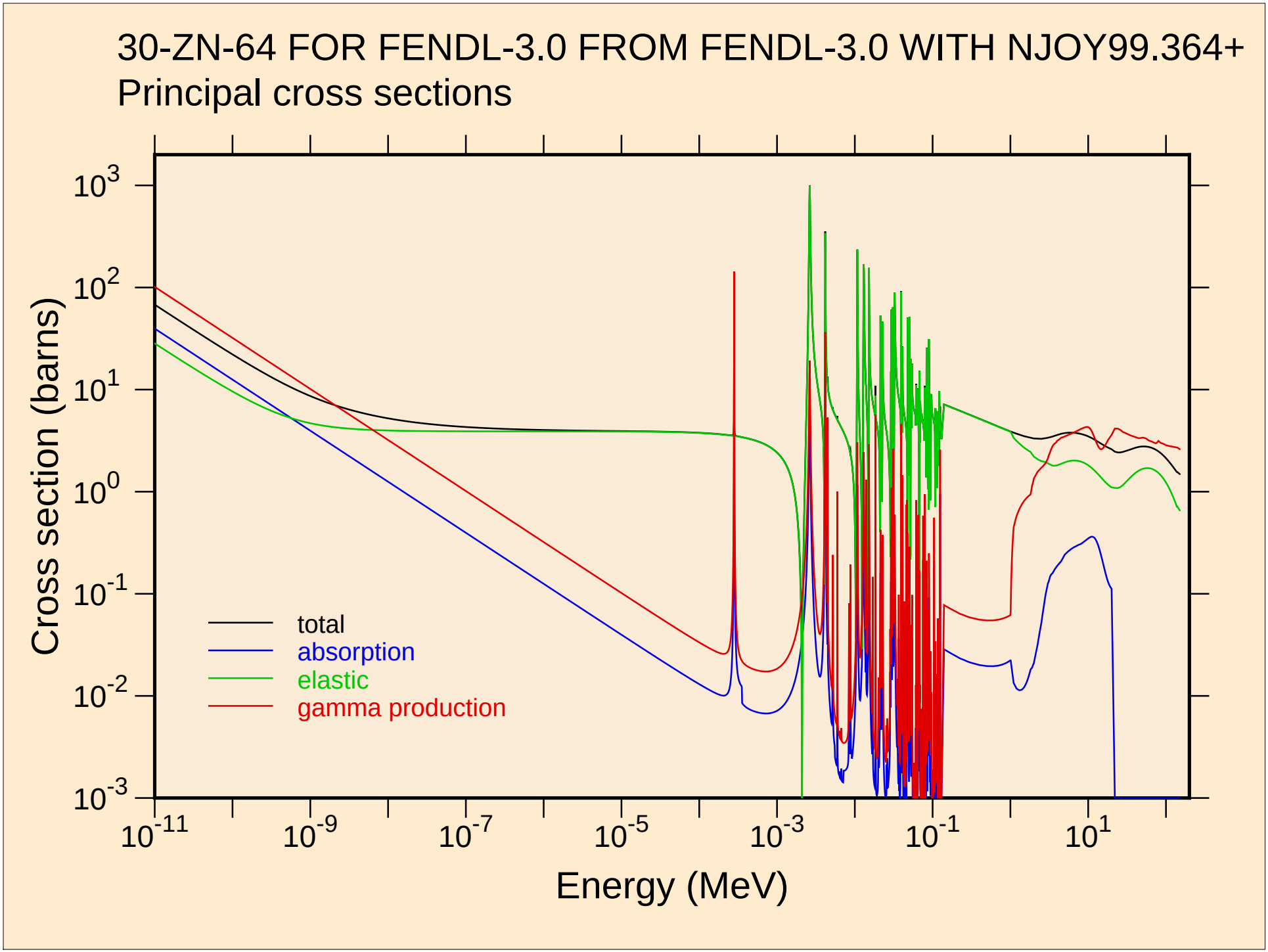
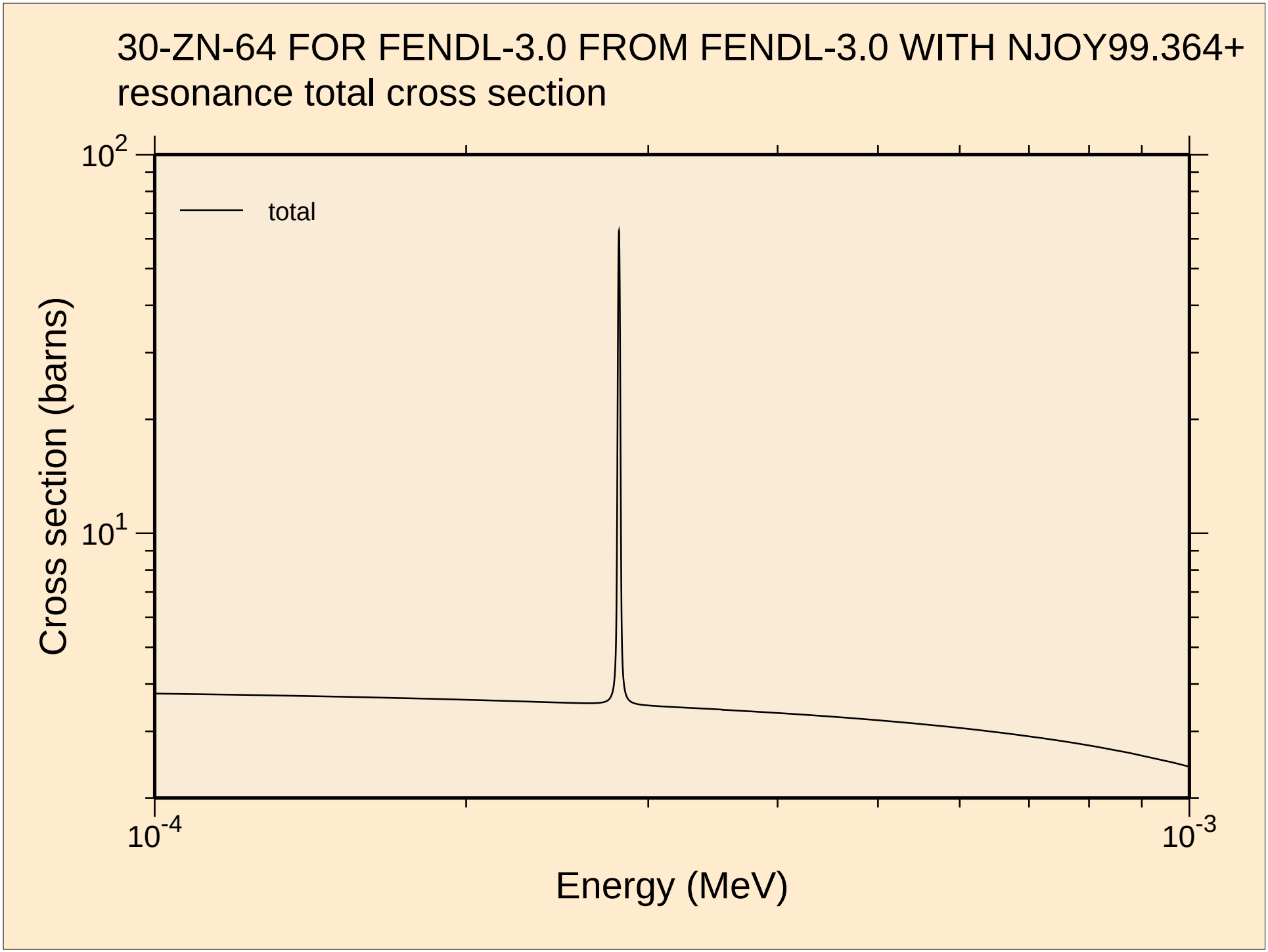
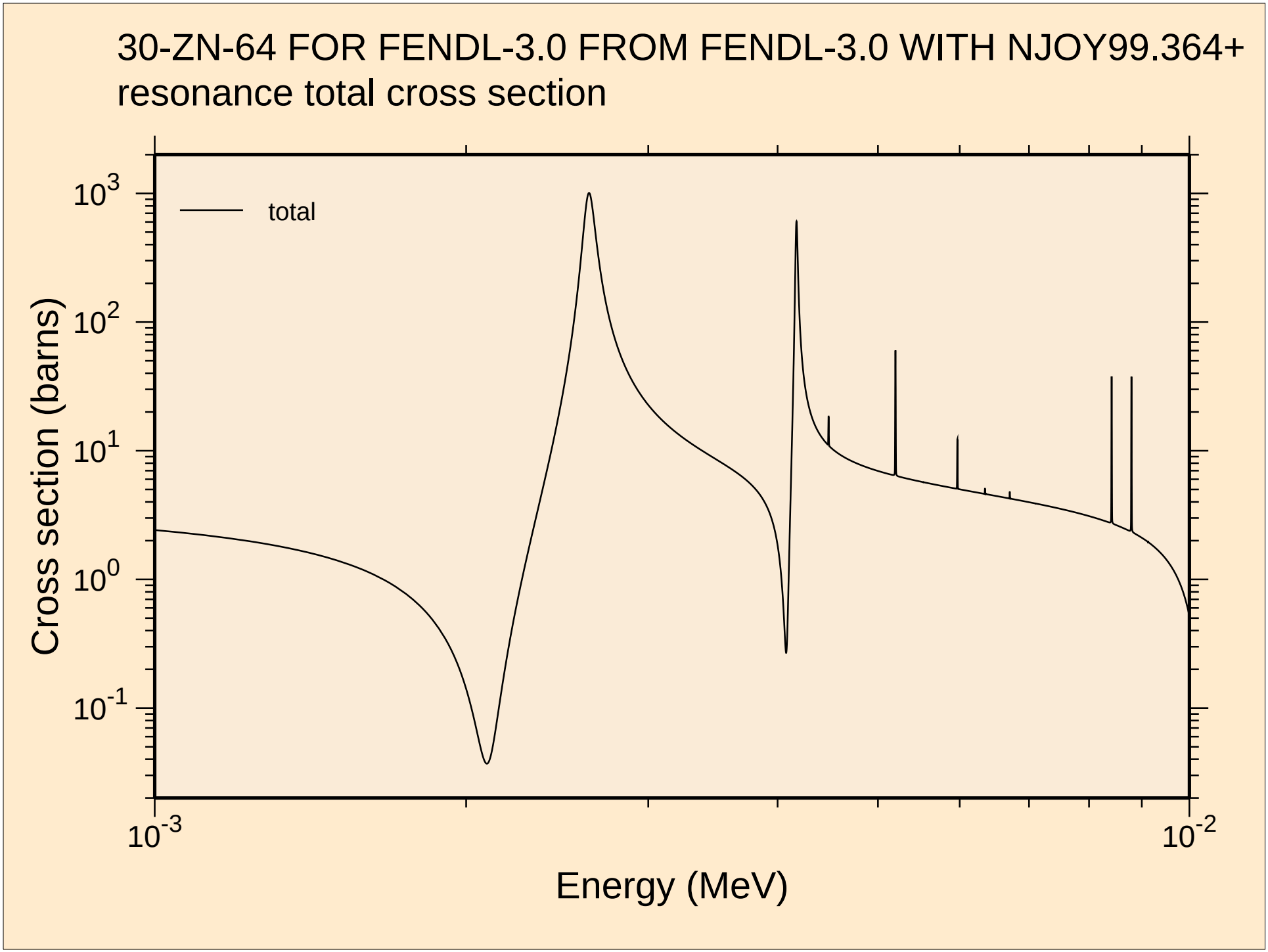
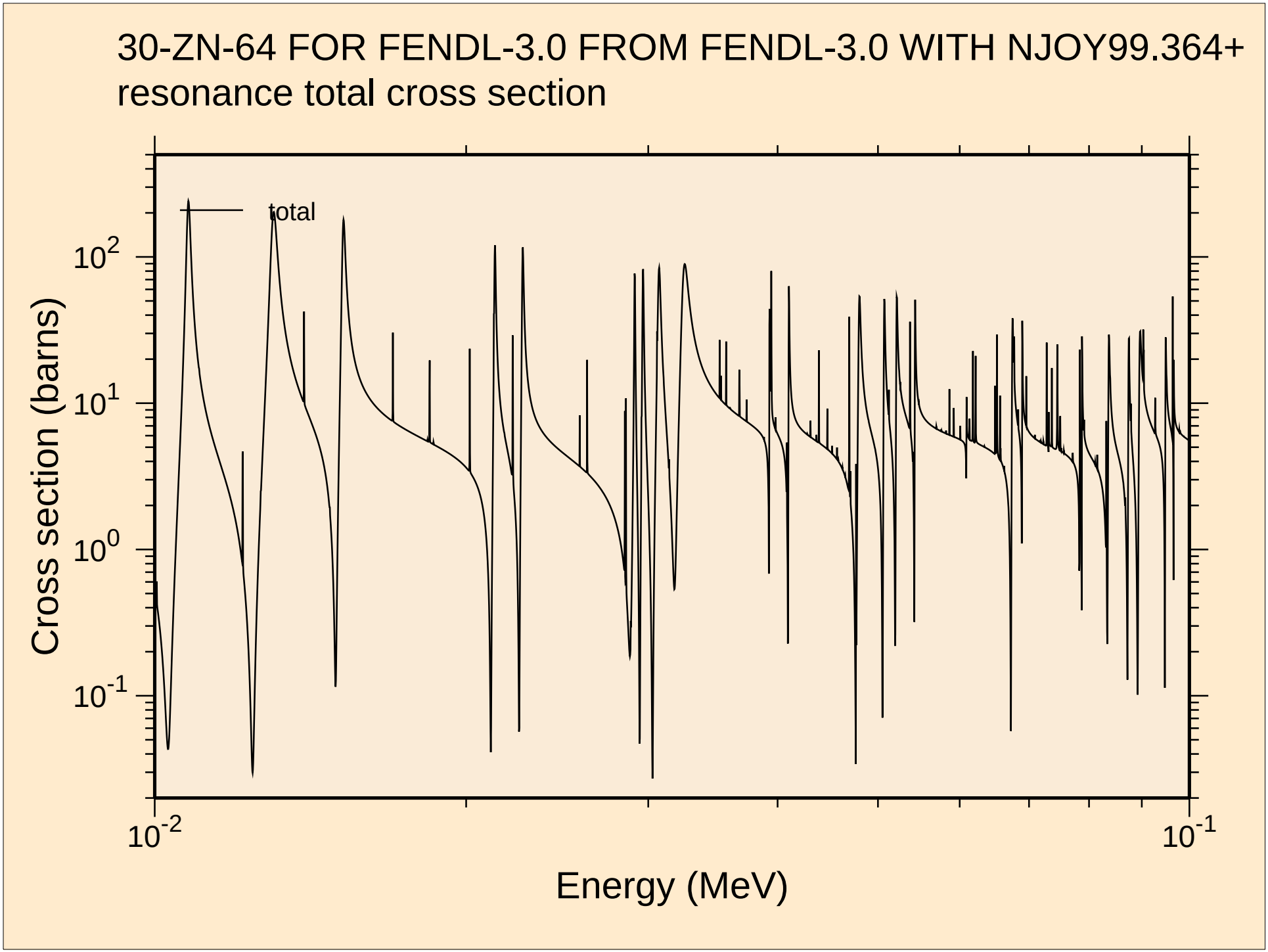
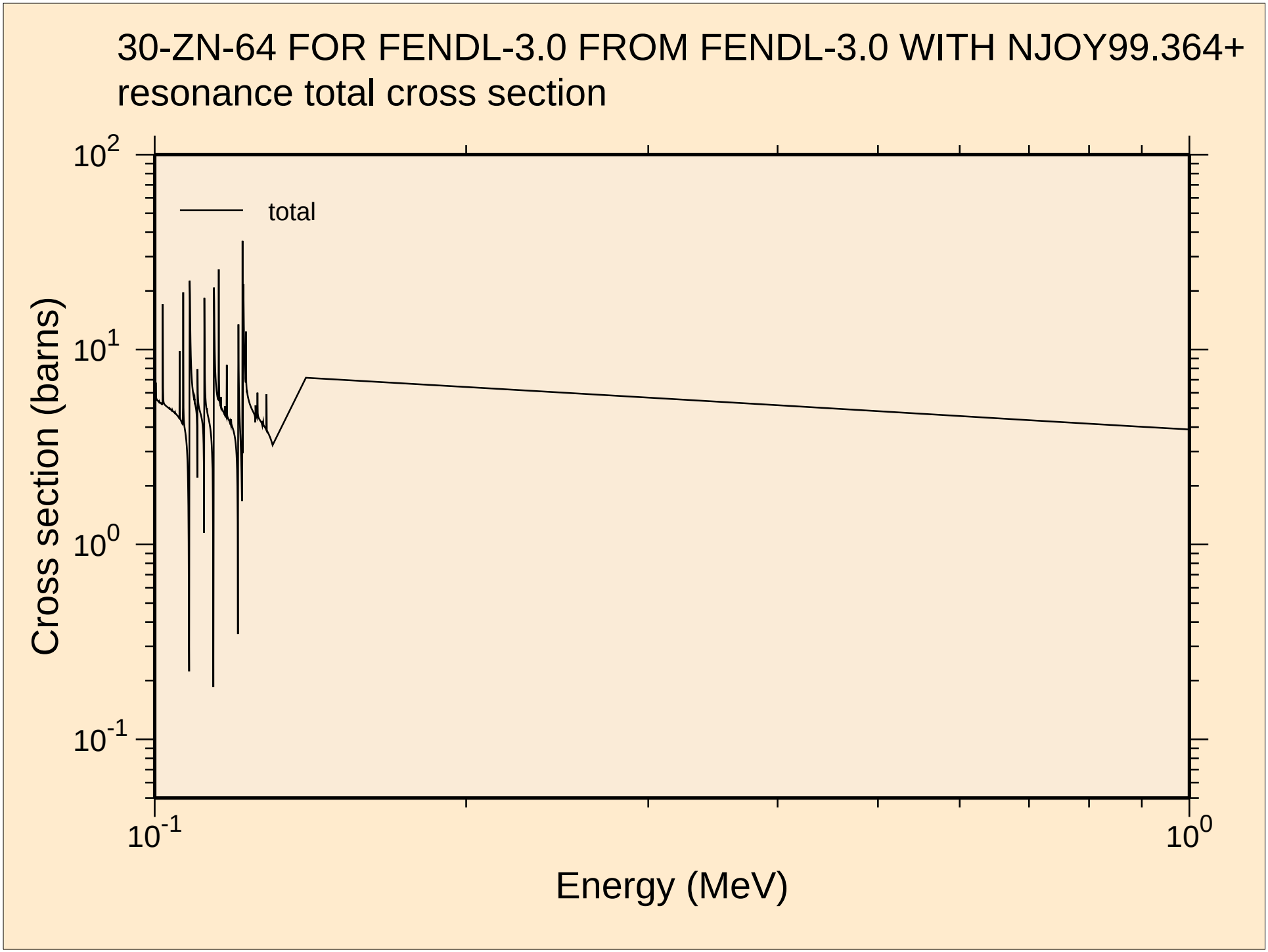
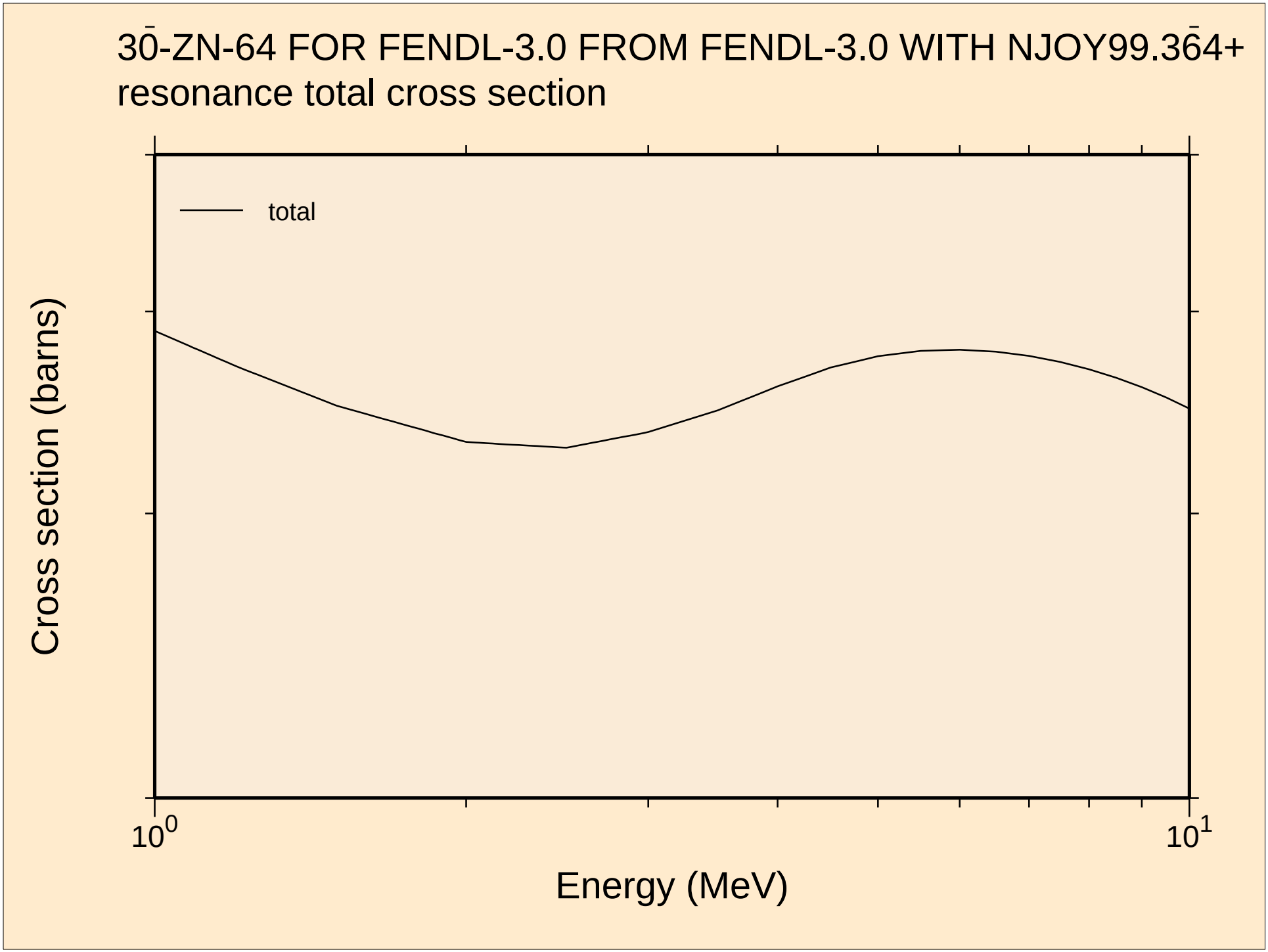

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Principal cross sections
Cross section (barns)
Energy (MeV)
total
absorption
elastic
gamma production

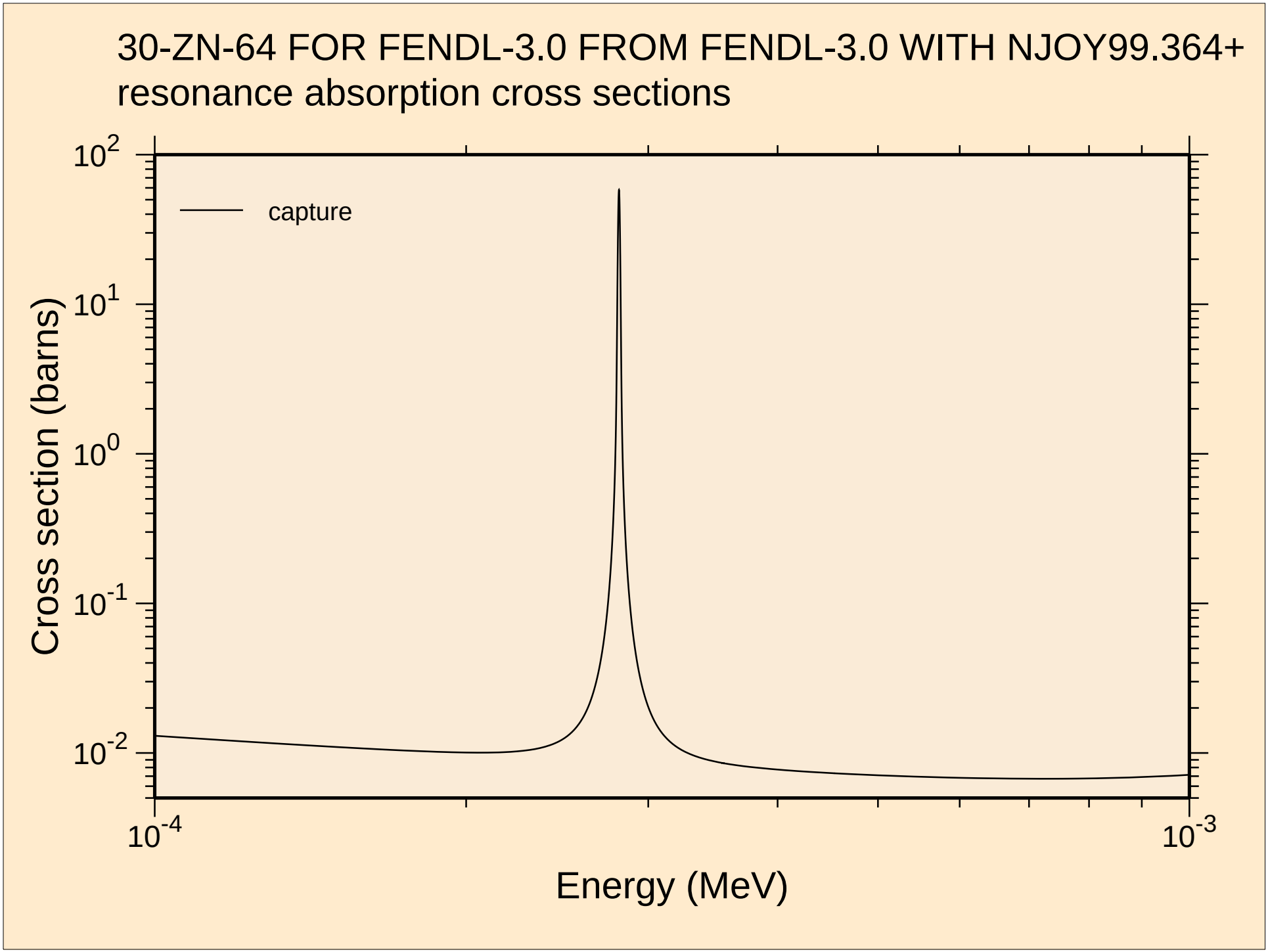

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance total cross section
total
$10^2$
$10^1$
$10^{-4}$
$10^{-3}$
Cross section (barns)
Energy (MeV)

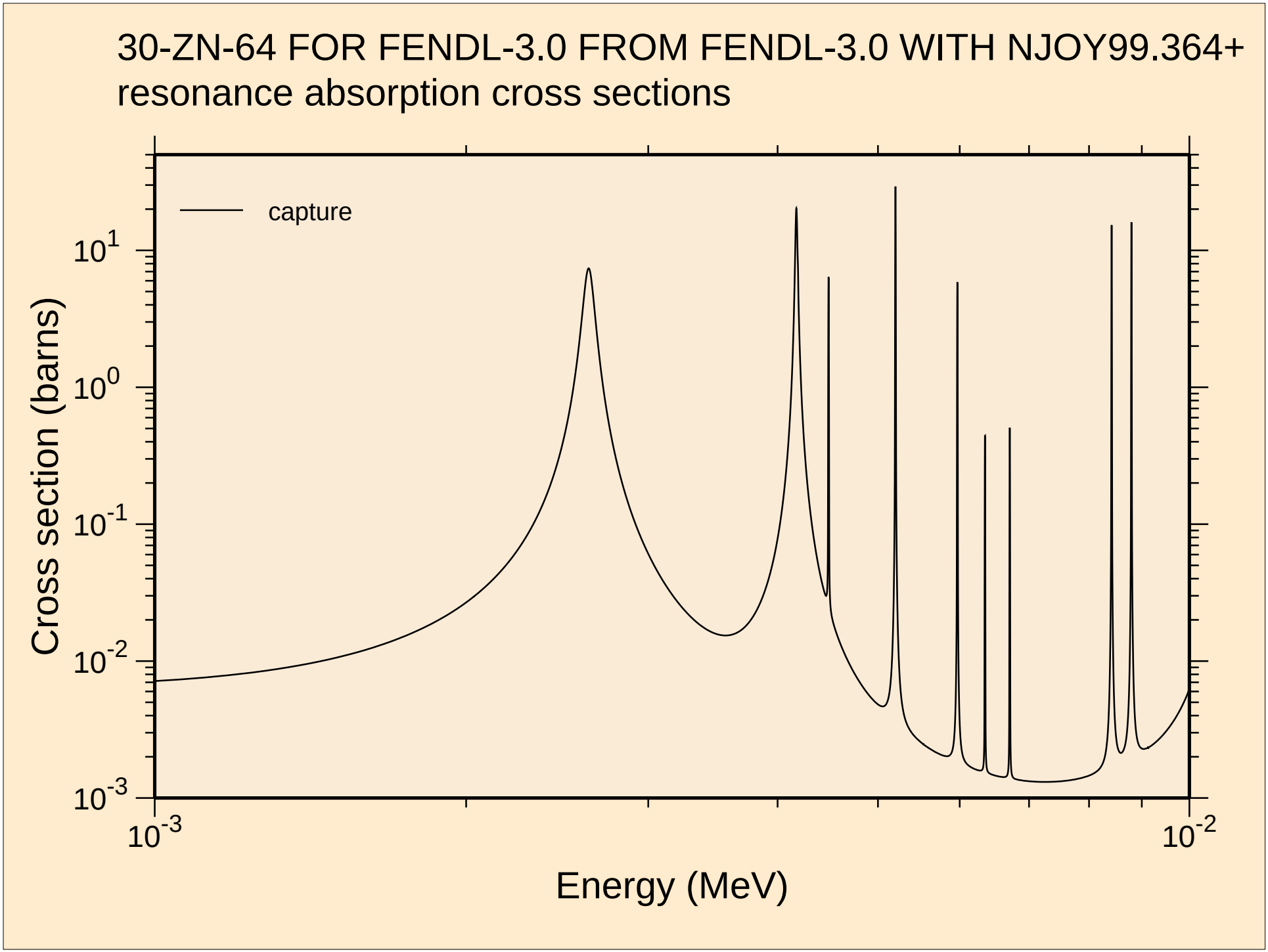

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance total cross section
total
Cross section (barns)
10^3
10^2
10^1
10^0
10^-1
10^-3
10^-2
Energy (MeV)

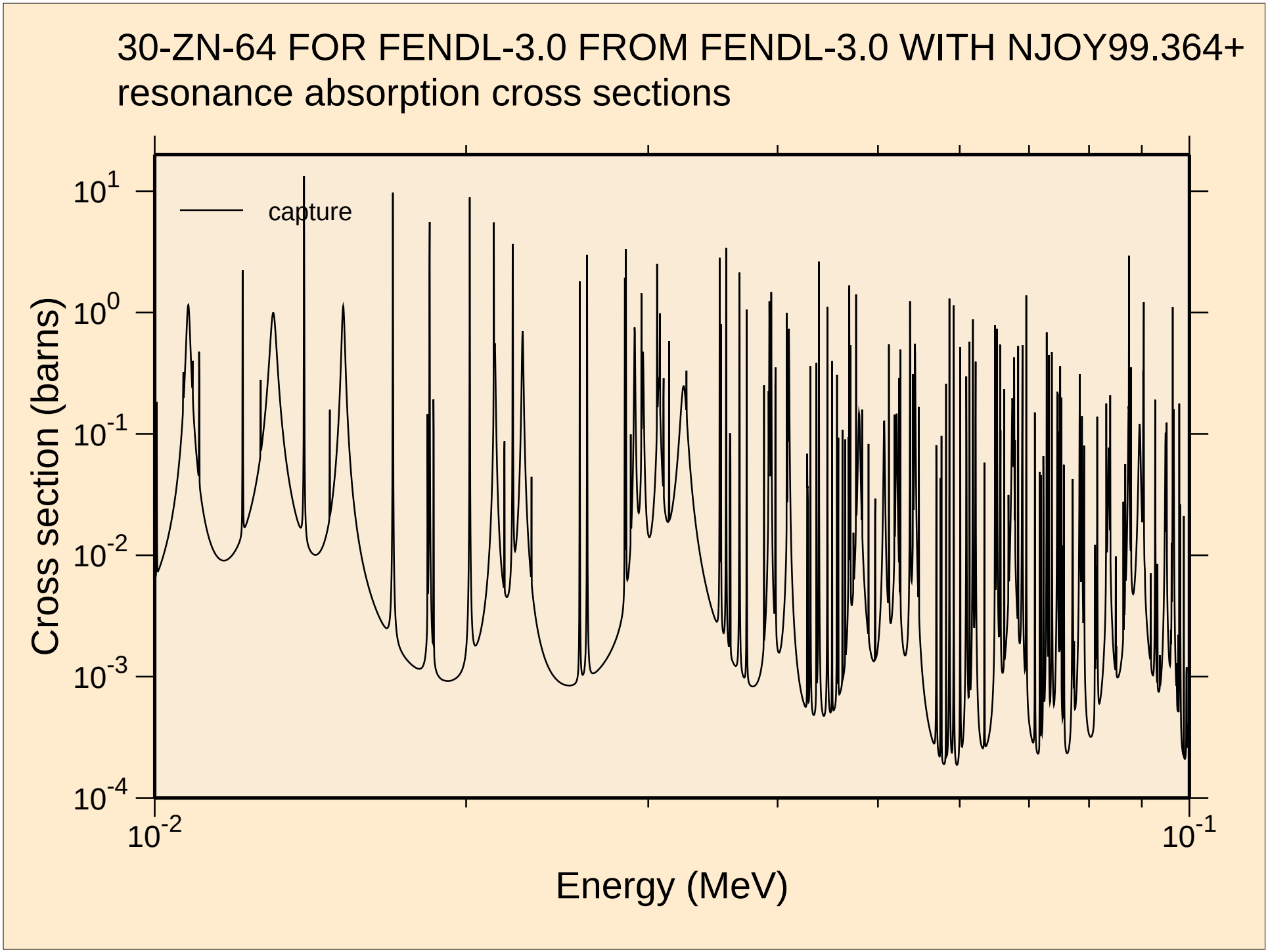

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance total cross section
total
Cross section (barns)
10^2
10^1
10^0
10^-1
10^-2
10^-1
Energy (MeV)

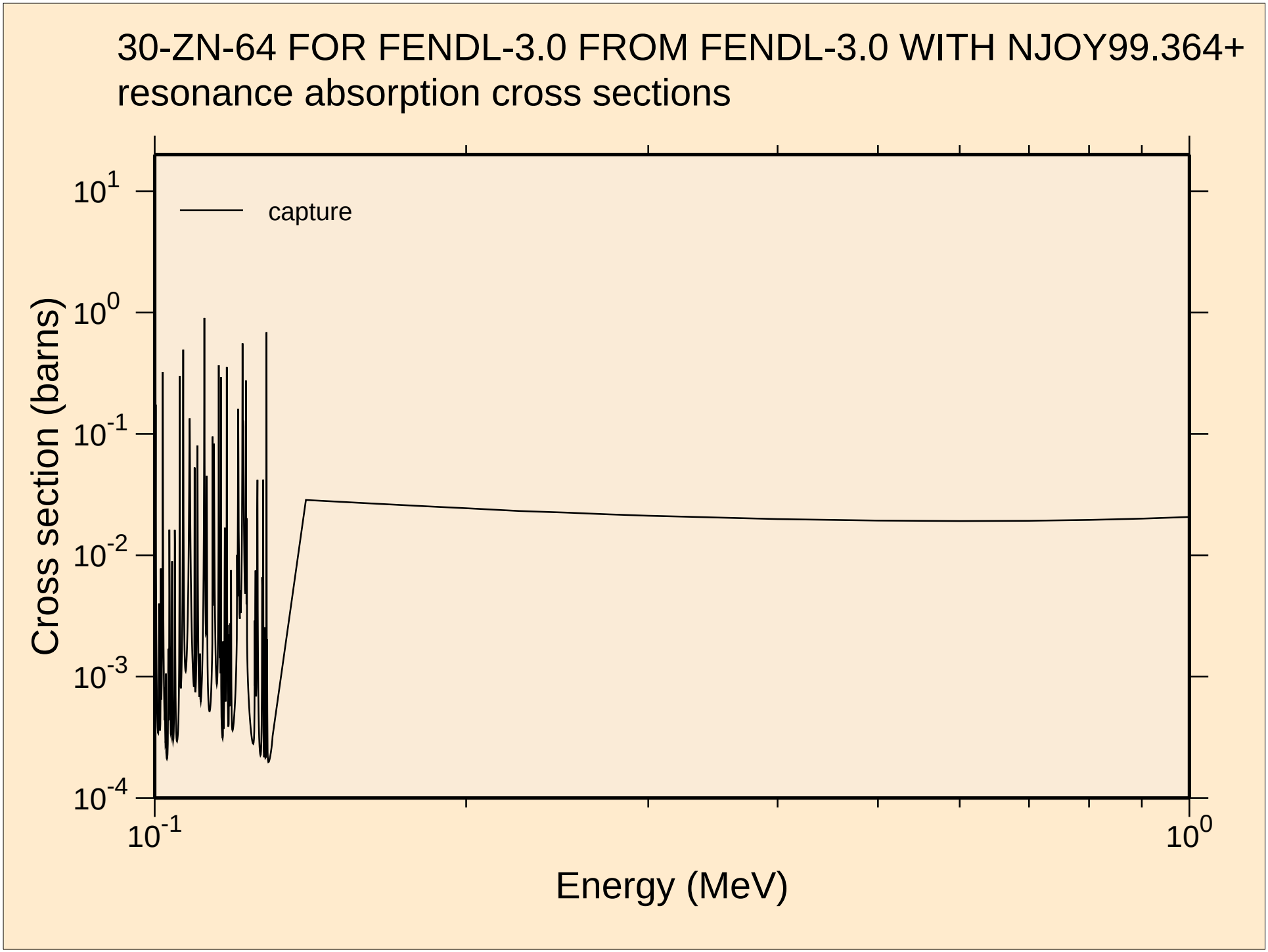

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance total cross section
total
Cross section (barns)
$10^{2}$
$10^{1}$
$10^{0}$
$10^{-1}$
$10^{-1}$
$10^{0}$
Energy (MeV)

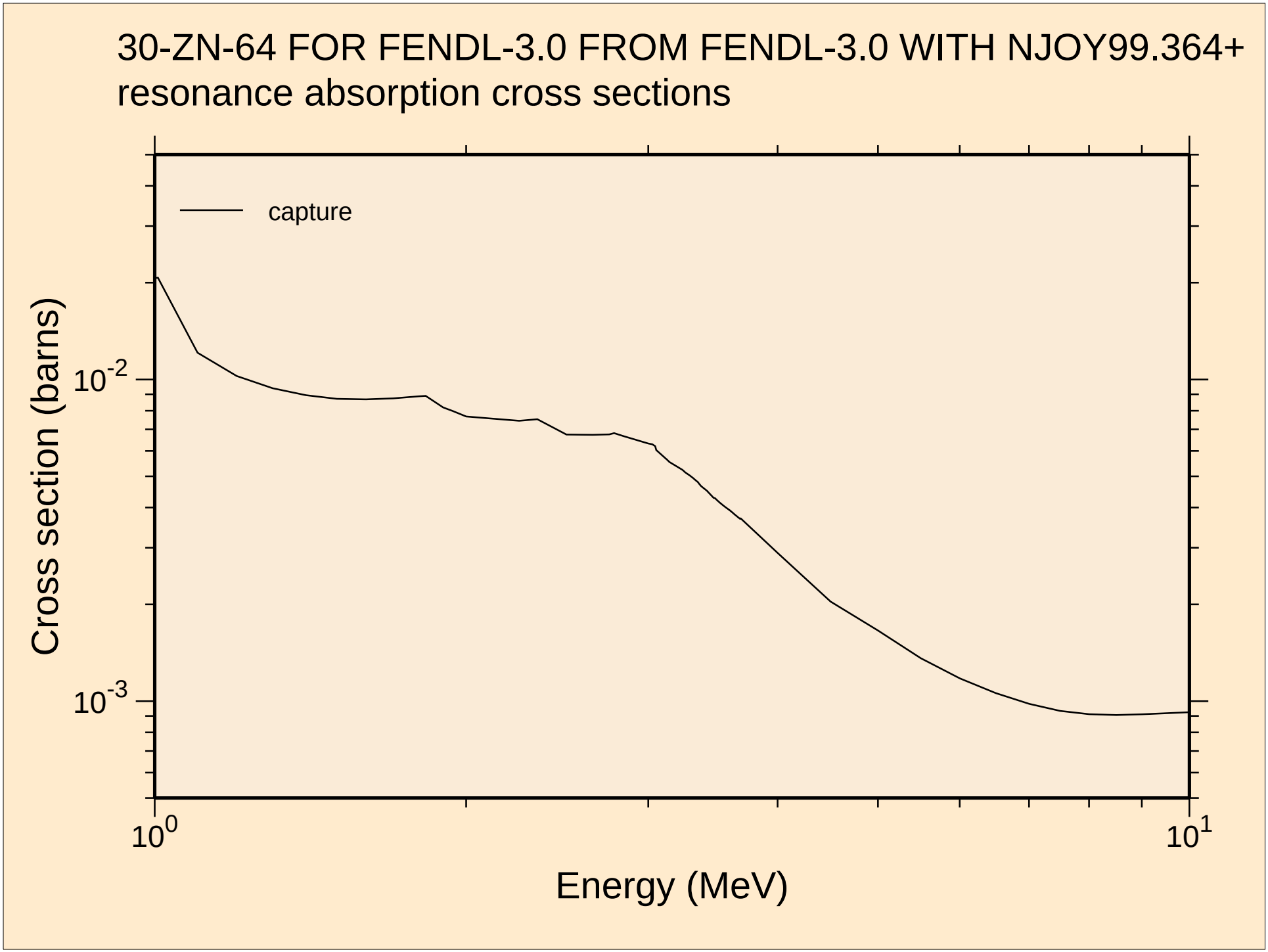

30̄-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364̄+
resonance total cross section
total
Cross section (barns)
10^0
10^1
Energy (MeV)

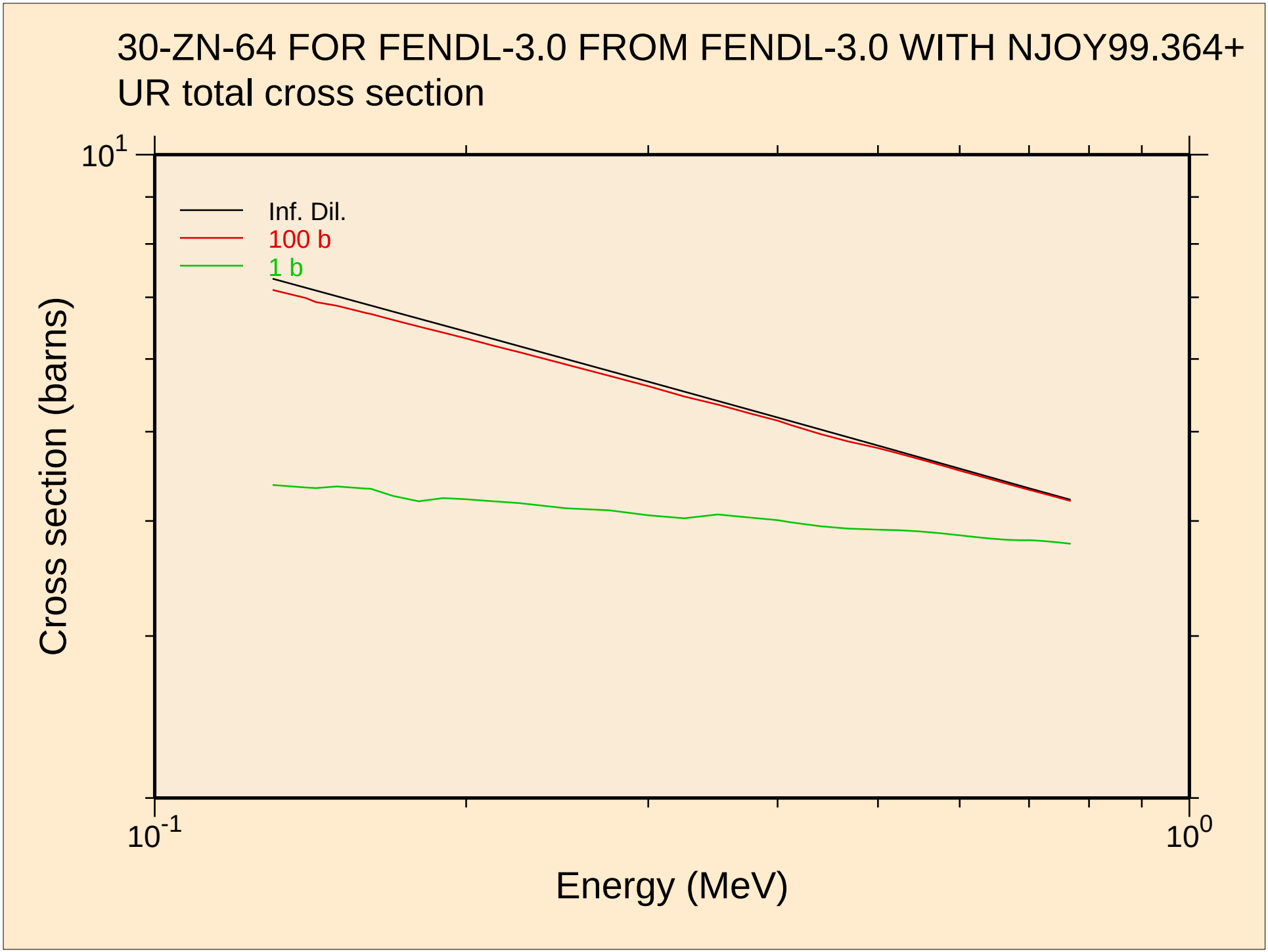

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance absorption cross sections
capture
Cross section (barns)
10^2
10^1
10^0
10^-1
10^-2
10^-4
10^-3
Energy (MeV)

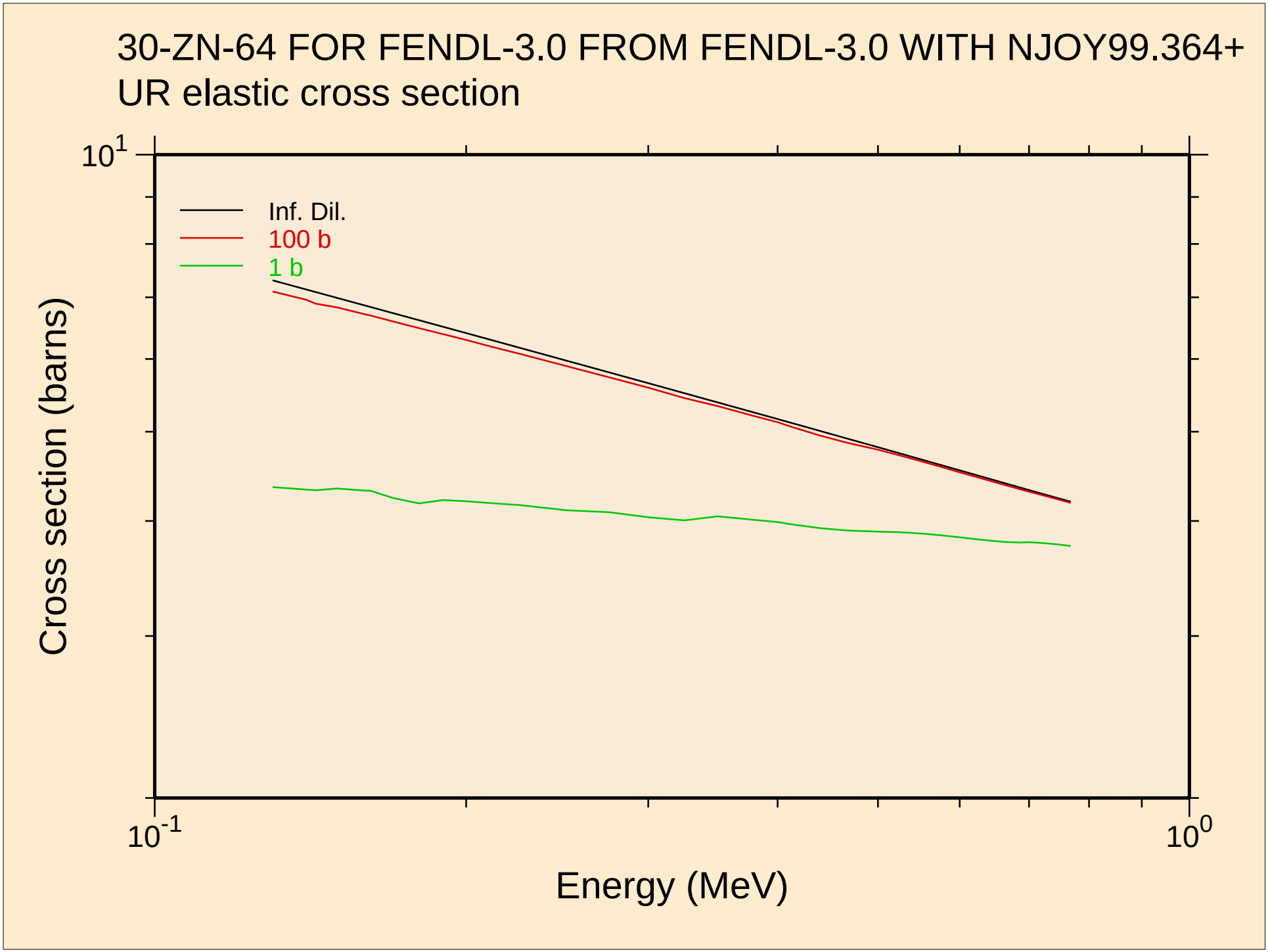

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance absorption cross sections
capture
Cross section (barns)
10^1
10^0
10^-1
10^-2
10^-3
10^-3
10^-2
Energy (MeV)

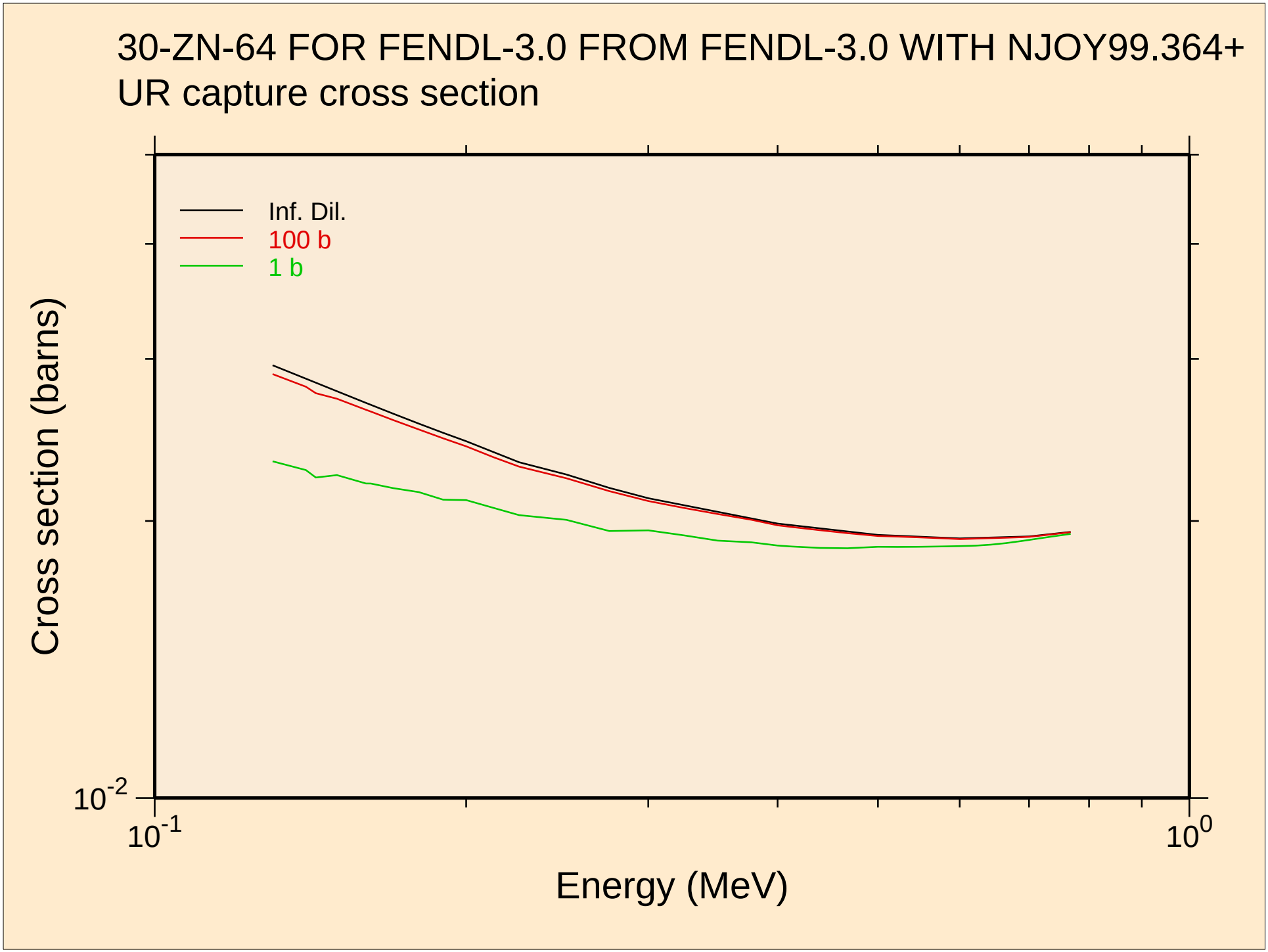

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance absorption cross sections
capture
Cross section (barns)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-2
10^-1
Energy (MeV)

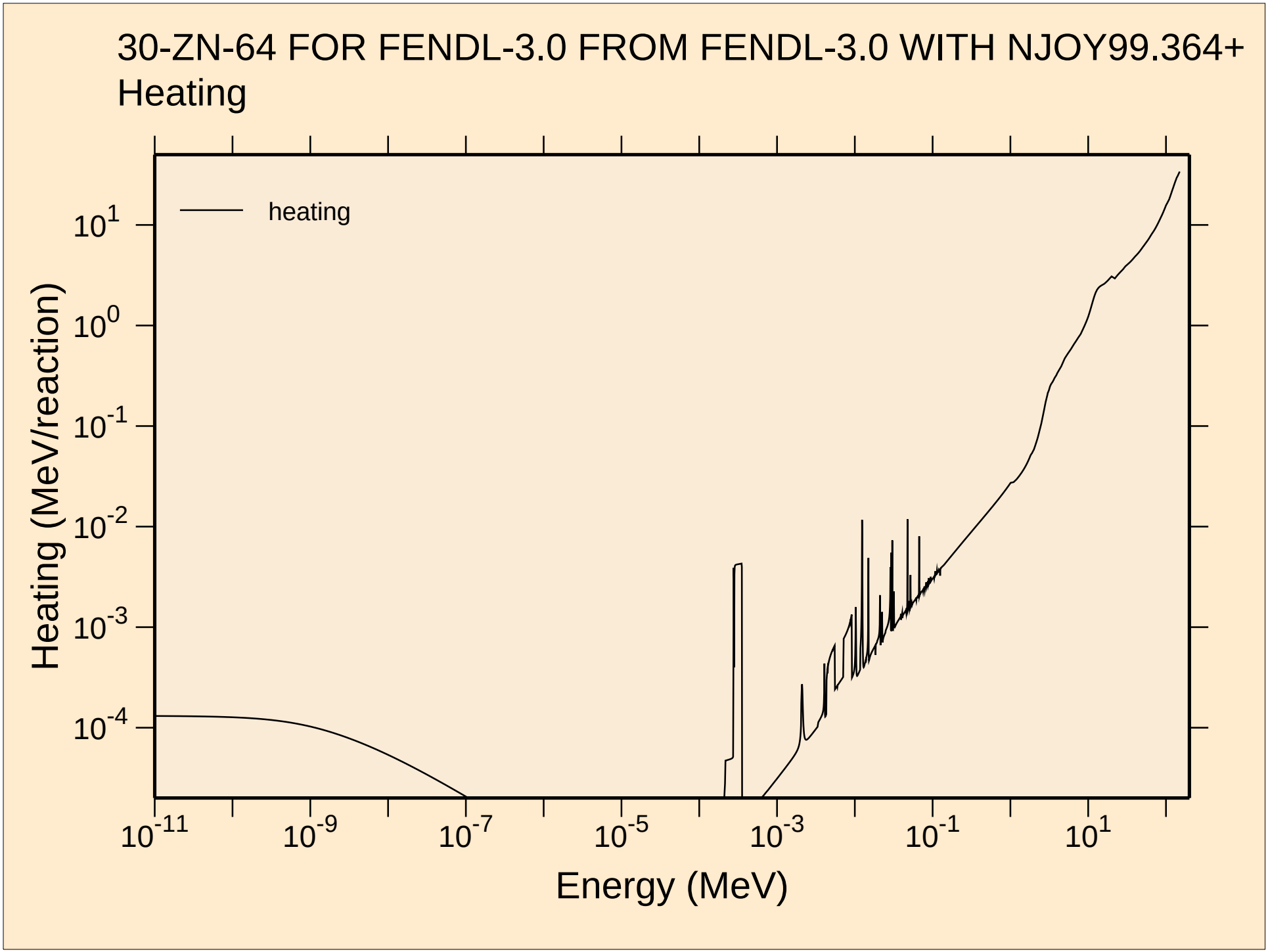

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance absorption cross sections
capture
Cross section (barns)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-1
10^0
Energy (MeV)

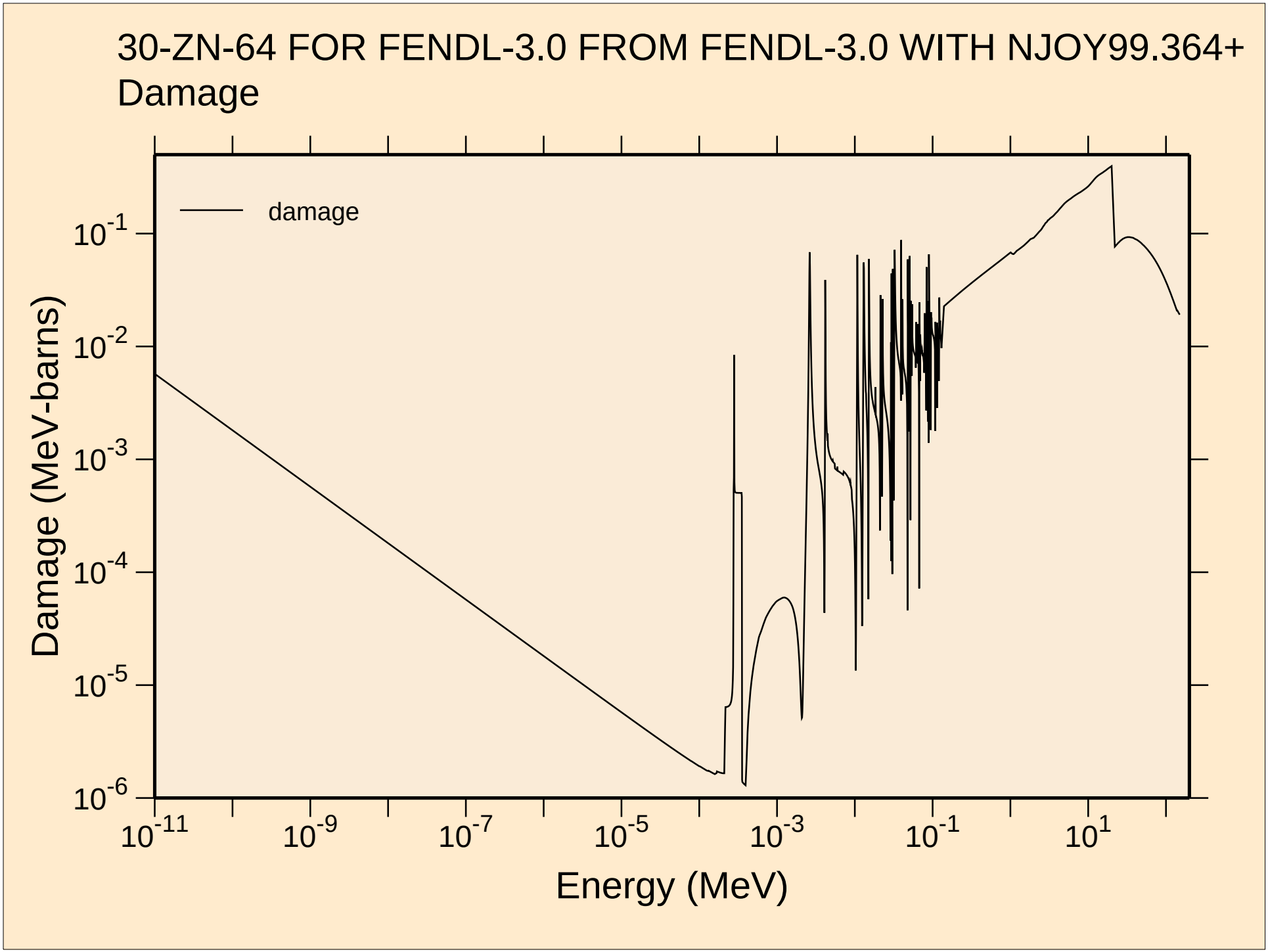

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
resonance absorption cross sections
capture
Cross section (barns)
10-2
10-3
100
101
Energy (MeV)

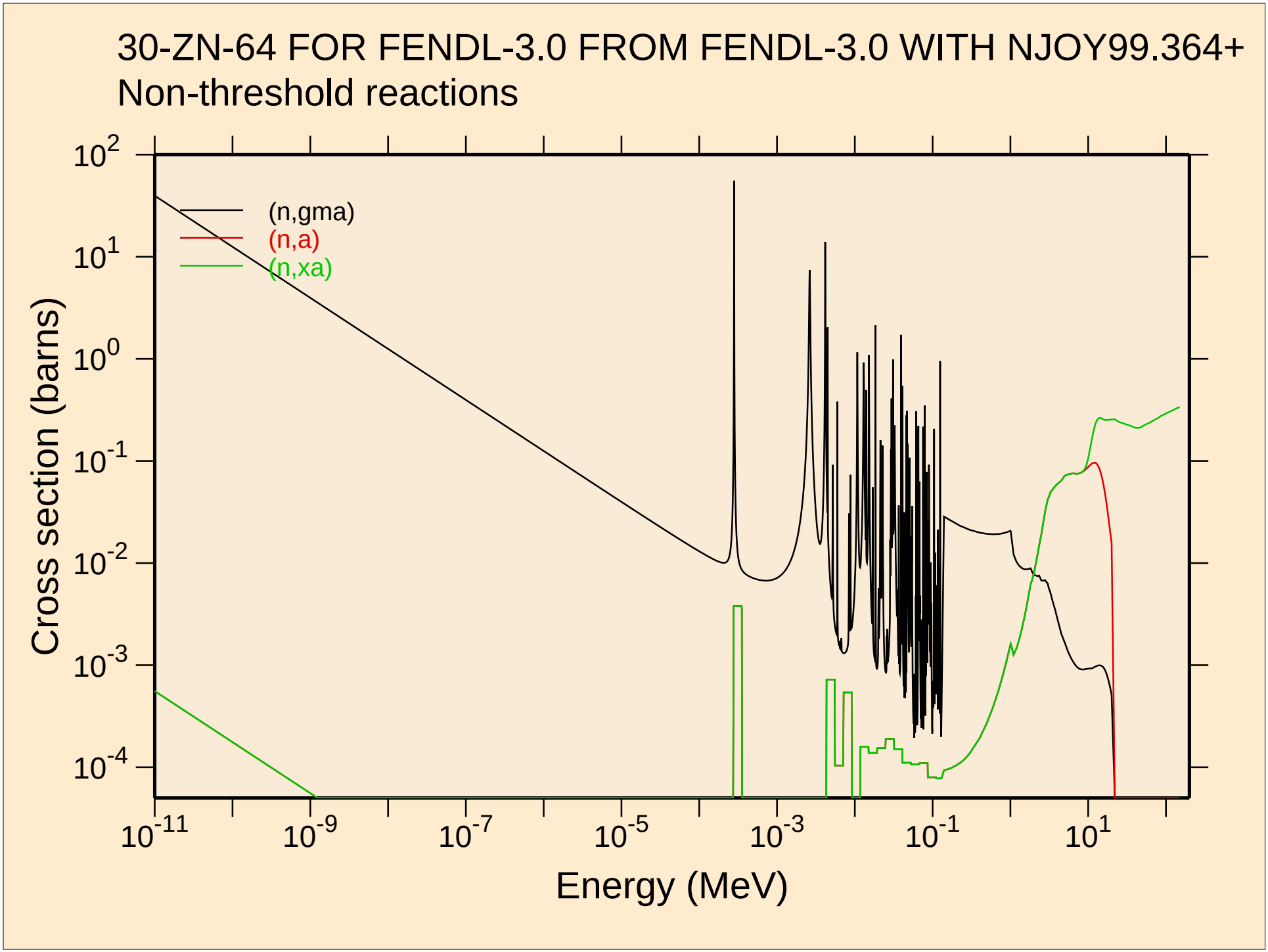

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
UR total cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
Energy (MeV)
10^1
10^-1
10^0

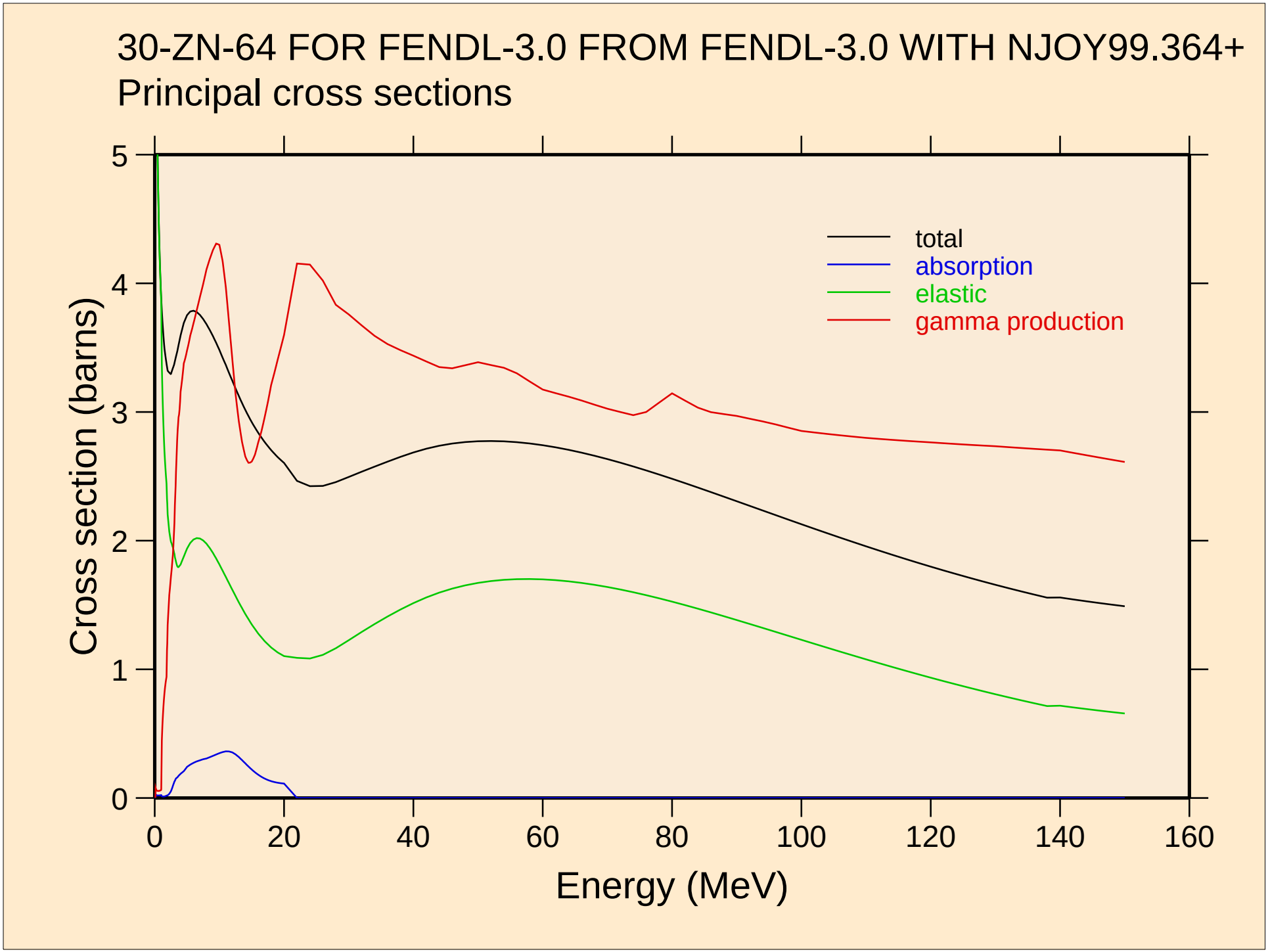

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
UR elastic cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
Energy (MeV)
10^1
10^-1
10^0

