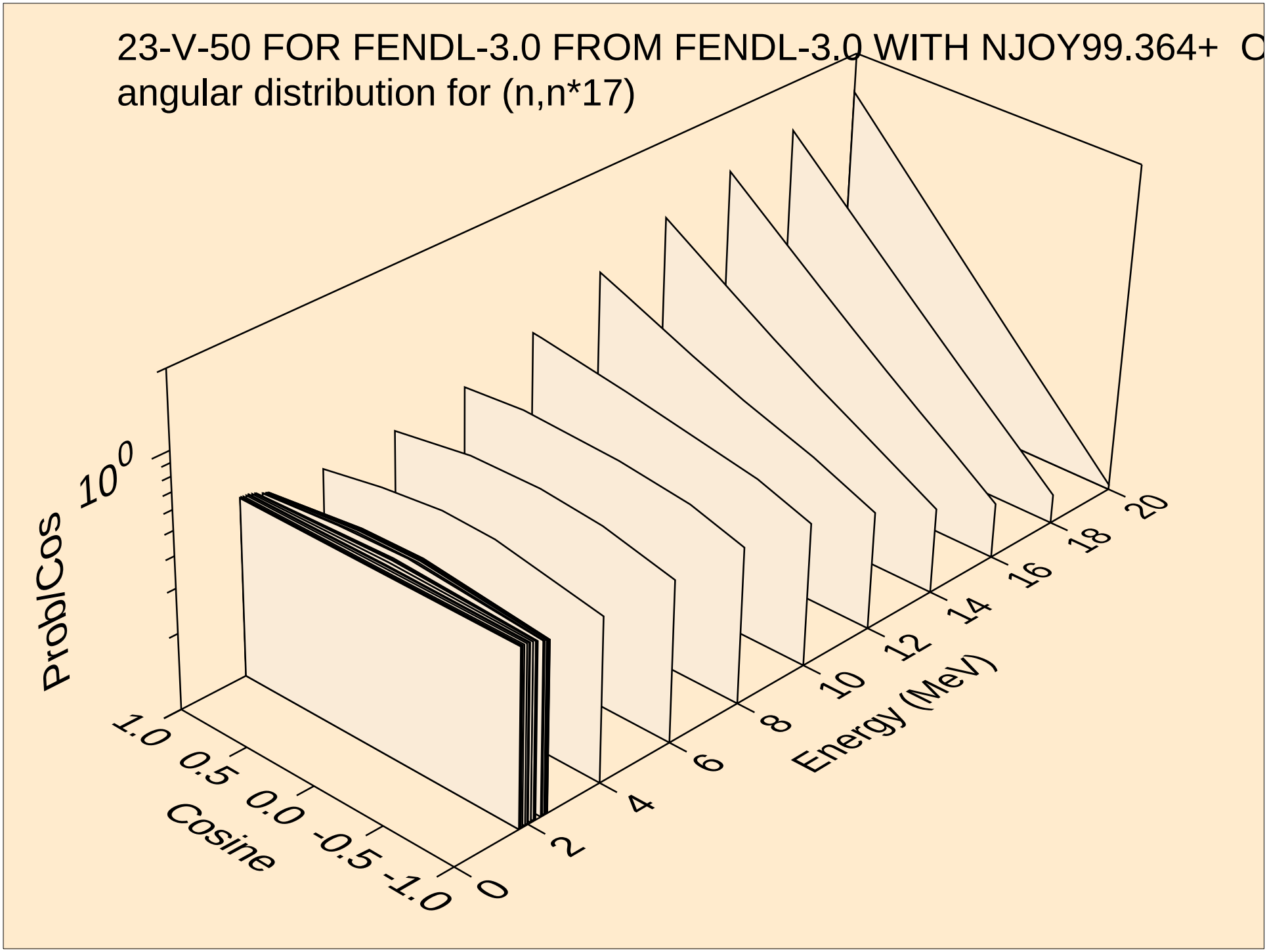

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*12)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

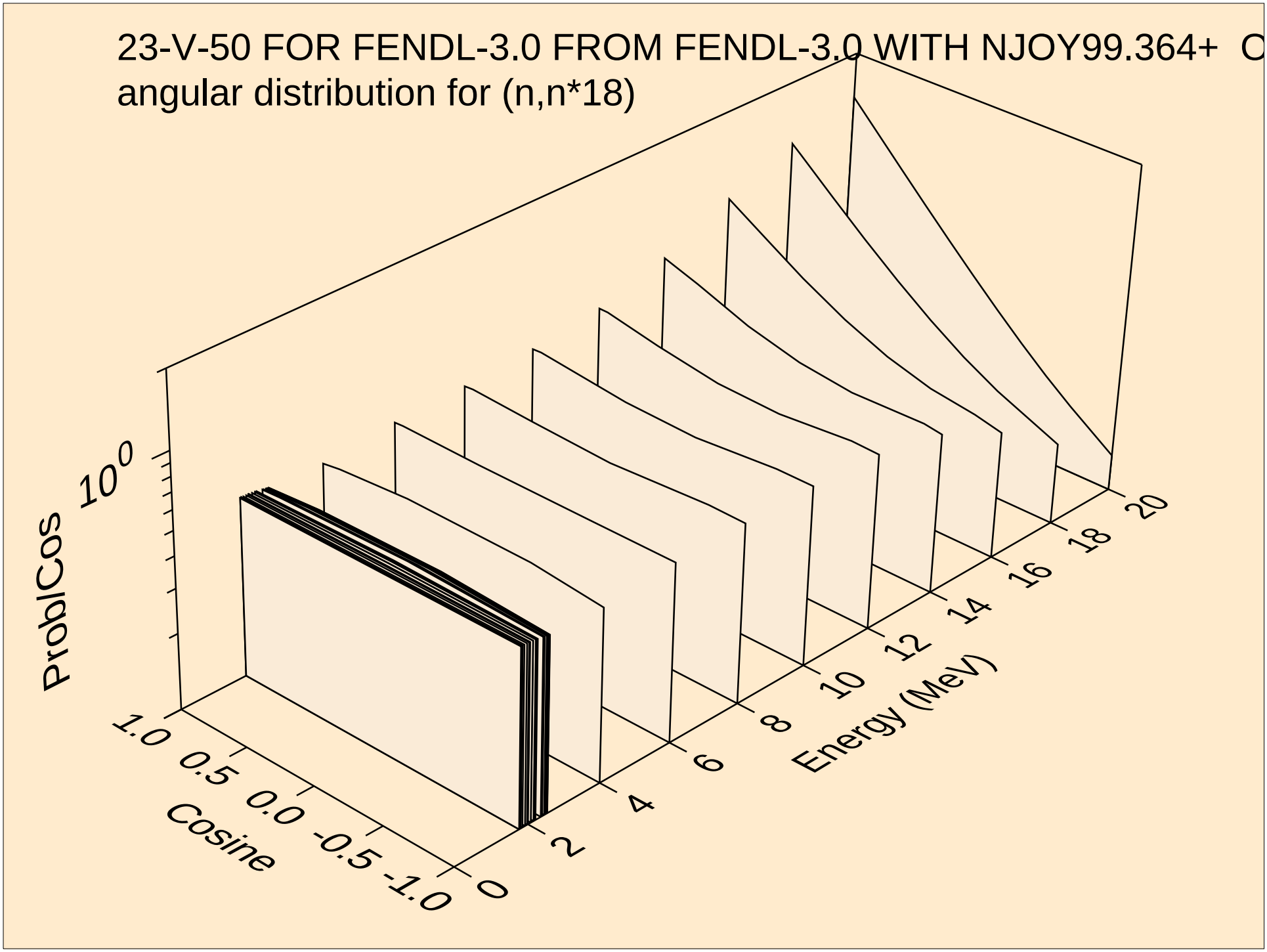

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*13)
ProbICos
10^{0}
10^{-1}
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

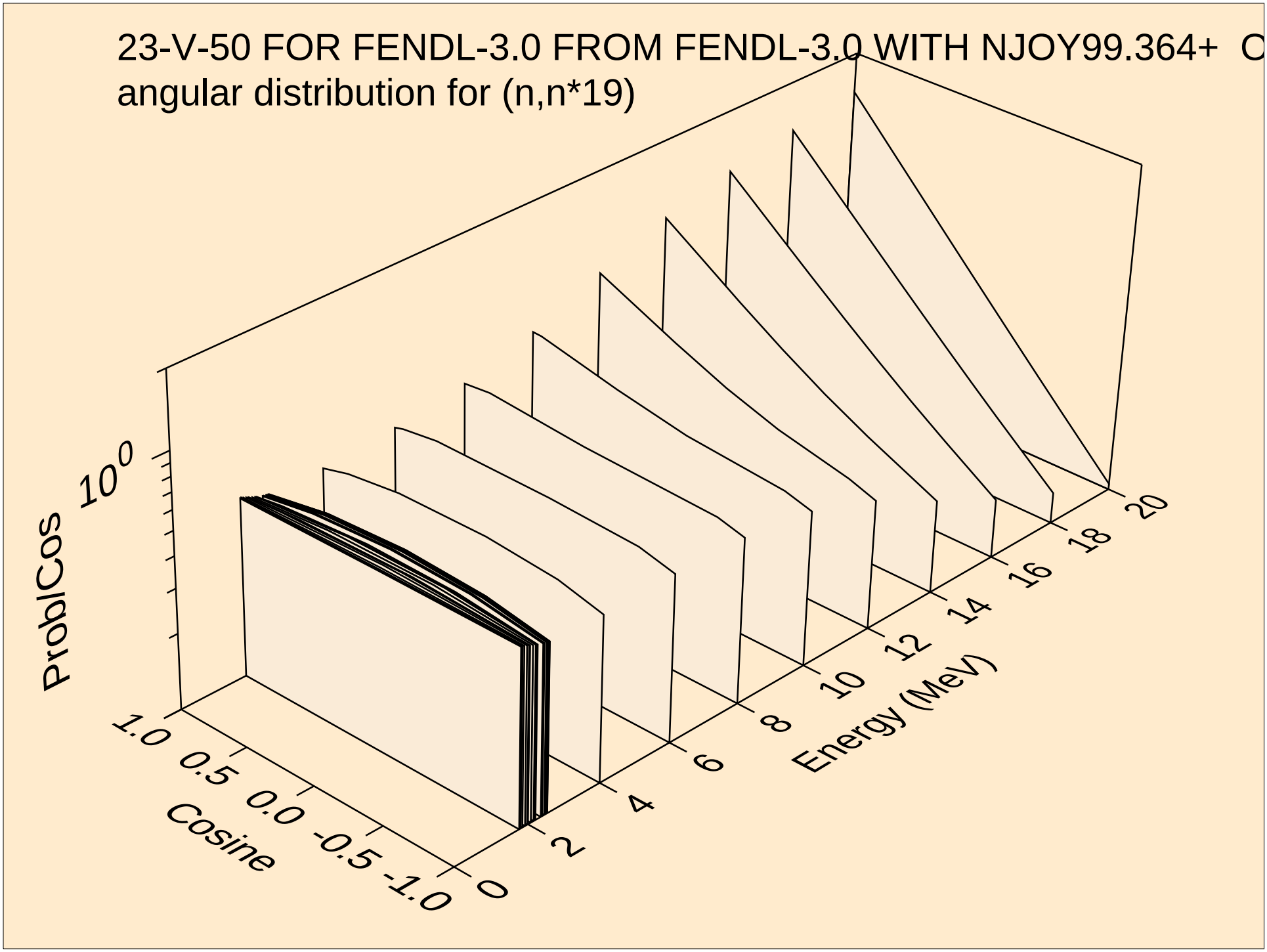

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*14)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

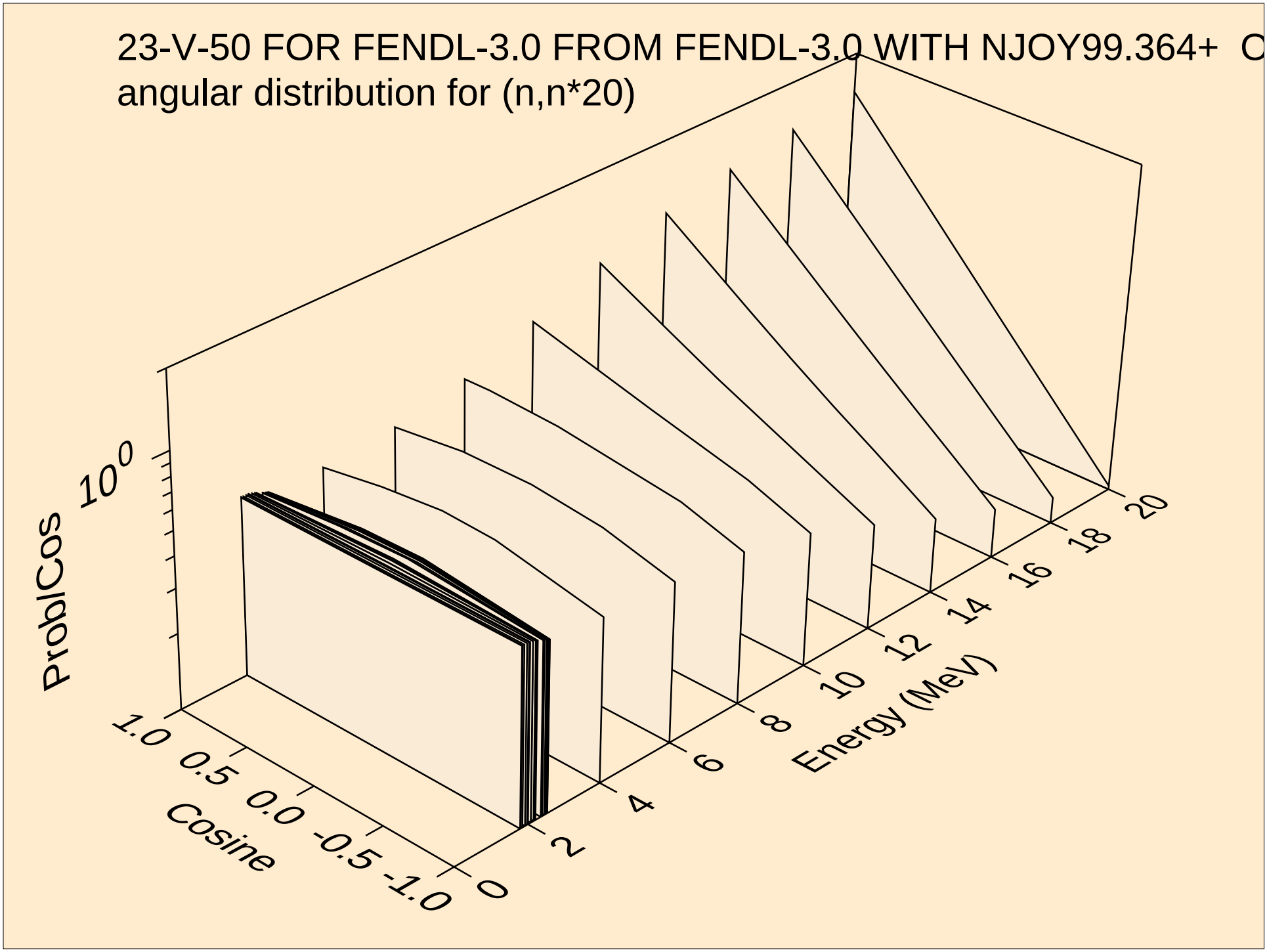

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*15)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

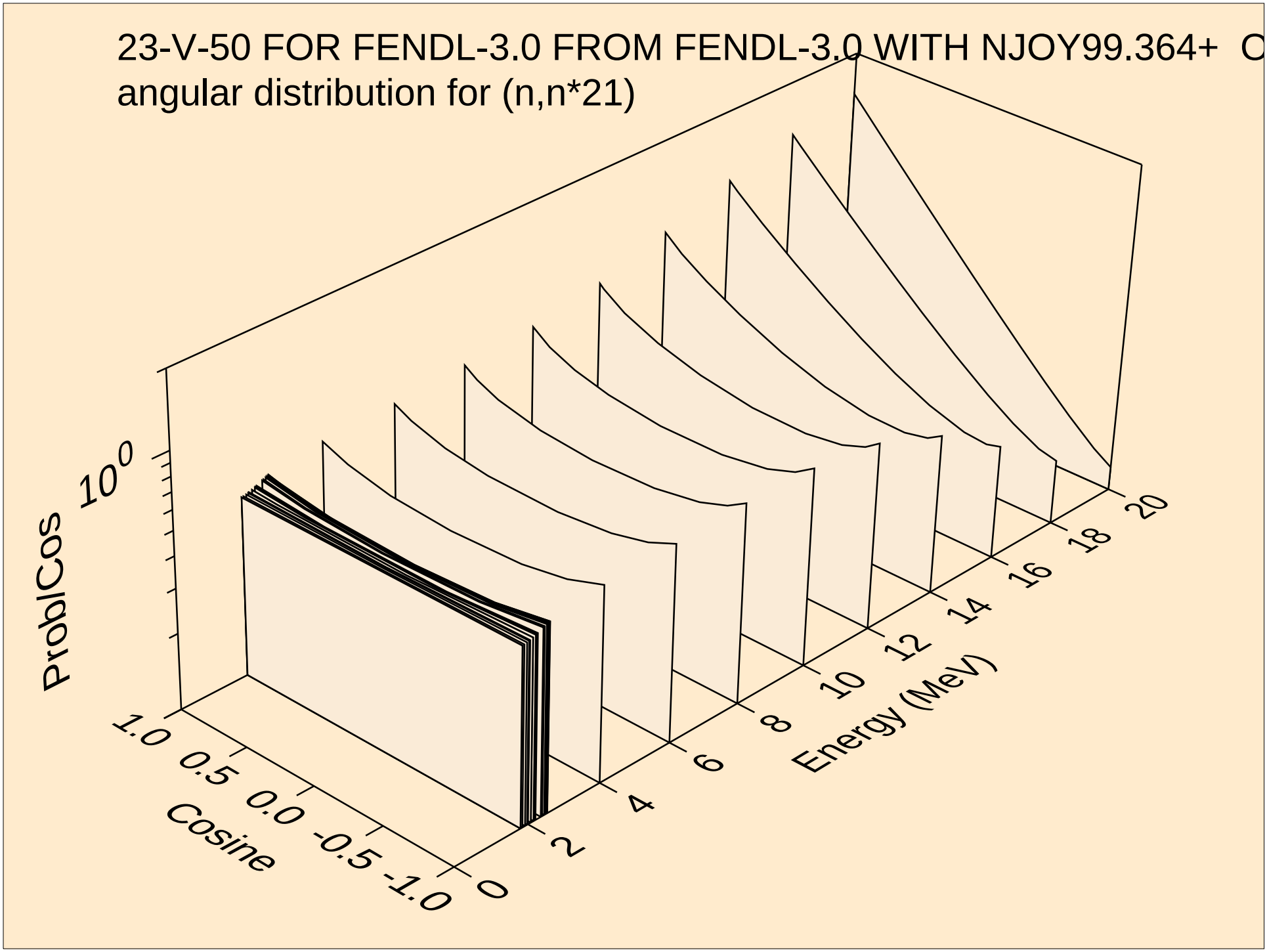

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*16)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

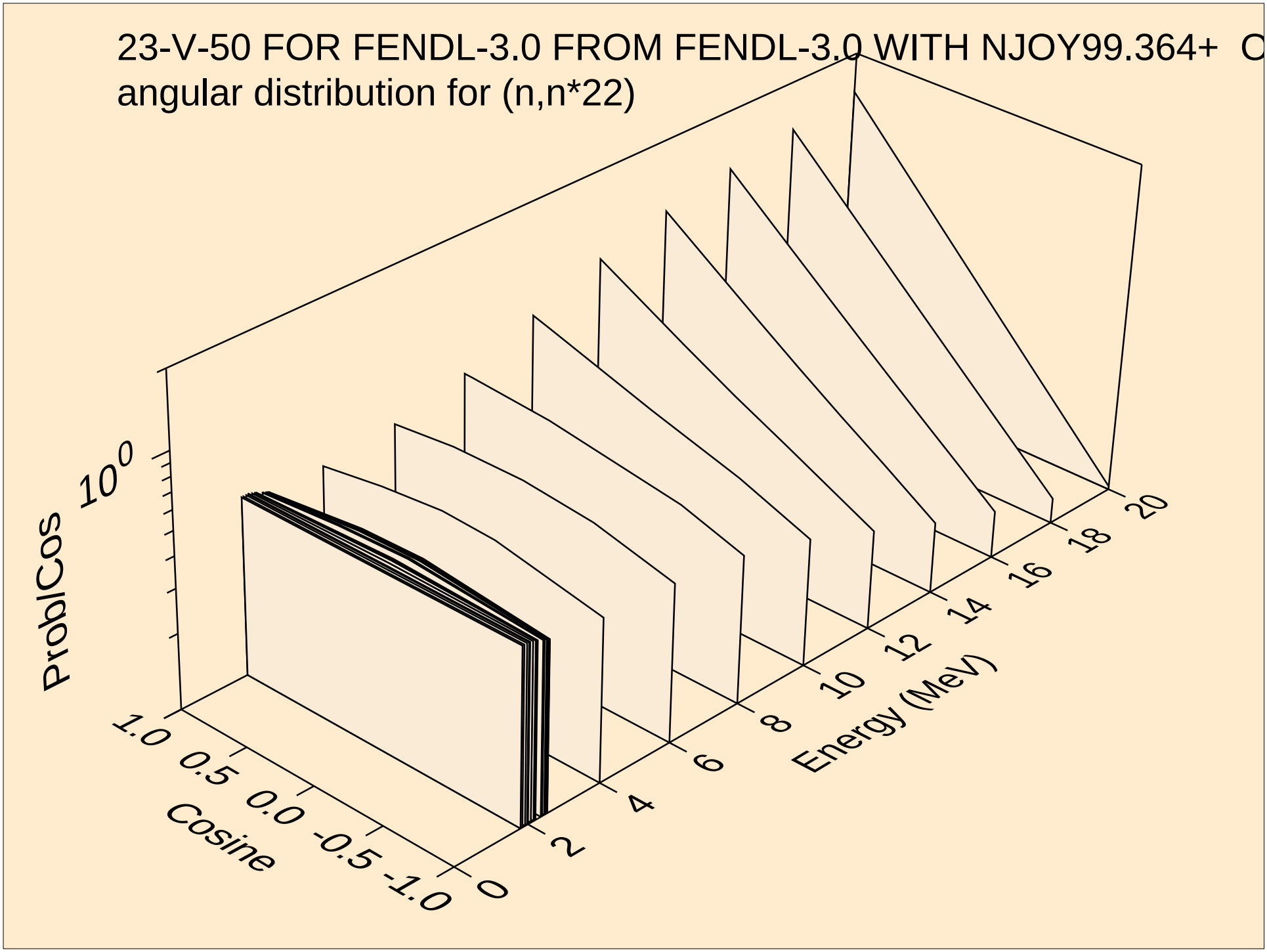

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*17)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

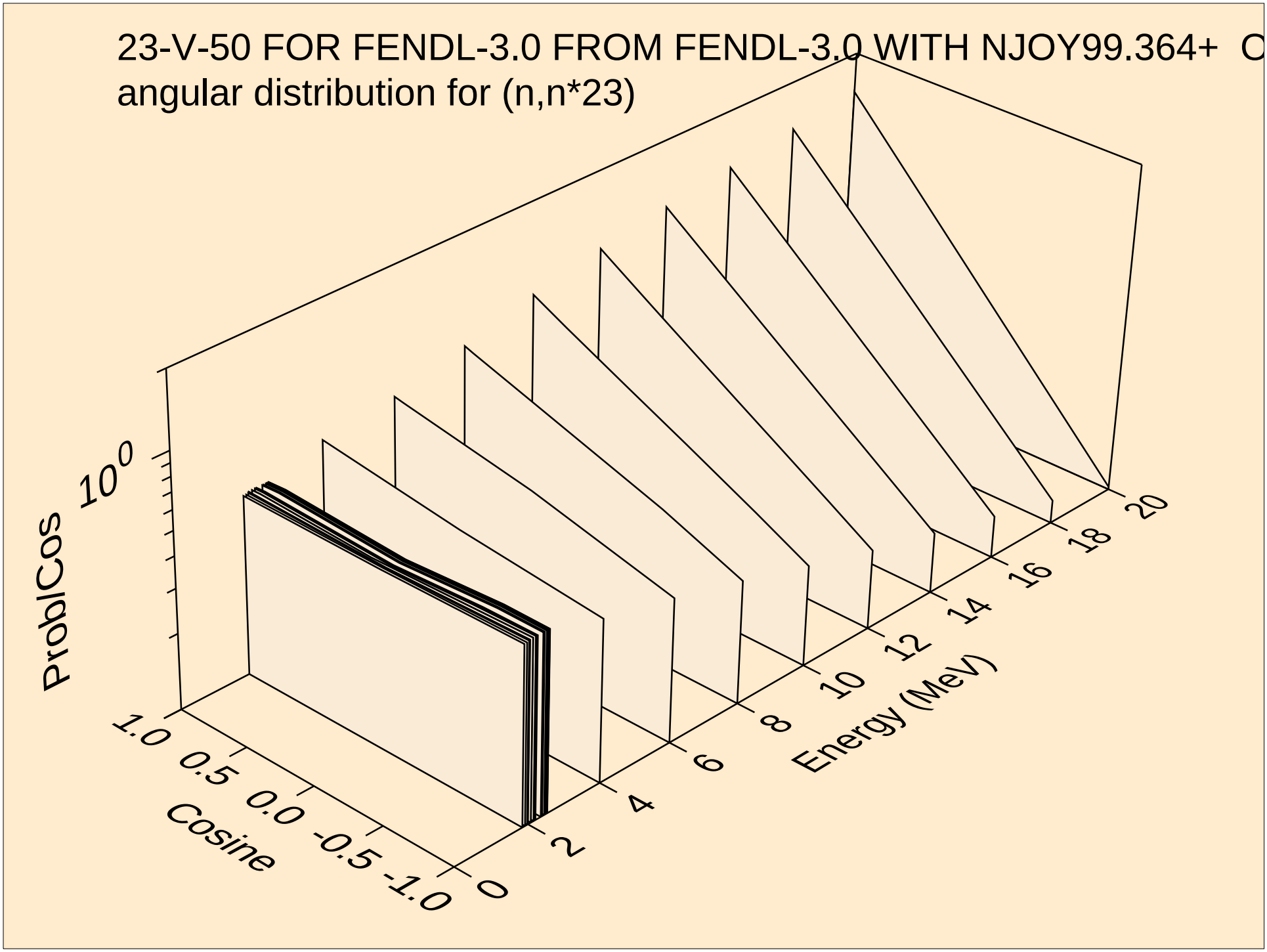

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*18)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

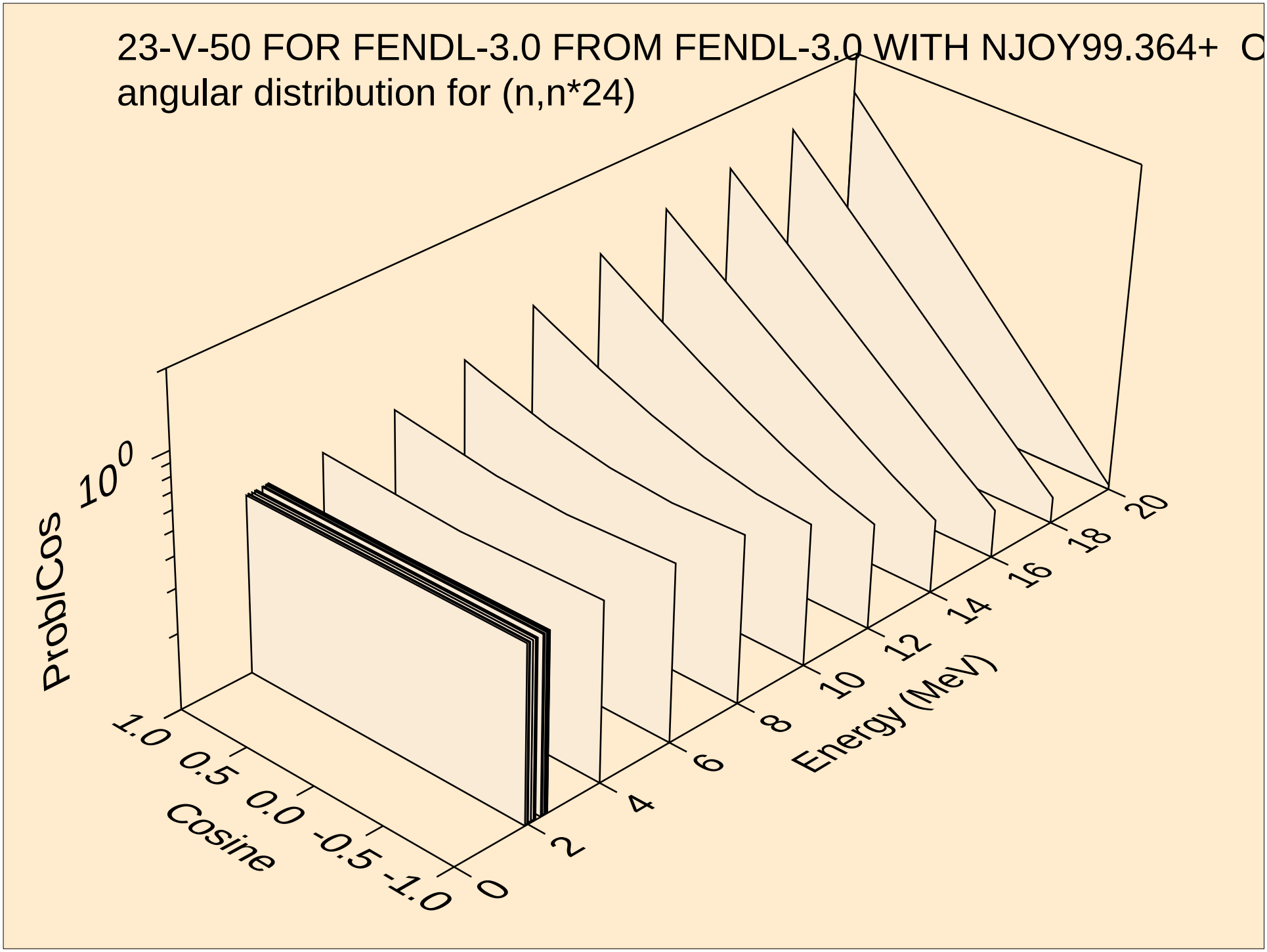

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*19)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

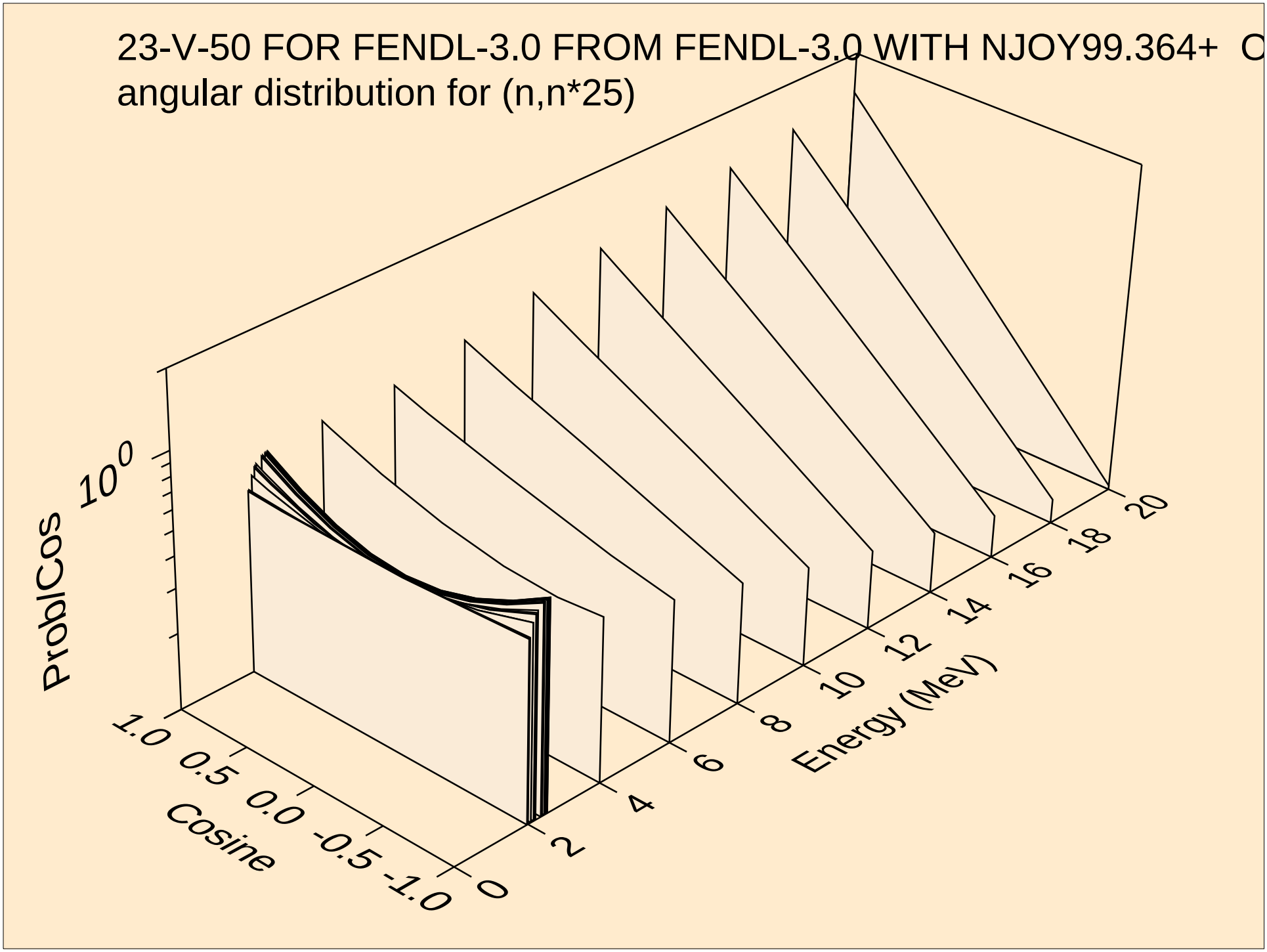

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*20)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

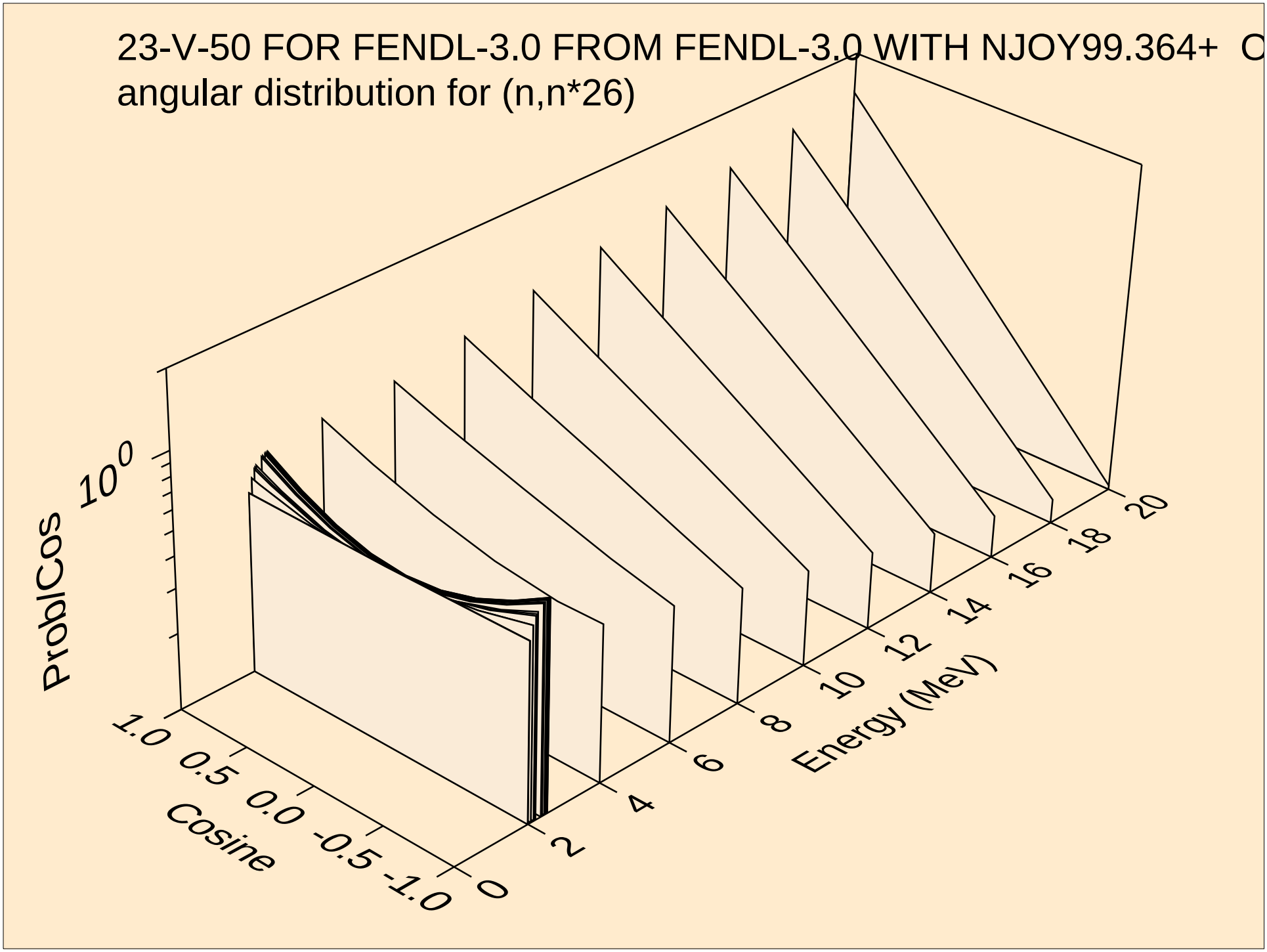

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*21)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

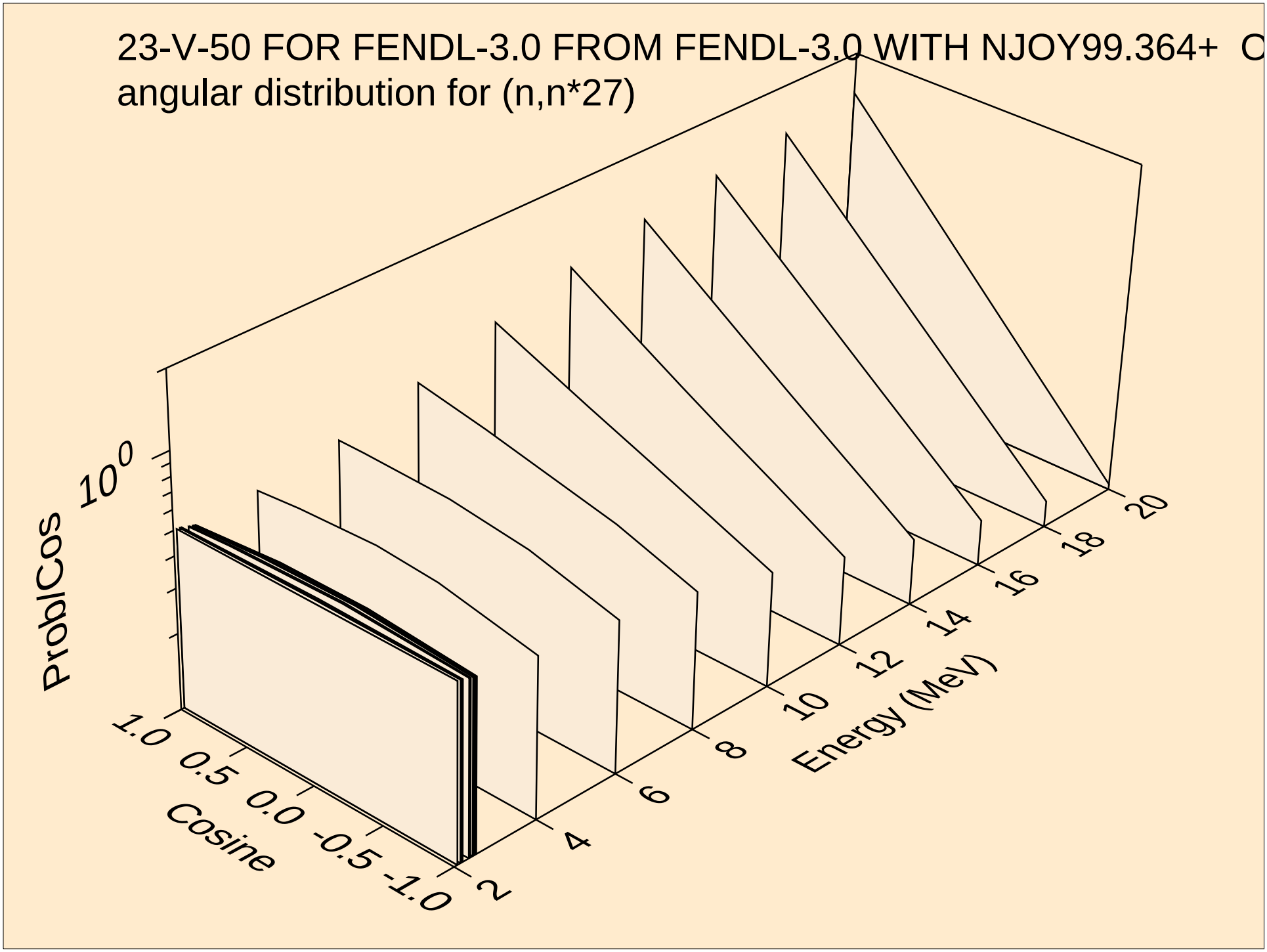

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*22)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

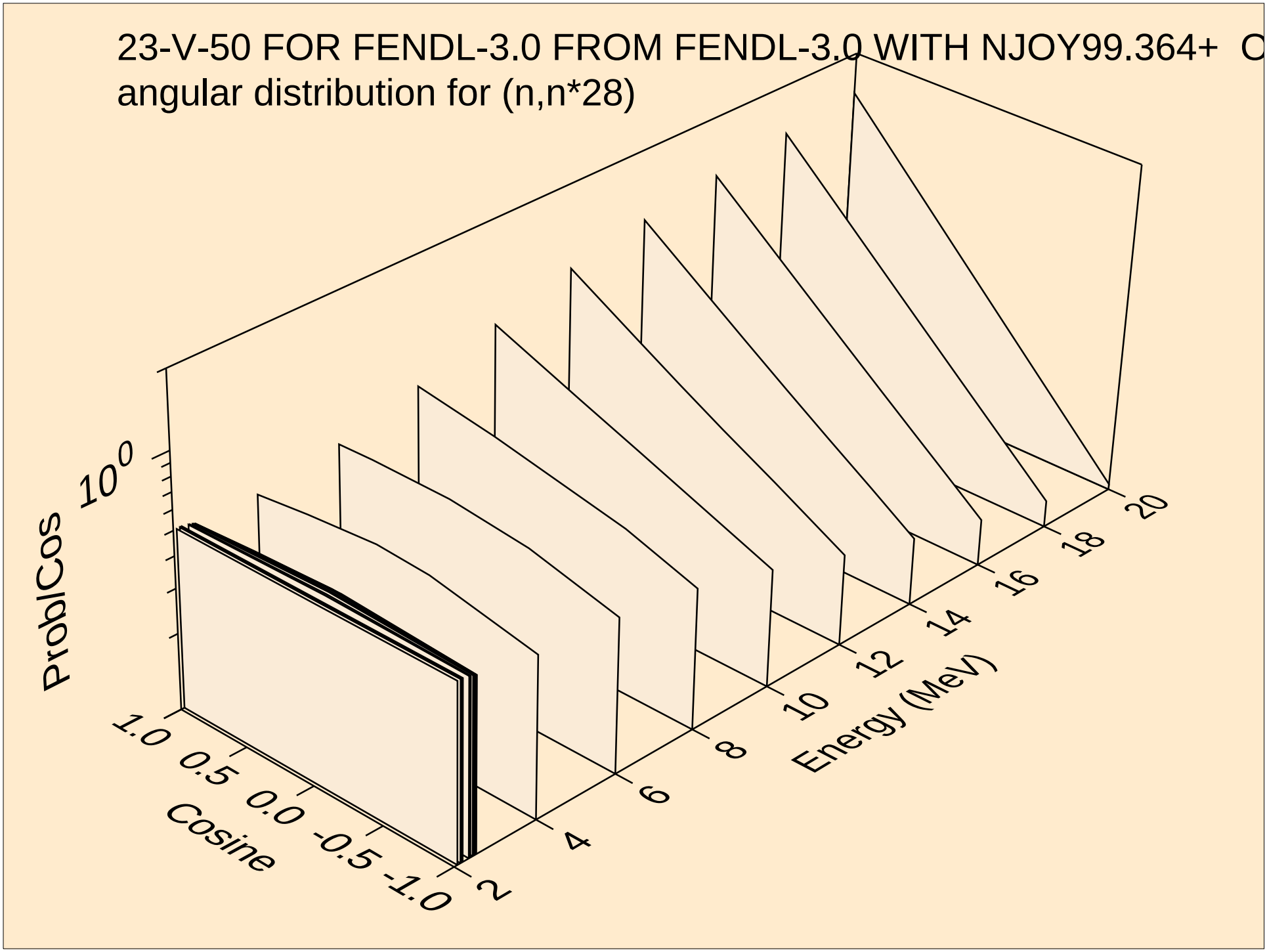

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*23)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

