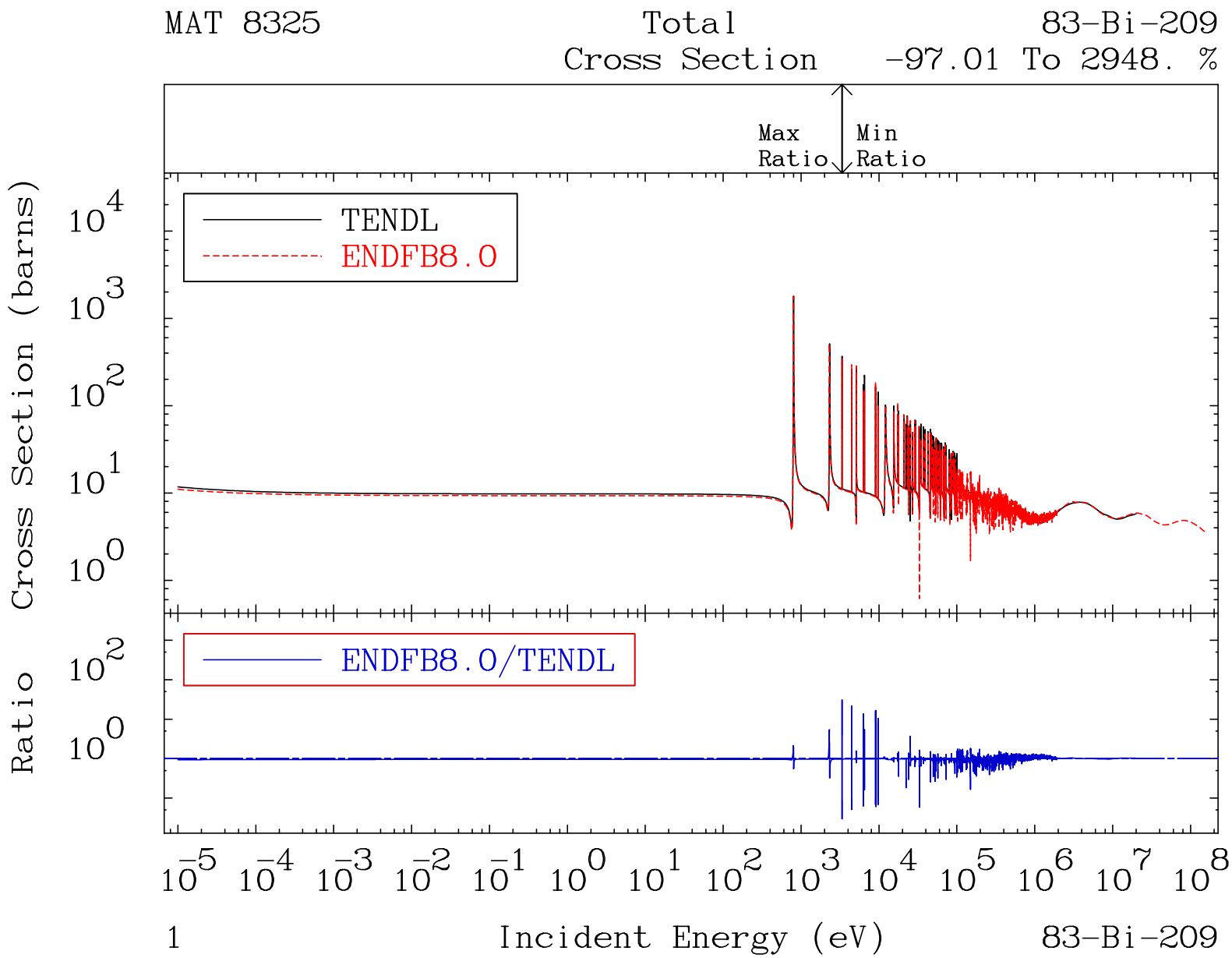
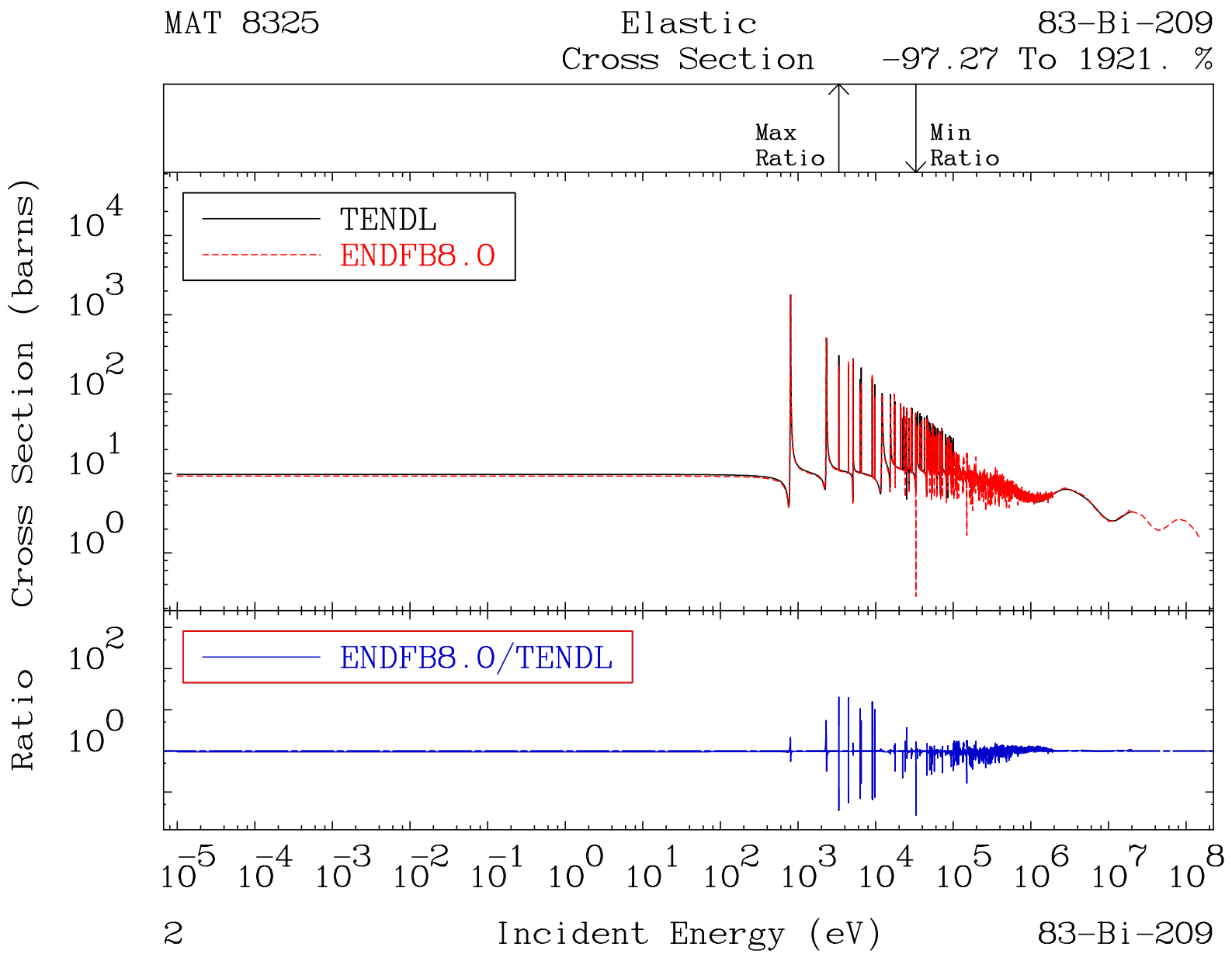
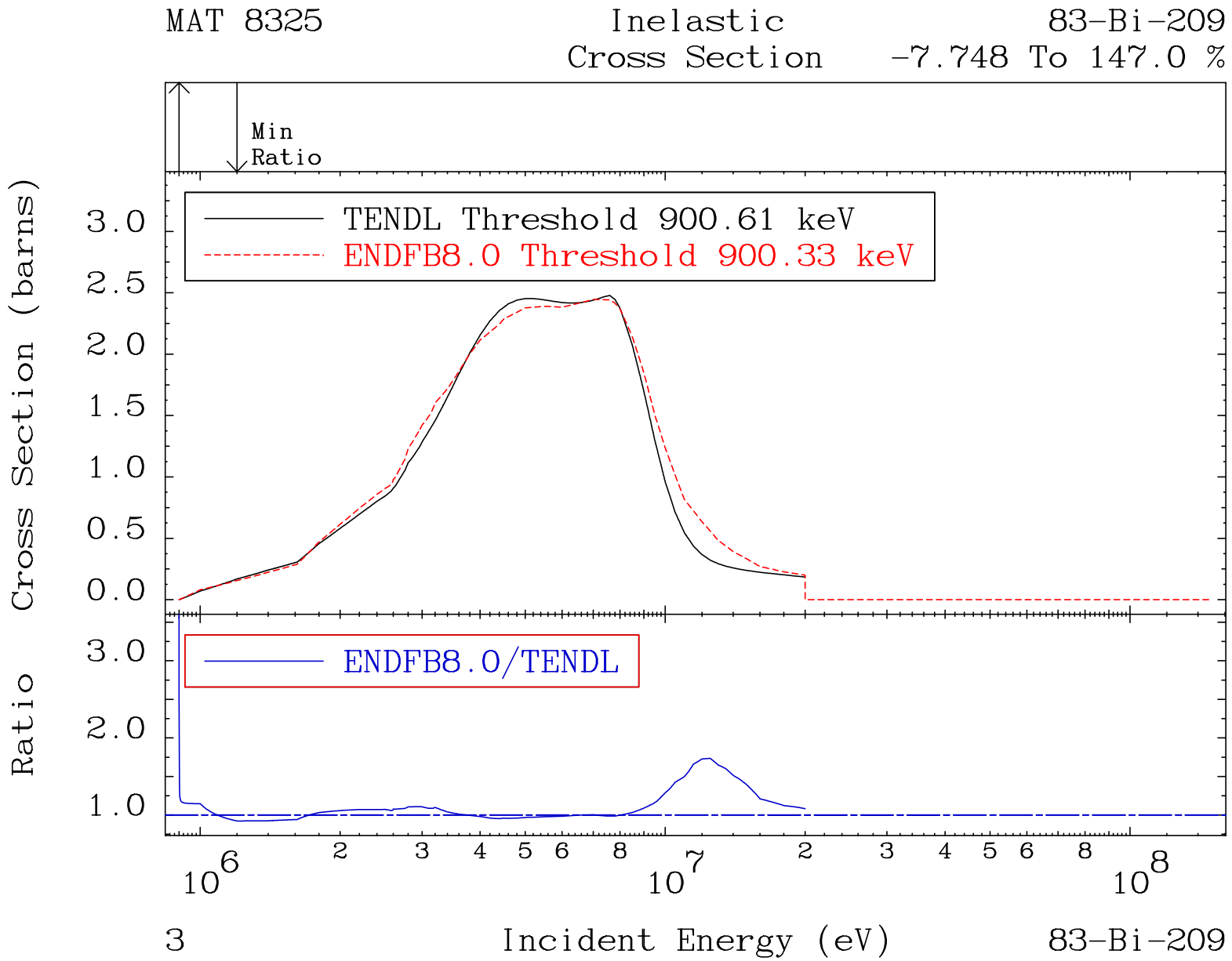
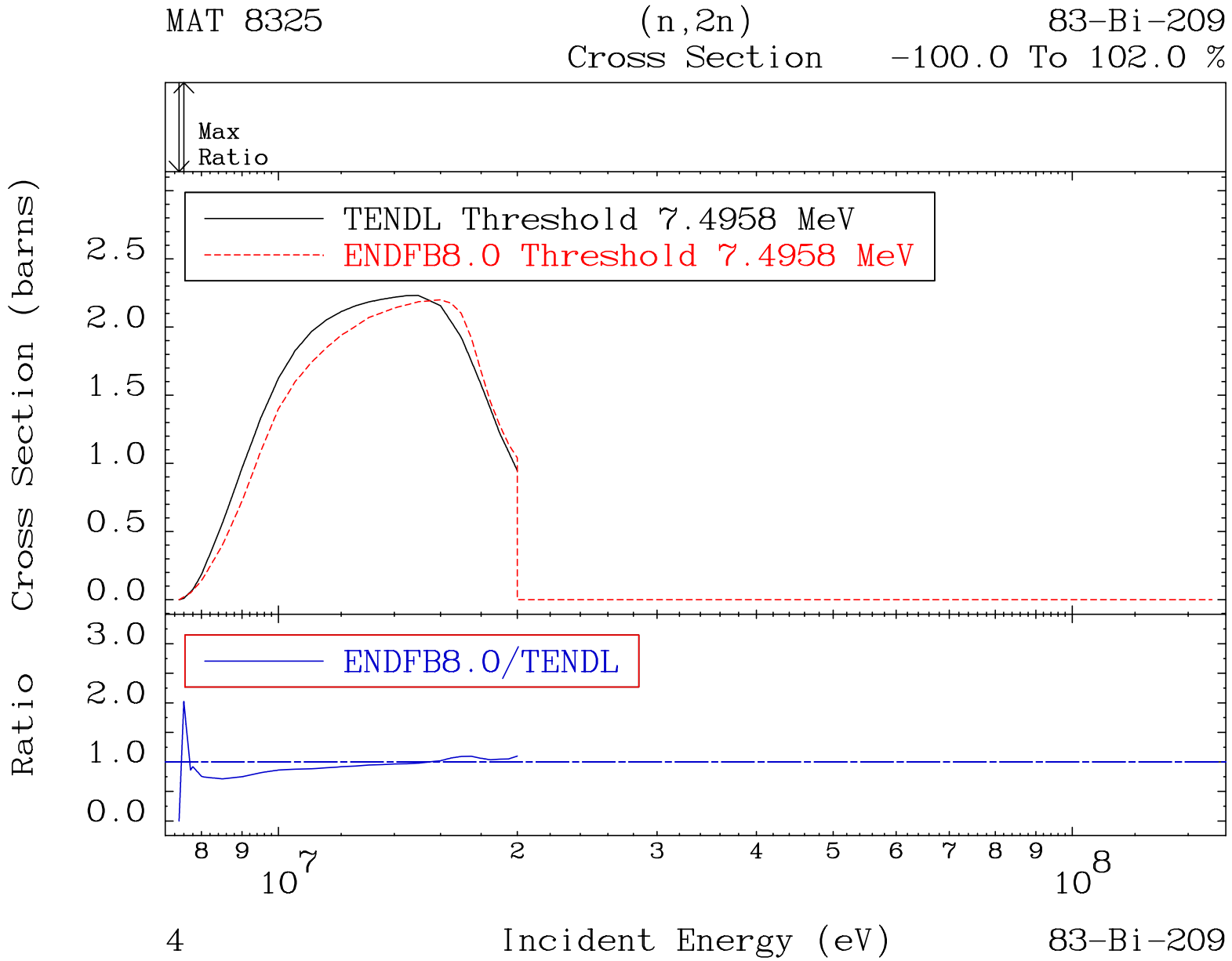
Program Complot
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

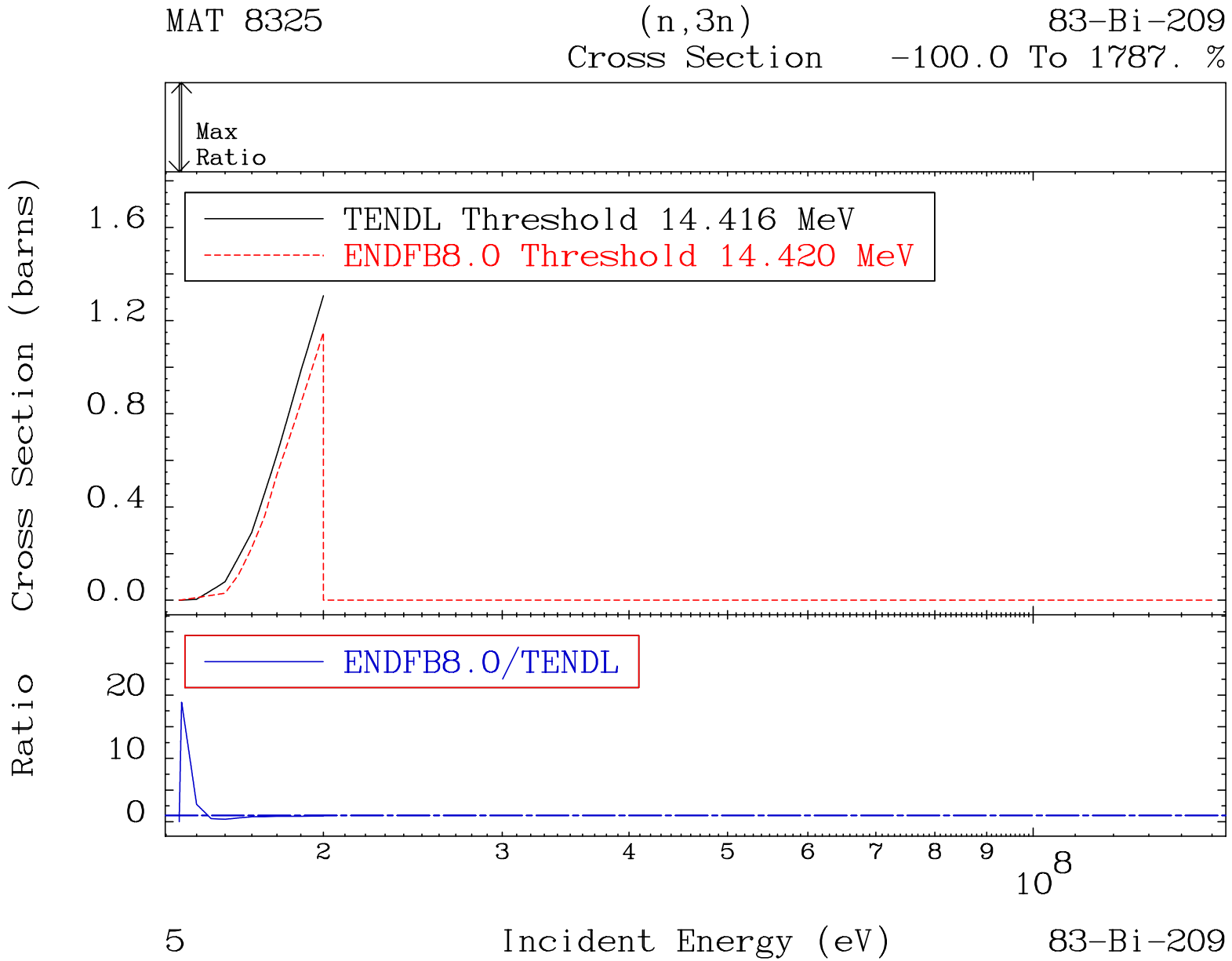
Press Mouse Button to Start

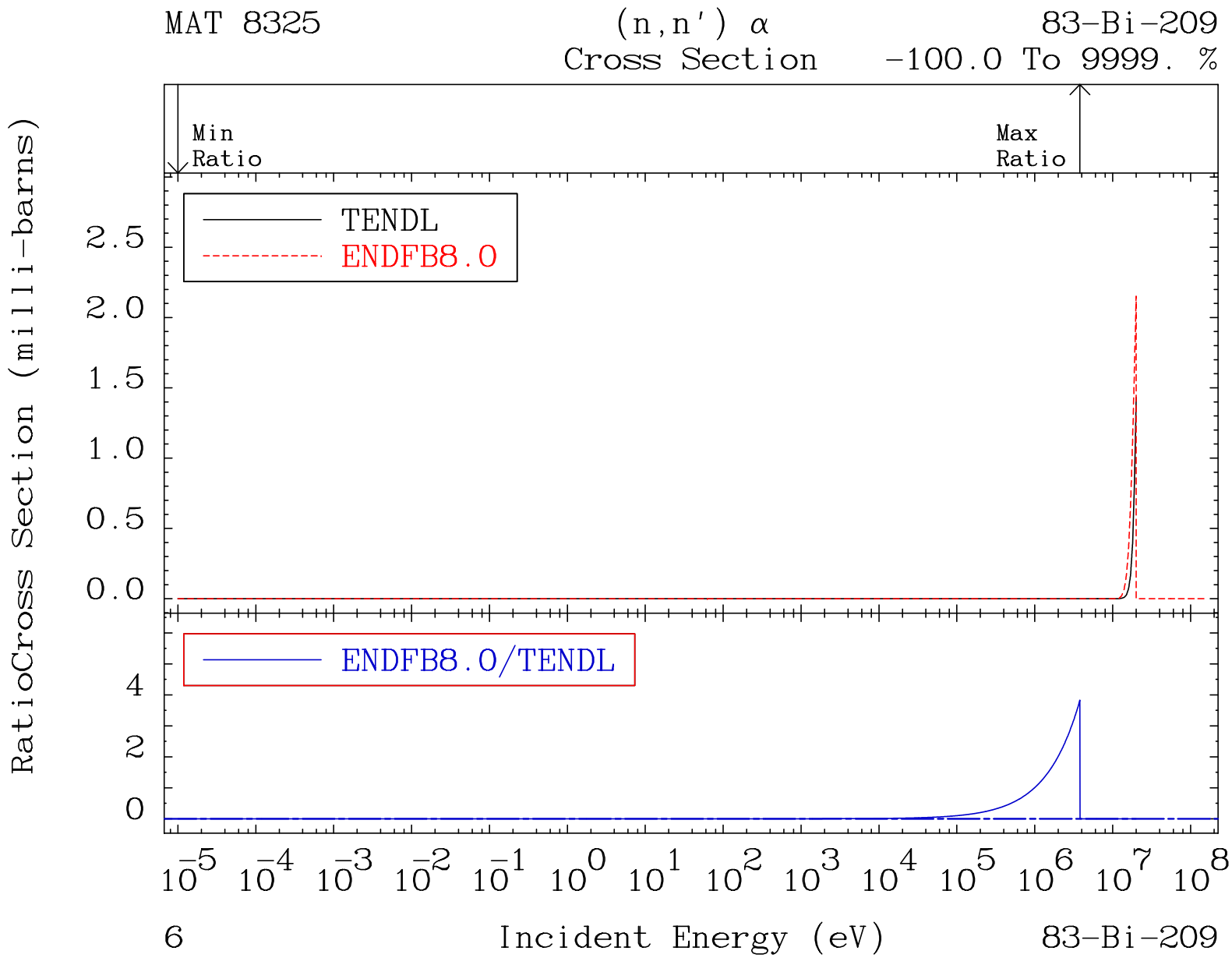

MAT 8325
Total
Cross Section
83-Bi-209
-97.01 To 2948. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
1
83-Bi-209

