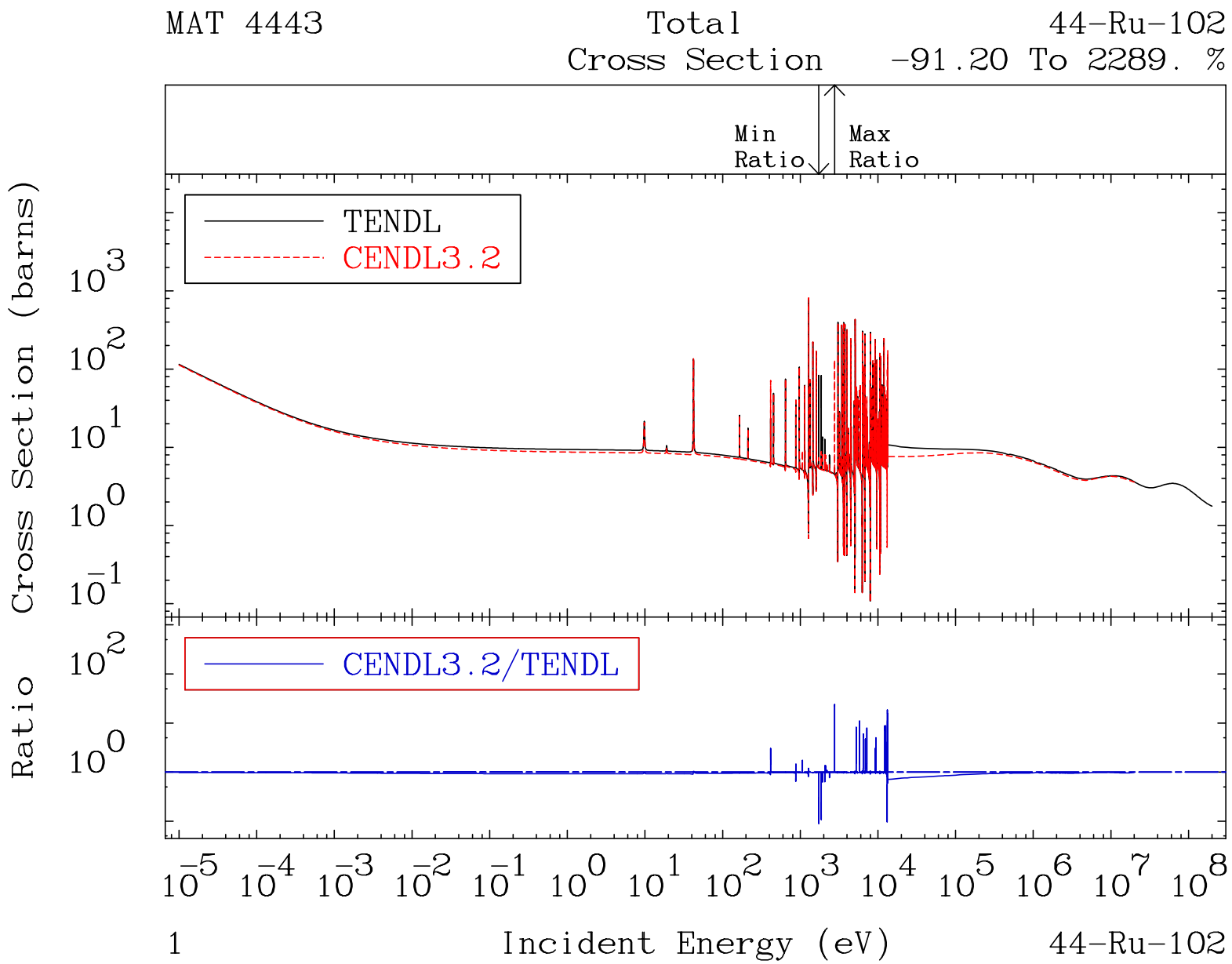
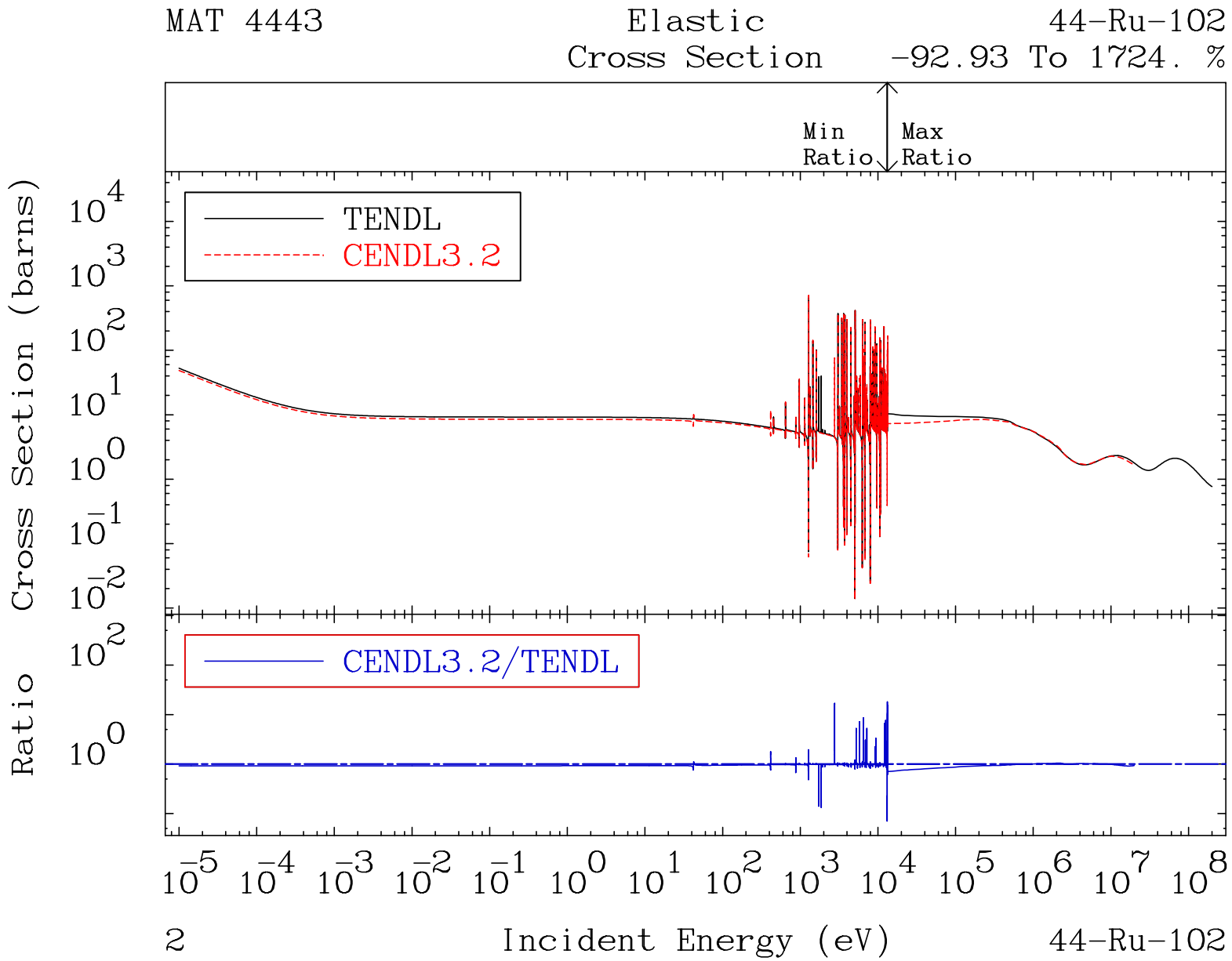
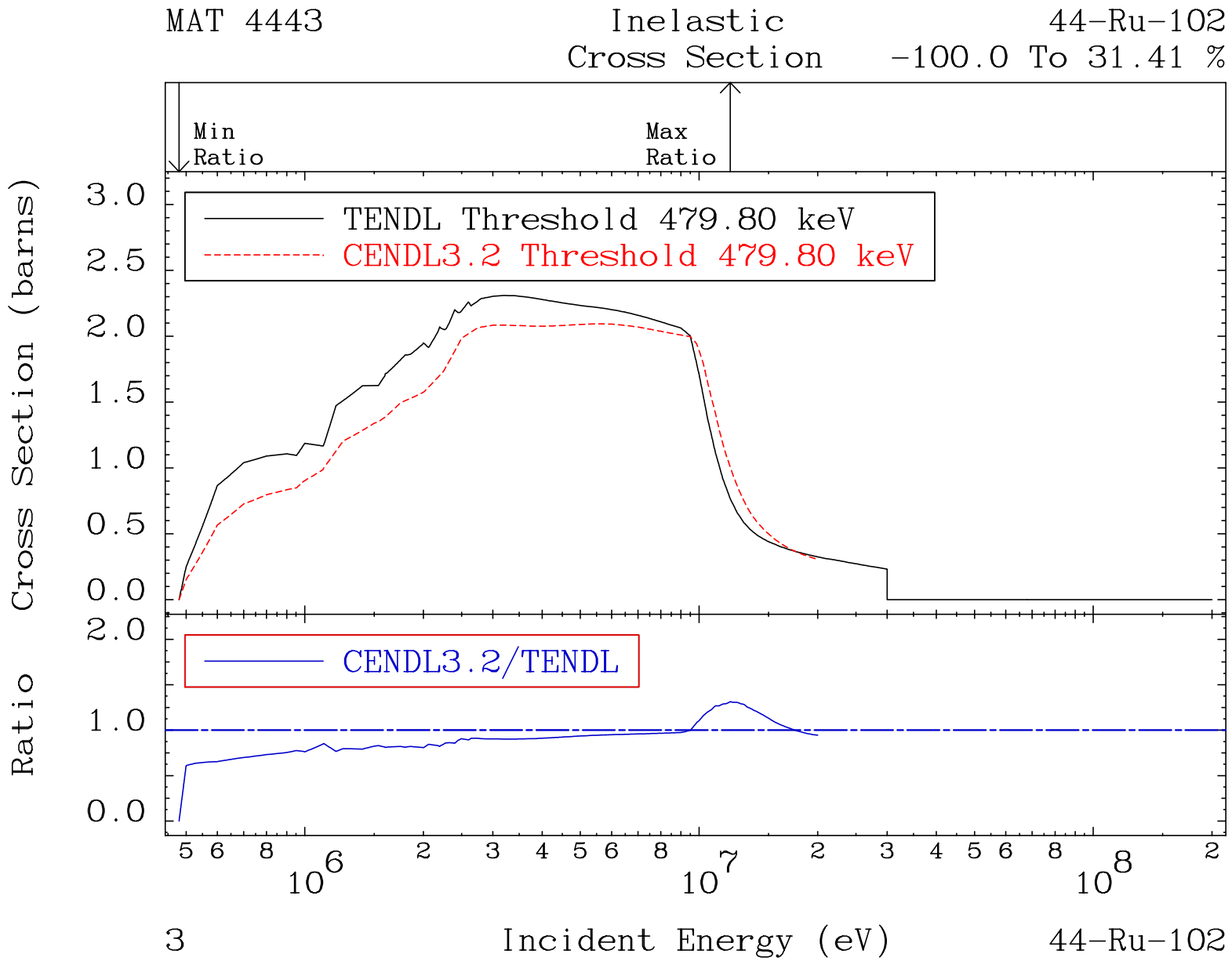
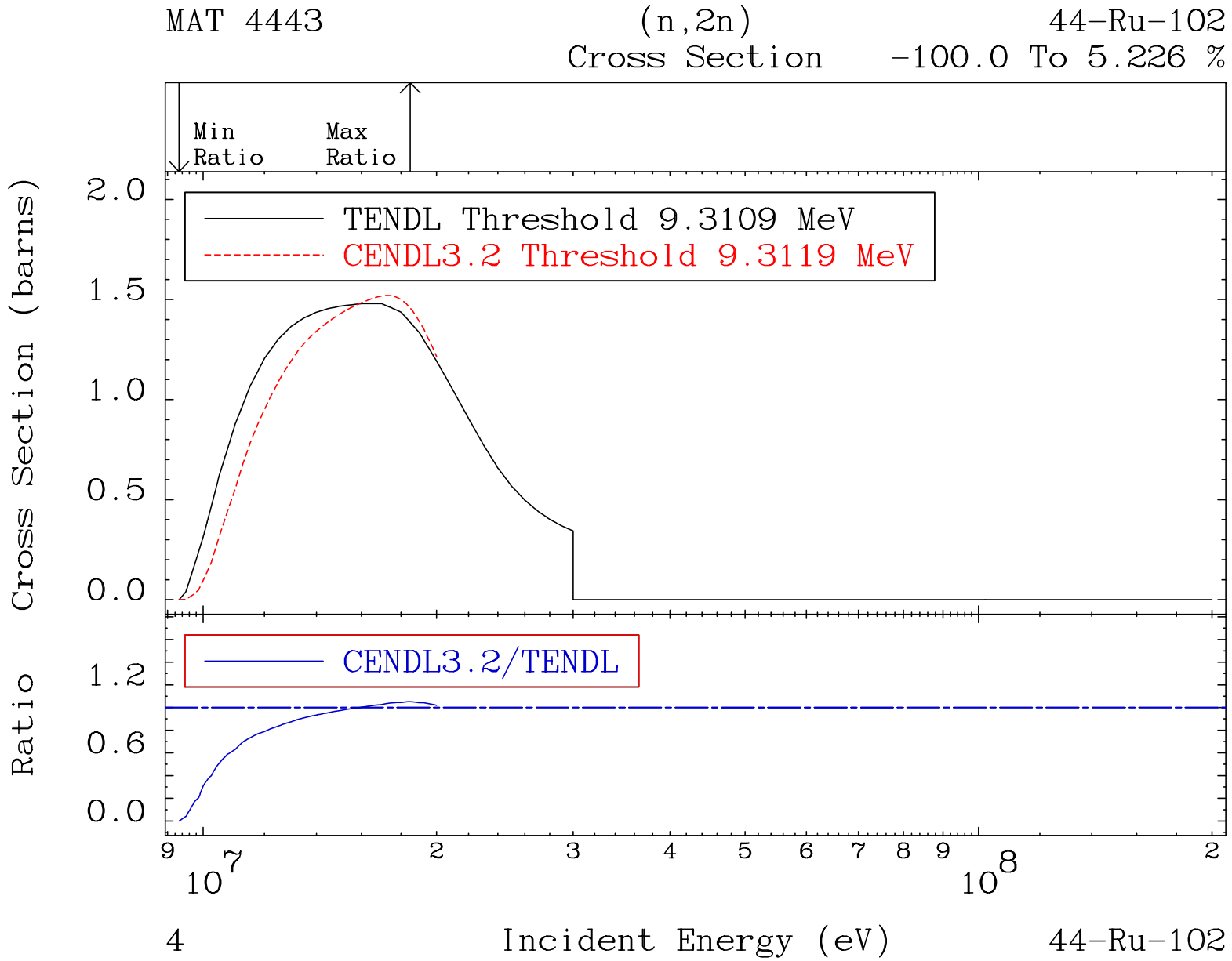
Program Complot
(Version 2021-1)
by
Dermott E. Cullen
(Present Contact Information)
Dermott E. Cullen
1466 Hudson Way
Livermore, CA 94550
U.S.A.
Tele: 925-443-1911
E.Mail:redcullen1@comcast.net
Web:redcullen1.net/HOMEPAGE.NEW

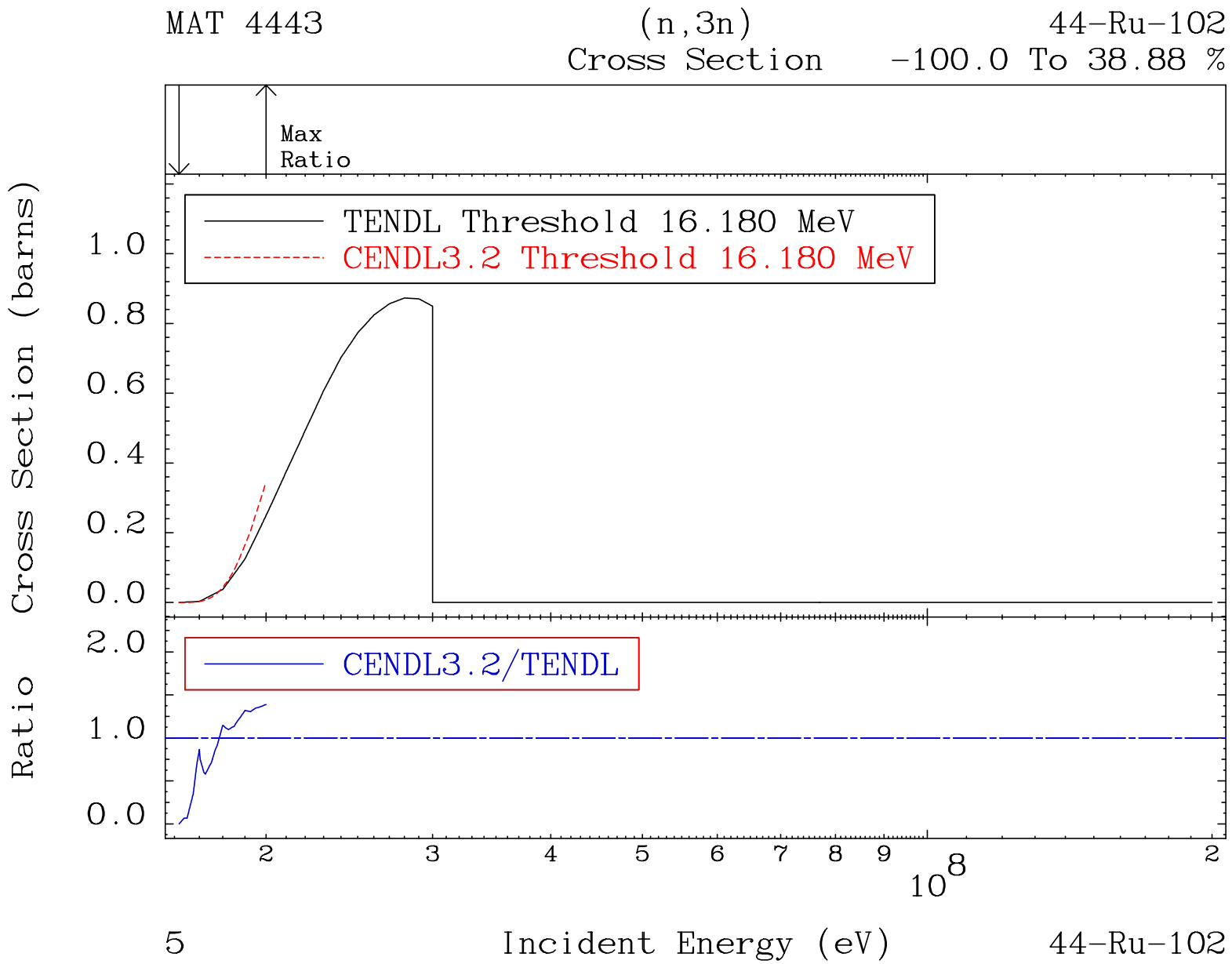
Press Mouse Button to Start

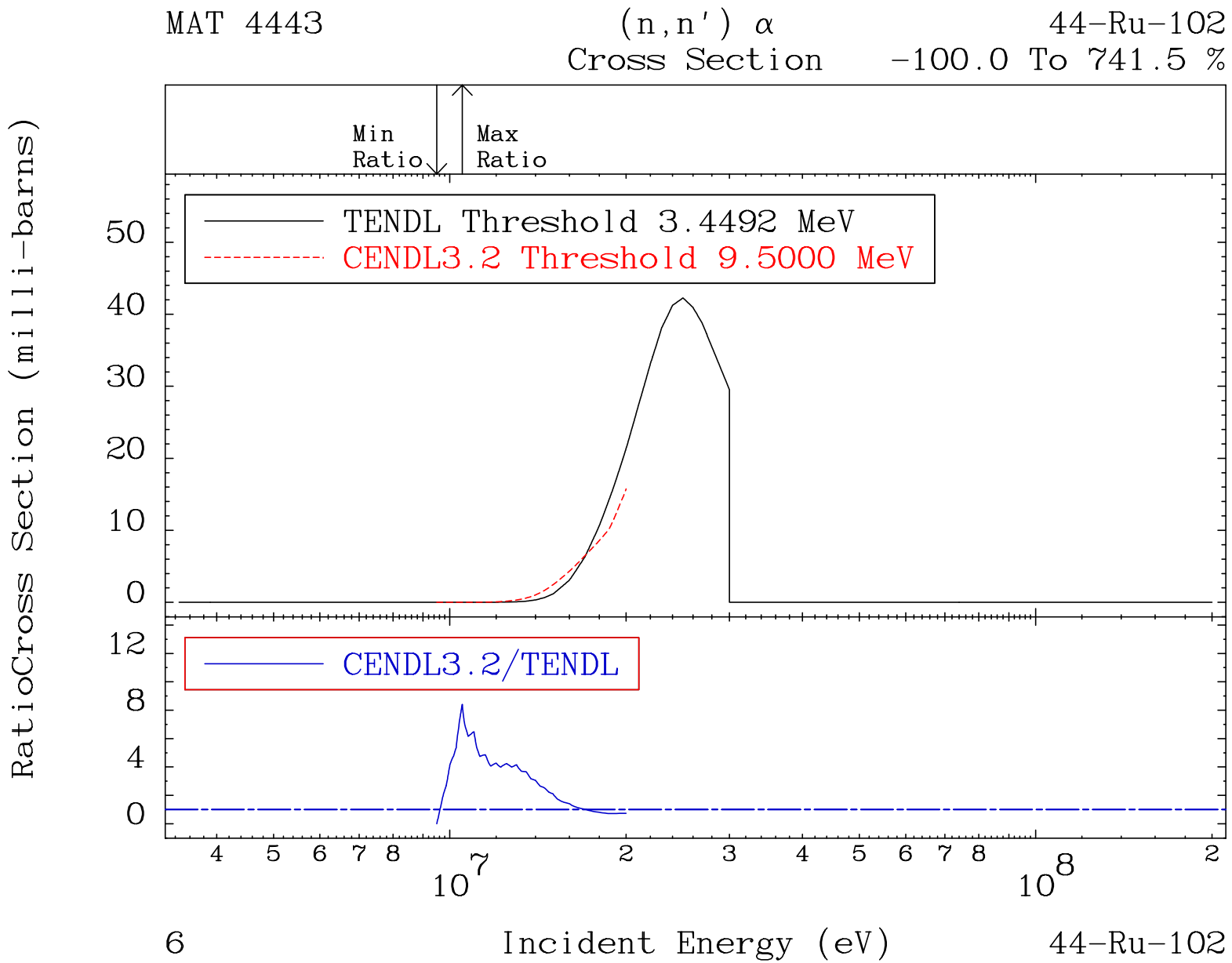

MAT 4443
Total
Cross Section
44-Ru-102
-91.20 To 2289. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
1
44-Ru-102

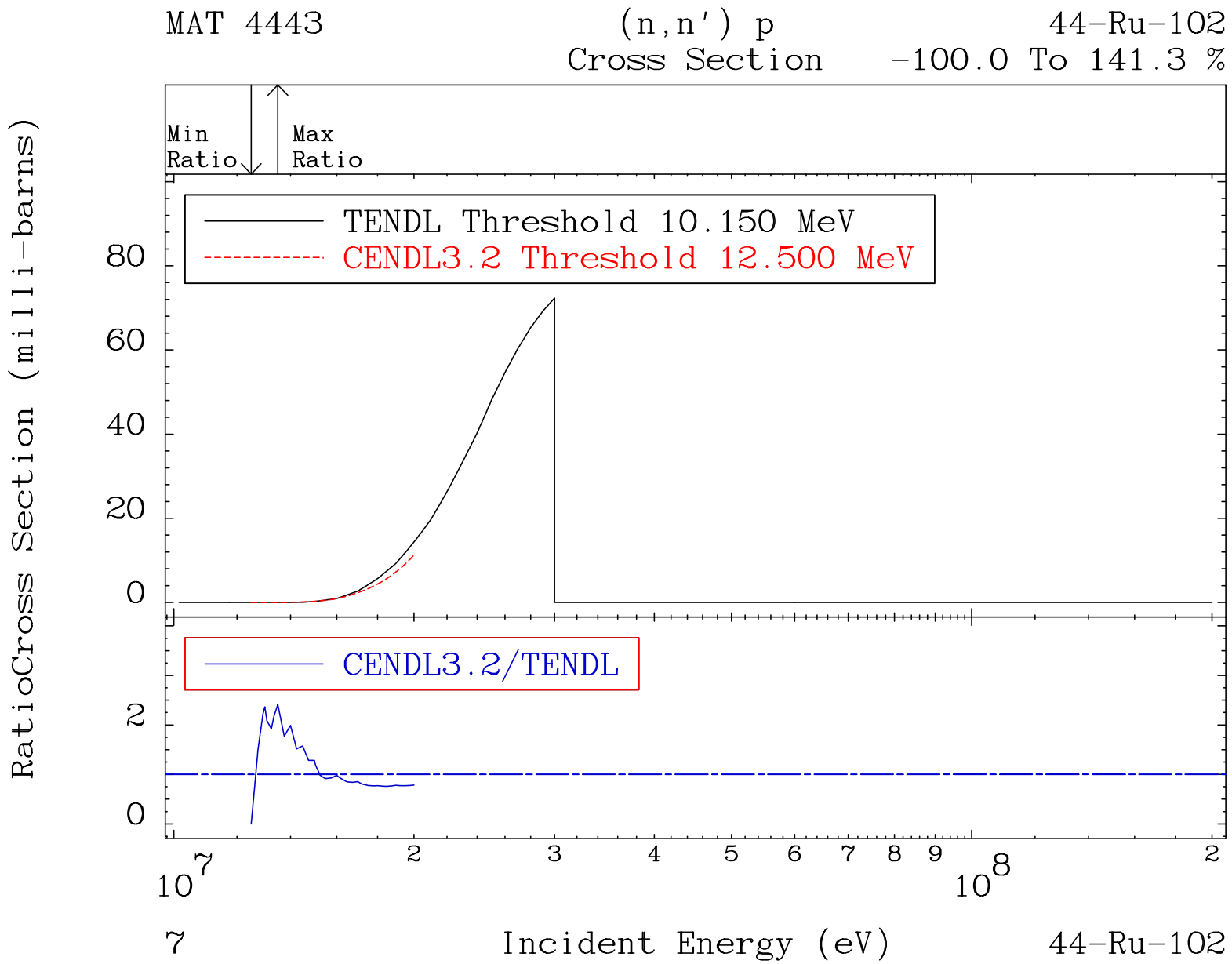

MAT 4443
Elastic
Cross Section
44-Ru-102
-92.93 To 1724. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
2
44-Ru-102

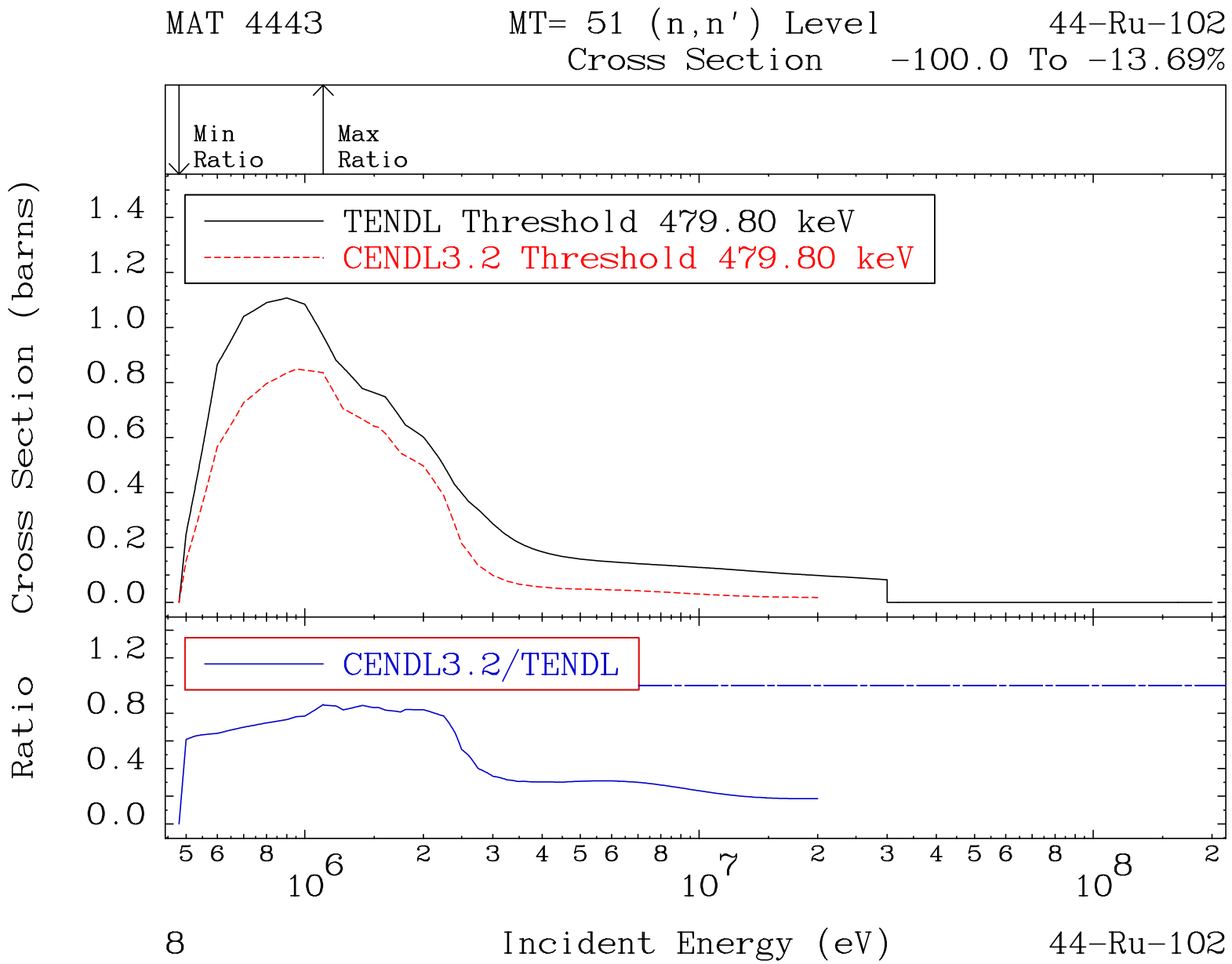

MAT 4443
Inelastic
Cross Section
44-Ru-102
-100.0 To 31.41 %
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
CENDL3.2 Threshold 479.80 keV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
3
44-Ru-102

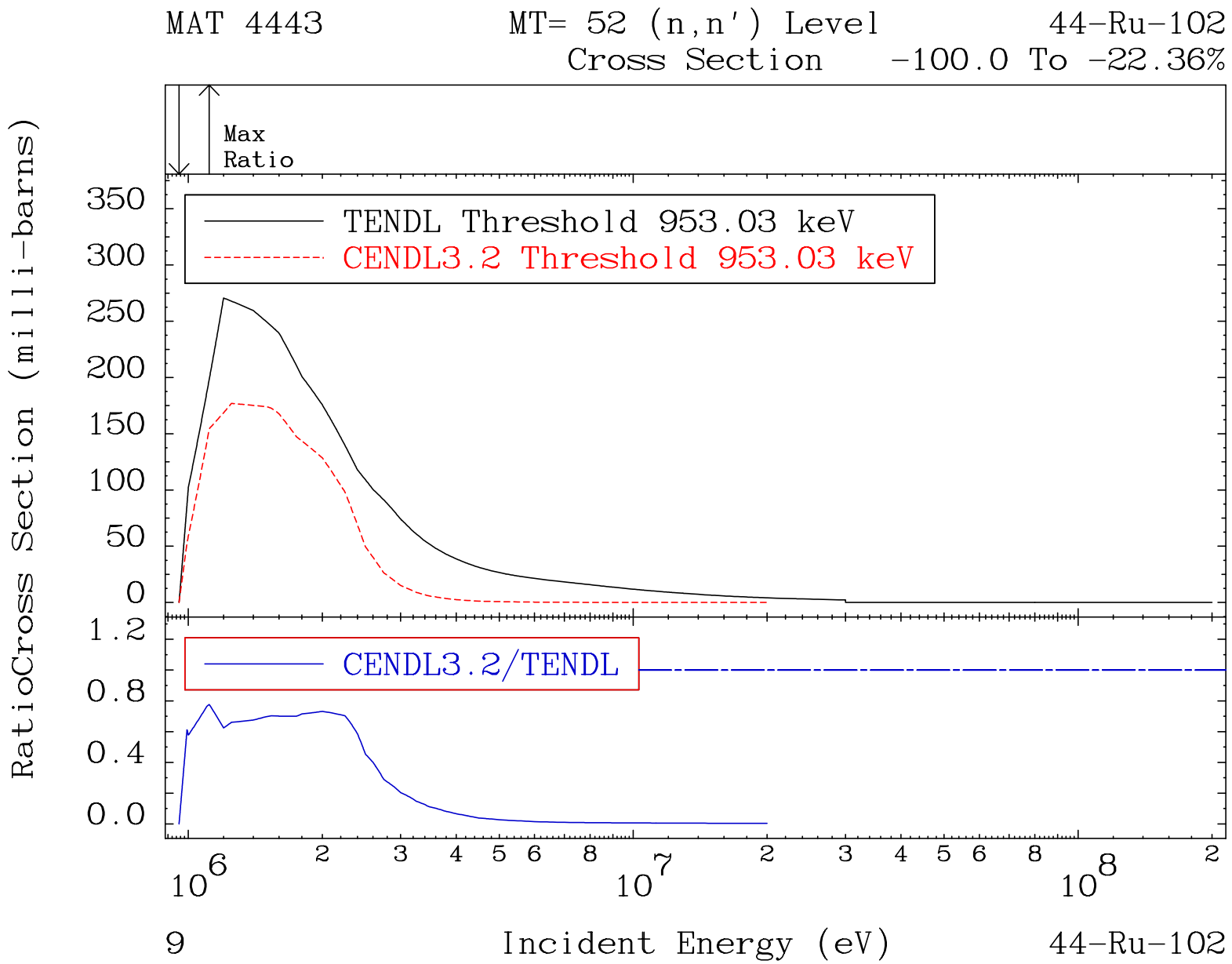

MAT 4443
(n,2n)
Cross Section
44-Ru-102
-100.0 To 5.226 %
Min Ratio
Max Ratio
TENDL Threshold 9.3109 MeV
CENDL3.2 Threshold 9.3119 MeV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
2.0
1.5
1.0
0.5
0.0
1.2
0.6
0.0
9
10^7
2
3
4
5
6
7
8
9
10^8
2
4
Incident Energy (eV)
44-Ru-102

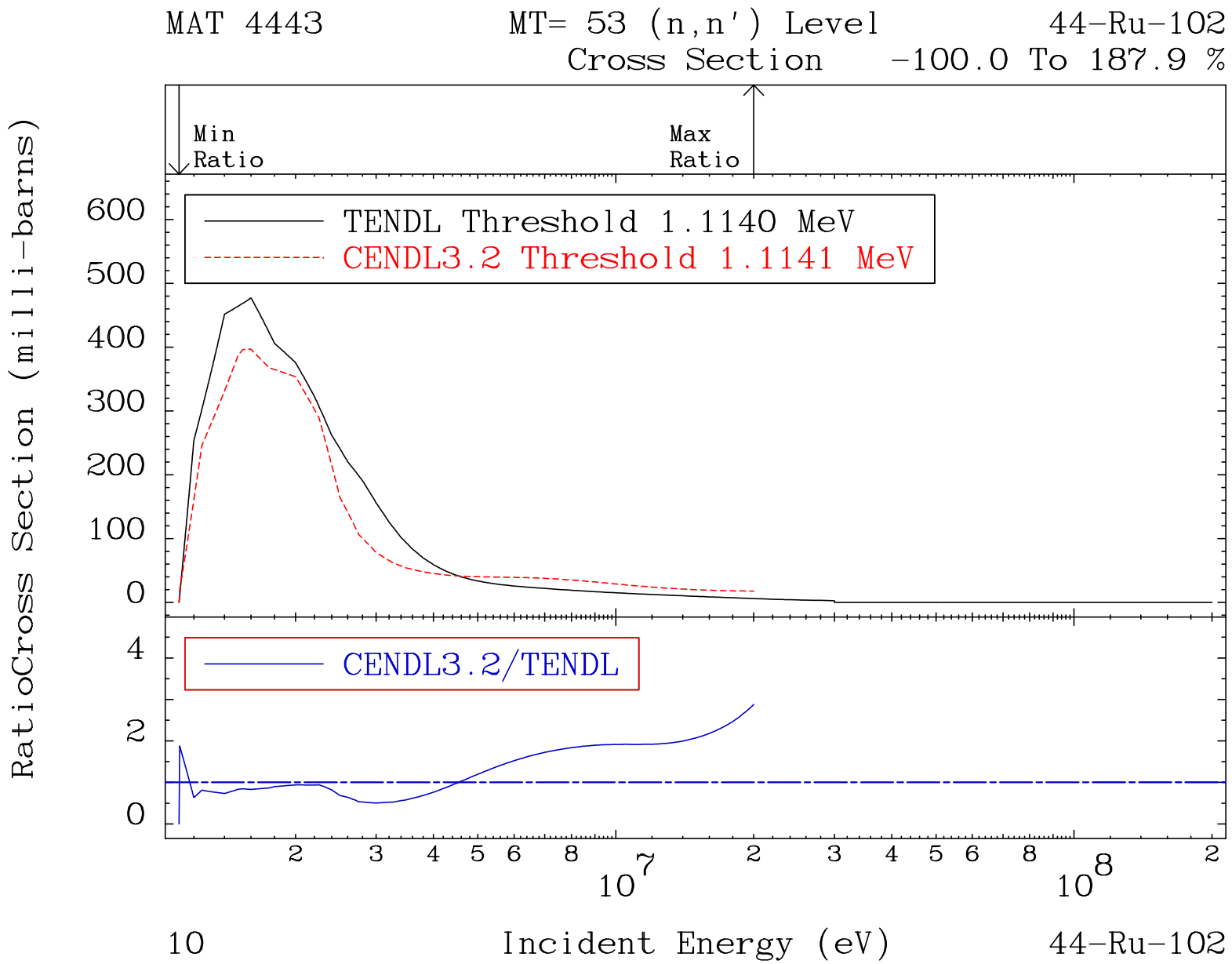

MAT 4443
(n,3n)
Cross Section
44-Ru-102
-100.0 To 38.88 %
Max
Ratio
TENDL Threshold 16.180 MeV
CENDL3.2 Threshold 16.180 MeV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
1.0
0.8
0.6
0.4
0.2
0.0
2.0
1.0
0.0
2
3
4
5
6
7
8
9
10^8
2
5
Incident Energy (eV)
44-Ru-102

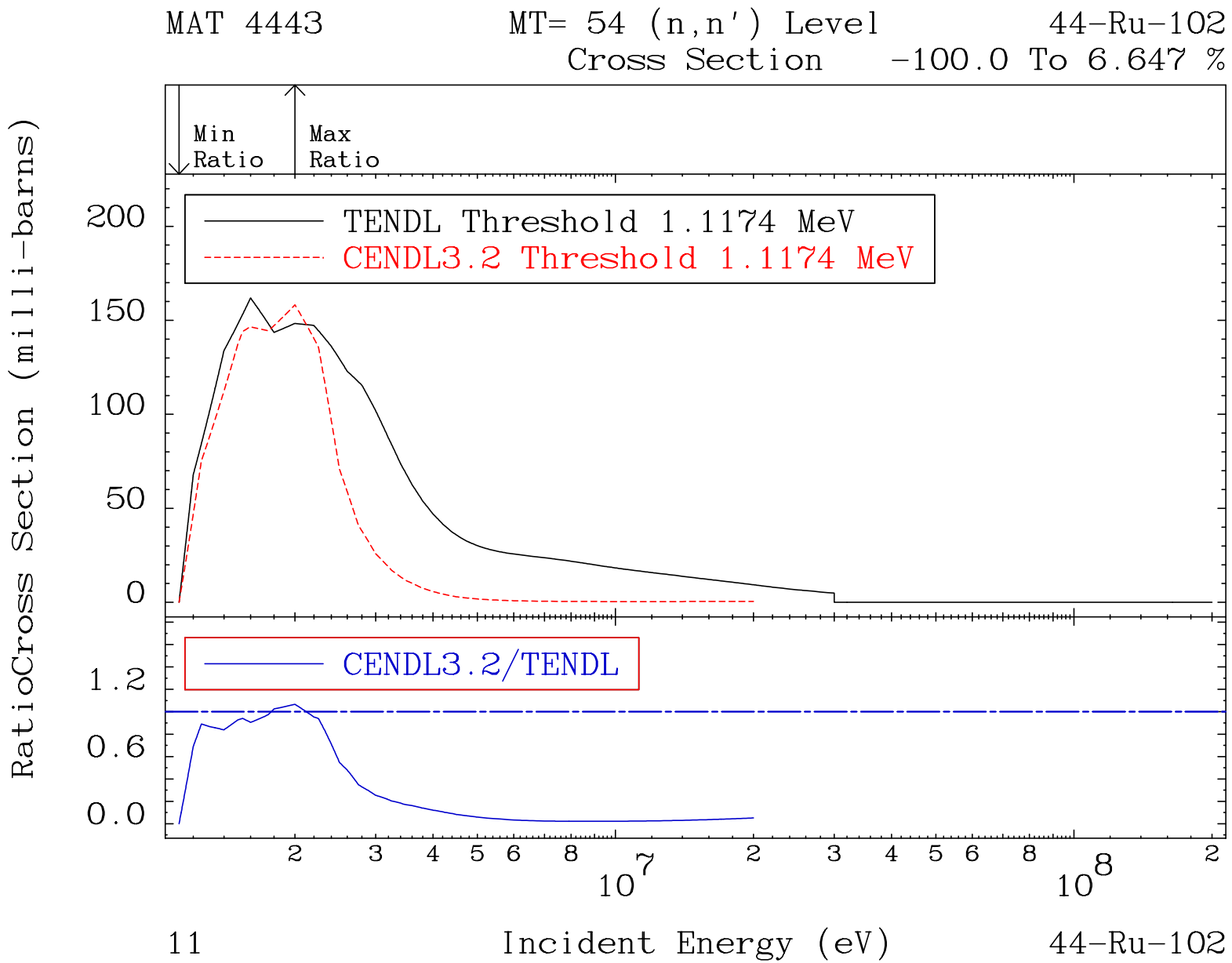

MAT 4443
(n,n') α
Cross Section
44-Ru-102
-100.0 To 741.5 %
Min Ratio
Max Ratio
TENDL Threshold 3.4492 MeV
CENDL3.2 Threshold 9.5000 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
50
40
30
20
10
0
12
8
4
0
4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
6
Incident Energy (eV)
44-Ru-102

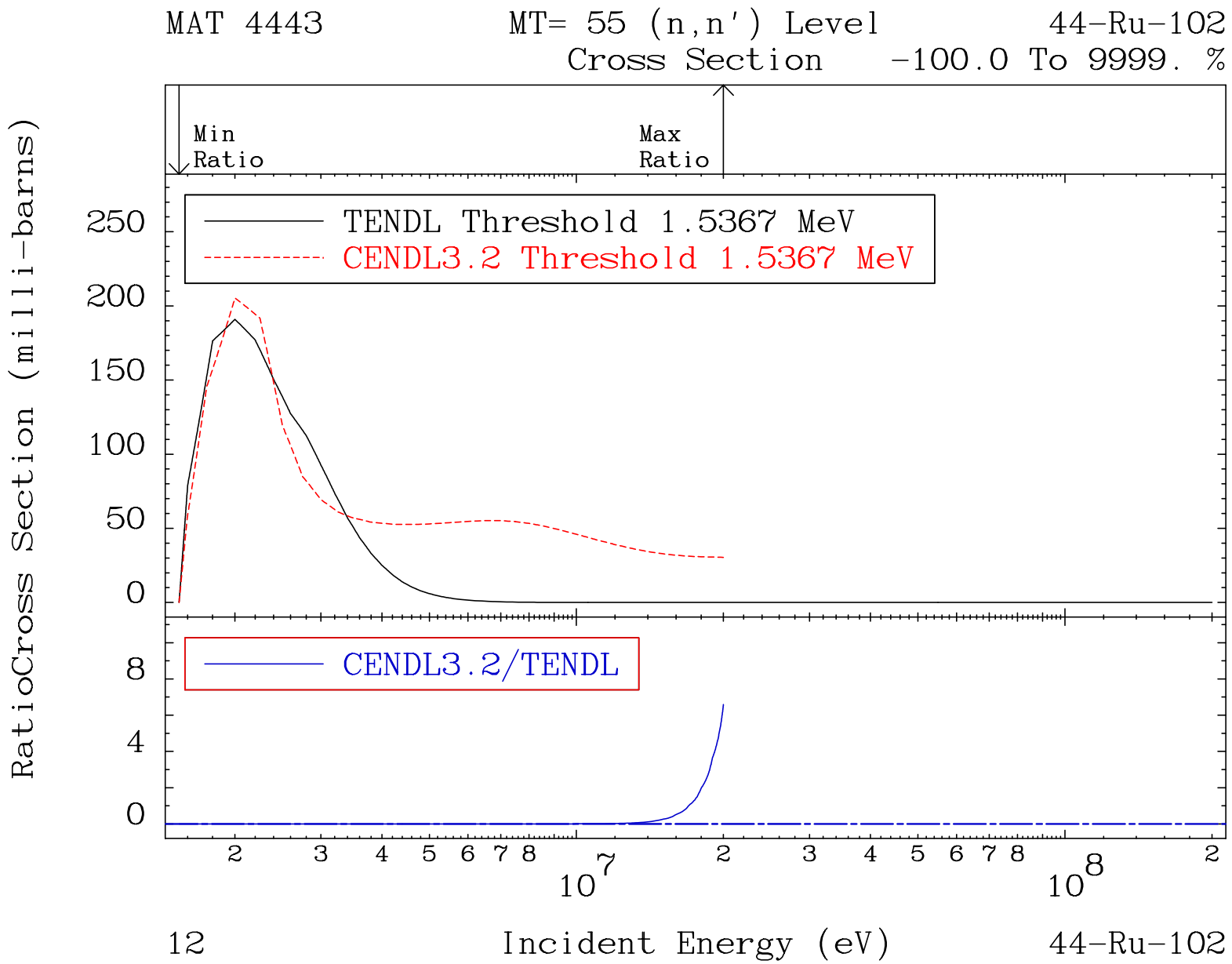

MAT 4443
(n,n') p
Cross Section
44-Ru-102
-100.0 To 141.3 %
Min Ratio
Max Ratio
TENDL Threshold 10.150 MeV
CENDL3.2 Threshold 12.500 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
80
60
40
20
0
2
0
10^7
2
3
4
5
6
7
8
9
10^8
2
7
Incident Energy (eV)
44-Ru-102