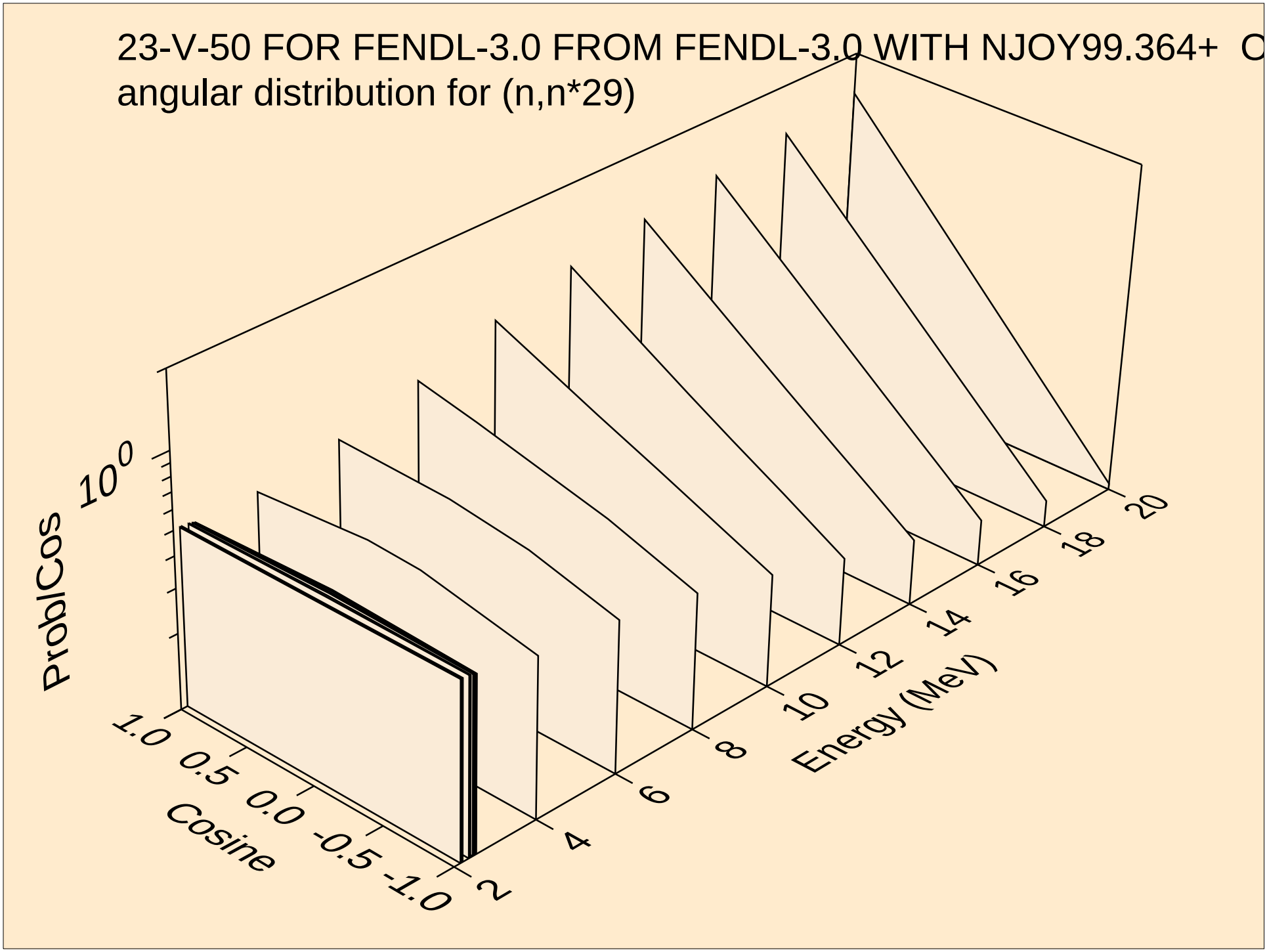

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*24)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

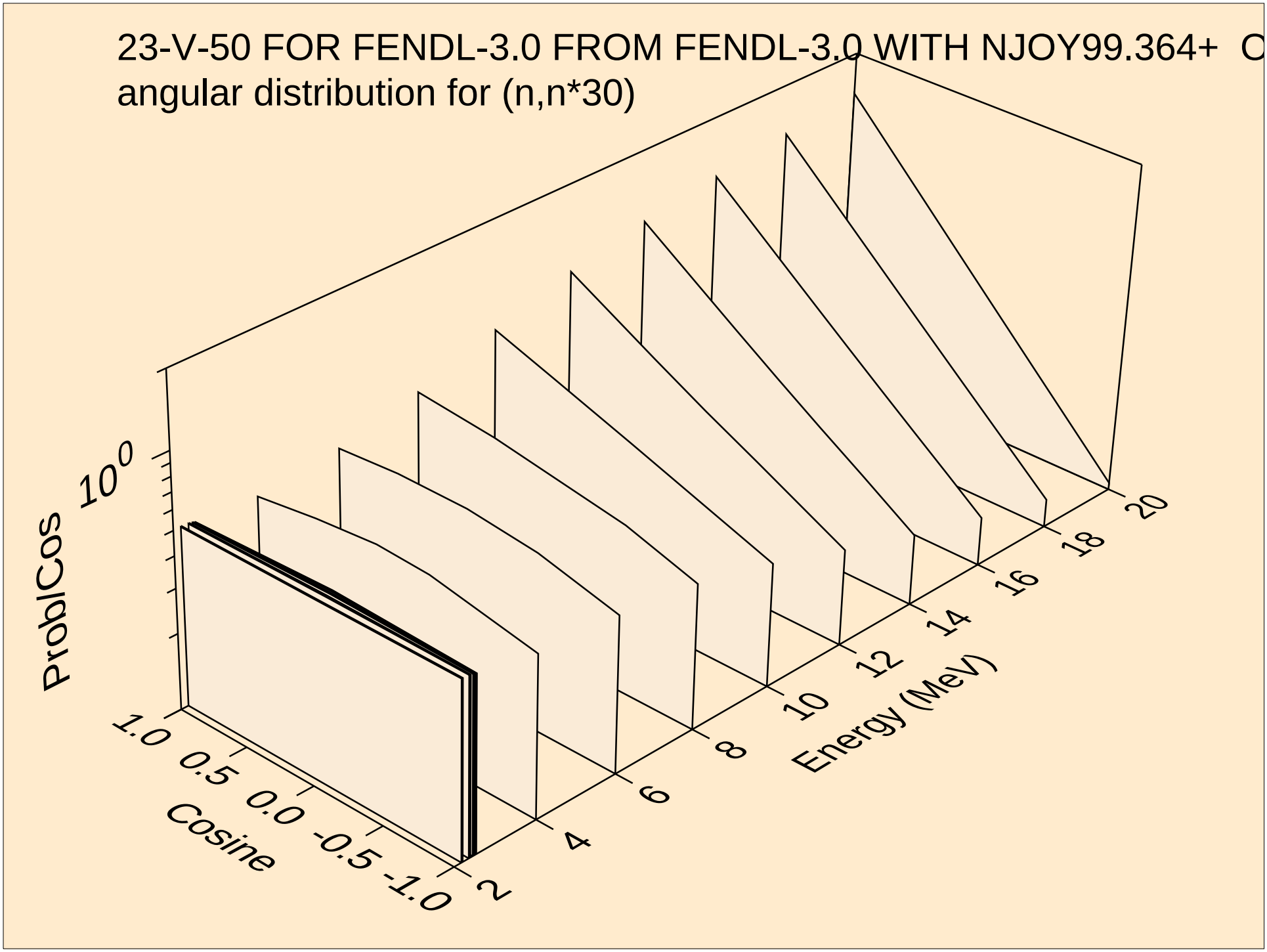

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*25)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

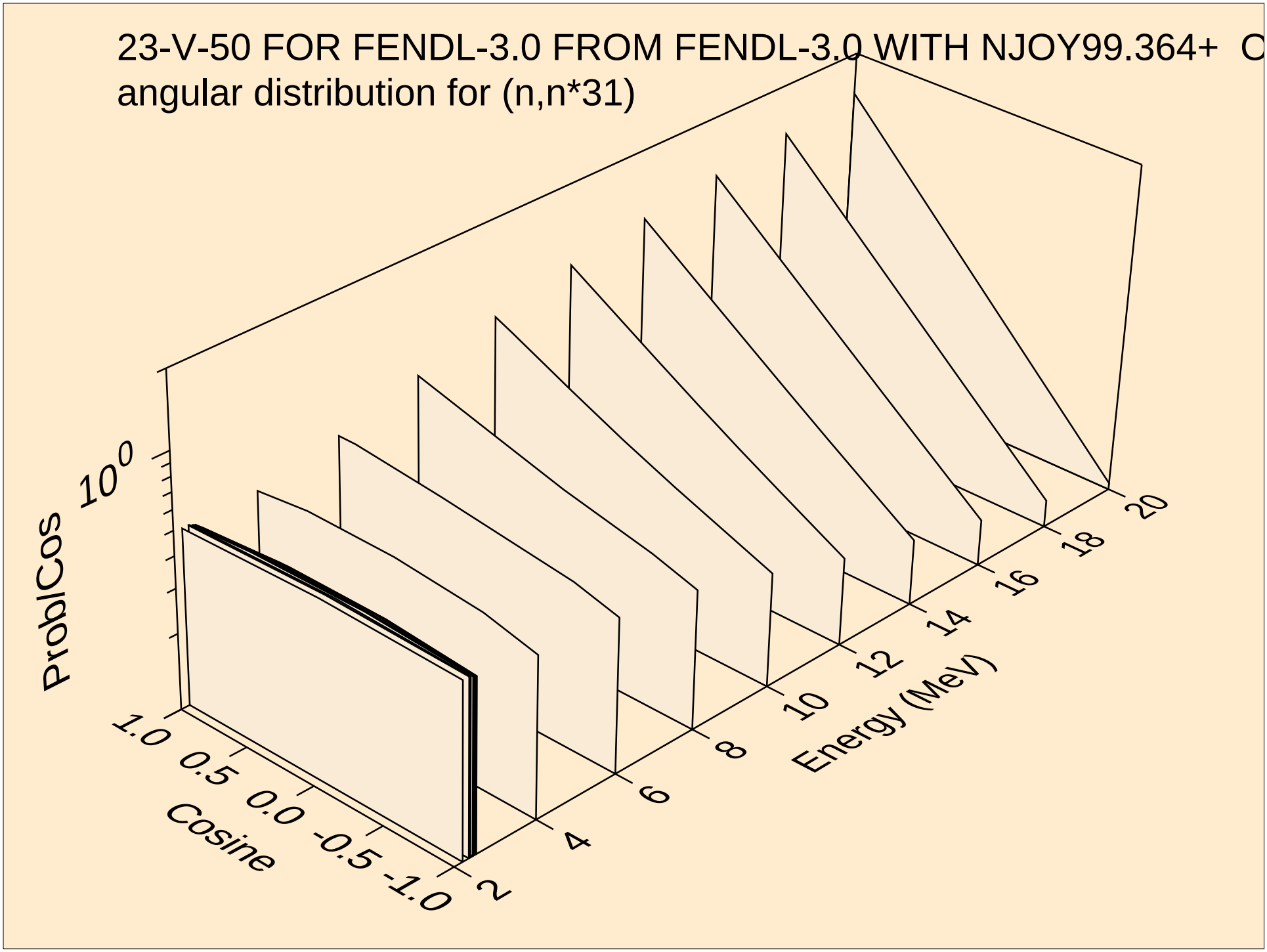

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*26)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

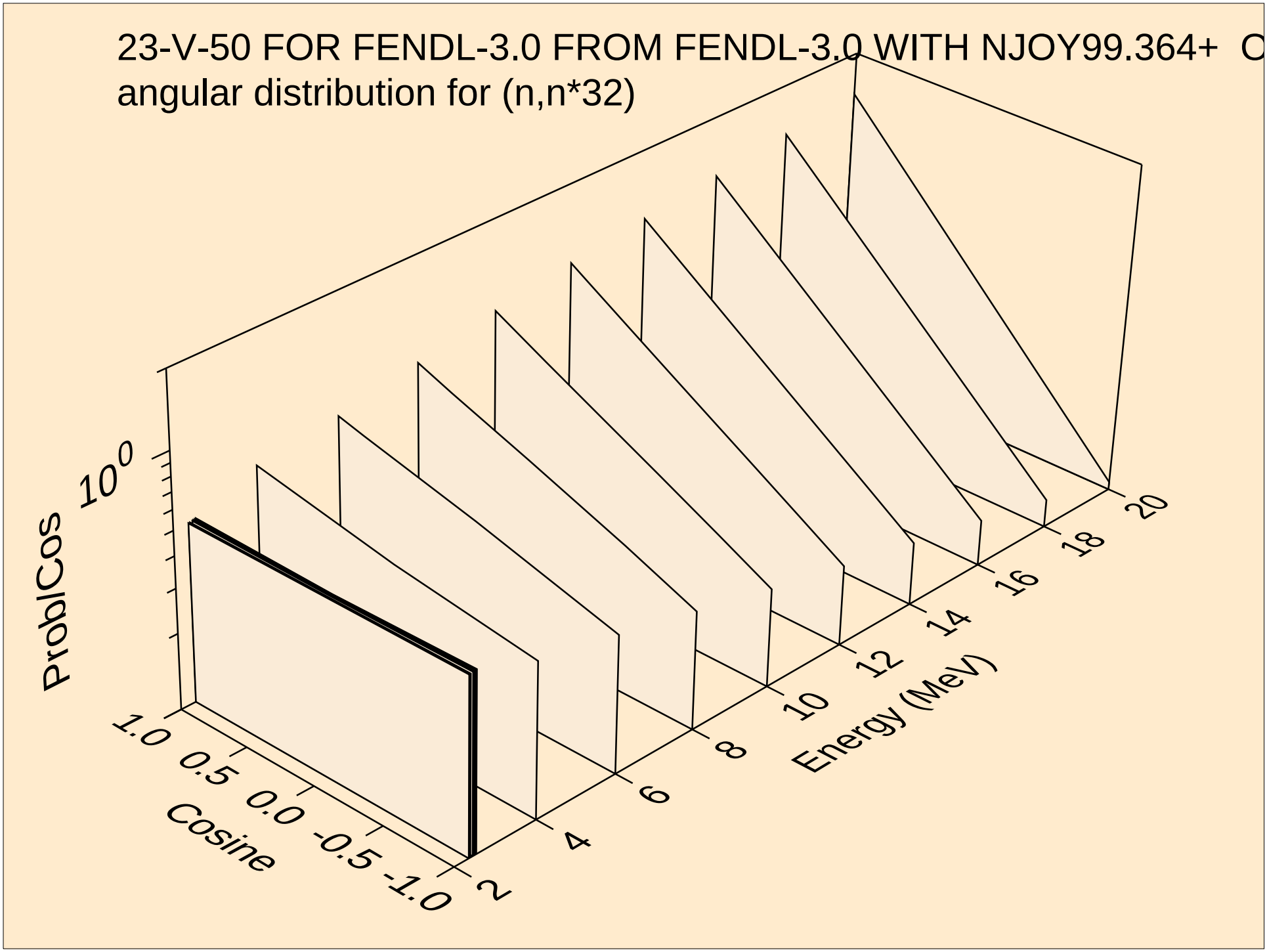

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*27)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

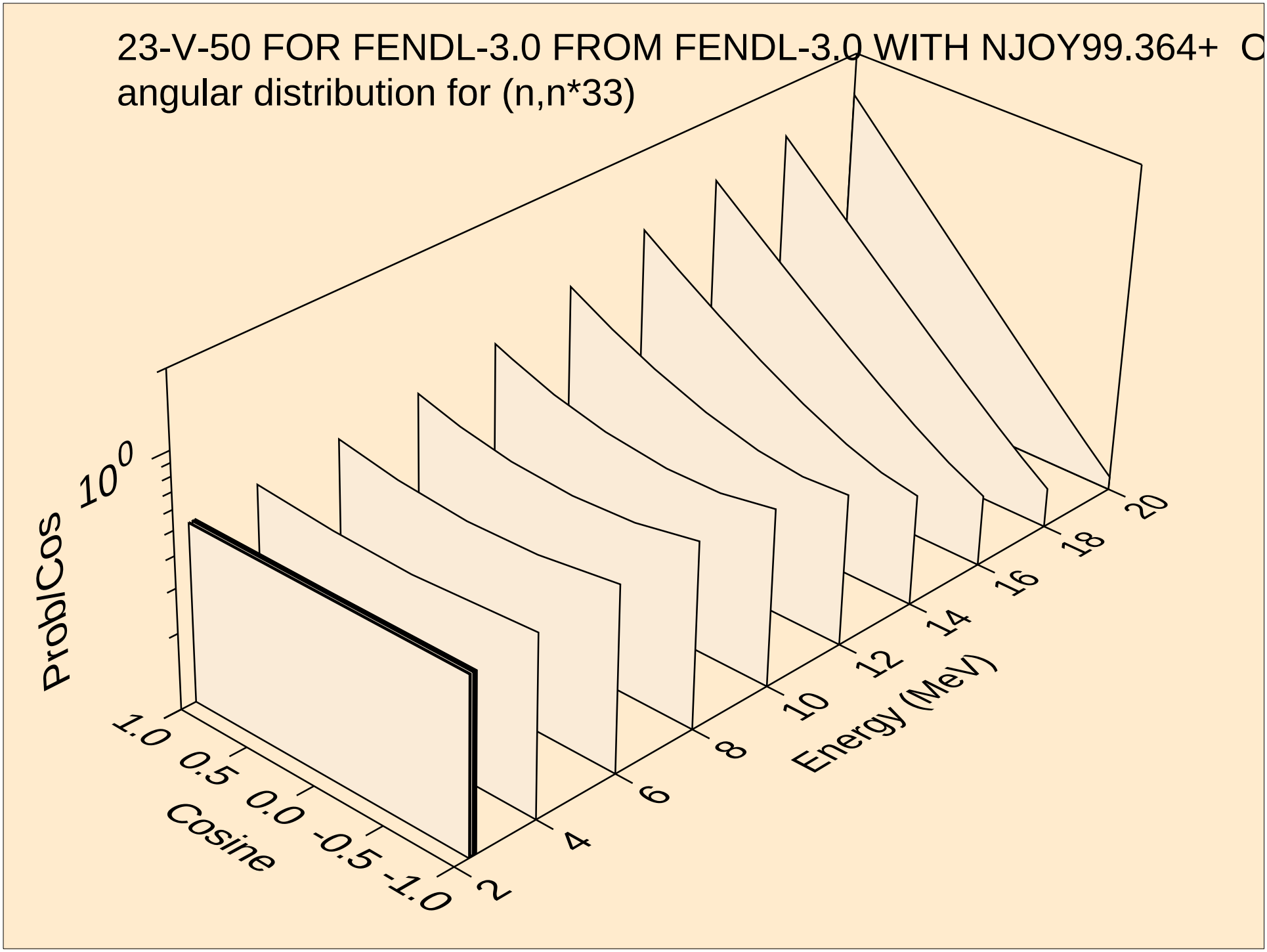

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*28)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

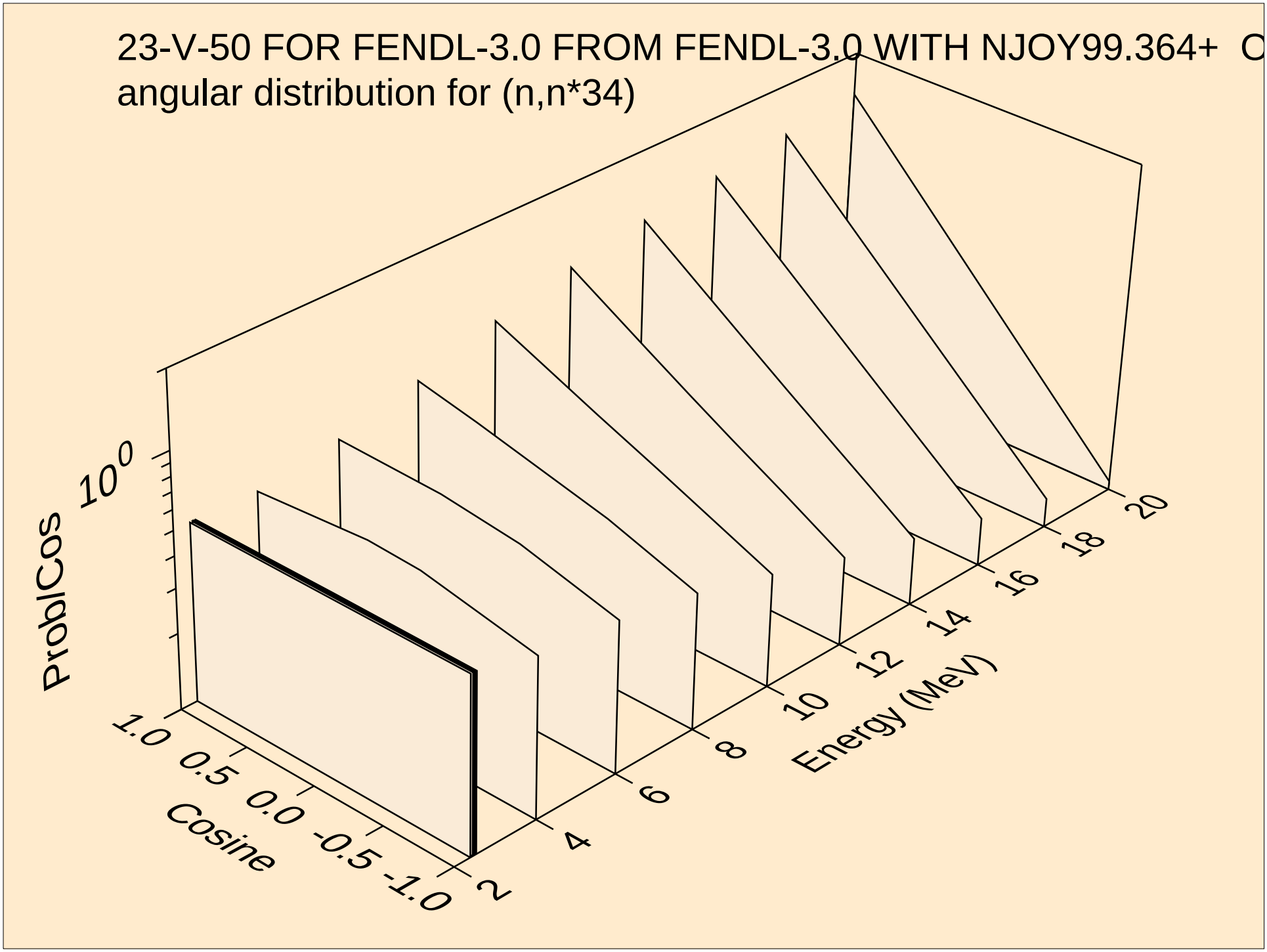

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*29)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

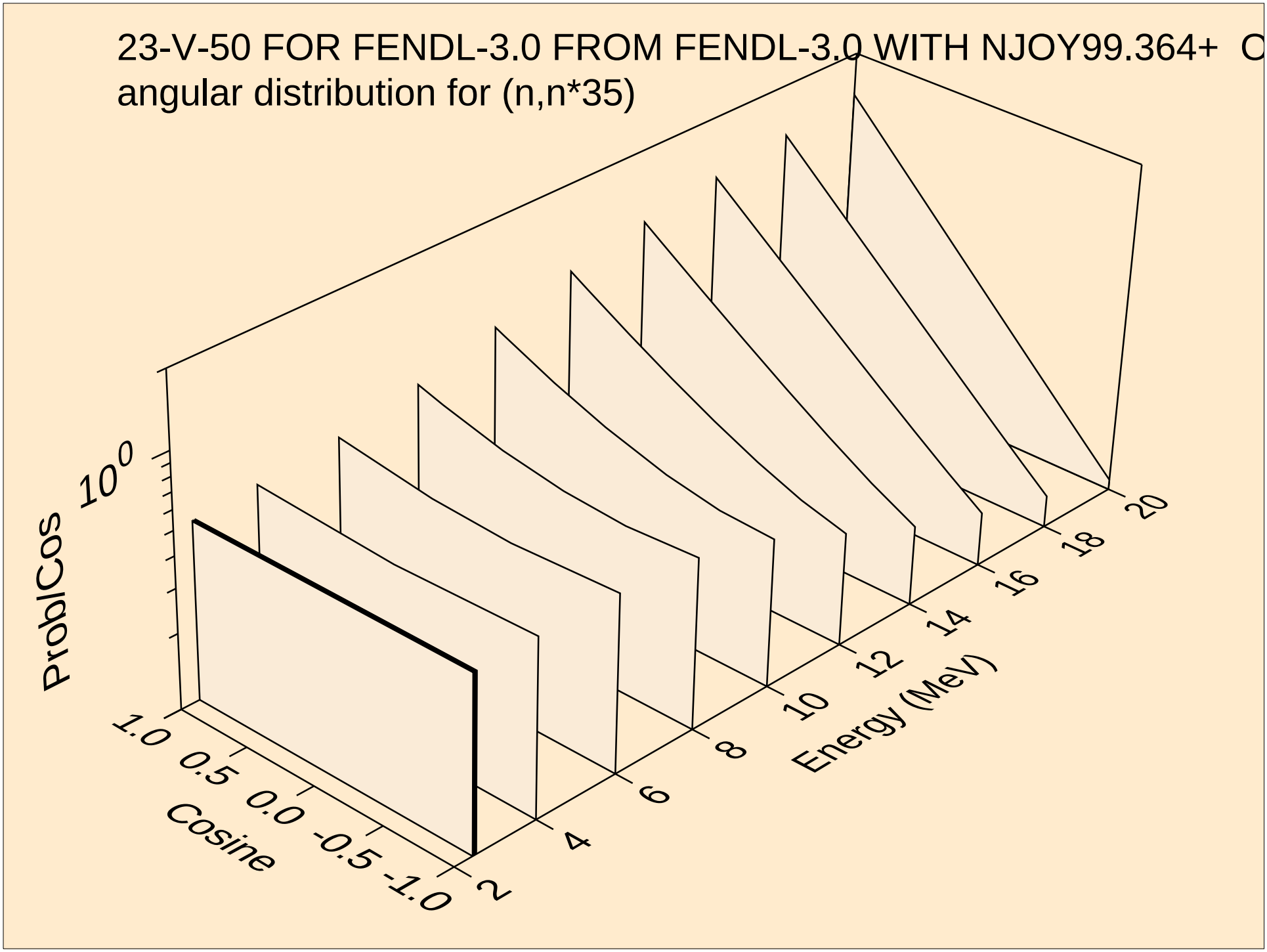

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*30)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

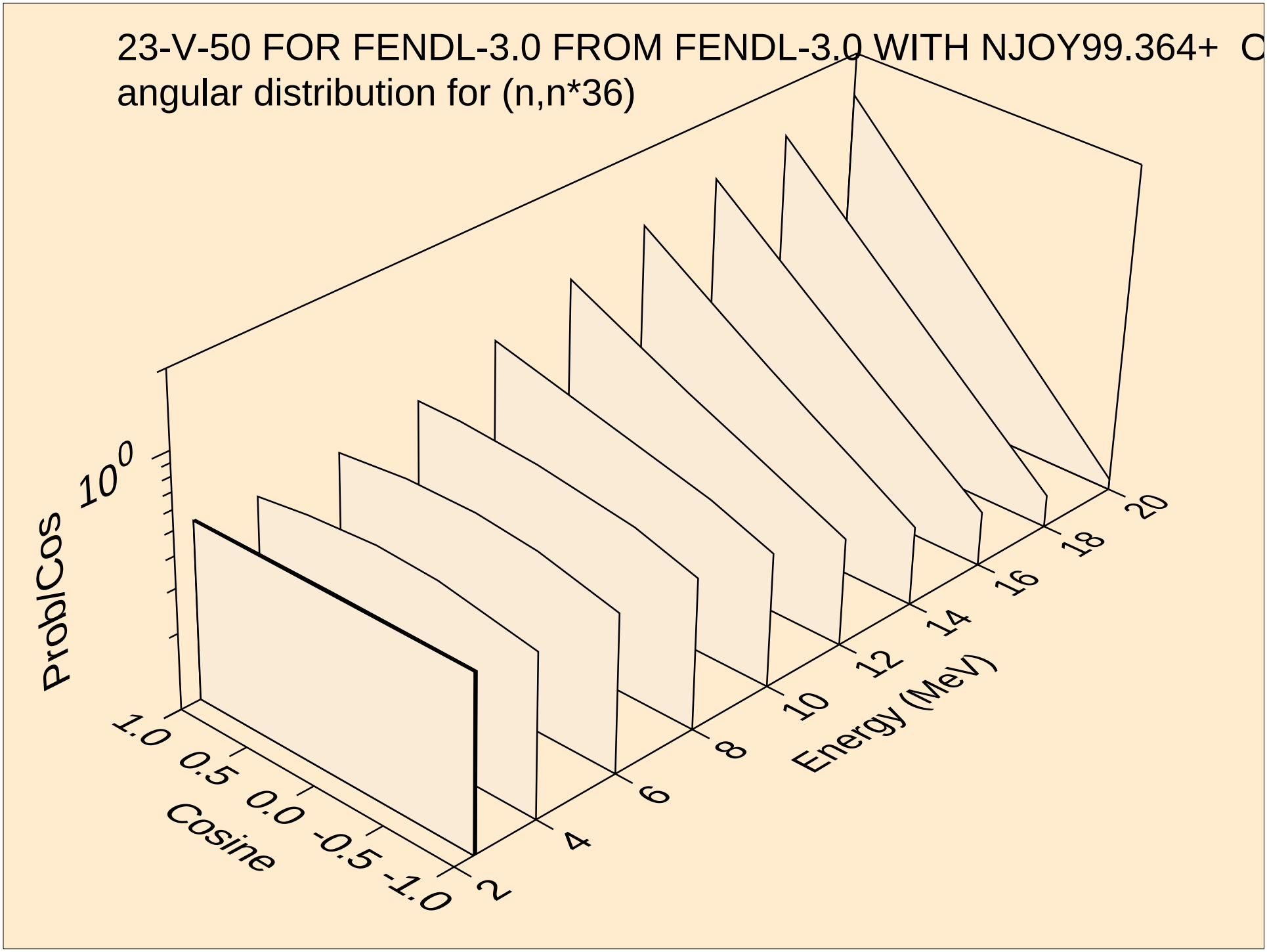

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*31)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

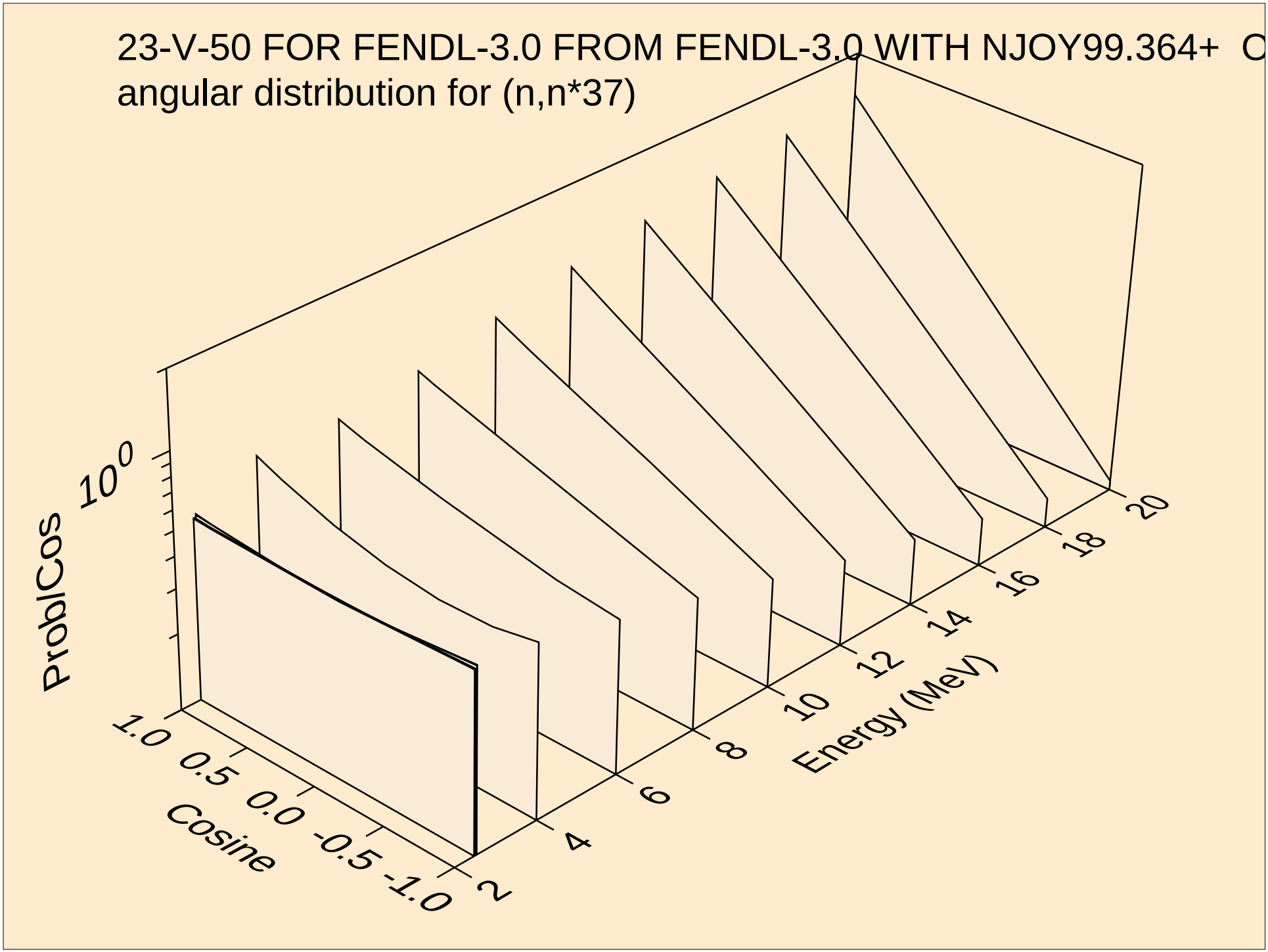

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*32)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

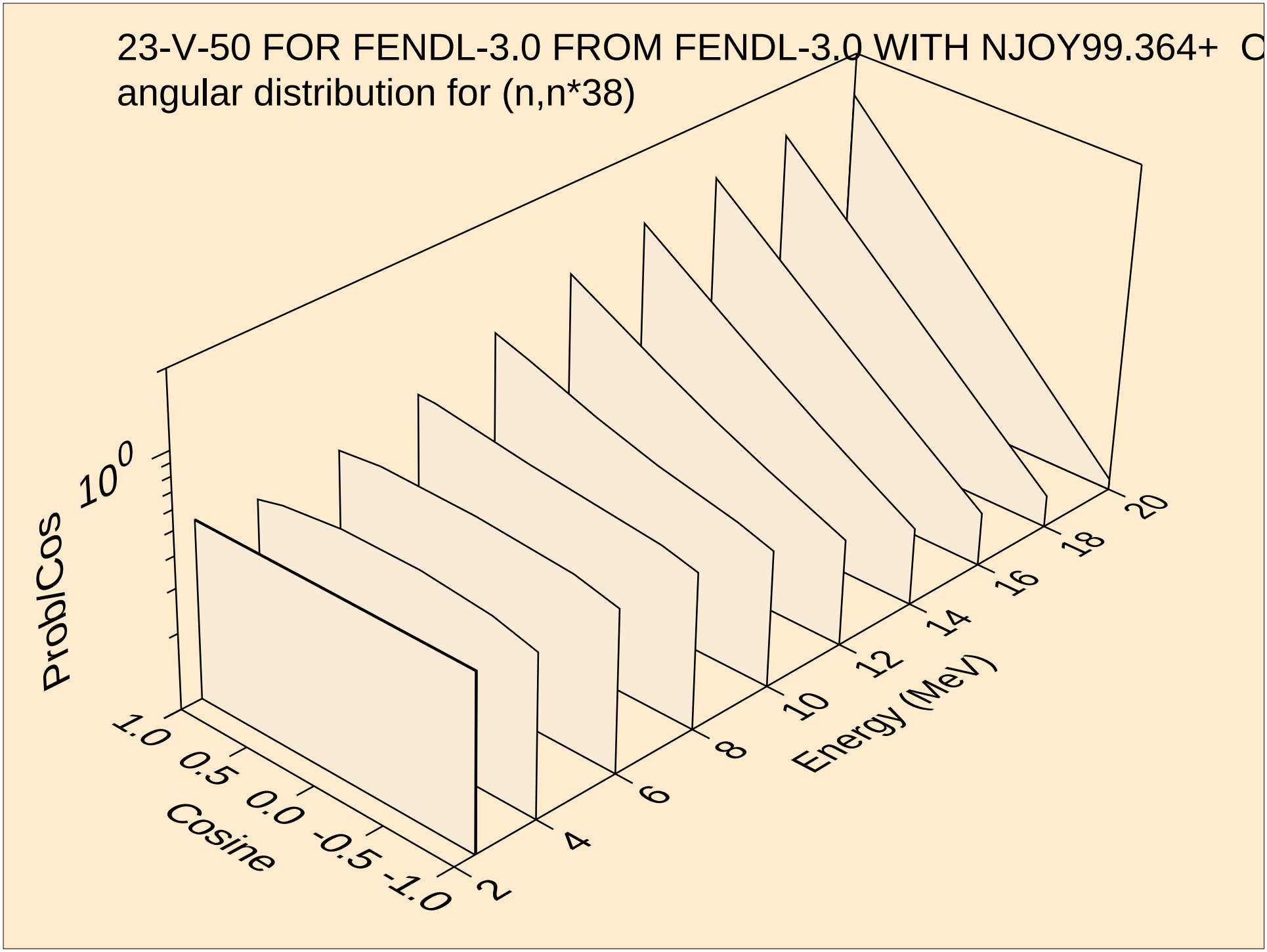

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*33)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

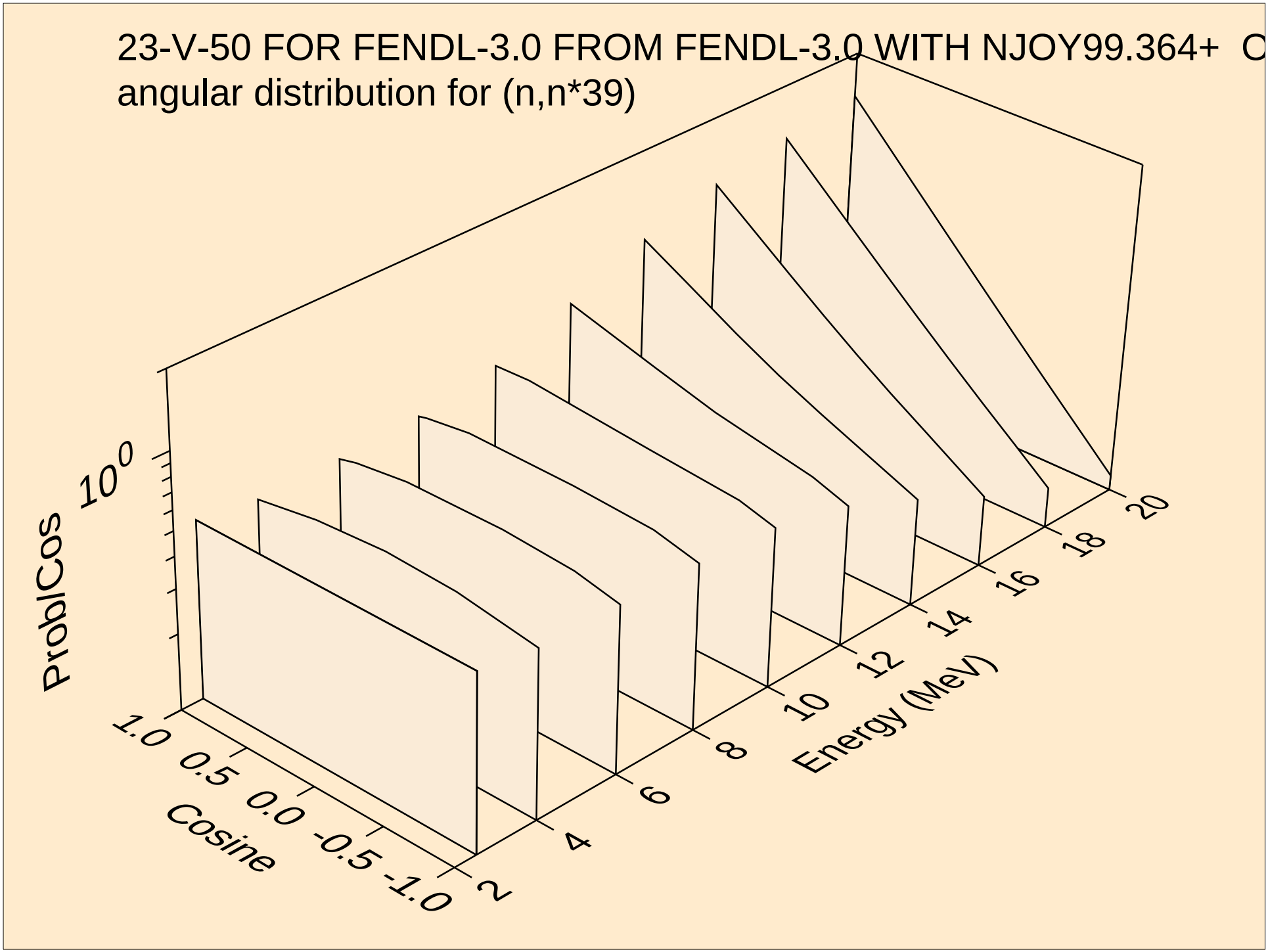

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*34)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

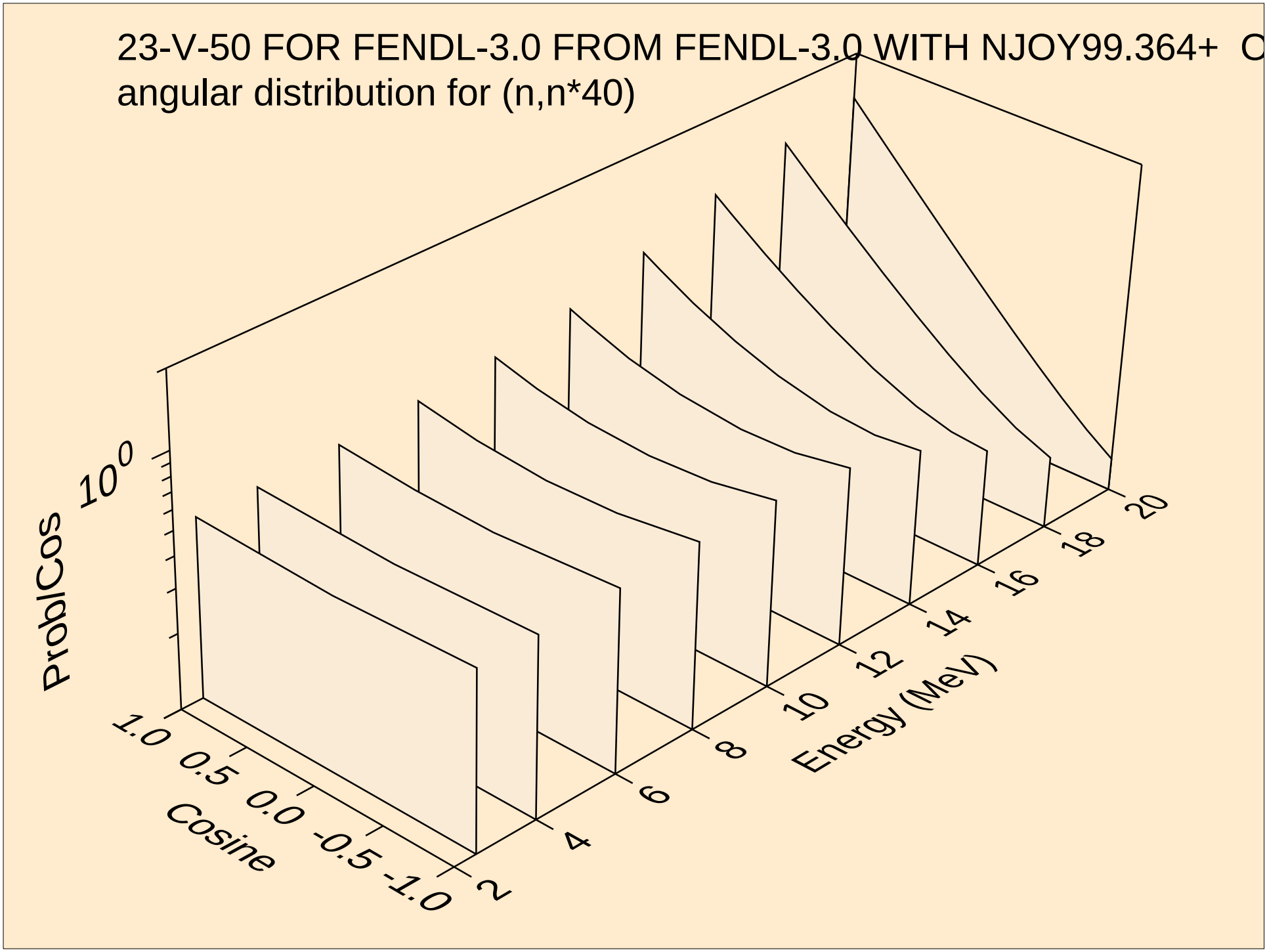

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*35)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

