

Program Complot  
(Version 2021-1)

by

Dermott E. Cullen  
(Present Contact Information)

Dermott E. Cullen  
1466 Hudson Way  
Livermore, CA 94550

U.S.A.

Tele: 925-443-1911

E.Mail:redcullen1@comcast.net  
Web:redcullen1.net/HOMEPAGE.NEW

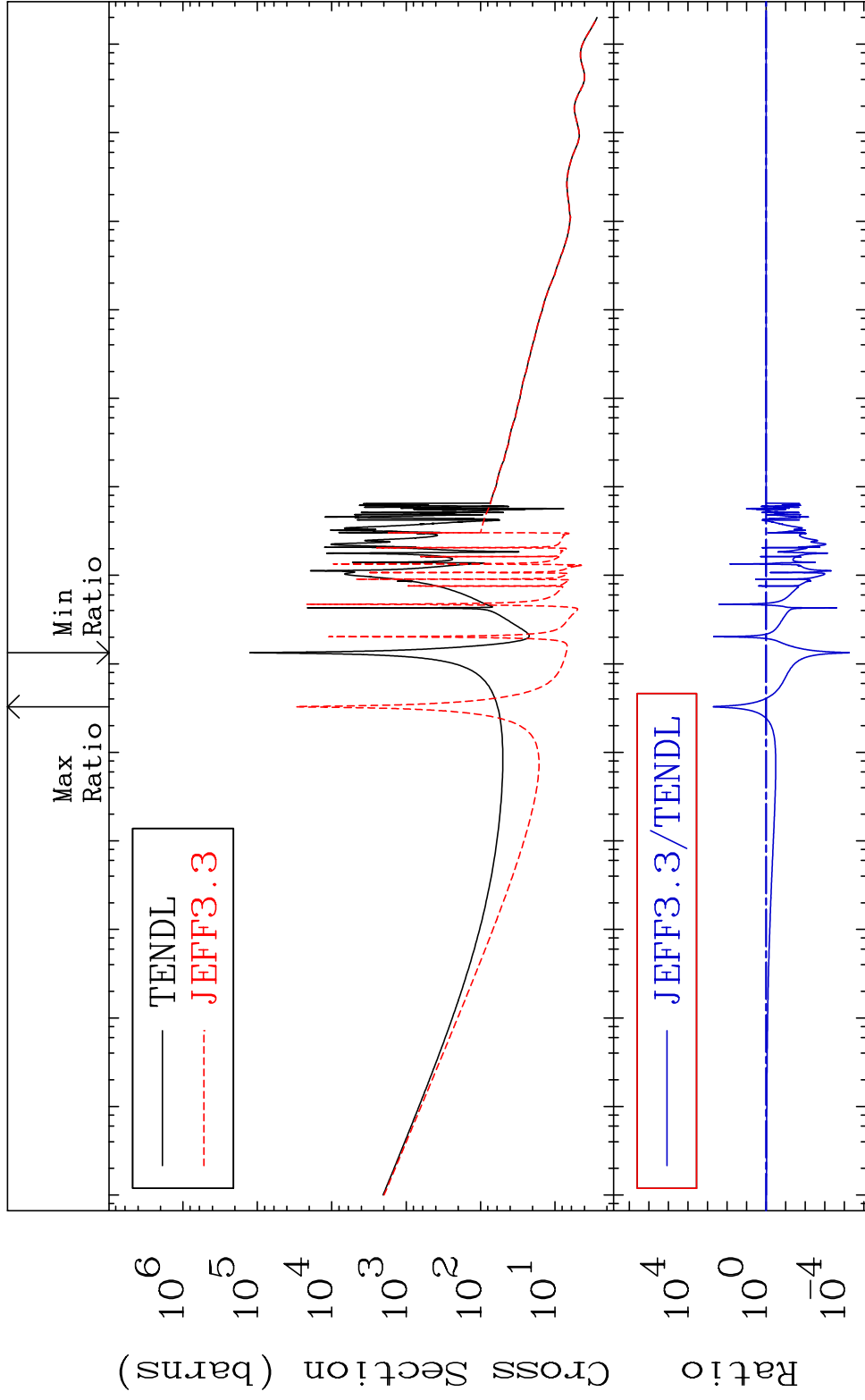
Press Mouse Button to Start

MAT 7246

Total

72-Hf-181

Cross Section -99.99 To 9999. %



10<sup>6</sup>  
10<sup>5</sup>  
10<sup>4</sup>  
10<sup>3</sup>  
10<sup>2</sup>  
10<sup>1</sup>  
10<sup>0</sup>  
10<sup>-1</sup>  
10<sup>-2</sup>  
10<sup>-3</sup>  
10<sup>-4</sup>  
10<sup>-5</sup>

10<sup>-5</sup> 10<sup>-4</sup> 10<sup>-3</sup> 10<sup>-2</sup> 10<sup>-1</sup> 10<sup>0</sup> 10<sup>1</sup> 10<sup>2</sup> 10<sup>3</sup> 10<sup>4</sup> 10<sup>5</sup> 10<sup>6</sup> 10<sup>7</sup> 10<sup>8</sup>

1 Incident Energy (eV)

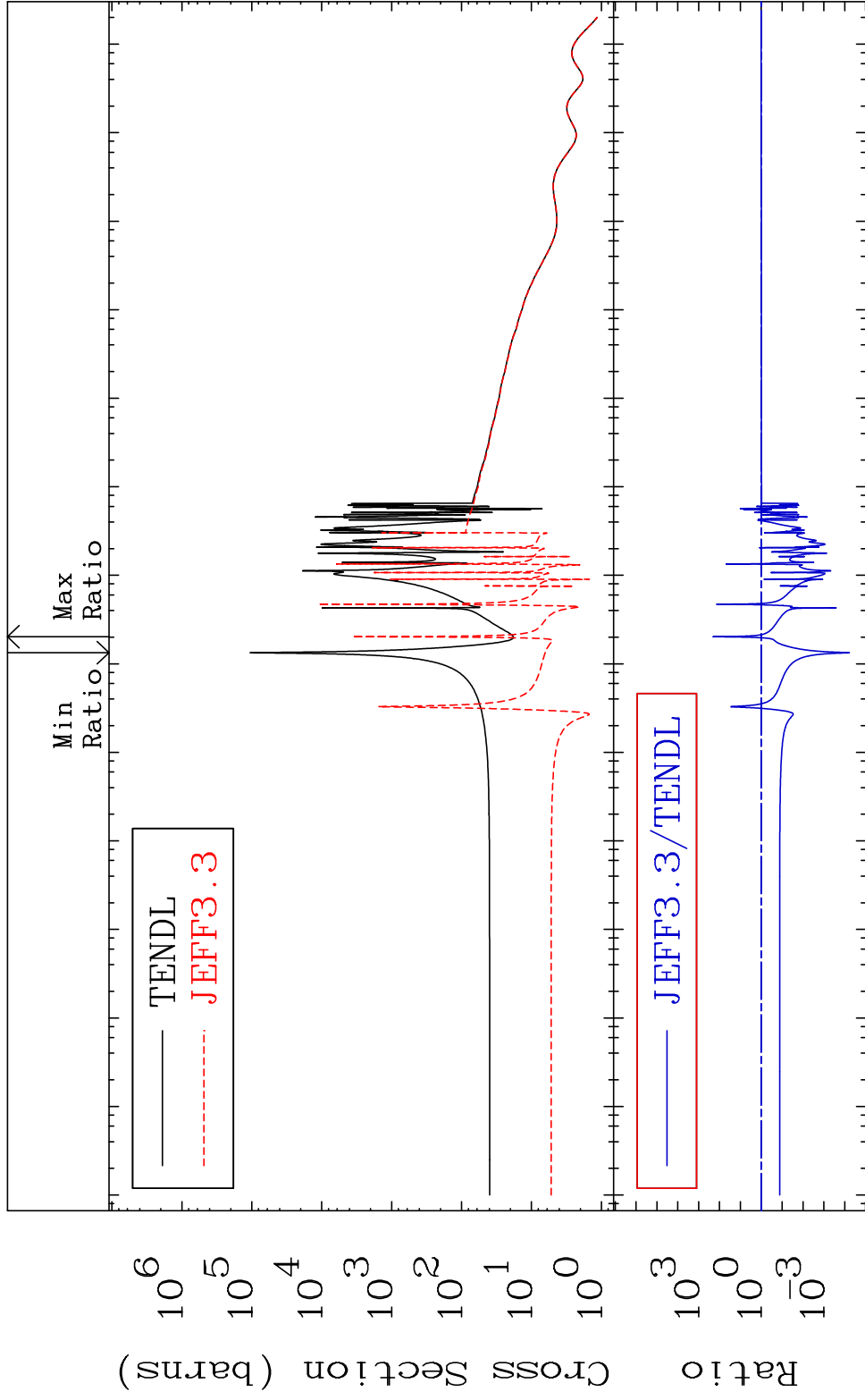
72-Hf-181

MAT 7246

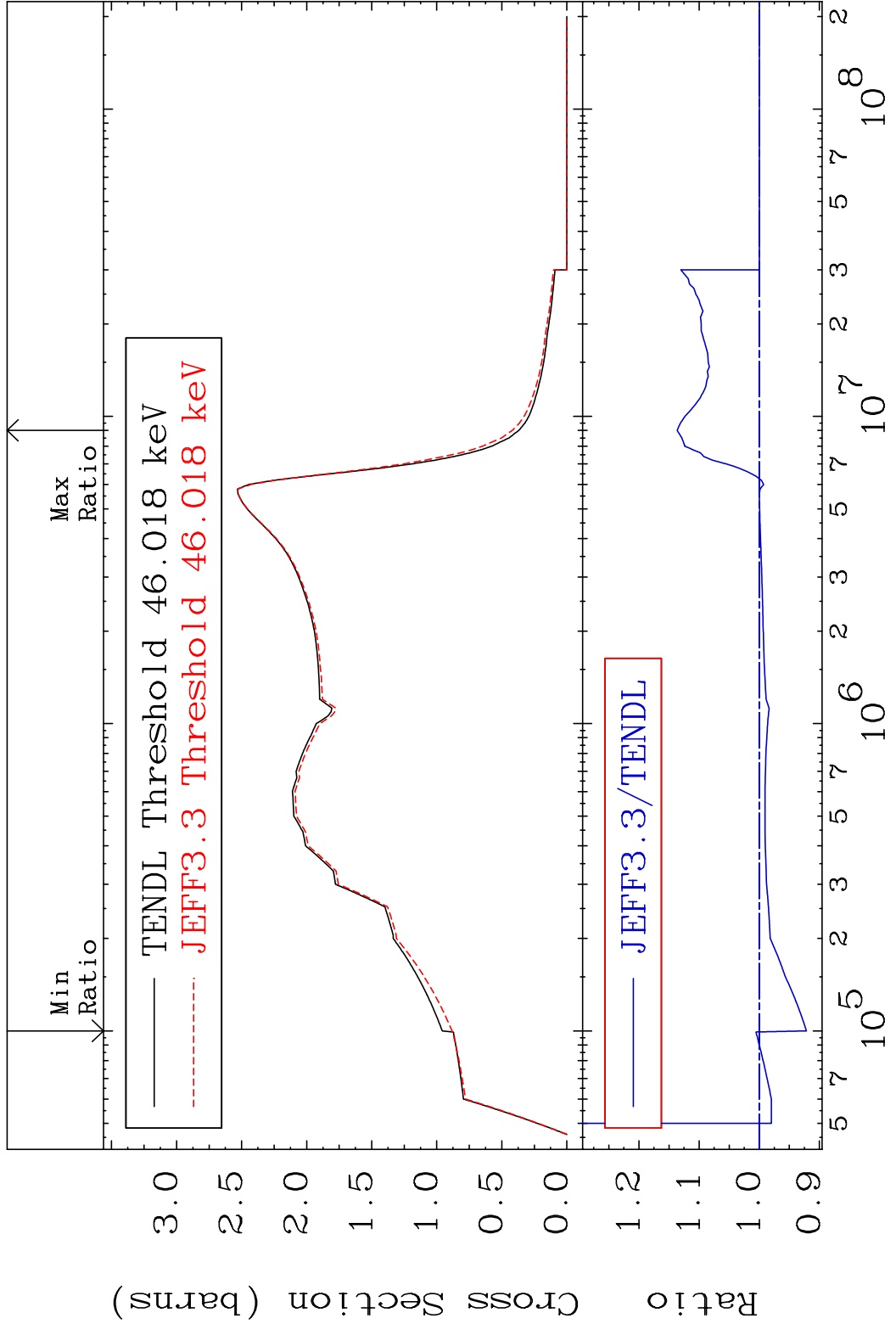
Elastic

72-Hf-181

Cross Section -99.99 To 9999. %



MAT 7246 Inelastic 72-Hf-181  
 Cross Section -7.832 To 13.64 %

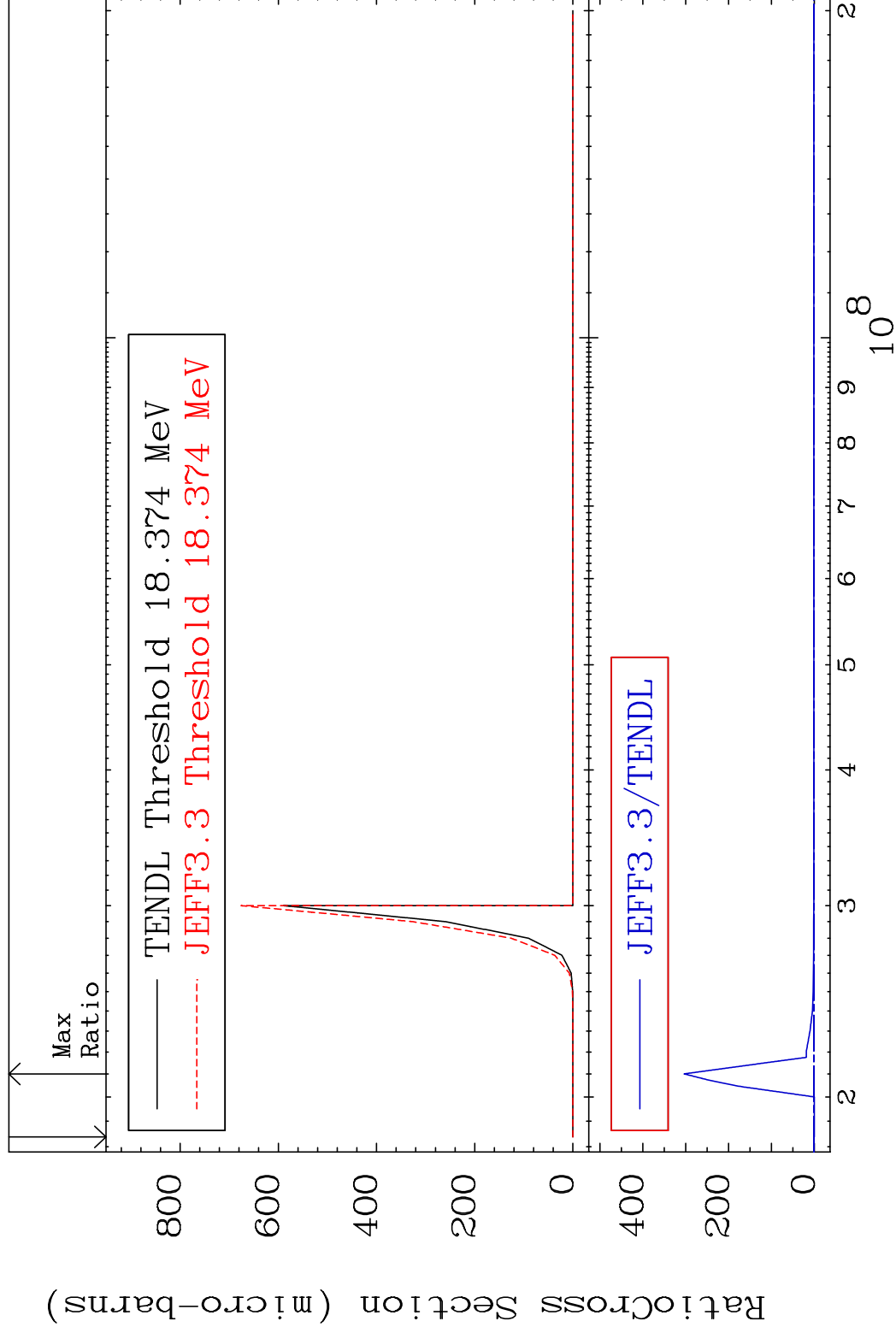


MAT 7246

(n,2n) d

72-Hf-181

Cross Section -100.0 To 9999. %



4

Incident Energy (eV)

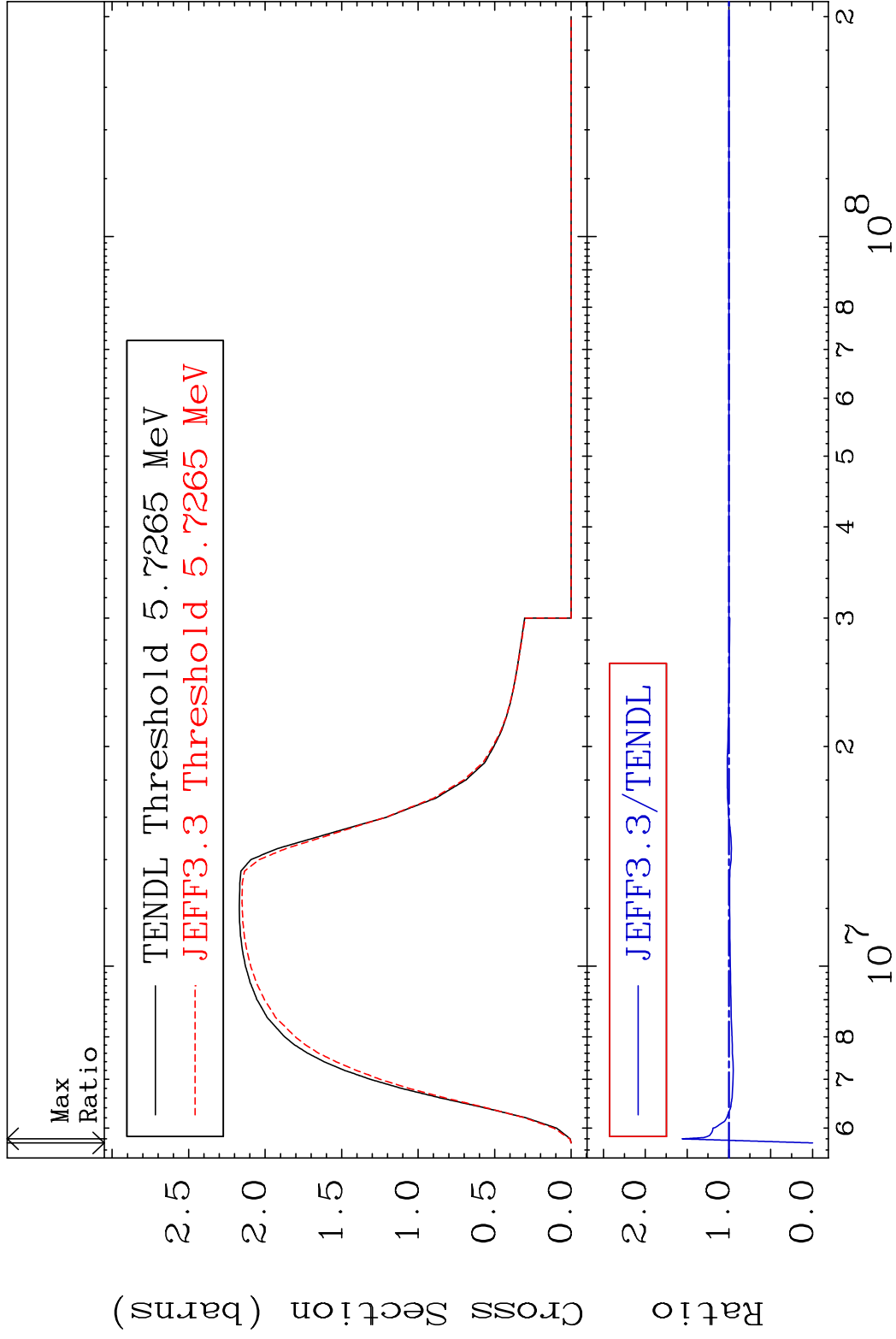
72-Hf-181

MAT 7246

(n,2n)

72-Hf-181

Cross Section -100.0 To 55.72 %



5

Incident Energy (eV)

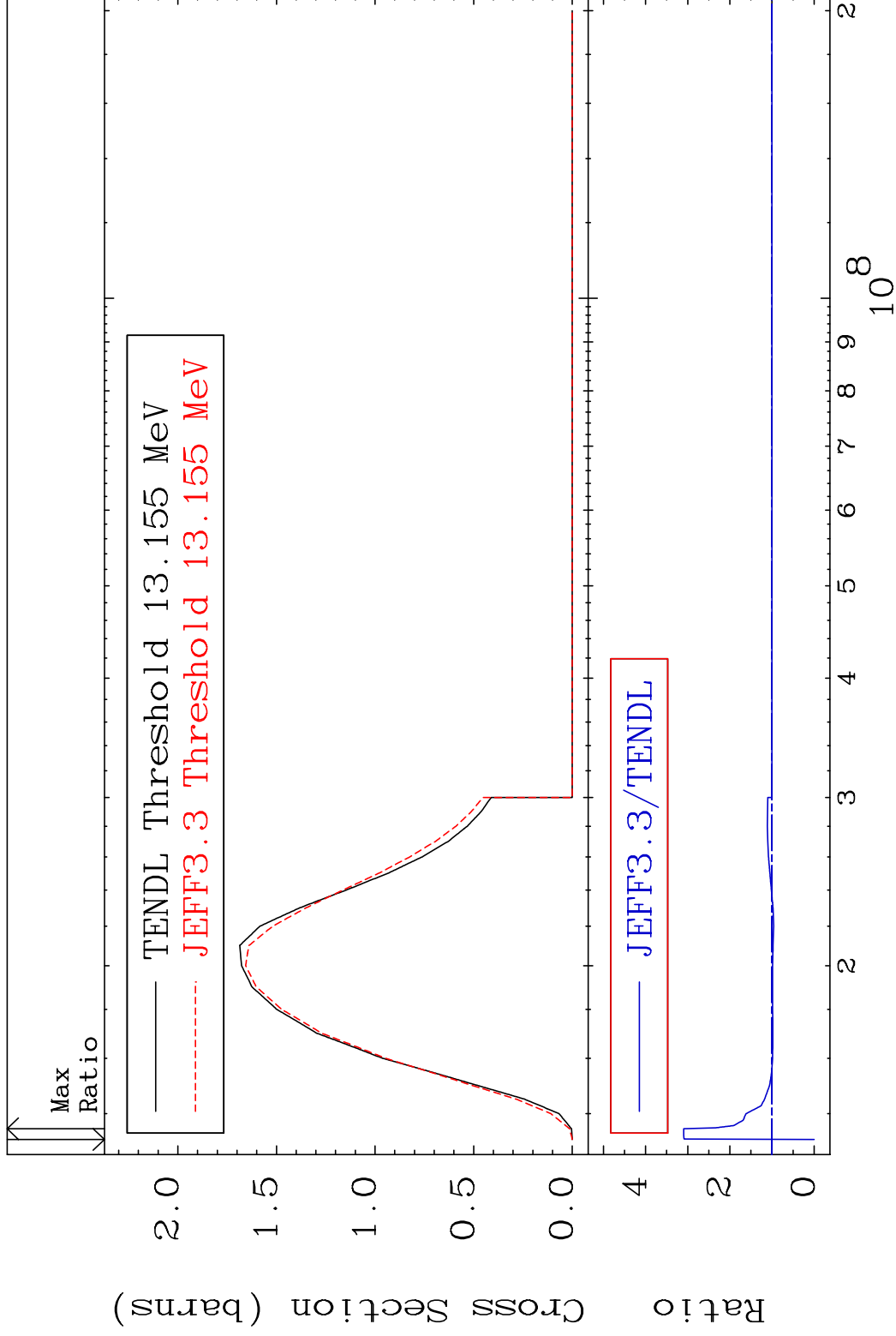
72-Hf-181

MAT 7246

(n,3n)

72-Hf-181

Cross Section -100.0 To 209.7 %



6

Incident Energy (eV)

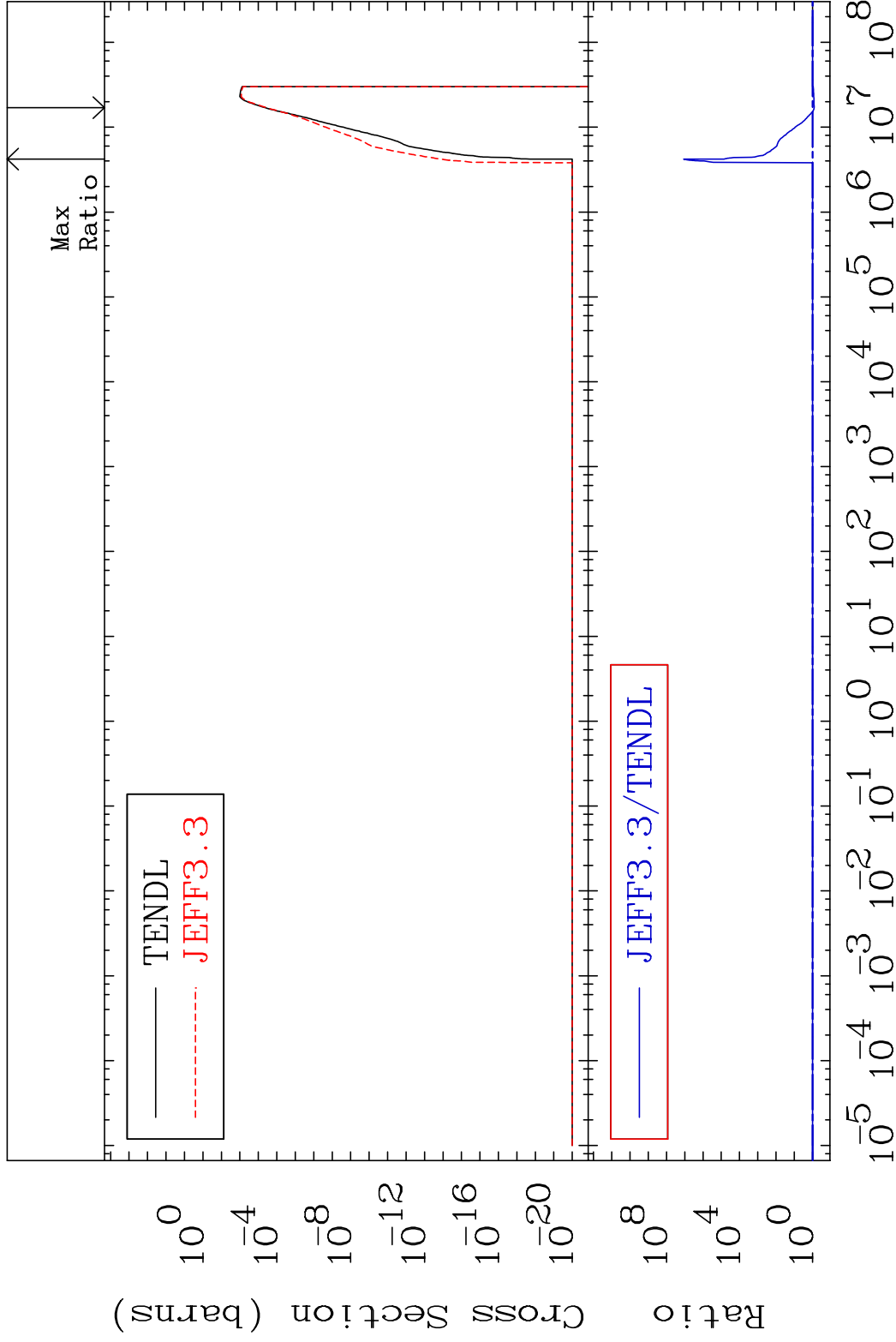
72-Hf-181

MAT 7246

(n, n')  $\alpha$

72-Hf-181

Cross Section -18.71 To 9999. %



7

Incident Energy (eV)

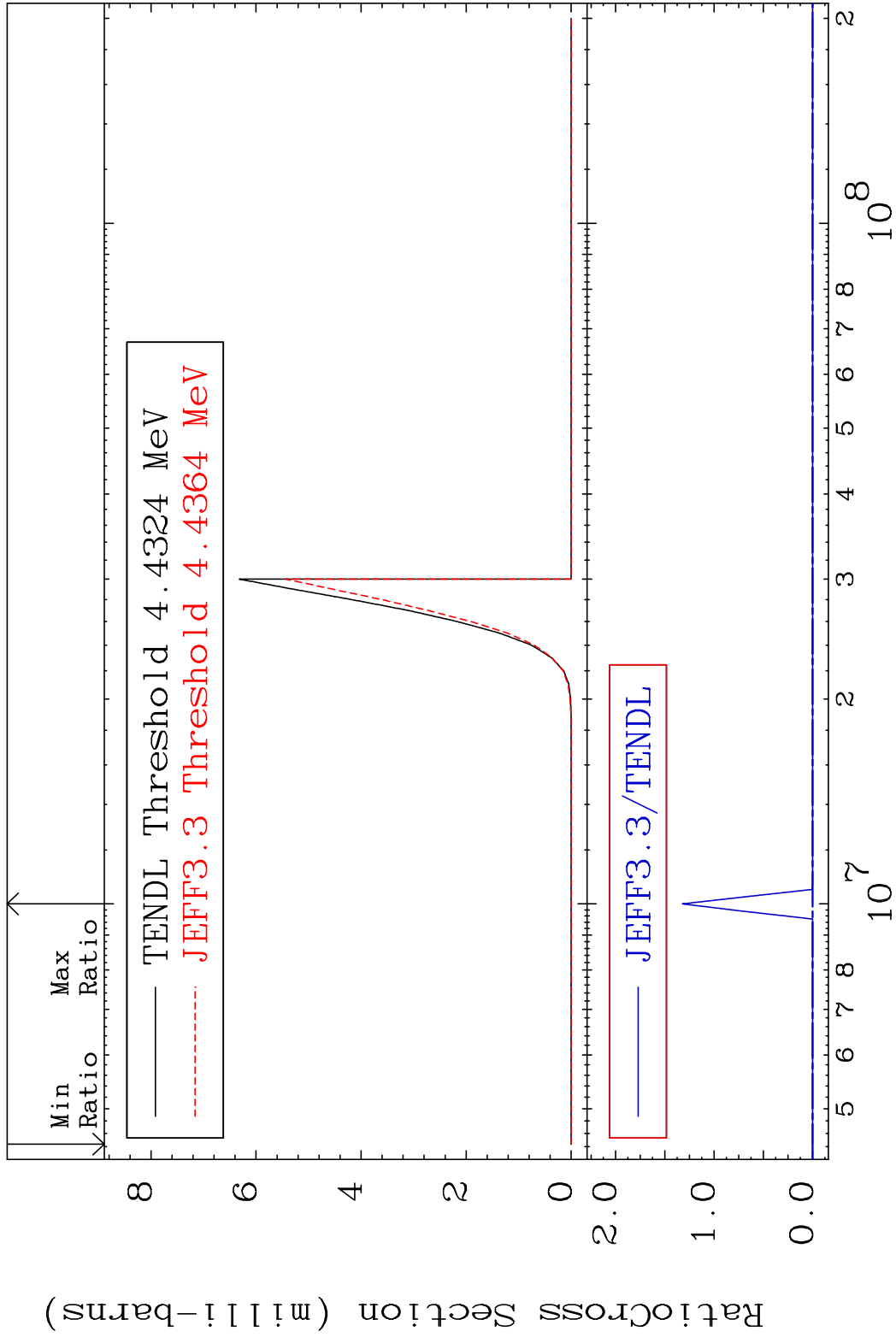
72-Hf-181

MAT 7246

(n,2n)  $\alpha$

72-Hf-181

Cross Section -100.0 To 9999. %



8

Incident Energy (eV)

72-Hf-181

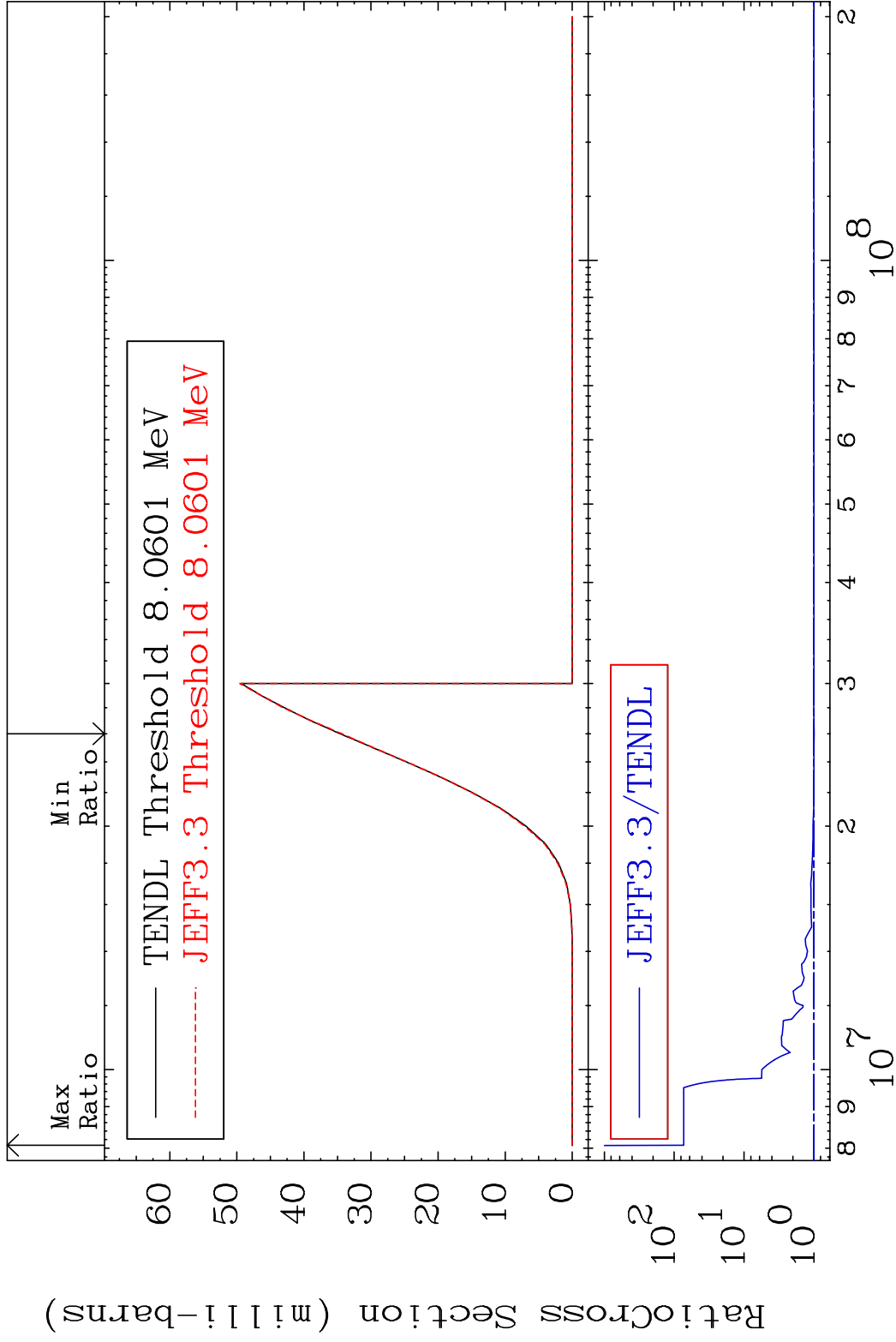


MAT 7246

(n, n') p

72-Hf-181

Cross Section -0.724 To 7216. %

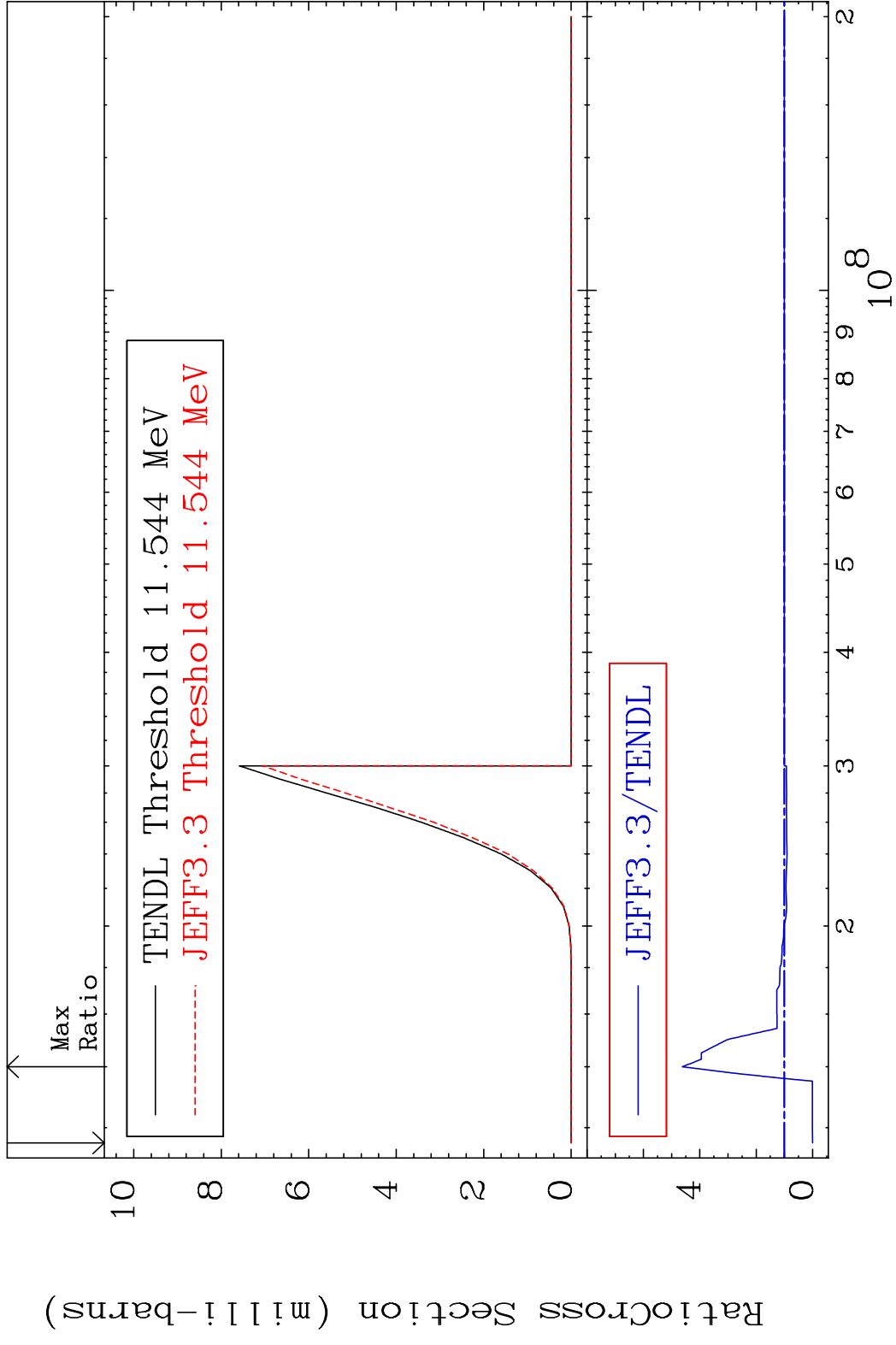


10

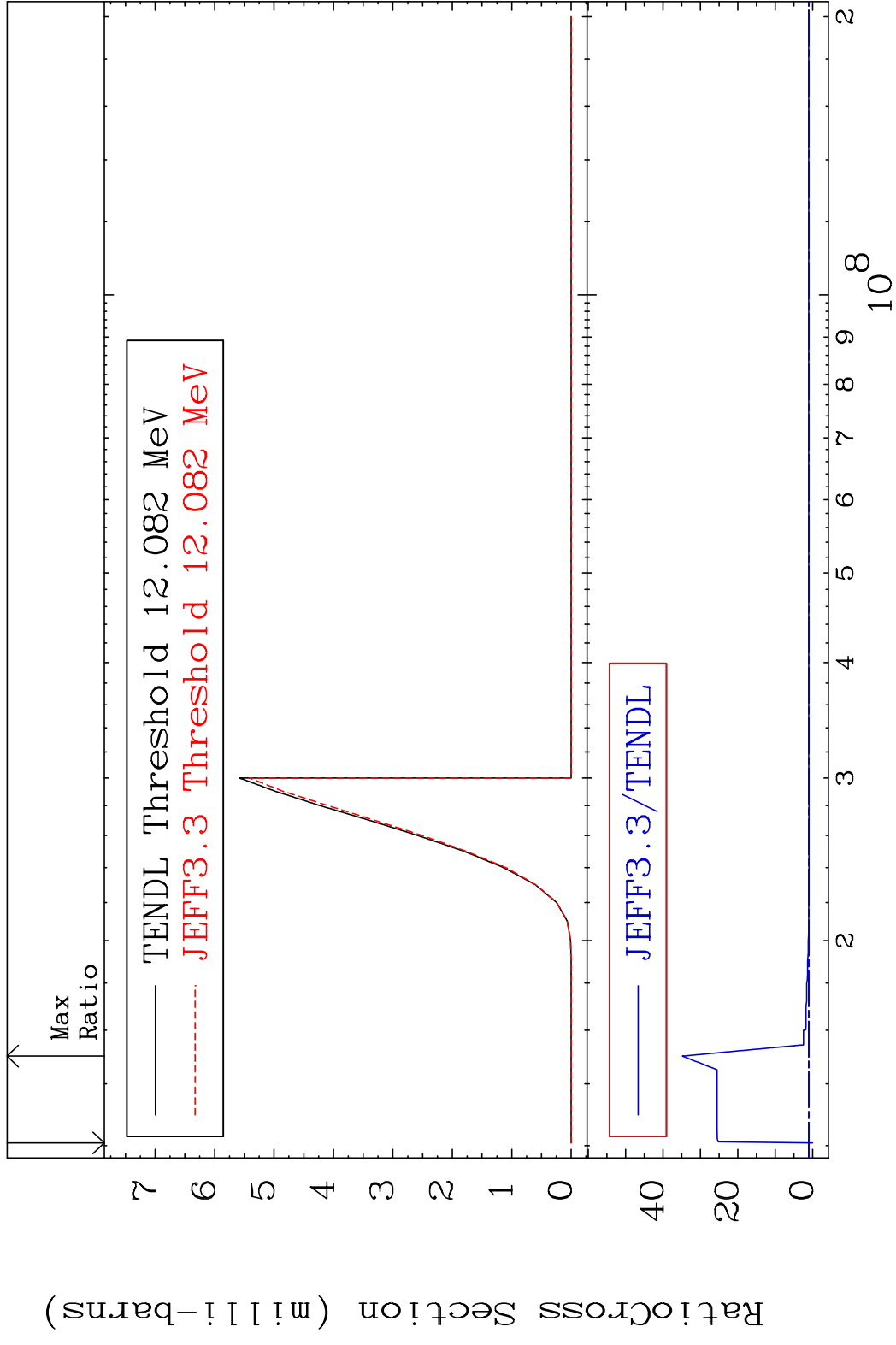
Incident Energy (eV)

