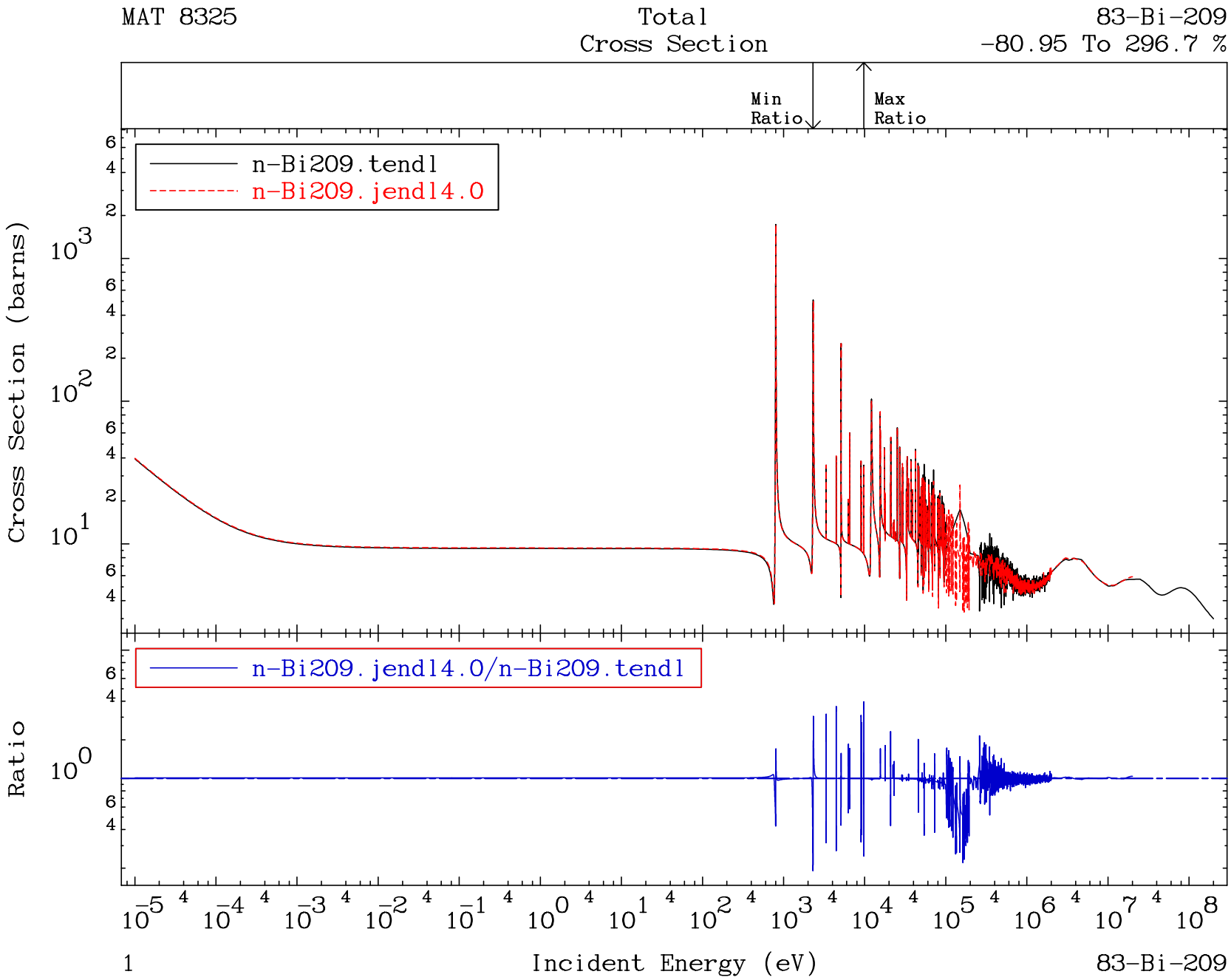
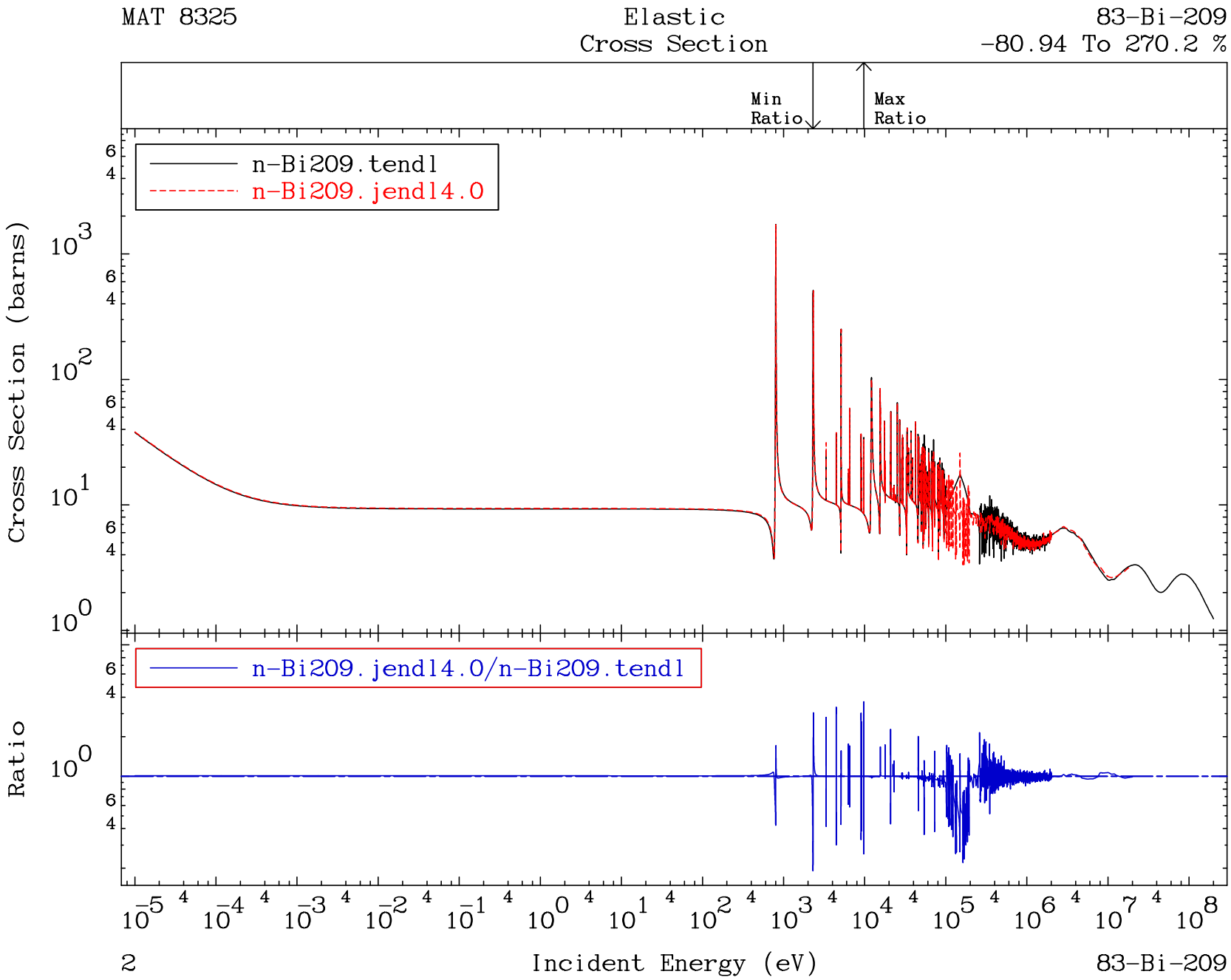
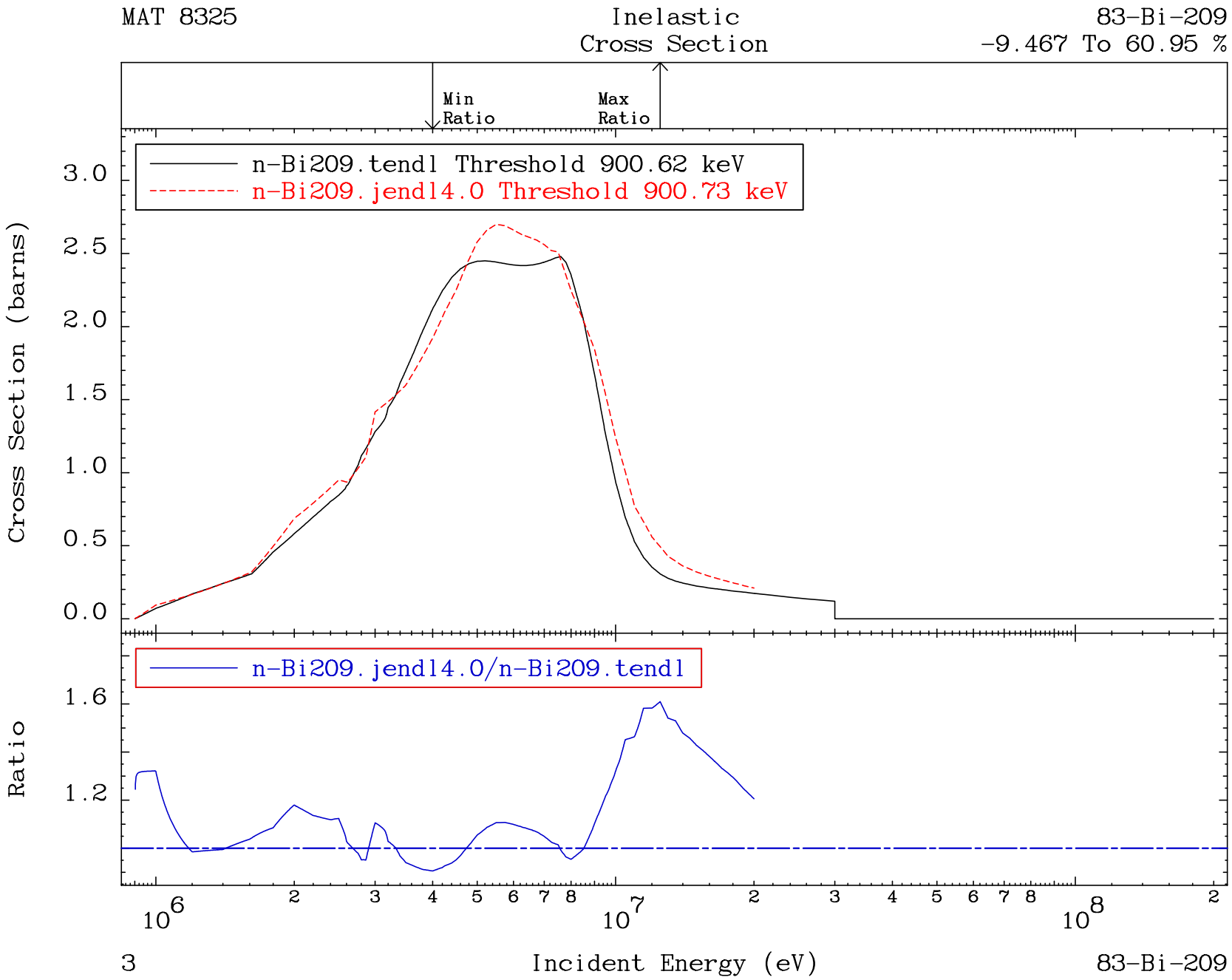
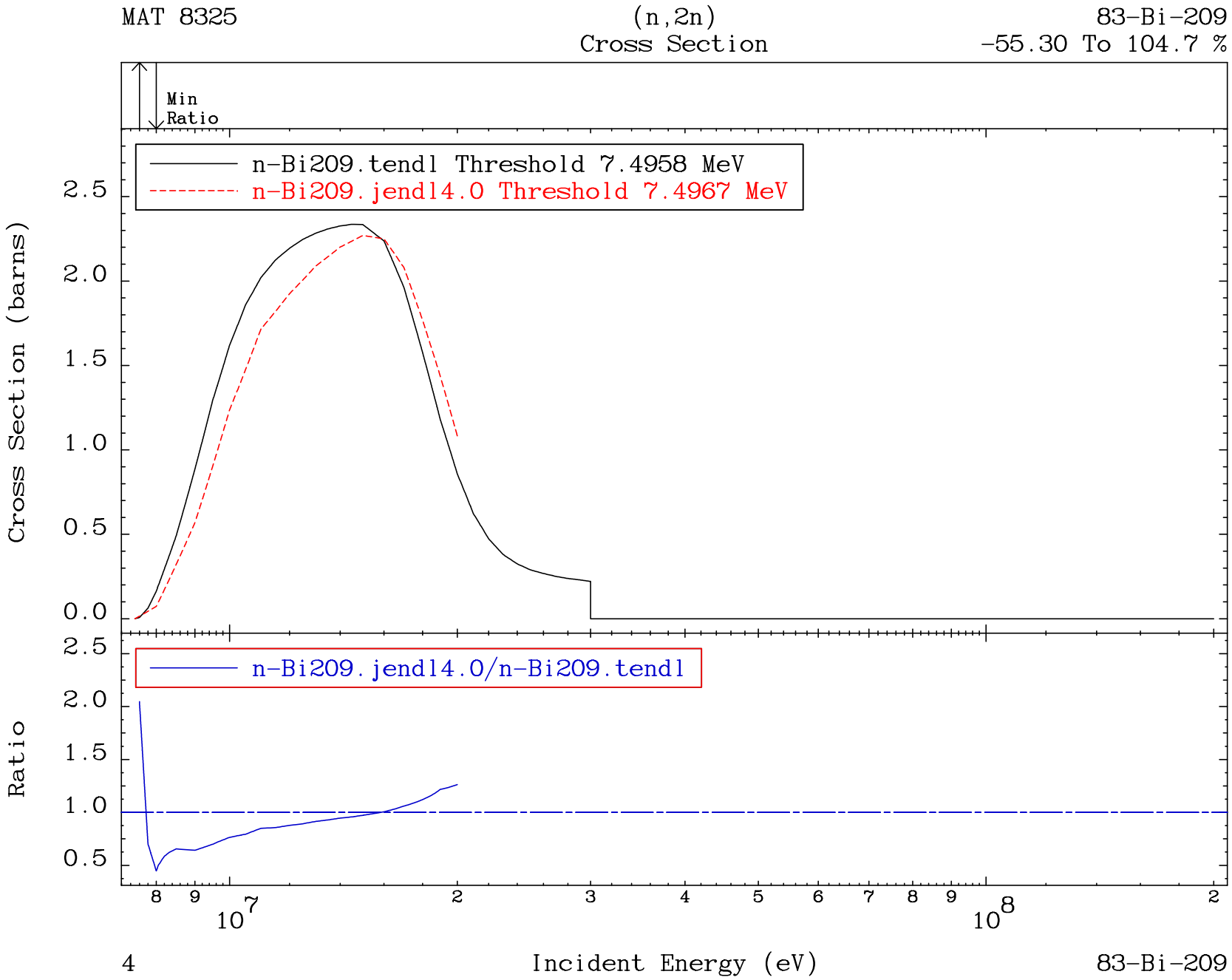
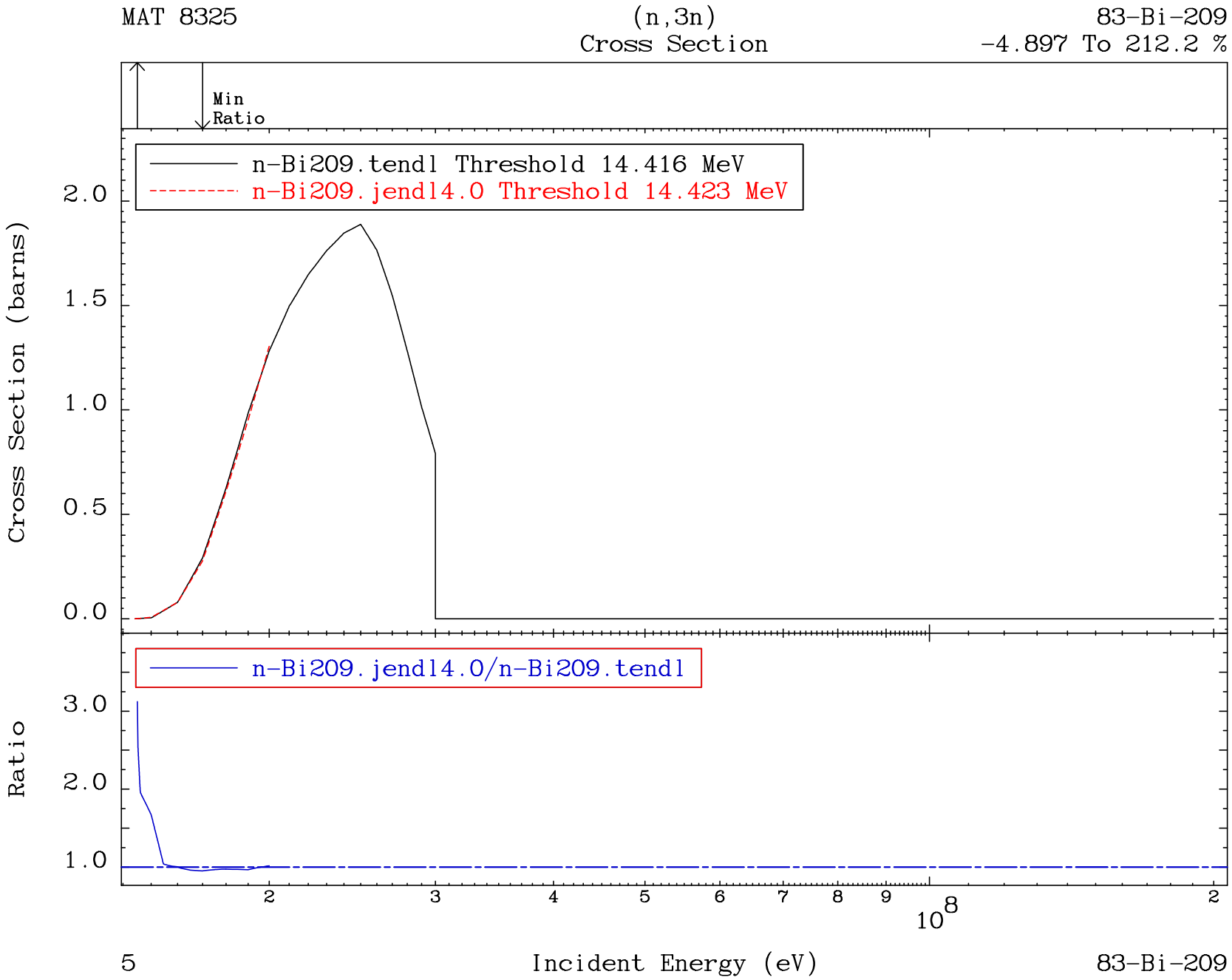
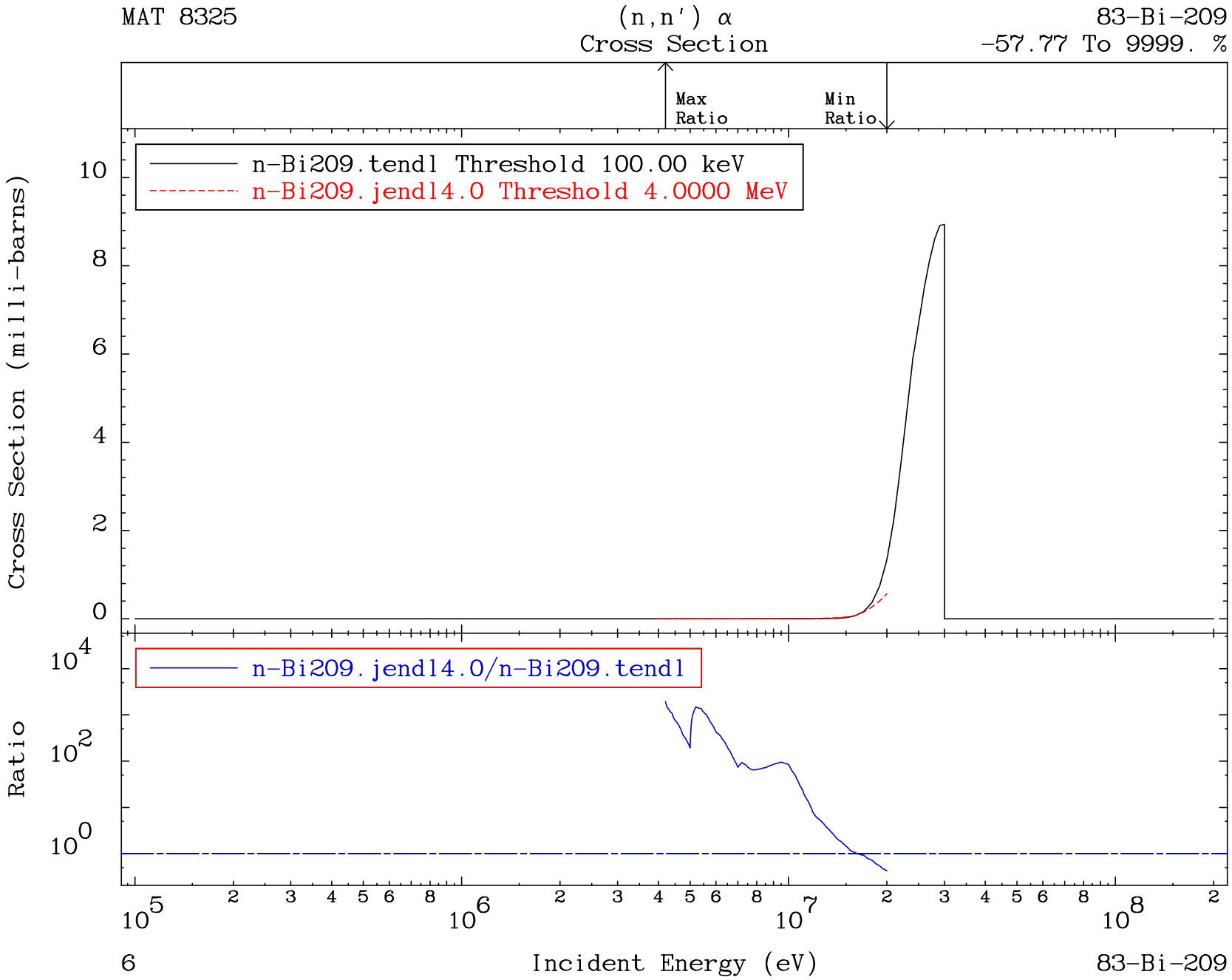