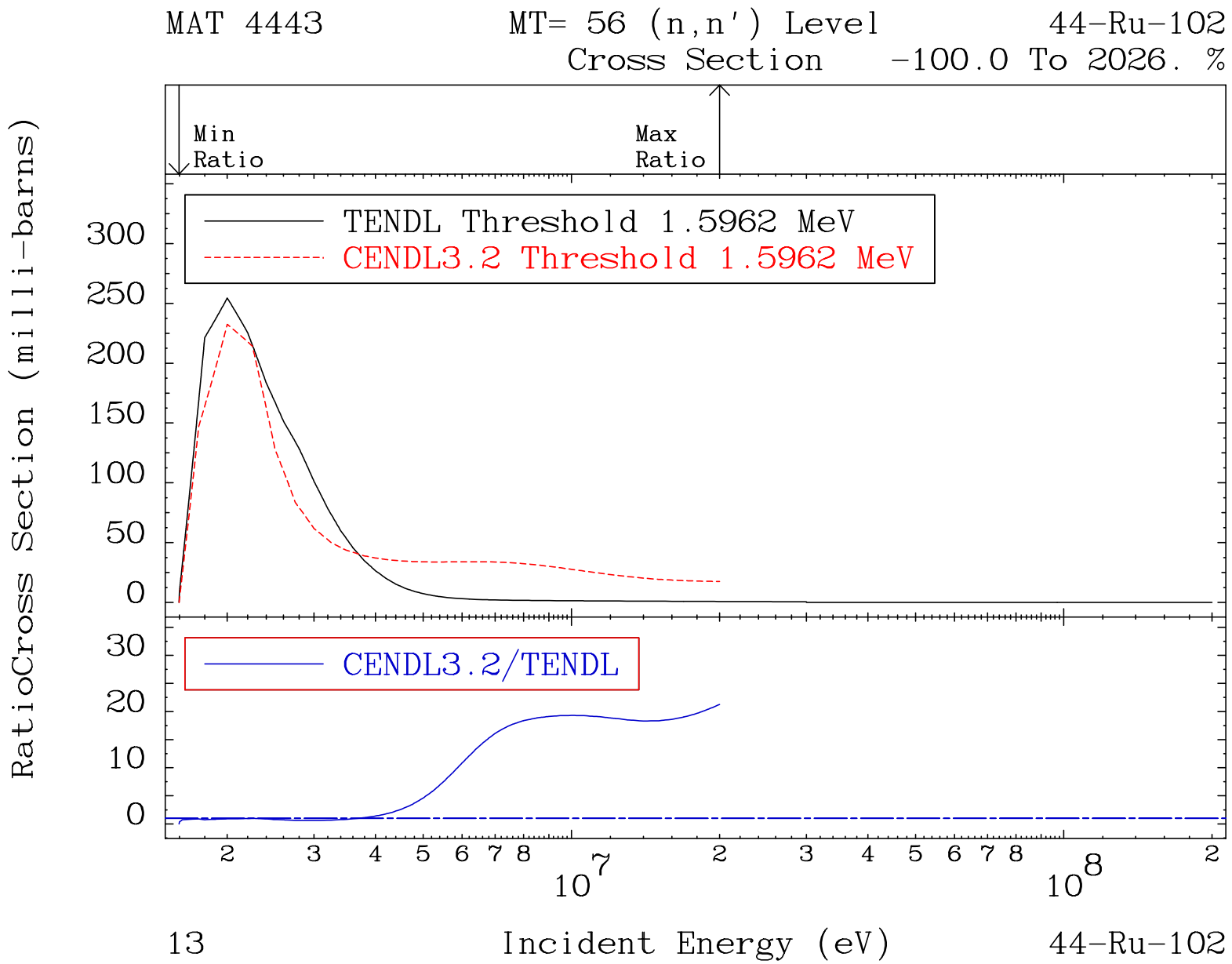

MAT 4443
MT= 51 (n,n') Level
44-Ru-102
Cross Section -100.0 To -13.69%
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
CENDL3.2 Threshold 479.80 keV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
44-Ru-102
8

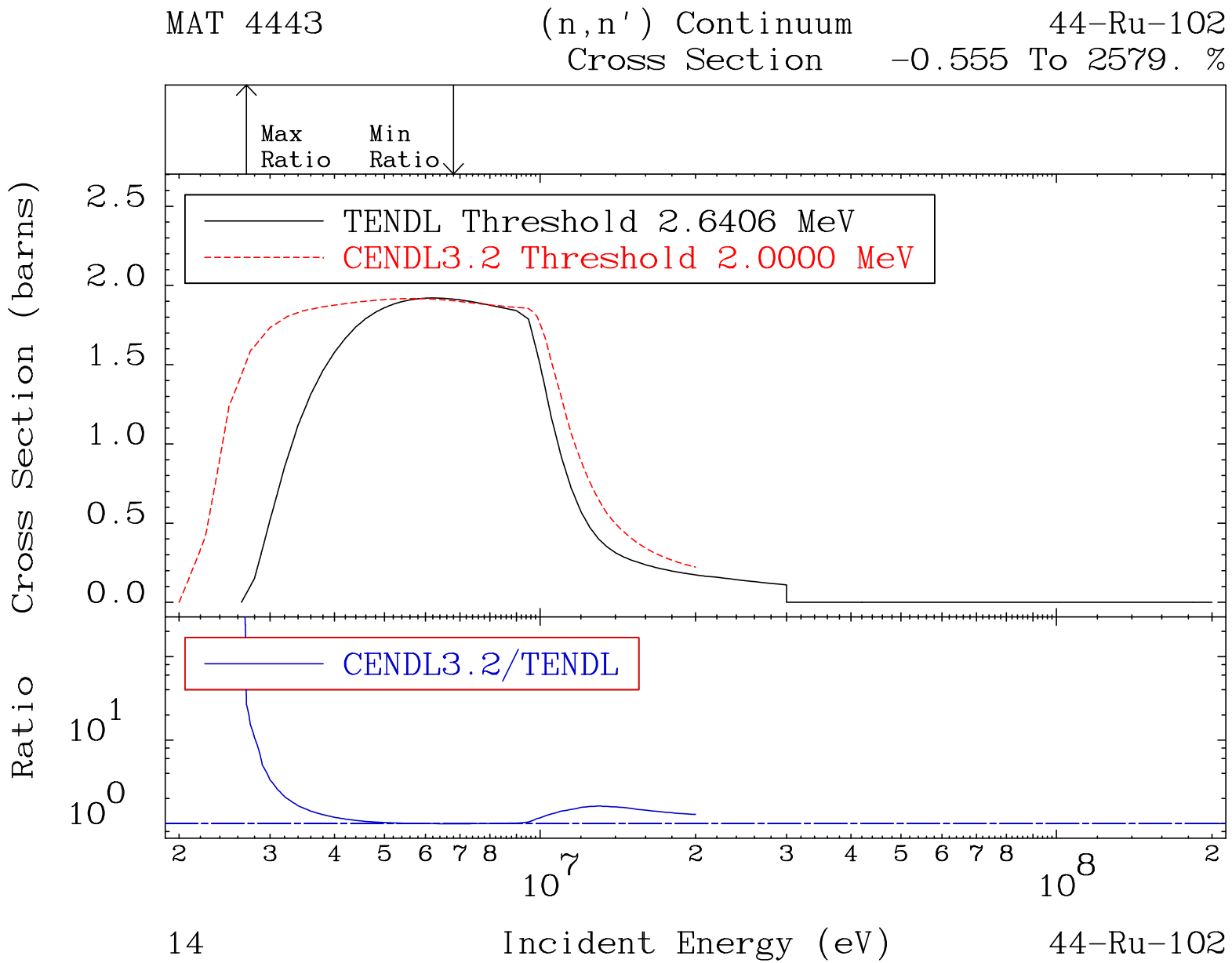

MAT 4443
MT= 52 (n,n') Level
Cross Section
44-Ru-102
-100.0 To -22.36%
Max
Ratio
TENDL Threshold 953.03 keV
CENDL3.2 Threshold 953.03 keV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
350
300
250
200
150
100
50
0
1.2
0.8
0.4
0.0
10^6
10^7
10^8
Incident Energy (eV)
9
44-Ru-102

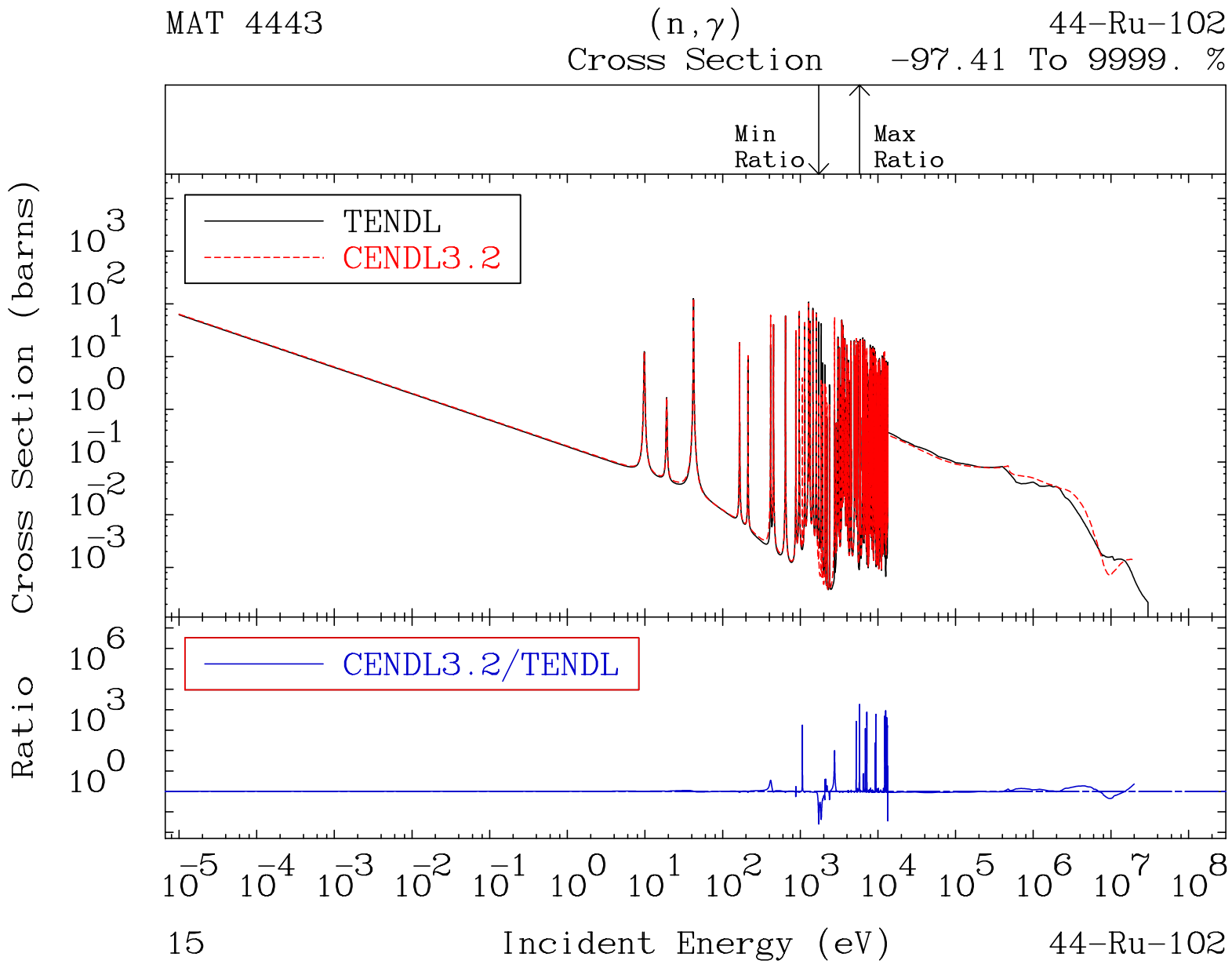

MAT 4443
MT= 53 (n,n') Level
44-Ru-102
Cross Section
-100.0 To 187.9 %
Min Ratio
Max Ratio
TENDL Threshold 1.1140 MeV
CENDL3.2 Threshold 1.1141 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
600
500
400
300
200
100
0
4
2
0
2 3 4 5 6 8 10^7 2 3 4 5 6 8 10^8 2
10
Incident Energy (eV)
44-Ru-102

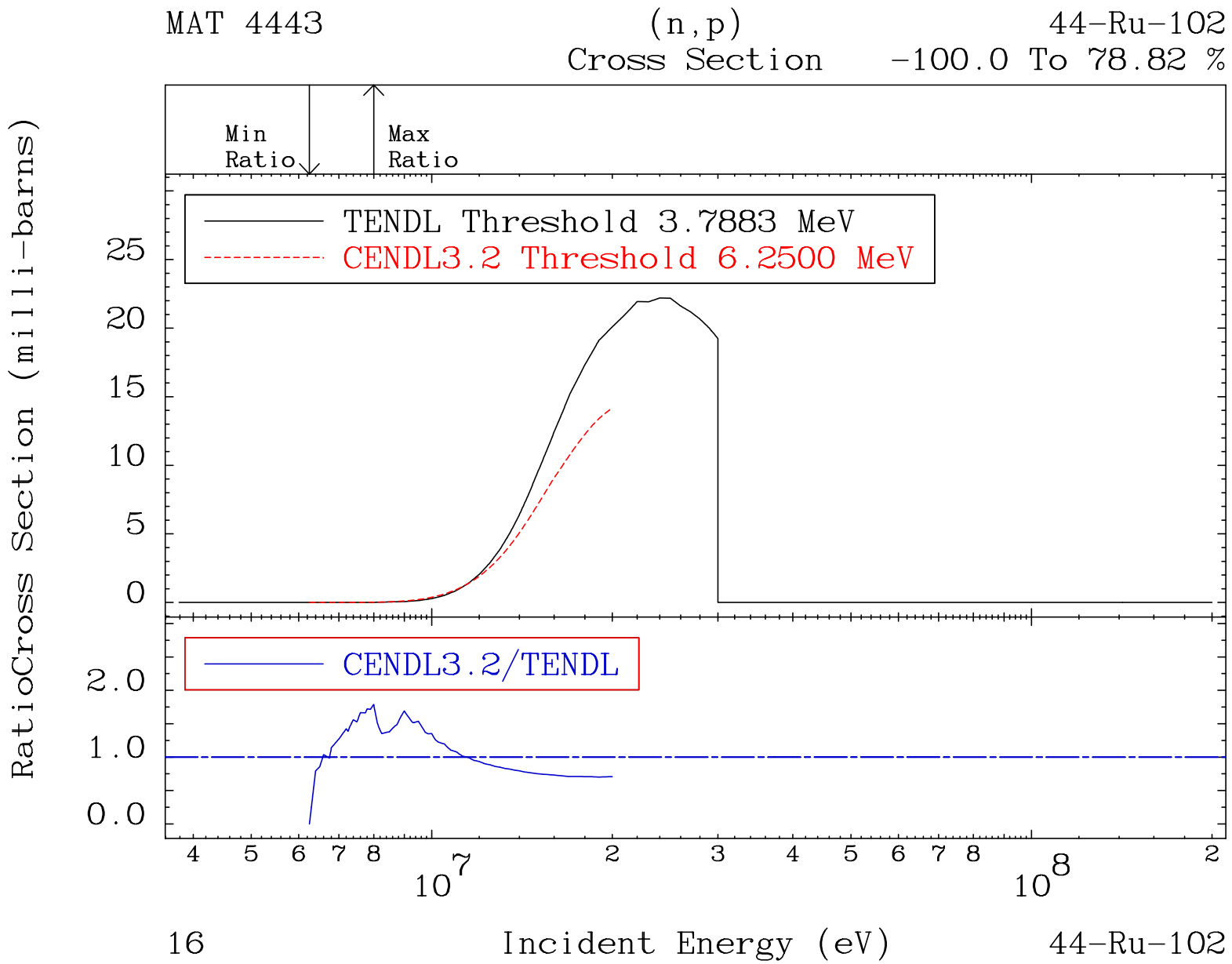

MAT 4443
MT= 54 (n,n') Level
44-Ru-102
Cross Section
-100.0 To 6.647 %
Min Ratio
Max Ratio
TENDL Threshold 1.1174 MeV
CENDL3.2 Threshold 1.1174 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
200
150
100
50
0
1.2
0.6
0.0
2 3 4 5 6 8 10^7 2 3 4 5 6 8 10^8 2
11
Incident Energy (eV)
44-Ru-102

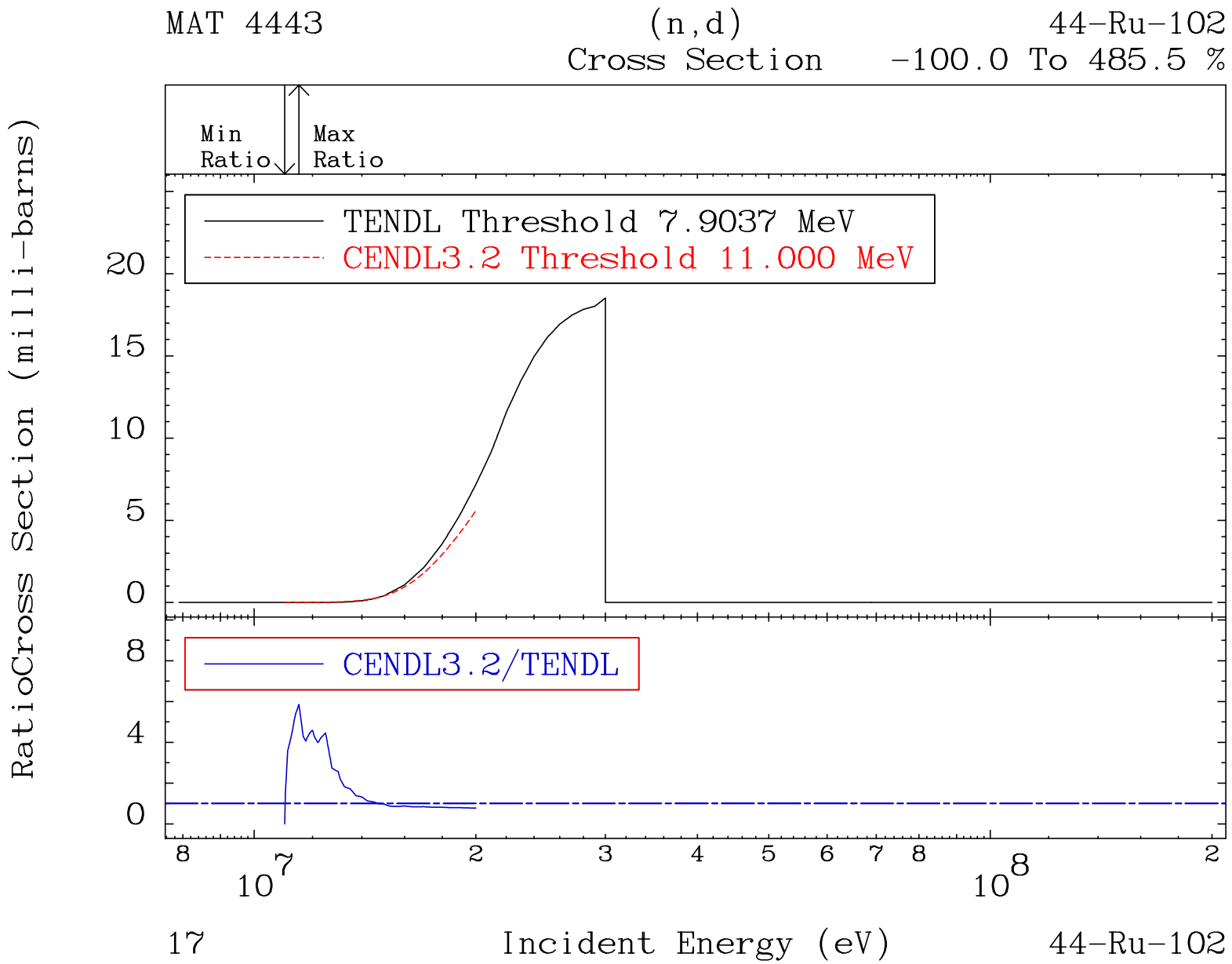

MAT 4443
MT= 55 (n,n') Level
Cross Section
44-Ru-102
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 1.5367 MeV
CENDL3.2 Threshold 1.5367 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
250
200
150
100
50
0
8
4
0
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
12
Incident Energy (eV)
44-Ru-102

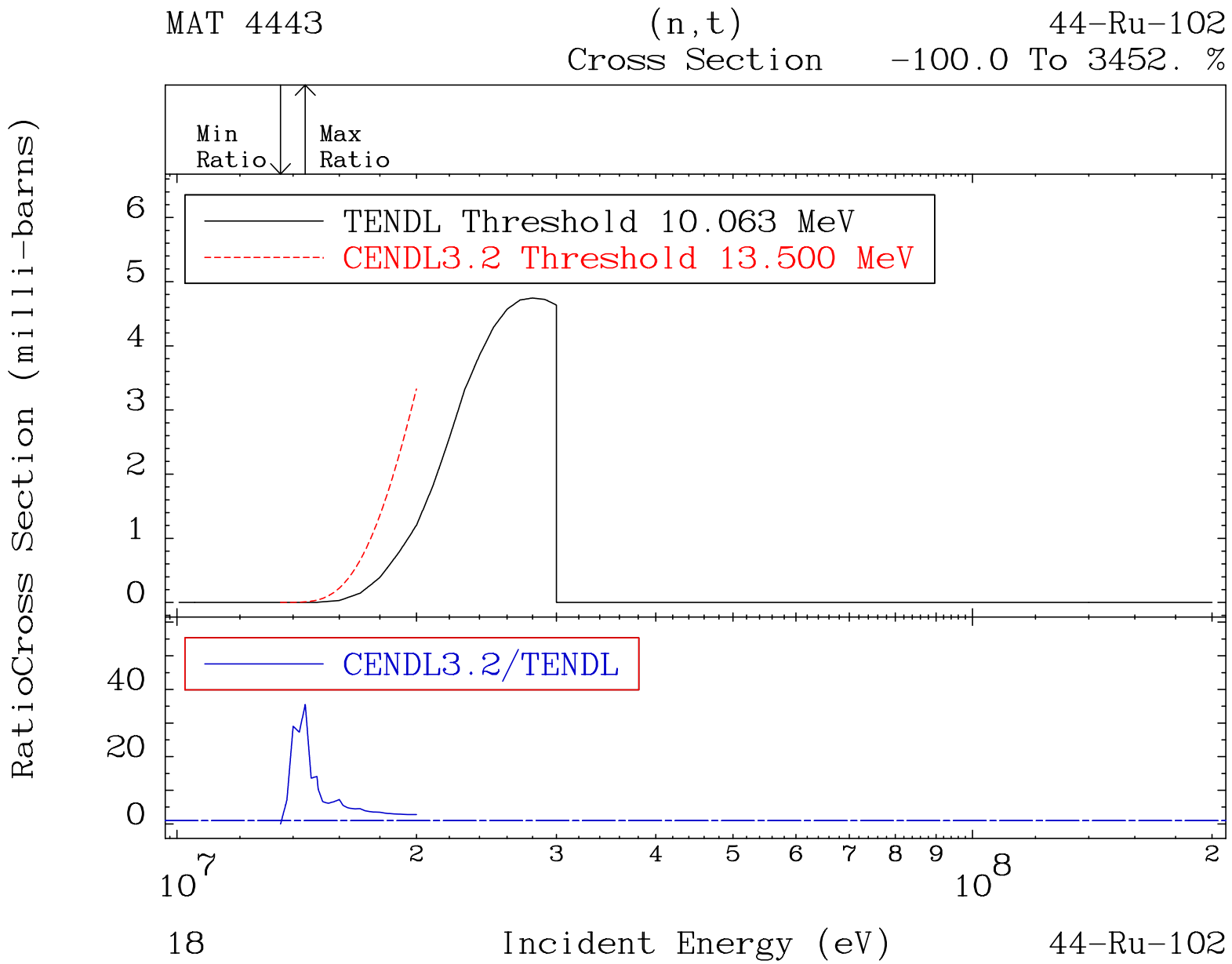

MAT 4443
MT= 56 (n,n') Level
44-Ru-102
Cross Section -100.0 To 2026. %
Min Ratio
Max Ratio
TENDL Threshold 1.5962 MeV
CENDL3.2 Threshold 1.5962 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
300
250
200
150
100
50
0
30
20
10
0
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
13
Incident Energy (eV)
44-Ru-102

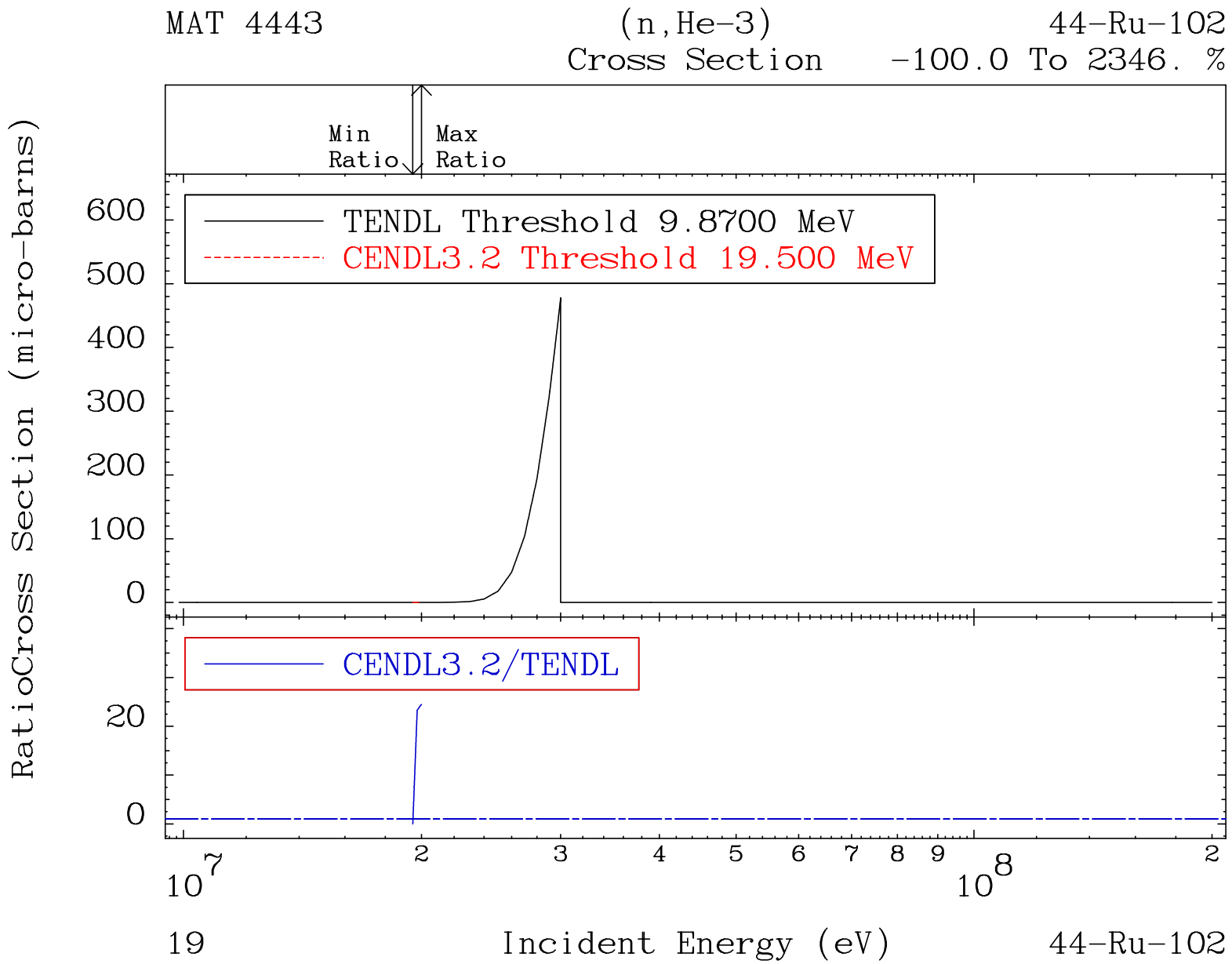

MAT 4443
(n,n') Continuum
Cross Section
44-Ru-102
-0.555 To 2579. %
Max Ratio
Min Ratio
TENDL Threshold 2.6406 MeV
CENDL3.2 Threshold 2.0000 MeV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
2.5
2.0
1.5
1.0
0.5
0.0
10^1
10^0
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
14
Incident Energy (eV)
44-Ru-102

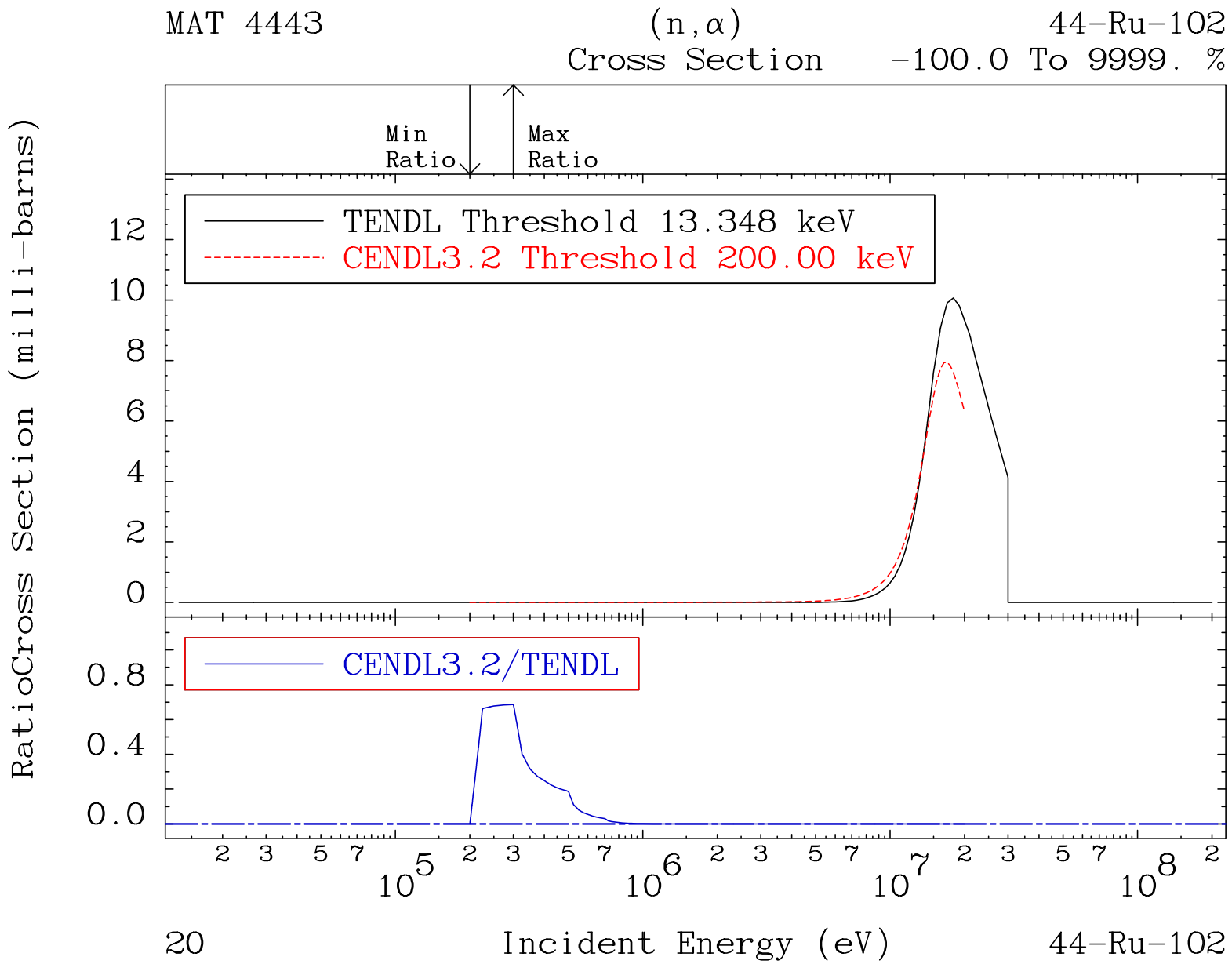

MAT 4443
(n,γ)
Cross Section
44-Ru-102
-97.41 To 9999. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
Cross Section (barns)
CENDL3.2/TENDL
Ratio
Incident Energy (eV)
15
44-Ru-102

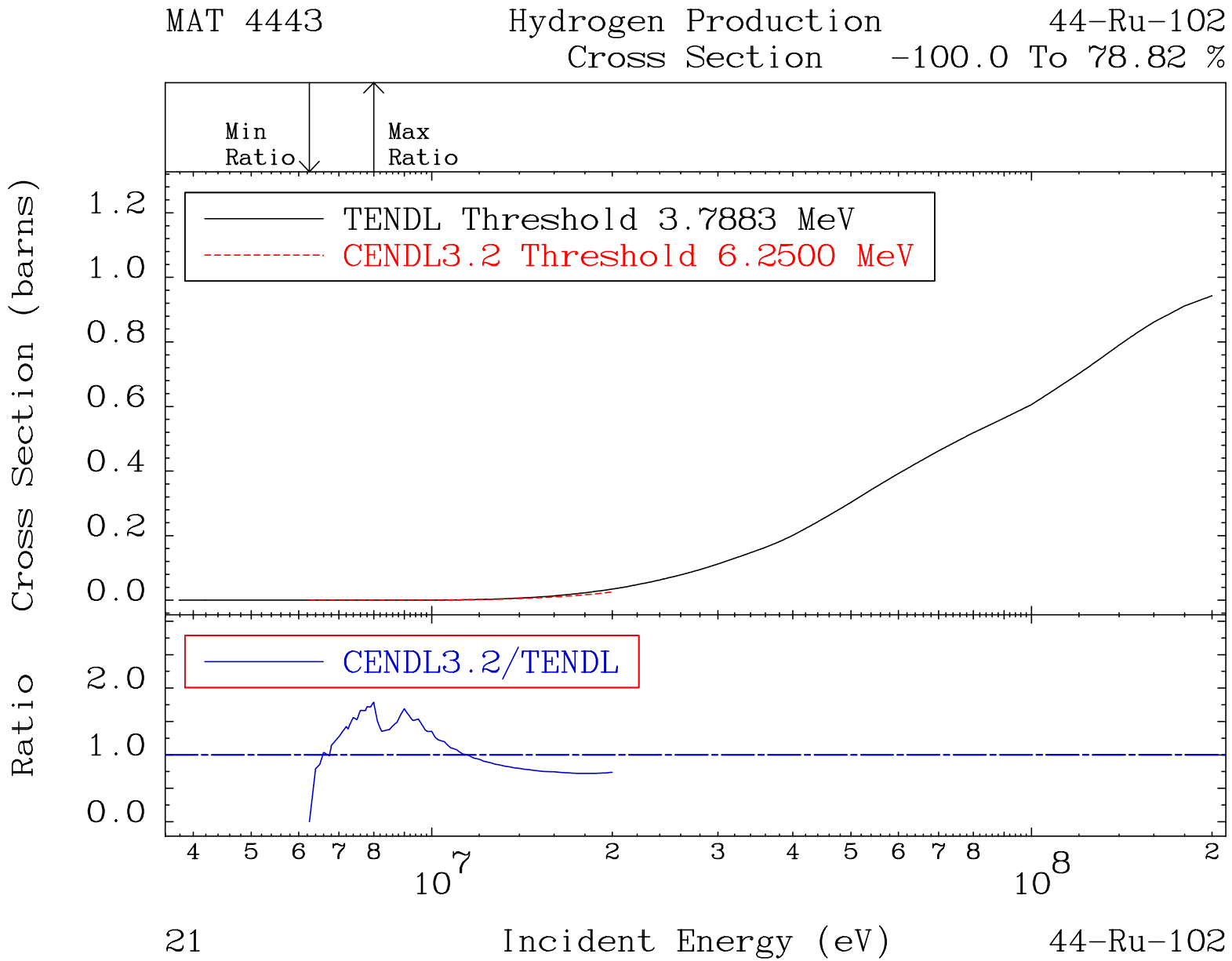

MAT 4443
(n,p)
44-Ru-102
Cross Section
-100.0 To 78.82 %
Min Ratio
Max Ratio
TENDL Threshold 3.7883 MeV
CENDL3.2 Threshold 6.2500 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
25
20
15
10
5
0
2.0
1.0
0.0
4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
16
Incident Energy (eV)
44-Ru-102

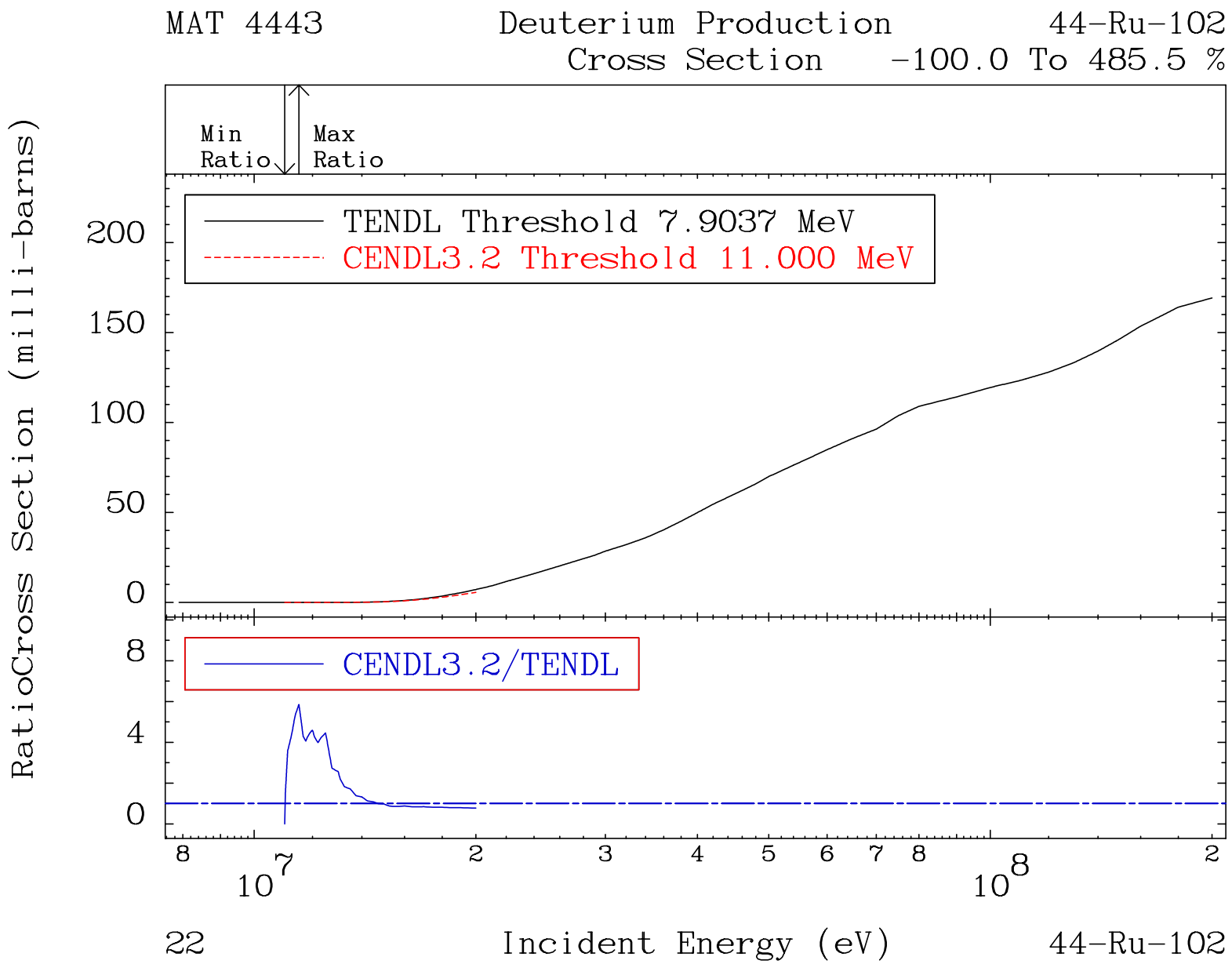

MAT 4443
(n,d)
Cross Section
44-Ru-102
-100.0 To 485.5 %
Min Ratio
Max Ratio
TENDL Threshold 7.9037 MeV
CENDL3.2 Threshold 11.000 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
17
44-Ru-102

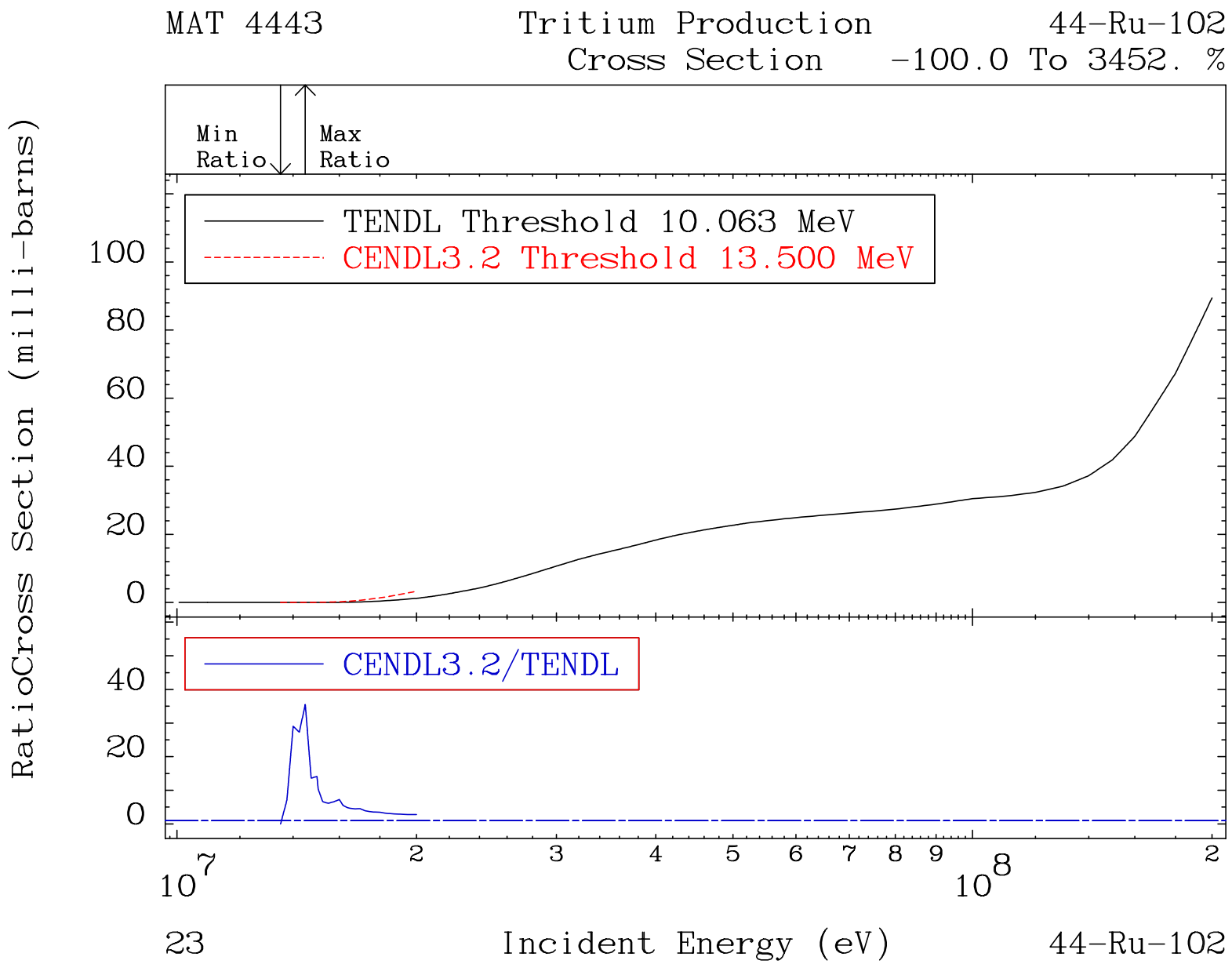

MAT 4443
(n,t)
Cross Section
44-Ru-102
-100.0 To 3452. %
Min Ratio
Max Ratio
TENDL Threshold 10.063 MeV
CENDL3.2 Threshold 13.500 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
18
44-Ru-102

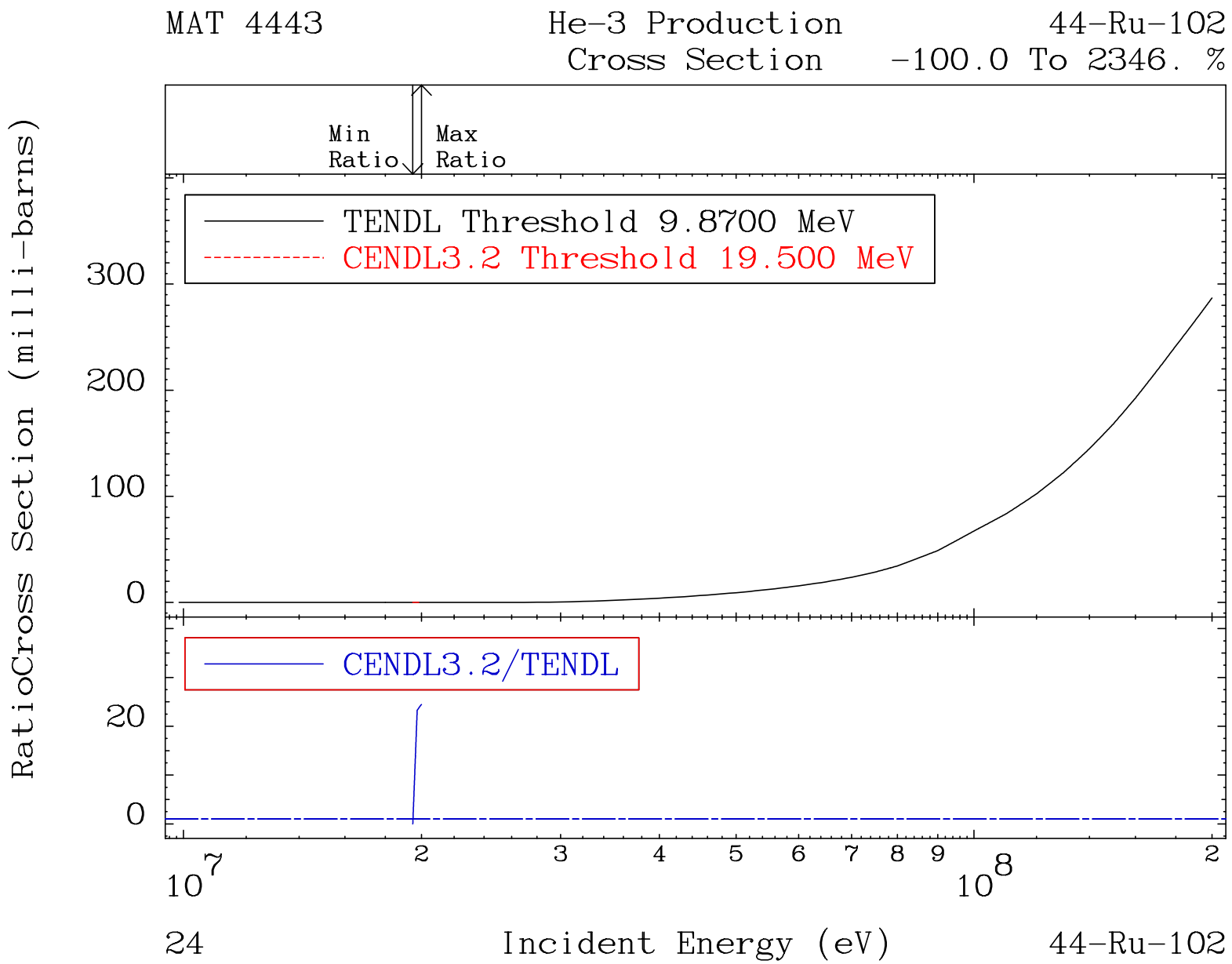

MAT 4443
(n,He-3)
Cross Section
44-Ru-102
-100.0 To 2346. %
Min Ratio
Max Ratio
TENDL Threshold 9.8700 MeV
CENDL3.2 Threshold 19.500 MeV
CENDL3.2/TENDL
RatioCross Section (micro-barns)
600
500
400
300
200
100
0
20
0
10^7
2
3
4
5
6
7
8
9
10^8
2
19
Incident Energy (eV)
44-Ru-102

