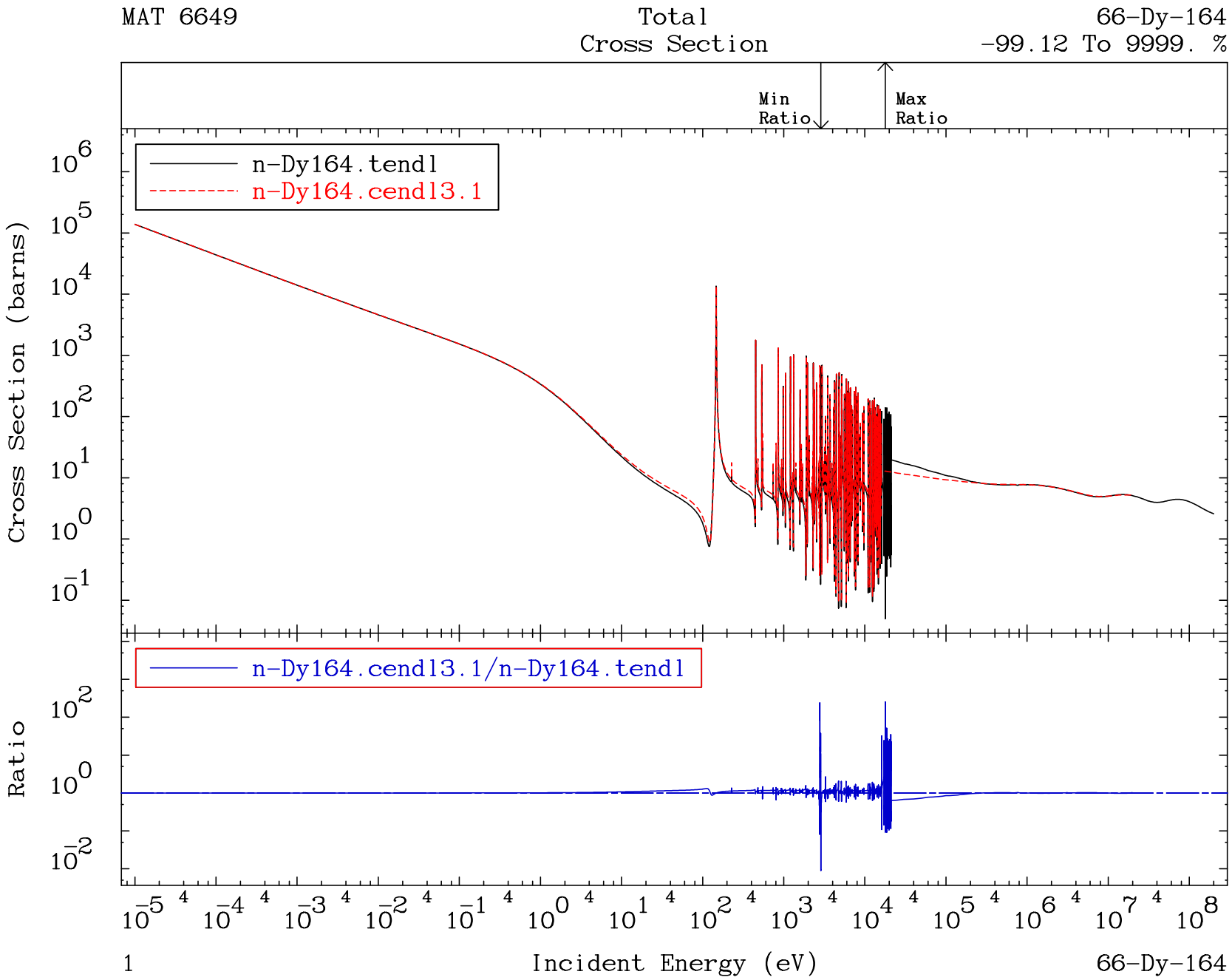
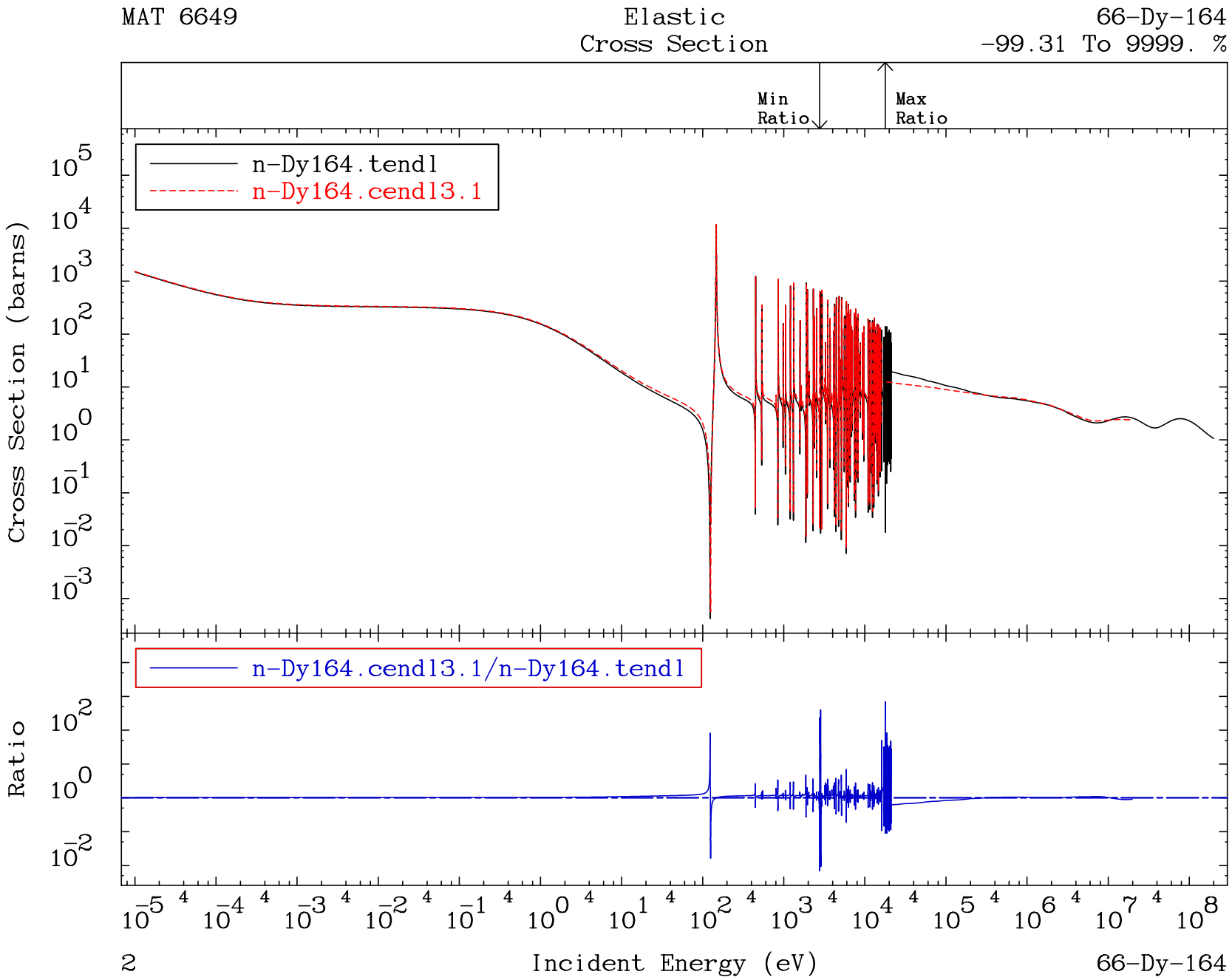
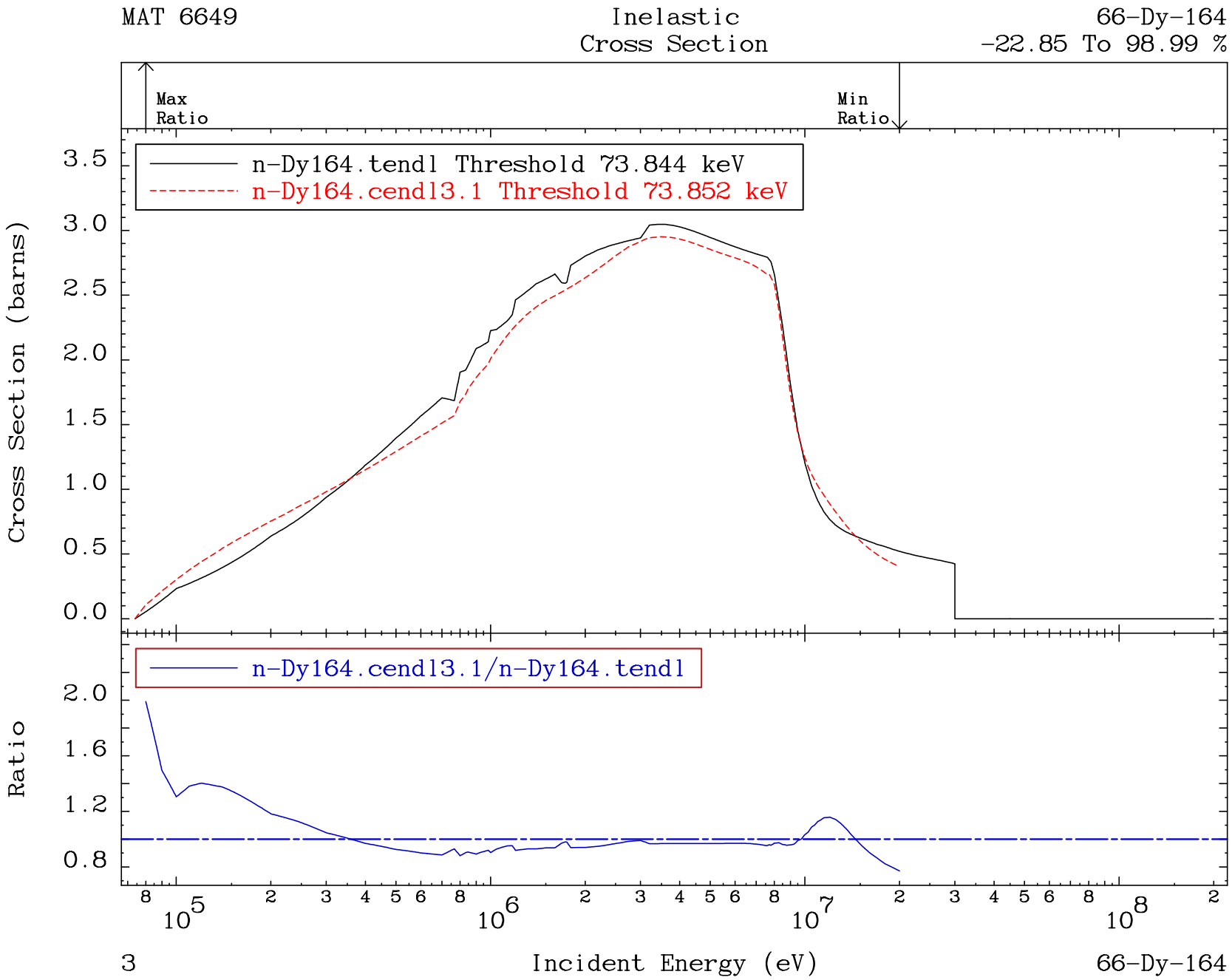
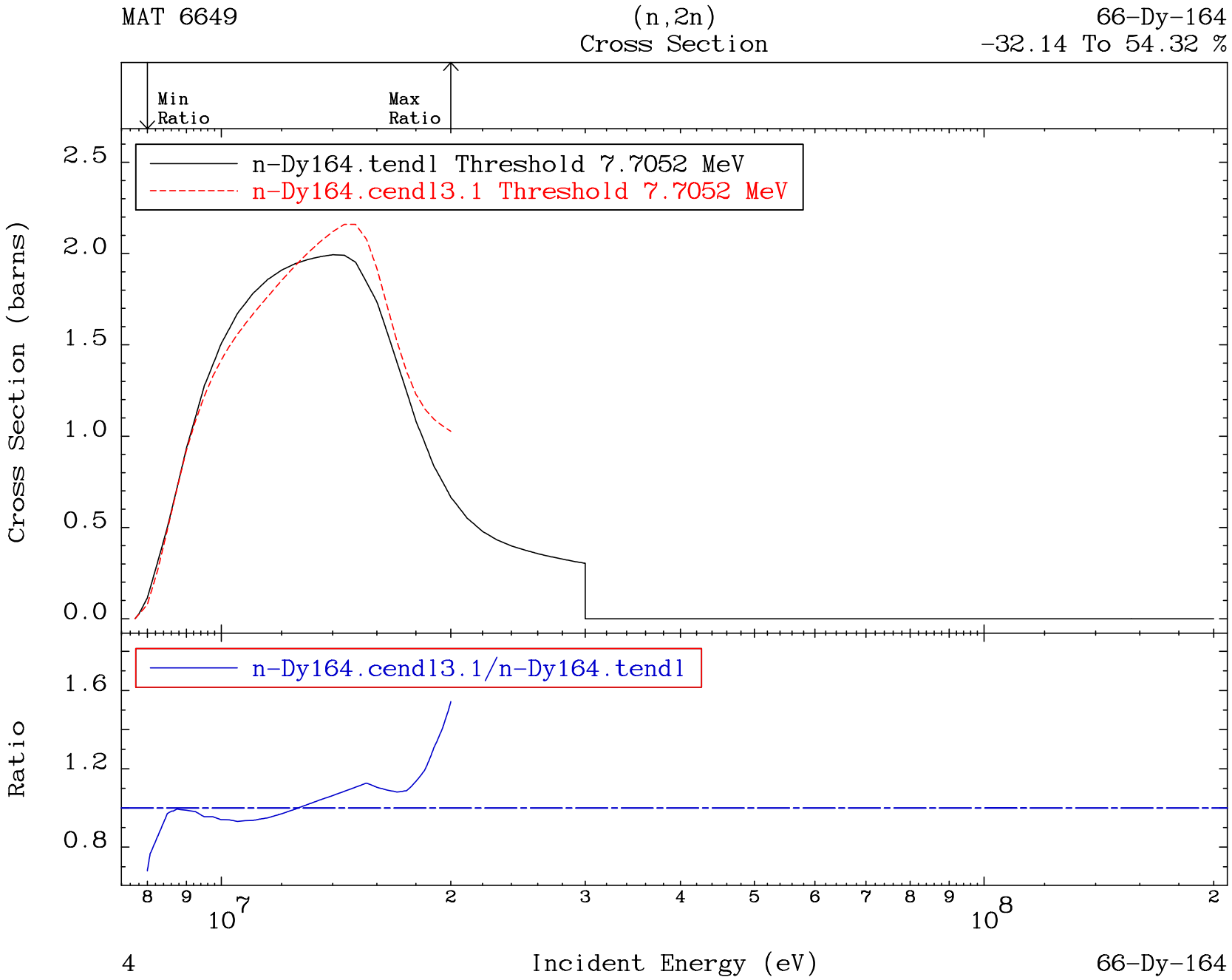
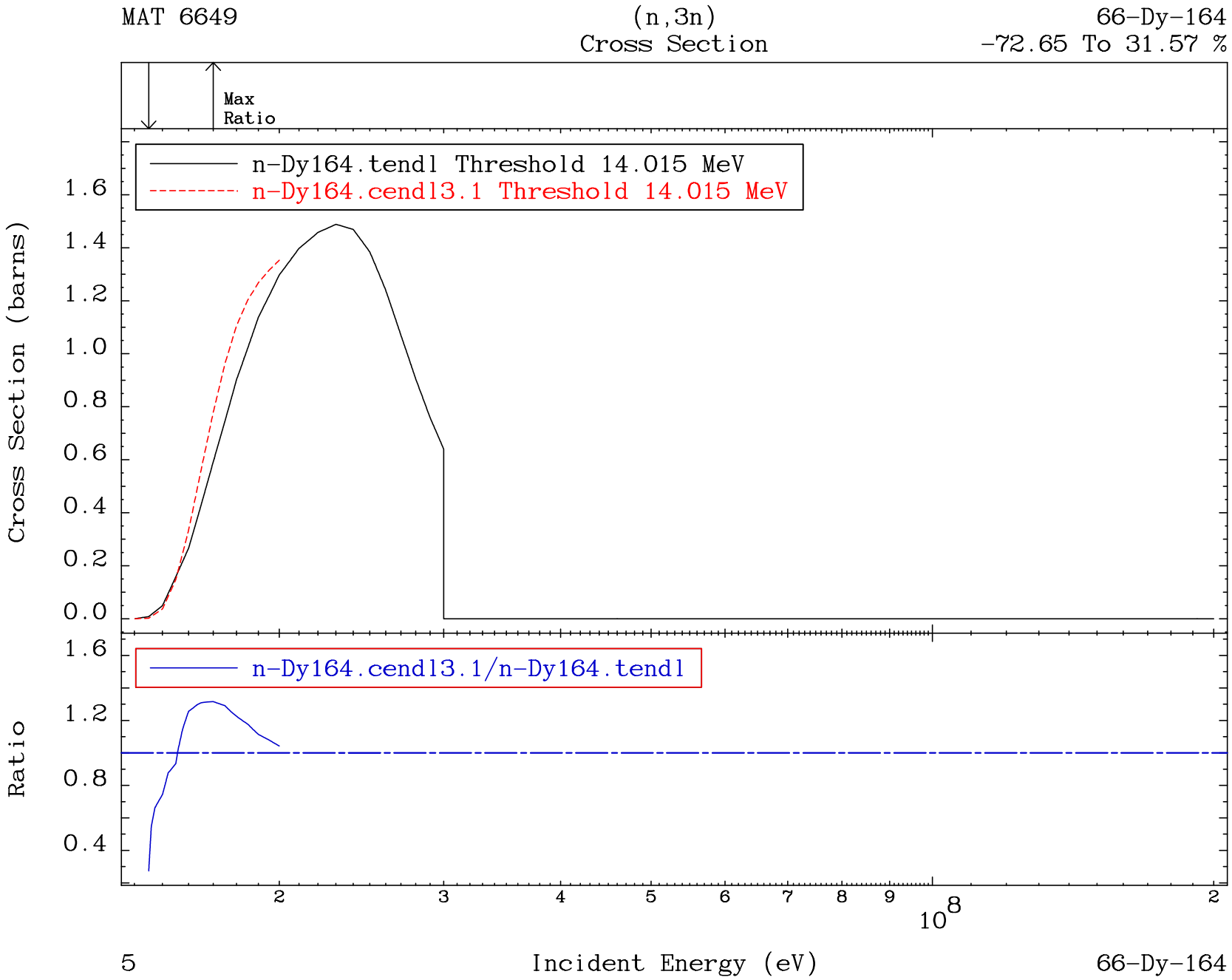
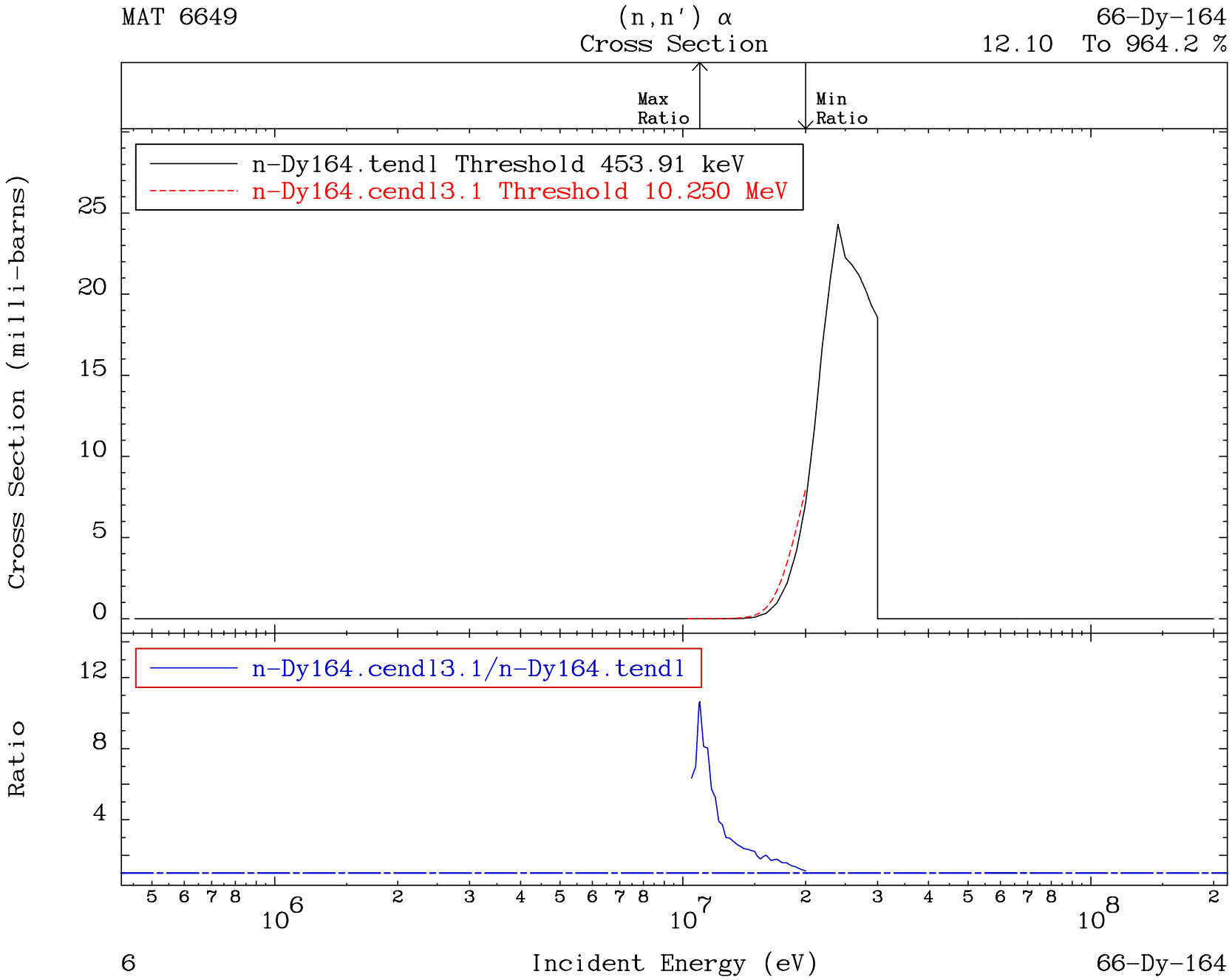