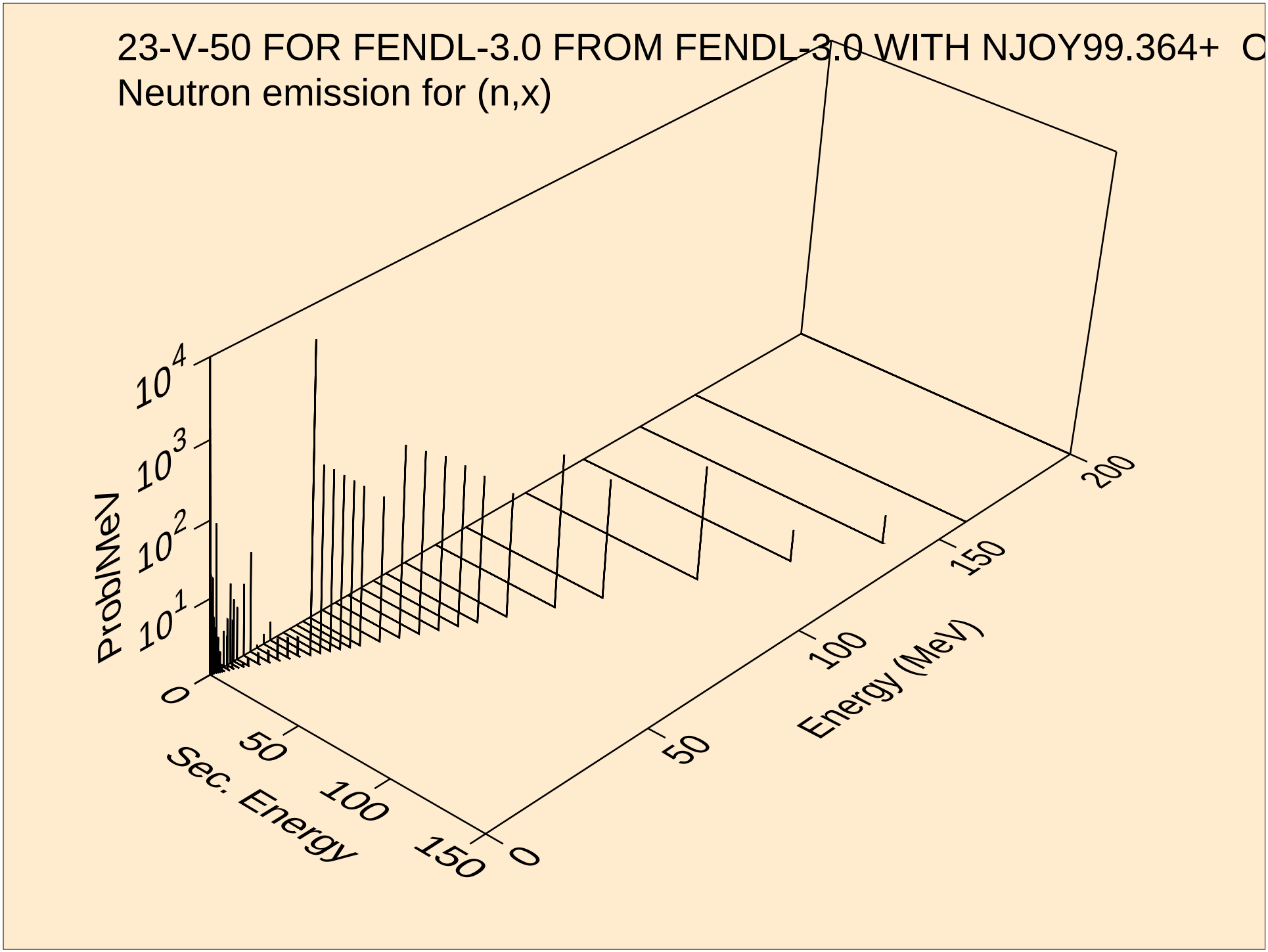

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*36)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

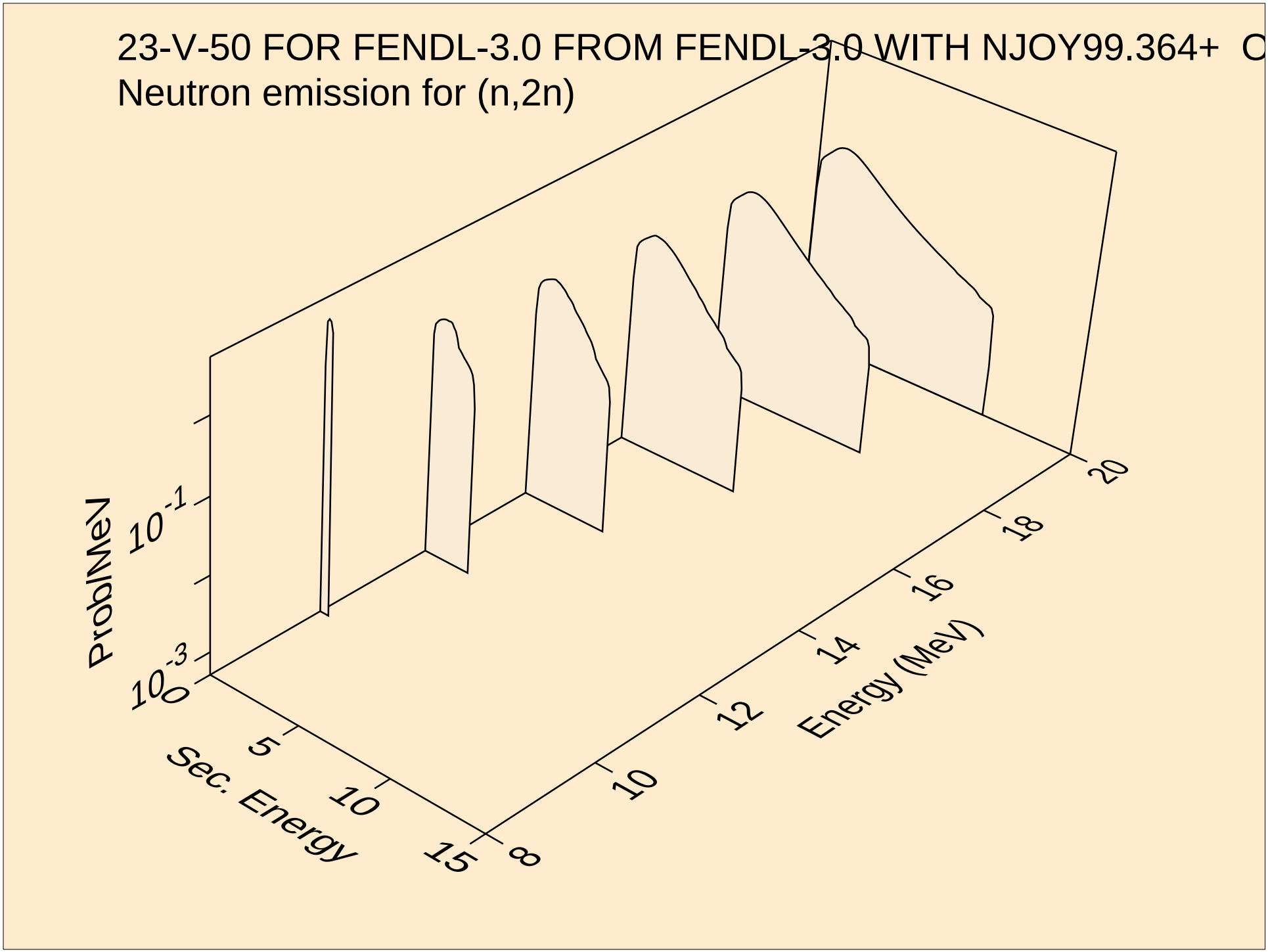

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*37)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

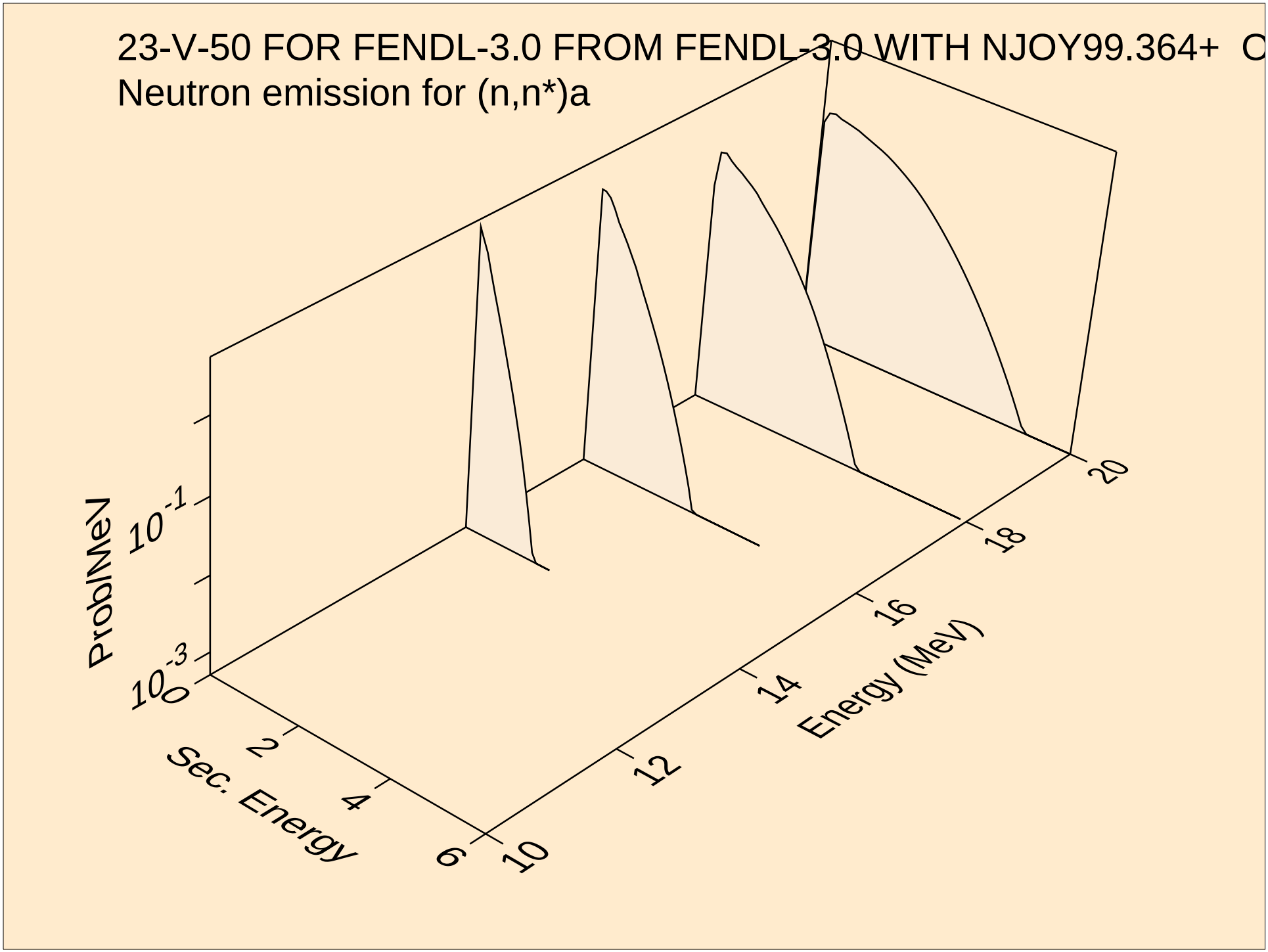

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*38)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

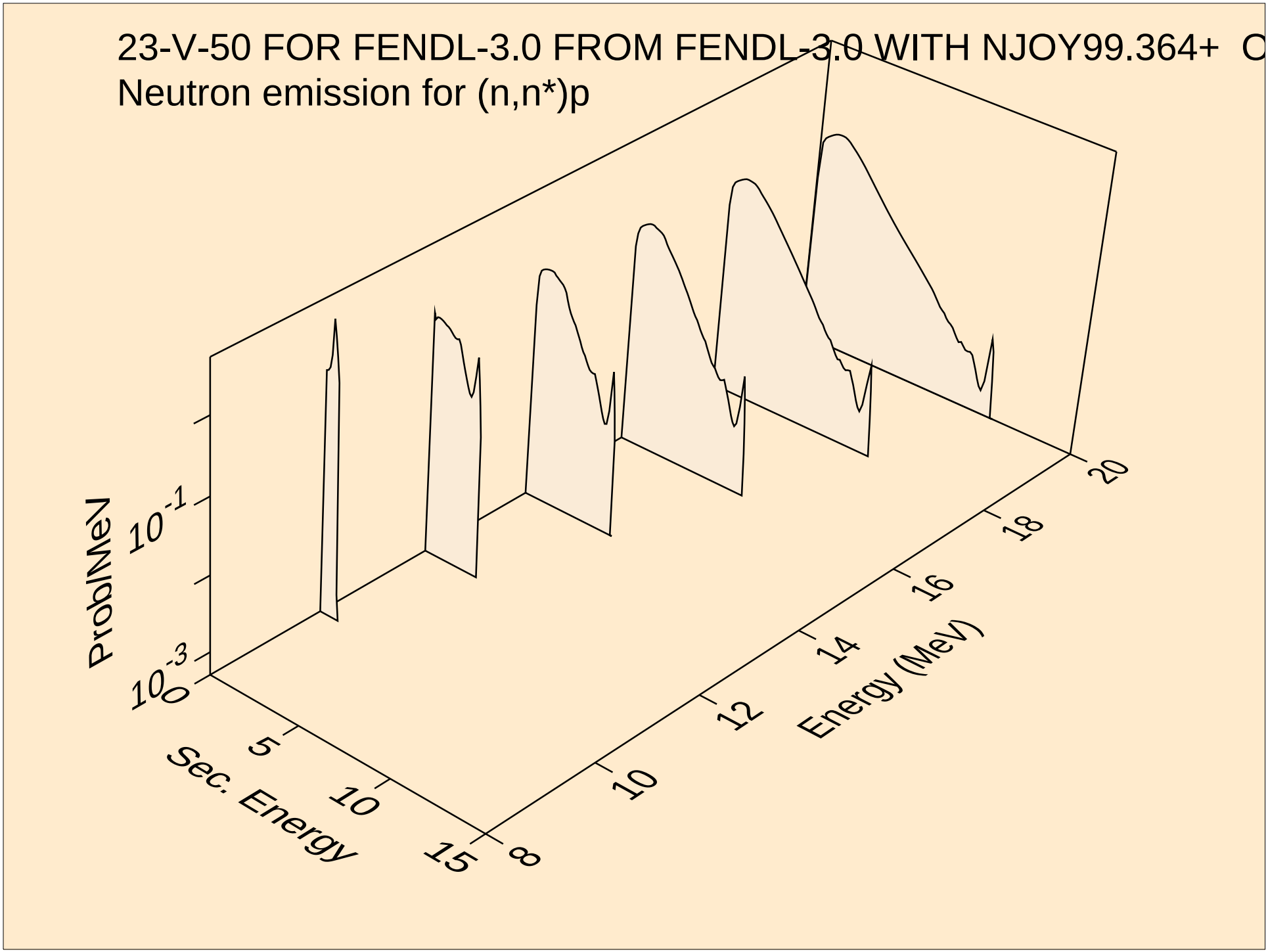

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*39)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

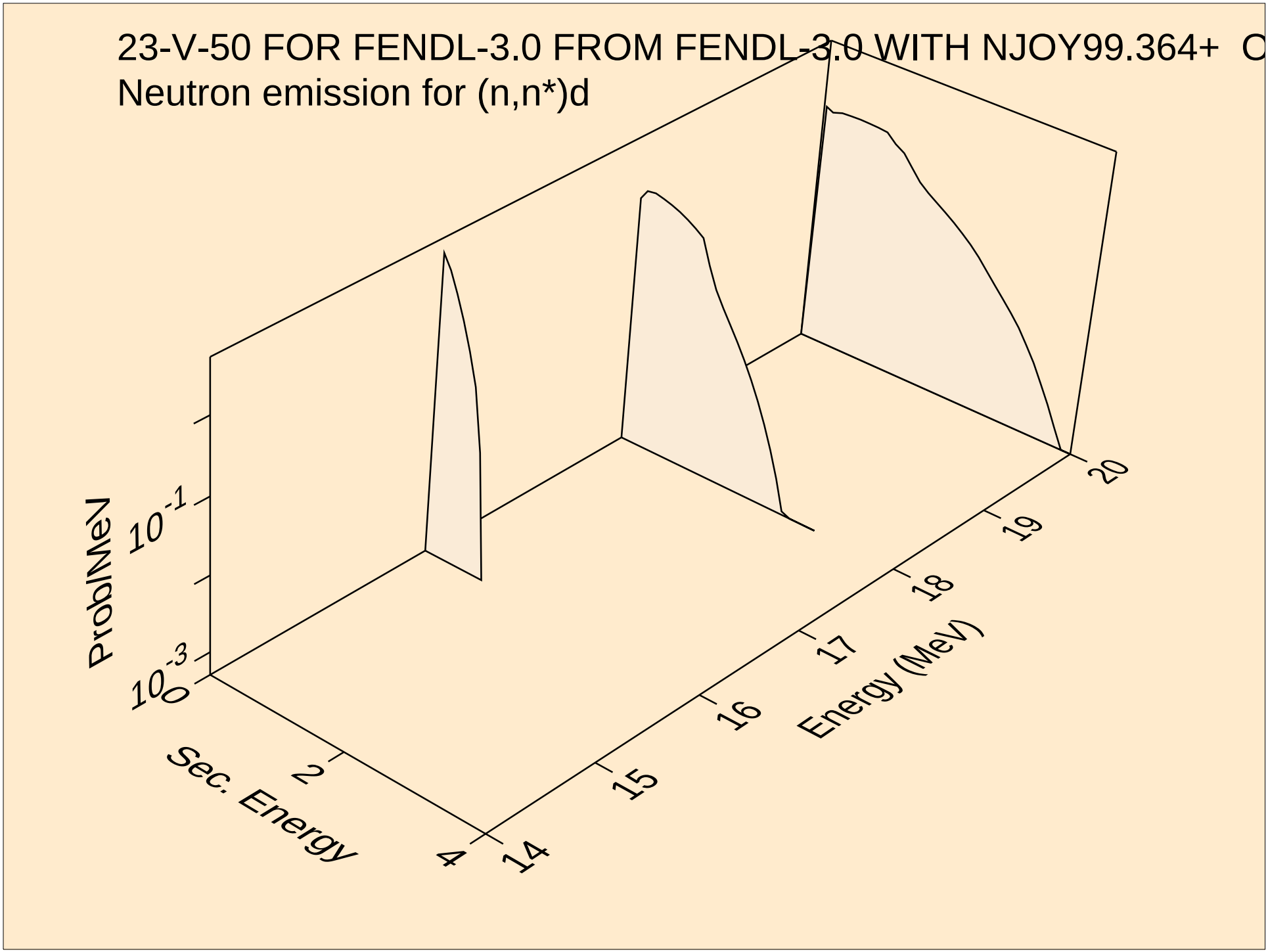

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
angular distribution for (n,n*40)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

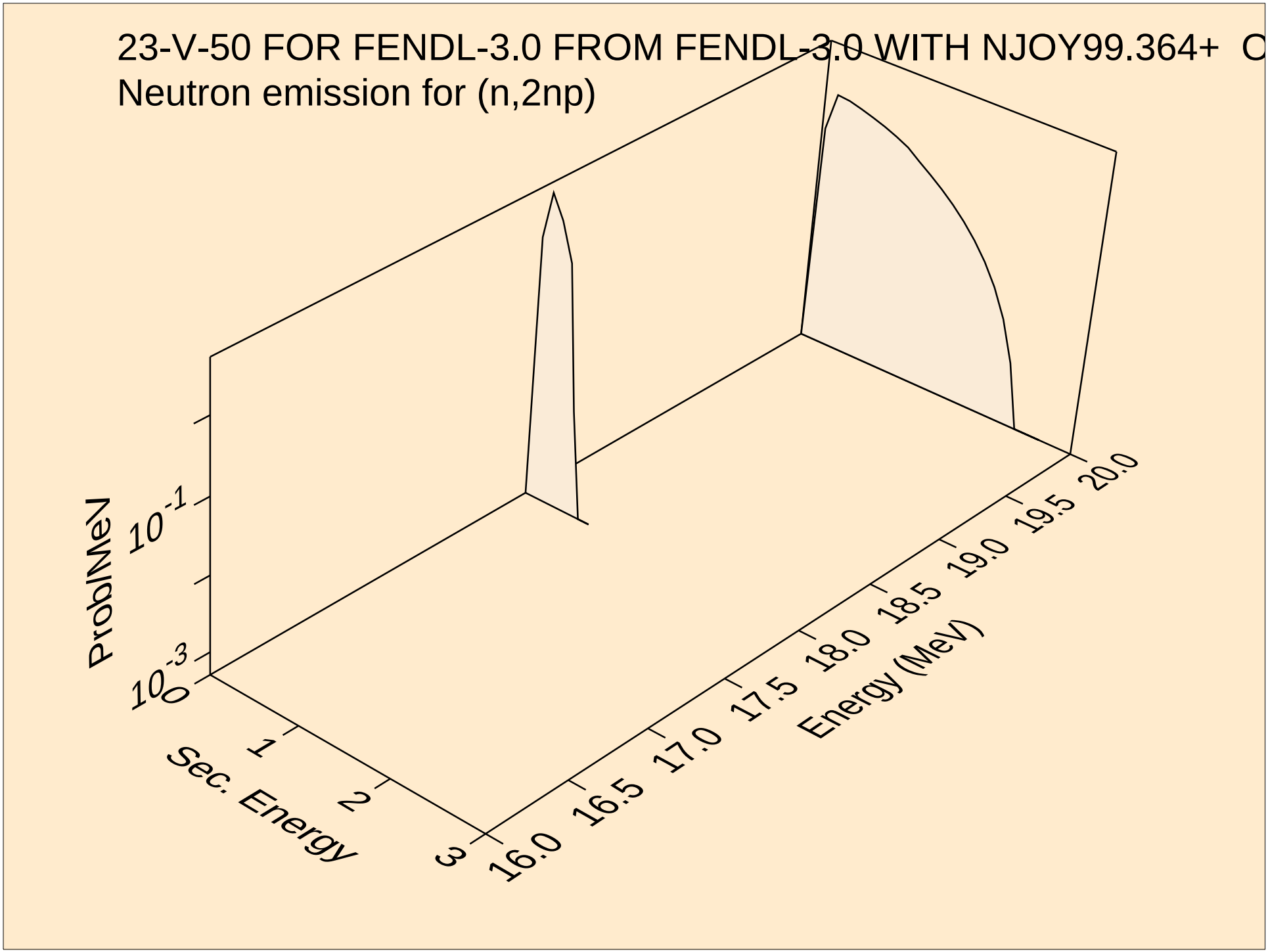

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,x)
Prob/MeV
10^4
10^3
10^2
10^1
0
50
100
150
Sec. Energy
0
50
100
150
200
Energy (MeV)

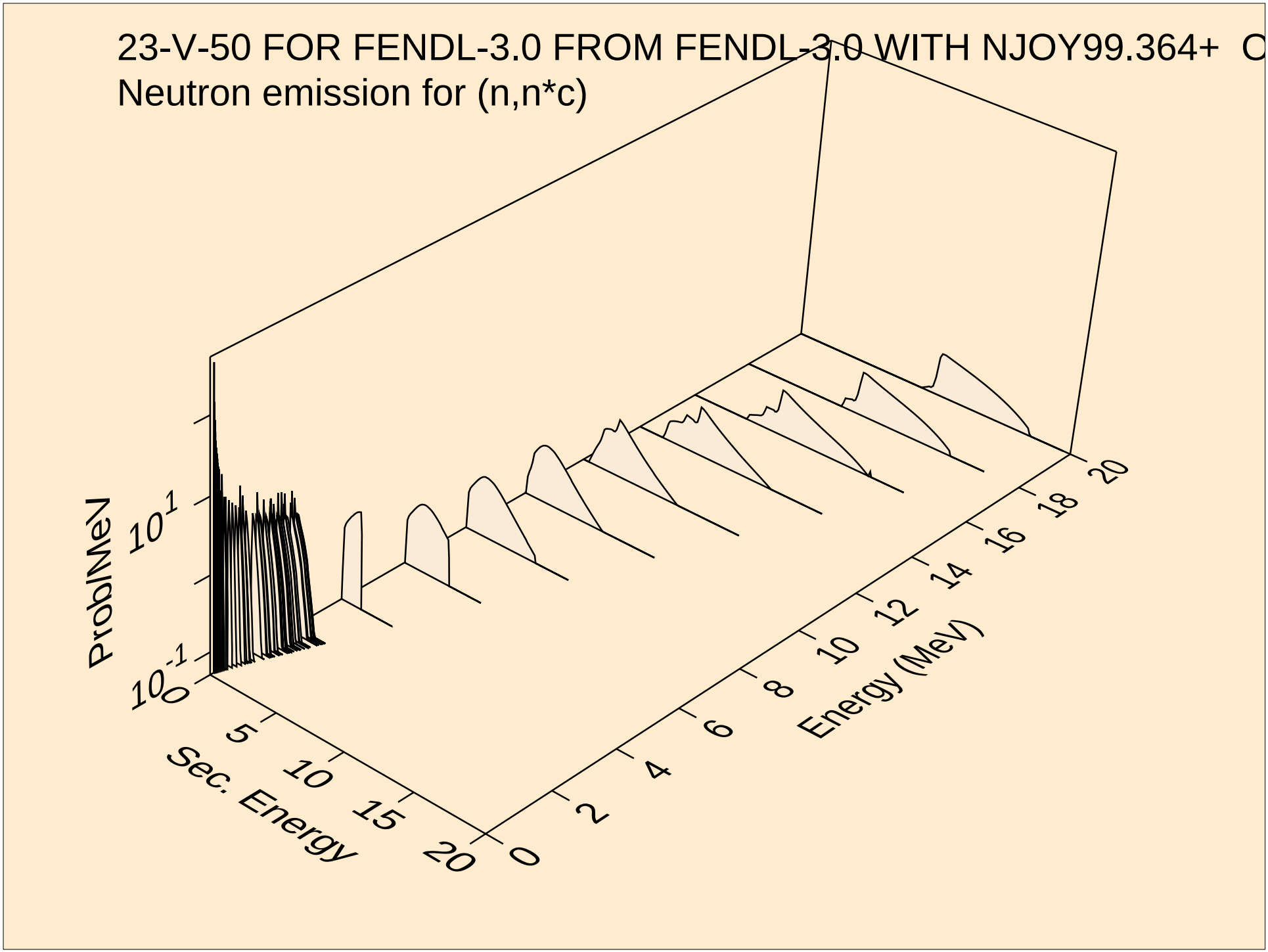

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,2n)
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
8
10
12
14
16
18
20
Energy (MeV)

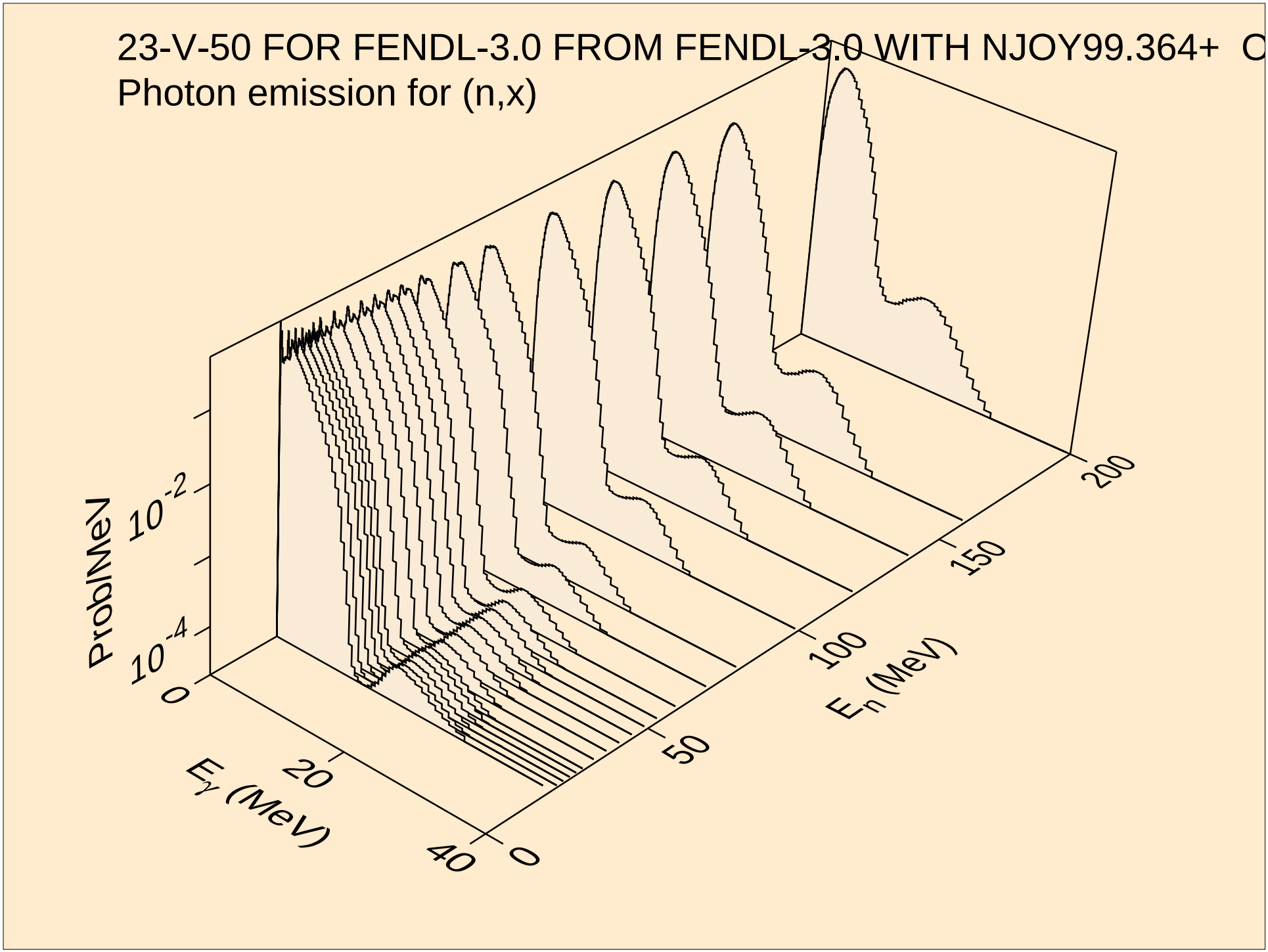

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,n*)a
Prob/MeV
10-1
10-3
0
2
4
6
Sec. Energy
10
12
14
16
18
20
Energy (MeV)

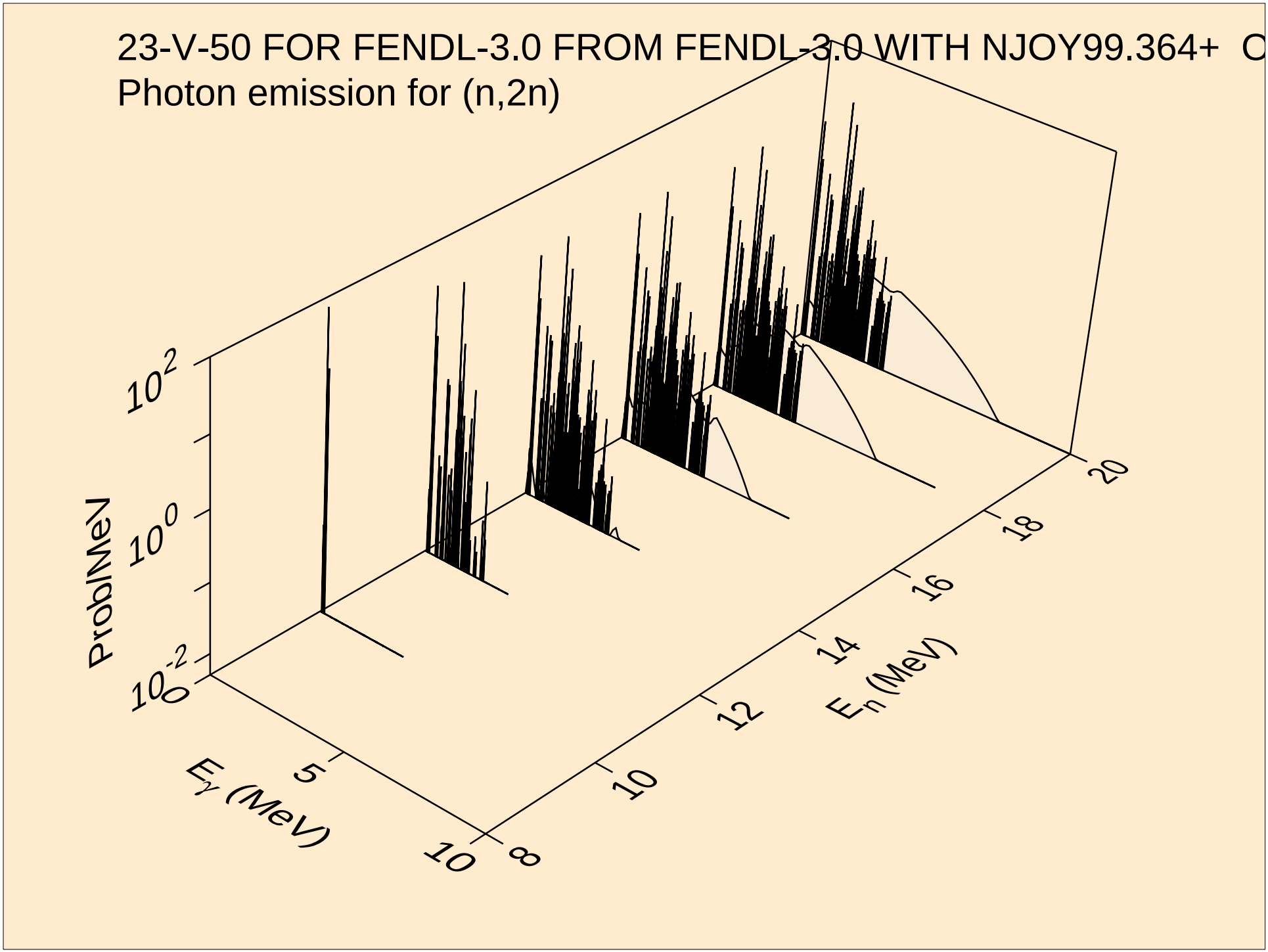

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,n*)p
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
8
10
12
14
16
18
20
Energy (MeV)

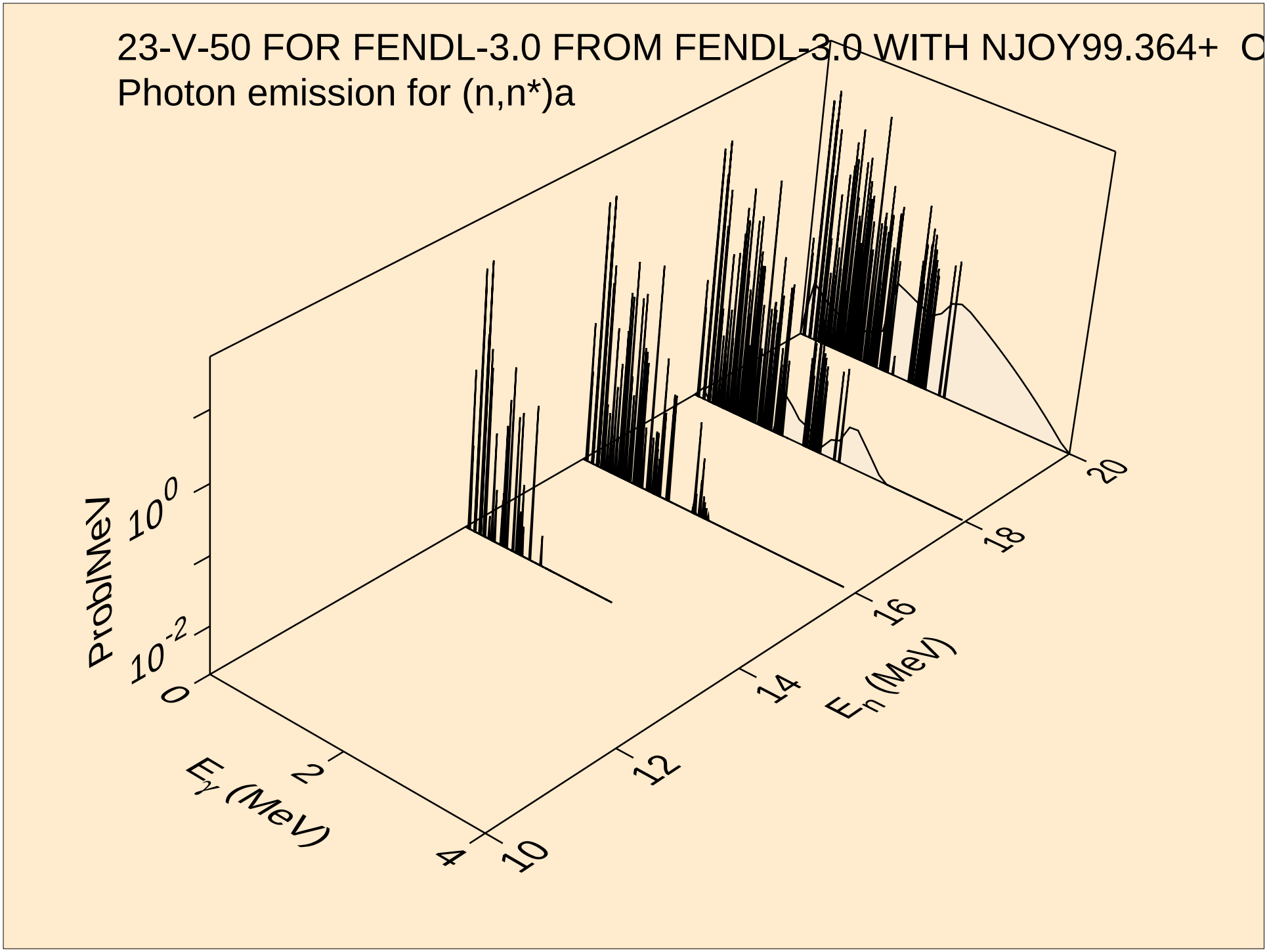

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,n*)d
Prob/MeV
10-1
10-3
0
Sec. Energy
2
4
14
15
16
17
18
19
20
Energy (MeV)

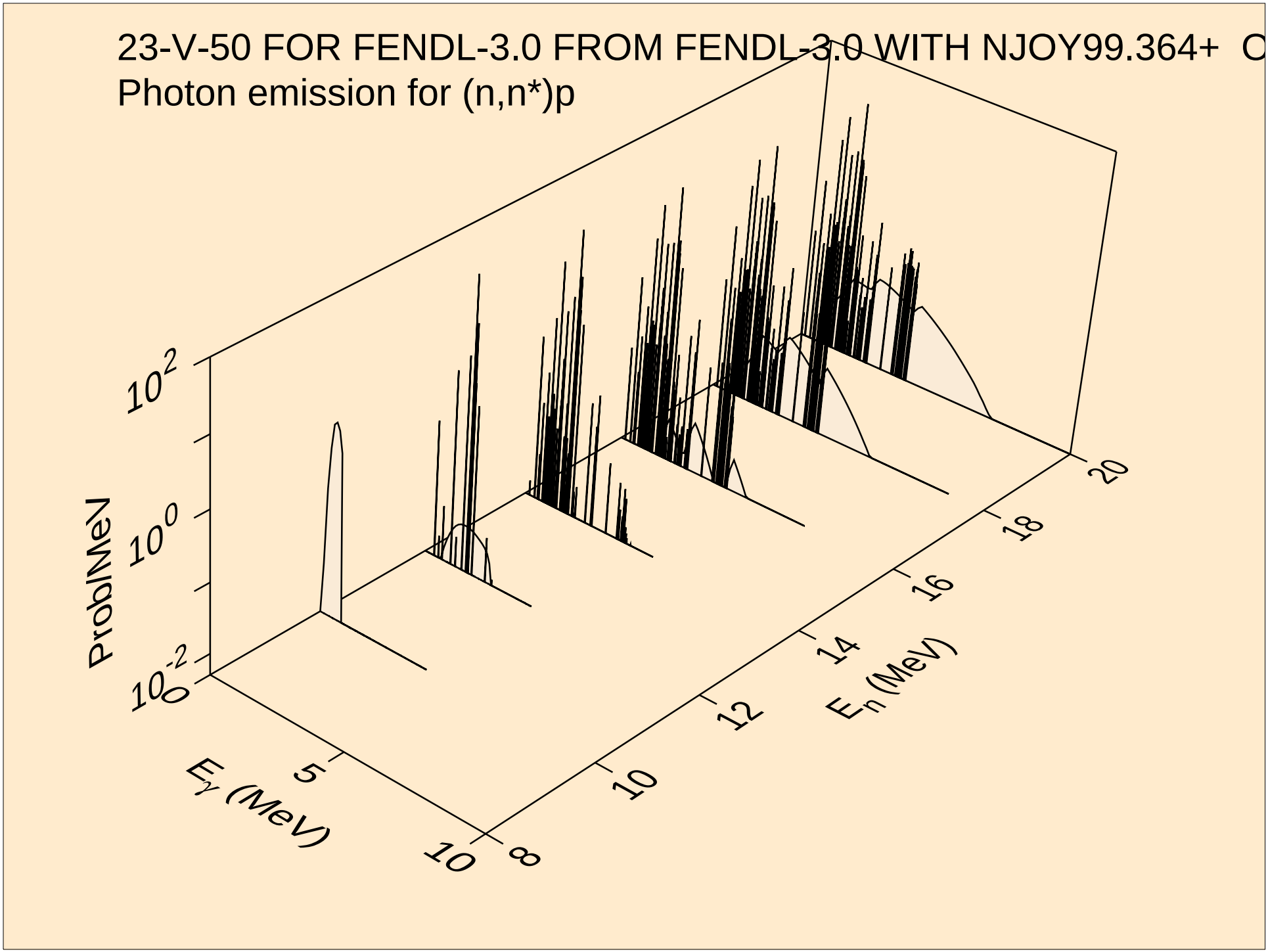

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,2np)
Prob/MeV
10-1
10-3
0
1
2
3
Sec. Energy
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)

