

$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$  **2007Ti07**

| Type            | Author                               | History | Citation          | Literature Cutoff Date |
|-----------------|--------------------------------------|---------|-------------------|------------------------|
| Full Evaluation | S. Lalkovski, J. Timar and Z. Elekes |         | NDS 161, 1 (2019) | 1-Apr-2019             |

Facility: Stony Brook's Tandem injected LINAC; Beam:  $E(^{10}\text{B})=58$  MeV and 64 MeV; Target: 1.3 mg/cm<sup>2</sup> thick, enriched in  $^{100}\text{Mo}$  and placed on 20 mg/cm<sup>2</sup> natPb foil; Detectors: 6 HPGe detectors, and one multiplicity filter comprising 14 BGO crystals; Measured:  $\gamma$ - $\gamma$  coinc.,  $E\gamma$ ,  $I\gamma$ ,  $\gamma$ - $\gamma(\theta)$ ; Deduced:  $^{105}\text{Ag}$  level scheme,  $J^\pi$ , band structures.

 $^{105}\text{Ag}$  Levels

| E(level) <sup>†</sup>       | $J^\pi$ <sup>‡</sup>          | $T_{1/2}$ <sup>#</sup> | E(level) <sup>†</sup>     | $J^\pi$ <sup>‡</sup> | E(level) <sup>†</sup>  | $J^\pi$ <sup>‡</sup> |
|-----------------------------|-------------------------------|------------------------|---------------------------|----------------------|------------------------|----------------------|
| 0                           | 1/2 <sup>-</sup> <sup>#</sup> |                        | 2943.7 <sup>i</sup> 6     | 19/2 <sup>-</sup>    | 4839.7 <sup>d</sup> 4  | 29/2 <sup>+</sup>    |
| 25.48 <sup>&amp;</sup>      | 7/2 <sup>+</sup> <sup>#</sup> | 7.23 min 16            | 3101.6 <sup>j</sup> 4     | (21/2 <sup>-</sup> ) | 4931.9 <sup>c</sup> 5  | 31/2 <sup>-</sup>    |
| 53.150 <sup>@</sup> 8       | 9/2 <sup>+</sup> <sup>#</sup> | 2.33 ns 8              | 3124.86 <sup>@</sup> 16   | 21/2 <sup>+</sup>    | 5226.0 <sup>e</sup> 4  | 31/2 <sup>+</sup>    |
| 668.58 <sup>&amp;</sup> 8   | 11/2 <sup>+</sup>             |                        | 3176.2 <sup>c</sup> 3     | 23/2 <sup>-</sup>    | 5227.0 <sup>k</sup> 9  | (31/2 <sup>-</sup> ) |
| 917.22 <sup>@</sup> 8       | 13/2 <sup>+</sup>             |                        | 3177.0 <sup>h</sup> 6     | 21/2 <sup>-</sup>    | 5334.5 <sup>i</sup> 10 | (31/2 <sup>-</sup> ) |
| 1681.00 <sup>&amp;</sup> 10 | 15/2 <sup>+</sup>             |                        | 3351.2 4                  | 21/2 <sup>+</sup>    | 5445.2 <sup>b</sup> 5  | 33/2 <sup>-</sup>    |
| 1733.61 <sup>a</sup> 12     | 15/2 <sup>+</sup>             |                        | 3408.5 <sup>k</sup> 6     | (23/2 <sup>-</sup> ) | 5531.4 <sup>g</sup> 8  | (31/2 <sup>-</sup> ) |
| 1977.74 <sup>@</sup> 13     | 17/2 <sup>+</sup>             |                        | 3481.5 <sup>i</sup> 6     | (23/2 <sup>-</sup> ) | 5699.6 <sup>d</sup> 5  | 33/2 <sup>+</sup>    |
| 2022.42 <sup>a</sup> 13     | 17/2 <sup>+</sup>             |                        | 3510.7 <sup>b</sup> 3     | 25/2 <sup>-</sup>    | 5855.5 <sup>f</sup> 8  | (33/2 <sup>-</sup> ) |
| 2298.63 15                  | 17/2 <sup>-</sup>             |                        | 3785.8 <sup>j</sup> 7     | (25/2 <sup>-</sup> ) | 6113.7 <sup>c</sup> 7  | 35/2 <sup>-</sup>    |
| 2312.71 <sup>a</sup> 15     | 19/2 <sup>+</sup>             |                        | 3867.1 <sup>h</sup> 7     | (25/2 <sup>-</sup> ) | 6161.6 <sup>e</sup> 5  | 35/2 <sup>+</sup>    |
| 2470.13 <sup>c</sup> 13     | 15/2 <sup>-</sup>             |                        | 3898.9 <sup>&amp;</sup> 4 | 23/2 <sup>+</sup>    | 6220.5 <sup>g</sup> 7  | (35/2 <sup>-</sup> ) |
| 2497.33 13                  | 15/2 <sup>-</sup>             |                        | 3909.3 <sup>e</sup> 4     | 23/2 <sup>+</sup>    | 6608.9 <sup>f</sup> 8  | (37/2 <sup>-</sup> ) |
| 2595.79 <sup>b</sup> 24     | 17/2 <sup>-</sup>             |                        | 3927.9 <sup>c</sup> 3     | 27/2 <sup>-</sup>    | 6691.2 <sup>d</sup> 7  | 37/2 <sup>+</sup>    |
| 2621.9 <sup>i</sup> 4       | (15/2 <sup>-</sup> )          |                        | 4158.5 <sup>d</sup> 3     | 25/2 <sup>+</sup>    | 6717.3 <sup>b</sup> 9  | 37/2 <sup>-</sup>    |
| 2751.28 <sup>c</sup> 25     | 19/2 <sup>-</sup>             |                        | 4249.7 <sup>k</sup> 7     | (27/2 <sup>-</sup> ) | 7050.9 <sup>g</sup> 10 | (39/2 <sup>-</sup> ) |
| 2761.3 <sup>a</sup> 5       | 21/2 <sup>+</sup>             |                        | 4313.6 <sup>i</sup> 7     | (27/2 <sup>-</sup> ) | 7219.3 <sup>e</sup> 8  | 39/2 <sup>+</sup>    |
| 2774.8 <sup>h</sup> 4       | 17/2 <sup>-</sup>             |                        | 4361.8 <sup>b</sup> 4     | 29/2 <sup>-</sup>    | 7566.5 <sup>f</sup> 11 | (41/2 <sup>-</sup> ) |
| 2839.2 <sup>&amp;</sup> 3   | 19/2 <sup>+</sup>             |                        | 4461.5 <sup>e</sup> 4     | 27/2 <sup>+</sup>    | 7805.5 <sup>d</sup> 10 | 41/2 <sup>+</sup>    |
| 2907.9 <sup>k</sup> 4       | (19/2 <sup>-</sup> )          |                        | 4718.3 <sup>j</sup> 8     | (29/2 <sup>-</sup> ) |                        |                      |
| 2936.0 <sup>b</sup> 3       | 21/2 <sup>-</sup>             |                        | 4796.6 <sup>h</sup> 8     | (29/2 <sup>-</sup> ) |                        |                      |

<sup>†</sup> From a least-squares fit to  $E\gamma$ .

<sup>‡</sup> From **2007Ti07**, unless otherwise noted.

<sup>#</sup> From the Adopted Levels.

