

$^{182}\text{W}(\text{n},\gamma)$  E=thermal:  $\gamma\gamma$  coin 2005Su29

| Type            | Author          | History Citation    | Literature Cutoff Date |
|-----------------|-----------------|---------------------|------------------------|
| Full Evaluation | Coral M. Baglin | NDS 134, 149 (2016) | 15-Apr-2015            |

Other: 1989Bo30.

2005Su29: E=thermal; measured (primary  $\gamma$ )-(secondary  $\gamma$ ) coin spectra (1.5-2.4 keV resolution) for 2-photon cascades to 5 low-lying levels of  $^{183}\text{W}$ ; 1.43%  $^{182}\text{W}$  In target; measured  $E\gamma$  ( $E\gamma > 520$  keV), intermediate level energies and photon branching.1989Bo30: measured  $\gamma\gamma$  coincidence intensities corresponding to the sum energy equal to the primary transition energy to the five lowest lying levels in  $^{183}\text{W}$ . The coincidence efficiency was calibrated using the 2505-keV  $\gamma\gamma$  cascade in  $^{60}\text{Co}$ . $^{183}\text{W}$  Levels

| E(level) <sup>†</sup> | J <sup><math>\pi</math></sup> | Comments  |
|-----------------------|-------------------------------|---|
| 0.0 <sup>‡</sup>      | 1/2 <sup>-</sup> #            |   |
| 45 <sup>‡</sup>       | 3/2 <sup>-</sup> #            |   |
| 99.1 <sup>‡</sup>     | 5/2 <sup>-</sup> #            |   |
| 208.8 <sup>‡</sup>    | 3/2 <sup>-</sup> #            | E(level): the neighboring 7/2 <sup>-</sup> level at 207.0 keV may not have been resolved in this experiment but no primary $\gamma$ should feed it. |
| 291.7 <sup>‡</sup>    | 5/2 <sup>-</sup> #            |   |
| 557.4 3               |                               |   |
| 677.6 2               |                               |   |
| 804.8 1               |                               |   |
| 808.2 2               |                               |   |
| 816.5 2               |                               |   |
| 871.9 5               |                               |   |
| 899.7 1               |                               |   |
| 903.0 4               |                               |   |
| 909.3 3               |                               |   |
| 934.0 1               |                               |   |
| 941.5 <sup>‡</sup> 3  | ( $\leq 7/2$ )#               |   |
| 949.8 <sup>‡</sup> 1  | ( $\leq 7/2$ )#               |   |
| 951.2 <sup>‡</sup> 4  | ( $\leq 7/2$ )#               |   |
| 1025.9 2              |                               |   |
| 1096.3 5              |                               |   |
| 1188.2 2              |                               |   |
| 1226.4 4              |                               |   |
| 1272.0 2              |                               |   |
| 1308.7 3              |                               |   |
| 1412.7 3              |                               |   |
| 1417.4 5              |                               |   |
| 1432.9 2              |                               |   |
| 1462.8 2              |                               |   |
| 1470.6 2              |                               |   |
| 1502.1 6              |                               |   |
| 1537.8 9              |                               |   |
| 1555.7 4              |                               |   |
| 1586.3 3              |                               |   |
| 1612.1 9              |                               |   |
| 1615.2 3              |                               |   |
| 1616.9 3              |                               |   |
| 1628.0 1              |                               |   |
| 1632.7 2              |                               |   |
| 1658.0 3              |                               |   |
| 1659.5 4              |                               |   |
| 1661.9 3              |                               |   |

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$^{182}\text{W}(n,\gamma)$  E=thermal:  $\gamma\gamma$  coin 2005Su29 (continued) $^{183}\text{W}$  Levels (continued)

| <u>E(level)<sup>†</sup></u> | <u>E(level)<sup>†</sup></u> |
|-----------------------------|-----------------------------|
| 1669.3 4                    | 2392.1 2                    |
| 1672.5 1                    | 2418.1 4                    |
| 1676.9 5                    | 2428.1 2                    |
| 1724.9 11                   | 2430.9 8                    |
| 1730.0 3                    | 2433.2 4                    |
| 1746.6 4                    | 2447.5 8                    |
| 1790.3 3                    | 2450.4 4                    |
| 1811.4 13                   | 2474.8 6                    |
| 1813.7 6                    | 2493.9@ 3                   |
| 1823.5 6                    | 2503.7 1                    |
| 1827.9 5                    | 2517.3 2                    |
| 1835.3 11                   | 2522.5 5                    |
| 1869.3 1                    | 2529.9 7                    |
| 1884.0 6                    | 2534.9 2                    |
| 1886.2 2                    | 2547.4 5                    |
| 1893.8 2                    | 2550.1 6                    |
| 1900.5 3                    | 2552.6 4                    |
| 1914.9 4                    | 2567.7 4                    |
| 1931.9 4                    | 2573.9 13                   |
| 1943.9 5                    | 2593.2 2                    |
| 1952.3 6                    | 2597.6 3                    |
| 1964.1 7                    | 2611.4 2                    |
| 1990.2 5                    | 2612.4 4                    |
| 2004.4 3                    | 2615.6 3                    |
| 2022.7 5                    | 2655.8 4                    |
| 2028.3 3                    | 2667.8 8                    |
| 2044.6 2                    | 2687.2 4                    |
| 2057.5 4                    | 2699.4 3                    |
| 2059.2 2                    | 2707.4 3                    |
| 2095.4 7                    | 2715.5 2                    |
| 2098.9 6                    | 2738.0 5                    |
| 2111.4 4                    | 2741.7 4                    |
| 2125.9 4                    | 2743.8 7                    |
| 2130.0 3                    | 2765.0 7                    |
| 2152.7 4                    | 2769.5 10                   |
| 2157.0 4                    | 2781.6 7                    |
| 2163.5 6                    | 2782.9 4                    |
| 2166.9 4                    | 2804.6 7                    |
| 2176.4 2                    | 2812.5 3                    |
| 2208.8 2                    | 2817.3 5                    |
| 2230.0 4                    | 2832.8 3                    |
| 2235.3 2                    | 2834.8 3                    |
| 2238.9 7                    | 2839.2 12                   |
| 2247.8 2                    | 2843.1 7                    |
| 2257.6 5                    | 2847.4 3                    |
| 2262.7 6                    | 2855.8 7                    |
| 2265.8 3                    | 2881.2 8                    |
| 2282.8 2                    | 2910.1 6                    |
| 2292.2 2                    | 2914.4 3                    |
| 2303.9 7                    | 2945.4 5                    |
| 2311.6 4                    | 2954.4 5                    |
| 2324.5 2                    | 2966.5 3                    |
| 2359.6 7                    | 2979.2 2                    |
| 2366.4 3                    | 3015.1 4                    |
| 2368.8 2                    | 3030.8 2                    |
| 2373.2 5                    | 3042.3 5                    |
| 2383.4 4                    | 3054.3 5                    |

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$^{182}\text{W}(n,\gamma)$  E=thermal:  $\gamma\gamma$  coin **2005Su29** (continued)

$^{183}\text{W}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup>   | Comments  |
|-----------------------|------------------|---|
| 3070.8                | 6                |   |
| 3078.6                | 4                |   |
| 3083.7                | 4                |   |
| 3096.5                | 4                |   |
| 3534.1                | 2                |   |
| 3687.0                | 4                |   |
| 3709.8                | 4                |   |
| 3840.1                | 3                |   |
| (6190.60)             | 1/2 <sup>+</sup> | J <sup>π</sup> : s-wave capture by 0 <sup>+</sup> target. |

<sup>†</sup> From **2005Su29**. authors' best values; based on measured E<sub>γ</sub> values for two-photon cascade(S) In which this is the intermediate level, except As noted.

<sup>‡</sup> Rounded value from Adopted Levels.

# From Adopted Levels.

@ Not adopted. its stronger branch is otherwise unknown and E<sub>γ</sub> for the weaker branch is somewhat high for the  $\gamma$  known to deexcite a 2493 level.

$\gamma(^{183}\text{W})$

The experimental coincidence intensities feeding each final level are compared with those calculated using the statistical model in the following table:

For numerous, additional unplaced transitions see **1989Bo30**.

| E( $\gamma\gamma$ )        | E(final level) | I( $\gamma\gamma$ ) exp <b>2005Su29</b> | I( $\gamma\gamma$ ) exp <b>1989Bo30</b> | I( $\gamma\gamma$ ) theory <b>1989Bo30</b> |
|----------------------------|----------------|---|---|--|
| (per 100 neutron captures) |                |   |   |  |
| 6191                       | 0              | 11.1 7                                  | 13.3 11                                 | 9.4  |
| 6144                       | 46             | 9.7 4                                   | 10.2 7                                  | 9.8  |
| 6092                       | 99             |   | 1.4 2                                   | 4.2  |
| 5982                       | 209            | 9.9 6                                   | 8.1 19                                  | 7.2  |
| 5899                       | 292            | 4.2 5                                   | 4.3 6                                   | 3.3  |
| 5287                       | 904            |   | (0.1)x                                  | 1.4  |
| 5257                       | 934            |   | (0.2)x                                  | 2.4  |

x Estimated (**1989Bo30**) on the basis of peak areas in the sum coincidence spectrum.

| E <sub>γ</sub> <sup>†</sup> | I( $\gamma_1\gamma_2$ ) <sup>‡</sup> | E <sub>i</sub> (level) | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup> |
|-----------------------------|--------------------------------------|------------------------|----------------|-----------------------------|
| 468.8                       | 56 12                                | 677.6                  | 208.8          | 3/2 <sup>-</sup>            |
| 557.4                       | 29 8                                 | 557.4                  | 0.0            | 1/2 <sup>-</sup>            |
| 596.0                       | 145 15                               | 804.8                  | 208.8          | 3/2 <sup>-</sup>            |
| 599.4                       | 57 13                                | 808.2                  | 208.8          | 3/2 <sup>-</sup>            |
| 607.7                       | 80 13                                | 816.5                  | 208.8          | 3/2 <sup>-</sup>            |
| 608.0                       | 220 18                               | 899.7                  | 291.7          | 5/2 <sup>-</sup>            |
| 611.3                       | 43 11                                | 903.0                  | 291.7          | 5/2 <sup>-</sup>            |
| 663.1                       | 29 13                                | 871.9                  | 208.8          | 3/2 <sup>-</sup>            |
| 694.2                       | 61 13                                | 903.0                  | 208.8          | 3/2 <sup>-</sup>            |

