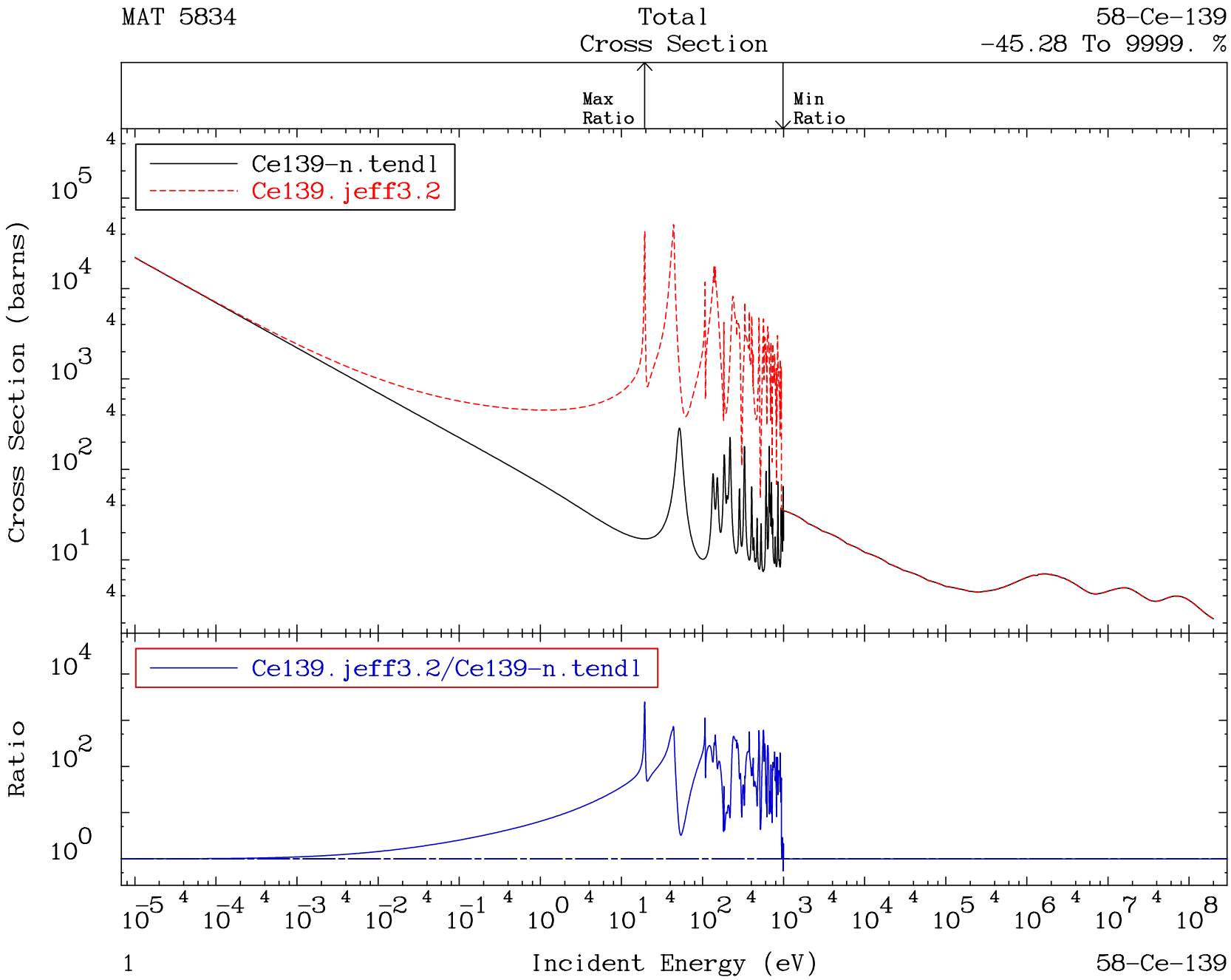
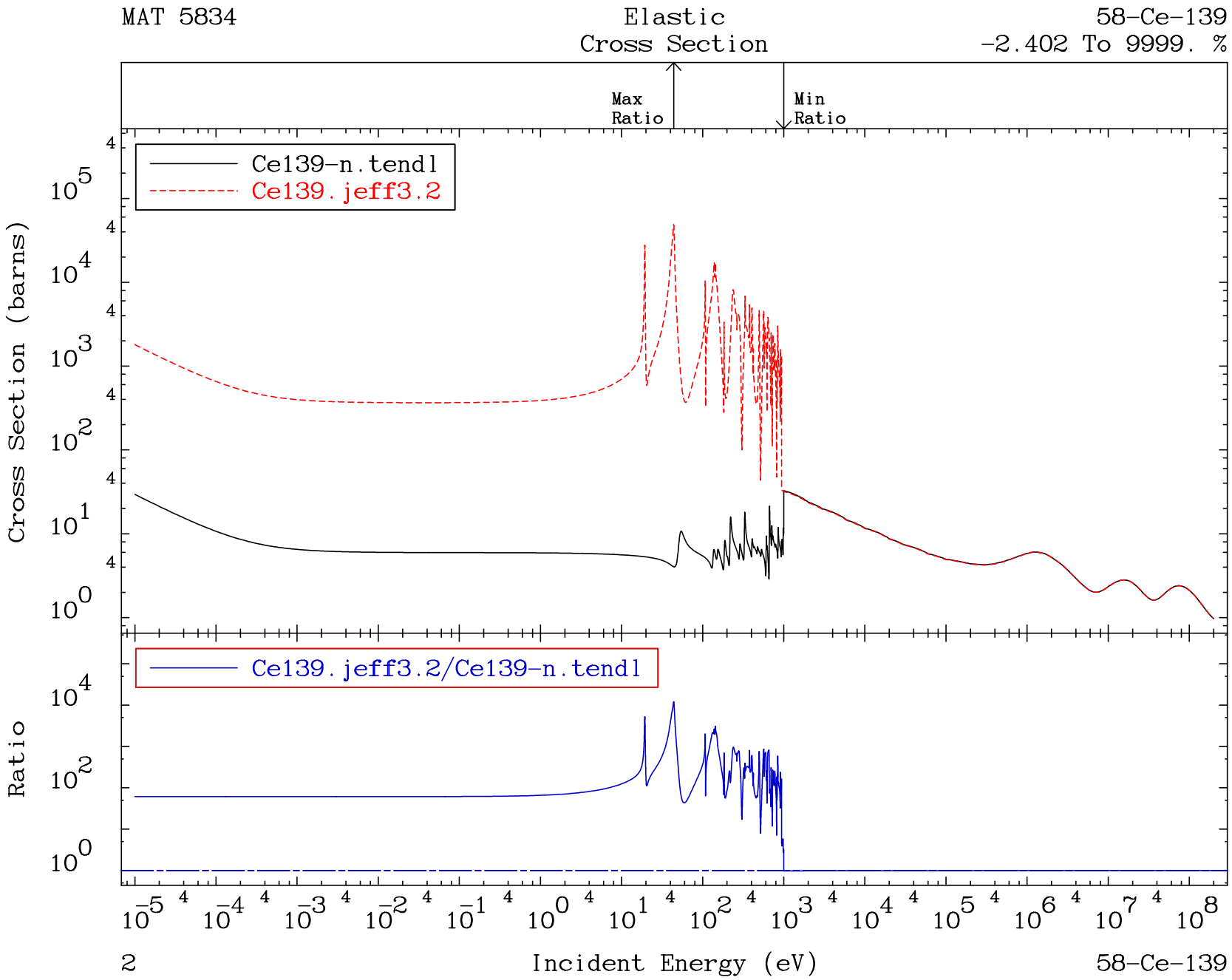
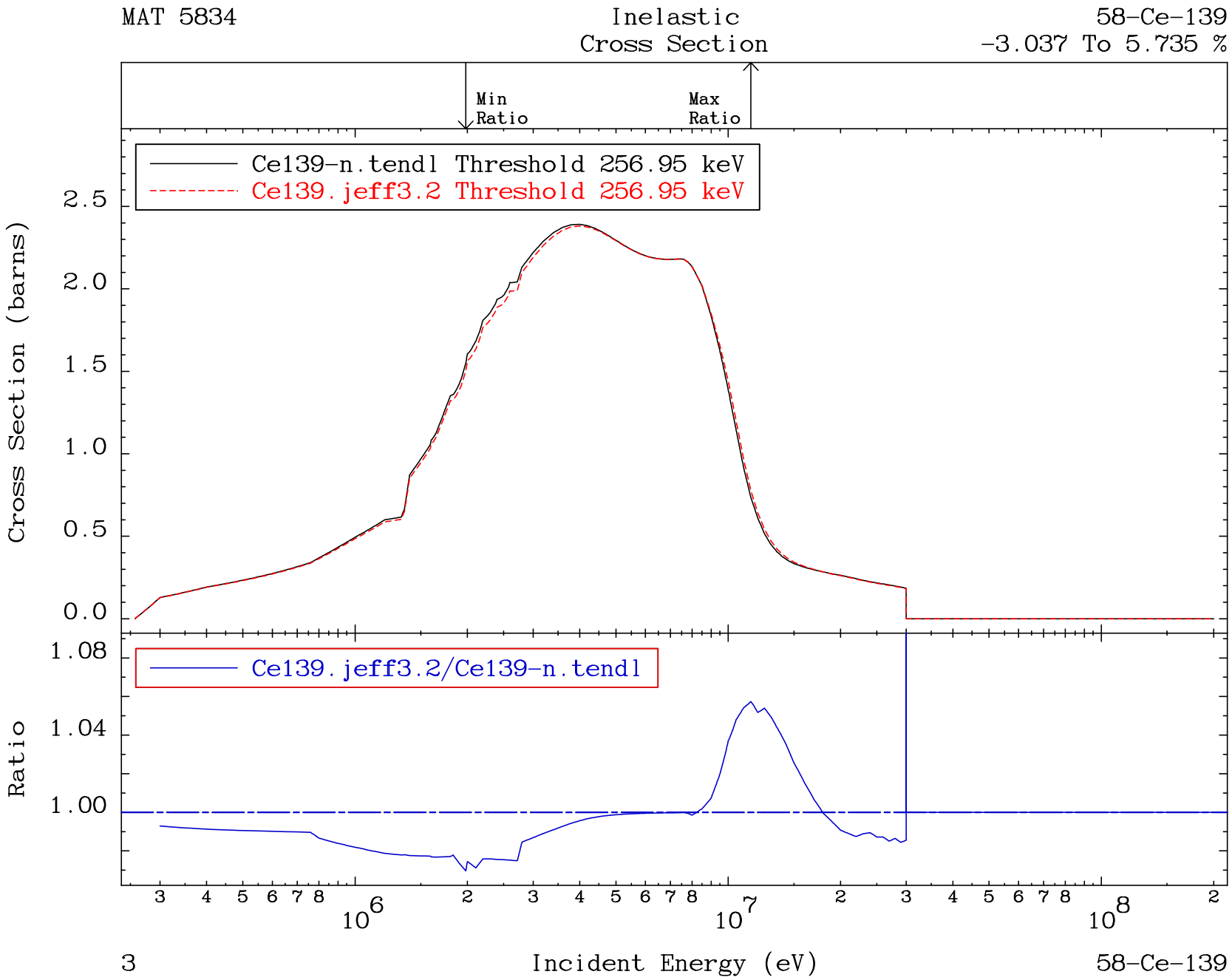
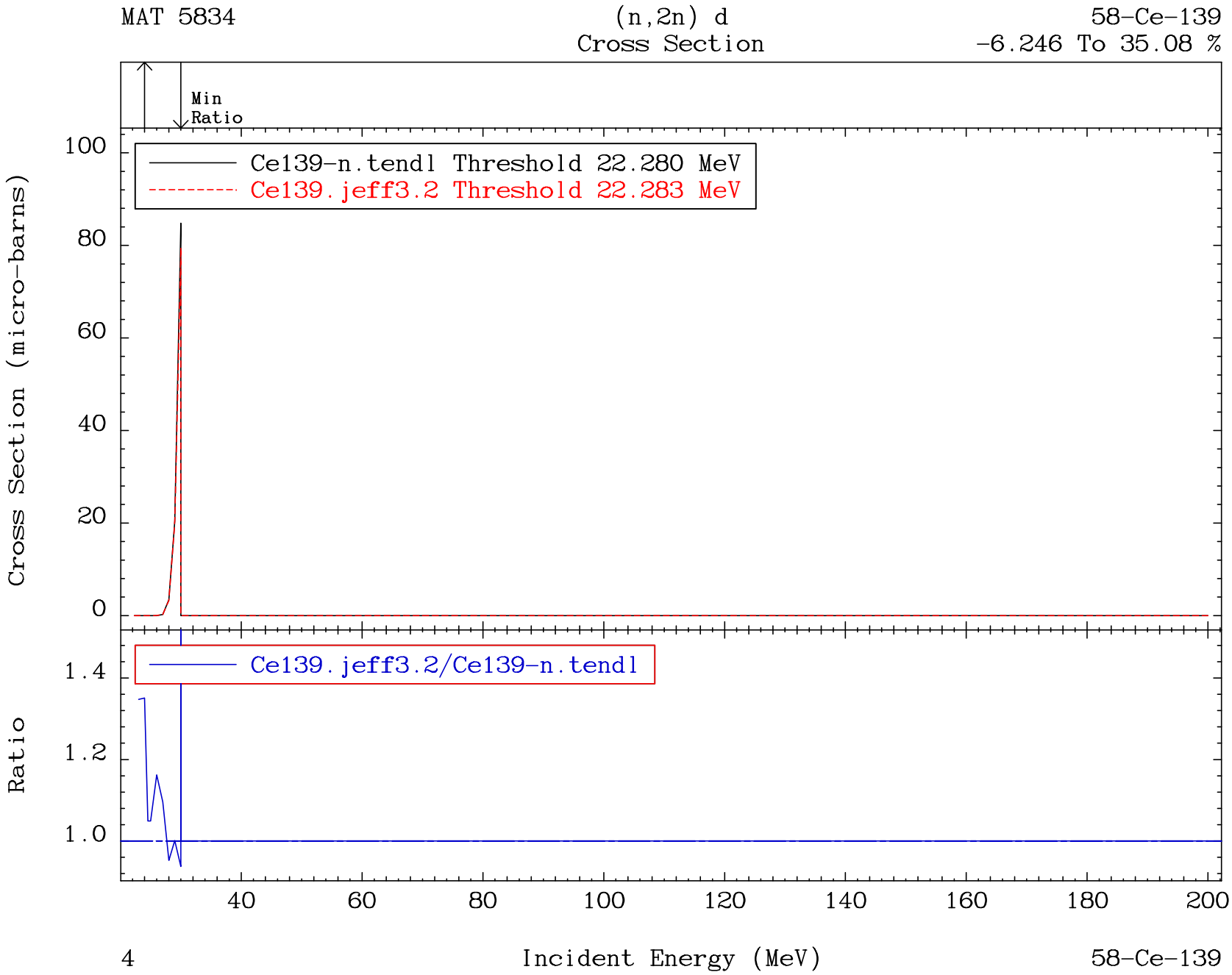
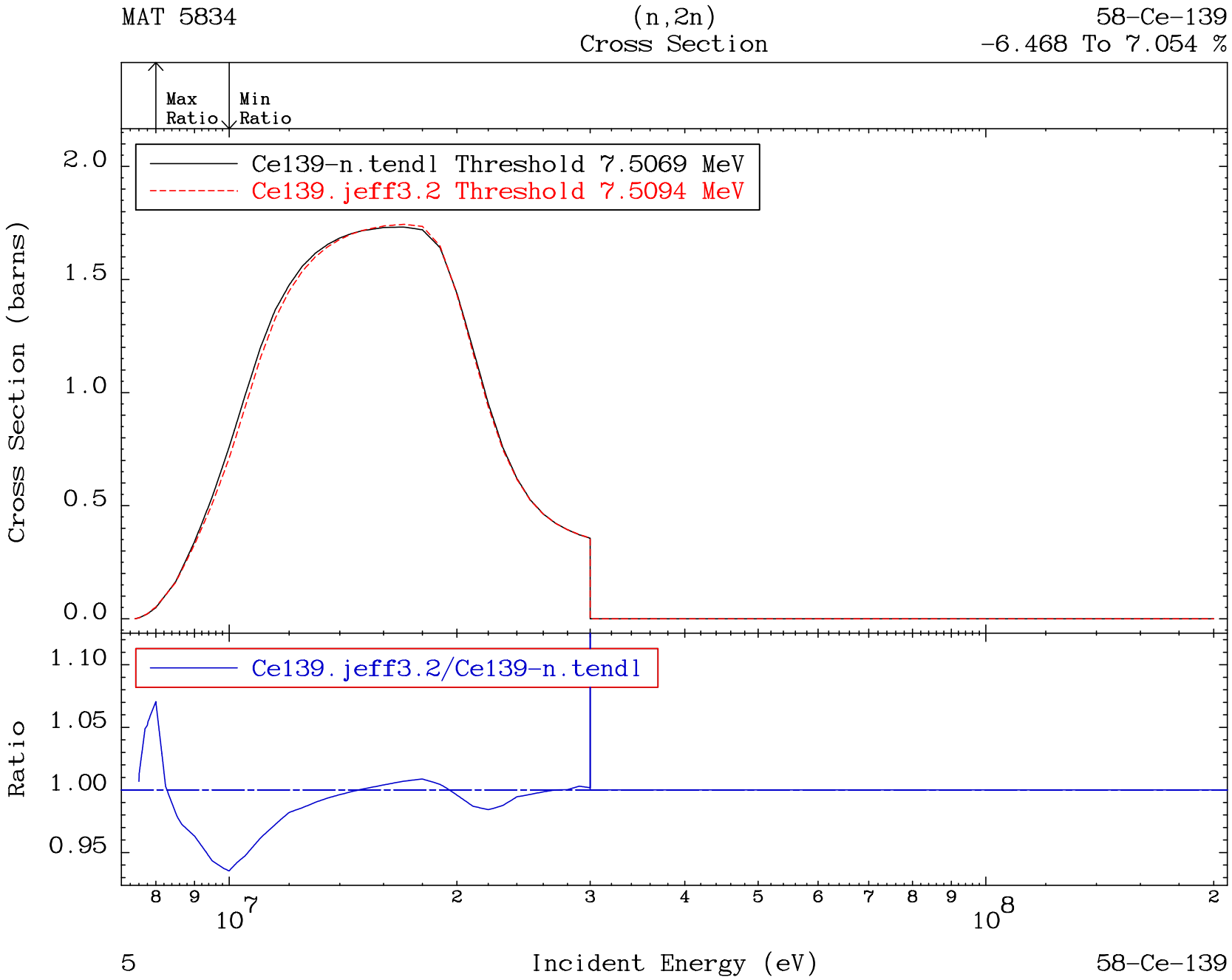
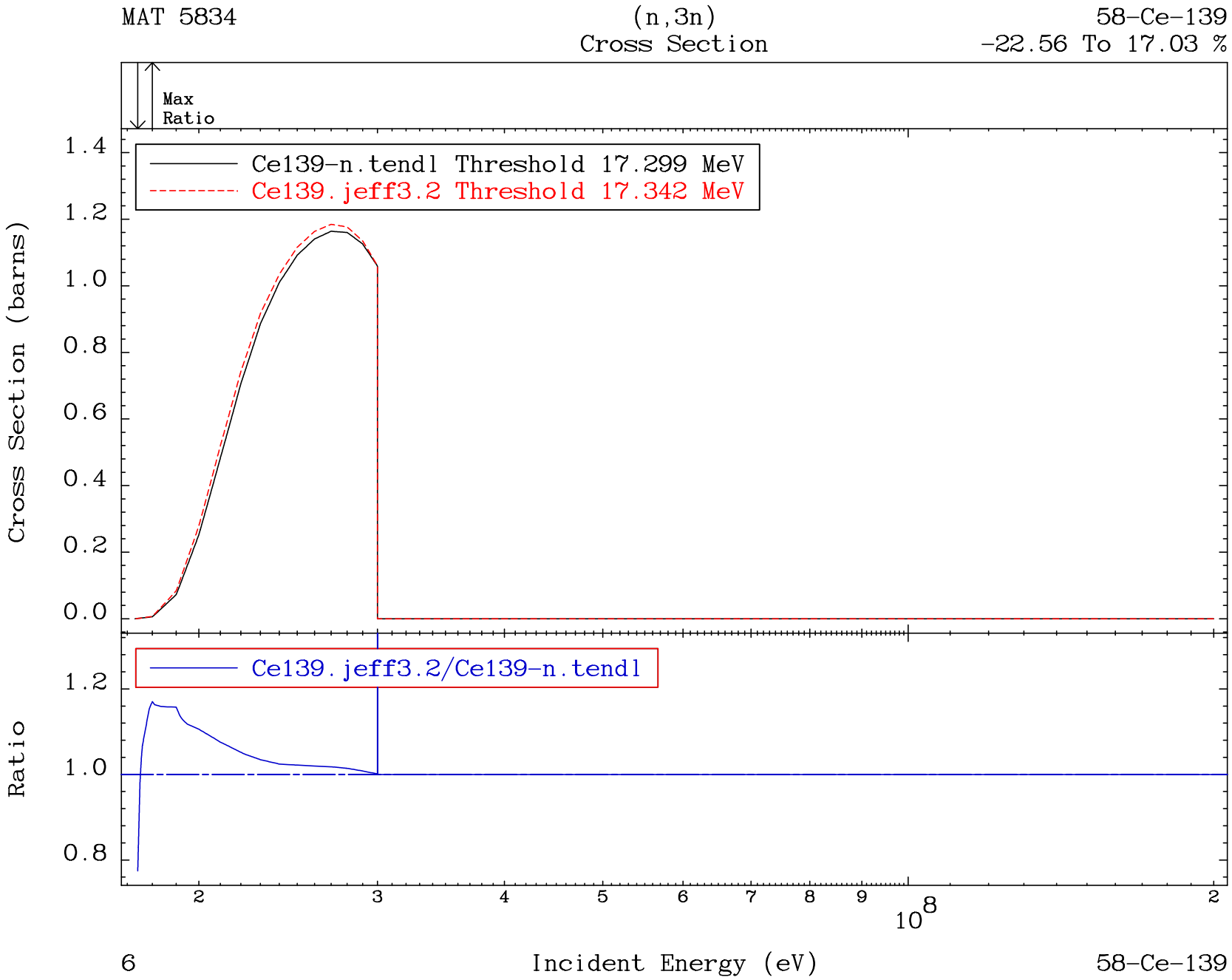

MAT 5834
Total
Cross Section
58-Ce-139
-45.28 To 9999. %
Max
Ratio
Min
Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
1
58-Ce-139

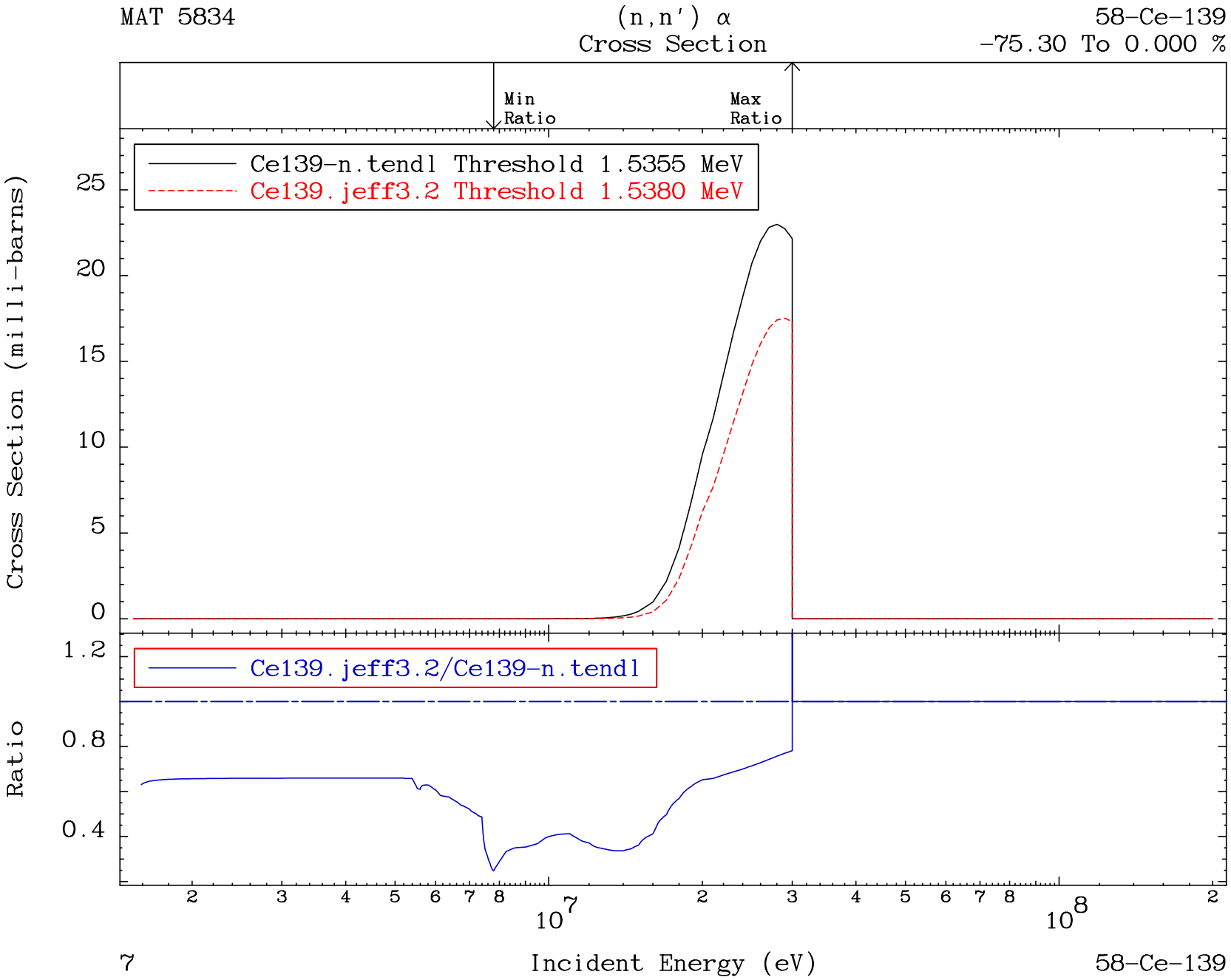

MAT 5834
Elastic
Cross Section
58-Ce-139
-2.402 To 9999. %
Max
Ratio
Min
Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
2
58-Ce-139

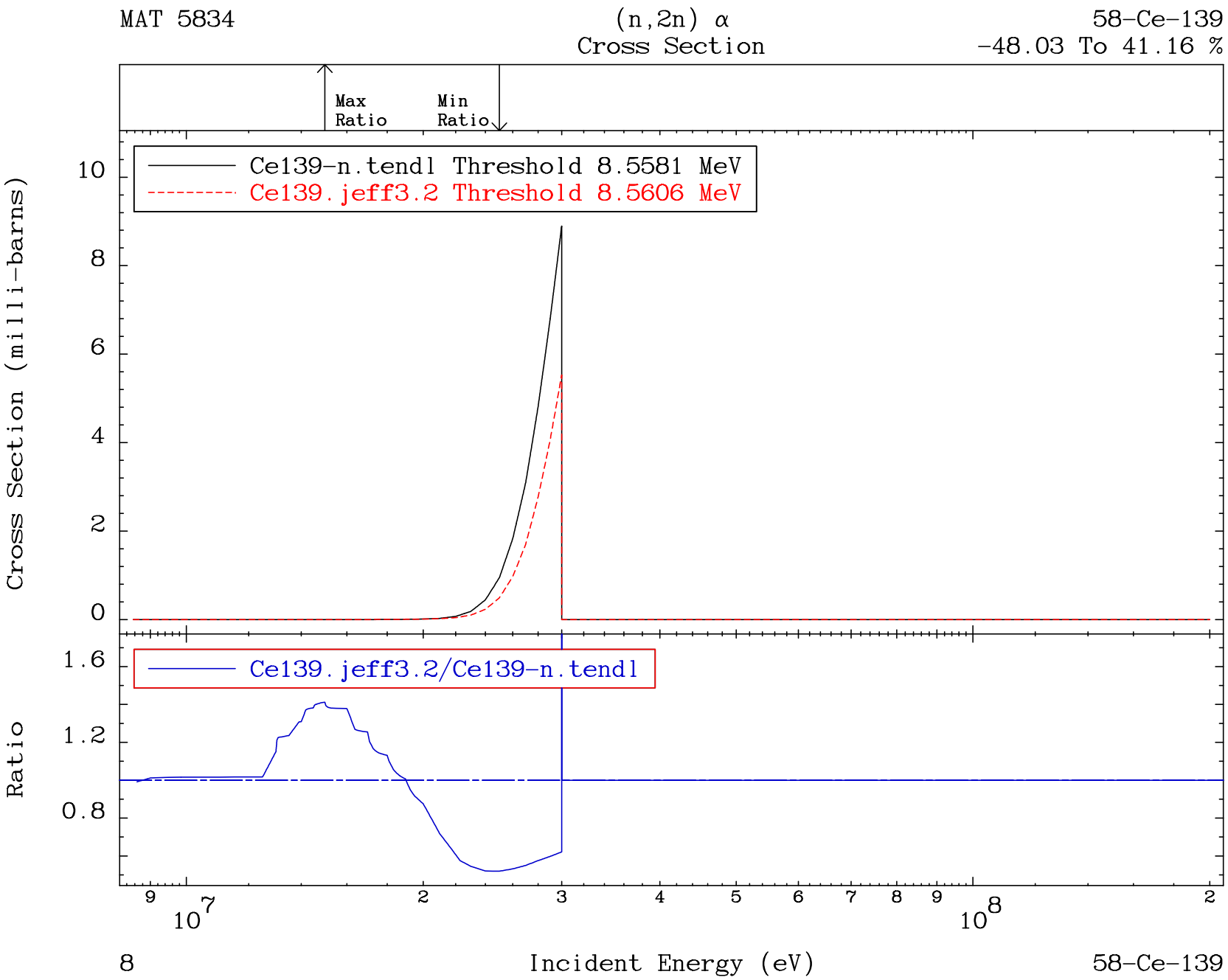

MAT 5834
Inelastic
Cross Section
58-Ce-139
-3.037 To 5.735 %
Min
Ratio
Max
Ratio
Ce139-n.tendl Threshold 256.95 keV
Ce139.jeff3.2 Threshold 256.95 keV
Cross Section (barns)
2.5
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.08
1.04
1.00
3 4 5 6 7 8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
Incident Energy (eV)
3
58-Ce-139

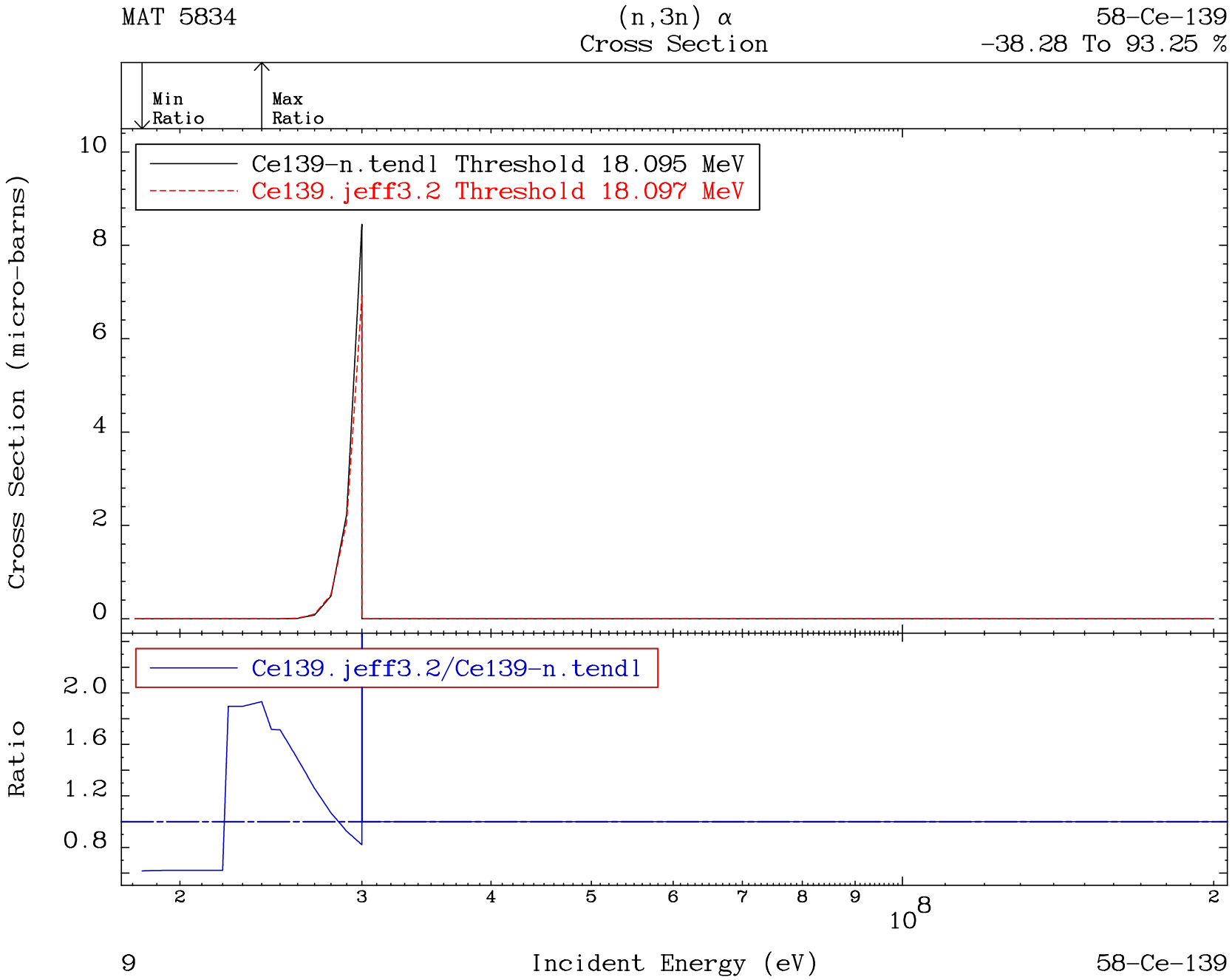

MAT 5834
(n,2n) d
Cross Section
58-Ce-139
-6.246 To 35.08 %
Min
Ratio
Ce139-n.tendl Threshold 22.280 MeV
Ce139.jeff3.2 Threshold 22.283 MeV
Cross Section (micro-barns)
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.4
1.2
1.0
40
60
80
100
120
140
160
180
200
4
Incident Energy (MeV)
58-Ce-139

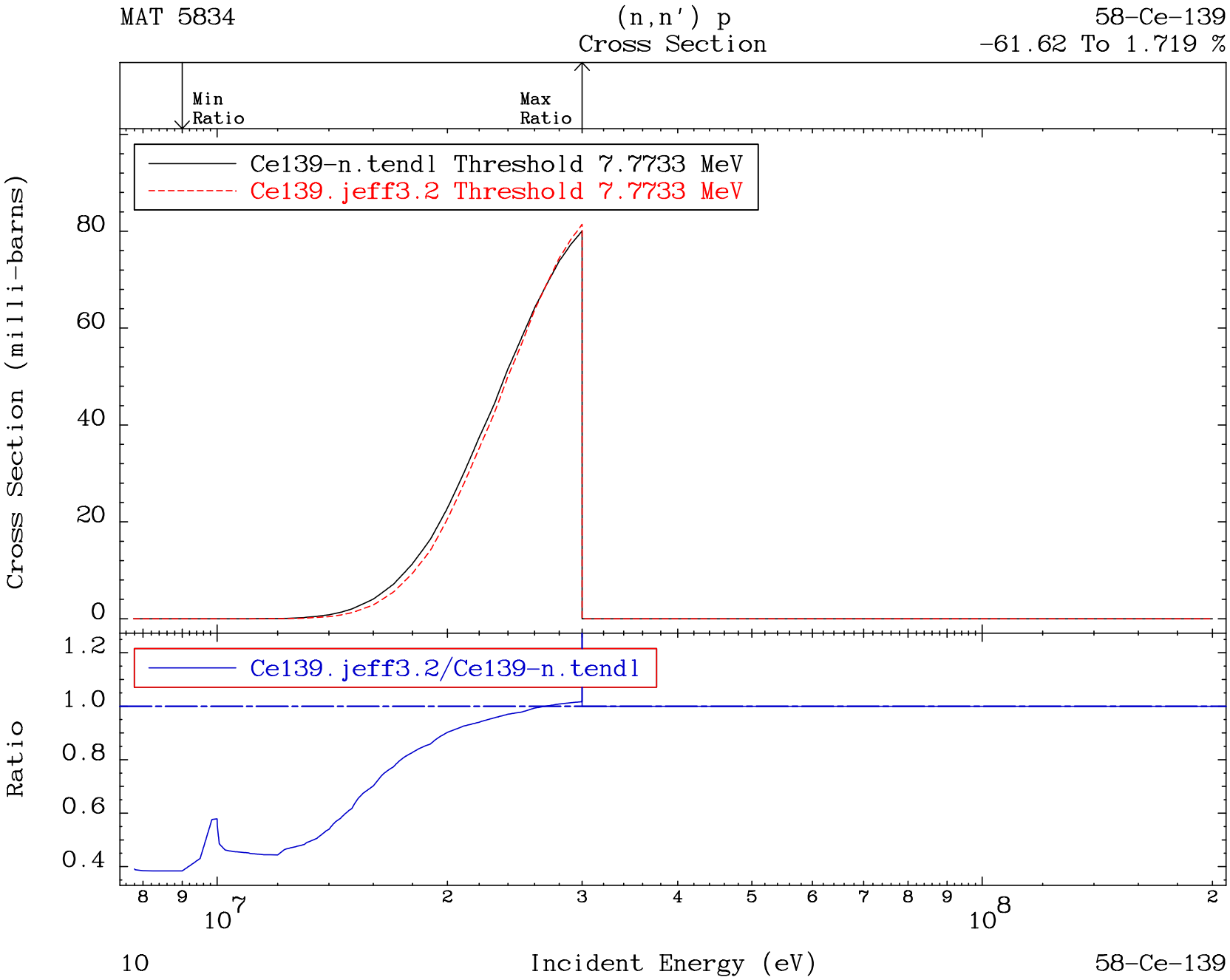

MAT 5834
(n,2n)
Cross Section
58-Ce-139
-6.468 To 7.054 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 7.5069 MeV
Ce139.jeff3.2 Threshold 7.5094 MeV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.10
1.05
1.00
0.95
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
5
Incident Energy (eV)
58-Ce-139

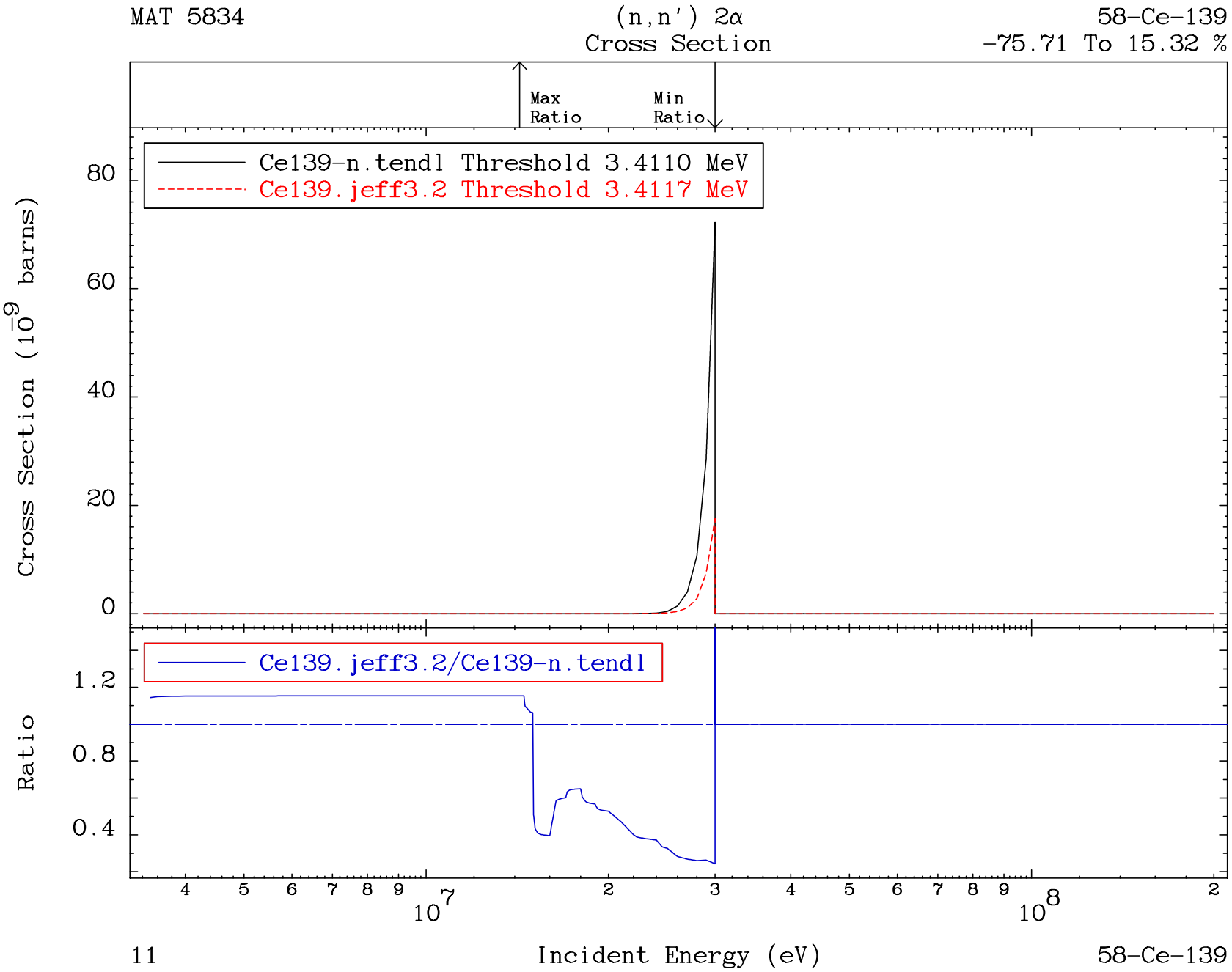

MAT 5834
(n,3n)
Cross Section
58-Ce-139
-22.56 To 17.03 %
Max
Ratio
Ce139-n.tendl Threshold 17.299 MeV
Ce139.jeff3.2 Threshold 17.342 MeV
Cross Section (barns)
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
2
3
4
5
6
7
8
9
2
10^8
6
Incident Energy (eV)
58-Ce-139

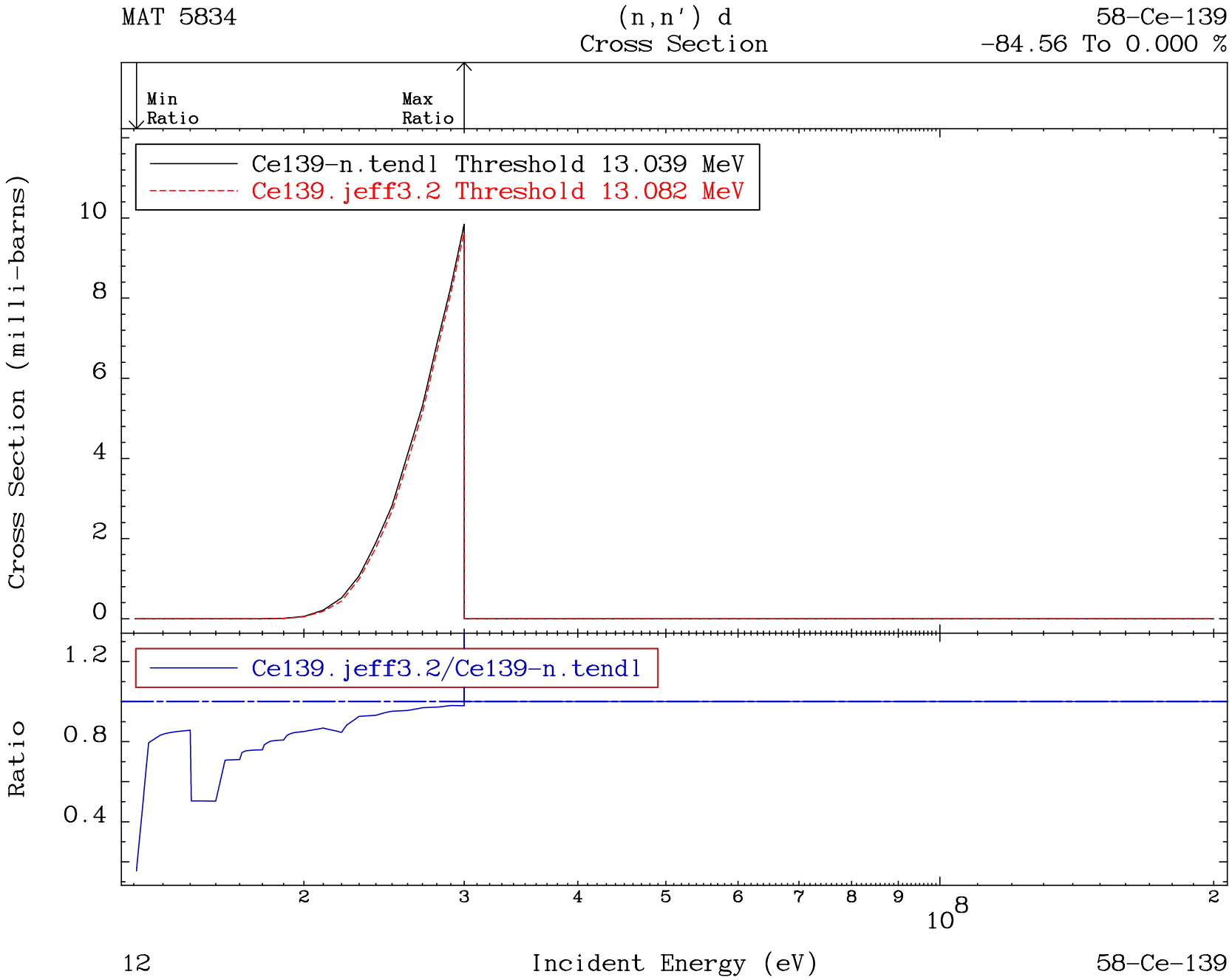

MAT 5834
(n,n') α
Cross Section
58-Ce-139
-75.30 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.5355 MeV
Ce139.jeff3.2 Threshold 1.5380 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
7
Incident Energy (eV)
58-Ce-139

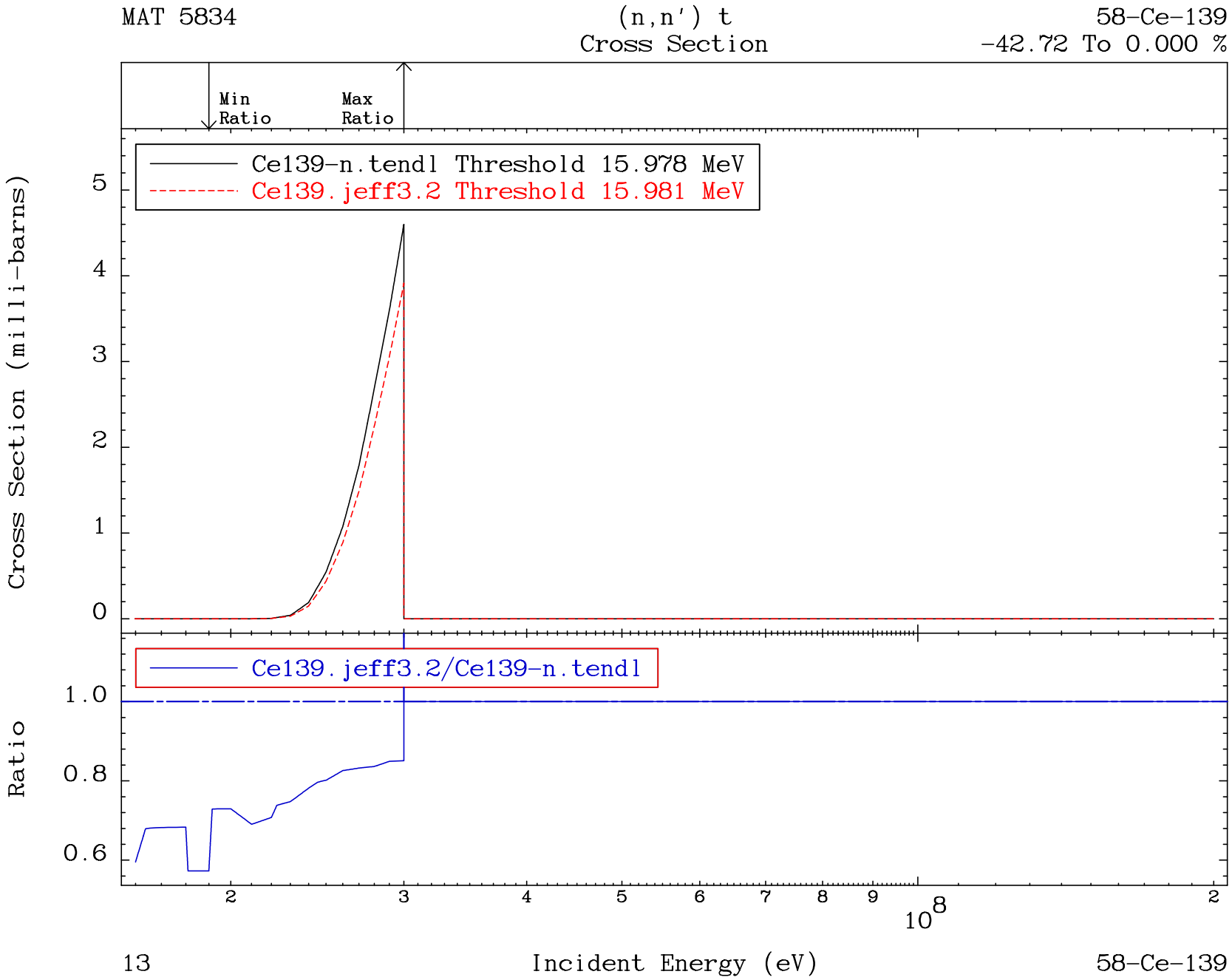

MAT 5834
(n,2n) α
Cross Section
58-Ce-139
-48.03 To 41.16 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 8.5581 MeV
Ce139.jeff3.2 Threshold 8.5606 MeV
Cross Section (milli-barns)
10
8
6
4
2
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
9
10^7
2
3
4
5
6
7
8
9
10^8
2
8
Incident Energy (eV)
58-Ce-139

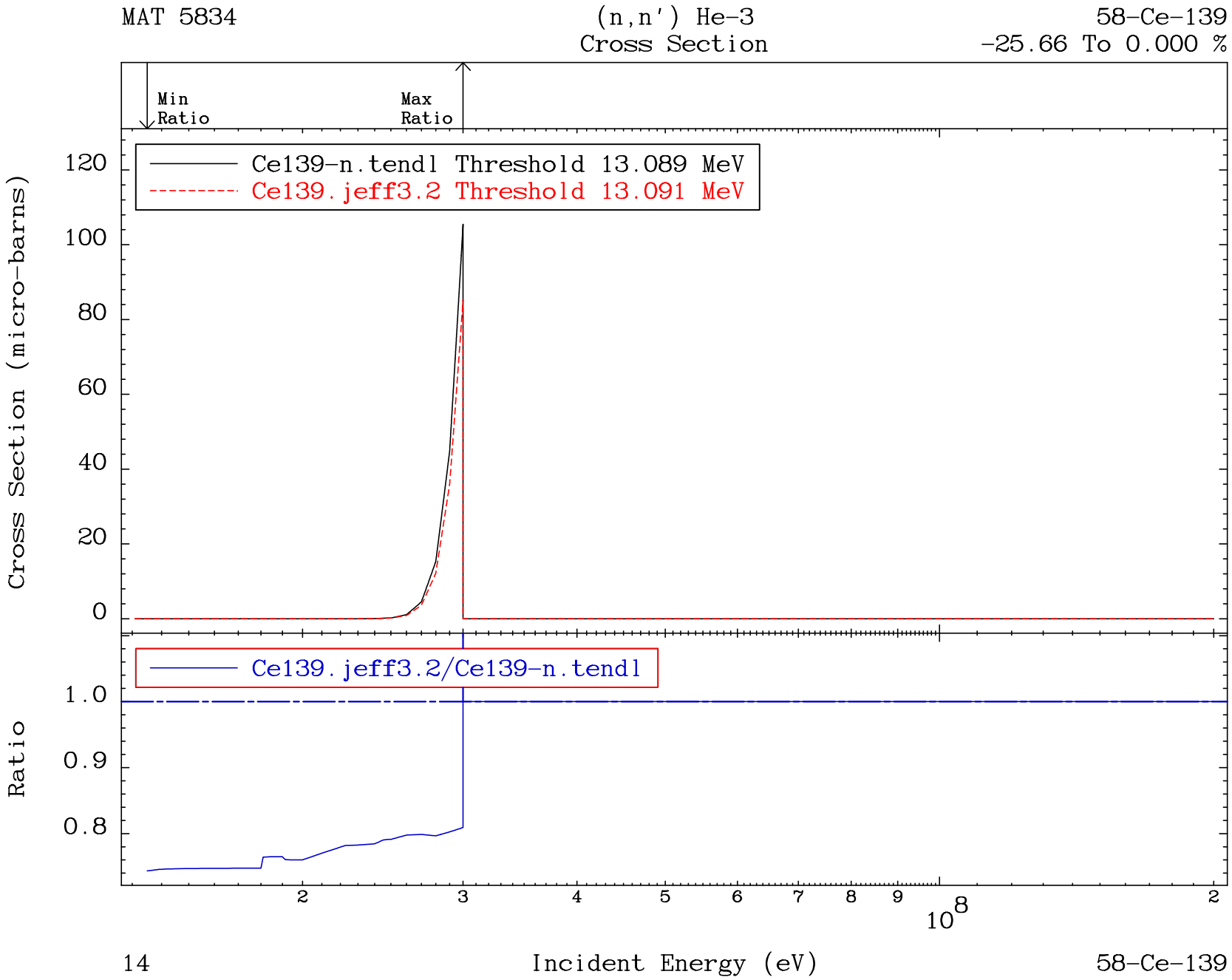

MAT 5834
(n,3n) α
Cross Section
58-Ce-139
-38.28 To 93.25 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 18.095 MeV
Ce139.jeff3.2 Threshold 18.097 MeV
Cross Section (micro-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
9
58-Ce-139

