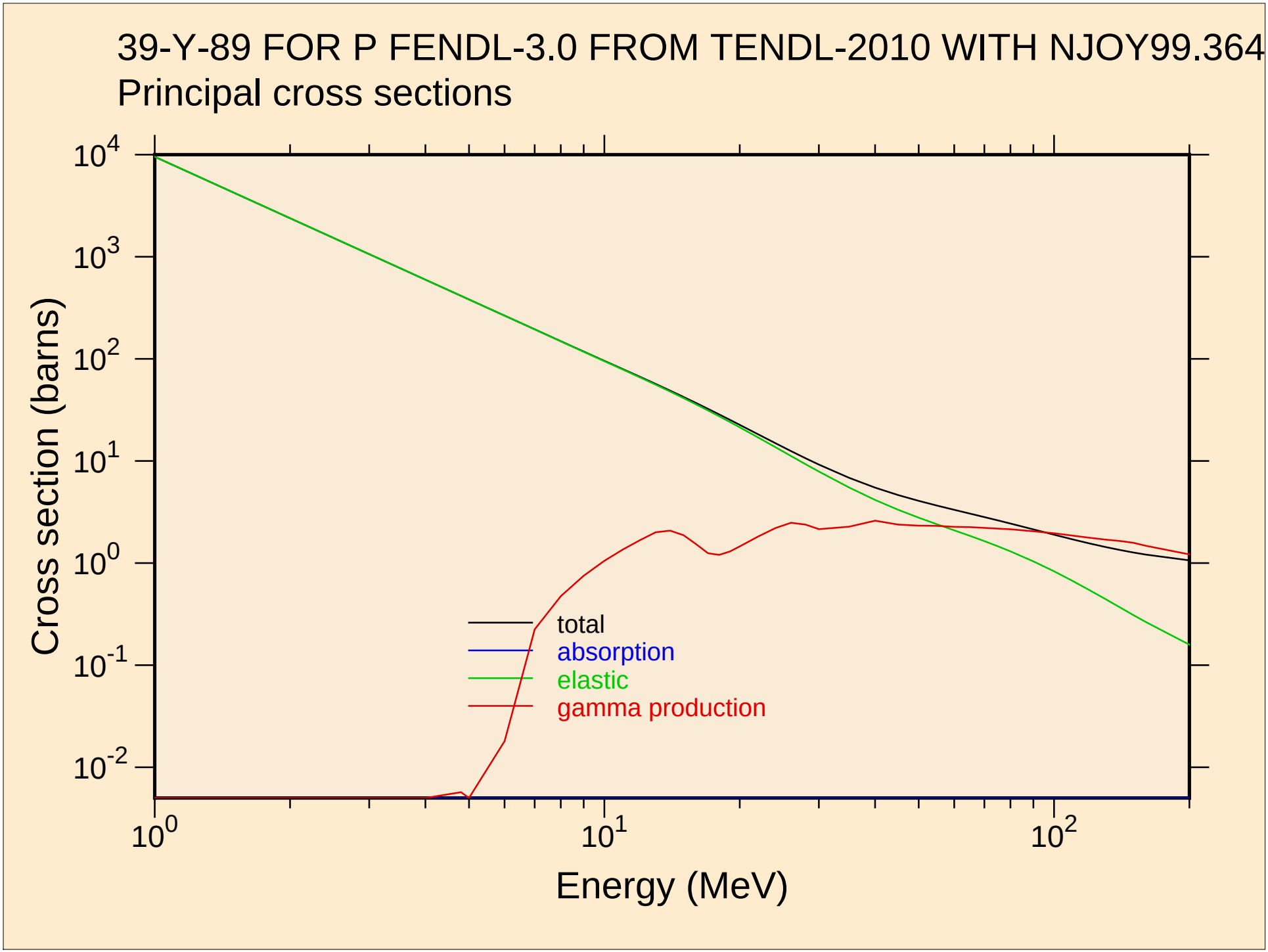
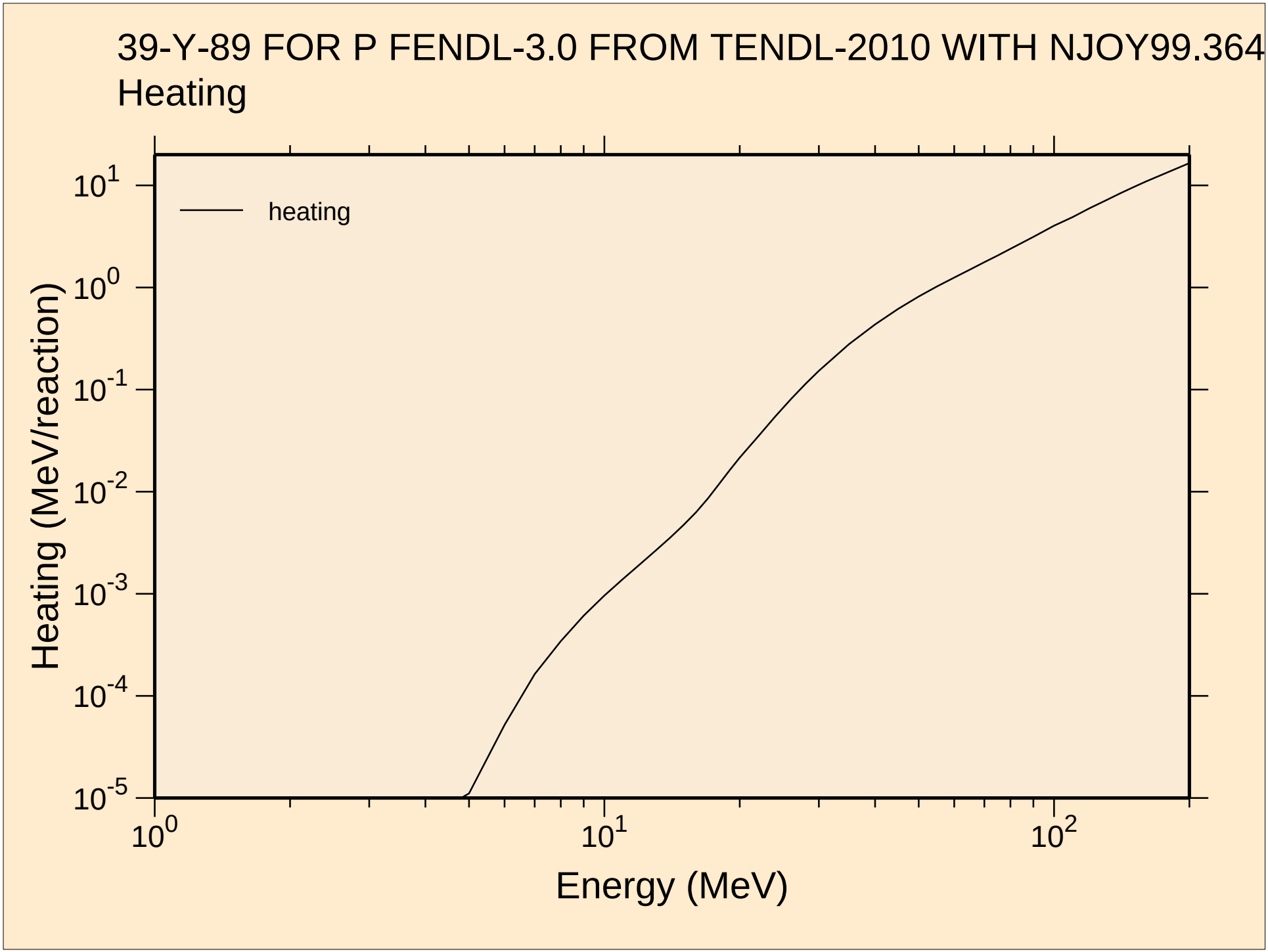