MAT 6649
Total
Cross Section
66-Dy-164
-99.12 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
1
66-Dy-164

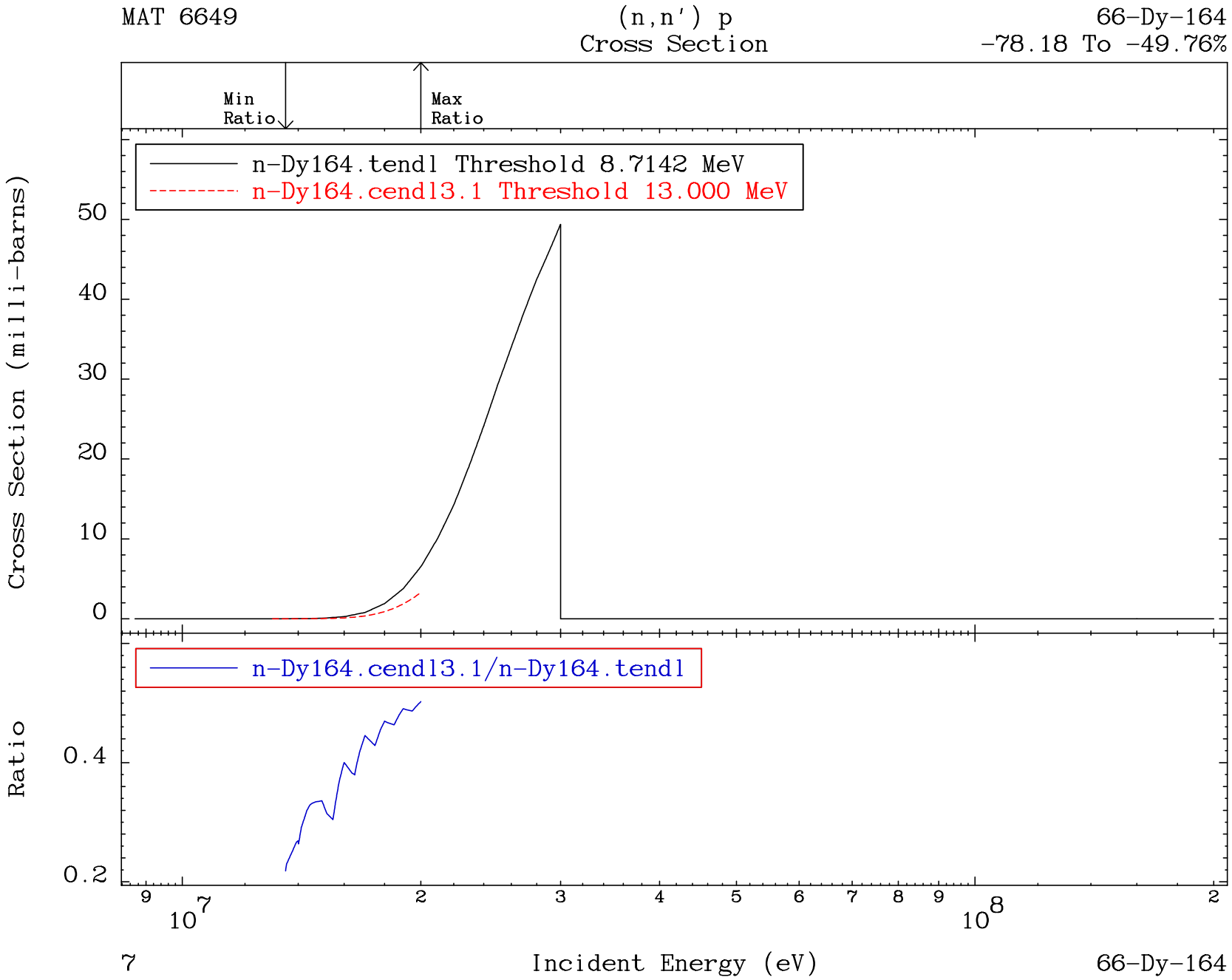

MAT 6649
Elastic
Cross Section
66-Dy-164
-99.31 To 9999. %
Min
Ratio
Max
Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
2
66-Dy-164

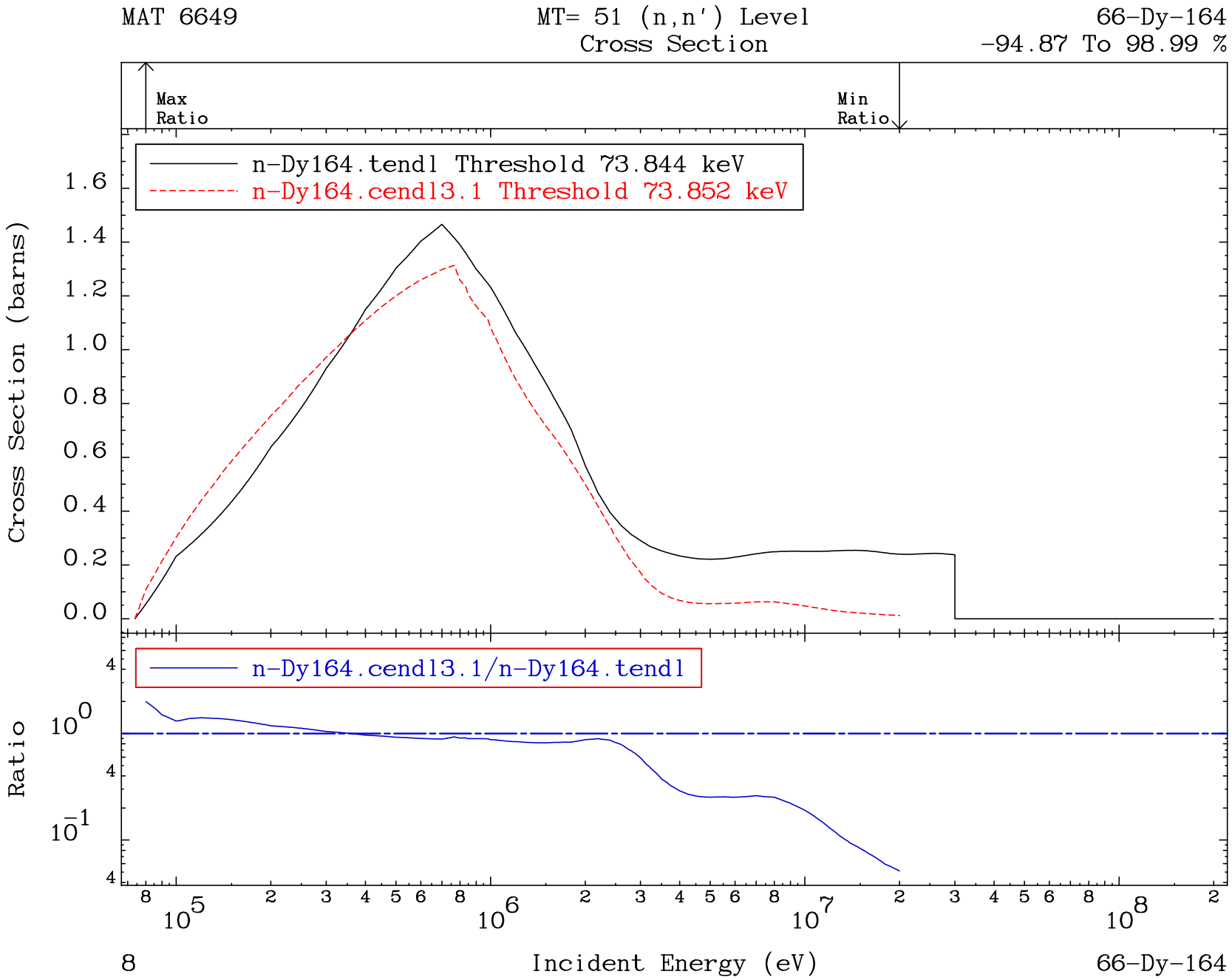

MAT 6649
Inelastic
Cross Section
66-Dy-164
-22.85 To 98.99 %
Max
Ratio
Min
Ratio
n-Dy164.tendl Threshold 73.844 keV
n-Dy164.cendl3.1 Threshold 73.852 keV
Cross Section (barns)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
2.0
1.6
1.2
0.8
8
2
3
4
5
6
8
10^5
10^6
10^7
10^8
3
Incident Energy (eV)
66-Dy-164

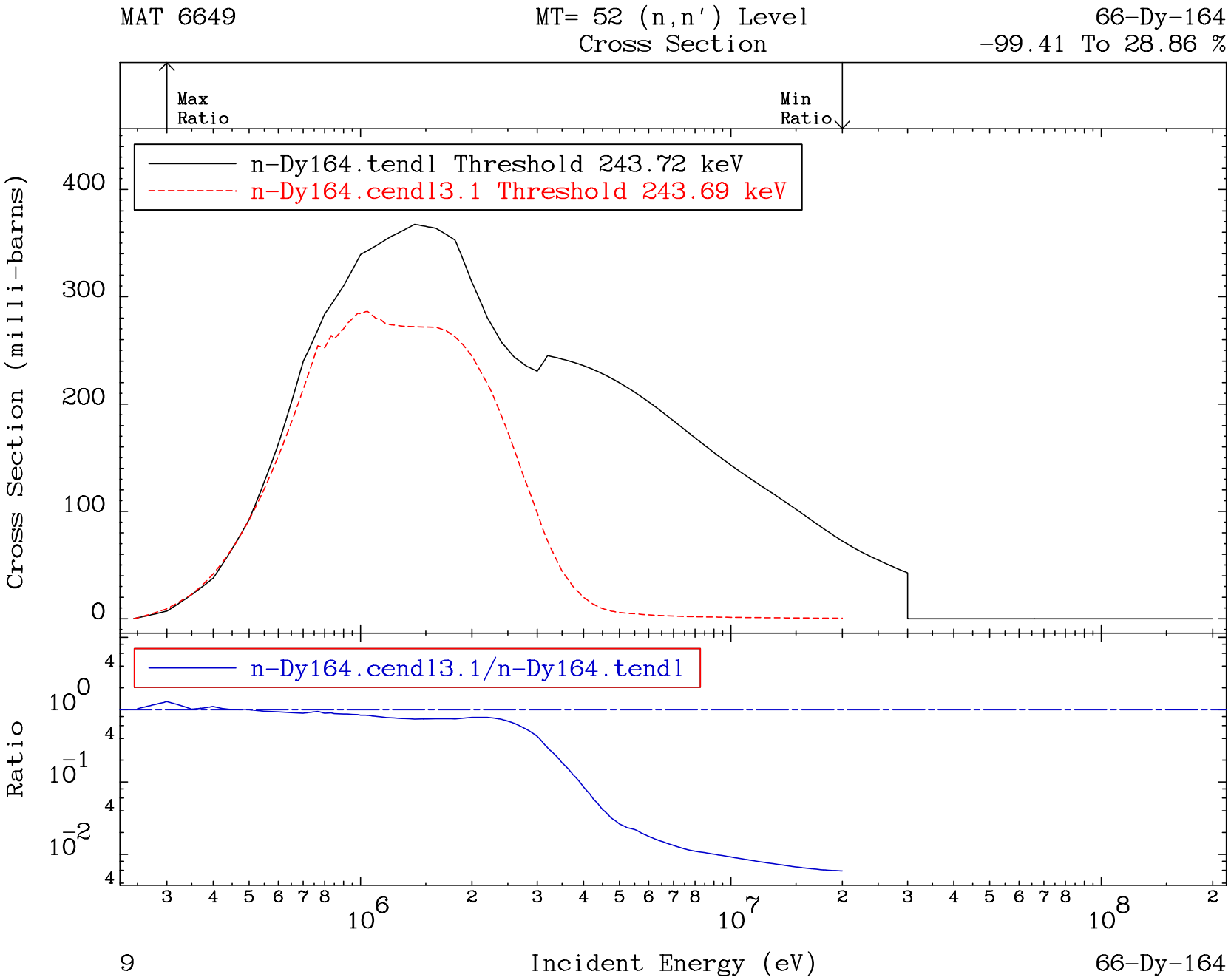

MAT 6649
(n,2n)
Cross Section
66-Dy-164
-32.14 To 54.32 %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 7.7052 MeV
n-Dy164.cendl3.1 Threshold 7.7052 MeV
Cross Section (barns)
2.5
2.0
1.5
1.0
0.5
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
1.6
1.2
0.8
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
4
Incident Energy (eV)
66-Dy-164

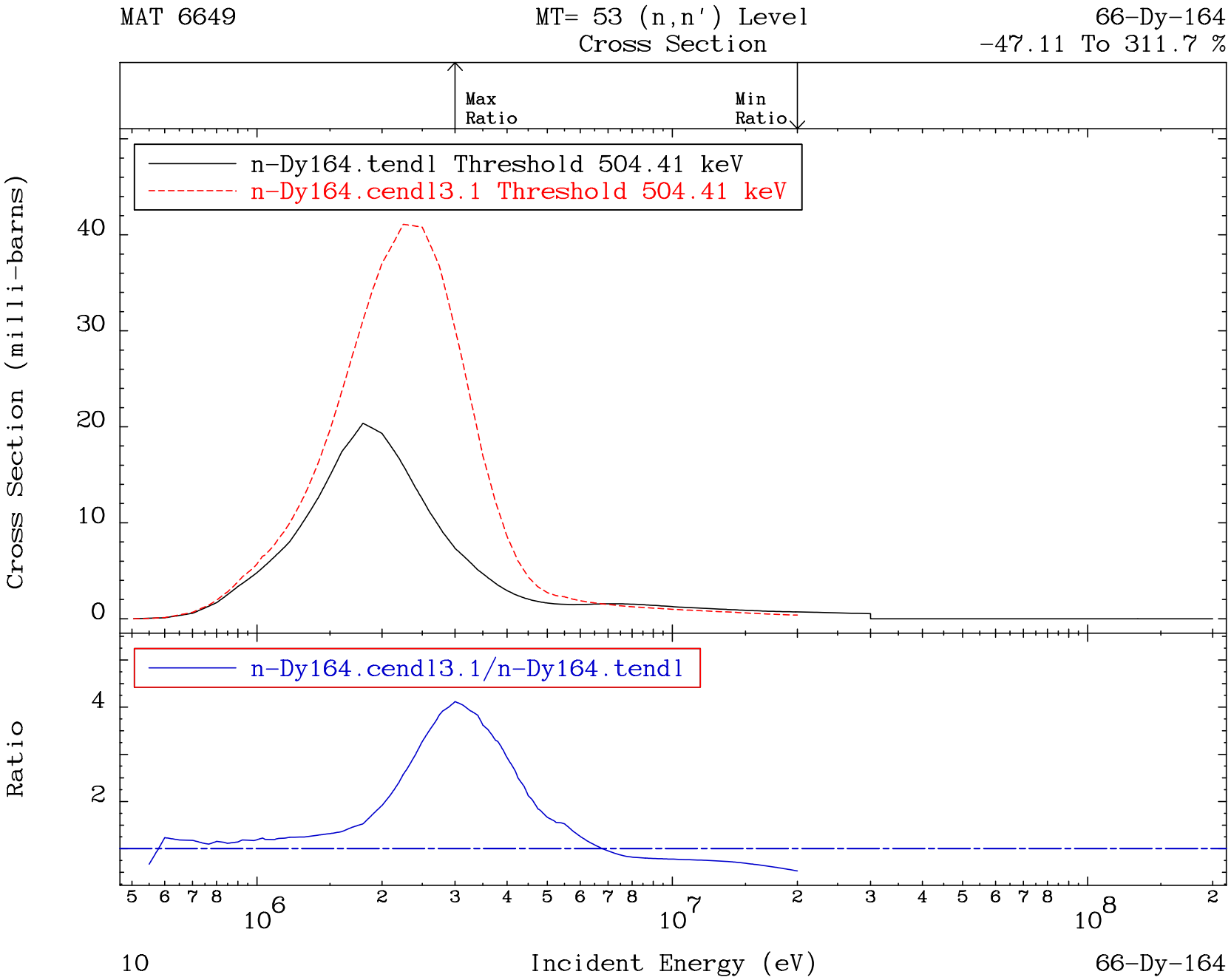

MAT 6649
(n,3n)
Cross Section
66-Dy-164
-72.65 To 31.57 %
Max
Ratio
n-Dy164.tendl Threshold 14.015 MeV
n-Dy164.cendl3.1 Threshold 14.015 MeV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
1.6
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
5
Incident Energy (eV)
66-Dy-164

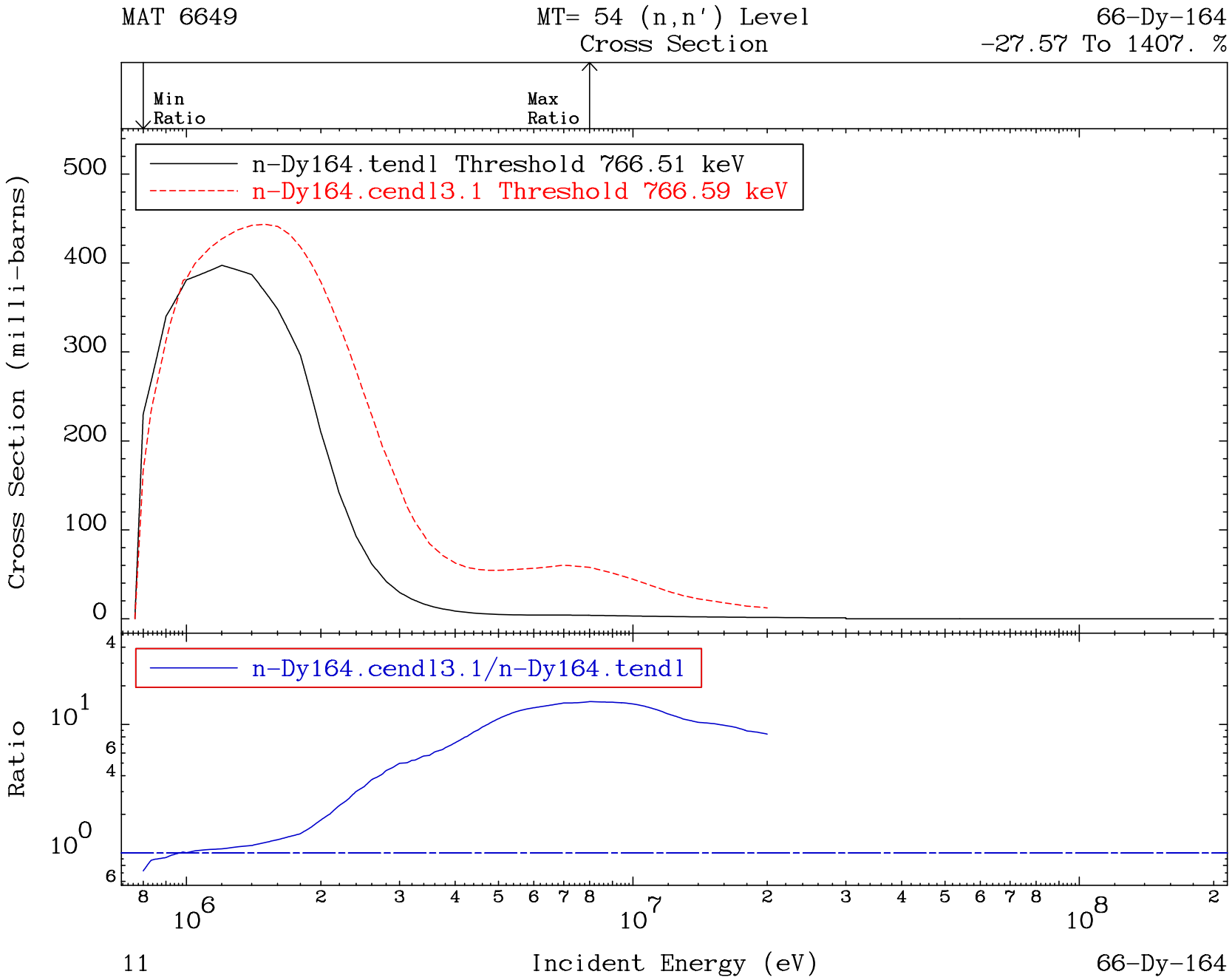

MAT 6649
(n,n') α
Cross Section
66-Dy-164
12.10 To 964.2 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 453.91 keV
n-Dy164.cendl3.1 Threshold 10.250 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
12
8
4
5 6 7 8
10^6
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
6
Incident Energy (eV)
66-Dy-164