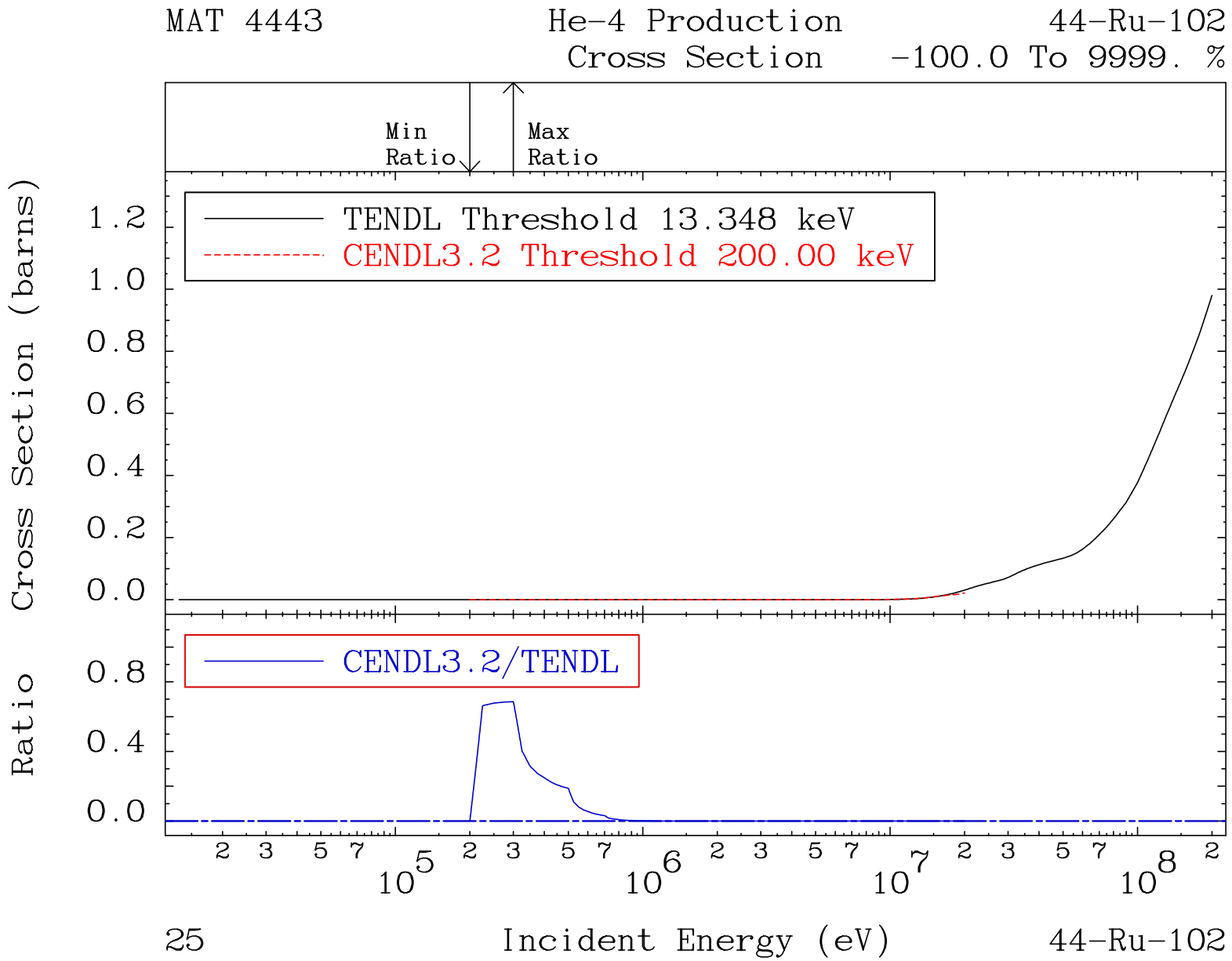

MAT 4443
(n,α)
44-Ru-102
Cross Section
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 13.348 keV
CENDL3.2 Threshold 200.00 keV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
12
10
8
6
4
2
0
0.8
0.4
0.0
2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
20
Incident Energy (eV)
44-Ru-102

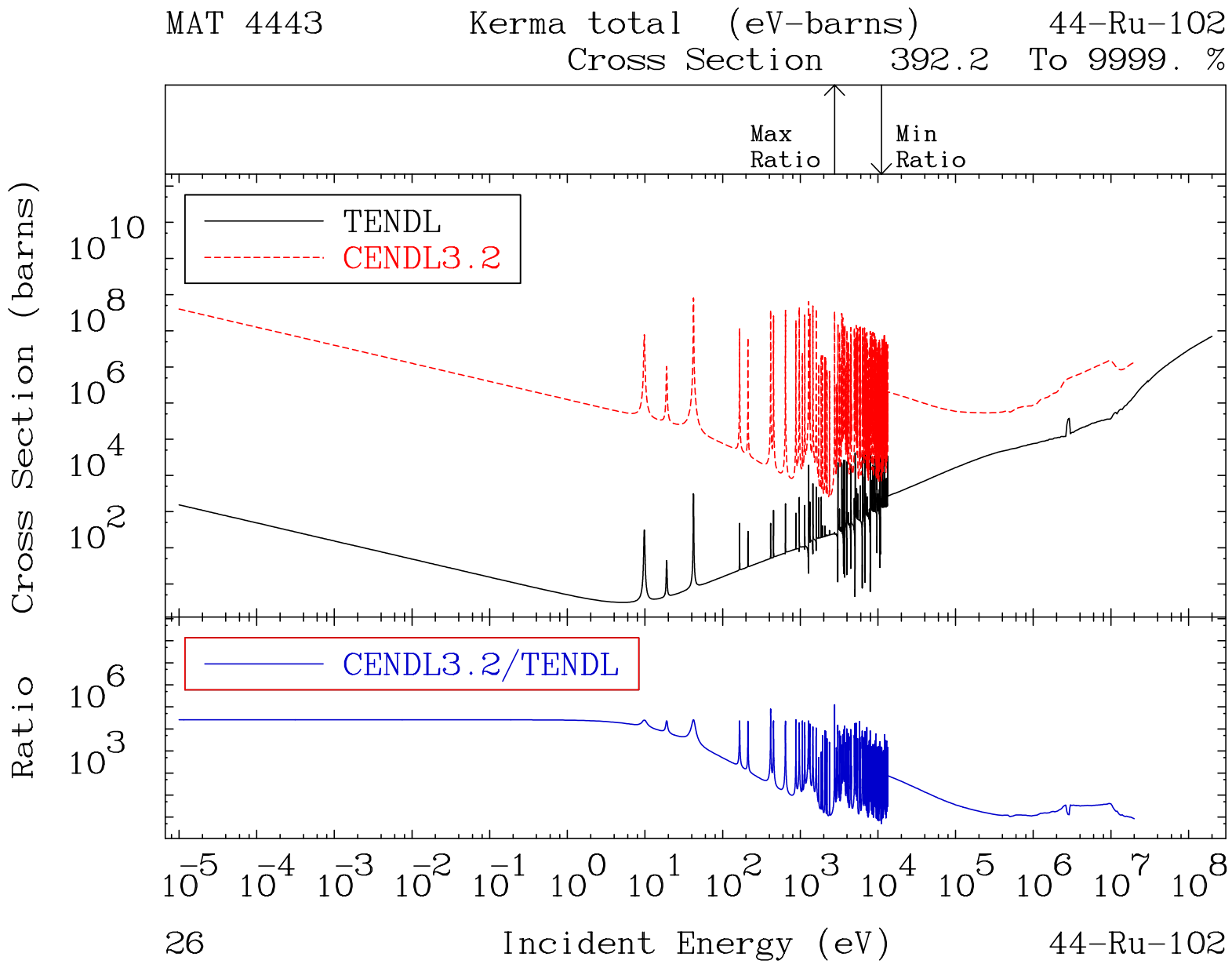

MAT 4443
Hydrogen Production
44-Ru-102
Cross Section -100.0 To 78.82 %
Min Ratio
Max Ratio
TENDL Threshold 3.7883 MeV
CENDL3.2 Threshold 6.2500 MeV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2.0
1.0
0.0
4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
21
Incident Energy (eV)
44-Ru-102

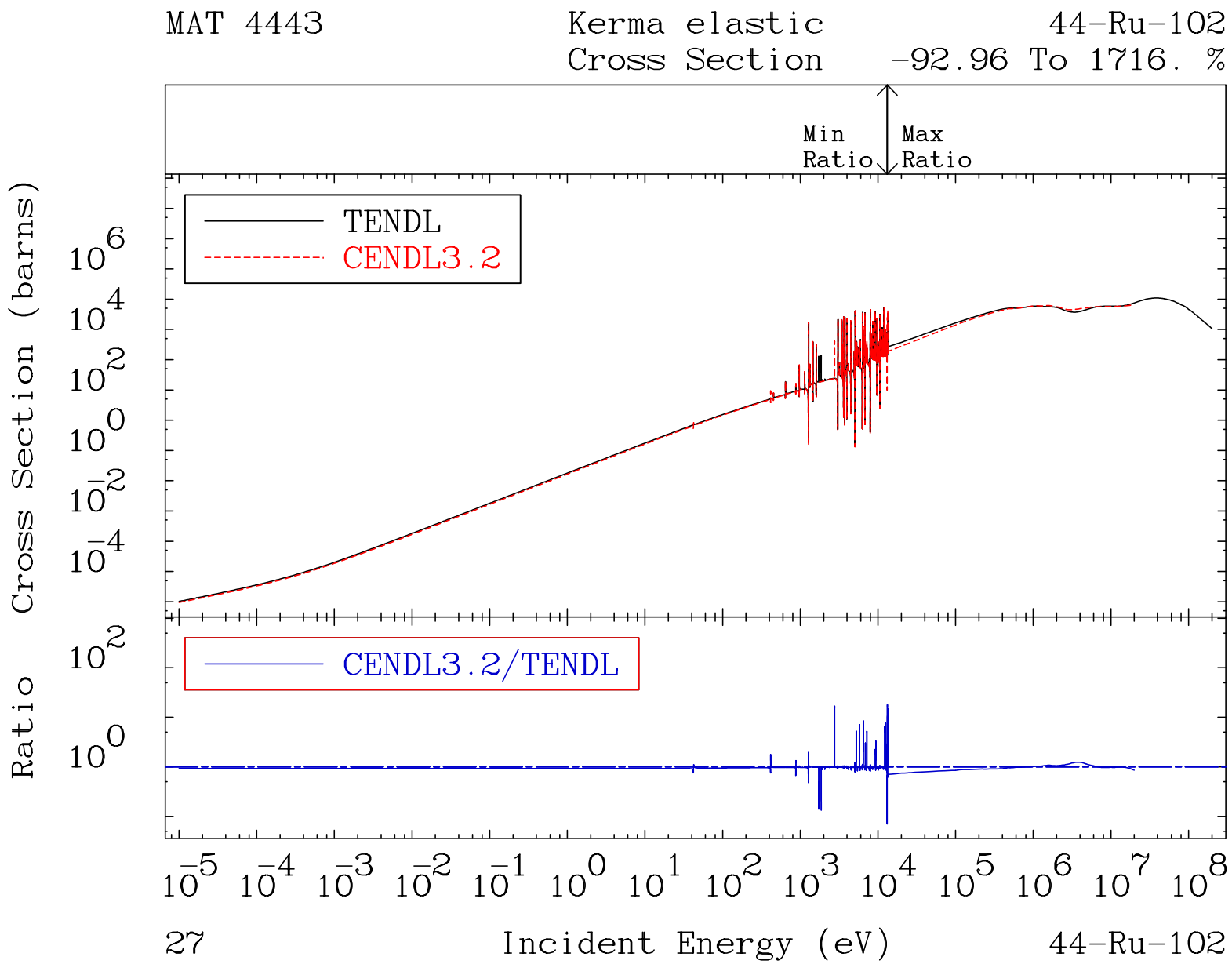

MAT 4443
Deuterium Production
44-Ru-102
Cross Section
-100.0 To 485.5 %
Min Ratio
Max Ratio
TENDL Threshold 7.9037 MeV
CENDL3.2 Threshold 11.000 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
200
150
100
50
0
8
4
0
8
2
3
4
5
6
7
8
2
10^7
10^8
22
Incident Energy (eV)
44-Ru-102

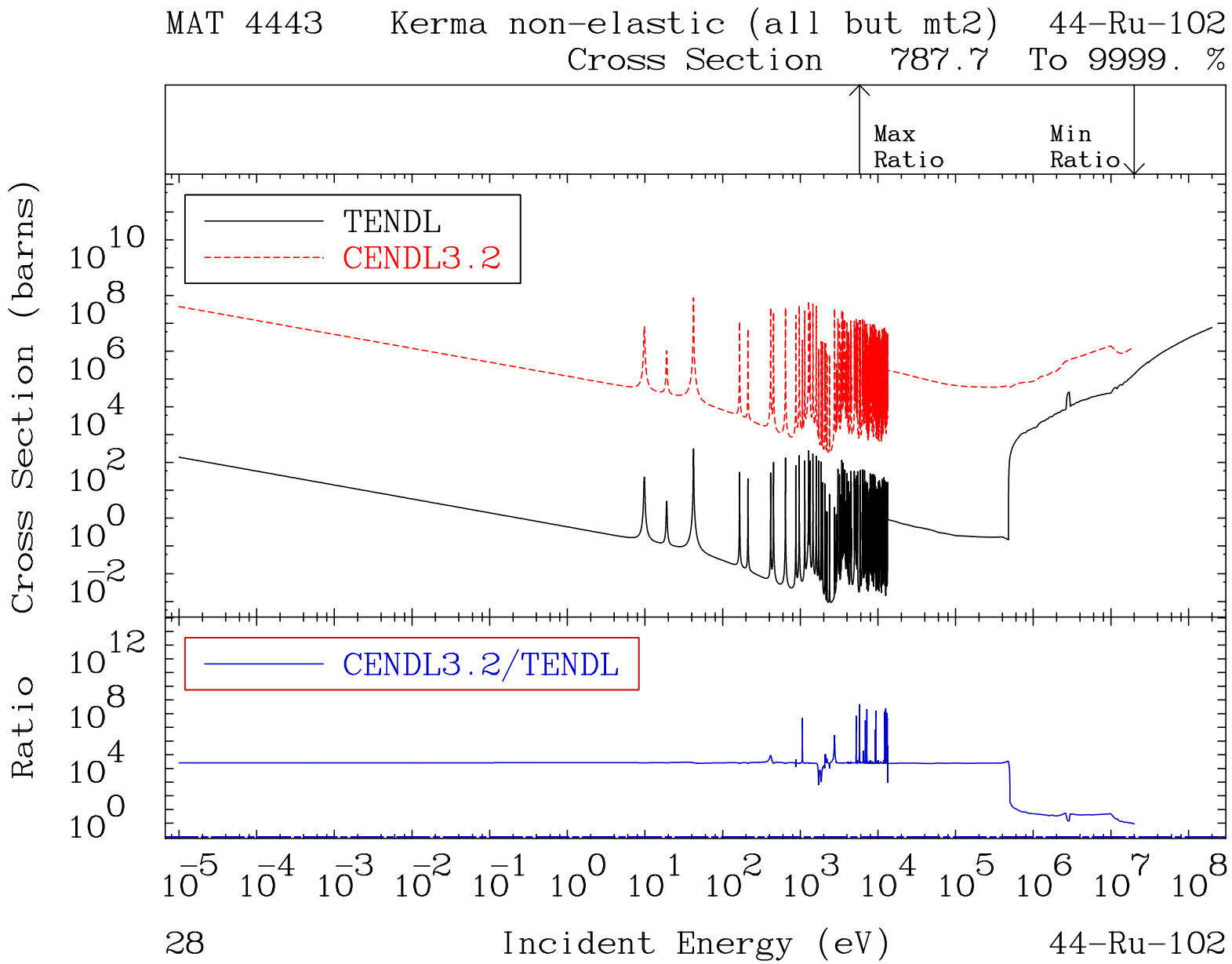

MAT 4443
Tritium Production
44-Ru-102
Cross Section
-100.0 To 3452. %
Min Ratio
Max Ratio
TENDL Threshold 10.063 MeV
CENDL3.2 Threshold 13.500 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
100
80
60
40
20
0
40
20
0
10^7
2
3
4
5
6
7
8
9
10^8
2
23
Incident Energy (eV)
44-Ru-102

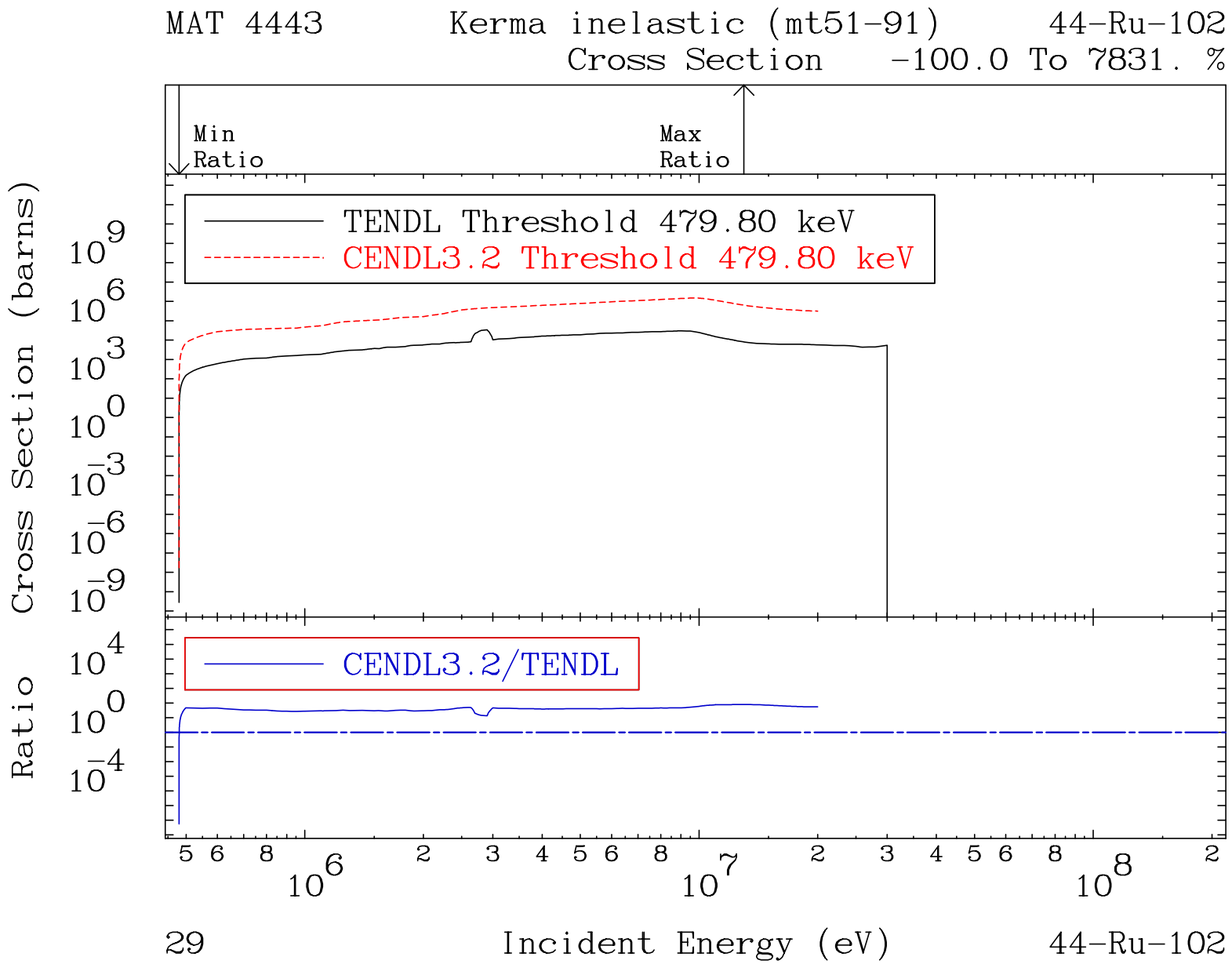

MAT 4443
He-3 Production
Cross Section
44-Ru-102
-100.0 To 2346. %
Min Ratio
Max Ratio
TENDL Threshold 9.8700 MeV
CENDL3.2 Threshold 19.500 MeV
CENDL3.2/TENDL
RatioCross Section (milli-barns)
300
200
100
0
20
0
10^7
2
3
4
5
6
7
8
9
10^8
2
24
Incident Energy (eV)
44-Ru-102

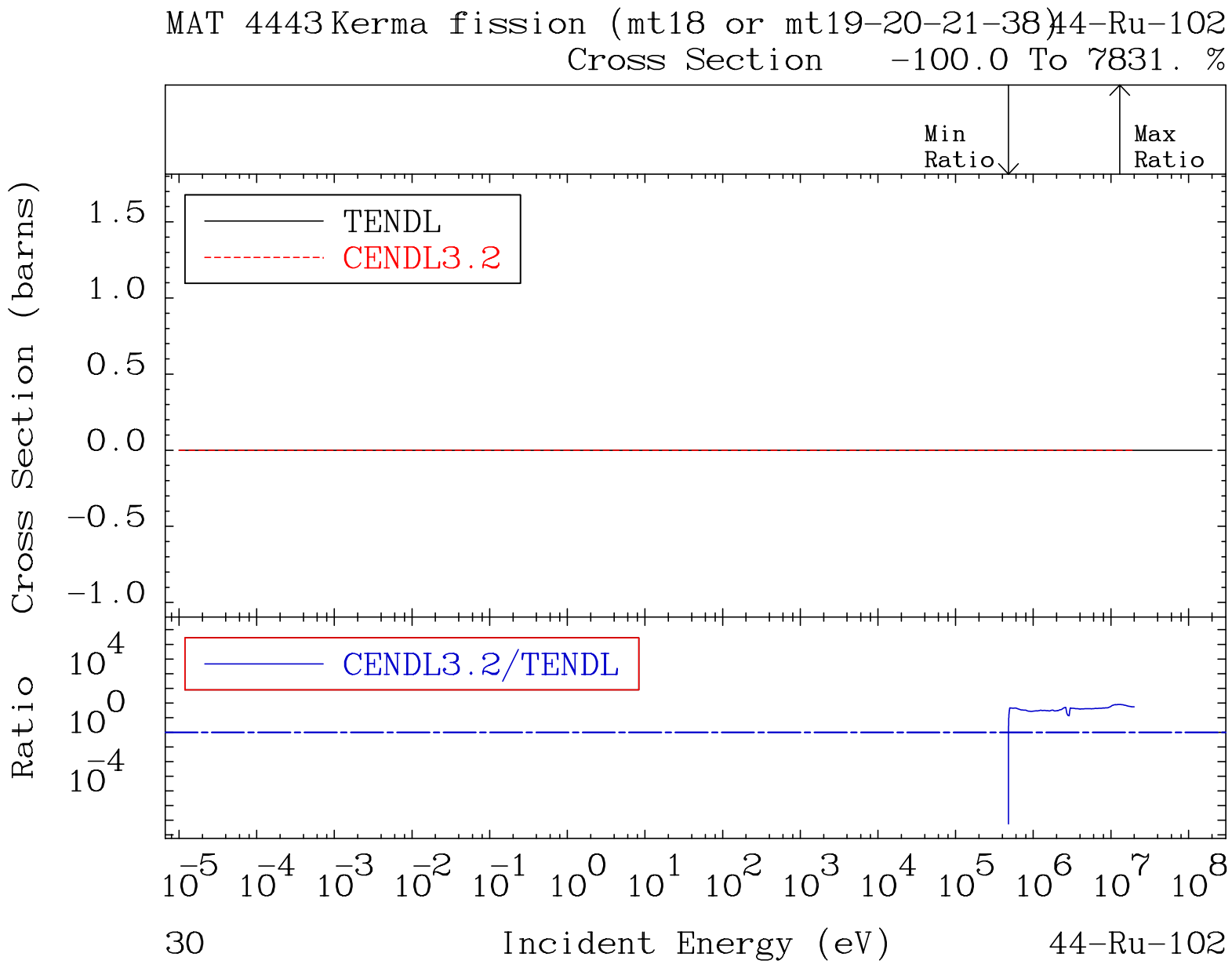

MAT 4443
He-4 Production
Cross Section
44-Ru-102
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 13.348 keV
CENDL3.2 Threshold 200.00 keV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.8
0.4
0.0
2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
25
Incident Energy (eV)
44-Ru-102

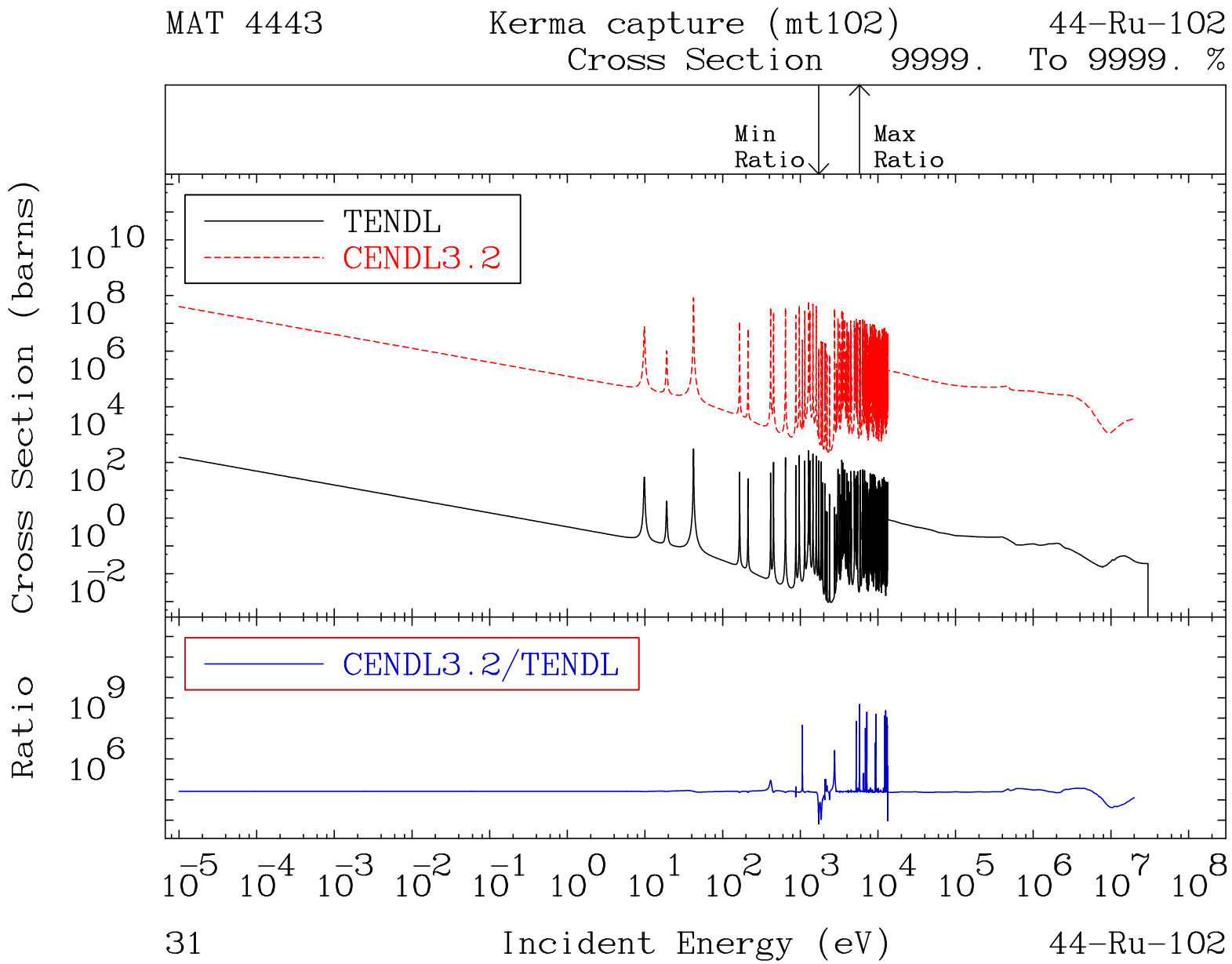

MAT 4443
Kerma total (eV-barns)
44-Ru-102
Cross Section 392.2 To 9999. %
Max Ratio
Min Ratio
TENDL
CENDL3.2
Cross Section (barns)
CENDL3.2/TENDL
Ratio
Incident Energy (eV)
26
44-Ru-102

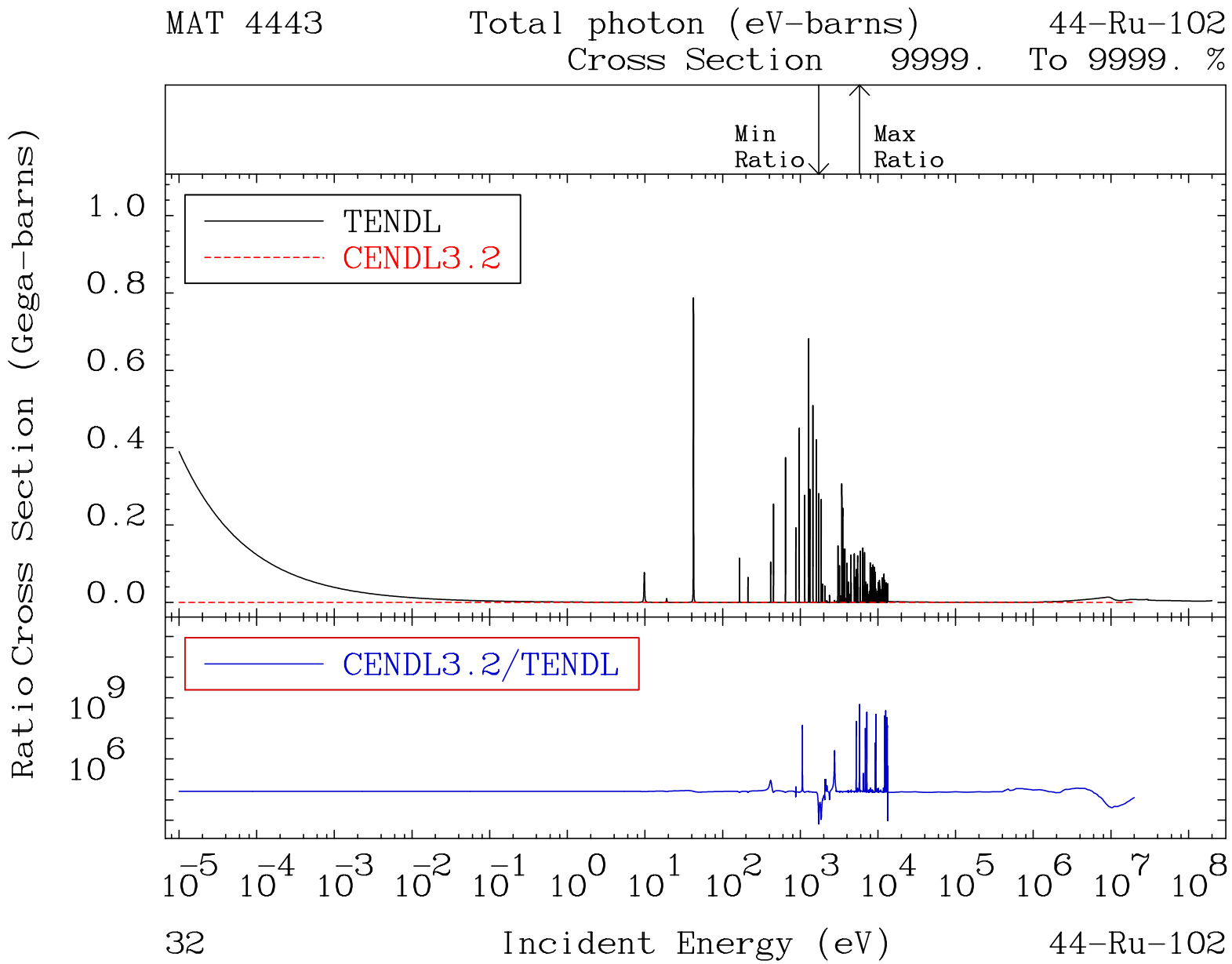

MAT 4443
Kerma elastic
Cross Section
44-Ru-102
-92.96 To 1716. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
27
44-Ru-102

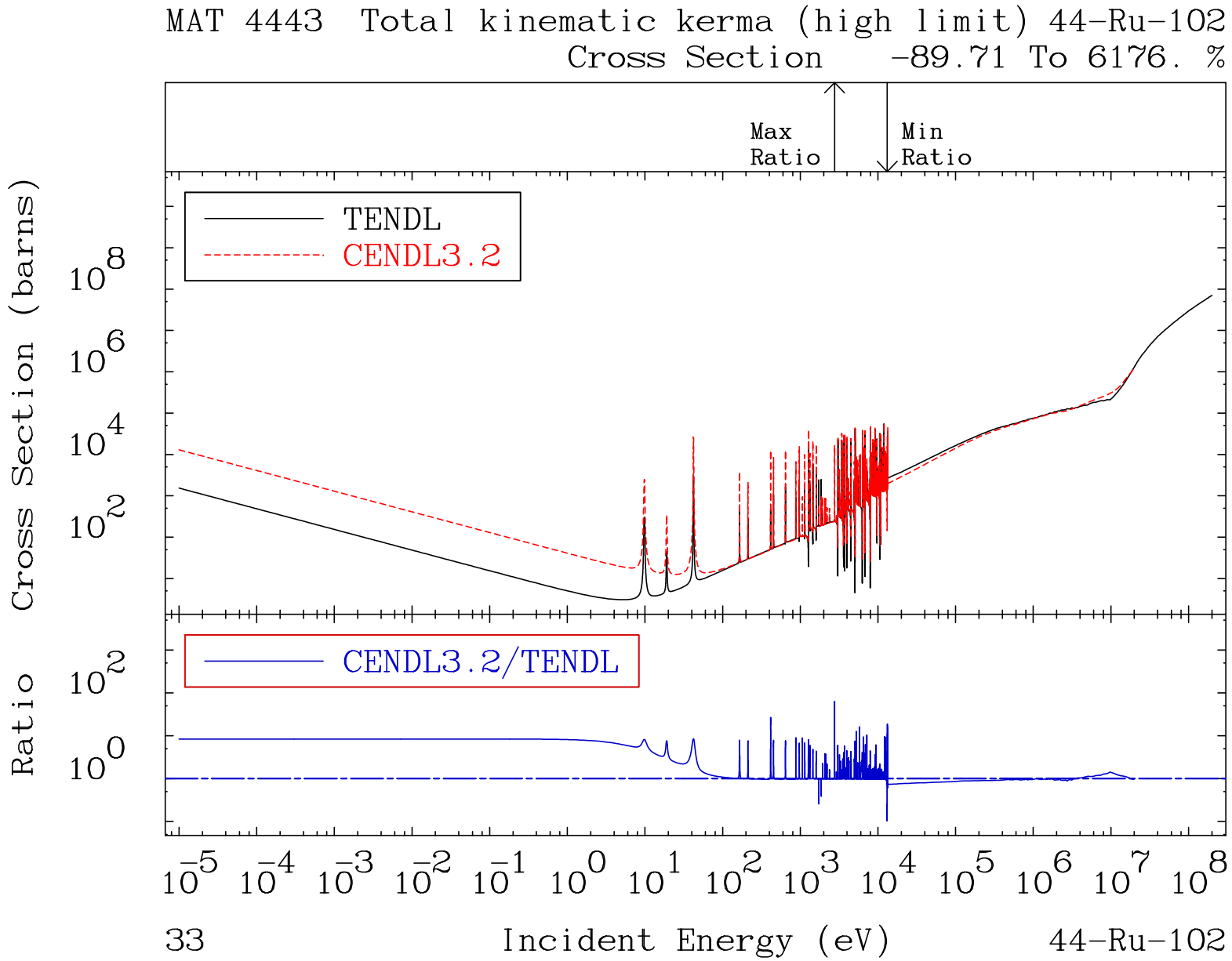

MAT 4443 Kerma non-elastic (all but mt2) 44-Ru-102
Cross Section 787.7 To 9999. %
Max Ratio
Min Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
28
44-Ru-102

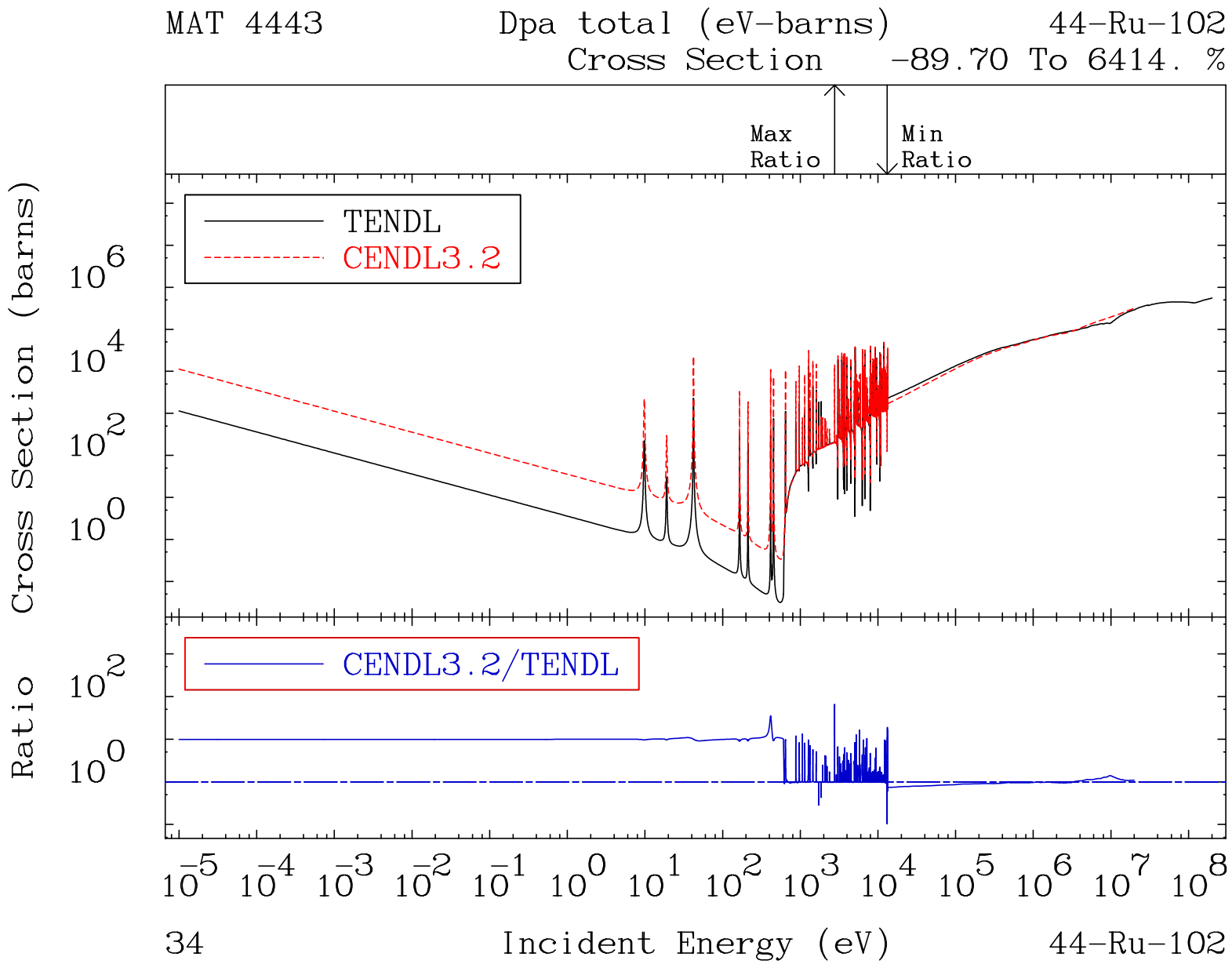

MAT 4443
Kerma inelastic (mt51-91)
44-Ru-102
Cross Section -100.0 To 7831. %
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
CENDL3.2 Threshold 479.80 keV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
29
44-Ru-102

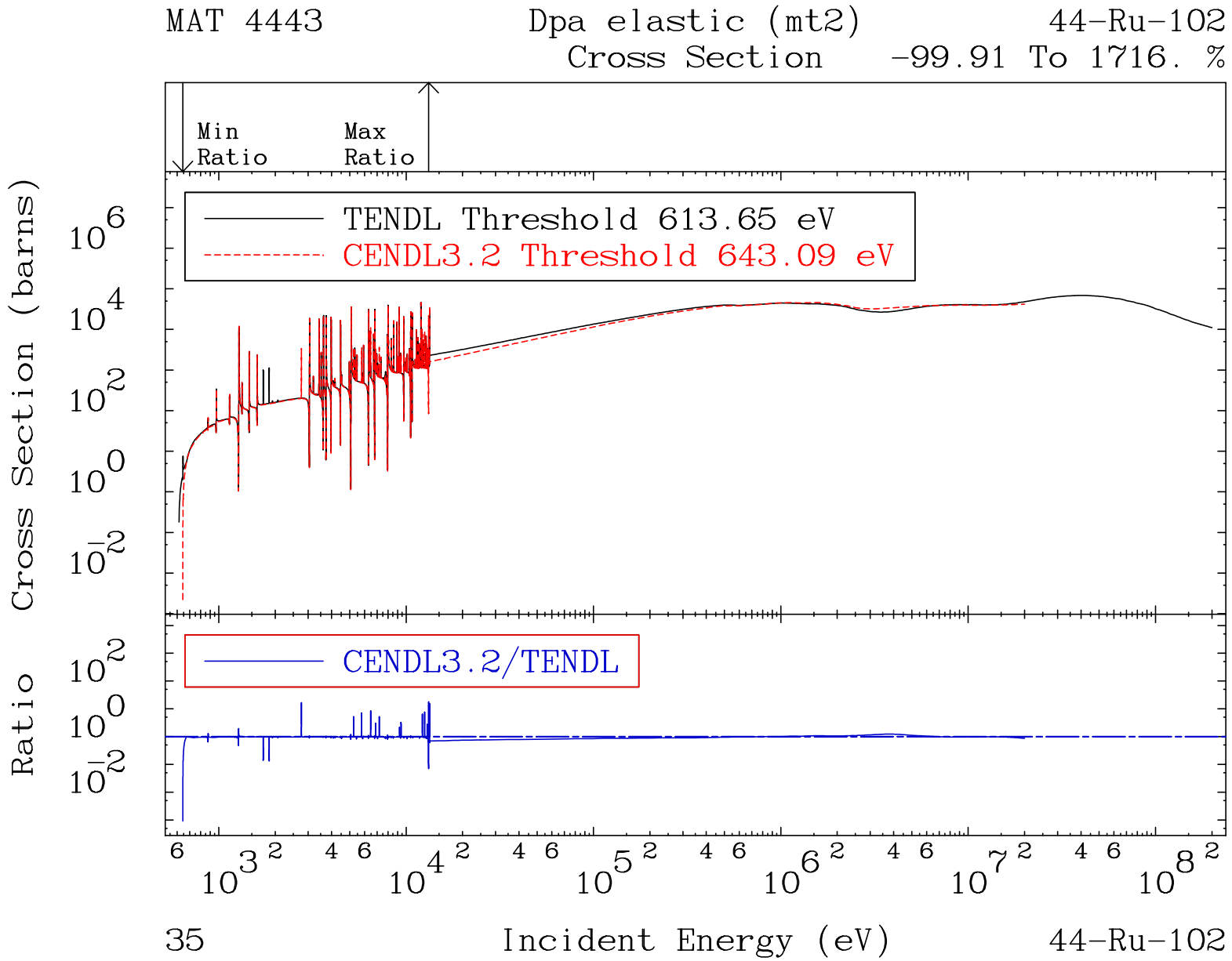

MAT 4443 Kerma fission (mt18 or mt19-20-21-38) 44-Ru-102
Cross Section -100.0 To 7831. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
1.5
1.0
0.5
0.0
-0.5
-1.0
10^{4}
10^{0}
10^{-4}
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
30
Incident Energy (eV)
44-Ru-102