72-Hf-181

MAT 7246 (n, n') d 72-Hf-181  
 Cross Section -100.0 To 362.0 %



MAT 7246 (n, n') t 72-Hf-181  
 Cross Section -100.0 To 3380. %



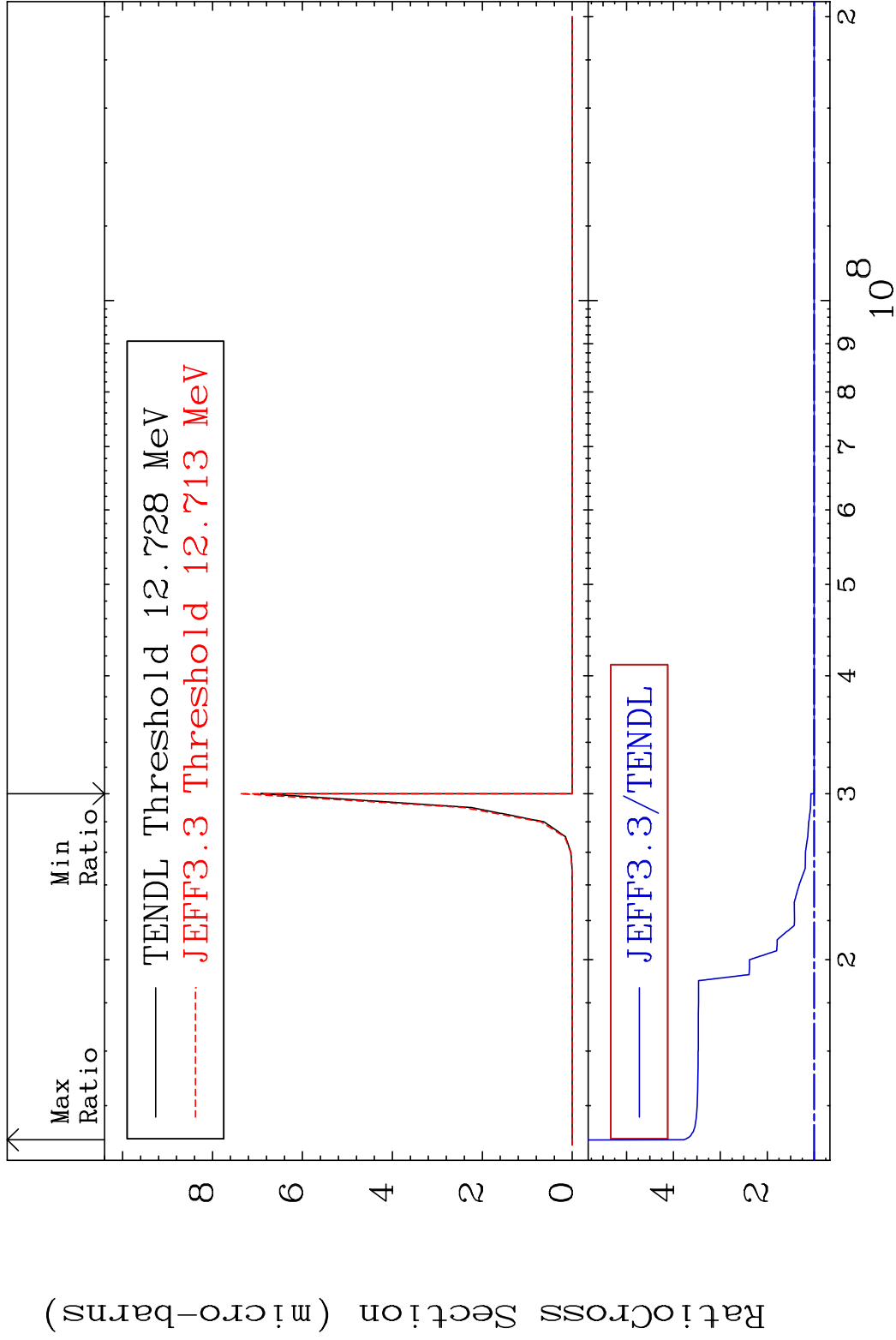
MAT 7246

(n,n') He-3

72-Hf-181

Cross Section 0.000

To 278.1 %

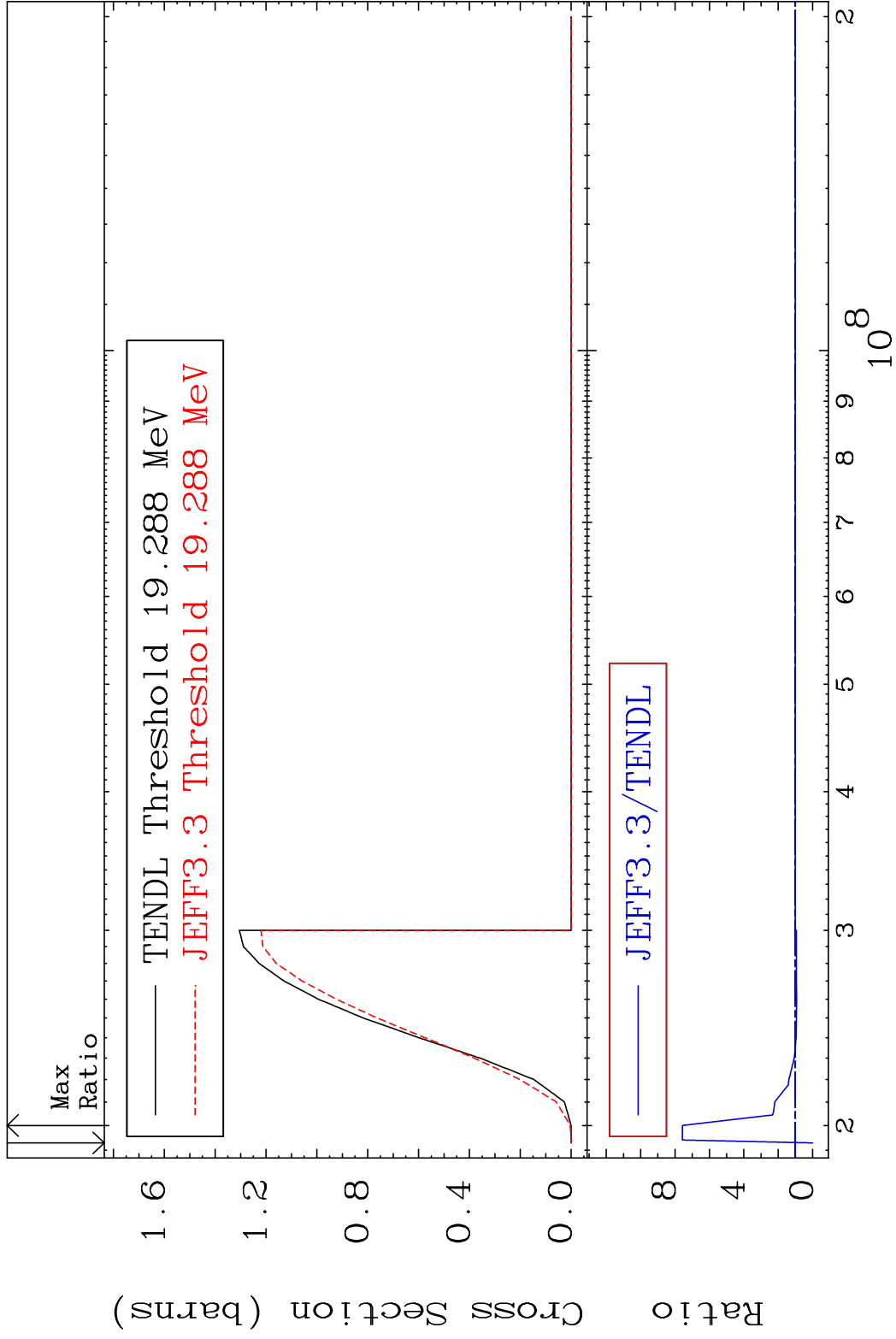


MAT 7246

(n,4n)

72-Hf-181

Cross Section -100.0 To 657.5 %



14

Incident Energy (eV)

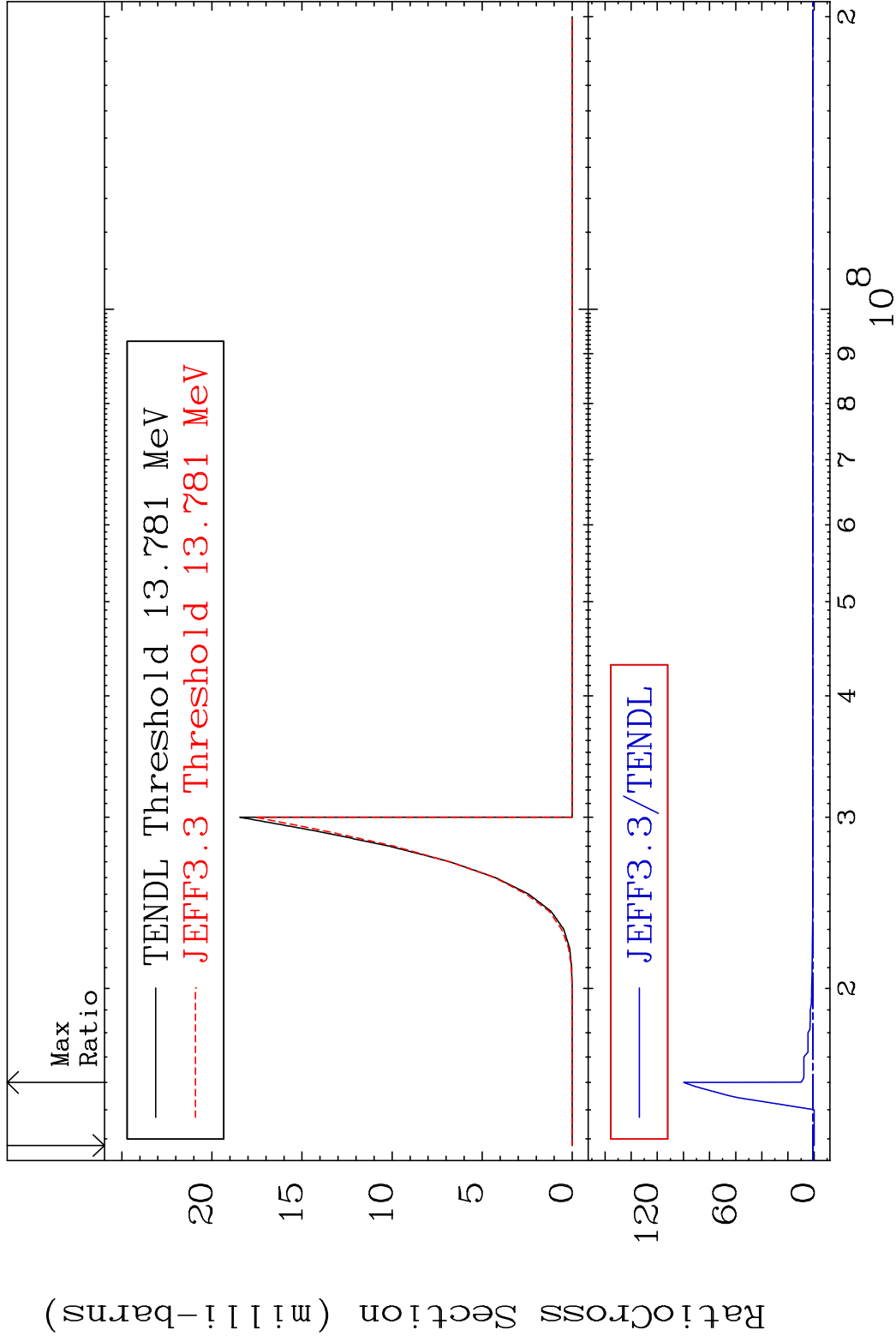
72-Hf-181

MAT 7246

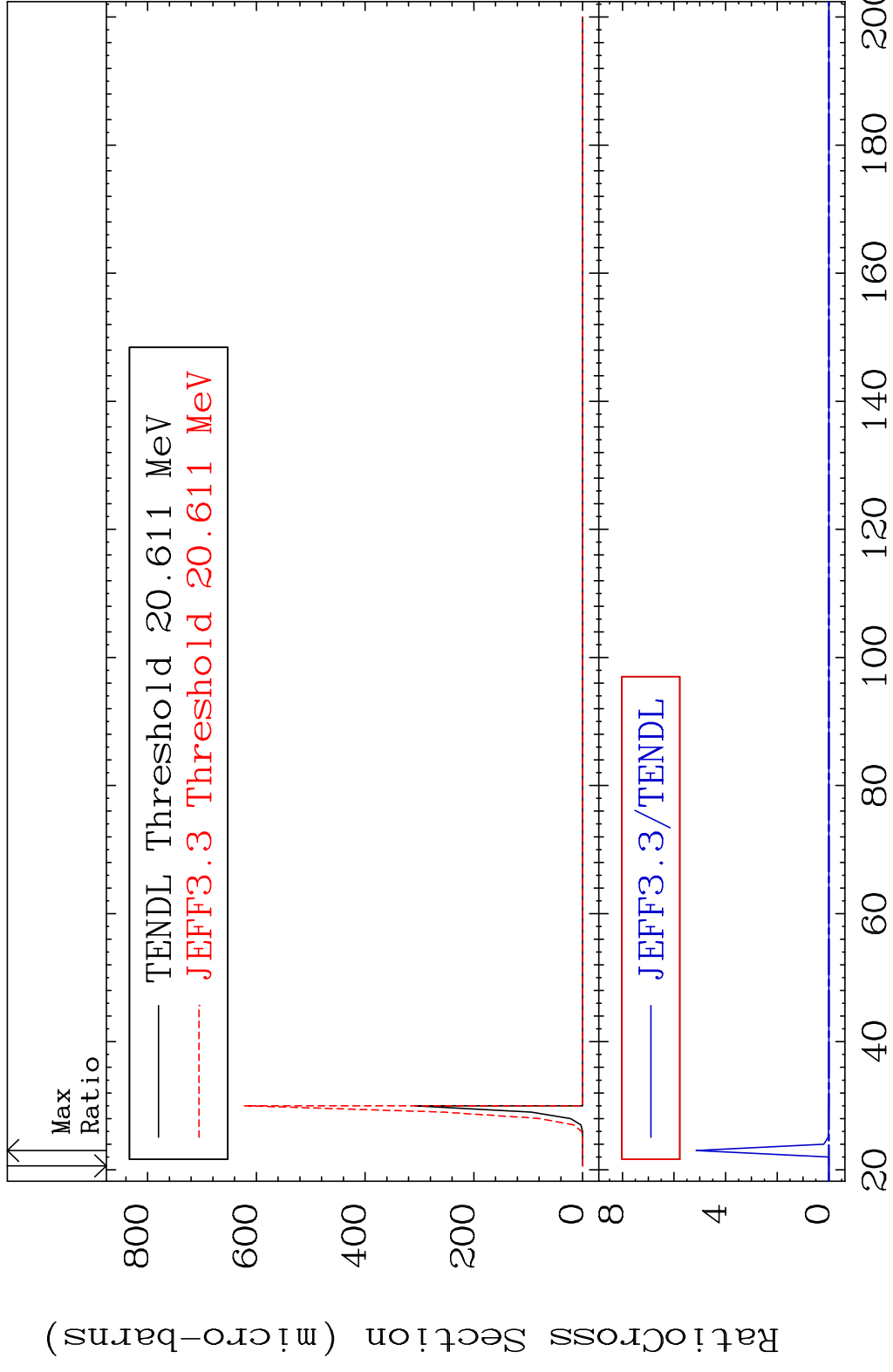
(n,2n) p

72-Hf-181

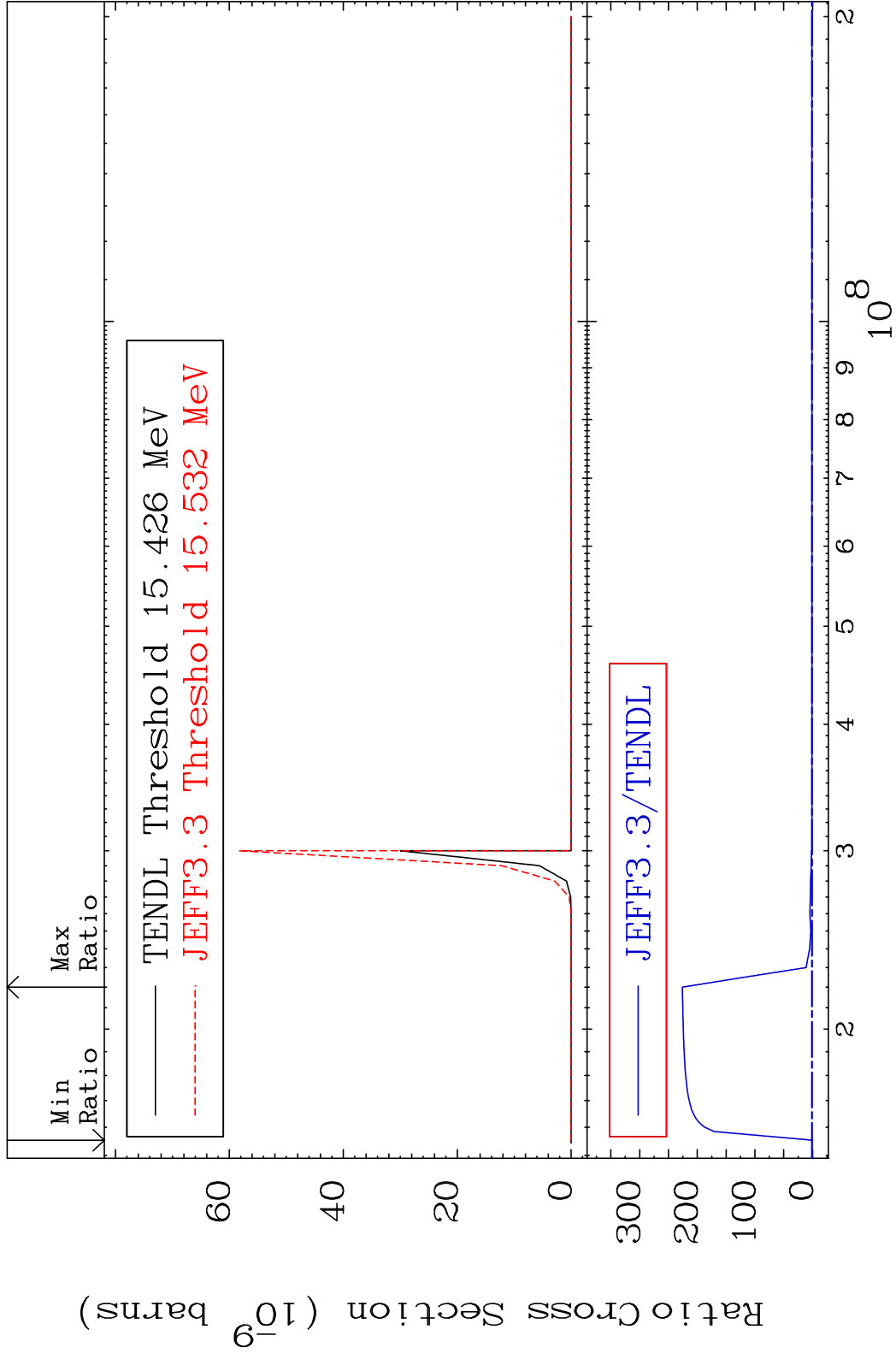
Cross Section -100.0 To 9881. %



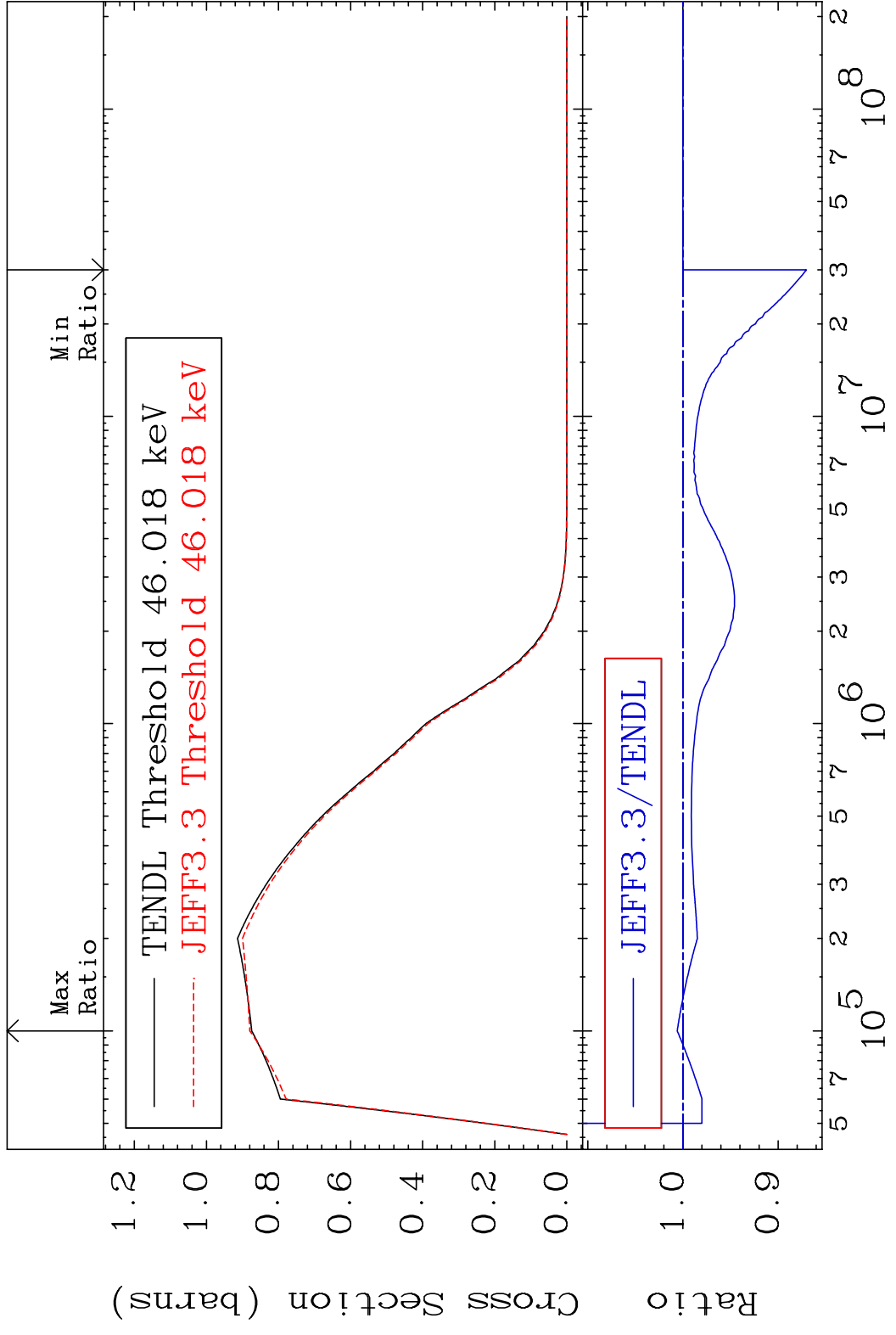
MAT 7246 (n,3n) p 72-Hf-181  
 Cross Section -100.0 To 9999. %



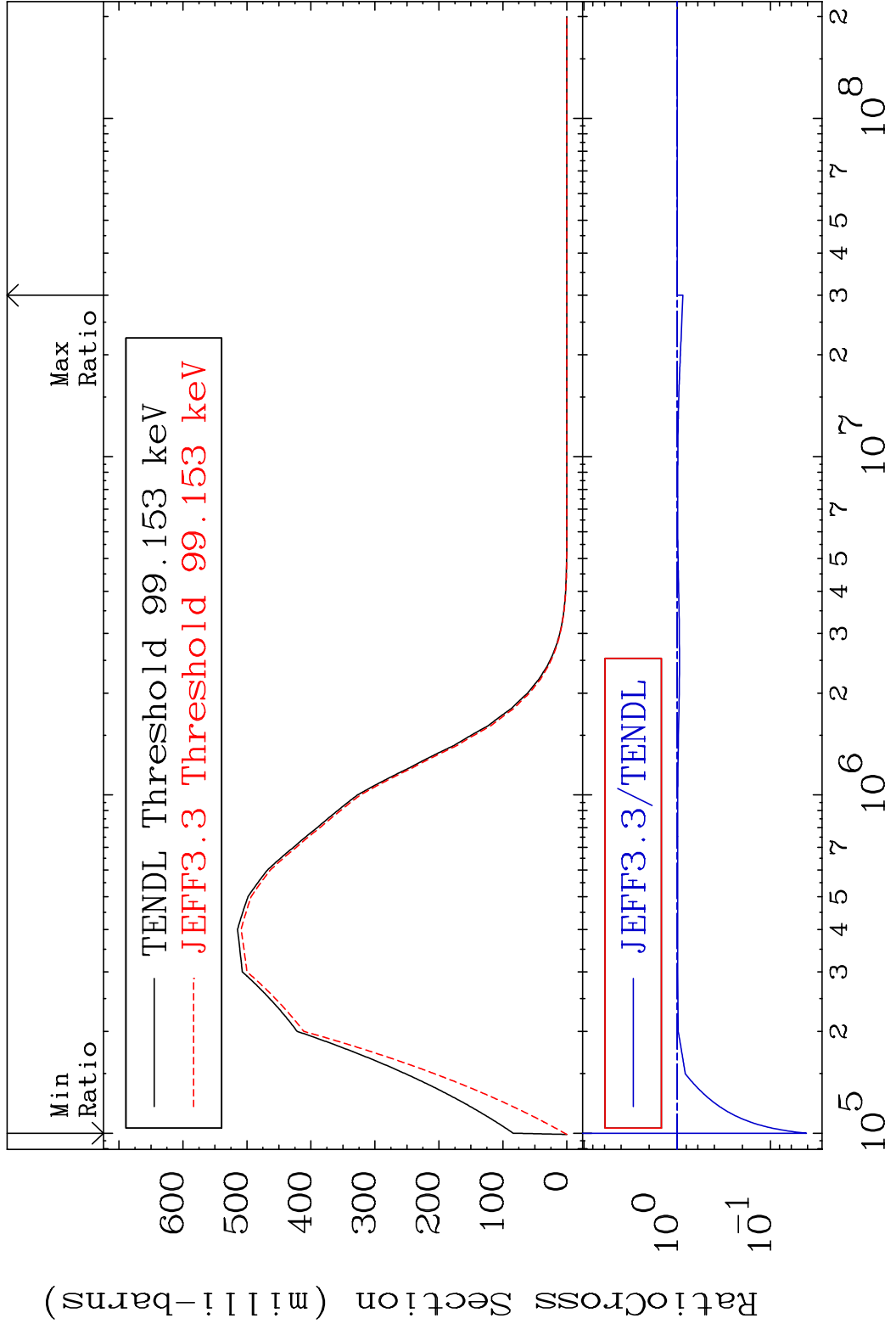
MAT 7246 (n,2n) p 72-Hf-181  
 Cross Section -100.0 To 9999. %



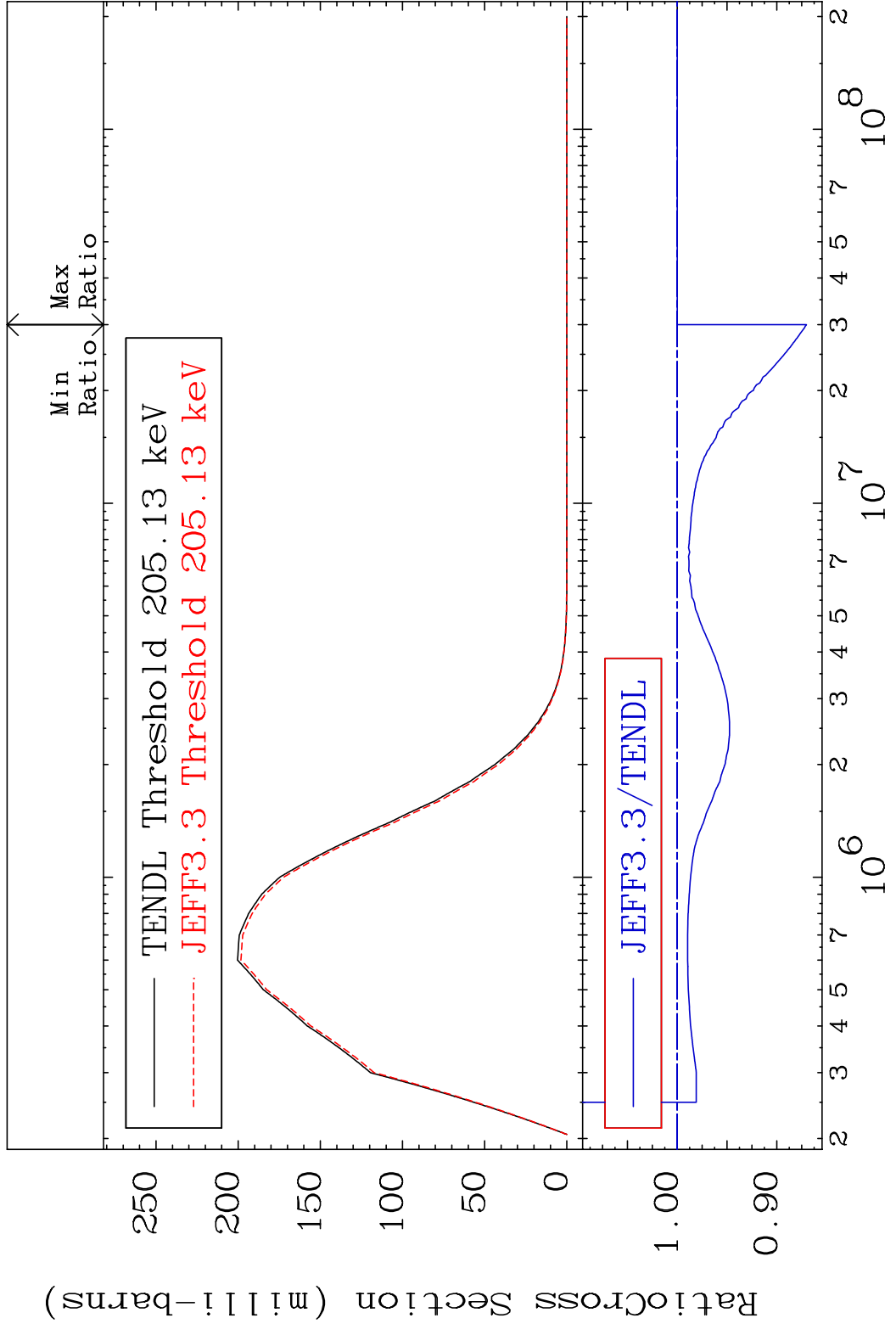
MAT 7246 MT= 51 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.603 %