<sup>@</sup> Band(A):  $\Delta J=2$  band, based on  $J^\pi=9/2^+$  state;  $\pi g_{9/2}$ ,  $\alpha=+1/2$ .

<sup>&</sup> Band(a):  $\Delta J=2$  band, based on  $J^\pi=7/2^+$  state;  $\pi g_{9/2}$ ,  $\alpha=-1/2$ .

<sup>a</sup> Band(B):  $\Delta J=1$  band, based on  $J^\pi=15/2^+$  state.

<sup>b</sup> Band(C):  $\Delta J=2$  band, based on  $J^\pi=17/2^-$  state; configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=+1/2$ .

<sup>c</sup> Band(c):  $\Delta J=2$  band, based on  $J^\pi=15/2^-$  state; configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=-1/2$ .

<sup>d</sup> Band(D):  $\Delta I=2$  band, based on  $J^\pi=25/2^+$  state; configuration:  $\pi g_{9/2} \nu(h_{11/2})^2$ ,  $\alpha=+1/2$ .

<sup>e</sup> Band(d):  $\Delta I=2$  band, based on  $J^\pi=23/2^+$  state; configuration:  $\pi g_{9/2} \nu(h_{11/2})^2$ ,  $\alpha=-1/2$ .

<sup>f</sup> Band(E):  $\Delta J=2$  band, based on  $J^\pi=(33/2^-)$  state.

<sup>g</sup> Band(e):  $\Delta J=2$  band, based on  $J^\pi=(31/2^-)$  state.

<sup>h</sup> Band(F):  $\Delta J=2$  band, based on  $J^\pi=17/2^-$  state; configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=+1/2$ .

<sup>i</sup> Band(f):  $\Delta J=2$  band, based on  $J^\pi=(15/2^-)$  state configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=-1/2$ .

<sup>j</sup> Band(G):  $\Delta J=2$  band, based on  $J^\pi=(21/2^-)$  state; configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=+1/2$ .

<sup>k</sup> Band(g):  $\Delta J=2$  band, based on  $J^\pi=17/2^-$  state; configuration:  $\pi g_{9/2} \otimes \nu[h_{11/2}(g_{7/2}, d_{5/2})]$ ,  $\alpha=-1/2$ .

$^{100}\text{Mo}(^{10}\text{B},5n\gamma)$  **2007Ti07** (continued)