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$^{182}\text{W}(n,\gamma)\text{E=thermal: } \gamma\gamma \text{ coin } \mathbf{2005\text{Su}29}$  (continued) $\gamma(^{183}\text{W})$  (continued)

| $E_\gamma$ †         | $I(\gamma_1\gamma_2)$ ‡ | $E_i(\text{level})$ | $J_i^\pi$ | $E_f$ | $J_f^\pi$        | Comments   |
|----------------------|-------------------------|---------------------|-----------|-------|------------------|--|
| 700.5                | 45 13                   | 909.3               |           | 208.8 | 3/2 <sup>-</sup> |  |
| 742.4                | 67 22                   | 951.2               | (≤7/2)    | 208.8 | 3/2 <sup>-</sup> |  |
| 817.1                | 570 40                  | 1025.9              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 818.2 (580 140) (1989Bo30).                          |
| 887.5                | 250 19                  | 934.0               |           | 45    | 3/2 <sup>-</sup> |  |
| 895.0                | 36 11                   | 941.5               | (≤7/2)    | 45    | 3/2 <sup>-</sup> |  |
| 903.0                | 369 20                  | 903.0               |           | 0.0   | 1/2 <sup>-</sup> |  |
| 903.3                | 113 15                  | 949.8               | (≤7/2)    | 45    | 3/2 <sup>-</sup> |  |
| 926.8                | 184 11                  | 1025.9              |           | 99.1  | 5/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 926.8 15 (400 60) (1989Bo30).                        |
| 979.4                | 1412 49                 | 1025.9              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 980.2 15 (1970 140) (1989Bo30).                      |
| 979.4                | 124 19                  | 1188.2              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 980.3                | 78 16                   | 1272.0              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 997.2                | 7 4                     | 1096.3              |           | 99.1  | 5/2 <sup>-</sup> |  |
| 1025.9               | 2572 52                 | 1025.9              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1026.4 15 (3700 300) (1989Bo30).                     |
| 1099.9               | 130 20                  | 1308.7              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1101.2 15 (100 30) (1989Bo30).                       |
| 1121.0               | 58 15                   | 1412.7              |           | 291.7 | 5/2 <sup>-</sup> |  |
| <sup>x</sup> 1169.9  | 70 24                   |                     |           |       |                  | from 1989Bo30 only; placement from 1463 level unconfirmed by 2005Su29.               |
| 1209.6               | 8 4                     | 1308.7              |           | 99.1  | 5/2 <sup>-</sup> |  |
| 1226.4               | 23 8                    | 1226.4              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1246.1               | 20 11                   | 1537.8              |           | 291.7 | 5/2 <sup>-</sup> |  |
| <sup>x</sup> 1251.3  | 40 30                   |                     |           |       |                  | from 1989Bo30 only; placement from 1463 level unconfirmed by 2005Su29.               |
| 1261.8               | 109 14                  | 1470.6              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1261.8 15 (130 40) (1989Bo30).                       |
| 1264.0               | 63 11                   | 1555.7              |           | 291.7 | 5/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1265.5 15 (100 30) (1989Bo30).                       |
| 1264.3 <sup>#@</sup> | 29 <sup>#</sup> 10      | 1308.7              |           | 45    | 3/2 <sup>-</sup> |  |
| 1320.4               | 40 11                   | 1612.1              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1323.5               | 43 11                   | 1615.2              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1346.9               | 42 13                   | 1555.7              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1346.1 15 (90 20) (1989Bo30).                        |
| 1366.3               | 39 11                   | 1658.0              |           | 291.7 | 5/2 <sup>-</sup> |  |
| <sup>x</sup> 1373.7  |                         |                     |           |       |                  | from 1989Bo30 only; placed by authors from an otherwise unknown 1666 level.          |
| 1377.6               | 32 11                   | 1669.3              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1380.8               | 99 12                   | 1672.5              |           | 291.7 | 5/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1382.1 15 (190 50) (1989Bo30).                       |
| 1386.4               | 36 8                    | 1432.9              |           | 45    | 3/2 <sup>-</sup> |  |
| <sup>x</sup> 1415.6  | 80 20                   |                     |           |       |                  | from 1989Bo30 only; placement by 1989Bo30 from 1628 level not confirmed by 2005Su29. |
| 1416.3               | 30 8                    | 1462.8              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1413.8 15 (89 21) (1989Bo30).                        |
| 1417.4               | 24 9                    | 1417.4              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1424.1               | 228 14                  | 1470.6              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1424.2 15 (220 30) (1989Bo30).                       |
| 1432.9               | 18 9                    | 1432.9              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1455.6               | 15 8                    | 1502.1              |           | 45    | 3/2 <sup>-</sup> |  |
| 1456.6               | 15 3                    | 1555.7              |           | 99.1  | 5/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1458.8 15 (I $\gamma$ =130 30) (1989Bo30).           |
| 1462.8               | 41 9                    | 1462.8              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1464.0 15 (49 25) (1989Bo30; unplaced $\gamma$ ).    |
| 1463.7               | 151 14                  | 1672.5              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1468.6 15 (130 40) (1989Bo30).                       |
| 1468.1               | 29 12                   | 1676.9              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1470.6               | 62 10                   | 1470.6              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1471.7 (80 30) (1989Bo30).                           |
| 1509.2               | 104 13                  | 1555.7              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1510.3 15 (140 20) (1989Bo30).                       |
| 1516.1               | 31 12                   | 1724.9              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1517.8               | 16 4                    | 1616.9              |           | 99.1  | 5/2 <sup>-</sup> |  |
| 1519.7               | 36 11                   | 1811.4              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1521.2               | 32 12                   | 1730.0              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1528.9               | 37 5                    | 1628.0              |           | 99.1  | 5/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1528.3 15 (100 20) (1989Bo30).                       |
| 1531.8               | 30 11                   | 1823.5              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1537.8               | 19 10                   | 1537.8              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1555.7               | 176 16                  | 1555.7              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ (I $\gamma$ ): 1558.7 15 (130 30) (1989Bo30).                       |
| 1565.6               | 23 10                   | 1612.1              |           | 45    | 3/2 <sup>-</sup> |  |

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$^{182}\text{W}(\text{n},\gamma)\text{E=thermal: } \gamma\gamma \text{ coin } \mathbf{2005\text{Su}29}$  (continued) $\gamma(^{183}\text{W})$  (continued)

| $E_\gamma$ † | $I(\gamma_1\gamma_2)$ ‡ | $E_i(\text{level})$ | $J_i^\pi$ | $E_f$ | $J_f^\pi$        | Comments   |
|--------------|-------------------------|---------------------|-----------|-------|------------------|--|
| 1573.4       | 44 5                    | 1672.5              |           | 99.1  | 5/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1573.8 15 (120 30) (1989Bo30).  |
| 1581.5       | 97 12                   | 1628.0              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1581.2 15 (260 40) (1989Bo30).  |
| 1581.5       | 32 12                   | 1790.3              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1586.3       | 34 9                    | 1586.3              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1594.5       | 298 19                  | 1886.2              |           | 291.7 | 5/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1594.7 15 (430 70) (1989Bo30).  |
| 1602.6       | 284 20                  | 1811.4              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1603.6 15 (310 80) (1989Bo30).  |
| 1612.1       | 69 10                   | 1612.1              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1614.7       | 682 30                  | 1823.5              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1615.0 15 (520 140) (1989Bo30). |
| 1615.4       | 42 10                   | 1661.9              |           | 45    | 3/2 <sup>-</sup> |  |
| 1626.0       | 546 27                  | 1672.5              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1626.7 15 (640 50) (1989Bo30).  |
| 1626.5       | 43 13                   | 1835.3              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1631.2 15 (170 60) (1989Bo30).  |
| 1628.0       | 498 25                  | 1628.0              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1628.3 15 (590 60) (1989Bo30).  |
| 1630.9       | 27 6                    | 1730.0              |           | 99.1  | 5/2 <sup>-</sup> |  |
| 1632.7       | 51 9                    | 1632.7              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1652.2       | 37 13                   | 1943.9              |           | 291.7 | 5/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1650.3 15 (90 40) (1989Bo30).   |
| 1659.5       | 33 9                    | 1659.5              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1661.7 (60 30) (1989Bo30).      |
| 1672.5       | 130 14                  | 1672.5              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1672.2 15 (180 30) (1989Bo30).  |
| 1675.2       | 52 13                   | 1884.0              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1674.3 15 (90 40) (1989Bo30).   |
| 1683.5       | 153 13                  | 1730.0              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1683.9 15 (220 30) (1989Bo30).  |
| 1691.7       | 55 13                   | 1900.5              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1724.9       | 21 8                    | 1724.9              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1730.0       | 52 9                    | 1730.0              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1729.5 15 (110 20) (1989Bo30).  |
| 1735.1       | 926 35                  | 1943.9              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1736.1 15 (800 200) (1989Bo30). |
| 1736.6       | 45 13                   | 2028.3              |           | 291.7 | 5/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1735.1 15 (130 40) (1989Bo30).  |
| 1746.6       | 25 8                    | 1746.6              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1764.9       | 203 15                  | 1811.4              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1764.9 15 (210 30) (1989Bo30).  |
| 1777.0       | 22 9                    | 1823.5              |           | 45    | 3/2 <sup>-</sup> |  |
| 1788.8       | 21 9                    | 1835.3              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1787.4 15 (40 20) (1989Bo30).   |
| 1790.3       | 26 8                    | 1790.3              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1795.6       | 52 12                   | 2004.4              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1813.7       | 17 8                    | 1813.7              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1813.9       | 28 12                   | 2022.7              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1819.5       | 22 12                   | 2028.3              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1823.5       | 43 8                    | 1823.5              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1820.1 15 (65 14) (1989Bo30).   |
| 1827.9       | 22 8                    | 1827.9              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1835.3       | 18 8                    | 1835.3              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1840.8 15 (50 20) (1989Bo30).   |
| 1837.5       | 29 11                   | 1884.0              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1840.4 15 (150 20) (1989Bo30).  |
| 1847.3       | 58 11                   | 1893.8              |           | 45    | 3/2 <sup>-</sup> |  |
| 1850.4       | 96 12                   | 2059.2              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1850.3 15 (80 40) (1989Bo30).   |
| 1854.0       | 23 10                   | 1900.5              |           | 45    | 3/2 <sup>-</sup> |  |
| 1869.3       | 86 10                   | 1869.3              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1871.8       | 35 13                   | 2163.5              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1872.7#      | 110# 40                 | 2166.9              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1884.0       | 52 13                   | 1884.0              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1886.3 15 (110 30) (1989Bo30).  |
| 1885.4       | 30 10                   | 1931.9              |           | 45    | 3/2 <sup>-</sup> |  |
| 1886.6       | 49 12                   | 2095.4              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1890.1       | 31 12                   | 2098.9              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1888.0 15 (70 30) (1989Bo30).   |
| 1897.4       | 151 14                  | 1943.9              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1897.6 15 (240 40) (1989Bo30).  |
| 1902.6       | 41 12                   | 2111.4              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1914.9       | 33 12                   | 1914.9              |           | 0.0   | 1/2 <sup>-</sup> |  |
| 1917.1       | 38 14                   | 2125.9              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1919.6 15 (50 30) (1989Bo30).   |
| 1921.2       | 54 14                   | 2130.0              |           | 208.8 | 3/2 <sup>-</sup> |  |
| 1941.6#      | 80# 40                  | 2230.0              |           | 291.7 | 5/2 <sup>-</sup> |  |
| 1943.9       | 24 12                   | 1943.9              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1939.9 15 (60 30) (1989Bo30).   |
| 1943.9       | 43 14                   | 2152.7              |           | 208.8 | 3/2 <sup>-</sup> |  |

Continued on next page (footnotes at end of table)