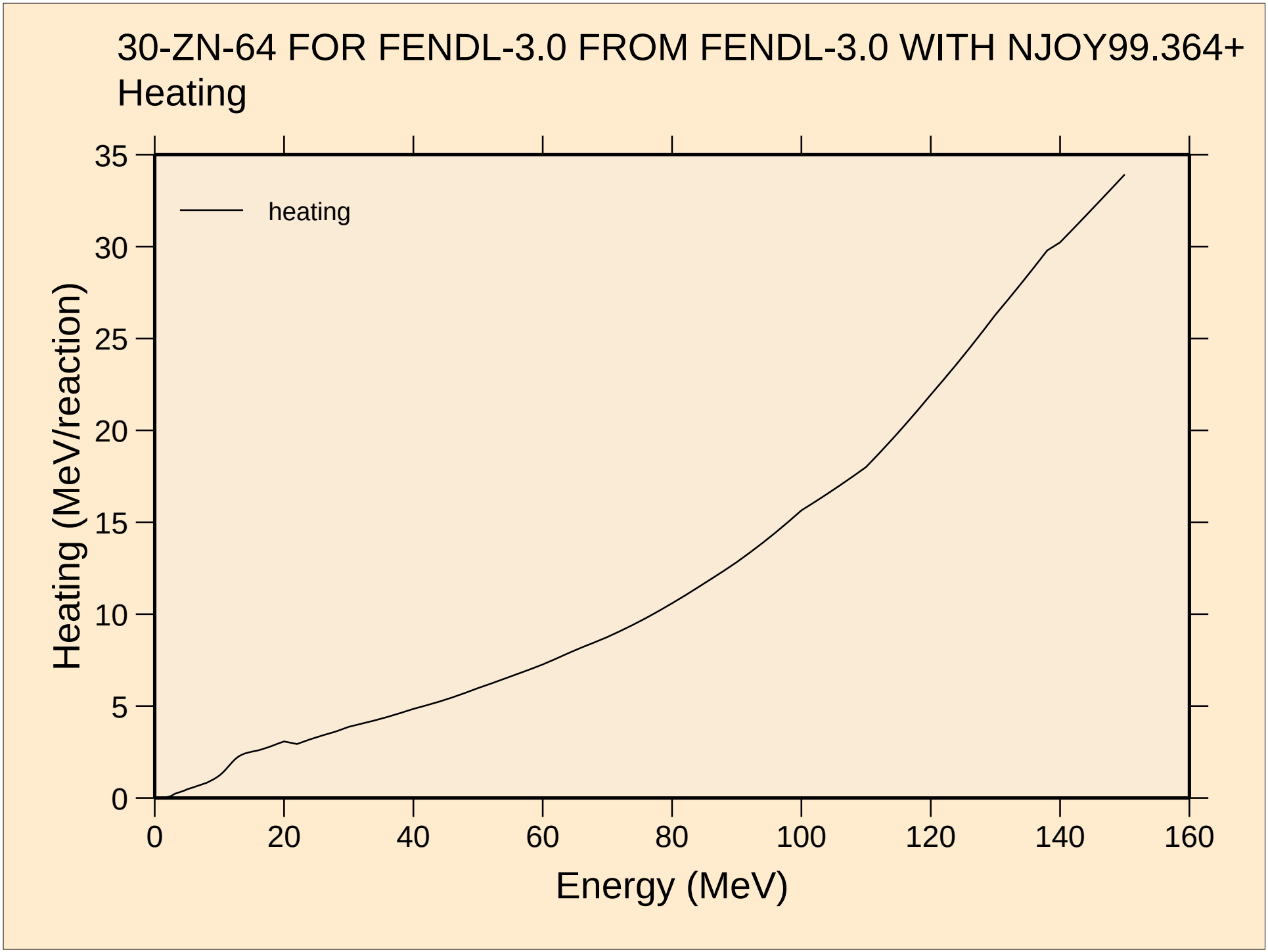

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
UR capture cross section
Inf. Dil.
100 b
1 b
Cross section (barns)
10-2
10-1
100
Energy (MeV)

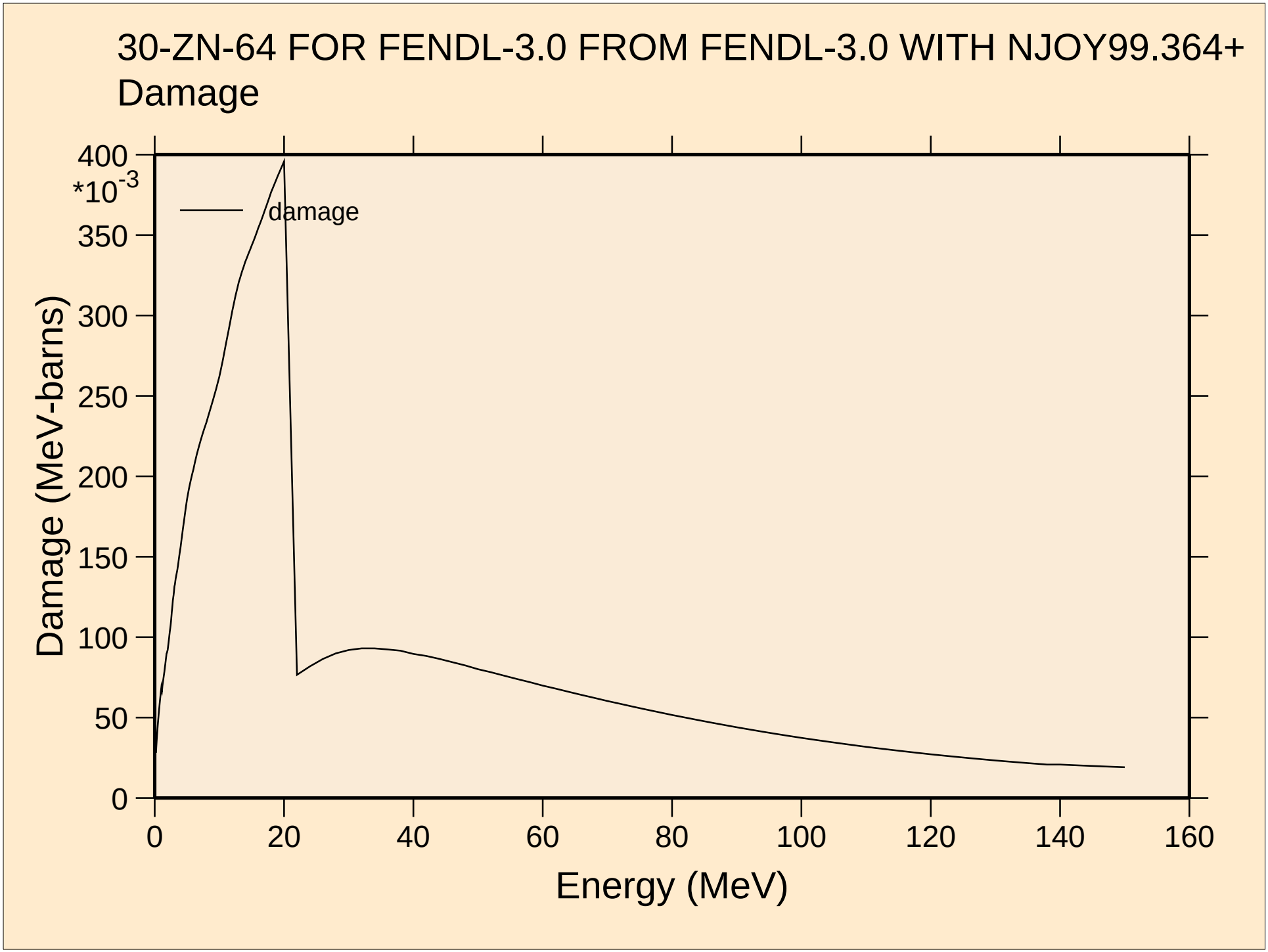

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Heating
heating
Heating (MeV/reaction)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1
Energy (MeV)

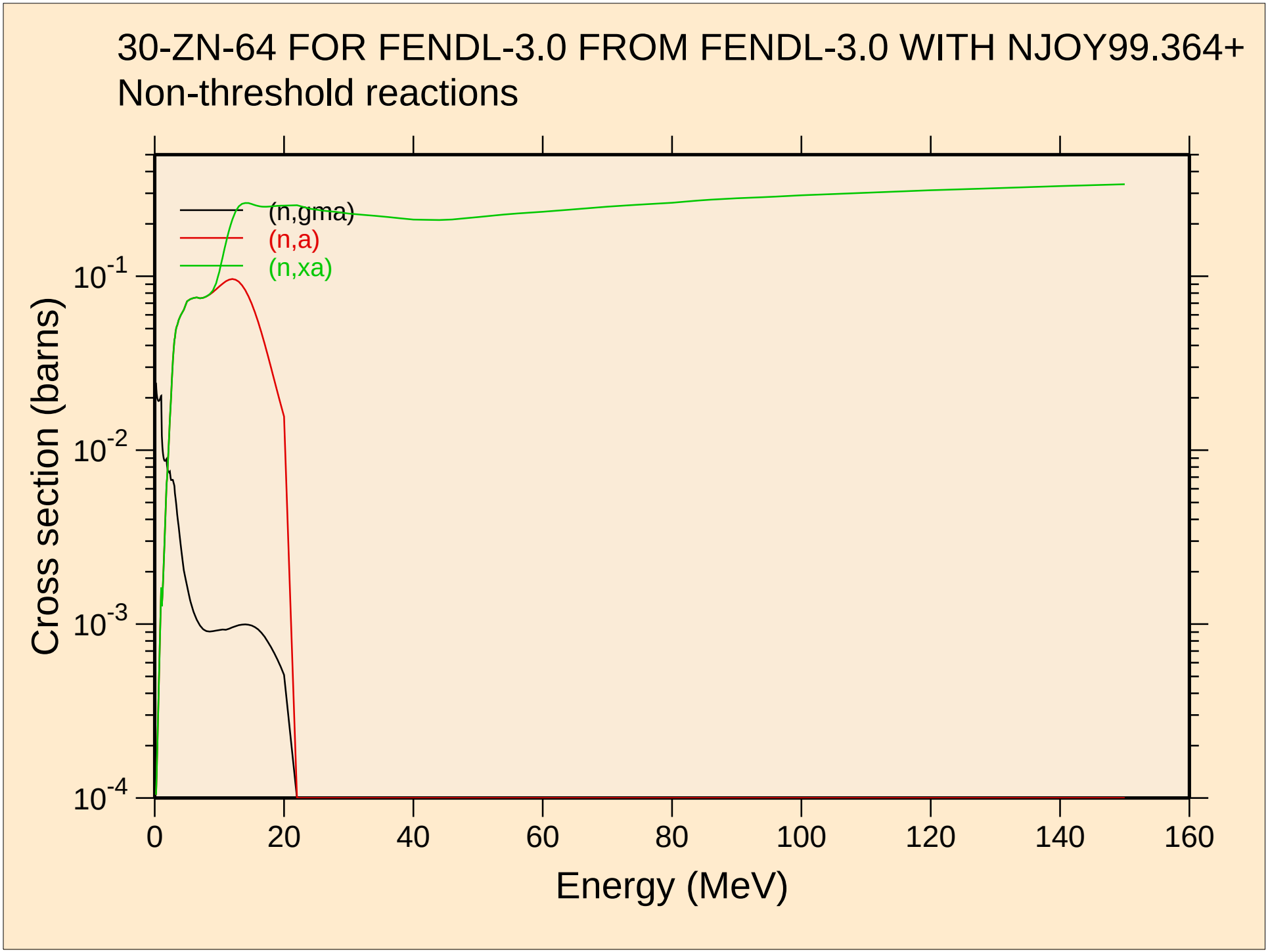

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Damage
damage
Damage (MeV-barns)
10-1
10-2
10-3
10-4
10-5
10-6
10-11
10-9
10-7
10-5
10-3
10-1
101
Energy (MeV)

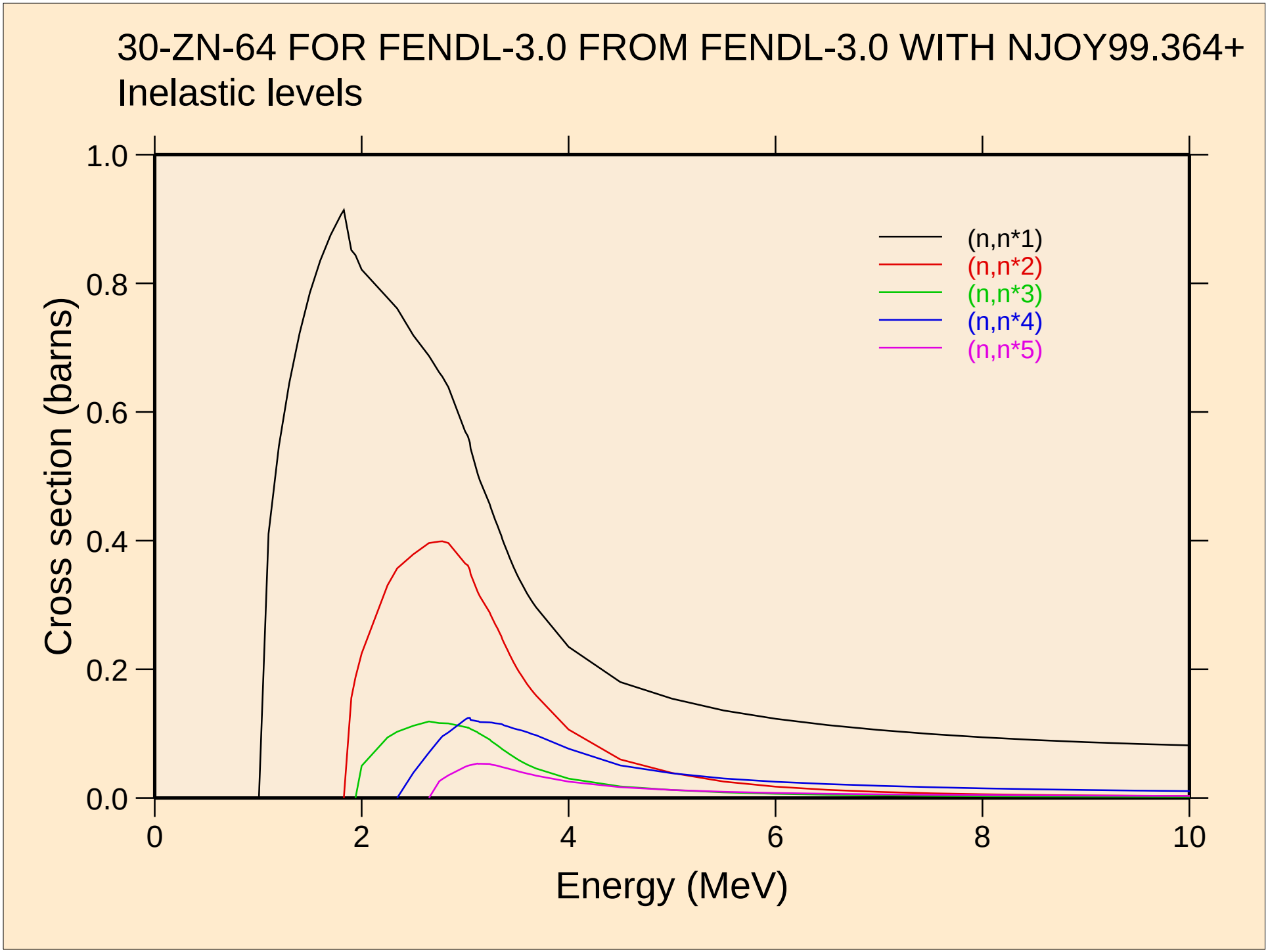

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
Energy (MeV)
10^2
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-11
10^-9
10^-7
10^-5
10^-3
10^-1
10^1

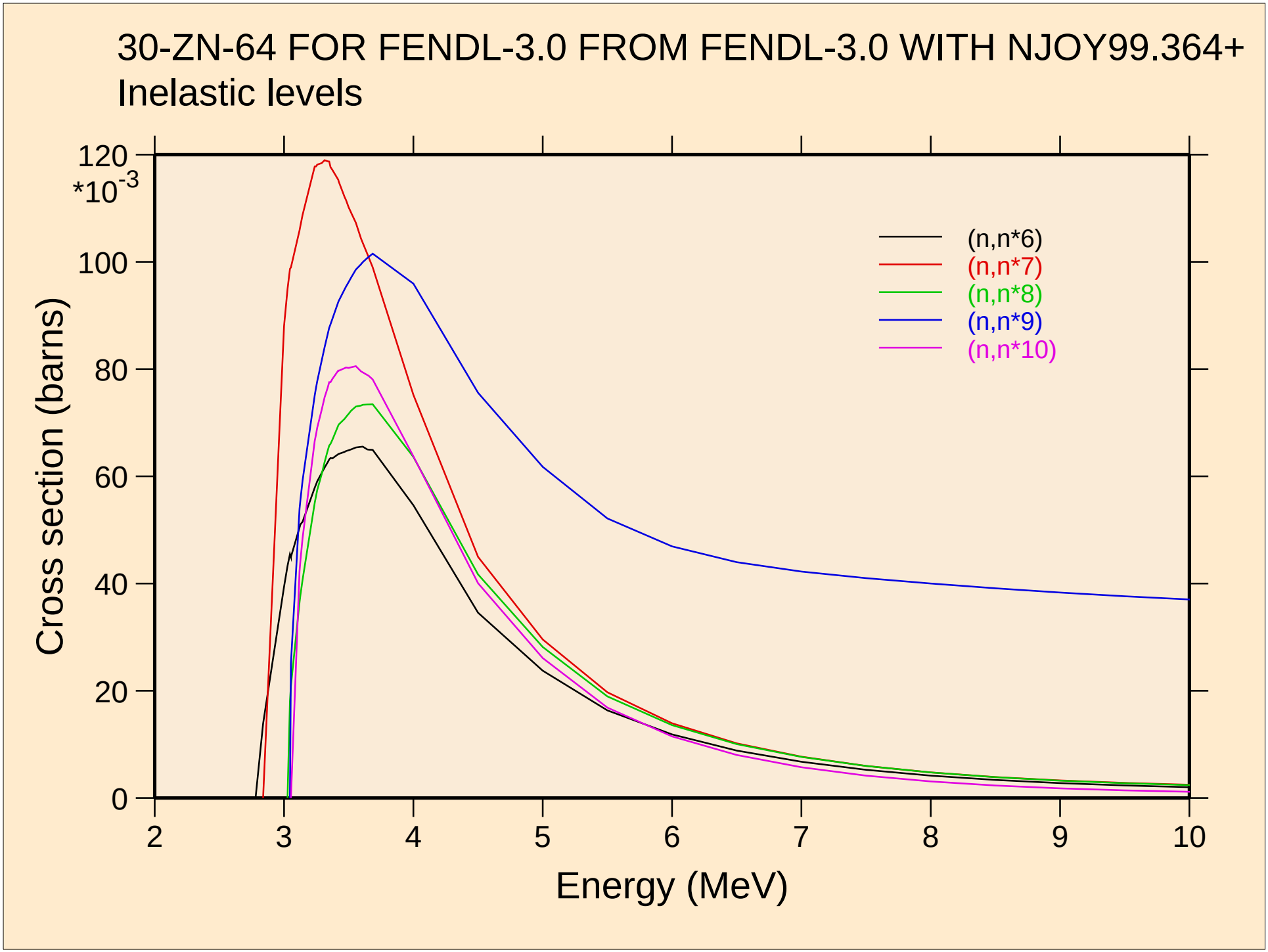

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Principal cross sections
Cross section (barns)
Energy (MeV)
0
1
2
3
4
5
0
20
40
60
80
100
120
140
160
total
absorption
elastic
gamma production

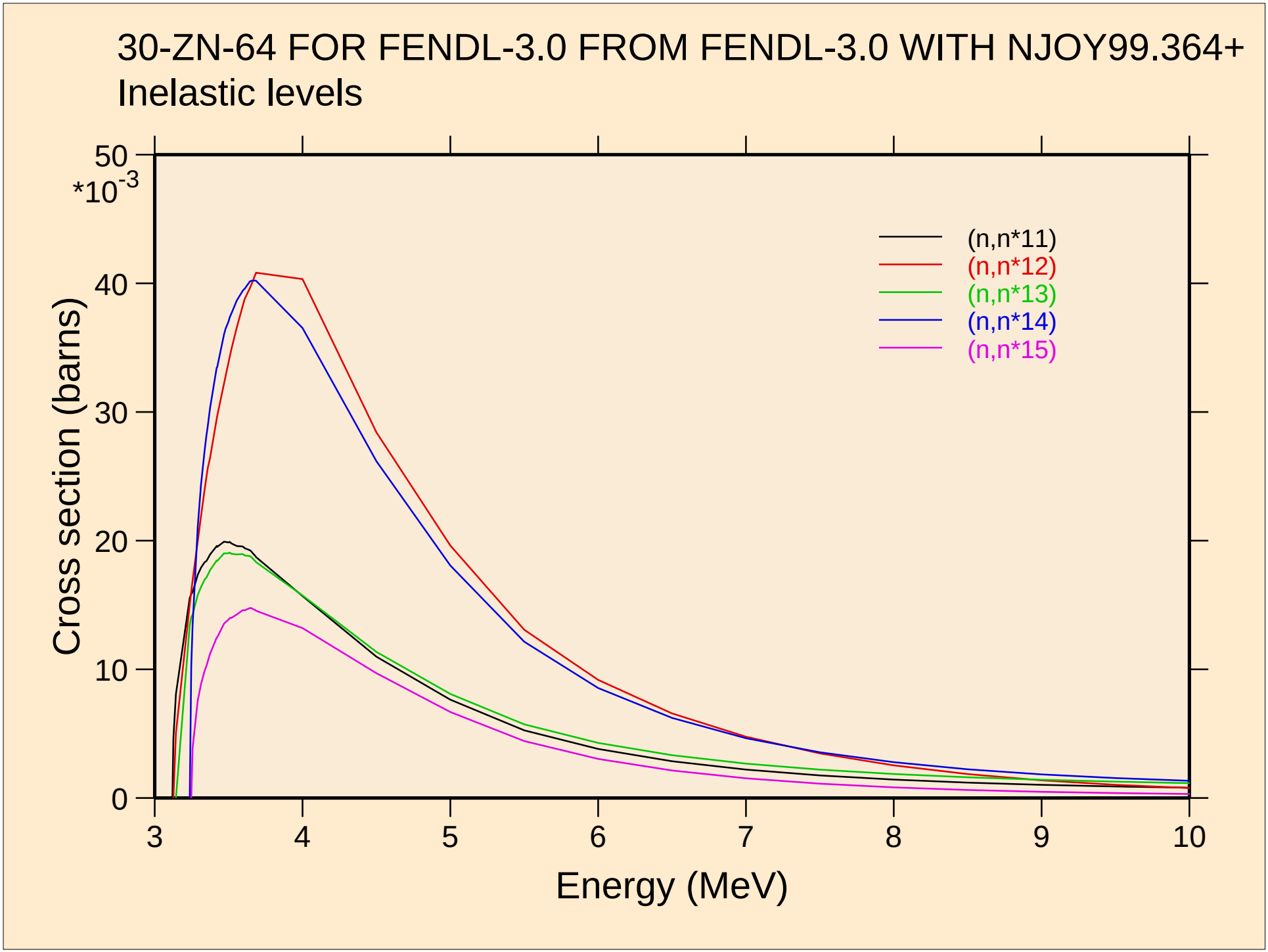

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
5
10
15
20
25
30
35
0
20
40
60
80
100
120
140
160

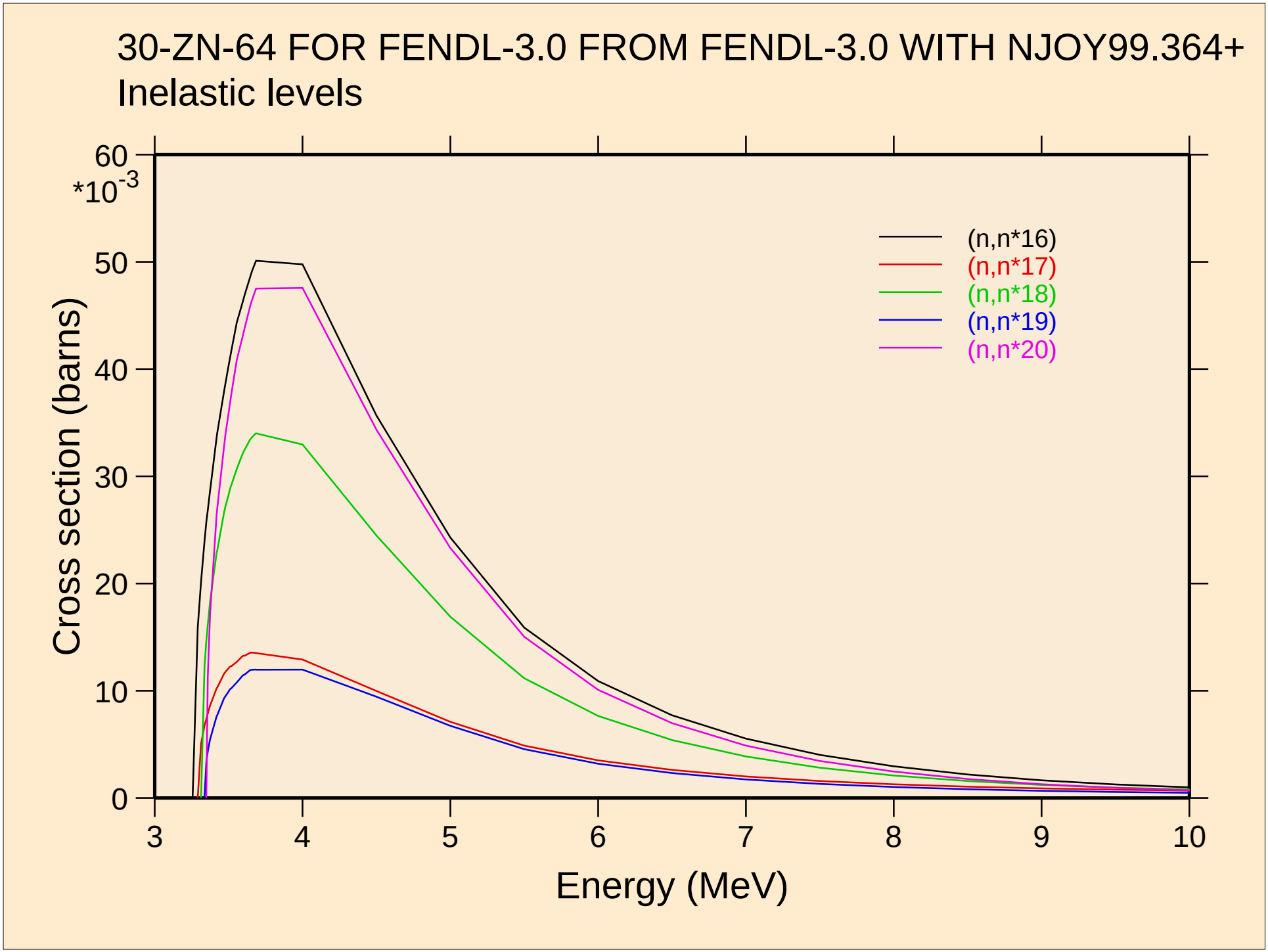

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Damage
400
*10-3
350
300
250
200
150
100
50
0
damage
Damage (MeV-barns)
0
20
40
60
80
100
120
140
160
Energy (MeV)

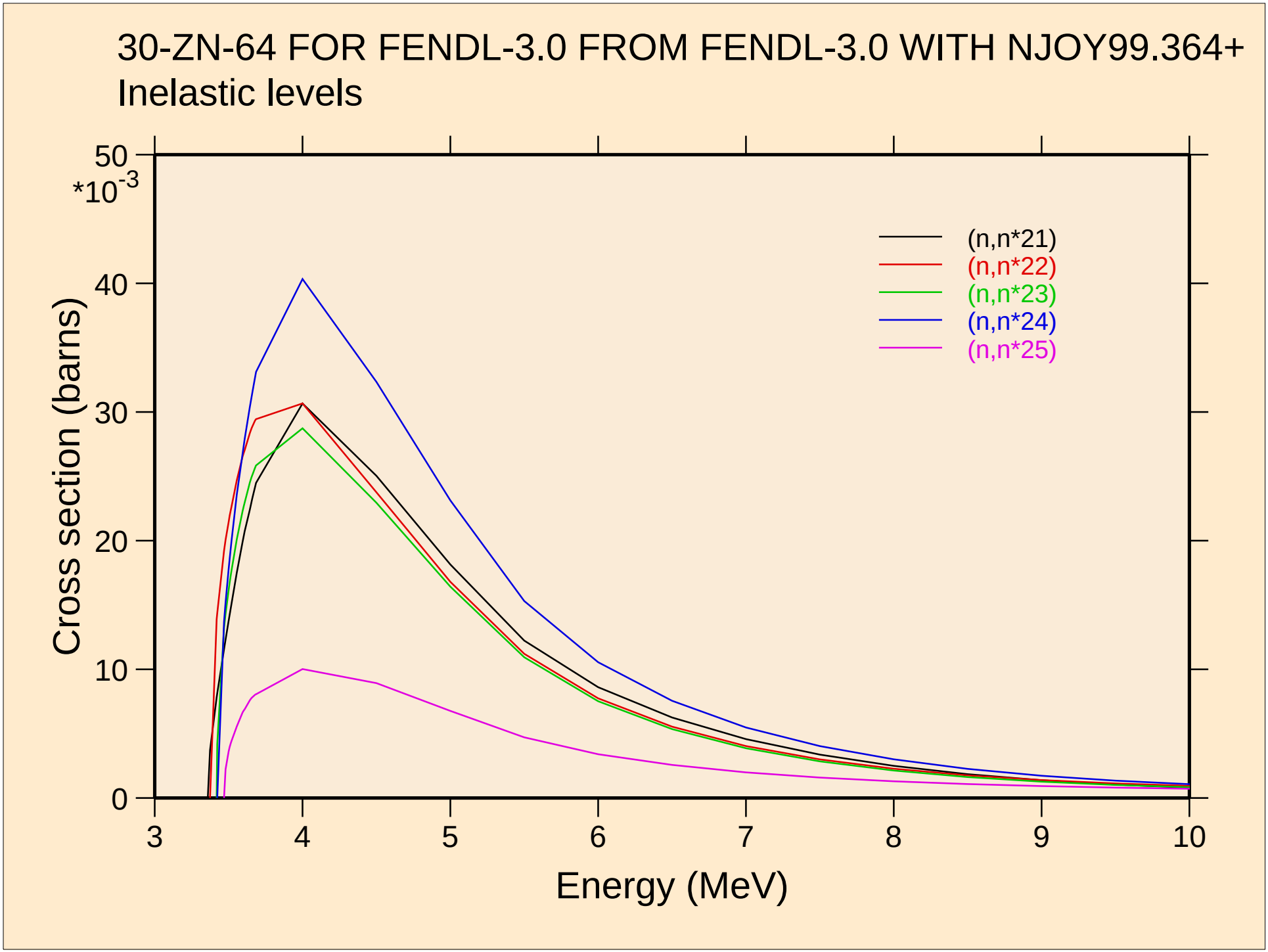

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Non-threshold reactions
(n,gma)
(n,a)
(n,xa)
Cross section (barns)
10-1
10-2
10-3
10-4
0
20
40
60
80
100
120
140
160
Energy (MeV)

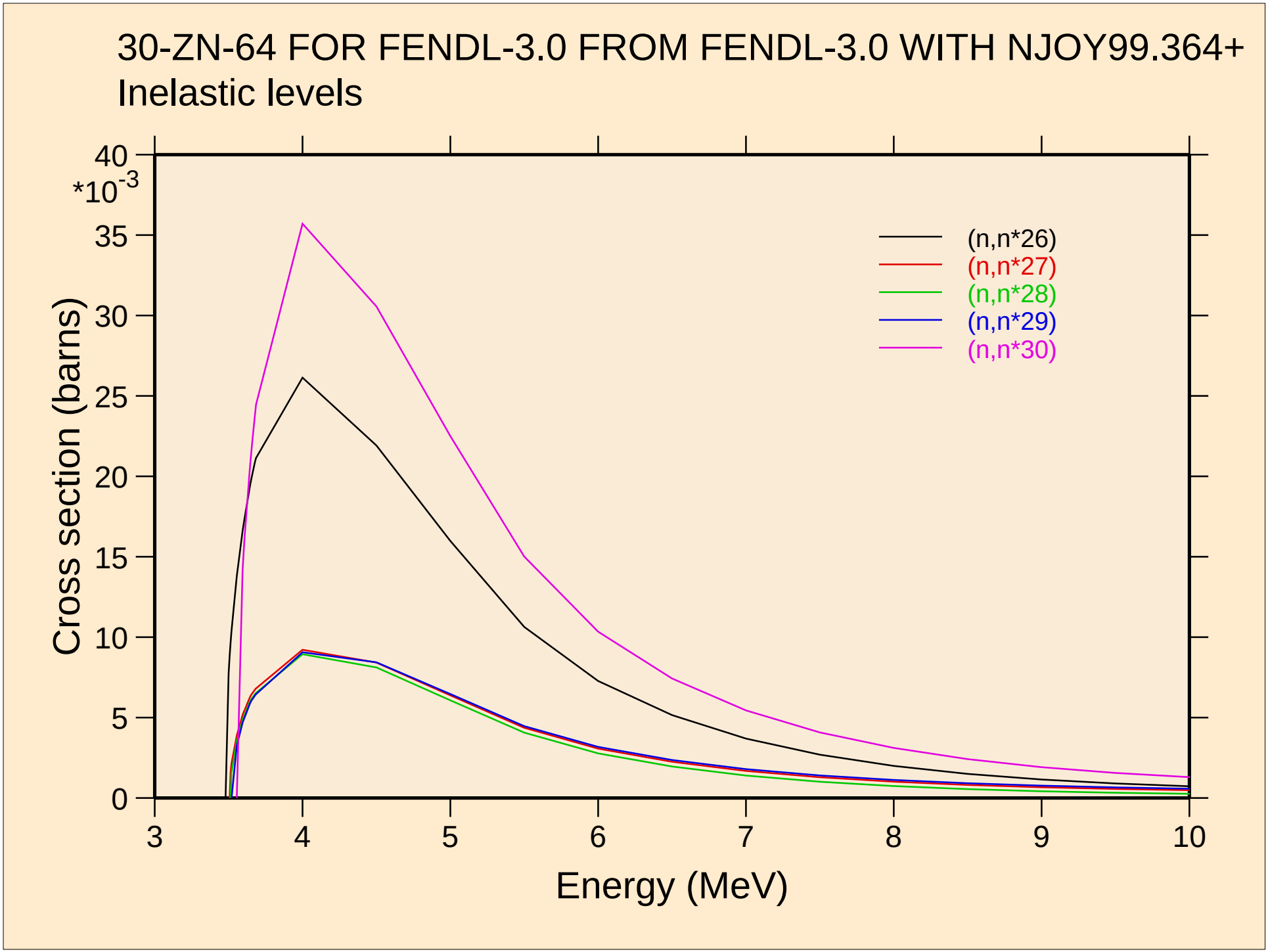

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
Energy (MeV)
1.0
0.8
0.6
0.4
0.2
0.0
0
2
4
6
8
10
(n,n*1)
(n,n*2)
(n,n*3)
(n,n*4)
(n,n*5)

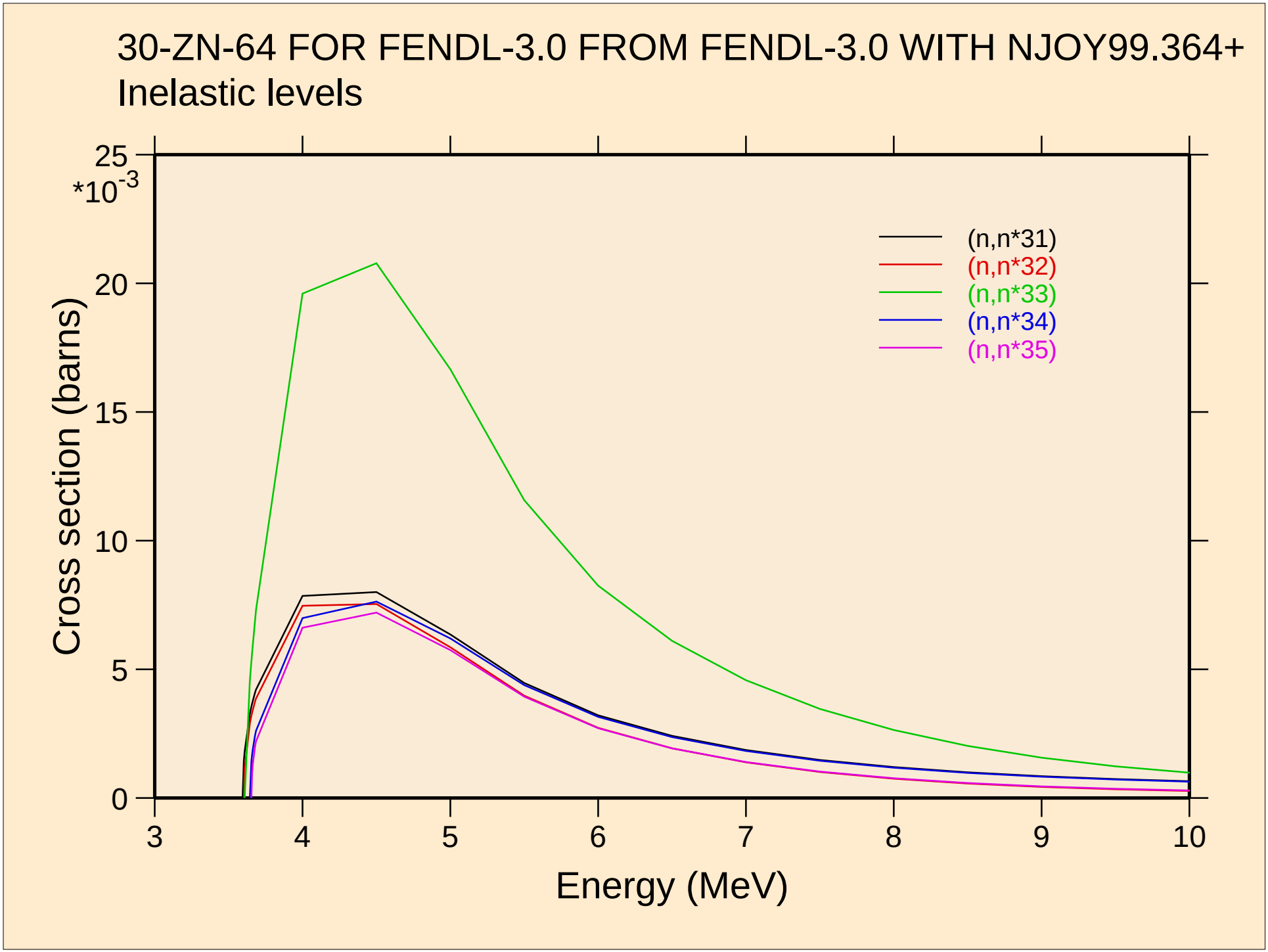

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
120
100
80
60
40
20
0
2
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*6)
(n,n*7)
(n,n*8)
(n,n*9)
(n,n*10)

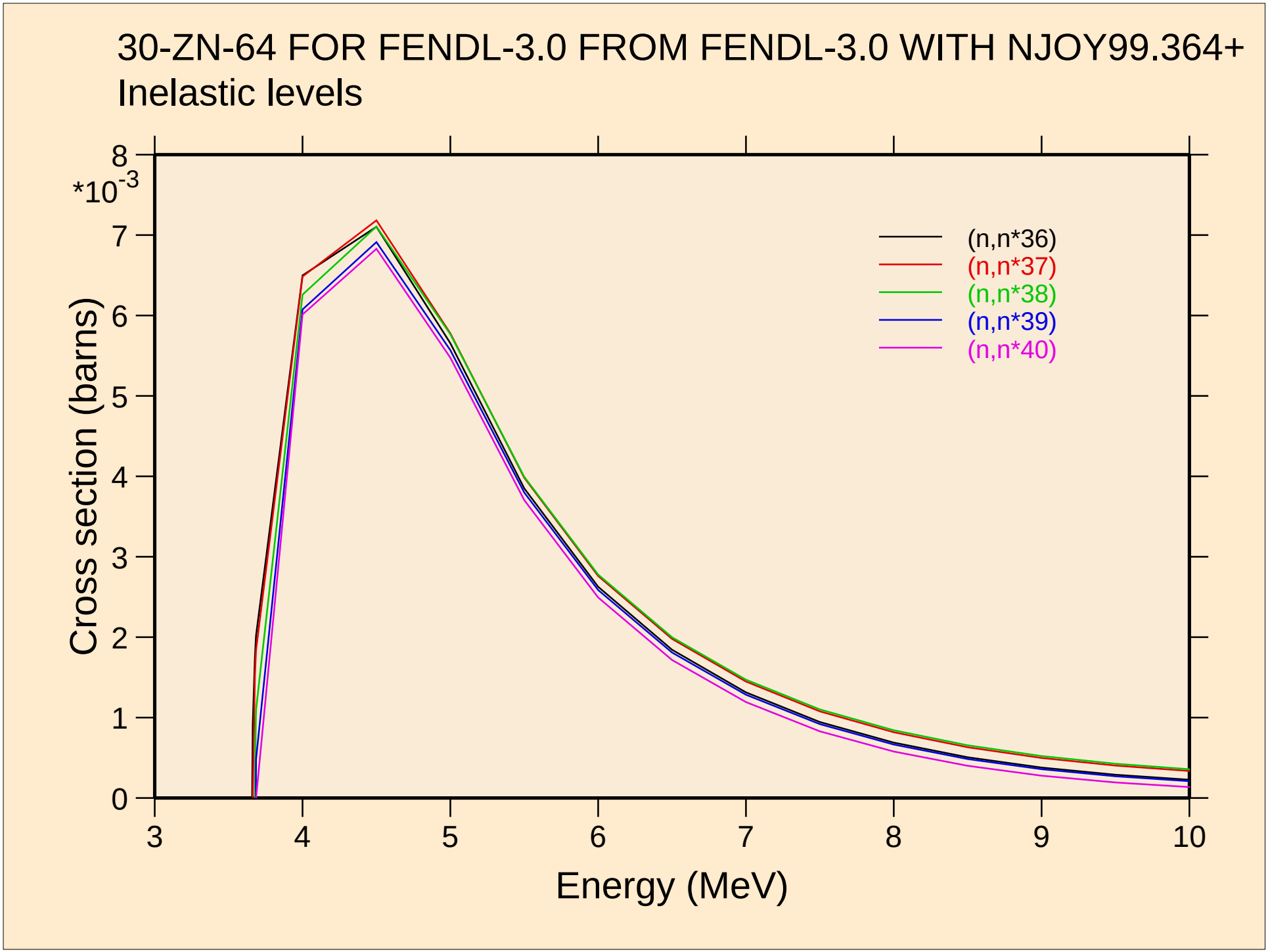

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
50
40
30
20
10
0
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*11)
(n,n*12)
(n,n*13)
(n,n*14)
(n,n*15)

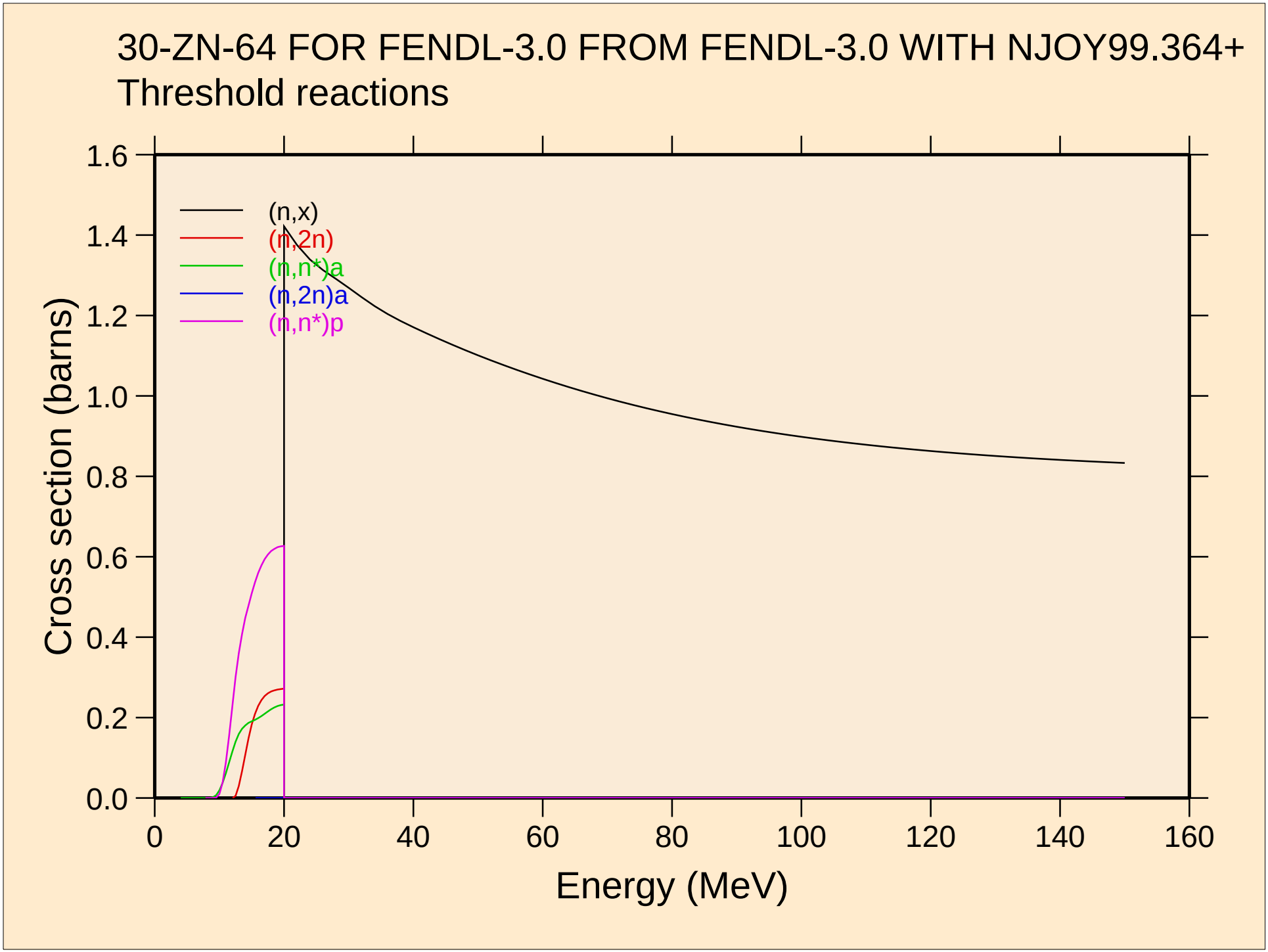

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
60
50
40
30
20
10
0
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*16)
(n,n*17)
(n,n*18)
(n,n*19)
(n,n*20)

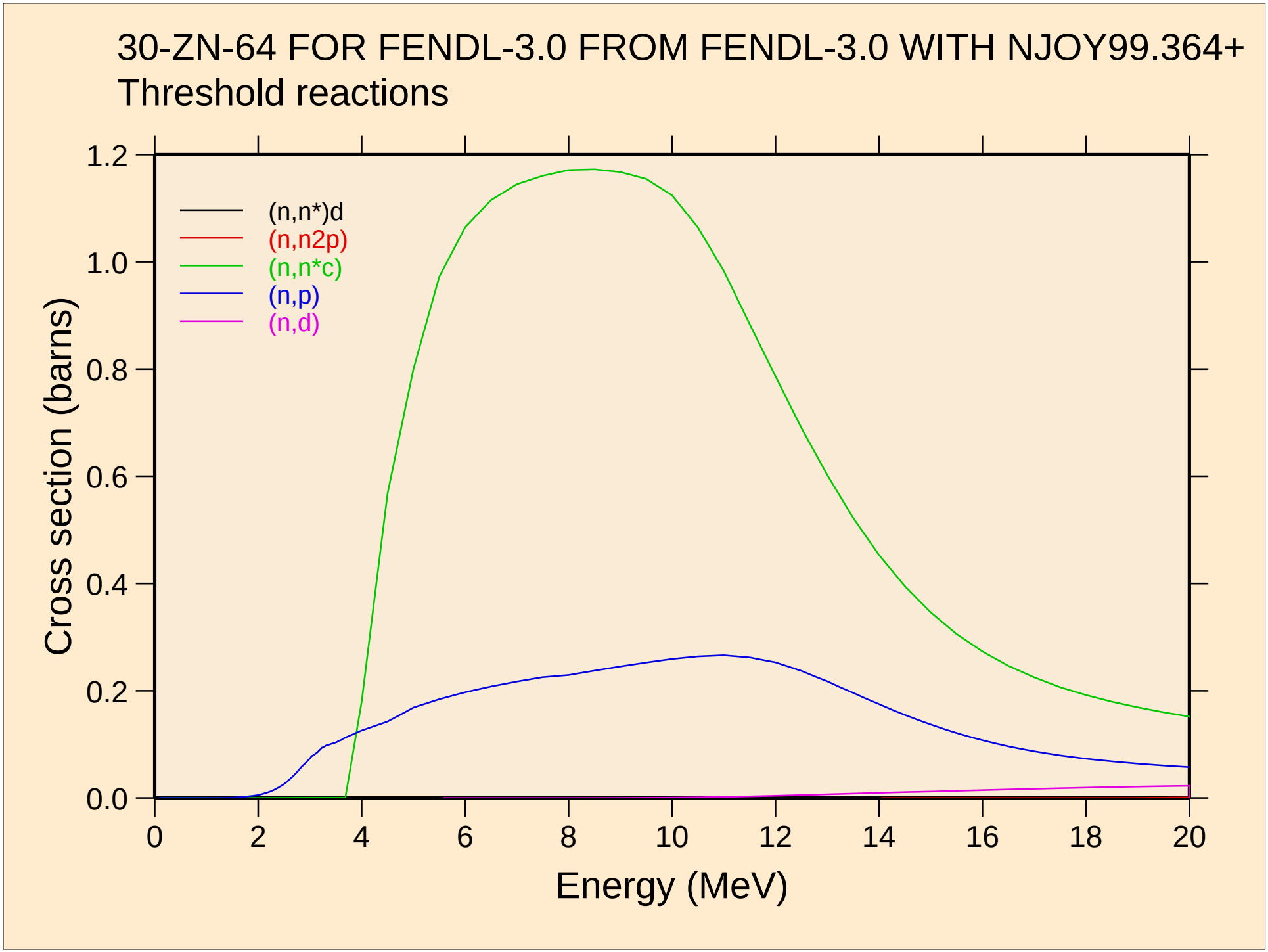

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
50
40
30
20
10
0
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*21)
(n,n*22)
(n,n*23)
(n,n*24)
(n,n*25)

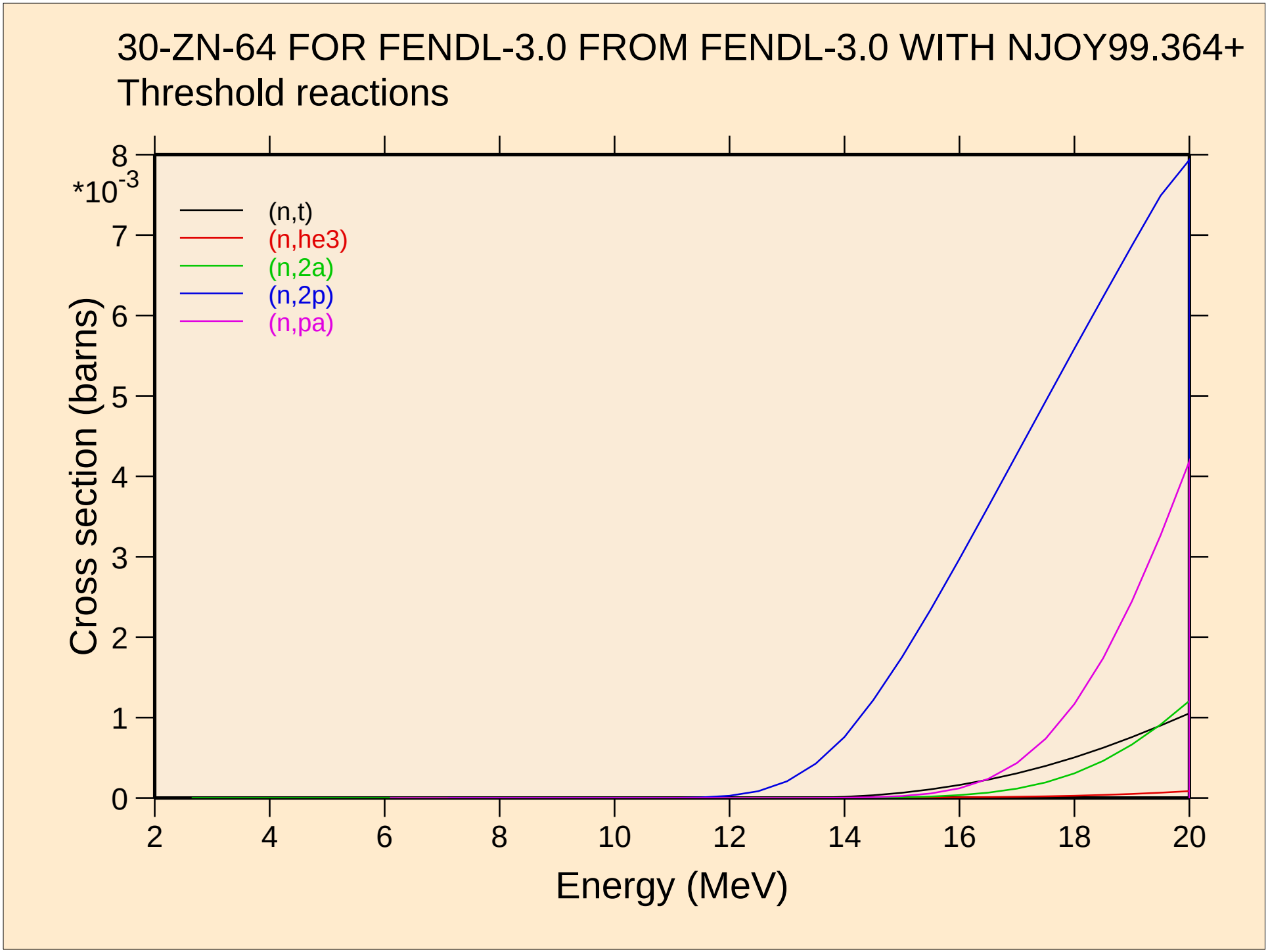

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
40
35
30
25
20
15
10
5
0
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*26)
(n,n*27)
(n,n*28)
(n,n*29)
(n,n*30)

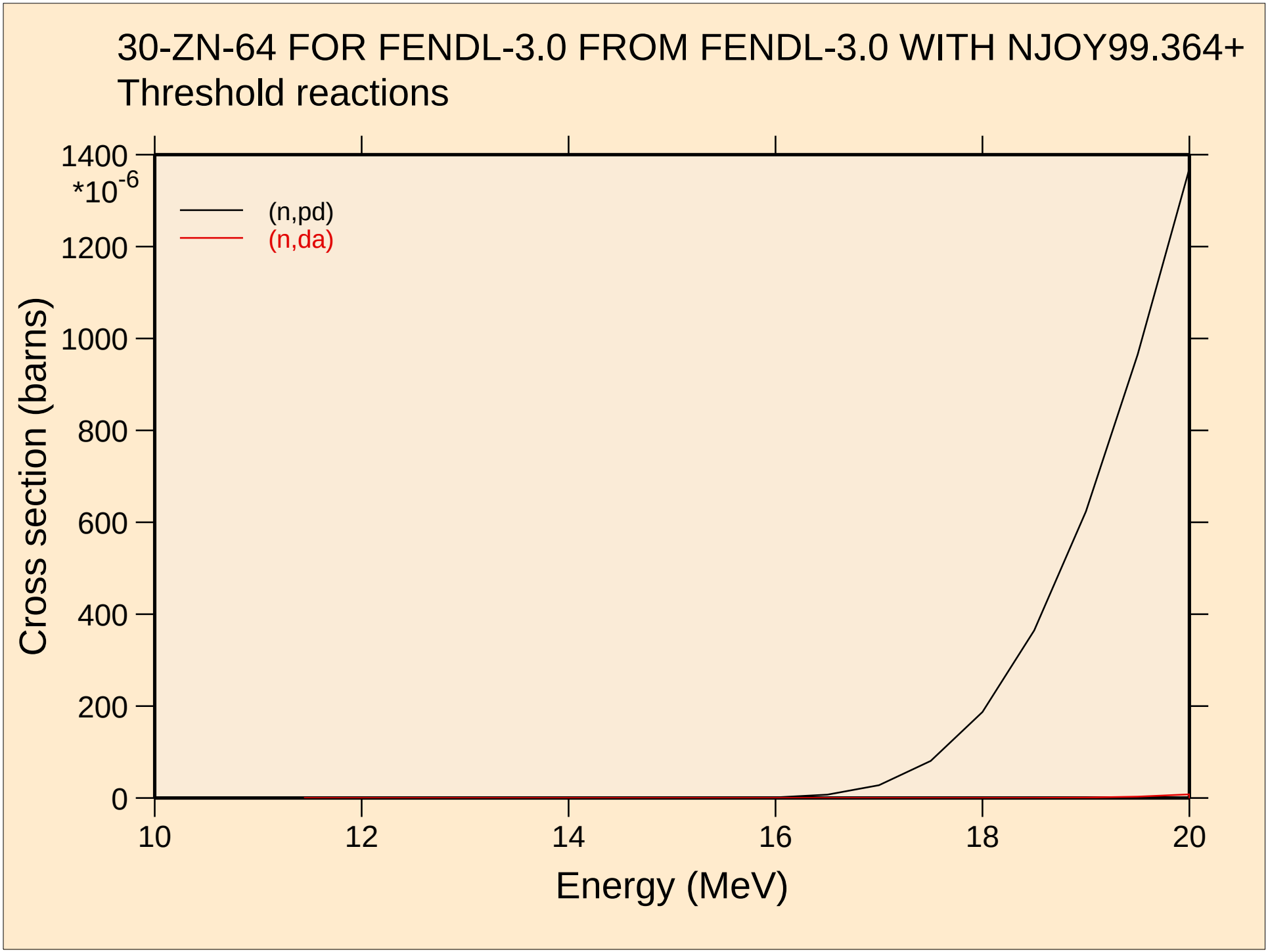

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
Cross section (barns)
*10-3
25
20
15
10
5
0
3
4
5
6
7
8
9
10
Energy (MeV)
(n,n*31)
(n,n*32)
(n,n*33)
(n,n*34)
(n,n*35)

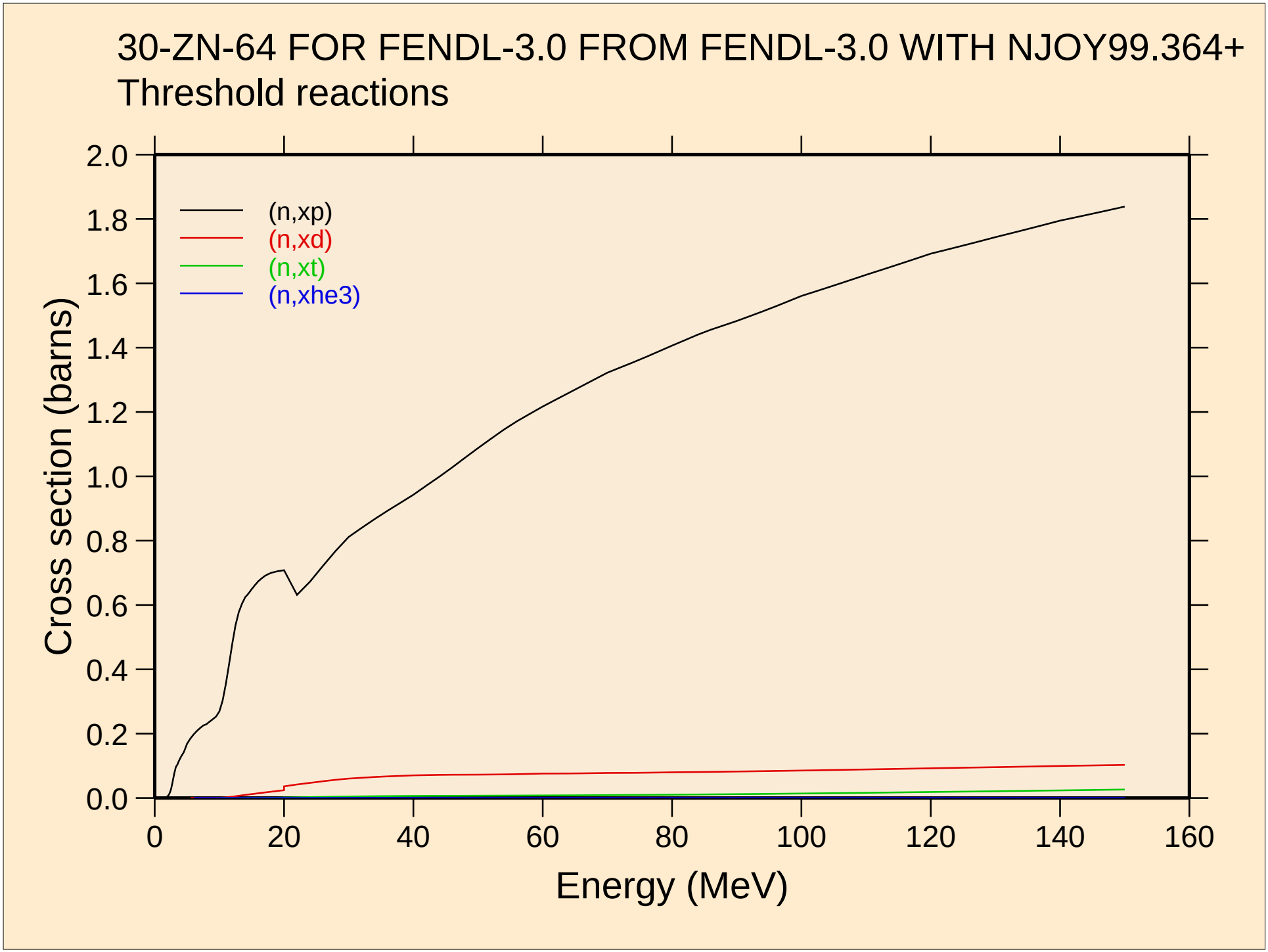

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Inelastic levels
*10-3
Cross section (barns)
Energy (MeV)
(n,n*36)
(n,n*37)
(n,n*38)
(n,n*39)
(n,n*40)
0
1
2
3
4
5
6
7
8
3
4
5
6
7
8
9
10

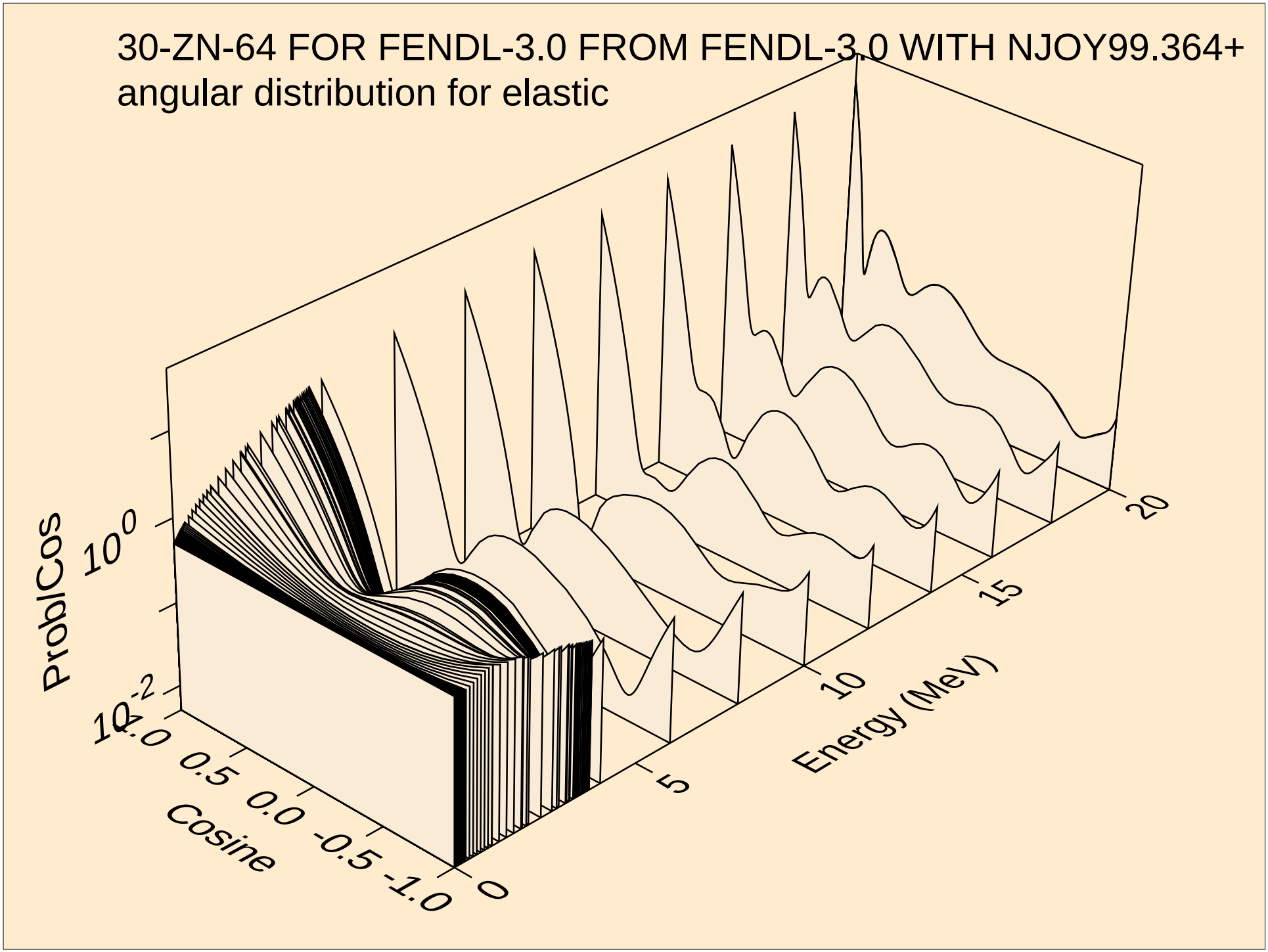

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Threshold reactions
(n,x)
(n,2n)
(n,n*)a
(n,2n)a
(n,n*)p
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
0
20
40
60
80
100
120
140
160

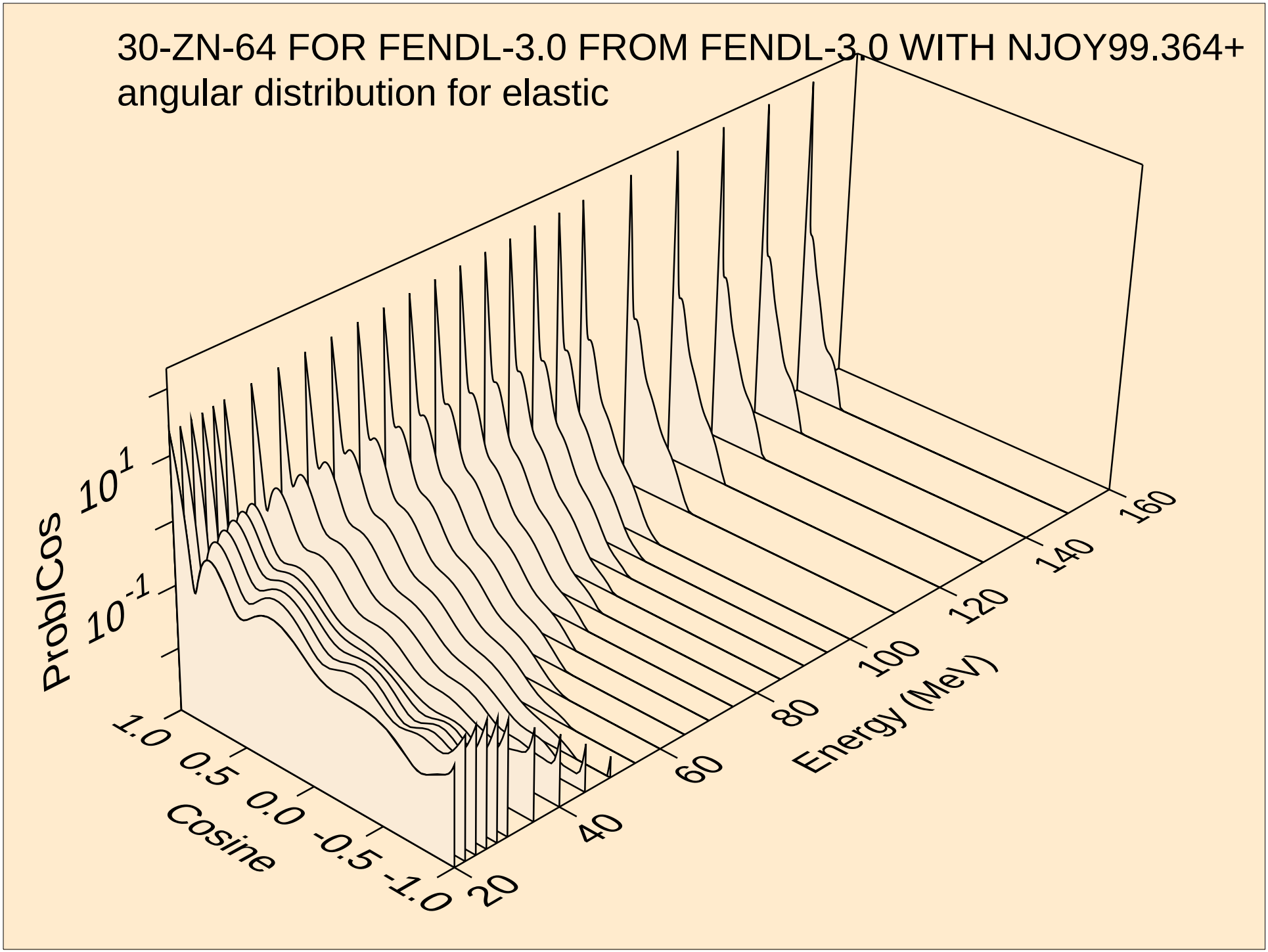

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Threshold reactions
(n,n*)d
(n,n2p)
(n,n*c)
(n,p)
(n,d)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
0
2
4
6
8
10
12
14
16
18
20

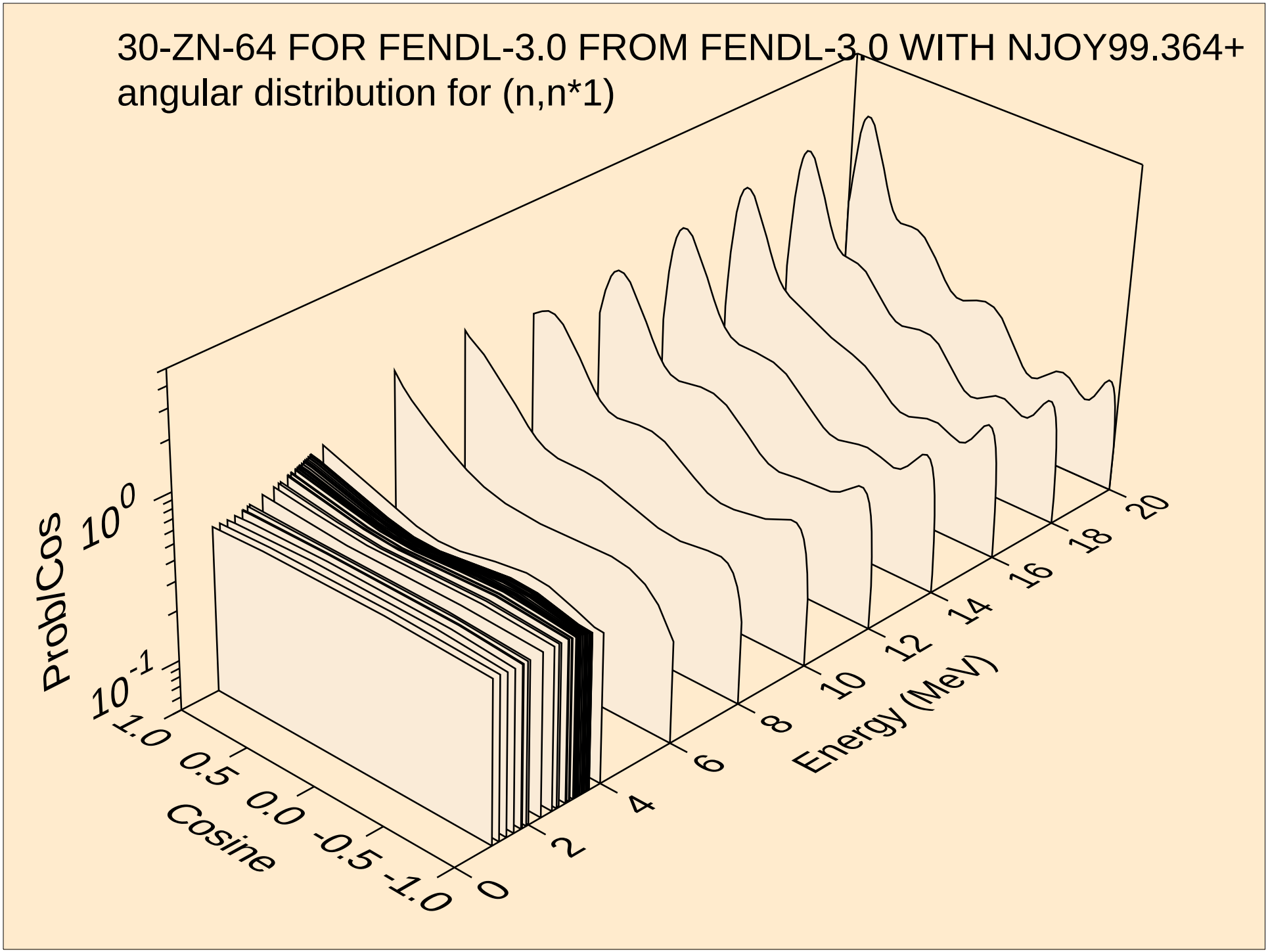

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Threshold reactions
*10-3
Cross section (barns)
Energy (MeV)
(n,t)
(n,he3)
(n,2a)
(n,2p)
(n,pa)
0
1
2
3
4
5
6
7
8
2
4
6
8
10
12
14
16
18
20