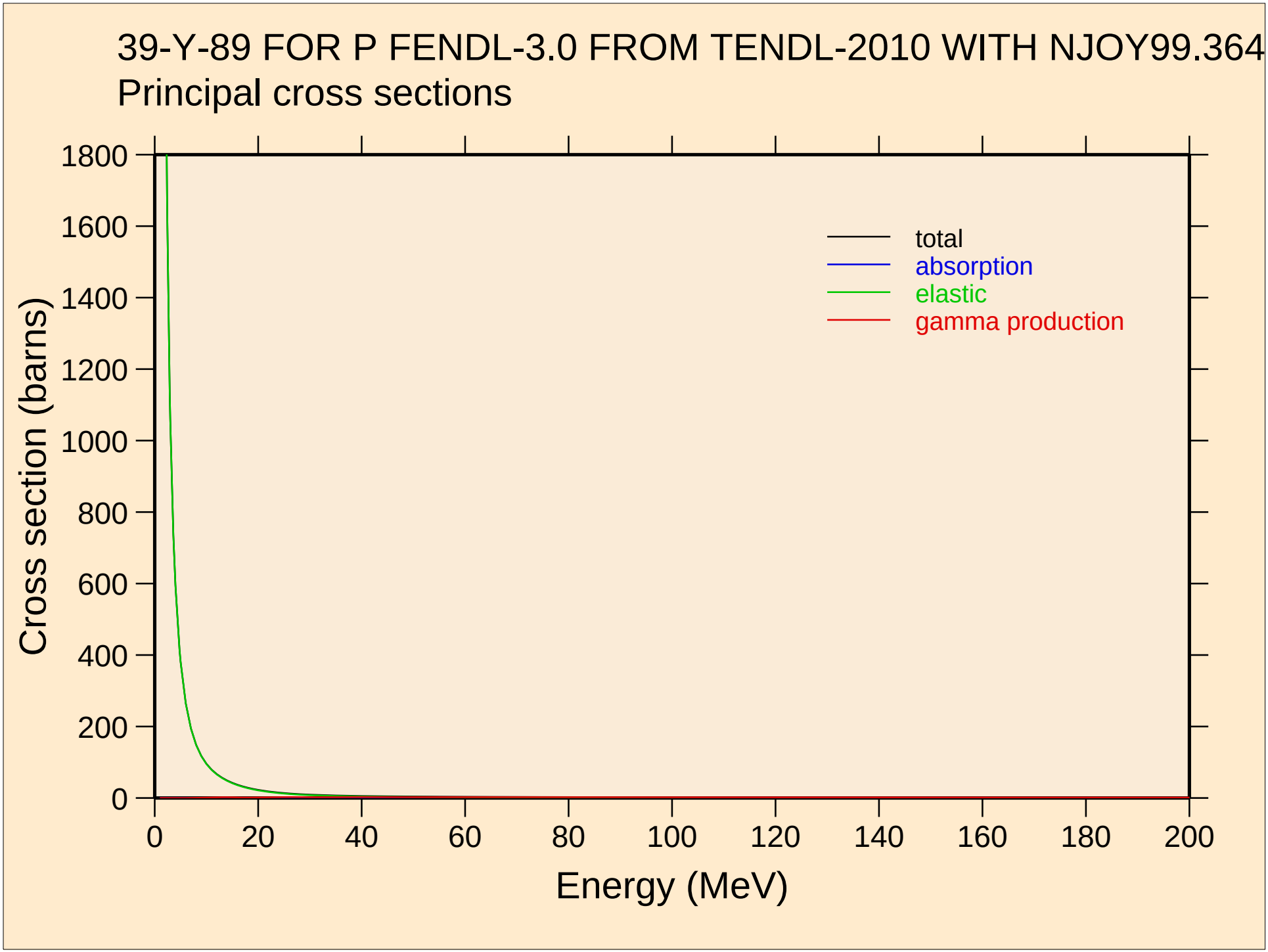
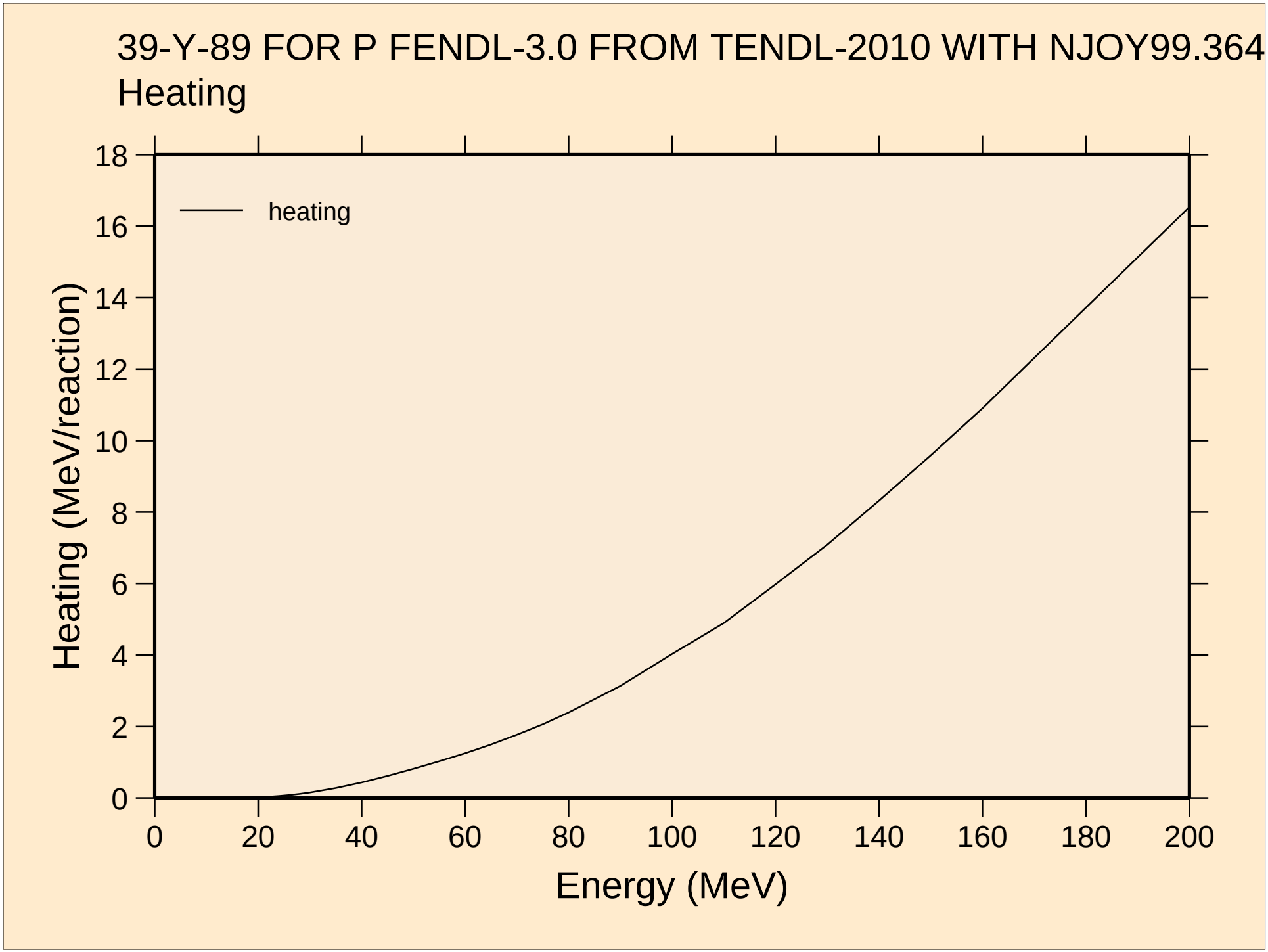
