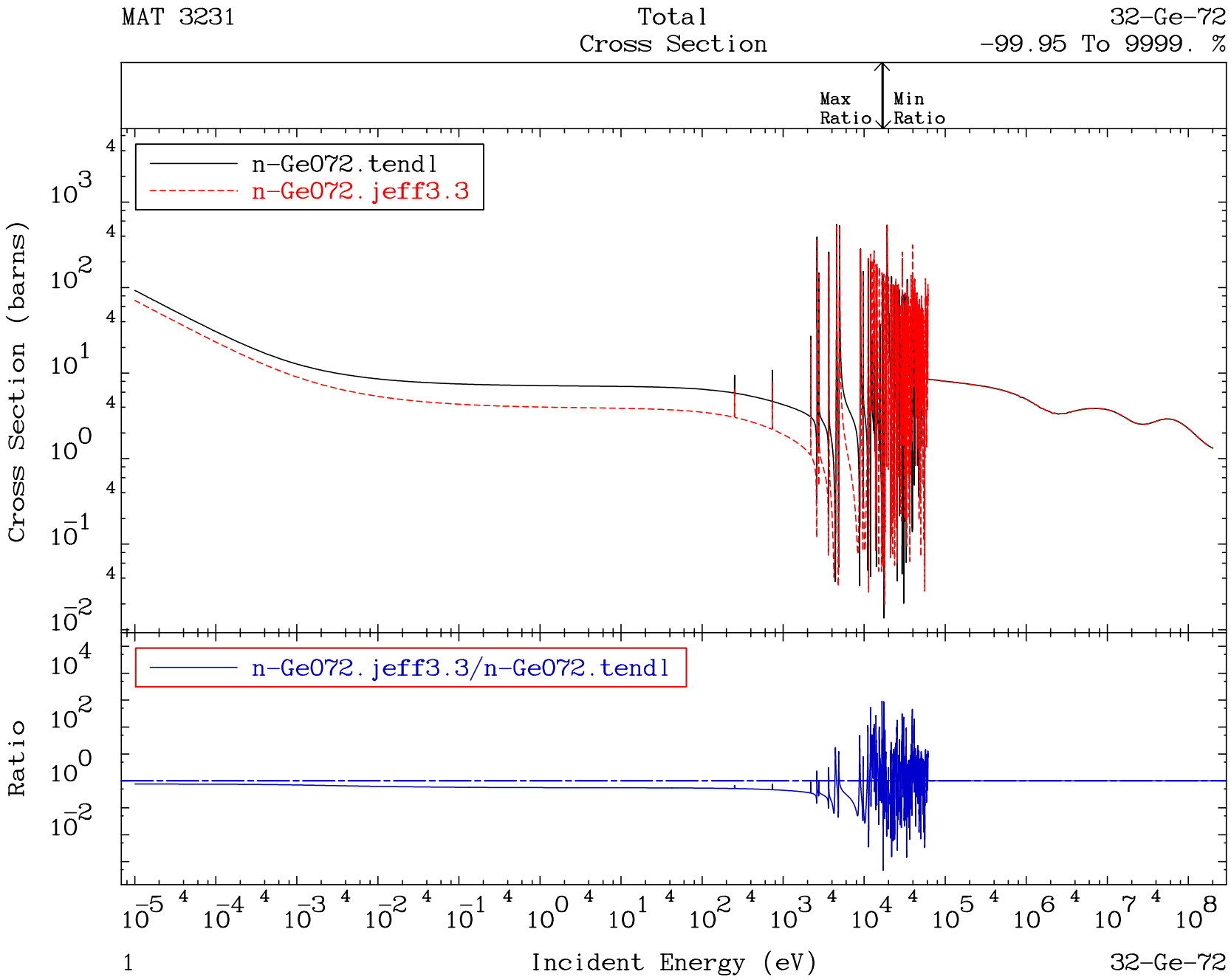
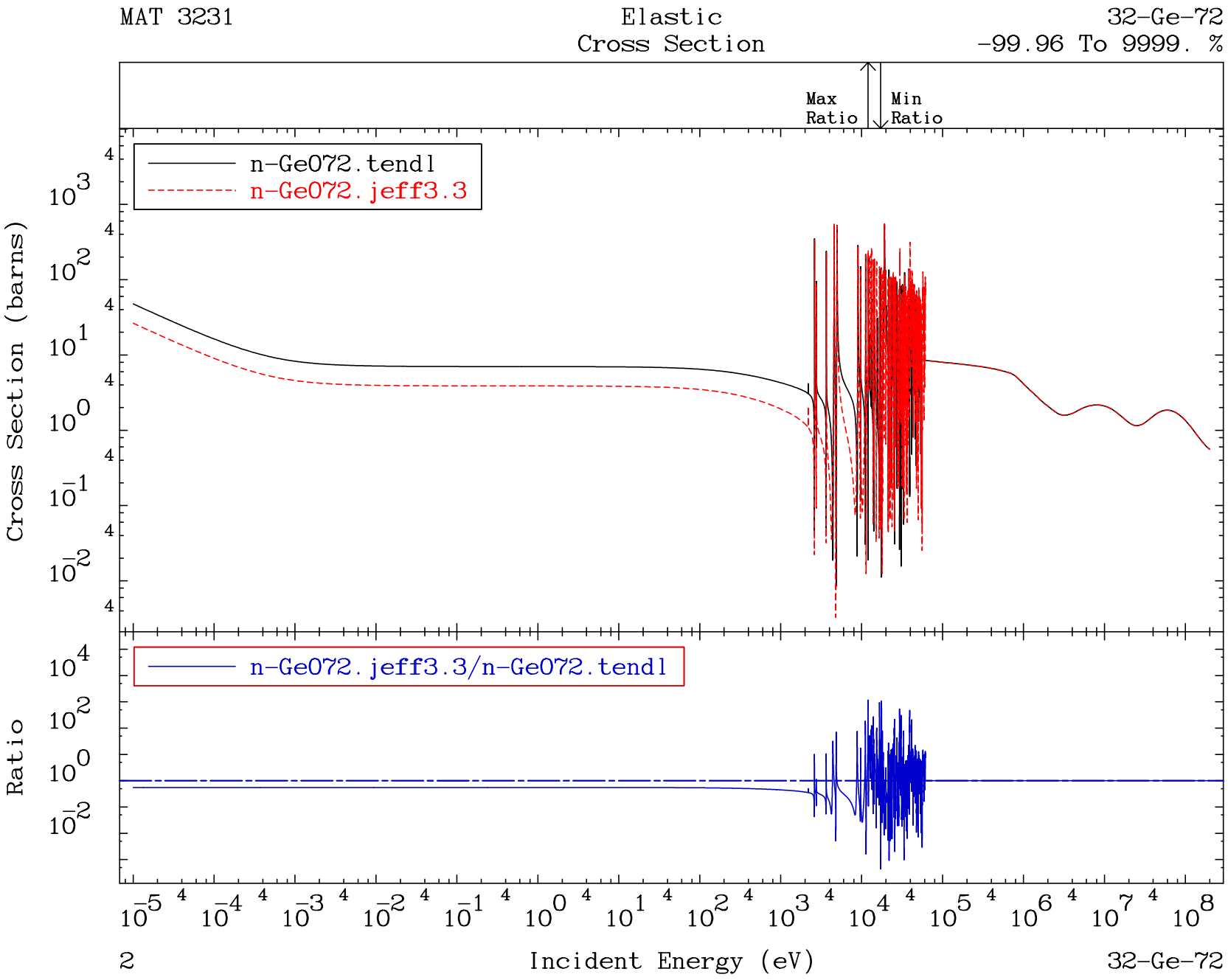
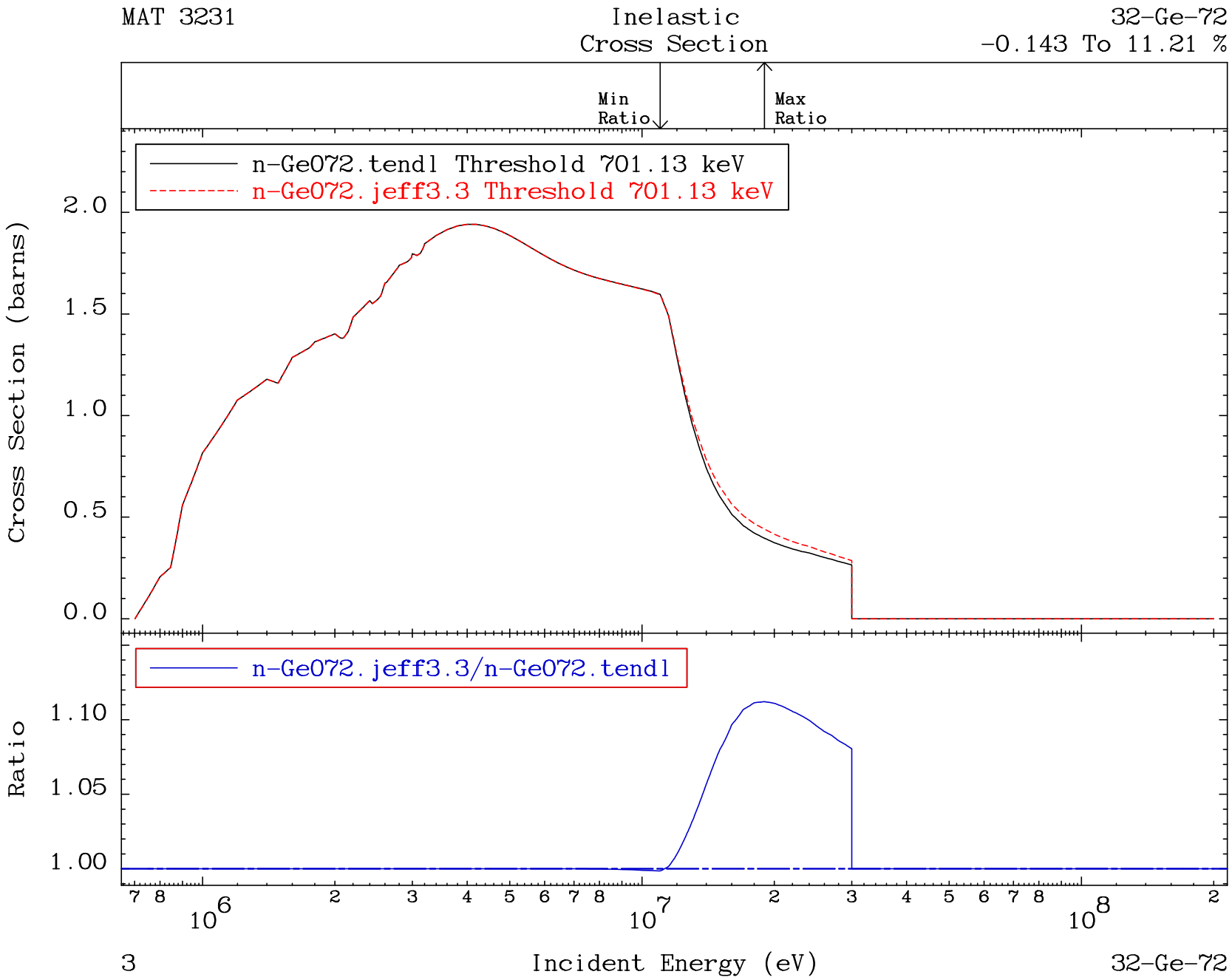
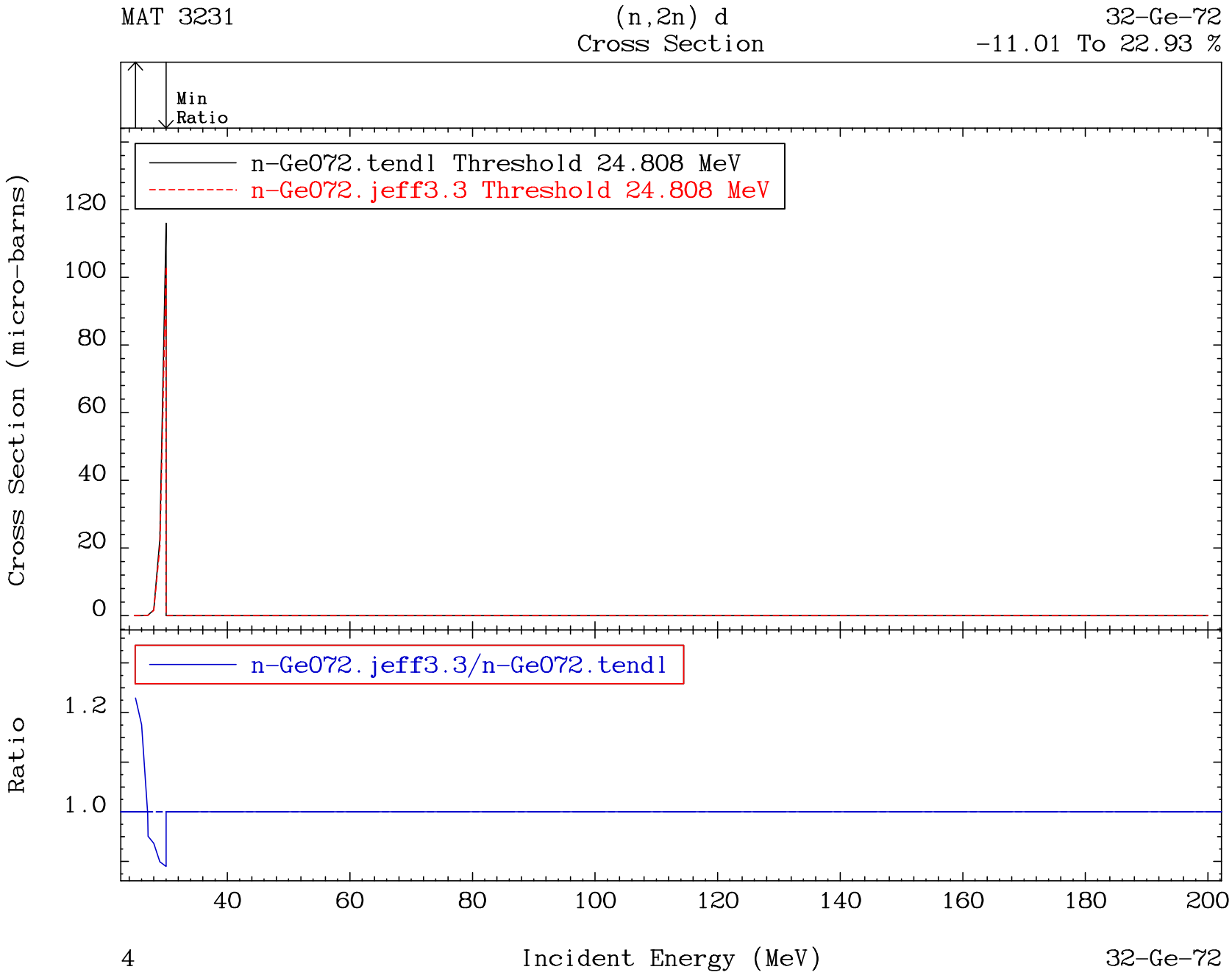
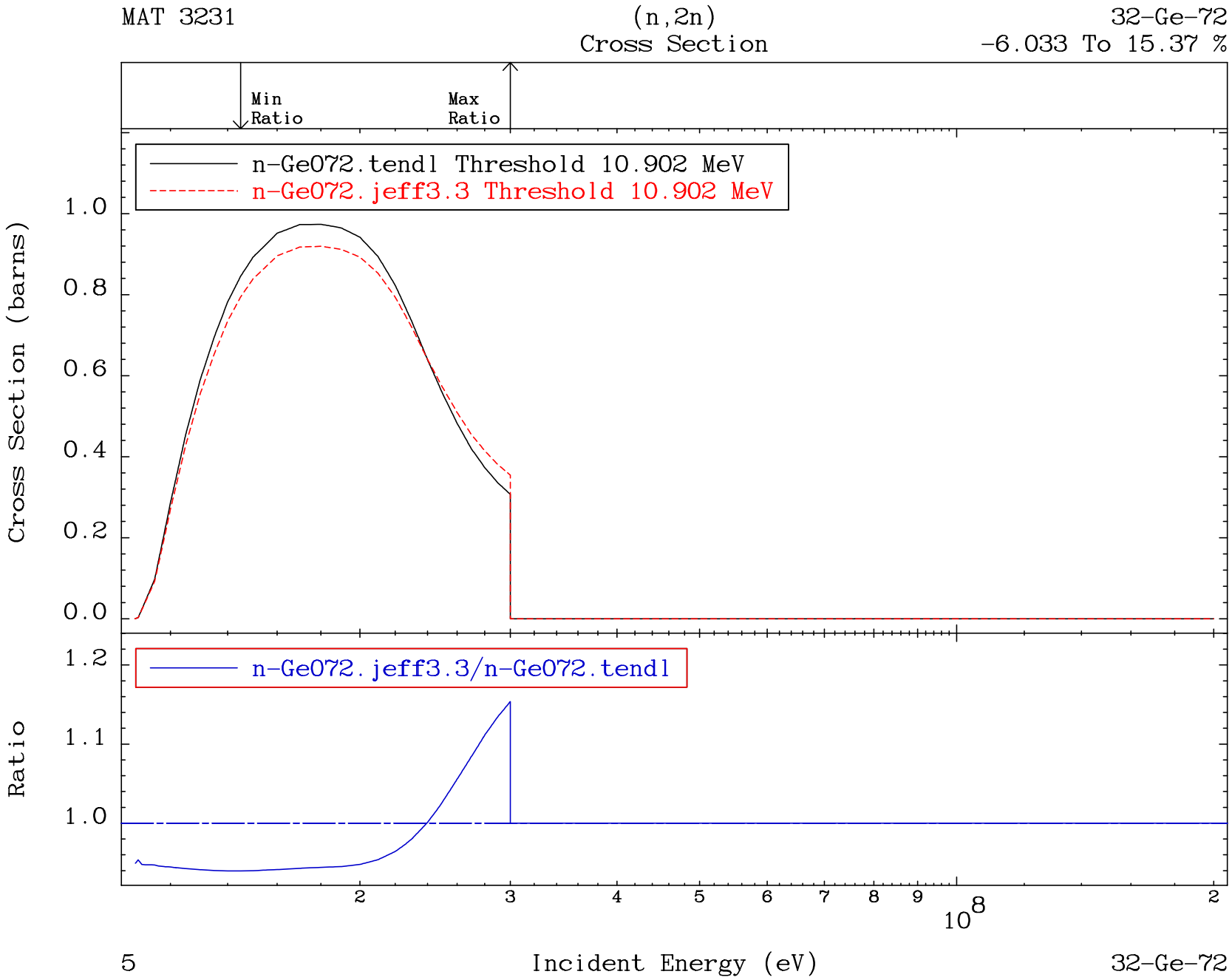
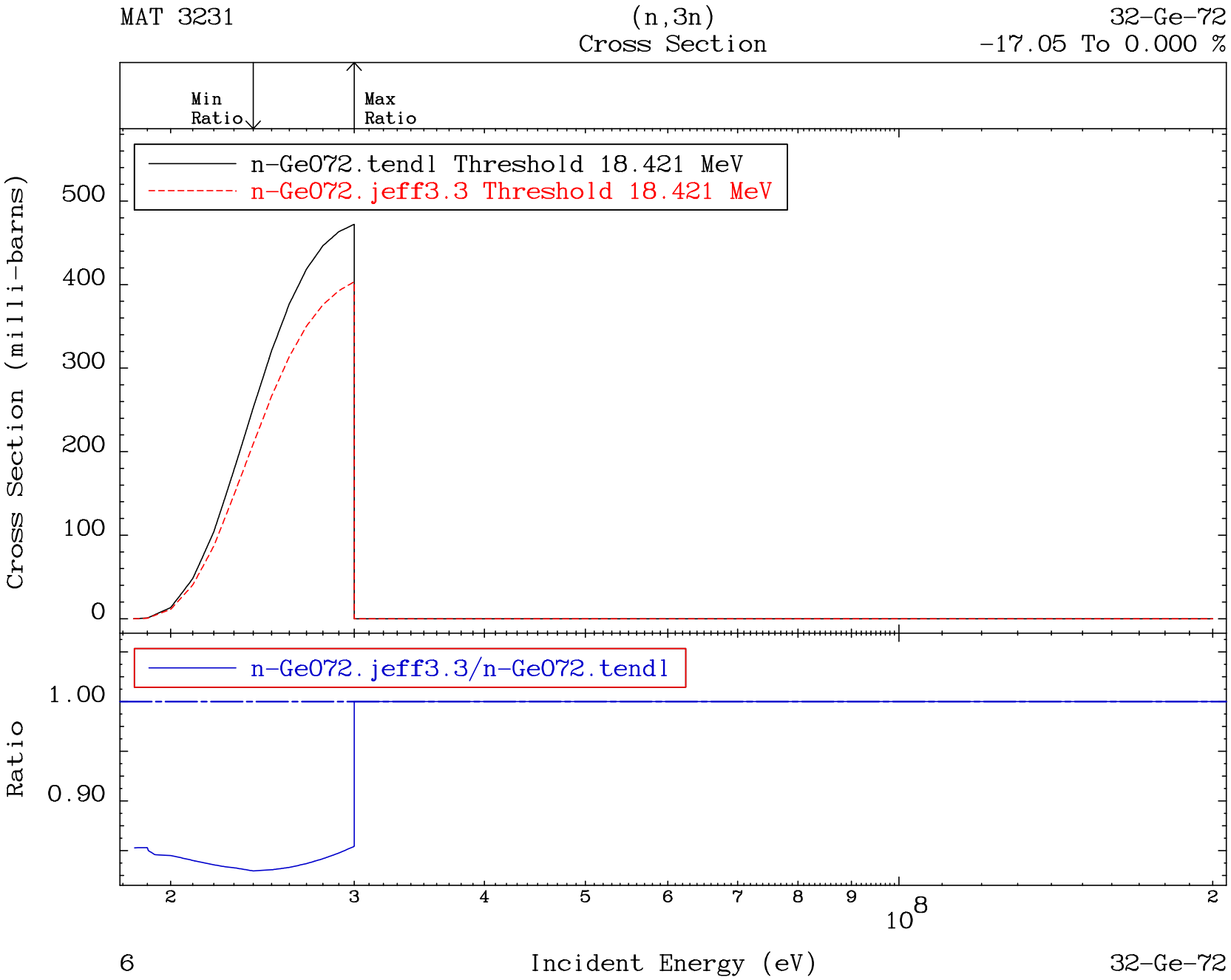

MAT 3231
Total
Cross Section
32-Ge-72
-99.95 To 9999. %
Max Ratio
Min Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
1
32-Ge-72

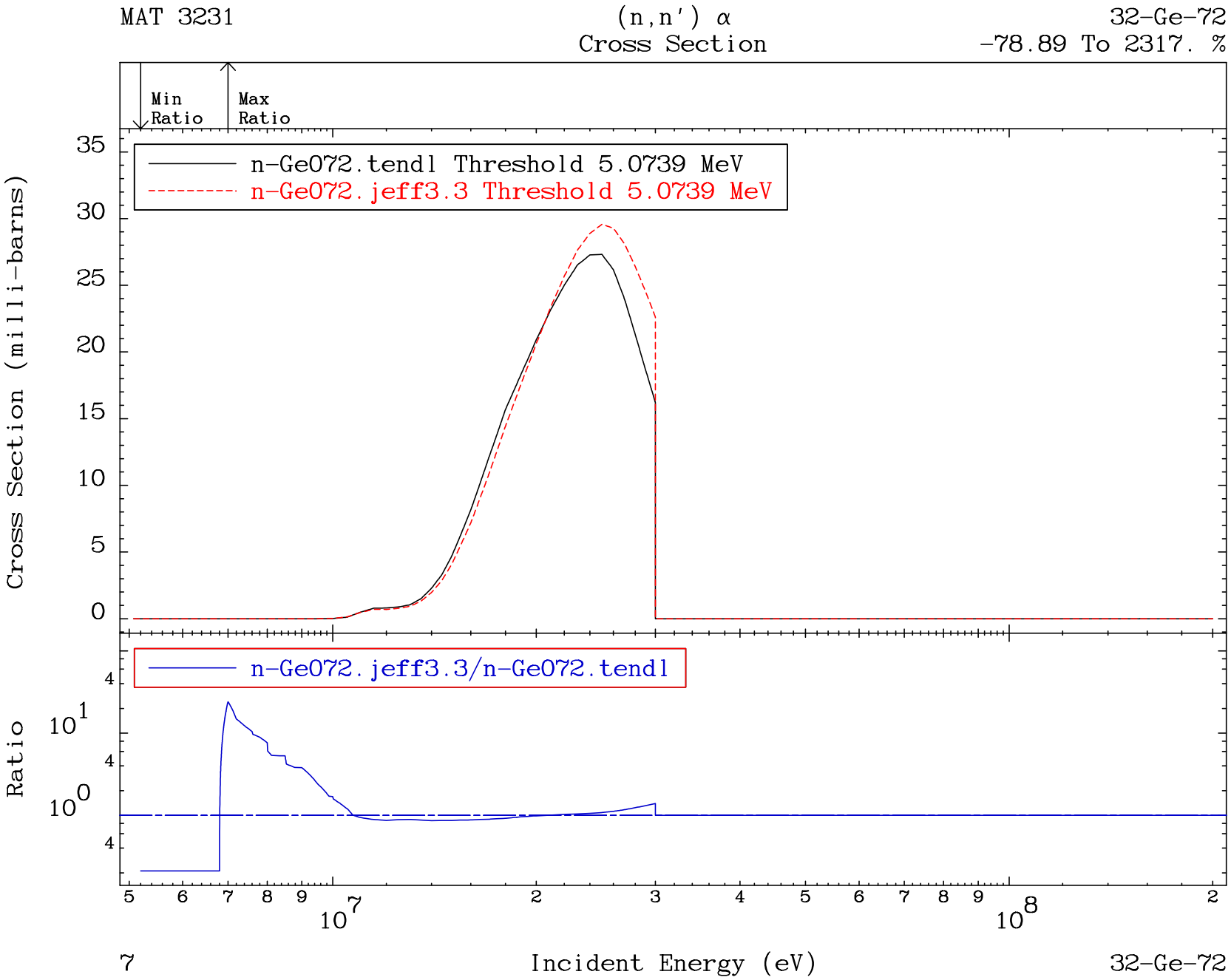

MAT 3231
Elastic
Cross Section
32-Ge-72
-99.96 To 9999. %
Max
Ratio
Min
Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
2
32-Ge-72

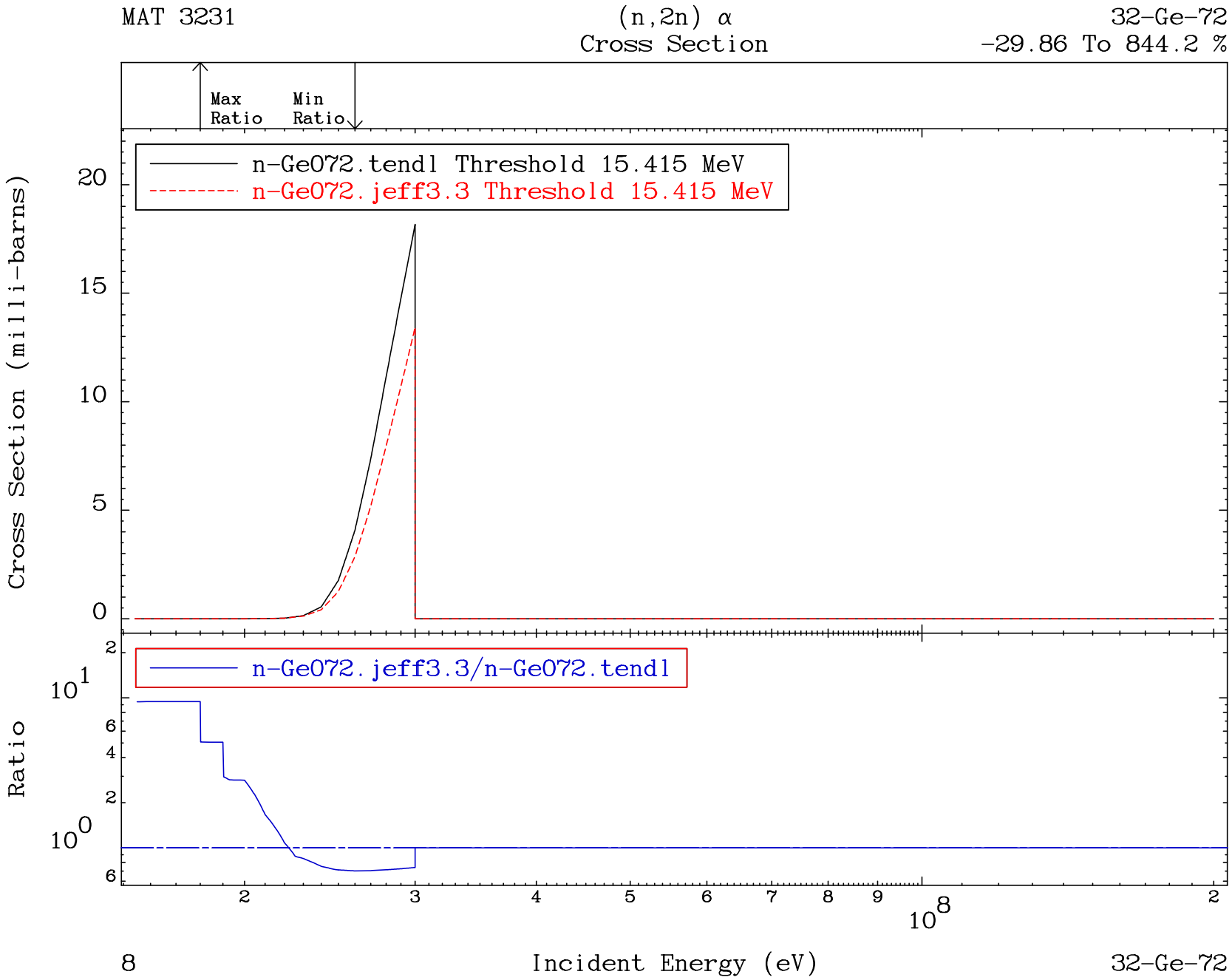

MAT 3231
Inelastic
Cross Section
32-Ge-72
-0.143 To 11.21 %
Min
Ratio
Max
Ratio
n-Ge072.tendl Threshold 701.13 keV
n-Ge072.jeff3.3 Threshold 701.13 keV
Cross Section (barns)
2.0
1.5
1.0
0.5
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.10
1.05
1.00
7 8
10^6
2
3
4
5
6
7 8
10^7
2
3
4
5
6
7 8
10^8
2
3
Incident Energy (eV)
32-Ge-72

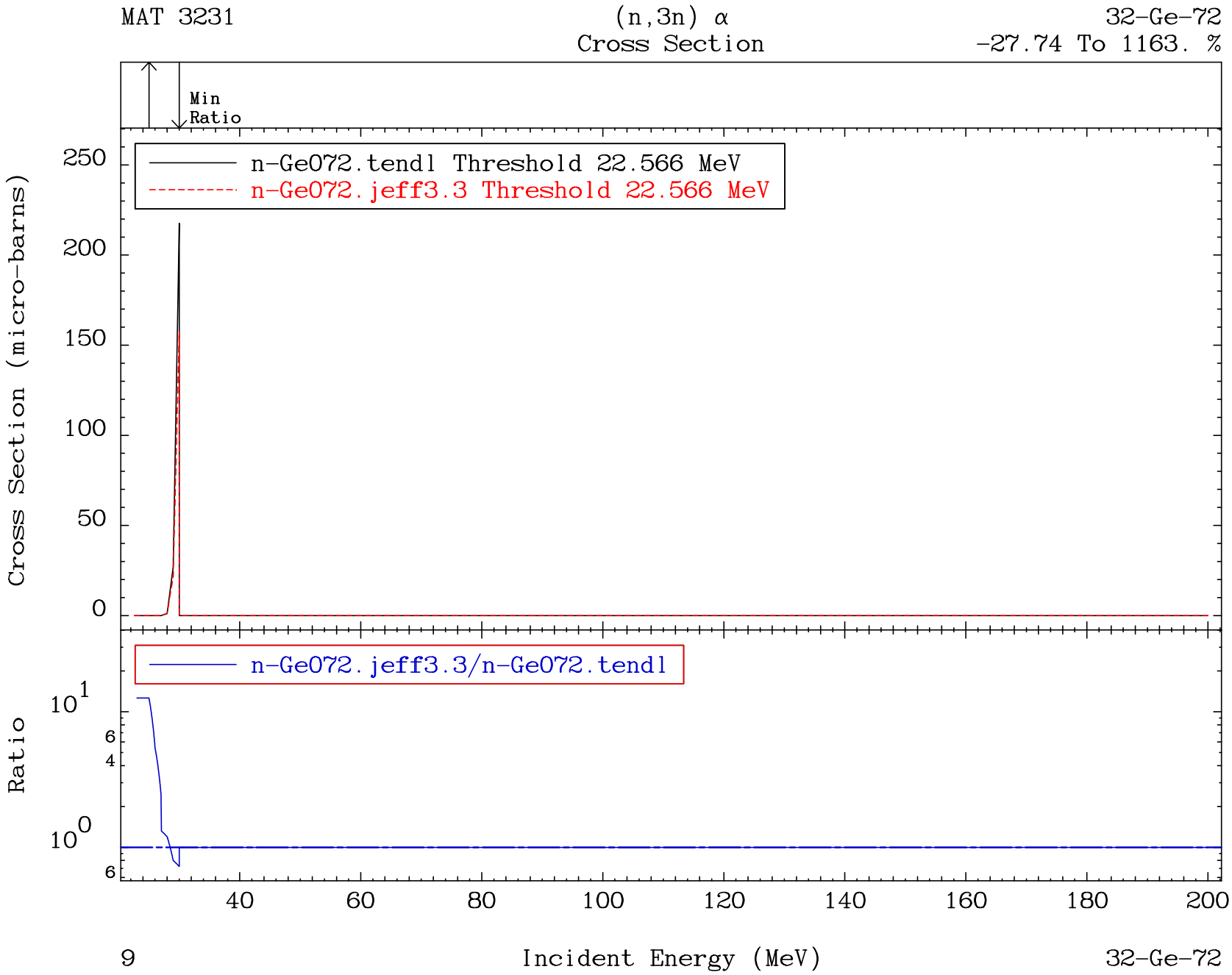

MAT 3231
(n,2n) d
Cross Section
32-Ge-72
-11.01 To 22.93 %
Min
Ratio
n-Ge072.tendl Threshold 24.808 MeV
n-Ge072.jeff3.3 Threshold 24.808 MeV
Cross Section (micro-barns)
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.0
40
60
80
100
120
140
160
180
200
4
Incident Energy (MeV)
32-Ge-72

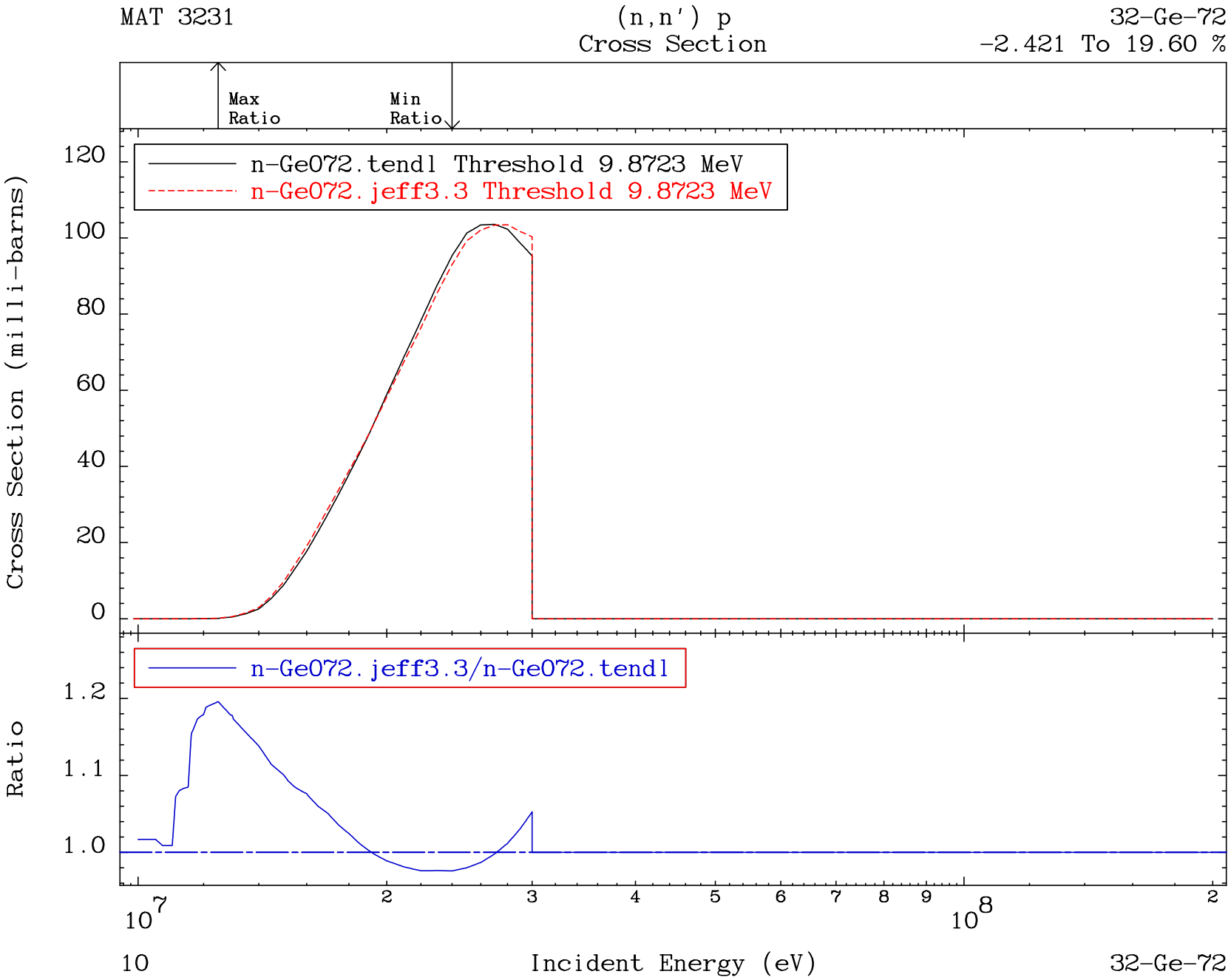

MAT 3231
(n,2n)
Cross Section
32-Ge-72
-6.033 To 15.37 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 10.902 MeV
n-Ge072.jeff3.3 Threshold 10.902 MeV
Cross Section (barns)
1.0
0.8
0.6
0.4
0.2
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.1
1.0
2
3
4
5
6
7
8
9
10^8
2
5
Incident Energy (eV)
32-Ge-72

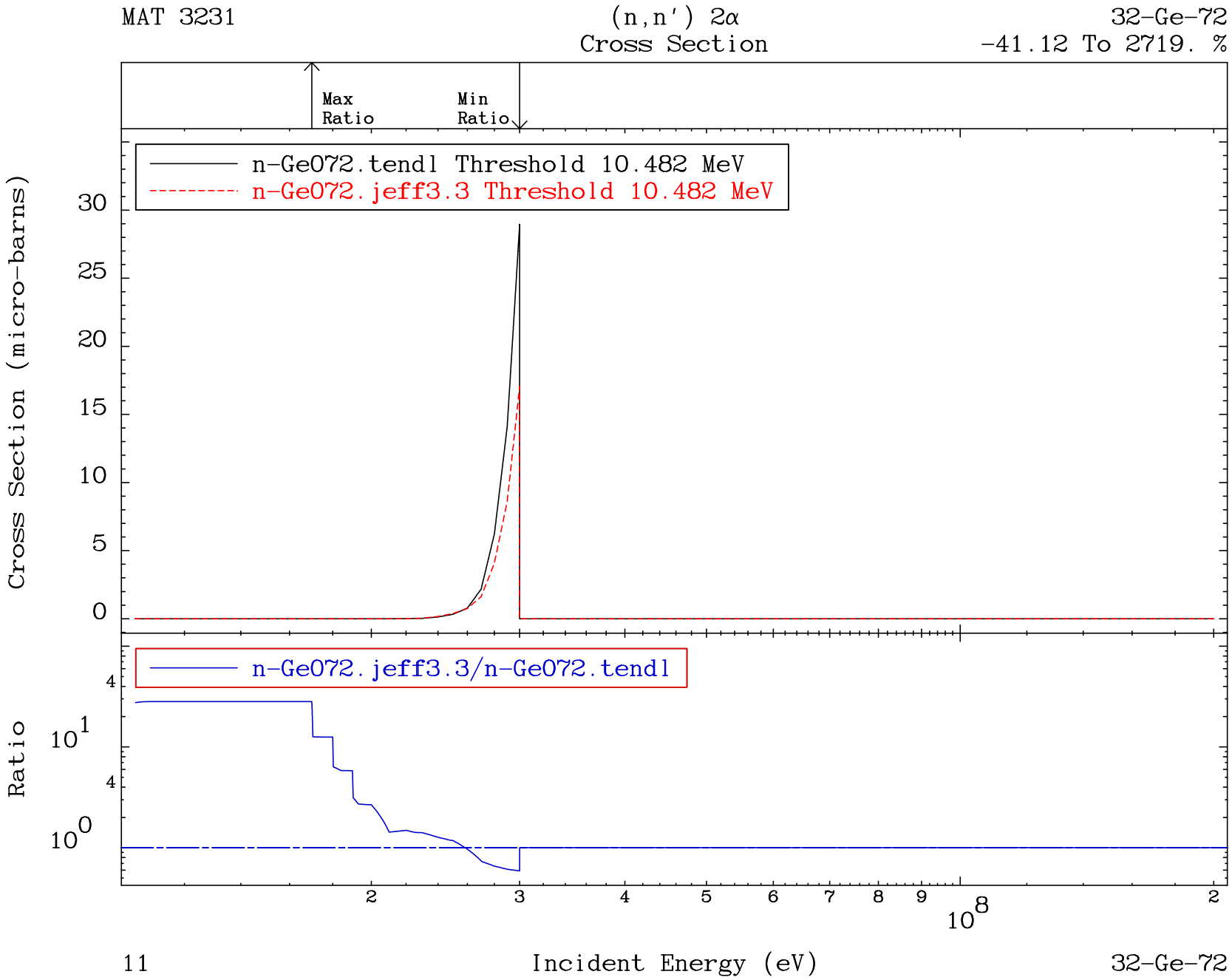

MAT 3231
(n,3n)
Cross Section
32-Ge-72
-17.05 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 18.421 MeV
n-Ge072.jeff3.3 Threshold 18.421 MeV
Cross Section (milli-barns)
500
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.90
2
3
4
5
6
7
8
9
10^8
2
6
Incident Energy (eV)
32-Ge-72