$^{182}\text{W}(\text{n},\gamma)$  E=thermal:  $\gamma\gamma$  coin **2005Su29** (continued) $\gamma(^{183}\text{W})$  (continued)

| $E_\gamma$ † | $I(\gamma_1\gamma_2)$ ‡ | $E_i(\text{level})$ | $J_i^\pi$ | $E_f$ | $J_f^\pi$        | Comments  |
|--------------|-------------------------|---------------------|-----------|-------|------------------|---|
| 1945.5       | 19 4                    | 2044.6              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 1952.3       | 23 12                   | 1952.3              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 1954.7       | 112 14                  | 2163.5              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 1958.1       | 49 14                   | 2166.9              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1959.8 15 (190 60) (1989Bo30). |
| 1964.1       | 21 12                   | 1964.1              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 1967.6       | 131 16                  | 2176.4              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 1969.2 15 (90 40) (1989Bo30).  |
| 1981.8       | 23 10                   | 2028.3              |           | 45    | 3/2 <sup>-</sup> |   |
| 1990.2       | 27 12                   | 1990.2              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 1998.1       | 24 11                   | 2044.6              |           | 45    | 3/2 <sup>-</sup> |   |
| 2011.5#@     | 60# 20                  | 2059.2              |           | 45    | 3/2 <sup>-</sup> |   |
| 2012.2       | 47 14                   | 2303.9              |           | 291.7 | 5/2 <sup>-</sup> |   |
| 2026.5       | 68 14                   | 2235.3              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2026.8       | 11 4                    | 2125.9              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2028.3       | 127 16                  | 2028.3              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2029.2 15 (190 30) (1989Bo30). |
| 2030.1       | 26 14                   | 2238.9              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2048.9       | 25 11                   | 2095.4              |           | 45    | 3/2 <sup>-</sup> |   |
| 2053.0       | 33 14                   | 2262.7              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2057.0       | 42 14                   | 2265.8              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2057.5       | 35 10                   | 2057.5              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 2057.9       | 12 4                    | 2157.0              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2064.4       | 8 4                     | 2163.5              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2074.0       | 105 13                  | 2282.8              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2079.4       | 252 19                  | 2125.9              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2080.2 15 (360 40) (1989Bo30). |
| 2081.5       | 36 14                   | 2373.2              |           | 291.7 | 5/2 <sup>-</sup> |   |
| 2098.9       | 32 10                   | 2098.9              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2098.5 15 (40 30) (1989Bo30).  |
| 2117.0       | 218 18                  | 2163.5              |           | 45    | 3/2 <sup>-</sup> |   |
| 2119.6#@     | 310# 50                 | 2166.9              |           | 45    | 3/2 <sup>-</sup> |   |
| 2125.9       | 54 10                   | 2125.9              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2125.8 15 (80 30) (1989Bo30).  |
| 2126.4       | 57 15                   | 2418.1              |           | 291.7 | 5/2 <sup>-</sup> |   |
| 2129.9       | 120 14                  | 2176.4              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2131.2 15 (190 30) (1989Bo30). |
| 2136.2       | 22 5                    | 2235.3              |           | 99.1  | 5/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2133.8 (60 20) (1989Bo30).     |
| 2136.4       | 75 15                   | 2428.1              |           | 291.7 | 5/2 <sup>-</sup> |   |
| 2157.6       | 37 14                   | 2366.4              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2156.9 (100 40) (1989Bo30).    |
| 2160.0       | 91 14                   | 2368.8              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2162.3       | 83 13                   | 2208.8              |           | 45    | 3/2 <sup>-</sup> |   |
| 2176.4       | 447 24                  | 2176.4              |           | 0.0   | 1/2 <sup>-</sup> | other $E_\gamma$ : 2179.4 15 (380 70) (1989Bo30).               |
| 2183.3       | 294 10                  | 2392.1              |           | 208.8 | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2182.0 (320 90) (1989Bo30).    |
| 2183.5       | 35 11                   | 2230.0              |           | 45    | 3/2 <sup>-</sup> |   |
| 2201.3       | 97 13                   | 2247.8              |           | 45    | 3/2 <sup>-</sup> |   |
| 2204.8       | 11 5                    | 2303.9              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2208.8       | 52 12                   | 2208.8              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 2209.3       | 45 14                   | 2418.1              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2211.1       | 26 11                   | 2257.6              |           | 45    | 3/2 <sup>-</sup> |   |
| 2212.5       | 12 5                    | 2311.6              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2222.1       | 24 14                   | 2430.9              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2224.4       | 29 14                   | 2433.2              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2235.3       | 56 12                   | 2235.3              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 2236.3       | 134 15                  | 2282.8              |           | 45    | 3/2 <sup>-</sup> |   |
| 2241.6       | 76 14                   | 2450.4              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2245.7       | 45 11                   | 2292.2              |           | 45    | 3/2 <sup>-</sup> | other $E_\gamma$ ( $I_\gamma$ ): 2245.6 15 (80 40) (1989Bo30).  |
| 2257.4       | 92 12                   | 2303.9              |           | 45    | 3/2 <sup>-</sup> |   |
| 2265.8       | 44 13                   | 2265.8              |           | 0.0   | 1/2 <sup>-</sup> |   |
| 2266.0       | 30 13                   | 2474.8              |           | 208.8 | 3/2 <sup>-</sup> |   |
| 2269.7       | 8 5                     | 2368.8              |           | 99.1  | 5/2 <sup>-</sup> |   |
| 2282.8       | 26 12                   | 2282.8              |           | 0.0   | 1/2 <sup>-</sup> |   |

Continued on next page (footnotes at end of table)

<sup>182</sup>W(n,γ) E=thermal: γγ coin **2005Su29** (continued)

γ(<sup>183</sup>W) (continued)

| $E_\gamma$ †         | I(γ <sub>1</sub> γ <sub>2</sub> ) ‡ | E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup> | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup> | Comments  |
|----------------------|-------------------------------------|------------------------|-----------------------------|----------------|-----------------------------|---|
| 2285.1               | 38 13                               | 2493.9                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2292.2               | 49 12                               | 2292.2                 |                             | 0.0            | 1/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2292.8 15 (70 30) (1989Bo30).   |
| 2303.9               | 196 18                              | 2303.9                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2313.1               | 21 11                               | 2359.6                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2313.7               | 34 13                               | 2522.5                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2322.3               | 57 13                               | 2368.8                 |                             | 45             | 3/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2321.2 (60 20) (1989Bo30).  |
| 2324.5               | 97 14                               | 2324.5                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2326.1               | 116 14                              | 2534.9                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2327.5# <sup>@</sup> | 130# 40                             | 2615.6                 |                             | 291.7          | 5/2 <sup>-</sup>            |   |
| 2336.9               | 40 11                               | 2383.4                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2341.3               | 32 13                               | 2550.1                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2345.6               | 54 29                               | 2392.1                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2350.5               |                                     | (6190.60)              | 1/2 <sup>+</sup>            | 3840.1         |                             |   |
| 2365.1               | 28 13                               | 2573.9                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2366.4               | 41 13                               | 2366.4                 |                             | 0.0            | 1/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2365.9 15 (90 34) (1989Bo30).   |
| 2381.6               | 52 12                               | 2428.1                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2386.7               | 33 11                               | 2433.2                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2392.1               | 93 15                               | 2392.1                 |                             | 0.0            | 1/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2391.2 (100 30) (1989Bo30).   |
| 2401.0               | 21 11                               | 2447.5                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2402.6               | 62 15                               | 2611.4                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2403.9               | 128 15                              | 2450.4                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2406.8               | 49 15                               | 2615.6                 |                             | 208.8          | 3/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2403.4 (70 40) (1989Bo30).  |
| 2407.2# <sup>@</sup> | 60# 20                              | 2503.7                 |                             | 99.1           | 5/2 <sup>-</sup>            |   |
| 2447.4               | 21 12                               | 2493.9                 |                             | 45             | 3/2 <sup>-</sup>            | possibly the adopted 2446.5 4 line known from (n,γ) E=thermal.  |
| 2457.2               | 146 17                              | 2503.7                 |                             | 45             | 3/2 <sup>-</sup>            | other E <sub>γ</sub> : 2458.5 (190 40) (1989Bo30).  |
| 2470.8               | 48 12                               | 2517.3                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2476.0               | 141 16                              | 2522.5                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2480.8               |                                     | (6190.60)              | 1/2 <sup>+</sup>            | 3709.8         |                             |   |
| 2481.6# <sup>@</sup> | 100# 40                             | 2687.2                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| <sup>x</sup> 2483.0  | 80 40                               |                        |                             |                |                             | from 1989Bo30 only; placed by authors from an otherwise unknown 2775 level.   |
| 2488.4               | 80 14                               | 2534.9                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2498.6               | 48 15                               | 2707.4                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2500.9               | 32 12                               | 2547.4                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2503.6               |                                     | (6190.60)              | 1/2 <sup>+</sup>            | 3687.0         |                             |   |
| 2505.2# <sup>@</sup> | 90# 30                              | 2503.7                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2517.3               | 47 10                               | 2517.3                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2522.5               | 138 14                              | 2522.5                 |                             | 0.0            | 1/2 <sup>-</sup>            | possibly the E=2522.5-2526.4 primary γ reported by 1989Bo30.  |
| 2529.9               | 18 10                               | 2529.9                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2535.0               | 29 15                               | 2743.8                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2551.1               | 45 12                               | 2597.6                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2552.6               | 31 9                                | 2552.6                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2560.7               | 79 15                               | 2769.5                 |                             | 208.8          | 3/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2565.7 15 (130 40) (1989Bo30). Placed by 1989Bo30 from an otherwise unknown 2775 level. |
| 2564.9               | 61 12                               | 2611.4                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2567.7               | 32 10                               | 2567.7                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2569.1               | 75 12                               | 2615.6                 |                             | 45             | 3/2 <sup>-</sup>            | other E <sub>γ</sub> (I <sub>γ</sub> ): 2566.8 (250 40) (1989Bo30).   |
| 2573.9               | 39 10                               | 2573.9                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2574.1               | 50 15                               | 2782.9                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2593.2               | 78 14                               | 2593.2                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2608.5               | 41 14                               | 2817.3                 |                             | 208.8          | 3/2 <sup>-</sup>            |   |
| 2609.3               | 35 11                               | 2655.8                 |                             | 45             | 3/2 <sup>-</sup>            |   |
| 2612.4               | 38 12                               | 2612.4                 |                             | 0.0            | 1/2 <sup>-</sup>            |   |
| 2621.0 <sup>@</sup>  | 80 30                               | 2615.6                 |                             | 0.0            | 1/2 <sup>-</sup>            | E <sub>γ</sub> ,I(γ <sub>1</sub> γ <sub>2</sub> ): from 1989Bo30; E <sub>γ</sub> fits placement very poorly and                 |

Continued on next page (footnotes at end of table)

<sup>182</sup>W(n,γ) E=thermal: γγ coin **2005Su29** (continued)

γ(<sup>183</sup>W) (continued)

| <u>E<sub>γ</sub><sup>†</sup></u> | <u>I(γ<sub>1</sub>γ<sub>2</sub>)<sup>‡</sup></u> | <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> | <u>Comments</u>  |
|----------------------------------|--|-----------------------------|----------------------------------|----------------------|----------------------------------|--|
|                                  |  |                             |                                  |                      |                                  | branch is unconfirmed by <a href="#">2005Su29</a> , so placement is shown As questionable here. A weaker 2617γ branch has been reported In (n,γ) E=thermal.      |
| 2621.3                           | 26 11  | 2667.8                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2630.4                           | 16 14  | 2839.2                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 2640.7                           | 43 11  | 2687.2                      |                                  | 45                   | 3/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2644.9 (80 30) ( <a href="#">1989Bo30</a> ).   |
| 2647.0                           | 16 14  | 2855.8                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 2652.9                           | 29 11  | 2699.4                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2656.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3534.1               |                                  |  |
| 2660.9                           | 30   | 2707.4                      |                                  | 45                   | 3/2 <sup>-</sup>                 | I(γ <sub>1</sub> γ <sub>2</sub> ): reported uncertainty of 999 is presumed to be a typographical error; 9 would be more realistic.                               |
| 2667.8                           | 33 12  | 2667.8                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2669.0                           | 29 11  | 2715.5                      |                                  | 45                   | 3/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2666.4 (140 30) ( <a href="#">1989Bo30</a> ).  |
| 2672.4                           | 24 14  | 2881.2                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 2691.5                           | 29 11  | 2738.0                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2695.2                           | 22 11  | 2741.7                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2699.4                           | 45 12  | 2699.4                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2707.4                           | 57 12  | 2707.4                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2715.5                           | 61 13  | 2715.5                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2716.1 (210 30) ( <a href="#">1989Bo30</a> ).  |
| 2718.5                           | 23 11  | 2765.0                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2723.0                           | 44 11  | 2769.5                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2735.1                           | 23 11  | 2781.6                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2741.7                           | 56 15  | 2741.7                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2758.1                           | 21 12  | 2804.6                      |                                  | 45                   | 3/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2759.7 (60 30) ( <a href="#">1989Bo30</a> ).   |
| 2766.0                           | 51 11  | 2812.5                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2769.5                           | 31 12  | 2769.5                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2786.3                           | 46 11  | 2832.8                      |                                  | 45                   | 3/2 <sup>-</sup>                 | possibly the E=2784.4 to 2788.1 primary γ reported by <a href="#">1989Bo30</a> .   |
| 2804.7 <sup>@</sup>              |  | 2804.6                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 | from <a href="#">1989Bo30</a> ; γ absent In <a href="#">2005Su29</a> , so placement shown As uncertain here. I <sub>γ</sub> =60 30 ( <a href="#">1989Bo30</a> ). |
| 2834.8                           | 53 12  | 2834.8                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2843.1                           | 24 12  | 2843.1                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2847.4                           | 49 12  | 2847.4                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2867.9                           | 51 11  | 2914.4                      |                                  | 45                   | 3/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2865.6 (110 30) ( <a href="#">1989Bo30</a> ).  |
| 2898.9                           | 29 11  | 2945.4                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2910.1                           | 27 12  | 2910.1                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 | other E <sub>γ</sub> (I <sub>γ</sub> ): 2912.2 (70 30) ( <a href="#">1989Bo30</a> ).   |
| 2916.0                           | 15 4   | 3015.1                      |                                  | 99.1                 | 5/2 <sup>-</sup>                 |  |
| 2932.7                           | 43 12  | 2979.2                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 2954.4                           | 28 12  | 2954.4                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2966.5                           | 44 12  | 2966.5                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2979.2                           | 74 12  | 2979.2                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 2984.3                           | 73 13  | 3030.8                      |                                  | 45                   | 3/2 <sup>-</sup>                 | possibly the E <sub>γ</sub> =2982.5 to 2985.0 line reported by <a href="#">1989Bo30</a> .  |
| 3024.3                           | 25 11  | 3070.8                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 3032.1                           | 28 11  | 3078.6                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 3042.3                           | 29 12  | 3042.3                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 3050.0                           | 39 11  | 3096.5                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 3054.3                           | 32 12  | 3054.3                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 3078.6                           | 31 12  | 3078.6                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 3083.7                           | 41 12  | 3083.7                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 3094.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3096.5               |                                  |  |
| 3106.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3083.7               |                                  |  |
| 3112.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3078.6               |                                  |  |
| 3119.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3070.8               |                                  |  |
| 3136.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3054.3               |                                  |  |
| 3148.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3042.3               |                                  |  |
| 3159.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3030.8               |                                  | possibly the E=3161.6 15 γ placed by <a href="#">1989Bo30</a> from an otherwise unknown 3206 level.  |