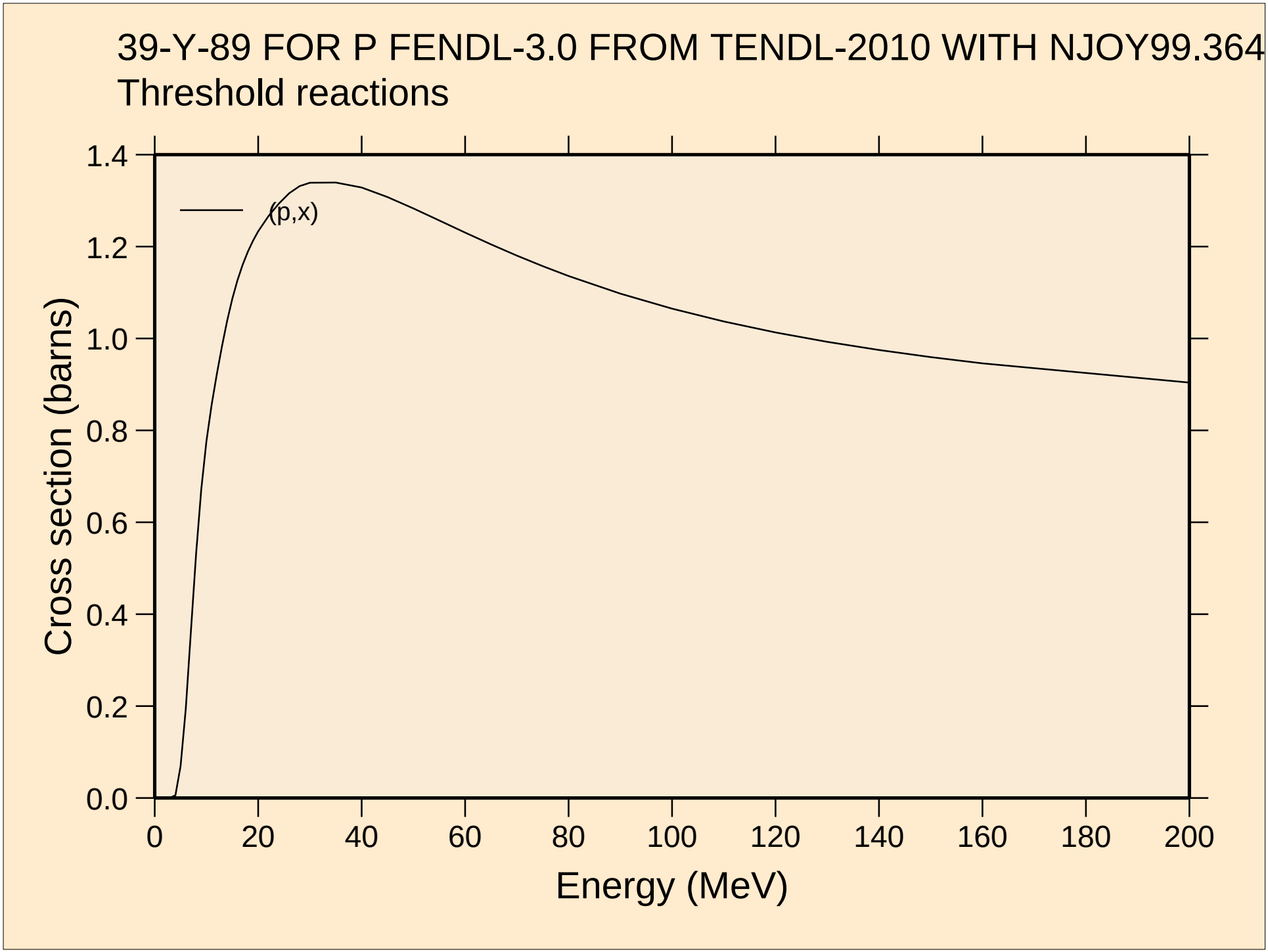
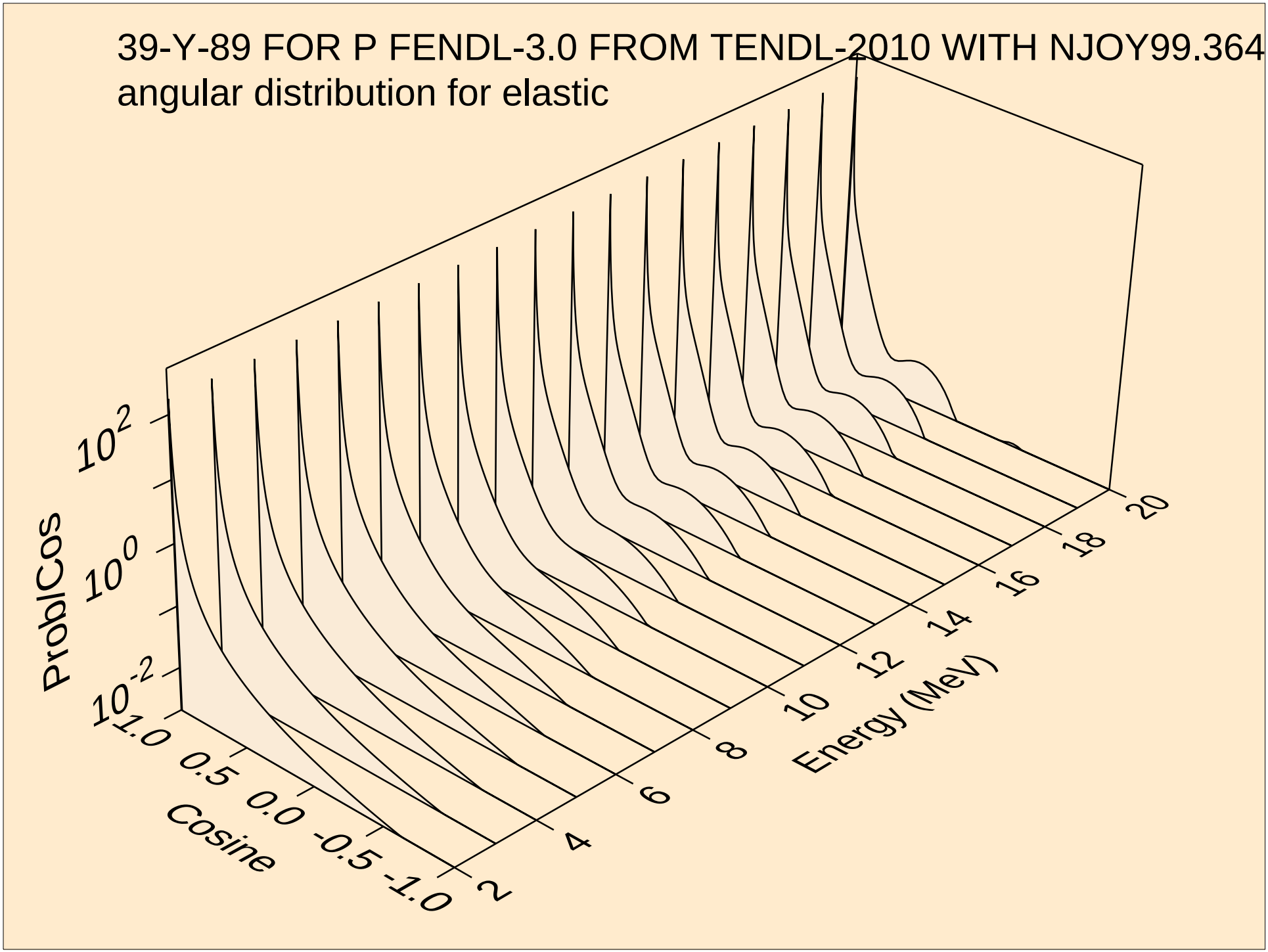

