

Adopted Levels, Gammas

| Type            | Author                           | History | Citation            | Literature Cutoff Date |
|-----------------|----------------------------------|---------|---------------------|------------------------|
| Full Evaluation | Huang Xiaolong and Kang Mengxiao |         | NDS 133, 221 (2016) | 1-Dec-2015             |

Q( $\beta^-$ )=1372.9 5; S(n)=6512.34 9; S(p)=6449.0 6; Q( $\alpha$ )=526.9 20 [2012Wa38](#)

S(n)=6512.26 10 ([1989Ma11](#)), 6512.48 6 ([1996Ma70](#),[1996Ma75](#)) measured.

See <sup>197</sup>Au(n, $\gamma$ ): Res: C<sub>6</sub>D<sub>6</sub>, TAC datasets for energies and parameters of neutron resonances from 0.00491-5.0122 keV.

<sup>197</sup>Au(n, $\gamma$ ) E=res: [2010Ma18](#) (resonances from 0.00491-5.0122 keV).

<sup>198</sup>Au Levels

For Bose-Fermi symmetry scheme theory, see [1986Ba55](#).

For neutron resonance parameters, see [1984MuZY](#), [2010Ma18](#).

Cross Reference (XREF) Flags

|          |   |          |   |          |                                       |
|----------|---|----------|---|----------|---------------------------------------|
| <b>A</b> | <sup>198</sup> Au IT decay (2.272 d)      | <b>F</b> | <sup>197</sup> Au(n, $\gamma$ ):res:C6D6        | <b>K</b> | <sup>197</sup> Au(d,p)                |
| <b>B</b> | <sup>195</sup> Pt( $\alpha$ ,p)           | <b>G</b> | <sup>197</sup> Au(n, $\gamma$ ) E=res:primary   | <b>L</b> | <sup>197</sup> Au( $\alpha$ ,2pn)     |
| <b>C</b> | <sup>196</sup> Pt( $\alpha$ ,np)          | <b>H</b> | <sup>197</sup> Au(n, $\gamma$ ) E=2 keV         | <b>M</b> | <sup>198</sup> Pt(d,2n $\gamma$ )     |
| <b>D</b> | <sup>197</sup> Au(n, $\gamma$ ) E=thermal | <b>I</b> | <sup>197</sup> Au(n, $\gamma$ ) E=2,24 keV: sec | <b>N</b> | <sup>198</sup> Pt( <sup>3</sup> He,t) |
| <b>E</b> | <sup>197</sup> Au(n, $\gamma$ ):res:tac   | <b>J</b> | <sup>197</sup> Au(n, $\gamma$ ) E=24 keV        |          |                                       |

| E(level) <sup>†</sup> | J $\pi$ <sup>#</sup> | T <sub>1/2</sub> <sup>a</sup> | XREF               | Comments  |
|-----------------------|----------------------|-------------------------------|--------------------|---|
| 0.0                   | 2 <sup>-</sup>       | 2.6941 d 2                    | <b>A D GHIJK M</b> | <p><math>\% \beta^- = 100</math><br/> <math>\mu = +0.5934</math> 4 (<a href="#">1967Va16</a>,<a href="#">2011StZZ</a>)<br/> <math>Q = +0.64</math> 2 (<a href="#">1993Hi10</a>,<a href="#">2011StZZ</a>)<br/>                     No <math>\epsilon</math> observed. For <math>\log f^{\text{th}} t &gt; 8.5</math>, expected for the branch to g.s., <math>\% \epsilon &lt; 0.04</math>.<br/> <math>\langle r^2 \rangle^{1/2} = 5.439</math> fm 4 (<a href="#">2004An14</a>).<br/> <math>\mu</math>: Atomic Beam Magnetic Resonance/Direct moment measurement (<a href="#">AB/D</a>,<a href="#">1967Va16</a>). Other: <math>+0.64</math> 2 (<a href="#">1990Sa21</a>, Laser Resonance Ionisation Mass Spectroscopy(LRIMS)).<br/>                     Q: Nuclear Magnetic Resonance on Oriented Nuclei(NMR/ON) and <sup>193</sup>Au standard (<a href="#">1993Hi10</a>). Others: <math>+0.68</math> 2 (<a href="#">1988Ed01</a>, NMR/ON; <sup>197</sup>Au standard), <math>0.76</math> 4 (<a href="#">1984Ha03</a>, NMR/ON, Nuclear Magnetic Resonance(NMR); <sup>197</sup>Au standard), <math>0.88</math> 8 (<a href="#">1985Ka16</a>, NMR; <sup>197</sup>Au standard), <math>+0.69</math> 4 (<a href="#">1983He26</a>,<a href="#">1984Ha03</a>, Static Nuclear Orientation with gamma detection(NO/S), NMR/ON; <sup>199</sup>Au standard), <math>+0.46</math> 2 (<a href="#">1983He26</a>,<a href="#">1983Pe22</a>). Mossbauer Effect (ME), NO/S; <sup>197</sup>Au standard).<br/> <math>J^\pi</math>: J=2 from atomic beam (<a href="#">1976Fu06</a>) and <math>\pi = -</math> from L=3 in (d,p) and E1 primary <math>\gamma</math> from 1<sup>+</sup> capture state in <sup>197</sup>Au(n,<math>\gamma</math>) E=thermal.<br/>                     T<sub>1/2</sub>: Weighted average of 2.697 d 3 (<a href="#">1953Lo09</a>), 2.699 d 3 (<a href="#">1954Be61</a>), 2.686 d 5 (<a href="#">1955To07</a>), 2.697 d 5 (<a href="#">1956Jo24</a>), 2.694 d 6 (<a href="#">1956Sa75</a>), 2.704 d 4 (<a href="#">1958Ke26</a>), 2.699 d 4 (<a href="#">1960Ro22</a>), 2.687 d 5 (<a href="#">1964St20</a>), 2.694 d 4 (<a href="#">1965An07</a>), 2.695 d 7 (<a href="#">1968Go22</a>), 2.697 d 5 (<a href="#">1968La10</a>), 2.693 d 5 (<a href="#">1968Re04</a>), 2.695 d 2 (<a href="#">1969Vu04</a>,<a href="#">1983LoZV</a>), 2.6946 d 10 (<a href="#">1970Ca09</a>), 2.696 d 4 (<a href="#">1970Co14</a>), 2.693 d 3 (<a href="#">1971De11</a>), 2.6935 d 4 (<a href="#">1980RuZV</a>), 2.6966 d 7 (<a href="#">1990Ab02</a>), 2.6837 d 50 (<a href="#">1994Mi03</a>), 2.6924 d 11 (<a href="#">2005Li66</a>), 2.6948 d 5 (<a href="#">2006No10</a>), 2.6971 d 20 (<a href="#">2008Ku09</a>), 2.6939 d 4 (<a href="#">2008Ru05</a>), 2.6948 d 9 (<a href="#">2010Go25</a>), 2.684 d 4 (from decay curve for 412<math>\gamma</math> at room temperature, another value: 2.687 d 5 at 12 K temperature, <a href="#">2010Fo13</a>), 2.6899 d 8 (<a href="#">2010Li48</a>), 2.69445 d 32 (<a href="#">2012Ha23</a>) and 2.6934 d 37 (<a href="#">2014Un01</a>). Other measurements: 2.69 d 1 (<a href="#">1949Si02</a>), 2.66 d 1 (<a href="#">1951Ca06</a>), 2.73 d 2 (<a href="#">1951Si25</a>), 2.6937 d 2 (<a href="#">1977MeZB</a>,<a href="#">1977MeZN</a>, superseded by <a href="#">1980RuZV</a>), 2.695 d 2 (<a href="#">1982HoZJ</a>, superseded by</p> |

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Adopted Levels, Gammas (continued) $^{198}\text{Au}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup> #                 | T <sub>1/2</sub> <sup>a</sup> | XREF      | Comments  |
|-----------------------|----------------------------------|-------------------------------|-----------|---|
| 55.1812 6             | 1 <sup>-</sup>                   | 0.28 ns 14                    | D GHIJK   | 2014Un01), 2.69517 d 21 (1992Un01, superseded by 2014Un01), 2.69555 d 30 (2004Un01, superseded by 2014Un01), 2.6949 d 9 (2007Go39, superseded by 2010Go25), 2.706 d 19 (2007Sp01, superseded by 2010Fo13), 2.6949 d 8 (2010Ha12, superseded by 2012Ha23), 2.6782 d 3 (2011Li52, Chauvenet outlier). Other evaluations: 2.6943 d 3 (Decay Data Evaluation Project, DDEP), 2.6948 12 (2011Ch22), 2.6944 8 (2004BeZQ), 2.6945 d 4 (1996ChZY), 2.6943 d 8 (1991BaZS,1990Ni03), 2.696 d 2 (1983Au08), 2.6935 d 4 (1982RuZV). |
| 91.0059 8             | 0 <sup>-</sup> &                 |                               | D GHIJK   | T <sub>1/2</sub> : From $\gamma\gamma(t)$ measurement (scin,1968Na21).<br>J <sup>π</sup> : E2 $\gamma$ to 2 <sup>-</sup> ; feeding by primary $\gamma$ 's from 1 <sup>+</sup> , but not 2 <sup>+</sup> in resonance n capture.  |
| 192.9441 6            | 1 <sup>-</sup>                   | 0.7 ns 2                      | D GHIJK   |   |
| 214.9715 9            | 4 <sup>-</sup>                   | 0.4 ns 2                      | A D I K   |   |
| 236.0453 8            | 3 <sup>-</sup>                   | ≤0.15 ns                      | D GHIJK   |   |
| 247.5731 10           | 1 <sup>-</sup>                   | 0.4 ns 1                      | D GHIJK   | J <sup>π</sup> : M1 $\gamma$ to 0 <sup>-</sup> .  |
| 259.3406 9            | 1 <sup>-</sup>                   | ≤0.2 ns                       | D GHIJK   | J <sup>π</sup> : M1 $\gamma$ to 0 <sup>-</sup> .  |
| 261.4047 7            | 2 <sup>-</sup> &                 | ≤0.2 ns                       | D GHIJK   |   |
| 312.2227 20           | 5 <sup>+</sup>                   | 124 ns 4                      | A D I K M | $\mu=-1.11$ 2 (1989Ra17,2011StZZ)<br>$\mu$ from TDPAD.<br>J <sup>π</sup> : J=5 from $\mu$ analysis (( $\gamma\gamma(\theta,t)$ , 1976Fu06) and $\pi=+$ from E1 $\gamma$ to 4 <sup>-</sup> .<br>T <sub>1/2</sub> : From $\gamma\gamma(t)$ in $^{197}\text{Au}(n,\gamma)$ E=thermal (1975Mi05). Others: 118 ns 8 ( $\gamma\gamma(t)$ (1973Pa08)), 128 ns 15 (p, $\gamma(t)$ (1968Bo30)).  |
| 328.4833 16           | 3 <sup>-</sup> &                 | ≤0.15 ns                      | D GHIJK   |   |
| 339.2910 16           | 1 <sup>-</sup>                   | ≤0.4 ns                       | D GHIJK   |   |
| 346.9062 7            | 2 <sup>-</sup> &                 | ≤0.15 ns                      | D GHIJK   |   |
| 359.4? 4              |                                  |                               | K         |   |
| 362.8995 10           | 2 <sup>-</sup>                   | ≤0.15 ns                      | D GHIJK   |   |
| 368.2567 11           | 1 <sup>-</sup>                   | ≤0.15 ns                      | D GHIJK   | J <sup>π</sup> : M1 $\gamma$ to 0 <sup>-</sup> .  |
| 381.2002 10           | 3 <sup>+</sup>                   | 2.3 ns 2                      | D GHIJ    |   |
| 397.4? 4              | ( <sup>+</sup> )                 |                               | G         |   |
| 406.0080 8            | 2 <sup>-</sup> &                 |                               | D GHIJK   |   |
| 449.5701 13           | 3 <sup>-</sup> &                 |                               | D HIJK    |   |
| 453.8250 9            | 2 <sup>-</sup>                   |                               | D GHIJK   |   |
| 482.3272 21           | 4 <sup>+</sup>                   |                               | D I       | J <sup>π</sup> : M1 $\gamma$ to 482, M1 $\gamma$ from 482 to 5 <sup>+</sup> 312, and observed weak feeding of 636 level in 24-keV average resonance capture uniquely establishes J <sup>π</sup> (637)=4 <sup>+</sup> and J <sup>π</sup> (482)=4 <sup>+</sup> .  |
| 495.5114 14           | 1 <sup>-</sup>                   |                               | D GHIJK   | J <sup>π</sup> : M1 $\gamma$ to 0 <sup>-</sup> .  |
| 511.5173 18           | 3 <sup>-</sup> &                 |                               | D GHIJK   |   |
| 516.3848 22           | 6 <sup>+</sup> @                 |                               | A D       |   |
| 529.1685 12           | 3 <sup>-</sup>                   |                               | D G I     |   |
| 530.4782 10           | 1 <sup>-</sup>                   |                               | D HIJK    |   |
| 544.0093 21           | 4 <sup>-</sup>                   |                               | D I K     |   |
| 548.9342 13           | 2 <sup>-</sup>                   |                               | D GHIJK   |   |
| 571.2439 10           | 1 <sup>-</sup>                   |                               | D GHIJK   |   |
| 573.3? 3              |                                  |                               | K         |   |
| 595.7? 8              |                                  |                               | K         |   |
| 625.4302 14           | 3 <sup>-</sup>                   |                               | D GHIJK   |   |
| 632.4820 13           | 1 <sup>-</sup> ,2 <sup>-</sup> & |                               | D GHIJK   |   |
| 637.125 3             | 4 <sup>+</sup>                   |                               | D I K     | XREF: K(638.67).<br>J <sup>π</sup> : See 482 level.   |
| 646.411 5             | 0 <sup>+</sup>                   |                               | A D IJK   | J <sup>π</sup> : 0 <sup>+</sup> , 4 <sup>+</sup> from average resonance capture, $\gamma$ 's to 1 <sup>-</sup> .  |
| 663.76 18             |                                  |                               | K         |   |

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Adopted Levels, Gammas (continued) $^{198}\text{Au}$  Levels (continued)

| E(level) <sup>†</sup>  | J <sup>π</sup> #                               | T <sub>1/2</sub> <sup>a</sup> | XREF            | Comments   |
|------------------------|--|-------------------------------|-----------------|--|
| 672.6548 10<br>694.6 6 | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                               | D GHIJK<br>HIJK | XREF: K(672.31).<br>J <sup>π</sup> : 2-keV average resonance capture data give 0 <sup>+</sup> , 24-keV average resonance capture data allow 0 <sup>+</sup> or 4 <sup>+</sup> , but 0 <sup>+</sup> is in conflict with observed decay of level to 3 <sup>-</sup> , and possible decay from 3 <sup>+</sup> 1095. |
| 696.702 4              | 8 <sup>+</sup>                                 |                               | A D             |  |
| 702.4811 20            | 2 <sup>-</sup>                                 |                               | D HIJK          |  |
| 703.7298 15            | 1 <sup>-</sup>                                 |                               | D G I           |  |
| 728.634 4              | 0 <sup>-</sup>                                 |                               | D HIJK          |  |
| 745.2187 21            | 1 <sup>-</sup> ,2 <sup>-</sup> &               |                               | D GHIJK         |  |
| 758.398 3              | 4 <sup>+</sup>                                 |                               | D I             |  |
| 764.482 3              | 4 <sup>-</sup>                                 |                               | D I K           |  |
| 786.5359 12            | 2 <sup>-</sup>                                 |                               | D HIJK          |  |
| 789.2974 16            | 1 <sup>-</sup>                                 |                               | D GHIJK         |  |
| 800.0388 19            | 2 <sup>-</sup>                                 |                               | D I K           |  |
| 801.7064 12            | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | D GHIJ          |  |
| 810.426 3              | 3 <sup>+</sup> &                               |                               | D IJK           |  |
| 811.9 15               | (12 <sup>-</sup> ) <sup>@</sup>                | 2.272 d 16                    | A M             | %IT=100<br>μ=(+)5.85 9 (1984Ha12,2011StZZ)<br>μ: Nuclear Magnetic Resonance on Oriented Nuclei(NMR/ON) (1984Ha12).<br>T <sub>1/2</sub> : From weighted average of 2.27 d 2 (1972Cu06), 2.36 d 7 (1973Pa08), and 2.26 d 3 (1992ZhZG).   |
| 824.608 4              | 3 <sup>+</sup>                                 |                               | D IJK           |  |
| 832.7                  | 1 <sup>+</sup> ,2 <sup>+</sup>                 |                               | G               |  |
| 835.366 3              | 3 <sup>-</sup> &                               |                               | D GHIJK         | XREF: K(833.24).   |
| 867.6                  | (3 <sup>+</sup> )                              |                               | G               |  |
| 868.7734 20            | 3 <sup>-</sup> &                               |                               | D HIJ           |  |
| 891.616 3              | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | D GHIJK         |  |
| 894.2716 25            | 3 <sup>-</sup>                                 |                               | D HIJK          |  |
| 896.5723 25            | 1 <sup>-</sup> ,2 <sup>-</sup> &               |                               | D G I           |  |
| 916.4434 25            | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | D HIJK          |  |
| 918.5889 16            | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | D GHIJK         |  |
| 931.944 3              | 3 <sup>-</sup>                                 |                               | D H J           |  |
| 932.2                  | 0 <sup>-</sup>                                 |                               | G               |  |
| 936.0 12               | 0 <sup>+</sup> &                               |                               | GH J            |  |
| 951.443 5              | 3 <sup>+</sup> &                               |                               | D HIJK          | XREF: K(948.9).  |
| 956.9533 20            | 1 <sup>-</sup> ,2 <sup>-</sup> &               |                               | D HIJK          |  |
| 960.633 3              | 3 <sup>+</sup>                                 |                               | D G J           |  |
| 971.8210 20            | 3 <sup>-</sup> &                               |                               | D GHIJ          |  |
| 983.0868 25            | 2 <sup>+</sup>                                 |                               | D HIJK          |  |
| 987.5743 19            | 3 <sup>-</sup> &                               |                               | D GHIJK         |  |
| 999.212 4              | 1 <sup>-</sup> ,2 <sup>-</sup> &               |                               | D GHIJK         |  |
| 1018.430 3             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | D HIJK          |  |
| 1021.4                 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | G               |  |
| 1032.254 3             | 3 <sup>-</sup>                                 |                               | D HIJK          | XREF: K(1030.44).  |
| 1038.2744 21           | 3 <sup>-</sup>                                 |                               | D I K           |  |
| 1039.4                 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                               | G               |  |
| 1047.124 3             | 1 <sup>-</sup> ,2 <sup>-</sup> &               |                               | D GHIJK         |  |
| 1056.719 3             | 2 <sup>-</sup>                                 |                               | D GHIJK         |  |
| 1061.285 3             | 3 <sup>-</sup>                                 |                               | D K             |  |
| 1075.560 4             | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                               | D K             |  |
| 1092.876 5             | 0 <sup>-</sup>                                 |                               | D GHIJK         |  |
| 1093.9                 | ( <sup>+</sup> )                               |                               | G               |  |

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Adopted Levels, Gammas (continued) $^{198}\text{Au}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup> #                               | XREF    | Comments   |
|-----------------------|--|---------|--|
| 1095.499 4            | 3 <sup>+</sup>                                 | D I     |  |
| 1104.835 4            | 0 <sup>-</sup> ,1 <sup>-</sup> ,2 <sup>-</sup> | D K     |  |
| 1108.873 4            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  | XREF: K(1112.6).                                 |
| 1112.6                | 1 <sup>-</sup> ,2 <sup>-</sup>                 | G       |  |
| 1115.265 3            | 3 <sup>-</sup> &                               | D GHIJK |  |
| 1124.881 4            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | D GH JK |  |
| 1134.8 8              | &  | K       |  |
| 1147.0 2              | 1 <sup>-</sup> ,2 <sup>-</sup> &               | H JK    |  |
| 1148.8                | 1 <sup>+</sup> ,2 <sup>+</sup>                 | G       |  |
| 1157.2381 22          | 3 <sup>-</sup>                                 | D GH JK | XREF: G(1158.4).                                 |
| 1160.018 4            | 3 <sup>-</sup> &                               | D H J   |  |
| 1166.5 2              | 1 <sup>-</sup> ,2 <sup>-</sup> &               | GH JK   | XREF: G(1164.7).                                 |
| 1175.9 2              | 1 <sup>-</sup> ,2 <sup>-</sup> &               | GH JK   | XREF: G(1173.3).                                 |
| 1191.566 4            | 1 <sup>+</sup> ,2 <sup>+</sup> ,3 <sup>+</sup> | D H J   |  |
| 1199.4 7              |  | K       | J <sup>π</sup> : L=3 in $^{197}\text{Au}(d,p)$ . |
| 1202.268 3            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | D GH JK | XREF: G(1204.4).                                 |
| 1209.370 4            | 3 <sup>-</sup>                                 | D H JK  |  |
| 1232.8019 25          | 3 <sup>-</sup>                                 | D H J   |  |
| 1240.380 4            | 3 <sup>-</sup>                                 | D H J   |  |
| 1256.018 5            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  |  |
| 1265.523 6            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | D H JK  |  |
| 1272.1510 25          | 3 <sup>-</sup> &                               | D H JK  |  |
| 1286.746 4            | 2 <sup>-</sup>                                 | D H JK  |  |
| 1293.902 6            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  |  |
| 1297.133 5            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | D K     |  |
| 1301.045 5            | 2 <sup>-</sup>                                 | D H JK  |  |
| 1304.8244 23          | 3 <sup>-</sup>                                 | D JK    |  |
| 1306.853 3            | 2 <sup>-</sup>                                 | D IJ    |  |
| 1318.628 8            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  |  |
| 1325.830 4            | 2 <sup>-</sup>                                 | D H JK  |  |
| 1335.542 4            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | D H JK  |  |
| 1338.171 4            | 3 <sup>-</sup> &                               | D H J   |  |
| 1359.038 4            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | D H JK  |  |
| 1363.350 4            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | D H JK  |  |
| 1371.502 3            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  |  |
| 1375.974 4            | 1 <sup>-</sup> ,2 <sup>-</sup> &               | D H JK  |  |
| 1380.884 4            | 3 <sup>-</sup>                                 | D H JK  |  |
| 1386.0 10             |  | K       |  |
| 1390.227 4            | 2 <sup>-</sup>                                 | D H JK  |  |
| 1395.1 4              |  | K       |  |
| 1396.141 6            | 3 <sup>-</sup> &                               | D H JK  |  |
| 1399.342 5            | 2 <sup>-</sup> ,3 <sup>-</sup>                 | D K     |  |
| 1402.086 5            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | D H JK  |  |
| 1403.5 3              |  | K       |  |
| 1404.893 8            | 2 <sup>-</sup> ,3 <sup>-</sup>                 | D H J   |  |
| 1409.399 4            | 3 <sup>-</sup>                                 | D H JK  |  |
| 1418.686 4            | 3 <sup>+</sup> ,4 <sup>+</sup>                 | D H JK  |  |
| 1423.795 5            | 3 <sup>-</sup>                                 | D H JK  |  |
| 1431.645 3            | 2 <sup>-</sup> ,3 <sup>-</sup>                 | D H JK  |  |
| 1434.584 5            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | D H JK  |  |
| 1444.396 22           | 3 <sup>-</sup>                                 | D H JK  |  |
| 1450.5 4              |  | K       | J <sup>π</sup> : L=3 in $^{197}\text{Au}(d,p)$ . |

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Adopted Levels, Gammas (continued) $^{198}\text{Au}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup> #                                 | XREF   | Comments   |
|-----------------------|--|--------|--|
| 1453.858 3            | 3 <sup>-</sup>                                   | D H JK |  |
| 1458.988 4            | 3 <sup>-</sup> &                                 | D H JK |  |
| 1472.097 4            | 3 <sup>-</sup> &                                 | D H JK |  |
| 1475.621 4            | 2 <sup>-</sup>                                   | D H JK |  |
| 1487.136 4            | 1 <sup>-</sup> ,2 <sup>-</sup>                   | D H JK |  |
| 1488.01 19            |  | K      | J <sup>π</sup> : L=3 in $^{197}\text{Au}(d,p)$ .     |
| 1496.201 5            | 3 <sup>-</sup> &                                 | D H JK |  |
| 1497.67 21            |  | K      | J <sup>π</sup> : L=(1,3) in $^{197}\text{Au}(d,p)$ . |
| 1505.178 4            | 1 <sup>-</sup> ,2 <sup>-</sup> &                 | D H JK |  |
| 1506.0 2              |  | K      | J <sup>π</sup> : L=(1,3) in $^{197}\text{Au}(d,p)$ . |
| 1513.564 4            | 1 <sup>-</sup> ,2 <sup>-</sup>                   | D H JK |  |
| 1517.9 5              |  | K      | J <sup>π</sup> : L=1 in $^{197}\text{Au}(d,p)$ .     |
| 1523.2 10             | 1 <sup>+</sup> ,2 <sup>+</sup> ,3 <sup>+</sup> & | H J    |  |
| 1530.702 5            | 1 <sup>-</sup> ,2 <sup>-</sup> &                 | D H JK |  |
| 1532.69 18            |  | K      |  |
| 1536.380 3            | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup>   | D H J  |  |
| 1542.793 5            | 3 <sup>-</sup> &                                 | D H JK |  |
| 1554.429 4            | 1 <sup>-</sup> ,2 <sup>-</sup> &                 | D H JK |  |
| 1560.407 6            | 3 <sup>-</sup> &                                 | D H JK |  |
| 2224 <sup>‡</sup>     |  | K      |  |
| 2245 <sup>‡</sup>     |  | K      |  |
| 2266 <sup>‡</sup>     |  | K      |  |
| 2283 <sup>‡</sup>     |  | K      |  |
| 2296 <sup>‡</sup>     |  | K      |  |
| 2304 <sup>‡</sup>     |  | K      |  |
| 2326 <sup>‡</sup>     |  | K      |  |
| 2343 <sup>‡</sup>     |  | K      |  |
| 2361? <sup>‡</sup>    |  | K      |  |
| 2381 <sup>‡</sup>     |  | K      |  |
| 2393 <sup>‡</sup>     |  | K      |  |
| 2469 <sup>‡</sup>     |  | K      |  |
| 2479 <sup>‡</sup>     |  | K      |  |
| 2490 <sup>‡</sup>     |  | K      |  |
| 2505 <sup>‡</sup>     |  | K      |  |
| 2520? <sup>‡</sup>    |  | K      |  |
| 2598 <sup>‡</sup>     |  | K      |  |
| 2610 <sup>‡</sup>     |  | K      |  |
| 17135 5               | 0 <sup>+</sup>                                   | N      | J <sup>π</sup> : IAS( $^{198}\text{Pt}$ g.s.).       |

<sup>†</sup> For the states connected by  $\gamma$ 's, E(level)'s are from a least-squares fit to the Adopted Gamma radiations, except as noted.

<sup>‡</sup> Only reported in (d,p) but are not confirmed by other reactions.

# J<sup>π</sup> are from circular polarization of primary  $\gamma$ -rays due to capture of polarized neutrons by unoriented  $^{197}\text{Au}$  nuclei and  $\gamma(\theta)$  of  $\gamma$ -rays observed after capture of polarized neutrons by polarized  $^{197}\text{Au}$  nuclei in  $^{197}\text{Au}(n,\gamma)$  E=thermal (1978Li22) and multipolarity from internal conversion electron measurements (1996Ma70,1996Ma75) and L-transfer in  $^{197}\text{Au}(d,p)$ , except as noted.

@ From  $^{198}\text{Au}$  IT decay and presumably analogous properties in  $^{196}\text{Au}$ .

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** **${}^{198}\text{Au}$  Levels (continued)**

- & From average resonance neutron capture for  $E(n)=2$  keV and 24 keV.  
<sup>a</sup> From  $\gamma(t)$  measurements in  ${}^{197}\text{Au}(n,\gamma)$   $E=\text{thermal}$ , except as noted.

Adopted Levels, Gammas (continued)

$\gamma(^{198}\text{Au})$

For  $^{198}\text{Au}$  recommended as calibration standard source, see 1983LoZV, 1991BaZS, 1990Ni03, and 1997HeZZ.

