

**Adopted Levels, Gammas**

| Type            | Author          | History<br>Citation | Literature Cutoff Date |
|-----------------|-----------------|---------------------|------------------------|
| Full Evaluation | Coral M. Baglin | NDS 111,275 (2010)  | 1-Oct-2009             |

$Q(\beta^-) = -4.65 \times 10^3$  3;  $S(n) = 8.66 \times 10^3$  5;  $S(p) = 5734$  8;  $Q(\alpha) = 2957.0$  23 [2012Wa38](#)

Note: Current evaluation has used the following Q record -4645 28 8660 50 5734 8 2956.8 26 [2003Au03,2009AuZZ](#).

$Q(\alpha)$ : From [2009AuZZ](#);  $Q(\alpha) = 2963$  4 in [2003Au03](#).

Other reaction:

$^{184}\text{W}(^7\text{Li}, X)$ ,  $E = 70$  MeV ([2005CI07](#)); observed three known transitions.

For atomic isotope shift data, relative to  $^{192}\text{Os}$ , see [2006Av09](#).

 **$^{184}\text{Os}$  Levels****Cross Reference (XREF) Flags**

|          |                                       |          |                                  |          |                                            |
|----------|---------------------------------------|----------|----------------------------------|----------|--------------------------------------------|
| <b>A</b> | $^{184}\text{Ir}$ $\varepsilon$ decay | <b>E</b> | $^{185}\text{Re}(p, 2n\gamma)$   | <b>I</b> | $^{184}\text{Os}$ IT decay (23.6 ns)       |
| <b>B</b> | $^{182}\text{W}(\alpha, 2n\gamma)$    | <b>F</b> | $^{187}\text{Re}(p, 4n\gamma)$   | <b>J</b> | $^{176}\text{Yb}(^{13}\text{C}, 5n\gamma)$ |
| <b>C</b> | $^{184}\text{W}(\alpha, 4n\gamma)$    | <b>G</b> | $^{186}\text{Os}(p, t)$          | <b>K</b> | $^{170}\text{Er}(^{18}\text{O}, 4n\gamma)$ |
| <b>D</b> | $^{186}\text{W}(\alpha, 6n\gamma)$    | <b>H</b> | $^{188}\text{Pt}$ $\alpha$ decay |          |                                            |

| E(level) <sup>†</sup>   | $J^\pi$ <sup>‡</sup>                  | $T_{1/2}$ <sup>#</sup>  | XREF        | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|---------------------------------------|-------------------------|-------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0 <sup>b</sup>        | 0 <sup>+</sup>                        | $>5.6 \times 10^{13}$ y | ABCDEFGHIJK | $\% \alpha = ?$ ; $\% 2\beta = ?$<br>$\langle r^2 \rangle^{1/2}(\text{charge}) = 5.3820$ 23 ( <a href="#">2004An14</a> ).<br>$T_{1/2}$ : from <a href="#">1976Sp04</a> , proportional counter measurement, 95% confidence level. Other: <a href="#">1956Po16</a> , $T_{1/2} > 2 \times 10^{13}$ y, nuclear emulsion, corrected by evaluator assuming natural abundance in the source. Note that, using the equation of <a href="#">1961Ta22</a> , the predicted half-life is $2 \times 10^{13}$ y; a similar prediction of $T_{1/2} = 1.3 \times 10^{15}$ y for $^{186}\text{Os}$ agrees within the experimental uncertainty. |
| 119.77 <sup>b</sup> 9   | 2 <sup>+</sup>                        | 1.184 ns 13             | ABCDEFG IJK | $Q = -2.4$ 11 ( <a href="#">1972La16</a> )<br>$Q$ : from Coulomb excitation reorientation ( <a href="#">1972La16</a> ).<br>$J^\pi$ : E2 120 $\gamma$ to 0 <sup>+</sup> g.s..<br>$T_{1/2}$ : from $^{184}\text{Ir}$ $\varepsilon$ decay. Other data: $<2.2$ ns from ( $\alpha, 6n\gamma$ ).                                                                                                                                                                                                                                                                                                                                    |
| 383.68 <sup>b</sup> 11  | 4 <sup>+</sup>                        | 46 ps 13                | ABCDEFG IJK | $J^\pi$ : stretched E2 264 $\gamma$ to 2 <sup>+</sup> 120.<br>$T_{1/2}$ : from $^{184}\text{Ir}$ $\varepsilon$ decay.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 774.08 <sup>b</sup> 12  | 6 <sup>+</sup>                        | $<2.2^r$ ns             | ABCDEFG IJK | $J^\pi$ : stretched E2 390 $\gamma$ to 4 <sup>+</sup> 384.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 942.87 <sup>d</sup> 11  | 2 <sup>+</sup>                        |                         | AB EFG JK   | $J^\pi$ : M1+E2 823 $\gamma$ to 2 <sup>+</sup> 120 level; E2 943 $\gamma$ to 0 <sup>+</sup> g.s..                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1042 <sup>c</sup> 7     | 0 <sup>+</sup>                        |                         | G           | $J^\pi, E(\text{level})$ : from (p,t). $L(p,t) = 0$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1080.97 <sup>d</sup> 12 | 3 <sup>+</sup>                        |                         | AB EF IJK   | $J^\pi$ : M1+E2 961 $\gamma$ to 2 <sup>+</sup> 120; M1+E2 697 $\gamma$ to 4 <sup>+</sup> 384.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1204.71 <sup>c</sup> 21 | 2 <sup>+</sup>                        |                         | A E G J     | $J^\pi$ : J=2 member of $\beta$ band for which $J^\pi$ of J=0 and 4 members is independently established.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 1224.99 <sup>d</sup> 12 | 4 <sup>+</sup>                        |                         | AB EFG IJK  | $J^\pi$ : stretched E2 1105 $\gamma$ to 2 <sup>+</sup> 120, M1+E2 842 $\gamma$ to 4 <sup>+</sup> 374.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| 1274.75 <sup>b</sup> 16 | 8 <sup>+</sup>                        | $<2.2^r$ ns             | ABCDEFG IJK | $J^\pi$ : stretched E2 501 $\gamma$ to 6 <sup>+</sup> 774.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 1406.99 22              | (4 <sup>+</sup> , 5, 6 <sup>+</sup> ) |                         | I           | $J^\pi$ : gammas to 4 <sup>+</sup> and 6 <sup>+</sup> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1428.15 <sup>d</sup> 12 | 5 <sup>+</sup>                        |                         | AB EF IJK   | $J^\pi$ : M1+E2 1044 $\gamma$ to 6 <sup>+</sup> 774; M1+E2 1045 $\gamma$ to 4 <sup>+</sup> 384.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1445.72 12              | (3, 4) <sup>+</sup>                   |                         | A E G       | $J^\pi$ : M1+E2 365 $\gamma$ to 3 <sup>+</sup> 1081, E2 503 $\gamma$ to 2 <sup>+</sup> 943; $\log ft = 8.0$ from 5 <sup>-</sup> in $\varepsilon$ decay.                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1500.57 <sup>c</sup> 14 | 4 <sup>+</sup>                        |                         | A E G J     | $J^\pi$ : M1+E2+E0 1117 $\gamma$ to 4 <sup>+</sup> 384.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 1543.70 <sup>i</sup> 13 | (3) <sup>-</sup>                      |                         | A E G IJK   | $J^\pi$ : E1+M2 1160 $\gamma$ to 4 <sup>+</sup> 384; E2 174 $\gamma$ from 5 <sup>-</sup> 1718, 1424 $\gamma$ to 2 <sup>+</sup> 120.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1613.15 <sup>d</sup> 14 | 6 <sup>+</sup>                        |                         | A E IJK     | $J^\pi$ : stretched E2 1229 $\gamma$ to 4 <sup>+</sup> 384, M1+E2 839 $\gamma$ to 6 <sup>+</sup> 774.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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**Adopted Levels, Gammas (continued)** $^{184}\text{Os}$  Levels (continued)

| E(level) <sup>†</sup>       | J <sup>π</sup> <sup>‡</sup>         | T <sub>1/2</sub> <sup>#</sup> | XREF      | Comments                                                                                                                                                                                                |
|-----------------------------|-------------------------------------|-------------------------------|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1620.67 <sup>i</sup> 12     | 4 <sup>-</sup>                      |                               | A E I K   | J <sup>π</sup> : E1 540γ to 3 <sup>+</sup> 1081, M1+E2 97γ from 5 <sup>-</sup> 1718.                                                                                                                    |
| 1631.51 12                  | (4,5) <sup>+</sup>                  |                               | A E       | J <sup>π</sup> : M1+E2 203γ to 5 <sup>+</sup> 1428; E2 551 to 3 <sup>+</sup> 1081.                                                                                                                      |
| 1637.8? 3                   |                                     |                               | I         |                                                                                                                                                                                                         |
| 1697.95 18                  | (3 <sup>+</sup> ,4 <sup>+</sup> )   |                               | A E       | J <sup>π</sup> : M1+E2(+E0) 1314γ to 4 <sup>+</sup> 384, E1,E2 1579γ to 2 <sup>+</sup> 120.<br>However, 1698γ to 0 <sup>+</sup> g.s. is inconsistent with this J <sup>π</sup> .                         |
| 1707.50 13                  | (4) <sup>-</sup>                    |                               | A E       | J <sup>π</sup> : E1 627γ to 3 <sup>+</sup> 1081; E1 692γ from (5) <sup>+</sup> 2399.                                                                                                                    |
| 1718.07 <sup>i</sup> 12     | 5 <sup>-</sup>                      |                               | A E G IJK | J <sup>π</sup> : E1+M2 1334γ to 4 <sup>+</sup> 384, D+Q 944γ to 6 <sup>+</sup> 774.                                                                                                                     |
| 1832.76 <sup>i</sup> 13     | 6 <sup>-</sup>                      |                               | A E IJK   | J <sup>π</sup> : D+Q 115γ to 5 <sup>-</sup> 1718, stretched E2 212γ to 4 <sup>-</sup> 1621.                                                                                                             |
| 1836.27 13                  | 5 <sup>-</sup>                      |                               | A E G J   | J <sup>π</sup> : E1 1453γ to 4 <sup>+</sup> 384; D 1062γ to 6 <sup>+</sup> 774.                                                                                                                         |
| 1840.13 <sup>h</sup> 13     | (6) <sup>-</sup>                    |                               | A E J     | J <sup>π</sup> : D 1066γ to 6 <sup>+</sup> 774, E1 412γ to 5 <sup>+</sup> 1429, (E2) 220γ to 4 <sup>-</sup> 1621.                                                                                       |
| 1840.50 15                  | (4,5,6) <sup>+</sup>                |                               | A I       | J <sup>π</sup> : M1 209γ to (4,5) <sup>+</sup> 1632; 1067γ to 6 <sup>+</sup> 774.                                                                                                                       |
| 1841.62 21                  |                                     |                               | A         | J <sup>π</sup> : 761γ to 3 <sup>+</sup> 1081, 1458γ to 4 <sup>+</sup> 384, so J=(2 to 5).                                                                                                               |
| 1871.19 <sup>b</sup> 19     | 10 <sup>+</sup>                     | <2.2 <sup>r</sup> ns          | BCD F IJK | J <sup>π</sup> : stretched E2 597γ to 8 <sup>+</sup> 1275; continuation of g.s. band.                                                                                                                   |
| 1877.51 <sup>c</sup> 16     | 6 <sup>+</sup>                      |                               | A E G J   | J <sup>π</sup> : M1+E2+E0 1104γ to 6 <sup>+</sup> 774.                                                                                                                                                  |
| 1892.60 16                  | (3 <sup>+</sup> ,4,5 <sup>-</sup> ) |                               | A         | J <sup>π</sup> : 349γ to (3) <sup>-</sup> 1544, 464γ to 5 <sup>+</sup> 1428.                                                                                                                            |
| 1898.81 19                  |                                     |                               | A E       | J <sup>π</sup> : E2,E1 1515γ to 4 <sup>+</sup> 384.                                                                                                                                                     |
| 1916.38 <sup>m</sup> 16     | (6 <sup>-</sup> )                   |                               | A E IJK   | J <sup>π</sup> : gammas to 5 <sup>-</sup> and 5 <sup>+</sup> and 6 <sup>+</sup> imply J <sup>π</sup> =(4 <sup>+</sup> ,5,6); band assignment.                                                           |
| 1928.37 19                  | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) |                               | A E       | J <sup>π</sup> : 1154γ to 6 <sup>+</sup> 774, 1545γ to 4 <sup>+</sup> 384.                                                                                                                              |
| 1934.48 20                  |                                     |                               | A E       |                                                                                                                                                                                                         |
| 1958.43 <sup>i</sup> 14     | 7 <sup>(-)</sup>                    |                               | A E IJK   | J <sup>π</sup> : D+Q 126γ to 6 <sup>-</sup> 1832, intraband 240γ to 5 <sup>-</sup> 1718, D+Q 684γ to 8 <sup>+</sup> 1275.                                                                               |
| 1982? 7                     | 0 <sup>+</sup>                      |                               | G         | J <sup>π</sup> : L(p,t)=0.<br>E(level): from (p,t); may possibly belong to $^{186}\text{Os}$ , $^{188}\text{Os}$ or $^{190}\text{Os}$ .                                                                 |
| 1991.35 22                  | 6 <sup>+</sup>                      |                               | A E       | J <sup>π</sup> : M1(+E2+E0) 1217γ to 6 <sup>+</sup> 774.                                                                                                                                                |
| 2000.11 <sup>m</sup> 15     | (7 <sup>-</sup> )                   |                               | A JK      | J <sup>π</sup> : M1,E2 84γ to (6 <sup>-</sup> ) 1916, D 725γ to 8 <sup>+</sup> 1275, 164γ to 5 <sup>-</sup> 1836.                                                                                       |
| 2046.71 <sup>g</sup> 19     | (8 <sup>-</sup> )                   | <1.4 ns                       | IJK       | J <sup>π</sup> : M1 88γ to 7 <sup>(-)</sup> 1958, band assignment.                                                                                                                                      |
| 2055.83 24                  | (4,5,6) <sup>-</sup>                |                               | A E       | J <sup>π</sup> : M1 338γ to 5 <sup>-</sup> 1718.                                                                                                                                                        |
| 2075.57 23                  |                                     |                               | A         | J <sup>π</sup> : 1302γ to 6 <sup>+</sup> 774, 444γ to (4,5) <sup>+</sup> 1632, so J <sup>π</sup> =(4 <sup>+</sup> ,5,6,7 <sup>+</sup> ).                                                                |
| 2085.98 18                  | (4 <sup>+</sup> ,5,6 <sup>-</sup> ) |                               | A         | J <sup>π</sup> : 1312γ to 6 <sup>+</sup> 774; 379γ to (3,4) <sup>-</sup> 1708.                                                                                                                          |
| 2106.41 <sup>k</sup> 16     | (8 <sup>-</sup> )                   |                               | JK        | J <sup>π</sup> : D+Q 148γ to 7 <sup>(-)</sup> 1958, band assignment.                                                                                                                                    |
| 2128.03 20                  | (4,5) <sup>-</sup>                  |                               | A         | J <sup>π</sup> : M1 410γ to 5 <sup>-</sup> 1718, 584γ to (3) <sup>-</sup> 1544.                                                                                                                         |
| 2135.8 4                    |                                     |                               | A E       | J <sup>π</sup> : 1362γ to 6 <sup>+</sup> 774.                                                                                                                                                           |
| 2136.77 <sup>m</sup> 17     | (8 <sup>-</sup> )                   |                               | JK        | J <sup>π</sup> : M1 137γ to (7 <sup>-</sup> ) 2000, 220γ to (6 <sup>-</sup> ) 1916, band assignment.                                                                                                    |
| 2148.43 <sup>h</sup> 24     | (8 <sup>-</sup> )                   |                               | J         | J <sup>π</sup> : 308γ to (6 <sup>-</sup> ) 1840.1; band assignment.                                                                                                                                     |
| 2170.7 4                    |                                     |                               | A         | J <sup>π</sup> : 896γ to (6 <sup>-</sup> ) 1840.1.                                                                                                                                                      |
| 2201.47 17                  | (4) <sup>+</sup>                    |                               | A         | J <sup>π</sup> : M1+E2 197γ from (5) <sup>+</sup> 2399, 658γ to (3) <sup>-</sup> 1544.                                                                                                                  |
| 2221.77 <sup>g</sup> 18     | (9 <sup>-</sup> )                   |                               | IJK       | J <sup>π</sup> : E1 145γ from 10 <sup>+</sup> 2367; D+Q 175γ to (8 <sup>-</sup> ) 2047.                                                                                                                 |
| 2221.83 15                  | (5,6) <sup>-</sup>                  |                               | A         | J <sup>π</sup> : M1 382γ to (6 <sup>-</sup> ) 1840, 601γ to 4 <sup>-</sup> 1620.                                                                                                                        |
| 2266.42 <sup>l</sup> 17     | (9 <sup>-</sup> )                   |                               | JK        | J <sup>π</sup> : D 130γ to (8 <sup>-</sup> ) 2137; band assignment.                                                                                                                                     |
| 2268? 7                     | 0 <sup>+</sup>                      |                               | G         | J <sup>π</sup> : L(p,t)=0.<br>E(level): from (p,t); may possibly belong to $^{186}\text{Os}$ , $^{188}\text{Os}$ or $^{190}\text{Os}$ .                                                                 |
| 2278.76 14                  | (5,6) <sup>+</sup>                  |                               | A         | J <sup>π</sup> : M1 168γ from (4,5) <sup>+</sup> 2446; 438γ to (6 <sup>-</sup> ) 1840; 1505γ to 6 <sup>+</sup> 774.                                                                                     |
| 2300.81 <sup>f</sup> 17     | (9 <sup>-</sup> )                   |                               | K         | J <sup>π</sup> : M1+E2 194γ to (8 <sup>-</sup> ) 2107; band assignment.                                                                                                                                 |
| 2330.19 19                  |                                     |                               | A E       | J <sup>π</sup> : 1105γ to 4 <sup>+</sup> 1225.                                                                                                                                                          |
| 2366.81 <sup>&amp;</sup> 19 | 10 <sup>+</sup> <sup>a</sup>        | 23.6 ns 14                    | IJK       | J <sup>π</sup> : M1(+E2) 496γ to 10 <sup>+</sup> 1871; stretched E2 1092γ to 8 <sup>+</sup> 1275.<br>T <sub>1/2</sub> : from ( $^{13}\text{C}$ ,5nγ). Other: 20 ns 5 from γγ(t) in IT decay (1988Ch27). |
| 2398.98 13                  | (5) <sup>+</sup>                    |                               | A E       | J <sup>π</sup> : E1 778γ to 4 <sup>-</sup> 1621; M1+E2 767γ to (4,5) <sup>+</sup> 1632; 566γ to 6 <sup>-</sup> 1833.                                                                                    |
| 2400.17 14                  | 5 <sup>+</sup> ,6 <sup>+</sup>      |                               | A E       | J <sup>π</sup> : E1 682γ to 5 <sup>-</sup> 1718, M1+E2 787γ to 6 <sup>+</sup> 1613.                                                                                                                     |
| 2431.34 <sup>g</sup> 19     | (10 <sup>-</sup> )                  |                               | JK        | J <sup>π</sup> : D 210γ to (9 <sup>-</sup> ) 2222; 385γ to (8 <sup>-</sup> ) 2047; band assignment.                                                                                                     |
| 2446.62 13                  | (4,5) <sup>+</sup>                  |                               | A E       | J <sup>π</sup> : E1 826γ to 4 <sup>-</sup> 1621; 1672γ to 6 <sup>+</sup> 774.                                                                                                                           |
| 2457.14 <sup>k</sup> 17     | (10 <sup>-</sup> )                  |                               | JK        | J <sup>π</sup> : D intraband 191γ to (9 <sup>-</sup> ) 2266; intraband 321γ to (8 <sup>-</sup> ) 3127.                                                                                                  |