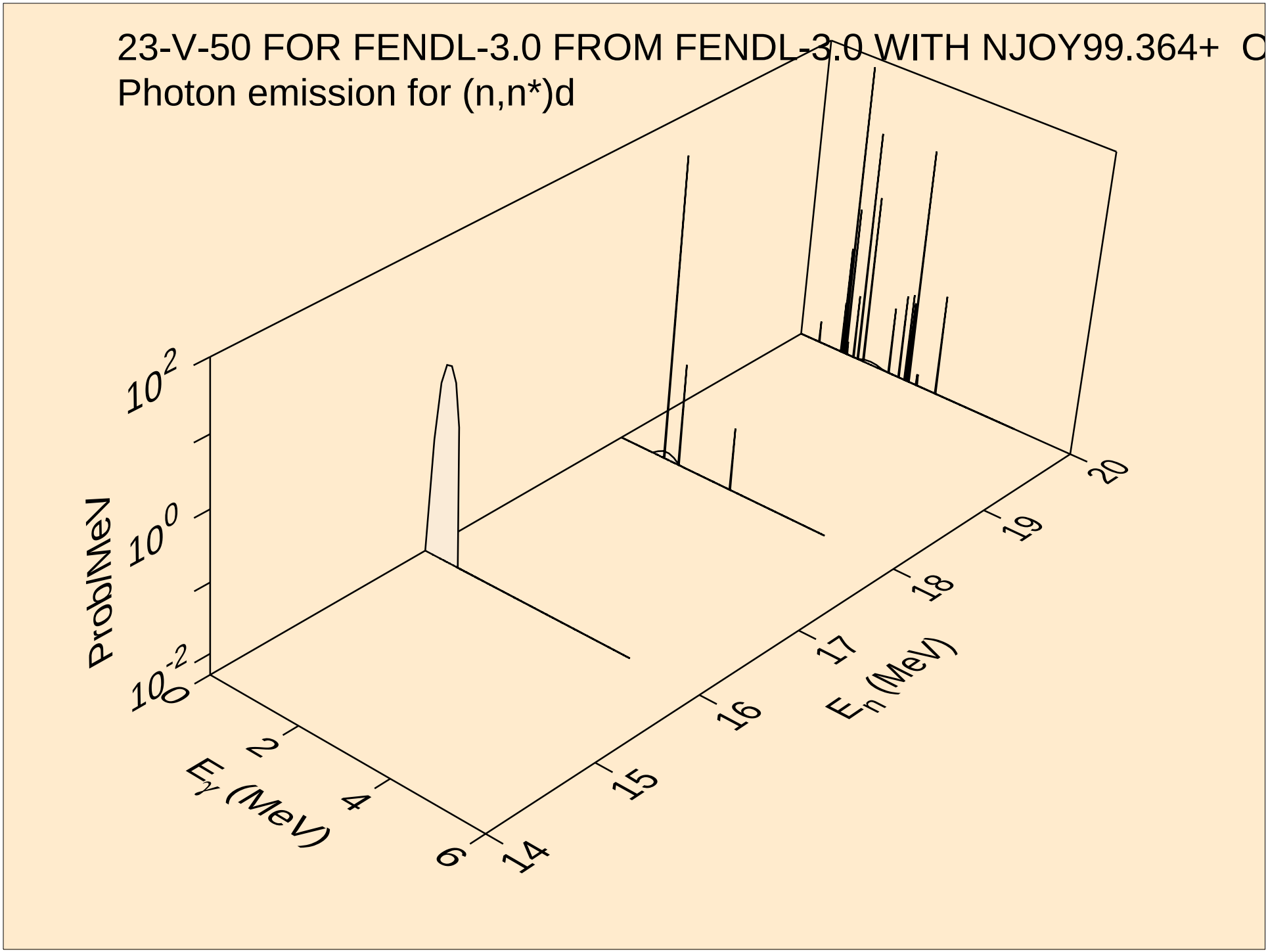

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Neutron emission for (n,n*c)
Prob/MeV
10^1
10^-1
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

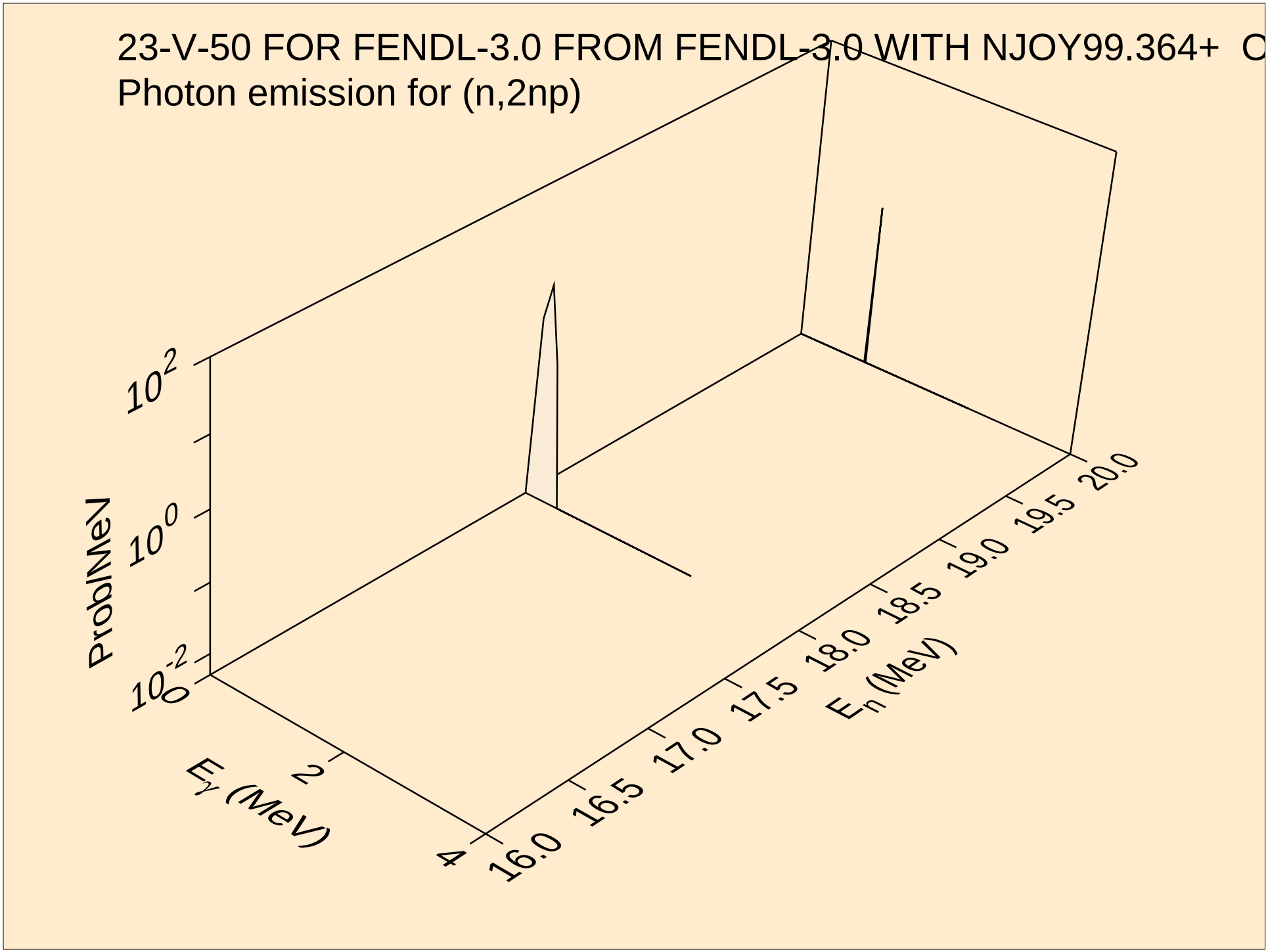

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,x)
Prob/MeV
10-2
10-4
0
20
40
Eγ (MeV)
0
50
100
150
200
En (MeV)

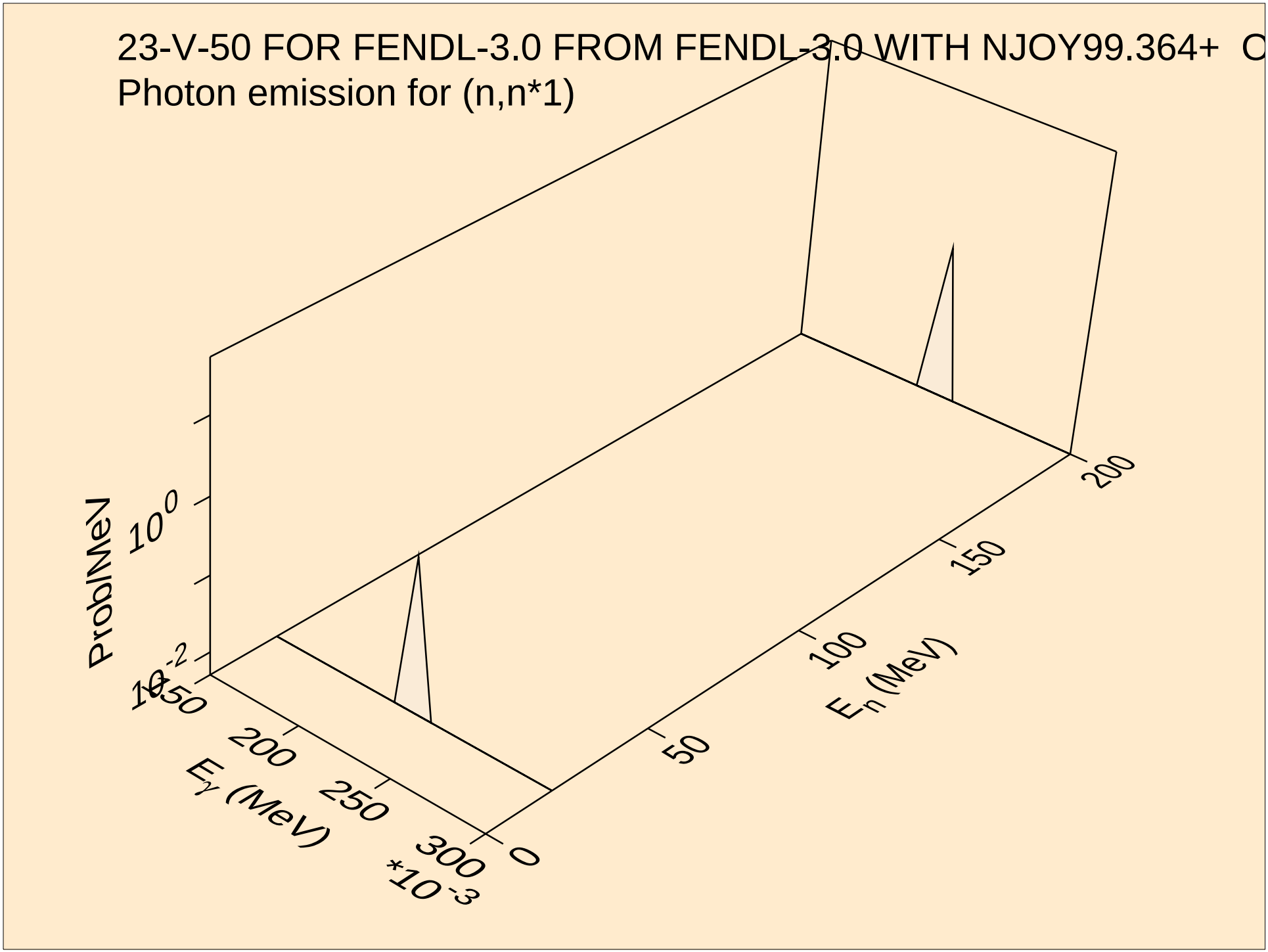

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,2n)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
5
10
E_γ (MeV)
8
10
12
14
16
18
20
E_n (MeV)

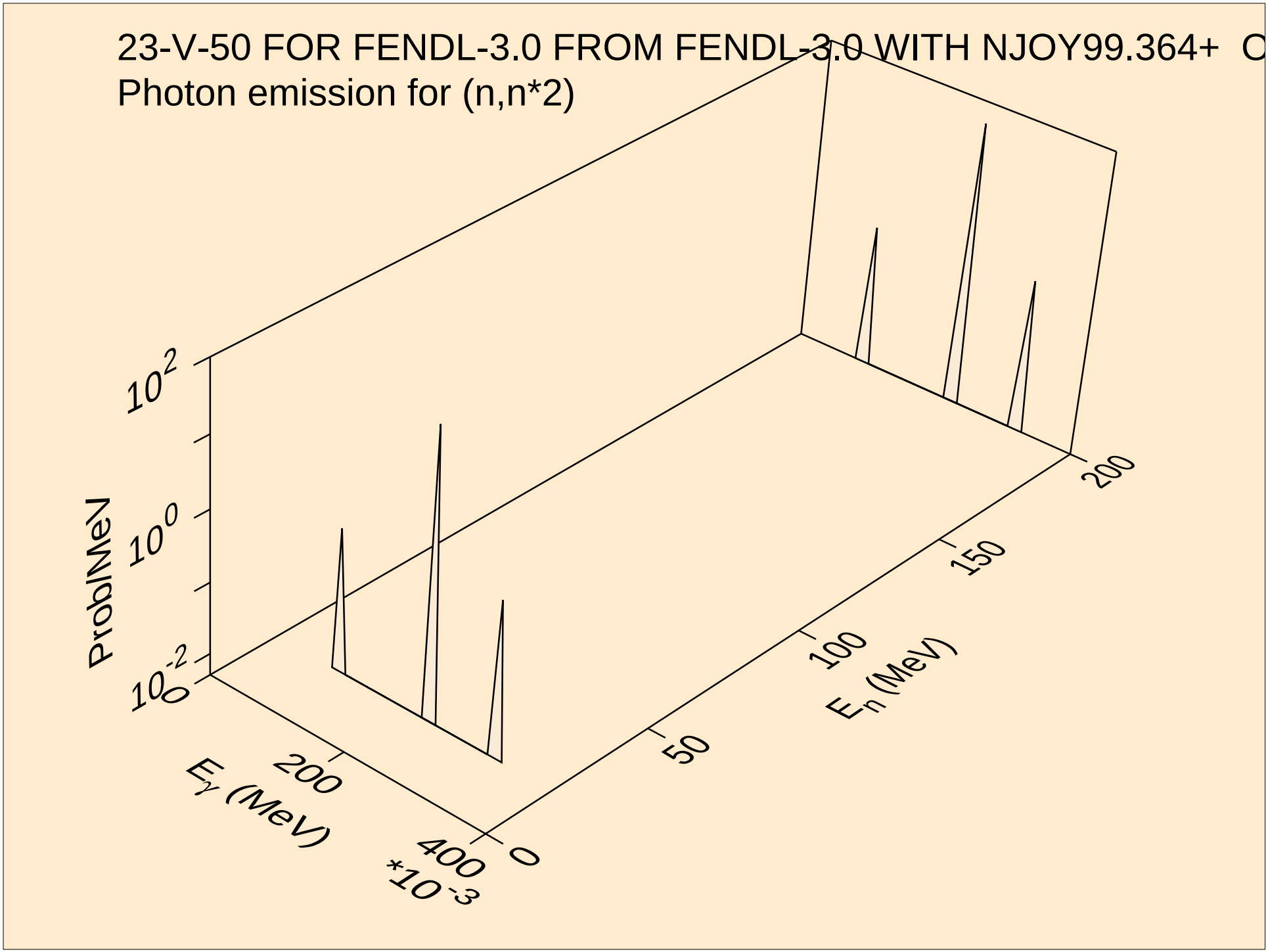

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*)a
Prob/MeV
10^0
10^-2
0
2
4
E_γ (MeV)
10
12
14
16
18
20
E_n (MeV)

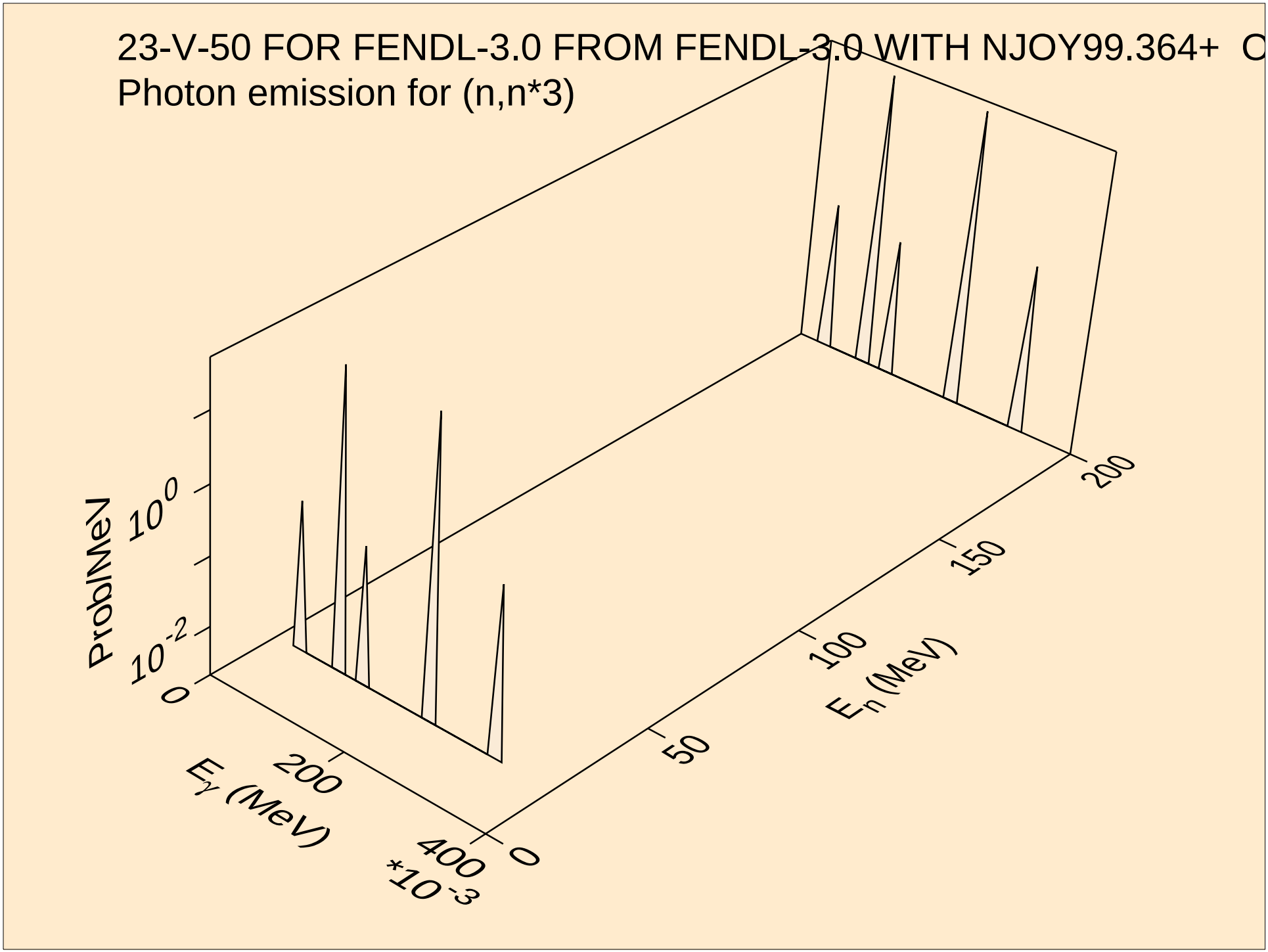

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*)p
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
5
10
E_γ (MeV)
8
10
12
14
16
18
20
E_n (MeV)

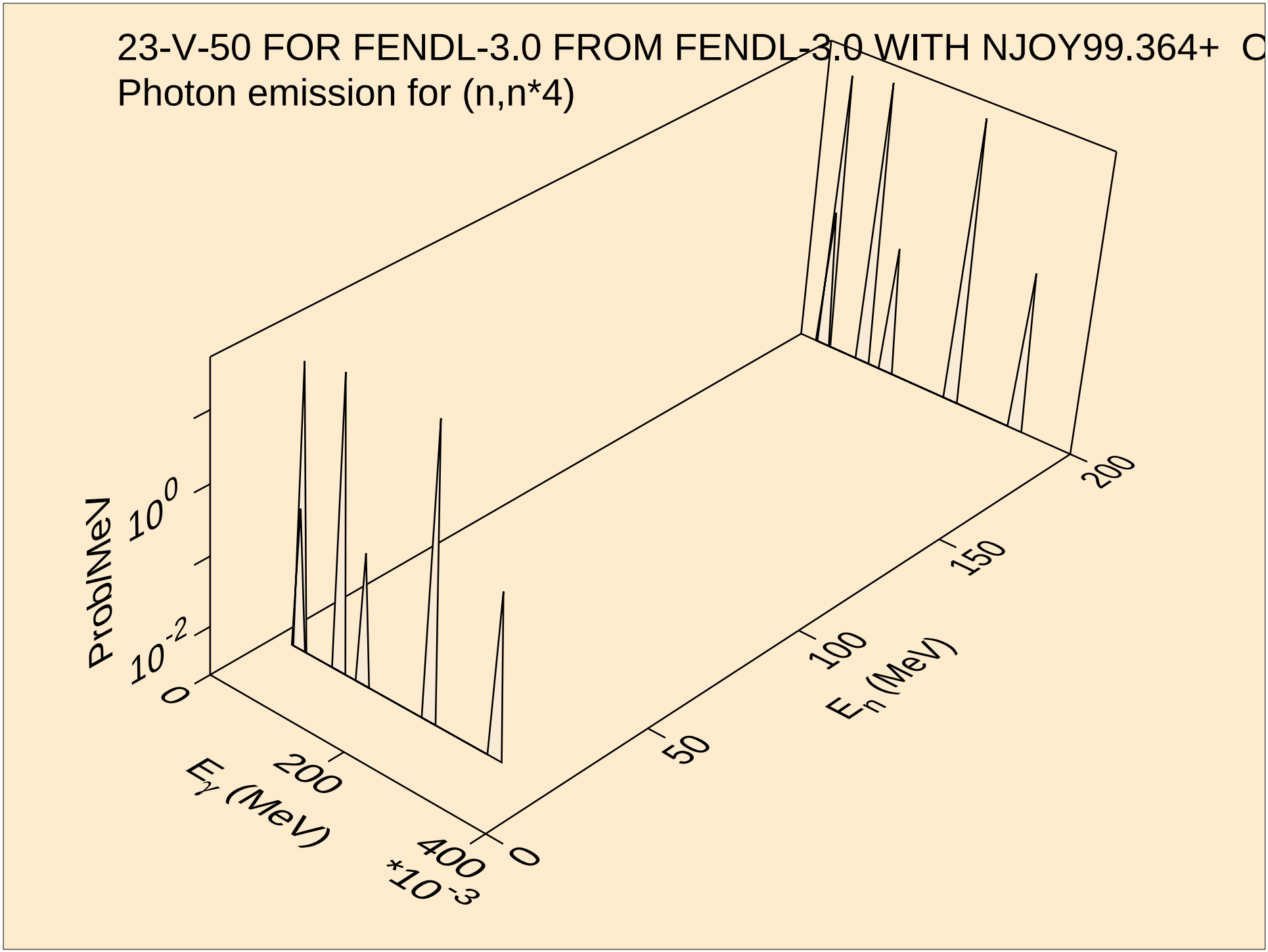

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*)d
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
2
4
6
E_γ (MeV)
14
15
16
17
18
19
20
E_n (MeV)

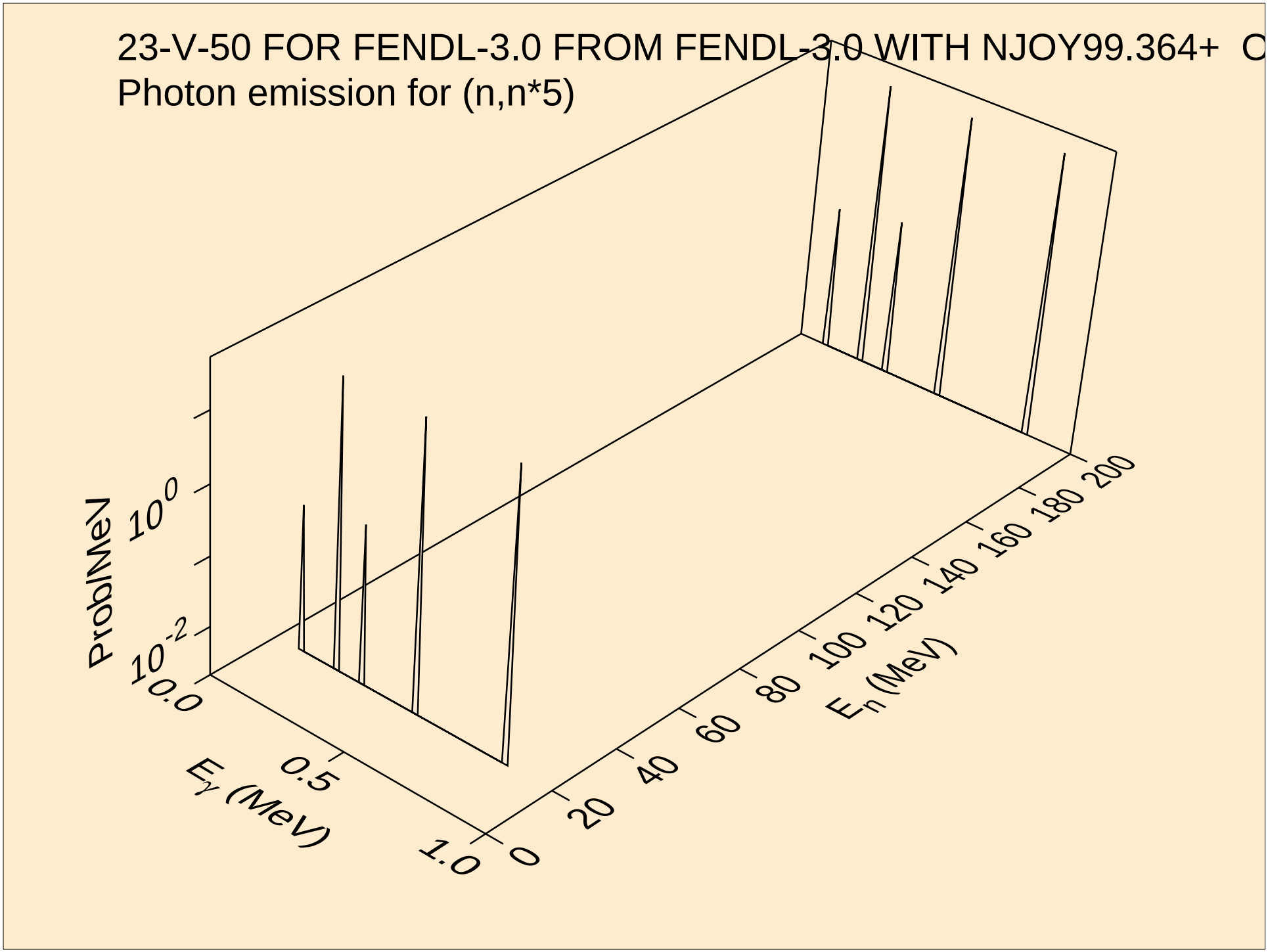

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,2np)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
2
4
E_γ (MeV)
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
E_n (MeV)

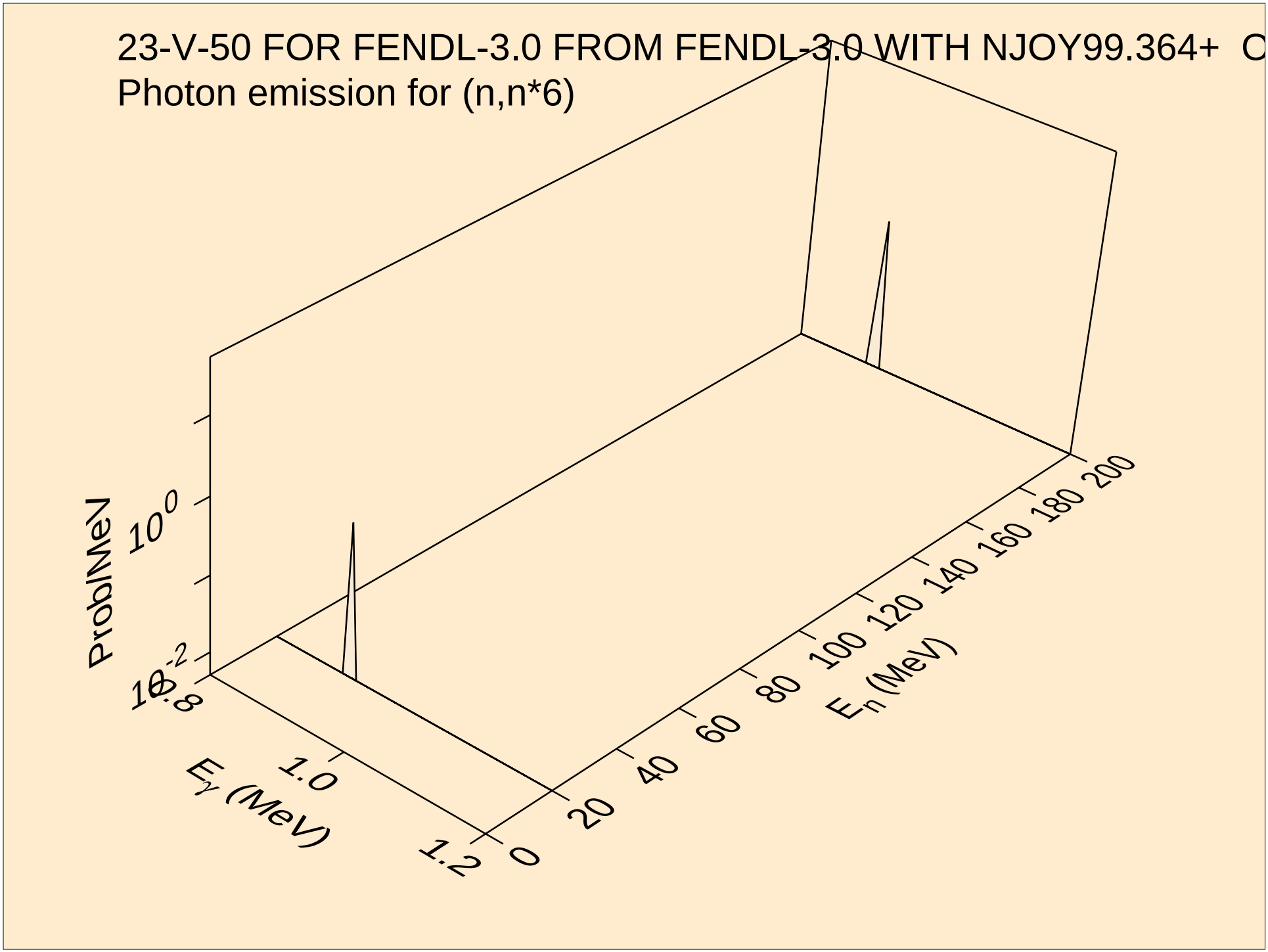

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*1)
Prob/MeV
10^0
10^-2
150
200
250
300
Eγ (MeV)
*10^-3
0
50
100
150
200
En (MeV)

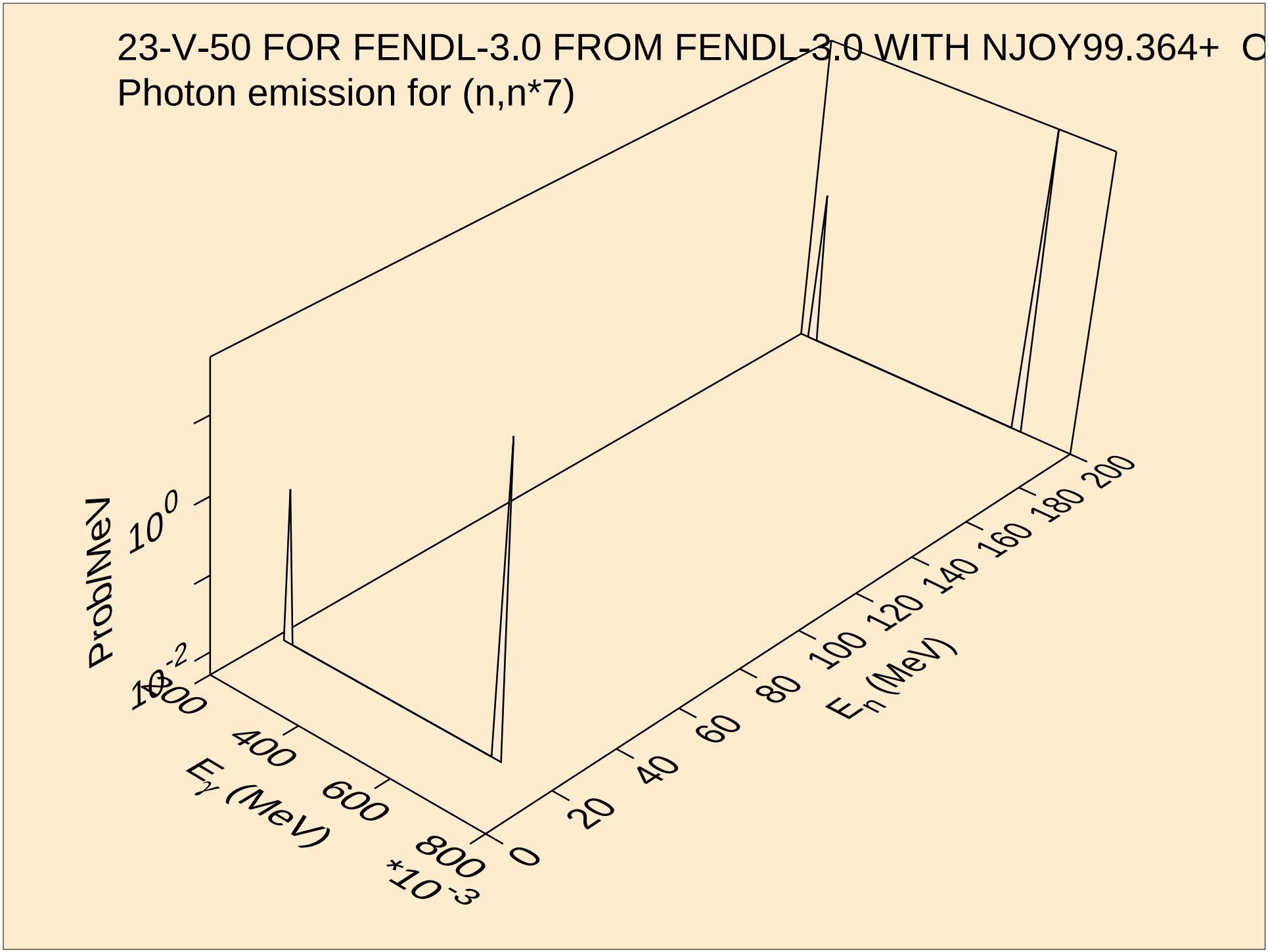

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*2)
Prob/MeV
10^{2}
10^{0}
10^{-2}
0
200
400
E_γ (MeV)
*10 -3
50
100
150
200
E_n (MeV)

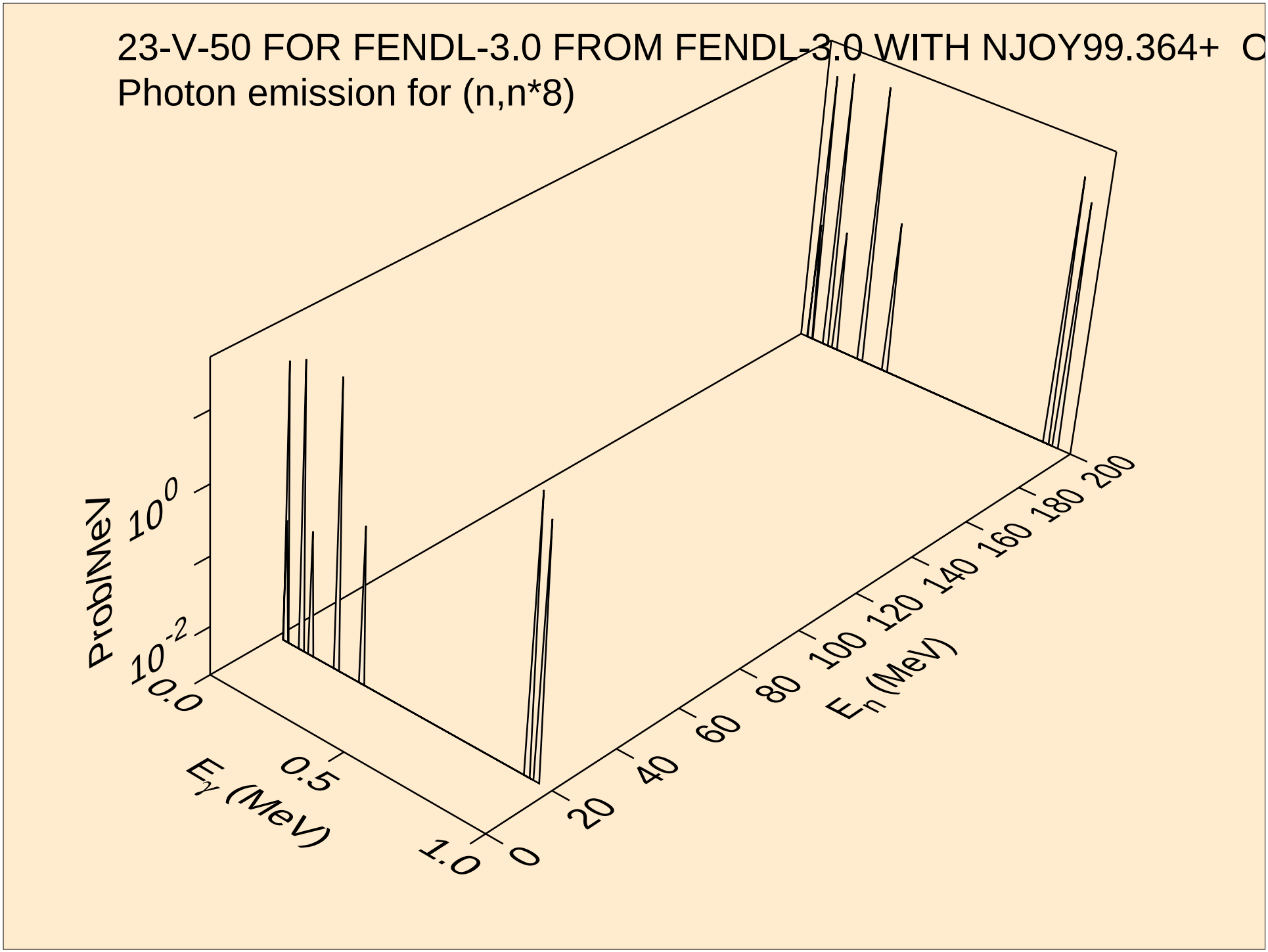

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*3)
Prob/MeV
10^0
10^-2
0
200
400
E_γ (MeV)
*10^-3
0
50
100
150
200
E_n (MeV)

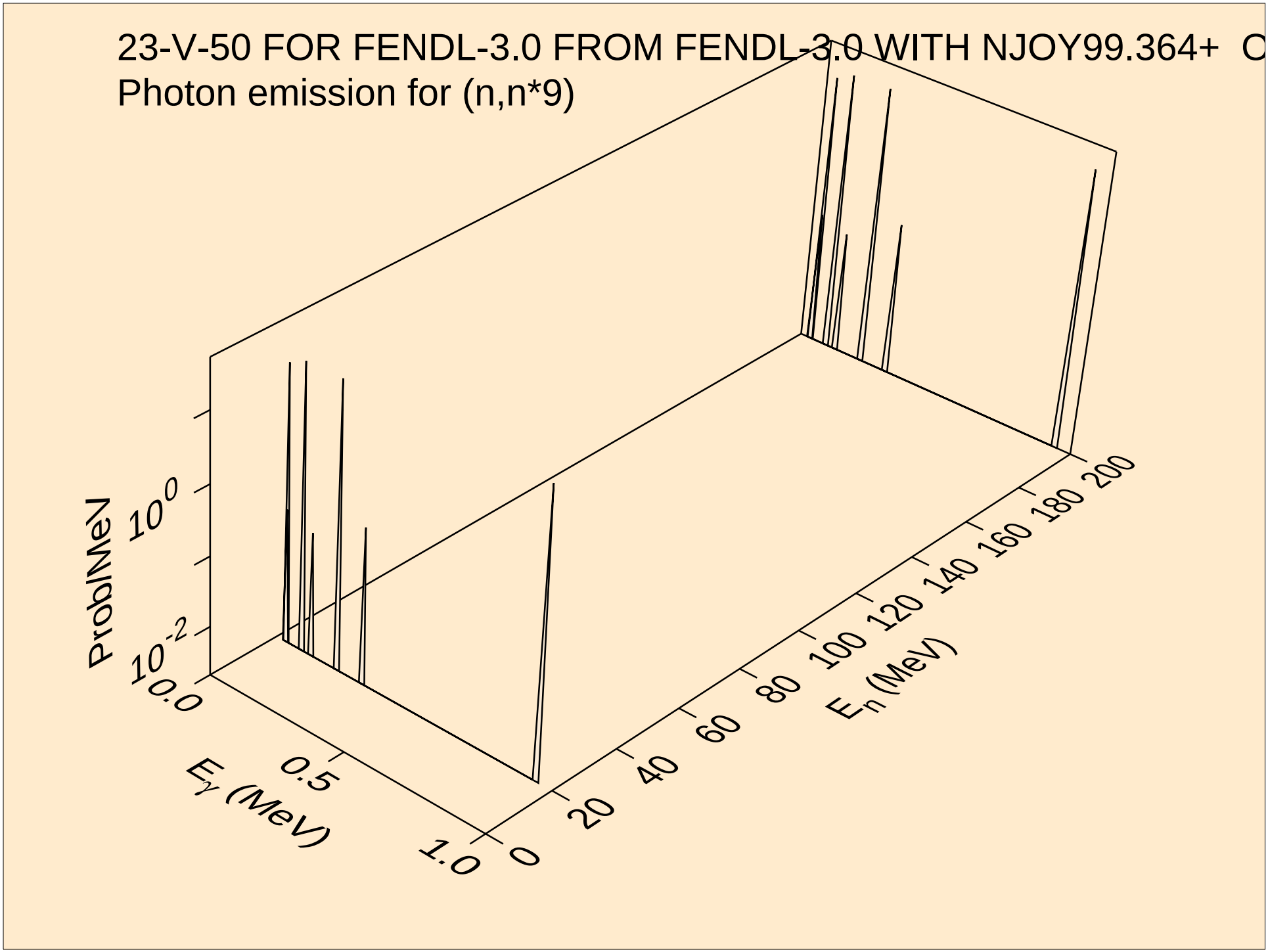

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*4)
Prob/MeV
10^0
10^-2
0
200
400
*10^-3
Eγ (MeV)
0
50
100
150
200
En (MeV)

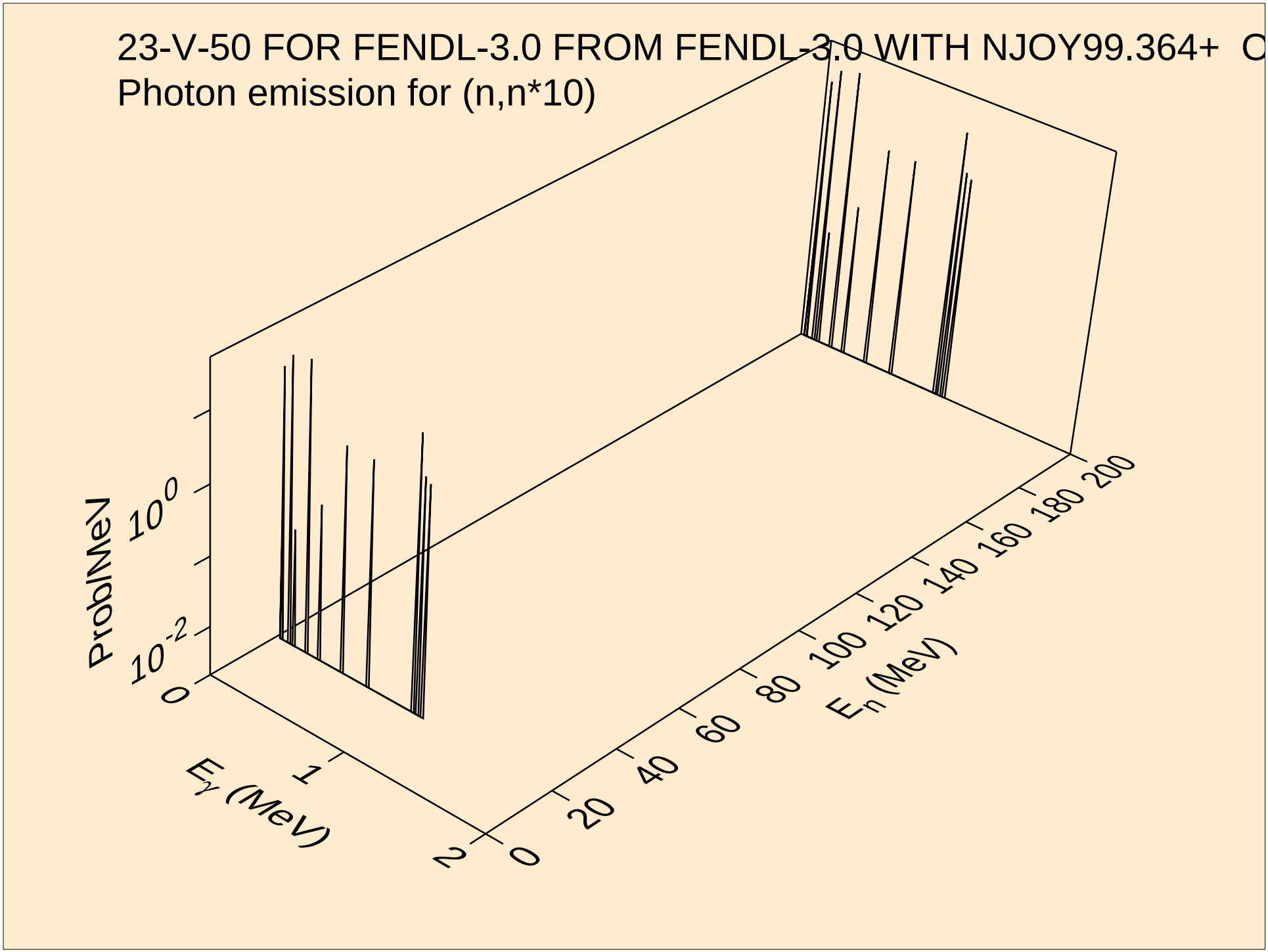

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*5)
Prob/MeV
10^0
10^-2
0.0
0.5
1.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