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Principal cross sections
Cross section (barns)
10^4
10^3
10^2
10^1
10^0
10^-1
10^-2
10^0
10^1
10^2
Energy (MeV)
total
absorption
elastic
gamma production

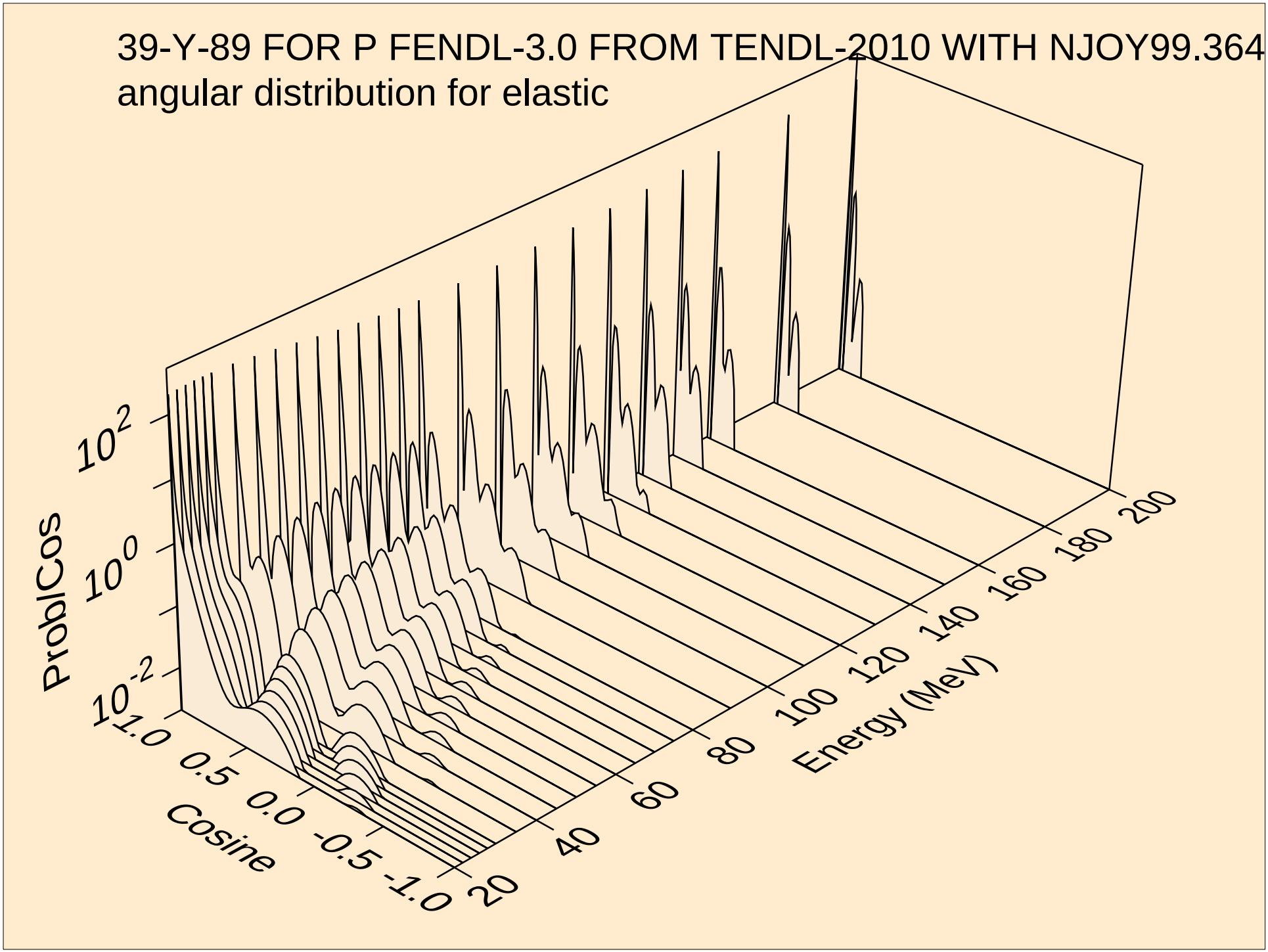

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
10^1
10^0
10^-1
10^-2
10^-3
10^-4
10^-5
10^0
10^1
10^2

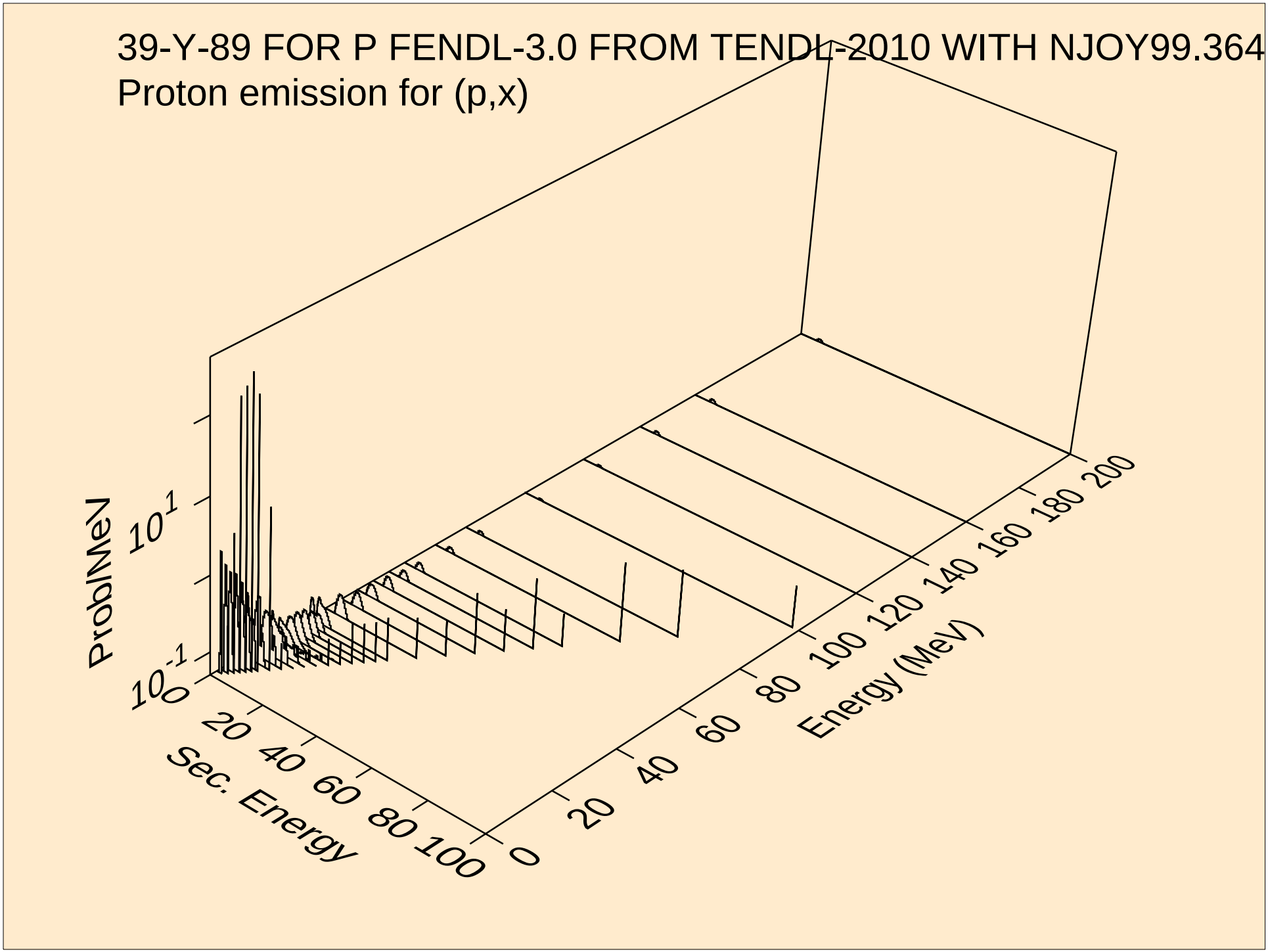

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Principal cross sections
Cross section (barns)
Energy (MeV)
0
200
400
600
800
1000
1200
1400
1600
1800
0
20
40
60
80
100
120
140
160
180
200
total
absorption
elastic
gamma production

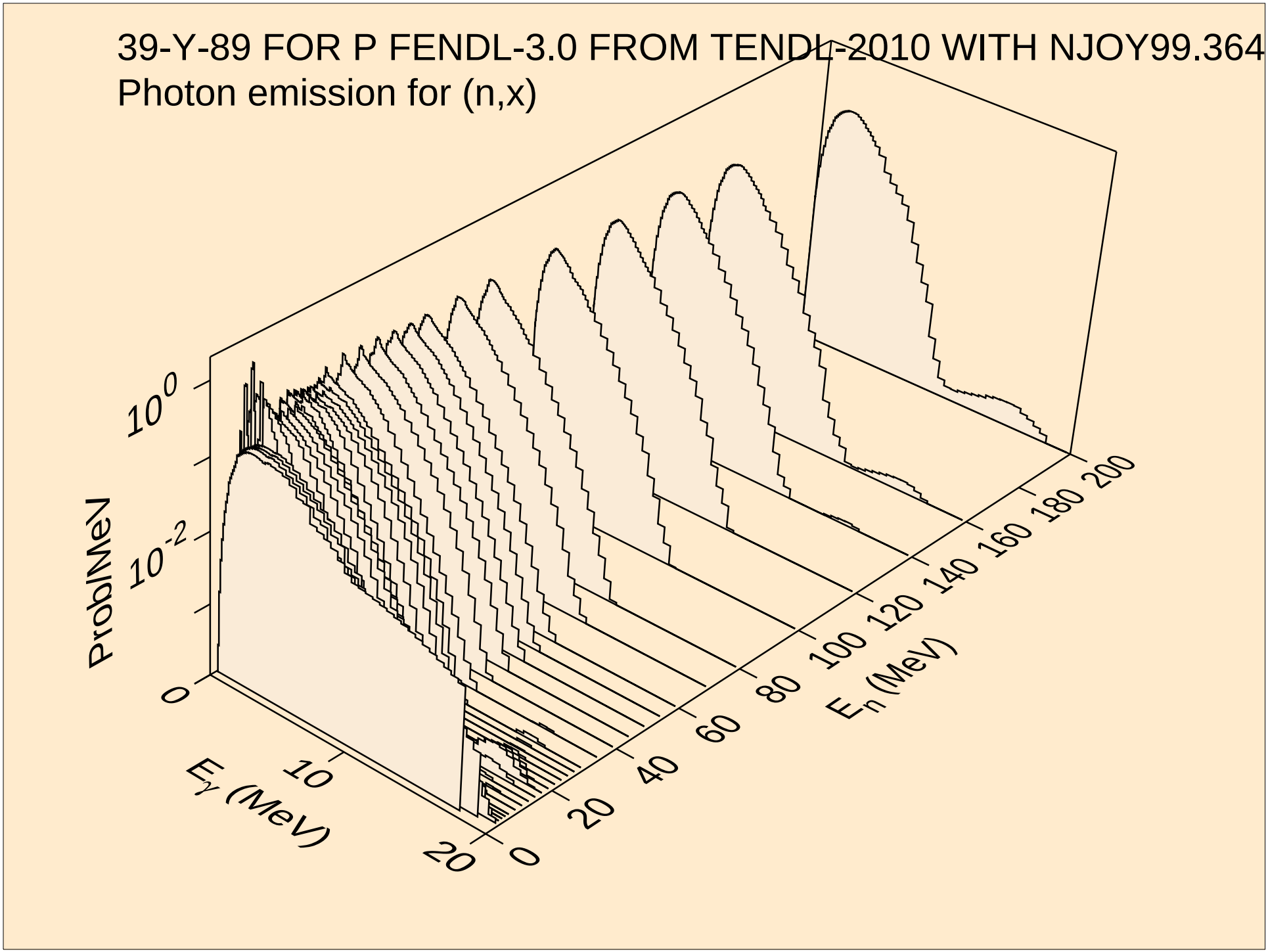

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Heating
heating
Heating (MeV/reaction)
Energy (MeV)
0
2
4
6
8
10
12
14
16
18
0
20
40
60
80
100
120
140
160
180
200