| $\gamma(^{105}\text{Ag})$ |              |                     |                      |         |                      |        |                                                               |
|---------------------------|--------------|---------------------|----------------------|---------|----------------------|--------|---------------------------------------------------------------|
| $E_\gamma$ †              | $I_\gamma$ † | $E_i(\text{level})$ | $J_i^\pi$            | $E_f$   | $J_f^\pi$            | Mult.‡ | Comments                                                      |
| 25.48 2                   |              | 25.48               | 7/2 <sup>+</sup>     | 0       | 1/2 <sup>-</sup>     |        | $E_\gamma$ : from the adopted gammas.                         |
| 27.67 1                   |              | 53.150              | 9/2 <sup>+</sup>     | 25.48   | 7/2 <sup>+</sup>     |        | $E_\gamma$ : from the adopted gammas.                         |
| 98.7 5                    | 6.9 7        | 2595.79             | 17/2 <sup>-</sup>    | 2497.33 | 15/2 <sup>-</sup>    |        |                                                               |
| 125.8 5                   | 8.3 8        | 2595.79             | 17/2 <sup>-</sup>    | 2470.13 | 15/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.49$ 6 in <a href="#">2007Ti07</a> .  |
| 152.9 5                   | 2.4 2        | 2774.8              | 17/2 <sup>-</sup>    | 2621.9  | (15/2 <sup>-</sup> ) | M1     | Mult.: $R_{\text{DCO}}=0.95$ 14 in <a href="#">2007Ti07</a> . |
| 155.5 1                   | 41.6 21      | 2751.28             | 19/2 <sup>-</sup>    | 2595.79 | 17/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.56$ 6 in <a href="#">2007Ti07</a> .  |
| 168.9 5                   | 9.9 10       | 2943.7              | 19/2 <sup>-</sup>    | 2774.8  | 17/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.63$ 6 in <a href="#">2007Ti07</a> .  |
| 184.7 1                   | 40.3 20      | 2936.0              | 21/2 <sup>-</sup>    | 2751.28 | 19/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.62$ 7 in <a href="#">2007Ti07</a> .  |
| 193.8 5                   | 5.4 5        | 3101.6              | (21/2 <sup>-</sup> ) | 2907.9  | (19/2 <sup>-</sup> ) | D      | Mult.: $R_{\text{DCO}}=0.94$ 19 in <a href="#">2007Ti07</a> . |
| 233.3 5                   | 9.7 10       | 3177.0              | 21/2 <sup>-</sup>    | 2943.7  | 19/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.52$ 6 in <a href="#">2007Ti07</a> .  |
| 240.2 1                   | 38.2 19      | 3176.2              | 23/2 <sup>-</sup>    | 2936.0  | 21/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.52$ 5 in <a href="#">2007Ti07</a> .  |
| 248.6 1                   | 29.2 15      | 917.22              | 13/2 <sup>+</sup>    | 668.58  | 11/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.71$ 8 in <a href="#">2007Ti07</a> .  |
| 249.0 5                   | 8.1 8        | 4158.5              | 25/2 <sup>+</sup>    | 3909.3  | 23/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.49$ 6 in <a href="#">2007Ti07</a> .  |
| 259.6 5                   | 5.9 6        | 4158.5              | 25/2 <sup>+</sup>    | 3898.9  | 23/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.47$ 6 in <a href="#">2007Ti07</a> .  |
| 285.7 10                  | 0.8 4        | 3124.86             | 21/2 <sup>+</sup>    | 2839.2  | 19/2 <sup>+</sup>    |        |                                                               |
| 290.4 5                   | 4.2 4        | 2312.71             | 19/2 <sup>+</sup>    | 2022.42 | 17/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.31$ 7 in <a href="#">2007Ti07</a> .  |
| 296.8 5                   | 4.2 4        | 1977.74             | 17/2 <sup>+</sup>    | 1681.00 | 15/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.72$ 12 in <a href="#">2007Ti07</a> . |
| 297.0 5                   | 8.3 8        | 2595.79             | 17/2 <sup>-</sup>    | 2298.63 | 17/2 <sup>-</sup>    |        |                                                               |
| 303.0 1                   | 17.6 9       | 4461.5              | 27/2 <sup>+</sup>    | 4158.5  | 25/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.49$ 6 in <a href="#">2007Ti07</a> .  |
| 304.1 10                  | 1.4 7        | 3785.8              | (25/2 <sup>-</sup> ) | 3481.5  | (23/2 <sup>-</sup> ) |        |                                                               |
| 304.5 5                   | 9.6 10       | 3481.5              | (23/2 <sup>-</sup> ) | 3177.0  | 21/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=1.02$ 8 in <a href="#">2007Ti07</a> .  |
| 304.7 10                  | 1.4 7        | 2774.8              | 17/2 <sup>-</sup>    | 2470.13 | 15/2 <sup>-</sup>    |        |                                                               |
| 306.9 5                   | 7.9 8        | 3408.5              | (23/2 <sup>-</sup> ) | 3101.6  | (21/2 <sup>-</sup> ) | M1+E2  | Mult.: $R_{\text{DCO}}=0.75$ 9 in <a href="#">2007Ti07</a> .  |
| 324.2 10                  | 0.1 1        | 5855.5              | (33/2 <sup>-</sup> ) | 5531.4  | (31/2 <sup>-</sup> ) |        |                                                               |
| 334.5 1                   | 32.6 16      | 3510.7              | 25/2 <sup>-</sup>    | 3176.2  | 23/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.57$ 6 in <a href="#">2007Ti07</a> .  |
| 334.8 10                  | 0.7 4        | 2312.71             | 19/2 <sup>+</sup>    | 1977.74 | 17/2 <sup>+</sup>    |        |                                                               |
| 341.4 5                   | 3.5 4        | 2022.42             | 17/2 <sup>+</sup>    | 1681.00 | 15/2 <sup>+</sup>    |        |                                                               |
| 350.3 5                   | 5.1 5        | 3101.6              | (21/2 <sup>-</sup> ) | 2751.28 | 19/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.54$ 9 in <a href="#">2007Ti07</a> .  |
| 365.0 10                  | 0.6 3        | 6220.5              | (35/2 <sup>-</sup> ) | 5855.5  | (33/2 <sup>-</sup> ) |        |                                                               |
| 377.3 5                   | 5.4 5        | 3785.8              | (25/2 <sup>-</sup> ) | 3408.5  | (23/2 <sup>-</sup> ) | M1+E2  | Mult.: $R_{\text{DCO}}=0.87$ 17 in <a href="#">2007Ti07</a> . |
| 378.2 1                   | 16.7 8       | 4839.7              | 29/2 <sup>+</sup>    | 4461.5  | 27/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.52$ 6 in <a href="#">2007Ti07</a> .  |
| 379.9 5                   | 2.5 3        | 3481.5              | (23/2 <sup>-</sup> ) | 3101.6  | (21/2 <sup>-</sup> ) |        |                                                               |
| 385.5 5                   | 5.0 5        | 3867.1              | (25/2 <sup>-</sup> ) | 3481.5  | (23/2 <sup>-</sup> ) | M1+E2  | Mult.: $R_{\text{DCO}}=0.81$ 17 in <a href="#">2007Ti07</a> . |
| 386.3 1                   | 16.0 8       | 5226.0              | 31/2 <sup>+</sup>    | 4839.7  | 29/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.50$ 6 in <a href="#">2007Ti07</a> .  |
| 388.3 10                  | 1.4 7        | 6608.9              | (37/2 <sup>-</sup> ) | 6220.5  | (35/2 <sup>-</sup> ) |        |                                                               |
| 404.7 10                  | 0.8 4        | 4718.3              | (29/2 <sup>-</sup> ) | 4313.6  | (27/2 <sup>-</sup> ) |        |                                                               |
| 417.2 1                   | 22.2 11      | 3927.9              | 27/2 <sup>-</sup>    | 3510.7  | 25/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.60$ 5 in <a href="#">2007Ti07</a> .  |
| 424.8 10                  | 1.5 8        | 3176.2              | 23/2 <sup>-</sup>    | 2751.28 | 19/2 <sup>-</sup>    |        |                                                               |
| 430.5 10                  | 1.0 5        | 5227.0              | (31/2 <sup>-</sup> ) | 4796.6  | (29/2 <sup>-</sup> ) |        |                                                               |
| 433.9 1                   | 18.3 9       | 4361.8              | 29/2 <sup>-</sup>    | 3927.9  | 27/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.52$ 9 in <a href="#">2007Ti07</a> .  |
| 441.6 10                  | 1.1 6        | 7050.9              | (39/2 <sup>-</sup> ) | 6608.9  | (37/2 <sup>-</sup> ) |        |                                                               |
| 446.6 5                   | 4.3 4        | 4313.6              | (27/2 <sup>-</sup> ) | 3867.1  | (25/2 <sup>-</sup> ) | M1+E2  | Mult.: $R_{\text{DCO}}=1.1$ in <a href="#">2007Ti07</a> .     |
| 448.6 5                   | 9.7 10       | 2761.3              | 21/2 <sup>+</sup>    | 2312.71 | 19/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.67$ 17 in <a href="#">2007Ti07</a> . |
| 452.3 10                  | 1.4 7        | 2751.28             | 19/2 <sup>-</sup>    | 2298.63 | 17/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=1.04$ 25 in <a href="#">2007Ti07</a> . |
| 462.0 5                   | 7.6 8        | 6161.6              | 35/2 <sup>+</sup>    | 5699.6  | 33/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.48$ 5 in <a href="#">2007Ti07</a> .  |
| 464.0 5                   | 4.2 4        | 4249.7              | (27/2 <sup>-</sup> ) | 3785.8  | (25/2 <sup>-</sup> ) | M1+E2  | Mult.: $R_{\text{DCO}}=0.9$ 3 in <a href="#">2007Ti07</a> .   |
| 468.6 5                   | 2.9 3        | 4718.3              | (29/2 <sup>-</sup> ) | 4249.7  | (27/2 <sup>-</sup> ) |        |                                                               |
| 473.5 5                   | 9.7 10       | 5699.6              | 33/2 <sup>+</sup>    | 5226.0  | 31/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.47$ 8 in <a href="#">2007Ti07</a> .  |
| 483.0 5                   | 2.4 2        | 4796.6              | (29/2 <sup>-</sup> ) | 4313.6  | (27/2 <sup>-</sup> ) |        |                                                               |
| 508.5 10                  | 1.5 8        | 5227.0              | (31/2 <sup>-</sup> ) | 4718.3  | (29/2 <sup>-</sup> ) |        |                                                               |
| 513.3 5                   | 6.4 6        | 5445.2              | 33/2 <sup>-</sup>    | 4931.9  | 31/2 <sup>-</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.52$ 9 in <a href="#">2007Ti07</a> .  |
| 515.2 10                  | 0.7 4        | 7566.5              | (41/2 <sup>-</sup> ) | 7050.9  | (39/2 <sup>-</sup> ) |        |                                                               |
| 528.2 5                   | 4.9 5        | 7219.3              | 39/2 <sup>+</sup>    | 6691.2  | 37/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.46$ 9 in <a href="#">2007Ti07</a> .  |
| 529.6 5                   | 6.9 7        | 6691.2              | 37/2 <sup>+</sup>    | 6161.6  | 35/2 <sup>+</sup>    | M1+E2  | Mult.: $R_{\text{DCO}}=0.46$ 9 in <a href="#">2007Ti07</a> .  |
| 538.0 10                  | 0.7 4        | 5334.5              | (31/2 <sup>-</sup> ) | 4796.6  | (29/2 <sup>-</sup> ) |        |                                                               |

Continued on next page (footnotes at end of table)