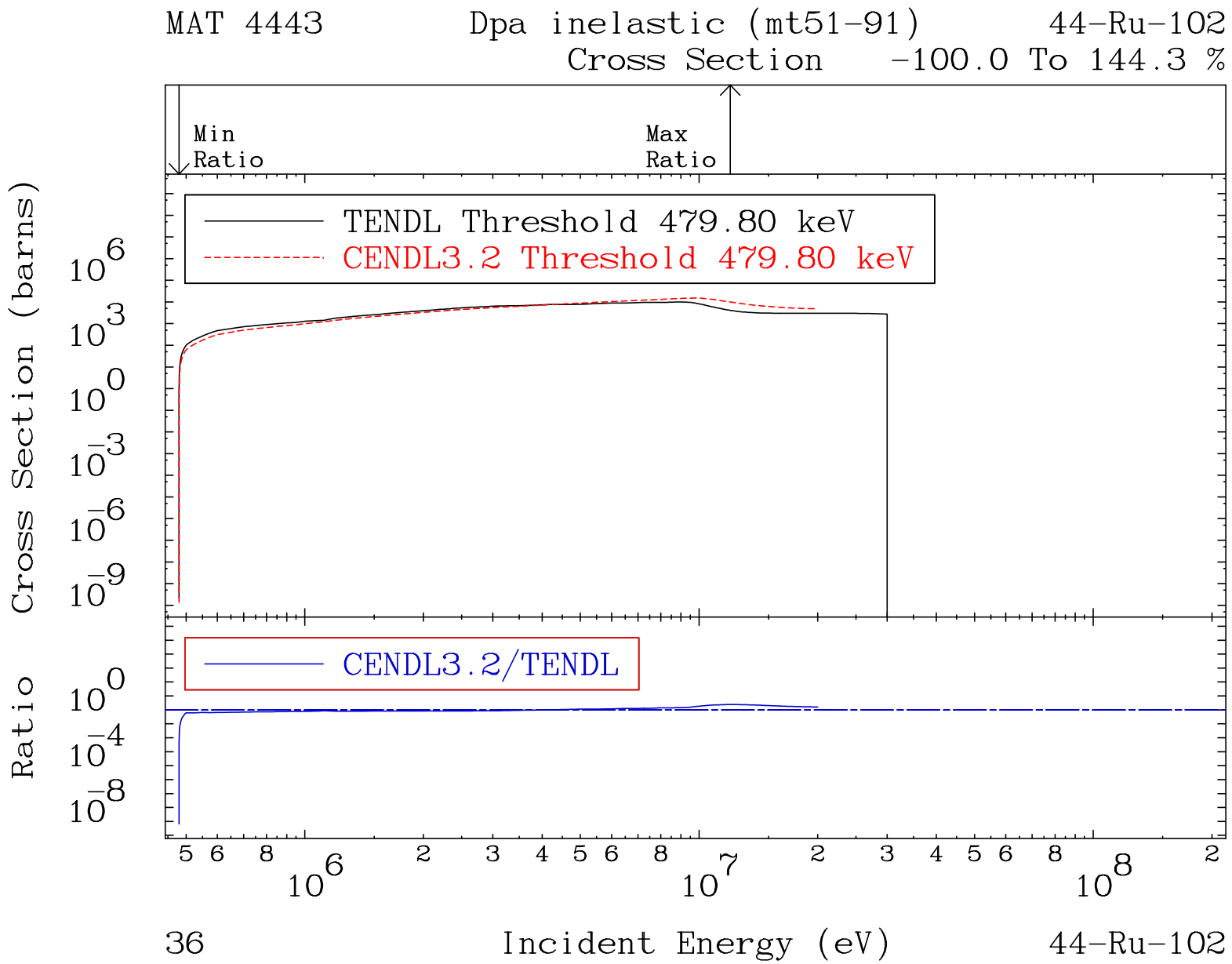

MAT 4443
Kerma capture (mt102)
44-Ru-102
Cross Section 9999. To 9999. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
31
44-Ru-102

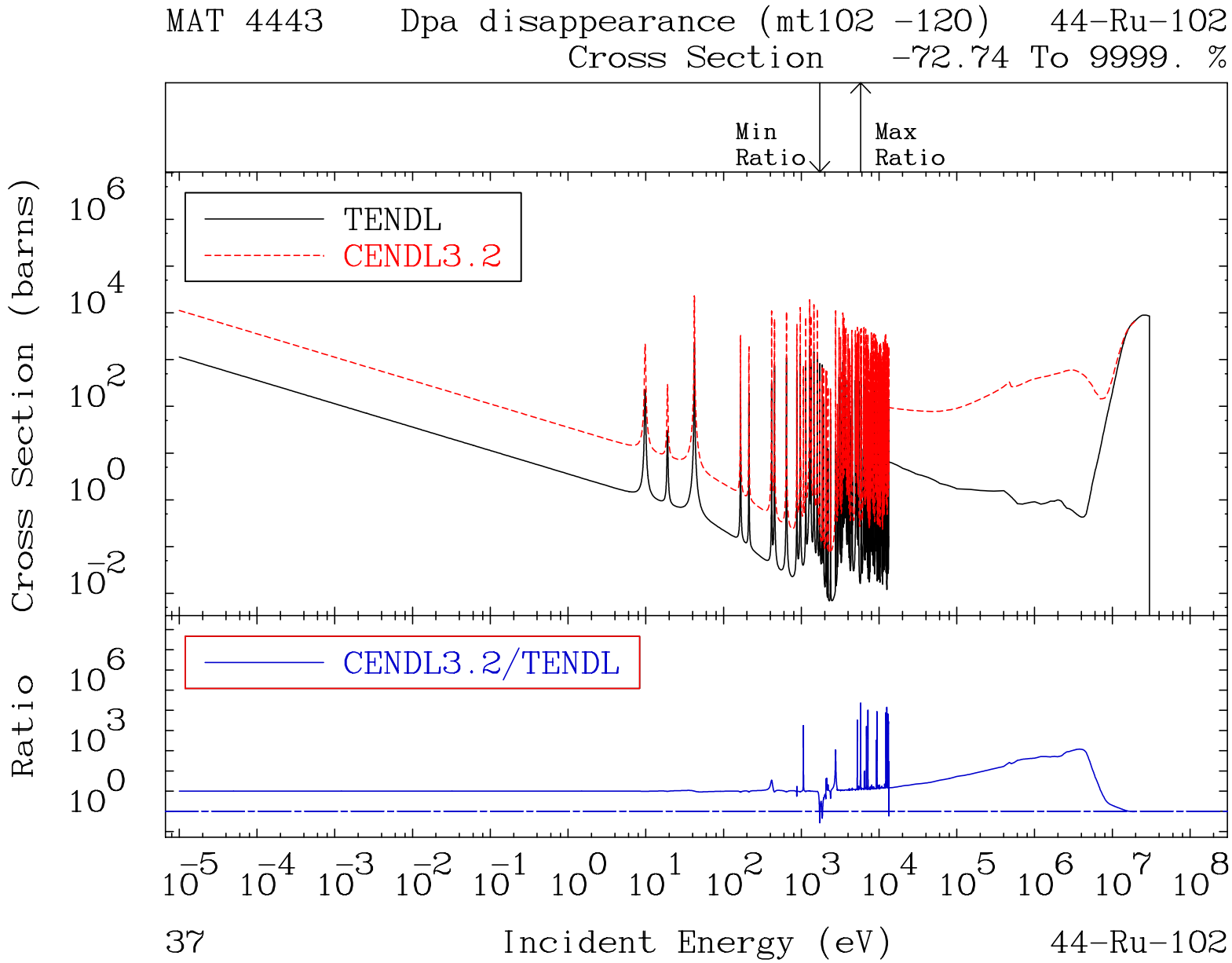

MAT 4443
Total photon (eV-barns)
44-Ru-102
Cross Section 9999. To 9999. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Ratio Cross Section (Giga-barns)
1.0
0.8
0.6
0.4
0.2
0.0
10^{9}
10^{6}
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
32
Incident Energy (eV)
44-Ru-102

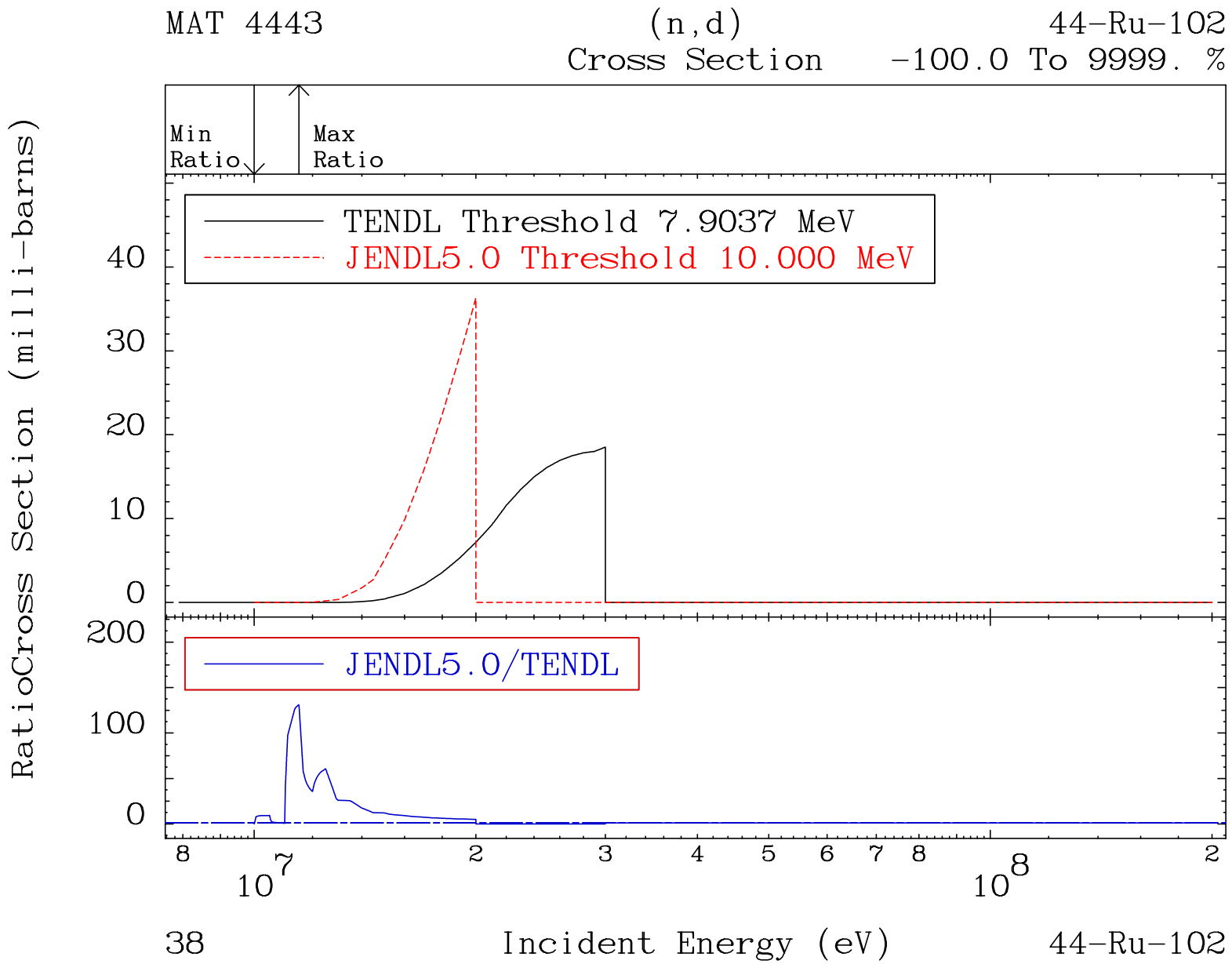

MAT 4443 Total kinematic kerma (high limit) 44-Ru-102
Cross Section -89.71 To 6176. %
Max Ratio
Min Ratio
TENDL
CENDL3.2
Cross Section (barns)
CENDL3.2/TENDL
Ratio
Incident Energy (eV)
33
44-Ru-102

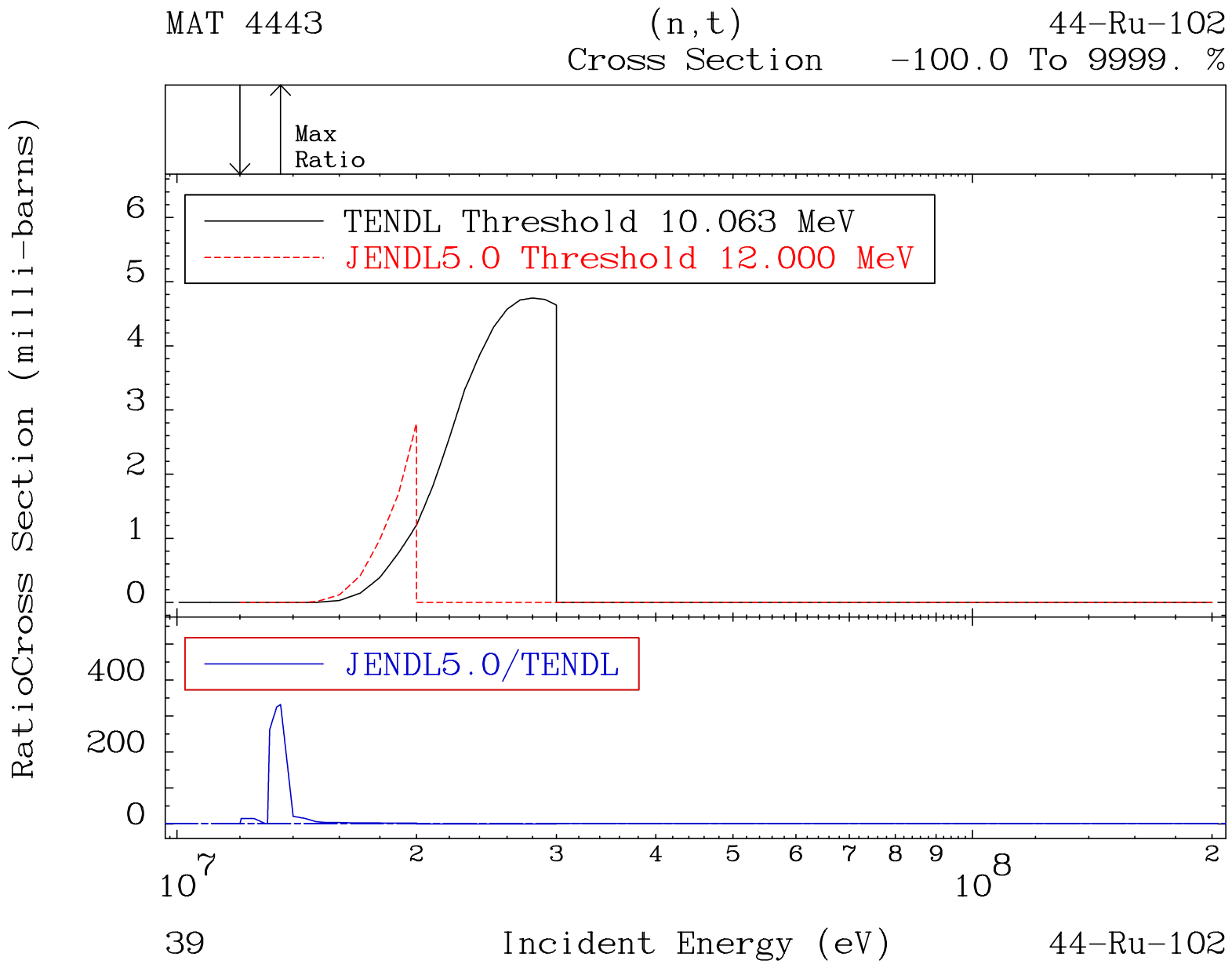

MAT 4443
Dpa total (eV-barns)
44-Ru-102
Cross Section
-89.70 To 6414. %
Max Ratio
Min Ratio
TENDL
CENDL3.2
Cross Section (barns)
CENDL3.2/TENDL
Ratio
Incident Energy (eV)
34
44-Ru-102

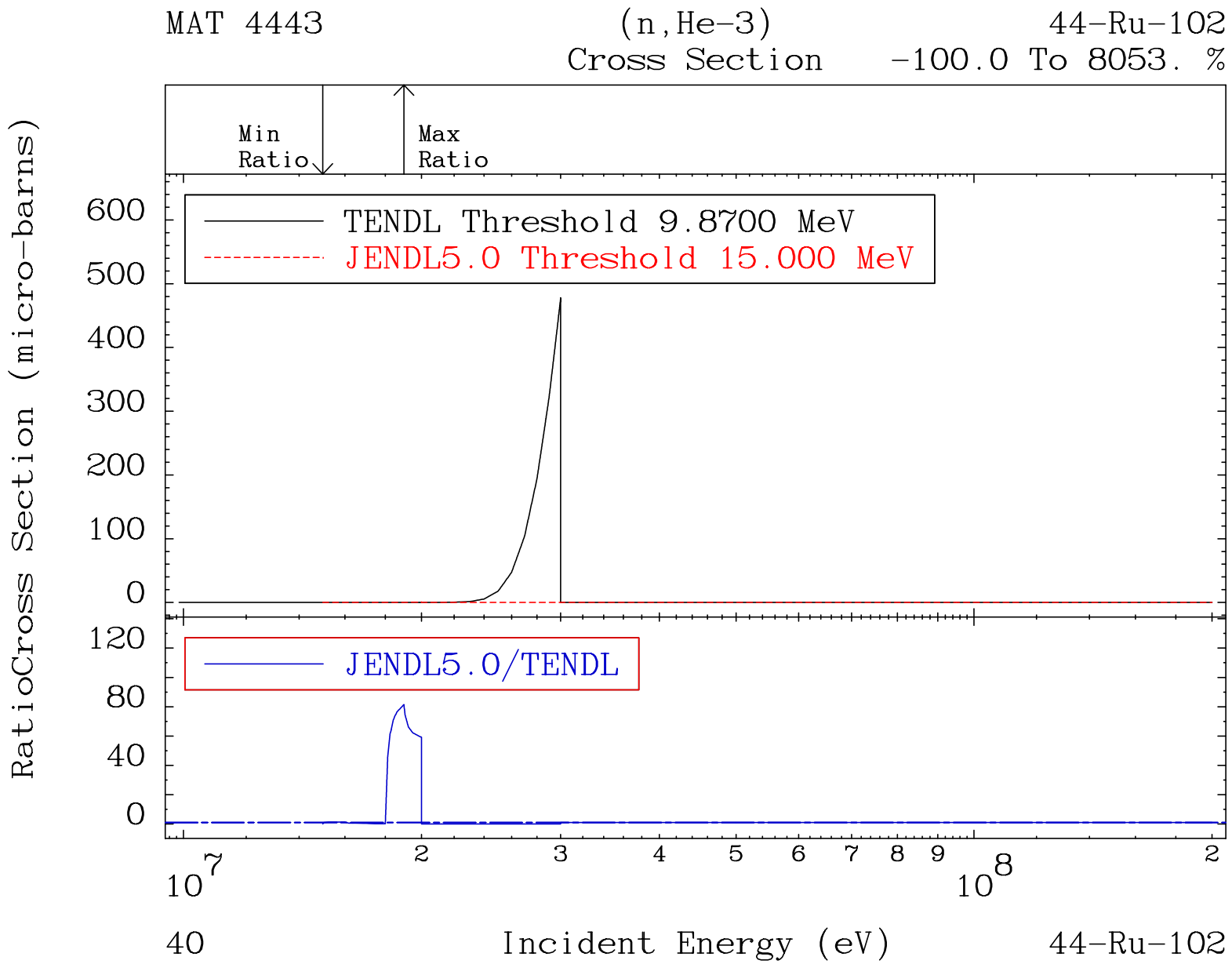

MAT 4443
Dpa elastic (mt2)
Cross Section
44-Ru-102
-99.91 To 1716. %
Min Ratio
Max Ratio
TENDL Threshold 613.65 eV
CENDL3.2 Threshold 643.09 eV
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
35
44-Ru-102

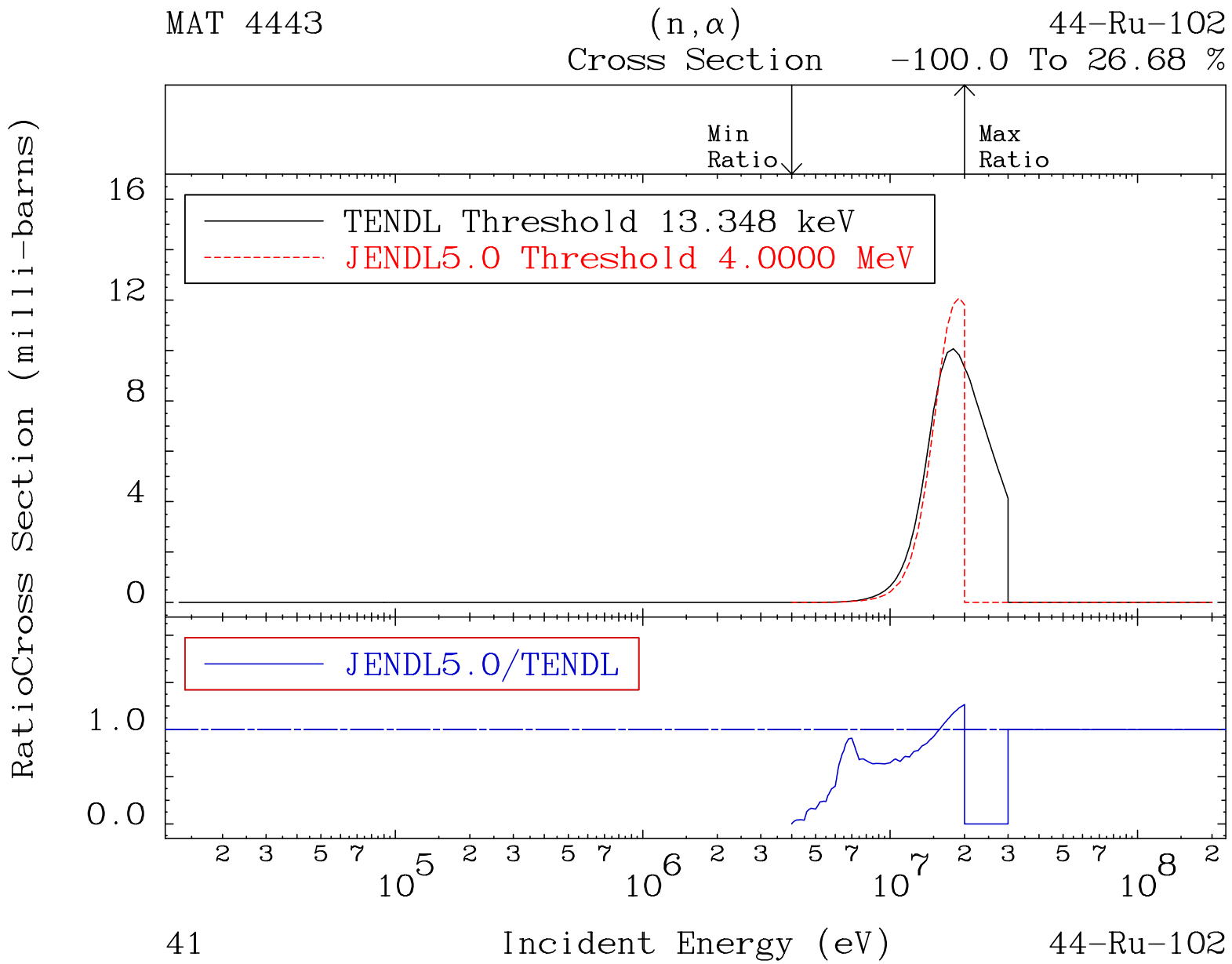

MAT 4443
Dpa inelastic (mt51-91)
44-Ru-102
Cross Section
-100.0 To 144.3 %
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
CENDL3.2 Threshold 479.80 keV
Cross Section (barns)
CENDL3.2/TENDL
Ratio
Incident Energy (eV)
36
44-Ru-102

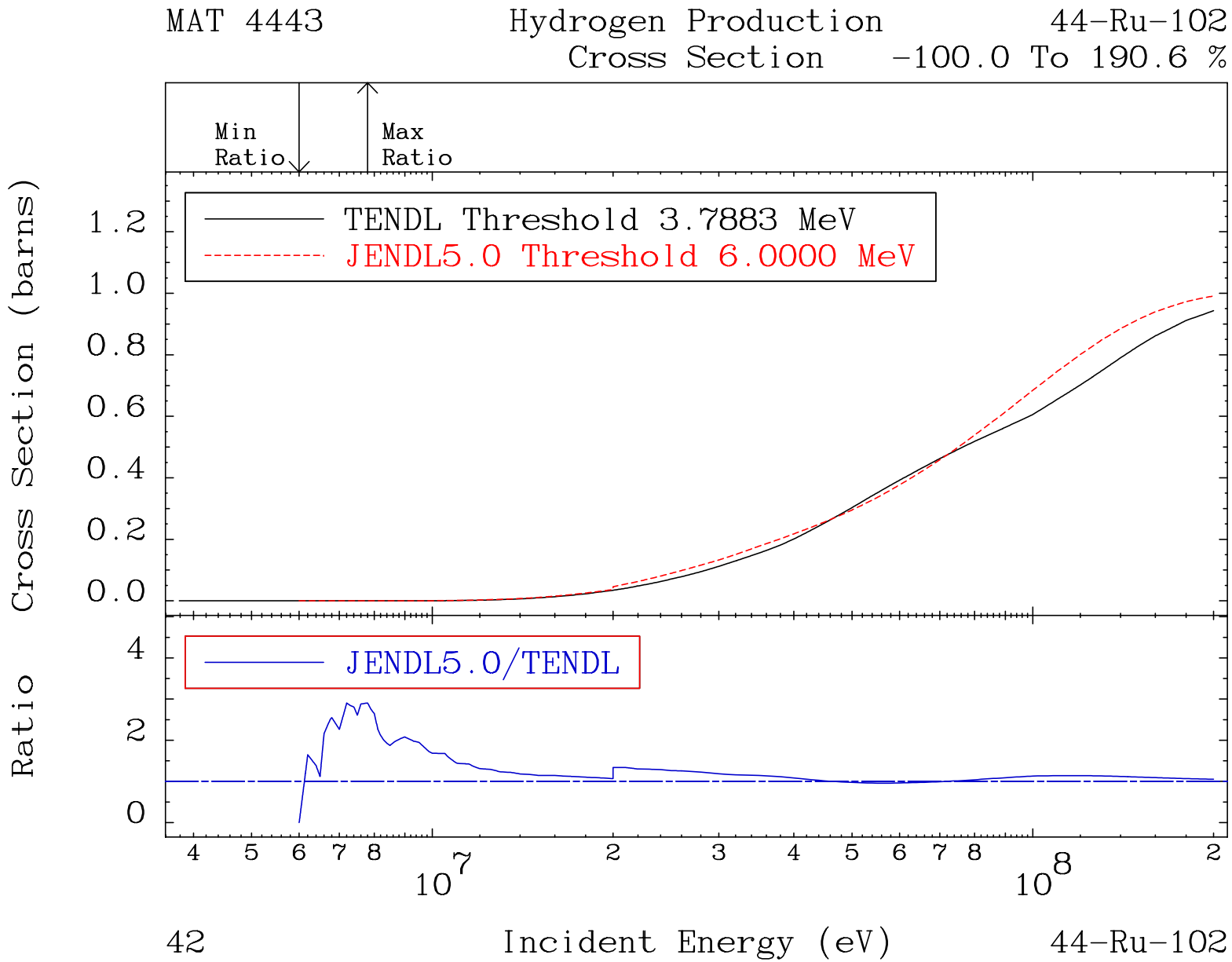

MAT 4443 Dpa disappearance (mt102 -120) 44-Ru-102
Cross Section -72.74 To 9999. %
Min Ratio
Max Ratio
TENDL
CENDL3.2
CENDL3.2/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
37
44-Ru-102

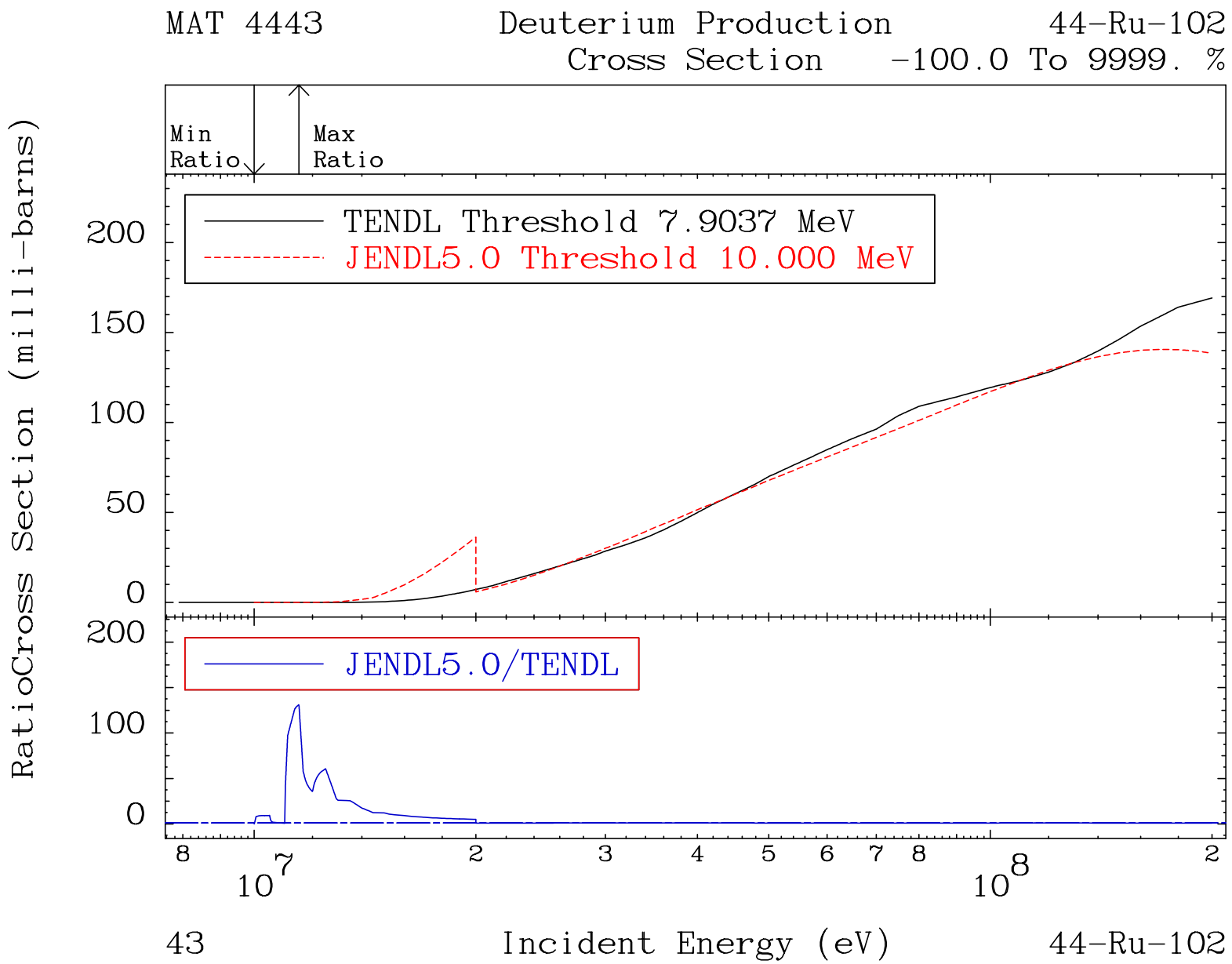

MAT 4443
(n,d)
Cross Section
44-Ru-102
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 7.9037 MeV
JENDL5.0 Threshold 10.000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
40
30
20
10
0
200
100
0
8
2
3
4
5
6
7
8
2
10^7
10^8
38
Incident Energy (eV)
44-Ru-102

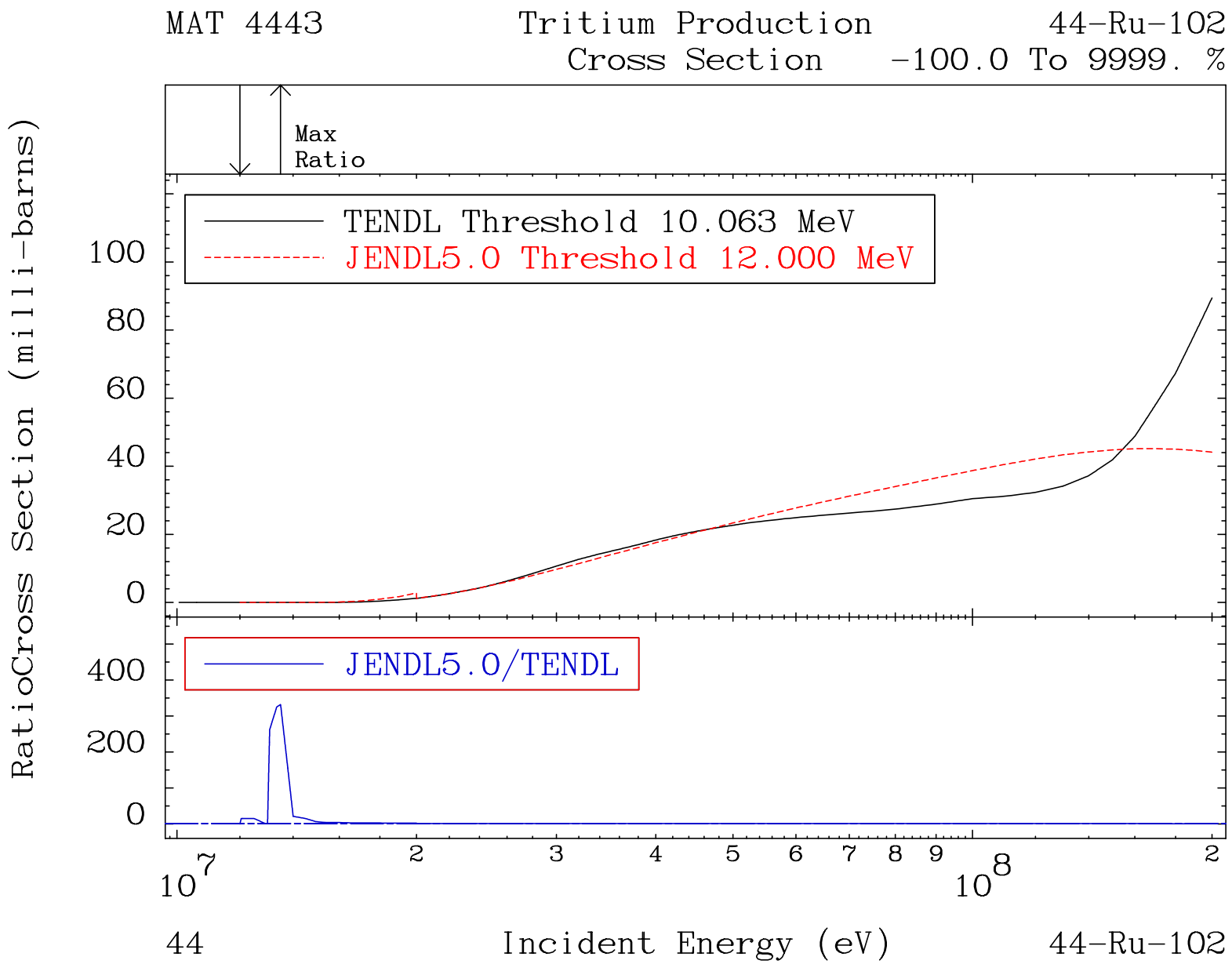

MAT 4443
(n,t)
Cross Section
44-Ru-102
-100.0 To 9999. %
Max
Ratio
TENDL Threshold 10.063 MeV
JENDL5.0 Threshold 12.000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
39
44-Ru-102

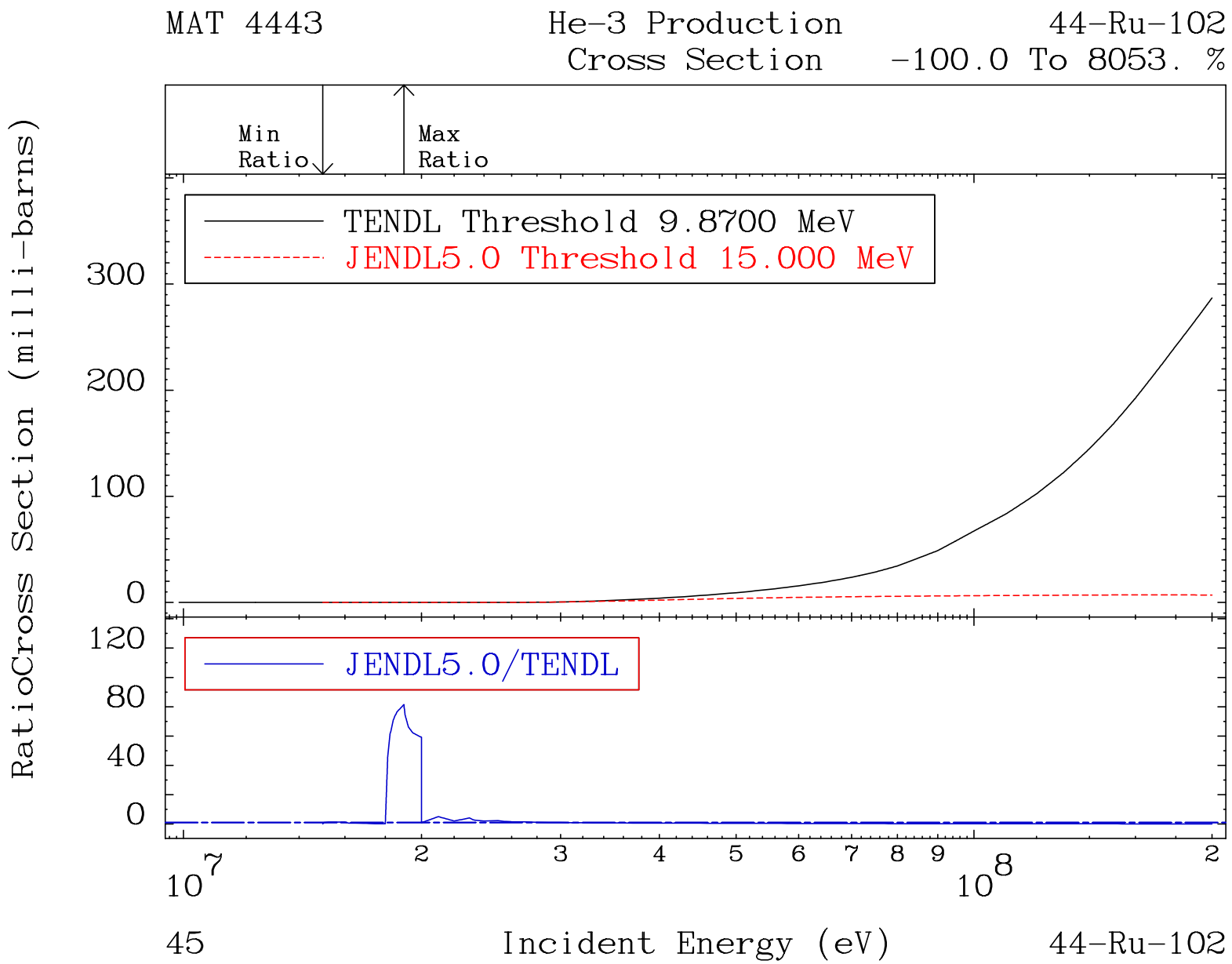

MAT 4443
(n,He-3)
Cross Section
44-Ru-102
-100.0 To 8053. %
Min Ratio
Max Ratio
TENDL Threshold 9.8700 MeV
JENDL5.0 Threshold 15.000 MeV
JENDL5.0/TENDL
RatioCross Section (micro-barns)
600
500
400
300
200
100
0
120
80
40
0
10^7
2
3
4
5
6
7
8
9
10^8
2
40
Incident Energy (eV)
44-Ru-102

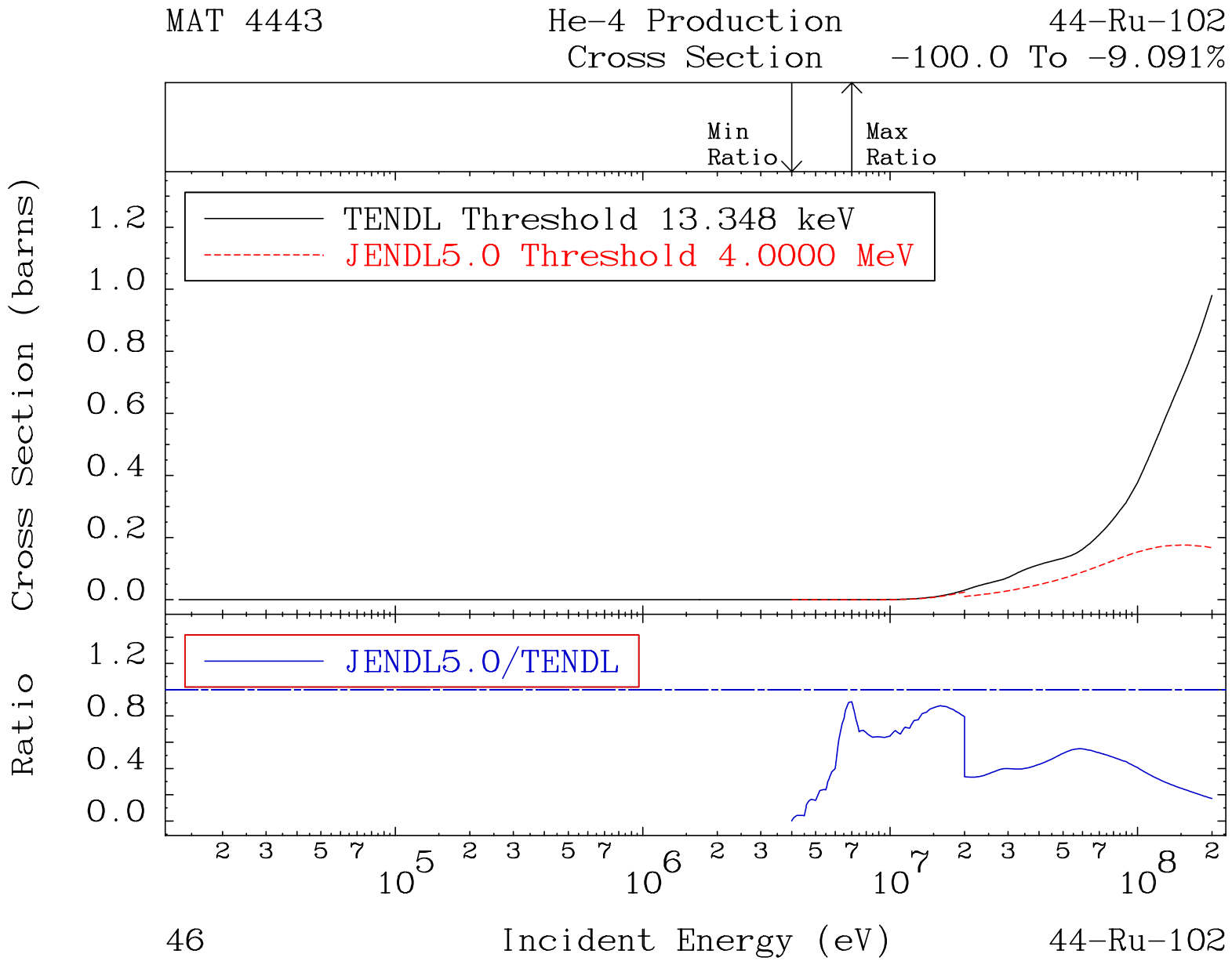

MAT 4443
(n,α)
Cross Section
44-Ru-102
-100.0 To 26.68 %
Min Ratio
Max Ratio
TENDL Threshold 13.348 keV
JENDL5.0 Threshold 4.0000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
16
12
8
4
0
1.0
0.0
2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
41
Incident Energy (eV)
44-Ru-102

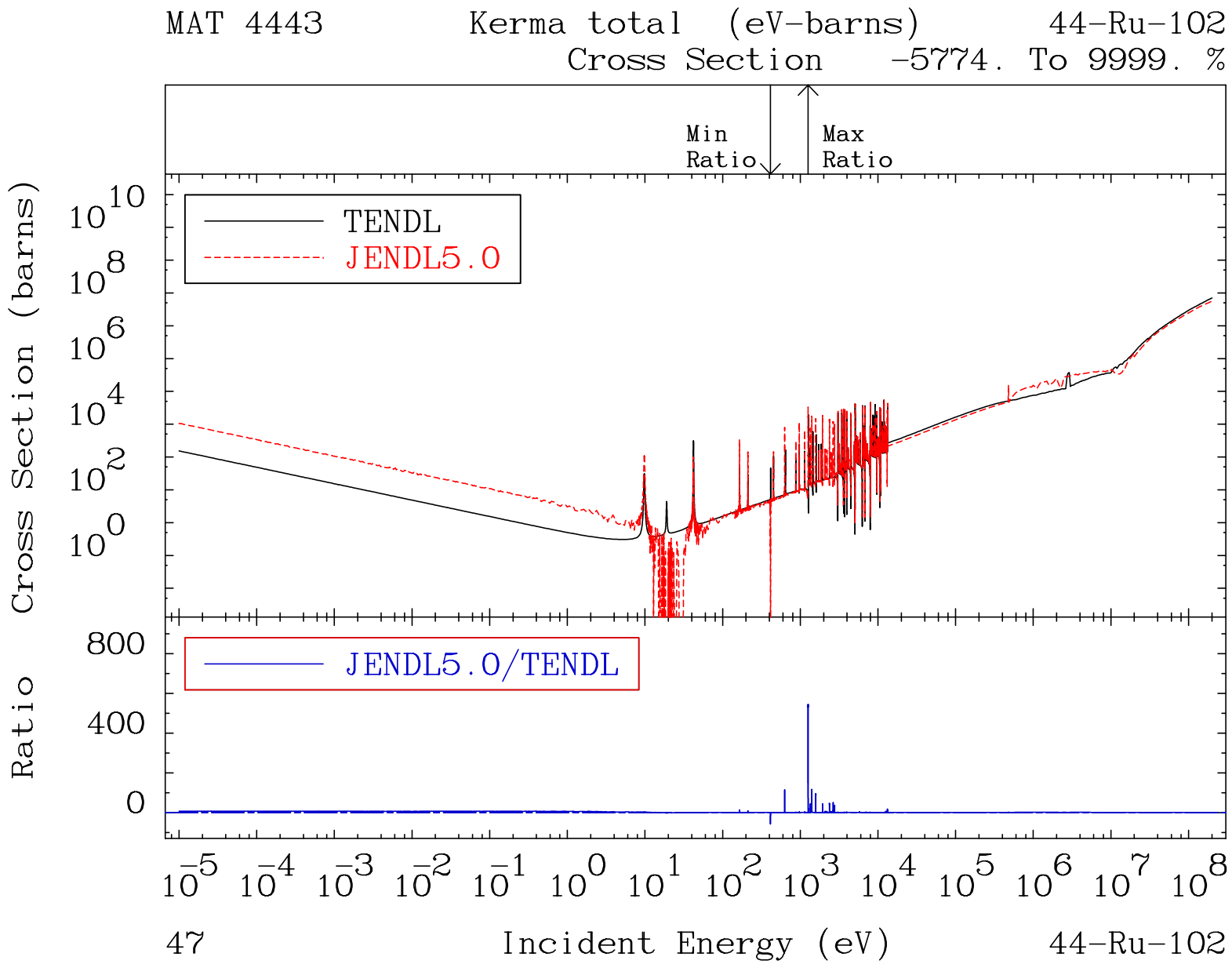

MAT 4443
Hydrogen Production
44-Ru-102
Cross Section
-100.0 To 190.6 %
Min Ratio
Max Ratio
TENDL Threshold 3.7883 MeV
JENDL5.0 Threshold 6.0000 MeV
JENDL5.0/TENDL
Cross Section (barns)
Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
4
2
0
4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
Incident Energy (eV)
42
44-Ru-102