Continued on next page (footnotes at end of table)



<sup>182</sup>W(n,γ) E=thermal: γγ coin **2005Su29** (continued)

γ(<sup>183</sup>W) (continued)

| <u>E<sub>γ</sub><sup>†</sup></u> | <u>I(γ<sub>1</sub>γ<sub>2</sub>)<sup>‡</sup></u> | <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> | <u>Comments</u>  |
|----------------------------------|--|-----------------------------|----------------------------------|----------------------|----------------------------------|--|
| 3175.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 3015.1               |                                  |  |
| <sup>x</sup> 3193.7              |  |                             |                                  |                      |                                  | from <a href="#">1989Bo30</a> only; placed by authors from an otherwise unknown 3405 level.              |
| <sup>x</sup> 3205.6              |  |                             |                                  |                      |                                  | from <a href="#">1989Bo30</a> only; placed by authors from an otherwise unknown 3405 level.              |
| 3211.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2979.2               |                                  |  |
| 3224.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2966.5               |                                  |  |
| 3236.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2954.4               |                                  |  |
| 3245.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2945.4               |                                  |  |
| 3276.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2914.4               |                                  | other E <sub>γ</sub> : 3278.5 <i>I5</i> ( <a href="#">1989Bo30</a> ); presumably for a doublet.          |
| 3280.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2910.1               |                                  | E <sub>γ</sub> : see comment on 3276γ.   |
| 3309.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2881.2               |                                  |  |
| 3325.3                           | 38 14  | 3534.1                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 3334.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2855.8               |                                  |  |
| 3343.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2847.4               |                                  |  |
| 3347.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2843.1               |                                  |  |
| 3351.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2839.2               |                                  |  |
| 3355.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2834.8               |                                  |  |
| 3357.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2832.8               |                                  | possibly the 3359.8 <i>I5</i> γ placed by <a href="#">1989Bo30</a> from an otherwise unknown 3405 level. |
| 3373.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2817.3               |                                  | possibly the 3373.1 <i>I5</i> γ placed by <a href="#">1989Bo30</a> from an otherwise unknown 3666 level. |
| 3378.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2812.5               |                                  |  |
| 3386.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2804.6               |                                  | other E <sub>γ</sub> : 3384.5 to 3386.0 from <a href="#">1989Bo30</a> .                                  |
| 3407.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2782.9               |                                  |  |
| 3409.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2781.6               |                                  | presumably part of a doublet (E <sub>γ</sub> =3415.8 to 3416.2) In <a href="#">1989Bo30</a> .            |
| 3421.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2769.5               |                                  | E <sub>γ</sub> : see comment on 3409γ.   |
| 3425.6                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2765.0               |                                  |  |
| 3446.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2743.8               |                                  |  |
| 3448.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2741.7               |                                  |  |
| 3452.6                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2738.0               |                                  | possibly the 3455.5 <i>I5</i> γ placed by <a href="#">1989Bo30</a> from an otherwise unknown 3666 level. |
| 3475.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2715.5               |                                  | other E <sub>γ</sub> : 3474.6 to 3477.7 from <a href="#">1989Bo30</a> .                                  |
| 3478.2                           | 13 15  | 3687.0                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 3483.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2707.4               |                                  |  |
| 3491.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2699.4               |                                  |  |
| 3501.0                           | 34 15  | 3709.8                      |                                  | 208.8                | 3/2 <sup>-</sup>                 |  |
| 3503.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2687.2               |                                  | other E <sub>γ</sub> : 3499.7 to 3500.2 from <a href="#">1989Bo30</a> .                                  |
| 3522.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2667.8               |                                  |  |
| 3534.1                           | 68 12  | 3534.1                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |  |
| 3534.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2655.8               |                                  |  |
| <sup>x</sup> 3568.7              |  |                             |                                  |                      |                                  | from <a href="#">1989Bo30</a> only; placed by authors from an otherwise unknown 3666 level.              |
| 3575.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2615.6               |                                  | other E <sub>γ</sub> : 3569.6 to 3578.4 from <a href="#">1989Bo30</a> .                                  |
| 3578.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2612.4               |                                  |  |
| 3579.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2611.4               |                                  |  |
| 3593.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2597.6               |                                  |  |
| 3597.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2593.2               |                                  |  |
| 3616.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2573.9               |                                  |  |
| 3622.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2567.7               |                                  |  |
| 3638.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2552.6               |                                  |  |
| 3640.5                           | 27 12  | 3687.0                      |                                  | 45                   | 3/2 <sup>-</sup>                 |  |
| 3640.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2550.1               |                                  |  |
| 3643.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2547.4               |                                  |  |
| 3655.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2534.9               |                                  |  |
| 3660.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2529.9               |                                  |  |

Continued on next page (footnotes at end of table)

<sup>182</sup>W(n,γ) E=thermal: γγ coin **2005Su29** (continued)

γ(<sup>183</sup>W) (continued)

| <u>E<sub>γ</sub><sup>†</sup></u> | <u>I(γ<sub>1</sub>γ<sub>2</sub>)<sup>‡</sup></u> | <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> | <u>Comments</u>   |
|----------------------------------|--|-----------------------------|----------------------------------|----------------------|----------------------------------|---|
| 3668.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2522.5               |                                  | possibly the E=3668.1 15 γ placed by 1989Bo30 from an otherwise unknown 3666 level. |
| 3673.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2517.3               |                                  |   |
| 3686.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2503.7               |                                  | other E <sub>γ</sub> : 3684.4 to 3685.6 from 1989Bo30.                              |
| 3687.0                           | 38 13  | 3687.0                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |   |
| 3696.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2493.9               |                                  |   |
| 3709.8                           | 25 13  | 3709.8                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |   |
| 3715.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2474.8               |                                  |   |
| 3740.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2450.4               |                                  |   |
| 3743.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2447.5               |                                  |   |
| 3757.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2433.2               |                                  |   |
| 3759.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2430.9               |                                  |   |
| 3762.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2428.1               |                                  |   |
| 3772.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2418.1               |                                  |   |
| 3793.6                           | 32 14  | 3840.1                      |                                  | 45                   | 3/2 <sup>-</sup>                 |   |
| 3798.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2392.1               |                                  | other E <sub>γ</sub> : 3799.4 to 3799.9 from 1989Bo30.                              |
| 3807.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2383.4               |                                  |   |
| 3817.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2373.2               |                                  |   |
| 3821.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2368.8               |                                  | other E <sub>γ</sub> : 3822.1 15 from 1989Bo30.                                     |
| 3824.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2366.4               |                                  | other E <sub>γ</sub> : 3824.7 to 3824.9 from 1989Bo30.                              |
| 3831.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2359.6               |                                  |   |
| 3840.1                           | 45 12  | 3840.1                      |                                  | 0.0                  | 1/2 <sup>-</sup>                 |   |
| 3866.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2324.5               |                                  |   |
| 3879.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2311.6               |                                  |   |
| 3886.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2303.9               |                                  |   |
| 3898.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2292.2               |                                  | other E <sub>γ</sub> : 3897.8 to 3898.5 from 1989Bo30.                              |
| 3907.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2282.8               |                                  |   |
| 3924.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2265.8               |                                  |   |
| 3927.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2262.7               |                                  |   |
| 3933.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2257.6               |                                  |   |
| 3942.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2247.8               |                                  |   |
| 3951.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2238.9               |                                  |   |
| 3955.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2235.3               |                                  | other E <sub>γ</sub> : 3957.3 to 3957.7 from 1989Bo30.                              |
| 3960.6                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2230.0               |                                  |   |
| 3981.8                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2208.8               |                                  |   |
| 4014.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2176.4               |                                  | other E <sub>γ</sub> : 4011.3 to 4012.9 from 1989Bo30.                              |
| 4023.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2166.9               |                                  | other E <sub>γ</sub> : 4022.1 to 4024.6 from 1989Bo30.                              |
| 4027.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2163.5               |                                  | other E <sub>γ</sub> : 4026.2 15 from 1989Bo30.                                     |
| 4033.6                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2157.0               |                                  |   |
| 4037.9                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2152.7               |                                  |   |
| 4060.6                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2130.0               |                                  | other E <sub>γ</sub> : 4062.2 15 from 1989Bo30.                                     |
| 4064.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2125.9               |                                  | other E <sub>γ</sub> : 4063.9 to 4064.8 from 1989Bo30.                              |
| 4079.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2111.4               |                                  |   |
| 4091.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2098.9               |                                  | other E <sub>γ</sub> : 4092.1 15 from 1989Bo30.                                     |
| 4095.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2095.4               |                                  | other E <sub>γ</sub> : 4093.8 15 from 1989Bo30.                                     |
| 4131.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2059.2               |                                  | other E <sub>γ</sub> : 4131.5 from 1989Bo30.  |
| 4133.1                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2057.5               |                                  | other E <sub>γ</sub> : 4132.6 15 from 1989Bo30.                                     |
| 4146.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2044.6               |                                  |   |
| 4162.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2028.3               |                                  | other E <sub>γ</sub> : 4161.5 to 4163.8 from 1989Bo30.                              |
| 4167.0                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2022.7               |                                  |   |
| 4186.2                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 2004.4               |                                  |   |
| 4200.4                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 1990.2               |                                  |   |
| 4226.5                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 1964.1               |                                  |   |
| 4238.3                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 1952.3               |                                  |   |
| 4246.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 1943.9               |                                  | other E <sub>γ</sub> : 4245.8 to 4250.7 from 1989Bo30.                              |
| 4258.7                           |  | (6190.60)                   | 1/2 <sup>+</sup>                 | 1931.9               |                                  |   |

Continued on next page (footnotes at end of table)

$^{182}\text{W}(n,\gamma)$  E=thermal:  $\gamma\gamma$  coin **2005Su29** (continued)