For unplaced gammas: see  $^{197}\text{Au}(n,\gamma)$  E=thermal (1996Ma70,1996Ma75).

| $E_i(\text{level})$ | $J_i^\pi$      | $E_\gamma$ †‡          | $I_\gamma$ ‡         | $E_f$    | $J_f^\pi$      | Mult. & | $\delta$ & | $\alpha^b$ | Comments                            |
|---------------------|----------------|------------------------|----------------------|----------|----------------|---------|------------|------------|-------------------------------------|
| 55.1812             | 1 <sup>-</sup> | 55.181 1               | 100                  | 0.0      | 2 <sup>-</sup> | M1+E2   | 0.23 2     | 10.9 7     |                                     |
| 91.0059             | 0 <sup>-</sup> | 35.819 3               | 88 3                 | 55.1812  | 1 <sup>-</sup> | M1      |            | 26.3       |                                     |
|                     |                | 91.002 2               | 100 20               | 0.0      | 2 <sup>-</sup> | E2      |            | 7.75       |                                     |
| 192.9441            | 1 <sup>-</sup> | 101.936 1              | 100 5                | 91.0059  | 0 <sup>-</sup> | M1      |            | 6.87       | B(M1)(W.u.)=0.0032 10               |
|                     |                | 137.763 1              | 18.7 8               | 55.1812  | 1 <sup>-</sup> | M1      |            | 2.91       | B(M1)(W.u.)=0.00024 8               |
|                     |                | 192.946 1              | 45.2 5               | 0.0      | 2 <sup>-</sup> | E2      |            | 0.424      | B(E2)(W.u.)=2.2 7                   |
| 214.9715            | 4 <sup>-</sup> | 214.971 1              | 100                  | 0.0      | 2 <sup>-</sup> | E2      |            | 0.293      | B(E2)(W.u.)=35 18                   |
| 236.0453            | 3 <sup>-</sup> | 180.863 1              | 15.3 5               | 55.1812  | 1 <sup>-</sup> | E2      |            | 0.531      | B(E2)(W.u.)>26                      |
|                     |                | 236.047 2              | 100.0 11             | 0.0      | 2 <sup>-</sup> | M1+E2   | 1.0 4      | 0.43 10    | B(M1)(W.u.)>0.0019; B(E2)(W.u.)>13  |
| 247.5731            | 1 <sup>-</sup> | 156.561 4              | 1.6 3                | 91.0059  | 0 <sup>-</sup> | M1      |            | 2.02       | B(M1)(W.u.)=7.4×10 <sup>-5</sup> 24 |
|                     |                | 192.392 1              | 69.4 7               | 55.1812  | 1 <sup>-</sup> | M1      |            | 1.132      | B(M1)(W.u.)=0.0017 5                |
|                     |                | 247.570 3              | 100 6                | 0.0      | 2 <sup>-</sup> | M1      |            | 0.562      | B(M1)(W.u.)=0.0012 3                |
| 259.3406            | 1 <sup>-</sup> | 66.391 3               | 8.2 20               | 192.9441 | 1 <sup>-</sup> |         |            |            |                                     |
|                     |                | 168.334 1              | 100.0 10             | 91.0059  | 0 <sup>-</sup> | M1      |            | 1.648      | B(M1)(W.u.)>0.0084                  |
|                     |                | 259.348 9              | 0.43 4               | 0.0      | 2 <sup>-</sup> | M1      |            | 0.495      | B(M1)(W.u.)>9.9×10 <sup>-6</sup>    |
| 261.4047            | 2 <sup>-</sup> | 170.395 3              | 7.5 4                | 91.0059  | 0 <sup>-</sup> |         |            |            |                                     |
|                     |                | 206.227 1              | 4.4 2                | 55.1812  | 1 <sup>-</sup> | M1      |            | 0.933      | B(M1)(W.u.)>0.00033                 |
|                     |                | 261.402 1              | 100 3                | 0.0      | 2 <sup>-</sup> | M1      |            | 0.484      | B(M1)(W.u.)>0.0037                  |
| 312.2227            | 5 <sup>+</sup> | 97.249 2               | 100                  | 214.9715 | 4 <sup>-</sup> | E1      |            | 0.445      | B(E1)(W.u.)=1.21×10 <sup>-6</sup> 4 |
| 328.4833            | 3 <sup>-</sup> | 113.511 7              | 6.0 20               | 214.9715 | 4 <sup>-</sup> | M1+E2   |            | 4.1 10     |                                     |
|                     |                | 273.286 15             | 2.5 9                | 55.1812  | 1 <sup>-</sup> |         |            |            |                                     |
|                     |                | 328.484 3              | 100.0 10             | 0.0      | 2 <sup>-</sup> | M1      |            | 0.260      | B(M1)(W.u.)>0.0026                  |
| 339.2910            | 1 <sup>-</sup> | 146.343 2              | 100 9                | 192.9441 | 1 <sup>-</sup> | M1      |            | 2.45       | B(M1)(W.u.)>0.0042                  |
|                     |                | 284.111 3              | 50 7                 | 55.1812  | 1 <sup>-</sup> | M1      |            | 0.385      | B(M1)(W.u.)>0.00029                 |
| 346.9062            | 2 <sup>-</sup> | 99.330 5               | 11 3                 | 247.5731 | 1 <sup>-</sup> | M1      |            | 7.40       | B(M1)(W.u.)>0.0048                  |
|                     |                | 131.952 7              | 16 5                 | 214.9715 | 4 <sup>-</sup> | E2      |            | 1.706      | B(E2)(W.u.)>64                      |
|                     |                | 153.962 8              | 5.6 14               | 192.9441 | 1 <sup>-</sup> | (M1)    |            | 2.12       | B(M1)(W.u.)>0.00065                 |
|                     |                | 255.882 10             | 2.1 4                | 91.0059  | 0 <sup>-</sup> |         |            |            |                                     |
|                     |                | 291.722 1              | 100 10               | 55.1812  | 1 <sup>-</sup> | M1      |            | 0.358      | B(M1)(W.u.)>0.0017                  |
|                     |                | 346.909 1              | 41.6 4               | 0.0      | 2 <sup>-</sup> | M1      |            | 0.224      | B(M1)(W.u.)>0.00042                 |
| 362.8995            | 2 <sup>-</sup> | 103.560 1              | 100 14               | 259.3406 | 1 <sup>-</sup> | M1      |            | 6.57       | B(M1)(W.u.)>0.015                   |
|                     |                | 169.964 <sup>c</sup> 8 | 11.0 <sup>c</sup> 17 | 192.9441 | 1 <sup>-</sup> |         |            |            |                                     |
|                     |                | 271.895 2              | 17.5 7               | 91.0059  | 0 <sup>-</sup> |         |            |            |                                     |
|                     |                | 307.723 3              | 38.3 12              | 55.1812  | 1 <sup>-</sup> | M1+E2   |            | 0.20 11    |                                     |
| 368.2567            | 1 <sup>-</sup> | 108.911 2              | 100 13               | 259.3406 | 1 <sup>-</sup> | M1      |            | 5.68       | B(M1)(W.u.)>0.015                   |
|                     |                | 175.309 6              | 10.9 17              | 192.9441 | 1 <sup>-</sup> |         |            |            |                                     |
|                     |                | 277.246 2              | 27 4                 | 91.0059  | 0 <sup>-</sup> | M1      |            | 0.412      | B(M1)(W.u.)>0.00025                 |
|                     |                | 313.065 4              | 5.5 3                | 55.1812  | 1 <sup>-</sup> |         |            |            |                                     |

Adopted Levels, Gammas (continued)

$\gamma(^{198}\text{Au})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$      | $E_\gamma^{\ddagger\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$      | Mult. &         | $\alpha^b$ | Comments  |
|---------------------|----------------|-------------------------------|-----------------------|----------|----------------|-----------------|------------|---|
| 368.2567            | 1 <sup>-</sup> | 368.249 7                     | 14.06 16              | 0.0      | 2 <sup>-</sup> | M1              | 0.191      | B(M1)(W.u.)>5.6×10 <sup>-5</sup>  |
| 381.2002            | 3 <sup>+</sup> | 145.154 1                     | 15.7 11               | 236.0453 | 3 <sup>-</sup> | E1              | 0.1615     | B(E1)(W.u.)=3.3×10 <sup>-6</sup> 4  |
|                     |                | 166.229 2                     | 11.9 7                | 214.9715 | 4 <sup>-</sup> | E1              | 0.1146     | B(E1)(W.u.)=1.69×10 <sup>-6</sup> 18  |
|                     |                | 381.205 2                     | 100.0 10              | 0.0      | 2 <sup>-</sup> | E1 <sup>a</sup> | 0.01550    | B(E1)(W.u.)=1.17×10 <sup>-6</sup> 11<br>Mult.: E2 from internal conversion electron measurements (1996Ma70,1996Ma75). |
| 406.0080            | 2 <sup>-</sup> | 144.605 3                     | 19 3                  | 261.4047 | 2 <sup>-</sup> | M1              | 2.53       |   |
|                     |                | 146.670 3                     | 29 3                  | 259.3406 | 1 <sup>-</sup> | M1              | 2.43       |   |
|                     |                | 169.964 <sup>c</sup> 8        | 13.2 <sup>c</sup> 20  | 236.0453 | 3 <sup>-</sup> |                 |            |   |
|                     |                | 213.066 3                     | 10.1 9                | 192.9441 | 1 <sup>-</sup> | M1              | 0.852      |   |
|                     |                | 350.828 1                     | 100.0 10              | 55.1812  | 1 <sup>-</sup> | M1              | 0.217      |   |
|                     |                | 406.009 3                     | 3.9 4                 | 0.0      | 2 <sup>-</sup> |                 |            |   |
| 449.5701            | 3 <sup>-</sup> | 121.084 6                     | 17 5                  | 328.4833 | 3 <sup>-</sup> | M1              | 4.20       |   |
|                     |                | 188.166 2                     | 100 3                 | 261.4047 | 2 <sup>-</sup> | M1              | 1.205      |   |
|                     |                | 213.545 9                     | 2.3 5                 | 236.0453 | 3 <sup>-</sup> | M1              | 0.846      |   |
|                     |                | 234.607 <sup>c</sup> 7        | 7.0 <sup>c</sup> 15   | 214.9715 | 4 <sup>-</sup> |                 |            |   |
|                     |                | 394.361 8                     | 2.33 23               | 55.1812  | 1 <sup>-</sup> |                 |            |   |
|                     |                | 449.572 3                     | 77.9 8                | 0.0      | 2 <sup>-</sup> | M1              | 0.1120     |   |
| 453.8250            | 2 <sup>-</sup> | 106.909 4                     | 20 5                  | 346.9062 | 2 <sup>-</sup> | M1              | 5.99       |   |
|                     |                | 125.346 9                     | 9 4                   | 328.4833 | 3 <sup>-</sup> | M1              | 3.80       |   |
|                     |                | 260.882 1                     | 100 8                 | 192.9441 | 1 <sup>-</sup> | M1              | 0.487      |   |
|                     |                | 398.650 5                     | 6.3 4                 | 55.1812  | 1 <sup>-</sup> |                 |            |   |
|                     |                | 453.810 4                     | 7.14 18               | 0.0      | 2 <sup>-</sup> |                 |            |   |
| 482.3272            | 4 <sup>+</sup> | 170.103 1                     | 100                   | 312.2227 | 5 <sup>+</sup> | M1              | 1.600      |   |
| 495.5114            | 1 <sup>-</sup> | 148.589 <sup>c</sup> 14       | 4.0 <sup>c</sup> 20   | 346.9062 | 2 <sup>-</sup> | M1              | 2.34       |   |
|                     |                | 234.109 3                     | 8.9 8                 | 261.4047 | 2 <sup>-</sup> | M1              | 0.656      |   |
|                     |                | 236.160 4                     | 28 6                  | 259.3406 | 1 <sup>-</sup> |                 |            |   |
|                     |                | 247.928 5                     | 7.3 8                 | 247.5731 | 1 <sup>-</sup> |                 |            |   |
|                     |                | 259.467 9                     | 2.42 24               | 236.0453 | 3 <sup>-</sup> |                 |            |   |
|                     |                | 302.608 9                     | 1.6 2                 | 192.9441 | 1 <sup>-</sup> |                 |            |   |
|                     |                | 404.547 4                     | 3.2 3                 | 91.0059  | 0 <sup>-</sup> | M1              | 0.1483     |   |
|                     |                | 440.331 3                     | 100 1                 | 55.1812  | 1 <sup>-</sup> | M1              | 0.1183     |   |
| 511.5173            | 3 <sup>-</sup> | 148.589 <sup>c</sup> 14       | 5.4 <sup>c</sup> 27   | 362.8995 | 2 <sup>-</sup> | M1              | 2.34       |   |
|                     |                | 164.5 <sup>d</sup>            | 7.5 26                | 346.9062 | 2 <sup>-</sup> |                 |            |   |
|                     |                | 250.118 7                     | 7.6 10                | 261.4047 | 2 <sup>-</sup> |                 |            |   |
|                     |                | 275.470 <sup>c</sup> 7        | 6.5 <sup>c</sup> 12   | 236.0453 | 3 <sup>-</sup> |                 |            |   |
|                     |                | 296.528 9                     | 3.3 3                 | 214.9715 | 4 <sup>-</sup> |                 |            |   |
|                     |                | 318.4 <sup>d</sup>            | 6.6 13                | 192.9441 | 1 <sup>-</sup> |                 |            |   |
|                     |                | 456.1 <sup>d</sup>            | 49 7                  | 55.1812  | 1 <sup>-</sup> |                 |            |   |
|                     |                | 511.517 2                     | 100 9                 | 0.0      | 2 <sup>-</sup> | M1              | 0.0796     |   |
| 516.3848            | 6 <sup>+</sup> | 204.162 1                     | 100                   | 312.2227 | 5 <sup>+</sup> | M1              | 0.959      |   |
| 529.1685            | 3 <sup>-</sup> | 123.1 <sup>d</sup>            | 6.1 18                | 406.0080 | 2 <sup>-</sup> |                 |            |   |
|                     |                | 182.283 11                    | 2.9 8                 | 346.9062 | 2 <sup>-</sup> |                 |            |   |



Adopted Levels, Gammas (continued)

$\gamma(^{198}\text{Au})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$                       | $E_\gamma^{\dagger\dagger}$ | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$      | Mult.& | $\alpha^b$ |
|---------------------|---------------------------------|-----------------------------|-----------------------|----------|----------------|--------|------------|
| 529.1685            | 3 <sup>-</sup>                  | 267.774 3                   | 4.1 3                 | 261.4047 | 2 <sup>-</sup> |        |            |
|                     |                                 | 293.117 4                   | 4.5 11                | 236.0453 | 3 <sup>-</sup> | M1     | 0.354      |
|                     |                                 | 314.181 9                   | 1.6 2                 | 214.9715 | 4 <sup>-</sup> |        |            |
|                     |                                 | 473.978 7                   | 2.45 4                | 55.1812  | 1 <sup>-</sup> |        |            |
| 530.4782            | 1 <sup>-</sup>                  | 529.170 2                   | 100 3                 | 0.0      | 2 <sup>-</sup> | M1     | 0.0729     |
|                     |                                 | 191.182 4                   | 100 9                 | 339.2910 | 1 <sup>-</sup> | M1     | 1.153      |
|                     |                                 | 269.081 2                   | 88 7                  | 261.4047 | 2 <sup>-</sup> | M1     | 0.447      |
|                     |                                 | 271.144 <sup>c</sup> 4      | 58 <sup>c</sup> 5     | 259.3406 | 1 <sup>-</sup> | (M1)   | 0.438      |
|                     |                                 | 282.893 22                  | 8.3 21                | 247.5731 | 1 <sup>-</sup> | M1     | 0.390      |
|                     |                                 | 337.533 1                   | 100 2                 | 192.9441 | 1 <sup>-</sup> | M1     | 0.241      |
| 544.0093            | 4 <sup>-</sup>                  | 530.476 6                   | 29.2 8                | 0.0      | 2 <sup>-</sup> |        |            |
|                     |                                 | 138.014 4                   | 34 9                  | 406.0080 | 2 <sup>-</sup> |        |            |
|                     |                                 | 215.535 5                   | 9.0 16                | 328.4833 | 3 <sup>-</sup> |        |            |
|                     |                                 | 329.021 8                   | 2.99 15               | 214.9715 | 4 <sup>-</sup> |        |            |
| 548.9342            | 2 <sup>-</sup>                  | 544.002 3                   | 100 3                 | 0.0      | 2 <sup>-</sup> | E2     | 0.0211     |
|                     |                                 | 142.918 3                   | 51 6                  | 406.0080 | 2 <sup>-</sup> | M1     | 2.62       |
|                     |                                 | 220.3 <sup>d</sup>          | 3.3 10                | 328.4833 | 3 <sup>-</sup> |        |            |
|                     |                                 | 301.365 10                  | 2.22 22               | 247.5731 | 1 <sup>-</sup> |        |            |
| 571.2439            | 1 <sup>-</sup>                  | 312.7 <sup>d</sup>          | 3.6 10                | 236.0453 | 3 <sup>-</sup> |        |            |
|                     |                                 | 333.970 4                   | 4.44 22               | 214.9715 | 4 <sup>-</sup> |        |            |
|                     |                                 | 548.930 2                   | 100 3                 | 0.0      | 2 <sup>-</sup> | M1     | 0.0662     |
|                     |                                 | 202.987 1                   | 54.7 22               | 368.2567 | 1 <sup>-</sup> | M1     | 0.975      |
|                     |                                 | 208.33 <sup>d</sup> 4       | 0.5 4                 | 362.8995 | 2 <sup>-</sup> |        |            |
|                     |                                 | 224.341 4                   | 14.1 23               | 346.9062 | 2 <sup>-</sup> |        |            |
|                     |                                 | 242.773 <sup>c</sup> 11     | 4.5 <sup>c</sup> 11   | 328.4833 | 3 <sup>-</sup> |        |            |
|                     |                                 | 311.905 <sup>c</sup> 3      | 100 <sup>c</sup> 2    | 259.3406 | 1 <sup>-</sup> | M1     | 0.299      |
|                     |                                 | 335.192 8                   | 3.1 16                | 236.0453 | 3 <sup>-</sup> |        |            |
|                     |                                 | 378.302 2                   | 37.5 8                | 192.9441 | 1 <sup>-</sup> | M1     | 0.1774     |
| 625.4302            | 3 <sup>-</sup>                  | 480.196 22                  | 6.3 5                 | 91.0059  | 0 <sup>-</sup> |        |            |
|                     |                                 | 516.061 2                   | 73.4 16               | 55.1812  | 1 <sup>-</sup> | M1     | 0.0778     |
|                     |                                 | 175.858 15                  | 5.5 24                | 449.5701 | 3 <sup>-</sup> |        |            |
|                     |                                 | 219.3 <sup>d</sup>          | 100 10                | 406.0080 | 2 <sup>-</sup> |        |            |
|                     |                                 | 262.535 6                   | 12.7 22               | 362.8995 | 2 <sup>-</sup> |        |            |
|                     |                                 | 313.0 <sup>d</sup>          | 2.6 12                | 312.2227 | 5 <sup>+</sup> |        |            |
|                     |                                 | 364.019 <sup>c</sup> 3      | 25.5 <sup>c</sup> 7   | 261.4047 | 2 <sup>-</sup> | M1     | 0.197      |
|                     |                                 | 366.095 3                   | 12.7 9                | 259.3406 | 1 <sup>-</sup> |        |            |
| 632.4820            | 1 <sup>-</sup> , 2 <sup>-</sup> | 389.335 19                  | 5.5 15                | 236.0453 | 3 <sup>-</sup> |        |            |
|                     |                                 | 625.429 3                   | 100 6                 | 0.0      | 2 <sup>-</sup> | M1     | 0.0471     |
|                     |                                 | 226.471 6                   | 10.0 18               | 406.0080 | 2 <sup>-</sup> |        |            |
|                     |                                 | 264.210 <sup>c</sup> 3      | 13.3 <sup>c</sup> 13  | 368.2567 | 1 <sup>-</sup> |        |            |
|                     |                                 | 269.574 7                   | 8.3 18                | 362.8995 | 2 <sup>-</sup> |        |            |
|                     |                                 | 371.080 2                   | 100.0 10              | 261.4047 | 2 <sup>-</sup> | M1     | 0.187      |

## Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                 |                                |                             |                    |               |          |            |  |  |
|---------------------------------------|-----------------|--------------------------------|-----------------------------|--------------------|---------------|----------|------------|--|--|
| $E_i(\text{level})$                   | $J_i^\pi$       | $E_\gamma$ †‡                  | $I_\gamma$ ‡                | $E_f$              | $J_f^\pi$     | Mult.&   | $\alpha^b$ | Comments   |  |
| 632.4820                              | $1^-, 2^-$      | 373.150 <i>11</i>              | 16.7 <i>25</i>              | 259.3406           | $1^-$         | M1       | 0.184      |  |  |
|                                       |                 | 396.426 <i>14</i>              | 1.7 <i>3</i>                | 236.0453           | $3^-$         |          |            |  |  |
|                                       |                 | 577.287 <i>4</i>               | 60.0 <i>12</i>              | 55.1812            | $1^-$         | M1       | 0.0580     |  |  |
| 637.125                               | $4^+$           | 632.502 <i>13</i>              | 18.3 <i>13</i>              | 0.0                | $2^-$         |          |            |  |  |
|                                       |                 | 154.793 <sup>c</sup> <i>2</i>  | 100 <sup>c</sup> <i>7</i>   | 482.3272           | $4^+$         | M1       | 2.09       |  |  |
| 646.411                               | $0^+$           | 324.916 <i>4</i>               | 26.9 <i>8</i>               | 312.2227           | $5^+$         |          |            |  |  |
|                                       |                 | (75.2)                         | 100 <i>14</i>               | 571.2439           | $1^-$         |          |            |  |  |
| 672.6548                              | $1^-, 2^-, 3^-$ | 278.0 <sup>d</sup>             | 37 <i>8</i>                 | 368.2567           | $1^-$         |          |            |  |  |
|                                       |                 | 333.82 <sup>#</sup> <i>15</i>  | 100 <sup>#</sup> <i>18</i>  | 312.2227           | $5^+$         | M1       | 0.248      | Mult.: $\alpha(\text{K})\text{exp}<0.3$ ; $\Delta J=+1$ from $\gamma$ anisotropy $I_\gamma(\theta, t)$ (1975Ma30). |  |
|                                       |                 | 591.228 <i>6</i>               | 100.0 <i>18</i>             | 55.1812            | $1^-$         |          |            |  |  |
|                                       |                 | 218.830 <i>3</i>               | 25.3 <i>23</i>              | 453.8250           | $2^-$         | (M1)     | 0.791      |  |  |
|                                       |                 | 223.078 <i>8</i>               | 5.3 <i>11</i>               | 449.5701           | $3^-$         |          |            |  |  |
|                                       |                 | 266.647 <i>1</i>               | 42.7 <i>13</i>              | 406.0080           | $2^-$         | M1       | 0.458      |  |  |
|                                       |                 | 325.751 <i>3</i>               | 16.0 <i>4</i>               | 346.9062           | $2^-$         | M1       | 0.265      |  |  |
|                                       |                 | 344.172 <sup>c</sup> <i>4</i>  | 4.0 <sup>c</sup> <i>1</i>   | 328.4833           | $3^-$         |          |            |  |  |
|                                       |                 | 413.289 <i>5</i>               | 9.3 <i>3</i>                | 259.3406           | $1^-$         |          |            |  |  |
|                                       |                 | 425.081 <i>8</i>               | 4.0 <i>1</i>                | 247.5731           | $1^-$         |          |            |  |  |
| 694.6                                 | $1^-, 2^-, 3^-$ | 436.614 <i>4</i>               | 5.3 <i>3</i>                | 236.0453           | $3^-$         |          |            |  |  |
|                                       |                 | 457.65 <sup>c</sup> <i>7</i>   | 6.7 <sup>c</sup> <i>24</i>  | 214.9715           | $4^-$         |          |            |  |  |
|                                       |                 | 672.654 <i>3</i>               | 100.0 <i>4</i>              | 0.0                | $2^-$         | M1       | 0.0390     |  |  |
|                                       |                 | 347.7 <sup>@</sup>             | 100 <sup>@</sup> <i>8</i>   | 346.9062           | $2^-$         |          |            |  |  |
|                                       |                 | 366.1 <sup>@</sup>             | 19 <sup>@</sup> <i>6</i>    | 328.4833           | $3^-$         |          |            |  |  |
|                                       |                 | 433.1 <sup>@</sup>             | 28 <sup>@</sup> <i>6</i>    | 261.4047           | $2^-$         |          |            |  |  |
|                                       |                 | (50.5 CA)                      |                             | 646.411            | $0^+$         |          |            |  |  |
|                                       |                 | 180.317 <i>3</i>               | 100 <i>8</i>                | 516.3848           | $6^+$         | E2       | 0.537      |  |  |
|                                       |                 | 702.4811                       | $2^-$                       | 252.8 <sup>d</sup> | 8.9 <i>22</i> | 449.5701 | $3^-$      |  |  |
|                                       |                 |                                |                             | 296.3 <sup>d</sup> | 7.2 <i>17</i> | 406.0080 | $2^-$      |  |  |
| 703.7298                              | $1^-$           | 334.235 <i>14</i>              | 1.45 <i>19</i>              | 368.2567           | $1^-$         |          |            |  |  |
|                                       |                 | 339.596 <sup>c</sup> <i>3</i>  | 4.4 <sup>c</sup> <i>3</i>   | 362.8995           | $2^-$         |          |            |  |  |
|                                       |                 | 441.065 <i>7</i>               | 17.4 <i>4</i>               | 261.4047           | $2^-$         | M1       | 0.1178     |  |  |
|                                       |                 | 454.887 <sup>c</sup> <i>6</i>  | 5.8 <sup>c</sup> <i>3</i>   | 247.5731           | $1^-$         |          |            |  |  |
|                                       |                 | 647.307 <sup>c</sup> <i>6</i>  | 24.6 <sup>c</sup> <i>13</i> | 55.1812            | $1^-$         | M1       | 0.0431     |  |  |
|                                       |                 | 702.467 <i>4</i>               | 100.0 <i>10</i>             | 0.0                | $2^-$         | M1       | 0.0349     |  |  |
|                                       |                 | 154.793 <sup>c</sup> <i>2</i>  | 68 <sup>c</sup> <i>5</i>    | 548.9342           | $2^-$         | M1       | 2.09       |  |  |
|                                       |                 | 297.720 <i>5</i>               | 10.5 <i>5</i>               | 406.0080           | $2^-$         | M1       | 0.339      |  |  |
|                                       |                 | 364.421 <i>6</i>               | 2.6 <i>4</i>                | 339.2910           | $1^-$         |          |            |  |  |
|                                       |                 | 444.393 <i>3</i>               | 100.0 <i>11</i>             | 259.3406           | $1^-$         | M1       | 0.1155     |  |  |
| 703.7298                              | $1^-$           | 456.172 <i>8</i>               | 25.0 <i>22</i>              | 247.5731           | $1^-$         | M1       | 0.1077     |  |  |
|                                       |                 | 510.785 <i>11</i>              | 5.3 <i>7</i>                | 192.9441           | $1^-$         |          |            |  |  |
|                                       |                 | 612.724 <i>6</i>               | 18.4 <i>5</i>               | 91.0059            | $0^-$         | M1       | 0.0497     |  |  |
|                                       |                 | 648.573 <sup>c</sup> <i>22</i> | 5.3 <sup>c</sup> <i>7</i>   | 55.1812            | $1^-$         |          |            |  |  |

## Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                                 |                         |                     |          |                                 |         |            |
|---------------------------------------|---------------------------------|-------------------------|---------------------|----------|---------------------------------|---------|------------|
| $E_i(\text{level})$                   | $J_i^\pi$                       | $E_\gamma$ †‡           | $I_\gamma$ ‡        | $E_f$    | $J_f^\pi$                       | Mult. & | $\alpha^b$ |
| 703.7298                              | 1 <sup>-</sup>                  | 703.78 <sup>c</sup> 3   | 6.6 <sup>c</sup> 7  | 0.0      | 2 <sup>-</sup>                  | M1      | 0.0347     |
| 728.634                               | 0 <sup>-</sup>                  | 322.77 <sup>c</sup> 6   | 12 <sup>c</sup> 5   | 406.0080 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 360.208 9               | 5.9 6               | 368.2567 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 469.294 12              | 65 5                | 259.3406 | 1 <sup>-</sup>                  | M1      | 0.0999     |
|                                       |                                 | 535.77 3                | 12 3                | 192.9441 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 673.460 8               | 100 7               | 55.1812  | 1 <sup>-</sup>                  | M1      | 0.0389     |
|                                       |                                 | 728.5 <sup>d</sup>      | 71 3                | 0.0      | 2 <sup>-</sup>                  |         |            |
| 745.2187                              | 1 <sup>-</sup> , 2 <sup>-</sup> | 249.715 <sup>c</sup> 14 | 3.8 <sup>c</sup> 11 | 495.5114 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 363.8 <sup>d</sup>      | 45 7                | 381.2002 | 3 <sup>+</sup>                  |         |            |
|                                       |                                 | 376.8 <sup>d</sup>      | 35 12               | 368.2567 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 382.327 3               | 9.4 4               | 362.8995 | 2 <sup>-</sup>                  | M1      | 0.1724     |
|                                       |                                 | 398.1 <sup>d</sup>      | 27.4 4              | 346.9062 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 483.4 <sup>d</sup>      | 8 4                 | 261.4047 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 485.891 18              | 9.4 8               | 259.3406 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 690.037 4               | 100 4               | 55.1812  | 1 <sup>-</sup>                  | M1      | 0.0365     |
|                                       |                                 | 745.21 3                | 37.7 26             | 0.0      | 2 <sup>-</sup>                  |         |            |
| 758.398                               | 4 <sup>+</sup>                  | 276.071 3               | 100 8               | 482.3272 | 4 <sup>+</sup>                  | M1      | 0.417      |
|                                       |                                 | 446.177 4               | 26.7 10             | 312.2227 | 5 <sup>+</sup>                  | M1      | 0.1142     |
|                                       |                                 | 522.35 3                | 43.3 3              | 236.0453 | 3 <sup>-</sup>                  |         |            |
| 764.482                               | 4 <sup>-</sup>                  | 235.28 <sup>c</sup> 3   | 5.6 <sup>c</sup> 28 | 529.1685 | 3 <sup>-</sup>                  |         |            |
|                                       |                                 | 314.916 4               | 100.0 19            | 449.5701 | 3 <sup>-</sup>                  | M1      | 0.291      |
|                                       |                                 | 358.472 7               | 5.6 6               | 406.0080 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 401.567 11              | 8.3 6               | 362.8995 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 516.891 <sup>c</sup> 18 | 5.6 <sup>c</sup> 6  | 247.5731 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 549.512 12              | 13.9 6              | 214.9715 | 4 <sup>-</sup>                  |         |            |
| 786.5359                              | 2 <sup>-</sup>                  | 154.057 9               | 13 4                | 632.4820 | 1 <sup>-</sup> , 2 <sup>-</sup> | (M1)    | 2.12       |
|                                       |                                 | 215.295 2               | 58 4                | 571.2439 | 1 <sup>-</sup>                  | M1      | 0.827      |
|                                       |                                 | 237.611 12              | 6.7 16              | 548.9342 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 291.025 <sup>c</sup> 19 | 4.4 <sup>c</sup> 2  | 495.5114 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 332.713 2               | 8.9 7               | 453.8250 | 2 <sup>-</sup>                  | M1      | 0.251      |
|                                       |                                 | 418.321 13              | 6.7 4               | 368.2567 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 423.641 8               | 4.44 22             | 362.8995 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 439.63 4                | 22 8                | 346.9062 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 458.049 <sup>c</sup> 3  | 86.7 <sup>c</sup> 9 | 328.4833 | 3 <sup>-</sup>                  | M1      | 0.1066     |
|                                       |                                 | 525.124 2               | 100 4               | 261.4047 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 527.169 6               | 15.6 20             | 259.3406 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 538.991 19              | 4.4 9               | 247.5731 | 1 <sup>-</sup>                  |         |            |
|                                       |                                 | 550.527 18              | 11.1 16             | 236.0453 | 3 <sup>-</sup>                  |         |            |
| 789.2974                              | 1 <sup>-</sup>                  | 218.045 5               | 15 3                | 571.2439 | 1 <sup>-</sup>                  | M1      | 0.799      |
|                                       |                                 | 335.3 <sup>d</sup>      | 13.7 24             | 453.8250 | 2 <sup>-</sup>                  |         |            |
|                                       |                                 | 383.295 2               | 60.4 6              | 406.0080 | 2 <sup>-</sup>                  |         |            |

Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                                |                             |                       |          |                                |                 |                         |   |
|---------------------------------------|--------------------------------|-----------------------------|-----------------------|----------|--------------------------------|-----------------|-------------------------|---|
| $E_i(\text{level})$                   | $J_i^\pi$                      | $E_\gamma^{\dagger\dagger}$ | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$                      | Mult.&          | $\alpha^b$              | Comments  |
| 789.2974                              | 1 <sup>-</sup>                 | 442.379 <sup>c</sup> 5      | 9.4 <sup>c</sup> 4    | 346.9062 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 527.6 <sup>d</sup>          | 223 3                 | 261.4047 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 529.948 3                   | 100 4                 | 259.3406 | 1 <sup>-</sup>                 | M1              | 0.0726                  |   |
|                                       |                                | 552.98 <sup>c</sup> 15      | 5.7 <sup>c</sup> 28   | 236.0453 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 698.304 7                   | 37.7 19               | 91.0059  | 0 <sup>-</sup>                 | M1              | 0.0354                  |   |
|                                       |                                | 734.132 15                  | 17.0 11               | 55.1812  | 1 <sup>-</sup>                 | M1              | 0.0311                  |   |
| 800.0388                              | 2 <sup>-</sup>                 | 269.4 <sup>d</sup>          | 4.5 10                | 530.4782 | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 350.494 8                   | 1.05 21               | 449.5701 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 393.8 <sup>d</sup>          | 4.5 14                | 406.0080 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 418.840 2                   | 100.0 11              | 381.2002 | 3 <sup>+</sup>                 | E1 <sup>a</sup> | 0.01257                 | Mult.: E2 from internal conversion electron measurements (1996Ma70,1996Ma75). |
|                                       |                                | 437.127 6                   | 2.11 21               | 362.8995 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 453.147 9                   | 4.20 21               | 346.9062 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 552.490 9                   | 14.7 3                | 247.5731 | 1 <sup>-</sup>                 | M1              | 0.0651                  |   |
|                                       |                                | 563.97 <sup>c</sup> 3       | 3.2 <sup>c</sup> 4    | 236.0453 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 744.857 <sup>c</sup> 24     | 14.7 <sup>c</sup> 8   | 55.1812  | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 800.05 4                    | 9.5 19                | 0.0      | 2 <sup>-</sup>                 |                 |                         |   |
| 801.7064                              | 1 <sup>-</sup> ,2 <sup>-</sup> | 169.225 8                   | 15 3                  | 632.4820 | 1 <sup>-</sup> ,2 <sup>-</sup> | M1              | 1.623                   |   |
|                                       |                                | 271.229 3                   | 34.9 18               | 530.4782 | 1 <sup>-</sup>                 | (M1)            | 0.437                   |   |
|                                       |                                | 290.183 20                  | 3.0 9                 | 511.5173 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 306.199 <sup>c</sup> 4      | 10.6 <sup>c</sup> 3   | 495.5114 | 1 <sup>-</sup>                 | M1              | 0.314                   |   |
|                                       |                                | 347.877 <sup>c</sup> 2      | 22.7 <sup>c</sup> 5   | 453.8250 | 2 <sup>-</sup>                 | M1              | 0.222                   |   |
|                                       |                                | 395.703 3                   | 13.6 9                | 406.0080 | 2 <sup>-</sup>                 | M1              | 0.1573                  |   |
|                                       |                                | 433.457 6                   | 4.6 3                 | 368.2567 | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 438.805 10                  | 1.52 15               | 362.8995 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 473.219 8                   | 3.0 5                 | 328.4833 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 540.298 2                   | 100.0 20              | 261.4047 | 2 <sup>-</sup>                 | M1              | 0.0690                  |   |
|                                       |                                | 542.373 <sup>c</sup> 8      | 21.2 <sup>c</sup> 5   | 259.3406 | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 554.144 14                  | 3.0 3                 | 247.5731 | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 608.83 4                    | 3.0 8                 | 192.9441 | 1 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 710.708 18                  | 10.6 9                | 91.0059  | 0 <sup>-</sup>                 |                 |                         |   |
| 801.713 10                            | 39.4 15                        | 0.0                         | 2 <sup>-</sup>        | M1       | 0.0248                         |                 |                         |   |
| 810.426                               | 3 <sup>+</sup>                 | 184.998 14                  | 50 16                 | 625.4302 | 3 <sup>-</sup>                 | E1              | 0.0876                  |   |
|                                       |                                | 328.087 8                   | 25.0 25               | 482.3272 | 4 <sup>+</sup>                 |                 |                         |   |
|                                       |                                | 360.859 4                   | 37.5 25               | 449.5701 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 447.522 <sup>c</sup> 5      | 62.5 <sup>c</sup> 25  | 362.8995 | 2 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 481.945 9                   | 100 5                 | 328.4833 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 595.423 14                  | 38 5                  | 214.9715 | 4 <sup>-</sup>                 |                 |                         |   |
| 811.9                                 | (12 <sup>-</sup> )             | 115.2 15                    | 100                   | 696.702  | 8 <sup>+</sup>                 | (M4)            | 2.49×10 <sup>3</sup> 22 | B(M4)(W.u.)=3.1 5   |
| 824.608                               | 3 <sup>+</sup>                 | 313.20 5                    | 25 11                 | 511.5173 | 3 <sup>-</sup>                 |                 |                         |   |
|                                       |                                | 342.217 20                  | 25 7                  | 482.3272 | 4 <sup>+</sup>                 |                 |                         |   |
|                                       |                                | 461.715 <sup>c</sup> 21     | 25.0 <sup>c</sup> 25  | 362.8995 | 2 <sup>-</sup>                 |                 |                         |   |

## Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                                |                         |                      |          |                                |        |            |
|---------------------------------------|--------------------------------|-------------------------|----------------------|----------|--------------------------------|--------|------------|
| $E_i(\text{level})$                   | $J_i^\pi$                      | $E_\gamma$ †‡           | $I_\gamma$ ‡         | $E_f$    | $J_f^\pi$                      | Mult.& | $\alpha^b$ |
| 824.608                               | 3 <sup>+</sup>                 | 824.58 4                | 100 18               | 0.0      | 2 <sup>-</sup>                 |        |            |
| 835.366                               | 3 <sup>-</sup>                 | 202.866 <sup>c</sup> 14 | 9 <sup>c</sup> 4     | 632.4820 | 1 <sup>-</sup> ,2 <sup>-</sup> |        |            |
|                                       |                                | 306.199 <sup>c</sup> 4  | 15.6 <sup>c</sup> 4  | 529.1685 | 3 <sup>-</sup>                 | M1     | 0.314      |
|                                       |                                | 381.565 9               | 24.4 4               | 453.8250 | 2 <sup>-</sup>                 | M1     | 0.1733     |
|                                       |                                | 573.953 24              | 100.0 20             | 261.4047 | 2 <sup>-</sup>                 |        |            |
|                                       |                                | 620.398 <sup>c</sup> 21 | 8.9 <sup>c</sup> 11  | 214.9715 | 4 <sup>-</sup>                 |        |            |
| 868.7734                              | 3 <sup>-</sup>                 | 243.343 17              | 5.3 16               | 625.4302 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 339.596 <sup>c</sup> 3  | 5.3 <sup>c</sup> 4   | 529.1685 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 386.420 <sup>c</sup> 2  | 10.0 <sup>c</sup> 51 | 482.3272 | 4 <sup>+</sup>                 |        |            |
|                                       |                                | 414.955 6               | 5.3 5                | 453.8250 | 2 <sup>-</sup>                 |        |            |
|                                       |                                | 419.199 5               | 17.5 4               | 449.5701 | 3 <sup>-</sup>                 | M1     | 0.1348     |
|                                       |                                | 521.878 <sup>c</sup> 13 | 3.5 <sup>c</sup> 7   | 346.9062 | 2 <sup>-</sup>                 |        |            |
|                                       |                                | 653.801 <sup>c</sup> 13 | 10.5 <sup>c</sup> 9  | 214.9715 | 4 <sup>-</sup>                 |        |            |
|                                       |                                | 813.57 <sup>c</sup> 7   | 5.3 <sup>c</sup> 16  | 55.1812  | 1 <sup>-</sup>                 |        |            |
|                                       |                                | 868.757 9               | 100 10               | 0.0      | 2 <sup>-</sup>                 | M1     | 0.0202     |
| 891.616                               | 1 <sup>-</sup> ,2 <sup>-</sup> | 320.329 17              | 3.1 5                | 571.2439 | 1 <sup>-</sup>                 |        |            |
|                                       |                                | 362.453 <sup>c</sup> 5  | 7.8 <sup>c</sup> 9   | 529.1685 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 442.081 14              | 3.1 3                | 449.5701 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 630.235 14              | 9.4 8                | 261.4047 | 2 <sup>-</sup>                 | M1     | 0.0462     |
|                                       |                                | 632.281 <sup>c</sup> 7  | 35.9 <sup>c</sup> 14 | 259.3406 | 1 <sup>-</sup>                 | M1     | 0.0458     |
|                                       |                                | 644.039 9               | 12.5 5               | 247.5731 | 1 <sup>-</sup>                 |        |            |
|                                       |                                | 836.405 9               | 100 13               | 55.1812  | 1 <sup>-</sup>                 | M1     | 0.0223     |
|                                       |                                | 891.600 23              | 20 4                 | 0.0      | 2 <sup>-</sup>                 |        |            |
| 894.2716                              | 3 <sup>-</sup>                 | 345.21 <sup>c</sup> 5   | 3.9 <sup>c</sup> 15  | 548.9342 | 2 <sup>-</sup>                 |        |            |
|                                       |                                | 565.777 5               | 100.0 10             | 328.4833 | 3 <sup>-</sup>                 | M1     | 0.0612     |
| 896.5723                              | 1 <sup>-</sup> ,2 <sup>-</sup> | 264.062 9               | 6.3 6                | 632.4820 | 1 <sup>-</sup> ,2 <sup>-</sup> |        |            |
|                                       |                                | 271.144 <sup>c</sup> 4  | 44 <sup>c</sup> 3    | 625.4302 | 3 <sup>-</sup>                 | (M1)   | 0.438      |
|                                       |                                | 325.319 7               | 3.1 3                | 571.2439 | 1 <sup>-</sup>                 |        |            |
|                                       |                                | 446.997 <sup>c</sup> 11 | 6.3 <sup>c</sup> 6   | 449.5701 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 549.68 <sup>c</sup> 3   | 6.3 <sup>c</sup> 13  | 346.9062 | 2 <sup>-</sup>                 |        |            |
|                                       |                                | 568.116 11              | 12.5 22              | 328.4833 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 635.197 10              | 100 4                | 261.4047 | 2 <sup>-</sup>                 | M1     | 0.0452     |
|                                       |                                | 648.959 19              | 25.0 13              | 247.5731 | 1 <sup>-</sup>                 | M1     | 0.0428     |
| 916.4434                              | 1 <sup>-</sup> ,2 <sup>-</sup> | 283.944 15              | 27 5                 | 632.4820 | 1 <sup>-</sup> ,2 <sup>-</sup> |        |            |
|                                       |                                | 291.025 <sup>c</sup> 19 | 5.9 <sup>c</sup> 15  | 625.4302 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 345.21 <sup>c</sup> 5   | 5.9 <sup>c</sup> 24  | 571.2439 | 1 <sup>-</sup>                 |        |            |
|                                       |                                | 387.284 3               | 17.7 18              | 529.1685 | 3 <sup>-</sup>                 | M1     | 0.1666     |
|                                       |                                | 510.405 11              | 76 24                | 406.0080 | 2 <sup>-</sup>                 | M1     | 0.0801     |
|                                       |                                | 655.009 8               | 29.4 15              | 261.4047 | 2 <sup>-</sup>                 | M1     | 0.0418     |
|                                       |                                | 680.365 16              | 38.2 24              | 236.0453 | 3 <sup>-</sup>                 |        |            |
|                                       |                                | 916.406 11              | 100 5                | 0.0      | 2 <sup>-</sup>                 | M1     | 0.01764    |
| 918.5889                              | 1 <sup>-</sup> ,2 <sup>-</sup> | 173.355 10              | 7.0 21               | 745.2187 | 1 <sup>-</sup> ,2 <sup>-</sup> |        |            |

Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                      |                               |                       |            |                 |          |            |  |  |
|---------------------------------------|----------------------|-------------------------------|-----------------------|------------|-----------------|----------|------------|--|--|
| $E_i(\text{level})$                   | $J_i^\pi$            | $E_\gamma^{\ddagger\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$      | $J_f^\pi$       | Mult.&   | $\alpha^b$ |  |  |
| 918.5889                              | $1^-, 2^-$           | 214.852 4                     | 37 7                  | 703.7298   | $1^-$           |          |            |  |  |
|                                       |                      | 245.977 17                    | 1.4 3                 | 672.6548   | $1^-, 2^-, 3^-$ |          |            |  |  |
|                                       |                      | 369.636 5                     | 2.8 3                 | 548.9342   | $2^-$           |          |            |  |  |
|                                       |                      | 389.421 4                     | 5.6 3                 | 529.1685   | $3^-$           |          |            |  |  |
|                                       |                      | 423.100 7                     | 4.2 3                 | 495.5114   | $1^-$           |          |            |  |  |
|                                       |                      | 464.754 21                    | 32 11                 | 453.8250   | $2^-$           |          |            |  |  |
|                                       |                      | 469.027 7                     | 5.6 3                 | 449.5701   | $3^-$           |          |            |  |  |
|                                       |                      | 512.581 8                     | 32 8                  | 406.0080   | $2^-$           | M1       | 0.0792     |  |  |
|                                       |                      | 555.691 3                     | 23.9 7                | 362.8995   | $2^-$           | M1       | 0.0641     |  |  |
|                                       |                      | 571.694 5                     | 94 4                  | 346.9062   | $2^-$           | M1       | 0.0595     |  |  |
|                                       |                      | 579.296 9                     | 100 7                 | 339.2910   | $1^-$           |          |            |  |  |
|                                       |                      | 659.229 7                     | 47.9 10               | 259.3406   | $1^-$           | M1       | 0.0411     |  |  |
|                                       |                      | 931.944                       | $3^-$                 | 382.992 8  | 50 5            | 548.9342 | $2^-$      |  |  |
|                                       |                      |                               |                       | 387.900 22 | 25 5            | 544.0093 | $4^-$      |  |  |
|                                       |                      |                               |                       | 550.748 22 | 75 13           | 381.2002 | $3^+$      |  |  |
| 670.58 3                              | 100 15               |                               |                       | 261.4047   | $2^-$           |          |            |  |  |
| 951.443                               | $3^+$                |                               |                       | 639.201 12 | 100             | 312.2227 | $5^+$      |  |  |
| 956.9533                              | $1^-, 2^-$           | 253.203 9                     | 5.9 9                 | 703.7298   | $1^-$           |          |            |  |  |
|                                       |                      | 331.558 12                    | 2.9 6                 | 625.4302   | $3^-$           |          |            |  |  |
|                                       |                      | 385.726 8                     | 5.9 15                | 571.2439   | $1^-$           |          |            |  |  |
|                                       |                      | 550.939 14                    | 14.7 18               | 406.0080   | $2^-$           |          |            |  |  |
|                                       |                      | 594.19 <sup>c</sup> 5         | 17.7 <sup>c</sup> 29  | 362.8995   | $2^-$           |          |            |  |  |
|                                       |                      | 697.628 13                    | 29.4 21               | 259.3406   | $1^-$           |          |            |  |  |
|                                       |                      | 709.39 3                      | 17.7 24               | 247.5731   | $1^-$           |          |            |  |  |
|                                       |                      | 720.935 11                    | 26.5 12               | 236.0453   | $3^-$           | M1       | 0.0326     |  |  |
|                                       |                      | 763.998 8                     | 100 3                 | 192.9441   | $1^-$           | M1       | 0.0281     |  |  |
|                                       |                      | 960.633                       | $3^+$                 | 478.323 24 | 6.7 7           | 482.3272 | $4^+$      |  |  |
|                                       |                      |                               |                       | 511.103 18 | 100 15          | 449.5701 | $3^-$      |  |  |
| 597.71 <sup>c</sup> 5                 | 33.3 <sup>c</sup> 27 |                               |                       | 362.8995   | $2^-$           |          |            |  |  |
| 971.8210                              | $3^-$                | 299.161 <sup>c</sup> 12       | 27 <sup>c</sup> 4     | 672.6548   | $1^-, 2^-, 3^-$ |          |            |  |  |
|                                       |                      | 339.328 5                     | 55 4                  | 632.4820   | $1^-, 2^-$      |          |            |  |  |
|                                       |                      | 346.394 3                     | 36.4 18               | 625.4302   | $3^-$           | M1       | 0.225      |  |  |
|                                       |                      | 522.247 3                     | 100 7                 | 449.5701   | $3^-$           |          |            |  |  |
| 983.0868                              | $2^+$                | 158.520 24                    | 100 4                 | 824.608    | $3^+$           | M1       | 1.95       |  |  |
|                                       |                      | 487.589 <sup>c</sup> 3        | 9.9 <sup>c</sup> 8    | 495.5114   | $1^-$           |          |            |  |  |
|                                       |                      | 614.98 <sup>c</sup> 6         | 2.2 <sup>c</sup> 8    | 368.2567   | $1^-$           |          |            |  |  |
| 987.5743                              | $3^-$                | 983.00 <sup>c</sup> 4         | 14.3 <sup>c</sup> 11  | 0.0        | $2^-$           |          |            |  |  |
|                                       |                      | 355.100 <sup>c</sup> 5        | 2.5 <sup>c</sup> 4    | 632.4820   | $1^-, 2^-$      |          |            |  |  |
|                                       |                      | 362.141 8                     | 8.6 7                 | 625.4302   | $3^-$           |          |            |  |  |
|                                       |                      | 457.090 <sup>c</sup> 15       | 1.2 <sup>c</sup> 4    | 530.4782   | $1^-$           |          |            |  |  |
|                                       |                      | 492.063 3                     | 13.6 4                | 495.5114   | $1^-$           |          |            |  |  |
|                                       |                      | 533.748 4                     | 9.9 5                 | 453.8250   | $2^-$           |          |            |  |  |
| 538.011 <sup>c</sup> 17               | 3.70 <sup>c</sup> 25 | 449.5701                      | $3^-$                 |            |                 |          |            |  |  |

## Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                    |                               |                       |                         |                   |         |            |
|---------------------------------------|--------------------|-------------------------------|-----------------------|-------------------------|-------------------|---------|------------|
| $E_i(\text{level})$                   | $J_i^\pi$          | $E_\gamma^{\ddagger\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$                   | $J_f^\pi$         | Mult. & | $\alpha^b$ |
| 987.5743                              | $3^-$              | 640.665 6                     | 100 8                 | 346.9062                | $2^-$             | M1      | 0.0443     |
|                                       |                    | 726.15 3                      | 7.4 25                | 261.4047                | $2^-$             |         |            |
|                                       |                    | 751.56 <sup>c</sup> 4         | 9.9 <sup>c</sup> 19   | 236.0453                | $3^-$             |         |            |
|                                       |                    | 772.56 3                      | 6.2 9                 | 214.9715                | $4^-$             |         |            |
| 999.212                               | $1^-, 2^-$         | 373.765 5                     | 20 1                  | 625.4302                | $3^-$             | M1      | 0.0541     |
|                                       |                    | 549.68 <sup>c</sup> 3         | 10.0 <sup>c</sup> 20  | 449.5701                | $3^-$             |         |            |
|                                       |                    | 593.177 13                    | 100 7                 | 406.0080                | $2^-$             |         |            |
|                                       |                    | 630.945 17                    | 20 4                  | 368.2567                | $1^-$             |         |            |
|                                       |                    | 636.285 18                    | 15 3                  | 362.8995                | $2^-$             |         |            |
|                                       |                    | 751.56 <sup>c</sup> 4         | 40 <sup>c</sup> 8     | 247.5731                | $1^-$             |         |            |
| 1018.430                              | $1^-, 2^-$         | 489.273 <sup>c</sup> 5        | 11.9 <sup>c</sup> 10  | 529.1685                | $3^-$             | M1      | 0.0417     |
|                                       |                    | 522.917 9                     | 9.5 10                | 495.5114                | $1^-$             |         |            |
|                                       |                    | 655.529 6                     | 66.7 19               | 362.8995                | $2^-$             |         |            |
|                                       |                    | 679.135 9                     | 23.8 21               | 339.2910                | $1^-$             |         |            |
|                                       |                    | 756.999 <sup>c</sup> 18       | 19.1 <sup>c</sup> 14  | 261.4047                | $2^-$             |         |            |
|                                       |                    | 825.472 6                     | 100 10                | 192.9441                | $1^-$             |         |            |
|                                       |                    | 927.39 <sup>c</sup> 7         | 100 <sup>c</sup> 38   | 91.0059                 | $0^-$             |         |            |
|                                       |                    | 1018.36 3                     | 60 4                  | 0.0                     | $2^-$             |         |            |
| 1032.254                              | $3^-$              | 406.757 <sup>c</sup> 18       | 3.5 <sup>c</sup> 7    | 625.4302                | $3^-$             | E2      | 0.00974    |
|                                       |                    | 483.41 <sup>c</sup> 5         | 3.5 <sup>c</sup> 3    | 548.9342                | $2^-$             |         |            |
|                                       |                    | 520.62 <sup>c</sup> 4         | 90 <sup>c</sup> 34    | 511.5173                | $3^-$             |         |            |
|                                       |                    | 703.78 <sup>c</sup> 3         | 17.2 <sup>c</sup> 17  | 328.4833                | $3^-$             |         |            |
|                                       |                    | 770.828 7                     | 100 6                 | 261.4047                | $2^-$             |         |            |
|                                       |                    | 796.221 9                     | 69 5                  | 236.0453                | $3^-$             |         |            |
|                                       |                    | 1038.2744                     | $3^-$                 | 202.866 <sup>c</sup> 14 | 17 <sup>c</sup> 7 |         |            |
| 227.826 15                            | 13 4               | 810.426                       | $3^+$                 |                         |                   |         |            |
| 365.620 2                             | 43.5 13            | 672.6548                      | $1^-, 2^-, 3^-$       |                         |                   |         |            |
| 632.281 <sup>c</sup> 7                | 100 <sup>c</sup> 4 | 406.0080                      | $2^-$                 |                         |                   |         |            |
| 779.03 <sup>c</sup> 4                 | 26 <sup>c</sup> 4  | 259.3406                      | $1^-$                 |                         |                   |         |            |
| 1047.124                              | $1^-, 2^-$         | 983.00 <sup>c</sup> 4         | 57 <sup>c</sup> 4     | 55.1812                 | $1^-$             | M1      | 0.1306     |
|                                       |                    | 400.703 <sup>c</sup> 11       | 14.3 <sup>c</sup> 24  | 646.411                 | $0^+$             |         |            |
|                                       |                    | 597.49 <sup>c</sup> 3         | 14 <sup>c</sup> 3     | 449.5701                | $3^-$             |         |            |
|                                       |                    | 700.29 4                      | 24 3                  | 346.9062                | $2^-$             |         |            |
| 1056.719                              | $2^-$              | 1047.09 <sup>c</sup> 7        | 100 <sup>c</sup> 3    | 0.0                     | $2^-$             | M1      | 0.1306     |
|                                       |                    | 270.160 10                    | 20.0 20               | 786.5359                | $2^-$             |         |            |
|                                       |                    | 292.258 10                    | 50 6                  | 764.482                 | $4^-$             |         |            |
|                                       |                    | 424.220 4                     | 60 3                  | 632.4820                | $1^-, 2^-$        |         |            |
|                                       |                    | 607.20 4                      | 30 8                  | 449.5701                | $3^-$             |         |            |
| 1061.285                              | $3^-$              | 717.32 <sup>c</sup> 4         | 100 <sup>c</sup> 22   | 339.2910                | $1^-$             | M1      | 1.685      |
|                                       |                    | 164.713 1                     | 100 10                | 896.5723                | $1^-, 2^-$        |         |            |
|                                       |                    | 167.012 <sup>c</sup> 15       | 10.7 <sup>c</sup> 21  | 894.2716                | $3^-$             |         |            |
|                                       |                    | 435.861 24                    | 3.6 7                 | 625.4302                | $3^-$             |         |            |

Adopted Levels, Gammas (continued)

| $E_i(\text{level})$ | $J_i^\pi$       | $\gamma(^{198}\text{Au})$ (continued) |                       |          |                 |         |            |
|---------------------|-----------------|---------------------------------------|-----------------------|----------|-----------------|---------|------------|
|                     |                 | $E_\gamma^{\ddagger\ddagger}$         | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$       | Mult. & | $\alpha^b$ |
| 1061.285            | $3^-$           | 532.20 <sup>c</sup> 5                 | 7.1 <sup>c</sup> 7    | 529.1685 | $3^-$           |         |            |
|                     |                 | 549.68 <sup>c</sup> 3                 | 7.1 <sup>c</sup> 14   | 511.5173 | $3^-$           |         |            |
|                     |                 | 578.959 14                            | 17.9 14               | 482.3272 | $4^+$           |         |            |
|                     |                 | 813.57 <sup>c</sup> 7                 | 11 <sup>c</sup> 3     | 247.5731 | $1^-$           |         |            |
| 1075.560            | $1^-, 2^-, 3^-$ | 1006.32 <sup>c</sup> 8                | 46 <sup>c</sup> 4     | 55.1812  | $1^-$           |         |            |
|                     |                 | 563.97 <sup>c</sup> 3                 | 3.0 <sup>c</sup> 4    | 511.5173 | $3^-$           |         |            |
|                     |                 | 712.70 <sup>c</sup> 3                 | 5.1 <sup>c</sup> 6    | 362.8995 | $2^-$           |         |            |
| 1092.876            | $0^-$           | 839.53 4                              | 100 24                | 236.0453 | $3^-$           |         |            |
|                     |                 | 460.385 5                             | 100 4                 | 632.4820 | $1^-, 2^-$      |         |            |
| 1095.499            | $3^+$           | 639.04 <sup>c</sup> 3                 | 75 <sup>c</sup> 4     | 453.8250 | $2^-$           |         |            |
|                     |                 | 458.369 4                             | 100 10                | 637.125  | $4^+$           | M1      | 0.1064     |
| 1104.835            | $0^-, 1^-, 2^-$ | 566.32 <sup>c</sup> 3                 | 13.6 <sup>c</sup> 23  | 529.1685 | $3^-$           |         |            |
|                     |                 | 376.154 7                             | 10.0 10               | 728.634  | $0^-$           |         |            |
|                     |                 | 432.169 11                            | 5.0 5                 | 672.6548 | $1^-, 2^-, 3^-$ |         |            |
|                     |                 | 574.373 13                            | 100 3                 | 530.4782 | $1^-$           | M1      | 0.0588     |
| 1108.873            | $1^-, 2^-$      | 857.19 <sup>c</sup> 7                 | 50 <sup>c</sup> 11    | 247.5731 | $1^-$           |         |            |
|                     |                 | 273.519 10                            | 15.4 15               | 835.366  | $3^-$           |         |            |
|                     |                 | 406.397 <sup>c</sup> 8                | 7.7 <sup>c</sup> 8    | 702.4811 | $2^-$           |         |            |
|                     |                 | 483.41 <sup>c</sup> 5                 | 7.7 <sup>c</sup> 8    | 625.4302 | $3^-$           |         |            |
|                     |                 | 769.63 <sup>c</sup> 3                 | 46 <sup>c</sup> 9     | 339.2910 | $1^-$           |         |            |
|                     |                 | 849.56 5                              | 85 16                 | 259.3406 | $1^-$           | M1      | 0.0214     |
|                     |                 | 872.86 <sup>c</sup> 4                 | 100 <sup>c</sup> 13   | 236.0453 | $3^-$           |         |            |
| 1115.265            | $3^-$           | 915.91 <sup>c</sup> 3                 | 69 <sup>c</sup> 12    | 192.9441 | $1^-$           |         |            |
|                     |                 | 315.240 <sup>c</sup> 17               | 27 <sup>c</sup> 7     | 800.0388 | $2^-$           |         |            |
|                     |                 | 328.706 4                             | 100.0 13              | 786.5359 | $2^-$           | M1      | 0.259      |
|                     |                 | 566.32 <sup>c</sup> 3                 | 20 <sup>c</sup> 3     | 548.9342 | $2^-$           |         |            |
| 1124.881            | $1^-, 2^-$      | 584.73 8                              | 40 16                 | 530.4782 | $1^-$           |         |            |
|                     |                 | 360.399 3                             | 13.8 7                | 764.482  | $4^-$           |         |            |
|                     |                 | 877.33 3                              | 100 21                | 247.5731 | $1^-$           | M1      | 0.0197     |
| 1157.2381           | $3^-$           | 888.60 <sup>c</sup> 11                | 28 <sup>c</sup> 10    | 236.0453 | $3^-$           |         |            |
|                     |                 | 355.530 2                             | 100.0 21              | 801.7064 | $1^-, 2^-$      | M1      | 0.210      |
|                     |                 | 398.844 12                            | 4.8 5                 | 758.398  | $4^+$           |         |            |
|                     |                 | 484.536 <sup>c</sup> 15               | 4.8 <sup>c</sup> 5    | 672.6548 | $1^-, 2^-, 3^-$ |         |            |
|                     |                 | 524.744 20                            | 86 24                 | 632.4820 | $1^-, 2^-$      |         |            |
|                     |                 | 828.85 <sup>c</sup> 6                 | 17 <sup>c</sup> 3     | 328.4833 | $3^-$           |         |            |
| 1160.018            | $3^-$           | 909.61 <sup>c</sup> 4                 | 29 <sup>c</sup> 4     | 247.5731 | $1^-$           |         |            |
|                     |                 | 1157.25 6                             | 43 12                 | 0.0      | $2^-$           | M1      | 0.00977    |
|                     |                 | 456.290 4                             | 100.0 10              | 703.7298 | $1^-$           |         |            |
|                     |                 | 457.65 <sup>c</sup> 7                 | 8 <sup>c</sup> 3      | 702.4811 | $2^-$           |         |            |
|                     |                 | 797.102 20                            | 12.7 22               | 362.8995 | $2^-$           |         |            |
|                     |                 | 898.53 <sup>c</sup> 5                 | 32 <sup>c</sup> 5     | 261.4047 | $2^-$           |         |            |



## Adopted Levels, Gammas (continued)

| $E_i(\text{level})$ | $J_i^\pi$                                      | $E_\gamma$              | $I_\gamma$           | $E_f$     | $J_f^\pi$                      | $\gamma(^{198}\text{Au})$ (continued) |            |
|---------------------|--|-------------------------|----------------------|-----------|--------------------------------|---------------------------------------|------------|
|                     |  |                         |                      |           |                                | Mult. &                               | $\alpha^b$ |
| 1160.018            | 3 <sup>-</sup>                                 | 923.86 <sup>c</sup> 7   | 17.5 <sup>c</sup> 14 | 236.0453  | 3 <sup>-</sup>                 |                                       |            |
| 1191.566            | 1 <sup>+</sup> ,2 <sup>+</sup> ,3 <sup>+</sup> | 159.281 6               | 60 12                | 1032.254  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 234.607 <sup>c</sup> 7  | 30 <sup>c</sup> 7    | 956.9533  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 322.77 <sup>c</sup> 6   | 10 <sup>c</sup> 5    | 868.7734  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 366.963 <sup>c</sup> 11 | 5.0 <sup>c</sup> 5   | 824.608   | 3 <sup>+</sup>                 |                                       |            |
|                     |  | 405.102 12              | 5.0 10               | 786.5359  | 2 <sup>-</sup>                 |                                       |            |
|                     |  | 620.398 <sup>c</sup> 21 | 20.0 <sup>c</sup> 25 | 571.2439  | 1 <sup>-</sup>                 |                                       |            |
|                     |  | 828.85 <sup>c</sup> 6   | 35 <sup>c</sup> 7    | 362.8995  | 2 <sup>-</sup>                 |                                       |            |
|                     |  | 863.01 <sup>c</sup> 3   | 100 <sup>c</sup> 11  | 328.4833  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 976.48 <sup>c</sup> 7   | 40 <sup>c</sup> 9    | 214.9715  | 4 <sup>-</sup>                 |                                       |            |
| 1202.268            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 241.672 17              | 15 5                 | 960.633   | 3 <sup>+</sup>                 |                                       |            |
|                     |  | 245.305 3               | 75 8                 | 956.9533  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 285.838 9               | 10.0 10              | 916.4434  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 366.963 <sup>c</sup> 11 | 5.0 <sup>c</sup> 10  | 835.366   | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 457.090 <sup>c</sup> 15 | 5.0 <sup>c</sup> 15  | 745.2187  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 863.01 <sup>c</sup> 3   | 100 <sup>c</sup> 11  | 339.2910  | 1 <sup>-</sup>                 |                                       |            |
| 1209.370            | 3 <sup>-</sup>                                 | 248.740 3               | 34.9 21              | 960.633   | 3 <sup>+</sup>                 |                                       |            |
|                     |  | 312.793 14              | 7.0 9                | 896.5723  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 464.21 <sup>c</sup> 3   | 2.3 <sup>c</sup> 5   | 745.2187  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 759.70 3                | 26 3                 | 449.5701  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 827.99 9                | 12 8                 | 381.2002  | 3 <sup>+</sup>                 |                                       |            |
|                     |  | 881.04 <sup>c</sup> 6   | 23 <sup>c</sup> 5    | 328.4833  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 947.94 3                | 100 3                | 261.4047  | 2 <sup>-</sup>                 | M1                                    | 0.01619    |
|                     |  | 1016.34 <sup>c</sup> 16 | 11.6 <sup>c</sup> 19 | 192.9441  | 1 <sup>-</sup>                 |                                       |            |
| 1232.8019           | 3 <sup>-</sup>                                 | 249.715 <sup>c</sup> 14 | 13 <sup>c</sup> 4    | 983.0868  | 2 <sup>+</sup>                 |                                       |            |
|                     |  | 300.845 12              | 13.3 13              | 931.944   | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 364.019 <sup>c</sup> 3  | 93.3 <sup>c</sup> 27 | 868.7734  | 3 <sup>-</sup>                 | M1                                    | 0.197      |
|                     |  | 432.96 10               | 13 7                 | 800.0388  | 2 <sup>-</sup>                 |                                       |            |
|                     |  | 487.589 <sup>c</sup> 3  | 60 <sup>c</sup> 5    | 745.2187  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 779.03 <sup>c</sup> 4   | 40 <sup>c</sup> 5    | 453.8250  | 2 <sup>-</sup>                 |                                       |            |
|                     |  | 783.19 3                | 100 16               | 449.5701  | 3 <sup>-</sup>                 | M1                                    | 0.0264     |
| 1240.380            | 3 <sup>-</sup>                                 | 83.142 8                | 100 40               | 1157.2381 | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 252.828 8               | 22 6                 | 987.5743  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 607.914 13              | 17.4 17              | 632.4820  | 1 <sup>-</sup> ,2 <sup>-</sup> |                                       |            |
|                     |  | 614.98 <sup>c</sup> 6   | 9 <sup>c</sup> 3     | 625.4302  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 696.415 15              | 26.1 13              | 544.0093  | 4 <sup>-</sup>                 | M1                                    | 0.0357     |
|                     |  | 744.857 <sup>c</sup> 24 | 61 <sup>c</sup> 4    | 495.5114  | 1 <sup>-</sup>                 |                                       |            |
|                     |  | 1025.48 <sup>c</sup> 13 | 26.1 <sup>c</sup> 22 | 214.9715  | 4 <sup>-</sup>                 |                                       |            |
| 1256.018            | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 361.745 6               | 11.9 17              | 894.2716  | 3 <sup>-</sup>                 |                                       |            |
|                     |  | 725.747 15              | 21.4 12              | 530.4782  | 1 <sup>-</sup>                 |                                       |            |
|                     |  | 927.39 <sup>c</sup> 7   | 100 <sup>c</sup> 38  | 328.4833  | 3 <sup>-</sup>                 |                                       |            |