MAT 7246 MT= 52 (n,n') Level 72-Hf-181  
 Cross Section -95.88 To 0.000 %

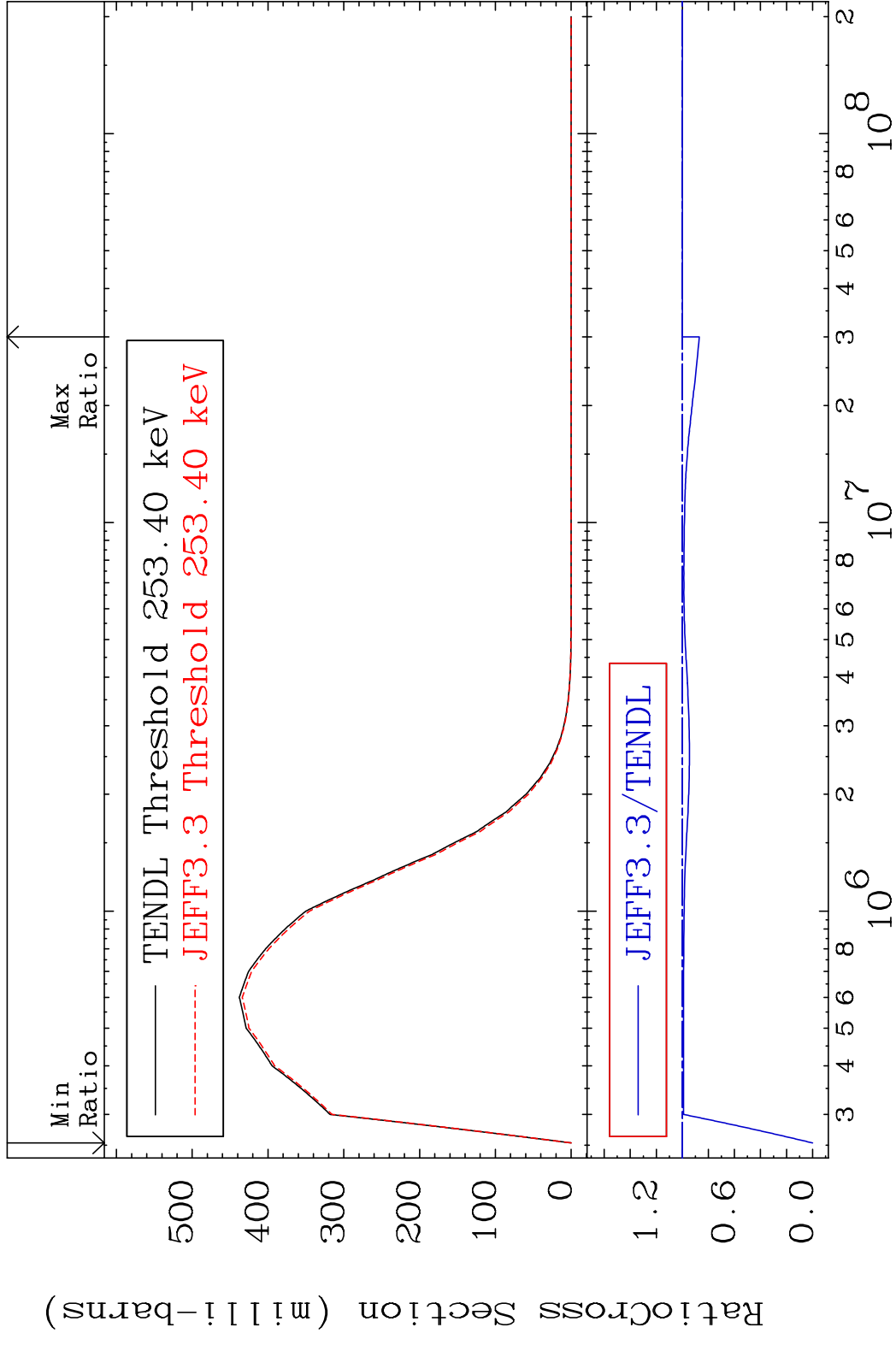


MAT 7246 MT= 53 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %

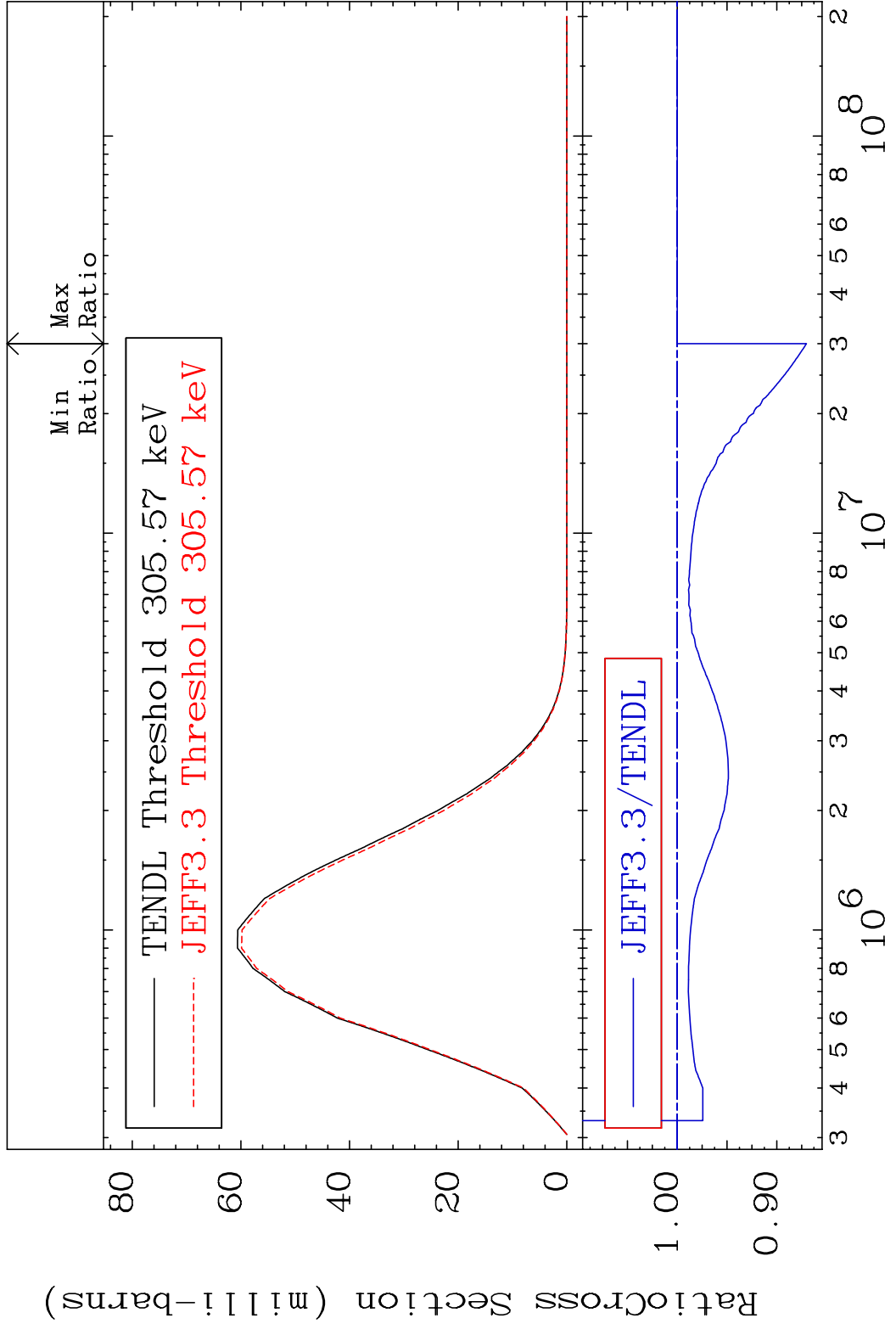


20 Incident Energy (eV) 72-Hf-181

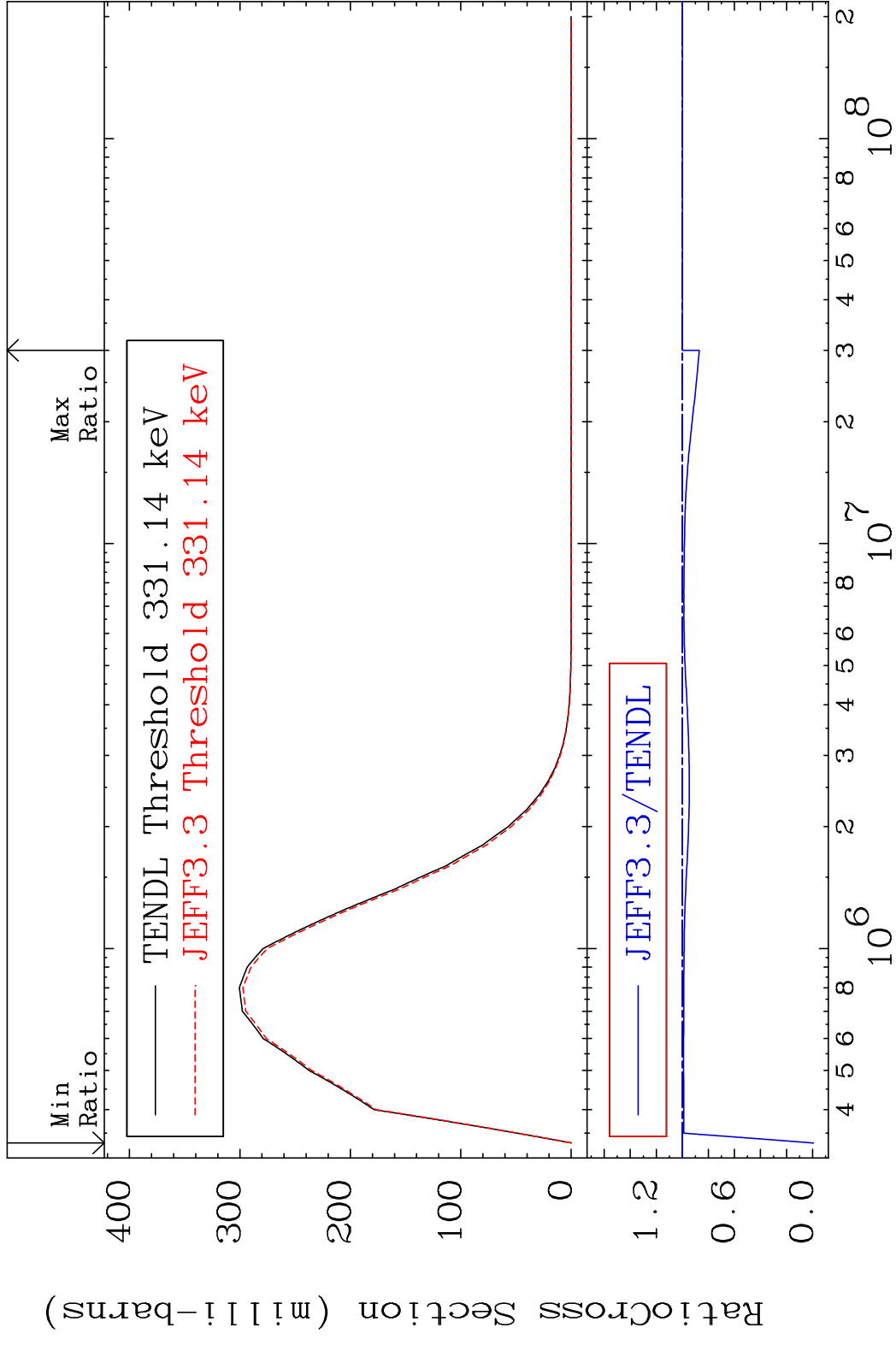
MAT 7246 MT= 54 (n,n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



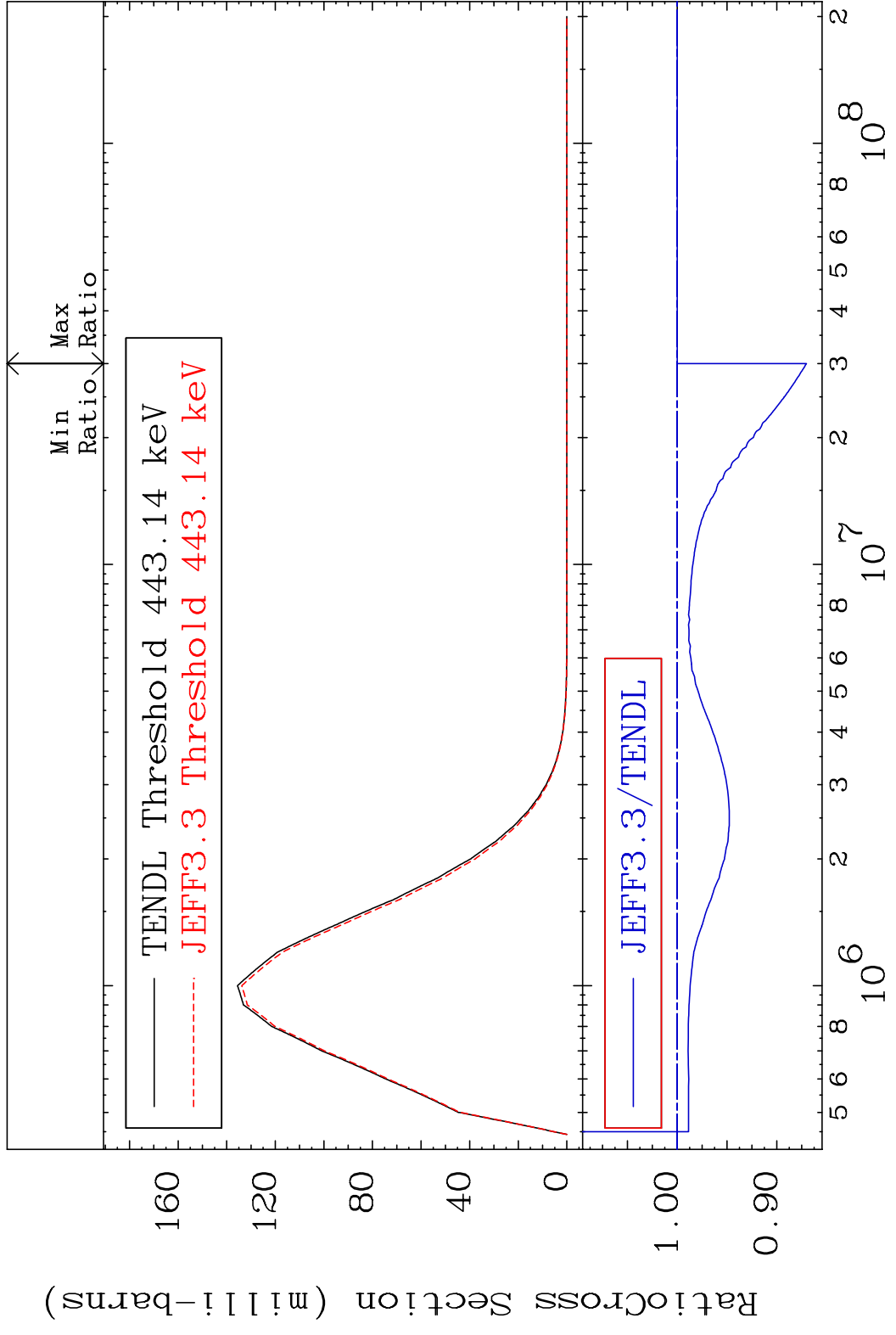
MAT 7246 MT= 55 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



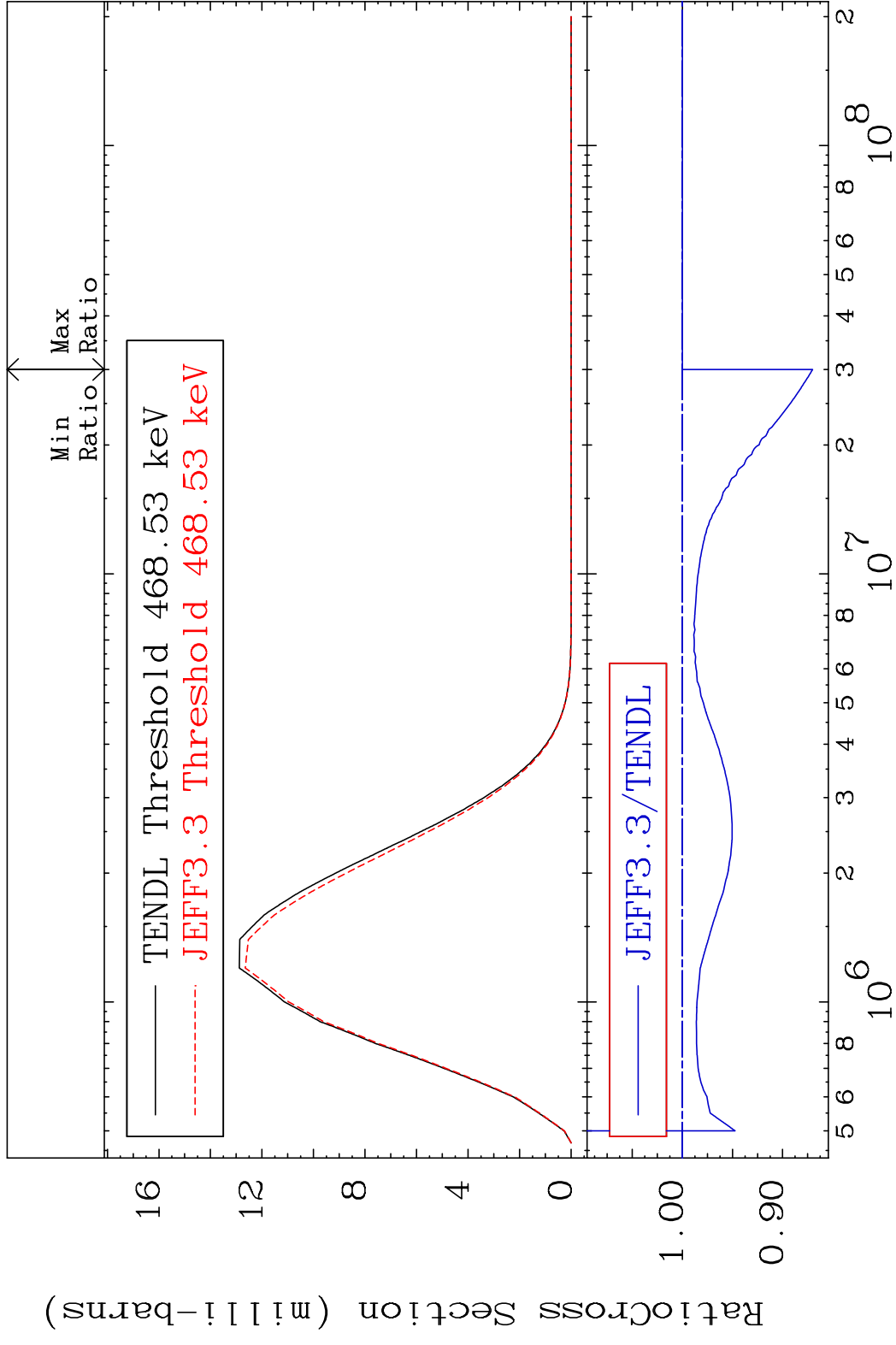
MAT 7246 MT= 56 (n,n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



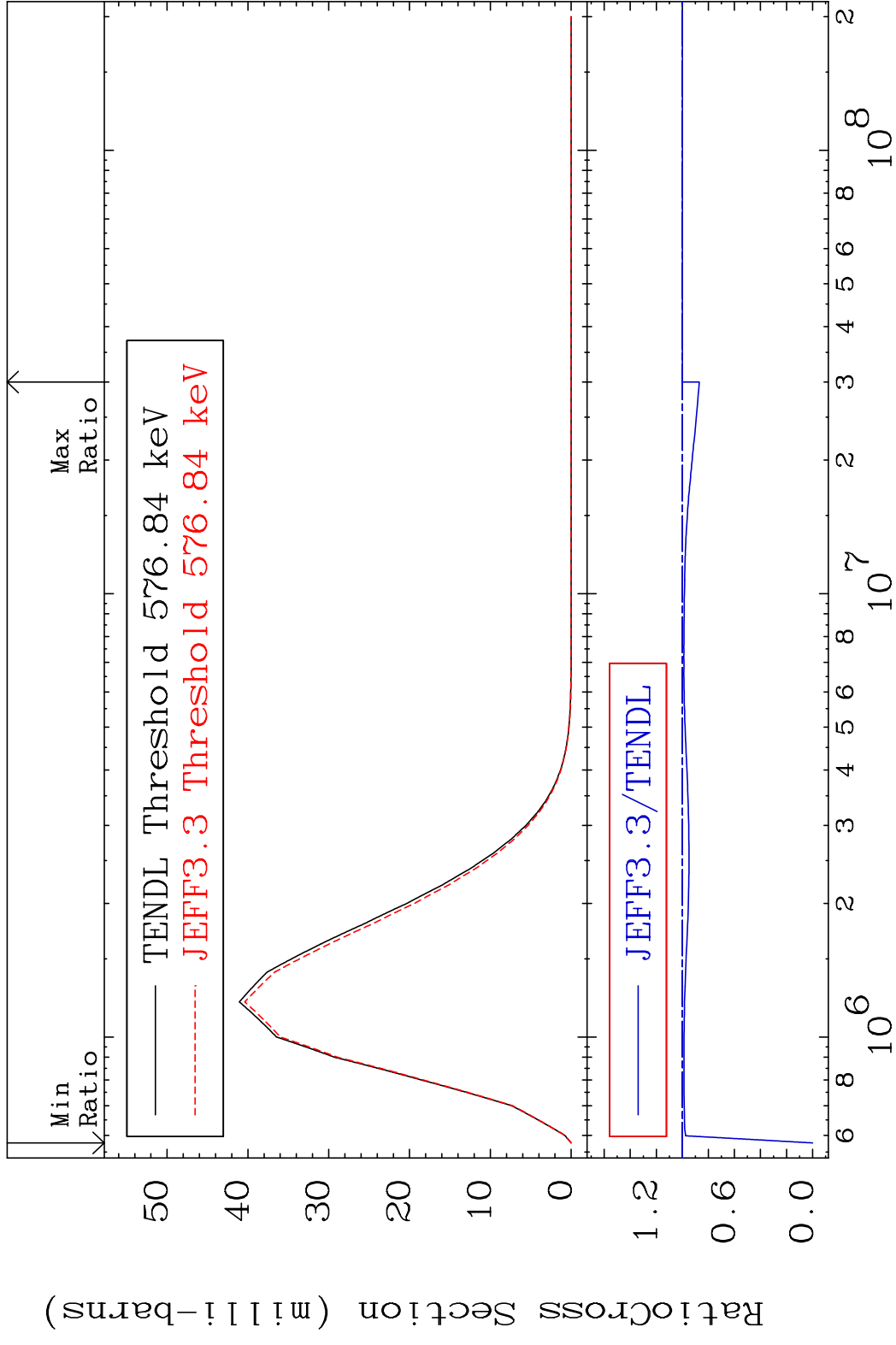
MAT 7246 MT= 57 (n, n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



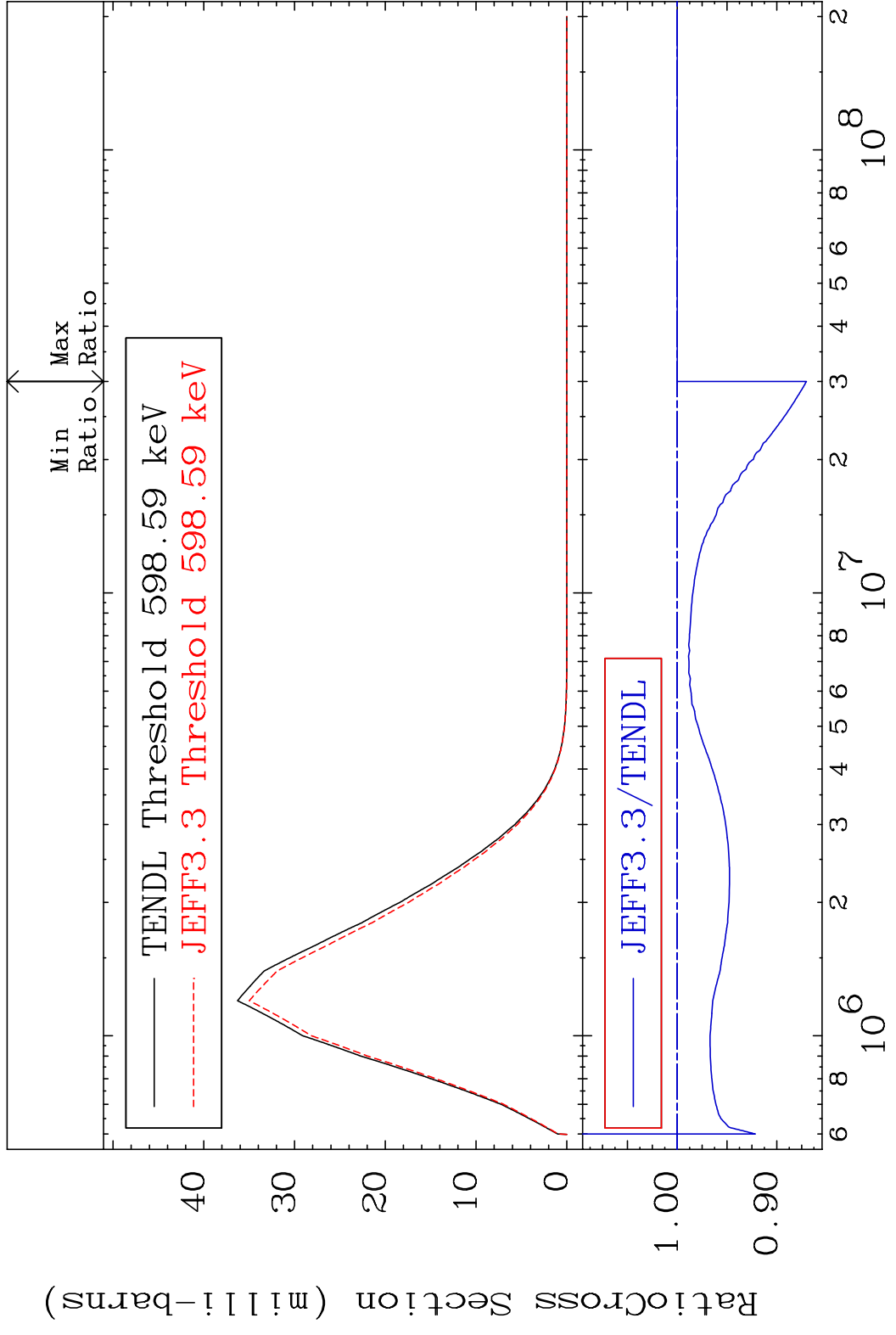
MAT 7246 MT= 58 (n,n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



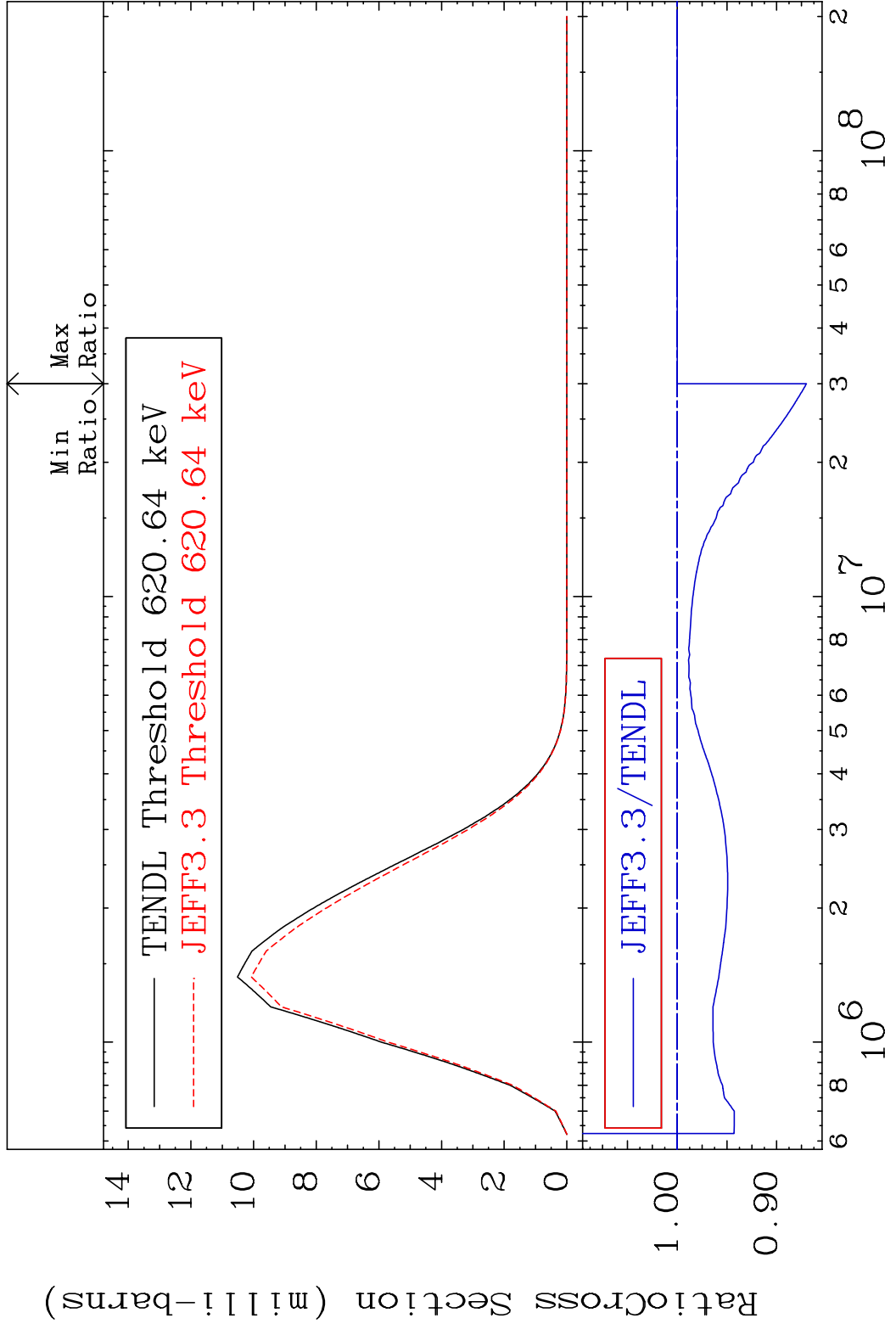
MAT 7246 MT= 59 (n,n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



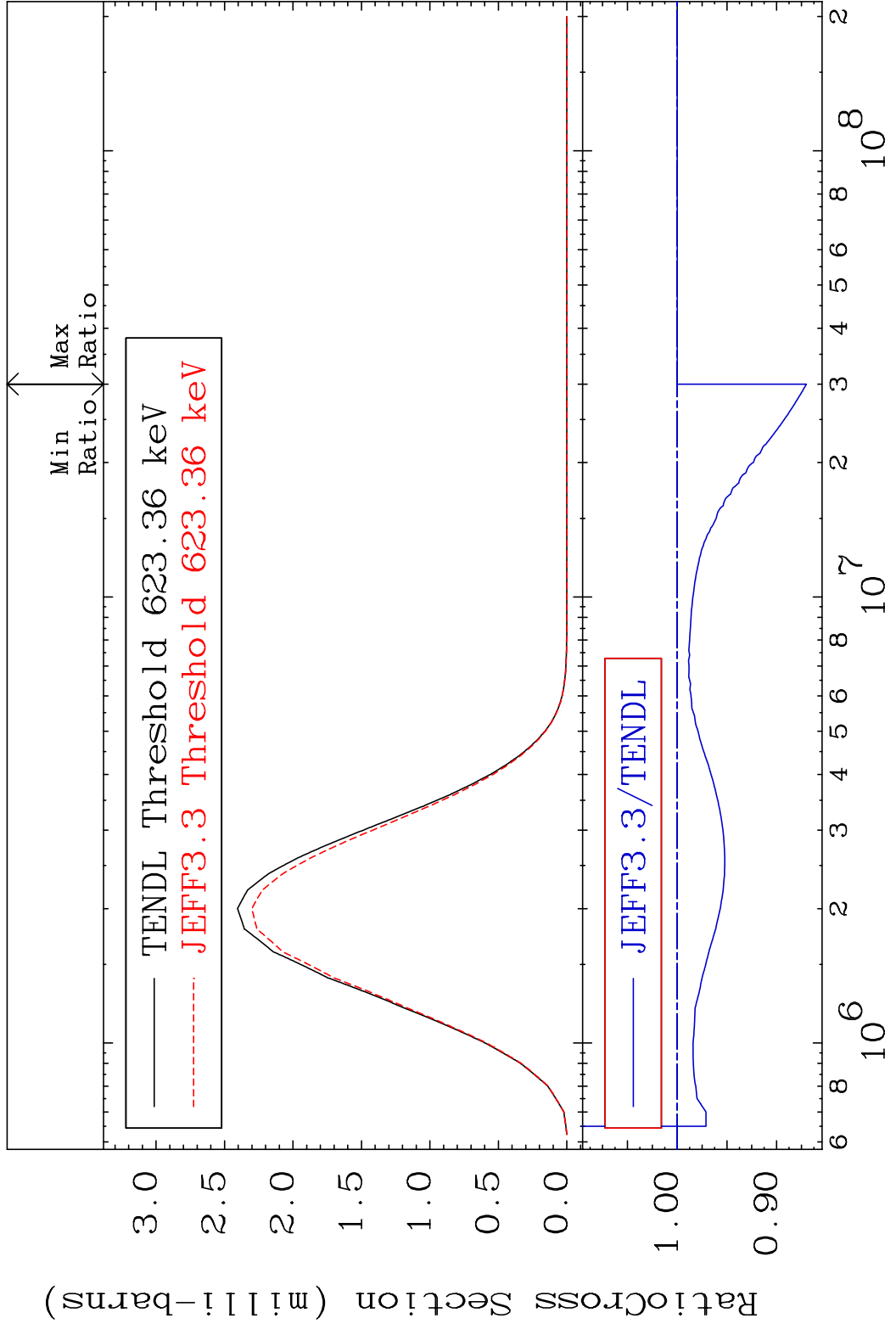
MAT 7246 MT= 60 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



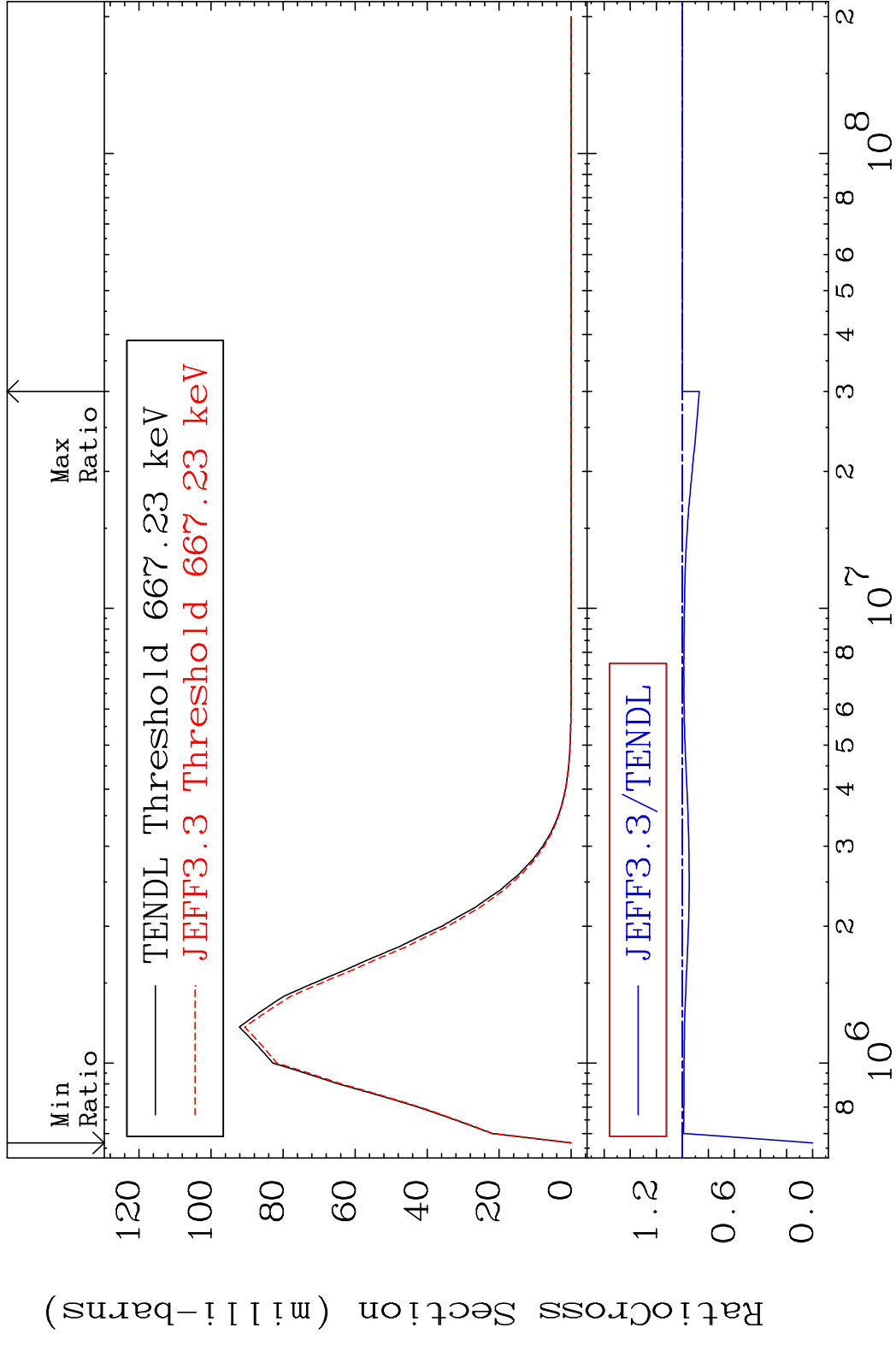
MAT 7246 MT= 61 (n, n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



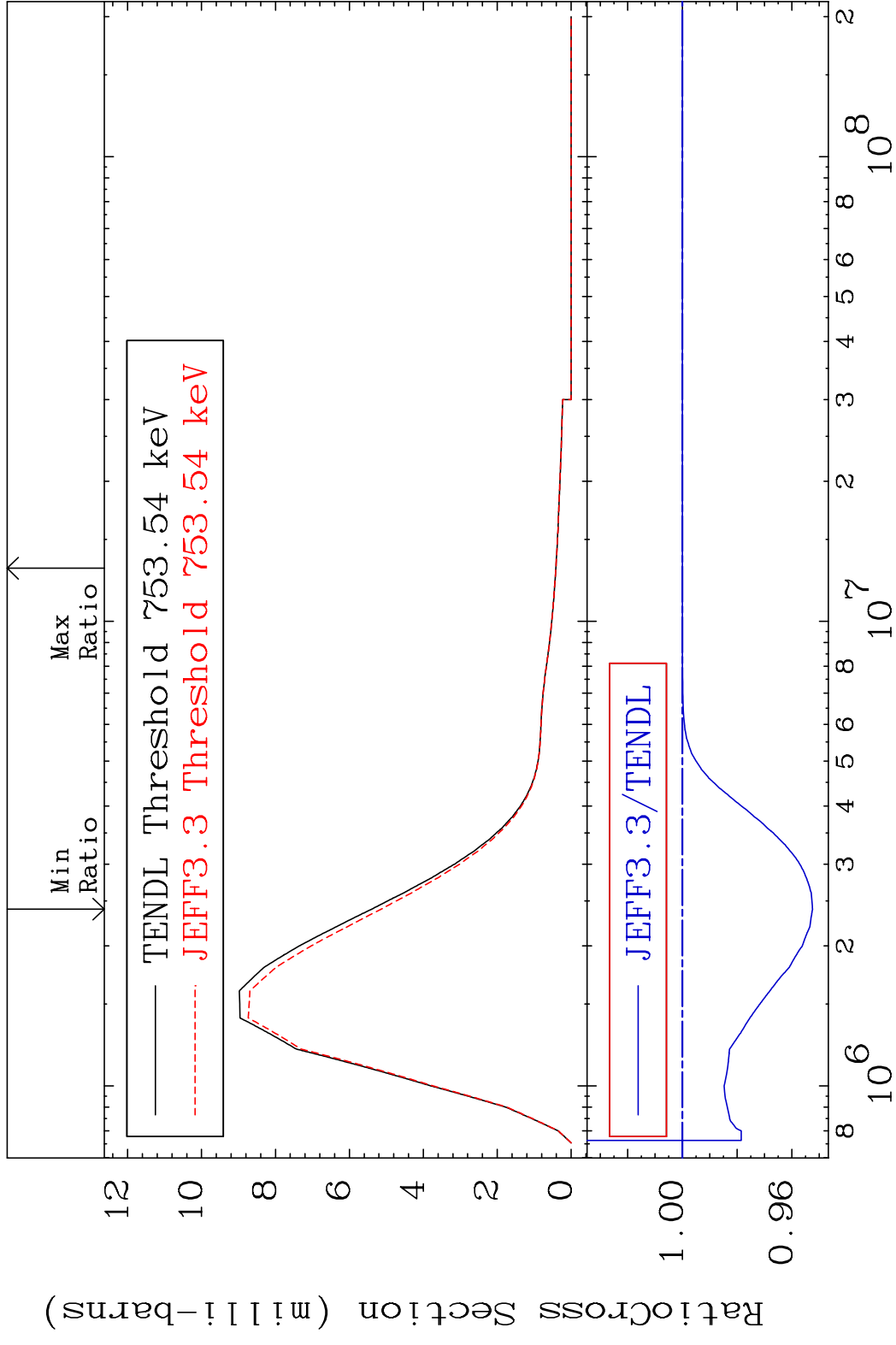
MAT 7246 MT= 62 (n, n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