$\gamma(^{183}\text{W})$  (continued)

| $E_\gamma$ † | $E_i(\text{level})$ | $J_i^\pi$        | $E_f$                  | $J_f^\pi$ | Comments  |
|--------------|---------------------|------------------|------------------------|-----------|---|
| 4275.7       | (6190.60)           | 1/2 <sup>+</sup> | 1914.9                 |           |   |
| 4290.1       | (6190.60)           | 1/2 <sup>+</sup> | 1900.5                 |           |   |
| 4296.8       | (6190.60)           | 1/2 <sup>+</sup> | 1893.8                 |           |   |
| 4304.4       | (6190.60)           | 1/2 <sup>+</sup> | 1886.2                 |           | other $E_\gamma$ : 4303.7 to 4307.5 from <a href="#">1989Bo30</a> .                             |
| 4306.6       | (6190.60)           | 1/2 <sup>+</sup> | 1884.0                 |           |   |
| 4321.3       | (6190.60)           | 1/2 <sup>+</sup> | 1869.3                 |           |   |
| 4355.3       | (6190.60)           | 1/2 <sup>+</sup> | 1835.3                 |           | other $E_\gamma$ : 4349.8 to 4353.7 from <a href="#">1989Bo30</a> .                             |
| 4362.7       | (6190.60)           | 1/2 <sup>+</sup> | 1827.9                 |           |   |
| 4367.1       | (6190.60)           | 1/2 <sup>+</sup> | 1823.5                 |           | other $E_\gamma$ : 4366.9 to 4370.5 from <a href="#">1989Bo30</a> .                             |
| 4376.9       | (6190.60)           | 1/2 <sup>+</sup> | 1813.7                 |           |   |
| 4379.2       | (6190.60)           | 1/2 <sup>+</sup> | 1811.4                 |           | other $E_\gamma$ : 4378.2 to 4379.2 from <a href="#">1989Bo30</a> .                             |
| 4400.3       | (6190.60)           | 1/2 <sup>+</sup> | 1790.3                 |           |   |
| 4444.0       | (6190.60)           | 1/2 <sup>+</sup> | 1746.6                 |           |   |
| 4460.6       | (6190.60)           | 1/2 <sup>+</sup> | 1730.0                 |           | other $E_\gamma$ : 4460.2 to 4461.1 from <a href="#">1989Bo30</a> .                             |
| 4465.7       | (6190.60)           | 1/2 <sup>+</sup> | 1724.9                 |           |   |
| 4513.7       | (6190.60)           | 1/2 <sup>+</sup> | 1676.9                 |           | other $E_\gamma$ : 4513.3 <i>I5</i> from <a href="#">1989Bo30</a> .                             |
| 4518.1       | (6190.60)           | 1/2 <sup>+</sup> | 1672.5                 |           | other $E_\gamma$ : 4516.7 to 4518.4 from <a href="#">1989Bo30</a> .                             |
| 4521.3       | (6190.60)           | 1/2 <sup>+</sup> | 1669.3                 |           | other $E_\gamma$ : 4523.3 to 4528.9 from <a href="#">1989Bo30</a> ; apparently for a doublet.   |
| 4528.7       | (6190.60)           | 1/2 <sup>+</sup> | 1661.9                 |           | see comment on 4521 $\gamma$ .  |
| 4531.1       | (6190.60)           | 1/2 <sup>+</sup> | 1659.5                 |           |   |
| 4532.6       | (6190.60)           | 1/2 <sup>+</sup> | 1658.0                 |           |   |
| 4557.9       | (6190.60)           | 1/2 <sup>+</sup> | 1632.7                 |           |   |
| 4562.6       | (6190.60)           | 1/2 <sup>+</sup> | 1628.0                 |           | other $E_\gamma$ : 4562.9 to 4566.3 from <a href="#">1989Bo30</a> .                             |
| 4573.7       | (6190.60)           | 1/2 <sup>+</sup> | 1616.9                 |           | other $E_\gamma$ : 4571.6 <i>I5</i> from <a href="#">1989Bo30</a> ; coin with 1327.2 $\gamma$ . |
| 4575.4       | (6190.60)           | 1/2 <sup>+</sup> | 1615.2                 |           |   |
| 4578.5       | (6190.60)           | 1/2 <sup>+</sup> | 1612.1                 |           |   |
| 4604.3       | (6190.60)           | 1/2 <sup>+</sup> | 1586.3                 |           |   |
| 4634.9       | (6190.60)           | 1/2 <sup>+</sup> | 1555.7                 |           | other $E_\gamma$ : 4632.5 to 4635.7 from <a href="#">1989Bo30</a> .                             |
| 4652.8       | (6190.60)           | 1/2 <sup>+</sup> | 1537.8                 |           |   |
| 4688.5       | (6190.60)           | 1/2 <sup>+</sup> | 1502.1                 |           |   |
| 4720.0       | (6190.60)           | 1/2 <sup>+</sup> | 1470.6                 |           | other $E_\gamma$ : 4718.9 to 4720.1 from <a href="#">1989Bo30</a> .                             |
| 4727.8       | (6190.60)           | 1/2 <sup>+</sup> | 1462.8                 |           | other $E_\gamma$ : 4729.0 to 4730.6 from <a href="#">1989Bo30</a> .                             |
| 4757.7       | (6190.60)           | 1/2 <sup>+</sup> | 1432.9                 |           |   |
| 4773.2       | (6190.60)           | 1/2 <sup>+</sup> | 1417.4                 |           |   |
| 4777.9       | (6190.60)           | 1/2 <sup>+</sup> | 1412.7                 |           |   |
| 4881.9       | (6190.60)           | 1/2 <sup>+</sup> | 1308.7                 |           | other $E_\gamma$ : 4879.8 to 4880.6 from <a href="#">1989Bo30</a> .                             |
| 4918.6       | (6190.60)           | 1/2 <sup>+</sup> | 1272.0                 |           |   |
| 4964.2       | (6190.60)           | 1/2 <sup>+</sup> | 1226.4                 |           |   |
| 5002.4       | (6190.60)           | 1/2 <sup>+</sup> | 1188.2                 |           |   |
| 5094.3       | (6190.60)           | 1/2 <sup>+</sup> | 1096.3                 |           |   |
| 5164.7       | (6190.60)           | 1/2 <sup>+</sup> | 1025.9                 |           | other $E_\gamma$ : 5163.7 to 5164.7 from <a href="#">1989Bo30</a> .                             |
| 5239.4       | (6190.60)           | 1/2 <sup>+</sup> | 951.2 ( $\leq 7/2$ )   |           |   |
| 5240.8       | (6190.60)           | 1/2 <sup>+</sup> | 949.8 ( $\leq 7/2$ )   |           |   |
| 5249.1       | (6190.60)           | 1/2 <sup>+</sup> | 941.5 ( $\leq 7/2$ )   |           |   |
| 5256.6       | (6190.60)           | 1/2 <sup>+</sup> | 934.0                  |           | other $E_\gamma$ : 5257 from <a href="#">1989Bo30</a> .   |
| 5281.3       | (6190.60)           | 1/2 <sup>+</sup> | 909.3                  |           |   |
| 5287.6       | (6190.60)           | 1/2 <sup>+</sup> | 903.0                  |           | other $E_\gamma$ : 5287 from <a href="#">1989Bo30</a> .   |
| 5290.9       | (6190.60)           | 1/2 <sup>+</sup> | 899.7                  |           |   |
| 5318.7       | (6190.60)           | 1/2 <sup>+</sup> | 871.9                  |           |   |
| 5374.3       | (6190.60)           | 1/2 <sup>+</sup> | 816.5                  |           |   |
| 5382.4       | (6190.60)           | 1/2 <sup>+</sup> | 808.2                  |           |   |
| 5385.8       | (6190.60)           | 1/2 <sup>+</sup> | 804.8                  |           |   |
| 5513.0       | (6190.60)           | 1/2 <sup>+</sup> | 677.6                  |           |   |
| 5633.2       | (6190.60)           | 1/2 <sup>+</sup> | 557.4                  |           |   |
| 5899         | (6190.60)           | 1/2 <sup>+</sup> | 291.7 5/2 <sup>-</sup> |           |   |
| 5981.70 22   | (6190.60)           | 1/2 <sup>+</sup> | 208.8 3/2 <sup>-</sup> |           | $E_\gamma$ : from <a href="#">2014Hu02</a> ; 5982 from <a href="#">1989Bo30</a> .               |

Continued on next page (footnotes at end of table)

$^{182}\text{W}(\text{n},\gamma)$  E=thermal:  $\gamma\gamma$  coin 2005Su29 (continued) $\gamma(^{183}\text{W})$  (continued)

| $E_\gamma$ <sup>†</sup> | $E_i(\text{level})$ | $J_i^\pi$        | $E_f$ | $J_f^\pi$        | Comments   |
|-------------------------|---------------------|------------------|-------|------------------|--|
| 6091.2 3                | (6190.60)           | 1/2 <sup>+</sup> | 99.1  | 5/2 <sup>-</sup> | $E_\gamma$ : from 2014Hu02; 6092 from 1989Bo30.  |
| 6144.28 6               | (6190.60)           | 1/2 <sup>+</sup> | 45    | 3/2 <sup>-</sup> | $E_\gamma$ : from 2014Hu02; 6144 from 1989Bo30.  |
| 6190.78 6               | (6190.60)           | 1/2 <sup>+</sup> | 0.0   | 1/2 <sup>-</sup> | $E_\gamma$ : from 2014hu002; 6191 from 1989Bo30. |

<sup>†</sup> From 2005Su29, except As noted; uncertainty unstated by authors.

<sup>‡</sup> Measured two-photon cascade coin intensity per 10<sup>5</sup> decays; from 2005Su29, except As noted. this intensity depends on both the primary and the secondary transitions' photon intensities and provides photon branching information from the intermediate level.

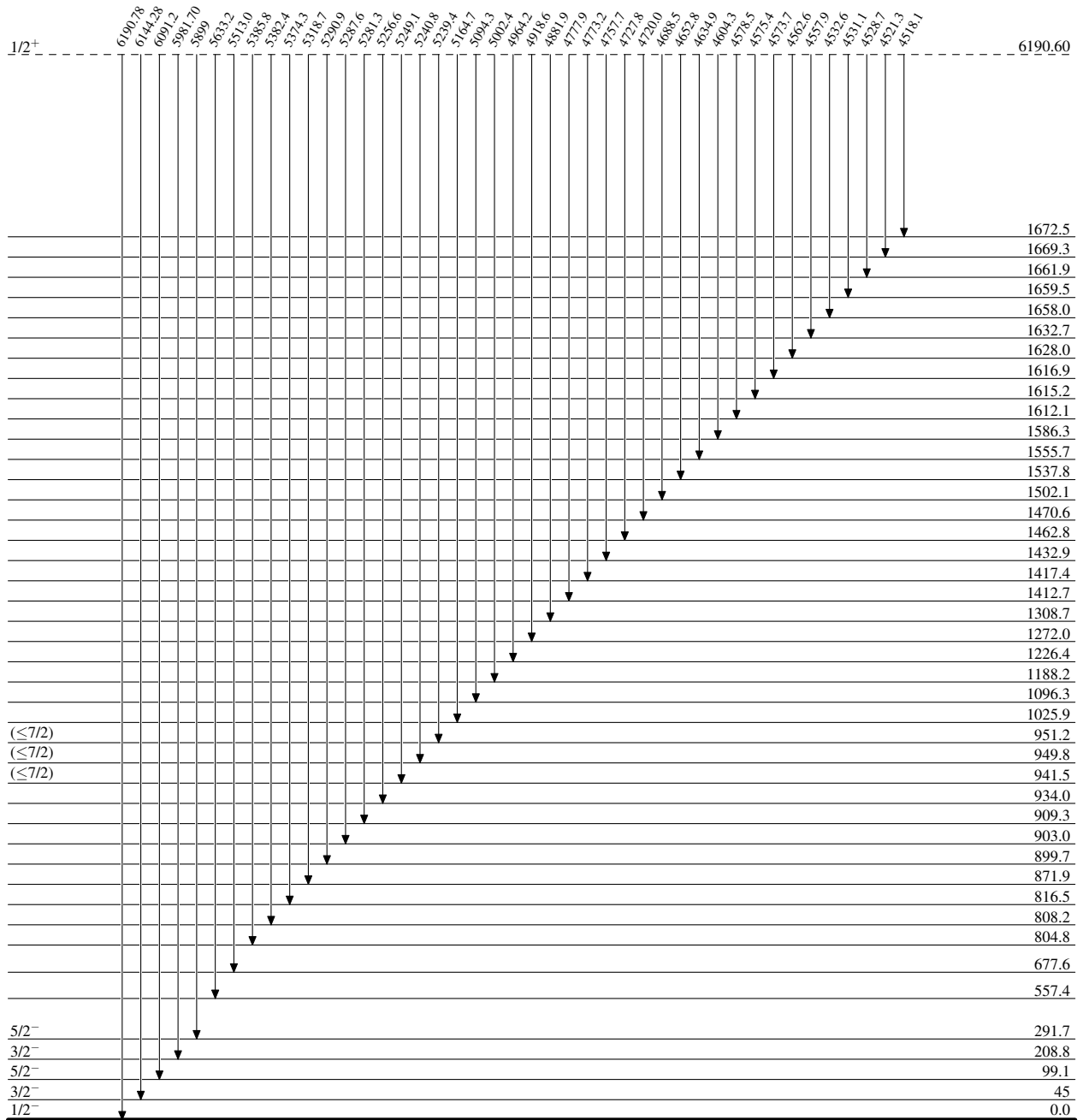
<sup>#</sup> From 1989Bo30; unconfirmed by 2005Su29, so omitted from Adopted Gammas.