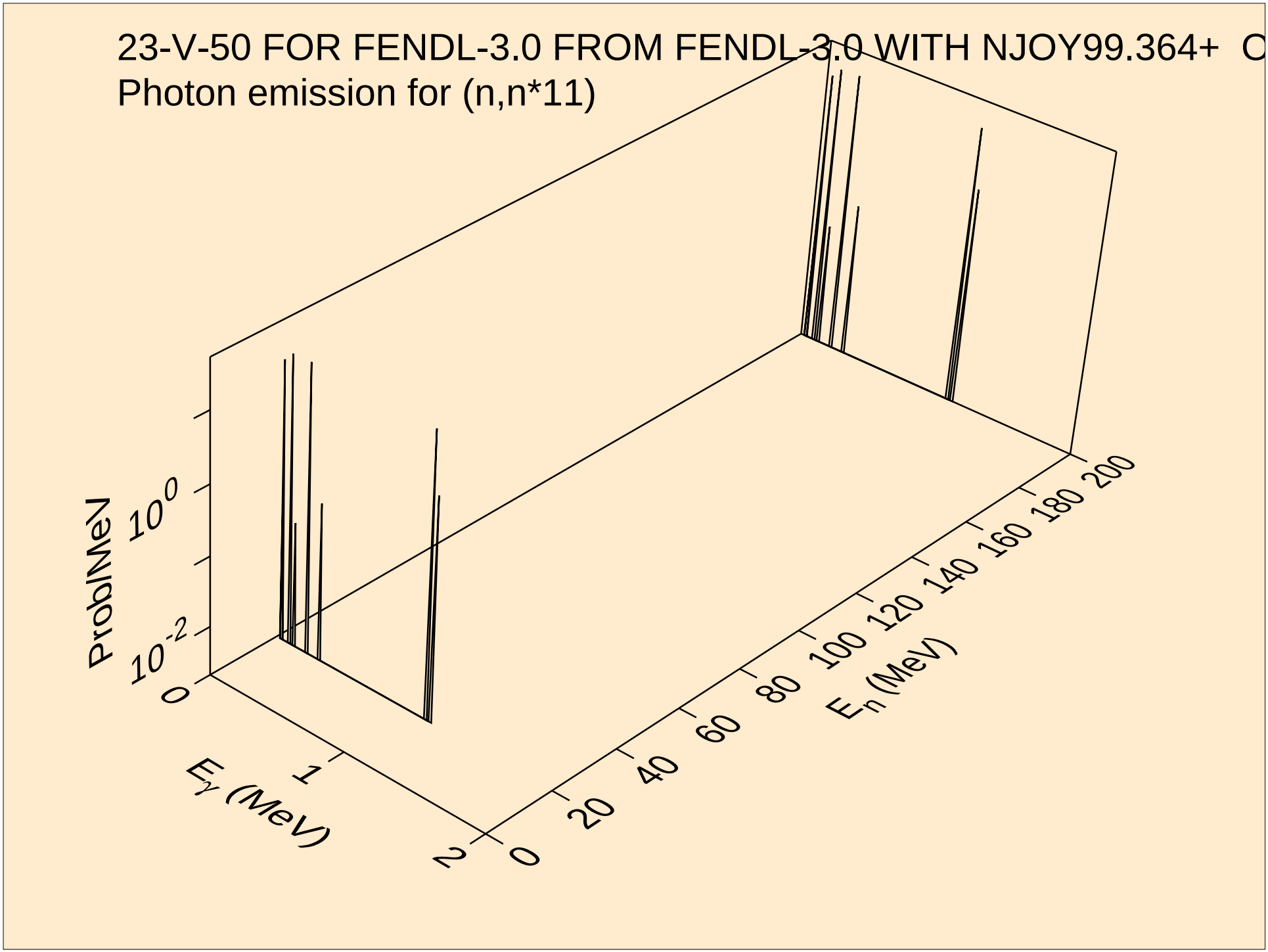

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*6)
Prob/MeV
10^0
10^-2
0.8
1.0
1.2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

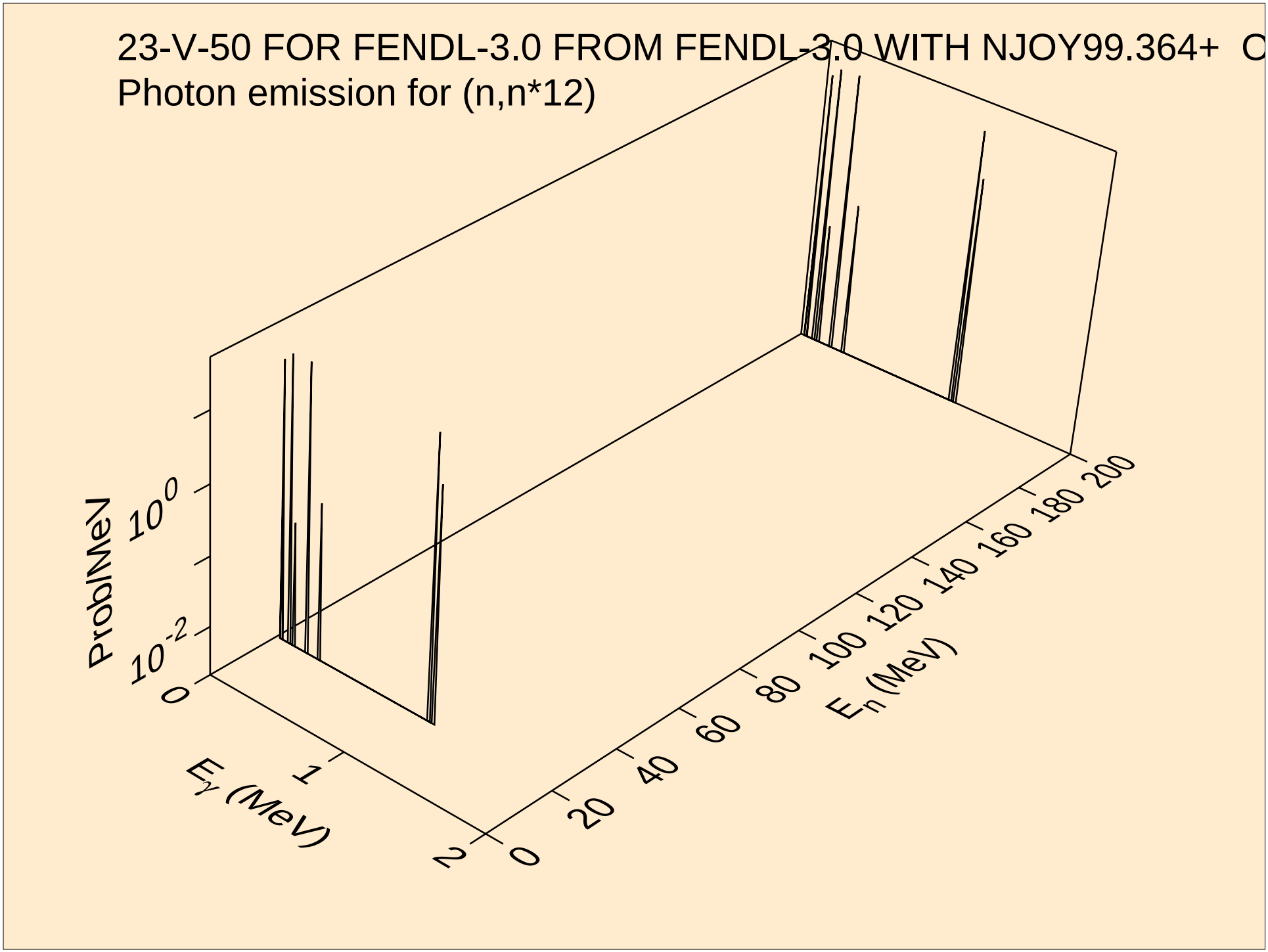

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*7)
Prob/MeV
10^{0}
10^{-2}
0
200
400
600
800
E_γ (MeV)
*10 -3
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

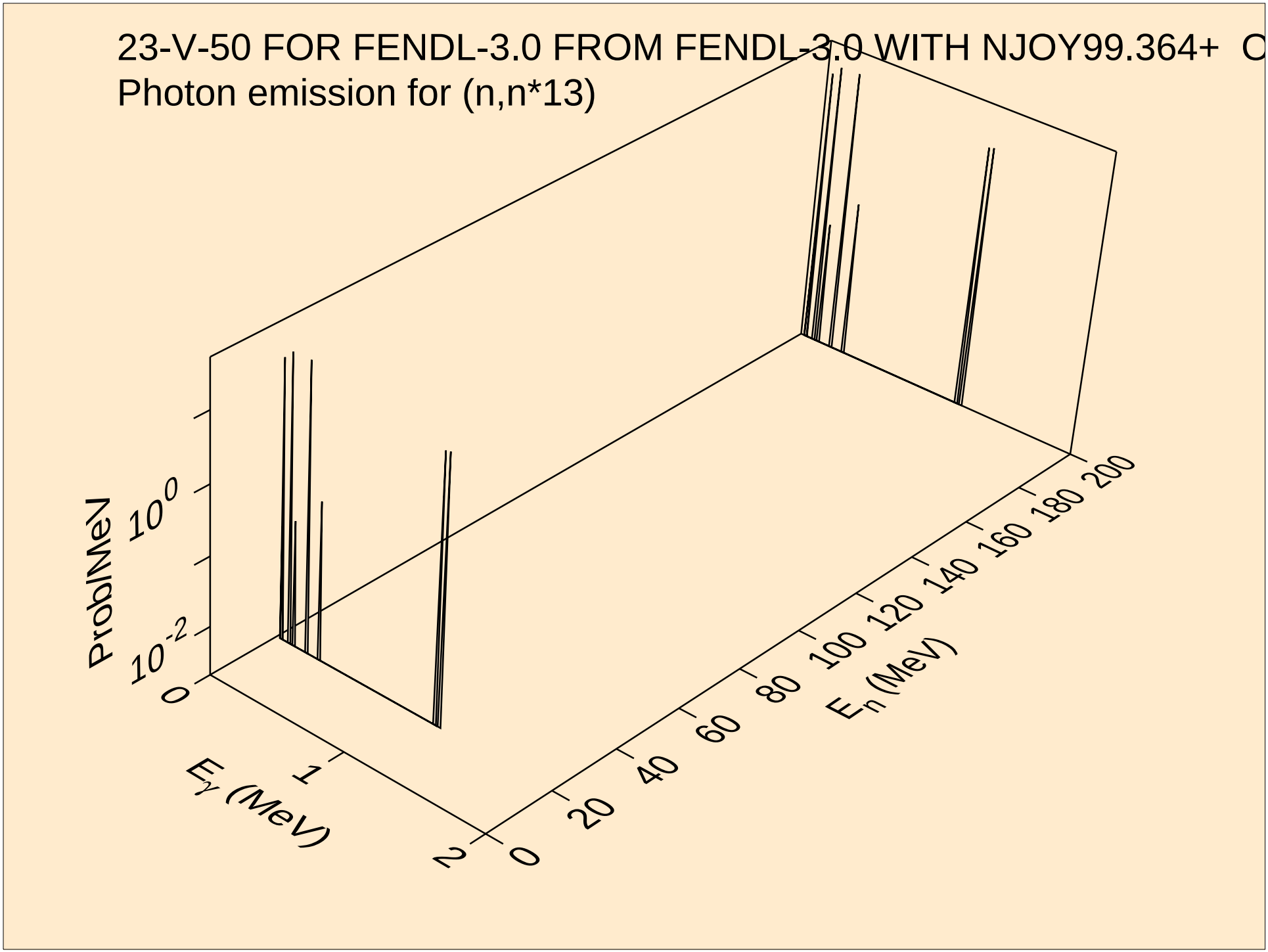

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*8)
Prob/MeV
10^{0}
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

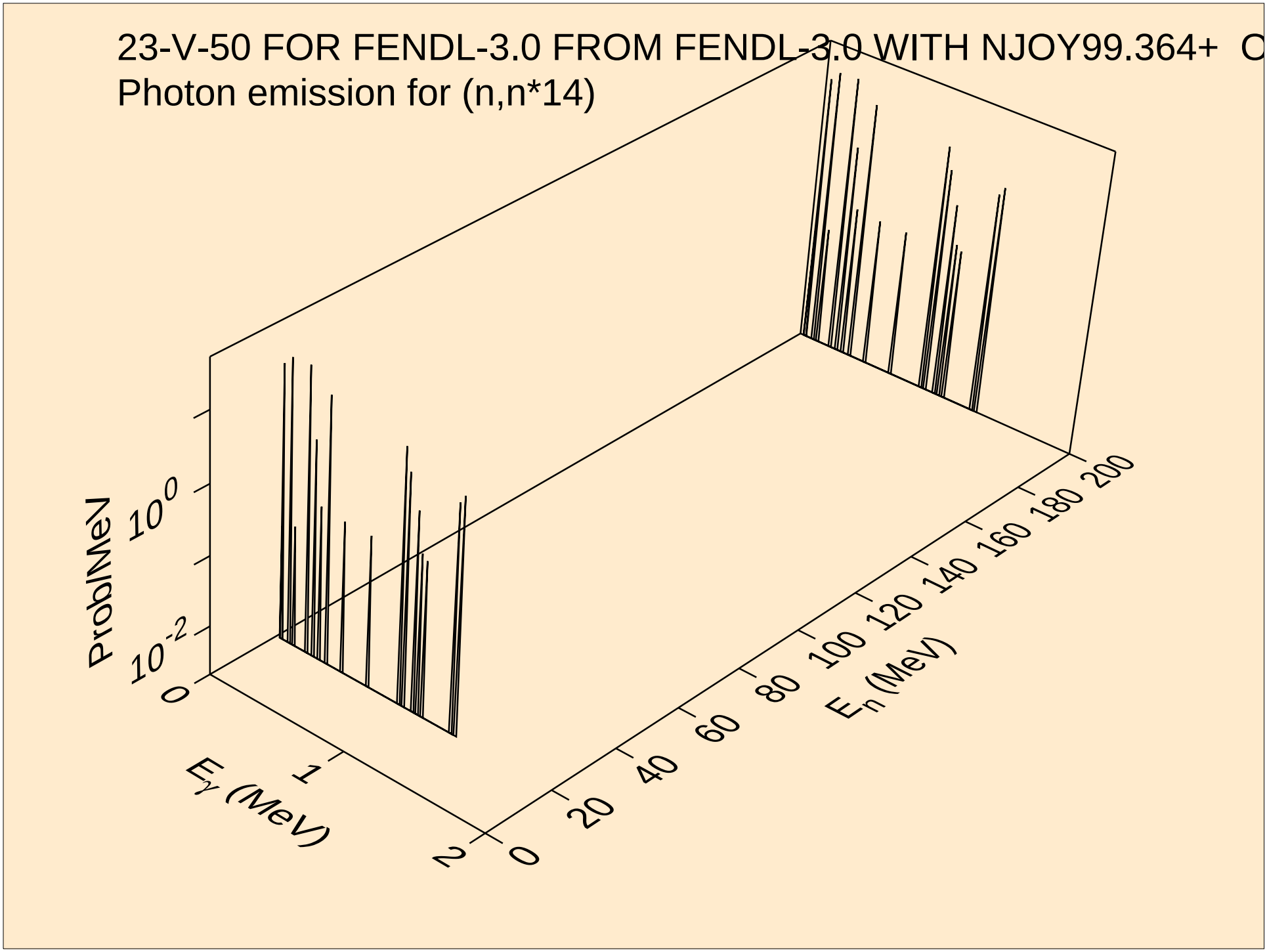

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*9)
Prob/MeV
10^{0}
10^{-2}
0.0
0.5
1.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

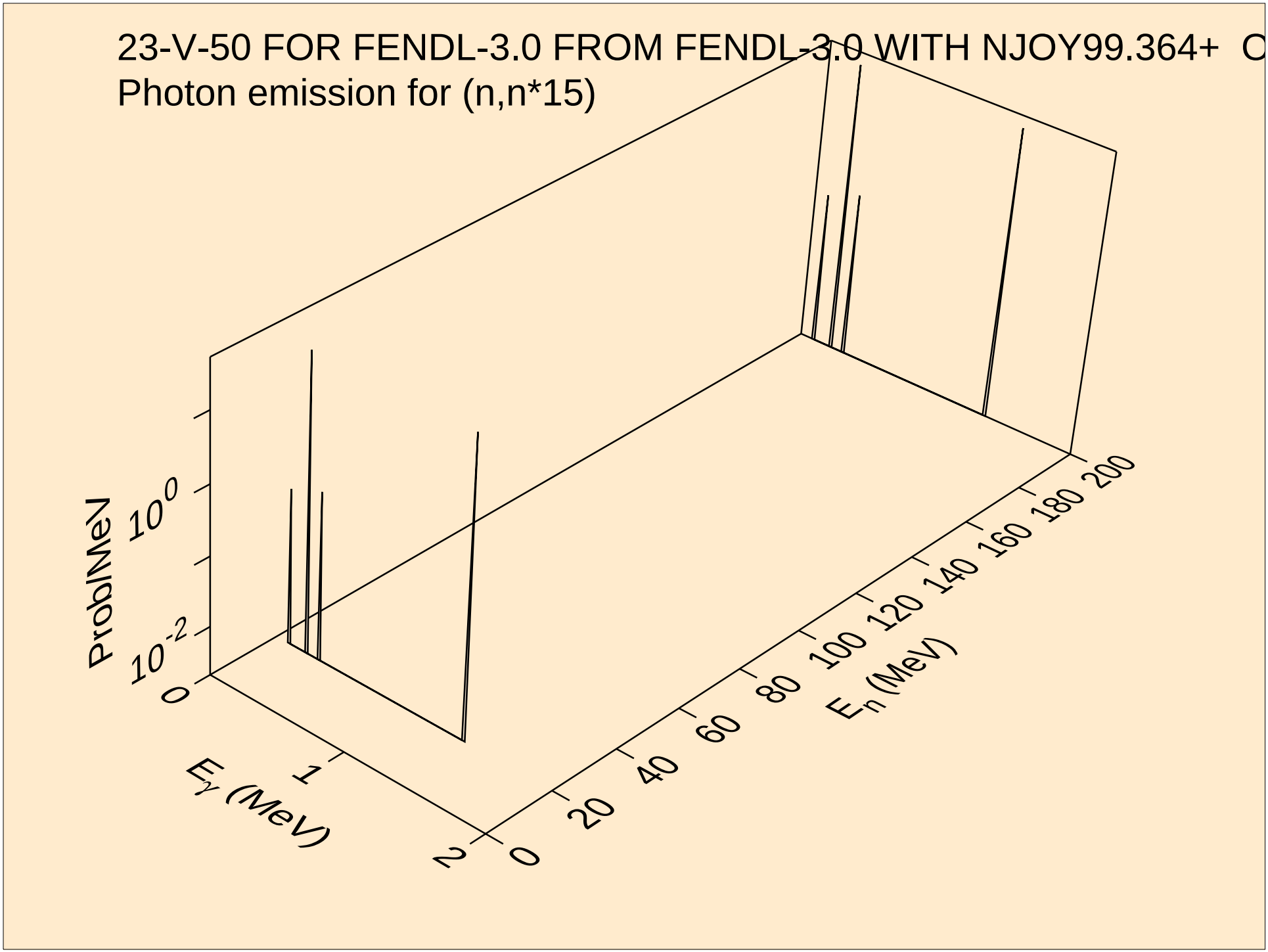

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*10)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

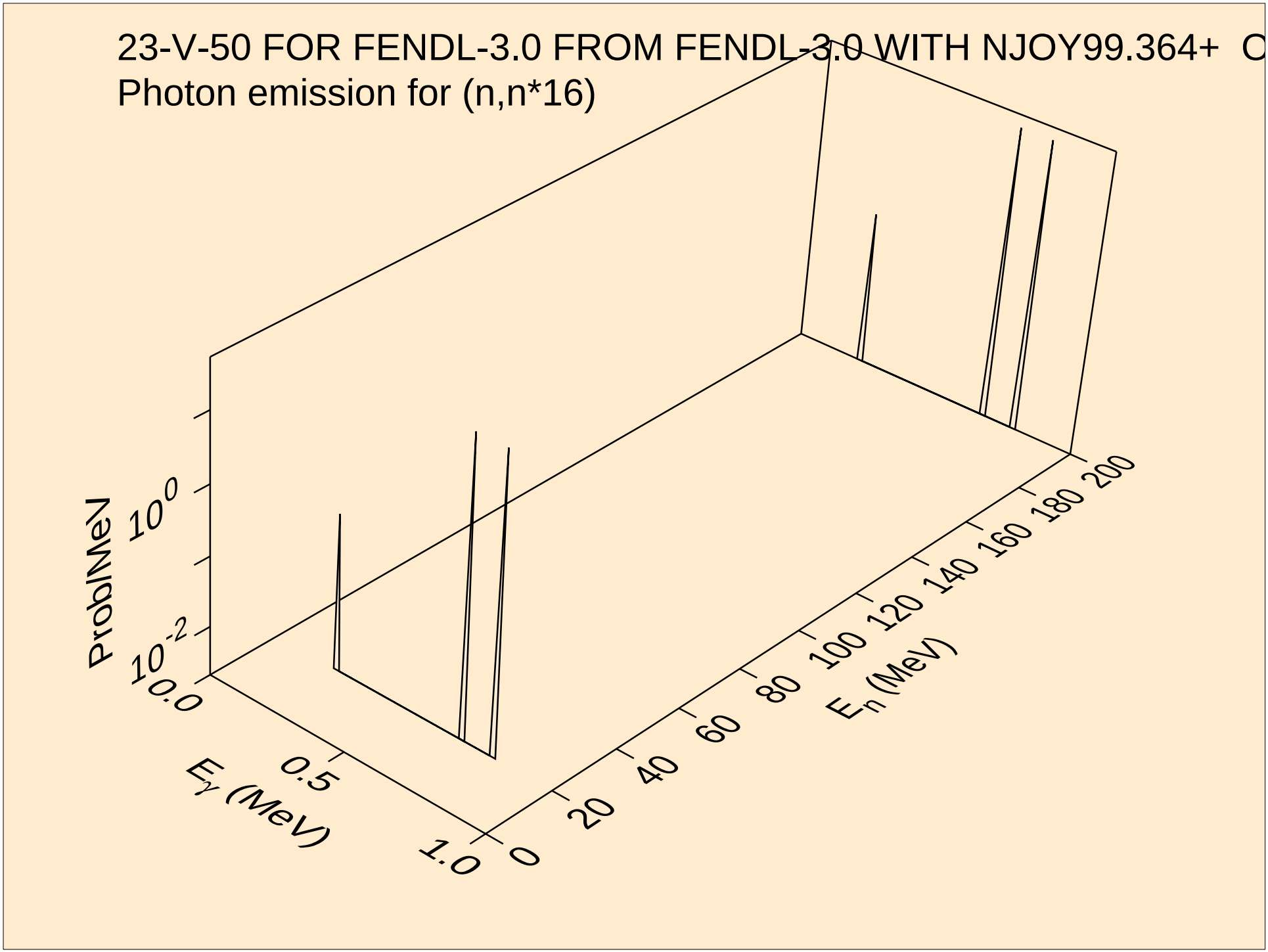

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*11)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

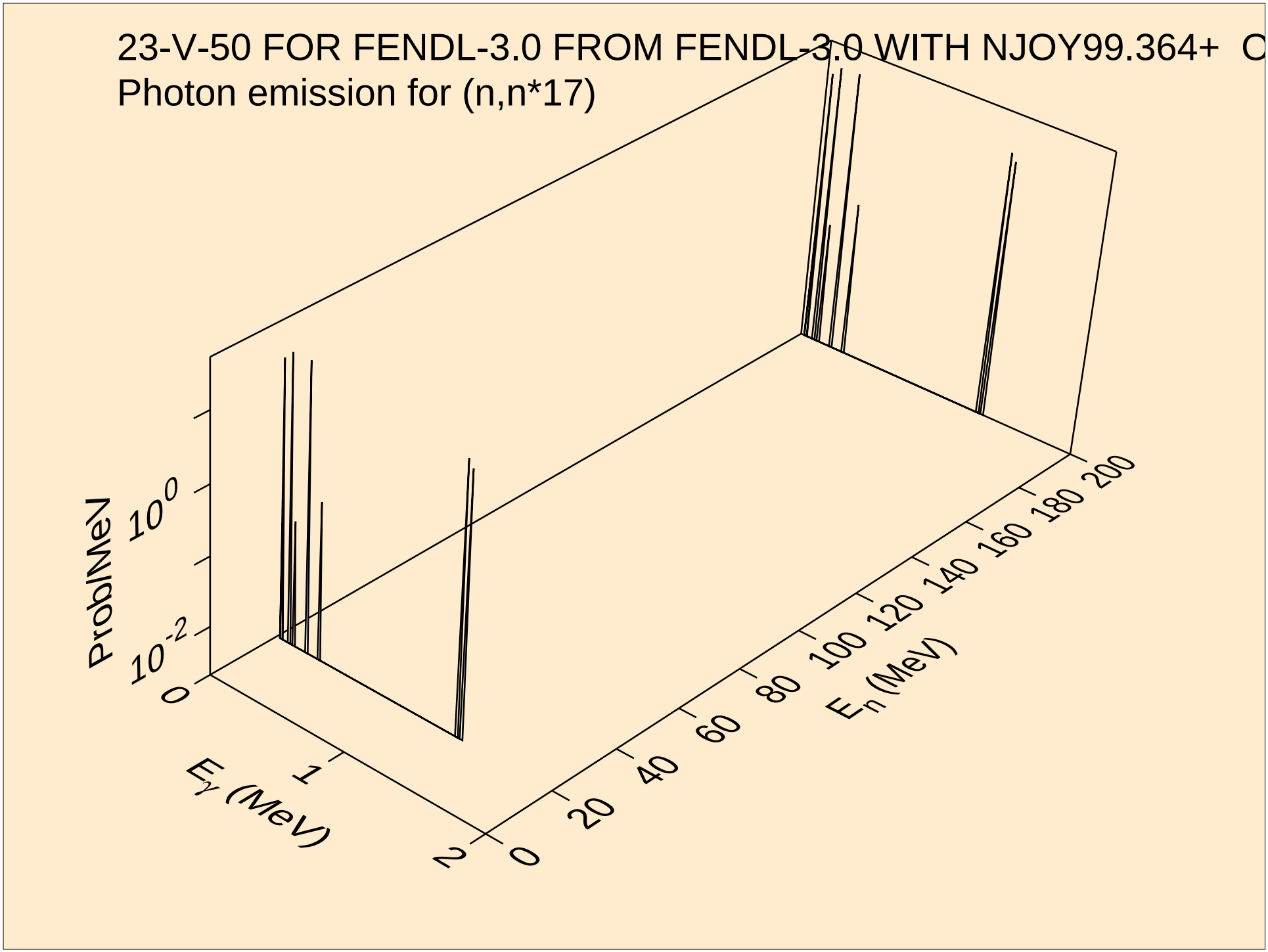

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*12)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

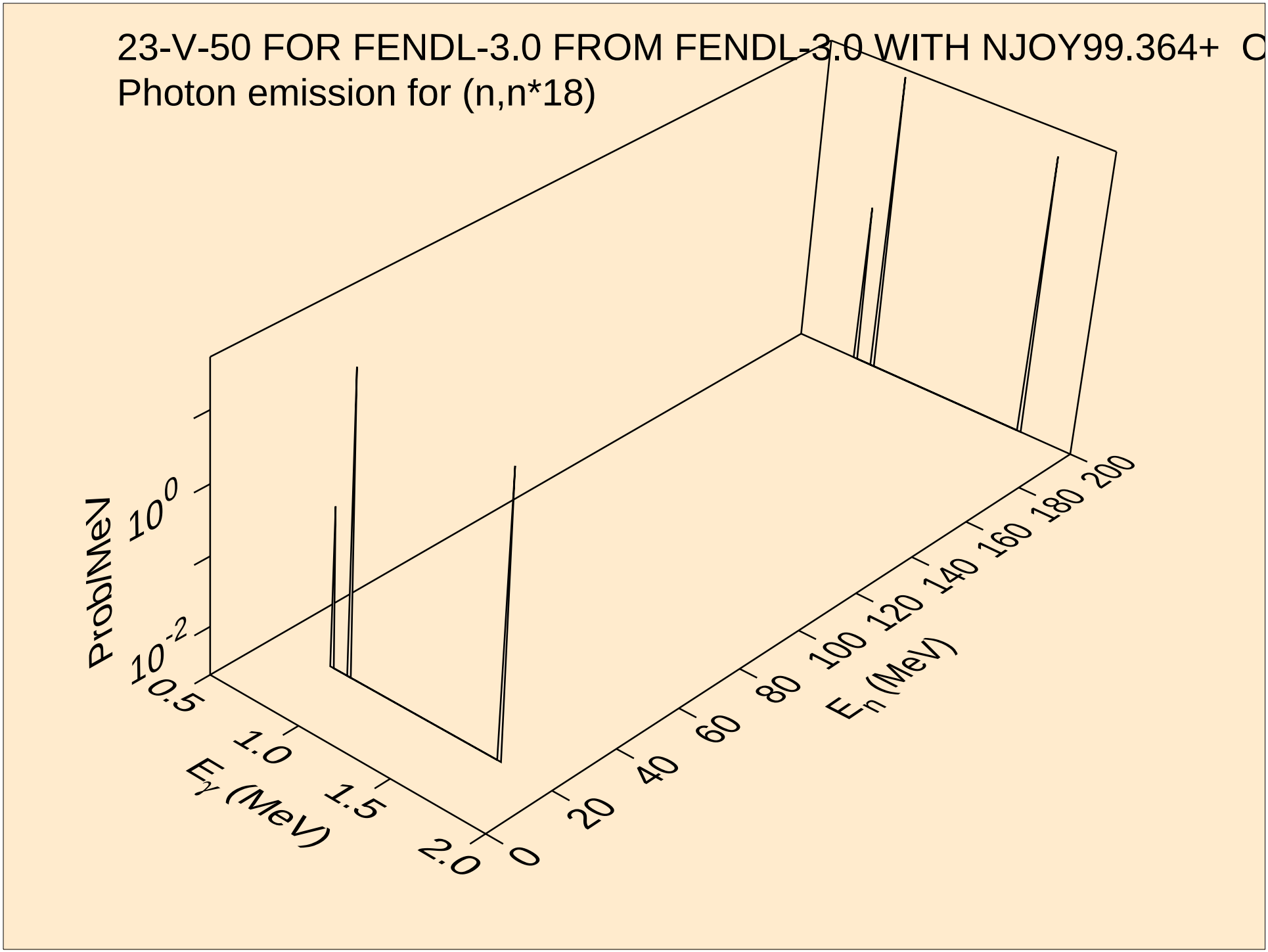

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*13)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

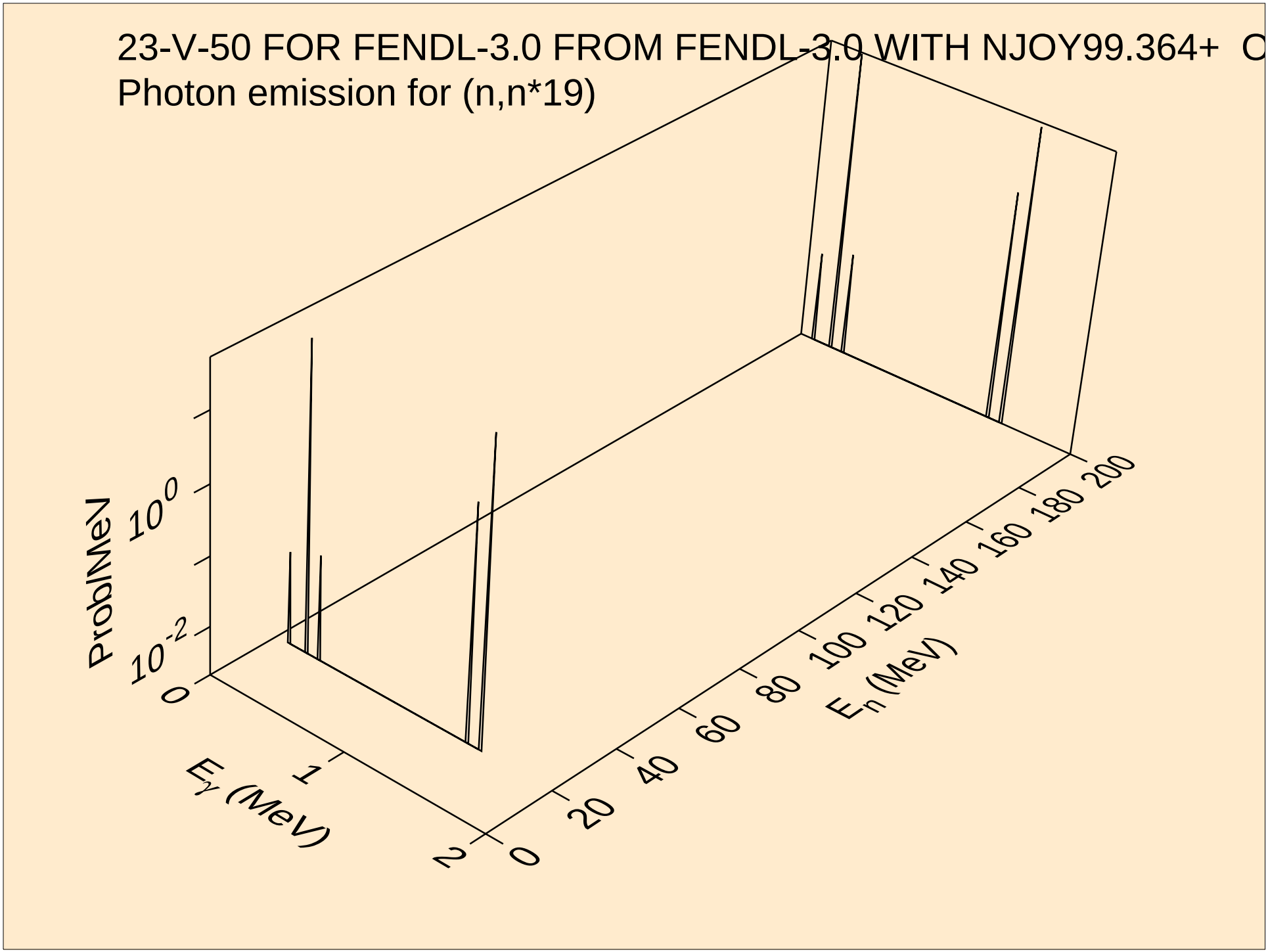

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*14)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

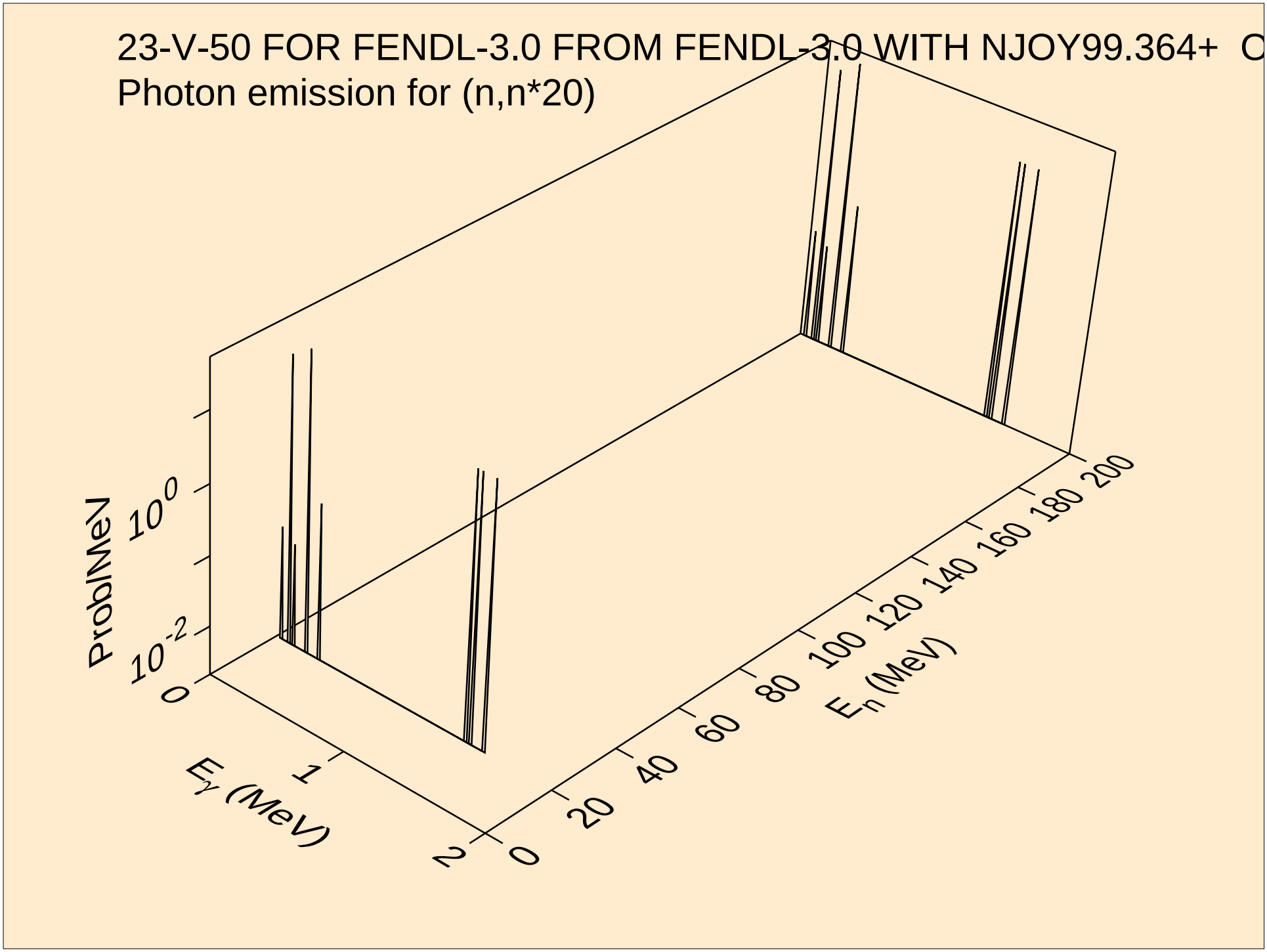

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*15)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

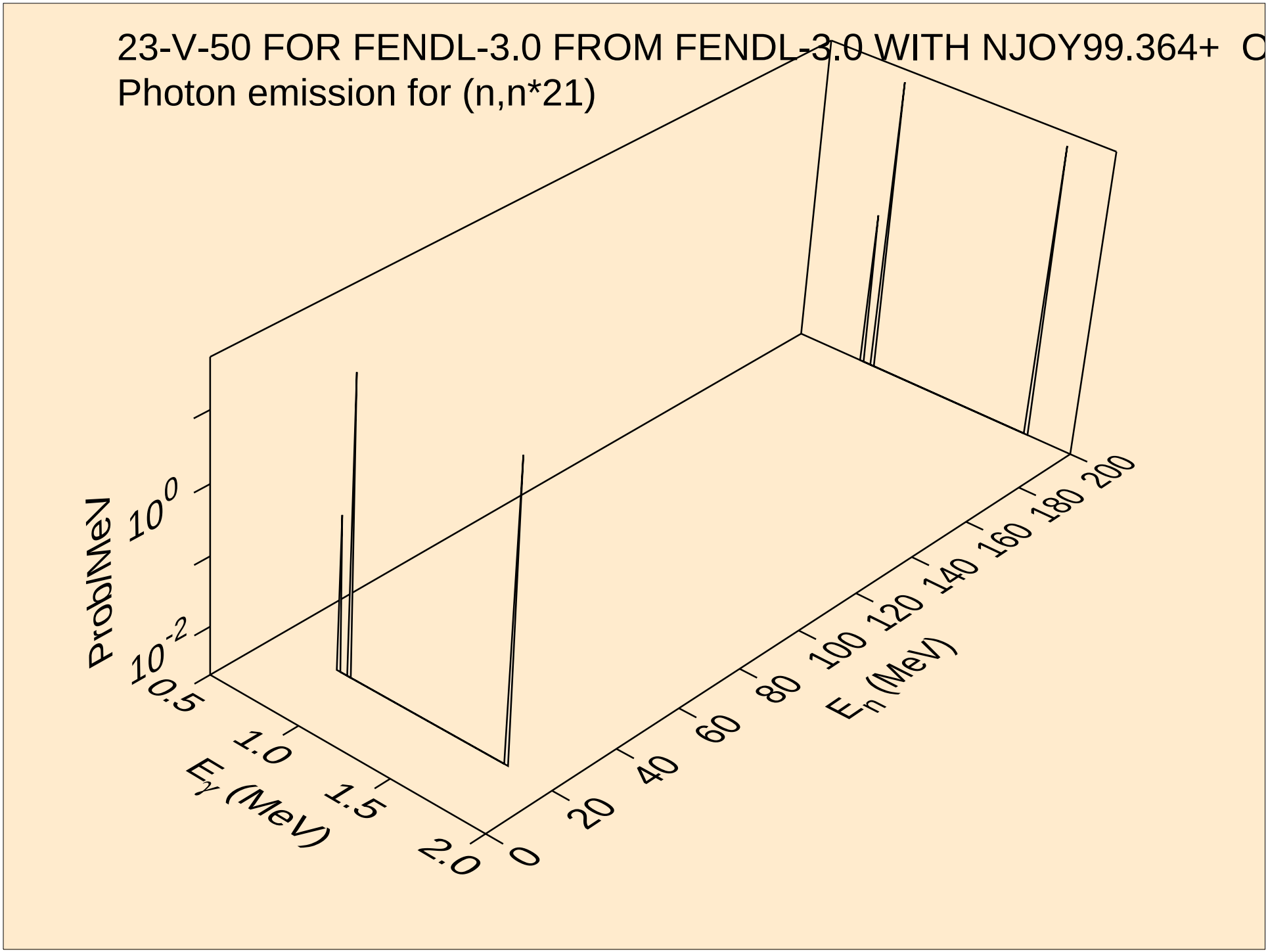

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*16)
Prob/MeV
10^0
10^-2
0.0
0.5
1.0
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