MAT 8325
Total
Cross Section
83-Bi-209
-80.95 To 296.7 %
Min
Ratio
Max
Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
1
83-Bi-209

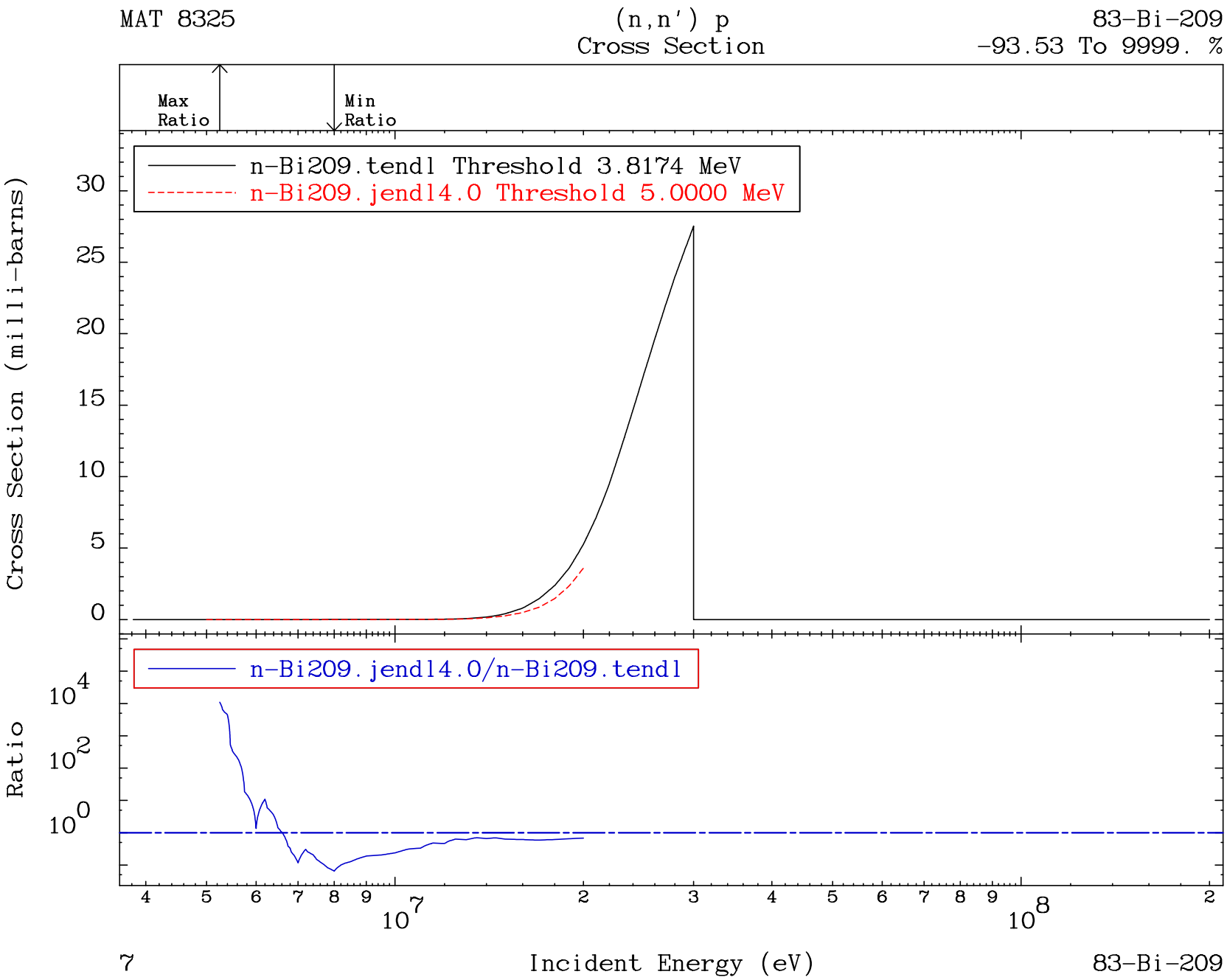

MAT 8325
Elastic
Cross Section
83-Bi-209
-80.94 To 270.2 %
Min
Ratio
Max
Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
2
83-Bi-209

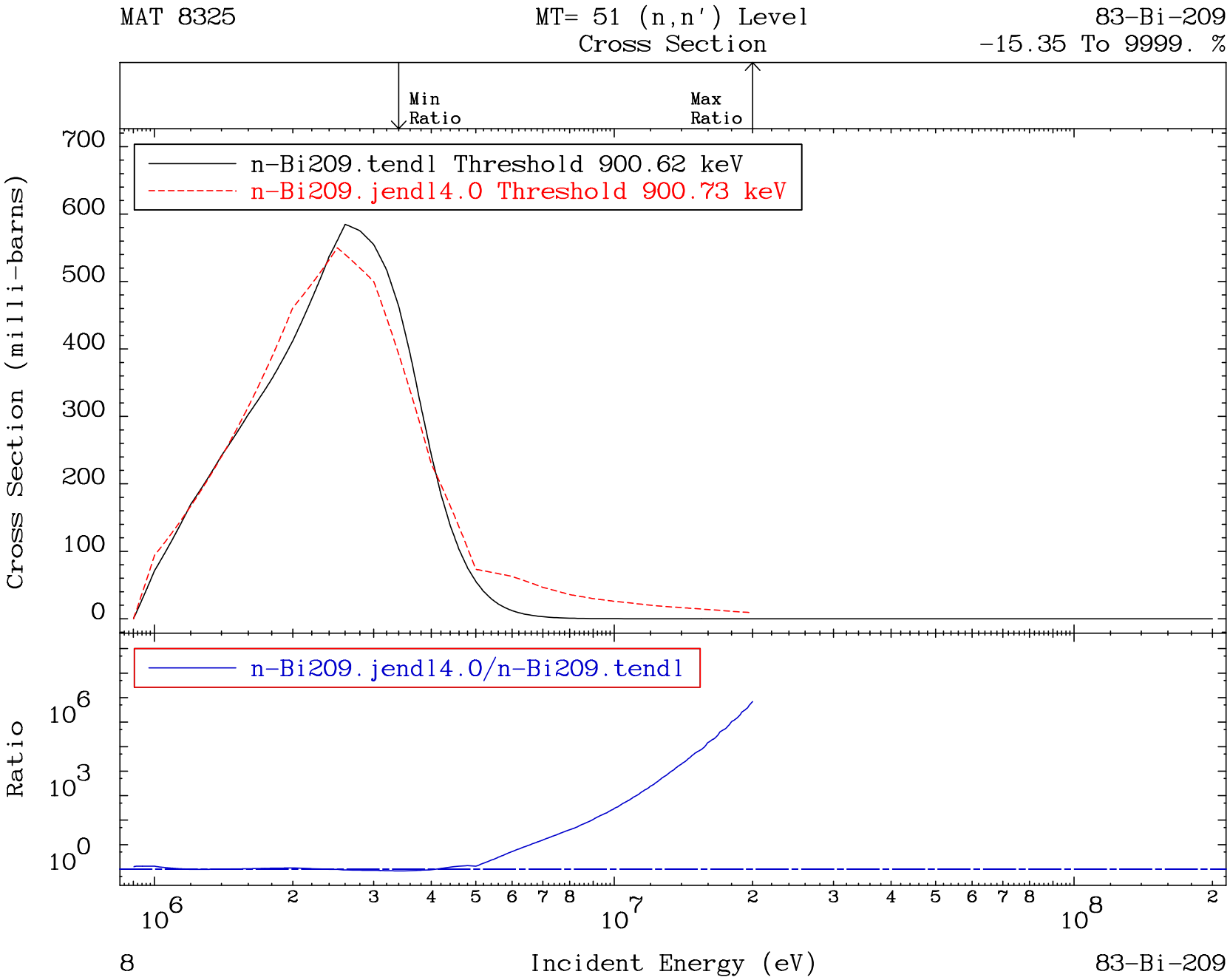

MAT 8325
Inelastic
Cross Section
83-Bi-209
-9.467 To 60.95 %
Min
Ratio
Max
Ratio
n-Bi209.tendl Threshold 900.62 keV
n-Bi209.jendl4.0 Threshold 900.73 keV
Cross Section (barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
1.6
1.2
10^6
10^7
10^8
Incident Energy (eV)
3
83-Bi-209

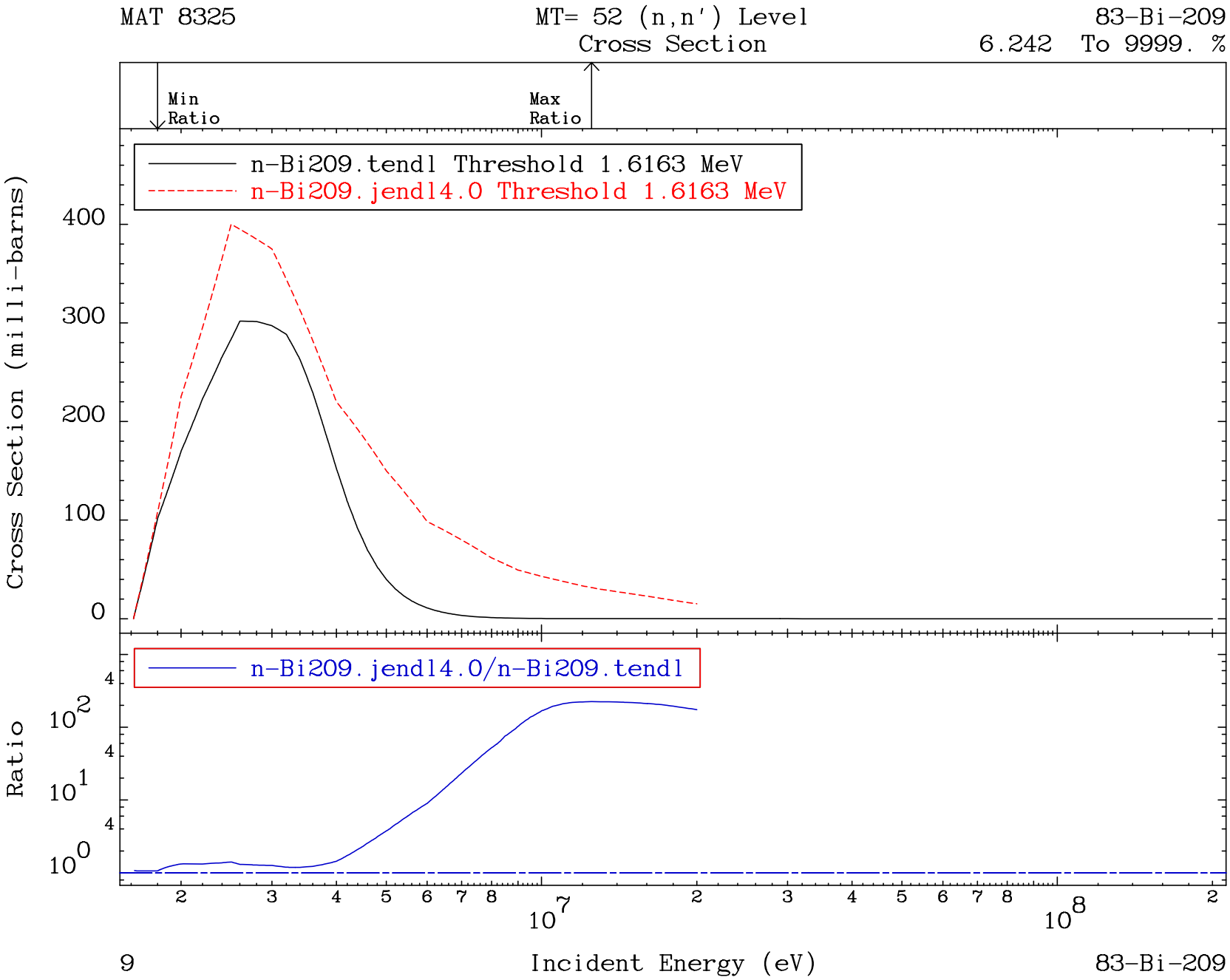

MAT 8325
(n,2n)
Cross Section
83-Bi-209
-55.30 To 104.7 %
Min
Ratio
n-Bi209.tendl Threshold 7.4958 MeV
n-Bi209.jendl4.0 Threshold 7.4967 MeV
Cross Section (barns)
2.5
2.0
1.5
1.0
0.5
0.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
2.5
2.0
1.5
1.0
0.5
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
4
Incident Energy (eV)
83-Bi-209

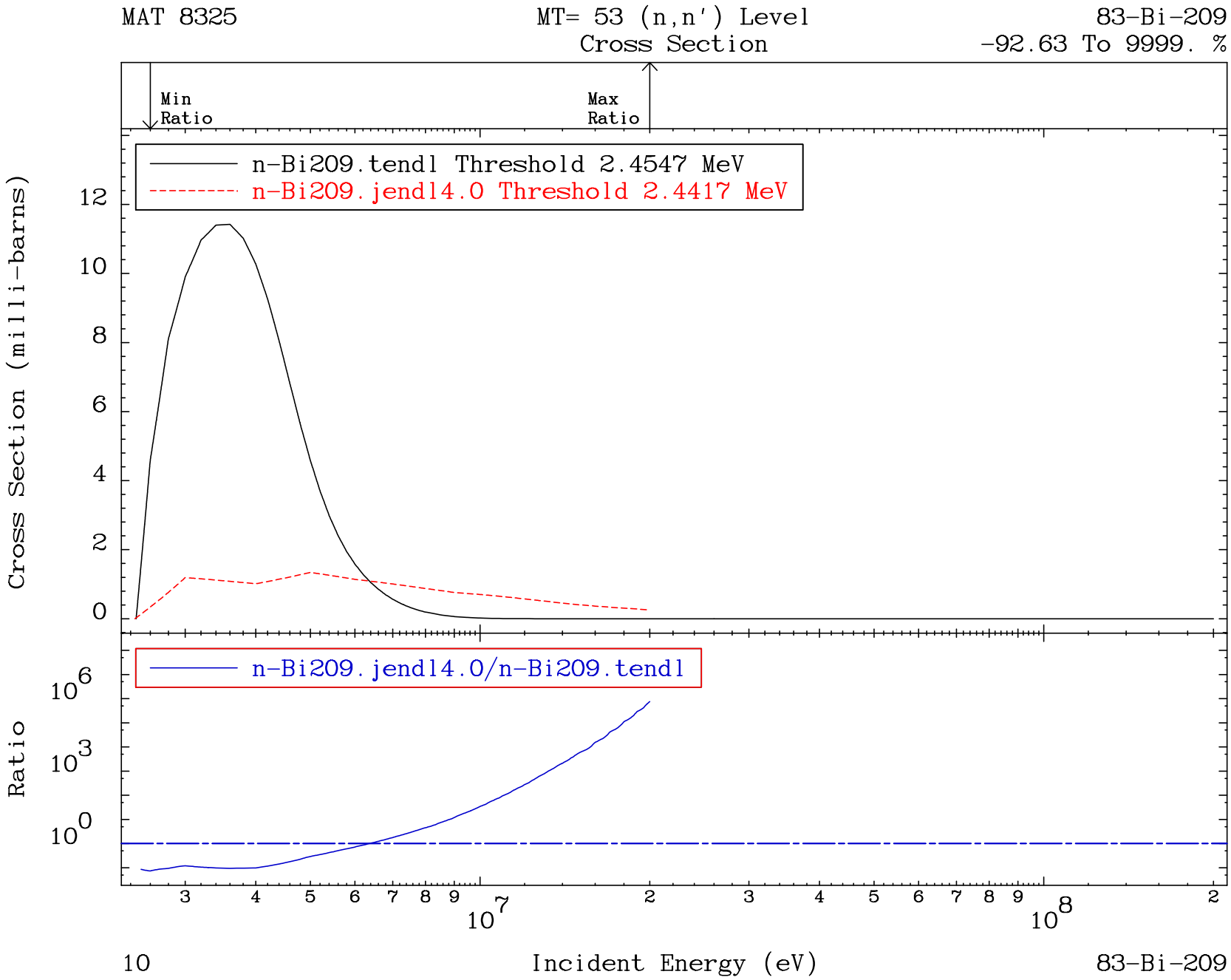

MAT 8325
(n,3n)
Cross Section
83-Bi-209
-4.897 To 212.2 %
Min
Ratio
n-Bi209.tendl Threshold 14.416 MeV
n-Bi209.jendl4.0 Threshold 14.423 MeV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
3.0
2.0
1.0
2
3
4
5
6
7
8
9
10^8
2
5
Incident Energy (eV)
83-Bi-209