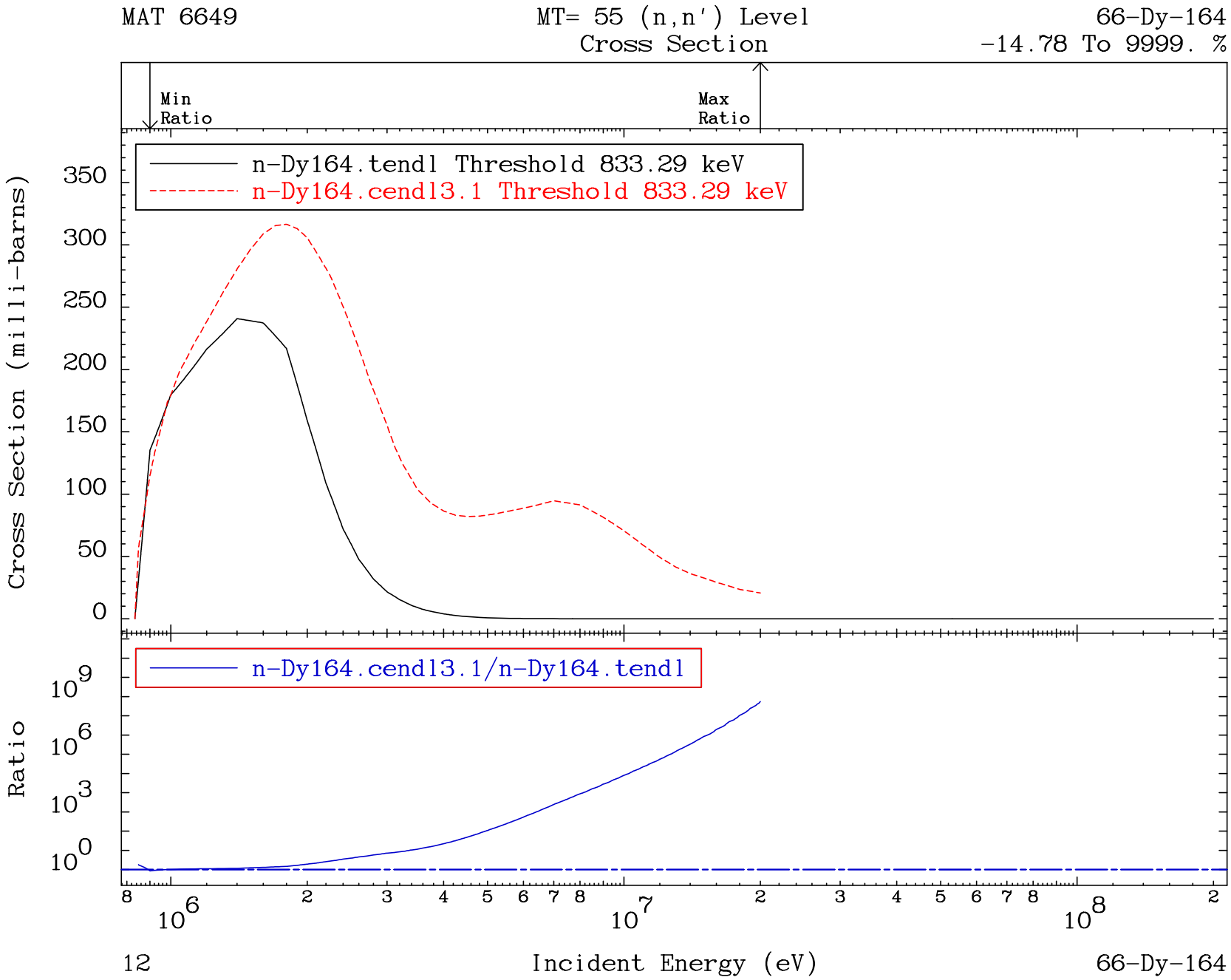

MAT 6649
(n,n') p
Cross Section
66-Dy-164
-78.18 To -49.76%
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 8.7142 MeV
n-Dy164.cendl3.1 Threshold 13.000 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
0.4
0.2
9
10^7
2
3
4
5
6
7
8
9
10^8
2
7
Incident Energy (eV)
66-Dy-164

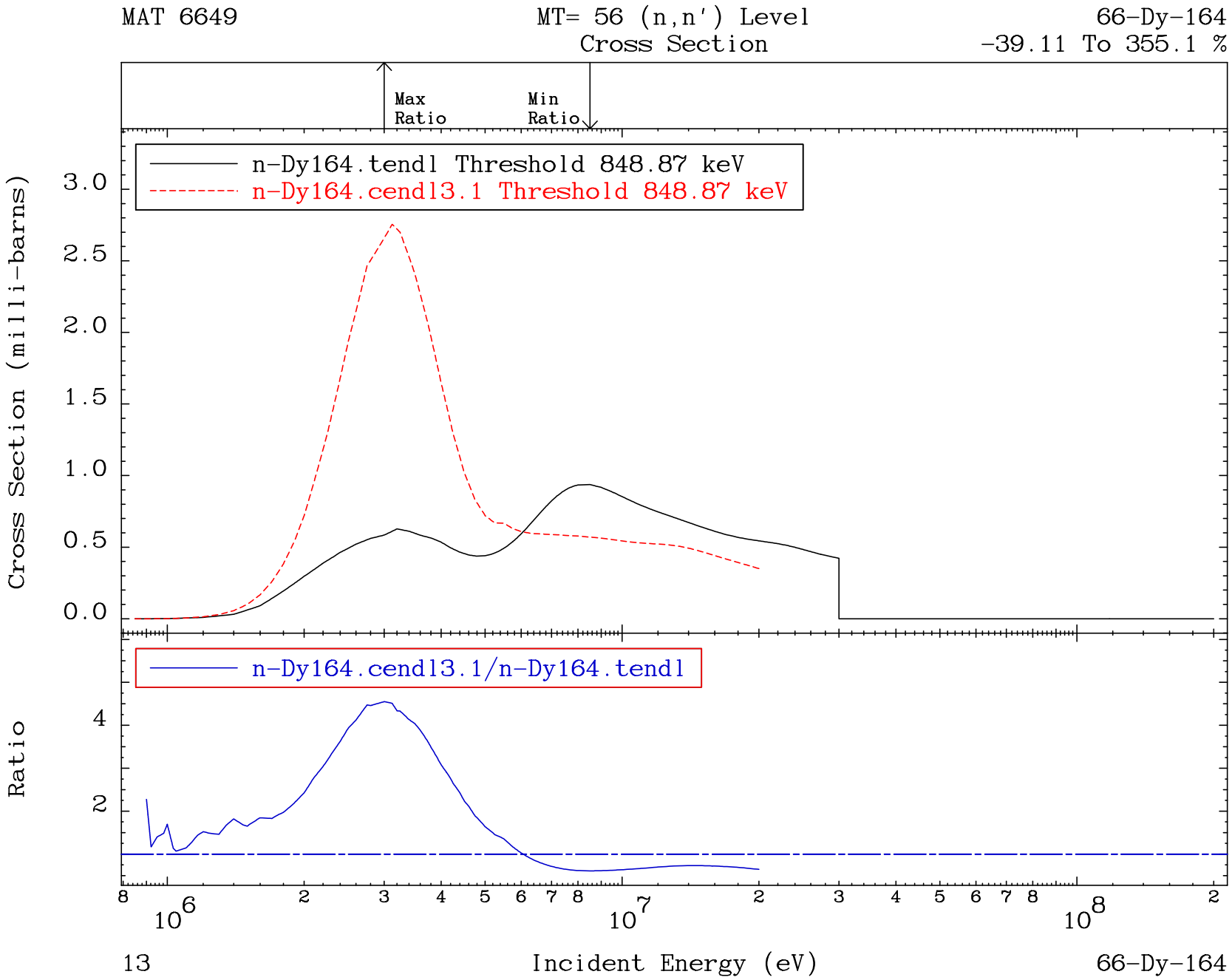

MAT 6649
MT= 51 (n,n') Level
Cross Section
66-Dy-164
-94.87 To 98.99 %
Max
Ratio
Min
Ratio
n-Dy164.tendl Threshold 73.844 keV
n-Dy164.cendl3.1 Threshold 73.852 keV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
4
10^0
4
10^-1
4
8
10^5
2
3
4
5
6
8
10^6
2
3
4
5
6
8
10^7
2
3
4
5
6
8
10^8
2
8
Incident Energy (eV)
66-Dy-164

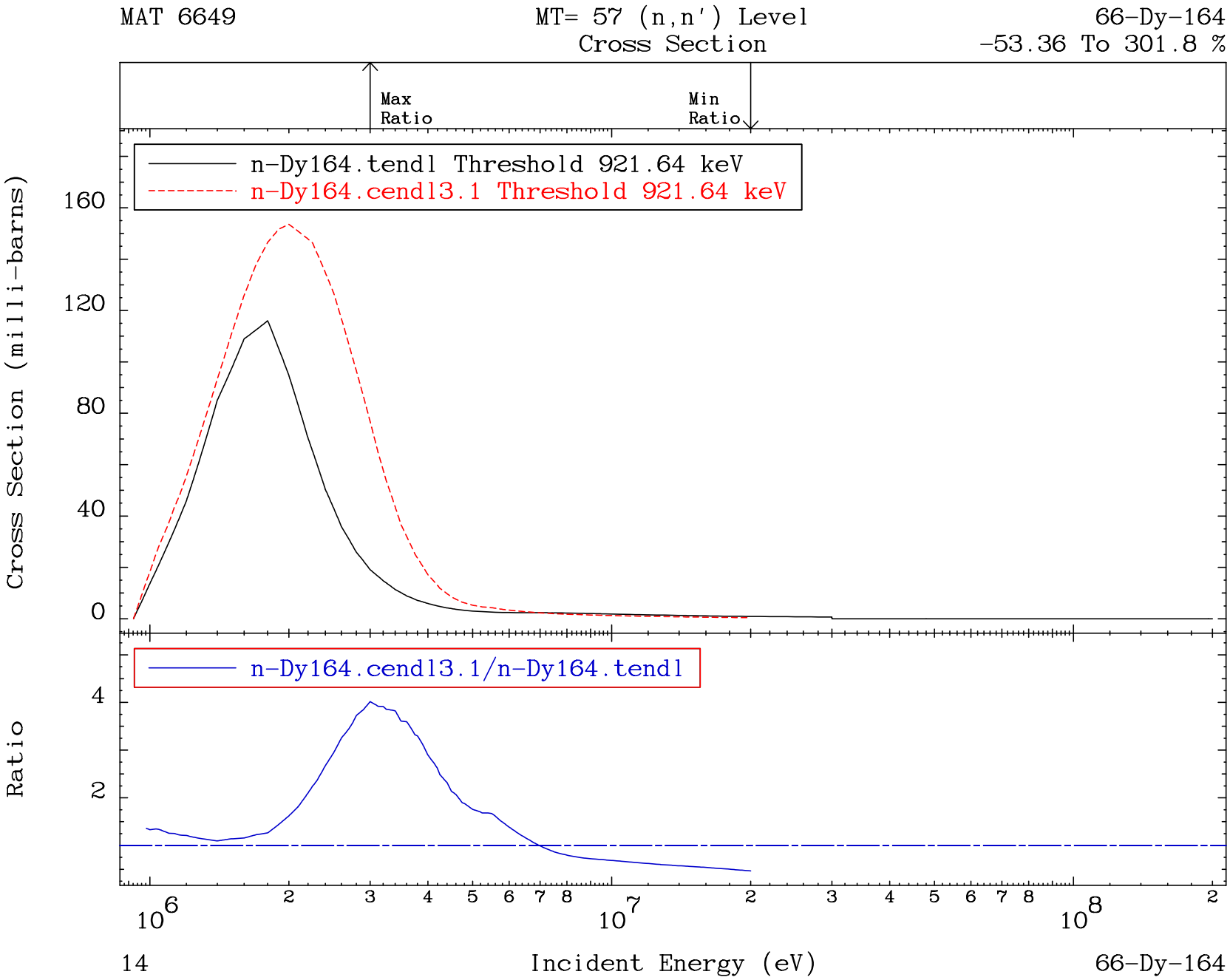

MAT 6649
MT= 52 (n,n') Level
Cross Section
66-Dy-164
-99.41 To 28.86 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 243.72 keV
n-Dy164.cendl3.1 Threshold 243.69 keV
Cross Section (milli-barns)
400
300
200
100
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^0
10^-1
10^-2
10^6
10^7
10^8
Incident Energy (eV)
9
66-Dy-164

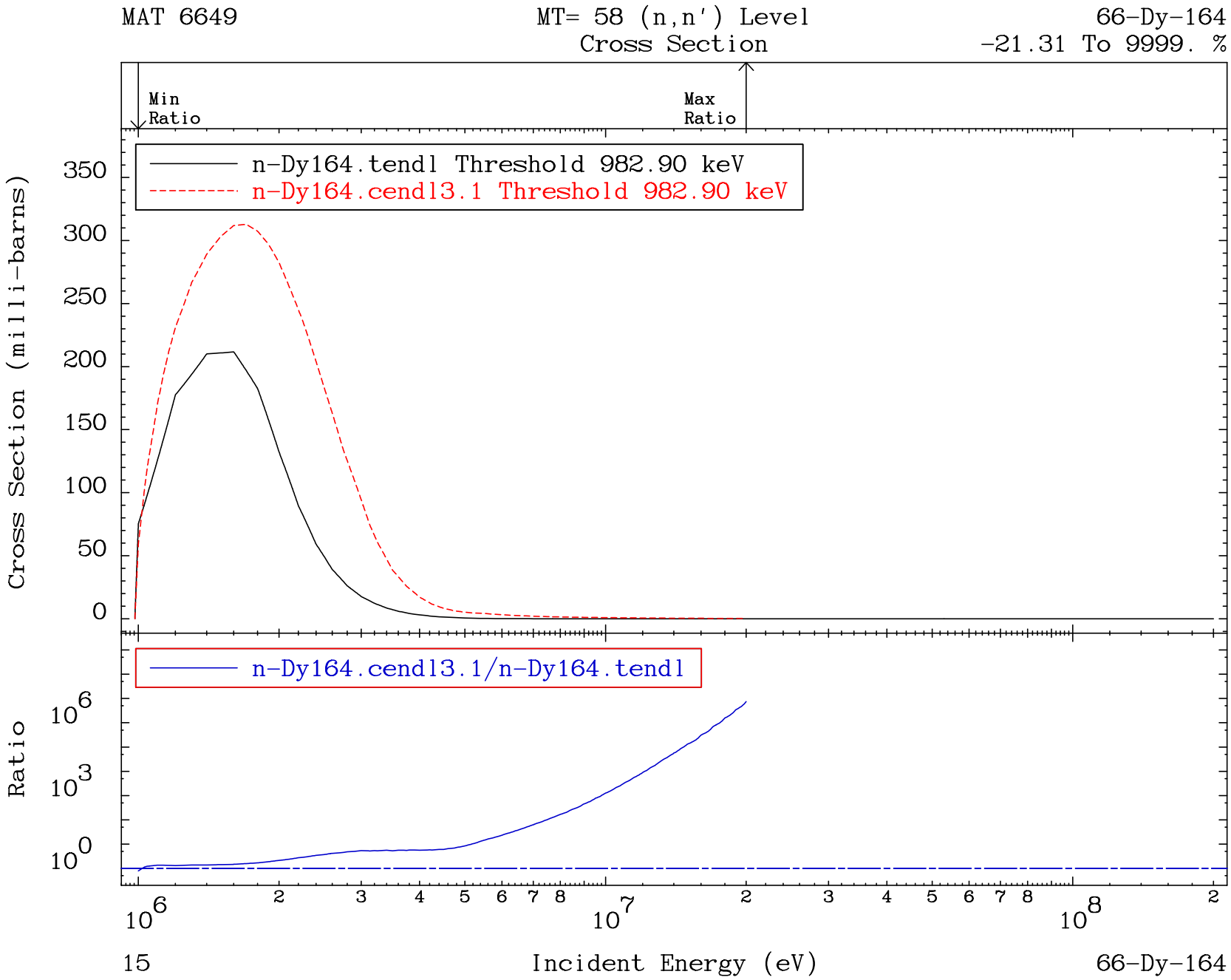

MAT 6649
MT= 53 (n,n') Level
Cross Section
66-Dy-164
-47.11 To 311.7 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 504.41 keV
n-Dy164.cendl3.1 Threshold 504.41 keV
Cross Section (milli-barns)
40
30
20
10
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
4
2
5 6 7 8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
10
Incident Energy (eV)
66-Dy-164

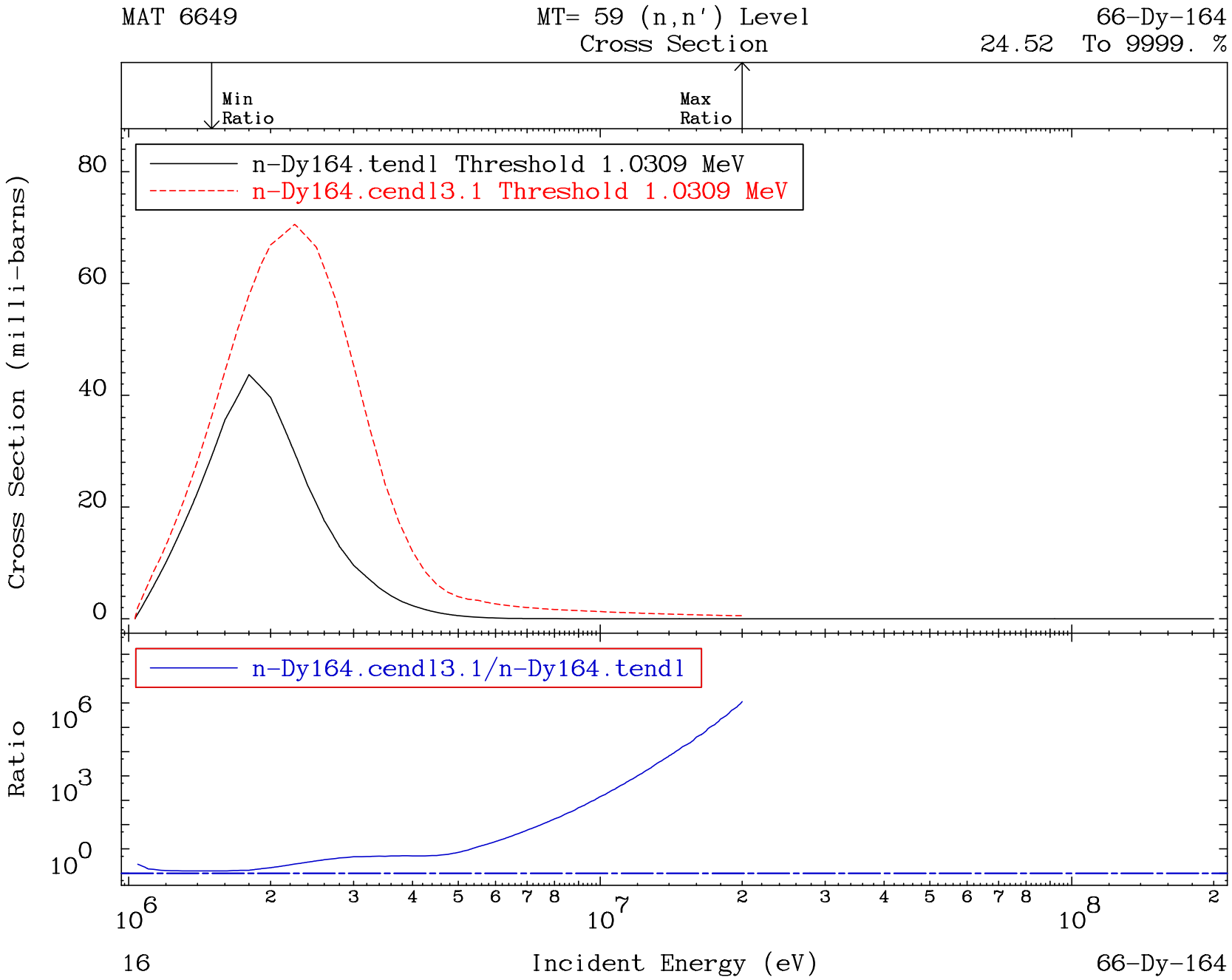

MAT 6649
MT= 54 (n,n') Level
Cross Section
66-Dy-164
-27.57 To 1407. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 766.51 keV
n-Dy164.cendl3.1 Threshold 766.59 keV
Cross Section (milli-barns)
500
400
300
200
100
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^1
10^0
6
4
6
8
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
11
Incident Energy (eV)
66-Dy-164