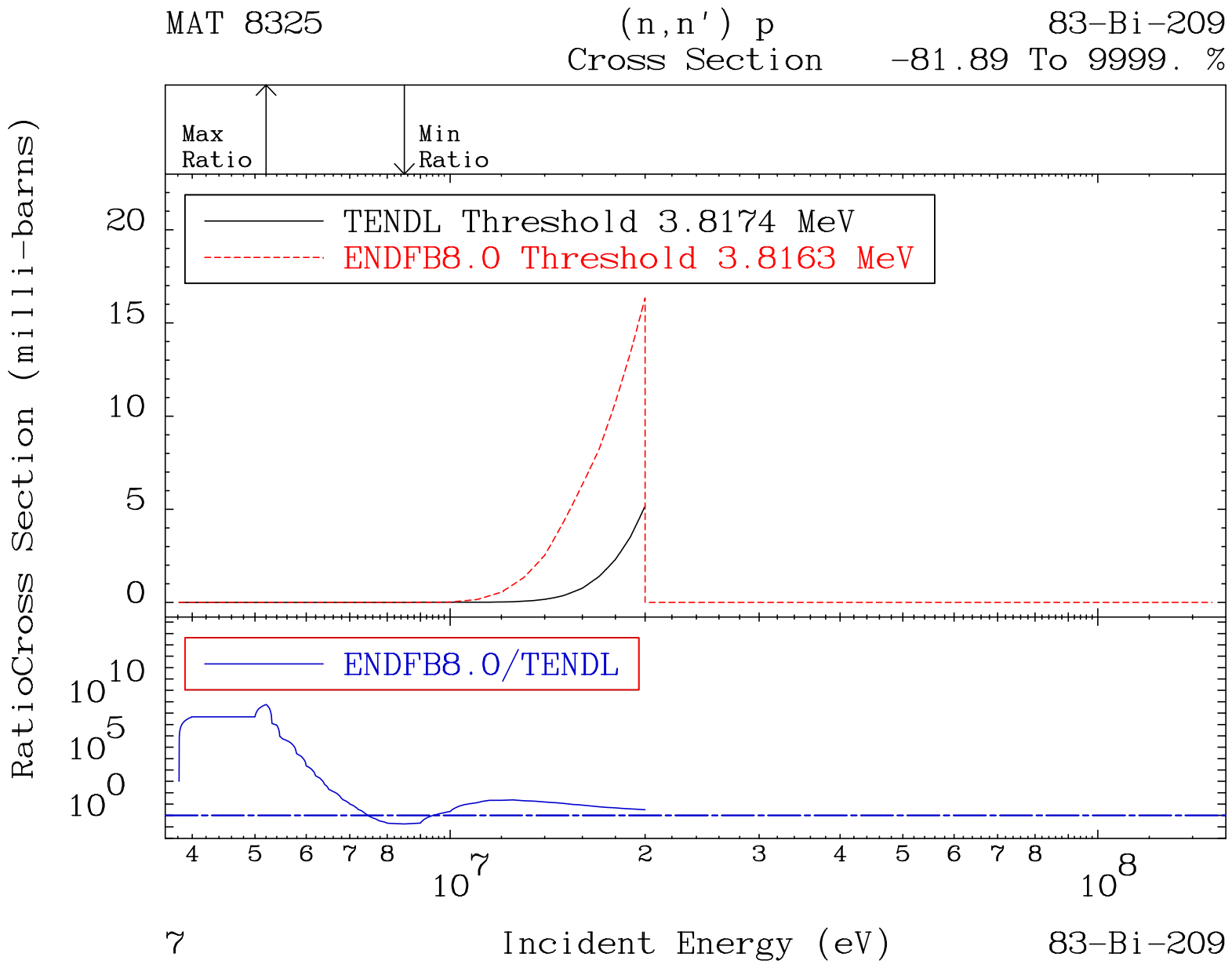

MAT 8325
Elastic
Cross Section
83-Bi-209
-97.27 To 1921. %
Max
Ratio
Min
Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
2
83-Bi-209

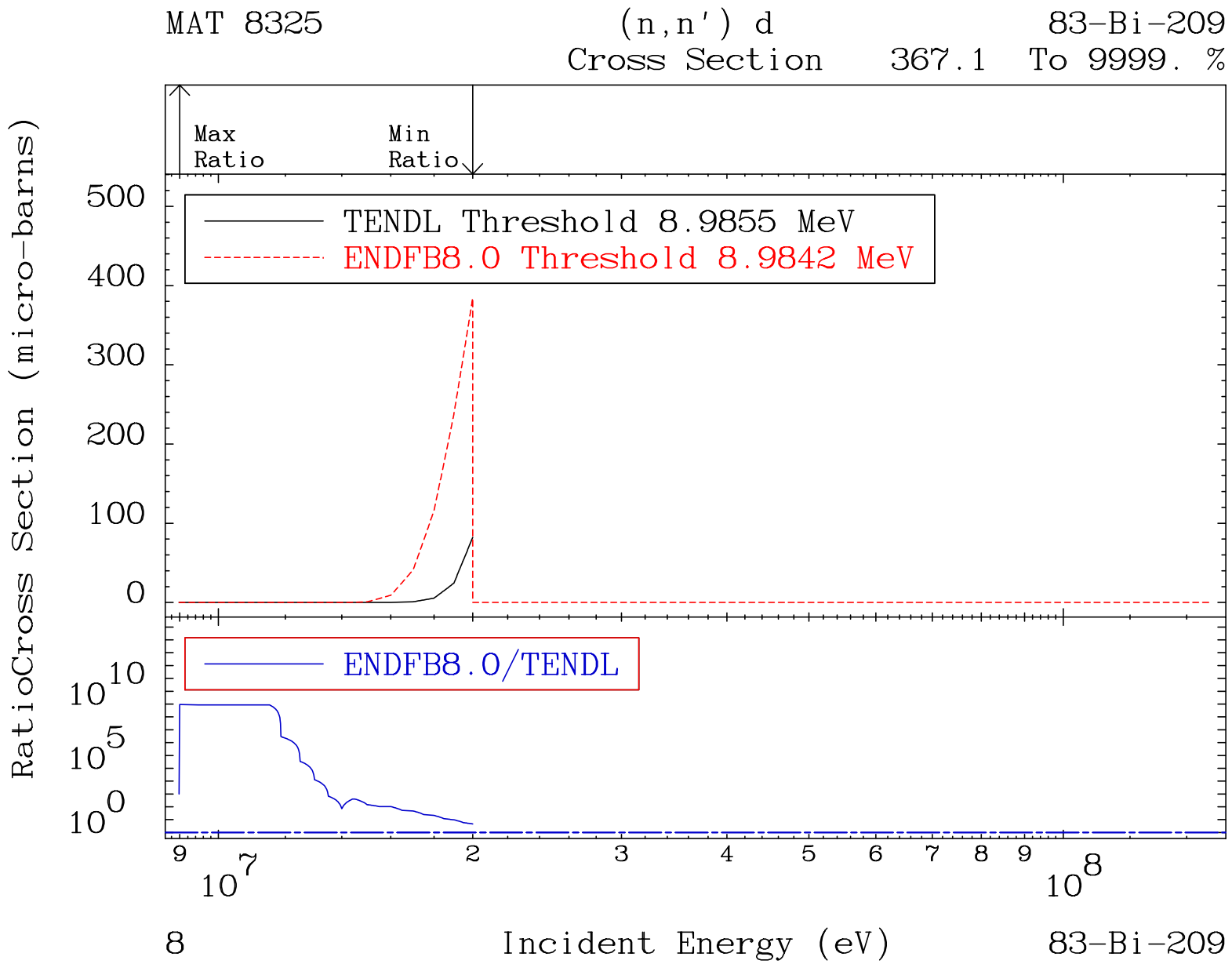

MAT 8325
Inelastic
Cross Section
83-Bi-209
-7.748 To 147.0 %
Min
Ratio
TENDL Threshold 900.61 keV
ENDFB8.0 Threshold 900.33 keV
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
3.0
2.5
2.0
1.5
1.0
0.5
0.0
10^6
10^7
10^8
Incident Energy (eV)
3
83-Bi-209

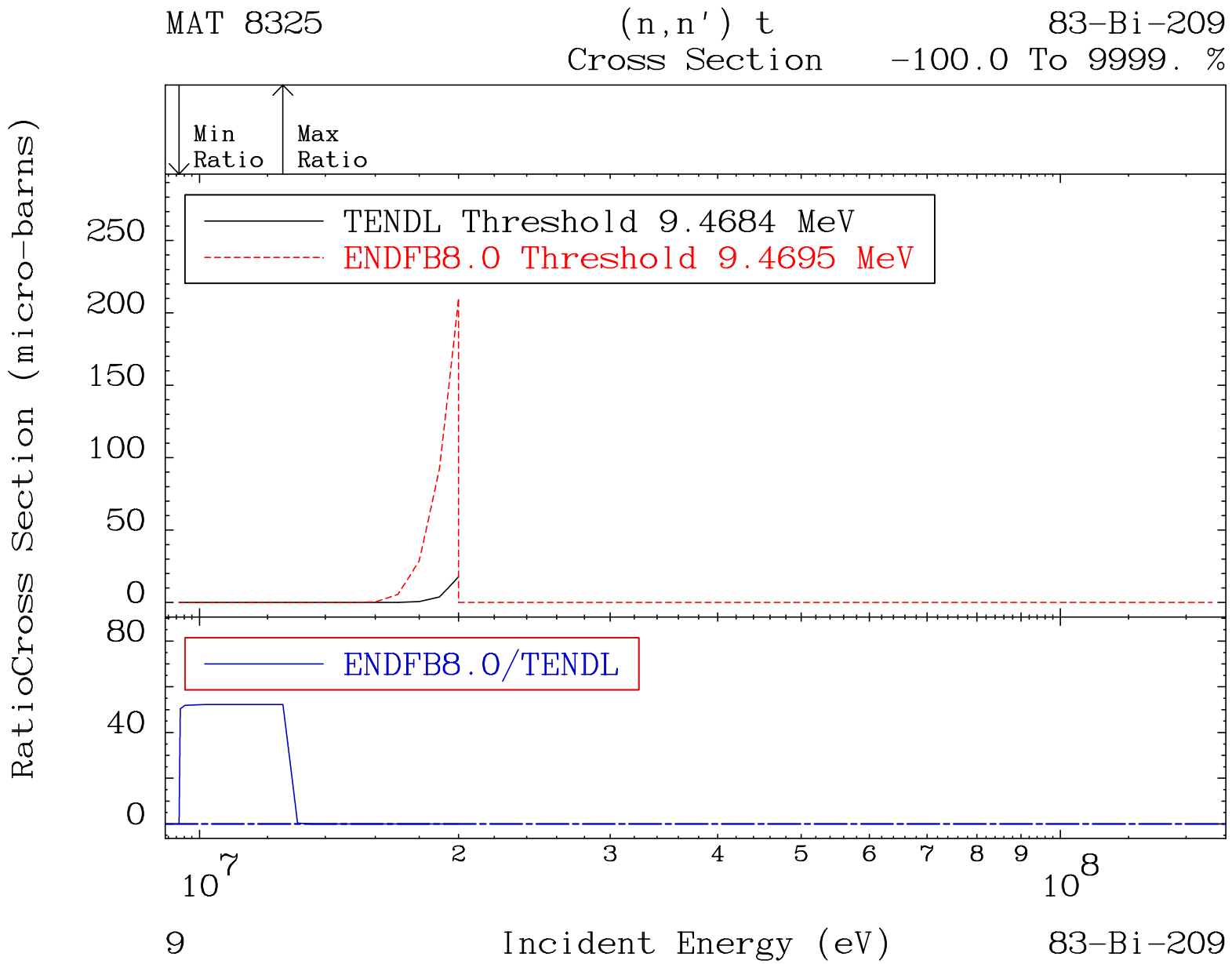

MAT 8325
(n,2n)
Cross Section
83-Bi-209
-100.0 To 102.0 %
Max
Ratio
TENDL Threshold 7.4958 MeV
ENDFB8.0 Threshold 7.4958 MeV
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
2.5
2.0
1.5
1.0
0.5
0.0
3.0
2.0
1.0
0.0
8 9 10^7 2 3 4 5 6 7 8 9 10^8
Incident Energy (eV)
4
83-Bi-209

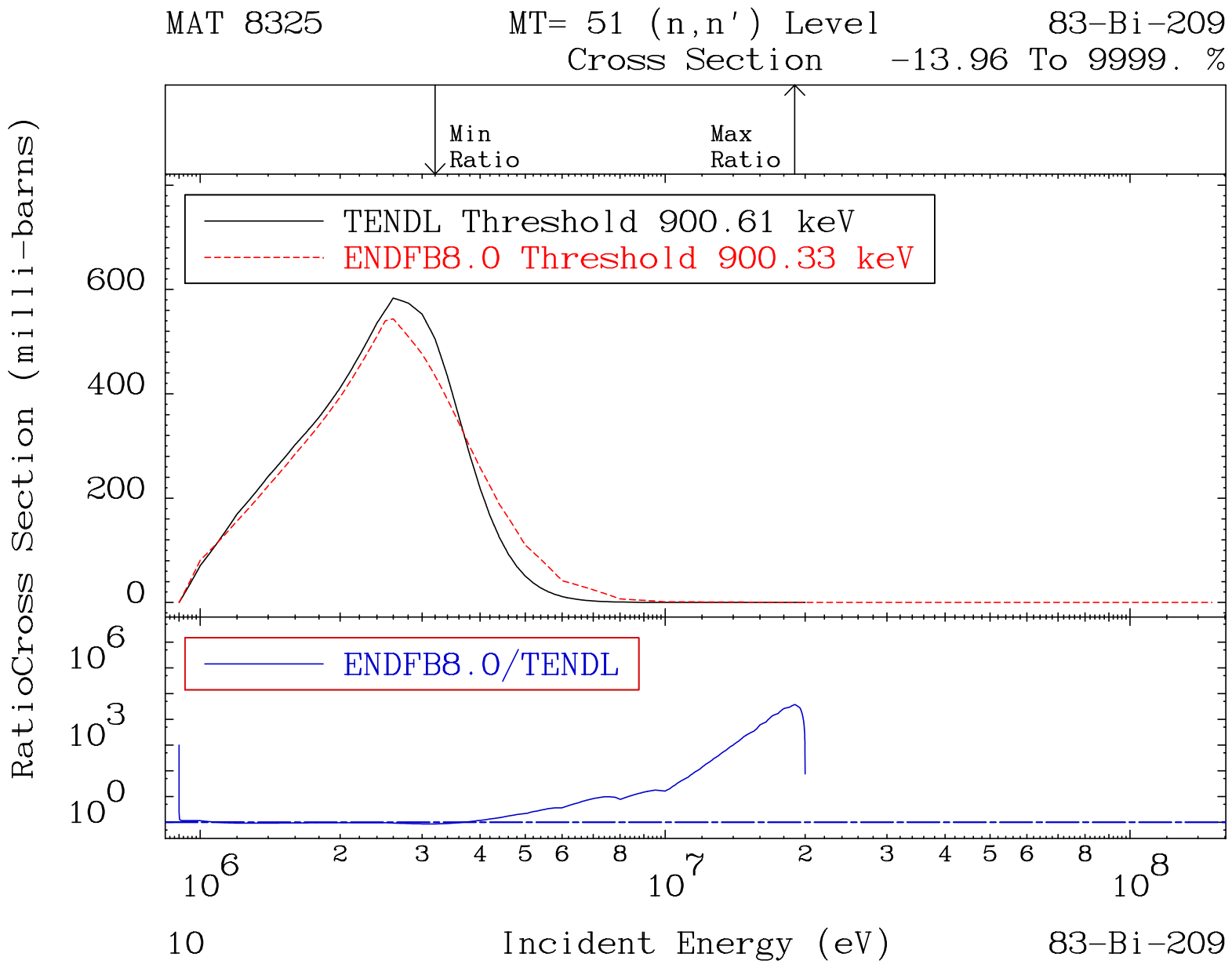

MAT 8325
(n,3n)
Cross Section
83-Bi-209
-100.0 To 1787. %
Max
Ratio
TENDL Threshold 14.416 MeV
ENDFB8.0 Threshold 14.420 MeV
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
1.6
1.2
0.8
0.4
0.0
20
10
0
2
3
4
5
6
7
8
9
10^8
5
Incident Energy (eV)
83-Bi-209

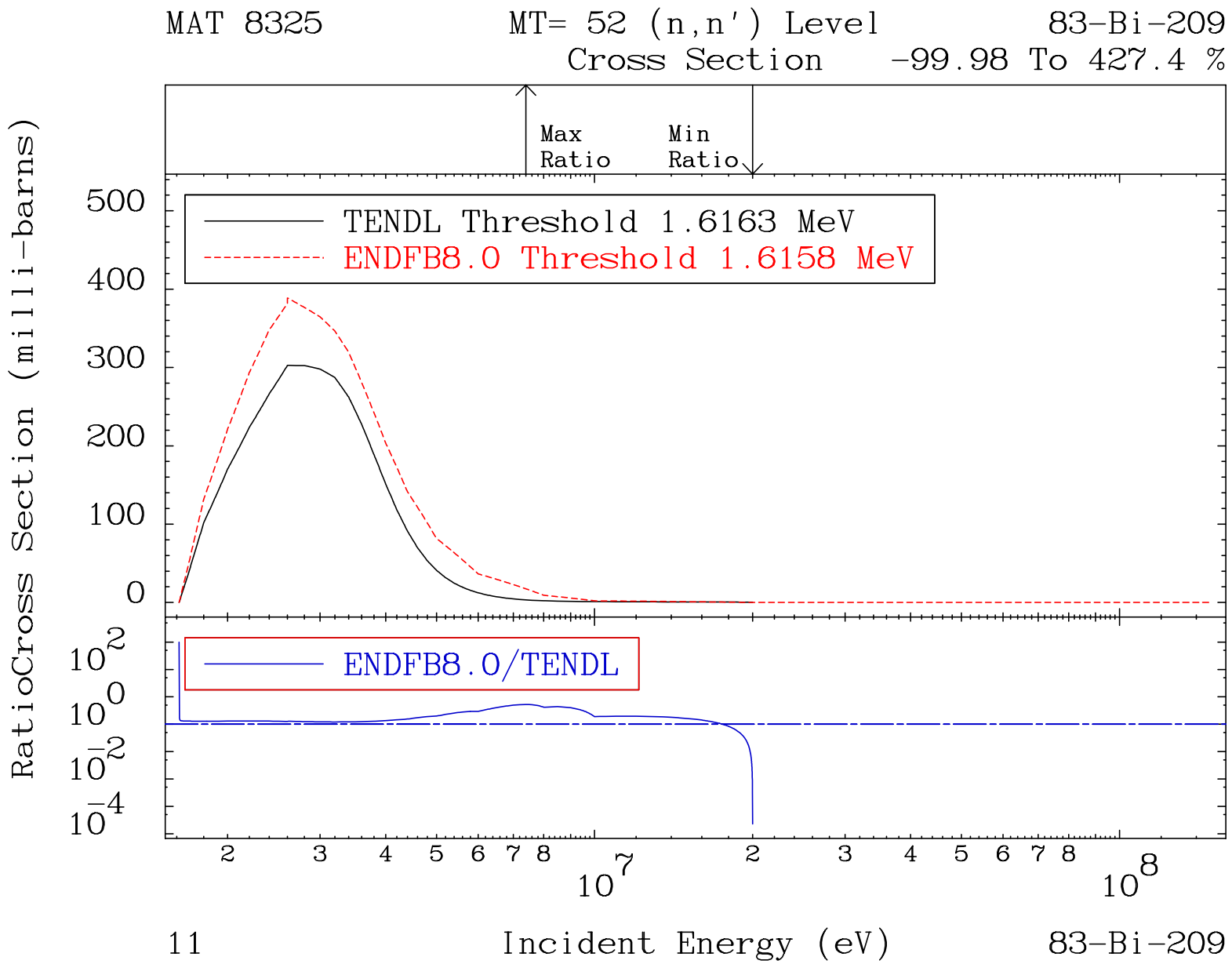

MAT 8325
(n,n') α
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
2.5
2.0
1.5
1.0
0.5
0.0
4
2
0
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
Incident Energy (eV)
6
83-Bi-209

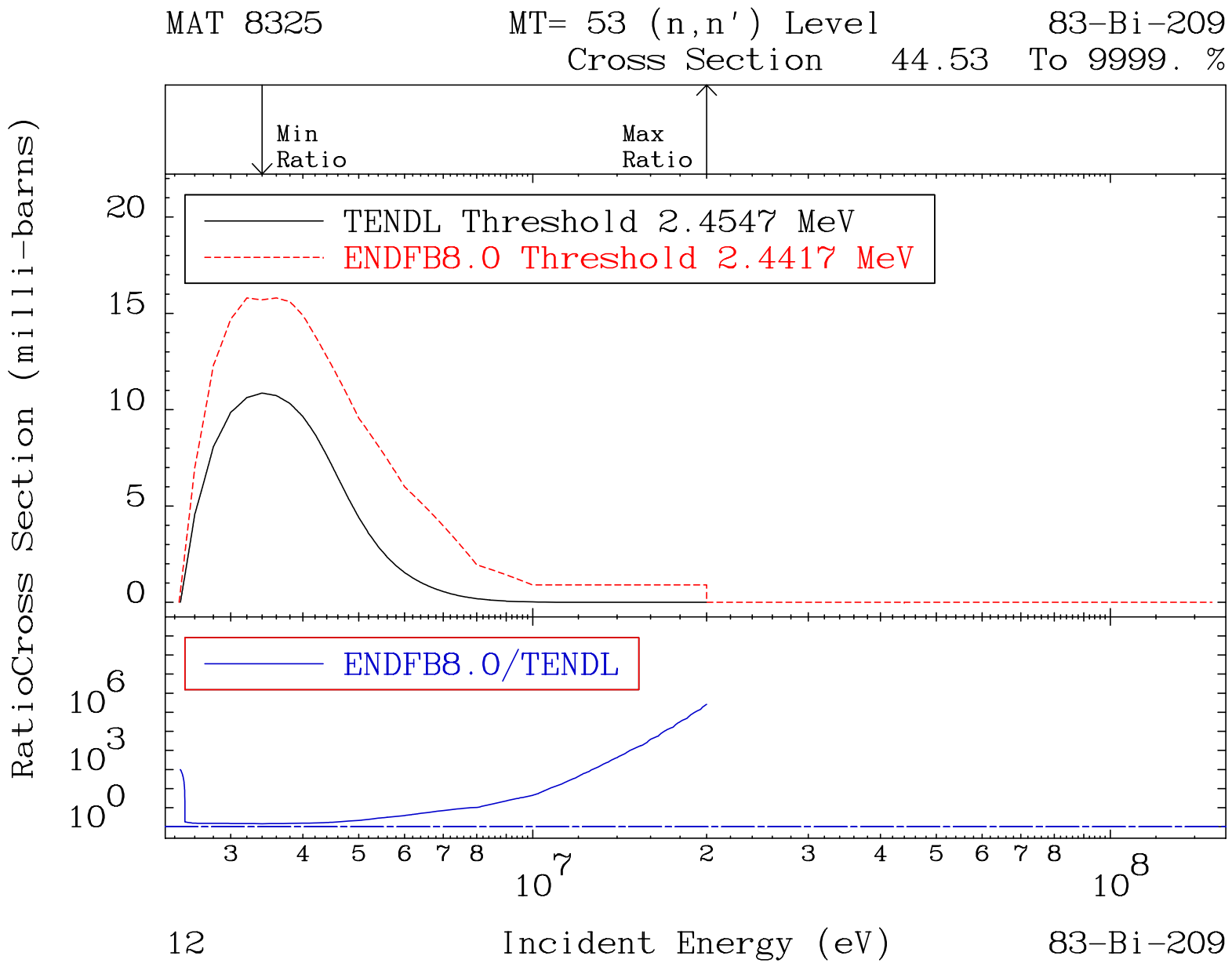

MAT 8325
(n,n') p
Cross Section
83-Bi-209
-81.89 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 3.8174 MeV
ENDFB8.0 Threshold 3.8163 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
83-Bi-209