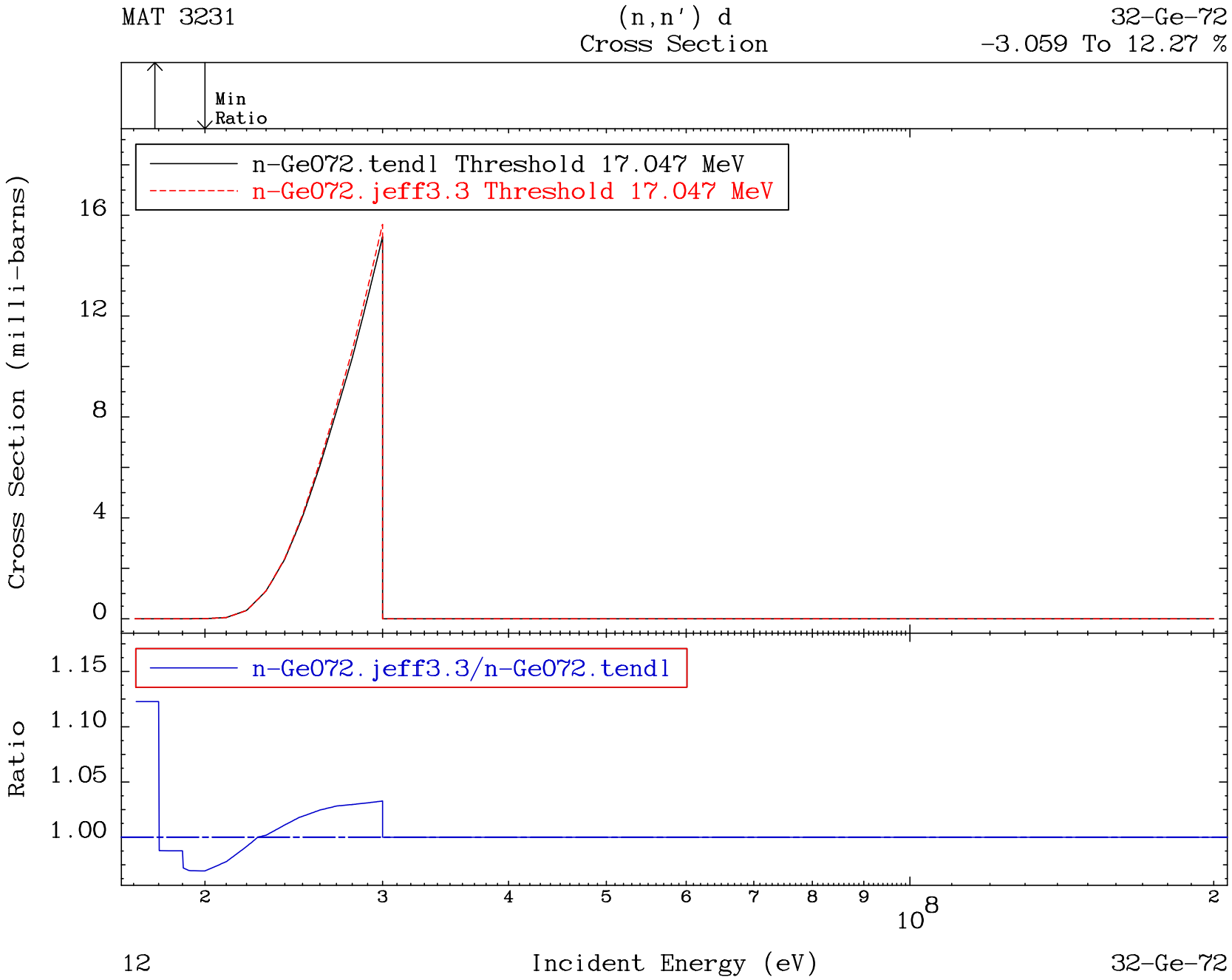

MAT 3231
(n,n') α
Cross Section
32-Ge-72
-78.89 To 2317. %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 5.0739 MeV
n-Ge072.jeff3.3 Threshold 5.0739 MeV
Cross Section (milli-barns)
35
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^1
10^0
4
5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
7
Incident Energy (eV)
32-Ge-72

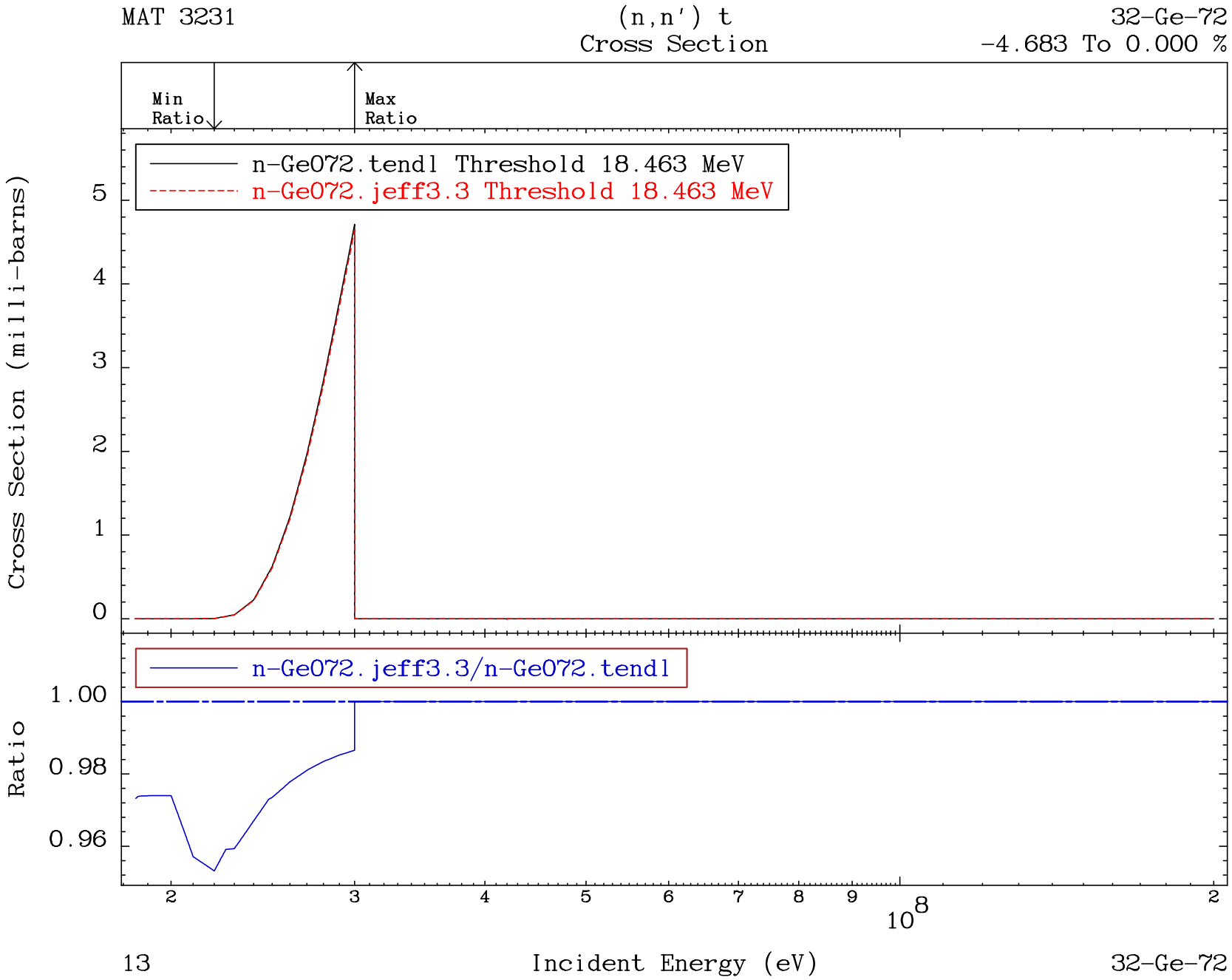

MAT 3231
(n,2n) α
Cross Section
32-Ge-72
-29.86 To 844.2 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 15.415 MeV
n-Ge072.jeff3.3 Threshold 15.415 MeV
Cross Section (milli-barns)
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
2
10^1
6
4
2
10^0
6
2
3
4
5
6
7
8
9
10^8
2
8
Incident Energy (eV)
32-Ge-72

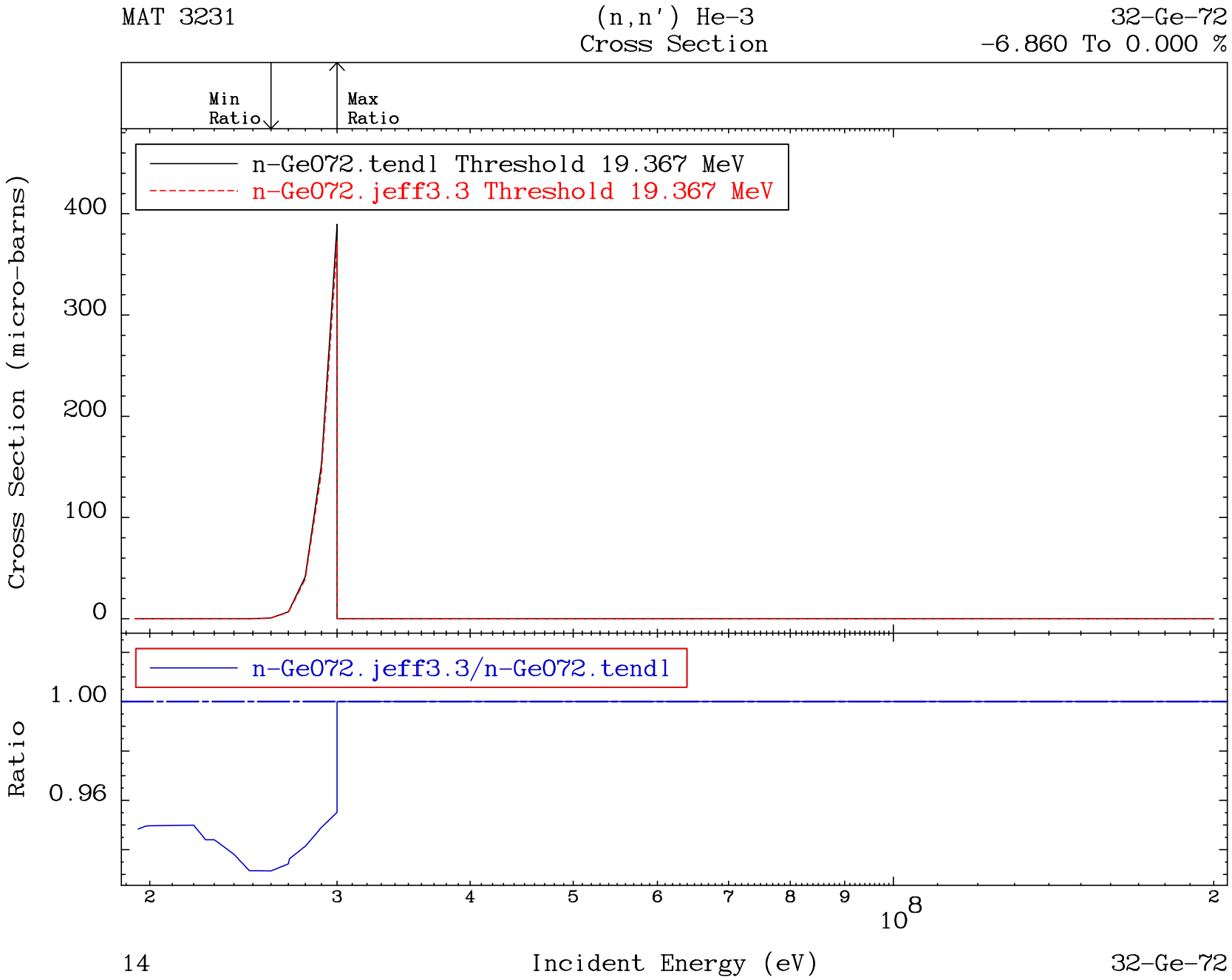

MAT 3231
(n,3n) α
Cross Section
32-Ge-72
-27.74 To 1163. %
Min
Ratio
n-Ge072.tendl Threshold 22.566 MeV
n-Ge072.jeff3.3 Threshold 22.566 MeV
Cross Section (micro-barns)
250
200
150
100
50
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^1
6
4
10^0
6
40
60
80
100
120
140
160
180
200
9
Incident Energy (MeV)
32-Ge-72

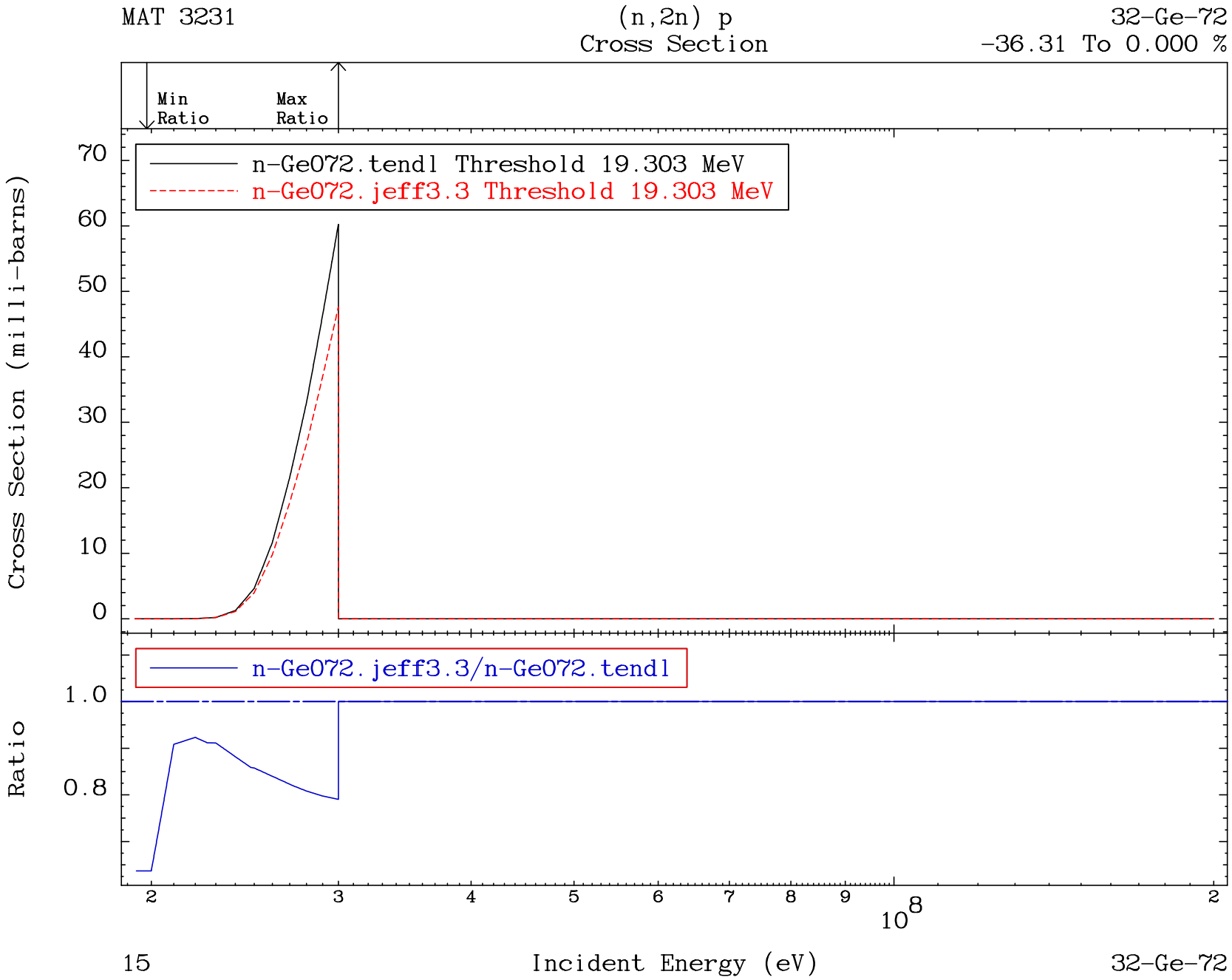

MAT 3231
(n,n') p
Cross Section
32-Ge-72
-2.421 To 19.60 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 9.8723 MeV
n-Ge072.jeff3.3 Threshold 9.8723 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.1
1.0
10^7
2
3
4
5
6
7
8
9
10^8
2
10
Incident Energy (eV)
32-Ge-72

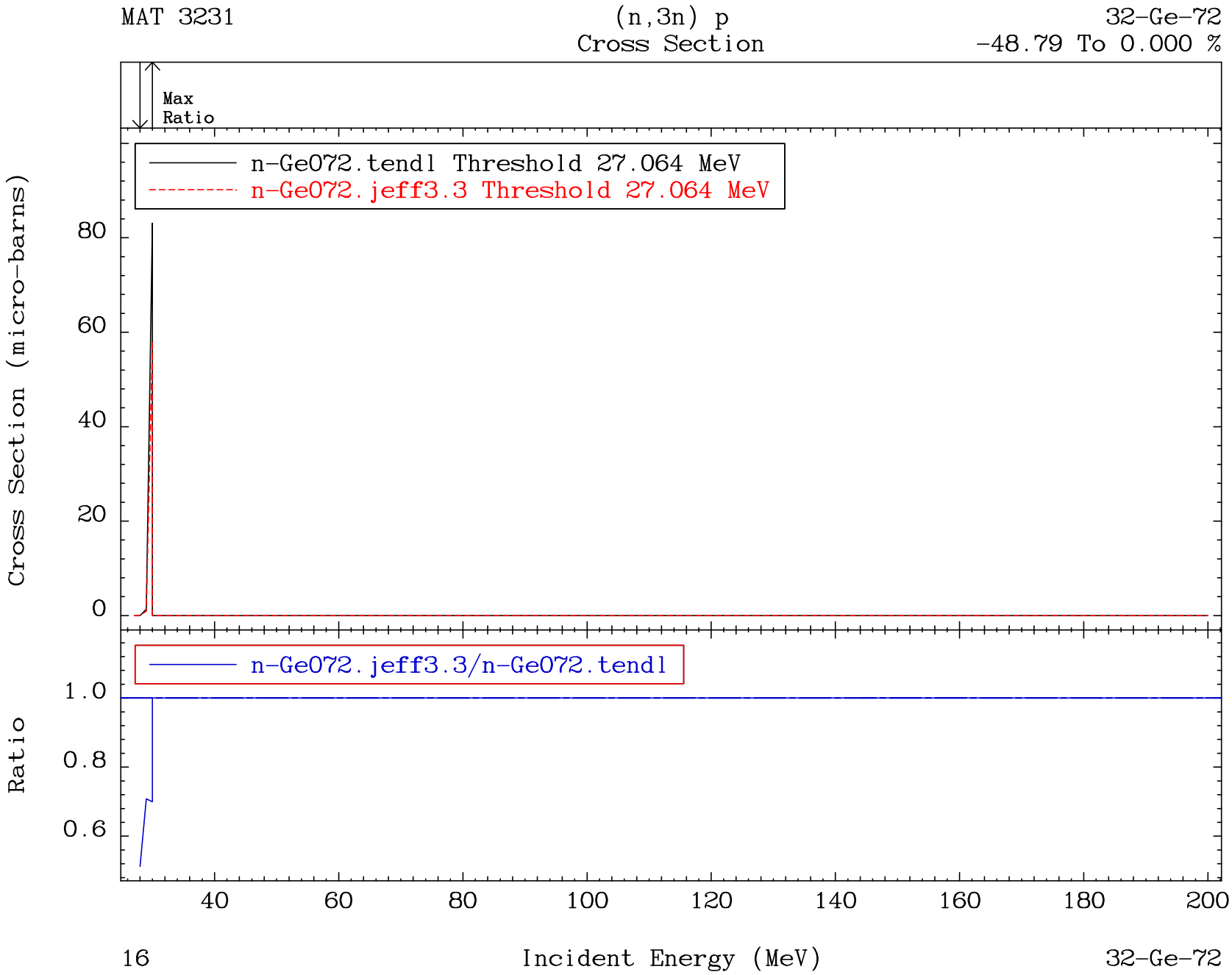

MAT 3231
(n,n') 2α
Cross Section
32-Ge-72
-41.12 To 2719. %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 10.482 MeV
n-Ge072.jeff3.3 Threshold 10.482 MeV
Cross Section (micro-barns)
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^1
4
10^0
2
3
4
5
6
7
8
9
10^8
2
11
Incident Energy (eV)
32-Ge-72

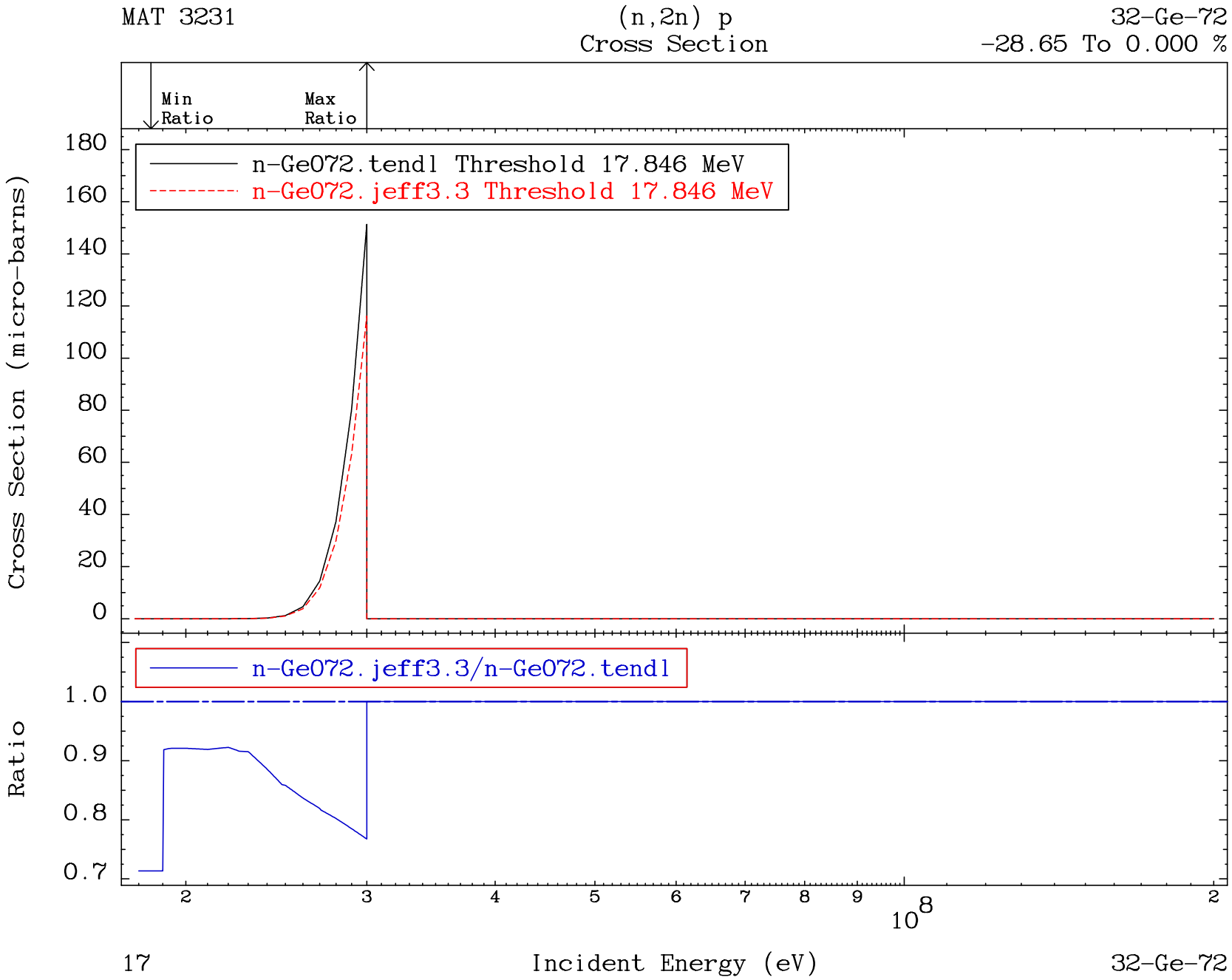

MAT 3231
(n,n') d
Cross Section
32-Ge-72
-3.059 To 12.27 %
Min
Ratio
n-Ge072.tendl Threshold 17.047 MeV
n-Ge072.jeff3.3 Threshold 17.047 MeV
Cross Section (milli-barns)
16
12
8
4
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.15
1.10
1.05
1.00
2
3
4
5
6
7
8
9
10^8
2
12
Incident Energy (eV)
32-Ge-72

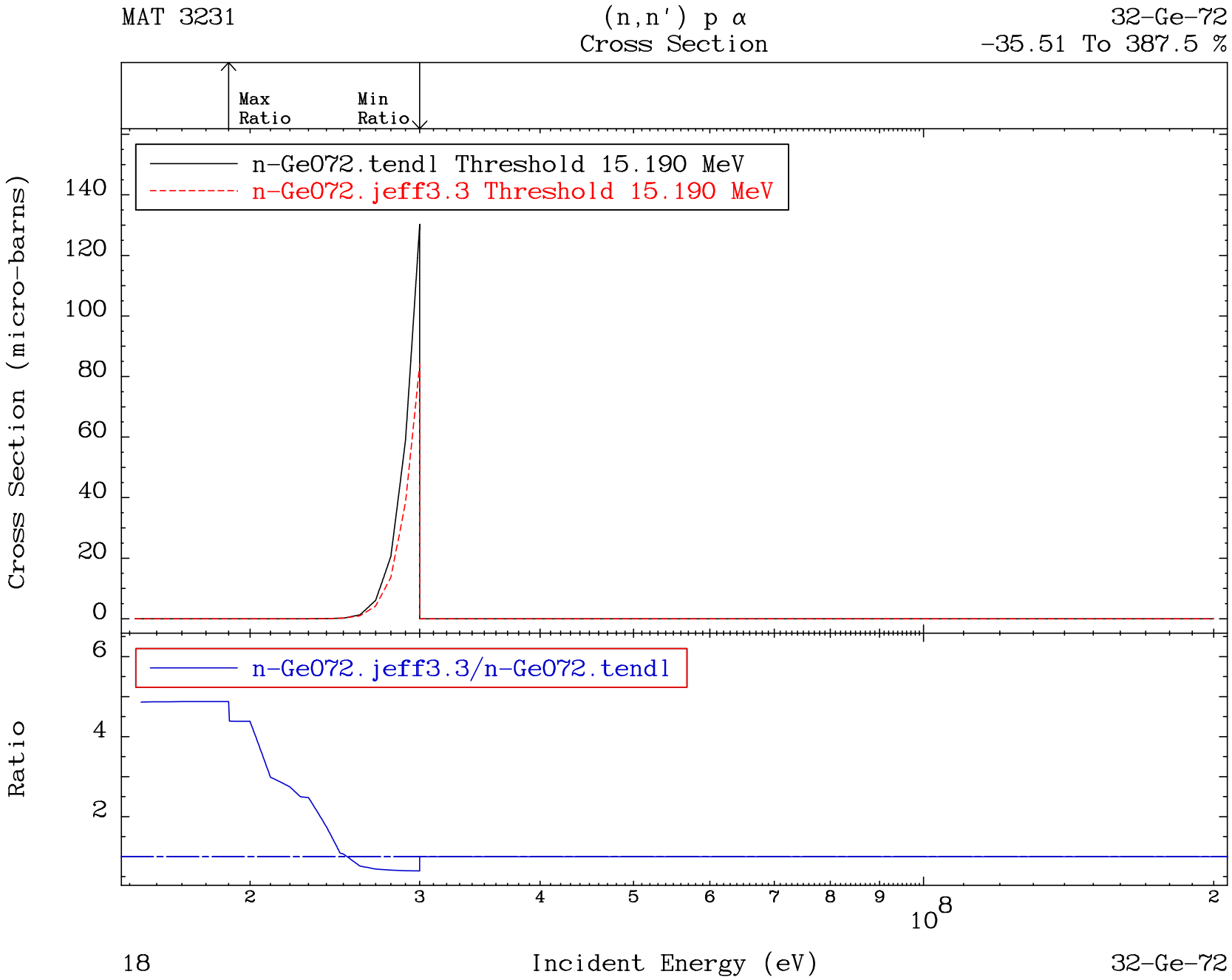

MAT 3231
(n,n') t
Cross Section
32-Ge-72
-4.683 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 18.463 MeV
n-Ge072.jeff3.3 Threshold 18.463 MeV
Cross Section (milli-barns)
0
1
2
3
4
5
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.98
0.96
2
3
4
5
6
7
8
9
10^8
2
13
Incident Energy (eV)
32-Ge-72

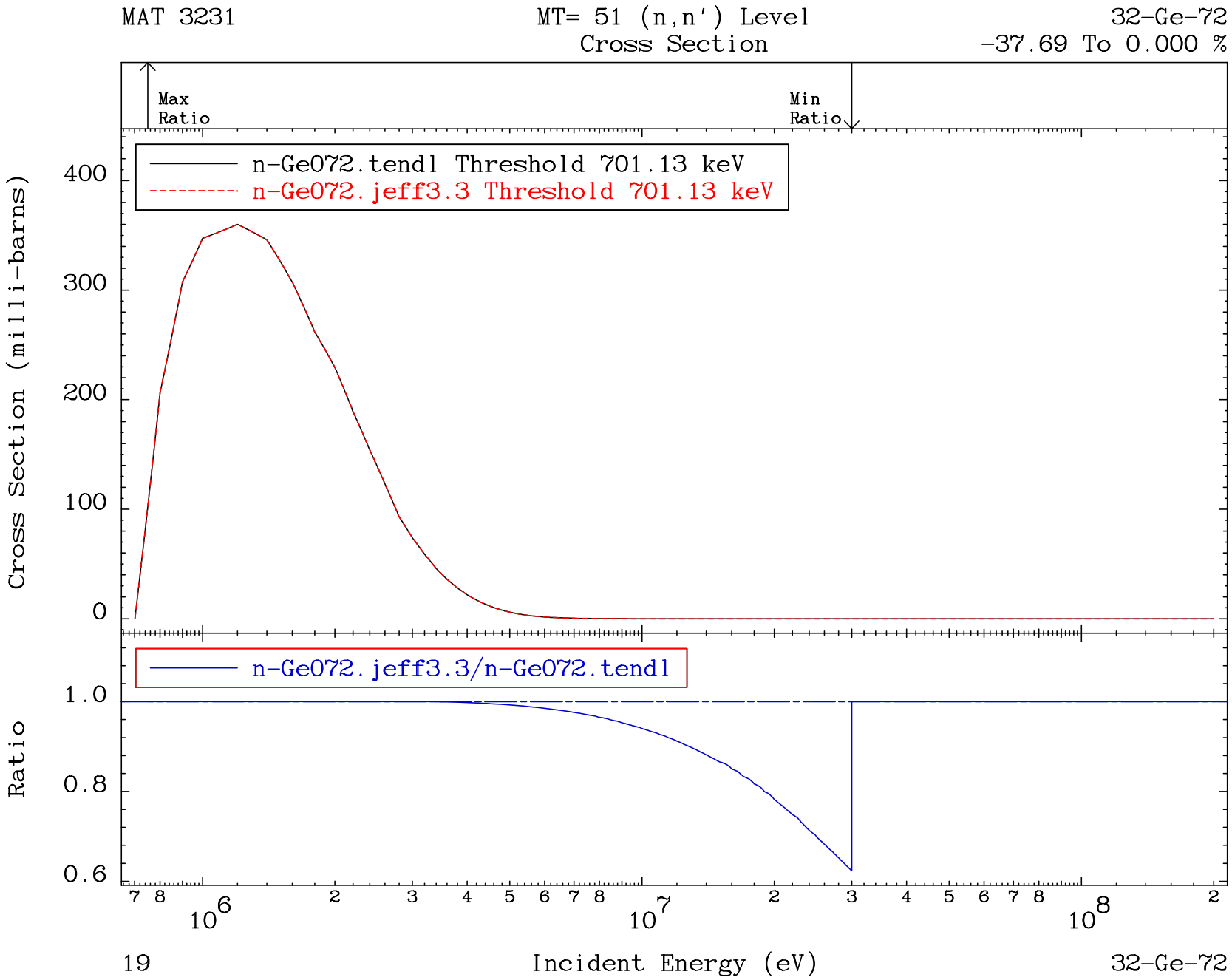

MAT 3231
(n,n') He-3
Cross Section
32-Ge-72
-6.860 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 19.367 MeV
n-Ge072.jeff3.3 Threshold 19.367 MeV
Cross Section (micro-barns)
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.96
2
3
4
5
6
7
8
9
10^8
2
14
Incident Energy (eV)
32-Ge-72

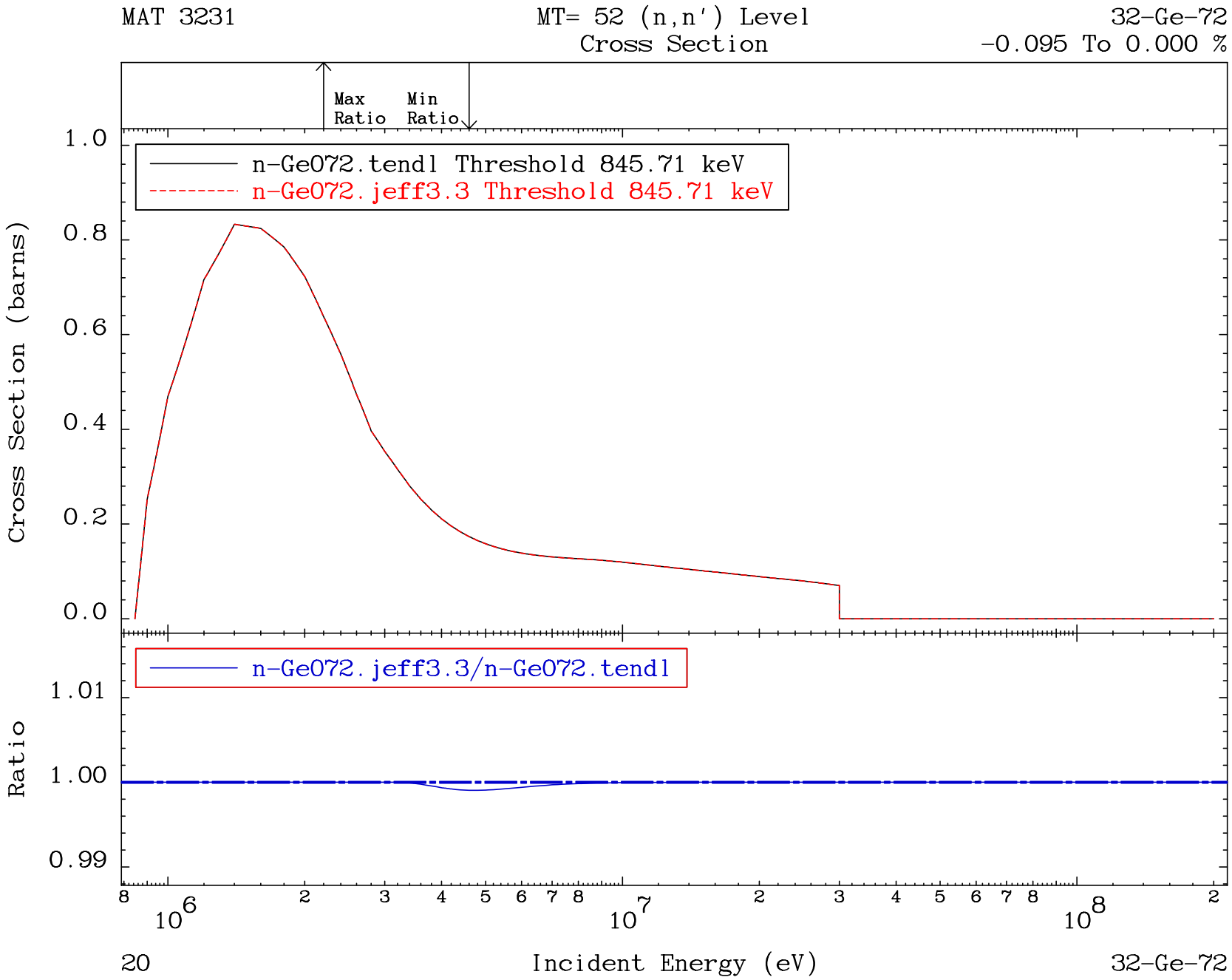

MAT 3231
(n,2n) p
Cross Section
32-Ge-72
-36.31 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 19.303 MeV
n-Ge072.jeff3.3 Threshold 19.303 MeV
Cross Section (milli-barns)
70
60
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
2
3
4
5
6
7
8
9
10^8
2
15
Incident Energy (eV)
32-Ge-72

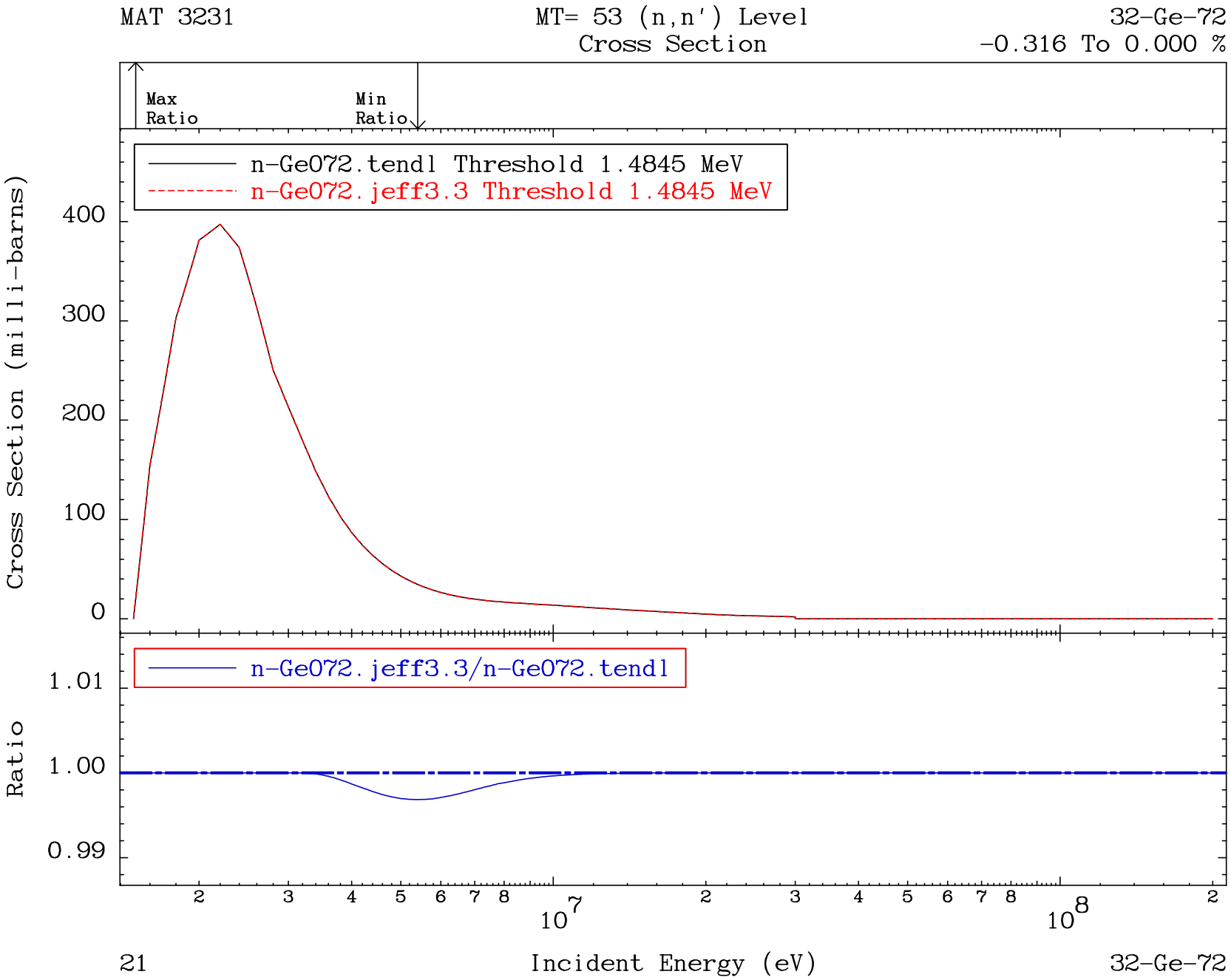

MAT 3231
(n,3n) p
Cross Section
32-Ge-72
-48.79 To 0.000 %
Max
Ratio
n-Ge072.tendl Threshold 27.064 MeV
n-Ge072.jeff3.3 Threshold 27.064 MeV
Cross Section (micro-barns)
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
40
60
80
100
120
140
160
180
200
16
Incident Energy (MeV)
32-Ge-72

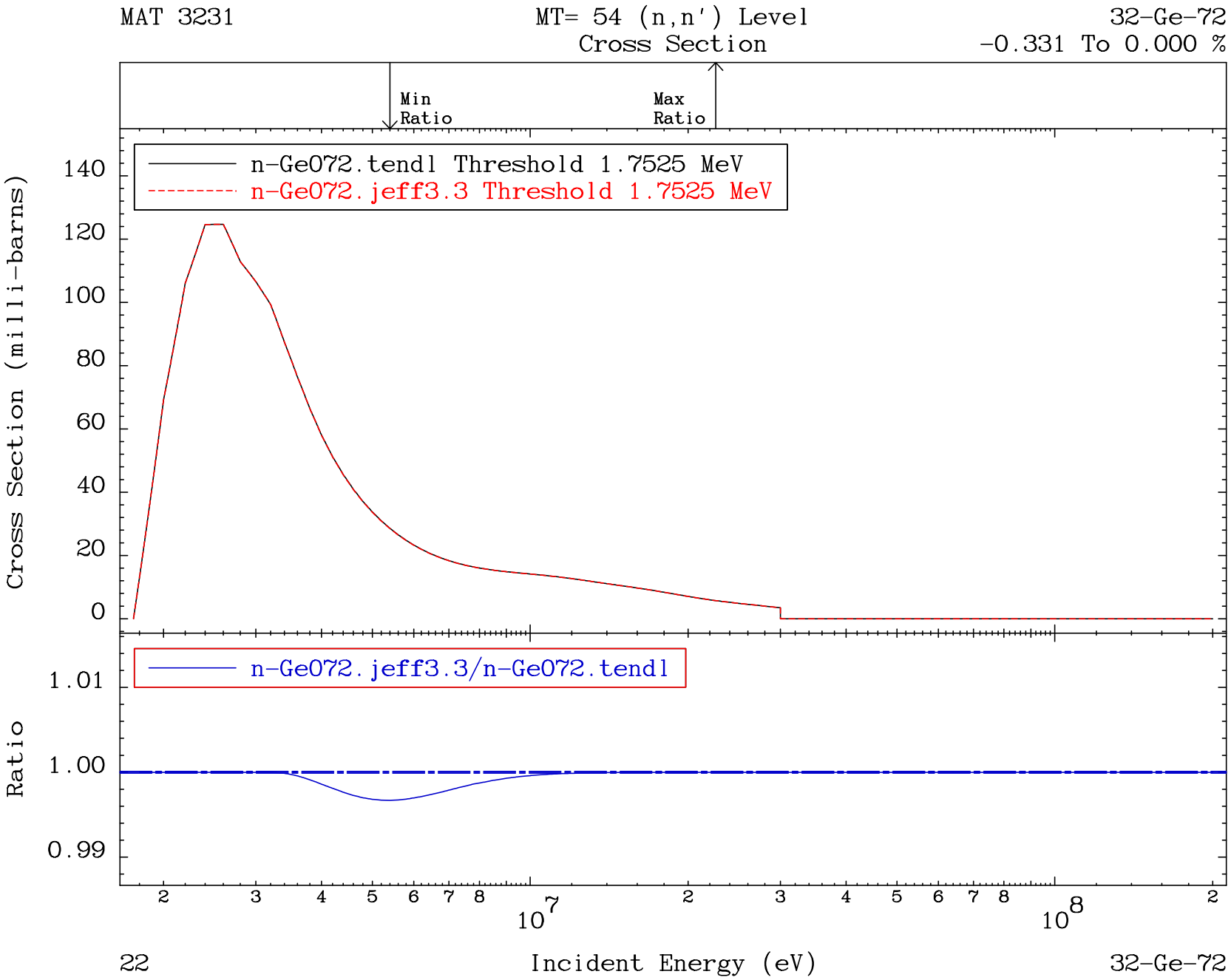

MAT 3231
(n,2n) p
Cross Section
32-Ge-72
-28.65 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 17.846 MeV
n-Ge072.jeff3.3 Threshold 17.846 MeV
Cross Section (micro-barns)
180
160
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.9
0.8
0.7
2
3
4
5
6
7
8
9
10^8
2
17
Incident Energy (eV)
32-Ge-72