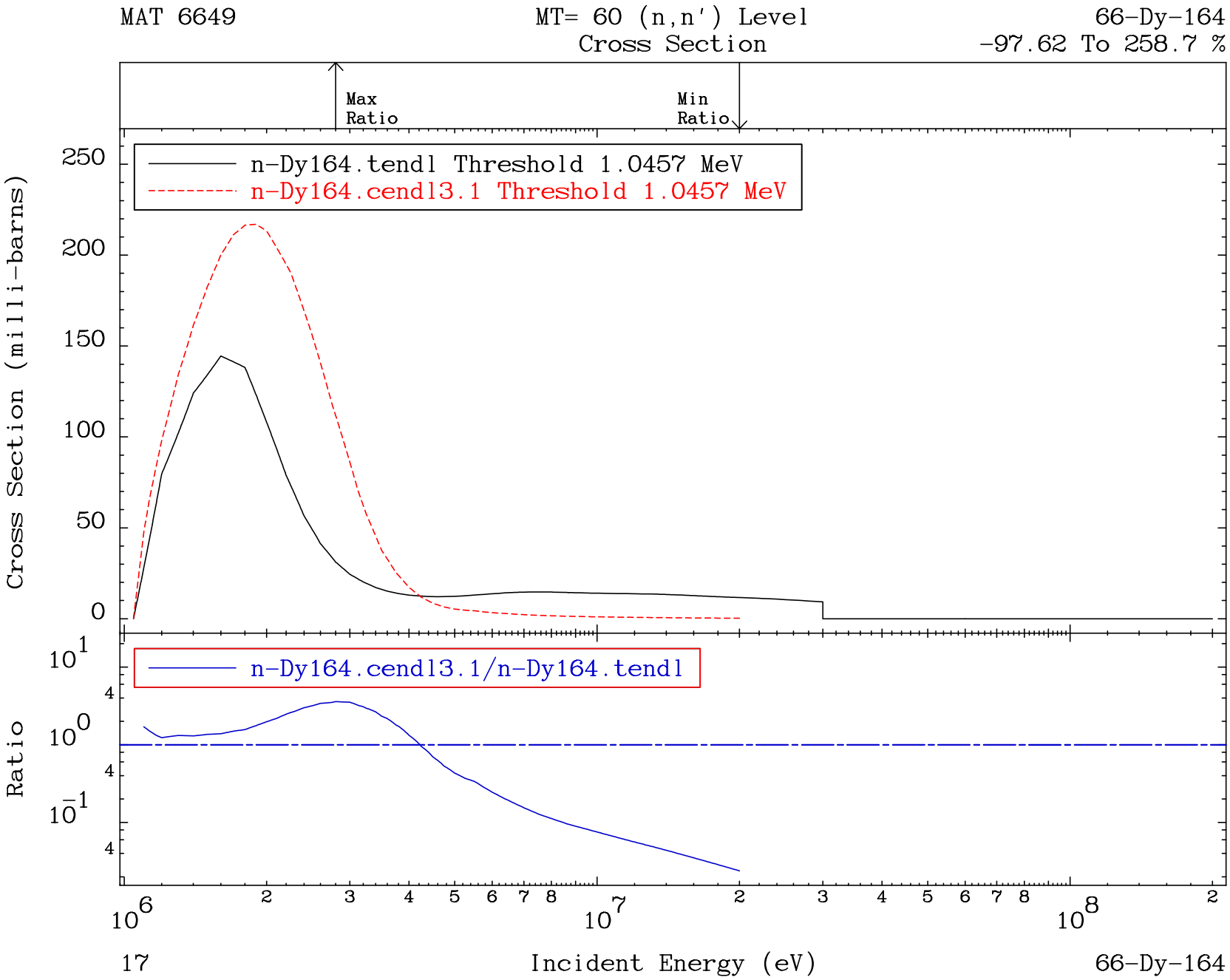

MAT 6649
MT= 55 (n,n') Level
Cross Section
66-Dy-164
-14.78 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 833.29 keV
n-Dy164.cendl3.1 Threshold 833.29 keV
Cross Section (milli-barns)
350
300
250
200
150
100
50
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^9
10^6
10^3
10^0
8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
12
Incident Energy (eV)
66-Dy-164

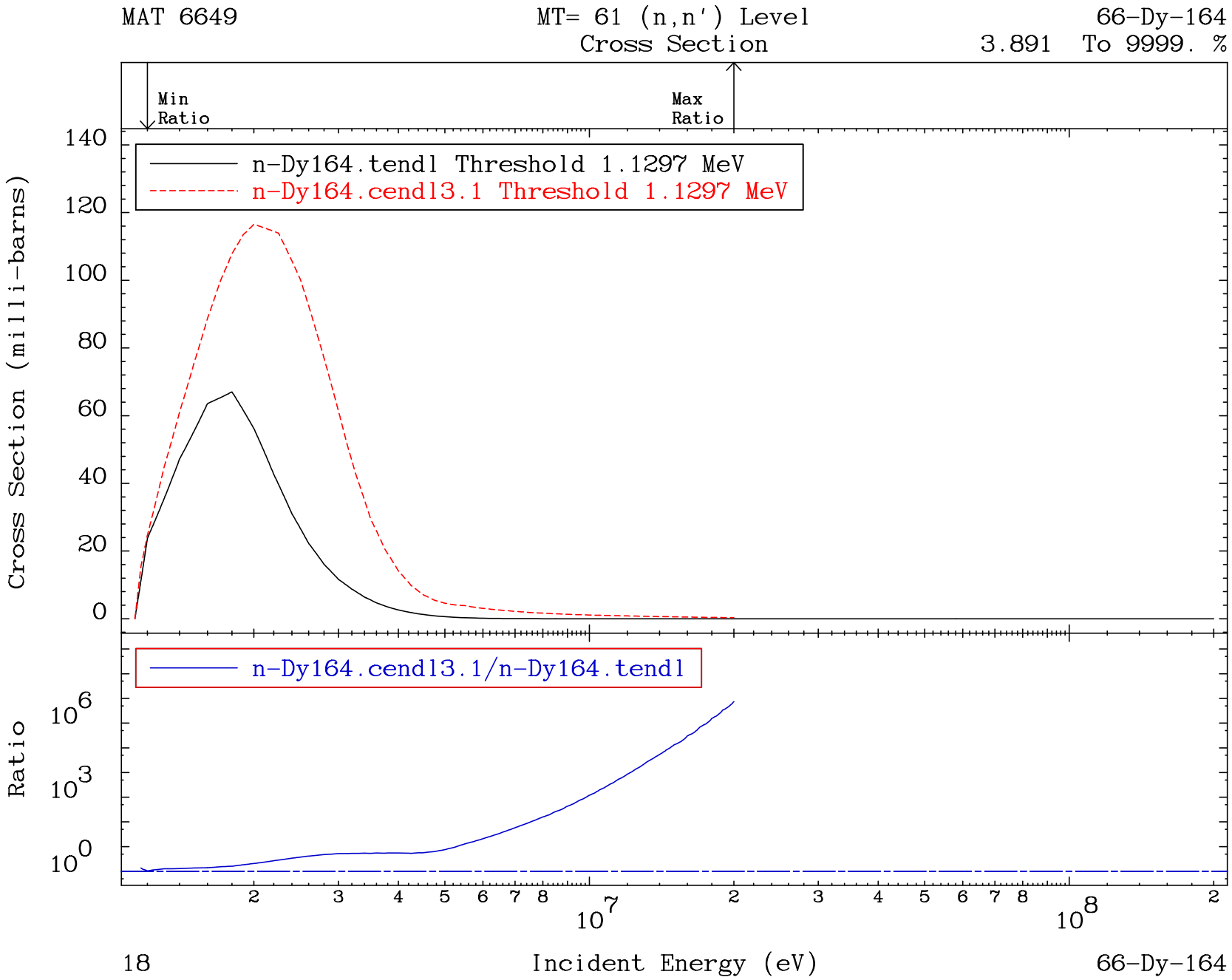

MAT 6649
MT= 56 (n,n') Level
Cross Section
66-Dy-164
-39.11 To 355.1 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 848.87 keV
n-Dy164.cendl3.1 Threshold 848.87 keV
Cross Section (milli-barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
4
2
8
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
13
Incident Energy (eV)
66-Dy-164

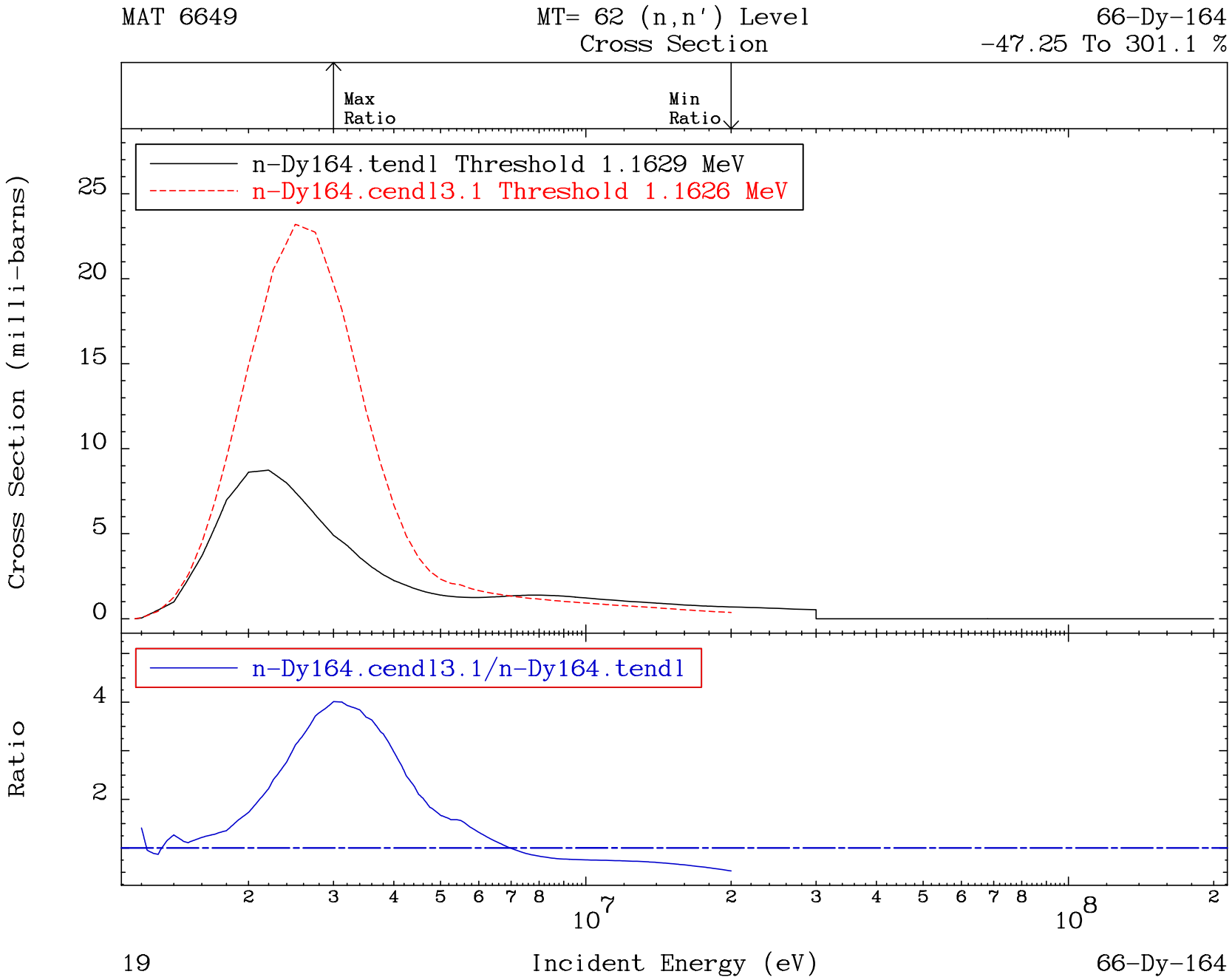

MAT 6649
MT= 57 (n,n') Level
Cross Section
66-Dy-164
-53.36 To 301.8 %
Max
Ratio
Min
Ratio
n-Dy164.tendl Threshold 921.64 keV
n-Dy164.cendl3.1 Threshold 921.64 keV
Cross Section (milli-barns)
160
120
80
40
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
4
2
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
14
Incident Energy (eV)
66-Dy-164

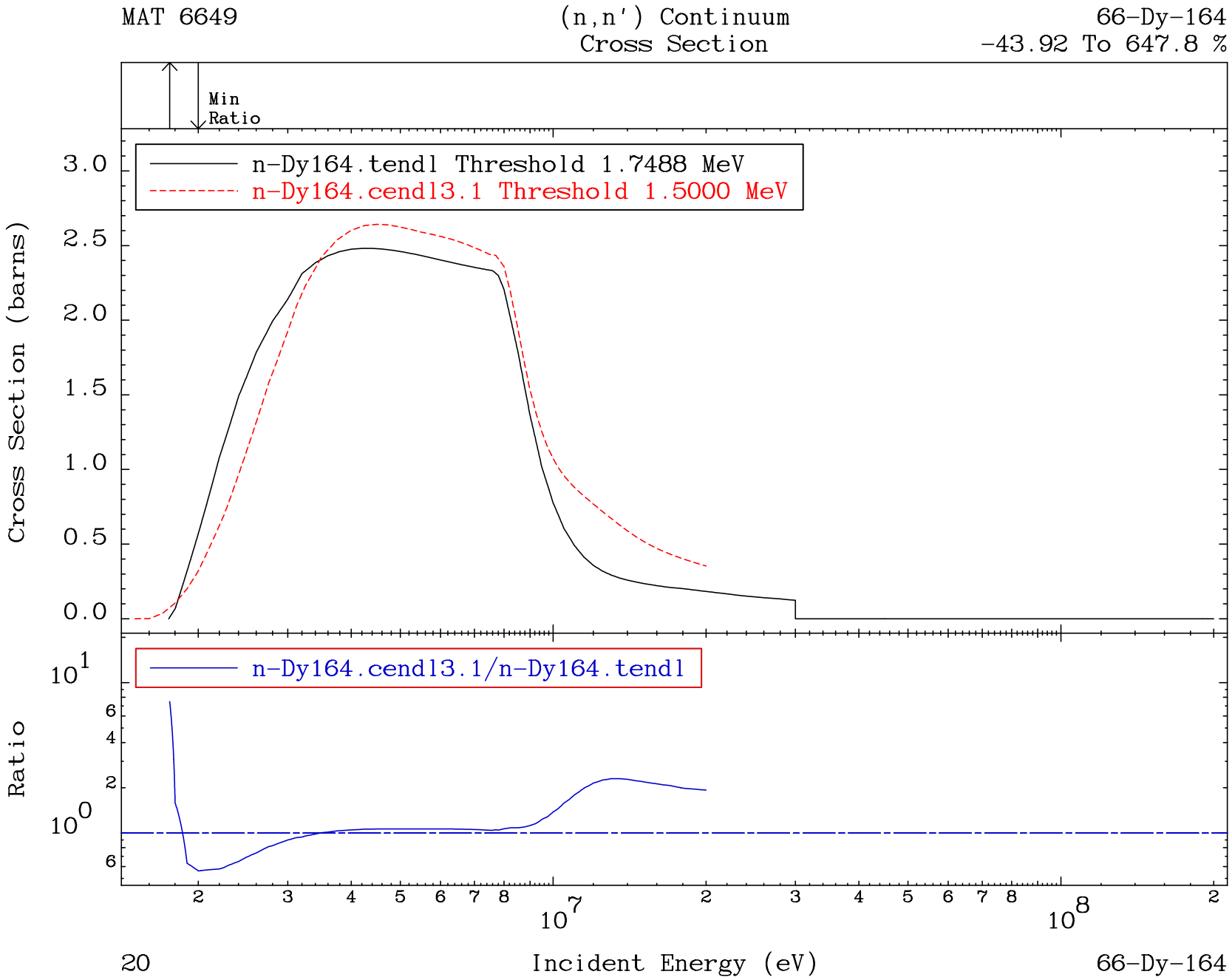

MAT 6649
MT= 58 (n,n') Level
Cross Section
66-Dy-164
-21.31 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 982.90 keV
n-Dy164.cendl3.1 Threshold 982.90 keV
Cross Section (milli-barns)
350
300
250
200
150
100
50
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^6
10^3
10^0
10^6
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
15
Incident Energy (eV)
66-Dy-164

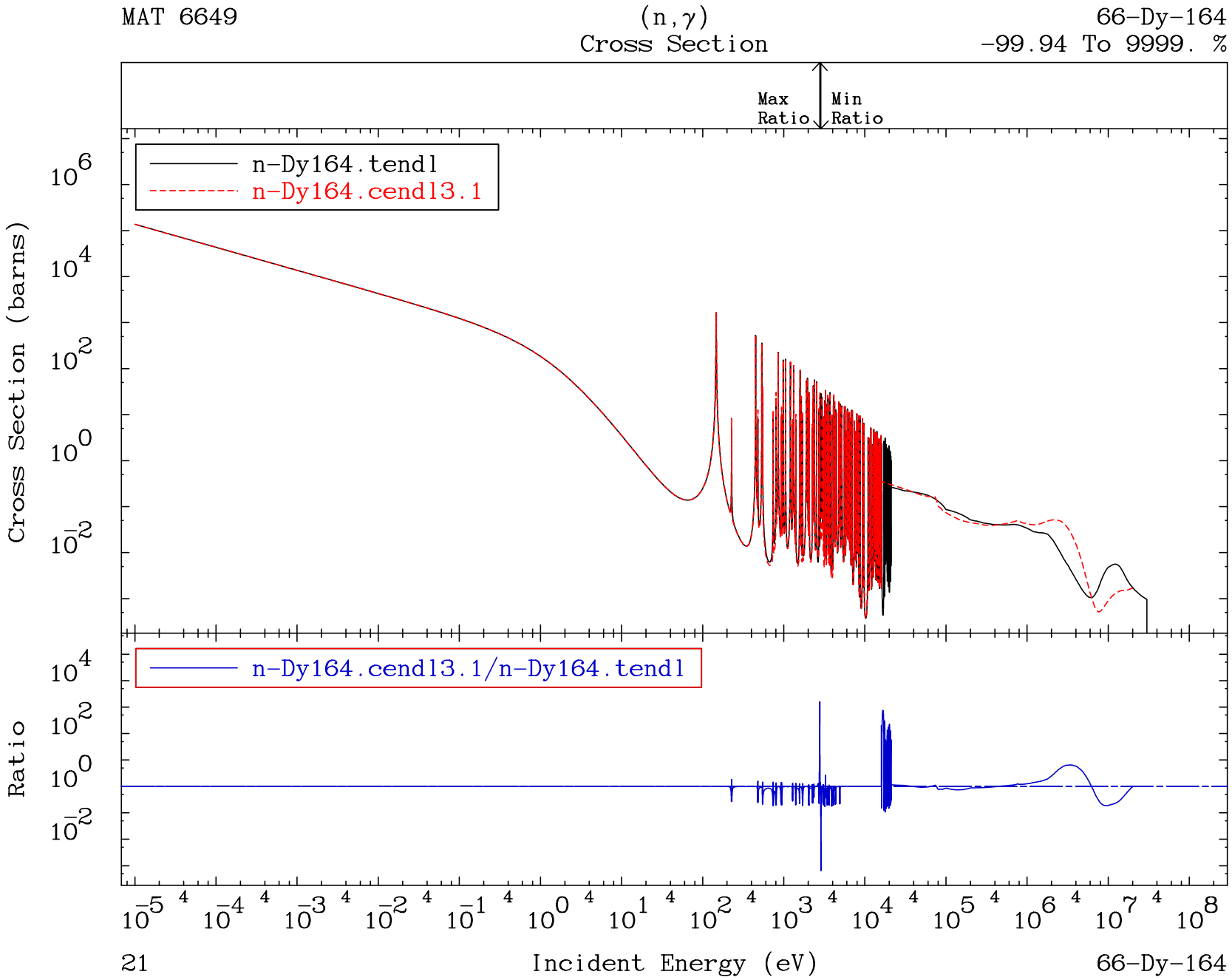

MAT 6649
MT= 59 (n,n') Level
Cross Section
66-Dy-164
24.52 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 1.0309 MeV
n-Dy164.cendl3.1 Threshold 1.0309 MeV
Cross Section (milli-barns)
80
60
40
20
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^6
10^3
10^0
10^6
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
16
Incident Energy (eV)
66-Dy-164