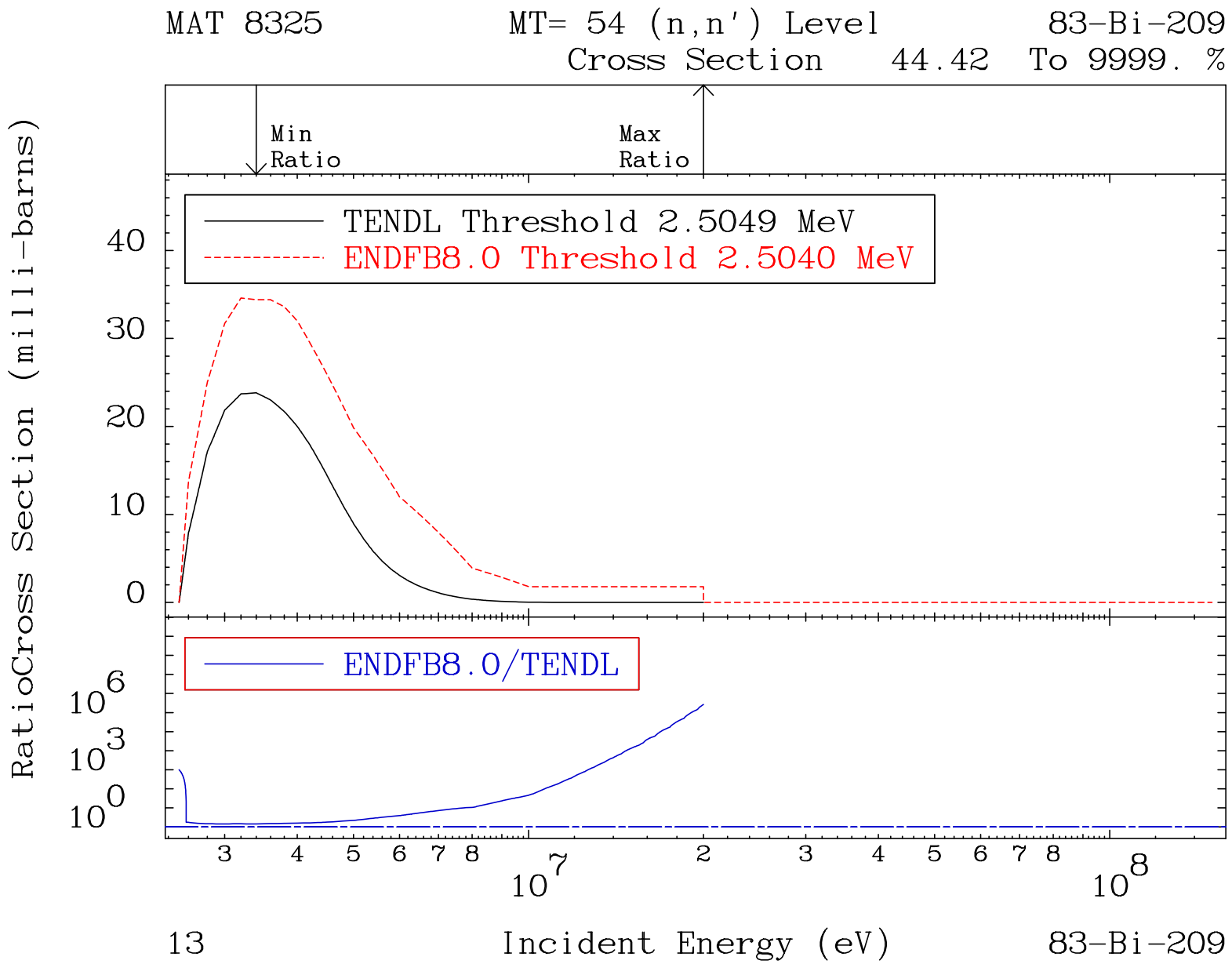

MAT 8325
(n,n') d
Cross Section
83-Bi-209
367.1 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 8.9855 MeV
ENDFB8.0 Threshold 8.9842 MeV
ENDFB8.0/TENDL
RatioCross Section (micro-barns)
500
400
300
200
100
0
10^{10}
10^{5}
10^{0}
9
10^{7}
2
3
4
5
6
7
8
9
10^{8}
8
Incident Energy (eV)
83-Bi-209

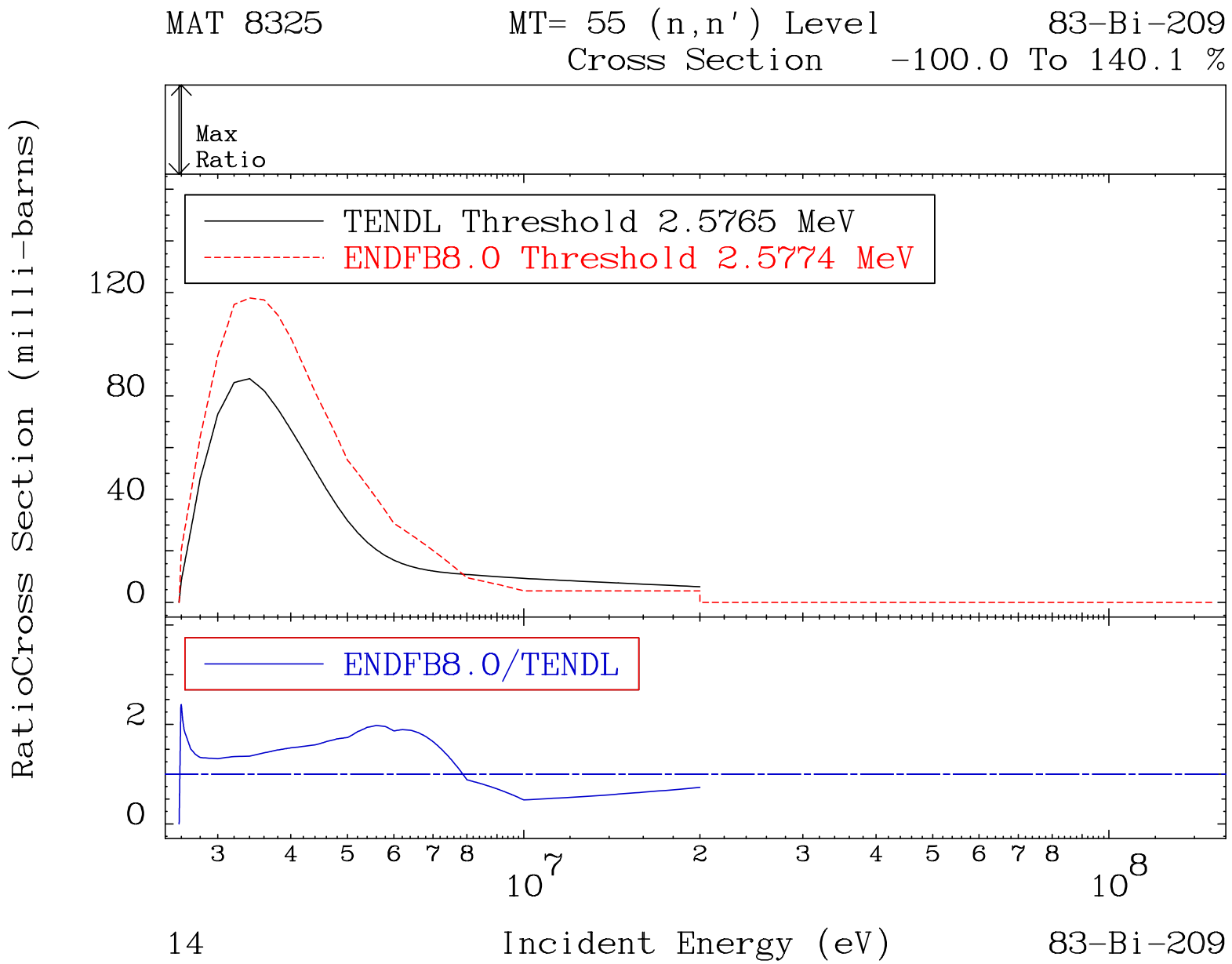

MAT 8325
(n,n') t
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 9.4684 MeV
ENDFB8.0 Threshold 9.4695 MeV
ENDFB8.0/TENDL
RatioCross Section (micro-barns)
250
200
150
100
50
0
80
40
0
10^7
2
3
4
5
6
7
8
9
10^8
9
Incident Energy (eV)
83-Bi-209

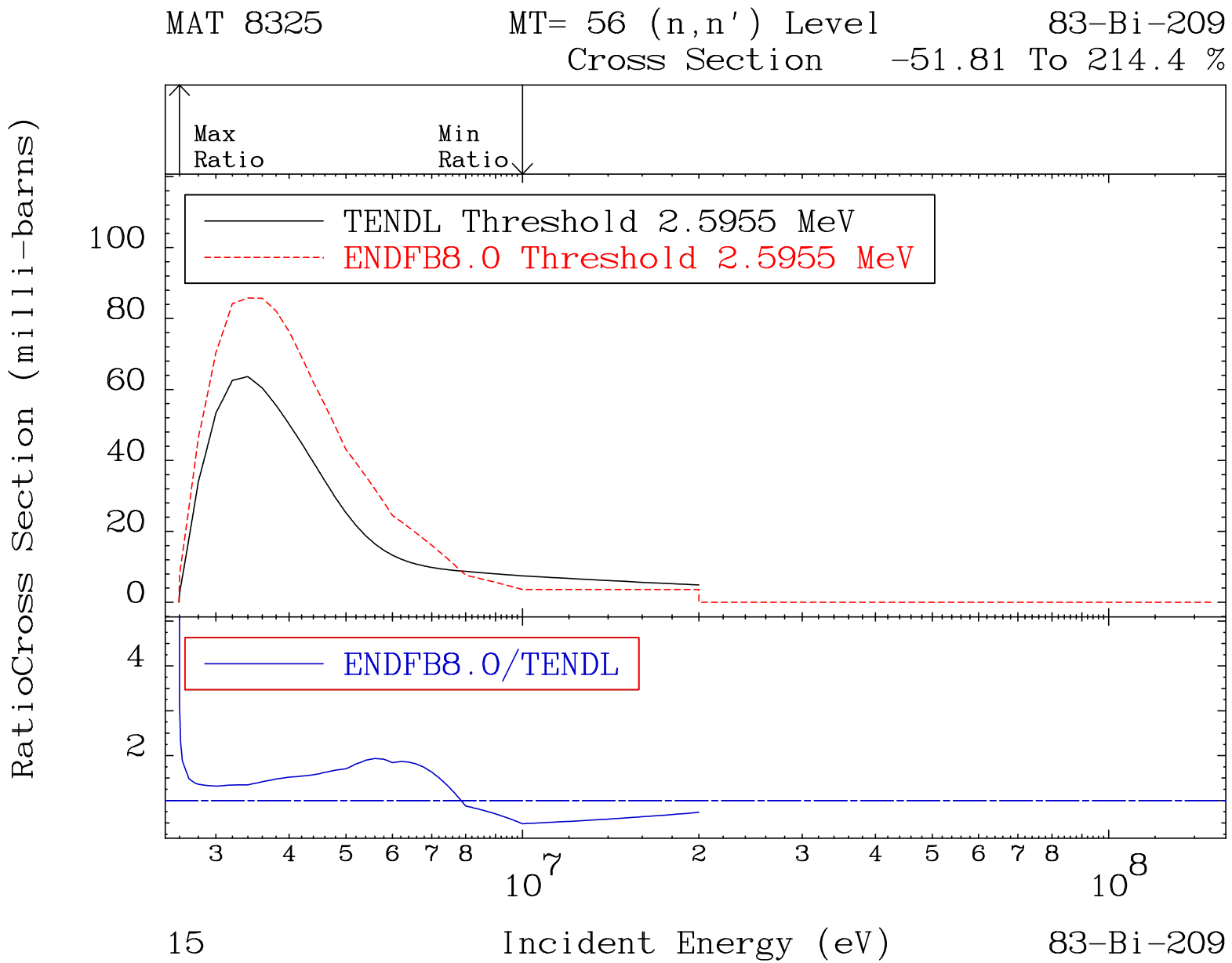

MAT 8325
MT= 51 (n,n') Level
83-Bi-209
Cross Section -13.96 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 900.61 keV
ENDFB8.0 Threshold 900.33 keV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
600
400
200
0
10^6
10^3
10^0
10^6
2 3 4 5 6 8
10^7
2 3 4 5 6 8
10^8
10
Incident Energy (eV)
83-Bi-209

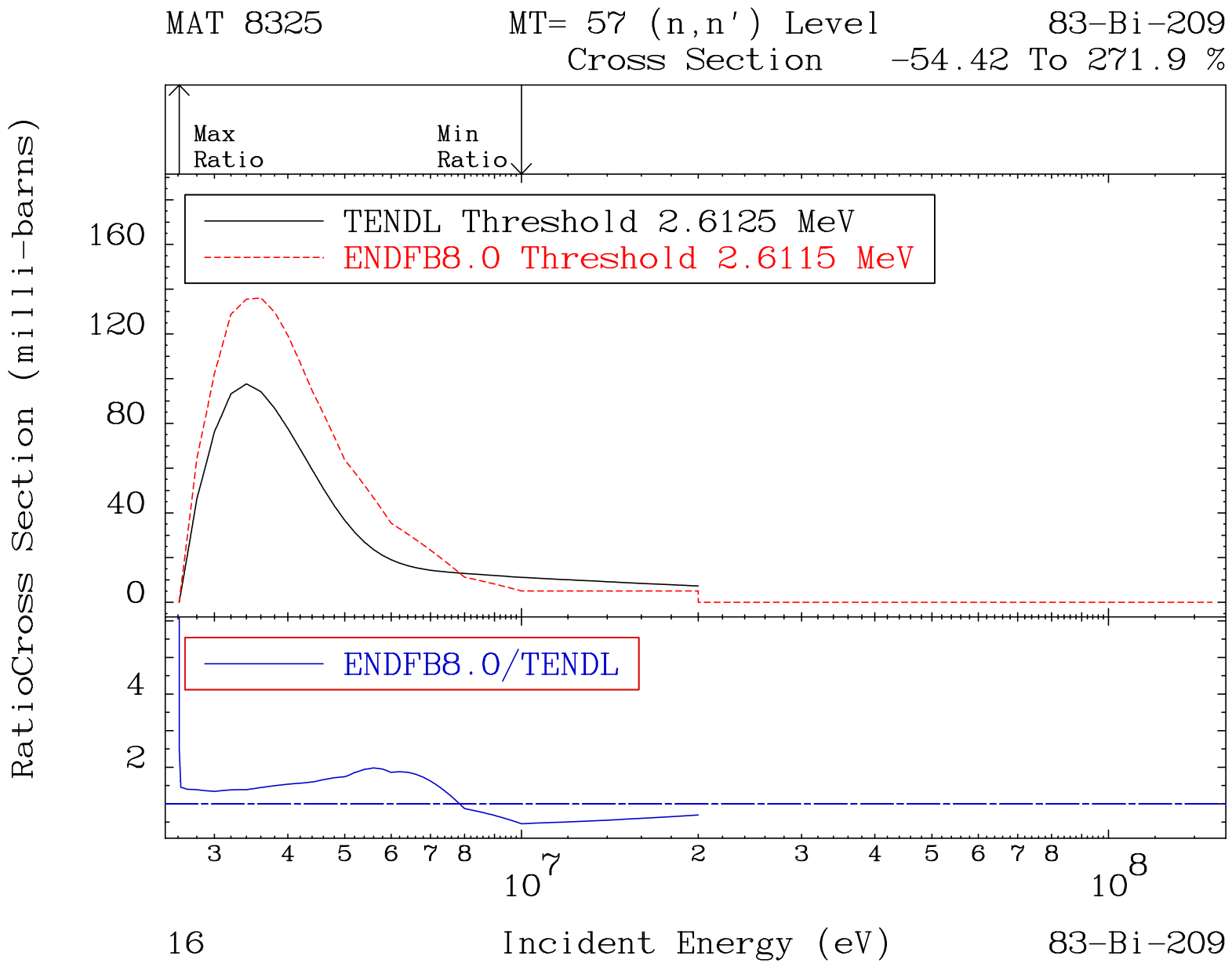

MAT 8325
MT= 52 (n,n') Level
83-Bi-209
Cross Section -99.98 To 427.4 %
Max Ratio
Min Ratio
TENDL Threshold 1.6163 MeV
ENDFB8.0 Threshold 1.6158 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
500
400
300
200
100
0
10^2
10^0
10^-2
10^-4
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
11
Incident Energy (eV)
83-Bi-209

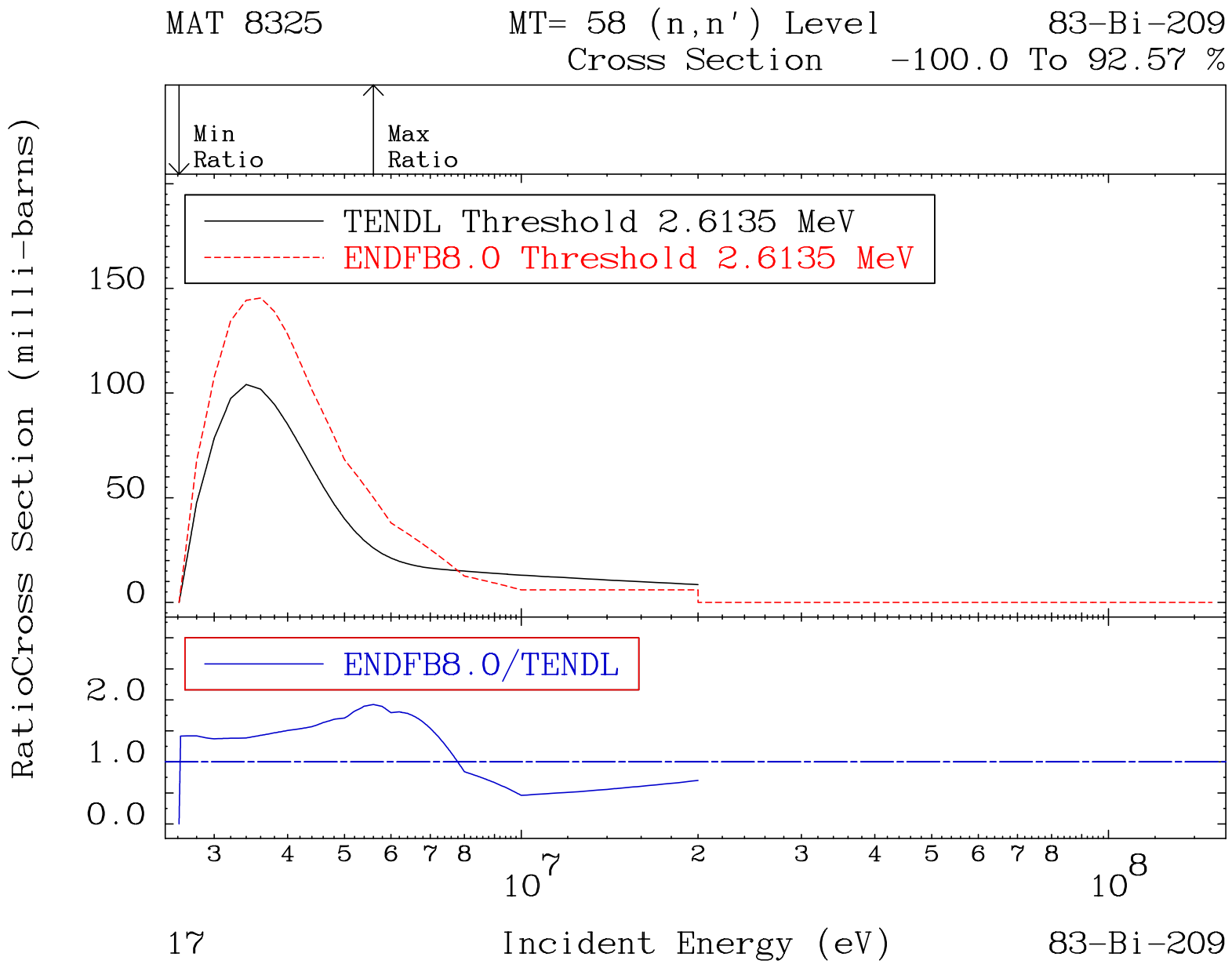

MAT 8325
MT= 53 (n,n') Level
83-Bi-209
Cross Section 44.53 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.4547 MeV
ENDFB8.0 Threshold 2.4417 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
12
83-Bi-209

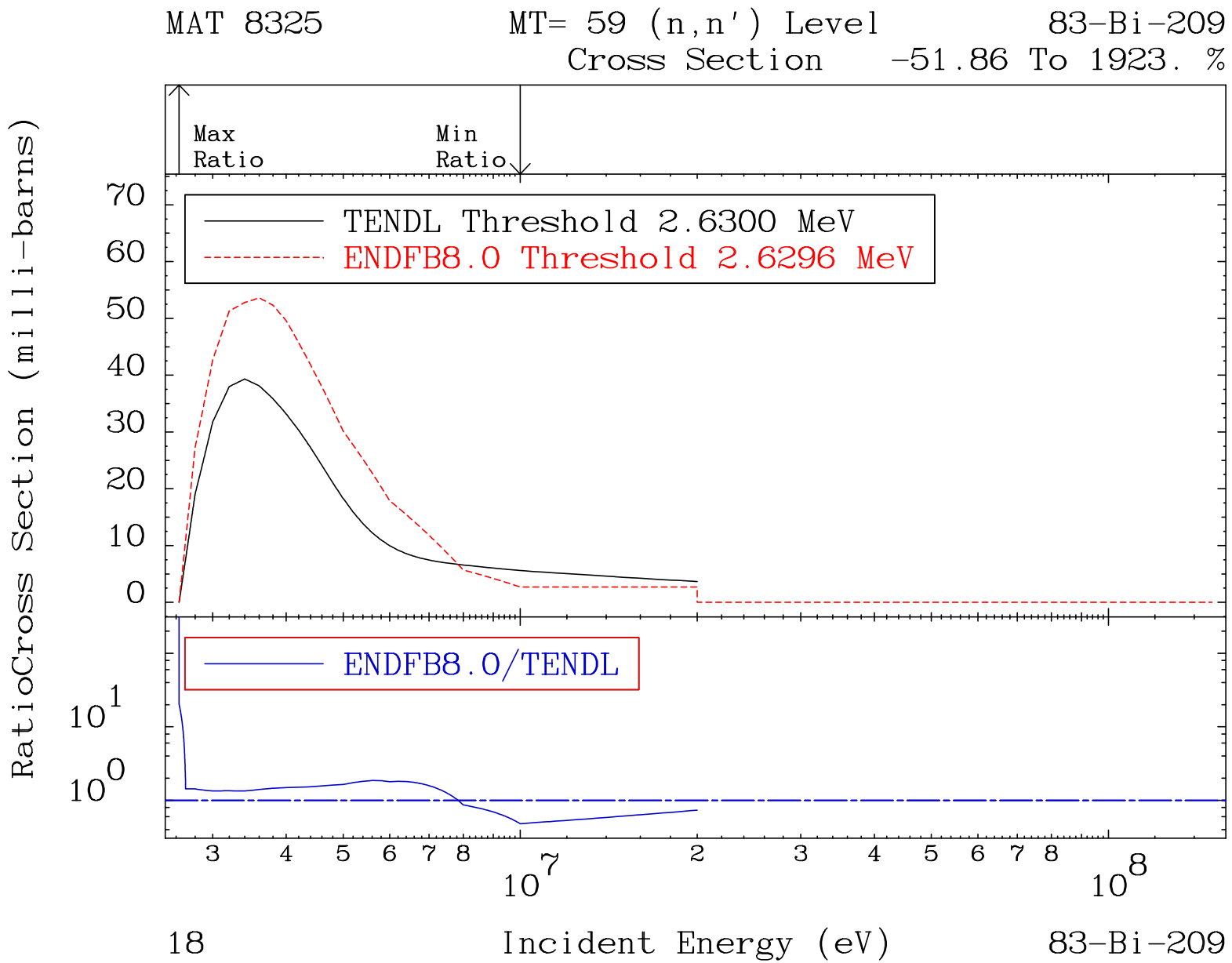

MAT 8325
MT= 54 (n,n') Level
83-Bi-209
Cross Section 44.42 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.5049 MeV
ENDFB8.0 Threshold 2.5040 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
40
30
20
10
0
10^6
10^3
10^0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
13
Incident Energy (eV)
83-Bi-209

