

Adopted Levels, Gammas

| Type            | Author                        | History | Citation            | Literature Cutoff Date |
|-----------------|-------------------------------|---------|---------------------|------------------------|
| Full Evaluation | Zoltan Elekes and Janos Timar |         | NDS 129, 191 (2015) | 28-Feb-2015            |

$Q(\beta^-)=2122.4$ ;  $S(n)=6826.13$  5;  $S(p)=6746.4$ ;  $Q(\alpha)=-2543.4$  2012Wa38

 $^{128}\text{I}$  LevelsCross Reference (XREF) Flags

|          |                                              |          |                                                |
|----------|----------------------------------------------|----------|------------------------------------------------|
| <b>A</b> | $^{124}\text{Sn}(^7\text{Li},3n\gamma)$      | <b>E</b> | $^{127}\text{I}(n,\gamma)$ E=thermal:secondary |
| <b>B</b> | $^{128}\text{Te}(p,n\gamma)$                 | <b>F</b> | $^{127}\text{I}(d,p)$                          |
| <b>C</b> | $^{127}\text{I}(n,X)$ : resonances           | <b>G</b> | $^{129}\text{I}(d,t)$                          |
| <b>D</b> | $^{127}\text{I}(n,\gamma)$ E=thermal:primary | <b>H</b> | $^{128}\text{Te}(^3\text{He},t)$               |

| E(level)    | $J^\pi$          | $T_{1/2}^\dagger$      | XREF           | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|-------------|------------------|------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0         | $1^+$            | 24.99 min 2            | <b>B DEFGH</b> | $\% \beta^- = 93.1$ 8; $\% \epsilon + \% \beta^+ = 6.9$ 8<br>$J^\pi$ : atomic beam $J=1$ ; $L(d,p)=2$ for $5/2^+$ target, configuration= $(\pi 2d_{5/2})(\nu 2d_{3/2})$ .<br>$T_{1/2}$ : weighted average of 24.99 min 2 (1941Hu04), 25.03 min 4 (1958Gu09), 25.0 min 5 (1959Gi42), 25.5 min 3 (1968Qa02), 25.08 min 5 (1968Re04), 24.97 min 3 (1972Em01). Other: 24.92 min 6 (1994Ya02); value is an average from three values given in the authors' table. |
| 27.3620 11  | $2^+$            |                        | <b>B DEFG</b>  | $J^\pi$ : M1 $\gamma$ to $1^+$ g.s.; M1 $\gamma$ from $3^+$ .                                                                                                                                                                                                                                                                                                                                                                                                |
| 85.471 3    | $3^+$            |                        | <b>B DEFG</b>  | $J^\pi$ : $J^\pi=3^+, 4^+$ from $L(d,t)=0$ for $7/2^+$ target; M1 $\gamma$ to $2^+$ .                                                                                                                                                                                                                                                                                                                                                                        |
| 128.237 6   | $(4)^+$          |                        | <b>DEFG</b>    | $J^\pi$ : M1 $\gamma$ to $3^+$ , no $\gamma$ to $1^+$ .                                                                                                                                                                                                                                                                                                                                                                                                      |
| 133.6107 10 | $2^-$            | 12.3 ns 5              | <b>B DE GH</b> | $J^\pi$ : E1 $\gamma$ 's to $1^+$ and $3^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ); other: 12.5 ns 19 in $^{127}\text{I}(n,\gamma)$ E=thermal:secondary.                                                                                                                                                                                                                                                                                 |
| 137.851 3   | $4^-$            | 0.845 $\mu\text{s}$ 20 | <b>B DEFG</b>  | $\mu=-0.72$ 3 (2001StZZ)<br>$J^\pi$ : E1 $\gamma$ to $3^+$ , no $\gamma$ 's to $1^+$ and $2^+$ ; $\mu$ indicates $4^-$ with configuration= $(\pi 1g_{7/2})(\nu 1h_{11/2})$ .                                                                                                                                                                                                                                                                                 |
| 143.995 8   | $(3)^-$          |                        | <b>B DEFG</b>  | $J^\pi$ : $L(d,p)=5$ for $5/2^+$ target; $\gamma$ to $2^-$ , no $\gamma$ to $1^+$ and $2^+$ .                                                                                                                                                                                                                                                                                                                                                                |
| 151.6420 21 | $(3)^+$          | <0.7 ns                | <b>B DEFG</b>  | $J^\pi$ : $L(d,p)=0$ for $5/2^+$ target, no $\gamma$ to $1^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ); other: <5 ns in $^{127}\text{I}(n,\gamma)$ E=thermal:secondary.                                                                                                                                                                                                                                                                    |
| 160.7563 10 | $1^+, 2^+$       | <0.7 ns                | <b>B DEFG</b>  | XREF: G(163.0).<br>$J^\pi$ : M1 $\gamma$ 's to $1^+$ and $2^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ). Other: <5 ns in $^{127}\text{I}(n,\gamma)$ E=thermal:secondary.                                                                                                                                                                                                                                                                   |
| 167.368 4   | $(6)^-$          | 175 ns 15              | <b>AB EFG</b>  | XREF: G(166.0).<br>$J^\pi$ : (E2) $\gamma$ to $4^-$ , $L(d,p)=5$ for $5/2^+$ target, no $\gamma$ 's to $2^-$ and $3^-$ .                                                                                                                                                                                                                                                                                                                                     |
| 180.377 3   | $(3)^+$          | <1.7 ns                | <b>B DEFG</b>  | $J^\pi$ : M1 $\gamma$ 's to $2^+$ and $3^+$ , no $\gamma$ to $1^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ); other: <5 ns in (n, $\gamma$ ).                                                                                                                                                                                                                                                                                               |
| 183.0 8     | $(7^-)^\ddagger$ |                        | <b>A</b>       |                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 220.9260 24 | $(1,2,3)^+$      | <0.7 ns                | <b>B DEF H</b> | XREF: F(224.0).<br>$J^\pi$ : M1,E2 $\gamma$ to $2^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ). Other: <0.8 ns in $^{127}\text{I}(n,\gamma)$ E=thermal:secondary.                                                                                                                                                                                                                                                                           |
| 226.102 5   | $(5,6,7)^-$      |                        | <b>AB EFG</b>  | XREF: F(224.0).<br>$J^\pi$ : M1 $\gamma$ to $(6)^-$ .                                                                                                                                                                                                                                                                                                                                                                                                        |
| 232.577 4   | $4^+$            | <1.7 ns                | <b>B DEFG</b>  | XREF: F(233.2).<br>$J^\pi$ : $L(d,t)=0$ for $7/2^+$ target, M1 $\gamma$ to $3^+$ .<br>$T_{1/2}$ : from $\gamma\gamma(t)$ in (p,n $\gamma$ ). Other: <5 ns in $^{127}\text{I}(n,\gamma)$ .                                                                                                                                                                                                                                                                    |
| 234.488 4   | $(5)^-$          |                        | <b>B E</b>     | $J^\pi$ : M1 $\gamma$ 's to $4^-$ and $(6)^-$ .                                                                                                                                                                                                                                                                                                                                                                                                              |

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**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)   | $J^\pi$                             | $T_{1/2}^\dagger$ | XREF    | Comments                                                                                                                                                                  |
|------------|-------------------------------------|-------------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 269.712 7  | (5,6,7) <sup>-</sup>                |                   | A EFG   | $J^\pi$ : M1 $\gamma$ to (6) <sup>-</sup> .                                                                                                                               |
| 285.24 18  | (8 <sup>-</sup> ) <sup>‡</sup>      |                   | A FG    |                                                                                                                                                                           |
| 294.358 4  | (5) <sup>-</sup>                    |                   | B E G   | $J^\pi$ : M1 $\gamma$ 's to 4 <sup>-</sup> and (6) <sup>-</sup> .                                                                                                         |
| 295.667 3  | (2,3,4) <sup>+</sup>                | <0.8 ns           | B DEF   | XREF: F(296.2).                                                                                                                                                           |
|            |                                     |                   |         | $J^\pi$ : M1 $\gamma$ to (3) <sup>+</sup> .                                                                                                                               |
| 344.516 3  | (2,3,4) <sup>+</sup>                | <1.2 ns           | B DEFG  | XREF: F(343.2).                                                                                                                                                           |
|            |                                     |                   |         | $J^\pi$ : M1+E2 $\gamma$ to (3) <sup>+</sup> .                                                                                                                            |
| 346.3& 5   |                                     |                   | D       |                                                                                                                                                                           |
| 372.123 7  |                                     | <0.4 ns           | B DEFG  |                                                                                                                                                                           |
| 376.625 4  | (4) <sup>-</sup>                    | <5 ns             | B DEF   | XREF: F(379.6).                                                                                                                                                           |
|            |                                     |                   |         | $J^\pi$ : M1 $\gamma$ to (5) <sup>-</sup> , $\gamma$ to (3) <sup>-</sup> , population by primary $\gamma$ in $^{127}\text{I}(\text{n},\gamma)$                            |
|            |                                     |                   |         | E=thermal:secondary rejects $J^\pi \geq 5^-$ .                                                                                                                            |
| 385.446 5  | 2 <sup>+</sup> ,3 <sup>+</sup>      | <0.3 ns           | B DEFG  | $J^\pi$ : L(d,p)=0 for 5/2 <sup>+</sup> target.                                                                                                                           |
| 386.593 4  | (3 to 6) <sup>-</sup>               | <0.8 ns           | B E     | $J^\pi$ : M1,E2 $\gamma$ to 4 <sup>-</sup> ; $\gamma$ to (5,6,7) <sup>-</sup> .                                                                                           |
| 392.002 3  | (1,2,3) <sup>+</sup>                | <0.5 ns           | B DE G  | $J^\pi$ : $\gamma$ to 1 <sup>+</sup> ; M1,E2 $\gamma$ to 1 <sup>+</sup> ,2 <sup>+</sup> .                                                                                 |
| 416.281 3  | (2,3) <sup>+</sup>                  | <0.4 ns           | B DEFG  | $J^\pi$ : M1,E2 $\gamma$ to 1 <sup>+</sup> ,2 <sup>+</sup> ; L(d,p)=(0) for 5/2 <sup>+</sup> target.                                                                      |
| 426.339 4  | <sup>+</sup>                        | <0.5 ns           | B DE GH | $J^\pi$ : M1,E2 $\gamma$ to (1,2,3) <sup>+</sup> .                                                                                                                        |
| 434.356 14 |                                     |                   | E       |                                                                                                                                                                           |
| 435.510 4  | (2,3) <sup>-</sup>                  | <0.6 ns           | B DE    | $J^\pi$ : M1,E2 $\gamma$ to 2 <sup>-</sup> , $\gamma$ 's to 3 <sup>-</sup> and 4 <sup>-</sup> .                                                                           |
|            |                                     |                   |         | $T_{1/2}$ : other <1.4 ns in (p,n $\gamma$ ).                                                                                                                             |
| 445.3 3    |                                     |                   | G       |                                                                                                                                                                           |
| 481.7 3    | (7 <sup>-</sup> ) <sup>‡</sup>      |                   | A F     |                                                                                                                                                                           |
| 485.422 9  | ( $\leq 4$ )                        | <1.4 ns           | B DE    | $J^\pi$ : $\gamma$ to 2 <sup>+</sup> .                                                                                                                                    |
| 518.456 4  | (3,4) <sup>-</sup>                  | <0.2 ns           | B DEF   | $J^\pi$ : M1,E2 $\gamma$ to (5) <sup>-</sup> , primary $\gamma$ from 2 <sup>+</sup> ,3 <sup>+</sup> in $^{127}\text{I}(\text{n},\gamma)$ E=thermal:primary                |
|            |                                     |                   |         | rejects $J^\pi \geq 5^-$ .                                                                                                                                                |
| 521.081 15 | (4 <sup>-</sup> ,5 <sup>-</sup> )   | <1.5 ns           | E       | $J^\pi$ : $\gamma$ 's to 4 <sup>-</sup> and (5) <sup>-</sup> .                                                                                                            |
| 529.965 18 | (3 <sup>+</sup> )                   |                   | B EF    | $J^\pi$ : $\gamma$ 's to 2 <sup>+</sup> and 4 <sup>+</sup> .                                                                                                              |
| 536.35 8   |                                     |                   | D       |                                                                                                                                                                           |
| 549.732 18 | (3 <sup>+</sup> ,4 <sup>+</sup> )   |                   | DEF     | $J^\pi$ : $\gamma$ 's to 3 <sup>+</sup> , 4 <sup>+</sup> .                                                                                                                |
| 552.321 14 | (8 <sup>-</sup> ) <sup>‡</sup>      | <1.0 ns           | A E     |                                                                                                                                                                           |
| 554.430 6  | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) | <0.3 ns           | B DE    | $J^\pi$ : $\gamma$ 's to 2 <sup>-</sup> , 4 <sup>-</sup> .                                                                                                                |
| 582.21 10  | (8 <sup>-</sup> ) <sup>‡</sup>      |                   | A F     |                                                                                                                                                                           |
| 589.4 9    |                                     |                   | F       |                                                                                                                                                                           |
| 608.705 5  | (3,4) <sup>-</sup>                  | <0.6 ns           | B DEF   | XREF: F(606.9).                                                                                                                                                           |
|            |                                     |                   |         | $J^\pi$ : M1,E2 $\gamma$ to (5) <sup>-</sup> , $\gamma$ to (2,3) <sup>-</sup> .                                                                                           |
| 613.85 6   |                                     |                   | B D F   |                                                                                                                                                                           |
| 629.7 4    |                                     |                   | F       |                                                                                                                                                                           |
| 639 2      | (1 <sup>+</sup> )                   |                   | H       | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},\text{t}$ ).                                                                                                   |
| 657.207 24 |                                     |                   | DE      | XREF: D(656.4).                                                                                                                                                           |
| 661.36 6   |                                     |                   | D F     |                                                                                                                                                                           |
| 676.69 9   |                                     |                   | D F     |                                                                                                                                                                           |
| 679.06 6   |                                     |                   | B       |                                                                                                                                                                           |
| 687.050 5  | (3,4) <sup>-</sup>                  | <0.5 ns           | DE      | $J^\pi$ : M1,E2 $\gamma$ to (2,3) <sup>-</sup> , $\gamma$ to (5) <sup>-</sup> ; primary $\gamma$ from 2 <sup>+</sup> ,3 <sup>+</sup> in $^{127}\text{I}(\text{n},\gamma)$ |
|            |                                     |                   |         | E=thermal:primary rejects $J^\pi = 5^-$ .                                                                                                                                 |
| 696.27 19  | (9 <sup>-</sup> ) <sup>‡</sup>      |                   | A       |                                                                                                                                                                           |
| 704.92 10  |                                     |                   | B D F   |                                                                                                                                                                           |
| 715.2 6    | (1 <sup>-</sup> ,2,3 <sup>+</sup> ) |                   | E       | $J^\pi$ : $\gamma$ 's to 1 <sup>+</sup> and (3) <sup>-</sup> .                                                                                                            |
| 724.2 5    |                                     |                   | F       |                                                                                                                                                                           |
| 728.184 19 | -                                   |                   | E       | $J^\pi$ : M1,E2 $\gamma$ to $\pi=-$ level.                                                                                                                                |
| 735.46 8   |                                     |                   | B       |                                                                                                                                                                           |
| 750.39 9   | ( $\leq 4$ )                        |                   | B D F   | $J^\pi$ : $\gamma$ to 2 <sup>+</sup> .                                                                                                                                    |
| 768.36 15  | ( $\leq 4$ )                        |                   | B F     | $J^\pi$ : $\gamma$ to 2 <sup>-</sup> .                                                                                                                                    |
| 770.7 4    |                                     |                   | D       |                                                                                                                                                                           |
| 778.62 8   |                                     |                   | B       |                                                                                                                                                                           |
| 787.96 17  |                                     |                   | D F     |                                                                                                                                                                           |

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**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)    | $J^\pi$                  | XREF  | Comments                                                                                                          |
|-------------|--------------------------|-------|-------------------------------------------------------------------------------------------------------------------|
| 791.9 5     |                          | D     |                                                                                                                   |
| 795.14 14   |                          | B D F |                                                                                                                   |
| 821.41 6    |                          | D     |                                                                                                                   |
| 825.1 7     |                          | F     |                                                                                                                   |
| 828.30 4    |                          | DEF   |                                                                                                                   |
| 834.61 14   | ( $\leq 4$ )             | B     | $J^\pi$ : $\gamma$ to $2^-$ .                                                                                     |
| 840.00 4    | ( $1^-, 2, 3^+$ )        | DE    | $J^\pi$ : $\gamma$ 's to $1^+$ and ( $3$ ) $^-$ .                                                                 |
| 843.45 8    | ( $\leq 4$ )             | E     | $J^\pi$ : G to $2^-$ .                                                                                            |
| 844.63 15   |                          | B D F |                                                                                                                   |
| 849.20 4    | ( $\leq 4$ )             | B D   | $J^\pi$ : $\gamma$ to $2^-$ .                                                                                     |
| 856.8 8     |                          | F     |                                                                                                                   |
| 863.86 & 10 |                          | D     |                                                                                                                   |
| 866.56 10   |                          | B     |                                                                                                                   |
| 867.16 10   |                          | D F   |                                                                                                                   |
| 876.2 10    |                          | F     |                                                                                                                   |
| 880.97 5    |                          | D F   | XREF: F(882.6).                                                                                                   |
| 885.2 & 3   |                          | D     |                                                                                                                   |
| 910.88 19   | ( $8^-$ ) $^{\ddagger}$  | A F   |                                                                                                                   |
| 916.79 5    | ( $\leq 4$ )             | B DE  | $J^\pi$ : $\gamma$ to $2^-$ .                                                                                     |
| 934.10 3    | ( $2^-, 3, 4$ )          | B DE  | $J^\pi$ : $\gamma$ to $4^-$ .                                                                                     |
| 938.81 & 16 |                          | D     |                                                                                                                   |
| 942.31 10   | ( $3^-, 4, 5^-$ )        | E     | $J^\pi$ : $\gamma$ 's to ( $3$ ) $^-$ and ( $5$ ) $^-$ .                                                          |
| 944.75 9    |                          | D F   | XREF: F(945.3).                                                                                                   |
| 957.1 7     |                          | F     |                                                                                                                   |
| 973.64 22   |                          | D     |                                                                                                                   |
| 983.8 3     |                          | D F   | XREF: F(986.8).                                                                                                   |
| 985.89 & 14 |                          | D     |                                                                                                                   |
| 994.3 11    |                          | F     |                                                                                                                   |
| 1006.65 14  |                          | D F   | XREF: F(1004.8).                                                                                                  |
| 1013.1 4    | ( $2, 3, 4$ )            | E     | $J^\pi$ : $\gamma$ 's to ( $3$ ) $^+$ and ( $3$ ) $^-$ .                                                          |
| 1015.97 17  |                          | D F   | XREF: F(1017.1).                                                                                                  |
| 1024.8 5    | ( $3^-, 4, 5^-$ )        | E     | $J^\pi$ : $\gamma$ 's to ( $3$ ) $^-$ and ( $5$ ) $^-$ .                                                          |
| 1032.04 3   | ( $2^+, 3, 4^-$ )        | B DE  | $J^\pi$ : $\gamma$ 's to $2^-$ and $4^+$ .                                                                        |
| 1035.5 7    | ( $2^-$ )                | F H   | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He}, t$ ).                                                 |
| 1041.69 19  | ( $10^-$ ) $^{\ddagger}$ | A     |                                                                                                                   |
| 1048.64 5   | ( $1, 2, 3^+$ )          | B D F | XREF: F(1049.6).                                                                                                  |
|             |                          |       | $J^\pi$ : $\gamma$ to $1^+$ , primary $\gamma$ from $2^+, 3^+$ in $^{127}\text{I}(n, \gamma)$ E=thermal; primary. |
| 1062.15 17  |                          | DE    |                                                                                                                   |
| 1064.8 5    |                          | F     |                                                                                                                   |
| 1084.552 21 | ( $\leq 4$ )             | DE    | $J^\pi$ : $\gamma$ to $2^-$ .                                                                                     |
| 1091.88 8   |                          | D F   |                                                                                                                   |
| 1100.082 21 |                          | DEF   |                                                                                                                   |
| 1109.7 13   |                          | F     |                                                                                                                   |
| 1117.7 6    |                          | F     |                                                                                                                   |
| 1128.0 5    |                          | E     |                                                                                                                   |
| 1135.78 11  |                          | D F   |                                                                                                                   |
| 1149.11 12  |                          | D     |                                                                                                                   |
| 1150.0 3    | ( $9^-$ ) $^{\ddagger}$  | A F   |                                                                                                                   |
| 1153        | ( $1^+$ )                | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He}, t$ ).                                                 |
| 1163.49 14  | ( $\leq 3$ )             | DE    | $J^\pi$ : $\gamma$ to $1^+$ .                                                                                     |
| 1168.99 4   |                          | D F   | XREF: F(1167.1).                                                                                                  |
| 1171.3 4    |                          | E     |                                                                                                                   |
| 1178.57 5   |                          | D F   |                                                                                                                   |
| 1197.48 13  |                          | D F   |                                                                                                                   |
| 1211.45 19  |                          | E     |                                                                                                                   |