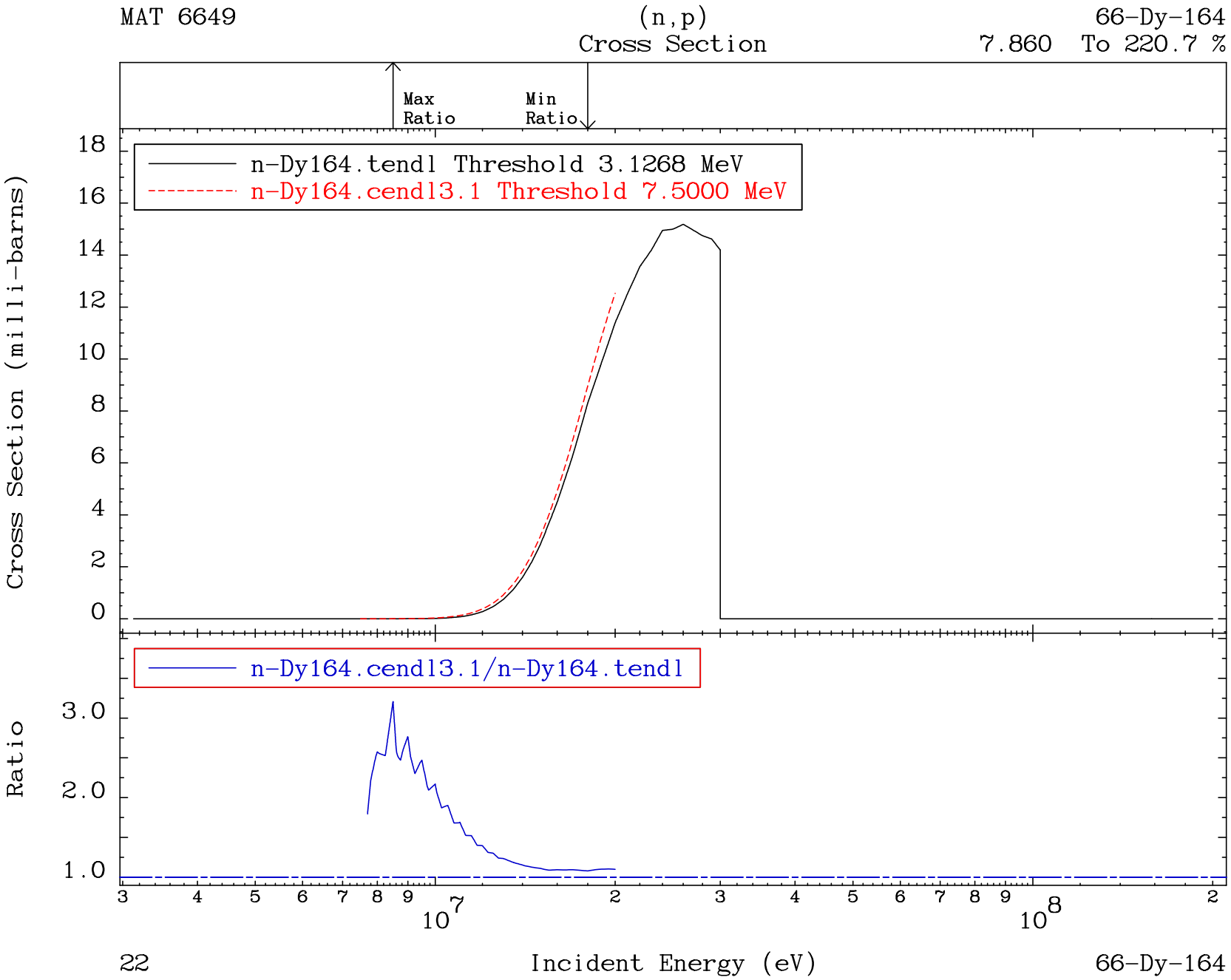

MAT 6649
MT= 60 (n,n') Level
Cross Section
66-Dy-164
-97.62 To 258.7 %
Max
Ratio
Min
Ratio
n-Dy164.tendl Threshold 1.0457 MeV
n-Dy164.cendl3.1 Threshold 1.0457 MeV
Cross Section (milli-barns)
250
200
150
100
50
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^1
10^0
10^-1
10^6
10^7
10^8
Incident Energy (eV)
17
66-Dy-164

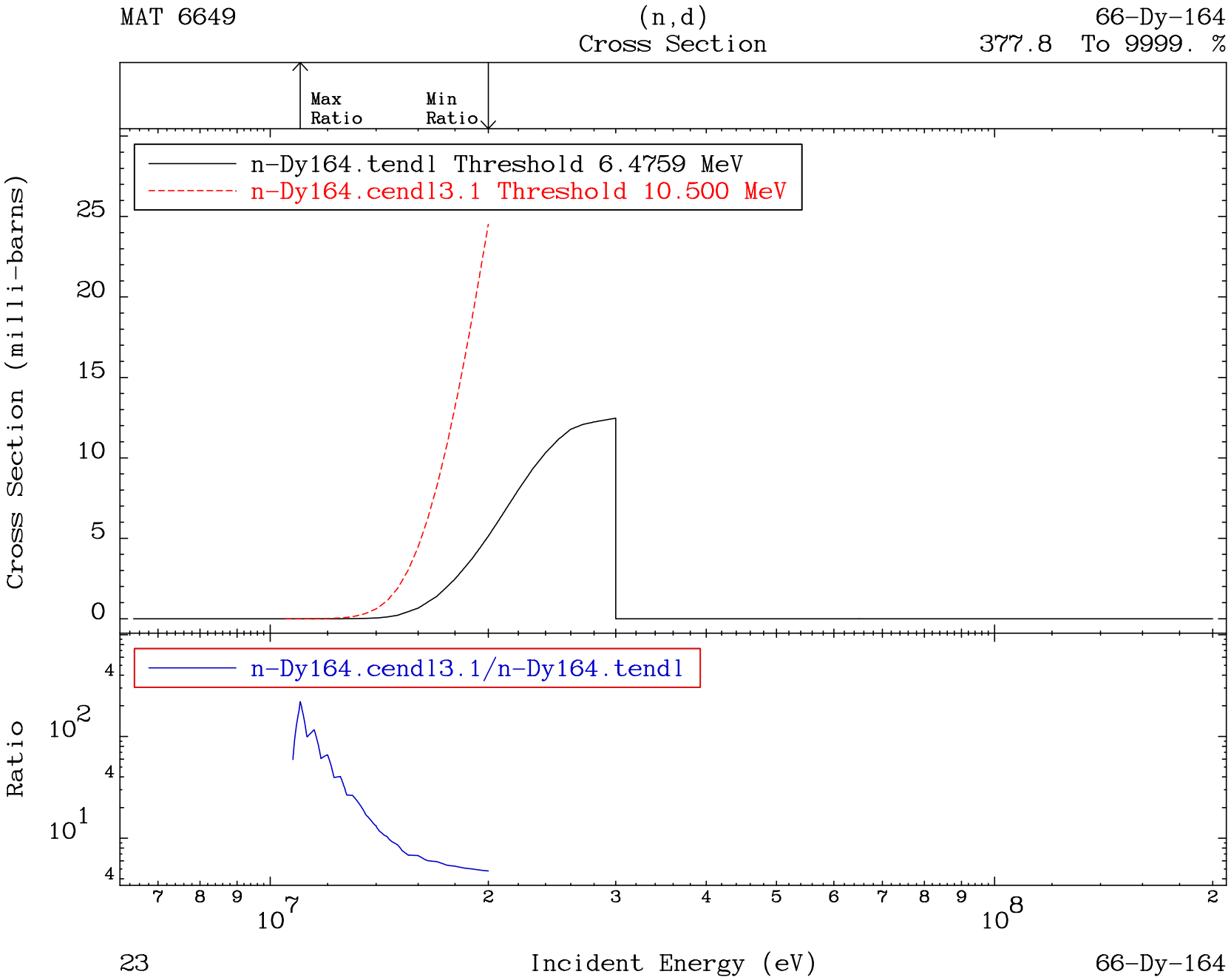

MAT 6649
MT= 61 (n,n') Level
Cross Section
66-Dy-164
3.891 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 1.1297 MeV
n-Dy164.cendl3.1 Threshold 1.1297 MeV
Cross Section (milli-barns)
140
120
100
80
60
40
20
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^6
10^3
10^0
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
18
Incident Energy (eV)
66-Dy-164

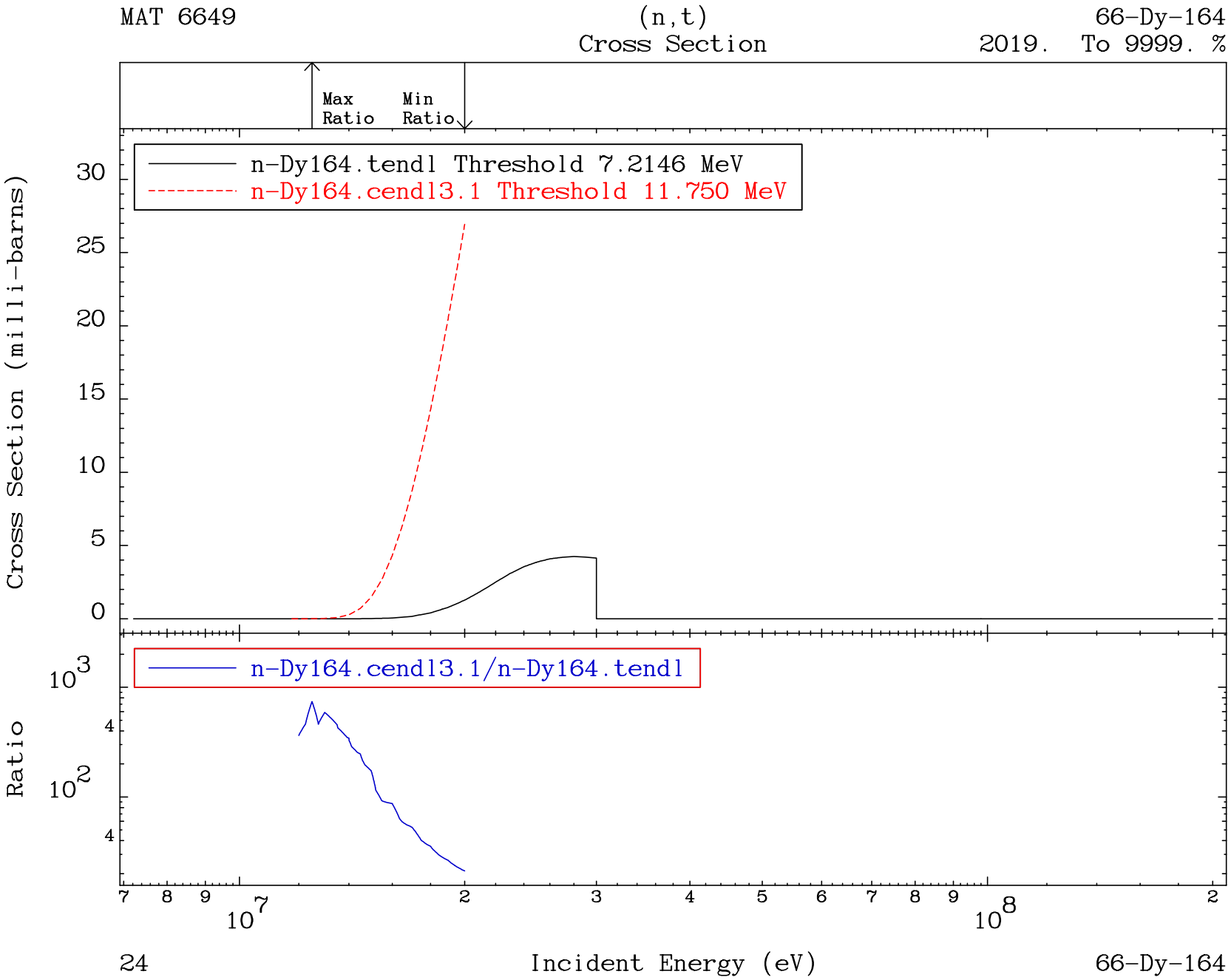

MAT 6649
MT= 62 (n,n') Level
Cross Section
66-Dy-164
-47.25 To 301.1 %
Max
Ratio
Min
Ratio
n-Dy164.tendl Threshold 1.1629 MeV
n-Dy164.cendl3.1 Threshold 1.1626 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
4
2
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
19
Incident Energy (eV)
66-Dy-164

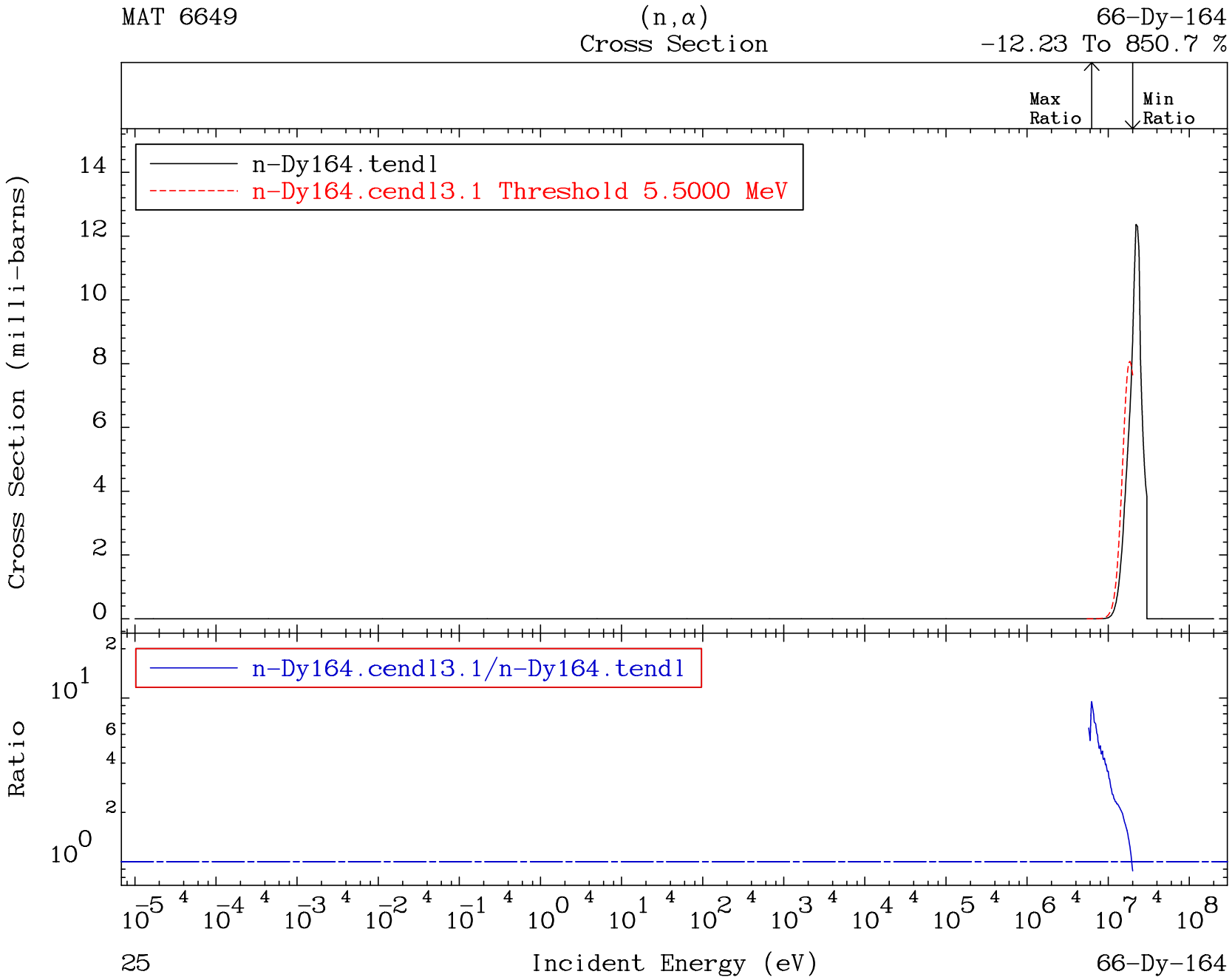

MAT 6649
(n,n') Continuum
Cross Section
66-Dy-164
-43.92 To 647.8 %
Min
Ratio
n-Dy164.tendl Threshold 1.7488 MeV
n-Dy164.cendl3.1 Threshold 1.5000 MeV
Cross Section (barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^1
6
4
2
10^0
6
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
20
Incident Energy (eV)
66-Dy-164

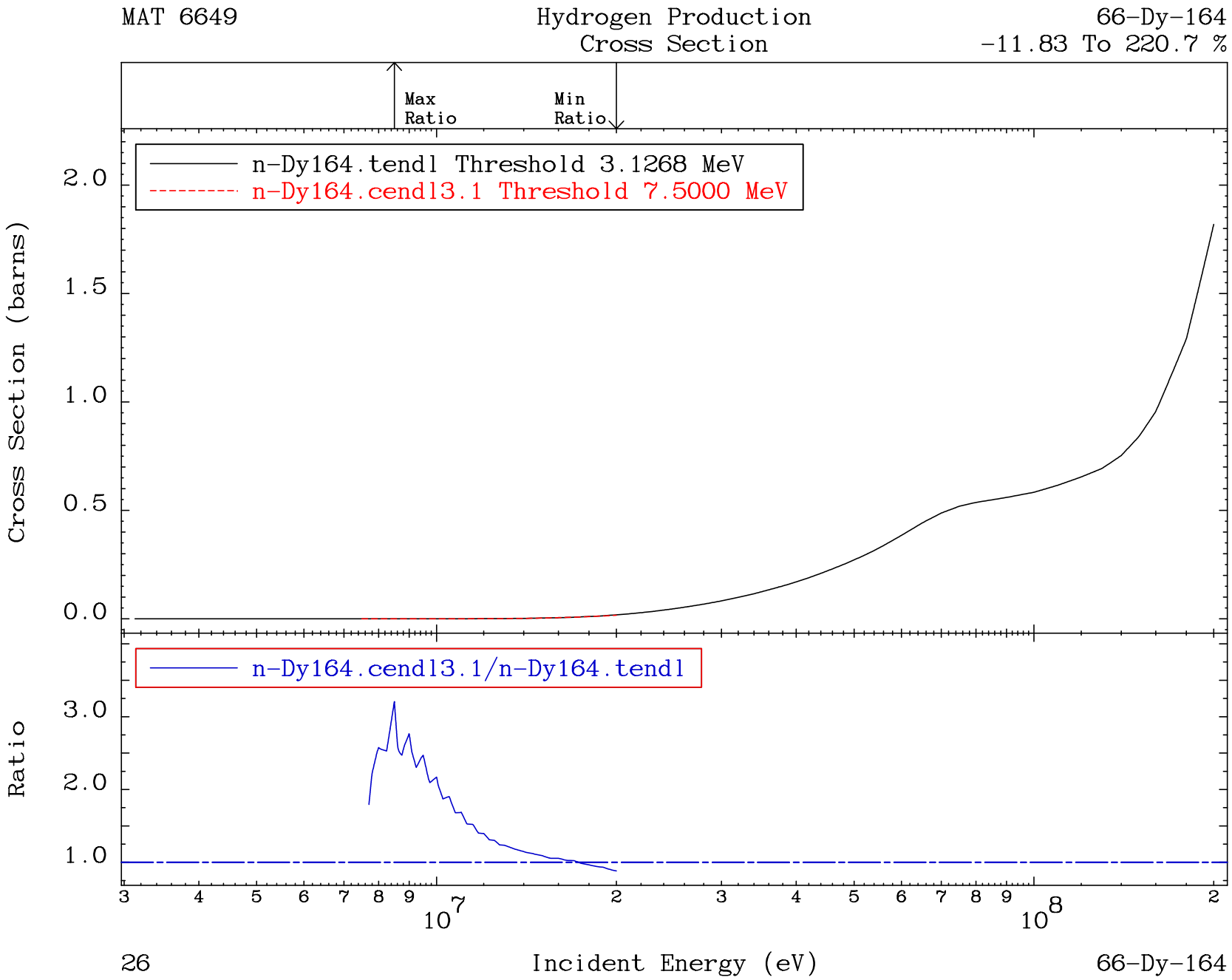

MAT 6649
(n,γ)
Cross Section
66-Dy-164
-99.94 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
21
66-Dy-164