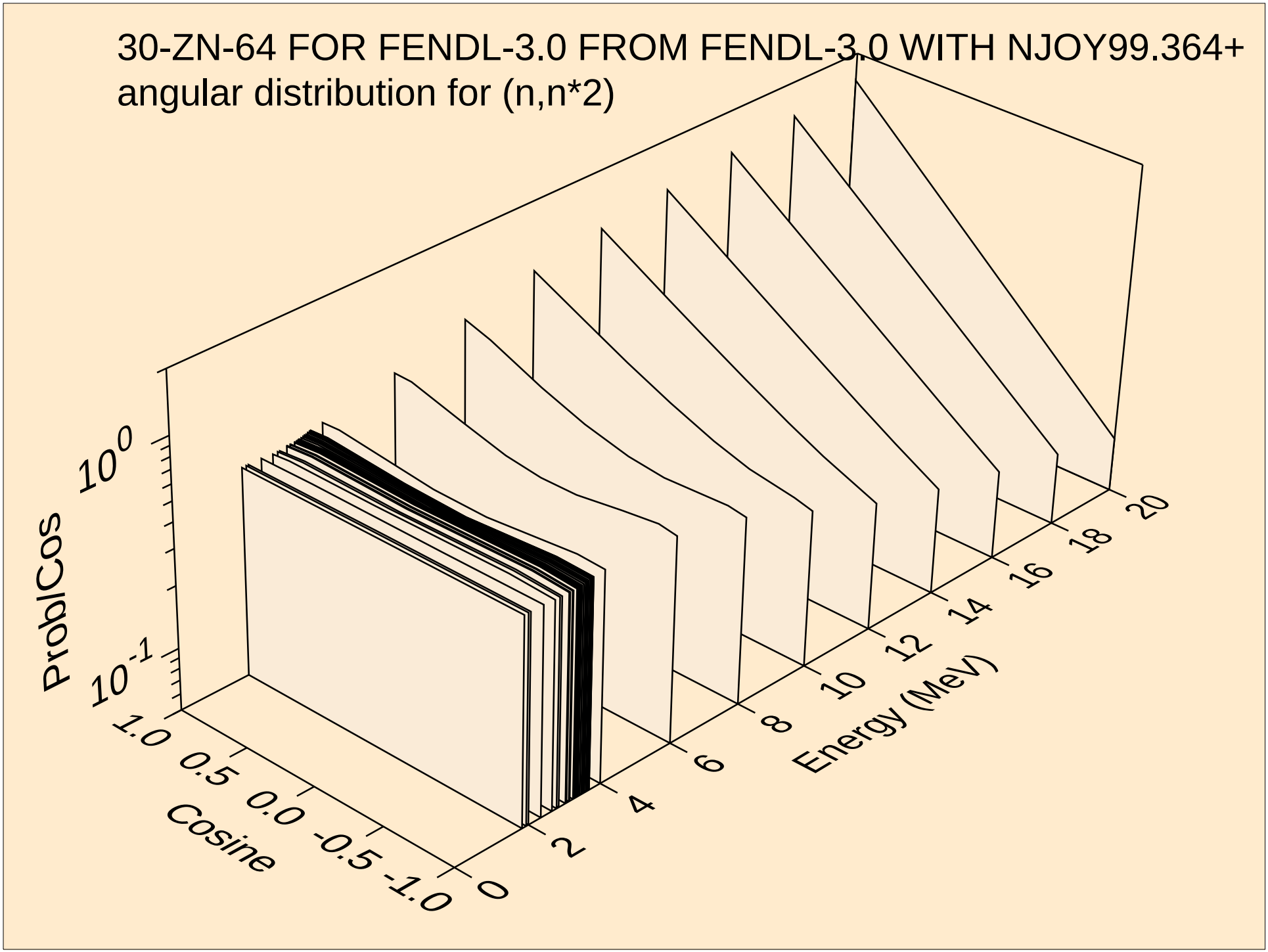

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Threshold reactions
1400
*10-6
1200
1000
800
600
400
200
0
(n,pd)
(n,da)
Cross section (barns)
10
12
14
16
18
20
Energy (MeV)

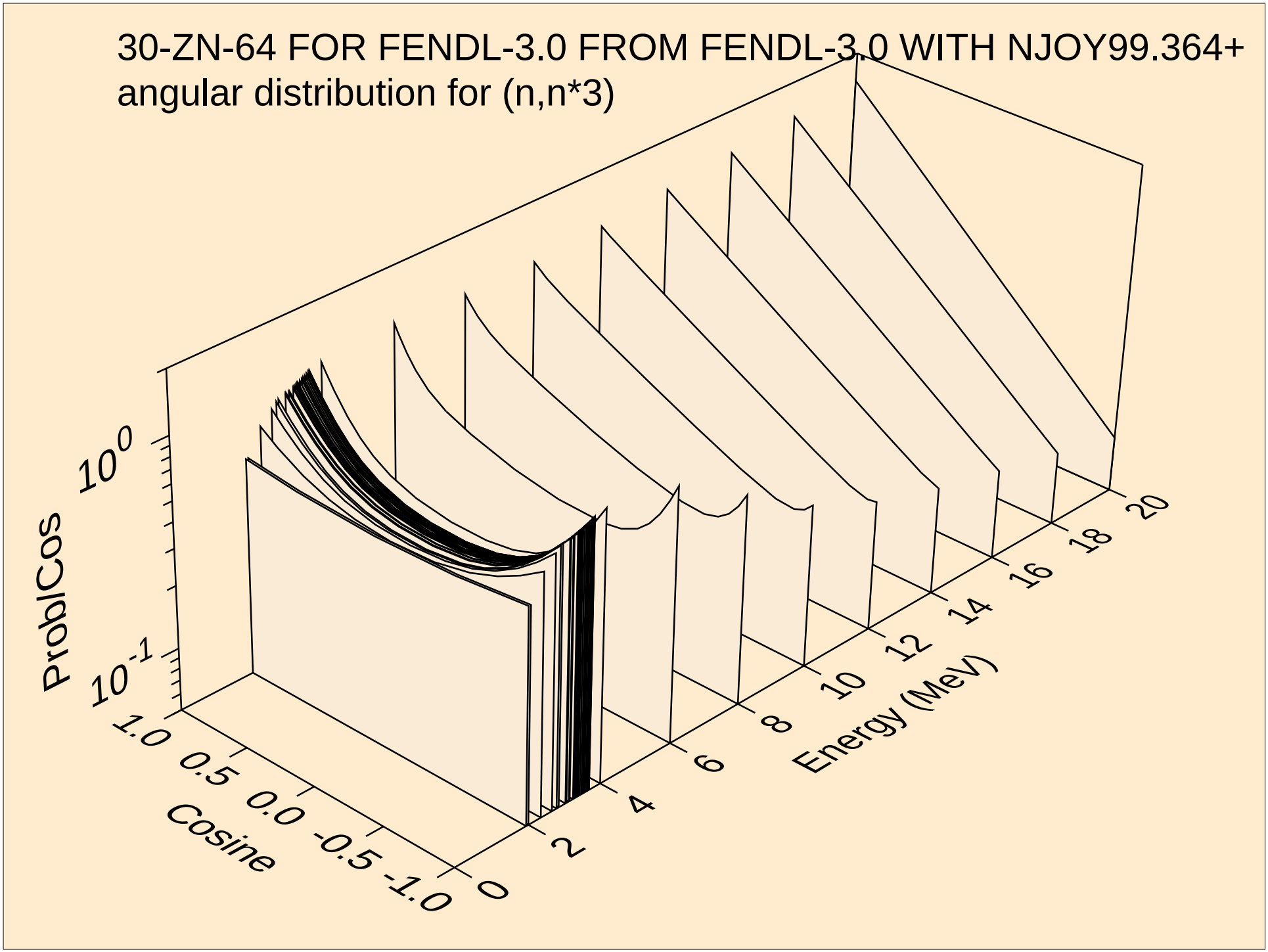

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Threshold reactions
(n,xp)
(n,xd)
(n,xt)
(n,xhe3)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
0
20
40
60
80
100
120
140
160

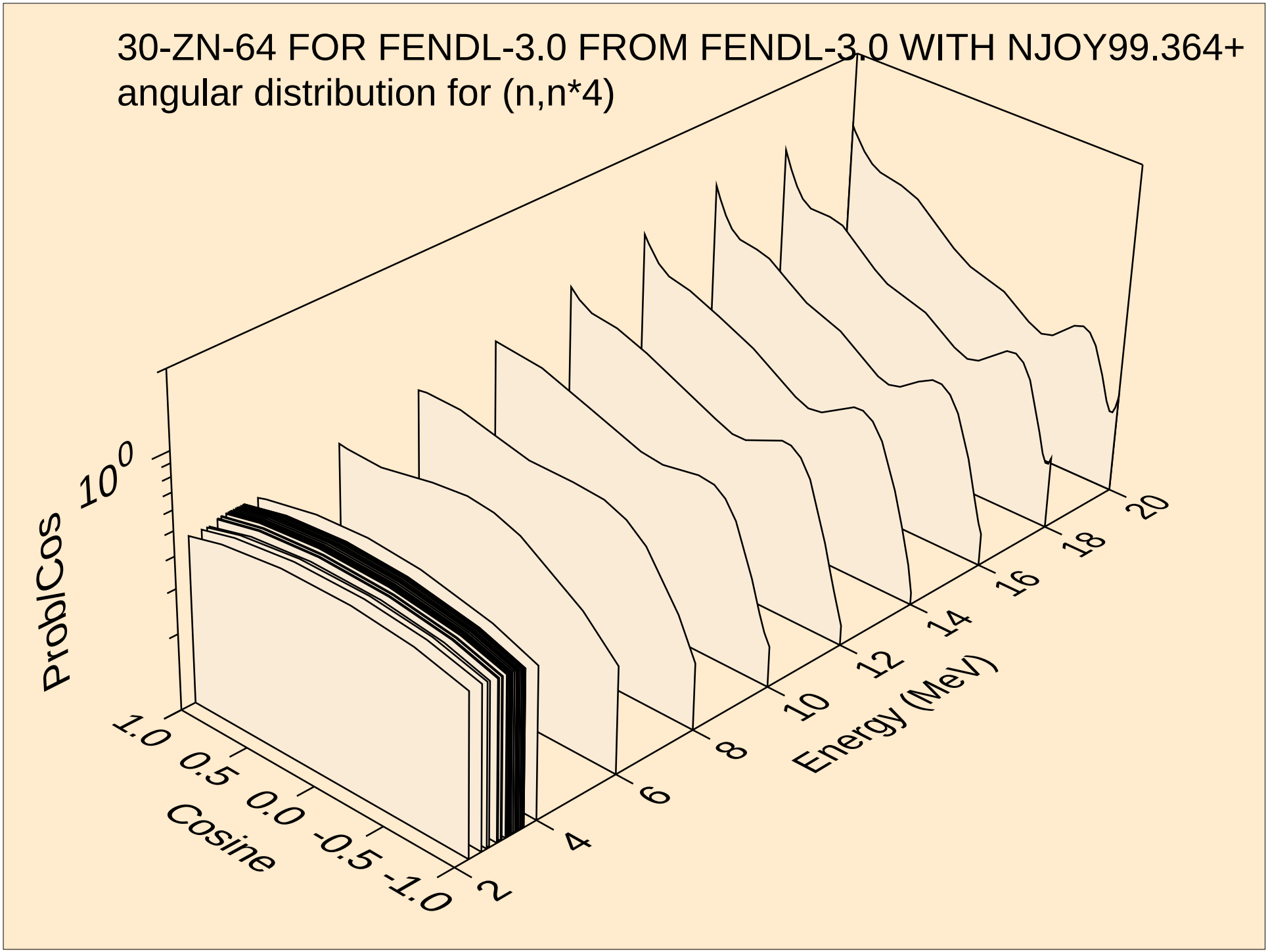

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for elastic
ProblCos
10^0
10^-2
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
5
10
15
20
Energy (MeV)

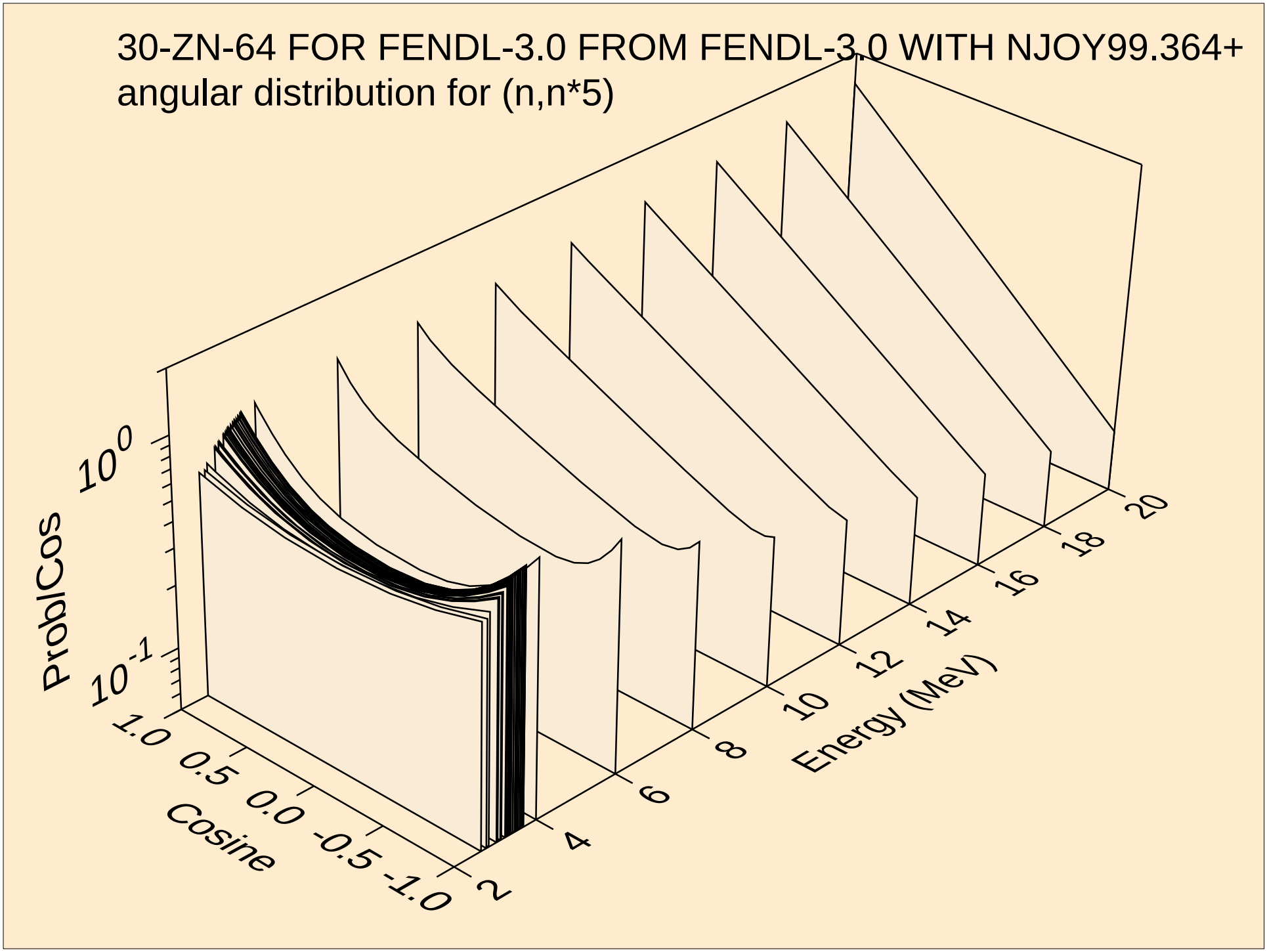

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for elastic
ProbICos
10^1
10^-1
1.0
0.5
0.0
-0.5
-1.0
Cosine
20
40
60
80
100
120
140
160
Energy (MeV)

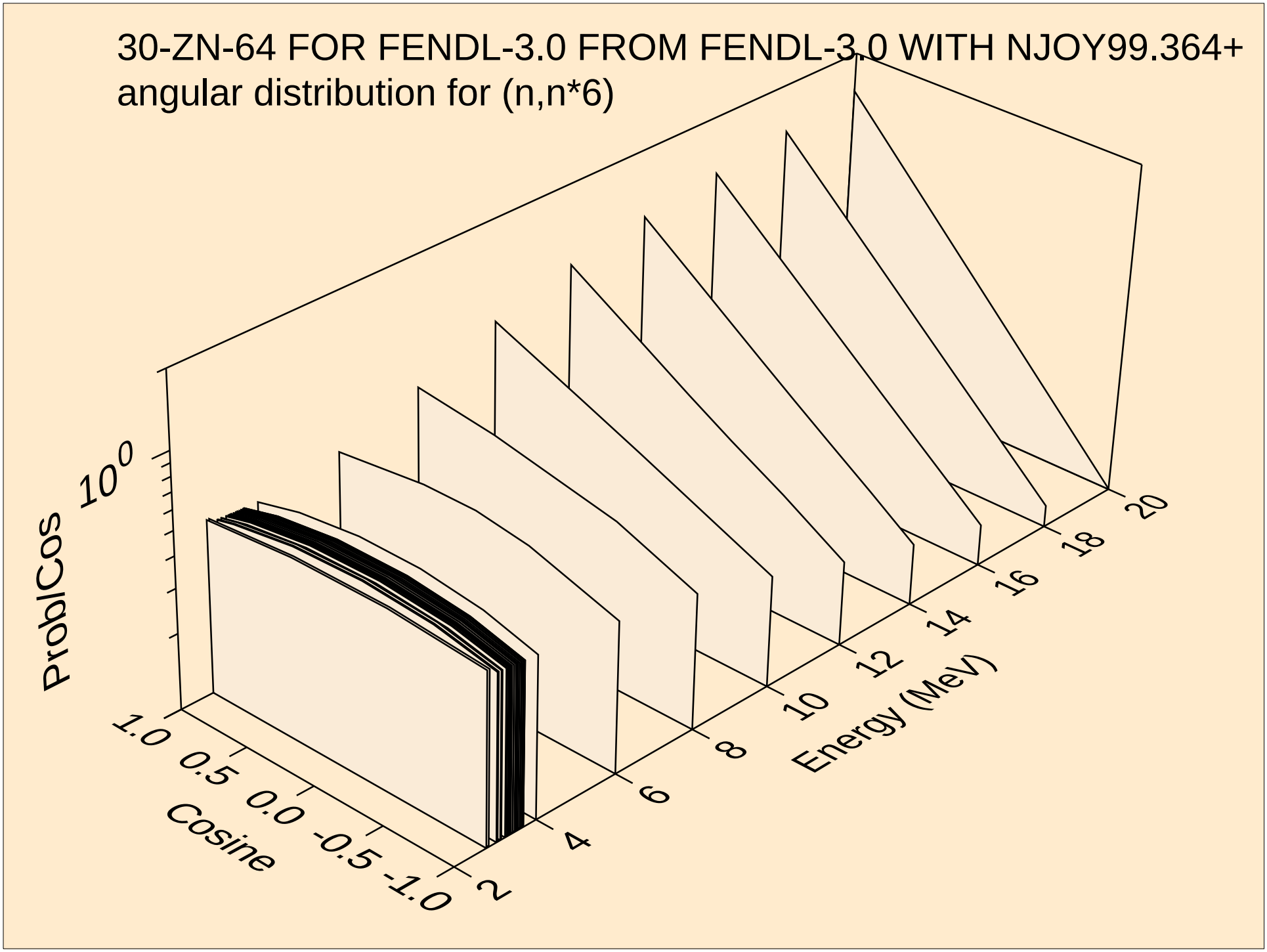

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*1)
ProbICos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

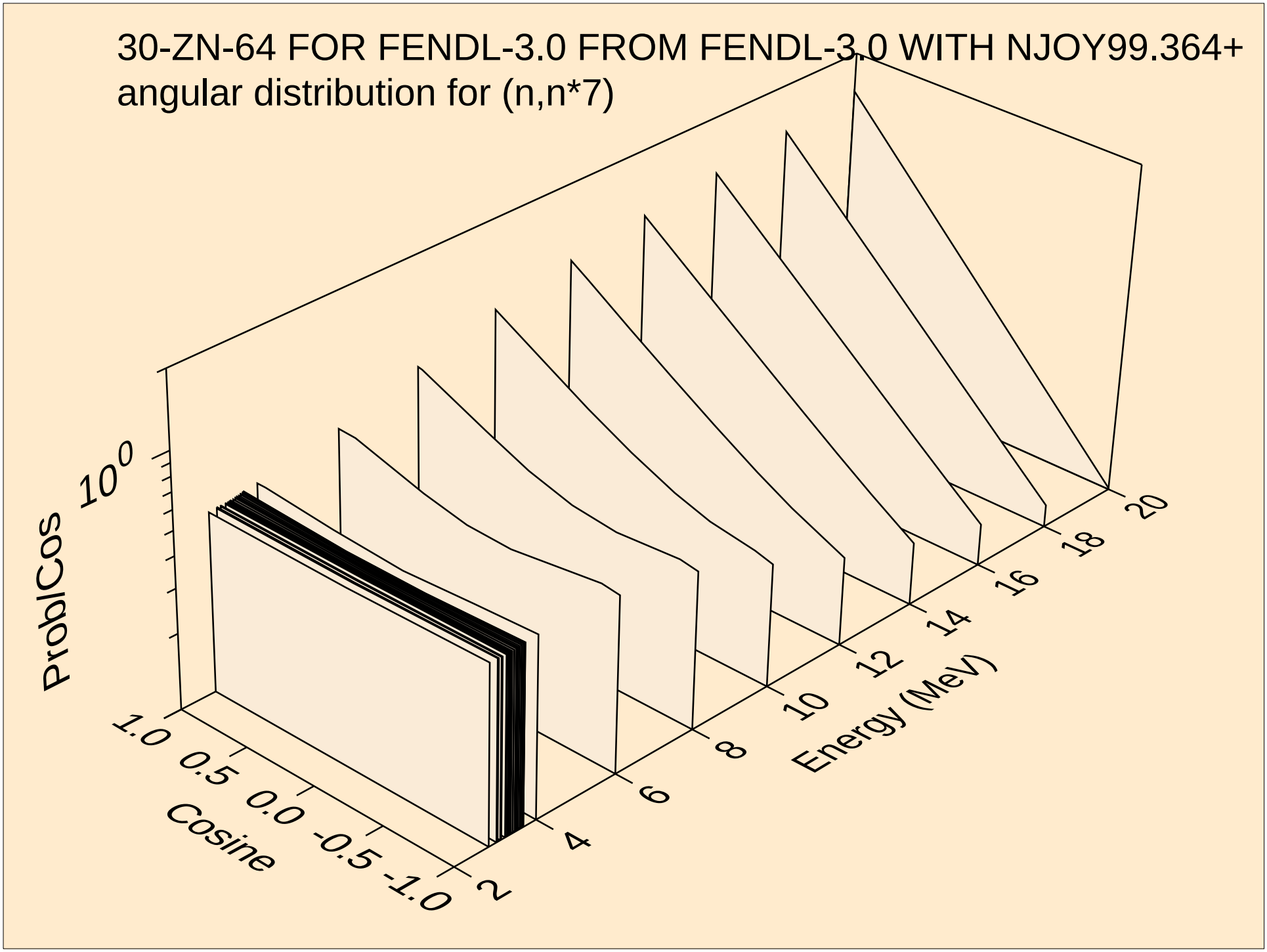

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*2)
ProbICos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

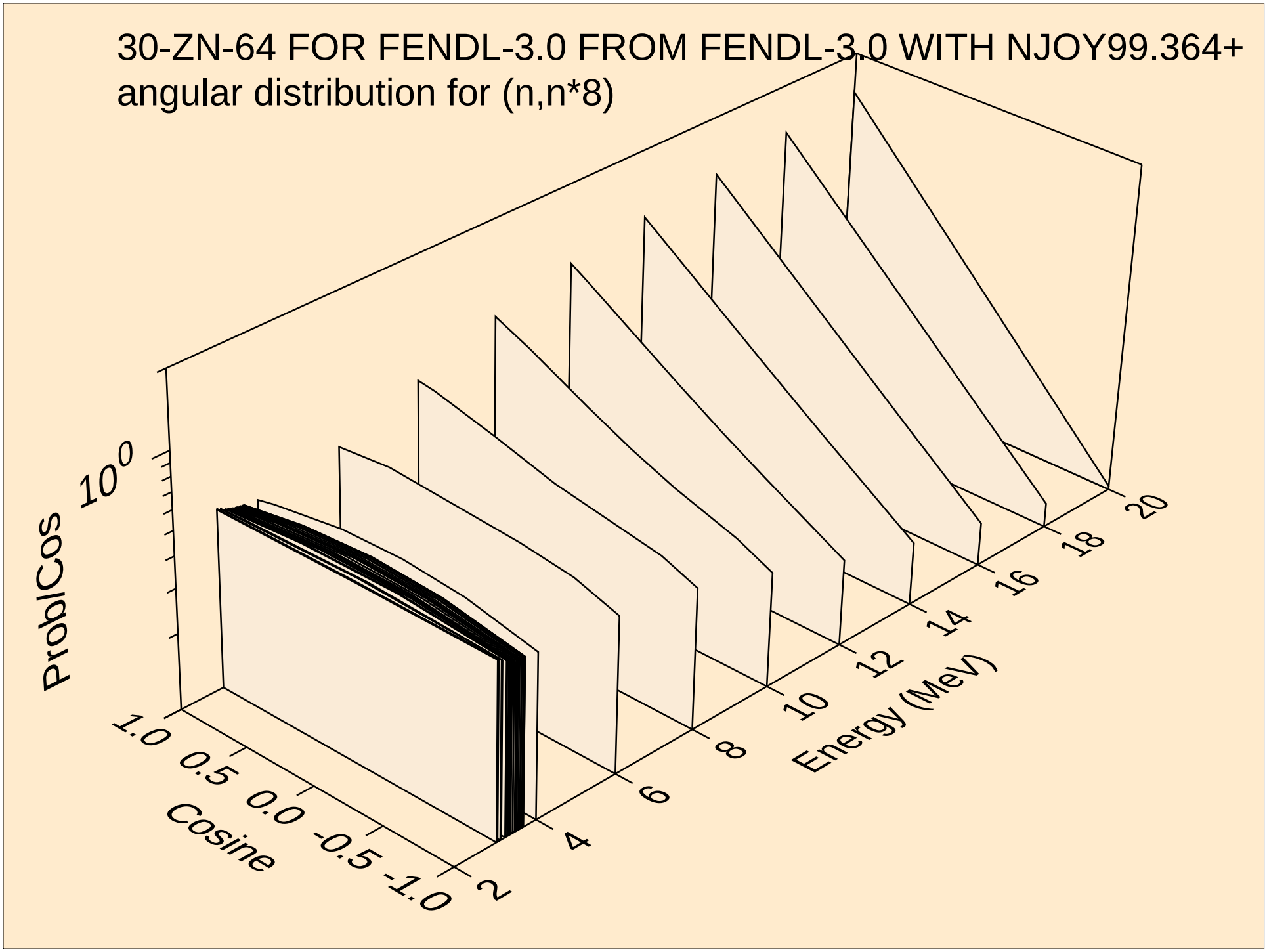

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*3)
ProbICos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

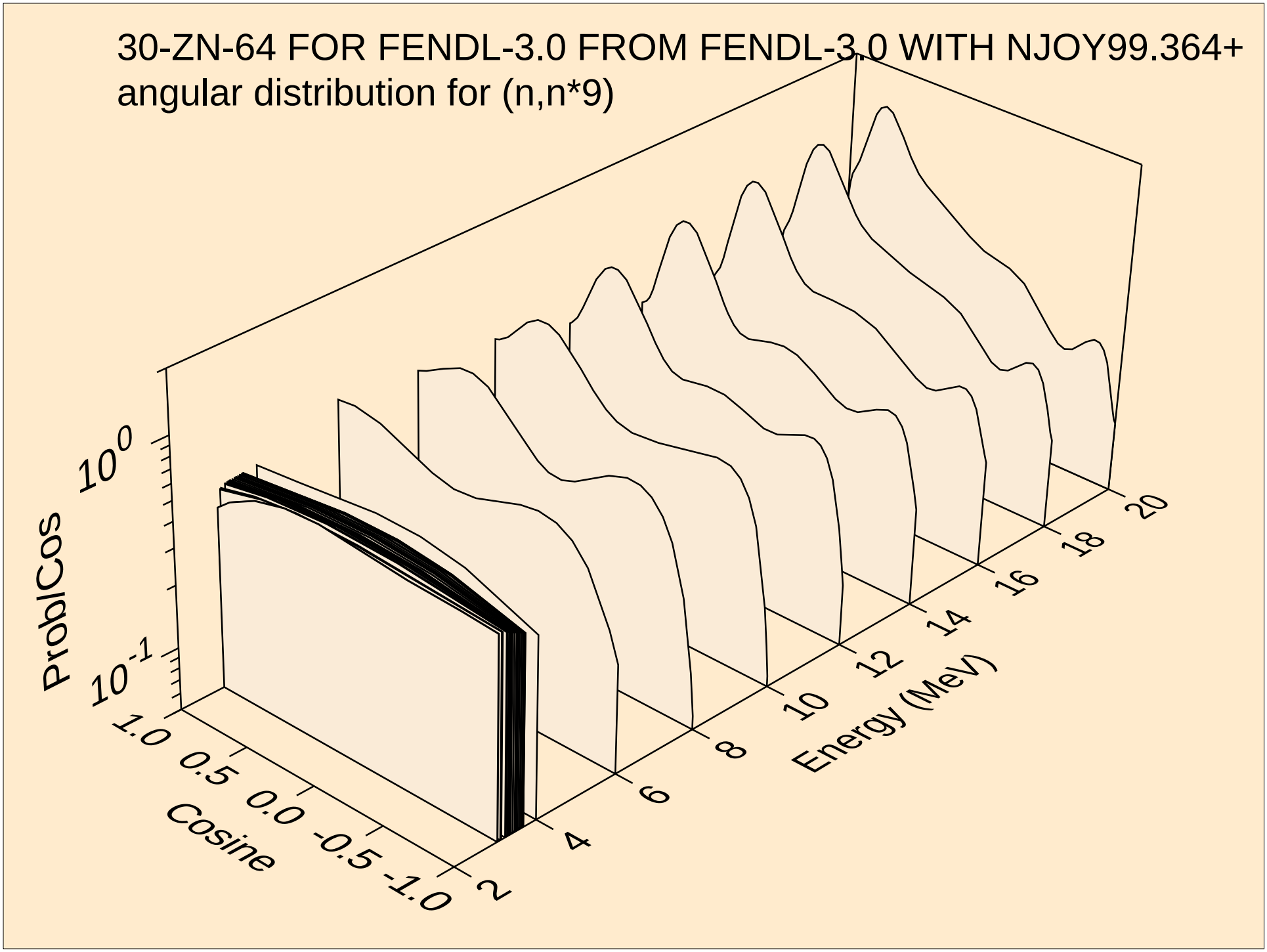

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*4)
ProblCos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

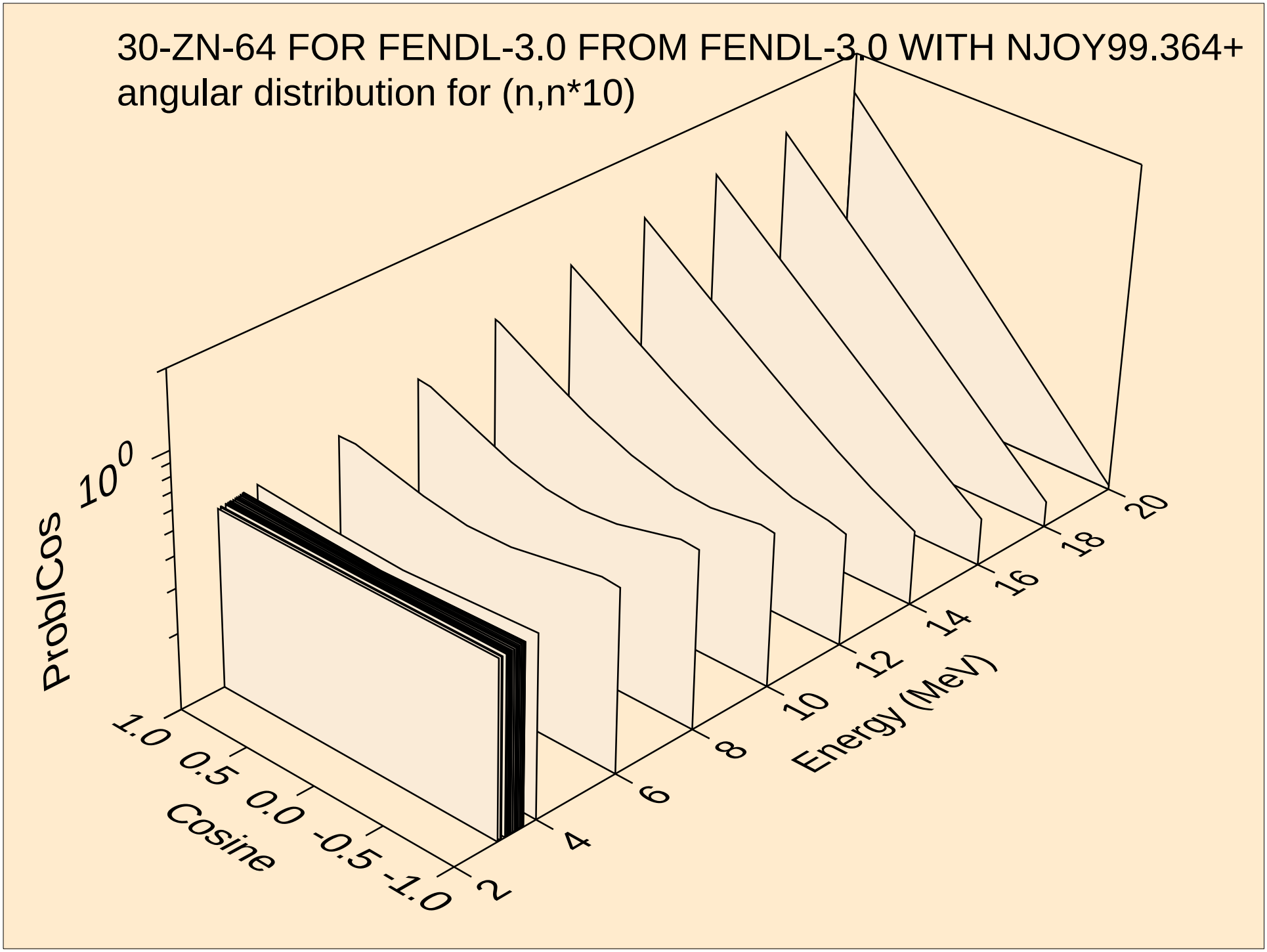

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*5)
ProbICos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

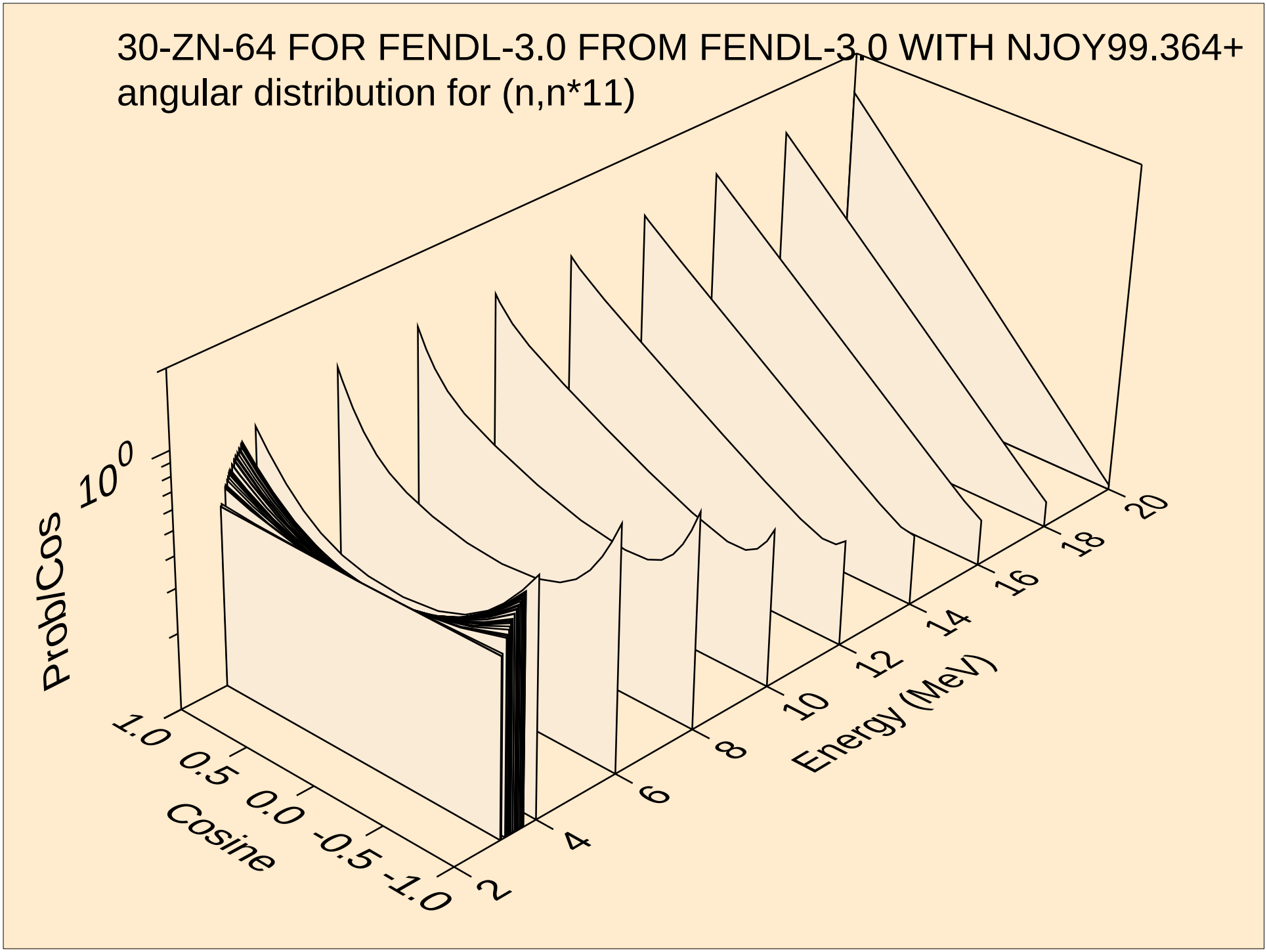

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*6)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

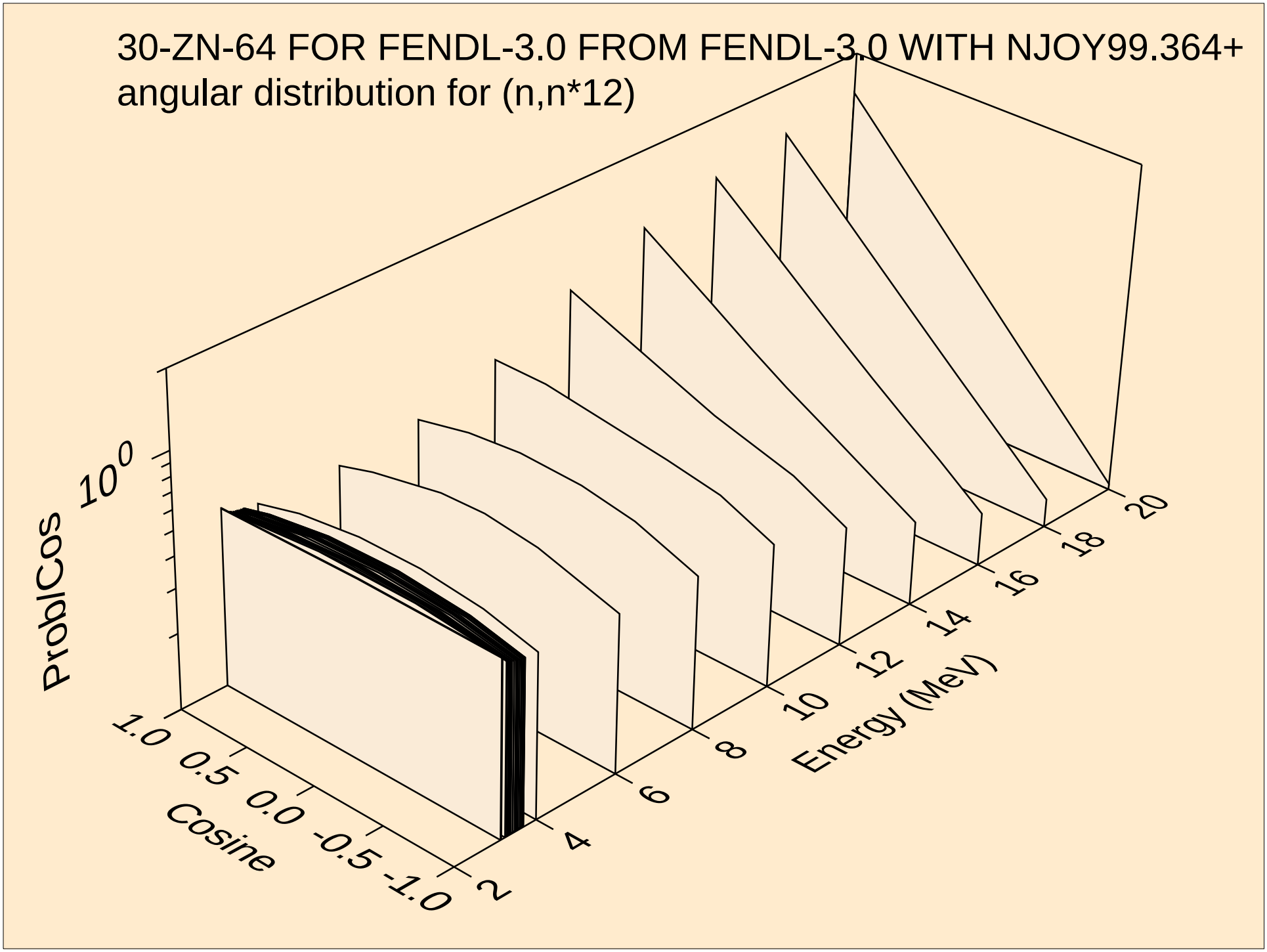

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*7)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

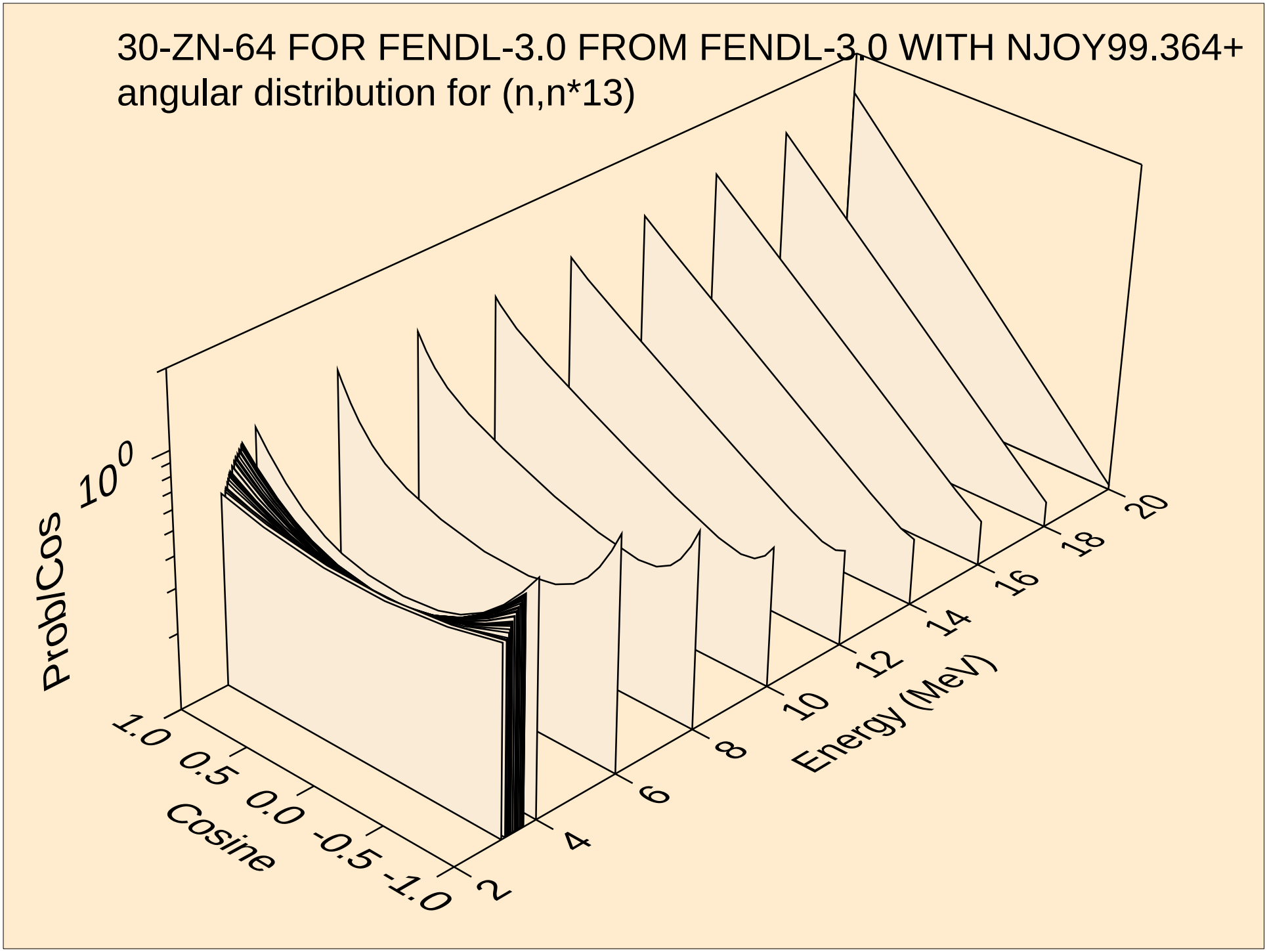

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*8)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

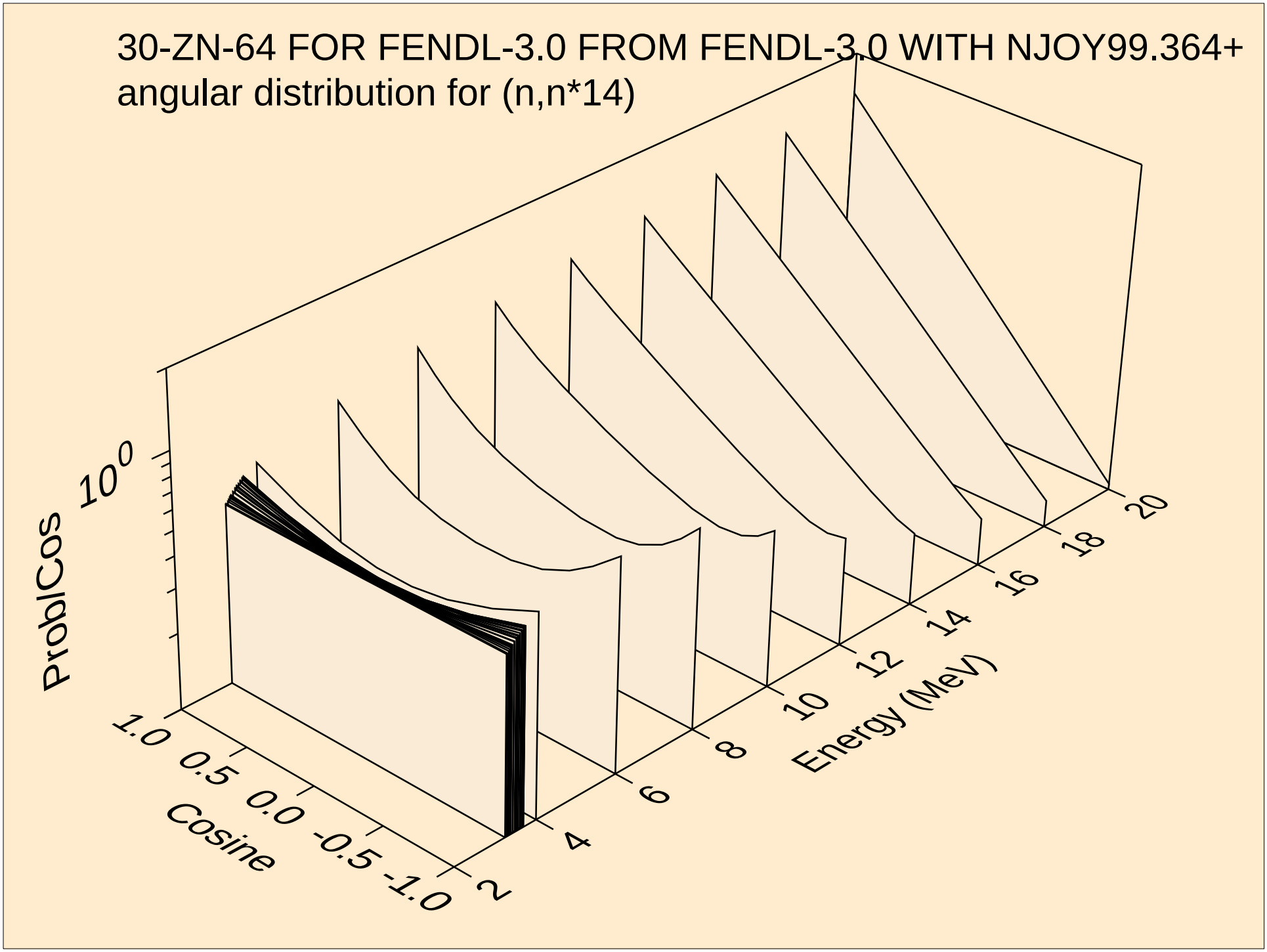

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*9)
ProbICos
$10^{0}$
$10^{-1}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

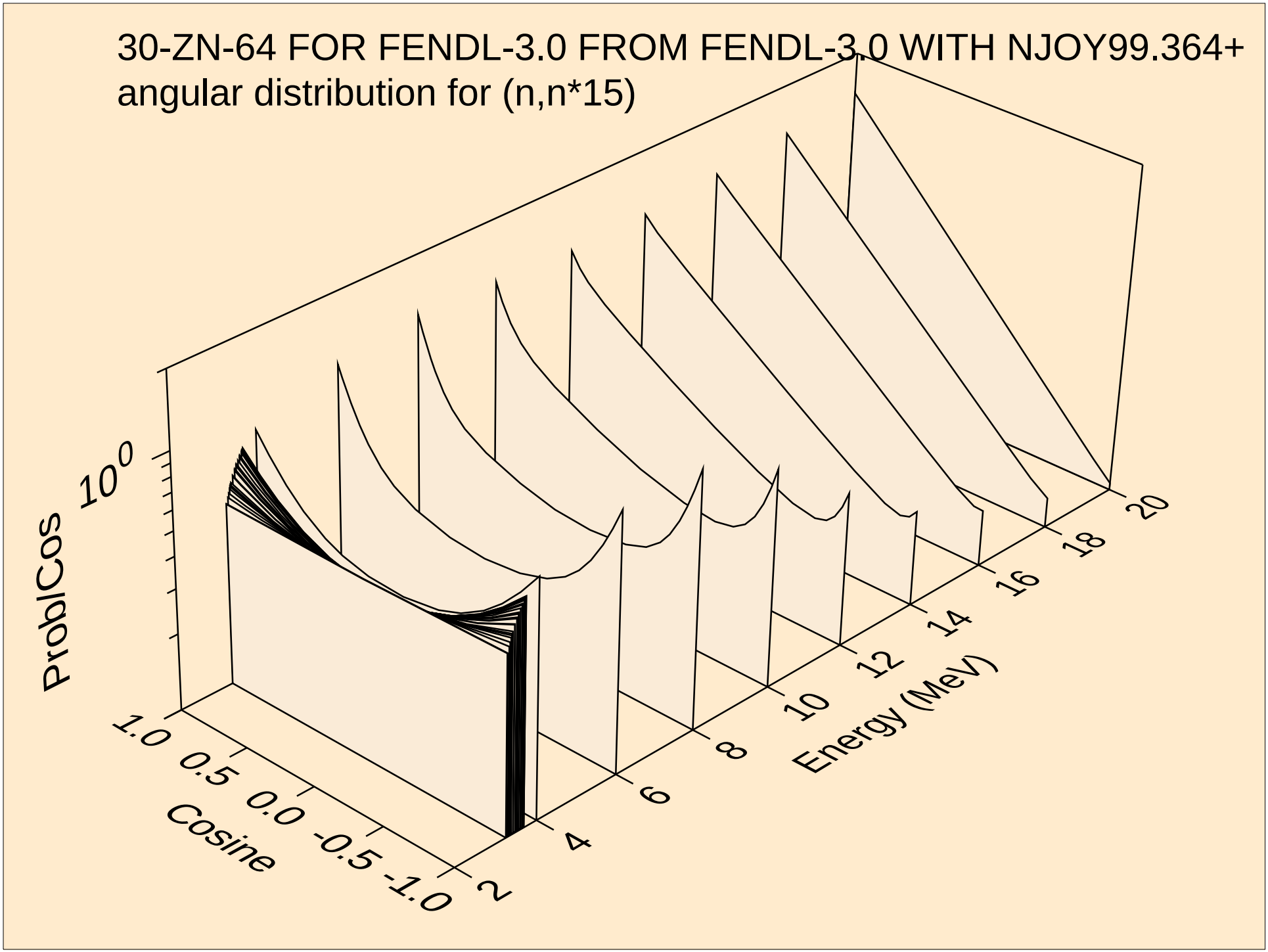

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*10)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

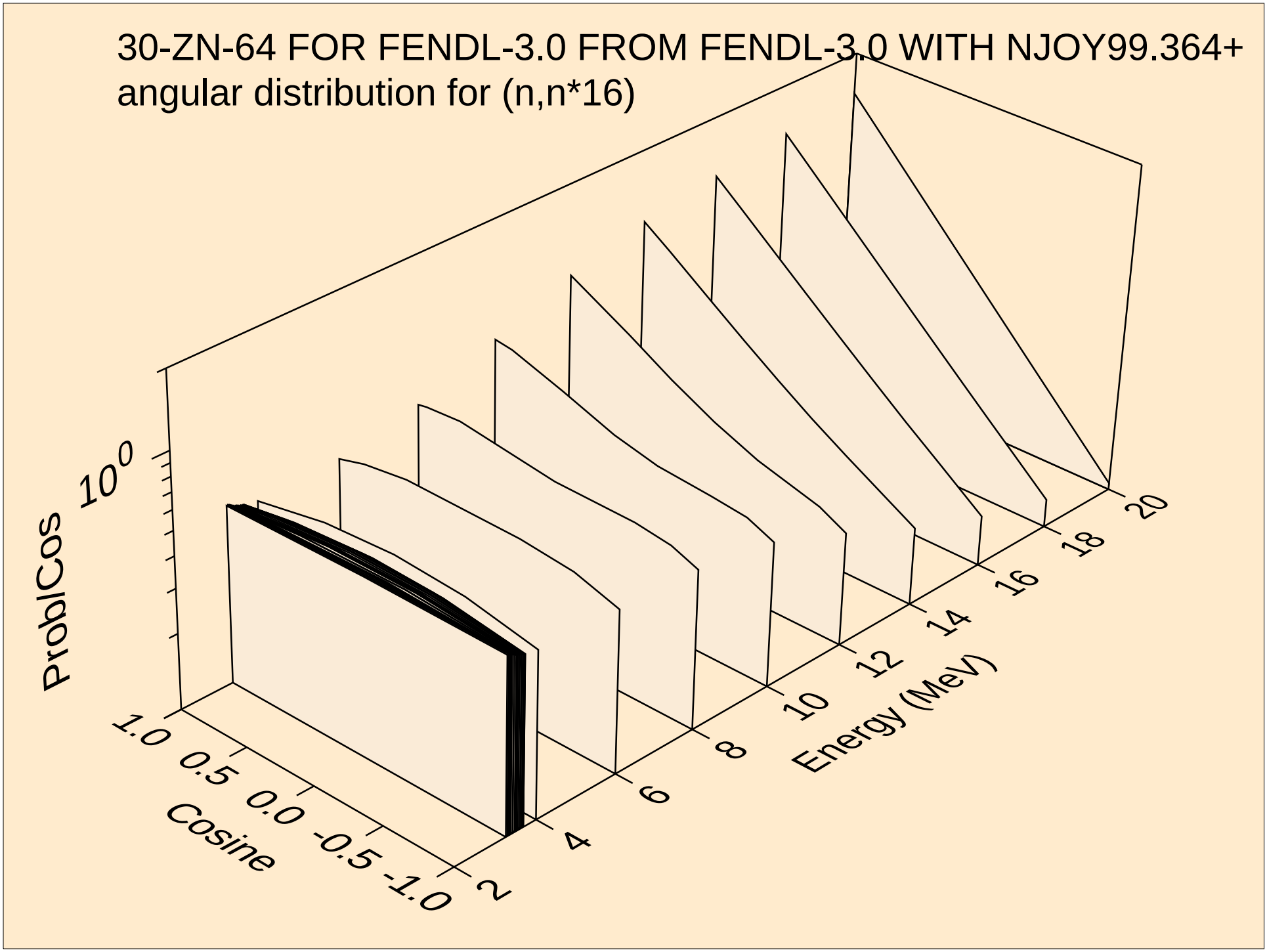

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*11)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

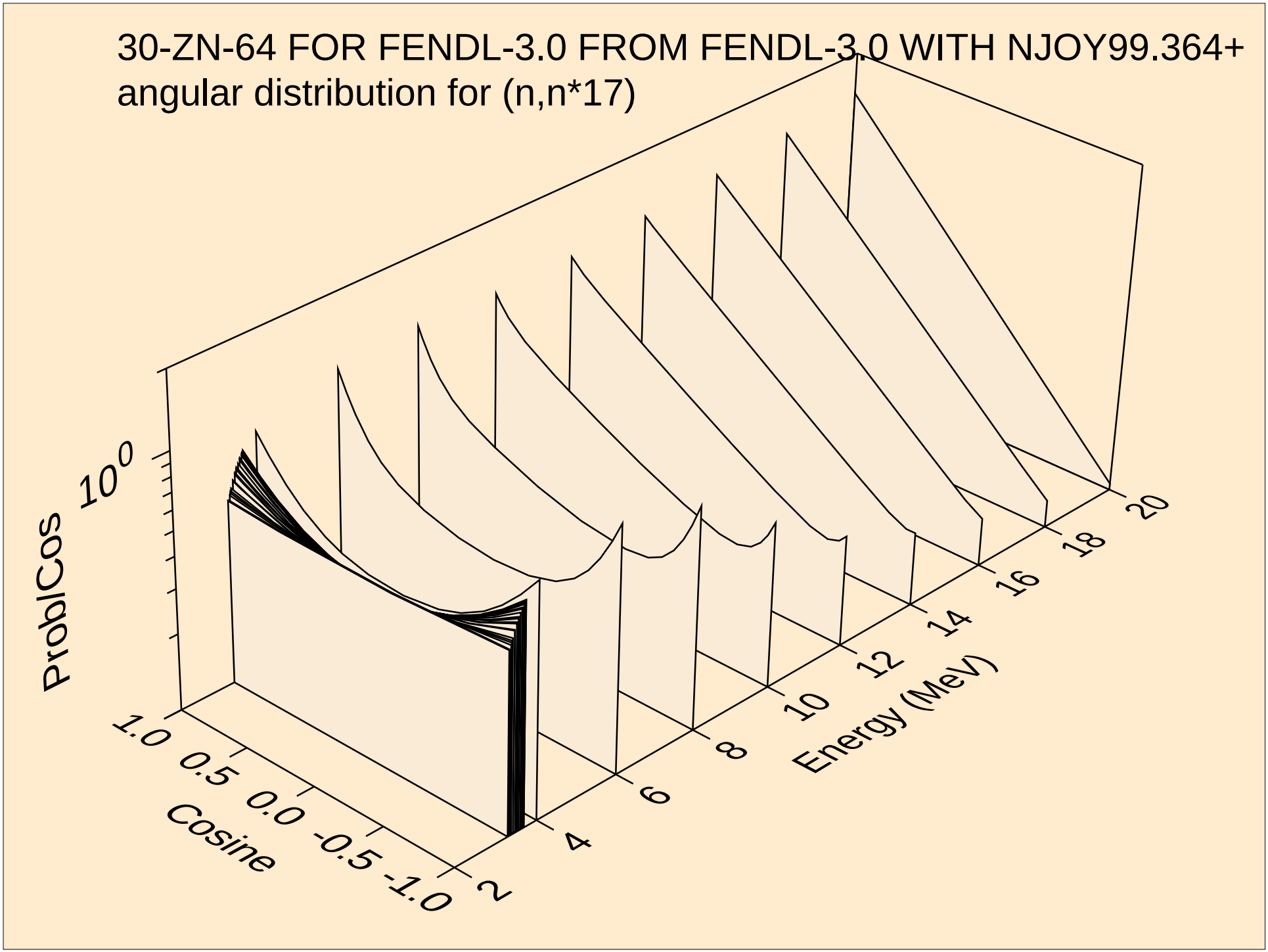

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*12)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

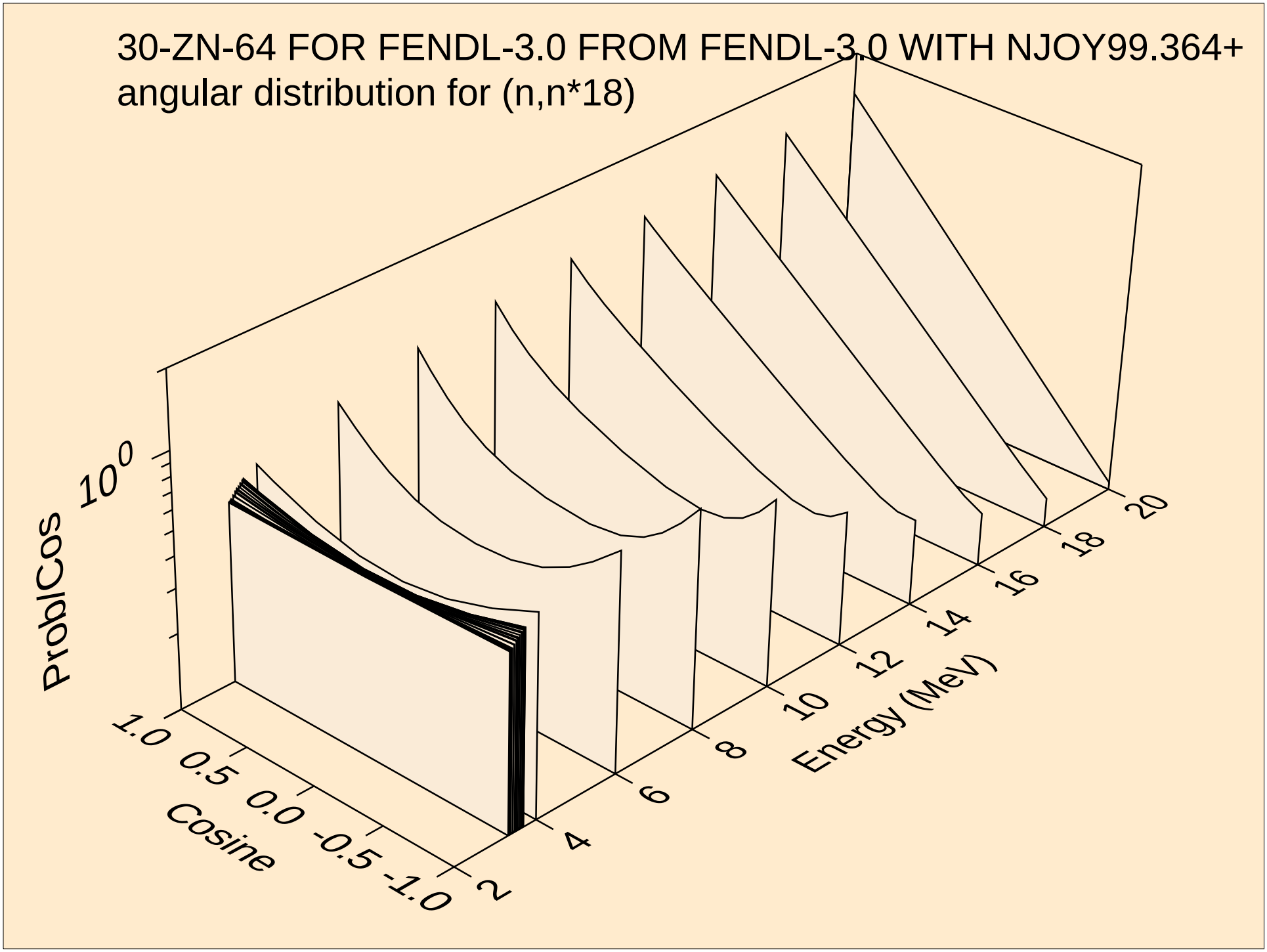

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*13)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

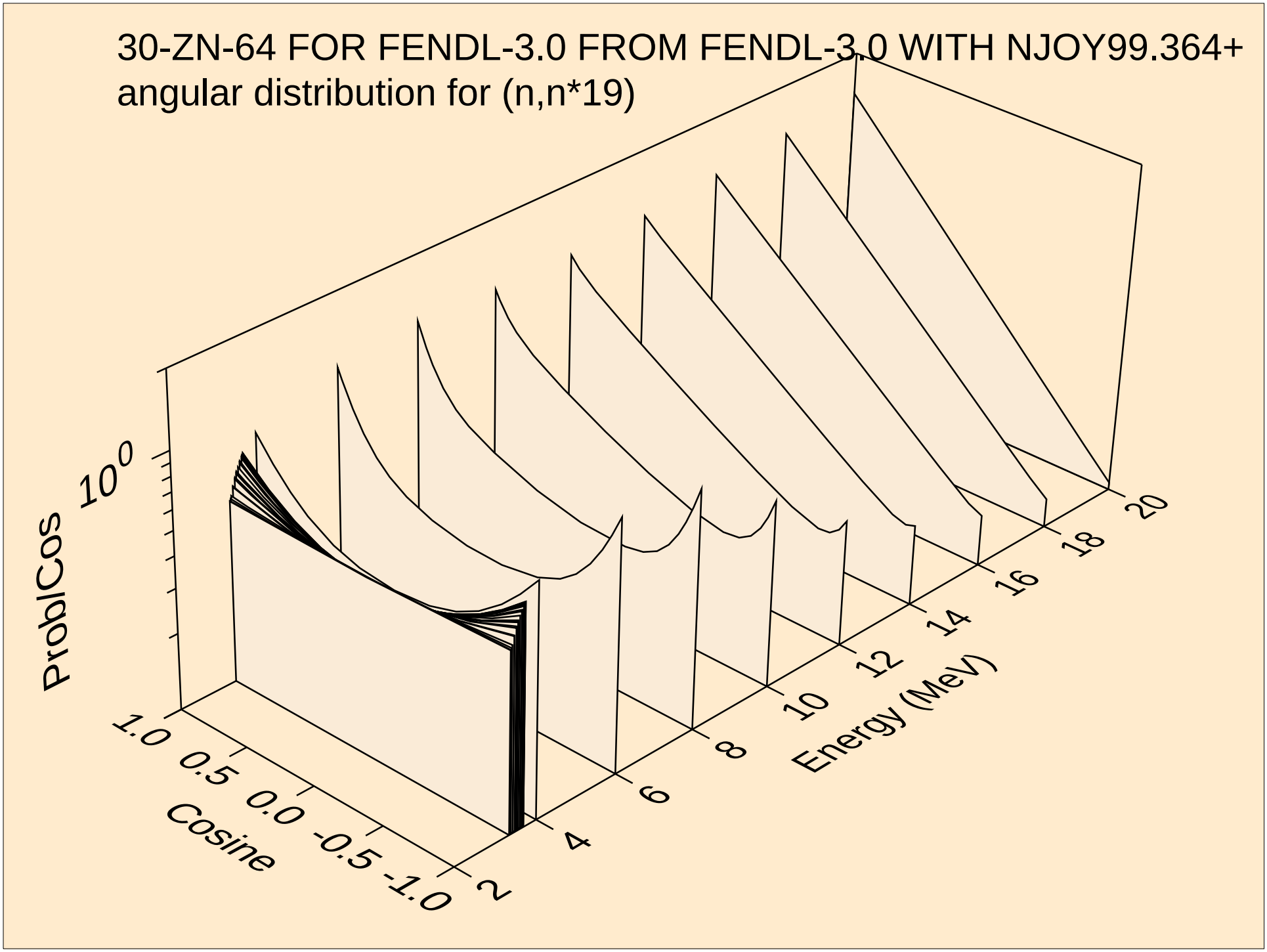

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*14)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