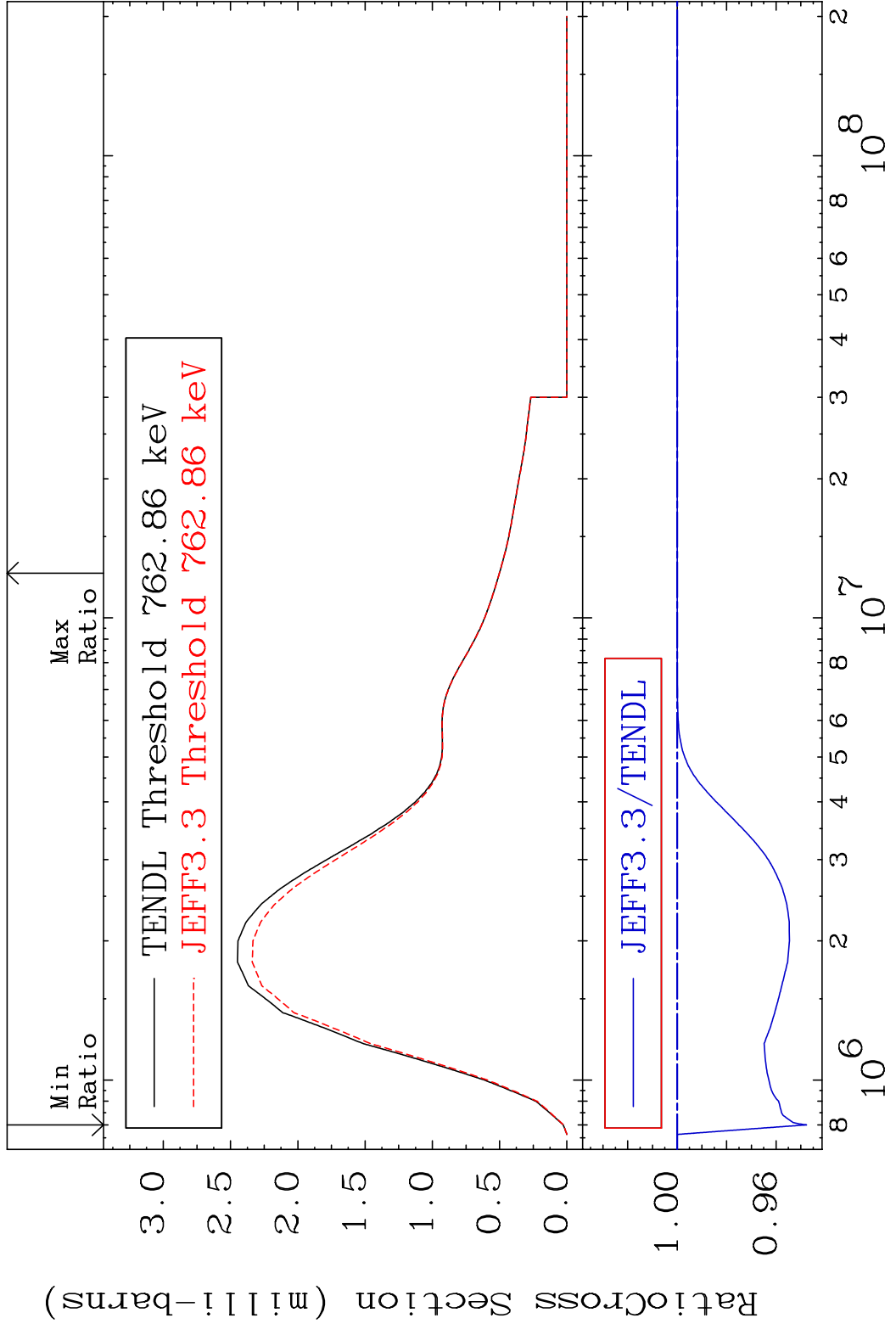
MAT 7246 MT= 63 (n, n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



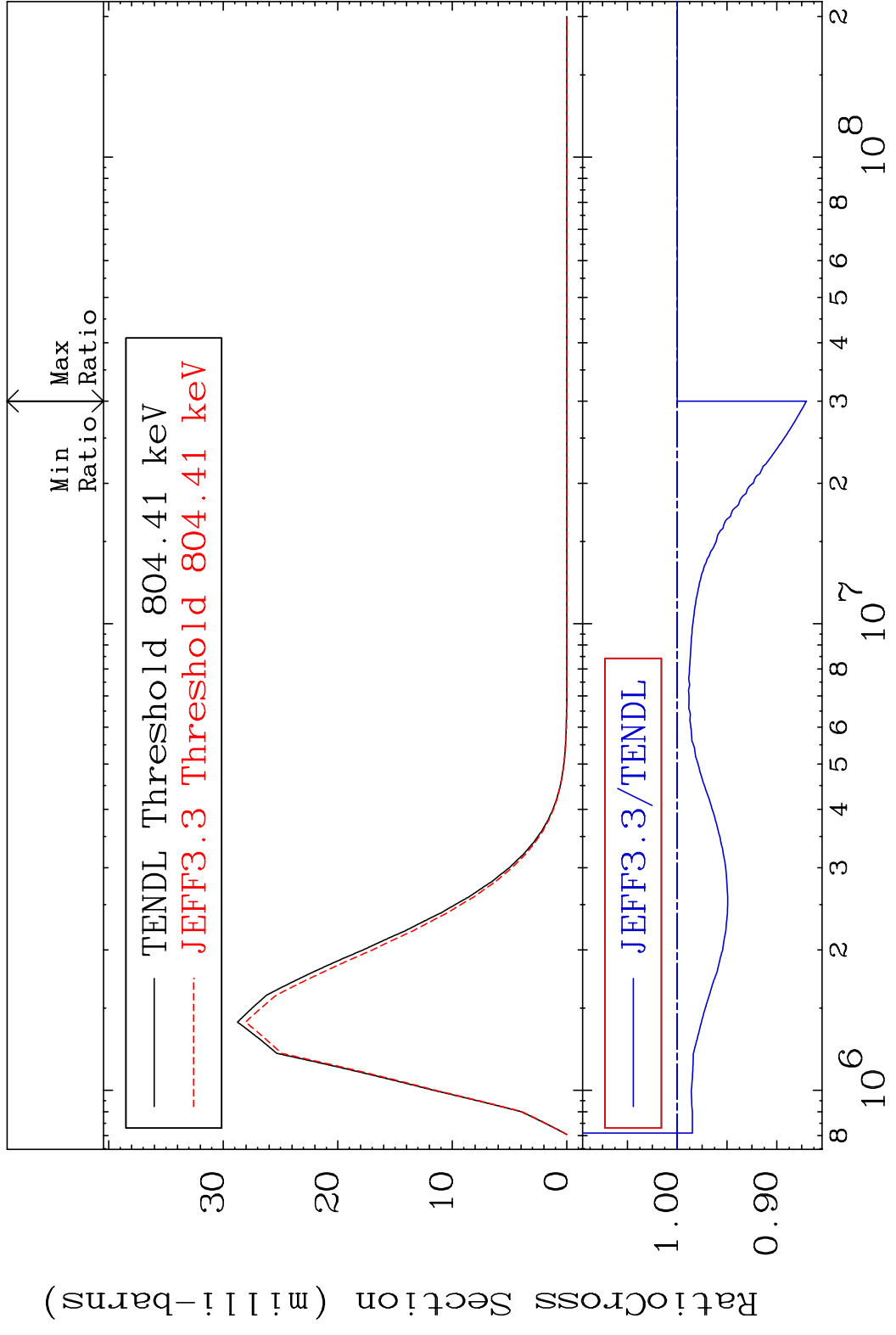
MAT 7246 MT= 64 (n, n') Level 72-Hf-181  
 Cross Section -4.753 To 0.000 %



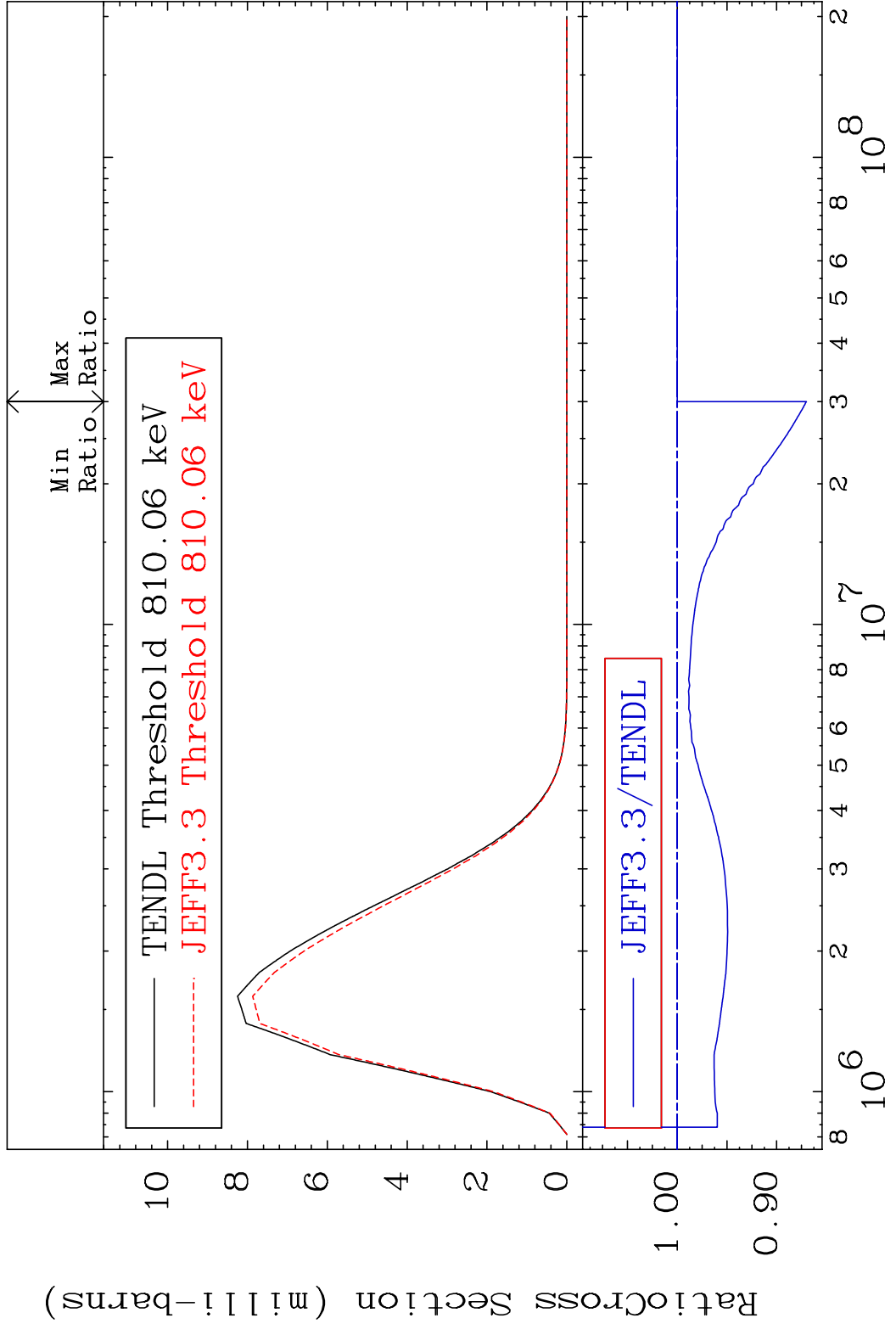
MAT 7246 MT= 65 (n, n') Level 72-Hf-181  
 Cross Section -5.226 To 0.000 %



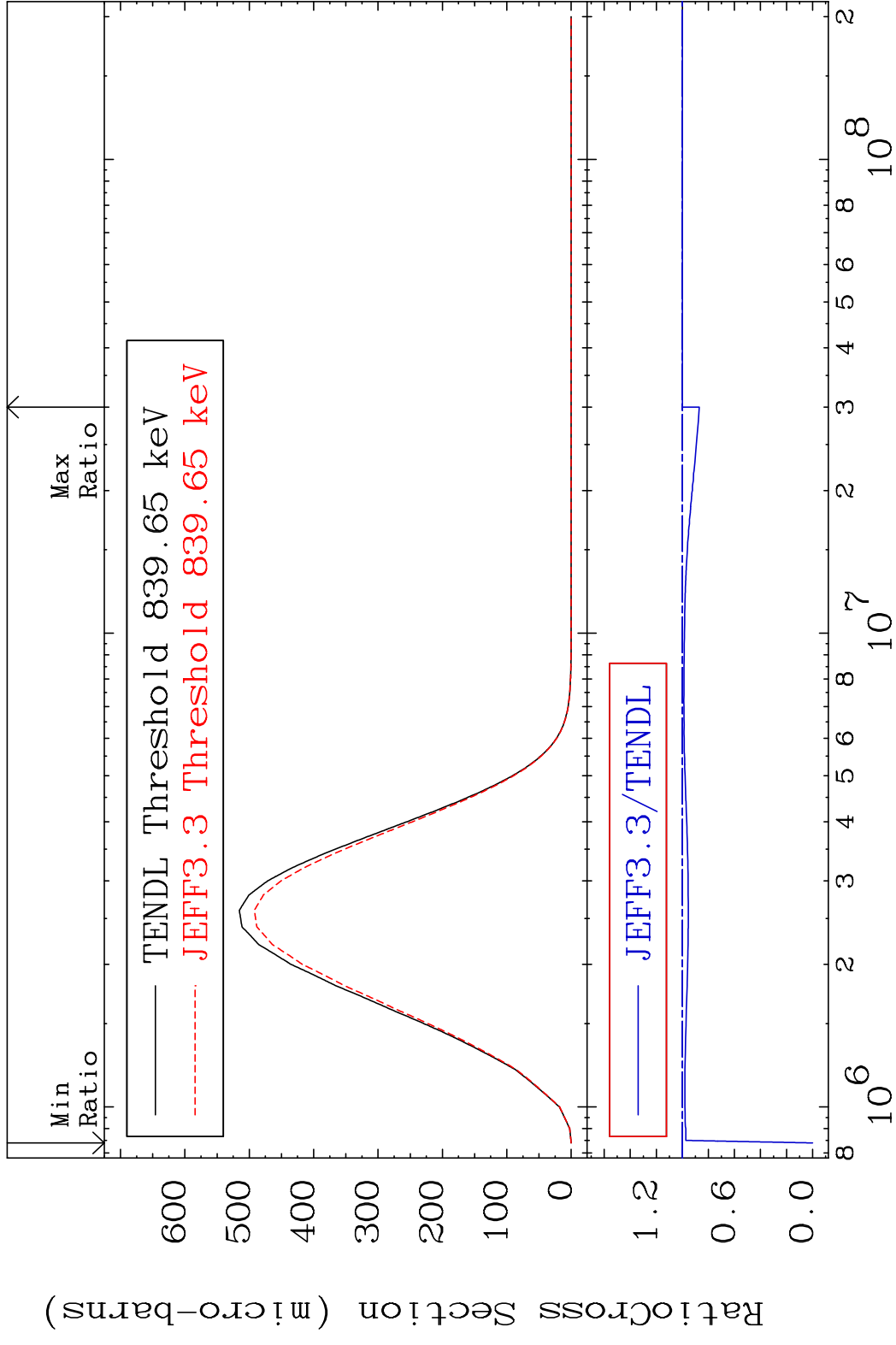
MAT 7246 MT= 66 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



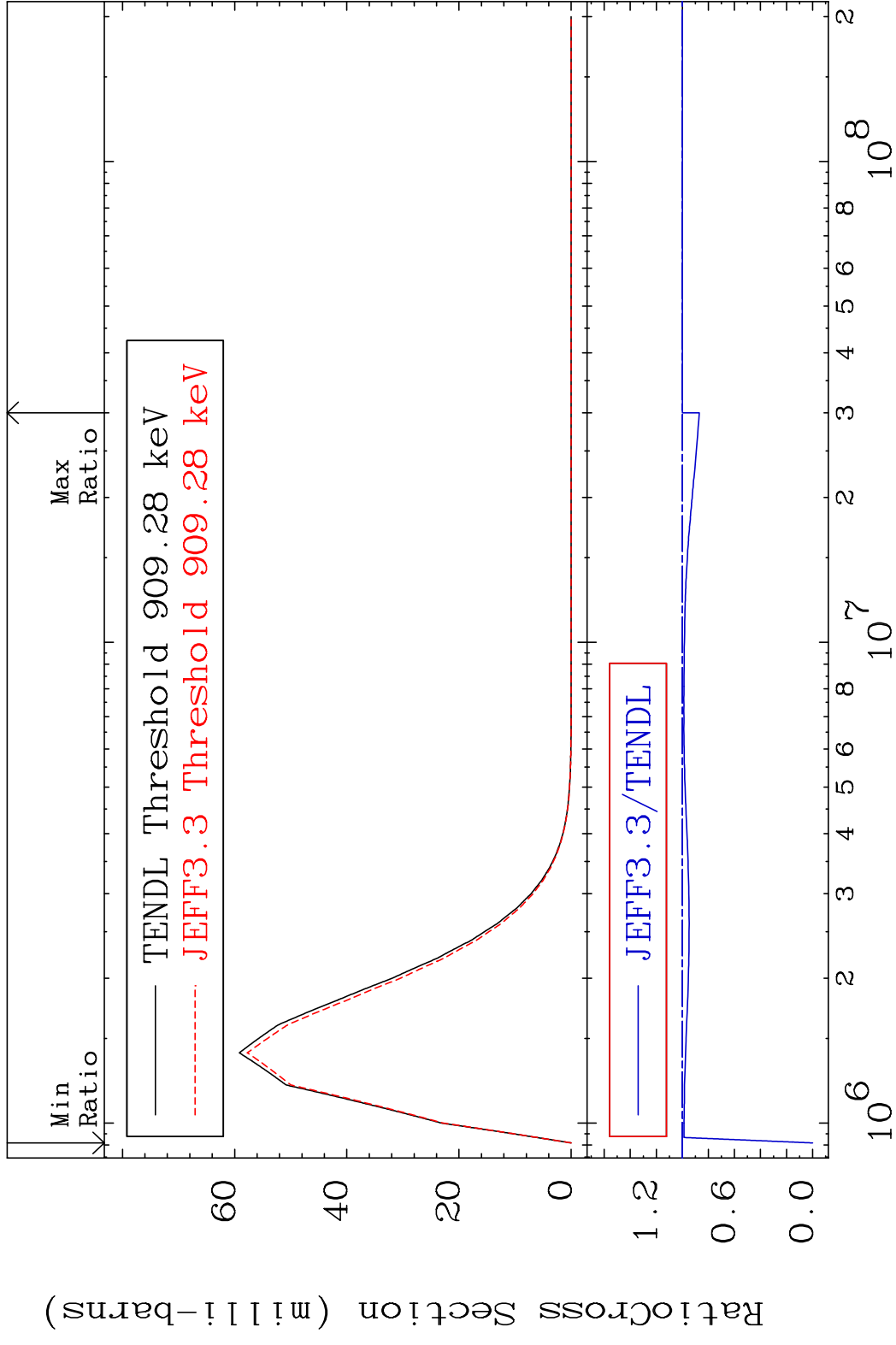
MAT 7246 MT= 67 (n, n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



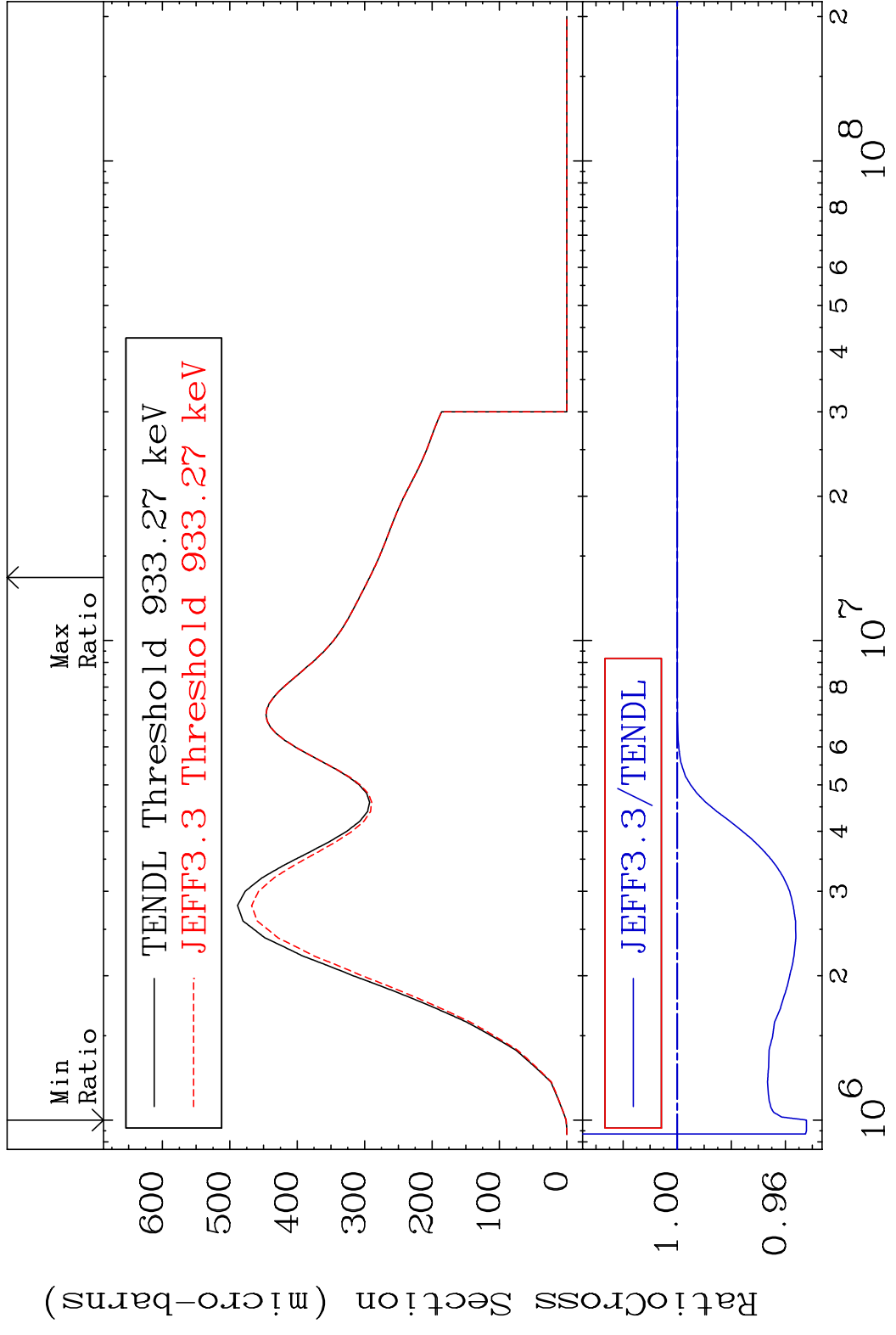
MAT 7246 MT= 68 (n, n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



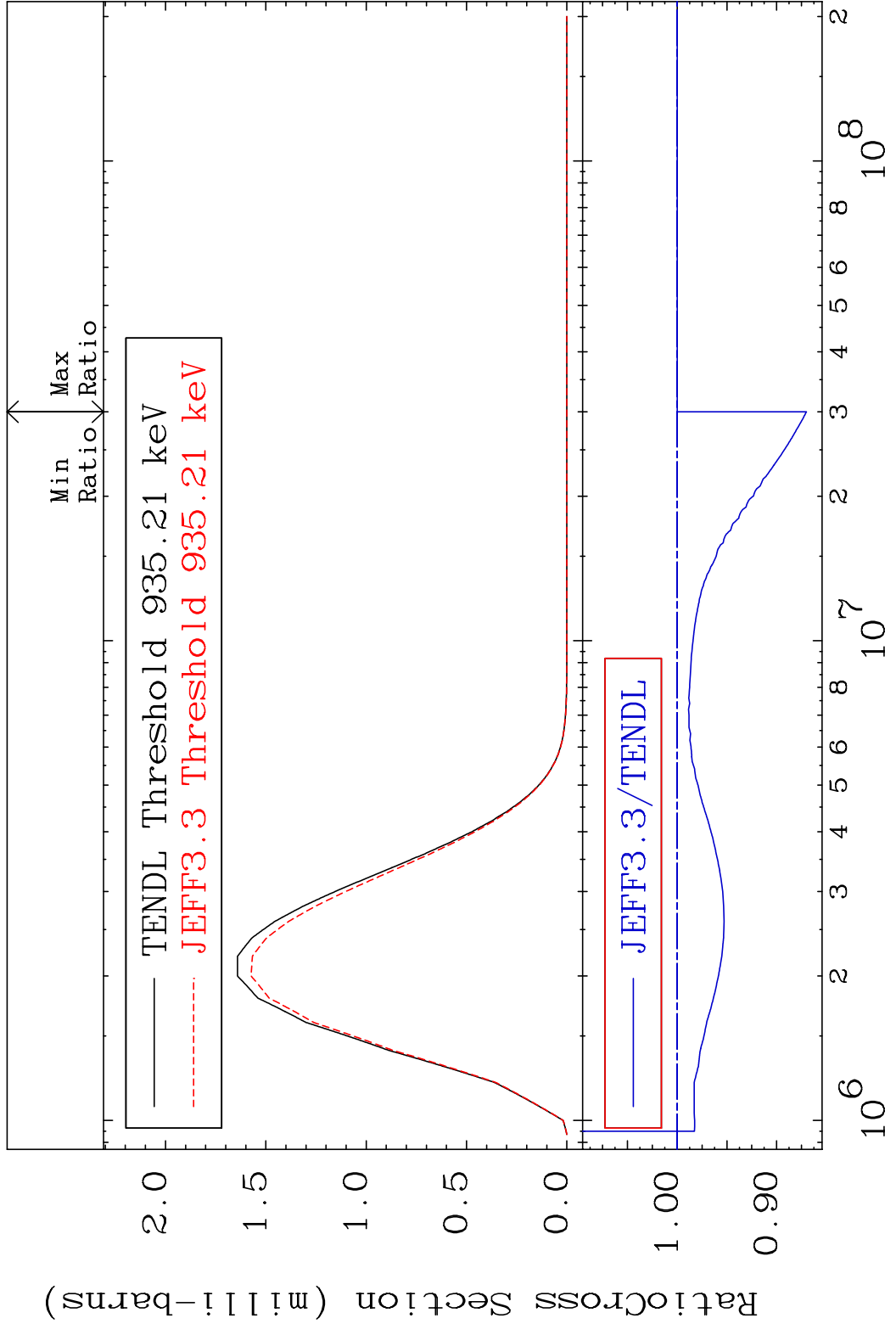
MAT 7246 MT= 69 (n, n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