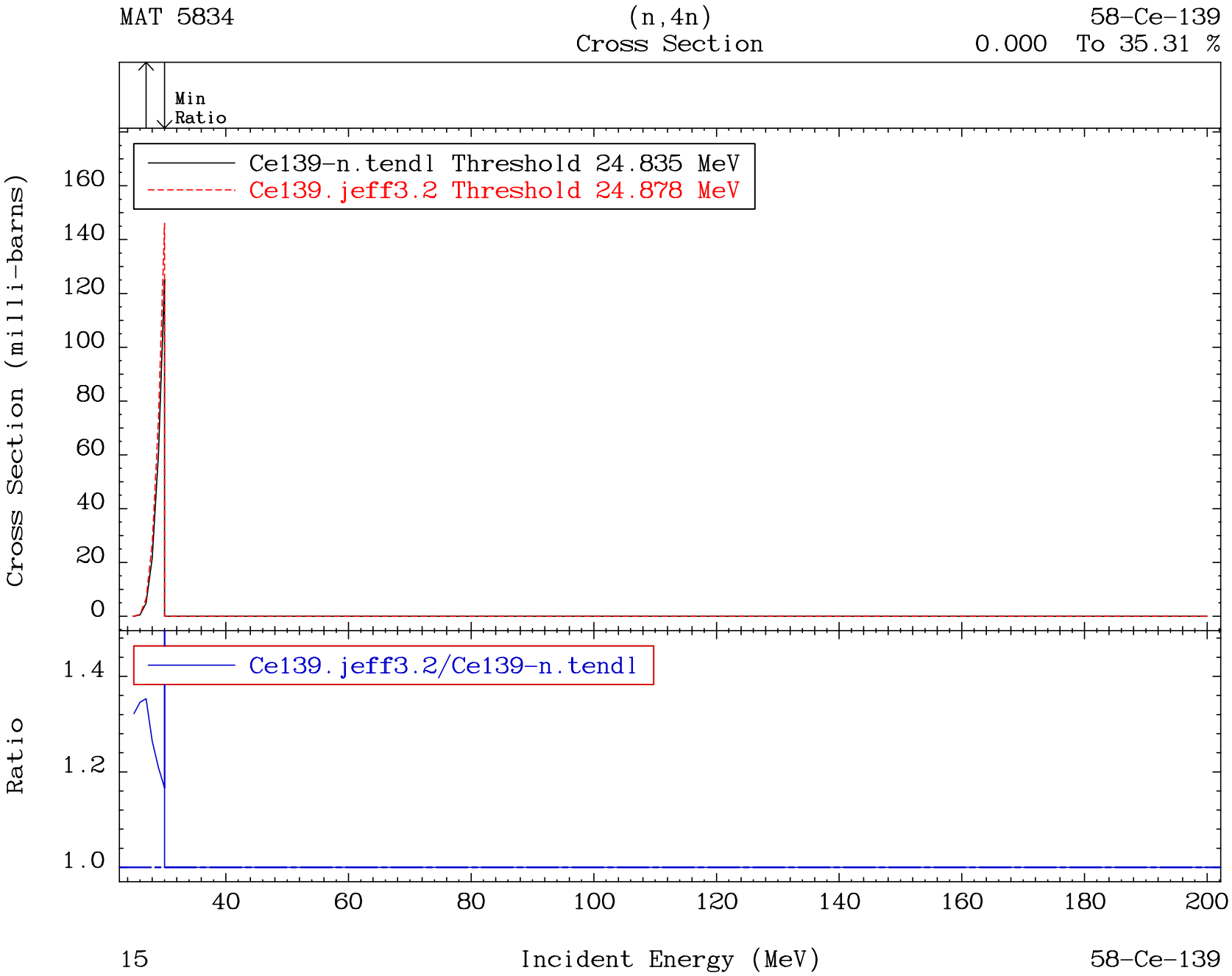

MAT 5834
(n,n') p
Cross Section
58-Ce-139
-61.62 To 1.719 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 7.7733 MeV
Ce139.jeff3.2 Threshold 7.7733 MeV
Cross Section (milli-barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
0.6
0.4
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
10
Incident Energy (eV)
58-Ce-139

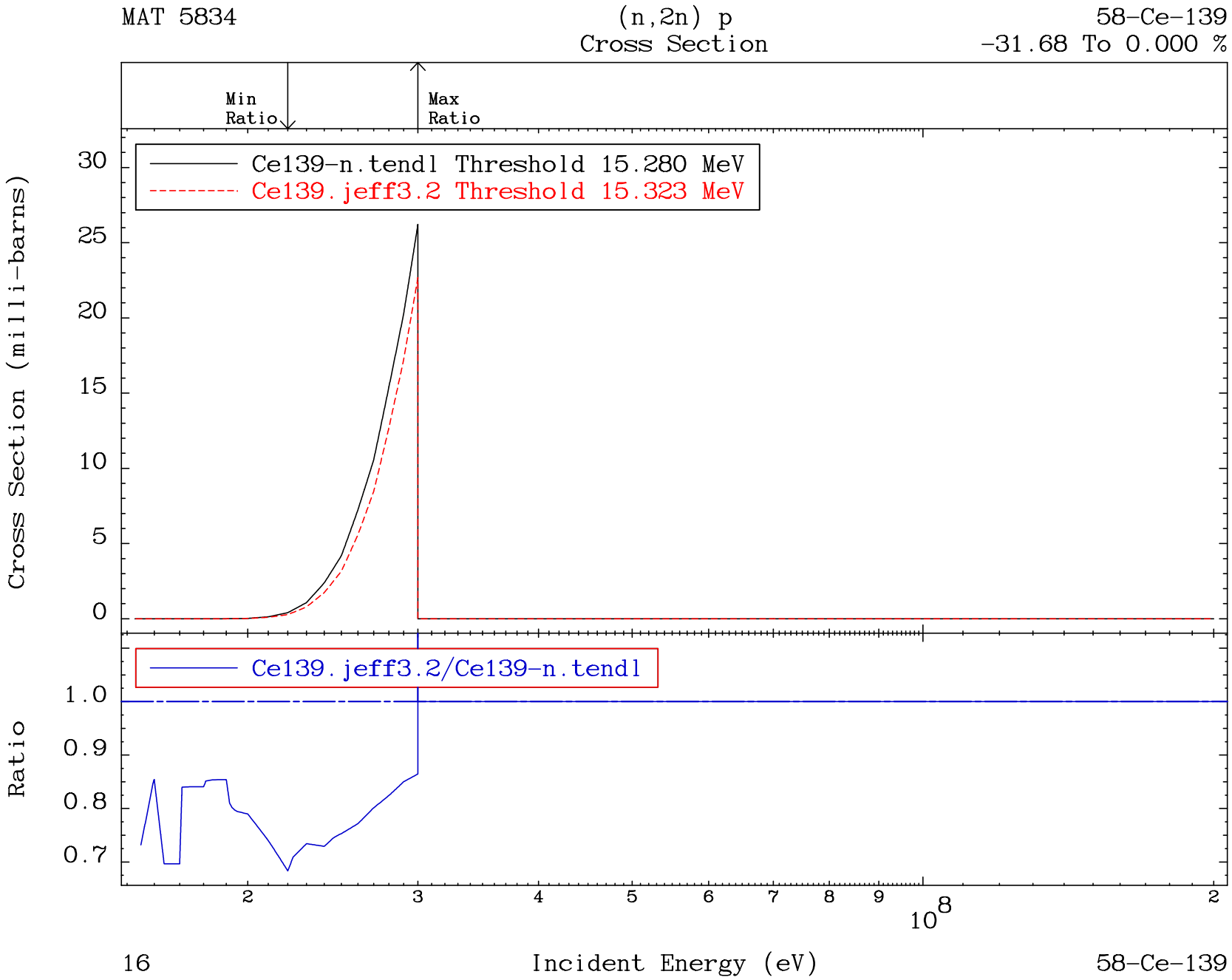

MAT 5834
(n,n') 2α
Cross Section
58-Ce-139
-75.71 To 15.32 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 3.4110 MeV
Ce139.jeff3.2 Threshold 3.4117 MeV
Cross Section (10^-9 barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
11
Incident Energy (eV)
58-Ce-139

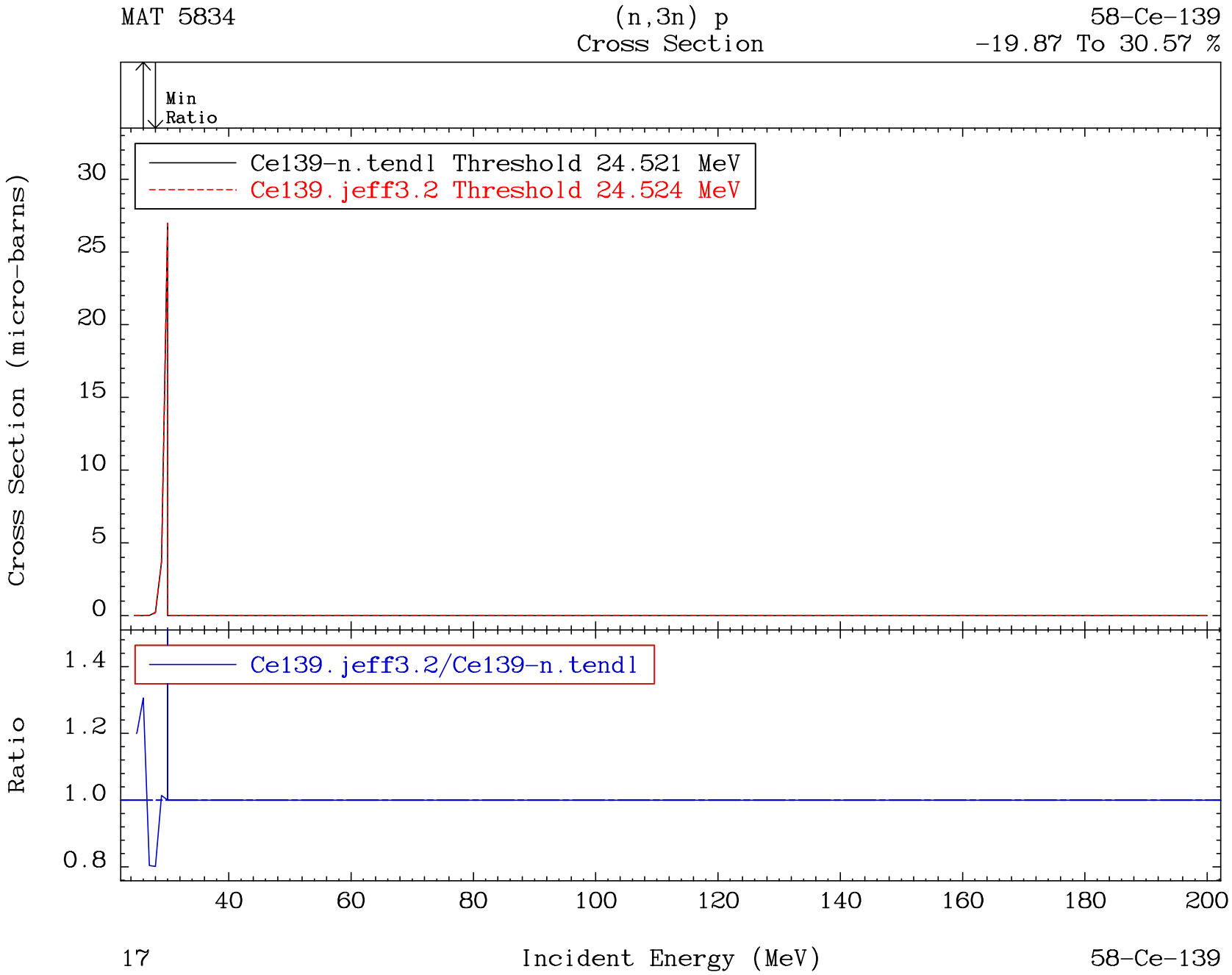

MAT 5834
(n,n') d
Cross Section
58-Ce-139
-84.56 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 13.039 MeV
Ce139.jeff3.2 Threshold 13.082 MeV
Cross Section (milli-barns)
10
8
6
4
2
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
12
Incident Energy (eV)
58-Ce-139

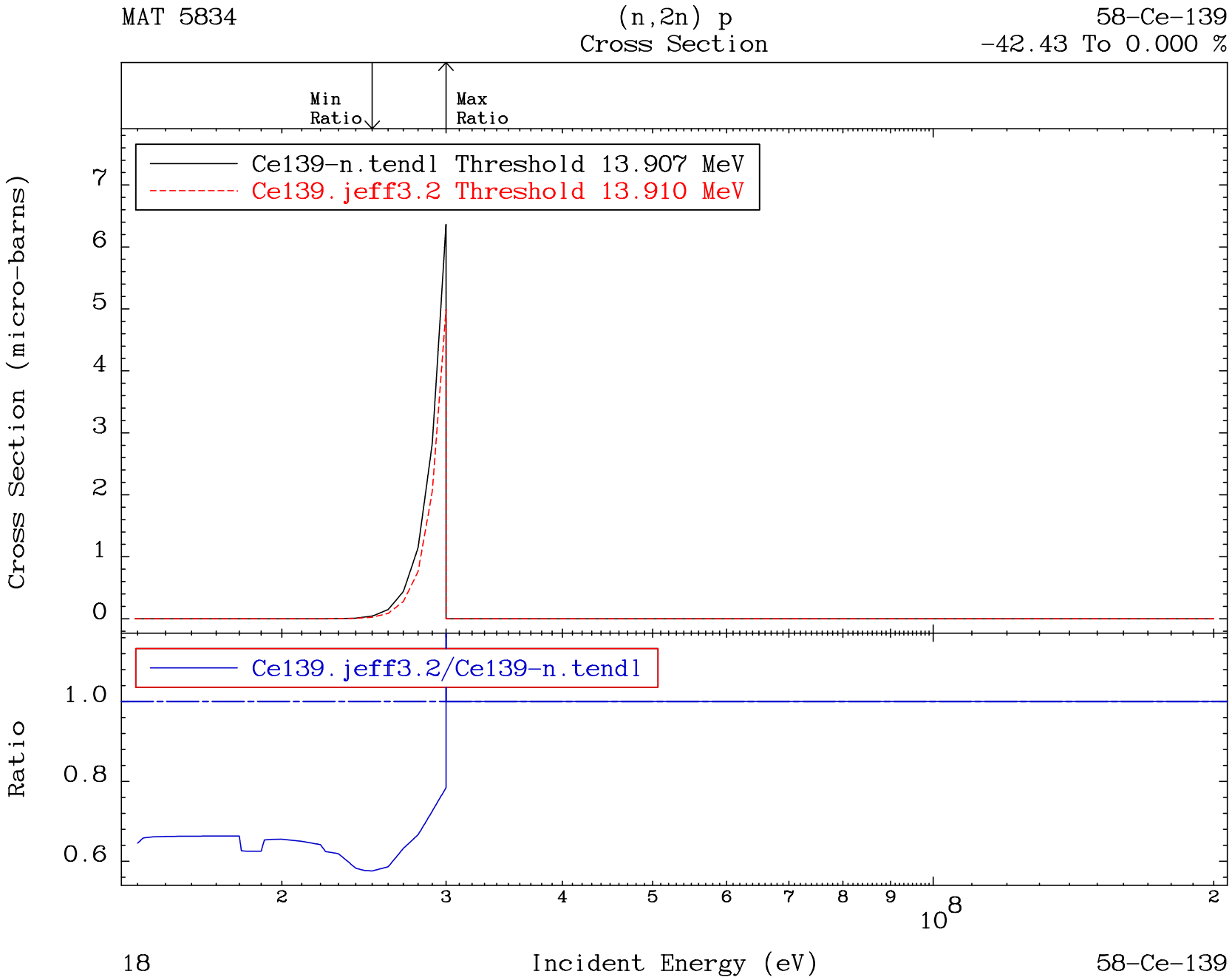

MAT 5834
(n,n') t
Cross Section
58-Ce-139
-42.72 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 15.978 MeV
Ce139.jeff3.2 Threshold 15.981 MeV
Cross Section (milli-barns)
0
1
2
3
4
5
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
2
3
4
5
6
7
8
9
10^8
2
13
Incident Energy (eV)
58-Ce-139

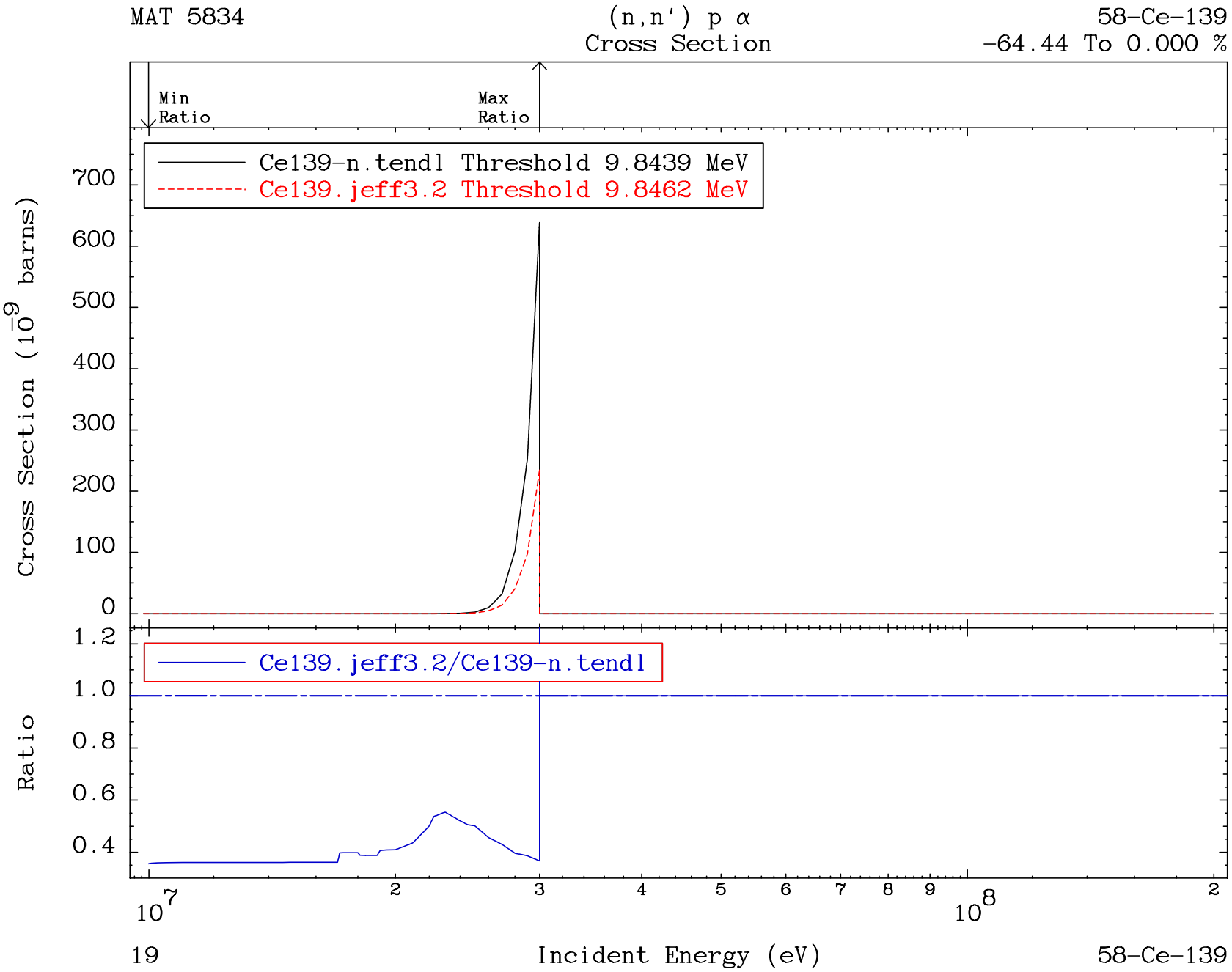

MAT 5834
(n,n') He-3
Cross Section
58-Ce-139
-25.66 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 13.089 MeV
Ce139.jeff3.2 Threshold 13.091 MeV
Cross Section (micro-barns)
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2
3
4
5
6
7
8
9
10^8
2
14
Incident Energy (eV)
58-Ce-139

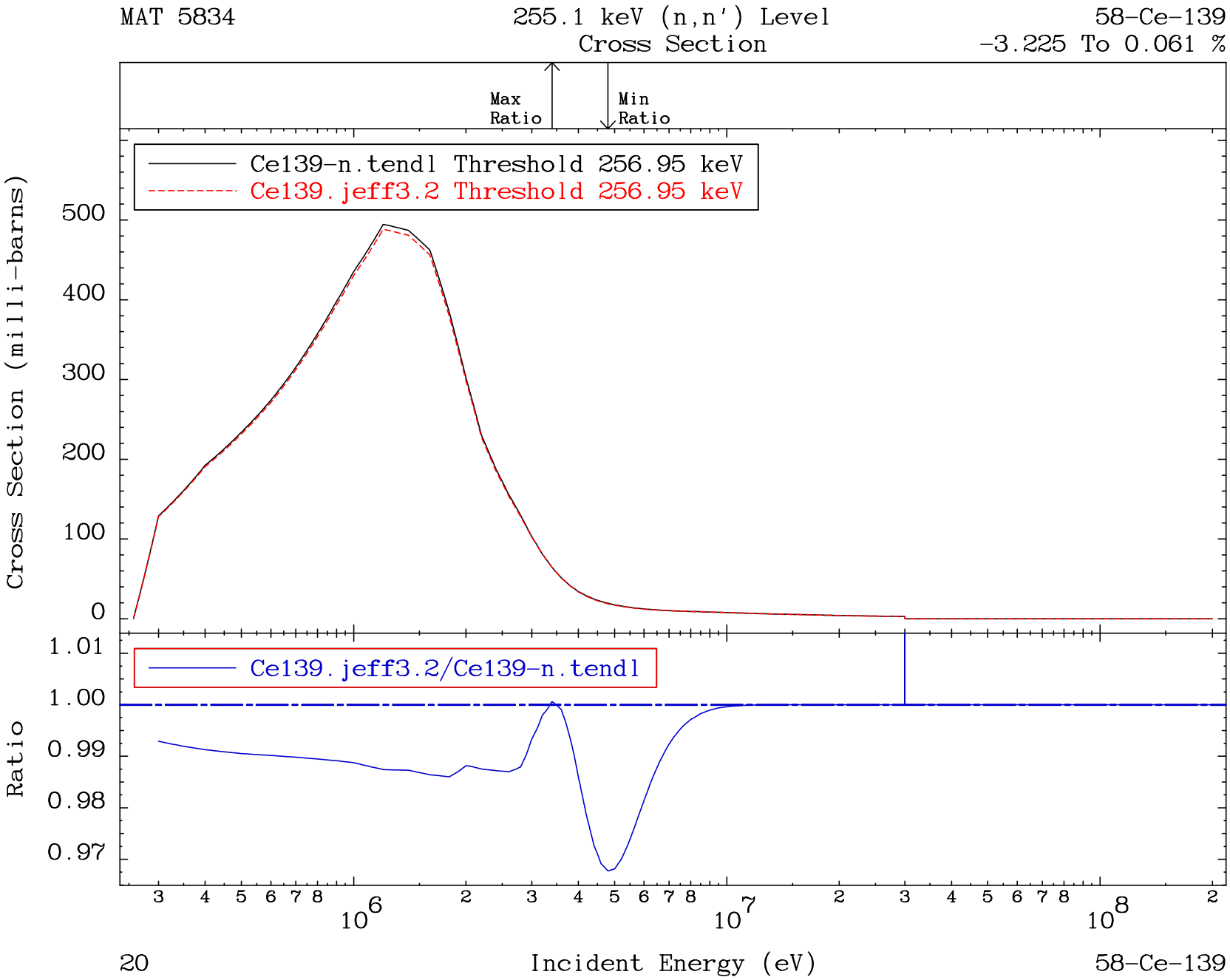

MAT 5834
(n,4n)
Cross Section
58-Ce-139
0.000 To 35.31 %
Min
Ratio
Ce139-n.tendl Threshold 24.835 MeV
Ce139.jeff3.2 Threshold 24.878 MeV
Cross Section (milli-barns)
160
140
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.4
1.2
1.0
40
60
80
100
120
140
160
180
200
15
Incident Energy (MeV)
58-Ce-139

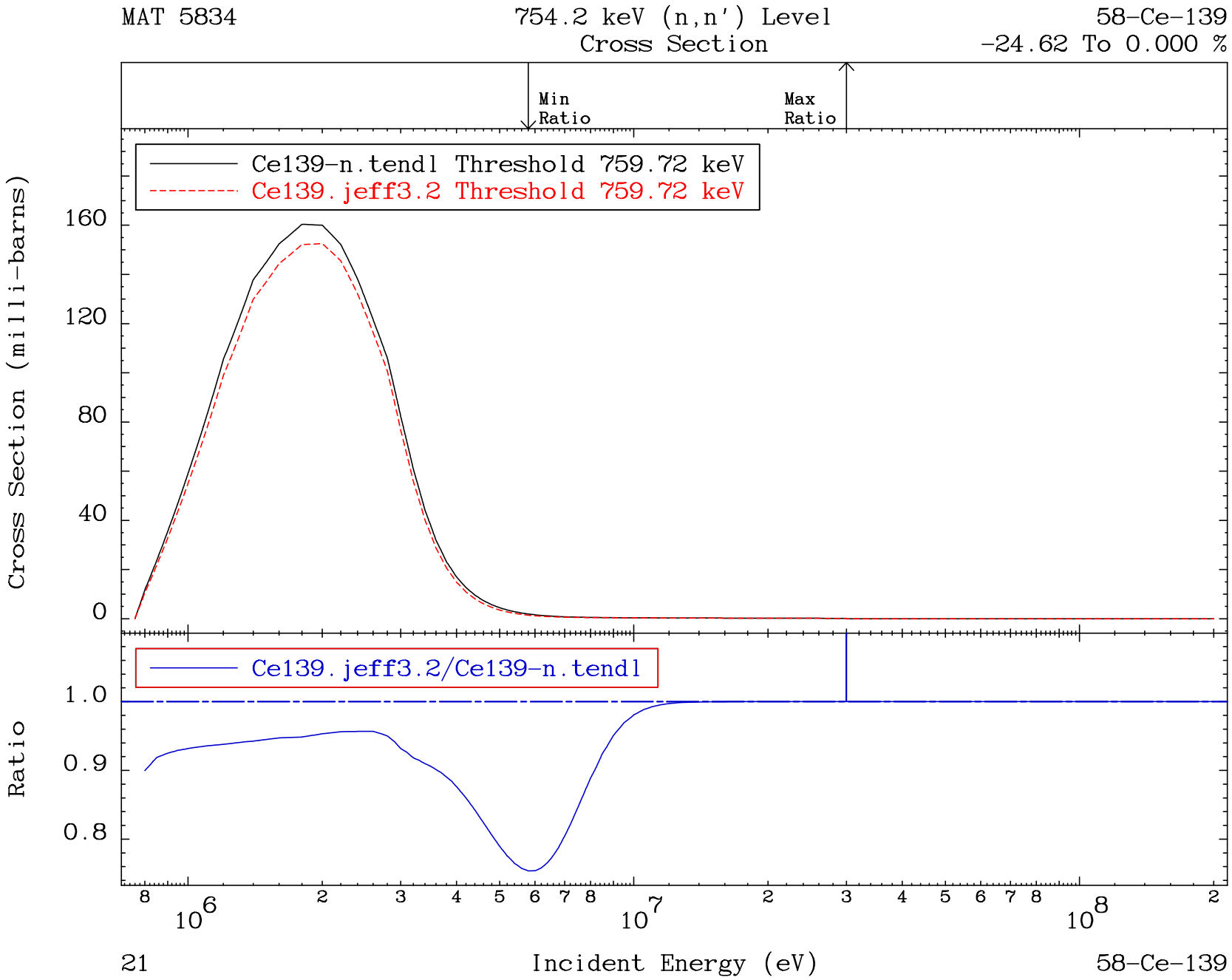

MAT 5834
(n,2n) p
Cross Section
58-Ce-139
-31.68 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 15.280 MeV
Ce139.jeff3.2 Threshold 15.323 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
0.7
2
3
4
5
6
7
8
9
10^8
2
16
Incident Energy (eV)
58-Ce-139

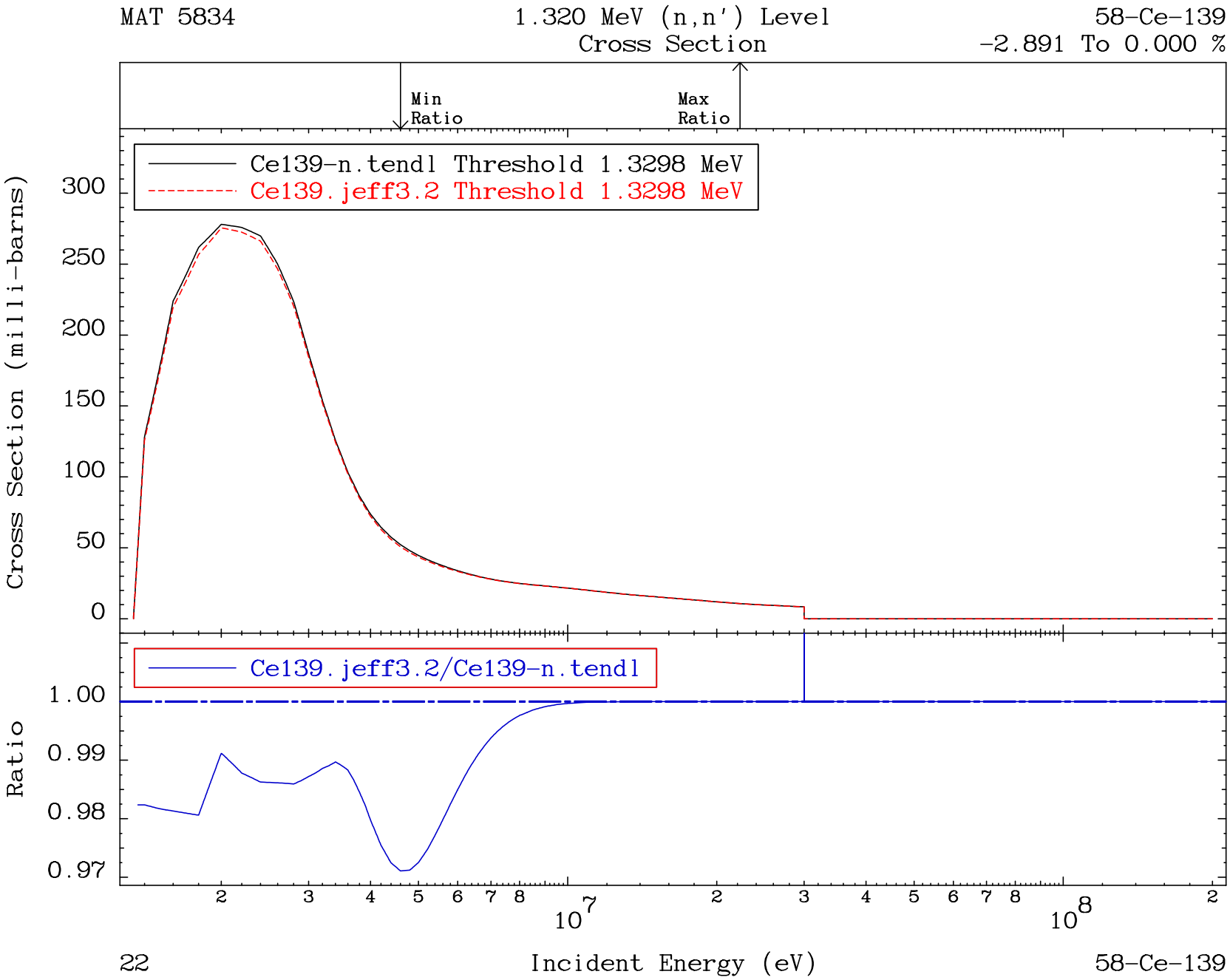

MAT 5834
(n,3n) p
Cross Section
58-Ce-139
-19.87 To 30.57 %
Min
Ratio
Ce139-n.tendl Threshold 24.521 MeV
Ce139.jeff3.2 Threshold 24.524 MeV
Cross Section (micro-barns)
30
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.4
1.2
1.0
0.8
40
60
80
100
120
140
160
180
200
17
Incident Energy (MeV)
58-Ce-139

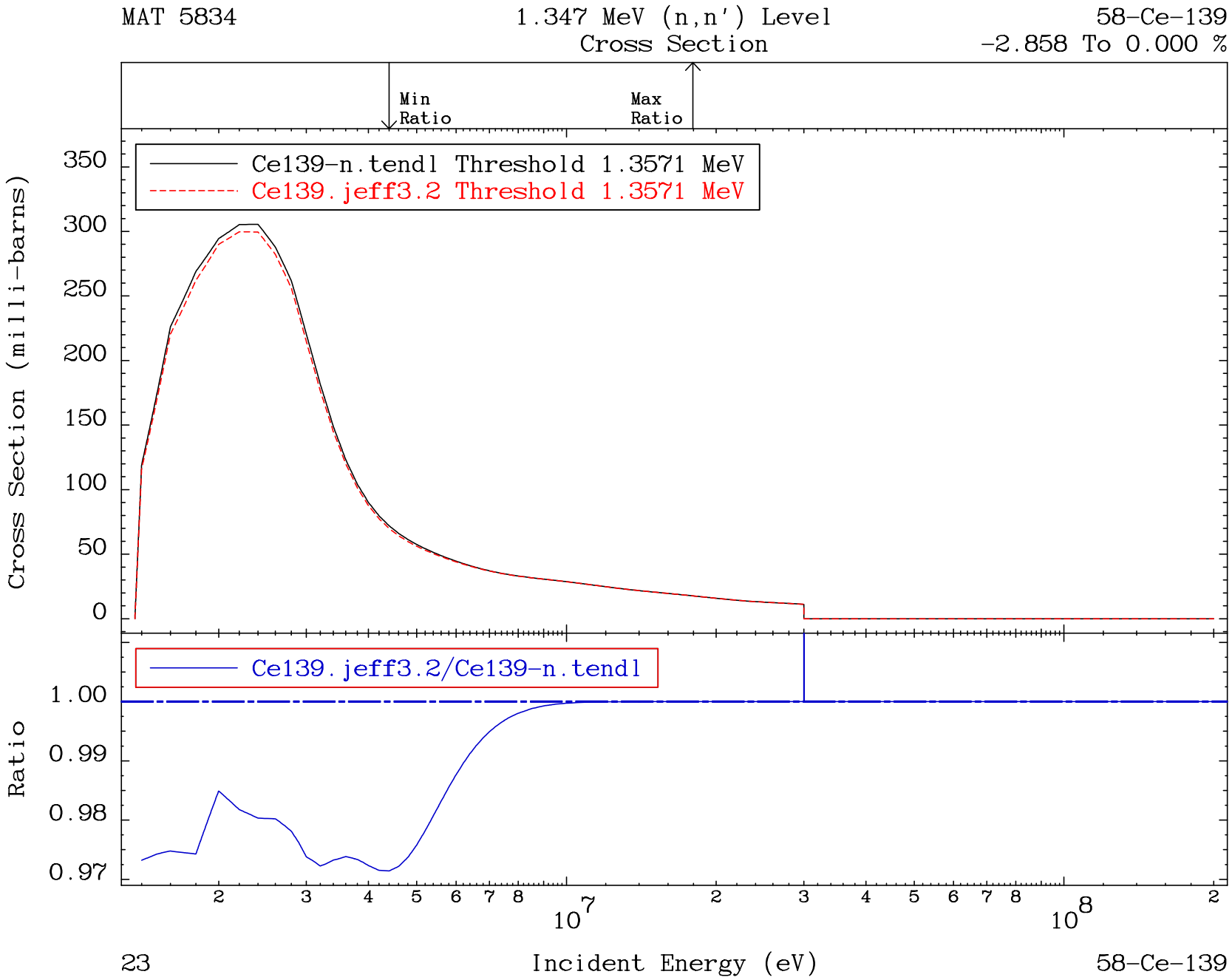

MAT 5834
(n,2n) p
Cross Section
58-Ce-139
-42.43 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 13.907 MeV
Ce139.jeff3.2 Threshold 13.910 MeV
Cross Section (micro-barns)
0
1
2
3
4
5
6
7
Ce139.jeff3.2/Ce139-n.tendl
Ratio
0.6
0.8
1.0
2
3
4
5
6
7
8
9
10^8
2
18
Incident Energy (eV)
58-Ce-139

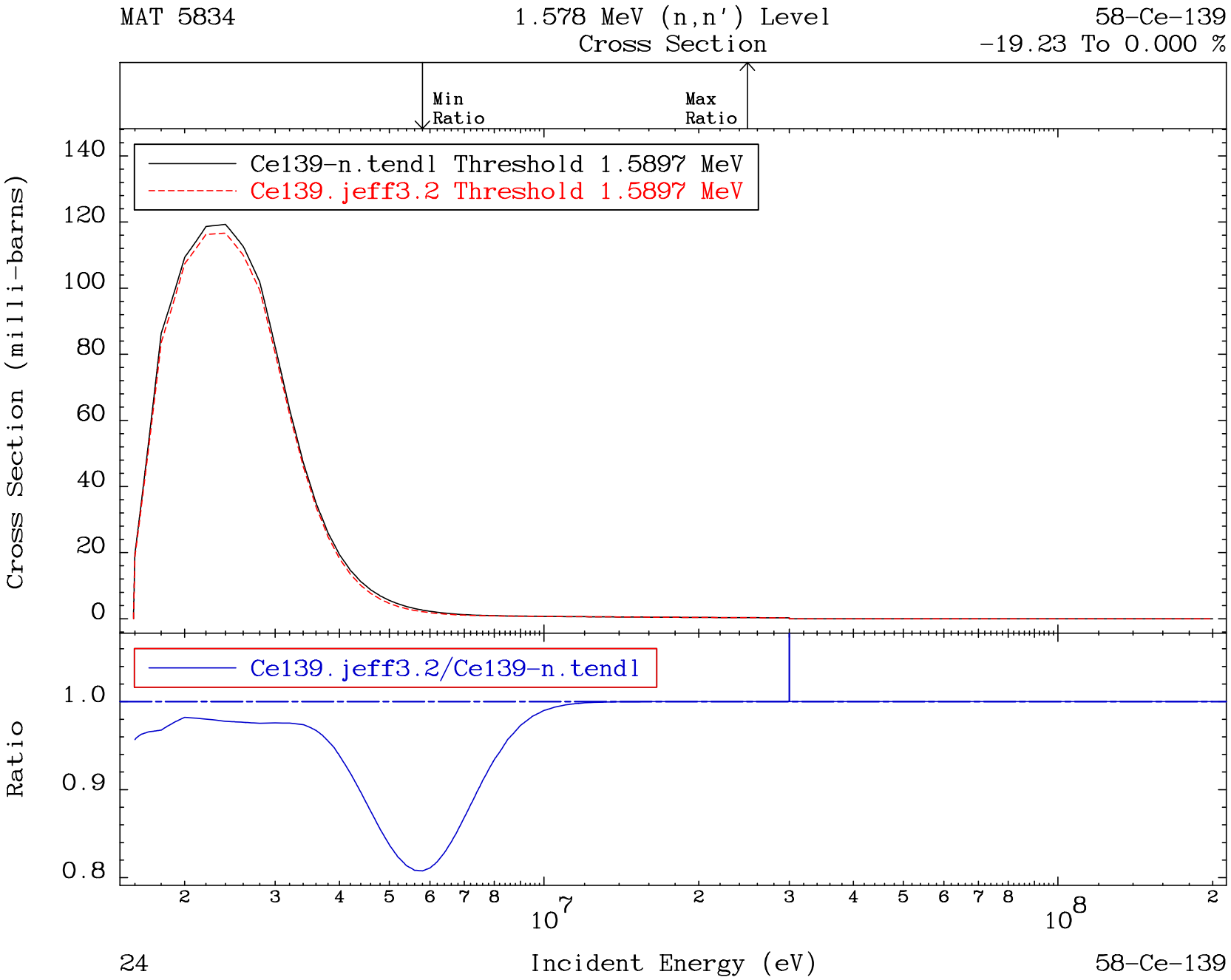

MAT 5834
(n,n') p α
Cross Section
58-Ce-139
-64.44 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 9.8439 MeV
Ce139.jeff3.2 Threshold 9.8462 MeV
Cross Section (10^-9 barns)
700
600
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
0.6
0.4
10^7
2
3
4
5
6
7
8
9
10^8
2
19
Incident Energy (eV)
58-Ce-139

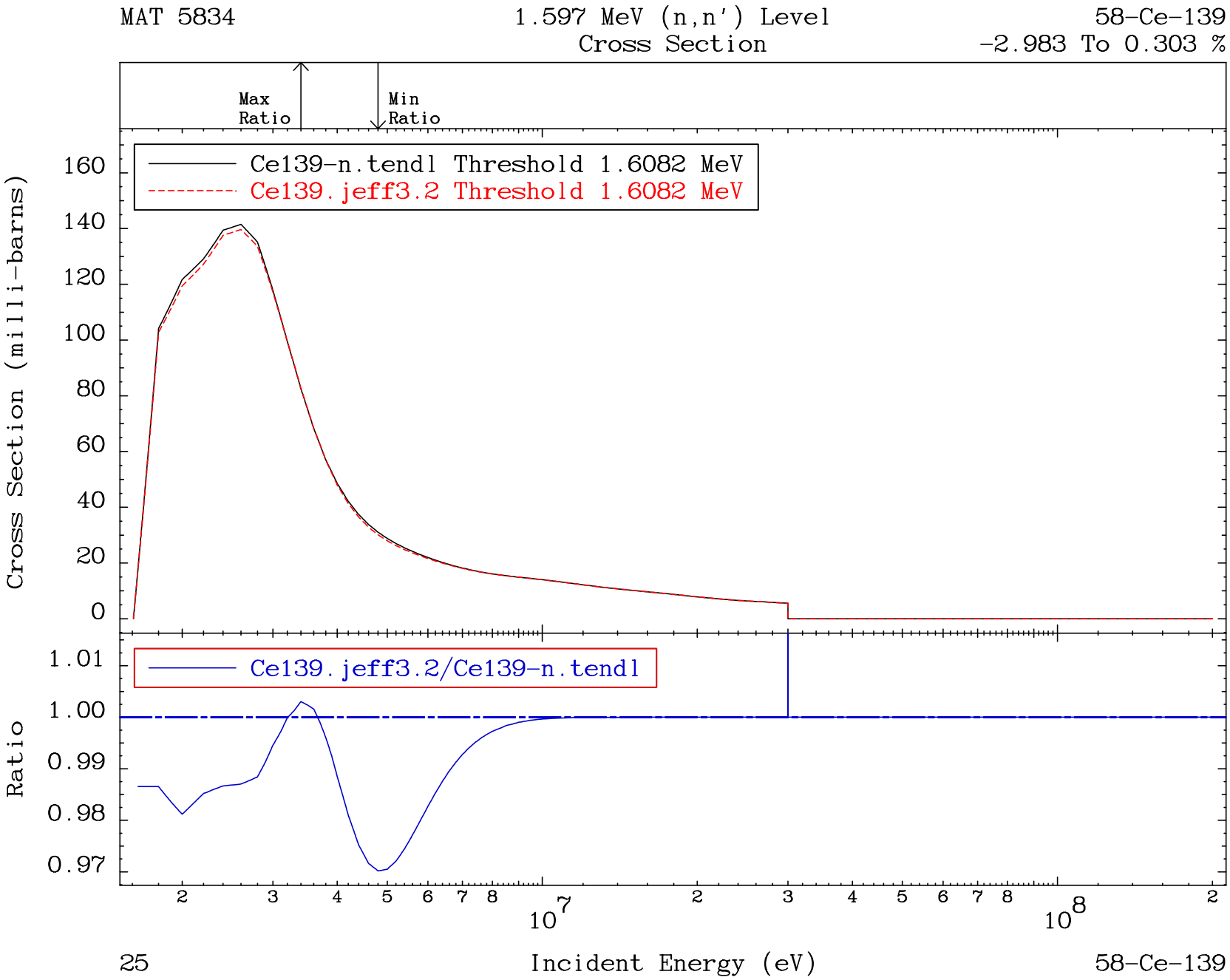

MAT 5834
255.1 keV (n,n') Level
Cross Section
58-Ce-139
-3.225 To 0.061 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 256.95 keV
Ce139.jeff3.2 Threshold 256.95 keV
Cross Section (milli-barns)
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.01
1.00
0.99
0.98
0.97
3 4 5 6 7 8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
20
Incident Energy (eV)
58-Ce-139

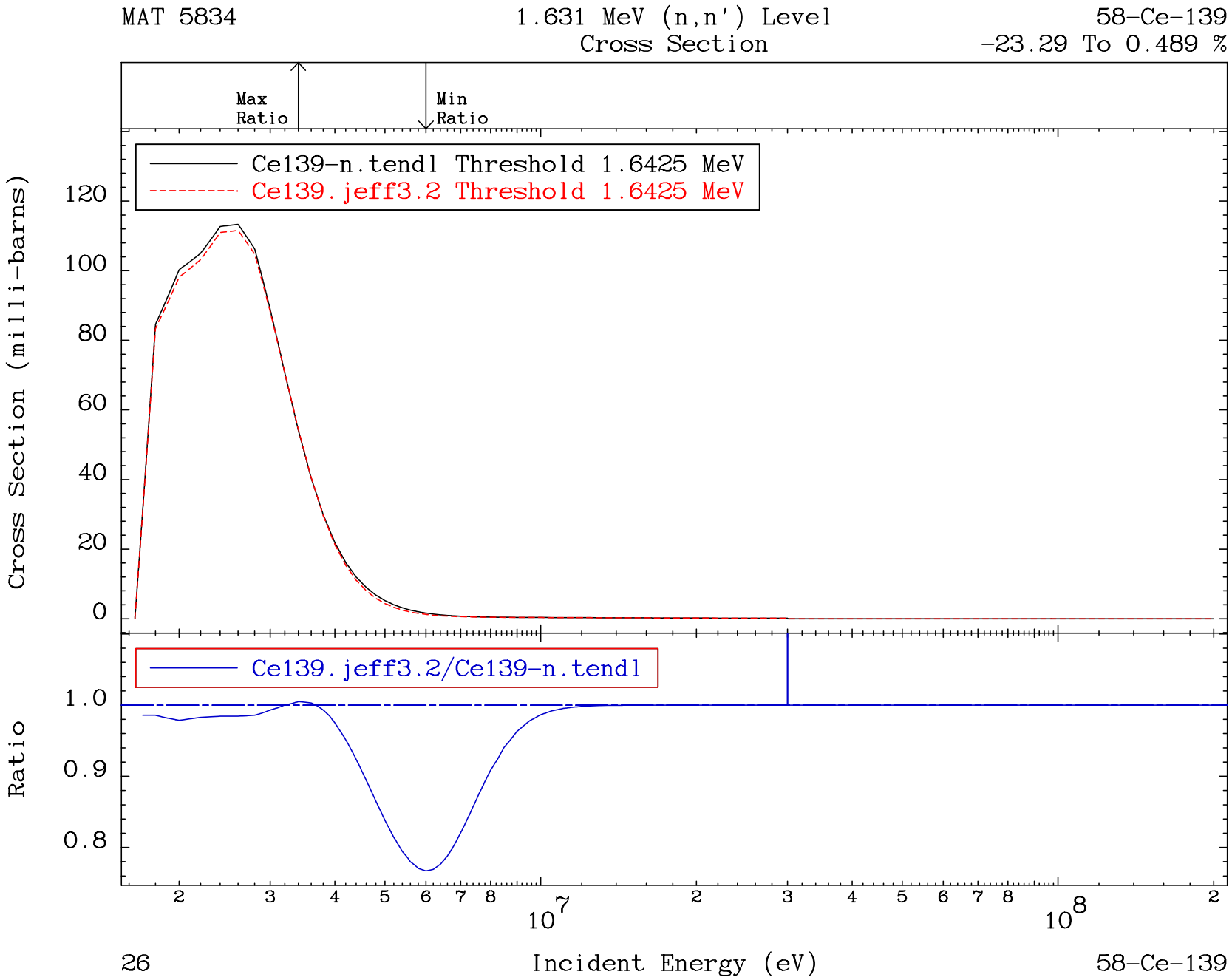

MAT 5834
754.2 keV (n,n') Level
Cross Section
58-Ce-139
-24.62 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 759.72 keV
Ce139.jeff3.2 Threshold 759.72 keV
Cross Section (milli-barns)
160
120
80
40
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
21
Incident Energy (eV)
58-Ce-139

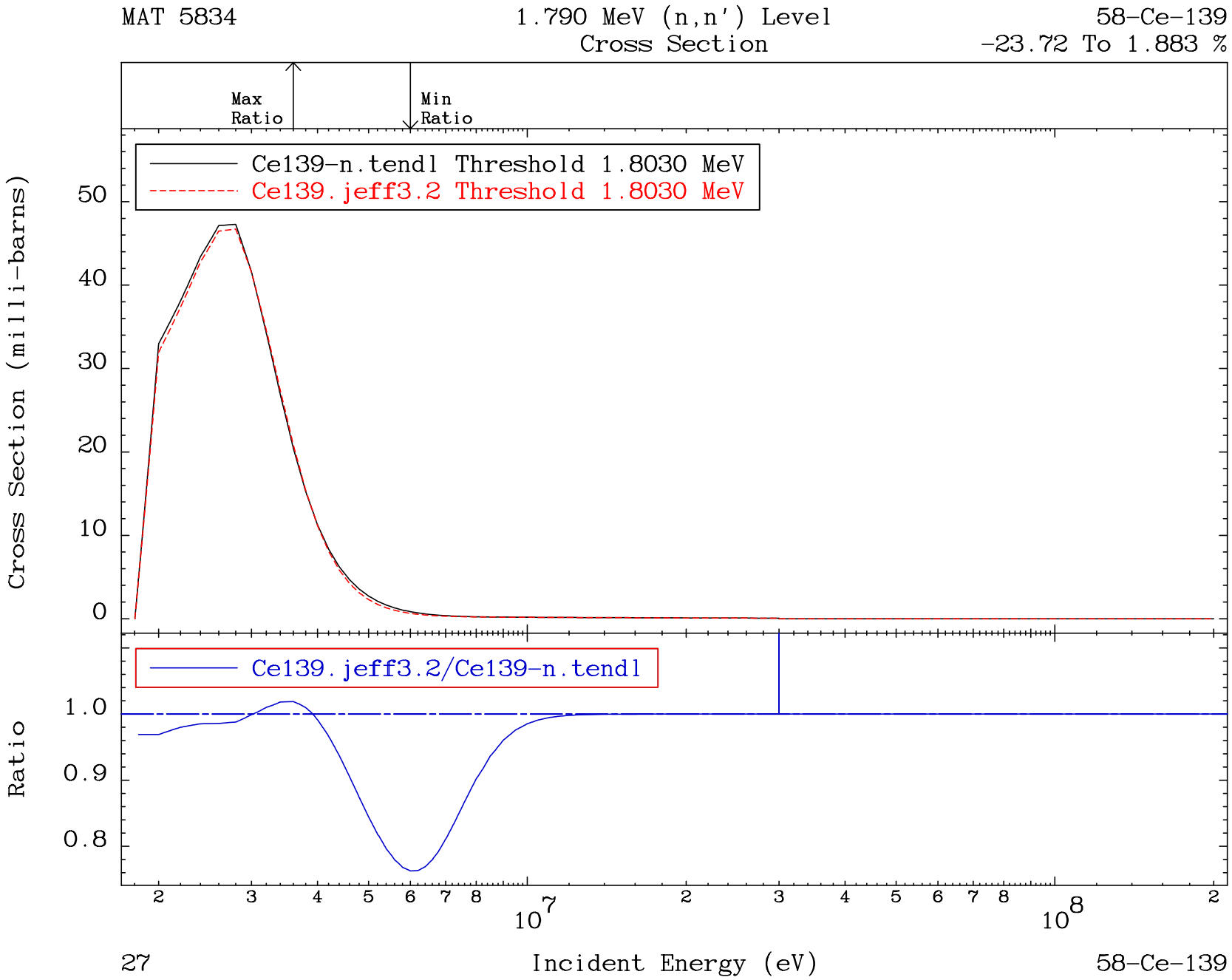

MAT 5834
1.320 MeV (n,n') Level
Cross Section
58-Ce-139
-2.891 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.3298 MeV
Ce139.jeff3.2 Threshold 1.3298 MeV
Cross Section (milli-barns)
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.99
0.98
0.97
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
22
Incident Energy (eV)
58-Ce-139