<sup>@</sup> Placement of transition in the level scheme is uncertain.

<sup>x</sup>  $\gamma$  ray not placed in level scheme.

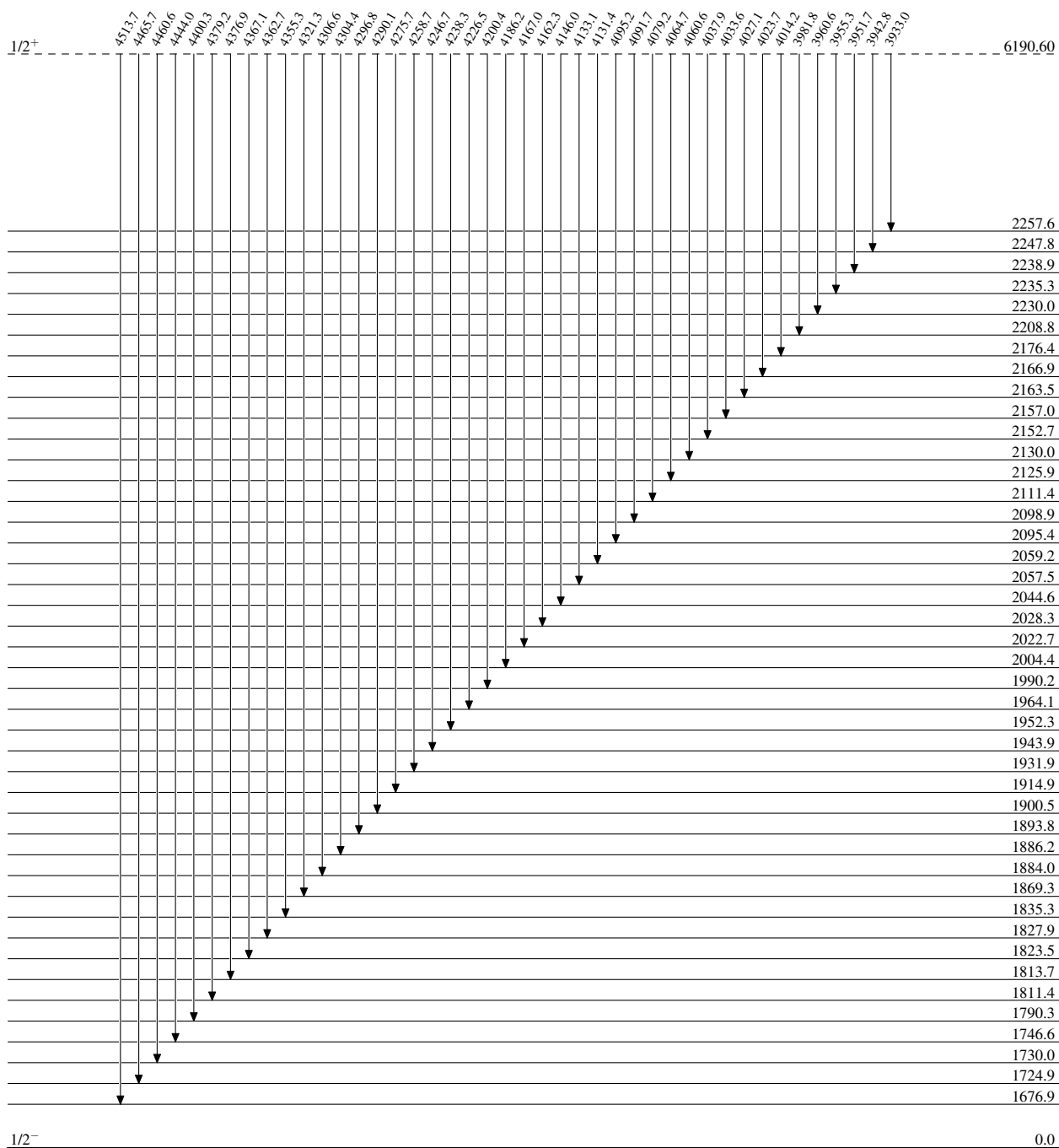
$^{182}\text{W}(n,\gamma) \text{E=thermal: } \gamma\gamma \text{ coin } 2005\text{Su29}$ 

## Level Scheme

Intensities: Two-photon cascade intensity /  $10^5$  decays

$^{182}\text{W}(n,\gamma)\text{E=thermal: } \gamma\gamma \text{ coin } 2005\text{Su29}$ 

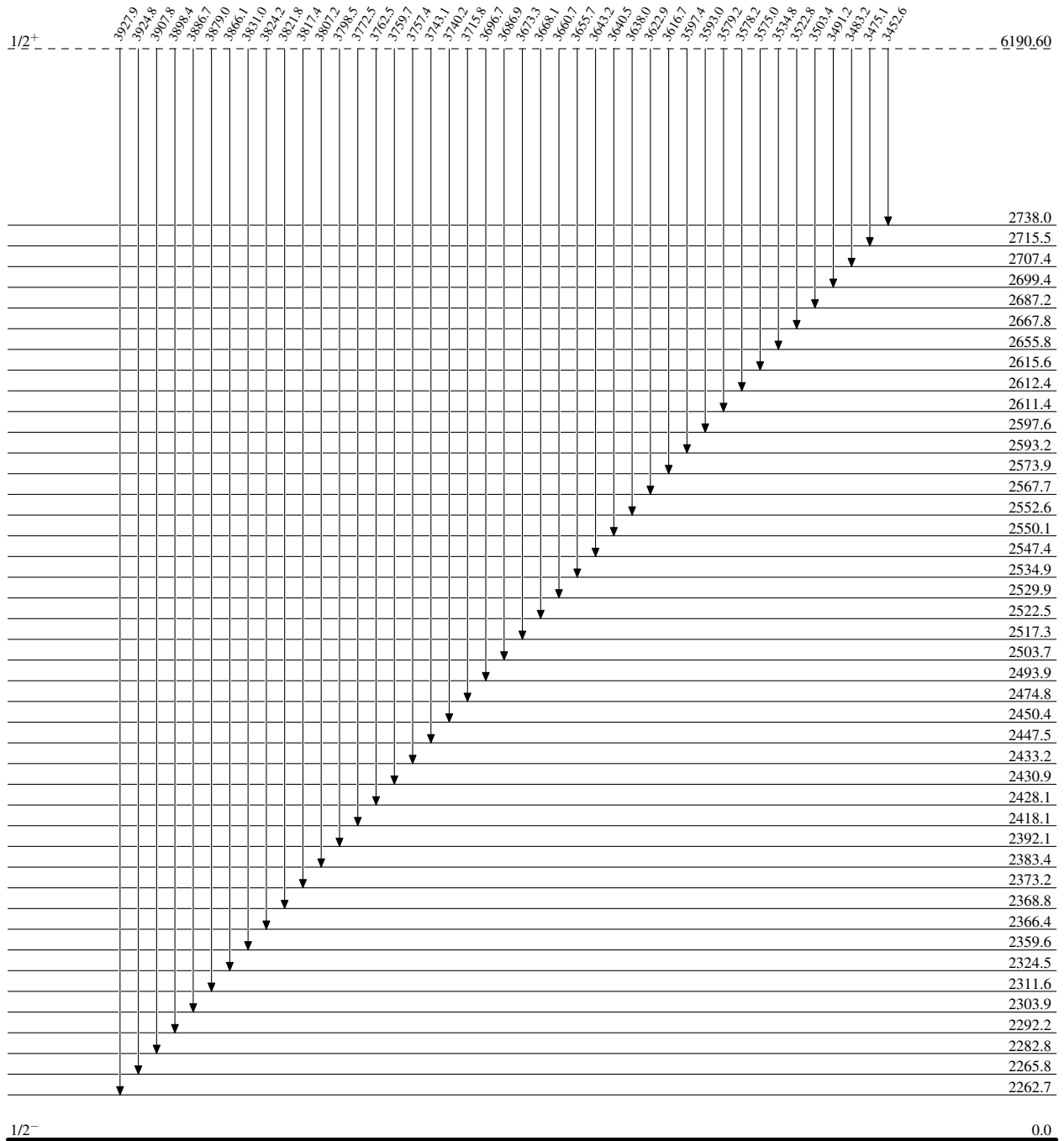
## Level Scheme (continued)

Intensities: Two-photon cascade intensity /  $10^5$  decays

$^{182}\text{W}(n,\gamma)\text{E=thermal: } \gamma\gamma\text{ coin } 2005\text{Su29}$

Level Scheme (continued)