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**Adopted Levels, Gammas (continued)** $^{184}\text{Os}$  Levels (continued)

| E(level) <sup>†</sup>       | J <sup>π</sup> <sup>‡</sup>         | T <sub>1/2</sub> <sup>#</sup> | XREF | Comments                                                                                                                                 |
|-----------------------------|-------------------------------------|-------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------|
| 2463.57 21                  | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) |                               | A    | J <sup>π</sup> : 1690γ to 6 <sup>+</sup> 774; 2080γ to 4 <sup>+</sup> 384.                                                               |
| 2472.29 24                  | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) |                               | A    | J <sup>π</sup> : 1698γ to 6 <sup>+</sup> 774; 2088γ to 4 <sup>+</sup> 384.                                                               |
| 2493.59 24                  |                                     |                               | A    |                                                                                                                                          |
| 2502.66 <sup>e</sup> 18     | (10 <sup>-</sup> )                  |                               | K    | J <sup>π</sup> : D+Q 236γ to (9 <sup>-</sup> ) 2266; stretched Q 366γ to (8 <sup>-</sup> ) 2137.                                         |
| 2517.99 19                  |                                     |                               | A    | J <sup>π</sup> : 2134γ to 4 <sup>+</sup> 384 and 1437γ to 3 <sup>+</sup> 1081, so J <sup>π</sup> =(2 <sup>+</sup> ,3,4,5 <sup>+</sup> ). |
| 2547.61 <sup>b</sup> 21     | 12 <sup>+</sup>                     | <2.2 <sup>r</sup> ns          | CD J | J <sup>π</sup> : E2 intraband 676γ to 10 <sup>+</sup> 1871.                                                                              |
| 2549.16 24                  | (5,6) <sup>-</sup>                  |                               | A    | J <sup>π</sup> : M1 716γ to 6 <sup>-</sup> 1833; 1121γ to 5 <sup>+</sup> 1428.                                                           |
| 2596.75 <sup>p</sup> 22     | (10 <sup>+</sup> )                  |                               | J    | J <sup>π</sup> : intraband 1322γ to 8 <sup>+</sup> 1275.                                                                                 |
| 2609.74 <sup>@</sup> 21     | 11 <sup>+</sup> <sup>a</sup>        |                               | JK   | J <sup>π</sup> : intraband D+Q 243γ to 10 <sup>+</sup> 2367.                                                                             |
| 2625.5 <sup>h</sup> 4       | (10 <sup>-</sup> )                  |                               | J    | J <sup>π</sup> : intraband 477γ to (8 <sup>-</sup> ) 2148; band assignment.                                                              |
| 2661.50 <sup>l</sup> 18     | (11 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : intraband D 204γ (10 <sup>-</sup> ) 2457; stretched Q 395γ to (9 <sup>-</sup> ) 2266.                                   |
| 2672.87 <sup>g</sup> 18     | (11 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : intraband D+Q 242γ to (10 <sup>-</sup> ) 2431; intraband 451γ to (9 <sup>-</sup> ) 2222.                                |
| 2694.17 <sup>q</sup> 21     | (10 <sup>+</sup> )                  |                               | J    | J <sup>π</sup> : (Q) 1419γ to 8 <sup>+</sup> 1275; 823γ to 10 <sup>+</sup> 1871.                                                         |
| 2719.84 17                  | (5,6 <sup>+</sup> )                 |                               | A    | J <sup>π</sup> : 2336γ to 4 <sup>+</sup> 384; 1945γ to 6 <sup>+</sup> 774; 887γ to 6 <sup>-</sup> 1833.                                  |
| 2721.49 <sup>f</sup> 19     | (11 <sup>-</sup> )                  |                               | K    | J <sup>π</sup> : stretched Q intraband 421γ to (9 <sup>-</sup> ) 2301.                                                                   |
| 2862.70 <sup>&amp;</sup> 20 | 12 <sup>+</sup> <sup>a</sup>        |                               | JK   | J <sup>π</sup> : intraband D+Q 253γ to (11 <sup>+</sup> ) 2610; band assignment.                                                         |
| 2901.20 <sup>k</sup> 18     | (12 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : stretched Q intraband 444γ to (10 <sup>-</sup> ) 2457.                                                                  |
| 2903.9 <sup>n</sup> 3       | (12 <sup>-</sup> )                  |                               | J    | J <sup>π</sup> : D 231γ to (11 <sup>-</sup> ) 2673; band assignment.                                                                     |
| 2930.36 <sup>g</sup> 19     | (12 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : D intraband 257γ to (11 <sup>-</sup> ) 2673.                                                                            |
| 2957.78 <sup>e</sup> 19     | (12 <sup>-</sup> )                  |                               | K    | J <sup>π</sup> : D 296γ to (11 <sup>-</sup> ) 2662; intraband 455γ to (10 <sup>-</sup> ) 2503.                                           |
| 2999.25 <sup>p</sup> 22     | (12 <sup>+</sup> )                  |                               | J    | J <sup>π</sup> : stretched Q 1128γ to 10 <sup>+</sup> 1871.                                                                              |
| 3083.5 <sup>n</sup> 4       | (13 <sup>-</sup> )                  |                               | J    | J <sup>π</sup> : D intraband 180γ to (12 <sup>-</sup> ) 2904.                                                                            |
| 3088.88 <sup>q</sup> 22     | (12 <sup>+</sup> )                  |                               | J    | J <sup>π</sup> : Q intraband 395γ to (10 <sup>+</sup> ) 2694.                                                                            |
| 3126.8 3                    | (13)                                |                               | J    | J <sup>π</sup> : 579γ to (12 <sup>+</sup> ) 2548.                                                                                        |
| 3130.25 <sup>@</sup> 22     | 13 <sup>+</sup> <sup>a</sup>        |                               | JK   | J <sup>π</sup> : intraband D+Q 268γ to (12 <sup>+</sup> ) 2863.                                                                          |
| 3166.88 <sup>l</sup> 19     | (13 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : intraband stretched Q 505γ to (11 <sup>-</sup> ) 2662.                                                                  |
| 3199.5 <sup>h</sup> 4       | (12 <sup>-</sup> )                  |                               | J    | J <sup>π</sup> : intraband 574γ to (10 <sup>-</sup> ) 2626; band assignment.                                                             |
| 3210.07 <sup>g</sup> 21     | (13 <sup>-</sup> )                  |                               | JK   | J <sup>π</sup> : D intraband 280γ to (12 <sup>-</sup> ) 2930.                                                                            |
| 3226.36 <sup>f</sup> 21     | (13 <sup>-</sup> )                  |                               | K    | J <sup>π</sup> : stretched Q intraband 505γ to (11 <sup>-</sup> ) 2722.                                                                  |
| 3228.3 3                    | (11 <sup>-</sup> )                  |                               | K    | J <sup>π</sup> : 1007γ to (9 <sup>-</sup> ) 2222; possible 500γ from (13 <sup>-</sup> ) 3728.                                            |
| 3261.38 <sup>b</sup> 24     | 14 <sup>+</sup>                     | <2.2 <sup>r</sup> ns          | CD J |                                                                                                                                          |
| 3359.37 <sup>&amp;</sup> 23 | 14 <sup>+</sup> <sup>a</sup>        | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                          |
| 3392.02 22                  | (12 <sup>+</sup> )                  |                               | K    |                                                                                                                                          |
| 3423.40 <sup>k</sup> 22     | (14 <sup>-</sup> )                  |                               | JK   |                                                                                                                                          |
| 3489.67 <sup>e</sup> 24     | (14 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |
| 3496.50 <sup>p</sup> 21     | (14 <sup>+</sup> )                  |                               | J    |                                                                                                                                          |
| 3510.03 <sup>g</sup> 20     | (14 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |
| 3550.03 <sup>q</sup> 23     | (14 <sup>+</sup> )                  |                               | J    |                                                                                                                                          |
| 3679.74 <sup>@</sup> 23     | 15 <sup>+</sup> <sup>a</sup>        |                               | J    |                                                                                                                                          |
| 3728.19 <sup>o</sup> 23     | (13 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |
| 3747.0 3                    | (15 <sup>-</sup> )                  |                               | J    |                                                                                                                                          |
| 3760.91 <sup>l</sup> 24     | (15 <sup>-</sup> )                  |                               | JK   |                                                                                                                                          |
| 3777.8 3                    | (15)                                |                               | J    |                                                                                                                                          |
| 3790.96 <sup>&amp;</sup> 24 | 16 <sup>+</sup> <sup>a</sup>        | <2.2 <sup>r</sup> ns          | CD J |                                                                                                                                          |
| 3792.4 <sup>o</sup> 4       | (14 <sup>-</sup> )                  | ≤3 <sup>s</sup> ns            | K    |                                                                                                                                          |
| 3806.60 <sup>f</sup> 22     | (15 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |
| 3820.52 <sup>g</sup> 23     | (15 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |
| 3860.4 <sup>h</sup> 5       | (14 <sup>-</sup> )                  |                               | J    |                                                                                                                                          |
| 3972.0 <sup>o</sup> 4       | (15 <sup>-</sup> )                  |                               | K    |                                                                                                                                          |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{184}\text{Os}$  Levels (continued)

| E(level) <sup>†</sup>     | J <sup>π</sup> <sup>‡</sup>  | T <sub>1/2</sub> <sup>#</sup> | XREF | Comments                                                                                                                                                         |
|---------------------------|------------------------------|-------------------------------|------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3998.03 <sup>k</sup> 25   | (16 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 4046.50 <sup>b</sup> 23   | 16 <sup>+</sup>              | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                                                  |
| 4091.92 <sup>q</sup> 24   | (16 <sup>+</sup> )           |                               | J    |                                                                                                                                                                  |
| 4122.55 <sup>e</sup> 22   | (16 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4157.75 <sup>g</sup> 25   | (16 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 4167.7 4                  | (16 <sup>-</sup> )           |                               | J    |                                                                                                                                                                  |
| 4173.2 <sup>p</sup> 3     | (16 <sup>+</sup> )           |                               | JK   | Band assignment from ( $^{18}\text{O},4n\gamma$ ) considered uncertain because J=16 to 14 transition was not verified in the ( $^{13}\text{C},5n\gamma$ ) study. |
| 4202.7 <sup>o</sup> 3     | (16 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4281.12 <sup>@</sup> 25   | 17 <sup>+</sup> <sup>a</sup> |                               | J    |                                                                                                                                                                  |
| 4349.3 <sup>&amp;</sup> 3 | 18 <sup>+</sup> <sup>a</sup> | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                                                  |
| 4407.7 4                  | (17 <sup>-</sup> )           |                               | J    |                                                                                                                                                                  |
| 4416.0 4                  | (17 <sup>-</sup> )           |                               | J    |                                                                                                                                                                  |
| 4418.4 <sup>l</sup> 3     | (17 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 4467.46 <sup>f</sup> 23   | (17 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4475.74 25                | (17 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4494.4 <sup>g</sup> 3     | (17 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4597.0 <sup>h</sup> 5     | (16 <sup>-</sup> )           |                               | J    |                                                                                                                                                                  |
| 4635.6 <sup>k</sup> 4     | (18 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 4728.7 <sup>q</sup> 3     | (18 <sup>+</sup> )           |                               | J    |                                                                                                                                                                  |
| 4756.71 24                | (18 <sup>-</sup> )           | 48 ns 5                       | K    | T <sub>1/2</sub> : from $\gamma\gamma(t)$ in ( $^{18}\text{O},4n\gamma$ ).<br>Configuration= $\nu(9/2[624]+11/2[615])+\pi(5/2[402]+11/2[505])$ , $K^\pi=18^-$ .  |
| 4770.5 3                  |                              |                               | K    |                                                                                                                                                                  |
| 4800.54 <sup>b</sup> 24   | 18 <sup>+</sup>              | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                                                  |
| 4826.8 <sup>e</sup> 3     | (18 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4879.5 <sup>g</sup> 4     | (18 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 4912.1 4                  | (18)                         |                               | J    |                                                                                                                                                                  |
| 4963.8 <sup>@</sup> 3     | 19 <sup>+</sup> <sup>a</sup> |                               | J    |                                                                                                                                                                  |
| 5000.9 <sup>&amp;</sup> 4 | 20 <sup>+</sup> <sup>a</sup> | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                                                  |
| 5100.0 4                  |                              |                               | K    |                                                                                                                                                                  |
| 5106.7 4                  | (19)                         |                               | J    |                                                                                                                                                                  |
| 5126.5 <sup>l</sup> 4     | (19 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 5192.9 <sup>f</sup> 3     | (19 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 5200.3 3                  | (20 <sup>-</sup> )           | $\leq 3^s$ ns                 | K    |                                                                                                                                                                  |
| 5207.9 4                  | (19 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 5230.6 3                  | (20 <sup>-</sup> )           | $\leq 3^s$ ns                 | K    |                                                                                                                                                                  |
| 5230.61 <sup>g</sup> 40   | (19 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 5329.4 <sup>k</sup> 4     | (20 <sup>-</sup> )           |                               | JK   |                                                                                                                                                                  |
| 5374.7 <sup>h</sup> 5     | (18 <sup>-</sup> )           |                               | J    |                                                                                                                                                                  |
| 5456.4 4                  |                              |                               | K    |                                                                                                                                                                  |
| 5459.9 <sup>q</sup> 4     | (20 <sup>+</sup> )           |                               | J    |                                                                                                                                                                  |
| 5565.7 3                  | (20 <sup>+</sup> )           | <1.4 ns                       | JK   | Possible configuration: ( $\nu$ 11/2[615])+( $\nu$ 9/2[624])+( $\pi$ 11/2[505])+( $\pi$ 9/2[514]), $K^\pi=20^+$ (2002Wh01).                                      |
| 5570.1 <sup>b</sup> 3     | (20 <sup>+</sup> )           |                               | J    |                                                                                                                                                                  |
| 5573.0 <sup>e</sup> 4     | (20 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 5670.5 4                  | (21)                         | $\leq 3^s$ ns                 | K    |                                                                                                                                                                  |
| 5670.51 <sup>g</sup> 40   | (20 <sup>-</sup> )           |                               | K    |                                                                                                                                                                  |
| 5726.3 <sup>@</sup> 4     | 21 <sup>+</sup> <sup>a</sup> |                               | J    |                                                                                                                                                                  |
| 5742.5 <sup>&amp;</sup> 4 | 22 <sup>+</sup> <sup>a</sup> | <2.2 <sup>r</sup> ns          | D J  |                                                                                                                                                                  |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)**

| $^{184}\text{Os}$ Levels (continued) |                                 |                               |      |                                                                                                                   |
|--------------------------------------|---------------------------------|-------------------------------|------|-------------------------------------------------------------------------------------------------------------------|
| E(level) <sup>†</sup>                | J <sup>π</sup> <sup>‡</sup>     | T <sub>1/2</sub> <sup>#</sup> | XREF | Comments                                                                                                          |
| 5743.3 4                             | (21 <sup>+</sup> )              | 1.04 ns 21                    | J    | Possible configuration= $\nu(11/2[615], 9/2[624], 7/2[503], 7/2[514]) + \pi(5/2[402], 3/2[402])$ , $K^\pi=21^+$ . |
| 5868.9 <sup>l</sup> 5                | (21 <sup>-</sup> )              |                               | JK   |                                                                                                                   |
| 6007.7 <sup>8</sup> 5                | (21 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 6050.9 <sup>k</sup> 5                | (22 <sup>-</sup> )              |                               | J    |                                                                                                                   |
| 6186.5 4                             | (22 <sup>+</sup> )              | 0.35 ns 14                    | J    |                                                                                                                   |
| 6215.8 <sup>h</sup> 6                | (20 <sup>-</sup> )              |                               | J    |                                                                                                                   |
| 6236.3 4                             |                                 |                               | K    |                                                                                                                   |
| 6277.3 <sup>q</sup> 5                | (22 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 6340.0 3                             | (22 <sup>-</sup> )              | $\leq 3^S$ ns                 | K    | Configuration= $\nu(1/2[521]7/2[503]9/2[624]11/2[615]) \otimes \pi(5/2[402]11/2[505])$ , $K^\pi=22^-$ (?).        |
| 6378.0 <sup>e</sup> 5                | (22 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 6542.5 <sup>@</sup> 4                | 23 <sup>+</sup> <sup>a</sup>    |                               | J    |                                                                                                                   |
| 6562.6 <sup>&amp;</sup> 5            | 24 <sup>+</sup> <sup>a</sup>    |                               | J    |                                                                                                                   |
| 6598.7 4                             | (23 <sup>+</sup> )              | 0.42 ns 14                    | J    |                                                                                                                   |
| 6610.9 <sup>l</sup> 5                | (23 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 6687.2 4                             | (23 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 6694.2 5                             | (24 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 6790.2 <sup>k</sup> 5                | (24 <sup>-</sup> )              |                               | JK   |                                                                                                                   |
| 6797.7 3                             | (23)                            | $\leq 3^S$ ns                 | K    | Configuration= $\nu(3/2[512]+7/2[514]+9/2[624]+11/2[615]) + \pi(5/2[402]+11/2[505])$ , $K^\pi=23^-$ (?).          |
| 6888.5 5                             | (24 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 6912.9 4                             |                                 | $\leq 3^S$ ns                 | K    |                                                                                                                   |
| 7004.2 4                             | (24 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 7083.6 5                             |                                 |                               | K    |                                                                                                                   |
| 7087.4 5                             | (24 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 7283.8 4                             |                                 | $\leq 3^S$ ns                 | K    |                                                                                                                   |
| 7311.1 4                             | (25 <sup>+</sup> )              | 0.90 ns 21                    | J    |                                                                                                                   |
| 7395.5 <sup>?</sup> <sup>@</sup> 5   | (25 <sup>+</sup> ) <sup>a</sup> |                               | K    |                                                                                                                   |
| 7406.6 <sup>l</sup> 6                | (25 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 7446.9 <sup>&amp;</sup> 5            | 26 <sup>+</sup> <sup>a</sup>    |                               | J    |                                                                                                                   |
| 7500.8 5                             | (26 <sup>+</sup> )              |                               | JK   |                                                                                                                   |
| 7590.2 <sup>k</sup> 6                | (26 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 7592.1 <sup>j</sup> 4                | (26 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 7786.4 5                             | (26 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 7815.9 <sup>j</sup> 5                | (27 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 8043.2 4                             | (27 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 8152.7 <sup>j</sup> 5                | (28 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 8244.2 5                             | (26)                            |                               | J    |                                                                                                                   |
| 8474.2 <sup>k</sup> 6                | (28 <sup>-</sup> )              |                               | K    |                                                                                                                   |
| 8580.2 <sup>j</sup> 5                | (29 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 8590.1 5                             | (29 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 8649.3 5                             | (29)                            |                               | J    |                                                                                                                   |
| 8784.9 5                             | (29 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 9375.01 5                            | (31 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 9539.4 5                             | (31)                            |                               | J    |                                                                                                                   |
| 9545.7 5                             | (31 <sup>+</sup> )              |                               | J    |                                                                                                                   |
| 9867.1 6                             | (32)                            |                               | J    |                                                                                                                   |
| 10671.4 6                            | (34)                            |                               | J    |                                                                                                                   |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{184}\text{Os}$  Levels (continued)

<sup>†</sup> From least-squares fit to adopted  $E_\gamma$ .

<sup>‡</sup> Values given without further comment are based on deduced band structure.

# From gated time spectra in  $^{176}\text{Yb}(^{13}\text{C},5n\gamma)$ , except as noted.

@ Band(a):  $K^\pi=10^+$ ,  $\nu 11/2[615] + \nu 9/2[624]$ ,  $\alpha=1$  band (2002Wh01).

& Band(A):  $K^\pi=10^+$ ,  $\nu 11/2[615] + \nu 9/2[624]$ ,  $\alpha=0$  band (2002Wh01). Note that some levels assigned to this band in ( $^{18}\text{O},4n\gamma$ ) and ( $\alpha,6n\gamma$ ) differ from those adopted here.

<sup>a</sup> Definite  $J^\pi$  assigned to  $J \leq 24$  and to  $J=26$  band members based on smooth progression of level energies, on established  $J^\pi=10^+$  for bandhead and multipolarity=E2 for  $J=16$  to  $J=14$   $432\gamma$ .

<sup>b</sup> Band(B):  $K^\pi=0^+$  ground state band (2002Wh01). Band parameters:  $A=19.3$ ,  $B=-23$  ( $J=2,4,6,8$  levels).

<sup>c</sup> Band(C):  $K^\pi=0^+$   $\beta$  band. Band parameters:  $A=24.0$ ,  $B=-111$  ( $J=2,4,6$  levels).

<sup>d</sup> Band(D):  $K^\pi=2^+$   $\gamma$  band.

<sup>e</sup> Band(E):  $K^\pi=9^-$ ,  $(\nu 7/2[514]) + (\nu 11/2[615])$ ,  $\alpha=0$  band.

<sup>f</sup> Band(e):  $K^\pi=9^-$ ,  $\alpha=1$ ,  $(\nu 7/2[514]) + (\nu 11/2[615])$  band.

<sup>g</sup> Band(F):  $K^\pi=8^-$   $(\nu 9/2[624]) + (\nu 7/2[503])$  band.

<sup>h</sup> Band(G): Band based on  $6^-$  1840 level. Possible configuration= $(\nu 9/2[624]) + (\nu 3/2[512])$ .

<sup>i</sup> Band(H):  $K^\pi=3^-$  Octupole band. Possible dominant configuration= $(\pi 5/2[402]) + (\pi 1/2[541])$ .

<sup>j</sup> Band(I):  $K^\pi=26^+$  (?) 6-quasiparticle band. Possible configuration= $\nu (11/2[615] + 9/2[624] + 7/2[503] + 5/2[512]) + \pi (11/2[505] + 9/2[514])$ .

<sup>k</sup> Band(J):  $K^\pi=8^-$ ,  $\alpha=0$ ,  $(\nu 9/2[624]) + (\nu 7/2[514])$  band.

<sup>l</sup> Band(j):  $K^\pi=8^-$ ,  $\alpha=1$ ,  $(\nu 9/2[624]) + (\nu 7/2[514])$  band.

<sup>m</sup> Band(K):  $K^\pi=6^-$ ,  $(\nu 1/2[521]) + (\nu 11/2[615])$  band.

<sup>n</sup> Band(L):  $K^\pi=12^-$  (?) band (2002Wh01). Possible configuration= $\nu 9/2[624] + \nu 7/2[503] + \nu 7/2[514] + \nu 1/2[510]$ .

<sup>o</sup> Band(M):  $K^\pi=13^-$  band. Configuration:  $(\nu 9/2[624]) + (\nu 11/2[615]) + (\pi 1/2[541]) + (\pi 5/2[402])$ .

<sup>p</sup> Band(N): Band based on  $10^+$  2597 level. Low-K  $i_{13/2}^2$  s-band.

<sup>q</sup> Band(O): Band based on  $10^+$  2694 level. Mixture of low-K  $i_{13/2}^2$  s-band built on  $\beta$  and  $\gamma$  vibrations.

<sup>r</sup>  $T_{1/2} < 2.2$  ns from  $\gamma\gamma(t)$  in ( $\alpha,6n\gamma$ ).

<sup>s</sup> From  $\gamma\gamma(t)$  detection limit in  $^{170}\text{Er}(^{18}\text{O},4n\gamma)$ .

# Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ |                                     |                       |                      |         |                |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|---------------------------|-------------------------------------|-----------------------|----------------------|---------|----------------|--------------------|-------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$       | $J_i^\pi$                           | $E_\gamma^\dagger$    | $I_\gamma^\dagger$   | $E_f$   | $J_f^\pi$      | Mult. <sup>†</sup> | $\delta^\ddagger$ | $\alpha^c$ | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 119.77                    | 2 <sup>+</sup>                      | 119.79 10             | 100                  | 0.0     | 0 <sup>+</sup> | E2                 |                   | 2.13       | B(E2)(W.u.)=99.6 15                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 383.68                    | 4 <sup>+</sup>                      | 263.98 10             | 100                  | 119.77  | 2 <sup>+</sup> | E2                 |                   | 0.1349     | B(E2)(W.u.)=140 40                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 774.08                    | 6 <sup>+</sup>                      | 390.36 10             | 100                  | 383.68  | 4 <sup>+</sup> | E2                 |                   | 0.0432     | B(E2)(W.u.)>0.44                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 942.87                    | 2 <sup>+</sup>                      | 559.6 <sup>e</sup> 3  | 4.6 <sup>e</sup> 11  | 383.68  | 4 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 822.97 13             | 100.0 25             | 119.77  | 2 <sup>+</sup> | E2+M1              | -12 +2-3          | 0.00746    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 942.87 20             | 91 3                 | 0.0     | 0 <sup>+</sup> | E2                 |                   | 0.00559    | Other E $\gamma$ : 943.5 2 in ( <sup>13</sup> C,5n $\gamma$ ).<br>Other I $\gamma$ : 133 10 from (p,4n $\gamma$ ), 112 9 from ( $\alpha$ ,3n $\gamma$ ).<br>Other I $\gamma$ : 20.3 15 from ( <sup>18</sup> O,4n $\gamma$ ), 9 4 from (p,2n $\gamma$ ).                                                                                                                                                                                                                       |
| 1080.97                   | 3 <sup>+</sup>                      | 697.26 12             | 14.7 6               | 383.68  | 4 <sup>+</sup> | E2+M1              | -10 +2-4          | 0.01070 18 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 961.26 15             | 100.0 25             | 119.77  | 2 <sup>+</sup> | E2+M1              | +9.3 +20-14       | 0.00545 9  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1204.71                   | 2 <sup>+</sup>                      | 821.6                 | 94 19                | 383.68  | 4 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1084.9 2              | 100 31               | 119.77  | 2 <sup>+</sup> |                    |                   |            | E $\gamma$ : from ( <sup>13</sup> C,5n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                            |
|                           |                                     | 1204.9 <sup>f</sup>   | 103 19               | 0.0     | 0 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1224.99                   | 4 <sup>+</sup>                      | 282.38 20             | 1.96 14              | 942.87  | 2 <sup>+</sup> | E2                 |                   | 0.1096     | Other I $\gamma$ : I(842 $\gamma$ )=3.2 9:100 43 from (p,2n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                       |
|                           |                                     | 841.5 <sup>b</sup> 2  | 100 <sup>b</sup> 4   | 383.68  | 4 <sup>+</sup> | E2+M1              | -10 +2-4          | 0.00715 12 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1105.2 <sup>b</sup> 2 | 48.2 <sup>b</sup> 25 | 119.77  | 2 <sup>+</sup> | E2                 |                   | 0.00407    | E $\gamma$ =1105.28 20 for doublet.<br>Other I $\gamma$ : 68 3 (suitably divided) from $\varepsilon$ decay, 45 4 from ( <sup>13</sup> C,5n $\gamma$ ), 68 6 from (p,4n $\gamma$ ), 85 7 from ( $\alpha$ ,2n $\gamma$ ).<br>B(E2)(W.u.)>0.13                                                                                                                                                                                                                                   |
| 1274.75                   | 8 <sup>+</sup>                      | 500.73 15             | 100                  | 774.08  | 6 <sup>+</sup> | E2                 |                   | 0.0227     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1406.99                   | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) | 632.8 2               |                      | 774.08  | 6 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1024.0 5              |                      | 383.68  | 4 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1428.15                   | 5 <sup>+</sup>                      | 347.32 20             | 4.8 4                | 1080.97 | 3 <sup>+</sup> |                    |                   |            | Other E $\gamma$ : 346.6 2 in ( <sup>13</sup> C,5n $\gamma$ ).<br>Other I $\gamma$ : 1.7 9 in ( <sup>13</sup> C,5n $\gamma$ ), 5.4 14 in ( <sup>18</sup> O,4n $\gamma$ ).<br>Other E $\gamma$ : 654.2 2 in ( <sup>13</sup> C,5n $\gamma$ ).<br>Other I $\gamma$ : 25.2 17 in ( <sup>13</sup> C,5n $\gamma$ ), 29.7 14 in ( <sup>18</sup> O,4n $\gamma$ ), 5.9 21 in (p,2n $\gamma$ ).<br>Other E $\gamma$ (I $\gamma$ ): 1044.6 2 (100 4) in ( <sup>13</sup> C,5n $\gamma$ ). |
|                           |                                     | 653.98 11             | 11.7 7               | 774.08  | 6 <sup>+</sup> | E2+M1              | +8 +5-2           | 0.0125 3   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1445.72                   | (3,4) <sup>+</sup>                  | 1044.55 14            | 100.0 22             | 383.68  | 4 <sup>+</sup> | E2+M1              | +24 8             | 0.00456    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 220.8 2               | 5.5 14               | 1224.99 | 4 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 364.72 10             | 38 3                 | 1080.97 | 3 <sup>+</sup> | M1+E2              |                   | 0.10 5     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 502.95 15             | 100 7                | 942.87  | 2 <sup>+</sup> | E2                 |                   | 0.0225     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1062.2 3              | 41 11                | 383.68  | 4 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1325.73 25            | 28.7 25              | 119.77  | 2 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 1500.57                   | 4 <sup>+</sup>                      | 295.6                 | 12.0 21              | 1204.71 | 2 <sup>+</sup> |                    |                   |            | Other E $\gamma$ : 297.6 2 from ( <sup>13</sup> C,5n $\gamma$ ).<br>Other I $\gamma$ : <8 from ( <sup>13</sup> C,5n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 419.3 4               | 7.0 21               | 1080.97 | 3 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 558.0 4               | 29 8                 | 942.87  | 2 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 726.6                 | 40 3                 | 774.08  | 6 <sup>+</sup> |                    |                   |            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|                           |                                     | 1116.91 14            | 100 8                | 383.68  | 4 <sup>+</sup> | M1+E2+E0           |                   |            | Other E $\gamma$ : 1119.3 2 from ( <sup>13</sup> C,5n $\gamma$ ).<br>$\delta$ (M1,E2)=-21 8 from $\varepsilon$ decay.                                                                                                                                                                                                                                                                                                                                                         |

Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                                   |                      |                    |         |                                     |                    |                   |            |                                                                                                                                                                                                                         |
|---------------------------------------|-----------------------------------|----------------------|--------------------|---------|-------------------------------------|--------------------|-------------------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$                         | $E_\gamma^\dagger$   | $I_\gamma^\dagger$ | $E_f$   | $J_f^\pi$                           | Mult. <sup>†</sup> | $\delta^\ddagger$ | $\alpha^C$ | Comments                                                                                                                                                                                                                |
| 1500.57                               | 4 <sup>+</sup>                    | 1380.9 3             | 58 11              | 119.77  | 2 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
| 1543.70                               | (3) <sup>-</sup>                  | 600.2 2              | 100 3              | 942.87  | 2 <sup>+</sup>                      | [E1]               |                   | 0.00523    | $E_\gamma$ : from ( $^{13}\text{C}, 5n\gamma$ ). $E_\gamma=601.16$ 11 in $\varepsilon$ decay for doubly-placed $\gamma$ .<br>$I_\gamma$ : from $\varepsilon$ decay. $I_\gamma$ for doubly-placed line suitably divided. |
| 1613.15                               | 6 <sup>+</sup>                    | 1160.29 17           | 6.2 16             | 383.68  | 4 <sup>+</sup>                      | E1+M2              | +0.08 5           | 0.00161 18 | Other $I_\gamma$ : I(600 $\gamma$ )=19 6:100 29 in (p,2n $\gamma$ ).                                                                                                                                                    |
|                                       |                                   | 1424.1 3             | 7.5 7              | 119.77  | 2 <sup>+</sup>                      |                    |                   |            | Other $E_\gamma$ : 1424.9 2 from ( $^{13}\text{C}, 5n\gamma$ ).                                                                                                                                                         |
|                                       |                                   | 388.3 <sup>a</sup> 2 | 65 <sup>a</sup> 7  | 1224.99 | 4 <sup>+</sup>                      |                    |                   |            | Other $I_\gamma$ : 19.8 22 in $\varepsilon$ decay.                                                                                                                                                                      |
|                                       |                                   | 839.0 <sup>a</sup> 2 | 100 <sup>a</sup> 5 | 774.08  | 6 <sup>+</sup>                      | E2+M1              | +8 4              | 0.0073 5   |                                                                                                                                                                                                                         |
| 1620.67                               | 4 <sup>-</sup>                    | 1229.40 12           | 66.7 26            | 383.68  | 4 <sup>+</sup>                      | E2                 |                   | 0.00333    | $I_\gamma$ : from ( $^{18}\text{O}, 4n\gamma$ ). Other $I_\gamma$ : 77 9 in $\varepsilon$ decay, 69 5 in ( $^{13}\text{C}, 5n\gamma$ ), 82 29 in (p,2n $\gamma$ ).                                                      |
|                                       |                                   | 76.9 3               | 1.2 4              | 1543.70 | (3) <sup>-</sup>                    | [M1,E2]            |                   | 12.5 7     |                                                                                                                                                                                                                         |
|                                       |                                   | 539.69 10            | 100.0 19           | 1080.97 | 3 <sup>+</sup>                      | E1                 |                   | 0.00652    |                                                                                                                                                                                                                         |
|                                       |                                   | 1236.93 12           | 32.2 15            | 383.68  | 4 <sup>+</sup>                      | E1+M2              | +0.15 2           | 0.00168 10 | Other $I_\gamma$ : 44 3 in ( $^{13}\text{C}, 5n\gamma$ ), 26 9 in (p,2n $\gamma$ ), 37.1 14 in ( $^{18}\text{O}, 4n\gamma$ ).                                                                                           |
| 1631.51                               | (4,5) <sup>+</sup>                | 185.76 10            | 39 7               | 1445.72 | (3,4) <sup>+</sup>                  | M1+E2              |                   | 0.7 3      |                                                                                                                                                                                                                         |
|                                       |                                   | 203.31 25            | 8.4 8              | 1428.15 | 5 <sup>+</sup>                      | M1+E2              |                   | 0.53 22    |                                                                                                                                                                                                                         |
|                                       |                                   | 406.60 15            | 33.7 23            | 1224.99 | 4 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
|                                       |                                   | 550.53 20            | 27 5               | 1080.97 | 3 <sup>+</sup>                      | E2                 |                   | 0.0180     |                                                                                                                                                                                                                         |
| 1637.8?                               | (3 <sup>+</sup> ,4 <sup>+</sup> ) | 857.5 3              | 17.9 15            | 774.08  | 6 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
|                                       |                                   | 1247.81 12           | 100 7              | 383.68  | 4 <sup>+</sup>                      | M1,E2              |                   | 0.0049 17  |                                                                                                                                                                                                                         |
|                                       |                                   | 230.8 2              |                    | 1406.99 | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) |                    |                   |            |                                                                                                                                                                                                                         |
|                                       |                                   | 1314.4 3             | 48 10              | 383.68  | 4 <sup>+</sup>                      | M1+E2(+E0)         |                   |            | $\alpha(\text{K})\text{exp}$ implies mult=M1+E2+E0 or anomalous M1+E2.                                                                                                                                                  |
| 1707.50                               | (4) <sup>-</sup>                  | 1578.17 25           | 100 8              | 119.77  | 2 <sup>+</sup>                      | (E2)               |                   | 0.00217    |                                                                                                                                                                                                                         |
|                                       |                                   | 1697.8 3             | 82 7               | 0.0     | 0 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
|                                       |                                   | 163.63 20            | 7.8 8              | 1543.70 | (3) <sup>-</sup>                    | M1                 |                   | 1.384      |                                                                                                                                                                                                                         |
|                                       |                                   | 482.5 3              | 5.5 19             | 1224.99 | 4 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
| 1718.07                               | 5 <sup>-</sup>                    | 626.59 11            | 100 7              | 1080.97 | 3 <sup>+</sup>                      | E1                 |                   | 0.00479    |                                                                                                                                                                                                                         |
|                                       |                                   | 1323.77 25           | 29 3               | 383.68  | 4 <sup>+</sup>                      |                    |                   |            |                                                                                                                                                                                                                         |
|                                       |                                   | 97.40 20             | 3.0 3              | 1620.67 | 4 <sup>-</sup>                      | M1+E2              |                   | 5.5 7      | Other $I_\gamma$ : 6.1 19 from (p,2n $\gamma$ ).                                                                                                                                                                        |
|                                       |                                   | 174.32 20            | 2.73 20            | 1543.70 | (3) <sup>-</sup>                    | E2                 |                   | 0.533      |                                                                                                                                                                                                                         |
|                                       |                                   | 493.2 2              | 100 3              | 1224.99 | 4 <sup>+</sup>                      | E1                 |                   | 0.00789    | $E_\gamma$ : from ( $^{13}\text{C}, 5n\gamma$ ).                                                                                                                                                                        |
|                                       |                                   | 944.14 20            | 46.1 23            | 774.08  | 6 <sup>+</sup>                      | (E1+M2)            | -0.09 2           | 0.00241 13 | Other $I_\gamma$ : 64 3 in ( $^{13}\text{C}, 5n\gamma$ ), 58.0 23 in ( $^{18}\text{O}, 4n\gamma$ ), 30 12 in (p,2n $\gamma$ ).                                                                                          |
|                                       |                                   |                      |                    |         |                                     |                    |                   |            | Other $I_\gamma$ : 40.5 23 in ( $^{13}\text{C}, 5n\gamma$ ), 37.5 11 in ( $^{18}\text{O}, 4n\gamma$ ), 53 11 in (p,2n $\gamma$ ).                                                                                       |
|                                       |                                   | 1334.30 12           | 39.2 23            | 383.68  | 4 <sup>+</sup>                      | E1+M2              | +0.12 +6-5        | 0.00141 21 | Mult.: D+Q from ( $^{18}\text{O}, 4n\gamma$ ), $\Delta\pi$ from level scheme.                                                                                                                                           |
| 1832.76                               | 6 <sup>-</sup>                    | 114.67 20            | 23.5 20            | 1718.07 | 5 <sup>-</sup>                      | (M1+E2)            |                   | 3.2 7      | $I_\gamma$ : from ( $^{18}\text{O}, 4n\gamma$ ). Other $I_\gamma$ : 38.6 23 in ( $^{13}\text{C}, 5n\gamma$ ), 38 4 in $\varepsilon$ decay.                                                                              |



# Adopted Levels, Gammas (continued)

$\gamma(^{184}\text{Os})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$     | $E_\gamma^\dagger$                                                          | $I_\gamma^\dagger$                                               | $E_f$                                                                                                      | $J_f^\pi$ | Mult. <sup>†</sup>         | $\alpha^c$                    | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------------------|---------------|-----------------------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|-----------|----------------------------|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1832.76             | $6^-$         | 212.02 10<br>219.8<br>404.51 20<br>1058.69 26                               | 100 4<br>3.0 10<br>31.4 20<br>5.7 13                             | 1620.67 4 <sup>-</sup><br>1613.15 6 <sup>+</sup><br>1428.15 5 <sup>+</sup><br>774.08 6 <sup>+</sup>        |           | E2                         | 0.273                         | $I_\gamma$ : from ( $^{18}\text{O},4n\gamma$ ).<br><br>$I_\gamma$ : from ( $^{18}\text{O},4n\gamma$ ). Other $I_\gamma$ : 34.1 23 in ( $^{13}\text{C},5n\gamma$ ), 24 5 in $\varepsilon$ decay.<br>Other $I_\gamma$ : 13.7 20 in ( $^{18}\text{O},4n\gamma$ ).                                                                                                                                                                                                                                                                                                              |
| 1836.27             | $5^-$         | 408.1 <sup>b</sup> 2<br>611.26 11<br>1062.4 <sup>b</sup> 2<br>1452.50 15    | 4 <sup>b</sup> 2<br>41 3<br>100 <sup>b</sup> 4<br>43 3           | 1428.15 5 <sup>+</sup><br>1224.99 4 <sup>+</sup><br>774.08 6 <sup>+</sup><br>383.68 4 <sup>+</sup>         |           | D@<br>E1                   |                               | Other $I_\gamma$ : 68 5 in ( $^{13}\text{C},5n\gamma$ ), 94 4 in ( $^{18}\text{O},4n\gamma$ ), 110 36 in (p,2n $\gamma$ ).<br><br>Other $I_\gamma$ : 42 4 in ( $^{13}\text{C},5n\gamma$ ), 30.6 20 in ( $^{18}\text{O},4n\gamma$ ).<br>Mult.: E1,E2 from $\alpha(\text{K})\text{exp}$ in $\varepsilon$ decay; D from DCO in ( $^{18}\text{O},4n\gamma$ ).<br>Other $I_\gamma$ : 88 9 in $\varepsilon$ decay, 68 23 from (p,2n $\gamma$ ).<br>$I_\gamma$ : from ( $^{13}\text{C},5n\gamma$ ). Other $I_\gamma$ : 90 6 from $\varepsilon$ decay, 50 14 from (p,2n $\gamma$ ). |
| 1840.13             | $(6)^-$       | 219.5 <sup>a</sup> 2<br>411.95 10<br><br>615.0 3<br>1066.0 <sup>a</sup> 2   | 52 <sup>a</sup> 5<br>70 5<br><br>12 3<br>100 <sup>a</sup> 5      | 1620.67 4 <sup>-</sup><br>1428.15 5 <sup>+</sup><br><br>1224.99 4 <sup>+</sup><br>774.08 6 <sup>+</sup>    |           | (E2)<br>E1<br><br>D@<br>M1 | 0.243<br>0.01172<br><br>0.697 | Other $I_\gamma$ : 88 9 in $\varepsilon$ decay, 68 23 from (p,2n $\gamma$ ).<br>$I_\gamma$ : from ( $^{13}\text{C},5n\gamma$ ). Other $I_\gamma$ : 90 6 from $\varepsilon$ decay, 50 14 from (p,2n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                              |
| 1840.50             | $(4,5,6)^+$   | 209.08 20<br>394.88 20<br>1066.5 3<br>1456.9 3                              | 52 4<br>59 6<br>100 23<br>38 10                                  | 1631.51 (4,5) <sup>+</sup><br>1445.72 (3,4) <sup>+</sup><br>774.08 6 <sup>+</sup><br>383.68 4 <sup>+</sup> |           | E2                         | 0.0419                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1841.62             |               | 760.7 3<br>1458.1 3                                                         | 9.9 25<br>100 7                                                  | 1080.97 3 <sup>+</sup><br>383.68 4 <sup>+</sup>                                                            |           |                            |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1871.19             | $10^+$        | 596.6 <sup>a</sup> 2                                                        | 100 <sup>a</sup>                                                 | 1274.75 8 <sup>+</sup>                                                                                     |           | E2&                        | 0.01495                       | B(E2)(W.u.)>0.054                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 1877.51             | $6^+$         | 376.91 20<br><br>449.2 3<br>602.6<br>1103.5 3                               | 16.6 22<br><br>3.5 9<br>29 7<br>100 13                           | 1500.57 4 <sup>+</sup><br><br>1428.15 5 <sup>+</sup><br>1274.75 8 <sup>+</sup><br>774.08 6 <sup>+</sup>    |           | M1+E2+E0                   |                               | Other $E_\gamma$ : 375.8 2 in ( $^{13}\text{C},5n\gamma$ ).<br>Other $I_\gamma$ : <6 in ( $^{13}\text{C},5n\gamma$ ), 57 17 from (p,2n $\gamma$ ).<br><br>Other $E_\gamma$ : 1105.6 2 in ( $^{13}\text{C},5n\gamma$ ).<br>$\delta(\text{M1},\text{E2})=-7$ 3 from $\varepsilon$ decay.                                                                                                                                                                                                                                                                                      |
| 1892.60             | $(3^+,4,5^-)$ | 1493.89 19<br>348.93 20<br>464.42 <sup>d</sup> 20<br>667.60 20              | 55 3<br>71 6<br>60 <sup>d</sup> 14<br>100 11                     | 383.68 4 <sup>+</sup><br>1543.70 (3) <sup>-</sup><br>1428.15 5 <sup>+</sup><br>1224.99 4 <sup>+</sup>      |           |                            |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1898.81             |               | 1514.93 20                                                                  | 100                                                              | 383.68 4 <sup>+</sup>                                                                                      |           | E2,E1                      |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 1916.38             | $(6^-)$       | 80.5 <sup>a,f</sup> 10<br>488.2 <sup>a</sup> 2<br><br>1142.2 <sup>a</sup> 2 | 12 <sup>a</sup> 6<br>69 <sup>a</sup> 4<br><br>100 <sup>a</sup> 5 | 1836.27 5 <sup>-</sup><br>1428.15 5 <sup>+</sup><br><br>774.08 6 <sup>+</sup>                              |           | (E1)                       |                               | Other $I_\gamma$ : 81 3 from ( $^{18}\text{O},4n\gamma$ ), 75 19 in $\varepsilon$ decay.<br>Mult.: DCO=1.0 1 in ( $^{13}\text{C},5n\gamma$ ) not consistent with mult=E1 required by level scheme; $\alpha(\text{K})\text{exp}$ for doublet in $\varepsilon$ decay rules out M1.<br>Mult.: from $\varepsilon$ decay. $\alpha(\text{K})\text{exp}$ consistent with E1 or E2; level scheme requires $\Delta\pi=\text{yes}$ . DCO in ( $^{18}\text{O},4n\gamma$ ) consistent with D, $\Delta J=0$ .                                                                            |
| 1928.37             | $(4^+,5,6^+)$ | 1154.31 17                                                                  | 100 7                                                            | 774.08 6 <sup>+</sup>                                                                                      |           | E2,E1                      |                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                                     |                                    |                      |         |                    |                      |            |                                                                                      |
|---------------------------------------|-------------------------------------|------------------------------------|----------------------|---------|--------------------|----------------------|------------|--------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$                           | $E_\gamma^\dagger$                 | $I_\gamma^\dagger$   | $E_f$   | $J_f^\pi$          | Mult. <sup>†</sup>   | $\alpha^c$ | Comments                                                                             |
| 1928.37                               | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) | 1544.6 3                           | 64 5                 | 383.68  | 4 <sup>+</sup>     |                      |            |                                                                                      |
| 1934.48                               |                                     | 1550.66 25                         | 100                  | 383.68  | 4 <sup>+</sup>     | E2,E1                |            |                                                                                      |
| 1958.43                               | 7 <sup>(-)</sup>                    | 118.5 <sup>a</sup> <sub>f</sub> 10 | 22 <sup>a</sup> 11   | 1840.13 | (6) <sup>-</sup>   |                      |            |                                                                                      |
|                                       |                                     | 125.6 <sup>a</sup> 2               | 92 <sup>a</sup> 5    | 1832.76 | 6 <sup>-</sup>     | (M1+E2)              | 2.4 6      | Mult.: D+Q from ( <sup>18</sup> O,4n $\gamma$ ); $\Delta\pi$ =no from level scheme.  |
|                                       |                                     |                                    |                      |         |                    |                      |            | Other I $\gamma$ : 95.6 22 in ( <sup>18</sup> O,4n $\gamma$ ).                       |
|                                       |                                     | 240.3 <sup>a</sup> 2               | 40.5 <sup>a</sup> 27 | 1718.07 | 5 <sup>-</sup>     |                      |            | Other I $\gamma$ : 78 4 in ( <sup>18</sup> O,4n $\gamma$ ).                          |
|                                       |                                     | 345.2 <sup>a</sup> 2               | 29.7 <sup>a</sup> 27 | 1613.15 | 6 <sup>+</sup>     |                      |            | Other I $\gamma$ : 40.0 22 in ( <sup>18</sup> O,4n $\gamma$ ).                       |
|                                       |                                     | 683.8 <sup>a</sup> 2               | 100 <sup>a</sup> 5   | 1274.75 | 8 <sup>+</sup>     | (E1+M2)              | 0.04 4     | Other E $\gamma$ : 684.3 3 in $\varepsilon$ decay, 683.2 2 in IT decay.              |
|                                       |                                     |                                    |                      |         |                    |                      |            | Mult.: D+Q from ( <sup>18</sup> O,4n $\gamma$ ); $\Delta\pi$ =yes from level scheme. |
|                                       |                                     |                                    |                      |         |                    |                      |            | Other I $\gamma$ : 11.1 22 in ( <sup>18</sup> O,4n $\gamma$ ).                       |
| 1991.35                               | 6 <sup>+</sup>                      | 1184.6 <sup>a</sup> 2              | 8.1 <sup>a</sup> 27  | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                                      |
|                                       |                                     | 1217.2 3                           | 53 5                 | 774.08  | 6 <sup>+</sup>     | M1(+E2+E0)           |            |                                                                                      |
|                                       |                                     | 1607.70 25                         | 100 8                | 383.68  | 4 <sup>+</sup>     | E2,E1                |            |                                                                                      |
| 2000.11                               | (7 <sup>-</sup> )                   | 83.7 <sup>a</sup> 2                | 22 <sup>a</sup> 4    | 1916.38 | (6) <sup>-</sup>   | M1,E2                | 9.25 20    | Mult.: from $\alpha(\text{exp})$ in ( <sup>13</sup> C,5n $\gamma$ ).                 |
|                                       |                                     | 163.9 <sup>a</sup> 2               | 20 <sup>a</sup> 4    | 1836.27 | 5 <sup>-</sup>     |                      |            |                                                                                      |
|                                       |                                     | 725.3 <sup>a</sup> 2               | 100 <sup>a</sup> 10  | 1274.75 | 8 <sup>+</sup>     | D <sup>@</sup>       |            |                                                                                      |
|                                       |                                     | 1225.5 <sup>a</sup> 10             | 50 <sup>a</sup> 26   | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                                      |
| 2046.71                               | (8 <sup>-</sup> )                   | 88.3 <sup>a</sup> 2                | 100 <sup>a</sup>     | 1958.43 | 7 <sup>(-)</sup>   | M1                   | 8.04 13    | B(M1)(W.u.)>0.0025                                                                   |
|                                       |                                     |                                    |                      |         |                    |                      |            | Mult.: from $\alpha(\text{exp})$ in ( <sup>13</sup> C,5n $\gamma$ ).                 |
| 2055.83                               | (4,5,6) <sup>-</sup>                | 337.76 20                          | 100                  | 1718.07 | 5 <sup>-</sup>     | M1                   | 0.188      |                                                                                      |
| 2075.57                               |                                     | 444.0 3                            | 56 14                | 1631.51 | (4,5) <sup>+</sup> |                      |            |                                                                                      |
|                                       |                                     | 1301.53 25                         | 100 11               | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                                      |
| 2085.98                               | (4 <sup>+</sup> ,5,6 <sup>-</sup> ) | 378.65 25                          | 39 4                 | 1707.50 | (4) <sup>-</sup>   |                      |            |                                                                                      |
|                                       |                                     | 657.88 <sup>e</sup> 20             | 84 <sup>e</sup> 20   | 1428.15 | 5 <sup>+</sup>     |                      |            |                                                                                      |
|                                       |                                     | 1311.65 25                         | 100 14               | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                                      |
| 2106.41                               | (8 <sup>-</sup> )                   | 106.3 <sup>b</sup> 2               | 38 <sup>b</sup> 25   | 2000.11 | (7 <sup>-</sup> )  | (M1)                 | 4.72       | Mult.: D from ( <sup>18</sup> O,4n $\gamma$ ); $\Delta\pi$ =no from level scheme.    |
|                                       |                                     | 148.1 <sup>b</sup> 2               | 25 <sup>b</sup> 13   | 1958.43 | 7 <sup>(-)</sup>   | D+Q <sup>#</sup>     |            |                                                                                      |
|                                       |                                     | 273.6 2                            | 100 13               | 1832.76 | 6 <sup>-</sup>     |                      |            |                                                                                      |
| 2128.03                               | (4,5) <sup>-</sup>                  | 410.21 25                          | 91 9                 | 1718.07 | 5 <sup>-</sup>     | M1                   | 0.1117     |                                                                                      |
|                                       |                                     | 584.2 3                            | 44 12                | 1543.70 | (3) <sup>-</sup>   |                      |            |                                                                                      |
|                                       |                                     | 1744.1 3                           | 100 26               | 383.68  | 4 <sup>+</sup>     |                      |            |                                                                                      |
|                                       |                                     | 522.6 3                            | 32 5                 | 1613.15 | 6 <sup>+</sup>     |                      |            |                                                                                      |
| 2135.8                                |                                     | 1361.7 21                          | 100 11               | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                                      |
| 2136.77                               | (8) <sup>-</sup>                    | 136.7 <sup>a</sup> 2               | 100 <sup>a</sup> 9   | 2000.11 | (7 <sup>-</sup> )  | M1                   | 2.30       | Mult.: from $\alpha(\text{exp})$ in ( <sup>13</sup> C,5n $\gamma$ ).                 |
|                                       |                                     | 220.3 <sup>a</sup> 2               | 83 <sup>a</sup> 9    | 1916.38 | (6) <sup>-</sup>   |                      |            | Other I $\gamma$ : 50 6 from ( <sup>18</sup> O,4n $\gamma$ ).                        |
| 2148.43                               | (8 <sup>-</sup> )                   | 308.3 <sup>a</sup> 2               | 100 <sup>a</sup>     | 1840.13 | (6) <sup>-</sup>   |                      |            |                                                                                      |
| 2170.7                                |                                     | 895.9 3                            | 100                  | 1274.75 | 8 <sup>+</sup>     |                      |            |                                                                                      |
| 2201.47                               | (4) <sup>+</sup>                    | 493.6 3                            | 100 26               | 1707.50 | (4) <sup>-</sup>   |                      |            |                                                                                      |
|                                       |                                     | 657.88 <sup>e</sup> 20             | 41 <sup>e</sup> 10   | 1543.70 | (3) <sup>-</sup>   |                      |            |                                                                                      |
| 2221.77                               | (9) <sup>-</sup>                    | 175.1 <sup>a</sup> 2               | 100 <sup>a</sup>     | 2046.71 | (8 <sup>-</sup> )  | (M1+E2) <sup>@</sup> | 0.8 3      |                                                                                      |

## Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                                |                                                                                                                                                   |                                                                                                                   |                                                                                                                                                                                                                                                              |           |                                              |                     |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------|--------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|----------------------------------------------|---------------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$                      | $E_\gamma^\dagger$                                                                                                                                | $I_\gamma^\dagger$                                                                                                | $E_f$                                                                                                                                                                                                                                                        | $J_f^\pi$ | Mult. <sup>†</sup>                           | $\delta^{\ddagger}$ | $\alpha^c$                                                     | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| 2221.83                               | (5,6) <sup>-</sup>             | 381.70 15<br>601.16 11                                                                                                                            | 83 6<br>100 25                                                                                                    | 1840.13 (6) <sup>-</sup><br>1620.67 4 <sup>-</sup>                                                                                                                                                                                                           |           | M1                                           |                     | 0.1353                                                         | E $\gamma$ is for doubly-placed line. Intensity has been suitably divided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2266.42                               | (9 <sup>-</sup> )              | 129.6 <sup>a</sup> 2<br>160.0 <sup>a</sup> 2<br>266.4 <sup>a</sup> 2                                                                              | 100 <sup>a</sup> 5<br>24 <sup>a</sup> 5<br>43 <sup>a</sup> 5                                                      | 2136.77 (8) <sup>-</sup><br>2106.41 (8) <sup>-</sup><br>2000.11 (7) <sup>-</sup>                                                                                                                                                                             |           | D <sup>@</sup><br>(M1+E2) <sup>#</sup>       |                     | 1.1 4                                                          | Other I $\gamma$ : 50 6 from ( <sup>18</sup> O,4n $\gamma$ ) for E $\gamma$ =159.4 2.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 2278.76                               | (5,6) <sup>+</sup>             | 438.2 3<br>571.19 20<br>778.25 <sup>e</sup> 13<br>832.96 24<br>1504.72 25<br>1895.3 3                                                             | 27 7<br>100 9<br>44 <sup>e</sup> 11<br>58 13<br>98 9<br>64 5                                                      | 1840.13 (6) <sup>-</sup><br>1707.50 (4) <sup>-</sup><br>1500.57 4 <sup>+</sup><br>1445.72 (3,4) <sup>+</sup><br>774.08 6 <sup>+</sup><br>383.68 4 <sup>+</sup>                                                                                               |           |                                              |                     |                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2300.81                               | (9 <sup>-</sup> )              | 164.3 <sup>b</sup> 2<br>194.4 <sup>b</sup> 2<br>300.5 <sup>b</sup> 2                                                                              | 33 <sup>b</sup> 7<br>100 <sup>b</sup> 7<br>67 <sup>b</sup> 7                                                      | 2136.77 (8) <sup>-</sup><br>2106.41 (8) <sup>-</sup><br>2000.11 (7) <sup>-</sup>                                                                                                                                                                             |           | M1+E2                                        |                     | 0.61 25                                                        | Mult.: from $\alpha(\text{exp})$ and DCO in ( <sup>18</sup> O,4n $\gamma$ ).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 2330.19                               |                                | 431.19 20<br>488.8 3<br>1105.28 20                                                                                                                | 96 6<br>30 8<br>100 26                                                                                            | 1898.81<br>1841.62<br>1224.99 4 <sup>+</sup>                                                                                                                                                                                                                 |           |                                              |                     |                                                                | E $\gamma$ is for doubly-placed line; intensity suitably divided.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| 2366.81                               | 10 <sup>+</sup>                | 145.0 <sup>a</sup> 2<br><br>495.8 <sup>a</sup> 2<br><br>1092.1 <sup>a</sup> 2                                                                     | 100 <sup>a</sup> 4<br><br>40.4 <sup>a</sup> 21<br>36.1 <sup>a</sup> 21                                            | 2221.77 (9) <sup>-</sup><br><br>1871.19 10 <sup>+</sup><br>1274.75 8 <sup>+</sup>                                                                                                                                                                            |           | E1<br><br>M1(+E2)<br><br>E2                  | <br><br><0.65       | 0.1506<br><br>0.061 7<br><br>0.00417 6                         | B(E1)(W.u.)=1.17×10 <sup>-6</sup> 9<br>Mult.: from $\alpha(\text{exp})$ in ( <sup>13</sup> C,5n $\gamma$ ).<br>B(M1)(W.u.)>6.3×10 <sup>-7</sup> ; B(E2)(W.u.)<0.0014<br>Other E $\gamma$ : 494.9 2 from IT decay.<br>Other I $\gamma$ : 27 from IT decay, 35.2 14 from ( <sup>18</sup> O,4n $\gamma$ ).<br>Mult., $\delta$ : from $\alpha(\text{K})\text{exp}$ =0.052 7 in ( $\alpha$ ,2n $\gamma$ ).<br>B(E2)(W.u.)=3.6×10 <sup>-5</sup> 4<br>Other I $\gamma$ : 55 from IT decay and 53.5 14 from ( <sup>18</sup> O,4n $\gamma$ ).<br>Mult.: stretched Q from ( <sup>18</sup> O,4n $\gamma$ ); E2 from $\alpha(\text{K})\text{exp}$ in ( $\alpha$ ,2n $\gamma$ ). |
| 2398.98                               | (5) <sup>+</sup>               | 197.46 20<br>464.42 <sup>d</sup> 20<br>562.5 3<br>566.3 3<br>691.58 20<br>767.49 13<br>778.25 <sup>e</sup> 13<br>953.45 16<br>970.6 4<br>2014.8 6 | 37 3<br>8.8 <sup>d</sup> 24<br>14 4<br>20 5<br>72 5<br>100 10<br>88 <sup>e</sup> 24<br>66 7<br>25.3 24<br>14.7 18 | 2201.47 (4) <sup>+</sup><br>1934.48<br>1836.27 5 <sup>-</sup><br>1832.76 6 <sup>-</sup><br>1707.50 (4) <sup>-</sup><br>1631.51 (4,5) <sup>+</sup><br>1620.67 4 <sup>-</sup><br>1445.72 (3,4) <sup>+</sup><br>1428.15 5 <sup>+</sup><br>383.68 4 <sup>+</sup> |           | M1+E2<br><br><br><br>E1<br>M1+E2<br>E1<br>M1 |                     | 0.58 24<br><br><br><br>0.00393<br>0.015 7<br>0.0031<br>0.01267 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| 2400.17                               | 5 <sup>+</sup> ,6 <sup>+</sup> | 559.6 <sup>e</sup> 3                                                                                                                              | 66 <sup>e</sup> 16                                                                                                | 1840.50 (4,5,6) <sup>+</sup>                                                                                                                                                                                                                                 |           | M1,E2                                        |                     | 0.033 16                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

**Adopted Levels, Gammas (continued)**

| $\gamma(^{184}\text{Os})$ (continued) |                                     |                       |                      |         |                      |                      |            |                                                                                      |
|---------------------------------------|-------------------------------------|-----------------------|----------------------|---------|----------------------|----------------------|------------|--------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$                           | $E_\gamma^\dagger$    | $I_\gamma^\dagger$   | $E_f$   | $J_f^\pi$            | Mult. <sup>†</sup>   | $\alpha^c$ | Comments                                                                             |
| 2400.17                               | 5 <sup>+</sup> ,6 <sup>+</sup>      | 563.9 3               | 47 12                | 1836.27 | 5 <sup>-</sup>       | [E1]                 | 0.0060     | Mult.: $\alpha(K)\text{exp}$ for doublet dominated by this transition implies E2,M1. |
|                                       |                                     | 567.5 3               | 12 3                 | 1832.76 | 6 <sup>-</sup>       |                      |            |                                                                                      |
|                                       |                                     | 682.14 10             | 73 5                 | 1718.07 | 5 <sup>-</sup>       | E1                   | 0.00404    |                                                                                      |
|                                       |                                     | 786.96 25             | 62 5                 | 1613.15 | 6 <sup>+</sup>       | M1+E2                | 0.014 7    |                                                                                      |
|                                       |                                     | 1625.95 20            | 100 7                | 774.08  | 6 <sup>+</sup>       | M1,E2                | 0.0028 8   |                                                                                      |
| 2431.34                               | (10 <sup>-</sup> )                  | 209.6 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2221.77 | (9) <sup>-</sup>     | (M1) <sup>@</sup>    | 0.692      |                                                                                      |
|                                       |                                     | 384.6 <sup>a</sup> 2  | 16.2 <sup>a</sup> 14 | 2046.71 | (8) <sup>-</sup>     |                      |            |                                                                                      |
| 2446.62                               | (4,5) <sup>+</sup>                  | 167.81 20             | 6.0 5                | 2278.76 | (5,6) <sup>+</sup>   | M1                   | 1.289      |                                                                                      |
|                                       |                                     | 606.41 20             | 11.2 9               | 1840.50 | (4,5,6) <sup>+</sup> |                      |            |                                                                                      |
|                                       |                                     | 613.82 11             | 29.3 21              | 1832.76 | 6 <sup>-</sup>       |                      |            |                                                                                      |
|                                       |                                     | 728.40 20             | 4.2 6                | 1718.07 | 5 <sup>-</sup>       |                      |            |                                                                                      |
|                                       |                                     | 815.03 14             | 16.1 13              | 1631.51 | (4,5) <sup>+</sup>   | M1,E2                | 0.013 6    |                                                                                      |
|                                       |                                     | 826.05 14             | 28.2 22              | 1620.67 | 4 <sup>-</sup>       | E1                   | 0.00278    |                                                                                      |
|                                       |                                     | 1672.4 3              | 82 6                 | 774.08  | 6 <sup>+</sup>       | M1,E2                | 0.0027 7   |                                                                                      |
|                                       |                                     | 2063.0 3              | 100 7                | 383.68  | 4 <sup>+</sup>       | M1,E2                | 0.0019 4   |                                                                                      |
| 2457.14                               | (10 <sup>-</sup> )                  | 156.3 <sup>b</sup> 2  | 4.3 <sup>b</sup> 21  | 2300.81 | (9) <sup>-</sup>     |                      |            | Other I $\gamma$ : 86 3 from ( <sup>13</sup> C,5n $\gamma$ ).                        |
|                                       |                                     | 190.7 <sup>b</sup> 2  | 63.8 <sup>b</sup> 21 | 2266.42 | (9) <sup>-</sup>     | (M1) <sup>@</sup>    | 0.901      |                                                                                      |
|                                       |                                     | 320.2 <sup>b</sup> 2  | 34.0 <sup>b</sup> 21 | 2136.77 | (8) <sup>-</sup>     |                      |            |                                                                                      |
|                                       |                                     | 350.8 <sup>b</sup> 2  | 100 <sup>b</sup> 4   | 2106.41 | (8) <sup>-</sup>     |                      |            |                                                                                      |
| 2463.57                               | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) | 1017.3 3              | 30 8                 | 1445.72 | (3,4) <sup>+</sup>   |                      |            |                                                                                      |
|                                       |                                     | 1689.5 3              | 100 26               | 774.08  | 6 <sup>+</sup>       |                      |            |                                                                                      |
|                                       |                                     | 2080.4 3              | 66 8                 | 383.68  | 4 <sup>+</sup>       |                      |            |                                                                                      |
| 2472.29                               | (4 <sup>+</sup> ,5,6 <sup>+</sup> ) | 1698.4 3              | 79 20                | 774.08  | 6 <sup>+</sup>       |                      |            |                                                                                      |
|                                       |                                     | 2088.4 3              | 100 26               | 383.68  | 4 <sup>+</sup>       |                      |            |                                                                                      |
| 2493.59                               |                                     | 1412.7 3              | 68 10                | 1080.97 | 3 <sup>+</sup>       |                      |            |                                                                                      |
|                                       |                                     | 2109.8 3              | 100 26               | 383.68  | 4 <sup>+</sup>       |                      |            |                                                                                      |
| 2502.66                               | (10 <sup>-</sup> )                  | 201.8 <sup>b</sup> 2  | <6 <sup>b</sup>      | 2300.81 | (9) <sup>-</sup>     |                      |            |                                                                                      |
|                                       |                                     | 236.4 <sup>b</sup> 2  | 100 <sup>b</sup> 6   | 2266.42 | (9) <sup>-</sup>     | D+Q <sup>#</sup>     |            |                                                                                      |
|                                       |                                     | 365.8 <sup>b</sup> 2  | 69 <sup>b</sup> 6    | 2136.77 | (8) <sup>-</sup>     | Q <sup>#</sup>       |            |                                                                                      |
| 2517.99                               |                                     | 1072.6 3              | 34 3                 | 1445.72 | (3,4) <sup>+</sup>   |                      |            |                                                                                      |
|                                       |                                     | 1436.72 24            | 23 3                 | 1080.97 | 3 <sup>+</sup>       |                      |            |                                                                                      |
|                                       |                                     | 2134.4 3              | 100 8                | 383.68  | 4 <sup>+</sup>       |                      |            |                                                                                      |
| 2547.61                               | 12 <sup>+</sup>                     | 676.3 <sup>a</sup> 2  | 100 <sup>a</sup>     | 1871.19 | 10 <sup>+</sup>      | E2&                  | 0.01126    | B(E2)(W.u.)>0.029                                                                    |
| 2549.16                               | (5,6) <sup>-</sup>                  | 716.3 3               | 63 7                 | 1832.76 | 6 <sup>-</sup>       | M1                   | 0.0262     |                                                                                      |
|                                       |                                     | 1121.1 3              | 100 24               | 1428.15 | 5 <sup>+</sup>       |                      |            |                                                                                      |
| 2596.75                               | (10 <sup>+</sup> )                  | 1322.0 <sup>a</sup> 2 | 100 <sup>a</sup>     | 1274.75 | 8 <sup>+</sup>       |                      |            |                                                                                      |
| 2609.74                               | 11 <sup>+</sup>                     | 243.1 <sup>a</sup> 2  | 100 <sup>a</sup>     | 2366.81 | 10 <sup>+</sup>      | (M1+E2) <sup>@</sup> | 0.32 15    |                                                                                      |
| 2625.5                                | (10 <sup>-</sup> )                  | 477.1 <sup>a</sup> 2  | 100 <sup>a</sup>     | 2148.43 | (8) <sup>-</sup>     |                      |            |                                                                                      |

**Adopted Levels, Gammas (continued)**

| $\gamma(^{184}\text{Os})$ (continued) |                     |                         |                         |         |                    |                      |            |                                                                         |
|---------------------------------------|---------------------|-------------------------|-------------------------|---------|--------------------|----------------------|------------|-------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$           | $E_\gamma$ <sup>†</sup> | $I_\gamma$ <sup>†</sup> | $E_f$   | $J_f^\pi$          | Mult. <sup>†</sup>   | $\alpha^C$ | Comments                                                                |
| 2661.50                               | (11 <sup>-</sup> )  | 158.8 <sup>b</sup> 2    | <2.6 <sup>b</sup>       | 2502.66 | (10 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 204.3 <sup>a</sup> 2    | 63 <sup>a</sup> 4       | 2457.14 | (10 <sup>-</sup> ) | (M1) <sup>#</sup>    | 0.743      | Other I $\gamma$ : 46 3 from ( $^{18}\text{O},4n\gamma$ ).              |
|                                       |                     | 230.2 <sup>a</sup> 2    | 37.0 <sup>a</sup> 22    | 2431.34 | (10 <sup>-</sup> ) |                      |            | Other I $\gamma$ : 44 3 from ( $^{18}\text{O},4n\gamma$ ).              |
|                                       |                     | 395.0 <sup>a</sup> 2    | 100 <sup>a</sup> 4      | 2266.42 | (9 <sup>-</sup> )  | (E2) <sup>#</sup>    | 0.0419     |                                                                         |
|                                       |                     | 439.9 <sup>a</sup> 2    | 30.4 <sup>a</sup> 22    | 2221.77 | (9 <sup>-</sup> )  |                      |            |                                                                         |
| 2672.87                               | (11 <sup>-</sup> )  | 241.5 <sup>a</sup> 2    | 100 <sup>a</sup> 4      | 2431.34 | (10 <sup>-</sup> ) | (M1+E2) <sup>#</sup> | 0.32 15    |                                                                         |
|                                       |                     | 406.4 <sup>a</sup> 2    | 50 <sup>a</sup> 4       | 2266.42 | (9 <sup>-</sup> )  |                      |            | Other I $\gamma$ : 74 4 from ( $^{18}\text{O},4n\gamma$ ).              |
|                                       |                     | 451.0 <sup>a</sup> 2    | 23 <sup>a</sup> 4       | 2221.77 | (9 <sup>-</sup> )  |                      |            |                                                                         |
| 2694.17                               | (10 <sup>+</sup> )  | 823.2 <sup>a</sup> 2    | 31 <sup>a</sup> 4       | 1871.19 | 10 <sup>+</sup>    |                      |            |                                                                         |
|                                       |                     | 1419.3 <sup>a</sup> 2   | 100 <sup>a</sup> 8      | 1274.75 | 8 <sup>+</sup>     | (Q) <sup>@</sup>     |            |                                                                         |
| 2719.84                               | (5,6 <sup>+</sup> ) | 886.7 3                 | 100 9                   | 1832.76 | 6 <sup>-</sup>     |                      |            |                                                                         |
|                                       |                     | 1001.63 24              | 72 7                    | 1718.07 | 5 <sup>-</sup>     |                      |            |                                                                         |
|                                       |                     | 1292.7 3                | 79 21                   | 1428.15 | 5 <sup>+</sup>     |                      |            |                                                                         |
|                                       |                     | 1945.4 3                | 84 7                    | 774.08  | 6 <sup>+</sup>     |                      |            |                                                                         |
|                                       |                     | 2336.1 3                | 30 5                    | 383.68  | 4 <sup>+</sup>     |                      |            |                                                                         |
| 2721.49                               | (11 <sup>-</sup> )  | 218.8 <sup>b</sup> 2    | <4 <sup>b</sup>         | 2502.66 | (10 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 264 <sup>f</sup>        |                         | 2457.14 | (10 <sup>-</sup> ) |                      |            | E $\gamma$ : from ( $^{18}\text{O},4n\gamma$ ).                         |
|                                       |                     | 420.8 <sup>b</sup> 2    | 100 <sup>b</sup> 4      | 2300.81 | (9 <sup>-</sup> )  | (E2) <sup>#</sup>    | 0.0354     |                                                                         |
| 2862.70                               | 12 <sup>+</sup>     | 252.9 <sup>a</sup> 2    | 100 <sup>a</sup> 3      | 2609.74 | 11 <sup>+</sup>    | (M1+E2) <sup>@</sup> | 0.28 13    | $\delta$ : 1.22 8 implied by branching in ( $^{18}\text{O},4n\gamma$ ). |
|                                       |                     | 495.8 <sup>a</sup> 2    | 22 <sup>a</sup> 4       | 2366.81 | 10 <sup>+</sup>    |                      |            |                                                                         |
|                                       |                     | 991.6 <sup>a</sup> 2    | 12.5 <sup>a</sup> 14    | 1871.19 | 10 <sup>+</sup>    |                      |            |                                                                         |
| 2901.20                               | (12 <sup>-</sup> )  | 179.7 <sup>b</sup> 2    | <2.1 <sup>b</sup>       | 2721.49 | (11 <sup>-</sup> ) | [M1]                 | 1.064      |                                                                         |
|                                       |                     | 228.5 <sup>a</sup> 2    | 24.7 <sup>a</sup> 12    | 2672.87 | (11 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 239.7 <sup>a</sup> 2    | 21.2 <sup>a</sup> 12    | 2661.50 | (11 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 444.0 <sup>a</sup> 2    | 100 <sup>a</sup> 4      | 2457.14 | (10 <sup>-</sup> ) | (E2) <sup>@</sup>    | 0.0307     |                                                                         |
| 2903.9                                | (12 <sup>-</sup> )  | 231.0 <sup>a</sup> 2    | 100 <sup>a</sup>        | 2672.87 | (11 <sup>-</sup> ) | D <sup>@</sup>       |            |                                                                         |
| 2930.36                               | (12 <sup>-</sup> )  | 257.4 <sup>a</sup> 2    | 63 <sup>a</sup> 3       | 2672.87 | (11 <sup>-</sup> ) | (M1) <sup>@</sup>    | 0.393      |                                                                         |
|                                       |                     | 499.0 <sup>a</sup> 2    | 100 <sup>a</sup> 7      | 2431.34 | (10 <sup>-</sup> ) |                      |            |                                                                         |
| 2957.78                               | (12 <sup>-</sup> )  | 236.3 <sup>b</sup> 2    | <6 <sup>b</sup>         | 2721.49 | (11 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 284.9 <sup>b</sup> 2    | 29 <sup>b</sup> 6       | 2672.87 | (11 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 296.4 <sup>b</sup> 2    | 82 <sup>b</sup> 6       | 2661.50 | (11 <sup>-</sup> ) | D <sup>#</sup>       |            |                                                                         |
|                                       |                     | 455.2 <sup>b</sup> 2    | 100 <sup>b</sup> 6      | 2502.66 | (10 <sup>-</sup> ) |                      |            |                                                                         |
|                                       |                     | 402.5 <sup>a</sup> 2    | 18 <sup>a</sup> 4       | 2596.75 | (10 <sup>+</sup> ) |                      |            |                                                                         |
| 2999.25                               | (12 <sup>+</sup> )  | 1128.0 <sup>a</sup> 2   | 100 <sup>a</sup> 4      | 1871.19 | 10 <sup>+</sup>    | Q <sup>@</sup>       |            |                                                                         |
| 3083.5                                | (13 <sup>-</sup> )  | 179.6 2                 | 100                     | 2903.9  | (12 <sup>-</sup> ) | (M1) <sup>@</sup>    | 1.065      |                                                                         |

Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                    |                       |                      |                            |           |                      |            |                                                                                                                  |
|---------------------------------------|--------------------|-----------------------|----------------------|----------------------------|-----------|----------------------|------------|------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$          | $E_\gamma^\dagger$    | $I_\gamma^\dagger$   | $E_f$                      | $J_f^\pi$ | Mult. <sup>†</sup>   | $\alpha^c$ | Comments                                                                                                         |
| 3088.88                               | (12 <sup>+</sup> ) | 394.8 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2694.17 (10 <sup>+</sup> ) |           | (E2) <sup>@</sup>    | 0.0419     |                                                                                                                  |
|                                       |                    | 541.5 <sup>a</sup> 2  | 68 <sup>a</sup> 4    | 2547.61 12 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 1217.5 <sup>a</sup> 2 | 20 <sup>a</sup> 4    | 1871.19 10 <sup>+</sup>    |           |                      |            |                                                                                                                  |
| 3126.8                                | (13)               | 579.2 <sup>a</sup> 2  | 100 <sup>a</sup>     | 2547.61 12 <sup>+</sup>    |           |                      |            |                                                                                                                  |
| 3130.25                               | 13 <sup>+</sup>    | 267.5 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2862.70 12 <sup>+</sup>    |           | (M1+E2) <sup>@</sup> | 0.24 1/2   | $\delta$ : 1.0 1 based on branching from ( <sup>18</sup> O,4n $\gamma$ ).                                        |
|                                       |                    | 520.8 <sup>a</sup> 2  | 47 <sup>a</sup> 3    | 2609.74 11 <sup>+</sup>    |           |                      |            |                                                                                                                  |
| 3166.88                               | (13 <sup>-</sup> ) | 209.2 <sup>b</sup> 2  | <2.0 <sup>b</sup>    | 2957.78 (12 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 236.4 <sup>a</sup> 2  | 13.0 <sup>a</sup> 10 | 2930.36 (12 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 265.8 <sup>b</sup> 2  | 52.0 <sup>b</sup> 20 | 2901.20 (12 <sup>-</sup> ) |           |                      |            | Reported in ( <sup>18</sup> O,4n $\gamma$ ) only; should have been seen in ( <sup>13</sup> C,5n $\gamma$ ) also. |
|                                       |                    | 493.9 <sup>b</sup> 2  | 26.0 <sup>b</sup> 20 | 2672.87 (11 <sup>-</sup> ) |           |                      |            | Reported in ( <sup>18</sup> O,4n $\gamma$ ) only; should have been seen in ( <sup>13</sup> C,5n $\gamma$ ) also. |
|                                       |                    | 505.3 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2661.50 (11 <sup>-</sup> ) |           | (E2) <sup>@</sup>    | 0.0222     |                                                                                                                  |
| 3199.5                                | (12 <sup>-</sup> ) | 574.0 <sup>a</sup> 2  | 100 <sup>a</sup>     | 2625.5 (10 <sup>-</sup> )  |           |                      |            |                                                                                                                  |
| 3210.07                               | (13 <sup>-</sup> ) | 279.9 <sup>a</sup> 2  | 100 <sup>a</sup> 8   | 2930.36 (12 <sup>-</sup> ) |           | (M1) <sup>@</sup>    | 0.312      |                                                                                                                  |
|                                       |                    | 537.1 <sup>a</sup> 2  | 92 <sup>a</sup> 8    | 2672.87 (11 <sup>-</sup> ) |           |                      |            | Other I $\gamma$ : 112 7 from ( <sup>18</sup> O,4n $\gamma$ ).                                                   |
| 3226.36                               | (13 <sup>-</sup> ) | 325.1 <sup>b</sup> 2  | 23 <sup>b</sup> 3    | 2901.20 (12 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 505.0 <sup>b</sup> 2  | 100 <sup>b</sup> 3   | 2721.49 (11 <sup>-</sup> ) |           | (E2) <sup>#</sup>    | 0.0222     |                                                                                                                  |
| 3228.3                                | (11 <sup>-</sup> ) | 1006.5 <sup>b</sup> 2 | 100 <sup>b</sup>     | 2221.77 (9 <sup>-</sup> )  |           |                      |            |                                                                                                                  |
| 3261.38                               | 14 <sup>+</sup>    | 713.6 <sup>a</sup> 2  | 100 <sup>a</sup>     | 2547.61 12 <sup>+</sup>    |           | E2 <sup>&amp;</sup>  | 0.01001    | B(E2)(W.u.)>0.00024                                                                                              |
| 3359.37                               | 14 <sup>+</sup>    | 229.2 2               | 7.6 10               | 3130.25 13 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 496.5 <sup>a</sup> 10 | 10 <sup>a</sup> 5    | 2862.70 12 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 811.7 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2547.61 12 <sup>+</sup>    |           | E2 <sup>&amp;</sup>  | 0.00760    |                                                                                                                  |
| 3392.02                               | (12 <sup>+</sup> ) | 782.2 <sup>b</sup> 2  | 31 <sup>b</sup> 8    | 2609.74 11 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 1025.3 <sup>b</sup> 2 | 100 <sup>b</sup> 8   | 2366.81 10 <sup>+</sup>    |           | Q <sup>#</sup>       |            |                                                                                                                  |
| 3423.40                               | (14 <sup>-</sup> ) | 256.4 2               | 11.8 20              | 3166.88 (13 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 522.2 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2901.20 (12 <sup>-</sup> ) |           | (E2) <sup>@</sup>    | 0.0205     |                                                                                                                  |
| 3489.67                               | (14 <sup>-</sup> ) | 323 <sup>f</sup>      |                      | 3166.88 (13 <sup>-</sup> ) |           |                      |            | E $\gamma$ : from ( <sup>18</sup> O,4n $\gamma$ ).                                                               |
|                                       |                    | 532.0 <sup>b</sup> 2  | 100 <sup>b</sup> 5   | 2957.78 (12 <sup>-</sup> ) |           | (E2) <sup>#</sup>    | 0.0196     |                                                                                                                  |
| 3496.50                               | (14 <sup>+</sup> ) | 366.5 <sup>a</sup> 2  | 38.2 <sup>a</sup> 18 | 3130.25 13 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 497.2 <sup>a</sup> 2  | 47 <sup>a</sup> 4    | 2999.25 (12 <sup>+</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 633.8 <sup>a</sup> 2  | 29 <sup>a</sup> 4    | 2862.70 12 <sup>+</sup>    |           |                      |            |                                                                                                                  |
|                                       |                    | 948.7 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 2547.61 12 <sup>+</sup>    |           |                      |            |                                                                                                                  |
| 3510.03                               | (14 <sup>-</sup> ) | 299.8 <sup>b</sup> 2  | 47 <sup>b</sup> 6    | 3210.07 (13 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 552.2 <sup>b</sup> 2  | <6 <sup>b</sup>      | 2957.78 (12 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
|                                       |                    | 579.5 <sup>b</sup> 2  | 100 <sup>b</sup> 6   | 2930.36 (12 <sup>-</sup> ) |           |                      |            |                                                                                                                  |
| 3550.03                               | (14 <sup>+</sup> ) | 461.3 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 3088.88 (12 <sup>+</sup> ) |           |                      |            |                                                                                                                  |

## Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                    |                                    |                               |         |                    |                     |            |                                                                                        |
|---------------------------------------|--------------------|------------------------------------|-------------------------------|---------|--------------------|---------------------|------------|----------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$          | $E_\gamma^\dagger$                 | $I_\gamma^\dagger$            | $E_f$   | $J_f^\pi$          | Mult. <sup>†</sup>  | $\alpha^c$ | Comments                                                                               |
| 3550.03                               | (14 <sup>+</sup> ) | 1002.5 <sup>a</sup> 2              | 11.1 <sup>a</sup> 14          | 2547.61 | 12 <sup>+</sup>    |                     |            |                                                                                        |
| 3679.74                               | 15 <sup>+</sup>    | 183.3 <sup>a</sup> 2               | 15 <sup>a</sup> 3             | 3496.50 | (14 <sup>+</sup> ) |                     |            |                                                                                        |
|                                       |                    | 320.5 <sup>a</sup> 2               | 47.8 <sup>a</sup> 15          | 3359.37 | 14 <sup>+</sup>    |                     |            |                                                                                        |
|                                       |                    | 549.4 <sup>a</sup> 2               | 100 <sup>a</sup> 4            | 3130.25 | 13 <sup>+</sup>    | (E2) <sup>@</sup>   | 0.0181     |                                                                                        |
| 3728.19                               | (13 <sup>-</sup> ) | 336.2 <sup>b</sup> 2               | 100 <sup>b</sup> 7            | 3392.02 | (12 <sup>+</sup> ) | D <sup>#</sup>      |            |                                                                                        |
|                                       |                    | 500 <sup>b</sup> <sup>f</sup>      | <sup>b</sup>                  | 3228.3  | (11 <sup>-</sup> ) |                     |            |                                                                                        |
|                                       |                    | 797.8 <sup>b</sup> 2               | 92 <sup>b</sup> 7             | 2930.36 | (12 <sup>-</sup> ) | D+Q <sup>#</sup>    |            |                                                                                        |
| 3747.0                                | (15 <sup>-</sup> ) | 580.1 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3166.88 | (13 <sup>-</sup> ) | Q <sup>@</sup>      |            |                                                                                        |
| 3760.91                               | (15 <sup>-</sup> ) | 594.1 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3166.88 | (13 <sup>-</sup> ) | (E2) <sup>#</sup>   | 0.0181     |                                                                                        |
| 3777.8                                | (15)               | 647.5 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3130.25 | 13 <sup>+</sup>    |                     |            |                                                                                        |
| 3790.96                               | 16 <sup>+</sup>    | 111.5 <sup>a</sup> <sup>f</sup> 10 | 1.1 <sup>a</sup> 6            | 3679.74 | 15 <sup>+</sup>    | [M1]                | 4.12 13    |                                                                                        |
|                                       |                    | 431.6 <sup>a</sup> 2               | 32.0 <sup>a</sup> 11          | 3359.37 | 14 <sup>+</sup>    | E2 <sup>&amp;</sup> | 0.0331     | B(E2)(W.u.)>0.064<br>Other I $\gamma$ : 80 20 in ( $\alpha$ ,6n $\gamma$ ).            |
|                                       |                    | 529.7 <sup>a</sup> 2               | 100 <sup>a</sup> 3            | 3261.38 | 14 <sup>+</sup>    | E2 <sup>&amp;</sup> | 0.0198     | B(E2)(W.u.)>0.072                                                                      |
| 3792.4                                | (14 <sup>-</sup> ) | (63 <sup>b</sup> )                 | 100 <sup>b</sup>              | 3728.19 | (13 <sup>-</sup> ) | [M1]                | 3.76       |                                                                                        |
| 3806.60                               | (15 <sup>-</sup> ) | 296.5 <sup>b</sup> 2               | 3 <sup>b</sup> 3              | 3510.03 | (14 <sup>-</sup> ) |                     |            |                                                                                        |
|                                       |                    | 384 <sup>f</sup>                   |                               | 3423.40 | (14 <sup>-</sup> ) |                     |            | E $\gamma$ : from ( $^{18}\text{O}$ ,4n $\gamma$ ).                                    |
|                                       |                    | 580.3 <sup>b</sup> 2               | 100 <sup>b</sup> 3            | 3226.36 | (13 <sup>-</sup> ) | (E2) <sup>#</sup>   | 0.01594    |                                                                                        |
| 3820.52                               | (15 <sup>-</sup> ) | 310.3 <sup>b</sup> 2               | 29 <sup>b</sup> 4             | 3510.03 | (14 <sup>-</sup> ) |                     |            |                                                                                        |
|                                       |                    | 610.7 <sup>b</sup> 2               | 100 <sup>b</sup> 4            | 3210.07 | (13 <sup>-</sup> ) |                     |            |                                                                                        |
| 3860.4                                | (14 <sup>-</sup> ) | 660.9 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3199.5  | (12 <sup>-</sup> ) |                     |            |                                                                                        |
| 3972.0                                | (15 <sup>-</sup> ) | 179.7 <sup>e</sup> <sup>b</sup> 2  | 100 <sup>e</sup> <sup>b</sup> | 3792.4  | (14 <sup>-</sup> ) | M1                  | 1.064      | Mult.: from $\alpha$ (exp) and DCO in ( $^{18}\text{O}$ ,4n $\gamma$ ).                |
| 3998.03                               | (16 <sup>-</sup> ) | 574.5 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3423.40 | (14 <sup>-</sup> ) | (E2) <sup>@</sup>   | 0.01632    |                                                                                        |
| 4046.50                               | 16 <sup>+</sup>    | 496.6 <sup>a</sup> 2               | 5.6 <sup>a</sup> 10           | 3550.03 | (14 <sup>+</sup> ) |                     |            |                                                                                        |
|                                       |                    | 550.1 2                            |                               | 3496.50 | (14 <sup>+</sup> ) |                     |            | E $\gamma$ : from ( $^{18}\text{O}$ ,4n $\gamma$ ) only.                               |
|                                       |                    | 687.0 <sup>a</sup> 2               | 35.9 <sup>a</sup> 15          | 3359.37 | 14 <sup>+</sup>    | E2 <sup>&amp;</sup> | 0.01087    |                                                                                        |
|                                       |                    | 785.1 <sup>a</sup> 2               | 100 <sup>a</sup> 4            | 3261.38 | 14 <sup>+</sup>    | E2 <sup>&amp;</sup> | 0.00815    |                                                                                        |
| 4091.92                               | (16 <sup>+</sup> ) | 542.0 <sup>a</sup> 2               | 100 <sup>a</sup> 5            | 3550.03 | (14 <sup>+</sup> ) |                     |            |                                                                                        |
|                                       |                    | 595.0 <sup>a</sup> 2               | 100 <sup>a</sup> 5            | 3496.50 | (14 <sup>+</sup> ) |                     |            |                                                                                        |
| 4122.55                               | (16 <sup>-</sup> ) | 302.1 <sup>b</sup> 2               | 13 <sup>b</sup> 3             | 3820.52 | (15 <sup>-</sup> ) |                     |            |                                                                                        |
|                                       |                    | 361.7 <sup>b</sup> 2               | 16 <sup>b</sup> 3             | 3760.91 | (15 <sup>-</sup> ) |                     |            |                                                                                        |
|                                       |                    | 633.0 <sup>b</sup> 2               | 100 <sup>b</sup> 3            | 3489.67 | (14 <sup>-</sup> ) |                     |            |                                                                                        |
| 4157.75                               | (16 <sup>-</sup> ) | 647.6 <sup>b</sup> 2               | 100 <sup>b</sup>              | 3510.03 | (14 <sup>-</sup> ) |                     |            | Observed in ( $^{13}\text{C}$ ,5n $\gamma$ ) but placed instead from J=15 band member. |
| 4167.7                                | (16 <sup>-</sup> ) | 420.7 <sup>a</sup> 2               | 100 <sup>a</sup>              | 3747.0  | (15 <sup>-</sup> ) |                     |            |                                                                                        |

Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                    |                                 |                      |                                                       |           |                    |            |                                                                                                          |
|---------------------------------------|--------------------|---------------------------------|----------------------|-------------------------------------------------------|-----------|--------------------|------------|----------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$          | $E_\gamma^\dagger$              | $I_\gamma^\dagger$   | $E_f$                                                 | $J_f^\pi$ | Mult. <sup>†</sup> | $\alpha^c$ | Comments                                                                                                 |
| 4173.2                                | (16 <sup>+</sup> ) | 677.0 2<br>911.6 <sup>a</sup> 2 | 100 <sup>a</sup>     | 3496.50 (14 <sup>+</sup> )<br>3261.38 14 <sup>+</sup> |           |                    |            | $E_\gamma$ : from ( <sup>18</sup> O,4n $\gamma$ ). Transition absent in ( <sup>13</sup> C,5n $\gamma$ ). |
| 4202.7                                | (16 <sup>-</sup> ) | 230.8 <sup>b</sup> 2            | 100 <sup>b</sup> 5   | 3972.0 (15 <sup>-</sup> )                             |           | M1                 | 0.530      | Mult.: from $\alpha$ (exp) and DCO in ( <sup>18</sup> O,4n $\gamma$ ).                                   |
|                                       |                    | 410.1 <sup>b</sup> 2            | 36 <sup>b</sup> 12   | 3792.4 (14 <sup>-</sup> )                             |           |                    |            |                                                                                                          |
| 4281.12                               | 17 <sup>+</sup>    | 490.5 <sup>a</sup> 2            | 21 <sup>a</sup> 4    | 3790.96 16 <sup>+</sup>                               |           |                    |            |                                                                                                          |
|                                       |                    | 601.5 <sup>a</sup> 2            | 100 <sup>a</sup> 4   | 3679.74 15 <sup>+</sup>                               |           | (E2) <sup>@</sup>  | 0.01467    |                                                                                                          |
| 4349.3                                | 18 <sup>+</sup>    | 558.2 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3790.96 16 <sup>+</sup>                               |           | E2&                | 0.01746    | B(E2)(W.u.)>0.076                                                                                        |
| 4407.7                                | (17 <sup>-</sup> ) | 660.7 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3747.0 (15 <sup>-</sup> )                             |           |                    |            |                                                                                                          |
| 4416.0                                | (17 <sup>-</sup> ) | 669.0 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3747.0 (15 <sup>-</sup> )                             |           |                    |            |                                                                                                          |
| 4418.4                                | (17 <sup>-</sup> ) | 657.5 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3760.91 (15 <sup>-</sup> )                            |           | (E2) <sup>#</sup>  | 0.01199    |                                                                                                          |
| 4467.46                               | (17 <sup>-</sup> ) | 309.6 <sup>b</sup> 2            | 21 <sup>b</sup> 5    | 4157.75 (16 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 469.3 <sup>b</sup> 2            | 21 <sup>b</sup> 5    | 3998.03 (16 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 660.8 <sup>b</sup> 2            | 100 <sup>b</sup> 5   | 3806.60 (15 <sup>-</sup> )                            |           | (E2) <sup>#</sup>  | 0.01185    |                                                                                                          |
| 4475.74                               | (17 <sup>-</sup> ) | 669.2 <sup>b</sup> 2            | 100 <sup>b</sup>     | 3806.60 (15 <sup>-</sup> )                            |           | Q <sup>#</sup>     |            |                                                                                                          |
| 4494.4                                | (17 <sup>-</sup> ) | 673.8 <sup>b</sup> 2            | 100 <sup>b</sup>     | 3820.52 (15 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
| 4597.0                                | (16 <sup>-</sup> ) | 736.6 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3860.4 (14 <sup>-</sup> )                             |           |                    |            |                                                                                                          |
| 4635.6                                | (18 <sup>-</sup> ) | 637.6 <sup>a</sup> 2            | 100 <sup>a</sup>     | 3998.03 (16 <sup>-</sup> )                            |           | (E2) <sup>@</sup>  | 0.01284    |                                                                                                          |
| 4728.7                                | (18 <sup>+</sup> ) | 636.8 <sup>a</sup> 2            | 100 <sup>a</sup>     | 4091.92 (16 <sup>+</sup> )                            |           |                    |            |                                                                                                          |
| 4756.71                               | (18 <sup>-</sup> ) | 280.9 <sup>b</sup> 2            | 15 <sup>b</sup> 5    | 4475.74 (17 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 289.1 <sup>b</sup> 2            | 50 <sup>b</sup> 5    | 4467.46 (17 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 554.0 <sup>b</sup> 2            | 100 <sup>b</sup> 5   | 4202.7 (16 <sup>-</sup> )                             |           | Q <sup>#</sup>     |            |                                                                                                          |
|                                       |                    | 634.4 <sup>b</sup> 2            | 10 <sup>b</sup> 5    | 4122.55 (16 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
| 4770.5                                |                    | 294.9 <sup>b</sup> 2            | 21 <sup>b</sup> 7    | 4475.74 (17 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 302.9 <sup>b</sup> 2            | 64 <sup>b</sup> 7    | 4467.46 (17 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
|                                       |                    | 567.9 <sup>b</sup> 2            | 100 <sup>b</sup> 7   | 4202.7 (16 <sup>-</sup> )                             |           |                    |            |                                                                                                          |
| 4800.54                               | 18 <sup>+</sup>    | 451.3 <sup>a</sup> 2            | 5.8 <sup>a</sup> 5   | 4349.3 18 <sup>+</sup>                                |           |                    |            |                                                                                                          |
|                                       |                    | 519.7 <sup>a</sup> 2            | 14.9 <sup>a</sup> 5  | 4281.12 17 <sup>+</sup>                               |           |                    |            |                                                                                                          |
|                                       |                    | 708.3 <sup>a</sup> 2            | 32.7 <sup>a</sup> 14 | 4091.92 (16 <sup>+</sup> )                            |           | Q <sup>@</sup>     |            |                                                                                                          |
|                                       |                    | 754.1 <sup>a</sup> 2            | 100 <sup>a</sup> 3   | 4046.50 16 <sup>+</sup>                               |           | E2&                | 0.00888    |                                                                                                          |
|                                       |                    | 1009.5 <sup>a</sup> 2           | 10.1 <sup>a</sup> 10 | 3790.96 16 <sup>+</sup>                               |           |                    |            |                                                                                                          |
| 4826.8                                | (18 <sup>-</sup> ) | 704.2 <sup>b</sup> 2            | 100 <sup>b</sup>     | 4122.55 (16 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
| 4879.5                                | (18 <sup>-</sup> ) | 721.8 <sup>b</sup> 2            | 100 <sup>b</sup>     | 4157.75 (16 <sup>-</sup> )                            |           |                    |            |                                                                                                          |
| 4912.1                                | (18)               | 738.9 <sup>a</sup> 2            | 100 <sup>a</sup>     | 4173.2 (16 <sup>+</sup> )                             |           | Q <sup>@</sup>     |            |                                                                                                          |
| 4963.8                                | 19 <sup>+</sup>    | 682.9 <sup>a</sup> 2            | 100 <sup>a</sup>     | 4281.12 17 <sup>+</sup>                               |           | (E2) <sup>@</sup>  | 0.01102    |                                                                                                          |