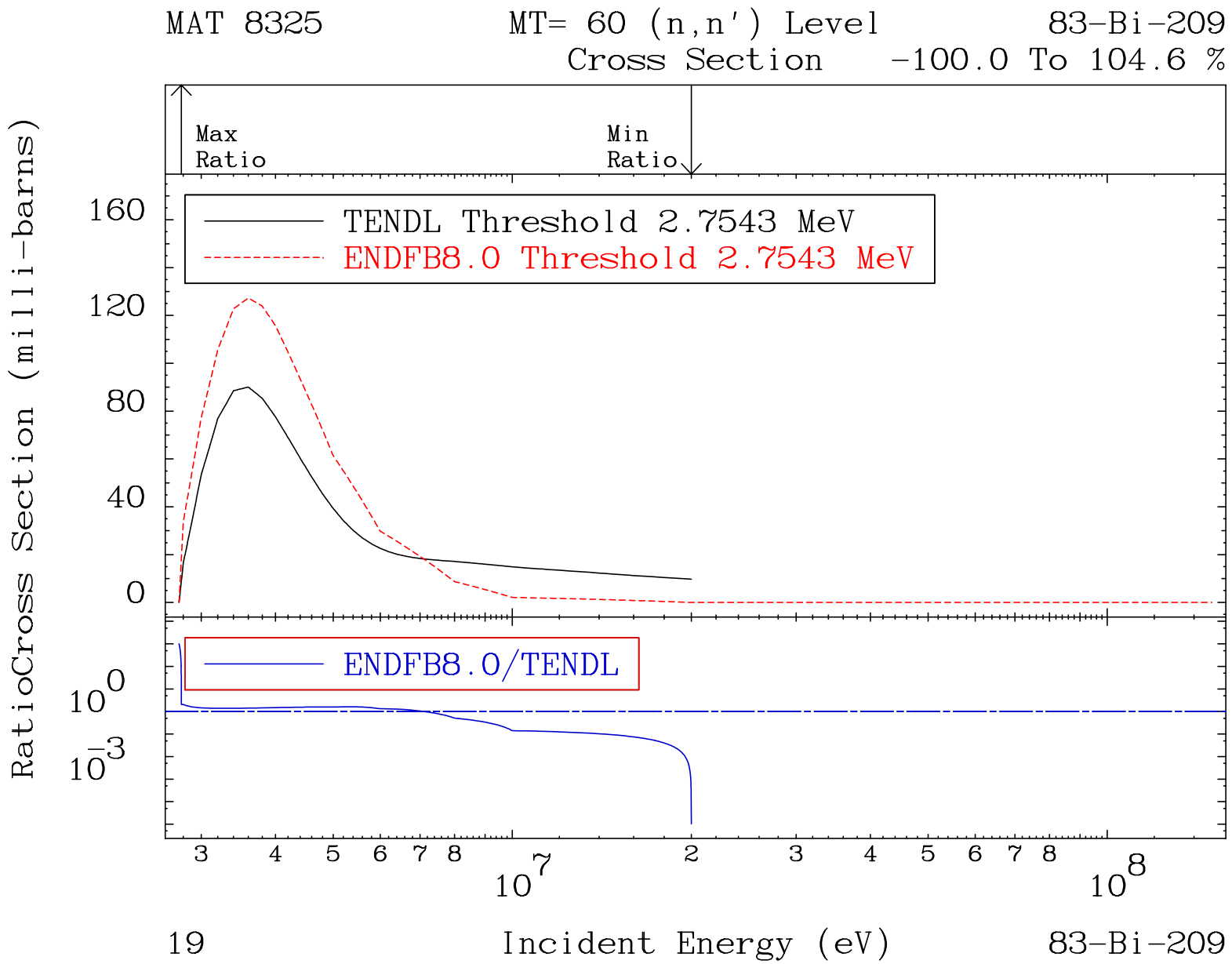

MAT 8325
MT= 55 (n,n') Level
Cross Section
83-Bi-209
-100.0 To 140.1 %
Max
Ratio
TENDL Threshold 2.5765 MeV
ENDFB8.0 Threshold 2.5774 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
120
80
40
0
2
0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
14
Incident Energy (eV)
83-Bi-209

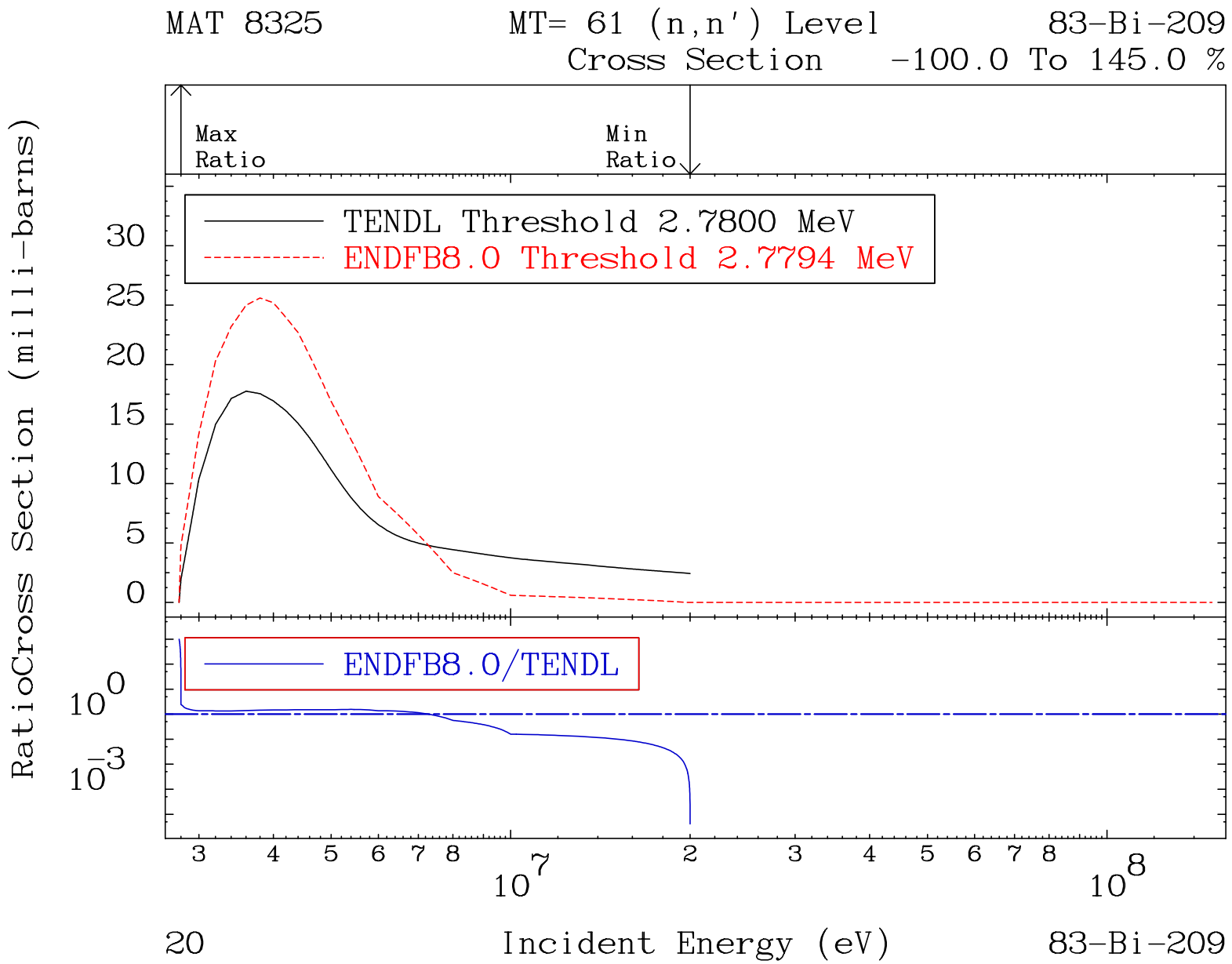

MAT 8325
MT= 56 (n,n') Level
83-Bi-209
Cross Section -51.81 To 214.4 %
Max Ratio
Min Ratio
TENDL Threshold 2.5955 MeV
ENDFB8.0 Threshold 2.5955 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
100
80
60
40
20
0
4
2
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
15
Incident Energy (eV)
83-Bi-209

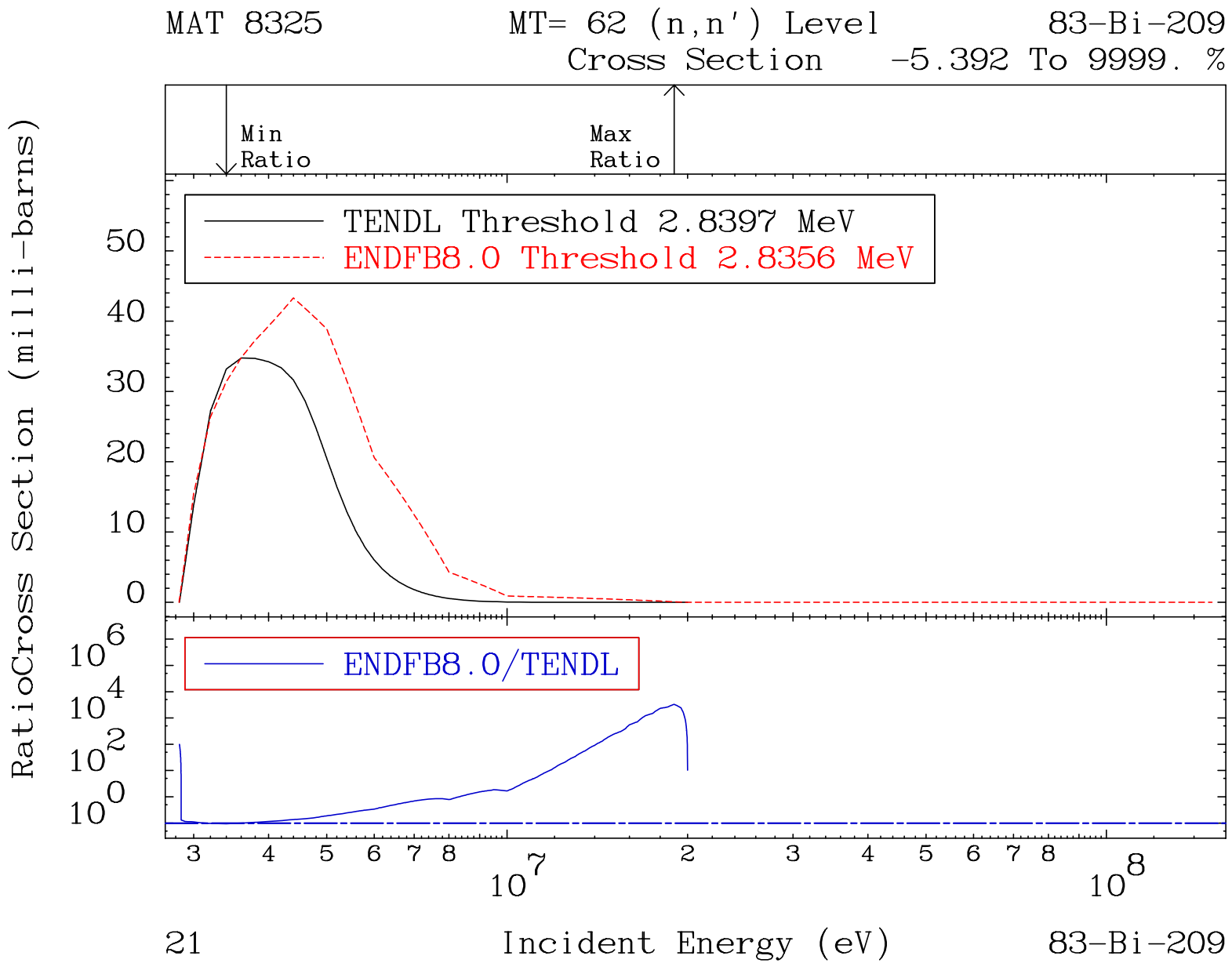

MAT 8325
MT= 57 (n,n') Level
83-Bi-209
Cross Section -54.42 To 271.9 %
Max Ratio
Min Ratio
TENDL Threshold 2.6125 MeV
ENDFB8.0 Threshold 2.6115 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
160
120
80
40
0
4
2
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
16
Incident Energy (eV)
83-Bi-209

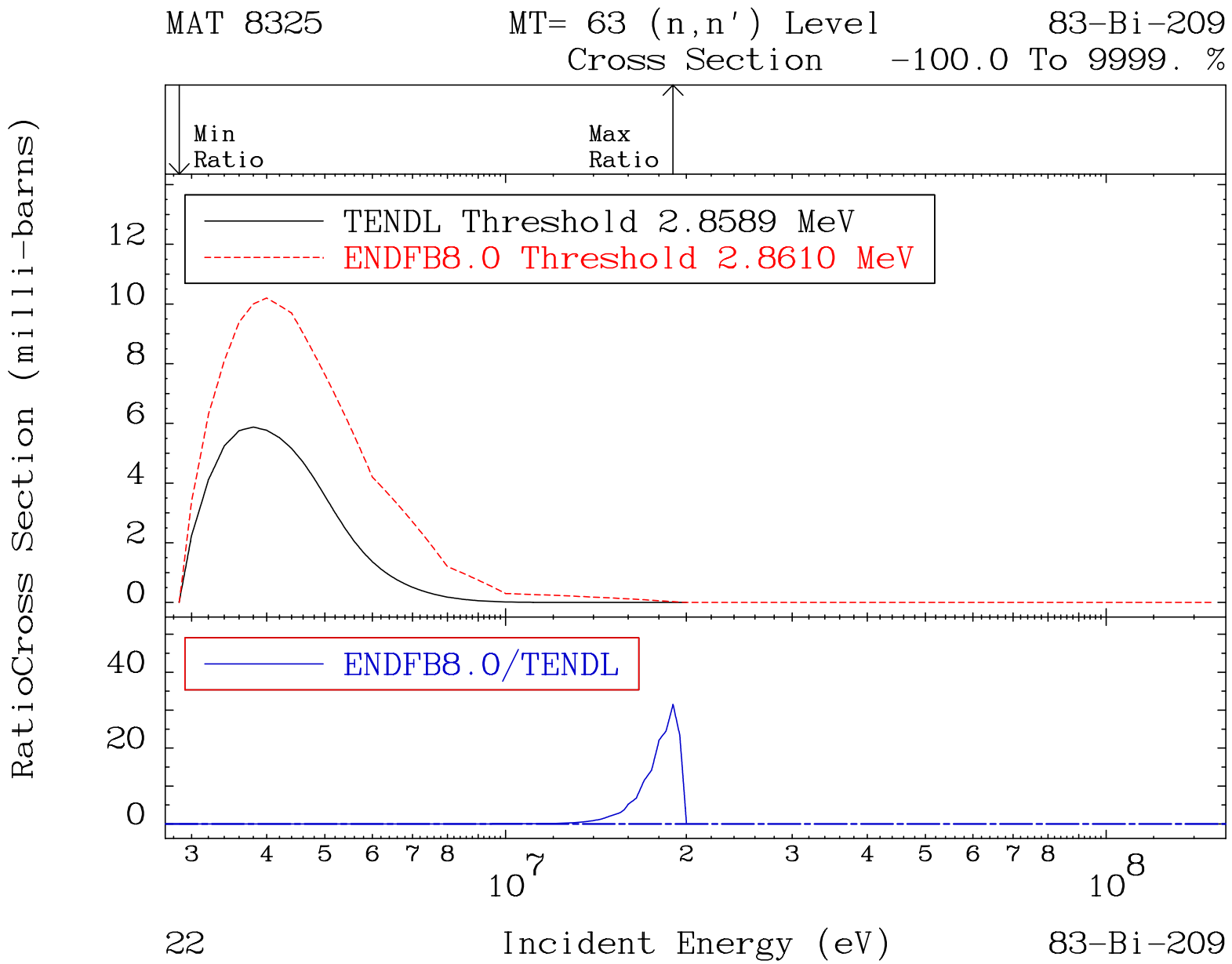

MAT 8325
MT= 58 (n,n') Level
83-Bi-209
Cross Section -100.0 To 92.57 %
Min Ratio
Max Ratio
TENDL Threshold 2.6135 MeV
ENDFB8.0 Threshold 2.6135 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
150
100
50
0
2.0
1.0
0.0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
17
Incident Energy (eV)
83-Bi-209

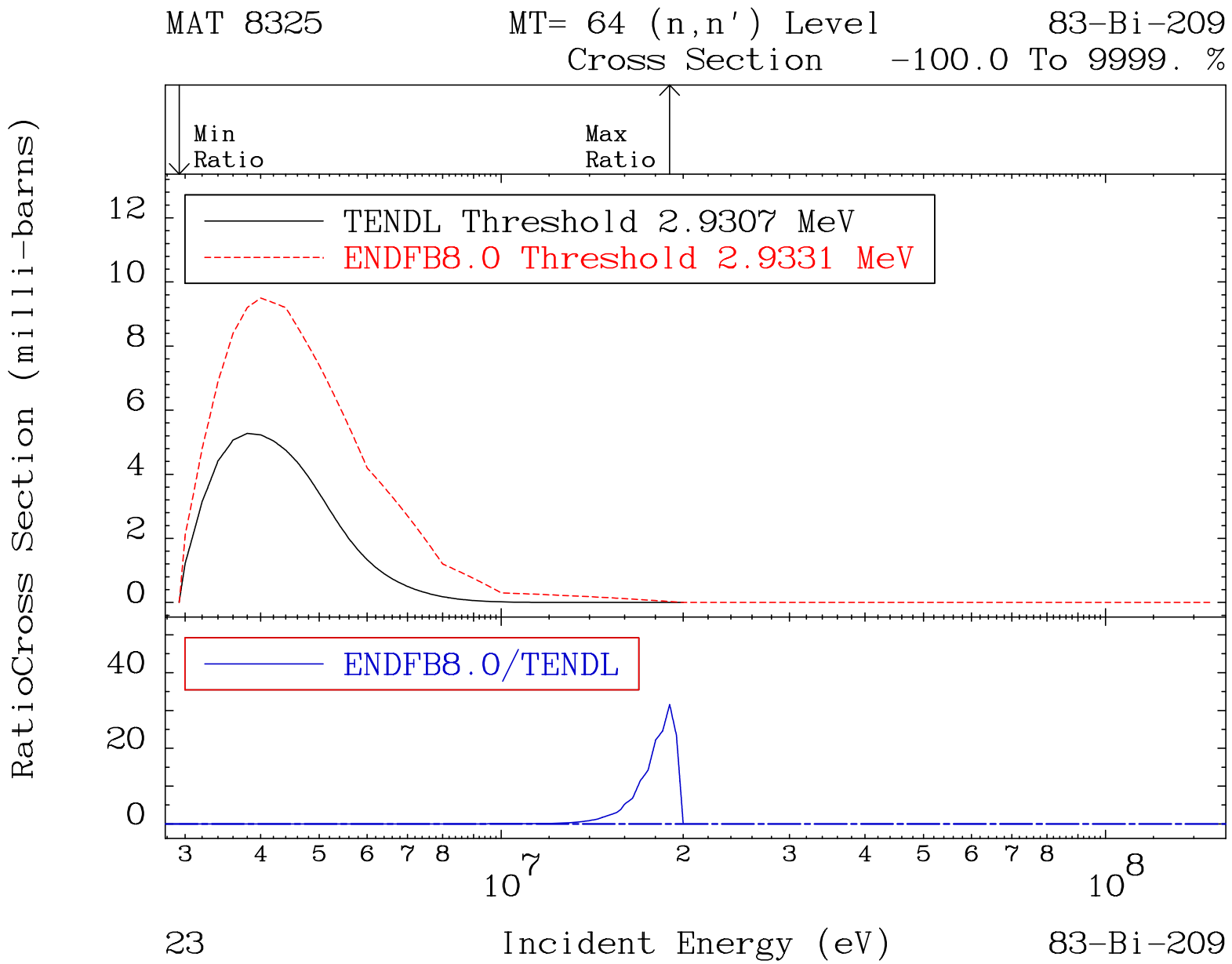

MAT 8325
MT= 59 (n,n') Level
83-Bi-209
Cross Section -51.86 To 1923. %
Max Ratio
Min Ratio
TENDL Threshold 2.6300 MeV
ENDFB8.0 Threshold 2.6296 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
70
60
50
40
30
20
10
0
10^1
10^0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
18
Incident Energy (eV)
83-Bi-209

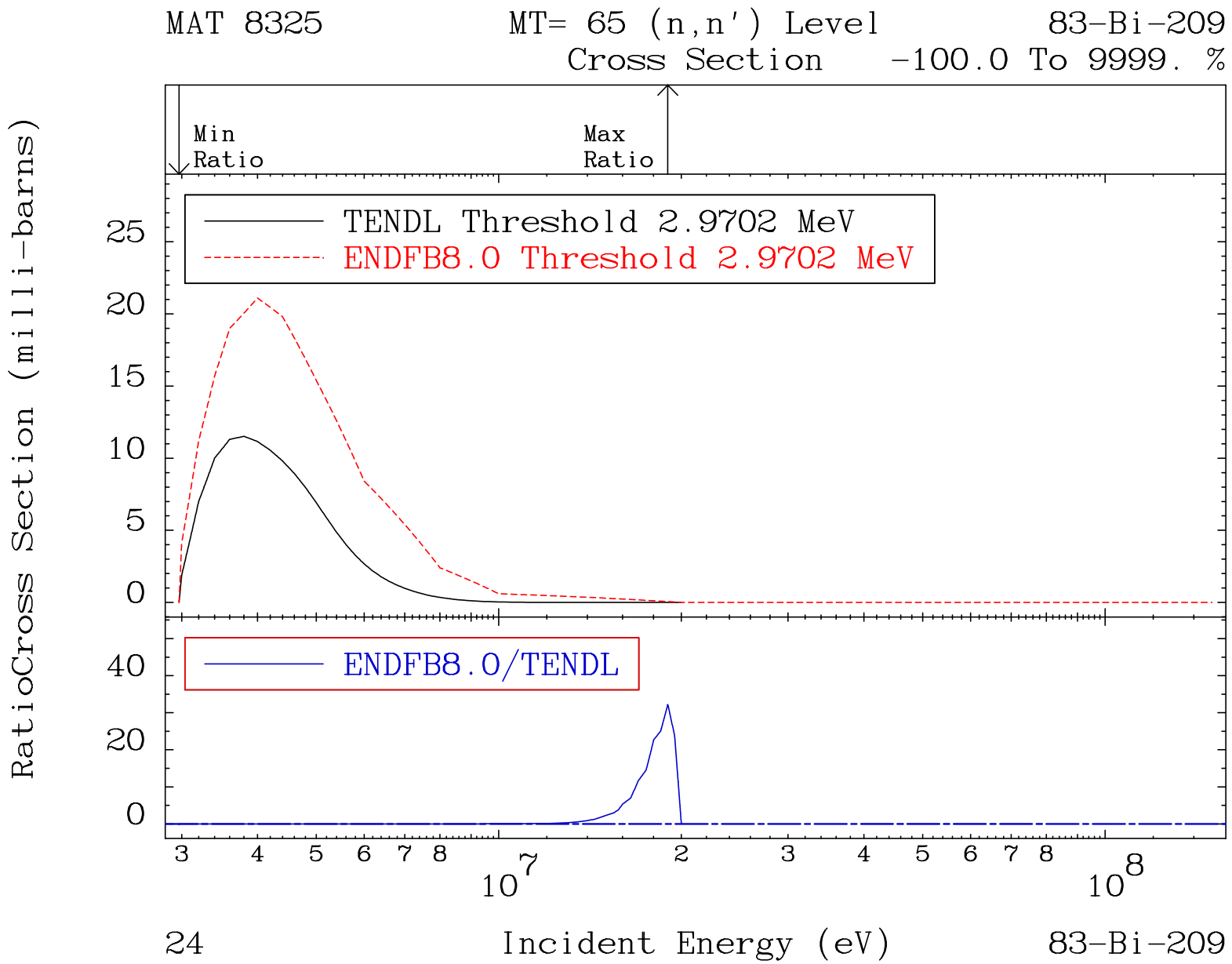

MAT 8325
MT= 60 (n,n') Level
83-Bi-209
Cross Section -100.0 To 104.6 %
Max Ratio
Min Ratio
TENDL Threshold 2.7543 MeV
ENDFB8.0 Threshold 2.7543 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
160
120
80
40
0
10^0
10^-3
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
19
Incident Energy (eV)
83-Bi-209