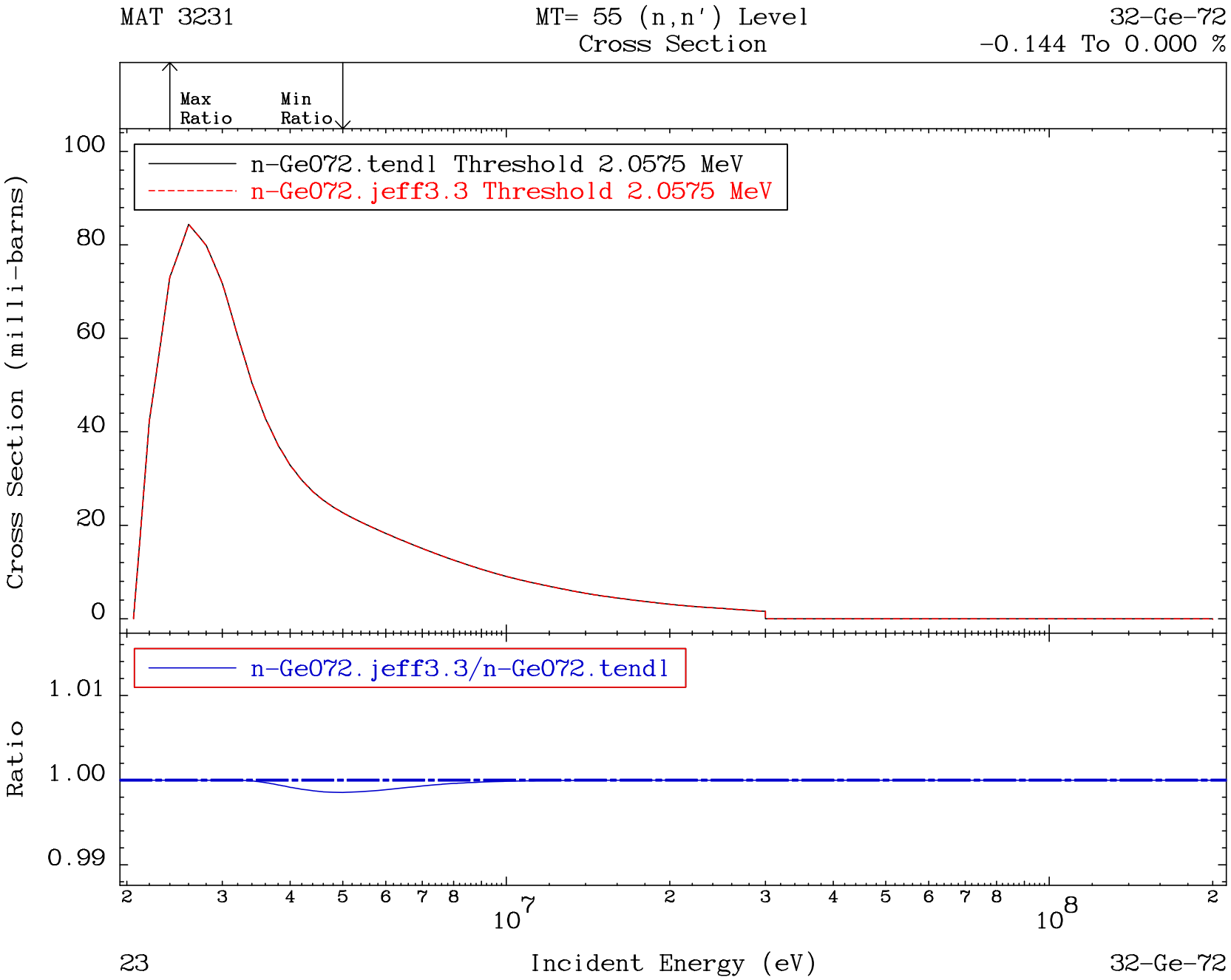

MAT 3231
(n,n') p α
Cross Section
32-Ge-72
-35.51 To 387.5 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 15.190 MeV
n-Ge072.jeff3.3 Threshold 15.190 MeV
Cross Section (micro-barns)
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
6
4
2
2
3
4
5
6
7
8
9
10^8
2
18
Incident Energy (eV)
32-Ge-72

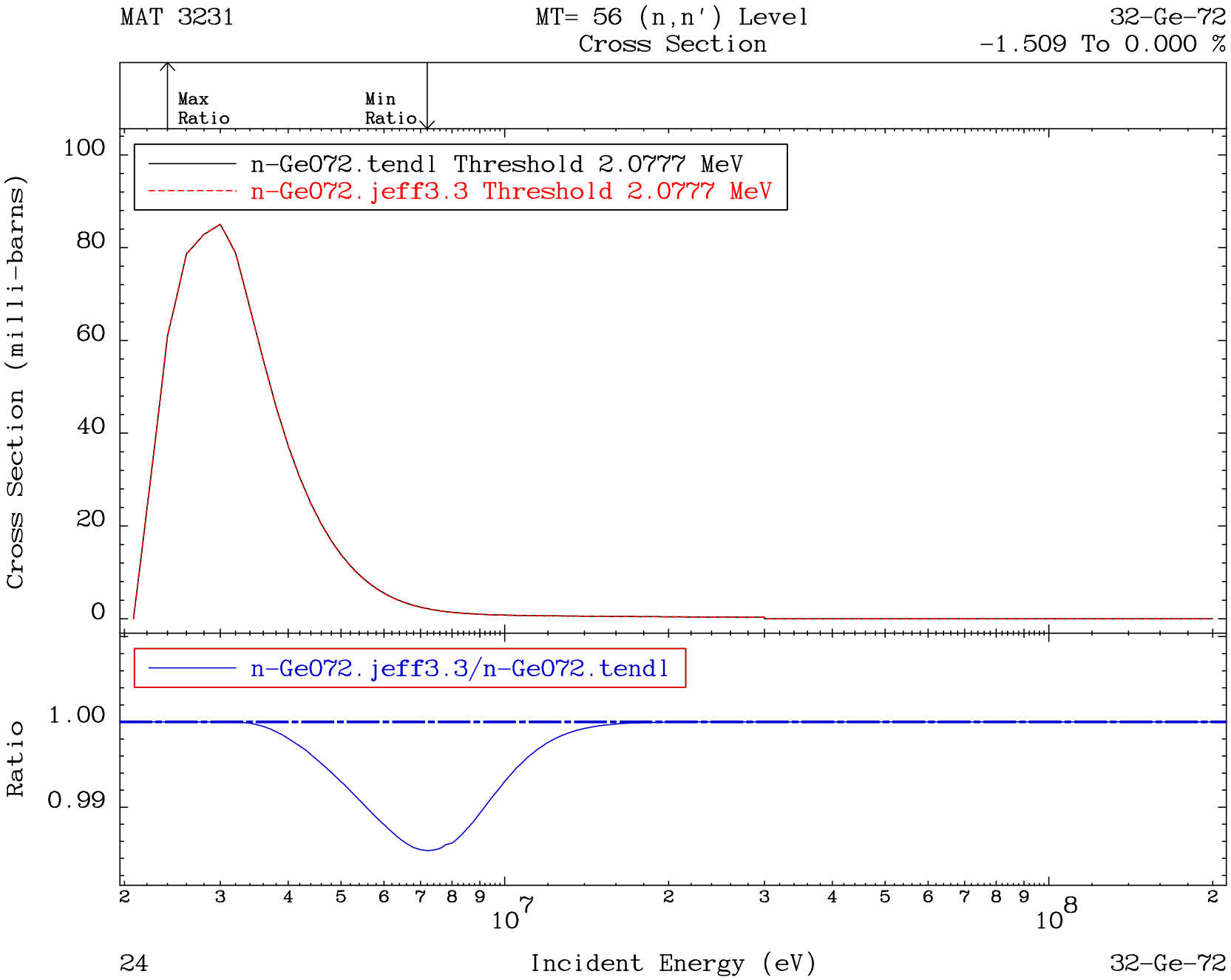

MAT 3231
MT= 51 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max
Ratio
Min
Ratio
n-Ge072.tendl Threshold 701.13 keV
n-Ge072.jeff3.3 Threshold 701.13 keV
Cross Section (milli-barns)
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
7 8
10^6
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
19
Incident Energy (eV)
32-Ge-72

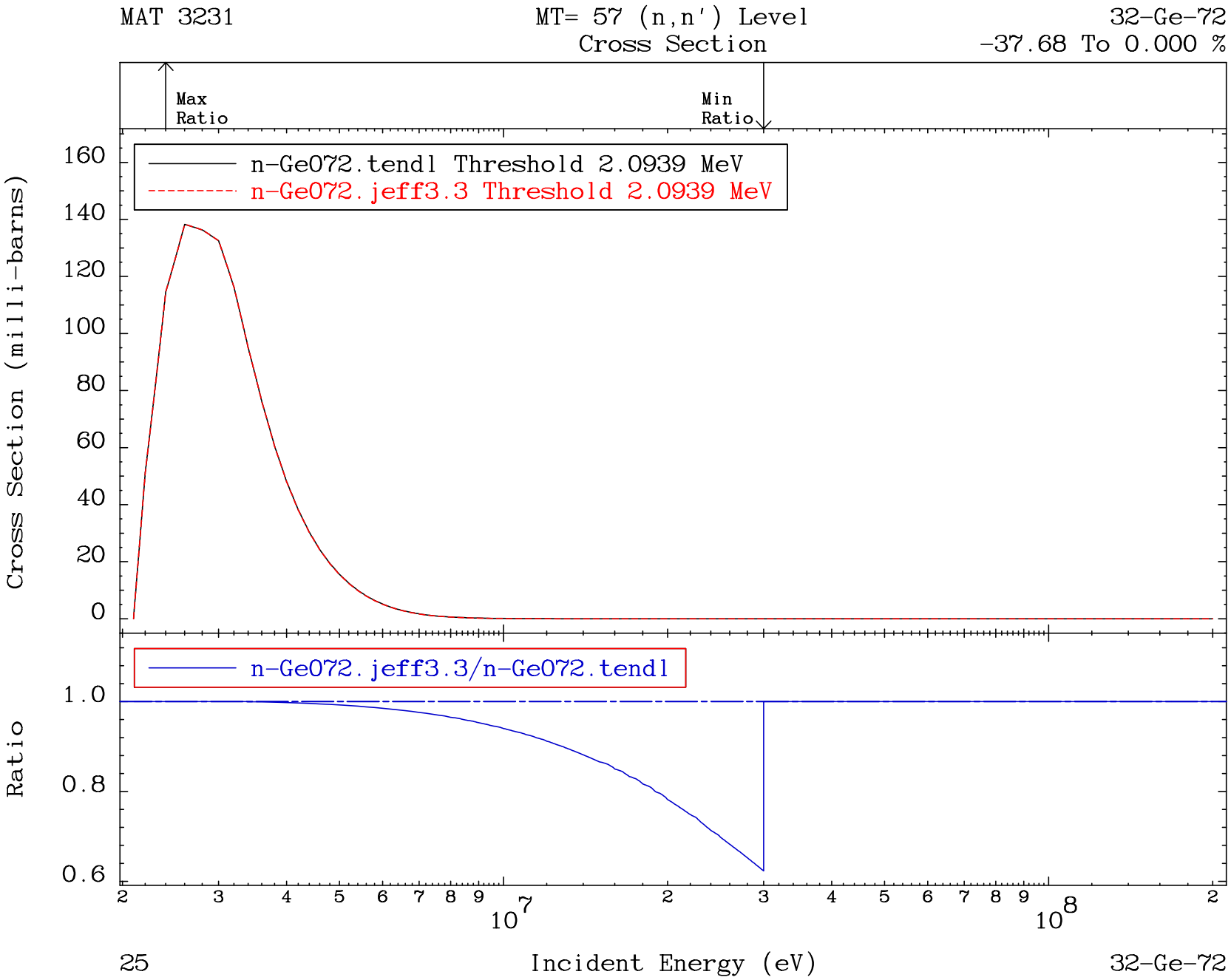

MAT 3231
MT= 52 (n,n') Level
Cross Section
32-Ge-72
-0.095 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 845.71 keV
n-Ge072.jeff3.3 Threshold 845.71 keV
Cross Section (barns)
1.0
0.8
0.6
0.4
0.2
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
8 10^6 2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
20
Incident Energy (eV)
32-Ge-72

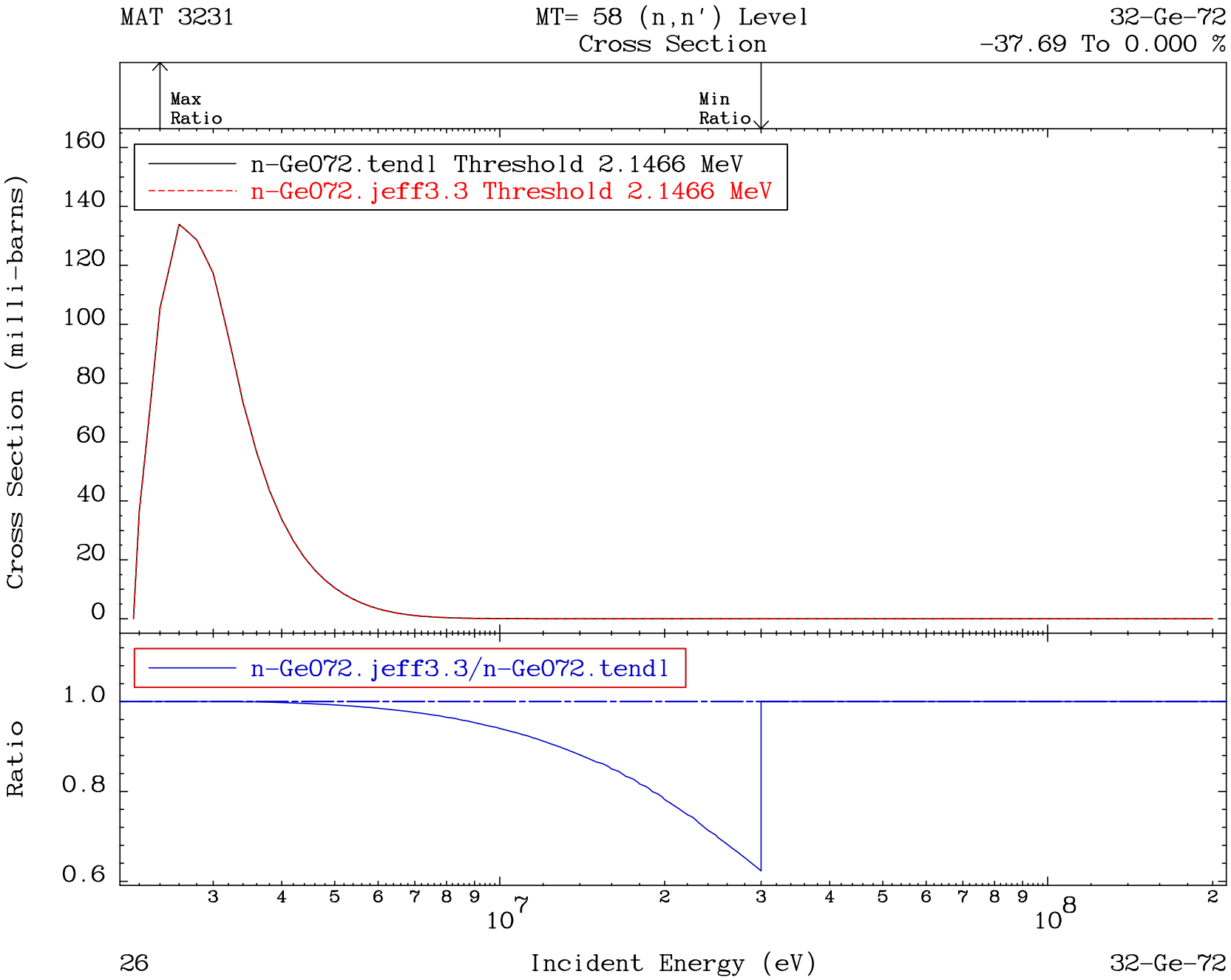

MAT 3231
MT= 53 (n,n') Level
Cross Section
32-Ge-72
-0.316 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 1.4845 MeV
n-Ge072.jeff3.3 Threshold 1.4845 MeV
Cross Section (milli-barns)
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
21
Incident Energy (eV)
32-Ge-72

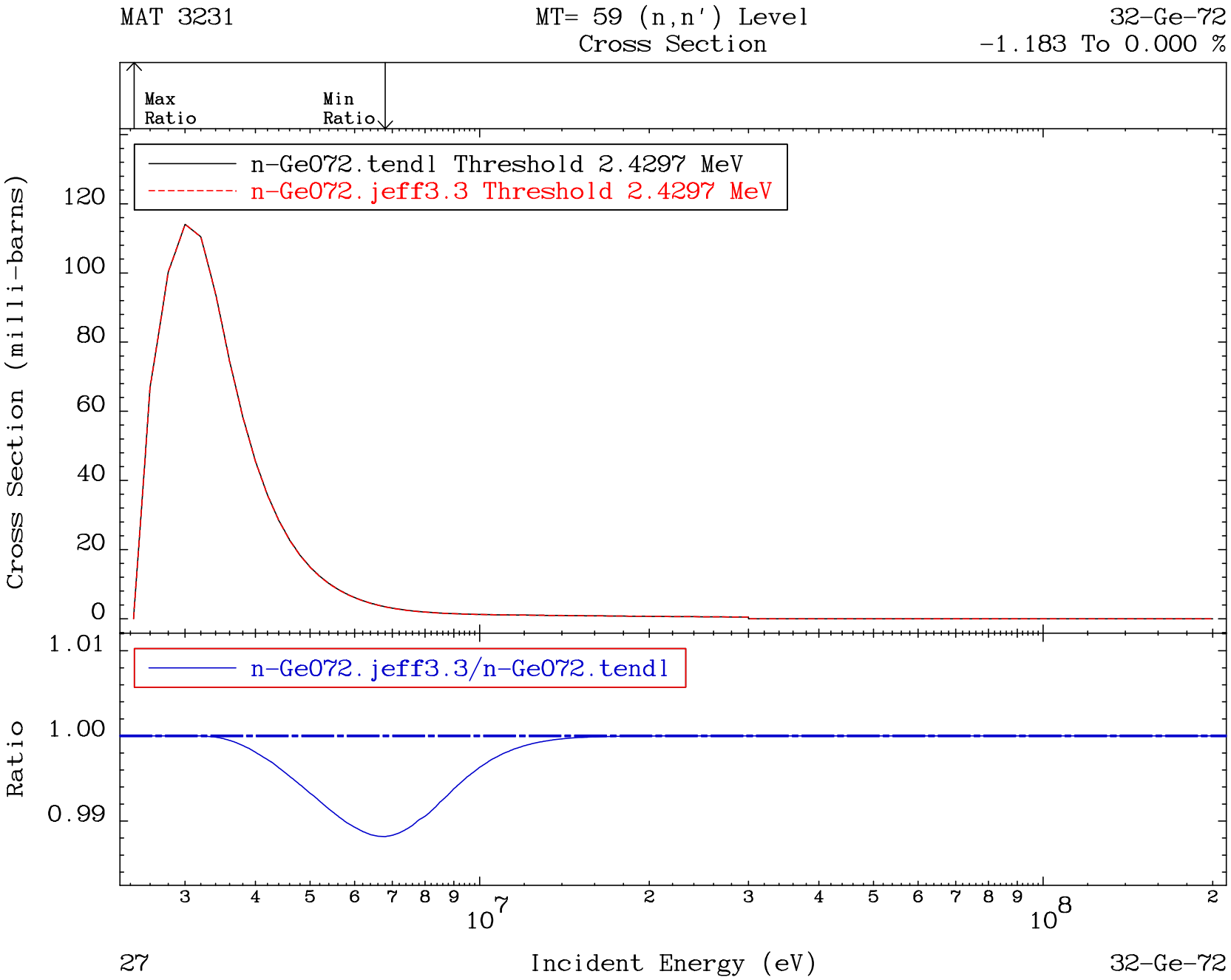

MAT 3231
MT= 54 (n,n') Level
Cross Section
32-Ge-72
-0.331 To 0.000 %
Min
Ratio
Max
Ratio
n-Ge072.tendl Threshold 1.7525 MeV
n-Ge072.jeff3.3 Threshold 1.7525 MeV
Cross Section (milli-barns)
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
2
3
4
5
6
7
8
10^7
2
3
4
5
6
7
8
10^8
2
22
Incident Energy (eV)
32-Ge-72

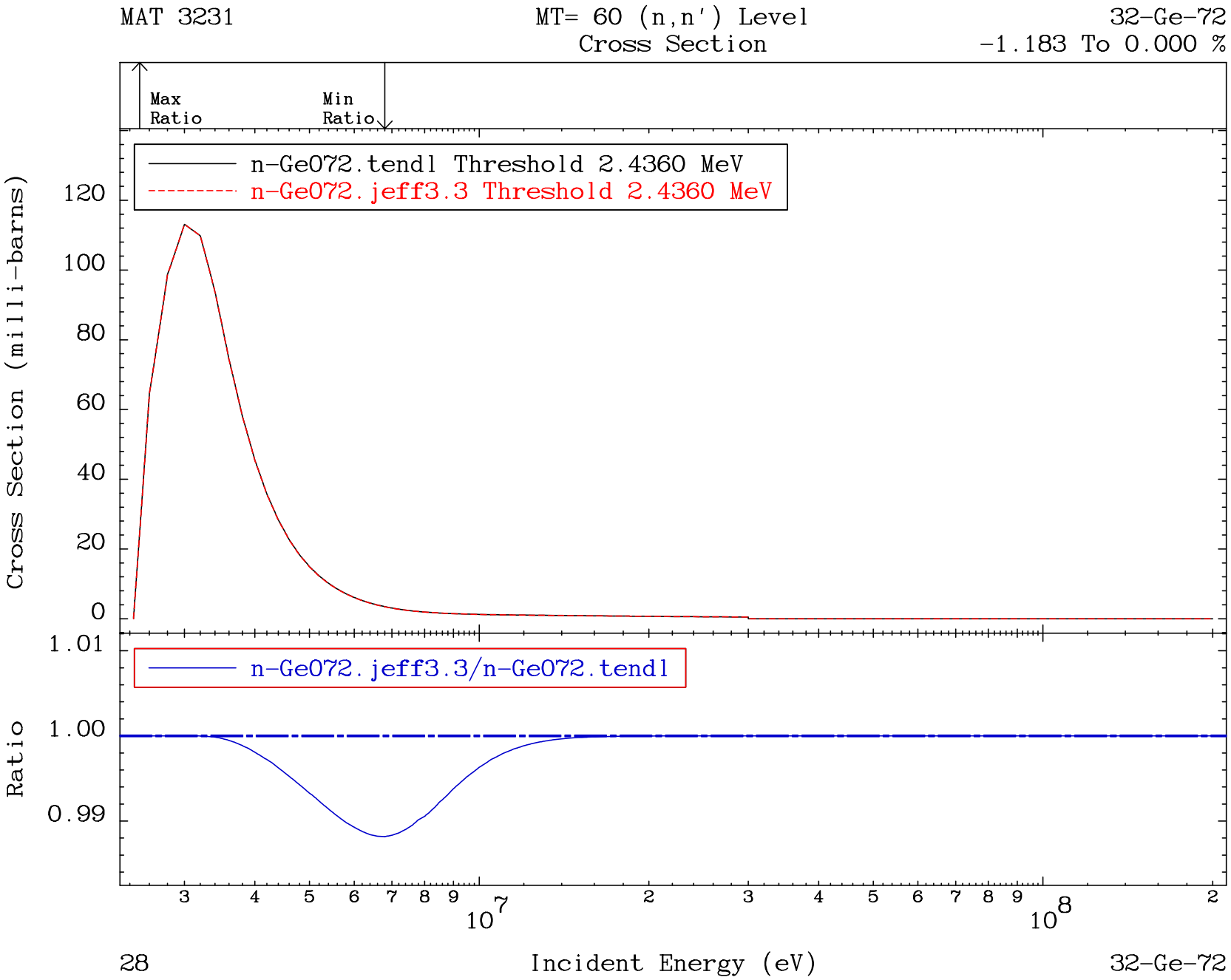

MAT 3231
MT= 55 (n,n') Level
Cross Section
32-Ge-72
-0.144 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.0575 MeV
n-Ge072.jeff3.3 Threshold 2.0575 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
2 3 4 5 6 7 8 10^7 2 3 4 5 6 7 8 10^8 2
23
Incident Energy (eV)
32-Ge-72

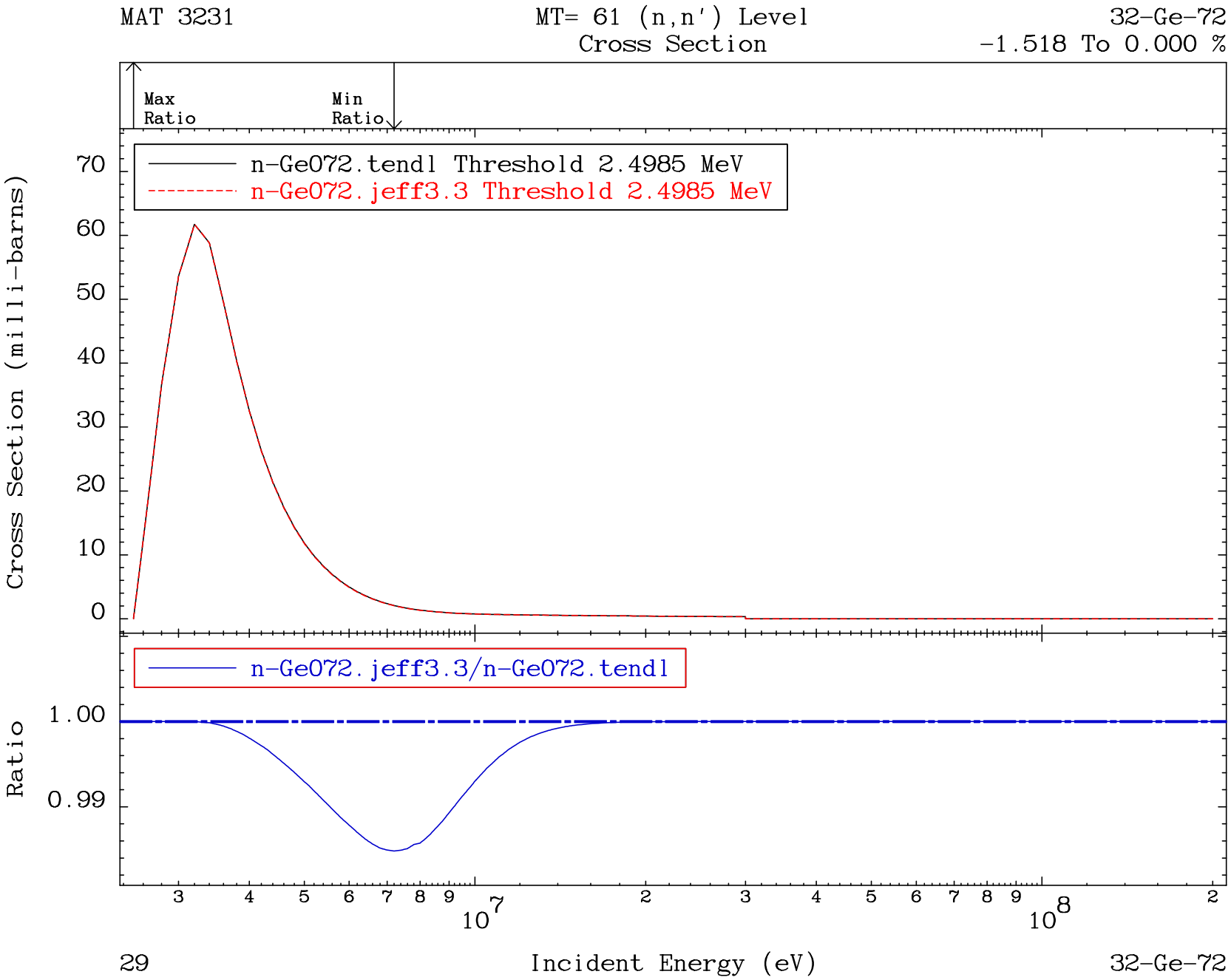

MAT 3231
MT= 56 (n,n') Level
Cross Section
32-Ge-72
-1.509 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.0777 MeV
n-Ge072.jeff3.3 Threshold 2.0777 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
2 3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
24
Incident Energy (eV)
32-Ge-72

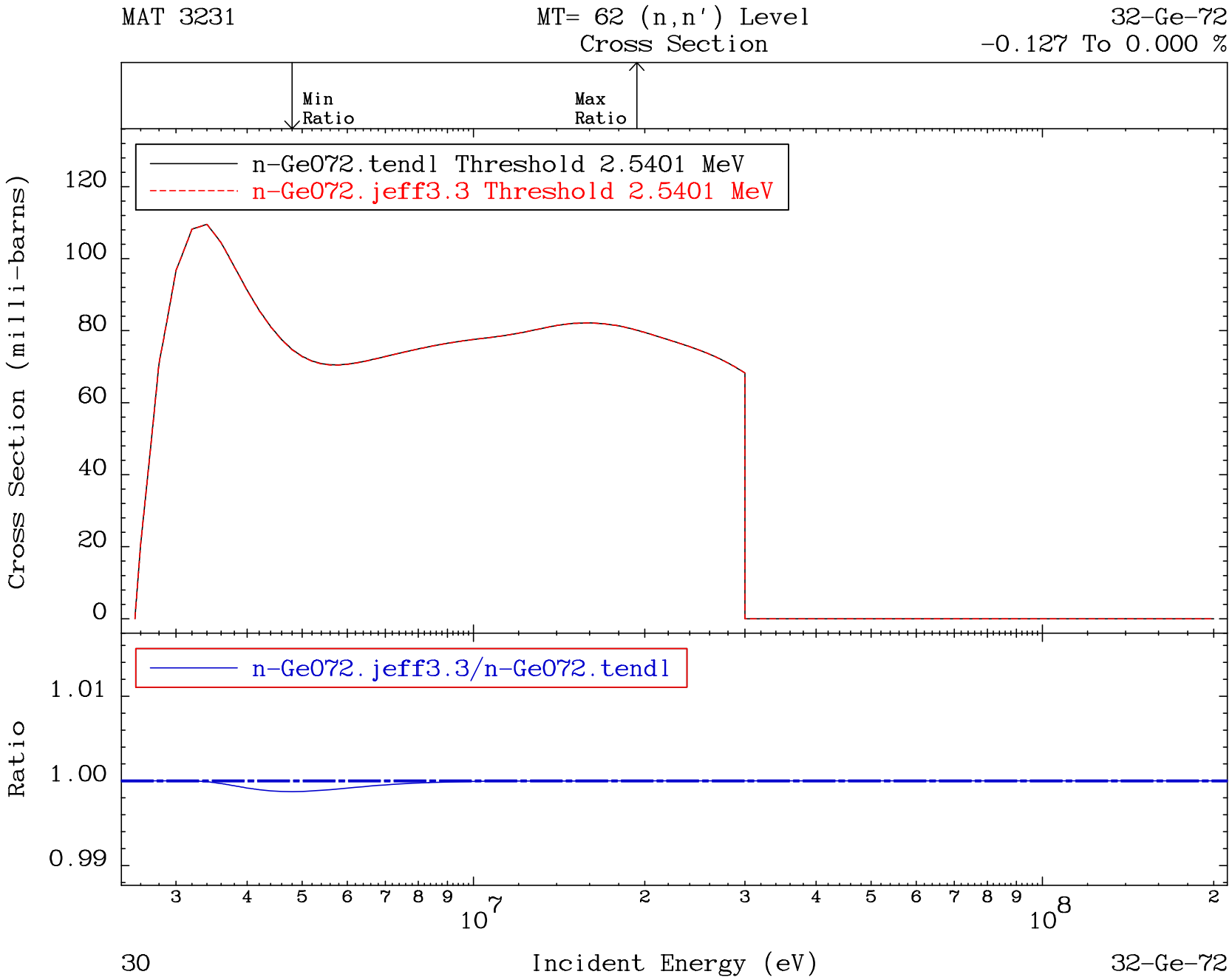

MAT 3231
MT= 57 (n,n') Level
Cross Section
32-Ge-72
-37.68 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.0939 MeV
n-Ge072.jeff3.3 Threshold 2.0939 MeV
Cross Section (milli-barns)
160
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
2 3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
25
Incident Energy (eV)
32-Ge-72

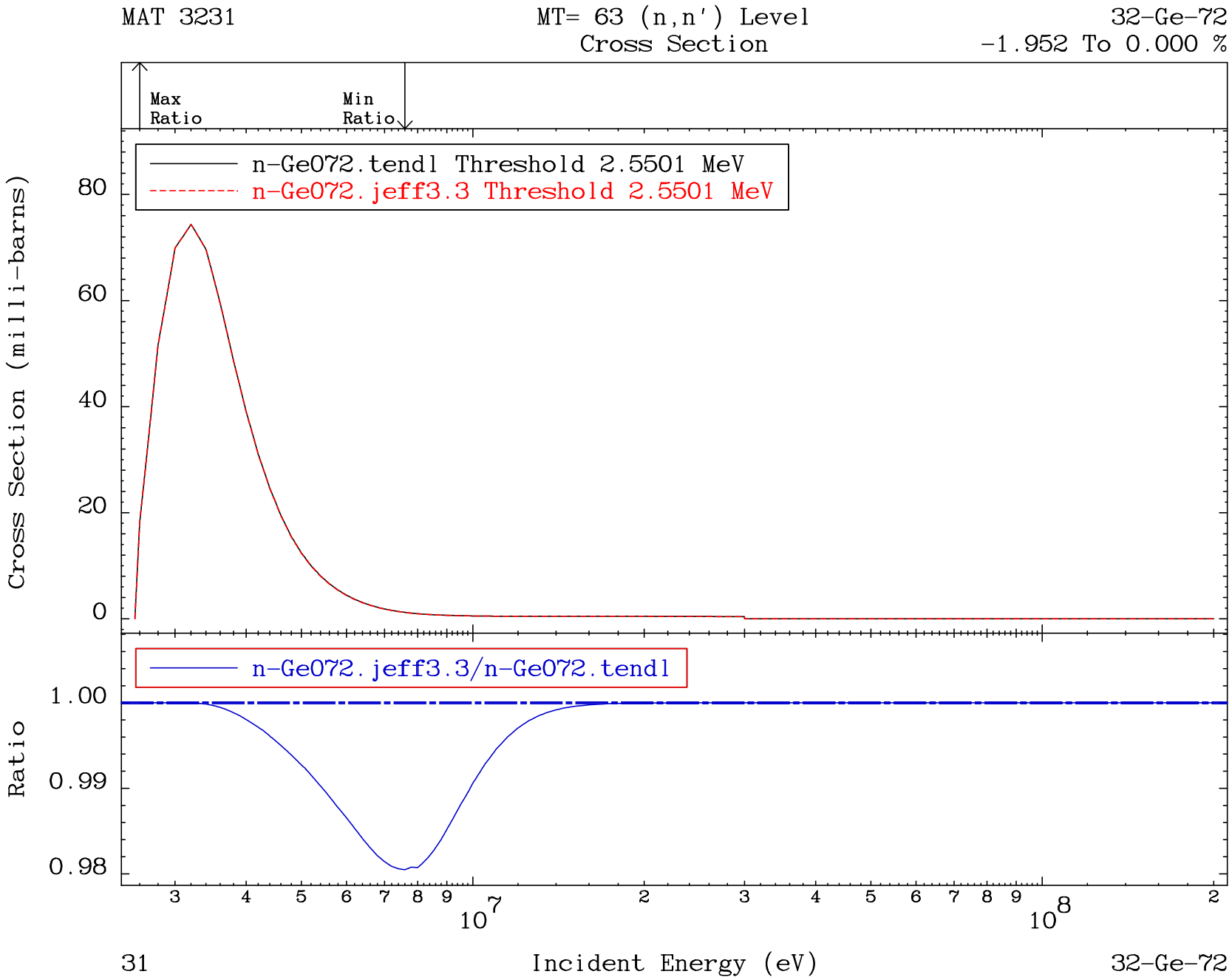

MAT 3231
MT= 58 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.1466 MeV
n-Ge072.jeff3.3 Threshold 2.1466 MeV
Cross Section (milli-barns)
160
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
26
Incident Energy (eV)
32-Ge-72

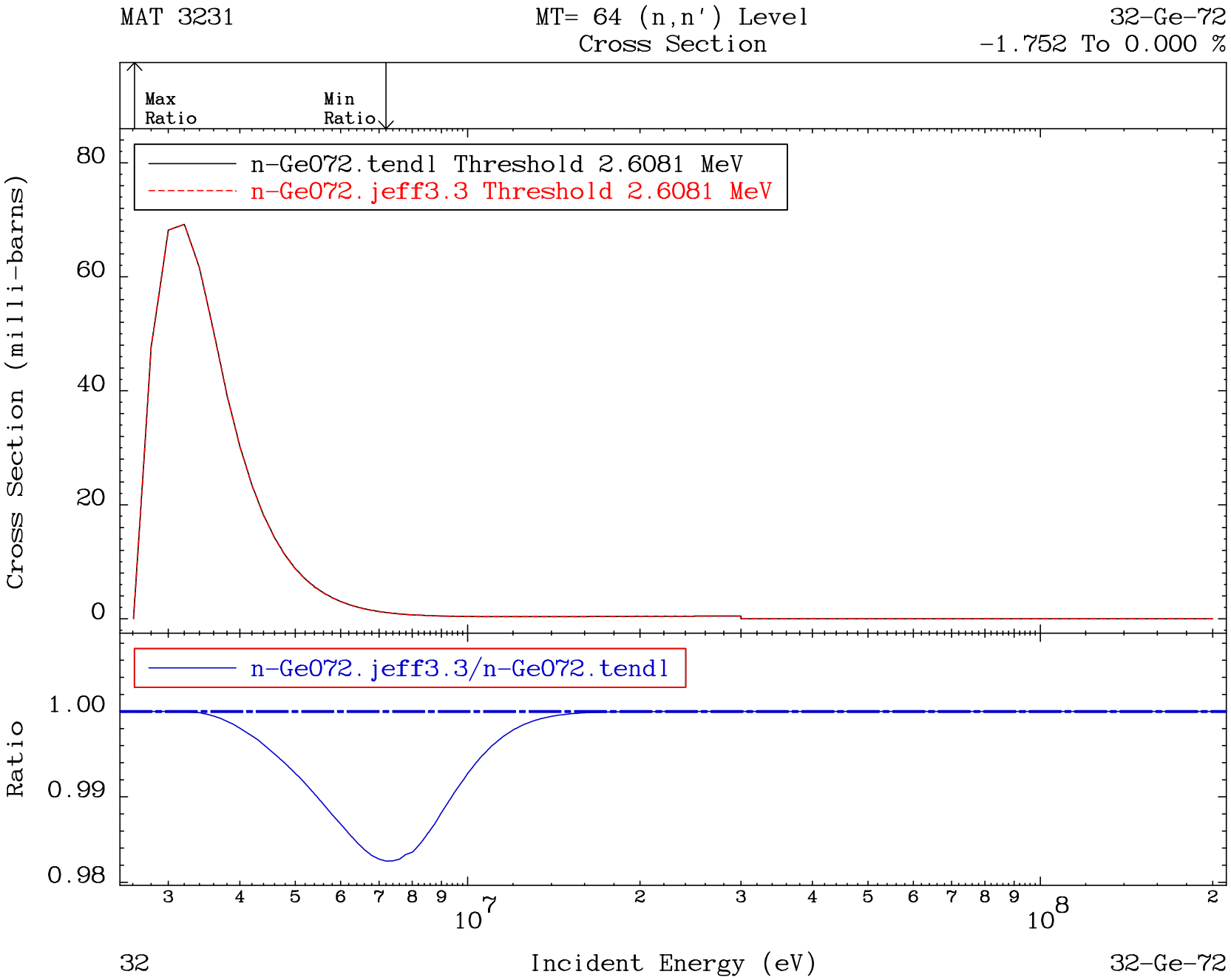

MAT 3231
MT= 59 (n,n') Level
Cross Section
32-Ge-72
-1.183 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.4297 MeV
n-Ge072.jeff3.3 Threshold 2.4297 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
27
Incident Energy (eV)
32-Ge-72

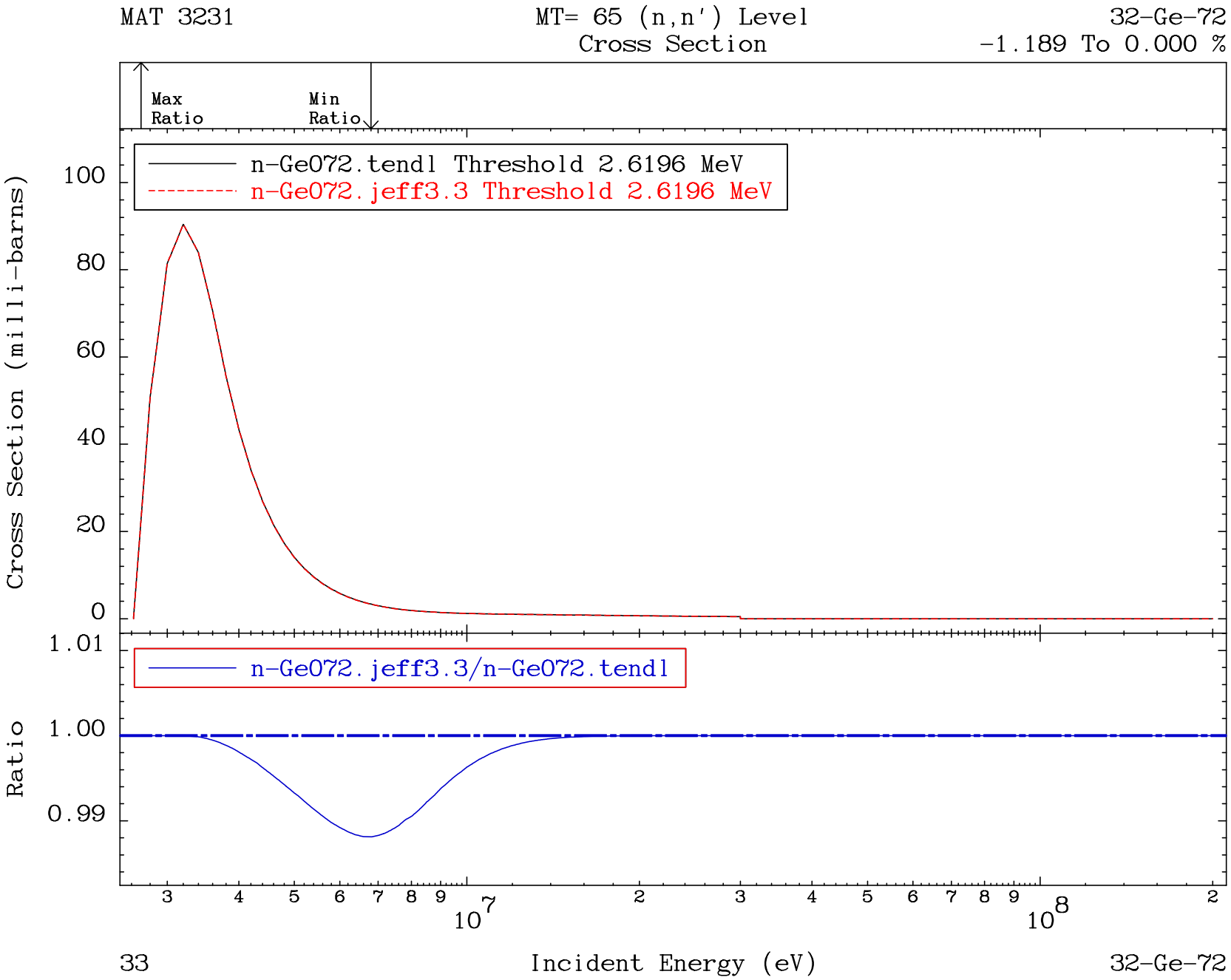

MAT 3231
MT= 60 (n,n') Level
Cross Section
32-Ge-72
-1.183 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.4360 MeV
n-Ge072.jeff3.3 Threshold 2.4360 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
28
Incident Energy (eV)
32-Ge-72