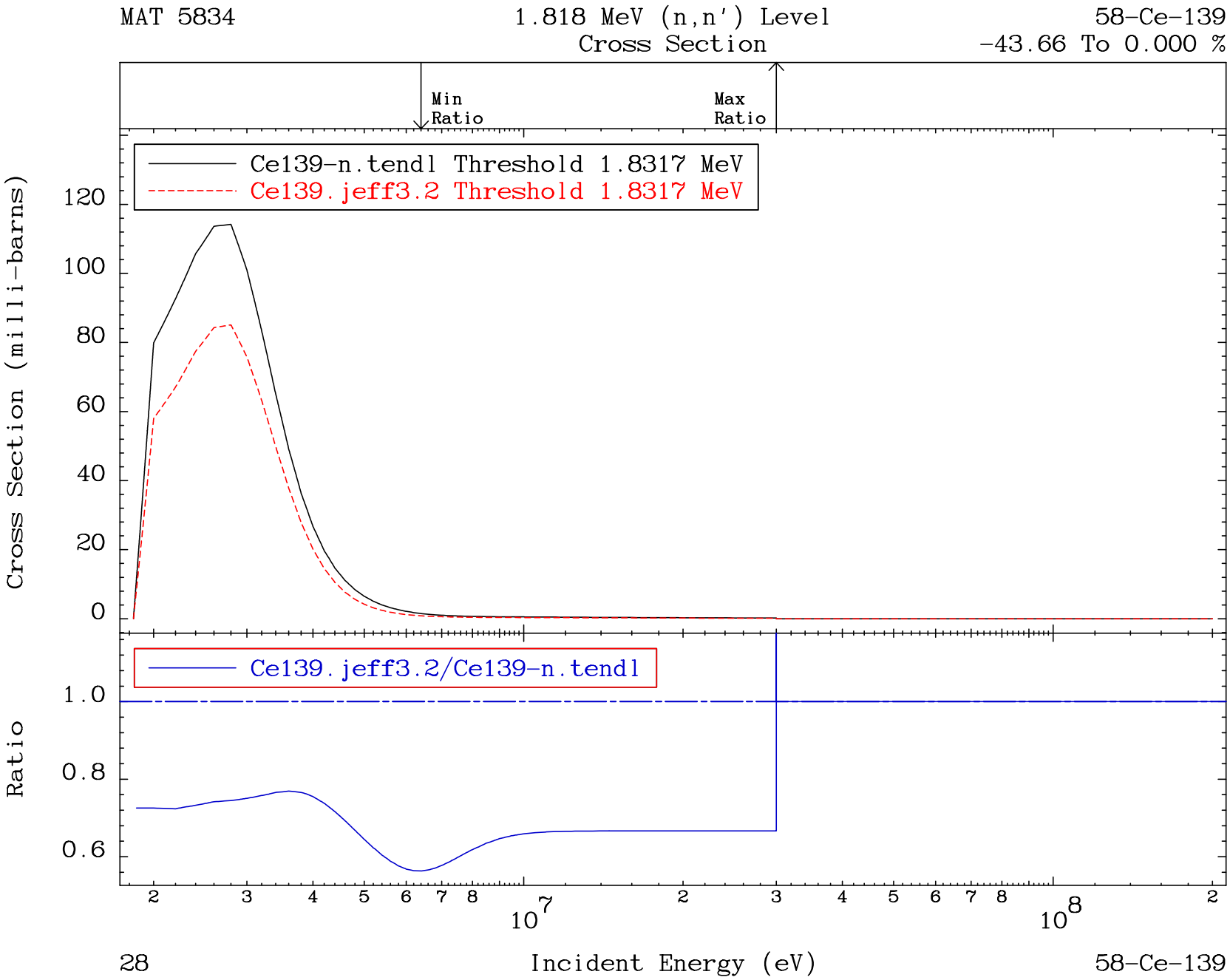

MAT 5834
1.347 MeV (n,n') Level
Cross Section
58-Ce-139
-2.858 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.3571 MeV
Ce139.jeff3.2 Threshold 1.3571 MeV
Cross Section (milli-barns)
350
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.99
0.98
0.97
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
23
Incident Energy (eV)
58-Ce-139

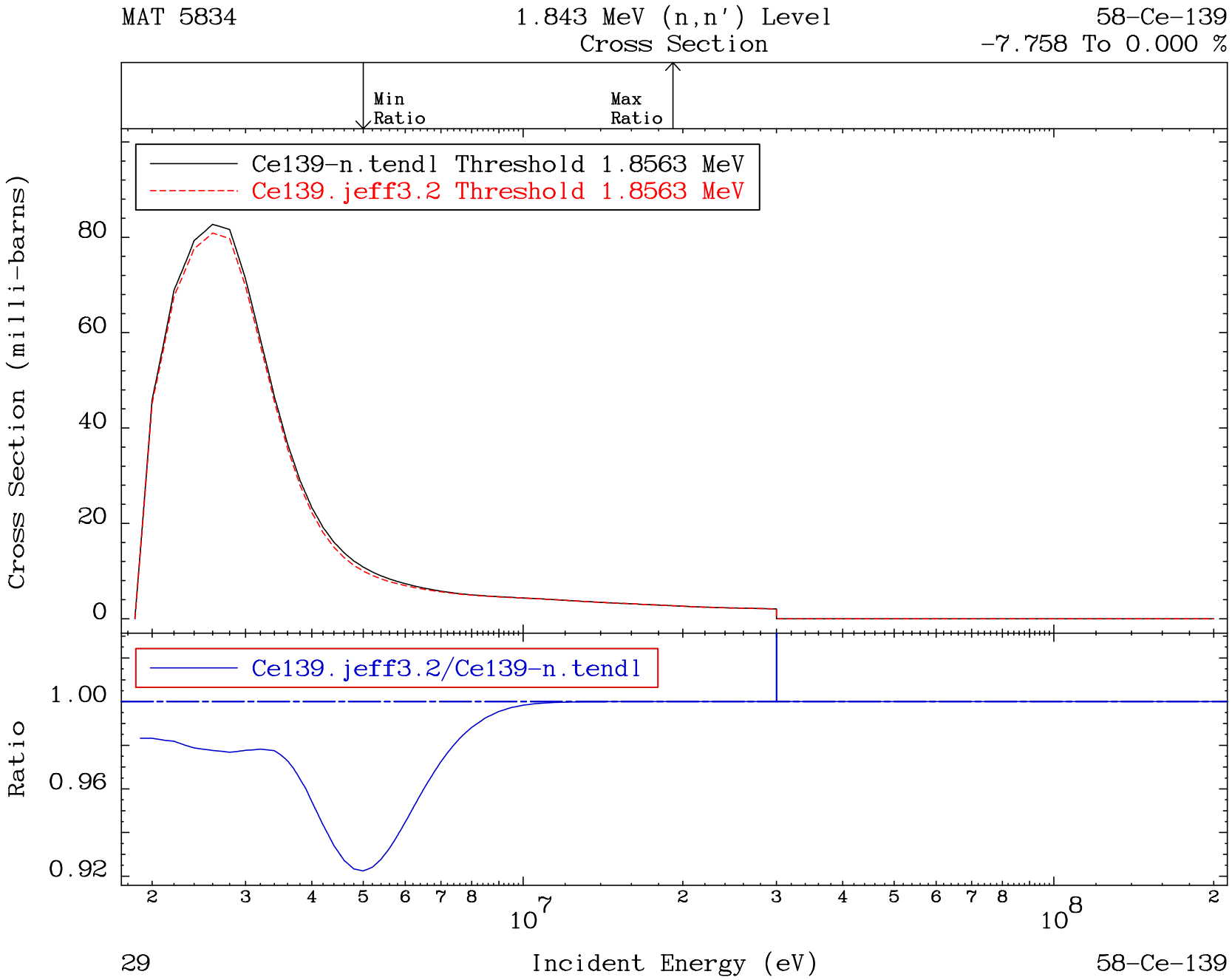

MAT 5834
1.578 MeV (n,n') Level
Cross Section
58-Ce-139
-19.23 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.5897 MeV
Ce139.jeff3.2 Threshold 1.5897 MeV
Cross Section (milli-barns)
140
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
24
Incident Energy (eV)
58-Ce-139

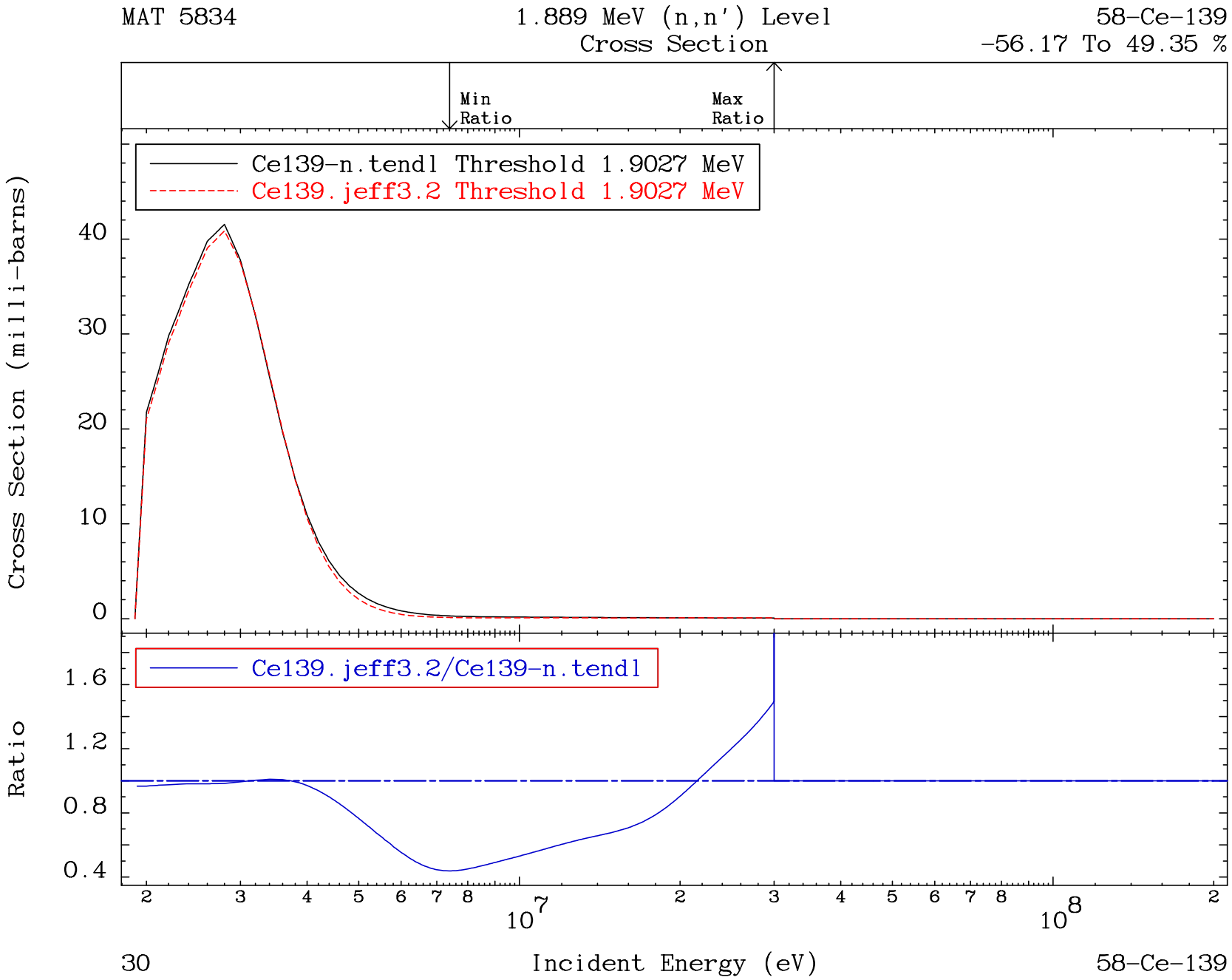

MAT 5834
1.597 MeV (n,n') Level
Cross Section
58-Ce-139
-2.983 To 0.303 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.6082 MeV
Ce139.jeff3.2 Threshold 1.6082 MeV
Cross Section (milli-barns)
160
140
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.01
1.00
0.99
0.98
0.97
2
3
4
5
6
7
8
10^7
10^8
25
Incident Energy (eV)
58-Ce-139

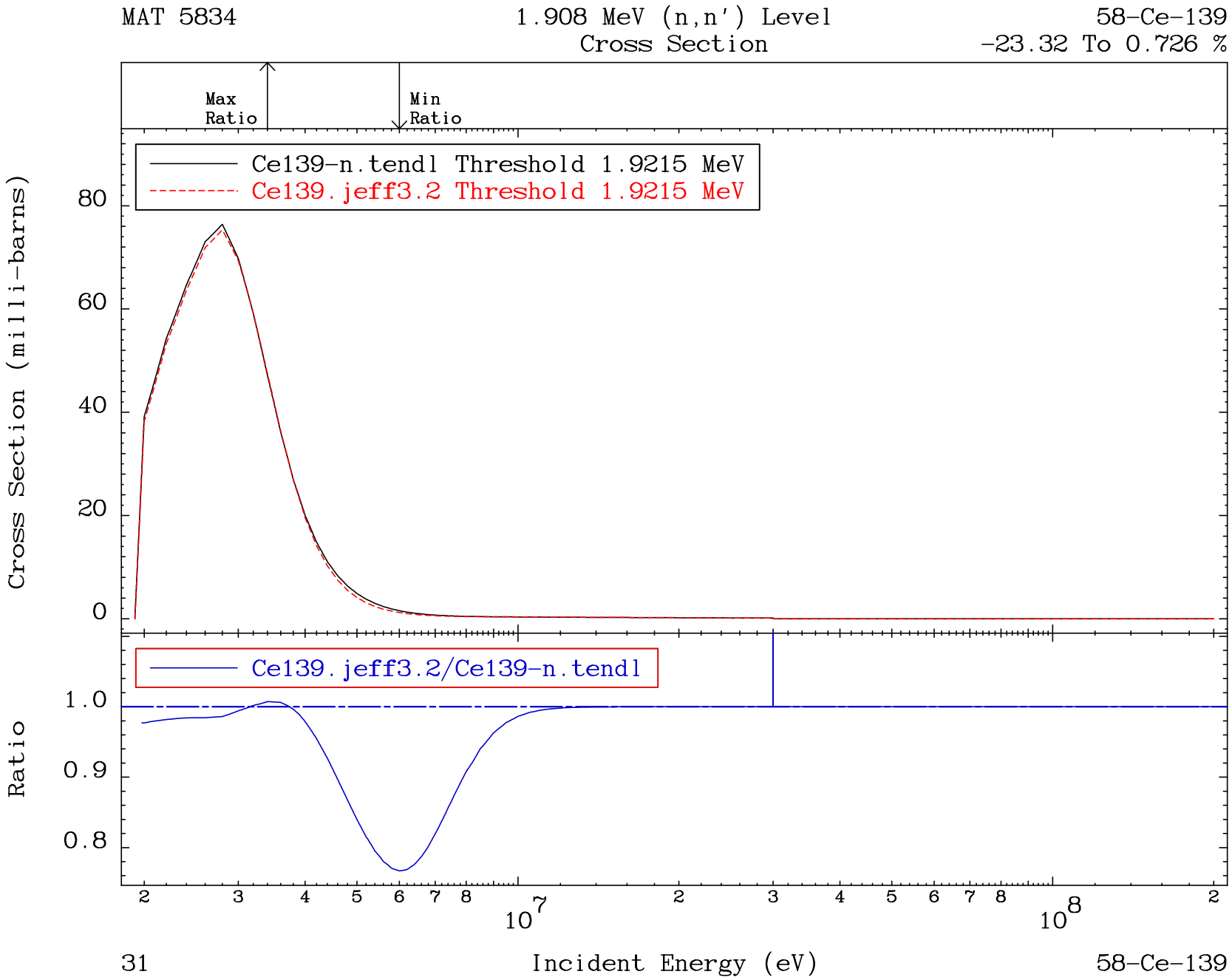

MAT 5834
1.631 MeV (n,n') Level
Cross Section
58-Ce-139
-23.29 To 0.489 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.6425 MeV
Ce139.jeff3.2 Threshold 1.6425 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
26
Incident Energy (eV)
58-Ce-139

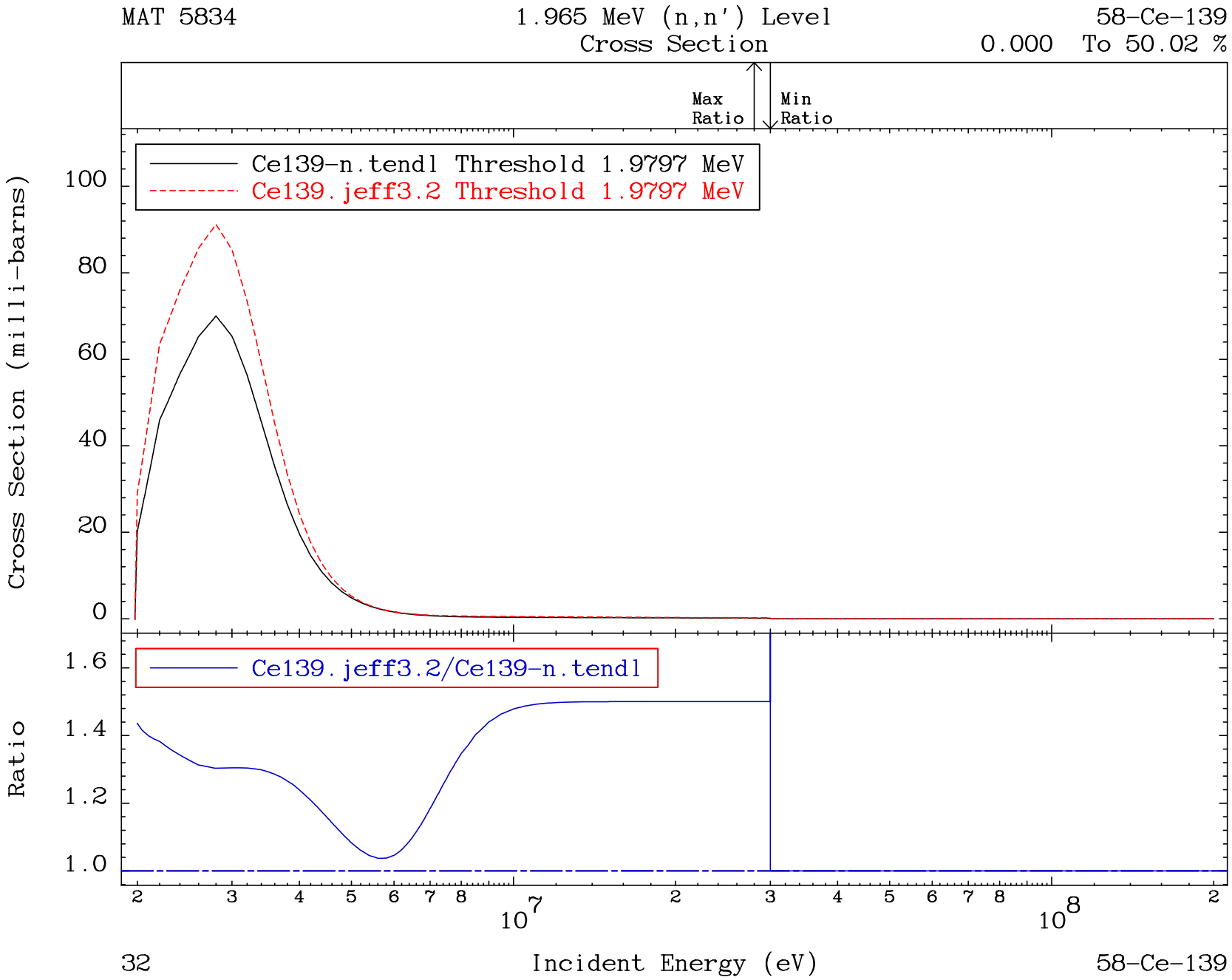

MAT 5834
1.790 MeV (n,n') Level
Cross Section
58-Ce-139
-23.72 To 1.883 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.8030 MeV
Ce139.jeff3.2 Threshold 1.8030 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2 3 4 5 6 7 8
10^7
2 3 4 5 6 7 8
10^8
2
27
Incident Energy (eV)
58-Ce-139

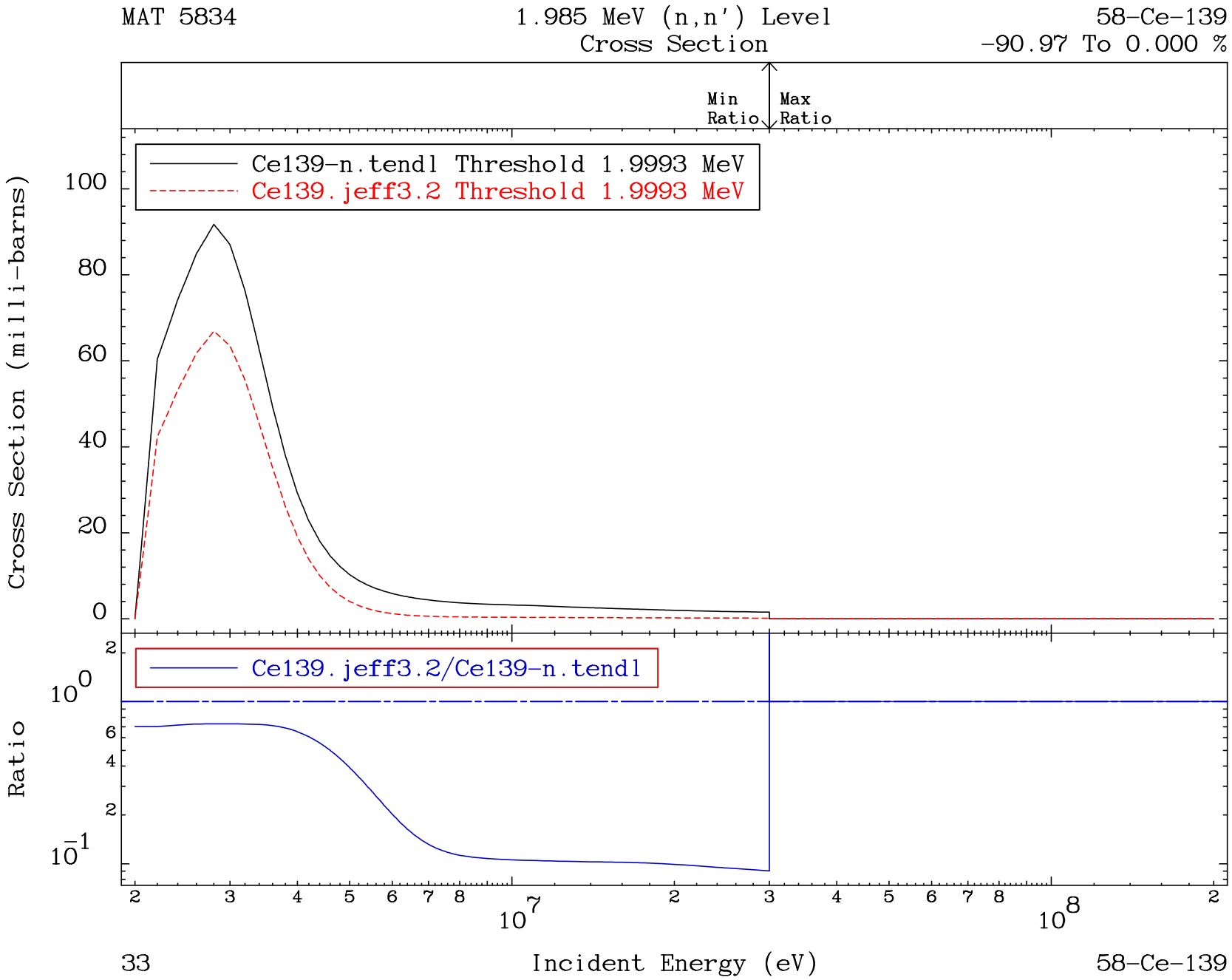

MAT 5834
1.818 MeV (n,n') Level
Cross Section
58-Ce-139
-43.66 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.8317 MeV
Ce139.jeff3.2 Threshold 1.8317 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
28
Incident Energy (eV)
58-Ce-139

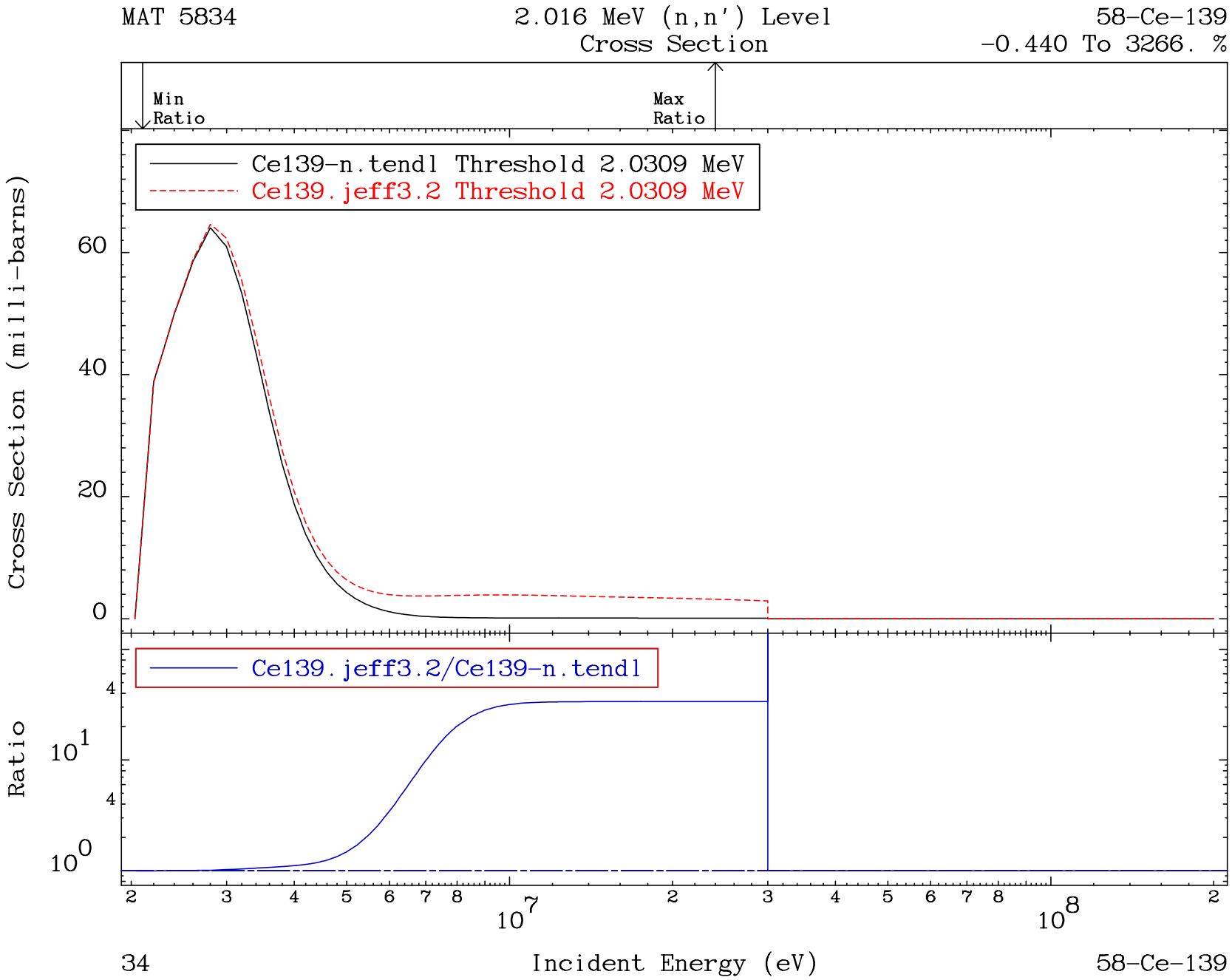

MAT 5834
1.843 MeV (n,n') Level
Cross Section
58-Ce-139
-7.758 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.8563 MeV
Ce139.jeff3.2 Threshold 1.8563 MeV
Cross Section (milli-barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.96
0.92
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
29
Incident Energy (eV)
58-Ce-139

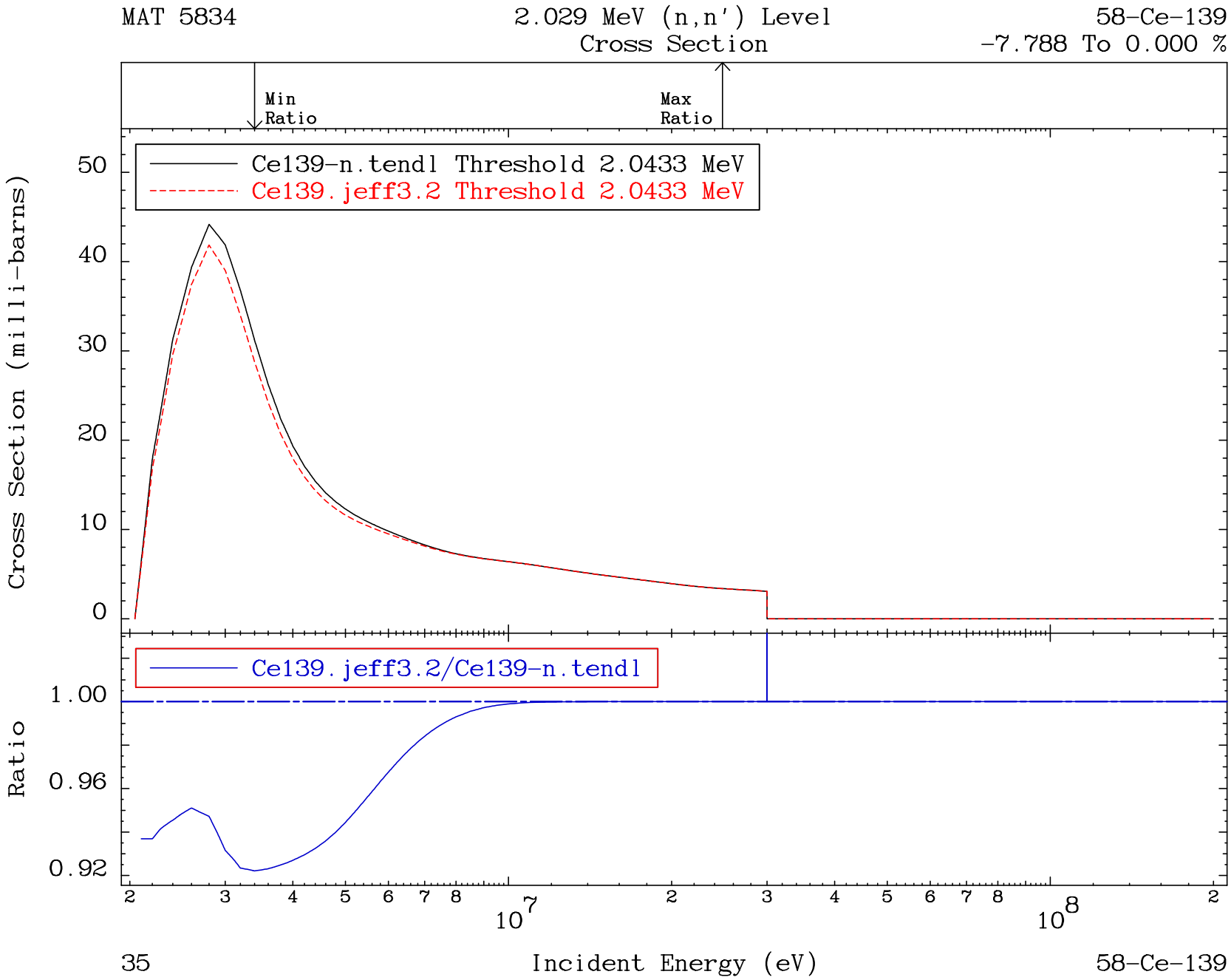

MAT 5834
1.889 MeV (n,n') Level
Cross Section
58-Ce-139
-56.17 To 49.35 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.9027 MeV
Ce139.jeff3.2 Threshold 1.9027 MeV
Cross Section (milli-barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
0.4
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
30
Incident Energy (eV)
58-Ce-139

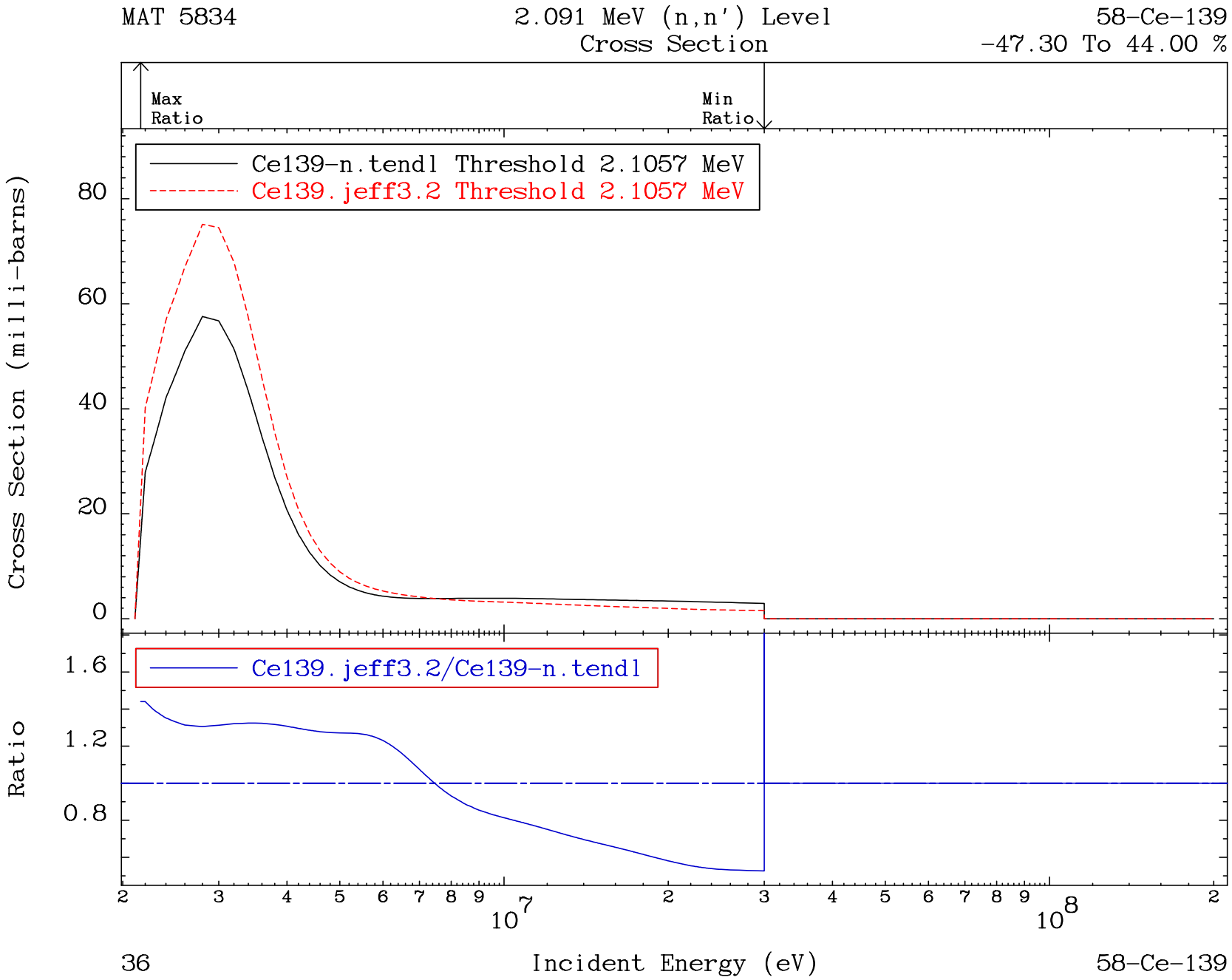

MAT 5834
1.908 MeV (n,n') Level
Cross Section
58-Ce-139
-23.32 To 0.726 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.9215 MeV
Ce139.jeff3.2 Threshold 1.9215 MeV
Cross Section (milli-barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
31
Incident Energy (eV)
58-Ce-139

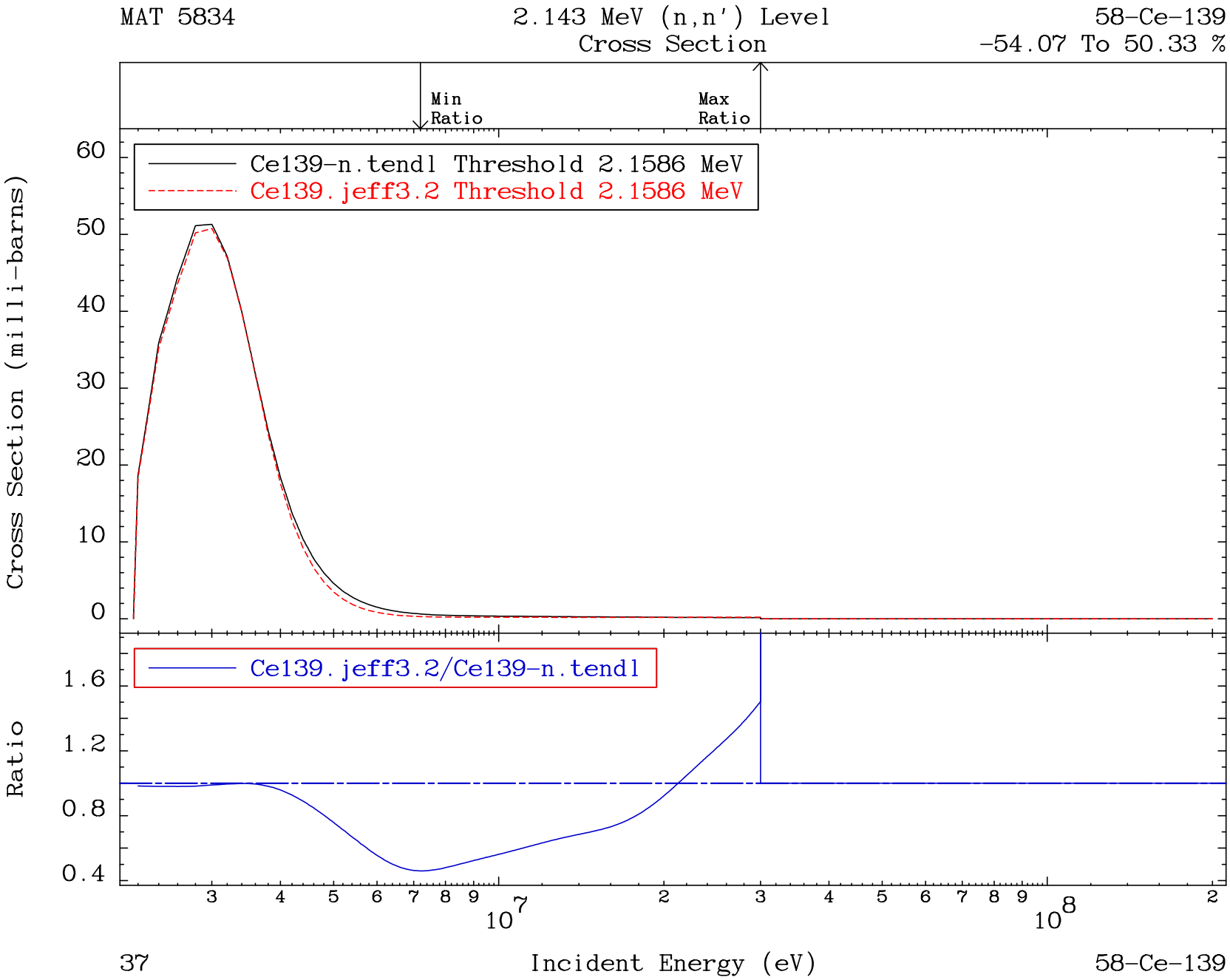

MAT 5834
1.965 MeV (n,n') Level
Cross Section
58-Ce-139
0.000 To 50.02 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.9797 MeV
Ce139.jeff3.2 Threshold 1.9797 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.4
1.2
1.0
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
32
Incident Energy (eV)
58-Ce-139

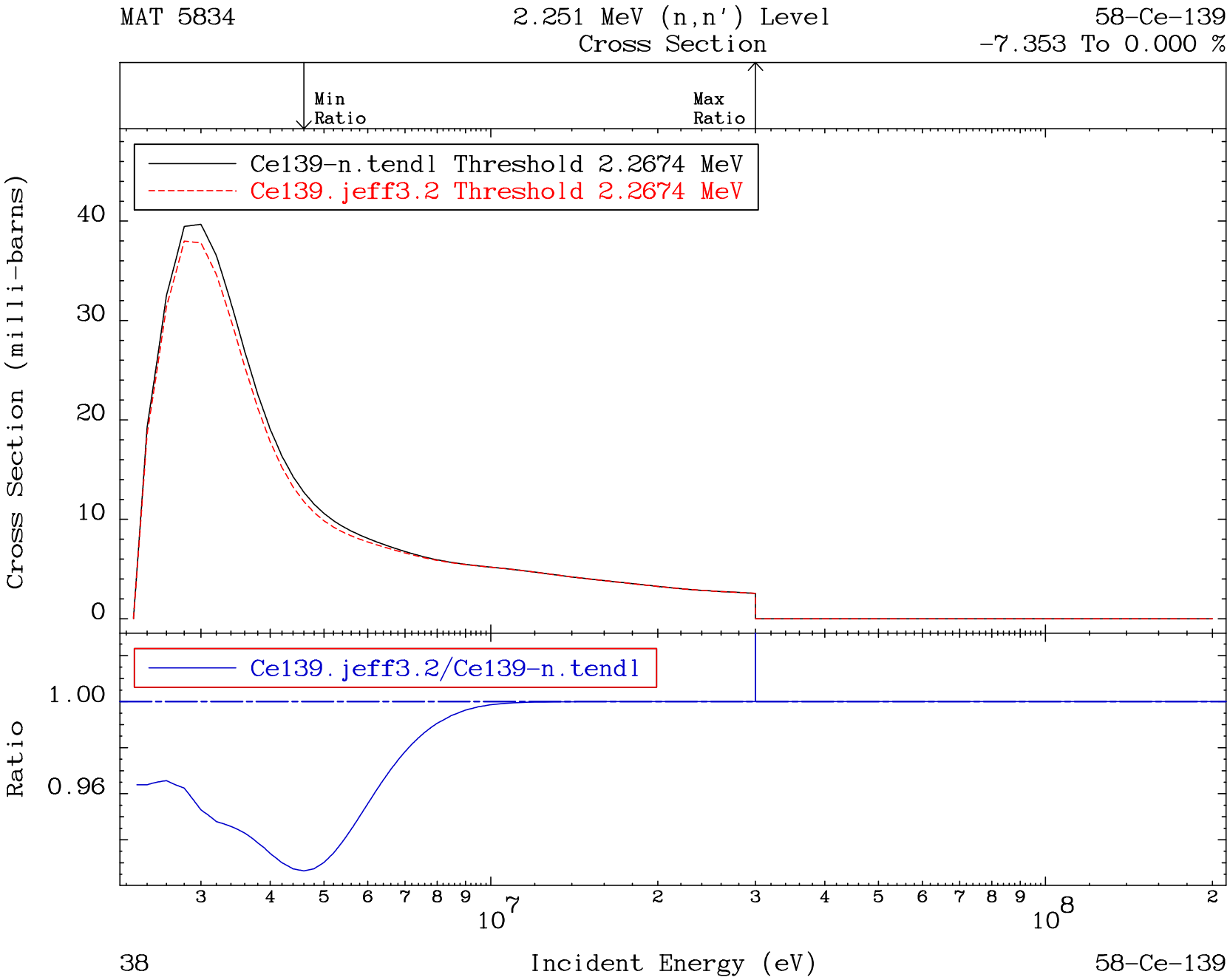

MAT 5834
1.985 MeV (n,n') Level
Cross Section
58-Ce-139
-90.97 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.9993 MeV
Ce139.jeff3.2 Threshold 1.9993 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
2
10^0
6
4
2
10^-1
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
33
Incident Energy (eV)
58-Ce-139

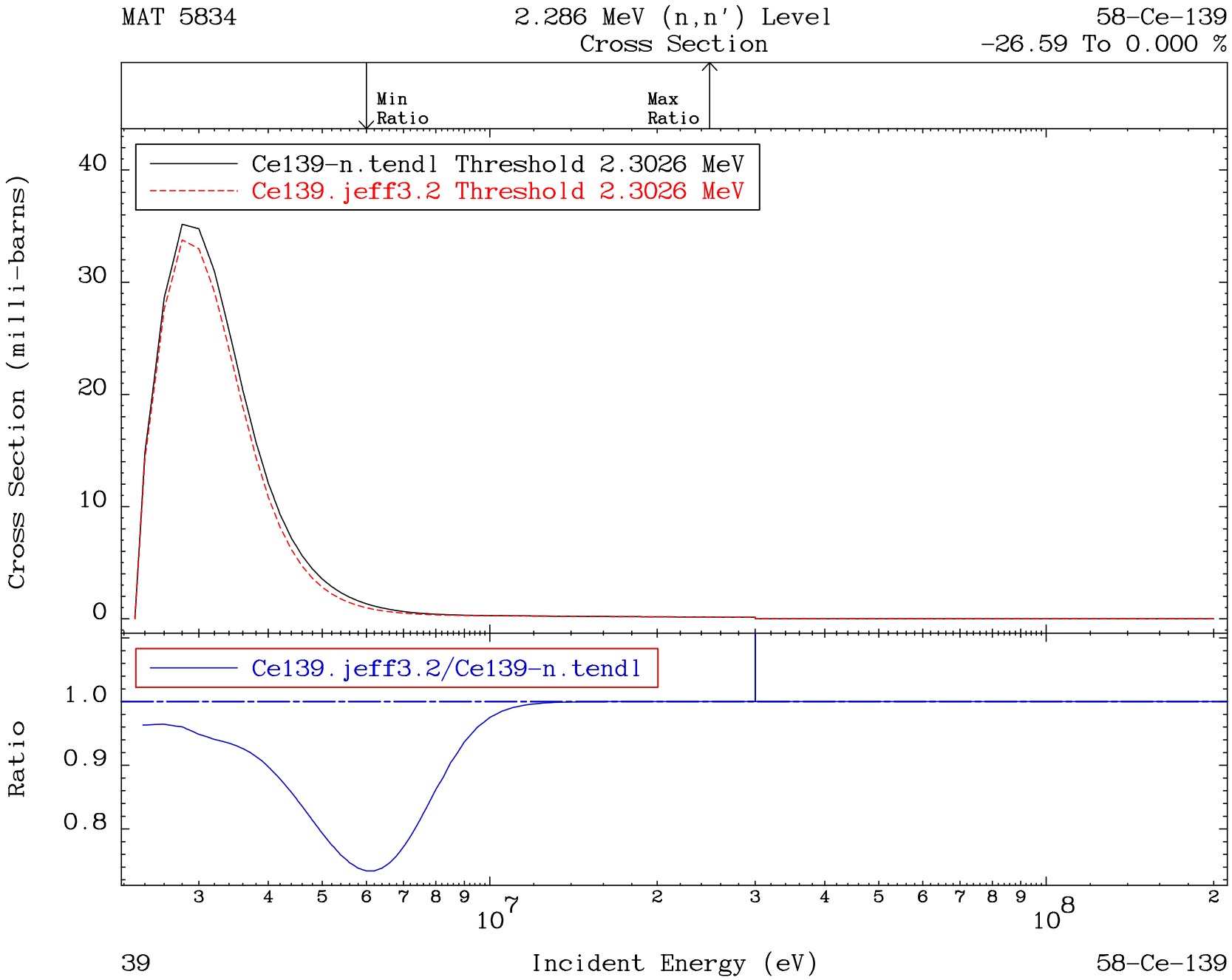

MAT 5834
2.016 MeV (n,n') Level
Cross Section
58-Ce-139
-0.440 To 3266. %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.0309 MeV
Ce139.jeff3.2 Threshold 2.0309 MeV
Cross Section (milli-barns)
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^1
10^0
4
4
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
34
Incident Energy (eV)
58-Ce-139

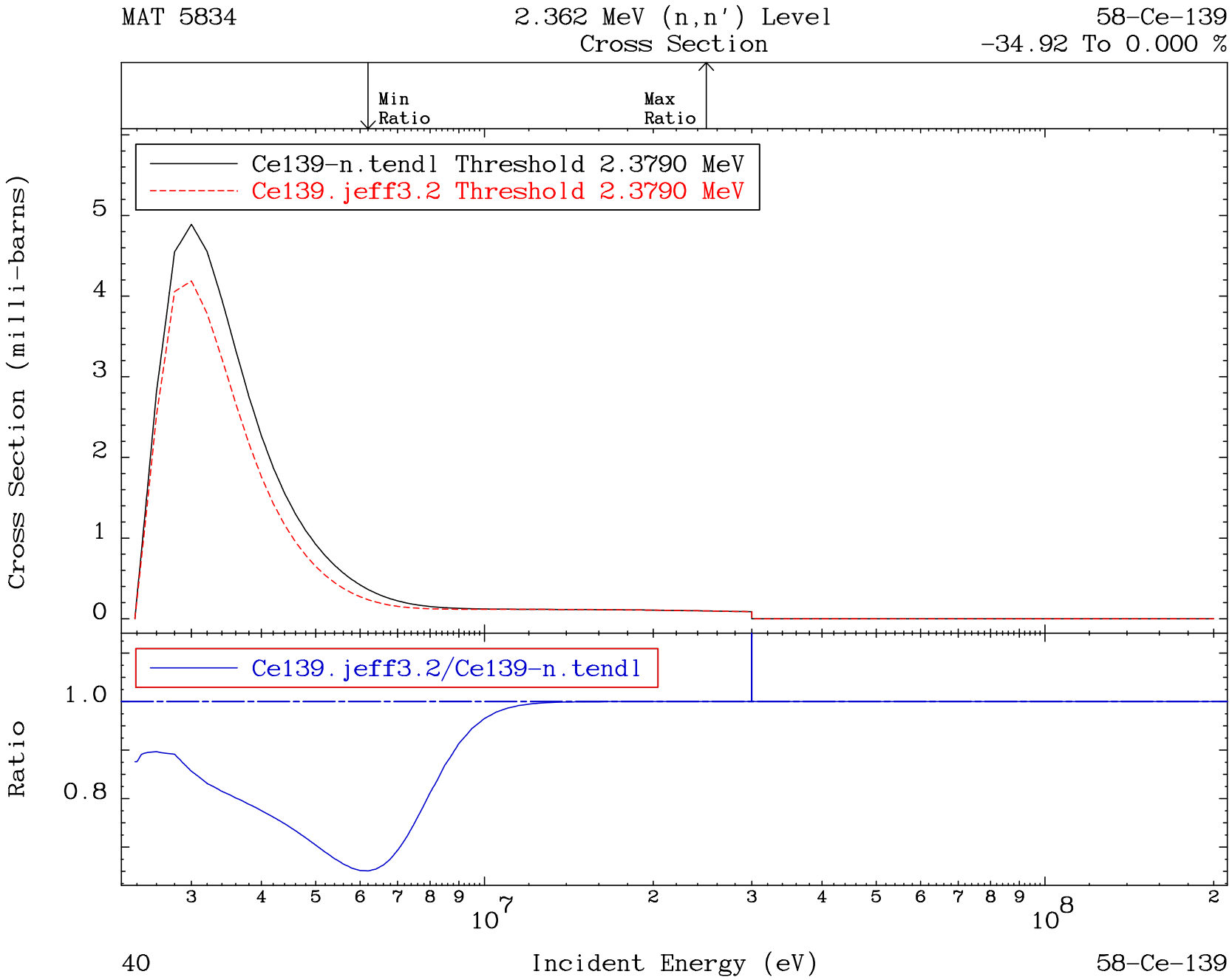

MAT 5834
2.029 MeV (n,n') Level
Cross Section
58-Ce-139
-7.788 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.0433 MeV
Ce139.jeff3.2 Threshold 2.0433 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.96
0.92
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
35
Incident Energy (eV)
58-Ce-139