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**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)    | $J^\pi$                | XREF  | Comments                                                                             |
|-------------|------------------------|-------|--------------------------------------------------------------------------------------|
| 1218.6 3    | $2^+, 3, 4^+$          | DEF   | XREF: F(1216.3).<br>$J^\pi$ : $\gamma$ 's to $2^+$ and $4^+$ .                       |
| 1222 2      | $(1^+)$                | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in $(^3\text{He}, t)$ .                     |
| 1226.5 4    | $(3^-, 4^-)$           | E     | $J^\pi$ : $\gamma$ 's to $2^-$ and $(5)^-$ .                                         |
| 1232.2 12   |                        | F     |                                                                                      |
| 1242.1 13   |                        | F     |                                                                                      |
| 1246.859 21 | $2^+, 3, 4^-$          | DE    | $J^\pi$ : $\gamma$ 's to $2^-$ and $4^+$ .                                           |
| 1251.513 21 | $(2^-, 3, 4^-)$        | DEF   | $J^\pi$ : $\gamma$ 's to $2^-$ and $4^-$ .                                           |
| 1252.5 8    |                        | F     |                                                                                      |
| 1256.0 3    |                        | DEF   |                                                                                      |
| 1266.362 21 | $(2^-, 3^+)$           | DEF   | $J^\pi$ : $\gamma$ 's to $1^+$ and $(4)^-$ .                                         |
| 1275.44 6   | $(\leq 4)$             | B DEF | XREF: F(1273.4).<br>$J^\pi$ : $\gamma$ to $2^-$ .                                    |
| 1287.0 5    | $(9^-)^{\frac{1}{2}}$  | A     |                                                                                      |
| 1291.2 16   |                        | F     |                                                                                      |
| 1291.4 4    | $(10^-)^{\frac{1}{2}}$ | A     | XREF: A(1291.2).                                                                     |
| 1291.47 21  | $(10^-)^{\frac{1}{2}}$ | A     | XREF: A(1291.4).                                                                     |
| 1301.70 9   | $(2^+, 3, 4^-)$        | DE    | $J^\pi$ : $\gamma$ 's to $2^-$ and $4^+$ .                                           |
| 1303.75 12  |                        | D F   | XREF: F(1302.3).                                                                     |
| 1324.9 10   |                        | F     |                                                                                      |
| 1330.16 4   | $(\leq 4)$             | DE    | $J^\pi$ : $\gamma$ to $2^-$ .                                                        |
| 1336.17 10  |                        | D F   |                                                                                      |
| 1343.176 21 | $(3^-, 4, 5)$          | DE    | $J^\pi$ : $\gamma$ 's to $4^-$ , $(5)^-$ and $2^+, 3^+$ .                            |
| 1347.1 5    | $(9^-)^{\frac{1}{2}}$  | A D F |                                                                                      |
| 1348.91 18  |                        | F     |                                                                                      |
| 1360.11 16  | $(3^-, 4^-)$           | E     | $J^\pi$ : $\gamma$ 's to $2^-$ and $(5)^-$ .                                         |
| 1362.576 21 |                        | D F   |                                                                                      |
| 1370.1 6    |                        | E     |                                                                                      |
| 1373 2      | $(1^+)$                | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in $(^3\text{He}, t)$ .                     |
| 1382.91 6   |                        | D F   | XREF: F(1380.3).                                                                     |
| 1391.87 7   |                        | D F   |                                                                                      |
| 1404.0 13   |                        | F     |                                                                                      |
| 1418.52 10  |                        | D F   |                                                                                      |
| 1429.94 13  |                        | D F   |                                                                                      |
| 1439.05 9   | $(1^+)$                | D f H | XREF: f(1440.5).<br>$J^\pi$ : from $\sigma(\theta)$ analysis in $(^3\text{He}, t)$ . |
| 1441.59 6   |                        | DEF   |                                                                                      |
| 1454.02 19  | $(11^-)^{\frac{1}{2}}$ | A     |                                                                                      |
| 1455.35 10  | $(\leq 3)$             | DE    | $J^\pi$ : $\gamma$ to $1^+$ .                                                        |
| 1460.96 19  | $(9^+)^{\frac{1}{2}}$  | A F   |                                                                                      |
| 1475.7 14   | $(1^+)$                | F H   | $J^\pi$ : from $\sigma(\theta)$ analysis in $(^3\text{He}, t)$ .                     |
| 1486.83 3   |                        | DEF   |                                                                                      |
| 1498.7 5    | $(\leq 4)$             | E     | $J^\pi$ : $\gamma$ to $2^+$ .                                                        |
| 1506.96 13  |                        | DEF   | XREF: F(1509.0).                                                                     |
| 1527.795 21 | $(2^-, 3, 4^-)$        | DE    | $J^\pi$ : $\gamma$ 's to $2^-$ and $(4,)^-$ .                                        |
| 1532.73 14  | $2^+, 3, 4^-$          | DE    | $J^\pi$ : $\gamma$ 's to $2^-$ and $4^+$ .                                           |
| 1538.11 4   |                        | DEF   |                                                                                      |
| 1542.1 6    | $(\leq 4)$             | E     | $J^\pi$ : $\gamma$ to $2^-$ .                                                        |
| 1548 2      | $(1^+)$                | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in $(^3\text{He}, t)$ .                     |
| 1553.8 7    |                        | E     |                                                                                      |
| 1559.9 6    |                        | E     |                                                                                      |
| 1562.27 20  | $(10^+)^{\frac{1}{2}}$ | A     |                                                                                      |
| 1565.8 8    |                        | F     |                                                                                      |
| 1574.7 3    |                        | DE    |                                                                                      |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)    | $J^\pi$                             | XREF | Comments                                                         |
|-------------|-------------------------------------|------|------------------------------------------------------------------|
| 1580.03 7   |                                     | D F  |                                                                  |
| 1598.43 10  |                                     | D F  |                                                                  |
| 1607 2      | (1 <sup>+</sup> )                   | H    | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ). |
| 1615.957 21 |                                     | D F  |                                                                  |
| 1619.3 7    |                                     | E    |                                                                  |
| 1628.084 21 | (1,2,3)                             | DEF  | $J^\pi$ : $\gamma$ 's to 2 <sup>+</sup> and 2 <sup>-</sup> .     |
| 1634.0 3    |                                     | E    |                                                                  |
| 1651.05 23  |                                     | D F  | XREF: F(1648.7).                                                 |
| 1664.5 6    |                                     | F    |                                                                  |
| 1677.4 11   |                                     | F    |                                                                  |
| ≈1684       | (1 <sup>+</sup> )                   | H    | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ). |
| 1691.67 13  |                                     | D F  |                                                                  |
| 1702.24 17  | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) | DEF  | $J^\pi$ : $\gamma$ 's to (5) <sup>-</sup> and (3) <sup>-</sup> . |
| 1715.74 11  |                                     | DEF  | XREF: F(1713.7).                                                 |
| 1717.2 10   |                                     | F    |                                                                  |
| 1724.2 6    | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) | E    | $J^\pi$ : $\gamma$ 's to (3) <sup>-</sup> and (5) <sup>-</sup> . |
| 1729.69 3   |                                     | D F  |                                                                  |
| 1734.054 21 | (2,3,4)                             | DE   | $J^\pi$ : $\gamma$ 's to 3 <sup>+</sup> and (3) <sup>-</sup> .   |
| 1739.68 6   |                                     | DE   |                                                                  |
| 1745.49 10  |                                     | DEF  |                                                                  |
| 1752.5 14   |                                     | F    |                                                                  |
| 1761.07 7   |                                     | D F  | XREF: F(1762.8).                                                 |
| 1772.8 4    |                                     | D F  | XREF: F(1770.7).                                                 |
| 1782.98 4   |                                     | D F  |                                                                  |
| 1793.28 11  |                                     | D F  |                                                                  |
| 1803.8 7    |                                     | F    |                                                                  |
| 1807.40 3   |                                     | DE   |                                                                  |
| 1818.16 18  |                                     | D    |                                                                  |
| 1820.4 10   |                                     | F    |                                                                  |
| 1825.615 21 |                                     | DEF  |                                                                  |
| 1836.7 9    |                                     | F    |                                                                  |
| 1843.97 12  |                                     | D F  |                                                                  |
| 1863.5 4    |                                     | D F  |                                                                  |
| 1866.4 5    | (3 <sup>-</sup> ,4 <sup>-</sup> )   | E    | $J^\pi$ : $\gamma$ 's to 2 <sup>-</sup> and (5) <sup>-</sup> .   |
| 1873.6 3    | (2 <sup>+</sup> ,3,4 <sup>-</sup> ) | E    | $J^\pi$ : $\gamma$ 's to 2 <sup>-</sup> and 4 <sup>+</sup> .     |
| 1873.61 20  | (12 <sup>-</sup> ) <sup>‡</sup>     | A    |                                                                  |
| 1875.96 12  |                                     | D F  |                                                                  |
| 1886.4 4    |                                     | EF   |                                                                  |
| 1893.6 8    |                                     | F    |                                                                  |
| 1905.2 4    |                                     | DEF  |                                                                  |
| 1918.6 3    |                                     | D F  | XREF: F(1916.5).                                                 |
| 1922.1 3    | (≤4)                                | DE   | $J^\pi$ : $\gamma$ to 2 <sup>+</sup> .                           |
| 1933.08 7   |                                     | D F  |                                                                  |
| 1941.2 2    | (1 <sup>+</sup> )                   | H    | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ). |
| 1943.06 24  |                                     | DE   |                                                                  |
| 1947.00 3   |                                     | D F  | XREF: F(1949.7).                                                 |
| 1964.97 21  | (11 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                  |
| 1971.81 19  |                                     | D F  |                                                                  |
| 1983.85 24  | (≤3)                                | DEF  | XREF: f(1985.0).                                                 |
| 1985.0 9    |                                     | F    | $J^\pi$ : $\gamma$ to 1 <sup>+</sup> .                           |
| 1987.7 3    |                                     | D    |                                                                  |
| 1991.17 21  | (11 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                  |
| 1994.8 9    |                                     | F    |                                                                  |
| 2004.1 9    |                                     | F    |                                                                  |
| 2013.0 4    |                                     | DE   |                                                                  |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)   | $J^\pi$                                | XREF  | Comments                                                             |
|------------|----------------------------------------|-------|----------------------------------------------------------------------|
| 2025.4 8   |                                        | F     |                                                                      |
| 2037.60 10 |                                        | D F   | XREF: F(2039.5).                                                     |
| 2050.86 12 | (1 <sup>+</sup> )                      | D F H | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2067.18 4  |                                        | D F   | XREF: F(2065.5).                                                     |
| 2069.95 4  |                                        | DEF   |                                                                      |
| 2082.34 9  |                                        | D F   |                                                                      |
| 2107 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2111.4 3   | (12 <sup>-</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2115.49 4  |                                        | D F   |                                                                      |
| 2130.42 22 |                                        | D F   |                                                                      |
| 2143.74 18 | 1,2,3                                  | DEF   | $J^\pi$ : $\gamma$ to 1 <sup>+</sup> .                               |
| 2150.46 18 |                                        | D F   | XREF: F(2152.3).                                                     |
| 2161.96 14 |                                        | DE    |                                                                      |
| 2166.59 10 |                                        | D F   | XREF: F(2165.7).                                                     |
| 2175 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2185.97 22 | (12 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2187.64 8  |                                        | DE    |                                                                      |
| 2191.31 10 |                                        | D F   | XREF: F(2190.0).                                                     |
| 2204.67 10 | ( $\leq 4$ )                           | DEf   | XREF: f(2205.5).                                                     |
|            |                                        |       | $J^\pi$ : $\gamma$ to 2 <sup>+</sup> .                               |
| 2206.66 9  |                                        | D f   | XREF: f(2205.5).                                                     |
| 2229 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2302.97 22 | (12 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2320.61 4  | ( $\leq 4$ )                           | DE    | $J^\pi$ : $\gamma$ to 2 <sup>-</sup> .                               |
| 2338 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2341.32 21 | (13 <sup>-</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2380.3 5   | (13 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2415 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2425.4 8   |                                        | E     |                                                                      |
| 2432.7 5   | (2 <sup>-</sup> ,3,4 <sup>+</sup> )    | E     | $J^\pi$ : $\gamma$ 's to 2 <sup>+</sup> and (4,-).                   |
| 2437.88 24 | (13 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2454.0 5   | (3 <sup>-</sup> ,4,5 <sup>-</sup> )    | E     | $J^\pi$ : $\gamma$ 's to (3) <sup>-</sup> and (5,6,7) <sup>-</sup> . |
| 2477 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2480.5 5   | (12 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2520.9 5   | (12 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2567.0 7   | ( $\leq 4$ )                           | E     | $J^\pi$ : $\gamma$ to 2 <sup>-</sup> .                               |
| 2573 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2575.7 3   | (13 <sup>-</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2584.8 6   | 2 <sup>+</sup> ,3,4 <sup>-</sup>       | E     | $J^\pi$ : $\gamma$ 's to 2 <sup>-</sup> and 4 <sup>+</sup> .         |
| 2640.8 6   |                                        | E     |                                                                      |
| 2661.7 4   | (13 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2665.0 3   | (14 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2684.4 6   | (2 <sup>+</sup> ,3,4 <sup>+</sup> )    | E     | $J^\pi$ : $\gamma$ 's to 2 <sup>+</sup> and 4 <sup>+</sup> .         |
| 2691.8 3   | (13 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2714.3 5   | (13 <sup>+</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2717 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2721.0 5   | (3 <sup>-</sup> ,4 <sup>-</sup> )      | E     | $J^\pi$ : $\gamma$ 's to 2 <sup>-</sup> and (5) <sup>-</sup> .       |
| 2737.2 5   |                                        | E     |                                                                      |
| 2779 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2789.2 3   | (14 <sup>-</sup> ) $\frac{1}{2}^{\pm}$ | A     |                                                                      |
| 2847.89 20 |                                        | E     |                                                                      |
| 2856 2     | (1 <sup>+</sup> )                      | H     | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).     |
| 2900.4 5   | (2 <sup>-</sup> ,3 <sup>+</sup> )      | E     | $J^\pi$ : $\gamma$ 's to 1 <sup>+</sup> and (4,-).                   |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)                 | $J^\pi$                             | XREF | Comments                                                                            |
|--------------------------|-------------------------------------|------|-------------------------------------------------------------------------------------|
| 2904.2                   | (1 <sup>+</sup> )                   | H    | $J^\pi$ : from $\sigma(\theta)$ analysis in ( $^3\text{He},t$ ).                    |
| 2950.78 20               |                                     | E    |                                                                                     |
| 2953.4 3                 | (14 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3001.0 8                 |                                     | E    |                                                                                     |
| 3009.3 6                 | (14 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3076.7 6                 | (1 <sup>-</sup> ,2,3 <sup>+</sup> ) | E    | $J^\pi$ : $\gamma$ to 1 <sup>+</sup> and (3) <sup>-</sup> .                         |
| 3115.7 4                 | (14 <sup>-</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3152.5 4                 | (15 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3158.0 4                 | (15 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3158.8 4                 | (15 <sup>-</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3182.7 5                 |                                     | E    |                                                                                     |
| 3309.3 5                 | (15 <sup>-</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3555.9 5                 | (16 <sup>-</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3559.3 6                 | (16 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3621.5 5                 | (16 <sup>+</sup> ) <sup>‡</sup>     | A    |                                                                                     |
| 3794.3 5                 | (0,1,2,3 <sup>+</sup> )             | E    | $J^\pi$ : $\gamma$ 's to 1 <sup>+</sup> and 2 <sup>-</sup> .                        |
| 3802.6 4                 |                                     | E    |                                                                                     |
| 3834.4 8                 | (2,3,4)                             | E    | $J^\pi$ : $\gamma$ 's to (3) <sup>+</sup> and (3) <sup>-</sup> .                    |
| 3846.8 3                 |                                     | E    |                                                                                     |
| 3862.8 6                 | (3,4,5 <sup>-</sup> )               | E    | $J^\pi$ : $\gamma$ 's to (3) <sup>-</sup> and 4 <sup>+</sup> and (4) <sup>-</sup> . |
| 3991.6 7                 | (3,4,5 <sup>-</sup> )               | E    |                                                                                     |
| 4150.8 7                 | ( $\leq 4$ )                        | E    | $J^\pi$ : $\gamma$ to 2 <sup>-</sup> .                                              |
| 6826.076 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.087 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.137 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.140 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.144 <sup>#</sup> 50 | (2 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.150 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.154 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.161 7               | 2 <sup>+</sup> ,3 <sup>+</sup>      | CD   | $J^\pi$ : L=0 capture on 5/2 <sup>+</sup> target in (n, $\gamma$ ):primary.         |
| 6826.167 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.169 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.175 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.183 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.194 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.195 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.208 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.215 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.220 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.230 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.247 <sup>#</sup> 50 | (2 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.263 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.266 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.268 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.275 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.283 <sup>#</sup> 50 | (2 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |
| 6826.288 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup>      | C    |                                                                                     |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)                 | J $\pi$            | XREF | E(level)                 | J $\pi$            | XREF |
|--------------------------|--------------------|------|--------------------------|--------------------|------|
| 6826.296 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.606 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.297 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.625 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.303 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.641 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.307 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.644 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.324 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.659 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.330 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.672 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.335 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.676 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.352 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    | 6826.689 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    |
| 6826.355 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.691 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.365 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.695 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.373 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.704 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    |
| 6826.385 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.710 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.393 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.714 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.399 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.722 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    |
| 6826.402 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.744 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.410 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    | 6826.749 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    |
| 6826.420 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    | 6826.758 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.427 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.761 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.434 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.769 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    |
| 6826.438 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.770 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.442 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.772 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    |
| 6826.452 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.784 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.453 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.787 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    |
| 6826.456 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.794 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.474 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.815 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.479 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    | 6826.827 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.481 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    | 6826.833 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.490 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.833 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.502 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.838 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.509 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.851 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    |
| 6826.513 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.855 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.519 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.859 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    |
| 6826.520 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    | 6826.869 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.540 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    | 6826.882 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.547 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.887 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.549 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.891 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    |
| 6826.554 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.896 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    |
| 6826.558 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    | 6826.901 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    |
| 6826.562 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.904 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.567 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    | 6826.914 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |
| 6826.575 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.920 <sup>#</sup> 50 | (4 <sup>-</sup> )@ | C    |
| 6826.581 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    | 6826.929 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    |
| 6826.585 <sup>#</sup> 50 | (1 <sup>-</sup> )@ | C    | 6826.937 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    |
| 6826.595 <sup>#</sup> 50 | (3 <sup>-</sup> )@ | C    | 6826.942 <sup>#</sup> 50 | (2 <sup>-</sup> )@ | C    |
| 6826.602 <sup>#</sup> 50 | (2 <sup>+</sup> )@ | C    | 6826.952 <sup>#</sup> 50 | (3 <sup>+</sup> )@ | C    |