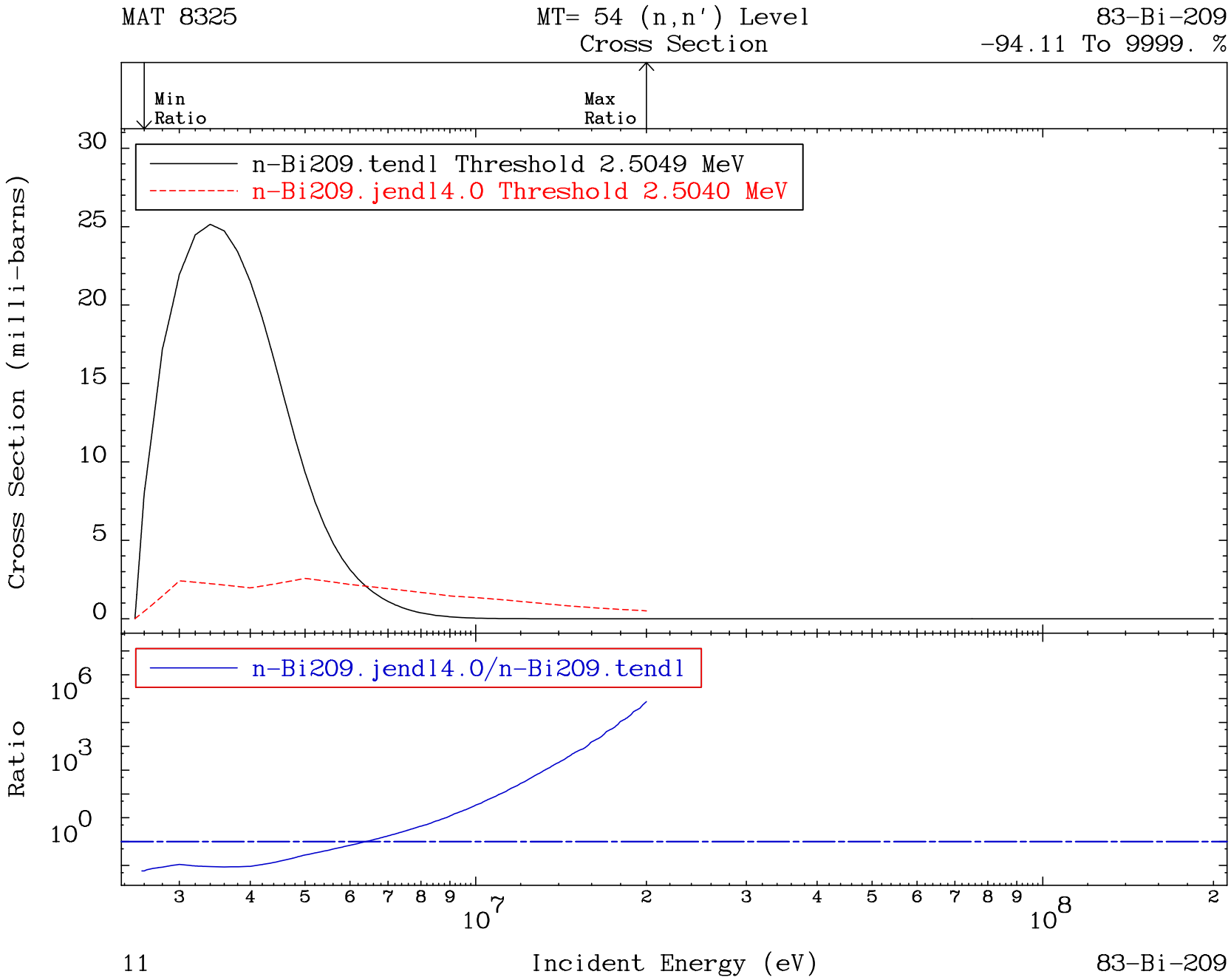

MAT 8325
(n,n') α
Cross Section
83-Bi-209
-57.77 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 100.00 keV
n-Bi209.jendl4.0 Threshold 4.0000 MeV
Cross Section (milli-barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
6
83-Bi-209

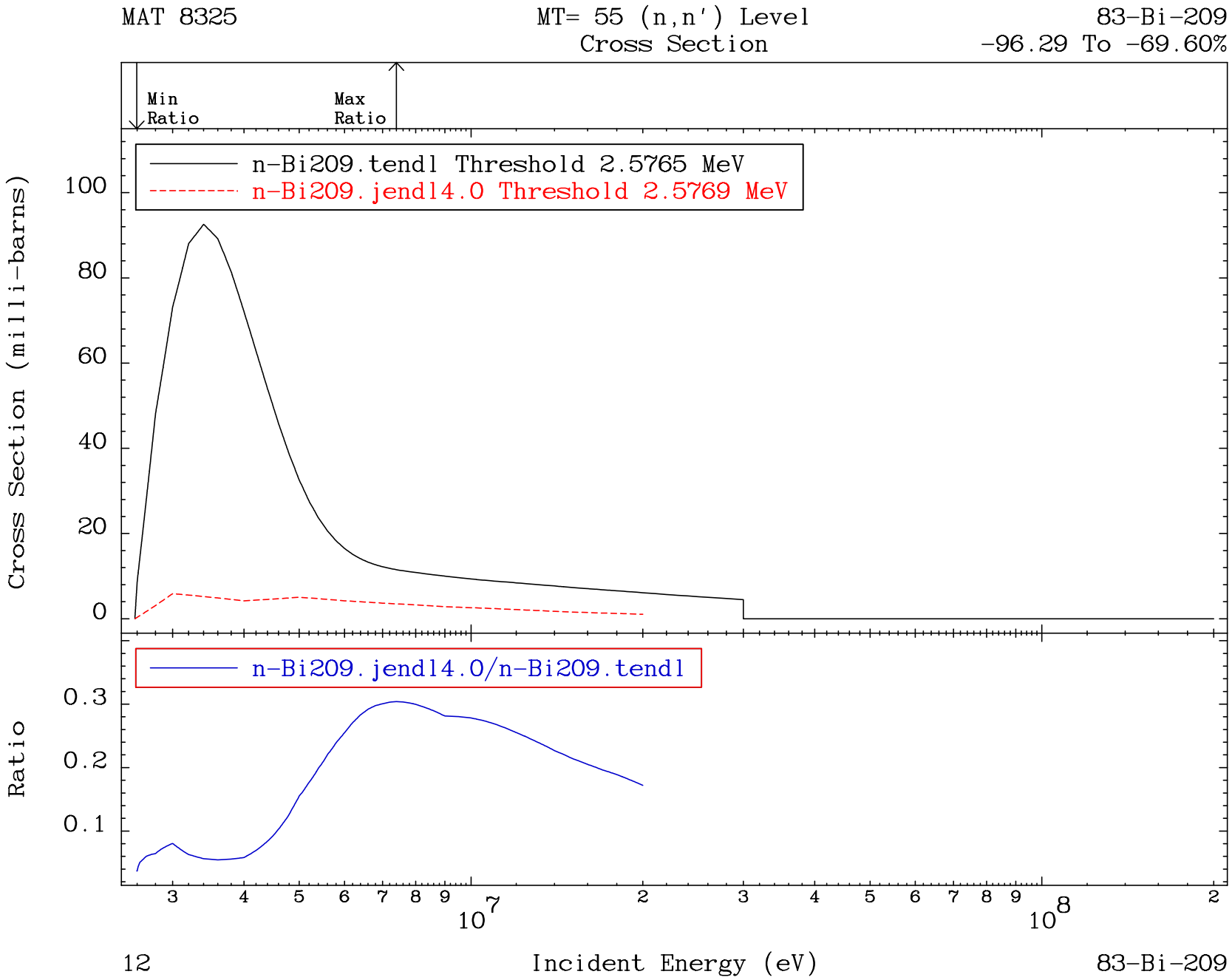

MAT 8325
(n,n') p
Cross Section
83-Bi-209
-93.53 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 3.8174 MeV
n-Bi209.jendl4.0 Threshold 5.0000 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^4
10^2
10^0
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
7
Incident Energy (eV)
83-Bi-209

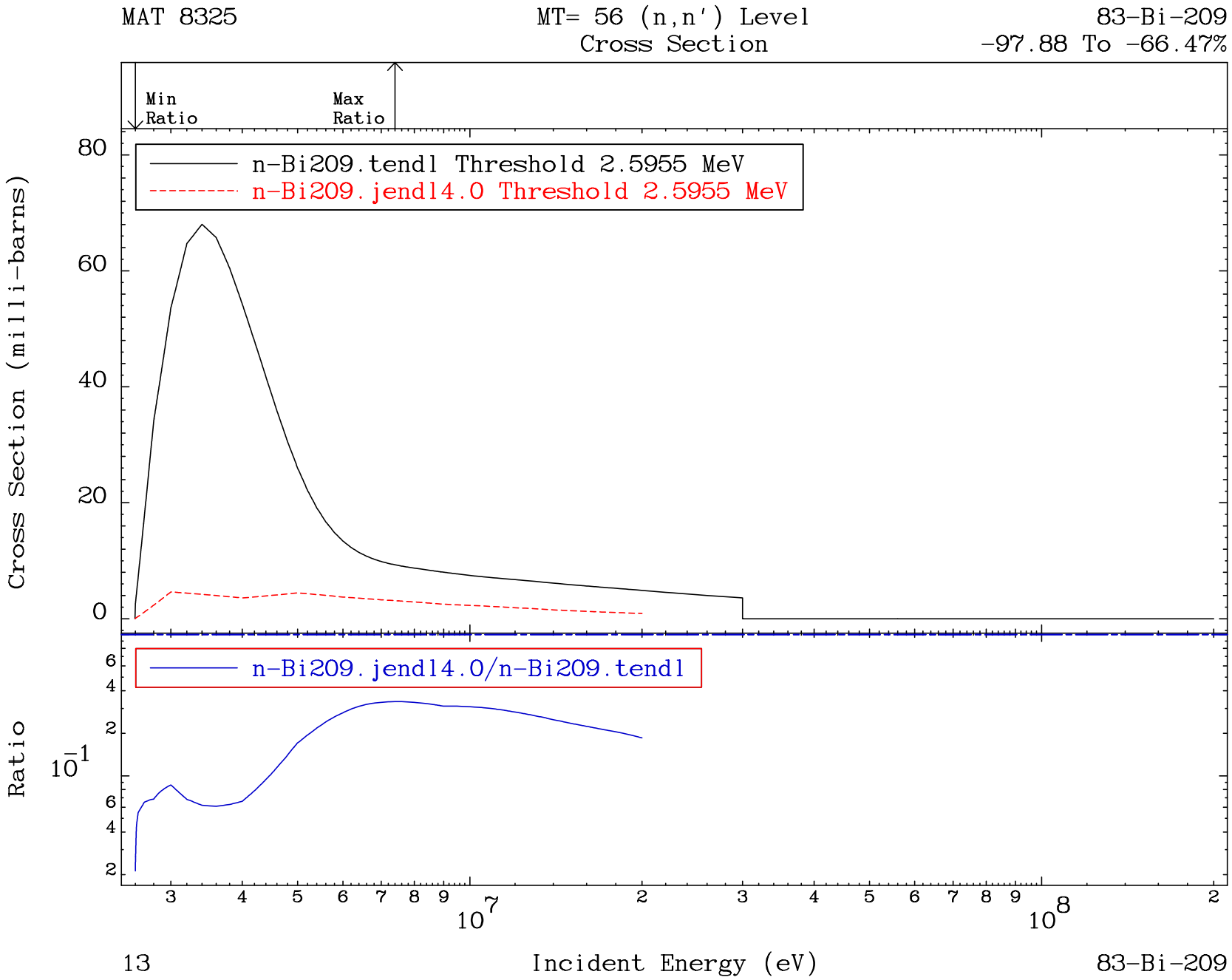

MAT 8325
MT= 51 (n,n') Level
Cross Section
83-Bi-209
-15.35 To 9999. %
Min
Ratio
Max
Ratio
n-Bi209.tendl Threshold 900.62 keV
n-Bi209.jendl4.0 Threshold 900.73 keV
Cross Section (milli-barns)
700
600
500
400
300
200
100
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^6
10^3
10^0
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
8
Incident Energy (eV)
83-Bi-209

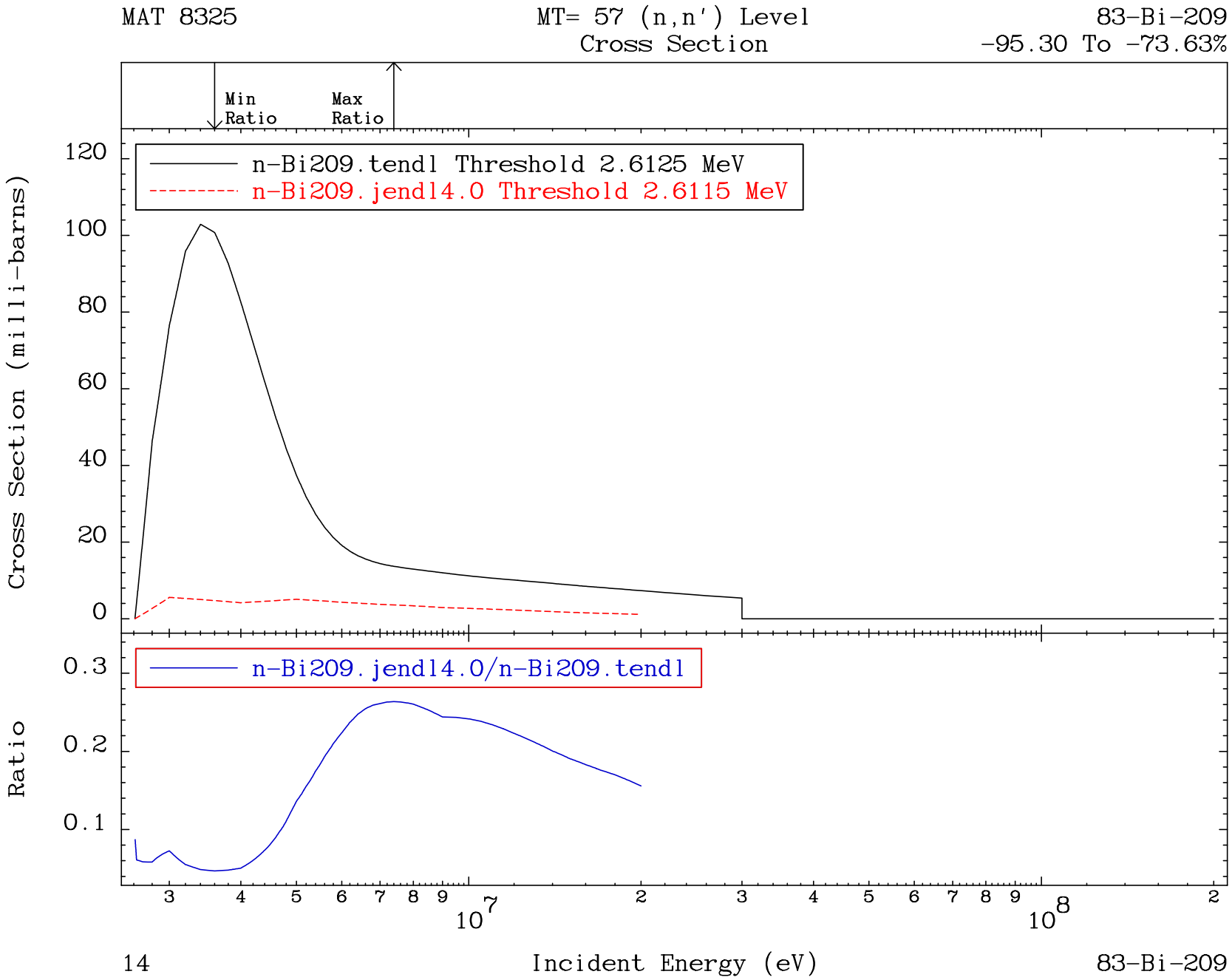

MAT 8325
MT= 52 (n,n') Level
Cross Section
83-Bi-209
6.242 To 9999. %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 1.6163 MeV
n-Bi209.jendl4.0 Threshold 1.6163 MeV
Cross Section (milli-barns)
400
300
200
100
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^2
10^1
10^0
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
9
Incident Energy (eV)
83-Bi-209

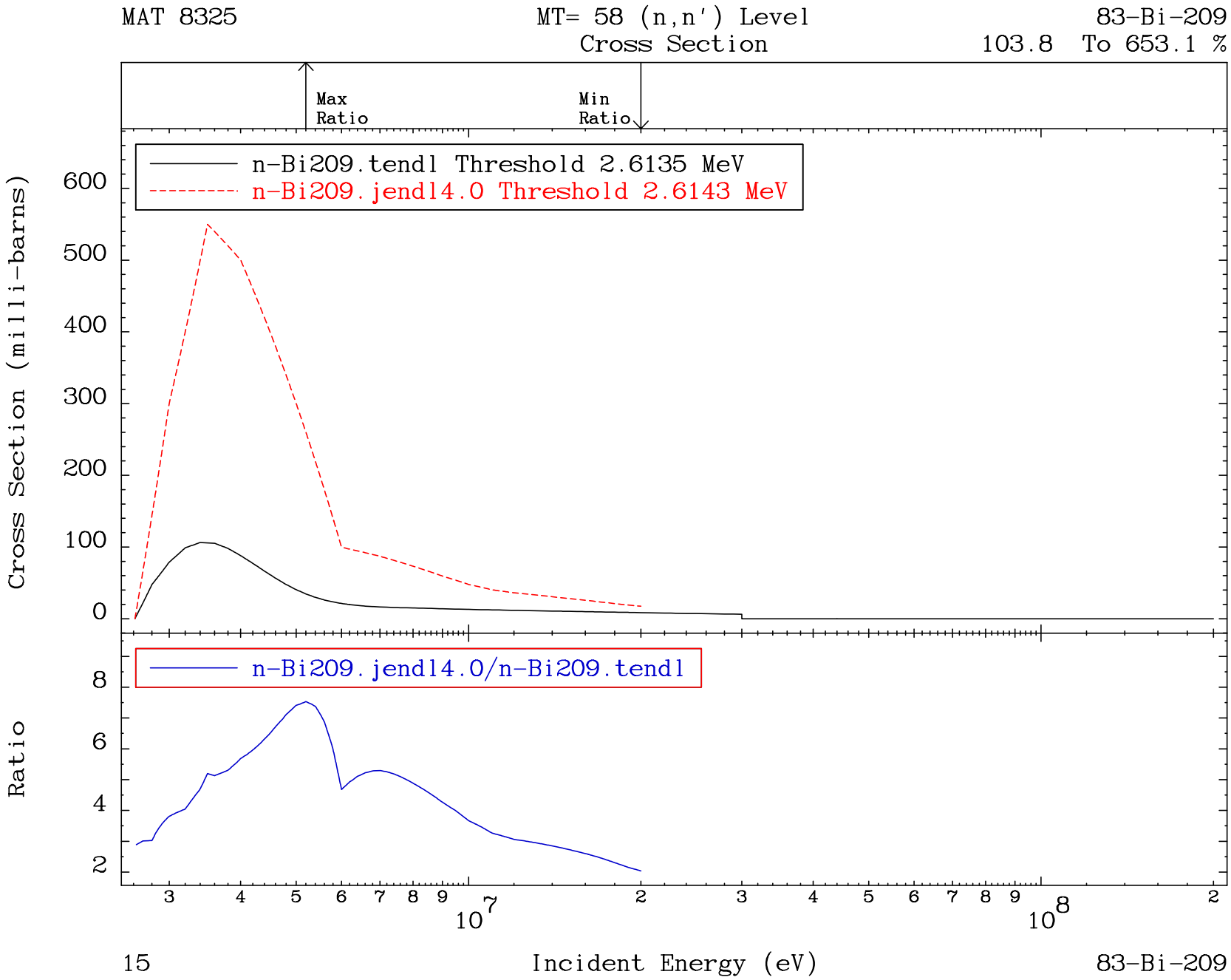

MAT 8325
MT= 53 (n,n') Level
Cross Section
83-Bi-209
-92.63 To 9999. %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.4547 MeV
n-Bi209.jendl4.0 Threshold 2.4417 MeV
Cross Section (milli-barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
10
83-Bi-209