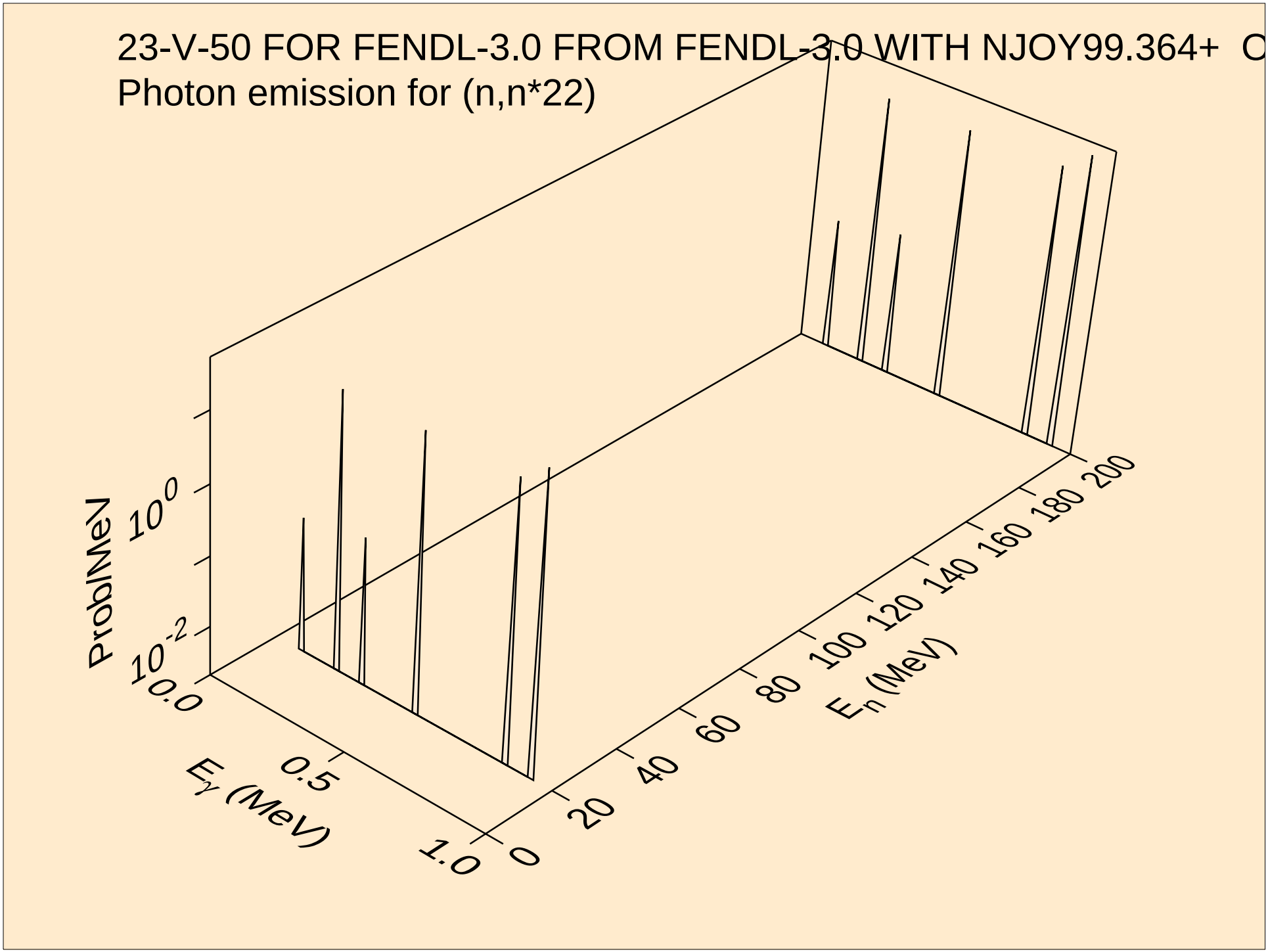

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*17)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

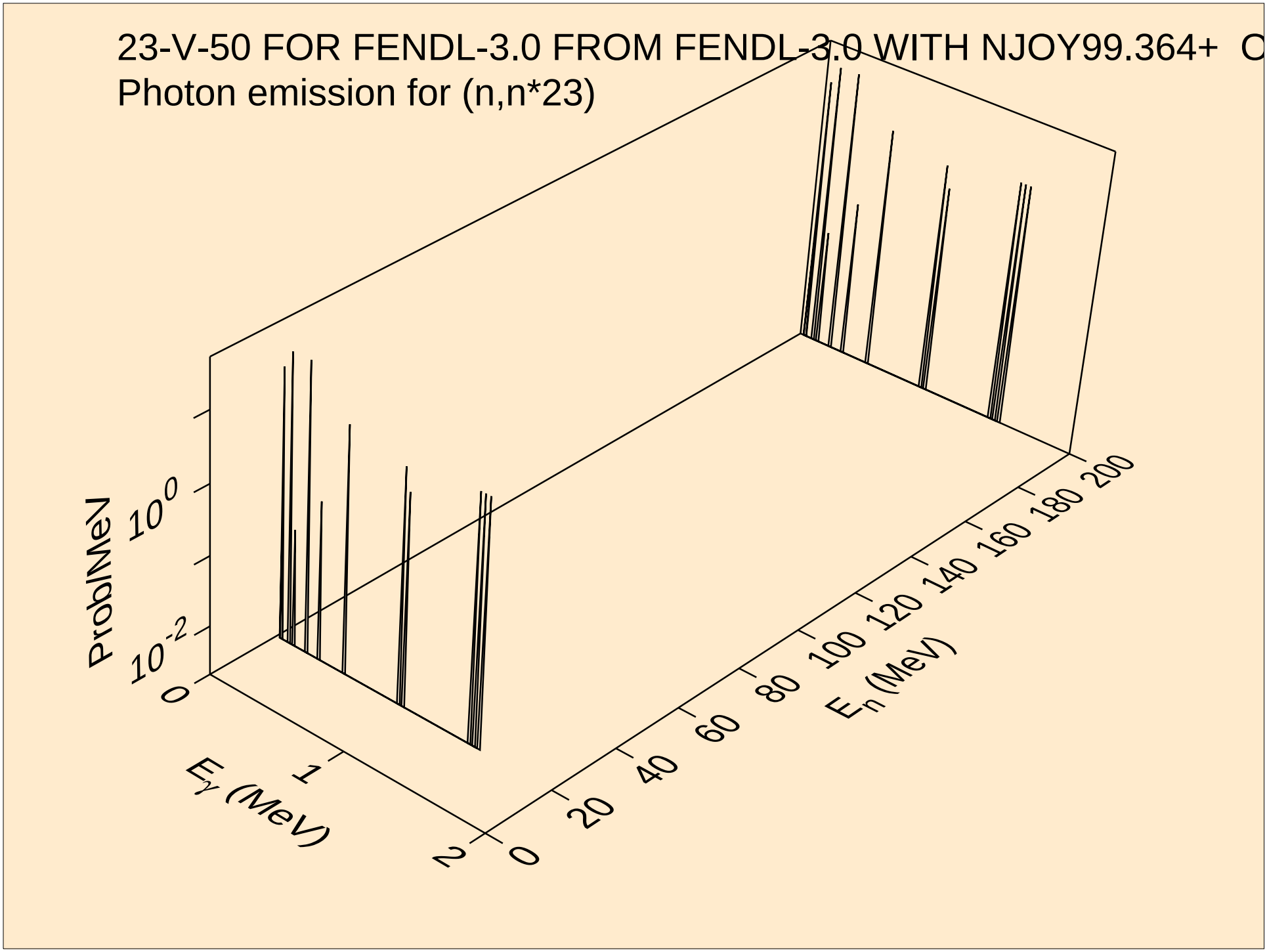

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*18)
Prob/MeV
10^{0}
10^{-2}
0.5
1.0
1.5
2.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

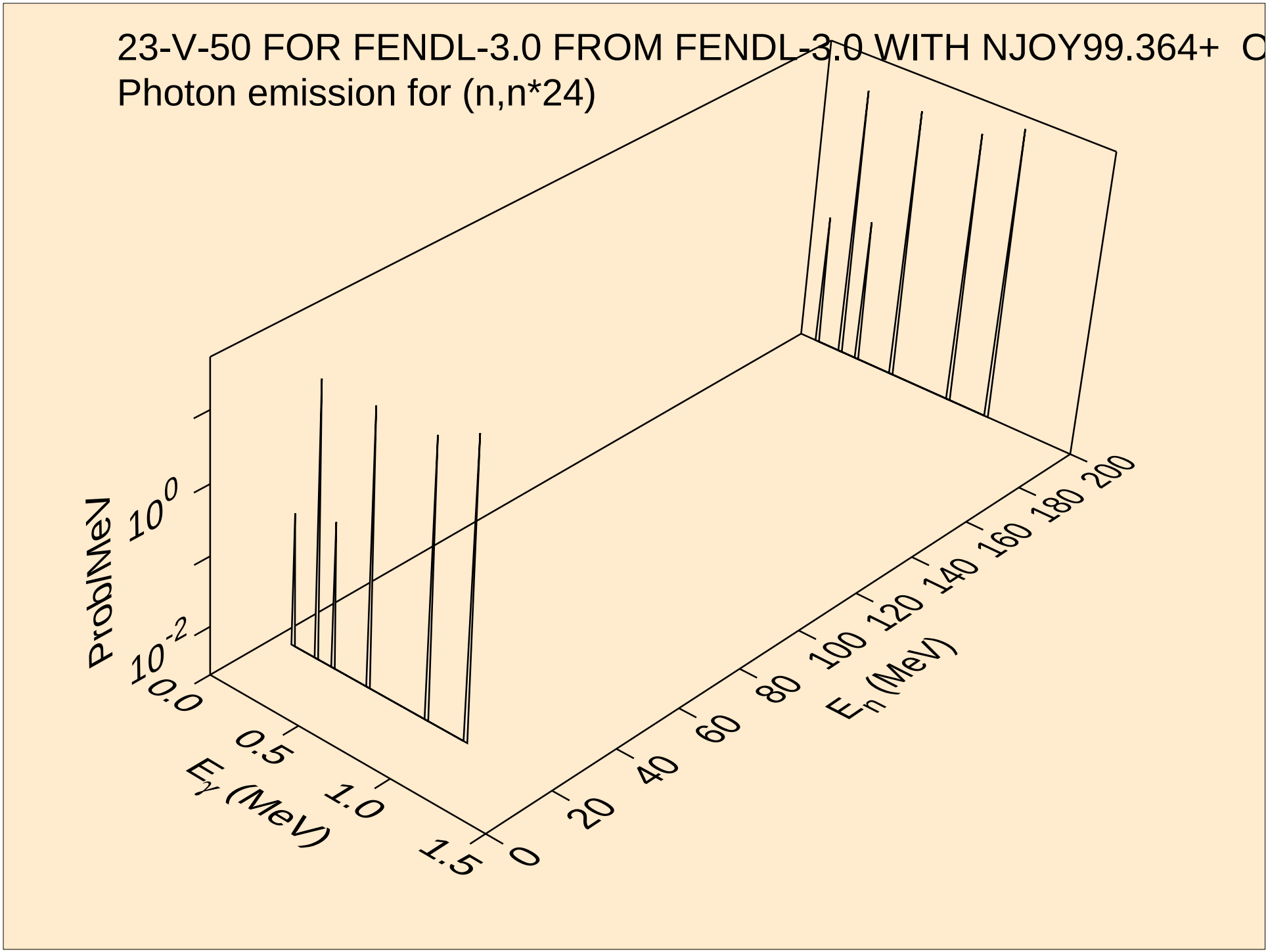

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*19)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

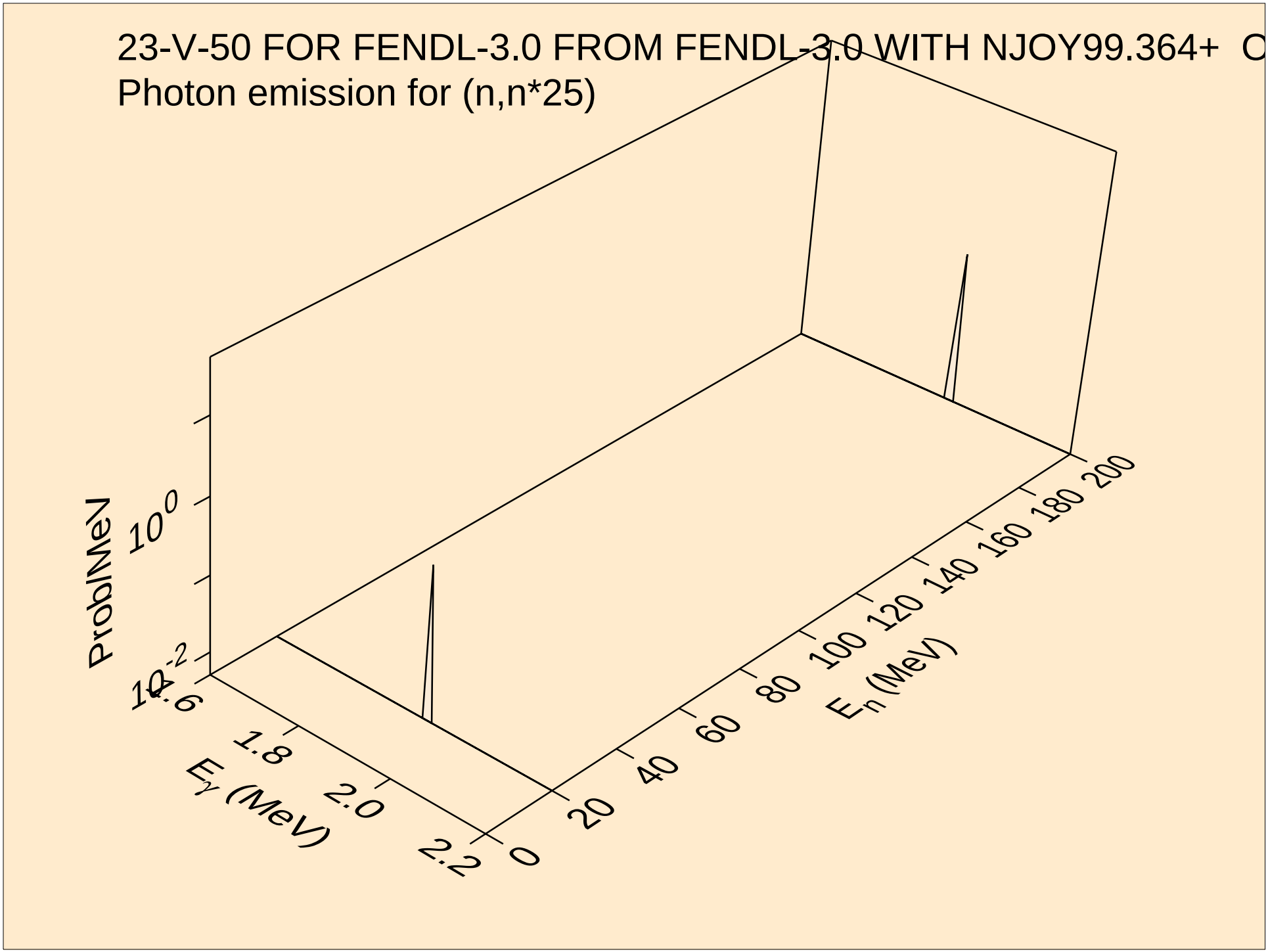

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*20)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

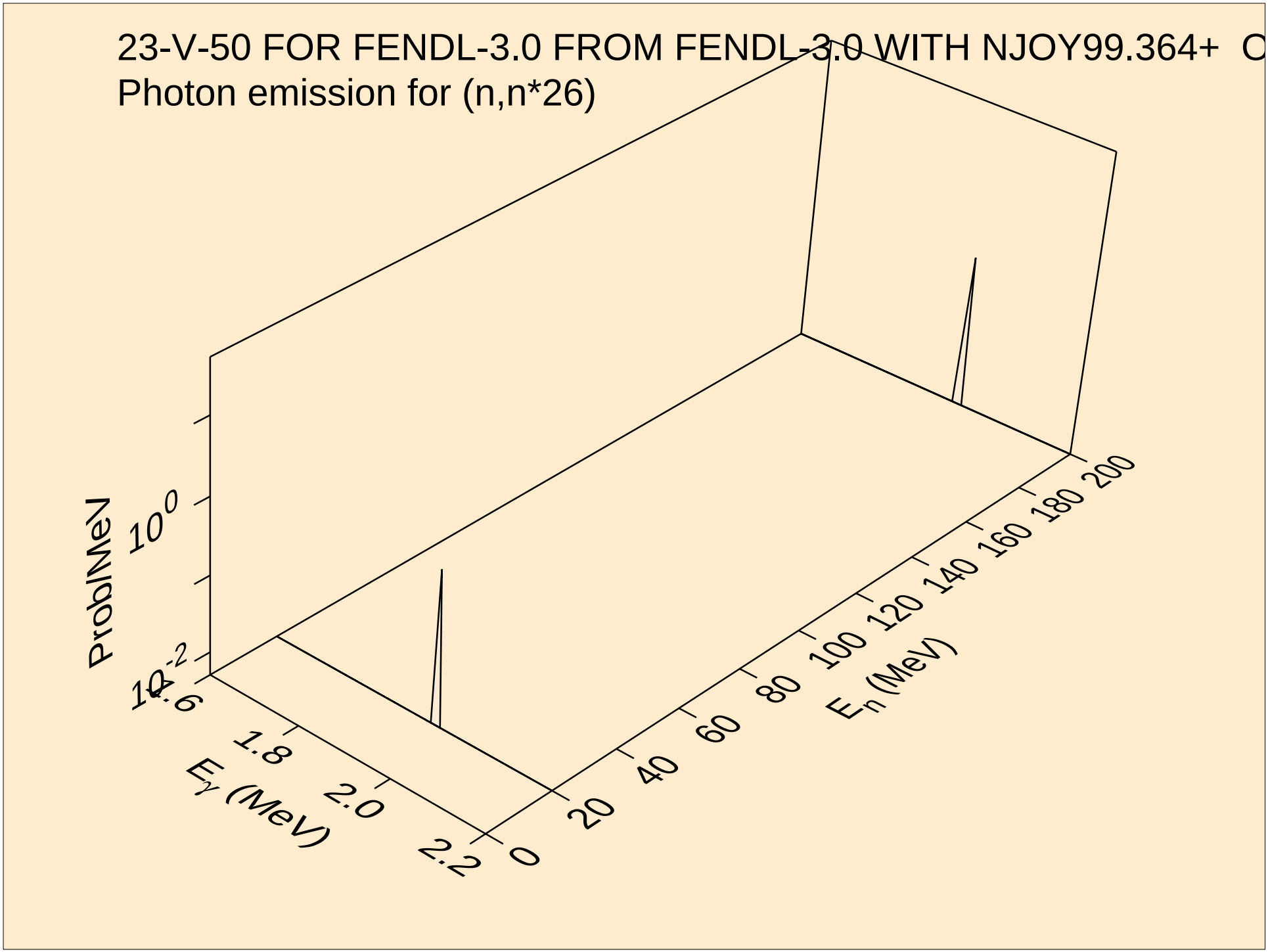

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*21)
Prob/MeV
10^0
10^-2
0.5
1.0
1.5
2.0
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

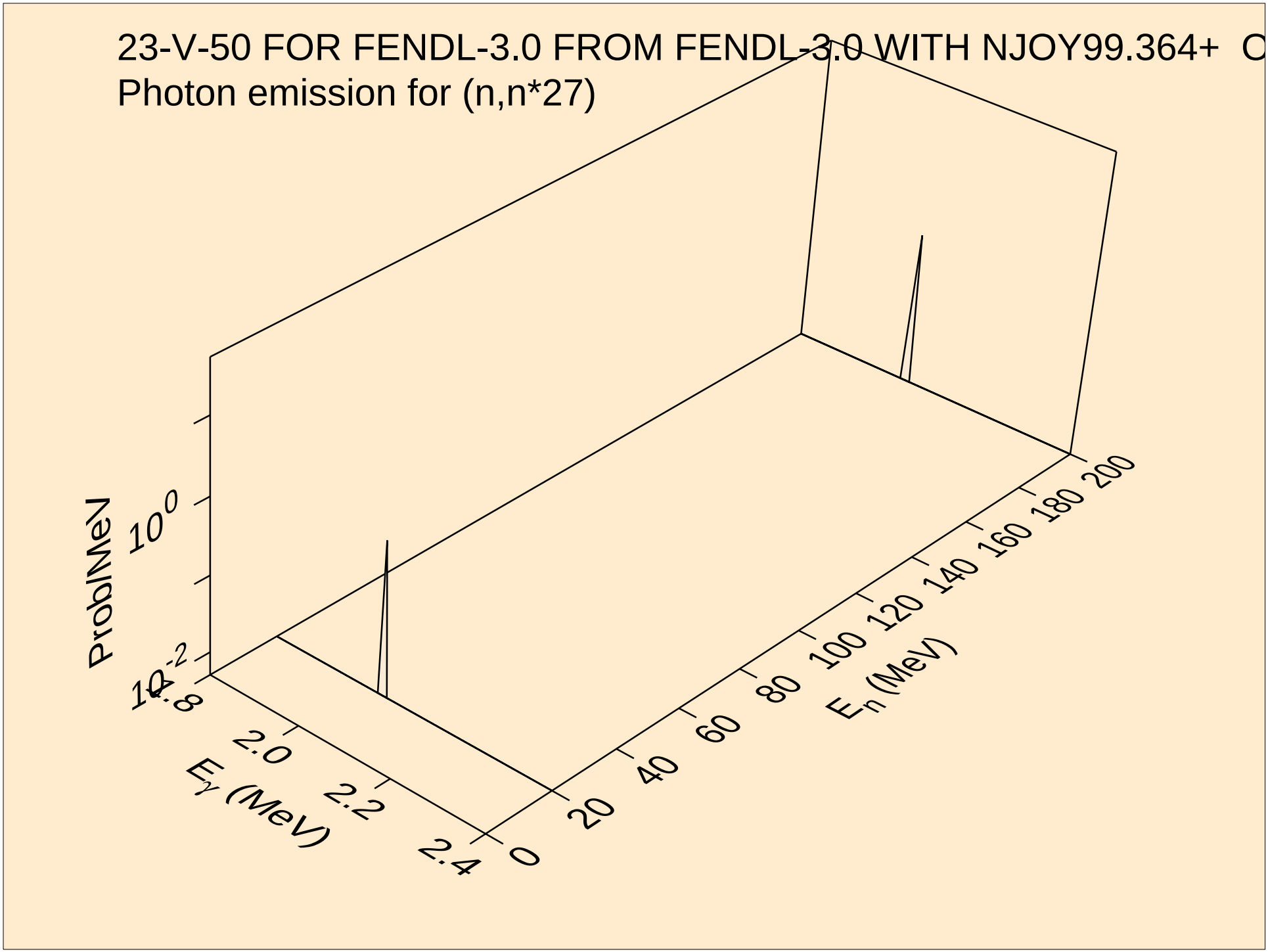

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*22)
Prob/MeV
10^0
10^-2
0.0
0.5
1.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

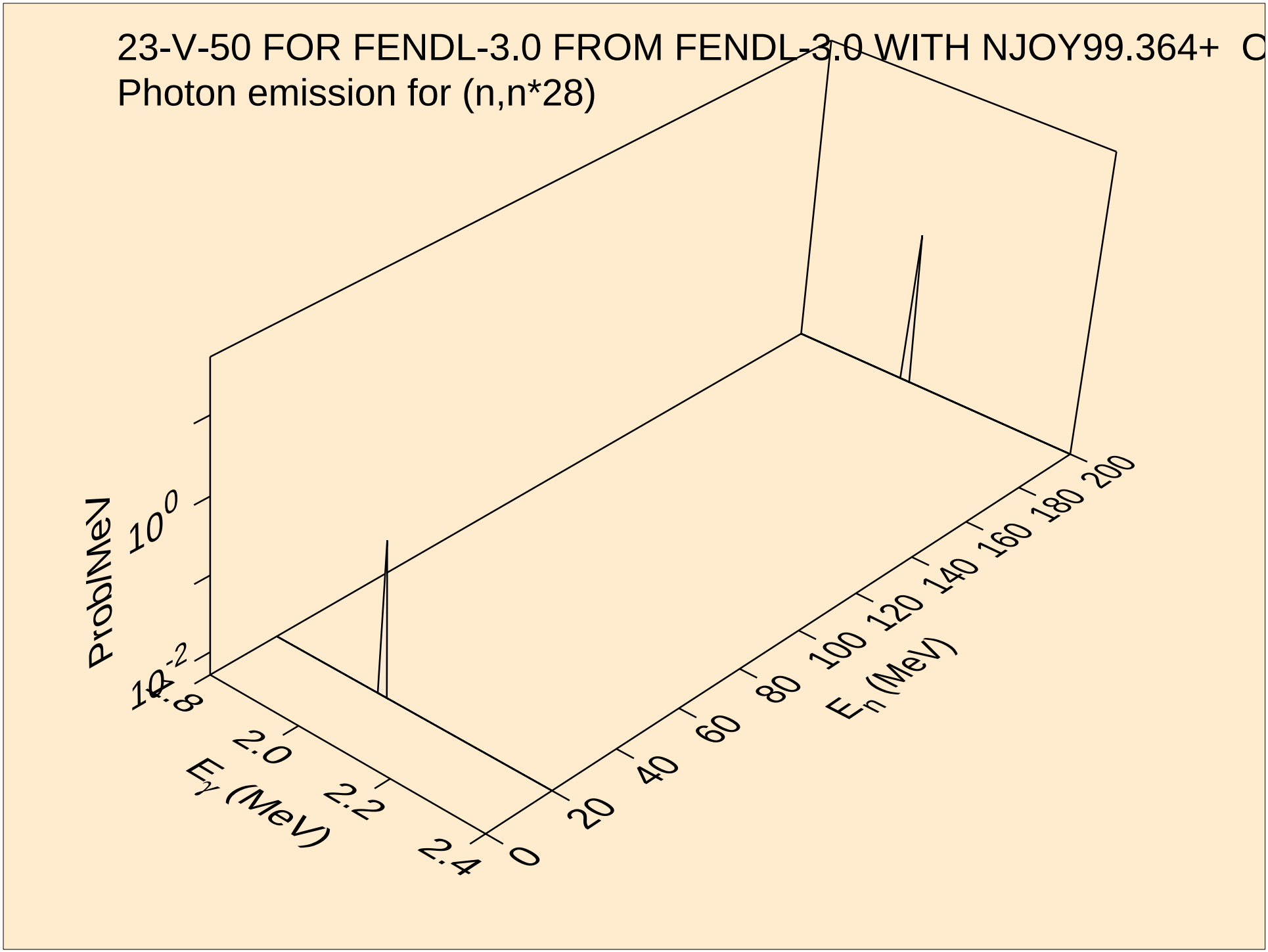

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*23)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

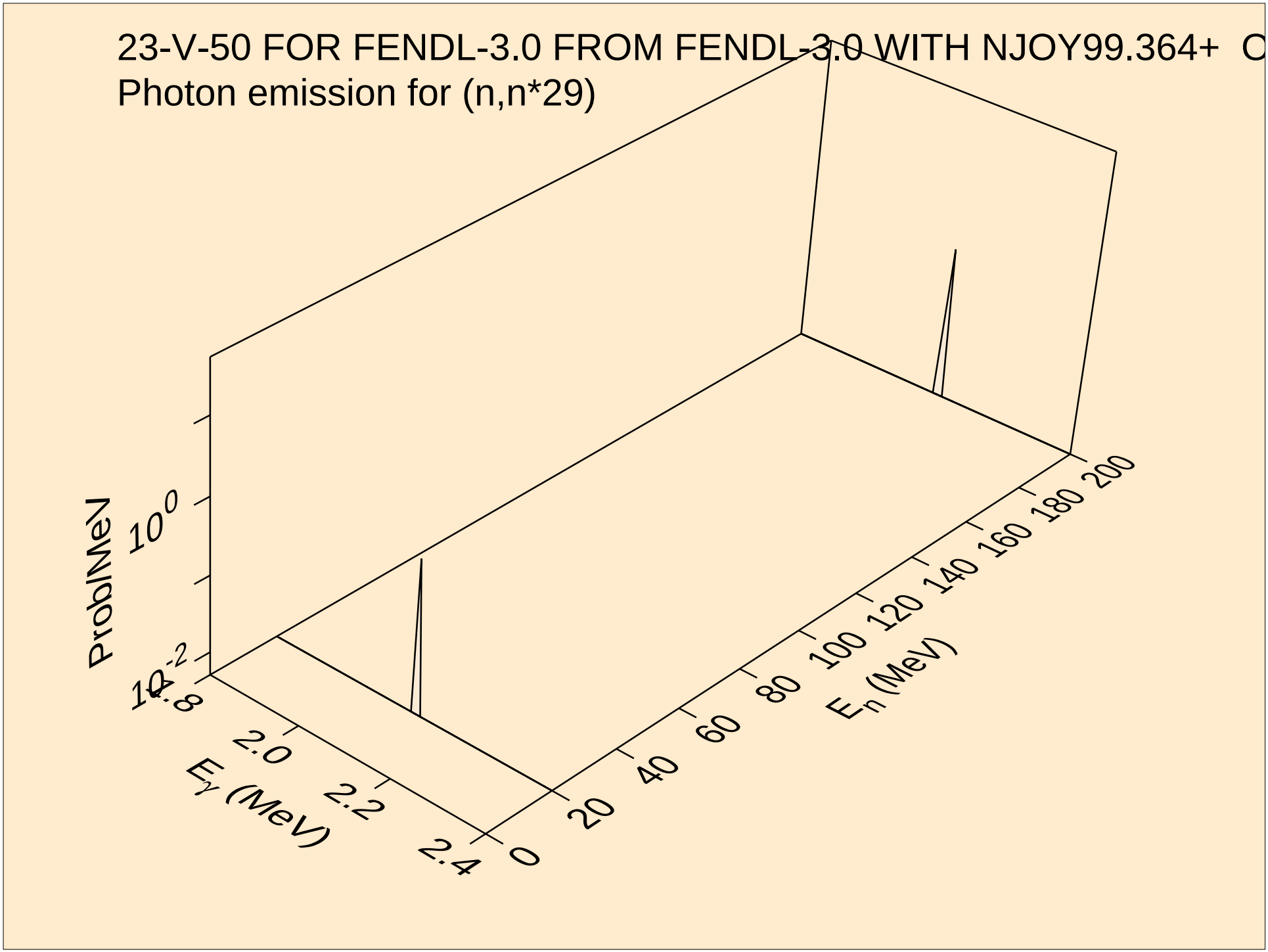

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*24)
Prob/MeV
10^{0}
10^{-2}
0.0
0.5
1.0
1.5
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

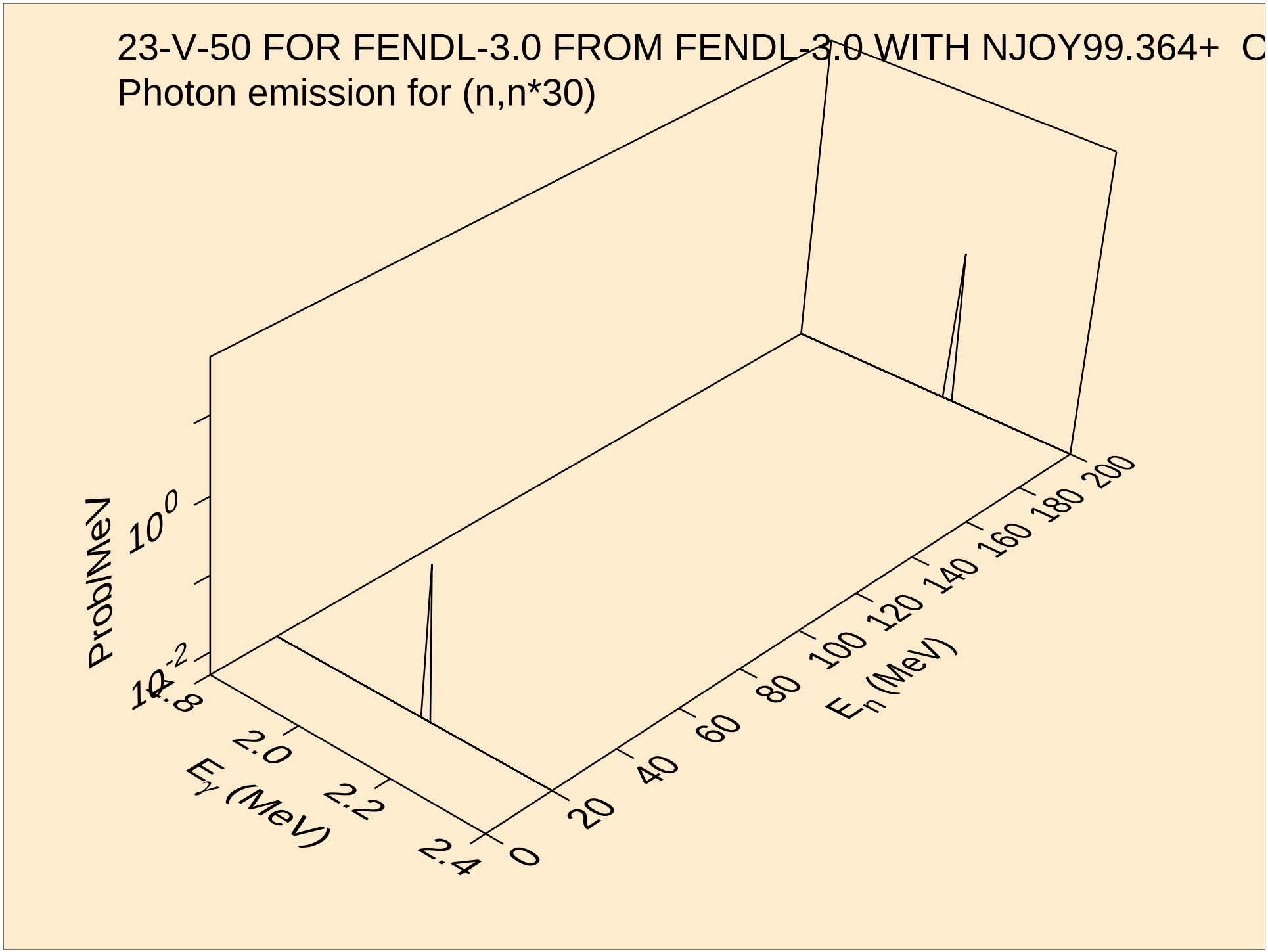

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*25)
Prob/MeV
10^{0}
10^{-2}
1.6
1.8
2.0
2.2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

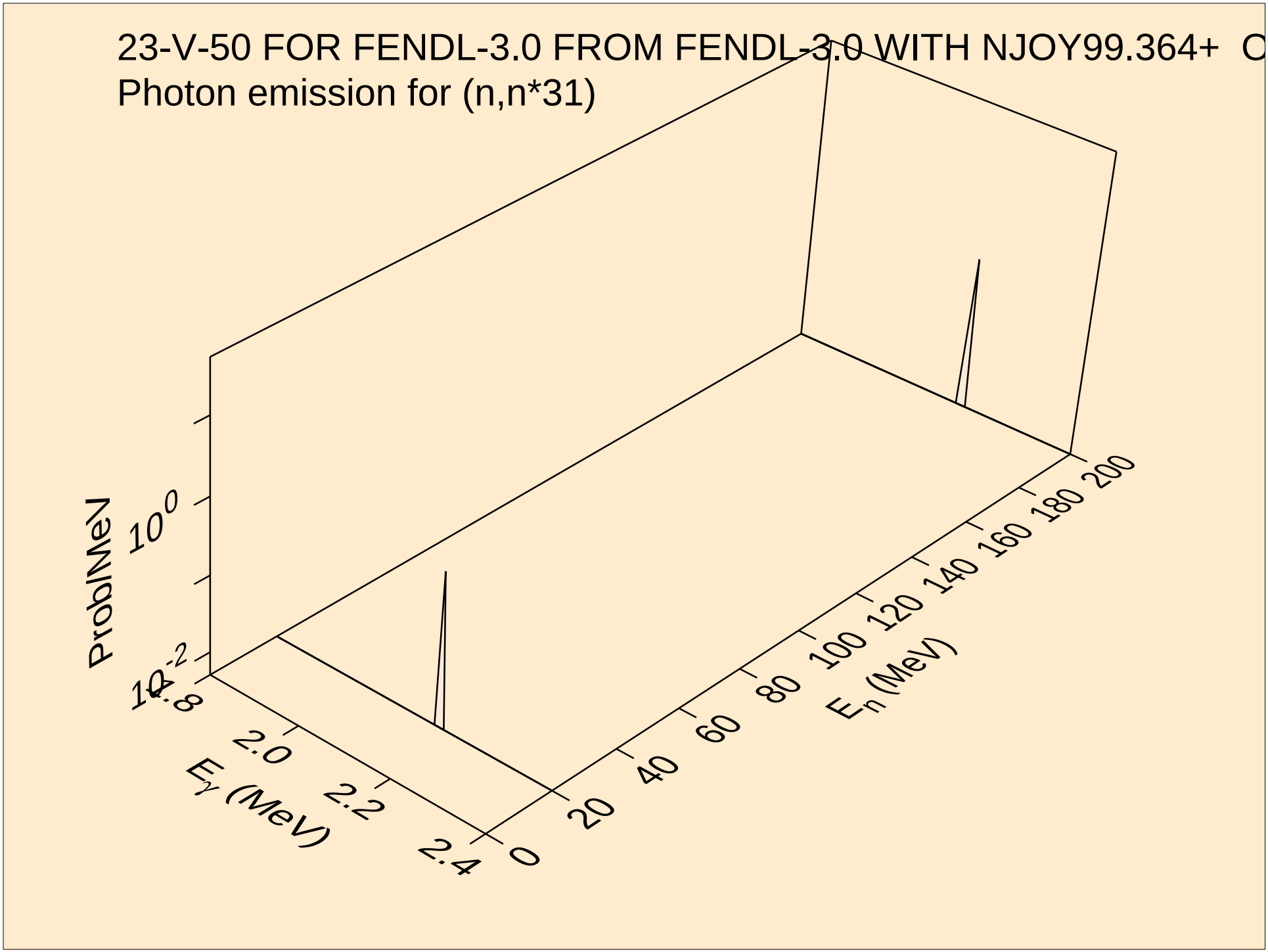

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*26)
Prob/MeV
10^{0}
10^{-2}
1.6
1.8
2.0
2.2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

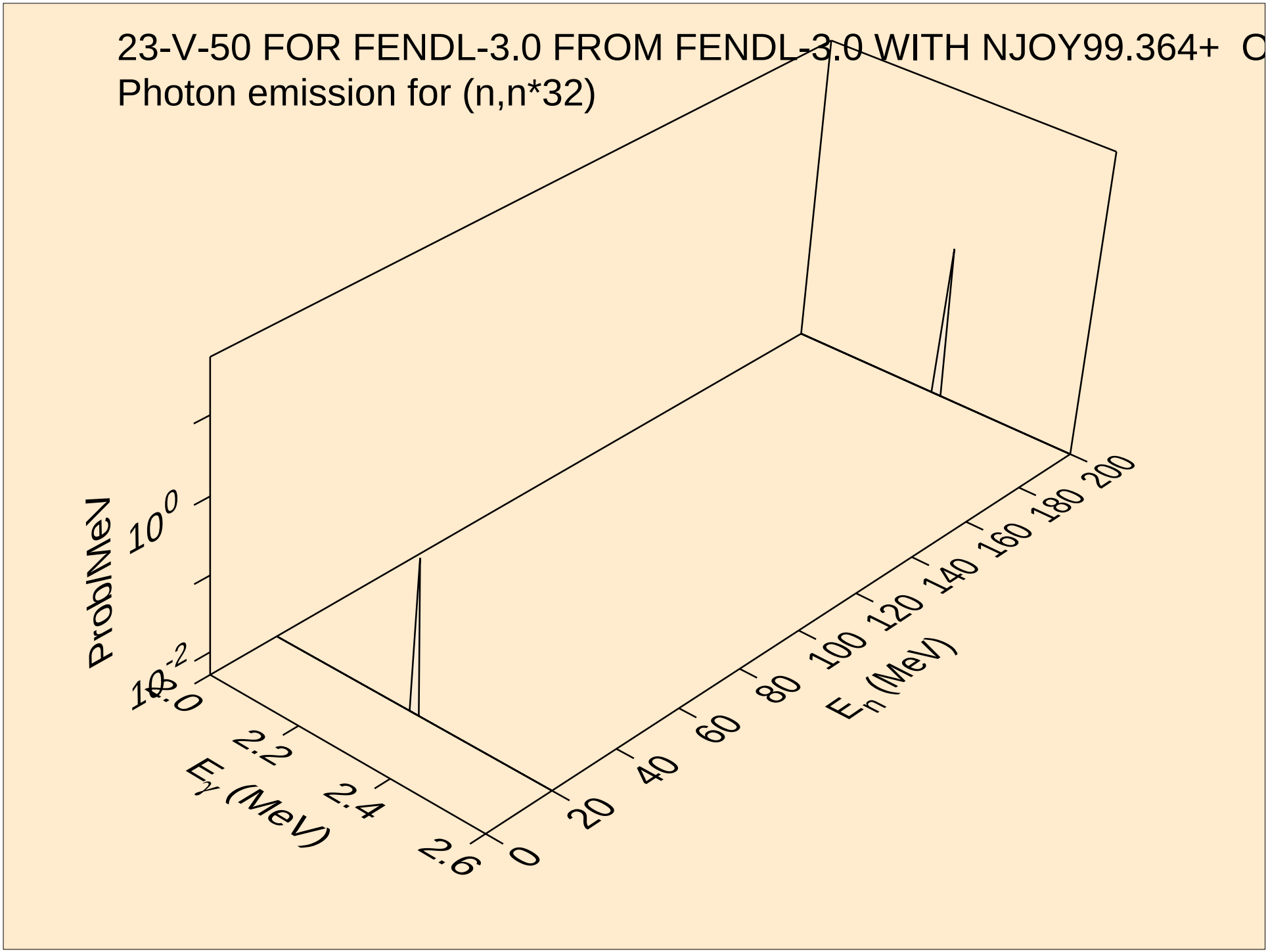

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*27)
Prob/MeV
10^{0}
10^{-2}
1.8
2.0
2.2
2.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

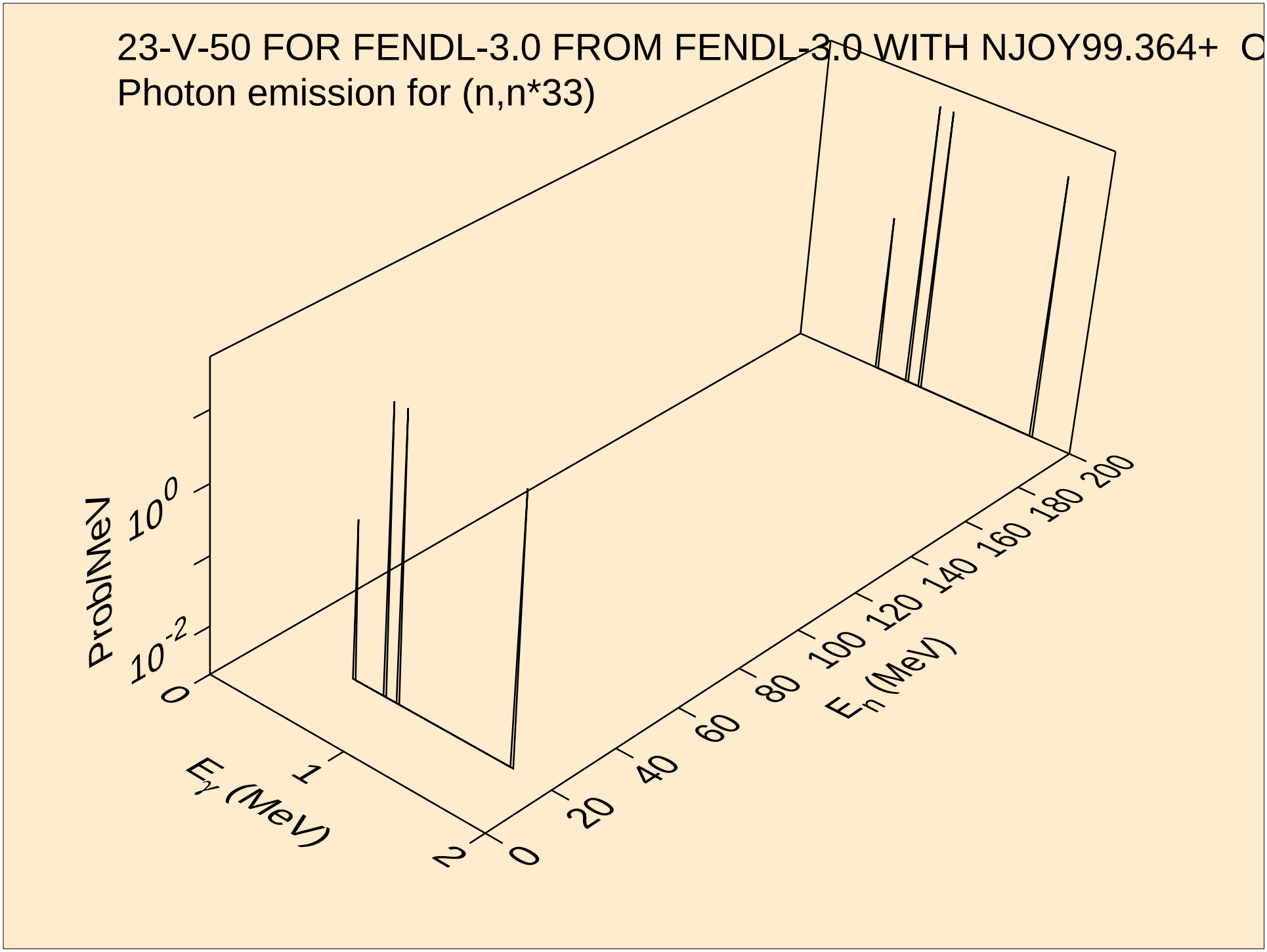

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*28)
Prob/MeV
10^{0}
10^{-2}
1.8
2.0
2.2
2.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