Adopted Levels, Gammas (continued)

| E <sub>i</sub> (level)  | J <sub>i</sub> <sup>π</sup>                    | <u>γ(<sup>198</sup>Au) (continued)</u> |                             |                         |                                |                        |                                | Comments  |
|-------------------------|--|--|-----------------------------|-------------------------|--------------------------------|------------------------|--------------------------------|---|
|                         |  | E <sub>γ</sub> <sup>†‡</sup>           | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub>          | J <sub>f</sub> <sup>π</sup>    | Mult. <sup>&amp;</sup> | α <sup>b</sup>                 |   |
| 1256.018                | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 1040.77 <sup>c</sup> 11                | 28.6 <sup>c</sup> 14        | 214.9715                | 4 <sup>-</sup>                 |                        |                                |   |
|                         |  | 1200.75 12                             | 33.3 26                     | 55.1812                 | 1 <sup>-</sup>                 | M1                     | 0.0089                         |   |
| 1265.523                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 619.105 8                              | 71 3                        | 646.411                 | 0 <sup>+</sup>                 |                        |                                |   |
|                         |  | 640.071 13                             | 43 4                        | 625.4302                | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 811.710 14                             | 79 5                        | 453.8250                | 2 <sup>-</sup>                 |                        |                                |   |
|                         |  | 815.964 17                             | 100 15                      | 449.5701                | 3 <sup>-</sup>                 | M1                     | 0.0237                         |   |
|                         |  | 1006.32 <sup>c</sup> 8                 | 93 <sup>c</sup> 9           | 259.3406                | 1 <sup>-</sup>                 |                        |                                |   |
| 1272.1510               | 3 <sup>-</sup>                                 | 315.240 <sup>c</sup> 17                | 13 <sup>c</sup> 3           | 956.9533                | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 377.874 2                              | 25.0 19                     | 894.2716                | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 447.522 <sup>c</sup> 5                 | 15.6 <sup>c</sup> 6         | 824.608                 | 3 <sup>+</sup>                 |                        |                                |   |
|                         |  | 461.715 <sup>c</sup> 21                | 6.3 <sup>c</sup> 6          | 810.426                 | 3 <sup>+</sup>                 |                        |                                |   |
|                         |  | 639.662 11                             | 21.9 16                     | 632.4820                | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 742.91 <sup>c</sup> 10                 | 19 <sup>c</sup> 7           | 529.1685                | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 776.627 <sup>c</sup> 22                | 50 <sup>c</sup> 5           | 495.5114                | 1 <sup>-</sup>                 |                        |                                |   |
|                         |  | 818.29 3                               | 31 4                        | 453.8250                | 2 <sup>-</sup>                 |                        |                                |   |
|                         |  | 822.539 <sup>c</sup> 20                | 44 <sup>c</sup> 5           | 449.5701                | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 1012.79 <sup>c</sup> 13                | 25.0 <sup>c</sup> 22        | 259.3406                | 1 <sup>-</sup>                 |                        |                                |   |
|                         |  | 1079.191 17                            | 100 8                       | 192.9441                | 1 <sup>-</sup>                 | (E2)                   | 0.00495                        |   |
|                         |  | 1272.16 <sup>c</sup> 11                | 41 <sup>c</sup> 4           | 0.0                     | 2 <sup>-</sup>                 |                        |                                |   |
|                         |  | 1286.746                               | 2 <sup>-</sup>              | 239.634 <sup>c</sup> 15 | 5.3 <sup>c</sup> 18            | 1047.124               | 1 <sup>-</sup> ,2 <sup>-</sup> |   |
| 299.161 <sup>c</sup> 12 | 7.9 <sup>c</sup> 11                            |  |                             | 987.5743                | 3 <sup>-</sup>                 |                        |                                |   |
| 335.297 4               | 10.5 5   |  |                             | 951.443                 | 3 <sup>+</sup>                 | E1 <sup>a</sup>        | 0.0208                         | Mult.: M1 from internal conversion electron measurements (1996Ma70,1996Ma75). |
| 451.359 18              | 2.6 3  |  |                             | 835.366                 | 3 <sup>-</sup>                 |                        |                                |   |
| 476.24 9                | 5.3 5  |  |                             | 810.426                 | 3 <sup>+</sup>                 |                        |                                |   |
| 742.91 <sup>c</sup> 10  | 16 <sup>c</sup> 6                              |  |                             | 544.0093                | 4 <sup>-</sup>                 |                        |                                |   |
| 923.86 <sup>c</sup> 7   | 29.0 <sup>c</sup> 24                           |  |                             | 362.8995                | 2 <sup>-</sup>                 |                        |                                |   |
| 1025.48 <sup>c</sup> 13 | 15.8 <sup>c</sup> 13                           |  |                             | 261.4047                | 2 <sup>-</sup>                 |                        |                                |   |
| 1050.728 16             | 100 11   |  |                             | 236.0453                | 3 <sup>-</sup>                 | M1                     | 0.01246                        |   |
| 201.015 12              | 20 6   |  |                             | 1092.876                | 0 <sup>-</sup>                 | M1                     | 1.002                          |   |
| 1293.902                | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 275.470 <sup>c</sup> 7                 | 40 <sup>c</sup> 7           | 1018.430                | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 397.330 14                             | 6.7 13                      | 896.5723                | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 402.297 20                             | 6.7 20                      | 891.616                 | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 798.417 <sup>c</sup> 16                | 73 <sup>c</sup> 8           | 495.5114                | 1 <sup>-</sup>                 | M1                     | 0.0251                         |   |
|                         |  | 1034.48 8                              | 53 3                        | 259.3406                | 1 <sup>-</sup>                 |                        |                                |   |
|                         |  | 1046.16 8                              | 100 6                       | 247.5731                | 1 <sup>-</sup>                 |                        |                                |   |
|                         |  | 340.19 5                               | 6.9 21                      | 956.9533                | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
| 1297.133                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 405.514 8                              | 3.5 3                       | 891.616                 | 1 <sup>-</sup> ,2 <sup>-</sup> |                        |                                |   |
|                         |  | 461.715 <sup>c</sup> 21                | 3.5 <sup>c</sup> 3          | 835.366                 | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 766.73 4                               | 6.9 24                      | 530.4782                | 1 <sup>-</sup>                 |                        |                                |   |
|                         |  | 767.92 <sup>c</sup> 4                  | 22.4 <sup>c</sup> 17        | 529.1685                | 3 <sup>-</sup>                 |                        |                                |   |
|                         |  | 891.16 4                               | 19 8                        | 406.0080                | 2 <sup>-</sup>                 |                        |                                |   |

Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |  |                               |                       |          |  |         |            |
|---------------------------------------|--|-------------------------------|-----------------------|----------|--|---------|------------|
| $E_i(\text{level})$                   | $J_i^\pi$                                      | $E_\gamma^{\ddagger\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$                                      | Mult. & | $\alpha^b$ |
| 1297.133                              | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 915.91 <sup>c</sup> 3         | 15.5 <sup>c</sup> 26  | 381.2002 | 3 <sup>+</sup>                                 |         |            |
|                                       |  | 934.33 4                      | 12.1 9                | 362.8995 | 2 <sup>-</sup>                                 |         |            |
|                                       |  | 1297.137 17                   | 100 21                | 0.0      | 2 <sup>-</sup>                                 | M1      | 0.00735    |
| 1301.045                              | 2 <sup>-</sup>                                 | 406.757 <sup>c</sup> 18       | 4.6 <sup>c</sup> 9    | 894.2716 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 490.616 7                     | 22.7 9                | 810.426  | 3 <sup>+</sup>                                 |         |            |
|                                       |  | 668.572 7                     | 100 5                 | 632.4820 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |            |
|                                       |  | 756.999 <sup>c</sup> 18       | 36.4 <sup>c</sup> 27  | 544.0093 | 4 <sup>-</sup>                                 |         |            |
|                                       |  | 1064.78 <sup>c</sup> 9        | 91 <sup>c</sup> 18    | 236.0453 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 1300.92 7                     | 91 37                 | 0.0      | 2 <sup>-</sup>                                 |         |            |
| 1304.8244                             | 3 <sup>-</sup>                                 | 272.564 5                     | 26.5 21               | 1032.254 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 317.271 10                    | 35 7                  | 987.5743 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 344.172 <sup>c</sup> 4        | 8.8 <sup>c</sup> 6    | 960.633  | 3 <sup>+</sup>                                 |         |            |
|                                       |  | 347.877 <sup>c</sup> 2        | 44.1 <sup>c</sup> 9   | 956.9533 | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1      | 0.222      |
|                                       |  | 386.193 13                    | 2.9 6                 | 918.5889 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |            |
|                                       |  | 436.037 8                     | 5.9 6                 | 868.7734 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 793.38 <sup>c</sup> 5         | 8.8 <sup>c</sup> 27   | 511.5173 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 822.539 <sup>c</sup> 20       | 41 <sup>c</sup> 4     | 482.3272 | 4 <sup>+</sup>                                 |         |            |
|                                       |  | 976.48 <sup>c</sup> 7         | 24 <sup>c</sup> 5     | 328.4833 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 1068.52 <sup>c</sup> 11       | 20.6 <sup>c</sup> 15  | 236.0453 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 1304.76 6                     | 100 16                | 0.0      | 2 <sup>-</sup>                                 |         |            |
| 1306.853                              | 2 <sup>-</sup>                                 | 181.966 9                     | 57 15                 | 1124.881 | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1      | 1.324      |
|                                       |  | 202.006 3                     | 86 9                  | 1104.835 | 0 <sup>-</sup> ,1 <sup>-</sup> ,2 <sup>-</sup> | M1      | 0.988      |
|                                       |  | 374.922 <sup>c</sup> 3        | 50 <sup>c</sup> 4     | 931.944  | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 542.373 <sup>c</sup> 8        | 100.0 <sup>c</sup> 21 | 764.482  | 4 <sup>-</sup>                                 |         |            |
|                                       |  | 681.40 4                      | 14 3                  | 625.4302 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 762.91 6                      | 20 4                  | 544.0093 | 4 <sup>-</sup>                                 |         |            |
|                                       |  | 777.696 14                    | 29 4                  | 529.1685 | 3 <sup>-</sup>                                 | M1      | 0.0268     |
|                                       |  | 857.19 <sup>c</sup> 7         | 86 <sup>c</sup> 10    | 449.5701 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 938.70 3                      | 71 14                 | 368.2567 | 1 <sup>-</sup>                                 | M1      | 0.01659    |
|                                       |  | 1306.82 5                     | 79 4                  | 0.0      | 2 <sup>-</sup>                                 | E2      | 0.00345    |
| 1318.628                              | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 357.91 <sup>c</sup> 3         | 11.8 <sup>c</sup> 24  | 960.633  | 3 <sup>+</sup>                                 |         |            |
|                                       |  | 483.305 15                    | 11.8 12               | 835.366  | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 516.891 <sup>c</sup> 18       | 11.8 <sup>c</sup> 12  | 801.7064 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |            |
|                                       |  | 532.20 <sup>c</sup> 5         | 11.8 <sup>c</sup> 12  | 786.5359 | 2 <sup>-</sup>                                 |         |            |
|                                       |  | 573.27 <sup>c</sup> 8         | 100 <sup>c</sup> 3    | 745.2187 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |            |
|                                       |  | 614.98 <sup>c</sup> 6         | 12 <sup>c</sup> 4     | 703.7298 | 1 <sup>-</sup>                                 |         |            |
|                                       |  | 769.63 <sup>c</sup> 3         | 35 <sup>c</sup> 7     | 548.9342 | 2 <sup>-</sup>                                 |         |            |
|                                       |  | 788.162 18                    | 82.4 11               | 530.4782 | 1 <sup>-</sup>                                 | M1      | 0.0259     |
|                                       |  | 807.04 5                      | 35 6                  | 511.5173 | 3 <sup>-</sup>                                 |         |            |
|                                       |  | 864.77 3                      | 59 10                 | 453.8250 | 2 <sup>-</sup>                                 |         |            |
|                                       |  | 950.38 5                      | 47 5                  | 368.2567 | 1 <sup>-</sup>                                 | M1      | 0.01608    |
| 979.46 7                              | 59 11  | 339.2910                      | 1 <sup>-</sup>        |          |  |         |            |

Adopted Levels, Gammas (continued)

| <u><math>\gamma(^{198}\text{Au})</math> (continued)</u> |  |                         |  |                        |  |         |                                |  |  |
|---|--|-------------------------|--|------------------------|--|---------|--------------------------------|--|--|
| $E_i(\text{level})$                                     | $J_i^\pi$                                      | $E_\gamma$ †‡           | $I_\gamma$ ‡                                   | $E_f$                  | $J_f^\pi$                                      | Mult. & | $\alpha^b$                     |  |  |
| 1325.830  | 2 <sup>-</sup>                                 | 342.81 3                | 5.9 12   | 983.0868               | 2 <sup>+</sup>                                 |         |                                |  |  |
|   |  | 393.881 2               | 88.2 18  | 931.944                | 3 <sup>-</sup>                                 | M1      | 0.1592                         |  |  |
|   |  | 457.090 <sup>c</sup> 15 | 2.9 <sup>c</sup> 9                             | 868.7734               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 525.838 7               | 17.7 18  | 800.0388               | 2 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 653.23 4                | 8.8 15   | 672.6548               | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |         |                                |  |  |
|   |  | 978.85 5                | 56 4   | 346.9062               | 2 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 1064.45 7               | 38.2 21  | 261.4047               | 2 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 1132.93 3               | 100 13   | 192.9441               | 1 <sup>-</sup>                                 | M1      | 0.01030                        |  |  |
|   |  | 1335.542                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 336.320 3              | 18.2 18  | 999.212 | 1 <sup>-</sup> ,2 <sup>-</sup> |  |  |
|   |  |                         |  | 374.922 <sup>c</sup> 3 | 31.8 <sup>c</sup> 27                           | 960.633 | 3 <sup>+</sup>                 |  |  |
|   |  | 443.85 <sup>c</sup> 3   | 55 <sup>c</sup> 8                              | 891.616                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 824.12 7                | 18 6   | 511.5173               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 1076.38 <sup>c</sup> 10 | 41 <sup>c</sup> 6                              | 259.3406               | 1 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 1120.54 10              | 46 5   | 214.9715               | 4 <sup>-</sup>                                 |         |                                |  |  |
| 1338.171  | 3 <sup>-</sup>                                 | 1335.51 5               | 100 20   | 0.0                    | 2 <sup>-</sup>                                 | M1      | 0.00684                        |  |  |
|   |  | 281.432 7               | 21 6   | 1056.719               | 2 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 291.025 <sup>c</sup> 19 | 8.3 <sup>c</sup> 21                            | 1047.124               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 355.100 <sup>c</sup> 5  | 8.3 <sup>c</sup> 13                            | 983.0868               | 2 <sup>+</sup>                                 |         |                                |  |  |
|   |  | 366.332 9               | 4.2 4  | 971.8210               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 443.85 <sup>c</sup> 3   | 50 <sup>c</sup> 8                              | 894.2716               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 712.70 <sup>c</sup> 3   | 20.8 <sup>c</sup> 25                           | 625.4302               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 794.174 10              | 100 5  | 544.0093               | 4 <sup>-</sup>                                 | M1      | 0.0254                         |  |  |
|   |  | 888.60 <sup>c</sup> 11  | 33 <sup>c</sup> 12                             | 449.5701               | 3 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 1076.81 <sup>c</sup> 5  | 63 <sup>c</sup> 8                              | 261.4047               | 2 <sup>-</sup>                                 |         |                                |  |  |
| 1359.038  | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 1338.09 8               | 67 9   | 0.0                    | 2 <sup>-</sup>                                 | M1      | 0.00681                        |  |  |
|   |  | 311.905 <sup>c</sup> 3  | 100.0 <sup>c</sup> 20                          | 1047.124               | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1      | 0.299                          |  |  |
|   |  | 613.844 9               | 9.4 6  | 745.2187               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 712.70 <sup>c</sup> 3   | 7.8 <sup>c</sup> 9                             | 646.411                | 0 <sup>+</sup>                                 |         |                                |  |  |
|   |  | 810.119 6               | 54.7 11  | 548.9342               | 2 <sup>-</sup>                                 | M1      | 0.0242                         |  |  |
|   |  | 996.10 <sup>c</sup> 6   | 20 <sup>c</sup> 6                              | 362.8995               | 2 <sup>-</sup>                                 |         |                                |  |  |
| 1363.350  | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 1111.64 7               | 78 7   | 247.5731               | 1 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 238.477 16              | 15 3   | 1124.881               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 406.397 <sup>c</sup> 8  | 2.44 <sup>c</sup> 24                           | 956.9533               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 444.754 6               | 17.1 5   | 918.5889               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 471.739 8               | 7.3 5  | 891.616                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 552.98 <sup>c</sup> 15  | 7 <sup>c</sup> 4                               | 810.426                | 3 <sup>+</sup>                                 |         |                                |  |  |
|   |  | 598.846 17              | 7.3 10   | 764.482                | 4 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 730.83 <sup>c</sup> 3   | 22 <sup>c</sup> 7                              | 632.4820               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |         |                                |  |  |
|   |  | 881.04 <sup>c</sup> 6   | 24 <sup>c</sup> 5                              | 482.3272               | 4 <sup>+</sup>                                 |         |                                |  |  |
|   |  | 909.61 <sup>c</sup> 4   | 29 <sup>c</sup> 4                              | 453.8250               | 2 <sup>-</sup>                                 |         |                                |  |  |
|   |  | 913.752 16              | 100 14   | 449.5701               | 3 <sup>-</sup>                                 | M1      | 0.01777                        |  |  |
| 1000.40 5   | 34 6   | 362.8995                | 2 <sup>-</sup>                                 |                        |  |         |                                |  |  |

Adopted Levels, Gammas (continued)

γ(<sup>198</sup>Au) (continued)

| E <sub>i</sub> (level) | J <sup>π</sup> <sub>i</sub>                    | E <sub>γ</sub> <sup>†‡</sup> | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub>          | J <sup>π</sup> <sub>f</sub>                    | Mult.&             | α <sup>b</sup> | Comments   |
|------------------------|--|------------------------------|-----------------------------|-------------------------|--|--------------------|----------------|--|
| 1363.350               | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 1016.34 <sup>c</sup> 16      | 12.2 <sup>c</sup> 20        | 346.9062                | 2 <sup>-</sup>                                 |                    |                |  |
|                        |  | 1101.86 4                    | 56.1 22                     | 261.4047                | 2 <sup>-</sup>                                 | M1                 | 0.01105        |  |
|                        |  | 1272.16 <sup>c</sup> 11      | 32 <sup>c</sup> 3           | 91.0059                 | 0 <sup>-</sup>                                 |                    |                |  |
|                        |  | 1308.45 17                   | 39 7                        | 55.1812                 | 1 <sup>-</sup>                                 | M1                 | 0.00719        |  |
| 1371.502               | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 1363.39 6                    | 85 6                        | 0.0                     | 2 <sup>-</sup>                                 | M1                 | 0.0065         |  |
|                        |  | 296.025 <sup>c</sup> 22      | 3.5 <sup>c</sup> 7          | 1075.560                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                    |                |  |
|                        |  | 414.583 17                   | 3.5 7                       | 956.9533                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 570.02 10                    | 10.3 7                      | 801.7064                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 746.061 <sup>c</sup> 19      | 62 <sup>c</sup> 3           | 625.4302                | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 800.31 5                     | 14 4                        | 571.2439                | 1 <sup>-</sup>                                 |                    |                |  |
| 1375.974               | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 1316.52 9                    | 100 10                      | 55.1812                 | 1 <sup>-</sup>                                 |                    |                |  |
|                        |  | 135.615 6                    | 54 14                       | 1240.380                | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 271.144 <sup>c</sup> 4       | 58 <sup>c</sup> 5           | 1104.835                | 0 <sup>-</sup> ,1 <sup>-</sup> ,2 <sup>-</sup> | (M1)               | 0.438          |  |
|                        |  | 283.076 22                   | 8.3 17                      | 1092.876                | 0 <sup>-</sup>                                 | M1                 | 0.389          |  |
|                        |  | 376.795 17                   | 17 5                        | 999.212                 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 459.514 12                   | 12.5 8                      | 916.4434                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 647.307 <sup>c</sup> 6       | 71 <sup>c</sup> 4           | 728.634                 | 0 <sup>-</sup>                                 | M1                 | 0.0431         |  |
|                        |  | 926.60 <sup>c</sup> 12       | 16.7 <sup>c</sup> 17        | 449.5701                | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 1012.79 <sup>c</sup> 13      | 33 <sup>c</sup> 3           | 362.8995                | 2 <sup>-</sup>                                 |                    |                |  |
|                        |  | 1114.51 5                    | 100 5                       | 261.4047                | 2 <sup>-</sup>                                 |                    |                |  |
| 1380.884               | 3 <sup>-</sup>                                 | 1128.52 6                    | 79 3                        | 247.5731                | 1 <sup>-</sup>                                 | E2                 | 0.00454        |  |
|                        |  | 319.597 13                   | 6.5 10                      | 1061.285                | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 362.453 <sup>c</sup> 5       | 16.1 <sup>c</sup> 19        | 1018.430                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 448.924 8                    | 9.7 7                       | 931.944                 | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 489.273 <sup>c</sup> 5       | 16.1 <sup>c</sup> 13        | 891.616                 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                |  |
|                        |  | 591.625 <sup>c</sup> 16      | 12.9 <sup>c</sup> 16        | 789.2974                | 1 <sup>-</sup>                                 |                    |                |  |
|                        |  | 616.386 10                   | 19.4 26                     | 764.482                 | 4 <sup>-</sup>                                 |                    |                |  |
|                        |  | 898.53 <sup>c</sup> 5        | 65 <sup>c</sup> 10          | 482.3272                | 4 <sup>+</sup>                                 |                    |                |  |
|                        |  | 999.74 3                     | 100 5                       | 381.2002                | 3 <sup>+</sup>                                 | E1+M2 <sup>a</sup> | 0.018 17       | Mult.: M1+E2 from internal conversion electron measurements (1996Ma70,1996Ma75). |
|                        |  | 1390.227                     | 2 <sup>-</sup>              | 1012.79 <sup>c</sup> 13 | 25.8 <sup>c</sup> 23                           | 368.2567           | 1 <sup>-</sup> |  |
| 1187.73 <sup>c</sup> 9 | 65 <sup>c</sup> 14                             |                              |                             | 192.9441                | 1 <sup>-</sup>                                 |                    |                |  |
| 230.212 6              | 14.3 21  |                              |                             | 1160.018                | 3 <sup>-</sup>                                 |                    |                |  |
| 357.91 <sup>c</sup> 3  | 14 <sup>c</sup> 3                              |                              |                             | 1032.254                | 3 <sup>-</sup>                                 |                    |                |  |
| 495.955 4              | 36 4   |                              |                             | 894.2716                | 3 <sup>-</sup>                                 |                    |                |  |
| 717.66 5               | 36 7   |                              |                             | 672.6548                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                    |                |  |
| 1396.141               | 3 <sup>-</sup>                                 | 846.15 5                     | 100 19                      | 544.0093                | 4 <sup>-</sup>                                 |                    |                |  |
|                        |  | 1027.12 9                    | 64 4                        | 362.8995                | 2 <sup>-</sup>                                 |                    |                |  |
|                        |  | 300.646 7                    | 11.1 8                      | 1095.499                | 3 <sup>+</sup>                                 |                    |                |  |
|                        |  | 357.91 <sup>c</sup> 3        | 5.6 <sup>c</sup> 11         | 1038.2744               | 3 <sup>-</sup>                                 |                    |                |  |
|                        |  | 408.558 8                    | 8.3 3                       | 987.5743                | 3 <sup>-</sup>                                 |                    |                |  |
| 464.21 <sup>c</sup> 3  | 2.8 <sup>c</sup> 6                             | 931.944                      | 3 <sup>-</sup>              |                         |  |                    |                |  |

Adopted Levels, Gammas (continued)

γ(<sup>198</sup>Au) (continued)

| E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup>    | E <sub>γ</sub> <sup>†‡</sup> | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup>                    | Mult. &         | α <sup>b</sup> | Comments  |
|------------------------|--------------------------------|------------------------------|-----------------------------|----------------|--|-----------------|----------------|---|
| 1396.141               | 3 <sup>-</sup>                 | 499.562 <sup>c</sup> 19      | 5.6 <sup>c</sup> 6          | 896.5723       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 1033.08 <sup>c</sup> 10      | 19.4 <sup>c</sup> 14        | 362.8995       | 2 <sup>-</sup>                                 | M1              | 0.01301        |   |
|                        |                                | 1049.23 5                    | 39 4                        | 346.9062       | 2 <sup>-</sup>                                 | M1              | 0.01251        |   |
|                        |                                | 1148.65 5                    | 100 4                       | 247.5731       | 1 <sup>-</sup>                                 | E2 <sup>a</sup> | 0.00439        | Mult.: M1 from internal conversion electron measurements (1996Ma70,1996Ma75). |
| 1399.342               | 2 <sup>-</sup> ,3 <sup>-</sup> | 1396.09 <sup>c</sup> 15      | 53 <sup>c</sup> 5           | 0.0            | 2 <sup>-</sup>                                 | M1              | 0.00614        |   |
|                        |                                | 338.055 10                   | 4.6 9                       | 1061.285       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 442.379 <sup>c</sup> 5       | 22.7 <sup>c</sup> 9         | 956.9533       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 563.97 <sup>c</sup> 3        | 13.6 <sup>c</sup> 18        | 835.366        | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 574.83 5                     | 63.6 14                     | 824.608        | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 597.71 <sup>c</sup> 5        | 22.7 <sup>c</sup> 18        | 801.7064       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 612.93 <sup>c</sup> 7        | 59 <sup>c</sup> 11          | 786.5359       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 695.654 14                   | 31.8 18                     | 703.7298       | 1 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 774.07 6                     | 36 5                        | 625.4302       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1018.02 8                    | 68 13                       | 381.2002       | 3 <sup>+</sup>                                 |                 |                |   |
| 1402.086               | 1 <sup>-</sup> ,2 <sup>-</sup> | 1344.26 7                    | 100 14                      | 55.1812        | 1 <sup>-</sup>                                 | M1              | 0.00673        |   |
|                        |                                | 483.41 <sup>c</sup> 5        | 3.9 <sup>c</sup> 4          | 918.5889       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 485.638 5                    | 85 8                        | 916.4434       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 566.80 <sup>c</sup> 4        | 11.5 <sup>c</sup> 19        | 835.366        | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 591.625 <sup>c</sup> 16      | 15.4 <sup>c</sup> 19        | 810.426        | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 612.93 <sup>c</sup> 7        | 50 <sup>c</sup> 10          | 789.2974       | 1 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 615.582 <sup>c</sup> 9       | 26.9 <sup>c</sup> 15        | 786.5359       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 769.63 <sup>c</sup> 3        | 23 <sup>c</sup> 5           | 632.4820       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 776.627 <sup>c</sup> 22      | 62 <sup>c</sup> 6           | 625.4302       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 830.78 3                     | 39 5                        | 571.2439       | 1 <sup>-</sup>                                 | M1              | 0.0227         |   |
|                        |                                | 872.86 <sup>c</sup> 4        | 50 <sup>c</sup> 7           | 529.1685       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 952.485 19                   | 100 7                       | 449.5701       | 3 <sup>-</sup>                                 | (E2)            | 0.00633        |   |
|                        |                                | 996.10 <sup>c</sup> 6        | 46 <sup>c</sup> 8           | 406.0080       | 2 <sup>-</sup>                                 |                 |                |   |
| 1404.893               | 2 <sup>-</sup> ,3 <sup>-</sup> | 1187.32 <sup>c</sup> 12      | 81 <sup>c</sup> 4           | 214.9715       | 4 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 296.025 <sup>c</sup> 22      | 7.1 <sup>c</sup> 14         | 1108.873       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 448.004 17                   | 7.1 7                       | 956.9533       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 615.582 <sup>c</sup> 9       | 50 <sup>c</sup> 3           | 789.2974       | 1 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 732.20 <sup>c</sup> 3        | 100 <sup>c</sup> 4          | 672.6548       | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | M1              | 0.0313         |   |
| 1409.399               | 3 <sup>-</sup>                 | 1076.38 <sup>c</sup> 10      | 64 <sup>c</sup> 10          | 328.4833       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1189.77 7                    | 100 22                      | 214.9715       | 4 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 122.652 1                    | 100 9                       | 1286.746       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 313.82 <sup>c</sup> 3        | 0.91 <sup>c</sup> 18        | 1095.499       | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 333.839 2                    | 13.6 3                      | 1075.560       | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | M1              | 0.248          |   |
|                        |                                | 515.140 <sup>c</sup> 4       | 12.7 <sup>c</sup> 6         | 894.2716       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 664.152 24                   | 6.4 6                       | 745.2187       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
| 838.23 4               | 15.5 25                        | 571.2439                     | 1 <sup>-</sup>              |                |  |                 |                |   |