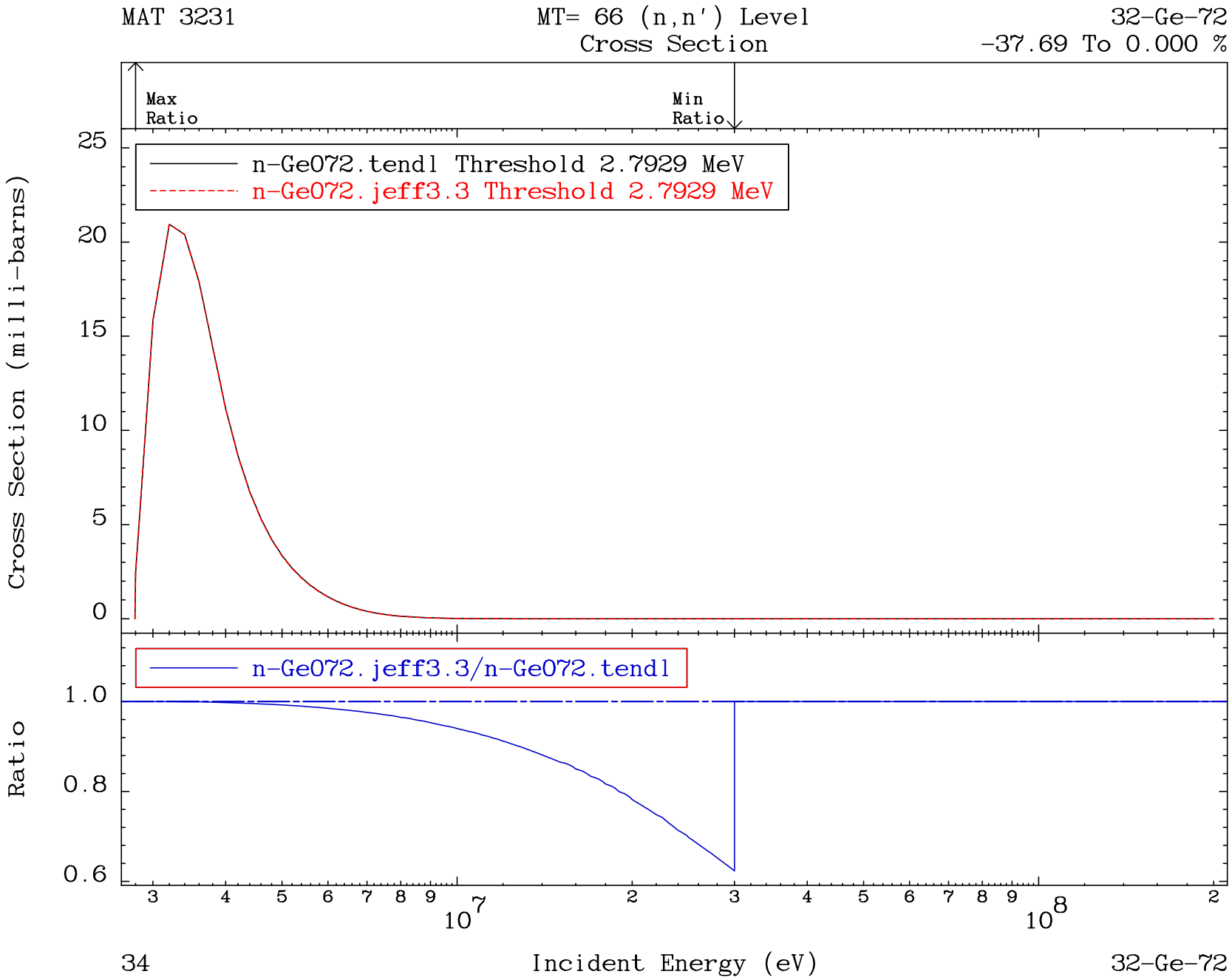

MAT 3231
MT= 61 (n,n') Level
Cross Section
32-Ge-72
-1.518 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.4985 MeV
n-Ge072.jeff3.3 Threshold 2.4985 MeV
Cross Section (milli-barns)
70
60
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
29
Incident Energy (eV)
32-Ge-72

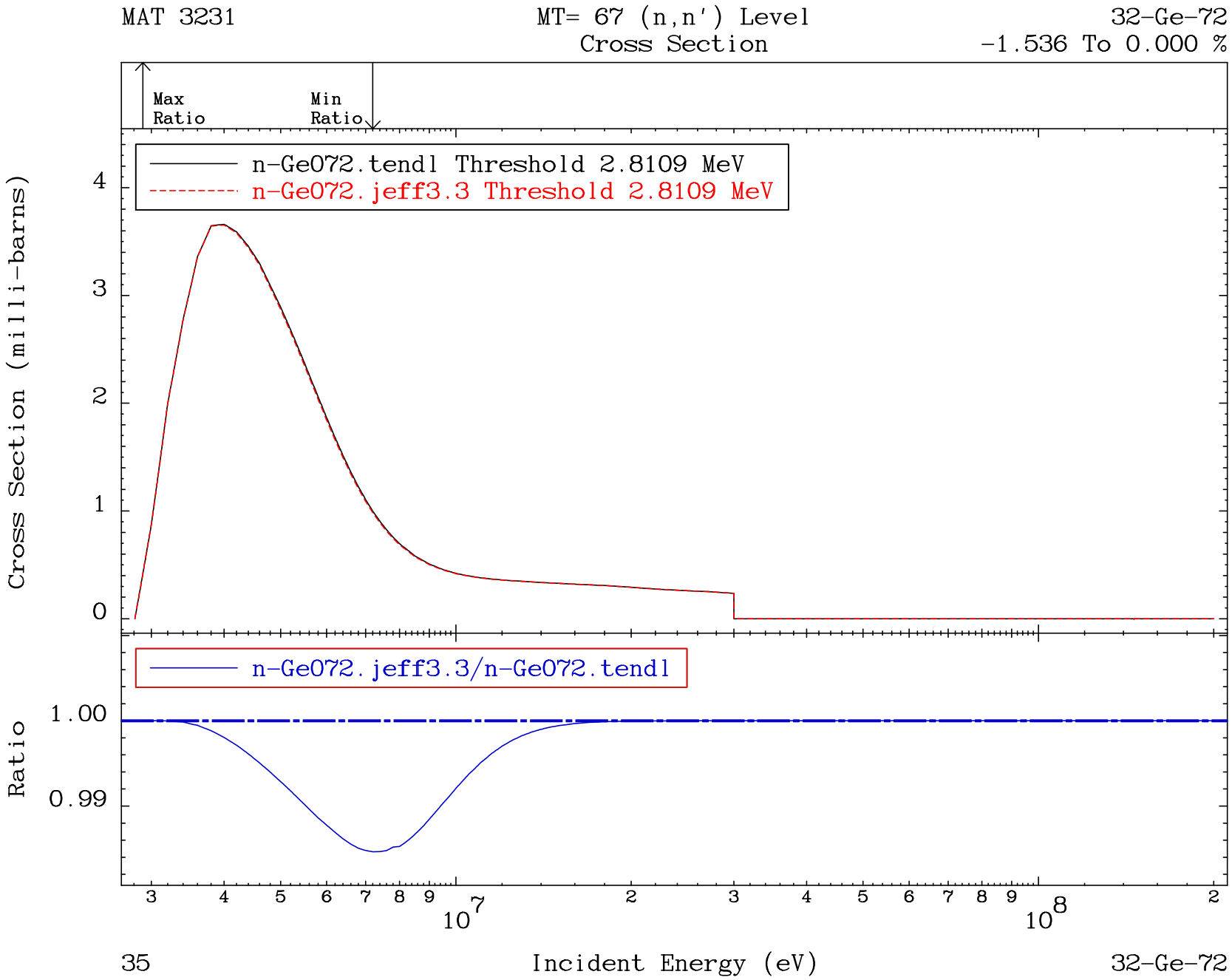

MAT 3231
MT= 62 (n,n') Level
Cross Section
32-Ge-72
-0.127 To 0.000 %
Min
Ratio
Max
Ratio
n-Ge072.tendl Threshold 2.5401 MeV
n-Ge072.jeff3.3 Threshold 2.5401 MeV
Cross Section (milli-barns)
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
30
Incident Energy (eV)
32-Ge-72

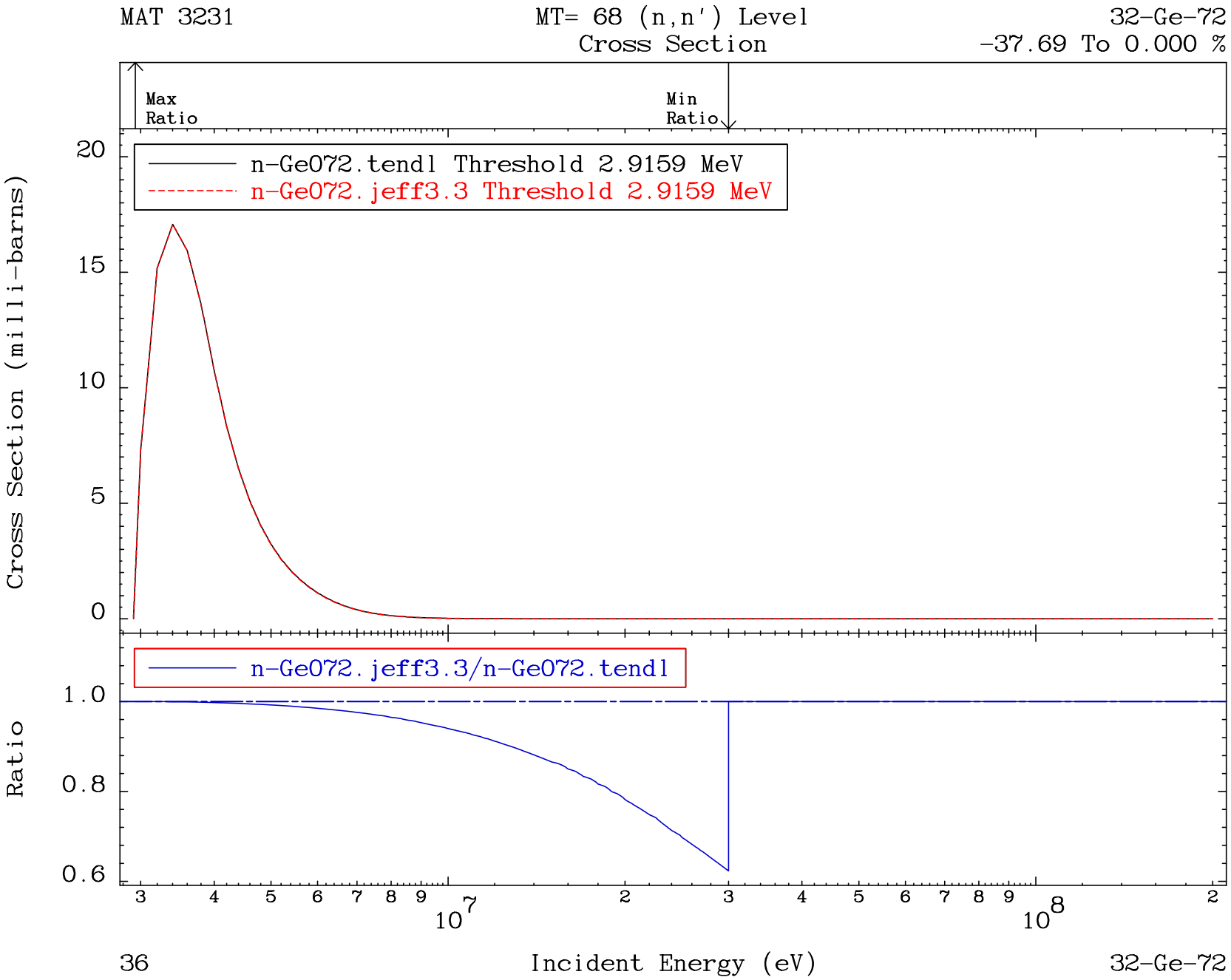

MAT 3231
MT= 63 (n,n') Level
Cross Section
32-Ge-72
-1.952 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.5501 MeV
n-Ge072.jeff3.3 Threshold 2.5501 MeV
Cross Section (milli-barns)
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
0.98
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
31
Incident Energy (eV)
32-Ge-72

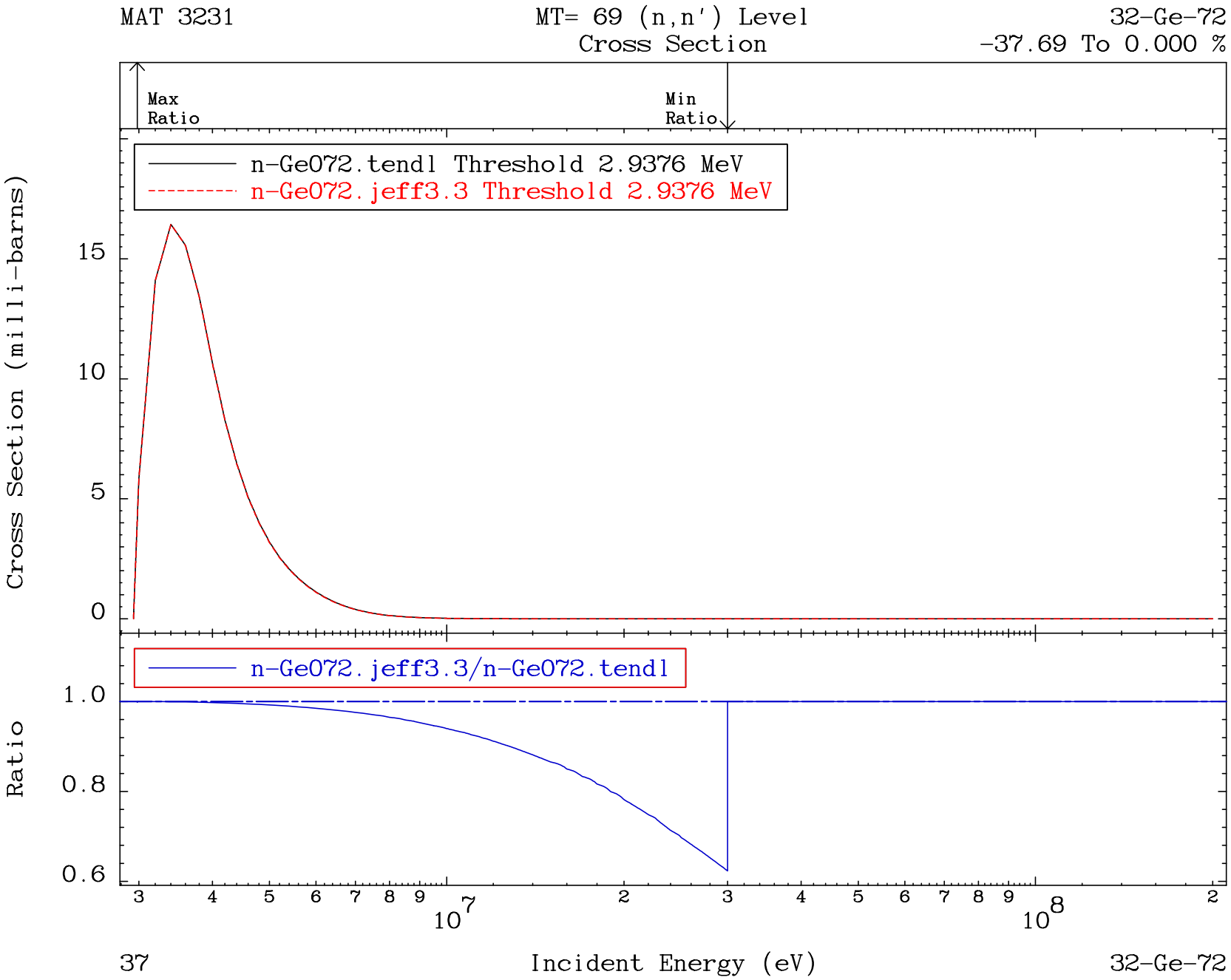

MAT 3231
MT= 64 (n,n') Level
Cross Section
32-Ge-72
-1.752 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.6081 MeV
n-Ge072.jeff3.3 Threshold 2.6081 MeV
Cross Section (milli-barns)
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
0.98
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
32
Incident Energy (eV)
32-Ge-72

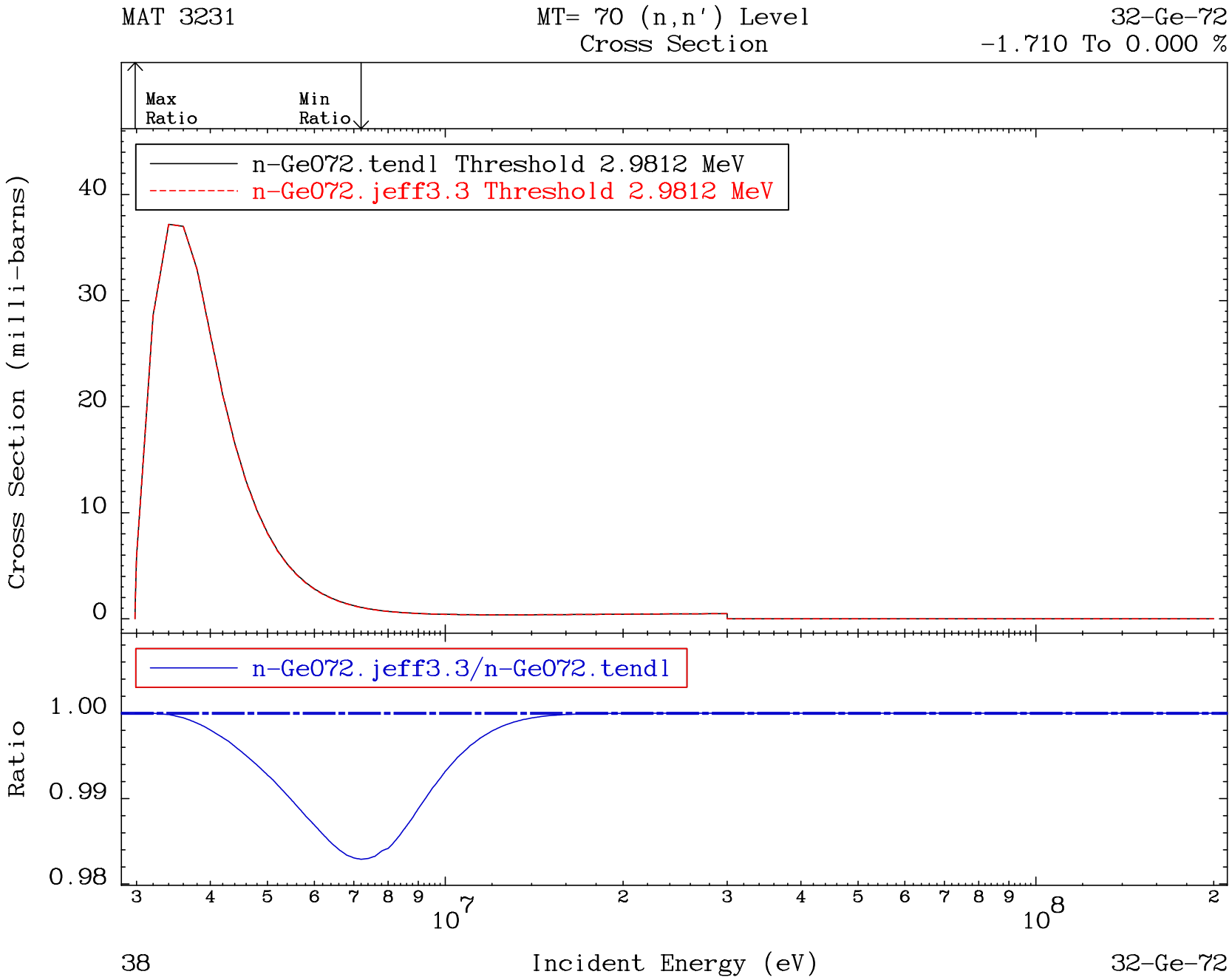

MAT 3231
MT= 65 (n,n') Level
Cross Section
32-Ge-72
-1.189 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.6196 MeV
n-Ge072.jeff3.3 Threshold 2.6196 MeV
Cross Section (milli-barns)
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
33
Incident Energy (eV)
32-Ge-72

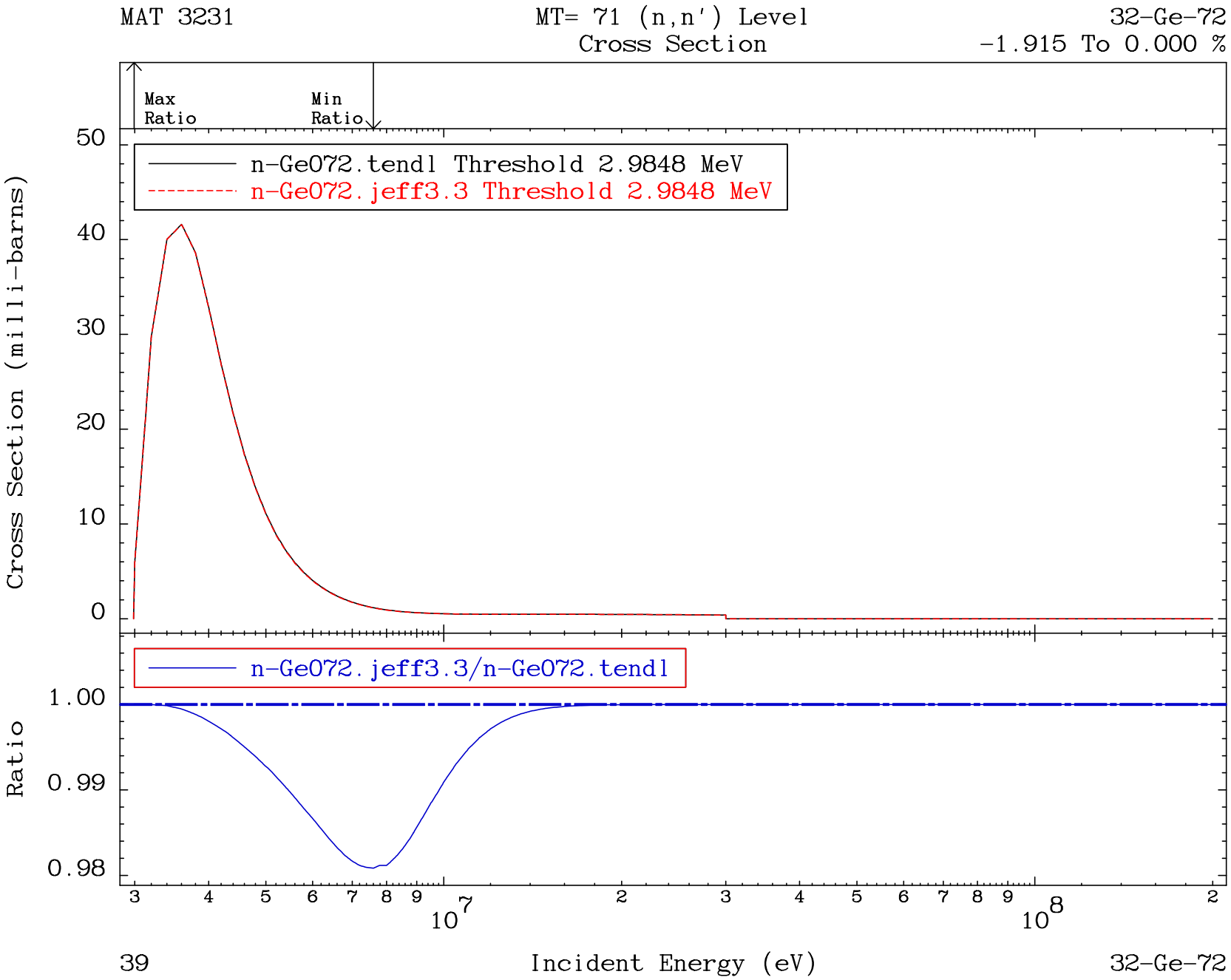

MAT 3231
MT= 66 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.7929 MeV
n-Ge072.jeff3.3 Threshold 2.7929 MeV
Cross Section (milli-barns)
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
34
Incident Energy (eV)
32-Ge-72

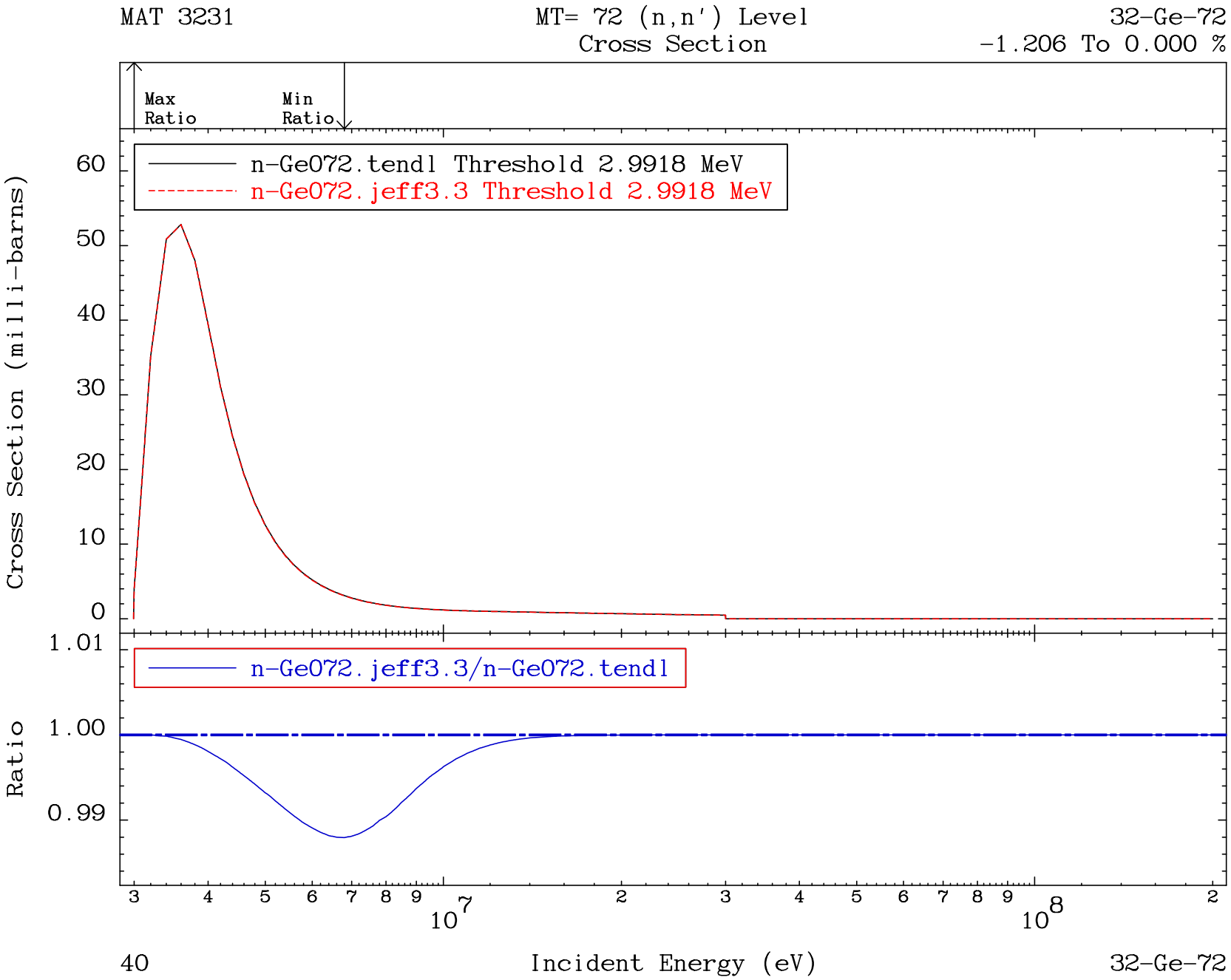

MAT 3231
MT= 67 (n,n') Level
Cross Section
32-Ge-72
-1.536 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.8109 MeV
n-Ge072.jeff3.3 Threshold 2.8109 MeV
Cross Section (milli-barns)
0
1
2
3
4
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
35
Incident Energy (eV)
32-Ge-72

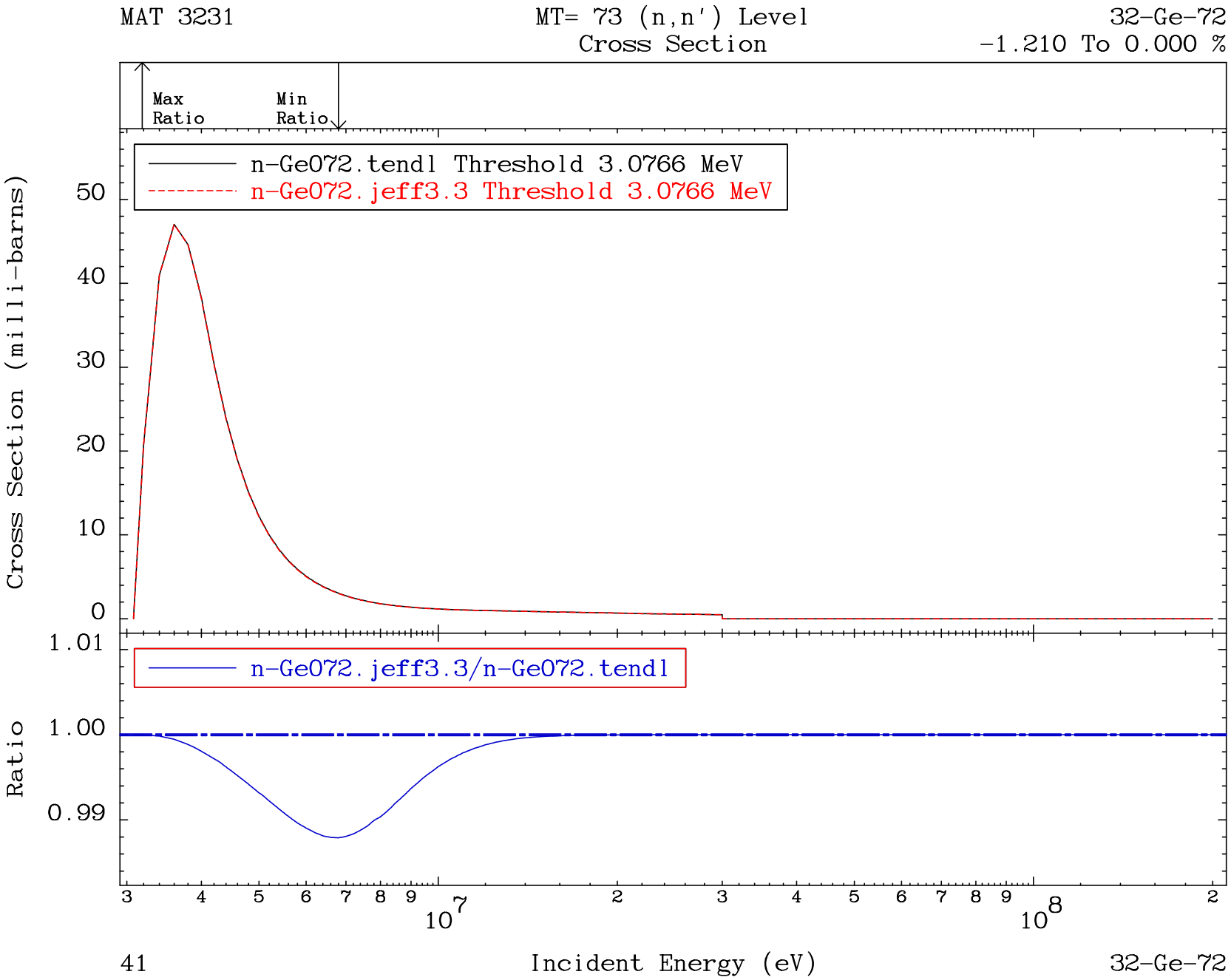

MAT 3231
MT= 68 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.9159 MeV
n-Ge072.jeff3.3 Threshold 2.9159 MeV
Cross Section (milli-barns)
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
36
Incident Energy (eV)
32-Ge-72

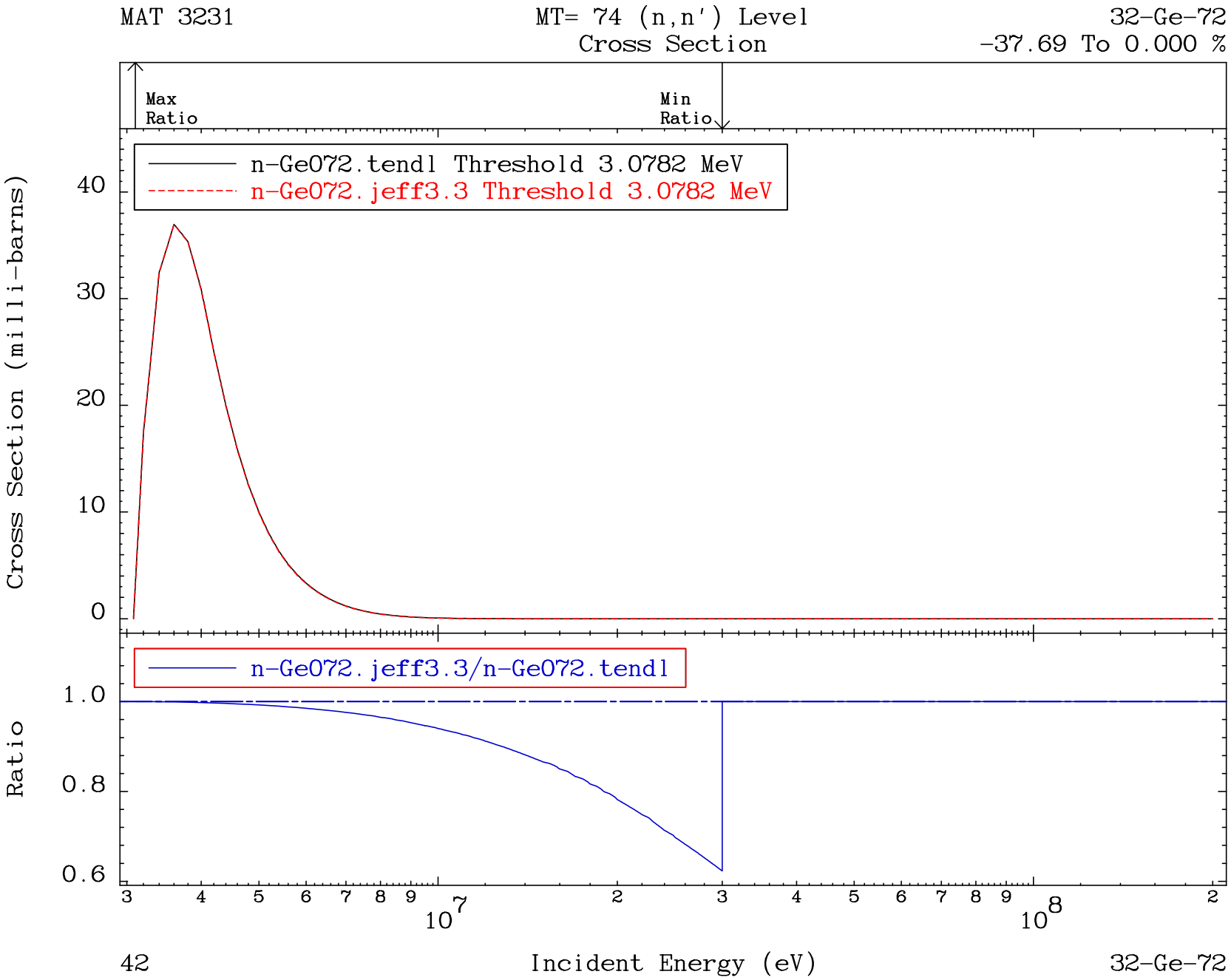

MAT 3231
MT= 69 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.9376 MeV
n-Ge072.jeff3.3 Threshold 2.9376 MeV
Cross Section (milli-barns)
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9
10^7
2 3 4 5 6 7 8 9
10^8
2
37
Incident Energy (eV)
32-Ge-72

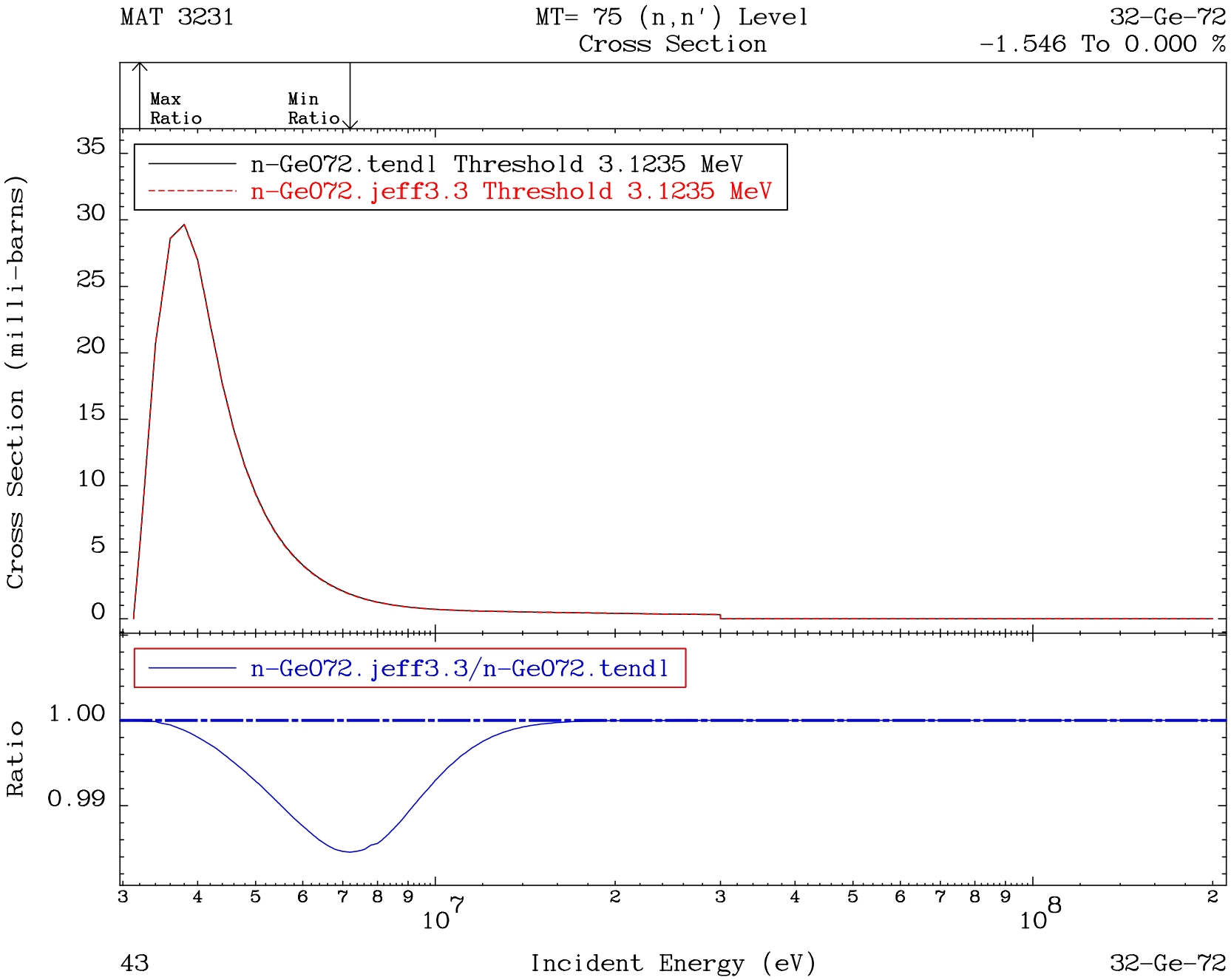

MAT 3231
MT= 70 (n,n') Level
Cross Section
32-Ge-72
-1.710 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.9812 MeV
n-Ge072.jeff3.3 Threshold 2.9812 MeV
Cross Section (milli-barns)
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
0.98
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
38
Incident Energy (eV)
32-Ge-72