MAT 7246 MT= 70 (n, n') Level 72-Hf-181  
 Cross Section -4.777 To 0.000 %

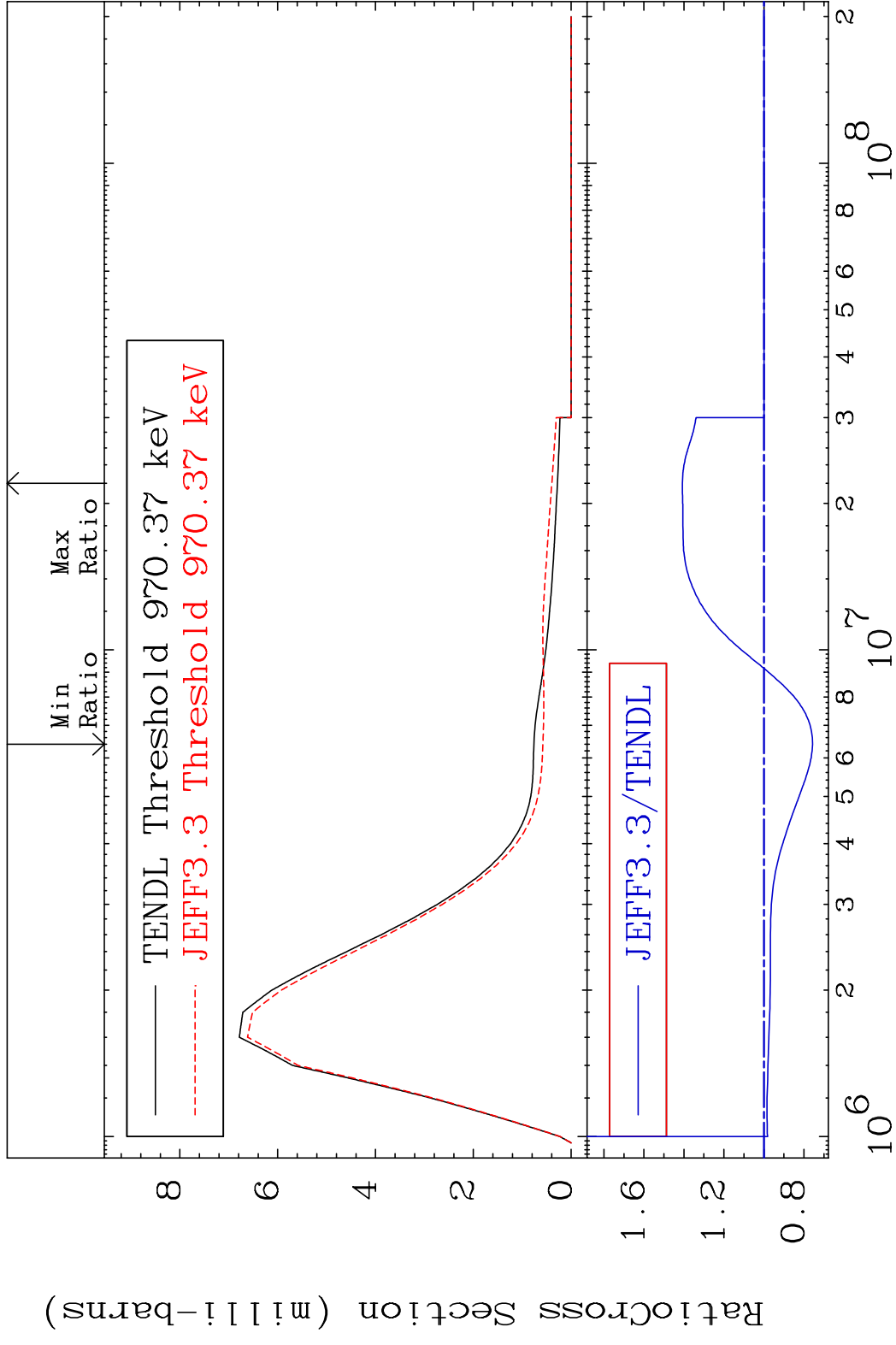


MAT 7246 MT= 71 (n, n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



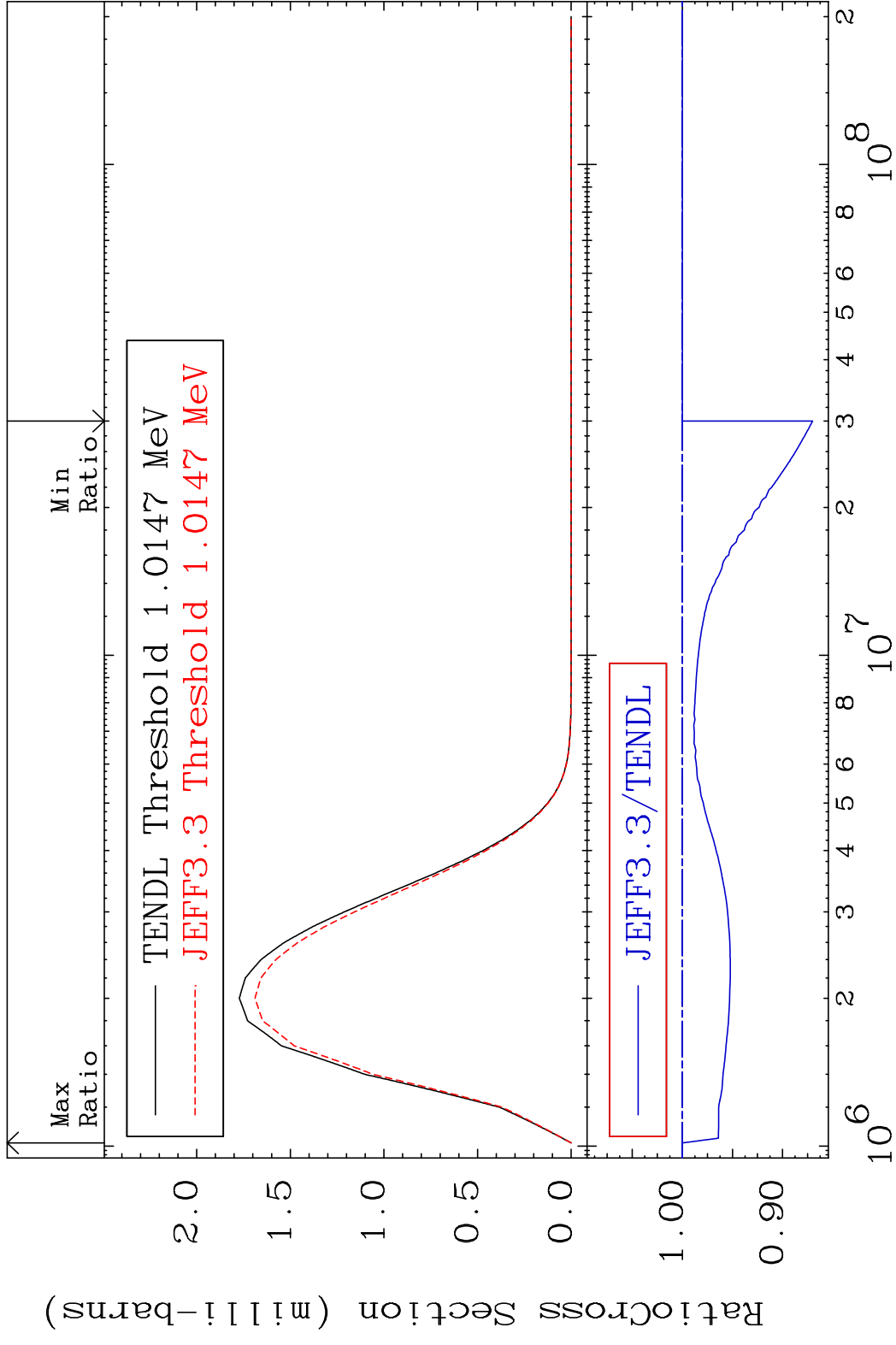
38 Incident Energy (eV) 72-Hf-181

MAT 7246 MT= 72 (n, n') Level 72-Hf-181  
 Cross Section -24.32 To 40.78 %



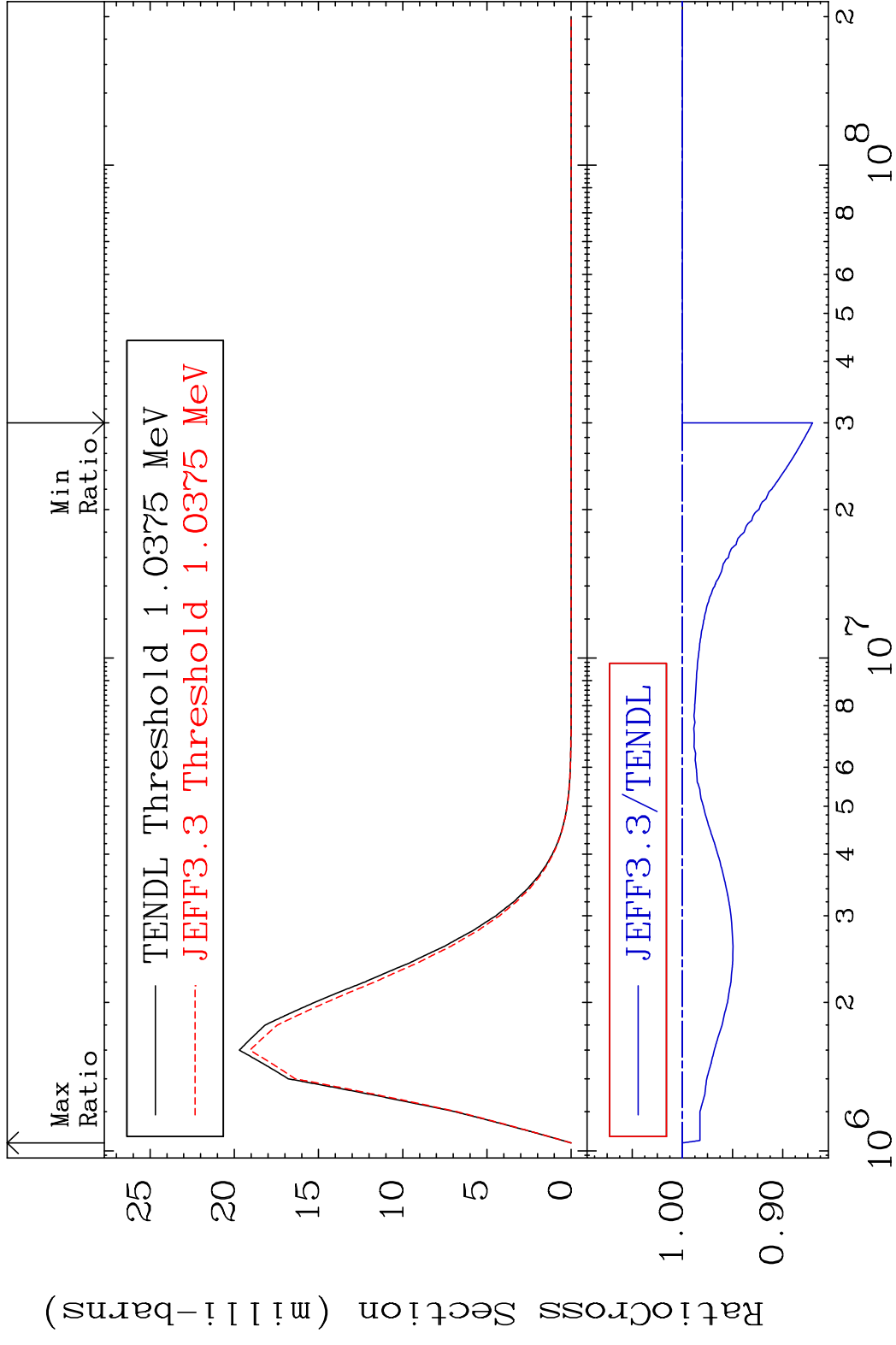
39 Incident Energy (eV) 72-Hf-181

MAT 7246 MT= 73 (n, n') Level 72-Hf-181  
 Cross Section -12.99 To 0.000 %



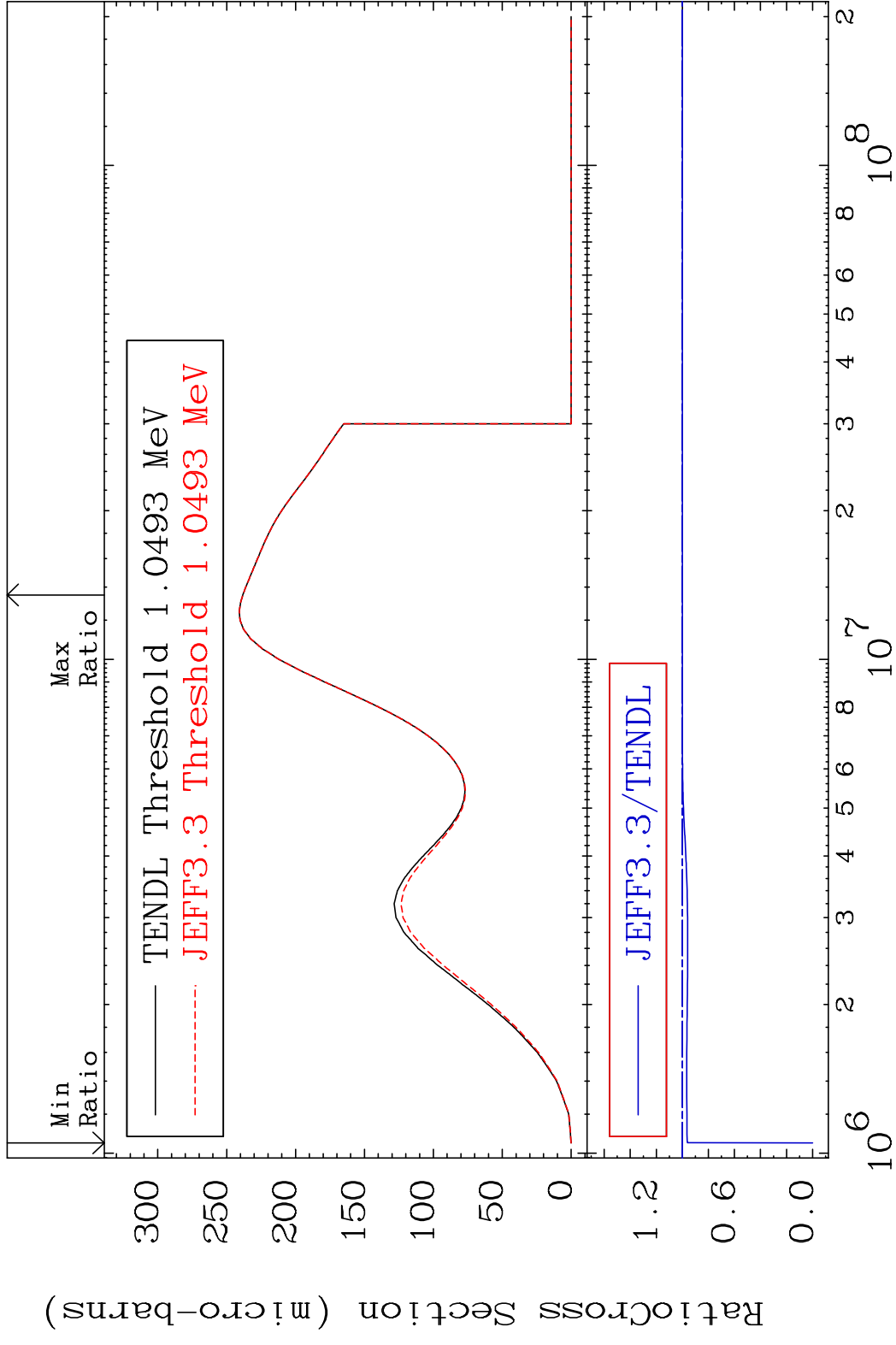
40 Incident Energy (eV) 72-Hf-181

MAT 7246 MT= 74 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



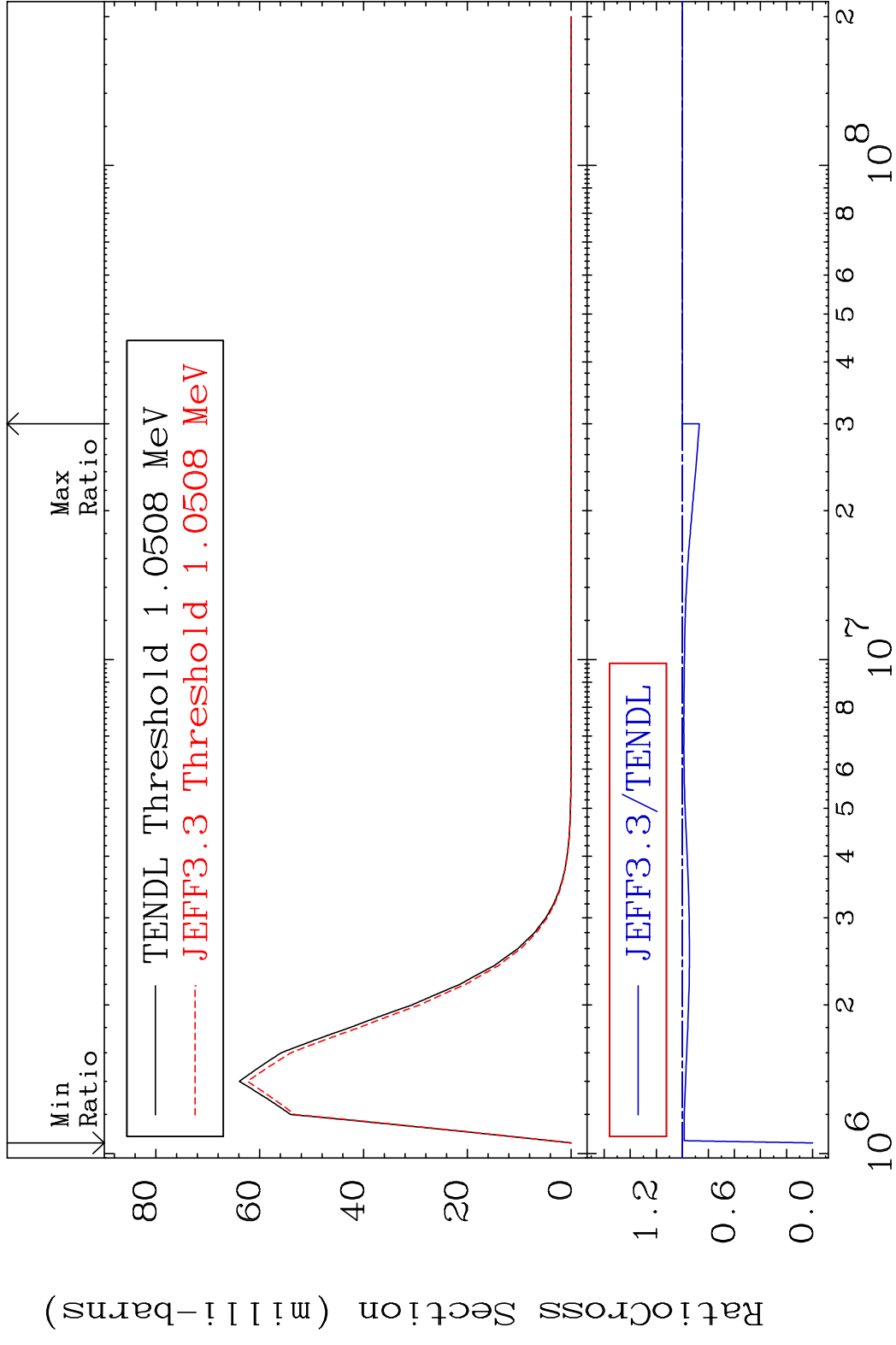
41 Incident Energy (eV) 72-Hf-181

MAT 7246 MT= 75 (n, n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



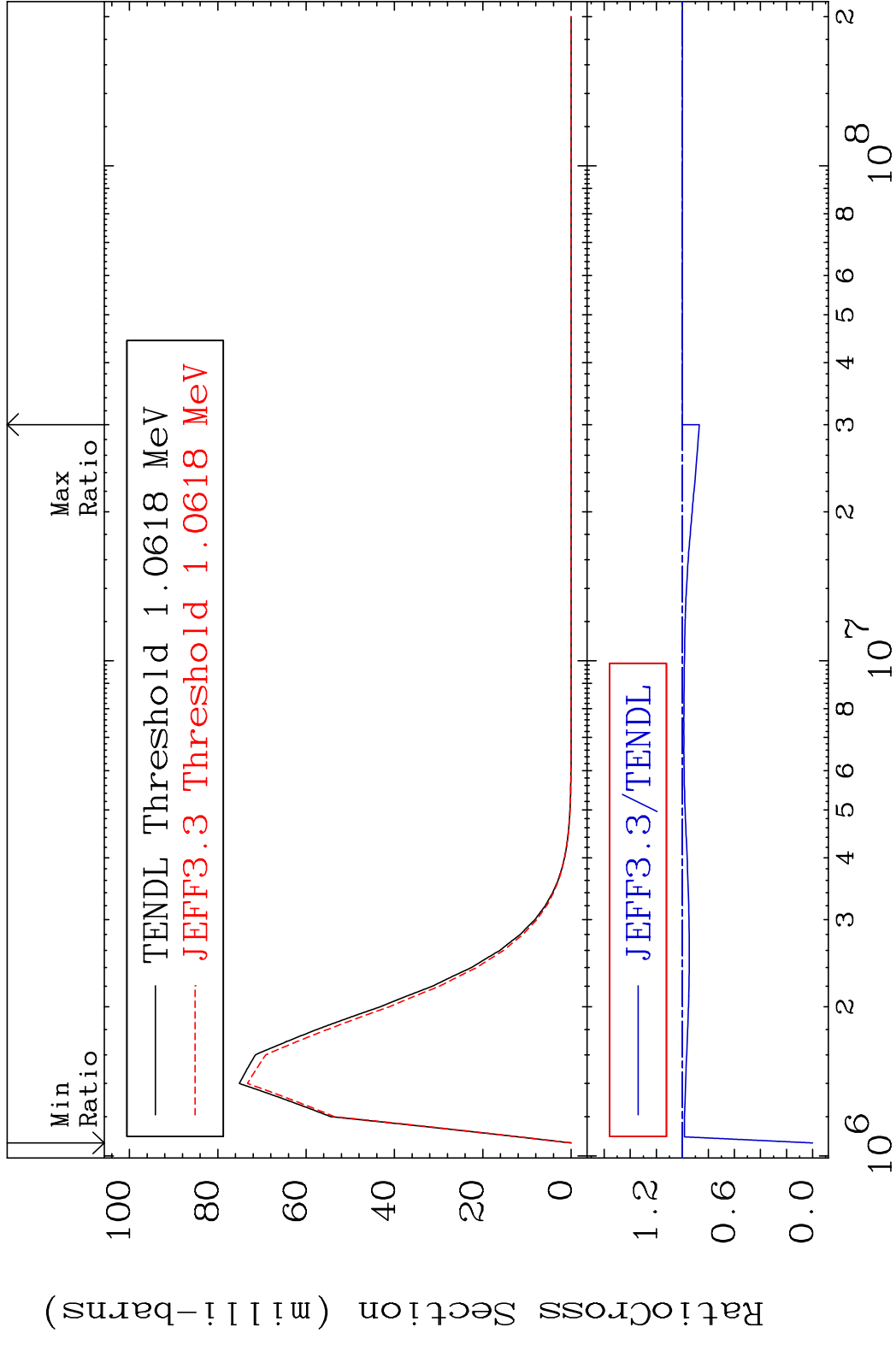
42 Incident Energy (eV) 72-Hf-181

MAT 7246 MT= 76 (n,n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %

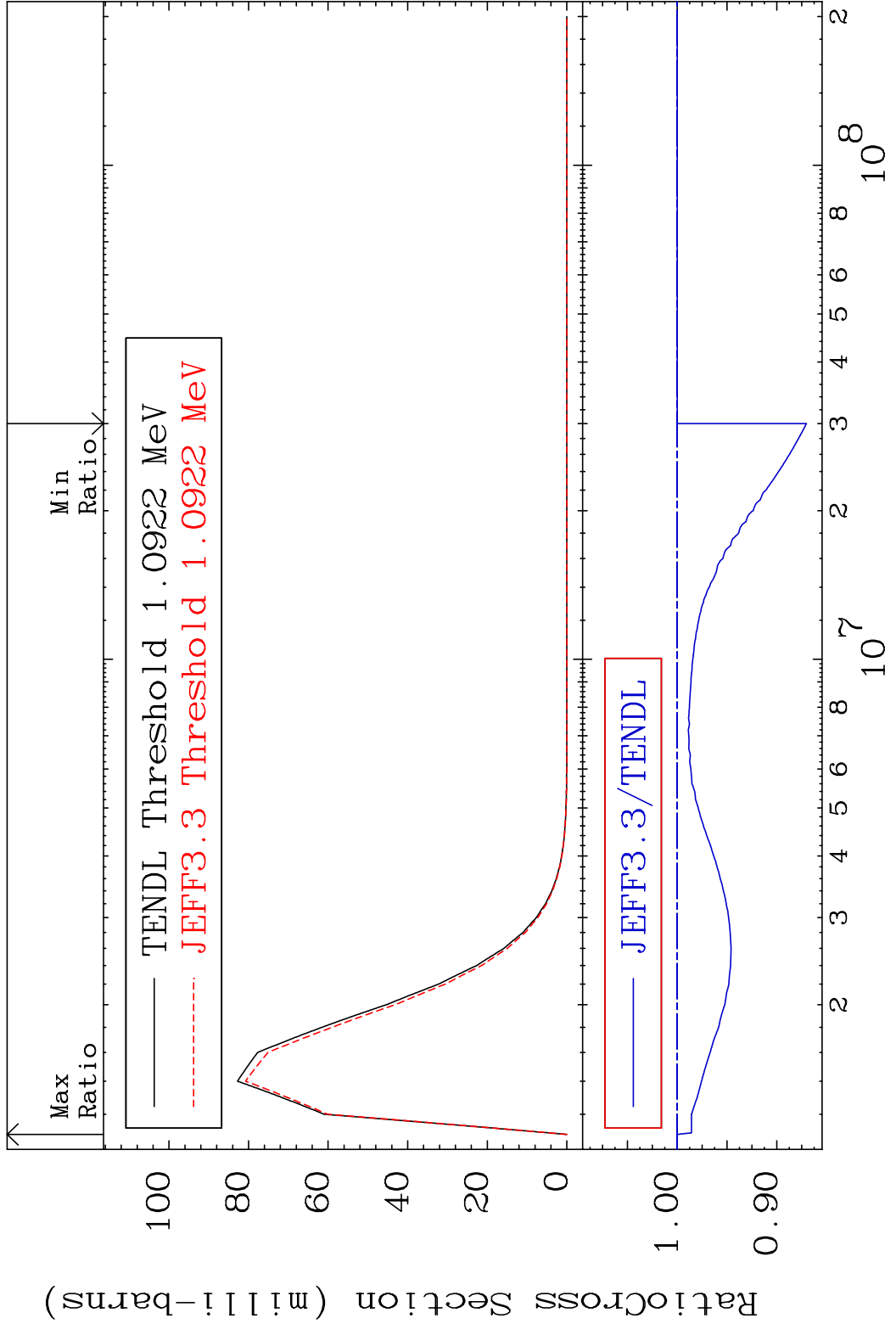


43 Incident Energy (eV) 72-Hf-181

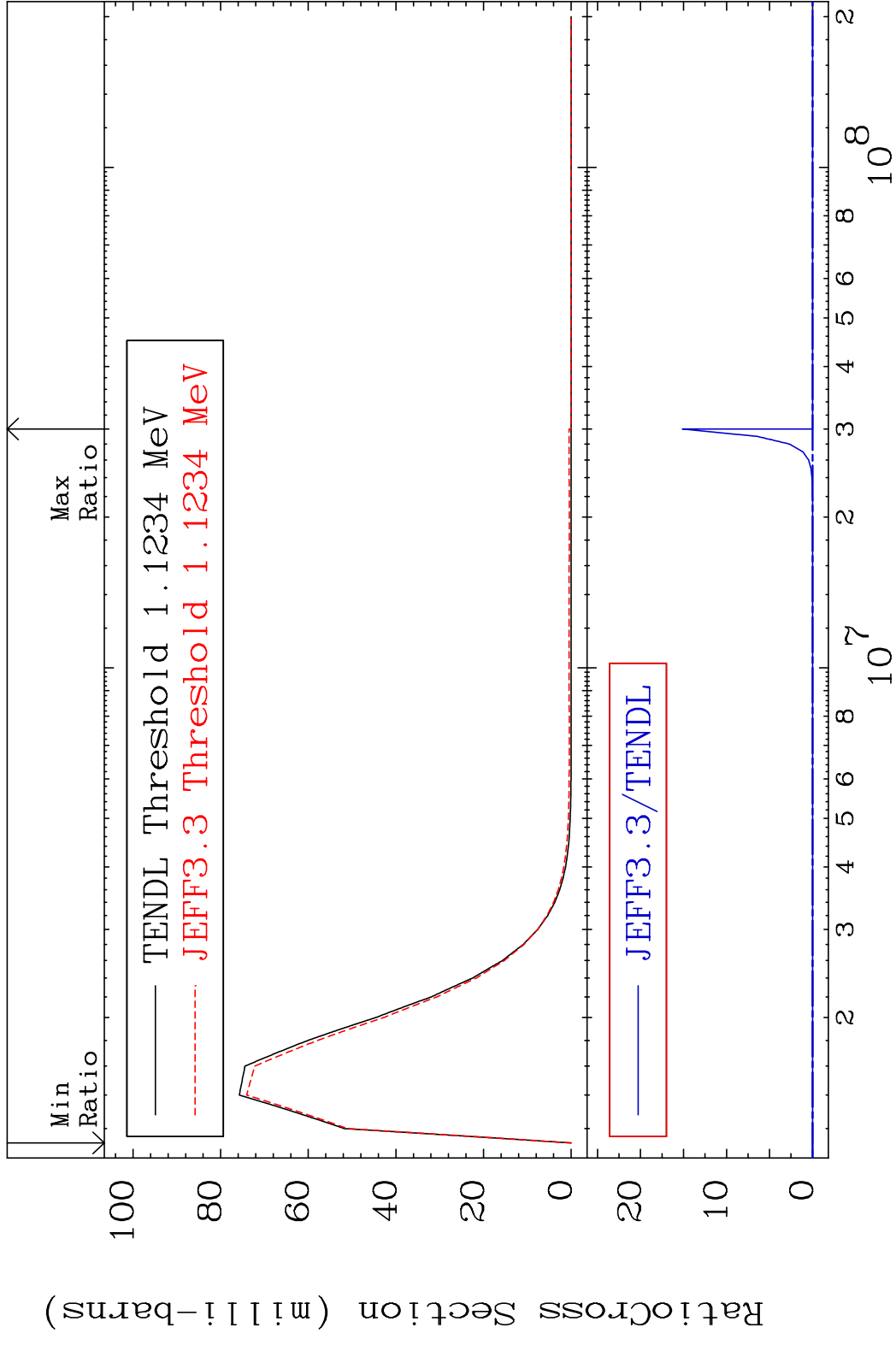
MAT 7246 MT= 77 (n,n') Level 72-Hf-181  
 Cross Section -100.0 To 0.000 %



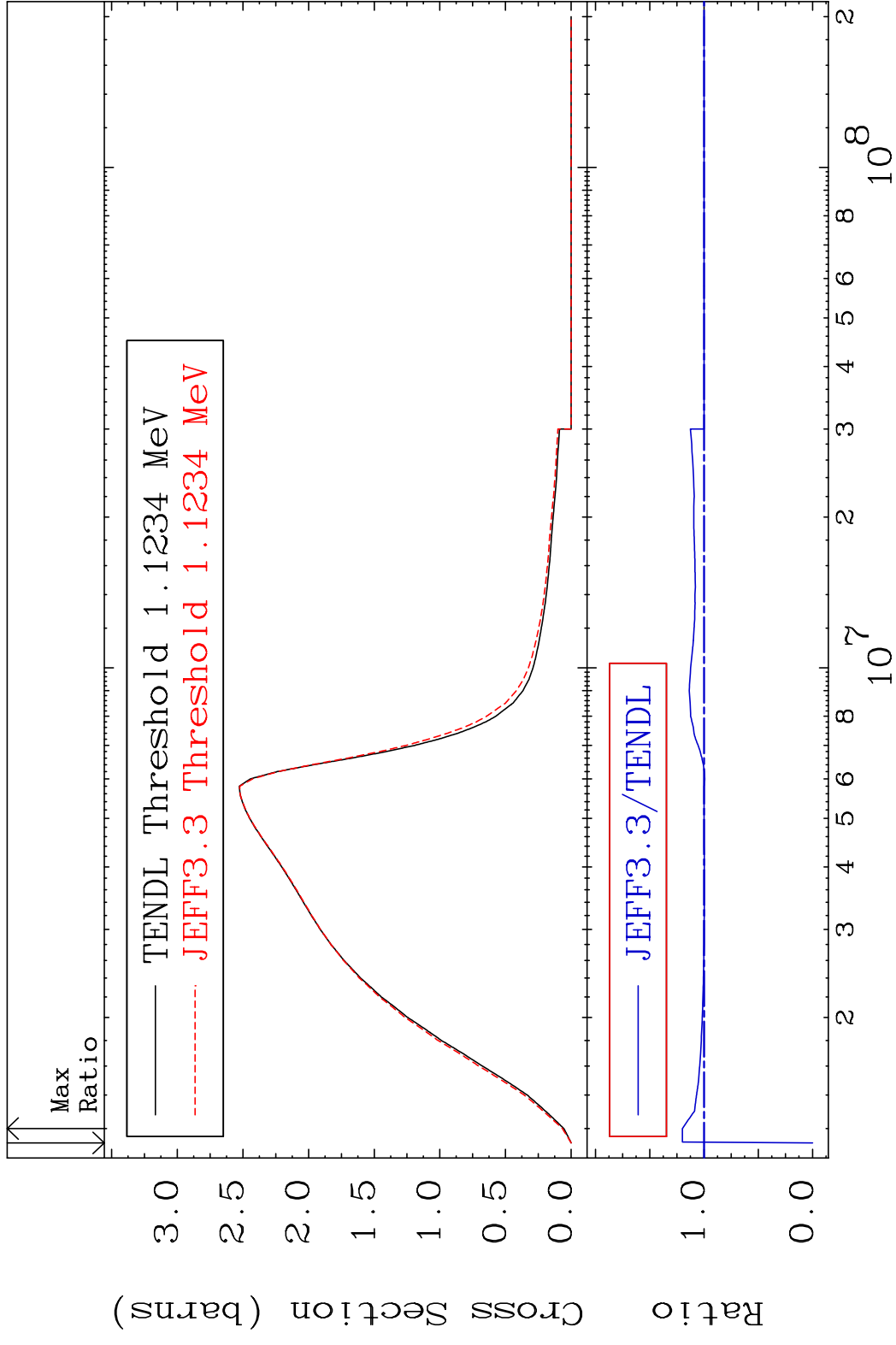
MAT 7246 MT= 78 (n,n') Level 72-Hf-181  
 Cross Section -12.98 To 0.000 %



MAT 7246 MT= 79 (n, n') Level 72-Hf-181  
 Cross Section -100.0 To 9999. %



MAT 7246 (n,n') Continuum 72-Hf-181  
 Cross Section -100.0 To 19.95 %

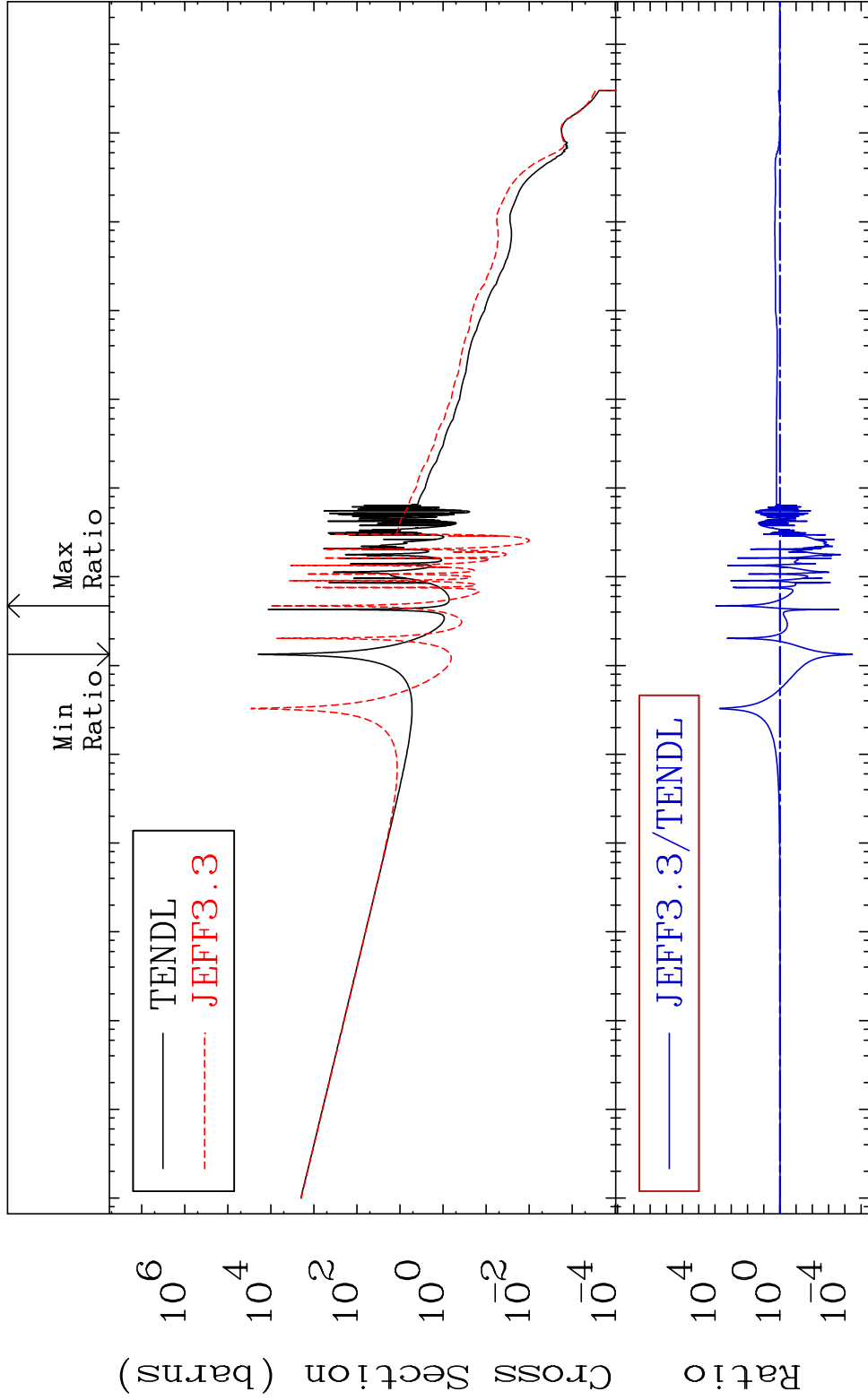


MAT 7246

(n,  $\gamma$ )

72-Hf-181

Cross Section -100.0 To 9999. %



10<sup>6</sup>  
10<sup>4</sup>  
10<sup>2</sup>  
10<sup>0</sup>  
10<sup>-2</sup>  
10<sup>-4</sup>  
Ratio  
10<sup>4</sup>  
10<sup>0</sup>  
10<sup>-4</sup>

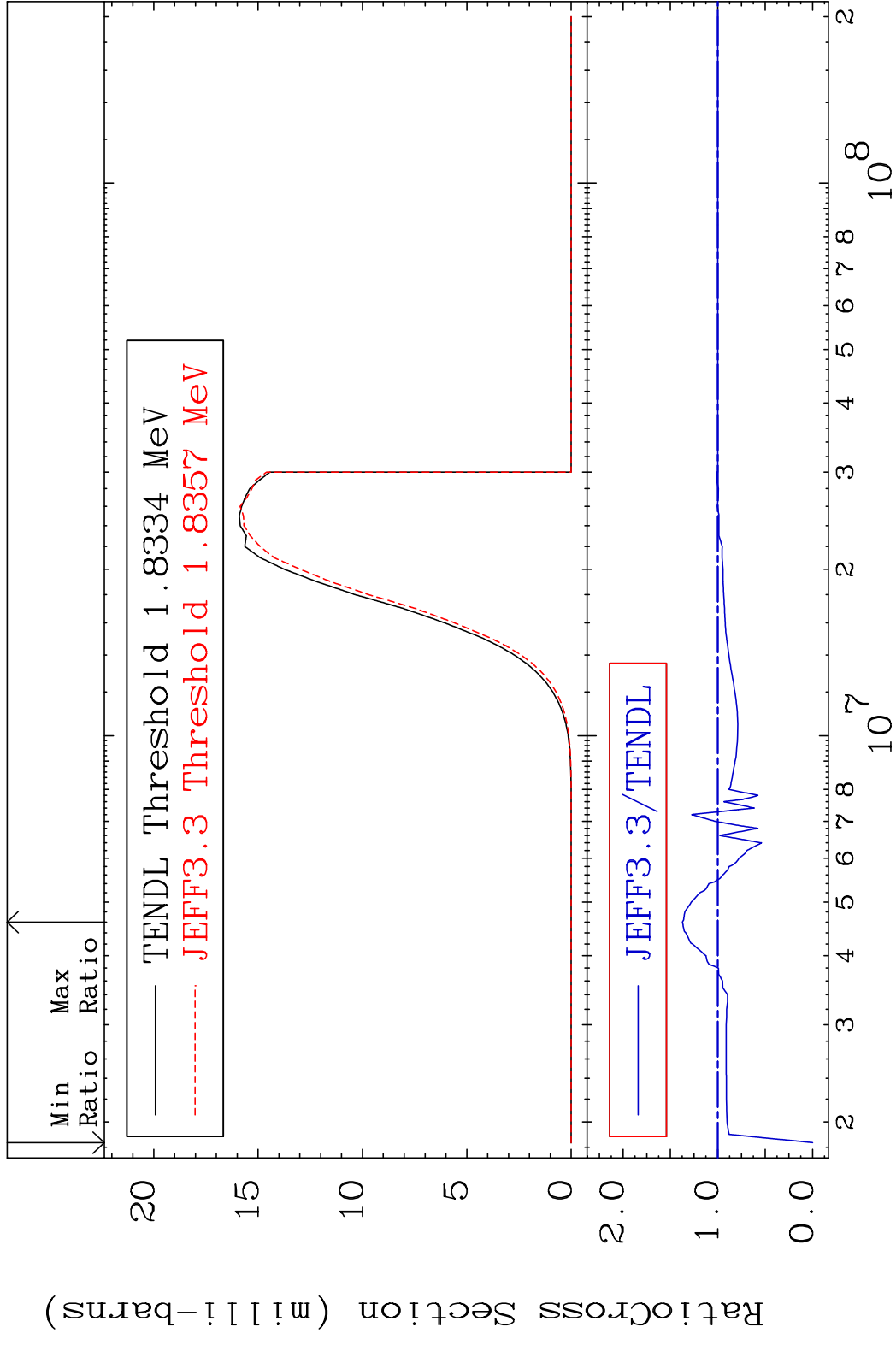
10<sup>-5</sup> 10<sup>-4</sup> 10<sup>-3</sup> 10<sup>-2</sup> 10<sup>-1</sup> 10<sup>0</sup> 10<sup>1</sup> 10<sup>2</sup> 10<sup>3</sup> 10<sup>4</sup> 10<sup>5</sup> 10<sup>6</sup> 10<sup>7</sup> 10<sup>8</sup>

48

Incident Energy (eV)

72-Hf-181

MAT 7246 (n,p) 72-Hf-181  
 Cross Section -100.0 To 37.39 %

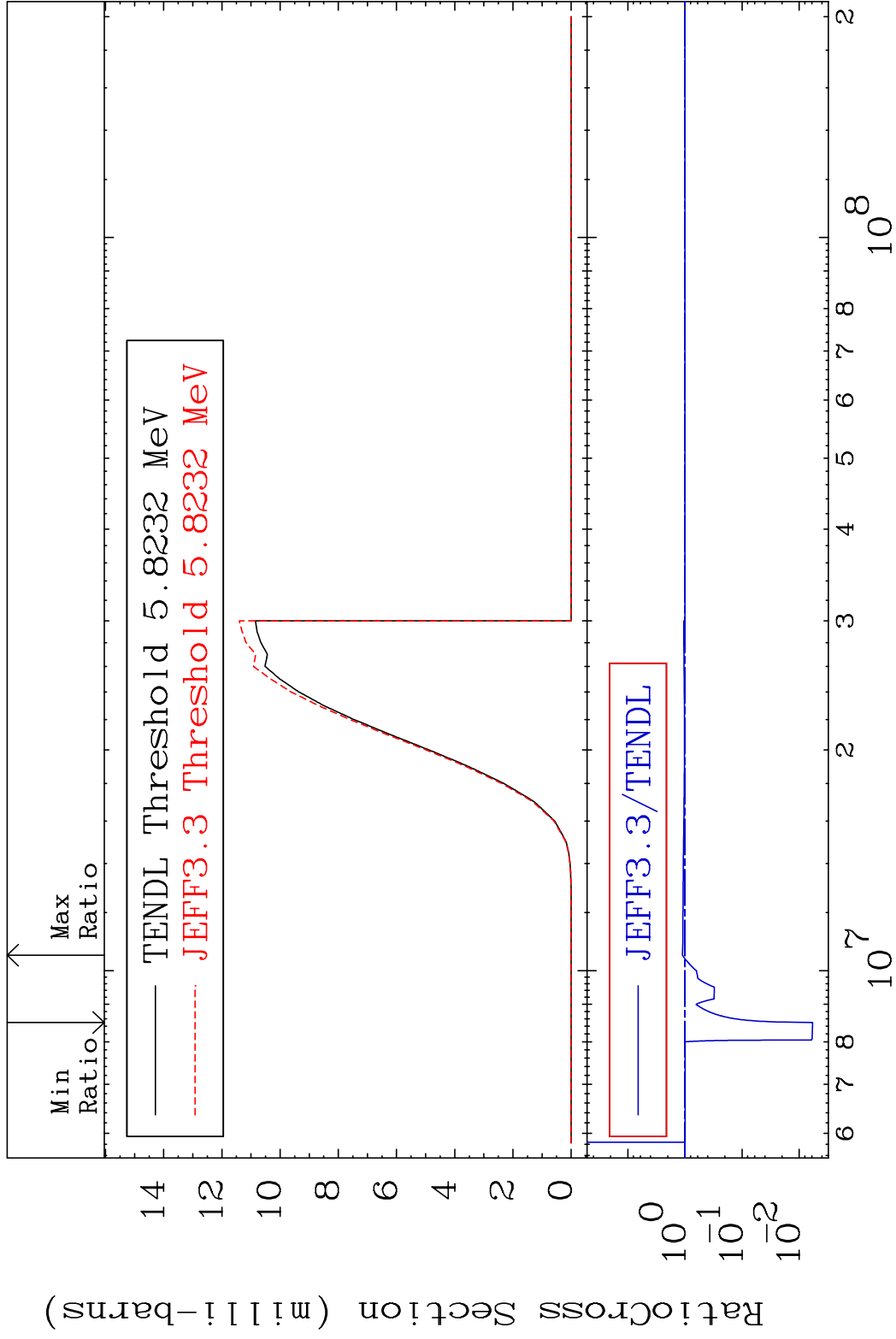


MAT 7246

(n, d)

72-Hf-181

Cross Section -99.42 To 11.11 %

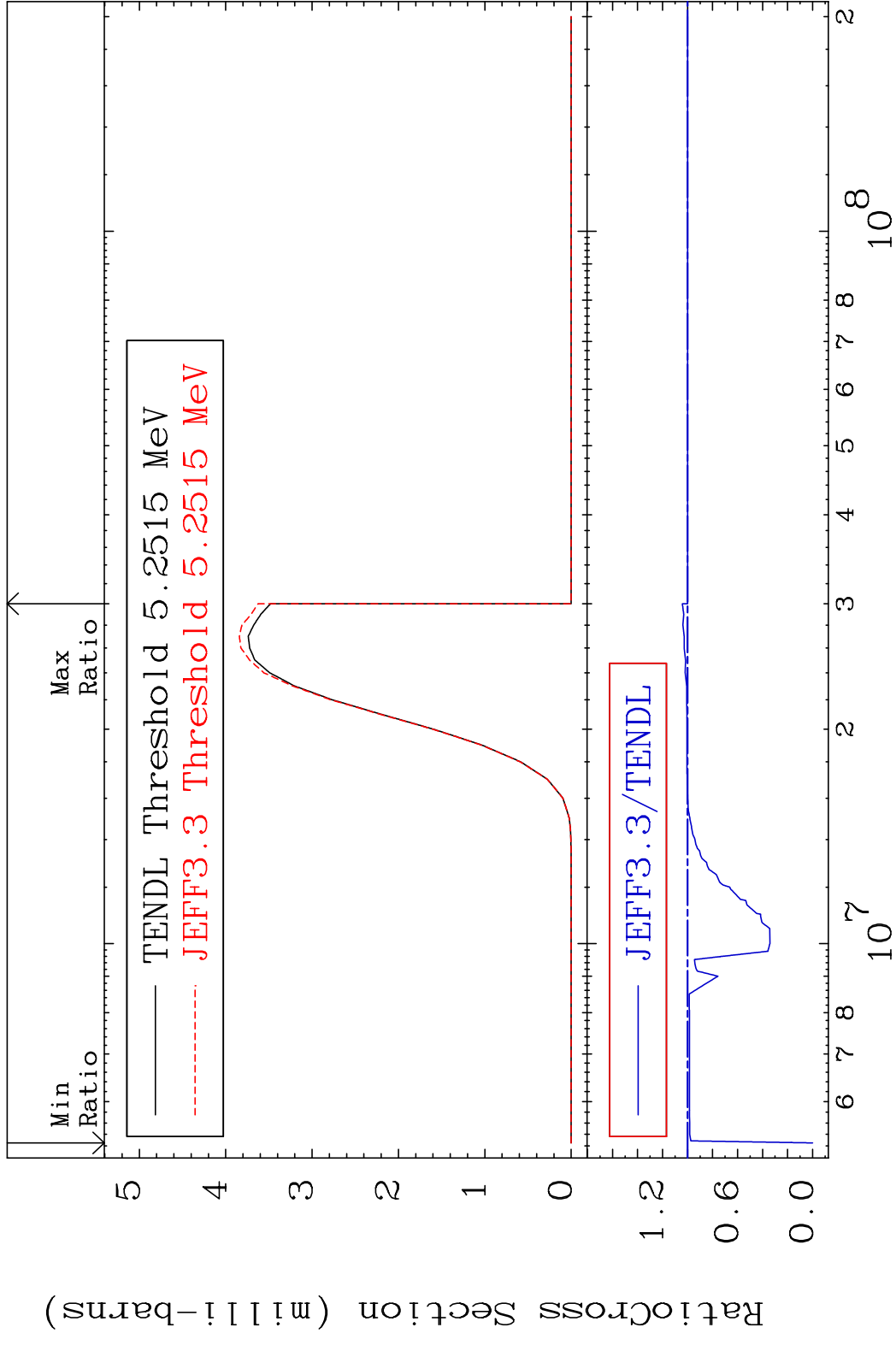


50

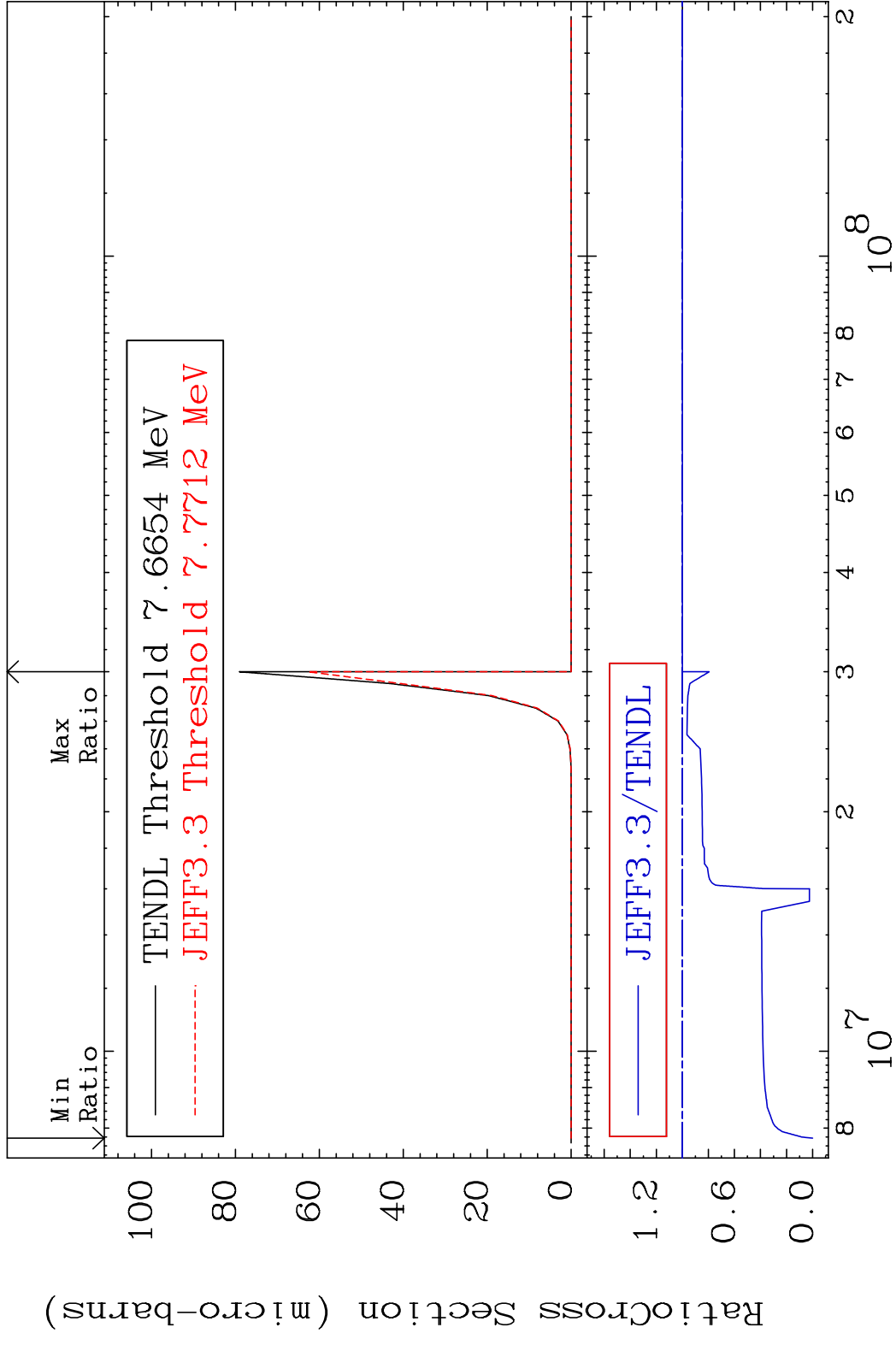
Incident Energy (eV)