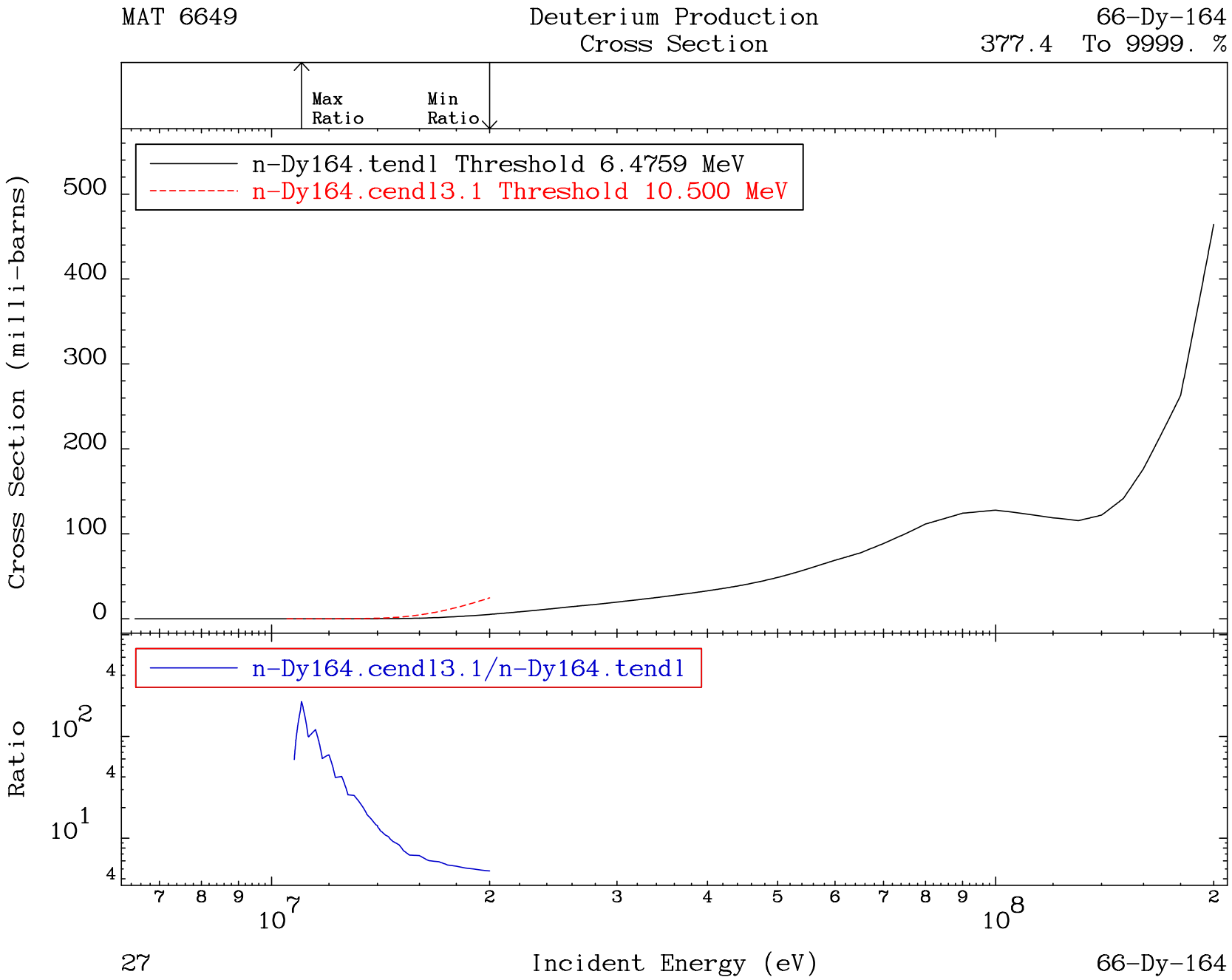

MAT 6649
(n,p)
Cross Section
66-Dy-164
7.860 To 220.7 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 3.1268 MeV
n-Dy164.cendl3.1 Threshold 7.5000 MeV
Cross Section (milli-barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
22
66-Dy-164

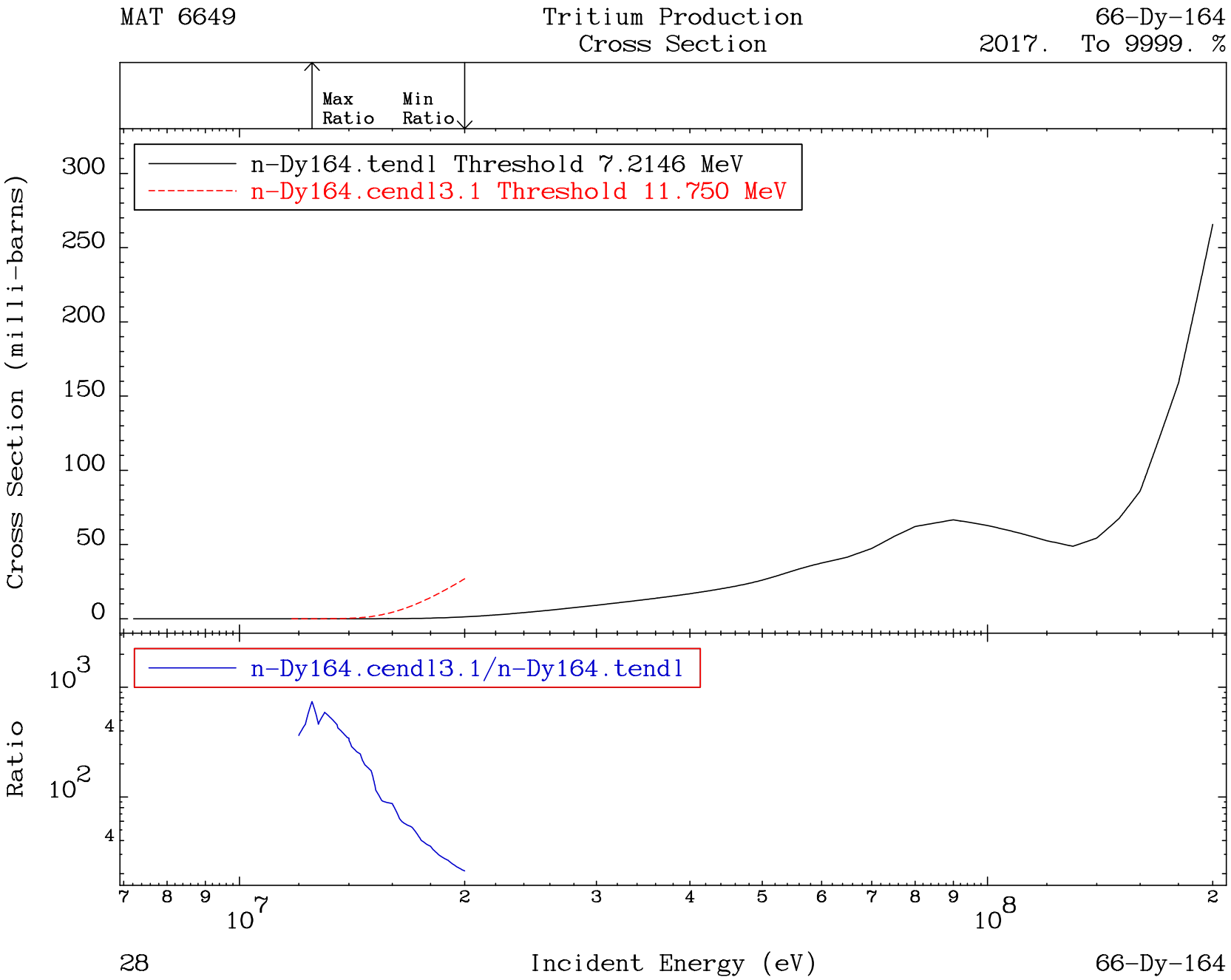

MAT 6649
(n,d)
Cross Section
66-Dy-164
377.8 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 6.4759 MeV
n-Dy164.cendl3.1 Threshold 10.500 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^2
10^1
4
7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
23
Incident Energy (eV)
66-Dy-164

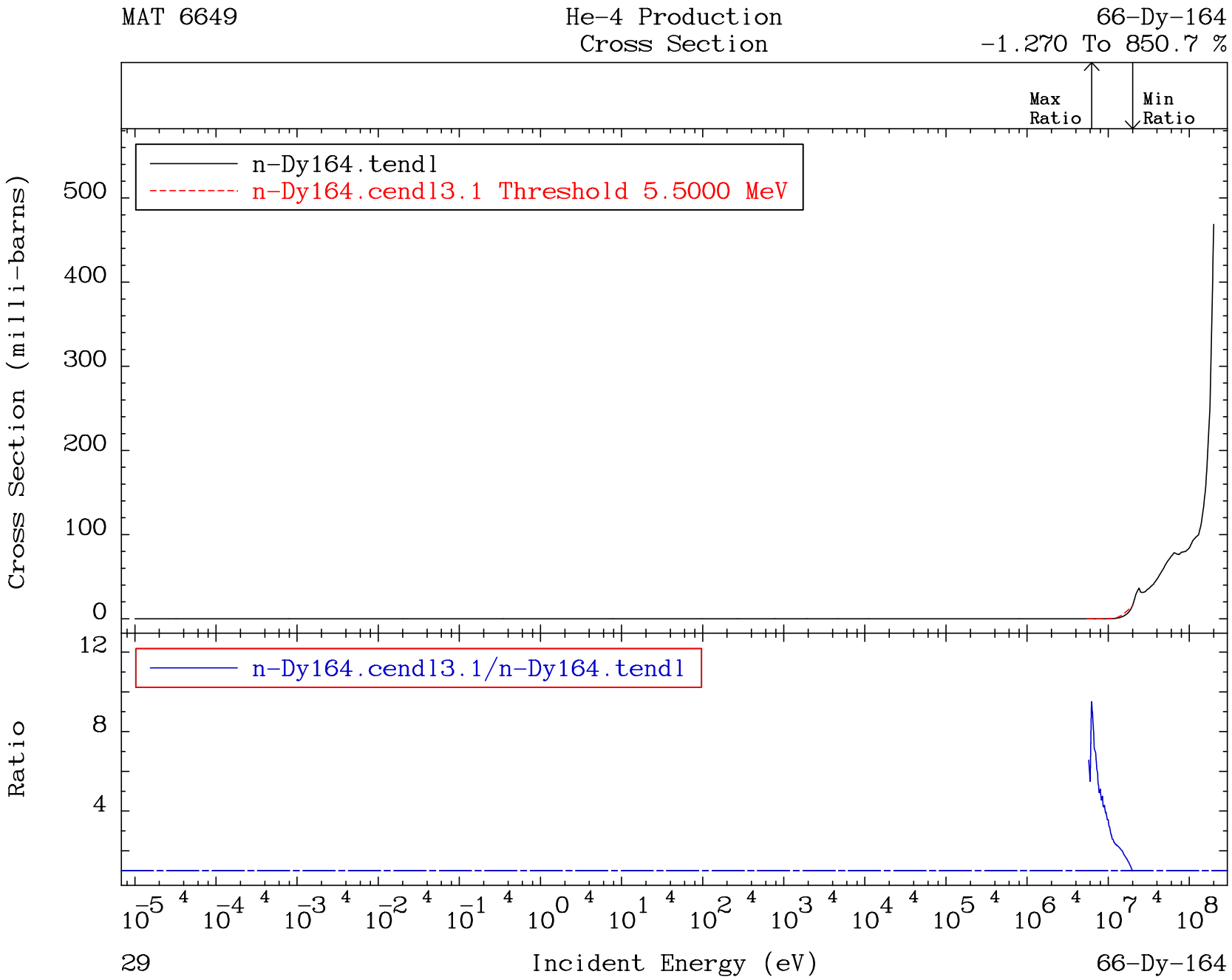

MAT 6649
(n,t)
Cross Section
66-Dy-164
2019. To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 7.2146 MeV
n-Dy164.cendl3.1 Threshold 11.750 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^3
4
10^2
4
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
24
Incident Energy (eV)
66-Dy-164

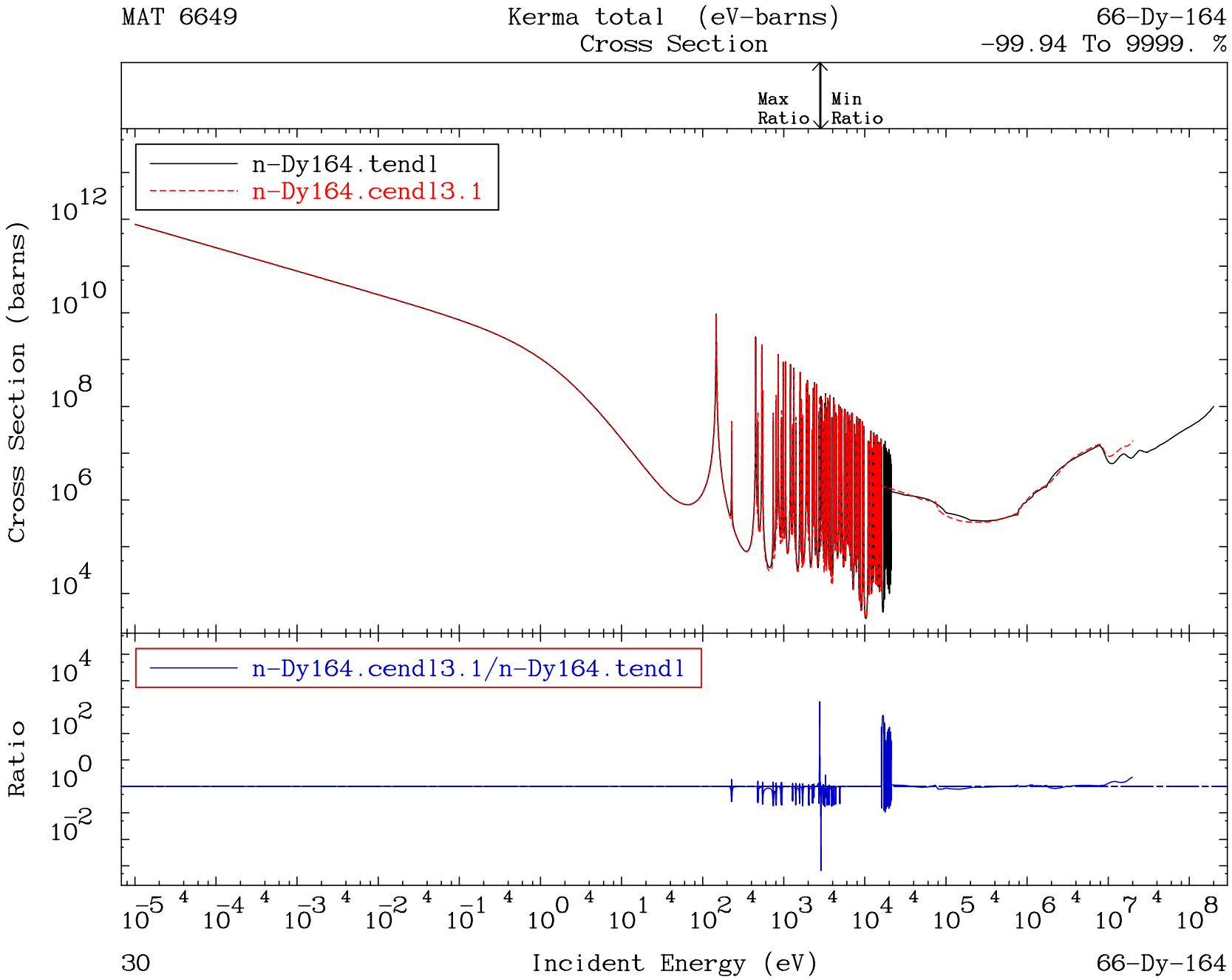

MAT 6649
(n,α)
Cross Section
66-Dy-164
-12.23 To 850.7 %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1 Threshold 5.5000 MeV
Cross Section (milli-barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
25
66-Dy-164

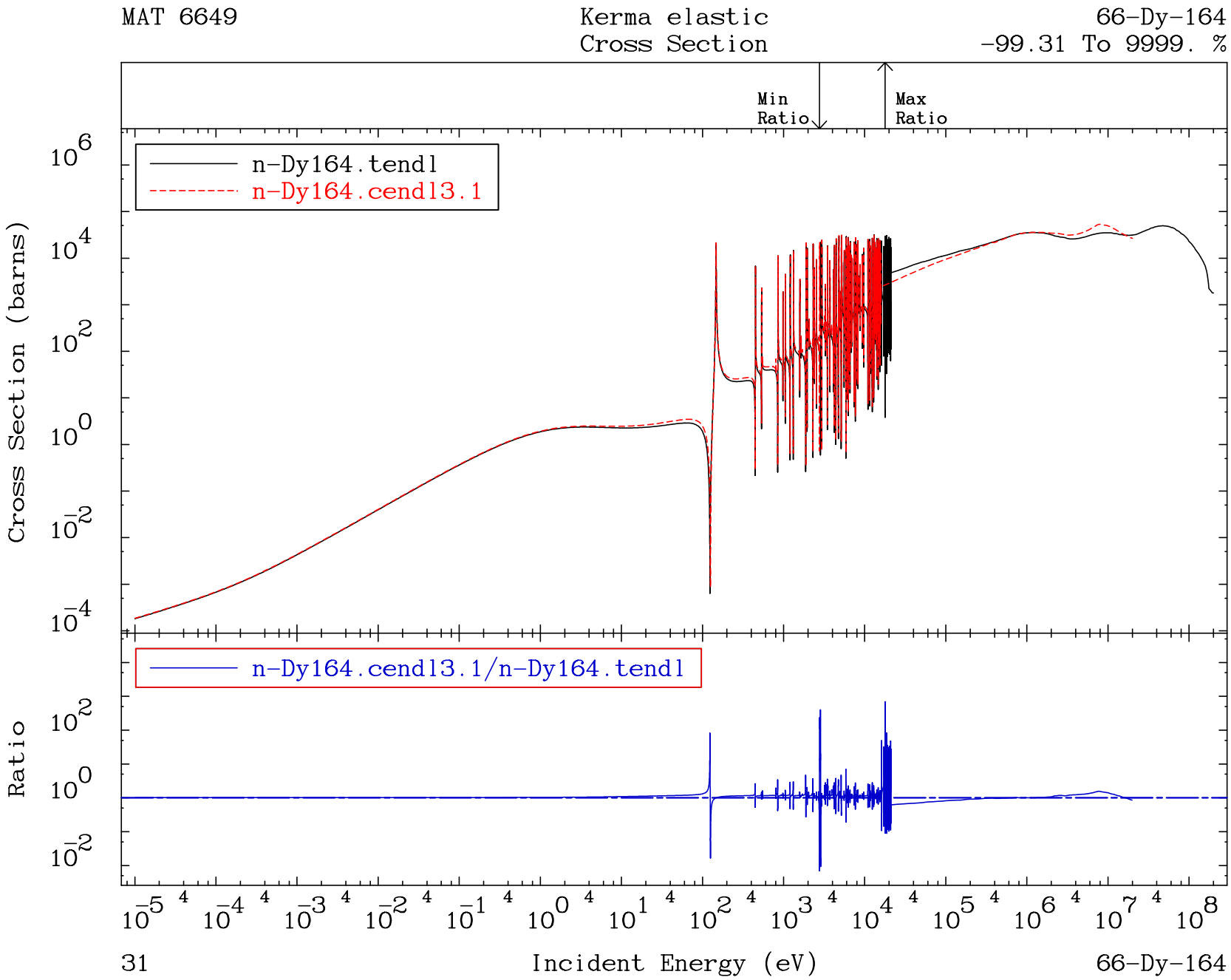

MAT 6649
Hydrogen Production
Cross Section
66-Dy-164
-11.83 To 220.7 %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 3.1268 MeV
n-Dy164.cendl3.1 Threshold 7.5000 MeV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
3.0
2.0
1.0
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
26
Incident Energy (eV)
66-Dy-164