Intensities: Two-photon cascade intensity /  $10^5$  decays



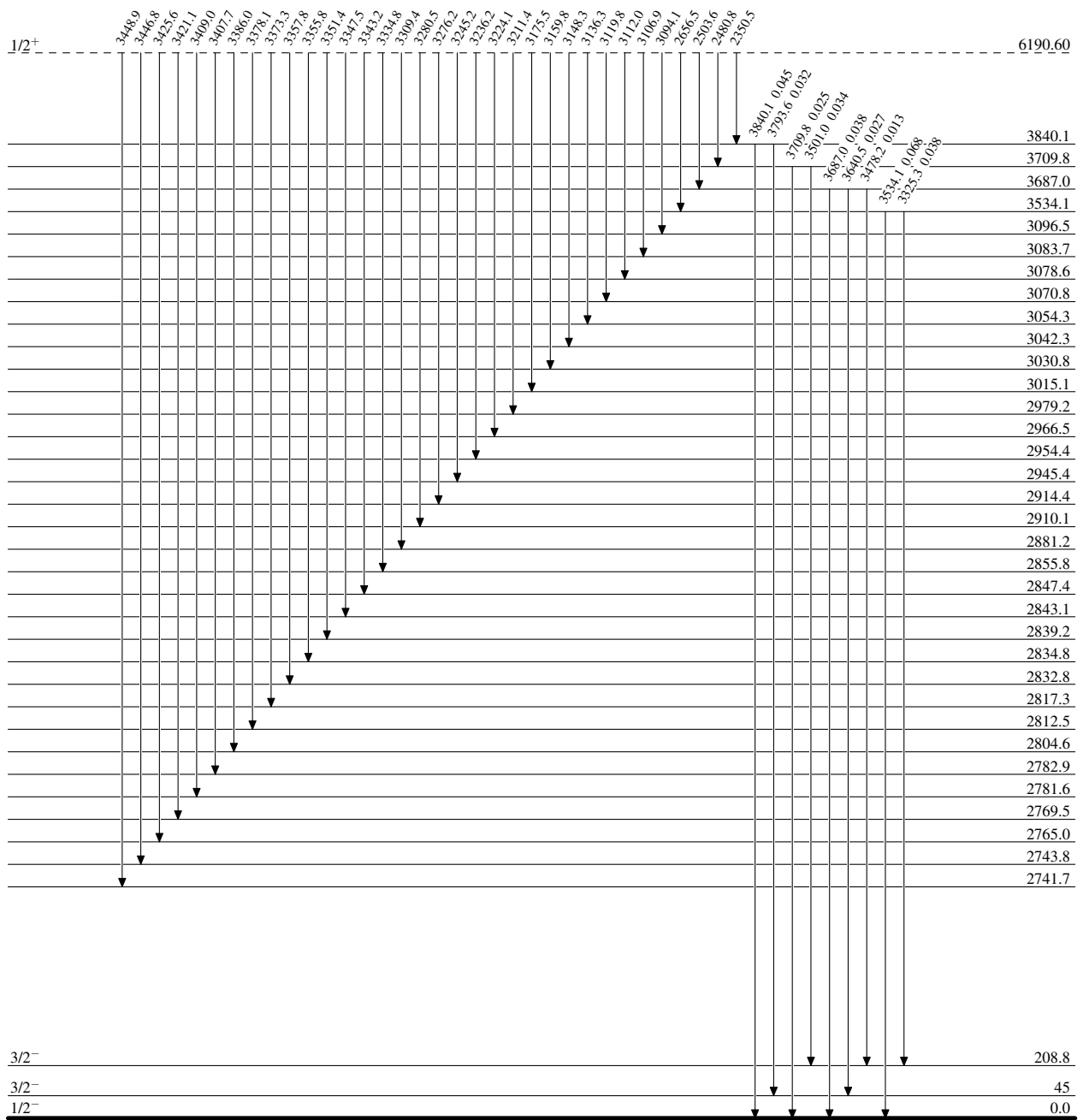
$^{182}\text{W}(n,\gamma)$  E=thermal:  $\gamma\gamma$  coin 2005Su29

Level Scheme (continued)

Intensities: Two-photon cascade intensity /  $10^5$  decays

Legend

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



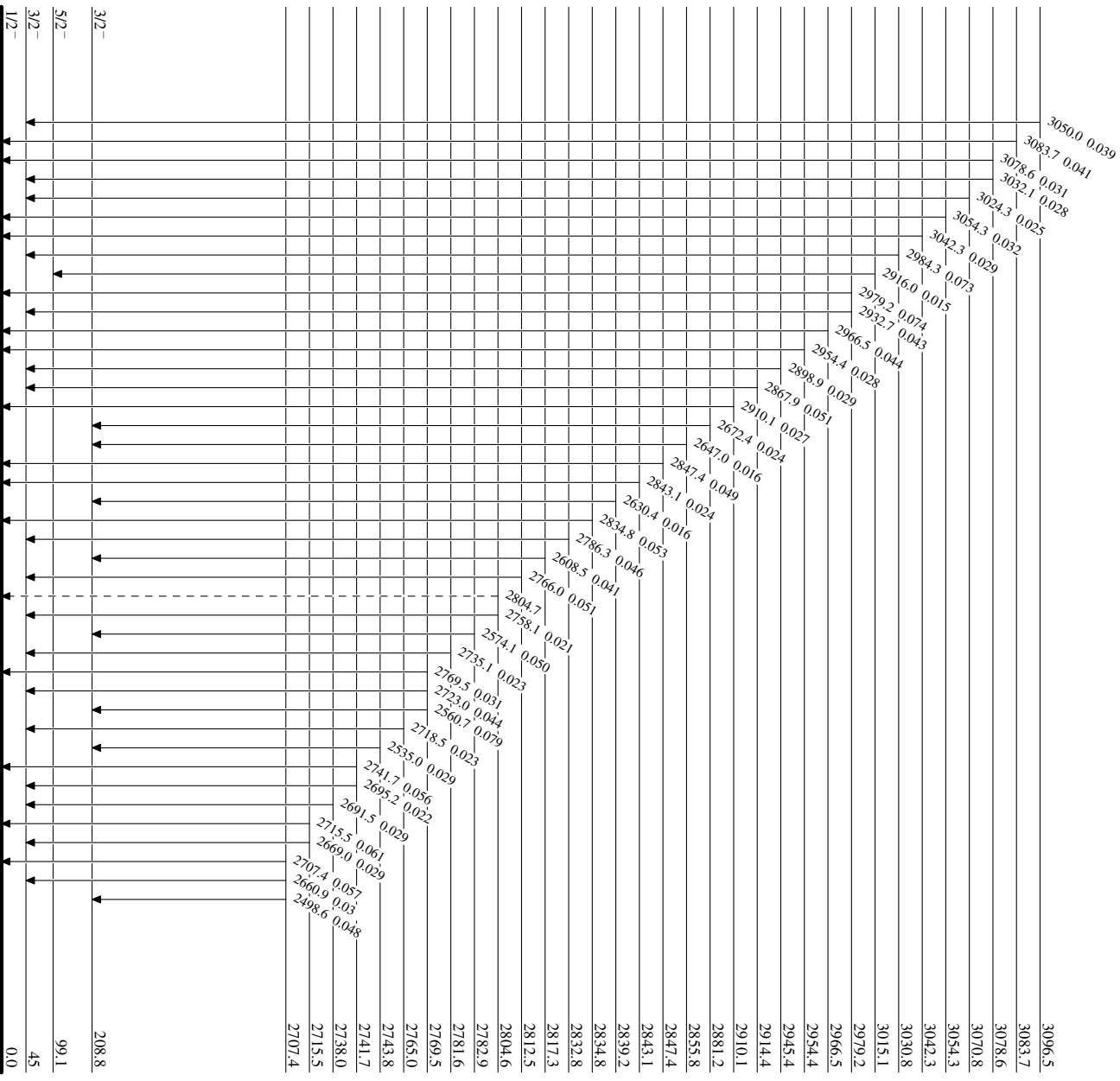


**182W(n, $\gamma$ ) E=thermal:  $\gamma\gamma$  coin 2005Su29**

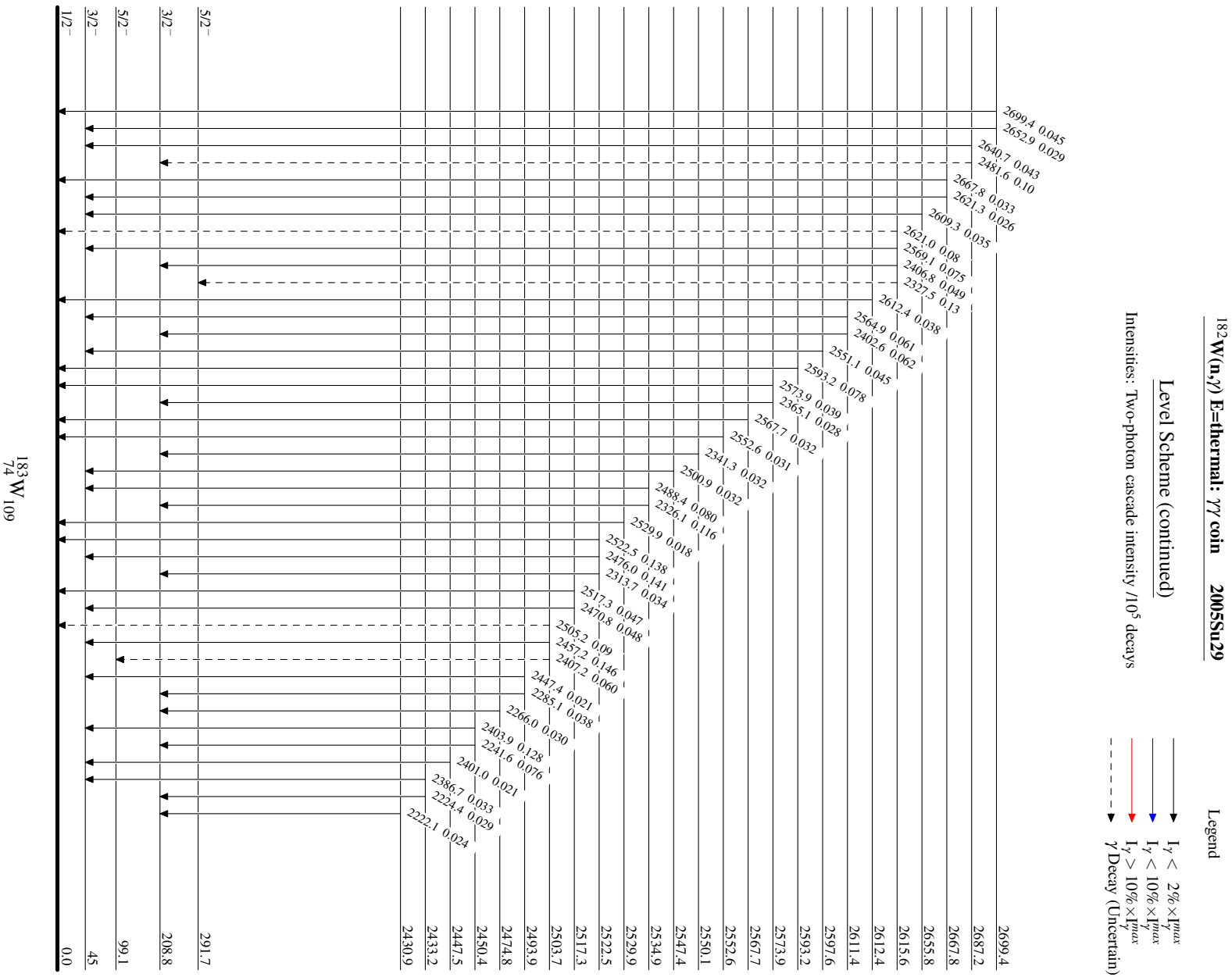
Level Scheme (continued)

Intensities: Two-photon cascade intensity /10<sup>5</sup> decays

- Legend
- $I_\gamma < 2\% \times I_{\gamma}^{max}$
  - ←  $I_\gamma < 10\% \times I_{\gamma}^{max}$
  - $I_\gamma > 10\% \times I_{\gamma}^{max}$
  - - -  $\gamma$  Decay (Uncertain)