Adopted Levels, Gammas (continued)

γ(<sup>198</sup>Au) (continued)

| E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup>    | E <sub>γ</sub> <sup>†‡</sup> | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup>                    | Mult. &         | α <sup>b</sup> | Comments  |
|------------------------|--------------------------------|------------------------------|-----------------------------|----------------|--|-----------------|----------------|---|
| 1409.399               | 3 <sup>-</sup>                 | 1028.19 5                    | 13 3                        | 381.2002       | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 1062.55 8                    | 10.0 6                      | 346.9062       | 2 <sup>-</sup>                                 |                 |                |   |
| 1418.686               | 3 <sup>+</sup> ,4 <sup>+</sup> | 1216.62 <sup>c</sup> 8       | 26.4 <sup>c</sup> 16        | 192.9441       | 1 <sup>-</sup>                                 | E2              | 0.00394        |   |
|                        |                                | 313.82 <sup>c</sup> 3        | 2.6 <sup>c</sup> 5          | 1104.835       | 0 <sup>-</sup> ,1 <sup>-</sup> ,2 <sup>-</sup> |                 |                |   |
|                        |                                | 386.420 <sup>c</sup> 2       | 10 <sup>c</sup> 7           | 1032.254       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 458.049 <sup>c</sup> 3       | 100.0 <sup>c</sup> 10       | 960.633        | 3 <sup>+</sup>                                 | M1              | 0.1066         |   |
|                        |                                | 461.715 <sup>c</sup> 21      | 5.1 <sup>c</sup> 5          | 956.9533       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 594.19 <sup>c</sup> 5        | 15.4 <sup>c</sup> 26        | 824.608        | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 617.04 <sup>c</sup> 3        | 7.7 <sup>c</sup> 13         | 801.7064       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 654.206 7                    | 30.8 21                     | 764.482        | 4 <sup>-</sup>                                 | E1 <sup>a</sup> | 0.00494        | Mult.: M1 from internal conversion electron measurements (1996Ma70,1996Ma75). |
|                        |                                | 660.322 13                   | 23.1 15                     | 758.398        | 4 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 746.061 <sup>c</sup> 19      | 46.2 <sup>c</sup> 23        | 672.6548       | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                 |                |   |
|                        |                                | 786.19 <sup>c</sup> 6        | 21 <sup>c</sup> 3           | 632.4820       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 793.38 <sup>c</sup> 5        | 7.7 <sup>c</sup> 23         | 625.4302       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 889.53 9                     | 26 6                        | 529.1685       | 3 <sup>-</sup>                                 |                 |                |   |
| 1423.795               | 3 <sup>-</sup>                 | 1012.79 <sup>c</sup> 13      | 20.5 <sup>c</sup> 18        | 406.0080       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 385.553 <sup>c</sup> 15      | 3.9 <sup>c</sup> 8          | 1038.2744      | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 451.944 12                   | 7.7 8                       | 971.8210       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 532.20 <sup>c</sup> 5        | 7.7 <sup>c</sup> 8          | 891.616        | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 588.419 6                    | 34.6 8                      | 835.366        | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 623.757 12                   | 23.1 19                     | 800.0388       | 2 <sup>-</sup>                                 | M1              | 0.0474         |   |
|                        |                                | 798.417 <sup>c</sup> 16      | 42 <sup>c</sup> 5           | 625.4302       | 3 <sup>-</sup>                                 | M1              | 0.0251         |   |
|                        |                                | 1060.937 21                  | 100 6                       | 362.8995       | 2 <sup>-</sup>                                 | M1              | 0.01216        |   |
|                        |                                | 1076.81 <sup>c</sup> 5       | 58 <sup>c</sup> 8           | 346.9062       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1187.73 <sup>c</sup> 9       | 77 <sup>c</sup> 17          | 236.0453       | 3 <sup>-</sup>                                 |                 |                |   |
| 1431.645               | 2 <sup>-</sup> ,3 <sup>-</sup> | 322.77 <sup>c</sup> 6        | 3.9 <sup>c</sup> 17         | 1108.873       | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                |   |
|                        |                                | 336.054 18                   | 1.9 4                       | 1095.499       | 3 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 356.077 7                    | 1.92 19                     | 1075.560       | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                 |                |   |
|                        |                                | 374.922 <sup>c</sup> 3       | 13.5 <sup>c</sup> 15        | 1056.719       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 448.566 3                    | 30.8 6                      | 983.0868       | 2 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 785.37 <sup>c</sup> 6        | 9.6 <sup>c</sup> 23         | 646.411        | 0 <sup>+</sup>                                 |                 |                |   |
|                        |                                | 806.13 3                     | 17.3 19                     | 625.4302       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 902.500 15                   | 100 9                       | 529.1685       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 920.10 6                     | 21 5                        | 511.5173       | 3 <sup>-</sup>                                 | M1              | 0.01746        |   |
|                        |                                | 936.10 4                     | 11.5 19                     | 495.5114       | 1 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1025.48 <sup>c</sup> 13      | 11.5 <sup>c</sup> 10        | 406.0080       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1068.52 <sup>c</sup> 11      | 13.5 <sup>c</sup> 10        | 362.8995       | 2 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1195.50 7                    | 38.5 27                     | 236.0453       | 3 <sup>-</sup>                                 |                 |                |   |
|                        |                                | 1216.62 <sup>c</sup> 8       | 56 <sup>c</sup> 3           | 214.9715       | 4 <sup>-</sup>                                 | E2              | 0.00394        |   |
|                        |                                | 1431.42 13                   | 38 8                        | 0.0            | 2 <sup>-</sup>                                 |                 |                |   |

**Adopted Levels, Gammas (continued)**

$\gamma(^{198}\text{Au})$  (continued)

| $E_i(\text{level})$     | $J_i^\pi$                      | $E_\gamma$ †‡           | $I_\gamma$ ‡         | $E_f$                   | $J_f^\pi$                                      | Mult. &         | $\alpha^b$                     | Comments  |  |  |
|-------------------------|--------------------------------|-------------------------|----------------------|-------------------------|--|-----------------|--------------------------------|---|--|--|
| 1434.584                | 1 <sup>-</sup> ,2 <sup>-</sup> | 137.450 <sup>c</sup> 6  | 29 <sup>c</sup> 9    | 1297.133                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                 |                                |   |  |  |
|                         |                                | 341.693 8               | 18 3                 | 1092.876                | 0 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 373.37 3                | 6.5 19               | 1061.285                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 446.997 <sup>c</sup> 11 | 3.2 <sup>c</sup> 3   | 987.5743                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 538.011 <sup>c</sup> 17 | 4.8 <sup>c</sup> 3   | 896.5723                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                                |   |  |  |
|                         |                                | 730.83 <sup>c</sup> 3   | 15 <sup>c</sup> 5    | 703.7298                | 1 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 732.20 <sup>c</sup> 3   | 22.6 <sup>c</sup> 10 | 702.4811                | 2 <sup>-</sup>                                 | M1              | 0.0313                         |   |  |  |
|                         |                                | 885.647 16              | 37 4                 | 548.9342                | 2 <sup>-</sup>                                 | M1              | 0.0192                         |   |  |  |
|                         |                                | 984.92 8                | 23 5                 | 449.5701                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 1028.613 14             | 100 7                | 406.0080                | 2 <sup>-</sup>                                 | M1              | 0.01315                        |   |  |  |
|                         |                                | 1187.32 <sup>c</sup> 12 | 33.9 <sup>c</sup> 18 | 247.5731                | 1 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 1379.35 8               | 30.7 27              | 55.1812                 | 1 <sup>-</sup>                                 | M1              | 0.00632                        |   |  |  |
|                         |                                | 1444.396                | 3 <sup>-</sup>       | 552.98 <sup>c</sup> 15  | 23 <sup>c</sup> 12                             | 891.616         | 1 <sup>-</sup> ,2 <sup>-</sup> |   |  |  |
|                         |                                |                         |                      | 657.84 <sup>c</sup> 7   | 23 <sup>c</sup> 7                              | 786.5359        | 2 <sup>-</sup>                 |   |  |  |
| 679.84 3                | 23 4                           |                         |                      | 764.482                 | 4 <sup>-</sup>                                 |                 |                                |   |  |  |
| 990.60 6                | 69 22                          |                         |                      | 453.8250                | 2 <sup>-</sup>                                 | (M1)            | 0.01447                        |   |  |  |
| 1076.38 <sup>c</sup> 10 | 69 <sup>c</sup> 11             |                         |                      | 368.2567                | 1 <sup>-</sup>                                 |                 |                                |   |  |  |
| 1081.60 5               | 100 23                         |                         |                      | 362.8995                | 2 <sup>-</sup>                                 |                 |                                |   |  |  |
| 1453.858                | 3 <sup>-</sup>                 | 82.356 1                | 100 11               | 1371.502                | 1 <sup>-</sup> ,2 <sup>-</sup>                 | E2 <sup>a</sup> | 11.94                          | Mult.: E1 from internal conversion electron measurements (1996Ma70,1996Ma75). |  |  |
|                         |                                | 406.757 <sup>c</sup> 18 | 0.32 <sup>c</sup> 6  | 1047.124                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                                |   |  |  |
|                         |                                | 421.646 6               | 1.3 1                | 1032.254                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 502.463 13              | 7.1 16               | 951.443                 | 3 <sup>+</sup>                                 |                 |                                |   |  |  |
|                         |                                | 521.878 <sup>c</sup> 13 | 0.65 <sup>c</sup> 13 | 931.944                 | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 653.801 <sup>c</sup> 13 | 1.94 <sup>c</sup> 16 | 800.0388                | 2 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 816.63 4                | 1.9 4                | 637.125                 | 4 <sup>+</sup>                                 |                 |                                |   |  |  |
|                         |                                | 1047.72 7               | 4.21 26              | 406.0080                | 2 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 1085.49 5               | 8.4 3                | 368.2567                | 1 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 1107.01 4               | 8.4 13               | 346.9062                | 2 <sup>-</sup>                                 | M1              | 0.01092                        |   |  |  |
|                         |                                | 1458.988                | 3 <sup>-</sup>       | 334.113 <sup>c</sup> 11 | 11.1 <sup>c</sup> 11                           | 1124.881        | 1 <sup>-</sup> ,2 <sup>-</sup> |   |  |  |
|                         |                                |                         |                      | 350.115 2               | 56 4   | 1108.873        | 1 <sup>-</sup> ,2 <sup>-</sup> |   |  |  |
|                         |                                |                         |                      | 397.672 13              | 11.1 22  | 1061.285        | 3 <sup>-</sup>                 |   |  |  |
| 487.167 7               | 89 4                           |                         |                      | 971.8210                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
| 502.030 6               | 33 12                          |                         |                      | 956.9533                | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                                |   |  |  |
| 564.71 3                | 33 4                           |                         |                      | 894.2716                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
| 567.33 5                | 22 6                           |                         |                      | 891.616                 | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                 |                                |   |  |  |
| 648.573 <sup>c</sup> 22 | 44 <sup>c</sup> 6              |                         |                      | 810.426                 | 3 <sup>+</sup>                                 |                 |                                |   |  |  |
| 786.19 <sup>c</sup> 6   | 89 <sup>c</sup> 13             |                         |                      | 672.6548                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                 |                                |   |  |  |
| 947.56 6                | 100 27                         |                         |                      | 511.5173                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
| 976.48 <sup>c</sup> 7   | 89 <sup>c</sup> 20             |                         |                      | 482.3272                | 4 <sup>+</sup>                                 |                 |                                |   |  |  |
| 1472.097                | 3 <sup>-</sup>                 | 262.712 14              | 3.0 12               | 1209.370                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |
|                         |                                | 484.536 <sup>c</sup> 15 | 3.0 <sup>c</sup> 3   | 987.5743                | 3 <sup>-</sup>                                 |                 |                                |   |  |  |



Adopted Levels, Gammas (continued)

| $\gamma(^{198}\text{Au})$ (continued) |                                |                          |                      |                        |  |          |  |
|---------------------------------------|--------------------------------|--------------------------|----------------------|------------------------|--|----------|--|
| $E_i(\text{level})$                   | $J_i^\pi$                      | $E_\gamma$ †‡            | $I_\gamma$ ‡         | $E_f$                  | $J_f^\pi$                                      | Mult. &  | $\alpha^b$                                     |
| 1472.097                              | 3 <sup>-</sup>                 | 515.140 <sup>c</sup> 4   | 21.2 <sup>c</sup> 8  | 956.9533               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |          |  |
|                                       |                                | 520.62 <sup>c</sup> 4    | 39 <sup>c</sup> 15   | 951.443                | 3 <sup>+</sup>                                 |          |  |
|                                       |                                | 575.536 11               | 7.6 6                | 896.5723               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |          |  |
|                                       |                                | 682.805 6                | 22.7 9               | 789.2974               | 1 <sup>-</sup>                                 |          |  |
|                                       |                                | 769.63 <sup>c</sup> 3    | 9.1 <sup>c</sup> 18  | 702.4811               | 2 <sup>-</sup>                                 |          |  |
|                                       |                                | 960.47 4                 | 15.2 12              | 511.5173               | 3 <sup>-</sup>                                 |          |  |
|                                       |                                | 976.48 <sup>c</sup> 7    | 12.1 <sup>c</sup> 27 | 495.5114               | 1 <sup>-</sup>                                 |          |  |
|                                       |                                | 1109.29 5                | 100 17               | 362.8995               | 2 <sup>-</sup>                                 | M1+E2    | 0.008  |
|                                       |                                | 1210.72 7                | 41 4                 | 261.4047               | 2 <sup>-</sup>                                 |          |  |
|                                       |                                | 1475.621                 | 2 <sup>-</sup>       | 137.450 <sup>c</sup> 6 | 27 <sup>c</sup> 8                              | 1338.171 | 3 <sup>-</sup>                                 |
| 170.789 13                            | 8 3                            |                          |                      | 1304.8244              | 3 <sup>-</sup>                                 |          |  |
| 235.28 <sup>c</sup> 3                 | 3.0 <sup>c</sup> 15            |                          |                      | 1240.380               | 3 <sup>-</sup>                                 |          |  |
| 242.773 <sup>c</sup> 11               | 4.6 <sup>c</sup> 11            |                          |                      | 1232.8019              | 3 <sup>-</sup>                                 |          |  |
| 266.271 8                             | 7.6 17                         |                          |                      | 1209.370               | 3 <sup>-</sup>                                 |          |  |
| 488.043 8                             | 6.1 6                          |                          |                      | 987.5743               | 3 <sup>-</sup>                                 |          |  |
| 557.036 18                            | 4.6 5                          |                          |                      | 918.5889               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |          |  |
| 717.32 <sup>c</sup> 4                 | 15 <sup>c</sup> 3              |                          |                      | 758.398                | 4 <sup>+</sup>                                 |          |  |
| 829.32 8                              | 6.1 21                         |                          |                      | 646.411                | 0 <sup>+</sup>                                 |          |  |
| 926.60 <sup>c</sup> 12                | 6.1 <sup>c</sup> 6             |                          |                      | 548.9342               | 2 <sup>-</sup>                                 |          |  |
| 946.45 3                              | 19.7 8                         |                          |                      | 529.1685               | 3 <sup>-</sup>                                 |          |  |
| 1239.590 <sup>c</sup> 19              | 100 <sup>c</sup> 11            |                          |                      | 236.0453               | 3 <sup>-</sup>                                 | E2       | 0.0038   |
| 1487.136                              | 1 <sup>-</sup> ,2 <sup>-</sup> |                          |                      | 123.786 1              | 100 9  | 1363.350 | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |
|                                       |                                | 440.11 4                 | 9 3                  | 1047.124               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |          |  |
|                                       |                                | 454.887 <sup>c</sup> 6   | 3.57 <sup>c</sup> 18 | 1032.254               | 3 <sup>-</sup>                                 |          |  |
|                                       |                                | 499.562 <sup>c</sup> 19  | 1.79 <sup>c</sup> 18 | 987.5743               | 3 <sup>-</sup>                                 |          |  |
|                                       |                                | 854.60 3                 | 17.9 20              | 632.4820               | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1       | 0.0211   |
|                                       |                                | 915.91 <sup>c</sup> 3    | 8.0 <sup>c</sup> 13  | 571.2439               | 1 <sup>-</sup>                                 |          |  |
|                                       |                                | 1033.08 <sup>c</sup> 10  | 6.3 <sup>c</sup> 5   | 453.8250               | 2 <sup>-</sup>                                 | M1       | 0.01301  |
|                                       |                                | 1239.590 <sup>c</sup> 19 | 59 <sup>c</sup> 7    | 247.5731               | 1 <sup>-</sup>                                 | E2       | 0.0038   |
|                                       |                                | 1272.16 <sup>c</sup> 11  | 11.6 <sup>c</sup> 13 | 214.9715               | 4 <sup>-</sup>                                 |          |  |
|                                       |                                | 1396.09 <sup>c</sup> 15  | 16.9 <sup>c</sup> 15 | 91.0059                | 0 <sup>-</sup>                                 | M1       | 0.00614  |
|                                       |                                | 1432.04 14               | 28 3                 | 55.1812                | 1 <sup>-</sup>                                 |          |  |
|                                       |                                | 1487.31 <sup>c</sup> 12  | 24 <sup>c</sup> 3    | 0.0                    | 2 <sup>-</sup>                                 | M1       | 0.00276  |
|                                       |                                | 1496.201                 | 3 <sup>-</sup>       | 132.851 4              | 100 19   | 1363.350 | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |
| 400.703 <sup>c</sup> 11               | 21 <sup>c</sup> 4              |                          |                      | 1095.499               | 3 <sup>+</sup>                                 |          |  |
| 1090.05 8                             | 86 16                          |                          |                      | 406.0080               | 2 <sup>-</sup>                                 | M1       | 0.01136  |
| 1505.178                              | 1 <sup>-</sup> ,2 <sup>-</sup> | 167.012 <sup>c</sup> 15  | 4.7 <sup>c</sup> 8   | 1338.171               | 3 <sup>-</sup>                                 | M1       | 1.685  |
|                                       |                                | 239.634 <sup>c</sup> 15  | 3.1 <sup>c</sup> 11  | 1265.523               | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |          |  |
|                                       |                                | 249.239 18               | 1.6 3                | 1256.018               | 1 <sup>-</sup> ,2 <sup>-</sup>                 |          |  |
|                                       |                                | 345.21 <sup>c</sup> 5    | 3.1 <sup>c</sup> 13  | 1160.018               | 3 <sup>-</sup>                                 |          |  |
|                                       |                                | 443.85 <sup>c</sup> 3    | 19 <sup>c</sup> 3    | 1061.285               | 3 <sup>-</sup>                                 |          |  |

Adopted Levels, Gammas (continued)

γ(<sup>198</sup>Au) (continued)

| <u>E<sub>i</sub>(level)</u> | <u>J<sub>i</sub><sup>π</sup></u>               | <u>E<sub>γ</sub><sup>†‡</sup></u> | <u>I<sub>γ</sub><sup>‡</sup></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u>               | <u>Mult. &amp;</u> | <u>α<sup>b</sup></u> |
|-----------------------------|--|-----------------------------------|----------------------------------|----------------------|--|--------------------|----------------------|
| 1505.178                    | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 458.049 <sup>c</sup> 3            | 60.9 <sup>c</sup> 6              | 1047.124             | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1                 | 0.1066               |
|                             |  | 548.246 10                        | 4.7 8                            | 956.9533             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
|                             |  | 573.27 <sup>c</sup> 8             | 26.6 <sup>c</sup> 8              | 931.944              | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 705.10 4                          | 9.4 13                           | 800.0388             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 933.89 7                          | 100 27                           | 571.2439             | 1 <sup>-</sup>                                 |                    |                      |
|                             |  | 993.72 3                          | 44 8                             | 511.5173             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 1505.50 <sup>c</sup> 23           | 17.2 <sup>c</sup> 23             | 0.0                  | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 206.741 9                         | 2.9 4                            | 1306.853             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 398.293 2                         | 18.6 6                           | 1115.265             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 466.459 7                         | 11.4 4                           | 1047.124             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
| 1513.564                    | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 552.98 <sup>c</sup> 15            | 4.3 <sup>c</sup> 21              | 960.633              | 3 <sup>+</sup>                                 |                    |                      |
|                             |  | 617.04 <sup>c</sup> 3             | 4.3 <sup>c</sup> 7               | 896.5723             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
|                             |  | 678.29 4                          | 80 21                            | 835.366              | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 688.967 5                         | 30.0 24                          | 824.608              | 3 <sup>+</sup>                                 |                    |                      |
|                             |  | 713.567 23                        | 8.6 9                            | 800.0388             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 840.78 8                          | 11 4                             | 672.6548             | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |                    |                      |
|                             |  | 881.04 <sup>c</sup> 6             | 14 <sup>c</sup> 3                | 632.4820             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
|                             |  | 983.00 <sup>c</sup> 4             | 18.6 <sup>c</sup> 14             | 530.4782             | 1 <sup>-</sup>                                 |                    |                      |
|                             |  | 1107.67 5                         | 100 14                           | 406.0080             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 1150.55 8                         | 49 3                             | 362.8995             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 1252.12 10                        | 24 3                             | 261.4047             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 1422.65 15                        | 14 3                             | 91.0059              | 0 <sup>-</sup>                                 |                    |                      |
|                             |  | 339.131 8                         | 2.33 23                          | 1191.566             | 1 <sup>+</sup> ,2 <sup>+</sup> ,3 <sup>+</sup> |                    |                      |
|                             |  | 573.750 8                         | 30.2 19                          | 956.9533             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
| 612.125 9                   | 14.0 9   | 918.5889                          | 1 <sup>-</sup> ,2 <sup>-</sup>   |                      |  |                    |                      |
| 639.04 <sup>c</sup> 3       | 14.0 <sup>c</sup> 7                            | 891.616                           | 1 <sup>-</sup> ,2 <sup>-</sup>   |                      |  |                    |                      |
| 728.995 15                  | 35 4   | 801.7064                          | 1 <sup>-</sup> ,2 <sup>-</sup>   |                      |  |                    |                      |
| 785.37 <sup>c</sup> 6       | 12 <sup>c</sup> 3                              | 745.2187                          | 1 <sup>-</sup> ,2 <sup>-</sup>   |                      |  |                    |                      |
| 1076.81 <sup>c</sup> 5      | 35 <sup>c</sup> 5                              | 453.8250                          | 2 <sup>-</sup>                   |                      |  |                    |                      |
| 1183.79 4                   | 100 7  | 346.9062                          | 2 <sup>-</sup>                   |                      |  |                    |                      |
| 1530.60 8                   | 95 8   | 0.0                               | 2 <sup>-</sup>                   |                      |  |                    |                      |
| 1536.380                    | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 82.524 1                          | 100 18                           | 1453.858             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 235.28 <sup>c</sup> 3             | 1.0 <sup>c</sup> 5               | 1301.045             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 249.715 <sup>c</sup> 14           | 1.0 <sup>c</sup> 3               | 1286.746             | 2 <sup>-</sup>                                 |                    |                      |
|                             |  | 264.210 <sup>c</sup> 3            | 4.2 <sup>c</sup> 4               | 1272.1510            | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 296.025 <sup>c</sup> 22           | 0.52 <sup>c</sup> 10             | 1240.380             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 334.113 <sup>c</sup> 11           | 0.52 <sup>c</sup> 5              | 1202.268             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
|                             |  | 489.273 <sup>c</sup> 5            | 2.60 <sup>c</sup> 21             | 1047.124             | 1 <sup>-</sup> ,2 <sup>-</sup>                 |                    |                      |
|                             |  | 504.105 6                         | 4.2 3                            | 1032.254             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 552.98 <sup>c</sup> 15            | 1.6 <sup>c</sup> 8               | 983.0868             | 2 <sup>+</sup>                                 |                    |                      |
|                             |  | 642.06 6                          | 0.52 10                          | 894.2716             | 3 <sup>-</sup>                                 |                    |                      |
|                             |  | 833.915 13                        | 7.3 7                            | 702.4811             | 2 <sup>-</sup>                                 |                    |                      |

Adopted Levels, Gammas (continued)

γ(<sup>198</sup>Au) (continued)

| E <sub>i</sub> (level)  | J <sub>i</sub> <sup>π</sup>                    | E <sub>γ</sub> <sup>†‡</sup> | I <sub>γ</sub> <sup>‡</sup> | E <sub>f</sub>  | J <sub>f</sub> <sup>π</sup>                    | Mult. &  | α <sup>b</sup>   | Comments |
|-------------------------|--|------------------------------|-----------------------------|-----------------|--|--|------------------|----------|
| 1536.380                | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | 965.14 4                     | 5.7 3                       | 571.2439        | 1 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1040.77 <sup>c</sup> 11      | 6.3 <sup>c</sup> 3          | 495.5114        | 1 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1053.93 5                    | 10.9 19                     | 482.3272        | 4 <sup>+</sup>                                 |  |                  |          |
|                         |  | 1189.3 3                     | 5.7 5                       | 346.9062        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1275.05 6                    | 18.2 18                     | 261.4047        | 2 <sup>-</sup>                                 | M1   | 0.00767          |          |
|                         |  | 1445.50 10                   | 9.9 17                      | 91.0059         | 0 <sup>-</sup>                                 |  |                  |          |
| 1542.793                | 3 <sup>-</sup>                                 | 270.639 5                    | 7.6 26                      | 1272.1510       | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 385.553 <sup>c</sup> 15      | 1.5 <sup>c</sup> 3          | 1157.2381       | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 648.573 <sup>c</sup> 22      | 6.1 <sup>c</sup> 8          | 894.2716        | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 707.447 24                   | 10.6 9                      | 835.366         | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 742.91 <sup>c</sup> 10       | 9 <sup>c</sup> 3            | 800.0388        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 778.28 7                     | 4.6 23                      | 764.482         | 4 <sup>-</sup>                                 |  |                  |          |
|                         |  | 784.36 4                     | 6 3                         | 758.398         | 4 <sup>+</sup>                                 |  |                  |          |
|                         |  | 917.39 6                     | 7.6 17                      | 625.4302        | 3 <sup>-</sup>                                 | M1   | 0.01759          |          |
|                         |  | 1047.09 <sup>c</sup> 7       | 31.8 <sup>c</sup> 9         | 495.5114        | 1 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1179.90 7                    | 24 9                        | 362.8995        | 2 <sup>-</sup>                                 | M1+E2<br>(E2)  | 0.007<br>0.00358 |          |
|                         |  | 1281.55 9                    | 100 21                      | 261.4047        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1283.47 13                   | 71 21                       | 259.3406        | 1 <sup>-</sup>                                 |  |                  |          |
| 1487.31 <sup>c</sup> 12 | 41 <sup>c</sup> 5                              | 55.1812                      | 1 <sup>-</sup>              | E2 <sup>a</sup> | 0.00276  | Mult.: M1 from internal conversion electron measurements<br>(1996Ma70,1996Ma75). |                  |          |
| 1554.429                | 1 <sup>-</sup> ,2 <sup>-</sup>                 | 218.907 8                    | 16 3                        | 1335.542        | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> | (M1)   | 0.790            |          |
|                         |  | 362.857 5                    | 10.8 8                      | 1191.566        | 1 <sup>+</sup> ,2 <sup>+</sup> ,3 <sup>+</sup> |  |                  |          |
|                         |  | 478.83 3                     | 5.4 5                       | 1075.560        | 1 <sup>-</sup> ,2 <sup>-</sup> ,3 <sup>-</sup> |  |                  |          |
|                         |  | 497.687 11                   | 8.1 5                       | 1056.719        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 566.80 <sup>c</sup> 4        | 8.1 <sup>c</sup> 14         | 987.5743        | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 597.49 <sup>c</sup> 3        | 8.1 <sup>c</sup> 16         | 956.9533        | 1 <sup>-</sup> ,2 <sup>-</sup>                 |  |                  |          |
|                         |  | 635.848 7                    | 29.7 11                     | 918.5889        | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1   | 0.0451           |          |
|                         |  | 657.84 <sup>c</sup> 6        | 8.1 <sup>c</sup> 24         | 896.5723        | 1 <sup>-</sup> ,2 <sup>-</sup>                 |  |                  |          |
|                         |  | 765.123 16                   | 59 3                        | 789.2974        | 1 <sup>-</sup>                                 |  |                  |          |
|                         |  | 767.92 <sup>c</sup> 4        | 35.1 <sup>c</sup> 27        | 786.5359        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 921.78 6                     | 32 7                        | 632.4820        | 1 <sup>-</sup> ,2 <sup>-</sup>                 | M1   | 0.01738          |          |
|                         |  | 929.03 4                     | 46 5                        | 625.4302        | 3 <sup>-</sup>                                 | M1   | 0.01704          |          |
|                         |  | 1005.36 5                    | 49 6                        | 548.9342        | 2 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1025.48 <sup>c</sup> 13      | 16.2 <sup>c</sup> 14        | 529.1685        | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1186.31 10                   | 59 15                       | 368.2567        | 1 <sup>-</sup>                                 |  |                  |          |
|                         |  | 1226.01 3                    | 100 4                       | 328.4833        | 3 <sup>-</sup>                                 | M1+E2  | 0.0062           |          |
|                         |  | 1361.41 5                    | 97 8                        | 192.9441        | 1 <sup>-</sup>                                 | M1   | 0.00653          |          |
| 1554.51 7               | 92 32  | 0.0                          | 2 <sup>-</sup>              |                 |  |  |                  |          |
| 1560.407                | 3 <sup>-</sup>                                 | 304.419 7                    | 11.5 8                      | 1256.018        | 1 <sup>-</sup> ,2 <sup>-</sup>                 |  |                  |          |
|                         |  | 403.141 7                    | 19.2 8                      | 1157.2381       | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 666.17 6                     | 27 8                        | 894.2716        | 3 <sup>-</sup>                                 |  |                  |          |
|                         |  | 773.82 6                     | 27 7                        | 786.5359        | 2 <sup>-</sup>                                 |  |                  |          |

Adopted Levels, Gammas (continued)

$\gamma(^{198}\text{Au})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$      | $E_\gamma^{\dagger\ddagger}$ | $I_\gamma^{\ddagger}$ | $E_f$    | $J_f^\pi$      | Mult.& | $\alpha^b$ |
|---------------------|----------------|------------------------------|-----------------------|----------|----------------|--------|------------|
| 1560.407            | 3 <sup>-</sup> | 856.58 6                     | 42 8                  | 703.7298 | 1 <sup>-</sup> |        |            |
|                     |                | 857.86 6                     | 39 8                  | 702.4811 | 2 <sup>-</sup> |        |            |
|                     |                | 1016.34 <sup>c</sup> 16      | 19 <sup>c</sup> 3     | 544.0093 | 4 <sup>-</sup> |        |            |
|                     |                | 1064.78 <sup>c</sup> 9       | 77 <sup>c</sup> 15    | 495.5114 | 1 <sup>-</sup> |        |            |
|                     |                | 1324.41 6                    | 100 11                | 236.0453 | 3 <sup>-</sup> | M1     | 0.00698    |
|                     |                | 1505.50 <sup>c</sup> 23      | 42 <sup>c</sup> 6     | 55.1812  | 1 <sup>-</sup> |        |            |

<sup>†</sup> The primary  $\gamma$ 's from the capture state for thermal neutron capture are not included here. See the three <sup>197</sup>Au(n, $\gamma$ ) data sets for these data.

<sup>‡</sup> From secondary  $\gamma$ 's in <sup>197</sup>Au(n, $\gamma$ ), except as noted. The intensities are relative photon branching from each level.