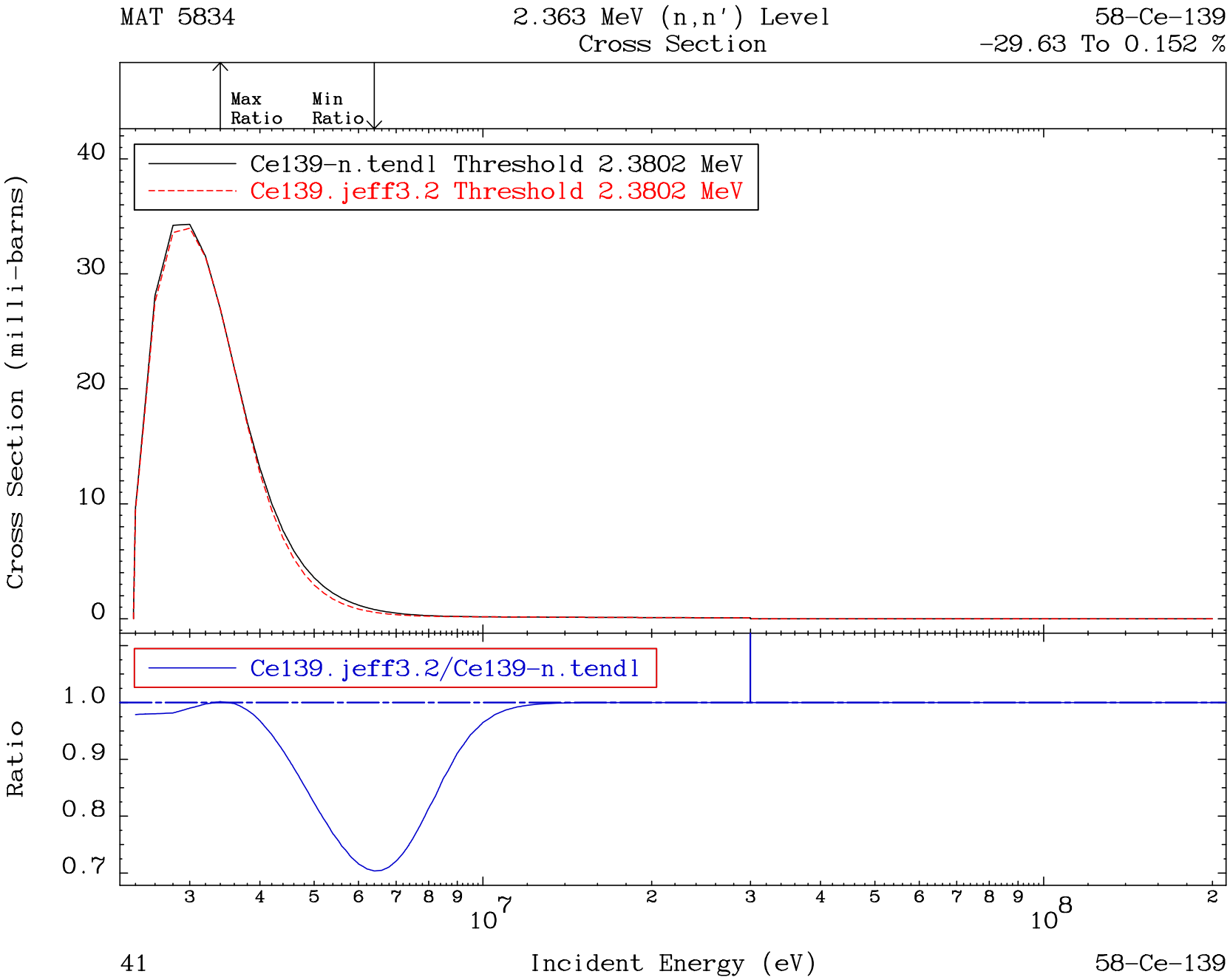

MAT 5834
2.091 MeV (n,n') Level
Cross Section
58-Ce-139
-47.30 To 44.00 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 2.1057 MeV
Ce139.jeff3.2 Threshold 2.1057 MeV
Cross Section (milli-barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
2 3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
36
Incident Energy (eV)
58-Ce-139

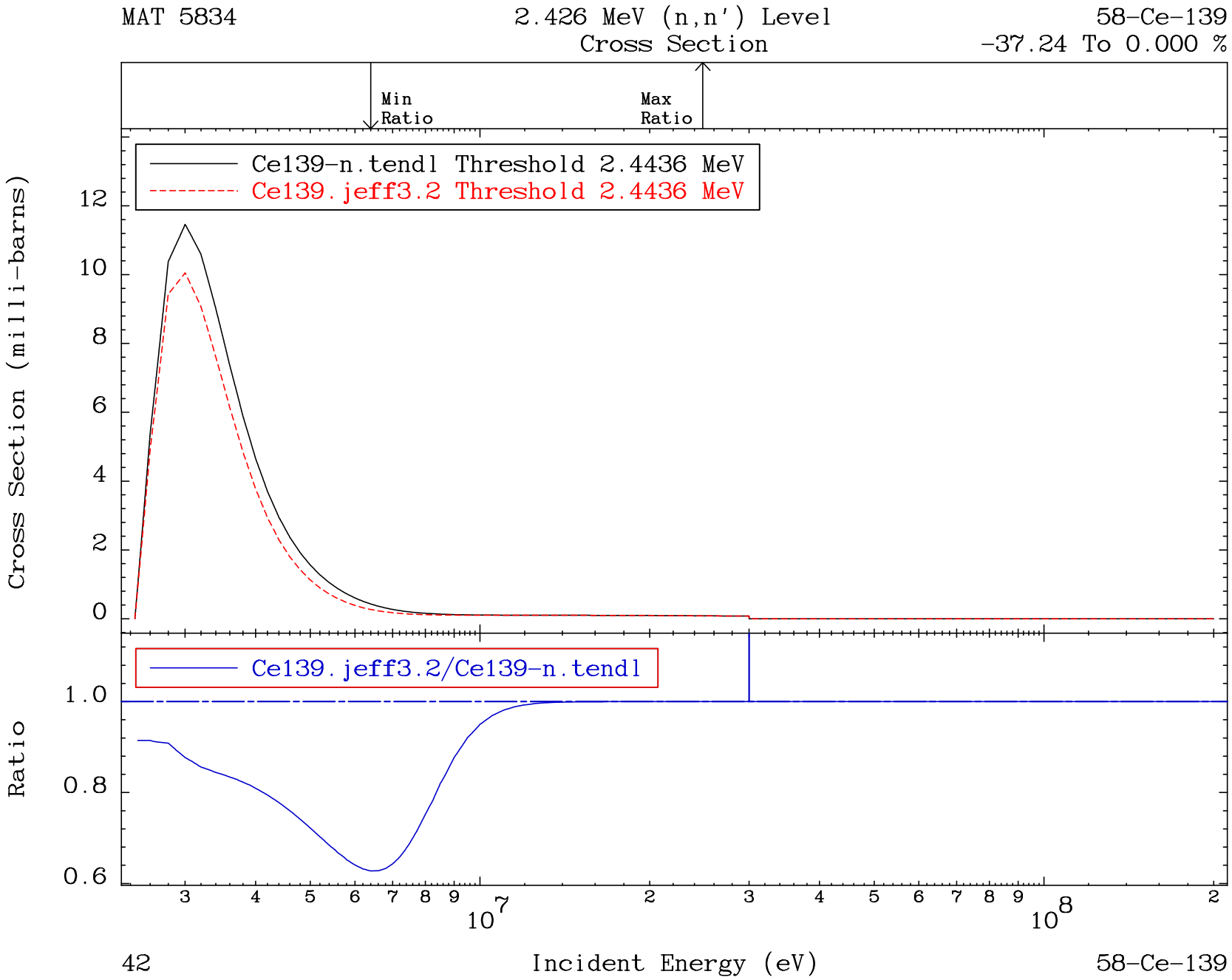

MAT 5834
2.143 MeV (n,n') Level
Cross Section
58-Ce-139
-54.07 To 50.33 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.1586 MeV
Ce139.jeff3.2 Threshold 2.1586 MeV
Cross Section (milli-barns)
60
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
0.4
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
37
Incident Energy (eV)
58-Ce-139

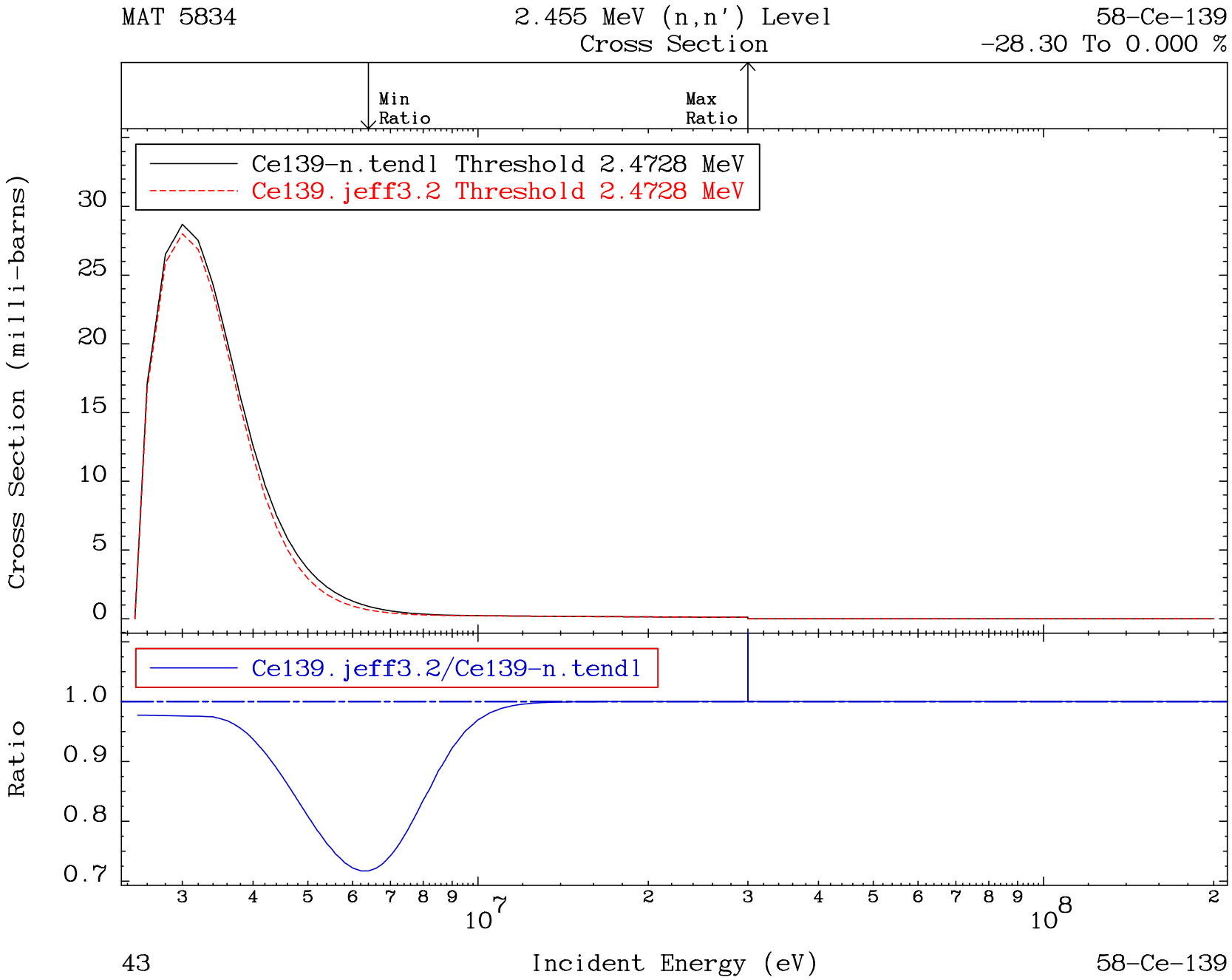

MAT 5834
2.251 MeV (n,n') Level
Cross Section
58-Ce-139
-7.353 To 0.000 %
Min
Ratio
Max
Ratio
Ce139-n.tendl Threshold 2.2674 MeV
Ce139.jeff3.2 Threshold 2.2674 MeV
Cross Section (milli-barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.96
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
38
Incident Energy (eV)
58-Ce-139

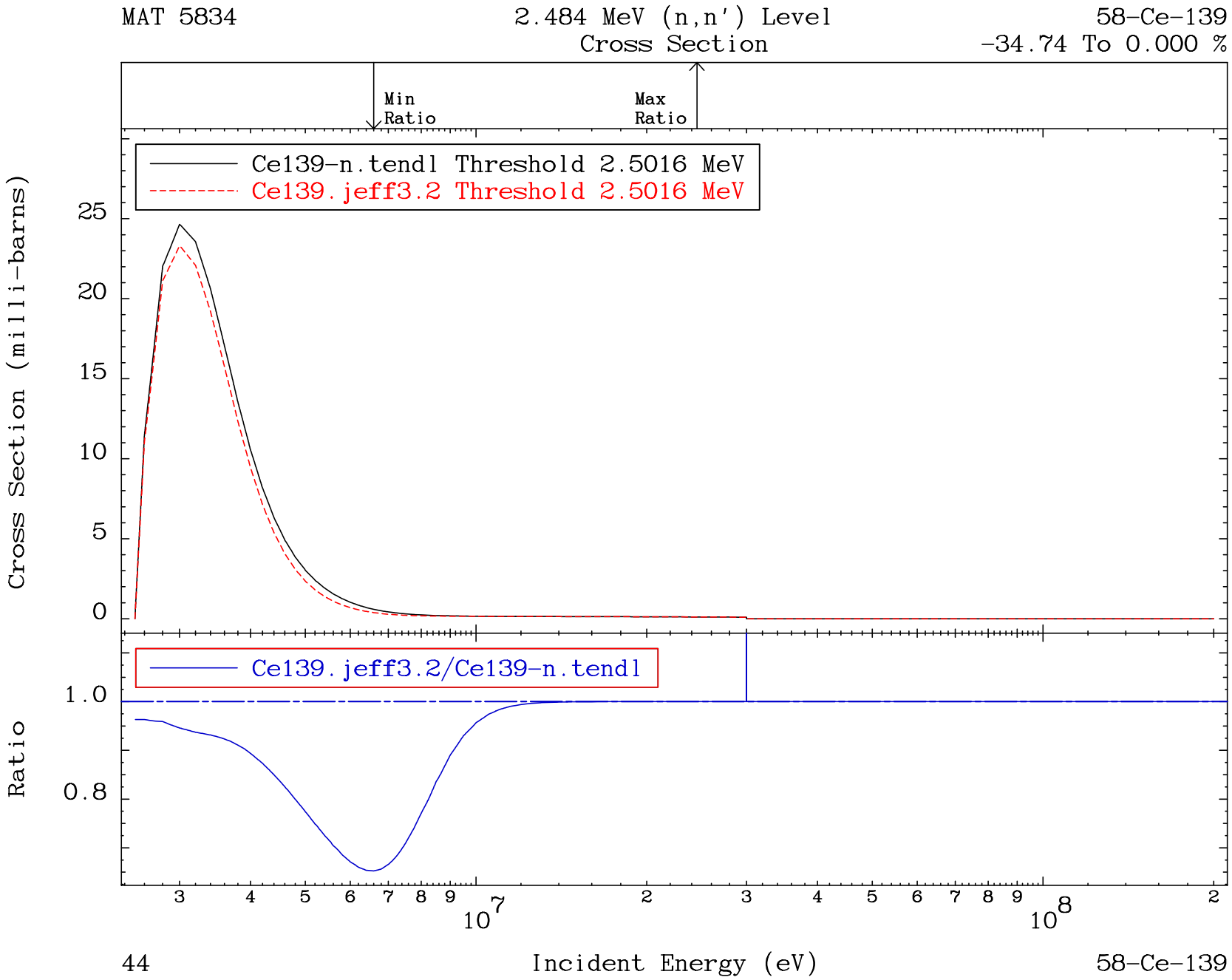

MAT 5834
2.286 MeV (n,n') Level
Cross Section
58-Ce-139
-26.59 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.3026 MeV
Ce139.jeff3.2 Threshold 2.3026 MeV
Cross Section (milli-barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
39
Incident Energy (eV)
58-Ce-139

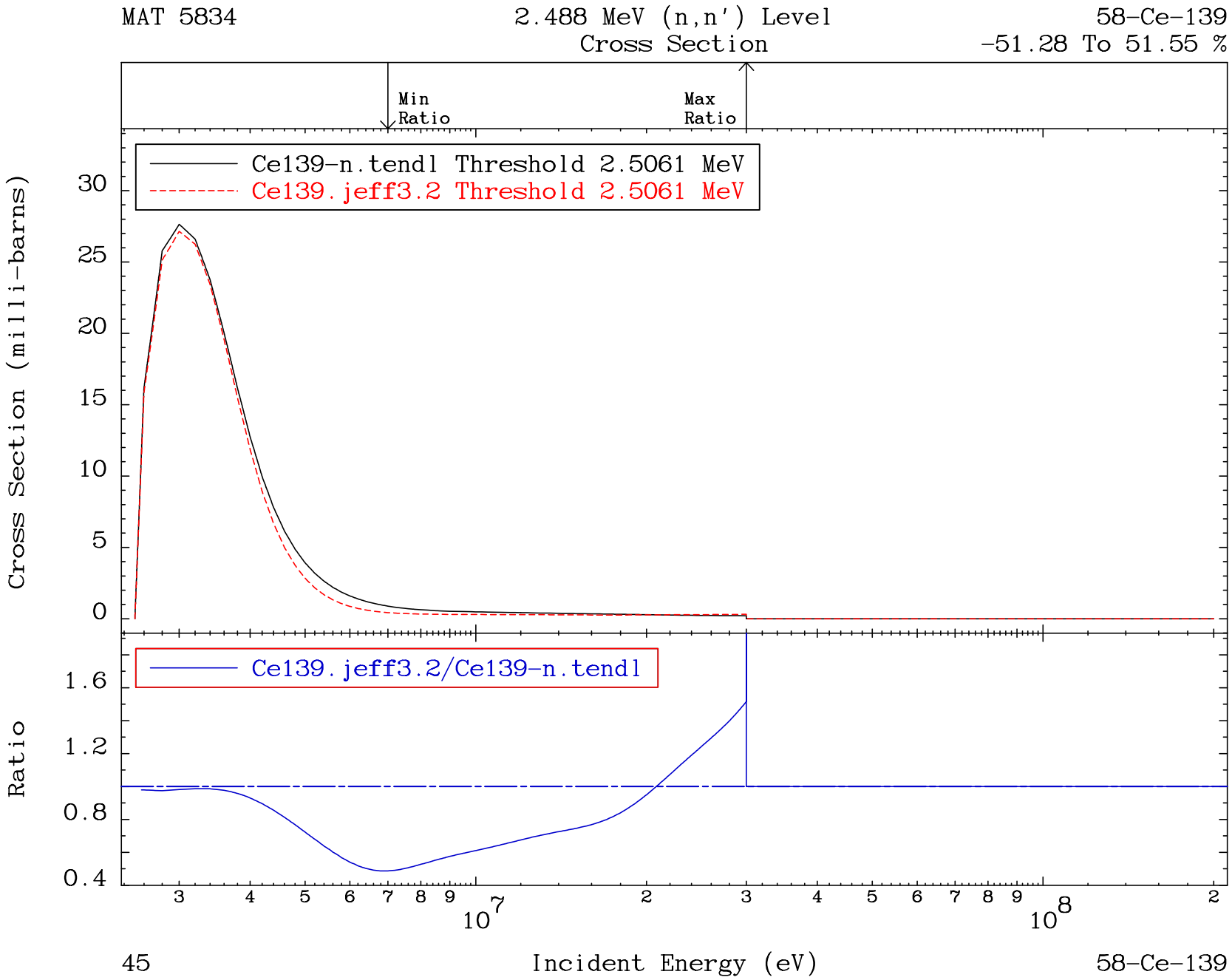

MAT 5834
2.362 MeV (n,n') Level
Cross Section
58-Ce-139
-34.92 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.3790 MeV
Ce139.jeff3.2 Threshold 2.3790 MeV
Cross Section (milli-barns)
0
1
2
3
4
5
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
40
Incident Energy (eV)
58-Ce-139

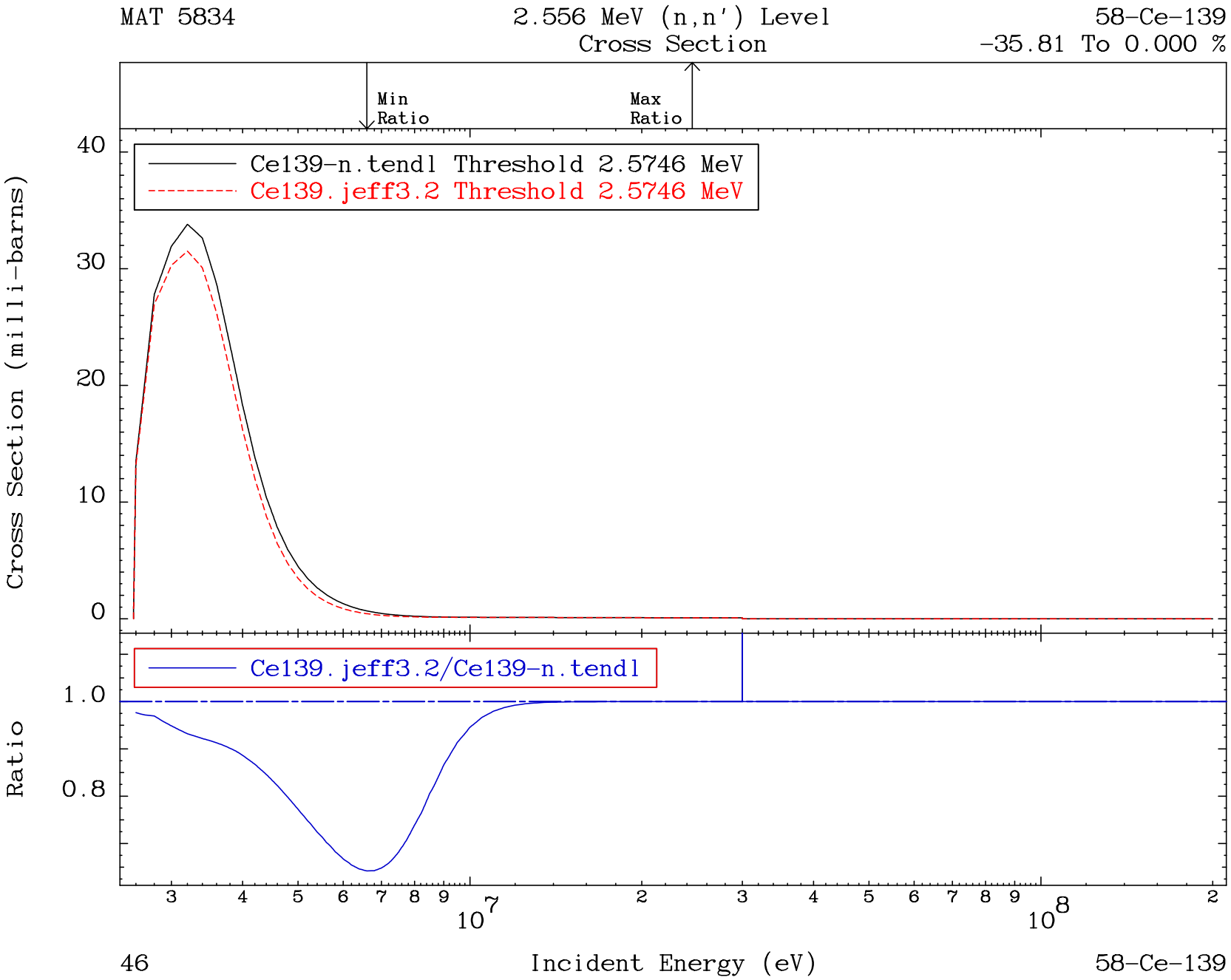

MAT 5834
2.363 MeV (n,n') Level
Cross Section
58-Ce-139
-29.63 To 0.152 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 2.3802 MeV
Ce139.jeff3.2 Threshold 2.3802 MeV
Cross Section (milli-barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
0.7
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
41
Incident Energy (eV)
58-Ce-139

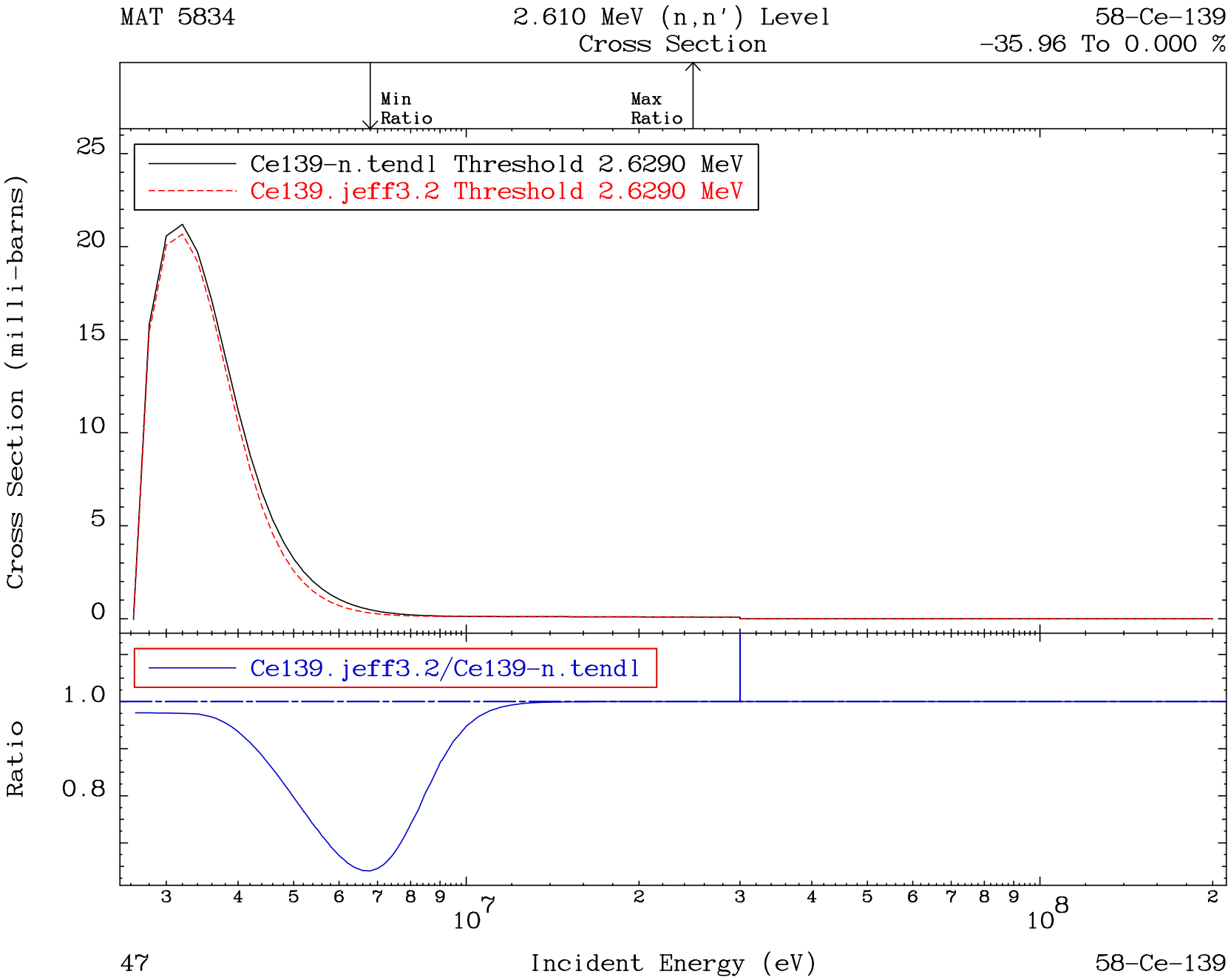

MAT 5834
2.426 MeV (n,n') Level
Cross Section
58-Ce-139
-37.24 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.4436 MeV
Ce139.jeff3.2 Threshold 2.4436 MeV
Cross Section (milli-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
42
58-Ce-139

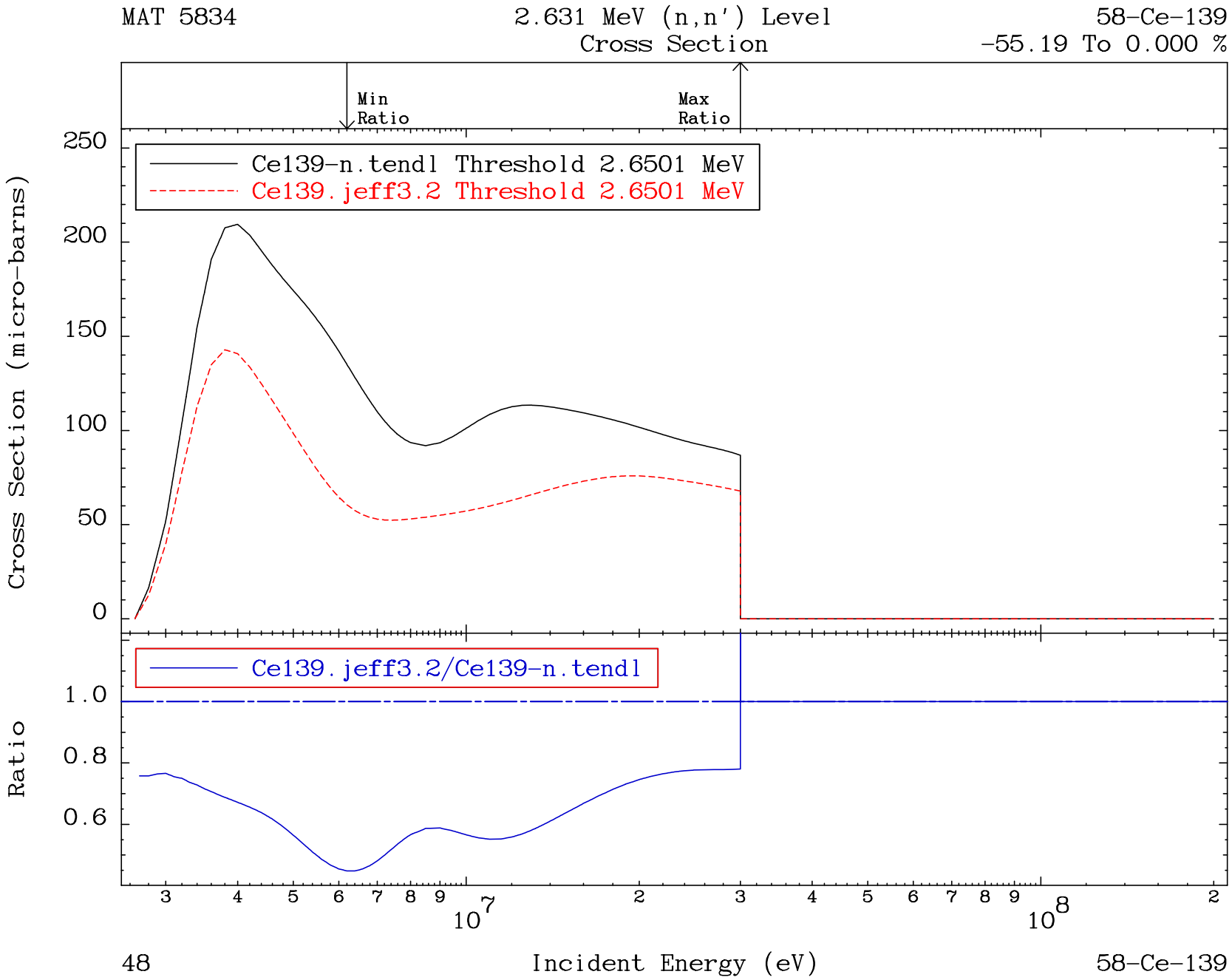

MAT 5834
2.455 MeV (n,n') Level
Cross Section
58-Ce-139
-28.30 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.4728 MeV
Ce139.jeff3.2 Threshold 2.4728 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
0.7
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
43
Incident Energy (eV)
58-Ce-139

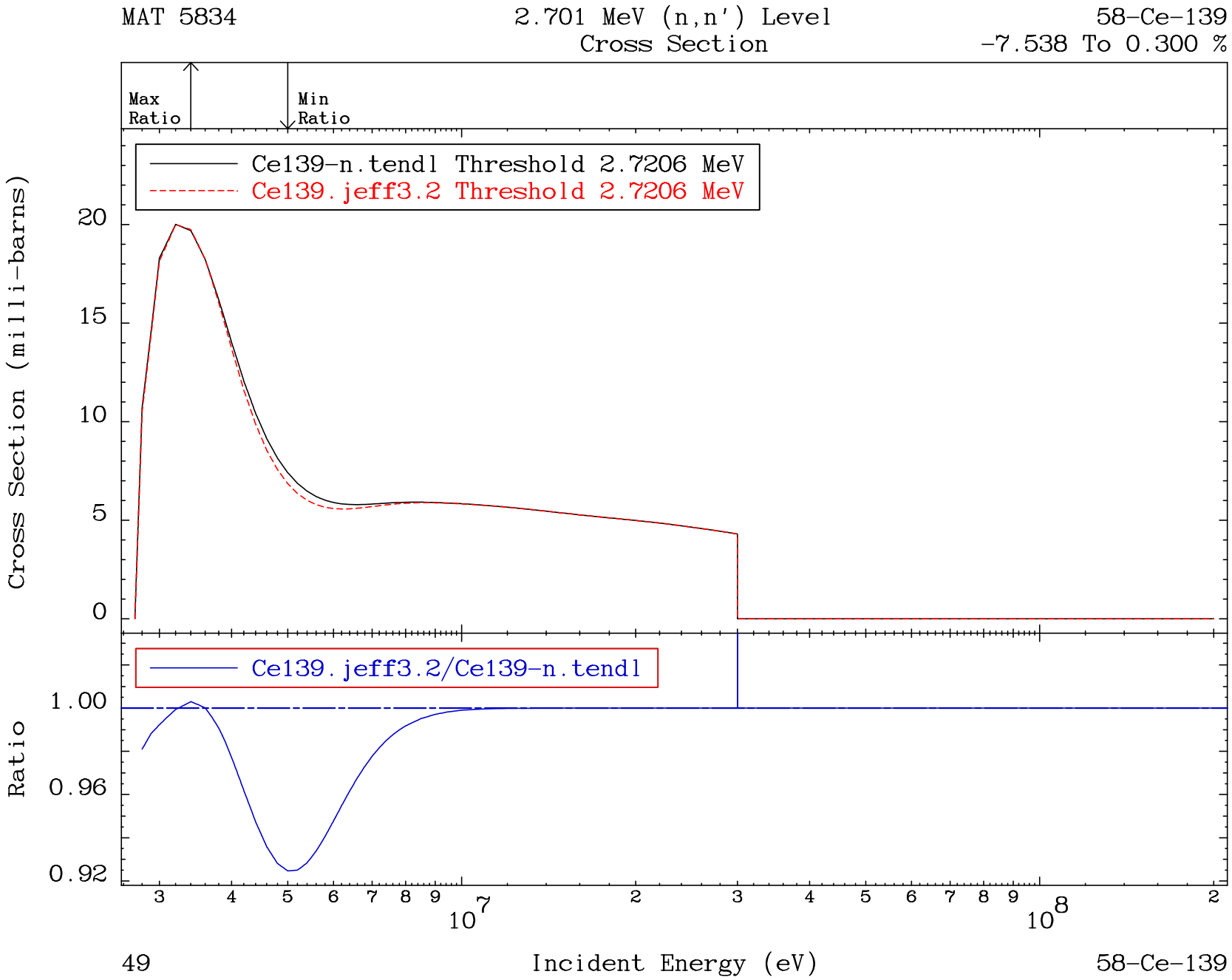

MAT 5834
2.484 MeV (n,n') Level
Cross Section
58-Ce-139
-34.74 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.5016 MeV
Ce139.jeff3.2 Threshold 2.5016 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
44
Incident Energy (eV)
58-Ce-139

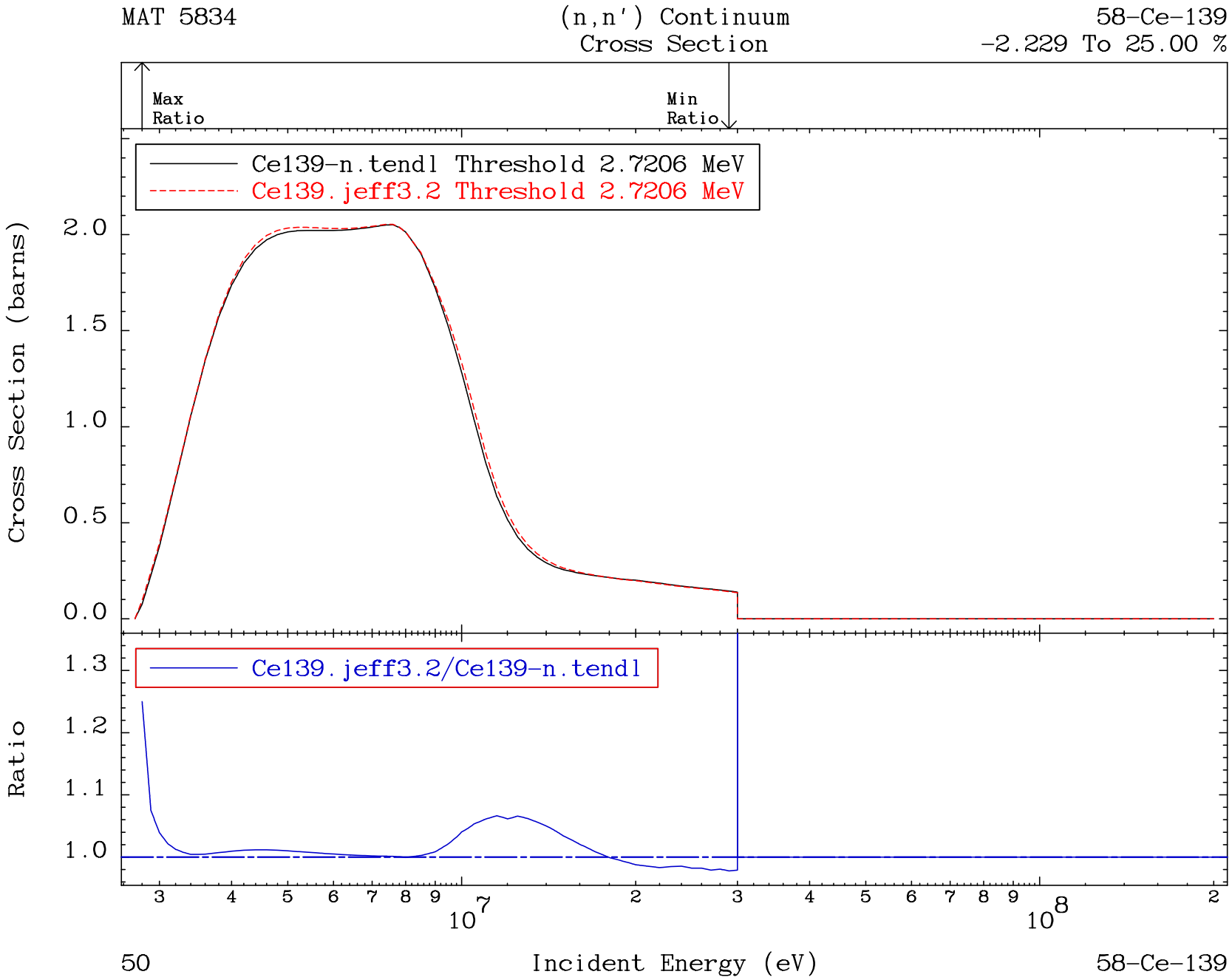

MAT 5834
2.488 MeV (n,n') Level
Cross Section
58-Ce-139
-51.28 To 51.55 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.5061 MeV
Ce139.jeff3.2 Threshold 2.5061 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
0.4
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
45
Incident Energy (eV)
58-Ce-139

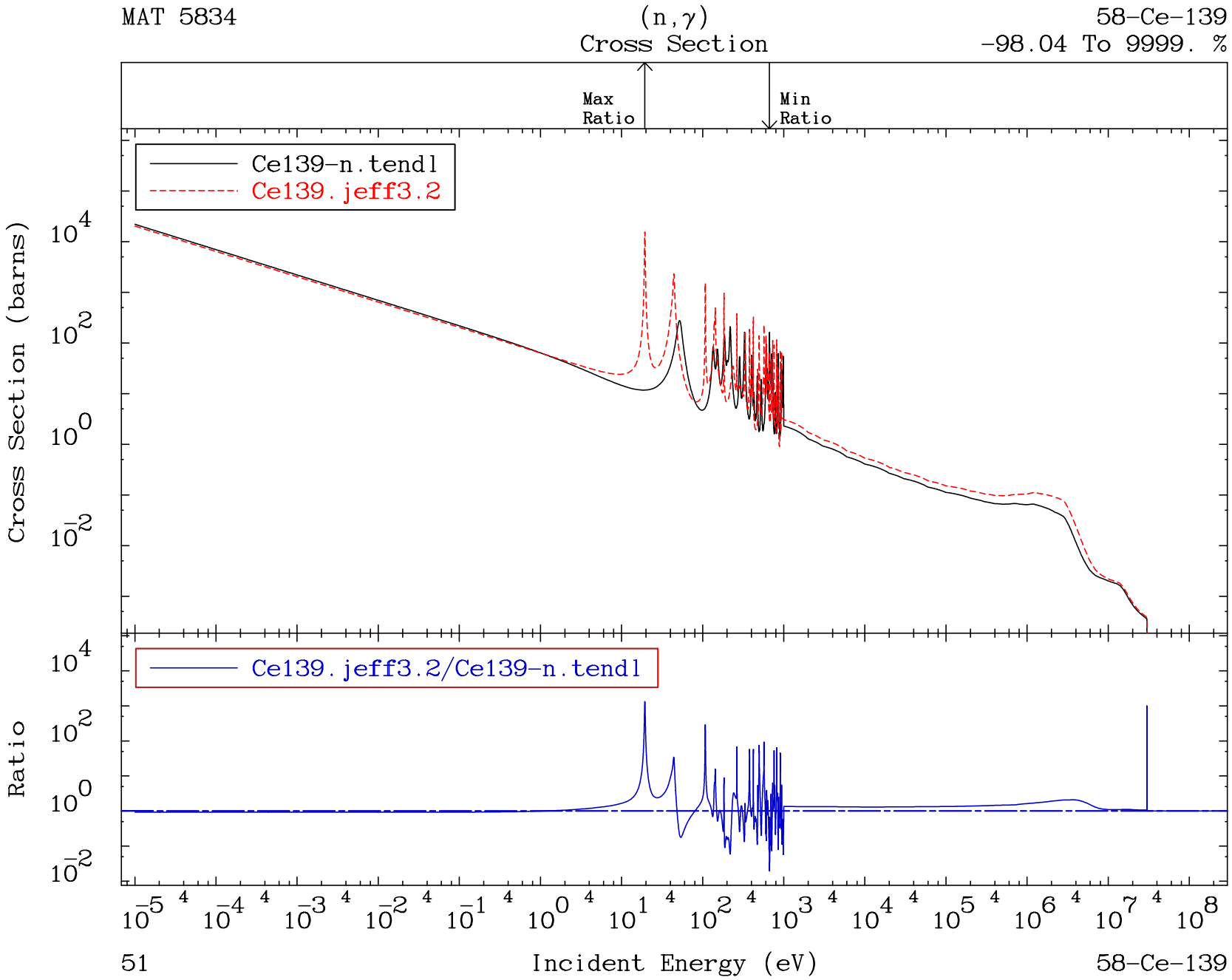

MAT 5834
2.556 MeV (n,n') Level
Cross Section
58-Ce-139
-35.81 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.5746 MeV
Ce139.jeff3.2 Threshold 2.5746 MeV
Cross Section (milli-barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
46
Incident Energy (eV)
58-Ce-139

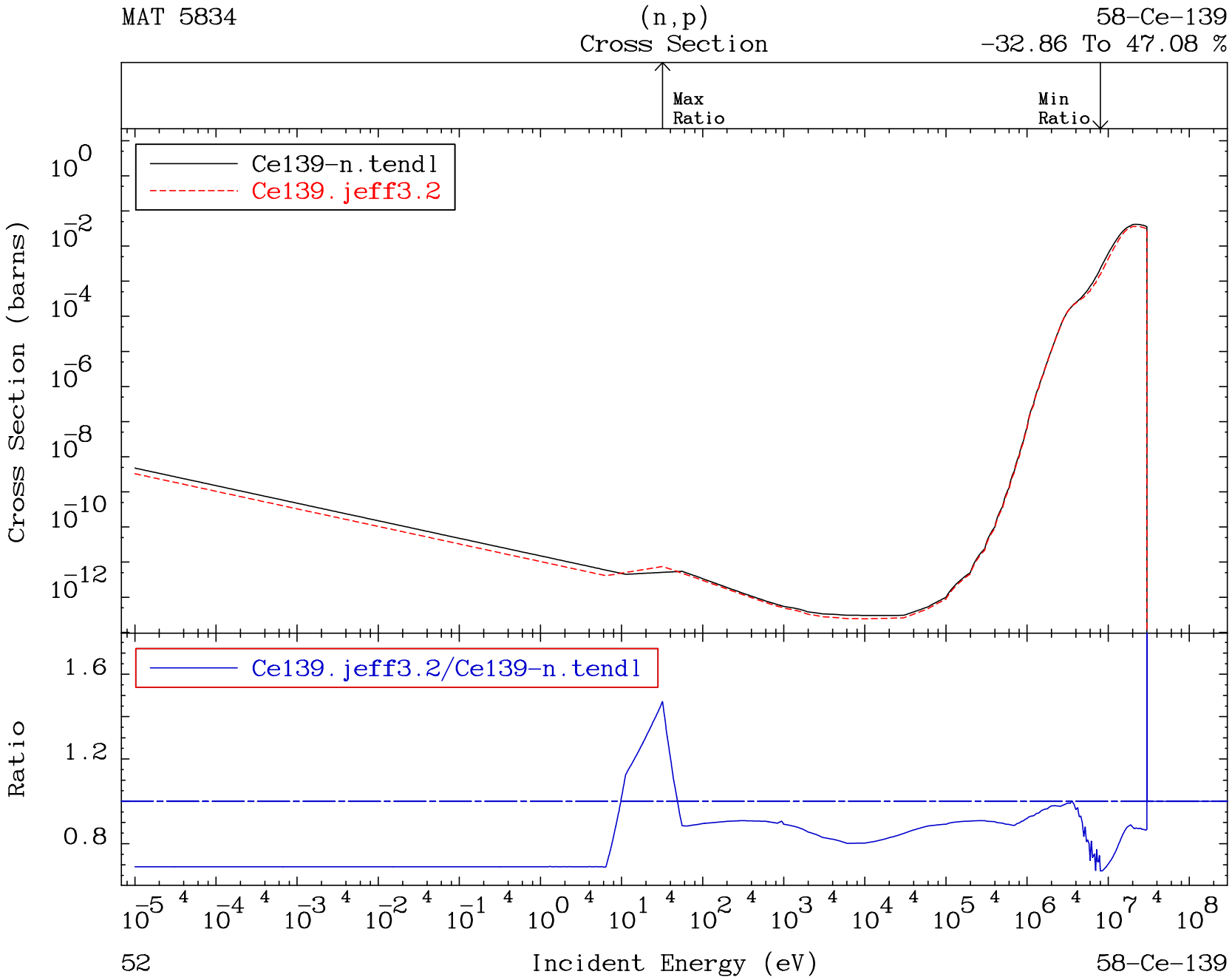

MAT 5834
2.610 MeV (n,n') Level
Cross Section
58-Ce-139
-35.96 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.6290 MeV
Ce139.jeff3.2 Threshold 2.6290 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
47
Incident Energy (eV)
58-Ce-139

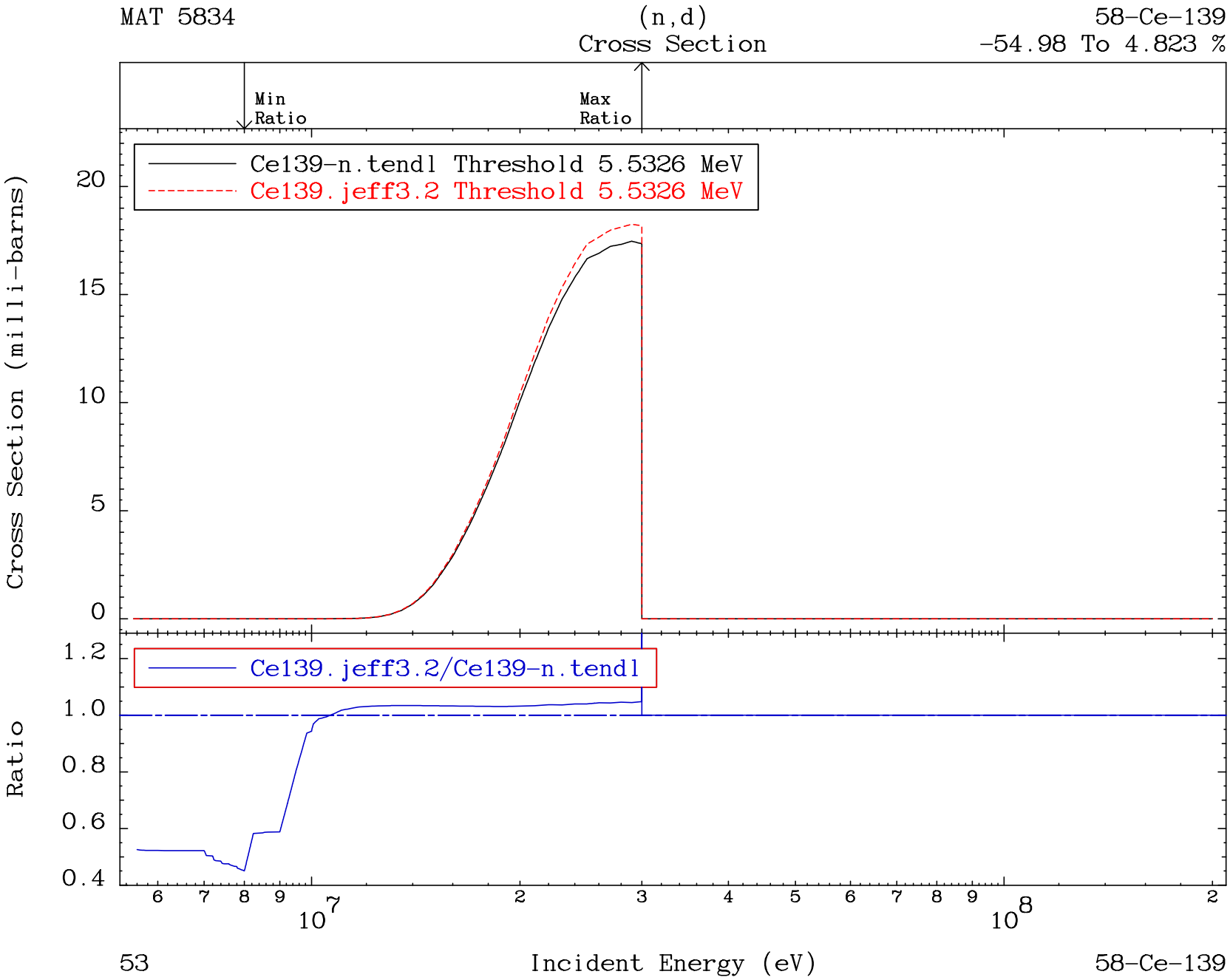

MAT 5834
2.631 MeV (n,n') Level
Cross Section
58-Ce-139
-55.19 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 2.6501 MeV
Ce139.jeff3.2 Threshold 2.6501 MeV
Cross Section (micro-barns)
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
48
Incident Energy (eV)
58-Ce-139