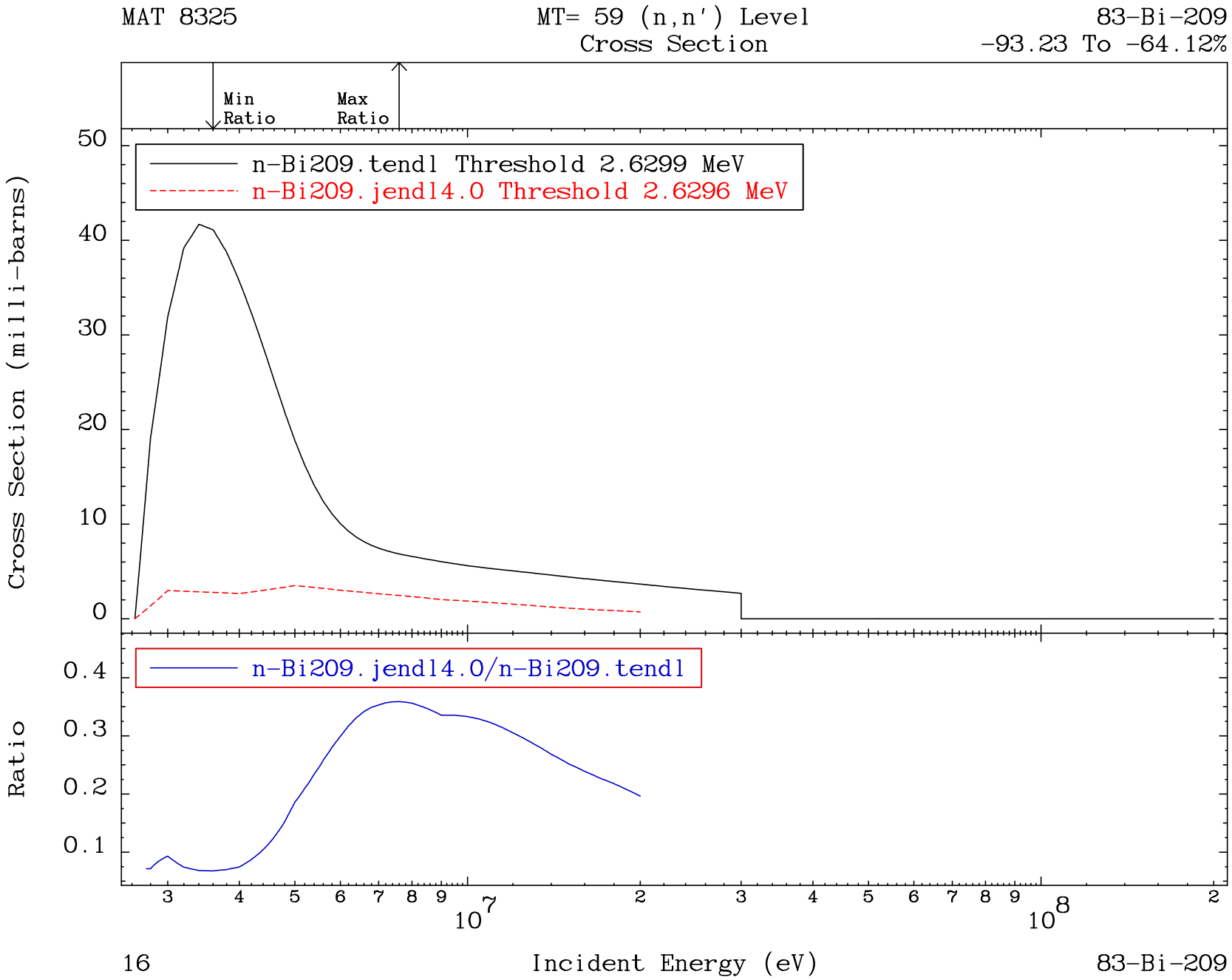

MAT 8325
MT= 54 (n,n') Level
Cross Section
83-Bi-209
-94.11 To 9999. %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.5049 MeV
n-Bi209.jendl4.0 Threshold 2.5040 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^6
10^3
10^0
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
11
Incident Energy (eV)
83-Bi-209

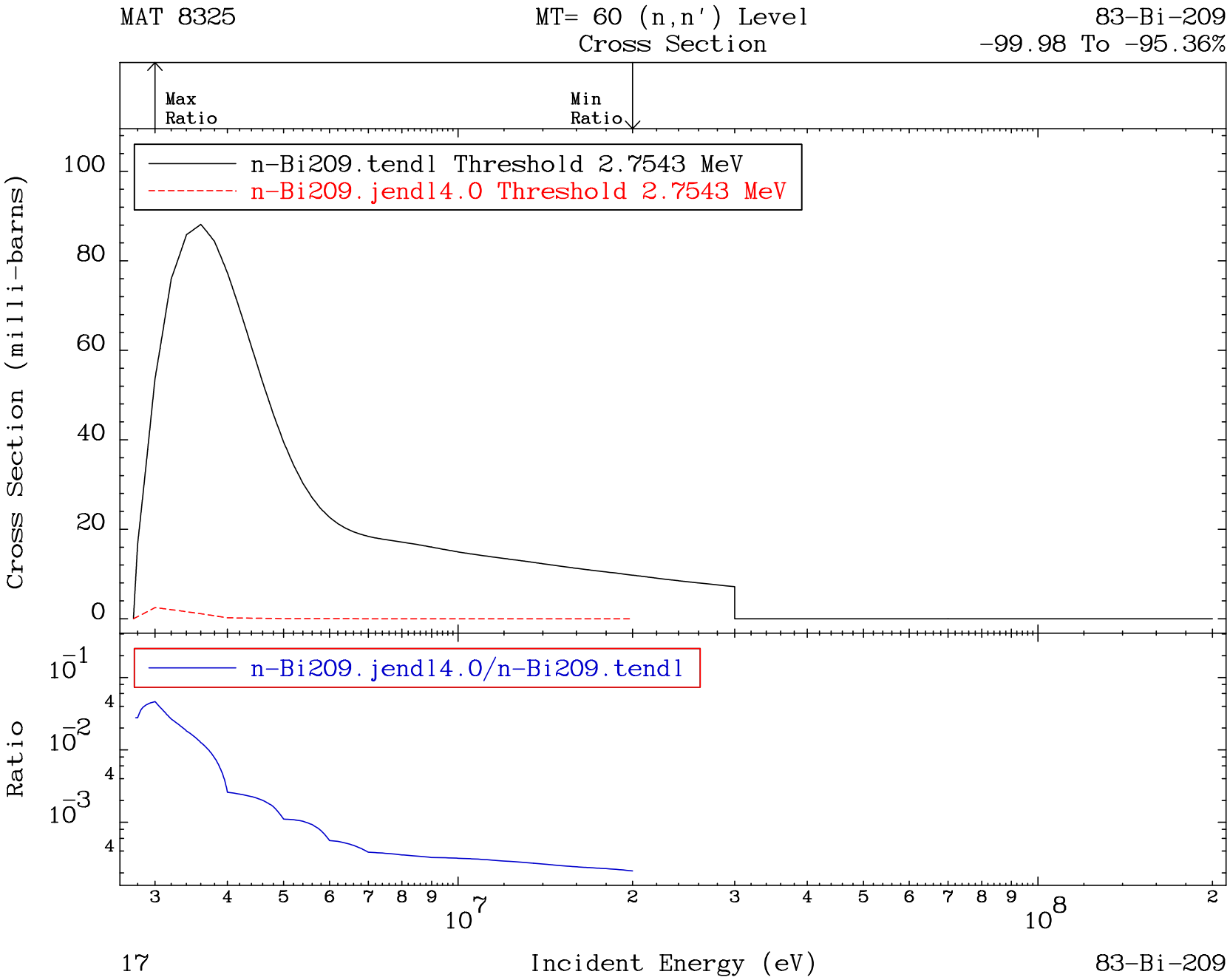

MAT 8325
MT= 55 (n,n') Level
Cross Section
83-Bi-209
-96.29 To -69.60%
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.5765 MeV
n-Bi209.jendl4.0 Threshold 2.5769 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
0.3
0.2
0.1
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
12
Incident Energy (eV)
83-Bi-209

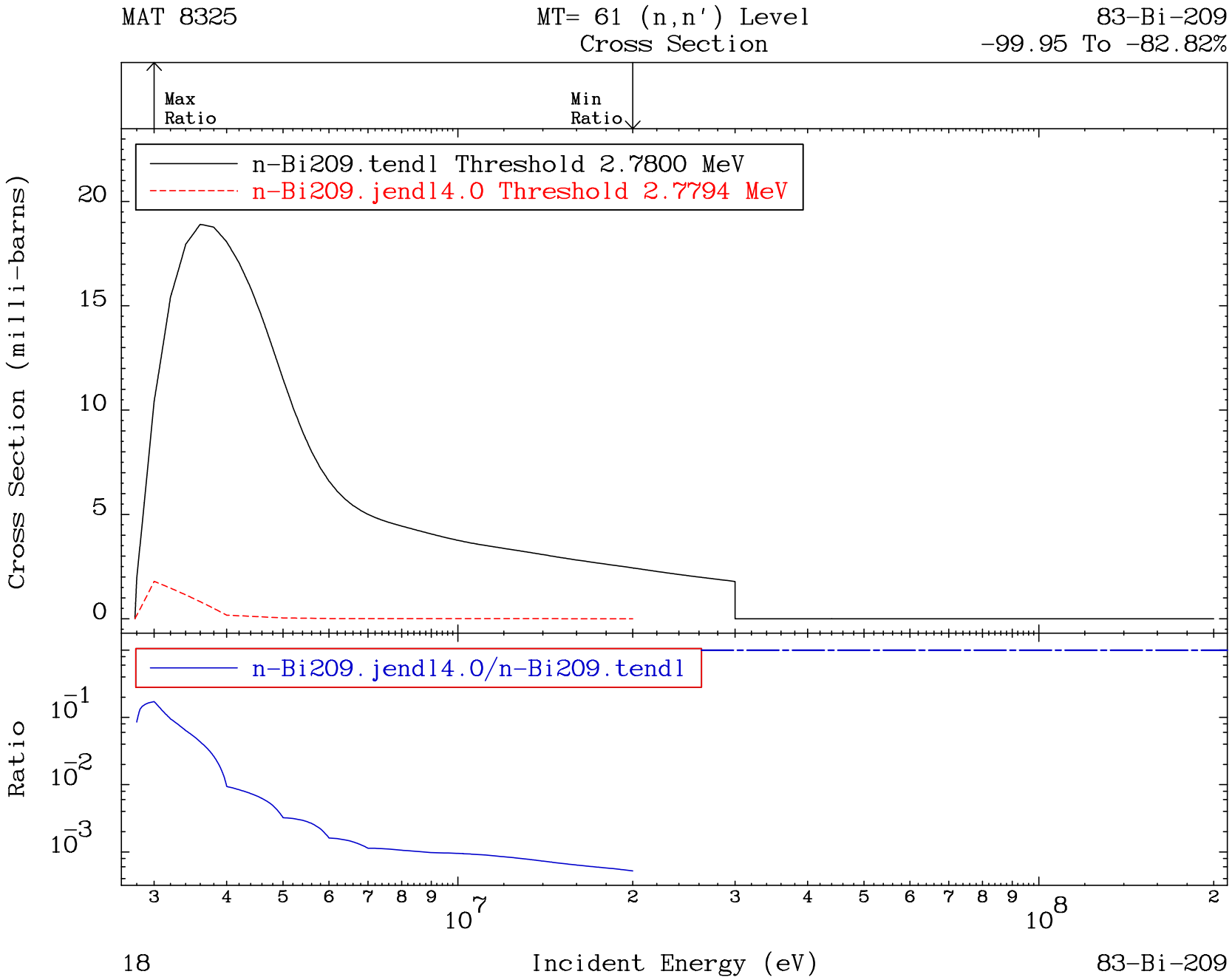

MAT 8325
MT= 56 (n,n') Level
Cross Section
83-Bi-209
-97.88 To -66.47%
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.5955 MeV
n-Bi209.jendl4.0 Threshold 2.5955 MeV
Cross Section (milli-barns)
80
60
40
20
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
6
4
2
10^{-1}
6
4
2
3 4 5 6 7 8 9 10^{7} 2 3 4 5 6 7 8 9 10^{8} 2
13
Incident Energy (eV)
83-Bi-209

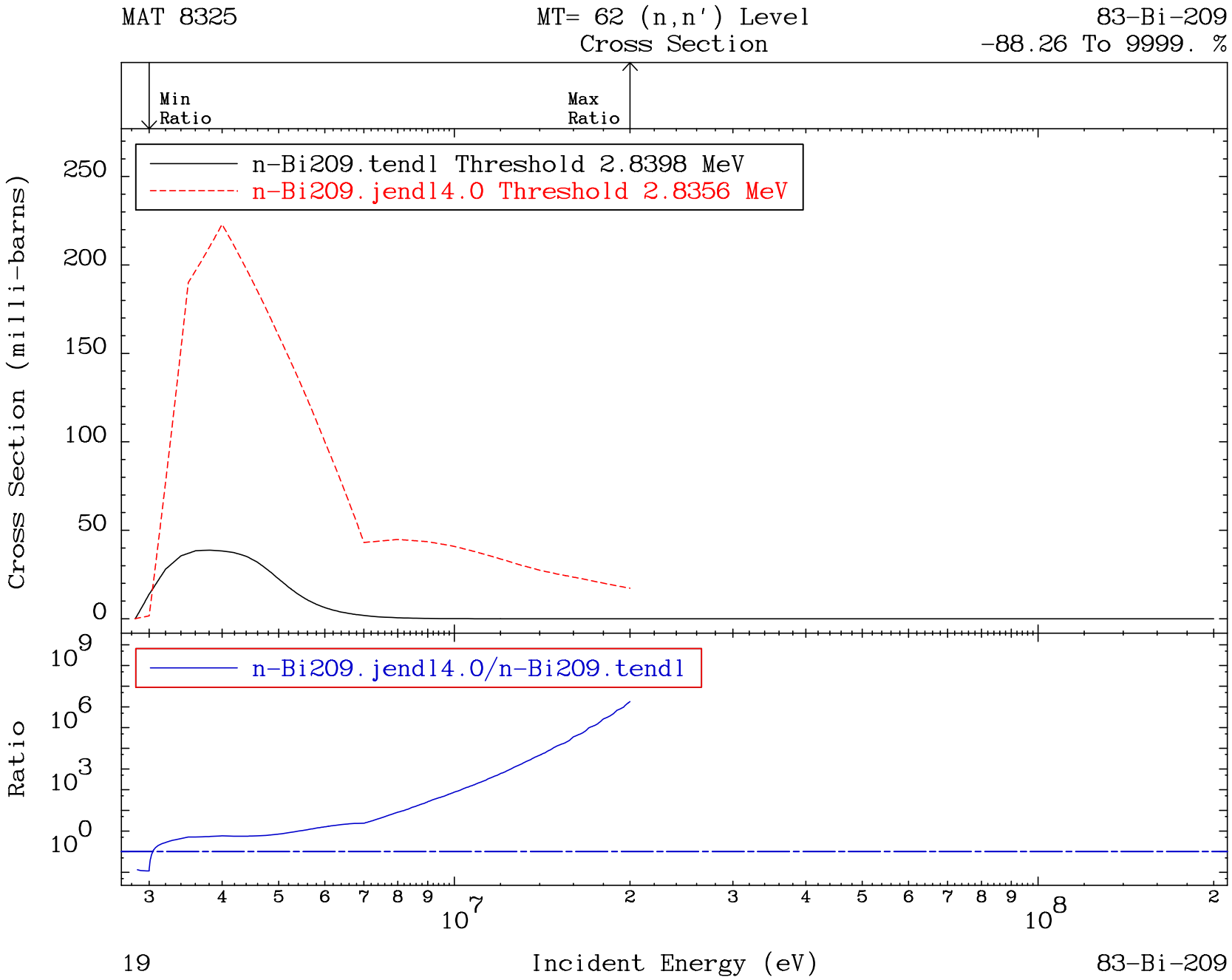

MAT 8325
MT= 57 (n,n') Level
Cross Section
83-Bi-209
-95.30 To -73.63%
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.6125 MeV
n-Bi209.jendl4.0 Threshold 2.6115 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
0.3
0.2
0.1
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
14
Incident Energy (eV)
83-Bi-209

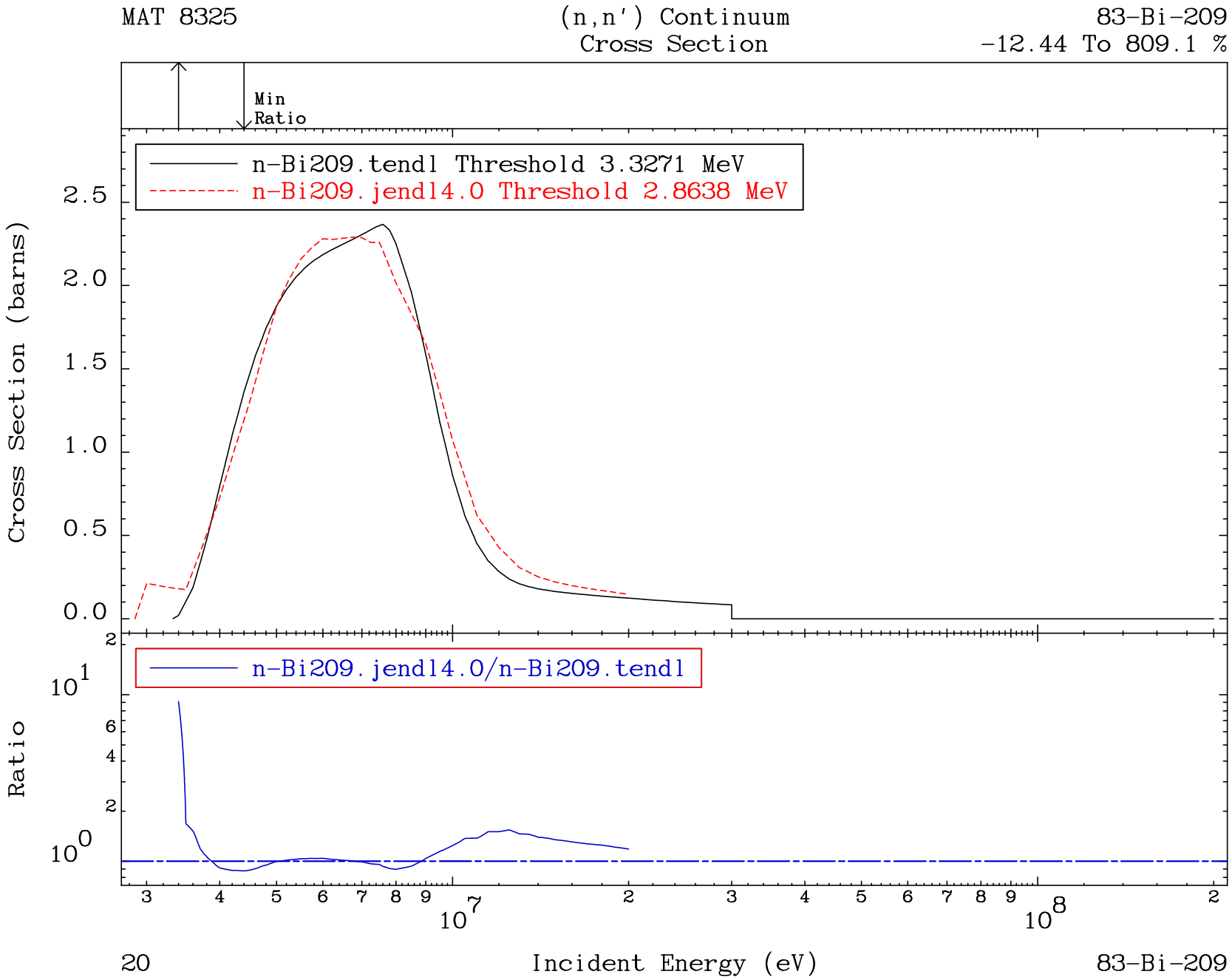

MAT 8325
MT= 58 (n,n') Level
Cross Section
83-Bi-209
103.8 To 653.1 %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 2.6135 MeV
n-Bi209.jendl4.0 Threshold 2.6143 MeV
Cross Section (milli-barns)
600
500
400
300
200
100
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
8
6
4
2
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
15
Incident Energy (eV)
83-Bi-209