# Adopted Levels, Gammas (continued)

$\gamma(^{184}\text{Os})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$          | $E_\gamma$ <sup>†</sup> | $I_\gamma$ <sup>†</sup> | $E_f$   | $J_f^\pi$          | Mult. <sup>†</sup> | $\alpha^c$ | Comments                                                                                     |
|---------------------|--------------------|-------------------------|-------------------------|---------|--------------------|--------------------|------------|----------------------------------------------------------------------------------------------|
| 5000.9              | 20 <sup>+</sup>    | 651.6 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4349.3  | 18 <sup>+</sup>    | E2&                | 0.01223    | B(E2)(W.u.)>0.035                                                                            |
| 5100.0              |                    | 329.5 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4770.5  |                    |                    |            |                                                                                              |
| 5106.7              | (19)               | 194.6 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4912.1  | (18)               |                    |            |                                                                                              |
| 5126.5              | (19 <sup>-</sup> ) | 708.1 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4418.4  | (17 <sup>-</sup> ) | (E2) <sup>#</sup>  | 0.01018    |                                                                                              |
| 5192.9              | (19 <sup>-</sup> ) | 725.4 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4467.46 | (17 <sup>-</sup> ) |                    |            |                                                                                              |
| 5200.3              | (20 <sup>-</sup> ) | 443.6 <sup>b</sup> 1    | 100 <sup>b</sup>        | 4756.71 | (18 <sup>-</sup> ) | Q <sup>#</sup>     |            |                                                                                              |
| 5207.9              | (19 <sup>-</sup> ) | 732.2 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4475.74 | (17 <sup>-</sup> ) |                    |            |                                                                                              |
| 5230.6              | (20 <sup>-</sup> ) | 473.9 <sup>b</sup> 1    | 100 <sup>b</sup>        | 4756.71 | (18 <sup>-</sup> ) | Q <sup>#</sup>     |            |                                                                                              |
| 5230.61             | (19 <sup>-</sup> ) | 736.3 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4494.4  | (17 <sup>-</sup> ) |                    |            |                                                                                              |
| 5329.4              | (20 <sup>-</sup> ) | 693.8 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4635.6  | (18 <sup>-</sup> ) | (E2) <sup>@</sup>  | 0.01064    |                                                                                              |
| 5374.7              | (18 <sup>-</sup> ) | 777.7 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4597.0  | (16 <sup>-</sup> ) |                    |            |                                                                                              |
| 5456.4              |                    | 685.9 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4770.5  |                    |                    |            |                                                                                              |
| 5459.9              | (20 <sup>+</sup> ) | 731.2 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4728.7  | (18 <sup>+</sup> ) |                    |            |                                                                                              |
| 5565.7              | (20 <sup>+</sup> ) | 602.0 <sup>b</sup> 2    | <sup>b</sup>            | 4963.8  | 19 <sup>+</sup>    |                    |            |                                                                                              |
|                     |                    | 765.1 <sup>b</sup> 2    | <sup>b</sup>            | 4800.54 | 18 <sup>+</sup>    | (E2) <sup>@</sup>  | 0.00862 12 |                                                                                              |
|                     |                    | 1216.2 <sup>b</sup> 2   | <sup>b</sup>            | 4349.3  | 18 <sup>+</sup>    |                    |            |                                                                                              |
| 5570.1              | (20 <sup>+</sup> ) | 769.6 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4800.54 | 18 <sup>+</sup>    |                    |            |                                                                                              |
| 5573.0              | (20 <sup>-</sup> ) | 746.2 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4826.8  | (18 <sup>-</sup> ) |                    |            |                                                                                              |
| 5670.5              | (21)               | 470.2 <sup>b</sup> 1    | 100 <sup>b</sup>        | 5200.3  | (20 <sup>-</sup> ) | D+Q <sup>#</sup>   |            |                                                                                              |
| 5670.51             | (20 <sup>-</sup> ) | 791.0 <sup>b</sup> 2    | 100 <sup>b</sup>        | 4879.5  | (18 <sup>-</sup> ) |                    |            |                                                                                              |
| 5726.3              | 21 <sup>+</sup>    | 762.5 <sup>a</sup> 2    | 100 <sup>a</sup>        | 4963.8  | 19 <sup>+</sup>    |                    |            |                                                                                              |
| 5742.5              | 22 <sup>+</sup>    | 741.6 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5000.9  | 20 <sup>+</sup>    | E2&                | 0.00921 13 | B(E2)(W.u.)>0.018                                                                            |
| 5743.3              | (21 <sup>+</sup> ) | 177.8 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5565.7  | (20 <sup>+</sup> ) | M1                 | 1.096      | B(M1)(W.u.)=0.0018 4<br>Mult.: from $\alpha(\text{exp})$ in ( <sup>13</sup> C,5n $\gamma$ ). |
| 5868.9              | (21 <sup>-</sup> ) | 742.4 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5126.5  | (19 <sup>-</sup> ) |                    |            |                                                                                              |
| 6007.7              | (21 <sup>-</sup> ) | 777.1 <sup>b</sup> 2    | 100 <sup>b</sup>        | 5230.61 | (19 <sup>-</sup> ) |                    |            |                                                                                              |
| 6050.9              | (22 <sup>-</sup> ) | 721.5 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5329.4  | (20 <sup>-</sup> ) | (E2) <sup>#</sup>  |            |                                                                                              |
| 6186.5              | (22 <sup>+</sup> ) | 443.2 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5743.3  | (21 <sup>+</sup> ) | D+Q <sup>@</sup>   |            |                                                                                              |
| 6215.8              | (20 <sup>-</sup> ) | 841.1 <sup>a</sup> 2    | 100 <sup>a</sup>        | 5374.7  | (18 <sup>-</sup> ) |                    |            |                                                                                              |
| 6236.3              |                    | 779.9 <sup>b</sup> 2    | 100 <sup>b</sup>        | 5456.4  |                    |                    |            |                                                                                              |
| 6277.3              | (22 <sup>+</sup> ) | 817.4 2                 | 100                     | 5459.9  | (20 <sup>+</sup> ) |                    |            |                                                                                              |
| 6340.0              | (22 <sup>-</sup> ) | 669.7 <sup>b</sup> 2    | 22 <sup>b</sup> 4       | 5670.5  | (21)               | D+Q <sup>#</sup>   |            |                                                                                              |
|                     |                    | 1109.3 <sup>b</sup> 2   | 100 <sup>b</sup> 4      | 5230.6  | (20 <sup>-</sup> ) | Q <sup>#</sup>     |            |                                                                                              |
| 6378.0              | (22 <sup>-</sup> ) | 805.0 <sup>b</sup> 2    | 100 <sup>b</sup>        | 5573.0  | (20 <sup>-</sup> ) |                    |            |                                                                                              |

Adopted Levels, Gammas (continued)

| $\gamma(^{184}\text{Os})$ (continued) |                    |                       |                      |        |                    |                    |            |                                                                                                                                                          |
|---------------------------------------|--------------------|-----------------------|----------------------|--------|--------------------|--------------------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                   | $J_i^\pi$          | $E_\gamma^\dagger$    | $I_\gamma^\dagger$   | $E_f$  | $J_f^\pi$          | Mult. <sup>†</sup> | $\alpha^C$ | Comments                                                                                                                                                 |
| 6542.5                                | 23 <sup>+</sup>    | 816.2 <sup>a</sup> 2  | 100 <sup>a</sup>     | 5726.3 | 21 <sup>+</sup>    |                    |            |                                                                                                                                                          |
| 6562.6                                | 24 <sup>+</sup>    | 820.1 <sup>a</sup> 2  | 100 <sup>a</sup>     | 5742.5 | 22 <sup>+</sup>    |                    |            |                                                                                                                                                          |
| 6598.7                                | (23 <sup>+</sup> ) | 412.1 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 6186.5 | (22 <sup>+</sup> ) | D+Q <sup>@</sup>   |            |                                                                                                                                                          |
|                                       |                    | 855.4 <sup>a</sup> 2  | 50.0 <sup>a</sup> 18 | 5743.3 | (21 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 6610.9                                | (23 <sup>-</sup> ) | 742.0 <sup>b</sup> 2  | 100 <sup>b</sup>     | 5868.9 | (21 <sup>-</sup> ) |                    |            |                                                                                                                                                          |
| 6687.2                                | (23 <sup>+</sup> ) | 500.7 <sup>a</sup> 2  | 100 <sup>a</sup> 8   | 6186.5 | (22 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
|                                       |                    | 943.8 <sup>a</sup> 2  | 17 <sup>a</sup> 8    | 5743.3 | (21 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 6694.2                                | (24 <sup>+</sup> ) | 507.6 <sup>a</sup> 2  | 100 <sup>a</sup>     | 6186.5 | (22 <sup>+</sup> ) | Q <sup>@</sup>     |            |                                                                                                                                                          |
| 6790.2                                | (24 <sup>-</sup> ) | 739.3 <sup>a</sup> 2  | 100 <sup>a</sup>     | 6050.9 | (22 <sup>-</sup> ) |                    |            |                                                                                                                                                          |
| 6797.7                                | (23)               | 457.7 <sup>b</sup> 1  | 100 <sup>b</sup>     | 6340.0 | (22 <sup>-</sup> ) | D                  |            | Mult.: from DCO in ( <sup>18</sup> O,4n $\gamma$ ).                                                                                                      |
| 6888.5                                | (24 <sup>+</sup> ) | 194.5 <sup>af</sup>   | 19 <sup>a</sup> 10   | 6694.2 | (24 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
|                                       |                    | 289.8 <sup>a</sup> 2  | 100 <sup>a</sup> 10  | 6598.7 | (23 <sup>+</sup> ) | D(+Q) <sup>@</sup> |            |                                                                                                                                                          |
| 6912.9                                |                    | 572.9 <sup>b</sup> 2  | 100 <sup>b</sup>     | 6340.0 | (22 <sup>-</sup> ) |                    |            |                                                                                                                                                          |
| 7004.2                                | (24 <sup>+</sup> ) | 405.7 <sup>a</sup> 2  | 100 <sup>a</sup> 3   | 6598.7 | (23 <sup>+</sup> ) | D+Q <sup>@</sup>   |            |                                                                                                                                                          |
|                                       |                    | 817.8 <sup>a</sup> 2  | 40 <sup>a</sup> 3    | 6186.5 | (22 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 7083.6                                |                    | 847.3 <sup>b</sup> 2  | 100 <sup>b</sup>     | 6236.3 |                    |                    |            |                                                                                                                                                          |
| 7087.4                                | (24 <sup>+</sup> ) | 488.7 <sup>a</sup> 2  | 100 <sup>a</sup>     | 6598.7 | (23 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 7283.8                                |                    | 486.1 <sup>b</sup> 2  | 100 <sup>b</sup>     | 6797.7 | (23)               |                    |            |                                                                                                                                                          |
| 7311.1                                | (25 <sup>+</sup> ) | 307.0 <sup>a</sup> 2  | 100 <sup>a</sup> 3   | 7004.2 | (24 <sup>+</sup> ) | D+Q <sup>@</sup>   |            |                                                                                                                                                          |
|                                       |                    | 422.7 <sup>a</sup> 2  | 37 <sup>a</sup> 3    | 6888.5 | (24 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
|                                       |                    | 616.9 <sup>a</sup> 2  | 54 <sup>a</sup> 3    | 6694.2 | (24 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
|                                       |                    | 624.0 <sup>a</sup> 2  | 36 <sup>a</sup> 4    | 6687.2 | (23 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
|                                       |                    | 712.1 <sup>a</sup> 2  | 41 <sup>a</sup> 4    | 6598.7 | (23 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 7395.5?                               | (25 <sup>+</sup> ) | 853.0 <sup>bf</sup> 2 | 100 <sup>b</sup>     | 6542.5 | 23 <sup>+</sup>    |                    |            |                                                                                                                                                          |
| 7406.6                                | (25 <sup>-</sup> ) | 795.7 <sup>b</sup> 2  | 100 <sup>b</sup>     | 6610.9 | (23 <sup>-</sup> ) |                    |            |                                                                                                                                                          |
| 7446.9                                | 26 <sup>+</sup>    | 884.3 <sup>a</sup> 2  | 100 <sup>a</sup>     | 6562.6 | 24 <sup>+</sup>    |                    |            |                                                                                                                                                          |
| 7500.8                                | (26 <sup>+</sup> ) | 938.2 <sup>a</sup> 2  | 100 <sup>a</sup>     | 6562.6 | 24 <sup>+</sup>    |                    |            | $E_\gamma$ : placement in ( <sup>18</sup> O,4n $\gamma$ ) differs; there, a 938.7 $\gamma$ feeds the J=26 member of the yrast band, not the J=24 member. |
| 7590.2                                | (26 <sup>-</sup> ) | 800.0 <sup>b</sup> 2  | 100 <sup>b</sup>     | 6790.2 | (24 <sup>-</sup> ) |                    |            |                                                                                                                                                          |
| 7592.1                                | (26 <sup>+</sup> ) | 280.7 <sup>a</sup> 2  | 100 <sup>a</sup> 4   | 7311.1 | (25 <sup>+</sup> ) | D <sup>@</sup>     |            |                                                                                                                                                          |
|                                       |                    | 587.9 <sup>a</sup> 2  | 30 <sup>a</sup> 4    | 7004.2 | (24 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 7786.4                                | (26 <sup>+</sup> ) | 475.2 <sup>a</sup> 2  | 100 <sup>a</sup>     | 7311.1 | (25 <sup>+</sup> ) | (M1) <sup>@</sup>  | 0.0758     |                                                                                                                                                          |
| 7815.9                                | (27 <sup>+</sup> ) | 223.9 <sup>a</sup> 2  | 100 <sup>a</sup>     | 7592.1 | (26 <sup>+</sup> ) |                    |            |                                                                                                                                                          |
| 8043.2                                | (27 <sup>+</sup> ) | 256.7 <sup>a</sup> 2  | 100 <sup>a</sup> 3   | 7786.4 | (26 <sup>+</sup> ) | D <sup>@</sup>     |            |                                                                                                                                                          |
|                                       |                    | 732.0 <sup>a</sup> 2  | 45 <sup>a</sup> 6    | 7311.1 | (25 <sup>+</sup> ) |                    |            |                                                                                                                                                          |

**Adopted Levels, Gammas (continued)** $\gamma(^{184}\text{Os})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$          | $E_\gamma^\dagger$   | $I_\gamma^\ddagger$ | $E_f$   | $J_f^\pi$          | Mult. <sup>†</sup> | $\alpha^c$ |
|---------------------|--------------------|----------------------|---------------------|---------|--------------------|--------------------|------------|
| 8152.7              | (28 <sup>+</sup> ) | 336.7 <sup>a</sup> 2 | 25 <sup>a</sup> 6   | 7815.9  | (27 <sup>+</sup> ) |                    |            |
|                     |                    | 560.6 <sup>a</sup> 2 | 100 <sup>a</sup> 4  | 7592.1  | (26 <sup>+</sup> ) | (E2) <sup>@</sup>  | 0.01729    |
| 8244.2              | (26)               | 933.1 <sup>a</sup> 2 | 100 <sup>a</sup>    | 7311.1  | (25 <sup>+</sup> ) | D <sup>@</sup>     |            |
| 8474.2              | (28 <sup>-</sup> ) | 884.0 <sup>b</sup> 2 | 100 <sup>b</sup>    | 7590.2  | (26 <sup>-</sup> ) |                    |            |
| 8580.2              | (29 <sup>+</sup> ) | 427.5 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8152.7  | (28 <sup>+</sup> ) |                    |            |
| 8590.1              | (29 <sup>+</sup> ) | 546.9 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8043.2  | (27 <sup>+</sup> ) |                    |            |
| 8649.3              | (29)               | 496.6 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8152.7  | (28 <sup>+</sup> ) |                    |            |
| 8784.9              | (29 <sup>+</sup> ) | 741.7 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8043.2  | (27 <sup>+</sup> ) |                    |            |
| 9375.01             | (31 <sup>+</sup> ) | 794.9 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8580.2  | (29 <sup>+</sup> ) |                    |            |
| 9539.4              | (31)               | 890.1 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8649.3  | (29)               |                    |            |
| 9545.7              | (31 <sup>+</sup> ) | 760.8 <sup>a</sup> 2 | 100 <sup>a</sup>    | 8784.9  | (29 <sup>+</sup> ) |                    |            |
| 9867.1              | (32)               | 492.0 <sup>a</sup> 2 | 100 <sup>a</sup>    | 9375.01 | (31 <sup>+</sup> ) |                    |            |
| 10671.4             | (34)               | 804.3 <sup>a</sup> 2 | 100 <sup>a</sup>    | 9867.1  | (32)               |                    |            |

<sup>†</sup> From  $^{184}\text{Ir}$   $\varepsilon$  decay, except as noted.

<sup>‡</sup> From  $\gamma(\theta)$  in  $\varepsilon$  decay, except as noted.

# From DCO ratio in (180,4n $\gamma$ ), assigning  $\Delta\pi=(\text{no})$  for intraband transitions.

@ From DCO ratio in ( $^{13}\text{C}$ ,5n $\gamma$ ), assigning  $\Delta\pi=(\text{no})$  for intraband transitions.

& Q from  $\gamma(\theta)$ ; not M2 from RUL assuming  $T_{1/2}\leq 2.2$  ns based on  $\gamma\gamma$  coin timing in ( $\alpha$ ,6n $\gamma$ ).

<sup>a</sup> From  $^{176}\text{Yb}(^{13}\text{C}$ ,5n $\gamma$ ).

<sup>b</sup> From ( $^{18}\text{O}$ ,4n $\gamma$ ).

<sup>c</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

<sup>d</sup> Multiply placed with undivided intensity.

<sup>e</sup> Multiply placed with intensity suitably divided.

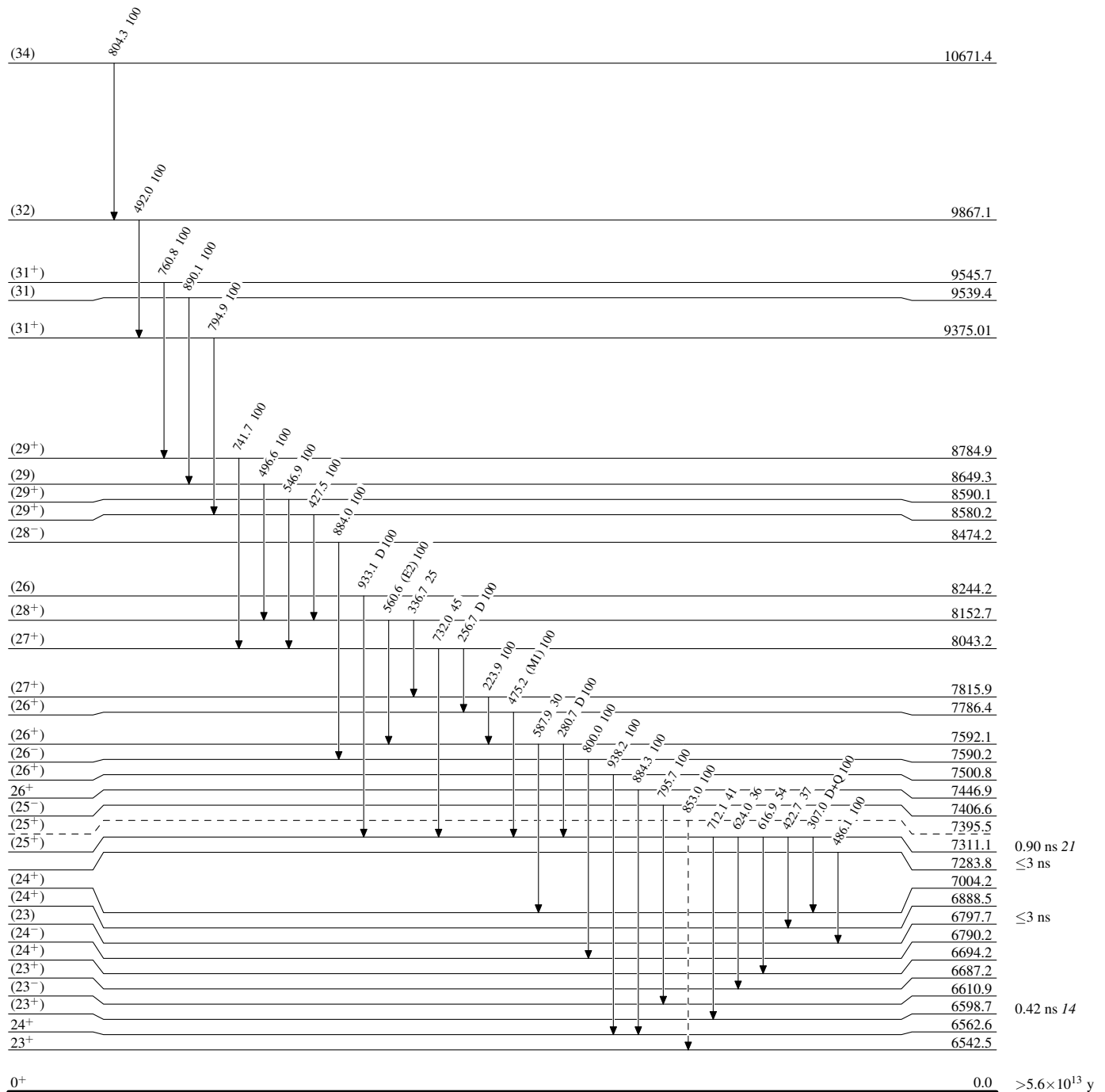
<sup>f</sup> Placement of transition in the level scheme is uncertain.

Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

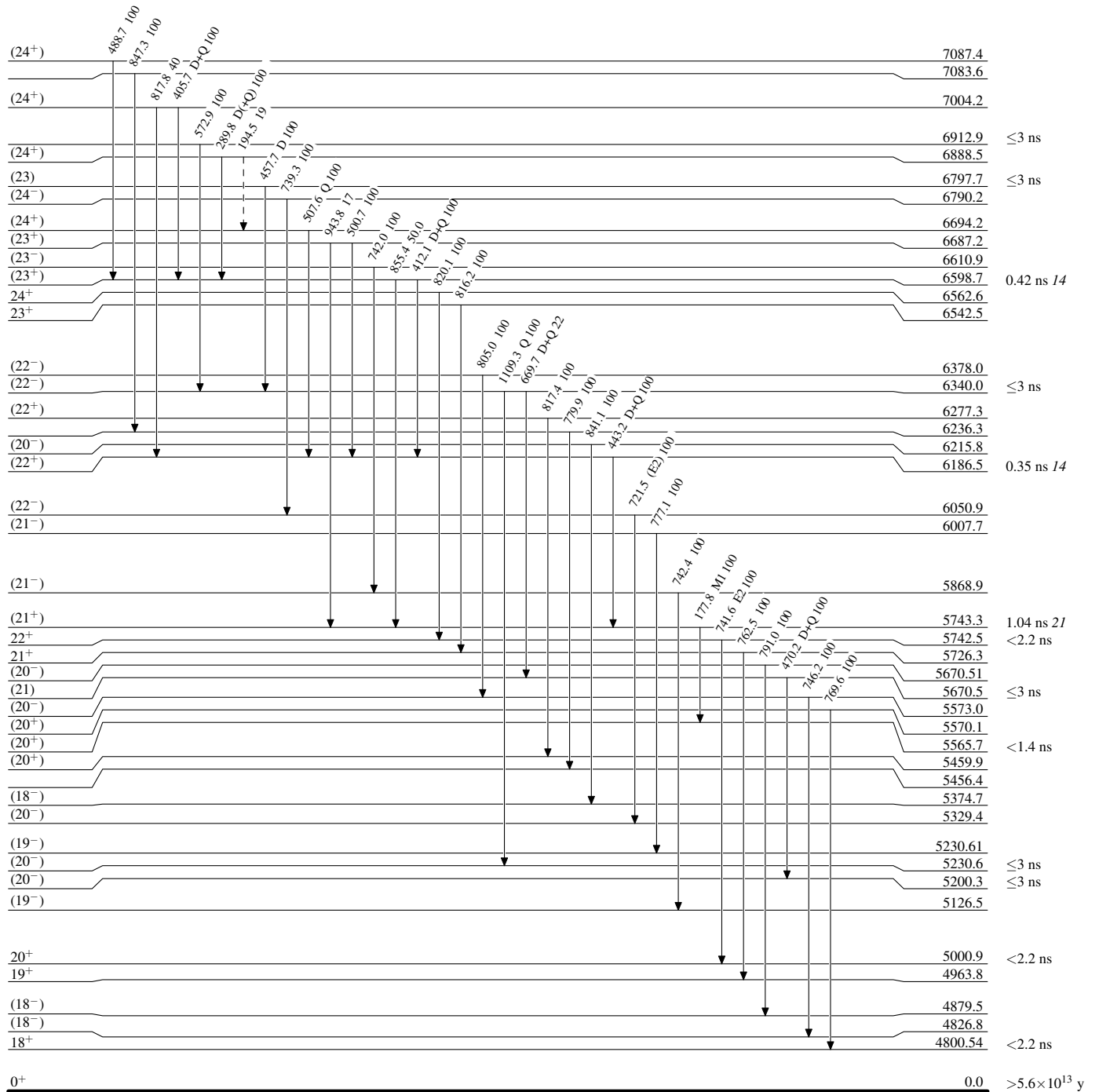
-----►  $\gamma$  Decay (Uncertain)

**Adopted Levels, Gammas**

Legend

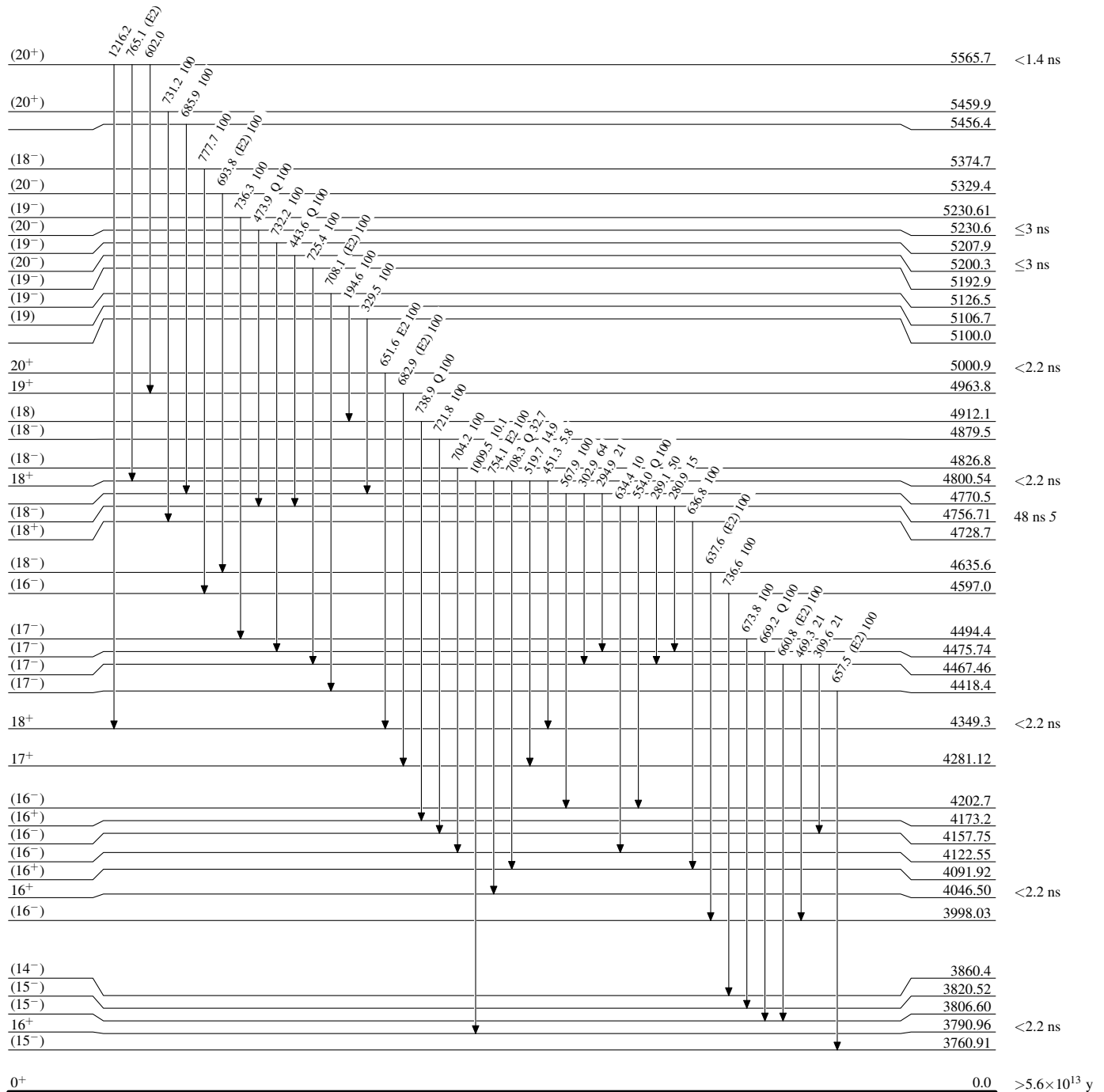
**Level Scheme (continued)**

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)

**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level

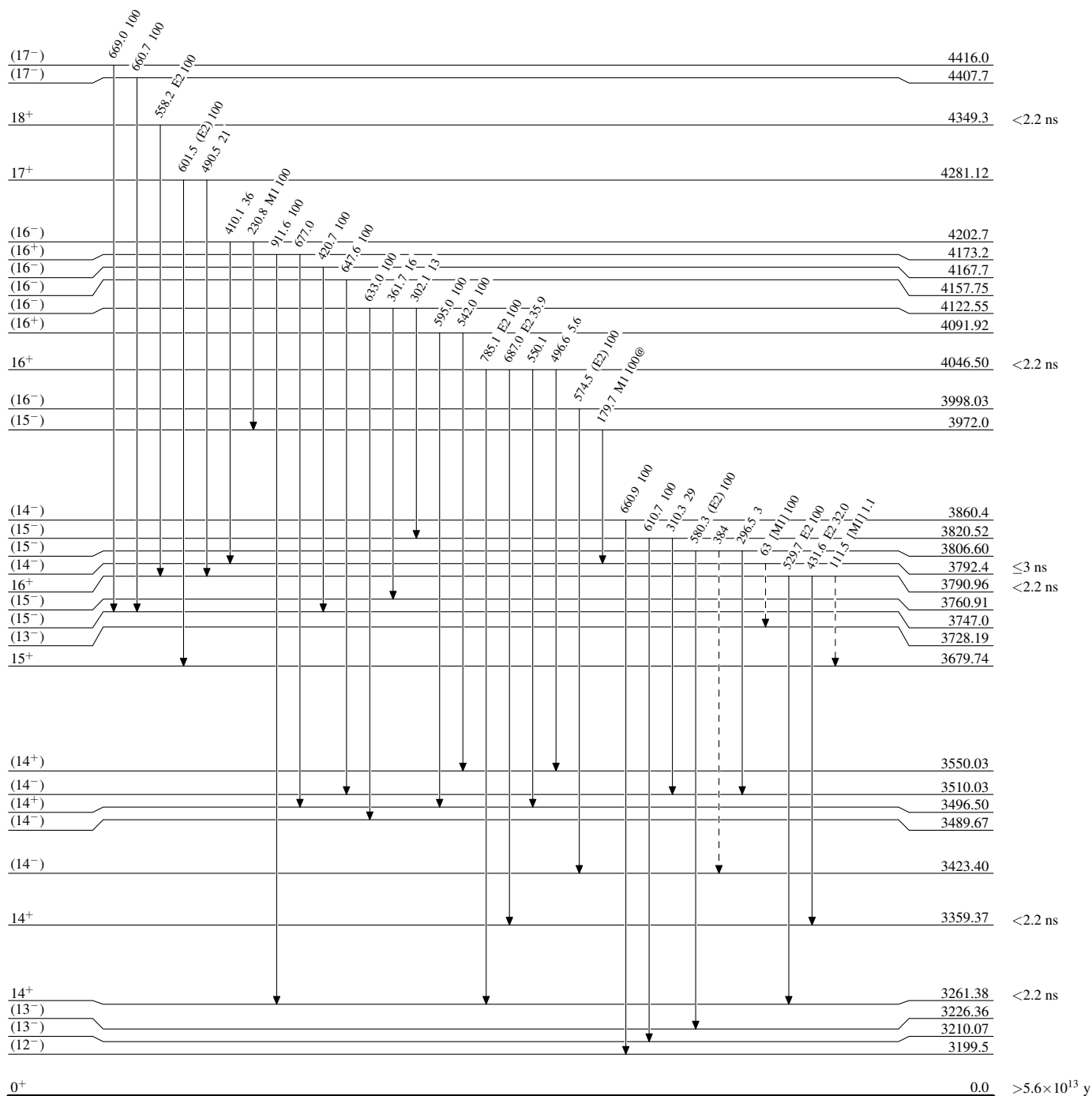


**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

Intensities: Relative photon branching from each level  
 @ Multiply placed: intensity suitably divided

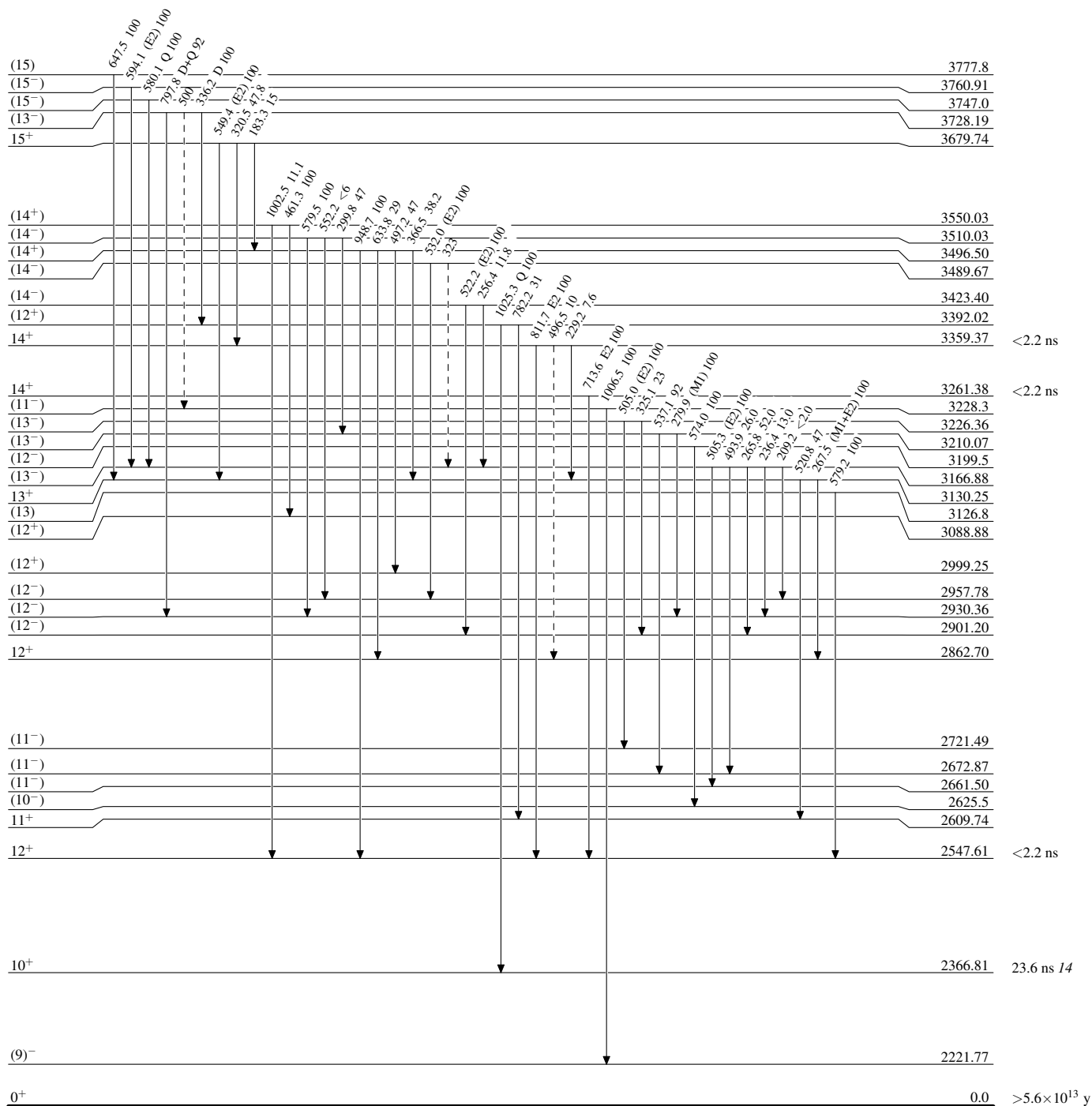
-----►  $\gamma$  Decay (Uncertain)

Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level  
 @ Multiplied: intensity suitably divided

----->  $\gamma$  Decay (Uncertain)



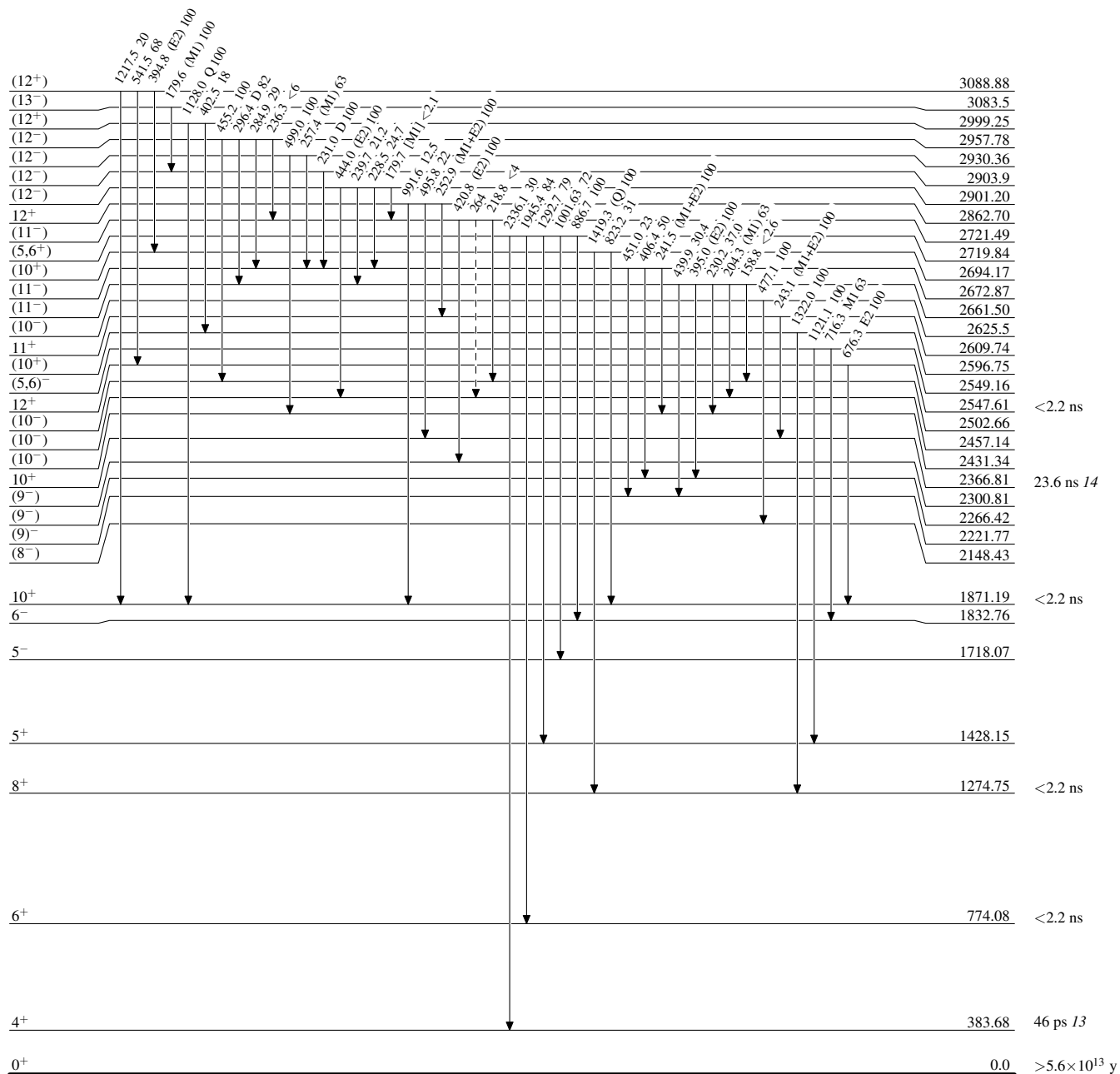
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

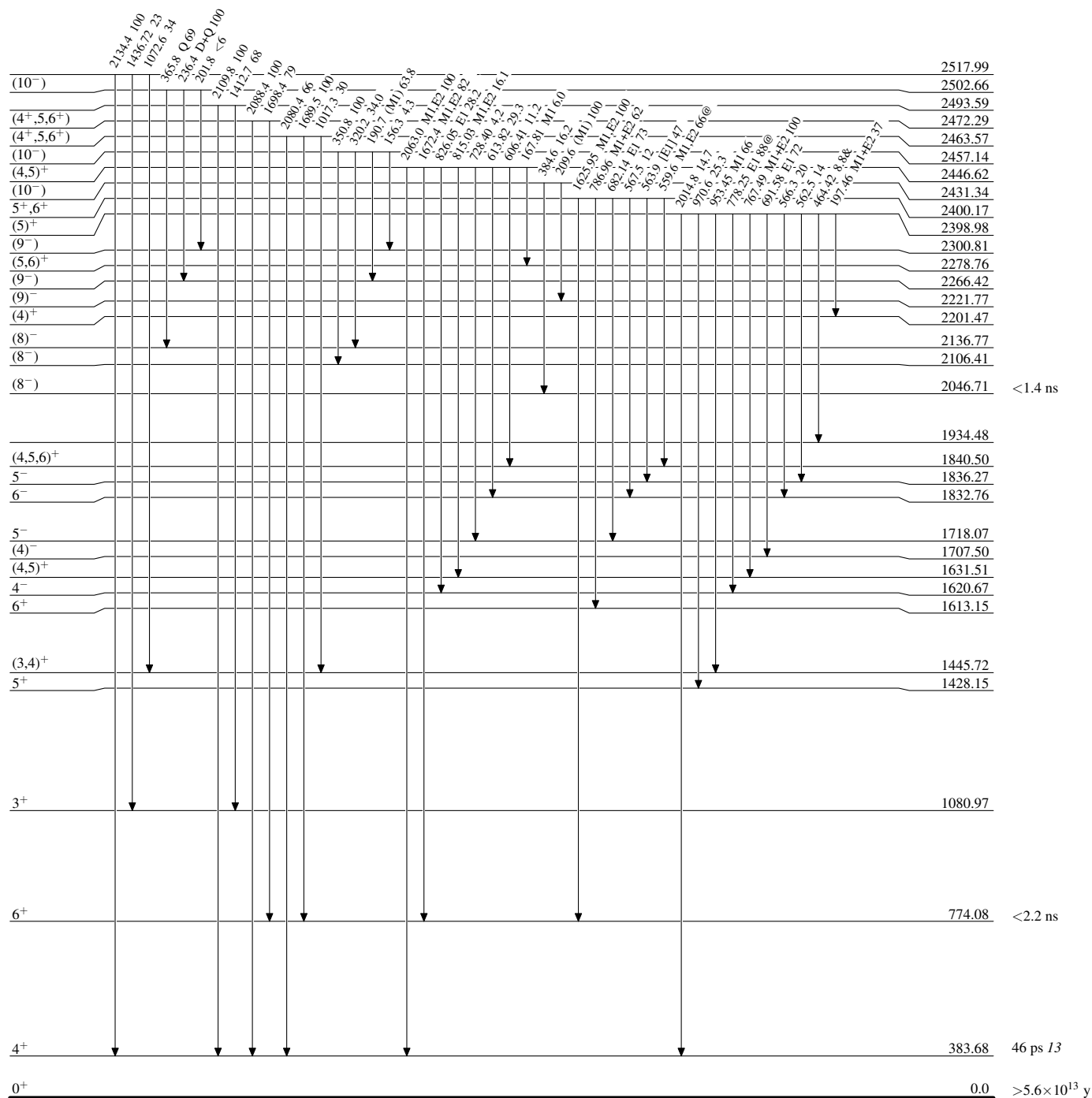
@ Multiplied: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain)