# From <sup>198</sup>Au IT decay (2.272 d).

@ From <sup>197</sup>Au(n, $\gamma$ ) E=2,24 keV: Sec.

& From internal-conversion electron measurements in <sup>197</sup>Au(n, $\gamma$ ) (1996Ma70,1996Ma75), except as noted.

<sup>a</sup> From  $J^\pi$  between transition levels.

<sup>b</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.

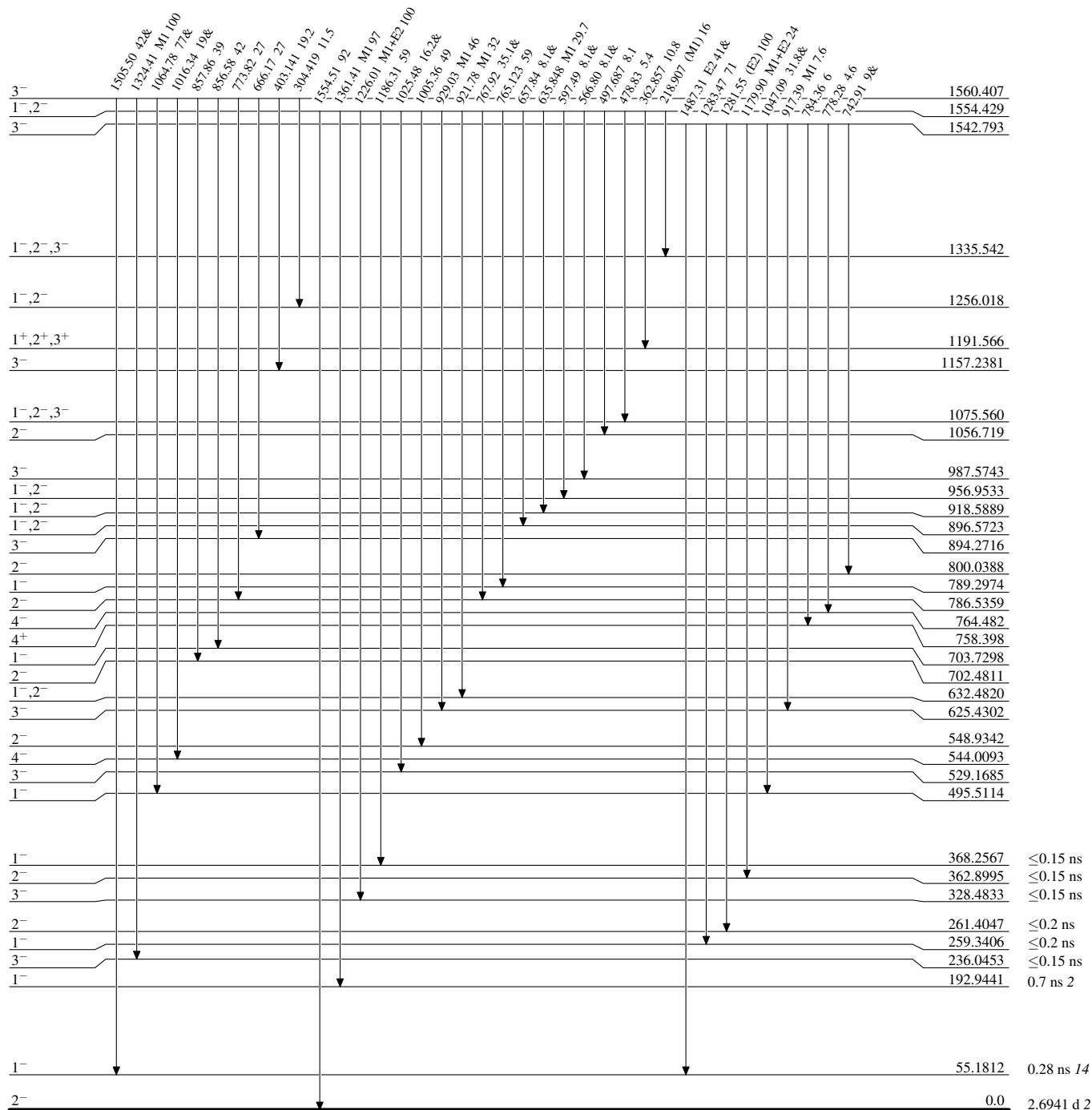
<sup>c</sup> Multiply placed with undivided intensity.

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

**Adopted Levels, Gammas**

**Level Scheme**

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

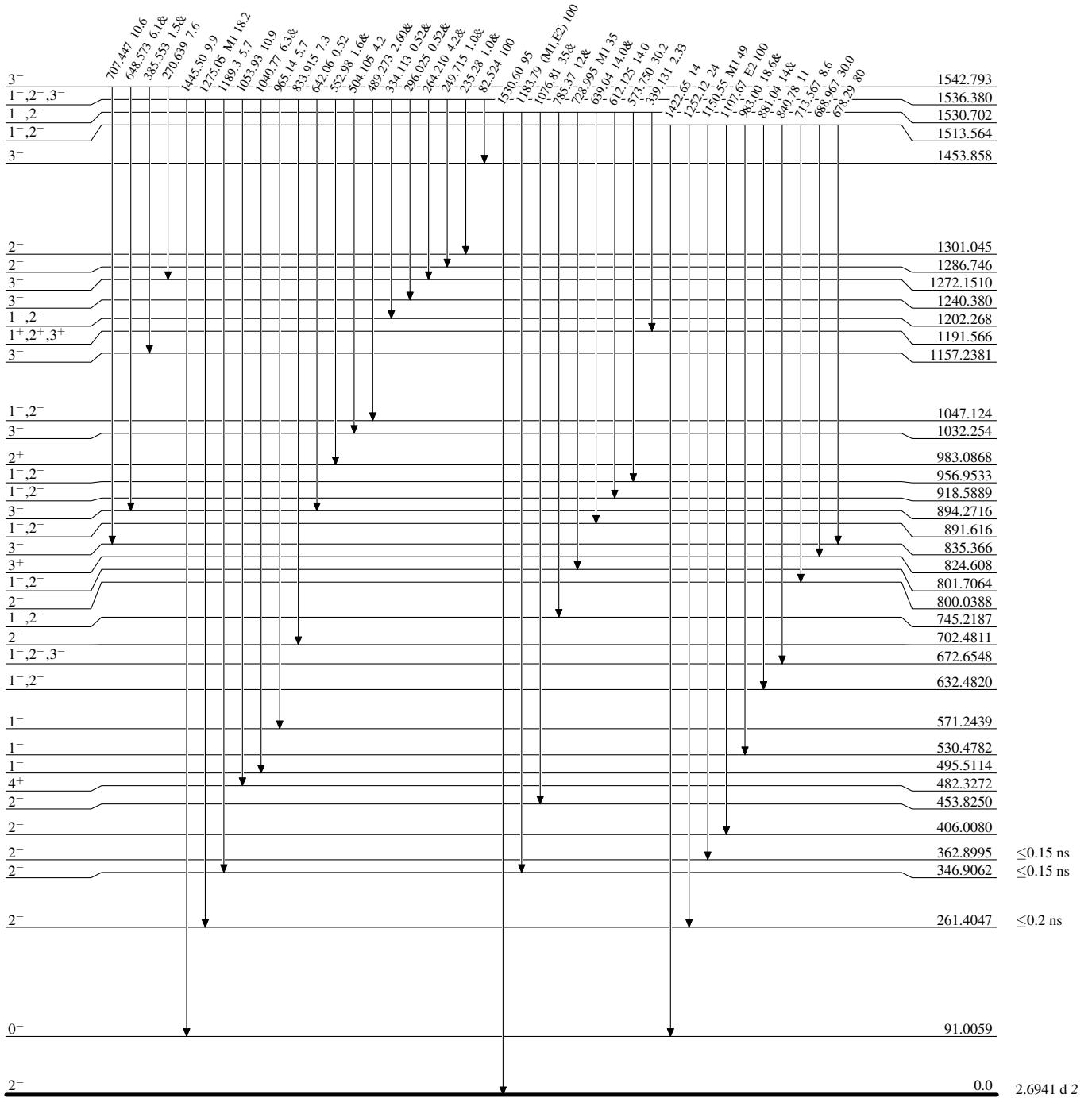


<sup>198</sup>Au<sub>119</sub>

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

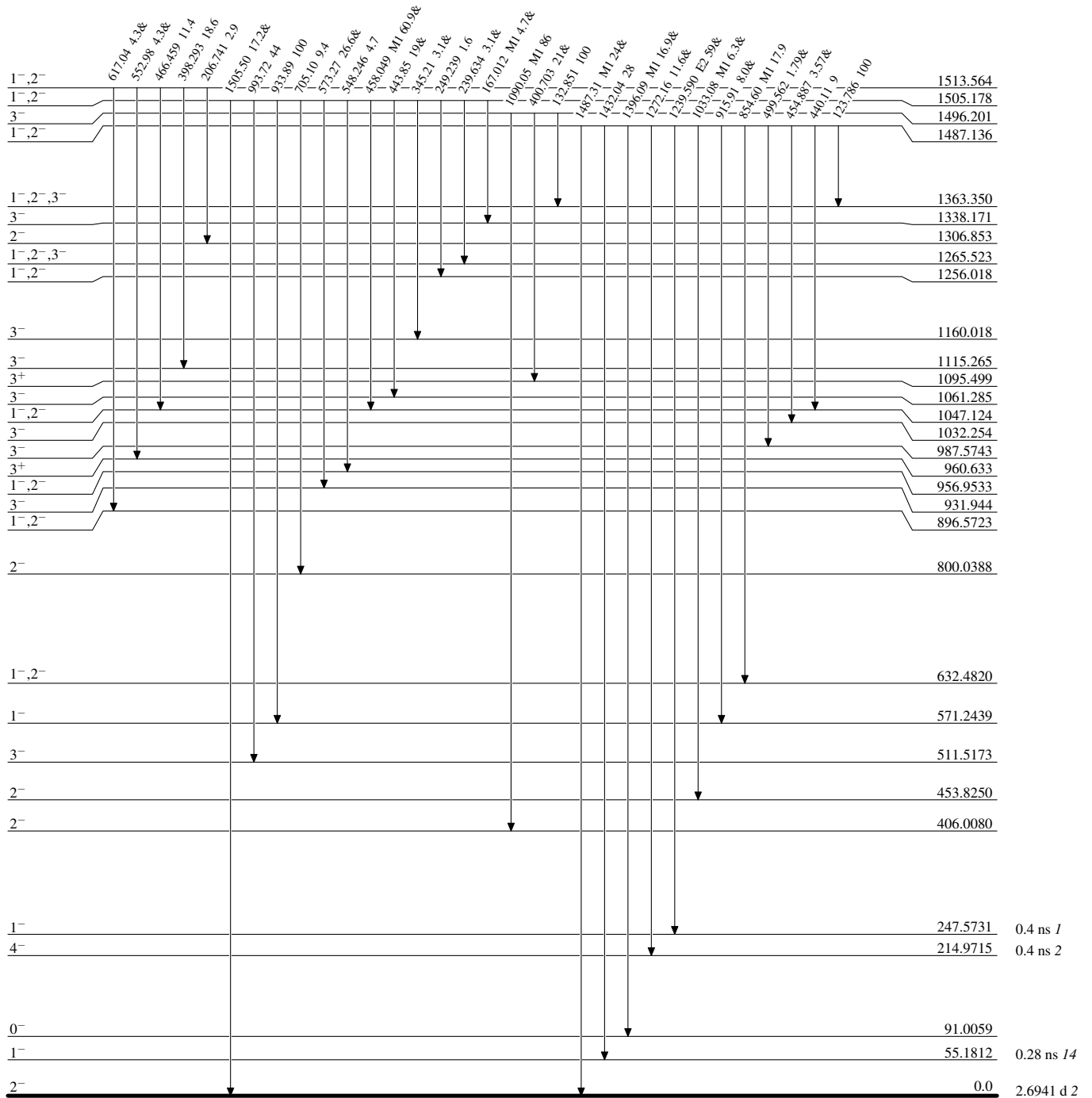


<sup>198</sup>79Au<sub>119</sub>

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

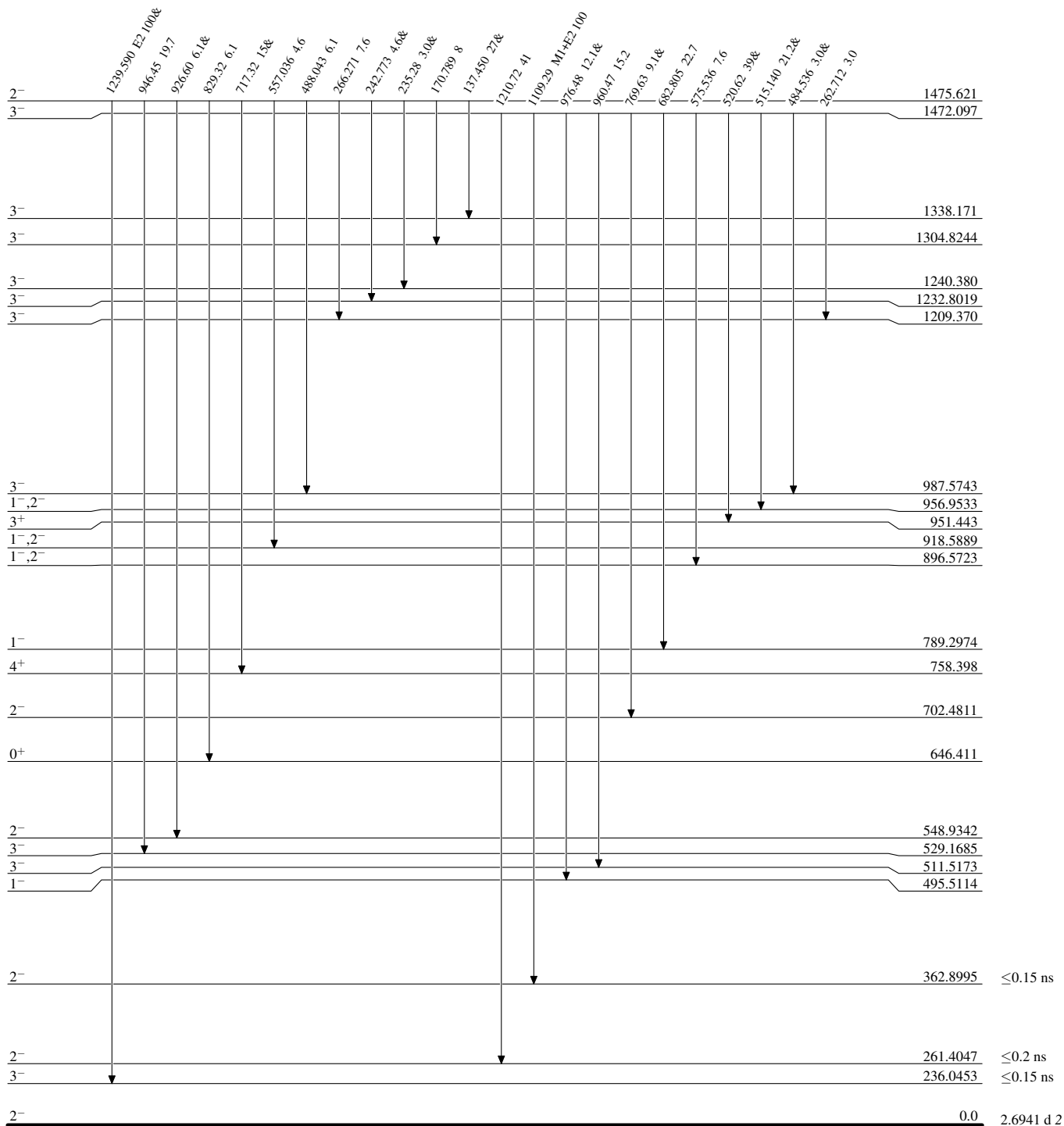


<sup>198</sup><sub>79</sub>Au<sub>119</sub>

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

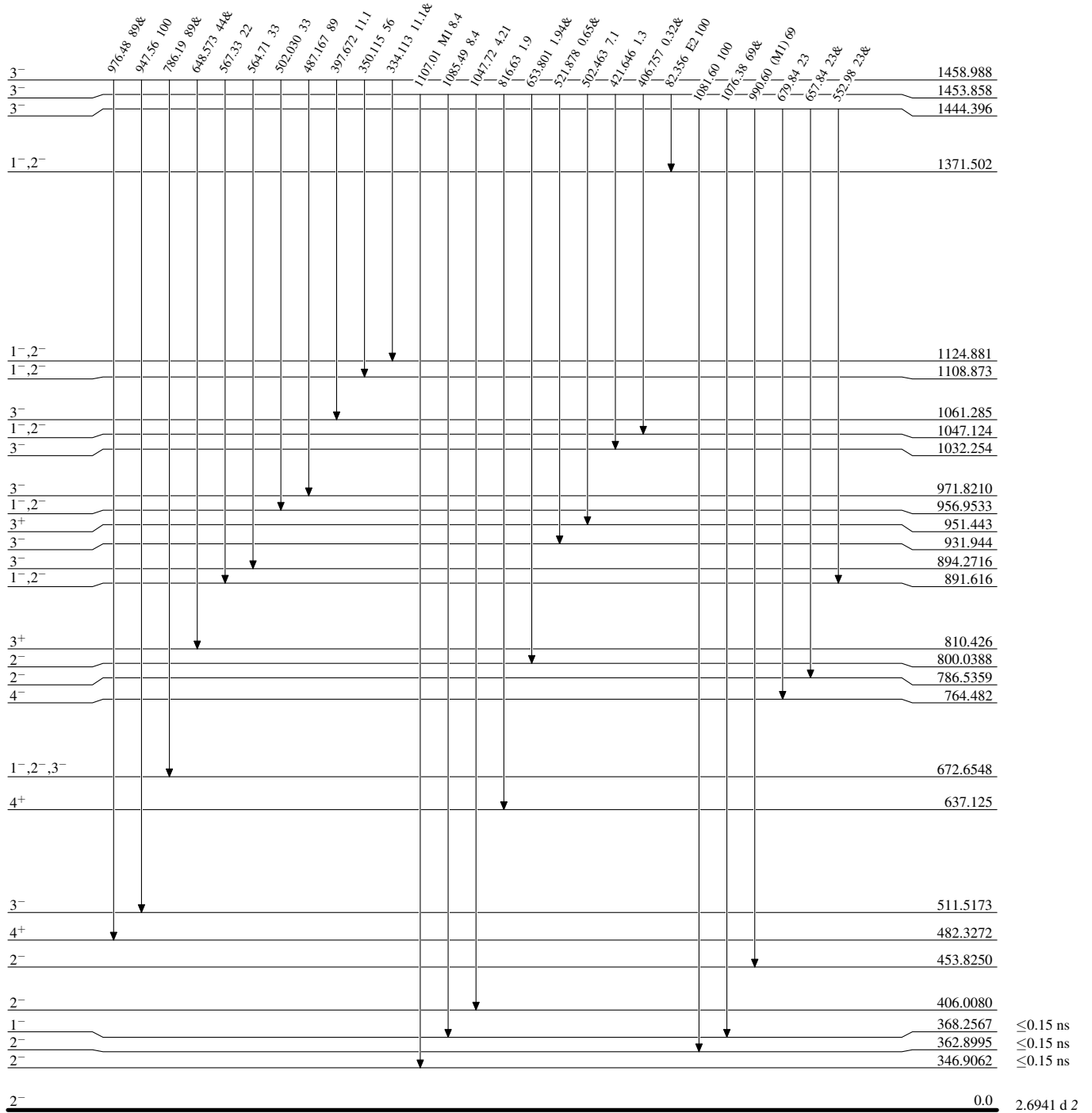




**Adopted Levels, Gammas**

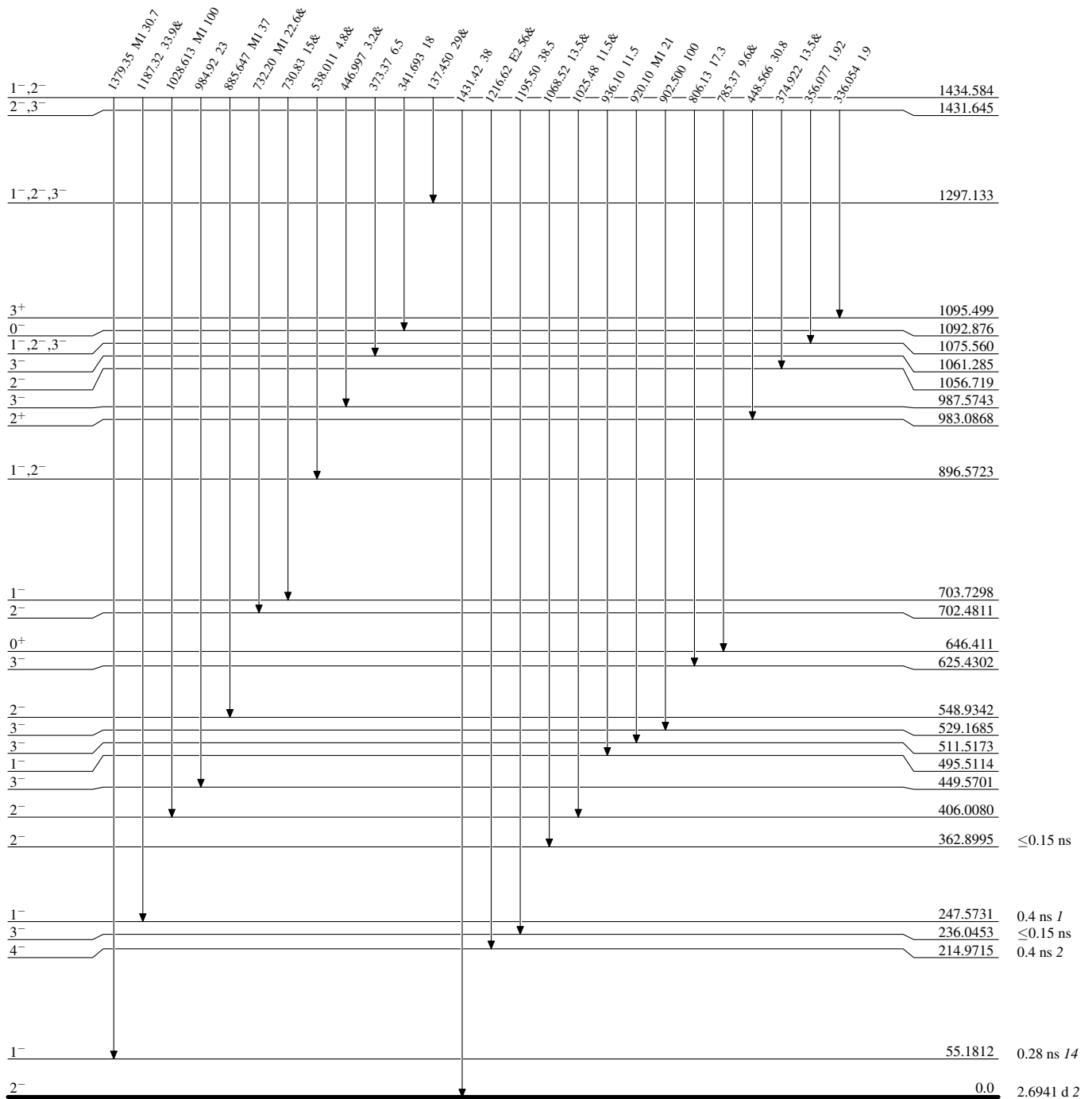
**Level Scheme (continued)**

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



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

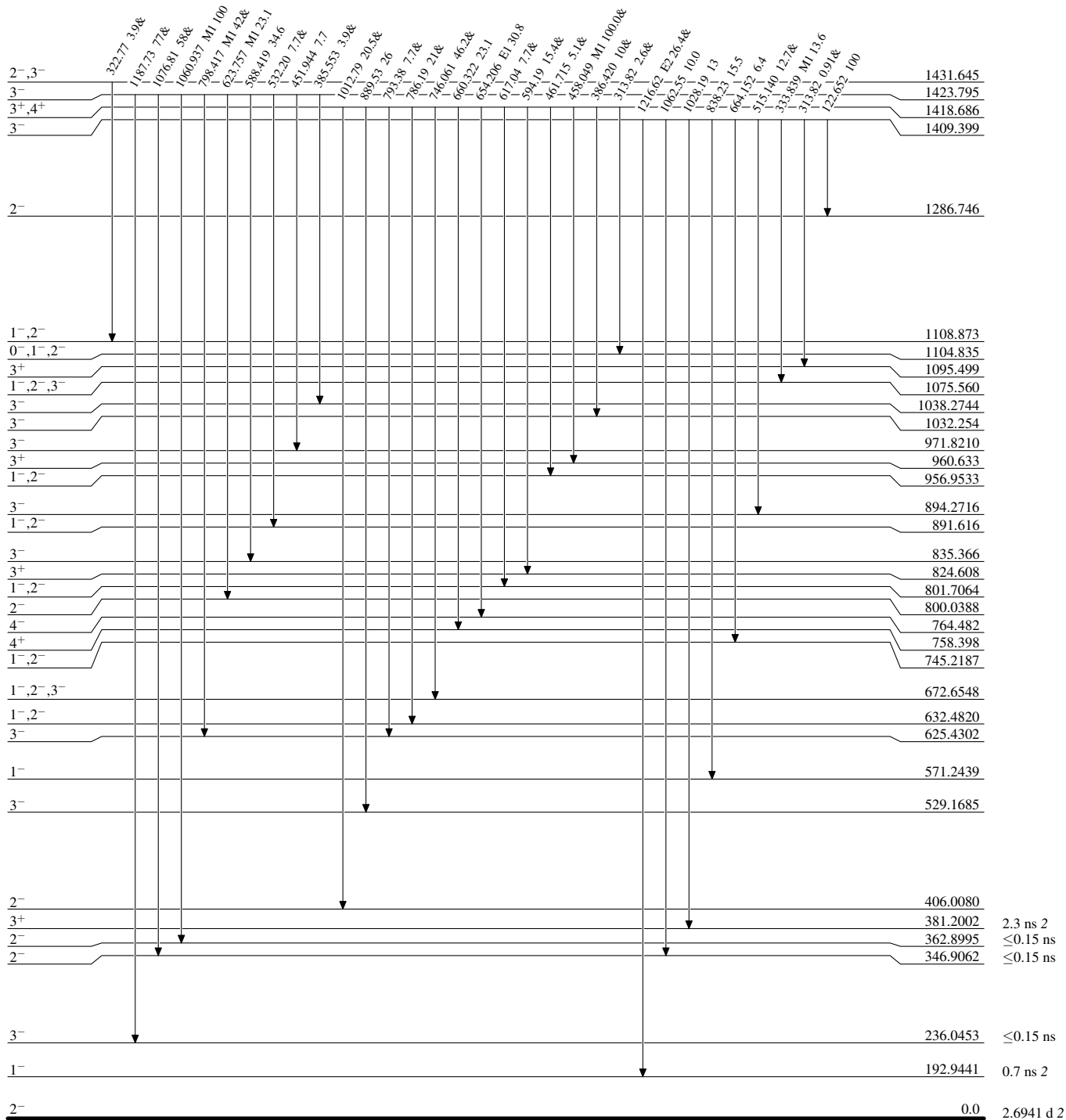
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given

 $^{198}_{79}\text{Au}_{119}$

Adopted Levels, Gammas

Level Scheme (continued)

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

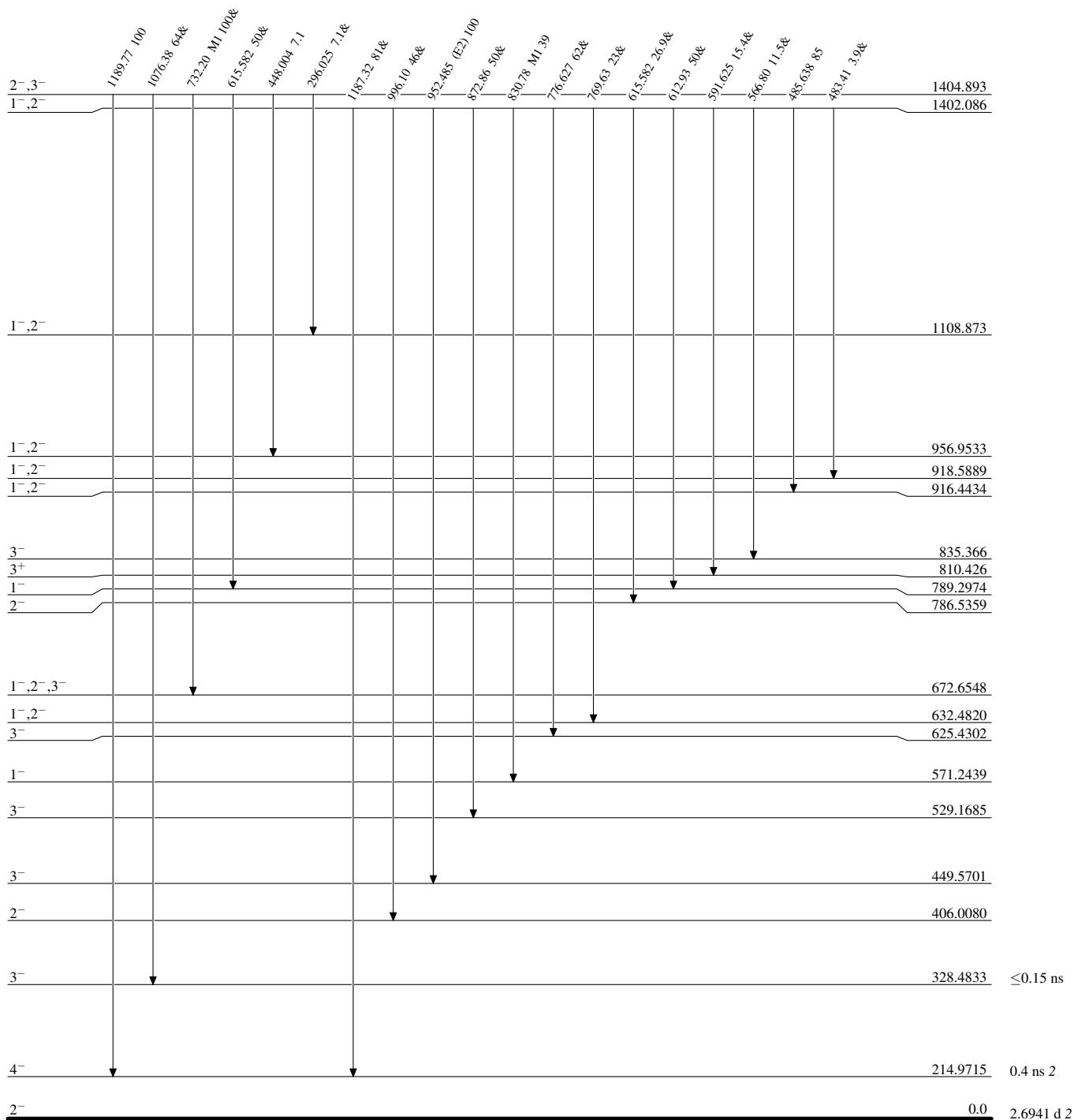


<sup>198</sup>79Au<sub>119</sub>

**Adopted Levels, Gammas**

Level Scheme (continued)