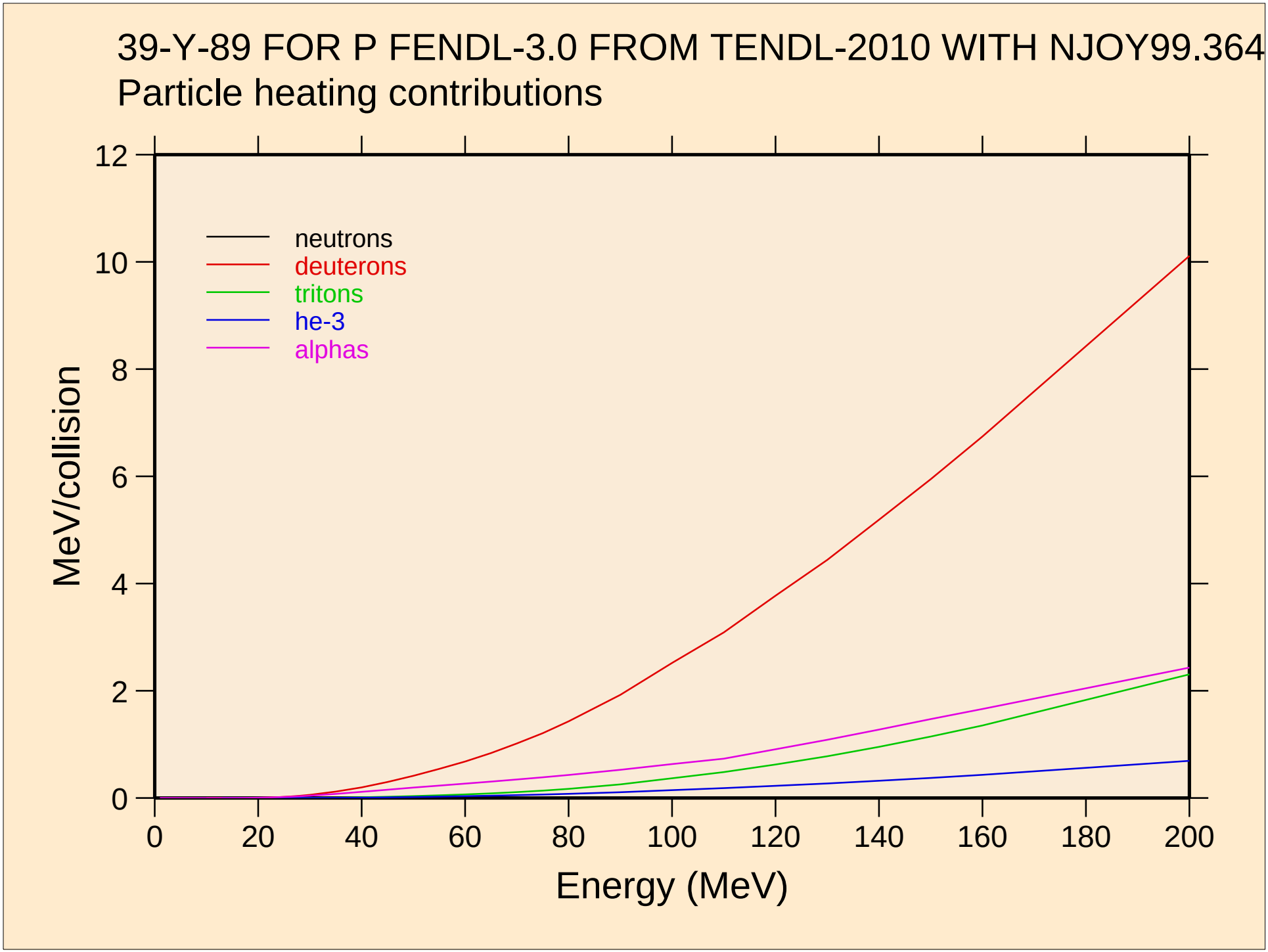

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Threshold reactions
(p,x)
Cross section (barns)
Energy (MeV)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
0
20
40
60
80
100
120
140
160
180
200

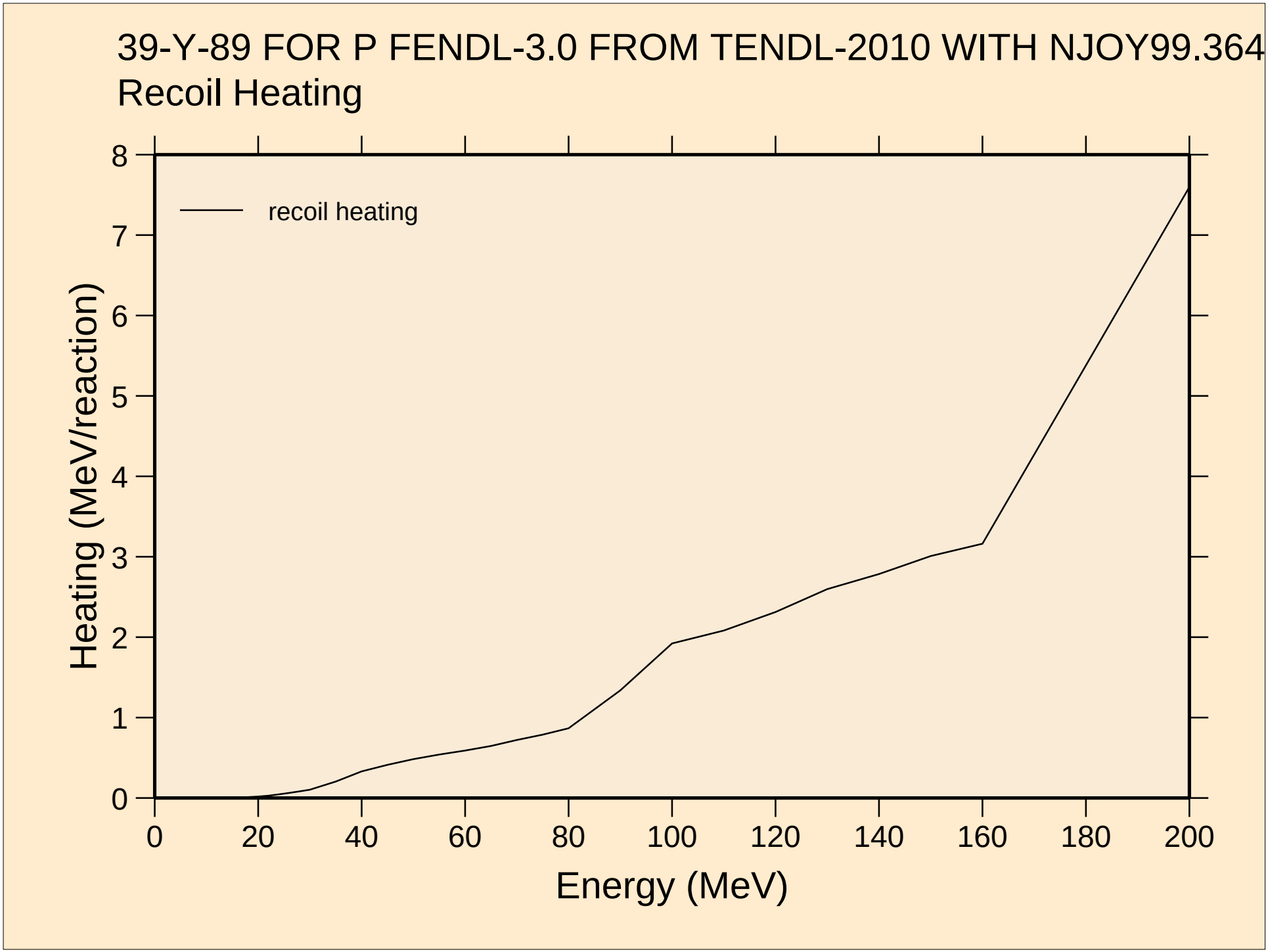

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
angular distribution for elastic
Prob\Cos
$10^{2}$
$10^{0}$
$10^{-2}$
1.0
0.5
0.0
-0.5
-1.0
Cosine
2
4
6
8
10
12
14
16
18
20
Energy (MeV)