$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$  **2007Ti07** (continued) $\gamma(^{105}\text{Ag})$  (continued)

| $E_\gamma$ <sup>†</sup> | $I_\gamma$ <sup>†</sup> | $E_i(\text{level})$ | $J_i^\pi$            | $E_f$   | $J_f^\pi$            | Mult. <sup>‡</sup> | Comments                                                      |
|-------------------------|-------------------------|---------------------|----------------------|---------|----------------------|--------------------|---------------------------------------------------------------|
| 547.7 10                | 0.6 3                   | 3898.9              | 23/2 <sup>+</sup>    | 3351.2  | 21/2 <sup>+</sup>    |                    |                                                               |
| 552.4 10                | 1.4 7                   | 4461.5              | 27/2 <sup>+</sup>    | 3909.3  | 23/2 <sup>+</sup>    |                    |                                                               |
| 558.0 10                | 0.8 4                   | 3909.3              | 23/2 <sup>+</sup>    | 3351.2  | 21/2 <sup>+</sup>    |                    |                                                               |
| 565.0 1                 | 12.5 6                  | 2298.63             | 17/2 <sup>-</sup>    | 1733.61 | 15/2 <sup>+</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.56$ 8 in <a href="#">2007Ti07</a> .  |
| 570.1 5                 | 9.4 9                   | 4931.9              | 31/2 <sup>-</sup>    | 4361.8  | 29/2 <sup>-</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.60$ 8 in <a href="#">2007Ti07</a> .  |
| 574.7 5                 | 2.4 2                   | 3510.7              | 25/2 <sup>-</sup>    | 2936.0  | 21/2 <sup>-</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.1$ 3 in <a href="#">2007Ti07</a> .   |
| 579.1 1                 | 11.8 6                  | 2312.71             | 19/2 <sup>+</sup>    | 1733.61 | 15/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.06$ 23 in <a href="#">2007Ti07</a> . |
| 586.2 10                | 1.7 9                   | 7805.5              | 41/2 <sup>+</sup>    | 7219.3  | 39/2 <sup>+</sup>    |                    |                                                               |
| 603.5 10                | 1.7 9                   | 6717.3              | 37/2 <sup>-</sup>    | 6113.7  | 35/2 <sup>-</sup>    |                    |                                                               |
| 609.1 5                 | 2.2 2                   | 2907.9              | (19/2 <sup>-</sup> ) | 2298.63 | 17/2 <sup>-</sup>    | D                  | Mult.: $R_{\text{DCO}}=1.01$ 15 in <a href="#">2007Ti07</a> . |
| 615.3 1                 | 60 3                    | 668.58              | 11/2 <sup>+</sup>    | 53.150  | 9/2 <sup>+</sup>     | M1+E2              | Mult.: $R_{\text{DCO}}=0.74$ 11 in <a href="#">2007Ti07</a> . |
| 668.4 5                 | 2.9 3                   | 6113.7              | 35/2 <sup>-</sup>    | 5445.2  | 33/2 <sup>-</sup>    |                    |                                                               |
| 681.3 5                 | 2.5 3                   | 4839.7              | 29/2 <sup>+</sup>    | 4158.5  | 25/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=0.93$ 16 in <a href="#">2007Ti07</a> . |
| 689.0 10                | 0.1 1                   | 6220.5              | (35/2 <sup>-</sup> ) | 5531.4  | (31/2 <sup>-</sup> ) |                    |                                                               |
| 690.1 10                | 0.6 3                   | 3867.1              | (25/2 <sup>-</sup> ) | 3177.0  | 21/2 <sup>-</sup>    |                    |                                                               |
| 739.1 10                | 1.3 7                   | 2761.3              | 21/2 <sup>+</sup>    | 2022.42 | 17/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.1$ 3 in <a href="#">2007Ti07</a> .   |
| 752.0 5                 | 3.2 3                   | 3927.9              | 27/2 <sup>-</sup>    | 3176.2  | 23/2 <sup>-</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.7$ 3 in <a href="#">2007Ti07</a> .   |
| 753.6 10                | 0.2 1                   | 6608.9              | (37/2 <sup>-</sup> ) | 5855.5  | (33/2 <sup>-</sup> ) |                    |                                                               |
| 763.8 1                 | 26.4 13                 | 1681.00             | 15/2 <sup>+</sup>    | 917.22  | 13/2 <sup>+</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.70$ 8 in <a href="#">2007Ti07</a> .  |
| 764.0 5                 | 2.5 3                   | 5226.0              | 31/2 <sup>+</sup>    | 4461.5  | 27/2 <sup>+</sup>    |                    |                                                               |
| 773.9 5                 | 2.8 3                   | 3898.9              | 23/2 <sup>+</sup>    | 3124.86 | 21/2 <sup>+</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.56$ 15 in <a href="#">2007Ti07</a> . |
| 784.3 5                 | 4.4 4                   | 3909.3              | 23/2 <sup>+</sup>    | 3124.86 | 21/2 <sup>+</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.54$ 9 in <a href="#">2007Ti07</a> .  |
| 796.9 10                | 1.9 10                  | 2774.8              | 17/2 <sup>-</sup>    | 1977.74 | 17/2 <sup>+</sup>    |                    |                                                               |
| 807.2 10                | 0.8 4                   | 4158.5              | 25/2 <sup>+</sup>    | 3351.2  | 21/2 <sup>+</sup>    |                    |                                                               |
| 816.4 5                 | 8.7 9                   | 1733.61             | 15/2 <sup>+</sup>    | 917.22  | 13/2 <sup>+</sup>    | M1+E2              | Mult.: $R_{\text{DCO}}=0.43$ 6 in <a href="#">2007Ti07</a> .  |
| 830.4 10                | 0.3 2                   | 7050.9              | (39/2 <sup>-</sup> ) | 6220.5  | (35/2 <sup>-</sup> ) |                    |                                                               |
| 832.2 10                | 1.2 6                   | 4313.6              | (27/2 <sup>-</sup> ) | 3481.5  | (23/2 <sup>-</sup> ) |                    |                                                               |
| 841.2 10                | 1.5 8                   | 4249.7              | (27/2 <sup>-</sup> ) | 3408.5  | (23/2 <sup>-</sup> ) |                    |                                                               |
| 851.3 5                 | 5.1 5                   | 4361.8              | 29/2 <sup>-</sup>    | 3510.7  | 25/2 <sup>-</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.02$ 19 in <a href="#">2007Ti07</a> . |
| 860.0 5                 | 2.8 3                   | 5699.6              | 33/2 <sup>+</sup>    | 4839.7  | 29/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.79$ 25 in <a href="#">2007Ti07</a> . |
| 861.5 5                 | 7.6 8                   | 2839.2              | 19/2 <sup>+</sup>    | 1977.74 | 17/2 <sup>+</sup>    |                    |                                                               |
| 864.1 1                 | 100 5                   | 917.22              | 13/2 <sup>+</sup>    | 53.150  | 9/2 <sup>+</sup>     | E2                 | Mult.: $R_{\text{DCO}}=1.08$ 10 in <a href="#">2007Ti07</a> . |
| 885.6 10                | 1.3 7                   | 2907.9              | (19/2 <sup>-</sup> ) | 2022.42 | 17/2 <sup>+</sup>    |                    |                                                               |
| 912.2 10                | 0.6 3                   | 4839.7              | 29/2 <sup>+</sup>    | 3927.9  | 27/2 <sup>-</sup>    |                    |                                                               |
| 914.9 5                 | 9.7 10                  | 2595.79             | 17/2 <sup>-</sup>    | 1681.00 | 15/2 <sup>+</sup>    | E1                 | Mult.: $R_{\text{DCO}}=0.54$ 8 in <a href="#">2007Ti07</a> .  |
| 929.3 10                | 0.8 4                   | 4796.6              | (29/2 <sup>-</sup> ) | 3867.1  | (25/2 <sup>-</sup> ) |                    |                                                               |
| 930.3 5                 | 2.3 2                   | 2907.9              | (19/2 <sup>-</sup> ) | 1977.74 | 17/2 <sup>+</sup>    |                    |                                                               |
| 932.3 10                | 0.9 5                   | 4718.3              | (29/2 <sup>-</sup> ) | 3785.8  | (25/2 <sup>-</sup> ) |                    |                                                               |
| 935.6 5                 | 2.9 3                   | 6161.6              | 35/2 <sup>+</sup>    | 5226.0  | 31/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=0.94$ 17 in <a href="#">2007Ti07</a> . |
| 940.9 5                 | 2.9 3                   | 2621.9              | (15/2 <sup>-</sup> ) | 1681.00 | 15/2 <sup>+</sup>    |                    |                                                               |
| 951.3 10                | 0.6 3                   | 4461.5              | 27/2 <sup>+</sup>    | 3510.7  | 25/2 <sup>-</sup>    |                    |                                                               |
| 958.0 10                | 0.4 2                   | 7566.5              | (41/2 <sup>-</sup> ) | 6608.9  | (37/2 <sup>-</sup> ) |                    |                                                               |
| 977.5 10                | 1.1 6                   | 5227.0              | (31/2 <sup>-</sup> ) | 4249.7  | (27/2 <sup>-</sup> ) |                    |                                                               |
| 982.5 10                | 1.2 6                   | 4158.5              | 25/2 <sup>+</sup>    | 3176.2  | 23/2 <sup>-</sup>    | E1                 | Mult.: $R_{\text{DCO}}=0.97$ 17 in <a href="#">2007Ti07</a> . |
| 991.7 10                | 1.7 9                   | 6691.2              | 37/2 <sup>+</sup>    | 5699.6  | 33/2 <sup>+</sup>    |                    |                                                               |
| 1004.0 5                | 2.2 2                   | 4931.9              | 31/2 <sup>-</sup>    | 3927.9  | 27/2 <sup>-</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.7$ 3 in <a href="#">2007Ti07</a> .   |
| 1012.4 1                | 10.4 5                  | 1681.00             | 15/2 <sup>+</sup>    | 668.58  | 11/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=2.0$ 4 in <a href="#">2007Ti07</a> .   |
| 1020.8 10               | 0.4 2                   | 5334.5              | (31/2 <sup>-</sup> ) | 4313.6  | (27/2 <sup>-</sup> ) |                    |                                                               |
| 1033.5 5                | 3.9 4                   | 4158.5              | 25/2 <sup>+</sup>    | 3124.86 | 21/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.11$ 23 in <a href="#">2007Ti07</a> . |
| 1057.5 10               | 1.4 7                   | 7219.3              | 39/2 <sup>+</sup>    | 6161.6  | 35/2 <sup>+</sup>    |                    |                                                               |
| 1059.7 5                | 4.2 4                   | 3898.9              | 23/2 <sup>+</sup>    | 2839.2  | 19/2 <sup>+</sup>    |                    |                                                               |
| 1060.5 1                | 30.6 15                 | 1977.74             | 17/2 <sup>+</sup>    | 917.22  | 13/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.00$ 9 in <a href="#">2007Ti07</a> .  |
| 1065.0 1                | 20.1 10                 | 1733.61             | 15/2 <sup>+</sup>    | 668.58  | 11/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.75$ 19 in <a href="#">2007Ti07</a> . |
| 1070.0 5                | 2.8 3                   | 3909.3              | 23/2 <sup>+</sup>    | 2839.2  | 19/2 <sup>+</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.8$ 4 in <a href="#">2007Ti07</a> .   |
| 1083.4 5                | 3.5 4                   | 5445.2              | 33/2 <sup>-</sup>    | 4361.8  | 29/2 <sup>-</sup>    | E2                 | Mult.: $R_{\text{DCO}}=1.7$ 3 in <a href="#">2007Ti07</a> .   |
| 1093.7 5                | 4.3 4                   | 2774.8              | 17/2 <sup>-</sup>    | 1681.00 | 15/2 <sup>+</sup>    | D                  | Mult.: $R_{\text{DCO}}=0.57$ 17 in <a href="#">2007Ti07</a> . |