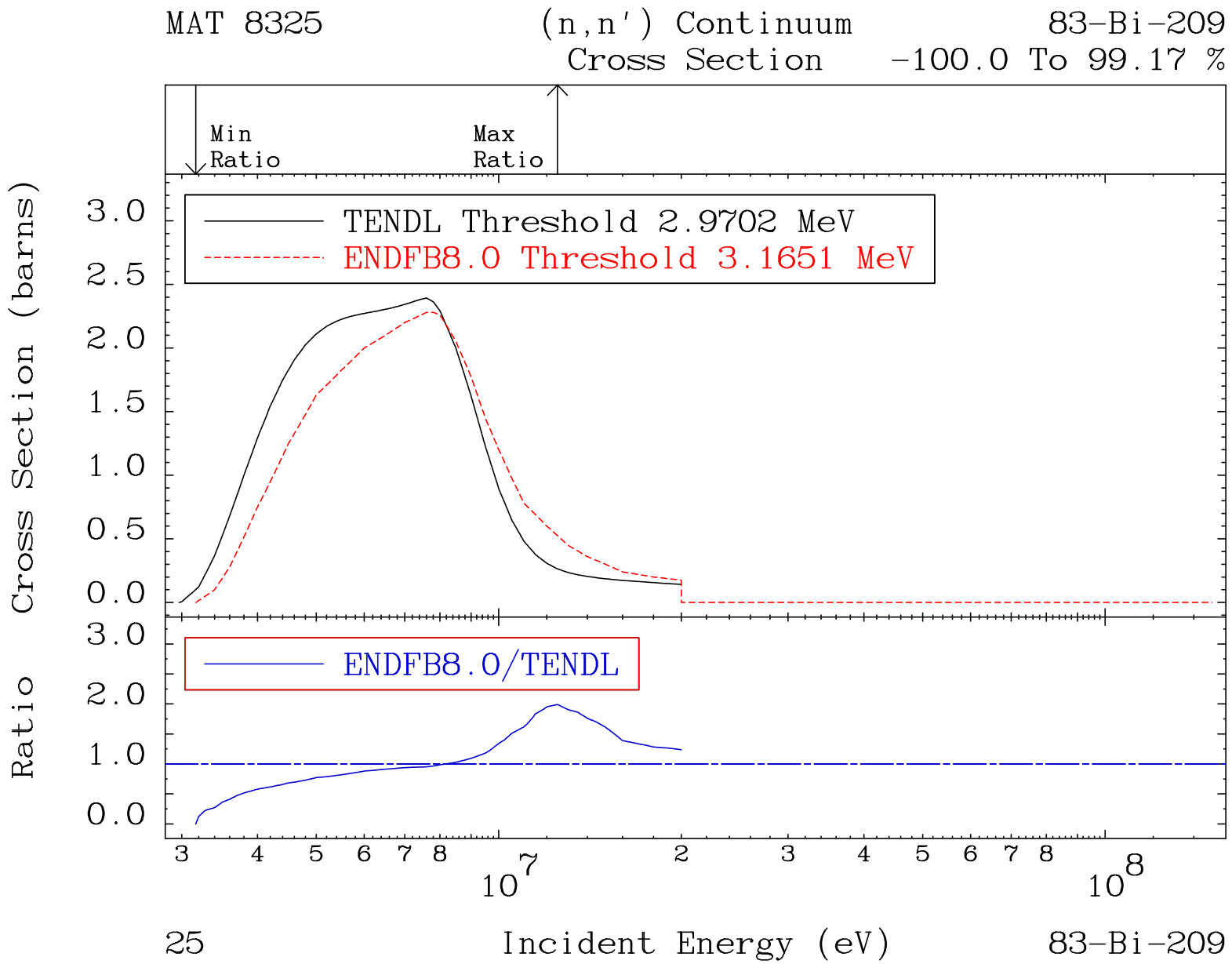

MAT 8325
MT= 61 (n,n') Level
83-Bi-209
Cross Section -100.0 To 145.0 %
Max Ratio
Min Ratio
TENDL Threshold 2.7800 MeV
ENDFB8.0 Threshold 2.7794 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
20
83-Bi-209

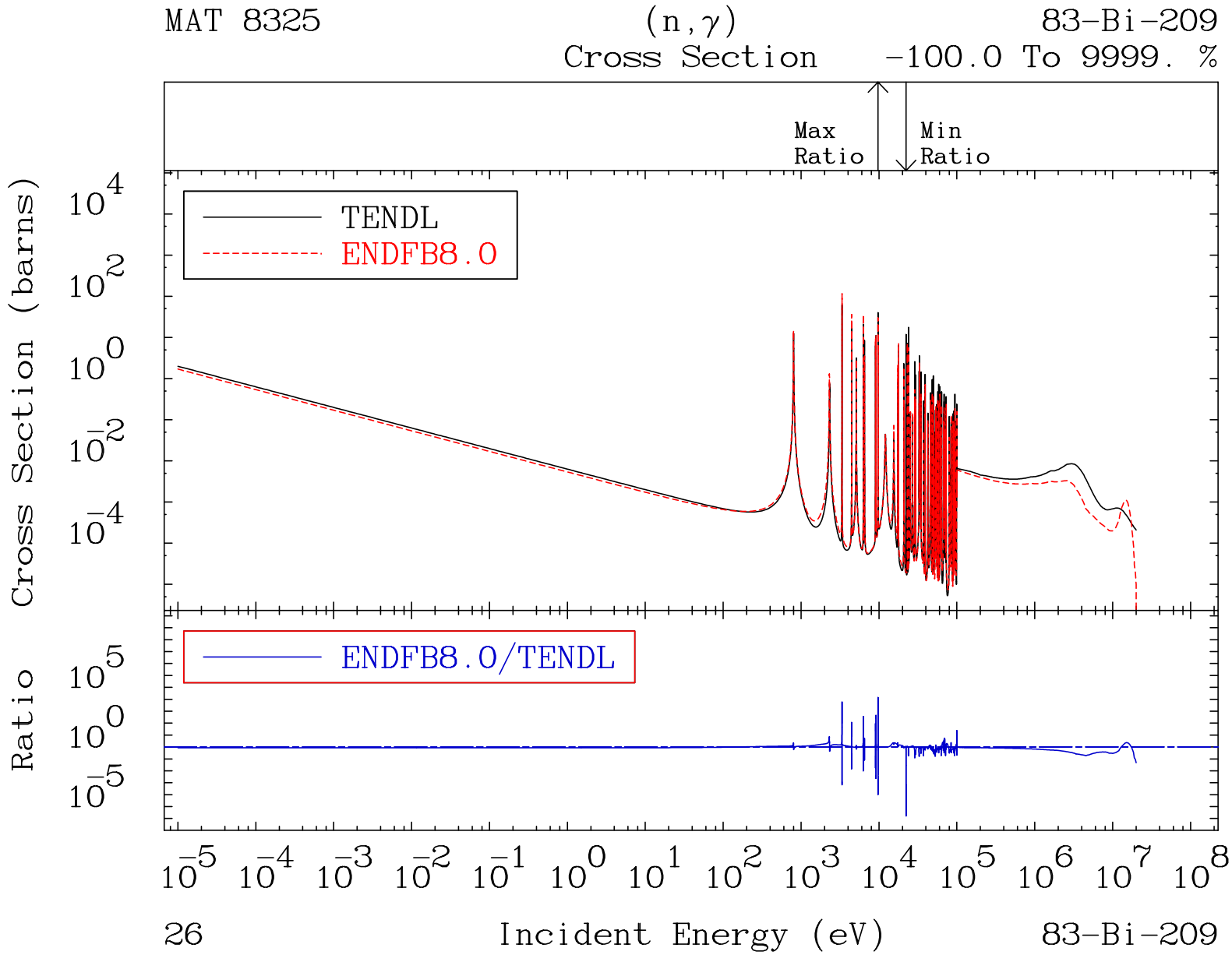

MAT 8325
MT= 62 (n,n') Level
83-Bi-209
Cross Section -5.392 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.8397 MeV
ENDFB8.0 Threshold 2.8356 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
21
83-Bi-209

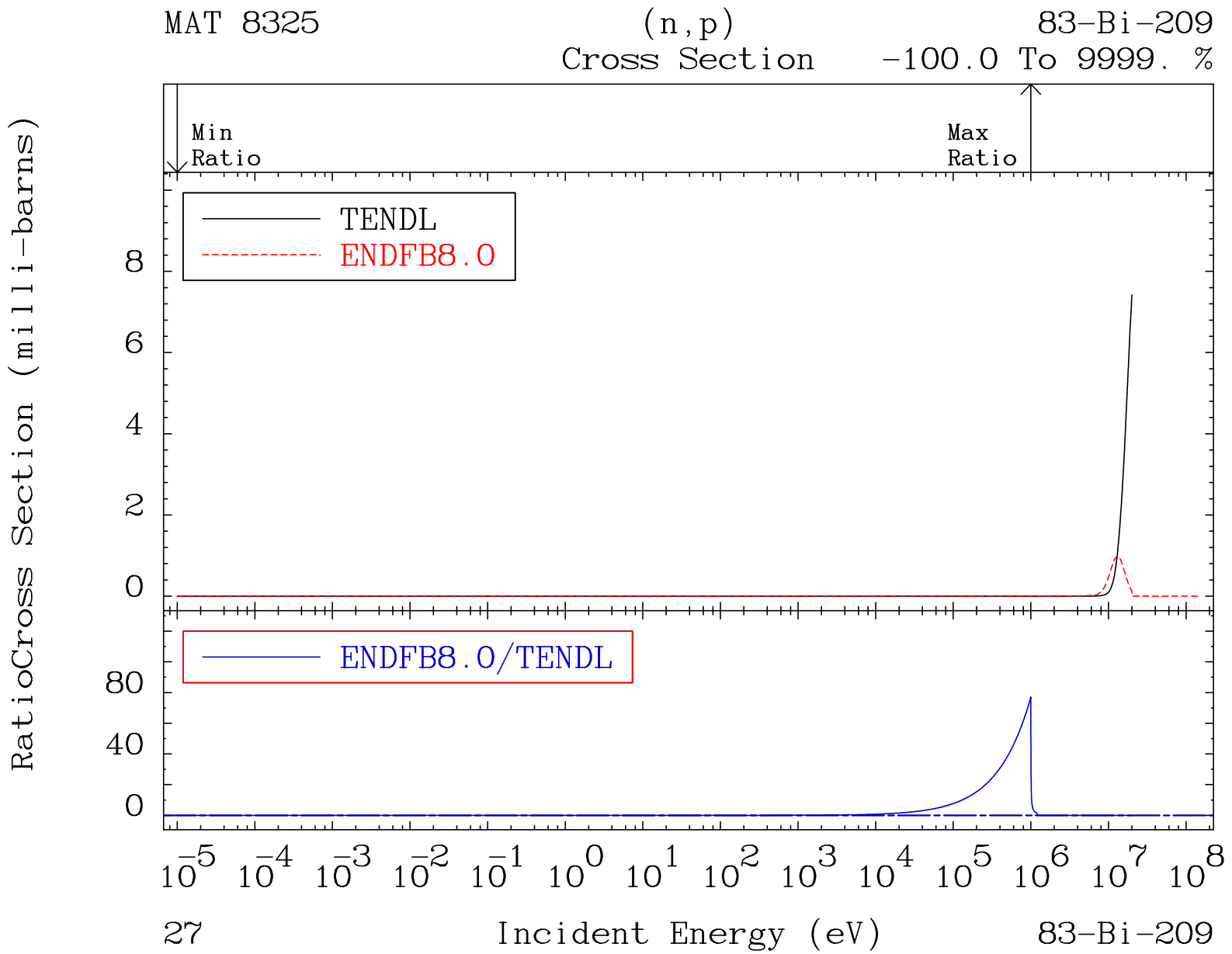

MAT 8325
MT= 63 (n,n') Level
83-Bi-209
Cross Section -100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.8589 MeV
ENDFB8.0 Threshold 2.8610 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
22
83-Bi-209

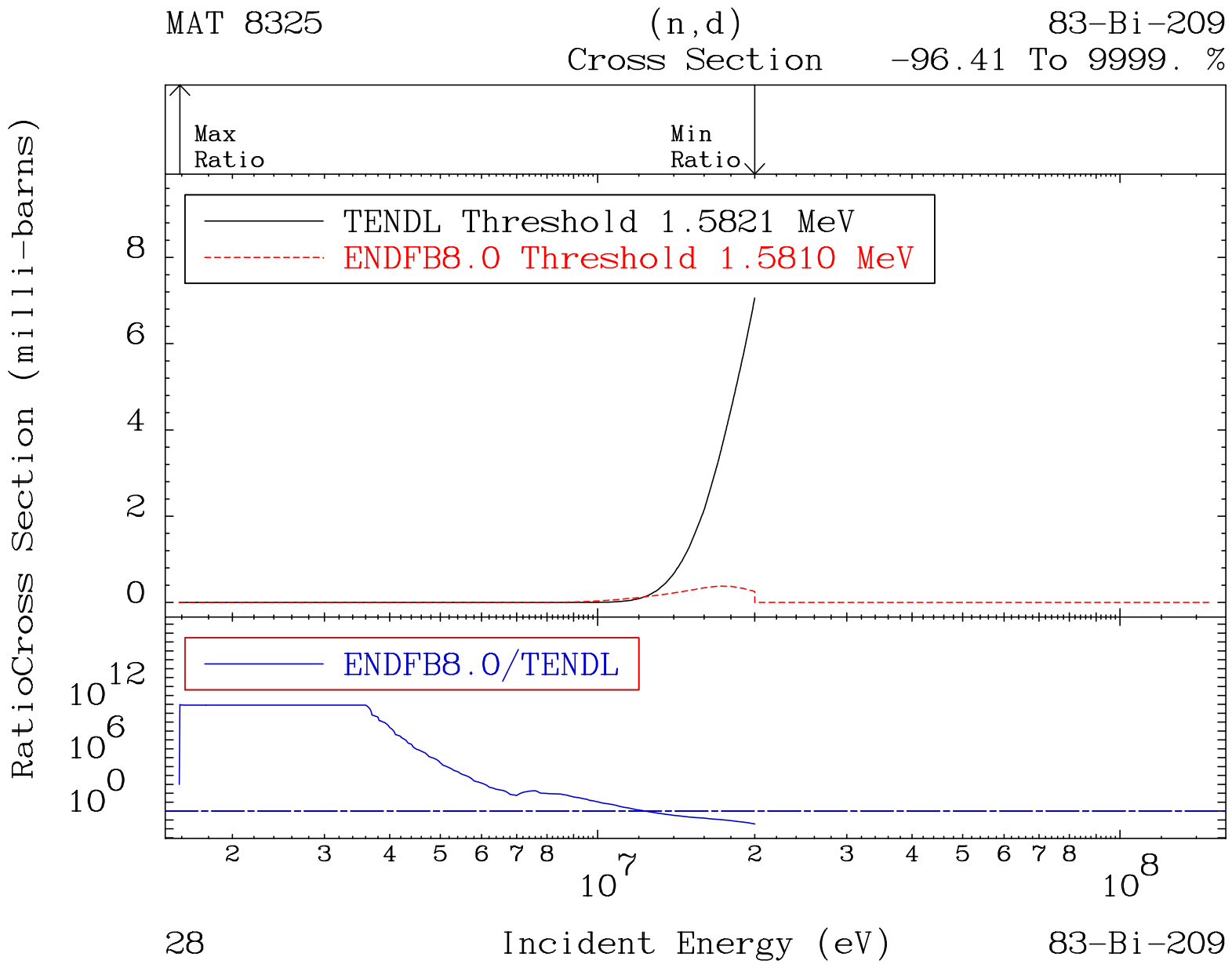

MAT 8325
MT= 64 (n,n') Level
83-Bi-209
Cross Section -100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.9307 MeV
ENDFB8.0 Threshold 2.9331 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
23
83-Bi-209

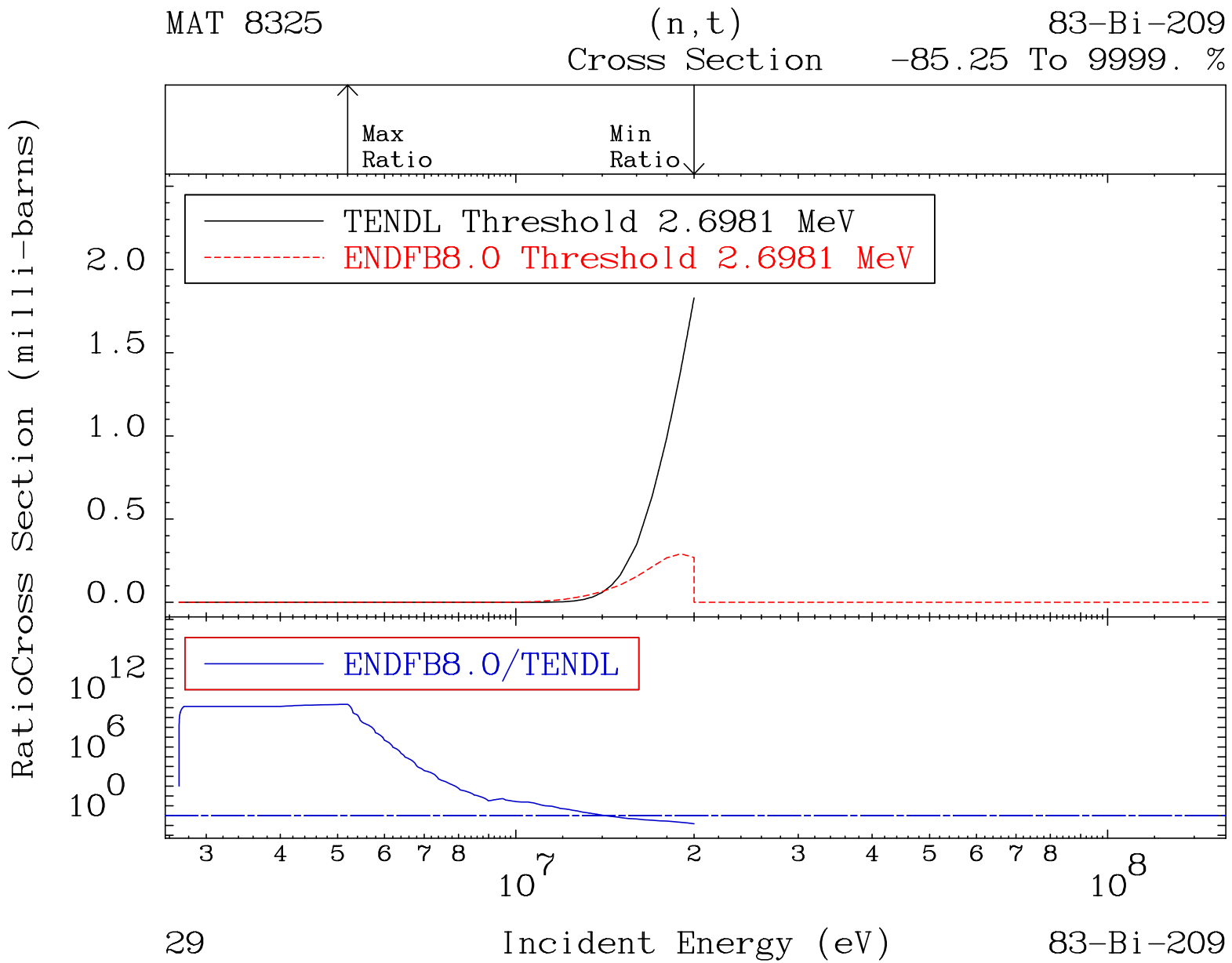

MAT 8325
MT= 65 (n,n') Level
83-Bi-209
Cross Section -100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 2.9702 MeV
ENDFB8.0 Threshold 2.9702 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
25
20
15
10
5
0
40
20
0
3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8
24
Incident Energy (eV)
83-Bi-209

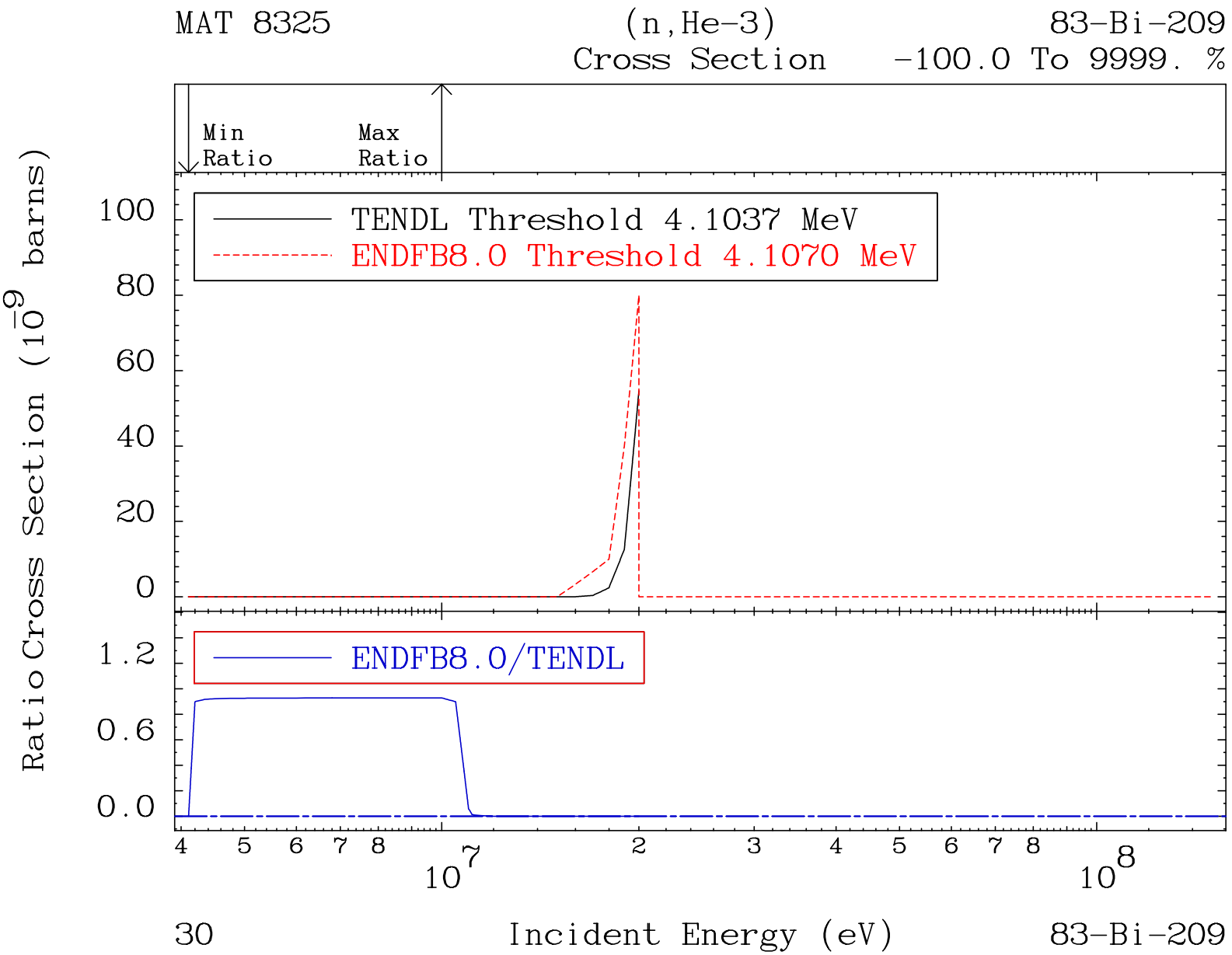

MAT 8325
(n,n') Continuum
Cross Section
83-Bi-209
-100.0 To 99.17 %
Min Ratio
Max Ratio
TENDL Threshold 2.9702 MeV
ENDFB8.0 Threshold 3.1651 MeV
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
3.0
2.5
2.0
1.5
1.0
0.5
0.0
3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8
25
Incident Energy (eV)
83-Bi-209