72-Hf-181

MAT 7246 (n, t) 72-Hf-181  
 Cross Section -100.0 To 4.171 %



MAT 7246 (n, He-3) 72-Hf-181  
 Cross Section -100.0 To 0.000 %

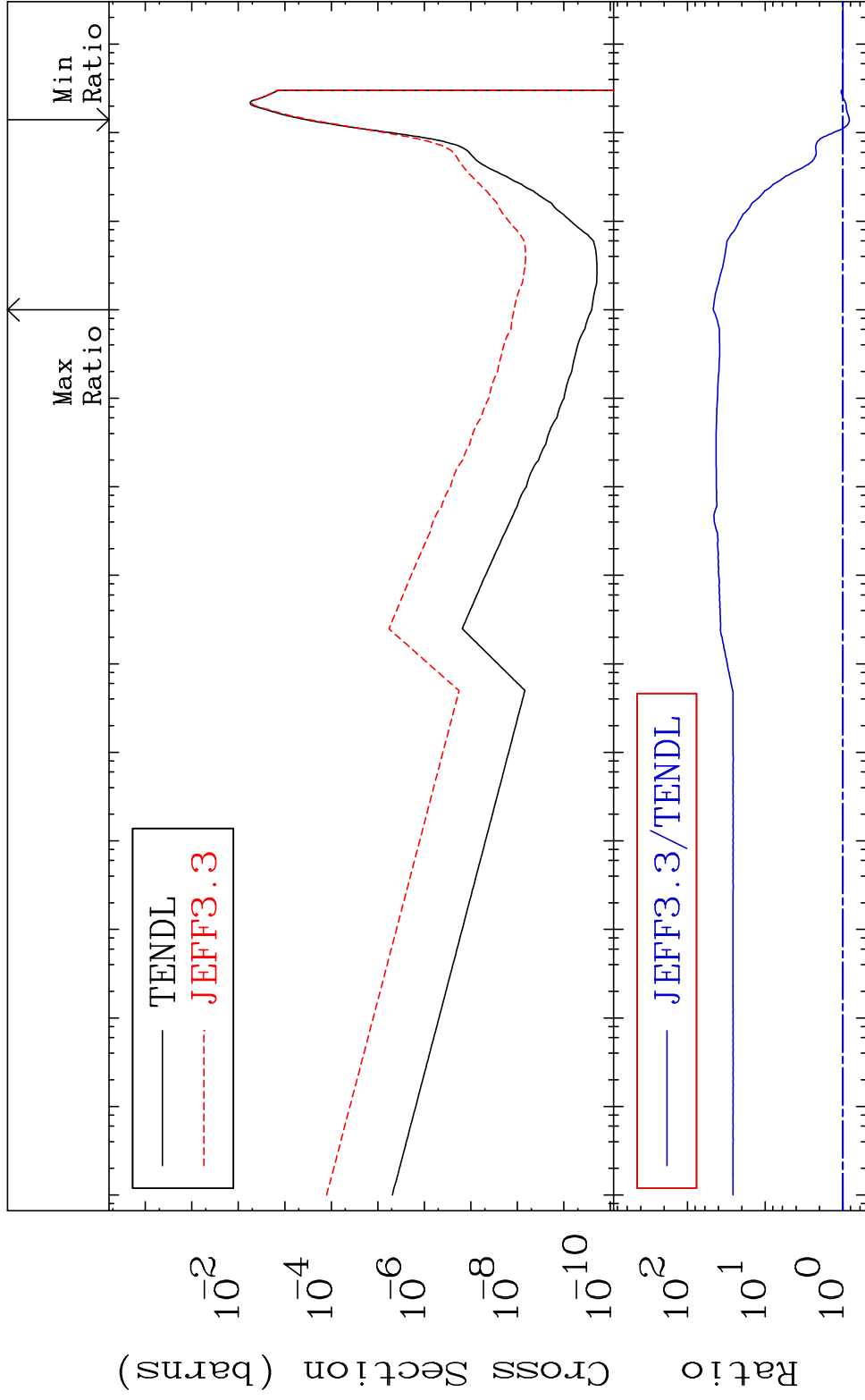


MAT 7246

(n,  $\alpha$ )

72-Hf-181

Cross Section -17.24 To 4580. %



53

Incident Energy (eV)

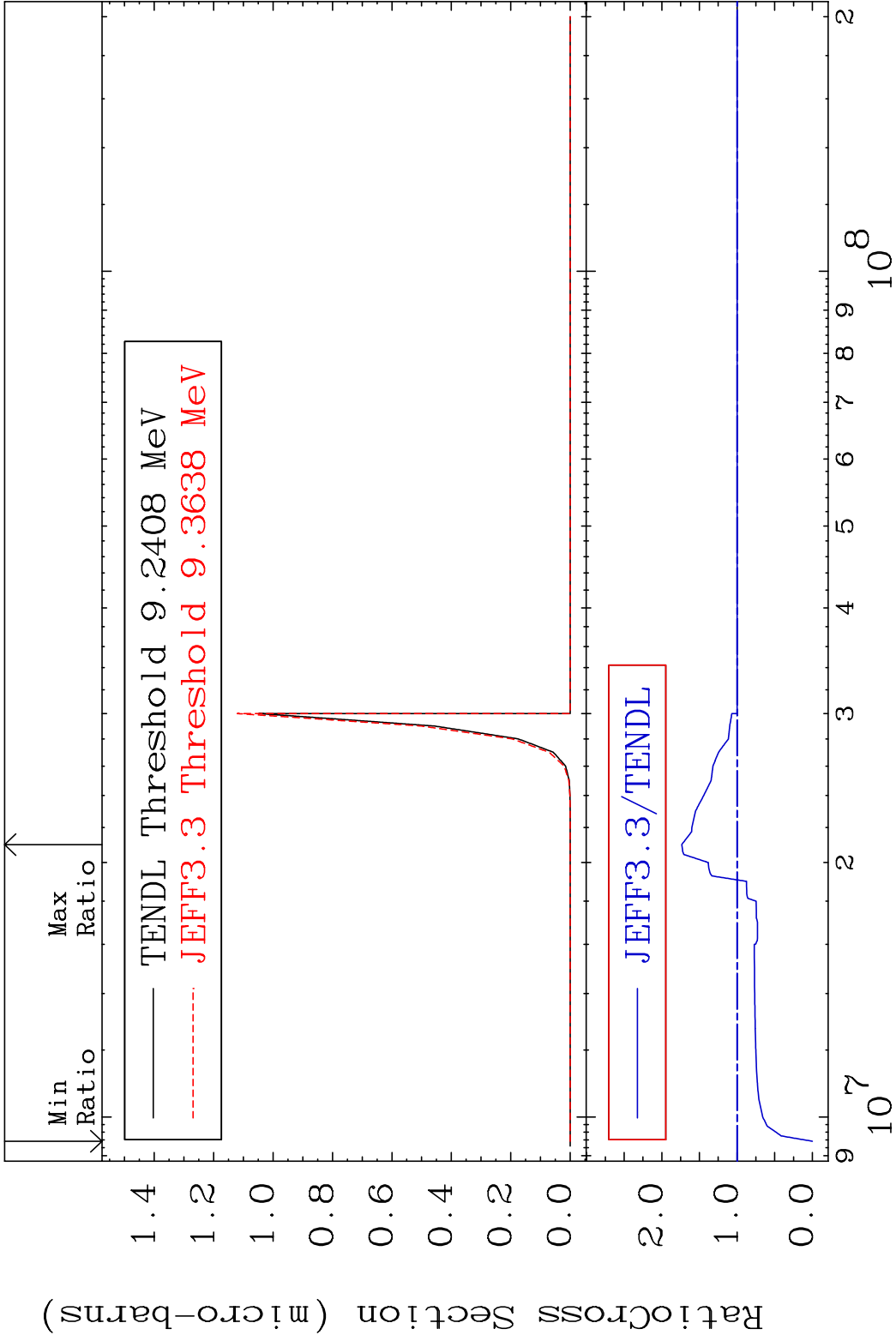
72-Hf-181

MAT 7246

(n,2p)

72-Hf-181

Cross Section -100.0 To 73.51 %



54

Incident Energy (eV)

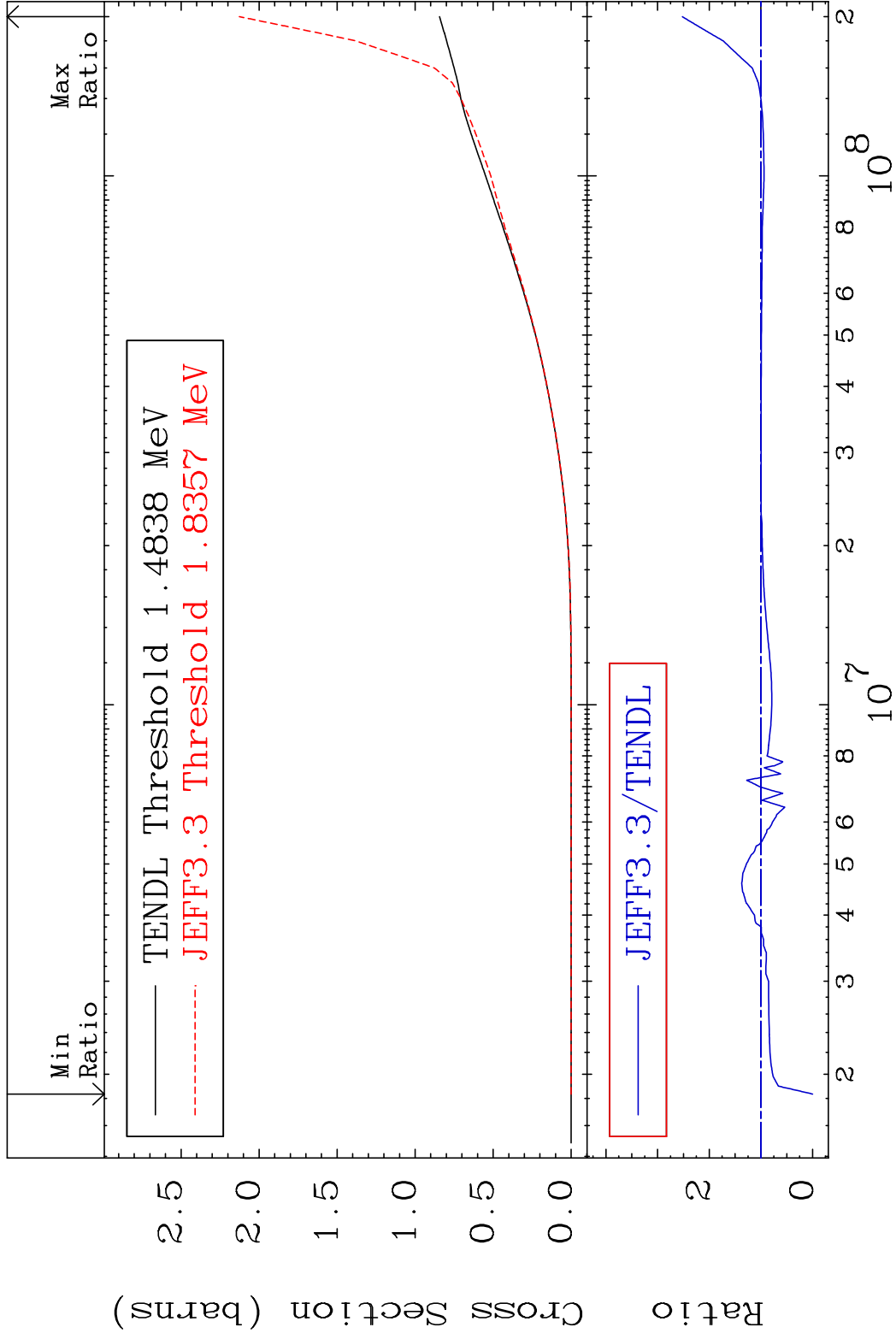
72-Hf-181

MAT 7246

Hydrogen Production

72-Hf-181

Cross Section -100.0 To 152.1 %



55

Incident Energy (eV)

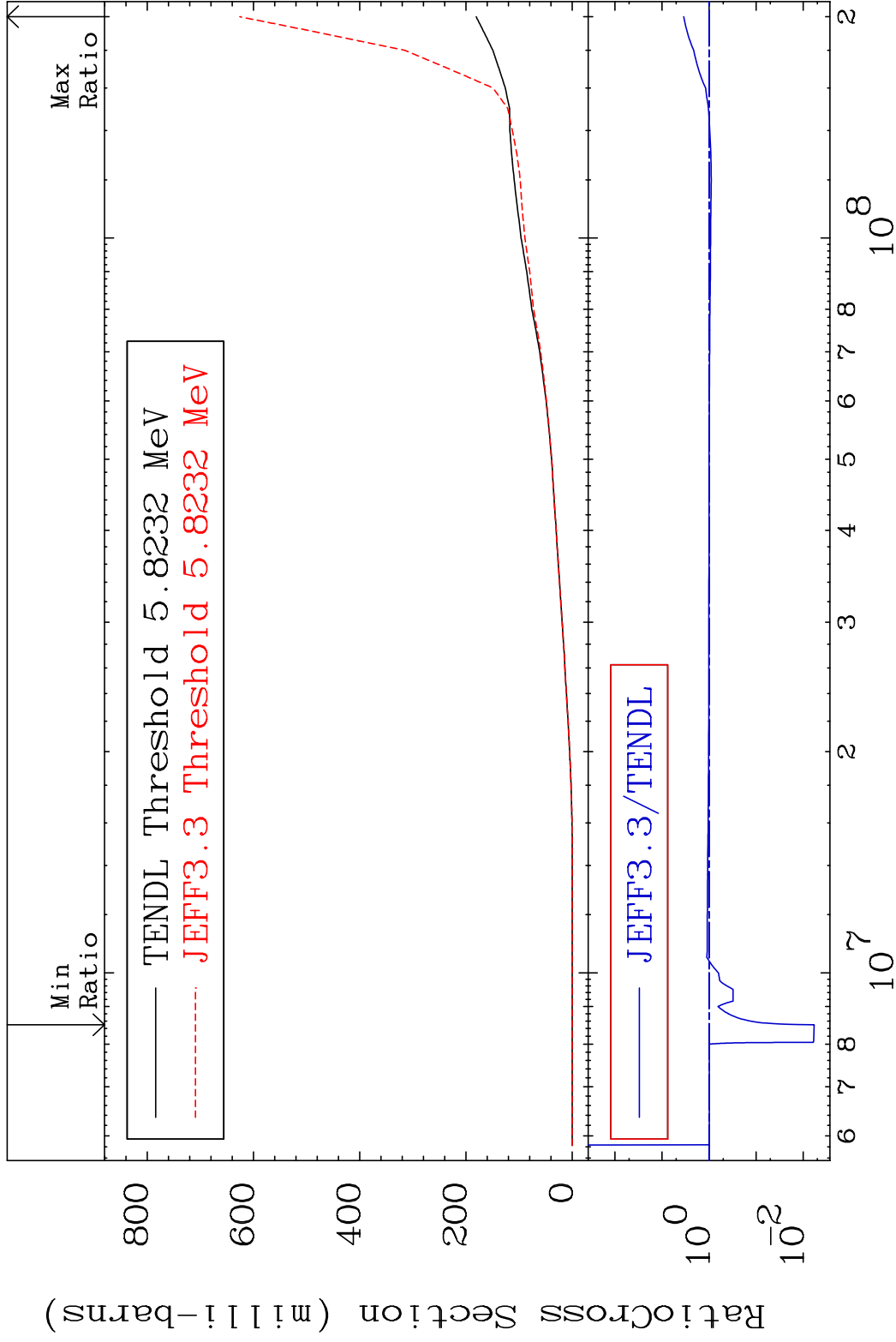
72-Hf-181

MAT 7246

Deuterium Production

72-Hf-181

Cross Section -99.42 To 246.0 %



56

Incident Energy (eV)

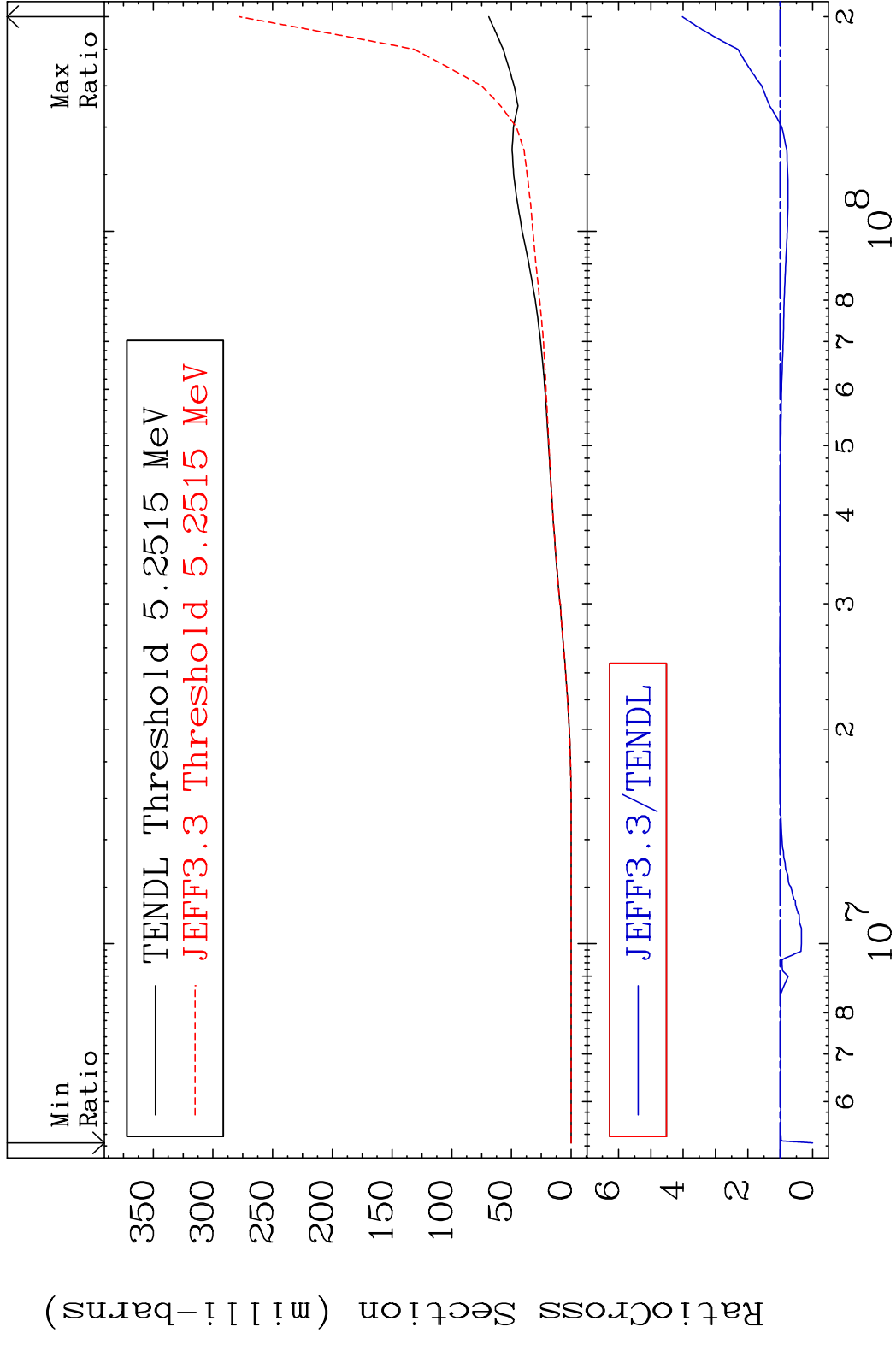
72-Hf-181

MAT 7246

Tritium Production

72-Hf-181

Cross Section -100.0 To 302.6 %

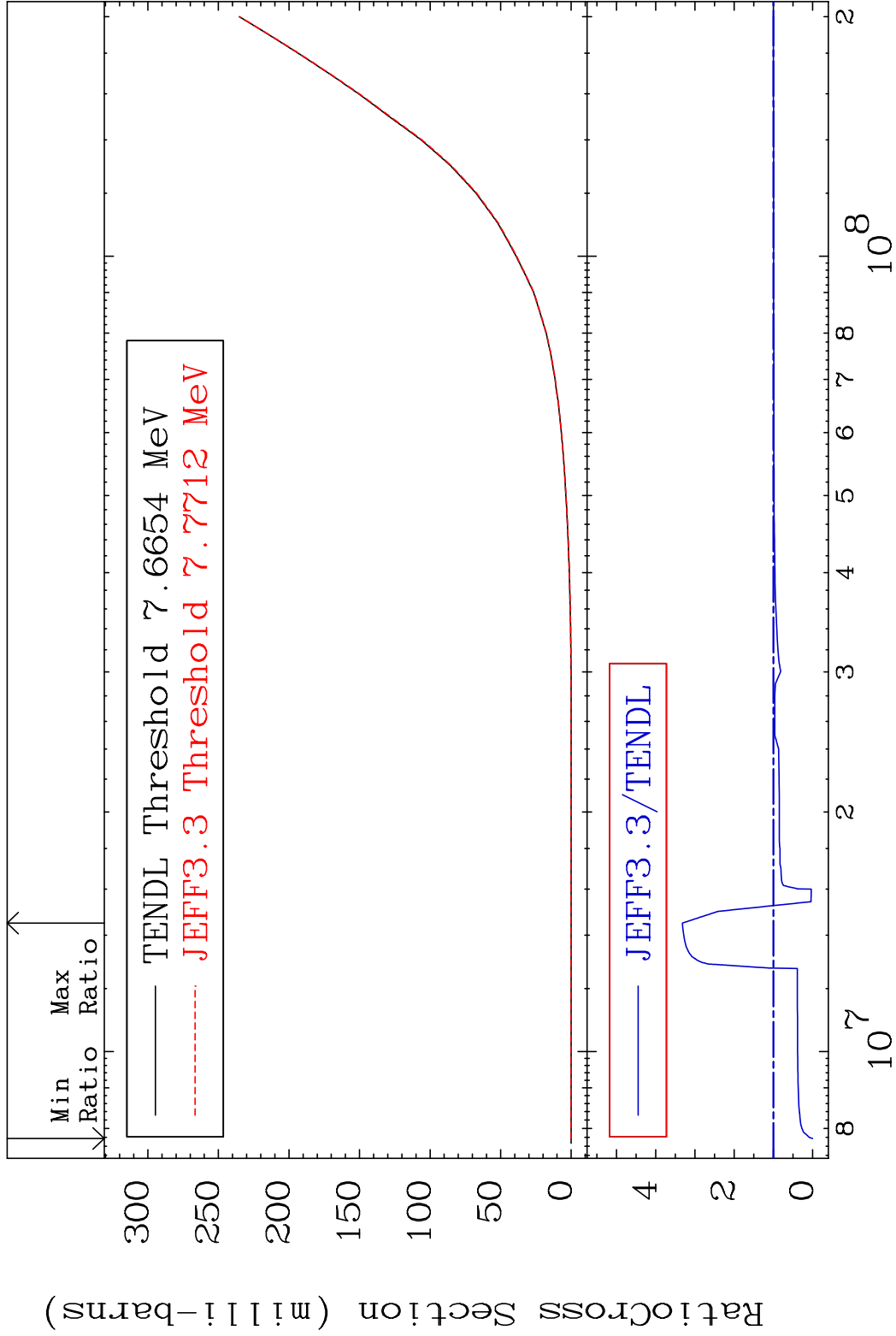


MAT 7246

He-3 Production

72-Hf-181

Cross Section -100.0 To 232.0 %



58

Incident Energy (eV)

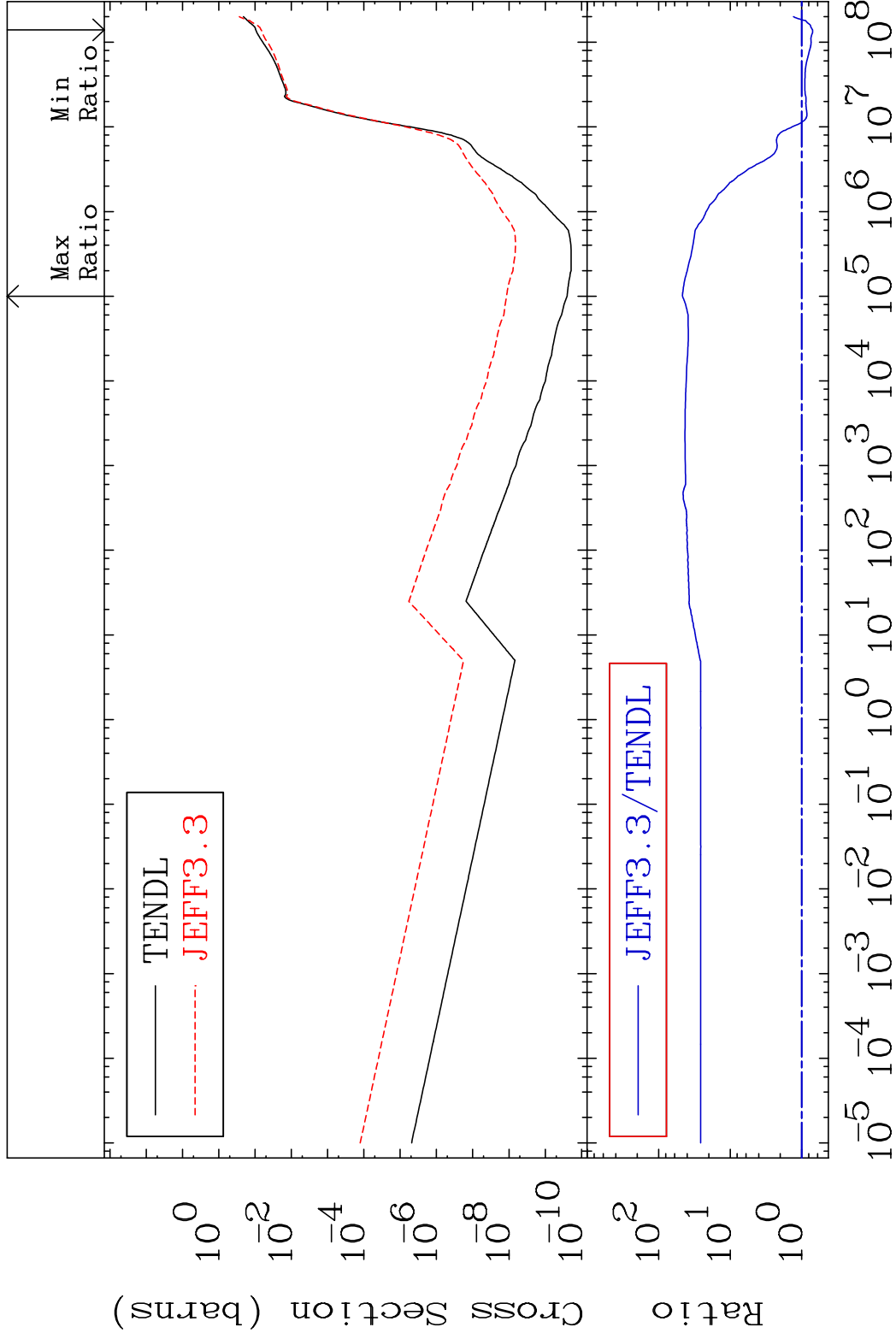
72-Hf-181

MAT 7246

He-4 Production

72-Hf-181

Cross Section -29.39 To 4580. %

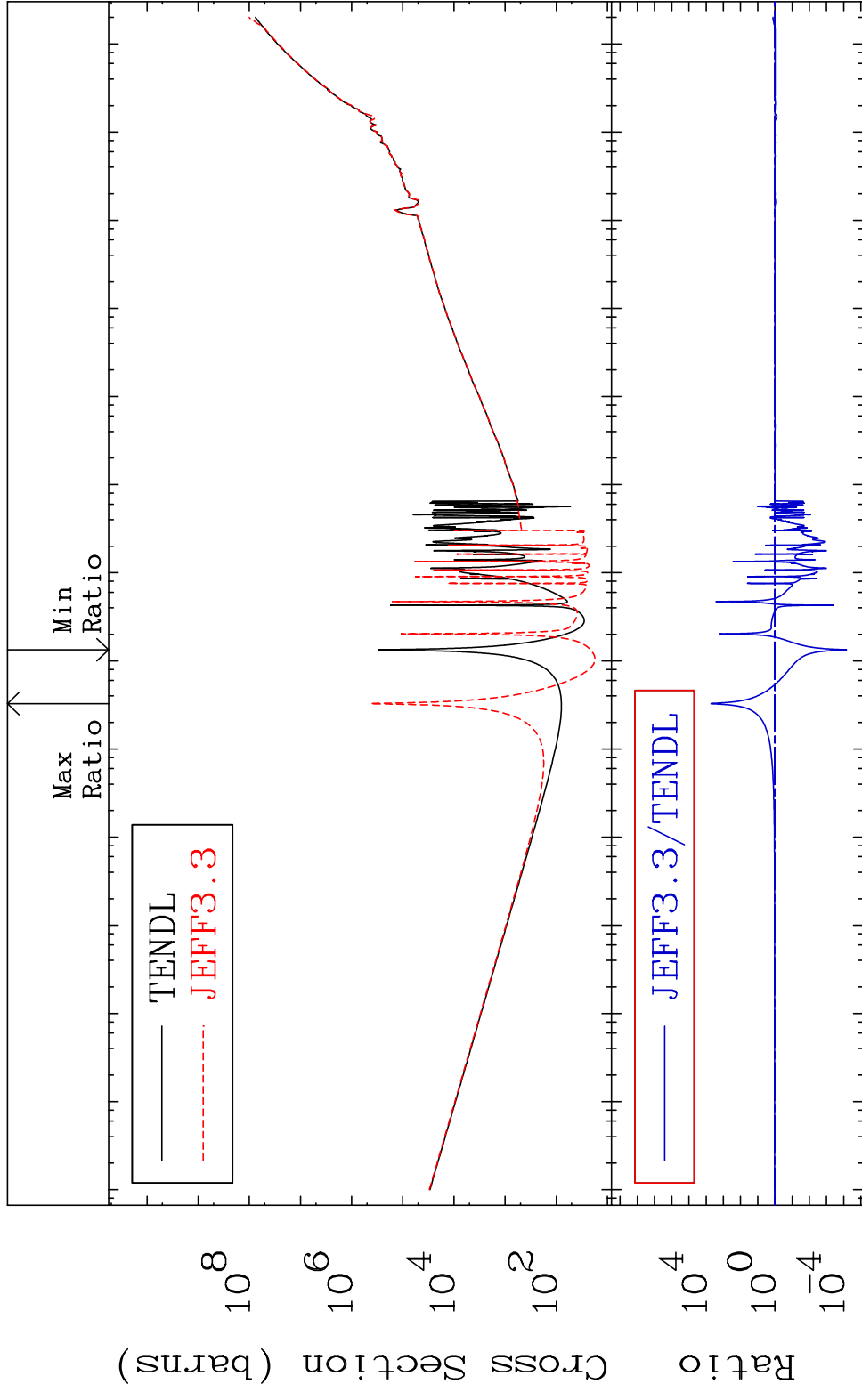


59

Incident Energy (eV)