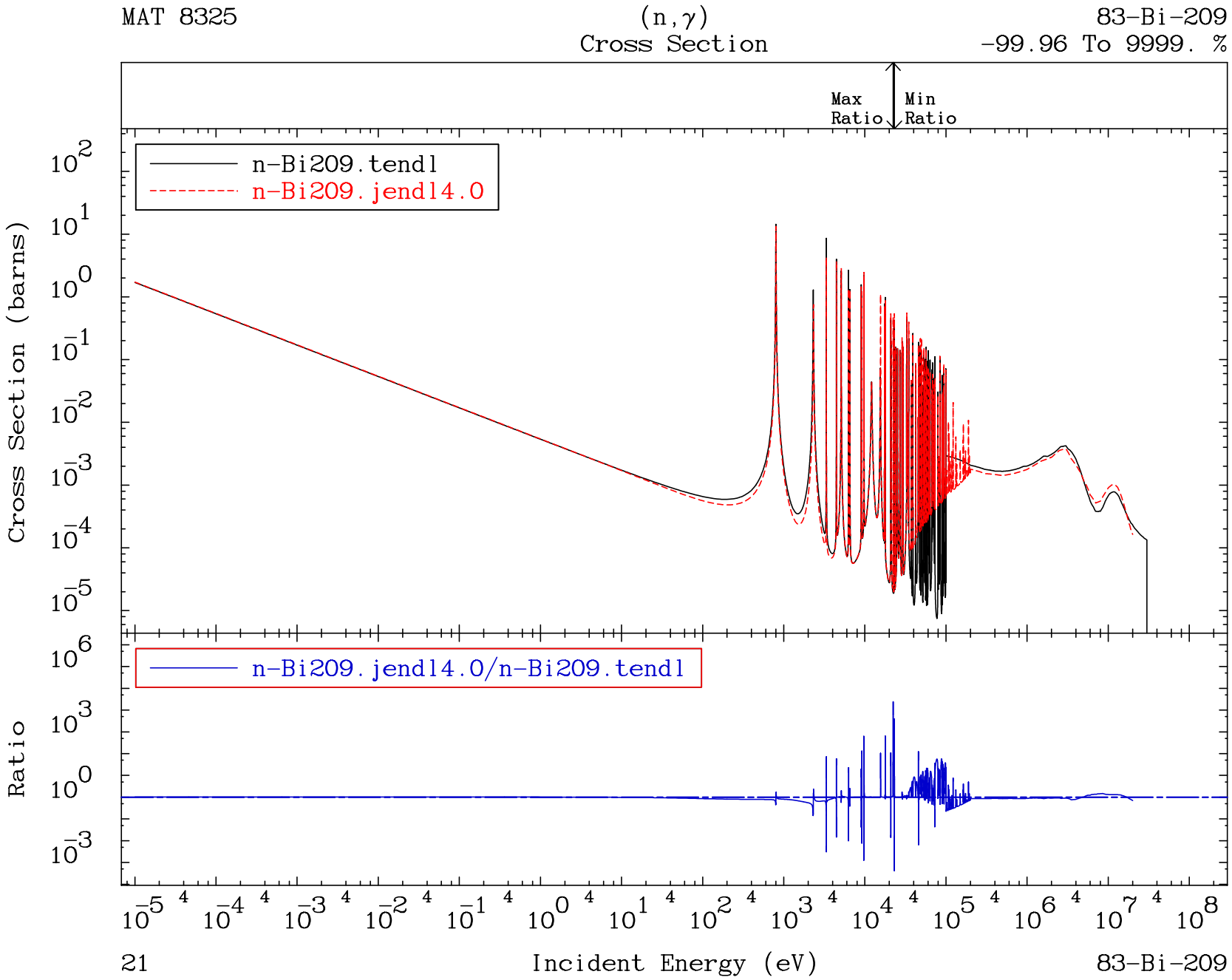

MAT 8325
MT= 59 (n,n') Level
Cross Section
83-Bi-209
-93.23 To -64.12%
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.6299 MeV
n-Bi209.jendl4.0 Threshold 2.6296 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
0.4
0.3
0.2
0.1
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
16
Incident Energy (eV)
83-Bi-209

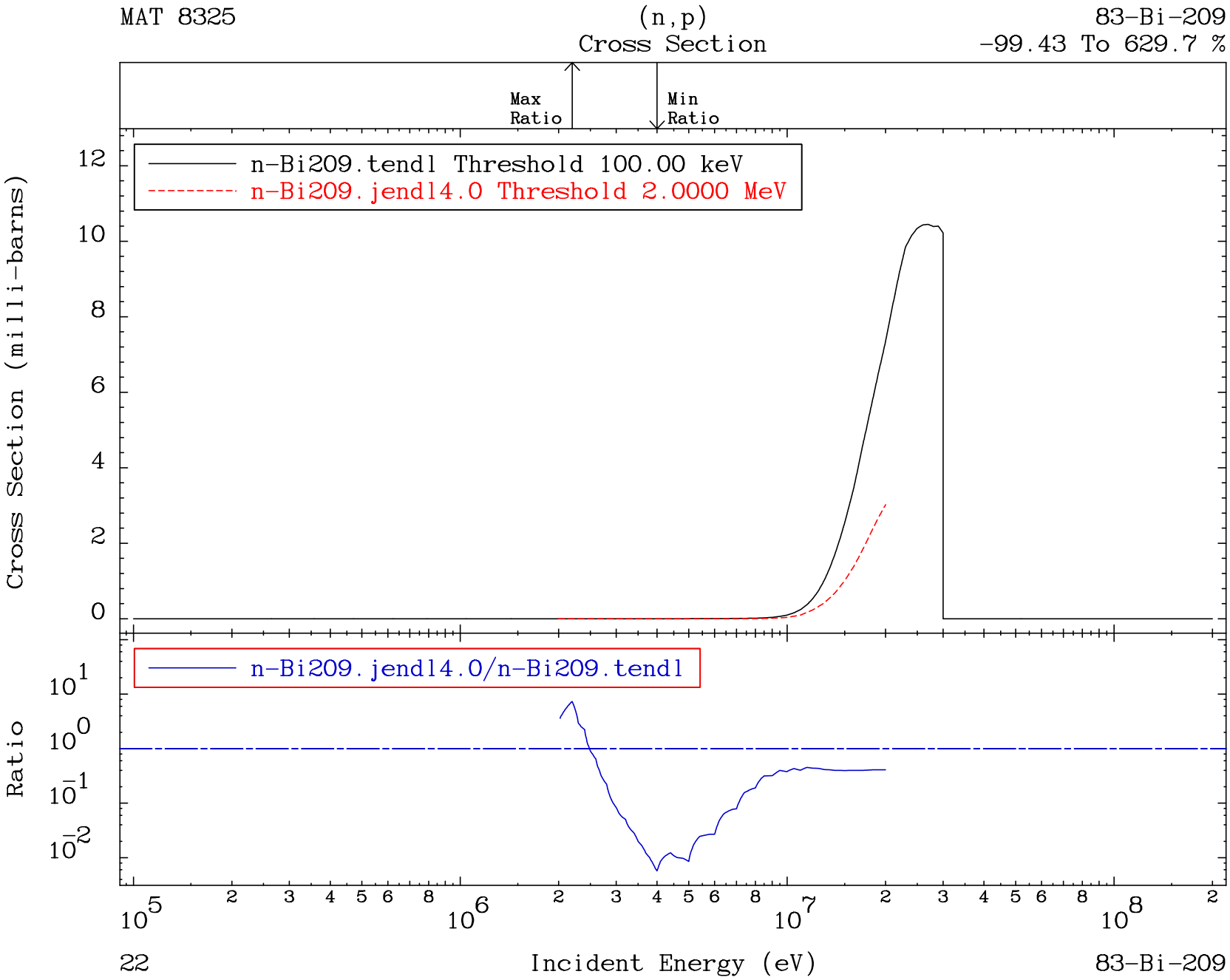

MAT 8325
MT= 60 (n,n') Level
Cross Section
83-Bi-209
-99.98 To -95.36%
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 2.7543 MeV
n-Bi209.jendl4.0 Threshold 2.7543 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10-1
10-2
10-3
4
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
17
Incident Energy (eV)
83-Bi-209

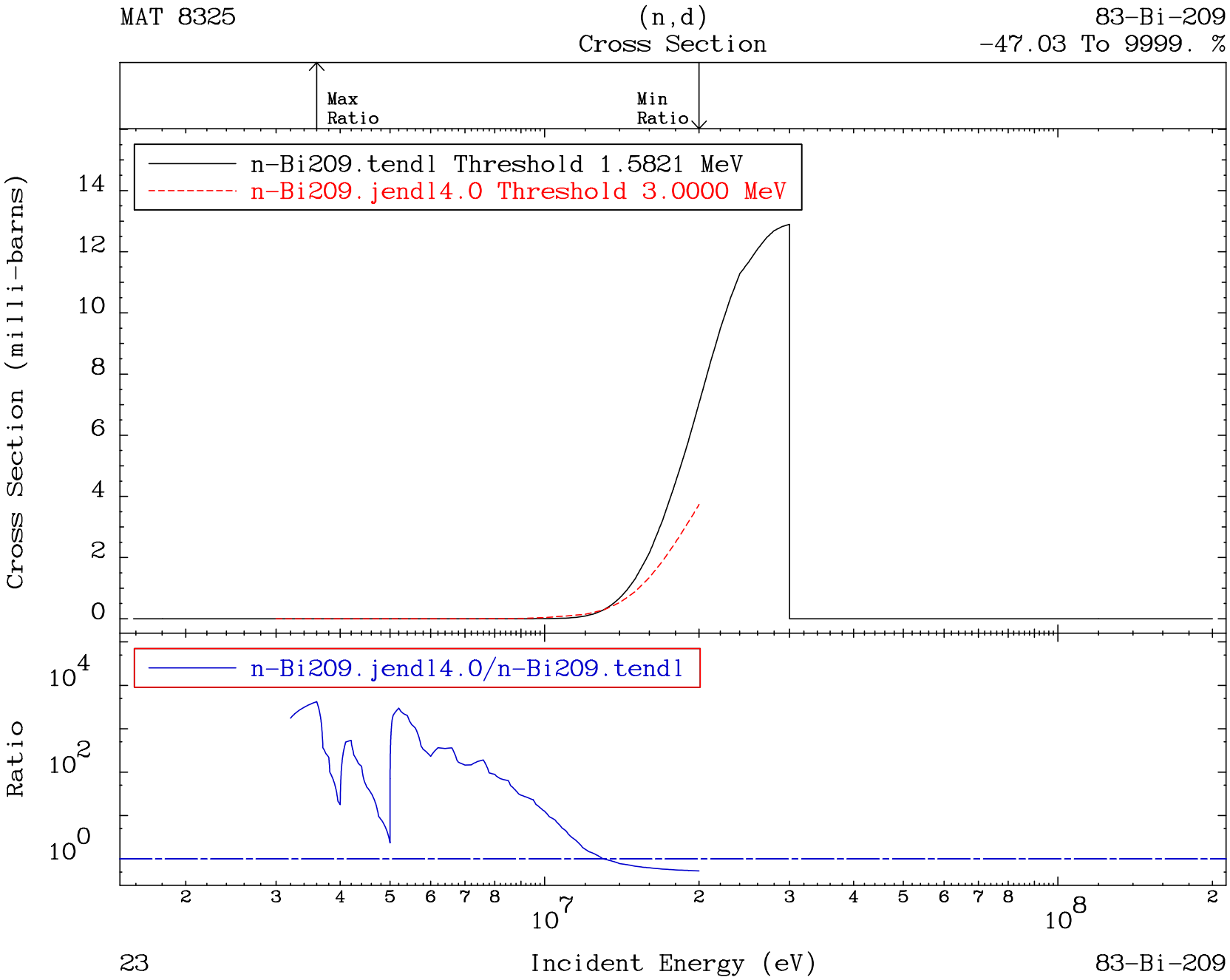

MAT 8325
MT= 61 (n,n') Level
Cross Section
83-Bi-209
-99.95 To -82.82%
Max
Ratio
Min
Ratio
n-Bi209.tendl Threshold 2.7800 MeV
n-Bi209.jendl4.0 Threshold 2.7794 MeV
Cross Section (milli-barns)
20
15
10
5
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10-1
10-2
10-3
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
18
Incident Energy (eV)
83-Bi-209

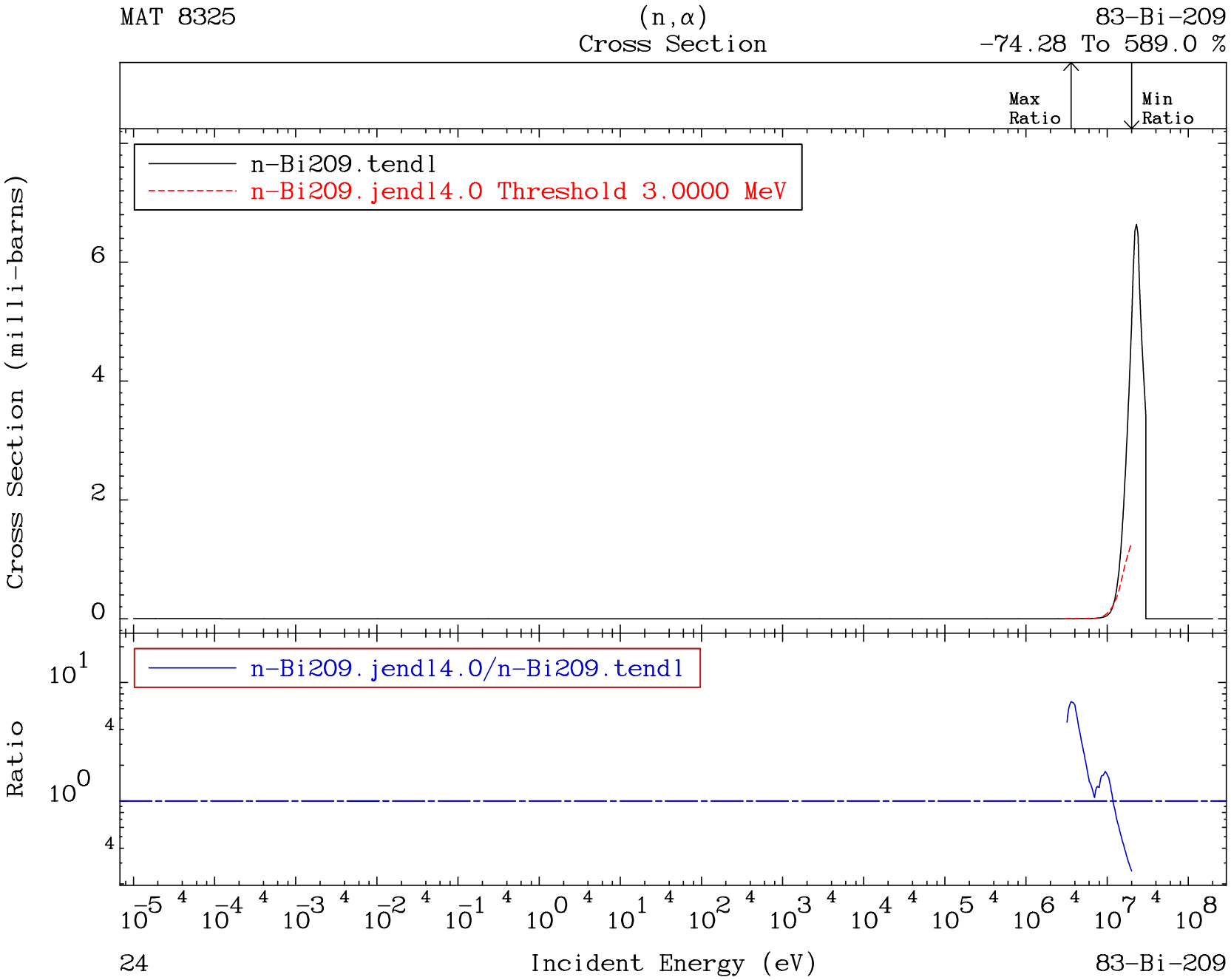

MAT 8325
MT= 62 (n,n') Level
Cross Section
83-Bi-209
-88.26 To 9999. %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 2.8398 MeV
n-Bi209.jendl4.0 Threshold 2.8356 MeV
Cross Section (milli-barns)
250
200
150
100
50
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^9
10^6
10^3
10^0
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
19
Incident Energy (eV)
83-Bi-209

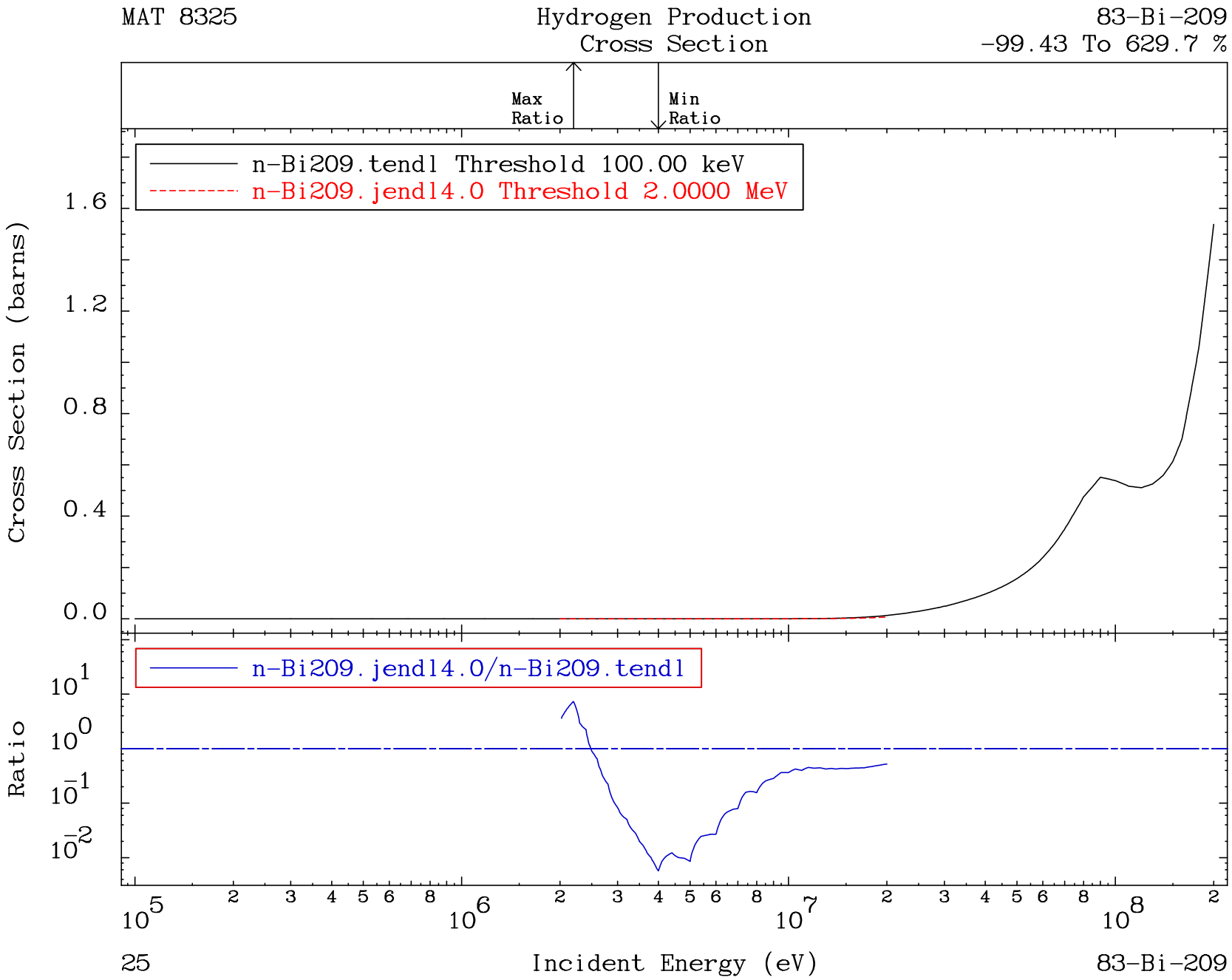

MAT 8325
(n,n') Continuum
Cross Section
83-Bi-209
-12.44 To 809.1 %
Min
Ratio
n-Bi209.tendl Threshold 3.3271 MeV
n-Bi209.jendl4.0 Threshold 2.8638 MeV
Cross Section (barns)
2.5
2.0
1.5
1.0
0.5
0.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^1
10^0
10^7
10^8
20
Incident Energy (eV)
83-Bi-209