Continued on next page (footnotes at end of table)

$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$     [2007Ti07](#) (continued) $\gamma(^{105}\text{Ag})$  (continued)

| $E_\gamma$ <sup>†</sup> | $I_\gamma$ <sup>†</sup> | $E_i(\text{level})$ | $J_i^\pi$            | $E_f$   | $J_f^\pi$         | Mult. <sup>‡</sup> | Comments                                                      |
|-------------------------|-------------------------|---------------------|----------------------|---------|-------------------|--------------------|---------------------------------------------------------------|
| 1102.5 10               | 1.4 7                   | 3124.86             | 21/2 <sup>+</sup>    | 2022.42 | 17/2 <sup>+</sup> |                    |                                                               |
| 1105.2 1                | 13.9 7                  | 2022.42             | 17/2 <sup>+</sup>    | 917.22  | 13/2 <sup>+</sup> | E2                 | Mult.: $R_{\text{DCO}}=0.99$ 12 in <a href="#">2007Ti07</a> . |
| 1114.3 10               | 0.6 3                   | 7805.5              | 41/2 <sup>+</sup>    | 6691.2  | 37/2 <sup>+</sup> |                    |                                                               |
| 1137.6 10               | 1.3 7                   | 3898.9              | 23/2 <sup>+</sup>    | 2761.3  | 21/2 <sup>+</sup> |                    |                                                               |
| 1147.1 1                | 12.5 6                  | 3124.86             | 21/2 <sup>+</sup>    | 1977.74 | 17/2 <sup>+</sup> | E2                 | Mult.: $R_{\text{DCO}}=1.05$ 19 in <a href="#">2007Ti07</a> . |
| 1158.3 5                | 3.5 4                   | 2839.2              | 19/2 <sup>+</sup>    | 1681.00 | 15/2 <sup>+</sup> |                    |                                                               |
| 1163.5 10               | 0.9 5                   | 6608.9              | (37/2 <sup>-</sup> ) | 5445.2  | 33/2 <sup>-</sup> |                    |                                                               |
| 1182.0 10               | 1.1 6                   | 6113.7              | 35/2 <sup>-</sup>    | 4931.9  | 31/2 <sup>-</sup> |                    |                                                               |
| 1272.1 10               | 1.2 6                   | 6717.3              | 37/2 <sup>-</sup>    | 5445.2  | 33/2 <sup>-</sup> |                    |                                                               |
| 1288.8 10               | 1.2 6                   | 6220.5              | (35/2 <sup>-</sup> ) | 4931.9  | 31/2 <sup>-</sup> |                    |                                                               |
| 1373.5 5                | 2.6 3                   | 3351.2              | 21/2 <sup>+</sup>    | 1977.74 | 17/2 <sup>+</sup> |                    |                                                               |
| 1493.8 10               | 1.4 7                   | 5855.5              | (33/2 <sup>-</sup> ) | 4361.8  | 29/2 <sup>-</sup> |                    |                                                               |
| 1552.9 1                | 16.7 8                  | 2470.13             | 15/2 <sup>-</sup>    | 917.22  | 13/2 <sup>+</sup> | E1                 | Mult.: $R_{\text{DCO}}=0.48$ 7 in <a href="#">2007Ti07</a> .  |
| 1580.1 1                | 25.6 12                 | 2497.33             | 15/2 <sup>-</sup>    | 917.22  | 13/2 <sup>+</sup> | E1                 | Mult.: $R_{\text{DCO}}=0.49$ 6 in <a href="#">2007Ti07</a> .  |
| 1603.4 10               | 0.6 3                   | 5531.4              | (31/2 <sup>-</sup> ) | 3927.9  | 27/2 <sup>-</sup> |                    |                                                               |

<sup>†</sup> From [2007Ti07](#).<sup>‡</sup> From  $R_{\text{DCO}}$  in [2007Ti07](#), where  $R_{\text{DCO}} \approx 0.6$  and 1 for pure dipole and quadrupole transitions, respectively, when gated on a quadrupole transition.  $R_{\text{DCO}}=1$  and is  $\approx 1.5$  for dipole and quadrupole transitions, respectively, when gated on a dipole transition.