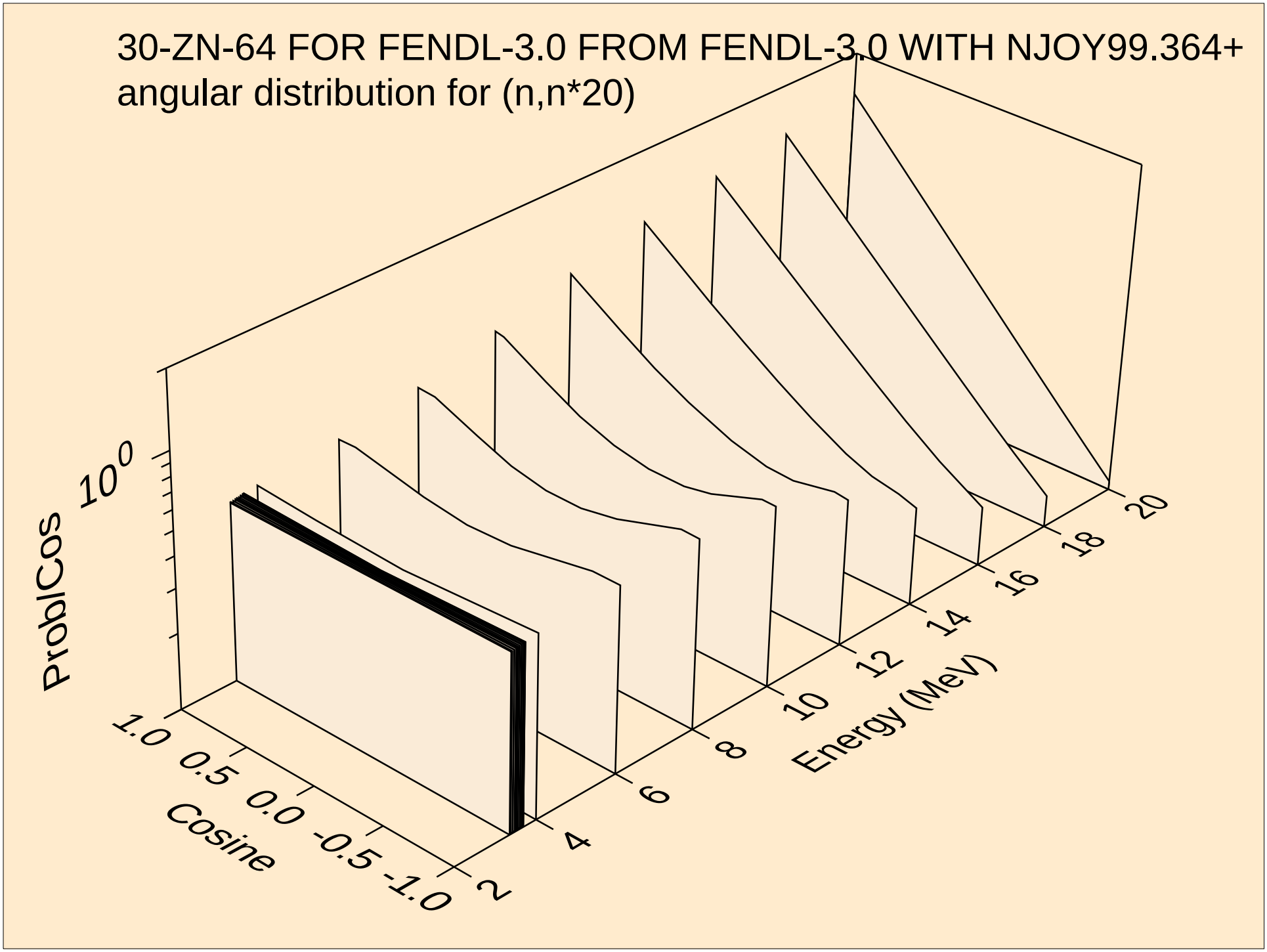

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*15)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

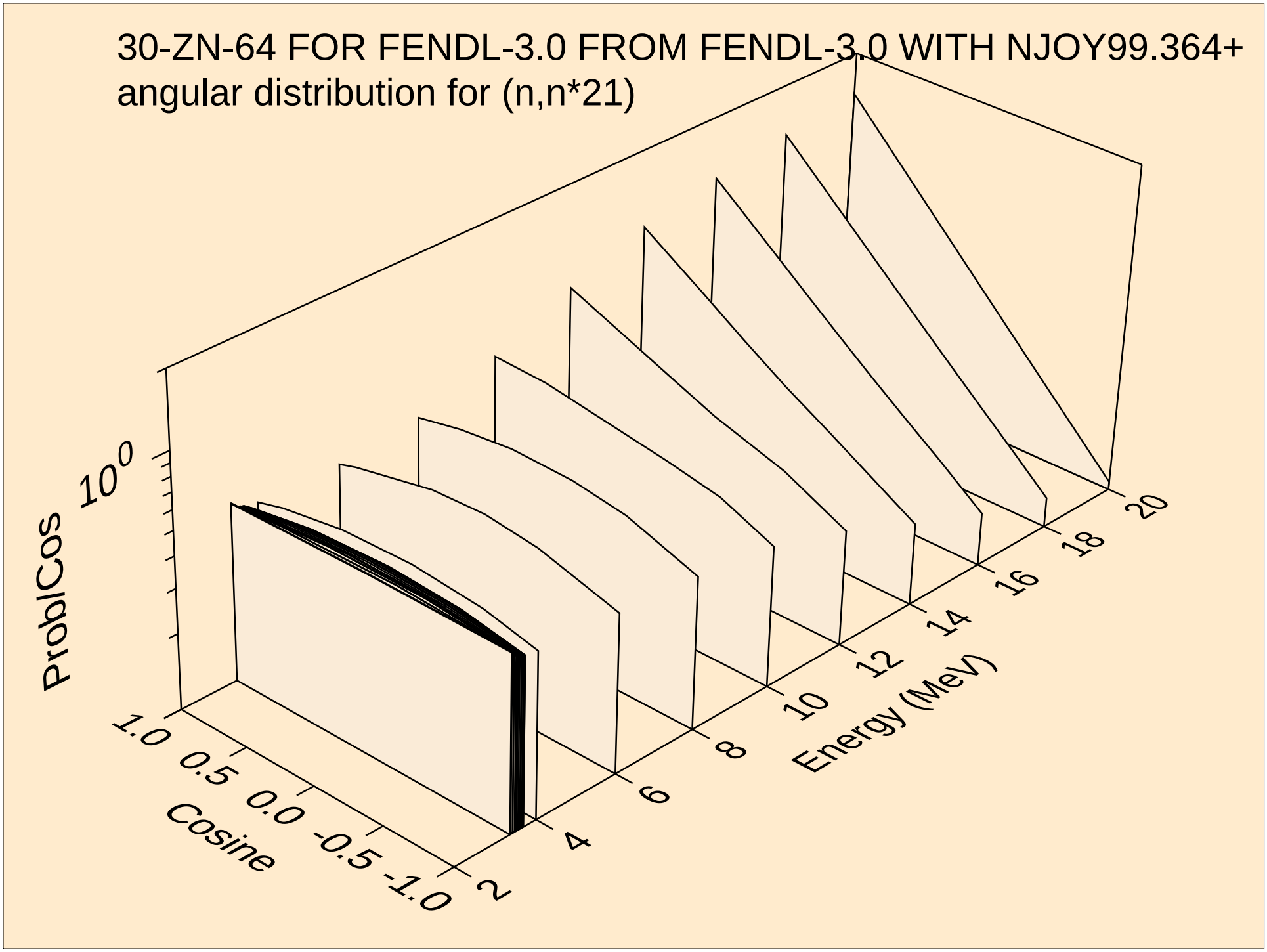

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*16)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

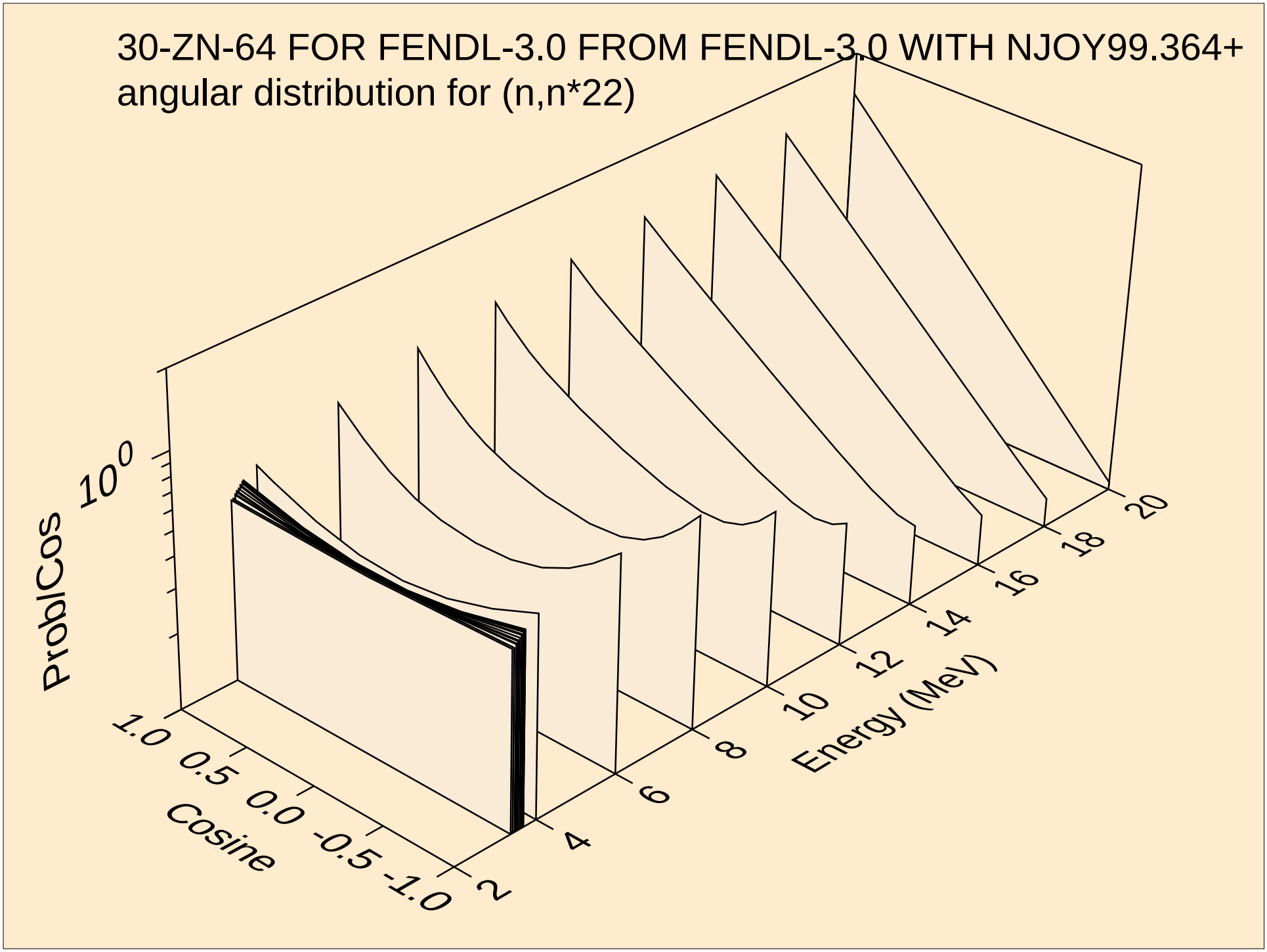

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*17)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

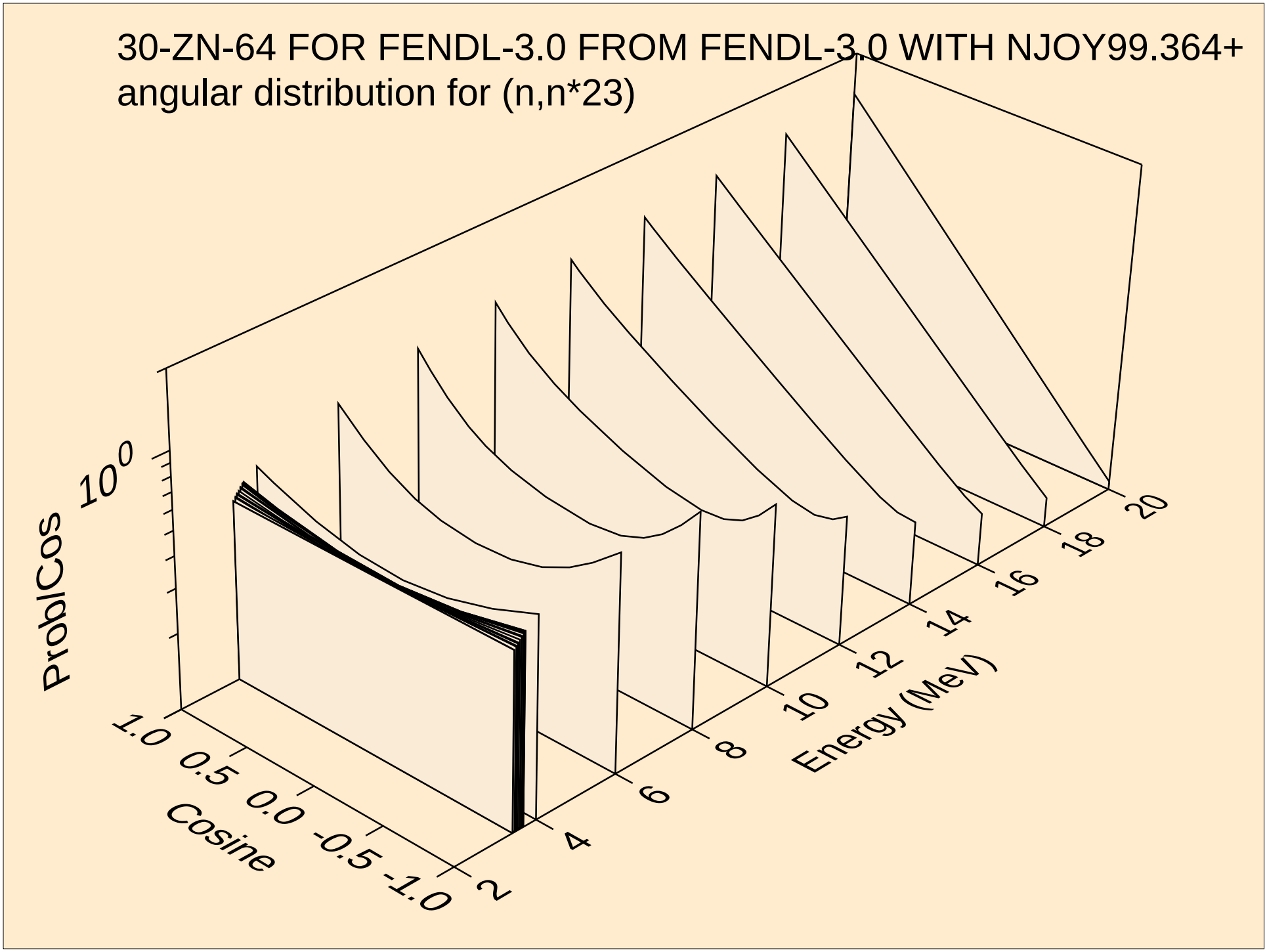

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*18)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

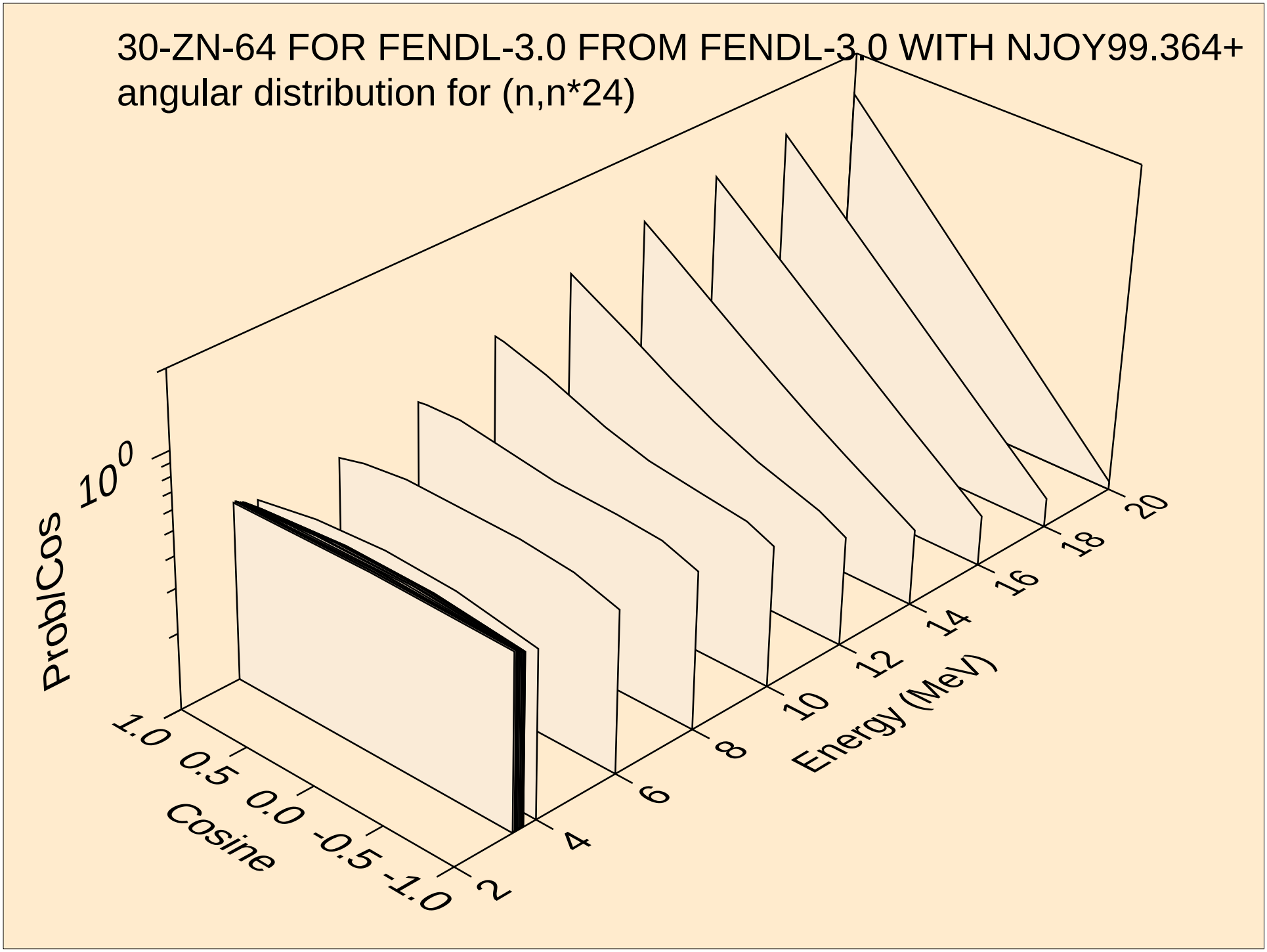

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*19)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

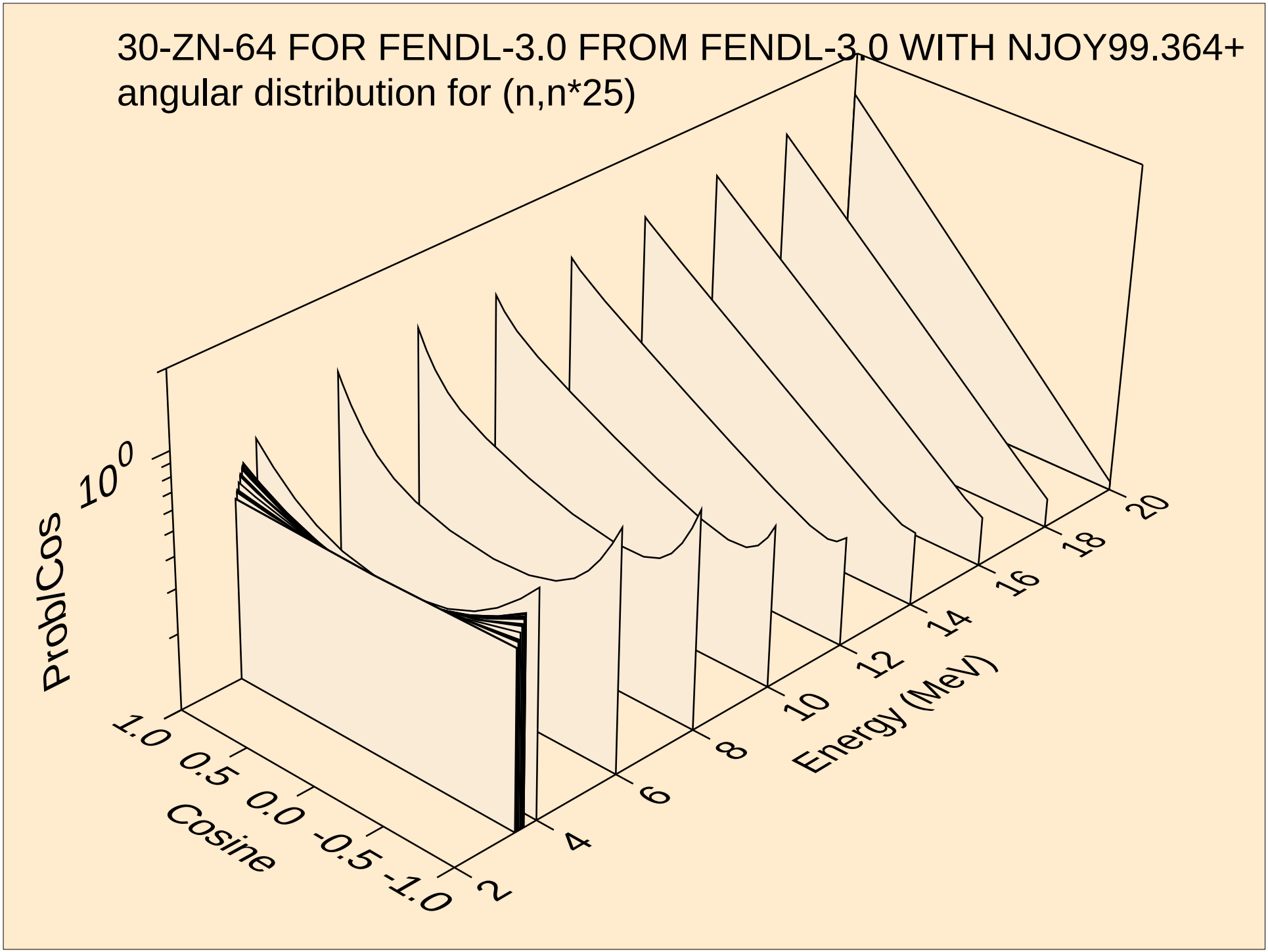

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*20)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

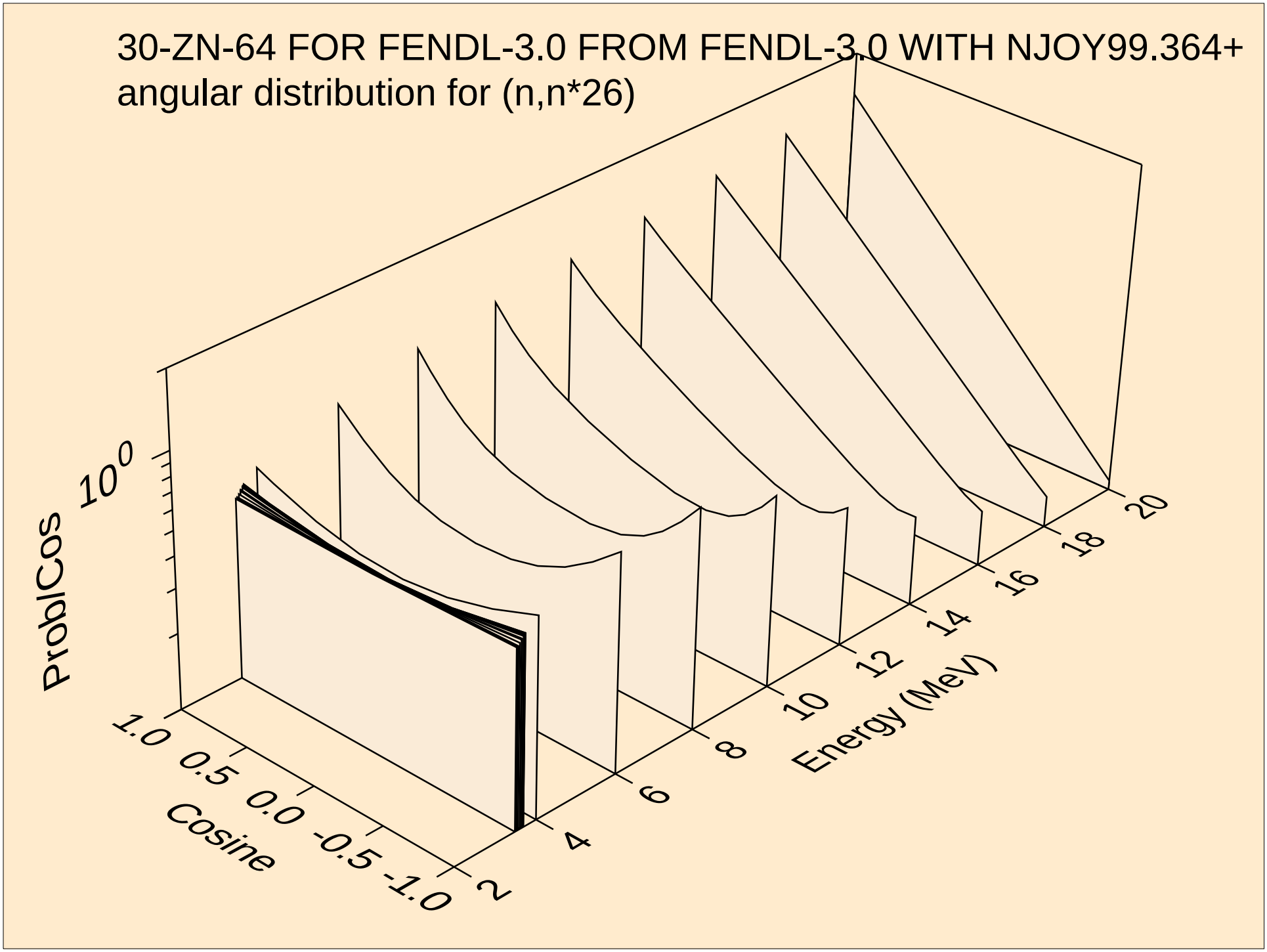

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*21)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

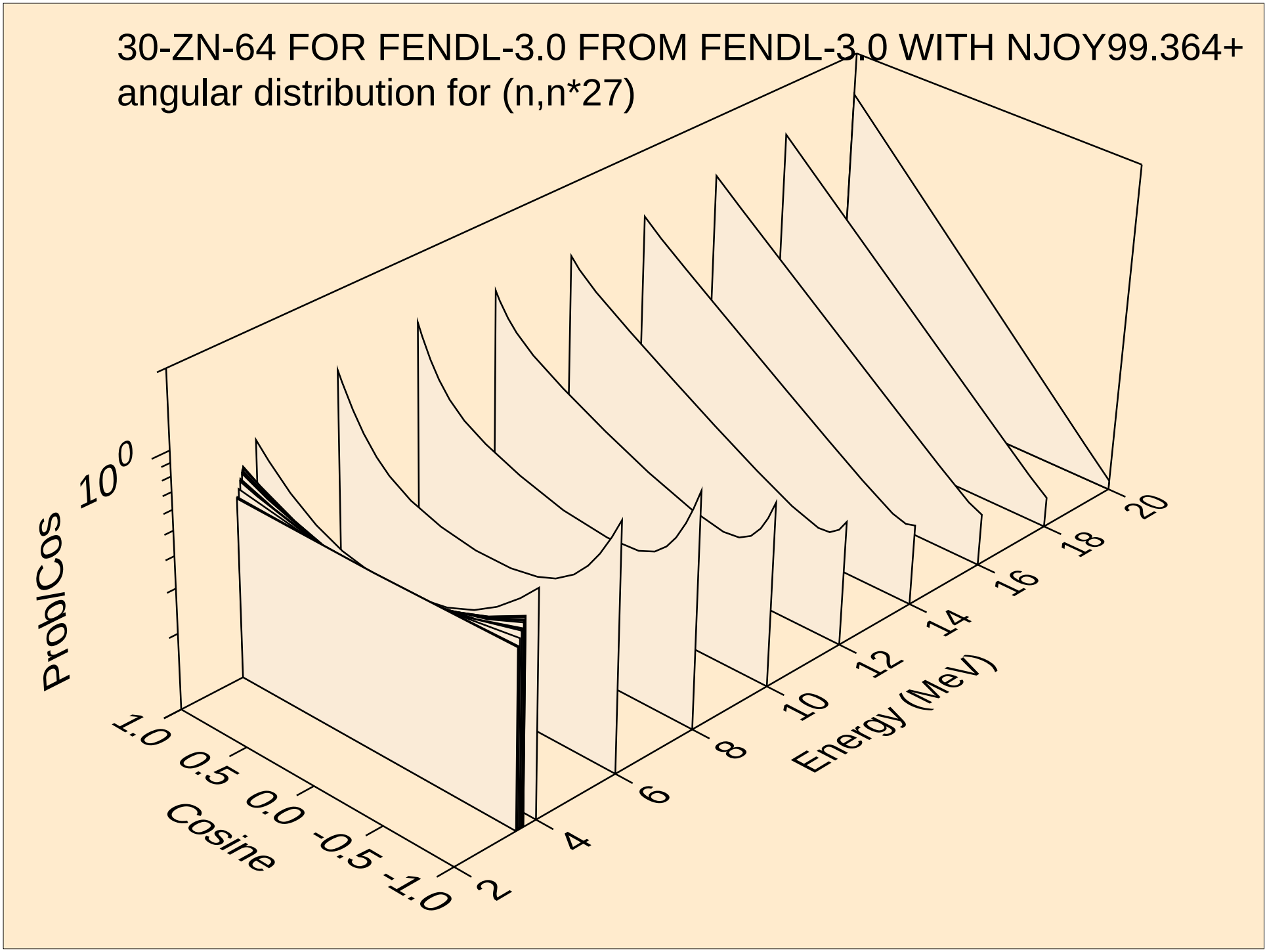

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*22)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

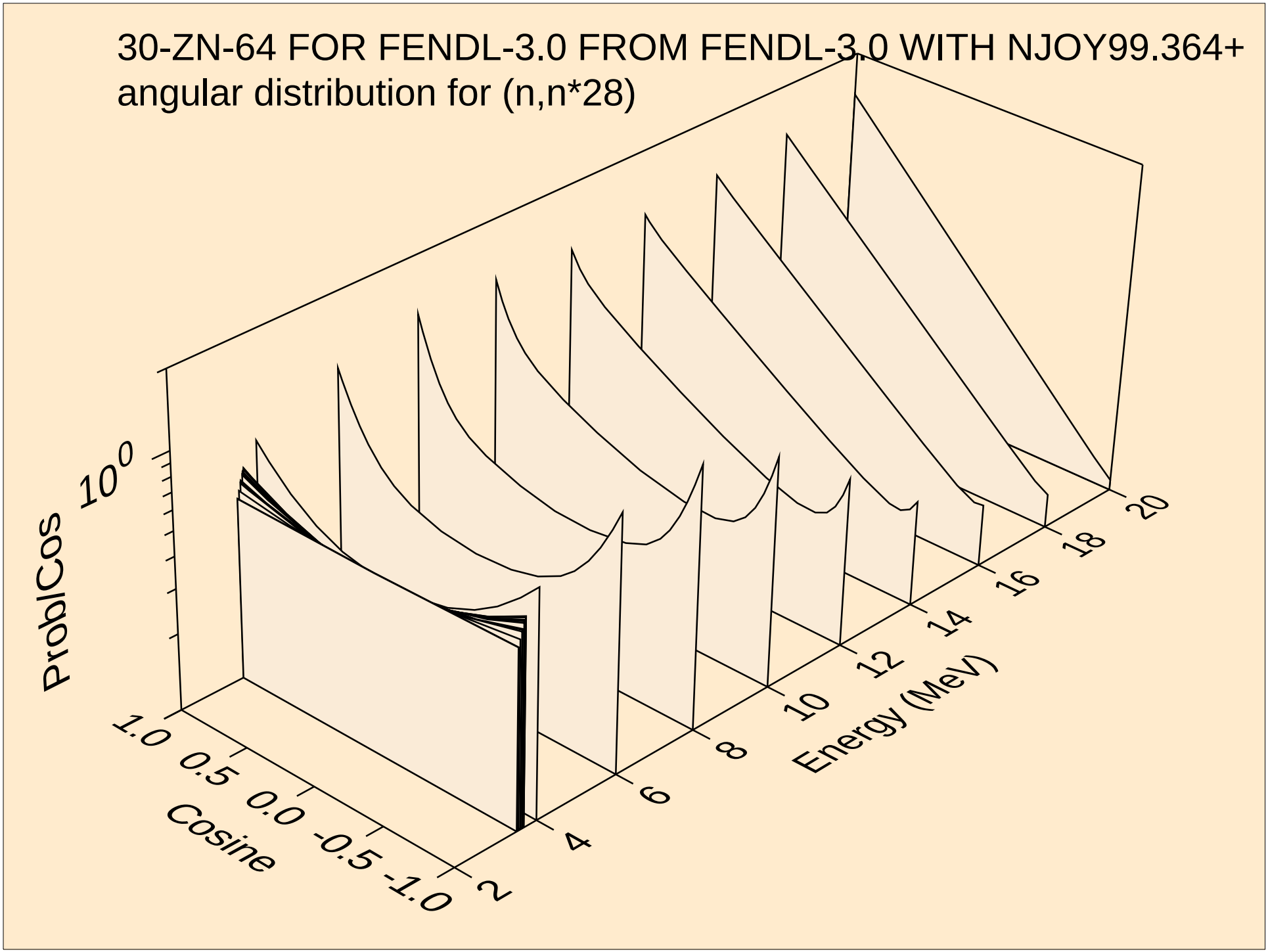

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*23)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

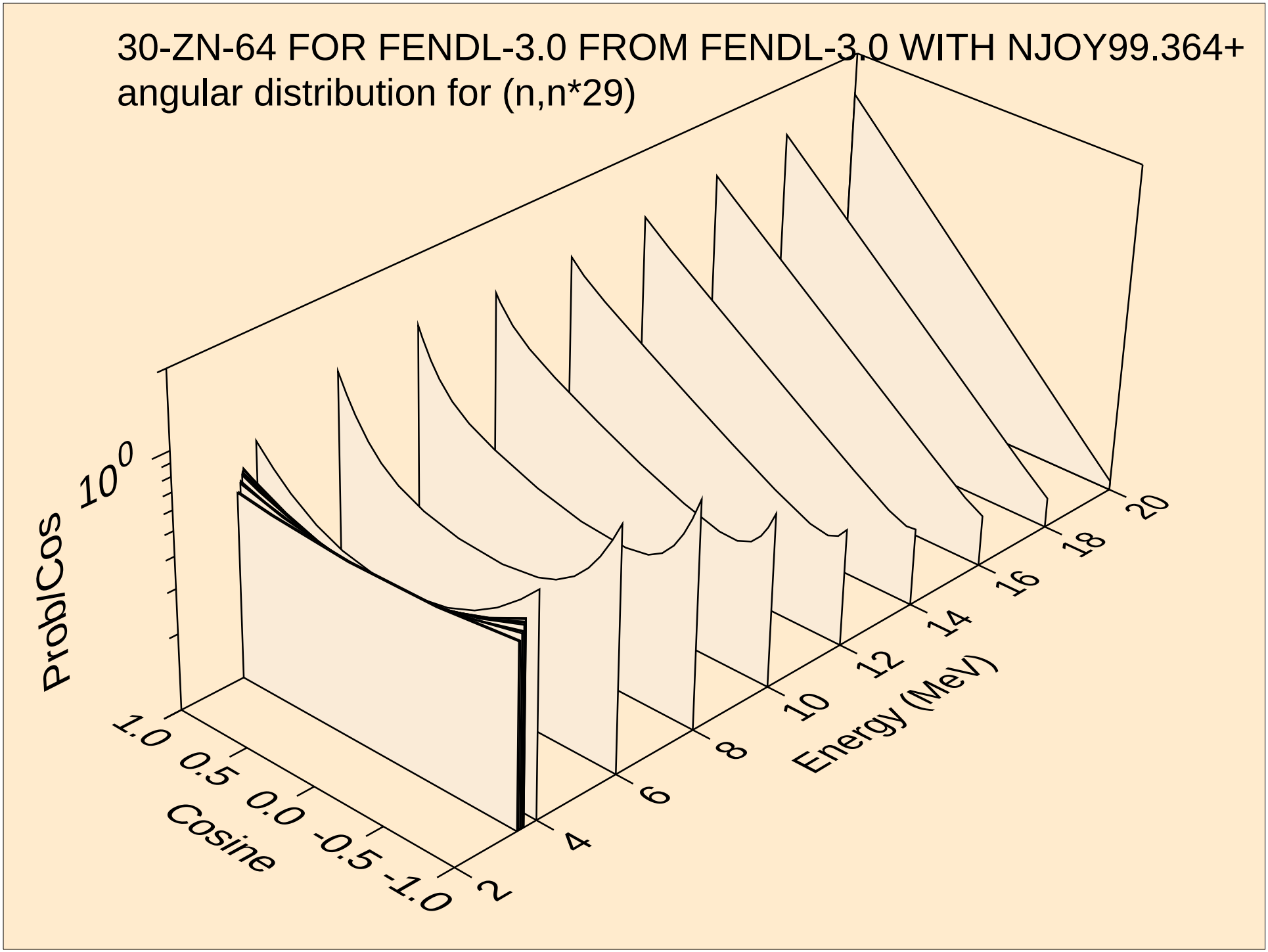

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*24)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

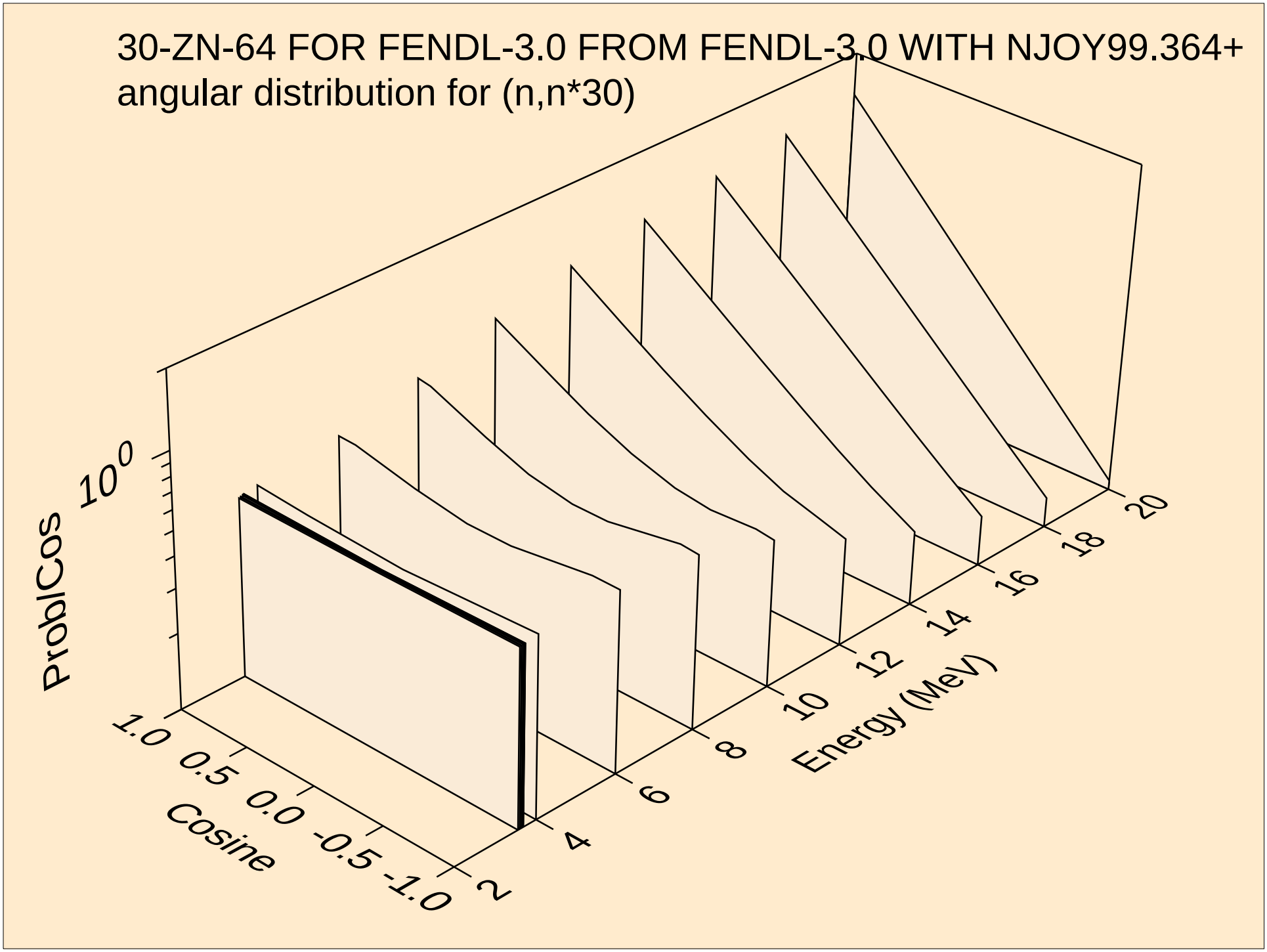

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*25)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

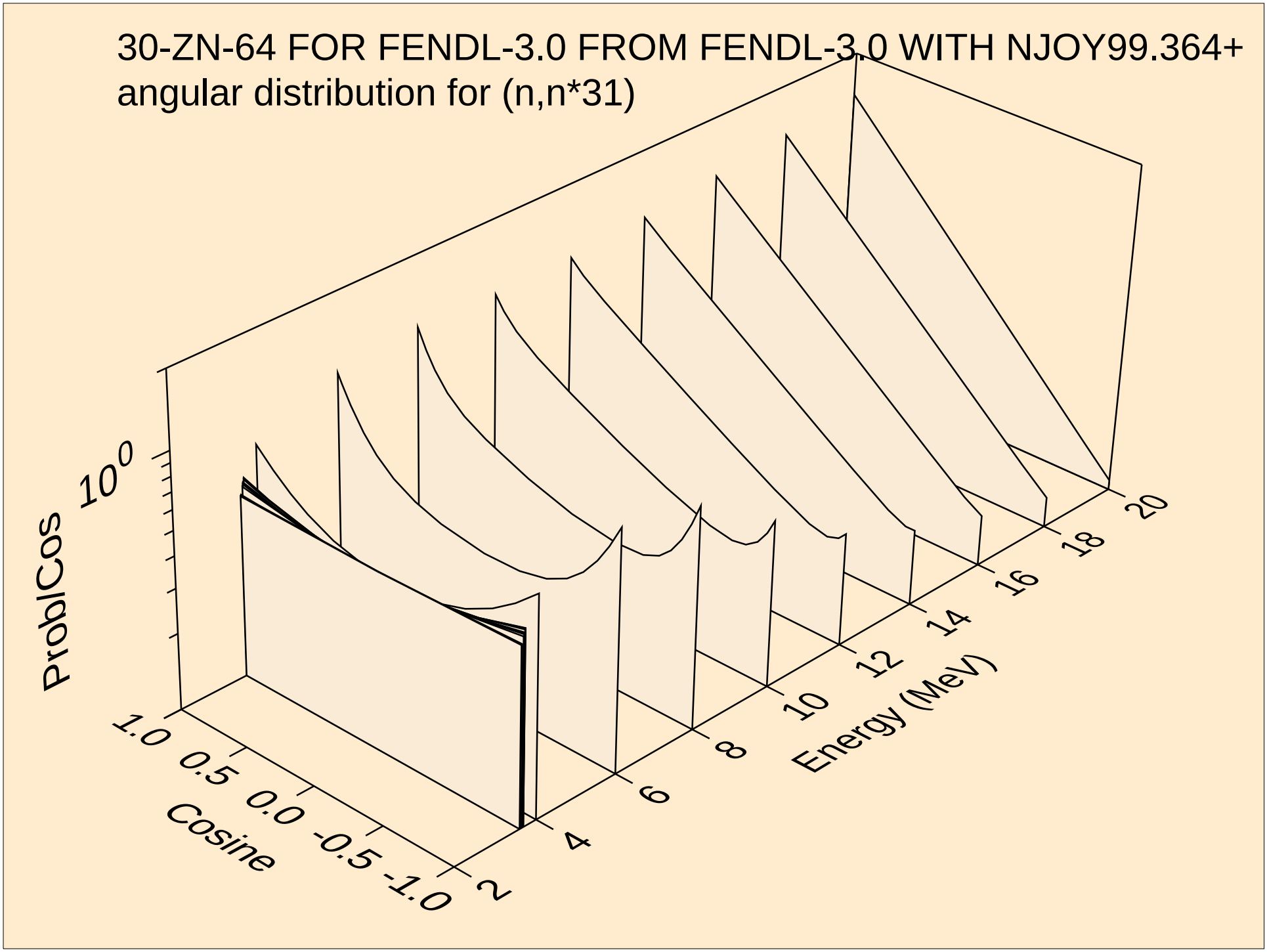

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*26)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

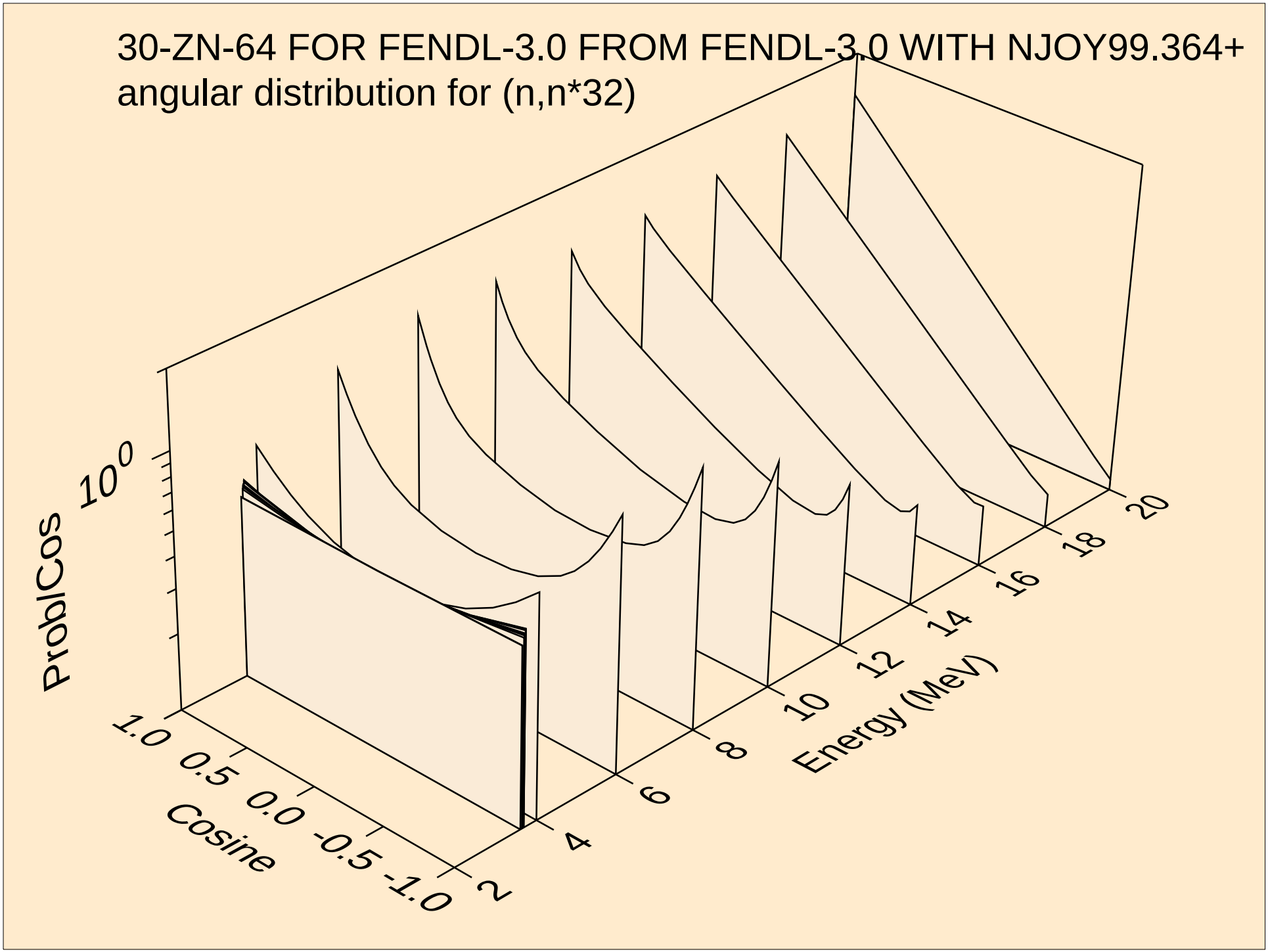

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*27)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

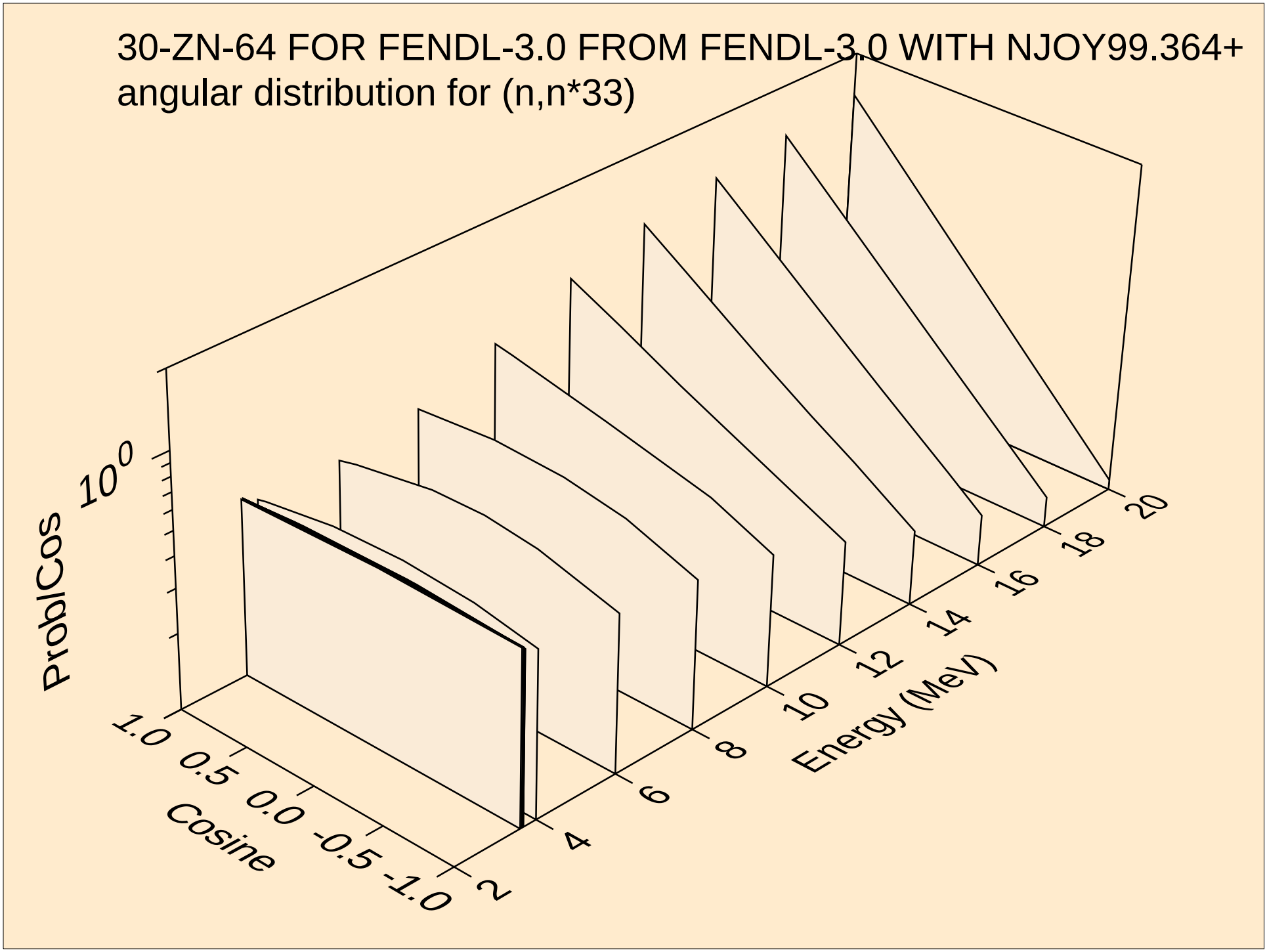

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*28)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

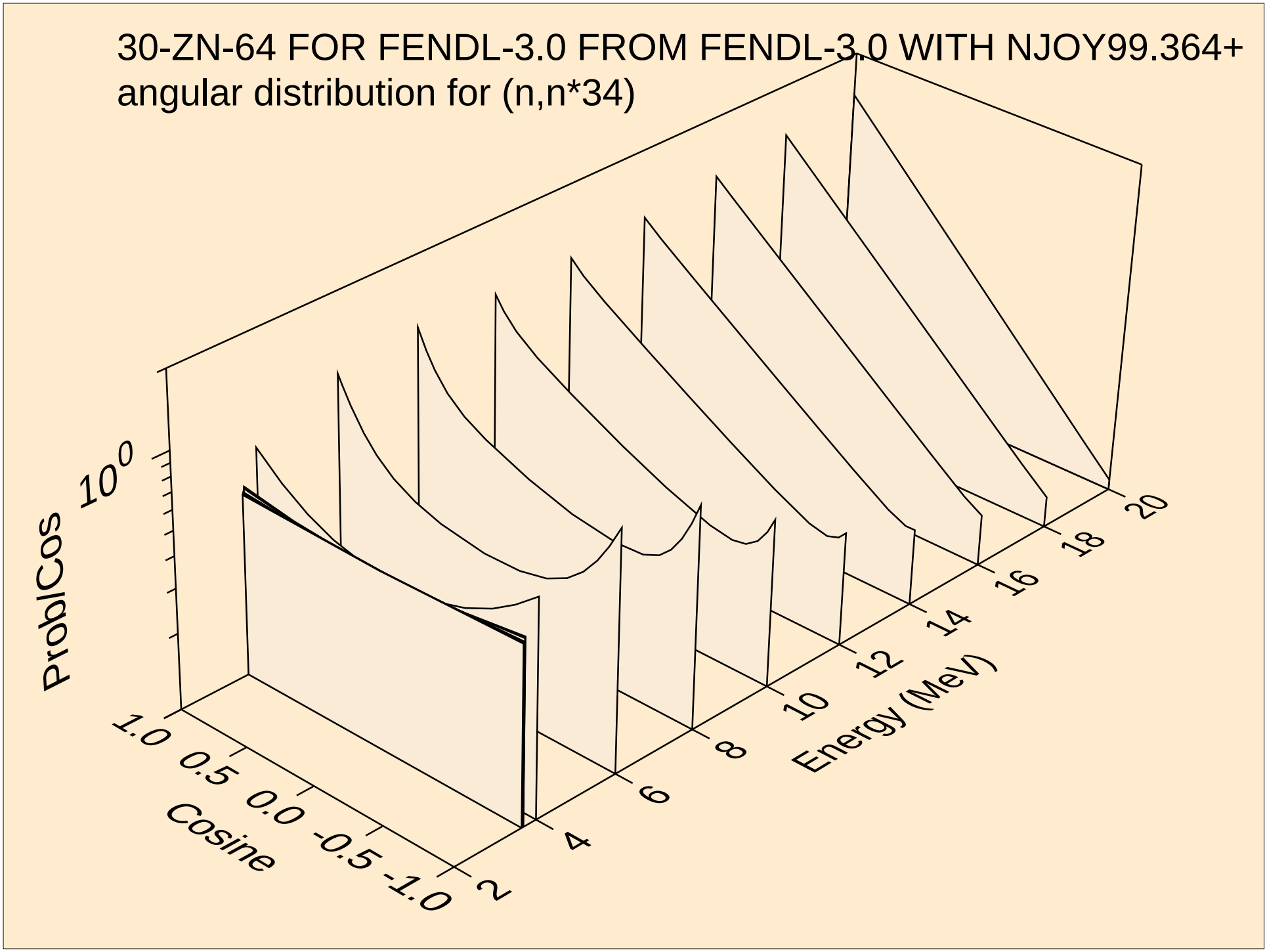

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*29)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

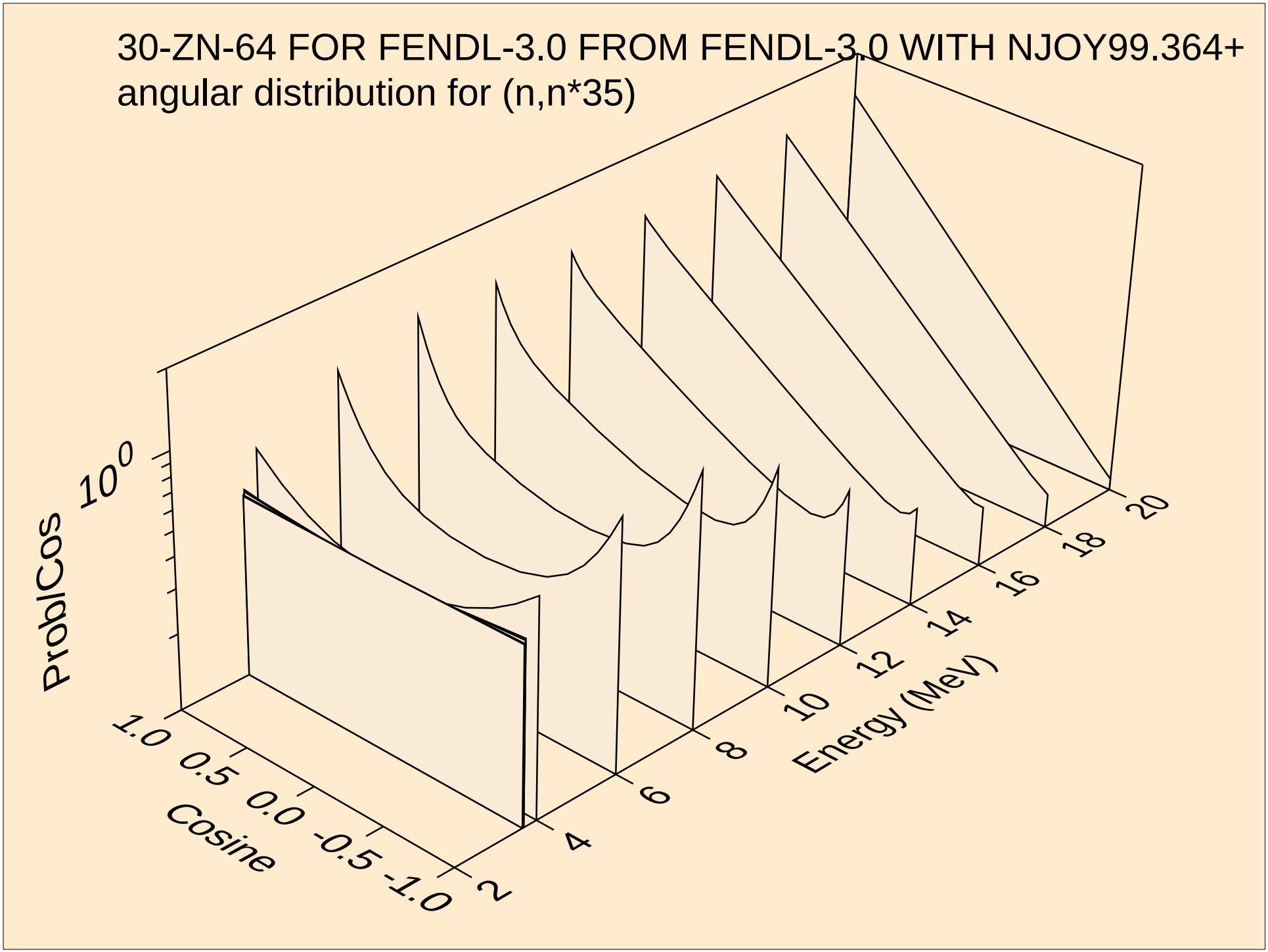

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*30)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

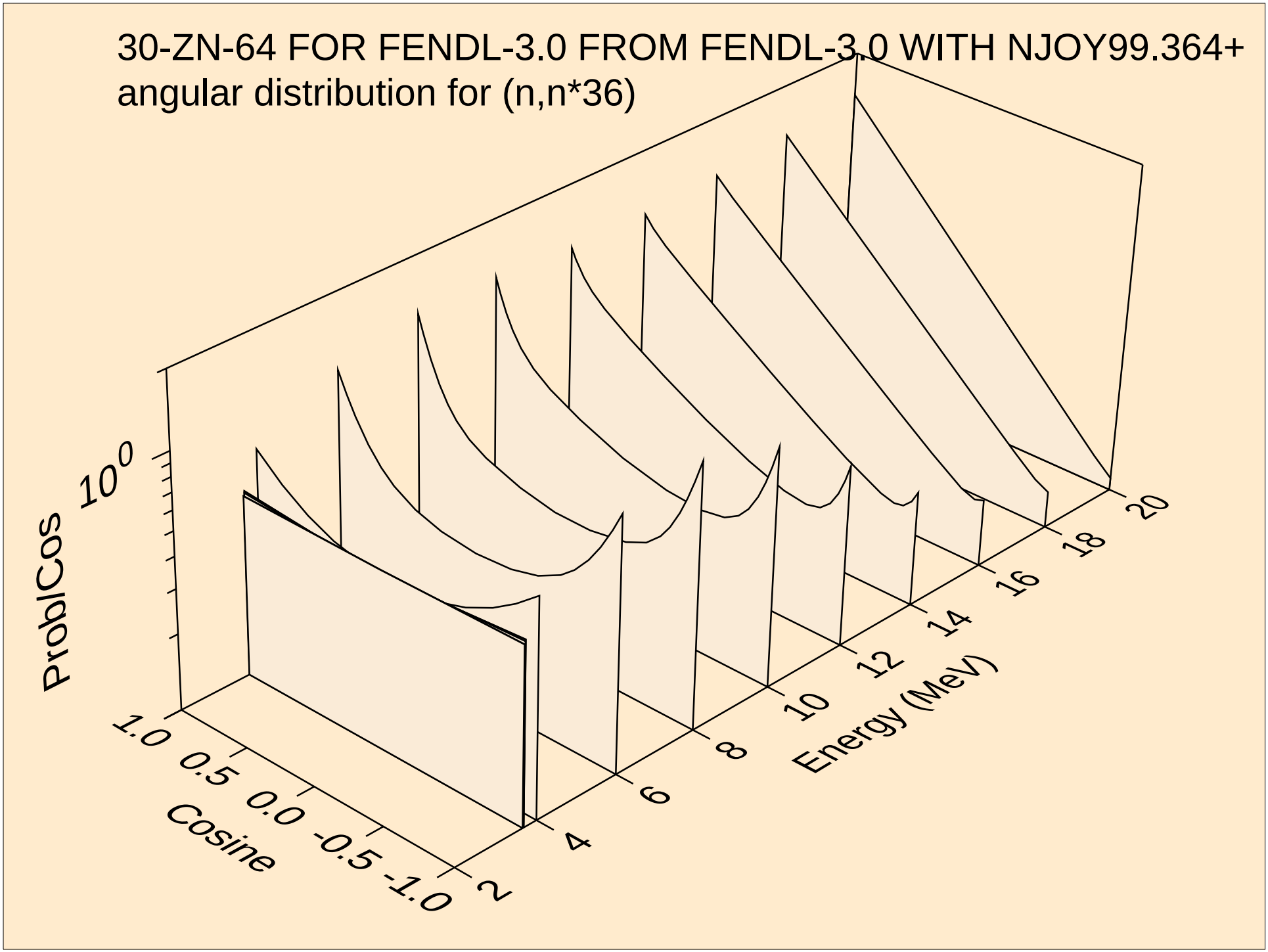

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*31)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

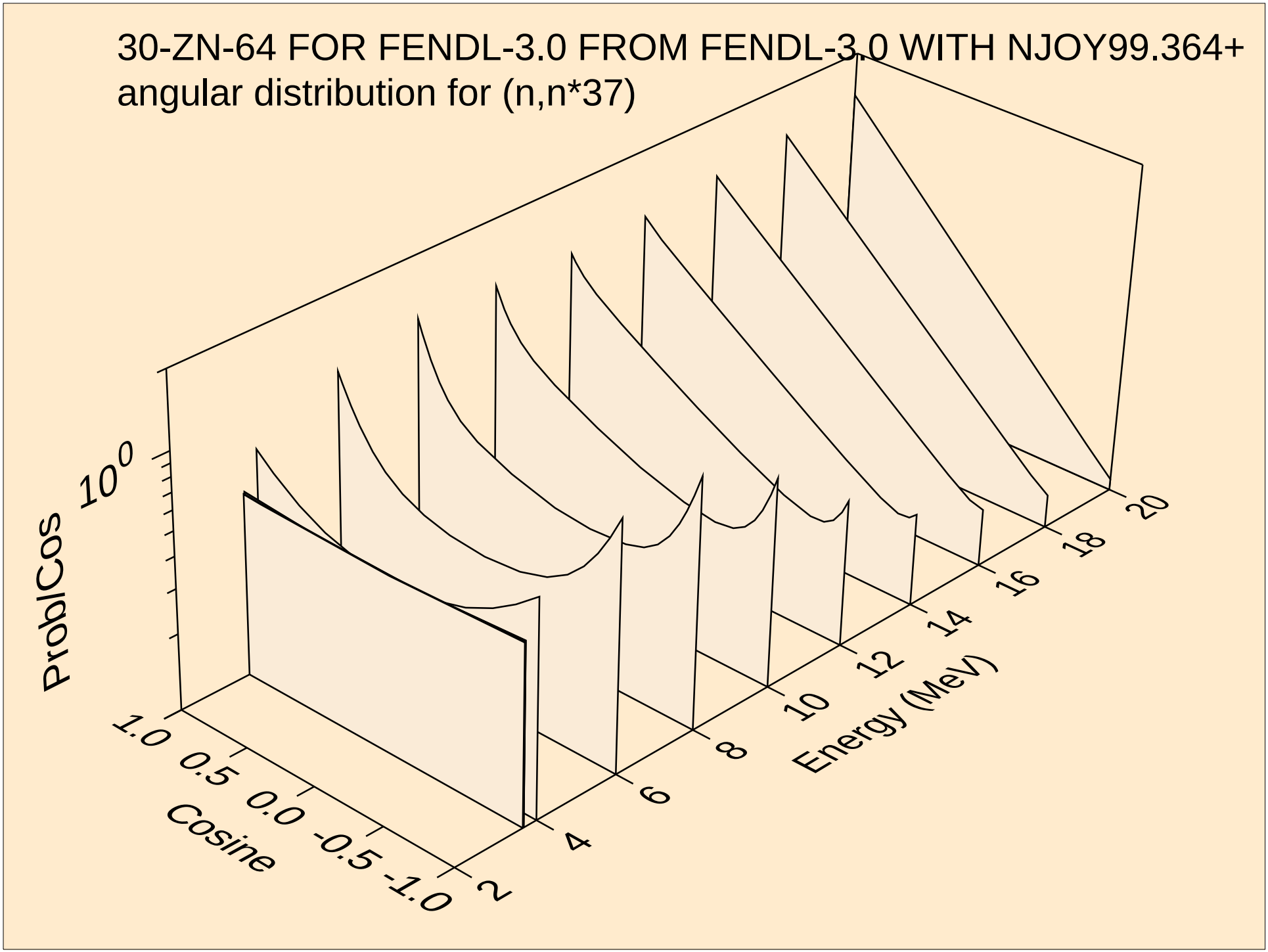

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*32)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

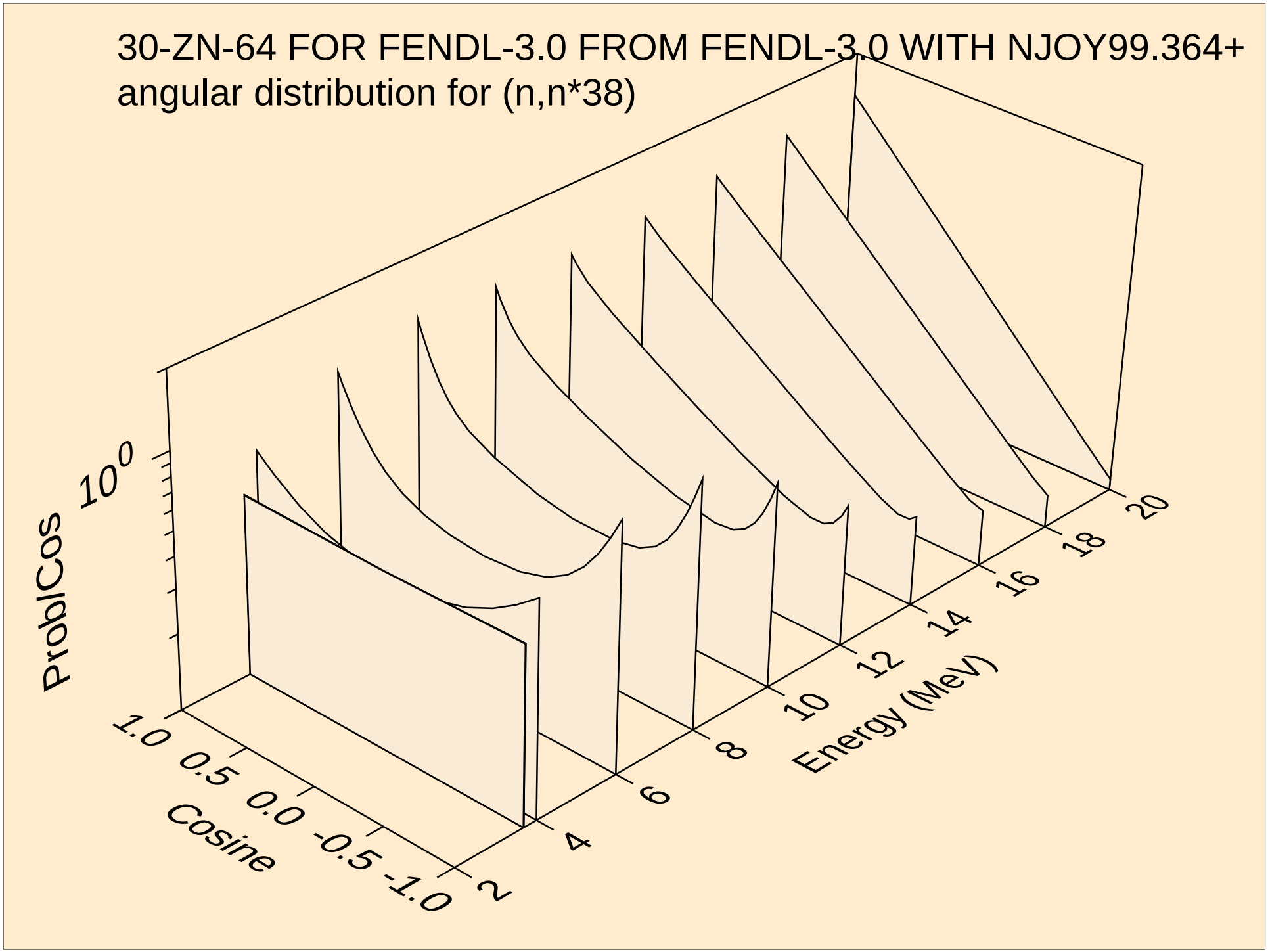

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*33)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