Continued on next page (footnotes at end of table)

**Adopted Levels, Gammas (continued)** $^{128}\text{I}$  Levels (continued)

| E(level)                 | J <sup>π</sup>                 | XREF | Comments                                                                                          |
|--------------------------|--------------------------------|------|---------------------------------------------------------------------------------------------------|
| 6826.958 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6826.963 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6826.986 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6826.991 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.014 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.021 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.025 <sup>#</sup> 50 | (2 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.038 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.041 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.043 <sup>#</sup> 50 | (2 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.048 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.051 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.066 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.078 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.084 <sup>#</sup> 50 | (3 <sup>+</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.089 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.092 <sup>#</sup> 50 | (3 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.095 <sup>#</sup> 50 | (2 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.110 <sup>#</sup> 50 | (1 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 6827.126 <sup>#</sup> 50 | (4 <sup>-</sup> ) <sup>@</sup> | C    |                                                                                                   |
| 11948 2                  | (0 <sup>+</sup> )              | H    | E(level),J <sup>π</sup> : IAS of $^{128}\text{Te}$ g.s. from $^{128}\text{Te}({}^3\text{He},t)$ . |
| ≈14×10 <sup>3</sup>      |                                | H    | E(level): giant>resonance from $^{128}\text{Te}({}^3\text{He},t)$ .                               |
| ≈22×10 <sup>3</sup>      |                                | H    | E(level): spin-dipole resonance from $^{128}\text{Te}({}^3\text{He},t)$ .                         |

<sup>†</sup> From  $\gamma\gamma(t)$  in  $^{127}\text{I}(n,\gamma)$  E=thermal:secondary, unless otherwise noted.

<sup>‡</sup> From ADO values and high-spin ordering in  $^{124}\text{Sn}({}^7\text{Li},3n\gamma)$ .

<sup>#</sup> From  $^{127}\text{I}(n,X)$ : resonances, if S(n)=6826.13 5 keV.

<sup>@</sup> From  $^{127}\text{I}(n,X)$ : resonances based on the statistical evaluation of the measured experimental widths using codes ESTIMA and CALENDF.

<sup>&</sup> From  $^{127}\text{I}(n,\gamma)$  E=thermal:primary.

## Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ |                                |                       |                    |          |                                |         |                   |                                                                                                                                                                                                                                                            |
|--------------------------|--------------------------------|-----------------------|--------------------|----------|--------------------------------|---------|-------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$      | $J_i^\pi$                      | $E_\gamma^\dagger$    | $I_\gamma^\dagger$ | $E_f$    | $J_f^\pi$                      | Mult. @ | $\alpha^b$        | Comments                                                                                                                                                                                                                                                   |
| 27.3620                  | 2 <sup>+</sup>                 | 27.362 <sup>‡</sup> 5 | 100                | 0.0      | 1 <sup>+</sup>                 | M1      | 4.64              | $\alpha(\text{L})=3.72$ 6; $\alpha(\text{M})=0.750$ 11; $\alpha(\text{N})=0.1517$ 22; $\alpha(\text{O})=0.01767$ 25                                                                                                                                        |
| 85.471                   | 3 <sup>+</sup>                 | 58.107 4              | 100                | 27.3620  | 2 <sup>+</sup>                 | M1      | 3.57              | $\alpha(\text{K})=3.07$ 5; $\alpha(\text{L})=0.404$ 6; $\alpha(\text{M})=0.0815$ 12; $\alpha(\text{N})=0.01648$ 23; $\alpha(\text{O})=0.00192$ 3                                                                                                           |
| 128.237                  | (4) <sup>+</sup>               | 42.766 6              | 100                | 85.471   | 3 <sup>+</sup>                 | M1      | 8.73              | $\alpha(\text{K})=7.49$ 11; $\alpha(\text{L})=0.994$ 14; $\alpha(\text{M})=0.200$ 3; $\alpha(\text{N})=0.0405$ 6; $\alpha(\text{O})=0.00472$ 7                                                                                                             |
| 133.6107                 | 2 <sup>-</sup>                 | 48.148 7              | 0.93 3             | 85.471   | 3 <sup>+</sup>                 | E1      | 1.531             | $\alpha(\text{K})=1.298$ 19; $\alpha(\text{L})=0.188$ 3; $\alpha(\text{M})=0.0376$ 6; $\alpha(\text{N})=0.00737$ 11; $\alpha(\text{O})=0.000778$ 11                                                                                                        |
|                          |                                | 106.2486 7            | 4.84 25            | 27.3620  | 2 <sup>+</sup>                 | E1      | 0.1721            | B(E1)(W.u.)= $1.54 \times 10^{-6}$ 10<br>$\alpha(\text{K})=0.1480$ 21; $\alpha(\text{L})=0.0193$ 3; $\alpha(\text{M})=0.00386$ 6; $\alpha(\text{N})=0.000769$ 11; $\alpha(\text{O})=8.55 \times 10^{-5}$ 12                                                |
|                          |                                | 133.6106 11           | 100 3              | 0.0      | 1 <sup>+</sup>                 | E1      | 0.0905            | B(E1)(W.u.)= $7.5 \times 10^{-7}$ 6<br>$I_\gamma$ : other: 7.4 5 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.0780$ 11; $\alpha(\text{L})=0.01003$ 14; $\alpha(\text{M})=0.00201$ 3; $\alpha(\text{N})=0.000401$ 6; $\alpha(\text{O})=4.50 \times 10^{-5}$ 7 |
| 137.851                  | 4 <sup>-</sup>                 | 4.240 5               | 100                | 133.6107 | 2 <sup>-</sup>                 |         |                   | B(E1)(W.u.)= $7.8 \times 10^{-6}$ 5                                                                                                                                                                                                                        |
|                          |                                | 52.378 5              | 100                | 85.471   | 3 <sup>+</sup>                 | E1      | 1.220             | $\alpha(\text{K})=1.036$ 15; $\alpha(\text{L})=0.1475$ 21; $\alpha(\text{M})=0.0295$ 5; $\alpha(\text{N})=0.00580$ 9; $\alpha(\text{O})=0.000616$ 9                                                                                                        |
| 143.995                  | (3) <sup>-</sup>               | 10.25 5               | 100                | 133.6107 | 2 <sup>-</sup>                 |         |                   | B(E1)(W.u.)= $9.9 \times 10^{-7}$ 3                                                                                                                                                                                                                        |
| 151.6420                 | (3) <sup>+</sup>               | 66.198 18             | 2.28 12            | 85.471   | 3 <sup>+</sup>                 |         |                   |                                                                                                                                                                                                                                                            |
|                          |                                | 124.2804 19           | 100 3              | 27.3620  | 2 <sup>+</sup>                 | M1      | 0.405             | B(M1)(W.u.)>0.0017<br>$\alpha(\text{K})=0.348$ 5; $\alpha(\text{L})=0.0454$ 7; $\alpha(\text{M})=0.00915$ 13; $\alpha(\text{N})=0.00185$ 3; $\alpha(\text{O})=0.000217$ 3                                                                                  |
| 160.7563                 | 1 <sup>+</sup> ,2 <sup>+</sup> | 133.3954 17           | 32.7 22            | 27.3620  | 2 <sup>+</sup>                 | M1      | 0.332             | B(M1)(W.u.)>0.011<br>$\alpha(\text{K})=0.286$ 4; $\alpha(\text{L})=0.0372$ 6; $\alpha(\text{M})=0.00750$ 11; $\alpha(\text{N})=0.001517$ 22; $\alpha(\text{O})=0.0001777$ 25                                                                               |
|                          |                                | 160.7560 12           | 100 3              | 0.0      | 1 <sup>+</sup>                 | M1      | 0.198             | B(M1)(W.u.)>0.0026<br>$\alpha(\text{K})=0.1705$ 24; $\alpha(\text{L})=0.0221$ 3; $\alpha(\text{M})=0.00445$ 7; $\alpha(\text{N})=0.000902$ 13; $\alpha(\text{O})=0.0001057$ 15                                                                             |
| 167.368                  | (6) <sup>-</sup>               | 29.512 5              | 100                | 137.851  | 4 <sup>-</sup>                 | (E2)    | 175.0             | B(M1)(W.u.)>0.0046<br>$\alpha(\text{L})=139.2$ 20; $\alpha(\text{M})=29.8$ 5; $\alpha(\text{N})=5.64$ 8; $\alpha(\text{O})=0.482$ 7                                                                                                                        |
| 180.377                  | (3) <sup>+</sup>               | 19.58 4               | 0.82 20            | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup> | (M1+E2) | $7 \times 10^2$ 7 | B(E2)(W.u.)=21.4 19<br>$\alpha(\text{L})=5.82$ 6; $\alpha(\text{M})=1.1 \times 10^2$ 12; $\alpha(\text{N})=22$ 22; $\alpha(\text{O})=1.9$ 18                                                                                                               |
|                          |                                | 94.901 10             | 5.11 12            | 85.471   | 3 <sup>+</sup>                 | M1      | 0.868             | B(M1)(W.u.)>0.0095<br>$\alpha(\text{K})=0.746$ 11; $\alpha(\text{L})=0.0977$ 14; $\alpha(\text{M})=0.0197$ 3; $\alpha(\text{N})=0.00399$ 6; $\alpha(\text{O})=0.000466$ 7                                                                                  |
|                          |                                | 153.011 3             | 100 3              | 27.3620  | 2 <sup>+</sup>                 | M1      | 0.227             | B(M1)(W.u.)>0.00011<br>$I_\gamma$ : other: 3.3 10 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.195$ 3; $\alpha(\text{L})=0.0254$ 4; $\alpha(\text{M})=0.00511$ 8; $\alpha(\text{N})=0.001034$ 15; $\alpha(\text{O})=0.0001212$ 17                            |
|                          |                                |                       |                    |          |                                |         |                   | B(M1)(W.u.)>0.00051<br>Mult.: $\Delta J=1$ from $\gamma(\theta)$ in (p,n $\gamma$ ).                                                                                                                                                                       |

## Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ (continued) |                      |                                                           |                                      |                                             |                                                                                                |                |          |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|--------------------------------------|----------------------|-----------------------------------------------------------|--------------------------------------|---------------------------------------------|------------------------------------------------------------------------------------------------|----------------|----------|---------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$            | $E_\gamma^\dagger$                                        | $I_\gamma^\dagger$                   | $E_f$                                       | $J_f^\pi$                                                                                      | Mult. @        | $\delta$ | $\alpha^b$    | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 220.9260                             | (1,2,3) <sup>+</sup> | 69.34 <sup>‡</sup> 20<br>193.5634 22                      | 2.2 5<br>100.0 14                    | 151.6420<br>27.3620                         | (3) <sup>+</sup><br>2 <sup>+</sup>                                                             | M1,E2          |          | 0.15 3        | $\alpha(\text{K})=0.120$ 18; $\alpha(\text{L})=0.021$ 8; $\alpha(\text{M})=0.0043$ 17; $\alpha(\text{N})=0.0008$ 3; $\alpha(\text{O})=9.\text{E}-5$ 3                                                                                                                                                                                                                                                                                                                                          |
| 226.102                              | (5,6,7) <sup>-</sup> | 58.74 3                                                   | 100                                  | 167.368                                     | (6) <sup>-</sup>                                                                               | M1             |          | 3.46          | $\alpha(\text{K})=2.97$ 5; $\alpha(\text{L})=0.392$ 6; $\alpha(\text{M})=0.0790$ 12; $\alpha(\text{N})=0.01597$ 23; $\alpha(\text{O})=0.00186$ 3                                                                                                                                                                                                                                                                                                                                               |
| 232.577                              | 4 <sup>+</sup>       | 52.38 <sup>‡</sup><br>80.952 7<br>104.366 15<br>147.104 3 | <14<br>11.07 25<br>6.33 25<br>100 3  | 180.377<br>151.6420<br>128.237<br>85.471    | (3) <sup>+</sup><br>(3) <sup>+</sup><br>(4) <sup>+</sup><br>3 <sup>+</sup>                     | M1             |          | 0.253         | B(M1)(W.u.)>0.0019<br>B(M1)(W.u.)>0.00050<br>$\alpha(\text{K})=0.218$ 3; $\alpha(\text{L})=0.0283$ 4; $\alpha(\text{M})=0.00570$ 8; $\alpha(\text{N})=0.001154$ 17; $\alpha(\text{O})=0.0001352$ 19<br>B(M1)(W.u.)>0.0027                                                                                                                                                                                                                                                                      |
| 234.488                              | (5) <sup>-</sup>     | 67.118 4<br>96.639 4                                      | 100.0 18<br>24 3                     | 167.368<br>137.851                          | (6) <sup>-</sup><br>4 <sup>-</sup>                                                             | M1<br>M1       |          | 2.35<br>0.824 | $\alpha(\text{K})=2.02$ 3; $\alpha(\text{L})=0.266$ 4; $\alpha(\text{M})=0.0535$ 8; $\alpha(\text{N})=0.01083$ 16; $\alpha(\text{O})=0.001264$ 18<br>$\alpha(\text{K})=0.708$ 10; $\alpha(\text{L})=0.0928$ 13; $\alpha(\text{M})=0.0187$ 3; $\alpha(\text{N})=0.00378$ 6; $\alpha(\text{O})=0.000442$ 7                                                                                                                                                                                       |
| 269.712                              | (5,6,7) <sup>-</sup> | 102.344 5                                                 | 100                                  | 167.368                                     | (6) <sup>-</sup>                                                                               | M1             |          | 0.700         | $I_\gamma$ : other: 12 3 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.602$ 9; $\alpha(\text{L})=0.0788$ 11; $\alpha(\text{M})=0.01587$ 23; $\alpha(\text{N})=0.00321$ 5; $\alpha(\text{O})=0.000376$ 6<br>Mult.: also from $\alpha(\text{exp})$ in $^{124}\text{Sn}(^7\text{Li},3n\gamma)$ .                                                                                                                                                                                                     |
| 285.24                               | (8) <sup>-</sup>     | 15.6 <sup>&amp;</sup> 3<br>117.8 <sup>&amp;</sup> 3       | <sup>&amp;</sup><br><sup>&amp;</sup> | 269.712<br>167.368                          | (5,6,7) <sup>-</sup><br>(6) <sup>-</sup>                                                       |                |          |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 294.358                              | (5) <sup>-</sup>     | 68.258 5<br>126.988 5                                     | 26.5 14<br>34 3                      | 226.102<br>167.368                          | (5,6,7) <sup>-</sup><br>(6) <sup>-</sup>                                                       | M1             |          | 0.381         | $\alpha(\text{K})=0.328$ 5; $\alpha(\text{L})=0.0427$ 6; $\alpha(\text{M})=0.00861$ 12; $\alpha(\text{N})=0.001743$ 25; $\alpha(\text{O})=0.000204$ 3<br>$I_\gamma$ : other: 16 7 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.184$ 3; $\alpha(\text{L})=0.0238$ 4; $\alpha(\text{M})=0.00480$ 7; $\alpha(\text{N})=0.000971$ 14; $\alpha(\text{O})=0.0001138$ 16                                                                                                                                |
| 295.667                              | (2,3,4) <sup>+</sup> | 74.81 4<br>115.240 23<br>134.94 4<br>144.024 3            | 5.4 5<br>9.1 3<br>25.4 11<br>26 3    | 220.9260<br>180.377<br>160.7563<br>151.6420 | (1,2,3) <sup>+</sup><br>(3) <sup>+</sup><br>1 <sup>+</sup> ,2 <sup>+</sup><br>(3) <sup>+</sup> | M1             |          | 0.268         | $I_\gamma$ : other: 3.3 8 in (p,n $\gamma$ ).<br>$I_\gamma$ : other: 10 4 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.231$ 4; $\alpha(\text{L})=0.0300$ 5; $\alpha(\text{M})=0.00605$ 9; $\alpha(\text{N})=0.001224$ 18; $\alpha(\text{O})=0.0001434$ 20<br>B(M1)(W.u.)>0.0013<br>$I_\gamma$ : other: 17 4 in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.0453$ 23; $\alpha(\text{L})=0.0069$ 14; $\alpha(\text{M})=0.0014$ 3; $\alpha(\text{N})=0.00028$ 6; $\alpha(\text{O})=3.1\times 10^{-5}$ 5 |
| 344.516                              | (2,3,4) <sup>+</sup> | 268.309 6<br>111.941 13<br>164.1390 23                    | 100 4<br>20.6 6<br>100 5             | 27.3620<br>232.577<br>180.377               | 2 <sup>+</sup><br>4 <sup>+</sup><br>(3) <sup>+</sup>                                           | M1,E2<br>M1+E2 | 0.8 8    | 0.23 5        | $\alpha(\text{K})=0.19$ 3; $\alpha(\text{L})=0.034$ 14; $\alpha(\text{M})=0.007$ 3; $\alpha(\text{N})=0.0014$ 6; $\alpha(\text{O})=0.00015$ 5<br>B(M1)(W.u.)>0.00020<br>$\delta$ : from $\alpha(\text{K})\text{exp}$ in $^{127}\text{I}(n,\gamma)$ .                                                                                                                                                                                                                                           |
|                                      |                      | 193.13 <sup>‡</sup> 20                                    | 20 <sup>‡</sup> 5                    | 151.6420                                    | (3) <sup>+</sup>                                                                               |                |          |               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

## Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ (continued) |                                |                                                      |                                                                 |                                                                                                 |                |         |            |                                                                                                                                                                                                                                                                                                                  |
|--------------------------------------|--------------------------------|------------------------------------------------------|-----------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------|---------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                      | $E_\gamma$                                           | $I_\gamma$                                                      | $E_f$                                                                                           | $J_f^\pi$      | Mult. @ | $\alpha^b$ | Comments                                                                                                                                                                                                                                                                                                         |
| 344.516                              | (2,3,4) <sup>+</sup>           | 259.038 8                                            | 47 3                                                            | 85.471                                                                                          | 3 <sup>+</sup> | M1,E2   | 0.060 6    | $\alpha(\text{K})=0.050$ 3; $\alpha(\text{L})=0.0077$ 17; $\alpha(\text{M})=0.0016$ 4; $\alpha(\text{N})=0.00031$ 7; $\alpha(\text{O})=3.5\times 10^{-5}$ 6                                                                                                                                                      |
| 372.123                              |                                | 317.50 <sup>‡</sup> 14<br>211.40 5                   | 50 <sup>‡</sup> 25<br>5.6 20                                    | 27.3620 2 <sup>+</sup><br>160.7563 1 <sup>+</sup> ,2 <sup>+</sup>                               |                |         |            |                                                                                                                                                                                                                                                                                                                  |
| 376.625                              | (4) <sup>-</sup>               | 344.757 7<br>142.1371 15                             | 100 4<br>100 3                                                  | 27.3620 2 <sup>+</sup><br>234.488 (5) <sup>-</sup>                                              |                | M1      | 0.278      | $\alpha(\text{K})=0.240$ 4; $\alpha(\text{L})=0.0311$ 5; $\alpha(\text{M})=0.00627$ 9; $\alpha(\text{N})=0.001270$ 18; $\alpha(\text{O})=0.0001488$ 21<br>B(M1)(W.u.)>0.0011<br>B(M1)(W.u.)>1.7×10 <sup>-5</sup>                                                                                                 |
| 385.446                              | 2 <sup>+</sup> ,3 <sup>+</sup> | 232.632 17<br>205.09 <sup>‡</sup><br>224.689 8       | 6.4 6<br>6.6<br>12.2 10                                         | 143.995 (3) <sup>-</sup><br>180.377 (3) <sup>+</sup><br>160.7563 1 <sup>+</sup> ,2 <sup>+</sup> |                |         |            |                                                                                                                                                                                                                                                                                                                  |
|                                      |                                | 251.80 <sup>‡</sup> 10<br>299.95 9                   | 12<br>15 6                                                      | 133.6107 2 <sup>-</sup><br>85.471 3 <sup>+</sup>                                                |                |         |            |                                                                                                                                                                                                                                                                                                                  |
| 386.593                              | (3 to 6) <sup>-</sup>          | 385.448 6<br>160.489 6<br>248.742 3                  | 100 2<br>8.6 11<br>100 2                                        | 0.0 1 <sup>+</sup><br>226.102 (5,6,7) <sup>-</sup><br>137.851 4 <sup>-</sup>                    |                | M1,E2   | 0.068 7    | $\alpha(\text{K})=0.057$ 4; $\alpha(\text{L})=0.0088$ 21; $\alpha(\text{M})=0.0018$ 5; $\alpha(\text{N})=0.00036$ 9; $\alpha(\text{O})=3.9\times 10^{-5}$ 8                                                                                                                                                      |
| 392.002                              | (1,2,3) <sup>+</sup>           | 211.5 <sup>‡</sup> 2<br>231.244 3                    | <1.0<br>37.0 14                                                 | 180.377 (3) <sup>+</sup><br>160.7563 1 <sup>+</sup> ,2 <sup>+</sup>                             |                | M1,E2   | 0.084 11   | $\alpha(\text{K})=0.070$ 7; $\alpha(\text{L})=0.011$ 3; $\alpha(\text{M})=0.0023$ 7; $\alpha(\text{N})=0.00046$ 13; $\alpha(\text{O})=5.0\times 10^{-5}$ 11                                                                                                                                                      |
|                                      |                                | 240.38 <sup>‡</sup> 15<br>364.660 14                 | 6 <sup>‡</sup> 3<br>24 3                                        | 151.6420 (3) <sup>+</sup><br>27.3620 2 <sup>+</sup>                                             |                |         |            |                                                                                                                                                                                                                                                                                                                  |
| 416.281                              | (2,3) <sup>+</sup>             | 392.008 8<br>235.898 3<br>255.533 5                  | 100 5<br>95 10<br>100 5                                         | 0.0 1 <sup>+</sup><br>180.377 (3) <sup>+</sup><br>160.7563 1 <sup>+</sup> ,2 <sup>+</sup>       |                | M1,E2   | 0.062 6    | $\alpha(\text{K})=0.052$ 4; $\alpha(\text{L})=0.0081$ 19; $\alpha(\text{M})=0.0016$ 4; $\alpha(\text{N})=0.00033$ 8; $\alpha(\text{O})=3.6\times 10^{-5}$ 7                                                                                                                                                      |
| 426.339                              | <sup>+</sup>                   | 330.837 10<br>388.909 13<br>205.412 3                | 56 5<br>87 6<br>85 5                                            | 85.471 3 <sup>+</sup><br>27.3620 2 <sup>+</sup><br>220.9260 (1,2,3) <sup>+</sup>                |                | M1,E2   | 0.122 21   | $E_\gamma$ : not observed in (p,n $\gamma$ ).<br>$\alpha(\text{K})=0.101$ 13; $\alpha(\text{L})=0.017$ 6; $\alpha(\text{M})=0.0035$ 12; $\alpha(\text{N})=0.00069$ 23; $\alpha(\text{O})=7.4\times 10^{-5}$ 21<br>$I_\gamma$ : other: 100 8 in (p,n $\gamma$ ).<br>$I_\gamma$ : other: 55 17 in (p,n $\gamma$ ). |
| 434.356                              |                                | 265.610 16<br>398.93 <sup>‡</sup> 8                  | 27 4<br>100 16                                                  | 160.7563 1 <sup>+</sup> ,2 <sup>+</sup><br>27.3620 2 <sup>+</sup>                               |                |         |            |                                                                                                                                                                                                                                                                                                                  |
| 435.510                              | (2,3) <sup>-</sup>             | 290.358 12<br>58.86 6                                | 100<br>3.8 4                                                    | 143.995 (3) <sup>-</sup><br>376.625 (4) <sup>-</sup>                                            |                |         |            | $E_\gamma$ : not observed in (p,n $\gamma$ ).                                                                                                                                                                                                                                                                    |
|                                      |                                | 90.43 <sup>‡</sup> 20<br>291.513 11<br>301.897 5     | 2.5<br>6.0 5<br>100 2                                           | 344.516 (2,3,4) <sup>+</sup><br>143.995 (3) <sup>-</sup><br>133.6107 2 <sup>-</sup>             |                | M1,E2   | 0.0380 15  | $\alpha(\text{K})=0.0322$ 7; $\alpha(\text{L})=0.0047$ 7; $\alpha(\text{M})=0.00096$ 15; $\alpha(\text{N})=0.00019$ 3; $\alpha(\text{O})=2.14\times 10^{-5}$ 22                                                                                                                                                  |
| 481.7                                | (7 <sup>-</sup> )              | 255.6 <sup>&amp;</sup> 5<br>314.3 <sup>&amp;</sup> 5 | 67 <sup>&amp;</sup> 17<br>10×10 <sup>1</sup> <sup>&amp;</sup> 3 | 226.102 (5,6,7) <sup>-</sup><br>167.368 (6) <sup>-</sup>                                        |                |         |            |                                                                                                                                                                                                                                                                                                                  |

## Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ (continued) |                                     |                          |                      |          |                                     |         |            |                                                                                                                                                                    |
|--------------------------------------|-------------------------------------|--------------------------|----------------------|----------|-------------------------------------|---------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                           | $E_\gamma^\dagger$       | $I_\gamma^\dagger$   | $E_f$    | $J_f^\pi$                           | Mult. @ | $\alpha^b$ | Comments                                                                                                                                                           |
| 485.422                              | (≤4)                                | 93.25 8                  | 5.6 8                | 392.002  | (1,2,3) <sup>+</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 264.494 10               | 52 5                 | 220.9260 | (1,2,3) <sup>+</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 325.20 <sup>‡</sup> 15   | 21 9                 | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup>      |         |            |                                                                                                                                                                    |
|                                      |                                     | 458.074 23               | 100 11               | 27.3620  | 2 <sup>+</sup>                      |         |            |                                                                                                                                                                    |
| 518.456                              | (3,4) <sup>-</sup>                  | 131.8646 23              | 25.1 19              | 386.593  | (3 to 6) <sup>-</sup>               |         |            |                                                                                                                                                                    |
|                                      |                                     | 224.093 4                | 100 3                | 294.358  | (5) <sup>-</sup>                    | M1,E2   | 0.093 13   | $\alpha(\text{K})=0.077$ 8; $\alpha(\text{L})=0.013$ 4; $\alpha(\text{M})=0.0026$ 8; $\alpha(\text{N})=0.00051$ 15;<br>$\alpha(\text{O})=5.5\times 10^{-5}$ 13     |
|                                      |                                     | 283.963 10               | 29.0 14              | 234.488  | (5) <sup>-</sup>                    | M1,E2   | 0.046 3    | $\alpha(\text{K})=0.0384$ 14; $\alpha(\text{L})=0.0057$ 10; $\alpha(\text{M})=0.00117$ 22;<br>$\alpha(\text{N})=0.00023$ 4; $\alpha(\text{O})=2.6\times 10^{-5}$ 4 |
|                                      |                                     | 374.455 21               | 45 5                 | 143.995  | (3) <sup>-</sup>                    |         |            |                                                                                                                                                                    |
| 521.081                              | (4 <sup>-</sup> ,5 <sup>-</sup> )   | 380.8 8                  | 9.9 12               | 137.851  | 4 <sup>-</sup>                      |         |            |                                                                                                                                                                    |
|                                      |                                     | 226.68 3                 | 62 9                 | 294.358  | (5) <sup>-</sup>                    |         |            |                                                                                                                                                                    |
|                                      |                                     | 251.373 17               | 100 15               | 269.712  | (5,6,7) <sup>-</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 294.9 1                  | 47 15                | 226.102  | (5,6,7) <sup>-</sup>                |         |            |                                                                                                                                                                    |
| 529.965                              | (3 <sup>+</sup> )                   | 383.34 5                 | 91 18                | 137.851  | 4 <sup>-</sup>                      |         |            |                                                                                                                                                                    |
|                                      |                                     | 113.71 5                 | 5.9 6                | 416.281  | (2,3) <sup>+</sup>                  |         |            |                                                                                                                                                                    |
|                                      |                                     | 297.398 22               | 36 5                 | 232.577  | 4 <sup>+</sup>                      |         |            |                                                                                                                                                                    |
|                                      |                                     | 502.55 4                 | 100 14               | 27.3620  | 2 <sup>+</sup>                      |         |            |                                                                                                                                                                    |
| 549.732                              | (3 <sup>+</sup> ,4 <sup>+</sup> )   | 317.147 22               | 71 10                | 232.577  | 4 <sup>+</sup>                      |         |            |                                                                                                                                                                    |
|                                      |                                     | 369.37 3                 | 100 10               | 180.377  | (3) <sup>+</sup>                    |         |            |                                                                                                                                                                    |
| 552.321                              | (8 <sup>-</sup> )                   | 282.609 12               | 100                  | 269.712  | (5,6,7) <sup>-</sup>                |         |            |                                                                                                                                                                    |
| 554.430                              | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) | 118.84 10                | 1.79 18              | 435.510  | (2,3) <sup>-</sup>                  |         |            |                                                                                                                                                                    |
|                                      |                                     | 169.00 <sup>‡c</sup> 20  | 5 4                  | 385.446  | 2 <sup>+</sup> ,3 <sup>+</sup>      |         |            |                                                                                                                                                                    |
|                                      |                                     | 177.803 7                | 6.0 9                | 376.625  | (4) <sup>-</sup>                    |         |            |                                                                                                                                                                    |
|                                      |                                     | 416.554 13               | 48 3                 | 137.851  | 4 <sup>-</sup>                      |         |            |                                                                                                                                                                    |
| 582.21                               | (8 <sup>-</sup> )                   | 420.843 10               | 100 6                | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                    |
|                                      |                                     | 312.5 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup> | 269.712  | (5,6,7) <sup>-</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 173.192 6                | 22.8 22              | 435.510  | (2,3) <sup>-</sup>                  |         |            |                                                                                                                                                                    |
|                                      |                                     | 222.088 12               | 15.0 18              | 386.593  | (3 to 6) <sup>-</sup>               |         |            |                                                                                                                                                                    |
| 608.705                              | (3,4) <sup>-</sup>                  | 314.350 5                | 96 8                 | 294.358  | (5) <sup>-</sup>                    | M1,E2   | 0.0338 9   | $\alpha(\text{K})=0.0286$ 5; $\alpha(\text{L})=0.0042$ 6; $\alpha(\text{M})=0.00084$ 12; $\alpha(\text{N})=0.000169$ 22; $\alpha(\text{O})=1.90\times 10^{-5}$ 16  |
|                                      |                                     | 374.223 9                | 100 10               | 234.488  | (5) <sup>-</sup>                    |         |            |                                                                                                                                                                    |
|                                      |                                     | 461.47 17                | 100                  | 151.6420 | (3) <sup>+</sup>                    |         |            |                                                                                                                                                                    |
|                                      |                                     | 424.74 <sup>c</sup> 3    | 53 8                 | 232.577  | 4 <sup>+</sup>                      |         |            |                                                                                                                                                                    |
| 657.207                              |                                     | 528.78 4                 | 100 27               | 128.237  | (4) <sup>+</sup>                    |         |            |                                                                                                                                                                    |
|                                      |                                     | 124.5 <sup>‡</sup> 3     | 7 4                  | 554.430  | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) |         |            |                                                                                                                                                                    |
| 679.06                               |                                     | 334.90 <sup>‡c</sup> 12  | 22 11                | 344.516  | (2,3,4) <sup>+</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 383.20 <sup>‡</sup> 16   | 50 14                | 295.667  | (2,3,4) <sup>+</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 457.9 <sup>‡</sup> 2     | 24 5                 | 220.9260 | (1,2,3) <sup>+</sup>                |         |            |                                                                                                                                                                    |
|                                      |                                     | 518.2 <sup>‡</sup> 1     | 100 22               | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup>      |         |            |                                                                                                                                                                    |
| 687.050                              | (3,4) <sup>-</sup>                  | 251.534 7                | 90 7                 | 435.510  | (2,3) <sup>-</sup>                  | M1,E2   | 0.065 7    | $\alpha(\text{K})=0.055$ 4; $\alpha(\text{L})=0.0085$ 20; $\alpha(\text{M})=0.0017$ 5; $\alpha(\text{N})=0.00035$ 8;<br>$\alpha(\text{O})=3.8\times 10^{-5}$ 7     |

Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ (continued) |                                     |             |            |          |                                     |         |            |                                                                                                                                                                |
|--------------------------------------|-------------------------------------|-------------|------------|----------|-------------------------------------|---------|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                           | $E_\gamma$  | $I_\gamma$ | $E_f$    | $J_f^\pi$                           | Mult. @ | $\alpha^b$ | Comments                                                                                                                                                       |
| 687.050                              | (3,4) <sup>-</sup>                  | 252.65 4    | 25 3       | 434.356  |                                     |         |            |                                                                                                                                                                |
|                                      |                                     | 300.449 7   | 31 3       | 386.593  | (3 to 6) <sup>-</sup>               |         |            |                                                                                                                                                                |
|                                      |                                     | 310.451 12  | 44 4       | 376.625  | (4) <sup>-</sup>                    |         |            |                                                                                                                                                                |
|                                      |                                     | 392.708 11  | 100 8      | 294.358  | (5) <sup>-</sup>                    |         |            |                                                                                                                                                                |
| 696.27                               | (9 <sup>-</sup> )                   | 411.0 & 1   | 100        | 285.24   | (8 <sup>-</sup> )                   |         |            |                                                                                                                                                                |
| 704.92                               |                                     | 484.4 ‡ 2   | 100 22     | 220.9260 | (1,2,3) <sup>+</sup>                |         |            |                                                                                                                                                                |
|                                      |                                     | 677.40 ‡ 14 | 88 44      | 27.3620  | 2 <sup>+</sup>                      |         |            |                                                                                                                                                                |
| 715.2                                | (1 <sup>-</sup> ,2,3 <sup>+</sup> ) | 571.5 # 11  | 86 37      | 143.995  | (3) <sup>-</sup>                    |         |            |                                                                                                                                                                |
|                                      |                                     | 715.1 # 8   | 100 37     | 0.0      | 1 <sup>+</sup>                      |         |            |                                                                                                                                                                |
| 728.184                              | -                                   | 207.102 11  | 100        | 521.081  | (4 <sup>-</sup> ,5 <sup>-</sup> )   | M1,E2   | 0.119 20   | $\alpha(\text{K})=0.098$ 13; $\alpha(\text{L})=0.016$ 6; $\alpha(\text{M})=0.0034$ 12; $\alpha(\text{N})=0.00067$ 22; $\alpha(\text{O})=7.2 \times 10^{-5}$ 20 |
| 735.46                               |                                     | 502.88 ‡ 8  | 100        | 232.577  | 4 <sup>+</sup>                      |         |            |                                                                                                                                                                |
| 750.39                               | (≤4)                                | 590.20 ‡ 17 | 100 36     | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup>      |         |            |                                                                                                                                                                |
|                                      |                                     | 723.2 ‡ 2   | 89 36      | 27.3620  | 2 <sup>+</sup>                      |         |            |                                                                                                                                                                |
| 768.36                               | (≤4)                                | 634.75 ‡ 15 | 100        | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                |
| 778.62                               |                                     | 248.65 ‡ 8  | 100        | 529.965  | (3 <sup>+</sup> )                   |         |            |                                                                                                                                                                |
| 795.14                               |                                     | 643.0 ‡ 2   | 100        | 151.6420 | (3) <sup>+</sup>                    |         |            |                                                                                                                                                                |
| 828.30                               |                                     | 596.4 # 5   | 47 16      | 232.577  | 4 <sup>+</sup>                      |         |            |                                                                                                                                                                |
|                                      |                                     | 647.4 # 3   | 100 32     | 180.377  | (3) <sup>+</sup>                    |         |            |                                                                                                                                                                |
| 834.61                               | (≤4)                                | 701.00 ‡ 14 | 100        | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                |
| 840.00                               | (1 <sup>-</sup> ,2,3 <sup>+</sup> ) | 543.1 # 5   | 100 33     | 295.667  | (2,3,4) <sup>+</sup>                |         |            |                                                                                                                                                                |
|                                      |                                     | 695.2 # 8   | 44 18      | 143.995  | (3) <sup>-</sup>                    |         |            |                                                                                                                                                                |
|                                      |                                     | 838.8 # 7   | 44 21      | 0.0      | 1 <sup>+</sup>                      |         |            |                                                                                                                                                                |
| 843.45                               | (≤4)                                | 662.2 # 7   | 22 11      | 180.377  | (3) <sup>+</sup>                    |         |            |                                                                                                                                                                |
|                                      |                                     | 707.9 # 8   | 100 33     | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                |
| 844.63                               |                                     | 290.20 ‡ 15 | 100        | 554.430  | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) |         |            |                                                                                                                                                                |
| 849.20                               | (≤4)                                | 432.55 ‡ 20 |            | 416.281  | (2,3) <sup>+</sup>                  |         |            |                                                                                                                                                                |
|                                      |                                     | 715.40 ‡ 8  | 100 33     | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                |
| 866.56                               |                                     | 705.8 ‡ 1   | 100        | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup>      |         |            |                                                                                                                                                                |
| 910.88                               | (8 <sup>-</sup> )                   | 429.1 & 5   | 50 & 14    | 481.7    | (7 <sup>-</sup> )                   |         |            |                                                                                                                                                                |
|                                      |                                     | 641.2 & 5   | 59 & 18    | 269.712  | (5,6,7) <sup>-</sup>                |         |            |                                                                                                                                                                |
|                                      |                                     | 743.5 & 3   | 100 & 14   | 167.368  | (6) <sup>-</sup>                    |         |            |                                                                                                                                                                |
| 916.79                               | (≤4)                                | 783.4 ‡ 1   | 100        | 133.6107 | 2 <sup>-</sup>                      |         |            |                                                                                                                                                                |
| 934.10                               | (2 <sup>-</sup> ,3,4)               | 325.37 12   | 22 9       | 608.705  | (3,4) <sup>-</sup>                  |         |            |                                                                                                                                                                |
|                                      |                                     | 498.6 # 3   |            | 435.510  | (2,3) <sup>-</sup>                  |         |            |                                                                                                                                                                |
|                                      |                                     | 557.42 9    | 100 17     | 376.625  | (4) <sup>-</sup>                    |         |            |                                                                                                                                                                |

Adopted Levels, Gammas (continued)

| <u><math>\gamma(^{128}\text{I})</math> (continued)</u> |                                     |                          |                             |          |                       | Comments                                                  |
|--------------------------------------------------------|-------------------------------------|--------------------------|-----------------------------|----------|-----------------------|-----------------------------------------------------------|
| $E_i(\text{level})$                                    | $J_i^\pi$                           | $E_\gamma^\dagger$       | $I_\gamma^\dagger$          | $E_f$    | $J_f^\pi$             |                                                           |
| 934.10                                                 | (2 <sup>-</sup> ,3,4)               | 788.8 <sup>#</sup>       | 4                           | 143.995  | (3) <sup>-</sup>      |                                                           |
| 942.31                                                 | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) | 508.0 <sup>#</sup> 1     | 100 26                      | 434.356  |                       |                                                           |
|                                                        |                                     | 564.2 <sup>#</sup> 8     | 8 3                         | 376.625  | (4) <sup>-</sup>      |                                                           |
|                                                        |                                     | 708.5 <sup>#</sup> 6     | 5.9 24                      | 234.488  | (5) <sup>-</sup>      |                                                           |
|                                                        |                                     | 795.8 <sup>#</sup> 9     | 11 4                        | 143.995  | (3) <sup>-</sup>      |                                                           |
|                                                        |                                     | 812.7 <sup>#</sup> 9     | 13 5                        | 128.237  | (4) <sup>+</sup>      |                                                           |
| 1013.1                                                 | (2,3,4)                             | 834.6 <sup>#</sup> 9     | 15 8                        | 180.377  | (3) <sup>+</sup>      |                                                           |
|                                                        |                                     | 868.7 <sup>#</sup> 4     | 100 23                      | 143.995  | (3) <sup>-</sup>      |                                                           |
| 1024.8                                                 | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) | 789.8 <sup>#</sup> 6     | 48 18                       | 234.488  | (5) <sup>-</sup>      |                                                           |
|                                                        |                                     | 881.9 <sup>#</sup> 9     | 100 34                      | 143.995  | (3) <sup>-</sup>      |                                                           |
| 1032.04                                                | (2 <sup>+</sup> ,3,4 <sup>-</sup> ) | 596.6 <sup>‡</sup> 2     | 42 11                       | 435.510  | (2,3) <sup>-</sup>    |                                                           |
|                                                        |                                     | 798.7 <sup>#</sup> 9     |                             | 232.577  | 4 <sup>+</sup>        |                                                           |
|                                                        |                                     | 888.3 <sup>#</sup> 5     |                             | 143.995  | (3) <sup>-</sup>      |                                                           |
|                                                        |                                     | 898.3 <sup>‡</sup> 2     | 100 53                      | 133.6107 | 2 <sup>-</sup>        | $E_\gamma$ : other: 897.6 3 in (n, $\gamma$ ): secondary. |
| 1041.69                                                | (10 <sup>-</sup> )                  | 345.4 <sup>&amp;</sup> 3 | 11.4 <sup>&amp;</sup> 18    | 696.27   | (9 <sup>-</sup> )     |                                                           |
|                                                        |                                     | 756.5 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup> 5      | 285.24   | (8 <sup>-</sup> )     |                                                           |
| 1048.64                                                | (1,2,3 <sup>+</sup> )               | 613.5 <sup>‡</sup> 2     | 82 36                       | 435.510  | (2,3) <sup>-</sup>    |                                                           |
|                                                        |                                     | 1048.7 <sup>‡c</sup> 2   | 100 64                      | 0.0      | 1 <sup>+</sup>        |                                                           |
| 1062.15                                                |                                     | 976.5 <sup>#</sup> 8     | 100                         | 85.471   | 3 <sup>+</sup>        |                                                           |
| 1084.552                                               | ( $\leq 4$ )                        | 698.0 <sup>#</sup> 3     | 100 41                      | 386.593  | (3 to 6) <sup>-</sup> |                                                           |
|                                                        |                                     | 940.4 <sup>#</sup> 11    | 82 36                       | 143.995  | (3) <sup>-</sup>      |                                                           |
|                                                        |                                     | 950.3 <sup>#</sup> 12    | 89 39                       | 133.6107 | 2 <sup>-</sup>        |                                                           |
| 1100.082                                               |                                     | 803.3 <sup>#</sup> 8     | 37 14                       | 295.667  | (2,3,4) <sup>+</sup>  |                                                           |
|                                                        |                                     | 867.7 <sup>#</sup> 5     | 94 31                       | 232.577  | 4 <sup>+</sup>        |                                                           |
|                                                        |                                     | 955.3 <sup>#</sup> 8     | 100 33                      | 143.995  | (3) <sup>-</sup>      |                                                           |
| 1128.0                                                 |                                     | 982.7 <sup>#</sup> 7     | 100 33                      | 143.995  | (3) <sup>-</sup>      |                                                           |
|                                                        |                                     | 1102.4 <sup>#</sup> 8    | 67 31                       | 27.3620  | 2 <sup>+</sup>        |                                                           |
| 1150.0                                                 | (9 <sup>-</sup> )                   | 239.0 <sup>&amp;</sup> 5 | 67 <sup>&amp;</sup> 17      | 910.88   | (8 <sup>-</sup> )     |                                                           |
|                                                        |                                     | 567.9 <sup>&amp;</sup> 5 | $\leq 100$ <sup>&amp;</sup> | 582.21   | (8 <sup>-</sup> )     |                                                           |
| 1163.49                                                | ( $\leq 3$ )                        | 868.2 <sup>#</sup> 5     | 100 30                      | 295.667  | (2,3,4) <sup>+</sup>  |                                                           |
|                                                        |                                     | 1165.6 <sup>#</sup> 8    | 56 33                       | 0.0      | 1 <sup>+</sup>        |                                                           |
| 1171.3                                                 |                                     | 784.7 <sup>#</sup> 5     | 100 48                      | 386.593  | (3 to 6) <sup>-</sup> |                                                           |
|                                                        |                                     | 826.9 <sup>#</sup> 10    | 67 52                       | 344.516  | (2,3,4) <sup>+</sup>  |                                                           |
| 1211.45                                                |                                     | 777.4 <sup>#</sup> 6     | 24 8                        | 434.356  |                       |                                                           |
|                                                        |                                     | 866.9 <sup>#</sup> 2     | 100 71                      | 344.516  | (2,3,4) <sup>+</sup>  |                                                           |

Adopted Levels, Gammas (continued)

|                                       |                             |                                      |                                      |                         |                             | <u><math>\gamma(^{128}\text{I})</math> (continued)</u> | Comments |
|---------------------------------------|-----------------------------|--------------------------------------|--------------------------------------|-------------------------|-----------------------------|--------------------------------------------------------|----------|
| <u><math>E_i(\text{level})</math></u> | <u><math>J_i^\pi</math></u> | <u><math>E_\gamma^\dagger</math></u> | <u><math>I_\gamma^\dagger</math></u> | <u><math>E_f</math></u> | <u><math>J_f^\pi</math></u> |                                                        |          |
| 1218.6                                | $2^+, 3, 4^+$               | 986.3 <sup>#</sup> 8                 | 45 20                                | 232.577                 | 4 <sup>+</sup>              |                                                        |          |
|                                       |                             | 1088.1 <sup>#</sup> 11               | 100 39                               | 128.237                 | (4) <sup>+</sup>            |                                                        |          |
|                                       |                             | 1189.6 <sup>#</sup> 9                | 75 34                                | 27.3620                 | 2 <sup>+</sup>              |                                                        |          |
| 1226.5                                | $(3^-, 4^-)$                | 930.0 <sup>#</sup> 8                 | 72 30                                | 295.667                 | (2,3,4) <sup>+</sup>        |                                                        |          |
|                                       |                             | 992.4 <sup>#</sup> 8                 | 36 11                                | 234.488                 | (5) <sup>-</sup>            |                                                        |          |
|                                       |                             | 1094.4 <sup>#</sup> 8                | 100 34                               | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
|                                       |                             | 1140.3 <sup>#</sup> 7                | 79 36                                | 85.471                  | 3 <sup>+</sup>              |                                                        |          |
| 1246.859                              | $2^+, 3, 4^-$               | 810.3 <sup>#</sup> 7                 | 39 14                                | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
|                                       |                             | 1014.7 <sup>#</sup> 6                | 20 8                                 | 232.577                 | 4 <sup>+</sup>              |                                                        |          |
|                                       |                             | 1102.1 <sup>#</sup> 5                | 64 17                                | 143.995                 | (3) <sup>-</sup>            |                                                        |          |
|                                       |                             | 1113.4 <sup>#</sup> 5                | 100 29                               | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
| 1251.513                              | $(2^-, 3, 4^-)$             | 814.9 <sup>#</sup> 7                 | 100 31                               | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
|                                       |                             | 863.8 <sup>#</sup> 3                 | 49 20                                | 386.593                 | (3 to 6) <sup>-</sup>       |                                                        |          |
|                                       |                             | 1071.9 <sup>#</sup> 12               | 23 11                                | 180.377                 | (3) <sup>+</sup>            |                                                        |          |
|                                       |                             | 1110.9 7                             |                                      | 137.851                 | 4 <sup>-</sup>              |                                                        |          |
|                                       |                             | 1117.0 <sup>#</sup> 11               | 83 35                                | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
| 1256.0                                |                             | 821.3 <sup>#</sup> 8                 | 100 8                                | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
| 1266.362                              | $(2^-, 3^+)$                | 830.8 <sup>#</sup> 5                 | 26 9                                 | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
|                                       |                             | 878.2 <sup>#</sup> 8                 | 13 7                                 | 386.593                 | (3 to 6) <sup>-</sup>       |                                                        |          |
|                                       |                             | 891.4 <sup>#</sup> 6                 | 34 10                                | 376.625                 | (4) <sup>-</sup>            |                                                        |          |
|                                       |                             | 921.6 <sup>#</sup> 8                 | 9 7                                  | 344.516                 | (2,3,4) <sup>+</sup>        |                                                        |          |
|                                       |                             | 1122.2 <sup>#</sup> 4                | 100 20                               | 143.995                 | (3) <sup>-</sup>            |                                                        |          |
|                                       |                             | 1132.5 <sup>#</sup> 4                | 65 15                                | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
|                                       |                             | 1268.5 <sup>#</sup> 9                | 16 9                                 | 0.0                     | 1 <sup>+</sup>              |                                                        |          |
| 1275.44                               | $(\leq 4)$                  | 837.6 <sup>#</sup> 7                 | 47 16                                | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
|                                       |                             | 1093.4 <sup>#</sup> 10               | 19 9                                 | 180.377                 | (3) <sup>+</sup>            |                                                        |          |
|                                       |                             | 1141.6 <sup>#</sup> 6                | 100 27                               | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
|                                       |                             |                                      |                                      |                         |                             | $E_\gamma$ : 1142.2 2 (p,n $\gamma$ ).                 |          |
| 1287.0                                | $(9^-)$                     | 704.8 <sup>&amp;</sup> 5             | 100 <sup>&amp;</sup>                 | 582.21                  | (8 <sup>-</sup> )           |                                                        |          |
| 1291.4                                | $(10^-)$                    | 709.1 <sup>&amp;</sup> 5             | 100 <sup>&amp;</sup>                 | 582.21                  | (8 <sup>-</sup> )           |                                                        |          |
| 1291.47                               | $(10^-)$                    | 595.2 <sup>&amp;</sup> 1             | 100 <sup>&amp;</sup>                 | 696.27                  | (9 <sup>-</sup> )           |                                                        |          |
| 1301.70                               | $(2^+, 3, 4^-)$             | 863.6 <sup>#</sup> 7                 | 66 22                                | 435.510                 | (2,3) <sup>-</sup>          |                                                        |          |
|                                       |                             | 1069.3 <sup>#</sup> 7                | 46 15                                | 232.577                 | 4 <sup>+</sup>              |                                                        |          |
|                                       |                             | 1157.5 <sup>#</sup> 9                | 69 27                                | 143.995                 | (3) <sup>-</sup>            |                                                        |          |
|                                       |                             | 1168.0 <sup>#</sup> 8                | 100 42                               | 133.6107                | 2 <sup>-</sup>              |                                                        |          |
| 1330.16                               | $(\leq 4)$                  | 1196.0 <sup>#</sup> 5                | 100                                  | 133.6107                | 2 <sup>-</sup>              |                                                        |          |