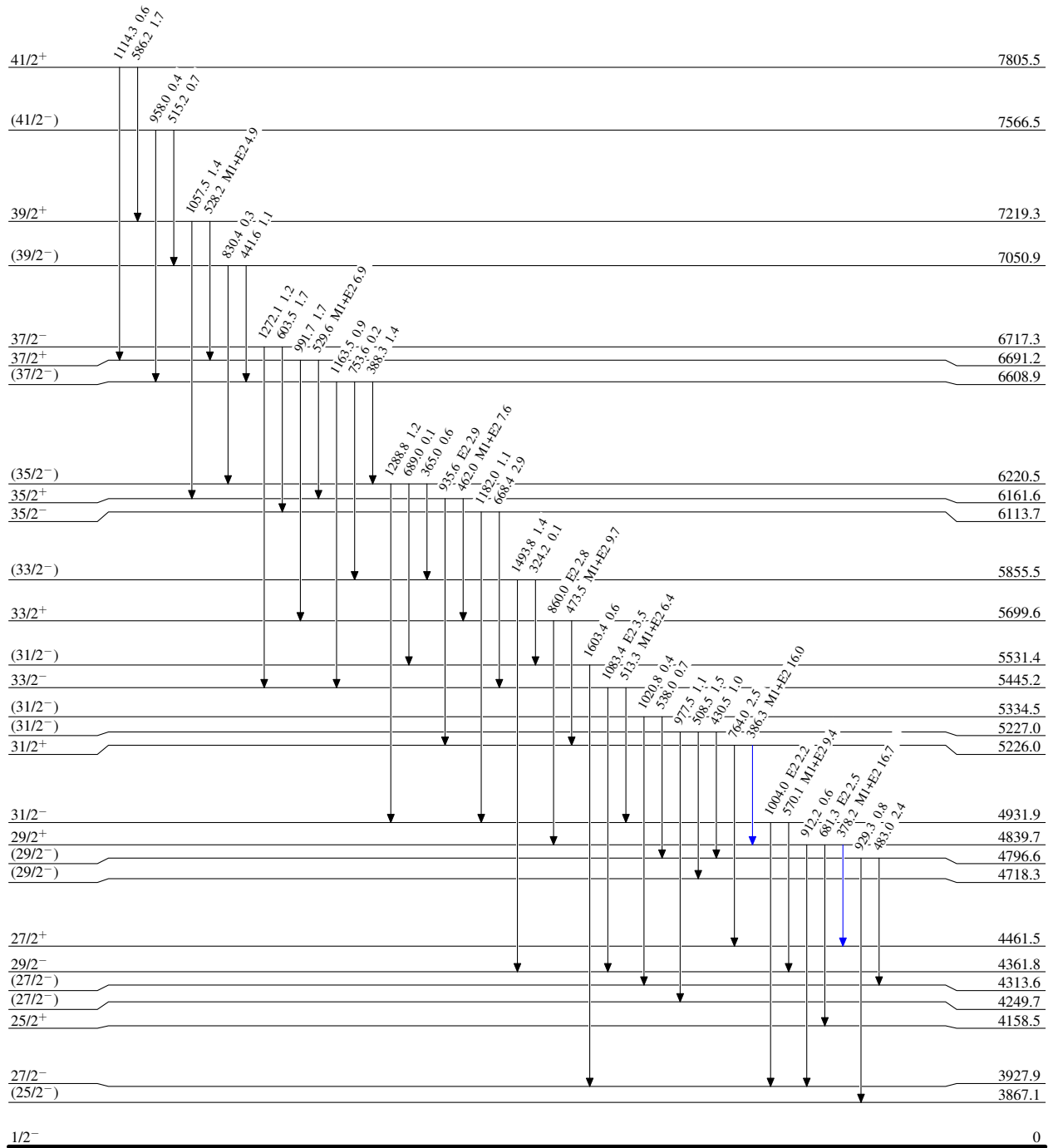
$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$  2007Ti07

Legend

## Level Scheme

Intensities: Relative  $I_\gamma$ 

- $\longrightarrow$   $I_\gamma < 2\% \times I_\gamma^{\text{max}}$   
 $\longrightarrow$   $I_\gamma < 10\% \times I_\gamma^{\text{max}}$   
 $\longrightarrow$   $I_\gamma > 10\% \times I_\gamma^{\text{max}}$



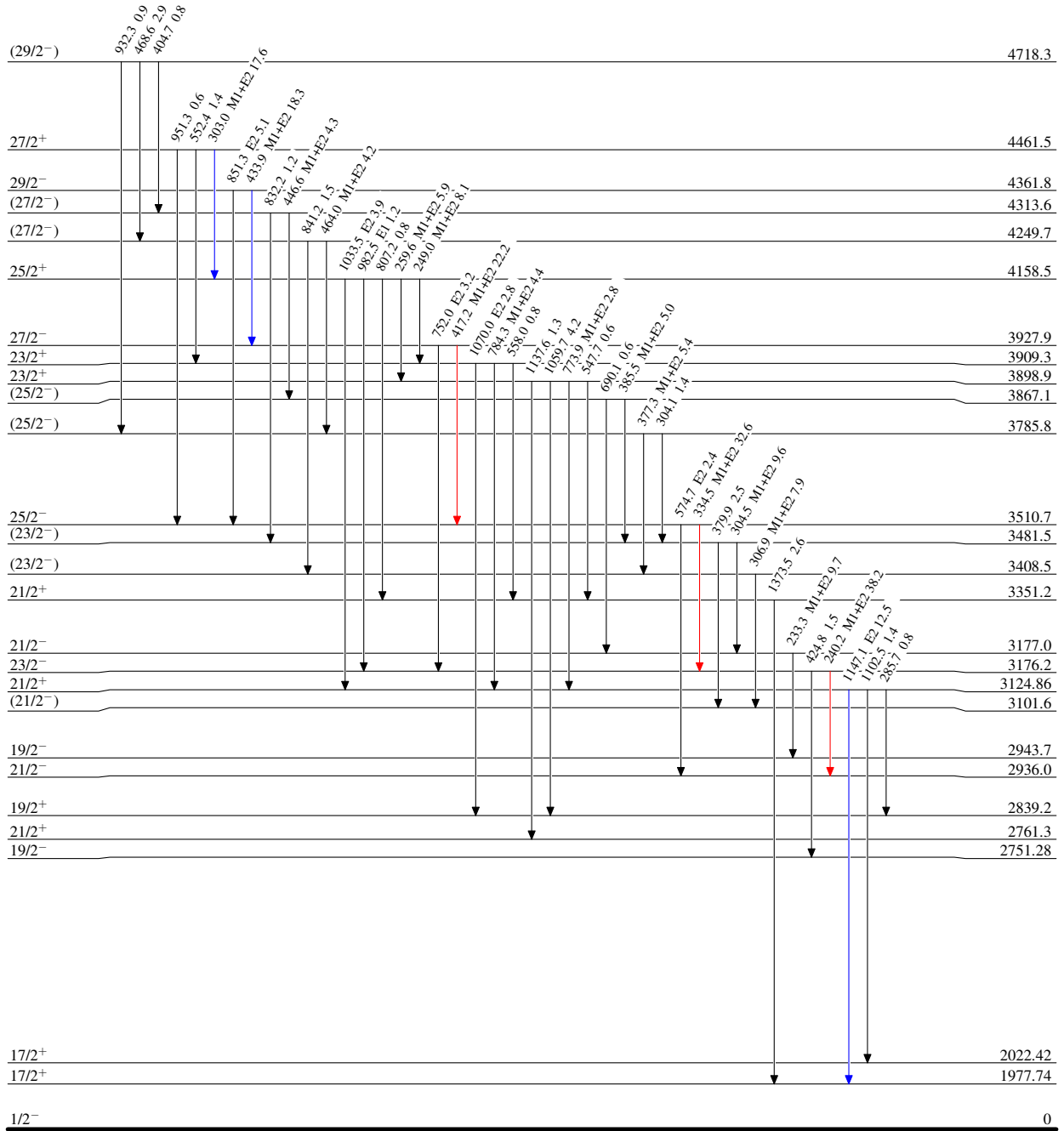
$^{100}\text{Mo}(^{10}\text{B},5n\gamma)$  2007Ti07