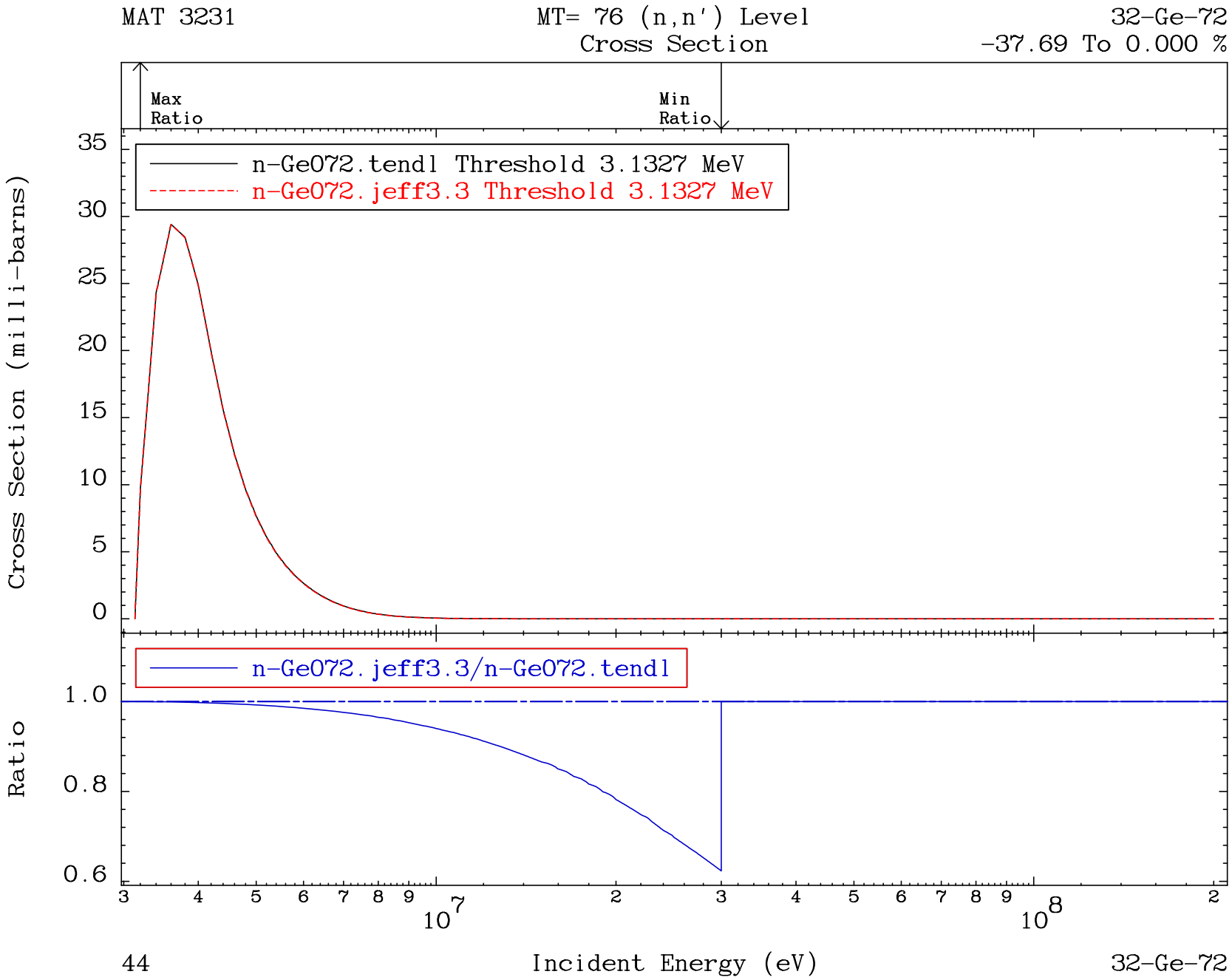

MAT 3231
MT= 71 (n,n') Level
Cross Section
32-Ge-72
-1.915 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.9848 MeV
n-Ge072.jeff3.3 Threshold 2.9848 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
0.98
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
39
Incident Energy (eV)
32-Ge-72

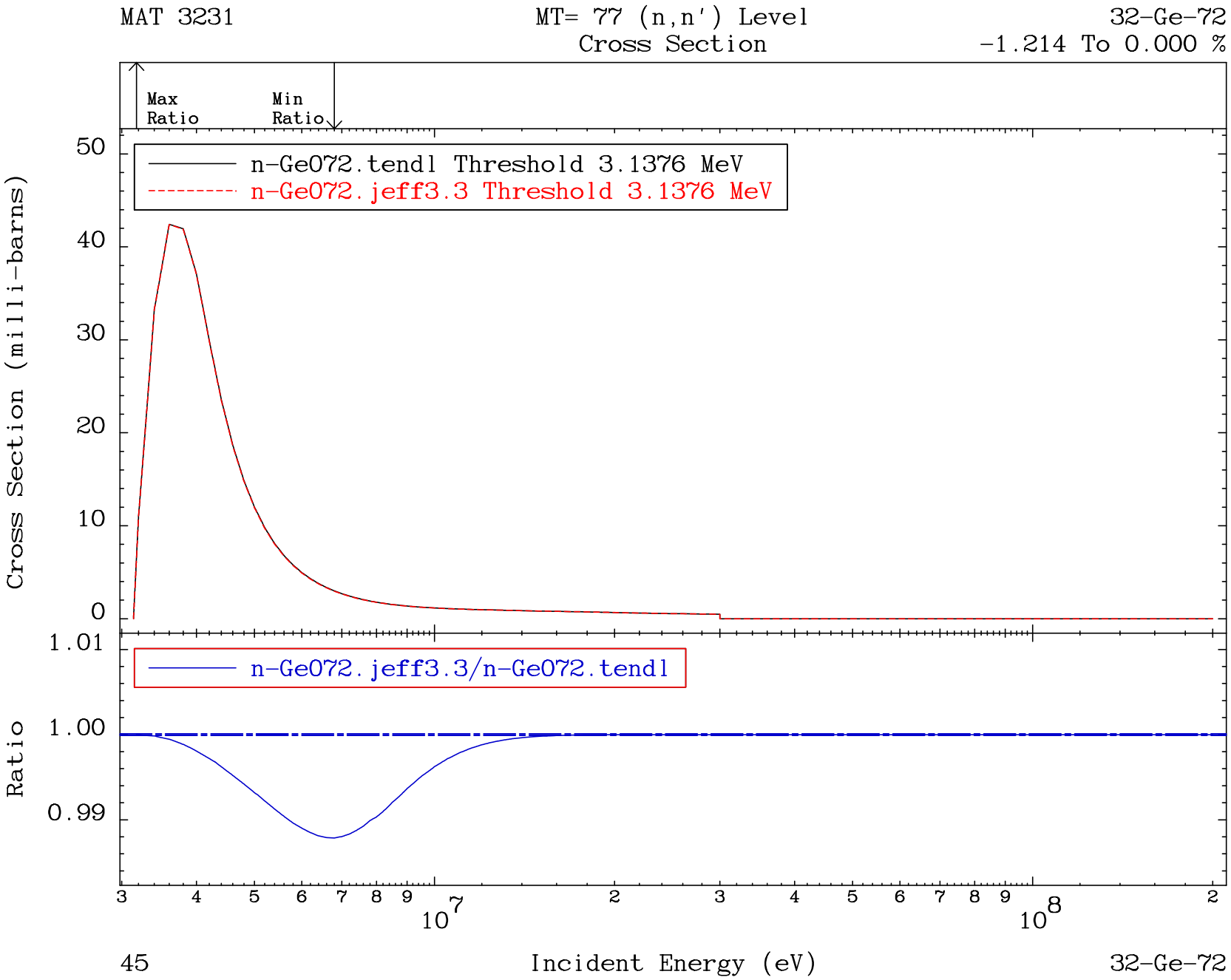

MAT 3231
MT= 72 (n,n') Level
Cross Section
32-Ge-72
-1.206 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 2.9918 MeV
n-Ge072.jeff3.3 Threshold 2.9918 MeV
Cross Section (milli-barns)
60
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
Incident Energy (eV)
40
32-Ge-72

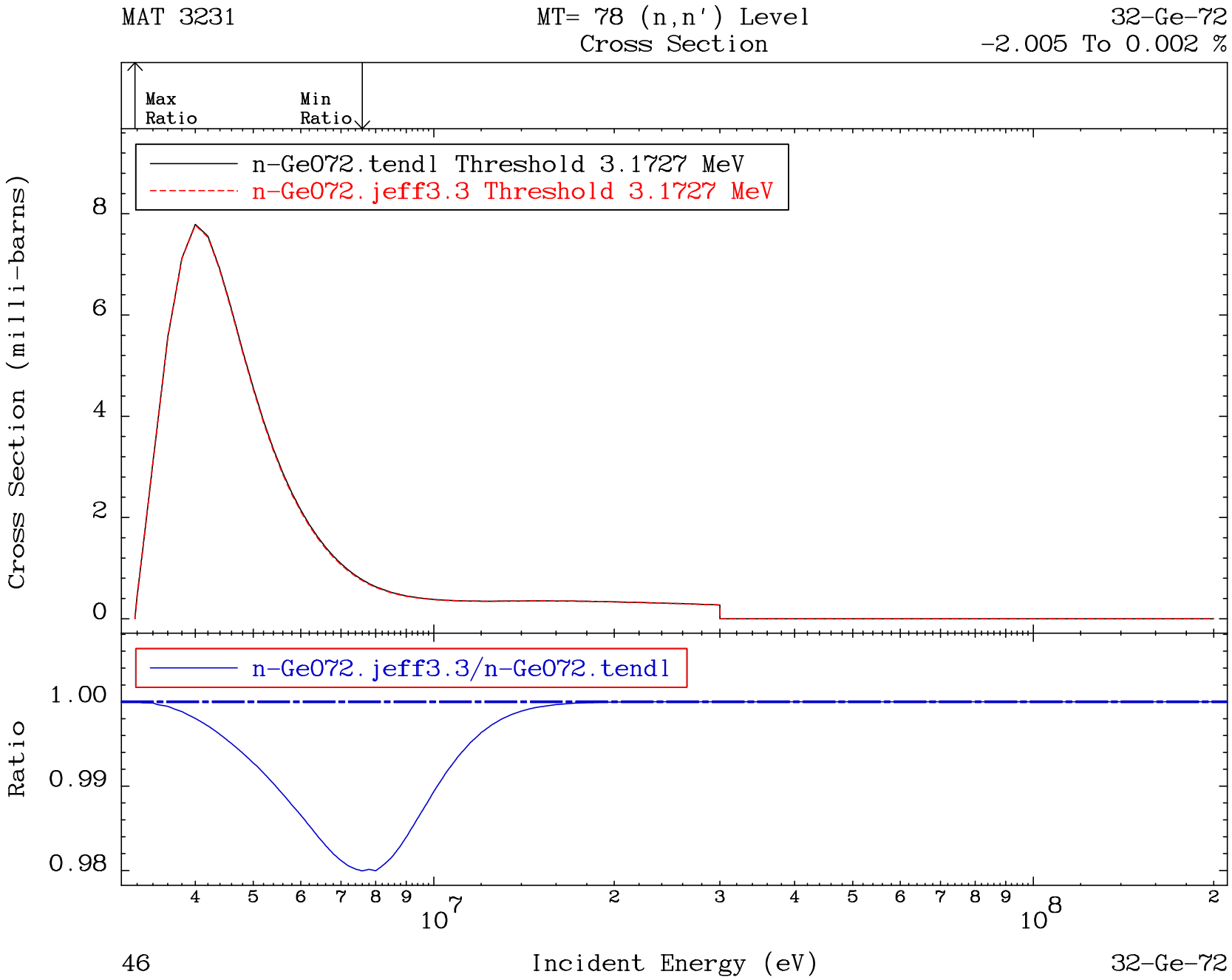

MAT 3231
MT= 73 (n,n') Level
Cross Section
32-Ge-72
-1.210 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.0766 MeV
n-Ge072.jeff3.3 Threshold 3.0766 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
1.01
1.00
0.99
Ratio
n-Ge072.jeff3.3/n-Ge072.tendl
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
41
Incident Energy (eV)
32-Ge-72

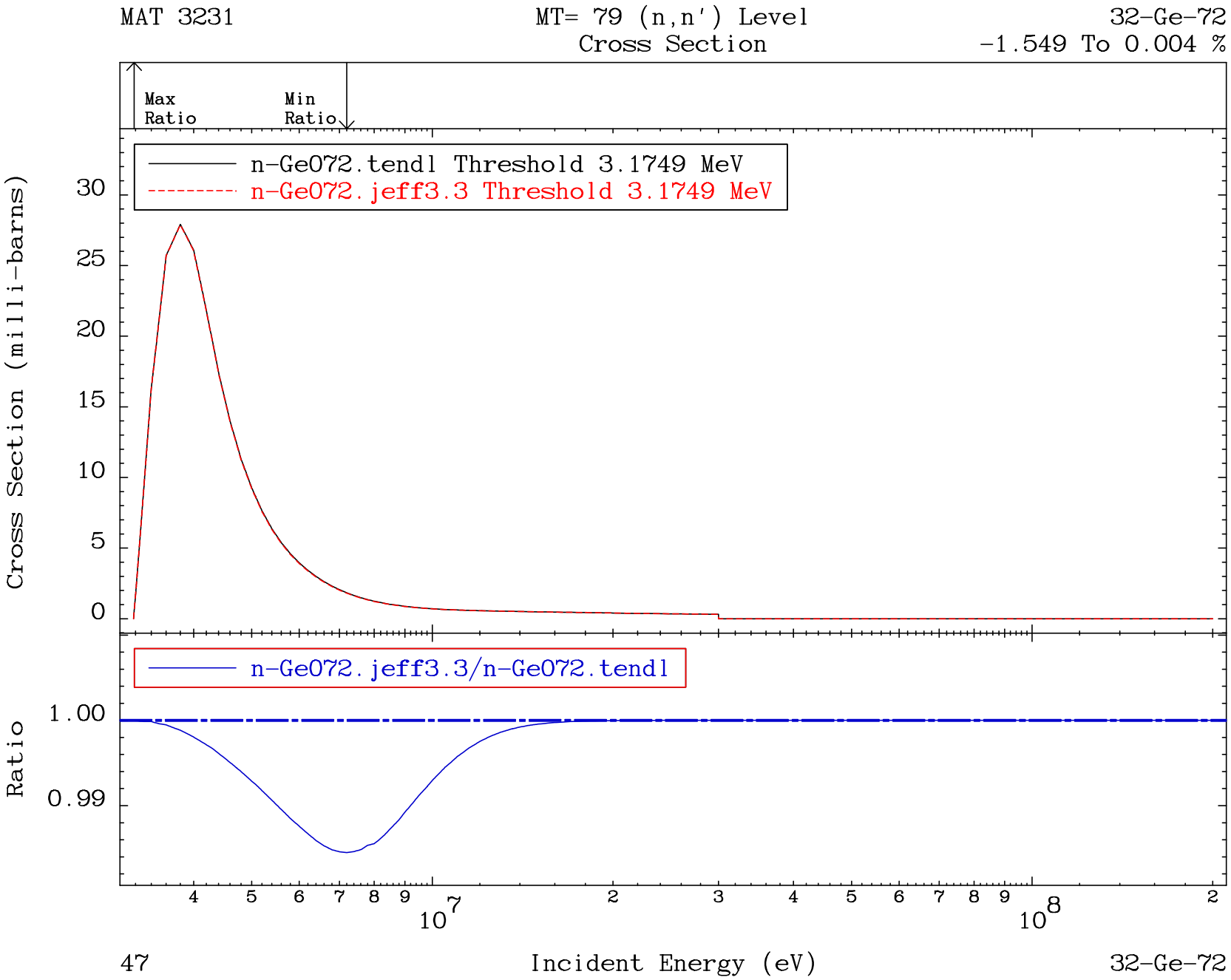

MAT 3231
MT= 74 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.0782 MeV
n-Ge072.jeff3.3 Threshold 3.0782 MeV
Cross Section (milli-barns)
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
42
Incident Energy (eV)
32-Ge-72

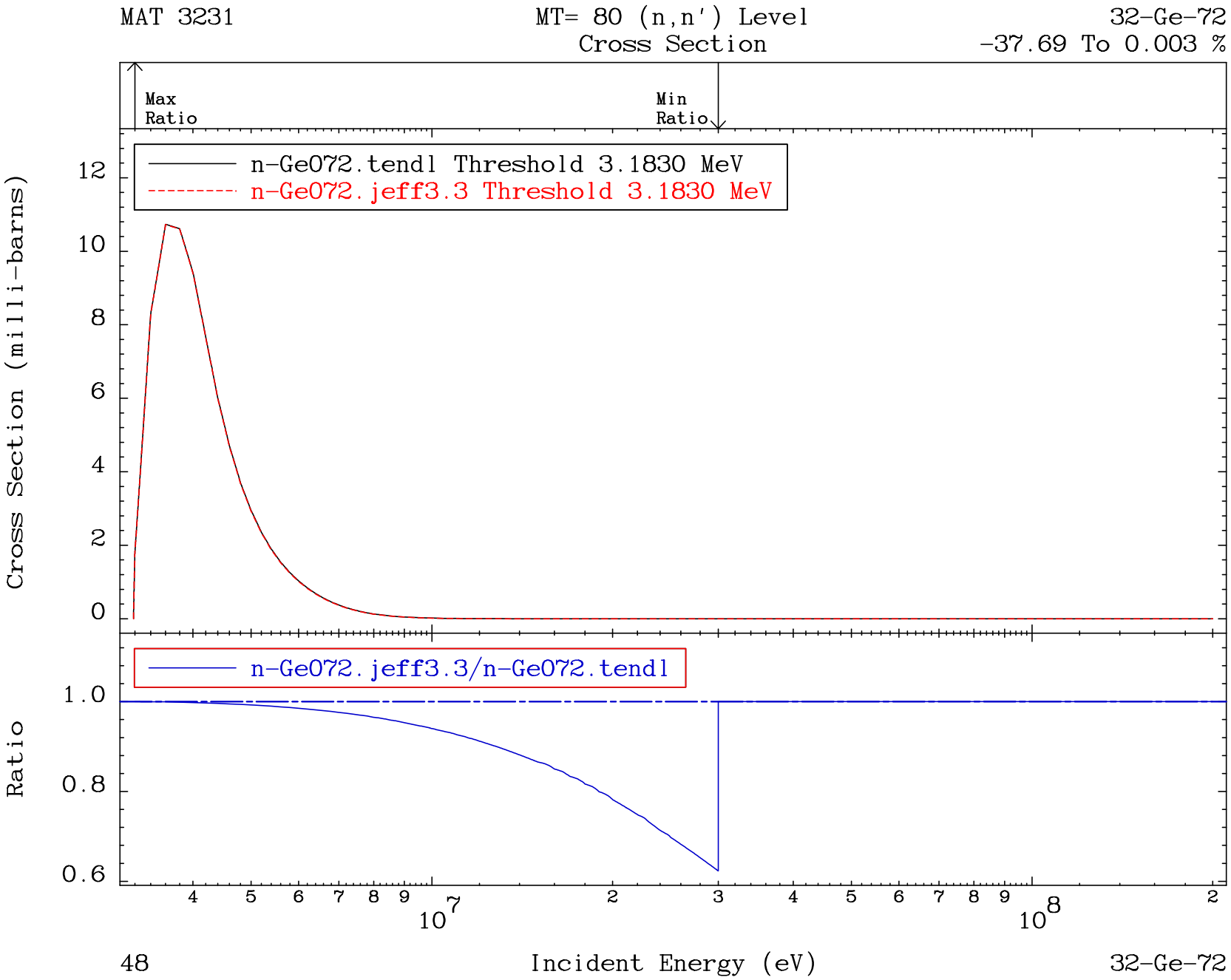

MAT 3231
MT= 75 (n,n') Level
Cross Section
32-Ge-72
-1.546 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1235 MeV
n-Ge072.jeff3.3 Threshold 3.1235 MeV
Cross Section (milli-barns)
35
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
43
Incident Energy (eV)
32-Ge-72

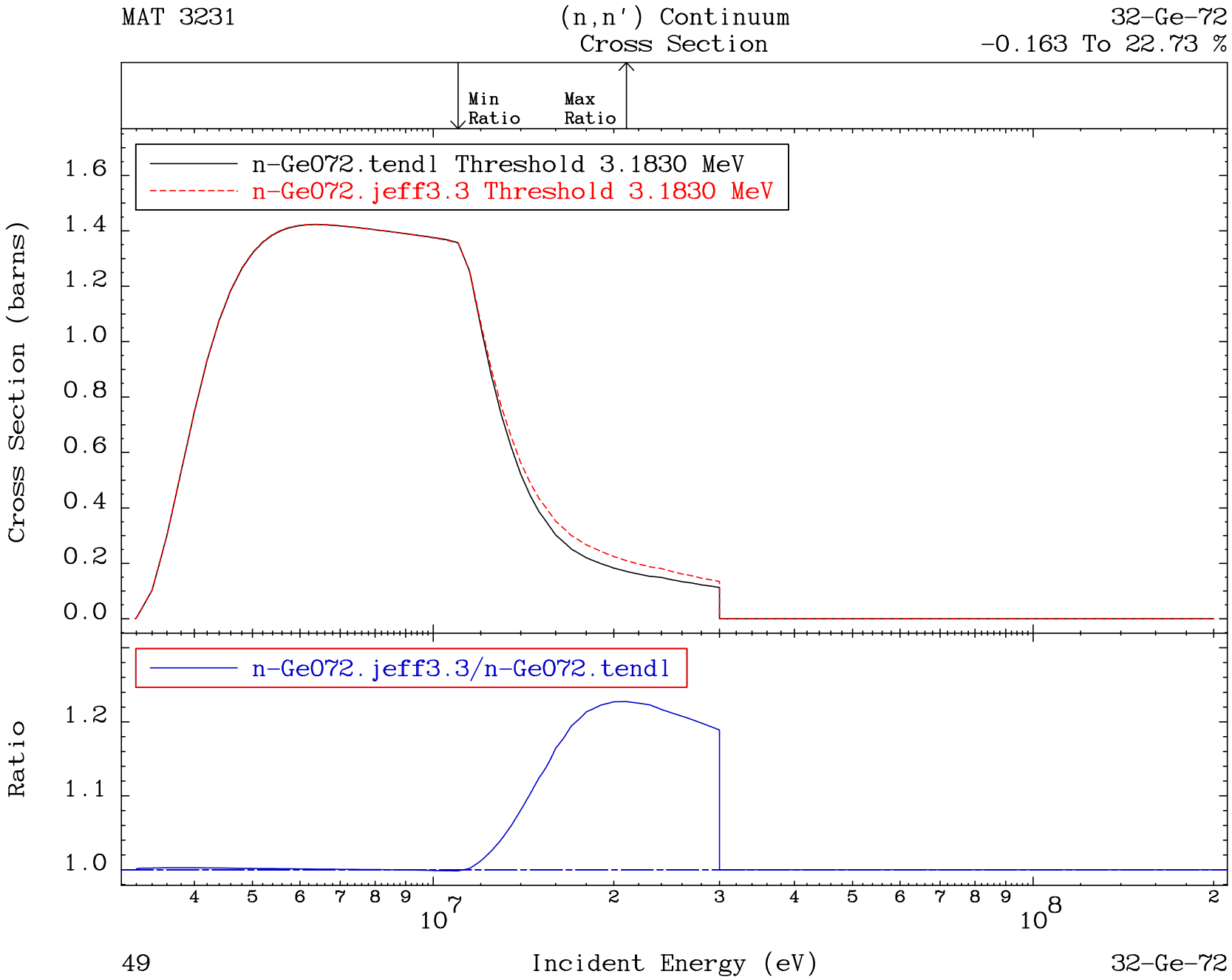

MAT 3231
MT= 76 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1327 MeV
n-Ge072.jeff3.3 Threshold 3.1327 MeV
Cross Section (milli-barns)
35
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
44
Incident Energy (eV)
32-Ge-72

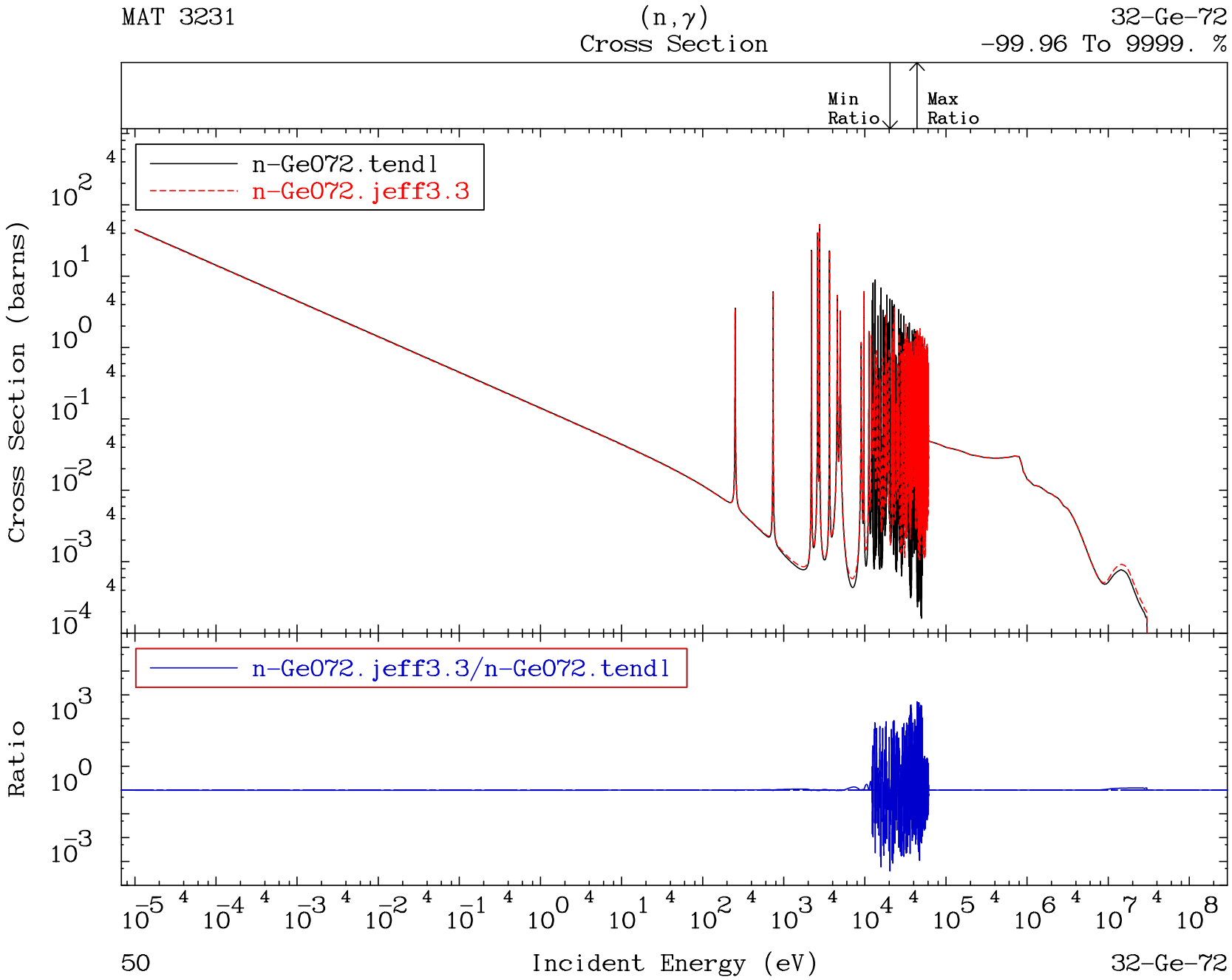

MAT 3231
MT= 77 (n,n') Level
Cross Section
32-Ge-72
-1.214 To 0.000 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1376 MeV
n-Ge072.jeff3.3 Threshold 3.1376 MeV
Cross Section (milli-barns)
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.01
1.00
0.99
3 4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
Incident Energy (eV)
45
32-Ge-72

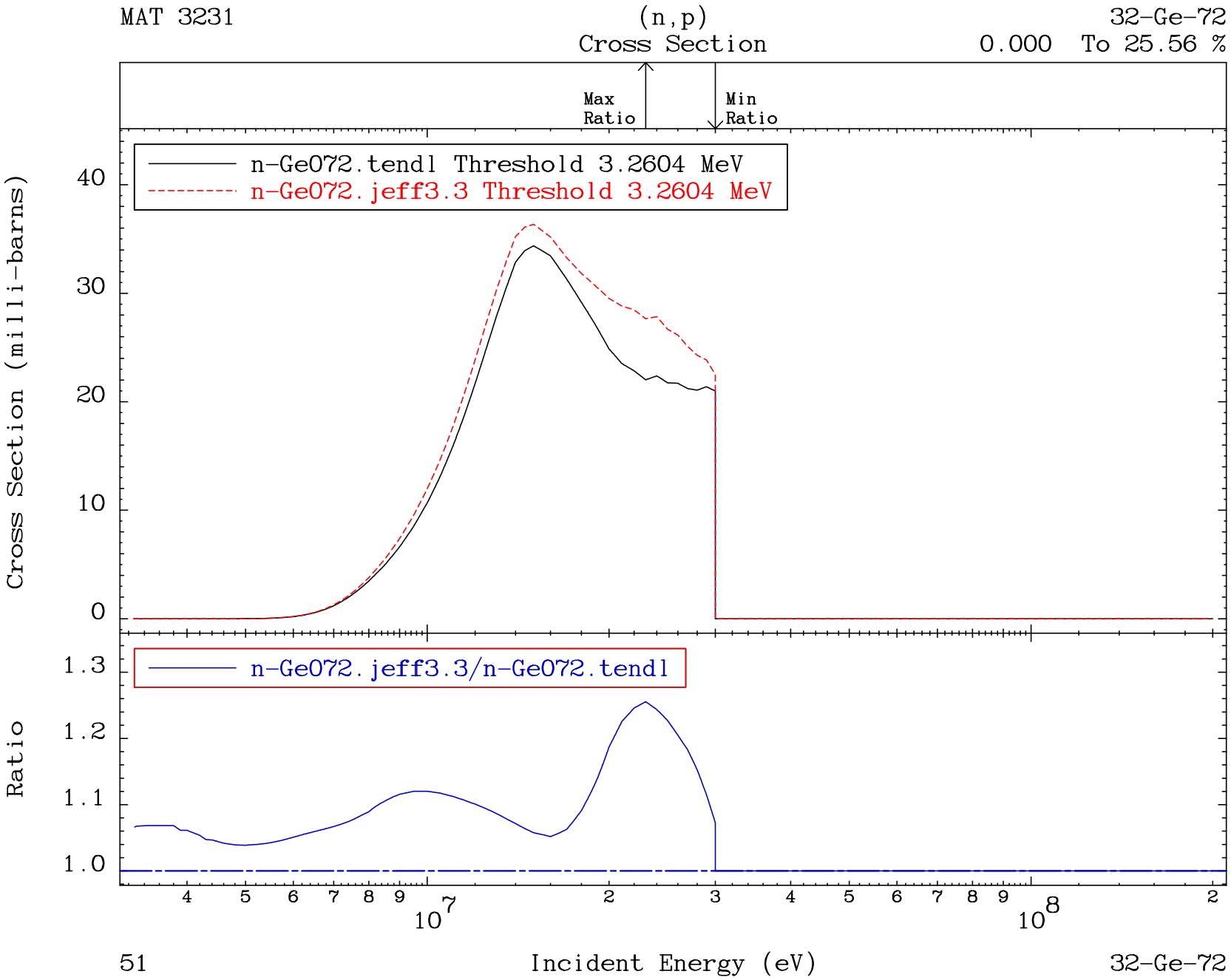

MAT 3231
MT= 78 (n,n') Level
Cross Section
32-Ge-72
-2.005 To 0.002 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1727 MeV
n-Ge072.jeff3.3 Threshold 3.1727 MeV
Cross Section (milli-barns)
0
2
4
6
8
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.98
0.99
1.00
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
46
Incident Energy (eV)
32-Ge-72

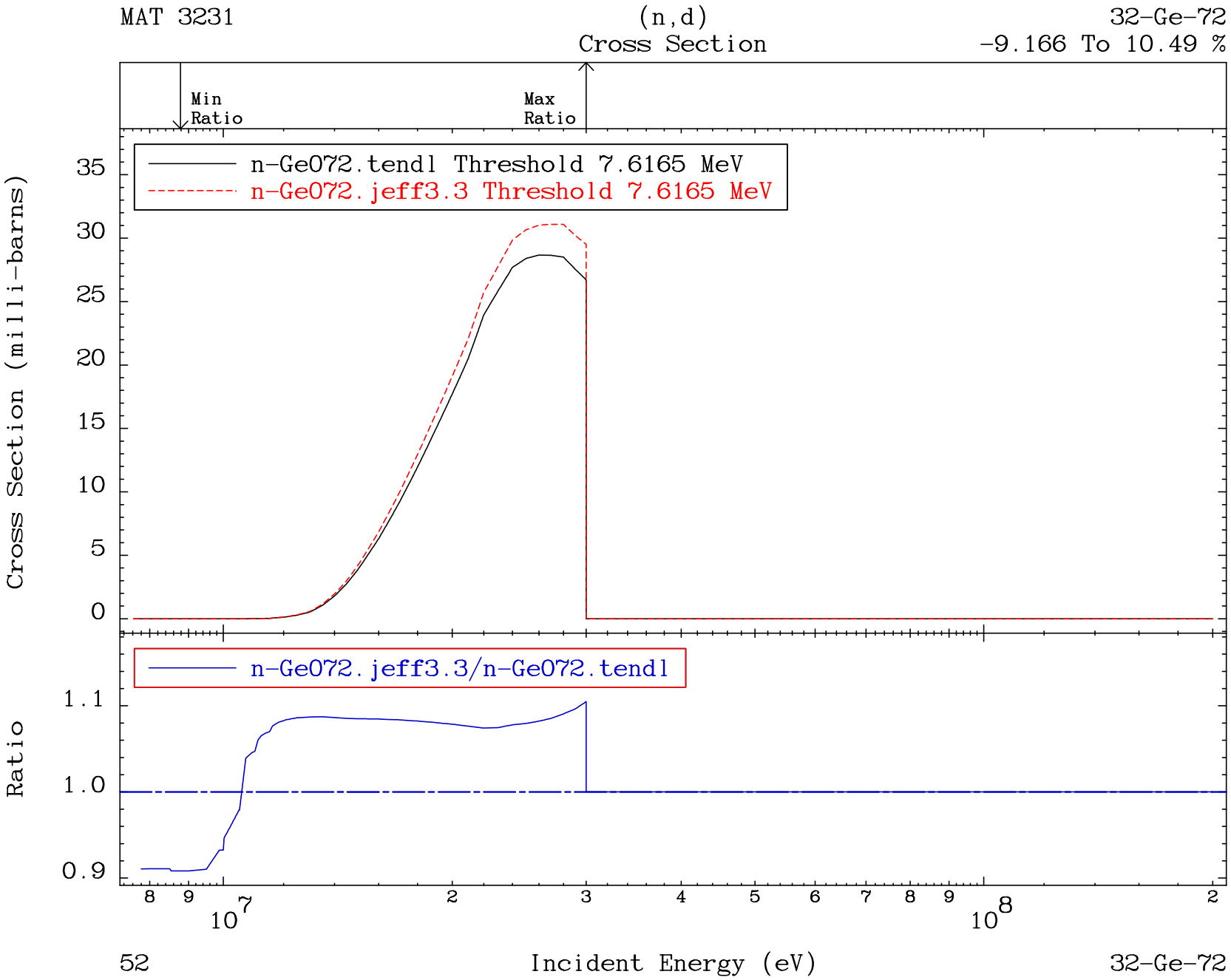

MAT 3231
MT= 79 (n,n') Level
Cross Section
32-Ge-72
-1.549 To 0.004 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1749 MeV
n-Ge072.jeff3.3 Threshold 3.1749 MeV
Cross Section (milli-barns)
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.99
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
47
Incident Energy (eV)
32-Ge-72

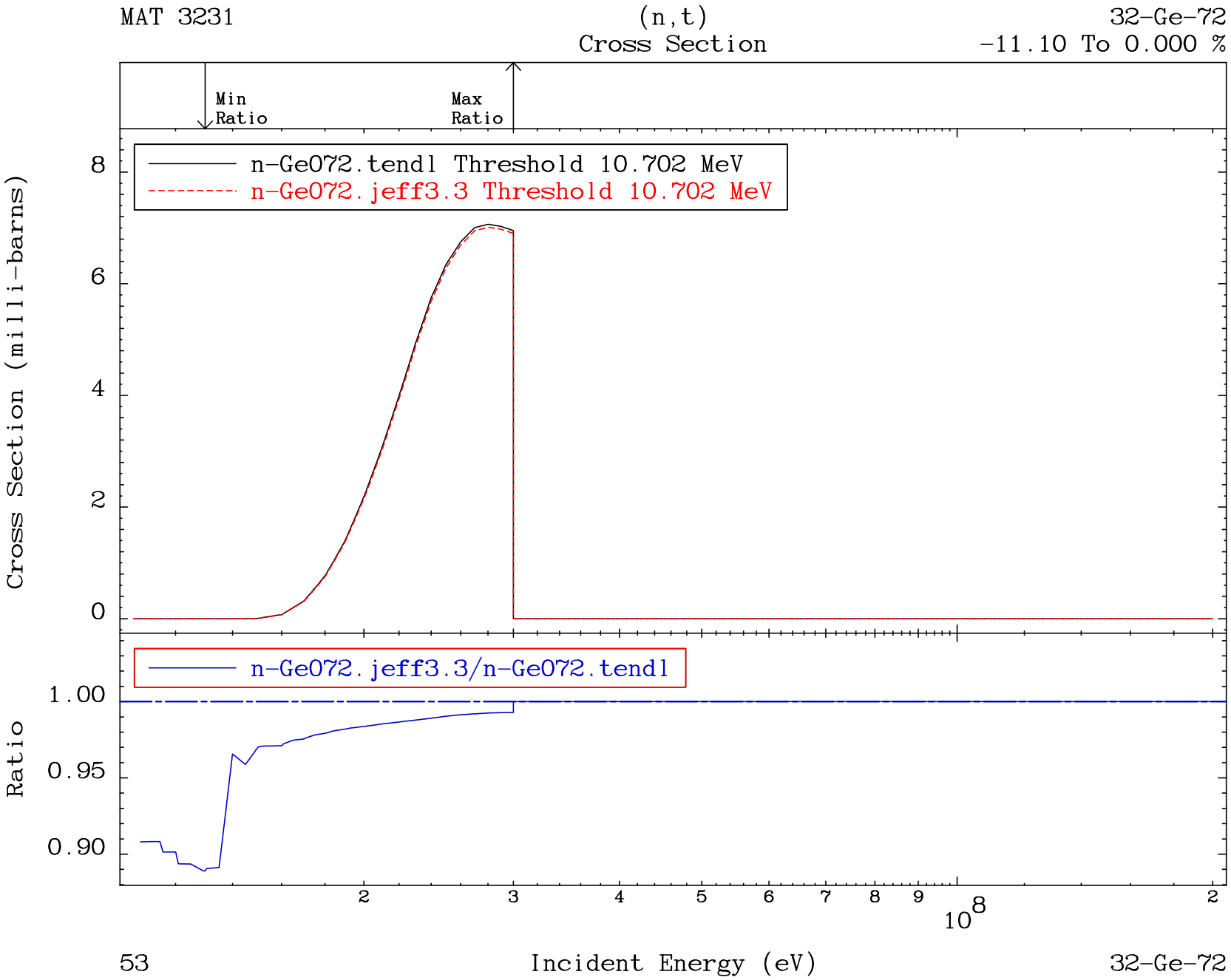

MAT 3231
MT= 80 (n,n') Level
Cross Section
32-Ge-72
-37.69 To 0.003 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.1830 MeV
n-Ge072.jeff3.3 Threshold 3.1830 MeV
Cross Section (milli-barns)
12
10
8
6
4
2
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.0
0.8
0.6
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
48
Incident Energy (eV)
32-Ge-72

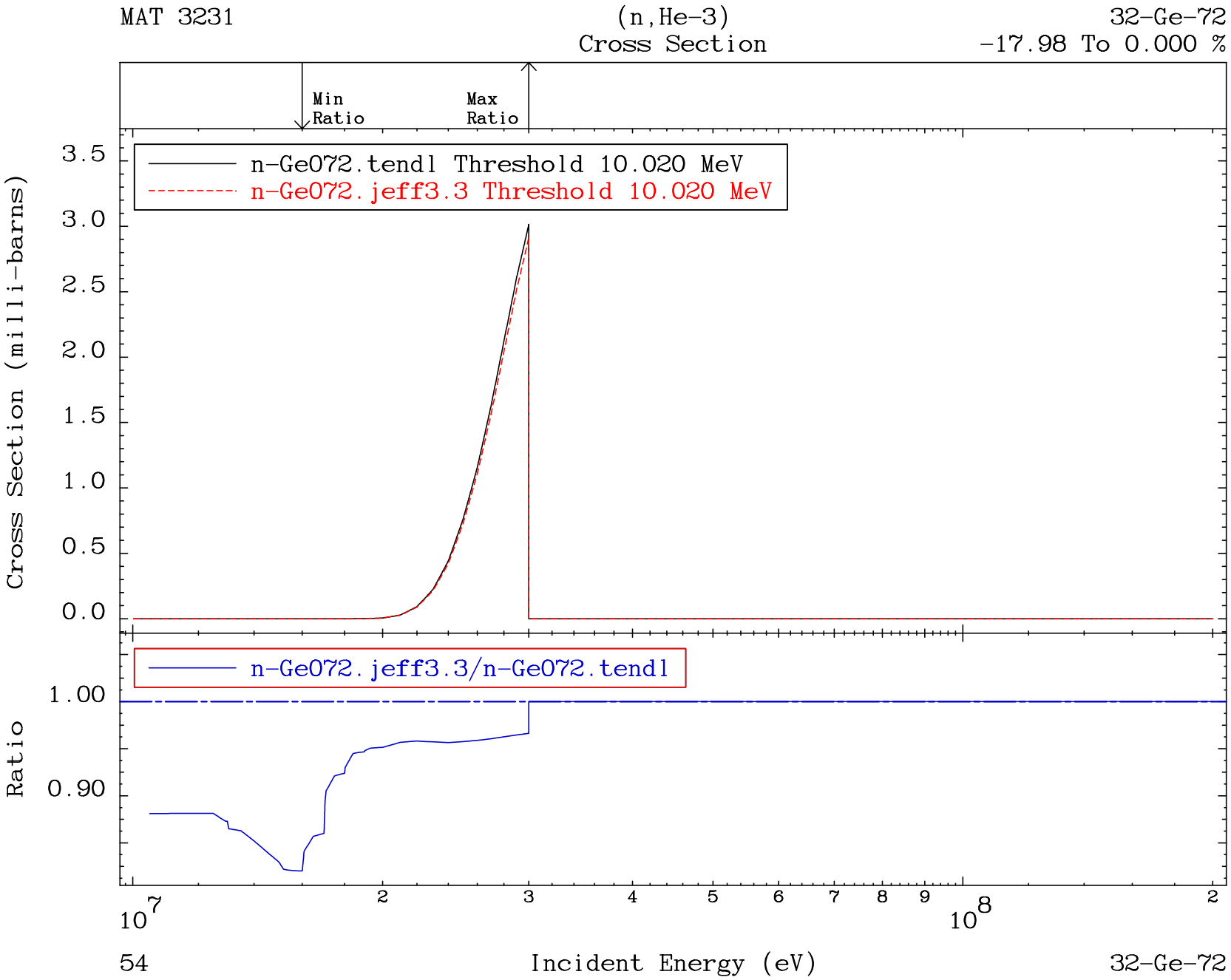

MAT 3231
(n,n') Continuum
Cross Section
32-Ge-72
-0.163 To 22.73 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 3.1830 MeV
n-Ge072.jeff3.3 Threshold 3.1830 MeV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.1
1.0
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
49
Incident Energy (eV)
32-Ge-72