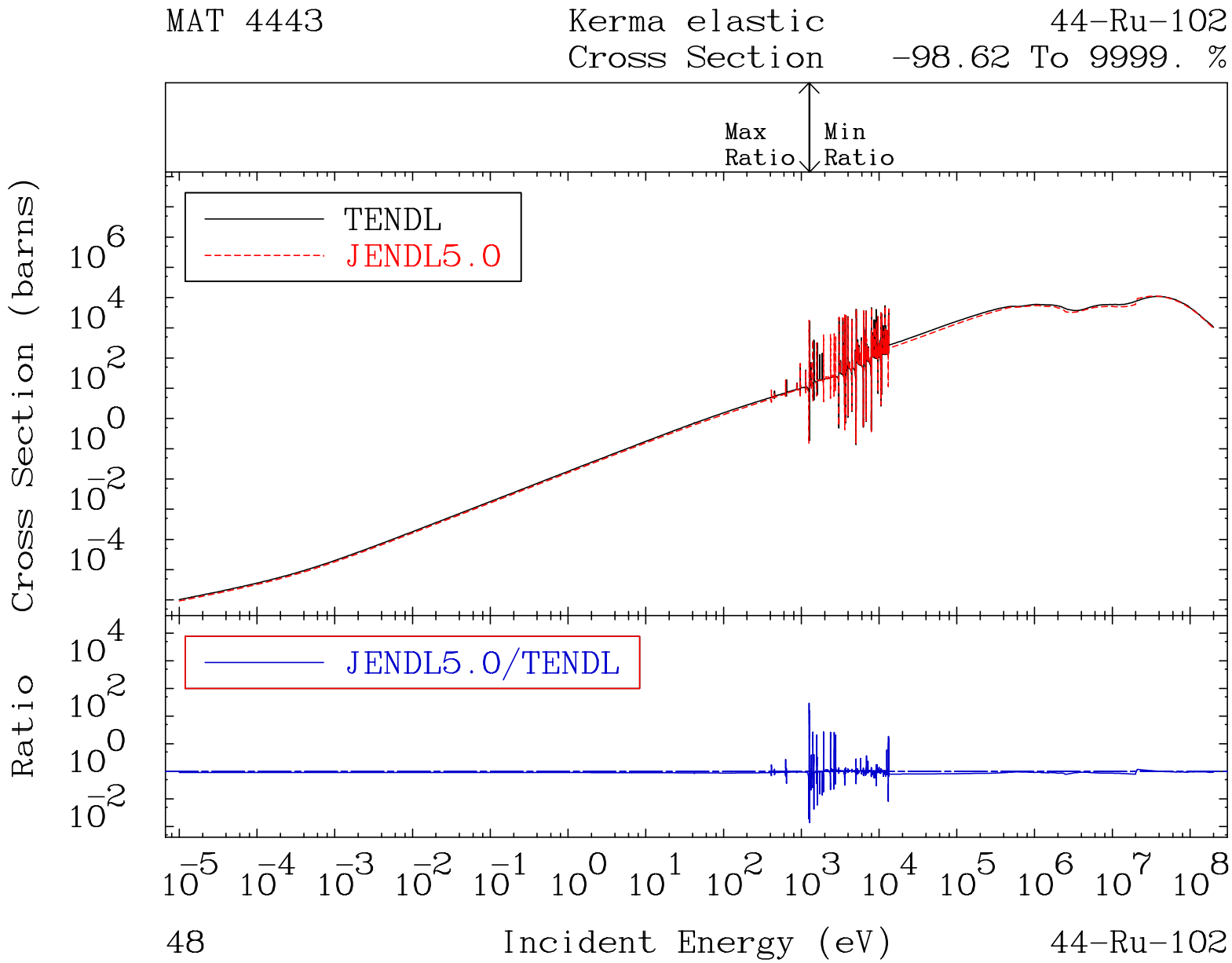

MAT 4443
Deuterium Production
44-Ru-102
Cross Section
-100.0 To 9999. %
Min Ratio
Max Ratio
TENDL Threshold 7.9037 MeV
JENDL5.0 Threshold 10.000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
200
150
100
50
0
200
100
0
8
2
3
4
5
6
7
8
2
10^7
10^8
43
Incident Energy (eV)
44-Ru-102

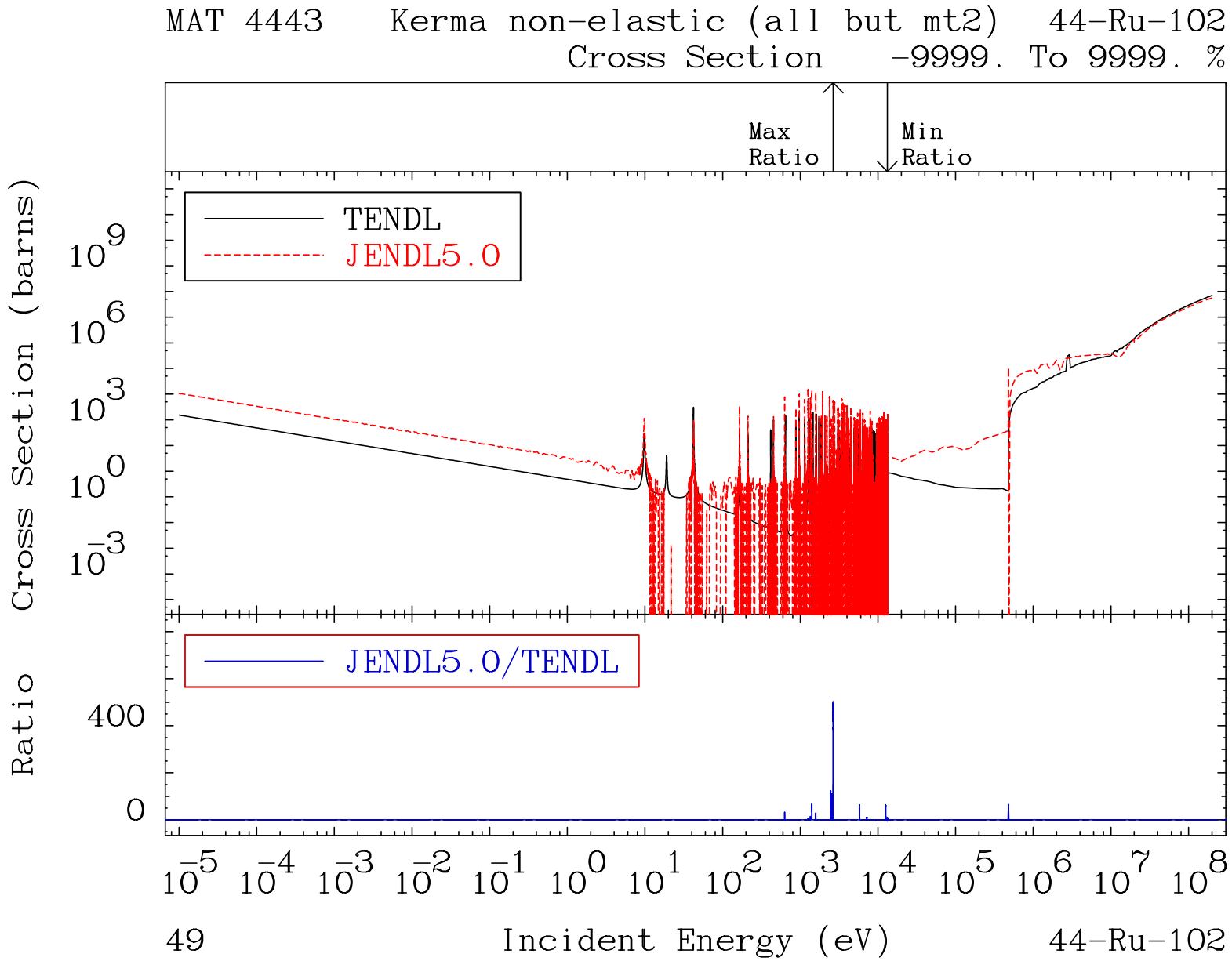

MAT 4443
Tritium Production
44-Ru-102
Cross Section
-100.0 To 9999. %
Max
Ratio
TENDL Threshold 10.063 MeV
JENDL5.0 Threshold 12.000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
100
80
60
40
20
0
400
200
0
10^7
2
3
4
5
6
7
8
9
10^8
2
44
Incident Energy (eV)
44-Ru-102

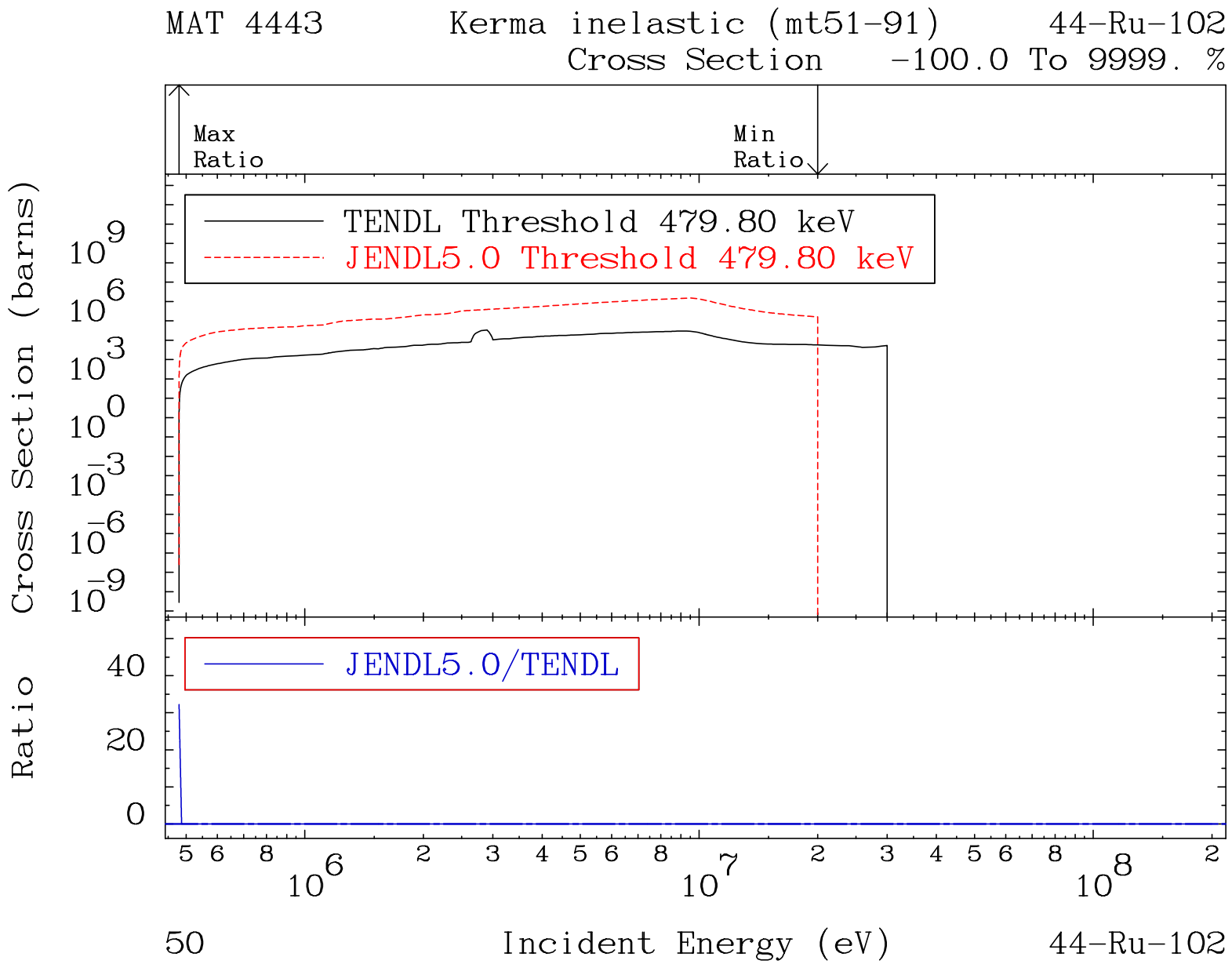

MAT 4443
He-3 Production
Cross Section
44-Ru-102
-100.0 To 8053. %
Min Ratio
Max Ratio
TENDL Threshold 9.8700 MeV
JENDL5.0 Threshold 15.000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
300
200
100
0
120
80
40
0
10^7
2
3
4
5
6
7
8
9
10^8
2
45
Incident Energy (eV)
44-Ru-102

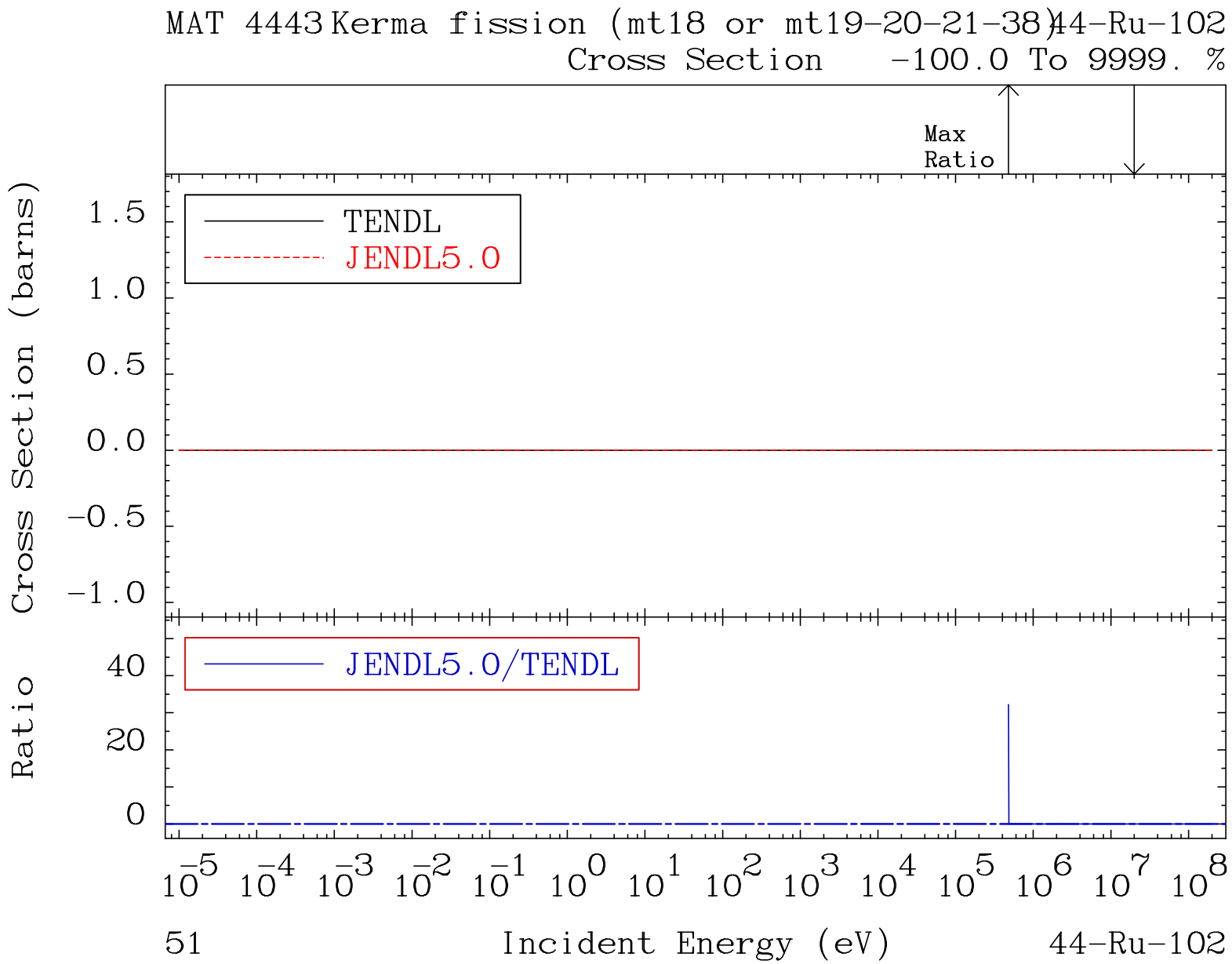

MAT 4443
He-4 Production
Cross Section
44-Ru-102
-100.0 To -9.091%
Min Ratio
Max Ratio
TENDL Threshold 13.348 keV
JENDL5.0 Threshold 4.0000 MeV
JENDL5.0/TENDL
Cross Section (barns)
Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
46
Incident Energy (eV)
44-Ru-102

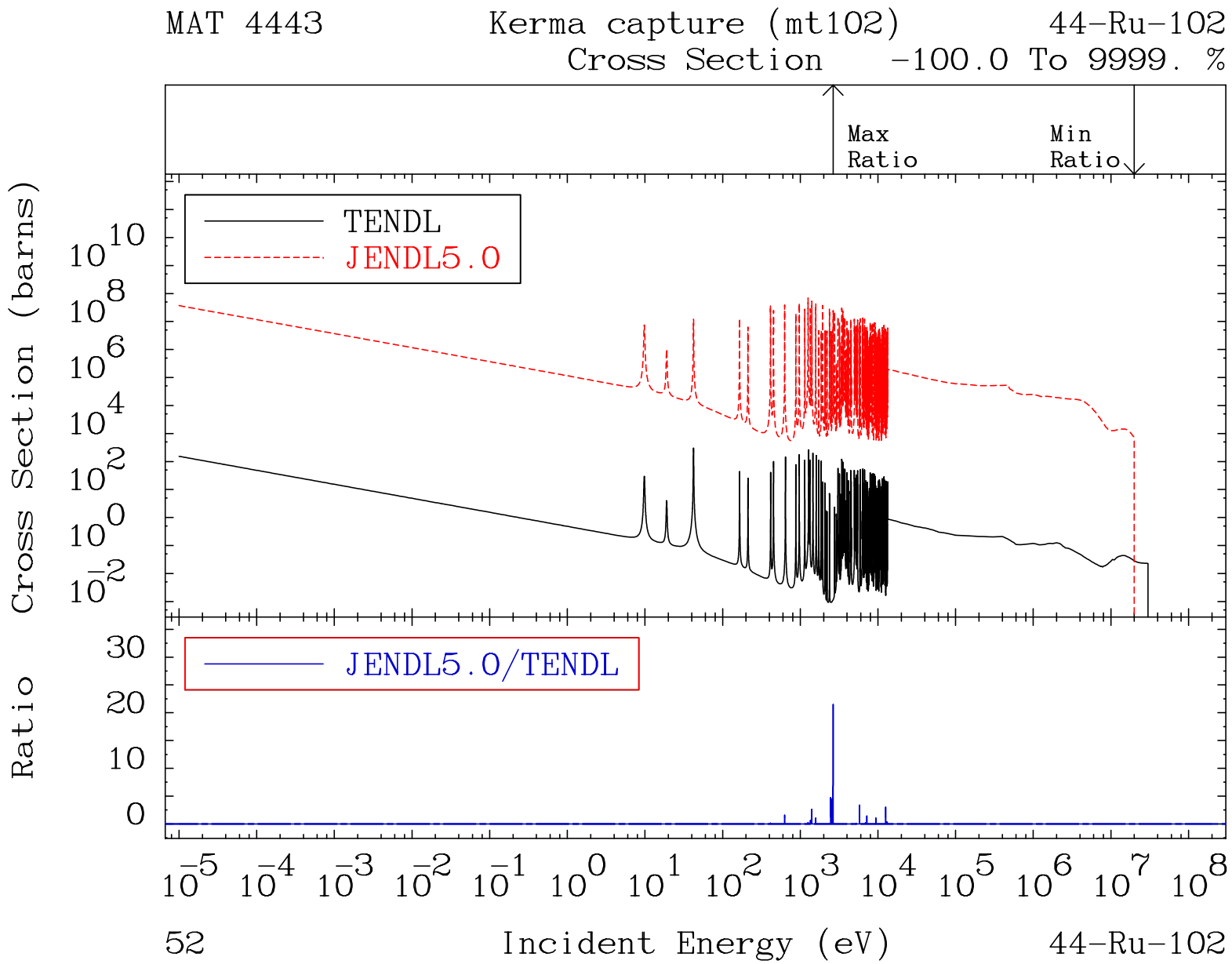

MAT 4443
Kerma total (eV-barns)
44-Ru-102
Cross Section -5774. To 9999. %
Min Ratio
Max Ratio
TENDL
JENDL5.0
Cross Section (barns)
JENDL5.0/TENDL
Ratio
Incident Energy (eV)
47
44-Ru-102

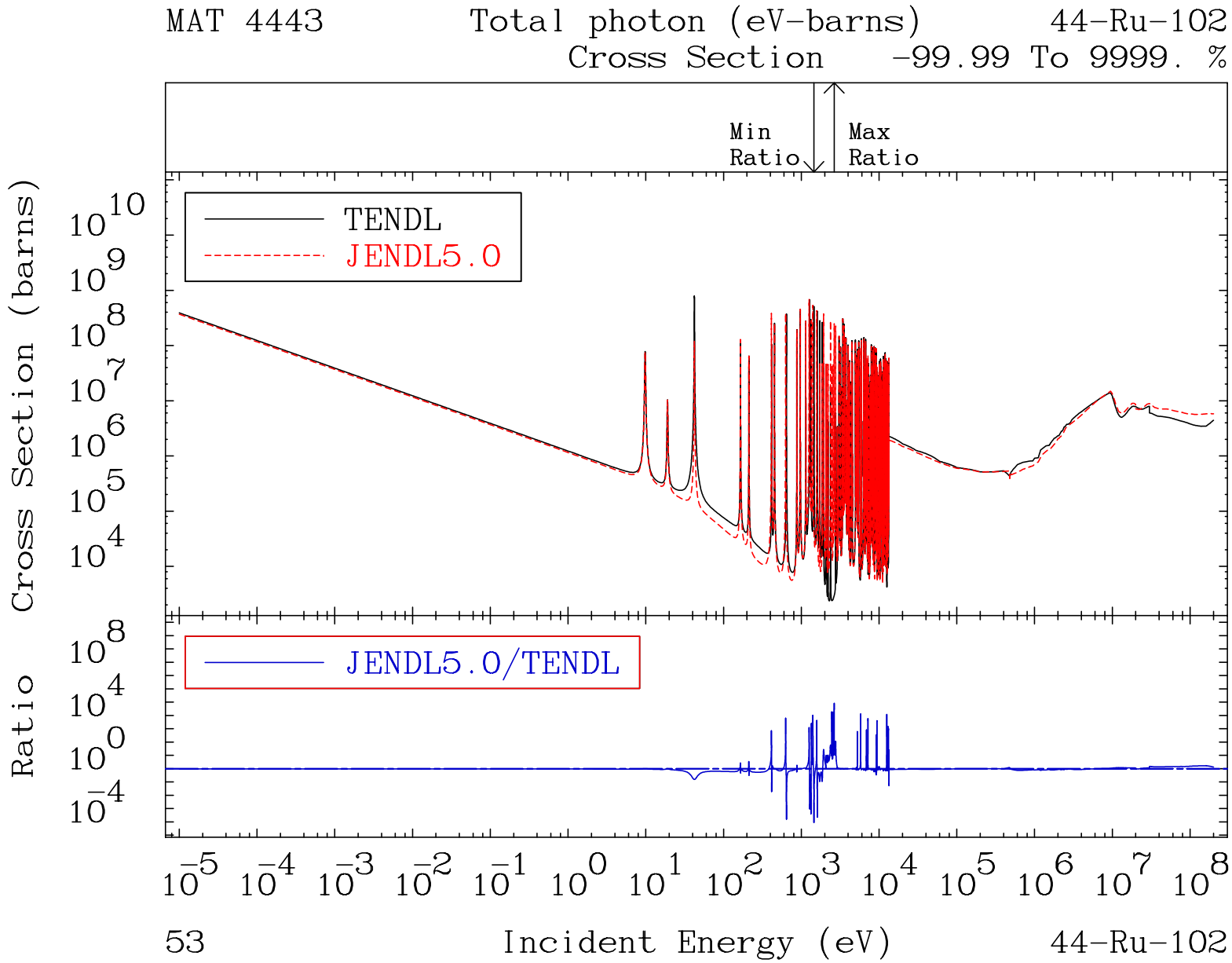

MAT 4443
Kerma elastic
Cross Section
44-Ru-102
-98.62 To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
48
44-Ru-102

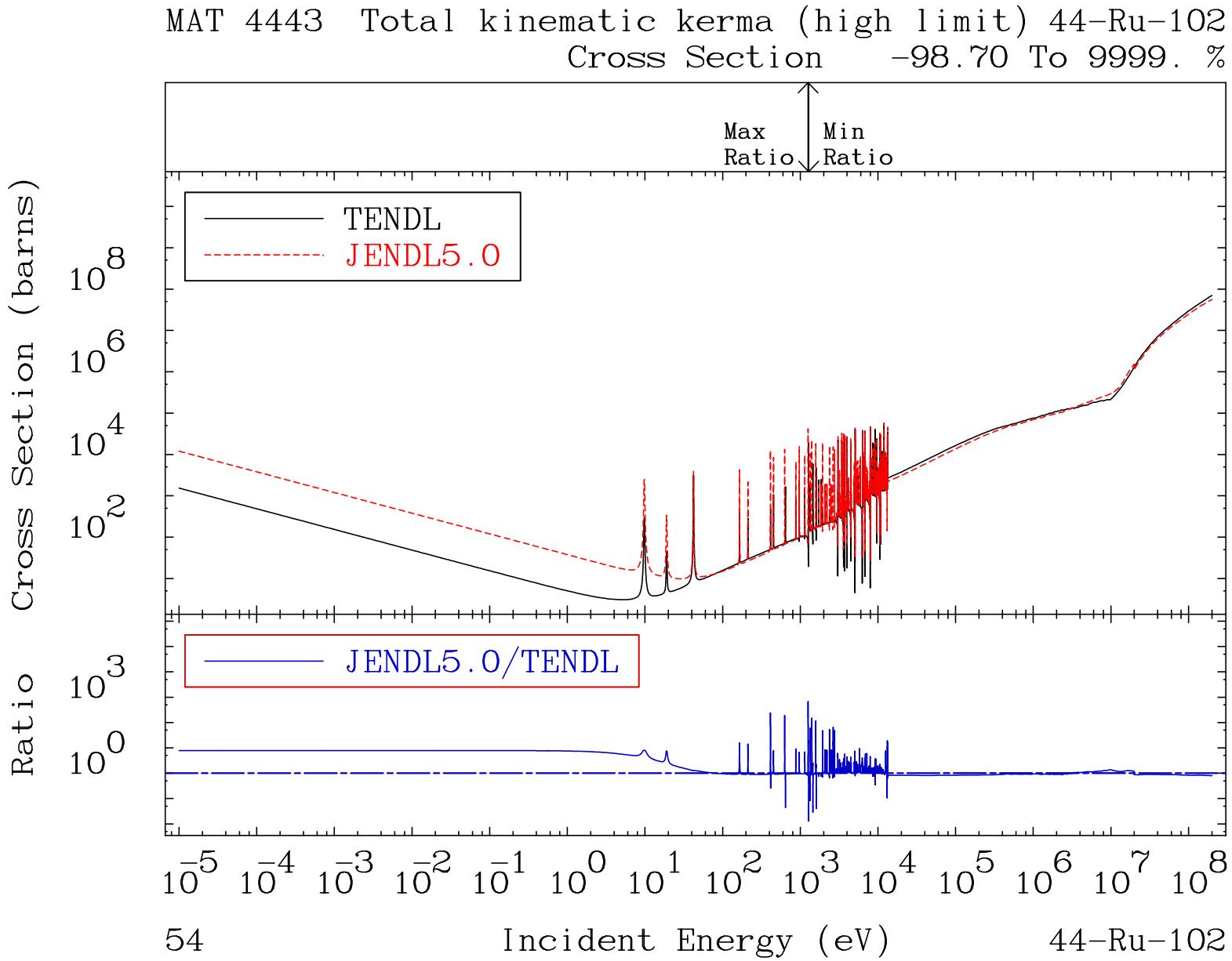

MAT 4443 Kerma non-elastic (all but mt2) 44-Ru-102
Cross Section -9999. To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
49
44-Ru-102

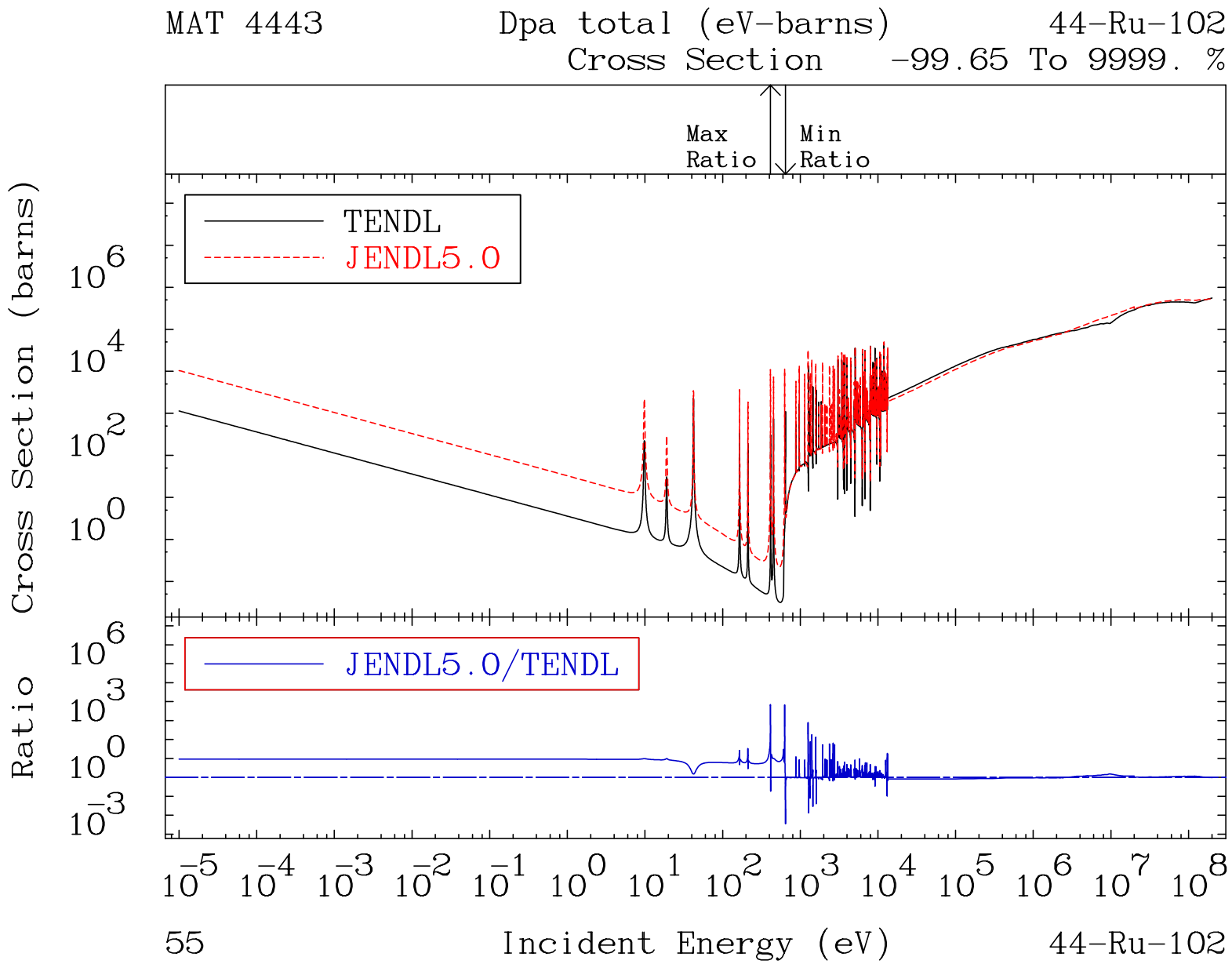

MAT 4443
Kerma inelastic (mt51-91)
44-Ru-102
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 479.80 keV
JENDL5.0 Threshold 479.80 keV
Cross Section (barns)
JENDL5.0/TENDL
Ratio
Incident Energy (eV)
50
44-Ru-102

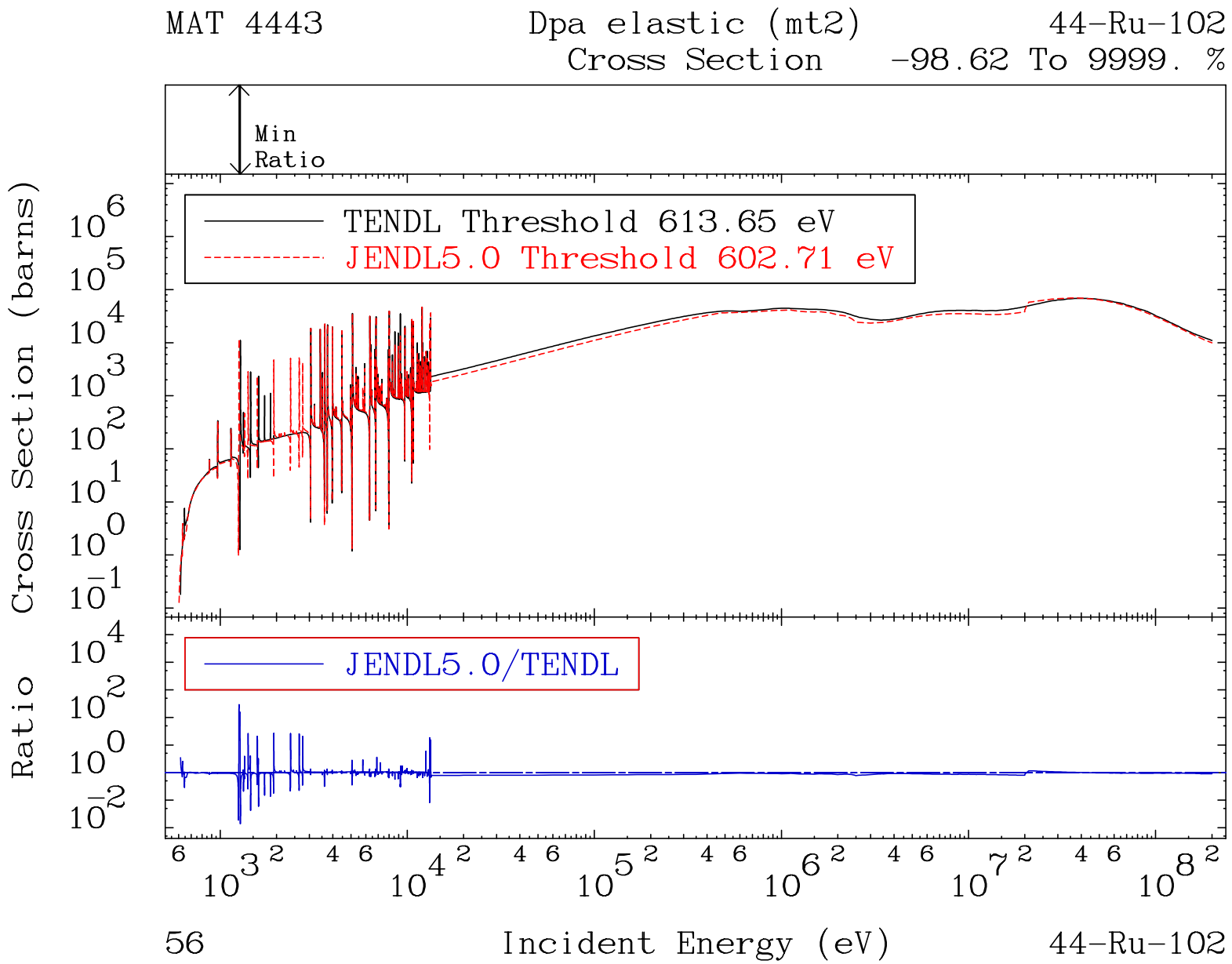

MAT 4443 Kerma fission (mt18 or mt19-20-21-38) 44-Ru-102
Cross Section -100.0 To 9999. %
Max
Ratio
TENDL
JENDL5.0
JENDL5.0/TENDL
Cross Section (barns)
Ratio
1.5
1.0
0.5
0.0
-0.5
-1.0
40
20
0
10^{-5} 10^{-4} 10^{-3} 10^{-2} 10^{-1} 10^{0} 10^{1} 10^{2} 10^{3} 10^{4} 10^{5} 10^{6} 10^{7} 10^{8}
51
Incident Energy (eV)
44-Ru-102

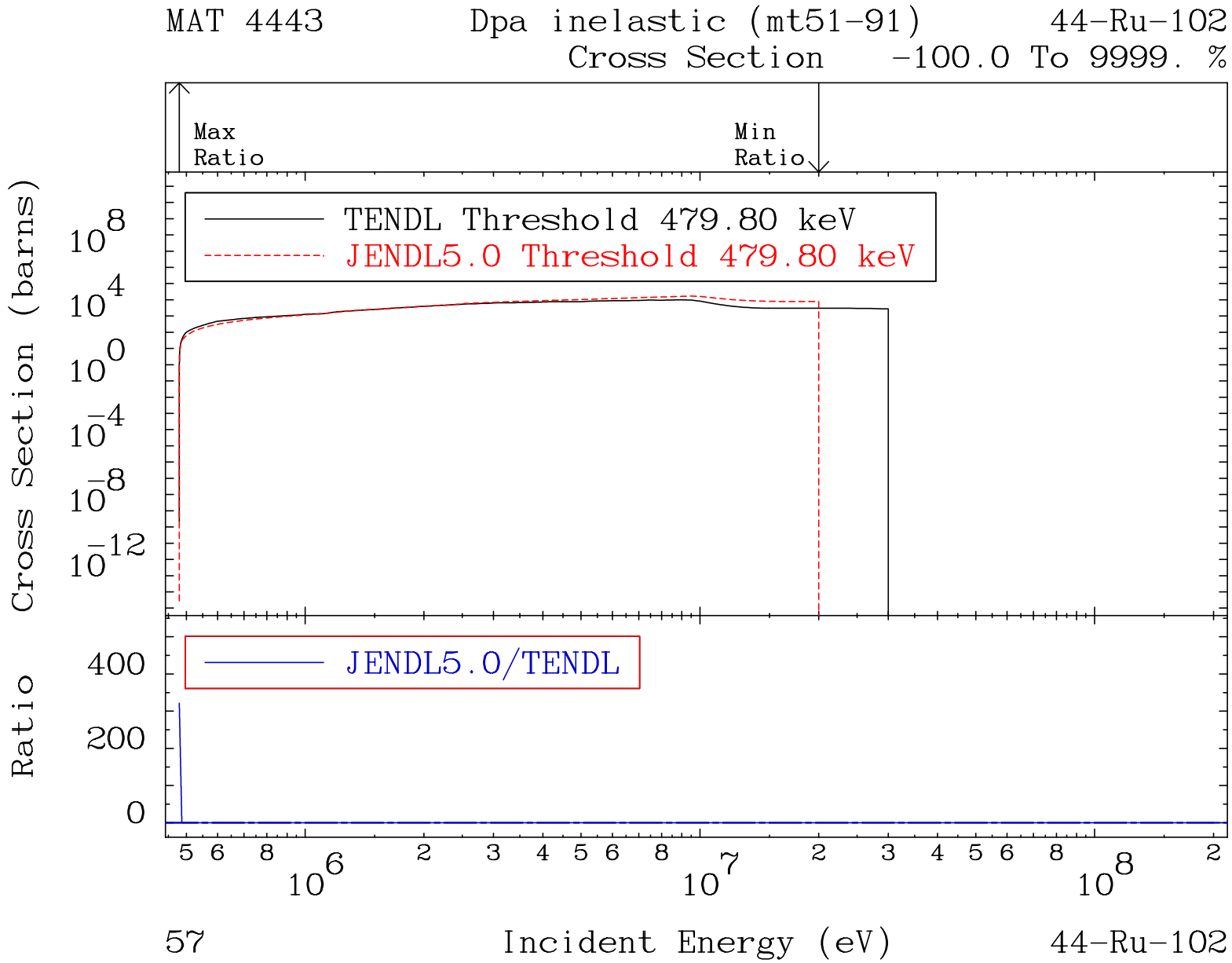

MAT 4443
Kerma capture (mt102)
44-Ru-102
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
Cross Section (barns)
JENDL5.0/TENDL
Ratio
Incident Energy (eV)
52
44-Ru-102

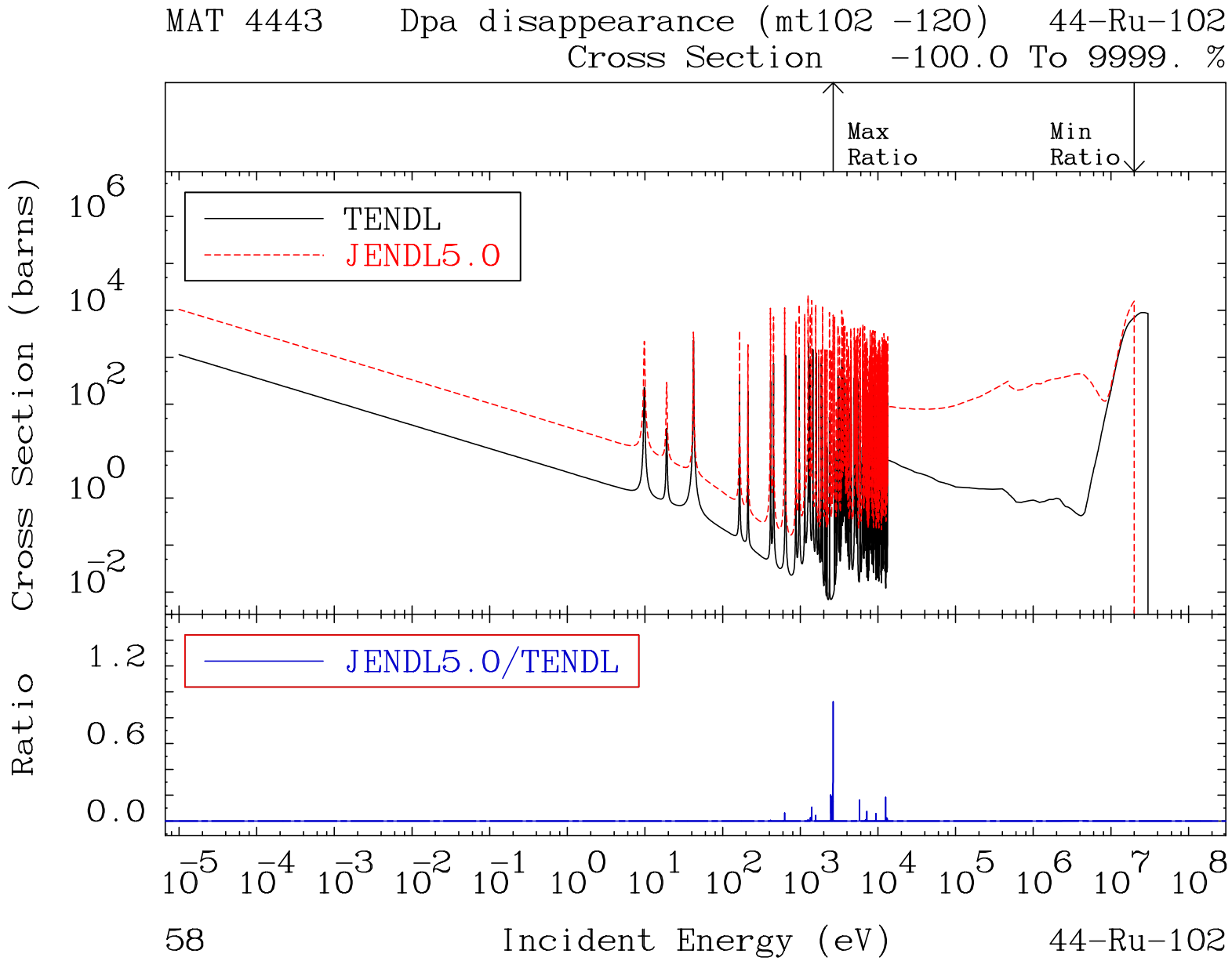

MAT 4443
Total photon (eV-barns)
44-Ru-102
Cross Section -99.99 To 9999. %
Min Ratio
Max Ratio
TENDL
JENDL5.0
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
53
44-Ru-102

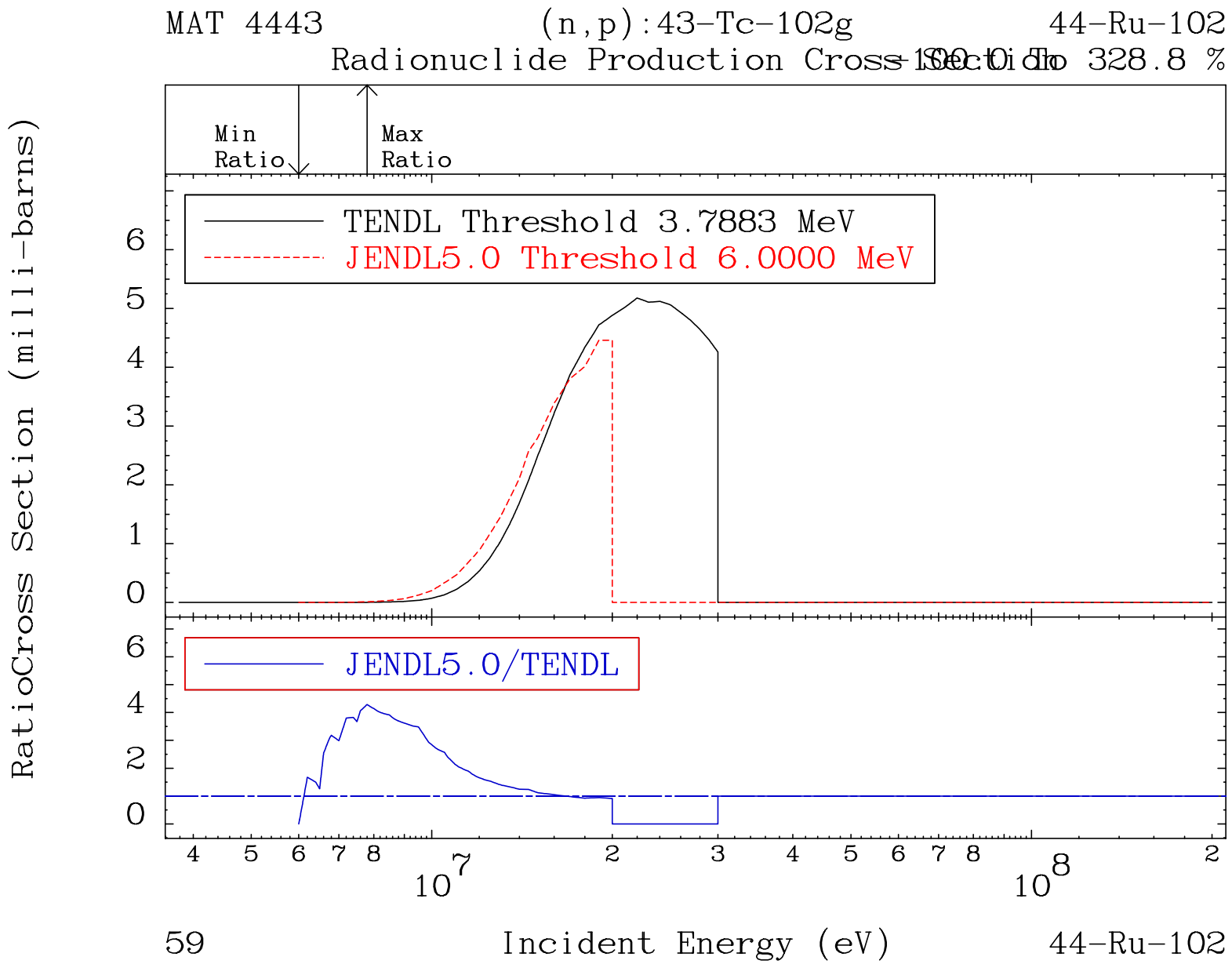

MAT 4443 Total kinematic kerma (high limit) 44-Ru-102
Cross Section -98.70 To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
Cross Section (barns)
JENDL5.0/TENDL
Ratio
Incident Energy (eV)
54
44-Ru-102