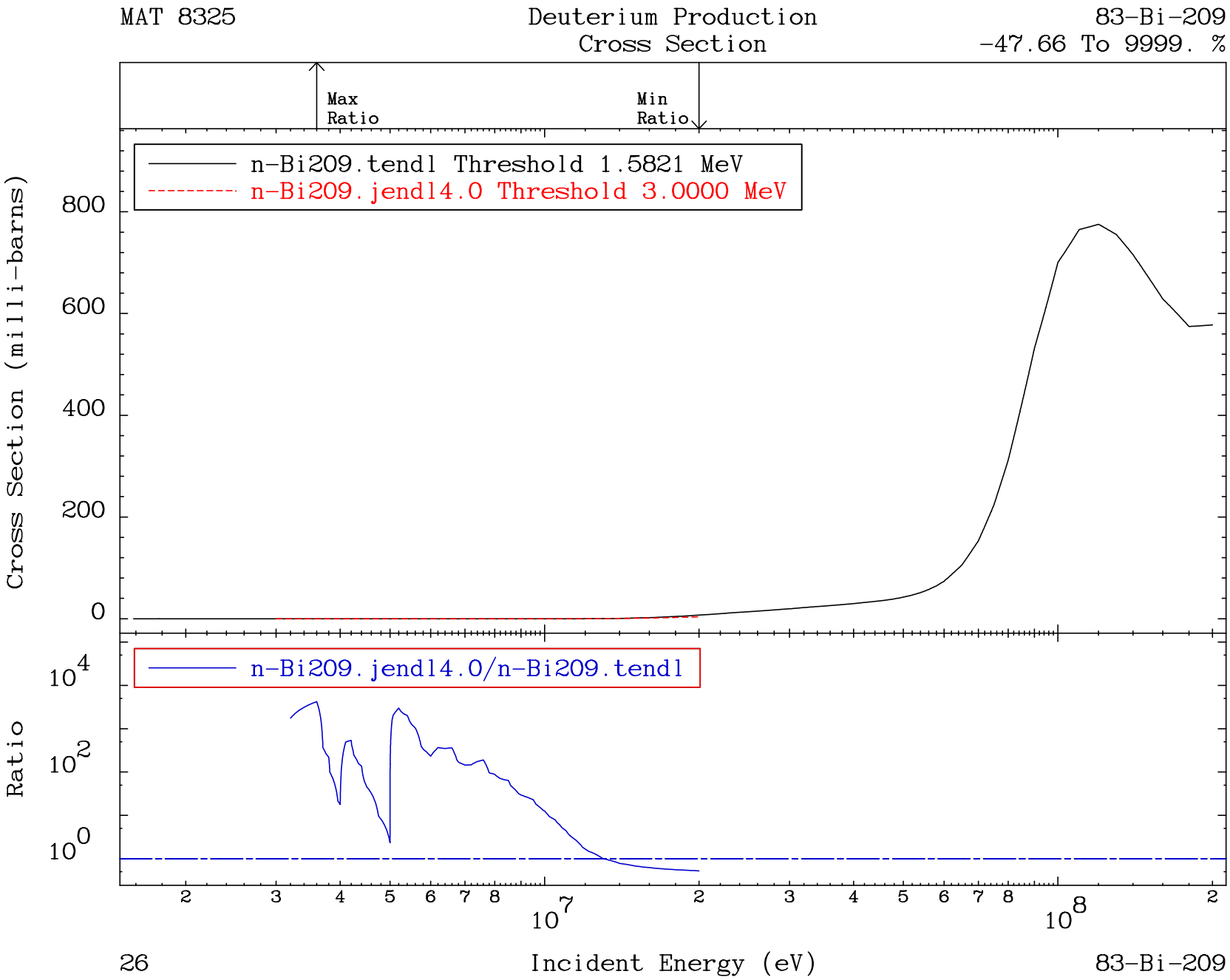

MAT 8325
(n,γ)
Cross Section
83-Bi-209
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
21
83-Bi-209

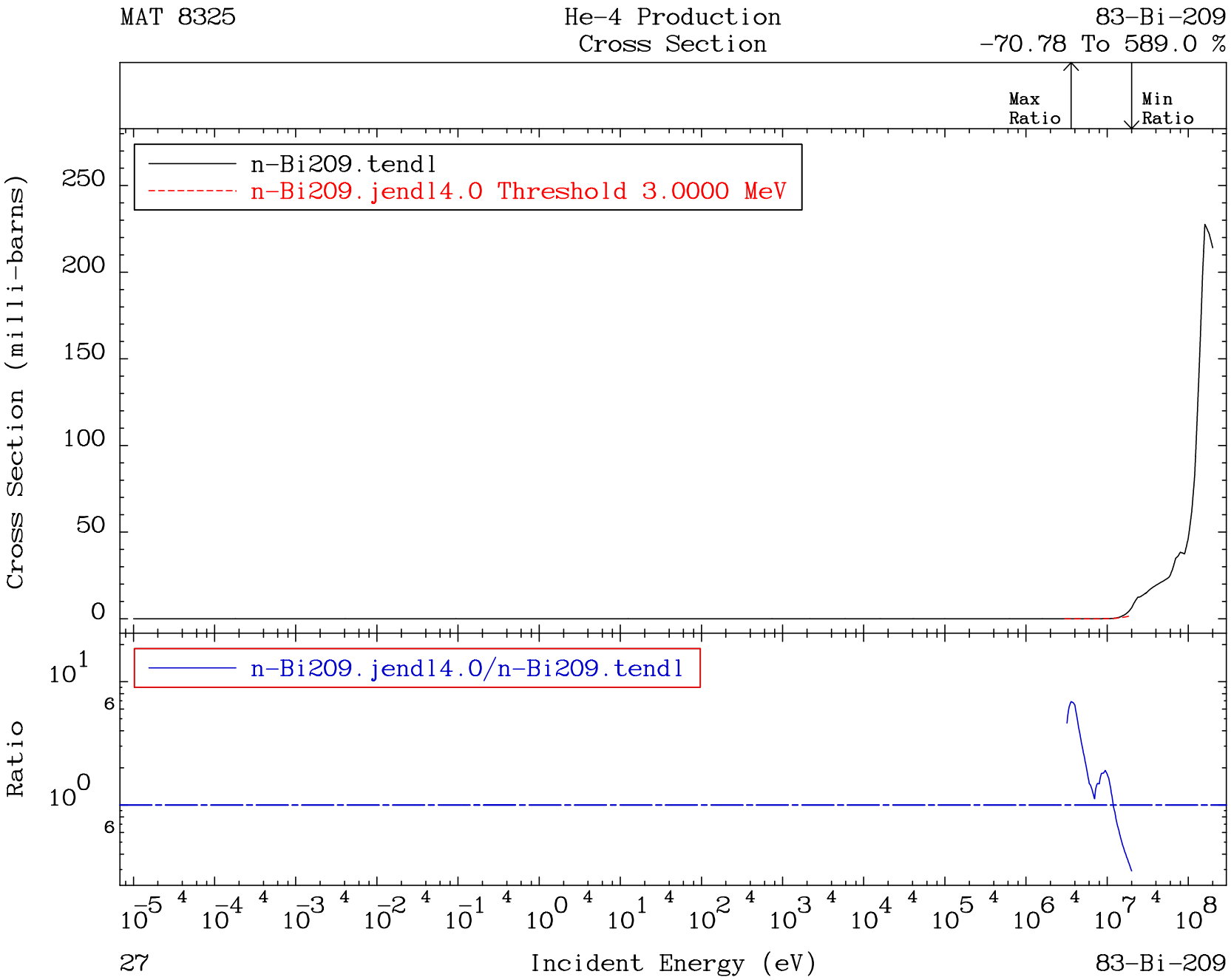

MAT 8325
(n,p)
Cross Section
83-Bi-209
-99.43 To 629.7 %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 100.00 keV
n-Bi209.jendl4.0 Threshold 2.0000 MeV
Cross Section (milli-barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
22
83-Bi-209

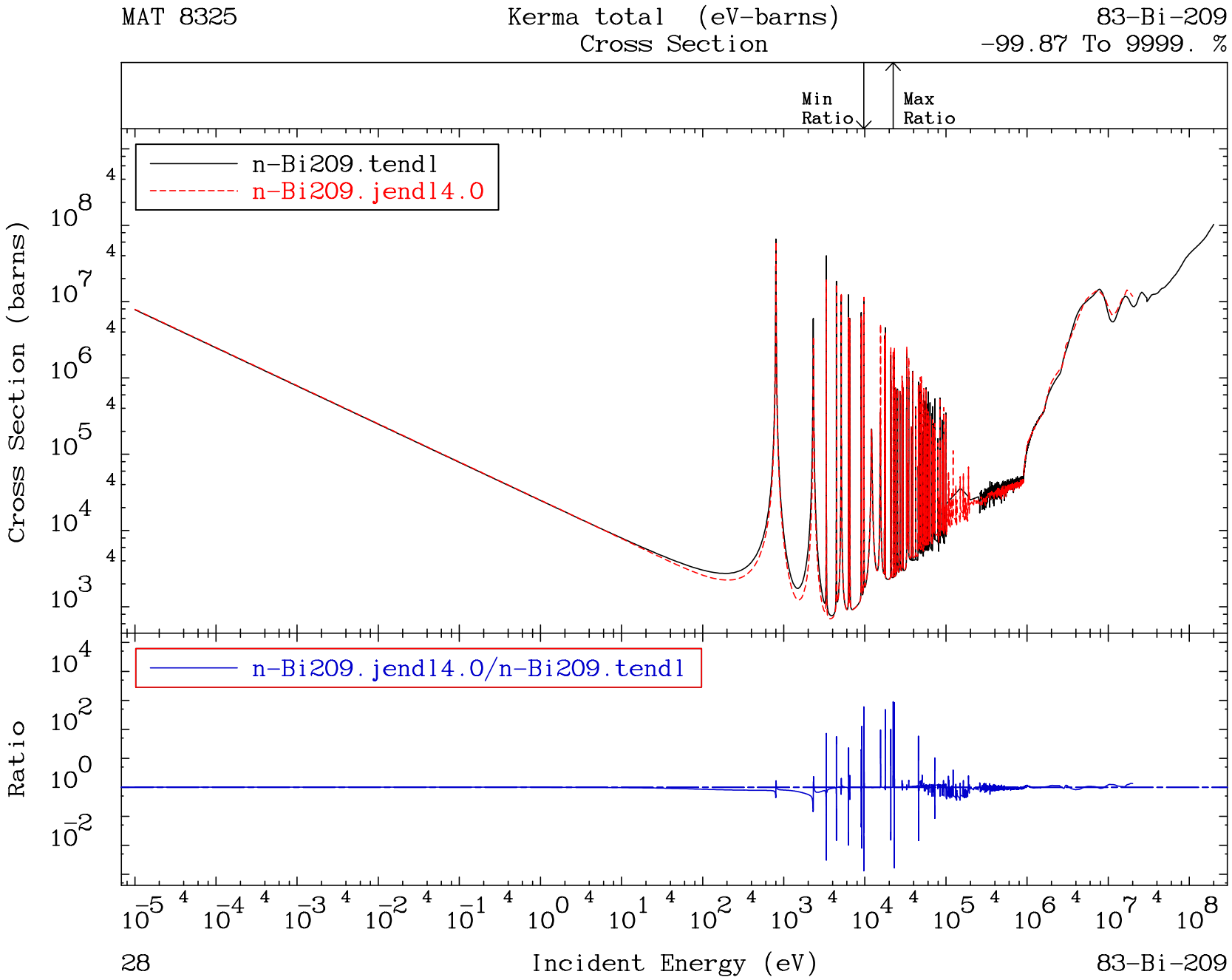

MAT 8325
(n,d)
Cross Section
83-Bi-209
-47.03 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 1.5821 MeV
n-Bi209.jendl4.0 Threshold 3.0000 MeV
Cross Section (milli-barns)
14
12
10
8
6
4
2
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^4
10^2
10^0
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
23
Incident Energy (eV)
83-Bi-209

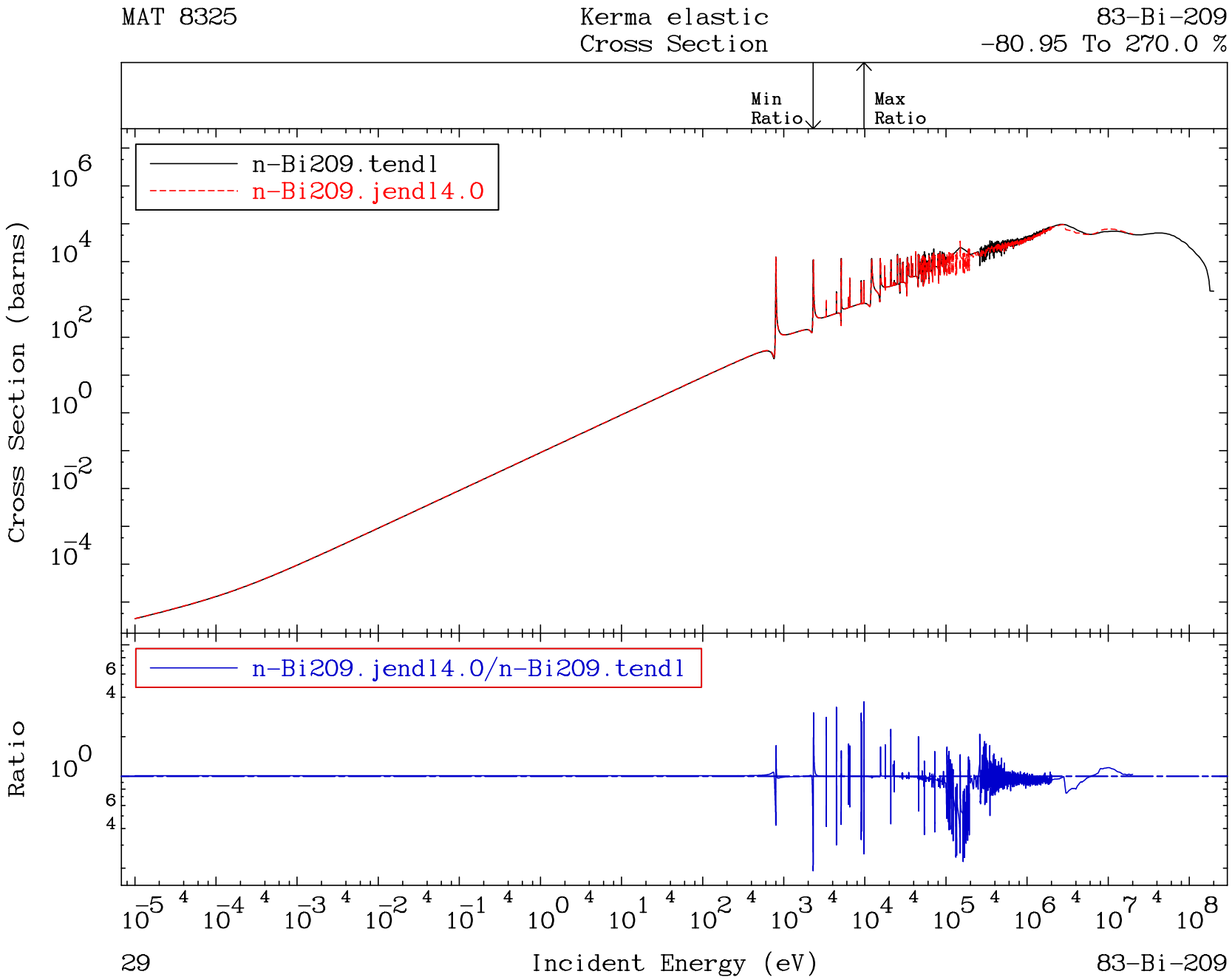

MAT 8325
(n,α)
Cross Section
83-Bi-209
-74.28 To 589.0 %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0 Threshold 3.0000 MeV
Cross Section (milli-barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
24
83-Bi-209