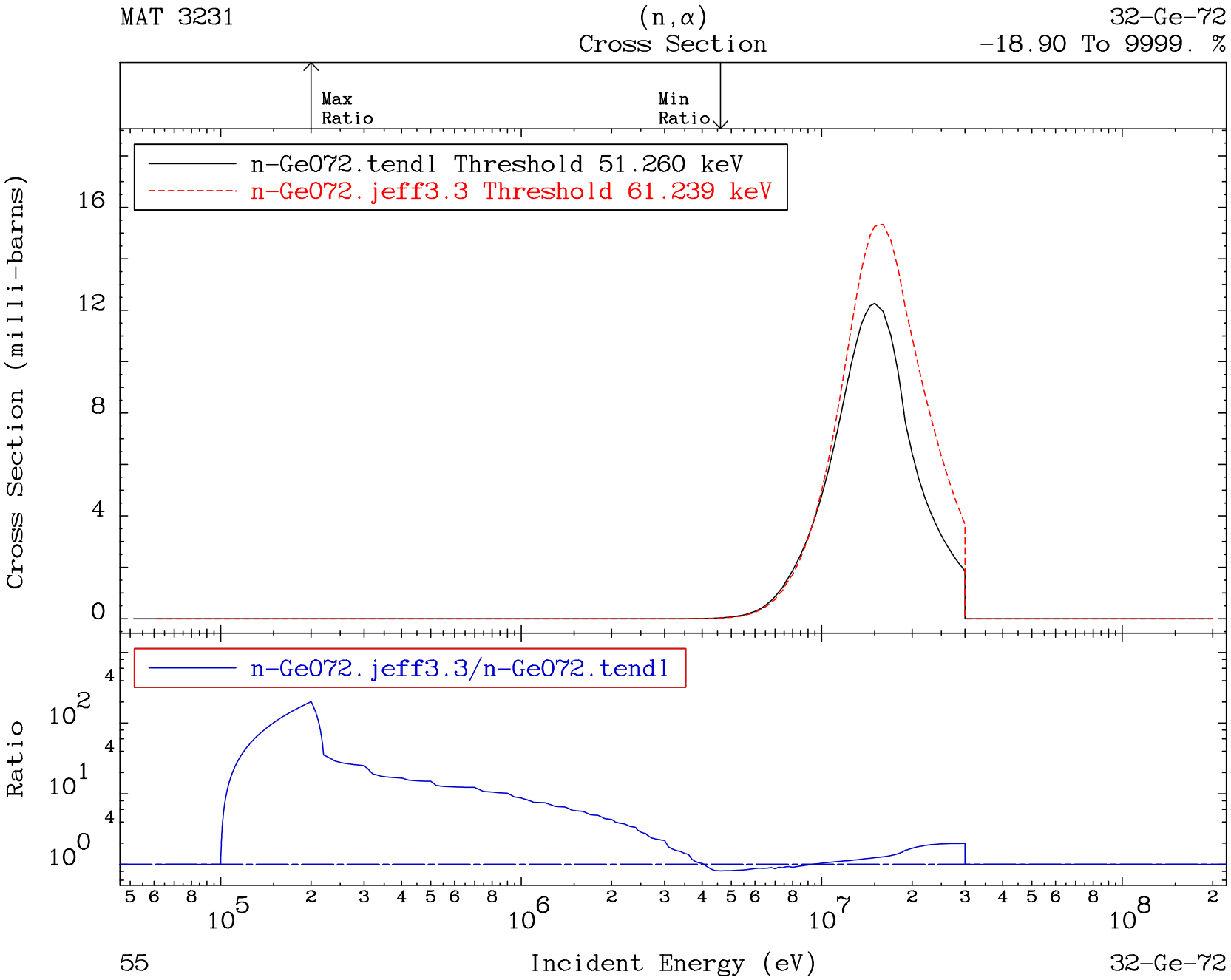

MAT 3231
(n,γ)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
50
32-Ge-72

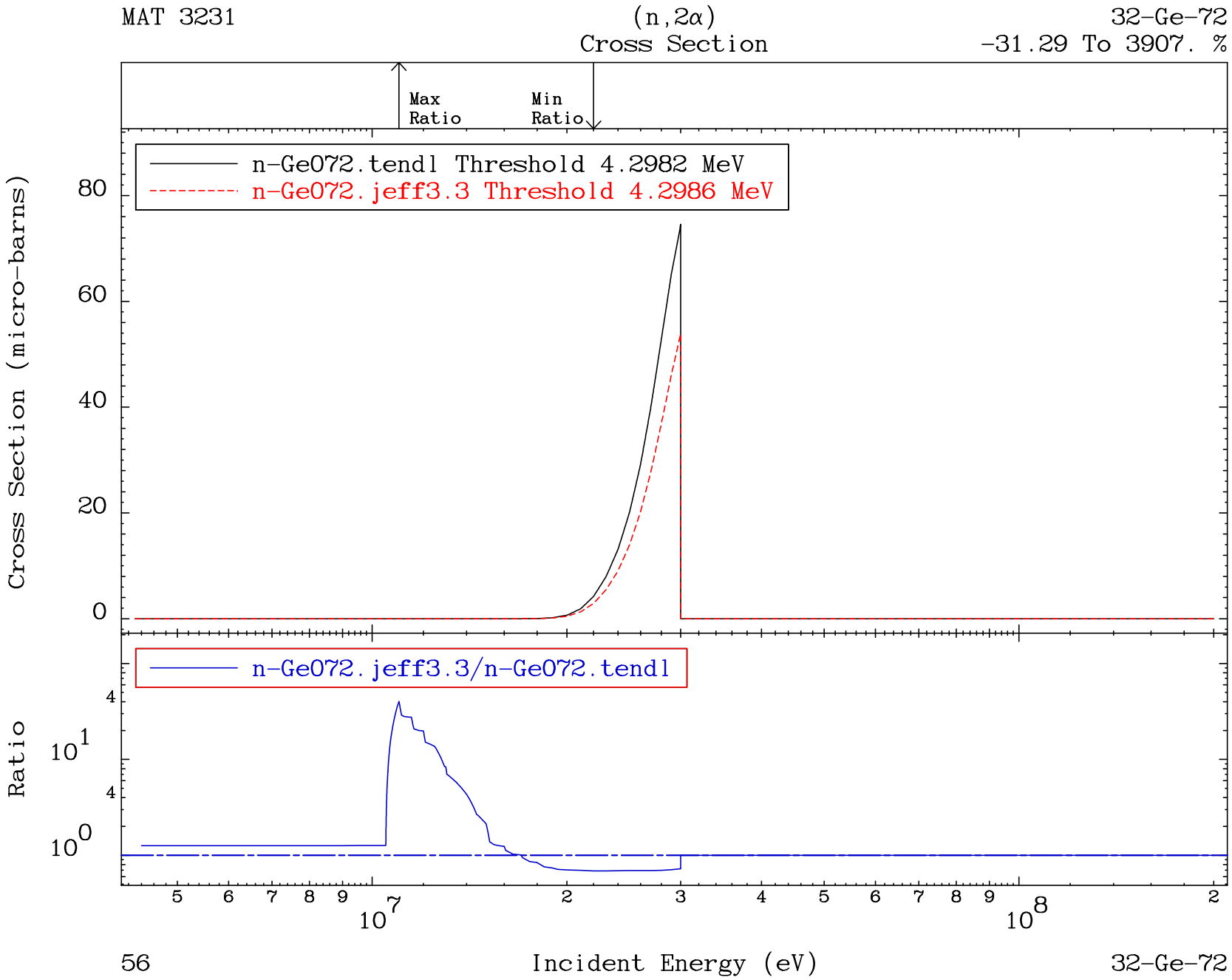

MAT 3231
(n,p)
Cross Section
32-Ge-72
0.000 To 25.56 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.2604 MeV
n-Ge072.jeff3.3 Threshold 3.2604 MeV
Cross Section (milli-barns)
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.3
1.2
1.1
1.0
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
51
Incident Energy (eV)
32-Ge-72

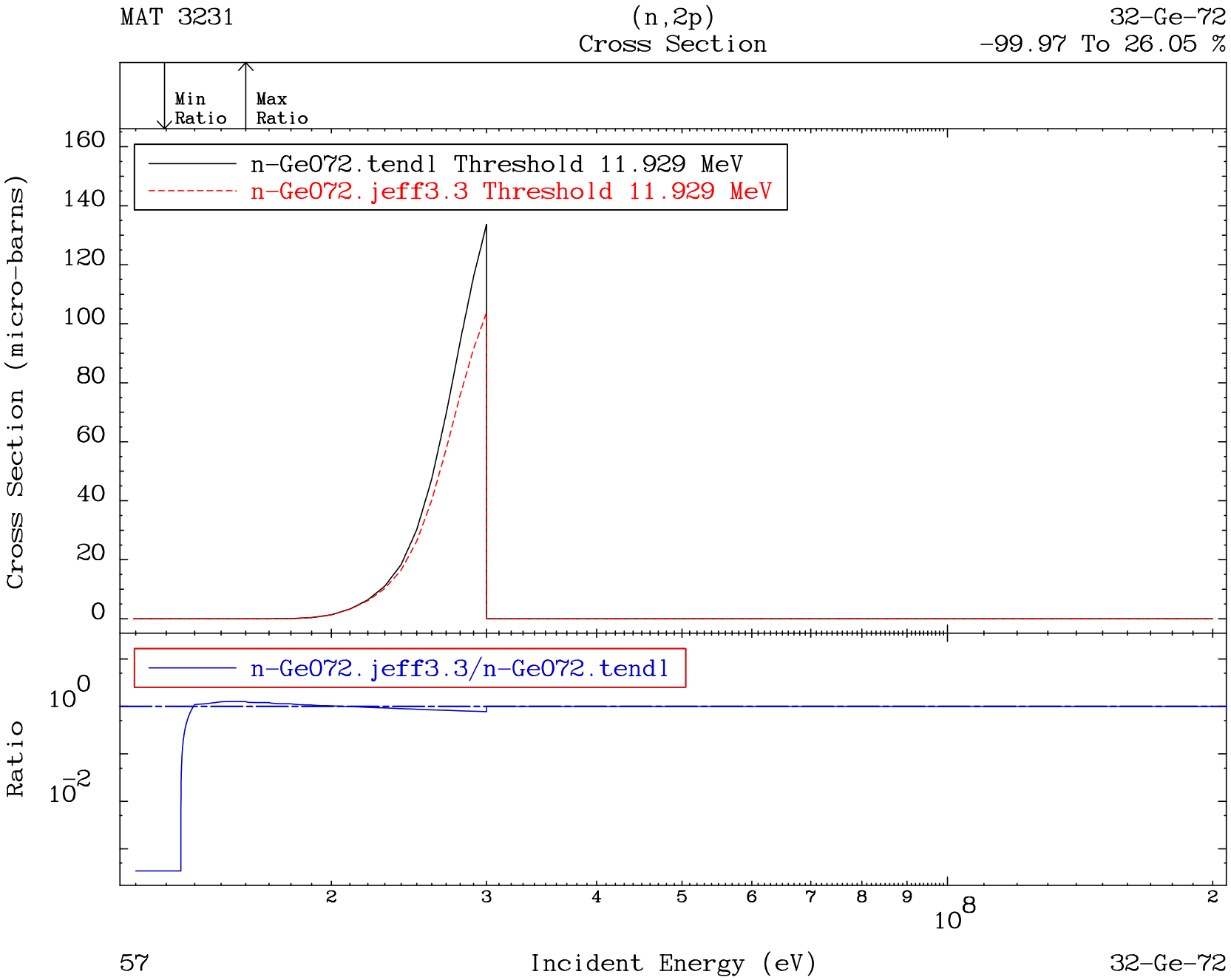

MAT 3231
(n,d)
Cross Section
32-Ge-72
-9.166 To 10.49 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 7.6165 MeV
n-Ge072.jeff3.3 Threshold 7.6165 MeV
Cross Section (milli-barns)
35
30
25
20
15
10
5
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.1
1.0
0.9
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
52
Incident Energy (eV)
32-Ge-72

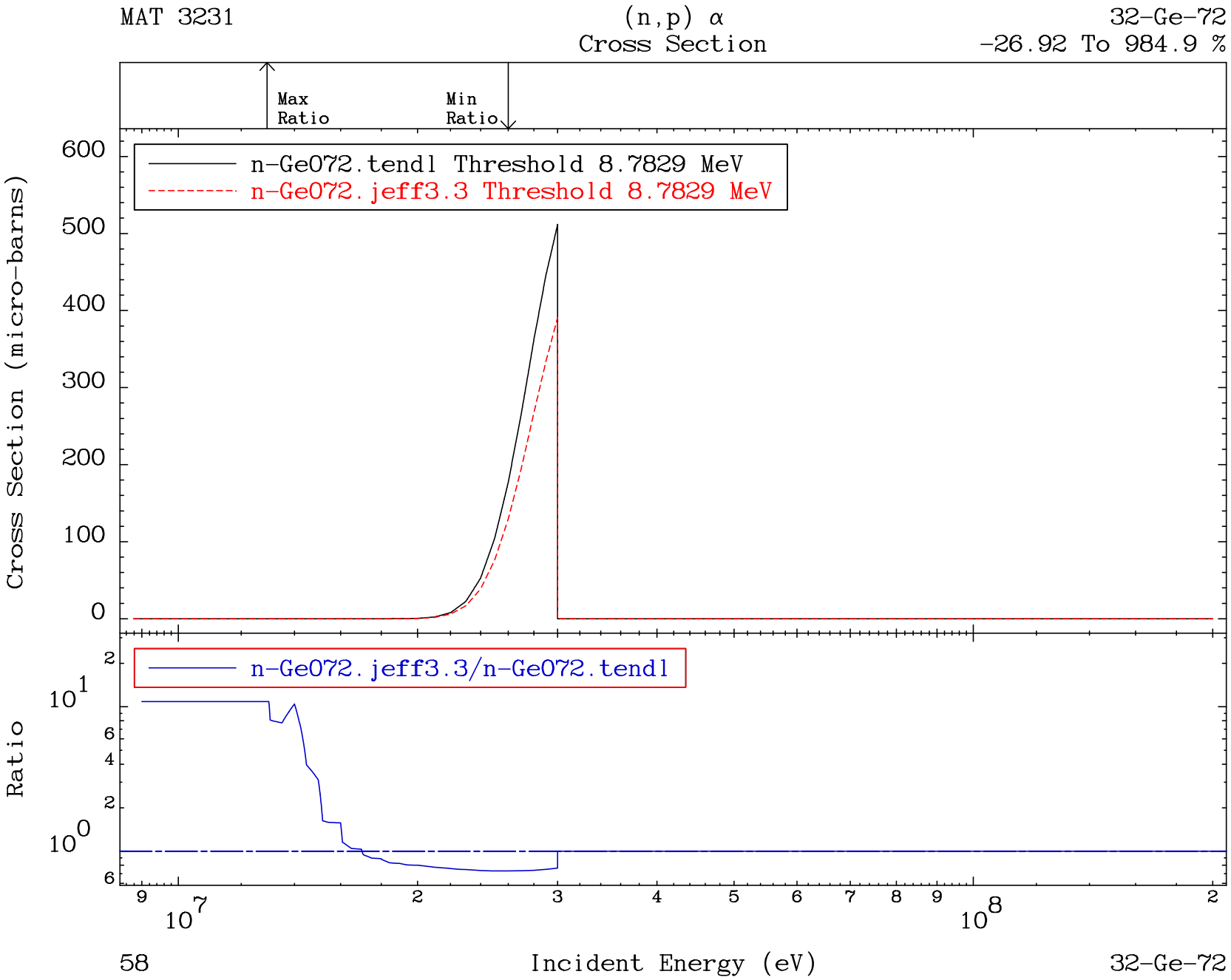

MAT 3231
(n,t)
Cross Section
32-Ge-72
-11.10 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 10.702 MeV
n-Ge072.jeff3.3 Threshold 10.702 MeV
Cross Section (milli-barns)
0
2
4
6
8
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.90
0.95
1.00
2
3
4
5
6
7
8
9
10^8
2
53
Incident Energy (eV)
32-Ge-72

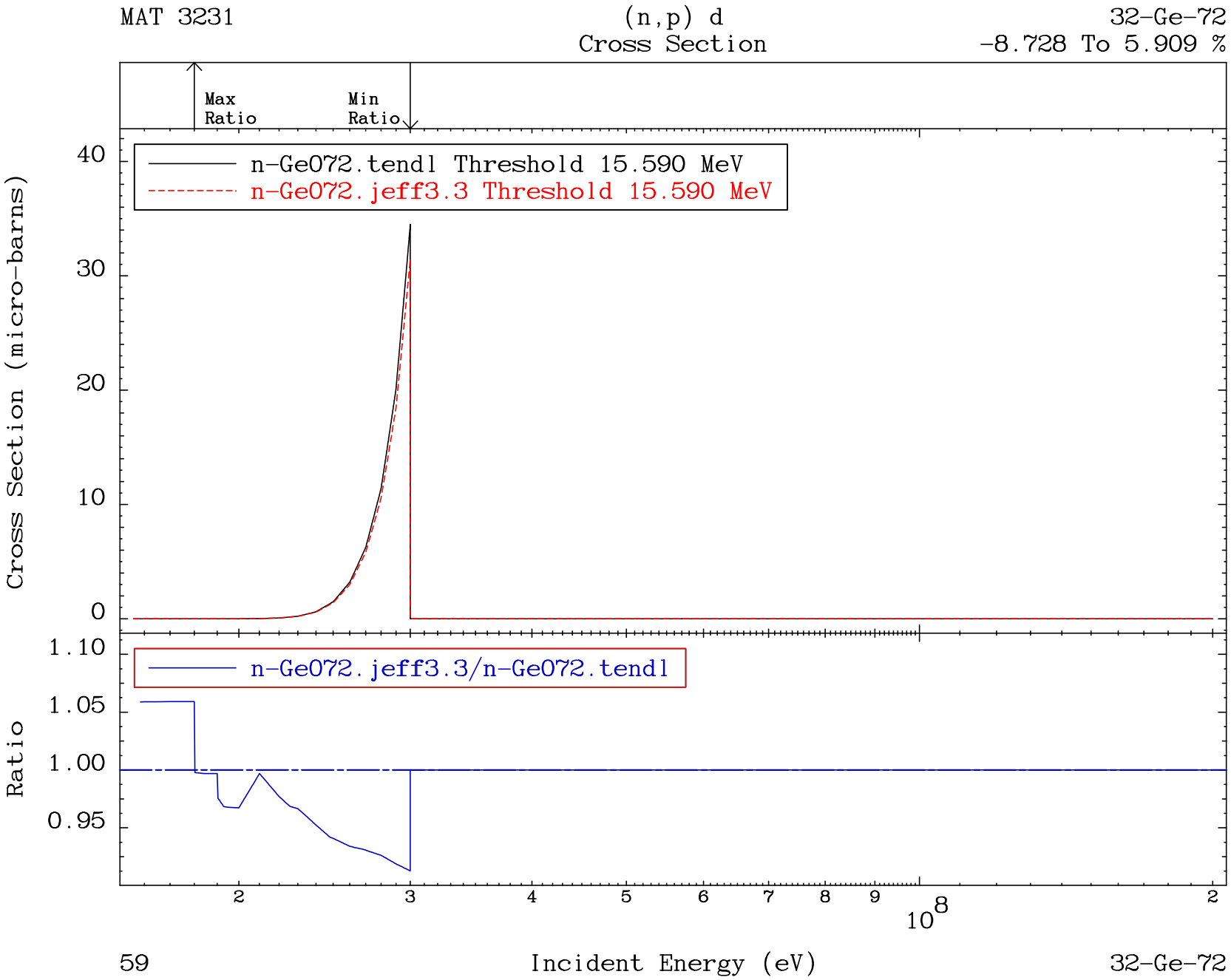

MAT 3231
(n,He-3)
Cross Section
32-Ge-72
-17.98 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 10.020 MeV
n-Ge072.jeff3.3 Threshold 10.020 MeV
Cross Section (milli-barns)
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.90
10^7
2
3
4
5
6
7
8
9
10^8
2
54
Incident Energy (eV)
32-Ge-72

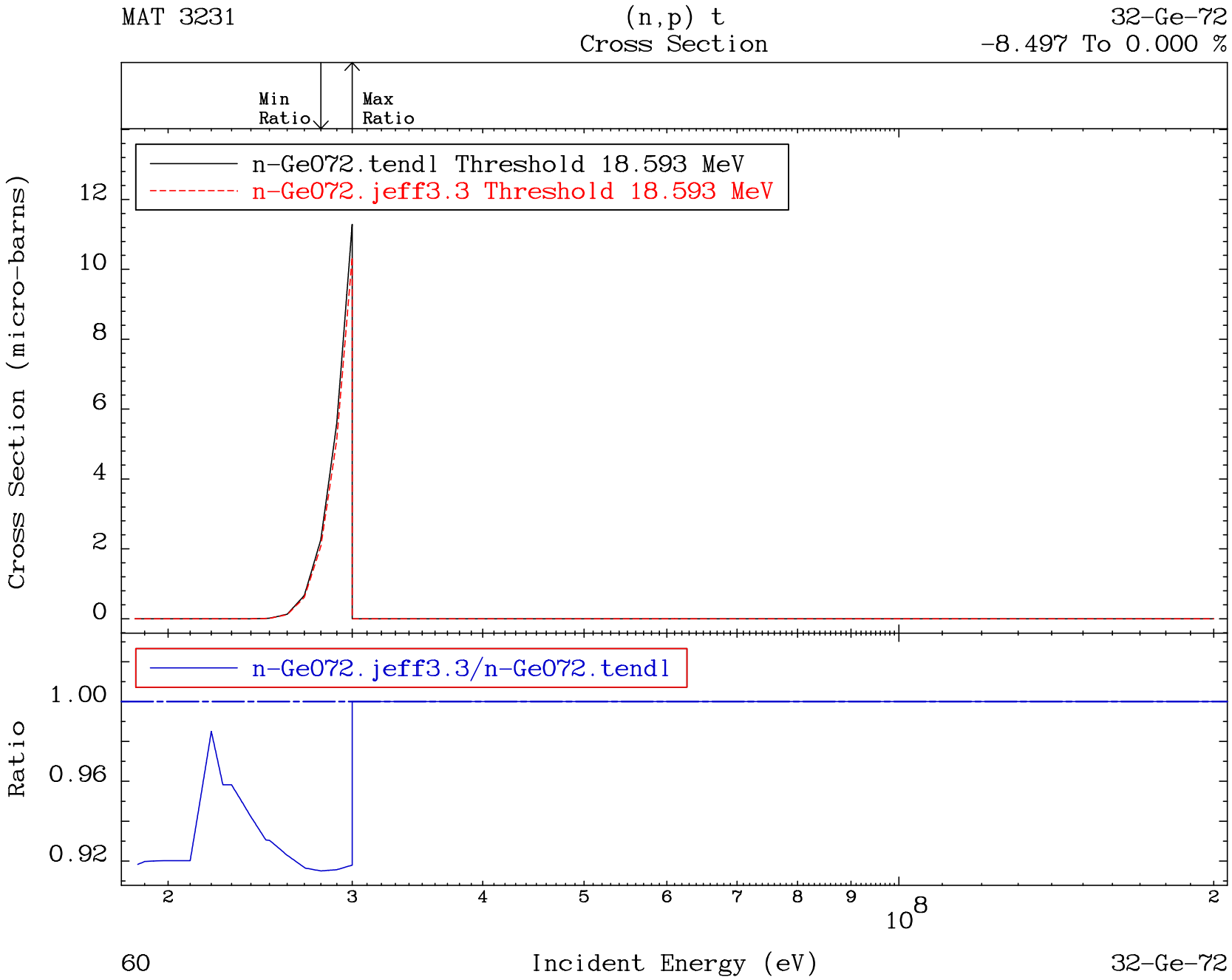

MAT 3231
(n,α)
Cross Section
32-Ge-72
-18.90 To 9999. %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 51.260 keV
n-Ge072.jeff3.3 Threshold 61.239 keV
Cross Section (milli-barns)
16
12
8
4
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^2
10^1
10^0
5 6 8 10^5 2 3 4 5 6 8 10^6 2 3 4 5 6 8 10^7 2 3 4 5 6 8 10^8 2
55
Incident Energy (eV)
32-Ge-72

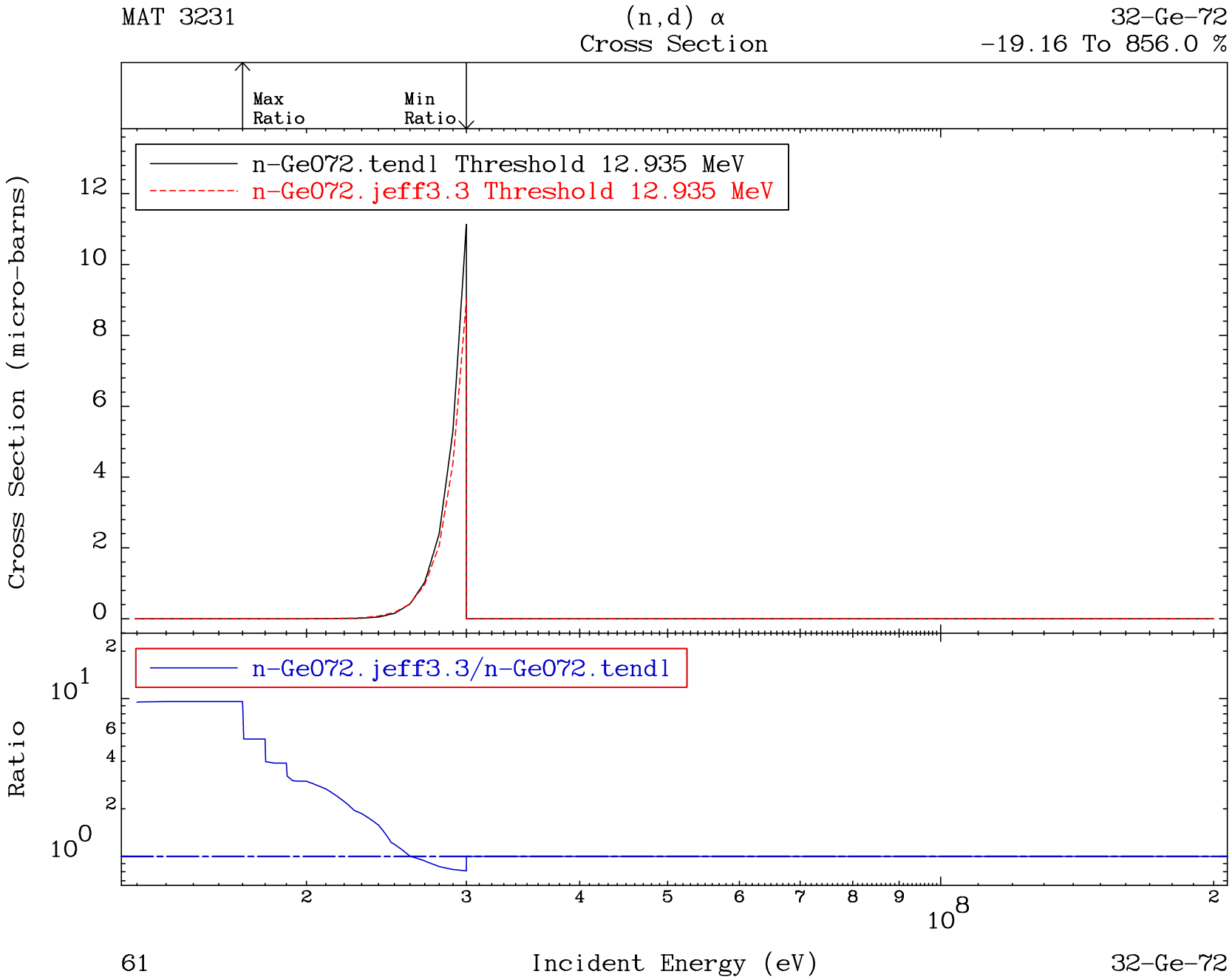

MAT 3231
(n,2α)
Cross Section
32-Ge-72
-31.29 To 3907. %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 4.2982 MeV
n-Ge072.jeff3.3 Threshold 4.2986 MeV
Cross Section (micro-barns)
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^1
4
10^0
4
5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
56
Incident Energy (eV)
32-Ge-72

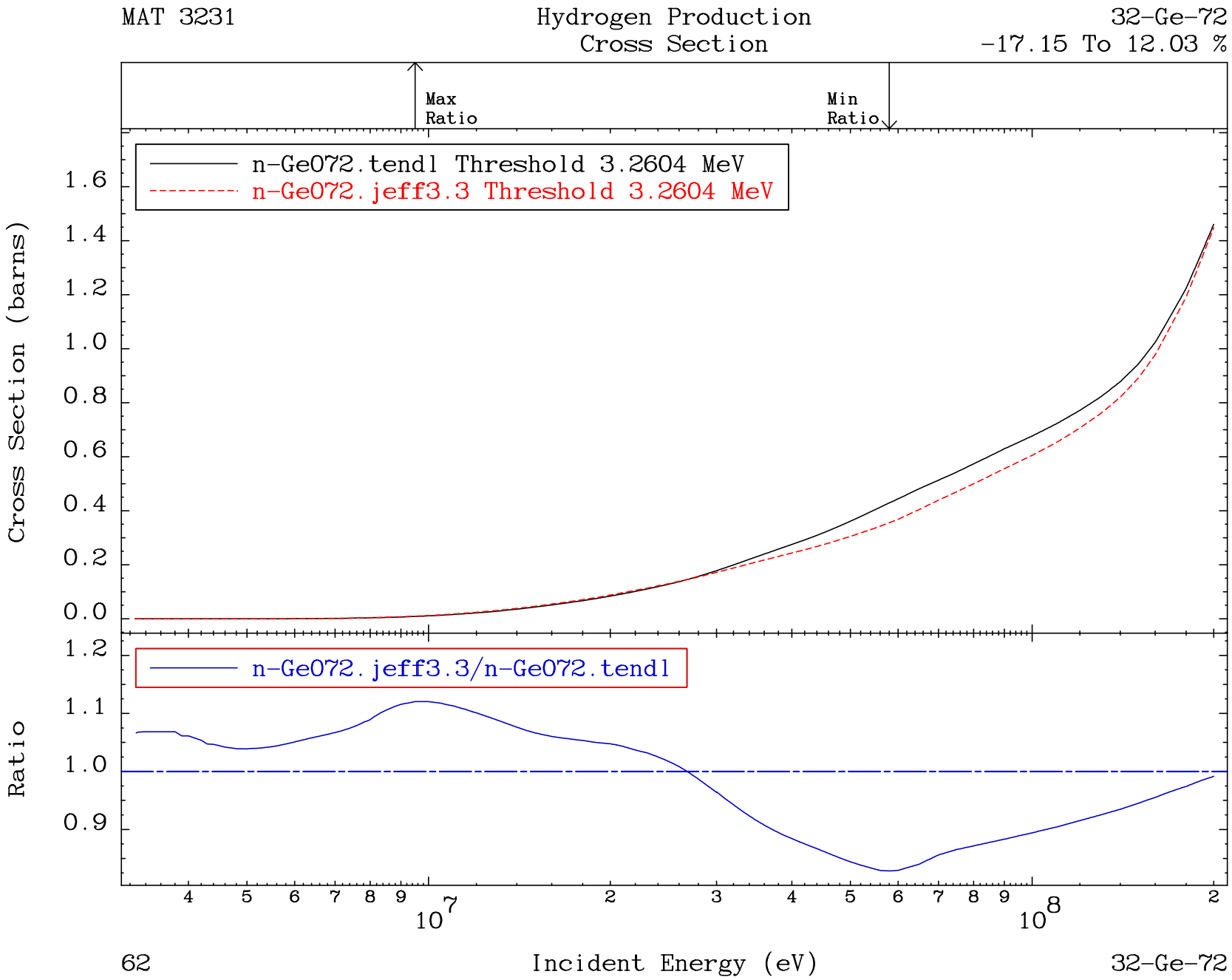

MAT 3231
(n,2p)
Cross Section
32-Ge-72
-99.97 To 26.05 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 11.929 MeV
n-Ge072.jeff3.3 Threshold 11.929 MeV
Cross Section (micro-barns)
160
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^0
10^-2
2
3
4
5
6
7
8
9
10^8
2
57
Incident Energy (eV)
32-Ge-72

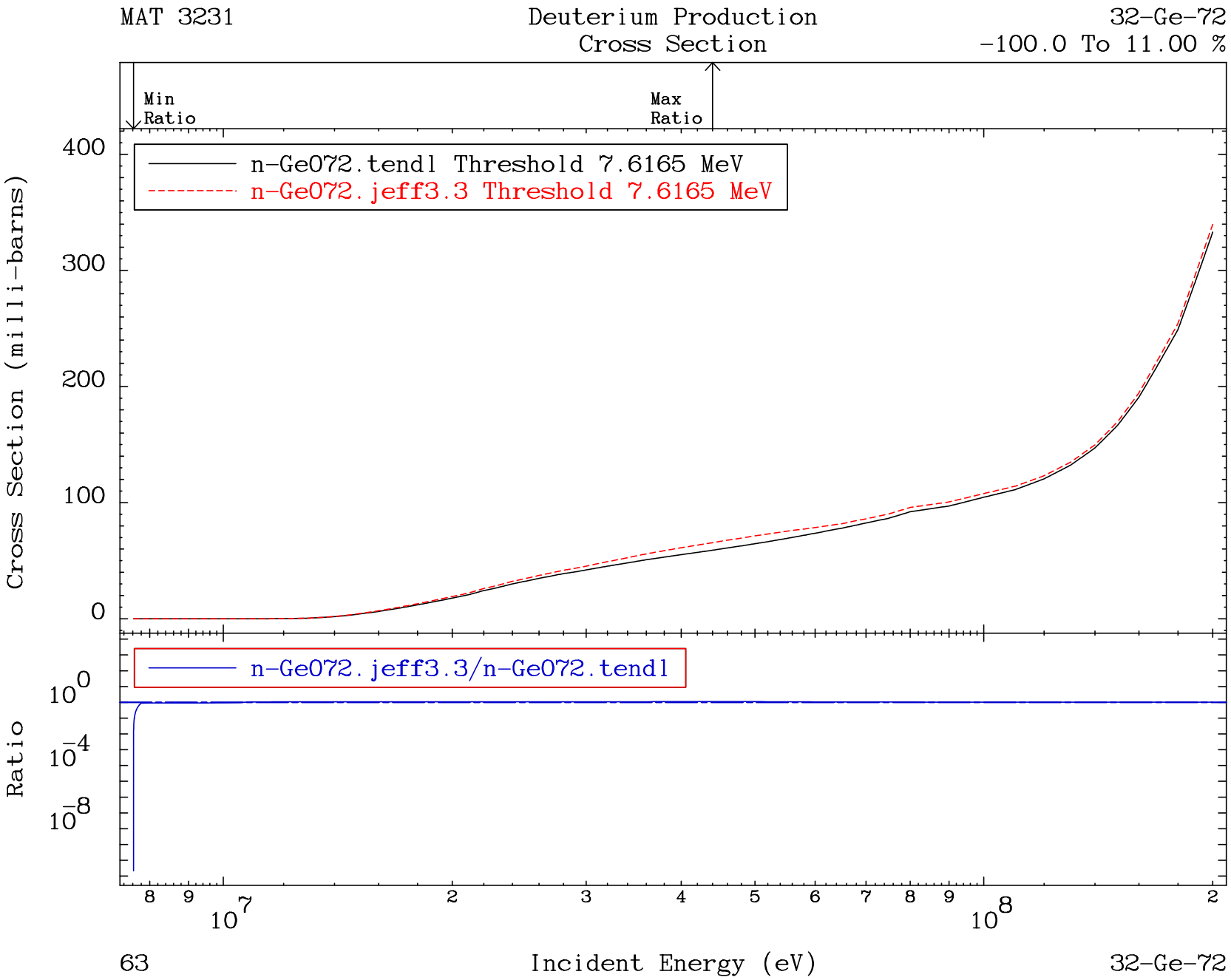

MAT 3231
(n,p) α
Cross Section
32-Ge-72
-26.92 To 984.9 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 8.7829 MeV
n-Ge072.jeff3.3 Threshold 8.7829 MeV
Cross Section (micro-barns)
600
500
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
2
10^1
6
4
2
10^0
6
9
10^7
2
3
4
5
6
7
8
9
10^8
2
58
Incident Energy (eV)
32-Ge-72

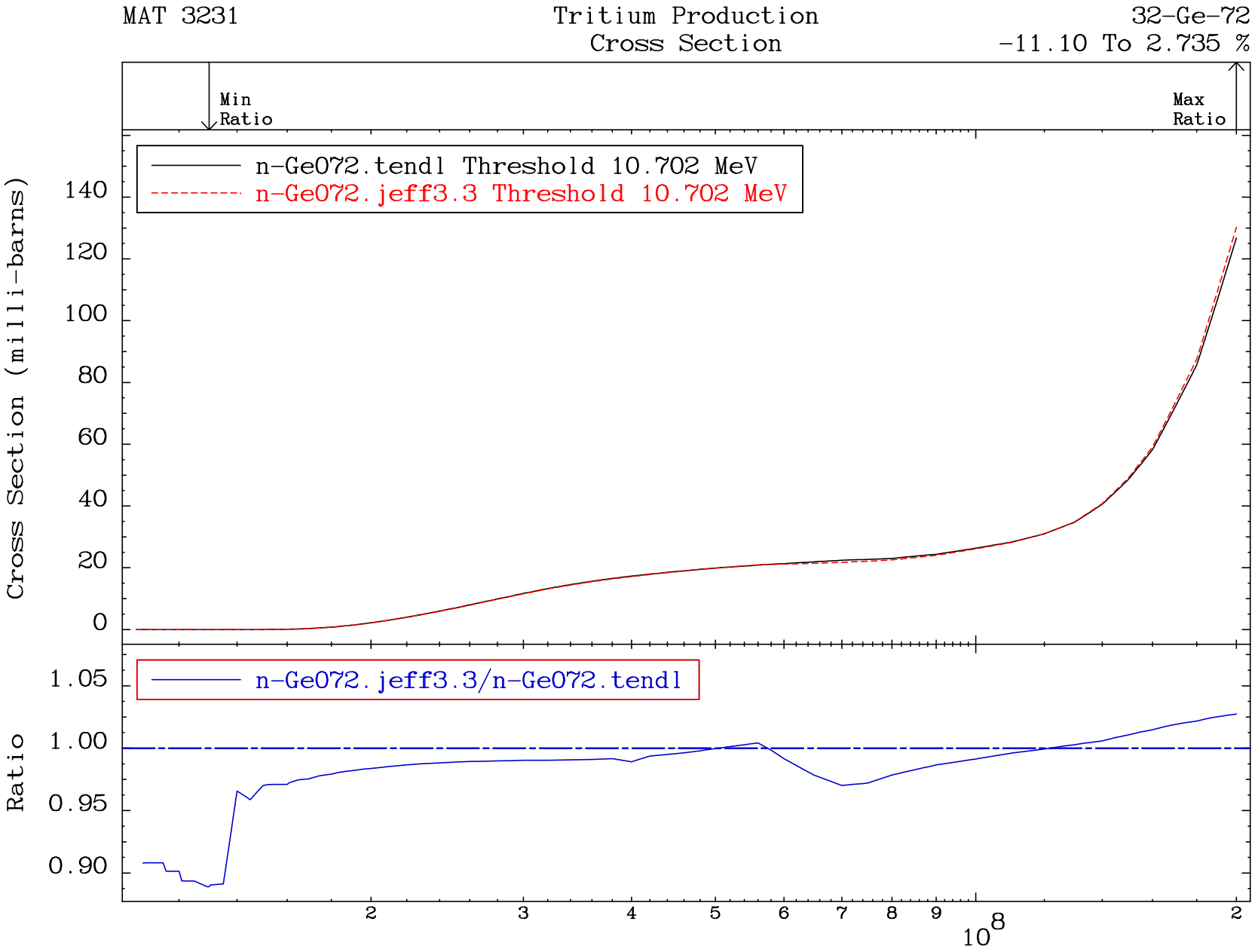

MAT 3231
(n,p) d
Cross Section
32-Ge-72
-8.728 To 5.909 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 15.590 MeV
n-Ge072.jeff3.3 Threshold 15.590 MeV
Cross Section (micro-barns)
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.10
1.05
1.00
0.95
2
3
4
5
6
7
8
9
10^8
2
59
Incident Energy (eV)
32-Ge-72

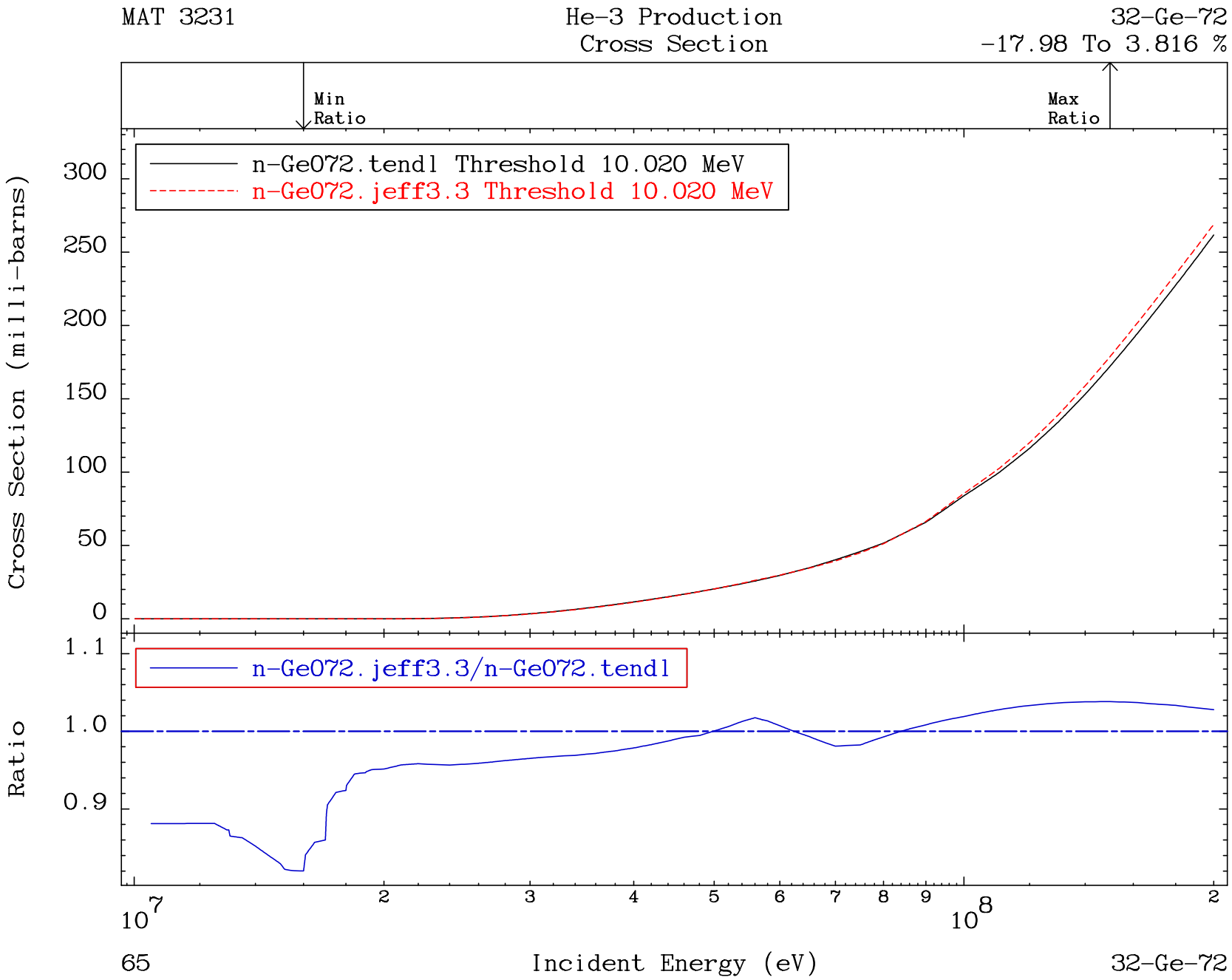

MAT 3231
(n,p) t
Cross Section
32-Ge-72
-8.497 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 18.593 MeV
n-Ge072.jeff3.3 Threshold 18.593 MeV
Cross Section (micro-barns)
0
2
4
6
8
10
12
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.92
0.96
1.00
2
3
4
5
6
7
8
9
10^8
2
60
Incident Energy (eV)
32-Ge-72