183W 109

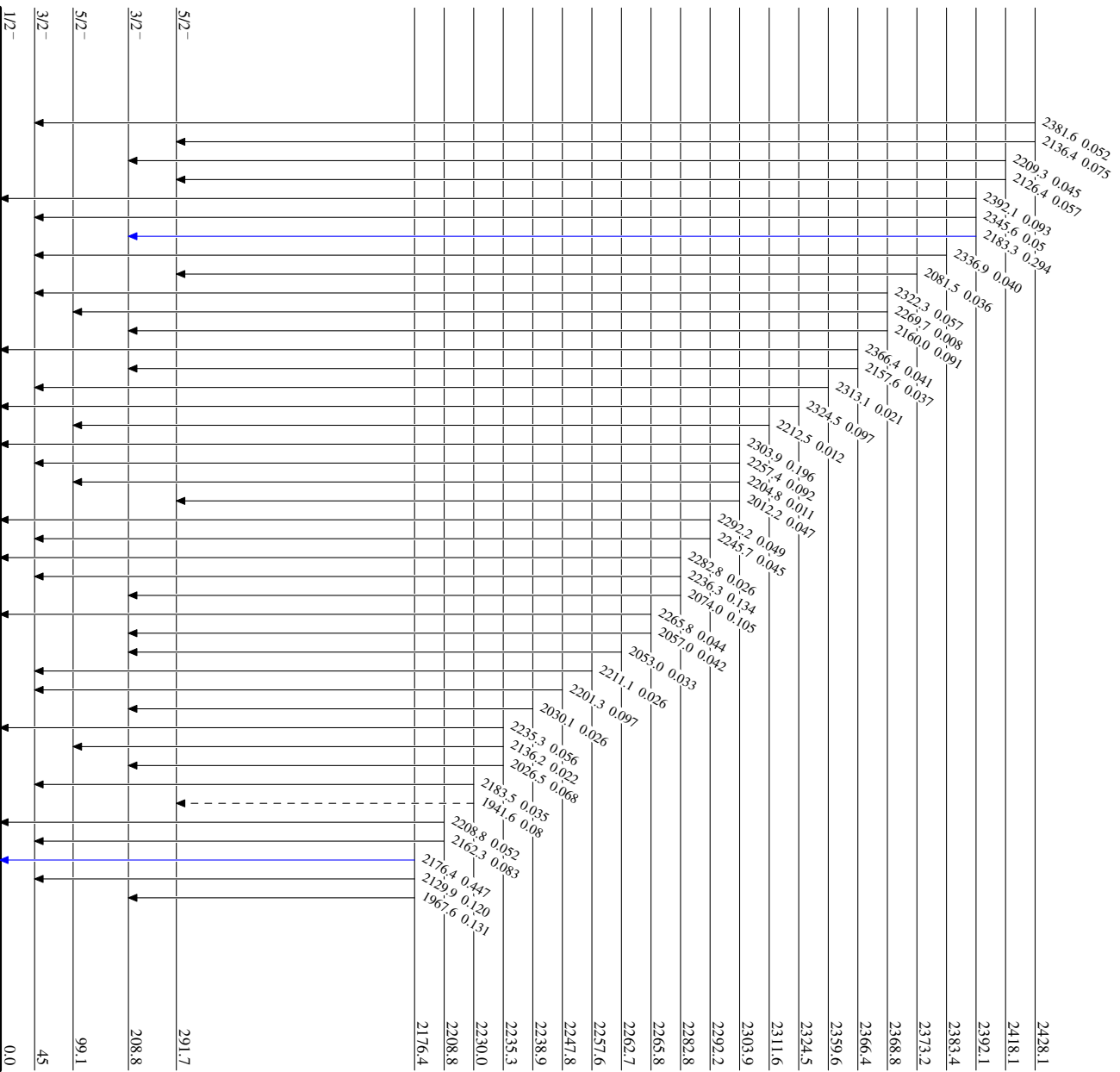


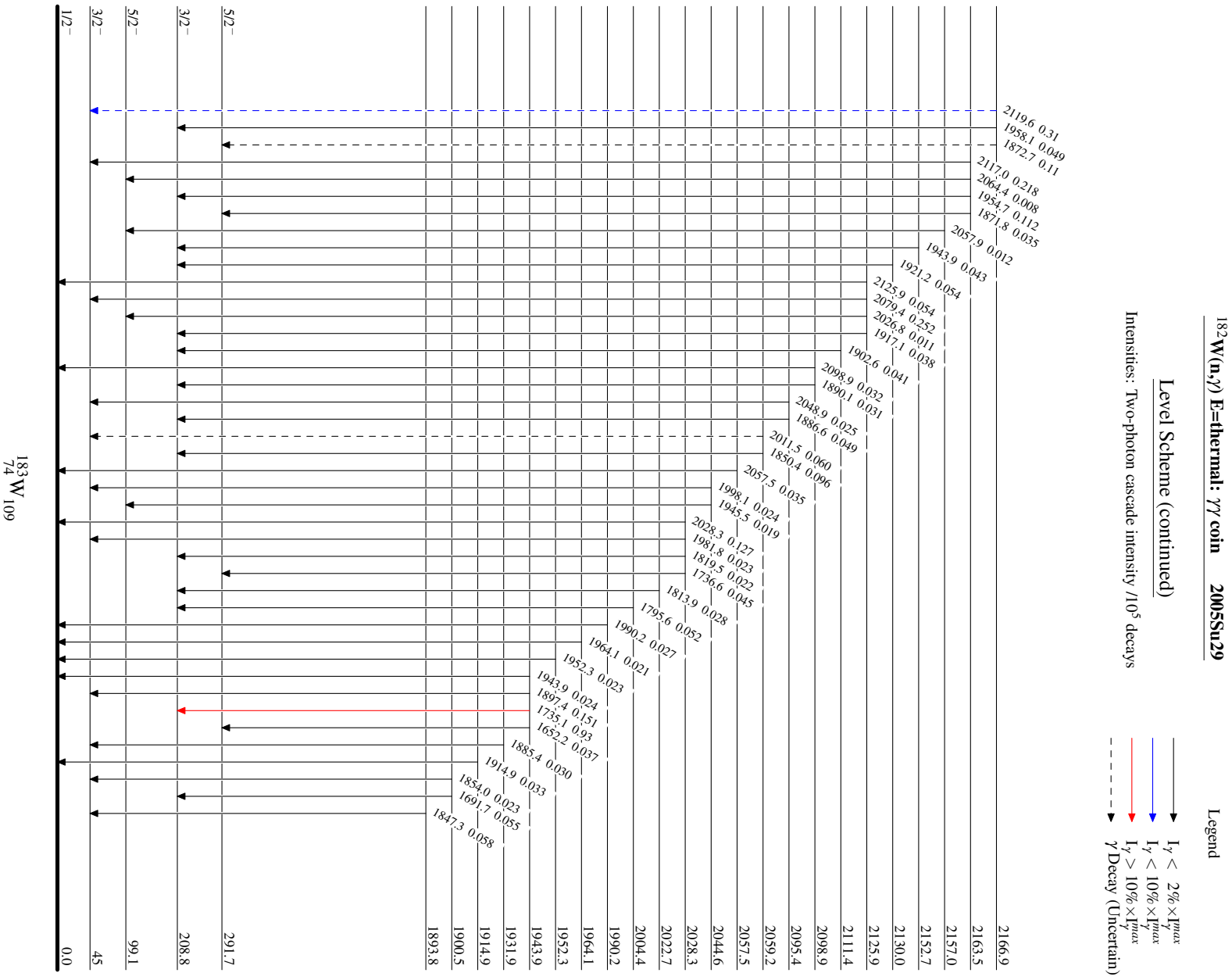
<sup>182</sup>W(n,γ) E=thermal: γγ coin    2005Su29

Level Scheme (continued)

Intensities: Two-photon cascade intensity /10<sup>5</sup> decays

- Legend
- $I_\gamma < 2\% \times I_{\gamma}^{max}$
  - $I_\gamma < 10\% \times I_{\gamma}^{max}$
  - $I_\gamma > 10\% \times I_{\gamma}^{max}$
  - γ Decay (Uncertain)





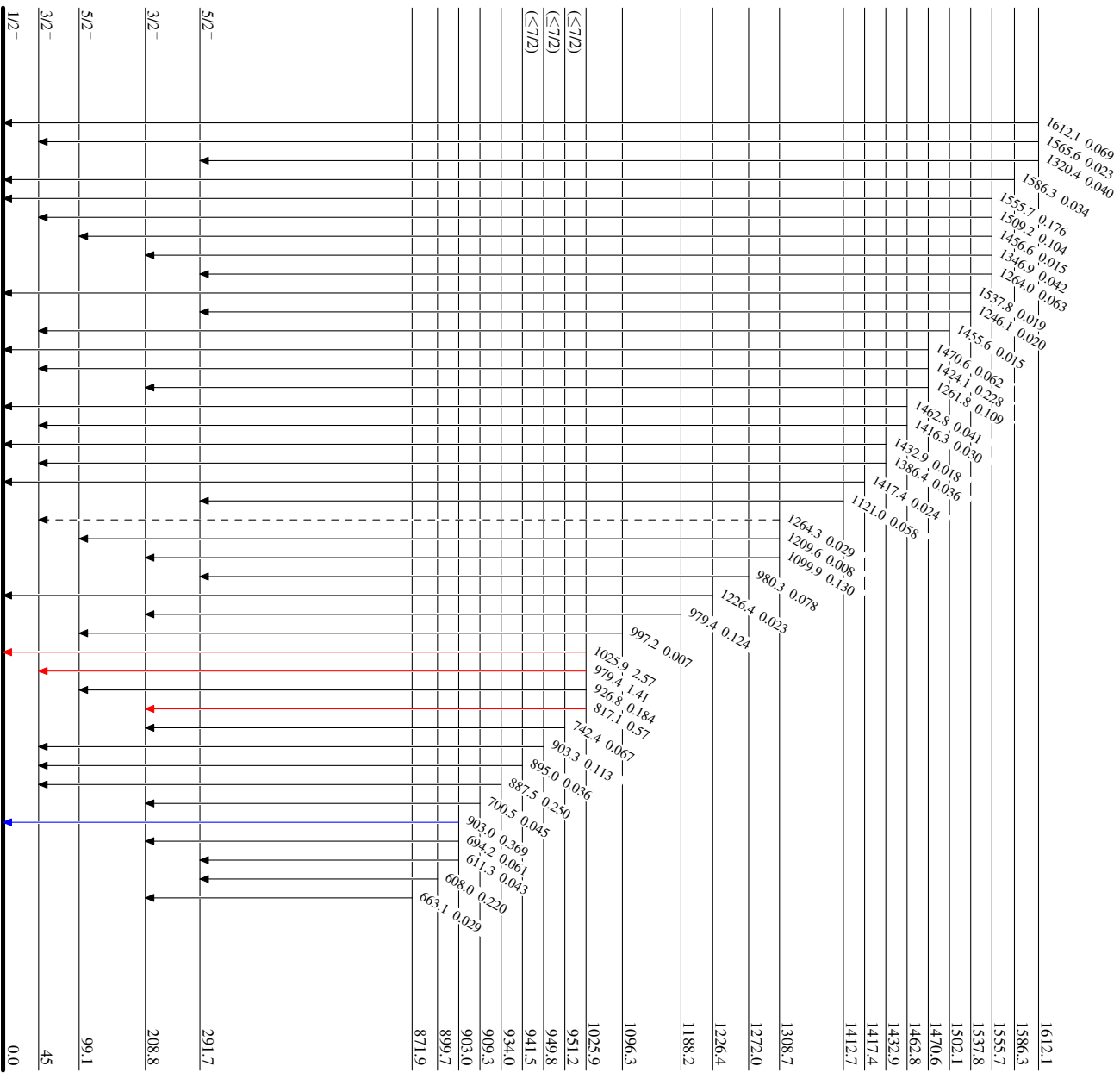


**182W(n, $\gamma$ )E=thermal:  $\gamma\gamma$  coin 2005Su29**

**Level Scheme (continued)**

Intensities: Two-photon cascade intensity /10<sup>5</sup> decays

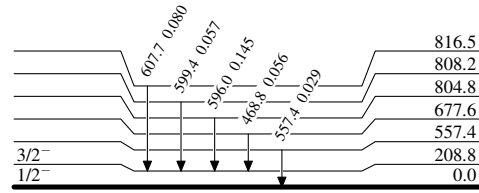
- Legend
- $\rightarrow$   $I_\gamma < 2\% \times I_{\gamma}^{max}$
  - $\rightarrow$   $I_\gamma < 10\% \times I_{\gamma}^{max}$
  - $\rightarrow$   $I_\gamma > 10\% \times I_{\gamma}^{max}$
  - $\rightarrow$   $\gamma$  Decay (Uncertain)



183W  
74 109

$^{182}\text{W}(n,\gamma) \text{E=thermal: } \gamma\gamma \text{ coin } \text{2005Su29}$ 

## Level Scheme (continued)

Intensities: Two-photon cascade intensity /  $10^5$  decays

## Legend

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

 $^{183}_{74}\text{W}_{109}$