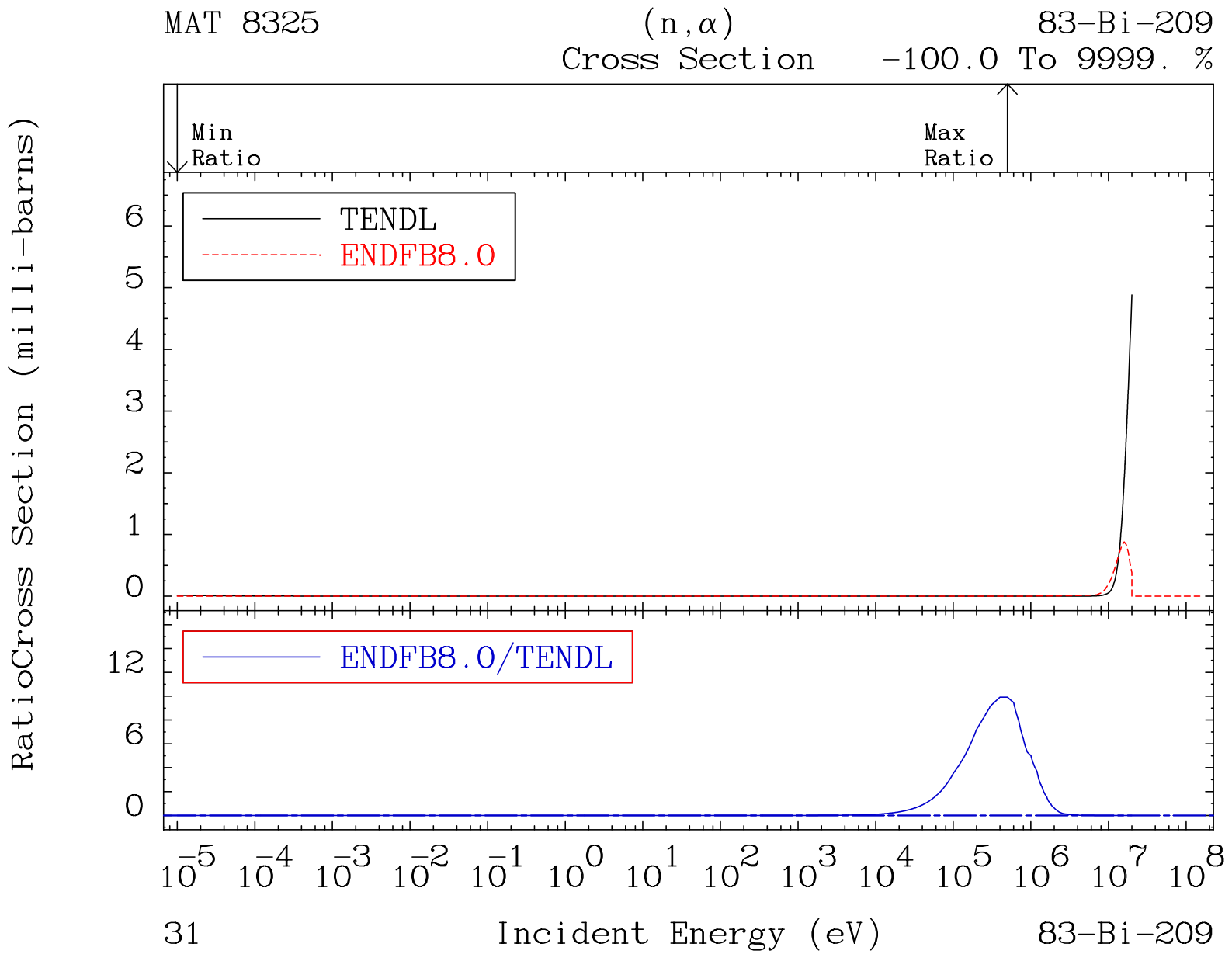

MAT 8325
(n,γ)
Cross Section
83-Bi-209
-100.0 To 9999. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
26
83-Bi-209

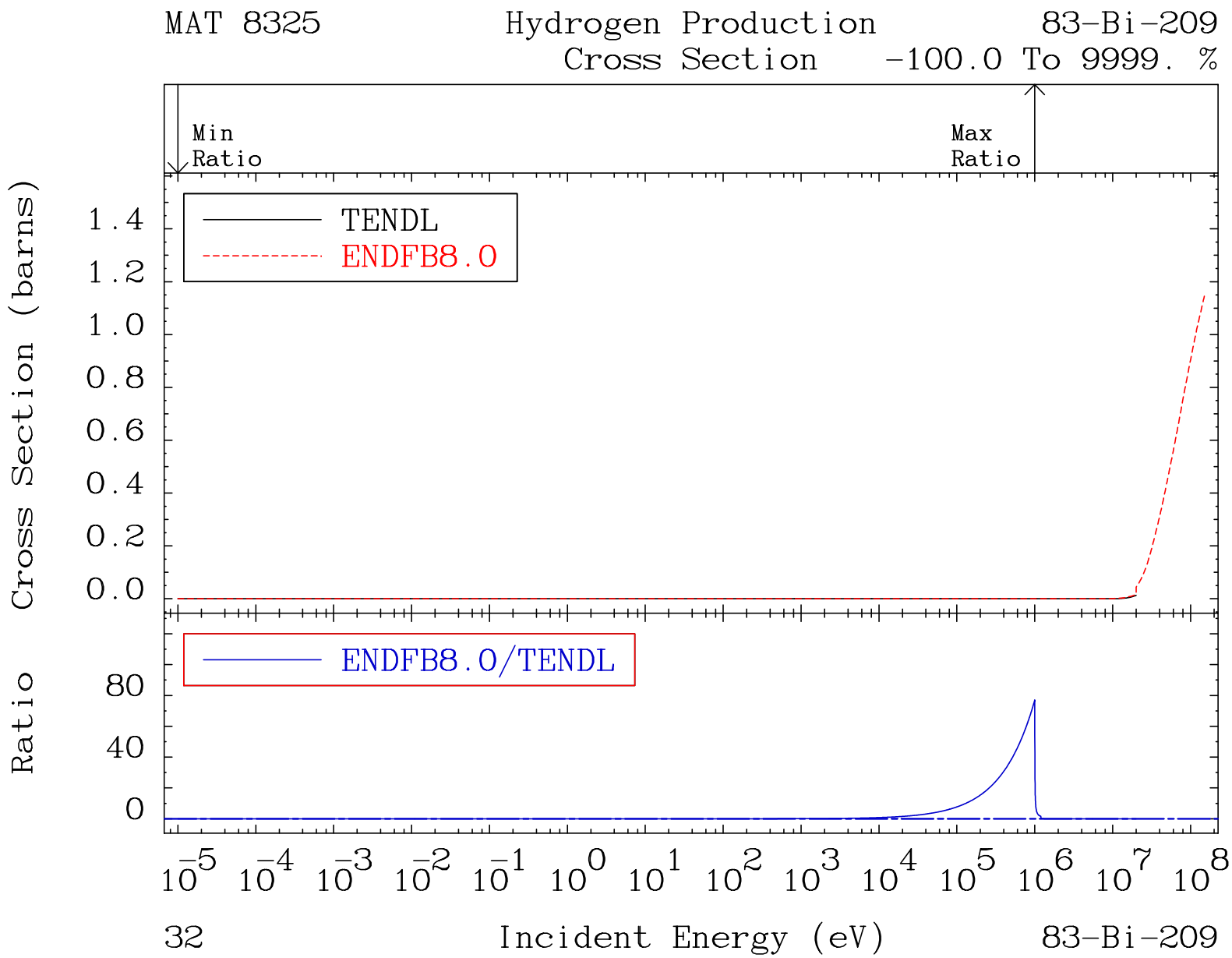

MAT 8325
(n,p)
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
8
6
4
2
0
80
40
0
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
27
Incident Energy (eV)
83-Bi-209

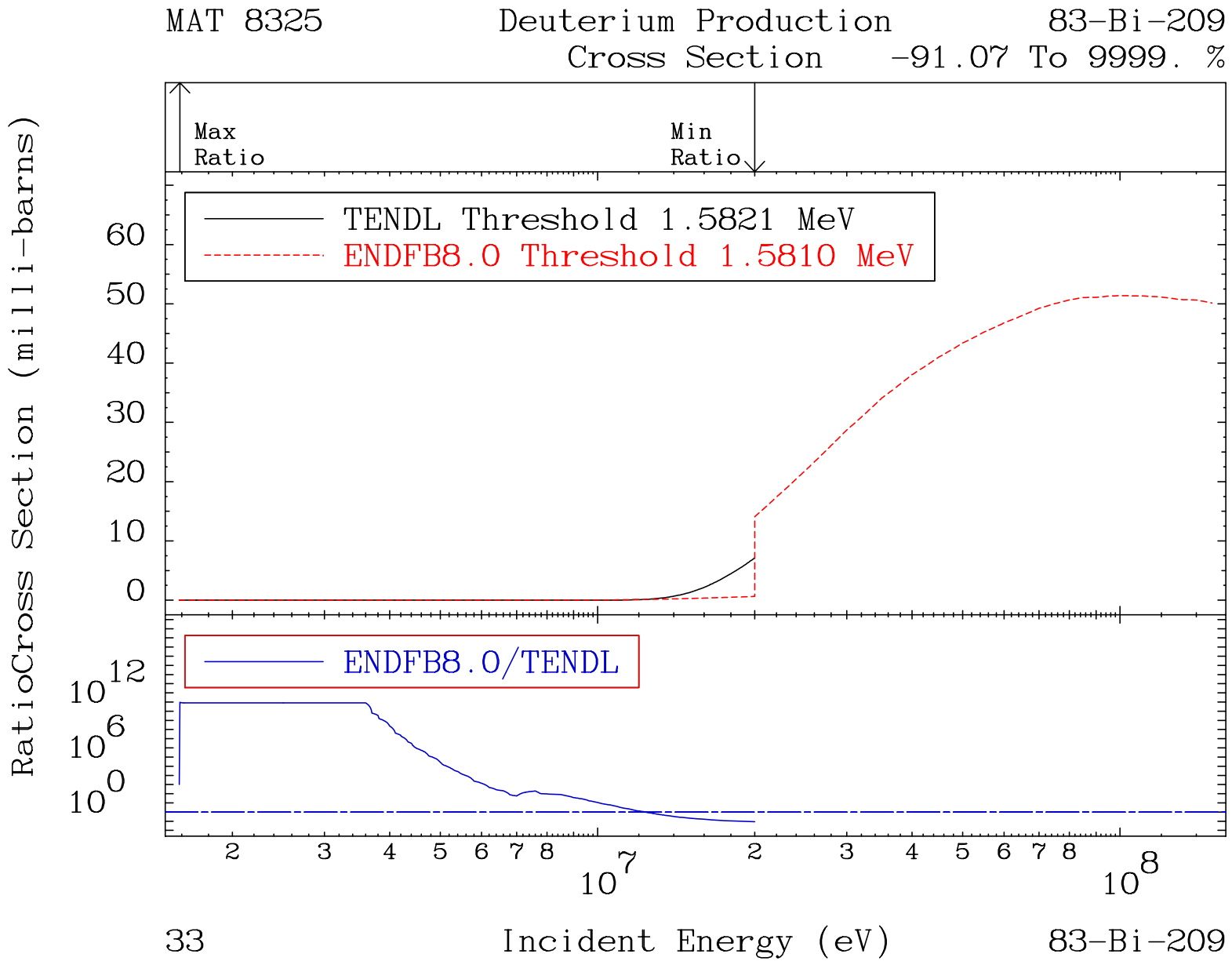

MAT 8325
(n,d)
Cross Section
83-Bi-209
-96.41 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 1.5821 MeV
ENDFB8.0 Threshold 1.5810 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
28
83-Bi-209

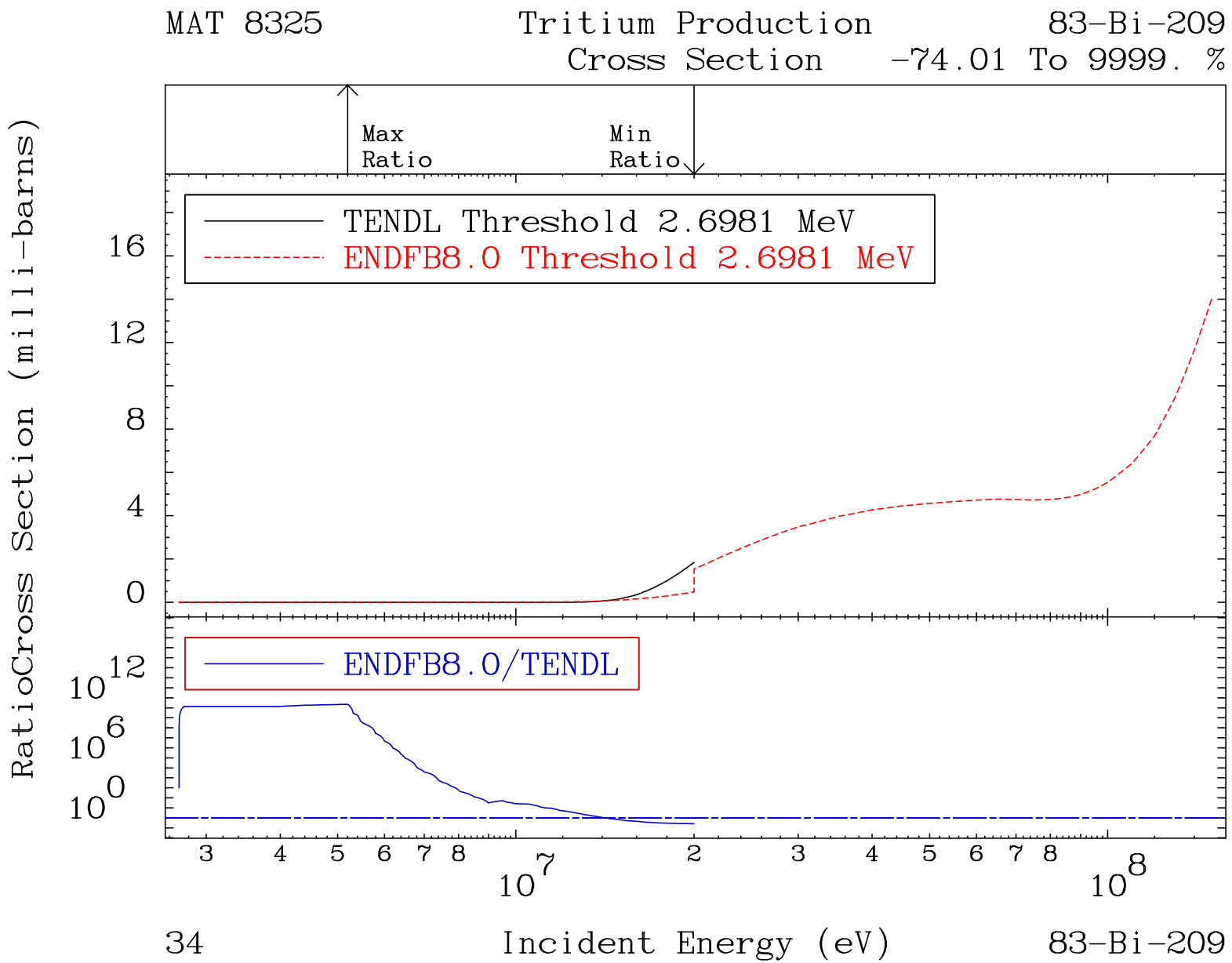

MAT 8325
(n,t)
Cross Section
83-Bi-209
-85.25 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 2.6981 MeV
ENDFB8.0 Threshold 2.6981 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
2.0
1.5
1.0
0.5
0.0
10^12
10^6
10^0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
29
Incident Energy (eV)
83-Bi-209

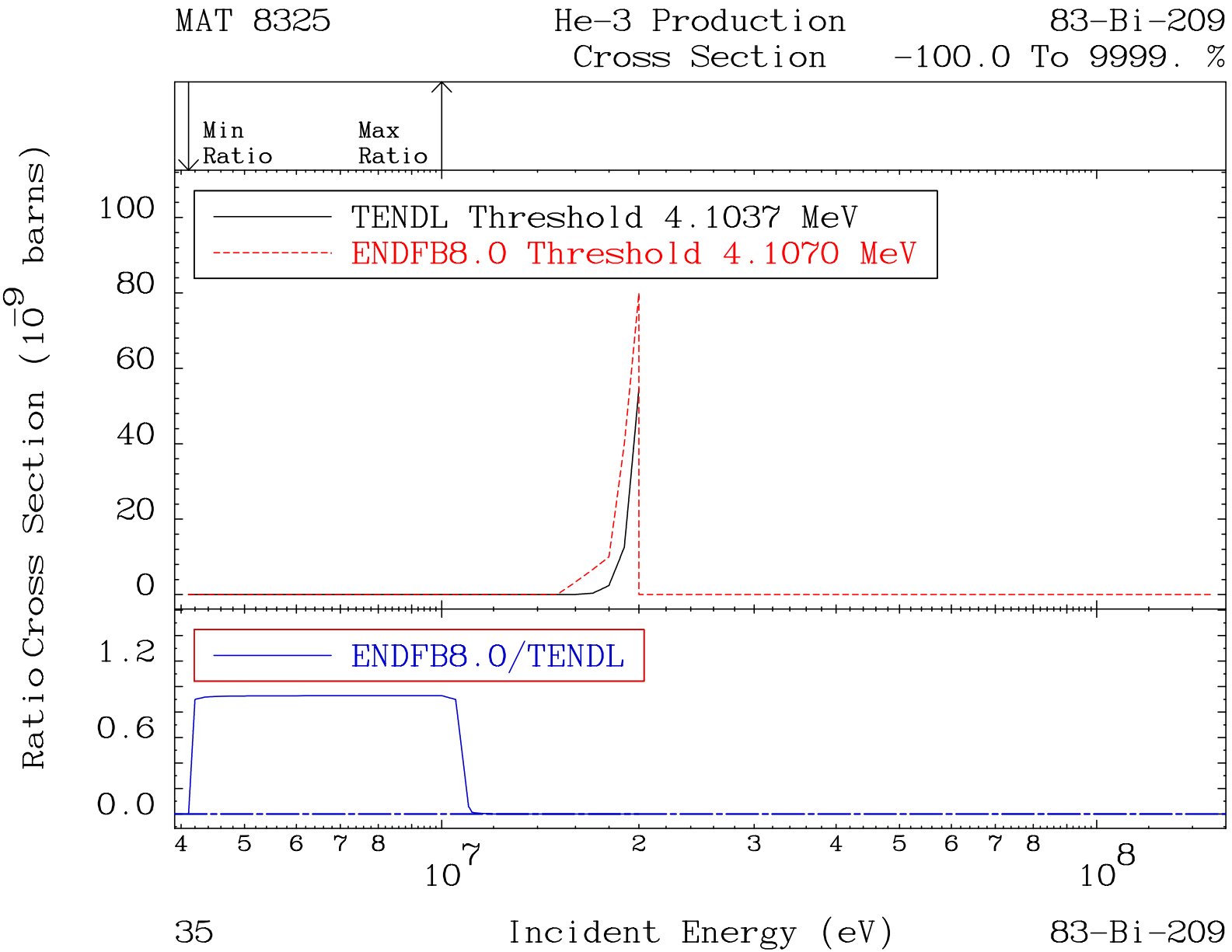

MAT 8325
(n,He-3)
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 4.1037 MeV
ENDFB8.0 Threshold 4.1070 MeV
ENDFB8.0/TENDL
Ratio Cross Section (10^-9 barns)
100
80
60
40
20
0
1.2
0.6
0.0
4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
30
Incident Energy (eV)
83-Bi-209

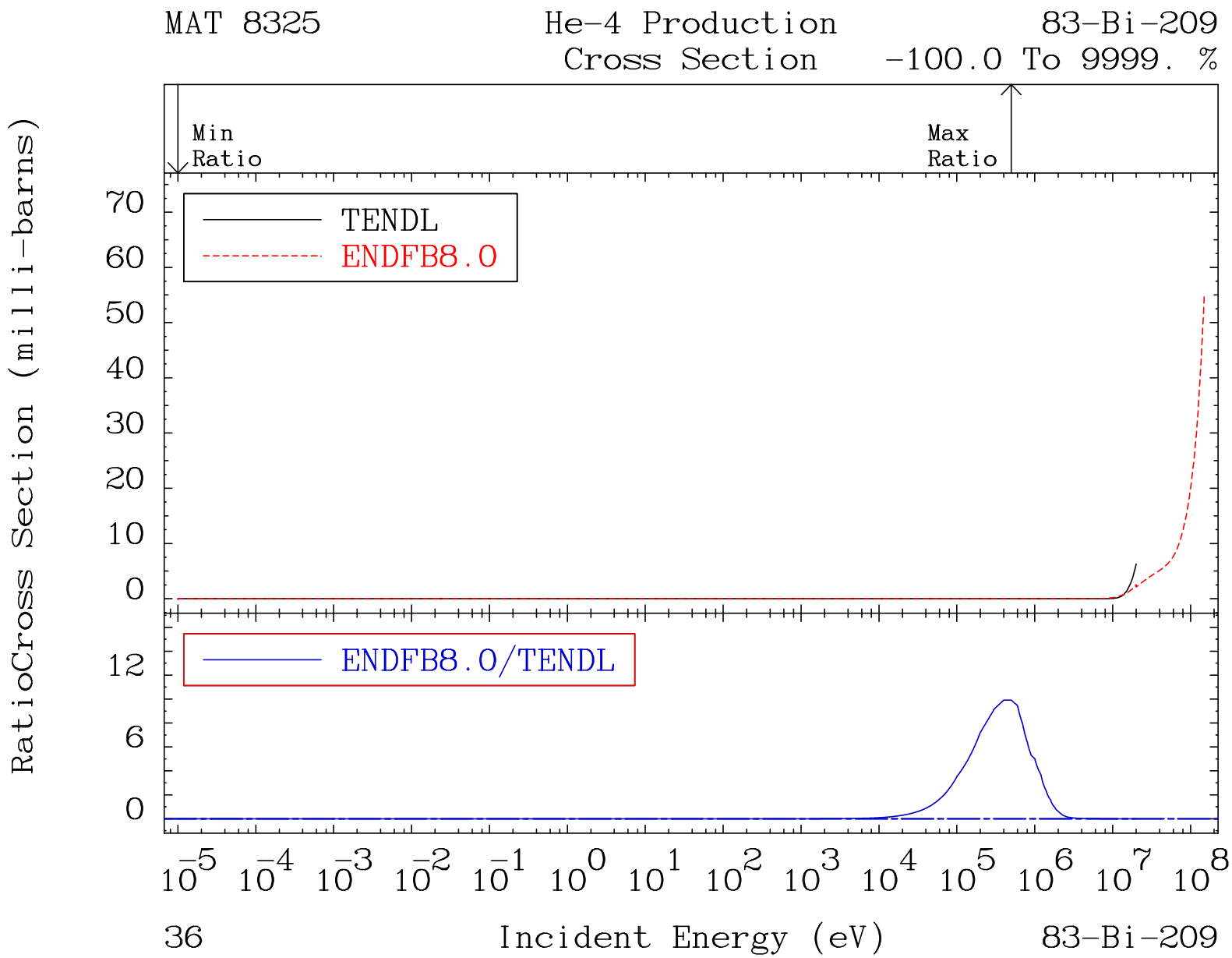

MAT 8325
(n,α)
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
31
83-Bi-209