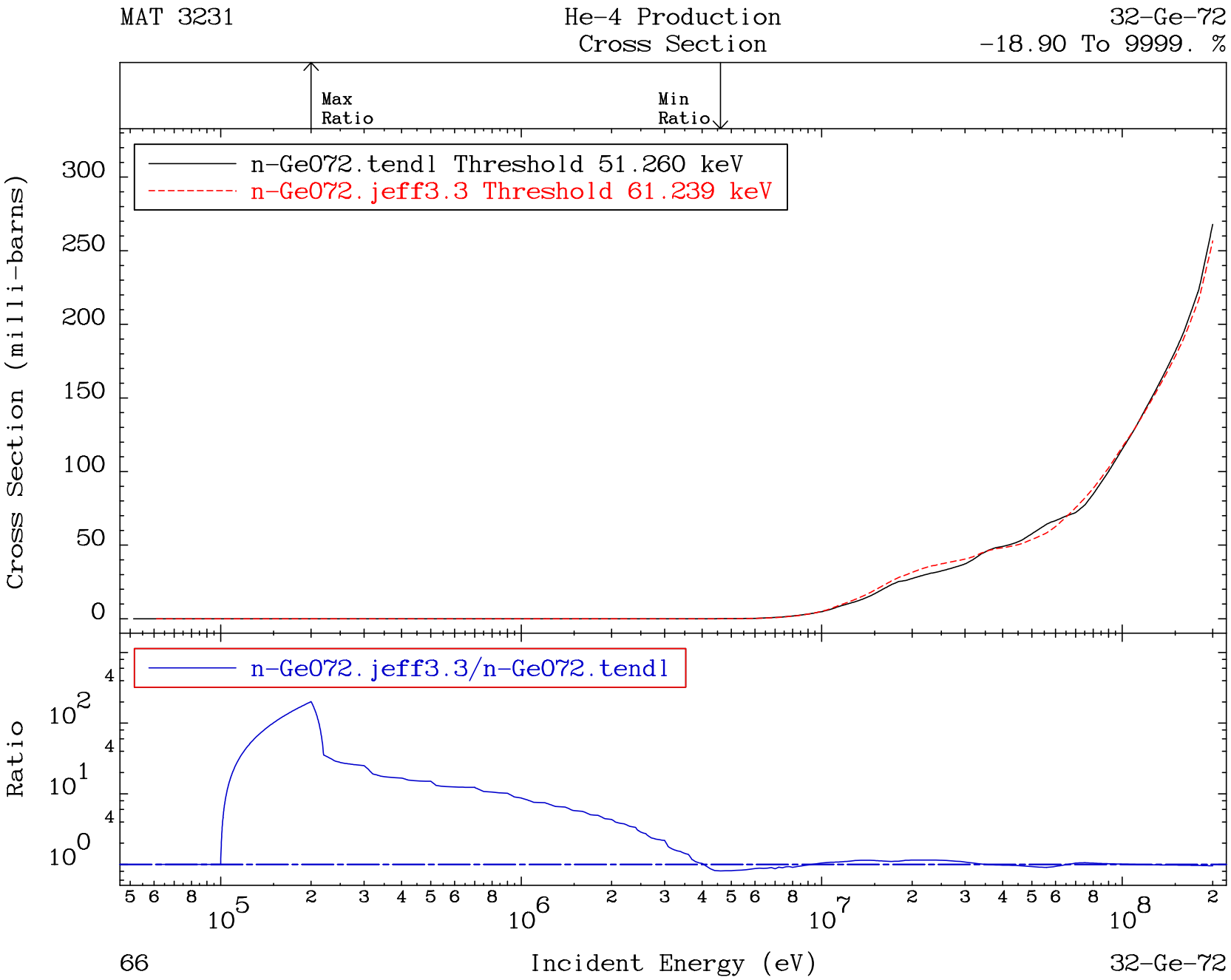

MAT 3231
(n,d) α
Cross Section
32-Ge-72
-19.16 To 856.0 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 12.935 MeV
n-Ge072.jeff3.3 Threshold 12.935 MeV
Cross Section (micro-barns)
0
2
4
6
8
10
12
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^0
10^1
2
3
4
5
6
7
8
9
10^8
61
Incident Energy (eV)
32-Ge-72

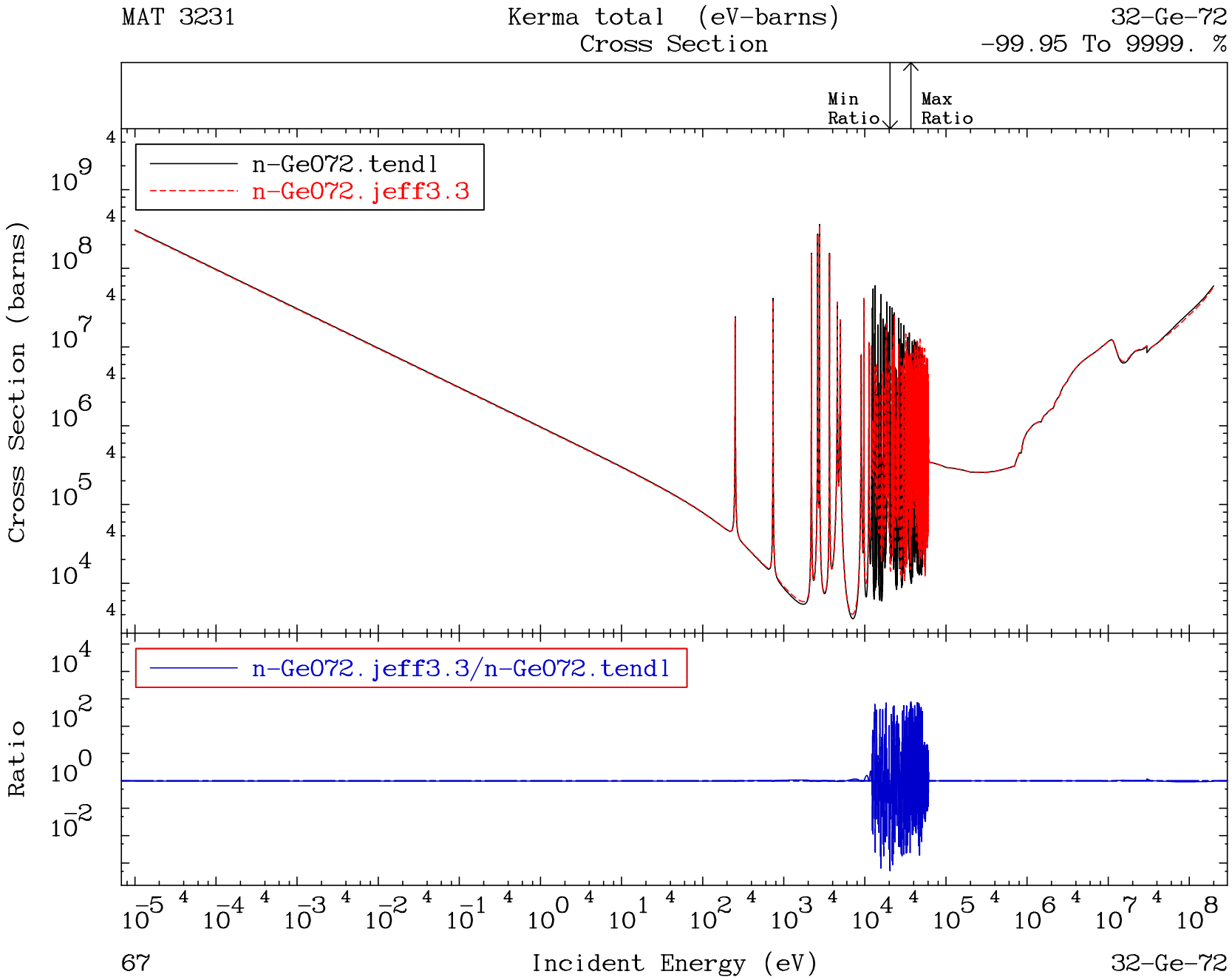

MAT 3231
Hydrogen Production
Cross Section
32-Ge-72
-17.15 To 12.03 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 3.2604 MeV
n-Ge072.jeff3.3 Threshold 3.2604 MeV
Cross Section (barns)
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.1
1.0
0.9
4 5 6 7 8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
62
Incident Energy (eV)
32-Ge-72

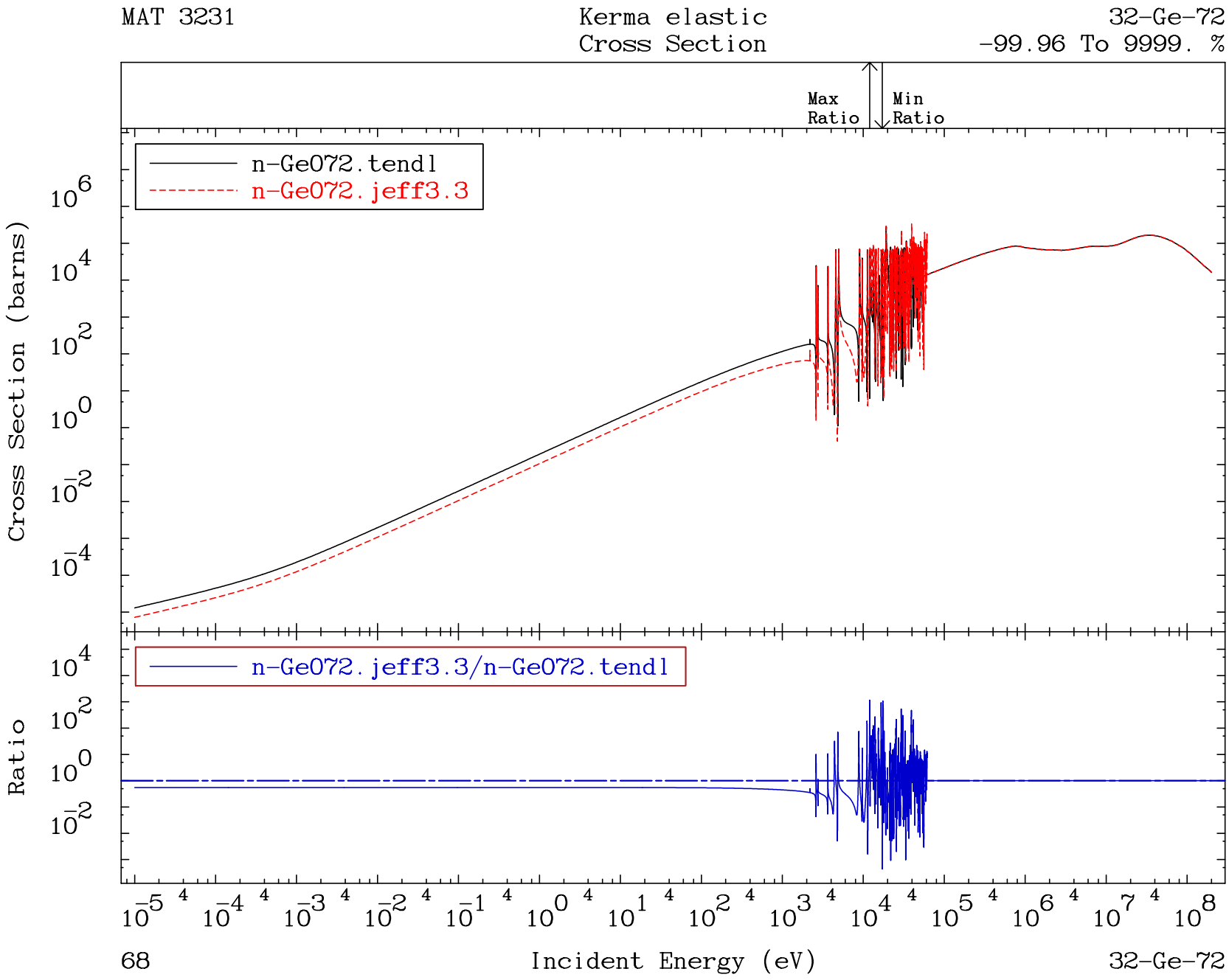

MAT 3231
Deuterium Production
Cross Section
32-Ge-72
-100.0 To 11.00 %
Min
Ratio
Max
Ratio
n-Ge072.tendl Threshold 7.6165 MeV
n-Ge072.jeff3.3 Threshold 7.6165 MeV
Cross Section (milli-barns)
400
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^0
10^-4
10^-8
8 9 10^7 2 3 4 5 6 7 8 9 10^8 2
63
Incident Energy (eV)
32-Ge-72

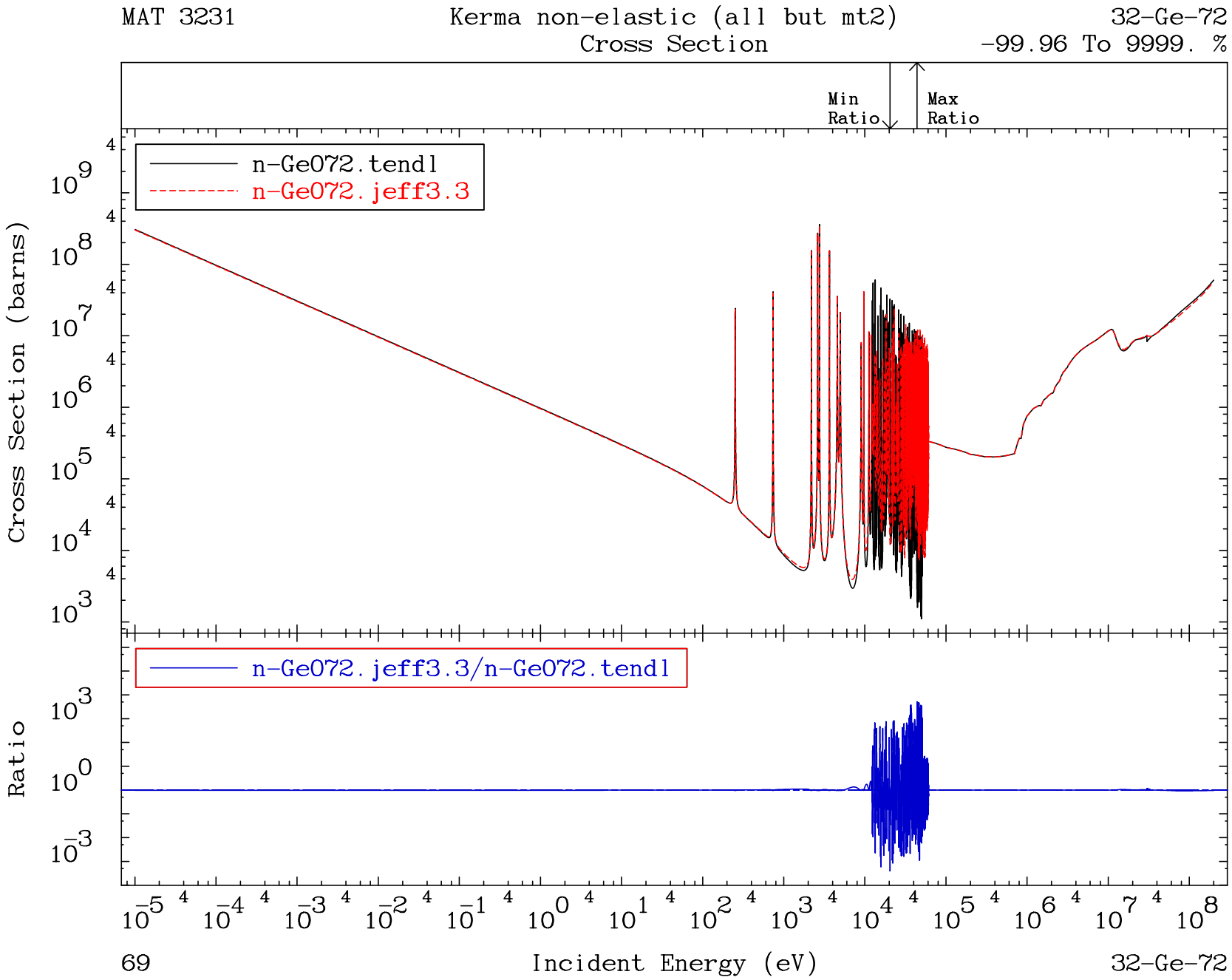

MAT 3231
Tritium Production
Cross Section
32-Ge-72
-11.10 To 2.735 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 10.702 MeV
n-Ge072.jeff3.3 Threshold 10.702 MeV
Cross Section (milli-barns)
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.05
1.00
0.95
0.90
2
3
4
5
6
7
8
9
10^8
2
64
Incident Energy (eV)
32-Ge-72

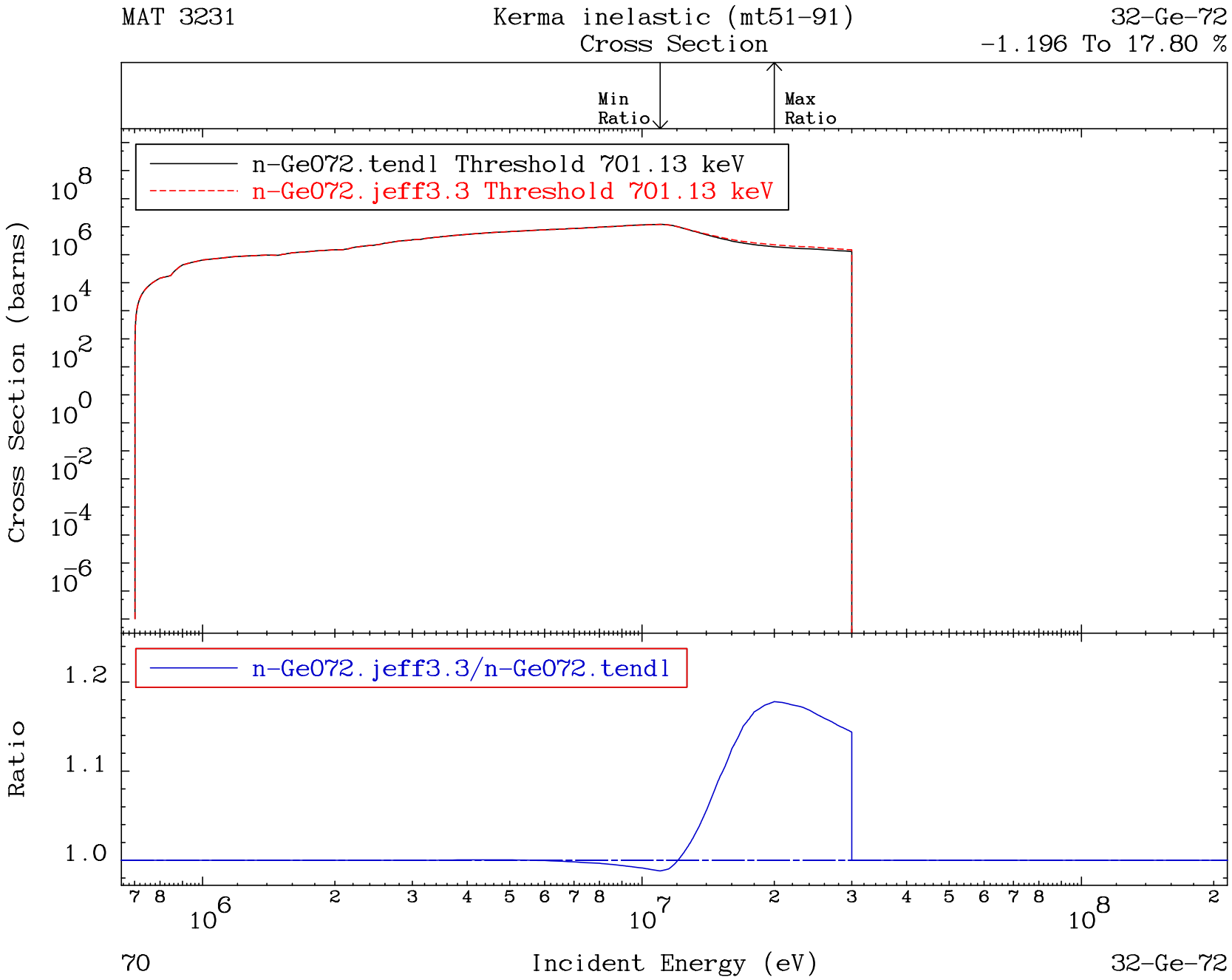

MAT 3231
He-3 Production
Cross Section
32-Ge-72
-17.98 To 3.816 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 10.020 MeV
n-Ge072.jeff3.3 Threshold 10.020 MeV
Cross Section (milli-barns)
300
250
200
150
100
50
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.1
1.0
0.9
10^7
2
3
4
5
6
7
8
9
10^8
2
65
Incident Energy (eV)
32-Ge-72

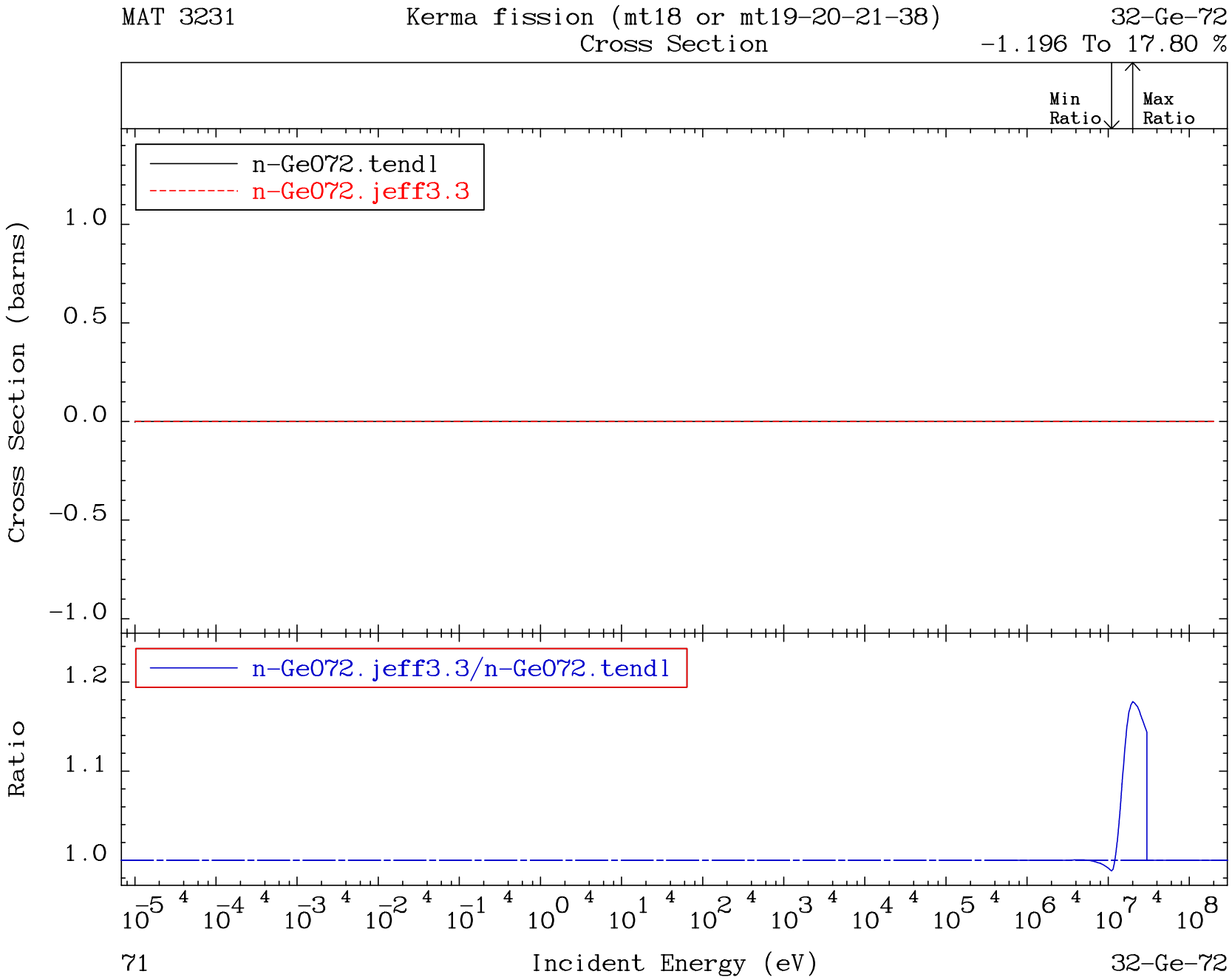

MAT 3231
He-4 Production
Cross Section
32-Ge-72
-18.90 To 9999. %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 51.260 keV
n-Ge072.jeff3.3 Threshold 61.239 keV
Cross Section (milli-barns)
300
250
200
150
100
50
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^2
10^1
10^0
5 6 8 10^5 2 3 4 5 6 8 10^6 2 3 4 5 6 8 10^7 2 3 4 5 6 8 10^8 2
66
Incident Energy (eV)
32-Ge-72

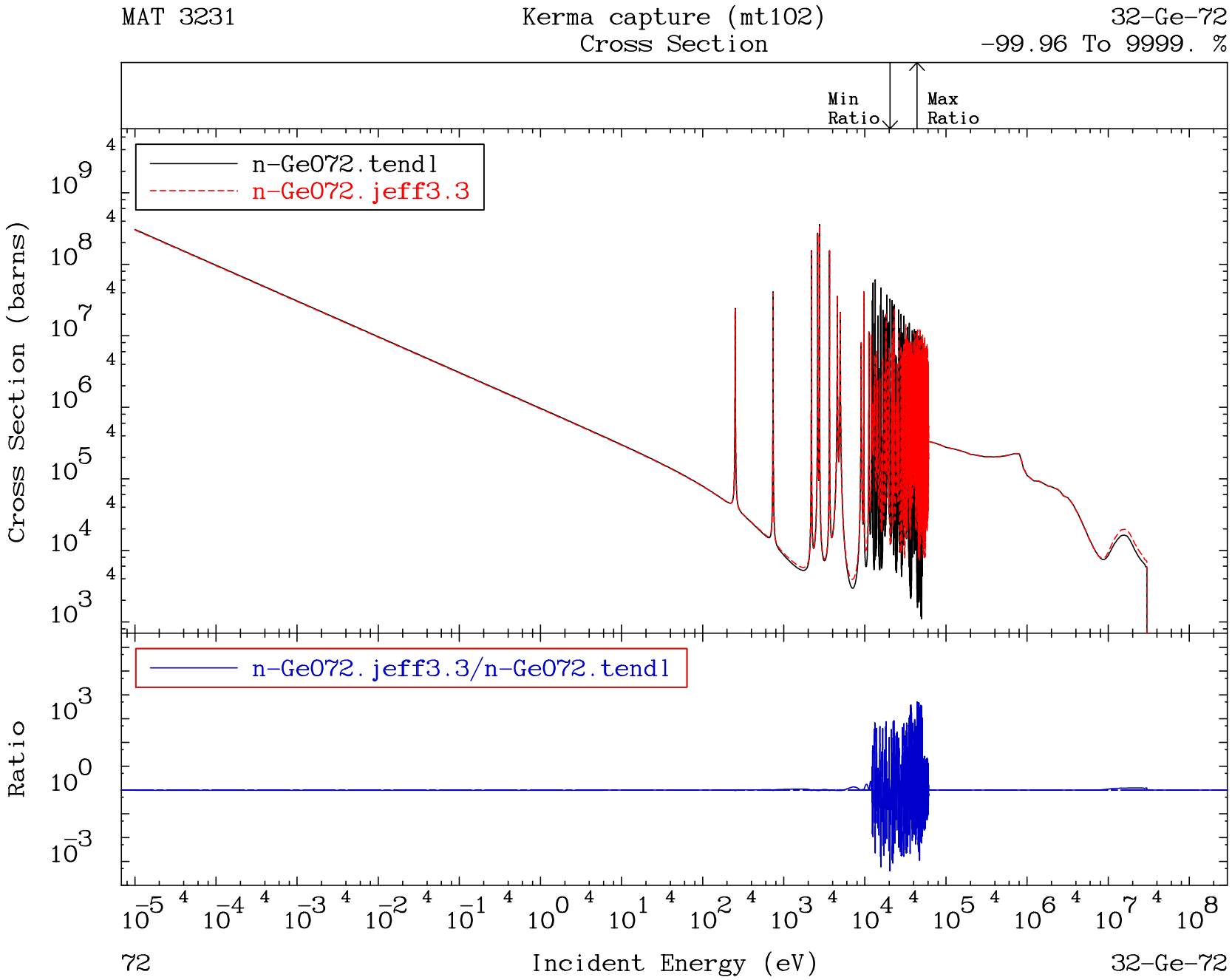

MAT 3231
Kerma total (eV-barns)
Cross Section
32-Ge-72
-99.95 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
67
32-Ge-72

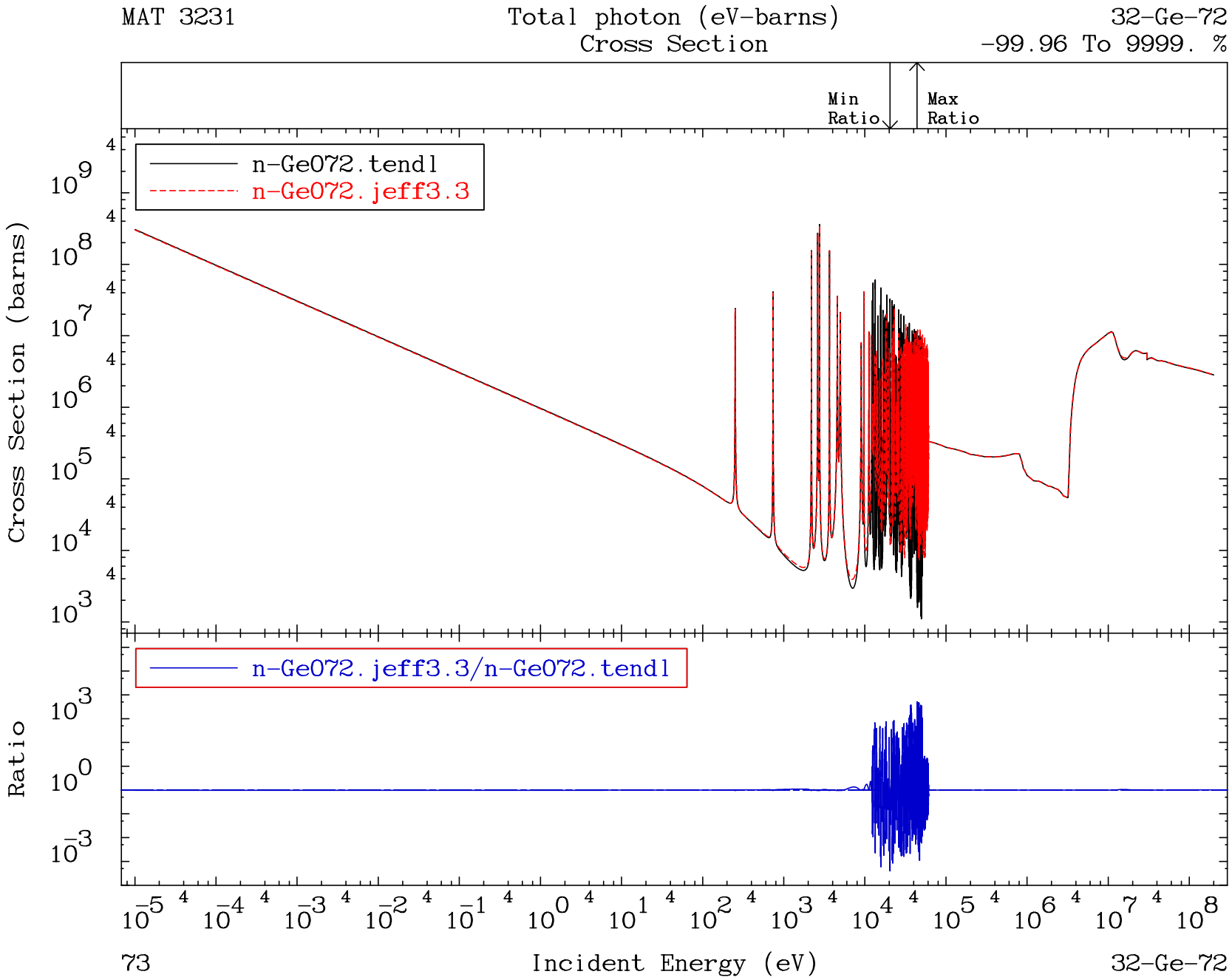

MAT 3231
Kerma elastic
Cross Section
32-Ge-72
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
Ratio
n-Ge072.jeff3.3/n-Ge072.tendl
Incident Energy (eV)
68
32-Ge-72

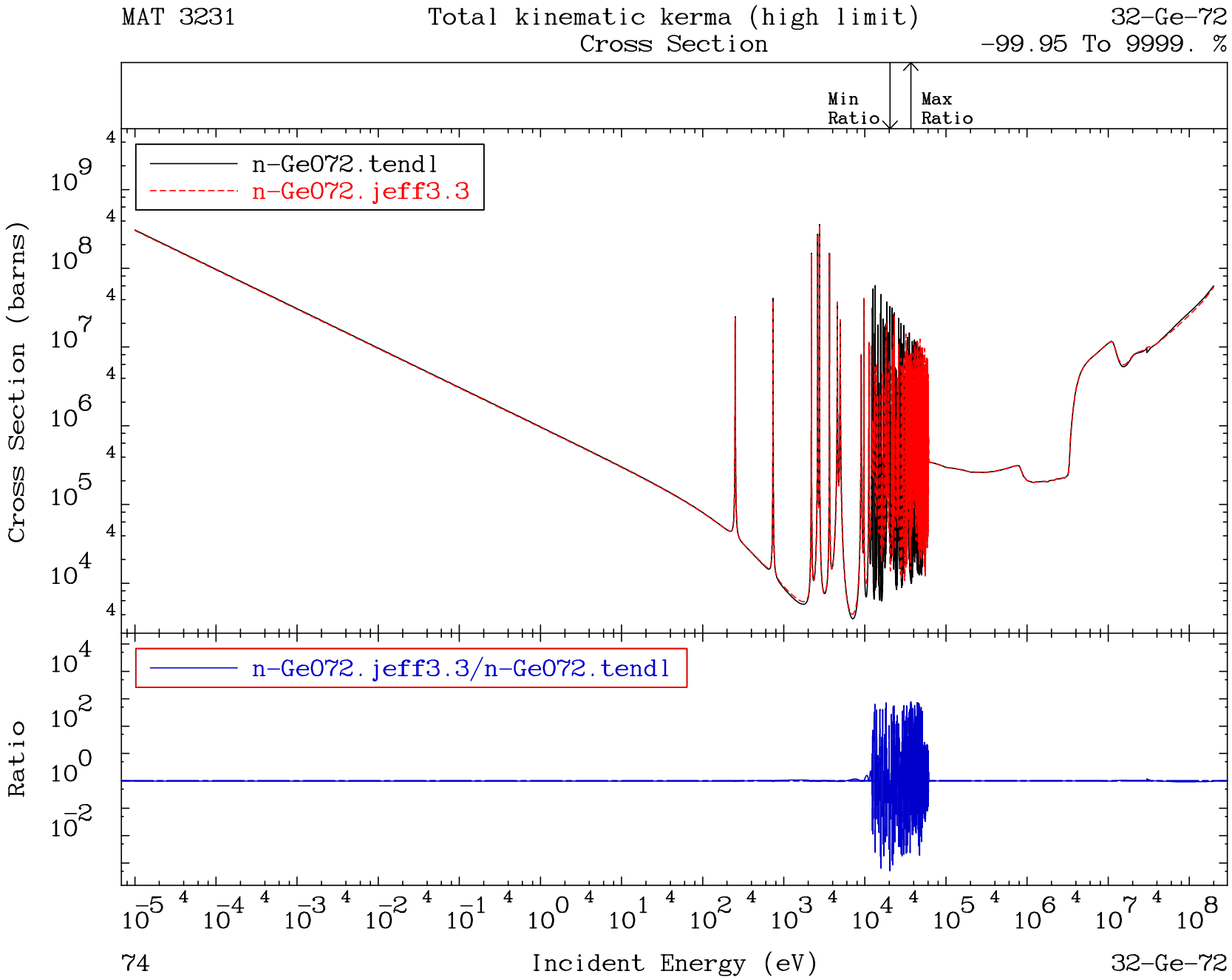

MAT 3231
Kerma non-elastic (all but mt2)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
69
32-Ge-72

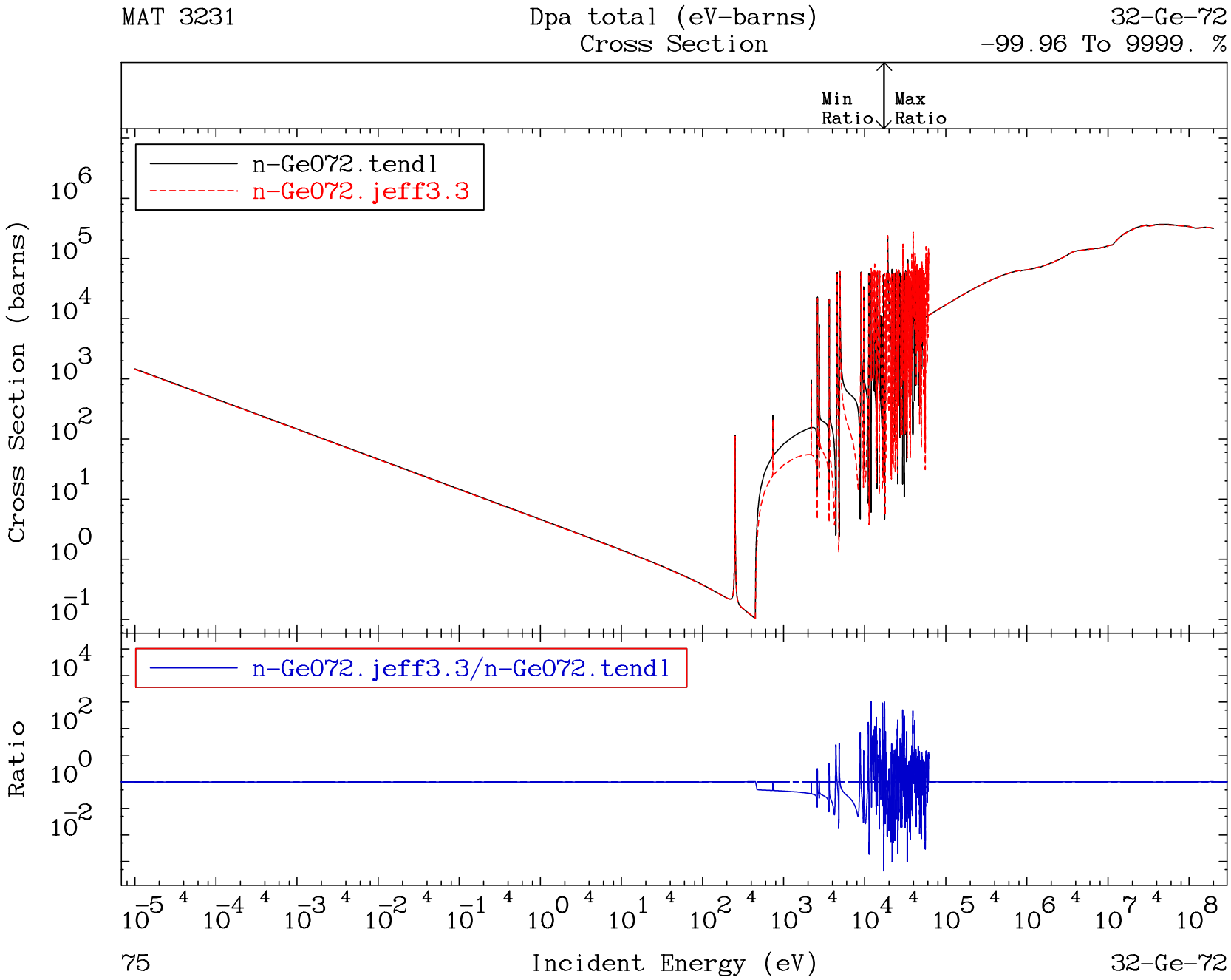

MAT 3231
Kerma inelastic (mt51-91)
Cross Section
32-Ge-72
-1.196 To 17.80 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 701.13 keV
n-Ge072.jeff3.3 Threshold 701.13 keV
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
70
32-Ge-72

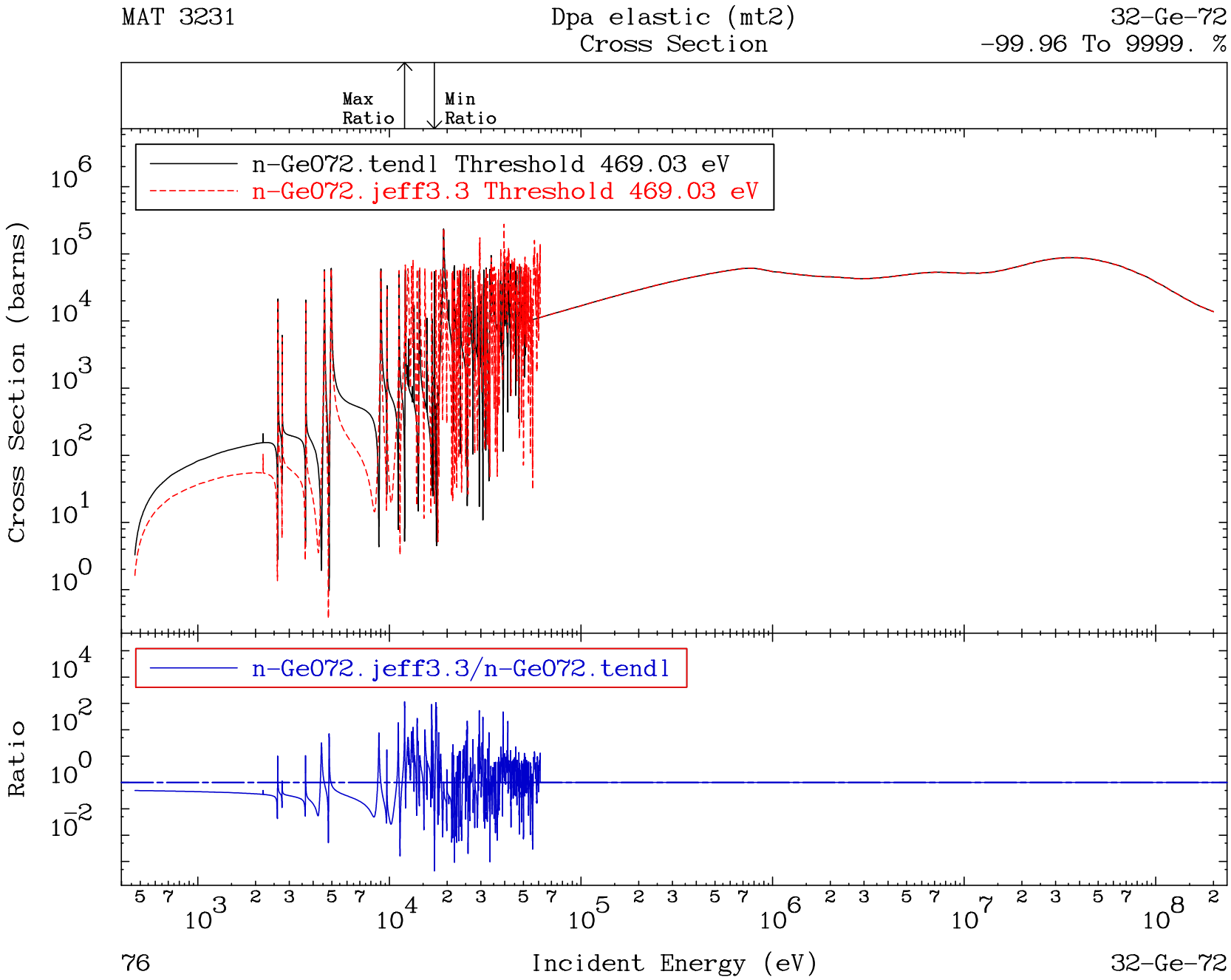

MAT 3231
Kerma fission (mt18 or mt19-20-21-38)
Cross Section
32-Ge-72
-1.196 To 17.80 %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
1.0
0.5
0.0
-0.5
-1.0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.2
1.1
1.0
10^-5 10^-4 10^-3 10^-2 10^-1 10^0 10^1 10^2 10^3 10^4 10^5 10^6 10^7 10^8
71
Incident Energy (eV)
32-Ge-72