72-Hf-181

MAT 7246 Kerma total (eV-barns) 72-Hf-181  
 Cross Section -99.99 To 9999. %



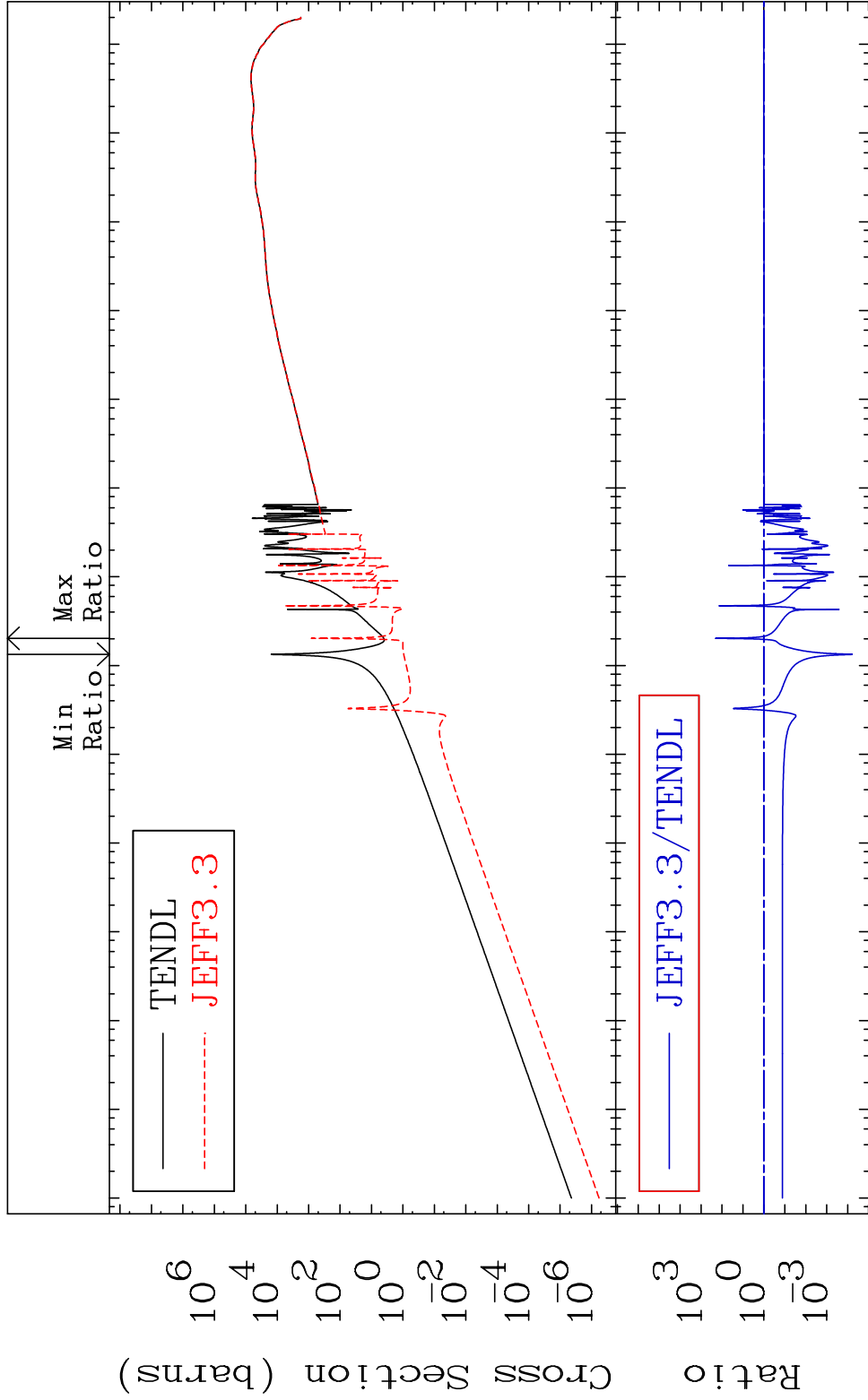
60 Incident Energy (eV) 72-Hf-181

MAT 7246

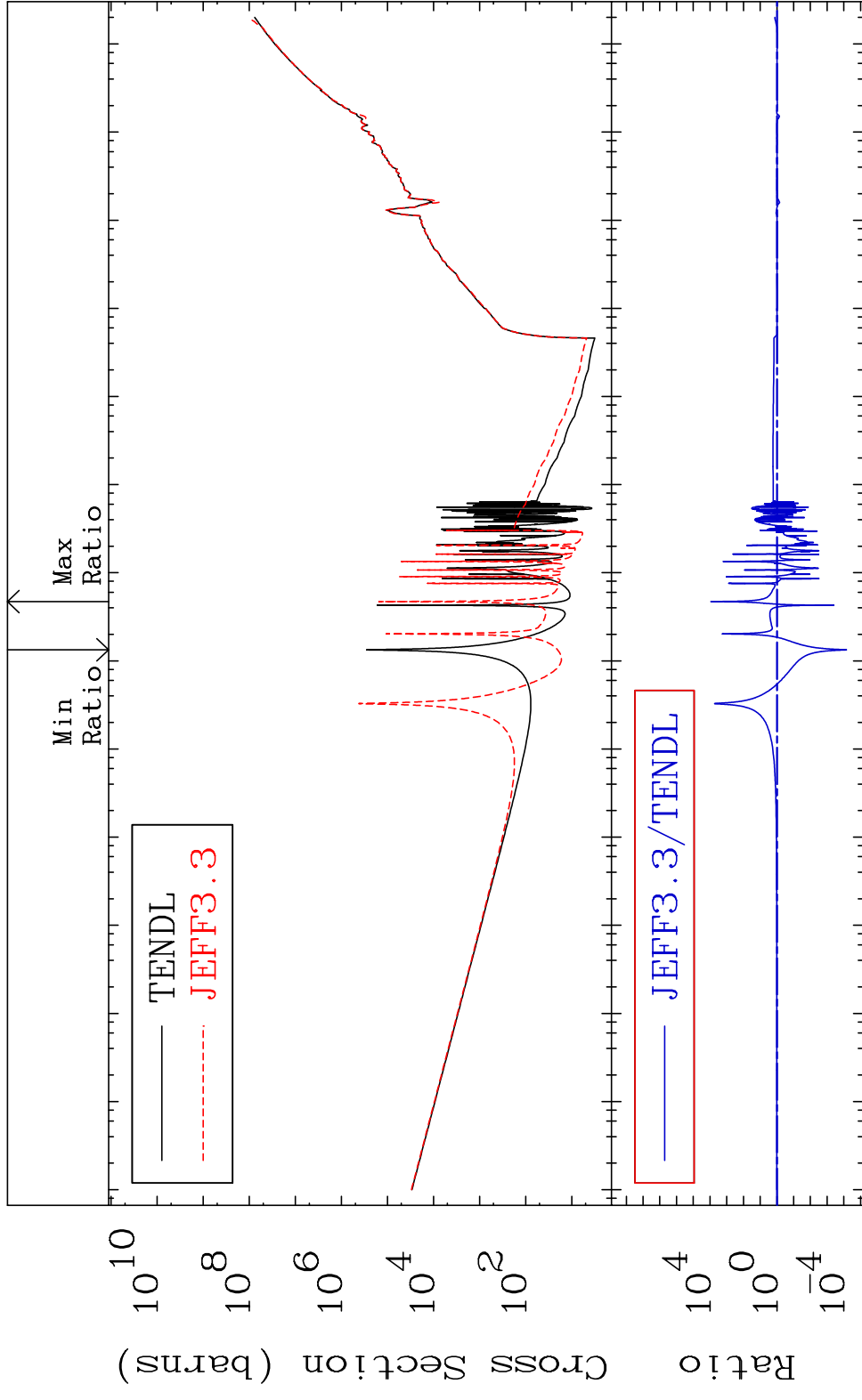
Kerma elastic

72-Hf-181

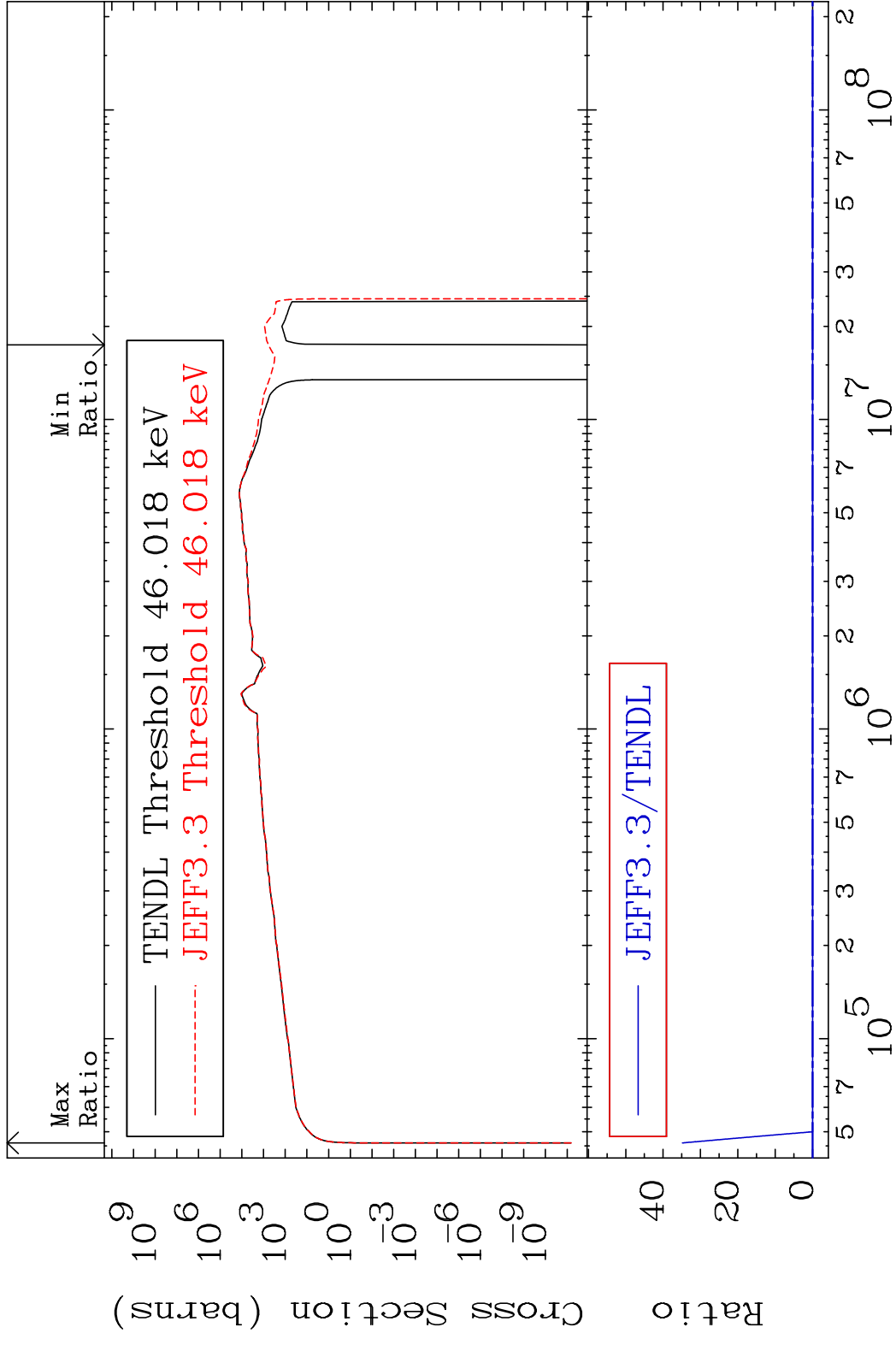
Cross Section -99.99 To 9999. %



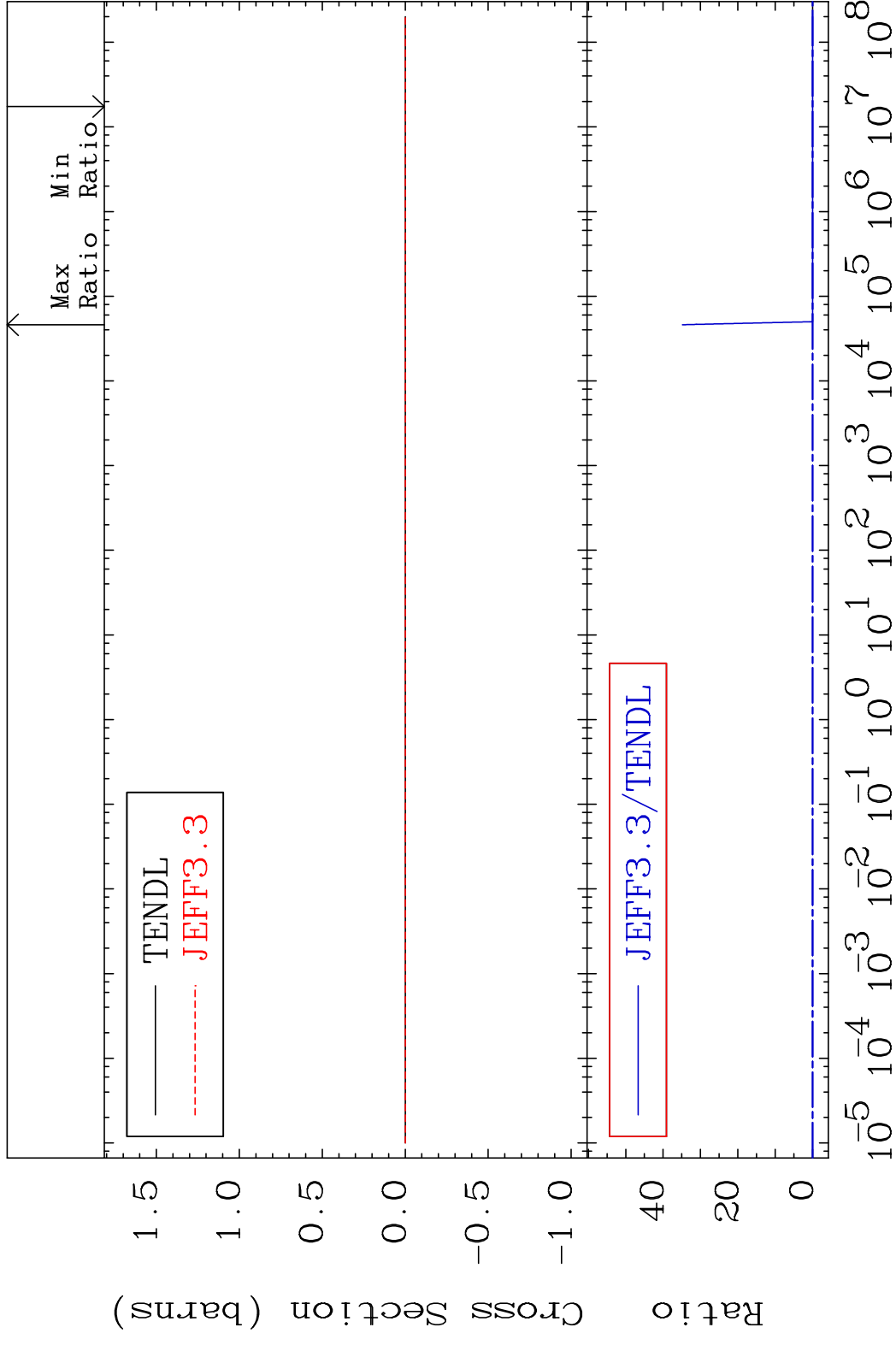
MAT 7246 Kerma non-elastic (all but mt2) 72-Hf-181  
 Cross Section -99.99 To 9999. %



MAT 7246 Kerma inelastic (mt51-91) 72-Hf-181  
 Cross Section -9999. To 9999. %

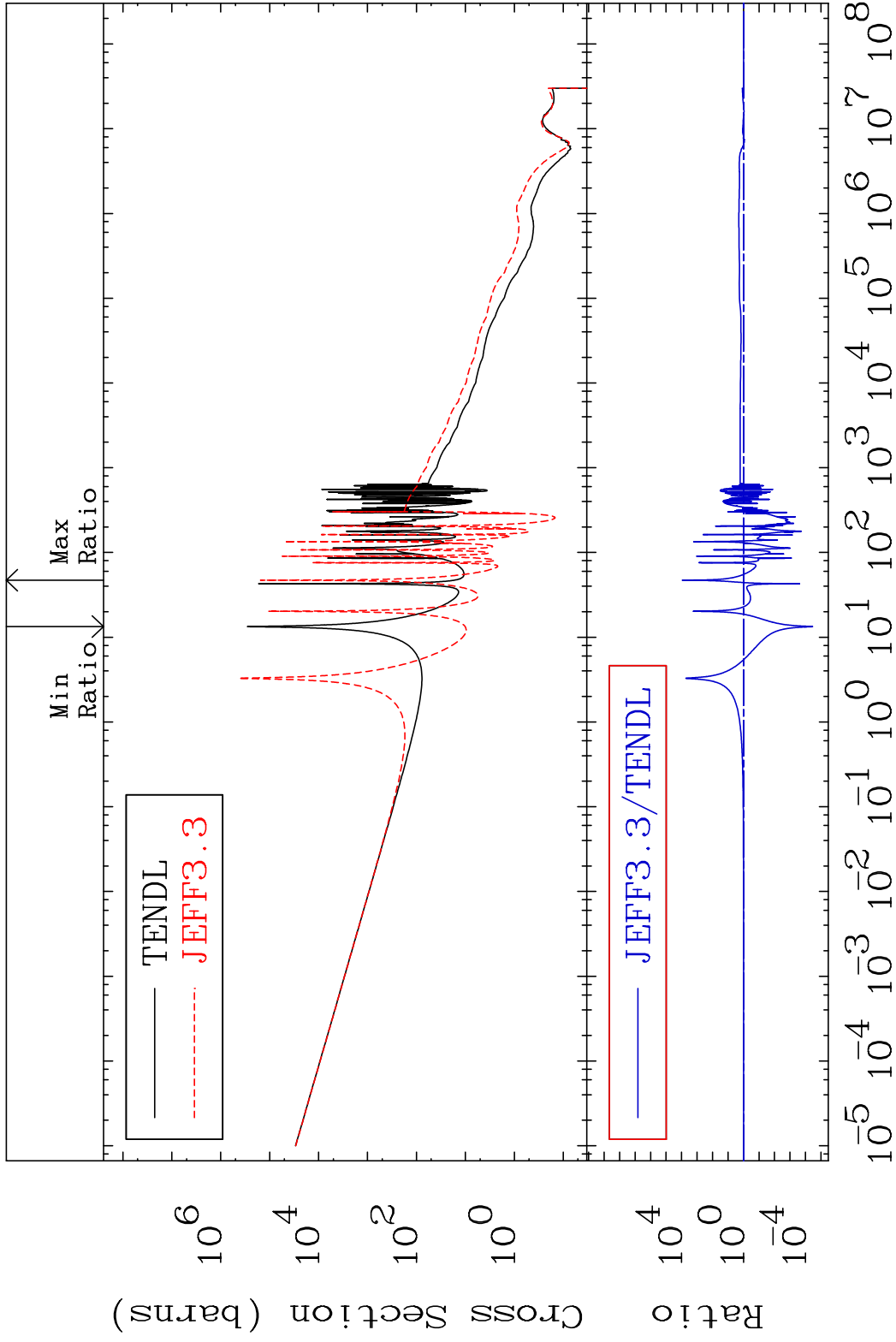


MAT 7246 Kerma fission (mt18 or mt19-20-21-38)72-Hf-181  
 Cross Section -9999. To 9999. %



MAT 7246

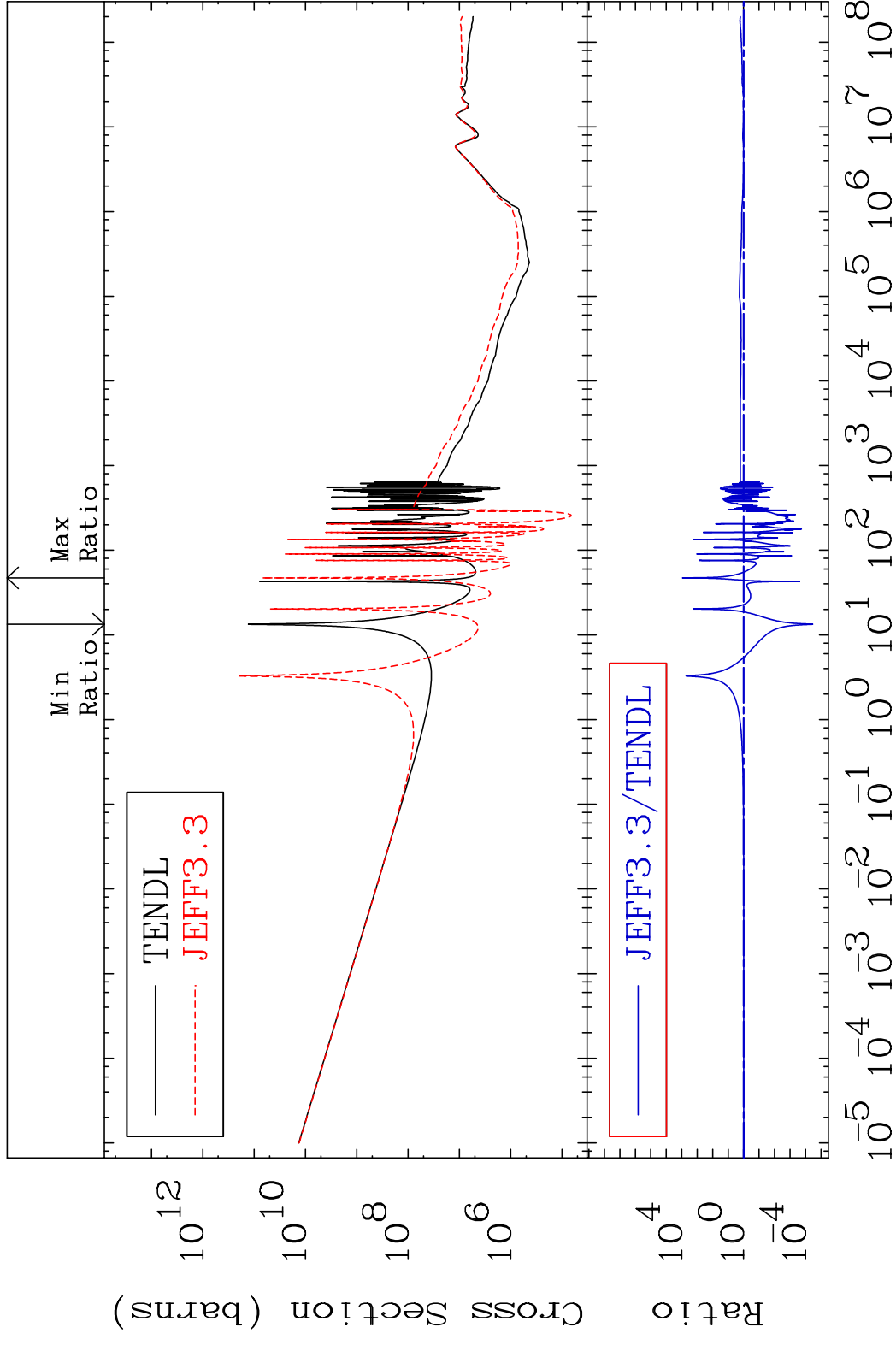
Kerma capture (mt102) 72-Hf-181  
Cross Section -100.0 To 9999. %



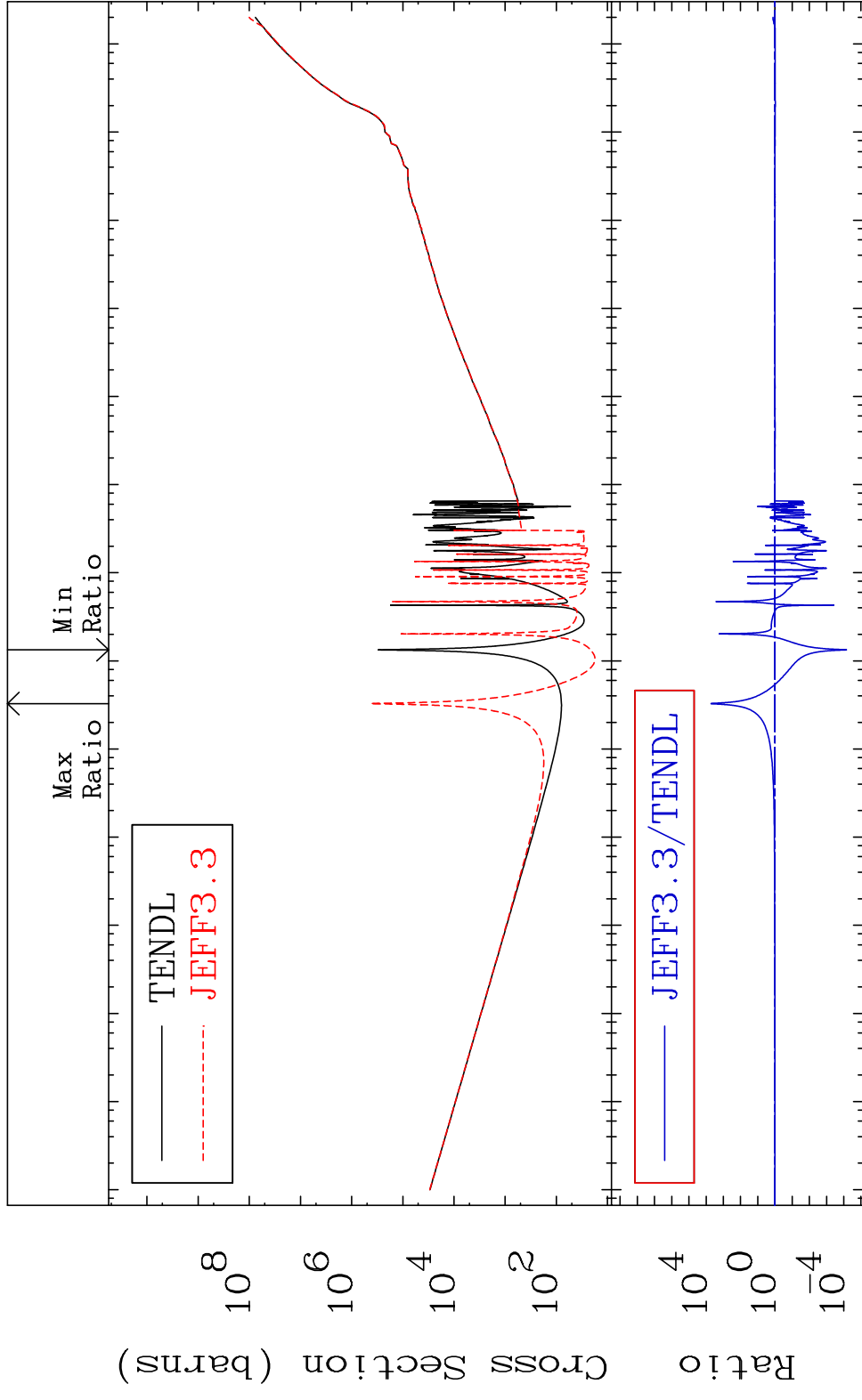
65

Incident Energy (eV) 72-Hf-181

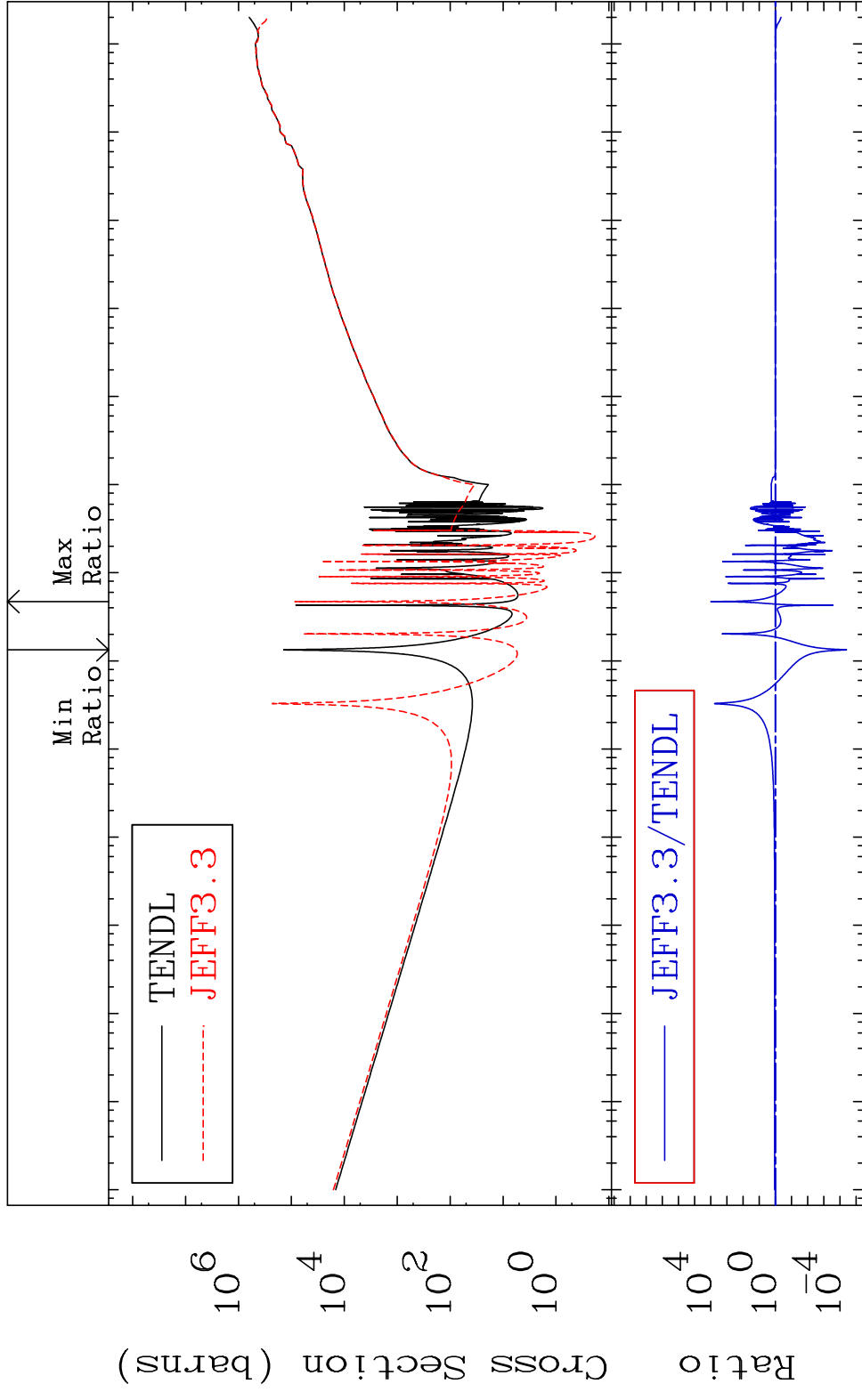
MAT 7246 Total photon (eV-barns) 72-Hf-181  
 Cross Section -100.0 To 9999. %



MAT 7246 Total kinematic kerma (high limit) 72-Hf-181  
 Cross Section -99.99 To 9999. %



MAT 7246 Dpa total (eV-barns) 72-Hf-181  
 Cross Section -100.0 To 9999. %

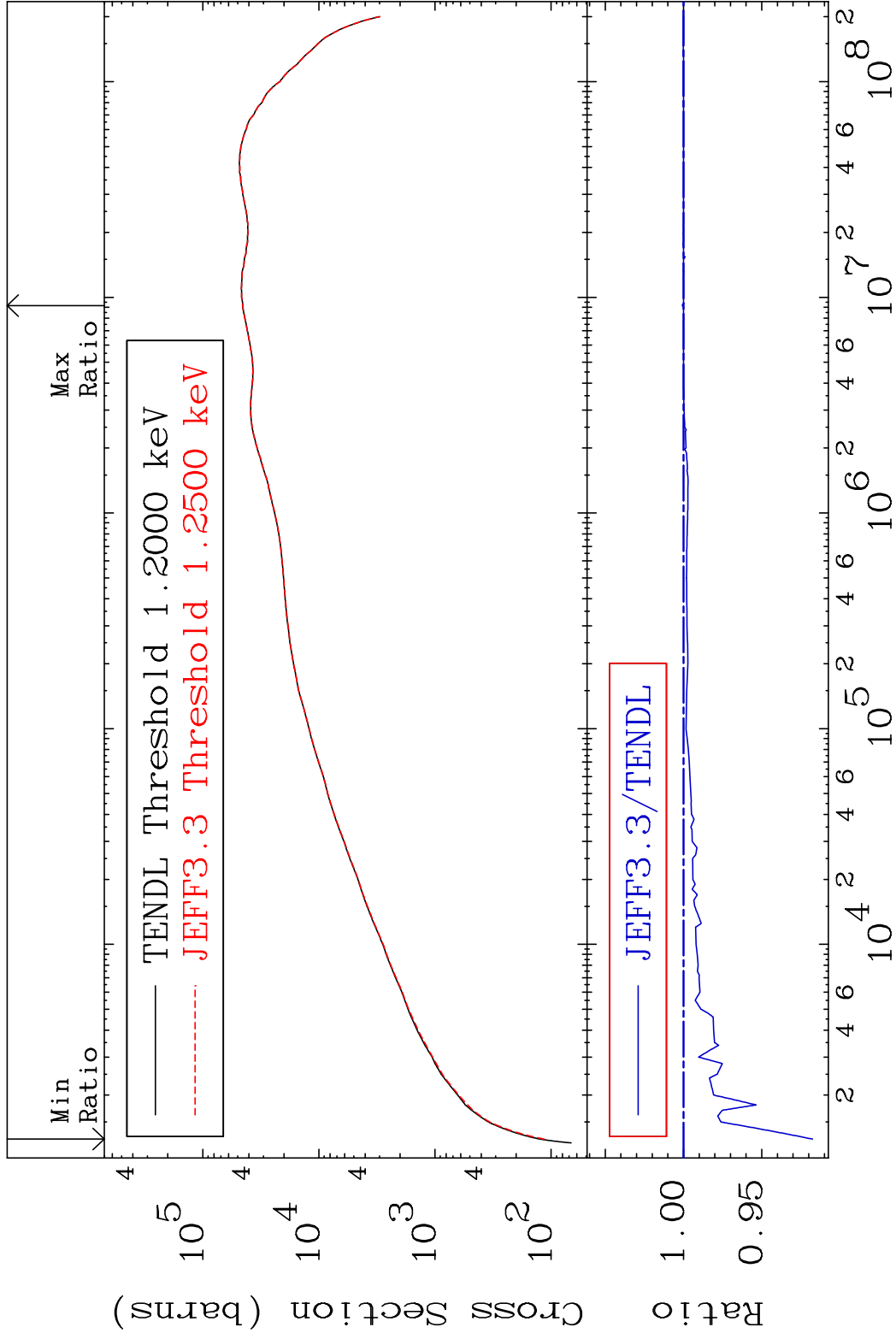


MAT 7246

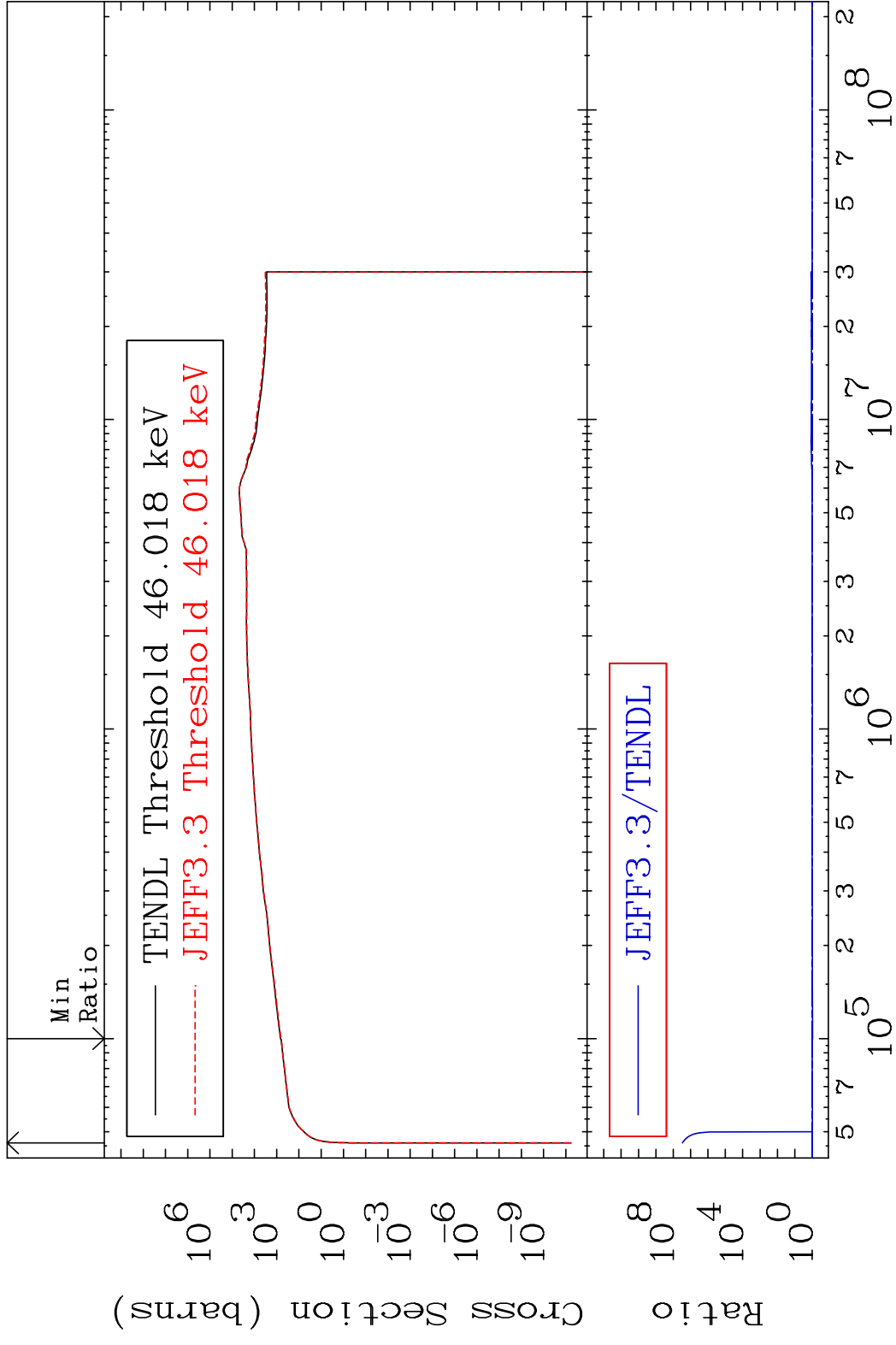
Dpa elastic (mt2)

72-Hf-181

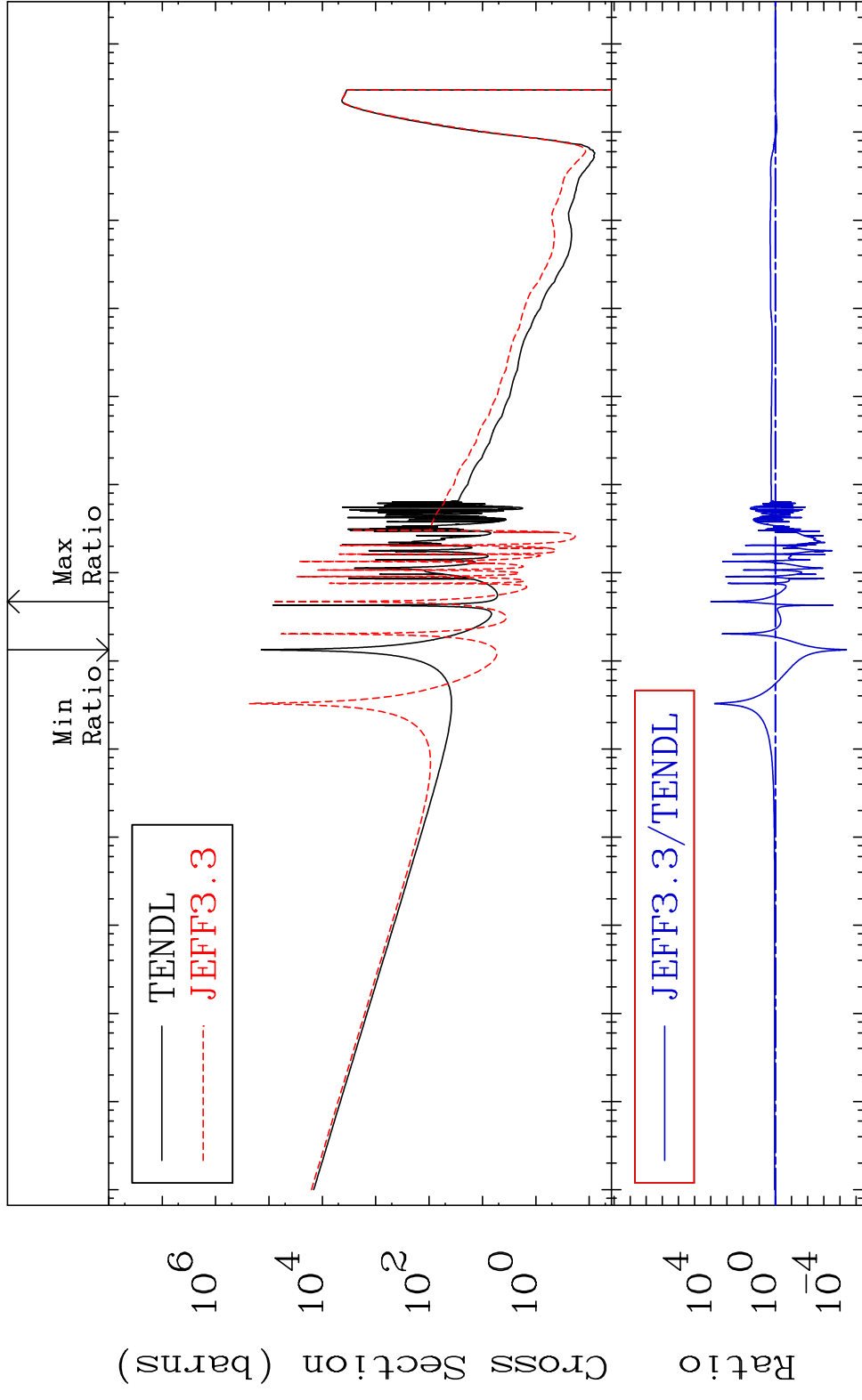
Cross Section -8.245 To 0.073 %



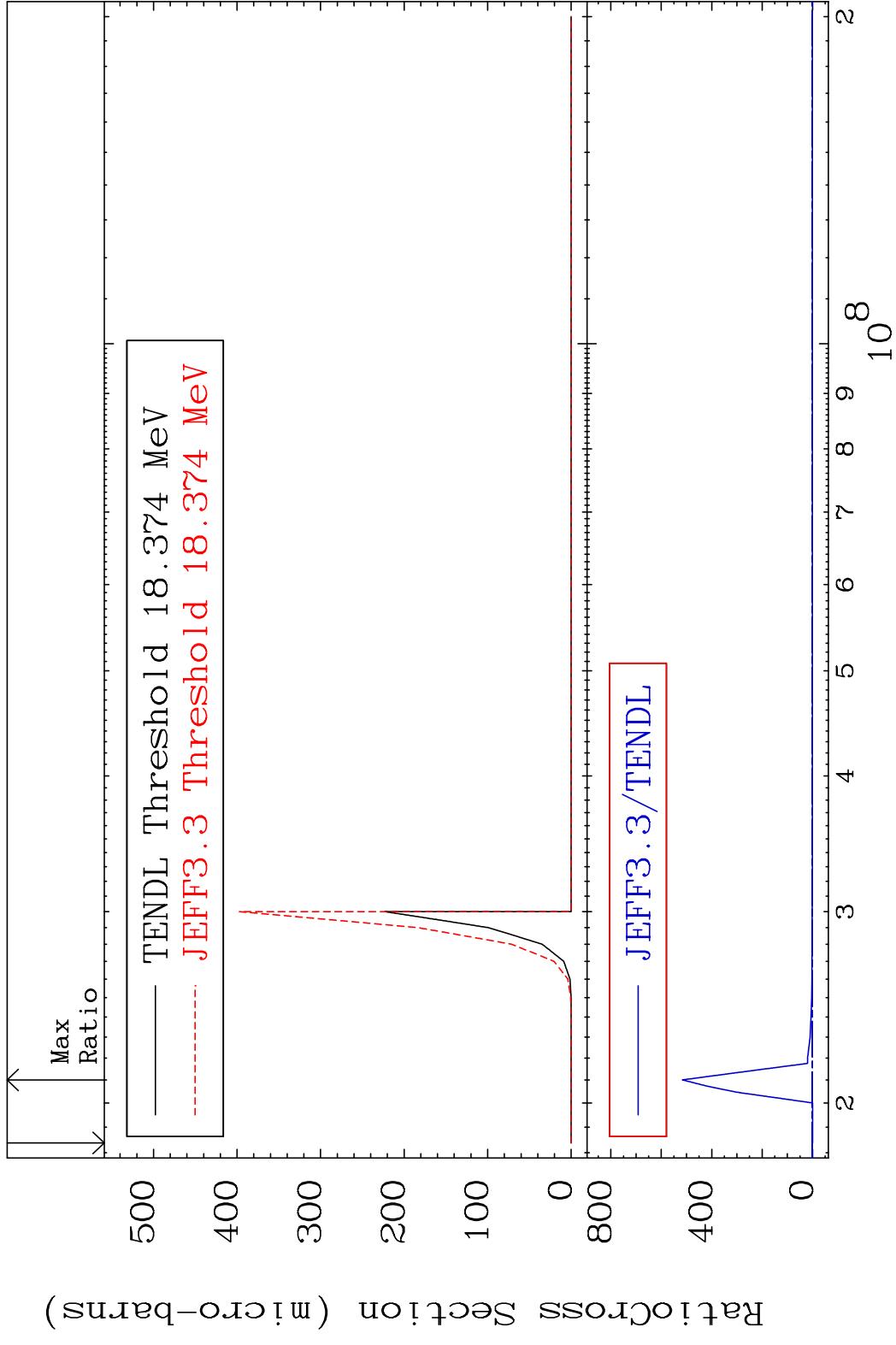
MAT 7246      Dpa inelastic (mt51-91)      72-Hf-181  
 Cross Section    -5.169 To 9999. %