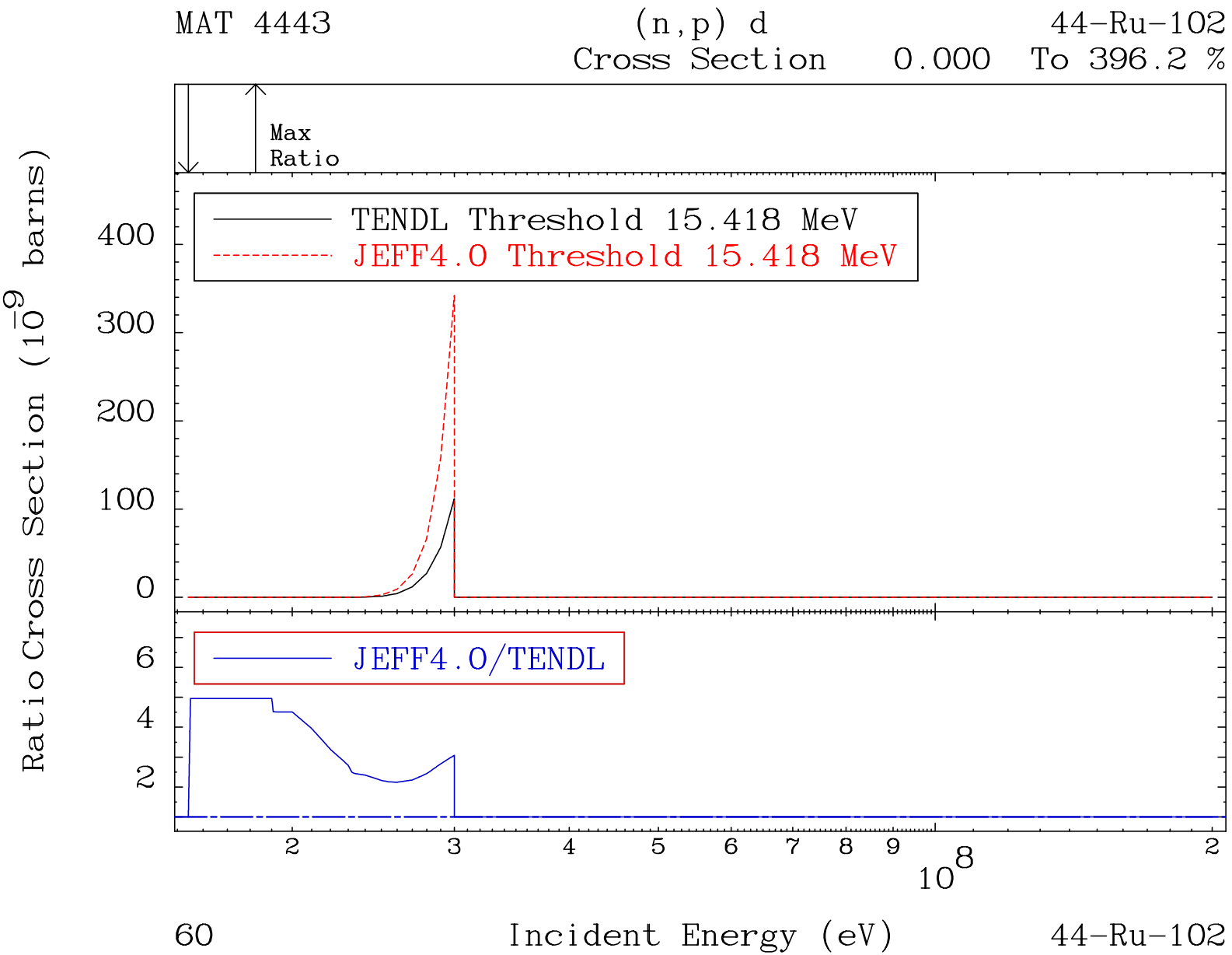

MAT 4443
Dpa total (eV-barns)
44-Ru-102
Cross Section
-99.65 To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
55
44-Ru-102

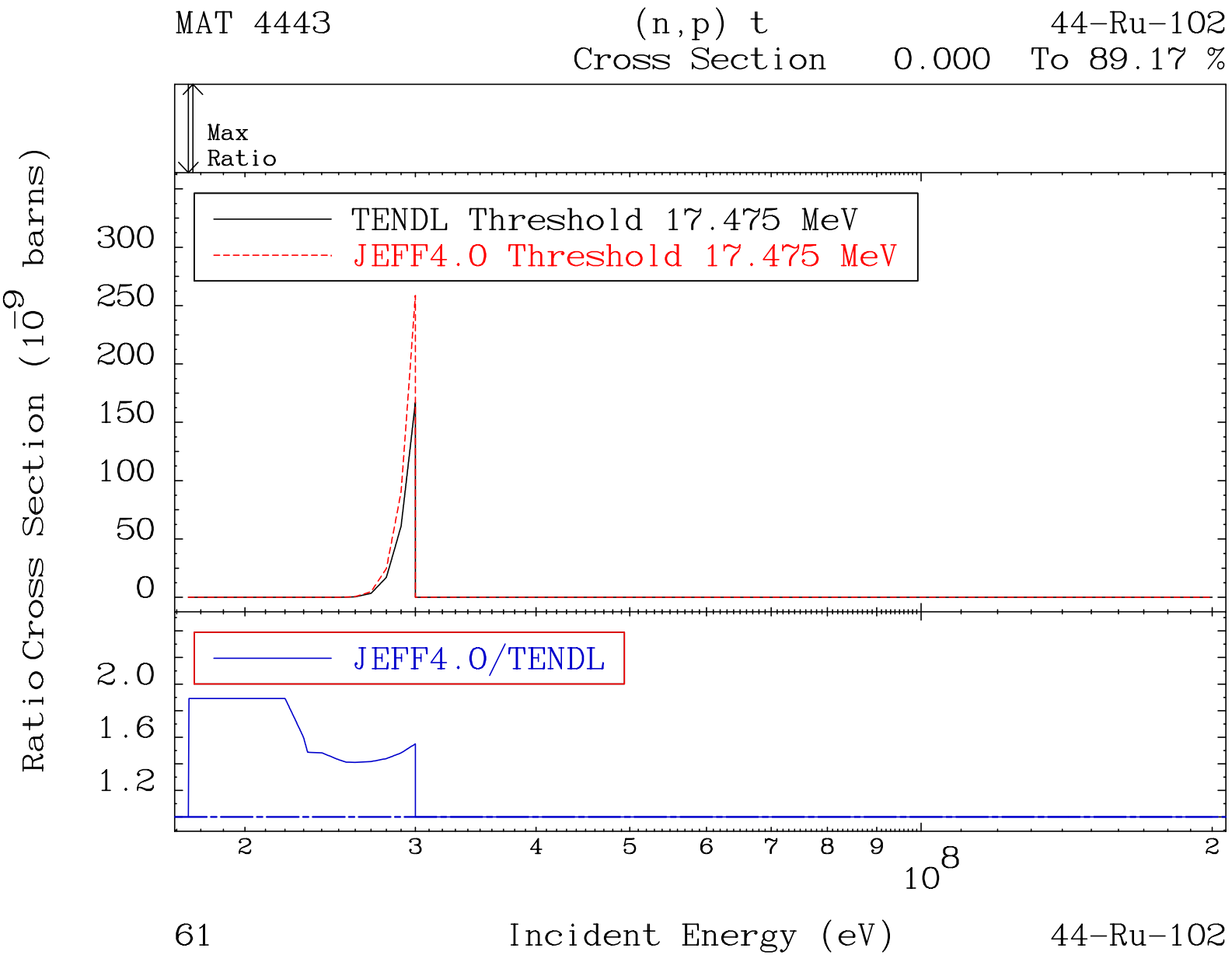

MAT 4443
Dpa elastic (mt2)
Cross Section
44-Ru-102
-98.62 To 9999. %
Min
Ratio
TENDL Threshold 613.65 eV
JENDL5.0 Threshold 602.71 eV
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
56
44-Ru-102

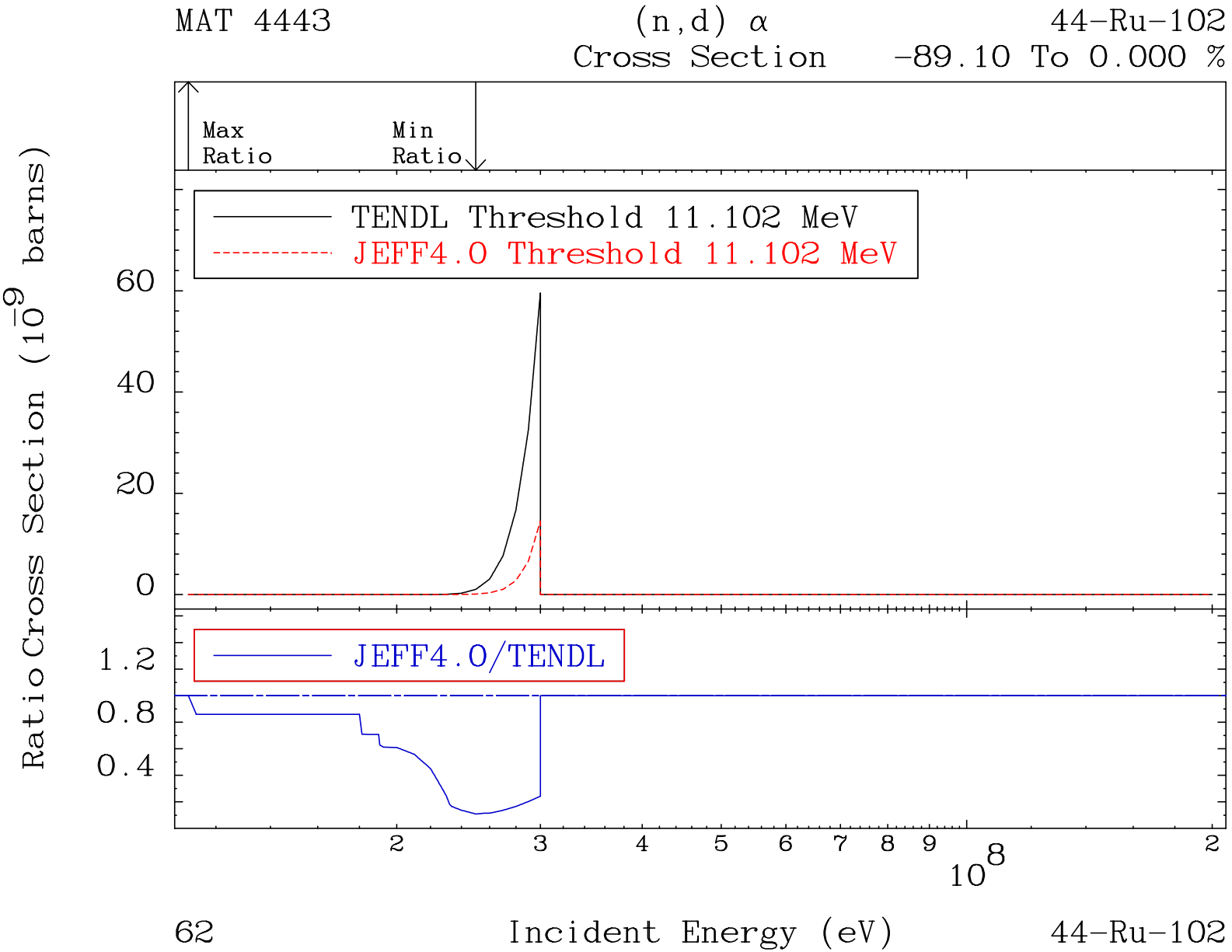

MAT 4443
Dpa inelastic (mt51-91)
44-Ru-102
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL Threshold 479.80 keV
JENDL5.0 Threshold 479.80 keV
JENDL5.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
57
44-Ru-102

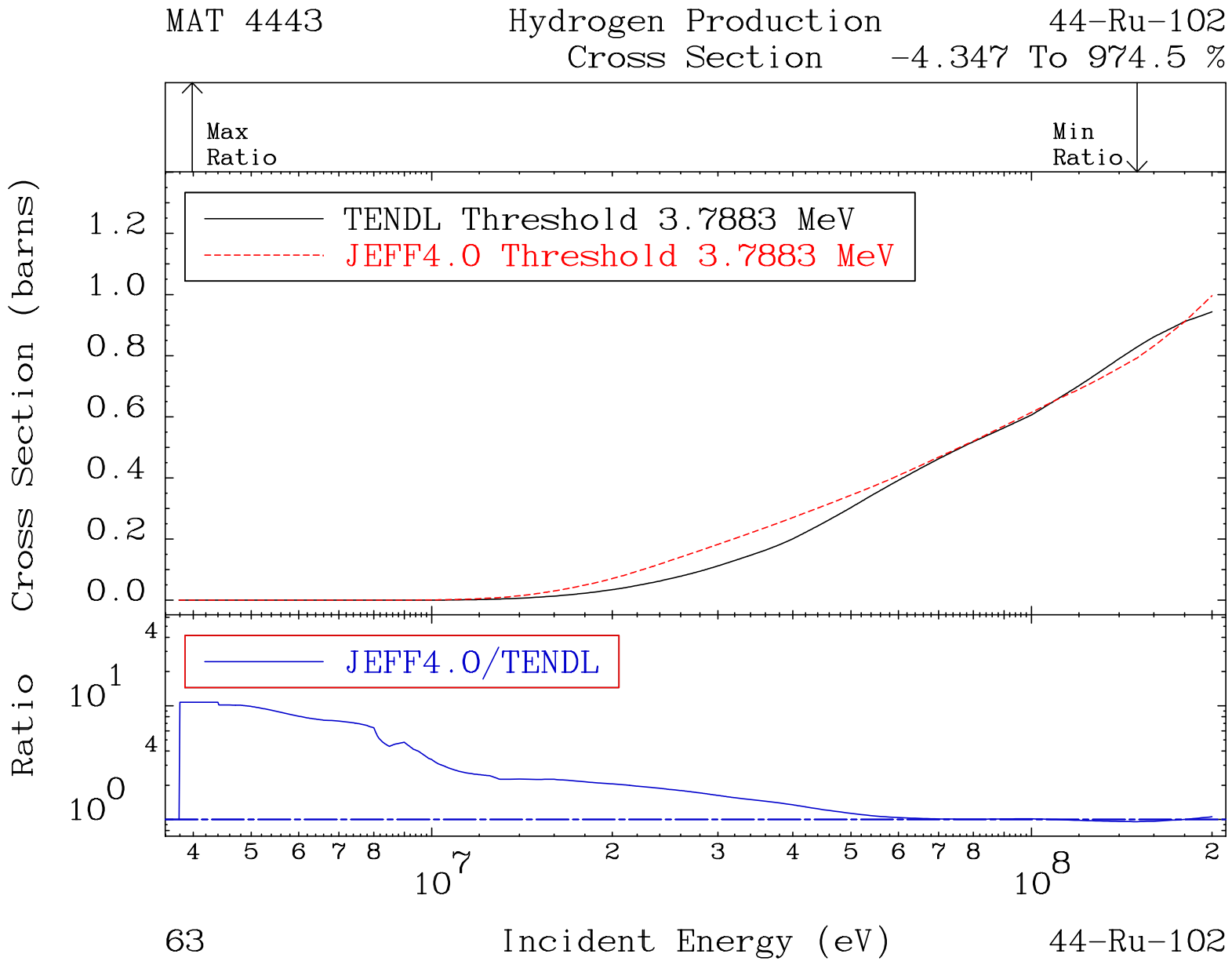

MAT 4443 Dpa disappearance (mt102 -120) 44-Ru-102
Cross Section -100.0 To 9999. %
Max Ratio
Min Ratio
TENDL
JENDL5.0
Cross Section (barns)
JENDL5.0/TENDL
Ratio
Incident Energy (eV)
58
44-Ru-102

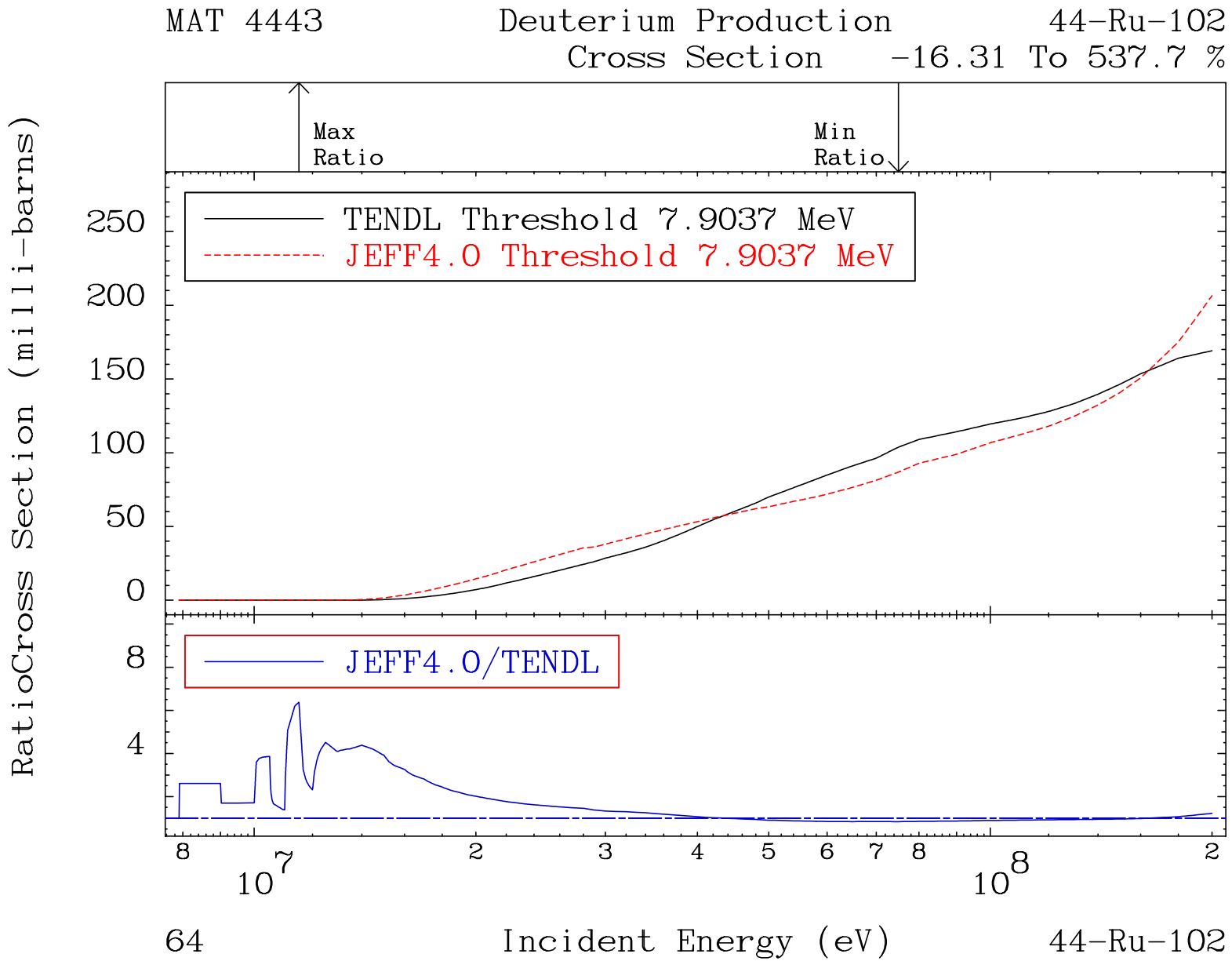

MAT 4443
(n,p):43-Tc-102g
44-Ru-102
Radionuclide Production Cross Section
Min Ratio
Max Ratio
TENDL Threshold 3.7883 MeV
JENDL5.0 Threshold 6.0000 MeV
JENDL5.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
59
44-Ru-102

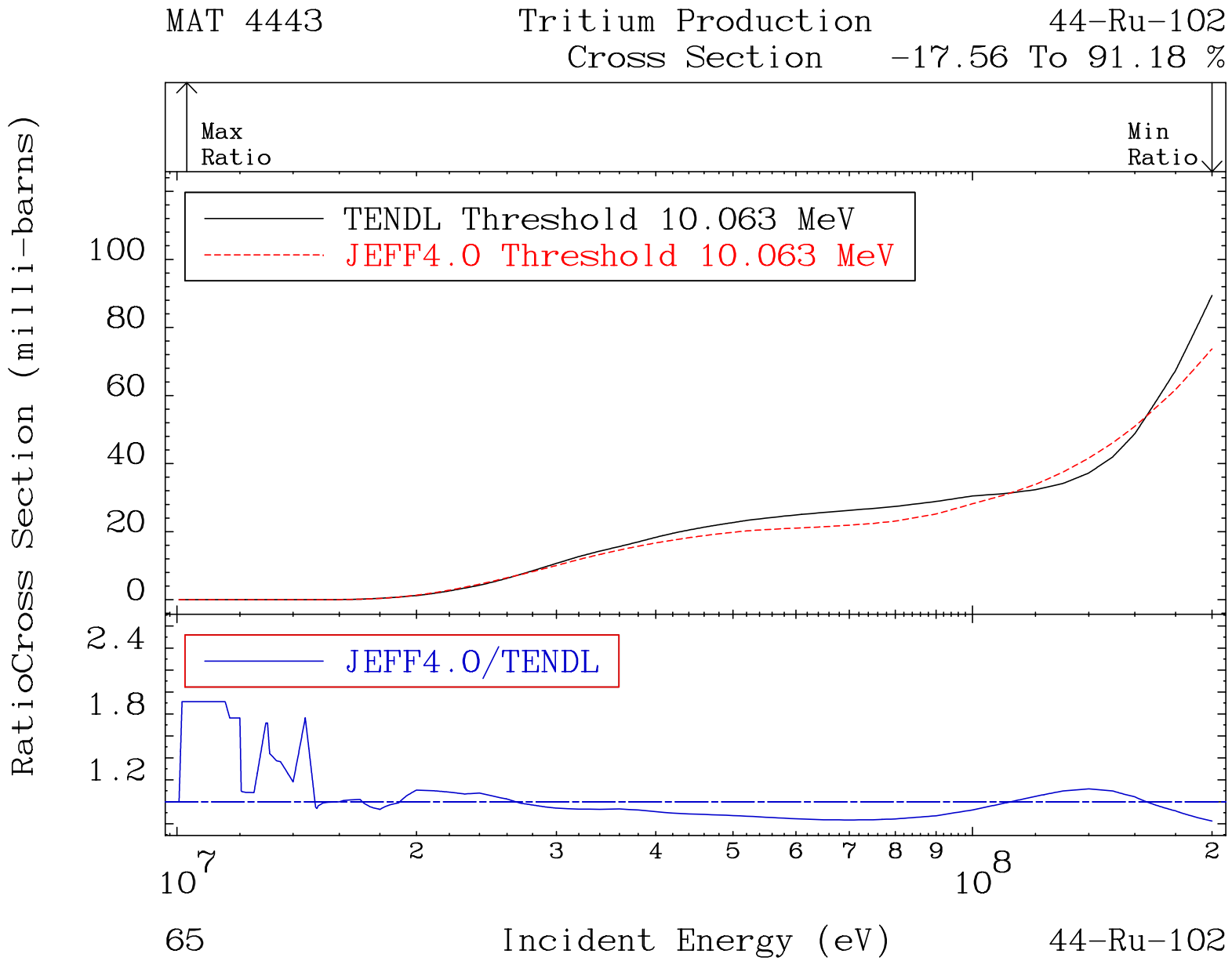

MAT 4443
(n,p) d
Cross Section
0.000 To 396.2 %
44-Ru-102
Max
Ratio
TENDL Threshold 15.418 MeV
JEFF4.0 Threshold 15.418 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^-9 barns)
400
300
200
100
0
6
4
2
2
3
4
5
6
7
8
9
10^8
2
60
Incident Energy (eV)
44-Ru-102

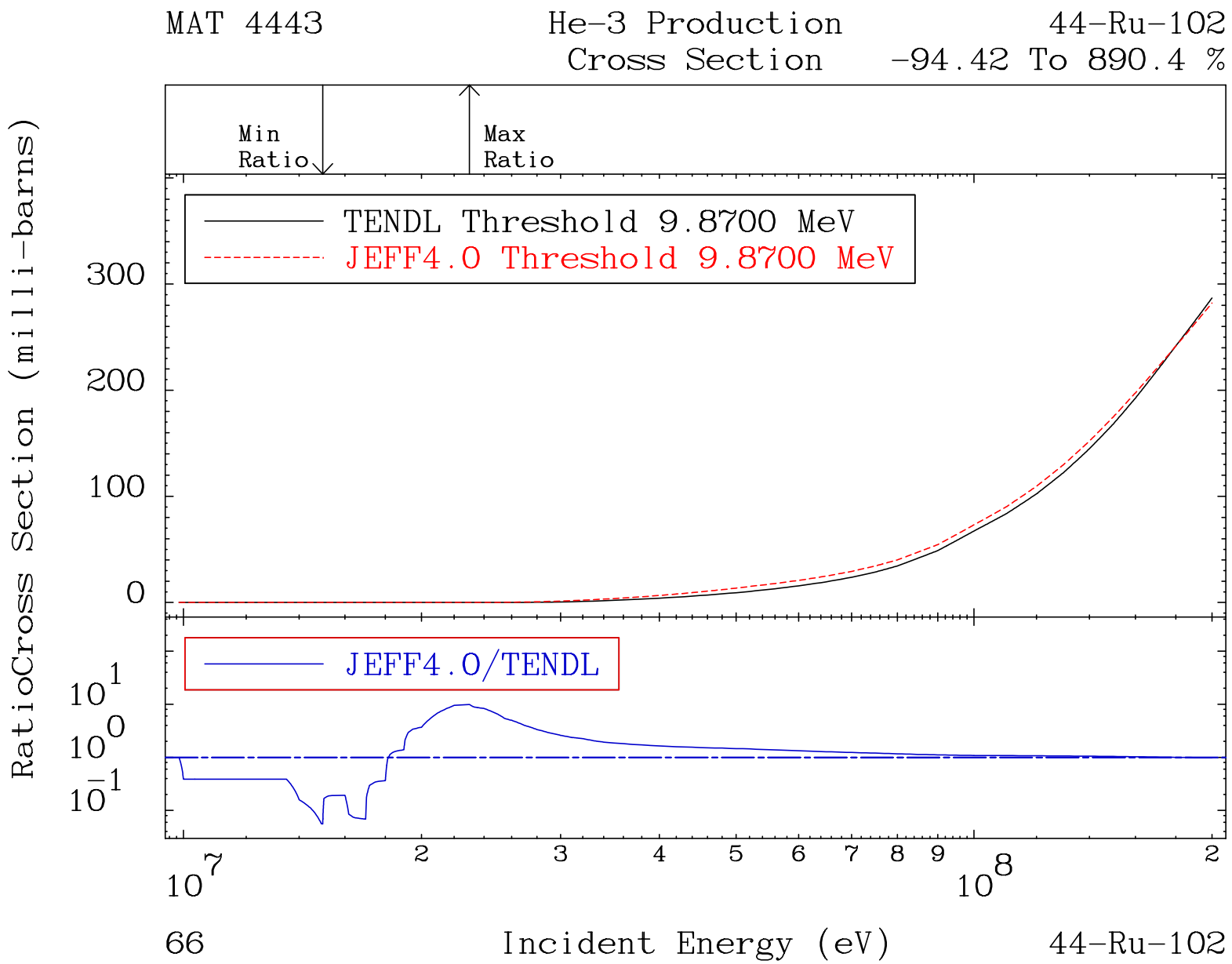

MAT 4443
(n,p) t
Cross Section
44-Ru-102
0.000 To 89.17 %
Max
Ratio
TENDL Threshold 17.475 MeV
JEFF4.0 Threshold 17.475 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^{-9} barns)
300
250
200
150
100
50
0
2.0
1.6
1.2
2
3
4
5
6
7
8
9
10^8
2
61
Incident Energy (eV)
44-Ru-102

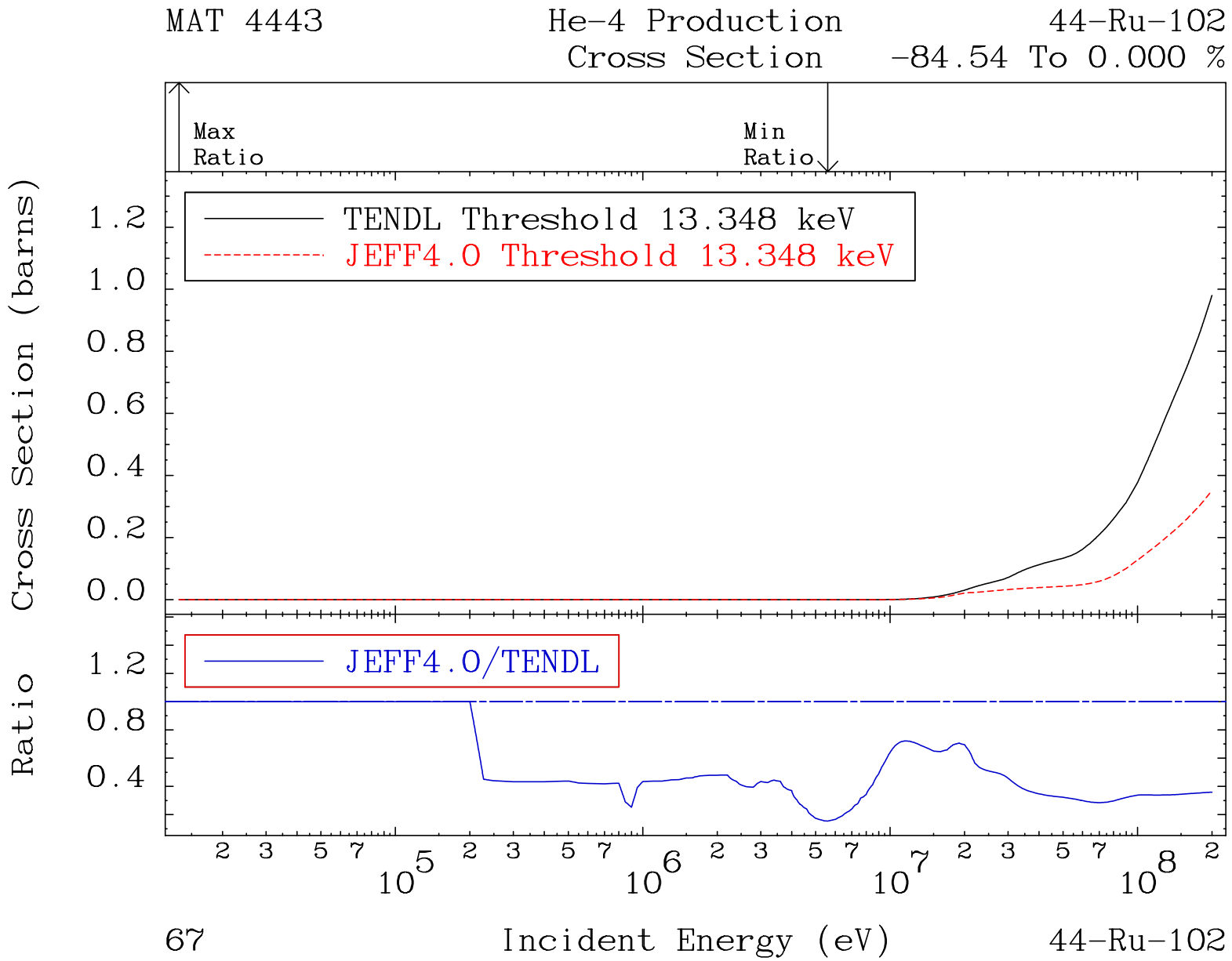

MAT 4443
(n,d) α
Cross Section
44-Ru-102
-89.10 To 0.000 %
Max Ratio
Min Ratio
TENDL Threshold 11.102 MeV
JEFF4.0 Threshold 11.102 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^{-9} barns)
60
40
20
0
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
62
Incident Energy (eV)
44-Ru-102

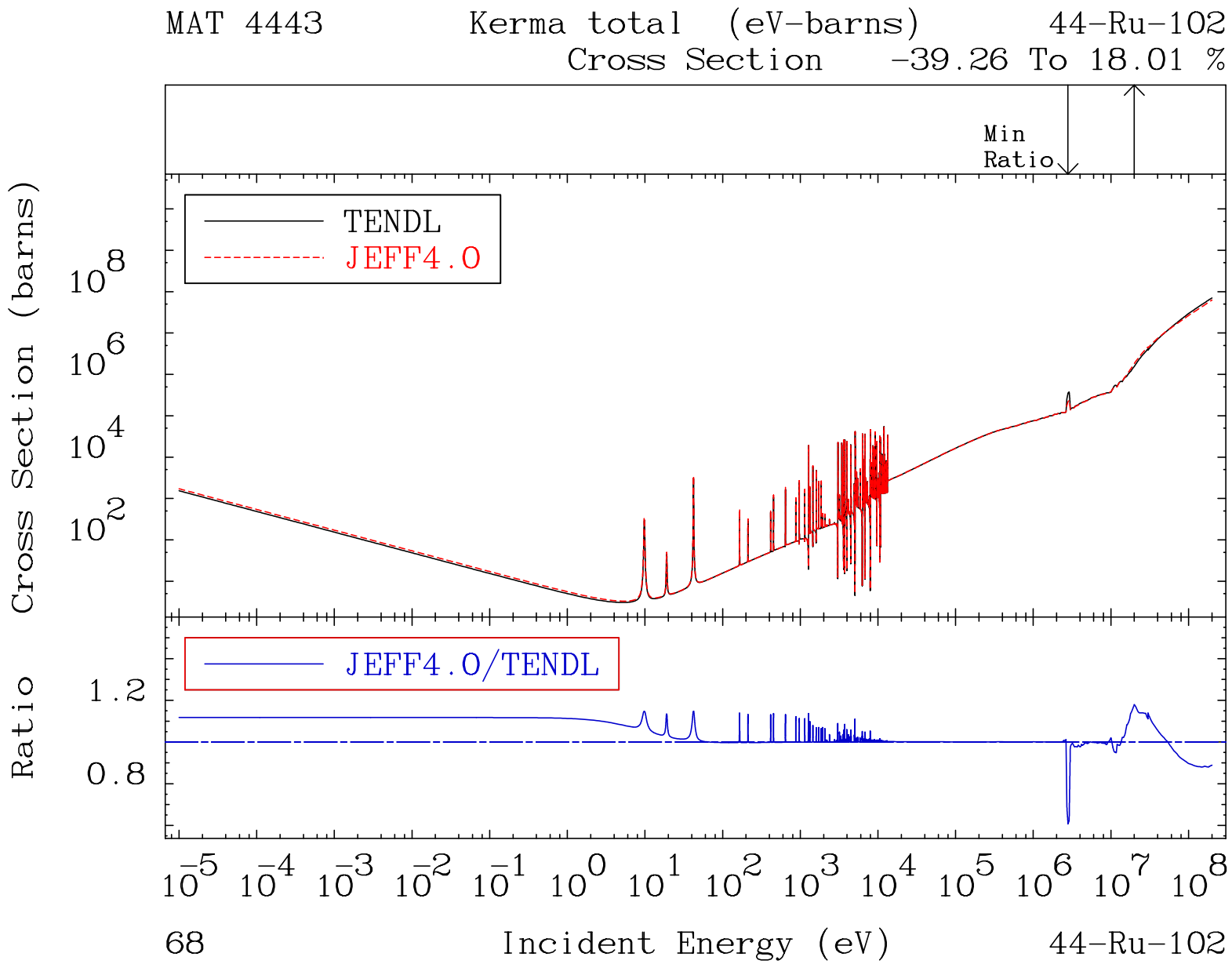

MAT 4443
Hydrogen Production
Cross Section
44-Ru-102
-4.347 To 974.5 %
Max Ratio
Min Ratio
TENDL Threshold 3.7883 MeV
JEFF4.0 Threshold 3.7883 MeV
JEFF4.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
63
44-Ru-102

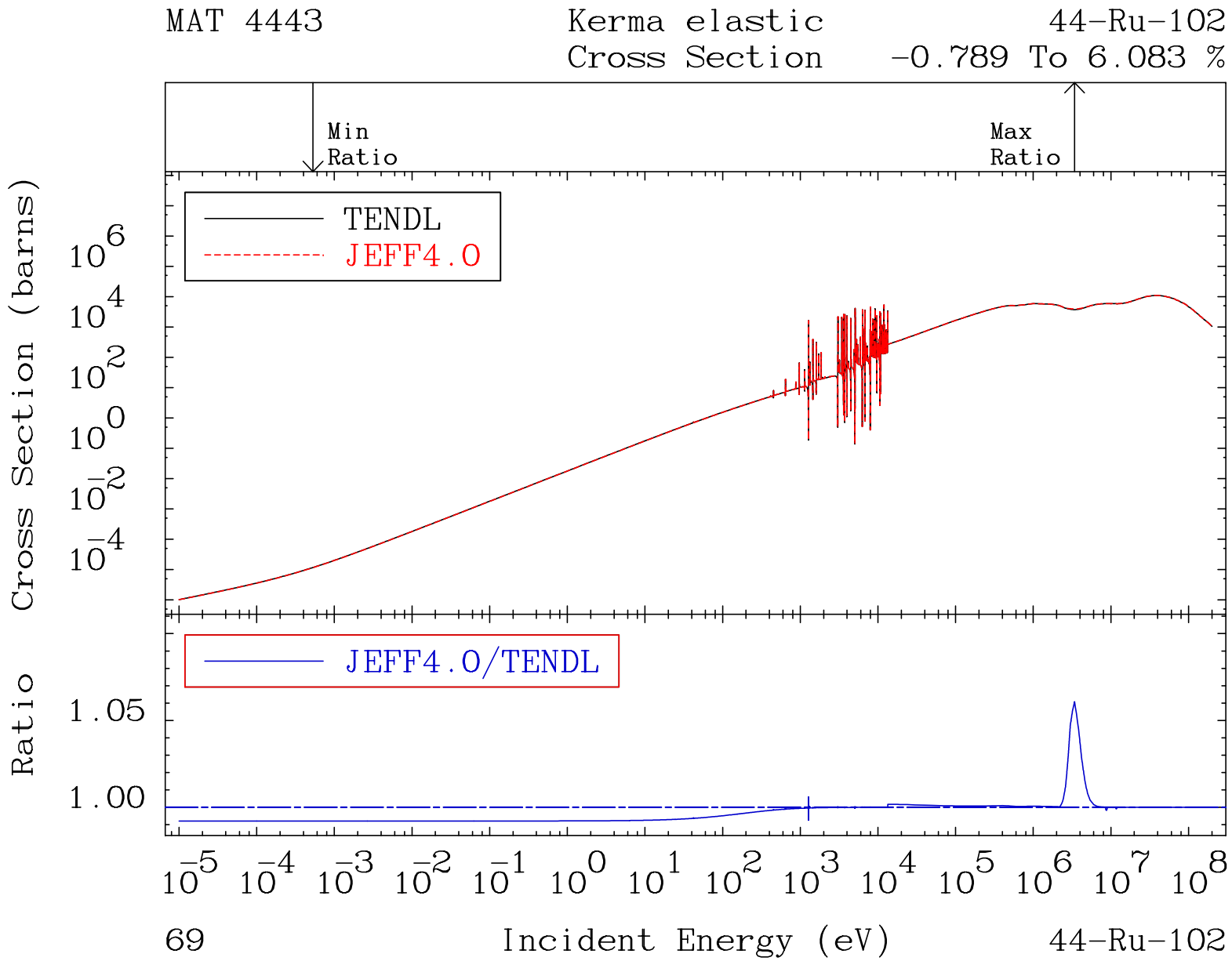

MAT 4443
Deuterium Production
44-Ru-102
Cross Section
-16.31 To 537.7 %
Max Ratio
Min Ratio
TENDL Threshold 7.9037 MeV
JEFF4.0 Threshold 7.9037 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
250
200
150
100
50
0
8
4
8
2
3
4
5
6
7
8
2
10^7
10^8
64
Incident Energy (eV)
44-Ru-102

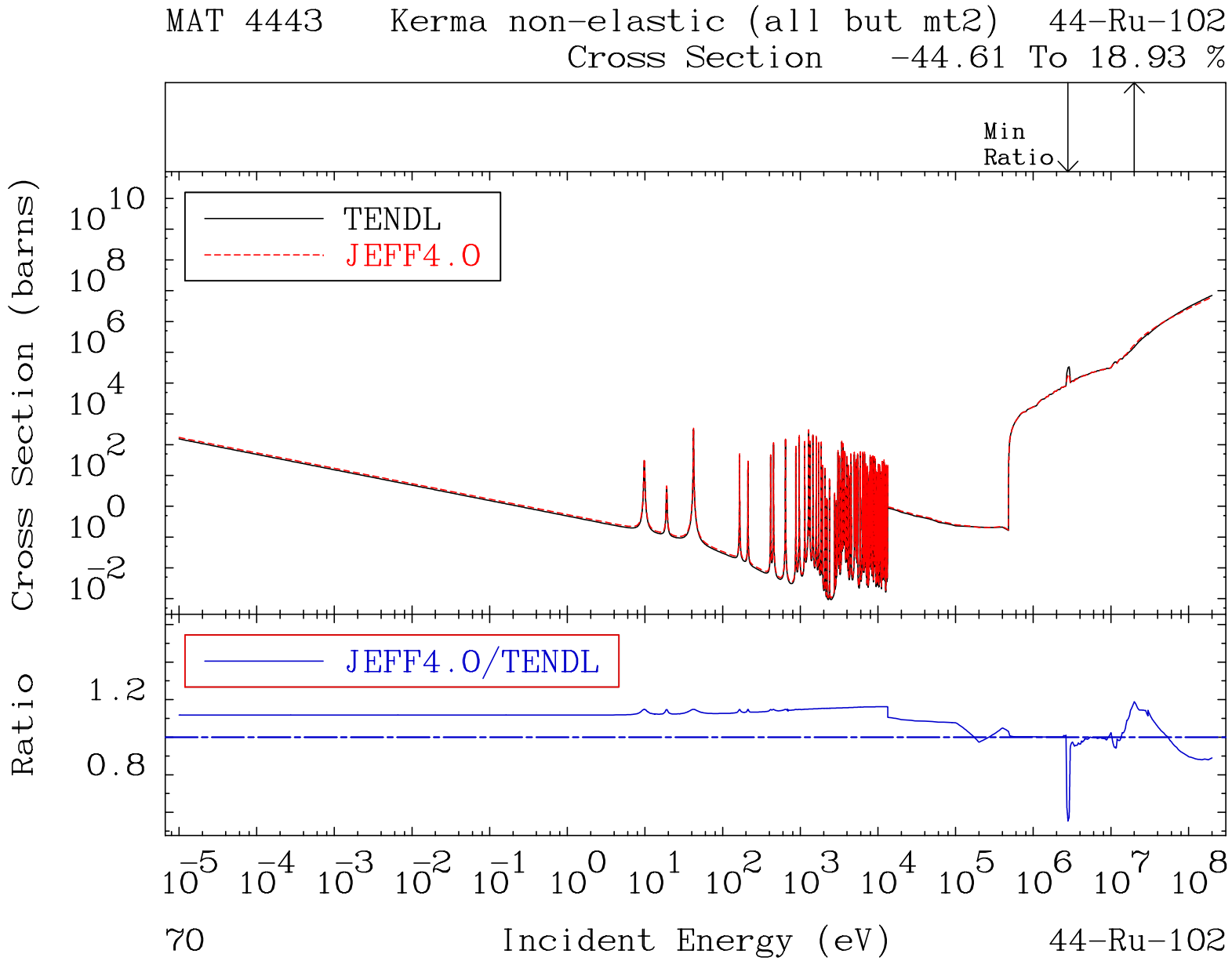

MAT 4443
Tritium Production
Cross Section
44-Ru-102
-17.56 To 91.18 %
Max Ratio
Min Ratio
TENDL Threshold 10.063 MeV
JEFF4.0 Threshold 10.063 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
100
80
60
40
20
0
2.4
1.8
1.2
10^7
2
3
4
5
6
7
8
9
10^8
2
65
Incident Energy (eV)
44-Ru-102