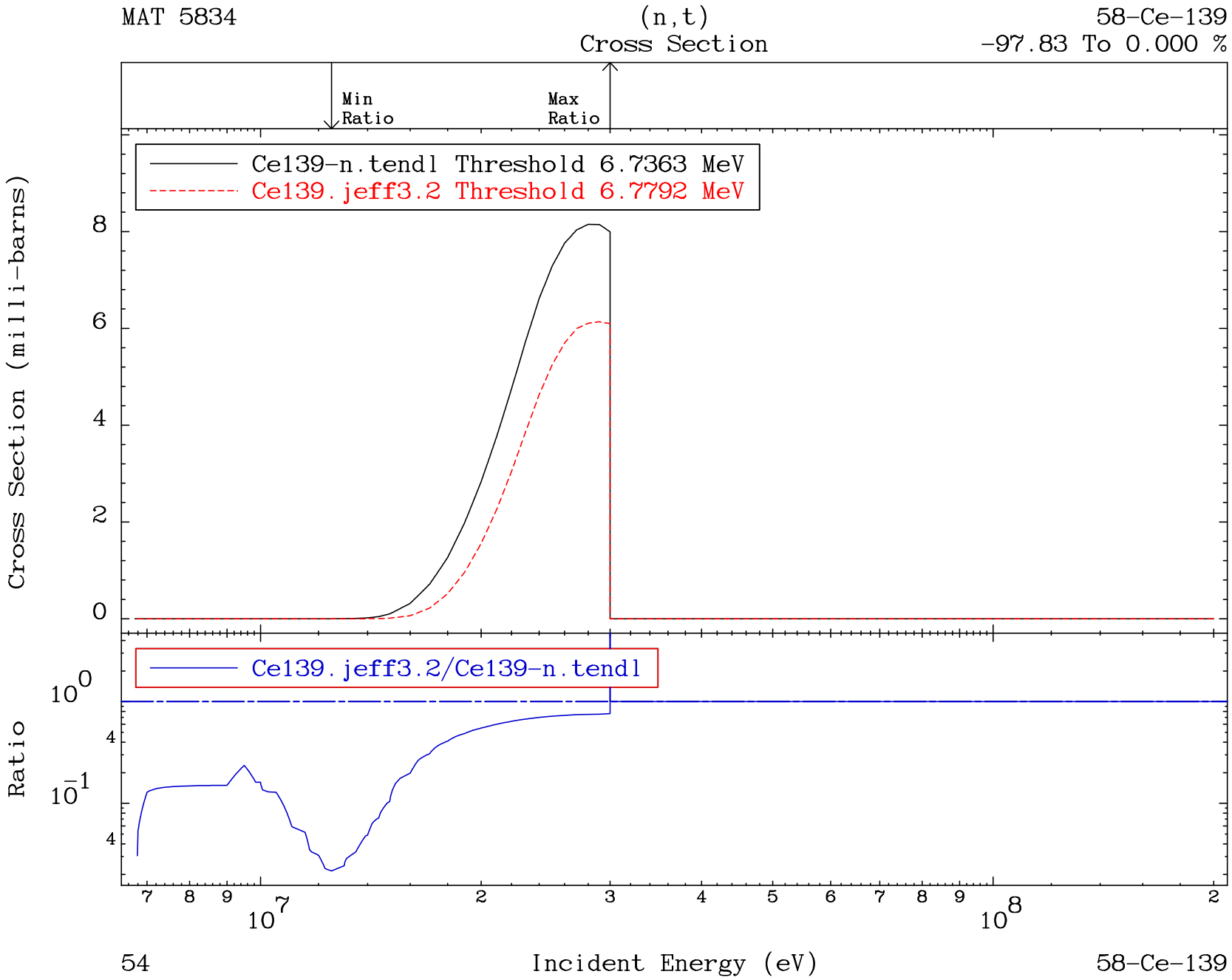

MAT 5834
2.701 MeV (n,n') Level
Cross Section
58-Ce-139
-7.538 To 0.300 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 2.7206 MeV
Ce139.jeff3.2 Threshold 2.7206 MeV
Cross Section (milli-barns)
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.96
0.92
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
49
Incident Energy (eV)
58-Ce-139

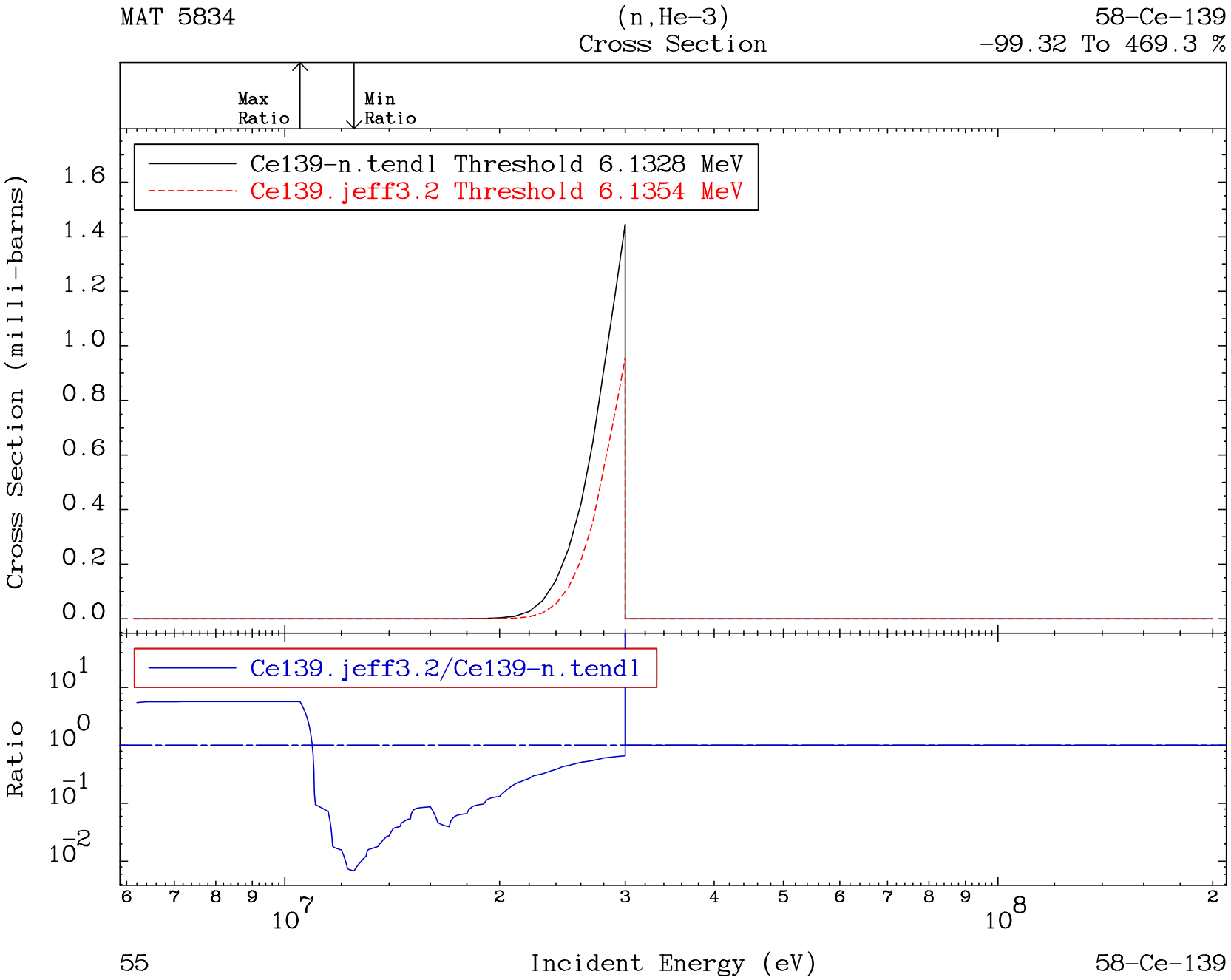

MAT 5834
(n,n') Continuum
Cross Section
58-Ce-139
-2.229 To 25.00 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 2.7206 MeV
Ce139.jeff3.2 Threshold 2.7206 MeV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.3
1.2
1.1
1.0
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
50
Incident Energy (eV)
58-Ce-139

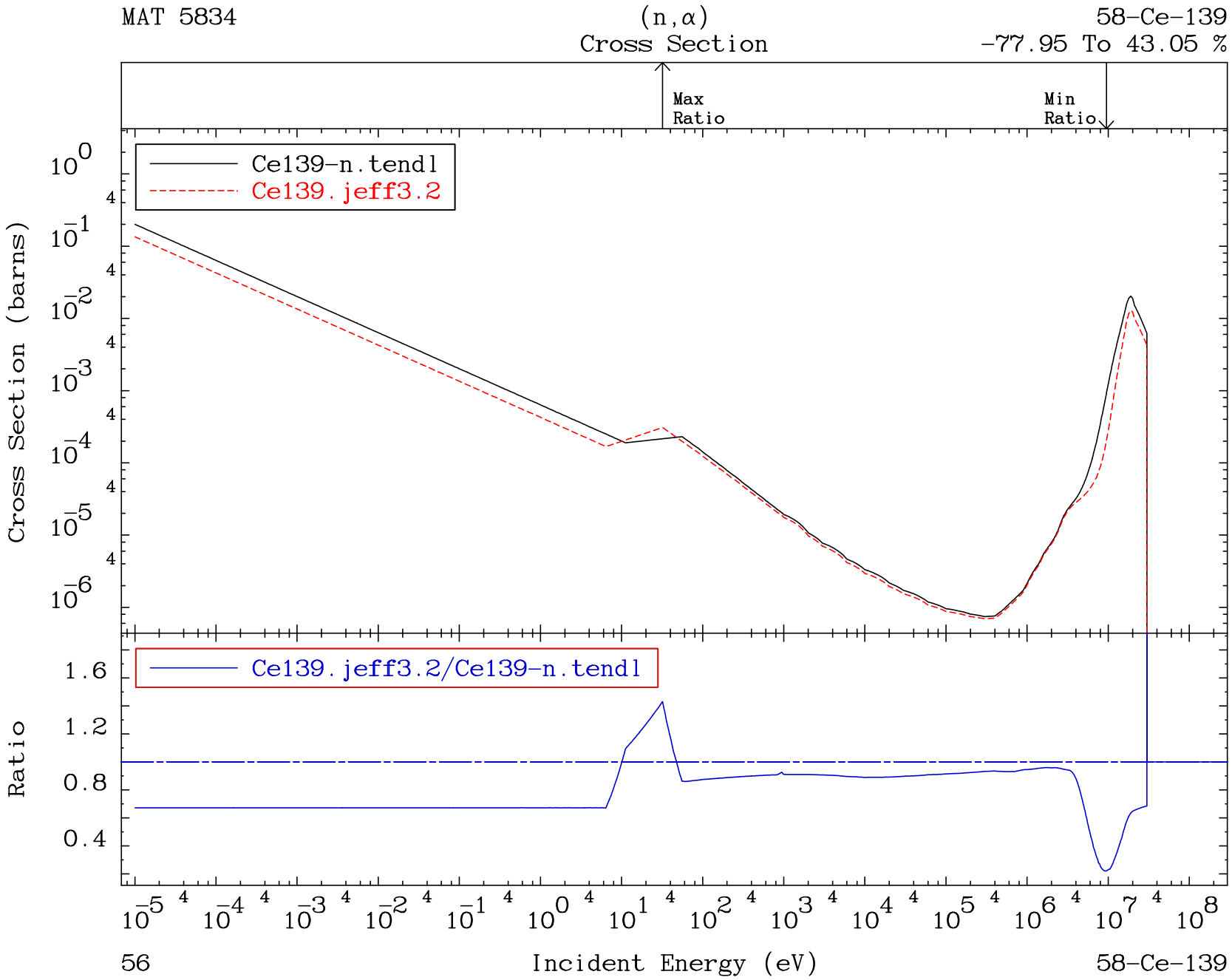

MAT 5834
(n,γ)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
51
58-Ce-139

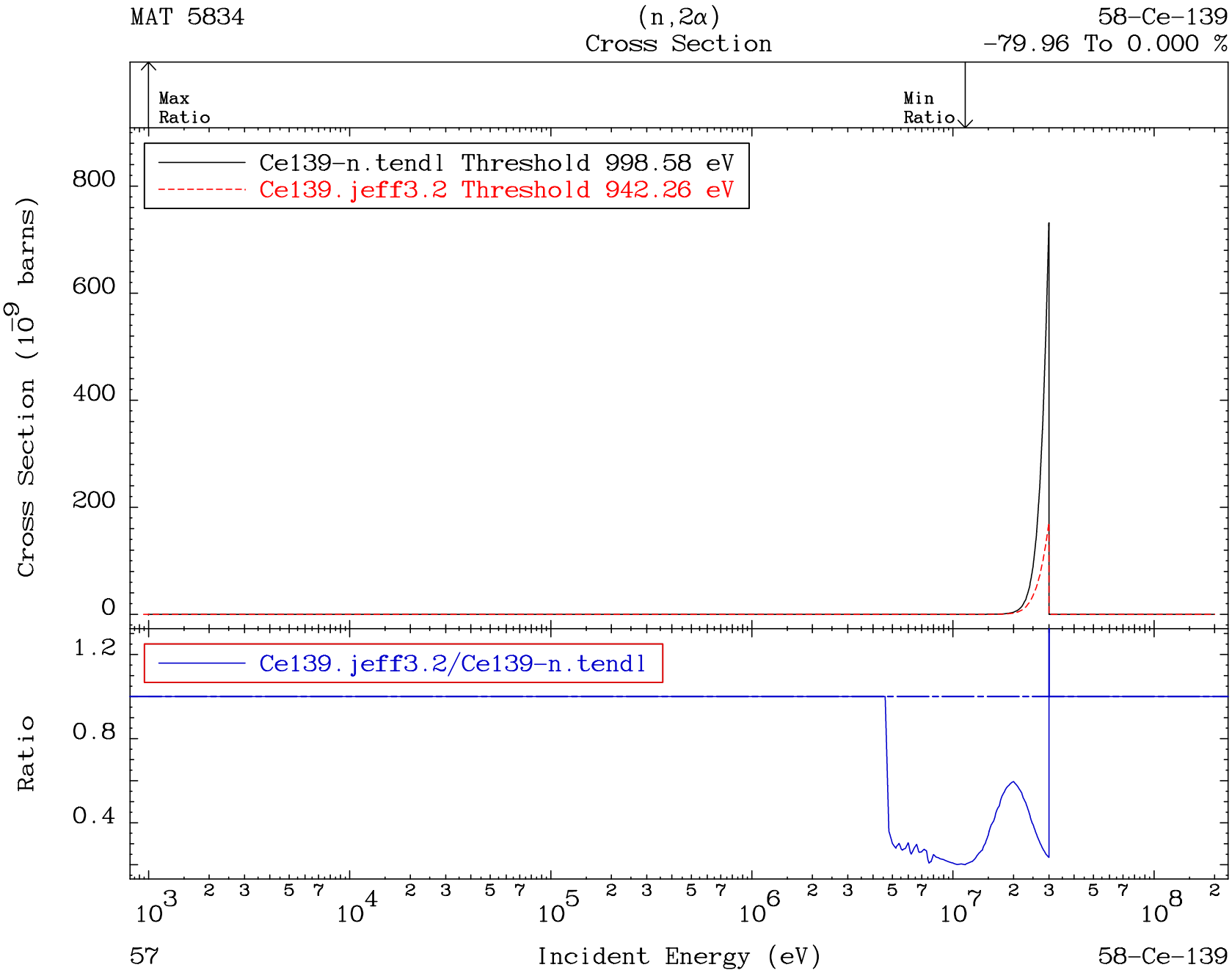

MAT 5834
(n,p)
Cross Section
58-Ce-139
-32.86 To 47.08 %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
52
58-Ce-139

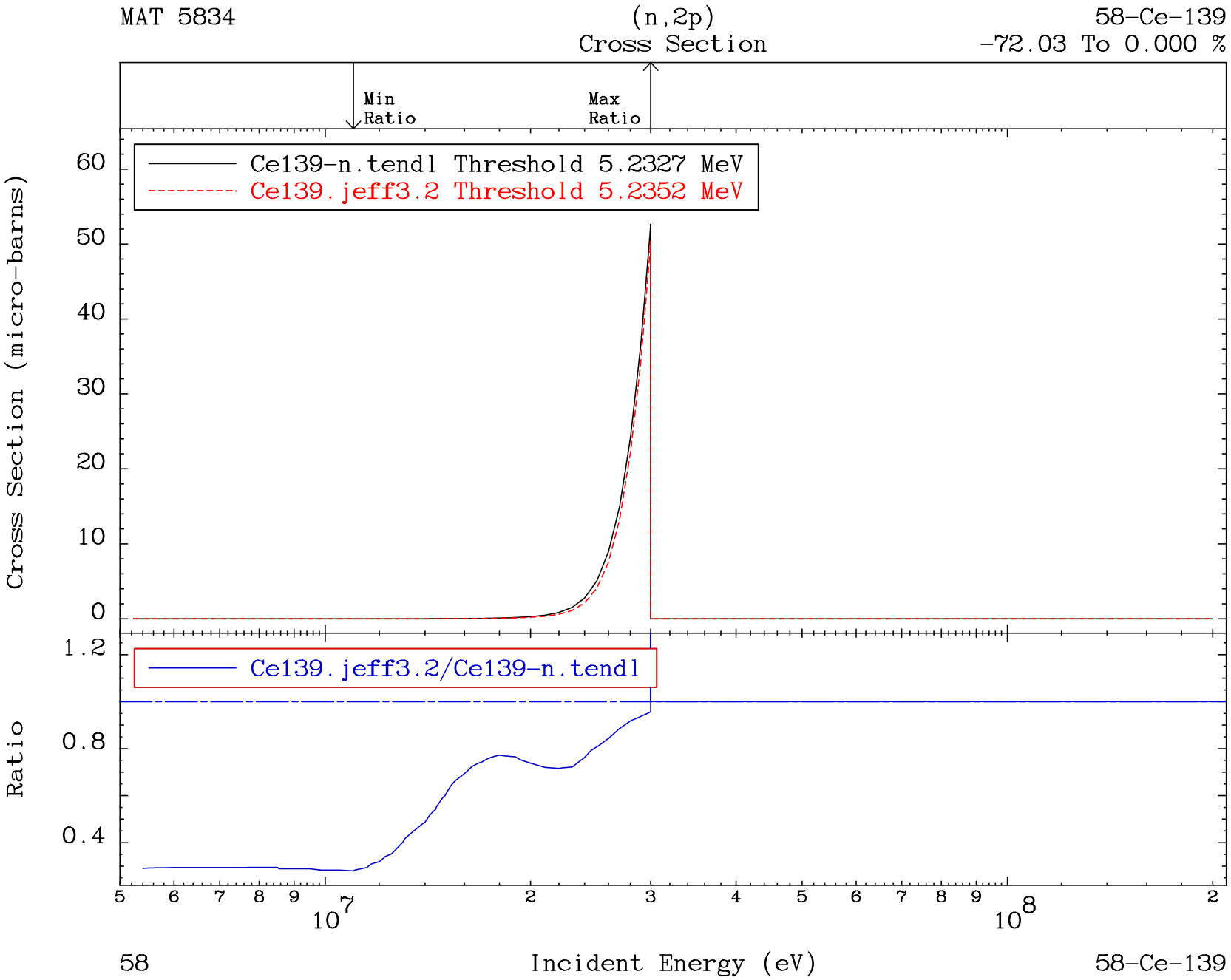

MAT 5834
(n,d)
Cross Section
58-Ce-139
-54.98 To 4.823 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 5.5326 MeV
Ce139.jeff3.2 Threshold 5.5326 MeV
Cross Section (milli-barns)
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
0.6
0.4
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
53
Incident Energy (eV)
58-Ce-139

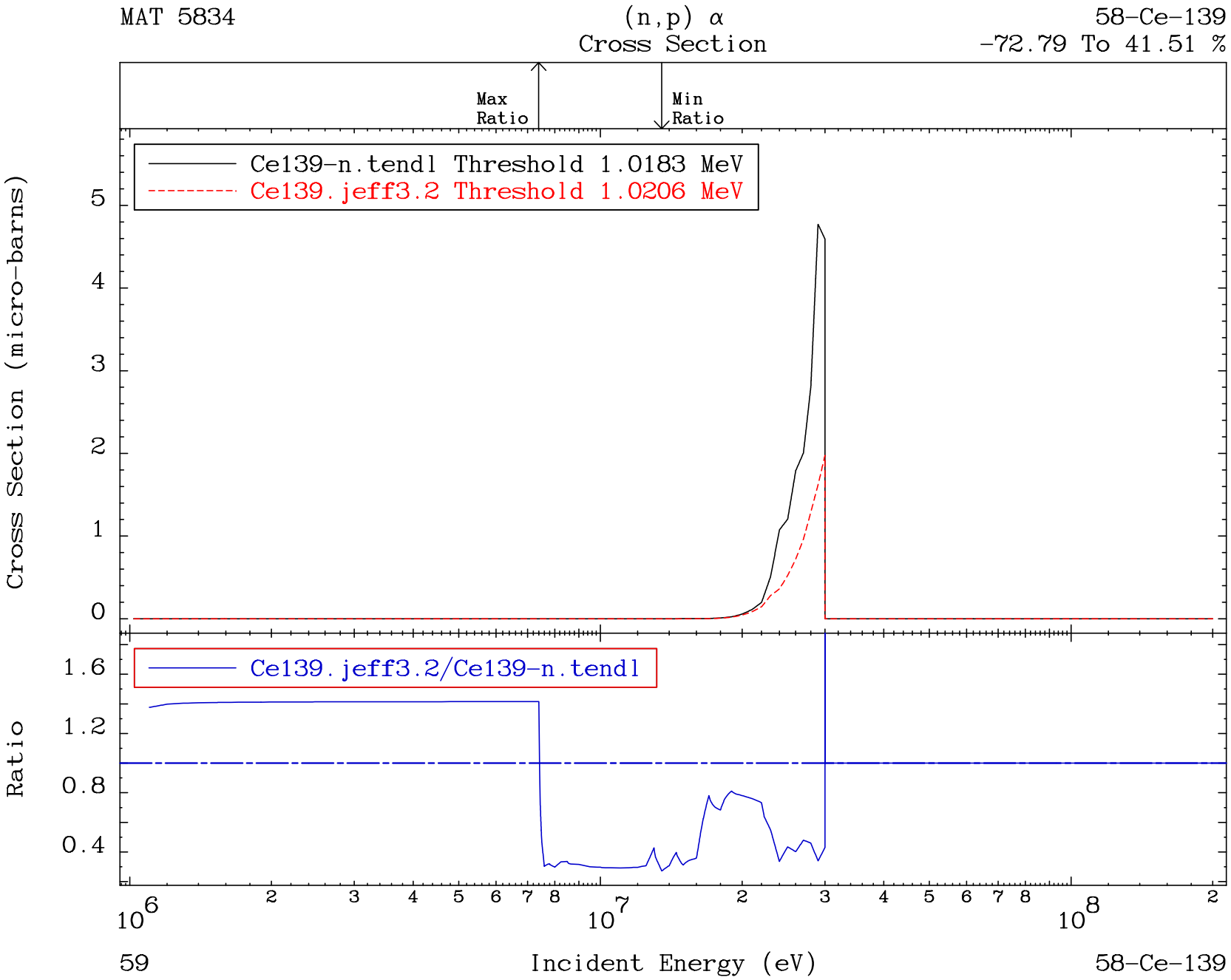

MAT 5834
(n,t)
Cross Section
58-Ce-139
-97.83 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 6.7363 MeV
Ce139.jeff3.2 Threshold 6.7792 MeV
Cross Section (milli-barns)
0
2
4
6
8
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^0
4
10^-1
4
7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
54
Incident Energy (eV)
58-Ce-139

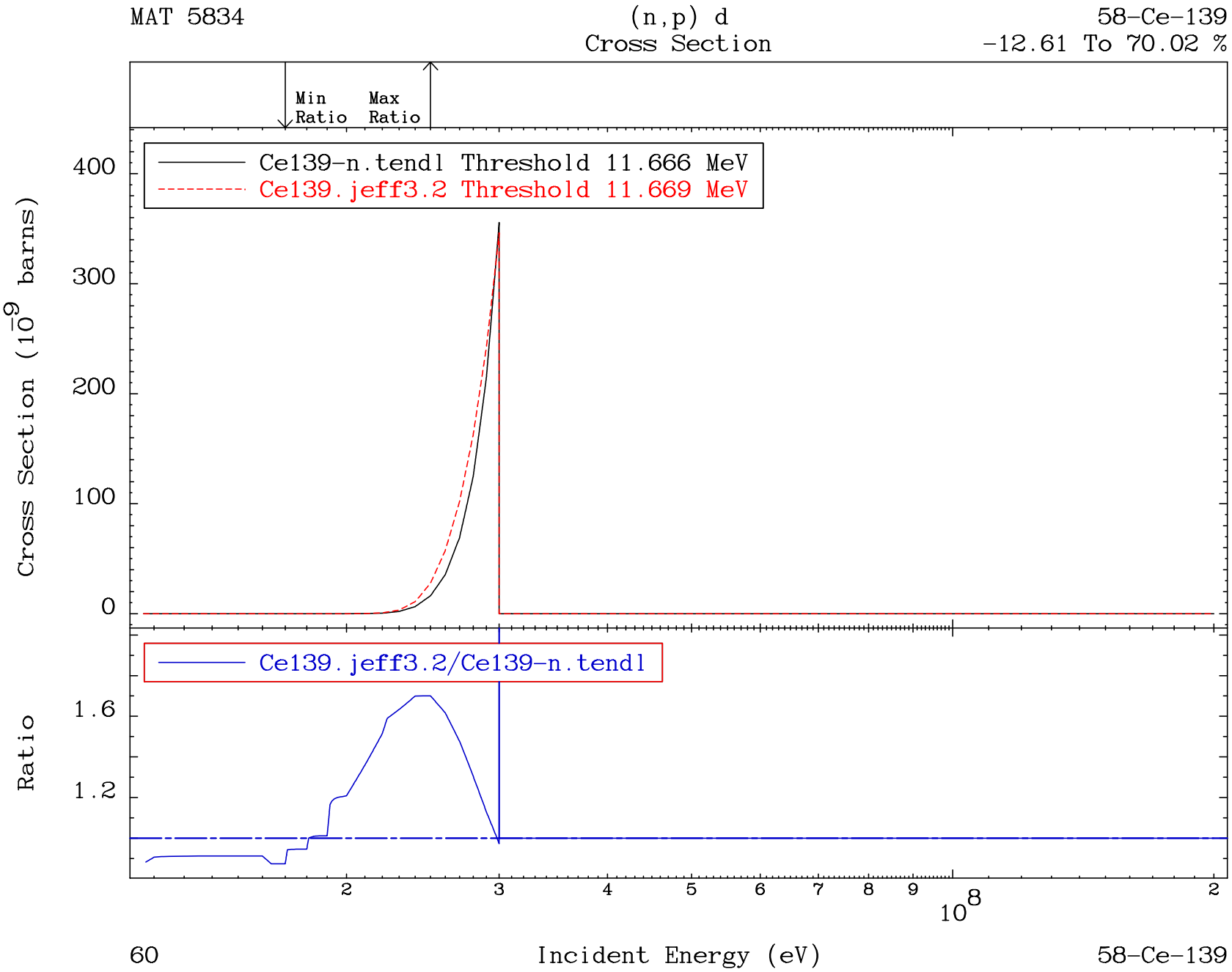

MAT 5834
(n,He-3)
Cross Section
58-Ce-139
-99.32 To 469.3 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 6.1328 MeV
Ce139.jeff3.2 Threshold 6.1354 MeV
Cross Section (milli-barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^1
10^0
10^-1
10^-2
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
55
Incident Energy (eV)
58-Ce-139

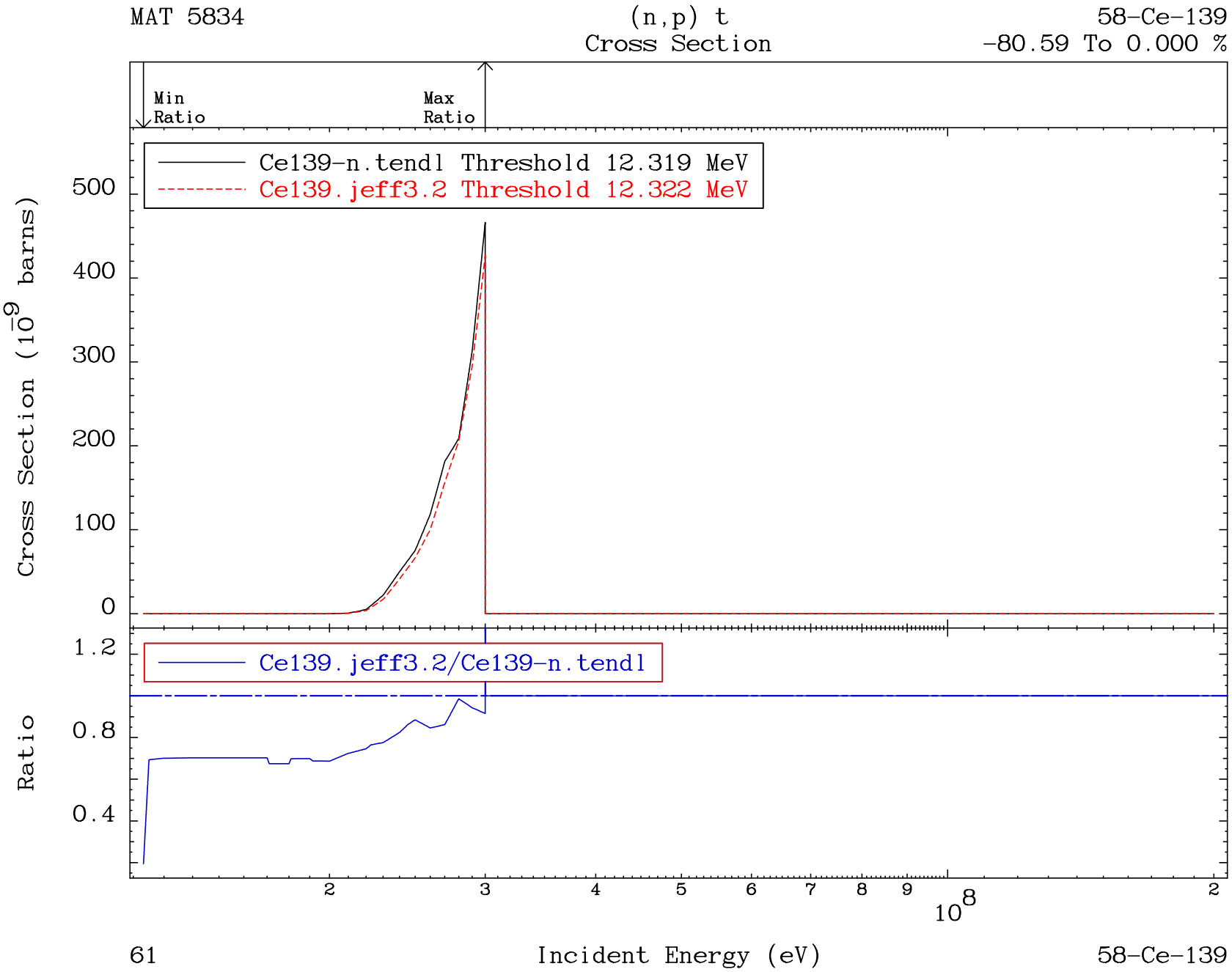

MAT 5834
(n,α)
Cross Section
58-Ce-139
-77.95 To 43.05 %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
56
58-Ce-139

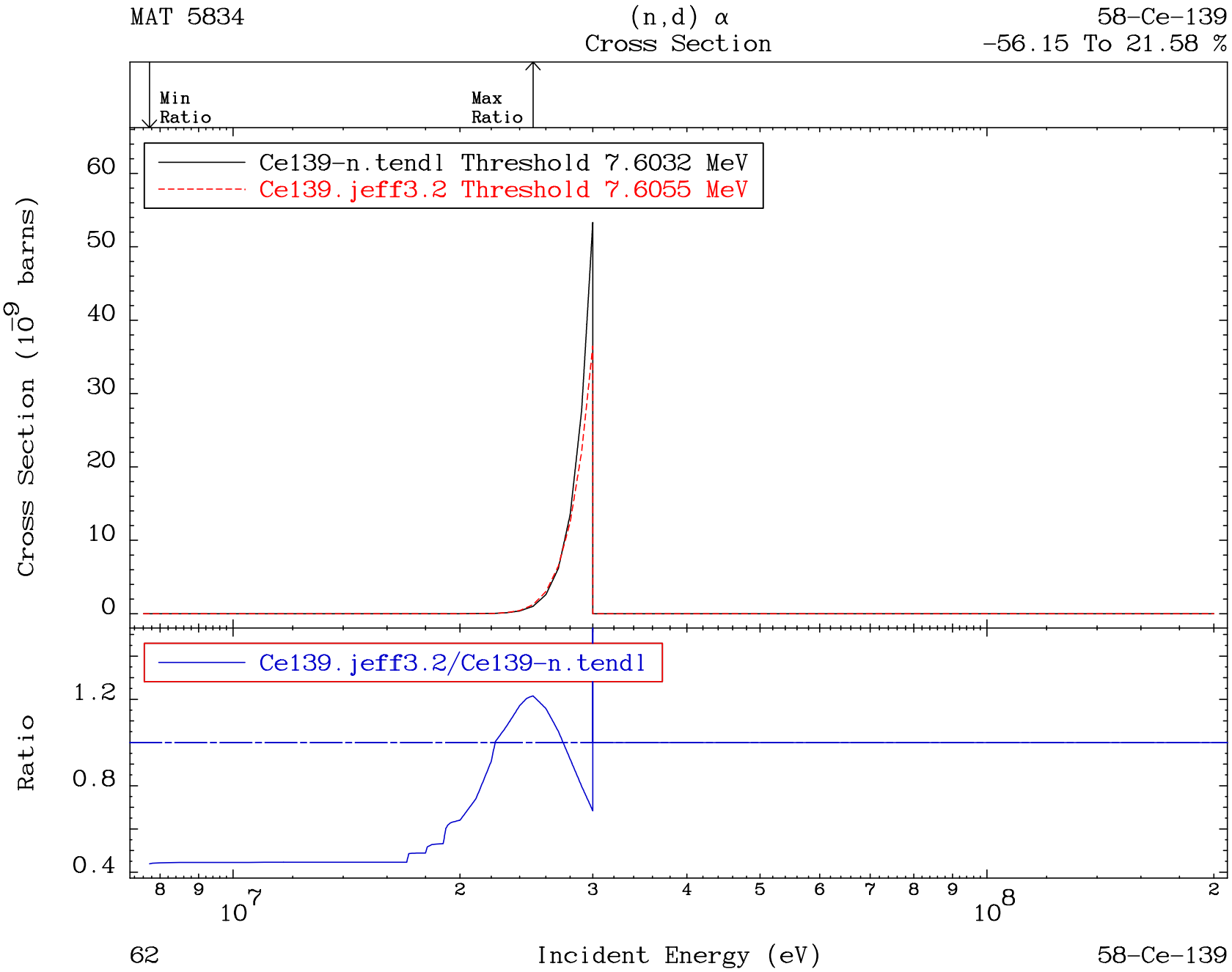

MAT 5834
(n,2α)
Cross Section
58-Ce-139
-79.96 To 0.000 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 998.58 eV
Ce139.jeff3.2 Threshold 942.26 eV
Cross Section (10^-9 barns)
800
600
400
200
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
10^3
10^4
10^5
10^6
10^7
10^8
57
Incident Energy (eV)
58-Ce-139

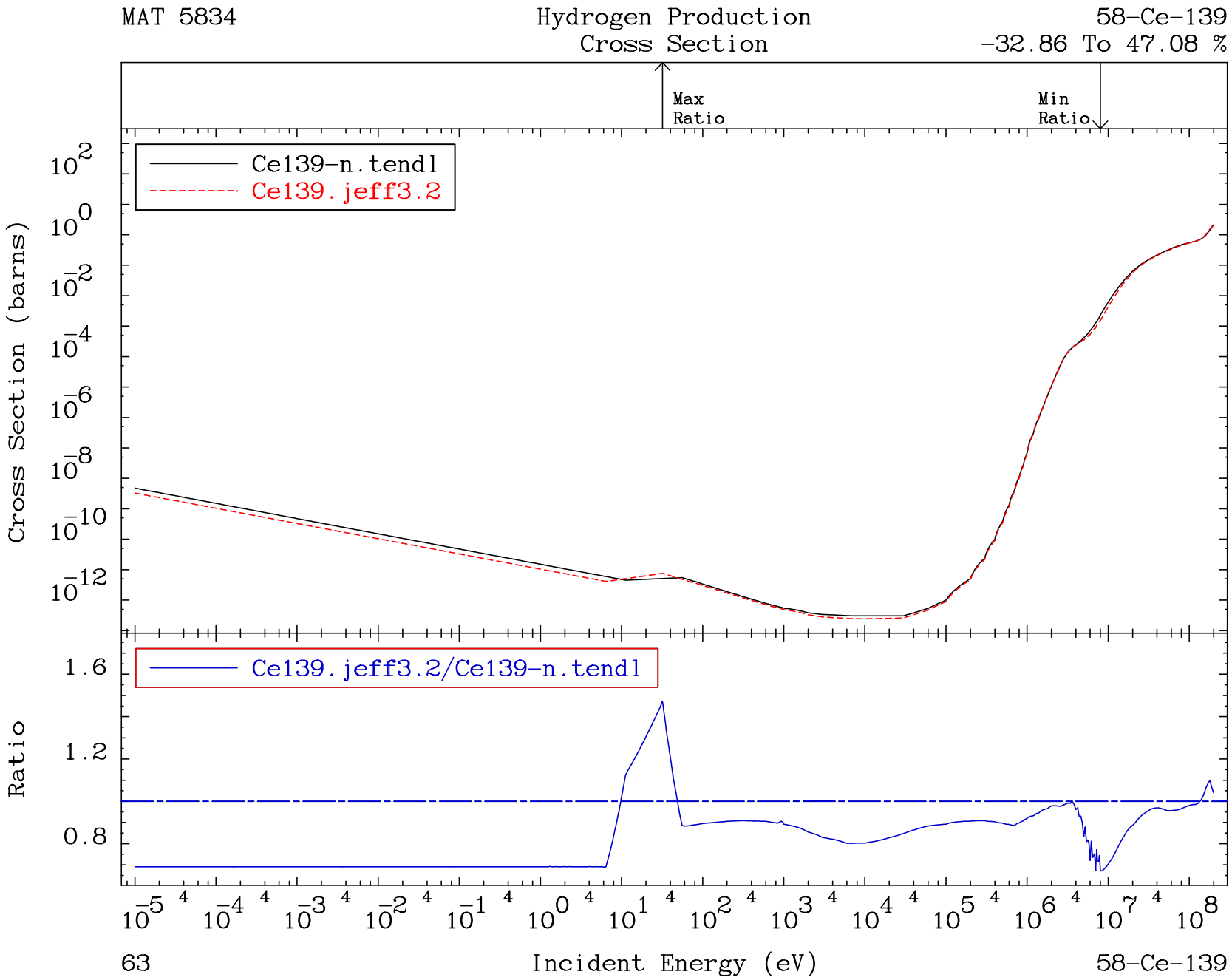

MAT 5834
(n,2p)
Cross Section
58-Ce-139
-72.03 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 5.2327 MeV
Ce139.jeff3.2 Threshold 5.2352 MeV
Cross Section (micro-barns)
60
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
58
Incident Energy (eV)
58-Ce-139

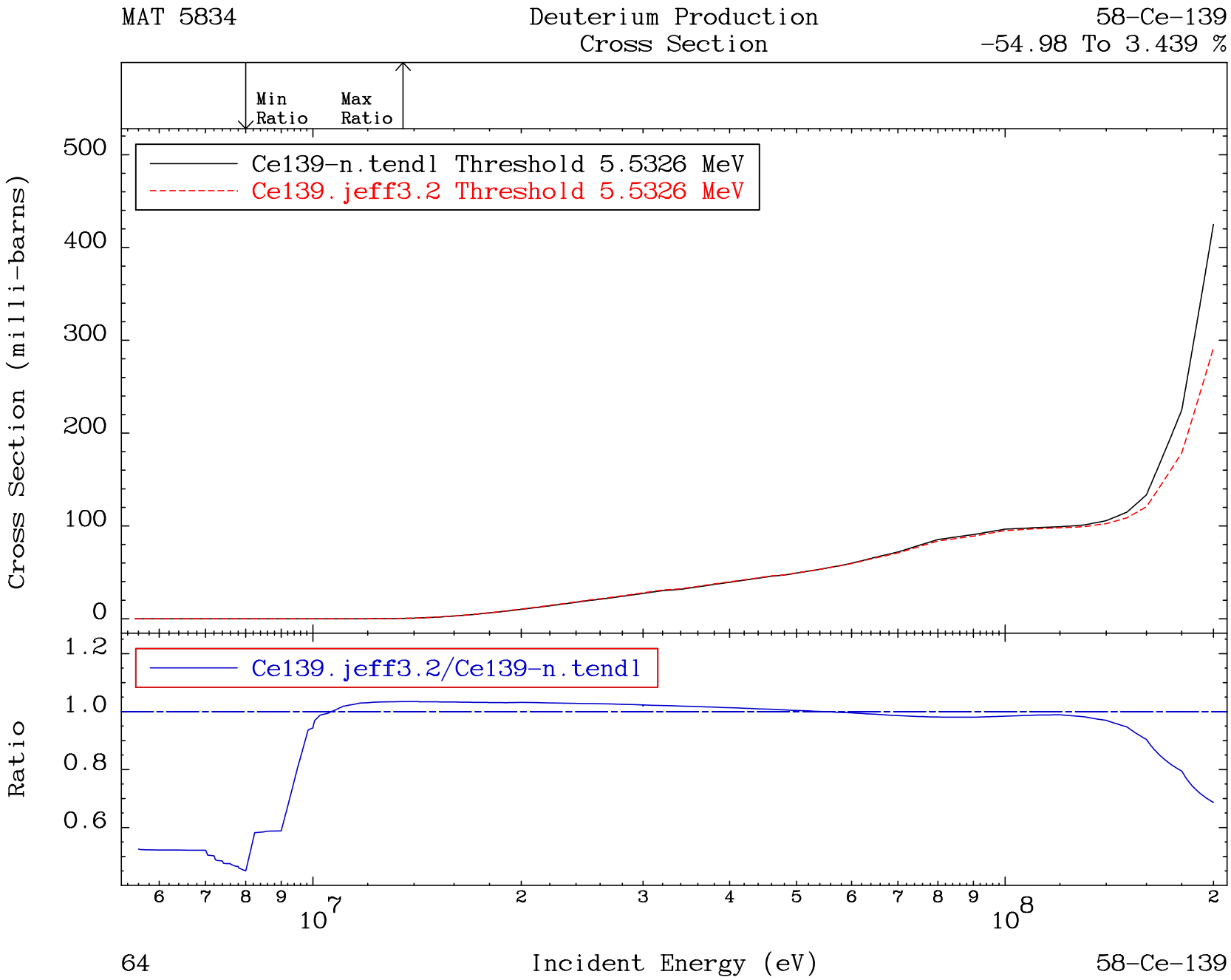

MAT 5834
(n,p) α
Cross Section
58-Ce-139
-72.79 To 41.51 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.0183 MeV
Ce139.jeff3.2 Threshold 1.0206 MeV
Cross Section (micro-barns)
0
1
2
3
4
5
Ce139.jeff3.2/Ce139-n.tendl
Ratio
0.4
0.8
1.2
1.6
10^6
10^7
10^8
59
Incident Energy (eV)
58-Ce-139

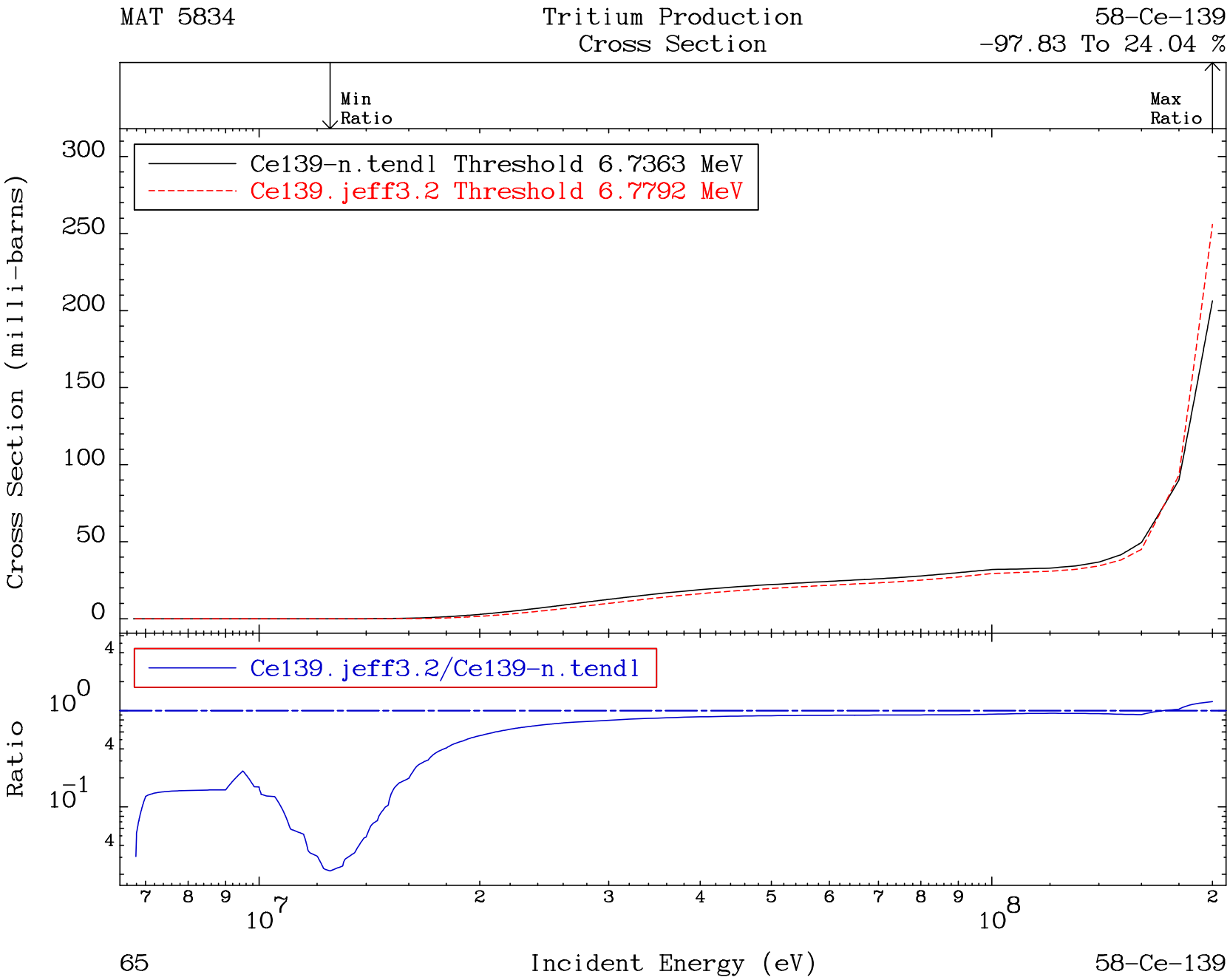

MAT 5834
(n,p) d
Cross Section
58-Ce-139
-12.61 To 70.02 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 11.666 MeV
Ce139.jeff3.2 Threshold 11.669 MeV
Cross Section (10^{-9} barns)
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
2
3
4
5
6
7
8
9
10^8
2
60
Incident Energy (eV)
58-Ce-139

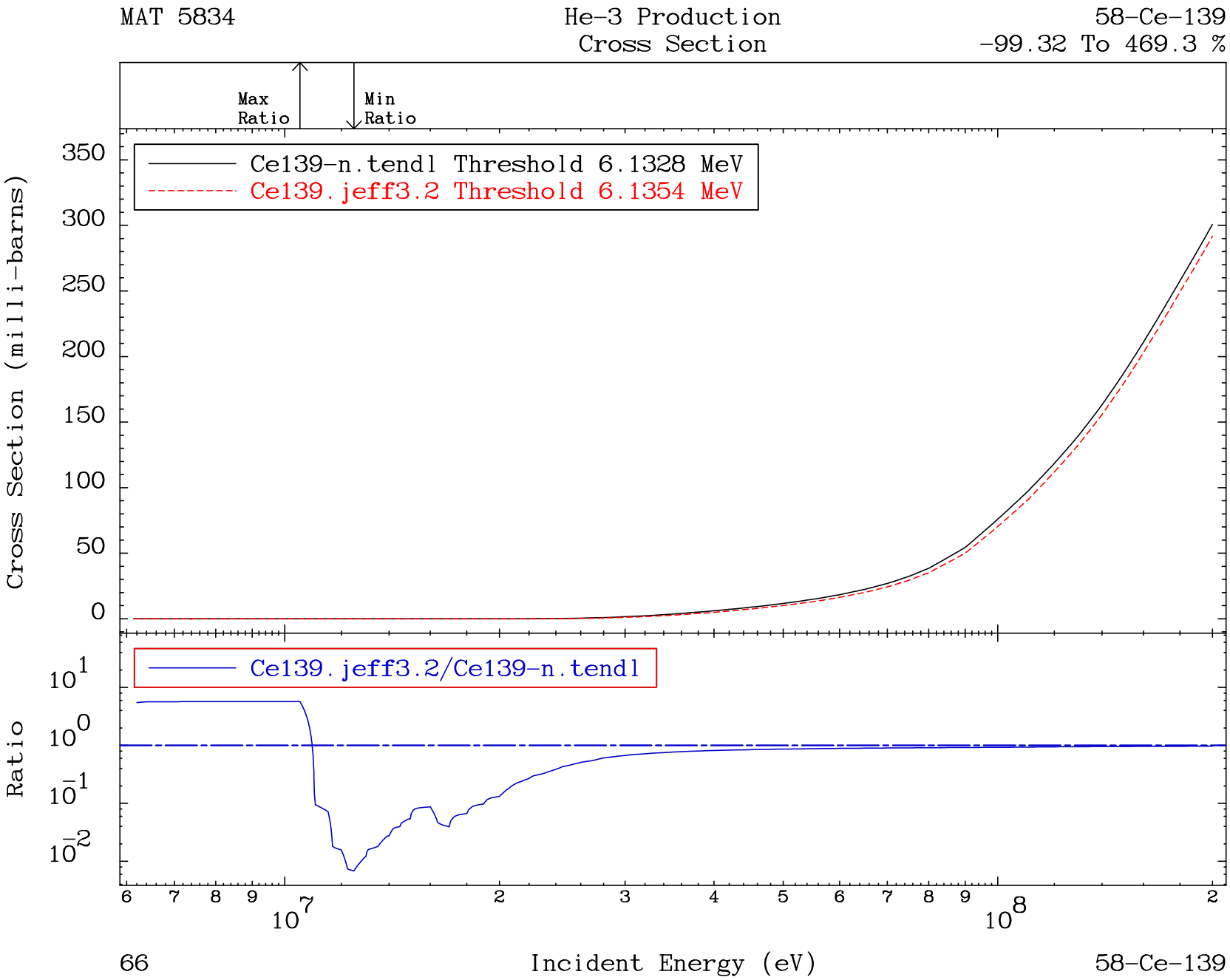

MAT 5834
(n,p) t
Cross Section
58-Ce-139
-80.59 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 12.319 MeV
Ce139.jeff3.2 Threshold 12.322 MeV
Cross Section (10^{-9} barns)
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
61
Incident Energy (eV)
58-Ce-139