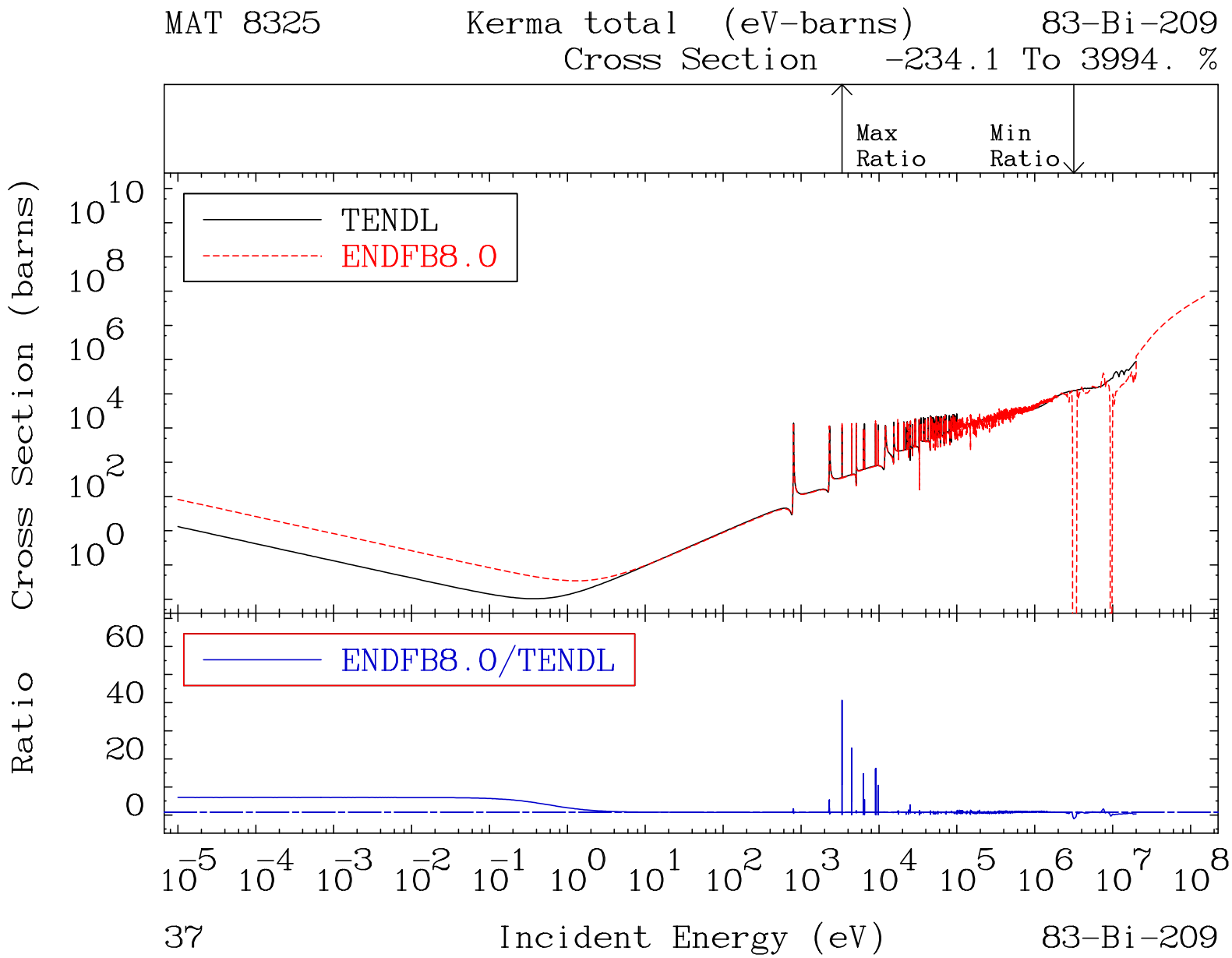

MAT 8325
Hydrogen Production
83-Bi-209
Cross Section -100.0 To 9999. %
Min Ratio
Max Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
80
40
0
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
Incident Energy (eV)
32
83-Bi-209

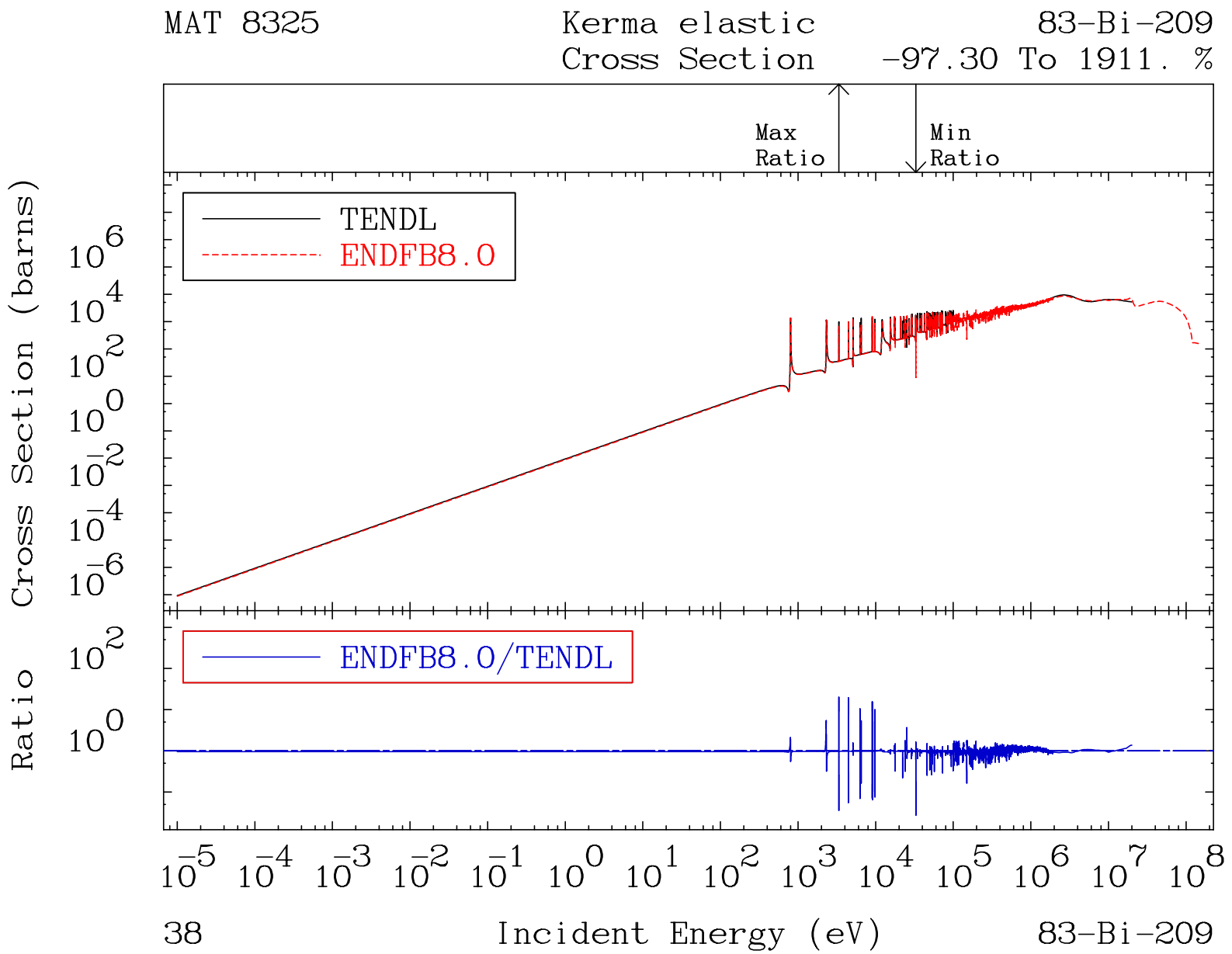

MAT 8325
Deuterium Production
83-Bi-209
Cross Section -91.07 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 1.5821 MeV
ENDFB8.0 Threshold 1.5810 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
60
50
40
30
20
10
0
10^{12}
10^{6}
10^{0}
2 3 4 5 6 7 8
10^{7}
2 3 4 5 6 7 8
10^{8}
33
Incident Energy (eV)
83-Bi-209

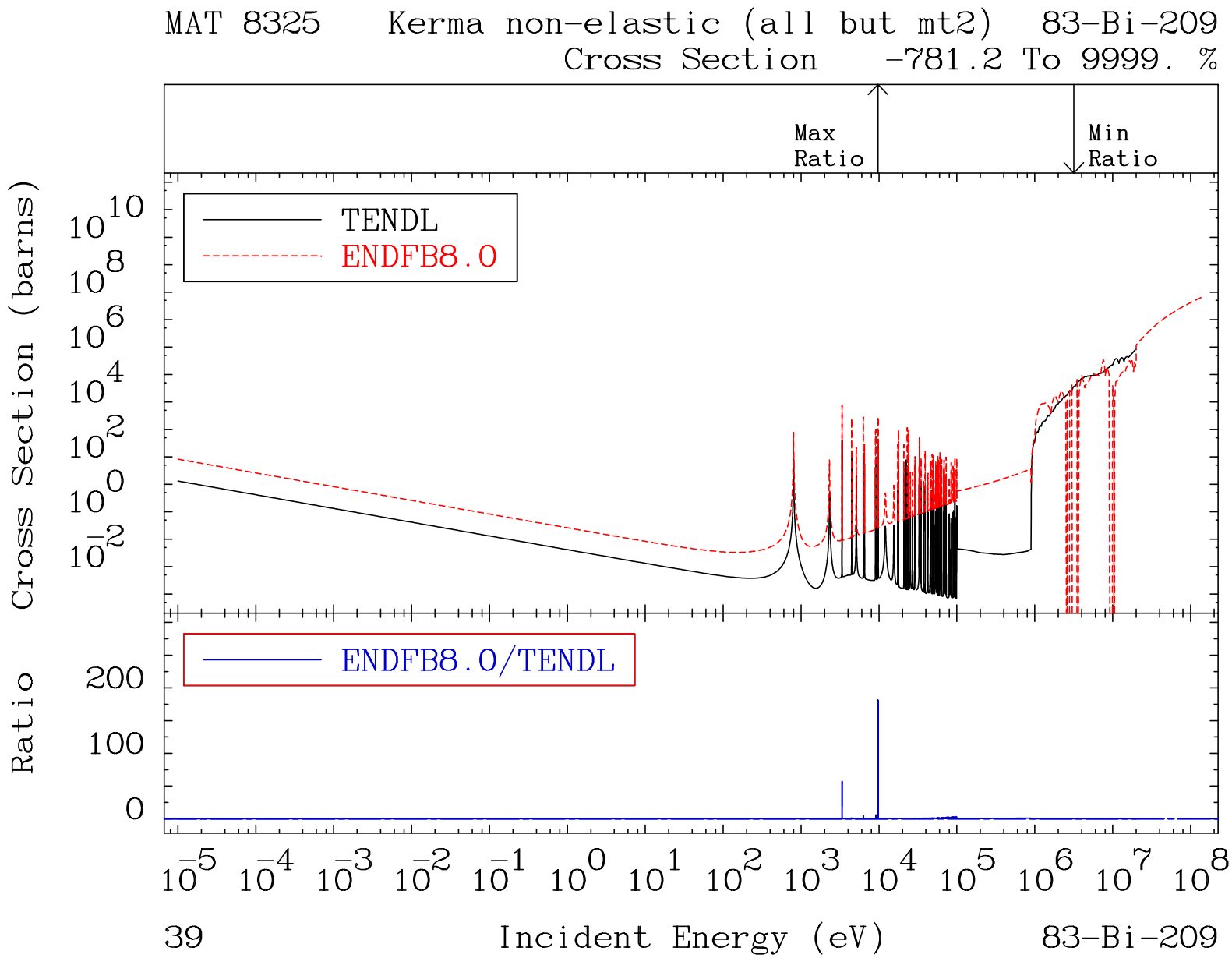

MAT 8325
Tritium Production
83-Bi-209
Cross Section -74.01 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 2.6981 MeV
ENDFB8.0 Threshold 2.6981 MeV
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
16
12
8
4
0
10^12
10^6
10^0
3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
34
Incident Energy (eV)
83-Bi-209

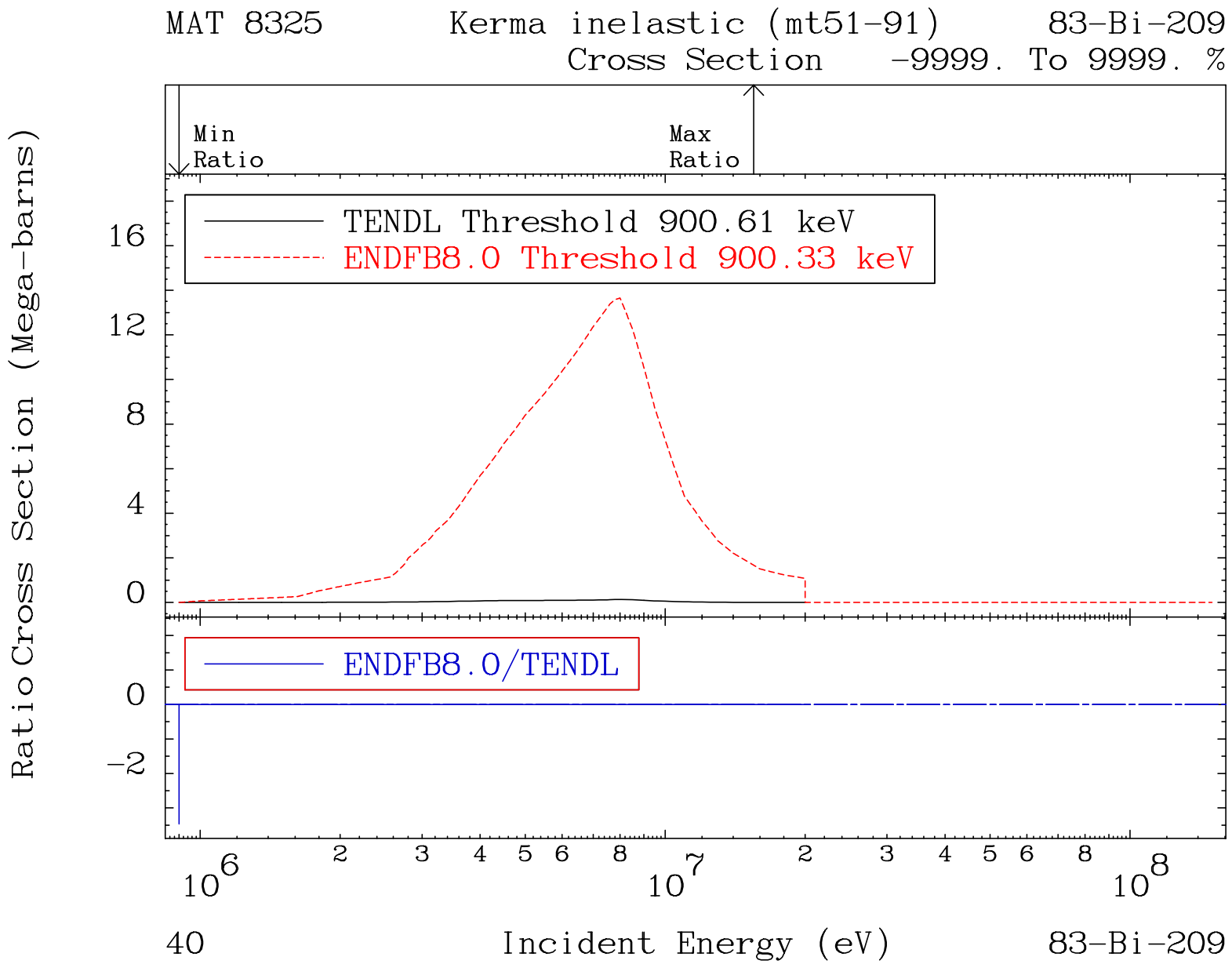

MAT 8325
He-3 Production
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 4.1037 MeV
ENDFB8.0 Threshold 4.1070 MeV
ENDFB8.0/TENDL
Ratio Cross Section (10^{-9} barns)
100
80
60
40
20
0
1.2
0.6
0.0
4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
35
Incident Energy (eV)
83-Bi-209

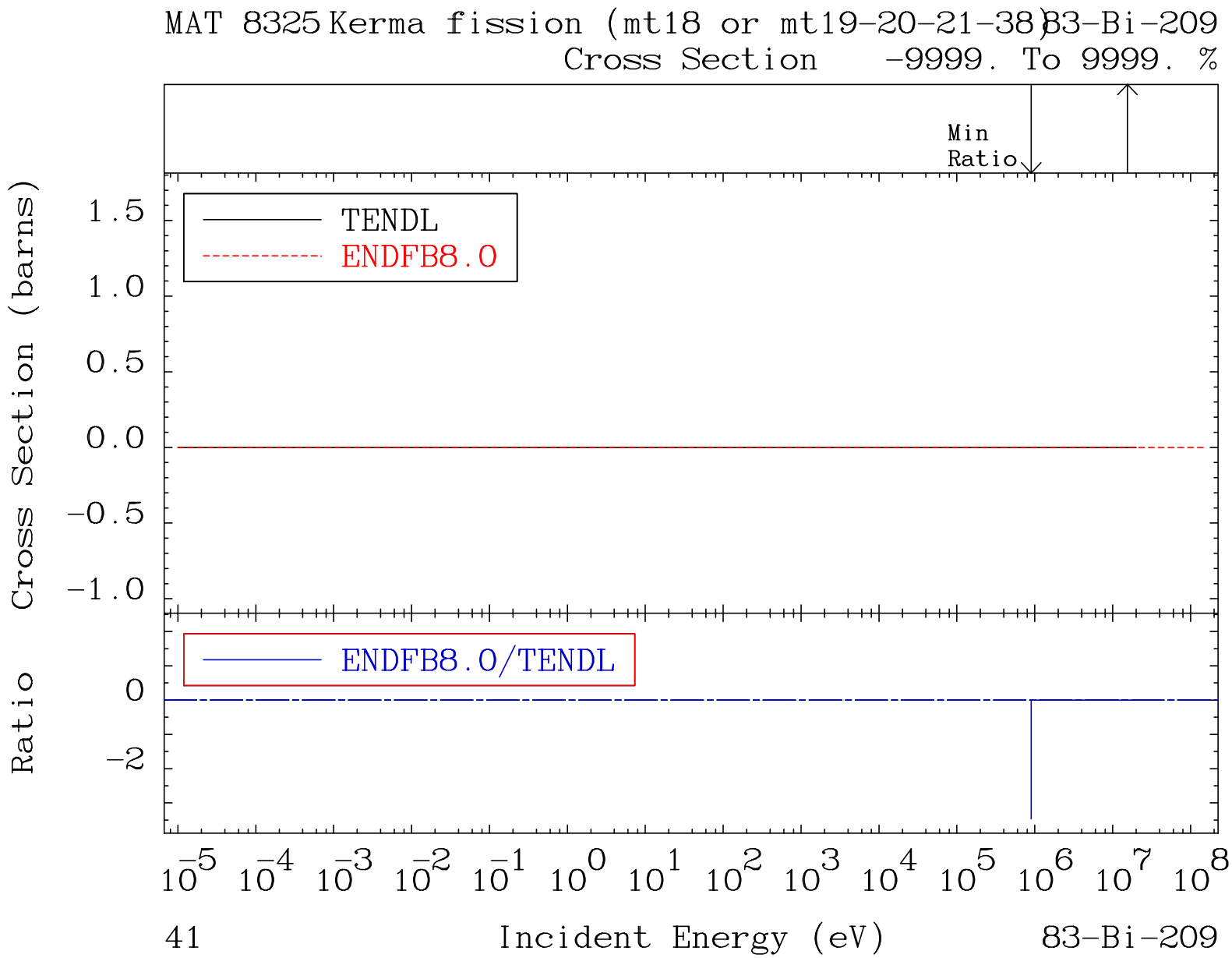

MAT 8325
He-4 Production
Cross Section
83-Bi-209
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
RatioCross Section (milli-barns)
70
60
50
40
30
20
10
0
12
6
0
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
36
Incident Energy (eV)
83-Bi-209

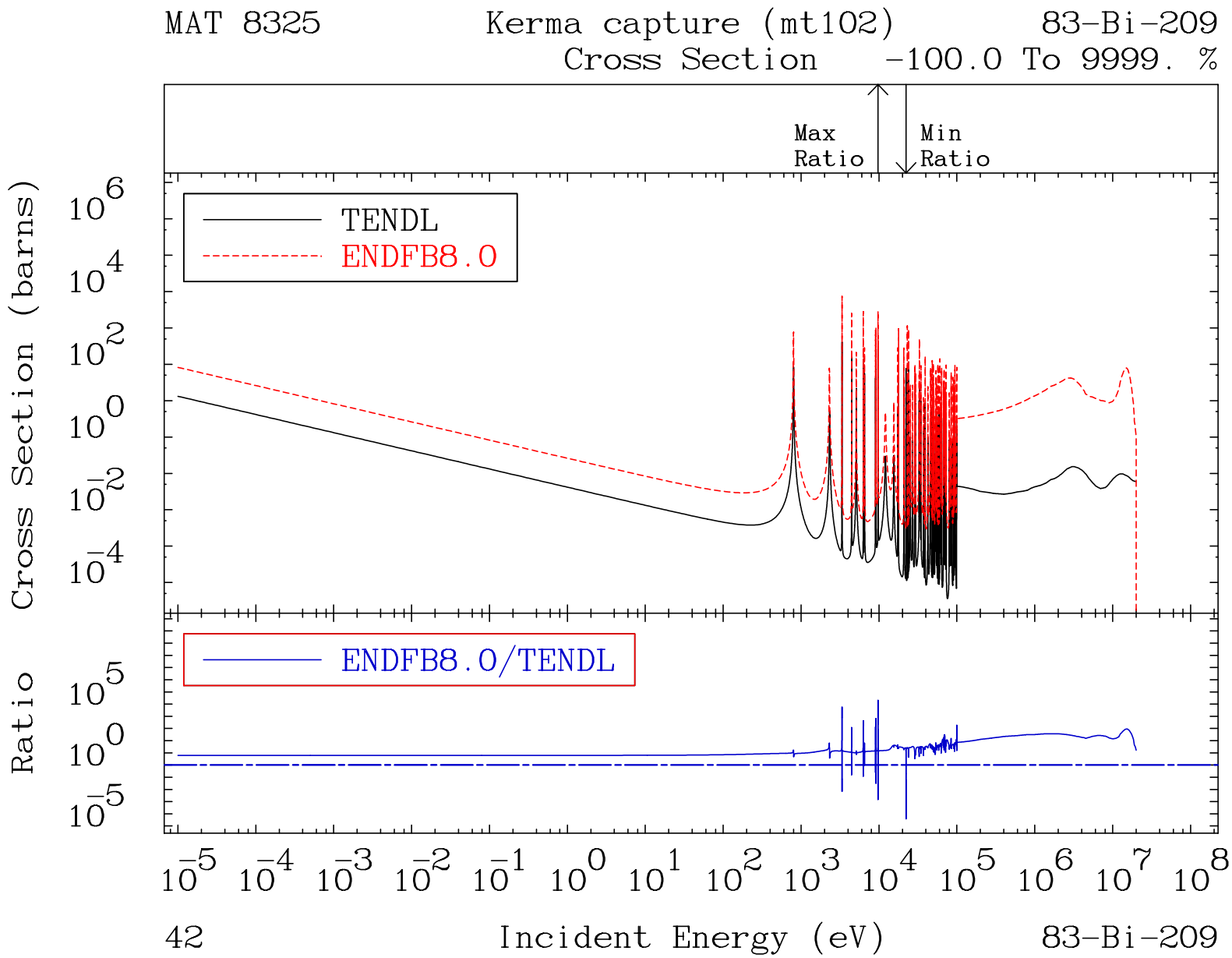

MAT 8325
Kerma total (eV-barns)
83-Bi-209
Cross Section -234.1 To 3994. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
37
83-Bi-209