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

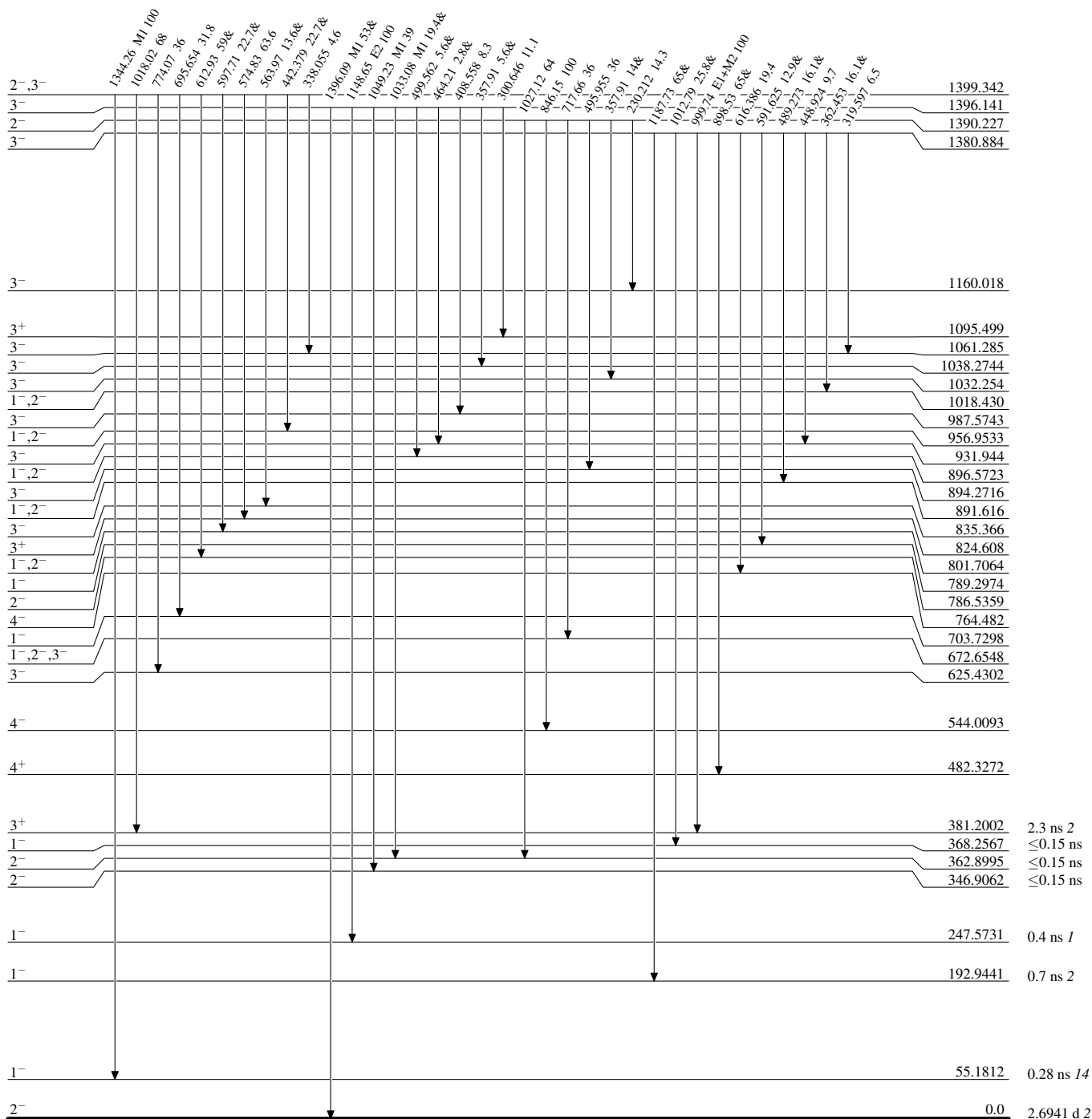


$^{198}_{79}\text{Au}_{119}$

**Adopted Levels, Gammas**

**Level Scheme (continued)**

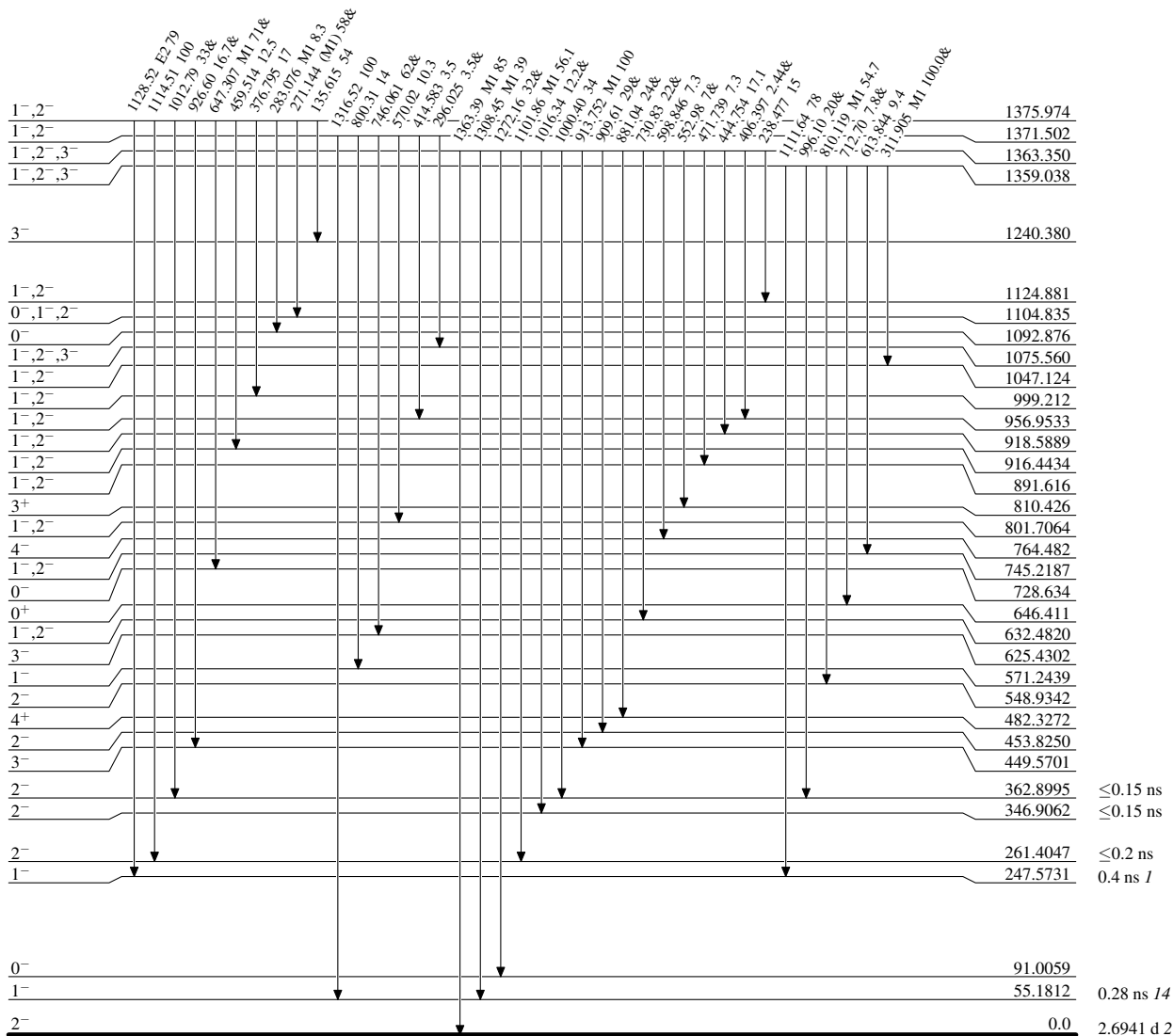
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given



**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

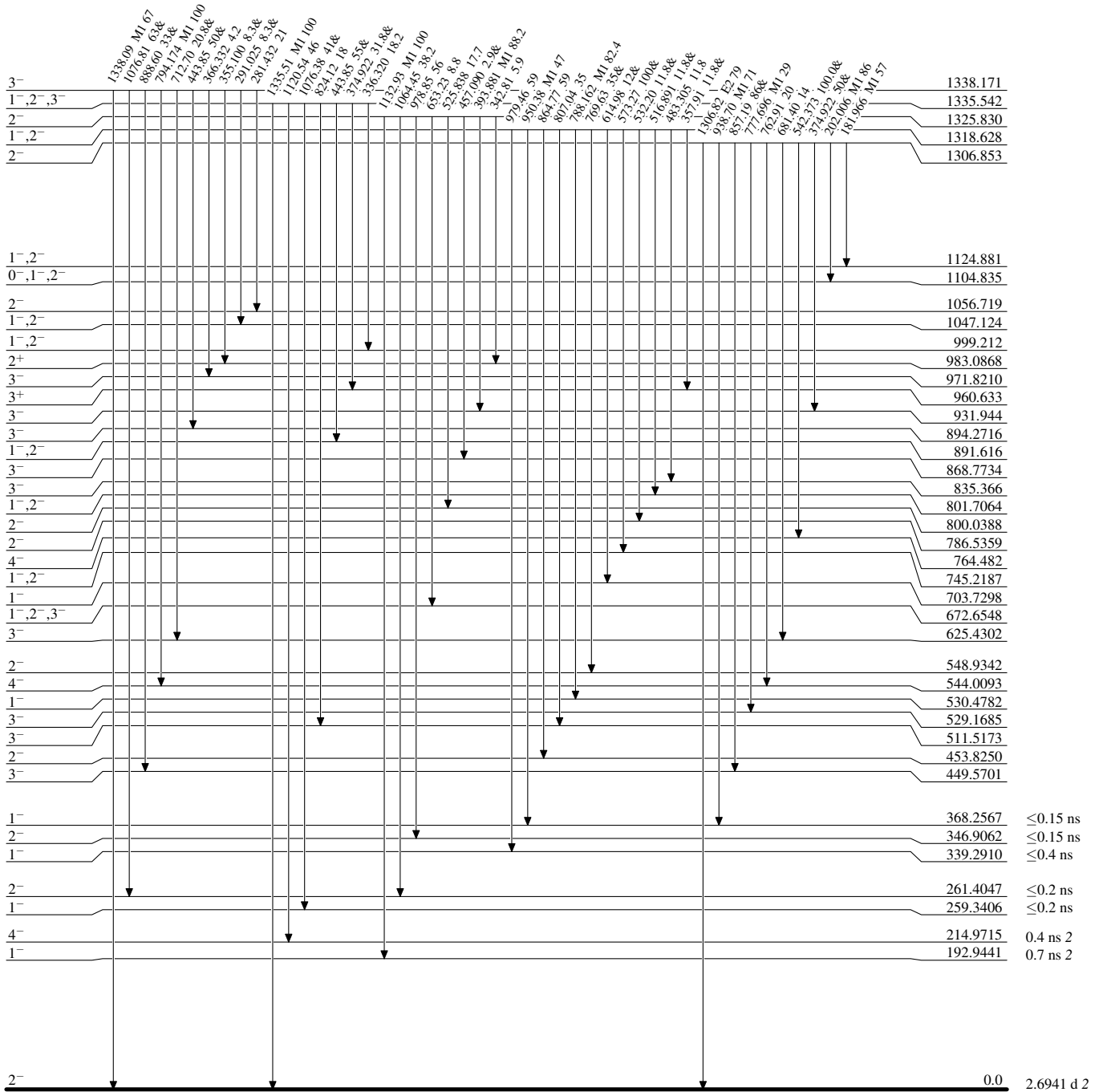


$^{198}_{79}\text{Au}_{119}$

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

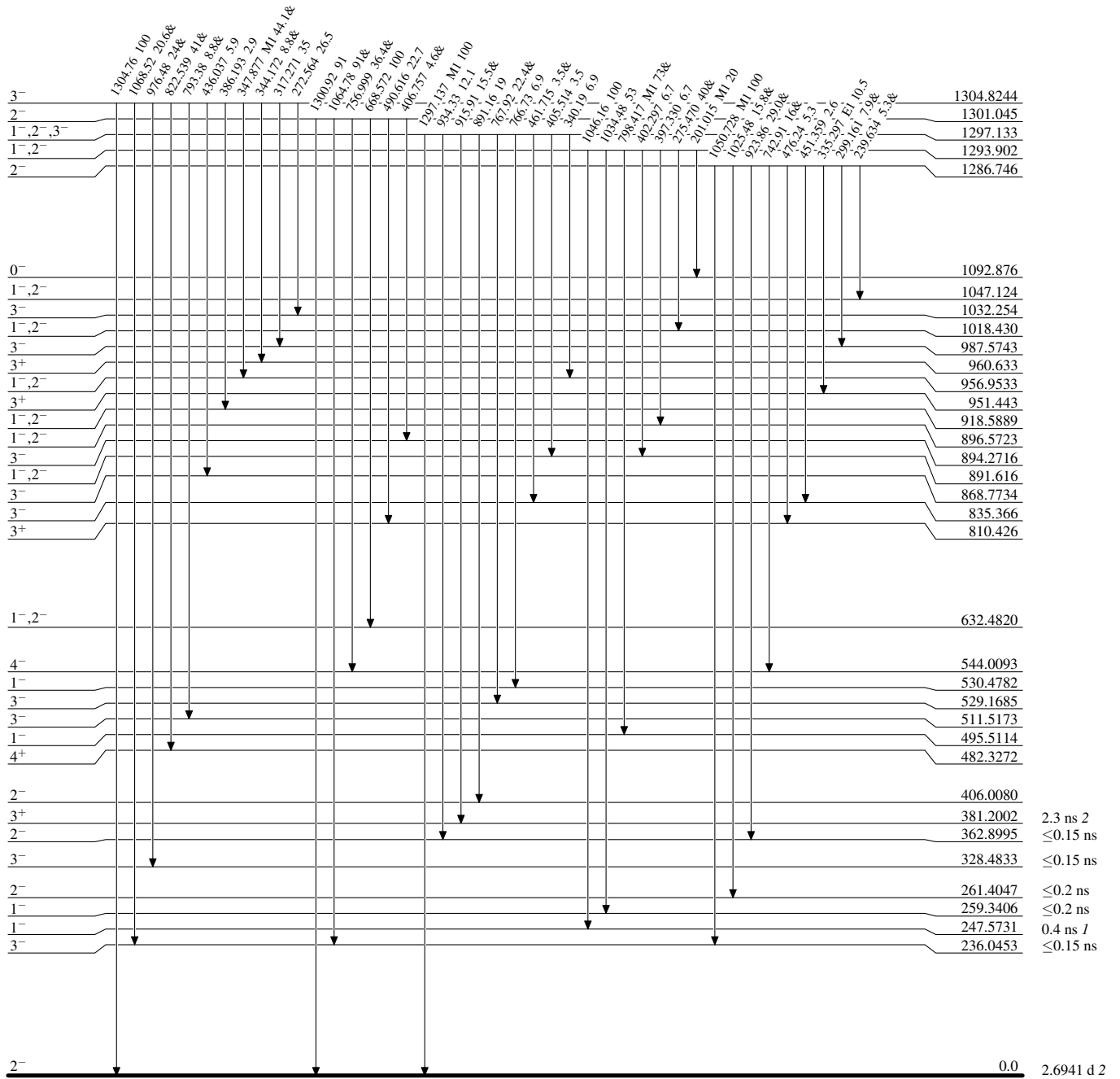


<sup>198</sup>79Au<sub>119</sub>

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

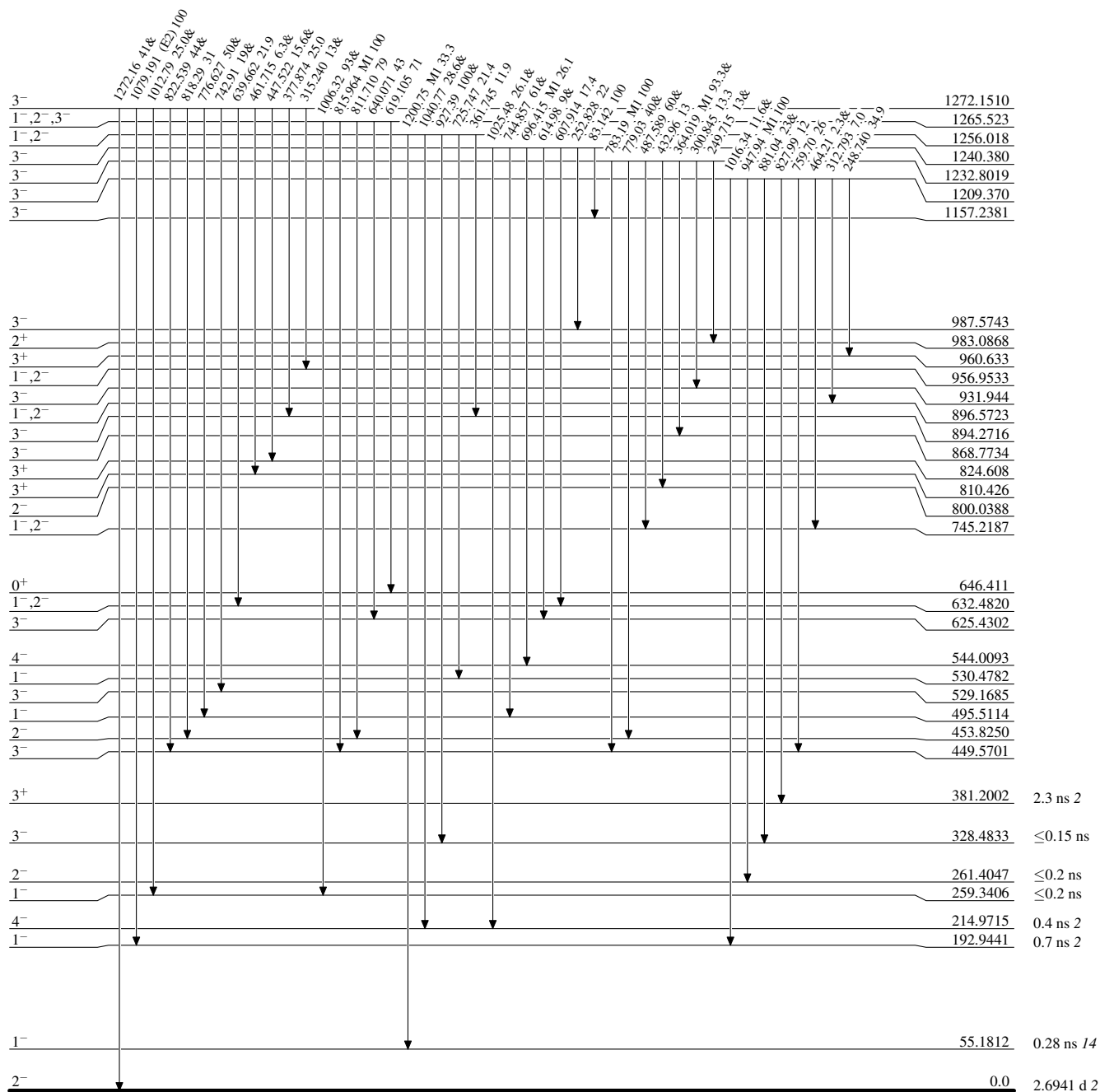




**Adopted Levels, Gammas**

**Level Scheme (continued)**

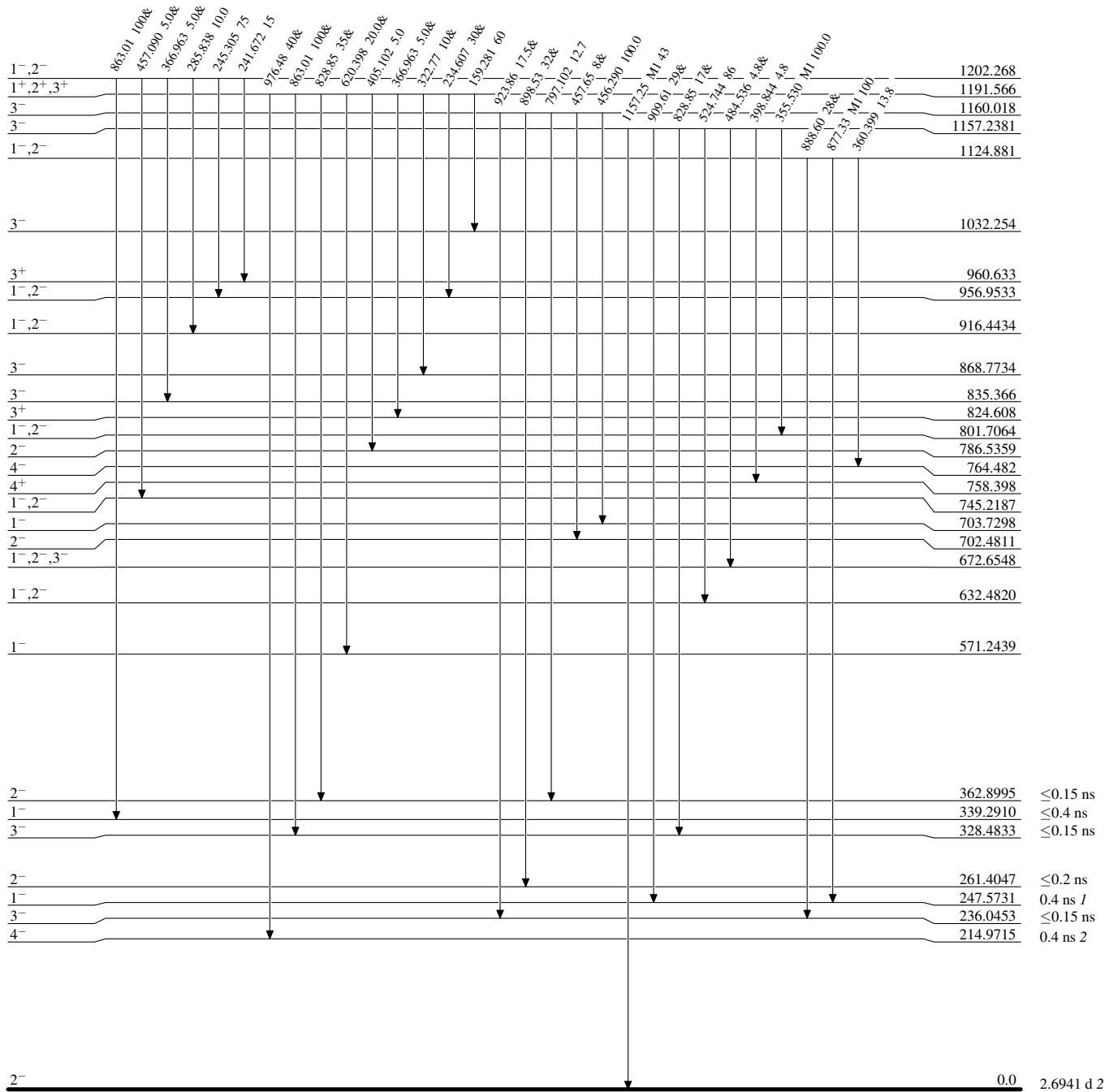
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given



**Adopted Levels, Gammas**

**Level Scheme (continued)**

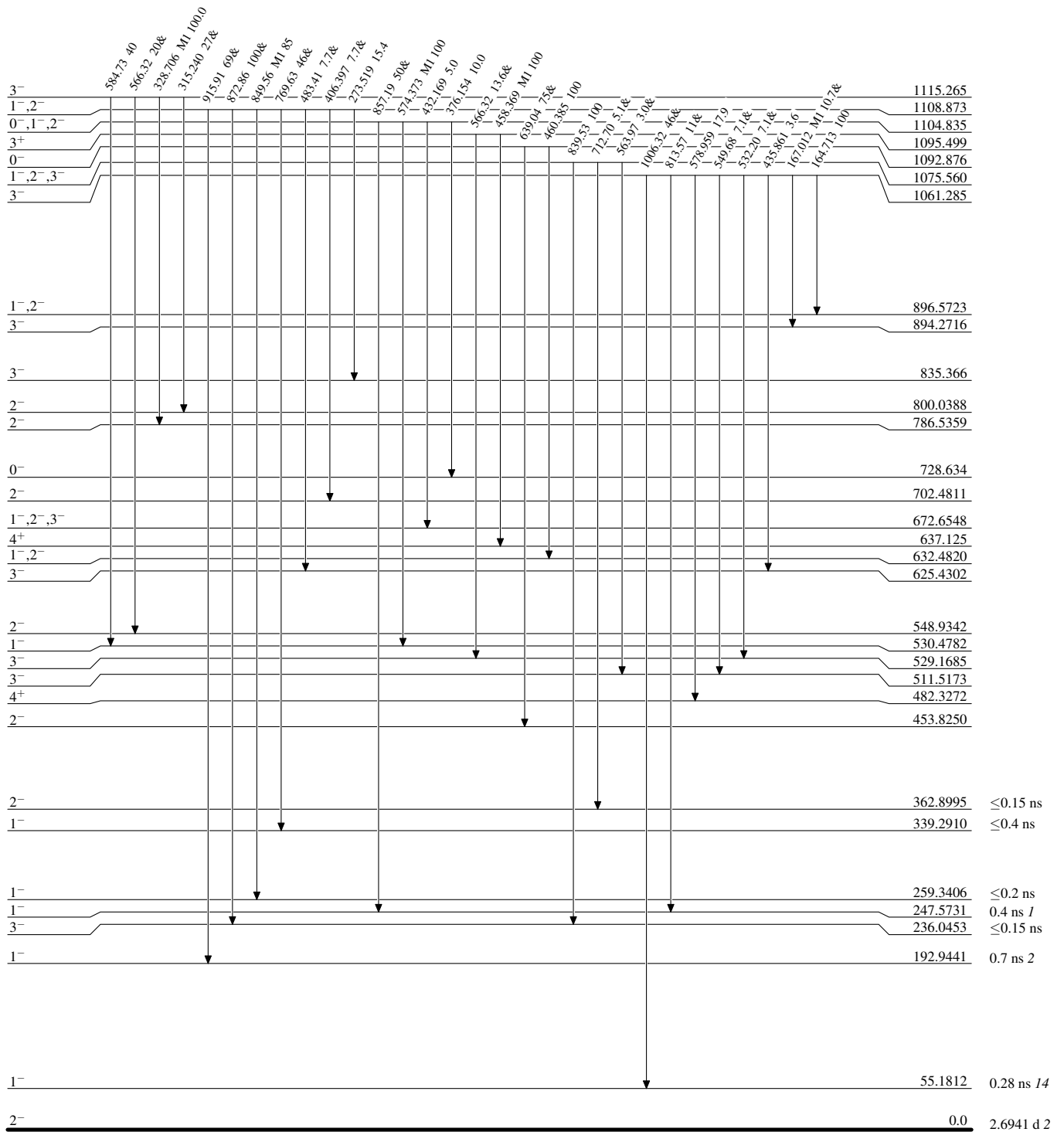
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given



**Adopted Levels, Gammas**

**Level Scheme (continued)**

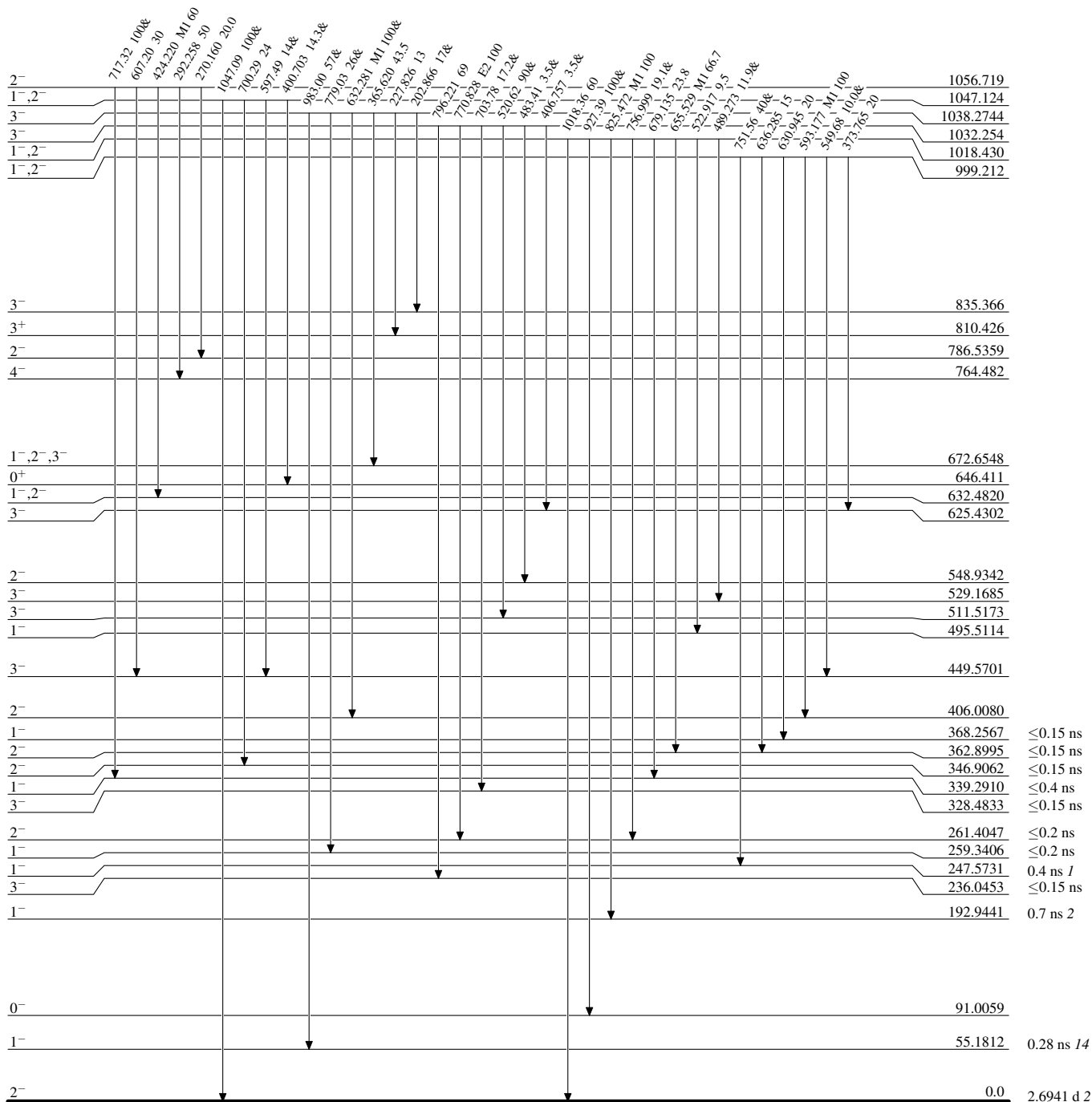
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given