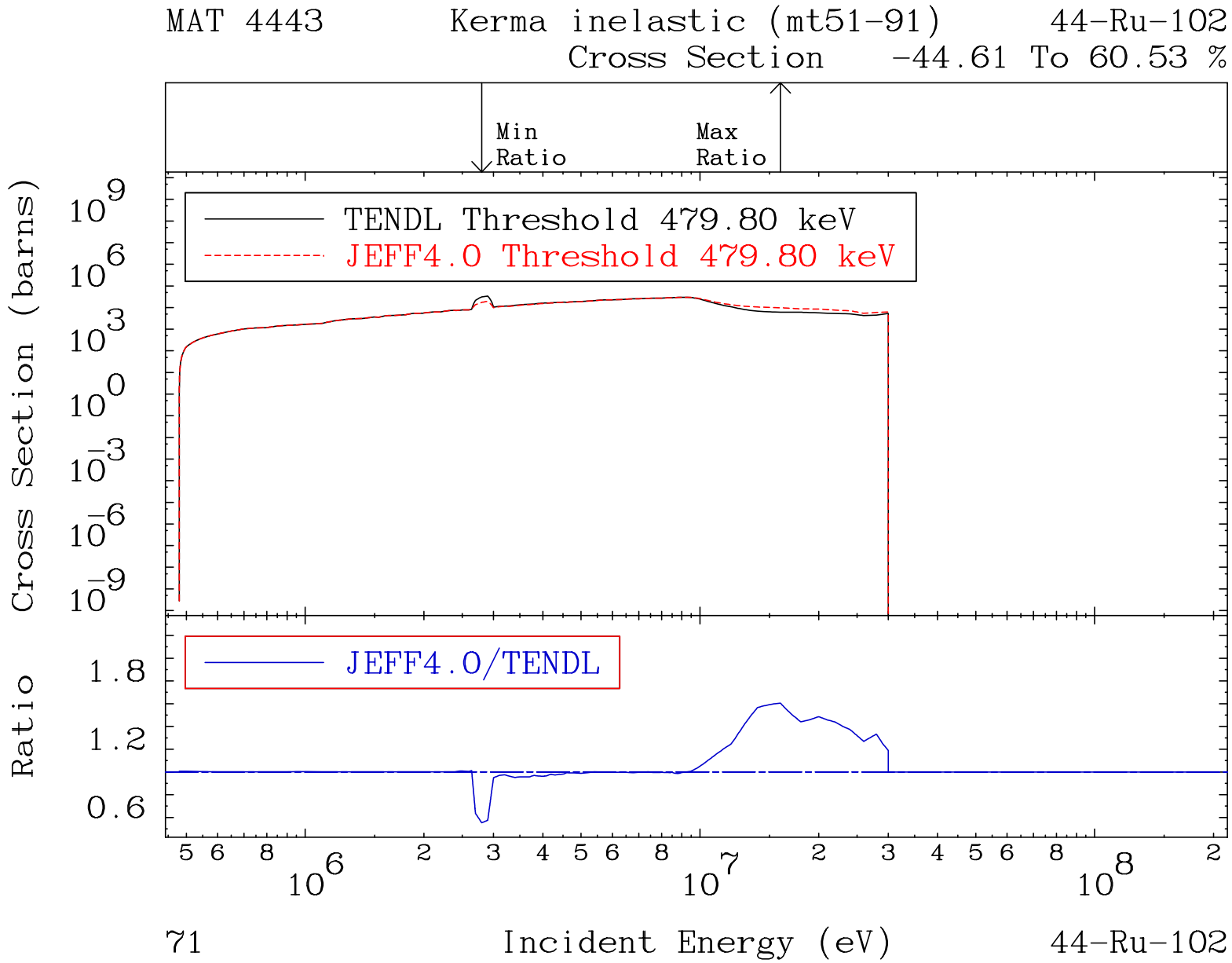

MAT 4443
He-3 Production
Cross Section
44-Ru-102
-94.42 To 890.4 %
Min Ratio
Max Ratio
TENDL Threshold 9.8700 MeV
JEFF4.0 Threshold 9.8700 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
300
200
100
0
10^{1}
10^{0}
10^{-1}
10^{7}
2
3
4
5
6
7
8
9
10^{8}
2
66
Incident Energy (eV)
44-Ru-102

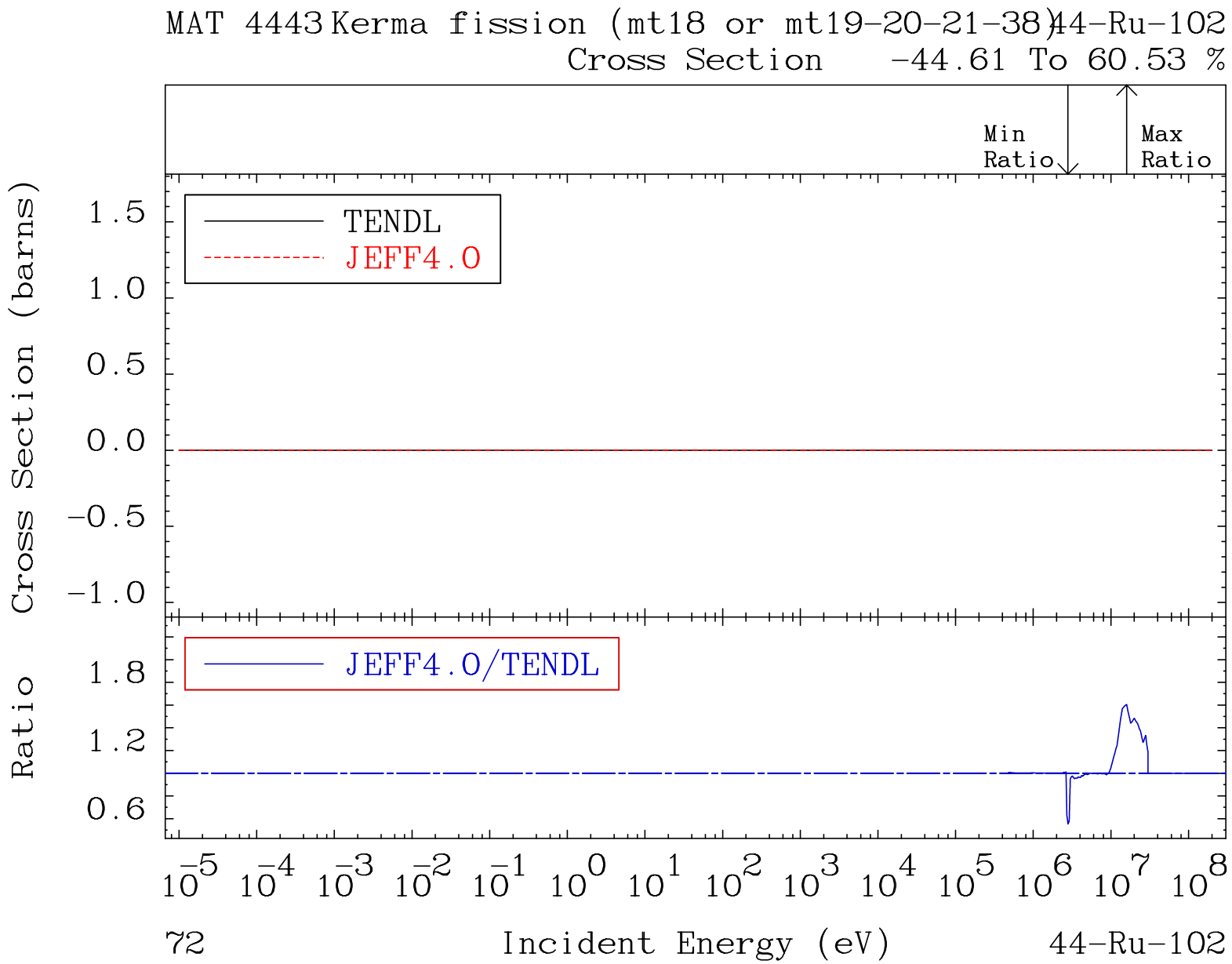

MAT 4443
He-4 Production
Cross Section
44-Ru-102
-84.54 To 0.000 %
Max Ratio
Min Ratio
TENDL Threshold 13.348 keV
JEFF4.0 Threshold 13.348 keV
JEFF4.0/TENDL
Cross Section (barns)
Ratio
1.2
1.0
0.8
0.6
0.4
0.2
0.0
2 3 5 7 10^5 2 3 5 7 10^6 2 3 5 7 10^7 2 3 5 7 10^8 2
67
Incident Energy (eV)
44-Ru-102

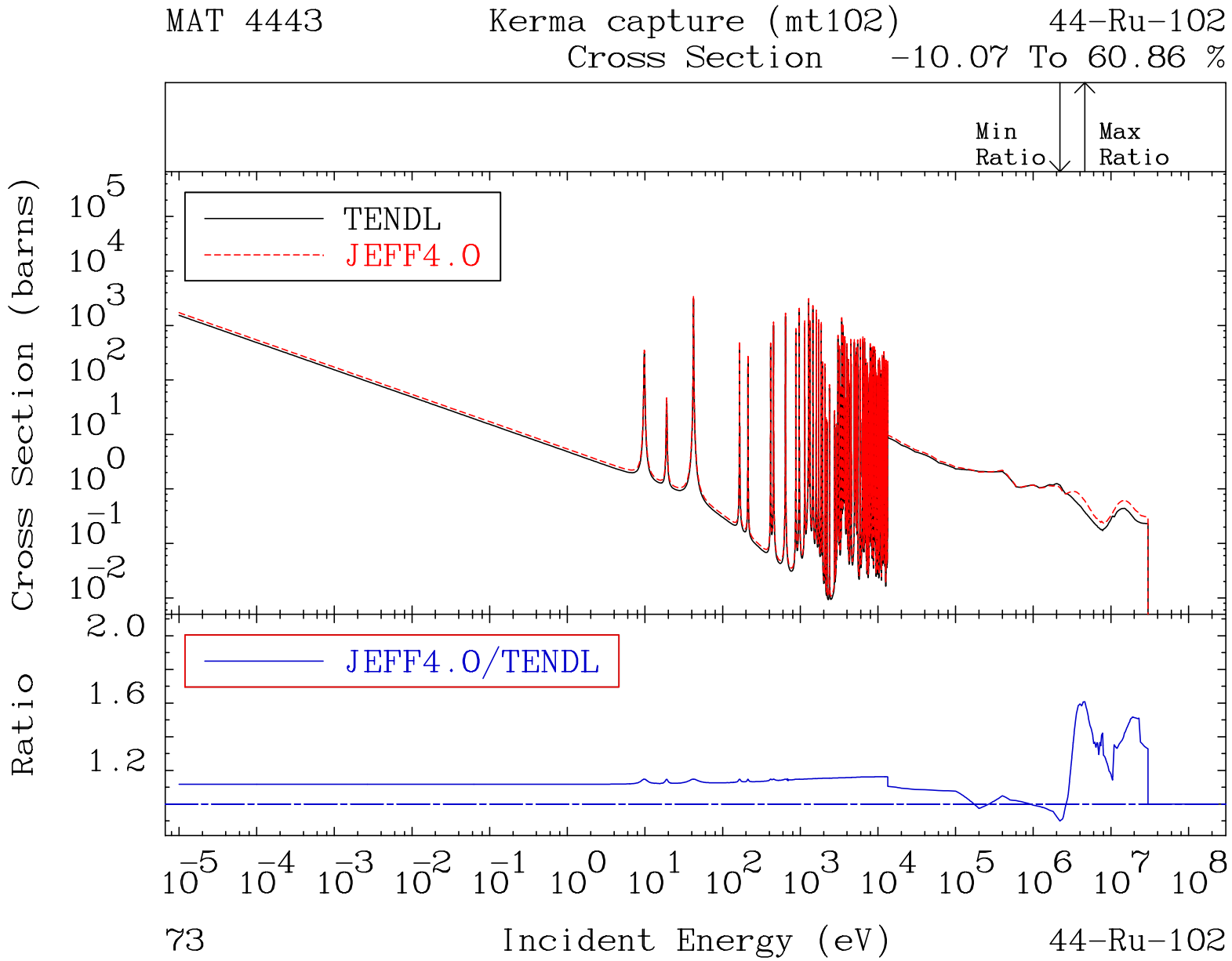

MAT 4443
Kerma total (eV-barns)
44-Ru-102
Cross Section -39.26 To 18.01 %
Min
Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
68
44-Ru-102

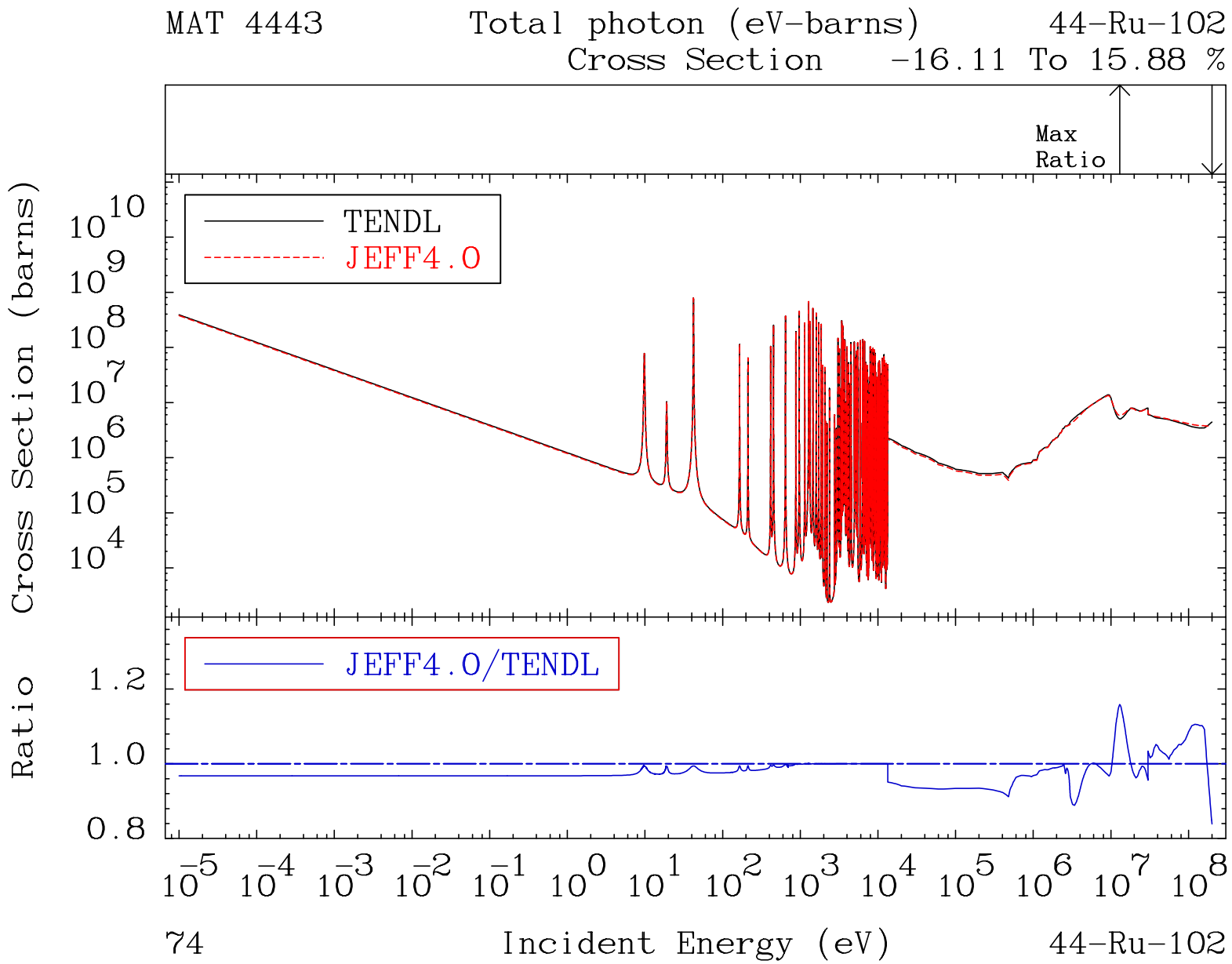

MAT 4443
Kerma elastic
Cross Section
44-Ru-102
-0.789 To 6.083 %
Min
Ratio
Max
Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
69
44-Ru-102

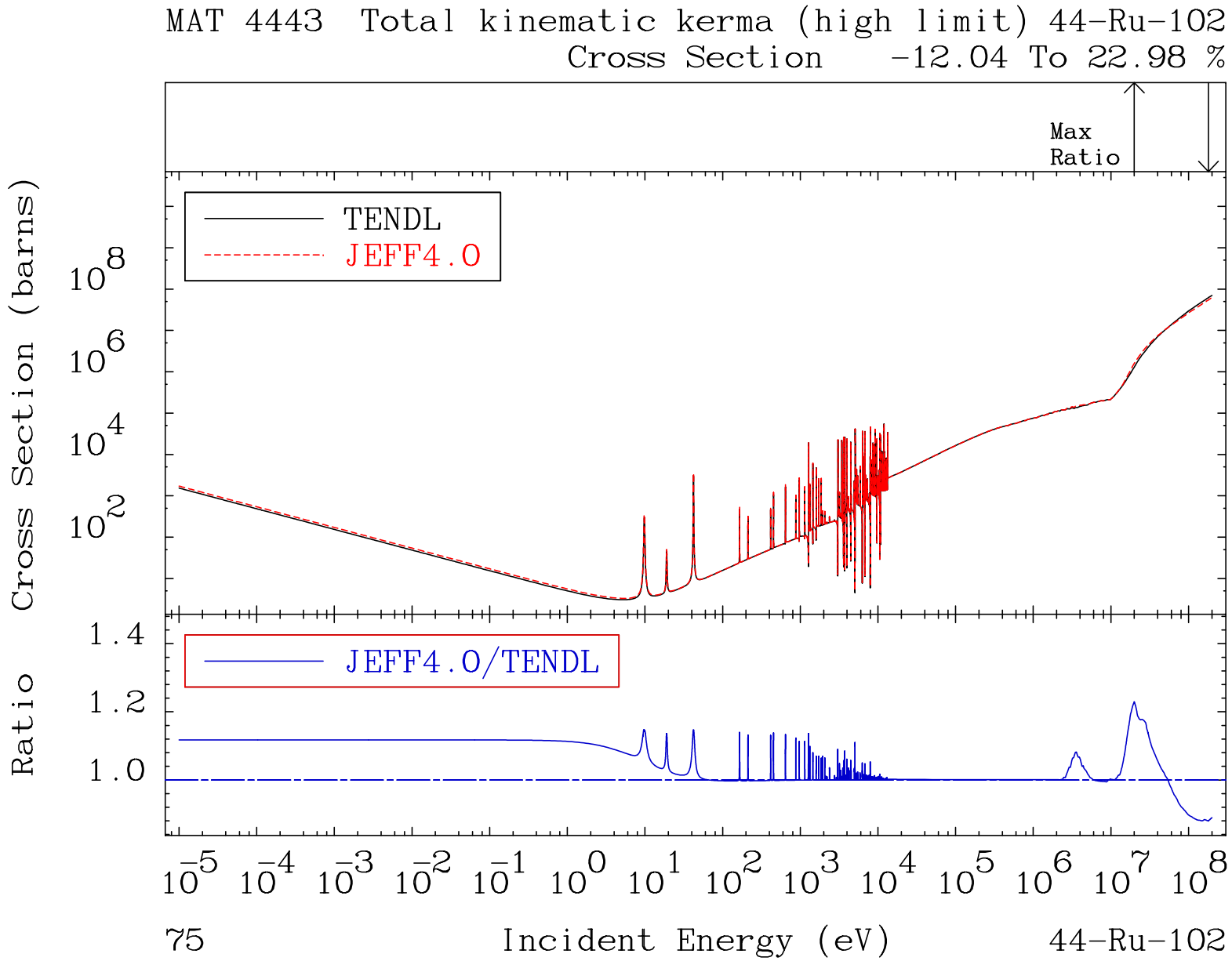

MAT 4443 Kerma non-elastic (all but mt2) 44-Ru-102
Cross Section -44.61 To 18.93 %
Min
Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
70
44-Ru-102

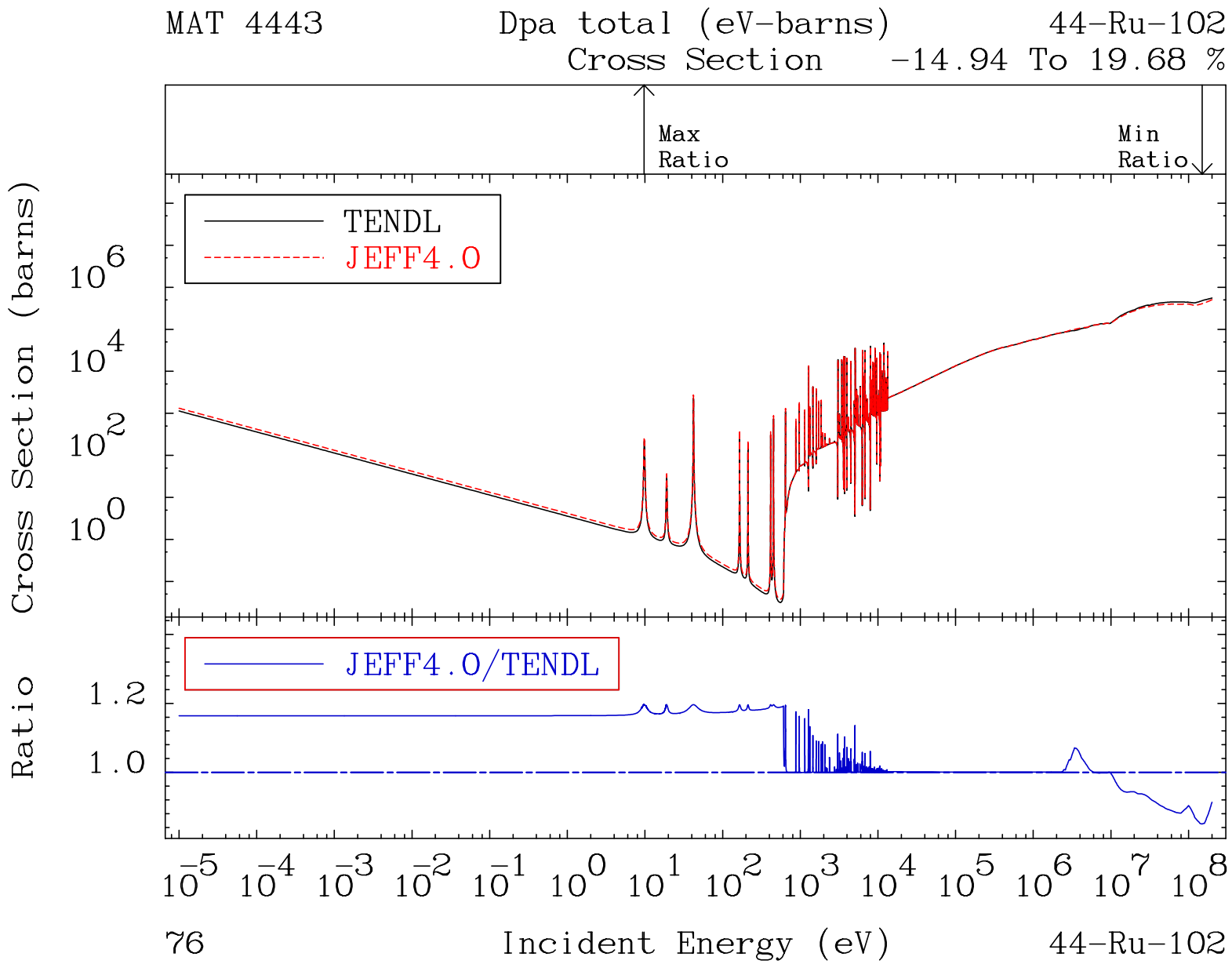

MAT 4443
Kerma inelastic (mt51-91)
44-Ru-102
Cross Section
-44.61 To 60.53 %
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
JEFF4.0 Threshold 479.80 keV
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
71
44-Ru-102

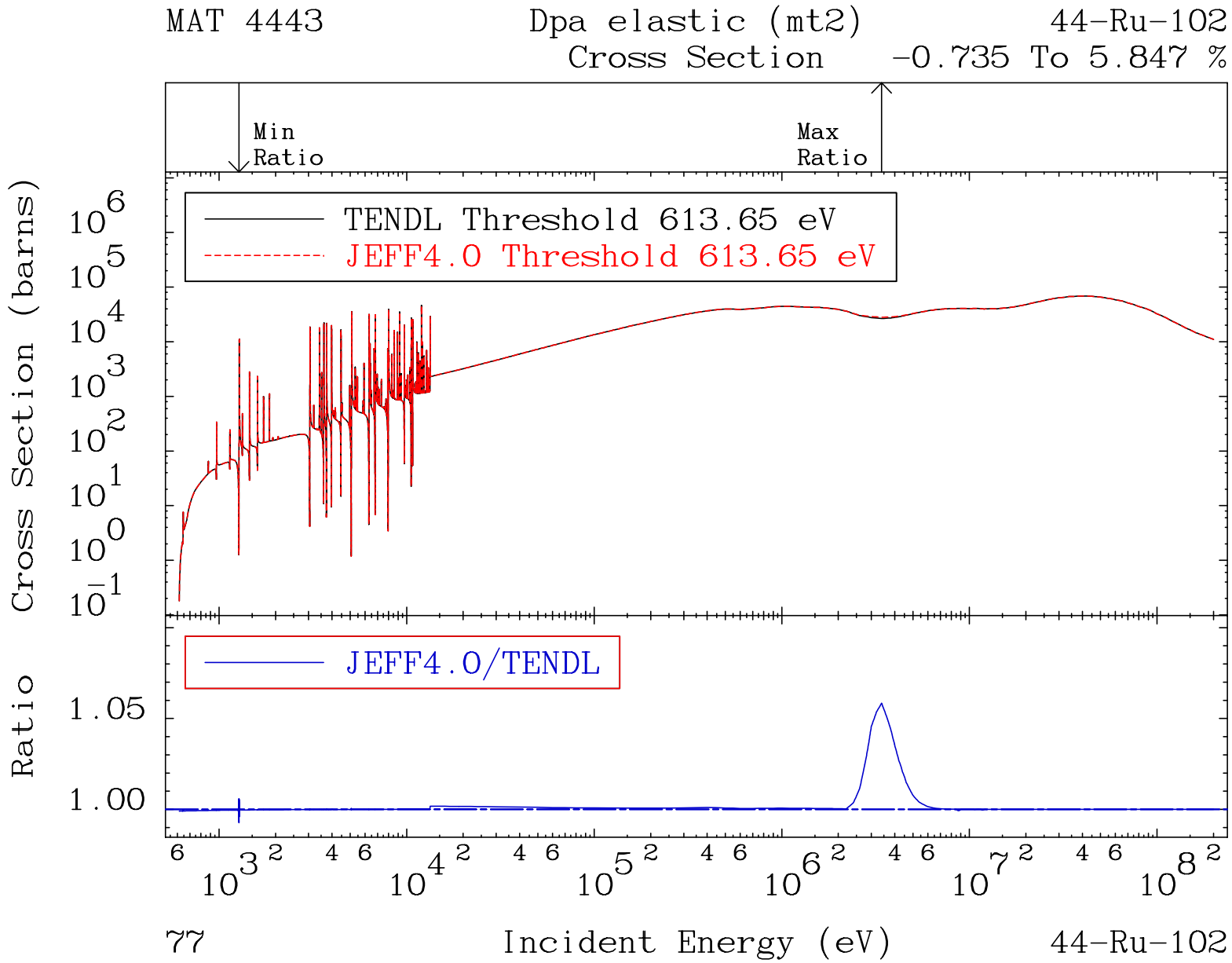

MAT 4443 Kerma fission (mt18 or mt19-20-21-38) 44-Ru-102
Cross Section -44.61 To 60.53 %
Min Ratio
Max Ratio
TENDL
JEFF4.0
JEFF4.0/TENDL
Cross Section (barns)
Ratio
1.5
1.0
0.5
0.0
-0.5
-1.0
1.8
1.2
0.6
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
72
Incident Energy (eV)
44-Ru-102

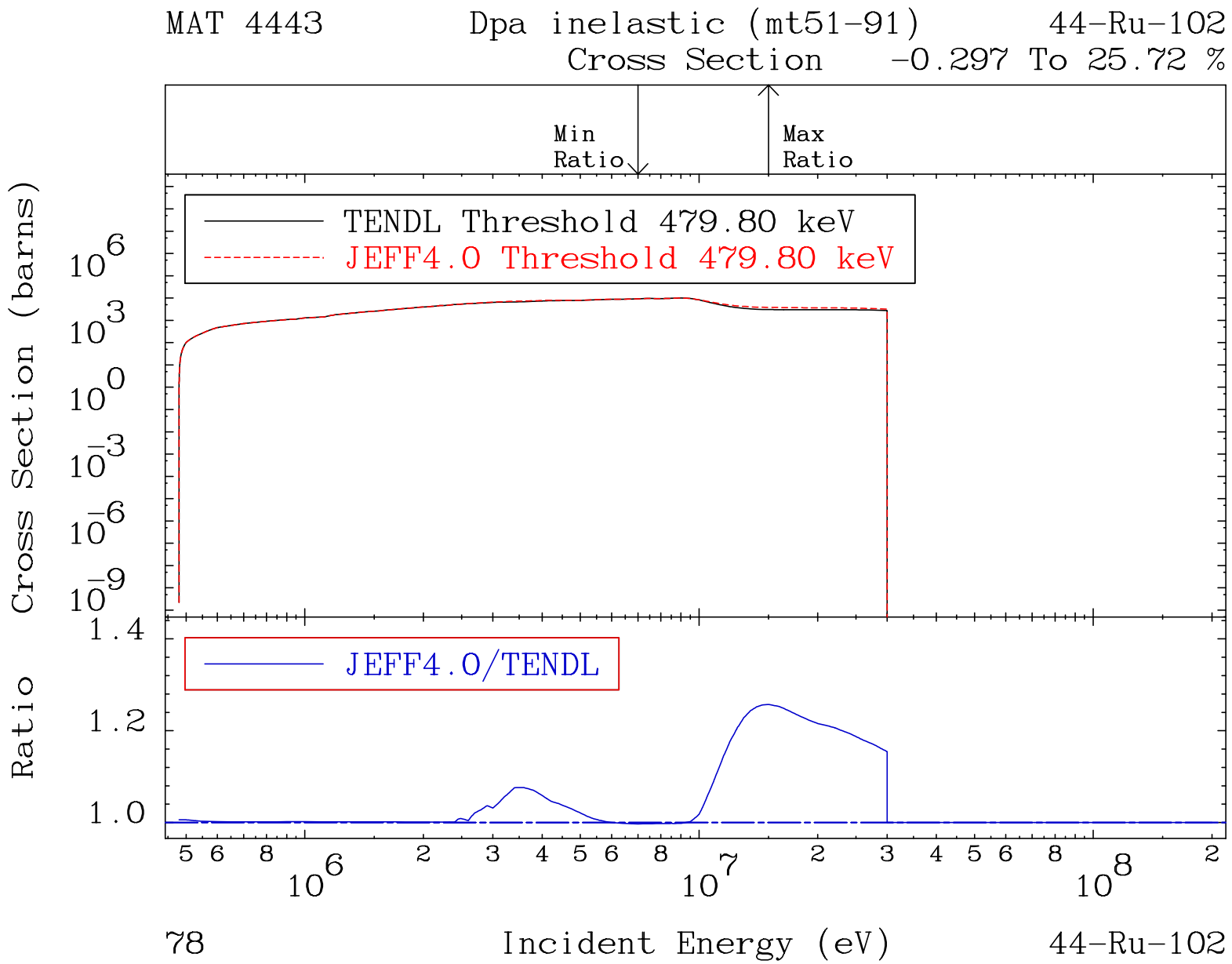

MAT 4443
Kerma capture (mt102)
44-Ru-102
Cross Section
-10.07 To 60.86 %
Min Ratio
Max Ratio
TENDL
JEFF4.0
JEFF4.0/TENDL
Cross Section (barns)
Ratio
Incident Energy (eV)
73
44-Ru-102

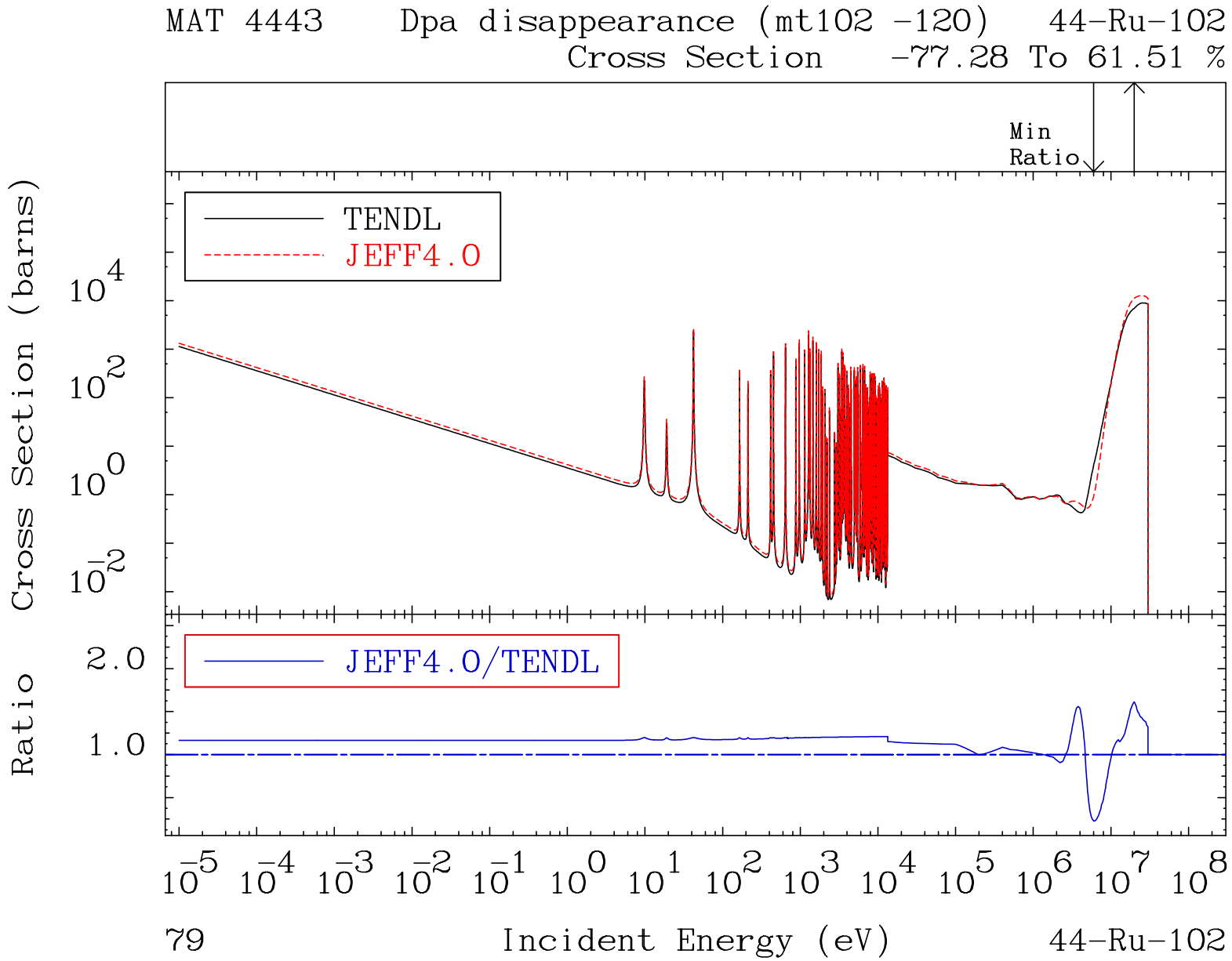

MAT 4443
Total photon (eV-barns)
44-Ru-102
Cross Section -16.11 To 15.88 %
Max
Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
74
44-Ru-102

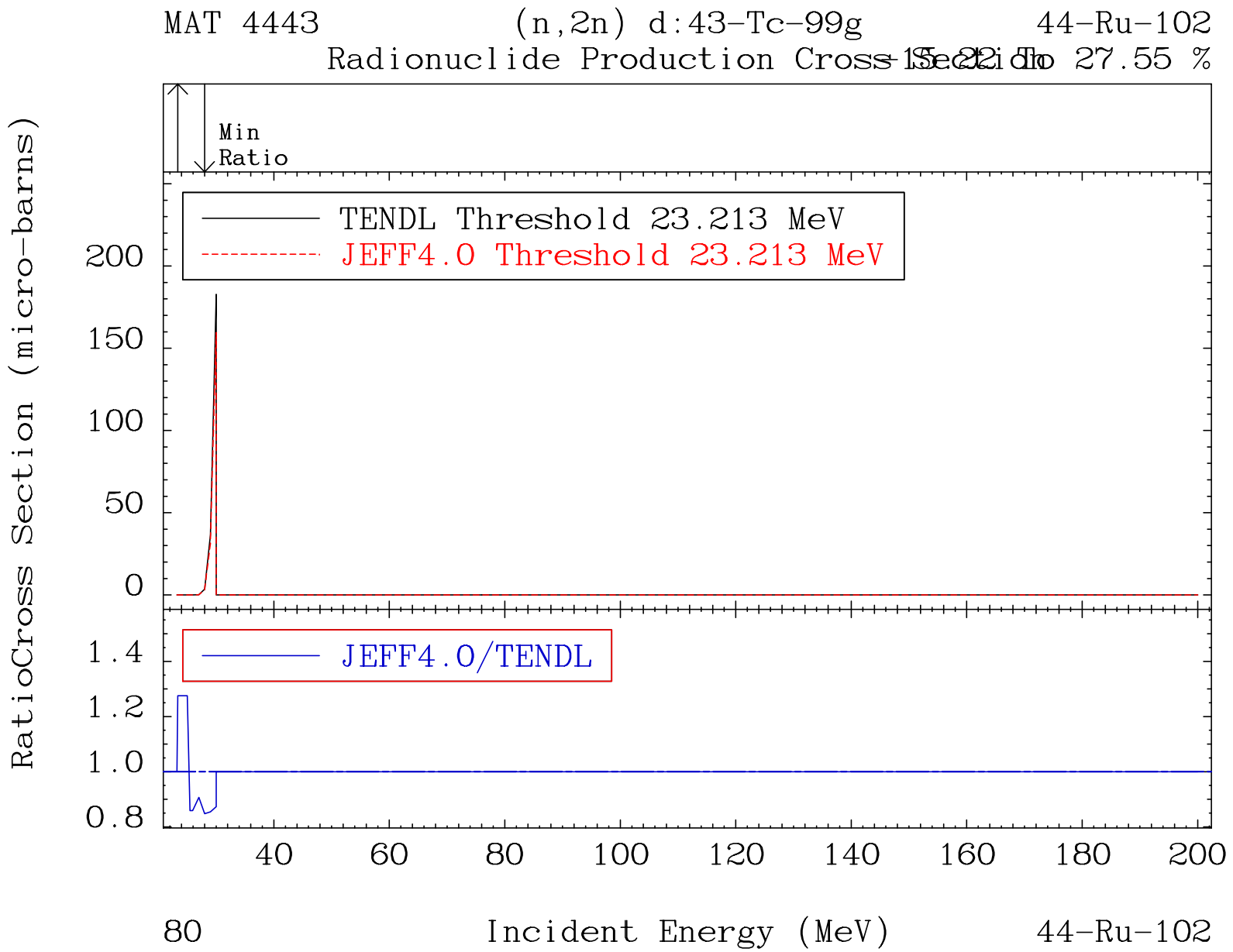

MAT 4443 Total kinematic kerma (high limit) 44-Ru-102
Cross Section -12.04 To 22.98 %
Max
Ratio
TENDL
JEFF4.0
Cross Section (barns)
10^8
10^6
10^4
10^2
JEFF4.0/TENDL
Ratio
1.4
1.2
1.0
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
75
Incident Energy (eV)
44-Ru-102

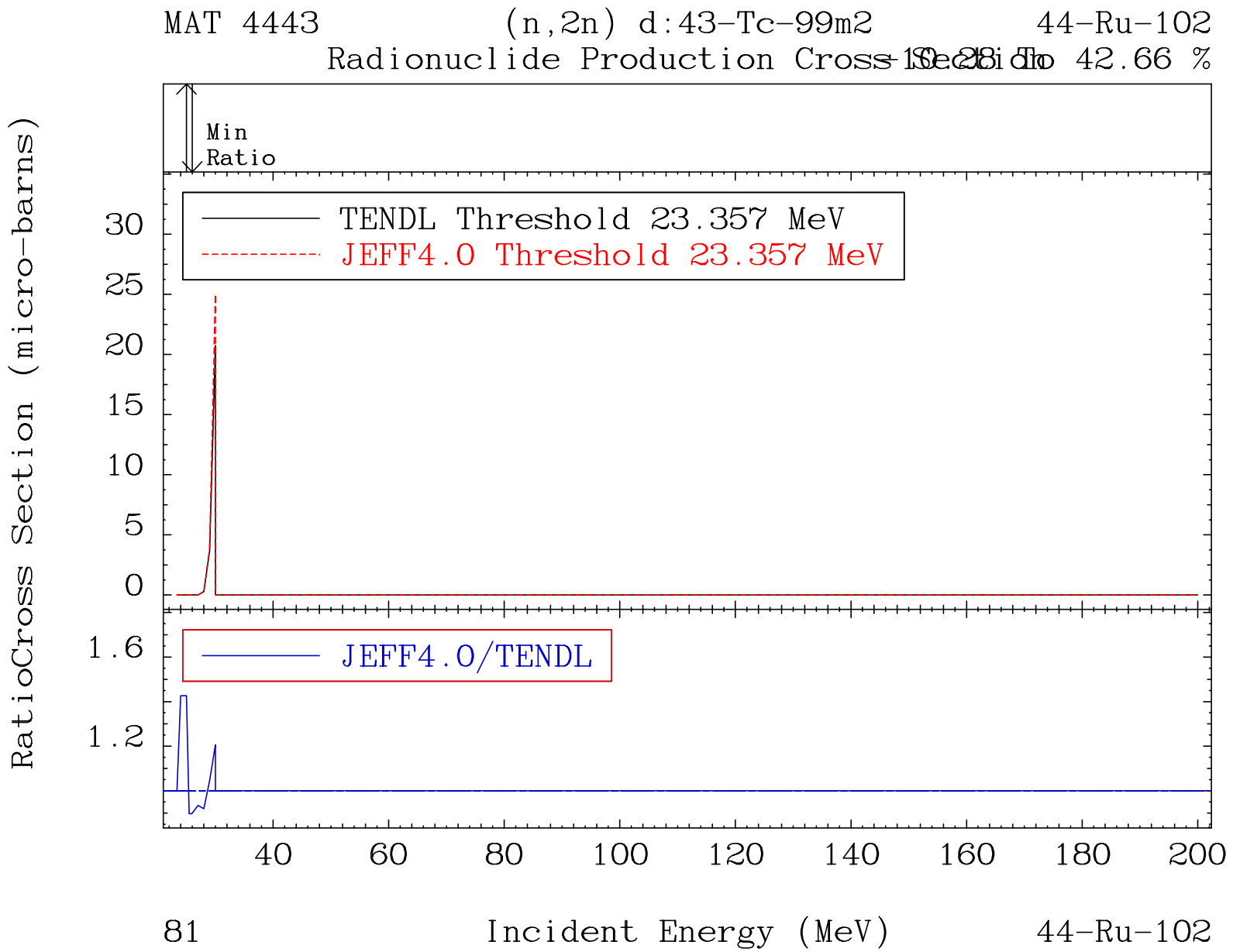

MAT 4443
Dpa total (eV-barns)
44-Ru-102
Cross Section
-14.94 To 19.68 %
Max Ratio
Min Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
76
44-Ru-102

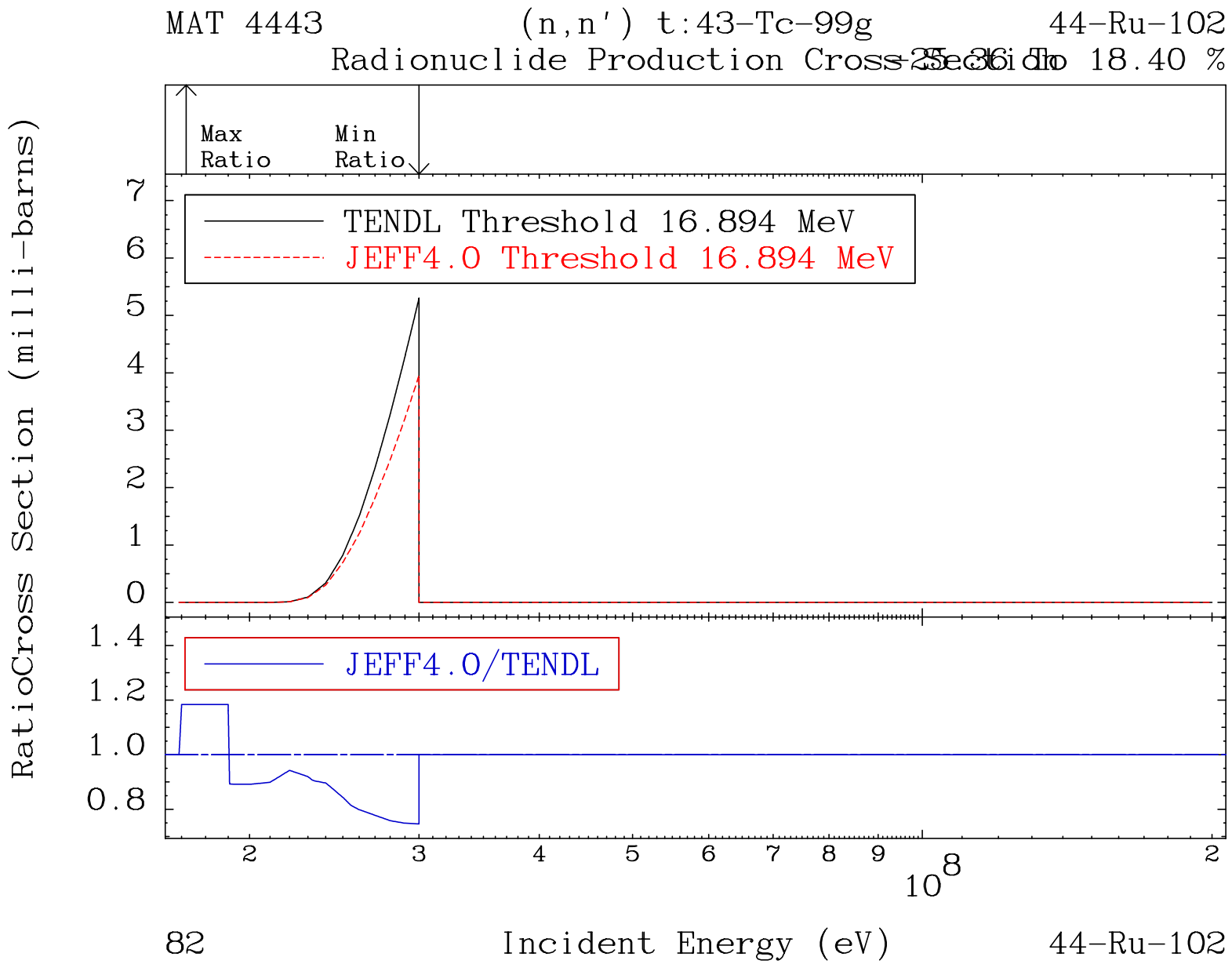

MAT 4443
Dpa elastic (mt2)
Cross Section
44-Ru-102
-0.735 To 5.847 %
Min
Ratio
Max
Ratio
TENDL Threshold 613.65 eV
JEFF4.0 Threshold 613.65 eV
Cross Section (barns)
JEFF4.0/TENDL
Ratio
1.05
1.00
Incident Energy (eV)
77
44-Ru-102