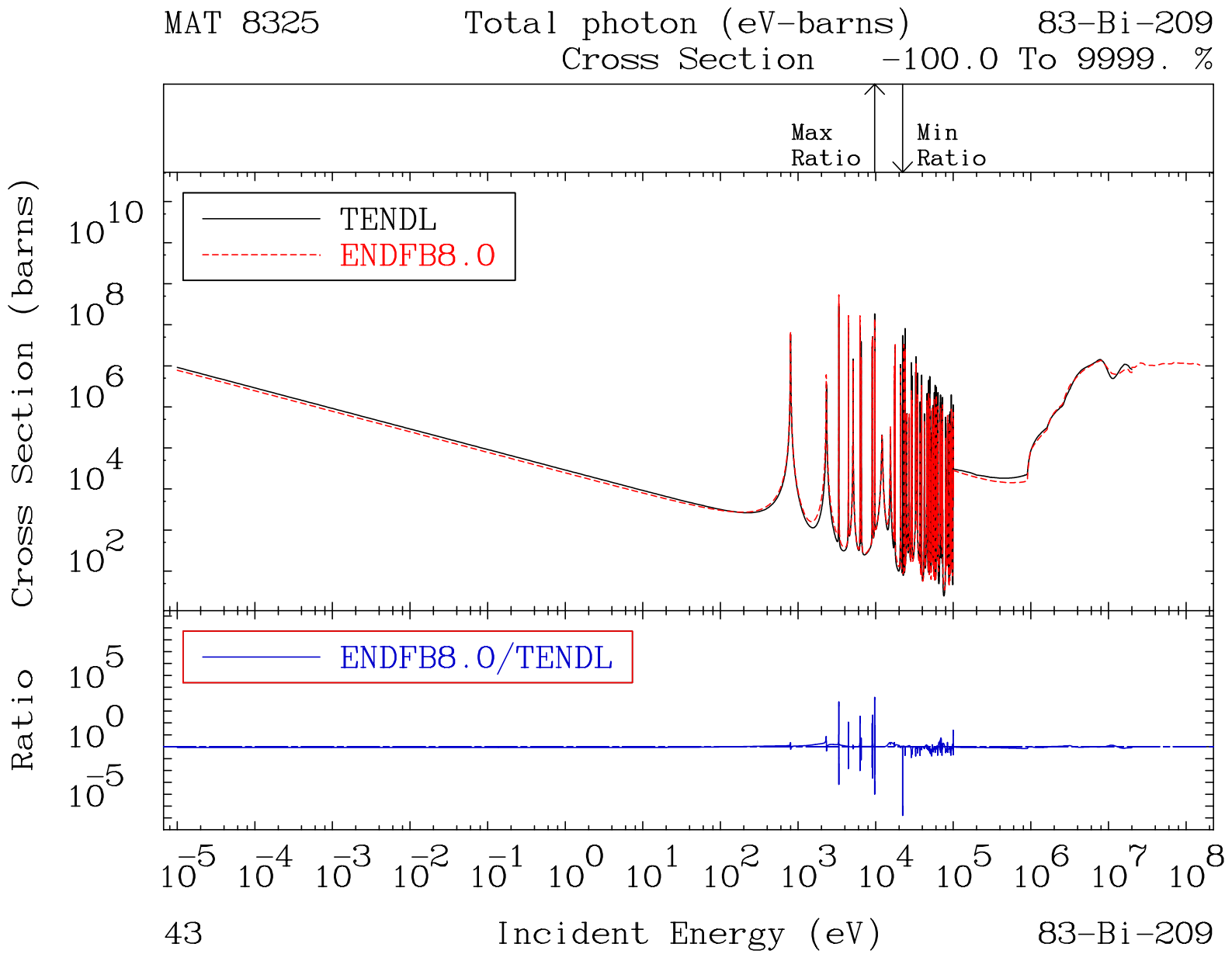

MAT 8325
Kerma elastic
Cross Section
83-Bi-209
-97.30 To 1911. %
Max
Ratio
Min
Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
38
83-Bi-209

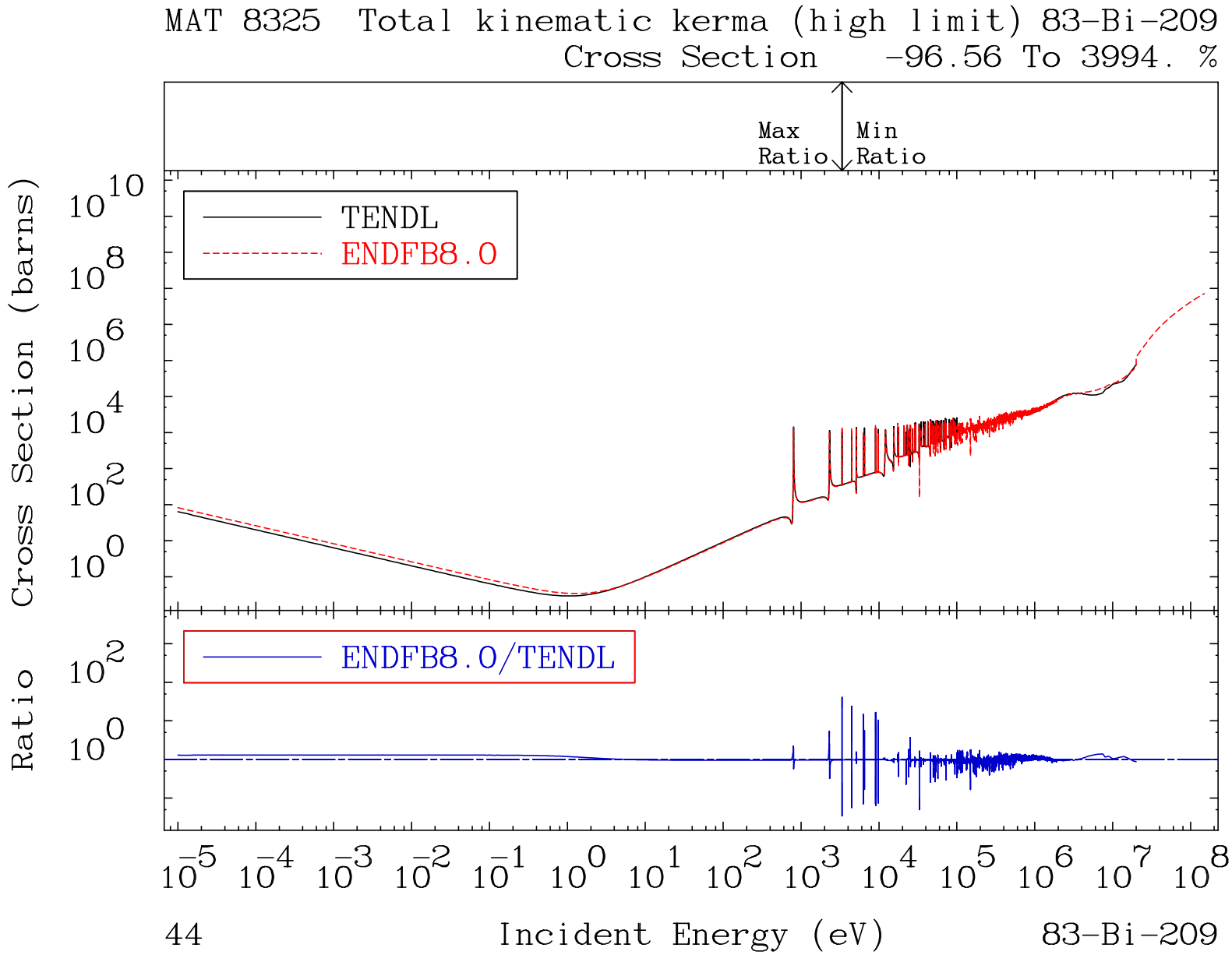

MAT 8325 Kerma non-elastic (all but mt2) 83-Bi-209
Cross Section -781.2 To 9999. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
39
83-Bi-209

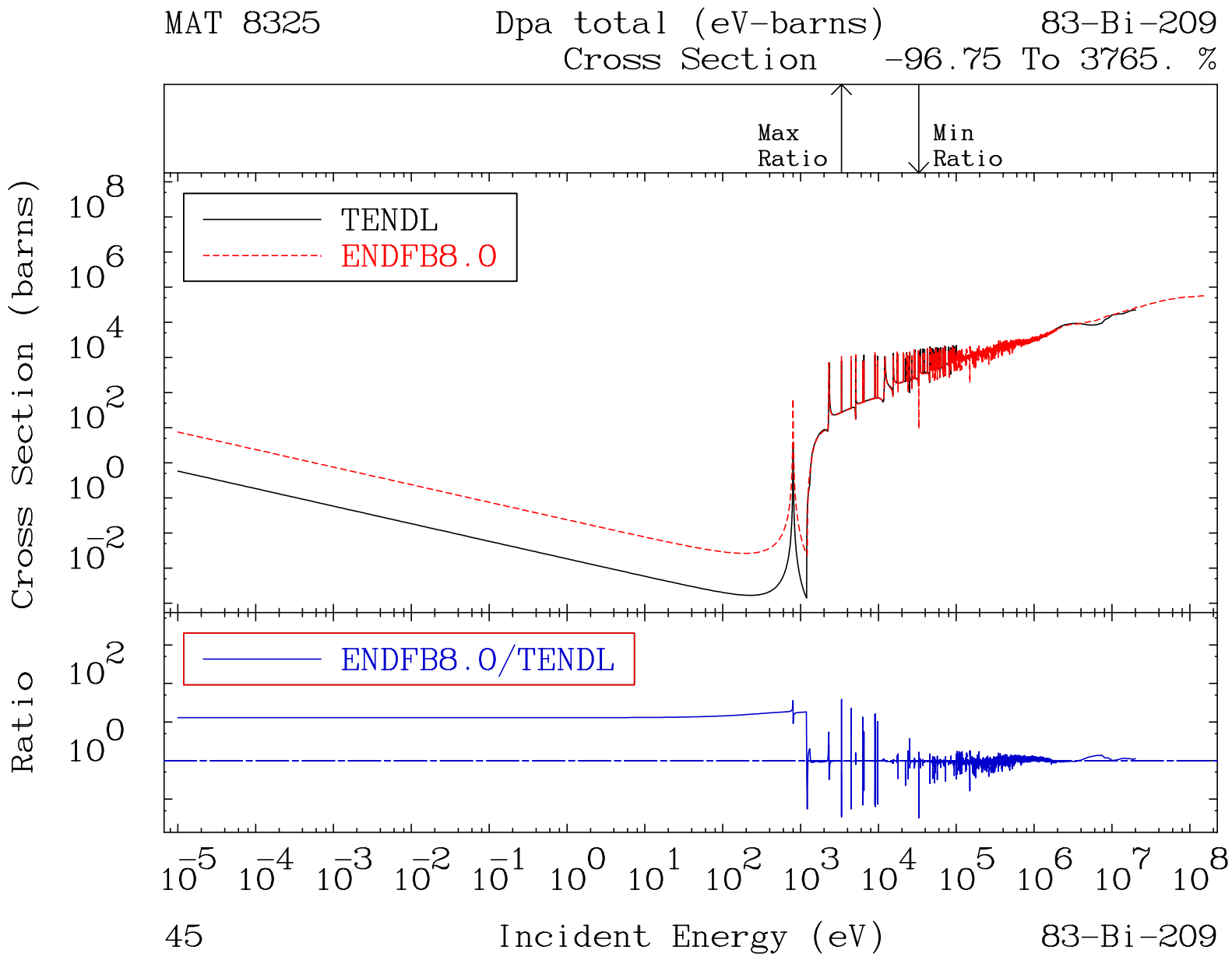

MAT 8325
Kerma inelastic (mt51-91)
83-Bi-209
Cross Section -9999. To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 900.61 keV
ENDFB8.0 Threshold 900.33 keV
ENDFB8.0/TENDL
Ratio Cross Section (Mega-barns)
16
12
8
4
0
0
-2
10^6
2
3
4
5
6
8
10^7
2
3
4
5
6
8
10^8
40
Incident Energy (eV)
83-Bi-209

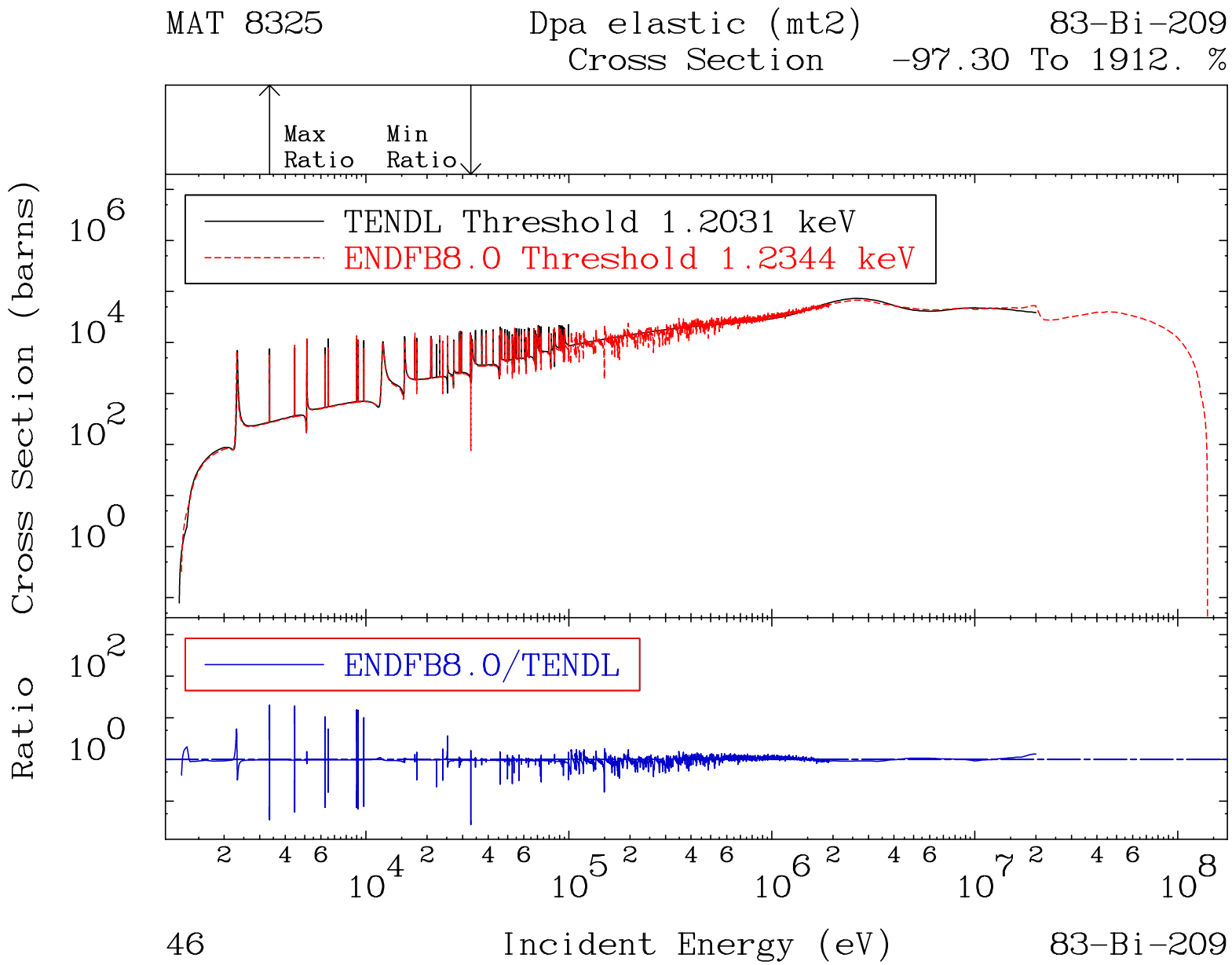

MAT 8325 Kerma fission (mt18 or mt19-20-21-38) 83-Bi-209
Cross Section -9999. To 9999. %
Min
Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
1.5
1.0
0.5
0.0
-0.5
-1.0
0
-2
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
41
Incident Energy (eV)
83-Bi-209

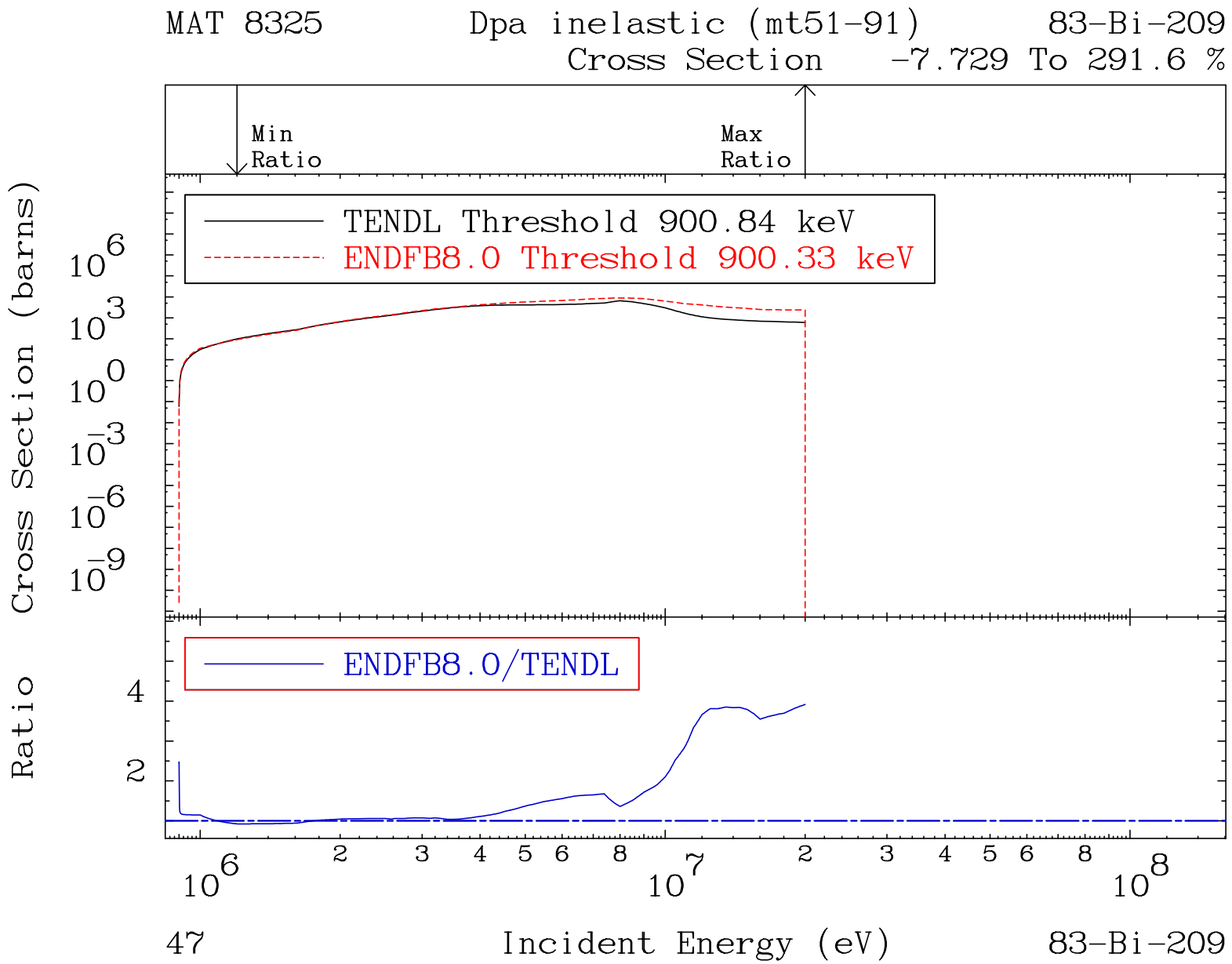

MAT 8325
Kerma capture (mt102)
83-Bi-209
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
42
83-Bi-209

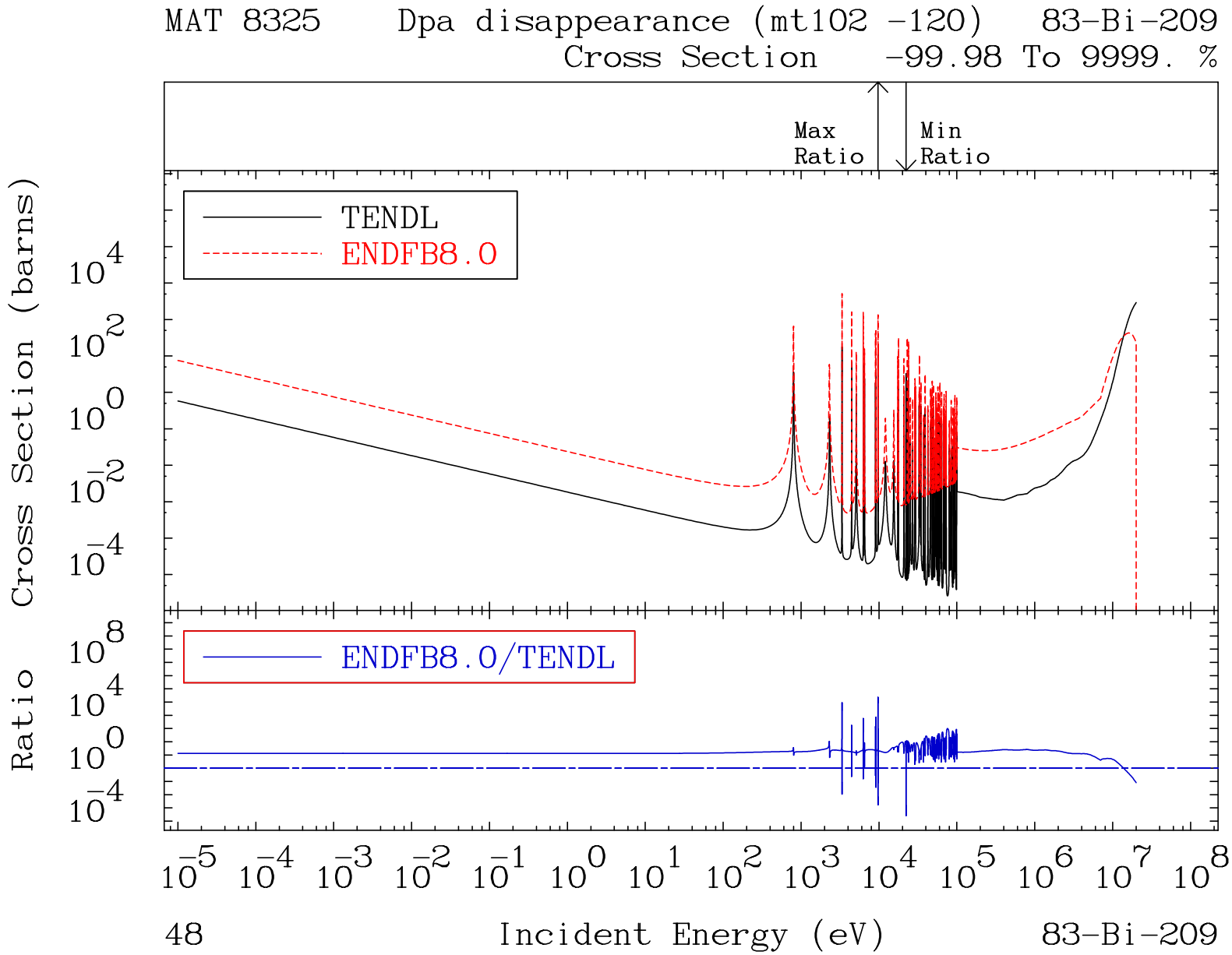

MAT 8325
Total photon (eV-barns)
83-Bi-209
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
43
83-Bi-209


MAT 8325 Total kinematic kerma (high limit) 83-Bi-209
Cross Section -96.56 To 3994. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
44
83-Bi-209


MAT 8325
Dpa total (eV-barns)
83-Bi-209
Cross Section -96.75 To 3765. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
45
83-Bi-209


MAT 8325
Dpa elastic (mt2)
Cross Section
83-Bi-209
-97.30 To 1912. %
Max Ratio
Min Ratio
TENDL Threshold 1.2031 keV
ENDFB8.0 Threshold 1.2344 keV
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
46
83-Bi-209


MAT 8325
Dpa inelastic (mt51-91)
83-Bi-209
Cross Section
-7.729 To 291.6 %
Min Ratio
Max Ratio
TENDL Threshold 900.84 keV
ENDFB8.0 Threshold 900.33 keV
Cross Section (barns)
ENDFB8.0/TENDL
Ratio
Incident Energy (eV)
47
83-Bi-209


MAT 8325 Dpa disappearance (mt102 -120) 83-Bi-209
Cross Section -99.98 To 9999. %
Max Ratio
Min Ratio
TENDL
ENDFB8.0
ENDFB8.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
48
83-Bi-209