Adopted Levels, Gammas (continued) $\gamma(^{128}\text{I})$  (continued)

| <u><math>E_i(\text{level})</math></u> | <u><math>J_i^\pi</math></u> | <u><math>E_\gamma</math></u> | <u><math>I_\gamma</math></u> | <u><math>E_f</math></u> | <u><math>J_f^\pi</math></u> |
|---------------------------------------|-----------------------------|------------------------------|------------------------------|-------------------------|-----------------------------|
| 1343.176                              | $(3^-, 4, 5)$               | 907.1 <sup>#</sup> 10        | 15 7                         | 435.510                 | $(2, 3)^-$                  |
|                                       |                             | 1048.1 <sup>#</sup> 4        | 100 22                       | 295.667                 | $(2, 3, 4)^+$               |
|                                       |                             | 1108.8 <sup>#</sup> 3        | 45 13                        | 234.488                 | $(5)^-$                     |
|                                       |                             | 1204.2 <sup>#</sup> 8        | 28 11                        | 137.851                 | $4^-$                       |
| 1347.1                                | $(9^-)$                     | 764.9 <sup>&amp;</sup> 5     | 100 <sup>&amp;</sup>         | 582.21                  | $(8^-)$                     |
| 1360.11                               | $(3^-, 4^-)$                | 927.4 <sup>#</sup> 10        | 19 8                         | 434.356                 |                             |
|                                       |                             | 975.4 <sup>#</sup> 4         | 29 12                        | 385.446                 | $2^+, 3^+$                  |
|                                       |                             | 1067.7 <sup>#</sup> 8        | 31 12                        | 294.358                 | $(5)^-$                     |
|                                       |                             | 1127.8 <sup>#</sup> 3        | 67 20                        | 232.577                 | $4^+$                       |
|                                       |                             | 1221.3 <sup>#</sup> 4        | 100 20                       | 137.851                 | $4^-$                       |
|                                       |                             | 1225.9 <sup>#</sup> 3        | 100 27                       | 133.6107                | $2^-$                       |
| 1370.1                                |                             | 933.5 <sup>#</sup> 7         | 100 31                       | 435.510                 | $(2, 3)^-$                  |
|                                       |                             | 1027.9 <sup>#</sup> 10       | 31 24                        | 344.516                 | $(2, 3, 4)^+$               |
| 1441.59                               |                             | 1006.3 <sup>#</sup> 6        | 56 18                        | 435.510                 | $(2, 3)^-$                  |
|                                       |                             | 1298.2 <sup>#</sup> 6        | 100 27                       | 143.995                 | $(3)^-$                     |
| 1454.02                               | $(11^-)$                    | 412.3 <sup>&amp;</sup> 1     | 100 <sup>&amp;</sup> 5       | 1041.69                 | $(10^-)$                    |
|                                       |                             | 757.7 <sup>&amp;</sup> 1     | 26.8 <sup>&amp;</sup> 13     | 696.27                  | $(9^-)$                     |
| 1455.35                               | $(\leq 3)$                  | 1427.3 <sup>#</sup> 8        | 100 39                       | 27.3620                 | $2^+$                       |
|                                       |                             | 1455.2 <sup>#</sup> 11       | 45 18                        | 0.0                     | $1^+$                       |
| 1460.96                               | $(9^+)$                     | 550.1 <sup>&amp;</sup> 3     | 13.2 <sup>&amp;</sup> 19     | 910.88                  | $(8^-)$                     |
|                                       |                             | 764.7 <sup>&amp;</sup> 1     | 100 <sup>&amp;</sup> 5       | 696.27                  | $(9^-)$                     |
|                                       |                             | 1175.5 <sup>&amp;</sup> 3    | 8.9 <sup>&amp;</sup> 12      | 285.24                  | $(8^-)$                     |
| 1486.83                               |                             | 1051.3 <sup>#</sup> 5        | 100 31                       | 435.510                 | $(2, 3)^-$                  |
|                                       |                             | 1342.1 <sup>#</sup> 10       | 63 27                        | 143.995                 | $(3)^-$                     |
| 1498.7                                | $(\leq 4)$                  | 1112.7 <sup>#</sup> 8        | 44 22                        | 385.446                 | $2^+, 3^+$                  |
|                                       |                             | 1203.0 <sup>#</sup> 9        | 100 41                       | 295.667                 | $(2, 3, 4)^+$               |
|                                       |                             | 1471.9 <sup>#</sup> 8        | 88 37                        | 27.3620                 | $2^+$                       |
| 1506.96                               |                             | 1161.7 <sup>#</sup> 9        | 100                          | 344.516                 | $(2, 3, 4)^+$               |
| 1527.795                              | $(2^-, 3, 4^-)$             | 1092.9 <sup>#</sup> 6        | 37 11                        | 435.510                 | $(2, 3)^-$                  |
|                                       |                             | 1140.9 <sup>#</sup> 7        | 16 8                         | 386.593                 | $(3 \text{ to } 6)^-$       |
|                                       |                             | 1151.6 <sup>#</sup> 3        | 100 21                       | 376.625                 | $(4)^-$                     |
|                                       |                             | 1393.1 <sup>#</sup> 7        | 100 29                       | 133.6107                | $2^-$                       |
| 1532.73                               | $2^+, 3, 4^-$               | 1299.2 <sup>#</sup> 10       | 27 11                        | 232.577                 | $4^+$                       |
|                                       |                             | 1398.3 <sup>#</sup> 9        | 100 43                       | 133.6107                | $2^-$                       |
| 1538.11                               |                             | 1101.7 <sup>#</sup> 10       | 21 9                         | 435.510                 | $(2, 3)^-$                  |

Adopted Levels, Gammas (continued)

| $\gamma(^{128}\text{I})$ (continued) |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |
|--------------------------------------|---------------------------------------|--------------------------|-------------------------|----------|-----------------------|---------|------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| $E_i(\text{level})$                  | $J_i^\pi$                             | $E_\gamma^\dagger$       | $I_\gamma^\dagger$      | $E_f$    | $J_f^\pi$             | Mult. @ | $\alpha^b$ | Comments                                                                                                                                                                                                                                  |
| 1538.11                              |                                       | 1148.9 <sup>#</sup> 10   | 11 5                    | 386.593  | (3 to 6) <sup>-</sup> |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1161.2 <sup>#</sup> 9    | 29 11                   | 376.625  | (4) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1393.4 <sup>#</sup> 4    | 100 20                  | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1542.1                               | (≤4)                                  | 1107.6 <sup>#</sup> 10   | 71 27                   | 435.510  | (2,3) <sup>-</sup>    |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1407.8 <sup>#</sup> 8    | 100 37                  | 133.6107 | 2 <sup>-</sup>        |         |            |                                                                                                                                                                                                                                           |
| 1553.8                               |                                       | 1409.8 <sup>#</sup> 7    | 100                     | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1559.9                               |                                       | 1123.6 <sup>#</sup> 7    | 100 35                  | 435.510  | (2,3) <sup>-</sup>    |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1418.3 <sup>#</sup> 12   | 88 40                   | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1562.27                              | (10 <sup>+</sup> )                    | 101.3 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup> 5  | 1460.96  | (9 <sup>+</sup> )     | M1      | 0.721      | $\alpha(\text{K})=0.620$ 9; $\alpha(\text{L})=0.0811$ 12; $\alpha(\text{M})=0.01634$ 24; $\alpha(\text{N})=0.00331$ 5;<br>$\alpha(\text{O})=0.000387$ 6<br>Mult.: from $\alpha(\text{exp})$ in $^{124}\text{Sn}(^7\text{Li}, 3n\gamma)$ . |
|                                      |                                       | 412.3 <sup>&amp;</sup> 5 | 6.2 <sup>&amp;</sup> 21 | 1150.0   | (9 <sup>-</sup> )     |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 866.0 <sup>&amp;</sup> 1 | 69 <sup>&amp;</sup> 3   | 696.27   | (9 <sup>-</sup> )     |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1138.9 <sup>#</sup> 6    | 100                     | 435.510  | (2,3) <sup>-</sup>    |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1242.6 <sup>#</sup> 11   | 59 27                   | 376.625  | (4) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1574.7                               |                                       | 1475.4 <sup>#</sup> 9    | 100 37                  | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1191.5 <sup>#</sup> 5    | 68 21                   | 435.510  | (2,3) <sup>-</sup>    |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1494.0 <sup>#</sup> 6    | 100 30                  | 133.6107 | 2 <sup>-</sup>        |         |            |                                                                                                                                                                                                                                           |
| 1619.3                               | (1,2,3)                               | 1599.7 <sup>#</sup> 5    | 64 22                   | 27.3620  | 2 <sup>+</sup>        |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1199.6 <sup>#</sup> 5    | 100 29                  | 434.356  |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1257.1 <sup>#</sup> 6    | 71 22                   | 376.625  | (4) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1628.084                             |                                       | 1287.8 <sup>#</sup> 5    | 38 27                   | 344.516  | (2,3,4) <sup>+</sup>  |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1408.8 <sup>#</sup> 7    | 100 35                  | 294.358  | (5) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1559.0 <sup>#</sup> 12   | 67 29                   | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1634.0                               | (3 <sup>-</sup> , 4, 5 <sup>-</sup> ) | 1343.7 <sup>#</sup> 11   | 34 15                   | 372.123  |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1368.2 <sup>#</sup> 11   | 14 11                   | 346.3    |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1571.9 <sup>#</sup> 4    | 100 25                  | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1702.24                              |                                       | 1489.3 <sup>#</sup> 10   | 35 17                   | 234.488  | (5) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1580.5 <sup>#</sup> 8    | 100 33                  | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
| 1715.74                              | (2,3,4)                               | 1297.2 <sup>#</sup> 5    | 52 14                   | 435.510  | (2,3) <sup>-</sup>    |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1360.7 <sup>#</sup> 5    | 36 9                    | 372.123  |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1437.9 <sup>#</sup> 7    | 25 9                    | 295.667  | (2,3,4) <sup>+</sup>  |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1589.2 <sup>#</sup> 4    | 100 19                  | 143.995  | (3) <sup>-</sup>      |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       | 1646.6 <sup>#</sup> 8    | 21 10                   | 85.471   | 3 <sup>+</sup>        |         |            |                                                                                                                                                                                                                                           |
| 1724.2                               |                                       | 1350.9 <sup>#</sup> 9    | 21 10                   | 386.593  | (3 to 6) <sup>-</sup> |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |
| 1734.054                             |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |
| 1739.68                              |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |
|                                      |                                       |                          |                         |          |                       |         |            |                                                                                                                                                                                                                                           |

## Adopted Levels, Gammas (continued)

 $\gamma(^{128}\text{I})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$                           | $E_\gamma^\dagger$       | $I_\gamma^\dagger$     | $E_f$    | $J_f^\pi$                      | $E_i(\text{level})$ | $J_i^\pi$                           | $E_\gamma^\dagger$        | $I_\gamma^\dagger$      | $E_f$    | $J_f^\pi$             |
|---------------------|-------------------------------------|--------------------------|------------------------|----------|--------------------------------|---------------------|-------------------------------------|---------------------------|-------------------------|----------|-----------------------|
| 1739.68             |                                     | 1595.6 <sup>#</sup> 6    | 100 30                 | 143.995  | (3) <sup>-</sup>               | 2111.4              | (12 <sup>-</sup> )                  | 238.0 <sup>&amp;</sup> 5  | 8 <sup>&amp;</sup> 4    | 1873.61  | (12 <sup>-</sup> )    |
| 1745.49             |                                     | 1359.4 <sup>#</sup> 9    | 100                    | 386.593  | (3 to 6) <sup>-</sup>          |                     |                                     | 657.4 <sup>&amp;</sup> 5  | 17 <sup>&amp;</sup> 4   | 1454.02  | (11 <sup>-</sup> )    |
| 1807.40             |                                     | 1435.7 <sup>#</sup> 10   | 42 17                  | 372.123  |                                |                     |                                     | 820.0 <sup>&amp;</sup> 5  | 29 8                    | 1291.4   | (10 <sup>-</sup> )    |
|                     |                                     | 1511.1 <sup>#</sup> 6    | 100 29                 | 295.667  | (2,3,4) <sup>+</sup>           |                     |                                     | 1069.7 <sup>&amp;</sup> 3 | 100 <sup>&amp;</sup> 17 | 1041.69  | (10 <sup>-</sup> )    |
|                     |                                     | 1574.8 <sup>#</sup> 9    | 27 12                  | 232.577  | 4 <sup>+</sup>                 | 2143.74             | 1,2,3                               | 2144.1 <sup>#</sup> 11    | 100                     | 0.0      | 1 <sup>+</sup>        |
|                     |                                     | 1721.4 <sup>#</sup> 6    | 71 30                  | 85.471   | 3 <sup>+</sup>                 | 2161.96             |                                     | 1726.5 <sup>#</sup> 11    | 100 45                  | 435.510  | (2,3) <sup>-</sup>    |
| 1825.615            |                                     | 1529.2 <sup>#</sup> 7    | 100 34                 | 295.667  | (2,3,4) <sup>+</sup>           |                     |                                     | 1816.9 <sup>#</sup> 8     | 61 45                   | 344.516  | (2,3,4) <sup>+</sup>  |
|                     |                                     | 1684.8 <sup>#</sup> 10   | 72 31                  | 137.851  | 4 <sup>-</sup>                 | 2185.97             | (12 <sup>+</sup> )                  | 194.8 <sup>&amp;</sup> 1  | 51 <sup>&amp;</sup> 3   | 1991.17  | (11 <sup>+</sup> )    |
|                     |                                     | 1741.8 <sup>#</sup> 9    | 66 33                  | 85.471   | 3 <sup>+</sup>                 |                     |                                     | 221.0 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup> 5  | 1964.97  | (11 <sup>+</sup> )    |
| 1866.4              | (3 <sup>-</sup> ,4 <sup>-</sup> )   | 1494.0 <sup>#</sup> 11   | 46 20                  | 372.123  |                                | 2187.64             |                                     | 1842.6 <sup>#</sup> 9     | 85 60                   | 344.516  | (2,3,4) <sup>+</sup>  |
|                     |                                     | 1573.2 <sup>#</sup> 8    | 71 25                  | 294.358  | (5) <sup>-</sup>               |                     |                                     | 2005.8 <sup>#</sup> 9     | 100 45                  | 180.377  | (3) <sup>+</sup>      |
|                     |                                     | 1731.7 <sup>#</sup> 8    | 100 35                 | 133.6107 | 2 <sup>-</sup>                 | 2204.67             | ( $\leq 4$ )                        | 2177.6 <sup>#</sup> 11    | 100                     | 27.3620  | 2 <sup>+</sup>        |
| 1873.6              | (2 <sup>+</sup> ,3,4 <sup>-</sup> ) | 1440.3 <sup>#</sup> 9    | 32 13                  | 434.356  |                                | 2302.97             | (12 <sup>+</sup> )                  | 740.7 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup>    | 1562.27  | (10 <sup>+</sup> )    |
|                     |                                     | 1488.8 <sup>#</sup> 8    | 17 8                   | 385.446  | 2 <sup>+</sup> ,3 <sup>+</sup> | 2320.61             | ( $\leq 4$ )                        | 1948.3 <sup>#</sup> 9     | 44 16                   | 372.123  |                       |
|                     |                                     | 1500.8 <sup>#</sup> 5    | 58 15                  | 372.123  |                                |                     |                                     | 2186.3 <sup>#</sup> 8     | 100 38                  | 133.6107 | 2 <sup>-</sup>        |
|                     |                                     | 1641.6 <sup>#</sup> 8    | 19 8                   | 232.577  | 4 <sup>+</sup>                 | 2341.32             | (13 <sup>-</sup> )                  | 229.9 <sup>&amp;</sup> 5  | 18 <sup>&amp;</sup> 6   | 2111.4   | (12 <sup>-</sup> )    |
|                     |                                     | 1729.8 <sup>#</sup> 6    | 100 25                 | 143.995  | (3) <sup>-</sup>               |                     |                                     | 887.3 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup> 5  | 1454.02  | (11 <sup>-</sup> )    |
|                     |                                     | 1738.3 <sup>#</sup> 10   | 75 33                  | 133.6107 | 2 <sup>-</sup>                 | 2380.3              | (13 <sup>+</sup> )                  | 415.3 <sup>&amp;</sup> 5  | 100 <sup>&amp;</sup>    | 1964.97  | (11 <sup>+</sup> )    |
| 1873.61             | (12 <sup>-</sup> )                  | 419.5 <sup>&amp;</sup> 1 | 98 <sup>&amp;</sup> 5  | 1454.02  | (11 <sup>-</sup> )             | 2425.4              |                                     | 2280.7 <sup>#</sup> 12    | 82 36                   | 143.995  | (3) <sup>-</sup>      |
|                     |                                     | 832.0 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup> 5 | 1041.69  | (10 <sup>-</sup> )             |                     |                                     | 2292.3 <sup>#</sup> 11    | 100 39                  | 133.6107 | 2 <sup>-</sup>        |
| 1886.4              |                                     | 1450.0 <sup>#</sup> 7    | 67 24                  | 435.510  | (2,3) <sup>-</sup>             | 2432.7              | (2 <sup>-</sup> ,3,4 <sup>+</sup> ) | 2055.3 <sup>#</sup> 9     | 46 18                   | 376.625  | (4) <sup>-</sup>      |
|                     |                                     | 1651.7 <sup>#</sup> 7    | 44 16                  | 234.488  | (5) <sup>-</sup>               |                     |                                     | 2288.5 <sup>#</sup> 7     | 100 27                  | 143.995  | (3) <sup>-</sup>      |
|                     |                                     | 1748.8 <sup>#</sup> 12   | 100 43                 | 137.851  | 4 <sup>-</sup>                 |                     |                                     | 2407.1 <sup>#</sup> 12    | 33 16                   | 27.3620  | 2 <sup>+</sup>        |
|                     |                                     | 1887.9 <sup>#</sup> 9    | 49 26                  | 0.0      | 1 <sup>+</sup>                 | 2437.88             | (13 <sup>+</sup> )                  | 251.9 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup> 5  | 2185.97  | (12 <sup>+</sup> )    |
| 1905.2              |                                     | 1469.2 <sup>#</sup> 10   | 100 42                 | 435.510  | (2,3) <sup>-</sup>             |                     |                                     | 473.0 <sup>&amp;</sup> 5  | 12 <sup>&amp;</sup> 3   | 1964.97  | (11 <sup>+</sup> )    |
|                     |                                     | 1759.3 <sup>#</sup> 13   | 97 42                  | 143.995  | (3) <sup>-</sup>               | 2454.0              | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) | 2067.0 <sup>#</sup> 7     | 43 21                   | 386.593  | (3 to 6) <sup>-</sup> |
| 1922.1              | ( $\leq 4$ )                        | 1533.0 <sup>#</sup> 9    | 40 20                  | 386.593  | (3 to 6) <sup>-</sup>          |                     |                                     | 2226.2 <sup>#</sup> 11    | 33 15                   | 226.102  | (5,6,7) <sup>-</sup>  |
|                     |                                     | 1895.3 <sup>#</sup> 8    | 100 40                 | 27.3620  | 2 <sup>+</sup>                 |                     |                                     | 2311.6 <sup>#</sup> 9     | 100 39                  | 143.995  | (3) <sup>-</sup>      |
| 1943.06             |                                     | 1507.3 <sup>#</sup> 9    | 100                    | 435.510  | (2,3) <sup>-</sup>             | 2480.5              | (12 <sup>+</sup> )                  | 515.5 <sup>&amp;</sup> 5  | 100 <sup>&amp;</sup>    | 1964.97  | (11 <sup>+</sup> )    |
| 1964.97             | (11 <sup>+</sup> )                  | 402.7 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup>   | 1562.27  | (10 <sup>+</sup> )             | 2520.9              | (12 <sup>+</sup> )                  | 555.9 <sup>&amp;</sup> 5  | 100 <sup>&amp;</sup>    | 1964.97  | (11 <sup>+</sup> )    |
| 1983.85             | ( $\leq 3$ )                        | 1983.3 <sup>#</sup> 8    | 100                    | 0.0      | 1 <sup>+</sup>                 | 2567.0              | ( $\leq 4$ )                        | 2421.3 <sup>#</sup> 13    | 67 29                   | 143.995  | (3) <sup>-</sup>      |
| 1991.17             | (11 <sup>+</sup> )                  | 428.9 <sup>&amp;</sup> 1 | 100 <sup>&amp;</sup>   | 1562.27  | (10 <sup>+</sup> )             |                     |                                     | 2434.0 <sup>#</sup> 8     | 100 43                  | 133.6107 | 2 <sup>-</sup>        |
| 2013.0              |                                     | 1832.8 <sup>#</sup> 8    | 100                    | 180.377  | (3) <sup>+</sup>               | 2575.7              | (13 <sup>-</sup> )                  | 702.1 <sup>&amp;</sup> 3  | 100 <sup>&amp;</sup>    | 1873.61  | (12 <sup>-</sup> )    |
| 2069.95             |                                     | 1727.8 <sup>#</sup> 9    | 50 38                  | 344.516  | (2,3,4) <sup>+</sup>           | 2584.8              | 2 <sup>+</sup> ,3,4 <sup>-</sup>    | 2351.6 <sup>#</sup> 10    | 36 17                   | 232.577  | 4 <sup>+</sup>        |
|                     |                                     | 1983.5 <sup>#</sup> 10   | 100 50                 | 85.471   | 3 <sup>+</sup>                 |                     |                                     | 2450.9 <sup>#</sup> 11    | 100 43                  | 133.6107 | 2 <sup>-</sup>        |