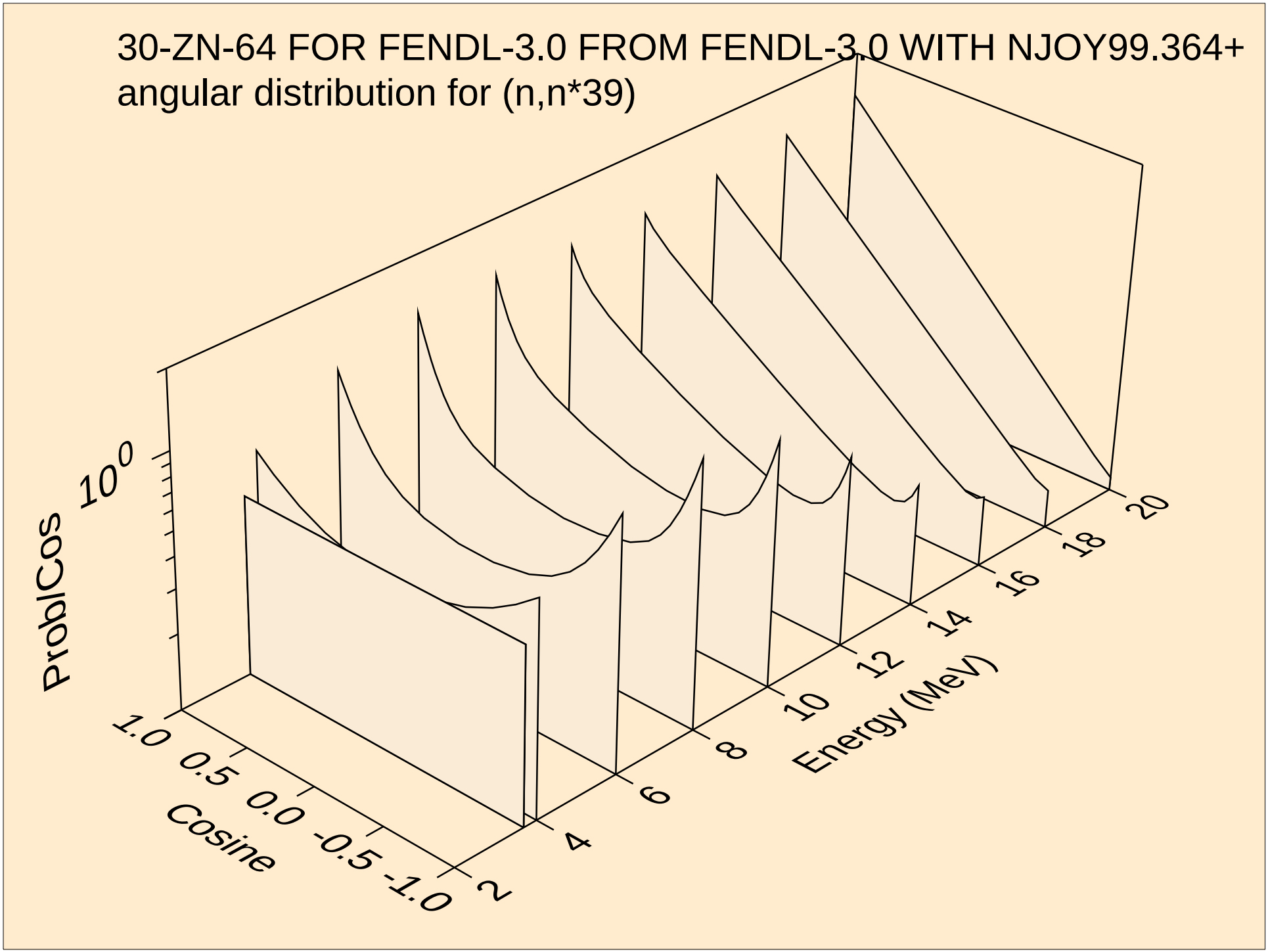

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*34)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

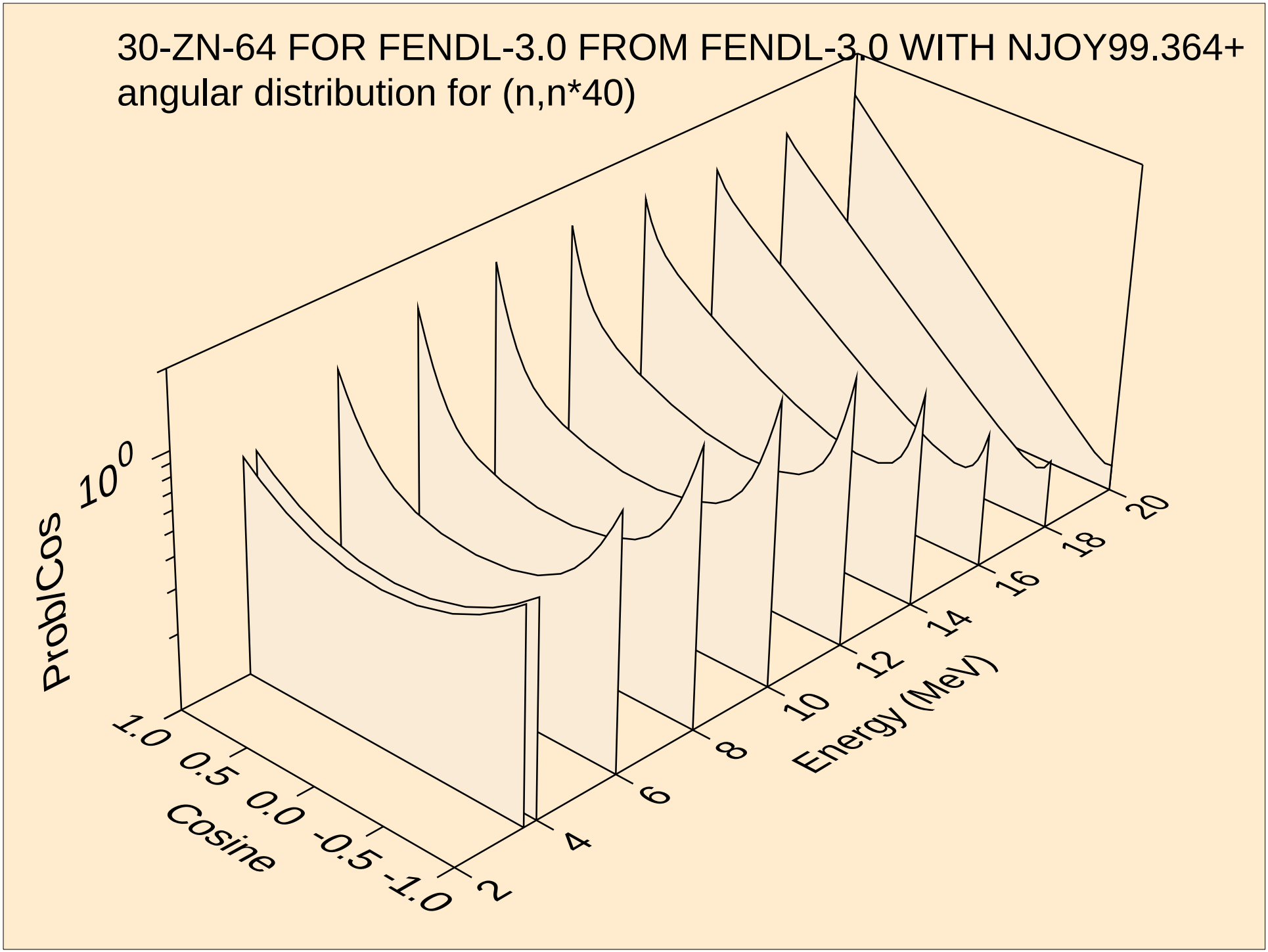

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*35)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

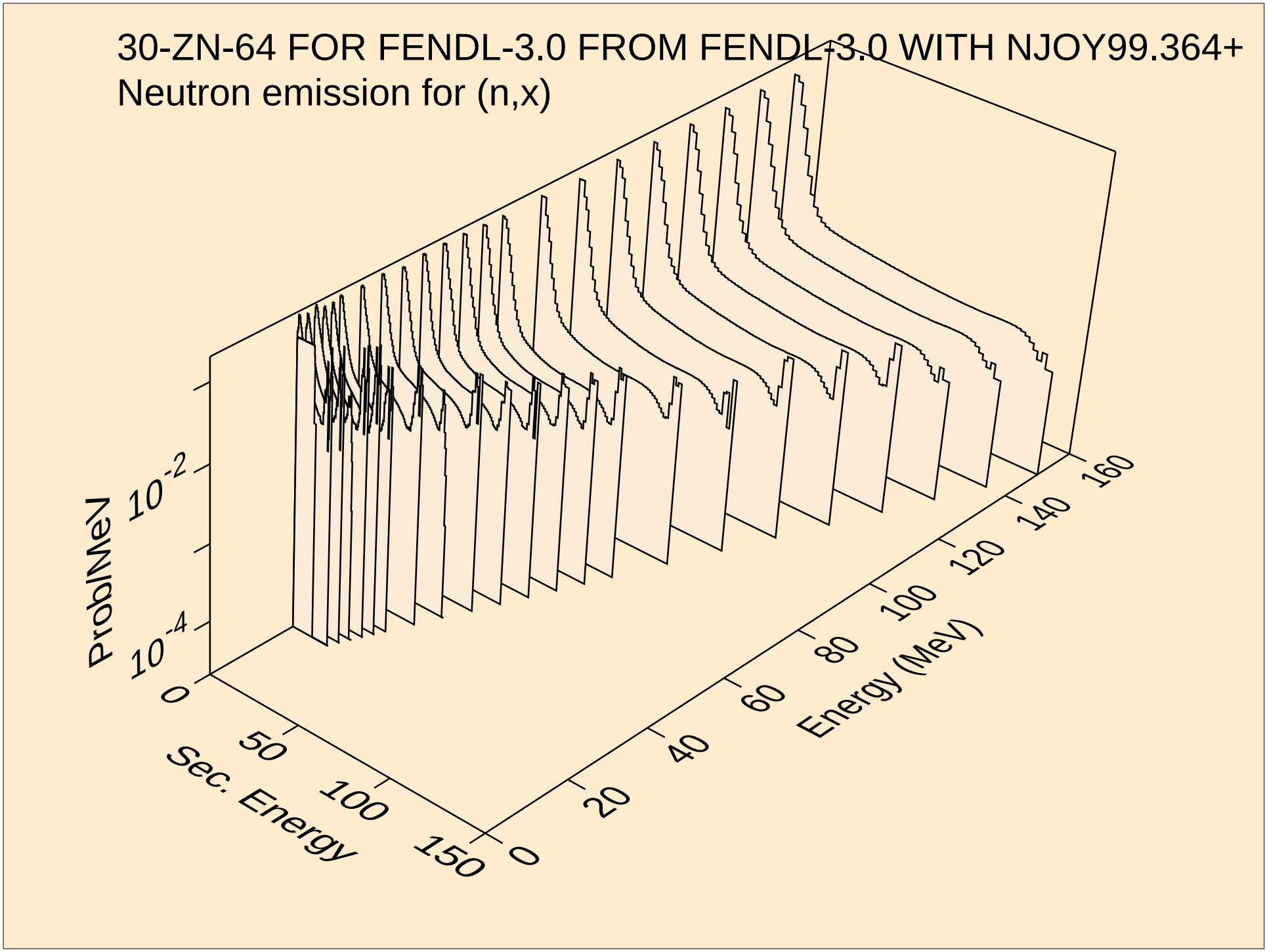

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*36)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

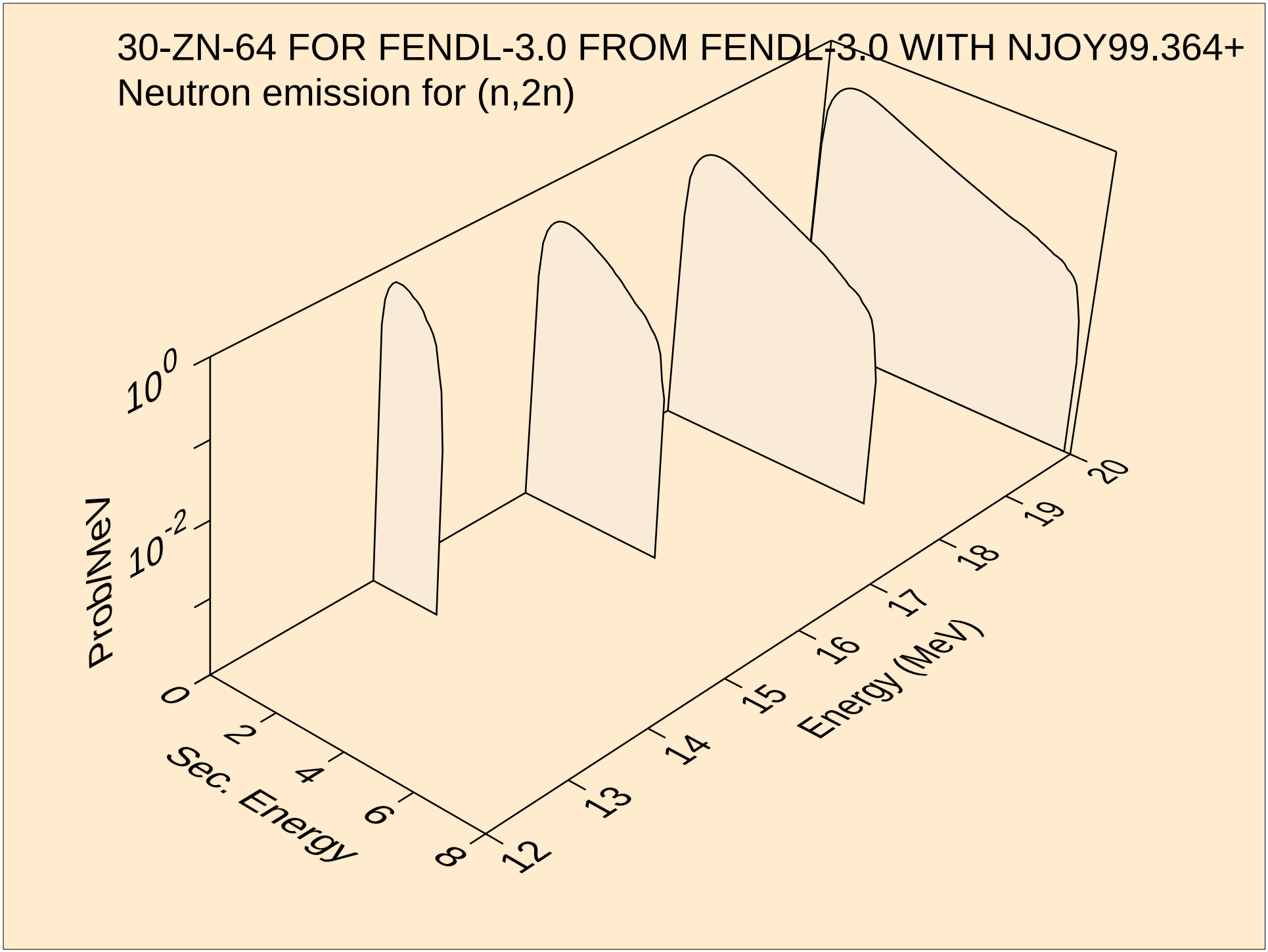

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*37)
ProbICos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

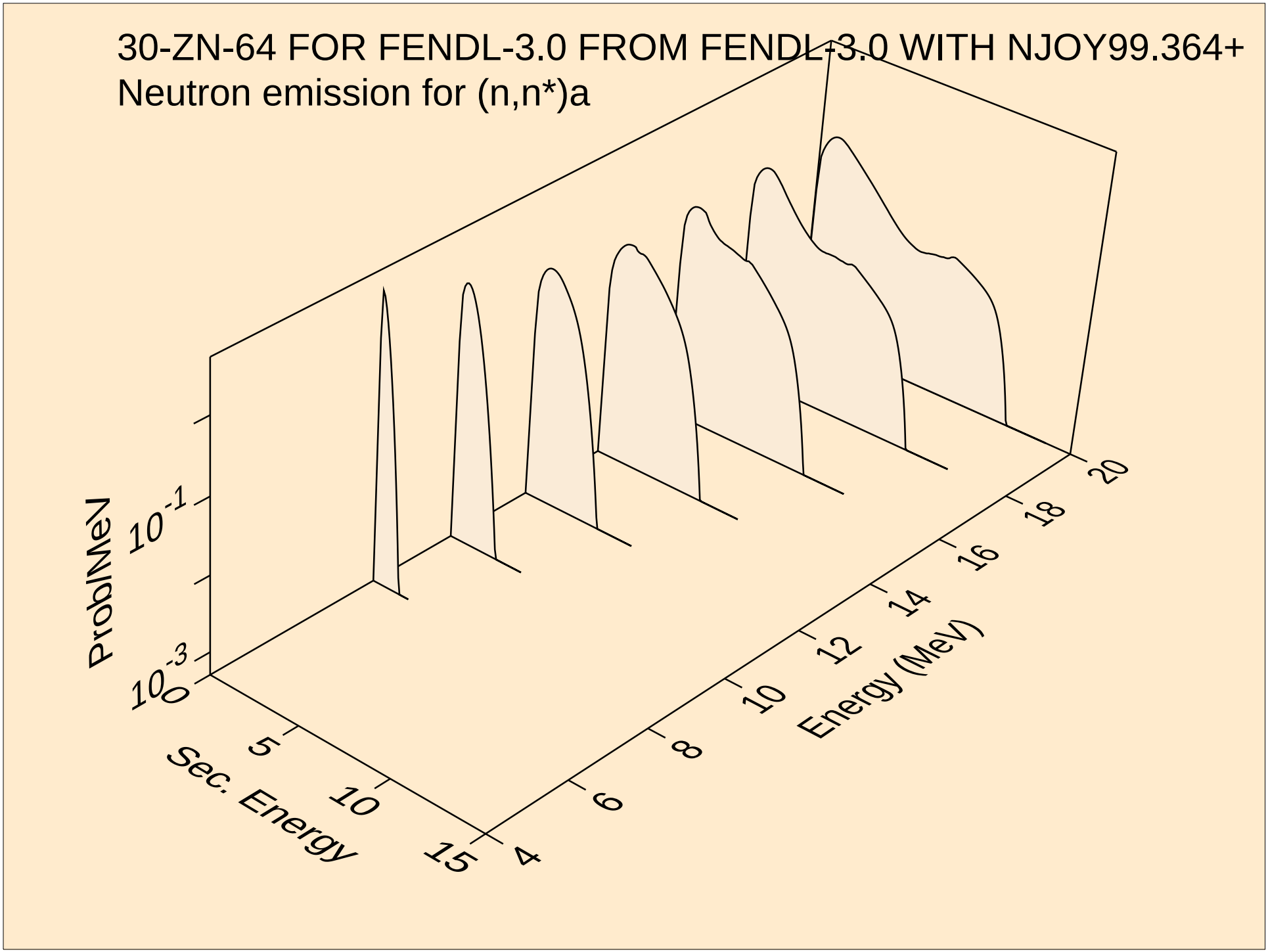

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*38)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

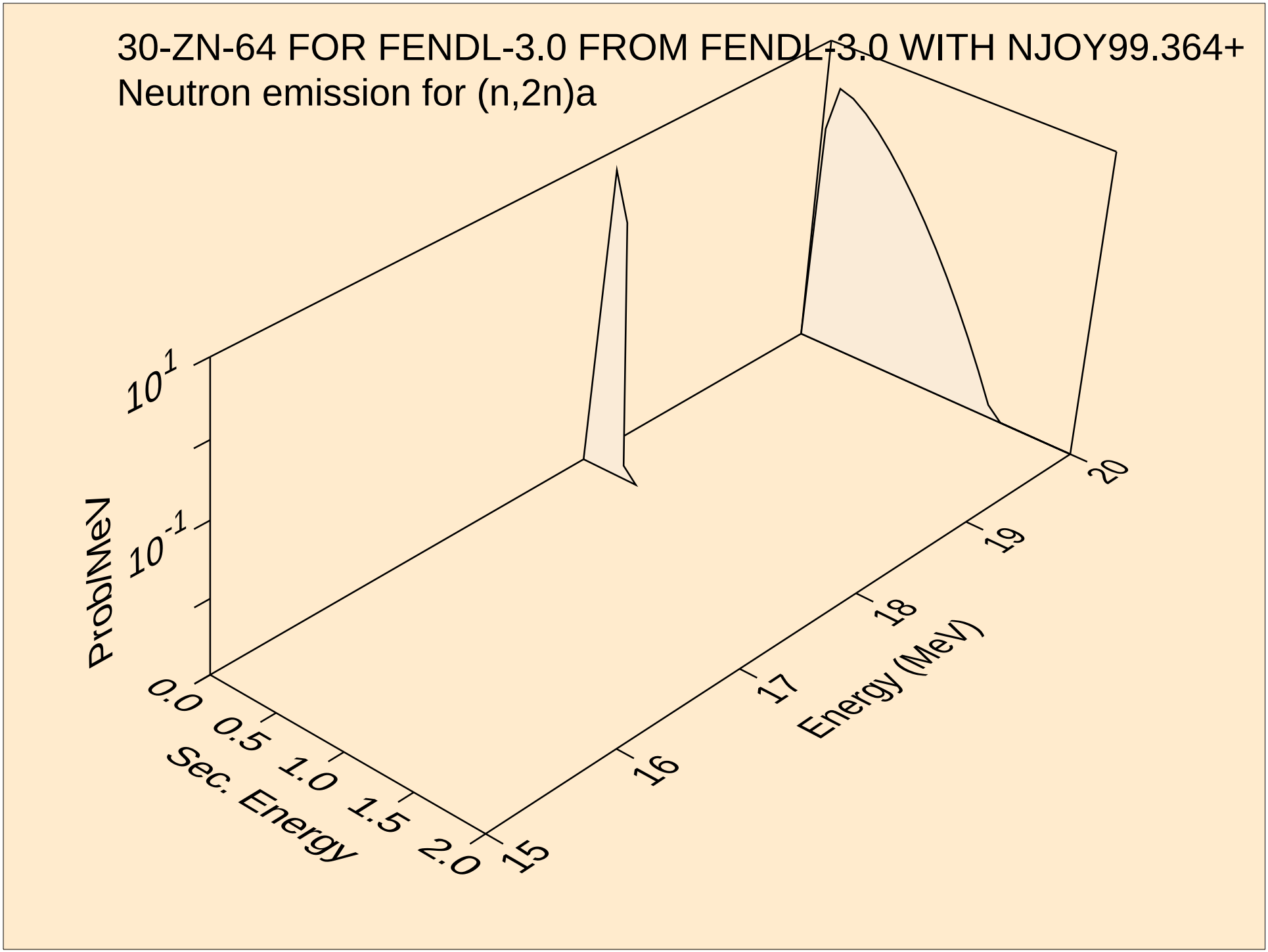

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*39)
ProblCos
$10^0$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

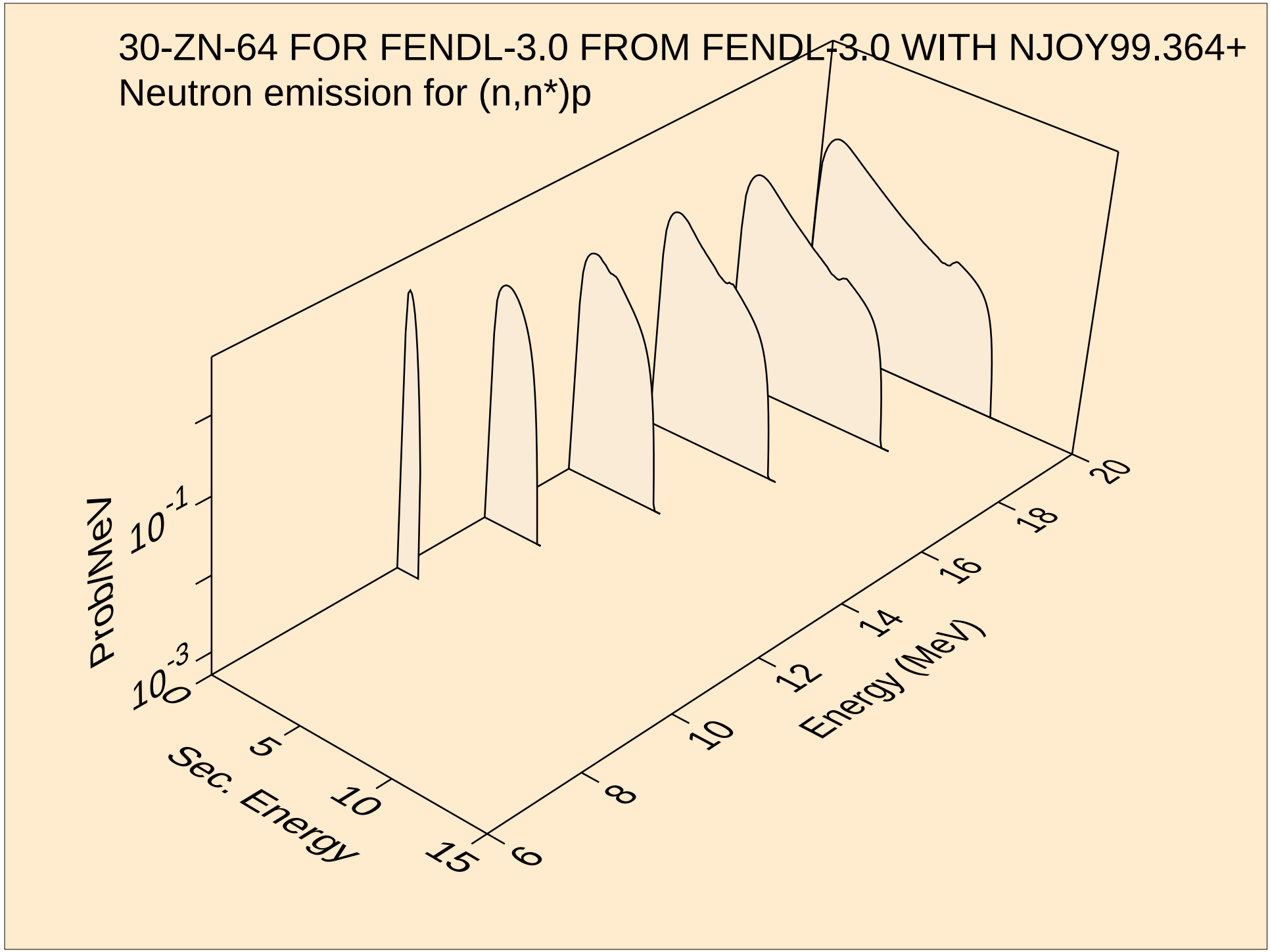

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
angular distribution for (n,n*40)
ProbICos
10^0
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

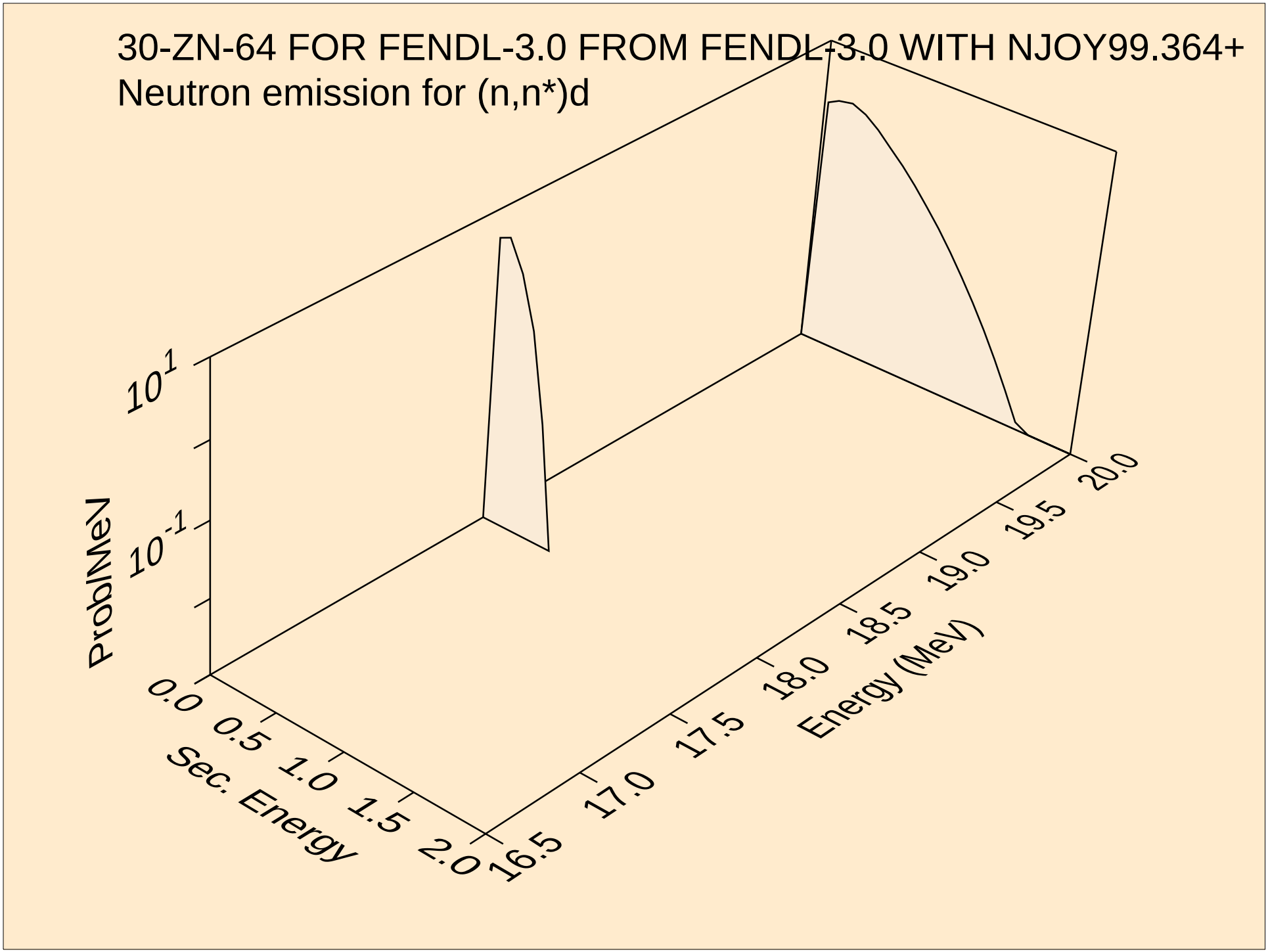

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,x)
Prob/MeV
10-2
10-4
0
50
100
150
Sec. Energy
0
20
40
60
80
100
120
140
160
Energy (MeV)

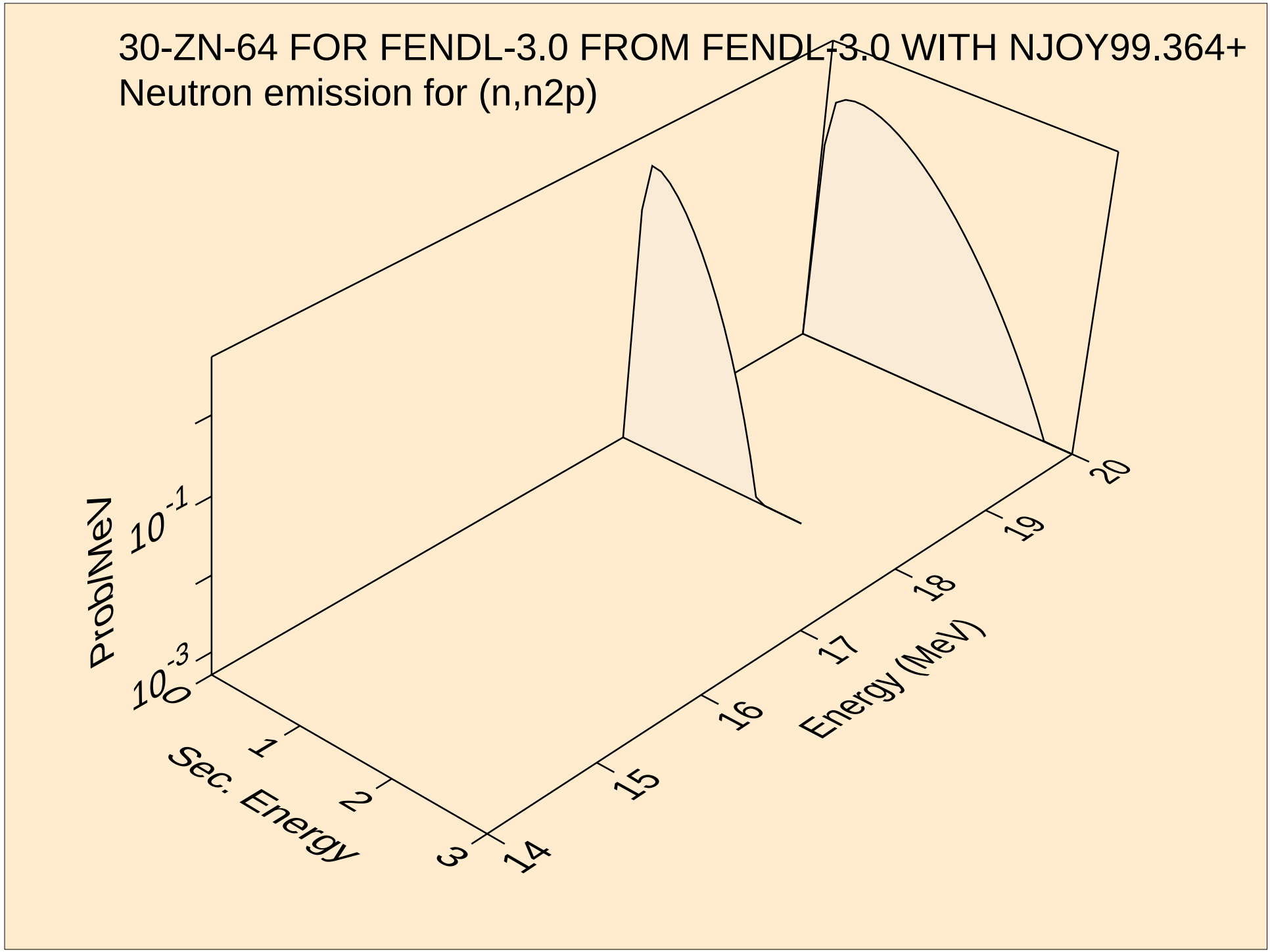

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,2n)
Prob/MeV
10^0
10^-2
0
2
4
6
8
Sec. Energy
12
13
14
15
16
17
18
19
20
Energy (MeV)

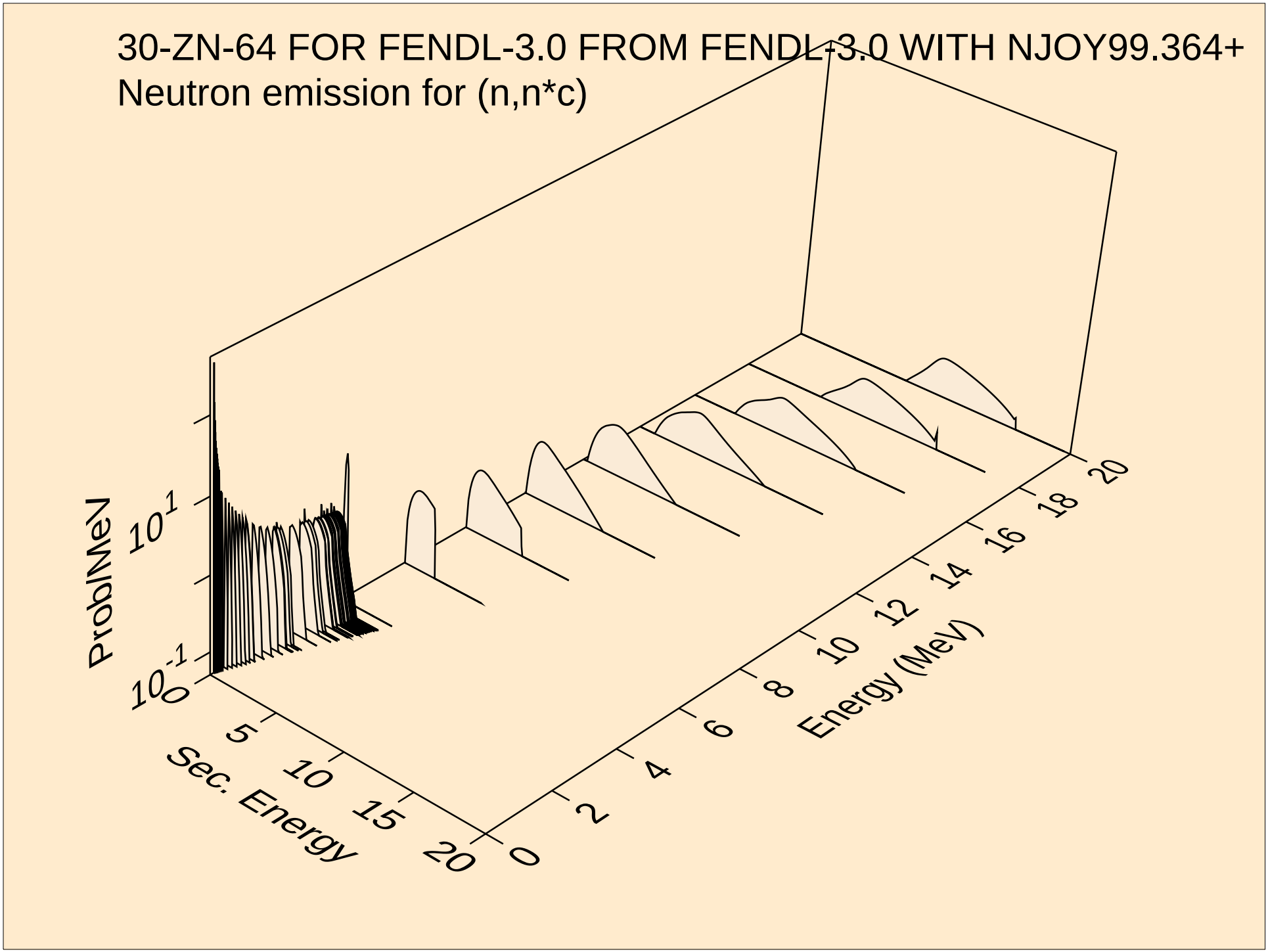

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,n*)a
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
4
6
8
10
12
14
16
18
20
Energy (MeV)

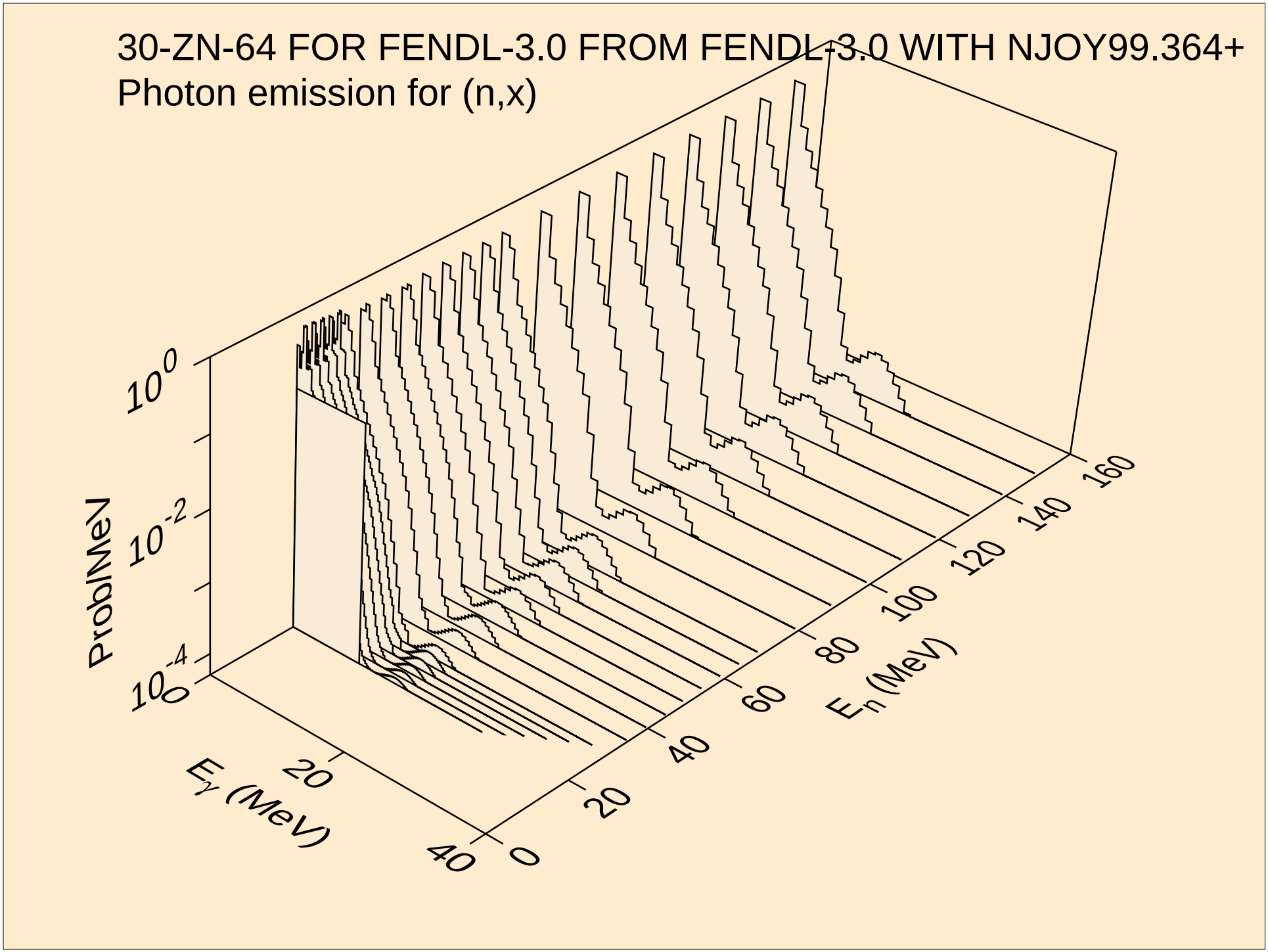

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,2n)a
Prob/MeV
10^1
10^-1
0.0
0.5
1.0
1.5
2.0
Sec. Energy
15
16
17
18
19
20
Energy (MeV)

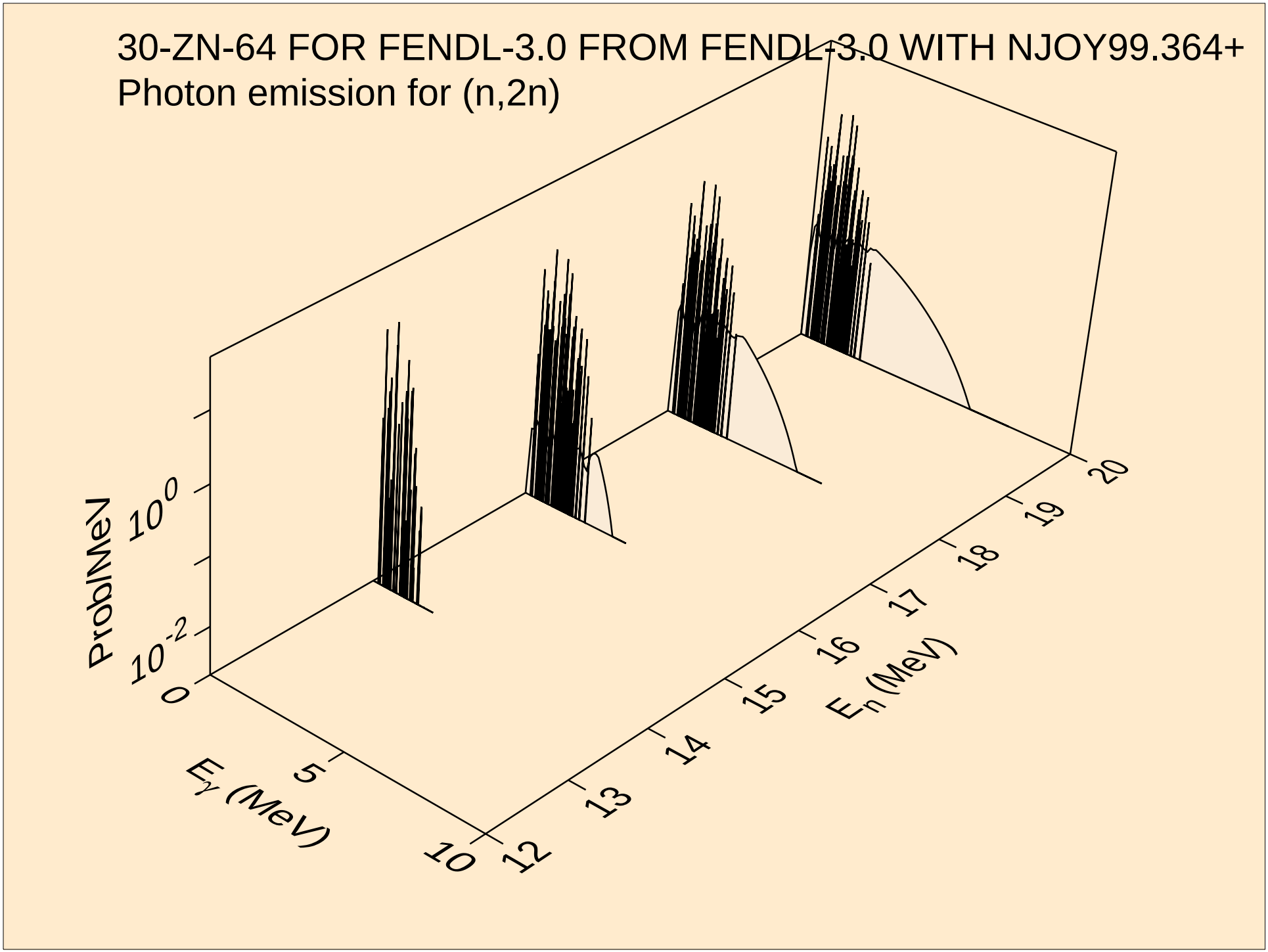

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,n*)p
Prob/MeV
10-1
10-3
0
5
10
15
Sec. Energy
6
8
10
12
14
16
18
20
Energy (MeV)

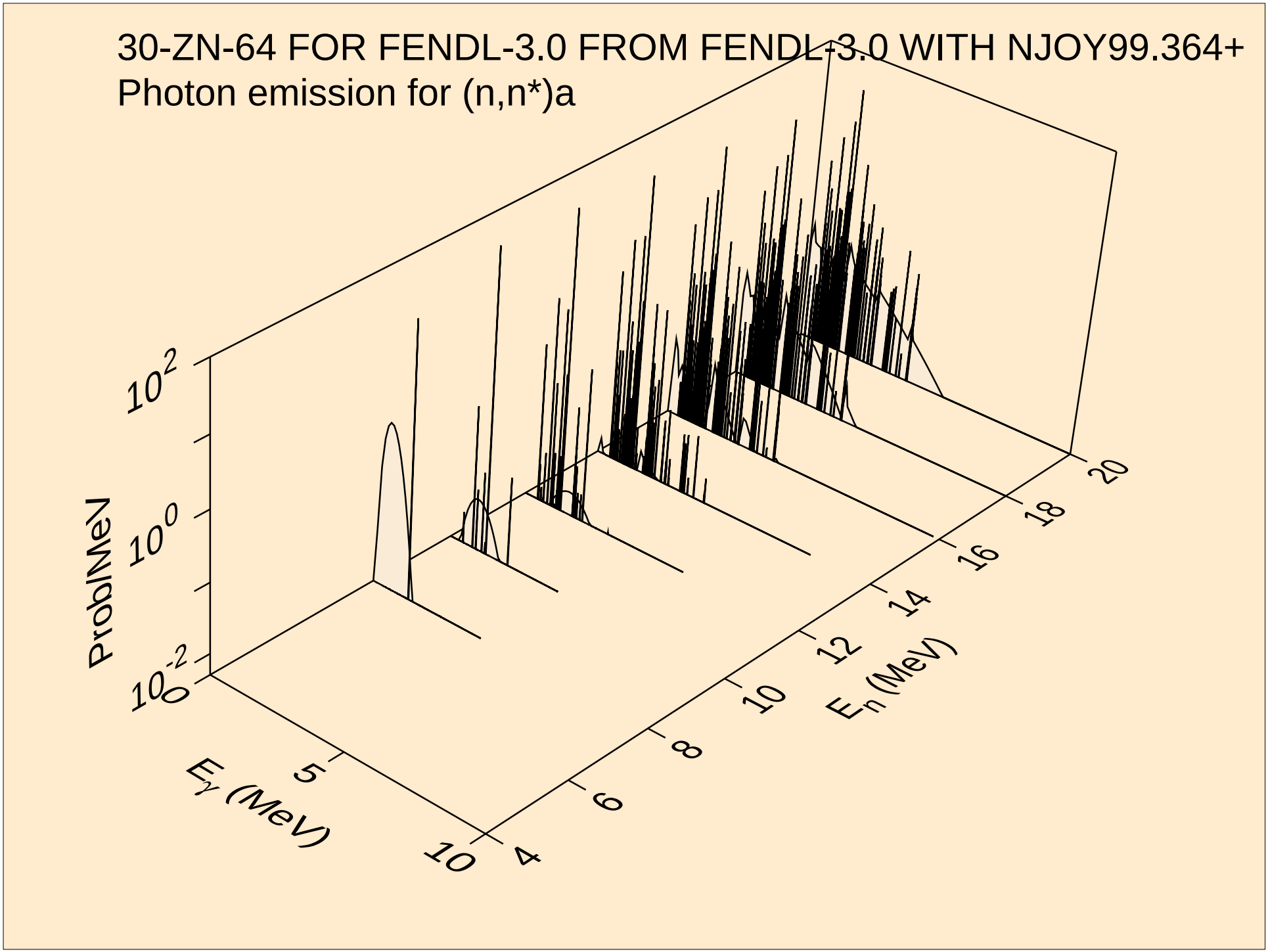

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,n*)d
Prob/MeV
10^1
10^-1
0.0
0.5
1.0
1.5
2.0
Sec. Energy
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)

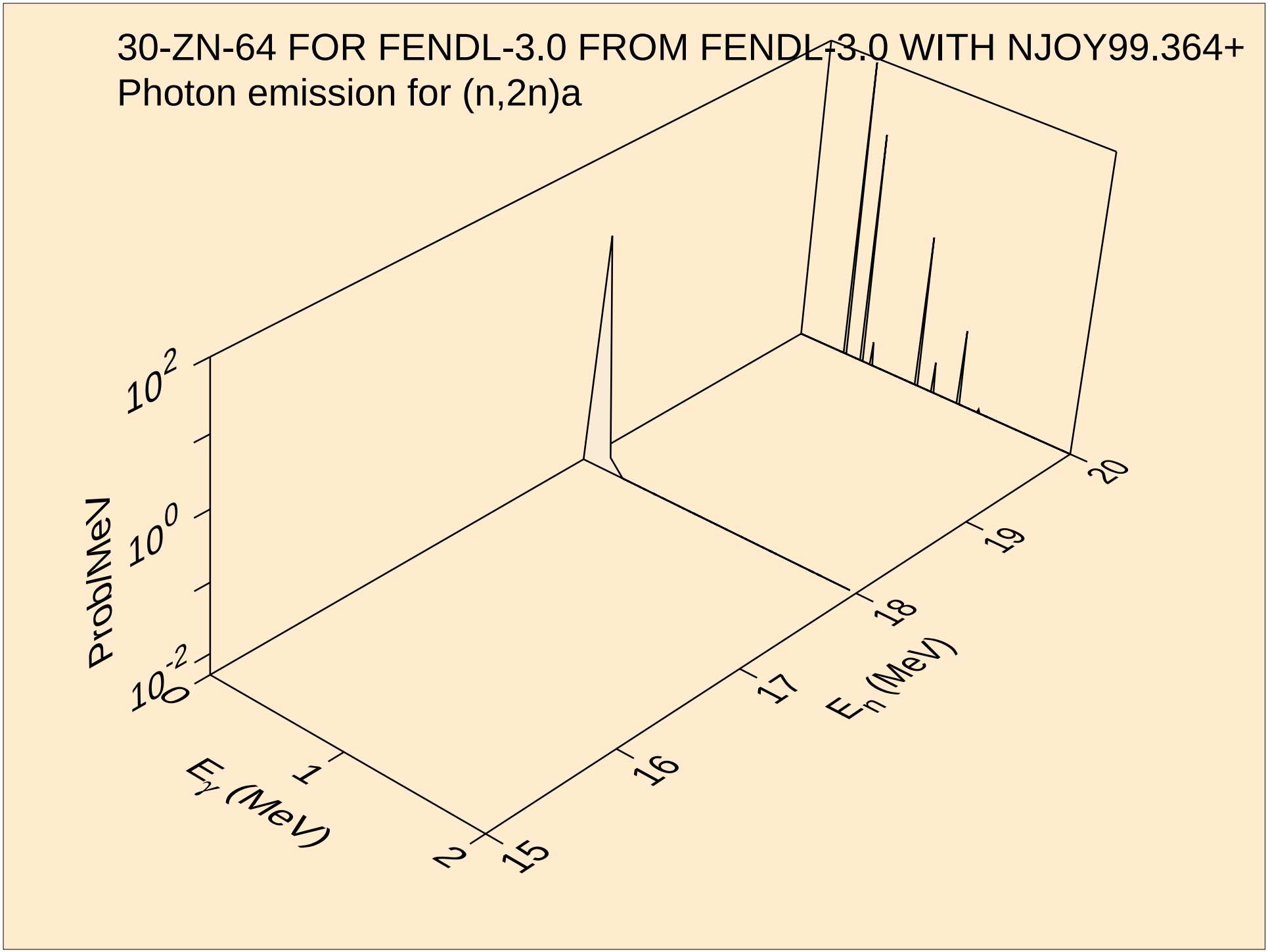

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,n2p)
Prob/MeV
10-1
10-3
0
1
2
3
Sec. Energy
14
15
16
17
18
19
20
Energy (MeV)

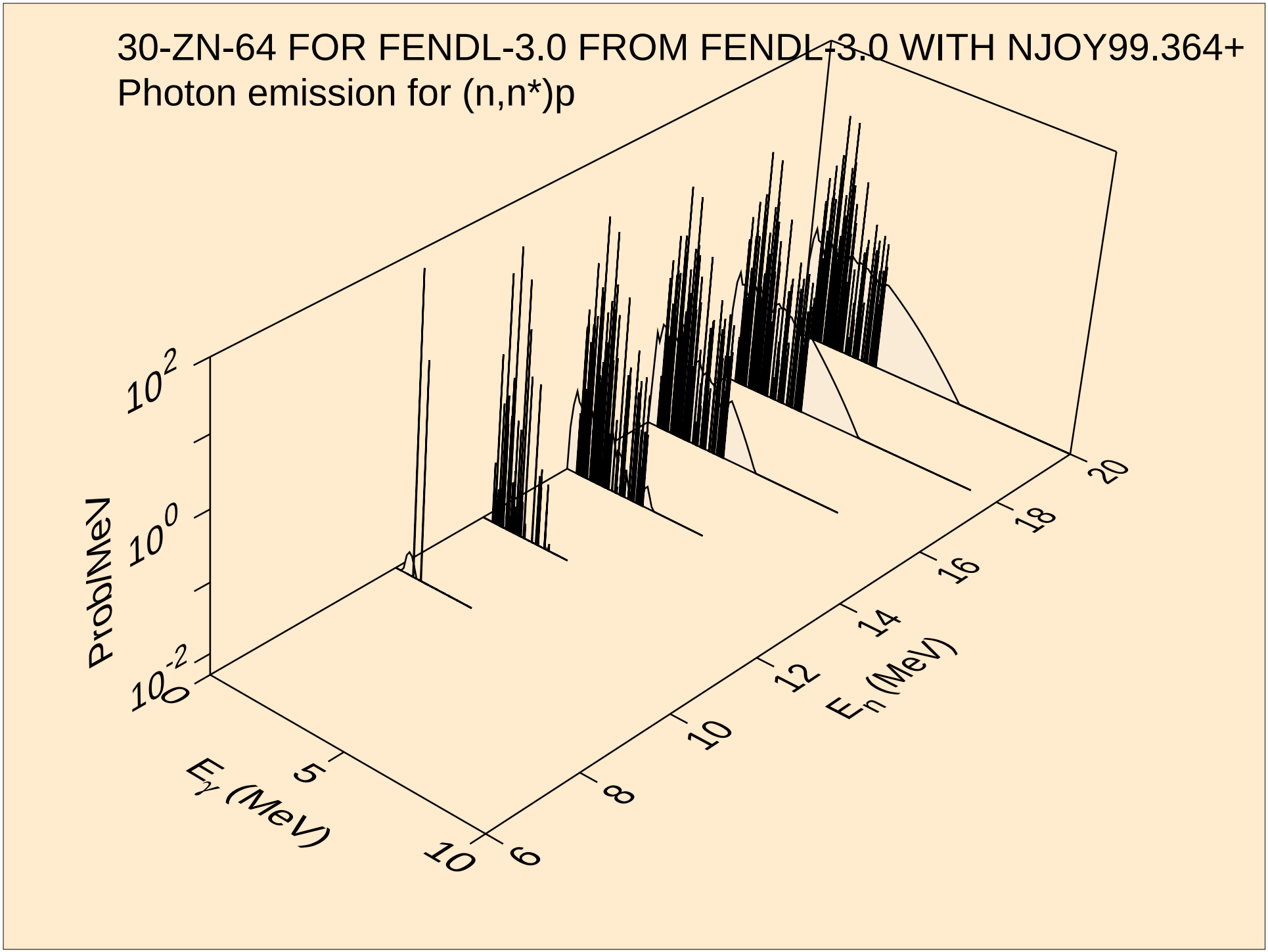

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Neutron emission for (n,n*c)
Prob/MeV
10^1
10^-1
0
5
10
15
20
Sec. Energy
0
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

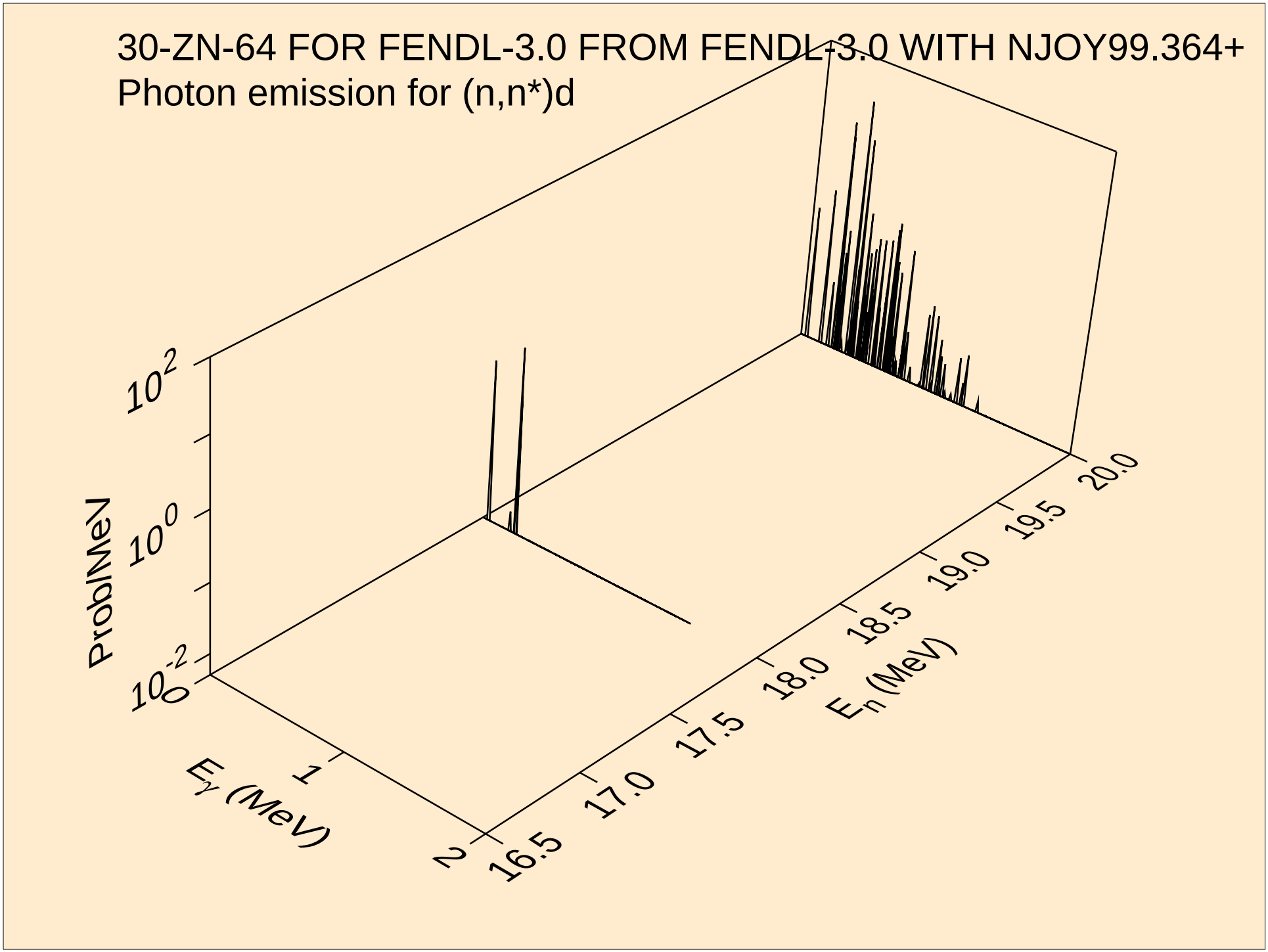

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,x)
Prob/MeV
$10^{0}$
$10^{-2}$
$10^{-4}$
$E_\gamma$ (MeV)
0
20
40
$E_n$ (MeV)
0
20
40
60
80
100
120
140
160

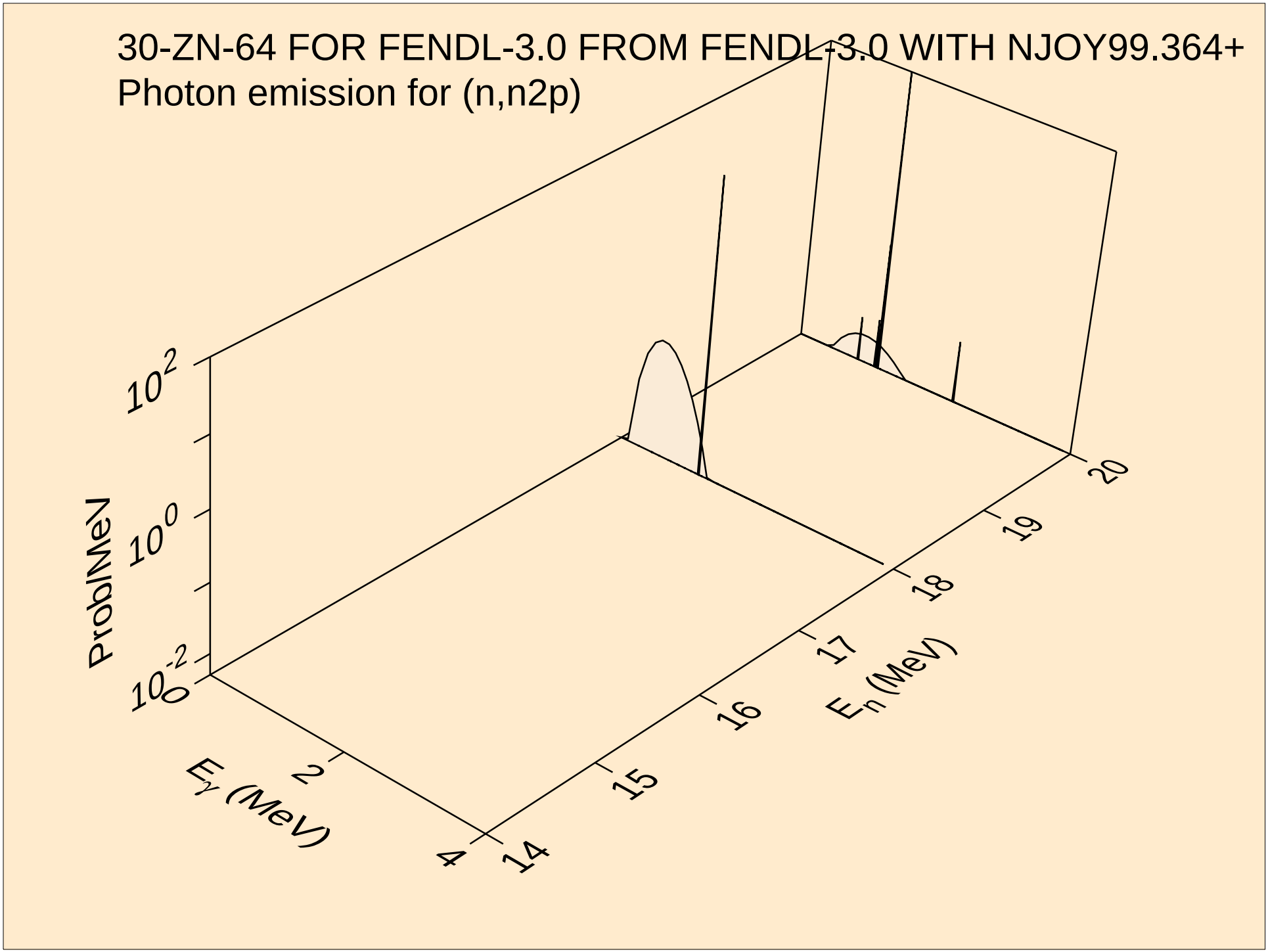

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,2n)
Prob/MeV
10^0
10^-2
0
5
10
Eγ (MeV)
12
13
14
15
16
17
18
19
20
En (MeV)

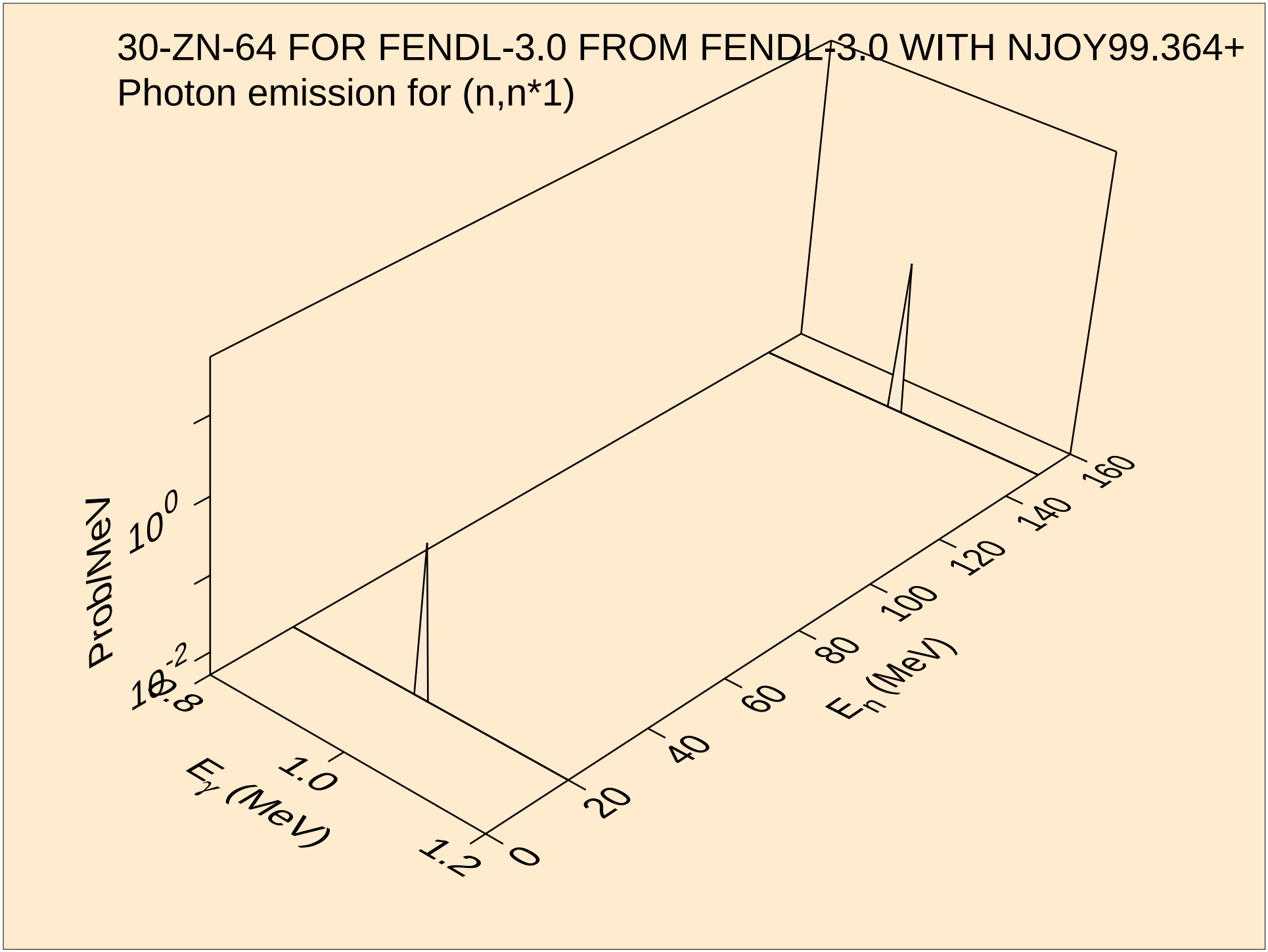

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*)a
Prob/MeV
$10^{2}$
$10^{0}$
$10^{-2}$
0
5
10
$E_\gamma$ (MeV)
4
6
8
10
12
14
16
18
20
$E_n$ (MeV)