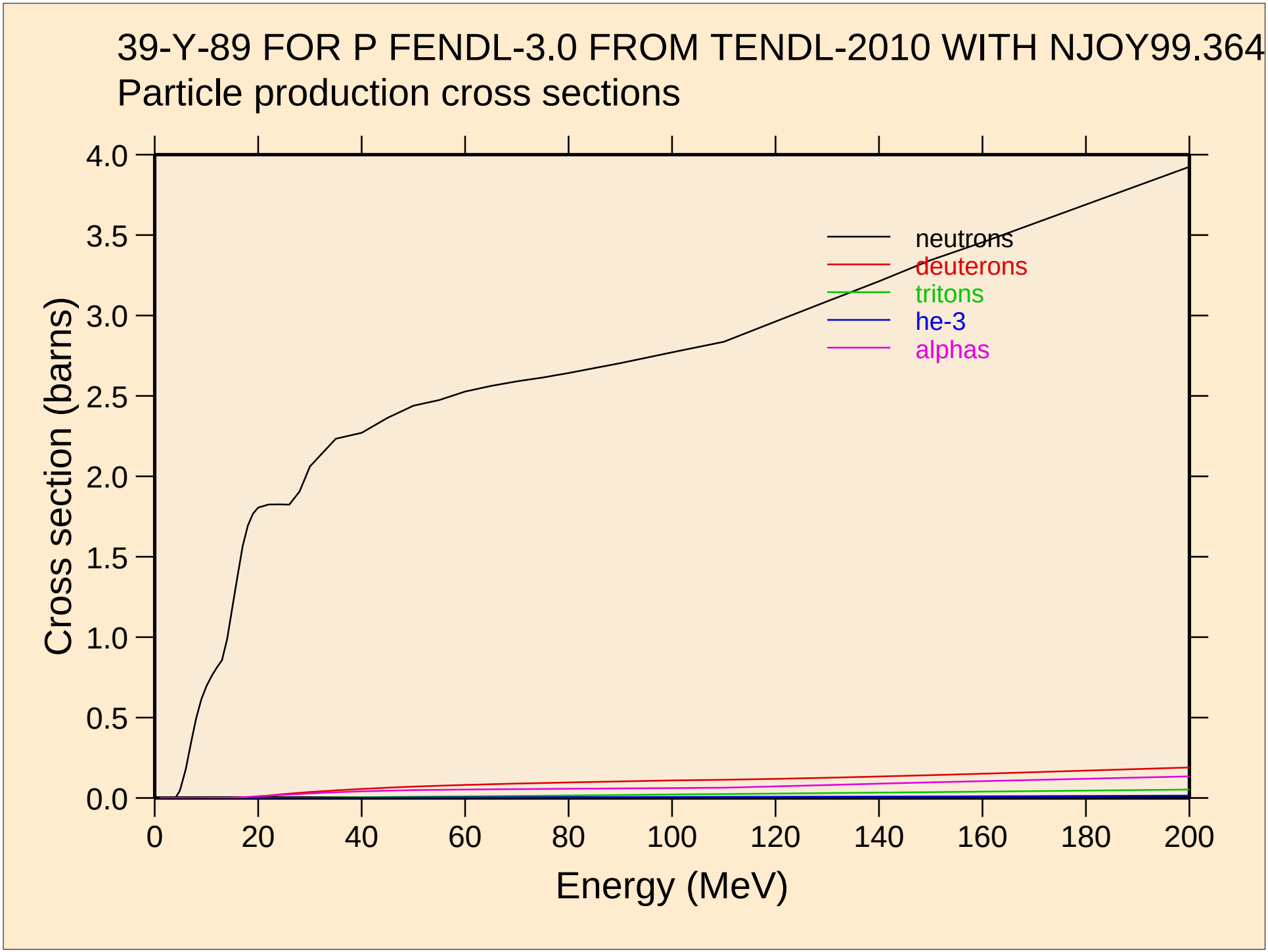

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
angular distribution for elastic
ProblCos
$10^{2}$
$10^{0}$
$10^{-2}$
Cosine
1.0
0.5
0.0
-0.5
-1.0
Energy (MeV)
20
40
60
80
100
120
140
160
180
200

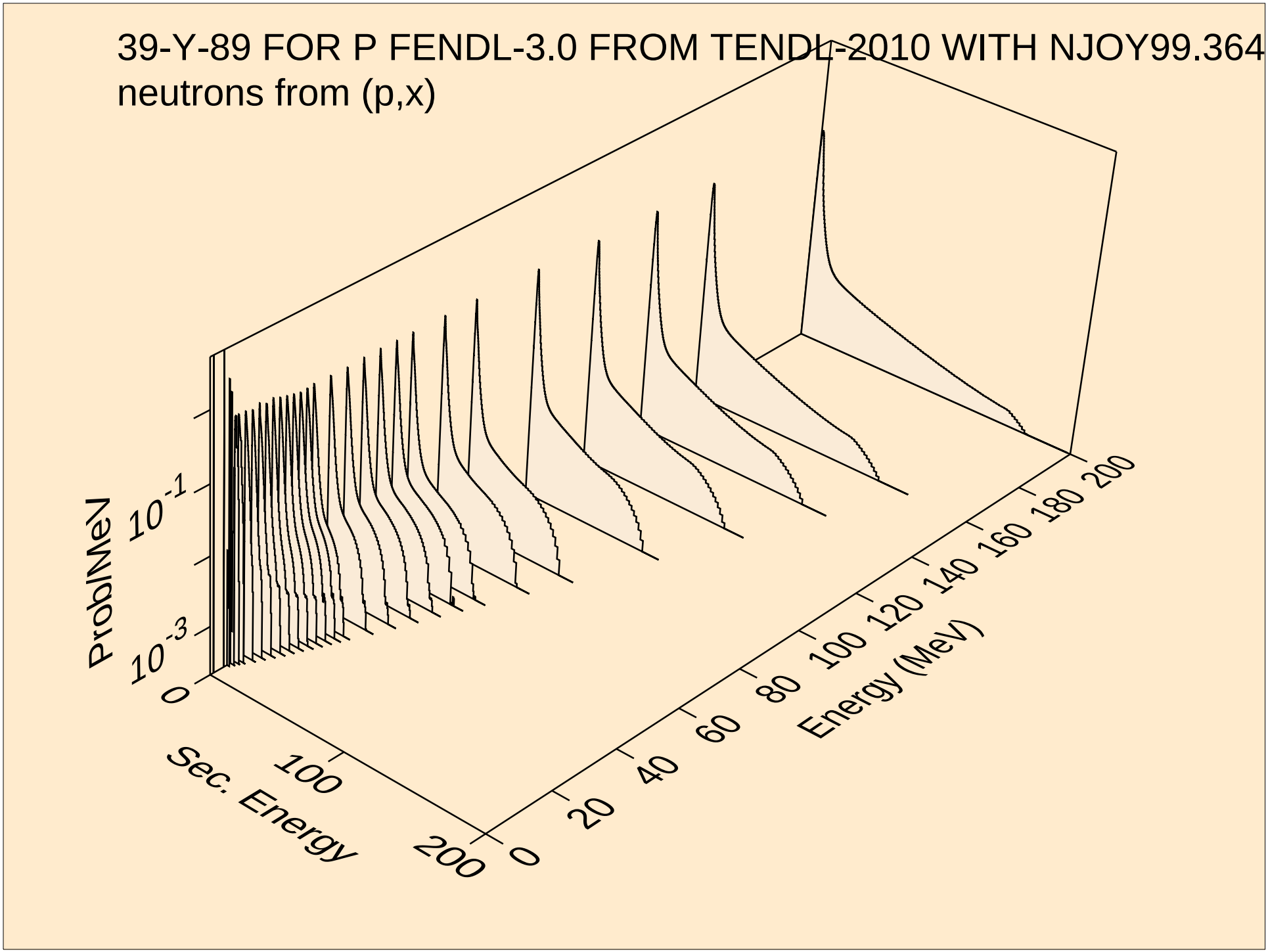

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Proton emission for (p,x)
Prob/MeV
10^1
10^-1
10^0
20
40
60
80
100
Sec. Energy
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)