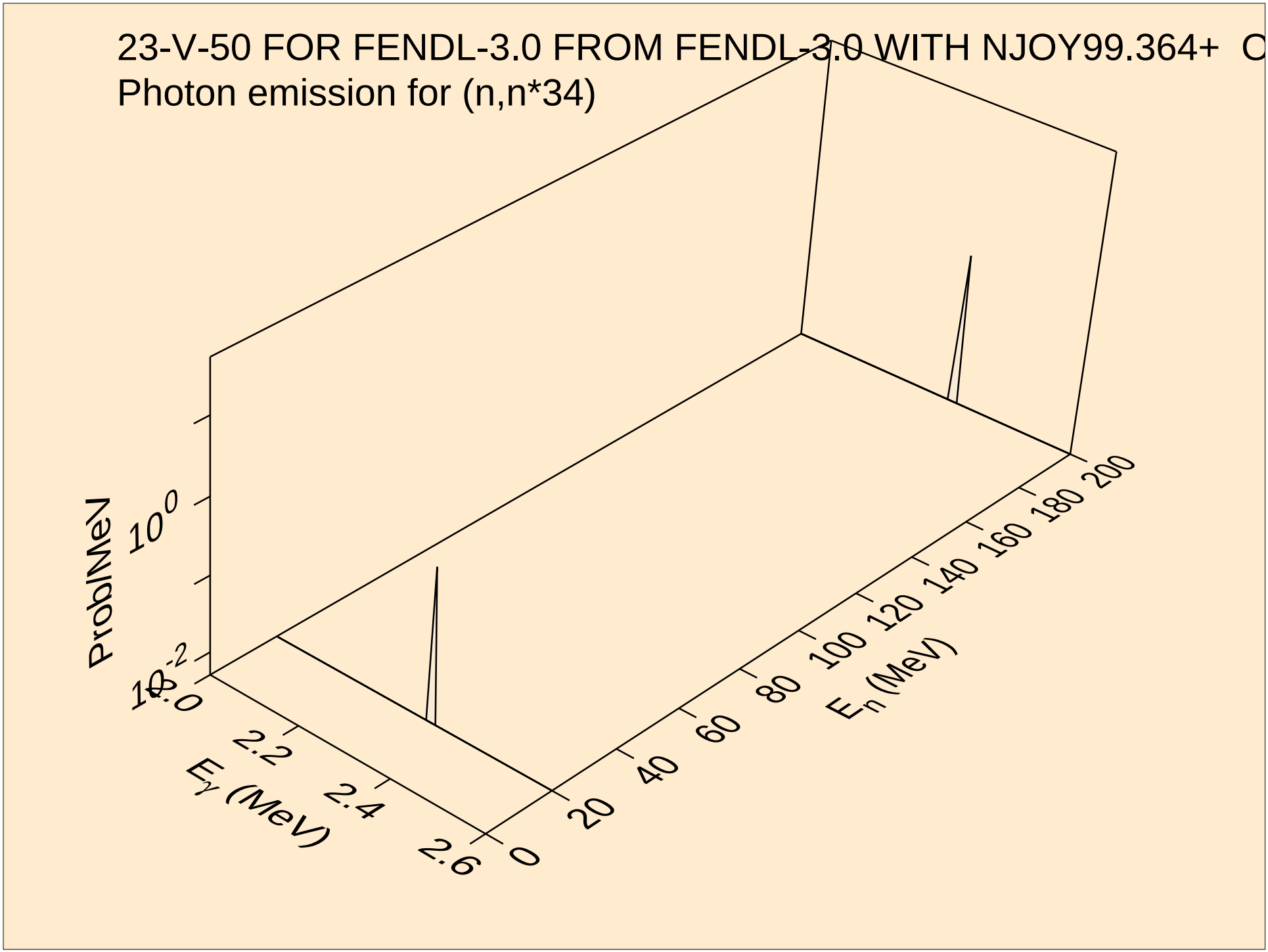

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*29)
Prob/MeV
10^{0}
10^{-2}
1.8
2.0
2.2
2.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

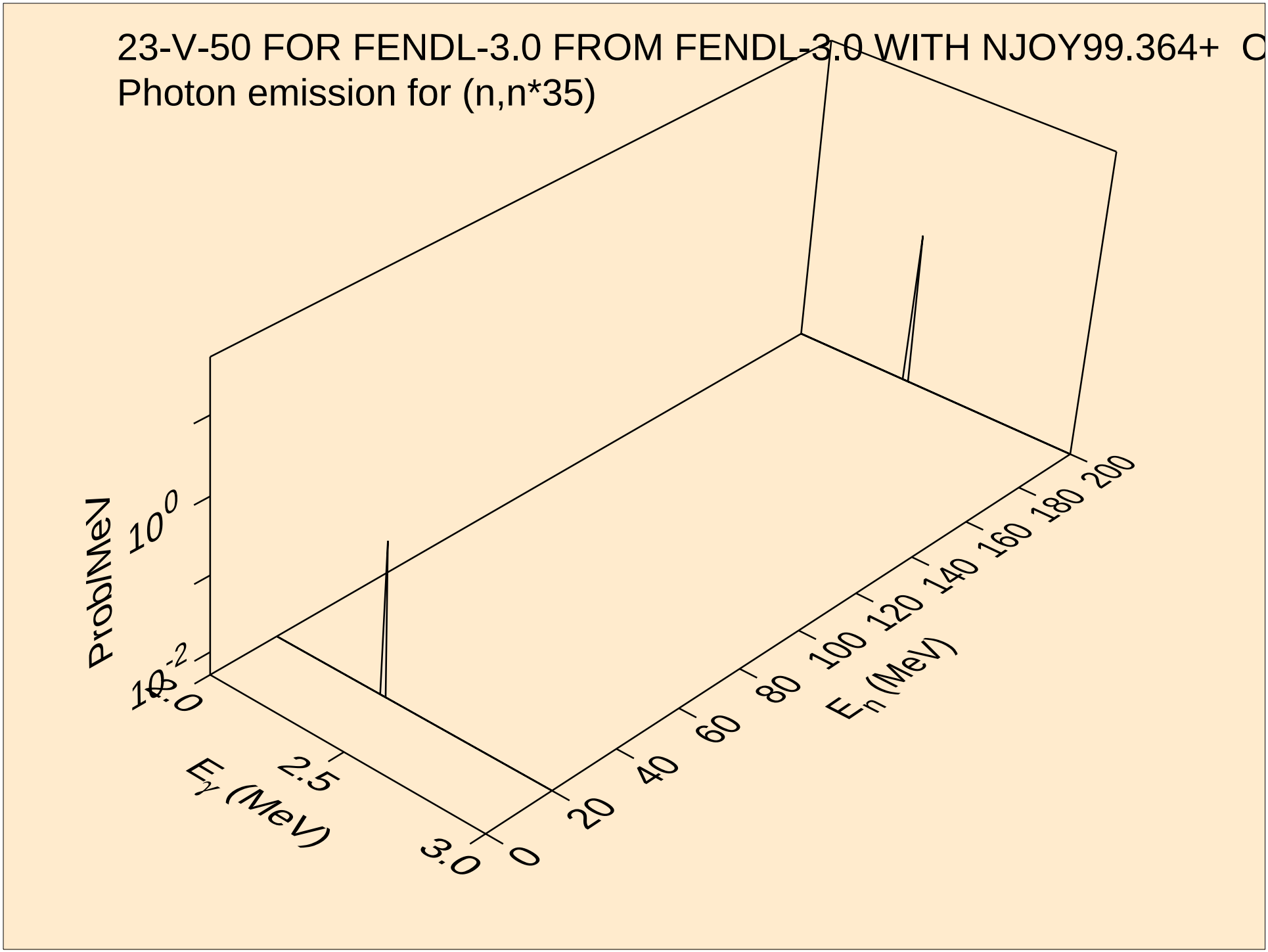

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*30)
Prob/MeV
10^{0}
10^{-2}
1.8
2.0
2.2
2.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

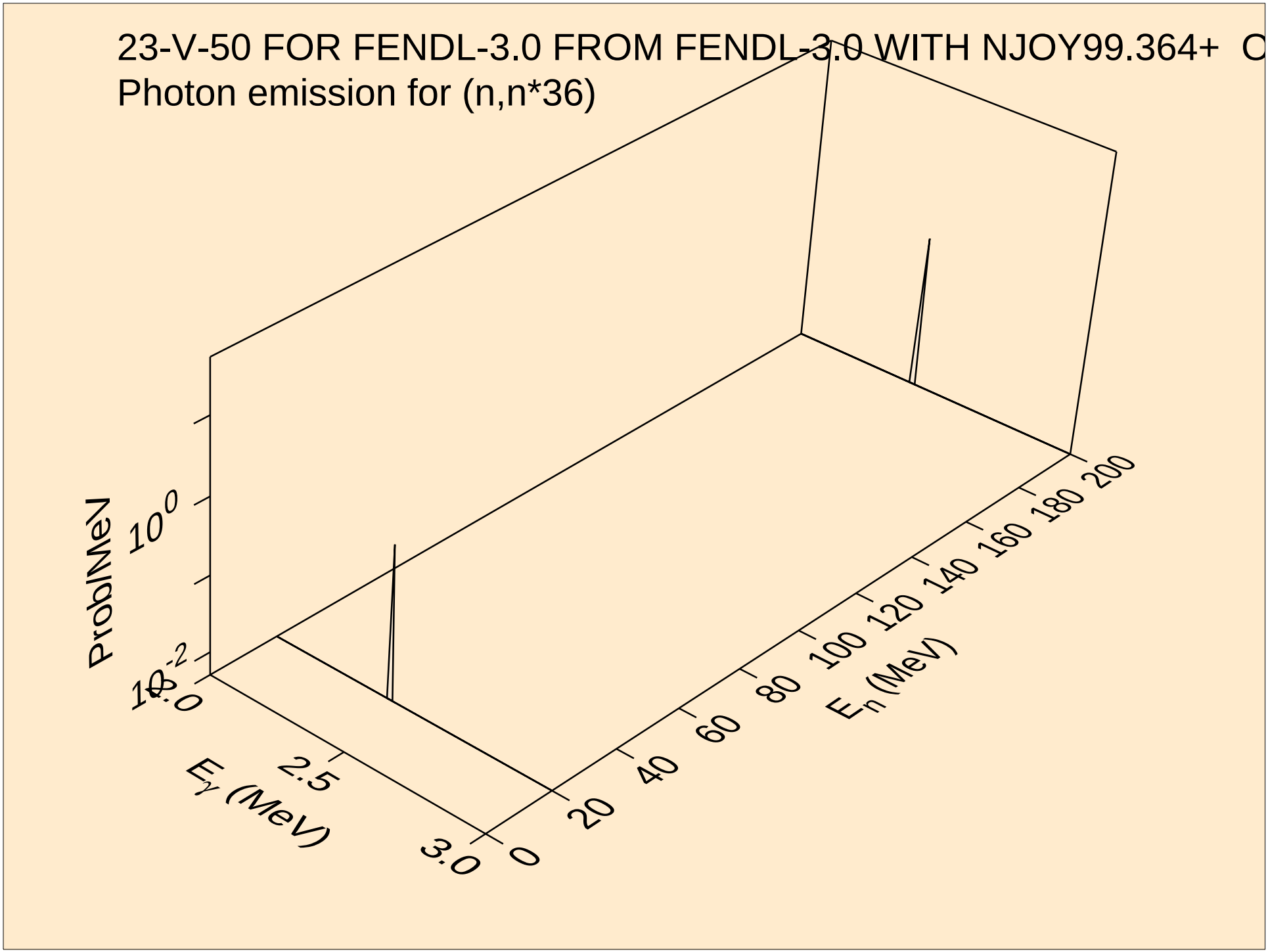

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*31)
Prob/MeV
10^{0}
10^{-2}
1.8
2.0
2.2
2.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

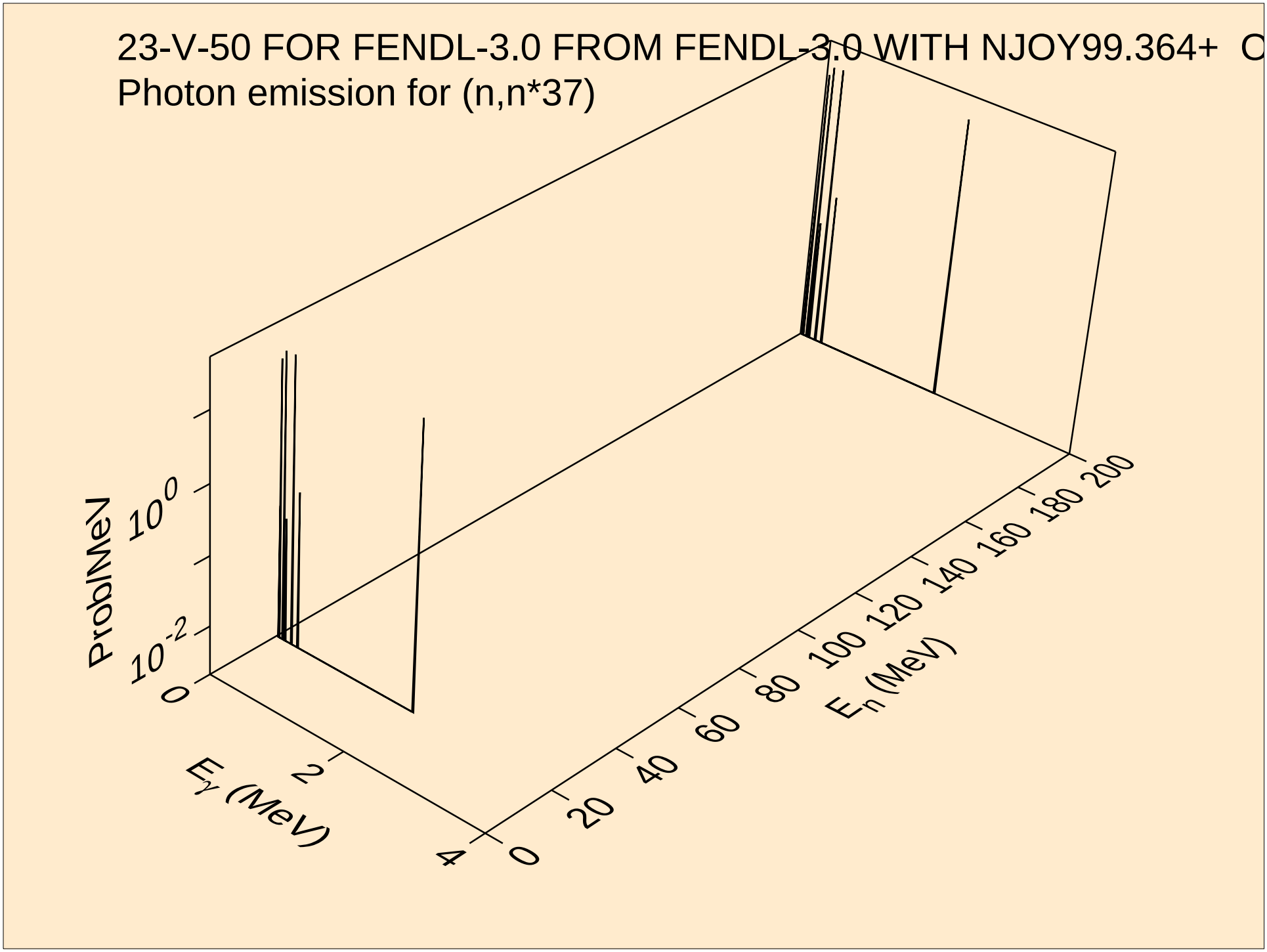

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*32)
Prob/MeV
10^{0}
10^{-2}
2.0
2.2
2.4
2.6
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

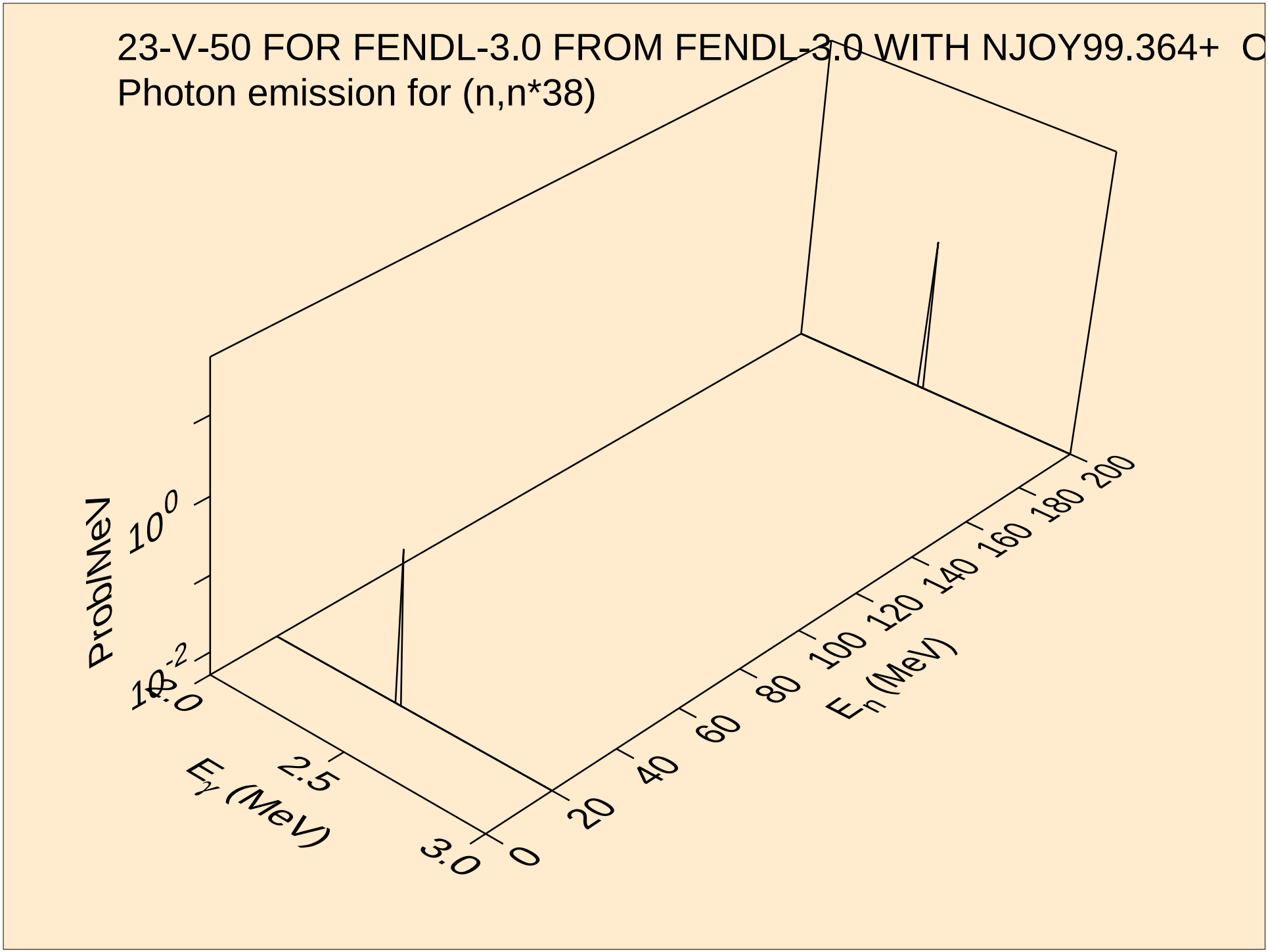

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*33)
Prob/MeV
10^{0}
10^{-2}
0
1
2
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

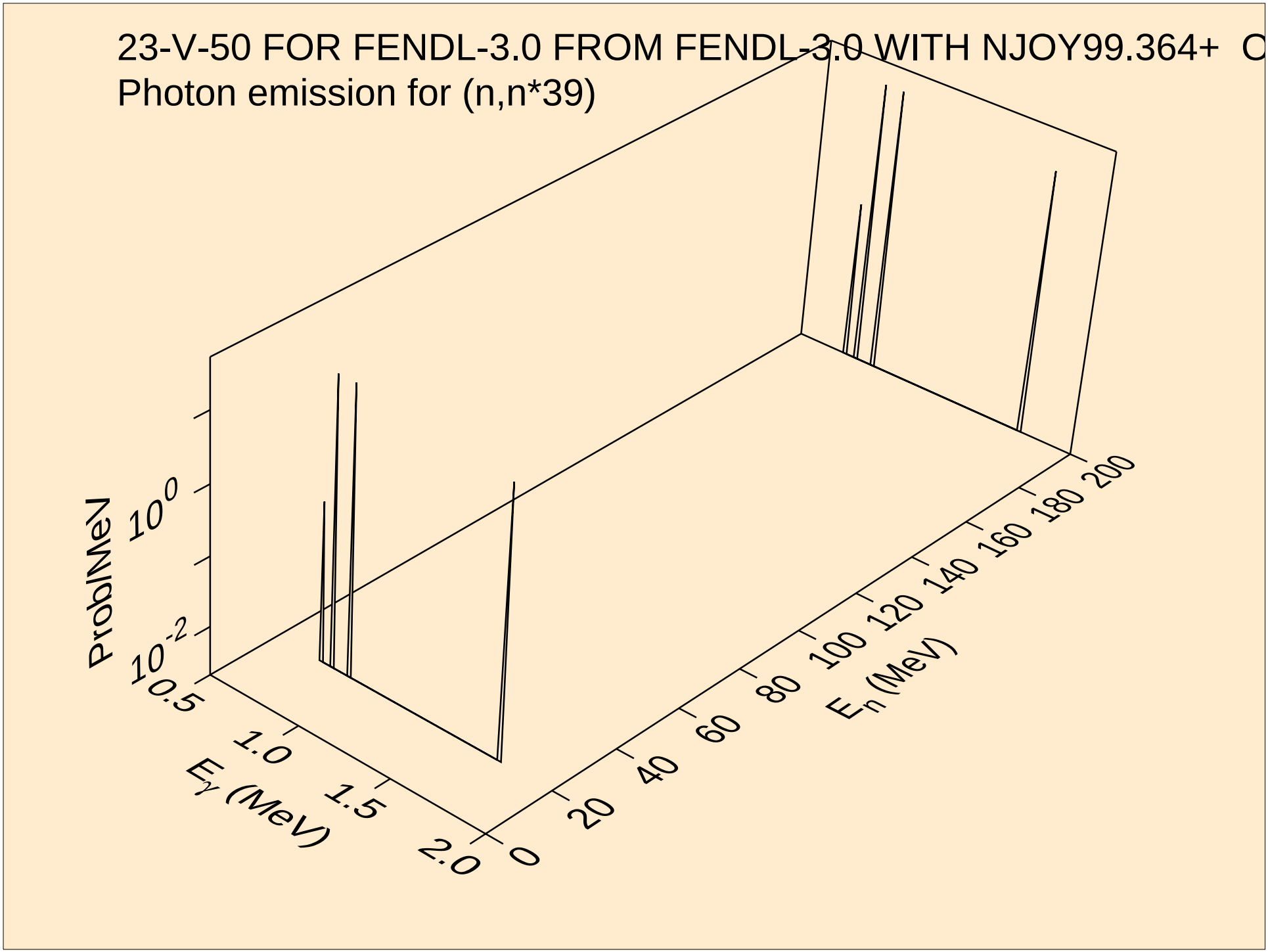

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*34)
Prob/MeV
10^{0}
10^{-2}
0.0
2.2
2.4
2.6
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

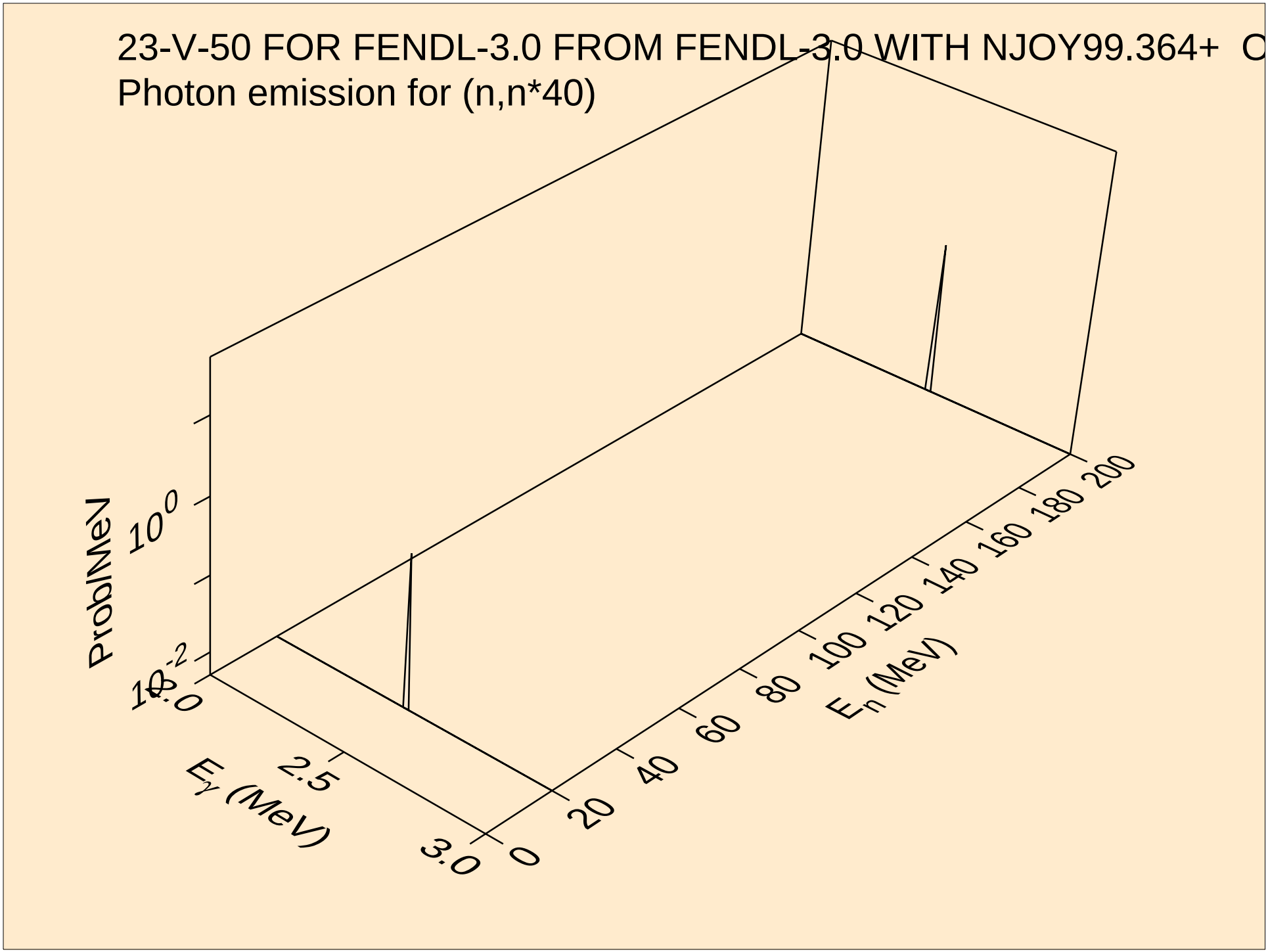

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*35)
Prob/MeV
10^{0}
10^{-2}
0.0
2.5
3.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

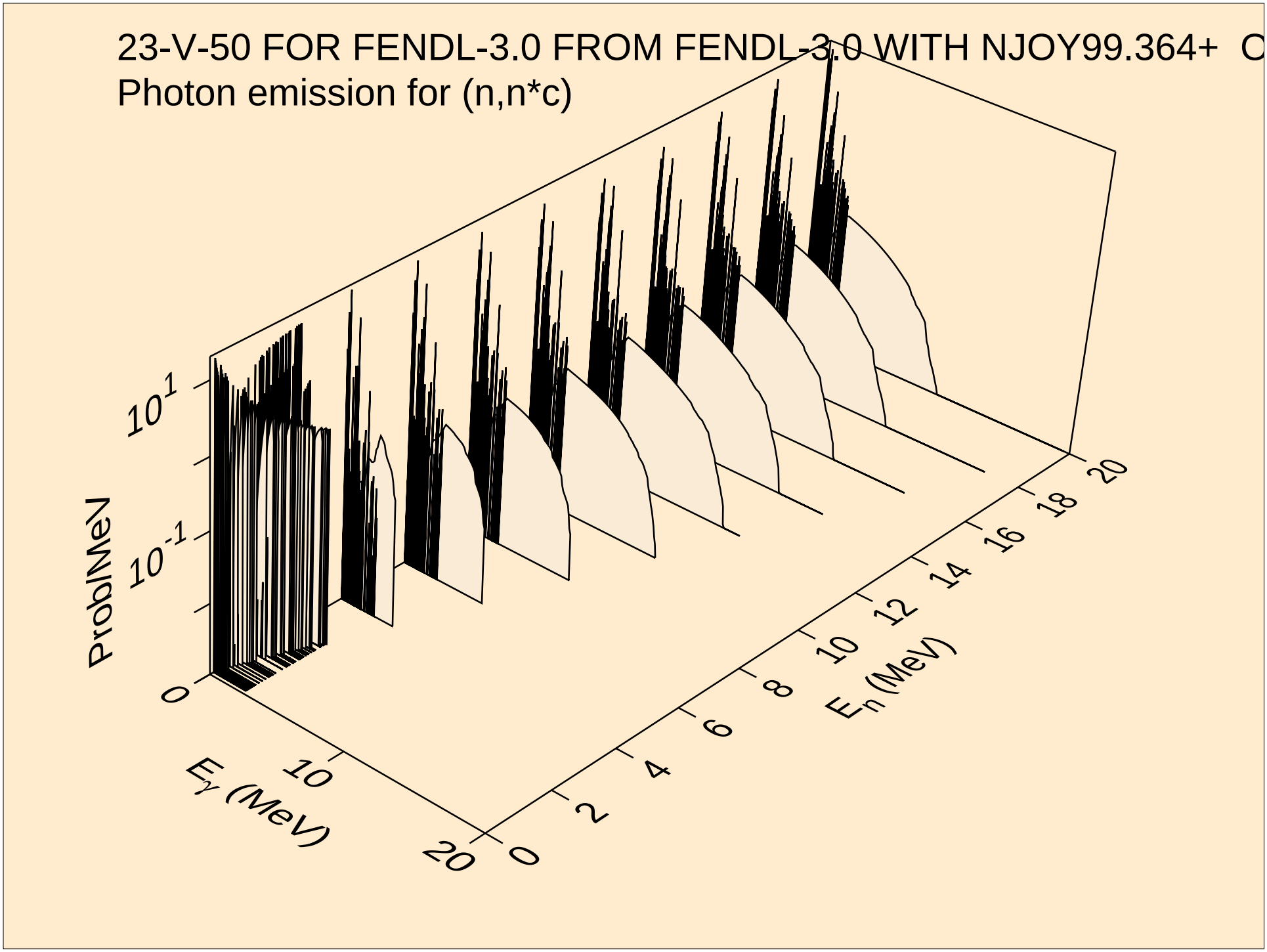

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*36)
Prob/MeV
10^{0}
10^{-2}
0.0
2.5
3.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

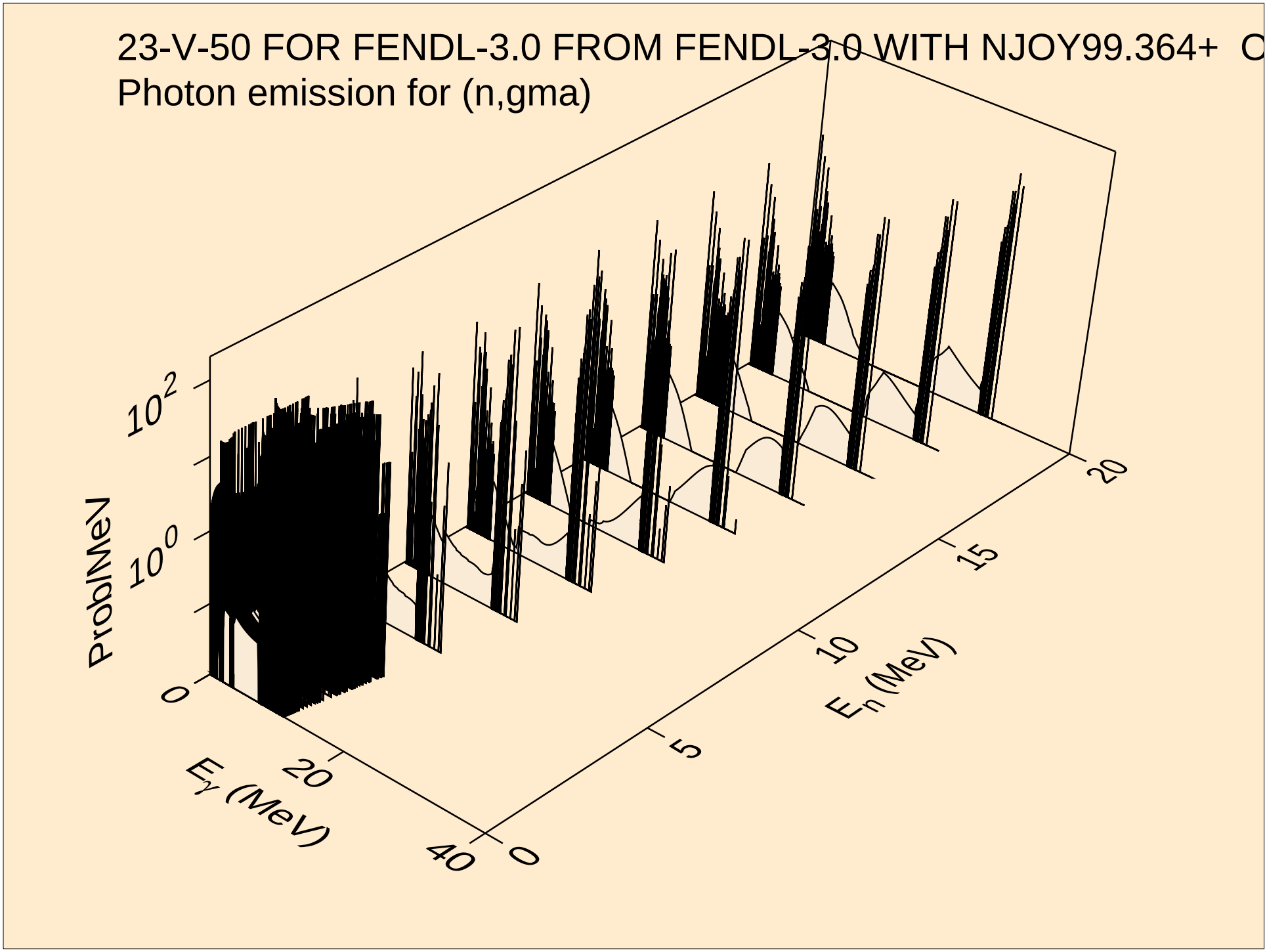

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*37)
Prob/MeV
10^0
10^-2
0
2
4
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

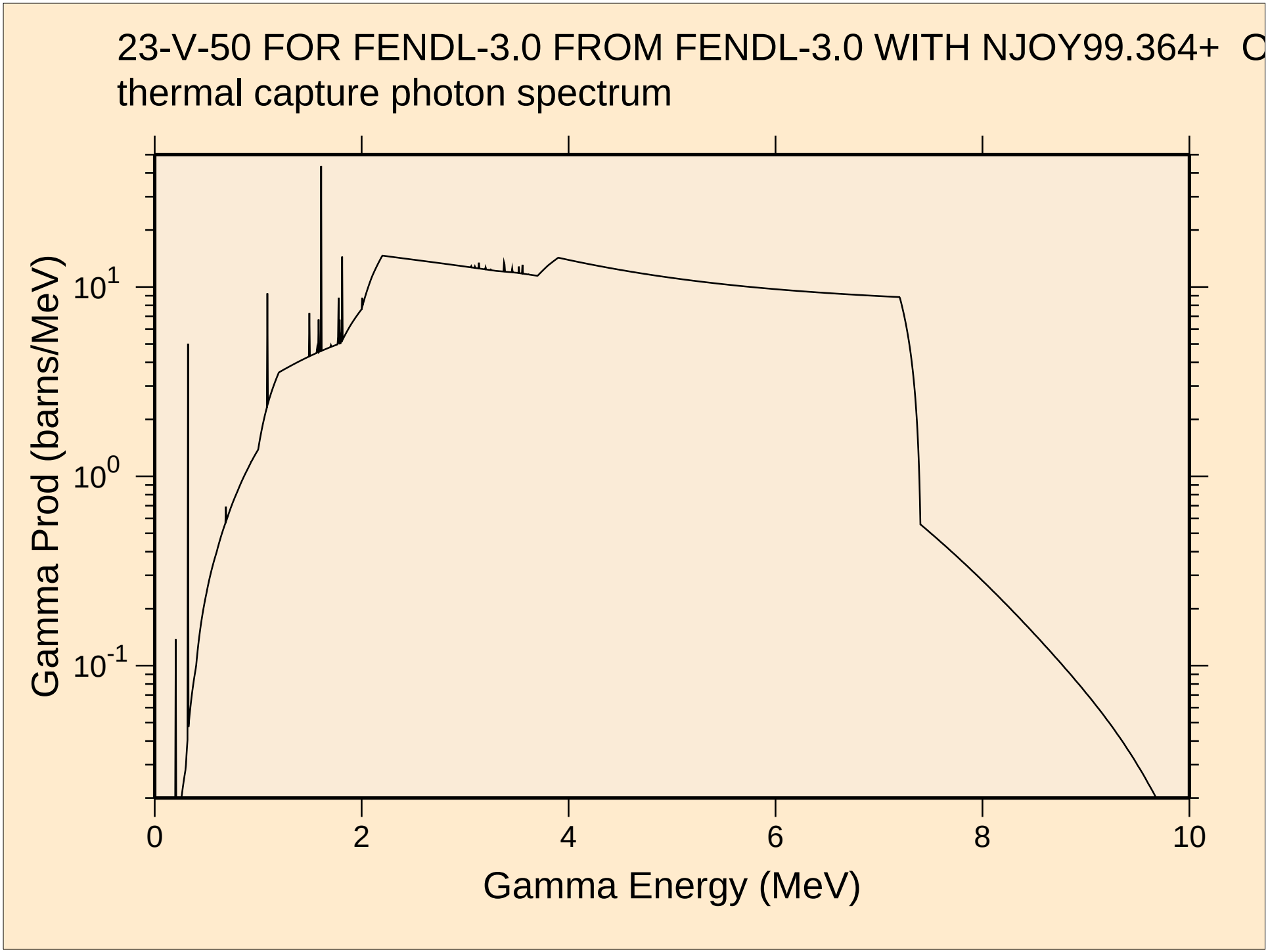

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*38)
Prob/MeV
10^0
10^-2
0.0
2.5
3.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

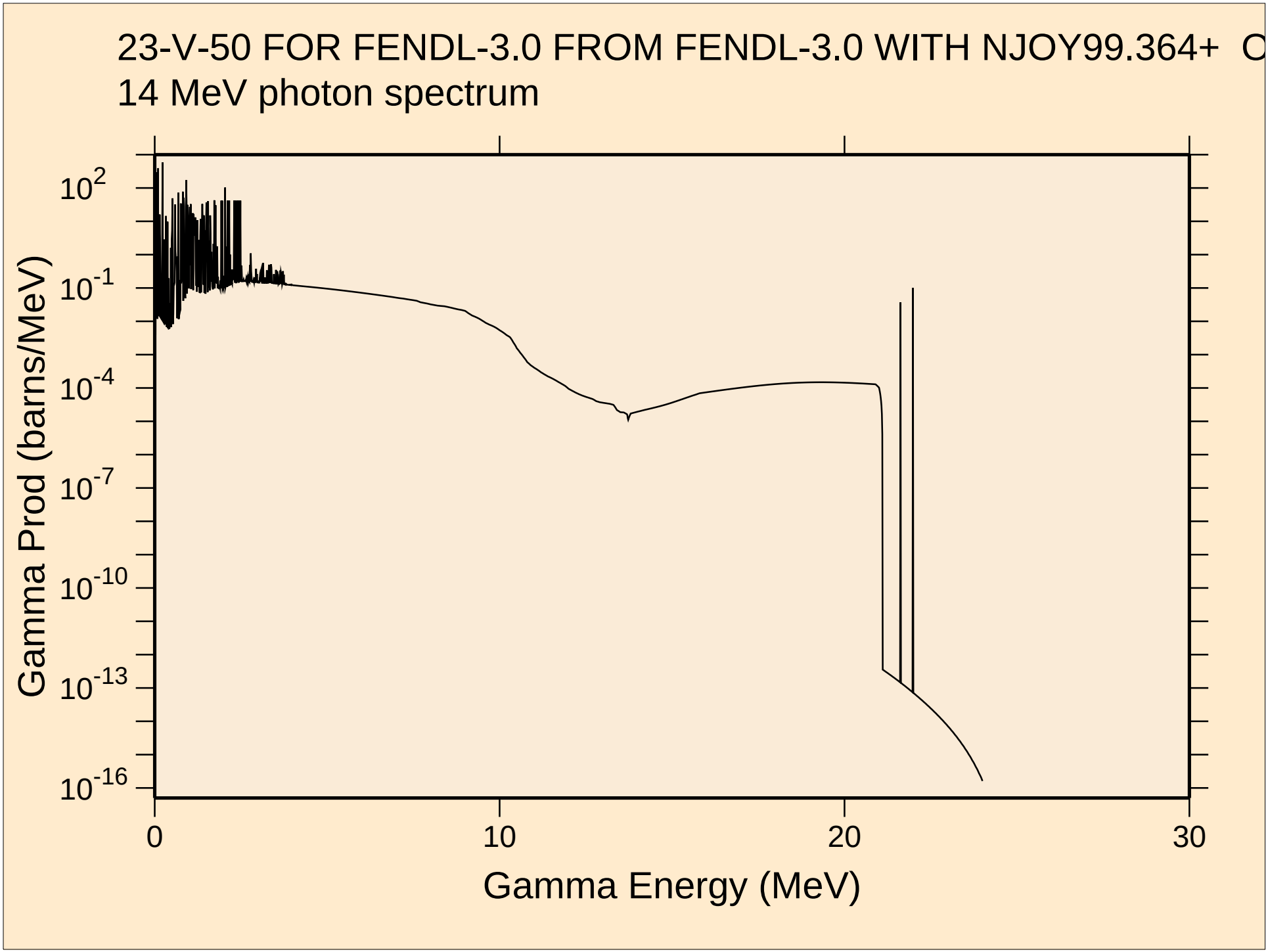

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*39)
Prob/MeV
10^0
10^-2
0.5
1.0
1.5
2.0
Eγ (MeV)
0
20
40
60
80
100
120
140
160
180
200
En (MeV)

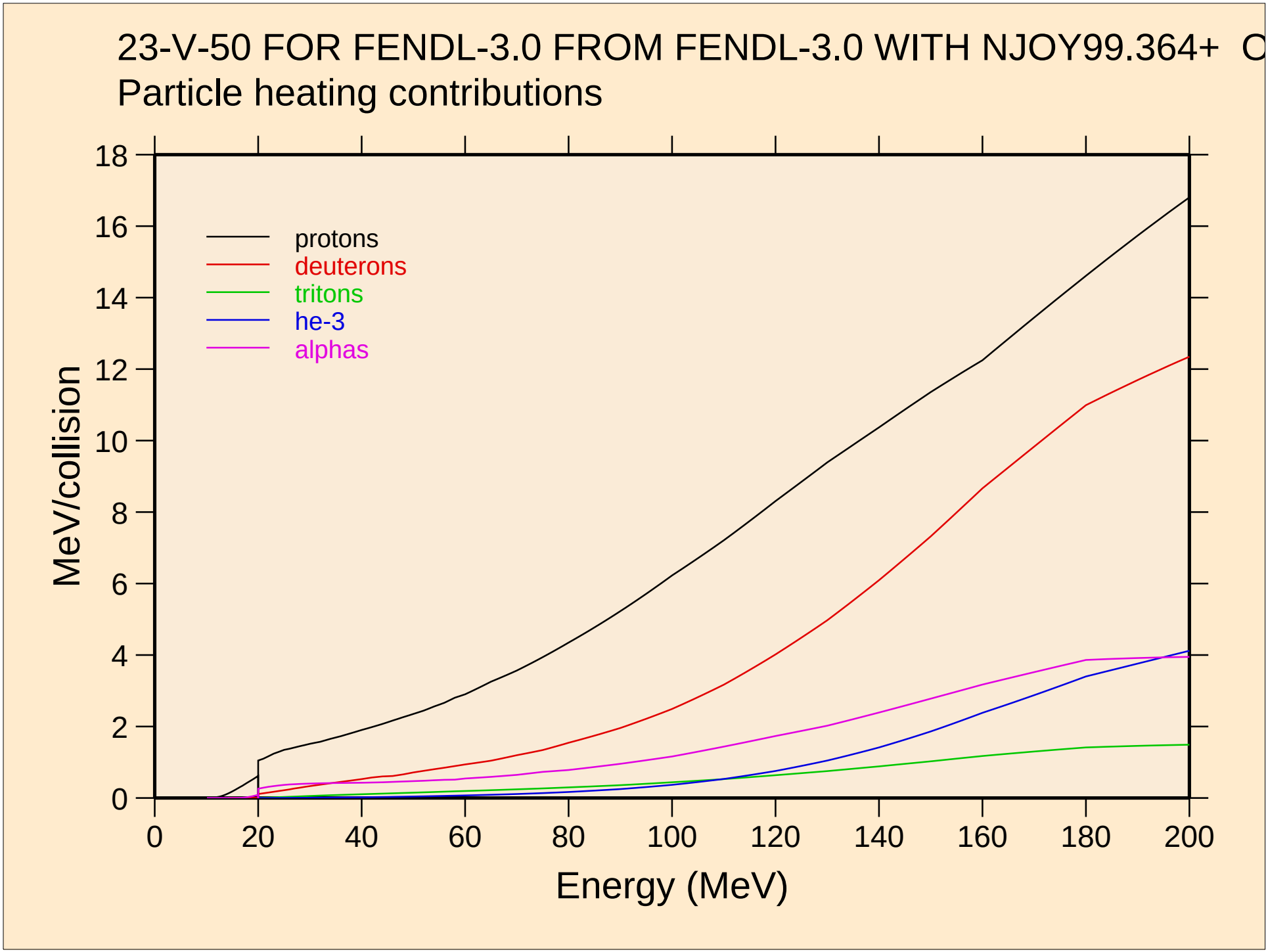

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*40)
Prob/MeV
10^0
10^-2
0.0
2.5
3.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
180
200
E_n (MeV)