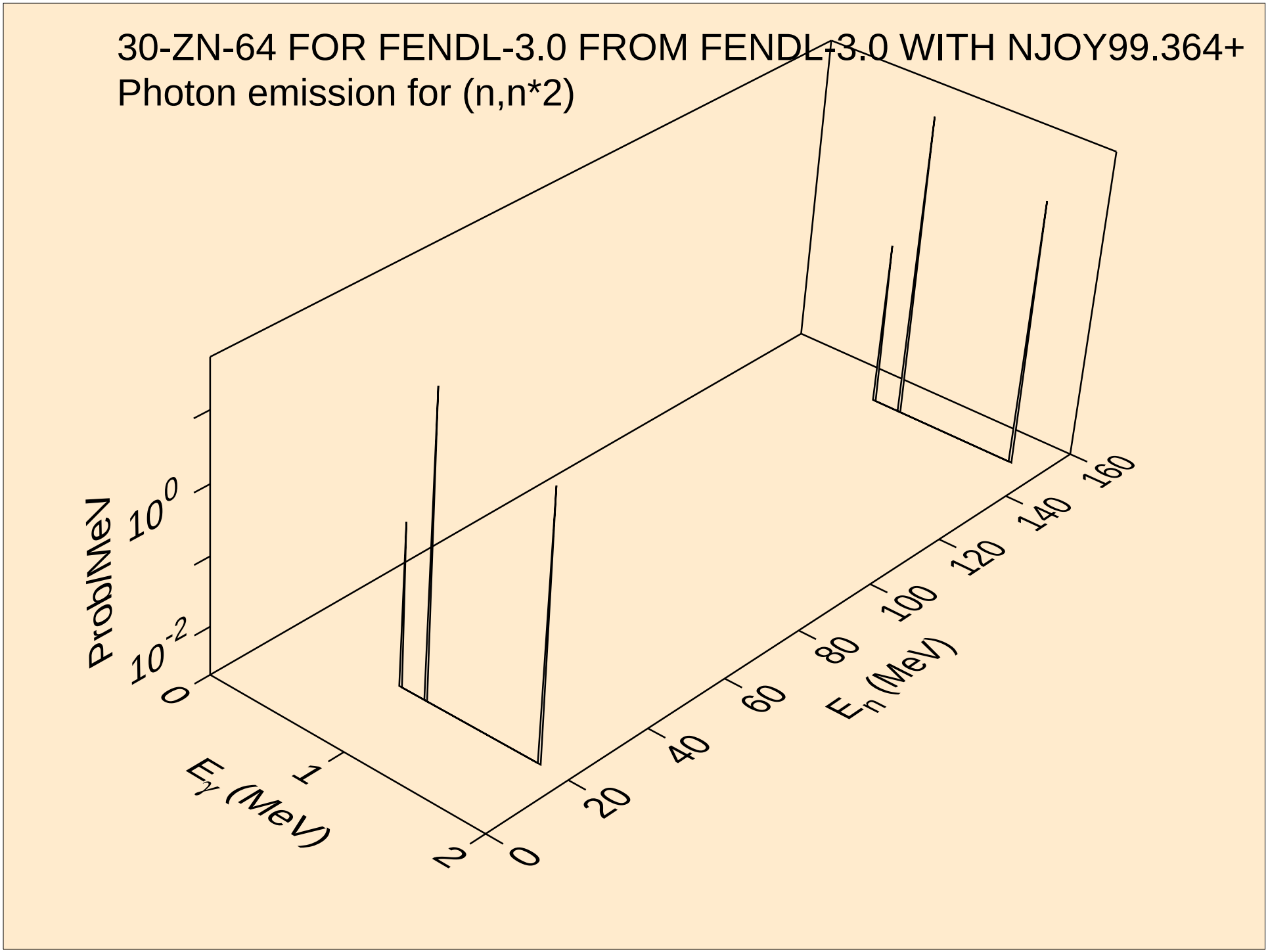

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,2n)a
Prob/MeV
$10^{2}$
$10^{0}$
$10^{-2}$
0
1
2
$E_\gamma$ (MeV)
15
16
17
18
19
20
$E_n$ (MeV)

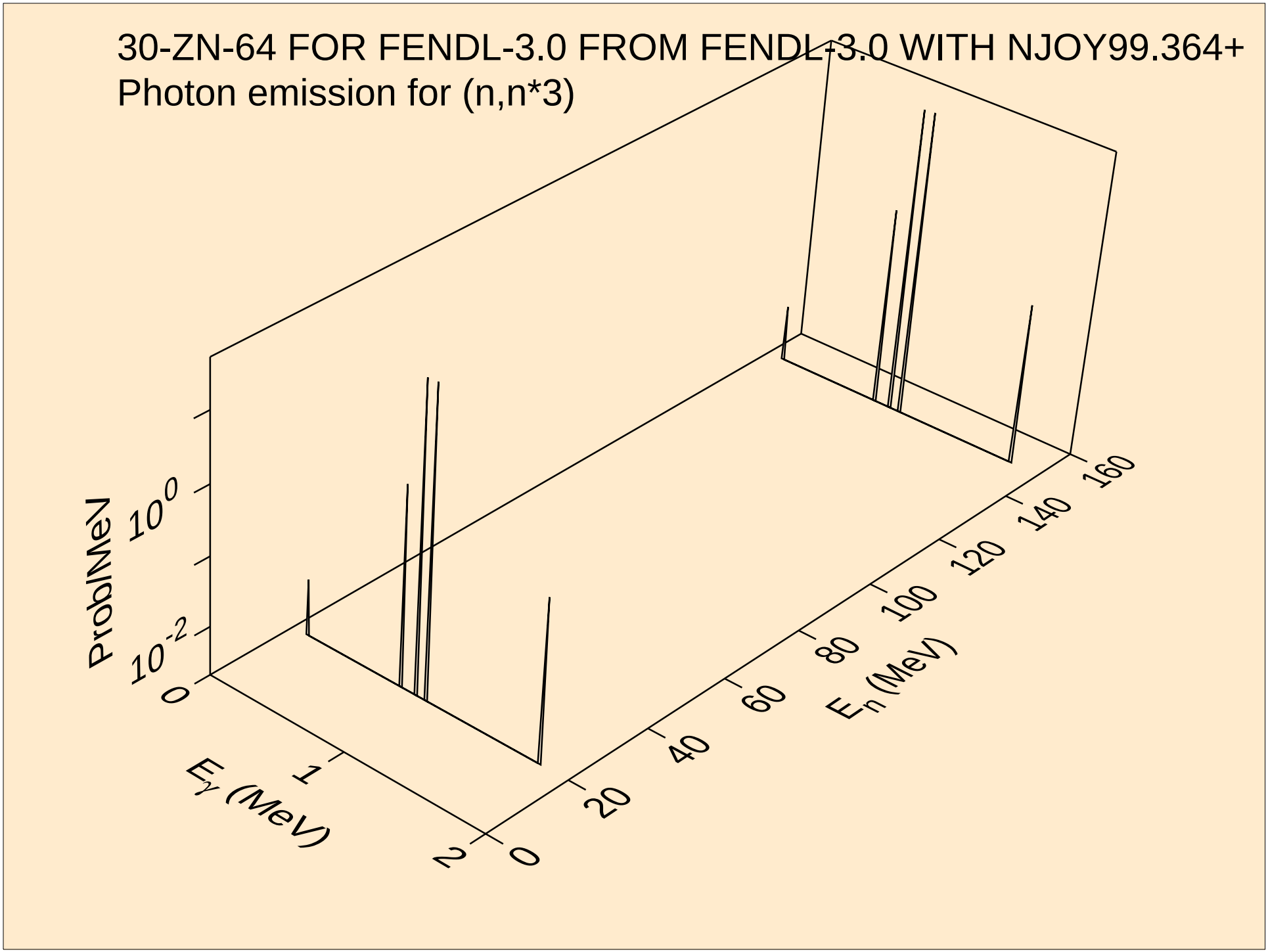

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*)p
Prob/MeV
$10^{2}$
$10^{0}$
$10^{-2}$
0
5
10
$E_\gamma$ (MeV)
6
8
10
12
14
16
18
20
$E_n$ (MeV)

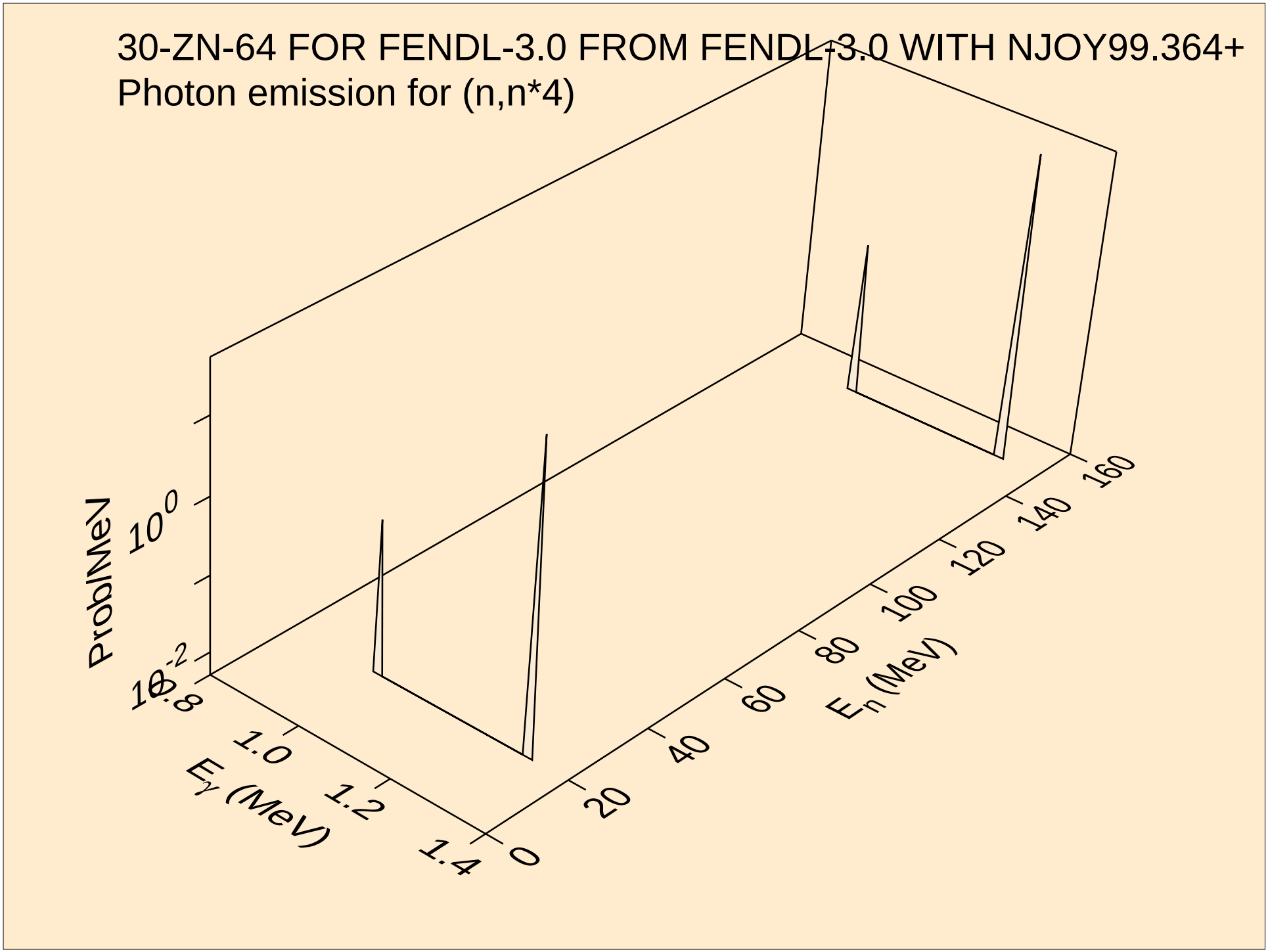

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*)d
Prob/MeV
$10^{2}$
$10^{0}$
$10^{-2}$
$E_\gamma$ (MeV)
0
1
2
$E_n$ (MeV)
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0

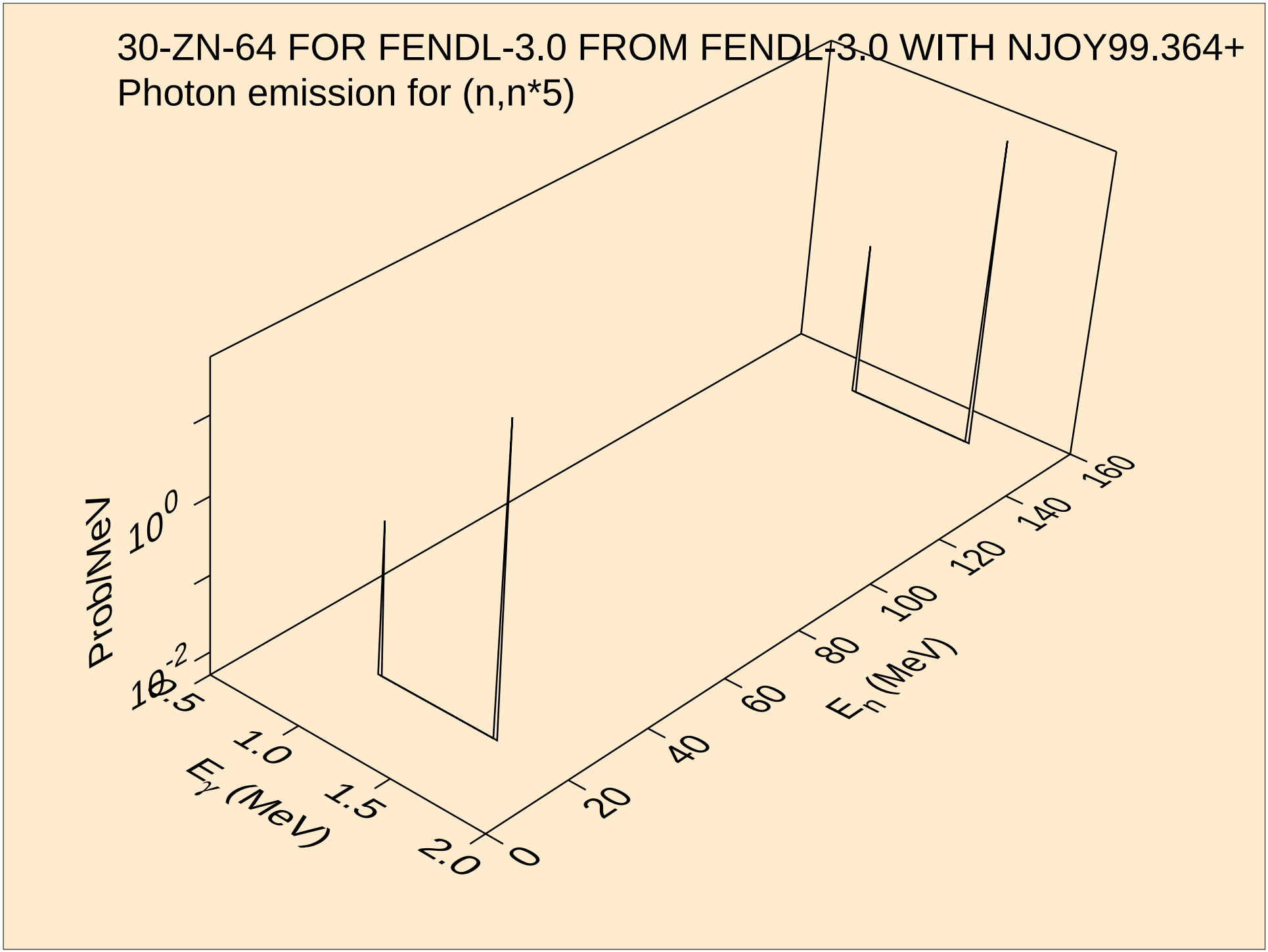

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n2p)
Prob/MeV
$10^{2}$
$10^{0}$
$10^{-2}$
$E_\gamma$ (MeV)
0
2
4
$E_n$ (MeV)
14
15
16
17
18
19
20

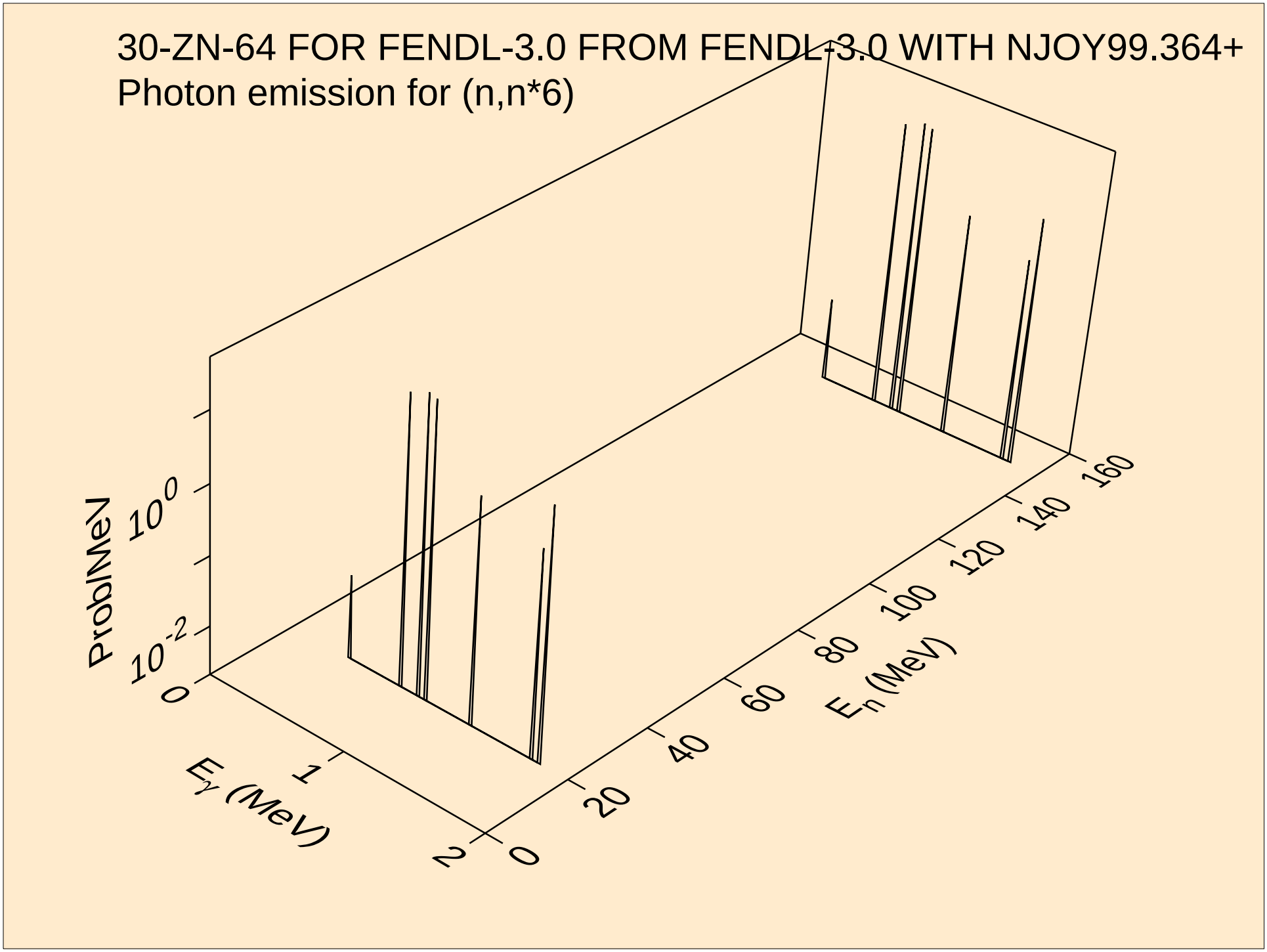

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*1)
Prob/MeV
$10^{0}$
$10^{-2}$
0.8
1.0
1.2
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

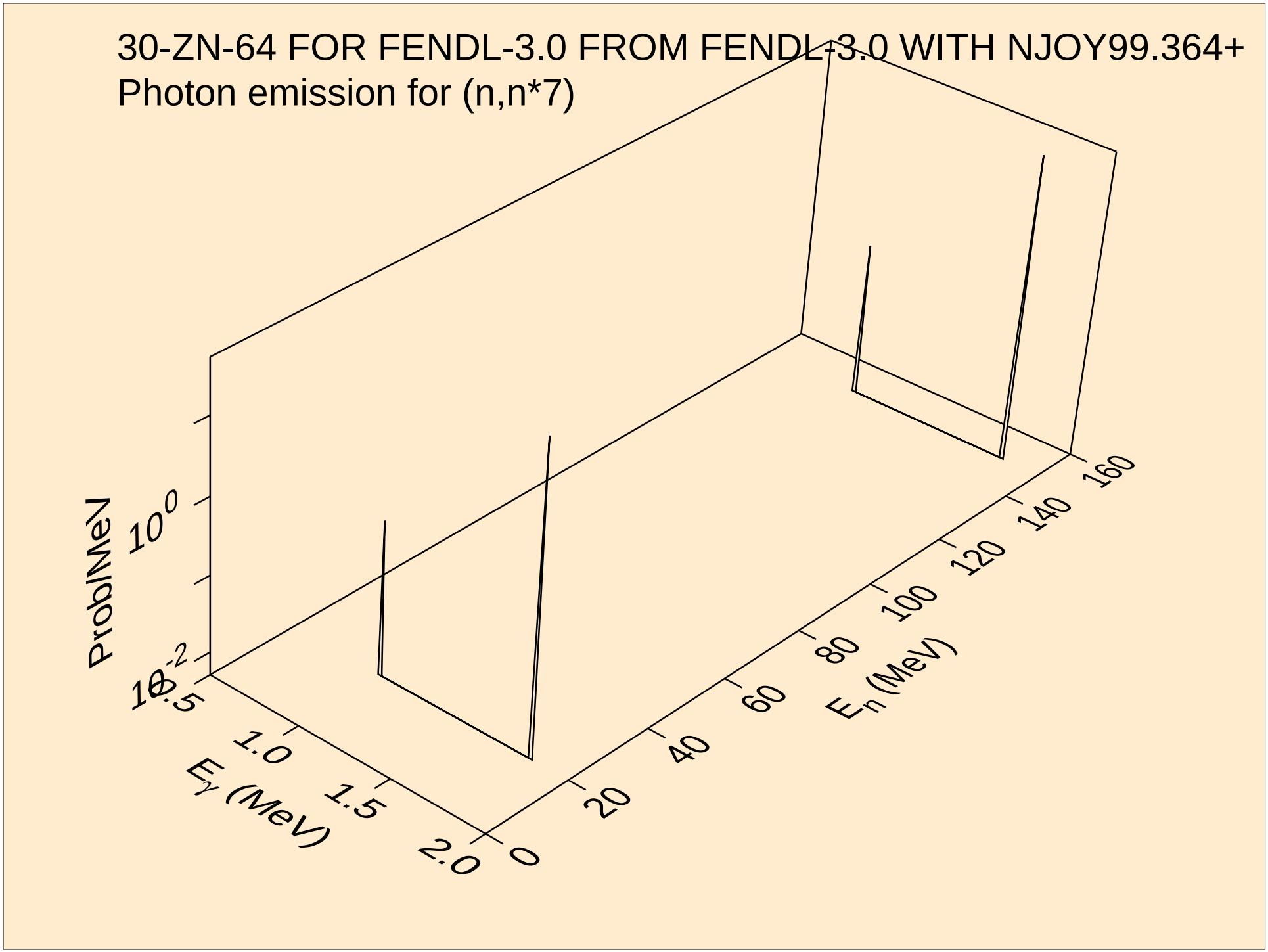

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*2)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
1
2
0
20
40
60
80
100
120
140
160
E_n (MeV)

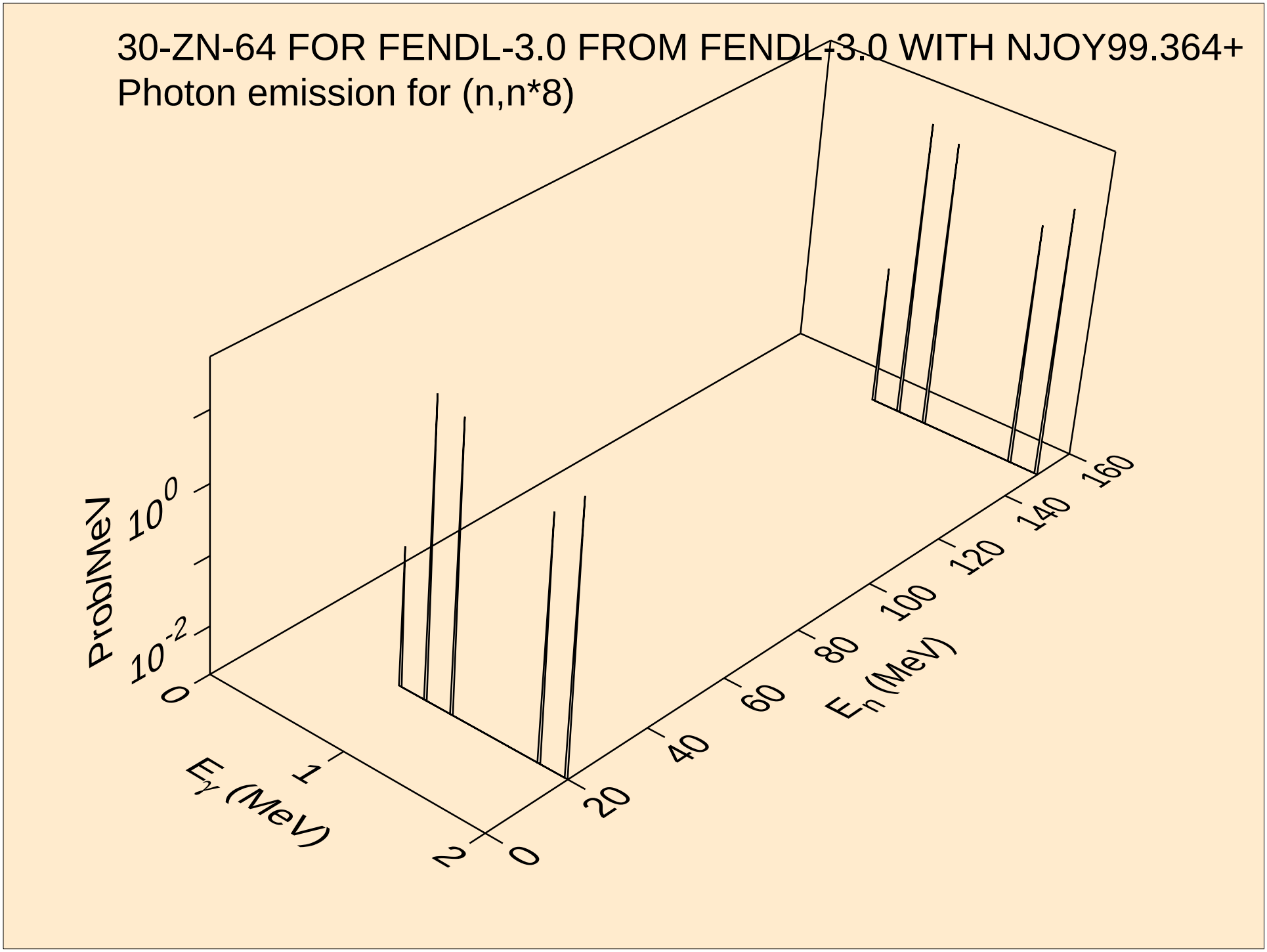

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*3)
Prob/MeV
$10^{0}$
$10^{-2}$
0
1
2
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

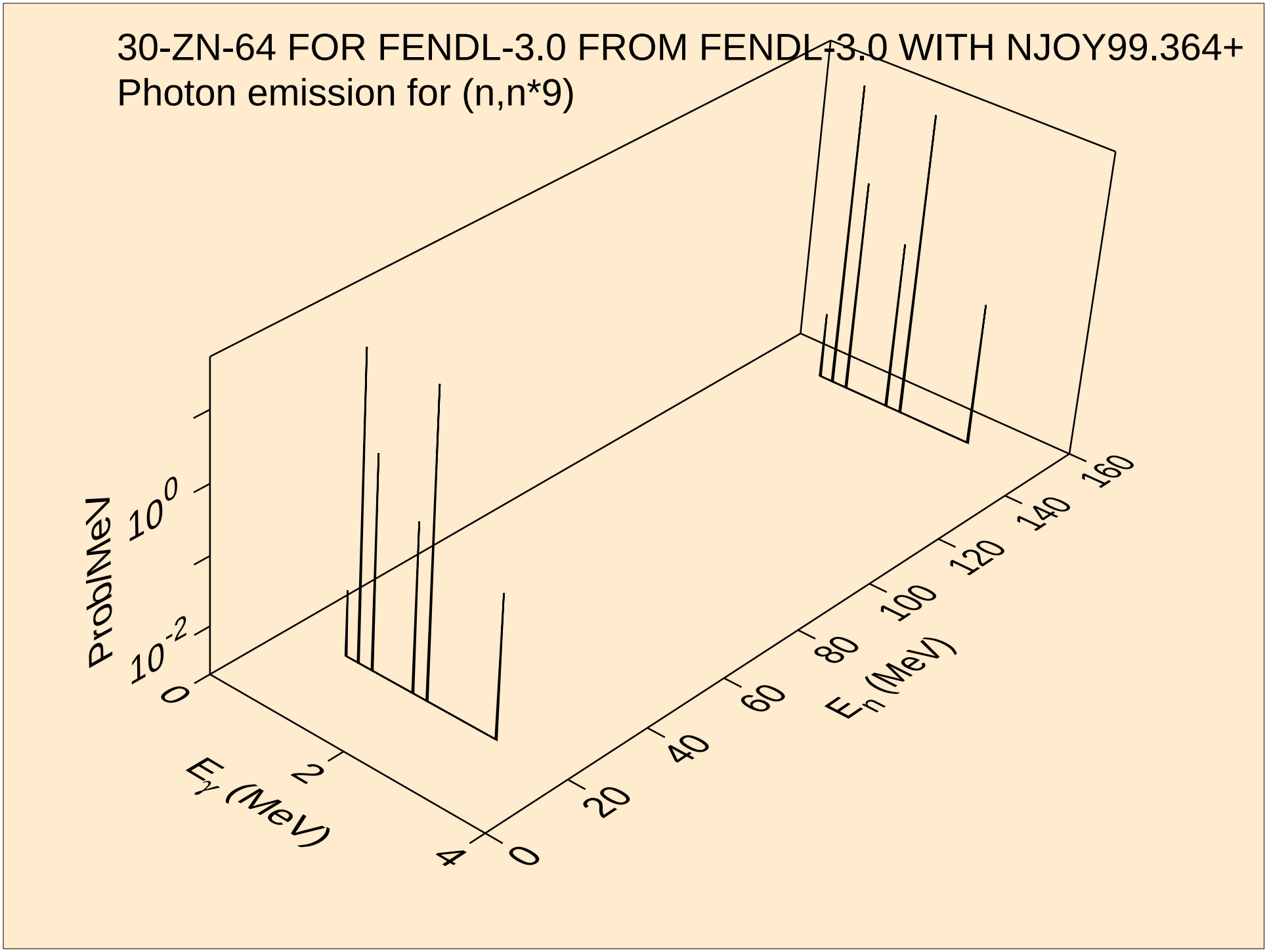

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*4)
Prob/MeV
$10^{0}$
$10^{-2}$
0.8
1.0
1.2
1.4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

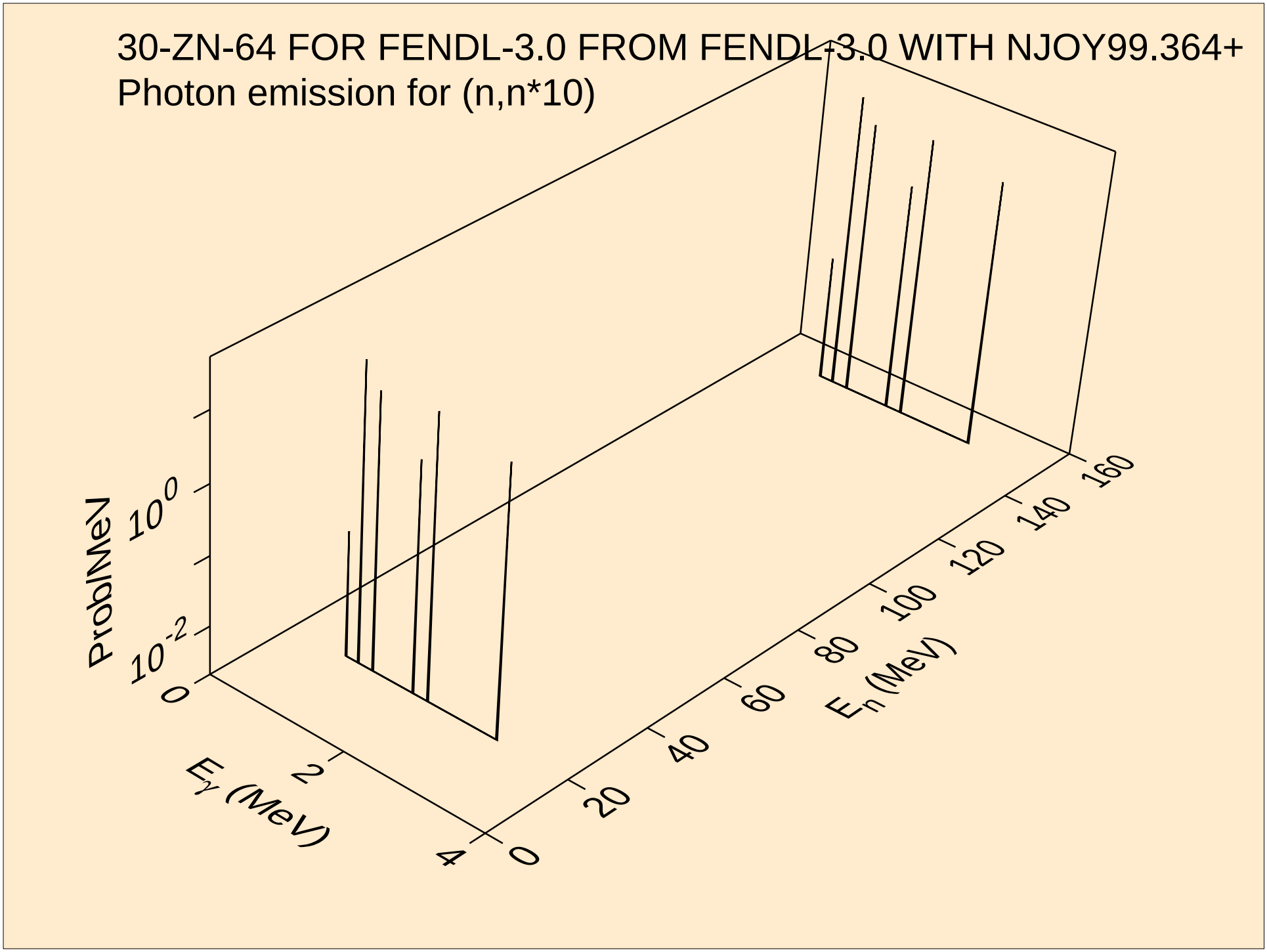

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*5)
Prob/MeV
$10^{0}$
$10^{-2}$
0.5
1.0
1.5
2.0
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

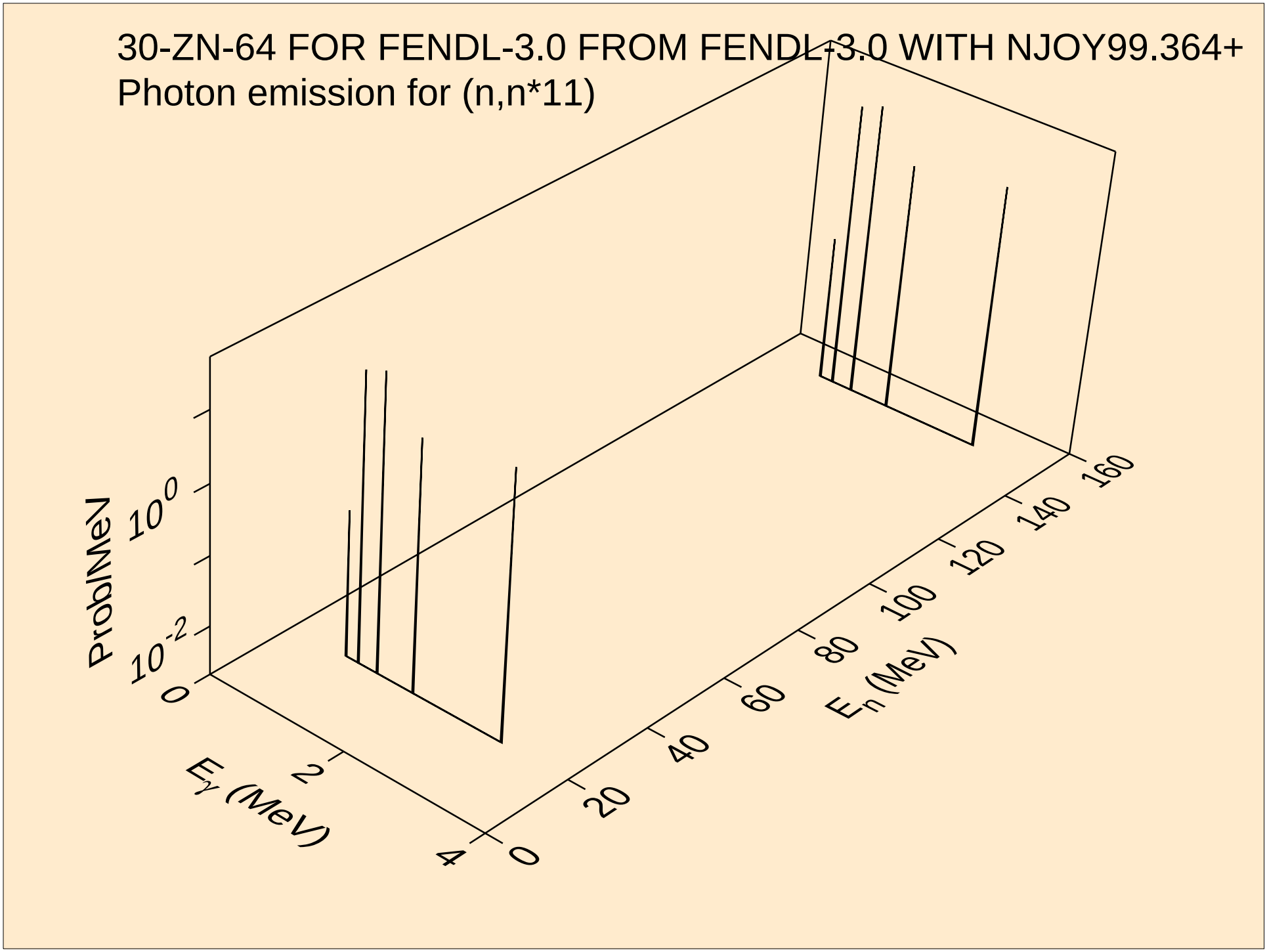

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*6)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
1
2
0
20
40
60
80
100
120
140
160
E_n (MeV)

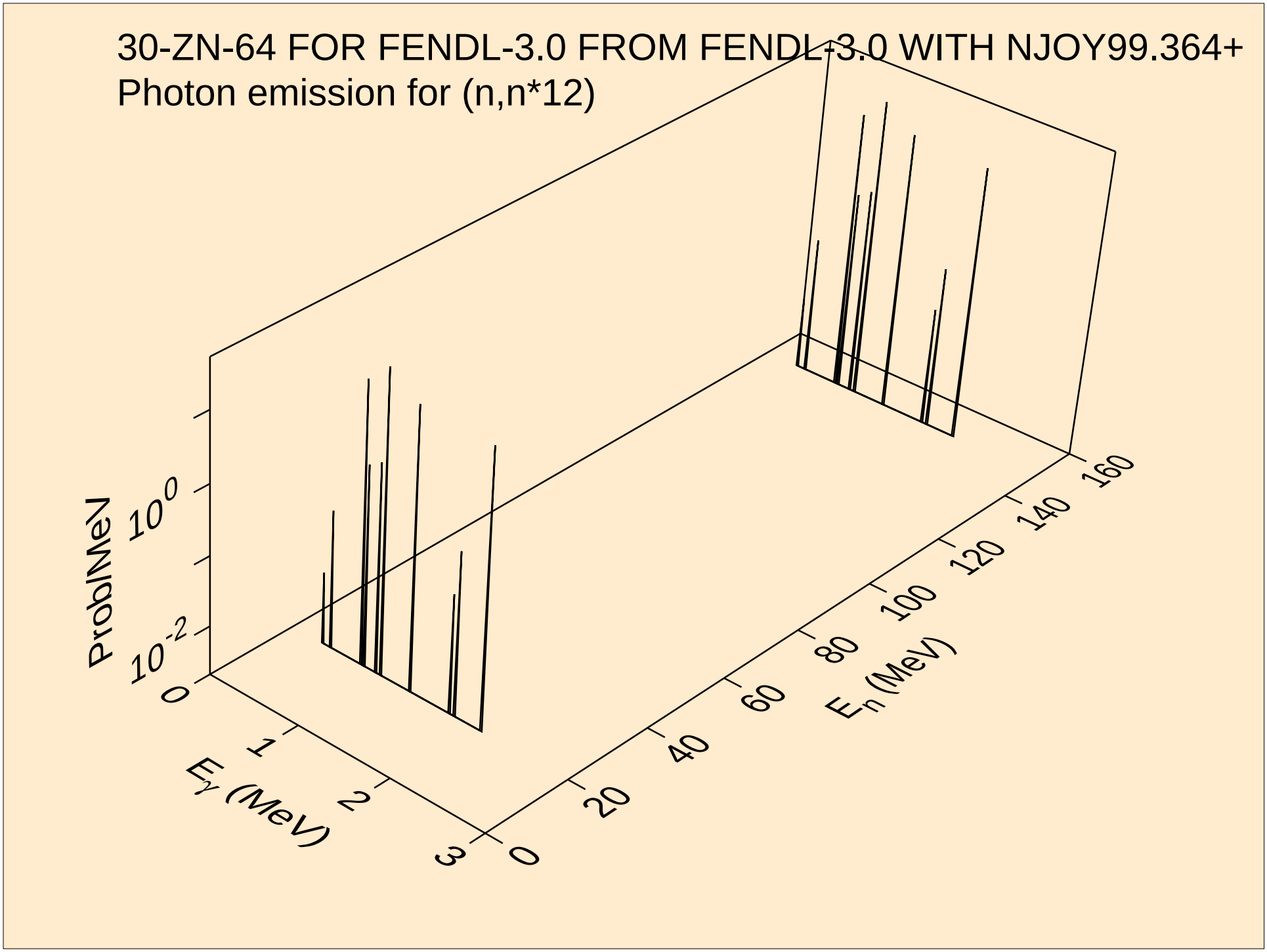

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*7)
Prob/MeV
$10^{0}$
$10^{-2}$
0.5
1.0
1.5
2.0
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

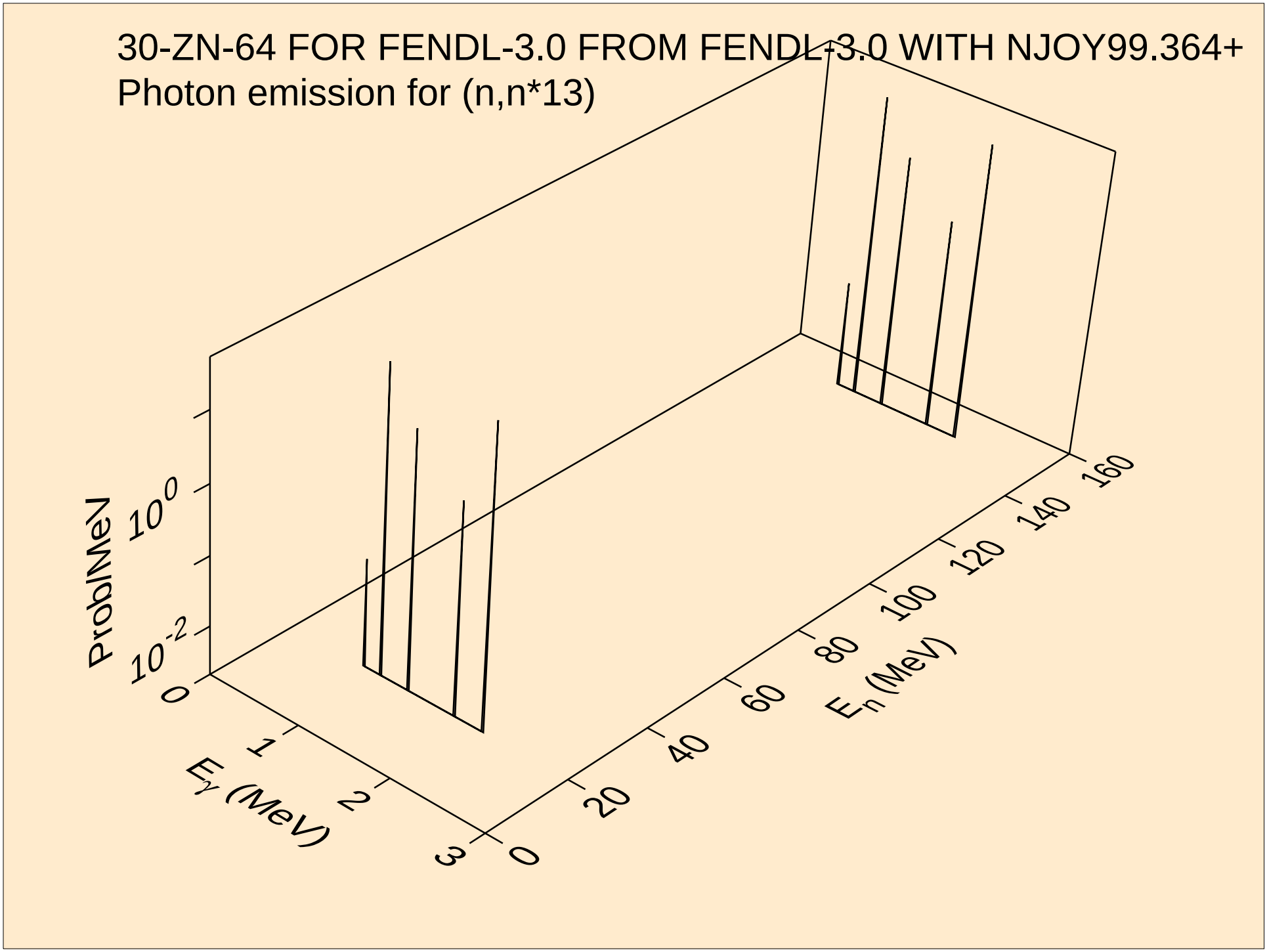

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*8)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
1
2
0
20
40
60
80
100
120
140
160
E_n (MeV)

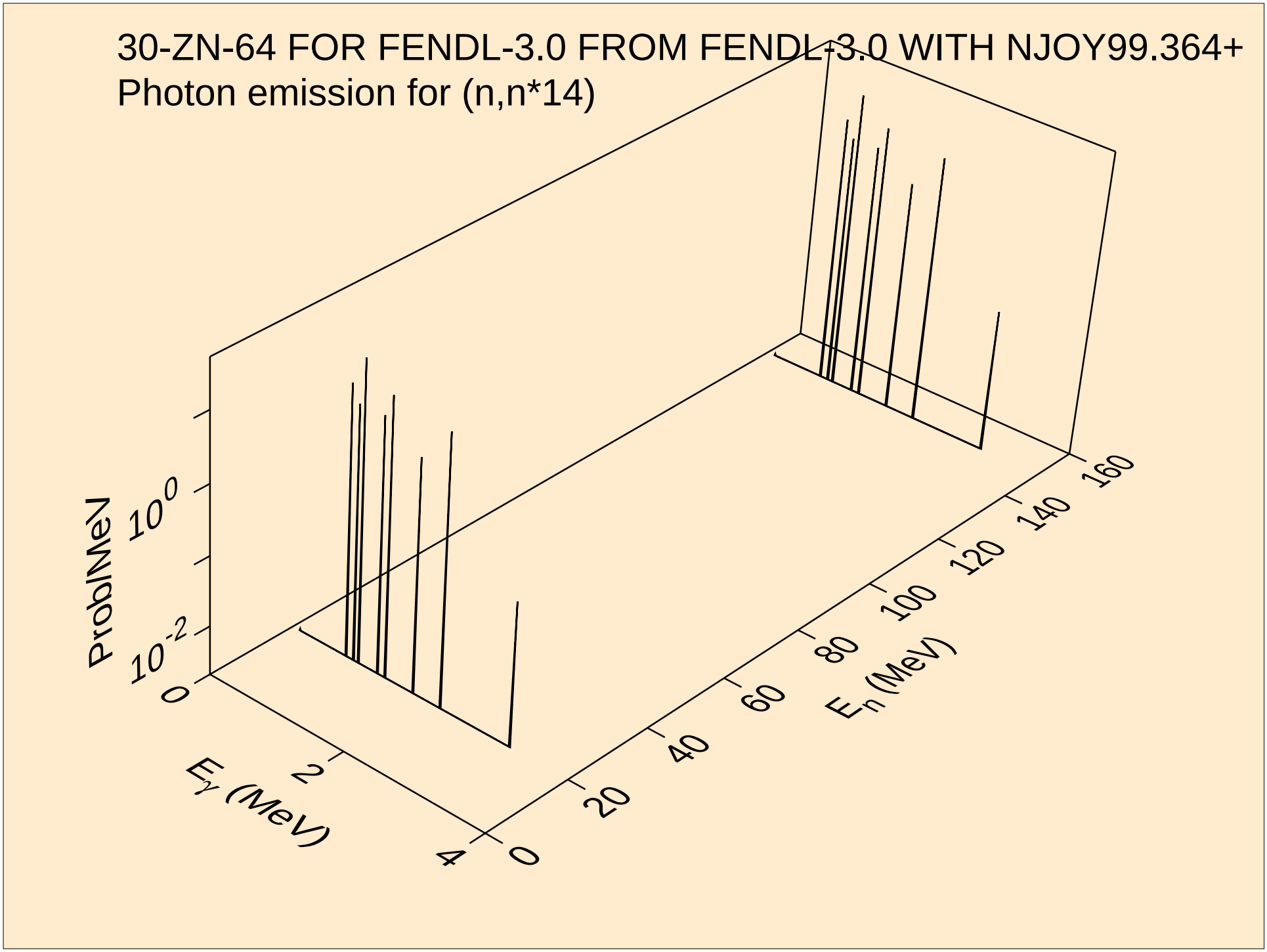

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*9)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
2
4
0
20
40
60
80
100
120
140
160
E_n (MeV)

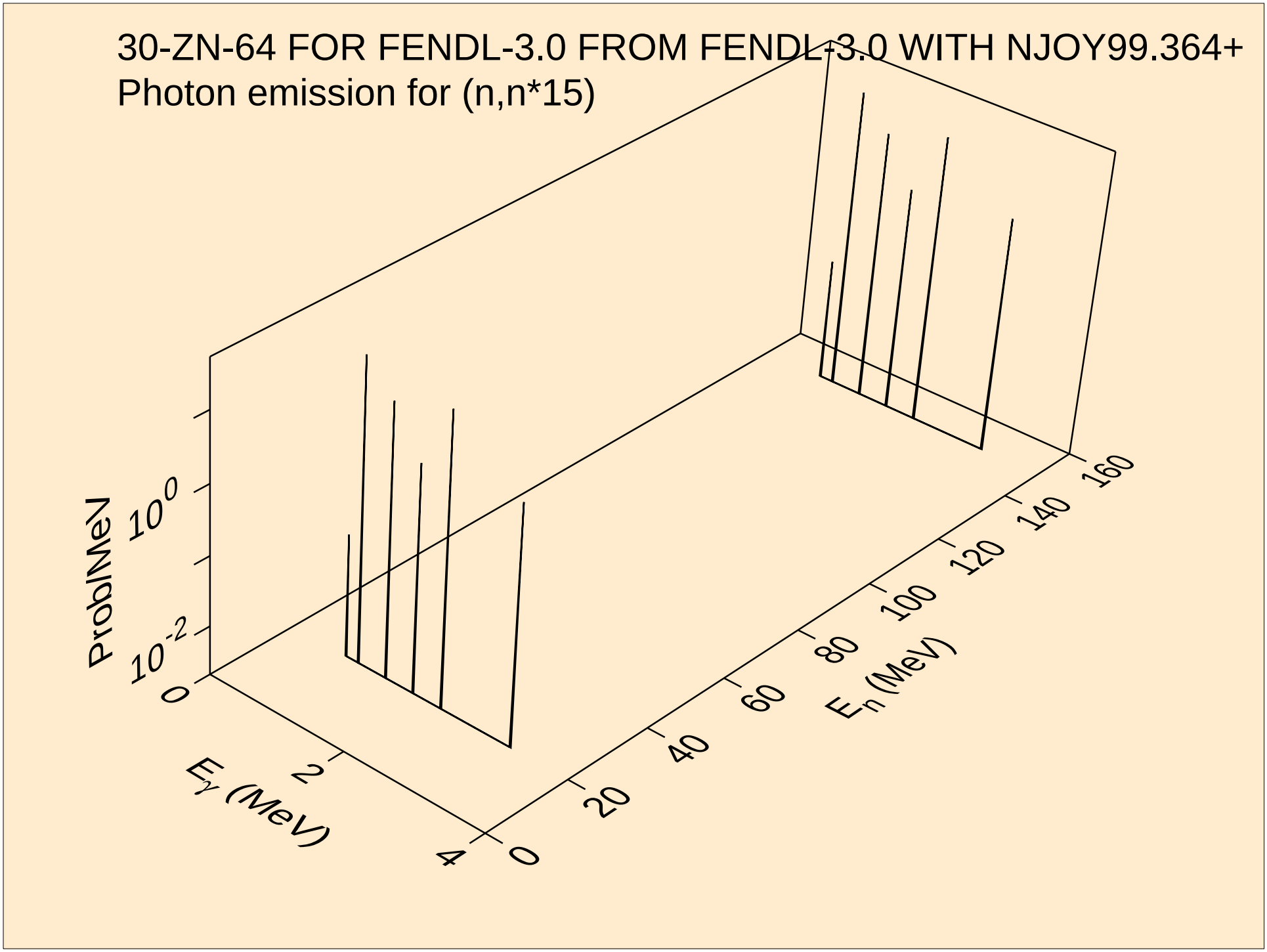

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*10)
Prob/MeV
10^0
10^-2
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

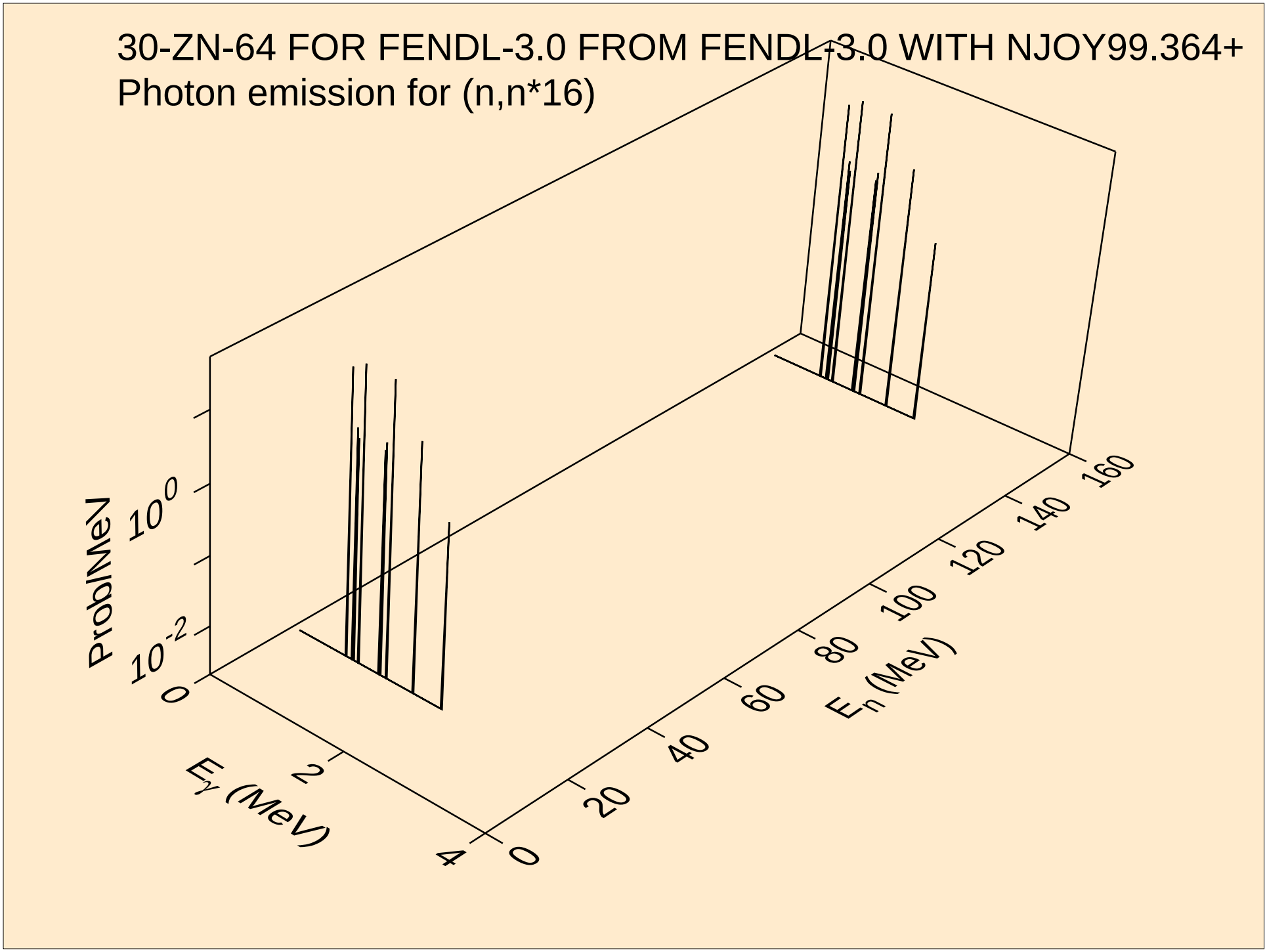

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*11)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
2
4
0
20
40
60
80
100
120
140
160
E_n (MeV)

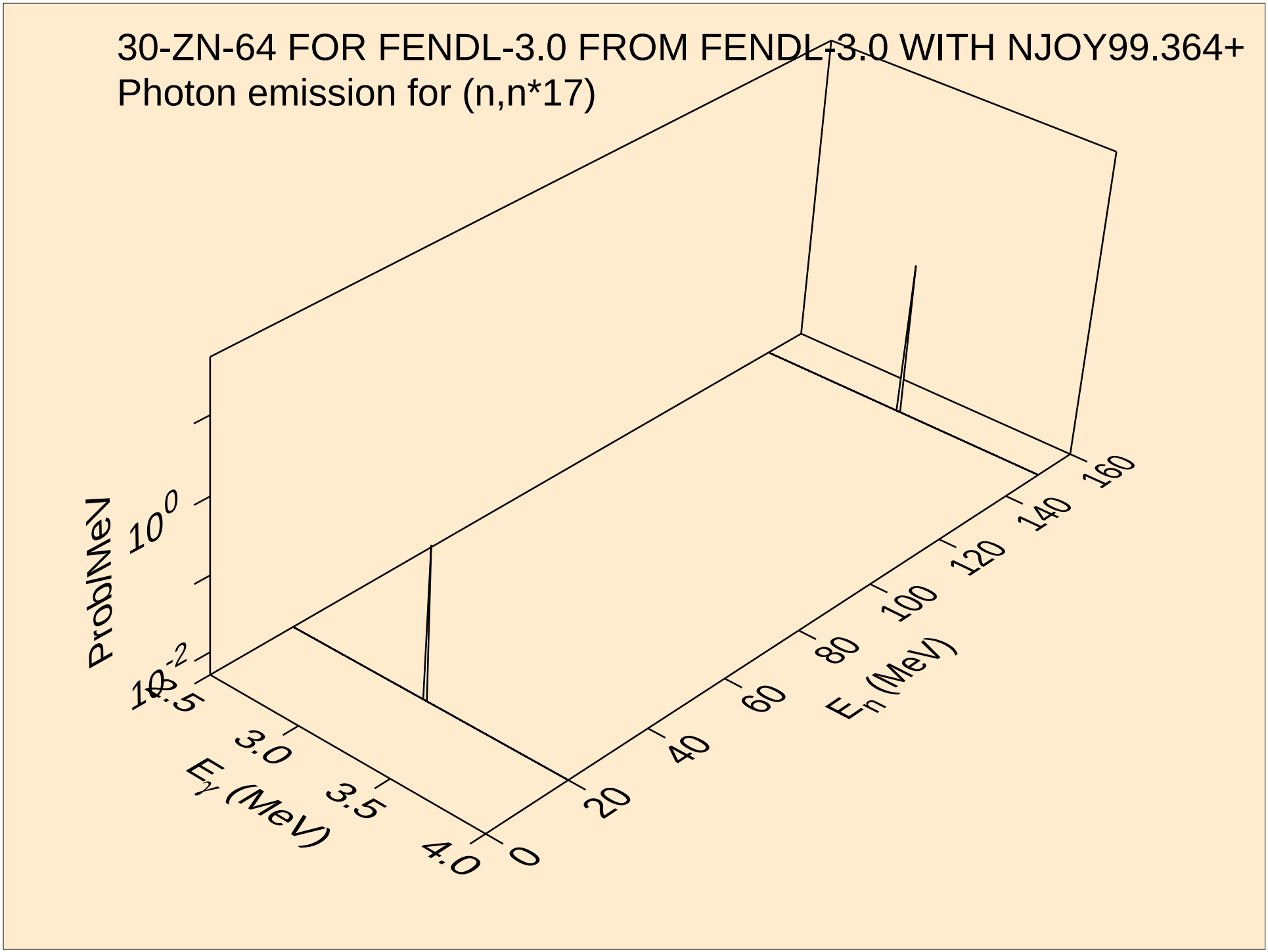

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*12)
Prob/MeV
10^0
10^-2
0
1
2
3
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

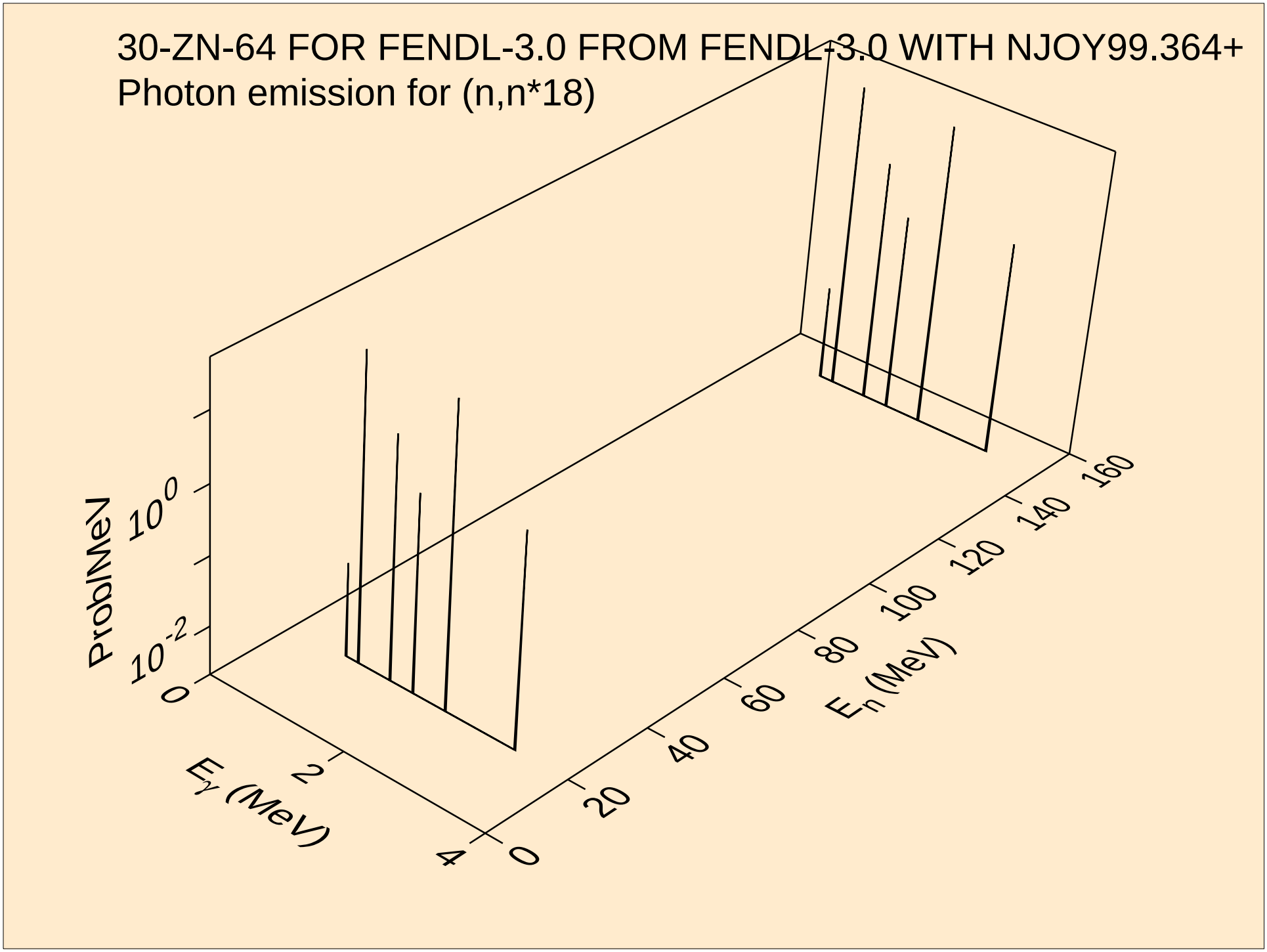

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*13)
Prob/MeV
10^0
10^-2
0
1
2
3
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

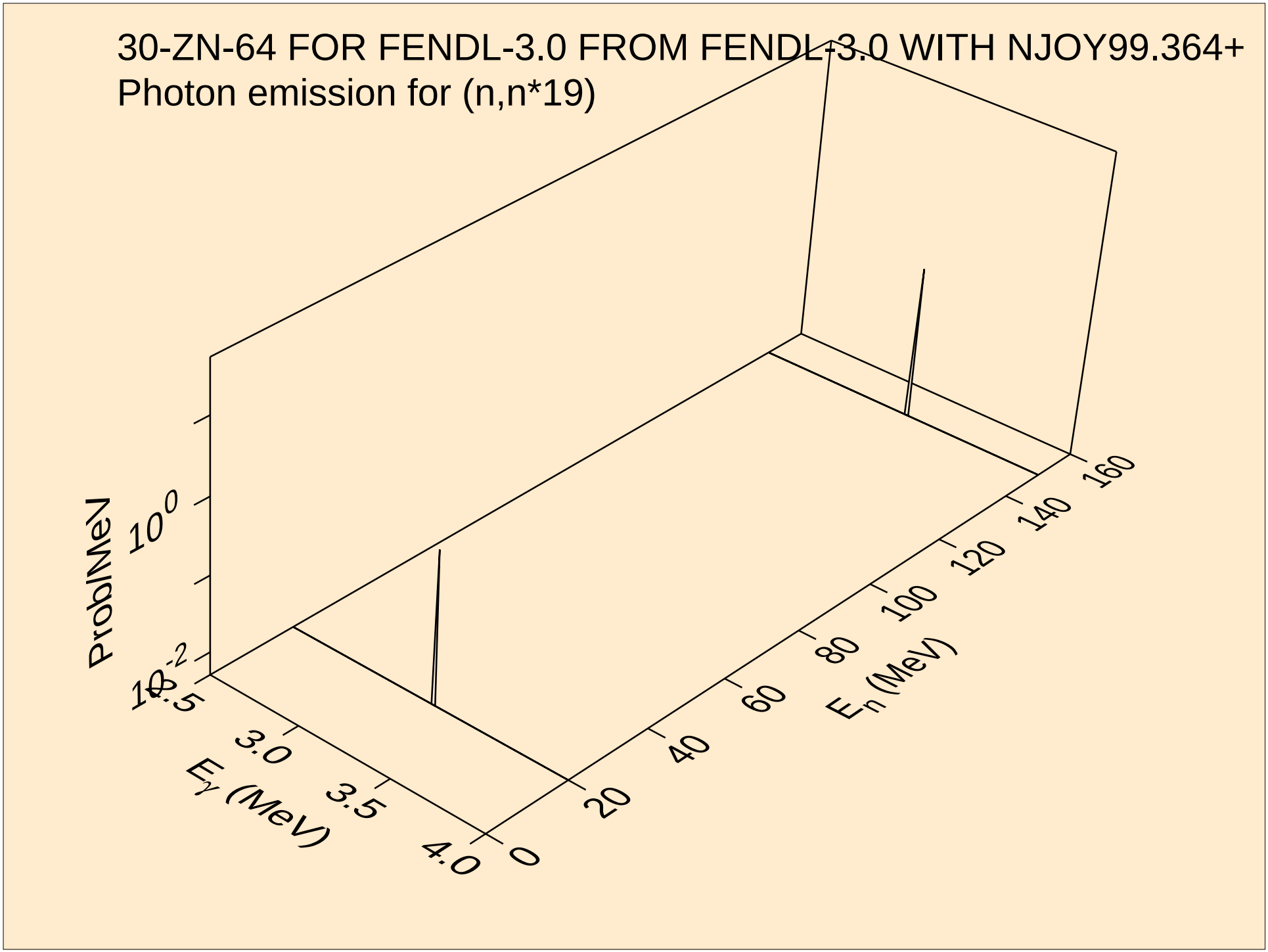

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*14)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

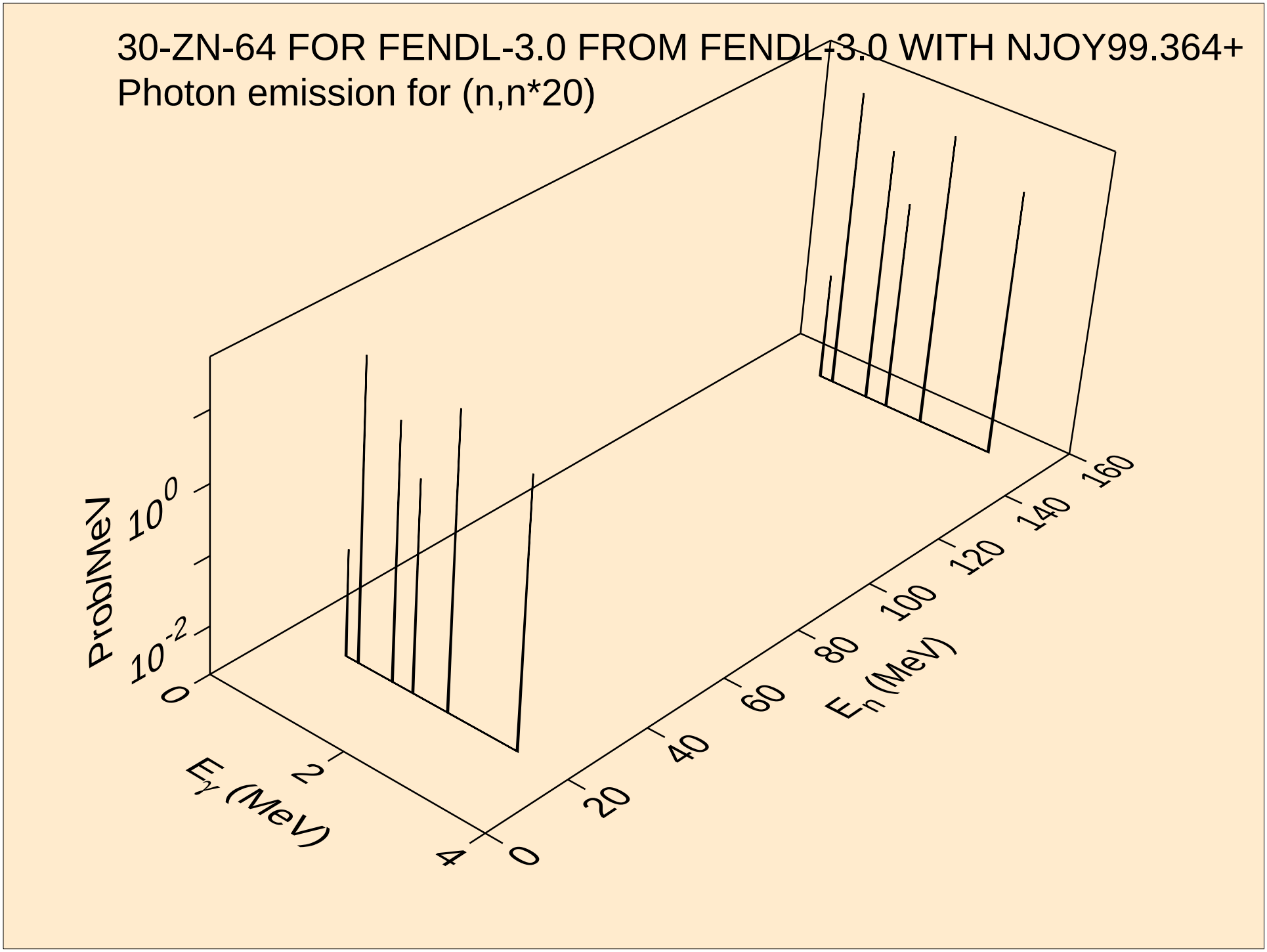

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*15)
Prob/MeV
10^0
10^-2
0
2
4
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