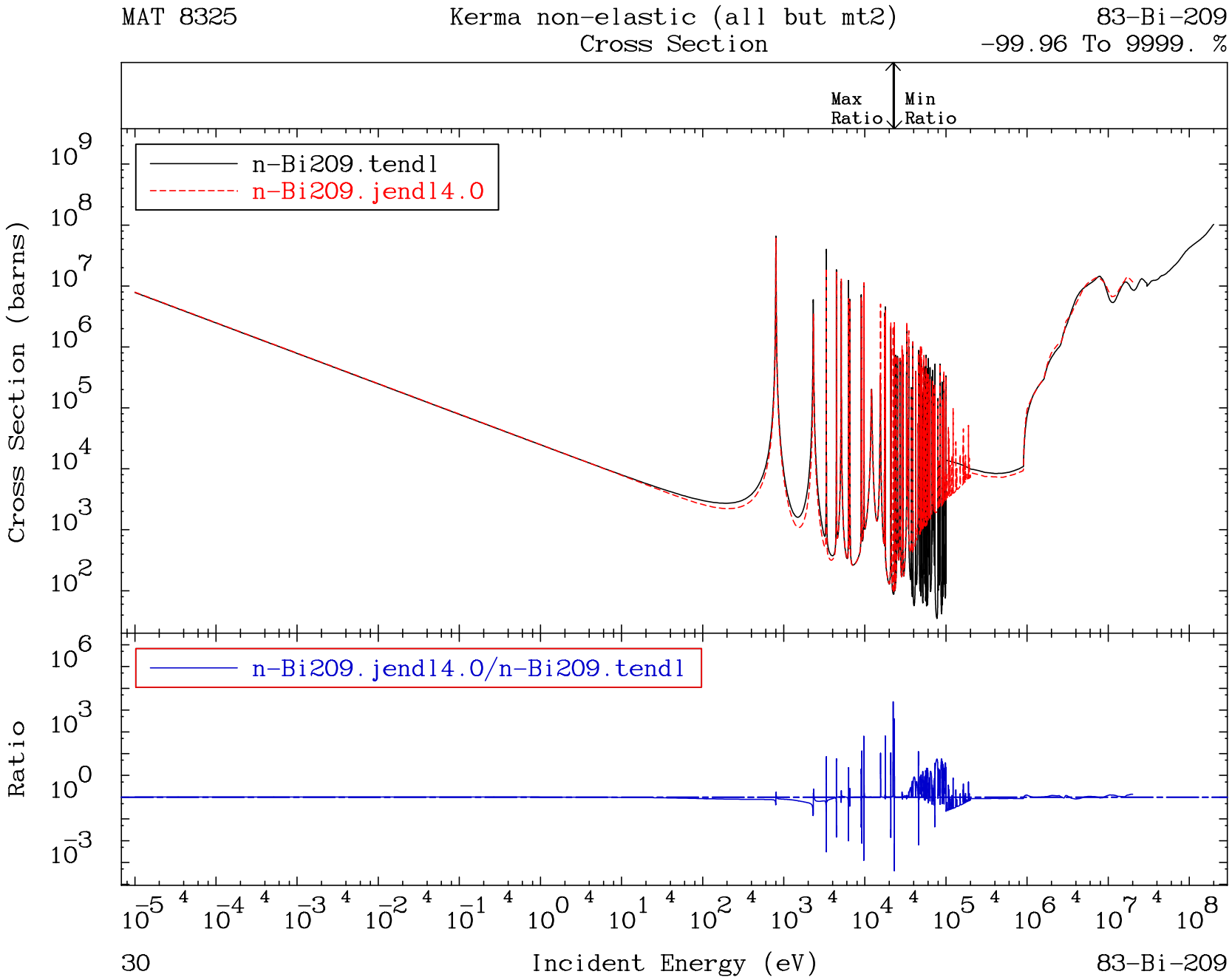

MAT 8325
Hydrogen Production
Cross Section
83-Bi-209
-99.43 To 629.7 %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 100.00 keV
n-Bi209.jendl4.0 Threshold 2.0000 MeV
Cross Section (barns)
1.6
1.2
0.8
0.4
0.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^1
10^0
10^-1
10^-2
10^5
2 3 4 5 6 8
10^6
2 3 4 5 6 8
10^7
2 3 4 5 6 8
10^8
2
25
Incident Energy (eV)
83-Bi-209

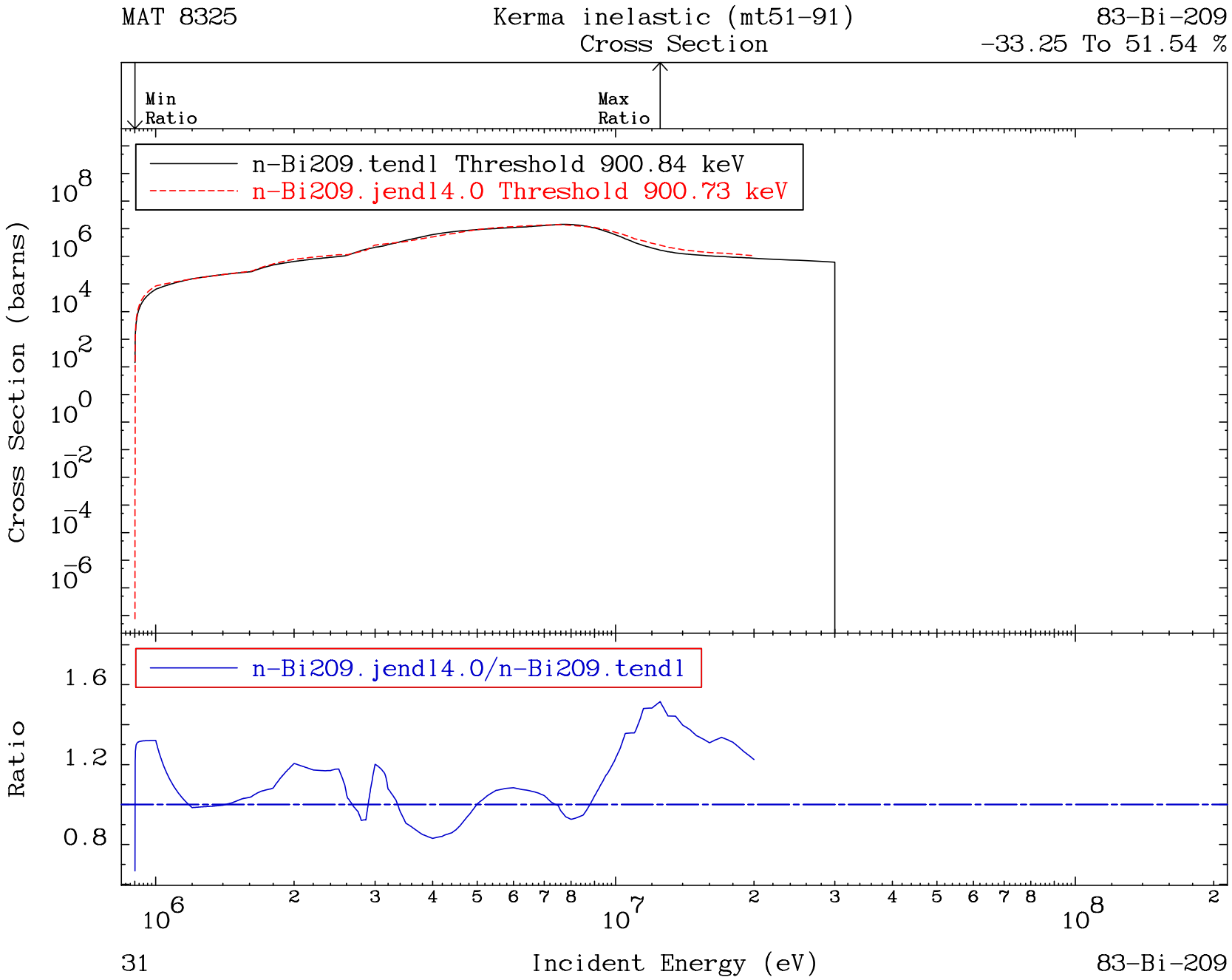

MAT 8325
Deuterium Production
Cross Section
83-Bi-209
-47.66 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl Threshold 1.5821 MeV
n-Bi209.jendl4.0 Threshold 3.0000 MeV
Cross Section (milli-barns)
800
600
400
200
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^4
10^2
10^0
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
26
Incident Energy (eV)
83-Bi-209

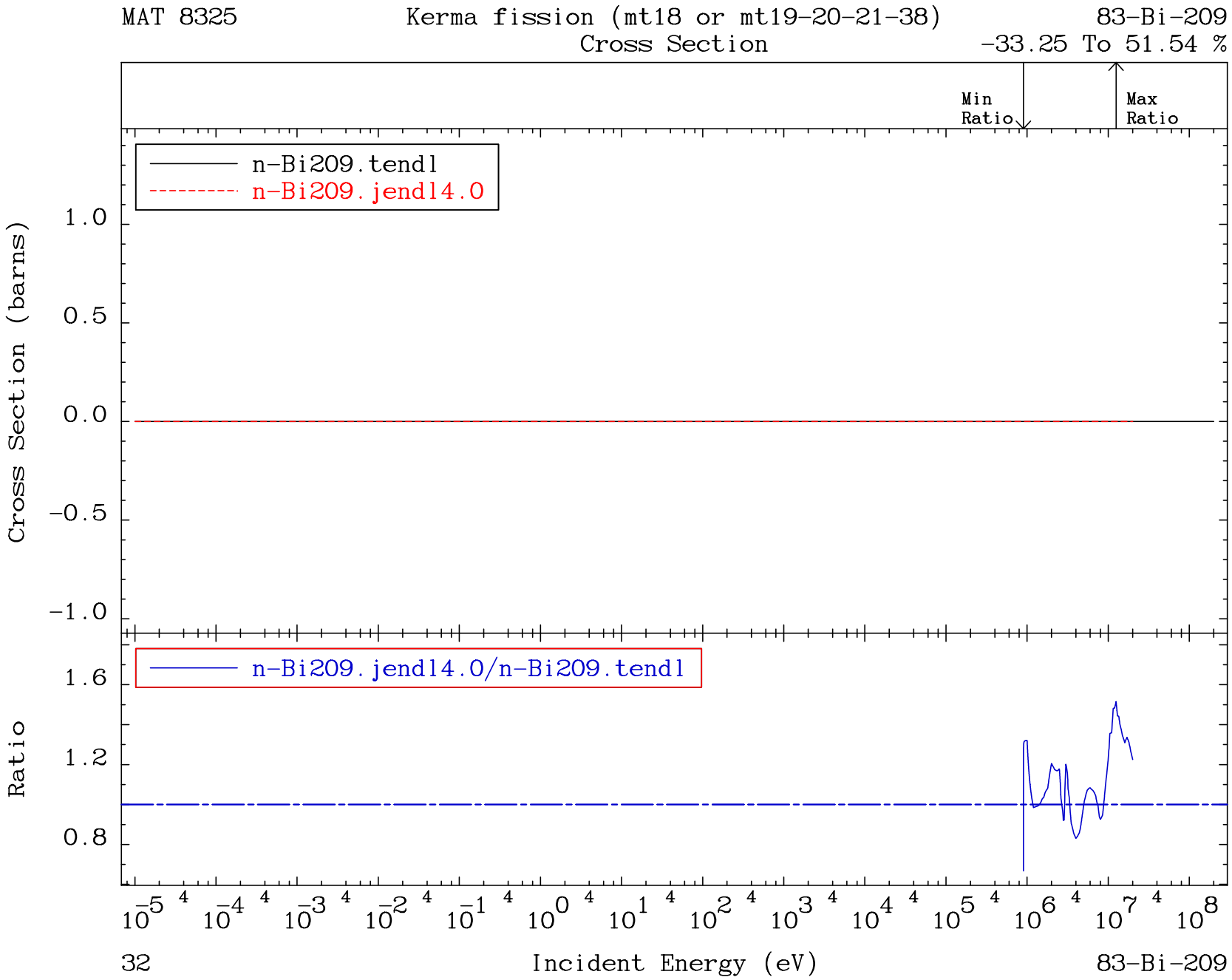

MAT 8325
He-4 Production
Cross Section
83-Bi-209
-70.78 To 589.0 %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0 Threshold 3.0000 MeV
Cross Section (milli-barns)
250
200
150
100
50
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^1
10^0
6
6
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
27
Incident Energy (eV)
83-Bi-209

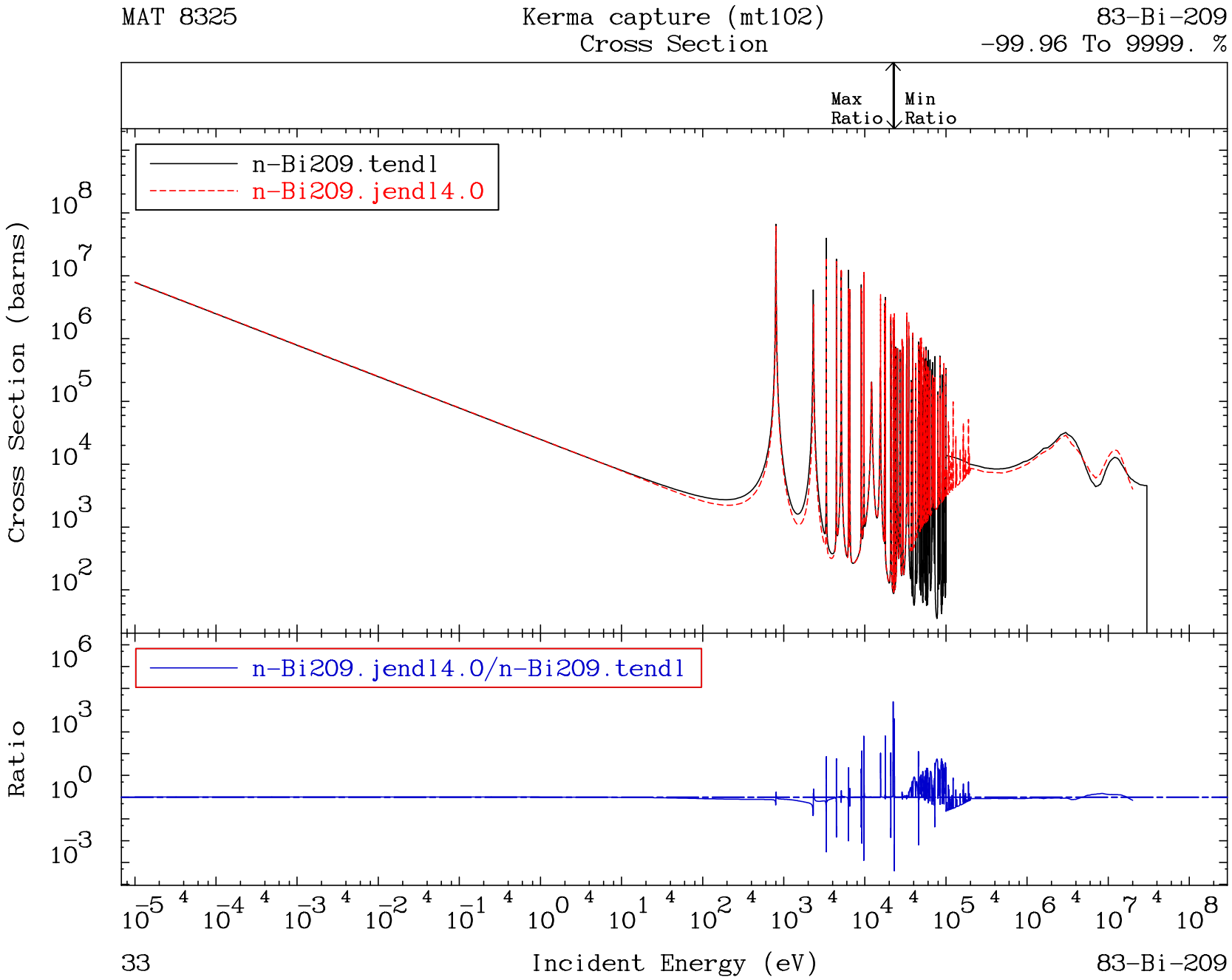

MAT 8325
Kerma total (eV-barns)
Cross Section
83-Bi-209
-99.87 To 9999. %
Min Ratio
Max Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
28
83-Bi-209

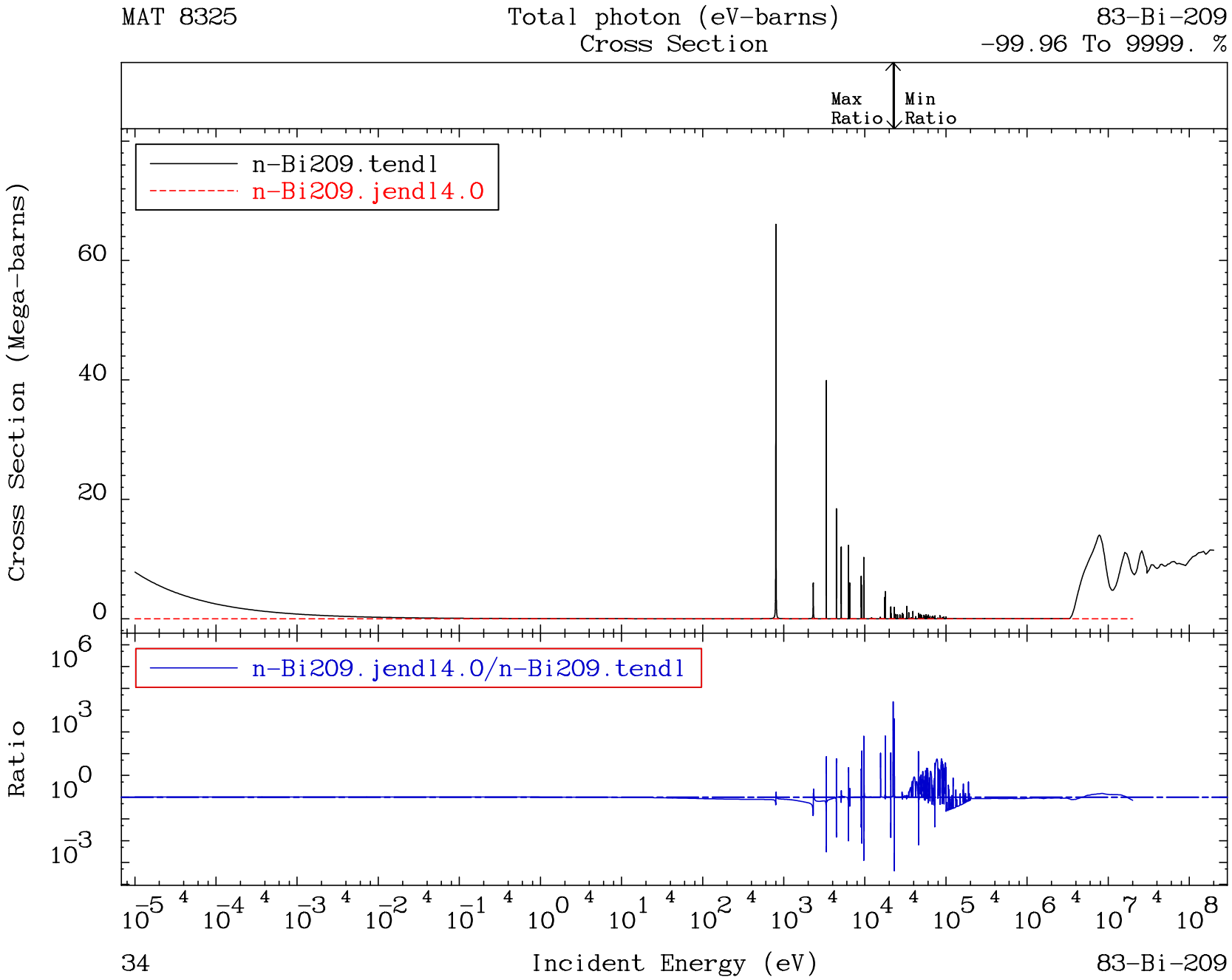

MAT 8325
Kerma elastic
Cross Section
83-Bi-209
-80.95 To 270.0 %
Min Ratio
Max Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
29
83-Bi-209