**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

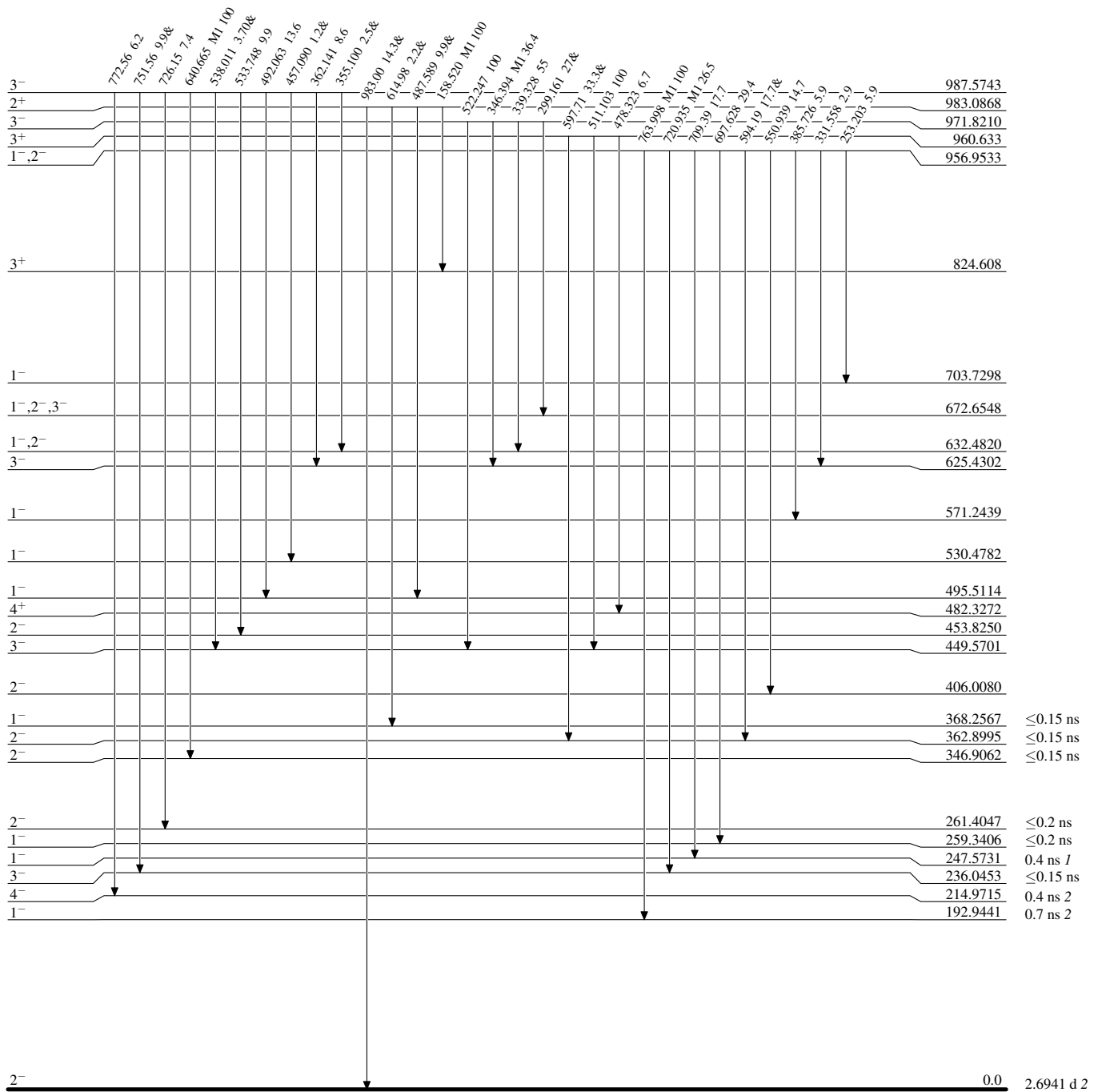


$^{198}_{79}\text{Au}_{119}$

**Adopted Levels, Gammas**

**Level Scheme (continued)**

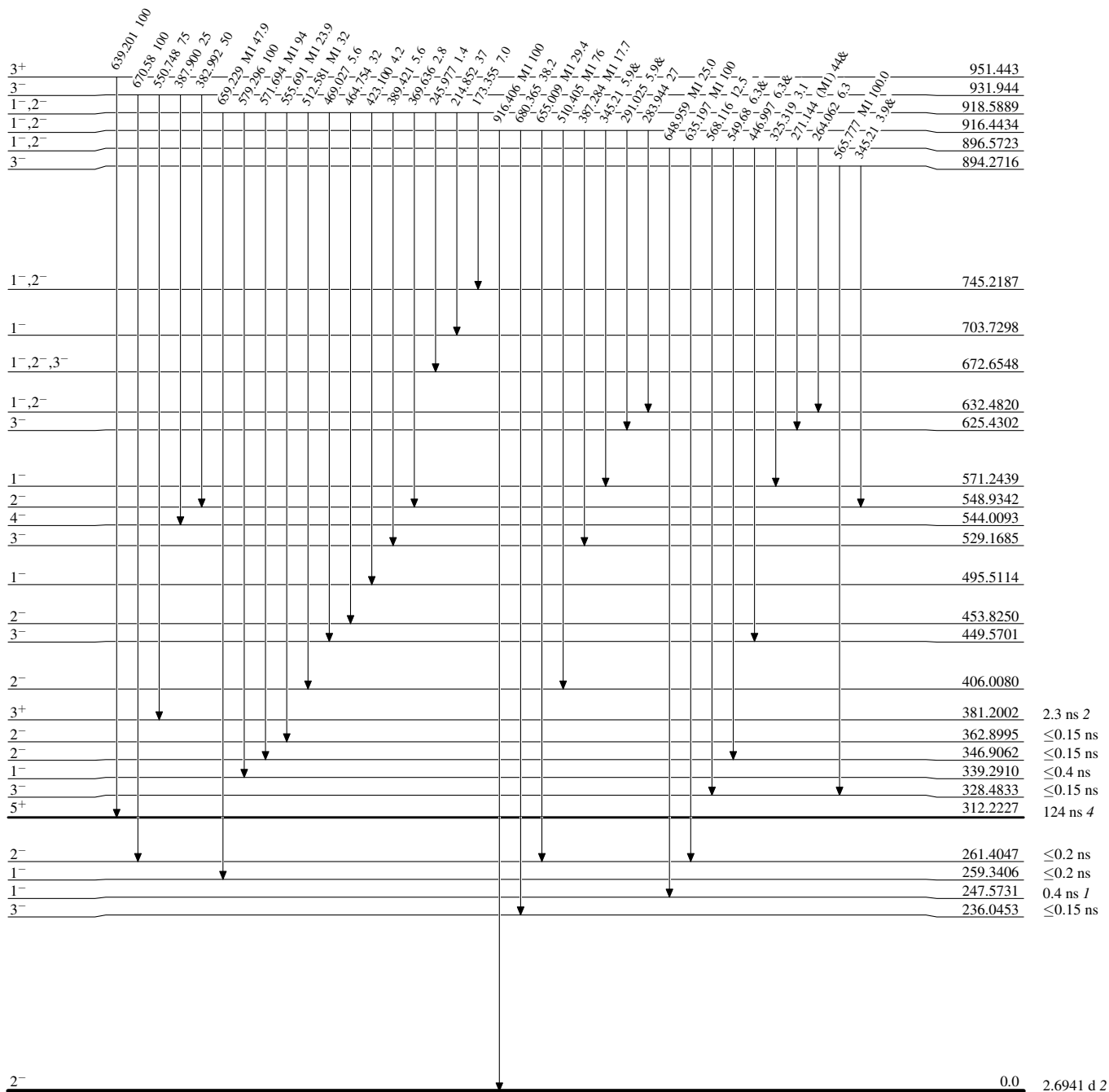
Intensities: Relative photon branching from each level  
& Multiply placed: undivided intensity given



**Adopted Levels, Gammas**

**Level Scheme (continued)**

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

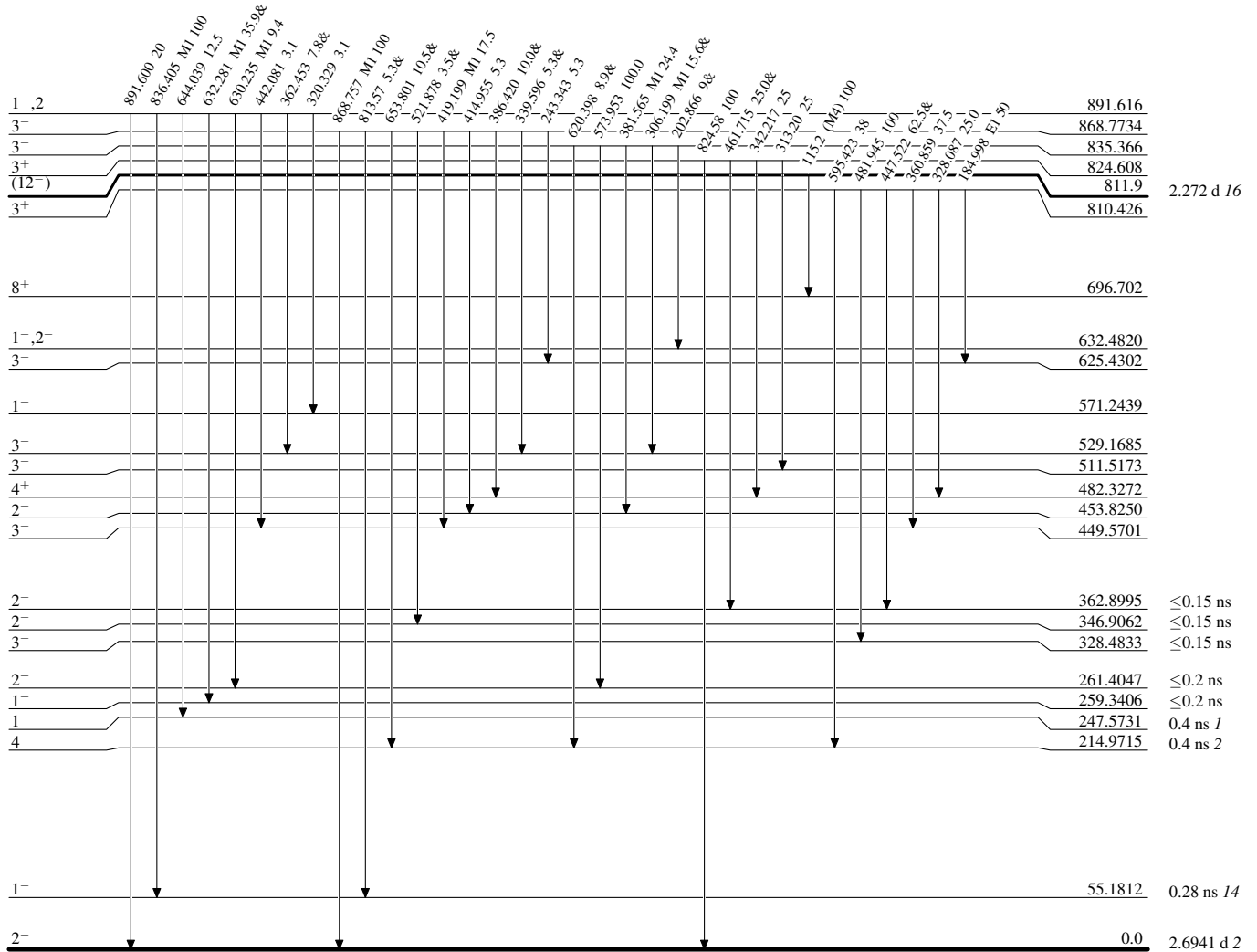


$^{198}_{79}\text{Au}_{119}$

**Adopted Levels, Gammas**

**Level Scheme (continued)**

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



$^{198}_{79}\text{Au}_{119}$

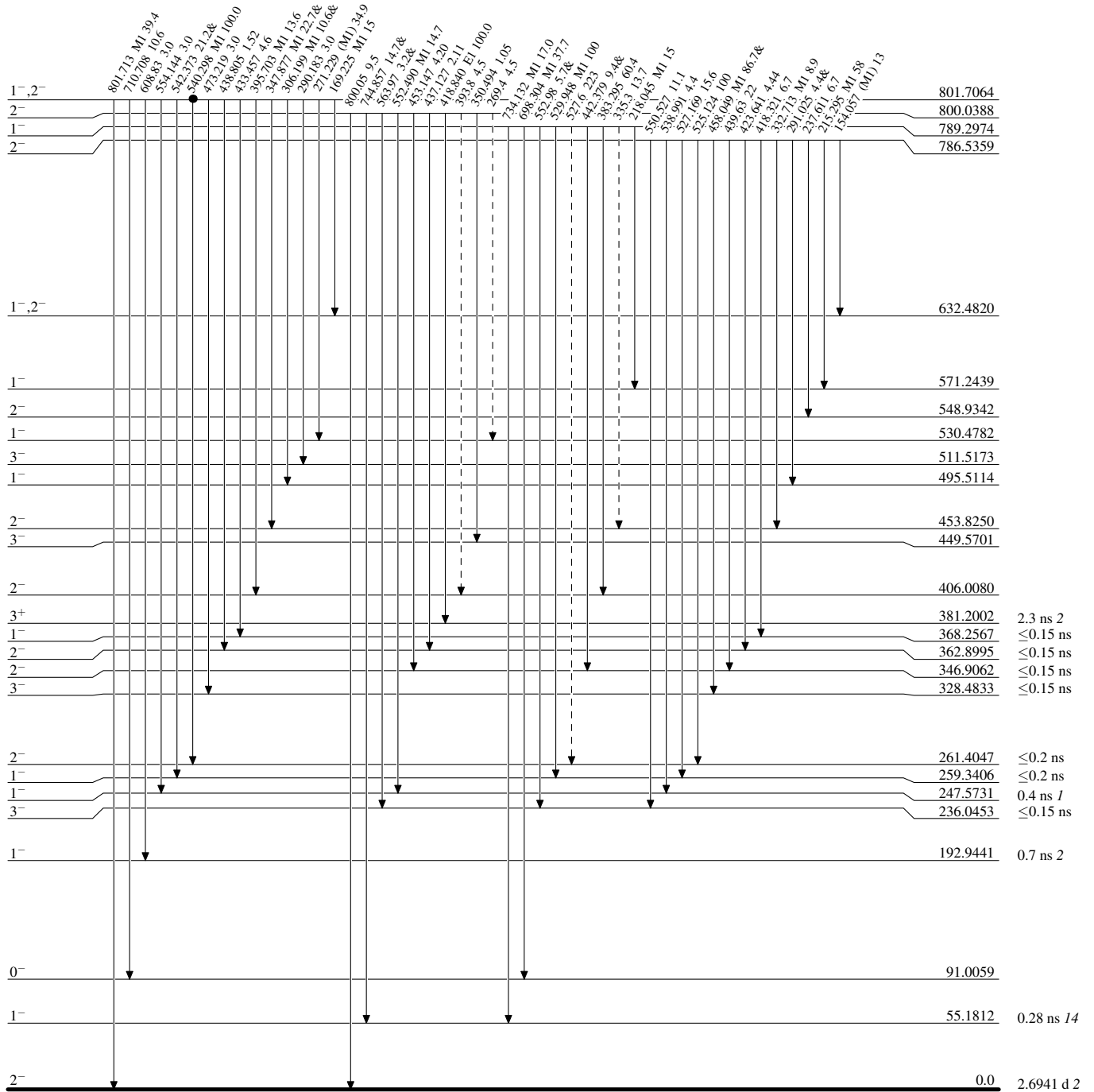
Adopted Levels, Gammas

Legend

Level Scheme (continued)

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

---▶  $\gamma$  Decay (Uncertain)  
● Coincidence



<sup>198</sup>Au<sub>119</sub>



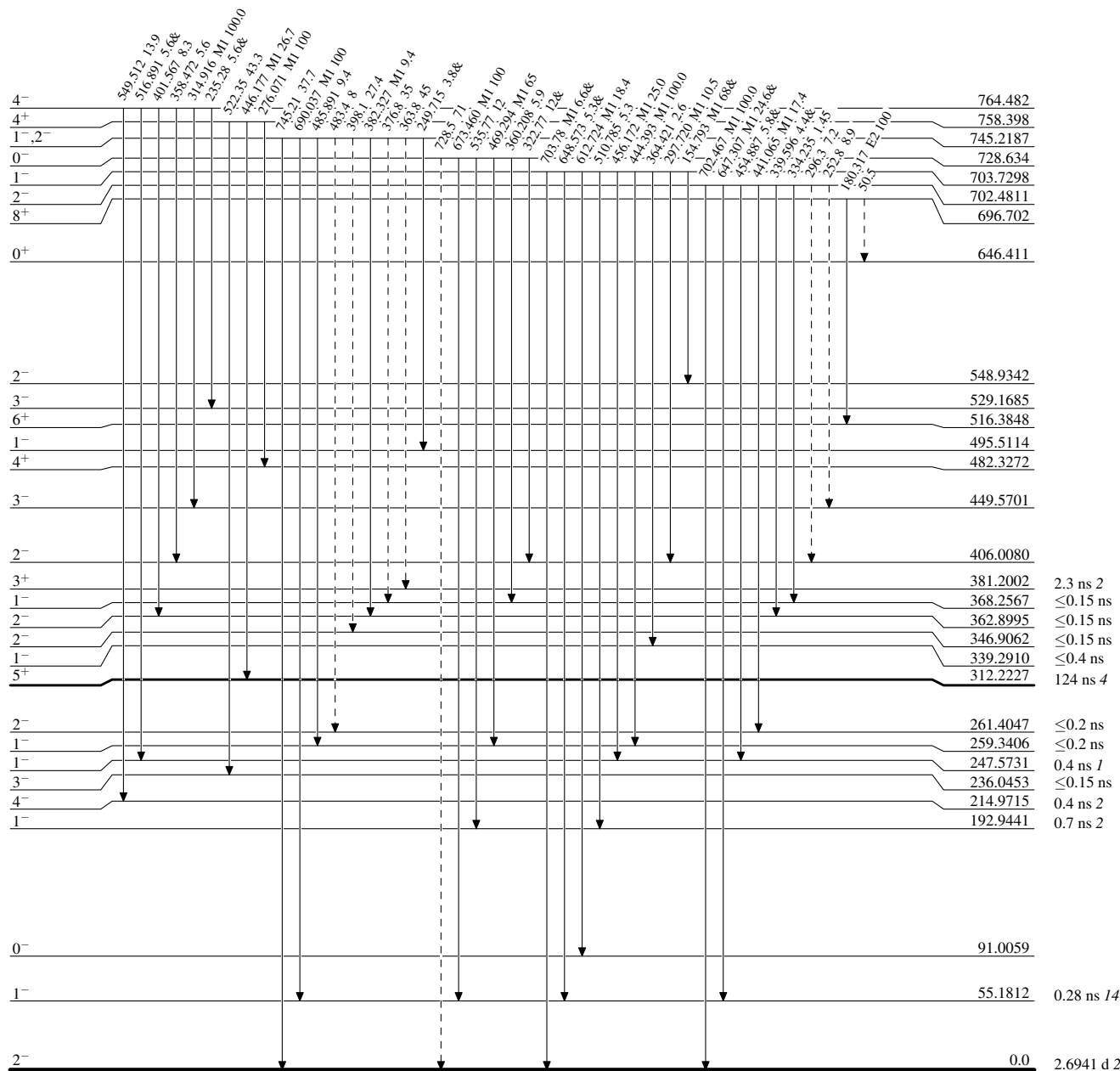
**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

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

-----▶  $\gamma$  Decay (Uncertain)



<sup>198</sup>Au<sub>119</sub>

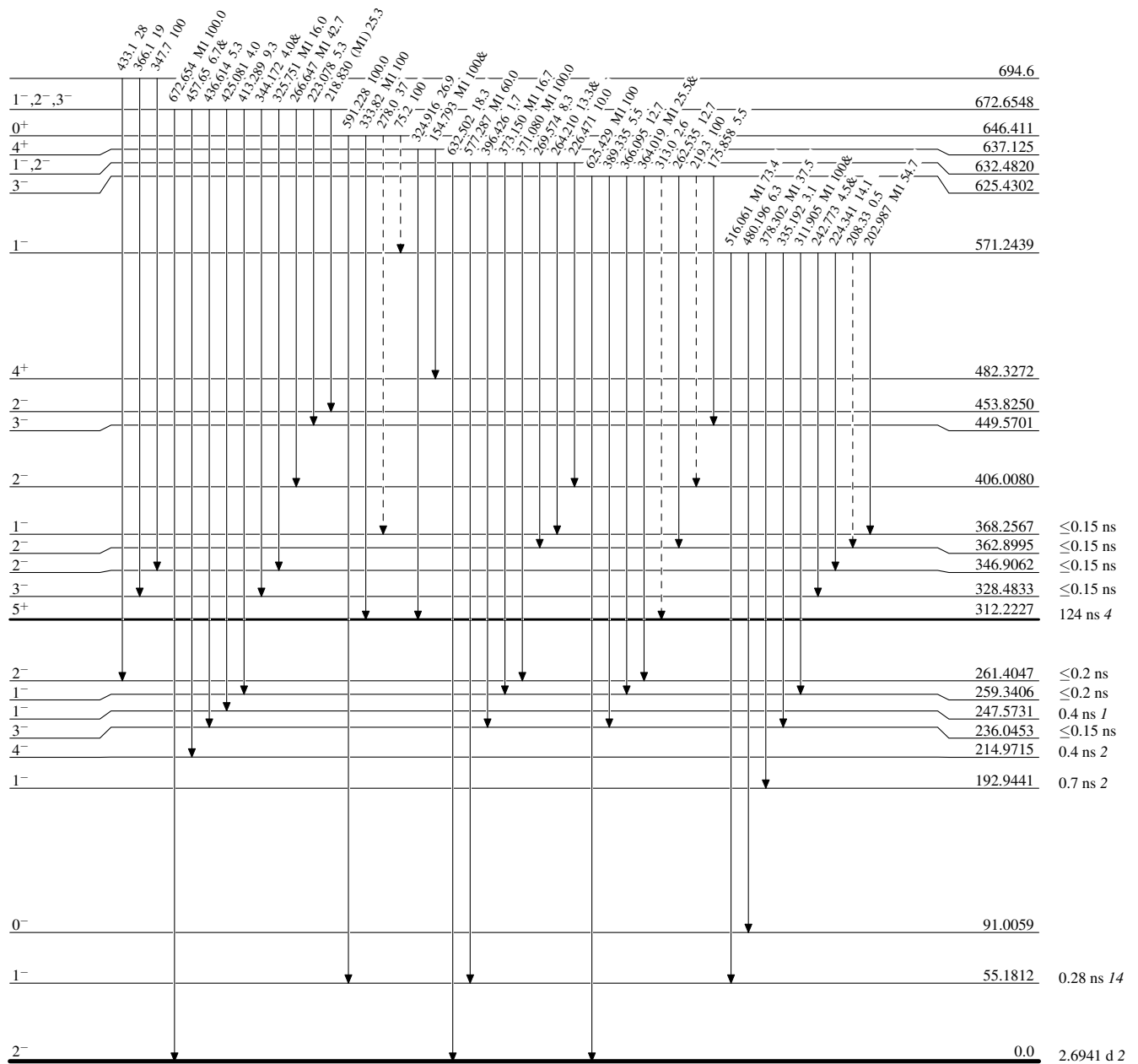
**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

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

-----►  $\gamma$  Decay (Uncertain)



<sup>198</sup>Au<sub>119</sub>

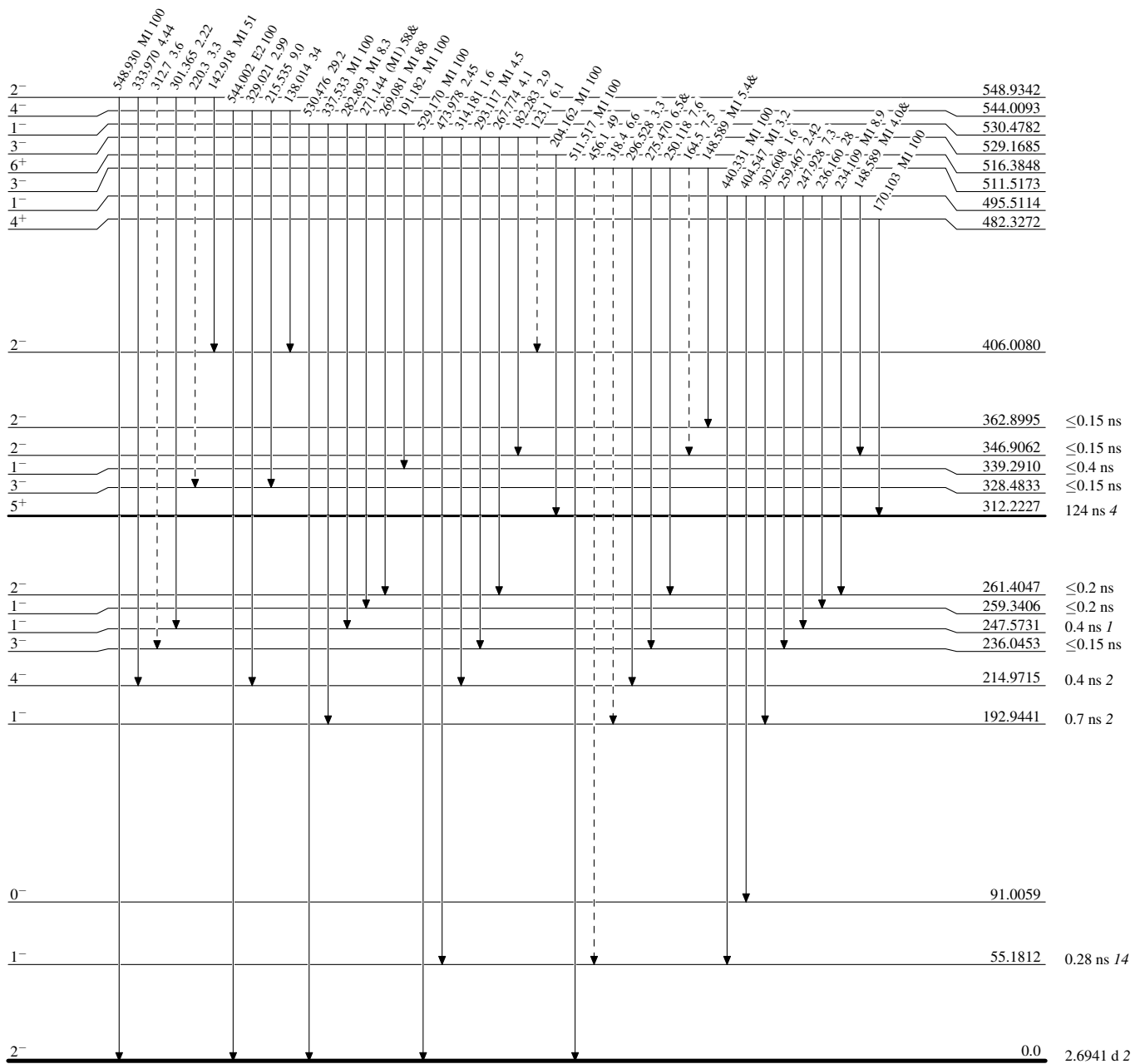
**Adopted Levels, Gammas**

Legend

**Level Scheme (continued)**

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

-----▶  $\gamma$  Decay (Uncertain)



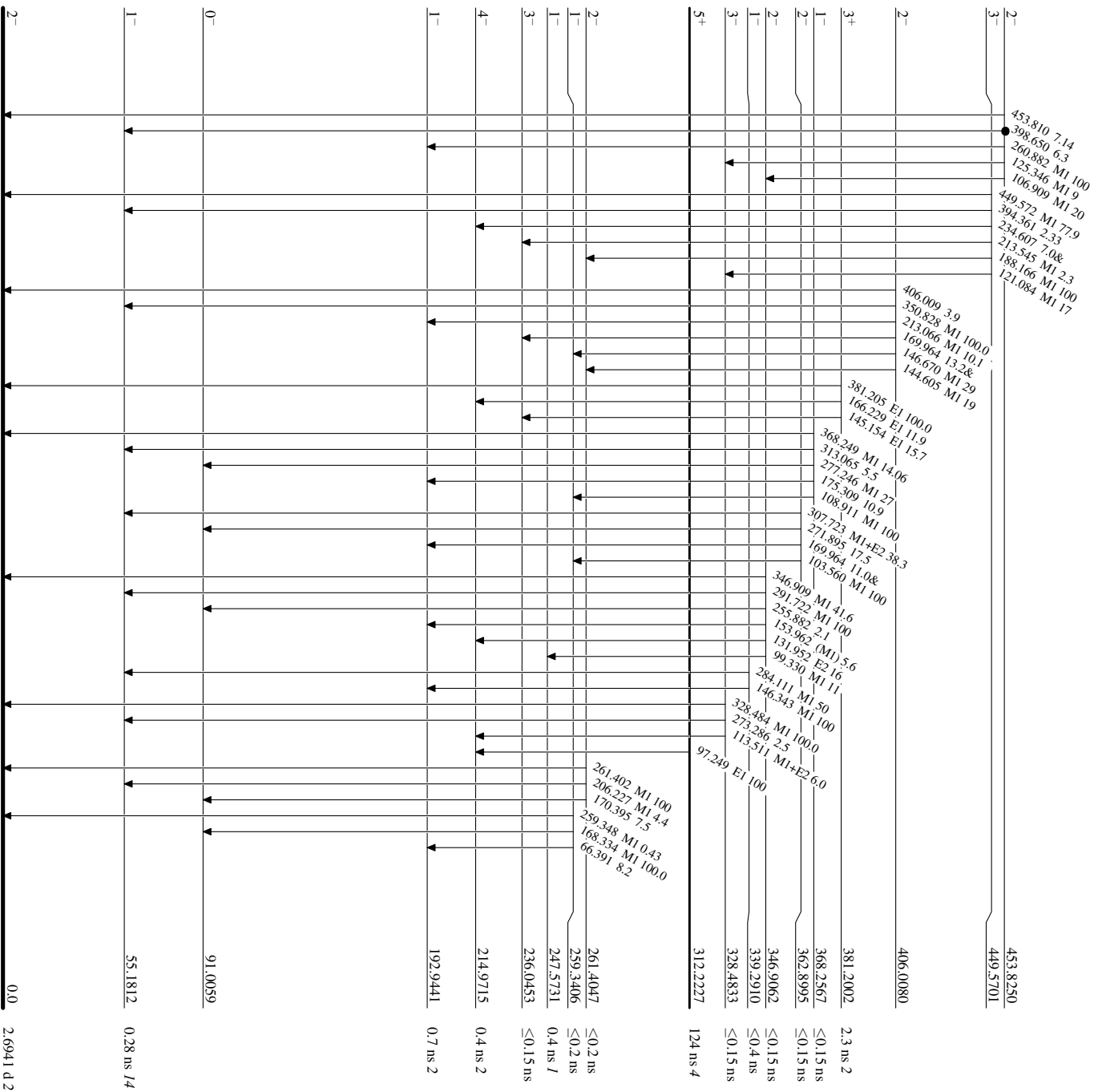
<sup>198</sup>Au<sub>119</sub>

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

Legend

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

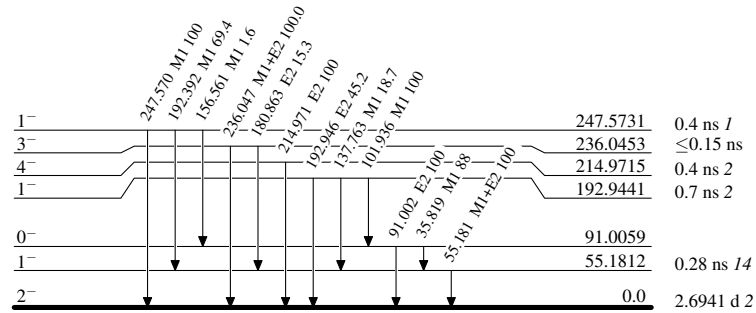
● Coincidence



<sup>198</sup>Au<sub>119</sub>  
<sup>79</sup>Au<sub>119</sub>

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

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

 $^{198}_{79}\text{Au}_{119}$