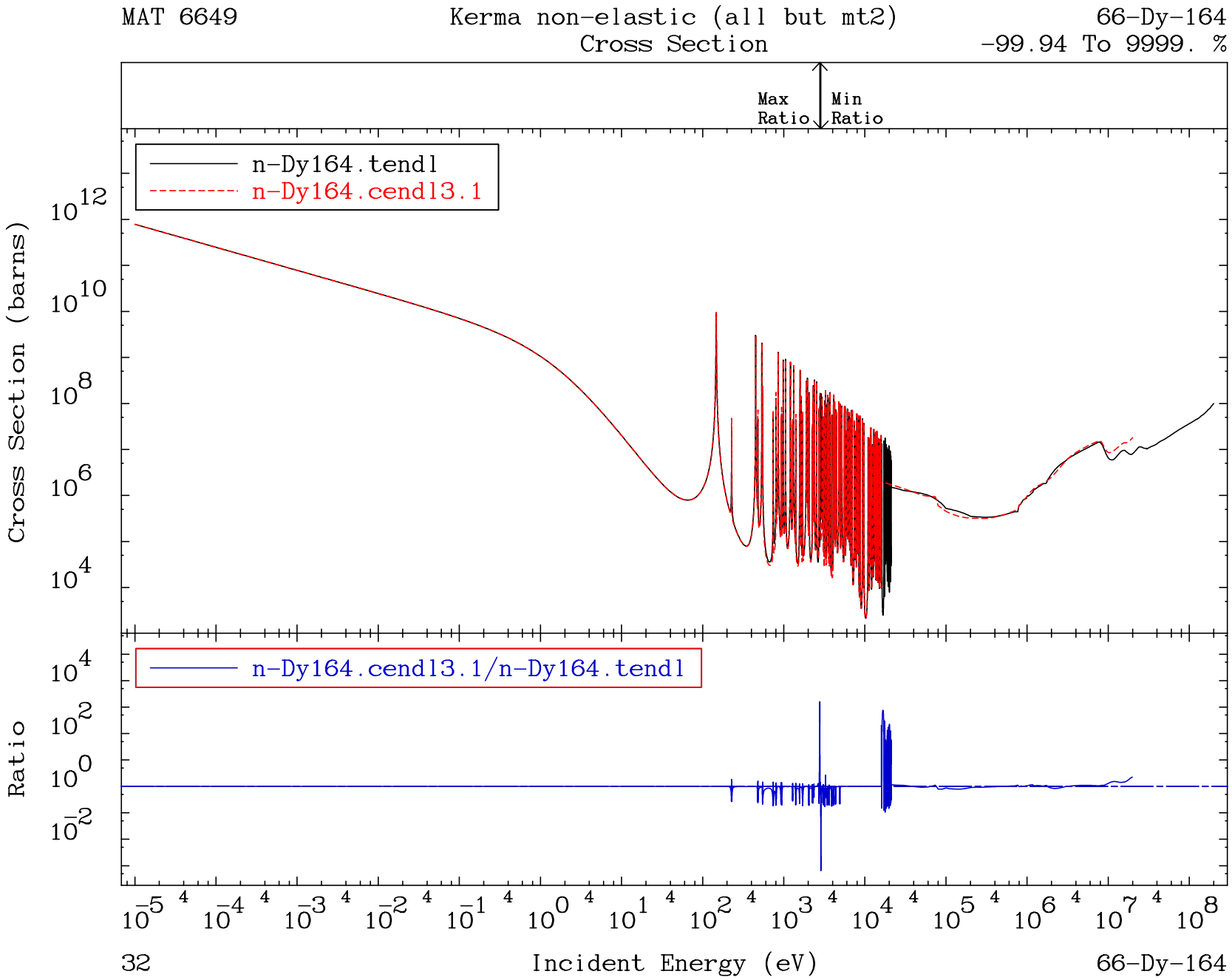

MAT 6649
Deuterium Production
Cross Section
66-Dy-164
377.4 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 6.4759 MeV
n-Dy164.cendl3.1 Threshold 10.500 MeV
Cross Section (milli-barns)
500
400
300
200
100
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^2
10^1
4
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
27
Incident Energy (eV)
66-Dy-164

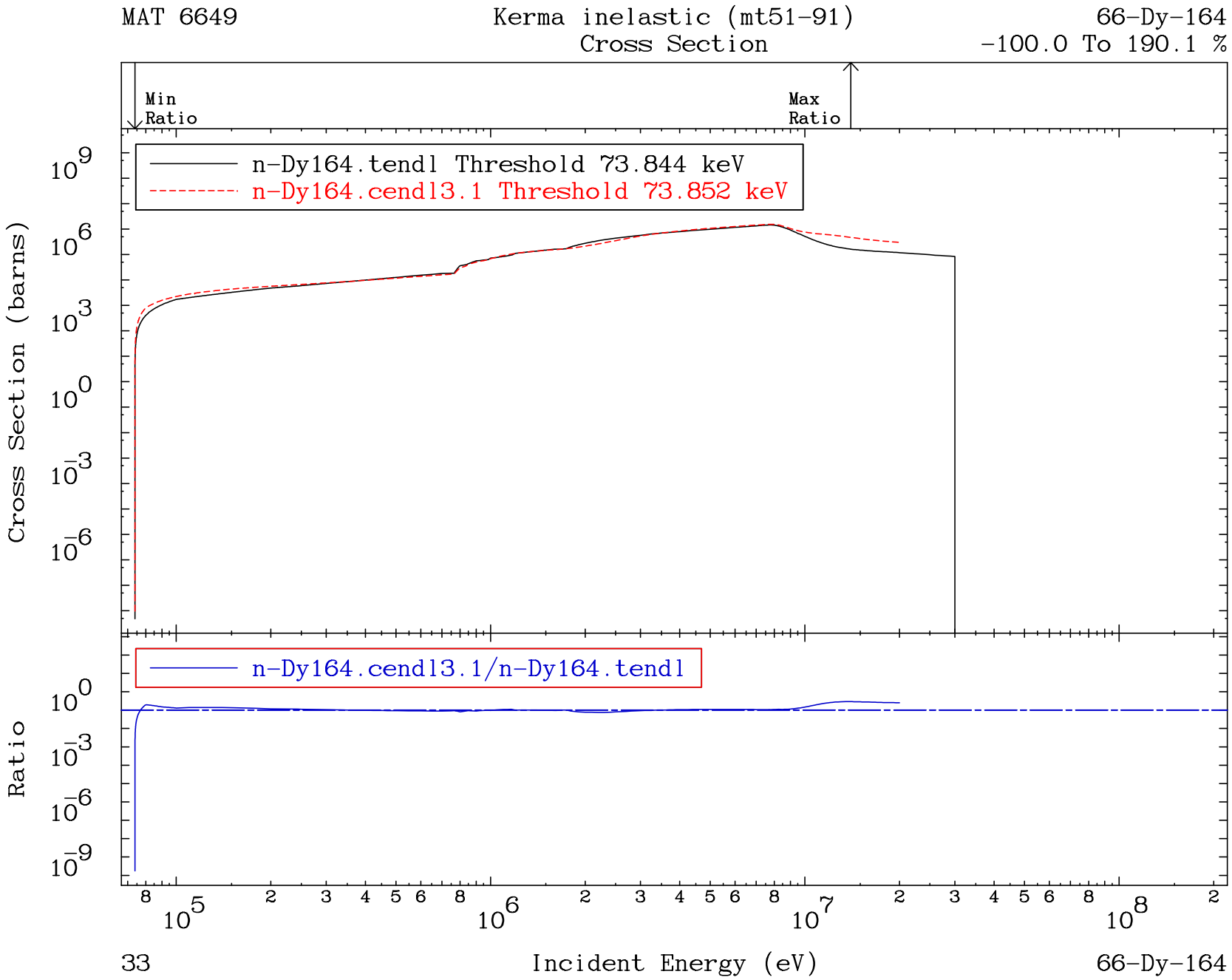

MAT 6649
Tritium Production
Cross Section
66-Dy-164
2017. To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl Threshold 7.2146 MeV
n-Dy164.cendl3.1 Threshold 11.750 MeV
Cross Section (milli-barns)
300
250
200
150
100
50
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^3
4
10^2
4
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
28
Incident Energy (eV)
66-Dy-164

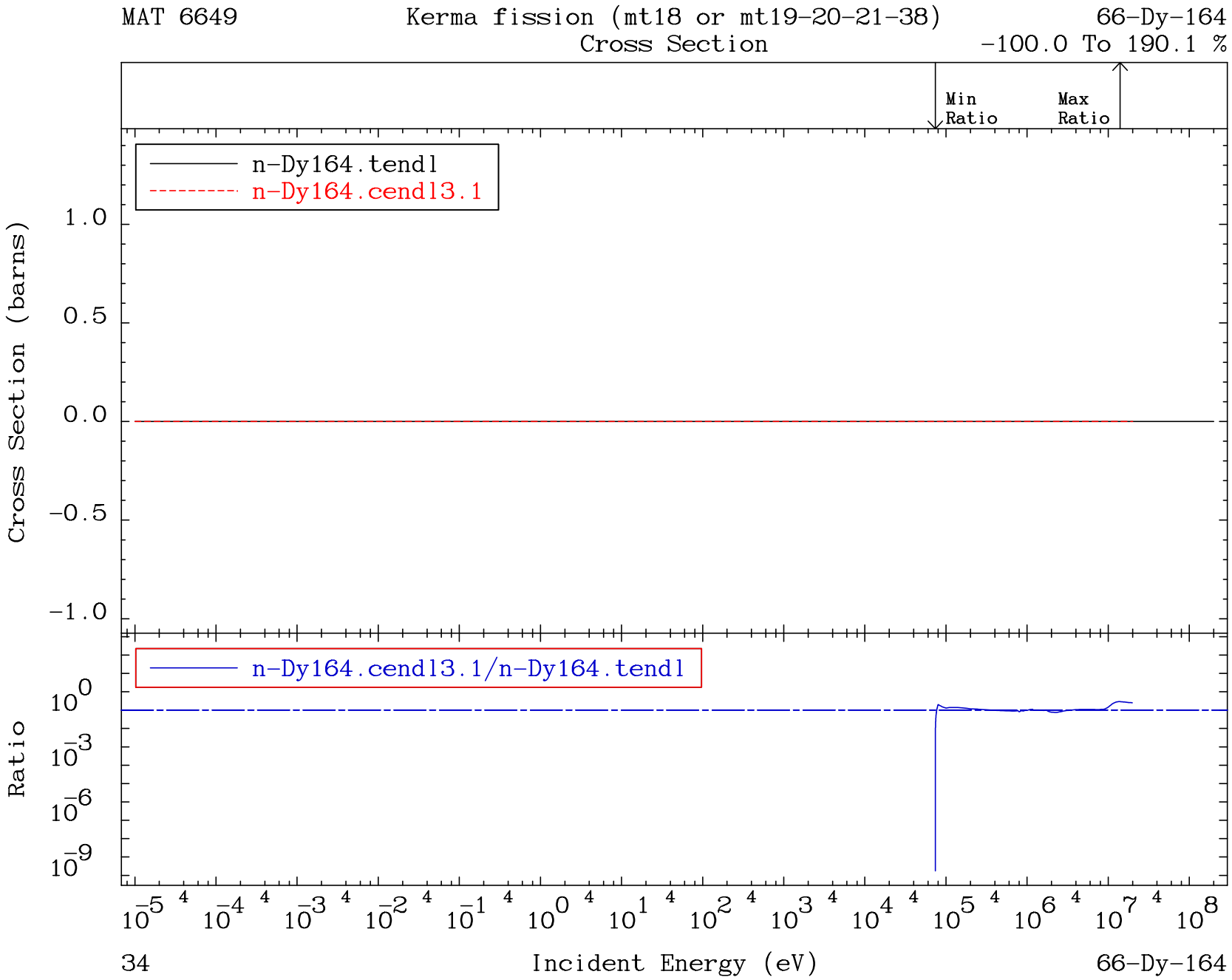

MAT 6649
He-4 Production
Cross Section
66-Dy-164
-1.270 To 850.7 %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1 Threshold 5.5000 MeV
Cross Section (milli-barns)
500
400
300
200
100
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
12
8
4
10-5 10-4 10-3 10-2 10-1 100 101 102 103 104 105 106 107 108
29
Incident Energy (eV)
66-Dy-164

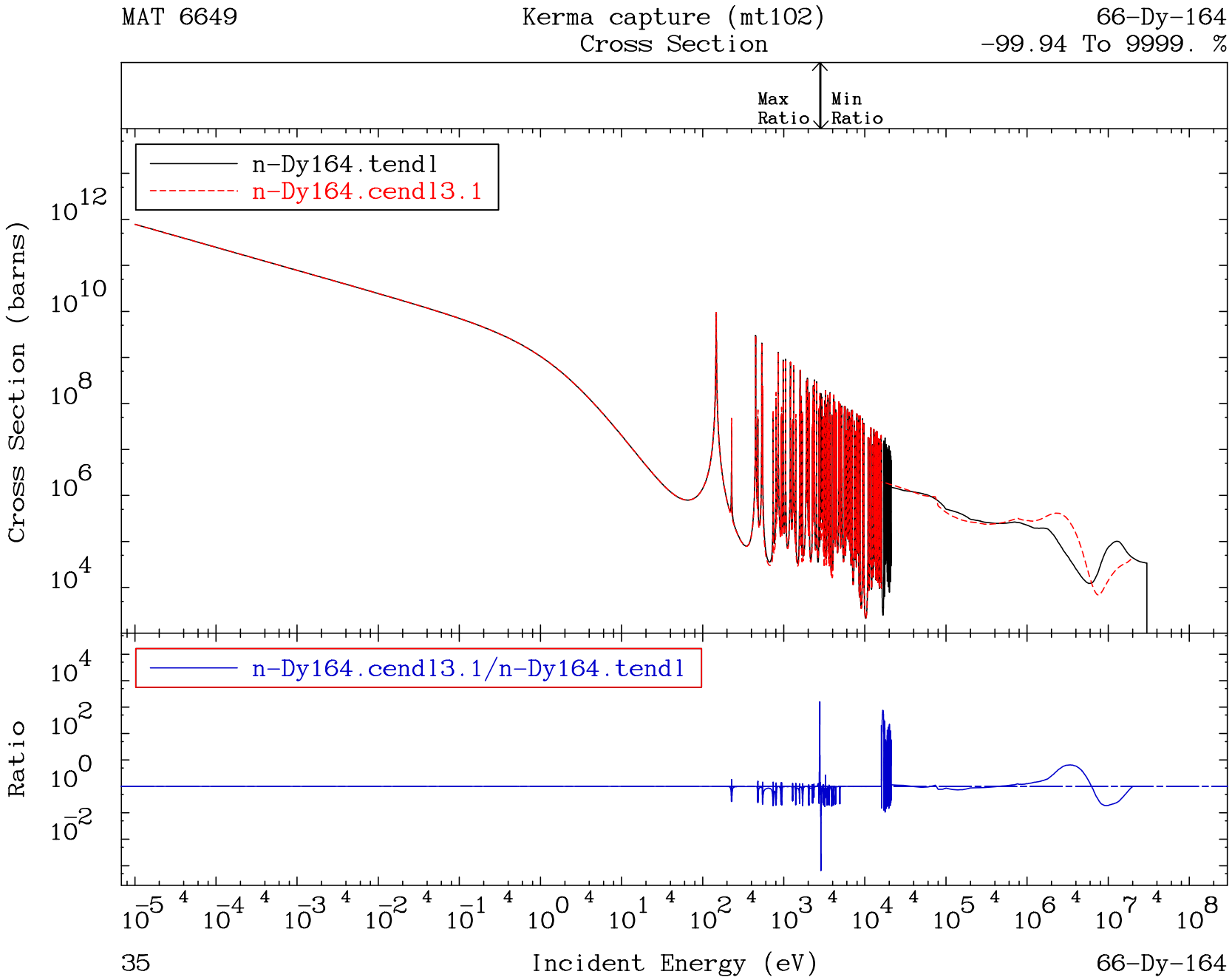

MAT 6649
Kerma total (eV-barns)
Cross Section
66-Dy-164
-99.94 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
Ratio
n-Dy164.cendl3.1/n-Dy164.tendl
Incident Energy (eV)
30
66-Dy-164

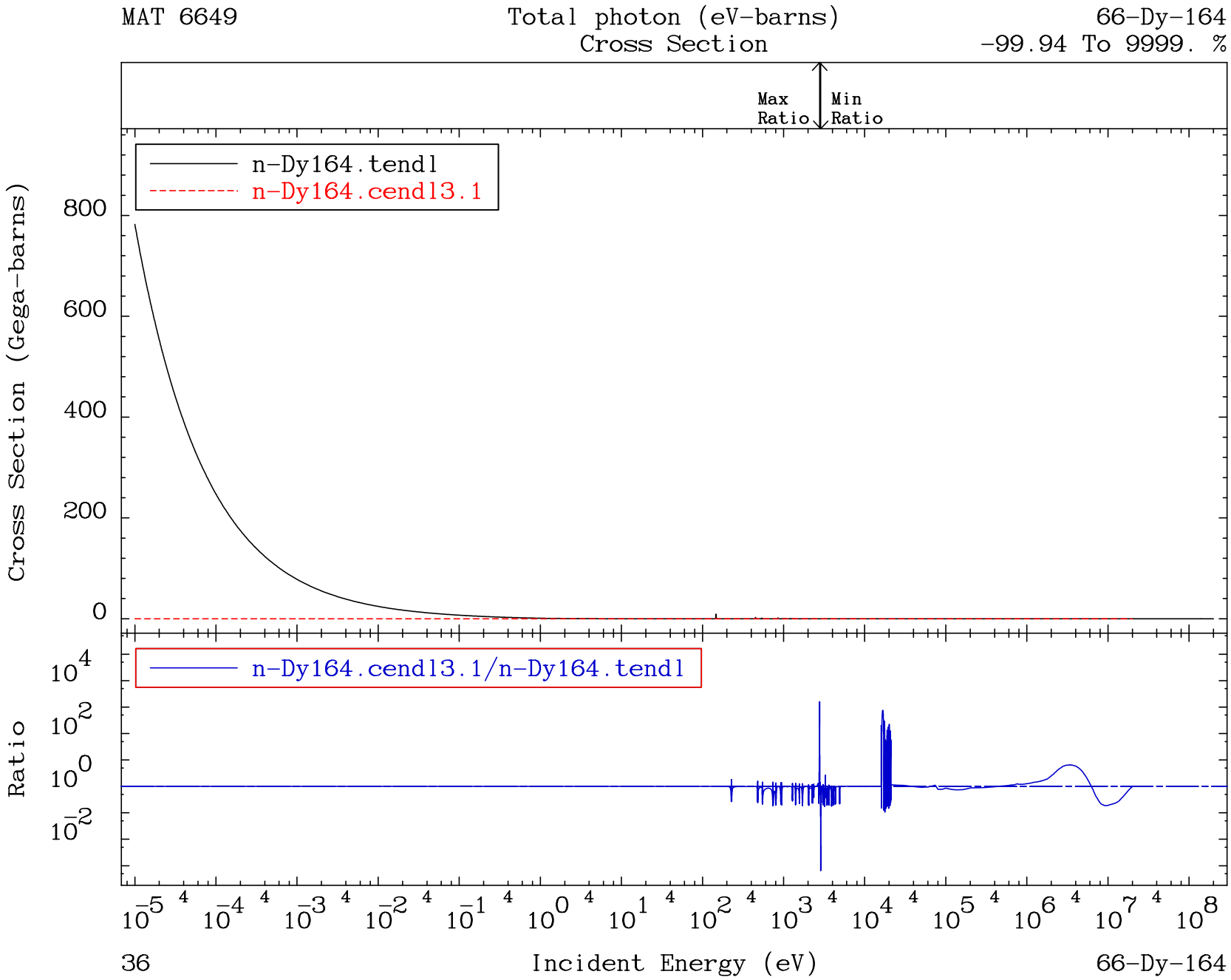

MAT 6649
Kerma elastic
Cross Section
66-Dy-164
-99.31 To 9999. %
Min
Ratio
Max
Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
31
66-Dy-164