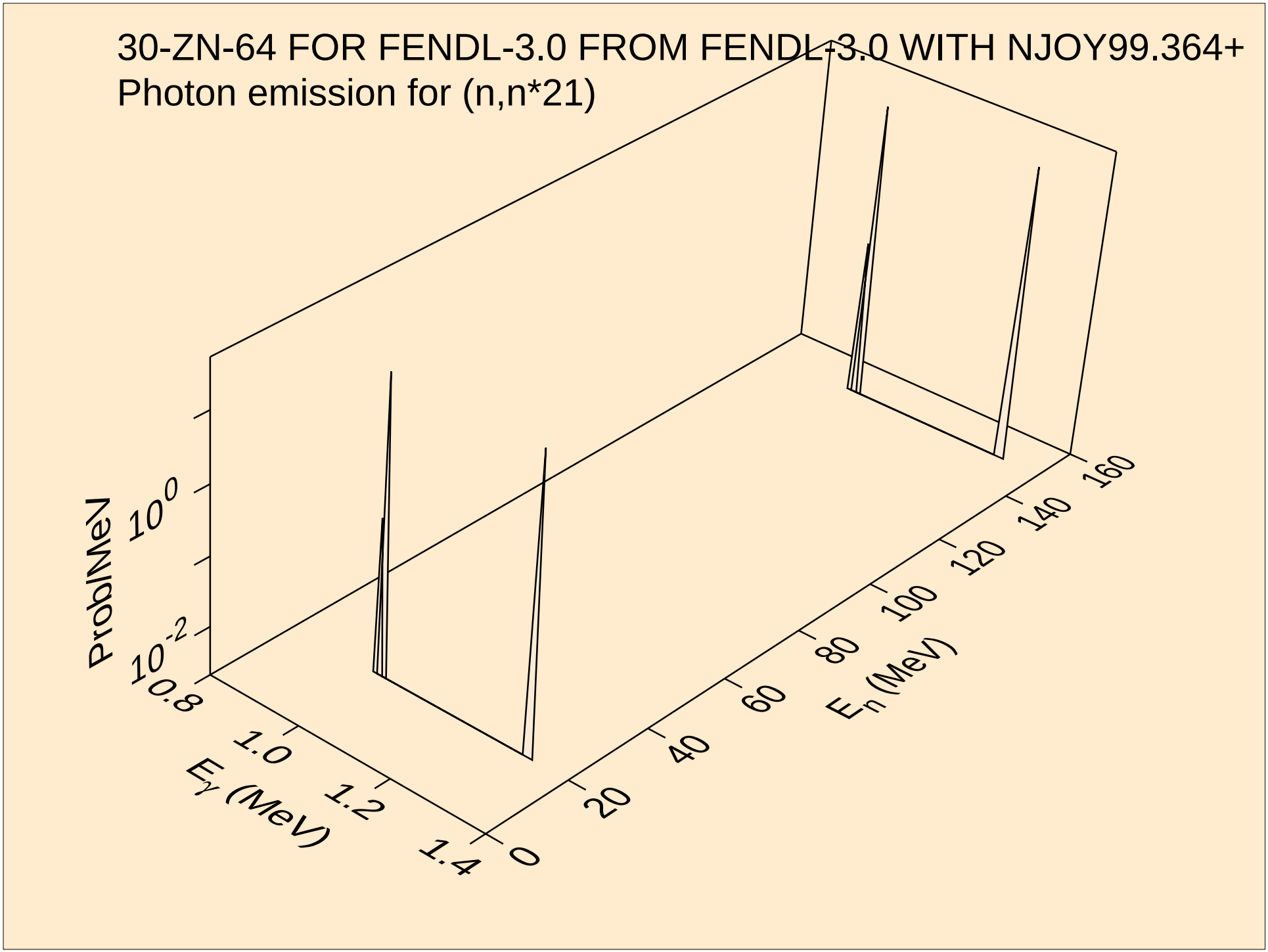

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*16)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

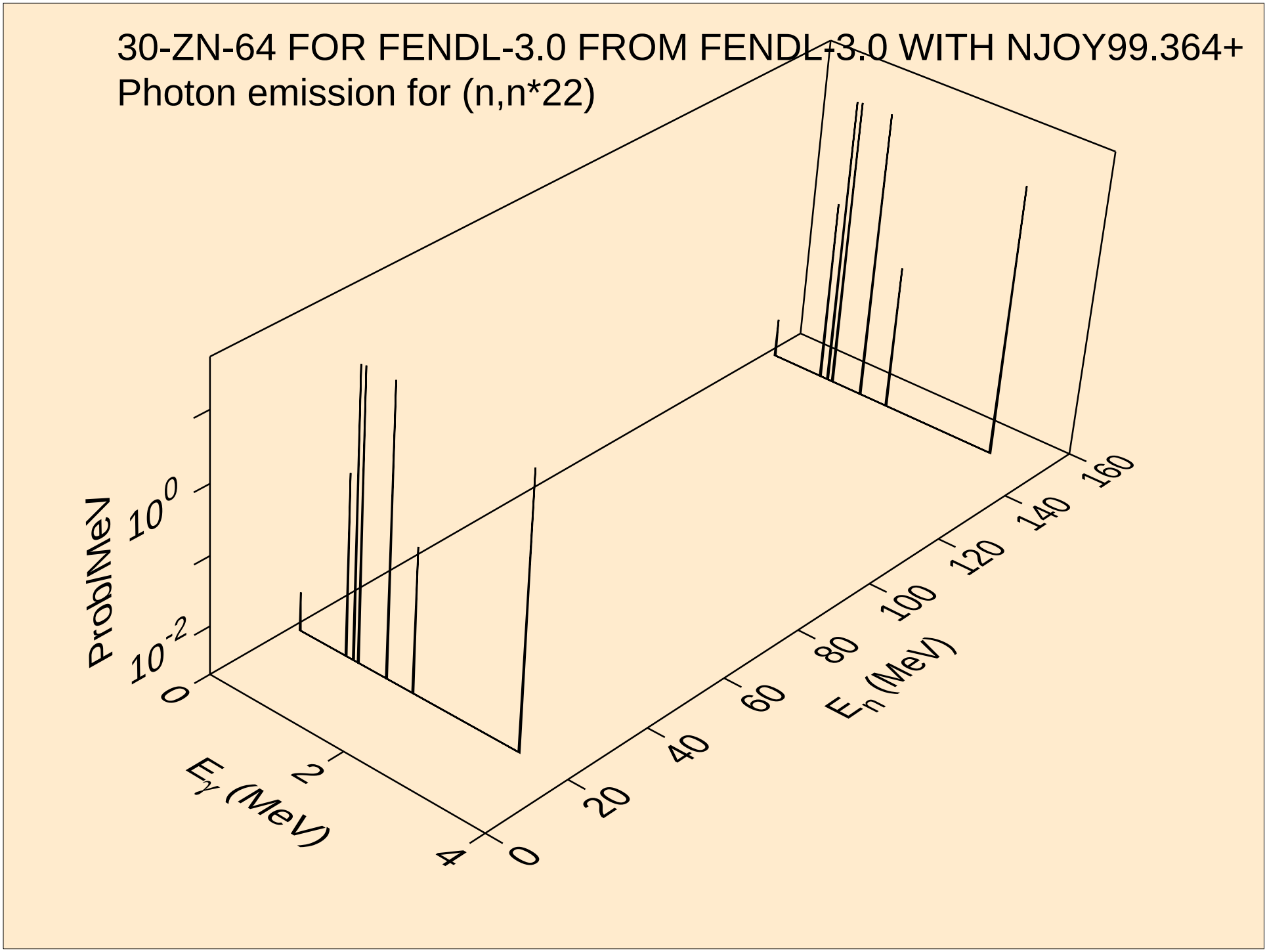

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*17)
Prob/MeV
$10^{0}$
$10^{-2}$
0.5
3.0
3.5
4.0
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

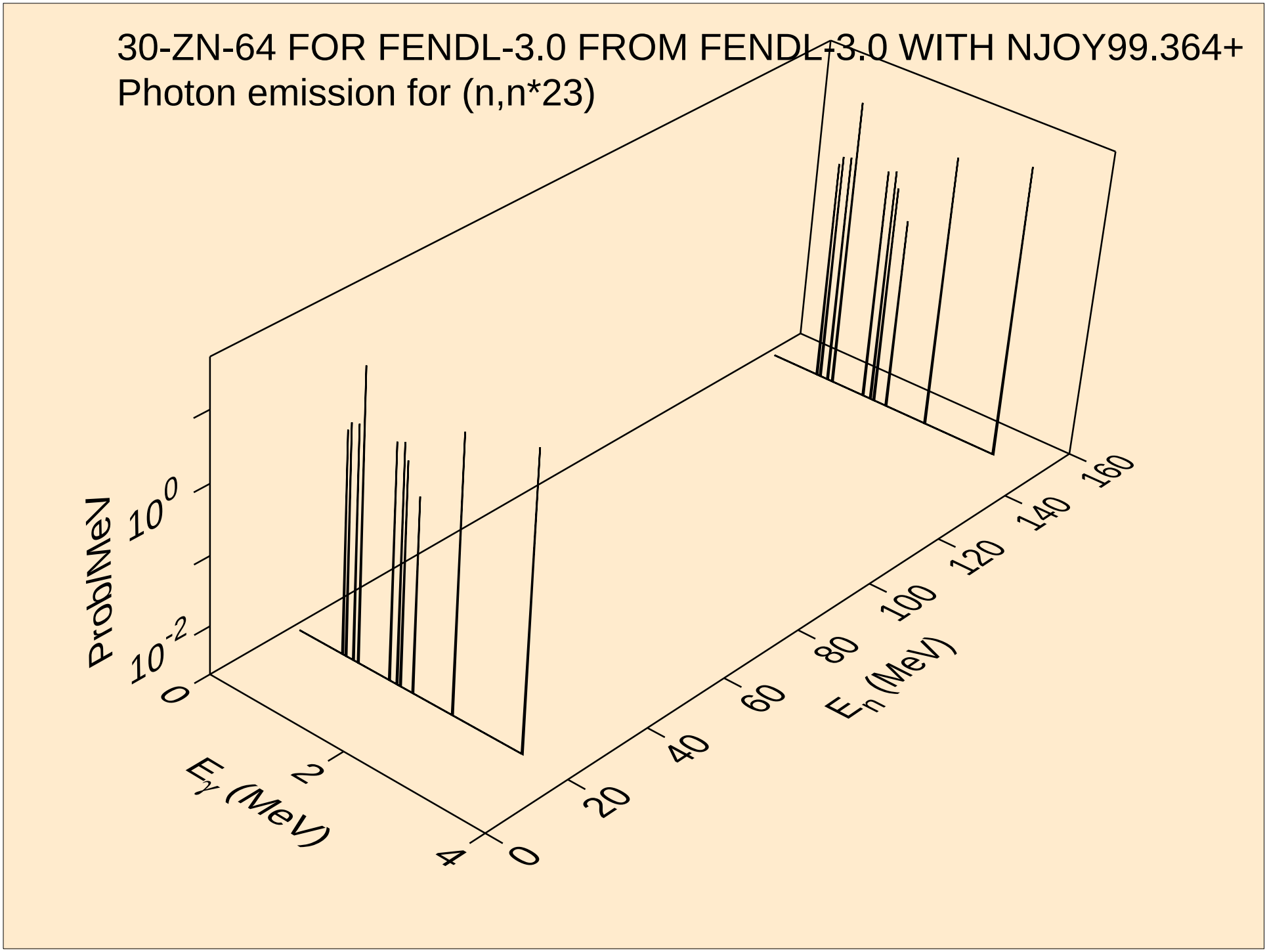

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*18)
Prob/MeV
10^0
10^-2
0
2
4
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

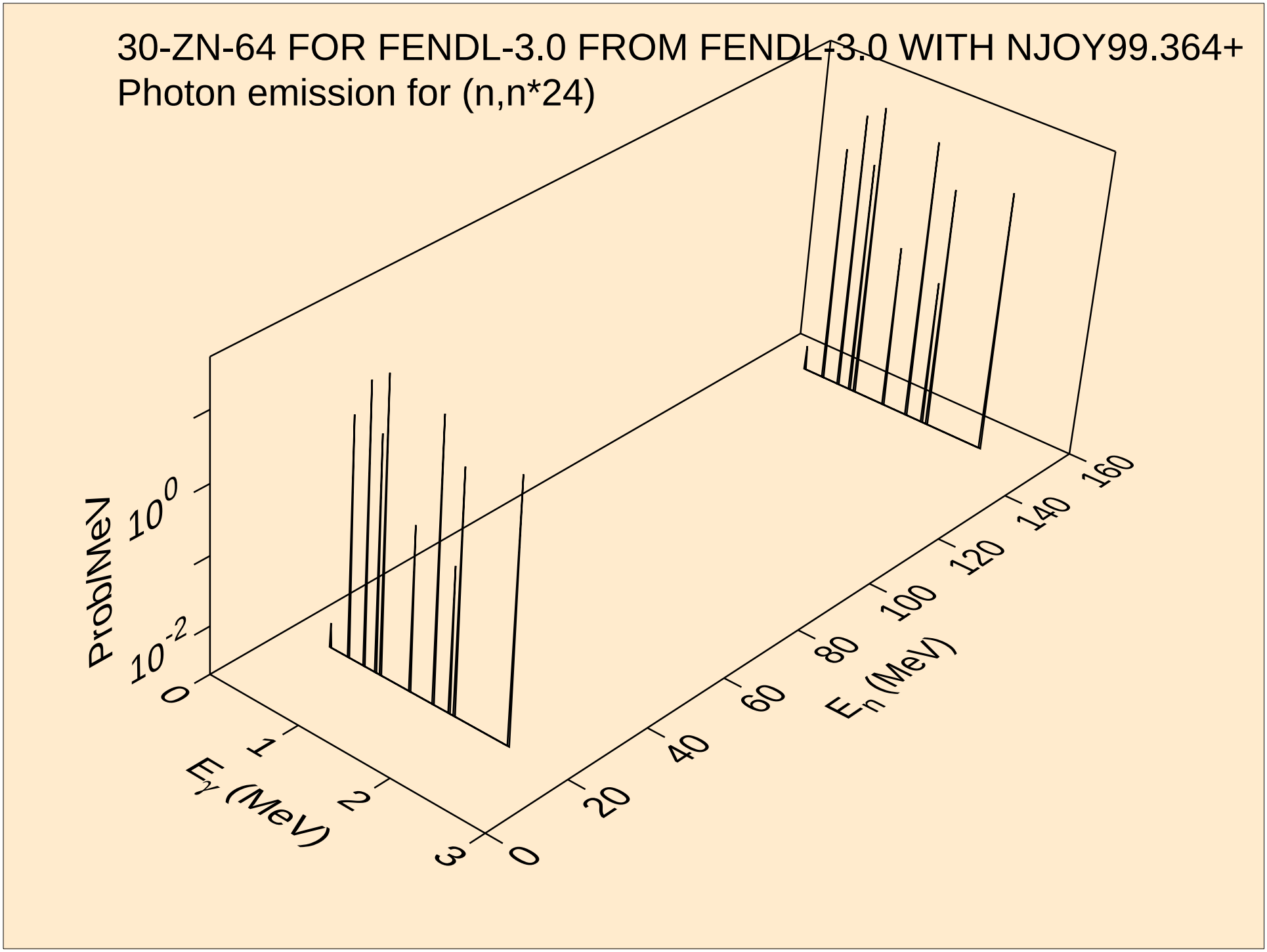

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*19)
Prob/MeV
$10^{0}$
$10^{-2}$
0.5
3.0
3.5
4.0
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

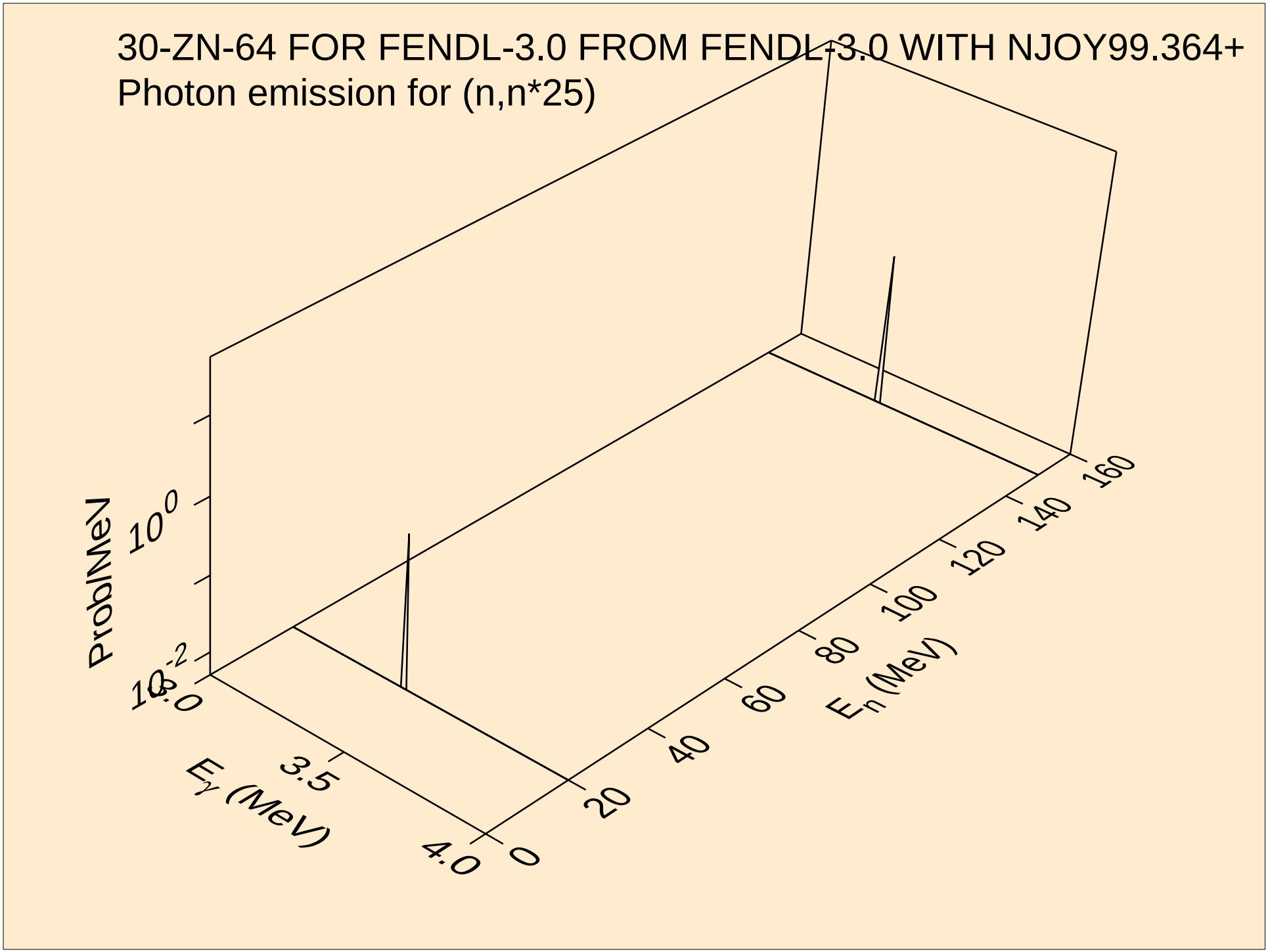

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*20)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
2
4
0
20
40
60
80
100
120
140
160
E_n (MeV)

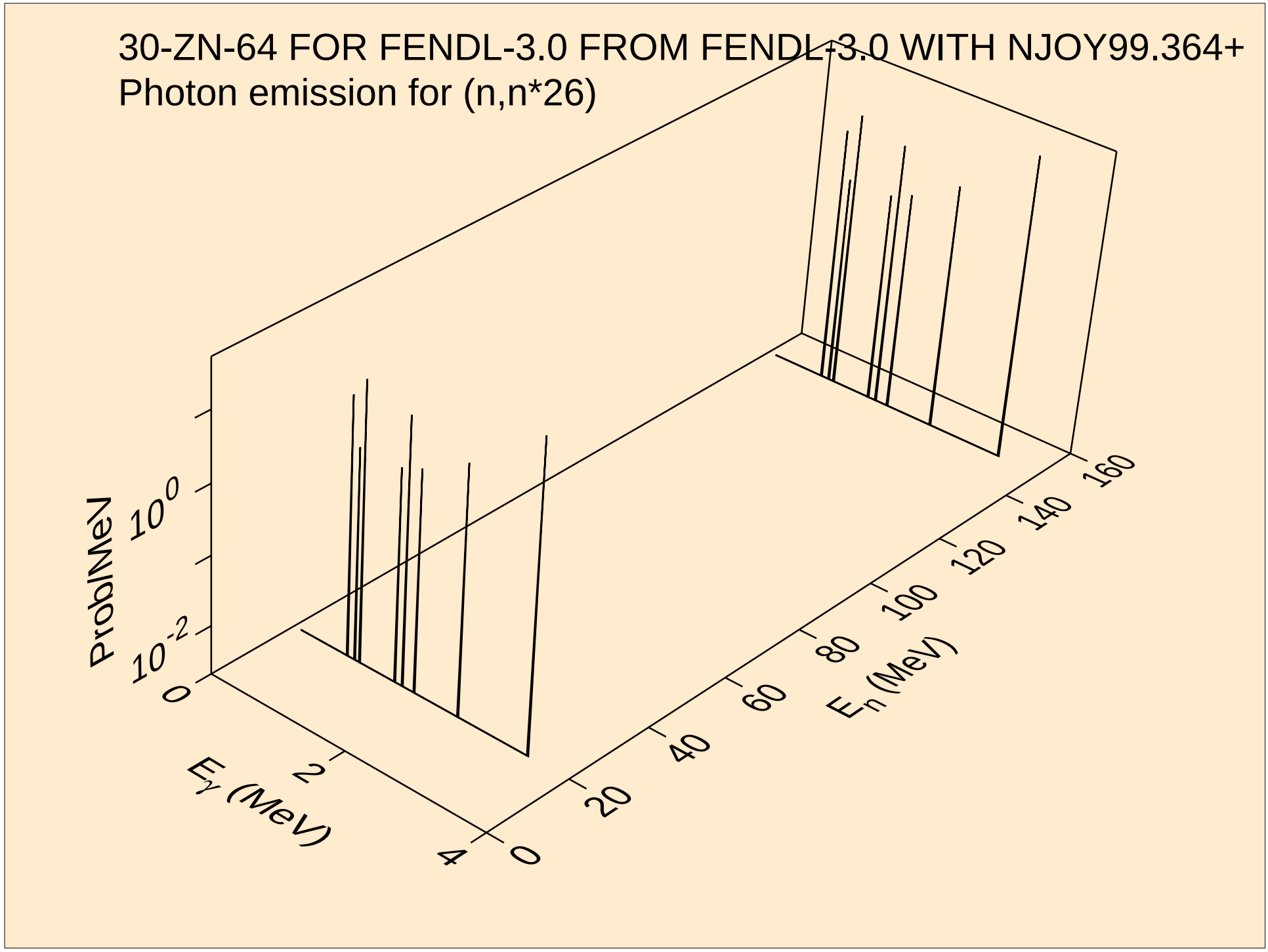

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*21)
Prob/MeV
10^0
10^-2
0.8
1.0
1.2
1.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

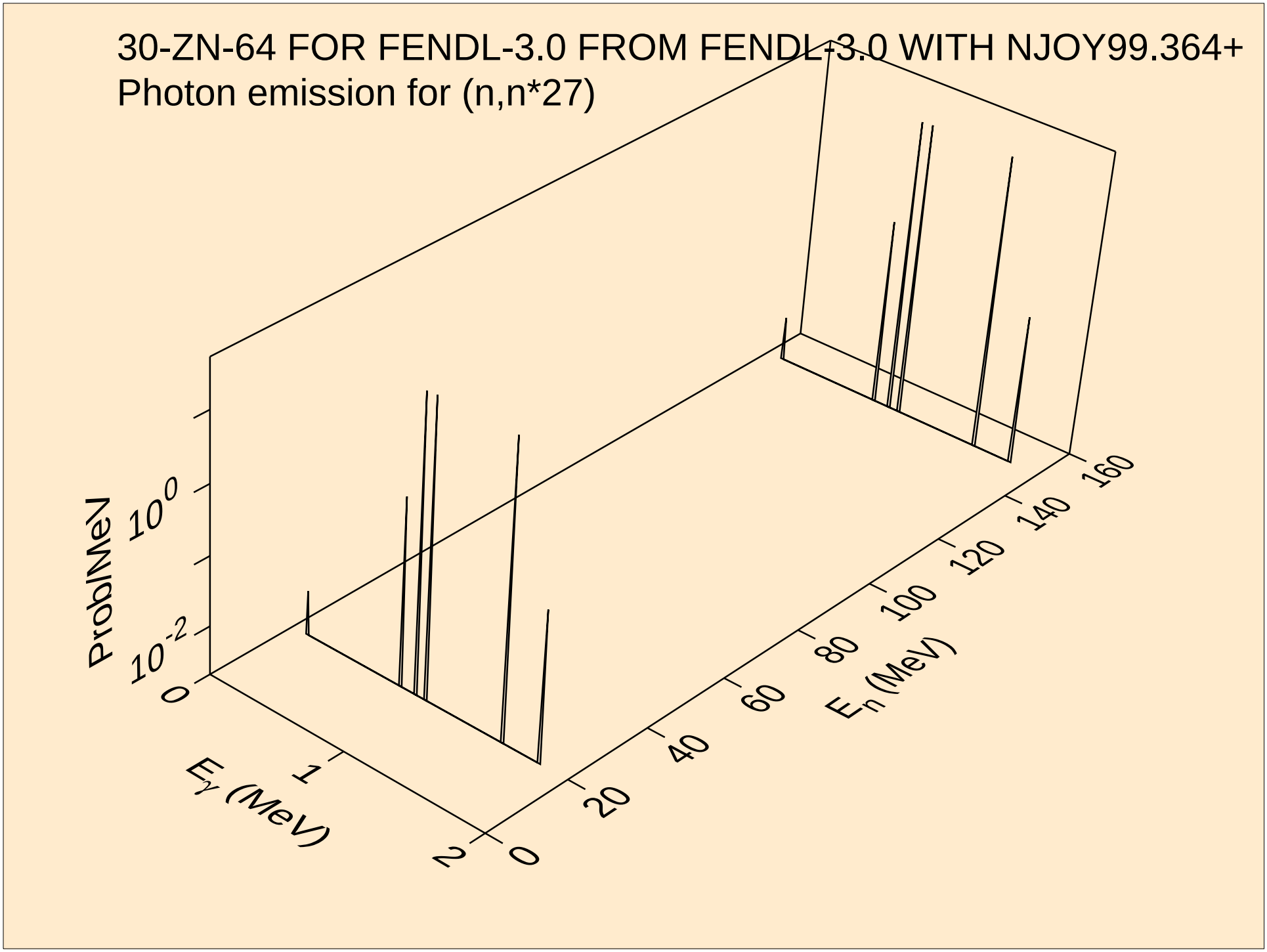

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*22)
Prob/MeV
10^0
10^-2
0
2
4
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

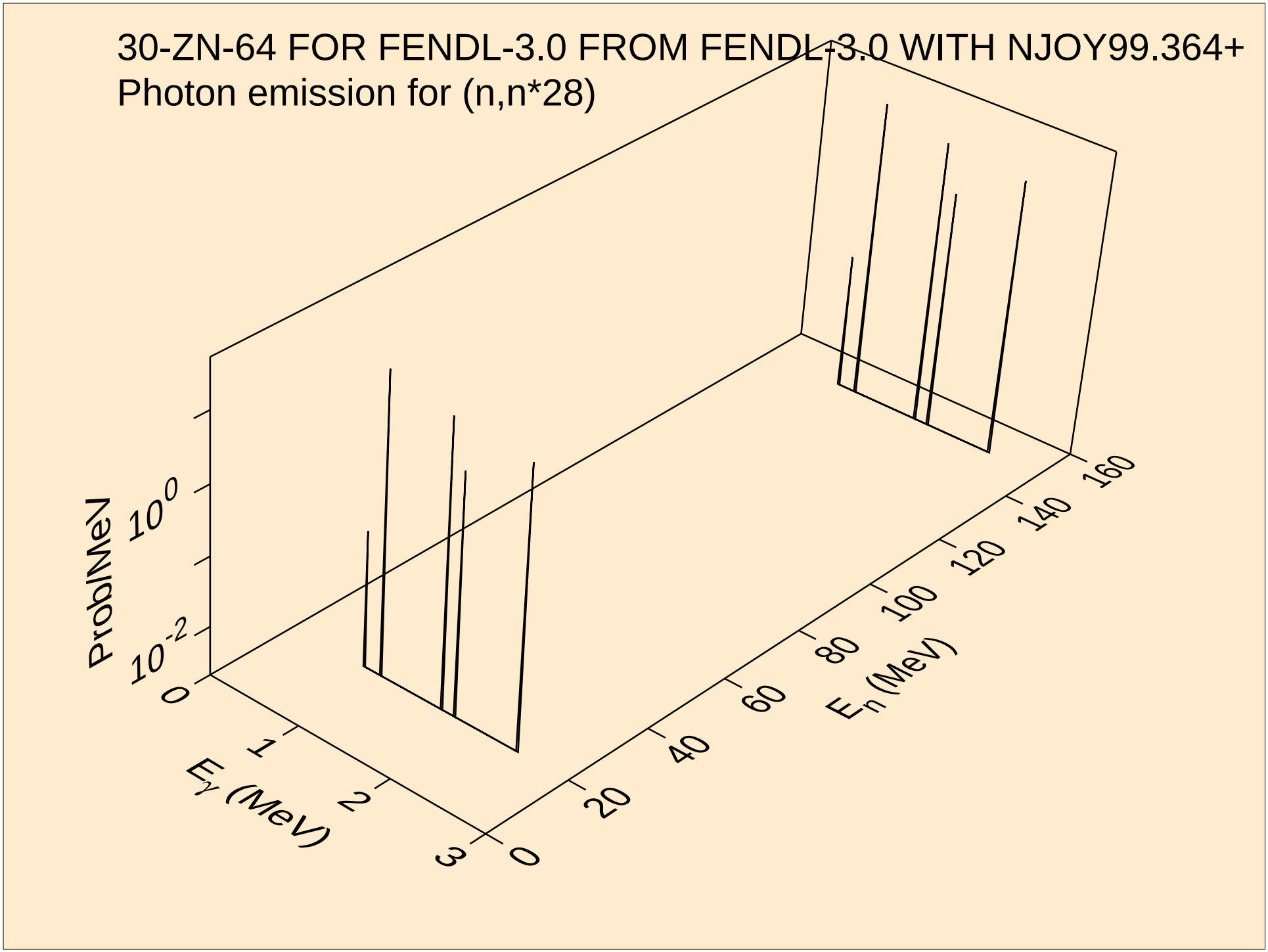

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*23)
Prob/MeV
10^0
10^-2
0
2
4
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

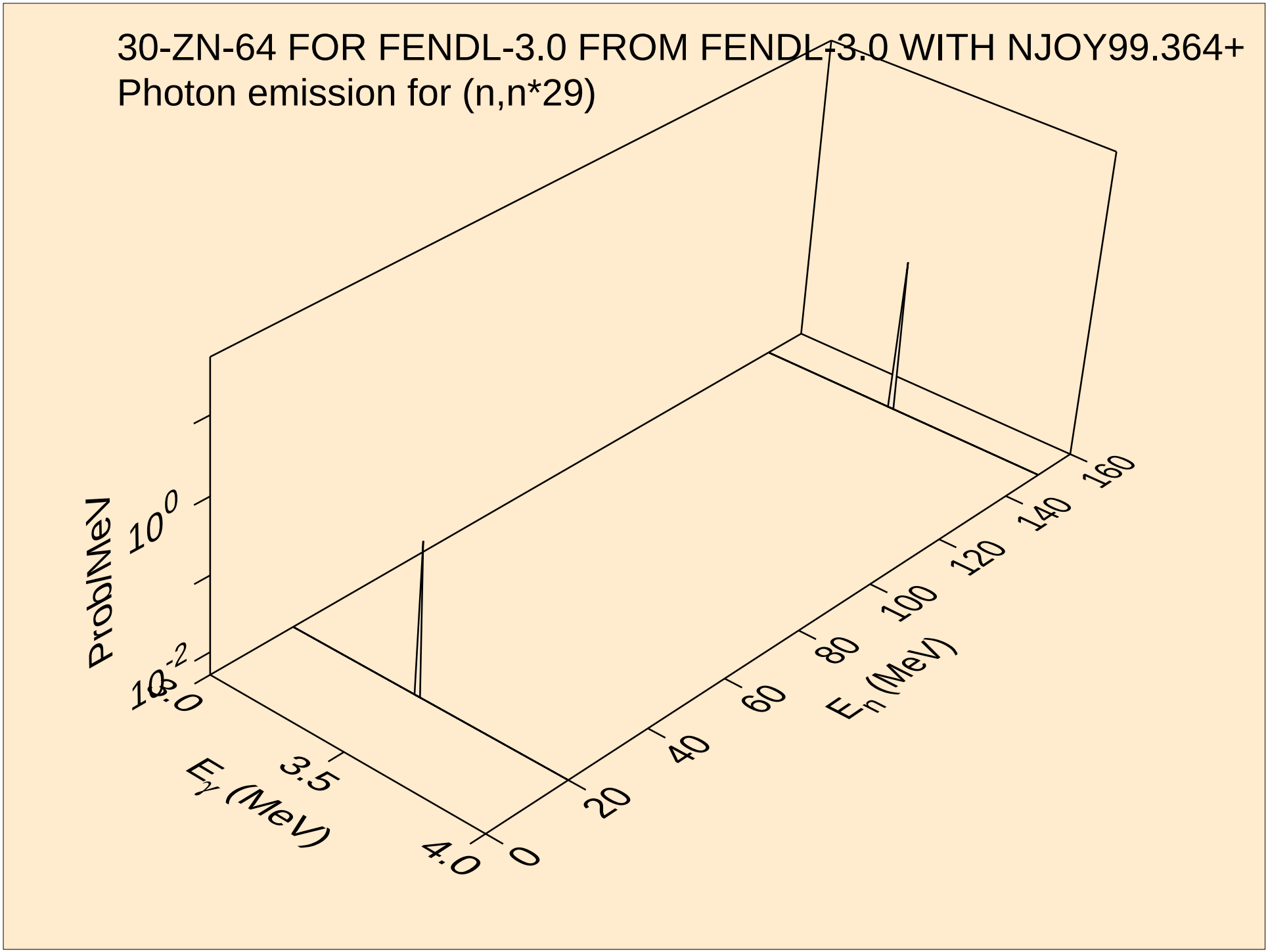

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*24)
Prob/MeV
$10^{0}$
$10^{-2}$
0
1
2
3
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

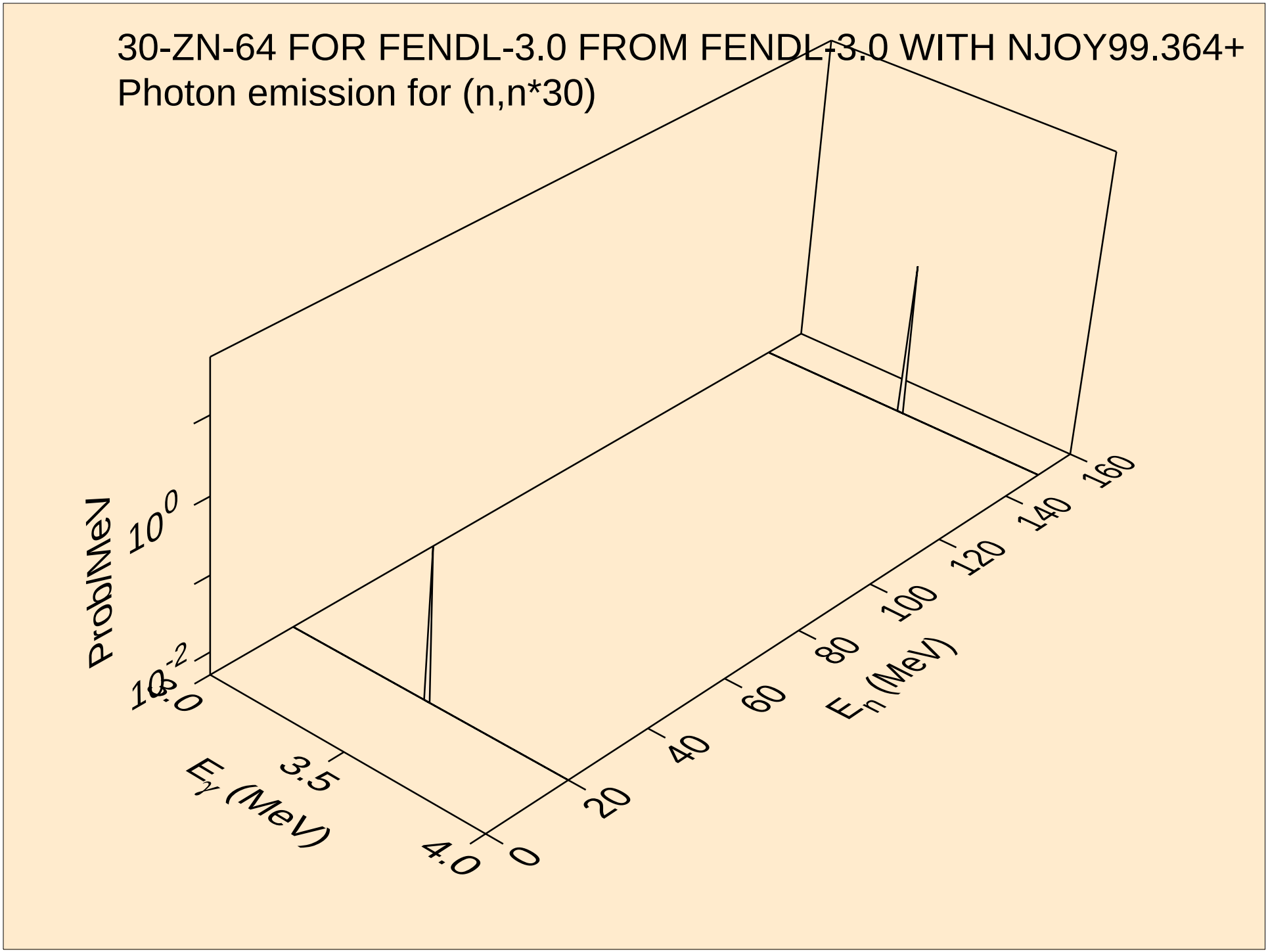

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*25)
Prob/MeV
10^0
10^-2
0.0
3.5
4.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

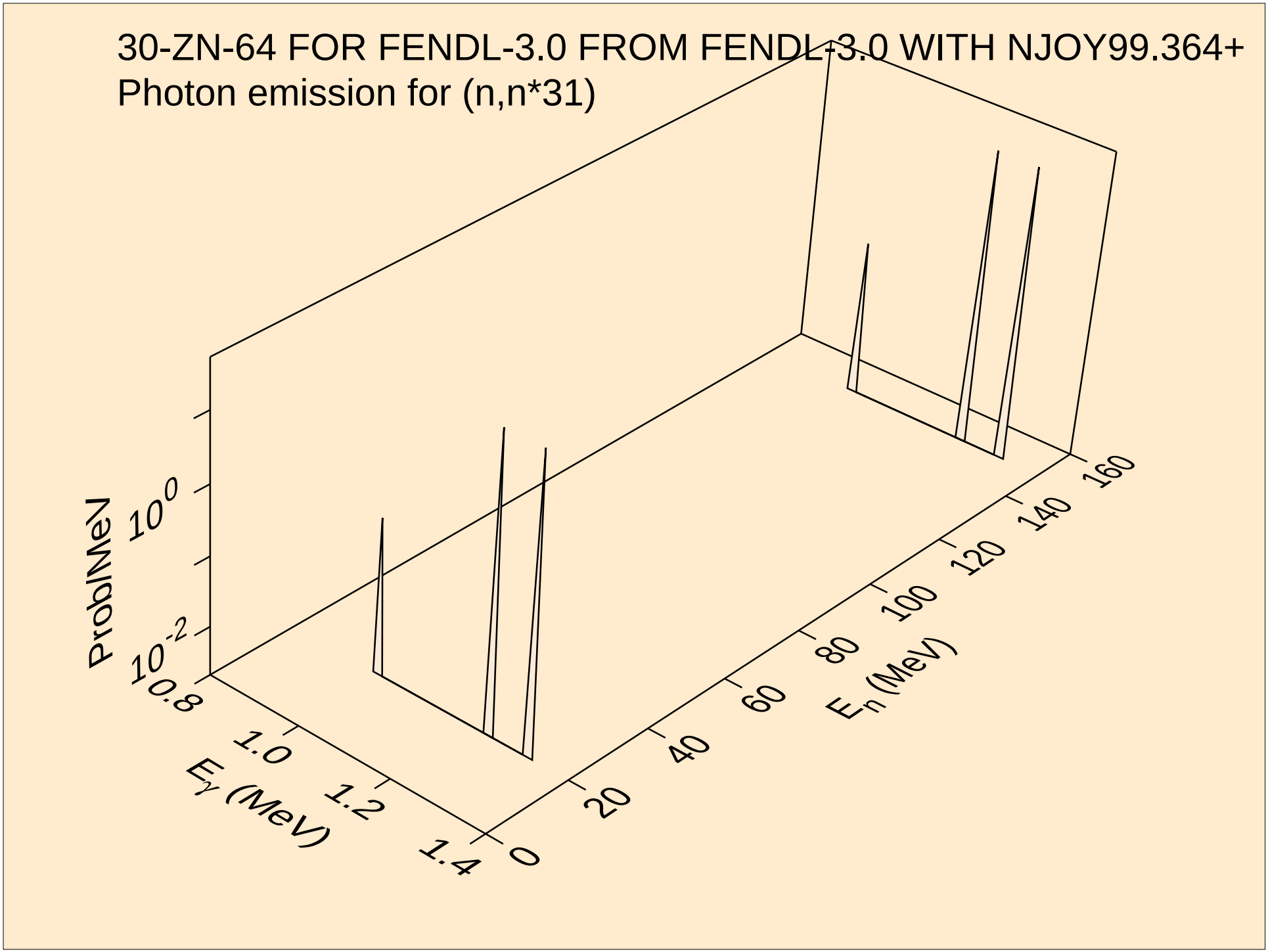

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*26)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

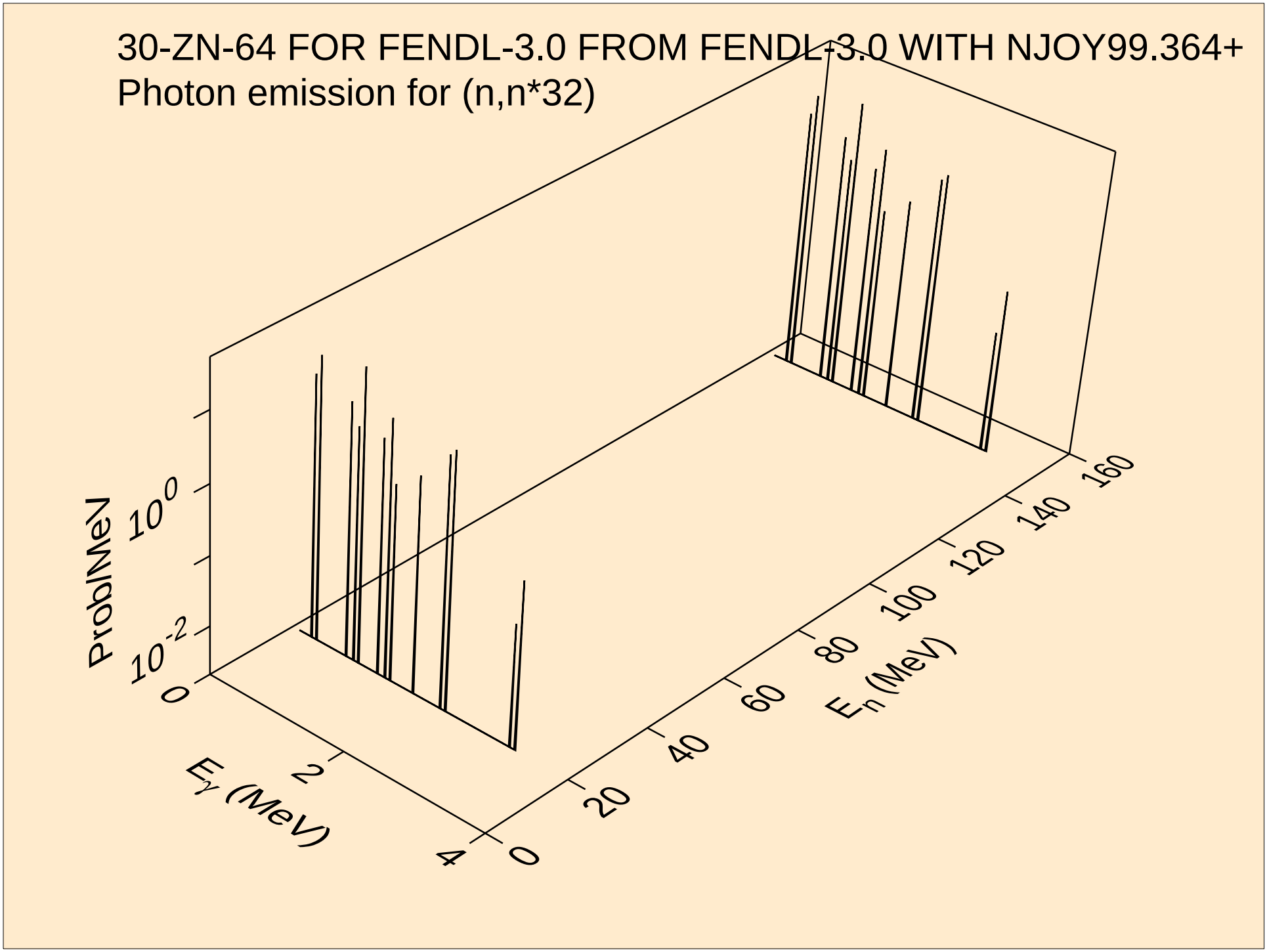

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*27)
Prob/MeV
10^0
10^-2
0
1
2
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

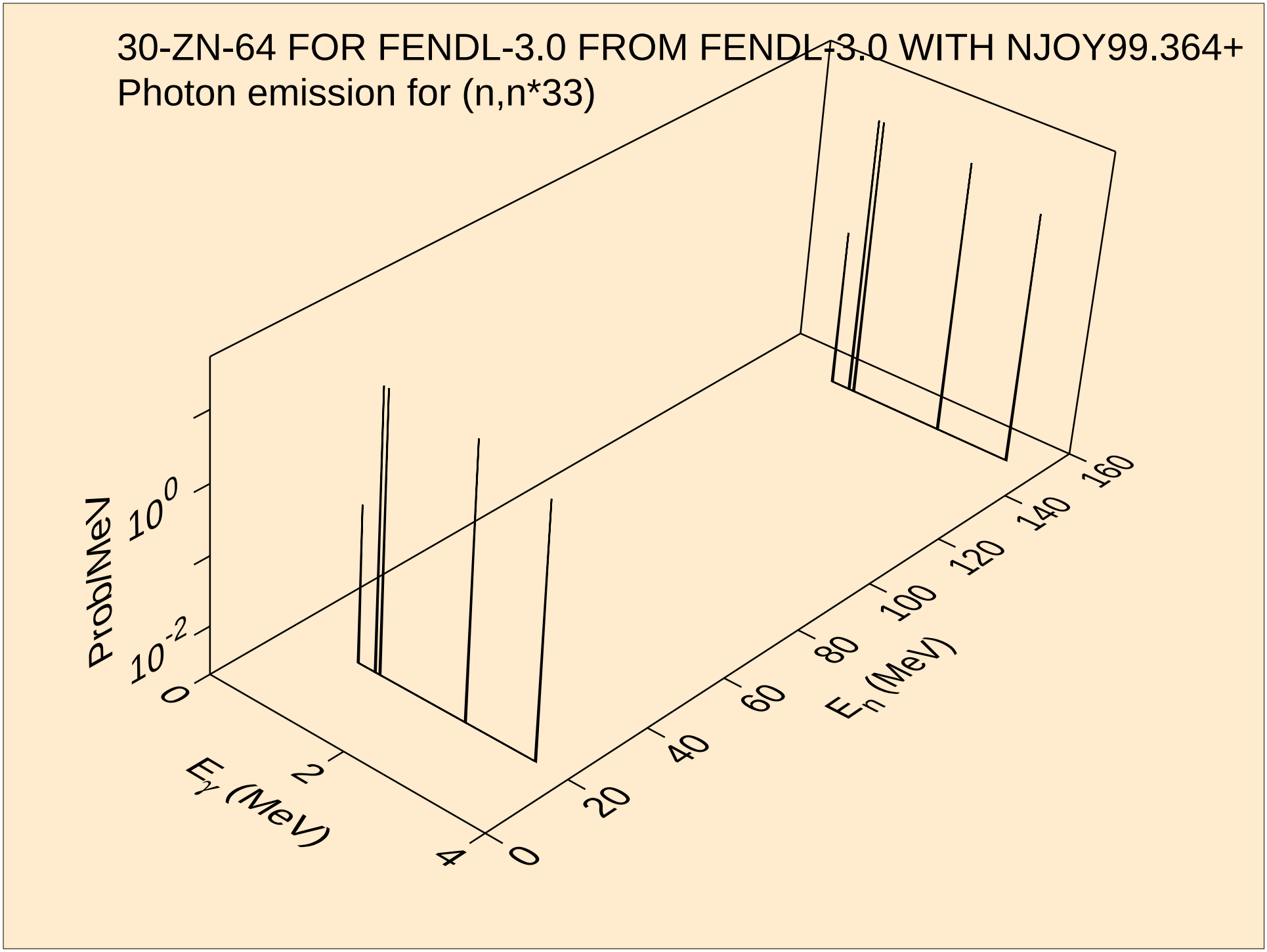

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*28)
Prob/MeV
10^0
10^-2
0
1
2
3
Eγ (MeV)
0
20
40
60
80
100
120
140
160
En (MeV)

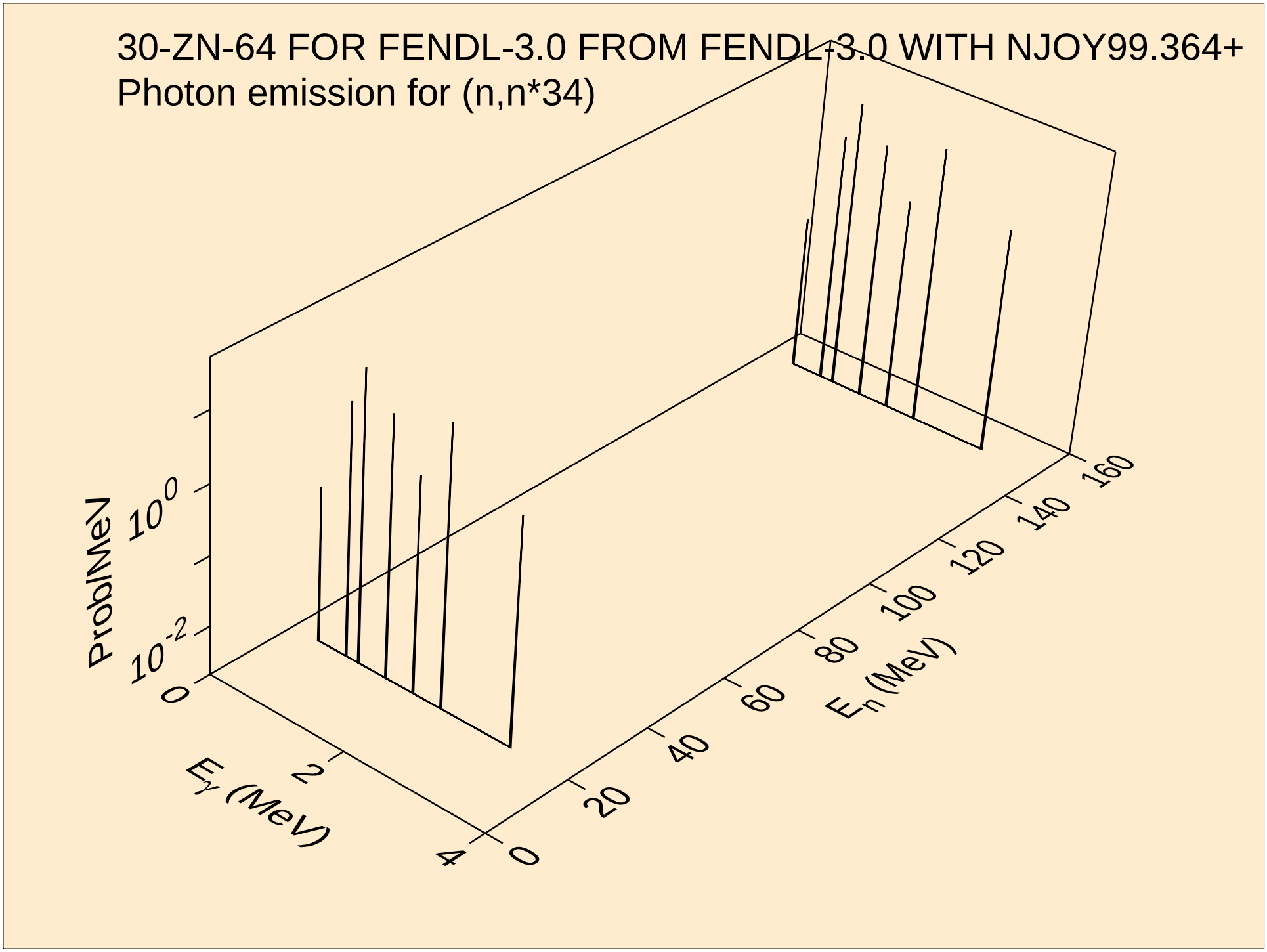

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*29)
Prob/MeV
$10^{0}$
$10^{-2}$
0.0
3.5
4.0
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

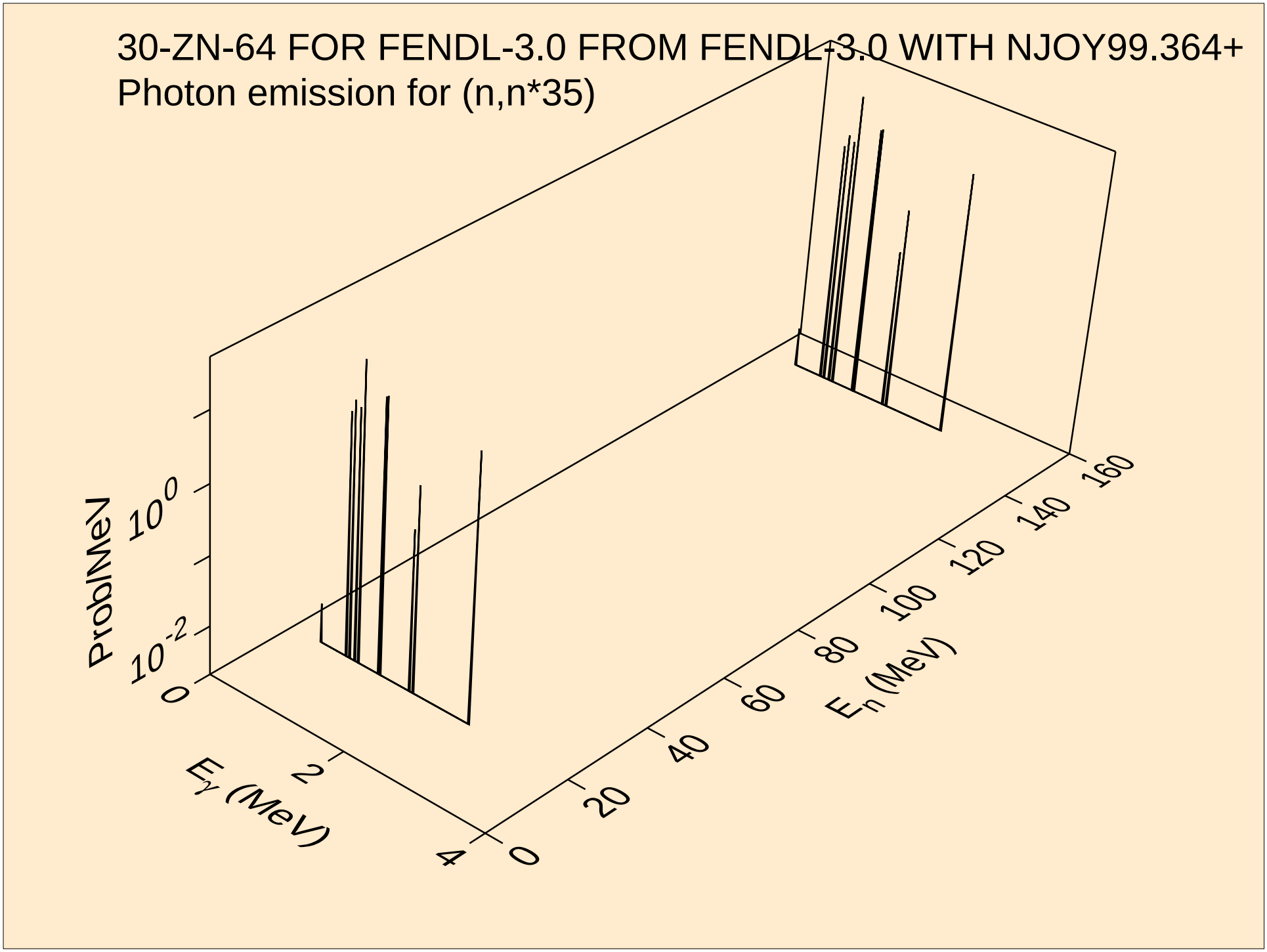

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*30)
Prob/MeV
10^0
10^-2
0.0
3.5
4.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

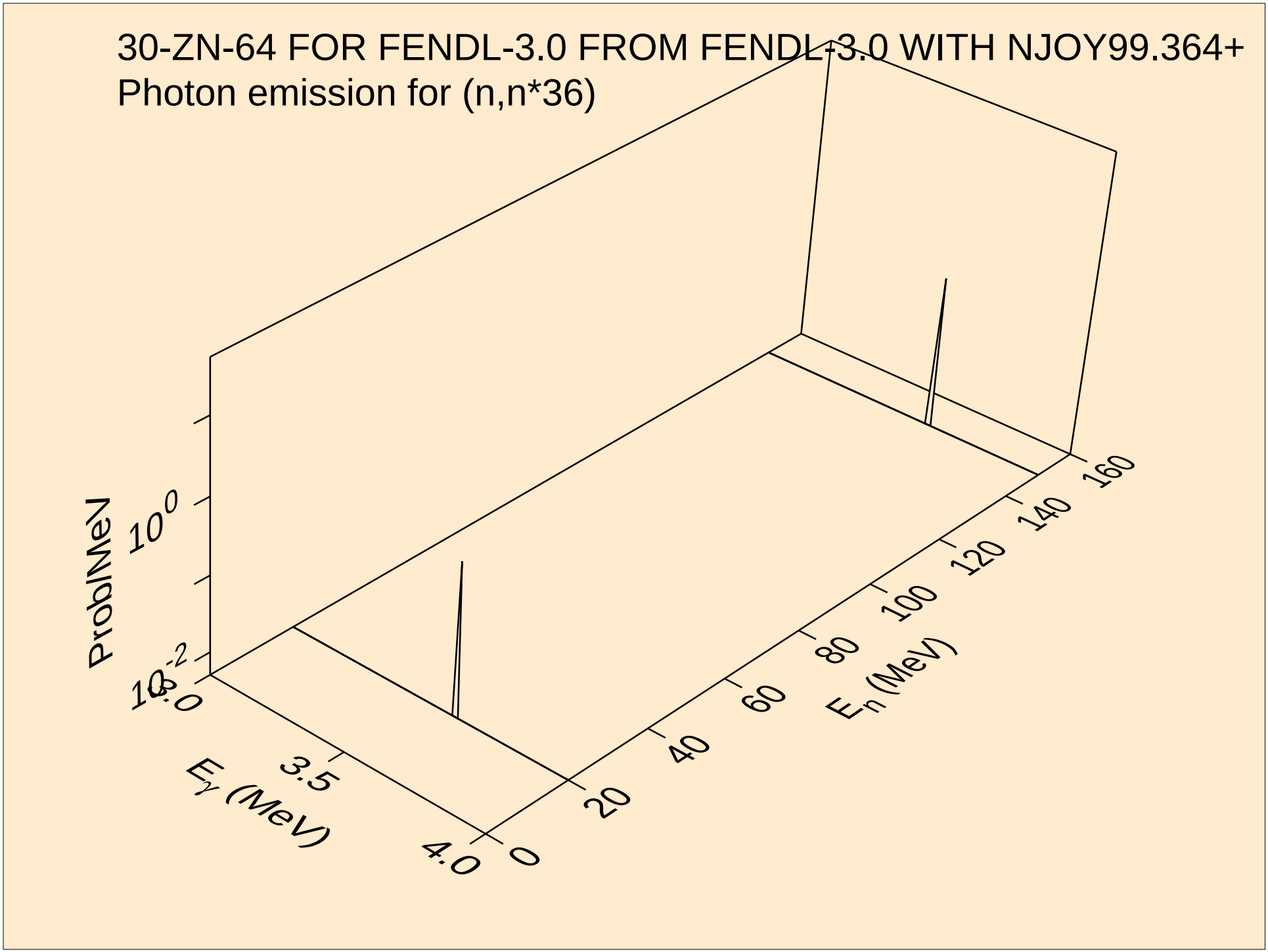

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*31)
Prob/MeV
10^0
10^-2
0.8
1.0
1.2
1.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

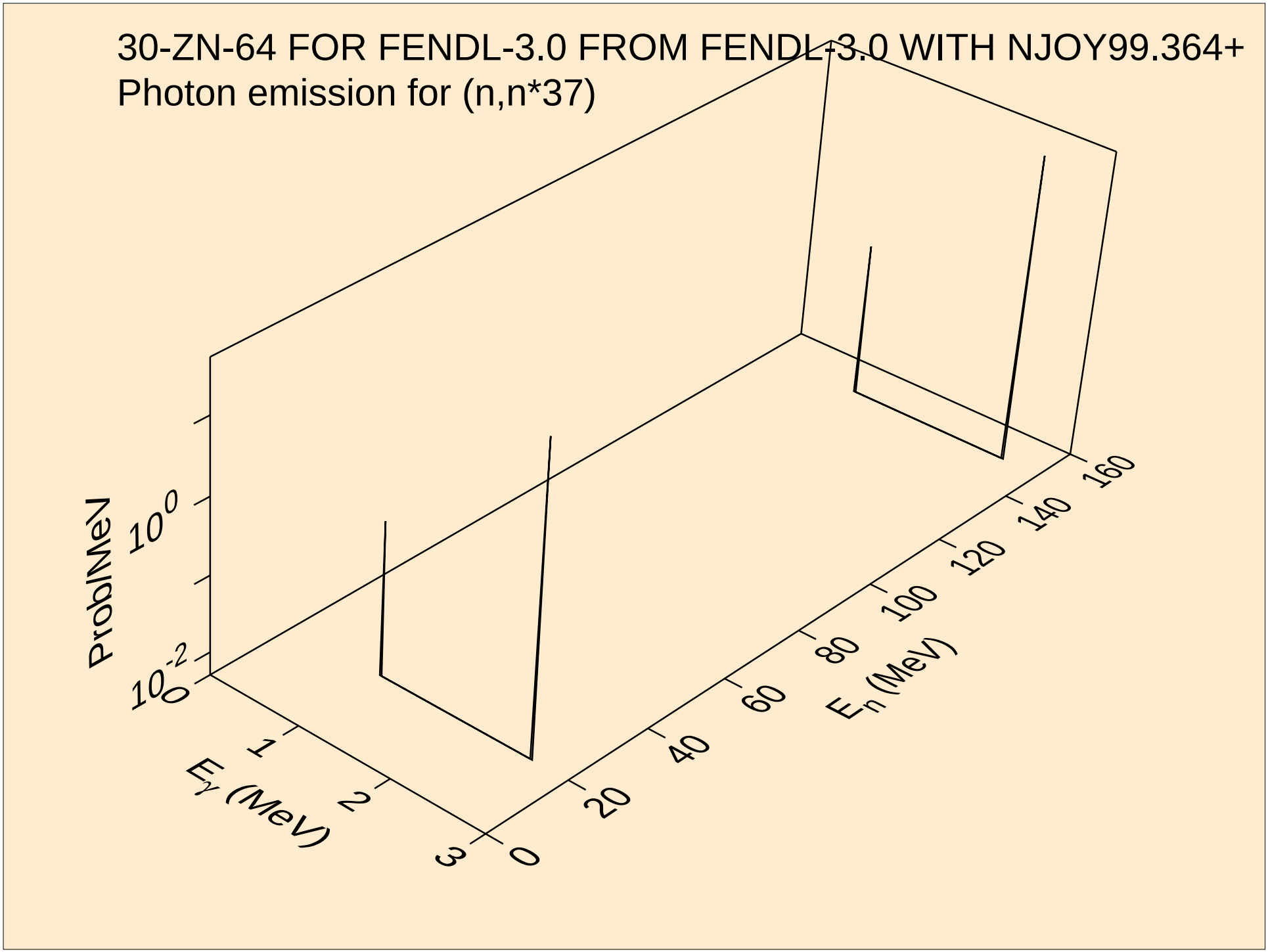

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*32)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

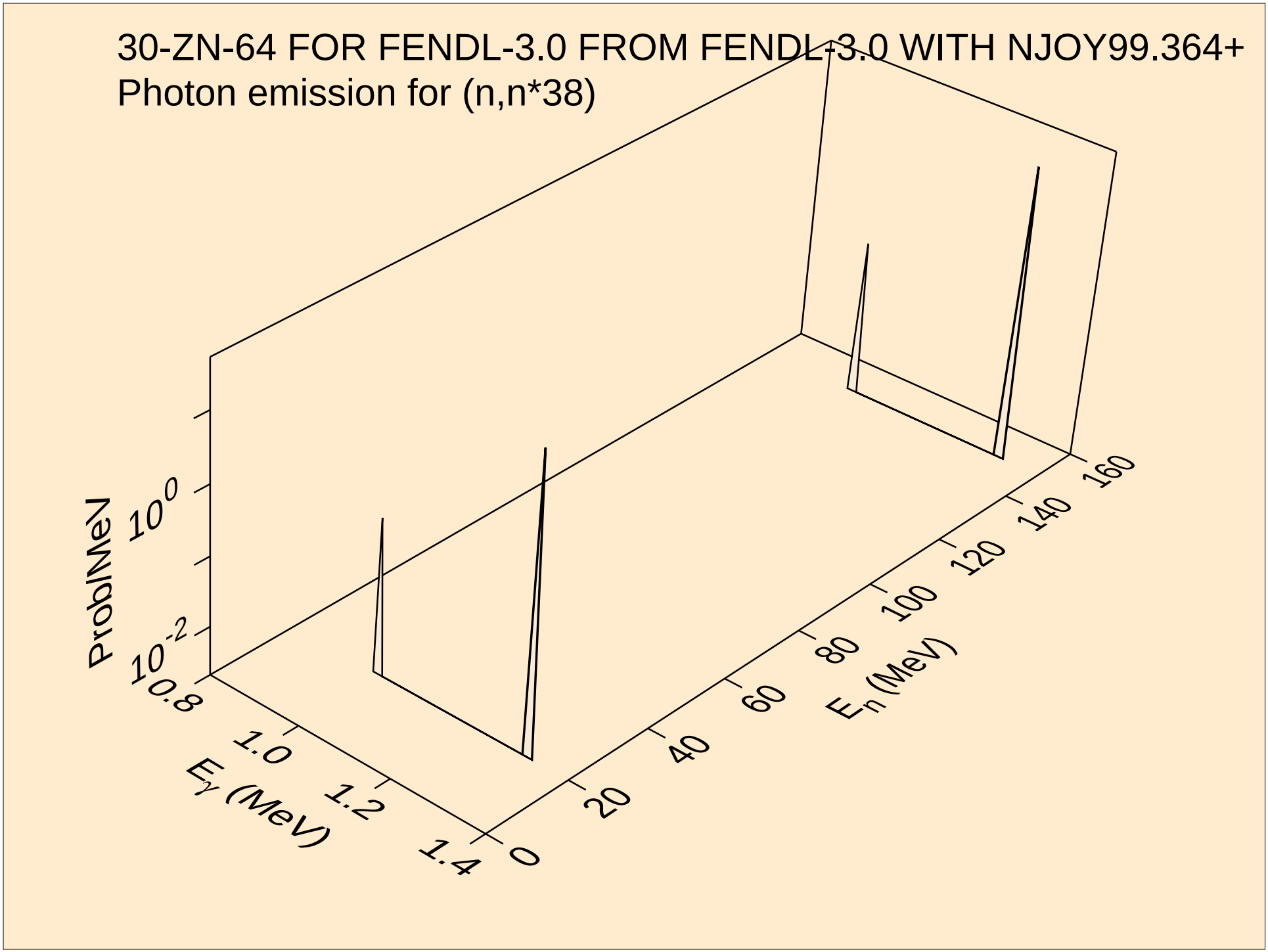

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*33)
Prob/MeV
10^0
10^-2
0
2
4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