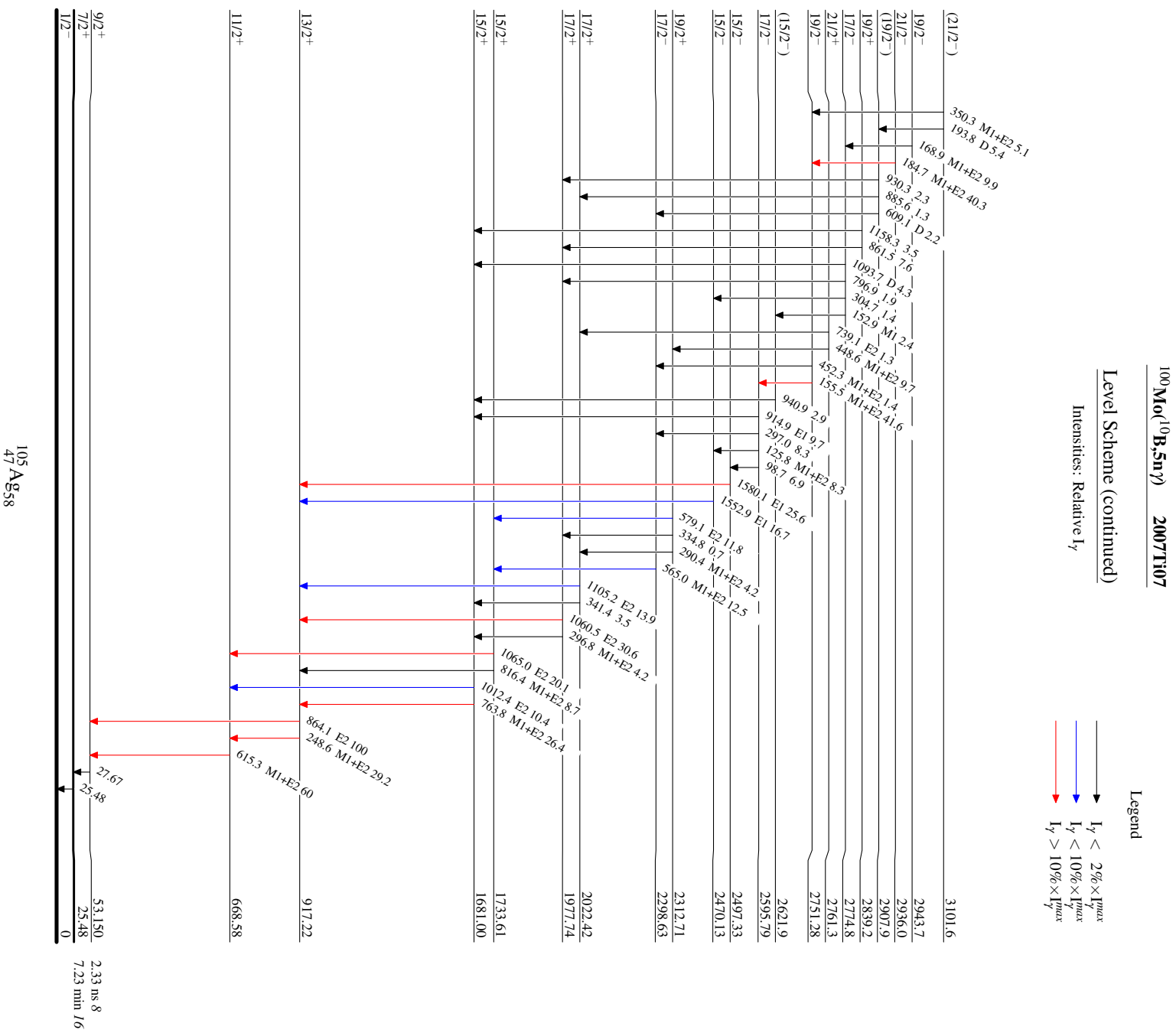
## Level Scheme (continued)