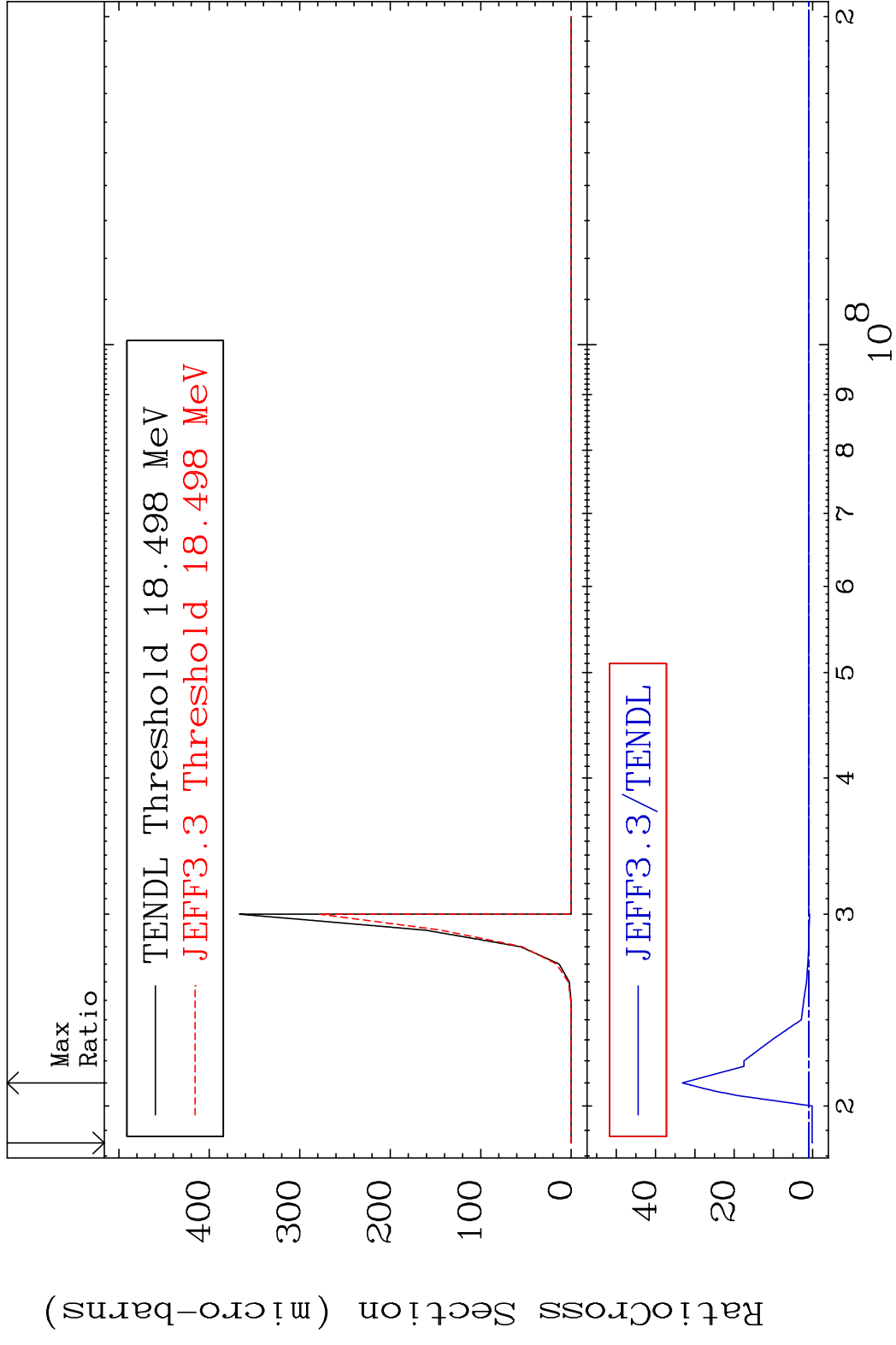
MAT 7246 Dpa disappearance (mt102 -120) 72-Hf-181  
 Cross Section -100.0 To 9999. %



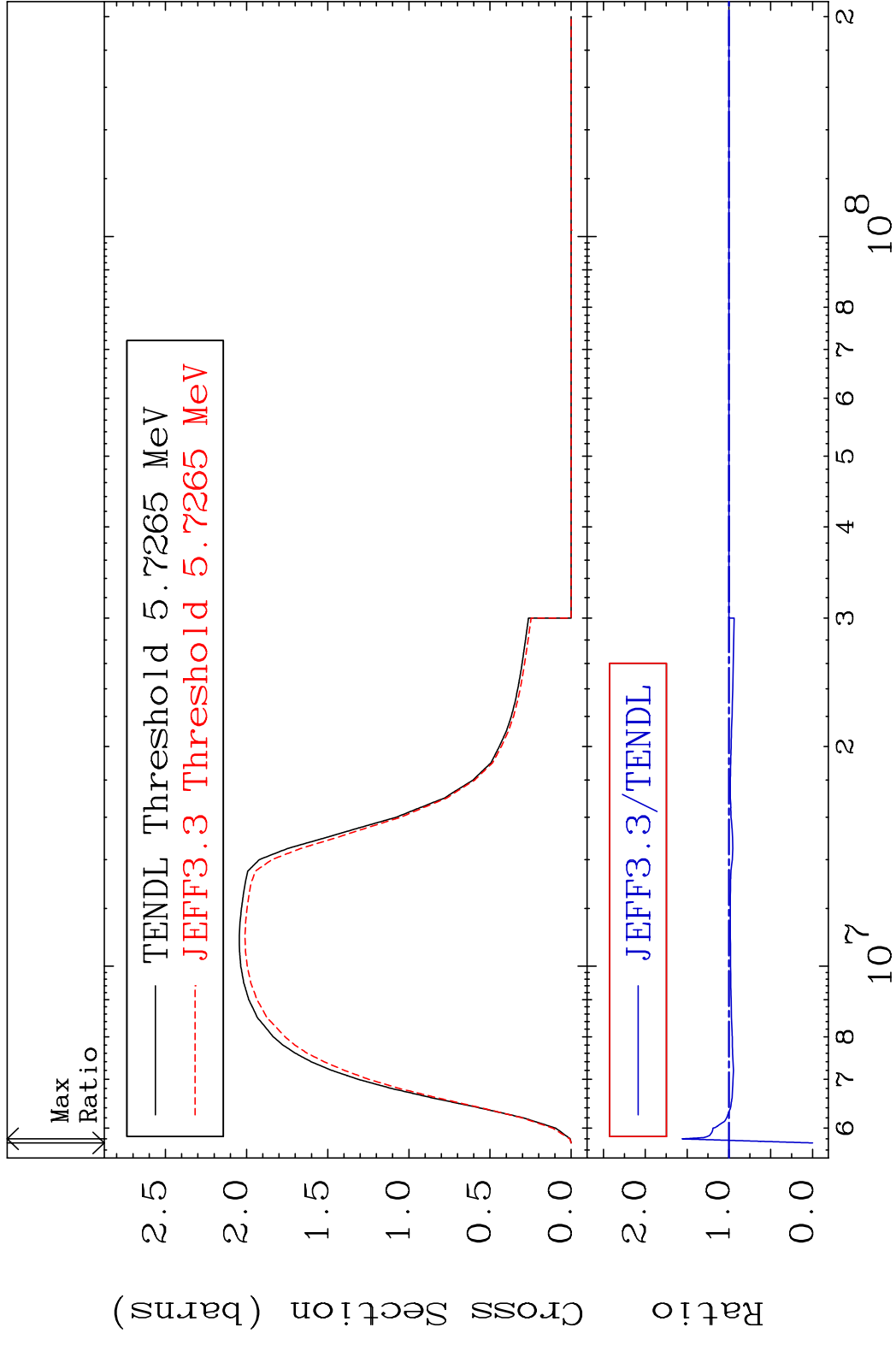
MAT 7246 (n,2n) d:71-Lu-178g 72-Hf-181  
 Radionuclide Production Cross Section 18.374 MeV 9999. %



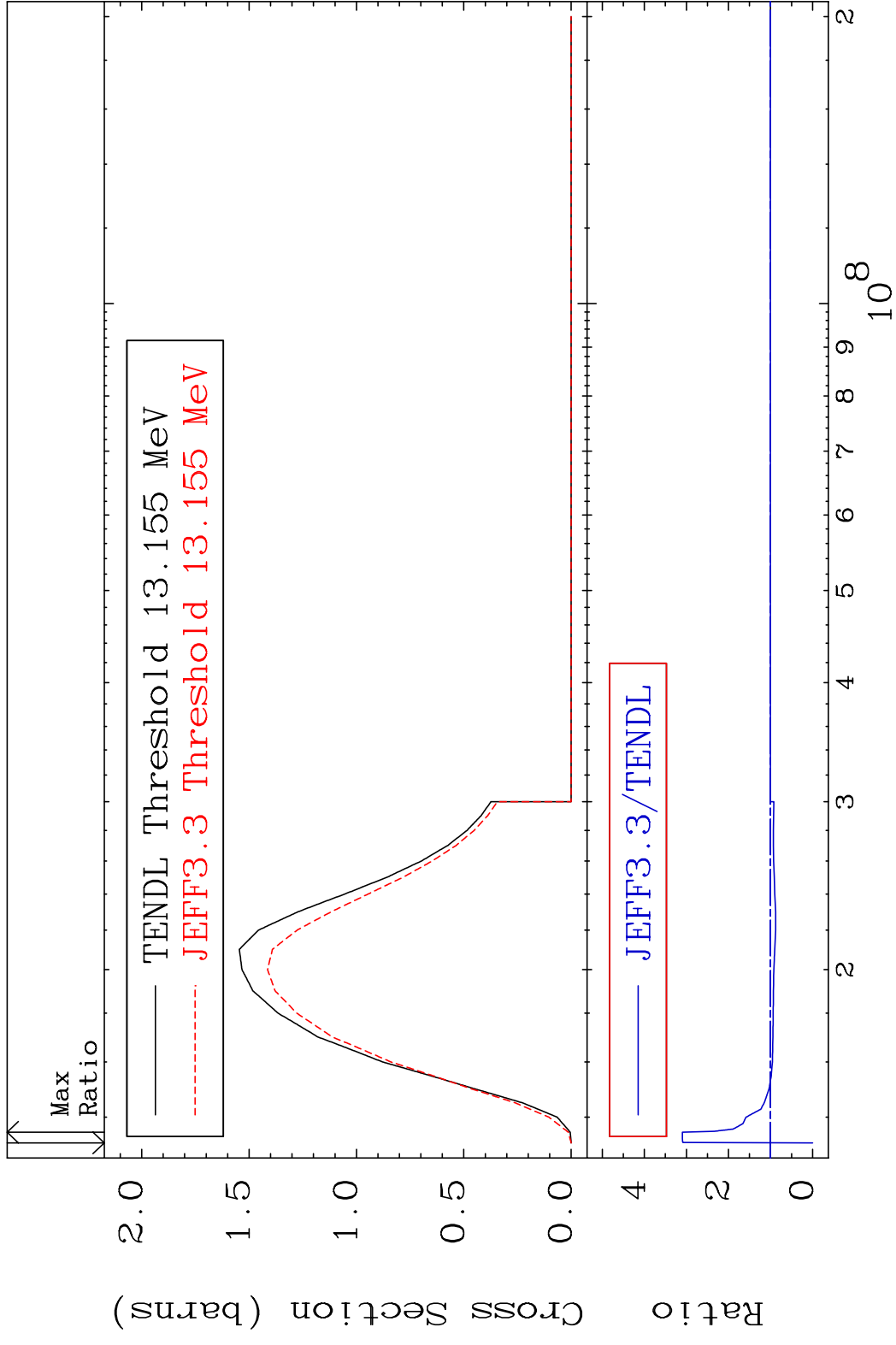
MAT 7246 (n,2n) d:71-Lu-178m3 72-Hf-181  
 Radionuclide Production Cross Section 18.498 MeV 3218. %



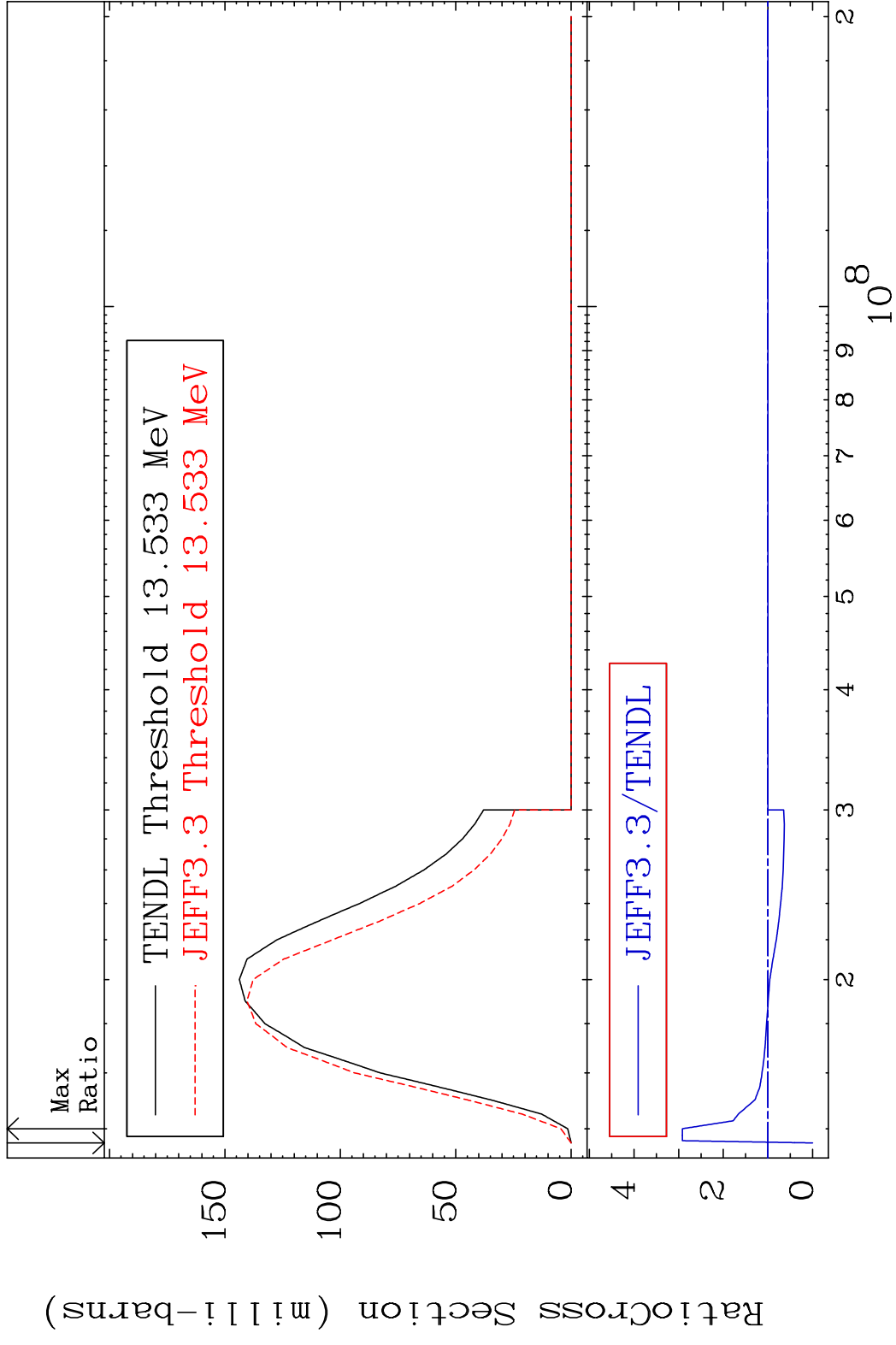
MAT 7246 (n,2n):72-Hf-180g 72-Hf-181  
 Radionuclide Production Cross Section 55.72 %

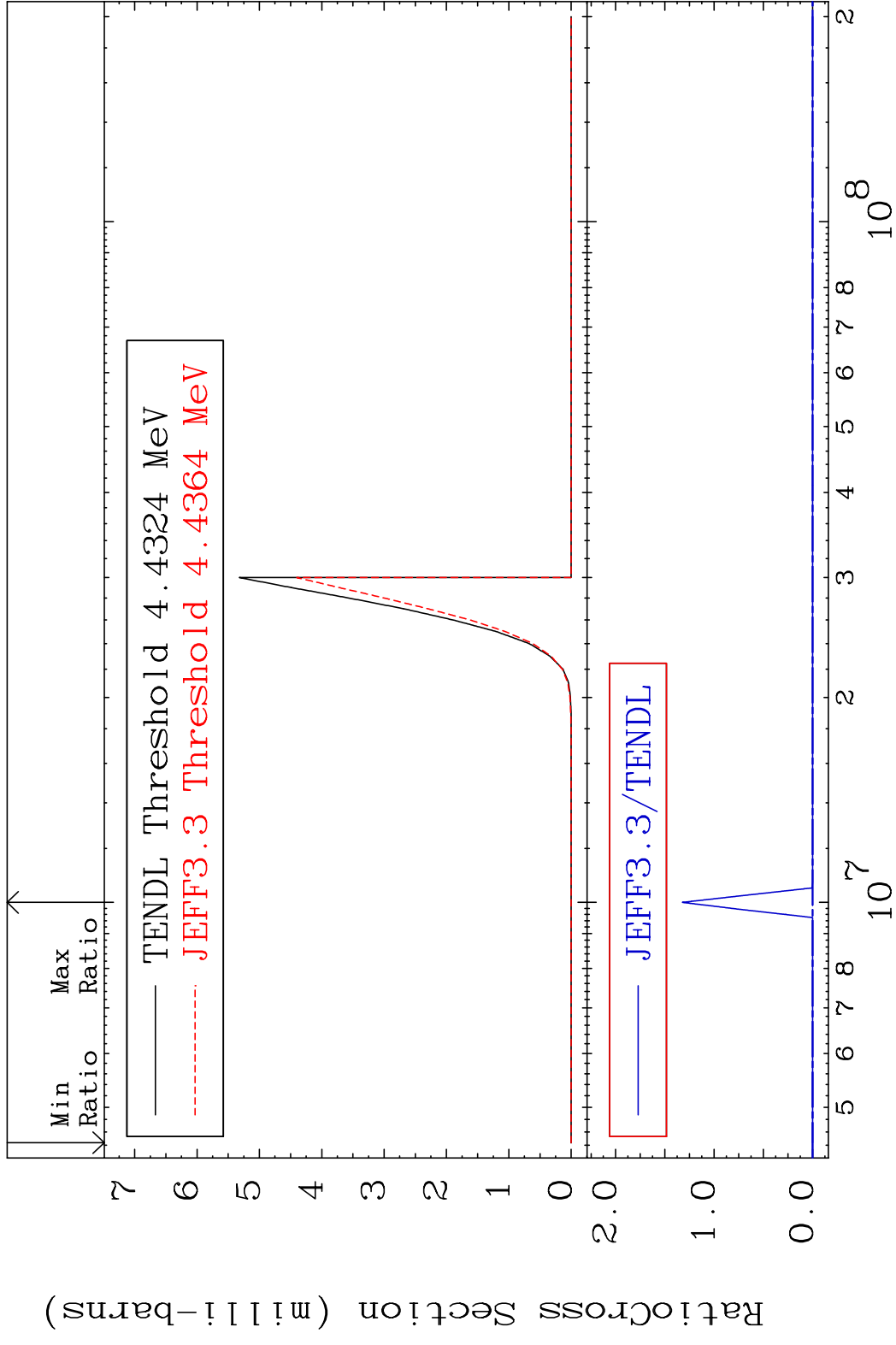


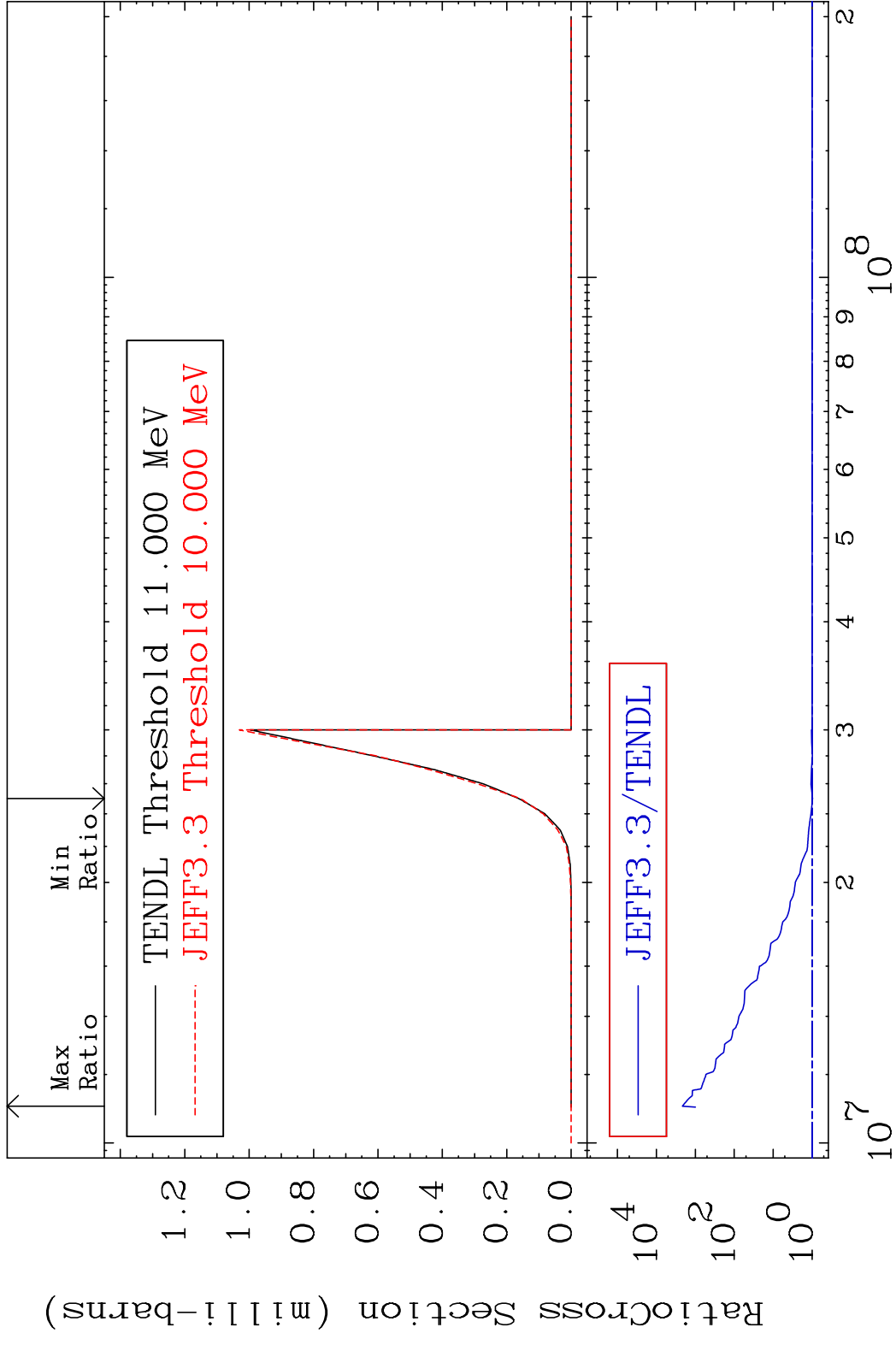
MAT 7246 (n,3n):72-Hf-179g 72-Hf-181  
 Radionuclide Production Cross Section Ratio 209.7 %



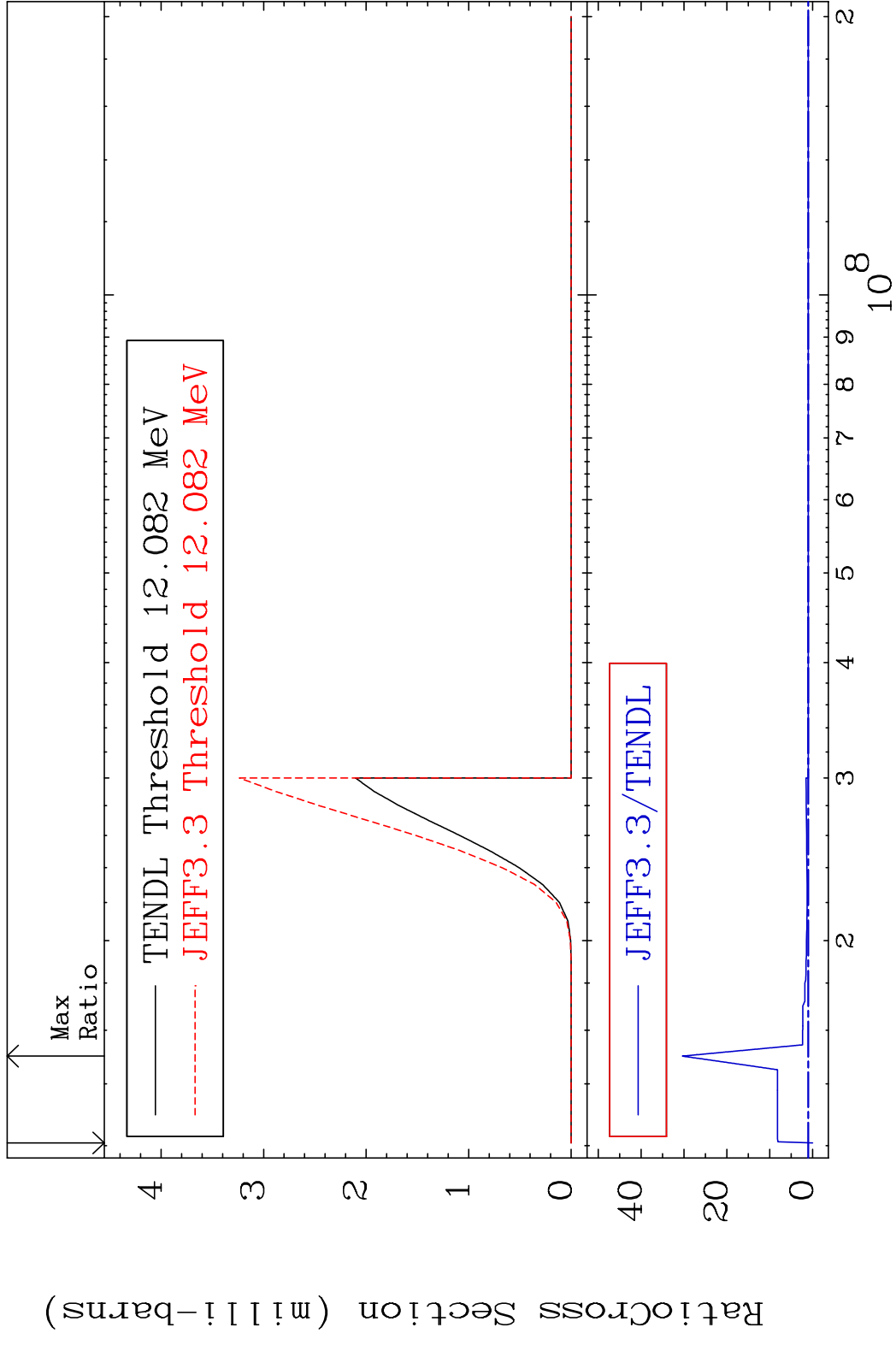
MAT 7246 (n, 3n): 72-Hf-179m5 72-Hf-181  
 Radionuclide Production Cross Section 180.0 mb 191.8 %

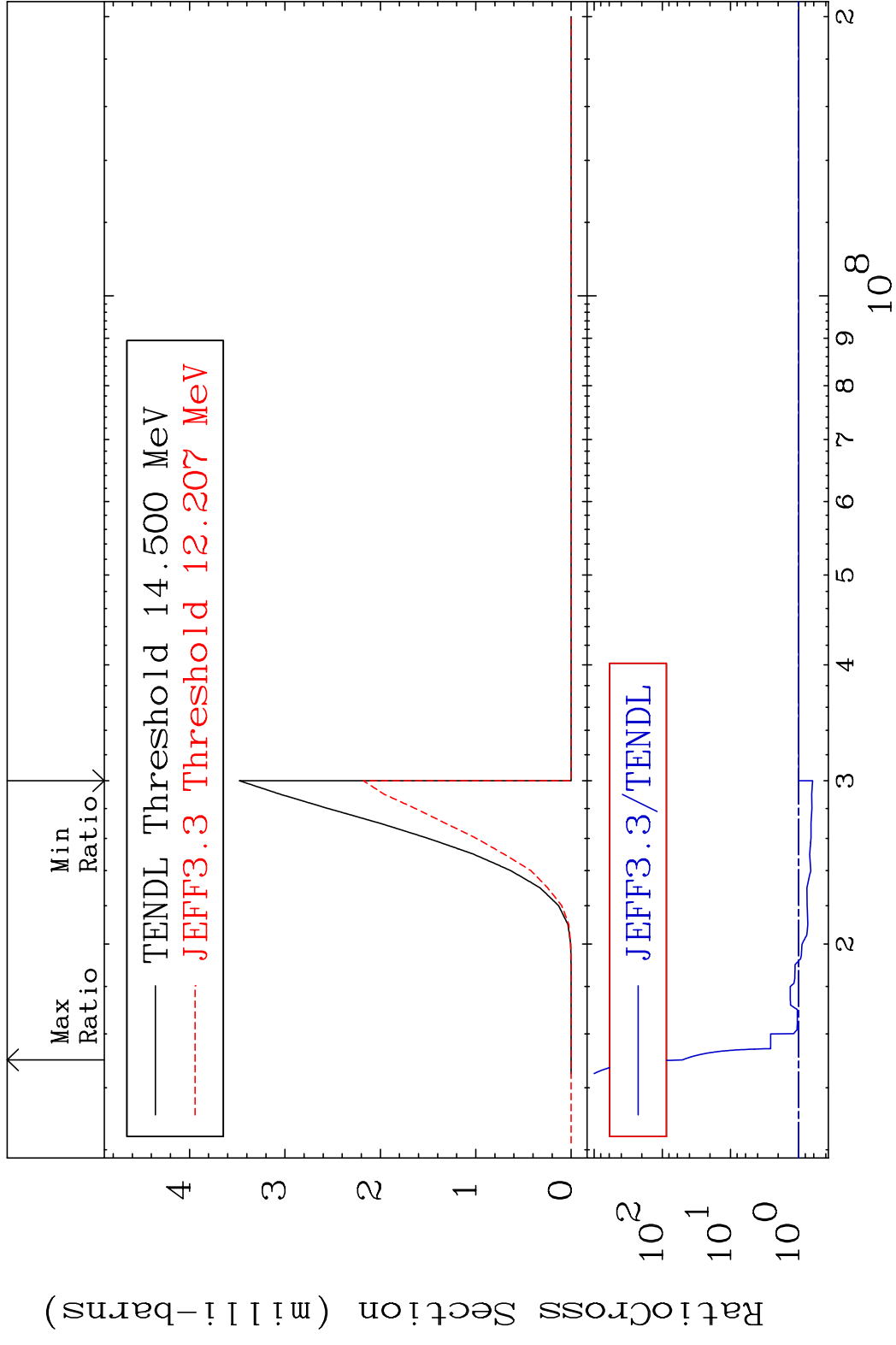




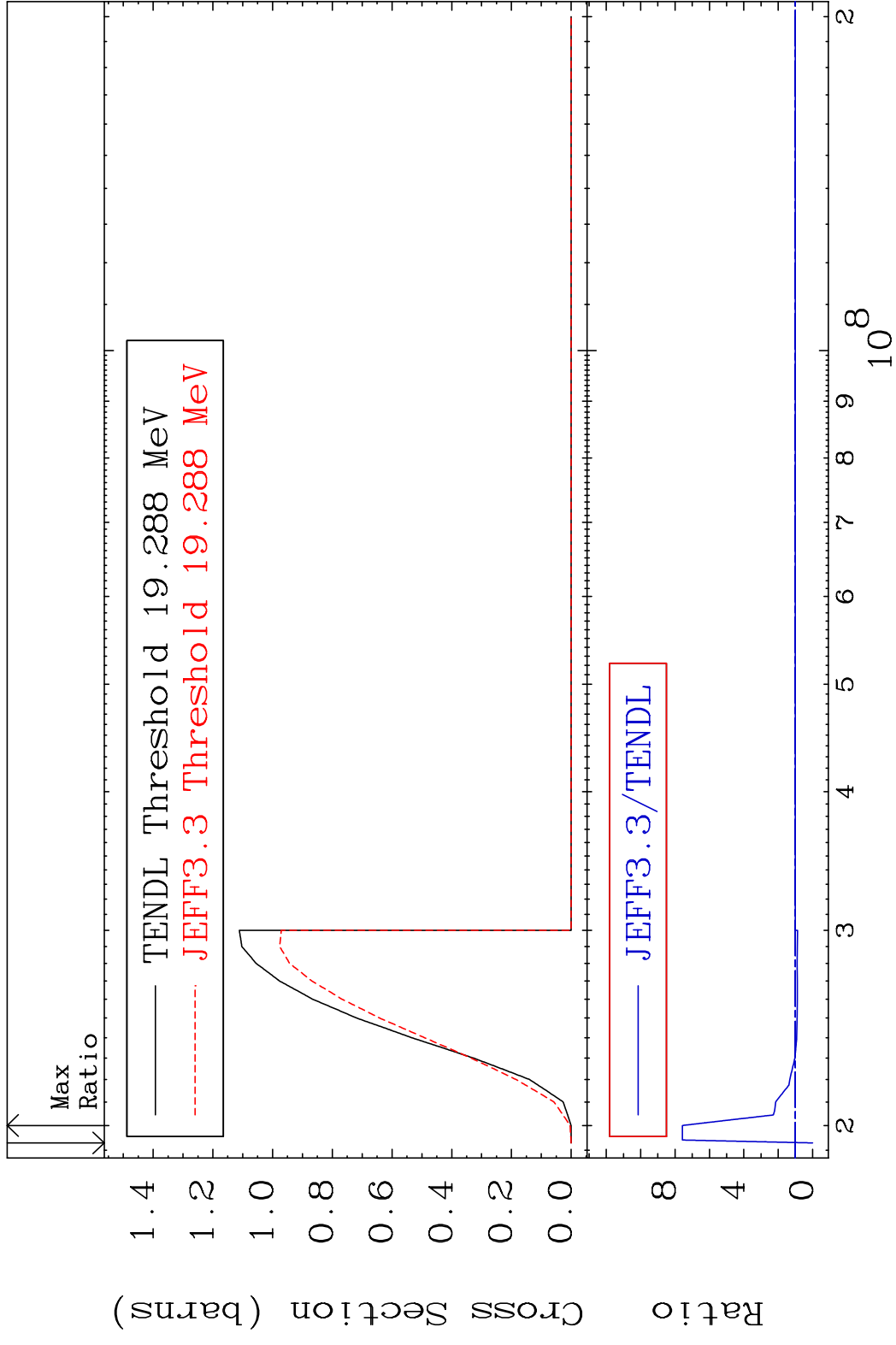


MAT 7246 (n, n') t:71-Lu-178g 72-Hf-181  
 Radionuclide Production Cross Section 180.01 dth 2936. %





MAT 7246 (n,4n):72-Hf-178g 72-Hf-181  
 Radionuclide Production Cross Section 180.01 dth 657.5 %



MAT 7246 (n, 4n): 72-Hf-181 72-Hf-181  
 Radionuclide Production Cross Section 180.01 dth 874.5 %