## Adopted Levels, Gammas (continued)

 $\gamma(^{128}\text{I})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$       | $E_\gamma^\dagger$        | $I_\gamma^\dagger$                  | $E_f$    | $J_f^\pi$     | $E_i(\text{level})$ | $J_i^\pi$        | $E_\gamma^\dagger$       | $I_\gamma^\dagger$                  | $E_f$    | $J_f^\pi$     |
|---------------------|-----------------|---------------------------|-------------------------------------|----------|---------------|---------------------|------------------|--------------------------|-------------------------------------|----------|---------------|
| 2584.8              | $2^+, 3, 4^-$   | 2500.1 <sup>#</sup> 10    | 70 36                               | 85.471   | $3^+$         | 3152.5              | $(15^+)$         | 199.1 <sup>&amp;</sup> 5 | 50 <sup>&amp;</sup> 13              | 2953.4   | $(14^+)$      |
| 2640.8              |                 | 2206.6 <sup>#</sup> 7     | 100 38                              | 434.356  |               |                     |                  | 487.5 <sup>&amp;</sup> 5 | $10 \times 10^1$ <sup>&amp;</sup> 3 | 2665.0   | $(14^+)$      |
|                     |                 | 2344.8 <sup>#</sup> 10    | 56 23                               | 295.667  | $(2, 3, 4)^+$ | 3158.0              | $(15^+)$         | 493.0 <sup>&amp;</sup> 3 | 100 <sup>&amp;</sup>                | 2665.0   | $(14^+)$      |
| 2661.7              | $(13^+)$        | 475.7 <sup>&amp;</sup> 3  | 100 <sup>&amp;</sup>                | 2185.97  | $(12^+)$      | 3158.8              | $(15^-)$         | 369.5 <sup>&amp;</sup> 5 | 57 <sup>&amp;</sup> 14              | 2789.2   | $(14^-)$      |
| 2665.0              | $(14^+)$        | 227.1 <sup>&amp;</sup> 1  | 100 <sup>&amp;</sup> 5              | 2437.88  | $(13^+)$      |                     |                  | 817.6 <sup>&amp;</sup> 5 | $10 \times 10^1$ <sup>&amp;</sup> 3 | 2341.32  | $(13^-)$      |
|                     |                 | 479.0 <sup>&amp;</sup> 5  | 19 <sup>&amp;</sup> 5               | 2185.97  | $(12^+)$      | 3182.7              |                  | 3037.9 <sup>#</sup> 6    | 100 29                              | 143.995  | $(3)^-$       |
| 2684.4              | $(2^+, 3, 4^+)$ | 2451.9 <sup>#</sup> 11    | 41 20                               | 232.577  | $4^+$         |                     |                  | 3098.8 <sup>#</sup> 9    | 53 24                               | 85.471   | $3^+$         |
|                     |                 | 2656.9 <sup>#</sup> 8     | 100 39                              | 27.3620  | $2^+$         | 3309.3              | $(15^-)$         | 968.0 <sup>&amp;</sup> 5 | 100 <sup>&amp;</sup>                | 2341.32  | $(13^-)$      |
| 2691.8              | $(13^+)$        | 388.8 <sup>&amp;</sup> 3  | 100 <sup>&amp;</sup>                | 2302.97  | $(12^+)$      | 3555.9              | $(16^-)$         | 246.6 <sup>&amp;</sup> 5 | 30 <sup>&amp;</sup> 10              | 3309.3   | $(15^-)$      |
| 2714.3              | $(13^+)$        | 528.3 <sup>&amp;</sup> 5  | 100 <sup>&amp;</sup>                | 2185.97  | $(12^+)$      |                     |                  | 397.1 <sup>&amp;</sup> 5 | $10 \times 10^1$ <sup>&amp;</sup> 3 | 3158.8   | $(15^-)$      |
| 2721.0              | $(3^-, 4^-)$    | 2284.9 <sup>#</sup> 11    | 30 13                               | 435.510  | $(2, 3)^-$    | 3559.3              | $(16^+)$         | 894.3 <sup>&amp;</sup> 5 | 100 <sup>&amp;</sup>                | 2665.0   | $(14^+)$      |
|                     |                 | 2484.3 <sup>#</sup> 9     | 22 9                                | 234.488  | $(5)^-$       | 3621.5              | $(16^+)$         | 463.5 <sup>&amp;</sup> 5 | 29 <sup>&amp;</sup> 14              | 3158.0   | $(15^+)$      |
|                     |                 | 2589.0 <sup>#</sup> 7     | 100 27                              | 133.6107 | $2^-$         |                     |                  | 469.0 <sup>&amp;</sup> 5 | $10 \times 10^1$ <sup>&amp;</sup> 3 | 3152.5   | $(15^+)$      |
| 2737.2              |                 | 2392.4 <sup>#</sup> 6     | 56 40                               | 344.516  | $(2, 3, 4)^+$ | 3794.3              | $(0, 1, 2, 3^+)$ | 3498.6 <sup>#</sup> 8    | 66 21                               | 295.667  | $(2, 3, 4)^+$ |
|                     |                 | 2600.4 <sup>#</sup> 11    | 100 45                              | 137.851  | $4^-$         |                     |                  | 3660.9 <sup>#</sup> 10   | 100 38                              | 133.6107 | $2^-$         |
| 2789.2              | $(14^-)$        | 447.9 <sup>&amp;</sup> 3  | 100 <sup>&amp;</sup> 13             | 2341.32  | $(13^-)$      |                     |                  | 3794.0 <sup>#</sup> 9    | 63 30                               | 0.0      | $1^+$         |
|                     |                 | 915.6 <sup>&amp;</sup> 3  | 83 <sup>&amp;</sup> 13              | 1873.61  | $(12^-)$      | 3802.6              |                  | 3366.9 <sup>#</sup> 4    | 100 33                              | 435.510  | $(2, 3)^-$    |
| 2847.89             |                 | 2503.4 <sup>#</sup> 2     | 100 69                              | 344.516  | $(2, 3, 4)^+$ |                     |                  | 3623.4 <sup>#</sup> 12   | 19 10                               | 180.377  | $(3)^+$       |
|                     |                 | 2550.7 <sup>#</sup> 11    | 24 10                               | 295.667  | $(2, 3, 4)^+$ | 3834.4              | $(2, 3, 4)$      | 3655.2 <sup>#</sup> 12   | 46 24                               | 180.377  | $(3)^+$       |
| 2900.4              | $(2^-, 3^+)$    | 2523.5 <sup>#</sup> 9     | 75 25                               | 376.625  | $(4)^-$       |                     |                  | 3689.3 <sup>#</sup> 11   | 100 44                              | 143.995  | $(3)^-$       |
|                     |                 | 2758.5 <sup>#</sup> 9     | 100 38                              | 143.995  | $(3)^-$       | 3846.8              |                  | 3411.1 <sup>#</sup> 7    | 93 30                               | 435.510  | $(2, 3)^-$    |
|                     |                 | 2898.8 <sup>#</sup> 8     | 91 42                               | 0.0      | $1^+$         |                     |                  | 3502.7 <sup>#</sup> 4    | 100 67                              | 344.516  | $(2, 3, 4)^+$ |
| 2950.78             |                 | 2515.2 <sup>#</sup> 2     | 100 25                              | 435.510  | $(2, 3)^-$    |                     |                  | 3700.6 <sup>#</sup> 9    | 98 33                               | 143.995  | $(3)^-$       |
|                     |                 | 2867.0 <sup>#</sup> 12    | 11 6                                | 85.471   | $3^+$         | 3862.8              | $(3, 4, 5^-)$    | 3485.1 <sup>#</sup> 10   | 100 36                              | 376.625  | $(4)^-$       |
| 2953.4              | $(14^+)$        | 261.6 <sup>&amp;</sup> 5  | 14 <sup>&amp;</sup> 5               | 2691.8   | $(13^+)$      |                     |                  | 3630.7 <sup>#</sup> 8    | 60 21                               | 232.577  | $4^+$         |
|                     |                 | 650.5 <sup>&amp;</sup> 3  | 100 <sup>&amp;</sup> 14             | 2302.97  | $(12^+)$      |                     |                  | 3719.0 <sup>#</sup> 13   | 95 40                               | 143.995  | $(3)^-$       |
| 3001.0              |                 | 2567.3 <sup>#</sup> 10    | 100 43                              | 434.356  |               | 3991.6              | $(3, 4, 5^-)$    | 3760.2 <sup>#</sup> 12   | 28 14                               | 232.577  | $4^+$         |
|                     |                 | 2819.6 <sup>#</sup> 12    | 63 30                               | 180.377  | $(3)^+$       |                     |                  | 3847.0 <sup>#</sup> 11   | 88 33                               | 143.995  | $(3)^-$       |
| 3009.3              | $(14^+)$        | 347.6 <sup>&amp;</sup> 5  | 100 <sup>&amp;</sup>                | 2661.7   | $(13^+)$      |                     |                  | 3853.1 <sup>#</sup> 11   | 100 44                              | 137.851  | $4^-$         |
| 3076.7              | $(1^-, 2, 3^+)$ | 2733.6 <sup>#</sup> 12    | 33 25                               | 344.516  | $(2, 3, 4)^+$ | 4150.8              | $(\leq 4)$       | 3967.9 <sup>#</sup> 10   | 28 13                               | 180.377  | $(3)^+$       |
|                     |                 | 2893.5 <sup>#</sup> 8     | 58 25                               | 180.377  | $(3)^+$       |                     |                  | 4017.0 <sup>#</sup> 8    | 100 38                              | 133.6107 | $2^-$         |
|                     |                 | 2932.1 <sup>#</sup> 11    | 100 40                              | 143.995  | $(3)^-$       | 6826.161            | $2^+, 3^+$       | 4505.46 <sup>a</sup> 4   | 15 1                                | 2320.61  | $(\leq 4)$    |
|                     |                 | 3076.2 <sup>#</sup> 11    | 73 38                               | 0.0      | $1^+$         |                     |                  | 4619.41 <sup>ac</sup> 9  | 8.2 6                               | 2206.66  |               |
| 3115.7              | $(14^-)$        | 540.0 <sup>&amp;</sup> 5  | 45 <sup>&amp;</sup> 18              | 2575.7   | $(13^-)$      |                     |                  | 4621.40 <sup>a</sup> 10  | 6.7 5                               | 2204.67  | $(\leq 4)$    |
|                     |                 | 1242.0 <sup>&amp;</sup> 5 | $10 \times 10^1$ <sup>&amp;</sup> 3 | 1873.61  | $(12^-)$      |                     |                  | 4634.76 <sup>a</sup> 10  | 5.9 5                               | 2191.31  |               |

**Adopted Levels, Gammas (continued)**

$\gamma(^{128}\text{I})$  (continued)

| $E_i(\text{level})$ | $E_\gamma$ $^\dagger$   | $I_\gamma$ $^\dagger$ | $E_f$    | $J_f^\pi$                           | $E_i(\text{level})$ | $E_\gamma$ $^\dagger$   | $I_\gamma$ $^\dagger$ | $E_f$    | $J_f^\pi$                           |
|---------------------|-------------------------|-----------------------|----------|-------------------------------------|---------------------|-------------------------|-----------------------|----------|-------------------------------------|
| 6826.161            | 4638.42 <sup>a</sup> 8  | 7.4 4                 | 2187.64  |                                     | 6826.161            | 5175.00 <sup>a</sup> 23 | 1.55 22               | 1651.05  |                                     |
|                     | 4659.48 <sup>a</sup> 10 | 10.2 6                | 2166.59  |                                     |                     | 5197.96 <sup>a</sup> 2  | 92 4                  | 1628.084 | (1,2,3)                             |
|                     | 4664.09 <sup>a</sup> 14 | 5.1 4                 | 2161.96  |                                     |                     | 5210.09 <sup>a</sup> 2  | 25.2 10               | 1615.957 |                                     |
|                     | 4675.61 <sup>a</sup> 18 | 4.2 6                 | 2150.46  |                                     |                     | 5227.62 <sup>a</sup> 10 | 5.3 3                 | 1598.43  |                                     |
|                     | 4682.34 <sup>a</sup> 18 | 3.3 4                 | 2143.74  | 1,2,3                               |                     | 5246.02 <sup>a</sup> 7  | 5.9 3                 | 1580.03  |                                     |
|                     | 4695.65 <sup>a</sup> 22 | 2.2 6                 | 2130.42  |                                     |                     | 5251.2 <sup>a</sup> 4   | 12 2                  | 1574.7   |                                     |
|                     | 4710.58 <sup>a</sup> 4  | 16.3 8                | 2115.49  |                                     |                     | 5287.92 <sup>a</sup> 4  | 110 5                 | 1538.11  |                                     |
|                     | 4743.73 <sup>a</sup> 9  | 5.6 4                 | 2082.34  |                                     |                     | 5293.28 <sup>a</sup> 14 | 21 8                  | 1532.73  | 2 <sup>+</sup> ,3,4 <sup>-</sup>    |
|                     | 4756.12 <sup>a</sup> 4  | 11.3 6                | 2069.95  |                                     |                     | 5298.25 <sup>a</sup> 2  | 444 18                | 1527.795 | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) |
|                     | 4758.89 <sup>a</sup> 4  | 13.3 7                | 2067.18  |                                     |                     | 5319.07 <sup>a</sup> 13 | 29 2                  | 1506.96  |                                     |
|                     | 4775.21 <sup>a</sup> 12 | 4.00 22               | 2050.86  | (1 <sup>+</sup> )                   |                     | 5339.21 <sup>a</sup> 3  | 185 8                 | 1486.83  |                                     |
|                     | 4788.46 <sup>a</sup> 10 | 8.0 6                 | 2037.60  |                                     |                     | 5370.68 <sup>a</sup> 10 | 44 3                  | 1455.35  | ( $\leq 3$ )                        |
|                     | 4813.1 <sup>a</sup> 5   | 0.55 22               | 2013.0   |                                     |                     | 5384.46 <sup>a</sup> 6  | 122 6                 | 1441.59  |                                     |
|                     | 4838.40 <sup>a</sup> 25 | 7.55 10               | 1987.7   |                                     |                     | 5386.99 <sup>a</sup> 9  | 56 3                  | 1439.05  | (1 <sup>+</sup> )                   |
|                     | 4842.16 <sup>a</sup> 25 | 4.22 10               | 1983.85  | ( $\leq 3$ )                        |                     | 5396.10 <sup>a</sup> 13 | 30 2                  | 1429.94  |                                     |
|                     | 4854.25 <sup>a</sup> 19 | 3.1 3                 | 1971.81  |                                     |                     | 5407.52 <sup>a</sup> 10 | 54 5                  | 1418.52  |                                     |
|                     | 4879.06 <sup>a</sup> 3  | 18.2 8                | 1947.00  |                                     |                     | 5434.17 <sup>a</sup> 7  | 46 3                  | 1391.87  |                                     |
|                     | 4882.98 <sup>a</sup> 25 | 2.22 22               | 1943.06  |                                     |                     | 5443.13 <sup>a</sup> 6  | 66 3                  | 1382.91  |                                     |
|                     | 4892.98 <sup>a</sup> 7  | 21.1 11               | 1933.08  |                                     |                     | 5463.46 <sup>a</sup> 2  | 430 18                | 1362.576 |                                     |
|                     | 4903.6 <sup>a</sup> 4   | 2.4 3                 | 1922.1   | ( $\leq 4$ )                        |                     | 5477.12 <sup>a</sup> 18 | 15 1                  | 1347.1   | (9 <sup>-</sup> )                   |
|                     | 4907.5 <sup>a</sup> 3   | 5.9 6                 | 1918.6   |                                     |                     | 5482.86 <sup>a</sup> 2  | 411 17                | 1343.176 | (3 <sup>-</sup> ,4,5)               |
|                     | 4920.6 <sup>a</sup> 4   | 4.0 4                 | 1905.2   |                                     |                     | 5489.86 <sup>a</sup> 10 | 46 2                  | 1336.17  |                                     |
|                     | 4950.10 <sup>a</sup> 12 | 50.1 21               | 1875.96  |                                     |                     | 5495.87 <sup>a</sup> 4  | 111 5                 | 1330.16  | ( $\leq 4$ )                        |
|                     | 4962.6 <sup>a</sup> 4   | 1.44 22               | 1863.5   |                                     |                     | 5522.28 <sup>a</sup> 12 | 67 5                  | 1303.75  |                                     |
|                     | 4982.09 <sup>a</sup> 12 | 5.3 4                 | 1843.97  |                                     |                     | 5524.29 <sup>a</sup> 9  | 124 7                 | 1301.70  | (2 <sup>+</sup> ,3,4 <sup>-</sup> ) |
|                     | 5000.44 <sup>a</sup> 2  | 27.6 11               | 1825.615 |                                     |                     | 5550.57 <sup>a</sup> 6  | 61 3                  | 1275.44  | ( $\leq 4$ )                        |
|                     | 5007.90 <sup>a</sup> 18 | 1.00 11               | 1818.16  |                                     |                     | 5559.67 <sup>a</sup> 2  | 901 37                | 1266.362 | (2 <sup>-</sup> ,3 <sup>+</sup> )   |
|                     | 5018.65 <sup>a</sup> 3  | 28.1 12               | 1807.40  |                                     |                     | 5570.1 <sup>a</sup> 3   | 10 1                  | 1256.0   |                                     |
|                     | 5032.77 <sup>a</sup> 11 | 4.7 3                 | 1793.28  |                                     |                     | 5574.51 <sup>a</sup> 2  | 485 20                | 1251.513 | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) |
|                     | 5043.07 <sup>a</sup> 4  | 14.5 7                | 1782.98  |                                     |                     | 5579.17 <sup>a</sup> 2  | 256 11                | 1246.859 | 2 <sup>+</sup> ,3,4 <sup>-</sup>    |
|                     | 5053.3 <sup>a</sup> 4   | 1.33 22               | 1772.8   |                                     |                     | 5607.1 <sup>a</sup> 3   | 13 1                  | 1218.6   | 2 <sup>+</sup> ,3,4 <sup>+</sup>    |
|                     | 5064.98 <sup>a</sup> 7  | 6.7 3                 | 1761.07  |                                     |                     | 5628.55 <sup>a</sup> 13 | 23 2                  | 1197.48  |                                     |
|                     | 5080.57 <sup>a</sup> 10 | 1.44 11               | 1745.49  |                                     |                     | 5647.46 <sup>a</sup> 5  | 70 3                  | 1178.57  |                                     |
|                     | 5086.36 <sup>a</sup> 6  | 4.2 3                 | 1739.68  |                                     |                     | 5657.04 <sup>a</sup> 4  | 84 4                  | 1168.99  |                                     |
|                     | 5091.99 <sup>a</sup> 2  | 43.2 18               | 1734.054 | (2,3,4)                             |                     | 5662.65 <sup>a</sup> 15 | 22 1                  | 1163.49  | ( $\leq 3$ )                        |
|                     | 5096.36 <sup>a</sup> 3  | 29.6 12               | 1729.69  |                                     |                     | 5676.92 <sup>a</sup> 12 | 27 1                  | 1149.11  |                                     |
|                     | 5110.31 <sup>a</sup> 12 | 9.9 6                 | 1715.74  |                                     |                     | 5690.24 <sup>a</sup> 11 | 26 1                  | 1135.78  |                                     |
|                     | 5123.89 <sup>a</sup> 18 | 2.1 3                 | 1702.24  | (3 <sup>-</sup> ,4,5 <sup>-</sup> ) |                     | 5725.94 <sup>a</sup> 2  | 474 19                | 1100.082 |                                     |
|                     | 5134.38 <sup>a</sup> 13 | 4.22 22               | 1691.67  |                                     |                     | 5734.14 <sup>a</sup> 8  | 41 3                  | 1091.88  |                                     |