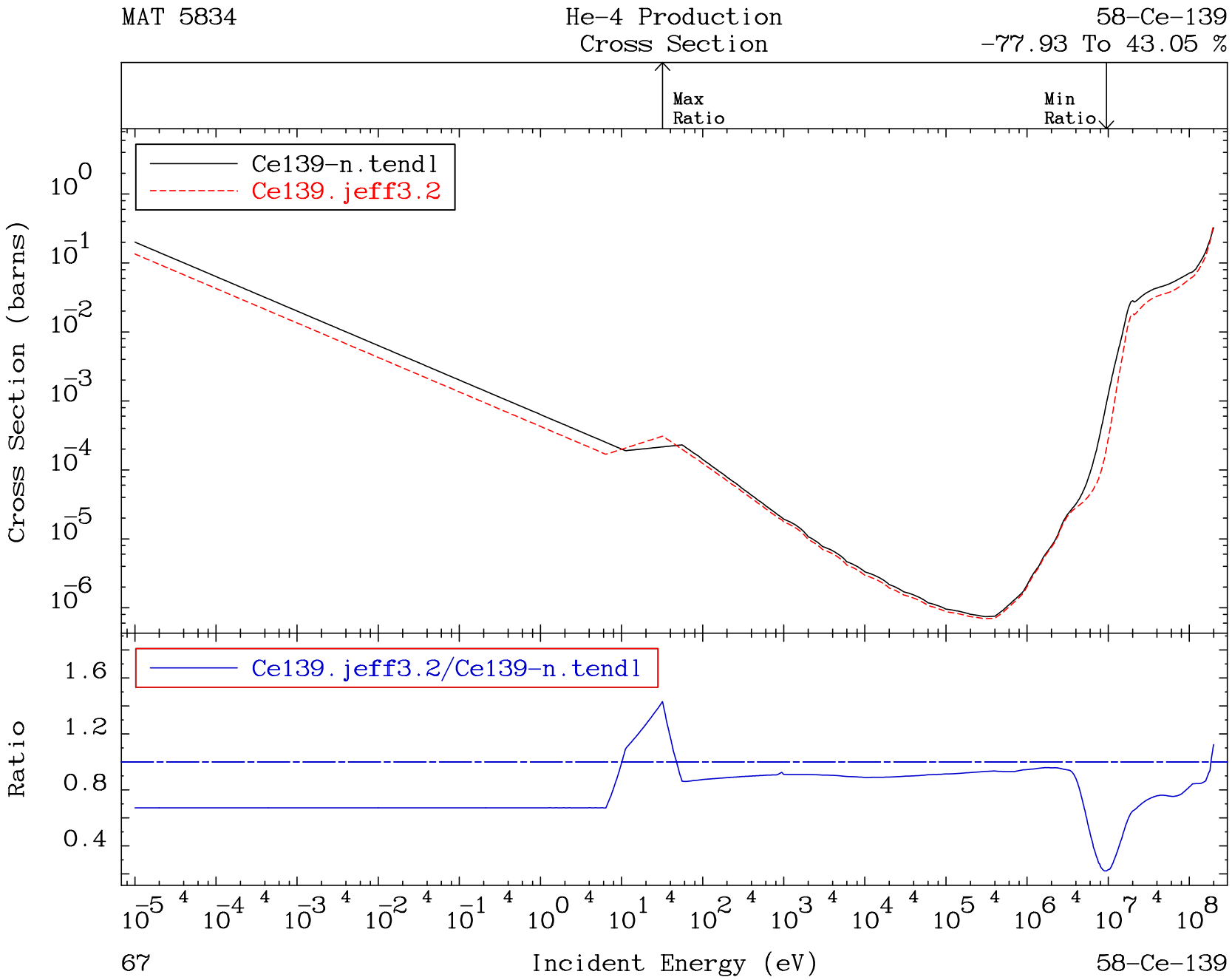

MAT 5834
(n,d) α
Cross Section
58-Ce-139
-56.15 To 21.58 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 7.6032 MeV
Ce139.jeff3.2 Threshold 7.6055 MeV
Cross Section (10^{-9} barns)
60
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
8 9 10^{7} 2 3 4 5 6 7 8 9 10^{8} 2
62
Incident Energy (eV)
58-Ce-139

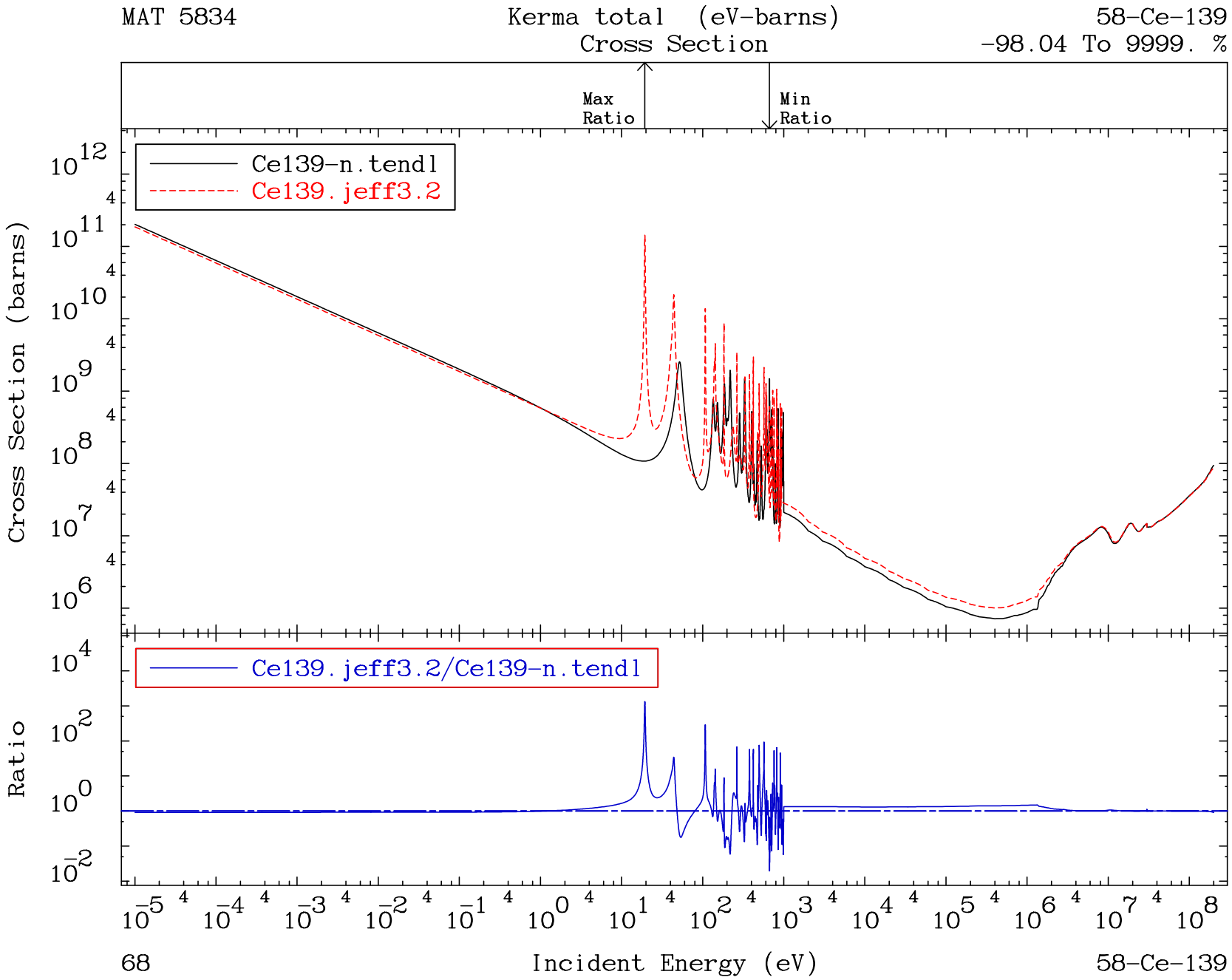

MAT 5834
Hydrogen Production
Cross Section
58-Ce-139
-32.86 To 47.08 %
Max
Ratio
Min
Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
63
58-Ce-139

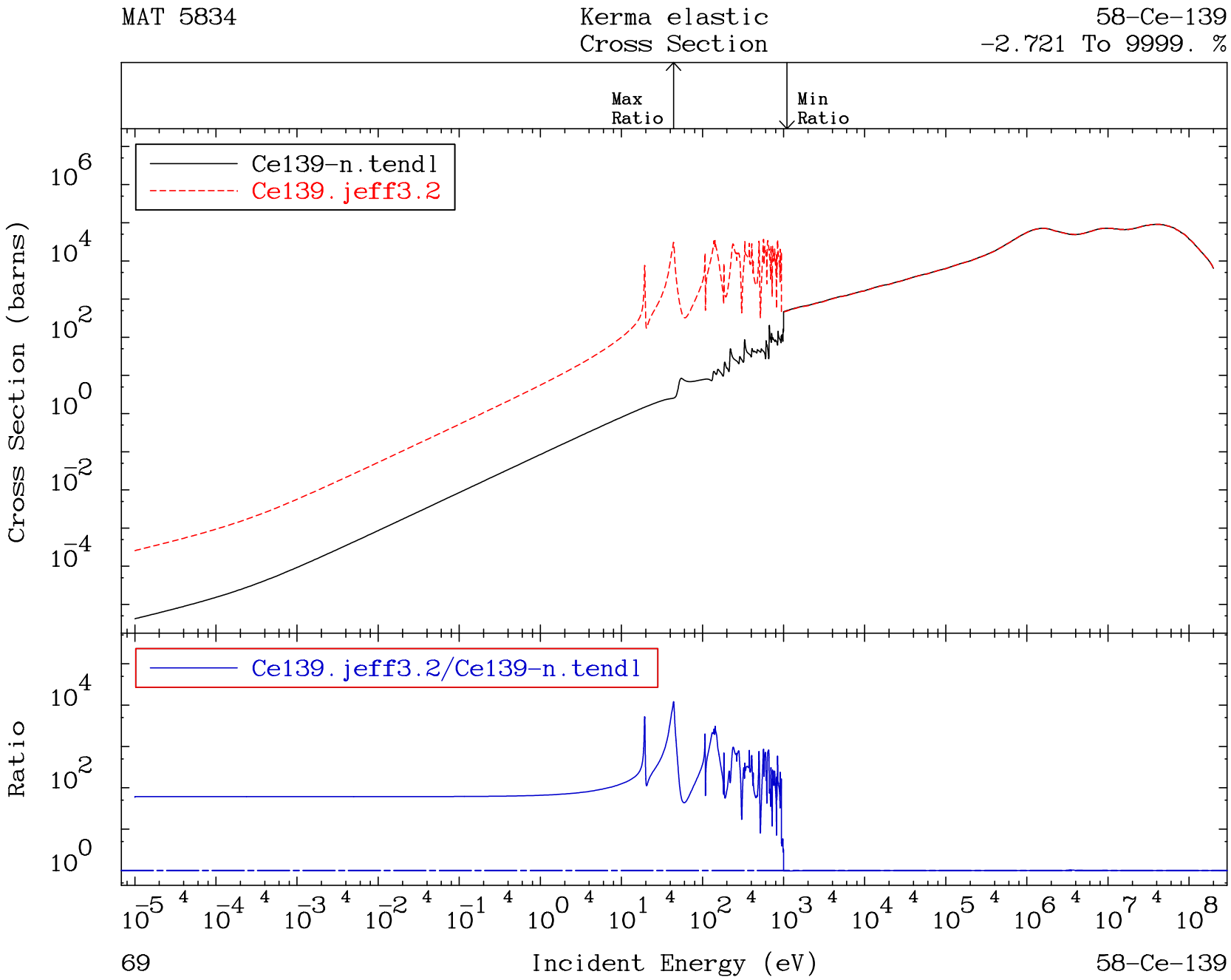

MAT 5834
Deuterium Production
Cross Section
58-Ce-139
-54.98 To 3.439 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 5.5326 MeV
Ce139.jeff3.2 Threshold 5.5326 MeV
Cross Section (milli-barns)
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
0.6
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
64
Incident Energy (eV)
58-Ce-139

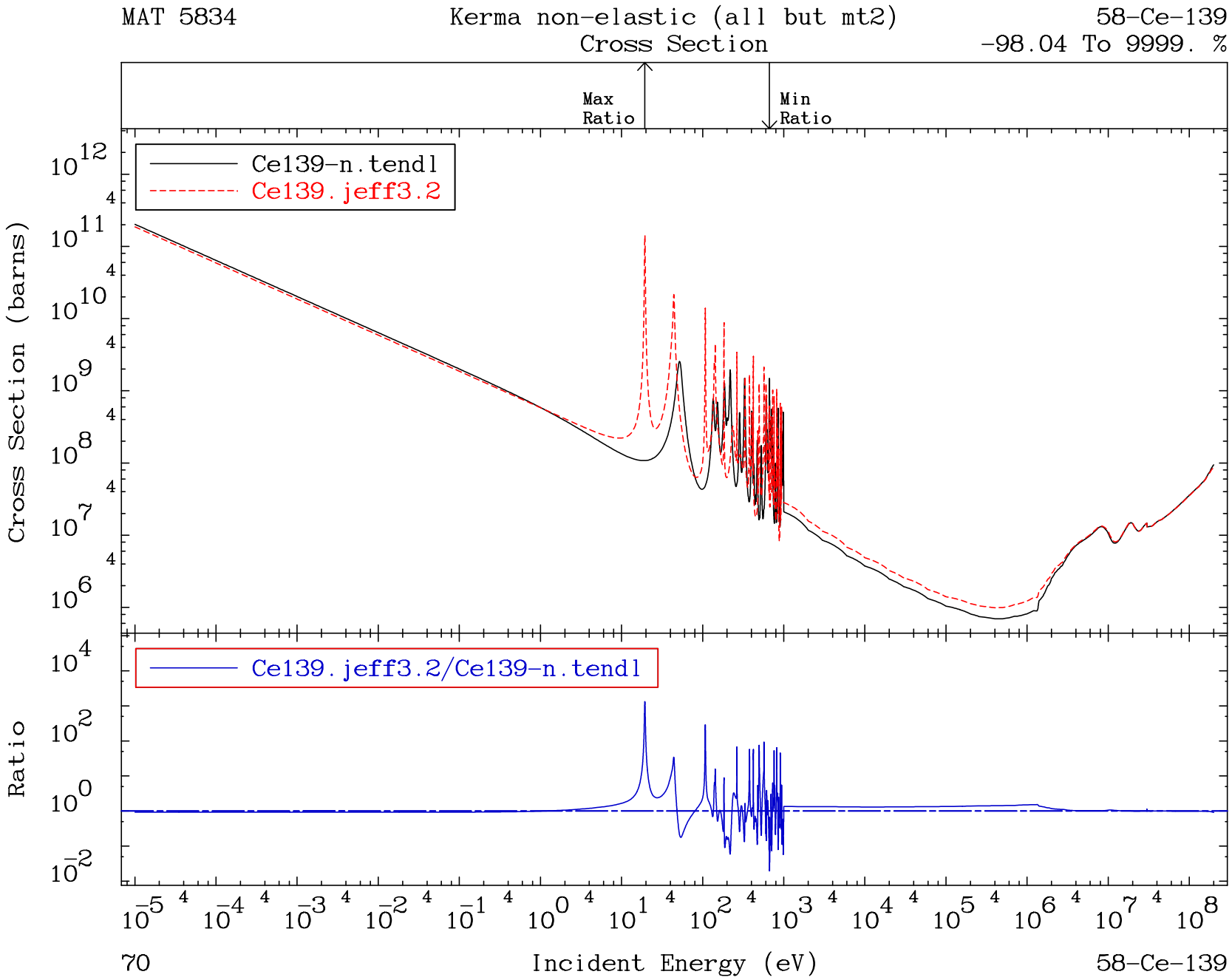

MAT 5834
Tritium Production
Cross Section
58-Ce-139
-97.83 To 24.04 %
Min
Ratio
Max
Ratio
Ce139-n.tendl Threshold 6.7363 MeV
Ce139.jeff3.2 Threshold 6.7792 MeV
Cross Section (milli-barns)
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
4
10^{0}
4
10^{-1}
4
7 8 9 10^{7} 2 3 4 5 6 7 8 9 10^{8} 2
65
Incident Energy (eV)
58-Ce-139

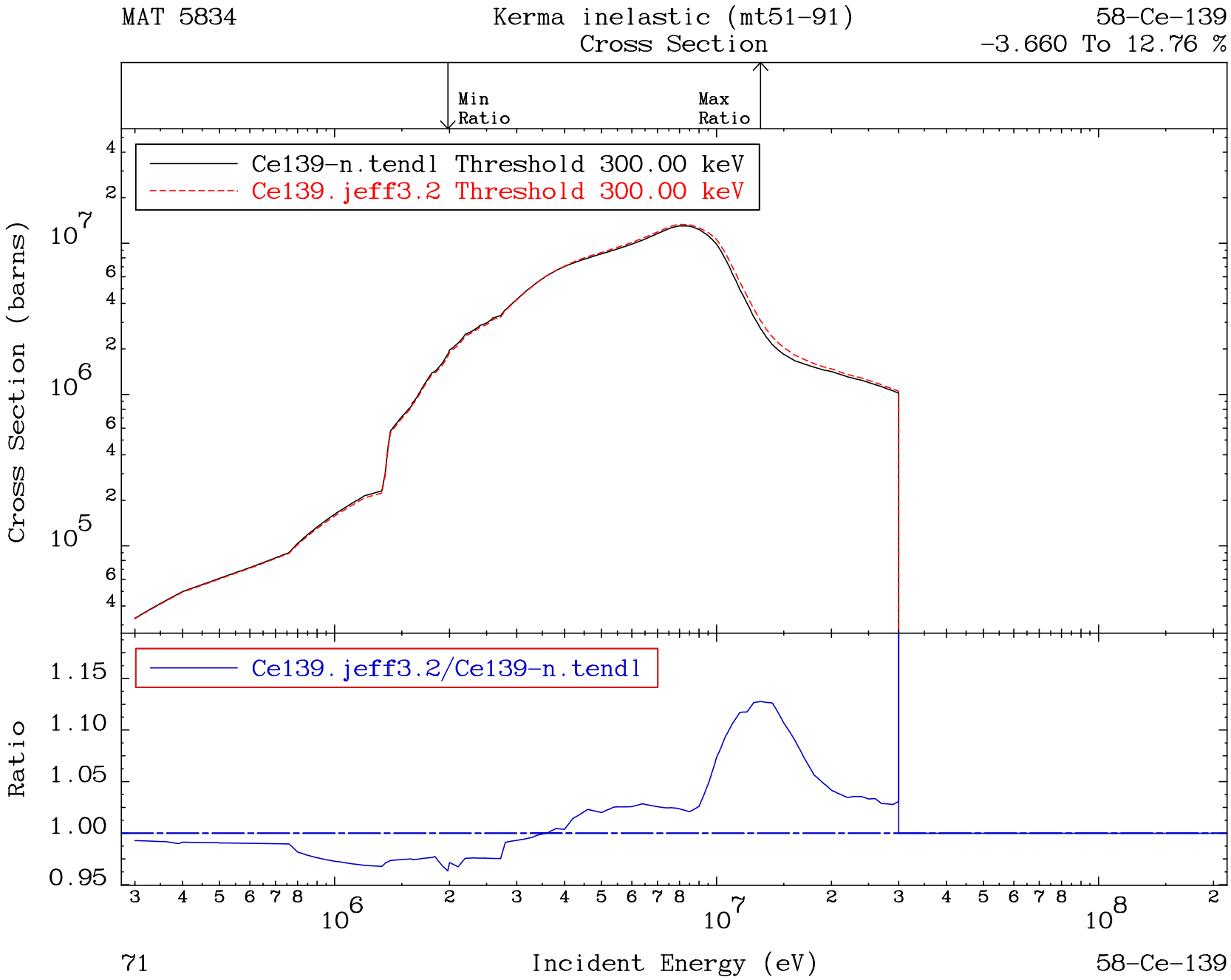

MAT 5834
He-3 Production
Cross Section
58-Ce-139
-99.32 To 469.3 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 6.1328 MeV
Ce139.jeff3.2 Threshold 6.1354 MeV
Cross Section (milli-barns)
350
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^1
10^0
10^-1
10^-2
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
66
Incident Energy (eV)
58-Ce-139

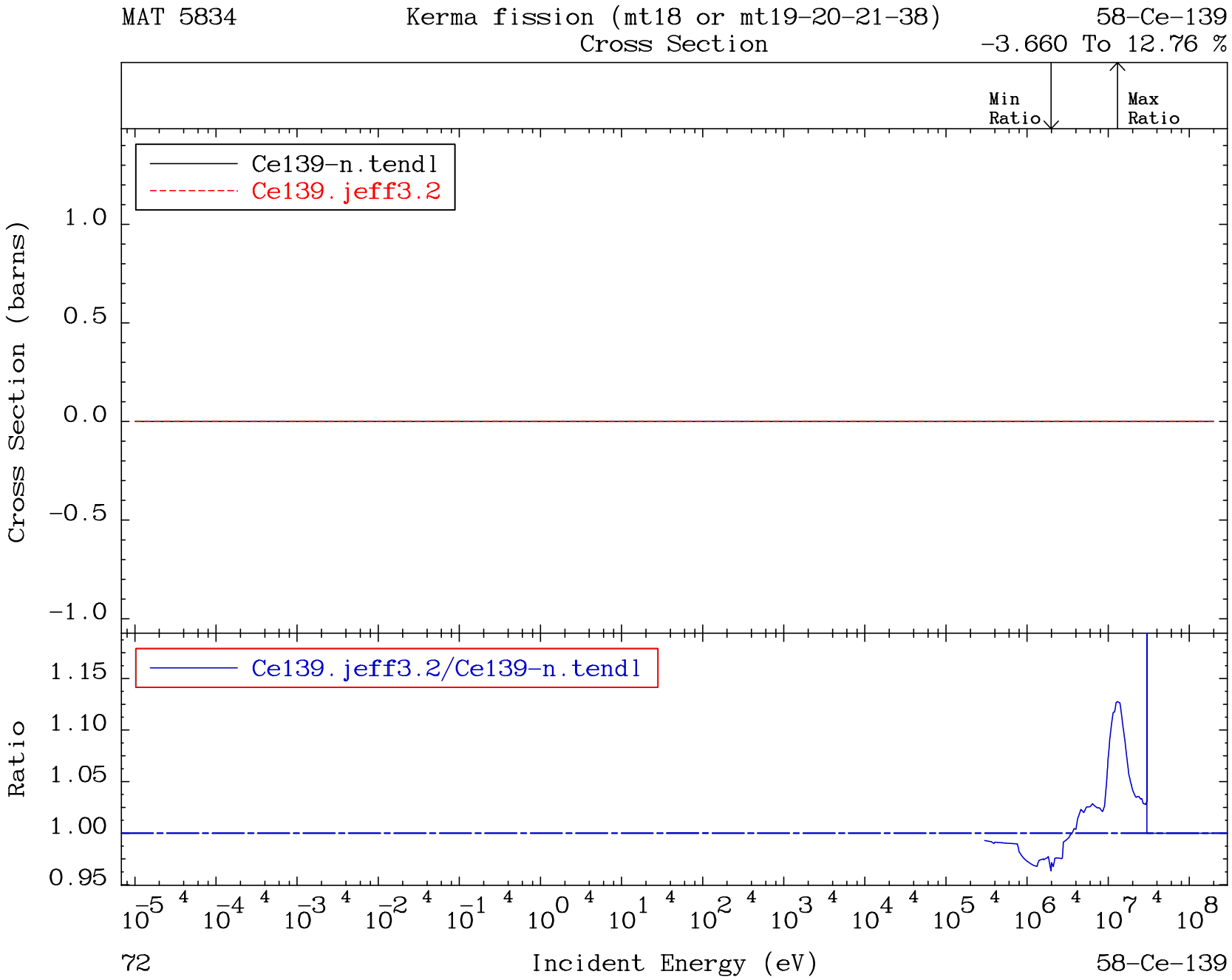

MAT 5834
He-4 Production
Cross Section
58-Ce-139
-77.93 To 43.05 %
Max
Ratio
Min
Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
67
58-Ce-139

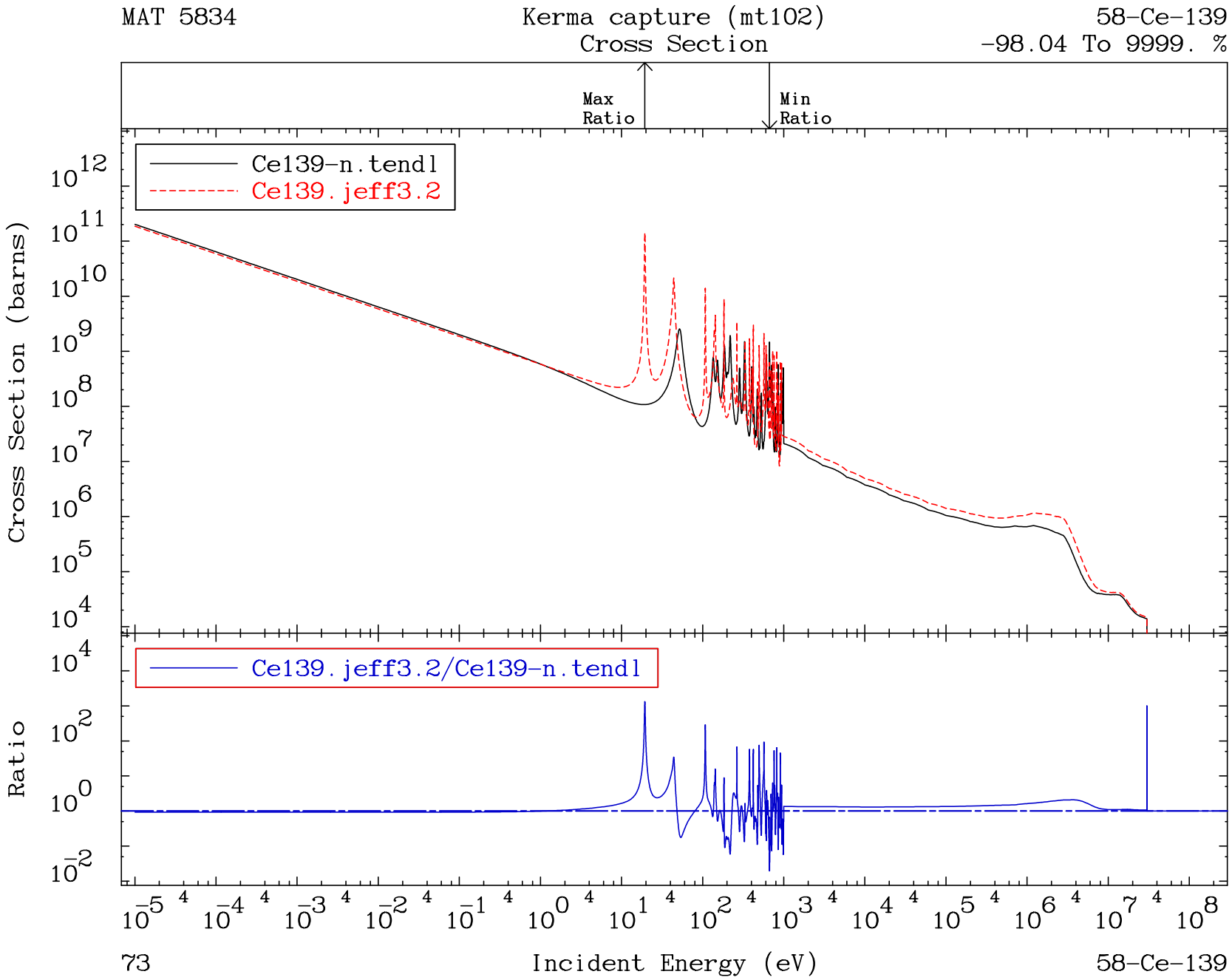

MAT 5834
Kerma total (eV-barns)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
68
58-Ce-139

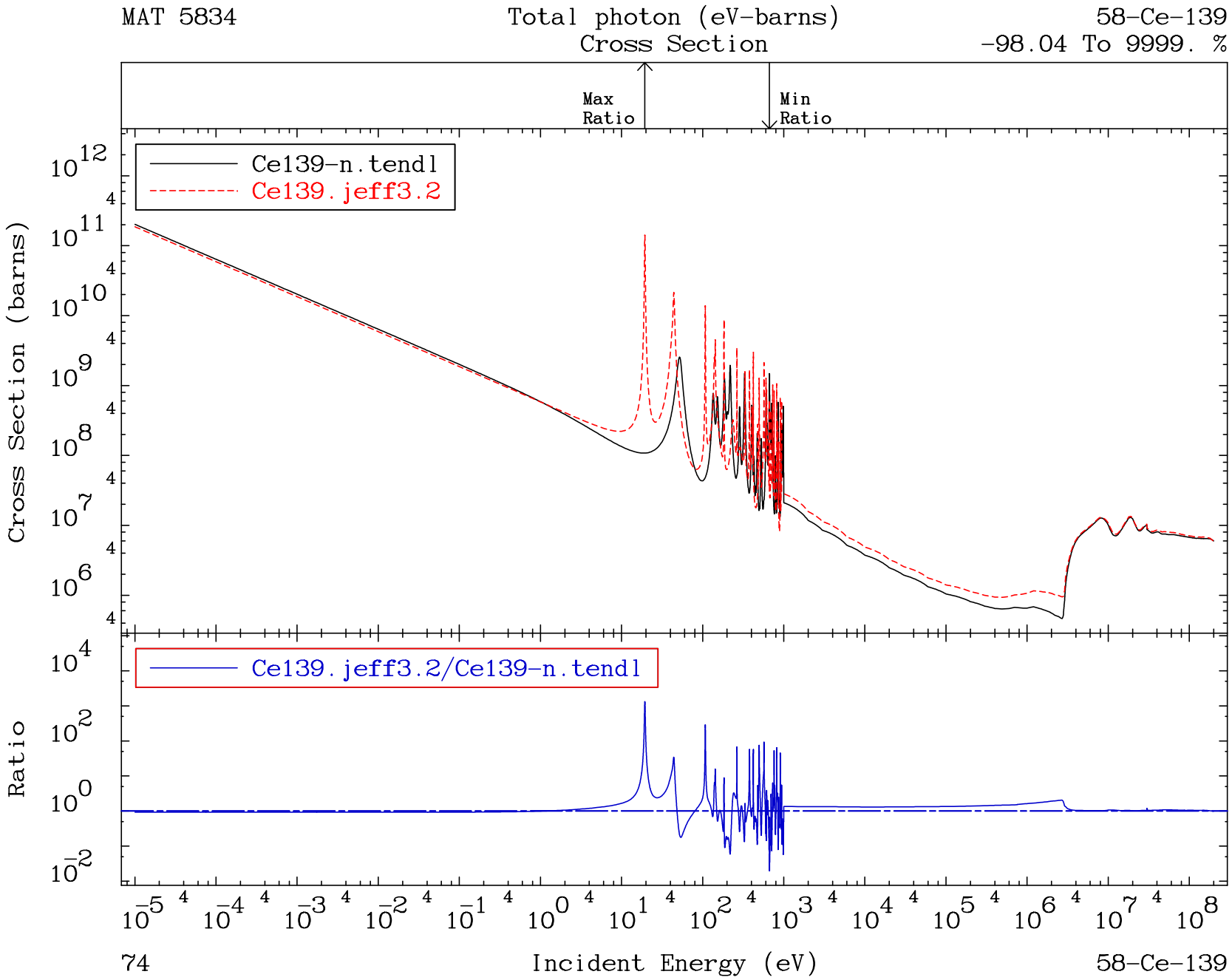

MAT 5834
Kerma elastic
Cross Section
58-Ce-139
-2.721 To 9999. %
Max
Ratio
Min
Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
69
58-Ce-139

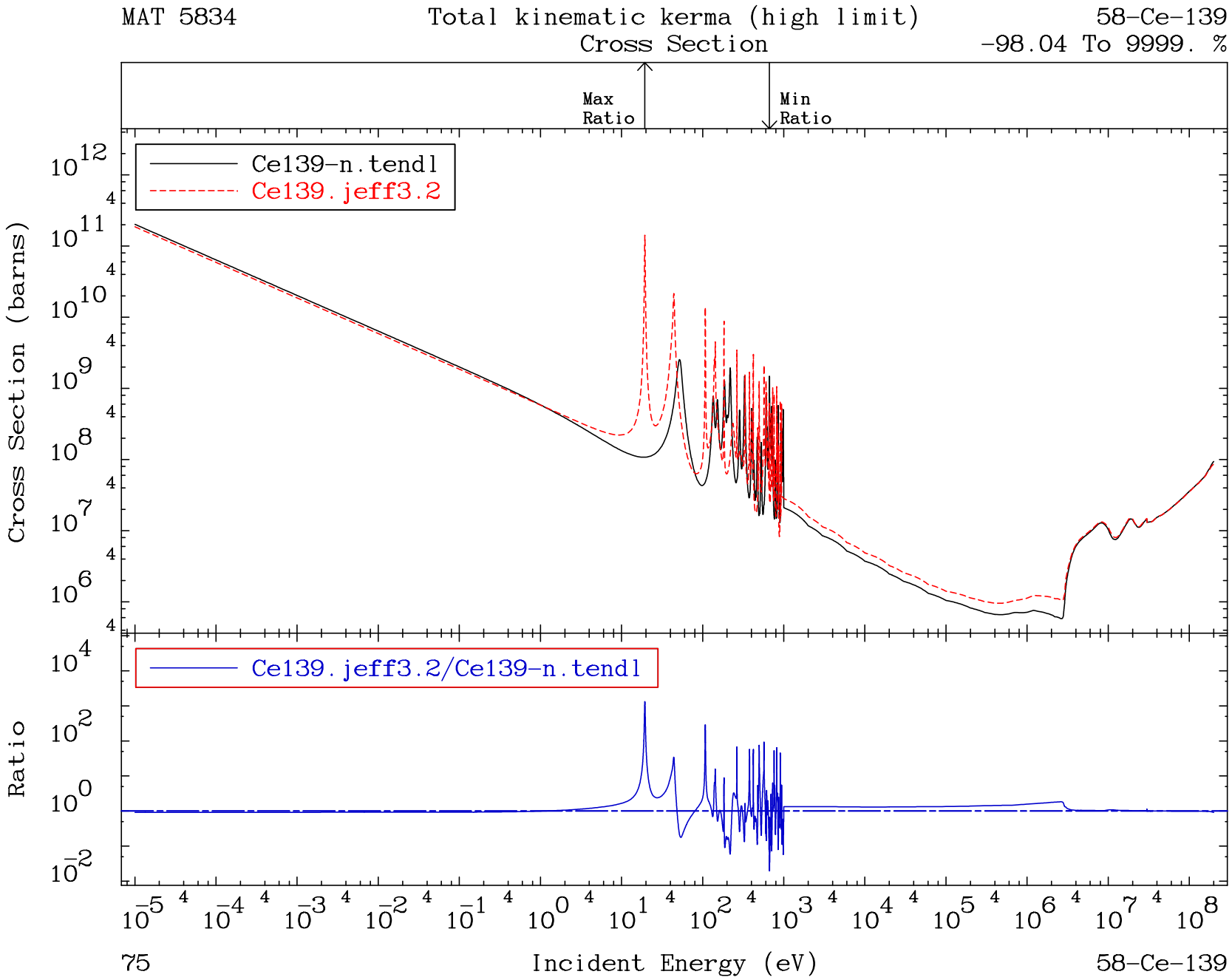

MAT 5834
Kerma non-elastic (all but mt2)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
70
58-Ce-139

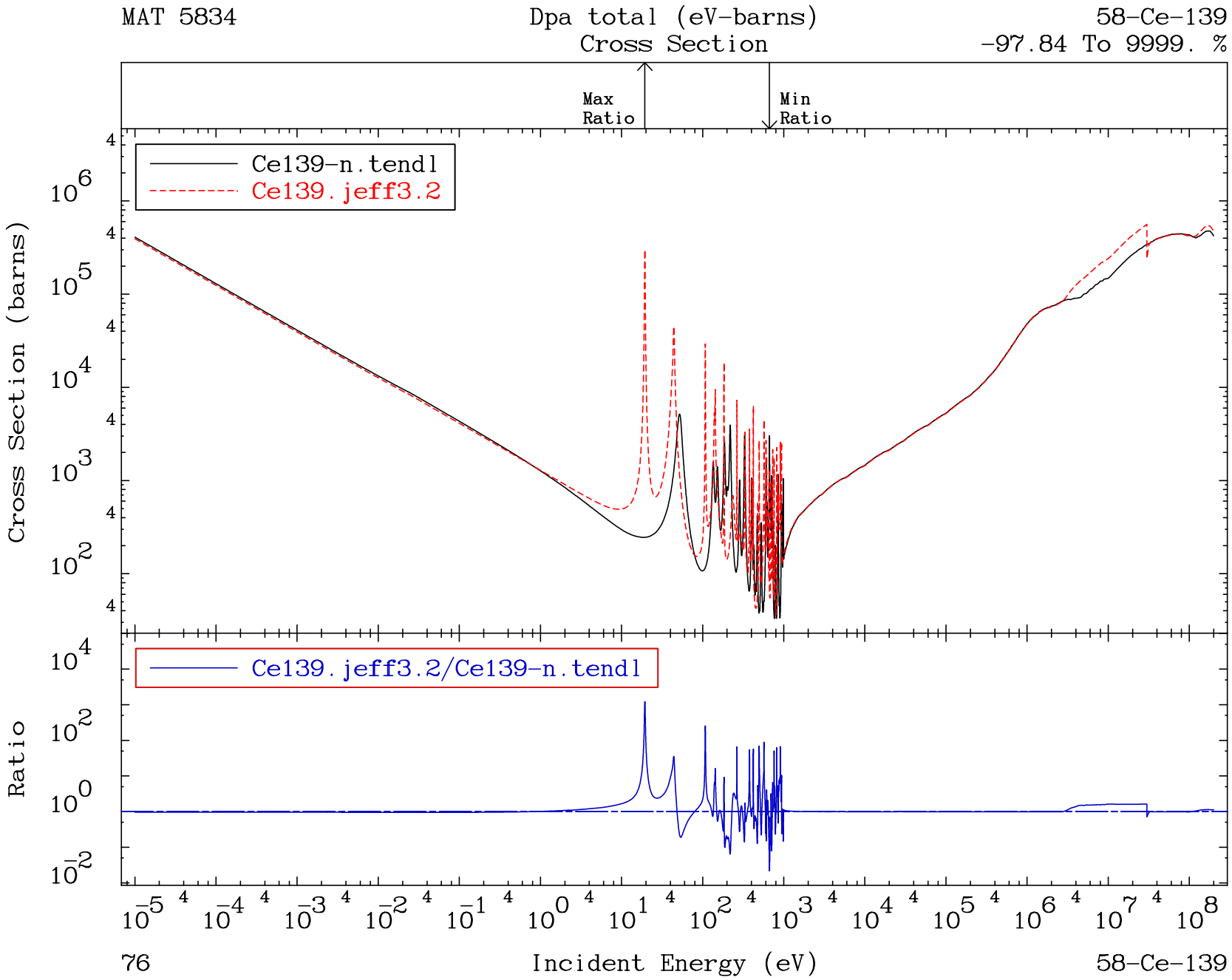

MAT 5834
Kerma inelastic (mt51-91)
Cross Section
58-Ce-139
-3.660 To 12.76 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 300.00 keV
Ce139.jeff3.2 Threshold 300.00 keV
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
71
58-Ce-139

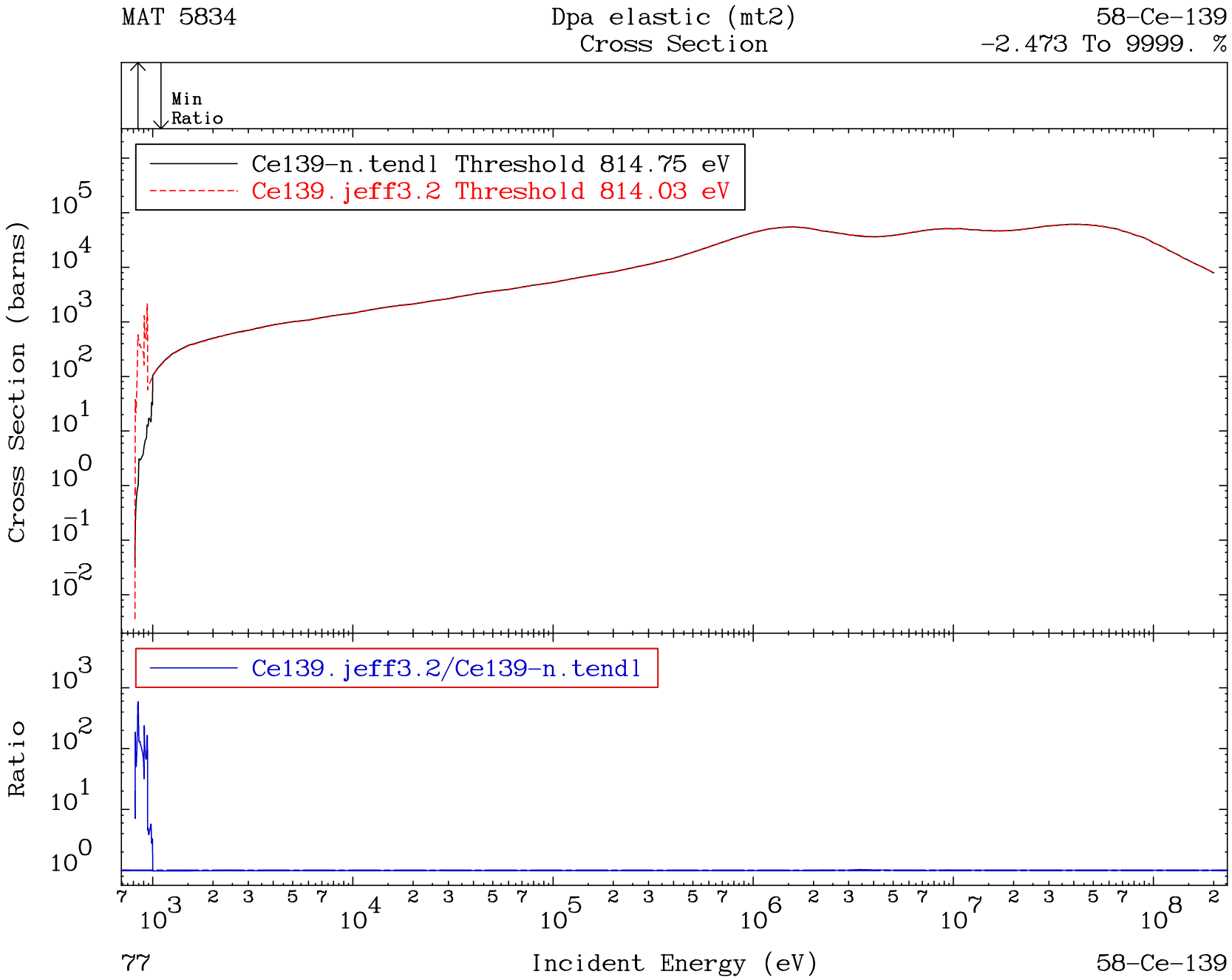

MAT 5834
Kerma fission (mt18 or mt19-20-21-38)
Cross Section
58-Ce-139
-3.660 To 12.76 %
Min Ratio
Max Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
1.0
0.5
0.0
-0.5
-1.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.15
1.10
1.05
1.00
0.95
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
72
Incident Energy (eV)
58-Ce-139

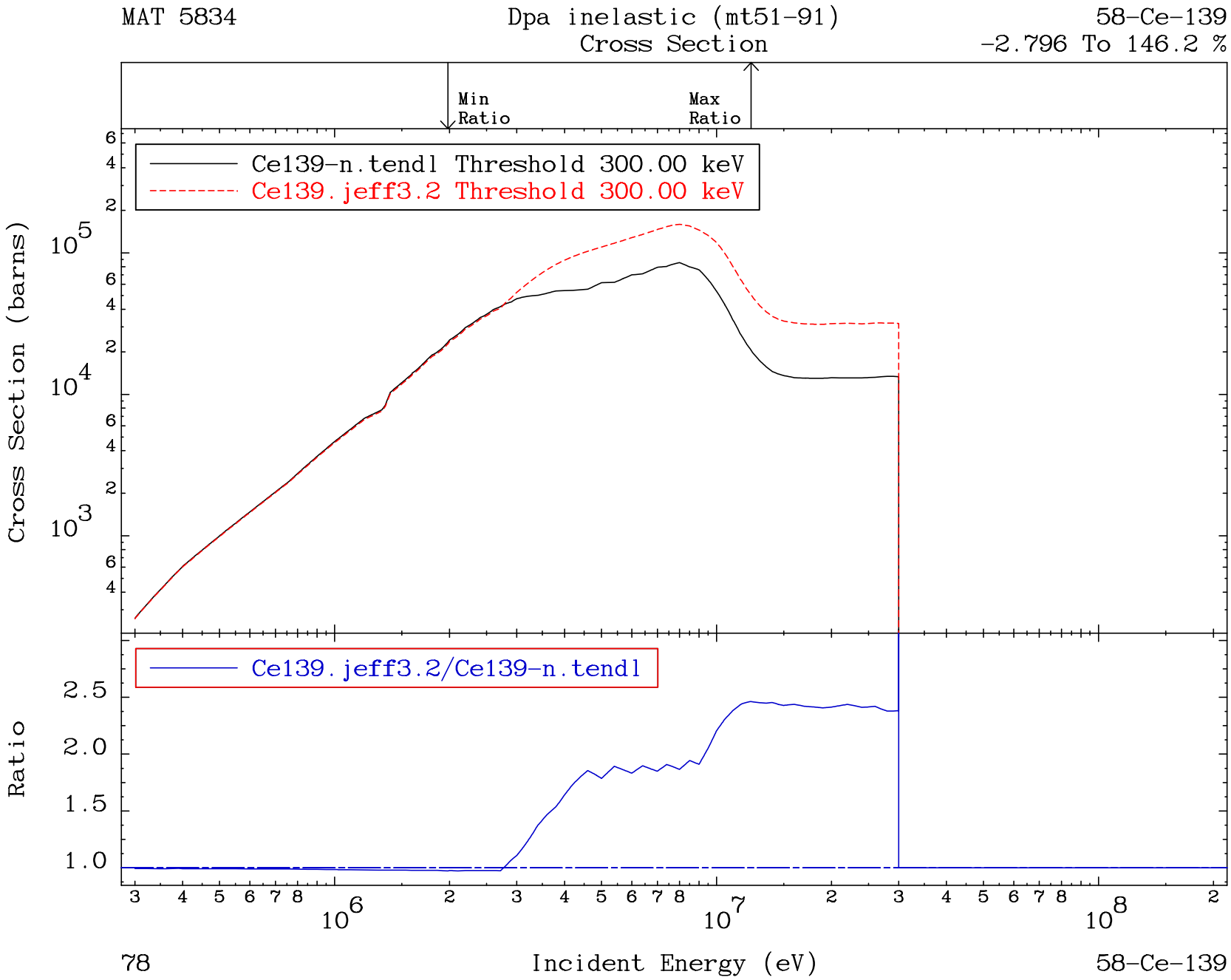

MAT 5834
Kerma capture (mt102)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
73
58-Ce-139

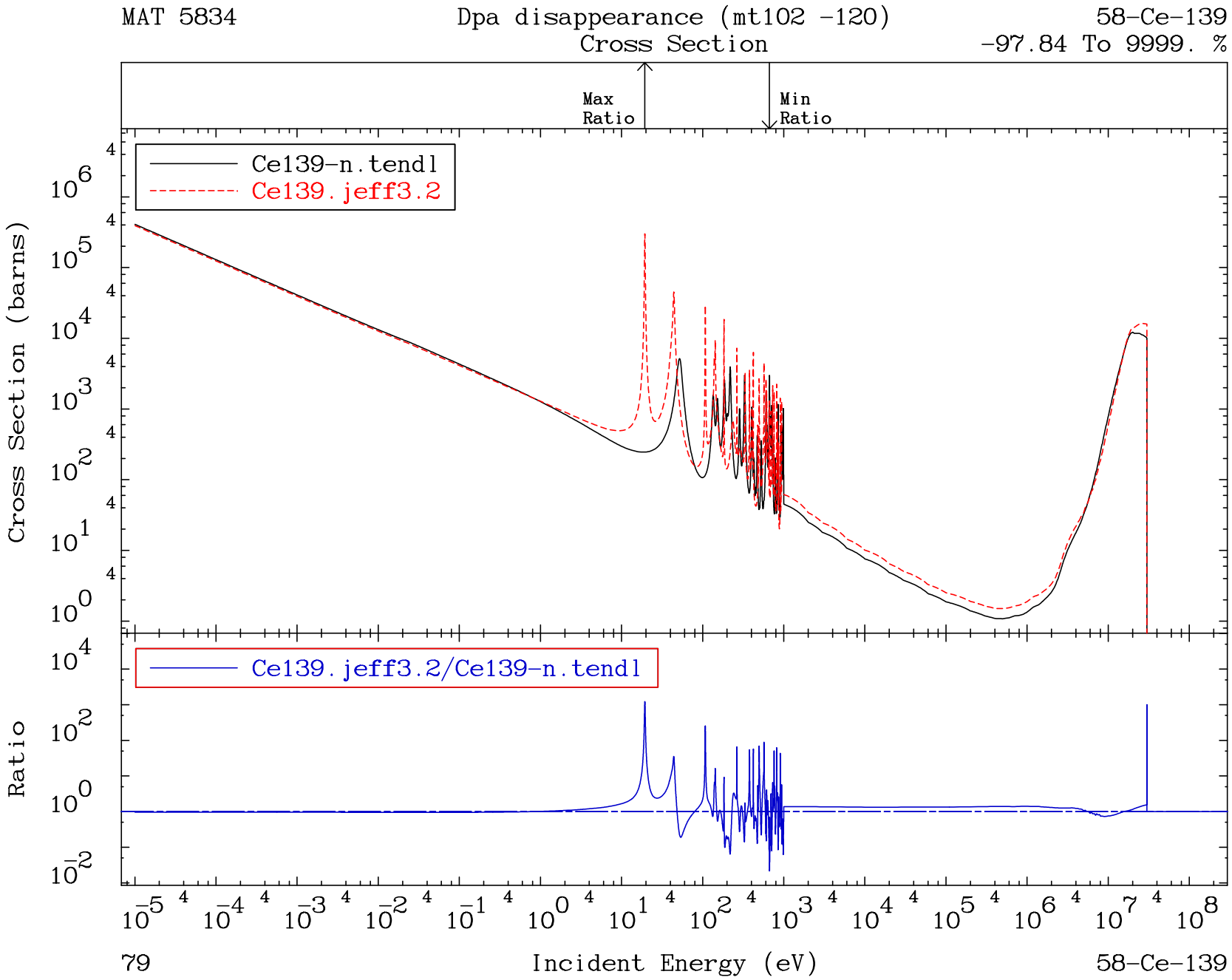

MAT 5834
Total photon (eV-barns)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
74
Incident Energy (eV)
58-Ce-139