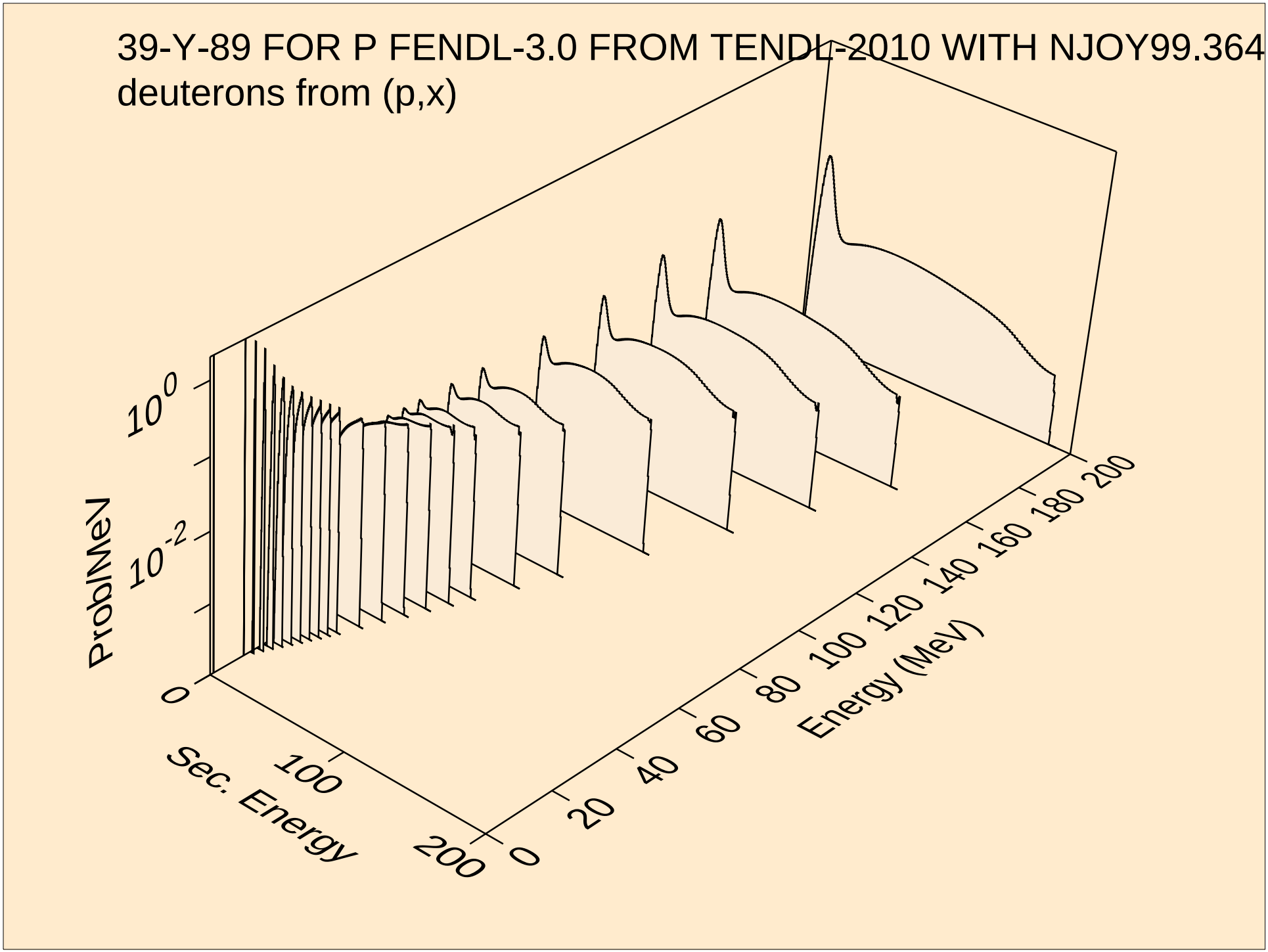

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Photon emission for (n,x)
Prob/MeV
$10^{0}$
$10^{-2}$
0
$E_\gamma$ (MeV)
0
10
20
$E_n$ (MeV)
0
20
40
60
80
100
120
140
160
180
200

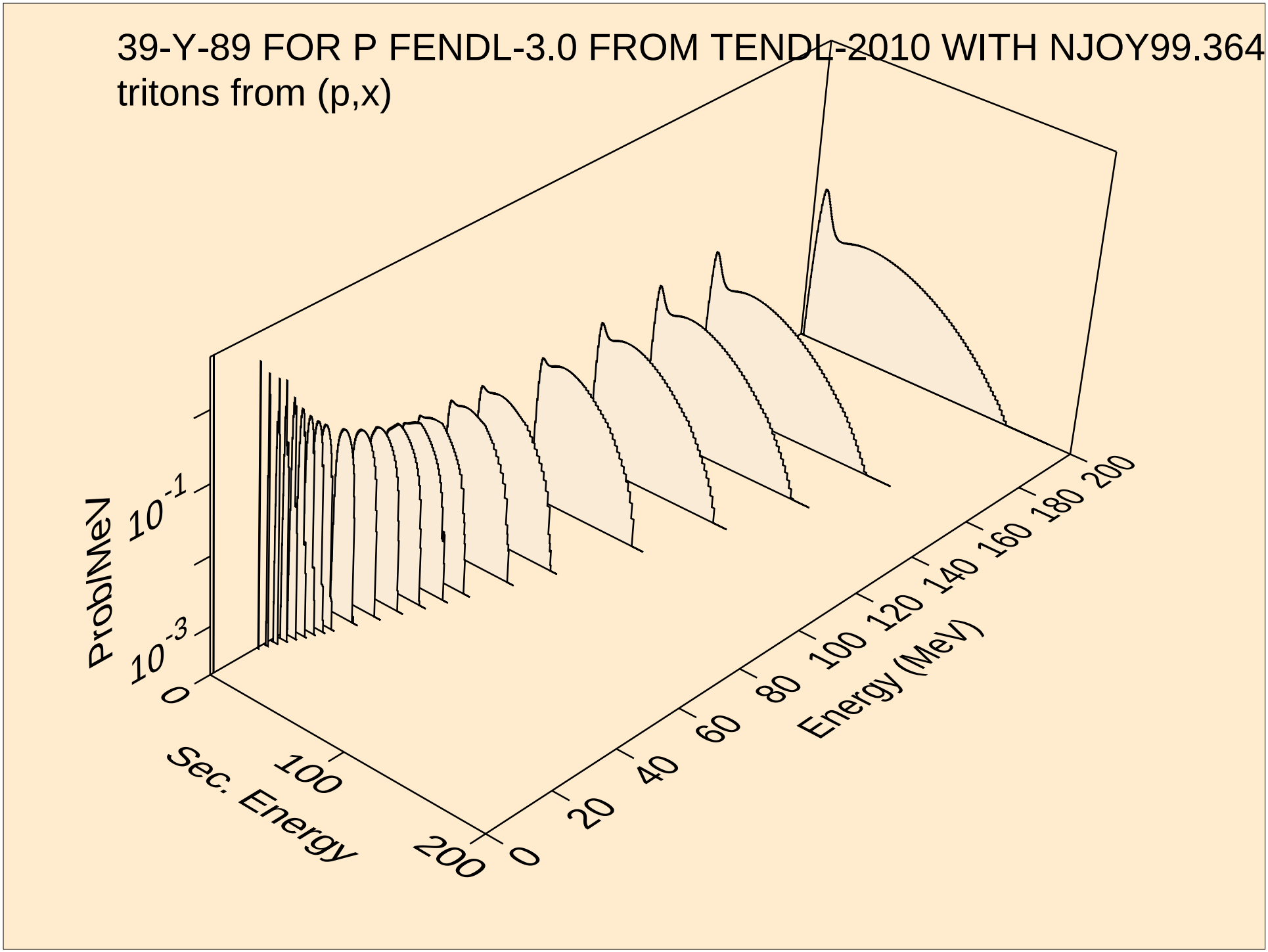

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Particle heating contributions
neutrons
deuterons
tritons
he-3
alphas
MeV/collision
Energy (MeV)
0
2
4
6
8
10
12
0
20
40
60
80
100
120
140
160
180
200