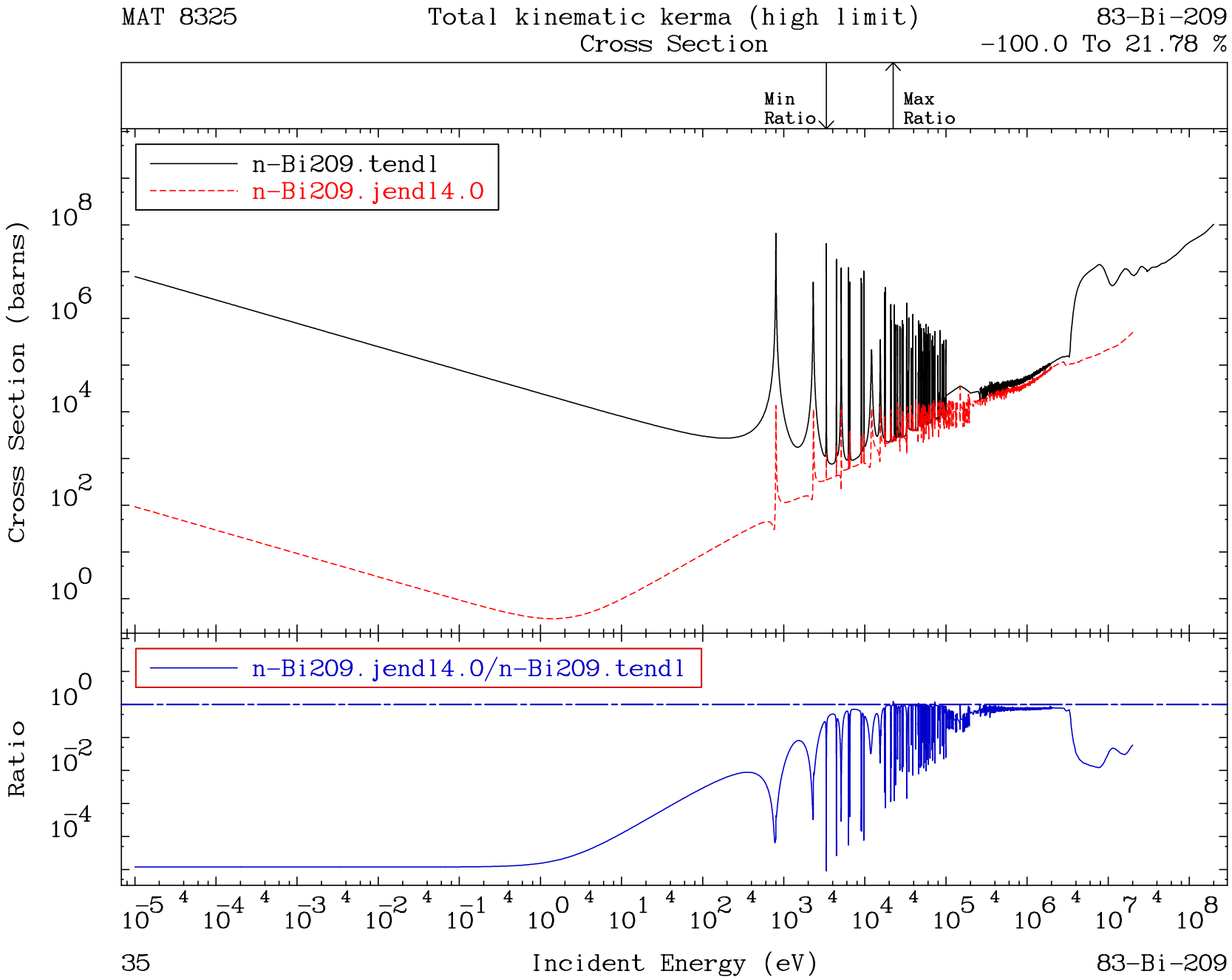

MAT 8325
Kerma non-elastic (all but mt2)
Cross Section
83-Bi-209
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
30
83-Bi-209

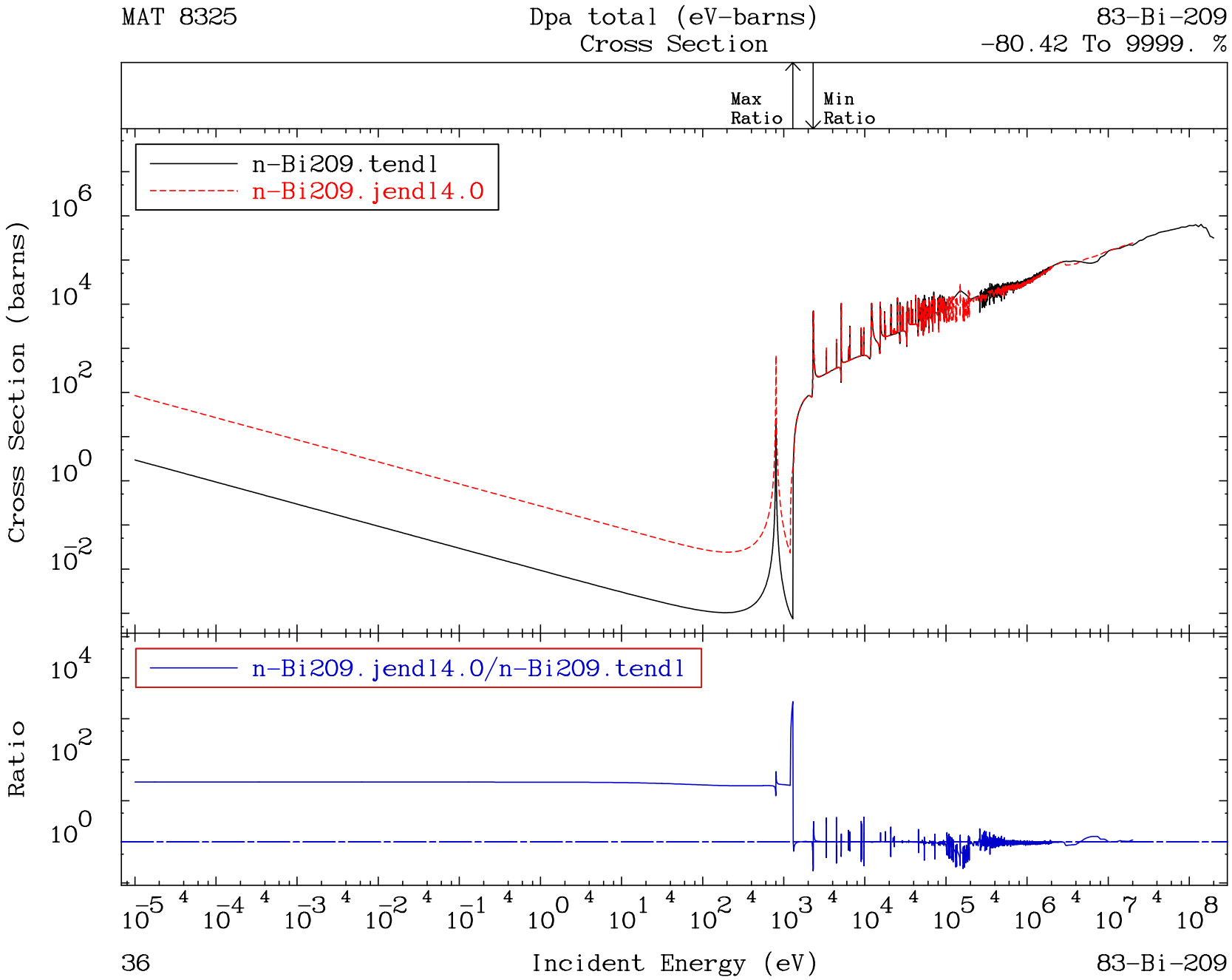

MAT 8325
Kerma inelastic (mt51-91)
Cross Section
83-Bi-209
-33.25 To 51.54 %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 900.84 keV
n-Bi209.jendl4.0 Threshold 900.73 keV
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
31
83-Bi-209

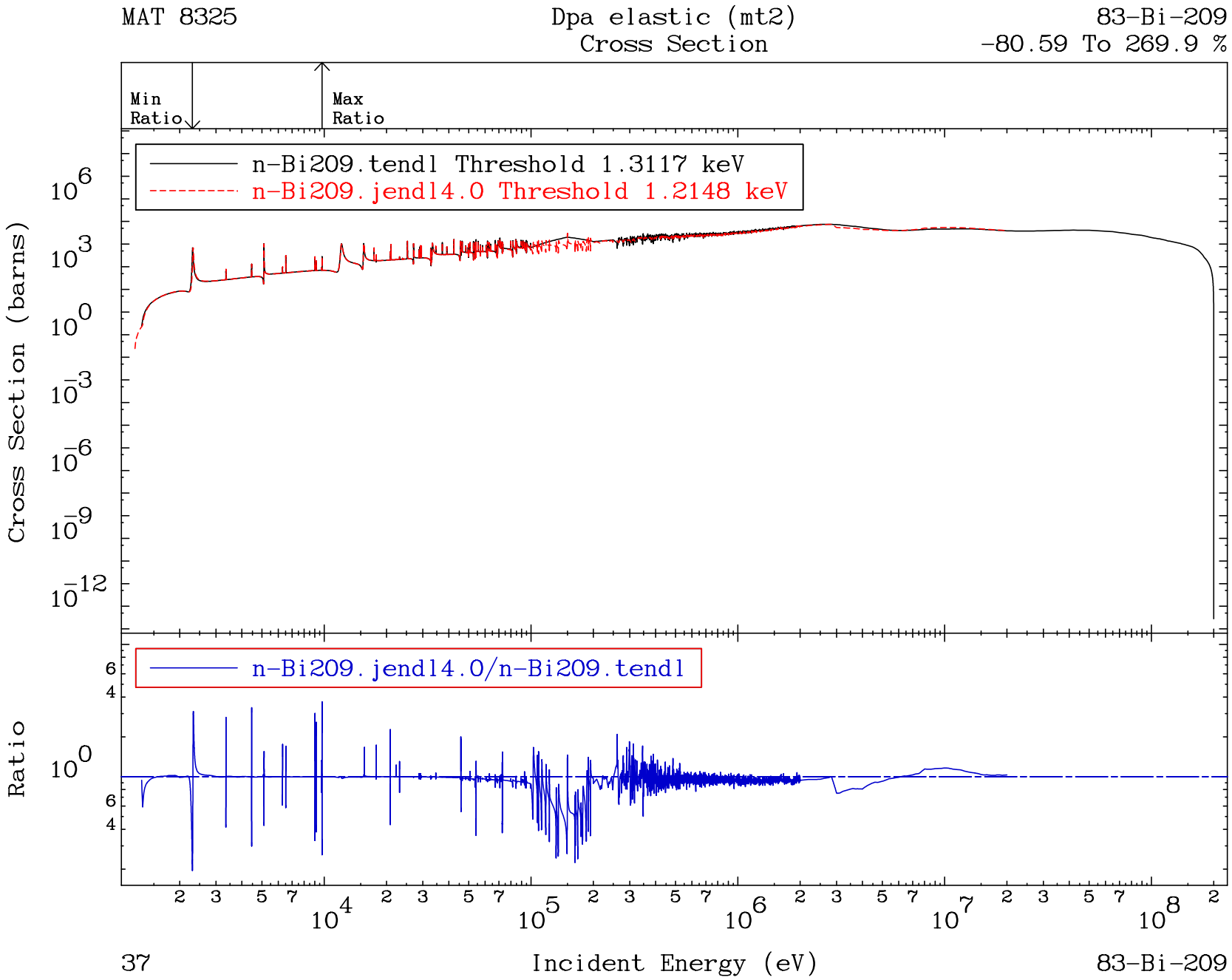

MAT 8325
Kerma fission (mt18 or mt19-20-21-38)
Cross Section
83-Bi-209
-33.25 To 51.54 %
Min Ratio
Max Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
1.0
0.5
0.0
-0.5
-1.0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
1.6
1.2
0.8
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
32
Incident Energy (eV)
83-Bi-209

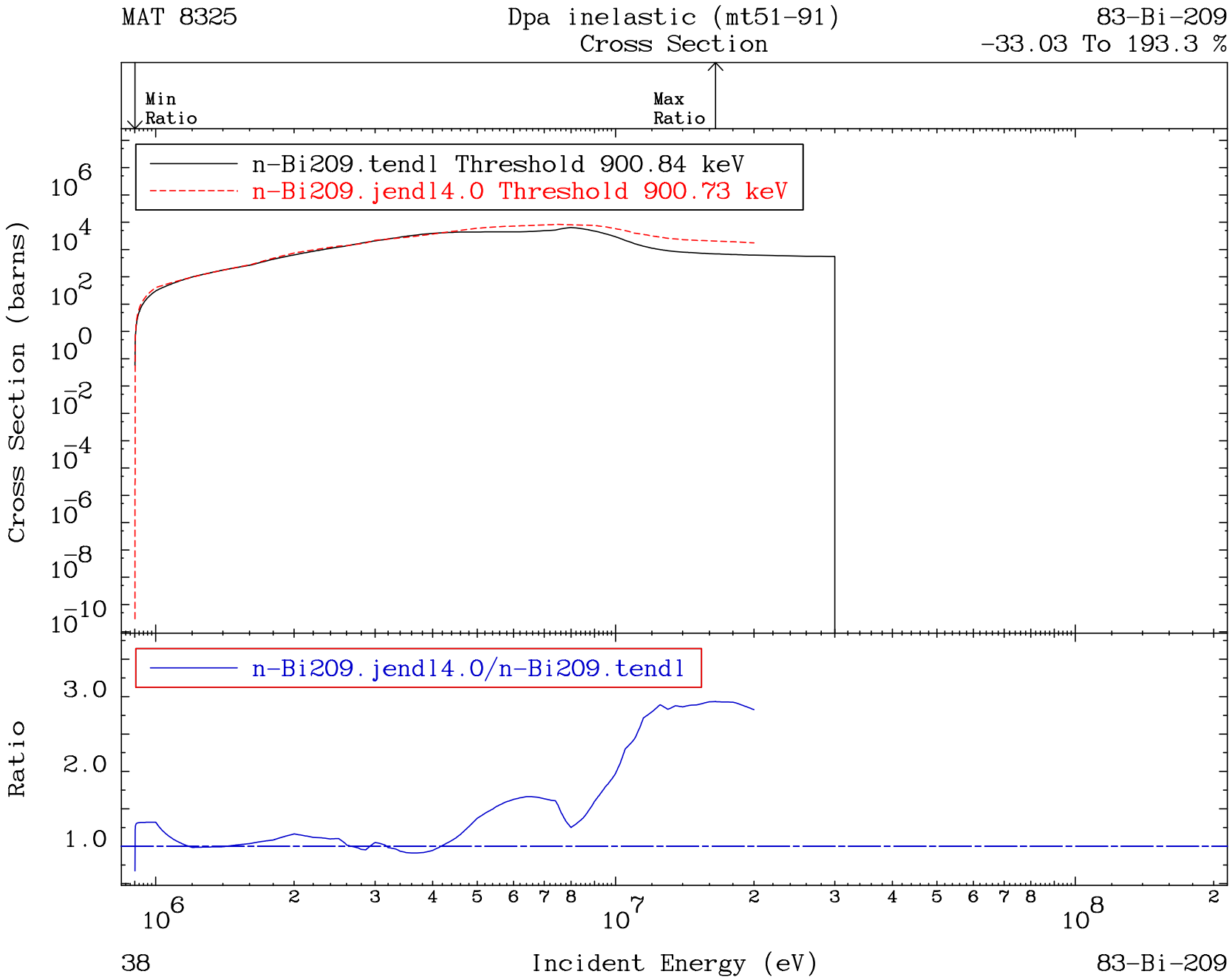

MAT 8325
Kerma capture (mt102)
Cross Section
83-Bi-209
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
33
83-Bi-209

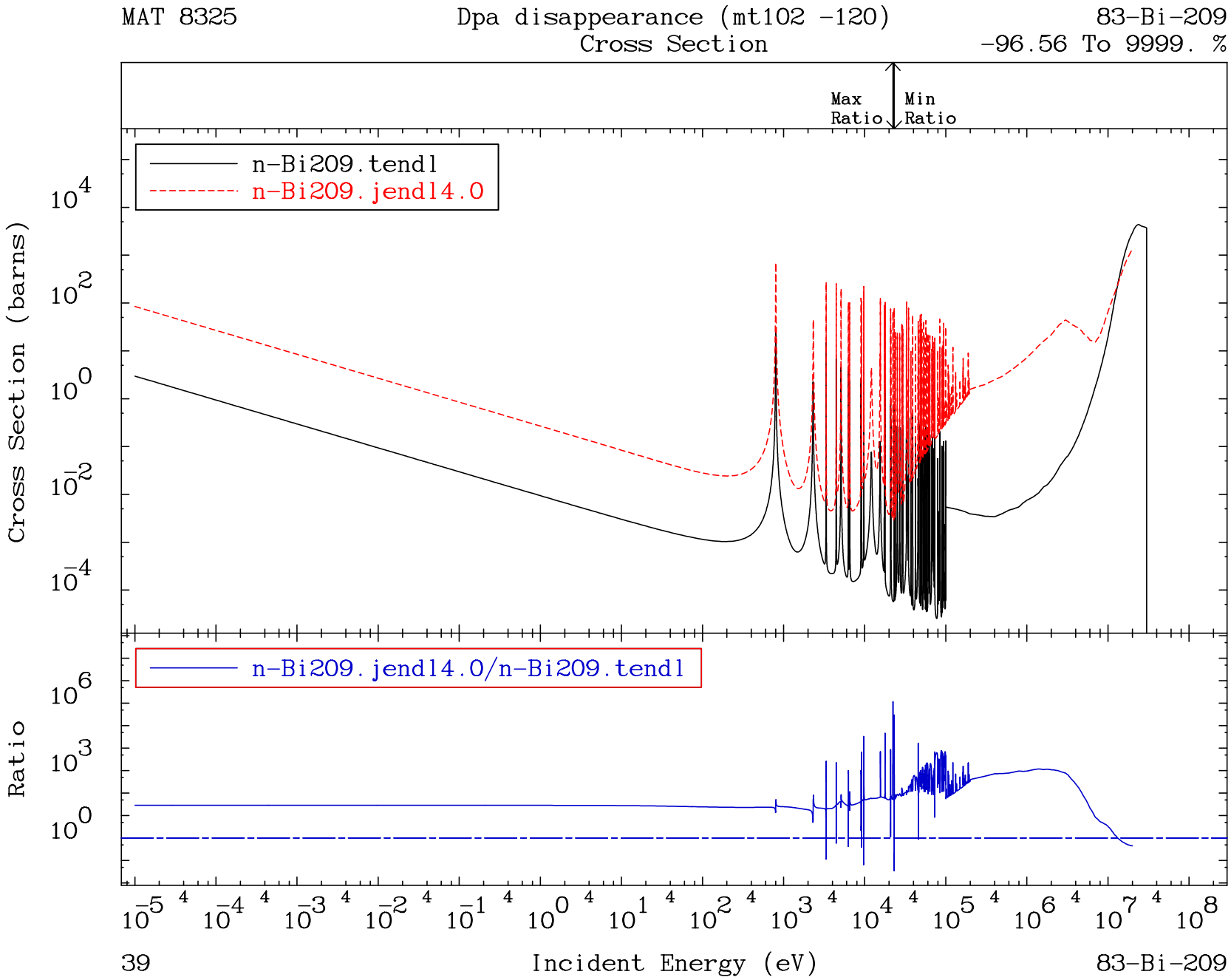

MAT 8325
Total photon (eV-barns)
Cross Section
83-Bi-209
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (Mega-barns)
60
40
20
0
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
10^6
10^3
10^0
10^-3
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
34
Incident Energy (eV)
83-Bi-209


MAT 8325
Total kinematic kerma (high limit)
Cross Section
83-Bi-209
-100.0 To 21.78 %
Min Ratio
Max Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
35
83-Bi-209


MAT 8325
Dpa total (eV-barns)
Cross Section
83-Bi-209
-80.42 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
36
83-Bi-209


MAT 8325
Dpa elastic (mt2)
Cross Section
83-Bi-209
-80.59 To 269.9 %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 1.3117 keV
n-Bi209.jendl4.0 Threshold 1.2148 keV
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
37
83-Bi-209


MAT 8325
Dpa inelastic (mt51-91)
Cross Section
83-Bi-209
-33.03 To 193.3 %
Min Ratio
Max Ratio
n-Bi209.tendl Threshold 900.84 keV
n-Bi209.jendl4.0 Threshold 900.73 keV
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
38
83-Bi-209


MAT 8325
Dpa disappearance (mt102 -120)
Cross Section
83-Bi-209
-96.56 To 9999. %
Max Ratio
Min Ratio
n-Bi209.tendl
n-Bi209.jendl4.0
Cross Section (barns)
n-Bi209.jendl4.0/n-Bi209.tendl
Ratio
Incident Energy (eV)
39
83-Bi-209