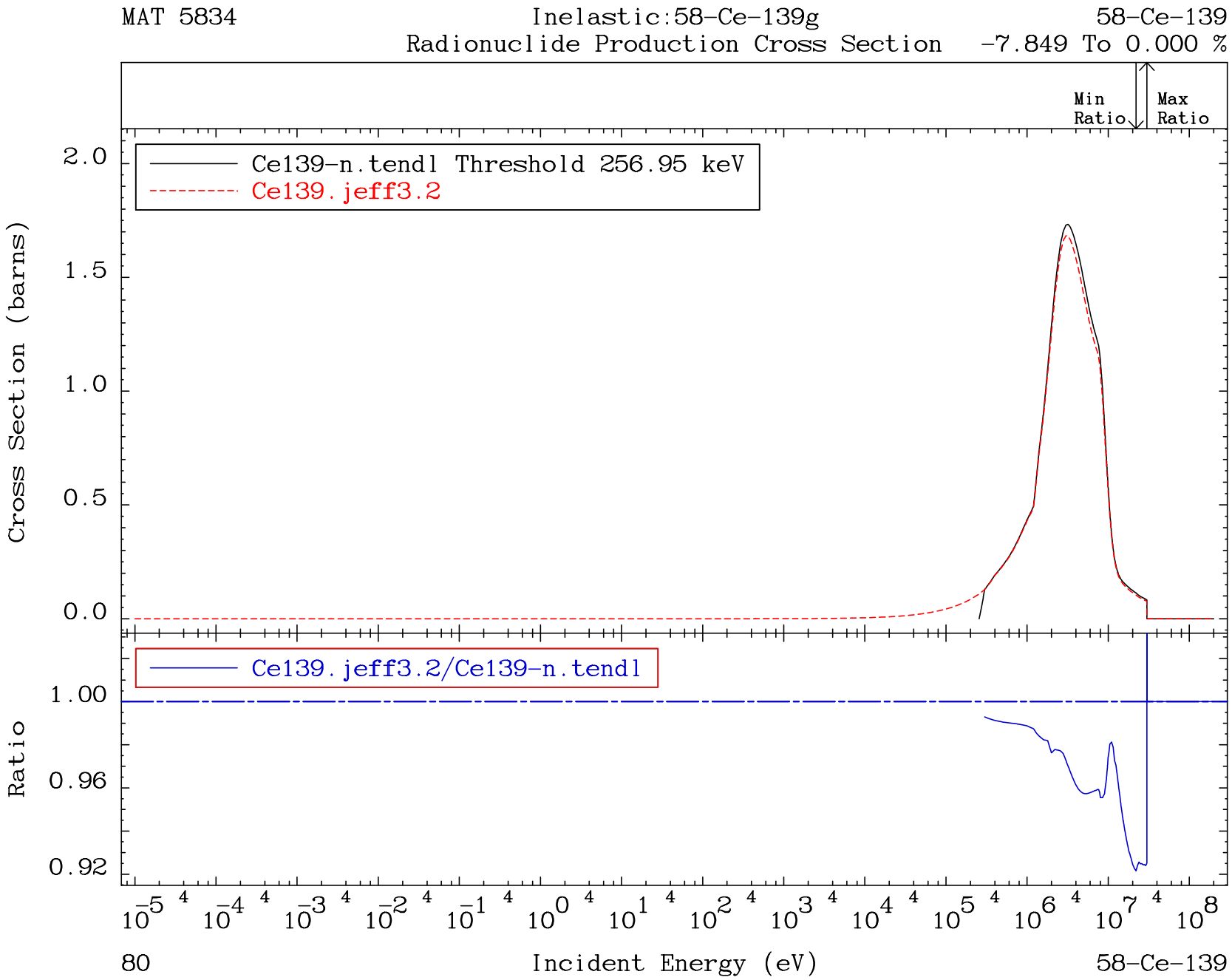

MAT 5834
Total kinematic kerma (high limit)
Cross Section
58-Ce-139
-98.04 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
75
58-Ce-139

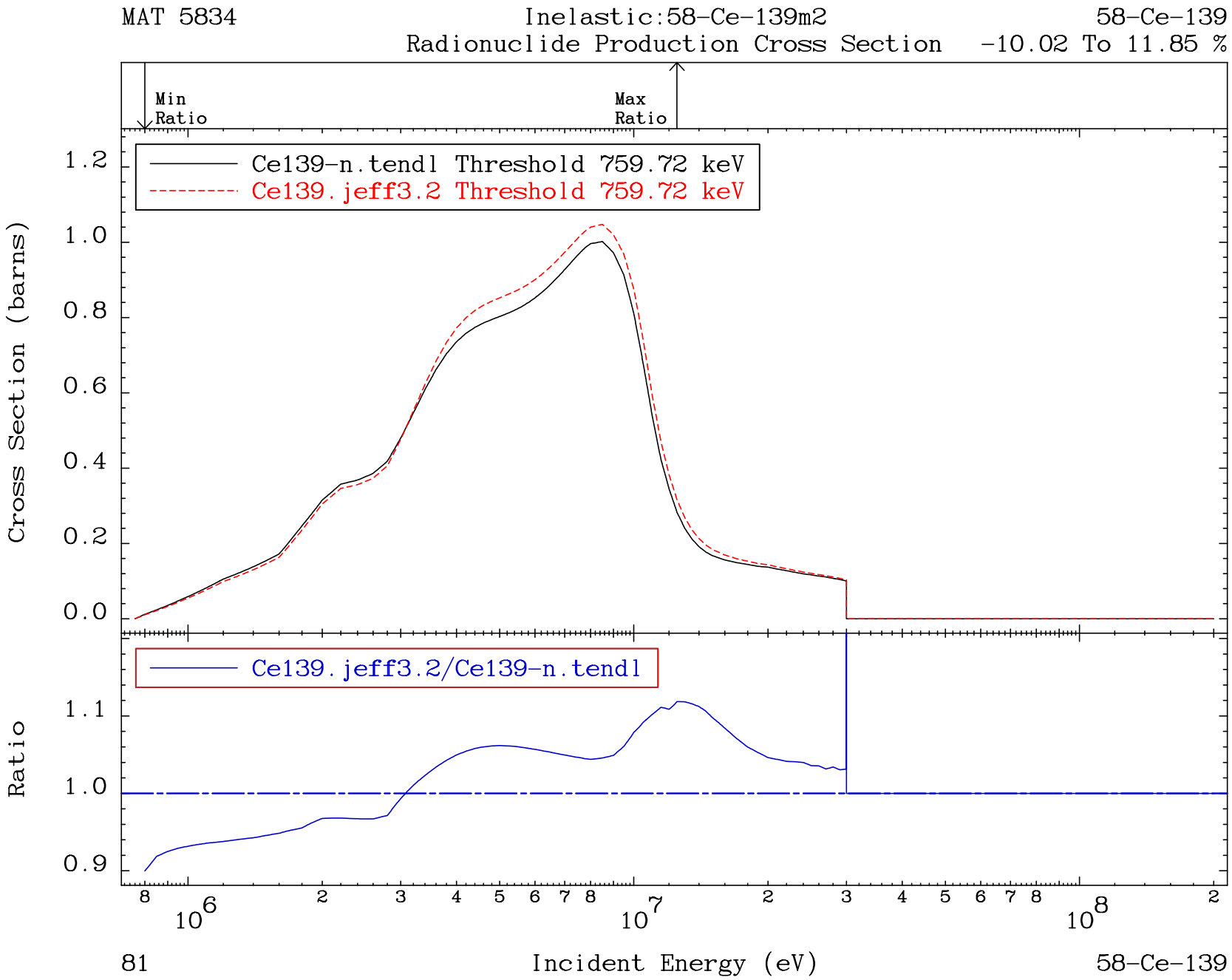

MAT 5834
Dpa total (eV-barns)
Cross Section
58-Ce-139
-97.84 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
76
58-Ce-139

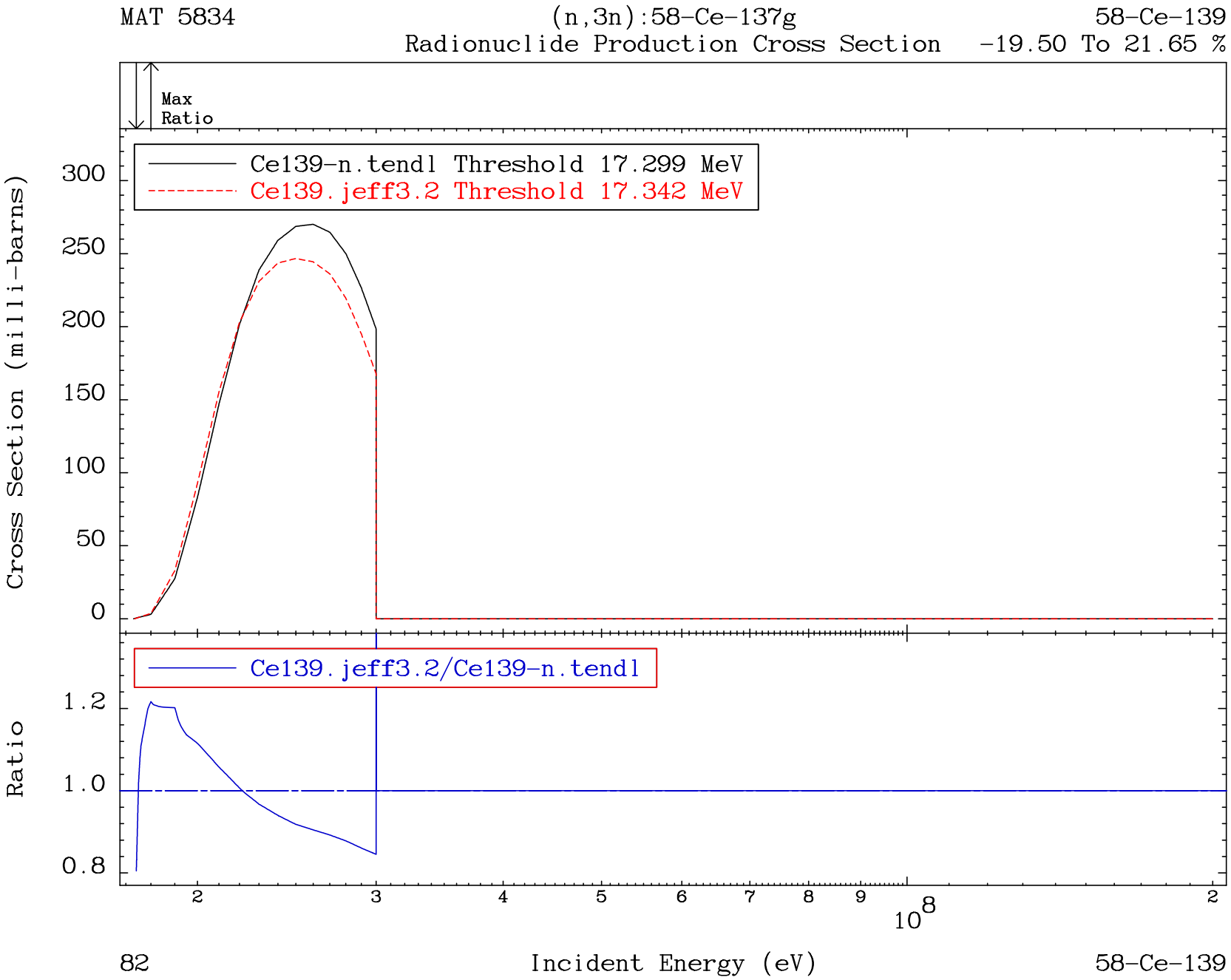

MAT 5834
Dpa elastic (mt2)
Cross Section
58-Ce-139
-2.473 To 9999. %
Min
Ratio
Ce139-n.tendl Threshold 814.75 eV
Ce139.jeff3.2 Threshold 814.03 eV
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
77
58-Ce-139

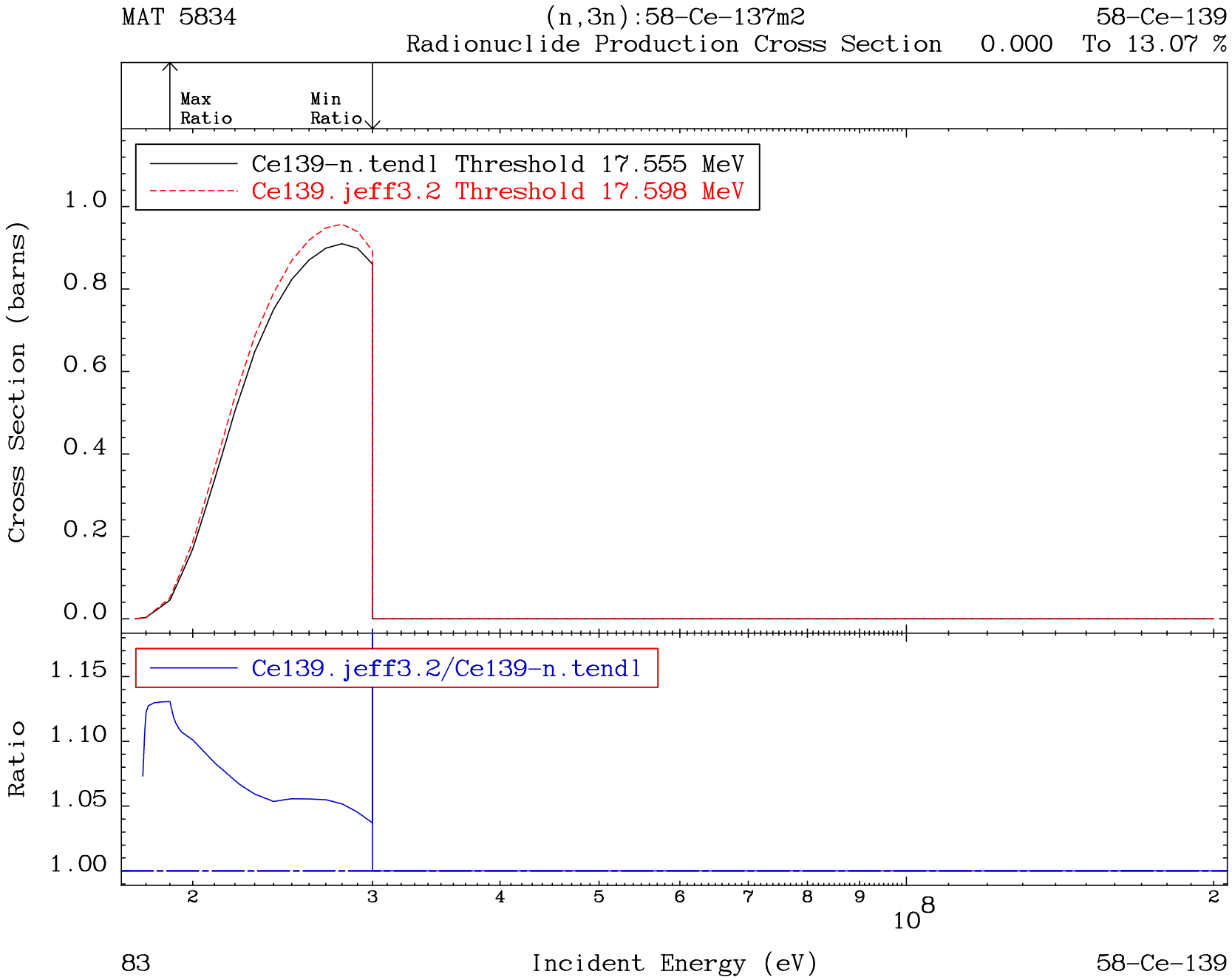

MAT 5834
Dpa inelastic (mt51-91)
Cross Section
58-Ce-139
-2.796 To 146.2 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 300.00 keV
Ce139.jeff3.2 Threshold 300.00 keV
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
78
58-Ce-139

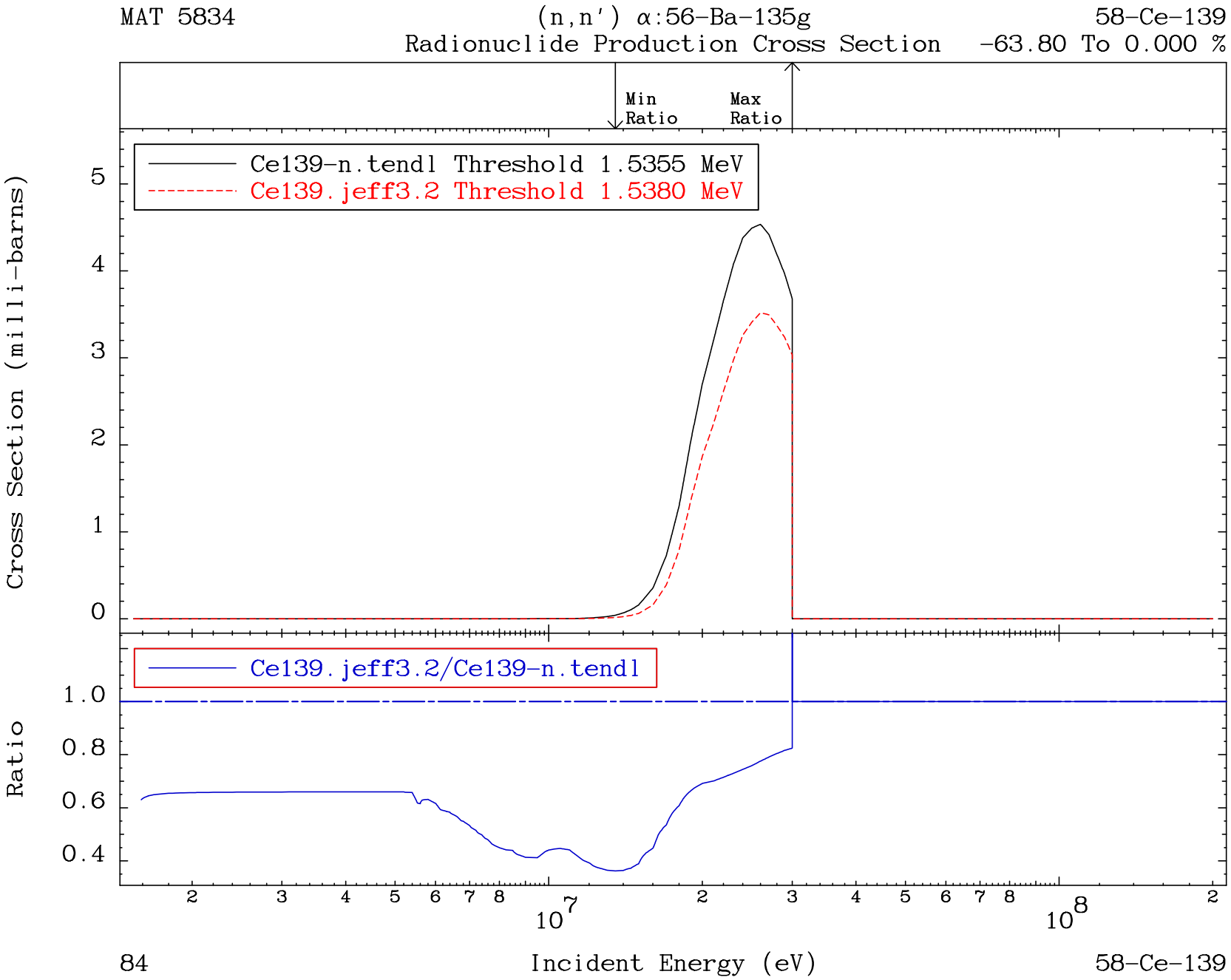

MAT 5834
Dpa disappearance (mt102 -120)
Cross Section
58-Ce-139
-97.84 To 9999. %
Max Ratio
Min Ratio
Ce139-n.tendl
Ce139.jeff3.2
Cross Section (barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
79
58-Ce-139

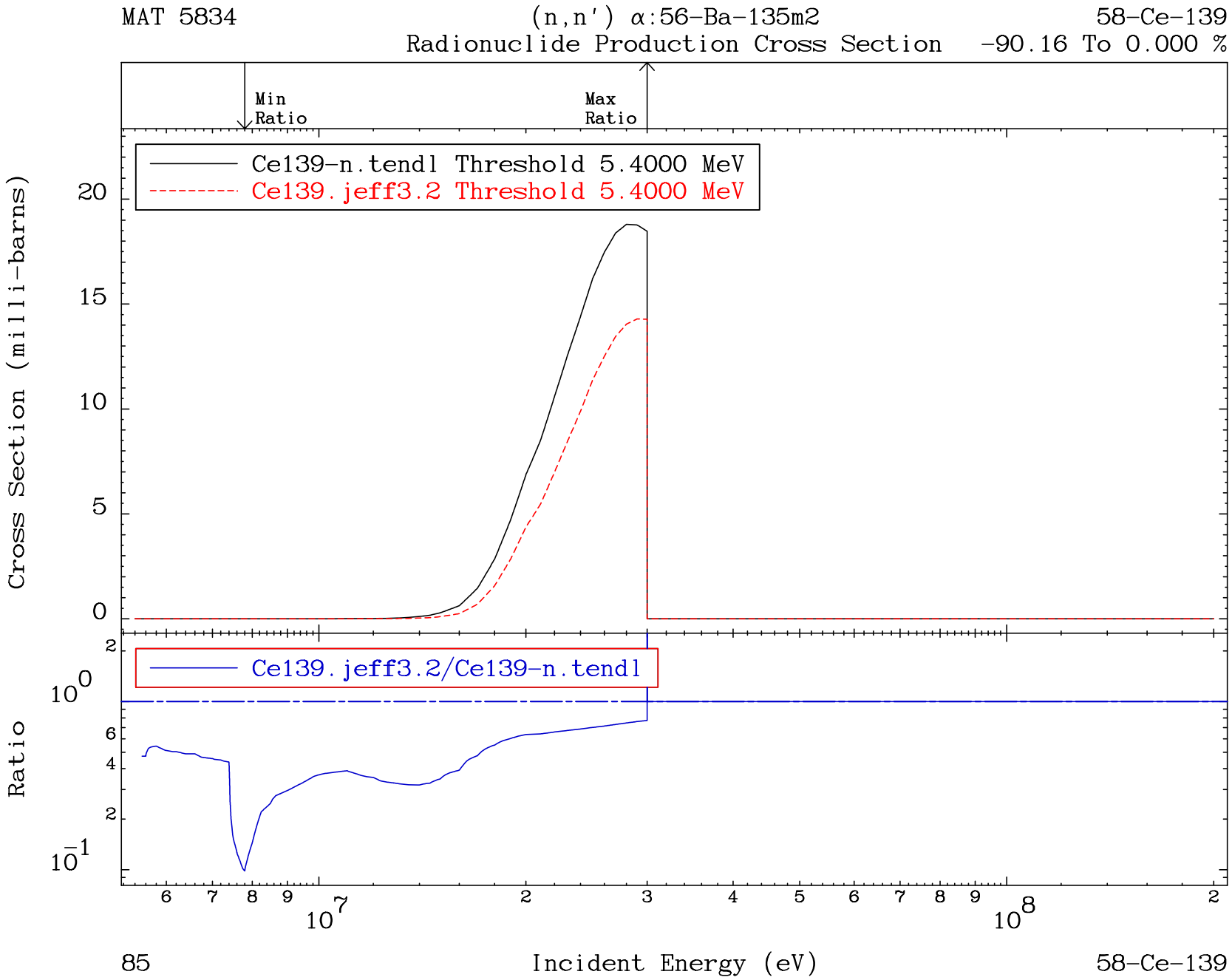

MAT 5834
Inelastic:58-Ce-139g
58-Ce-139
Radionuclide Production Cross Section
-7.849 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 256.95 keV
Ce139.jeff3.2
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.00
0.96
0.92
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
80
Incident Energy (eV)
58-Ce-139

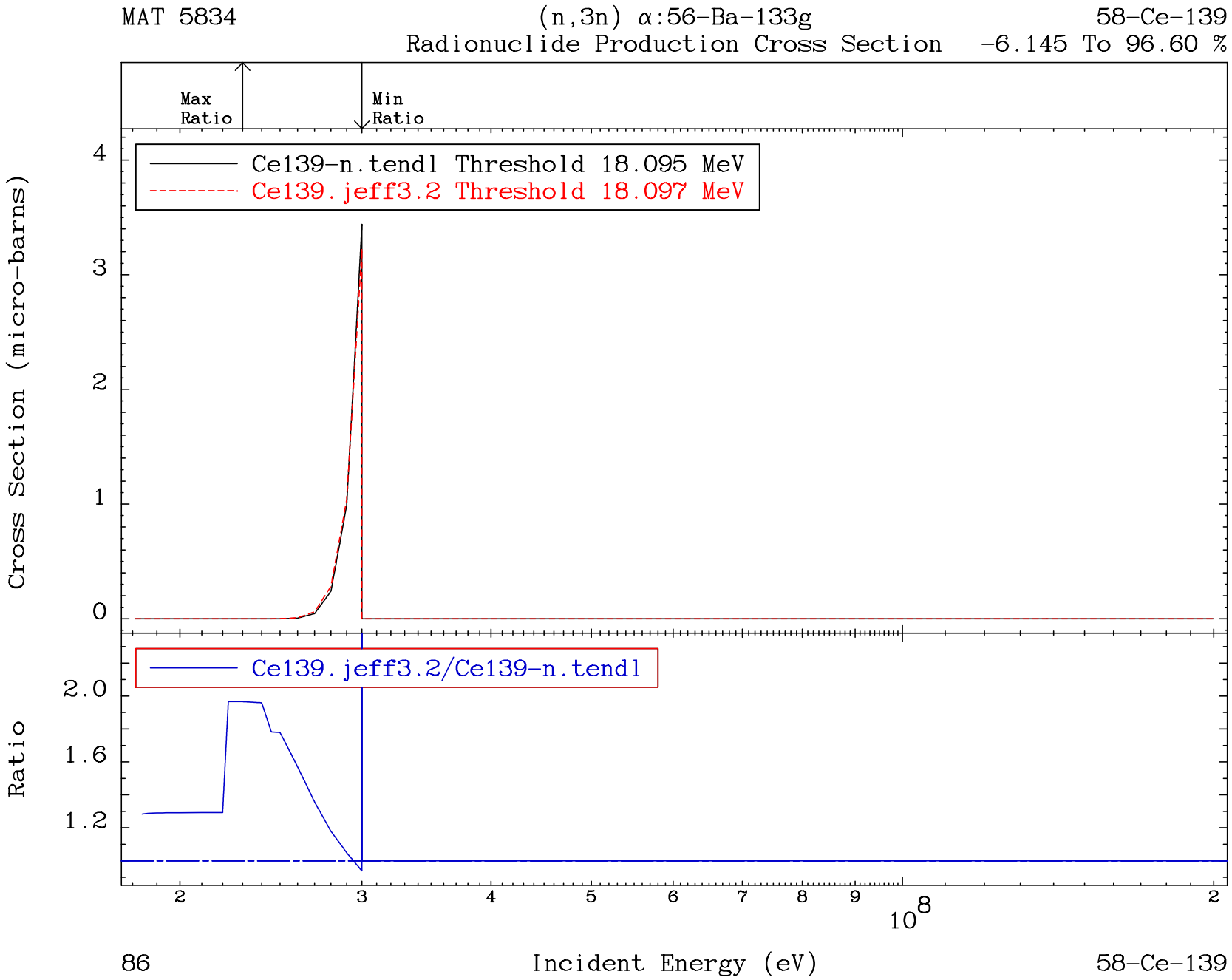

MAT 5834
Inelastic:58-Ce-139m2
58-Ce-139
Radionuclide Production Cross Section -10.02 To 11.85 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 759.72 keV
Ce139.jeff3.2 Threshold 759.72 keV
Cross Section (barns)
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.1
1.0
0.9
8
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
81
Incident Energy (eV)
58-Ce-139

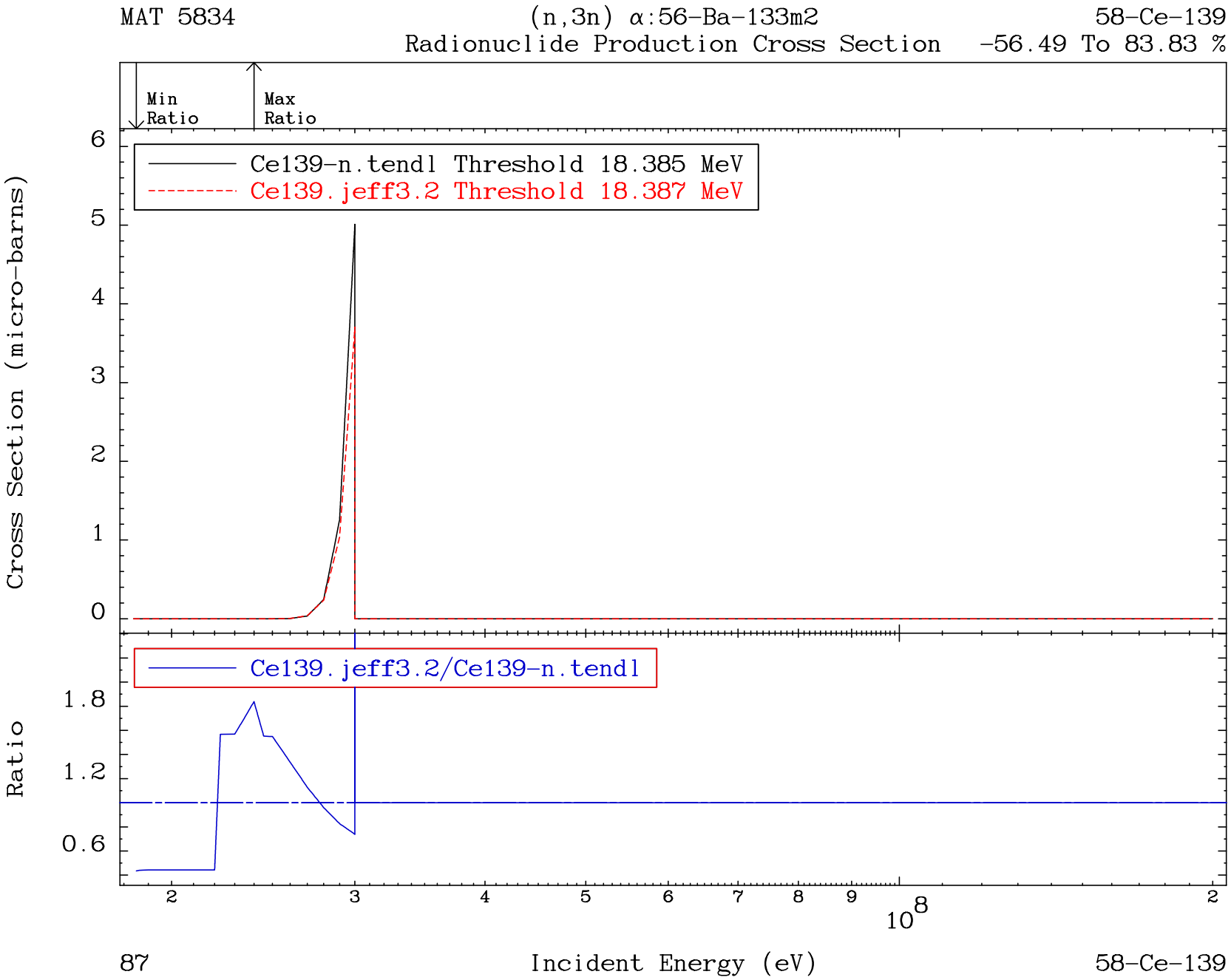

MAT 5834
(n,3n):58-Ce-137g
58-Ce-139
Radionuclide Production Cross Section -19.50 To 21.65 %
Max
Ratio
Ce139-n.tendl Threshold 17.299 MeV
Ce139.jeff3.2 Threshold 17.342 MeV
Cross Section (milli-barns)
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
2
3
4
5
6
7
8
9
10^8
2
82
Incident Energy (eV)
58-Ce-139

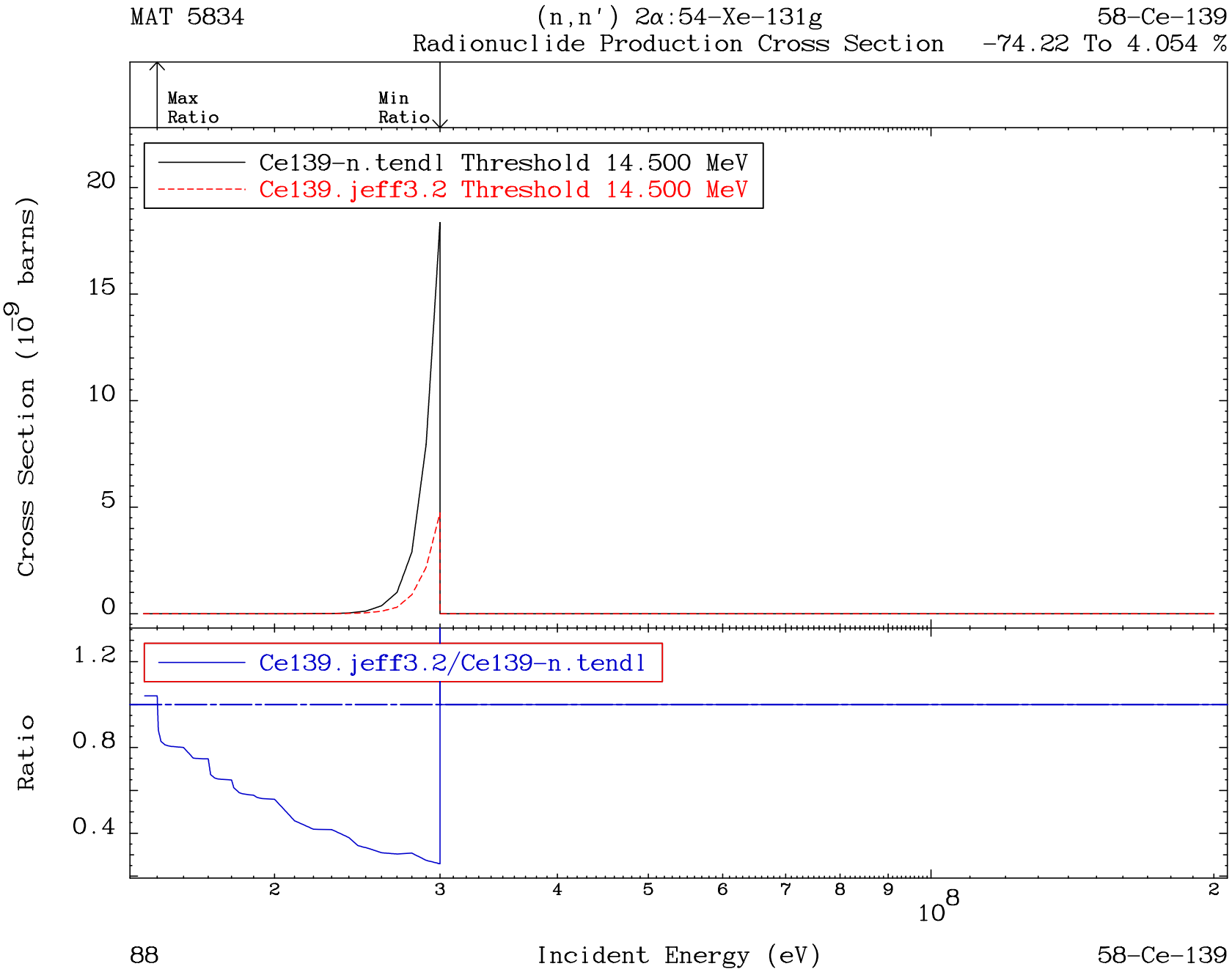

MAT 5834
(n,3n):58-Ce-137m2
58-Ce-139
Radionuclide Production Cross Section 0.000 To 13.07 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 17.555 MeV
Ce139.jeff3.2 Threshold 17.598 MeV
Cross Section (barns)
1.0
0.8
0.6
0.4
0.2
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.15
1.10
1.05
1.00
2
3
4
5
6
7
8
9
10^8
2
83
Incident Energy (eV)
58-Ce-139

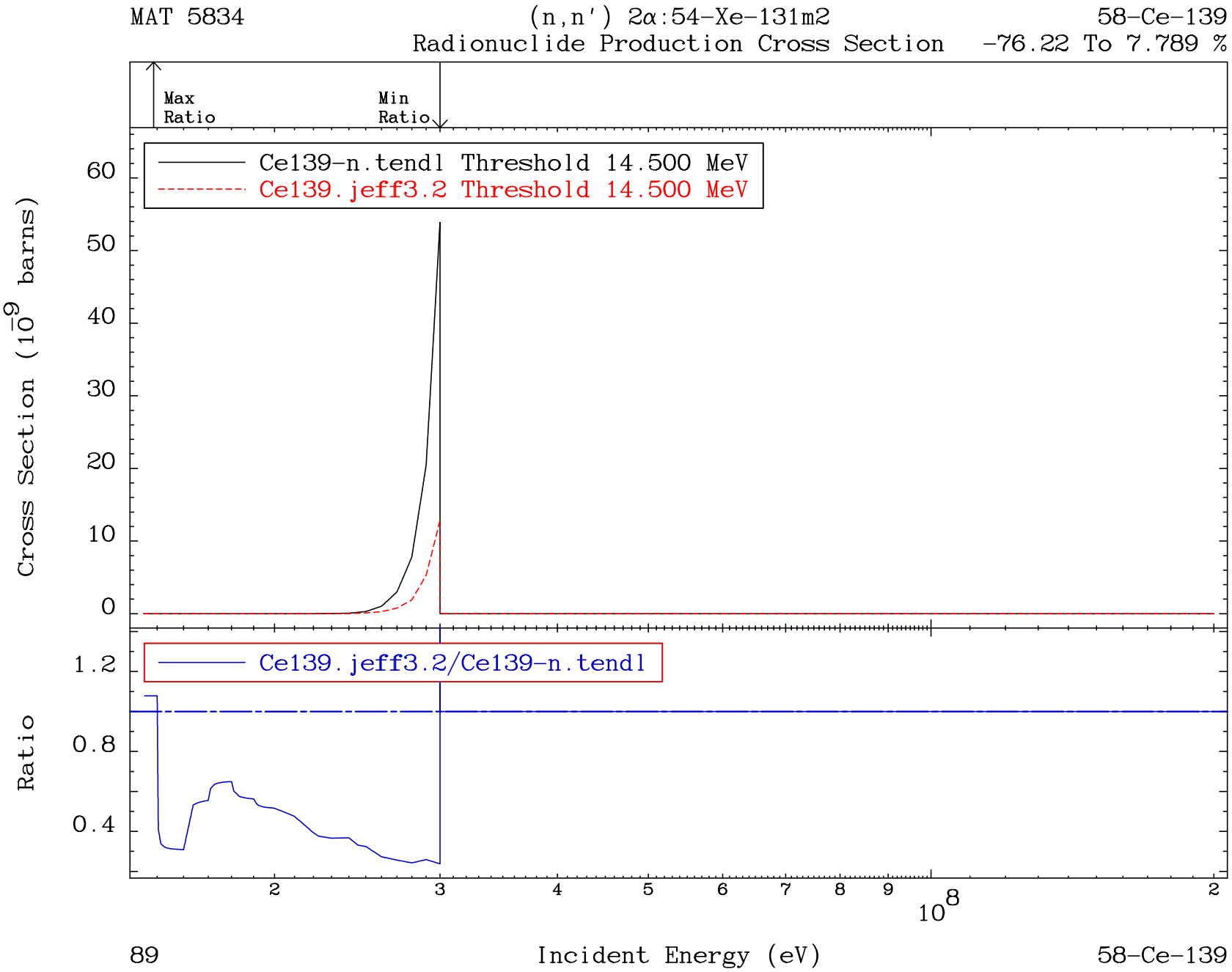

MAT 5834
(n,n') α:56-Ba-135g
58-Ce-139
Radionuclide Production Cross Section
-63.80 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 1.5355 MeV
Ce139.jeff3.2 Threshold 1.5380 MeV
Cross Section (milli-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
84
58-Ce-139

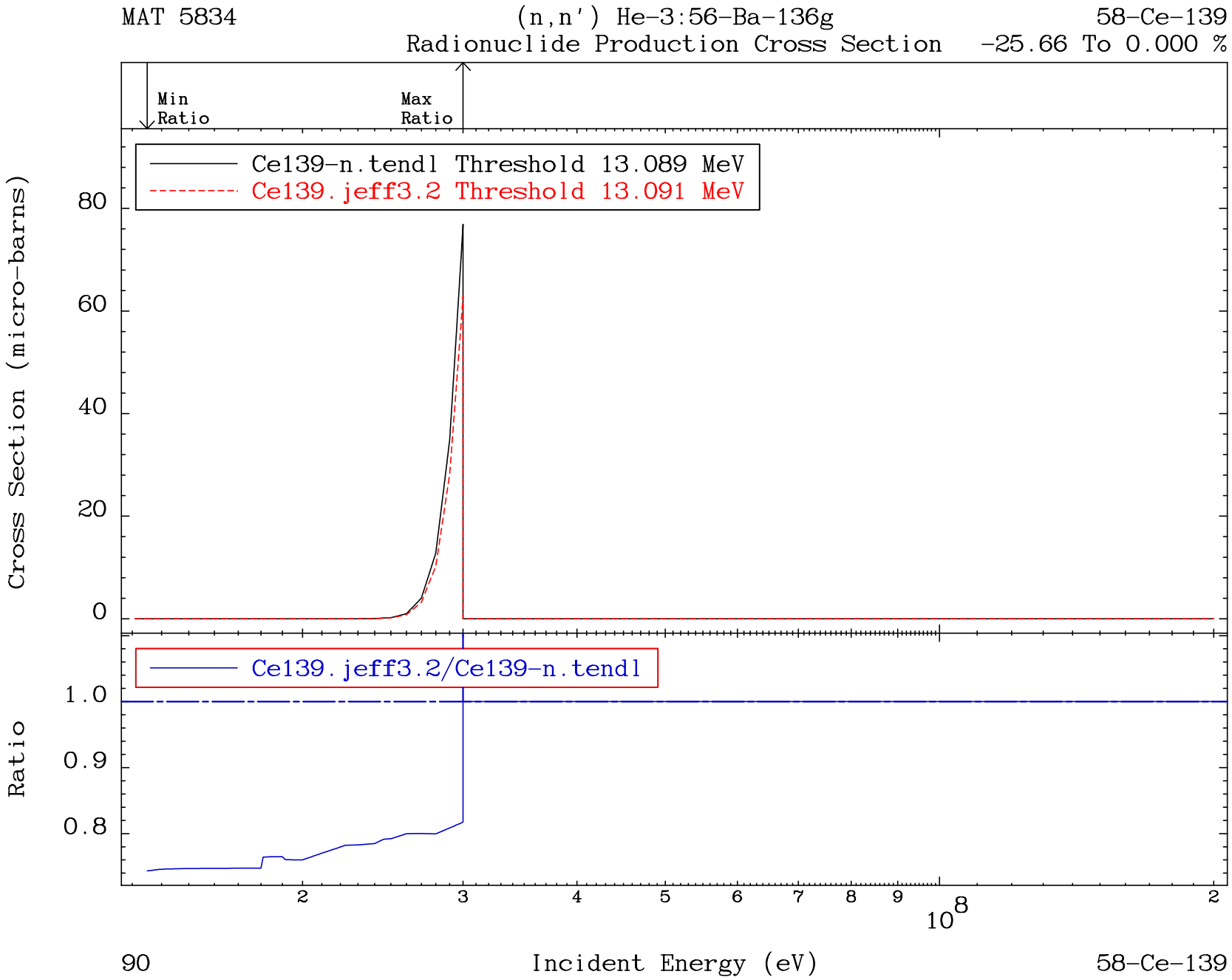

MAT 5834
(n,n') α:56-Ba-135m2
58-Ce-139
Radionuclide Production Cross Section -90.16 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 5.4000 MeV
Ce139.jeff3.2 Threshold 5.4000 MeV
Cross Section (milli-barns)
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
2
10^0
6
4
2
10^-1
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
85
Incident Energy (eV)
58-Ce-139

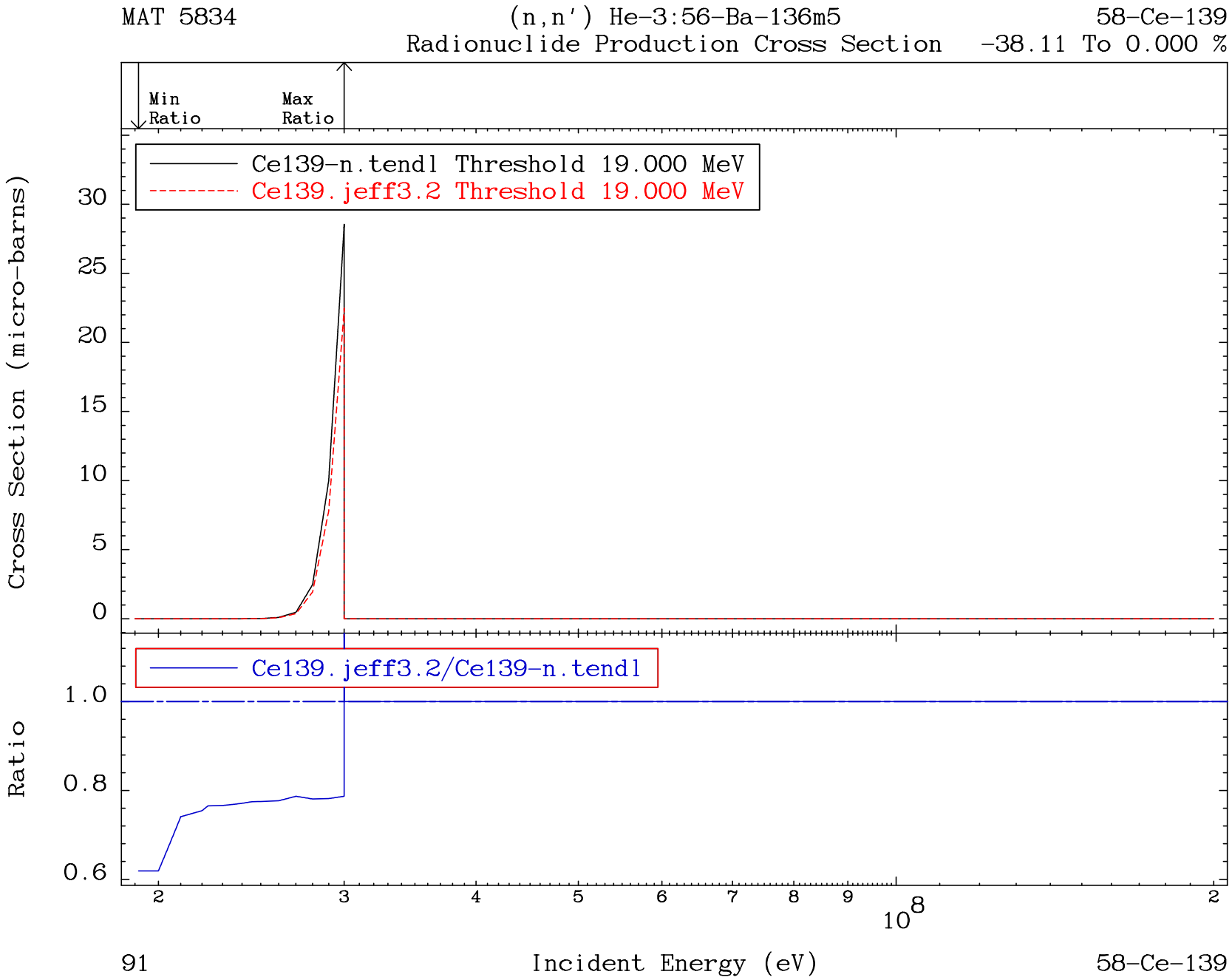

MAT 5834
(n,3n) α:56-Ba-133g
58-Ce-139
Radionuclide Production Cross Section -6.145 To 96.60 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 18.095 MeV
Ce139.jeff3.2 Threshold 18.097 MeV
Cross Section (micro-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
86
58-Ce-139

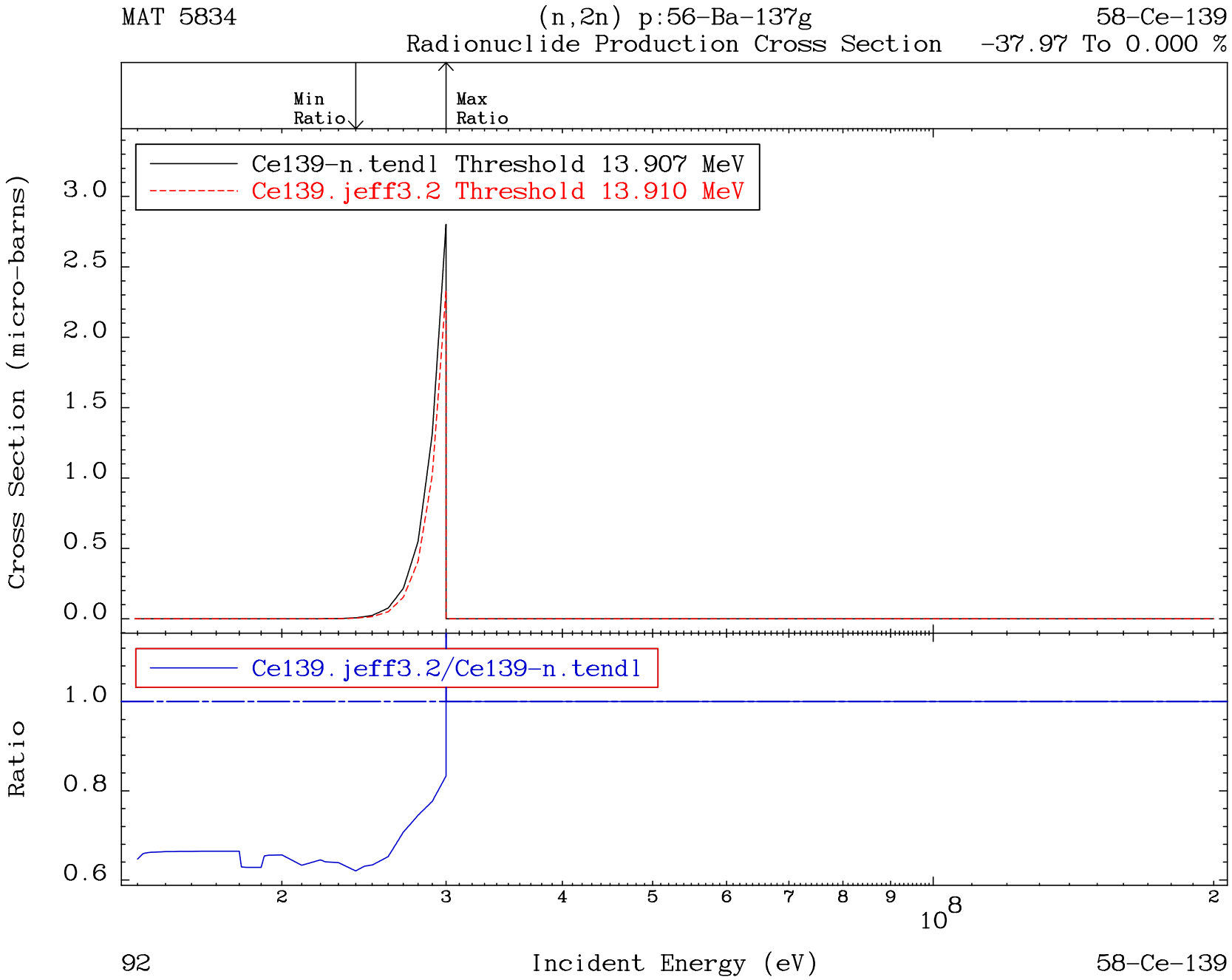

MAT 5834
(n,3n) α:56-Ba-133m2
58-Ce-139
Radionuclide Production Cross Section -56.49 To 83.83 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 18.385 MeV
Ce139.jeff3.2 Threshold 18.387 MeV
Cross Section (micro-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
87
58-Ce-139

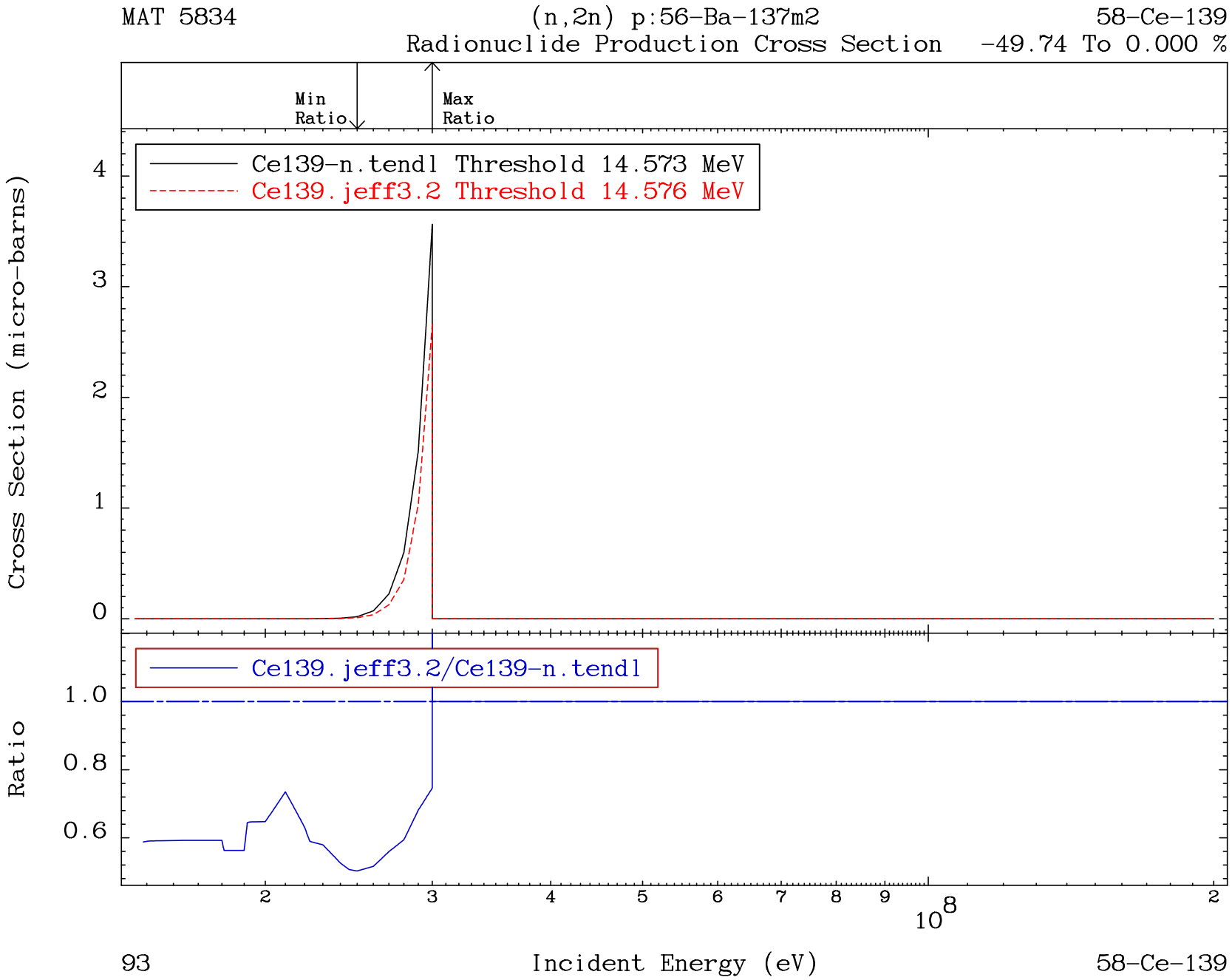

MAT 5834
(n,n') 2α:54-Xe-131g
58-Ce-139
Radionuclide Production Cross Section -74.22 To 4.054 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 14.500 MeV
Ce139.jeff3.2 Threshold 14.500 MeV
Cross Section (10^{-9} barns)
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
88
Incident Energy (eV)
58-Ce-139