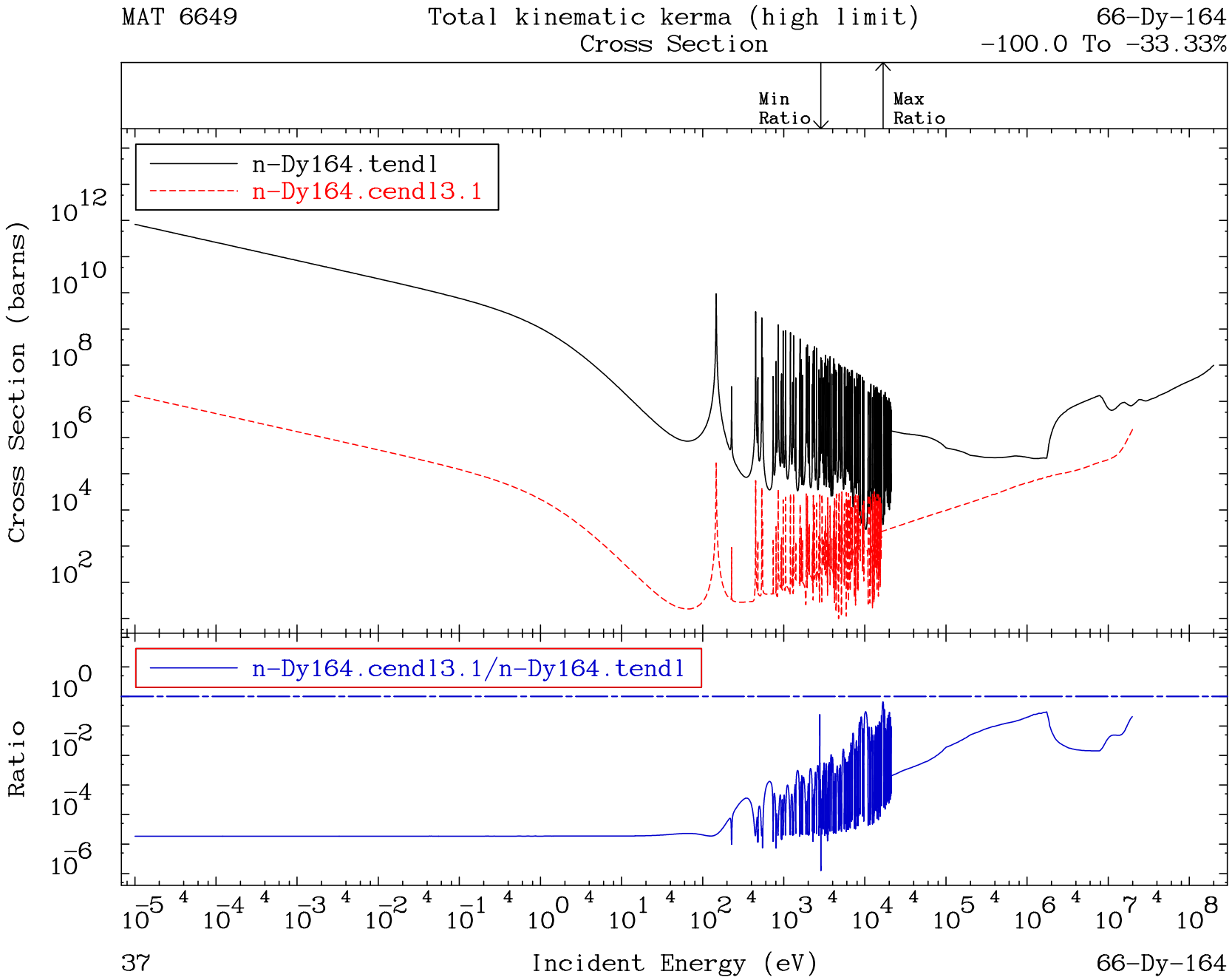

MAT 6649
Kerma non-elastic (all but mt2)
Cross Section
66-Dy-164
-99.94 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
32
66-Dy-164

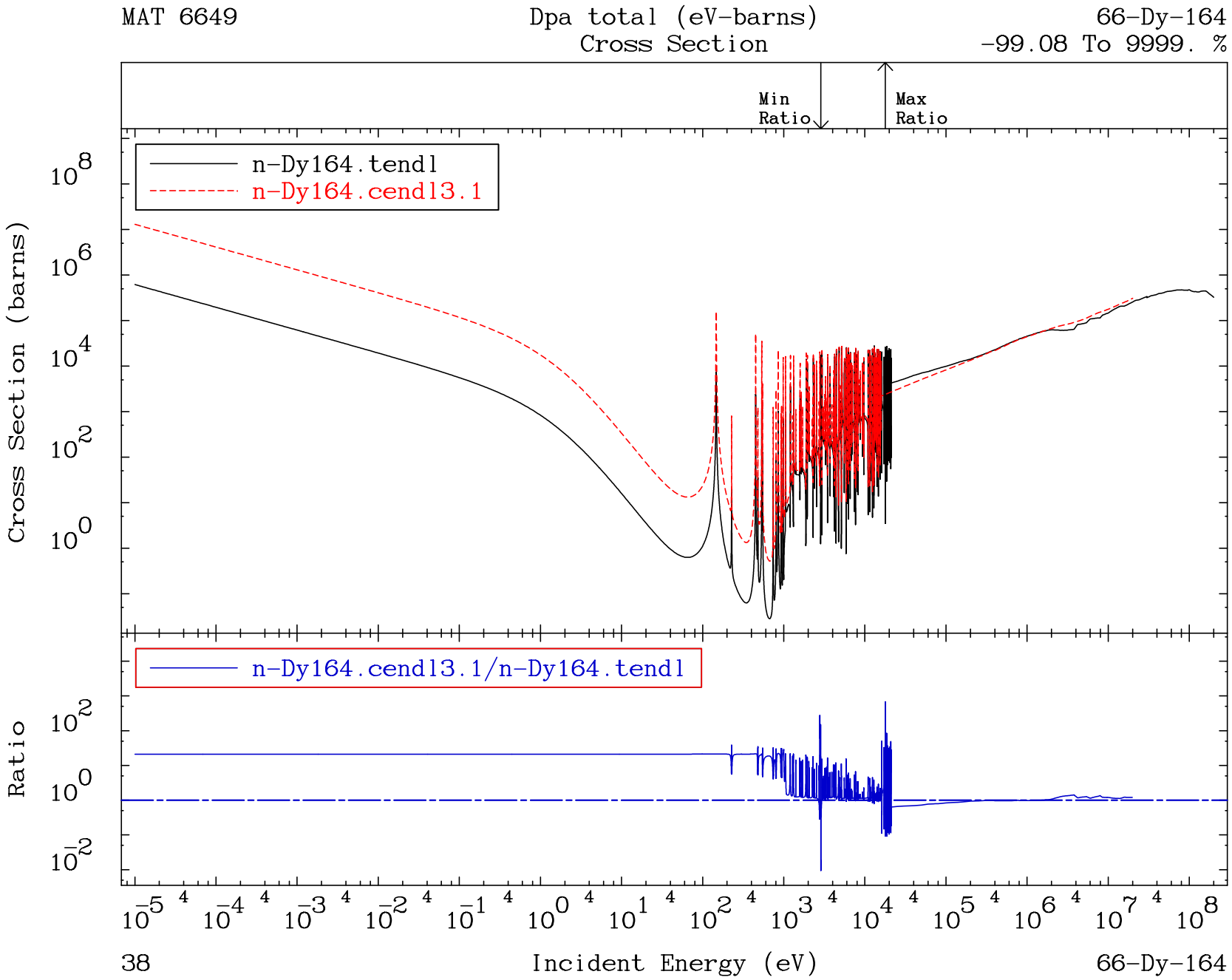

MAT 6649
Kerma inelastic (mt51-91)
Cross Section
66-Dy-164
-100.0 To 190.1 %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 73.844 keV
n-Dy164.cendl3.1 Threshold 73.852 keV
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
33
66-Dy-164

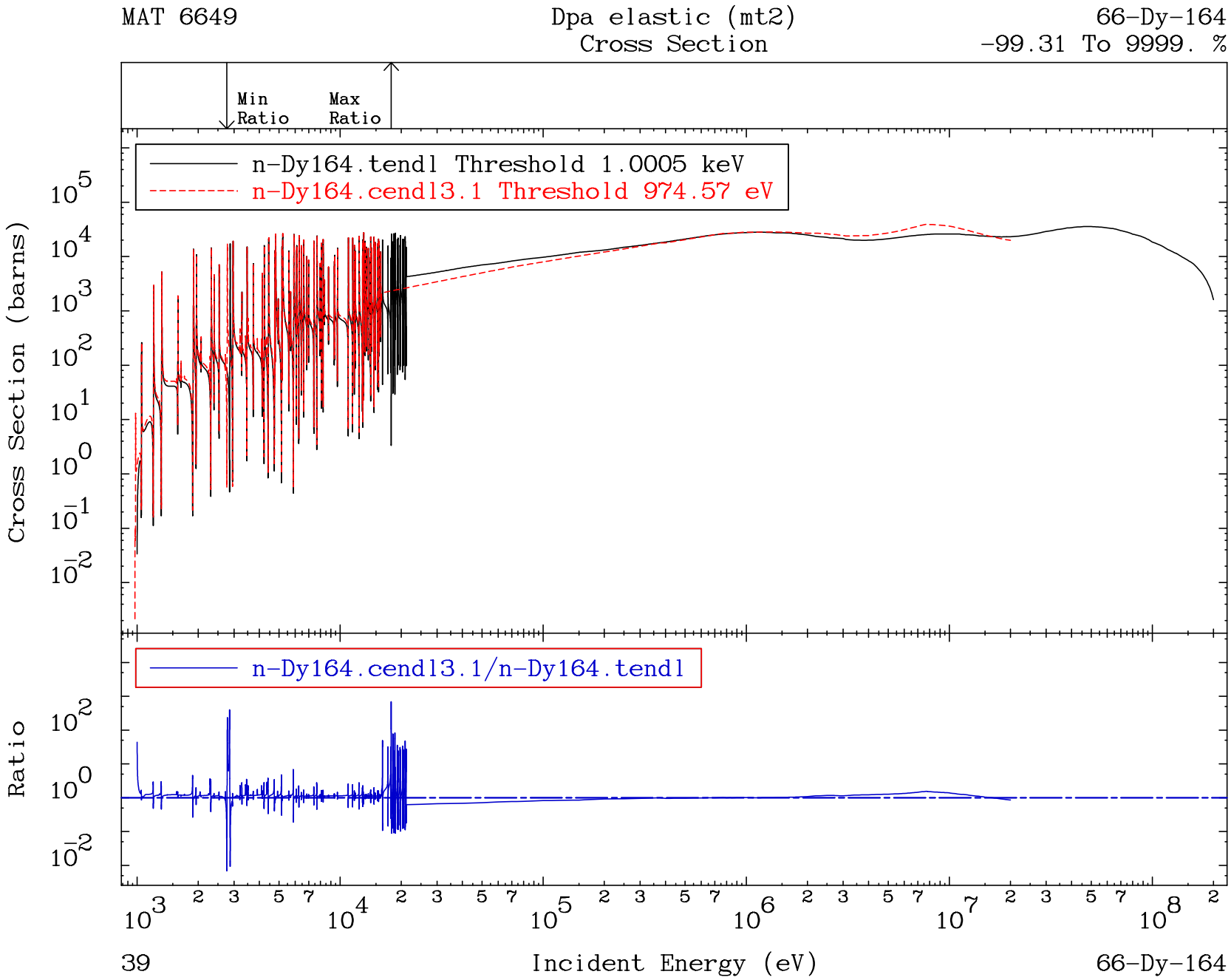

MAT 6649
Kerma fission (mt18 or mt19-20-21-38)
Cross Section
66-Dy-164
-100.0 To 190.1 %
Min Ratio
Max Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
1.0
0.5
0.0
-0.5
-1.0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^0
10^-3
10^-6
10^-9
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
34
Incident Energy (eV)
66-Dy-164

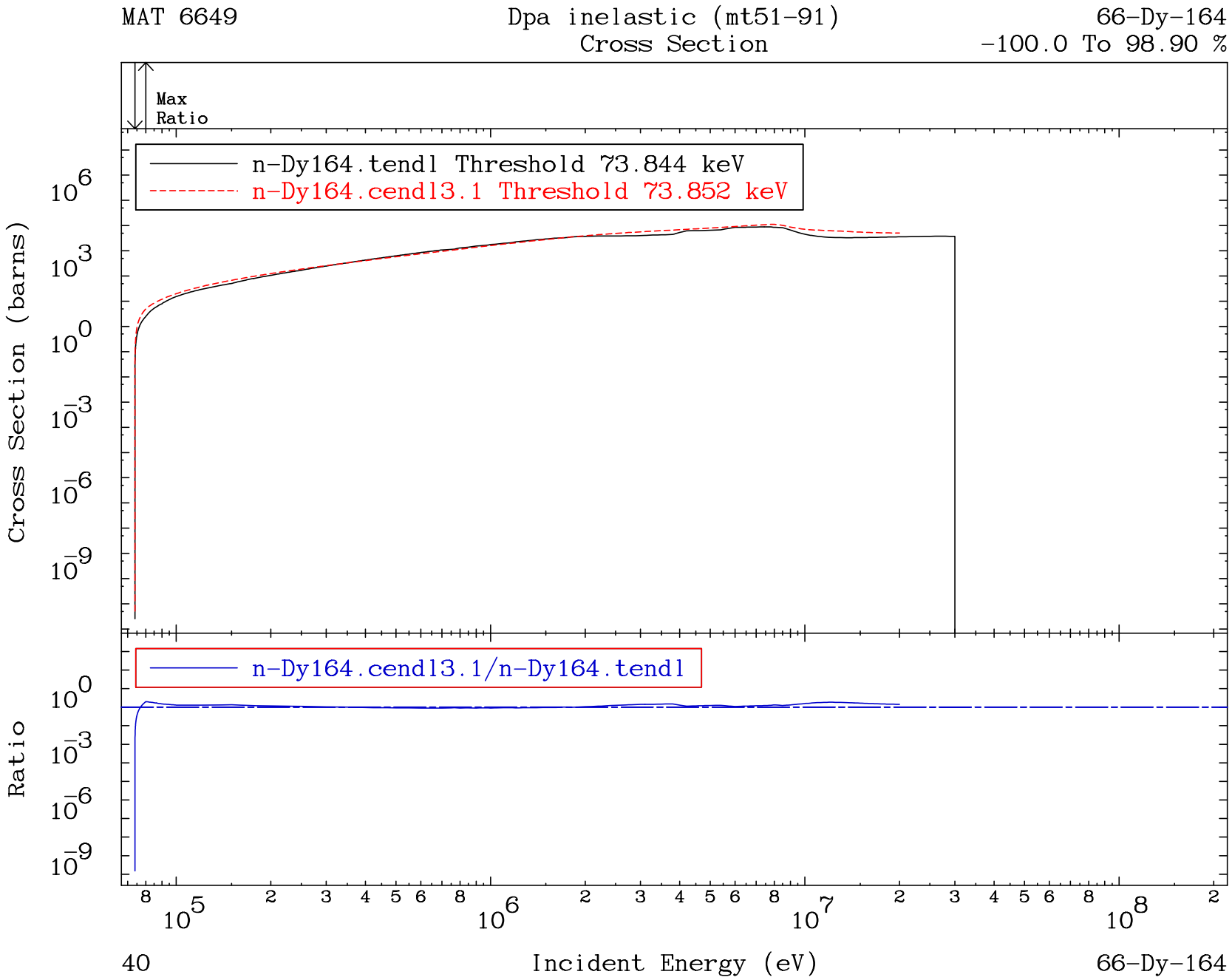

MAT 6649
Kerma capture (mt102)
Cross Section
66-Dy-164
-99.94 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
35
66-Dy-164

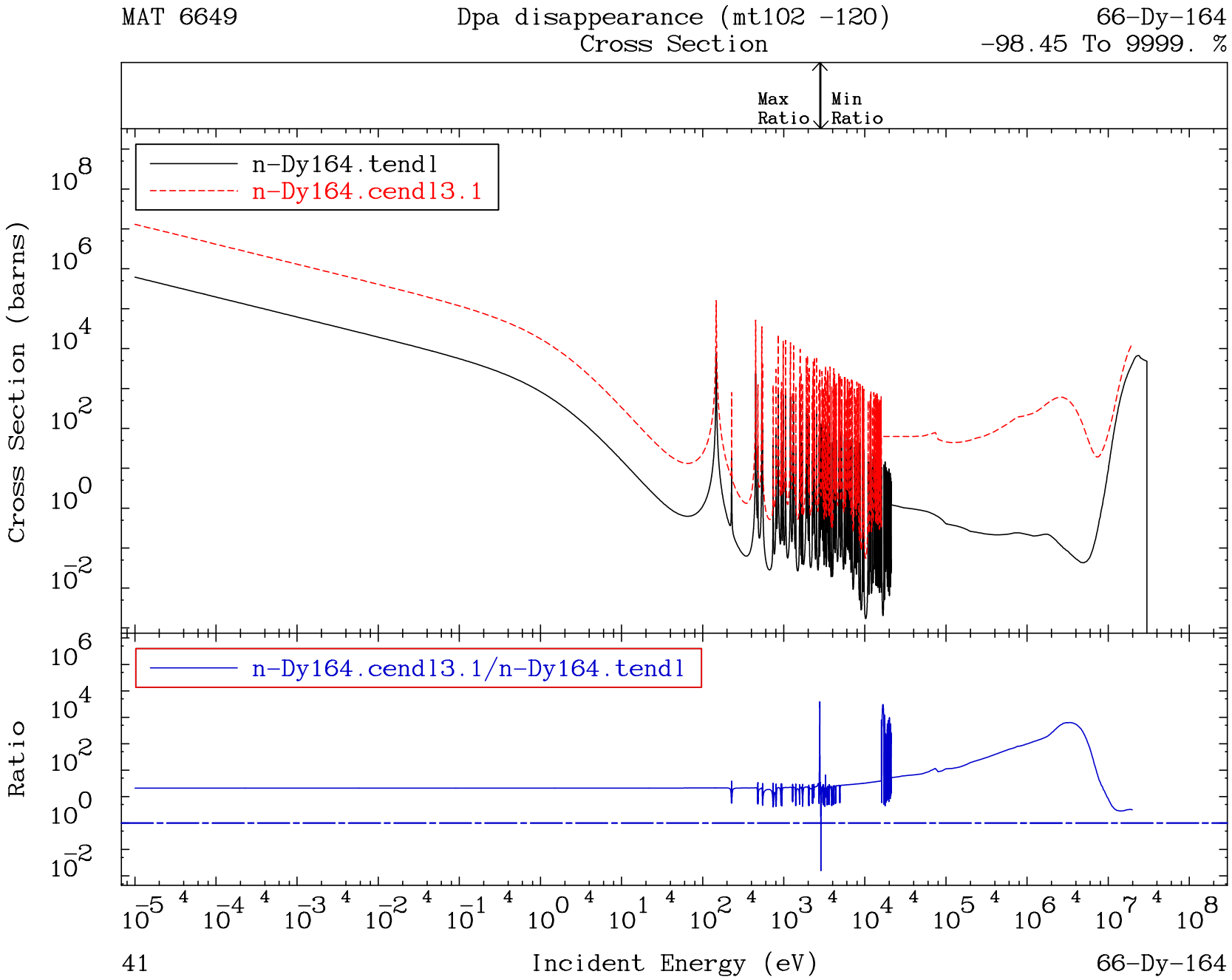

MAT 6649
Total photon (eV-barns)
Cross Section
66-Dy-164
-99.94 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (Giga-barns)
800
600
400
200
0
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
10^4
10^2
10^0
10^-2
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
36
Incident Energy (eV)
66-Dy-164


MAT 6649
Total kinematic kerma (high limit)
Cross Section
66-Dy-164
-100.0 To -33.33%
Min Ratio
Max Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
37
66-Dy-164


MAT 6649
Dpa total (eV-barns)
Cross Section
66-Dy-164
-99.08 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
38
66-Dy-164


MAT 6649
Dpa elastic (mt2)
Cross Section
66-Dy-164
-99.31 To 9999. %
Min Ratio
Max Ratio
n-Dy164.tendl Threshold 1.0005 keV
n-Dy164.cendl3.1 Threshold 974.57 eV
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
39
66-Dy-164


MAT 6649
Dpa inelastic (mt51-91)
Cross Section
66-Dy-164
-100.0 To 98.90 %
Max
Ratio
n-Dy164.tendl Threshold 73.844 keV
n-Dy164.cendl3.1 Threshold 73.852 keV
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
40
66-Dy-164


MAT 6649
Dpa disappearance (mt102 -120)
Cross Section
66-Dy-164
-98.45 To 9999. %
Max Ratio
Min Ratio
n-Dy164.tendl
n-Dy164.cendl3.1
Cross Section (barns)
n-Dy164.cendl3.1/n-Dy164.tendl
Ratio
Incident Energy (eV)
41
66-Dy-164