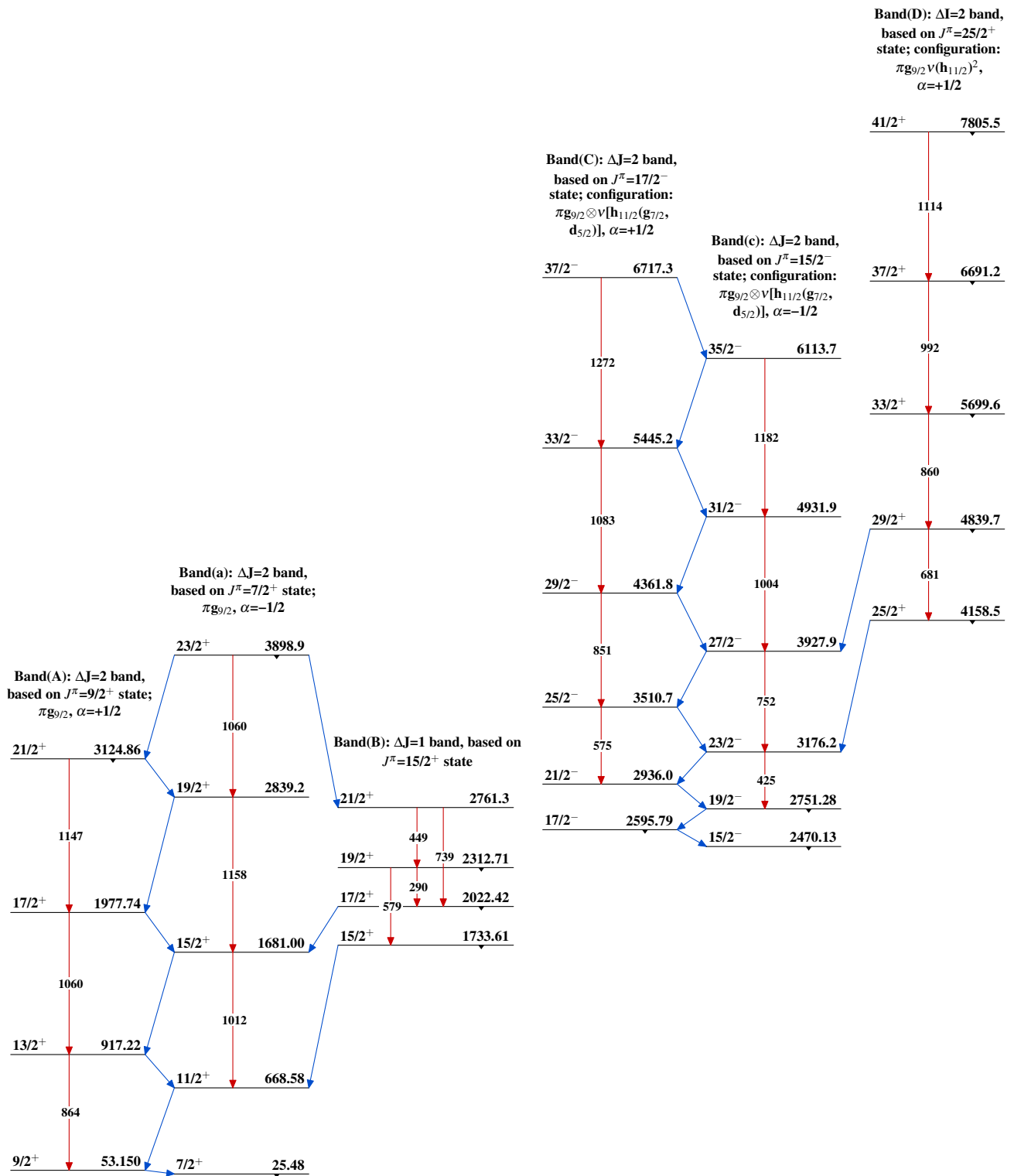
Intensities: Relative  $I_\gamma$ 

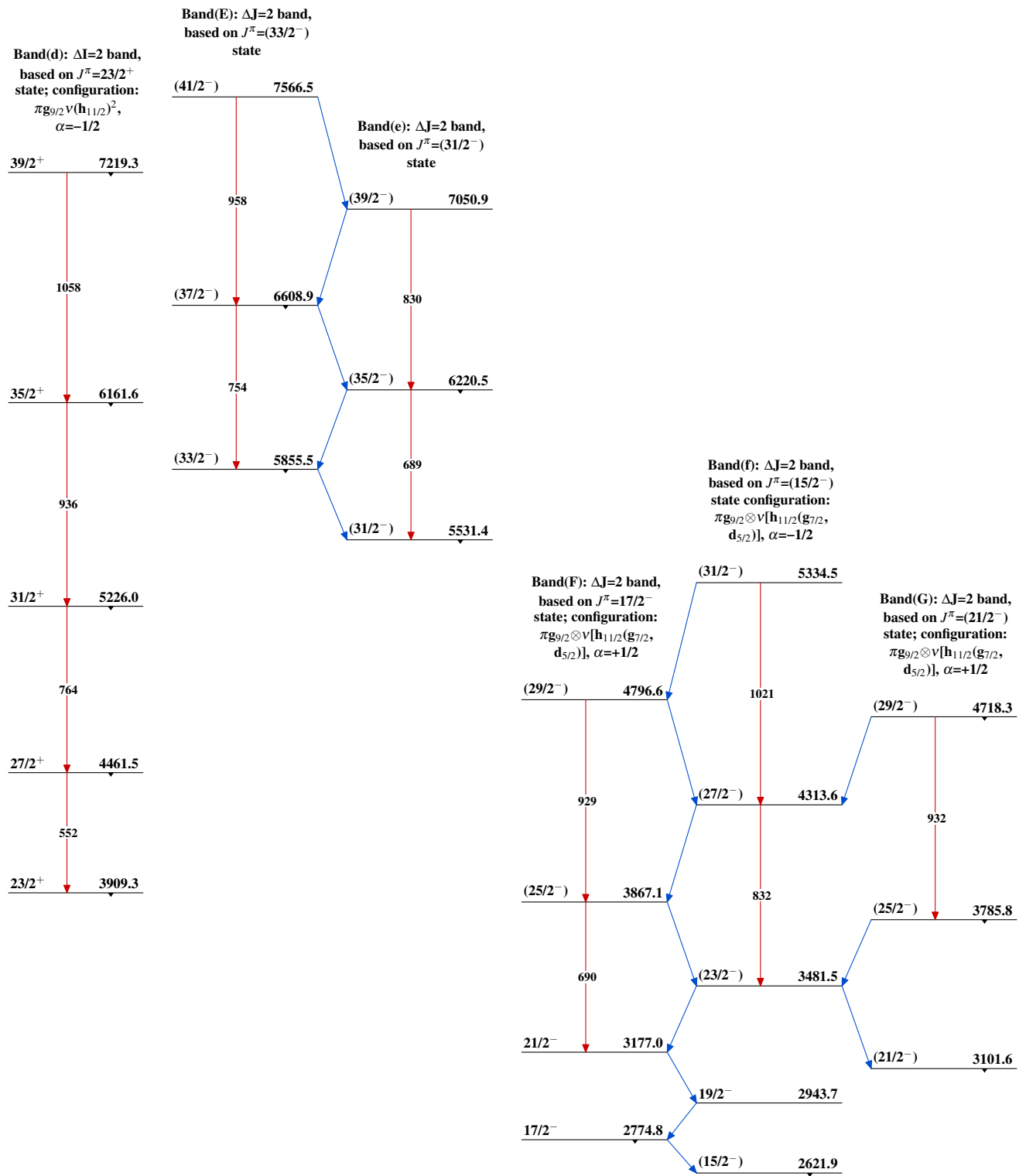
## Legend

- $\longrightarrow$   $I_\gamma < 2\% \times I_\gamma^{\max}$   
 $\longrightarrow$   $I_\gamma < 10\% \times I_\gamma^{\max}$   
 $\longrightarrow$   $I_\gamma > 10\% \times I_\gamma^{\max}$





$^{100}\text{Mo}(^{10}\text{B}, 5\text{n}\gamma)$  2007Ti07

$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$  2007Ti07 (continued)

$^{100}\text{Mo}(^{10}\text{B},5\text{n}\gamma)$      $^{2007}\text{Ti07}$  (continued)

Band(g):  $\Delta J=2$  band,  
 based on  $J^\pi=17/2^-$   
 state; configuration:  
 $\pi g_{9/2} \otimes \nu [h_{11/2}(g_{7/2},$   
 $d_{5/2})]$ ,  $\alpha=-1/2$

(31/2<sup>-</sup>)    5227.0

978

(27/2<sup>-</sup>)    4249.7

841

(23/2<sup>-</sup>)    3408.5

(19/2<sup>-</sup>)    2907.9

$^{105}_{47}\text{Ag}_{58}$