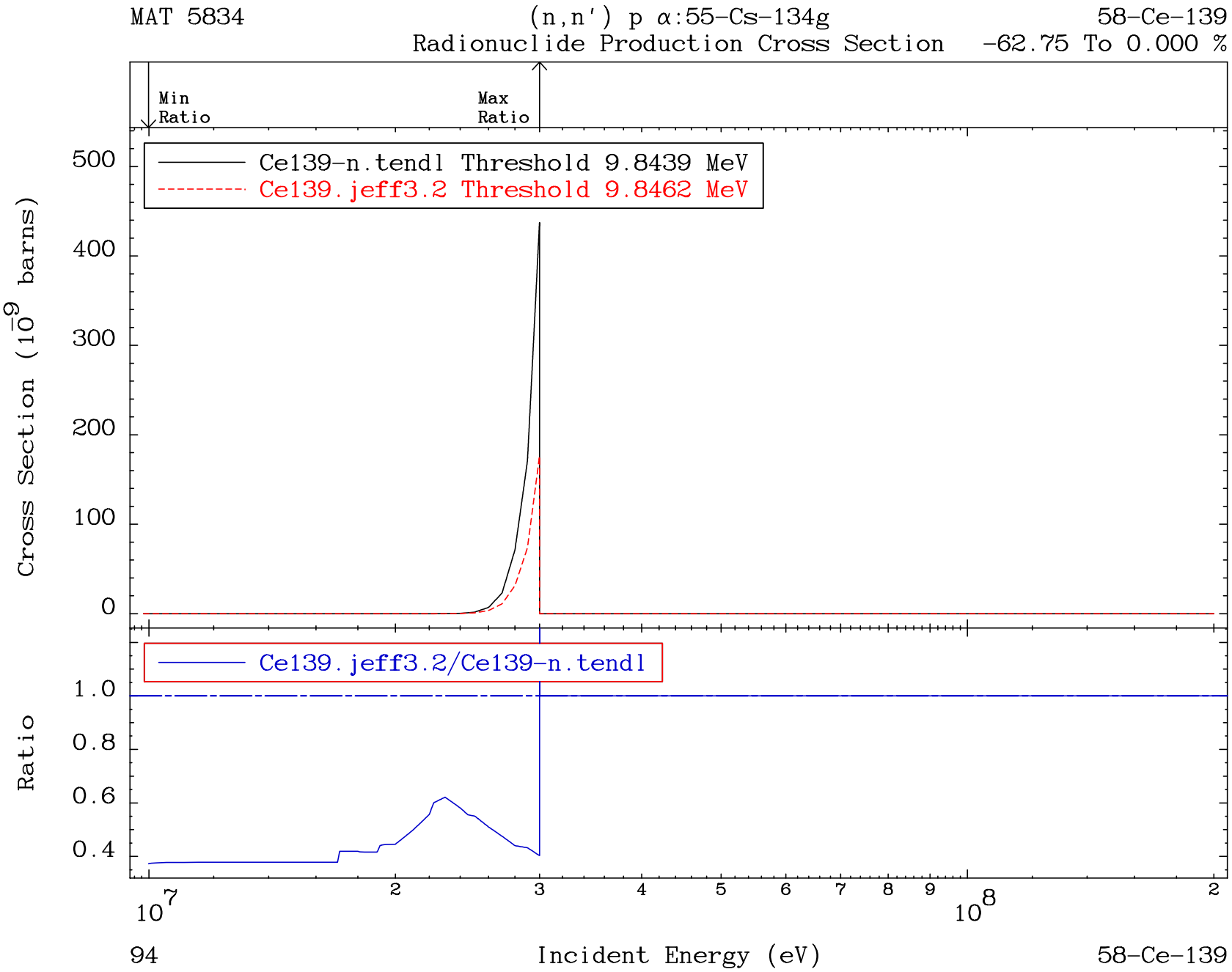

MAT 5834
(n,n') 2α:54-Xe-131m2
58-Ce-139
Radionuclide Production Cross Section -76.22 To 7.789 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 14.500 MeV
Ce139.jeff3.2 Threshold 14.500 MeV
Cross Section (10^{-9} barns)
60
50
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
89
Incident Energy (eV)
58-Ce-139

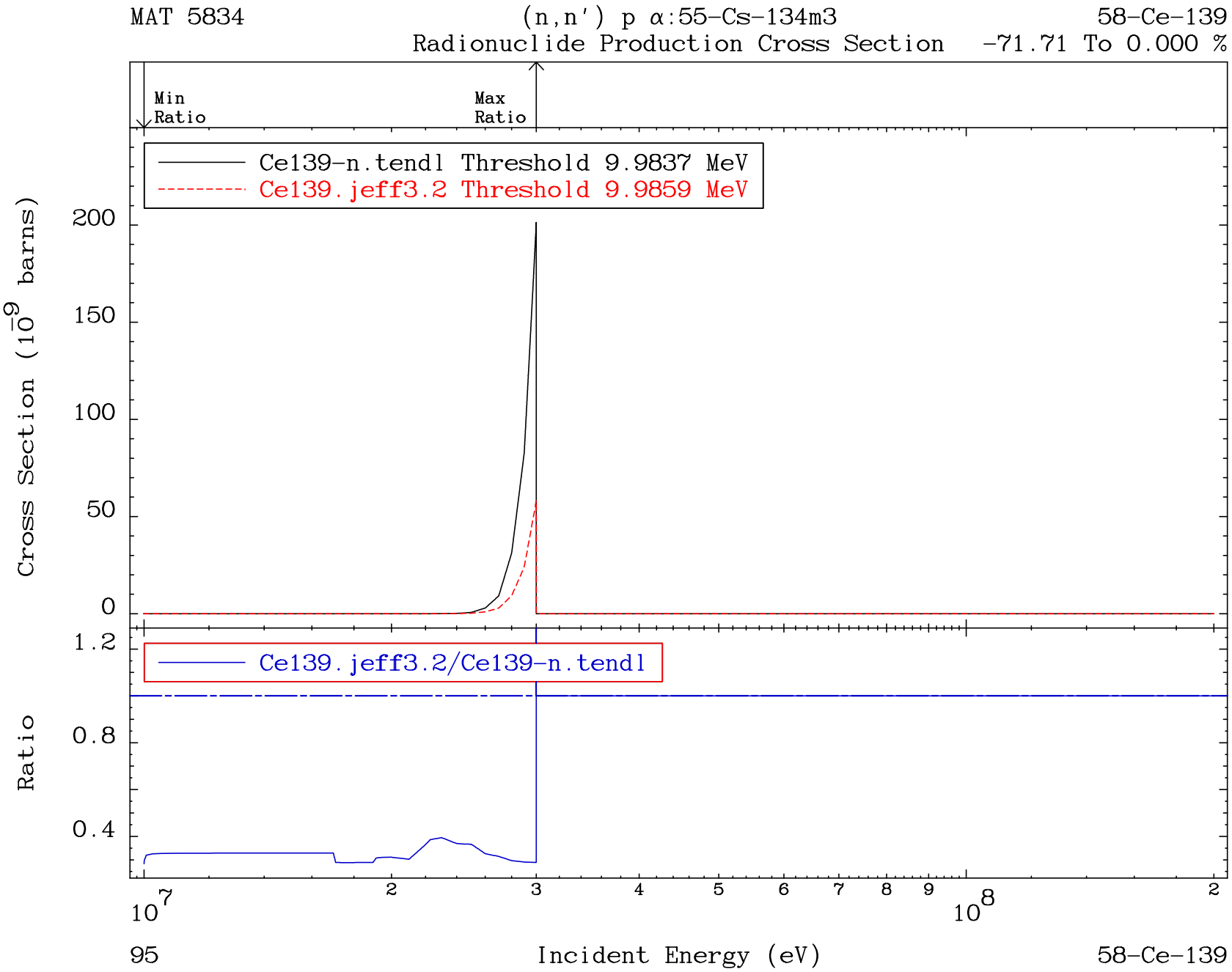

MAT 5834
(n,n') He-3:56-Ba-136g
58-Ce-139
Radionuclide Production Cross Section
-25.66 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 13.089 MeV
Ce139.jeff3.2 Threshold 13.091 MeV
Cross Section (micro-barns)
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.9
0.8
2
3
4
5
6
7
8
9
10^8
2
90
Incident Energy (eV)
58-Ce-139

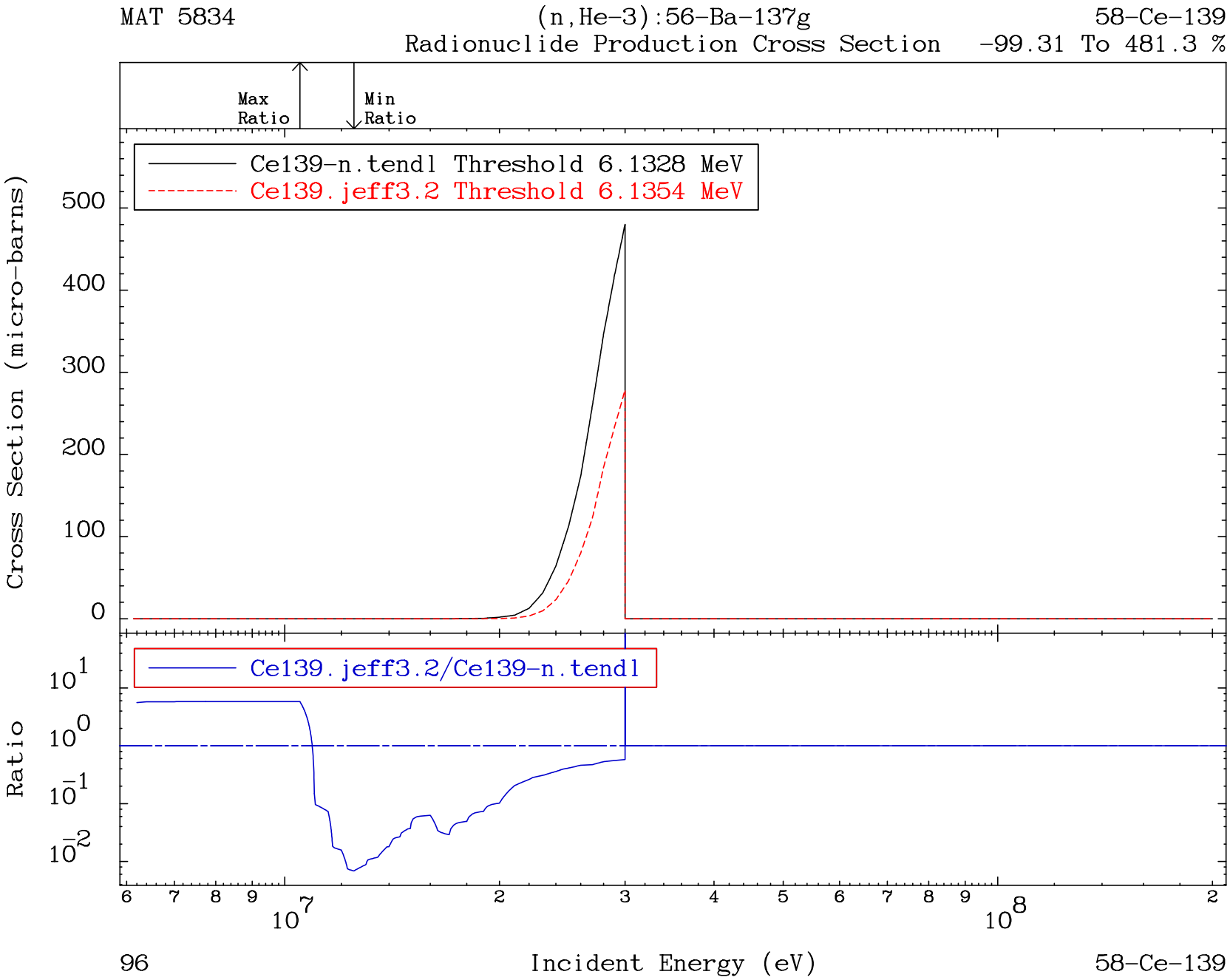

MAT 5834
(n,n') He-3:56-Ba-136m5
58-Ce-139
Radionuclide Production Cross Section
-38.11 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 19.000 MeV
Ce139.jeff3.2 Threshold 19.000 MeV
Cross Section (micro-barns)
30
25
20
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
2
3
4
5
6
7
8
9
10^8
2
91
Incident Energy (eV)
58-Ce-139

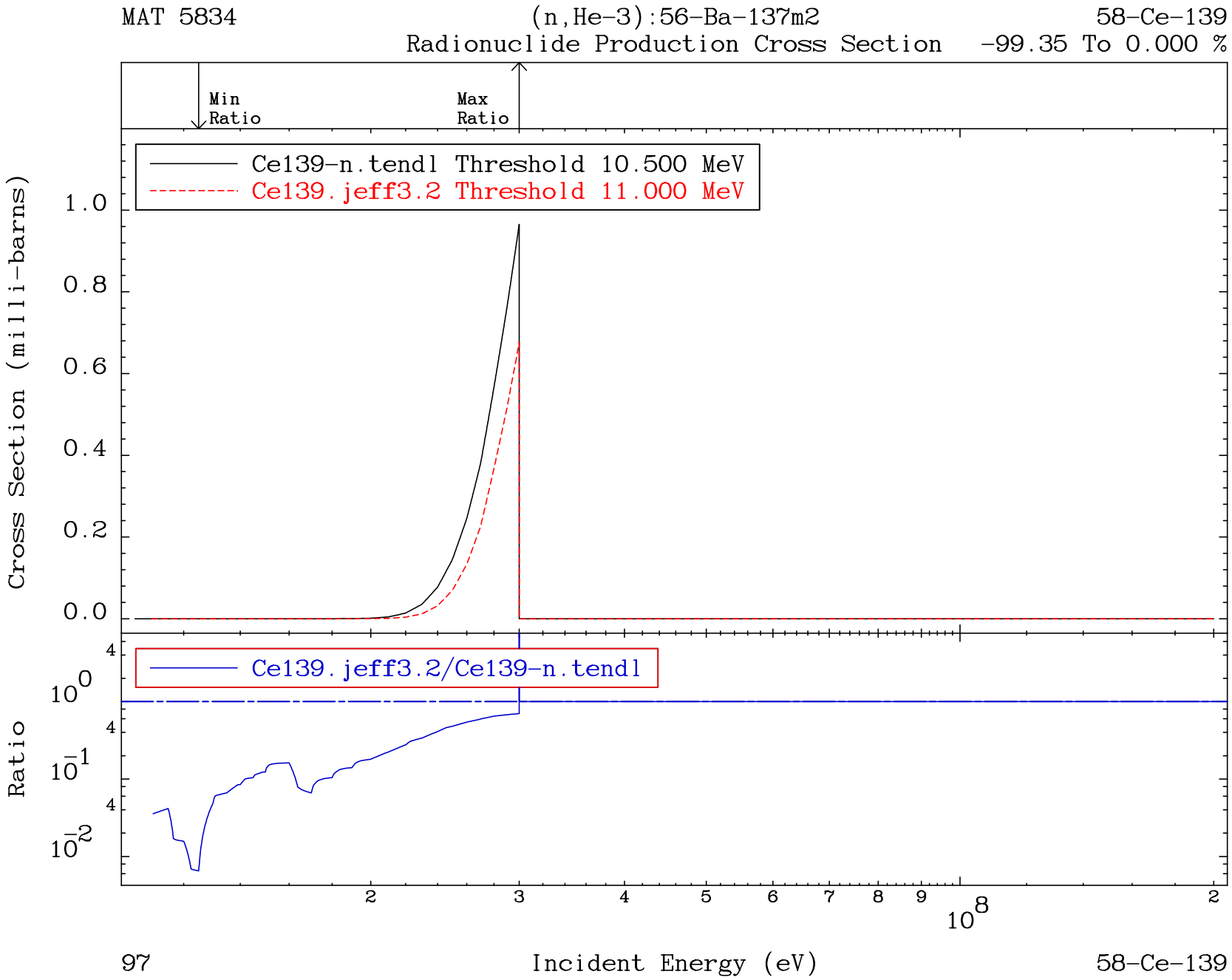

MAT 5834
(n,2n) p:56-Ba-137g
58-Ce-139
Radionuclide Production Cross Section
-37.97 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 13.907 MeV
Ce139.jeff3.2 Threshold 13.910 MeV
Cross Section (micro-barns)
3.0
2.5
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
2
3
4
5
6
7
8
9
2
10^8
92
Incident Energy (eV)
58-Ce-139

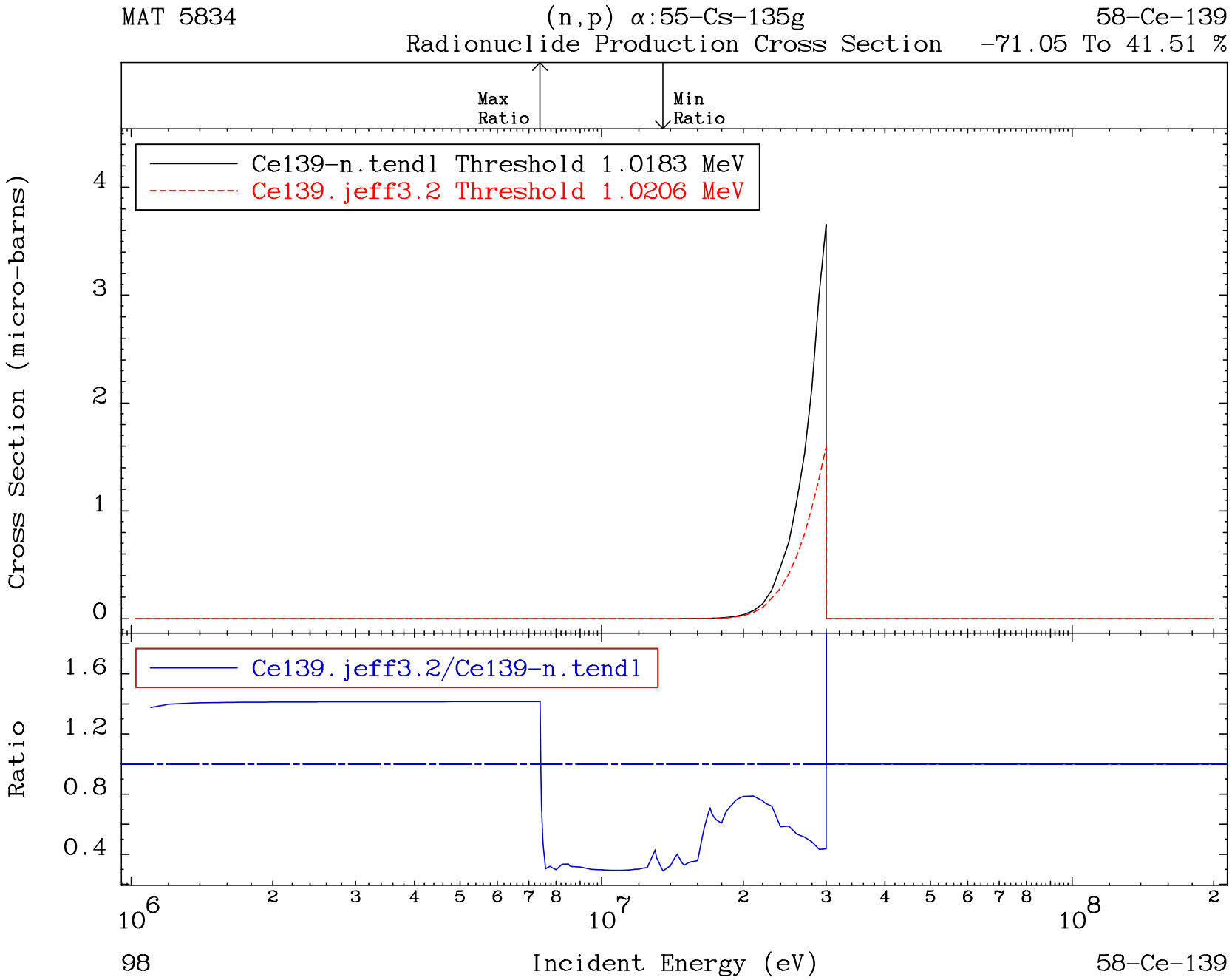

MAT 5834
(n,2n) p:56-Ba-137m2
58-Ce-139
Radionuclide Production Cross Section -49.74 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 14.573 MeV
Ce139.jeff3.2 Threshold 14.576 MeV
Cross Section (micro-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
93
58-Ce-139

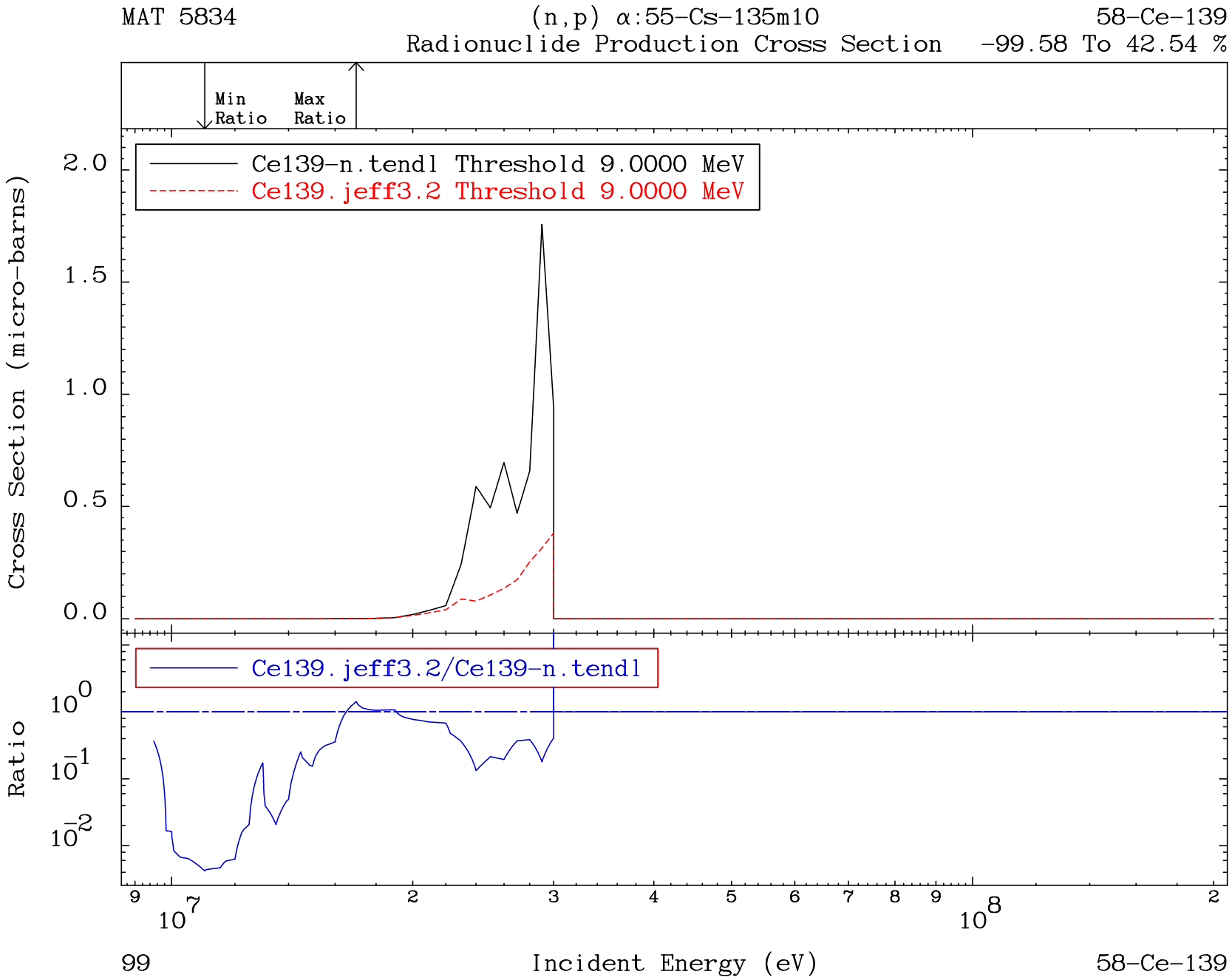

MAT 5834
(n,n') p α:55-Cs-134g
58-Ce-139
Radionuclide Production Cross Section -62.75 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 9.8439 MeV
Ce139.jeff3.2 Threshold 9.8462 MeV
Cross Section (10^{-9} barns)
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
0.4
10^{7}
2
3
4
5
6
7
8
9
10^{8}
2
94
Incident Energy (eV)
58-Ce-139

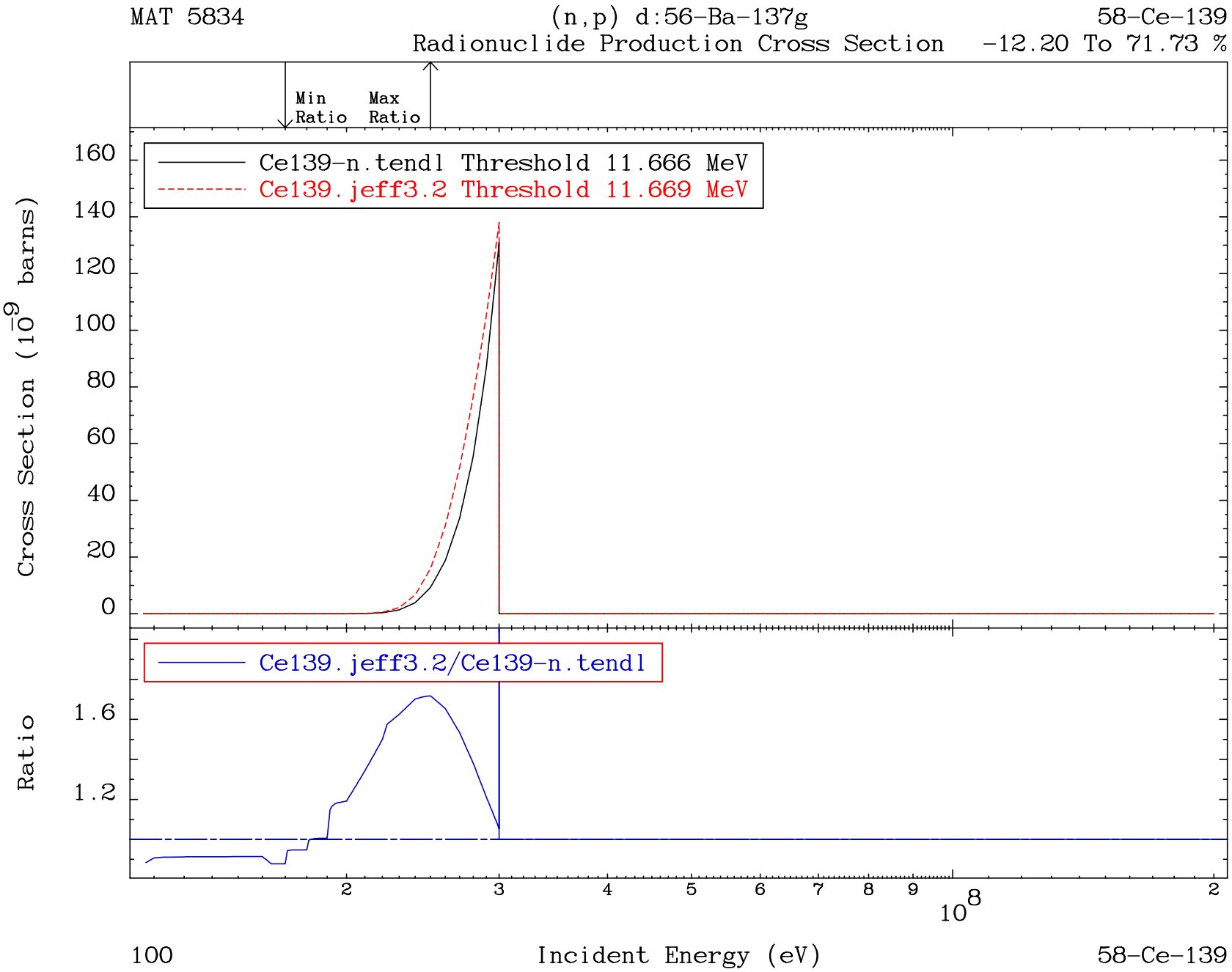

MAT 5834
(n,n') p α:55-Cs-134m3
58-Ce-139
Radionuclide Production Cross Section -71.71 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 9.9837 MeV
Ce139.jeff3.2 Threshold 9.9859 MeV
Cross Section (10^-9 barns)
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
10^7
2
3
4
5
6
7
8
9
10^8
2
95
Incident Energy (eV)
58-Ce-139

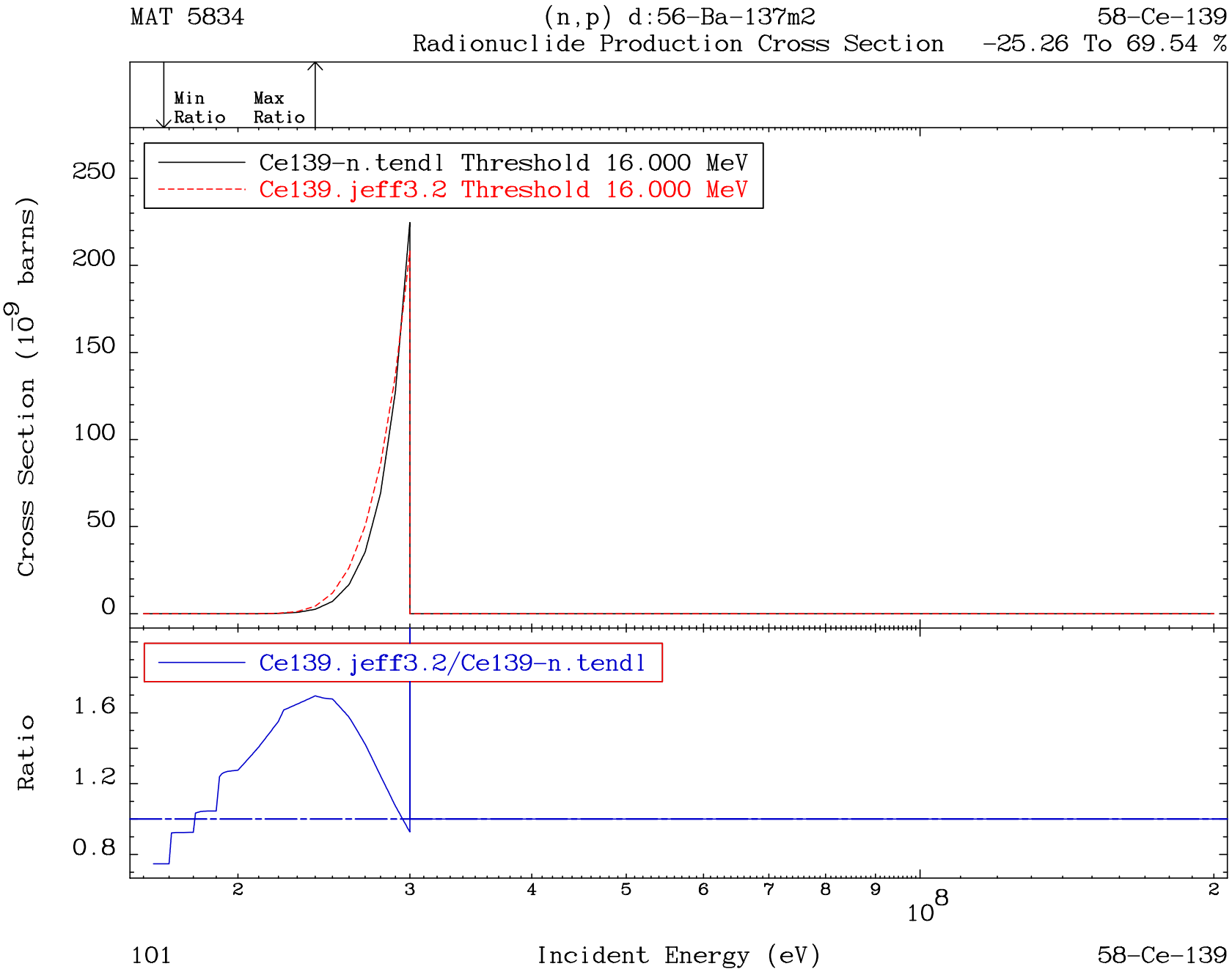

MAT 5834
(n,He-3):56-Ba-137g
58-Ce-139
Radionuclide Production Cross Section -99.31 To 481.3 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 6.1328 MeV
Ce139.jeff3.2 Threshold 6.1354 MeV
Cross Section (micro-barns)
500
400
300
200
100
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^1
10^0
10^-1
10^-2
6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
96
Incident Energy (eV)
58-Ce-139

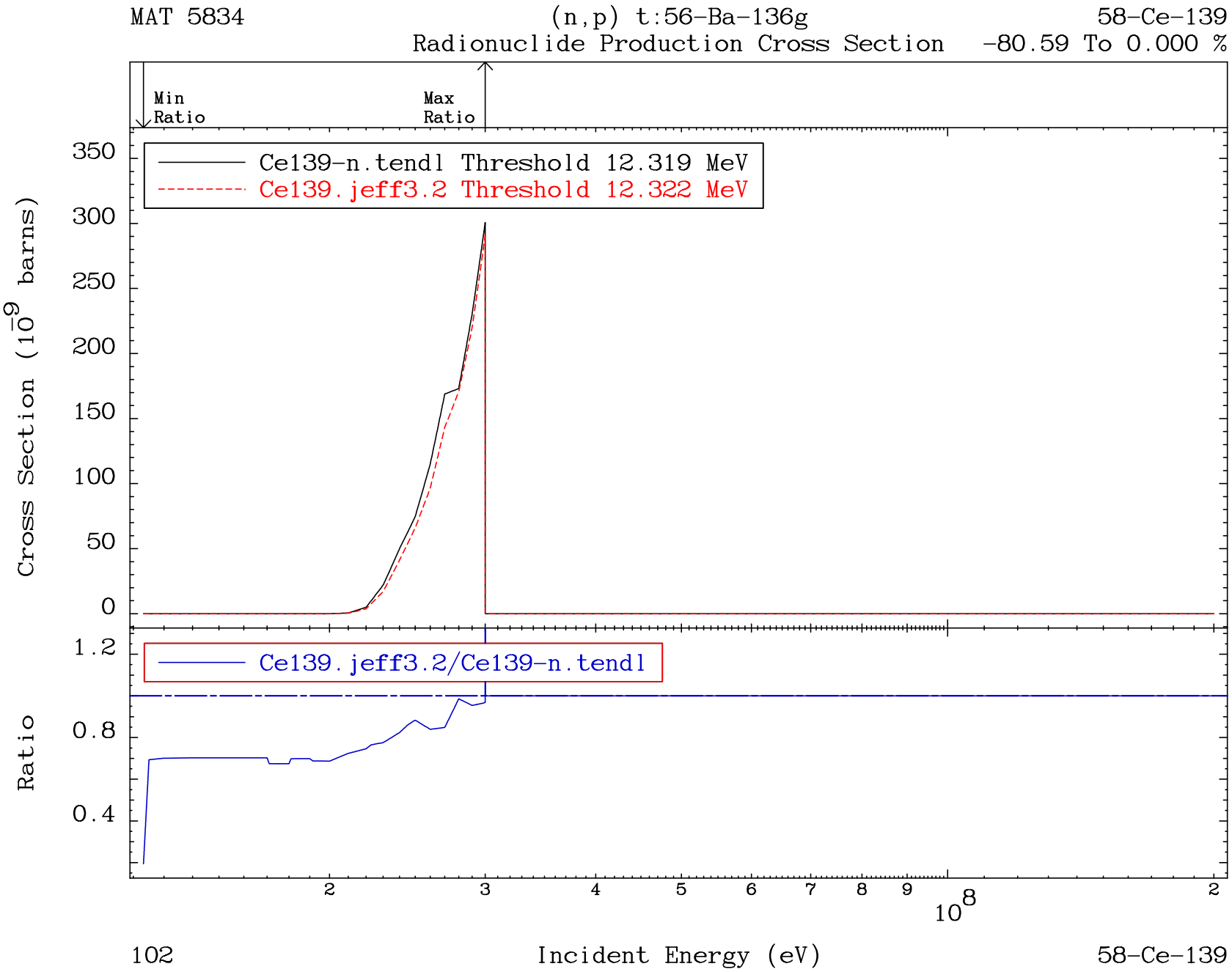

MAT 5834
(n,He-3):56-Ba-137m2
58-Ce-139
Radionuclide Production Cross Section -99.35 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 10.500 MeV
Ce139.jeff3.2 Threshold 11.000 MeV
Cross Section (milli-barns)
1.0
0.8
0.6
0.4
0.2
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^0
10^-1
10^-2
2
3
4
5
6
7
8
9
10^8
2
97
Incident Energy (eV)
58-Ce-139

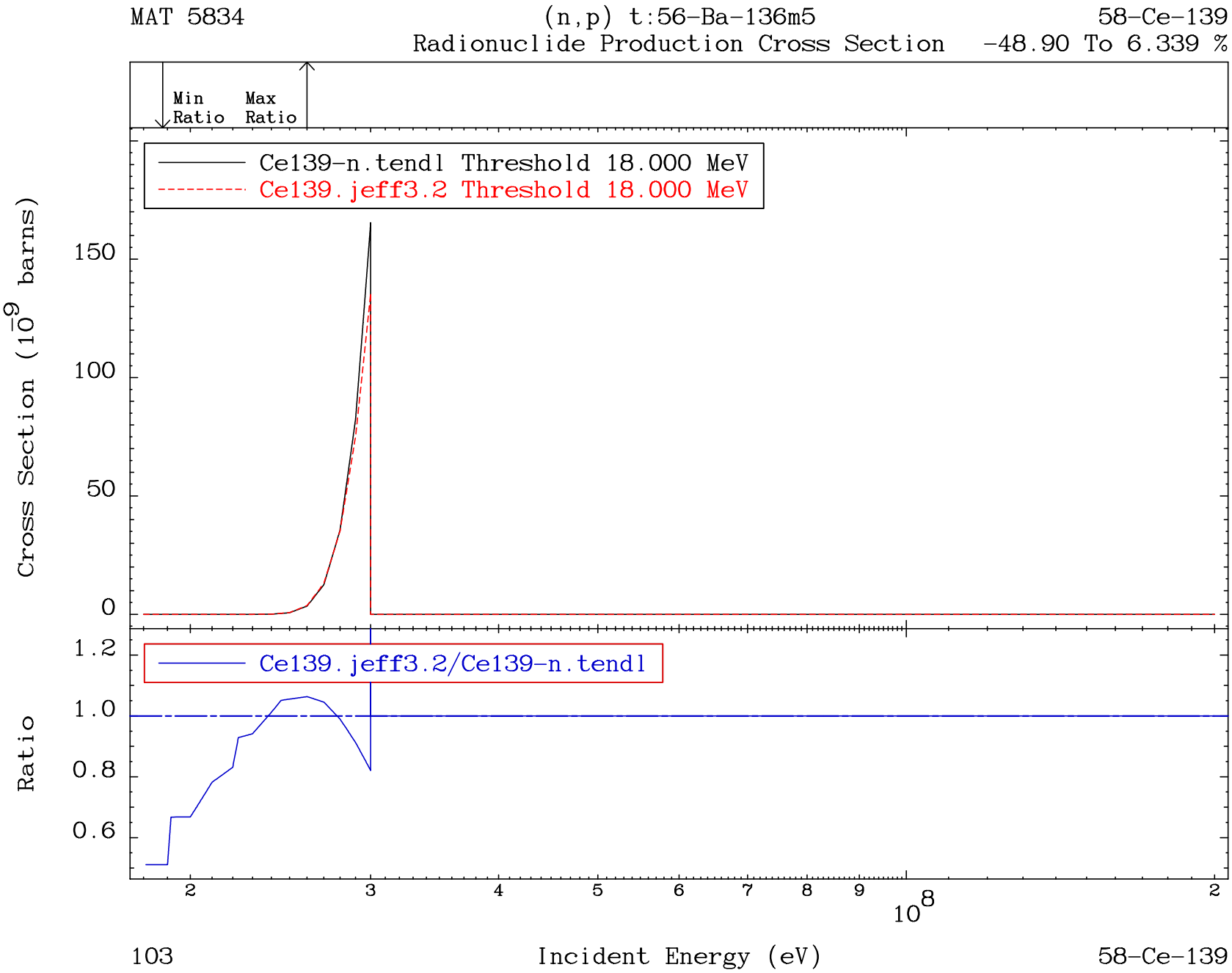

MAT 5834
(n,p) α:55-Cs-135g
58-Ce-139
Radionuclide Production Cross Section -71.05 To 41.51 %
Max Ratio
Min Ratio
Ce139-n.tendl Threshold 1.0183 MeV
Ce139.jeff3.2 Threshold 1.0206 MeV
Cross Section (micro-barns)
Ce139.jeff3.2/Ce139-n.tendl
Ratio
Incident Energy (eV)
98
58-Ce-139

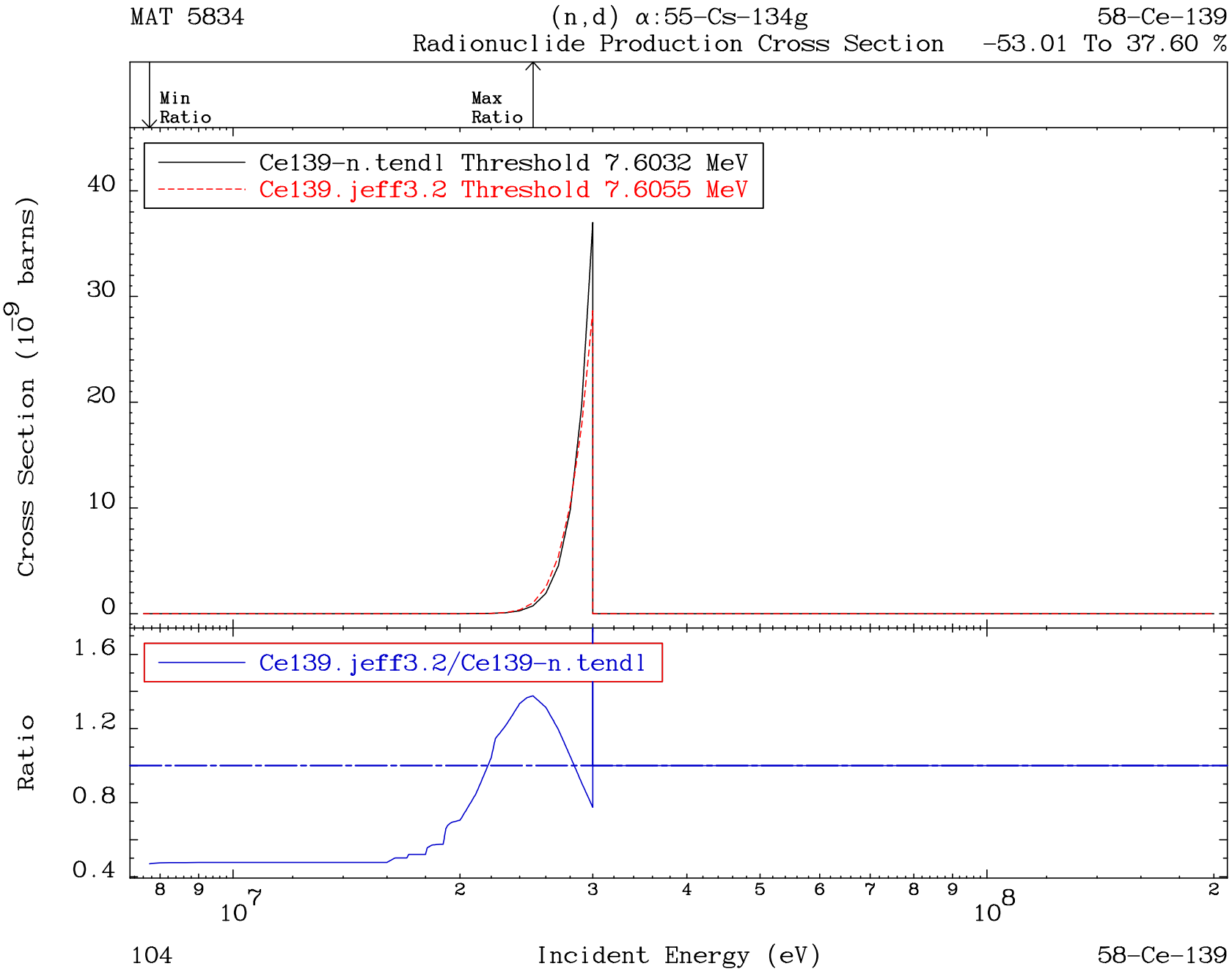

MAT 5834
(n,p) α:55-Cs-135m10
58-Ce-139
Radionuclide Production Cross Section -99.58 To 42.54 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 9.0000 MeV
Ce139.jeff3.2 Threshold 9.0000 MeV
Cross Section (micro-barns)
2.0
1.5
1.0
0.5
0.0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
10^0
10^-1
10^-2
9
10^7
2
3
4
5
6
7
8
9
10^8
2
99
Incident Energy (eV)
58-Ce-139

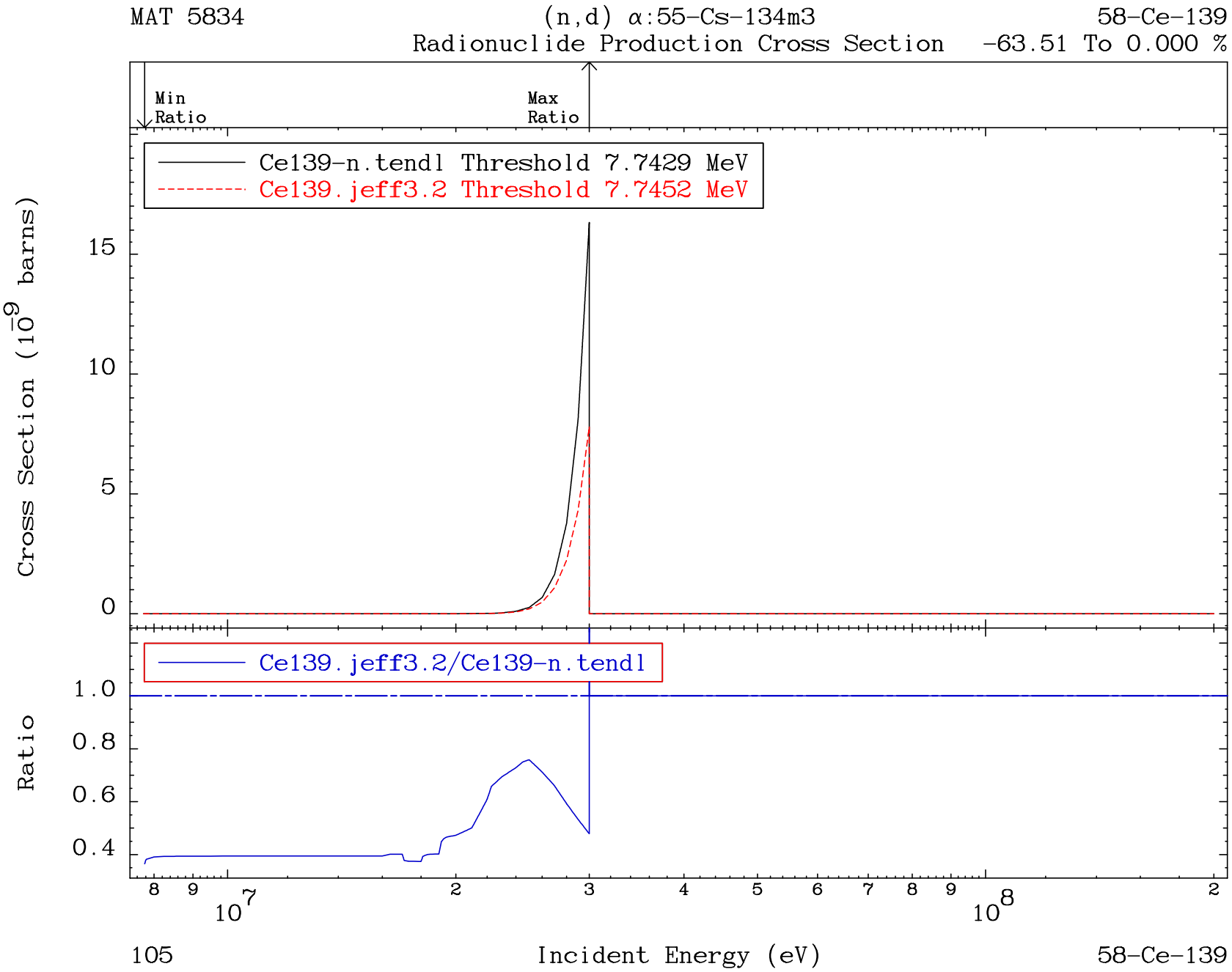

MAT 5834
(n,p) d:56-Ba-137g
58-Ce-139
Radionuclide Production Cross Section -12.20 To 71.73 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 11.666 MeV
Ce139.jeff3.2 Threshold 11.669 MeV
Cross Section (10^{-9} barns)
160
140
120
100
80
60
40
20
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
2
3
4
5
6
7
8
9
10^8
2
100
Incident Energy (eV)
58-Ce-139


MAT 5834
(n,p) d:56-Ba-137m2
58-Ce-139
Radionuclide Production Cross Section -25.26 To 69.54 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 16.000 MeV
Ce139.jeff3.2 Threshold 16.000 MeV
Cross Section (10^{-9} barns)
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
2
3
4
5
6
7
8
9
10^{8}
2
101
Incident Energy (eV)
58-Ce-139


MAT 5834
(n,p) t:56-Ba-136g
58-Ce-139
Radionuclide Production Cross Section -80.59 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 12.319 MeV
Ce139.jeff3.2 Threshold 12.322 MeV
Cross Section (10^{-9} barns)
350
300
250
200
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
0.8
0.4
2
3
4
5
6
7
8
9
10^8
2
102
Incident Energy (eV)
58-Ce-139


MAT 5834
(n,p) t:56-Ba-136m5
58-Ce-139
Radionuclide Production Cross Section -48.90 To 6.339 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 18.000 MeV
Ce139.jeff3.2 Threshold 18.000 MeV
Cross Section (10^{-9} barns)
150
100
50
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.2
1.0
0.8
0.6
2
3
4
5
6
7
8
9
10^8
2
103
Incident Energy (eV)
58-Ce-139


MAT 5834
(n,d) α:55-Cs-134g
58-Ce-139
Radionuclide Production Cross Section -53.01 To 37.60 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 7.6032 MeV
Ce139.jeff3.2 Threshold 7.6055 MeV
Cross Section (10^{-9} barns)
40
30
20
10
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.6
1.2
0.8
0.4
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
104
Incident Energy (eV)
58-Ce-139


MAT 5834
(n,d) α:55-Cs-134m3
58-Ce-139
Radionuclide Production Cross Section -63.51 To 0.000 %
Min Ratio
Max Ratio
Ce139-n.tendl Threshold 7.7429 MeV
Ce139.jeff3.2 Threshold 7.7452 MeV
Cross Section (10^{-9} barns)
15
10
5
0
Ce139.jeff3.2/Ce139-n.tendl
Ratio
1.0
0.8
0.6
0.4
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
105
Incident Energy (eV)
58-Ce-139