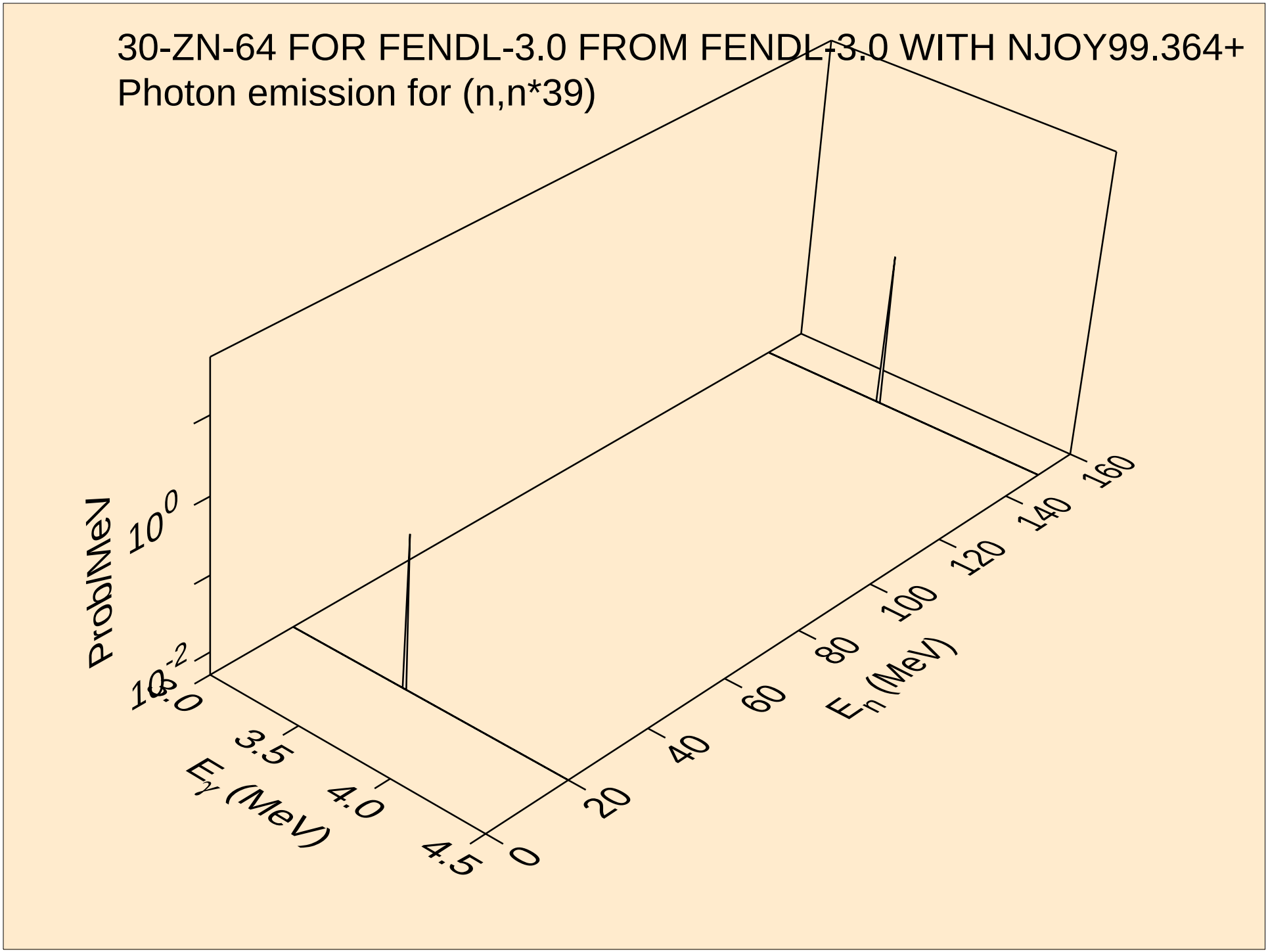

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*34)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

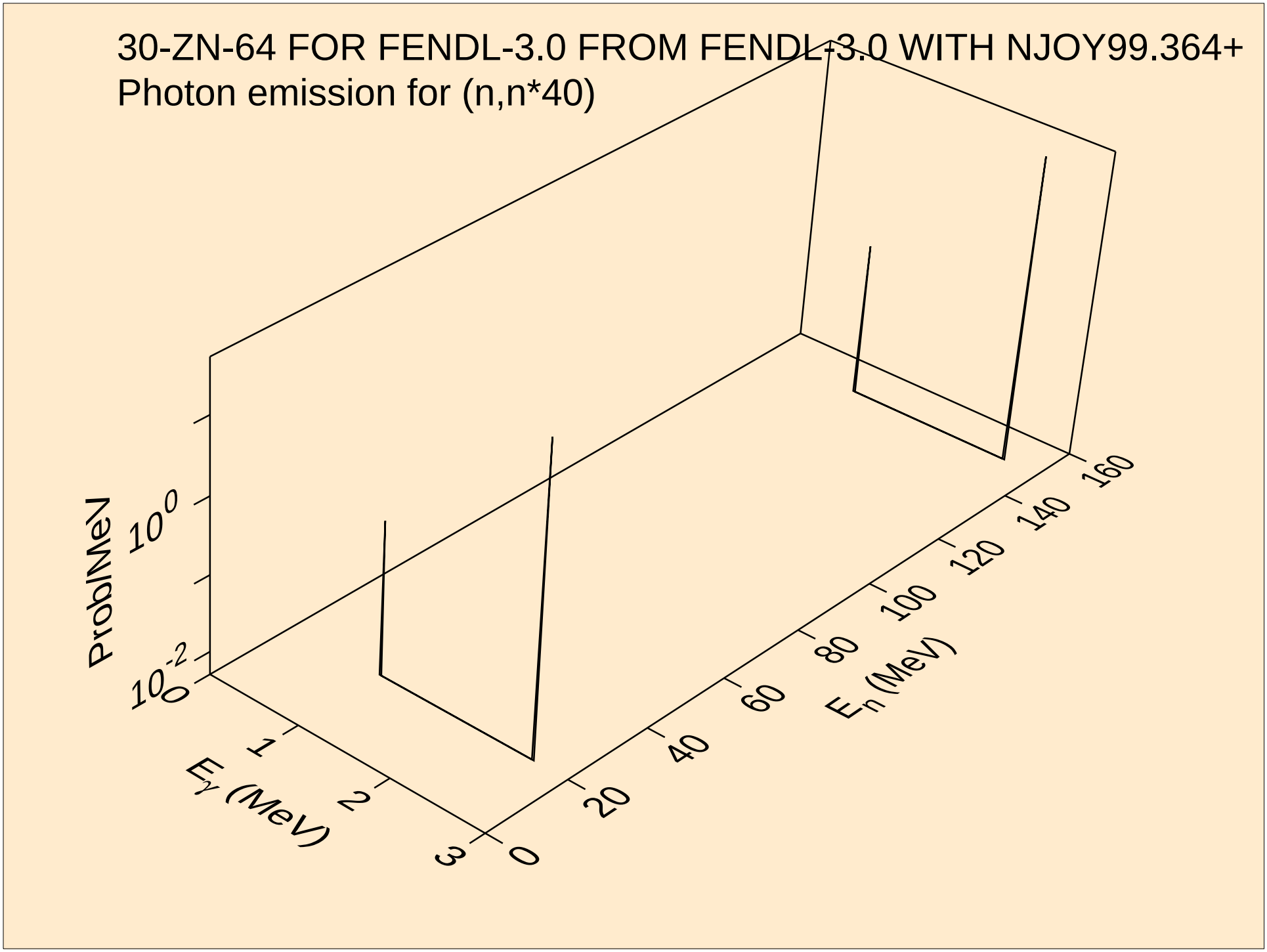

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*35)
Prob/MeV
$10^{0}$
$10^{-2}$
0
2
4
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

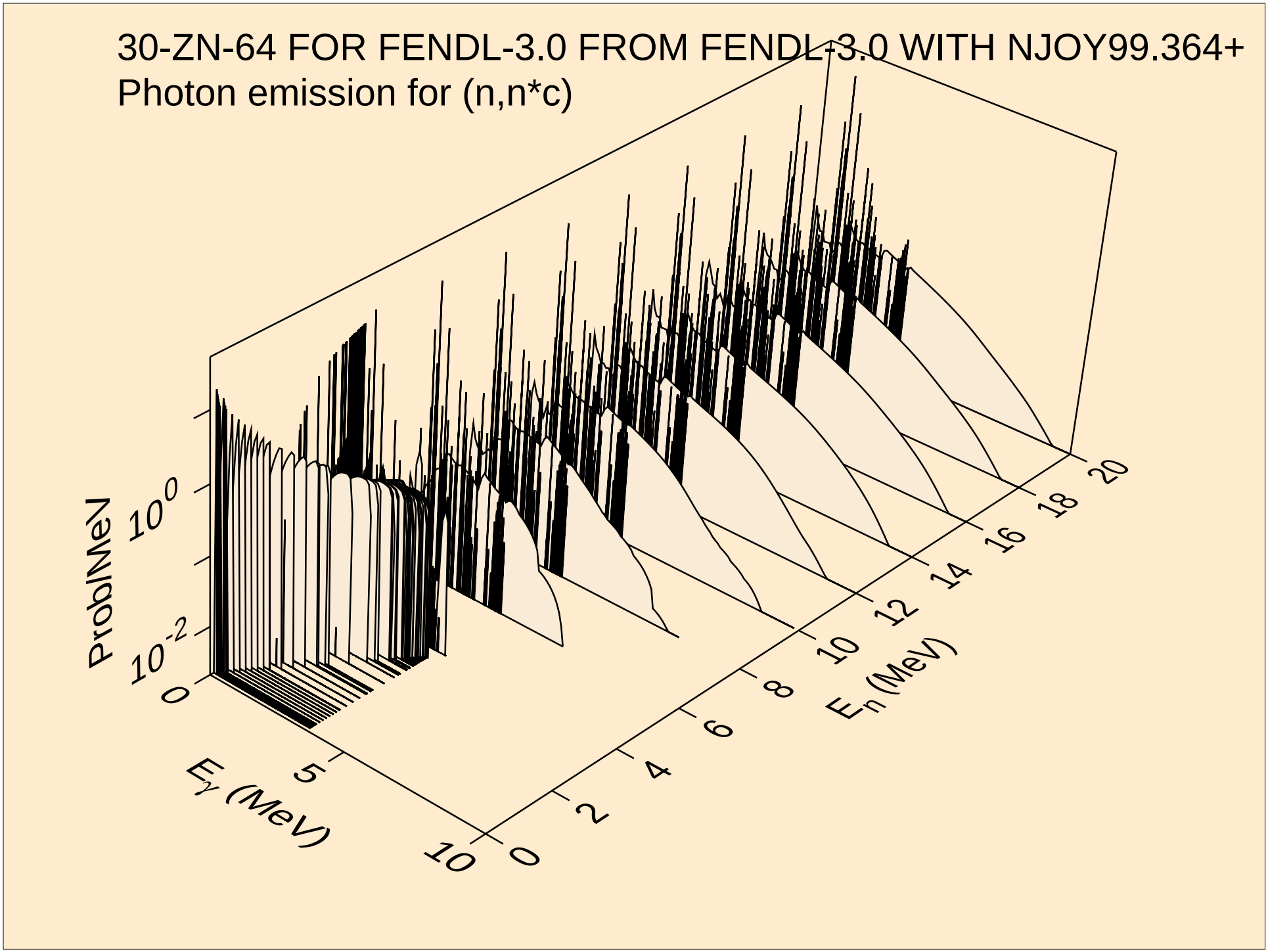

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*36)
Prob/MeV
10^0
10^-2
0.0
3.5
4.0
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

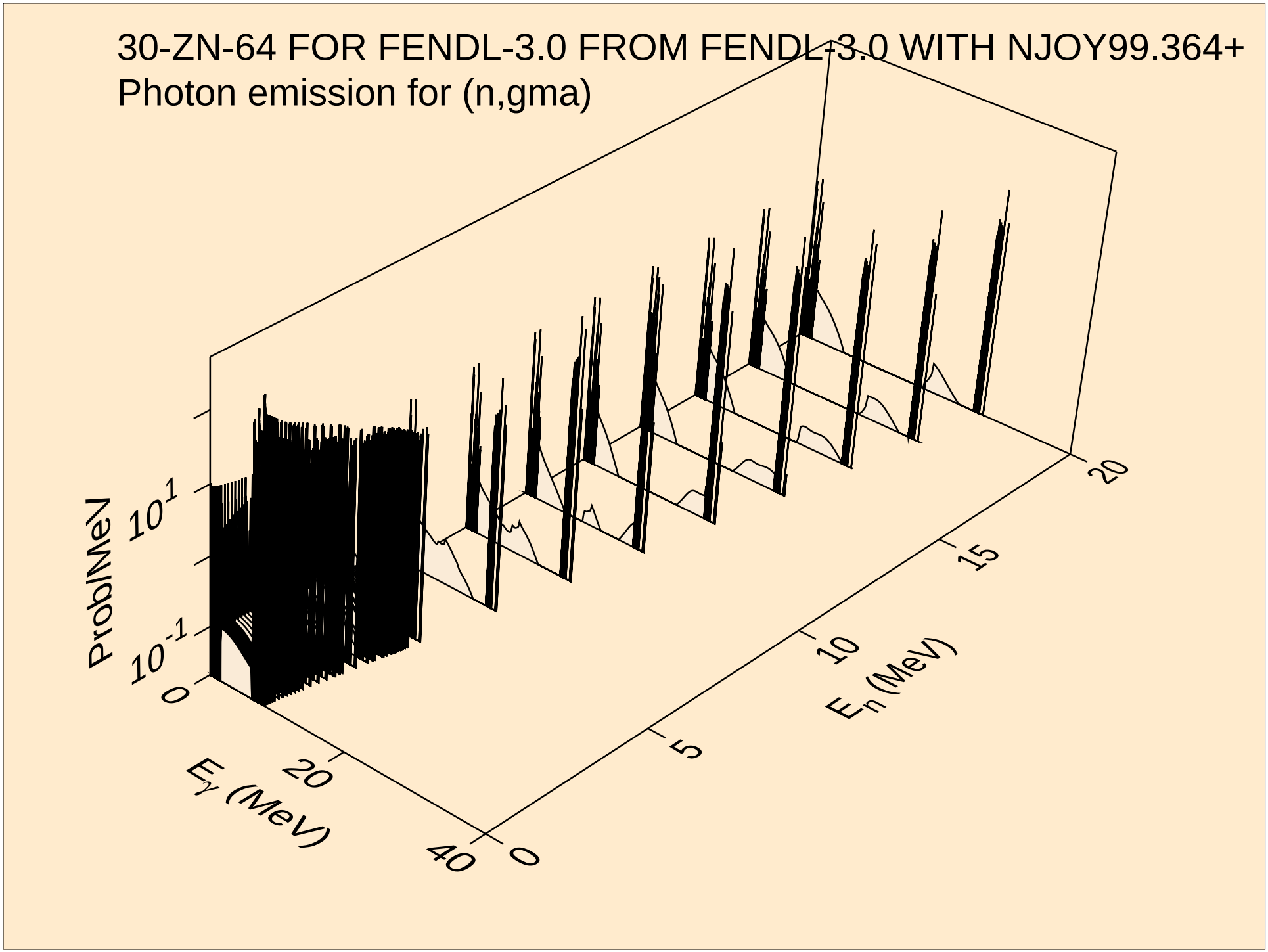

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*37)
Prob/MeV
$10^{0}$
$10^{-2}$
0
1
2
3
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

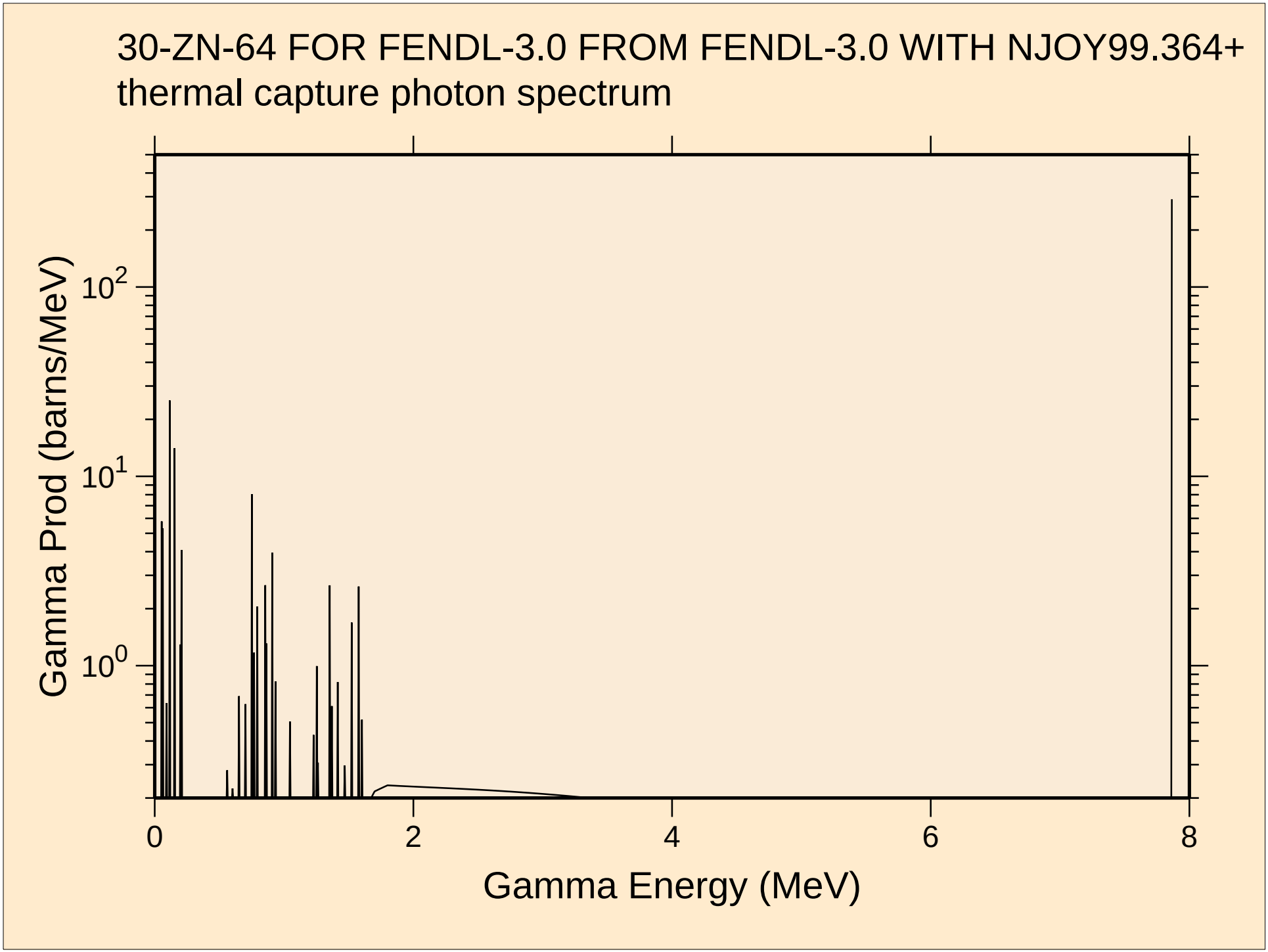

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*38)
Prob/MeV
10^0
10^-2
0.8
1.0
1.2
1.4
E_γ (MeV)
0
20
40
60
80
100
120
140
160
E_n (MeV)

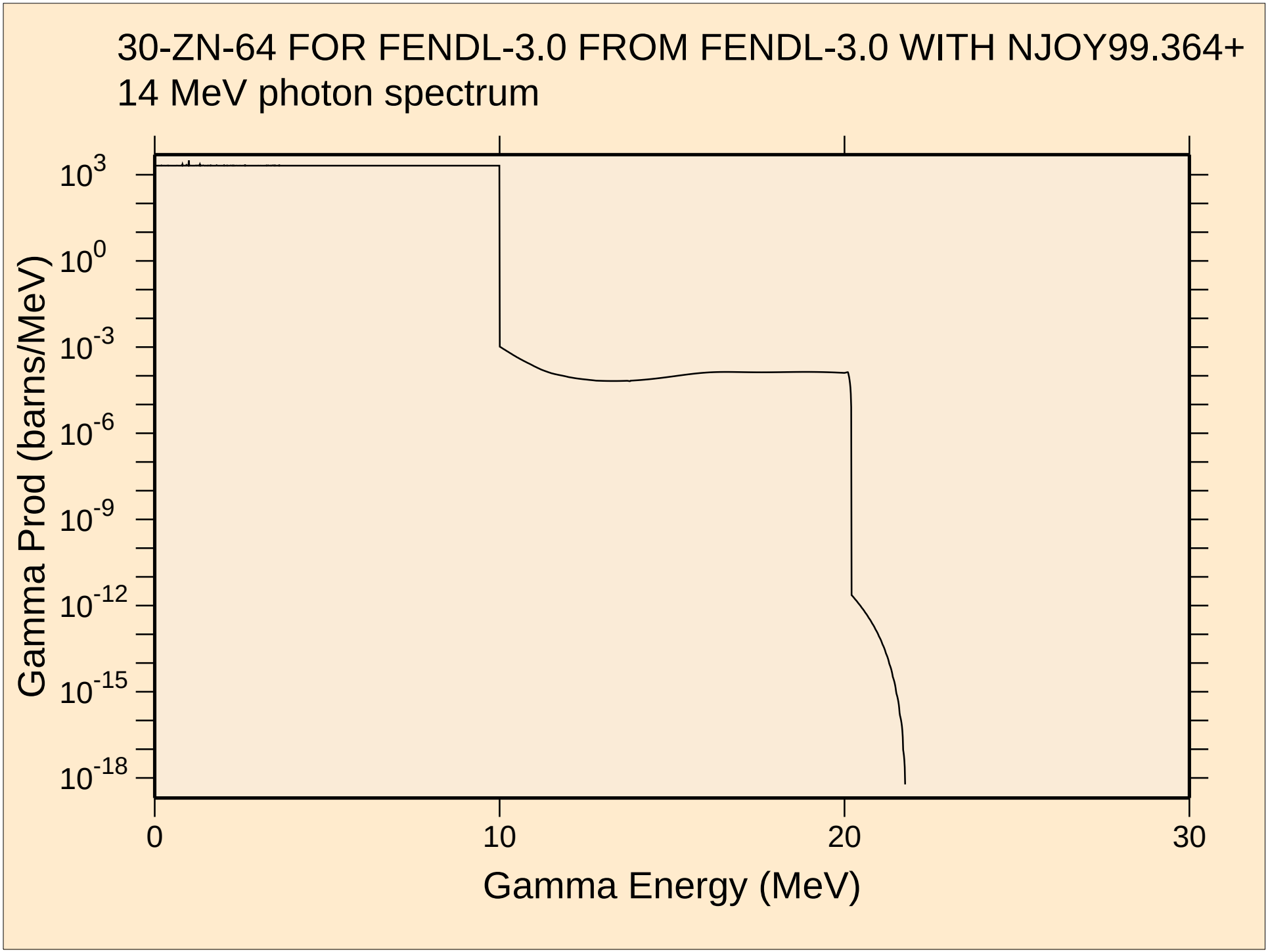

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*39)
Prob/MeV
$10^{0}$
$10^{-2}$
0.0
3.5
4.0
4.5
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

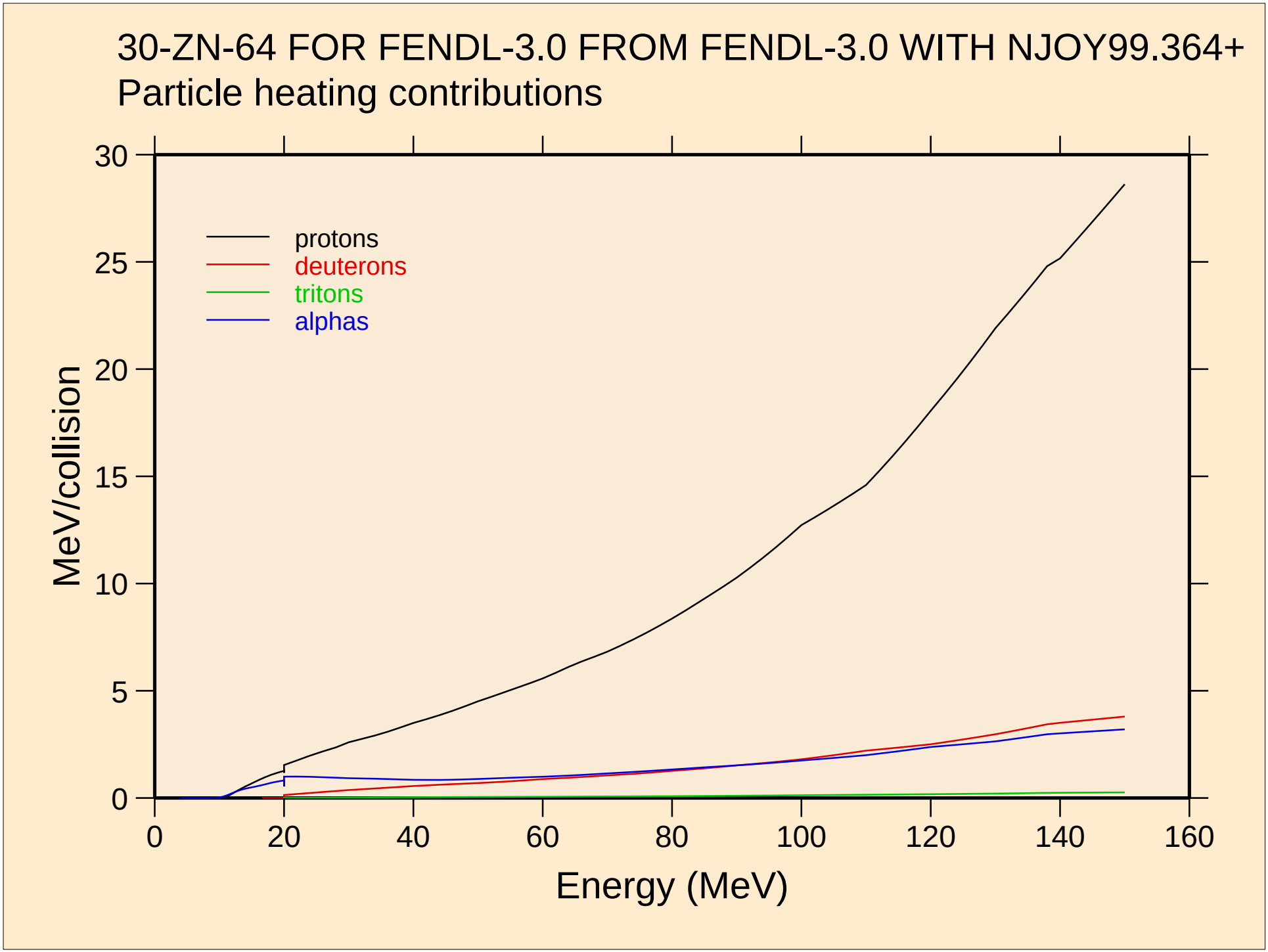

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*40)
Prob/MeV
$10^{0}$
$10^{-2}$
0
1
2
3
$E_\gamma$ (MeV)
0
20
40
60
80
100
120
140
160
$E_n$ (MeV)

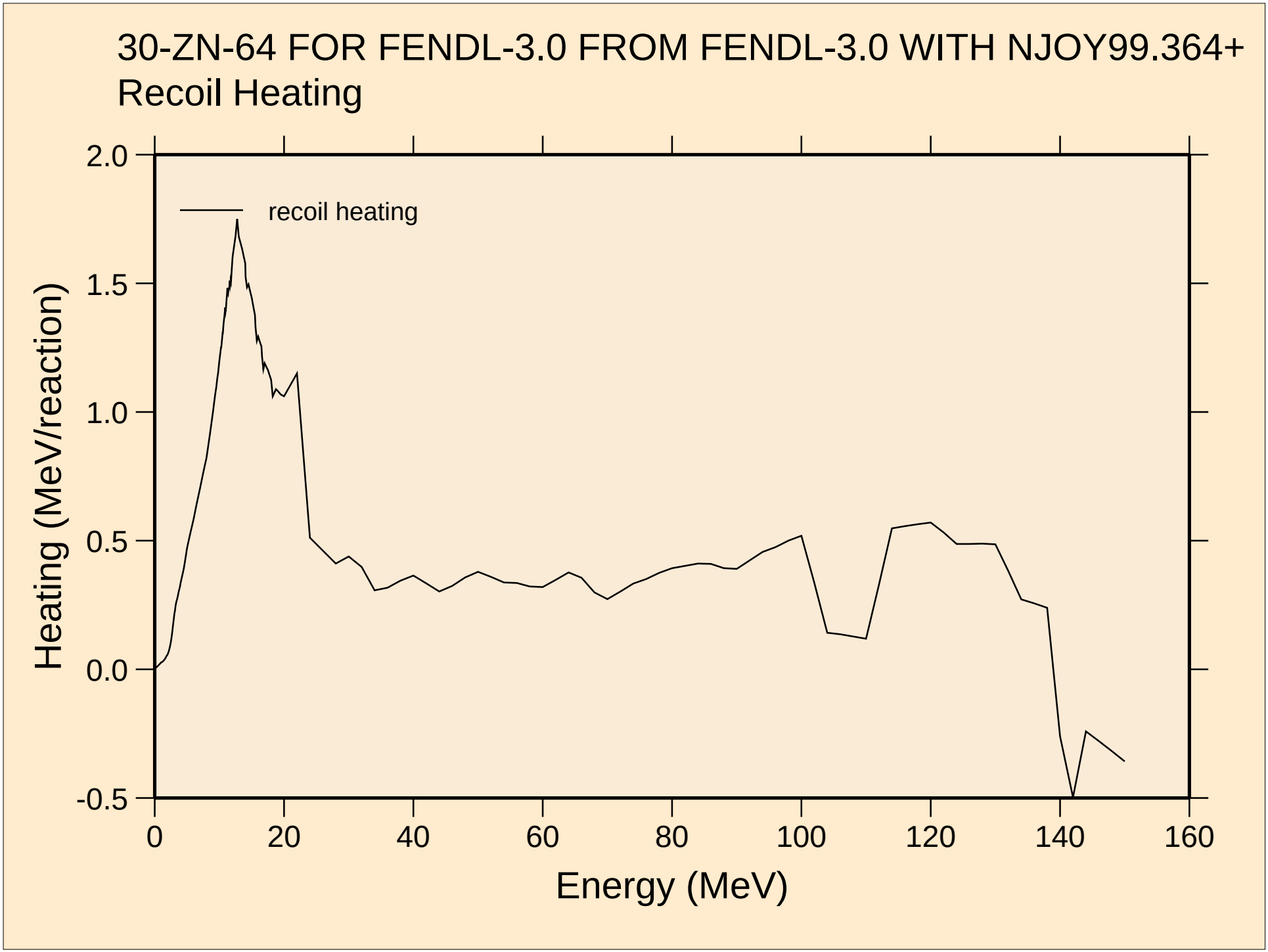

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,n*c)
Prob/MeV
10^0
10^-2
0
E_γ (MeV)
5
10
0
2
4
6
8
10
12
14
16
18
20
E_n (MeV)

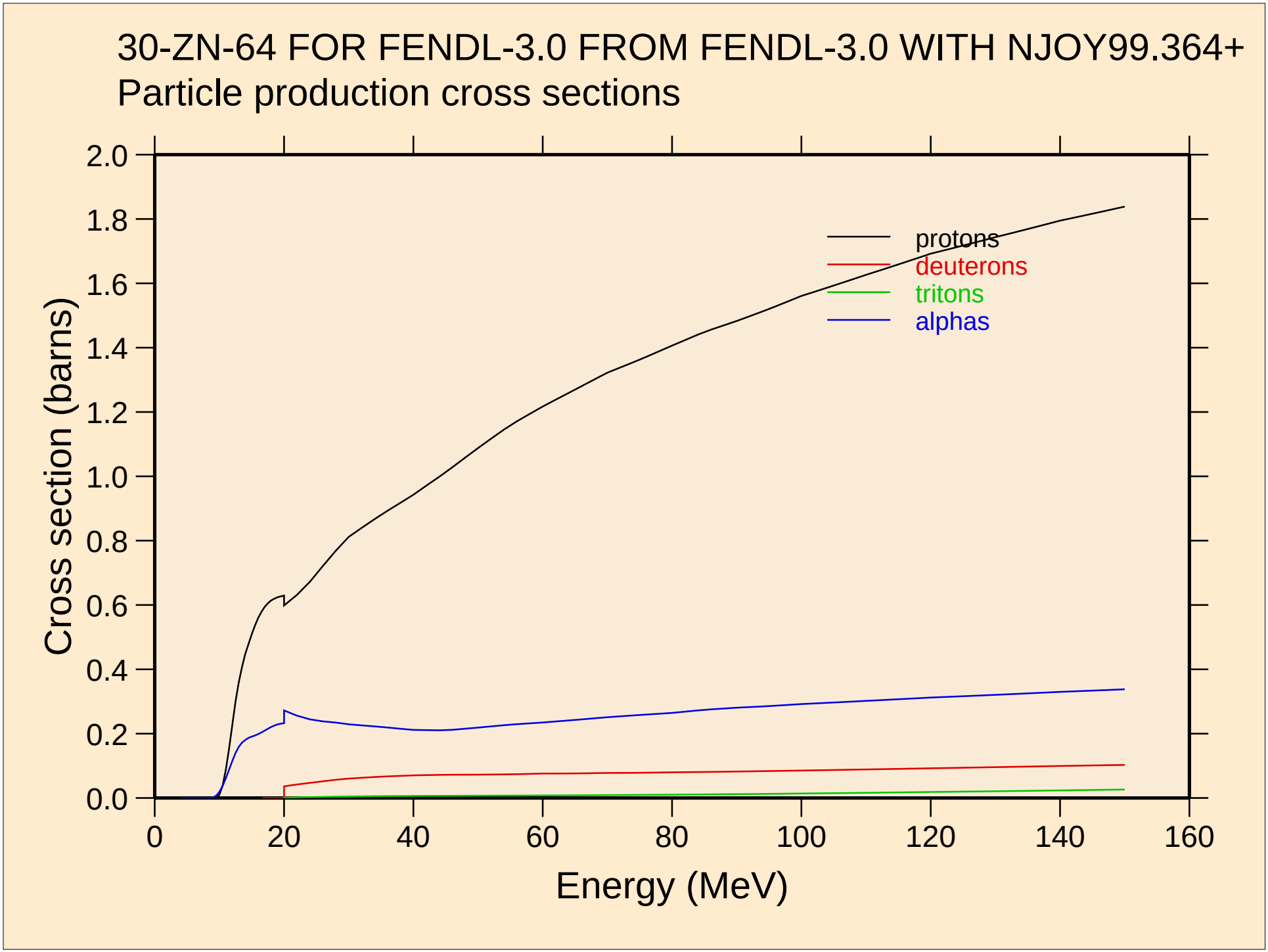

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Photon emission for (n,gma)
Prob/MeV
10^1
10^-1
0
E_γ (MeV)
20
40
0
5
10
15
20
E_n (MeV)

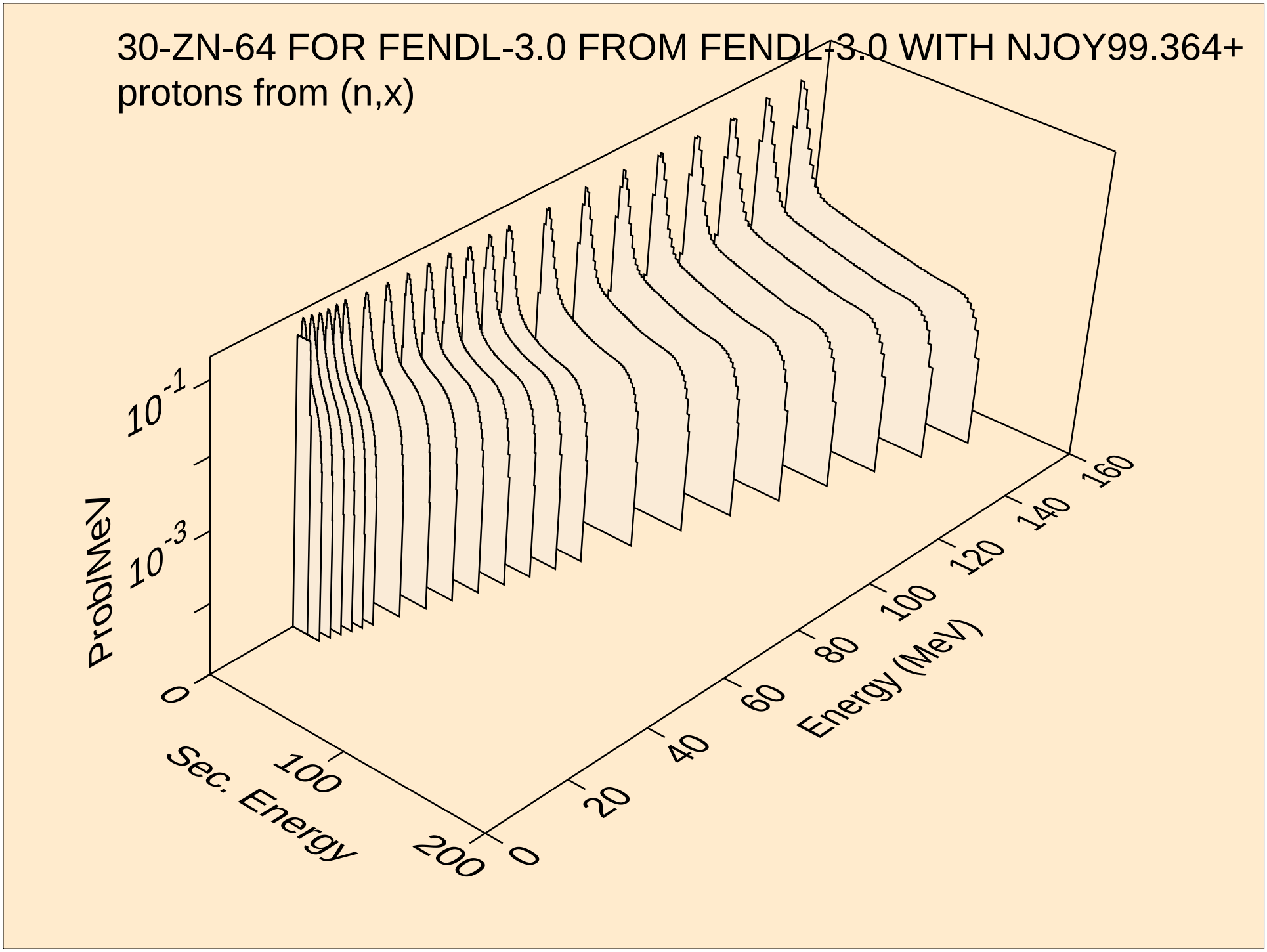

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
thermal capture photon spectrum
Gamma Prod (barns/MeV)
$10^2$
$10^1$
$10^0$
0
2
4
6
8
Gamma Energy (MeV)

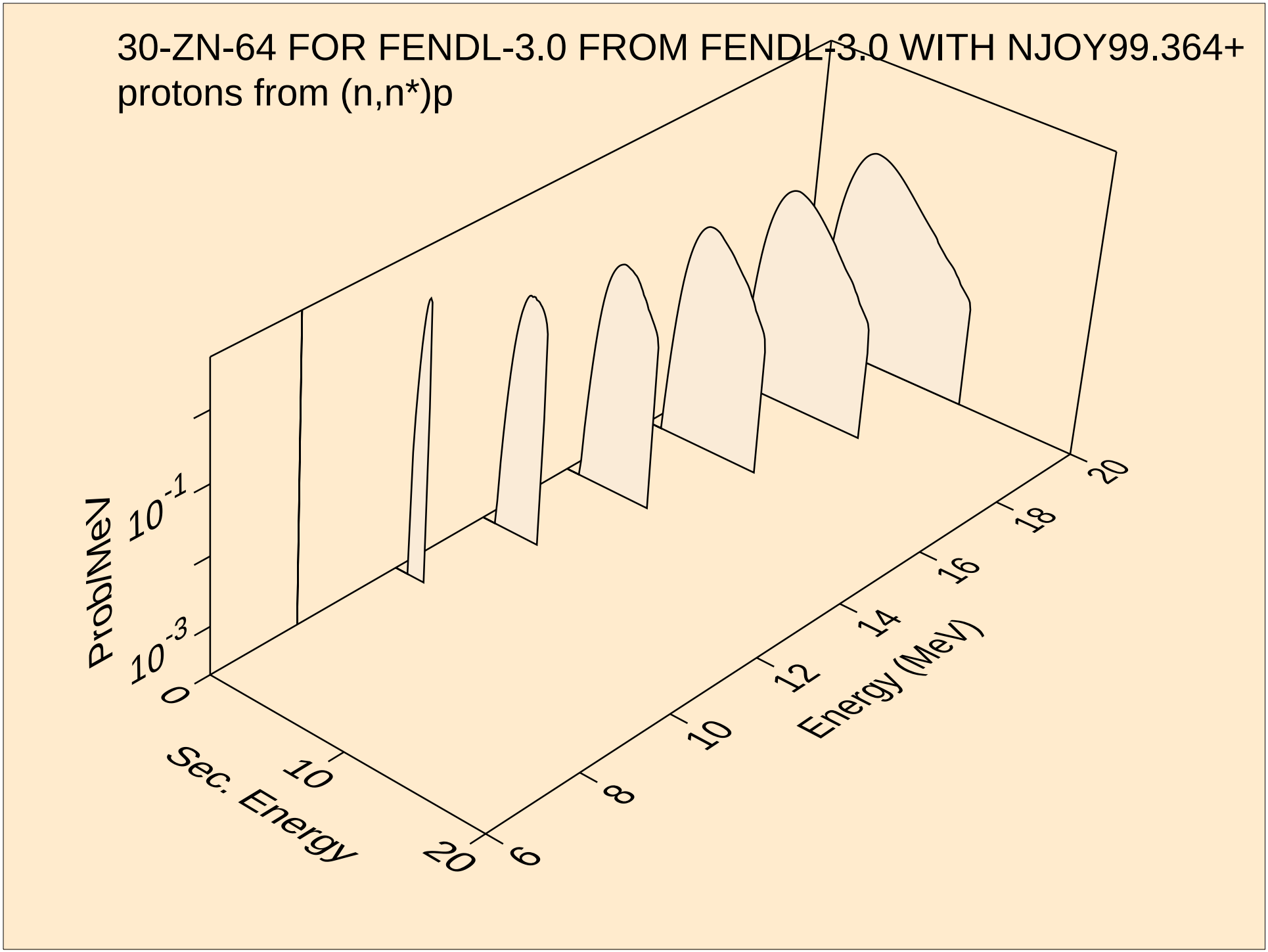

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
14 MeV photon spectrum
Gamma Prod (barns/MeV)
10^3
10^0
10^-3
10^-6
10^-9
10^-12
10^-15
10^-18
0
10
20
30
Gamma Energy (MeV)

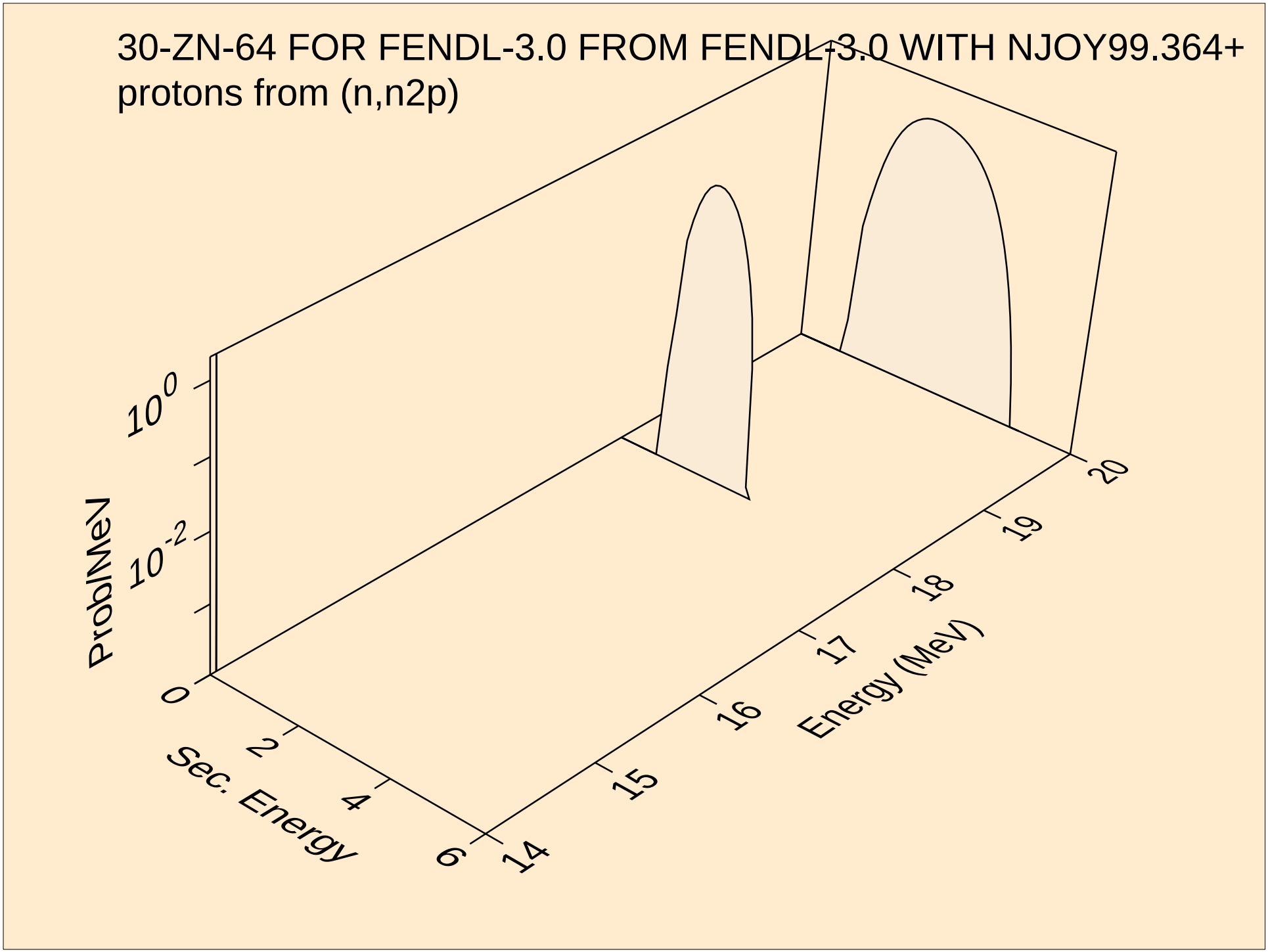

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Particle heating contributions
protons
deuterons
tritons
alphas
MeV/collision
Energy (MeV)
0
5
10
15
20
25
30
0
20
40
60
80
100
120
140
160

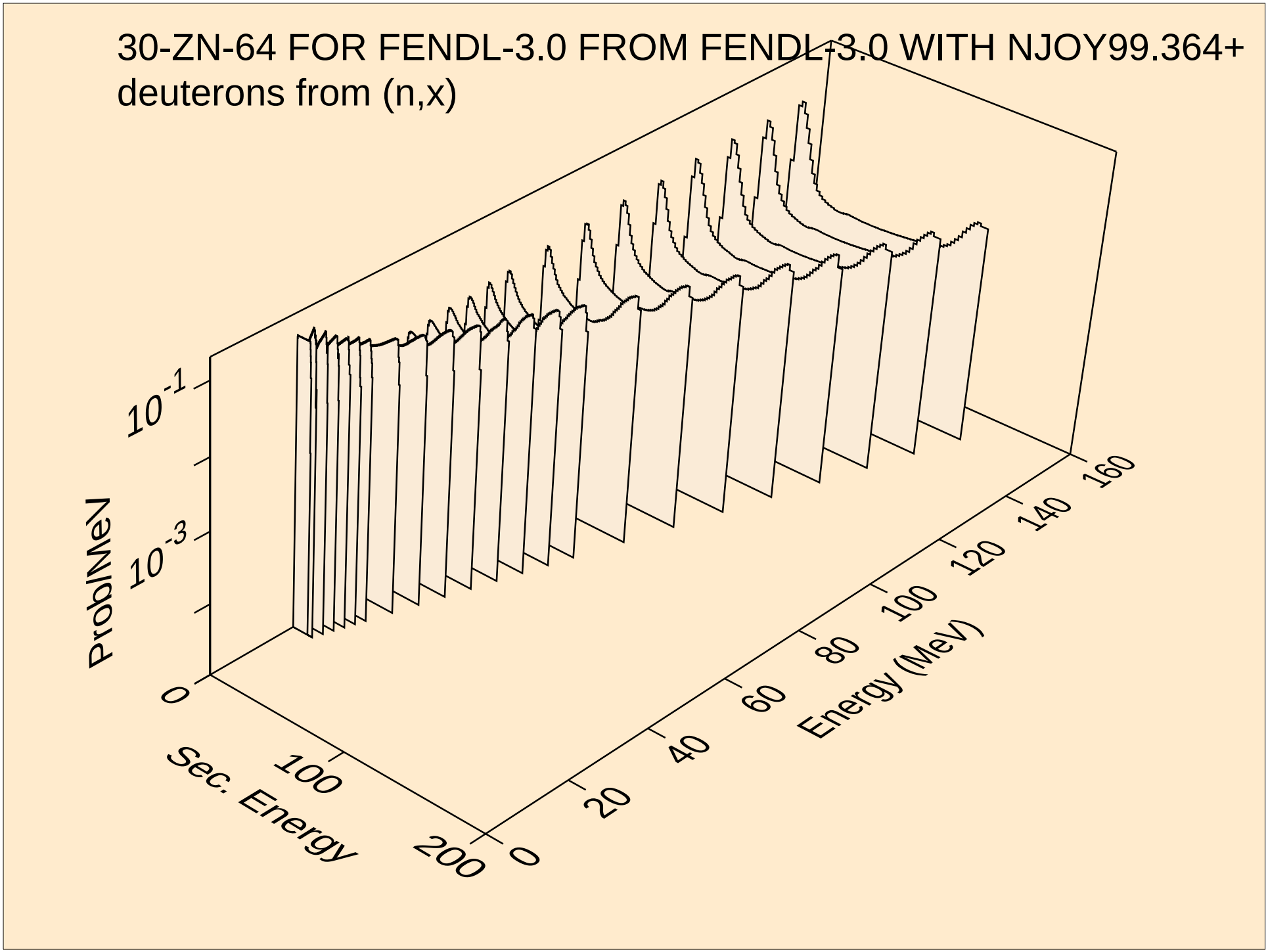

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
2.0
1.5
1.0
0.5
0.0
-0.5
0
20
40
60
80
100
120
140
160

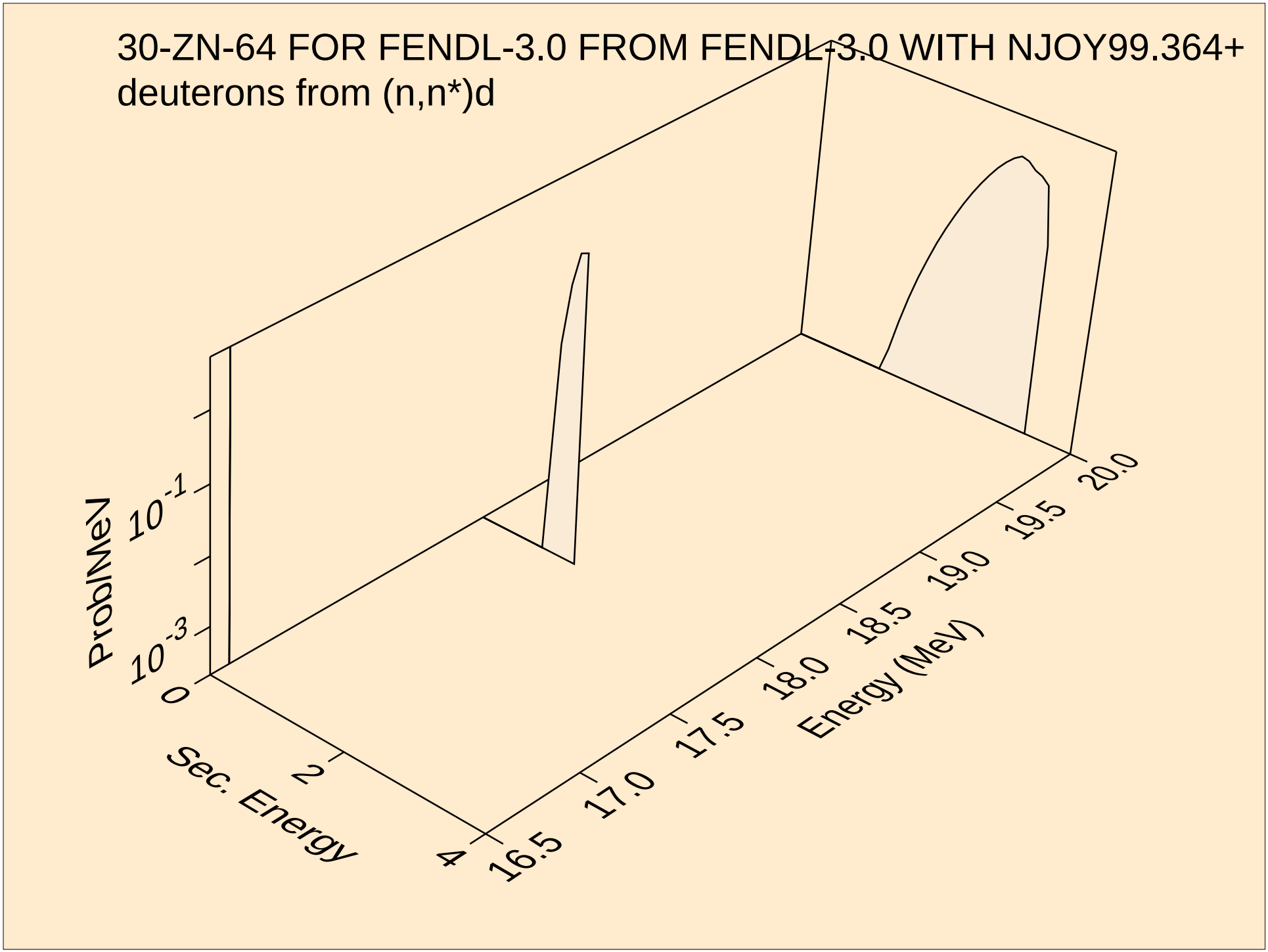

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
Particle production cross sections
Cross section (barns)
Energy (MeV)
protons
deuterons
tritons
alphas
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
0
20
40
60
80
100
120
140
160

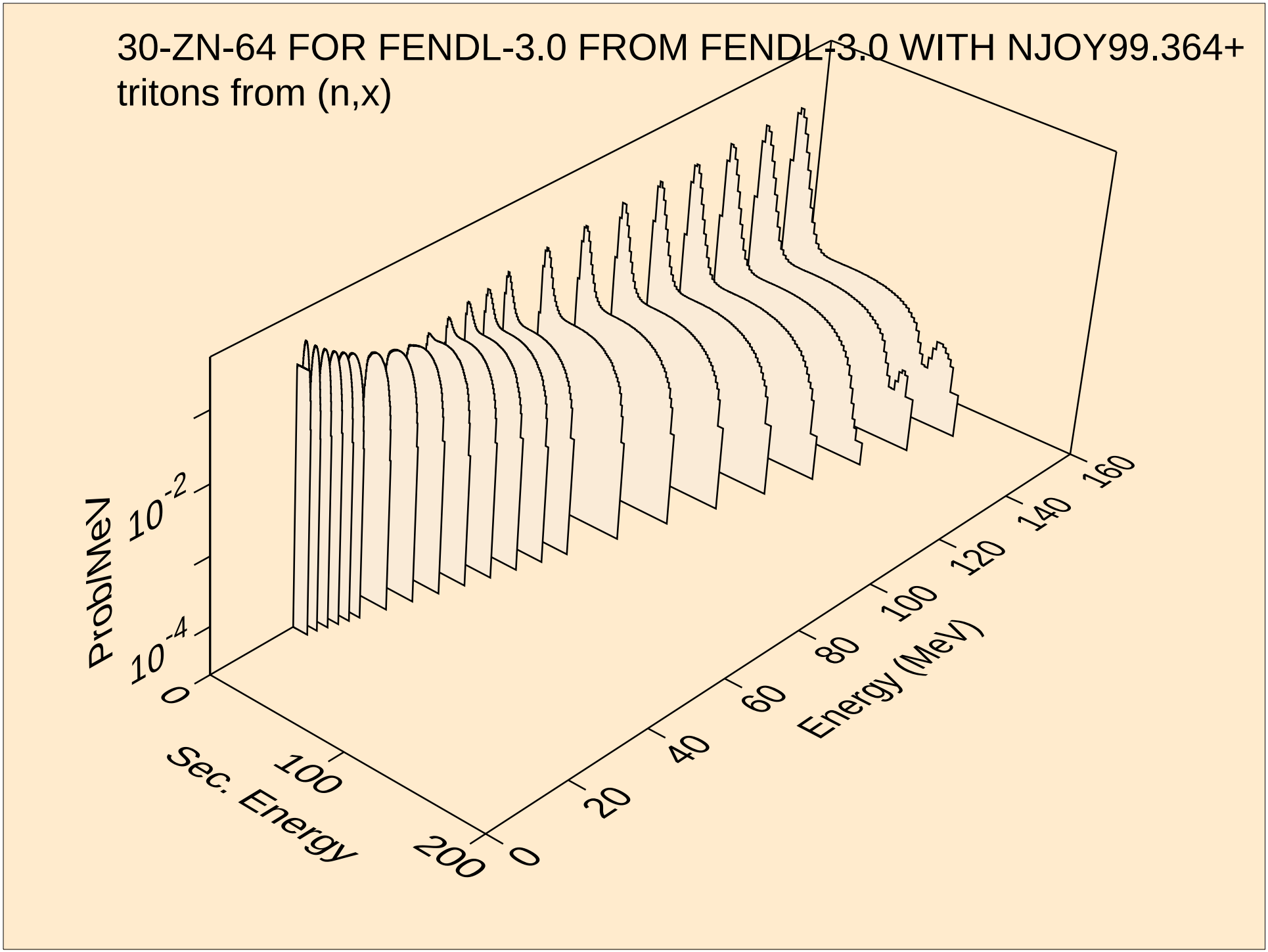

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
protons from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)

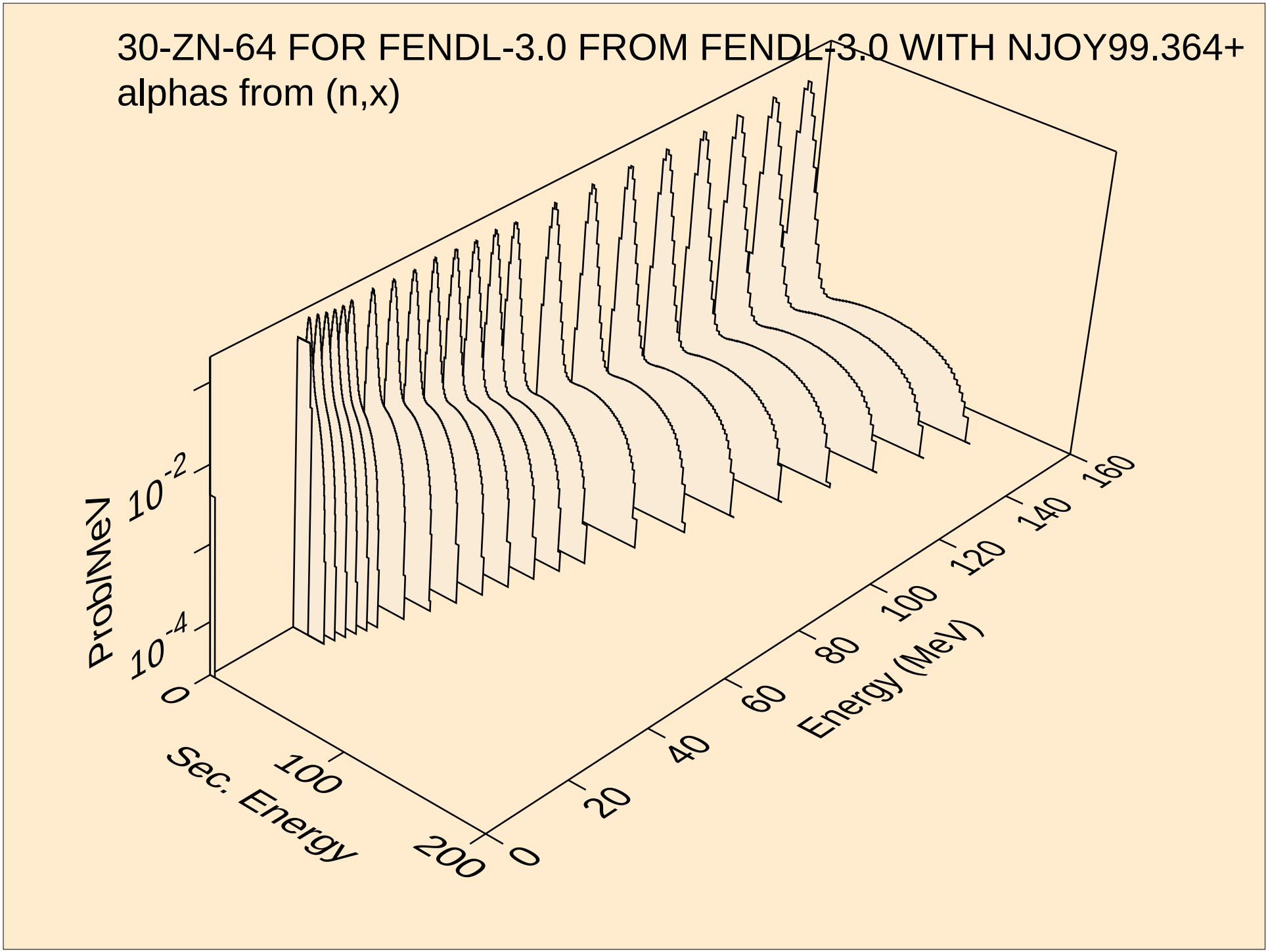

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
protons from (n,n*)p
Prob/MeV
10-1
10-3
0
Sec. Energy
10
20
6
8
10
12
14
16
18
20
Energy (MeV)

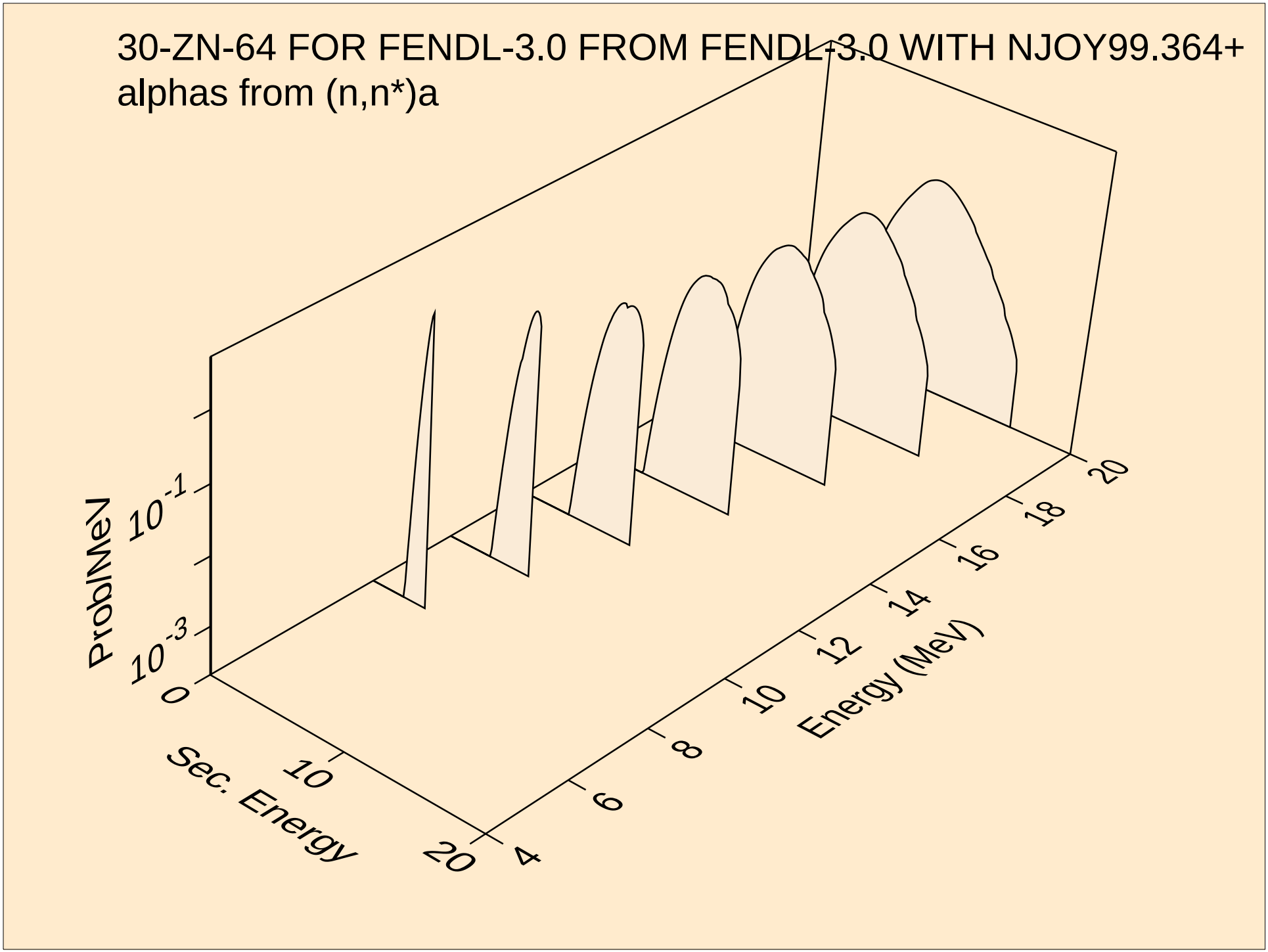

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
protons from (n,n2p)
Prob/MeV
10^0
10^-2
0
Sec. Energy
2
4
6
14
15
16
17
18
19
20
Energy (MeV)

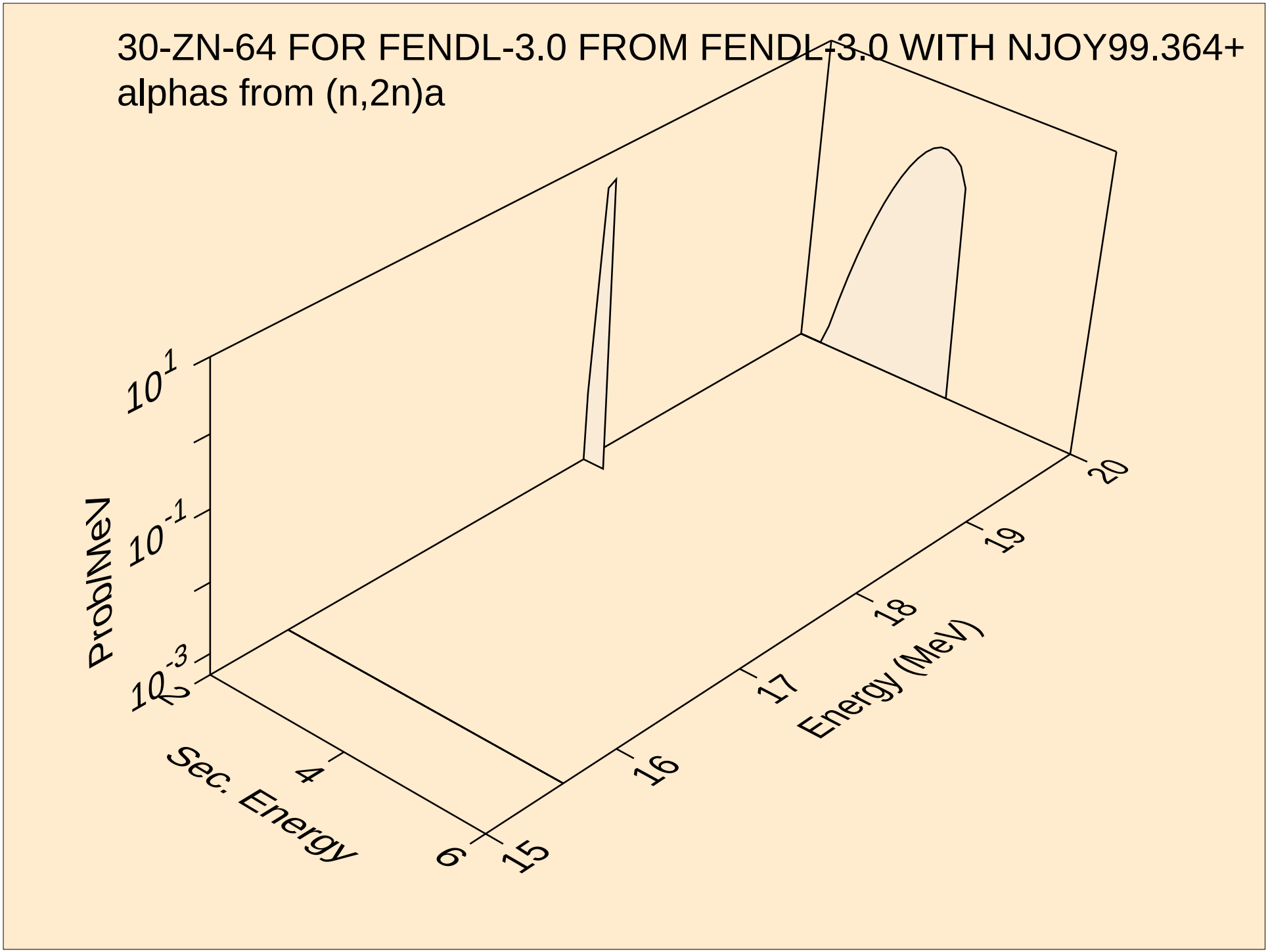

30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
deuterons from (n,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)


30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
deuterons from (n,n*)d
Prob/MeV
10-1
10-3
0
Sec. Energy
2
4
16.5
17.0
17.5
18.0
18.5
19.0
19.5
20.0
Energy (MeV)


30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
tritons from (n,x)
Prob/MeV
10-2
10-4
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)


30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
alphas from (n,x)
Prob/MeV
10-2
10-4
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
Energy (MeV)


30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
alphas from (n,n*)a
Prob/MeV
10-1
10-3
0
Sec. Energy
10
20
4
6
8
10
12
14
16
18
20
Energy (MeV)


30-ZN-64 FOR FENDL-3.0 FROM FENDL-3.0 WITH NJOY99.364+
alphas from (n,2n)a
Prob/MeV
10^1
10^-1
10^-3
Sec. Energy
4
6
15
16
17
18
19
20
Energy (MeV)