**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given

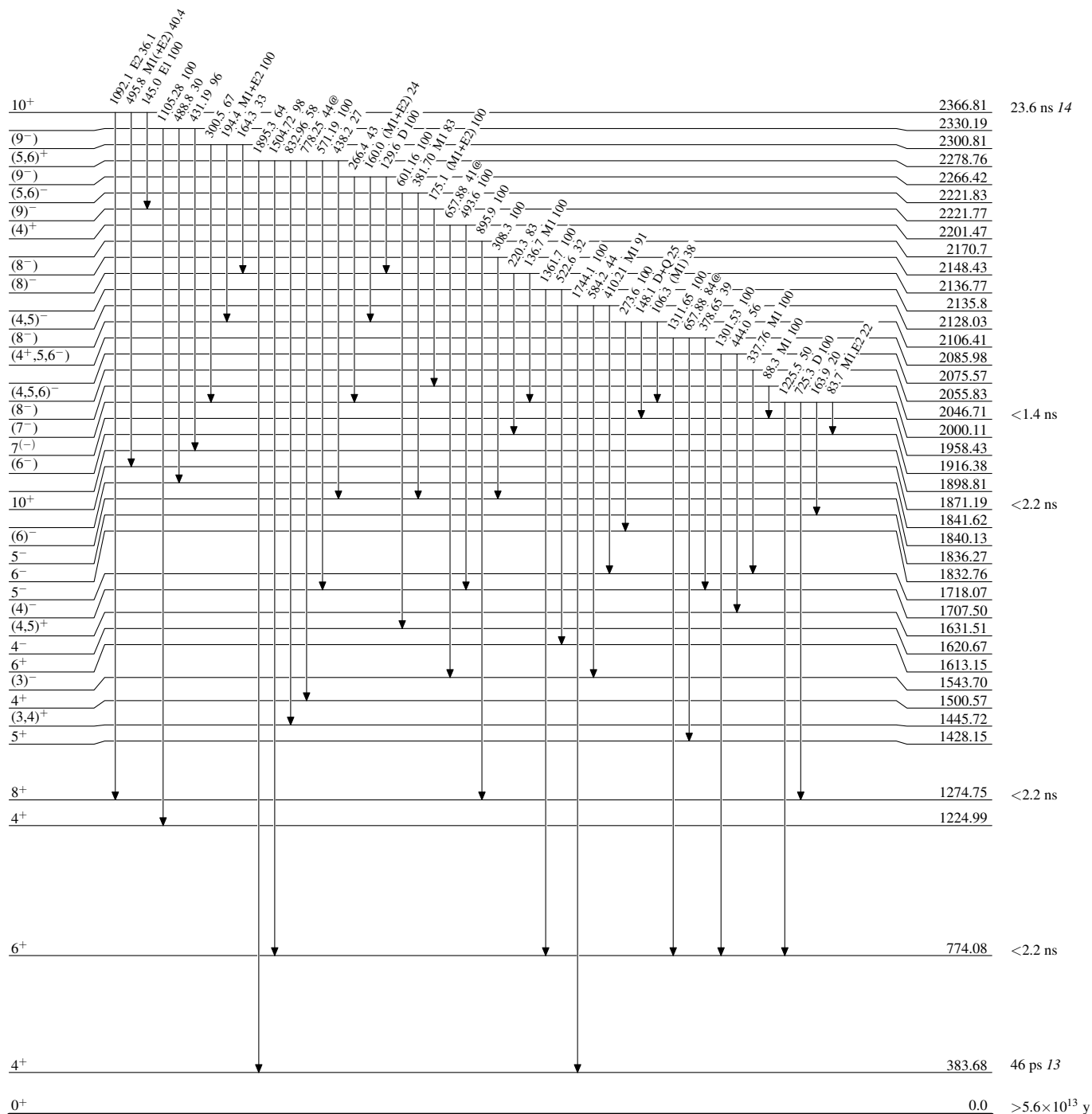
@ Multiply placed: intensity suitably divided



**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given

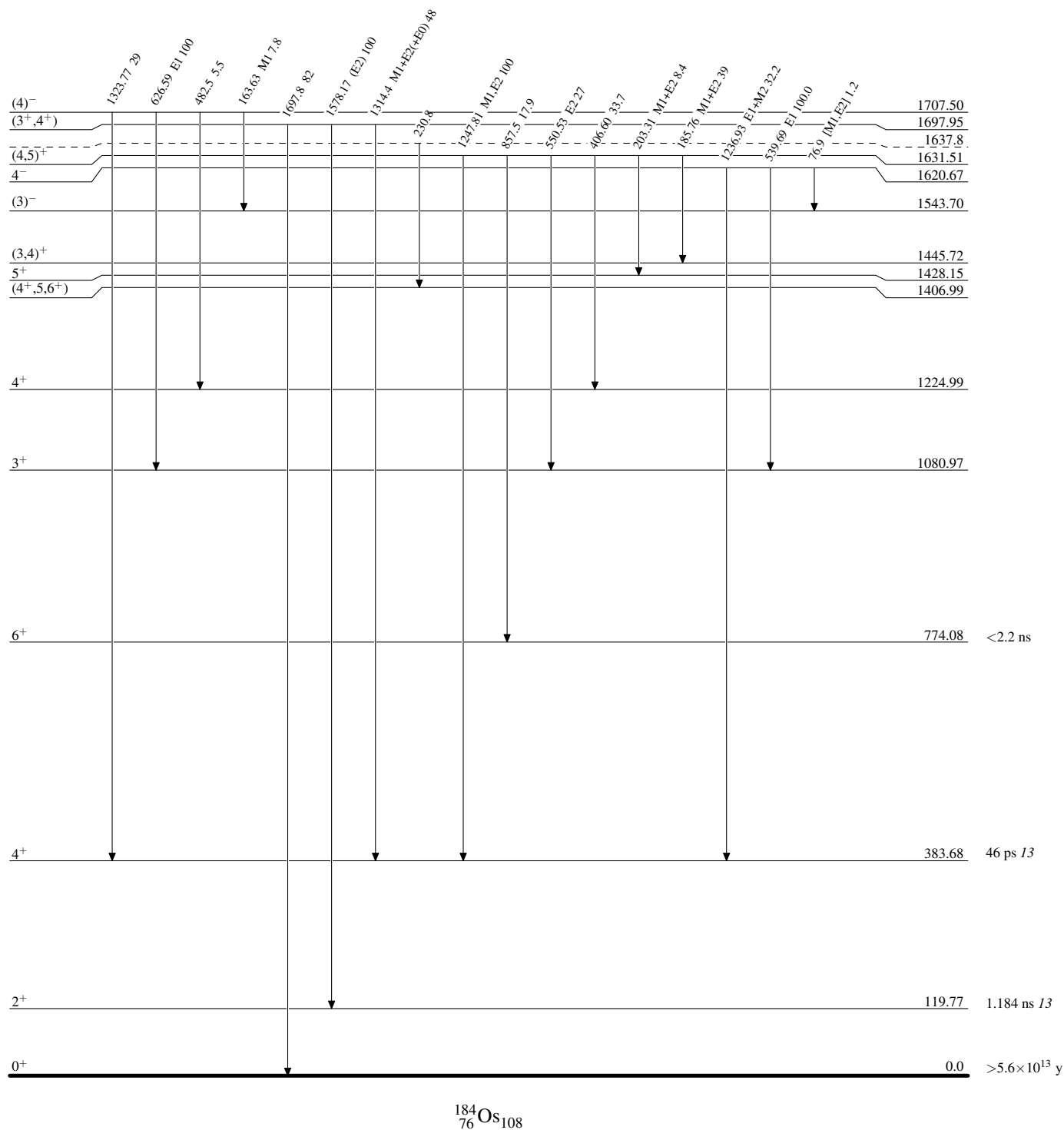
@ Multiply placed: intensity suitably divided





**Adopted Levels, Gammas****Level Scheme (continued)**

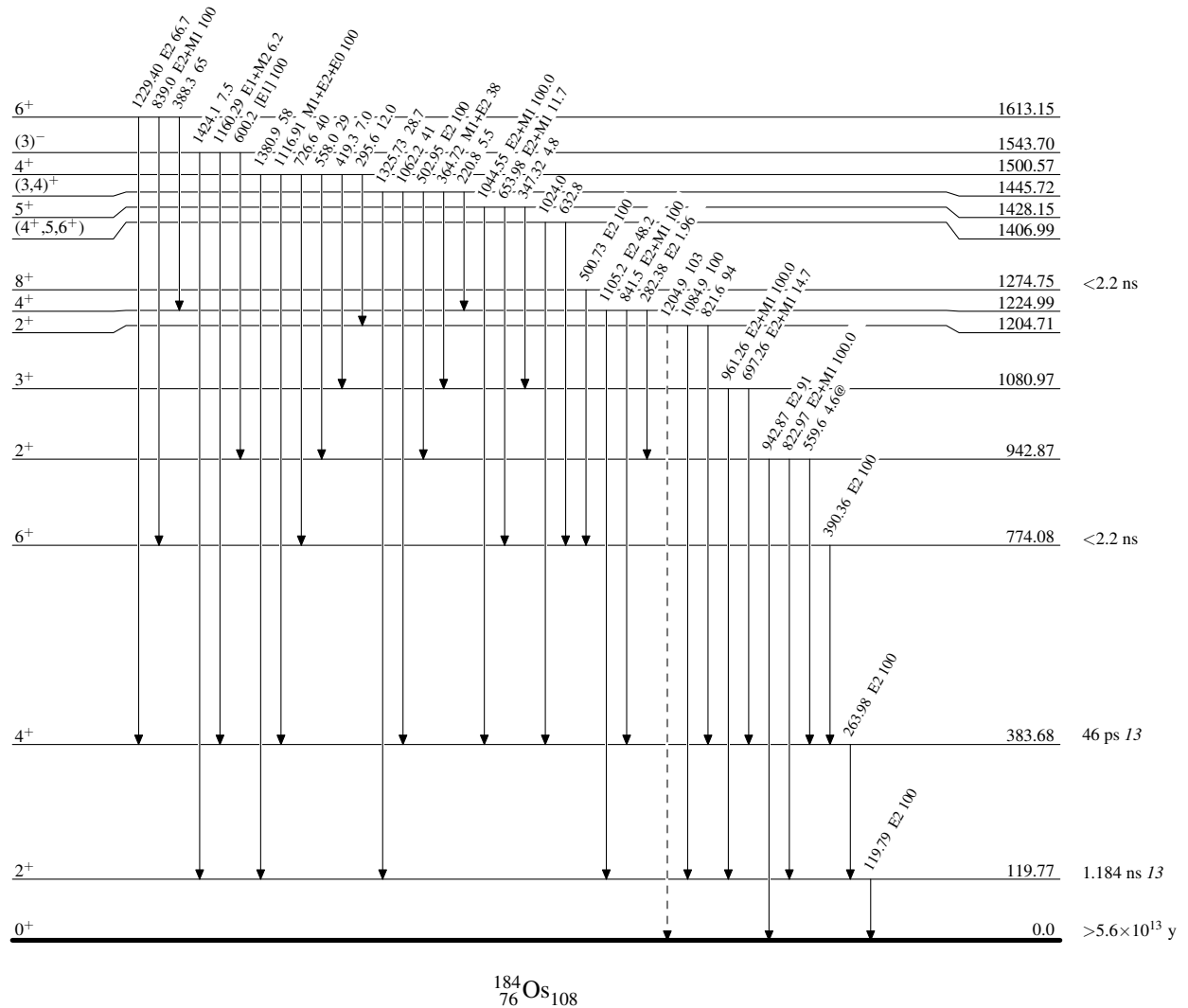
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given  
@ Multiply placed: intensity suitably divided

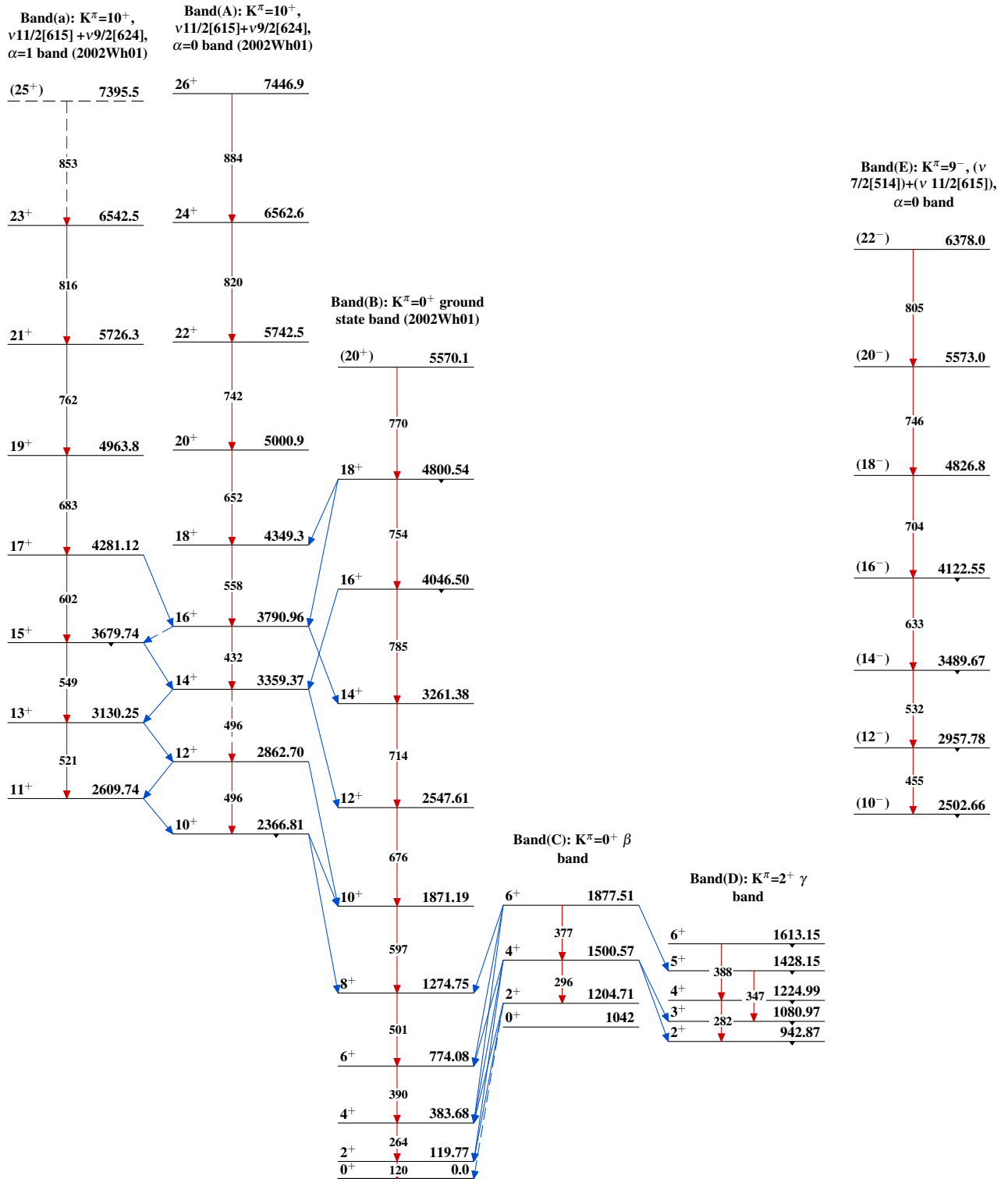


**Adopted Levels, Gammas****Level Scheme (continued)**

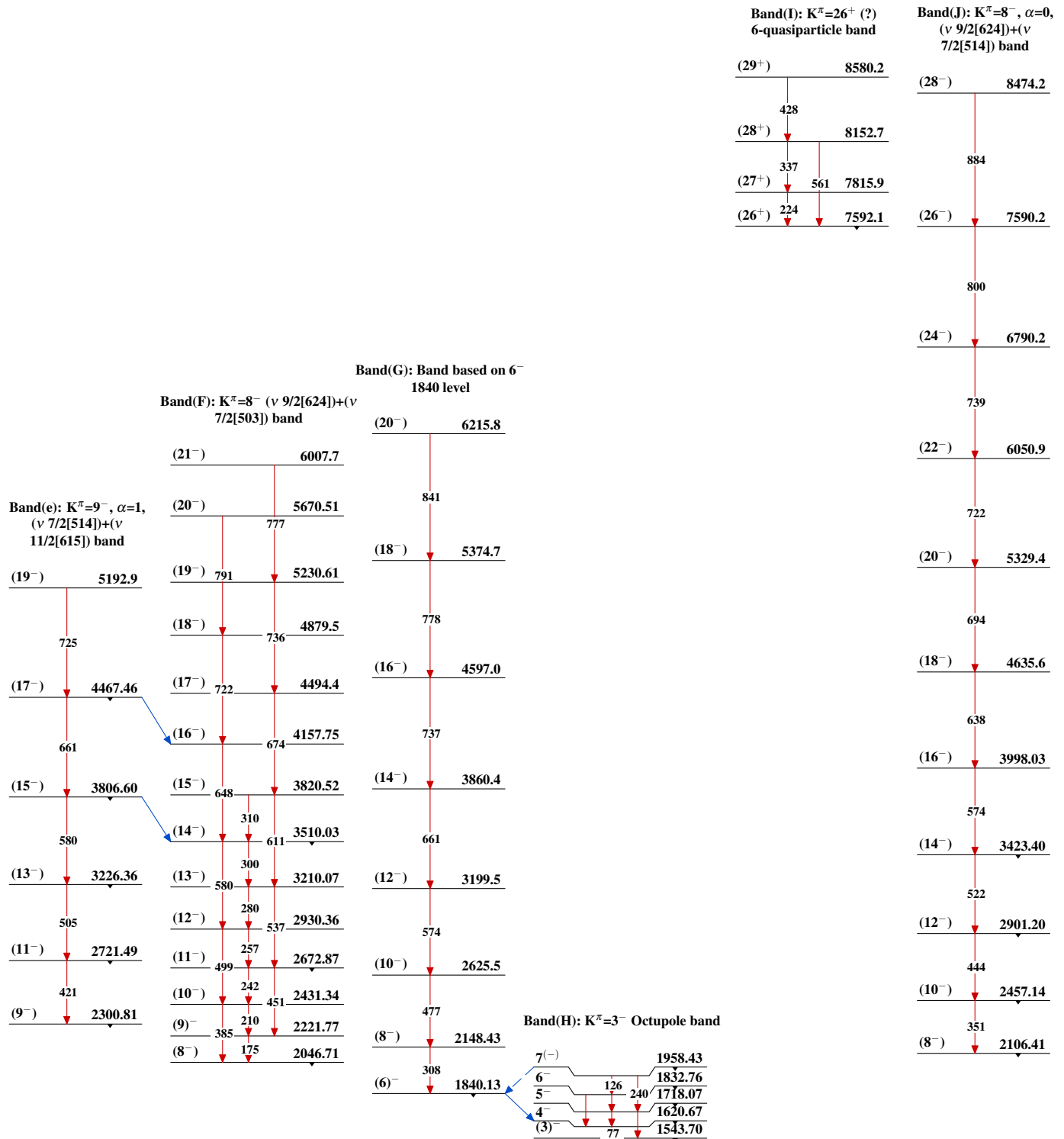
Legend

Intensities: Relative photon branching from each level  
 & Multiply placed: undivided intensity given  
 @ Multiply placed: intensity suitably divided

-----►  $\gamma$  Decay (Uncertain) $^{184}_{76}\text{Os}_{108}$

Adopted Levels, Gammas

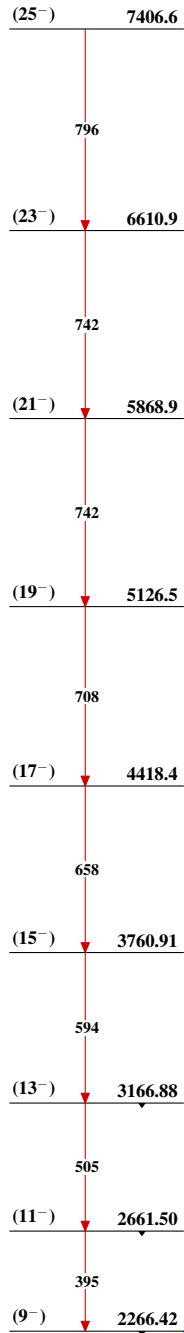
## Adopted Levels, Gammas (continued)



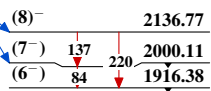


# Adopted Levels, Gammas (continued)

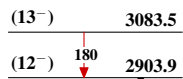
Band(J):  $K^\pi=8^-$ ,  $\alpha=1$ ,  
( $\nu$  9/2[624])+( $\nu$  7/2[514]) band



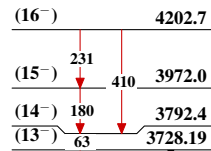
Band(K):  $K^\pi=6^-$ , ( $\nu$  1/2[521])+( $\nu$  11/2[615]) band



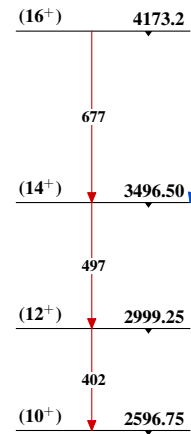
Band(L):  $K^\pi=12-(?)$  band (2002Wh01)



Band(M):  $K^\pi=13^-$  band



Band(N): Band based on (10<sup>+</sup>) 2597 level



Band(O): Band based on 10<sup>+</sup> 2694 level