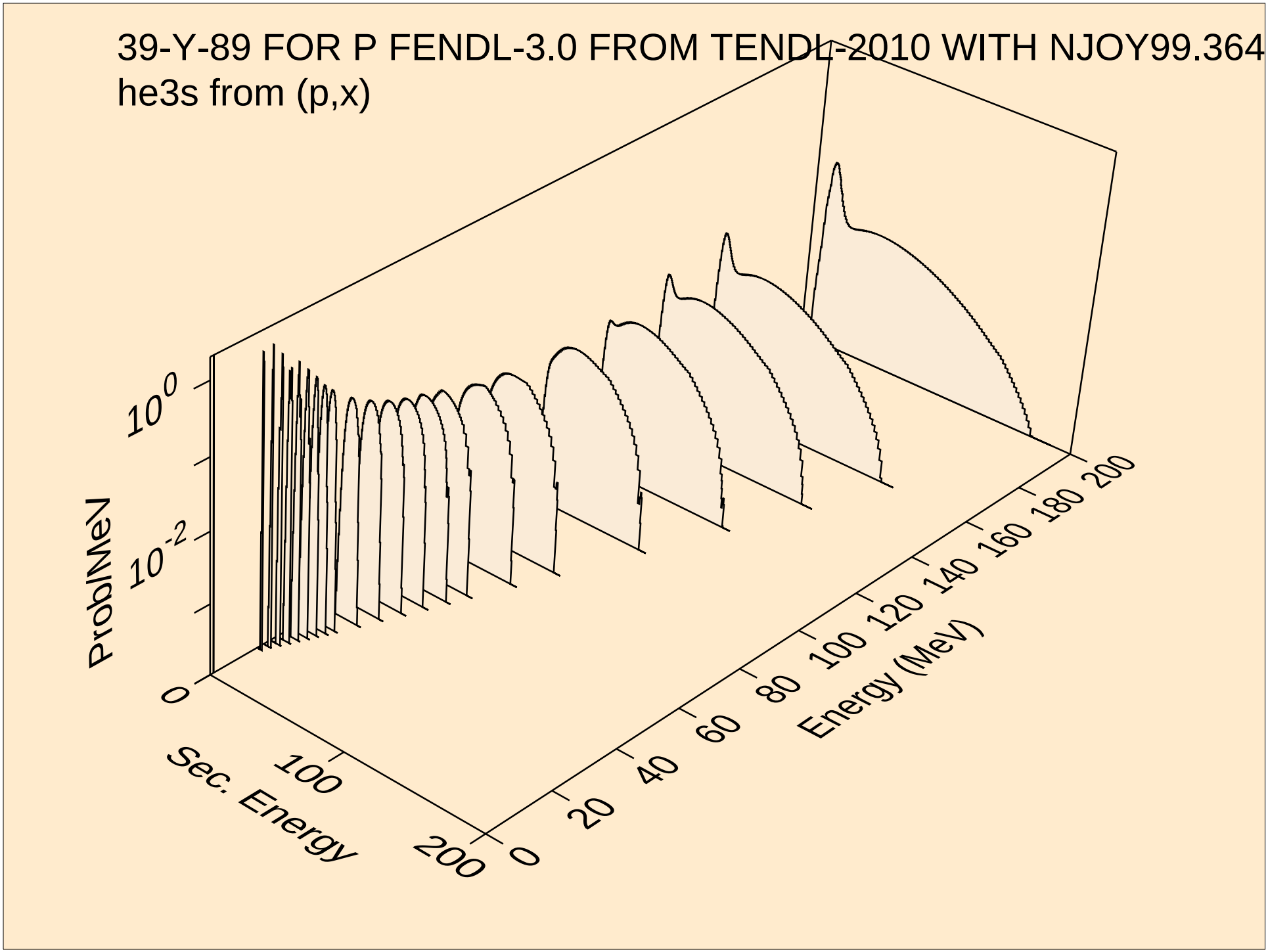

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Recoil Heating
recoil heating
Heating (MeV/reaction)
Energy (MeV)
0
1
2
3
4
5
6
7
8
0
20
40
60
80
100
120
140
160
180
200

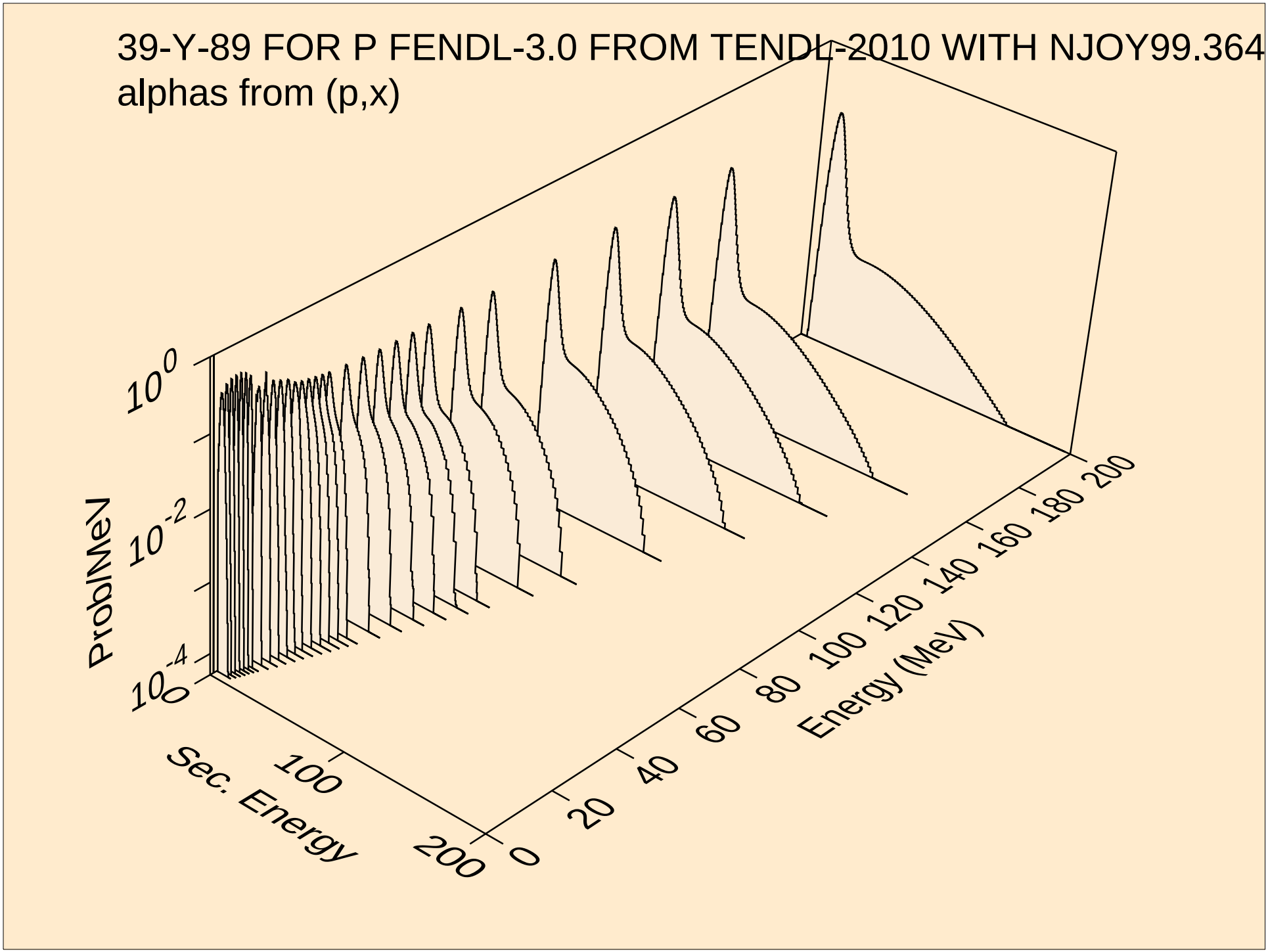

39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
Particle production cross sections
Cross section (barns)
Energy (MeV)
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
4.0
0
20
40
60
80
100
120
140
160
180
200
neutrons
deuterons
tritons
he-3
alphas


39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
neutrons from (p,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)


39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
deuterons from (p,x)
Prob/MeV
10^0
10^-2
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)


39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
tritons from (p,x)
Prob/MeV
10-1
10-3
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)


39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
he3s from (p,x)
Prob/MeV
10^0
10^-2
0
Sec. Energy
100
200
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)


39-Y-89 FOR P FENDL-3.0 FROM TENDL-2010 WITH NJOY99.364
alphas from (p,x)
Prob/MeV
$10^{0}$
$10^{-2}$
$10^{-4}$
0
100
200
Sec. Energy
0
20
40
60
80
100
120
140
160
180
200
Energy (MeV)