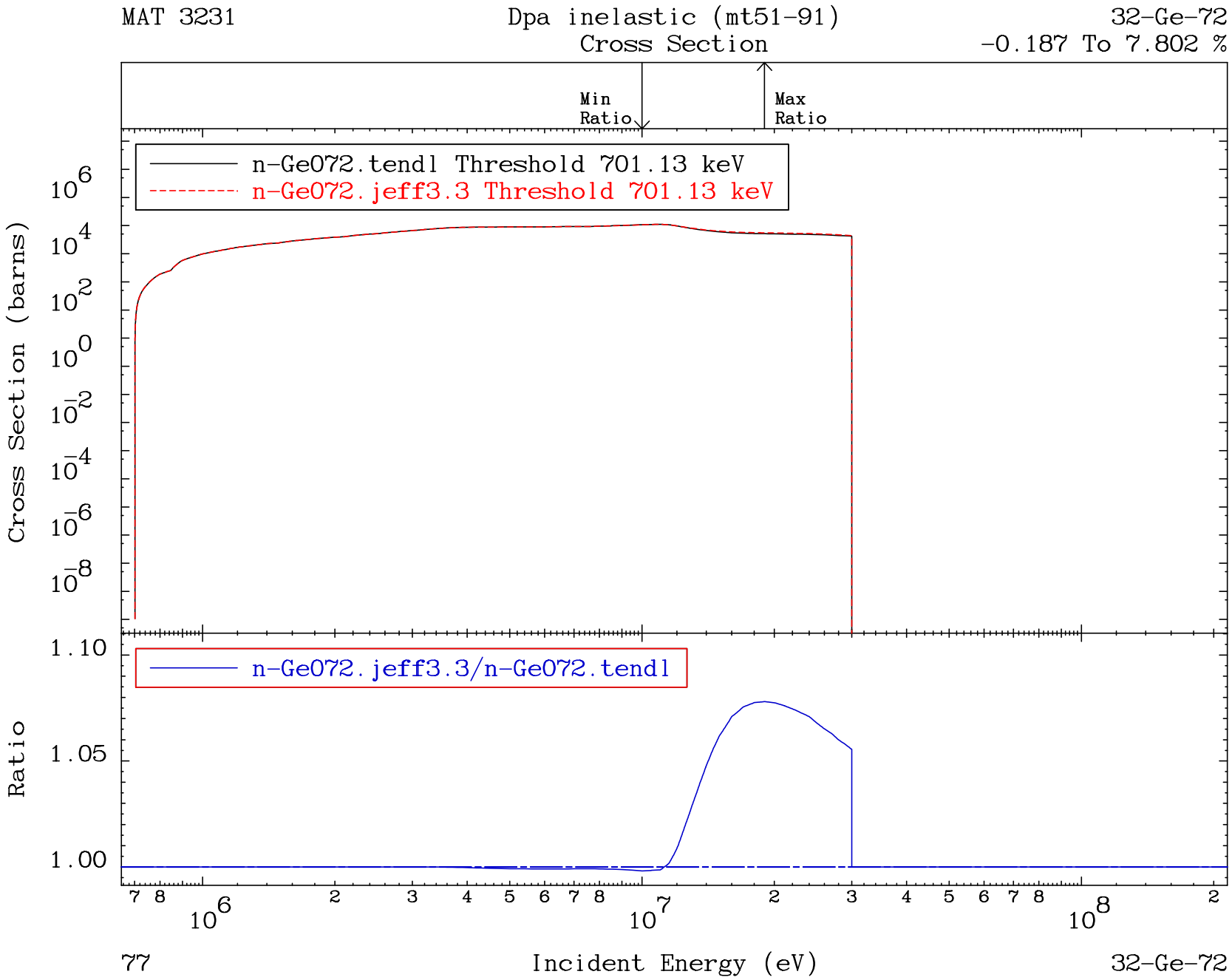

MAT 3231
Kerma capture (mt102)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
72
32-Ge-72

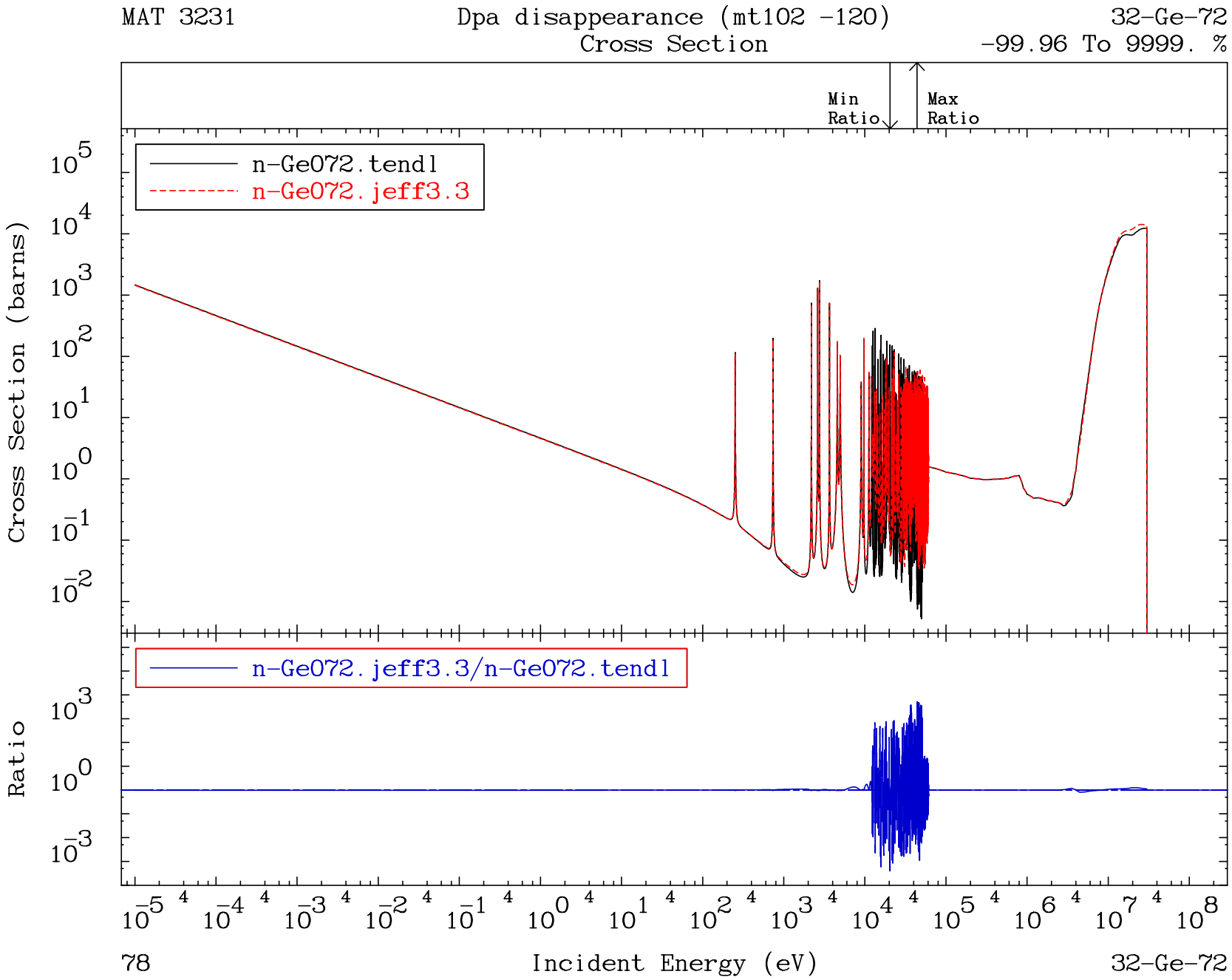

MAT 3231
Total photon (eV-barns)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
73
32-Ge-72

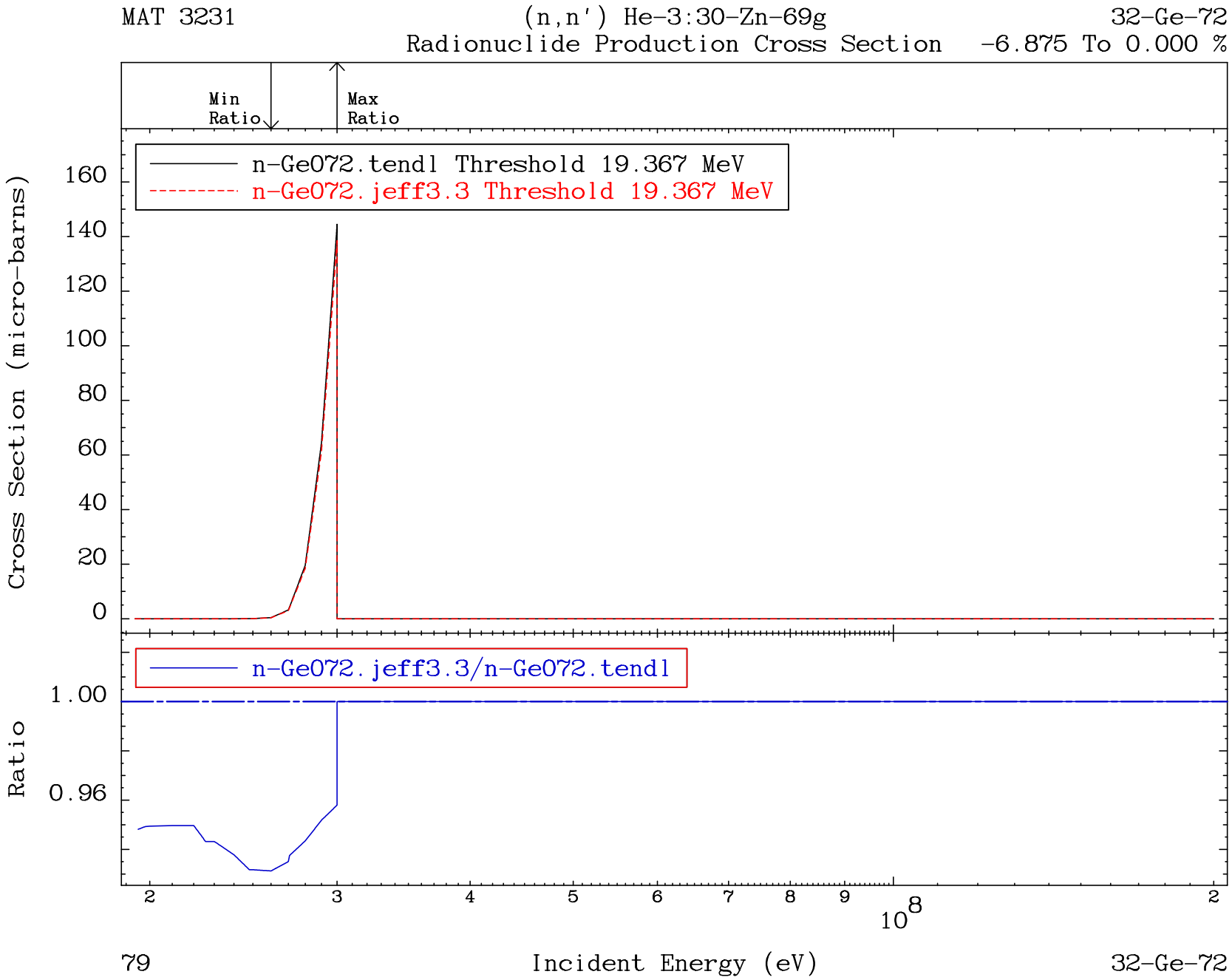

MAT 3231
Total kinematic kerma (high limit)
Cross Section
32-Ge-72
-99.95 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
74
32-Ge-72

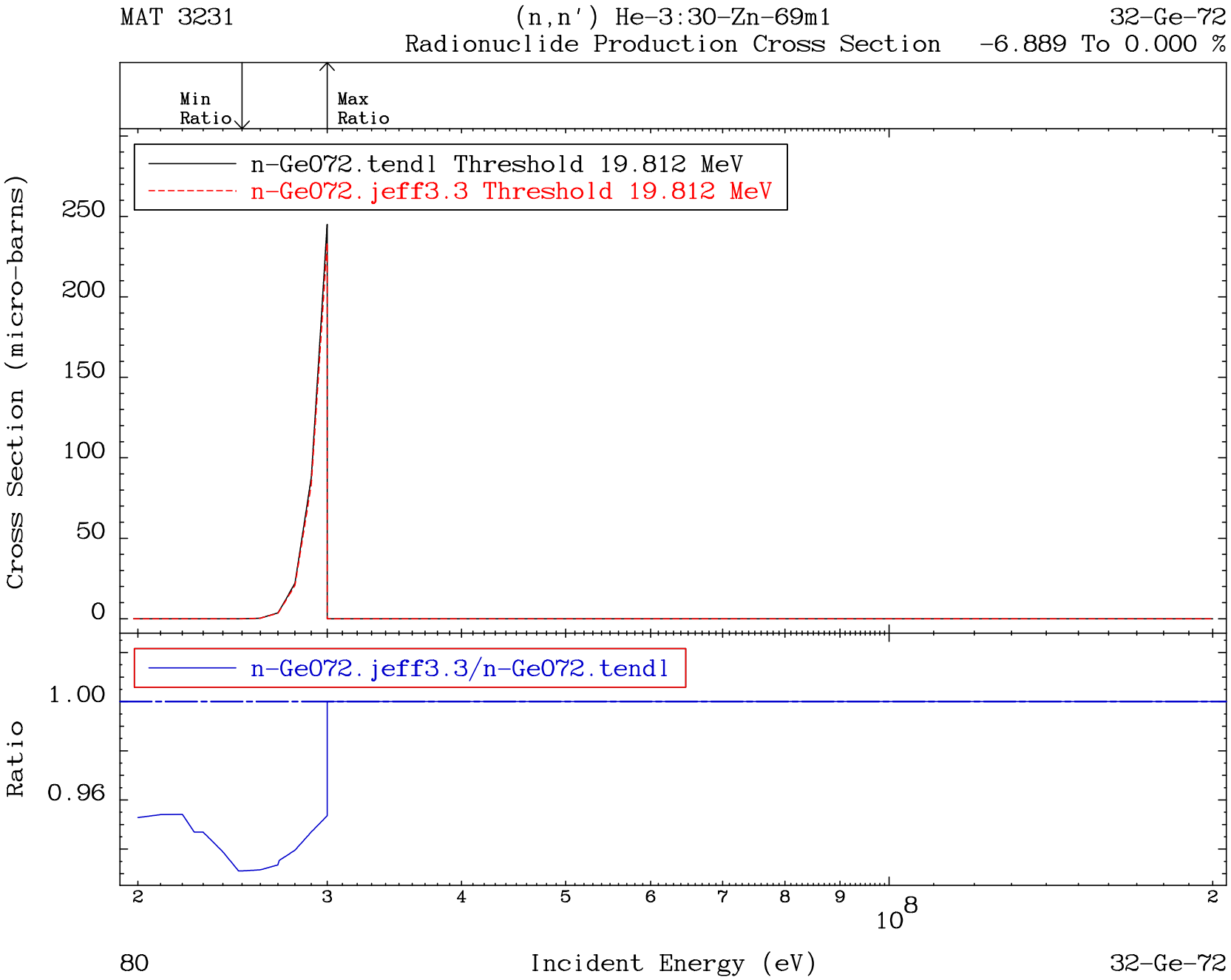

MAT 3231
Dpa total (eV-barns)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
Ratio
n-Ge072.jeff3.3/n-Ge072.tendl
Incident Energy (eV)
75
32-Ge-72

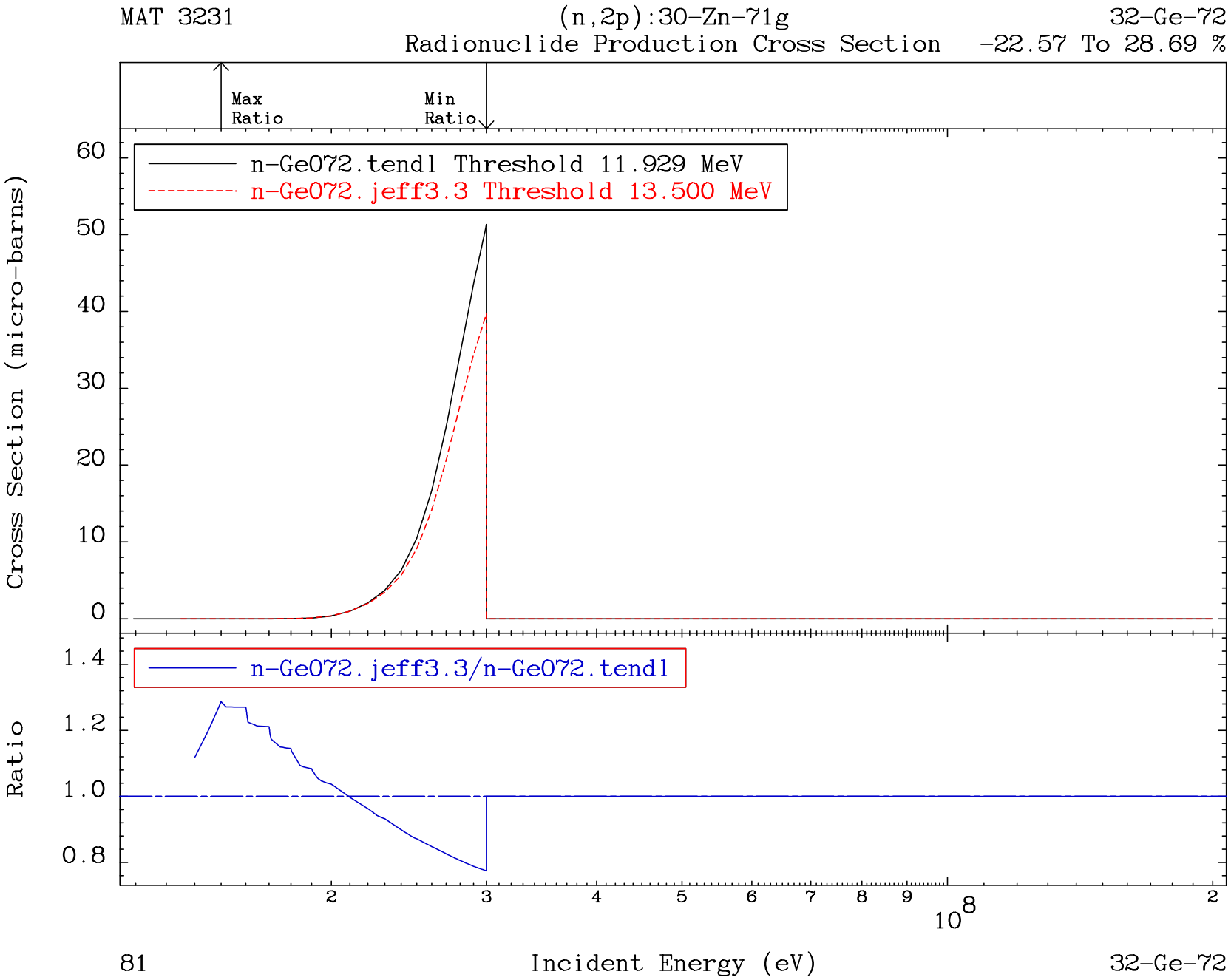

MAT 3231
Dpa elastic (mt2)
Cross Section
32-Ge-72
-99.96 To 9999. %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 469.03 eV
n-Ge072.jeff3.3 Threshold 469.03 eV
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
76
32-Ge-72

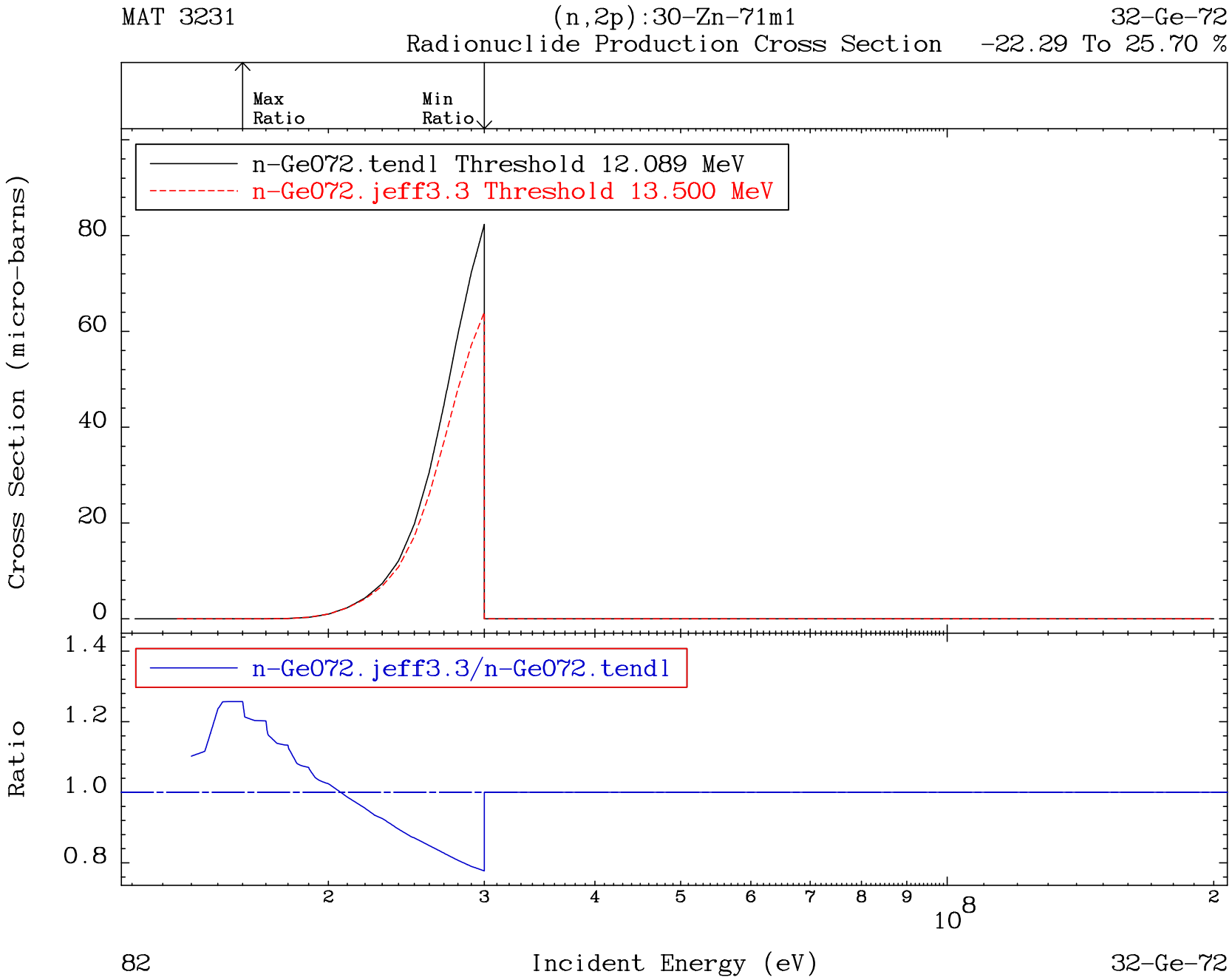

MAT 3231
Dpa inelastic (mt51-91)
Cross Section
32-Ge-72
-0.187 To 7.802 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 701.13 keV
n-Ge072.jeff3.3 Threshold 701.13 keV
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
77
32-Ge-72

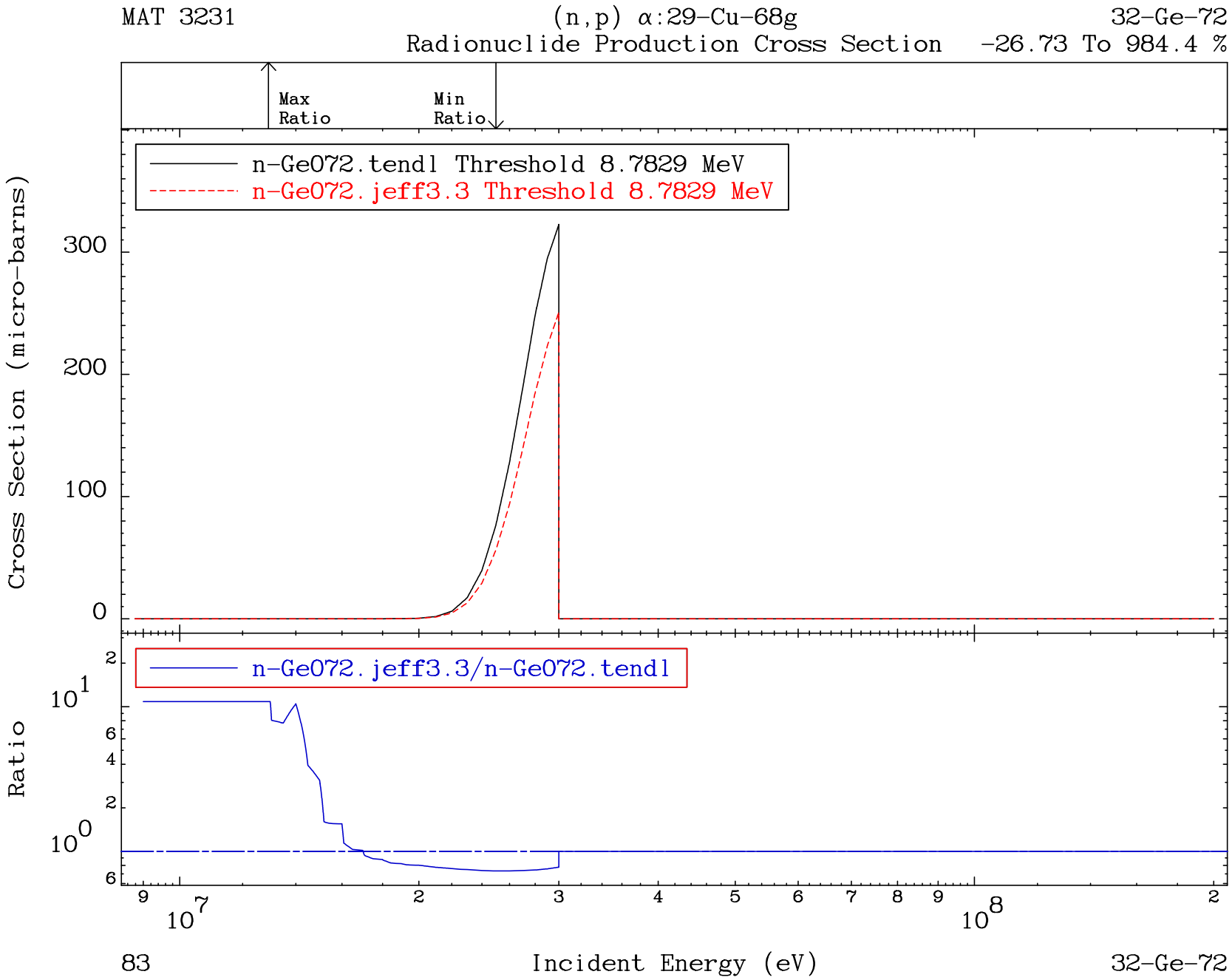

MAT 3231
Dpa disappearance (mt102 -120)
Cross Section
32-Ge-72
-99.96 To 9999. %
Min Ratio
Max Ratio
n-Ge072.tendl
n-Ge072.jeff3.3
Cross Section (barns)
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
Incident Energy (eV)
78
32-Ge-72

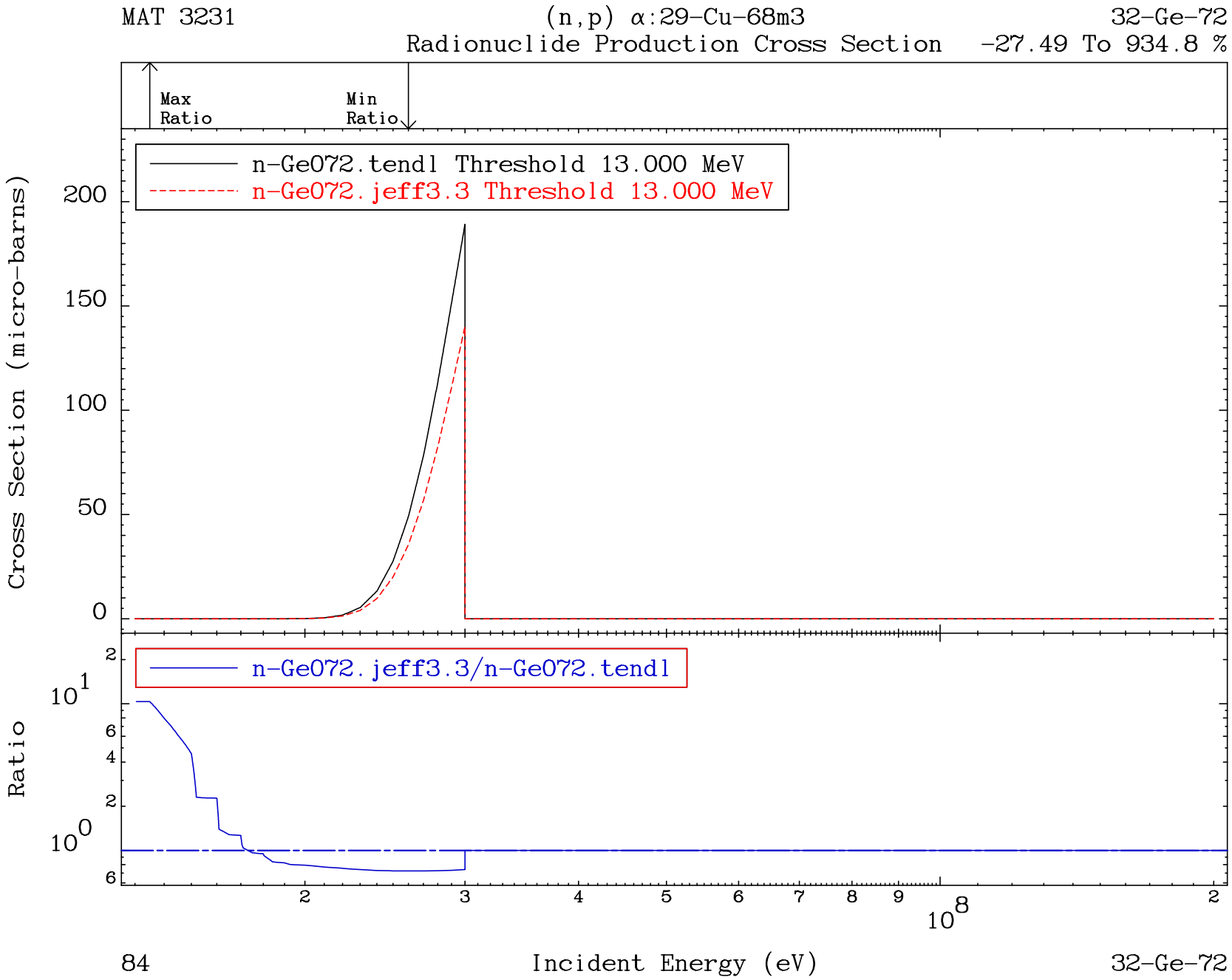

MAT 3231
(n,n') He-3:30-Zn-69g
32-Ge-72
Radionuclide Production Cross Section -6.875 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 19.367 MeV
n-Ge072.jeff3.3 Threshold 19.367 MeV
Cross Section (micro-barns)
160
140
120
100
80
60
40
20
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.96
2
3
4
5
6
7
8
9
10^8
2
79
Incident Energy (eV)
32-Ge-72

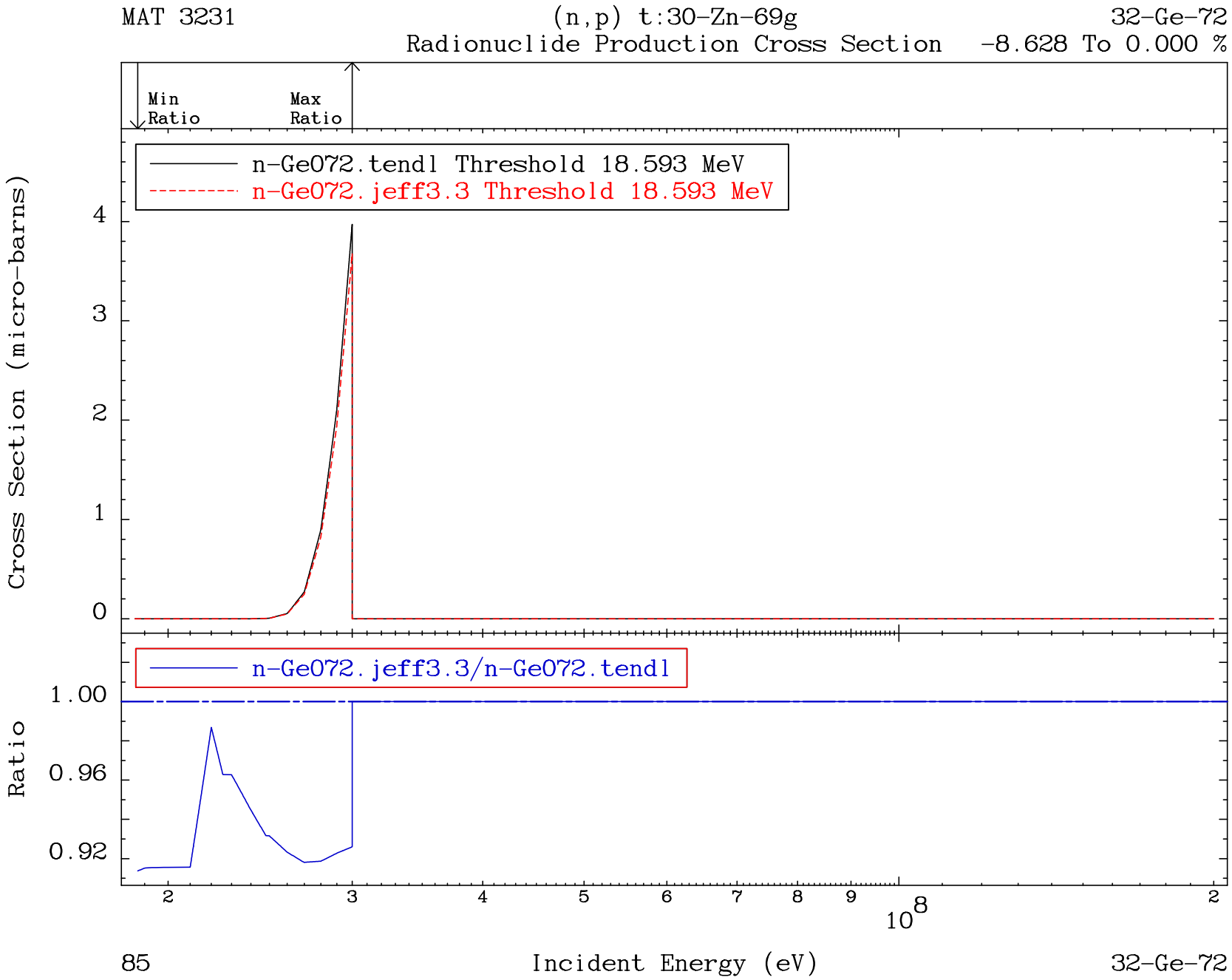

MAT 3231
(n,n') He-3:30-Zn-69m1
32-Ge-72
Radionuclide Production Cross Section -6.889 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 19.812 MeV
n-Ge072.jeff3.3 Threshold 19.812 MeV
Cross Section (micro-barns)
250
200
150
100
50
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.00
0.96
2
3
4
5
6
7
8
9
10^8
2
80
Incident Energy (eV)
32-Ge-72

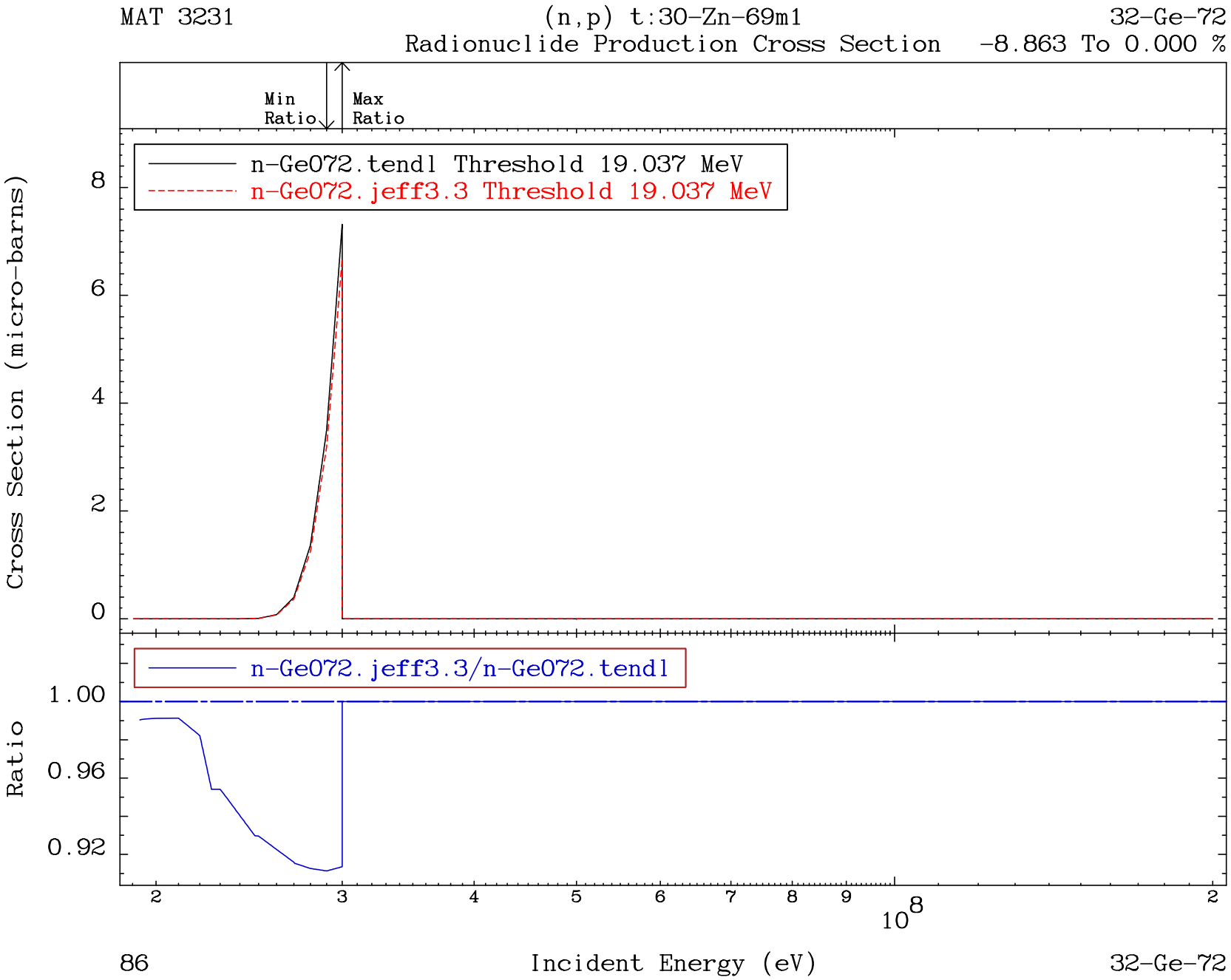

MAT 3231
(n,2p):30-Zn-71g
32-Ge-72
Radionuclide Production Cross Section
-22.57 To 28.69 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 11.929 MeV
n-Ge072.jeff3.3 Threshold 13.500 MeV
Cross Section (micro-barns)
60
50
40
30
20
10
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
1.4
1.2
1.0
0.8
2
3
4
5
6
7
8
9
10^8
2
81
Incident Energy (eV)
32-Ge-72


MAT 3231
(n,2p):30-Zn-71m1
32-Ge-72
Radionuclide Production Cross Section -22.29 To 25.70 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 12.089 MeV
n-Ge072.jeff3.3 Threshold 13.500 MeV
Cross Section (micro-barns)
0
20
40
60
80
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.8
1.0
1.2
1.4
2
3
4
5
6
7
8
9
10^8
2
82
Incident Energy (eV)
32-Ge-72


MAT 3231
(n,p) α:29-Cu-68g
32-Ge-72
Radionuclide Production Cross Section -26.73 To 984.4 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 8.7829 MeV
n-Ge072.jeff3.3 Threshold 8.7829 MeV
Cross Section (micro-barns)
300
200
100
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
2
10^1
6
4
2
10^0
6
9
10^7
2
3
4
5
6
7
8
9
10^8
2
83
Incident Energy (eV)
32-Ge-72


MAT 3231
(n,p) α:29-Cu-68m3
32-Ge-72
Radionuclide Production Cross Section -27.49 To 934.8 %
Max Ratio
Min Ratio
n-Ge072.tendl Threshold 13.000 MeV
n-Ge072.jeff3.3 Threshold 13.000 MeV
Cross Section (micro-barns)
200
150
100
50
0
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
10^1
10^0
2
6
4
2
6
2
3
4
5
6
7
8
9
10^8
2
84
Incident Energy (eV)
32-Ge-72


MAT 3231
(n,p) t:30-Zn-69g
32-Ge-72
Radionuclide Production Cross Section
-8.628 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 18.593 MeV
n-Ge072.jeff3.3 Threshold 18.593 MeV
Cross Section (micro-barns)
0
1
2
3
4
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.92
0.96
1.00
2
3
4
5
6
7
8
9
10^8
2
85
Incident Energy (eV)
32-Ge-72


MAT 3231
(n,p) t:30-Zn-69m1
32-Ge-72
Radionuclide Production Cross Section
-8.863 To 0.000 %
Min Ratio
Max Ratio
n-Ge072.tendl Threshold 19.037 MeV
n-Ge072.jeff3.3 Threshold 19.037 MeV
Cross Section (micro-barns)
0
2
4
6
8
n-Ge072.jeff3.3/n-Ge072.tendl
Ratio
0.92
0.96
1.00
2
3
4
5
6
7
8
9
10^8
2
86
Incident Energy (eV)
32-Ge-72