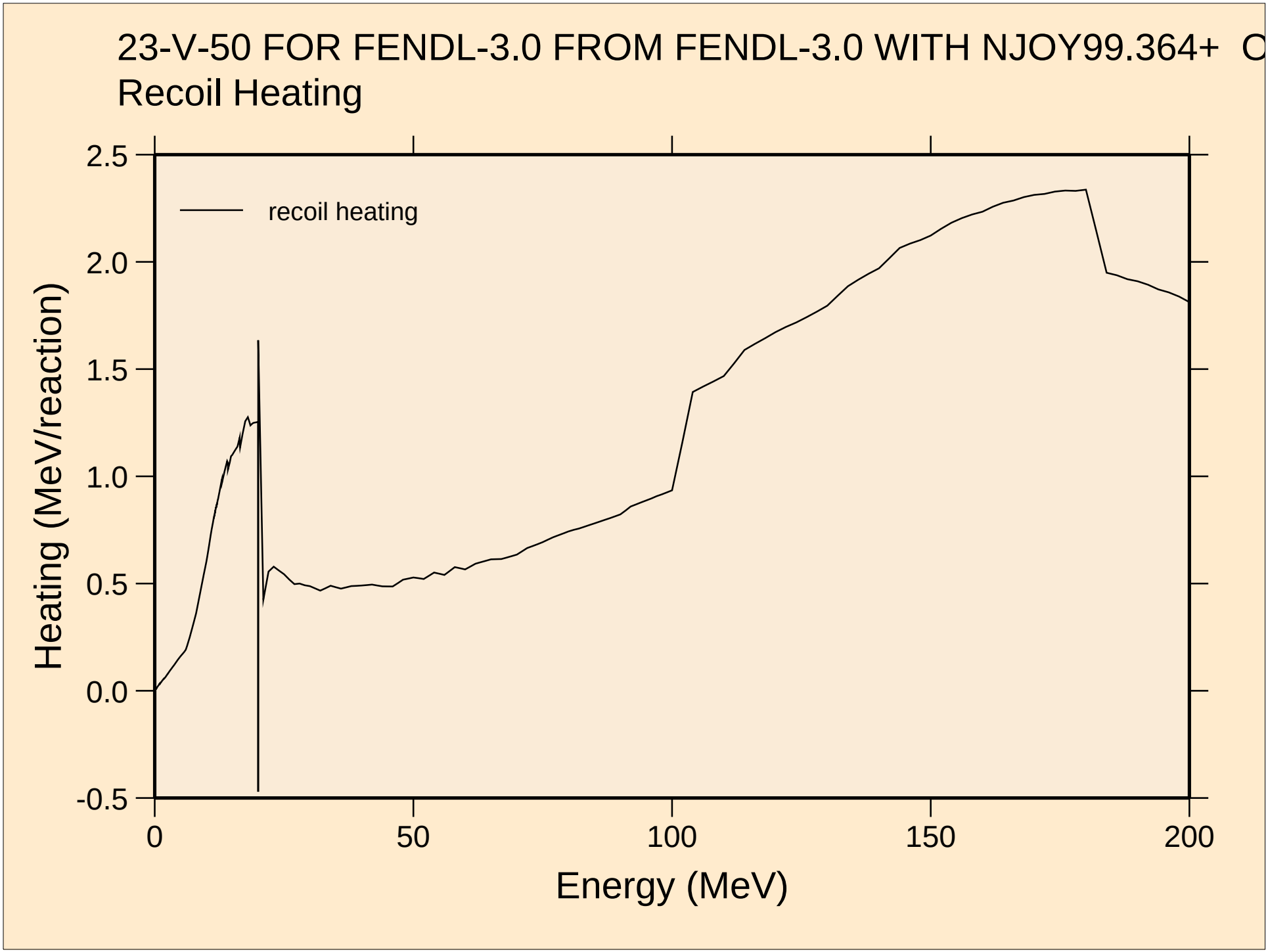

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,n*c)
Prob/MeV
10^{1}
10^{-1}
0
10
20
E_γ (MeV)
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

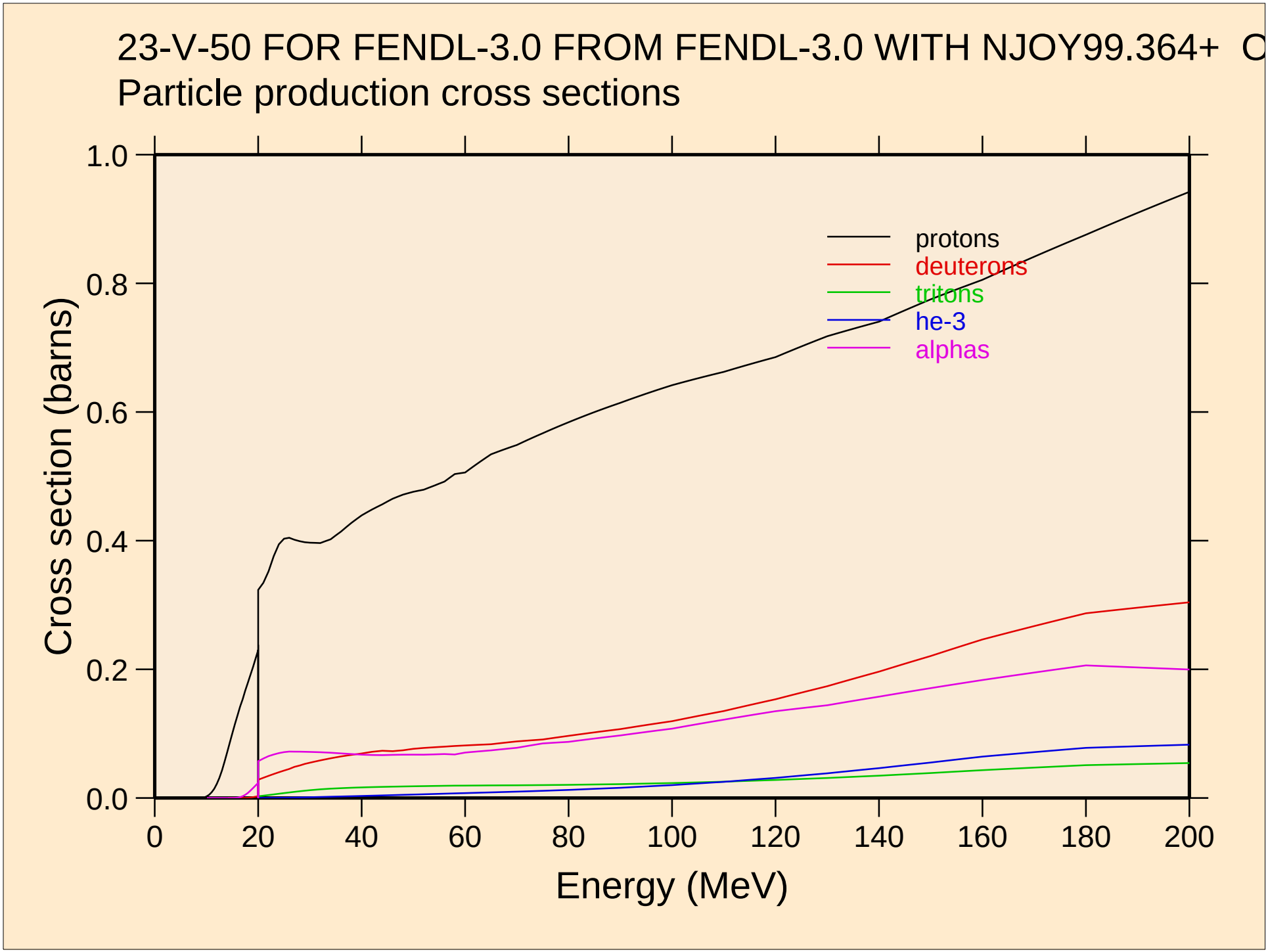

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Photon emission for (n,gma)
Prob/MeV
10^2
10^0
0
20
40
E_γ (MeV)
0
5
10
15
20
E_n (MeV)

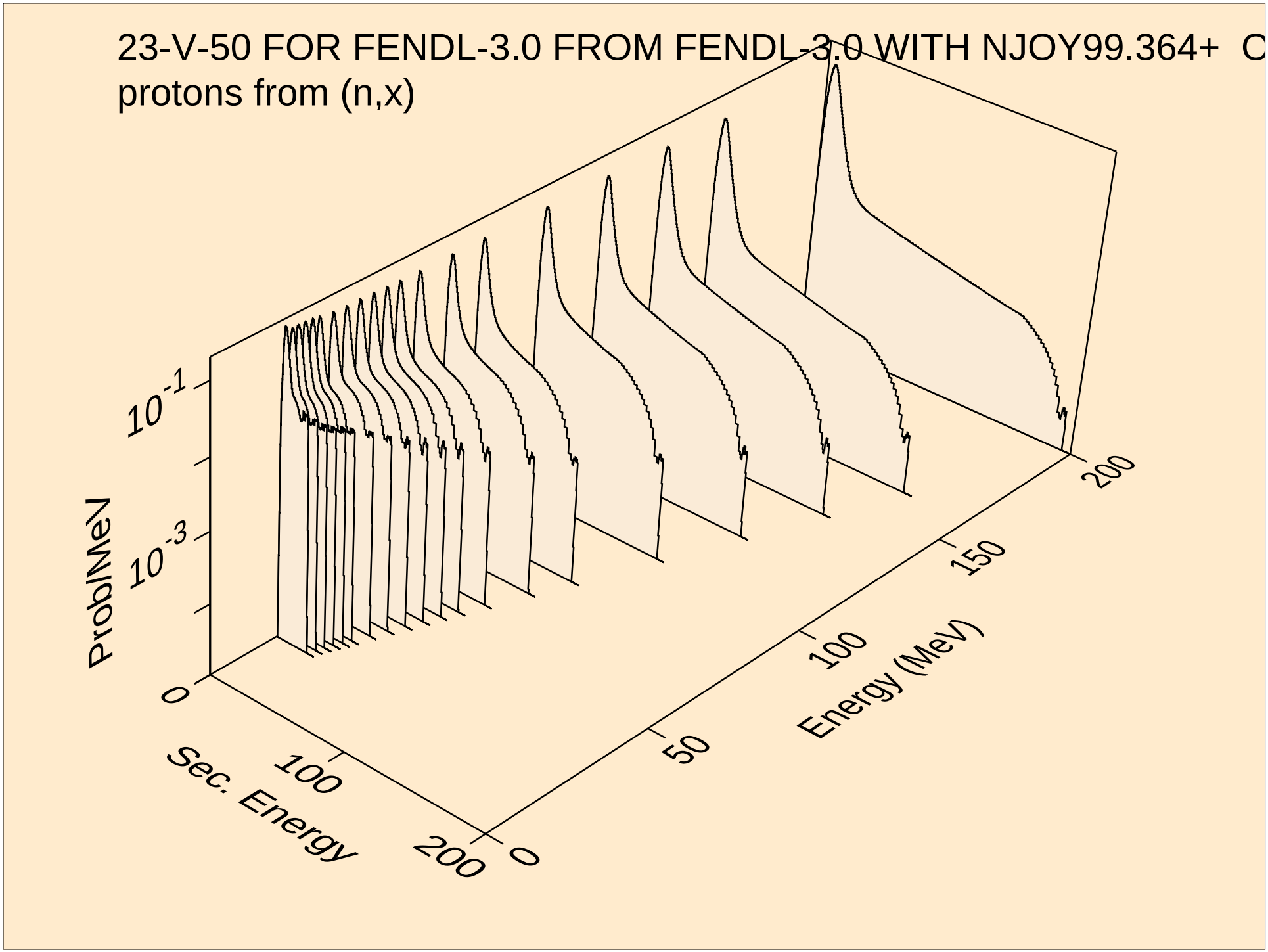

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
thermal capture photon spectrum
Gamma Prod (barns/MeV)
10^1
10^0
10^-1
0
2
4
6
8
10
Gamma Energy (MeV)

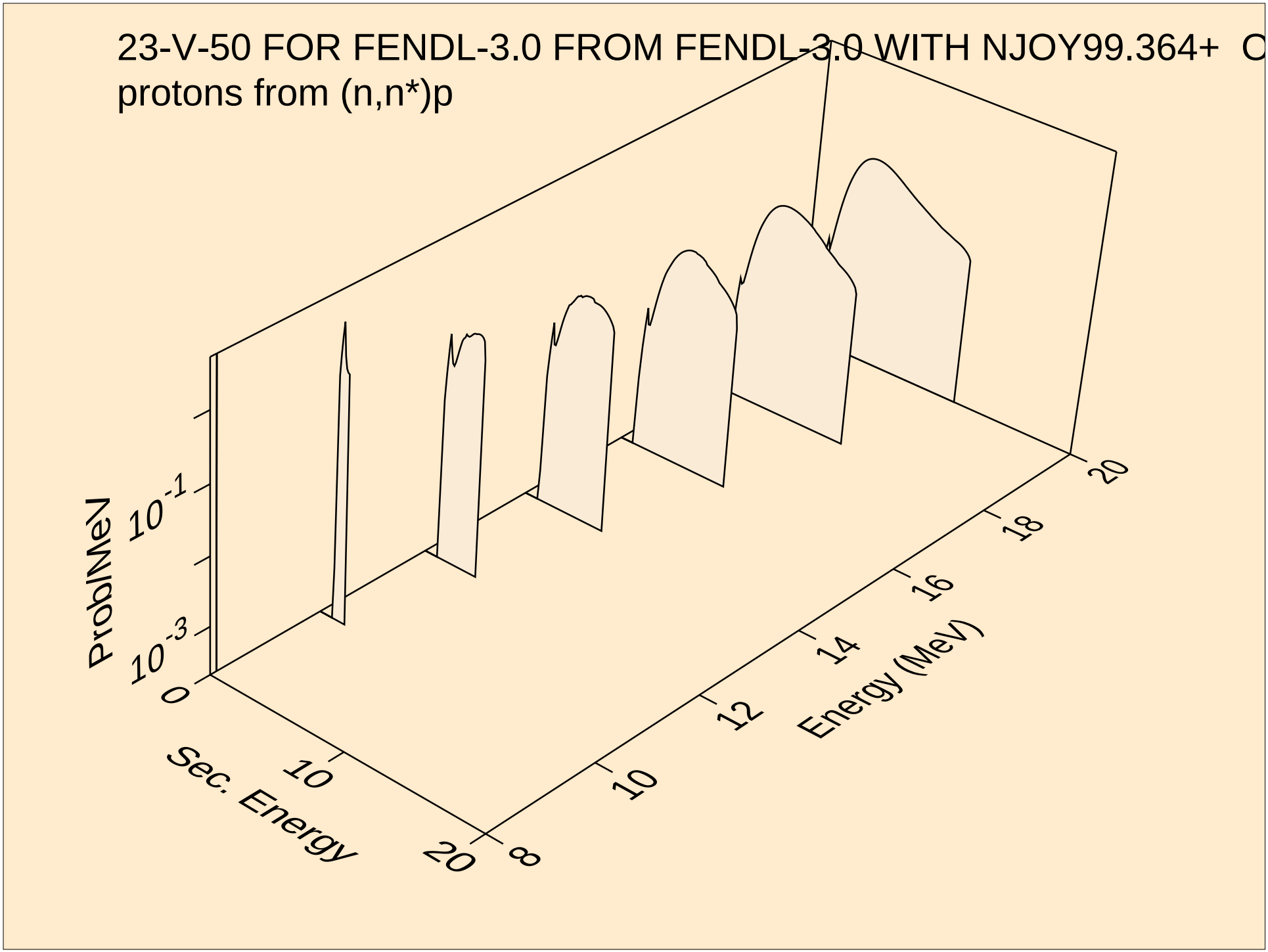

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^2
10^-1
10^-4
10^-7
10^-10
10^-13
10^-16
0
10
20
30
Gamma Energy (MeV)

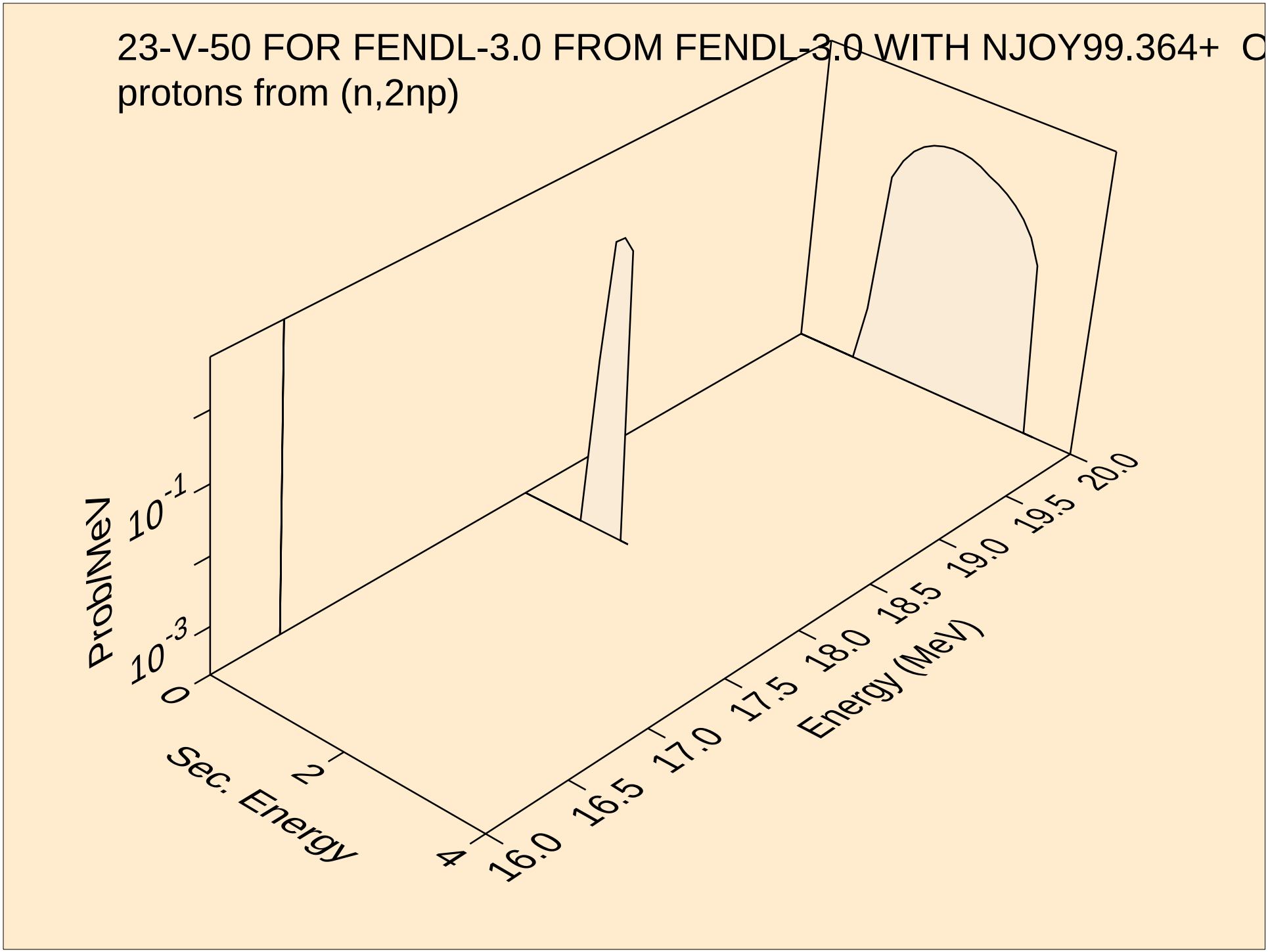

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Particle heating contributions
protons
deuterons
tritons
he-3
alphas
MeV/collision
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
0
20
40
60
80
100
120
140
160
180
200

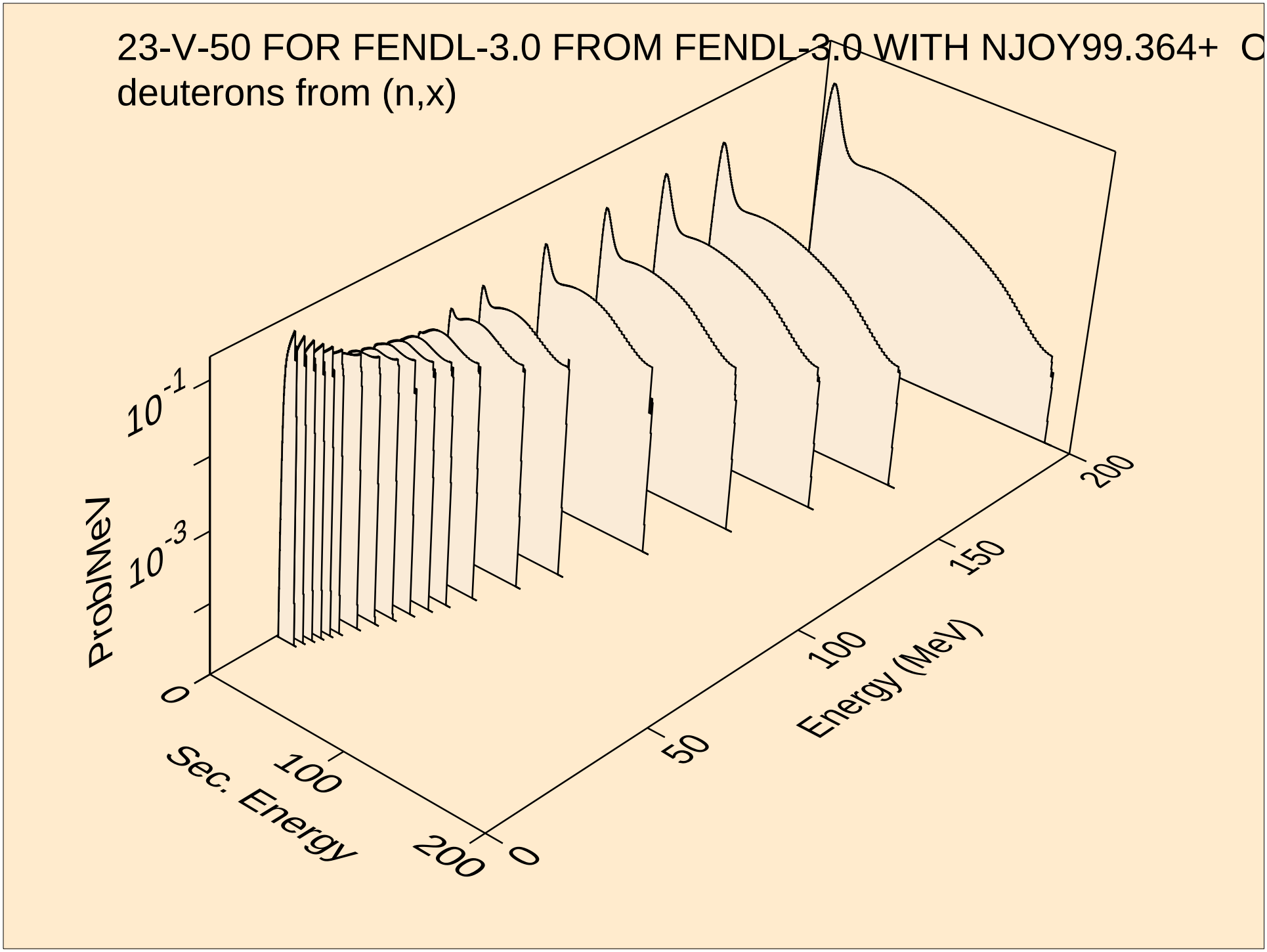

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
2.5
2.0
1.5
1.0
0.5
0.0
-0.5
0
50
100
150
200

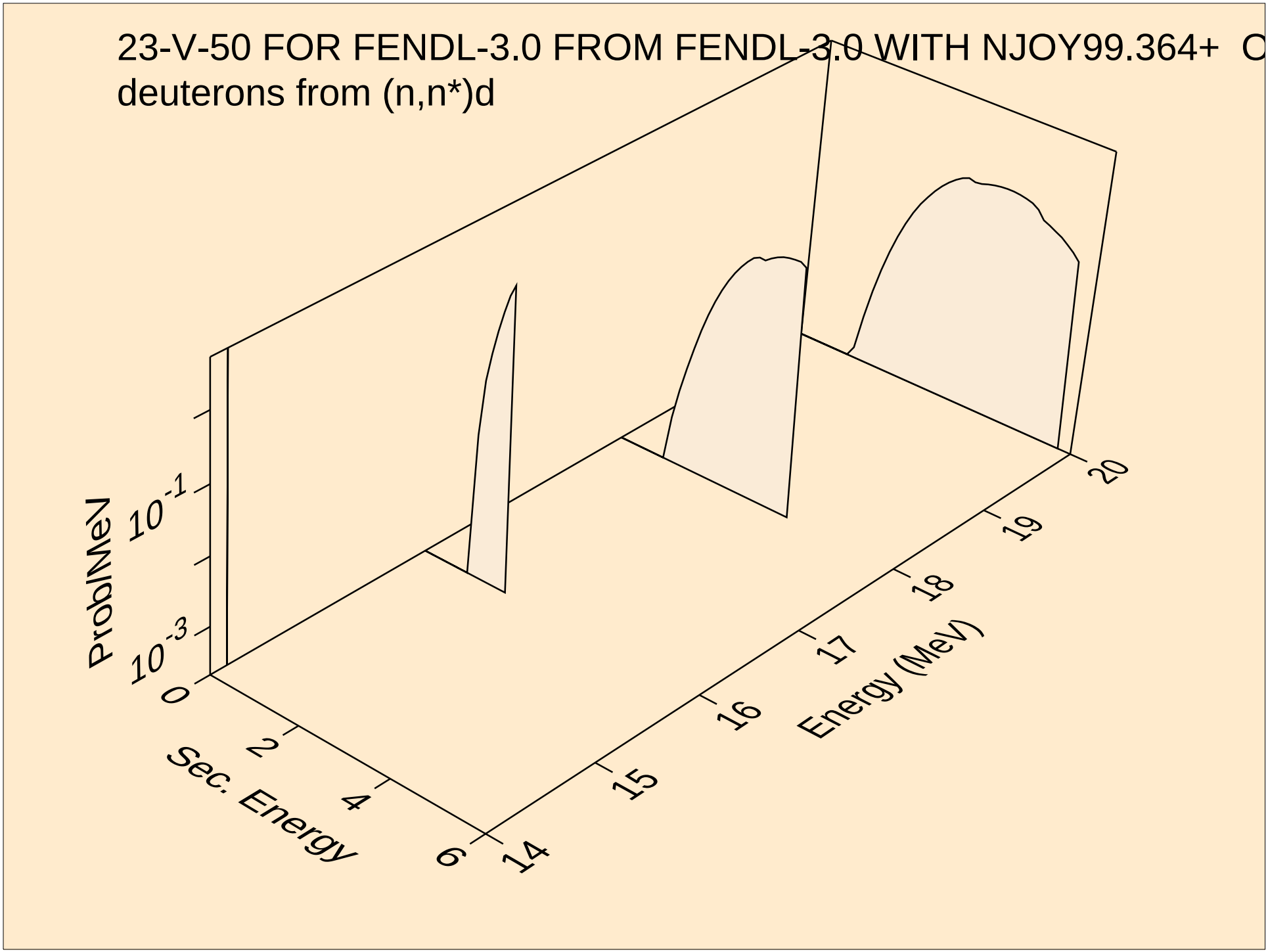

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
Particle production cross sections
Cross section (barns)
Energy (MeV)
protons
deuterons
tritons
he-3
alphas
0.0
0.2
0.4
0.6
0.8
1.0
0
20
40
60
80
100
120
140
160
180
200

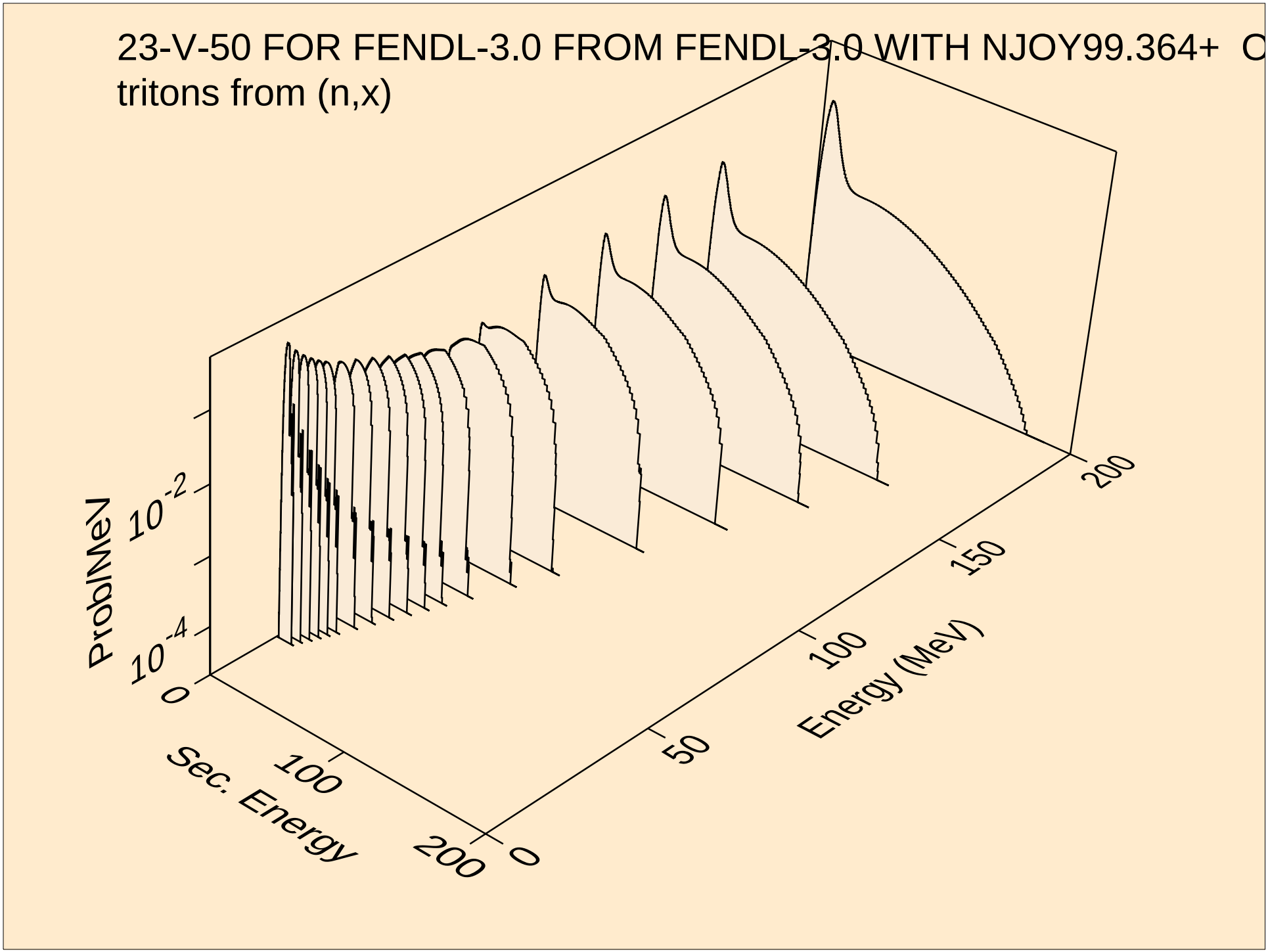

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
protons from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)

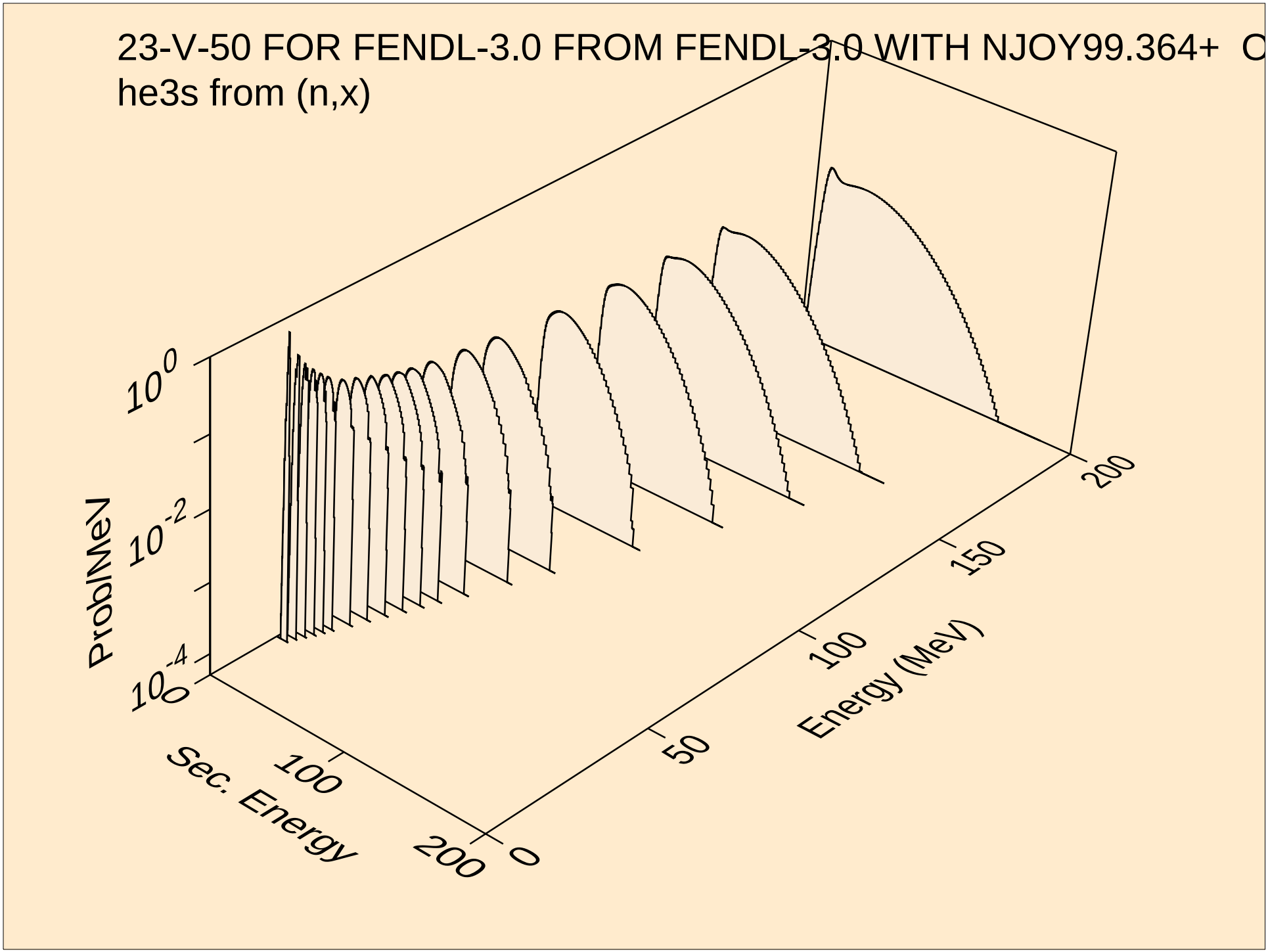

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
protons from (n,n*)p
Prob/MeV
10-1
10-3
0
Sec. Energy
10
20
8
10
12
14
16
18
20
Energy (MeV)

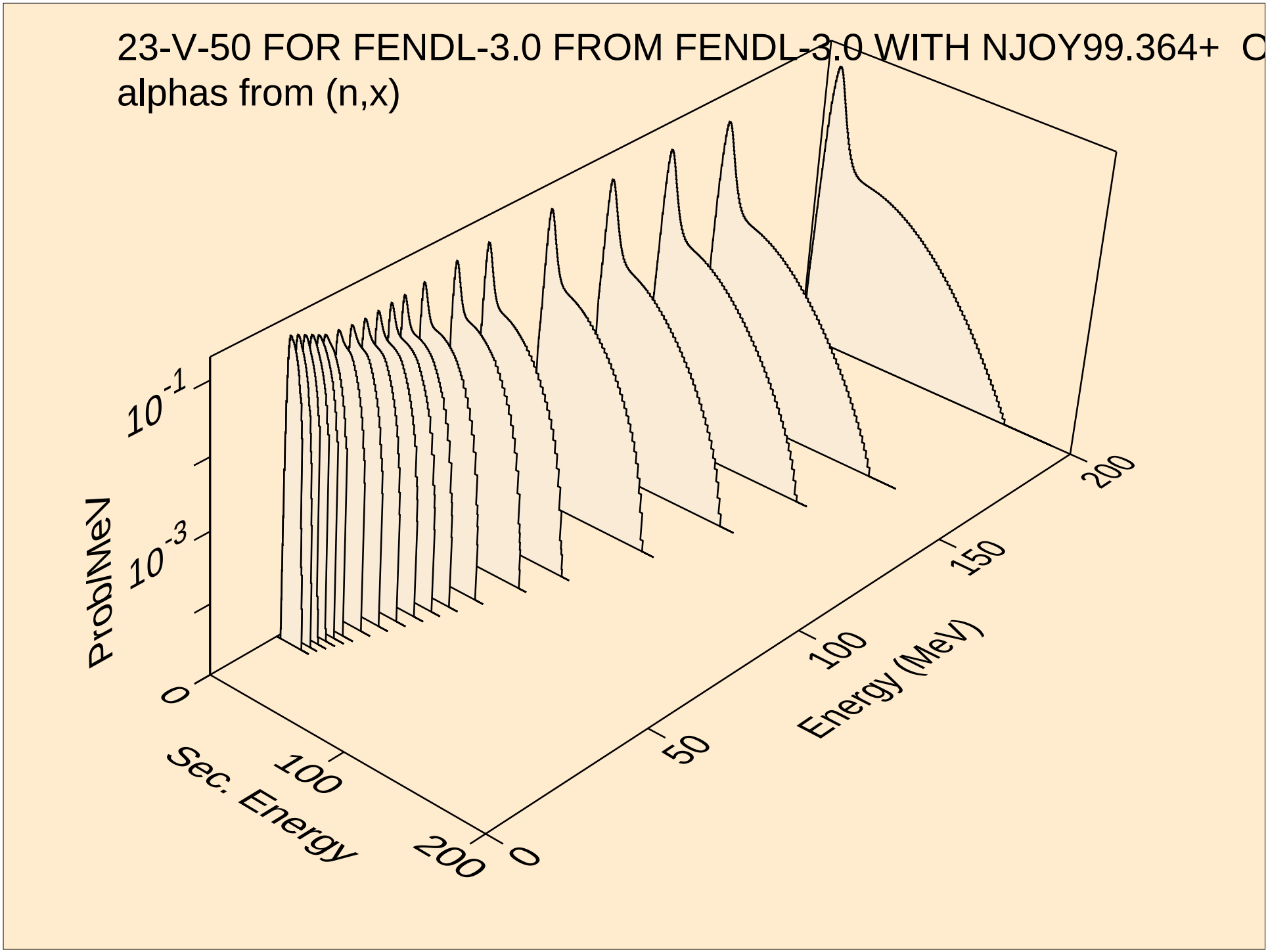

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
protons from (n,2np)
Prob/MeV
10-1
10-3
0
2
4
Sec. Energy
16.0
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)

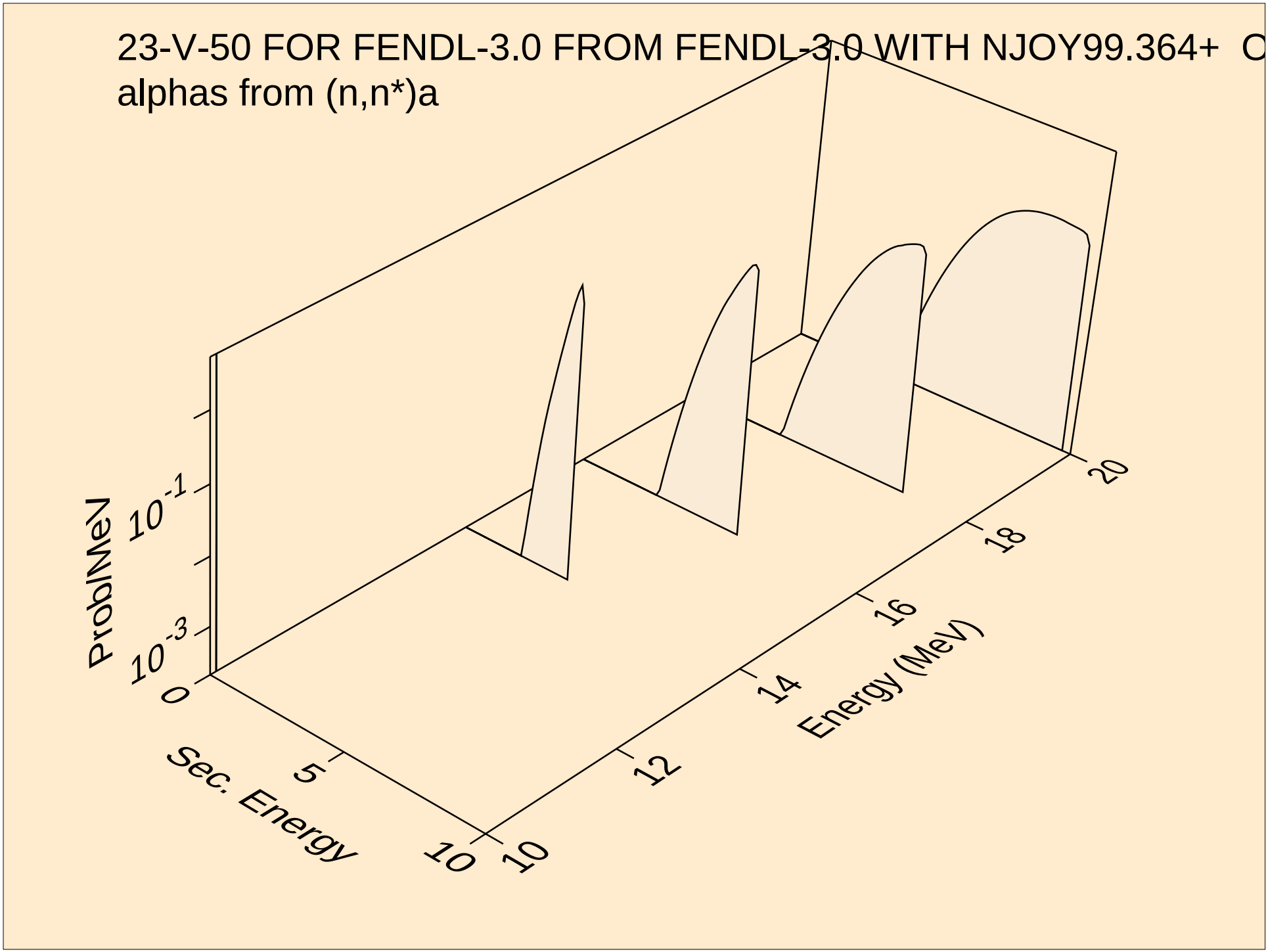

23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
deuterons from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
deuterons from (n,n*)d
Prob/MeV
10-1
10-3
0
2
4
6
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)


23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
tritons from (n,x)
Prob/MeV
10-2
10-4
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
he3s from (n,x)
Prob/MeV
10^{0}
10^{-2}
10^{-4}
Sec. Energy
0
100
200
Energy (MeV)
0
50
100
150
200


23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
alphas from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
50
100
150
200
Energy (MeV)


23-V-50 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+ C
alphas from (n,n*)a
Prob/MeV
10-1
10-3
0
Sec. Energy
5
10
10
12
14
Energy (MeV)
16
18
20