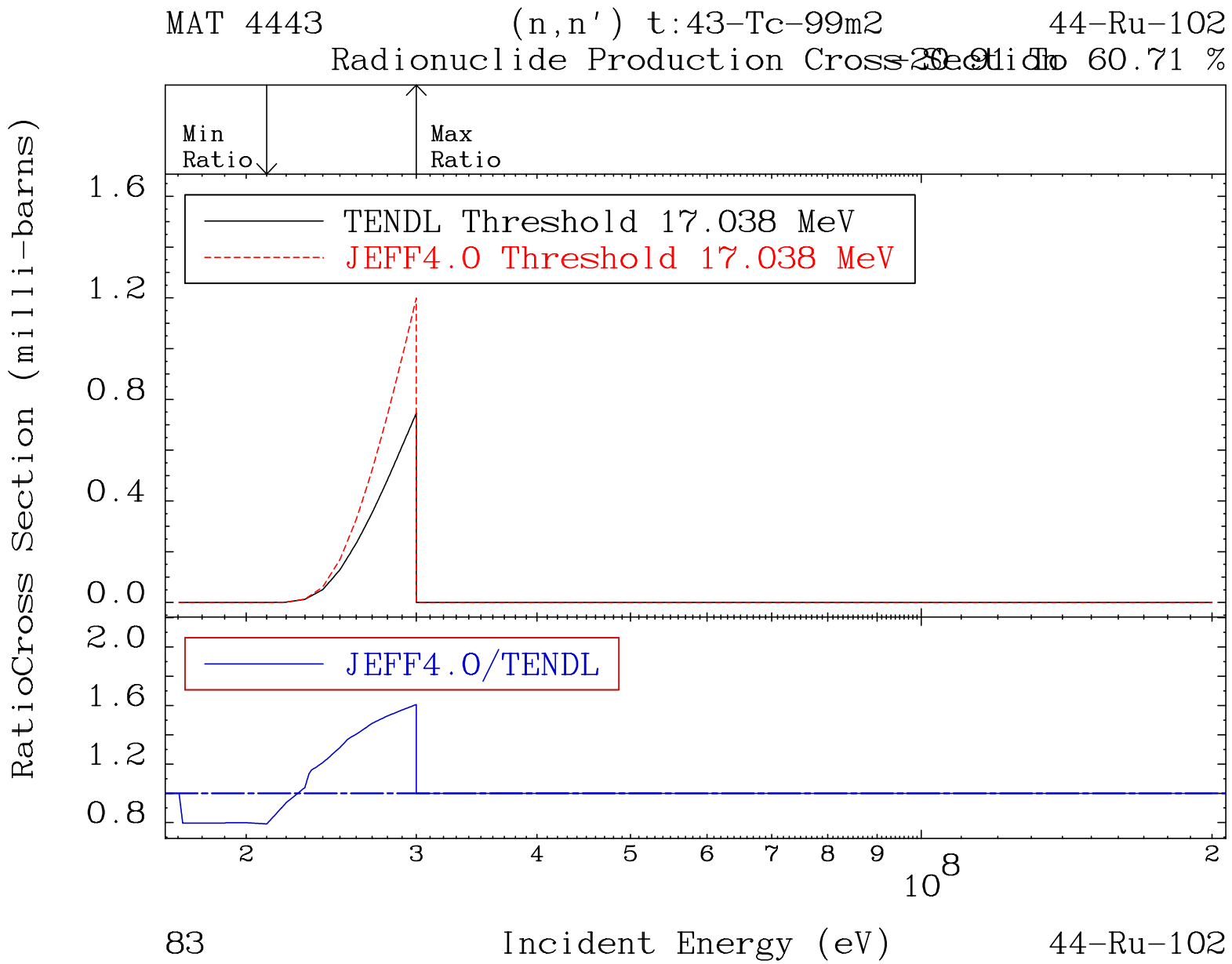

MAT 4443
Dpa inelastic (mt51-91)
44-Ru-102
Cross Section
-0.297 To 25.72 %
Min Ratio
Max Ratio
TENDL Threshold 479.80 keV
JEFF4.0 Threshold 479.80 keV
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
78
44-Ru-102

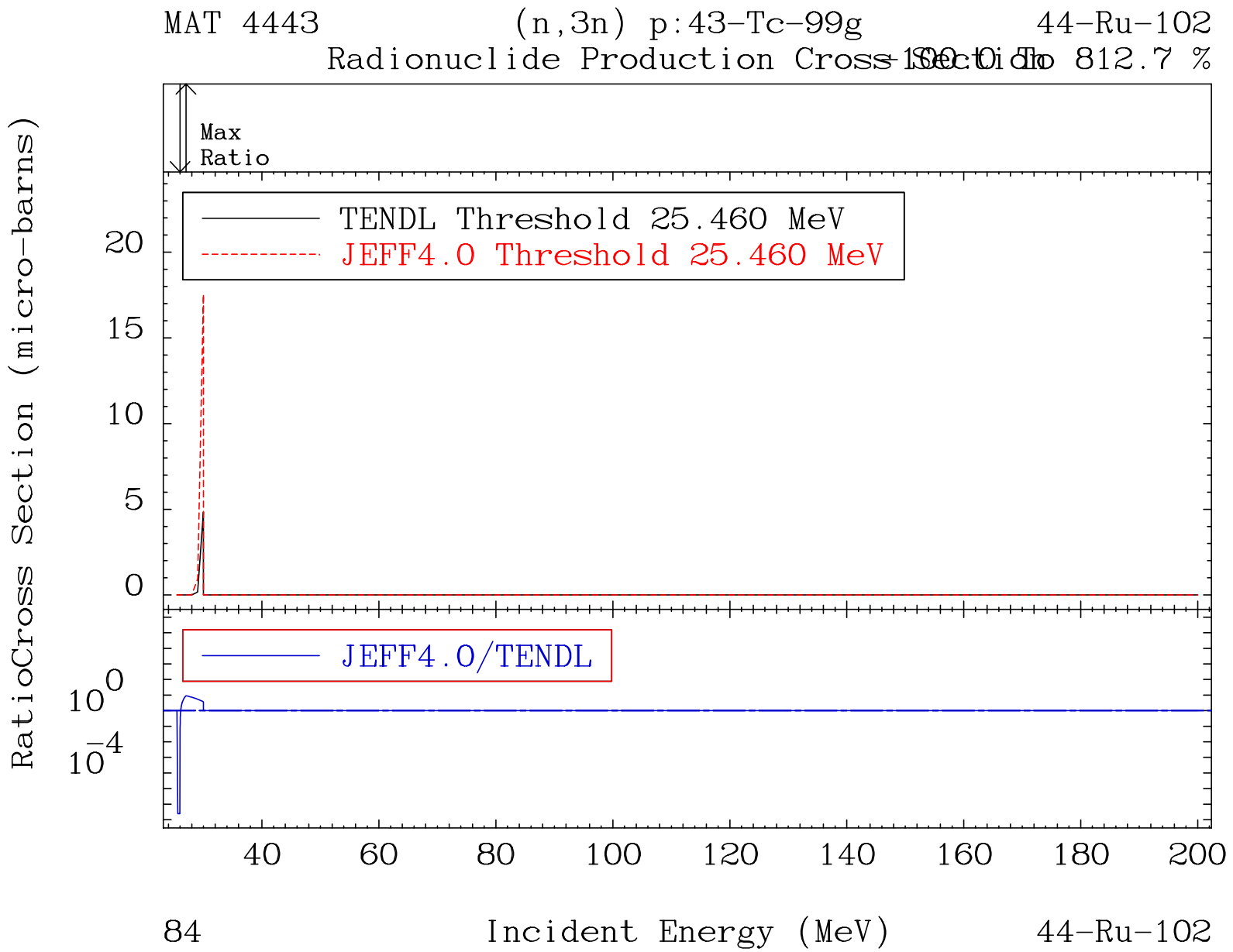

MAT 4443 Dpa disappearance (mt102 -120) 44-Ru-102
Cross Section -77.28 To 61.51 %
Min
Ratio
TENDL
JEFF4.0
Cross Section (barns)
JEFF4.0/TENDL
Ratio
Incident Energy (eV)
79
44-Ru-102

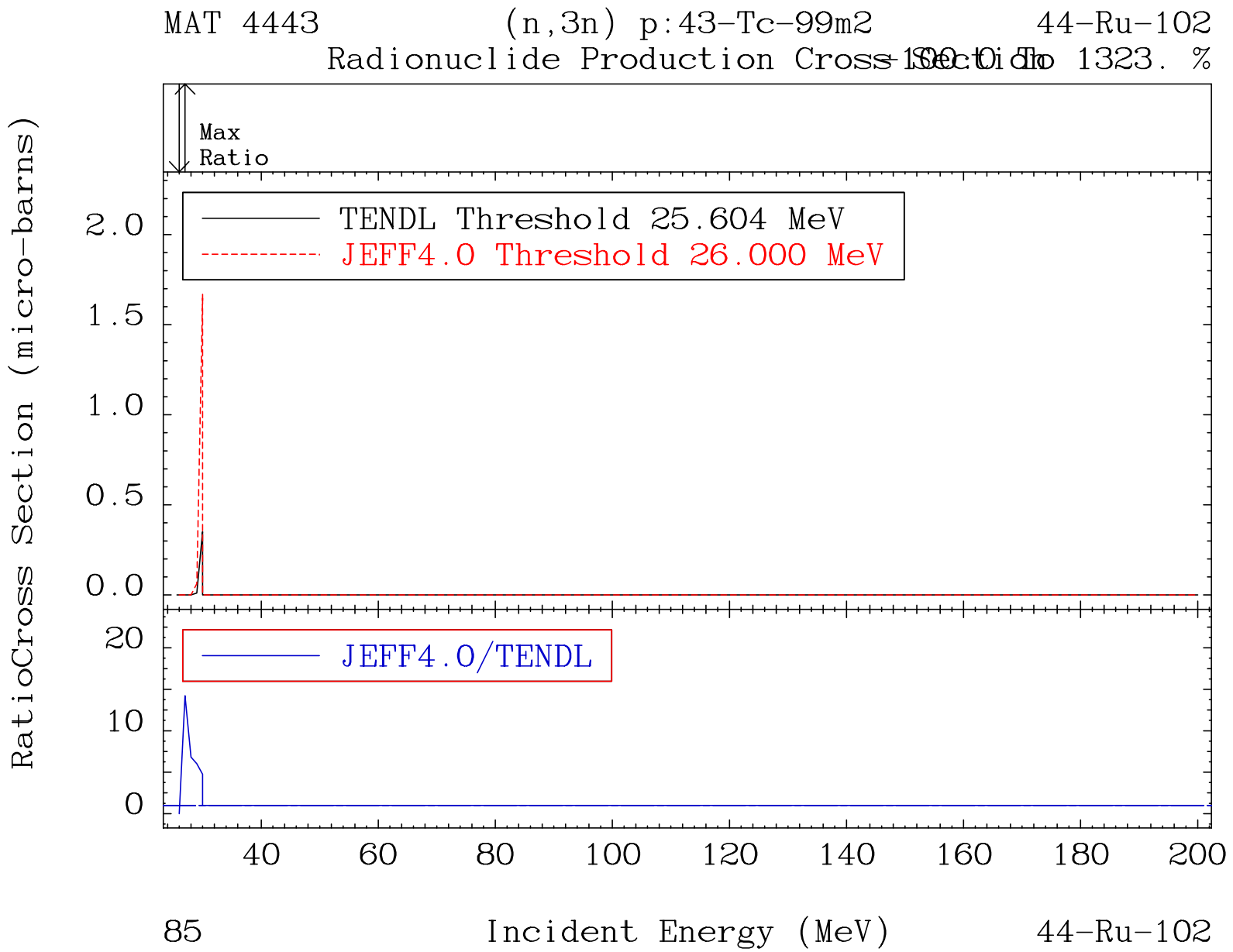

MAT 4443
(n,2n) d:43-Tc-99g
44-Ru-102
Radionuclide Production Cross Section To 27.55 %
Min
Ratio
TENDL Threshold 23.213 MeV
JEFF4.0 Threshold 23.213 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
200
150
100
50
0
1.4
1.2
1.0
0.8
40
60
80
100
120
140
160
180
200
80
Incident Energy (MeV)
44-Ru-102

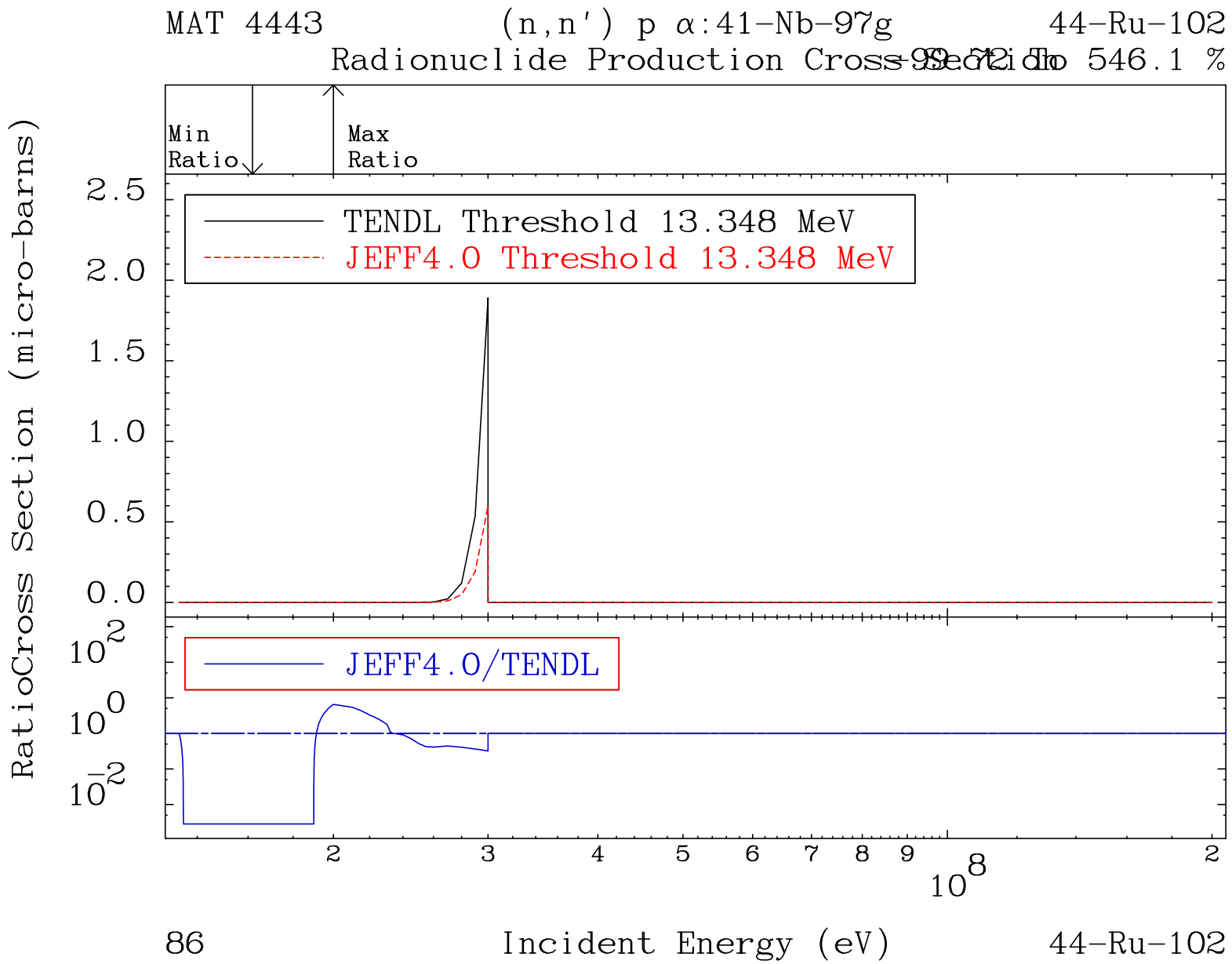

MAT 4443
(n,2n) d:43-Tc-99m2
44-Ru-102
Radionuclide Production Cross Section To 42.66 %
Min
Ratio
TENDL Threshold 23.357 MeV
JEFF4.0 Threshold 23.357 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
30
25
20
15
10
5
0
1.6
1.2
40
60
80
100
120
140
160
180
200
81
Incident Energy (MeV)
44-Ru-102

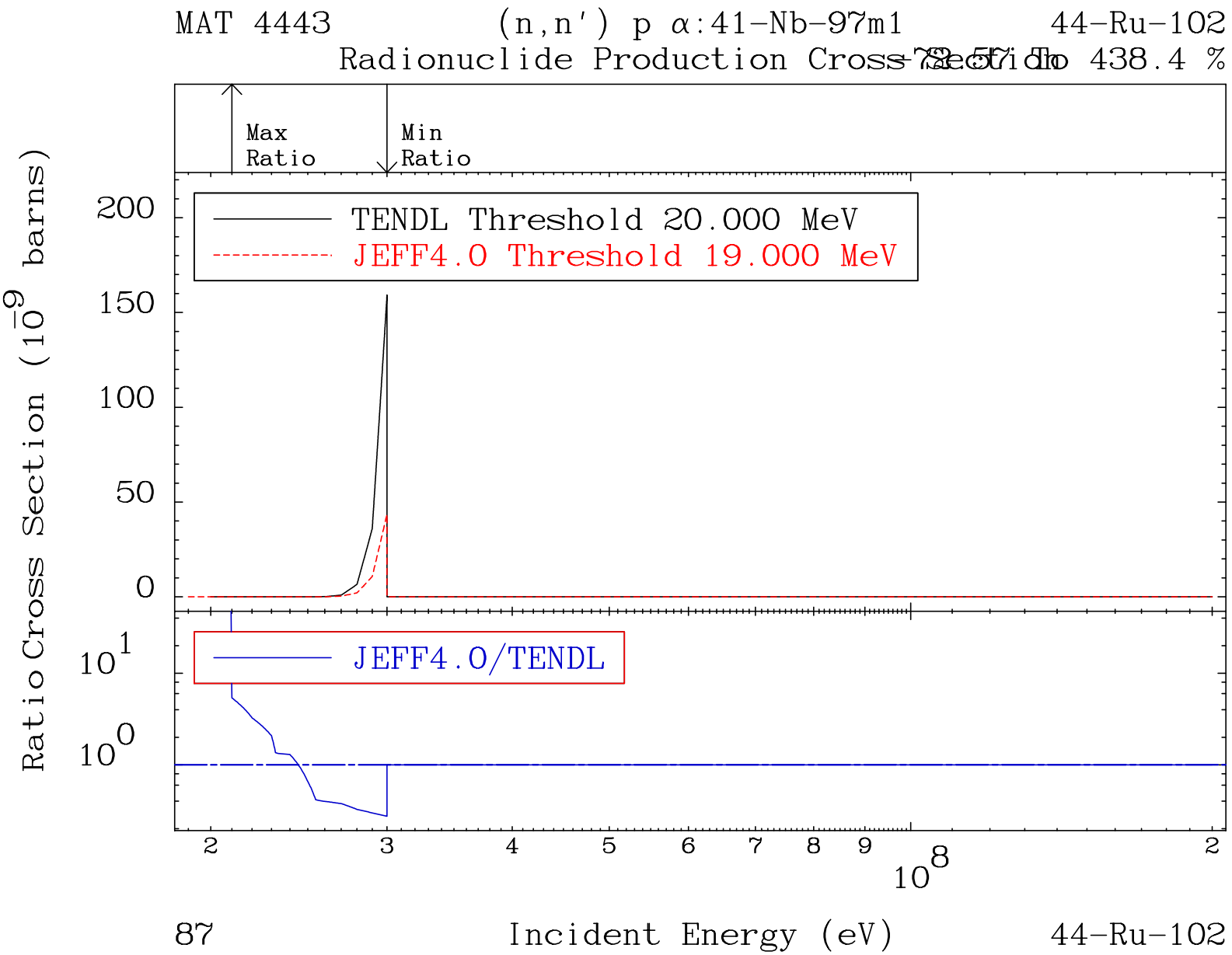

MAT 4443
(n,n') t:43-Tc-99g
44-Ru-102
Radionuclide Production Cross Section To 18.40 %
Max Ratio
Min Ratio
TENDL Threshold 16.894 MeV
JEFF4.0 Threshold 16.894 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
82
44-Ru-102

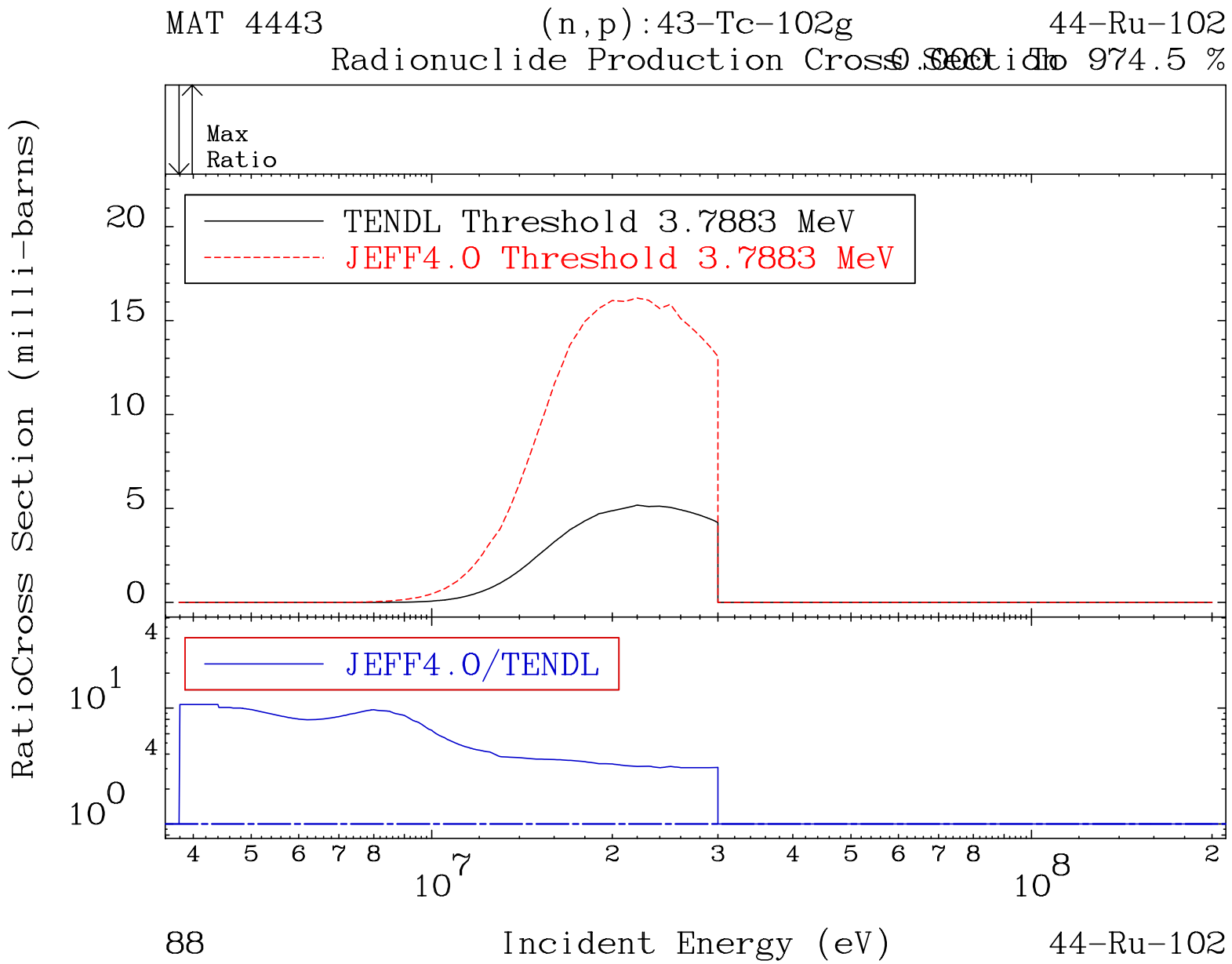

MAT 4443
(n,n') t:43-Tc-99m2
44-Ru-102
Radionuclide Production Cross Section To 60.71 %
Min Ratio
Max Ratio
TENDL Threshold 17.038 MeV
JEFF4.0 Threshold 17.038 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
1.6
1.2
0.8
0.4
0.0
2.0
1.6
1.2
0.8
2
3
4
5
6
7
8
9
10^8
2
83
Incident Energy (eV)
44-Ru-102

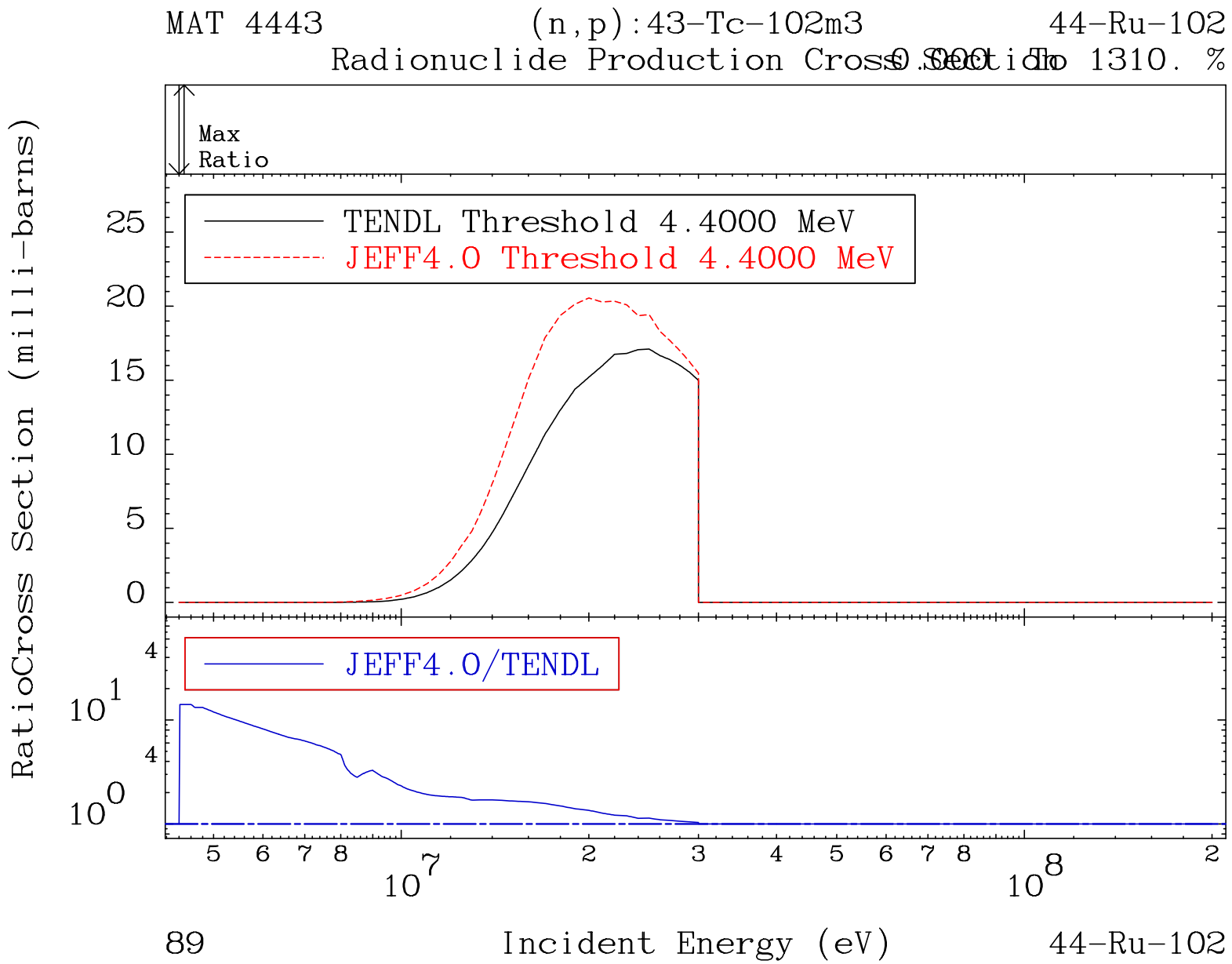

MAT 4443
(n,3n) p:43-Tc-99g
44-Ru-102
Radionuclide Production Cross Section To 812.7 %
Max
Ratio
TENDL Threshold 25.460 MeV
JEFF4.0 Threshold 25.460 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
20
15
10
5
0
10^{0}
10^{-4}
40
60
80
100
120
140
160
180
200
84
Incident Energy (MeV)
44-Ru-102

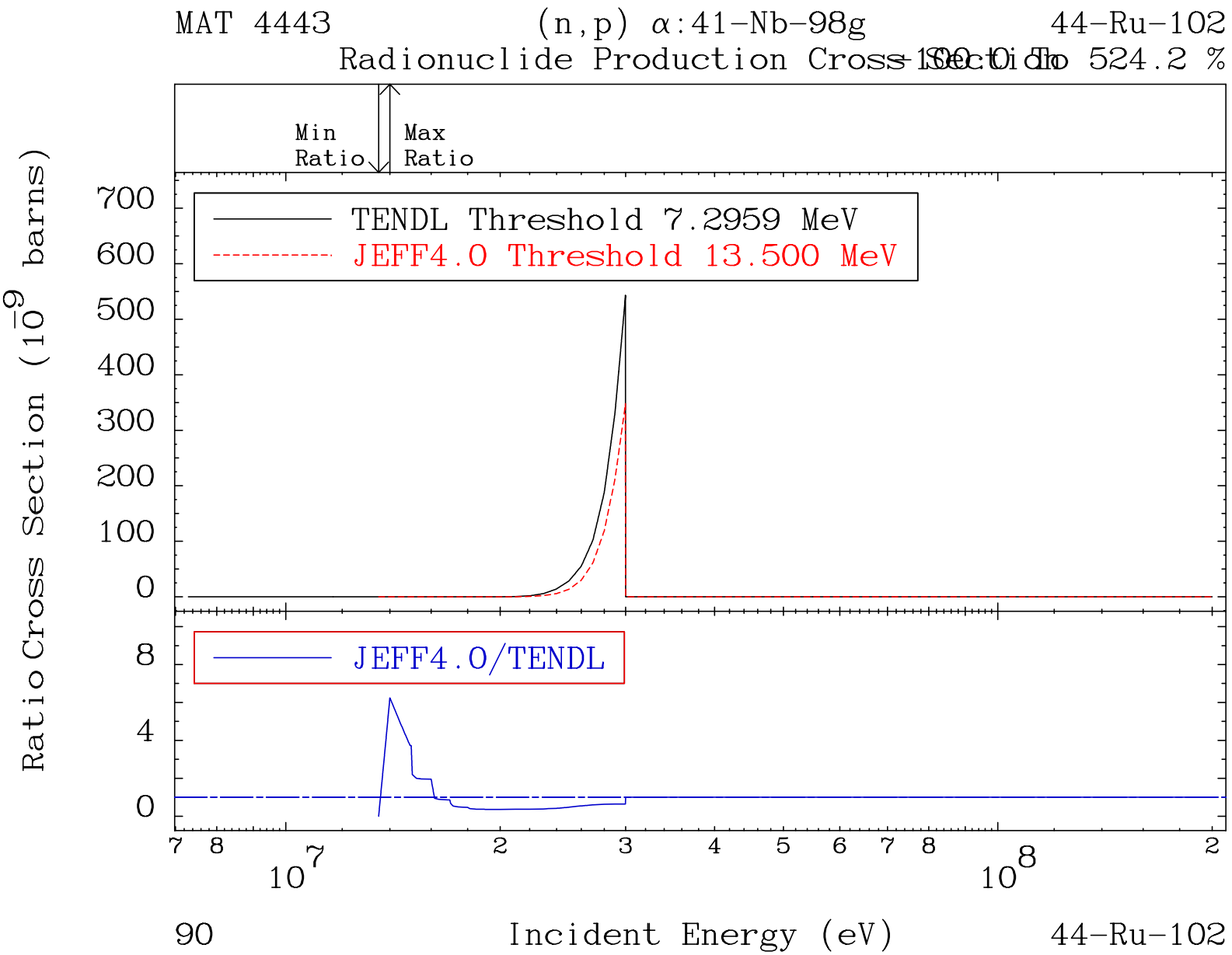

MAT 4443
(n,3n) p:43-Tc-99m2
44-Ru-102
Radionuclide Production Cross Section
Max
Ratio
TENDL Threshold 25.604 MeV
JEFF4.0 Threshold 26.000 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
Incident Energy (MeV)
85
44-Ru-102

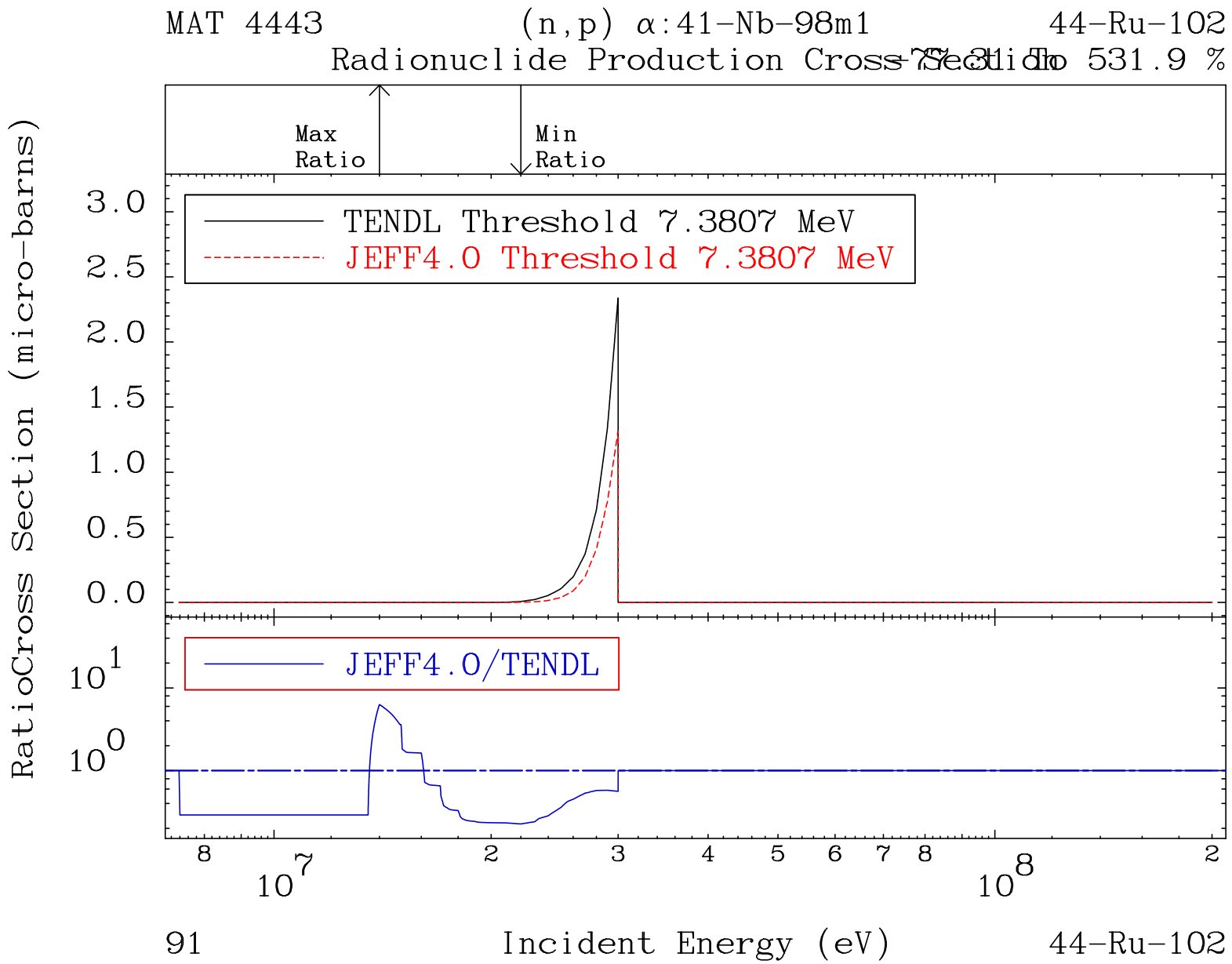

MAT 4443 (n,n') p α:41-Nb-97g 44-Ru-102
Radionuclide Production Cross Section To 546.1 %
Min Ratio
Max Ratio
TENDL Threshold 13.348 MeV
JEFF4.0 Threshold 13.348 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
2.5
2.0
1.5
1.0
0.5
0.0
10^2
10^0
10^-2
2
3
4
5
6
7
8
9
10^8
2
86
Incident Energy (eV)
44-Ru-102

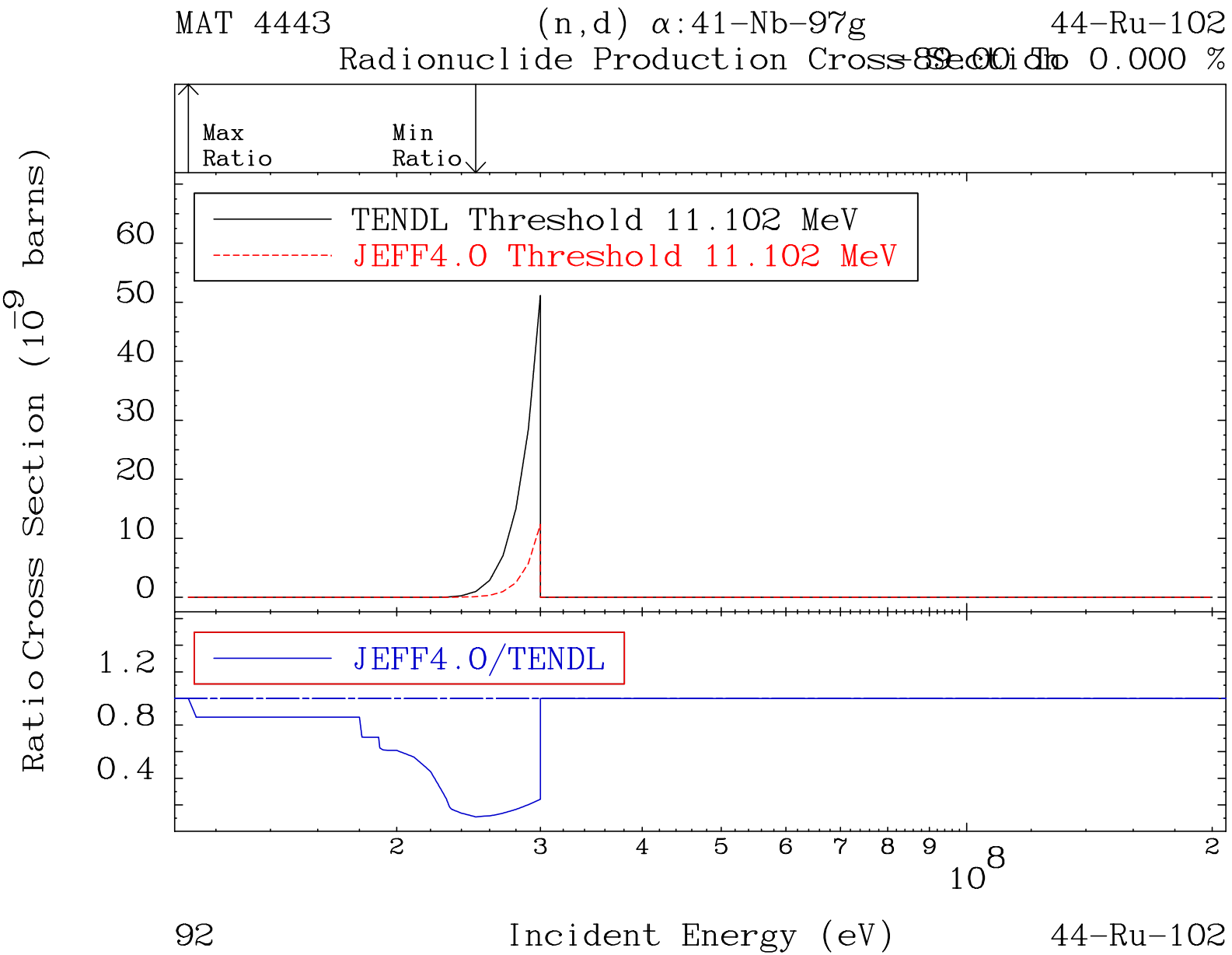

MAT 4443 (n,n') p α:41-Nb-97m1 44-Ru-102
Radionuclide Production Cross Section Uncertainty 438.4 %
Max Ratio
Min Ratio
TENDL Threshold 20.000 MeV
JEFF4.0 Threshold 19.000 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^{-9} barns)
200
150
100
50
0
10^{1}
10^{0}
2 3 4 5 6 7 8 9 10^{8} 2
87
Incident Energy (eV)
44-Ru-102

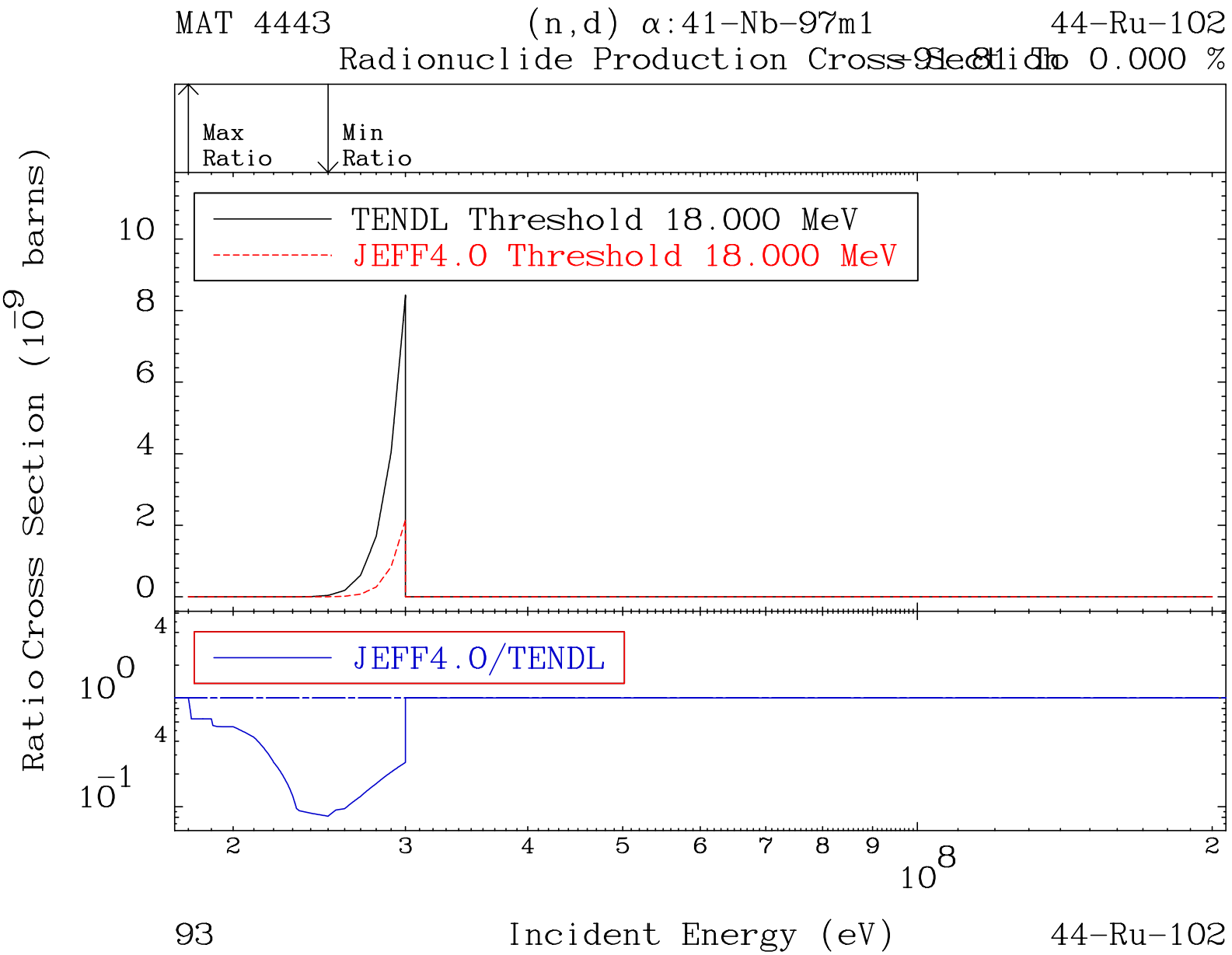

MAT 4443
(n,p):43-Tc-102g
44-Ru-102
Radionuclide Production Cross Section To 974.5 %
Max
Ratio
TENDL Threshold 3.7883 MeV
JEFF4.0 Threshold 3.7883 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
88
44-Ru-102


MAT 4443
(n,p):43-Tc-102m3
44-Ru-102
Radionuclide Production Cross Section
0.000 To 1310. %
Max
Ratio
TENDL Threshold 4.4000 MeV
JEFF4.0 Threshold 4.4000 MeV
JEFF4.0/TENDL
RatioCross Section (milli-barns)
Incident Energy (eV)
89
44-Ru-102


MAT 4443
(n,p) α:41-Nb-98g
44-Ru-102
Radionuclide Production Cross Section To
Min Ratio
Max Ratio
TENDL Threshold 7.2959 MeV
JEFF4.0 Threshold 13.500 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^-9 barns)
700
600
500
400
300
200
100
0
8
4
0
7 8 10^7 2 3 4 5 6 7 8 10^8 2
90
Incident Energy (eV)
44-Ru-102


MAT 4443
(n,p) α:41-Nb-98m1
44-Ru-102
Radionuclide Production Cross Section To 531.9 %
Max Ratio
Min Ratio
TENDL Threshold 7.3807 MeV
JEFF4.0 Threshold 7.3807 MeV
JEFF4.0/TENDL
RatioCross Section (micro-barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
10^1
10^0
8
10^7
2
3
4
5
6
7
8
10^8
2
91
Incident Energy (eV)
44-Ru-102


MAT 4443
(n,d) α:41-Nb-97g
44-Ru-102
Radionuclide Production Cross Section To 0.000 %
Max Ratio
Min Ratio
TENDL Threshold 11.102 MeV
JEFF4.0 Threshold 11.102 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^{-9} barns)
60
50
40
30
20
10
0
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
92
Incident Energy (eV)
44-Ru-102


MAT 4443
(n,d) α:41-Nb-97m1
44-Ru-102
Radionuclide Production Cross Section To 0.000 %
Max Ratio
Min Ratio
TENDL Threshold 18.000 MeV
JEFF4.0 Threshold 18.000 MeV
JEFF4.0/TENDL
Ratio Cross Section (10^-9 barns)
Incident Energy (eV)
93
44-Ru-102