Adopted Levels, Gammas (continued)

$\gamma(^{128}\text{I})$  (continued)

| $E_i(\text{level})$ | $J_i^\pi$                      | $E_\gamma^\dagger$       | $I_\gamma^\dagger$ | $E_f$    | $J_f^\pi$                           | $E_i(\text{level})$ | $E_\gamma^\dagger$      | $I_\gamma^\dagger$ | $E_f$    | $J_f^\pi$                           |
|---------------------|--------------------------------|--------------------------|--------------------|----------|-------------------------------------|---------------------|-------------------------|--------------------|----------|-------------------------------------|
| 6826.161            | 2 <sup>+</sup> ,3 <sup>+</sup> | 5741.47 <sup>a</sup> 2   | 222 9              | 1084.552 | (≤4)                                | 6826.161            | 6169.6 <sup>a</sup> 4   | 6 1                | 657.207  |                                     |
|                     |                                | 5763.86 <sup>a</sup> 17  | 17 1               | 1062.15  |                                     |                     | 6212.06 <sup>a</sup> 6  | 52 3               | 613.85   |                                     |
|                     |                                | 5777.41 <sup>a</sup> 5   | 66 3               | 1048.64  | (1,2,3 <sup>+</sup> )               |                     | 6217.49 <sup>a</sup> 12 | 27 2               | 608.705  | (3,4) <sup>-</sup>                  |
|                     |                                | 5793.98 <sup>a</sup> 3   | 166 7              | 1032.04  | (2 <sup>+</sup> ,3,4 <sup>-</sup> ) |                     | 6271.59 <sup>a</sup> 2  | 207 9              | 554.430  | (2 <sup>-</sup> ,3,4 <sup>-</sup> ) |
|                     |                                | 5810.05 <sup>a</sup> 17  | 11 1               | 1015.97  |                                     |                     | 6276.32 <sup>a</sup> 19 | 19 2               | 549.732  | (3 <sup>+</sup> ,4 <sup>+</sup> )   |
|                     |                                | 5819.37 <sup>a</sup> 14  | 22 2               | 1006.65  |                                     |                     | 6289.64 <sup>ac</sup> 8 | 44 2               | 536.35   |                                     |
|                     |                                | 5840.13 <sup>a</sup> 14  | 54 4               | 985.89   |                                     |                     | 6307.53 <sup>a</sup> 2  | 576 23             | 518.456  | (3,4) <sup>-</sup>                  |
|                     |                                | 5842.2 <sup>ac</sup> 3   | 16 2               | 983.8    |                                     |                     | 6340.70 <sup>a</sup> 17 | 17 1               | 485.422  | (≤4)                                |
|                     |                                | 5852.38 <sup>ac</sup> 22 | 14 1               | 973.64   |                                     |                     | 6390.51 <sup>a</sup> 2  | 271 11             | 435.510  | (2,3) <sup>-</sup>                  |
|                     |                                | 5881.27 <sup>a</sup> 9   | 33 2               | 944.75   |                                     |                     | 6399.1 <sup>a</sup> 3   | 11 1               | 426.339  | <sup>+</sup>                        |
|                     |                                | 5887.21 <sup>ac</sup> 16 | 18 1               | 938.81   |                                     |                     | 6410.04 <sup>a</sup> 16 | 16 1               | 416.281  | (2,3) <sup>+</sup>                  |
|                     |                                | 5891.91 <sup>a</sup> 3   | 155 7              | 934.10   | (2 <sup>-</sup> ,3,4)               |                     | 6434.05 <sup>a</sup> 6  | 47 2               | 392.002  | (1,2,3) <sup>+</sup>                |
|                     |                                | 5909.30 <sup>a</sup> 6   | 58 3               | 916.79   | (≤4)                                |                     | 6440.72 <sup>a</sup> 6  | 64 3               | 385.446  | 2 <sup>+</sup> ,3 <sup>+</sup>      |
|                     |                                | 5940.8 <sup>ac</sup> 3   | 8 2                | 885.2    |                                     |                     | 6449.29 <sup>a</sup> 3  | 132 6              | 376.625  | (4) <sup>-</sup>                    |
|                     |                                | 5945.04 <sup>a</sup> 5   | 74 4               | 880.97   |                                     |                     | 6453.66 <sup>a</sup> 6  | 59 3               | 372.123  |                                     |
|                     |                                | 5958.85 <sup>a</sup> 10  | 35 2               | 867.16   |                                     |                     | 6479.8 <sup>ac</sup> 8  | 5 1                | 346.3    |                                     |
|                     |                                | 5962.15 <sup>ac</sup> 10 | 31 2               | 863.86   |                                     |                     | 6481.76 <sup>a</sup> 19 | 51 4               | 344.516  | (2,3,4) <sup>+</sup>                |
|                     |                                | 5976.71 <sup>a</sup> 5   | 73 4               | 849.20   | (≤4)                                |                     | 6530.44 <sup>a</sup> 14 | 19 1               | 295.667  | (2,3,4) <sup>+</sup>                |
|                     |                                | 5982.53 <sup>a</sup> 8   | 59 3               | 843.45   | (≤4)                                |                     | 6593.8 <sup>a</sup> 4   | 7 1                | 232.577  | 4 <sup>+</sup>                      |
|                     |                                | 5986.00 <sup>a</sup> 4   | 128 5              | 840.00   | (1 <sup>-</sup> ,2,3 <sup>+</sup> ) |                     | 6605.4 <sup>a</sup> 4   | 9 1                | 220.9260 | (1,2,3) <sup>+</sup>                |
|                     |                                | 5997.70 <sup>a</sup> 4   | 105 5              | 828.30   |                                     |                     | 6645.61 <sup>a</sup> 2  | 185 8              | 180.377  | (3) <sup>+</sup>                    |
|                     |                                | 6004.60 <sup>ac</sup> 6  | 58 3               | 821.41   |                                     |                     | 6665.24 <sup>a</sup> 5  | 53 3               | 160.7563 | 1 <sup>+</sup> ,2 <sup>+</sup>      |
|                     |                                | 6030.42 <sup>a</sup> 19  | 13 1               | 795.14   |                                     |                     | 6674.53 <sup>a</sup> 9  | 25 1               | 151.6420 | (3) <sup>+</sup>                    |
|                     |                                | 6034.1 <sup>ac</sup> 5   | 4 1                | 791.9    |                                     |                     | 6681.98 <sup>a</sup> 2  | 227 9              | 143.995  | (3) <sup>-</sup>                    |
|                     |                                | 6038.05 <sup>a</sup> 17  | 13 2               | 787.96   |                                     |                     | 6688.05 <sup>a</sup> 4  | 107 5              | 137.851  | 4 <sup>-</sup>                      |
|                     |                                | 6055.3 <sup>ac</sup> 4   | 8 1                | 770.7    |                                     |                     | 6692.36 <sup>a</sup> 2  | 507 21             | 133.6107 | 2 <sup>-</sup>                      |
|                     |                                | 6076.03 <sup>a</sup> 13  | 22 1               | 750.39   | (≤4)                                |                     | 6697.73 <sup>a</sup> 4  | 126 5              | 128.237  | (4) <sup>+</sup>                    |
|                     |                                | 6121.14 <sup>a</sup> 17  | 15 1               | 704.92   |                                     |                     | 6740.46 <sup>a</sup> 5  | 72 8               | 85.471   | 3 <sup>+</sup>                      |
|                     |                                | 6139.01 <sup>a</sup> 8   | 43 3               | 687.050  | (3,4) <sup>-</sup>                  |                     | 6798.68 <sup>a</sup> 6  | 38 2               | 27.3620  | 2 <sup>+</sup>                      |
|                     |                                | 6149.31 <sup>a</sup> 9   | 37 2               | 676.69   |                                     |                     | 6826.00 <sup>a</sup> 9  | 21 2               | 0.0      | 1 <sup>+</sup>                      |
|                     |                                | 6164.64 <sup>a</sup> 6   | 61 3               | 661.36   |                                     |                     |                         |                    |          |                                     |

† From <sup>127</sup>I(n,γ) E=thermal:secondary, unless otherwise noted.

‡ From <sup>128</sup>Te(p,nγ).

# From <sup>127</sup>I(n,γ) E=thermal:secondary.

@ From α(exp) data based on relative Iγ and Ice data in <sup>127</sup>I(n,γ) E=thermal:secondary.

& From <sup>124</sup>Sn(<sup>7</sup>Li,3nγ).

Adopted Levels, Gammas (continued)

$\gamma(^{128}\text{I})$  (continued)

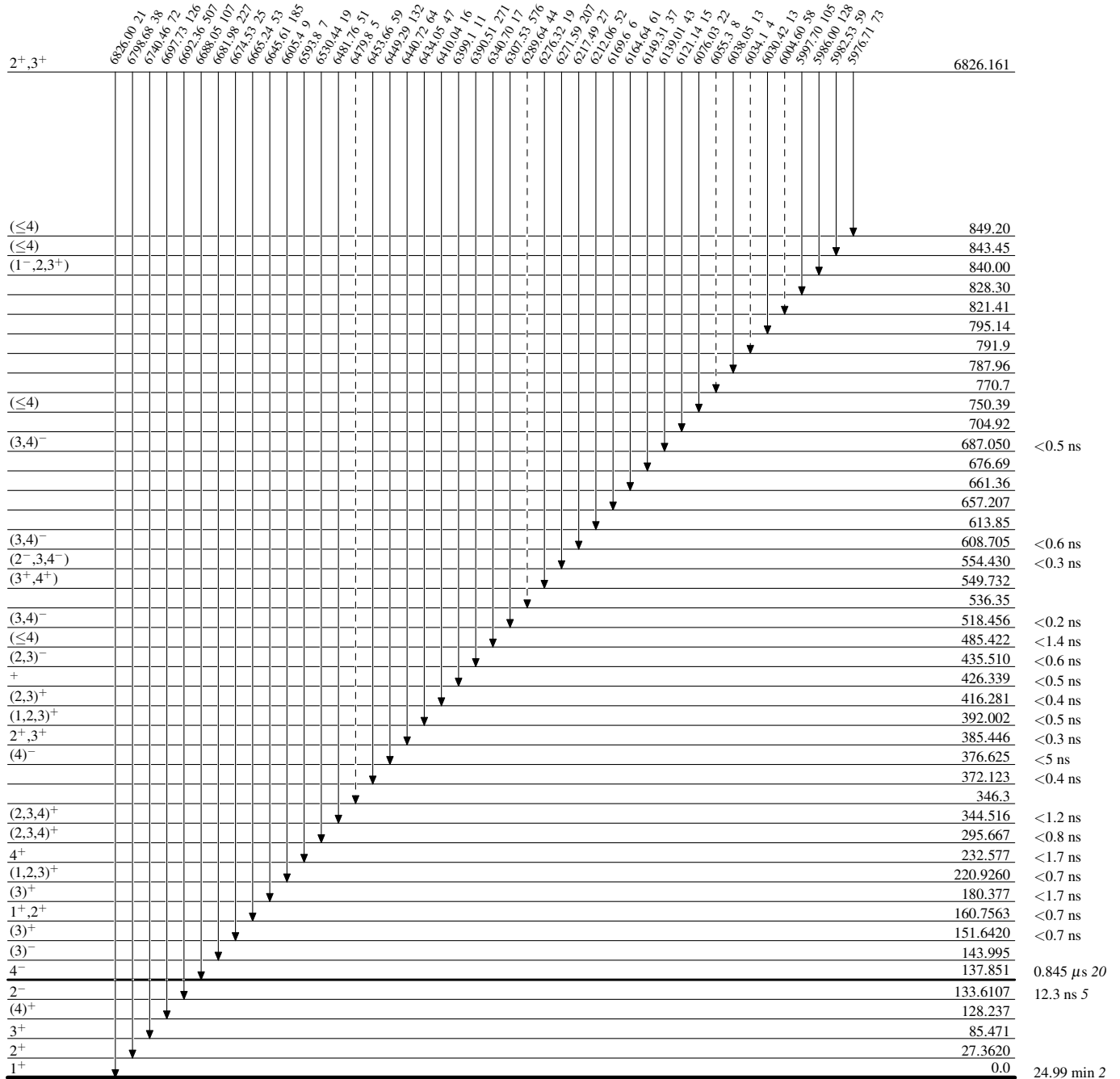
<sup>a</sup> From <sup>127</sup>I(n, $\gamma$ ) E=thermal:primary.  
<sup>b</sup> Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on  $\gamma$ -ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.  
<sup>c</sup> Placement of transition in the level scheme is uncertain.

## Adopted Levels, Gammas

Legend

## Level Scheme

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)

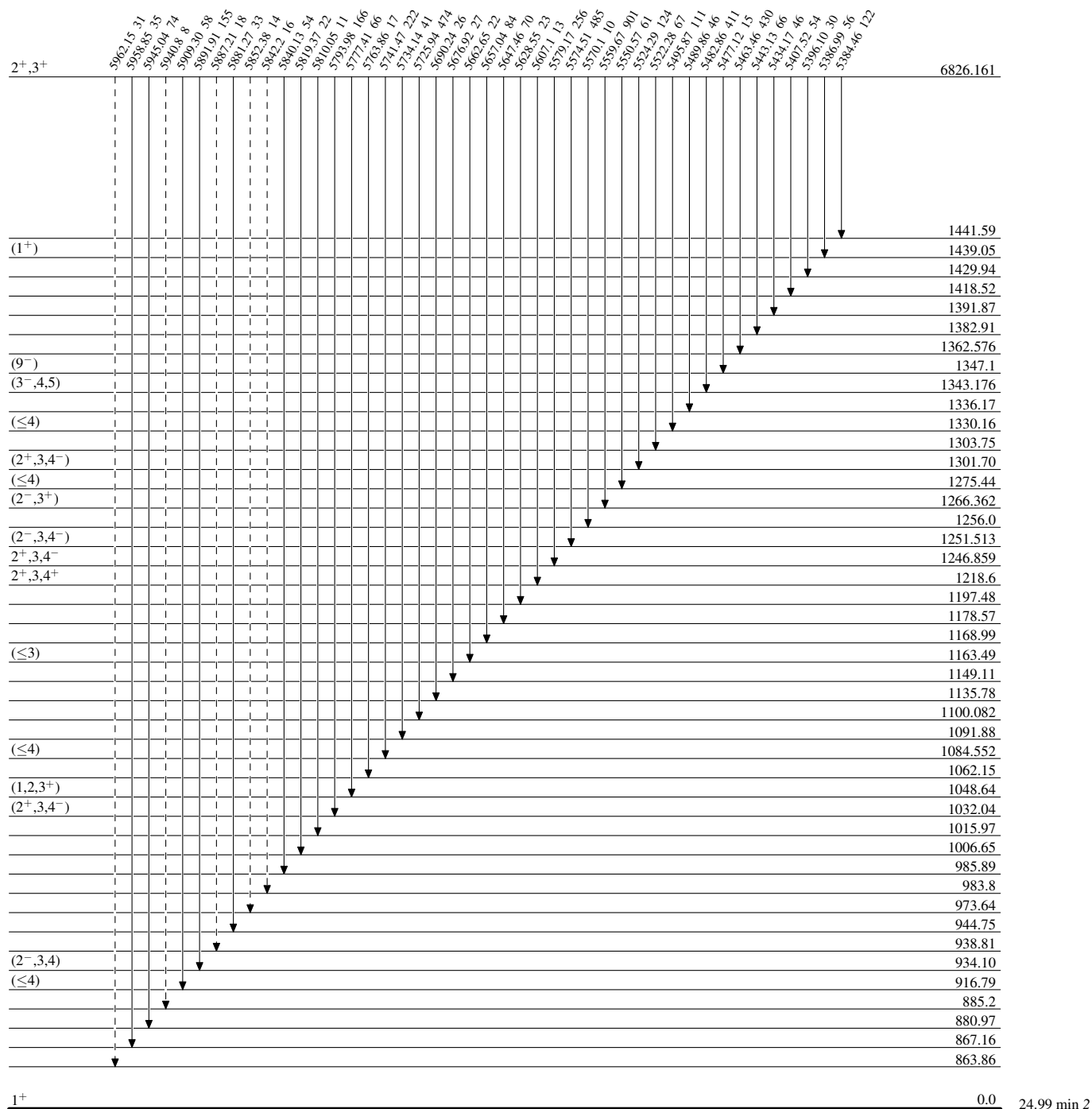
Adopted Levels, Gammas

Legend

Level Scheme (continued)

Intensities: Relative photon branching from each level

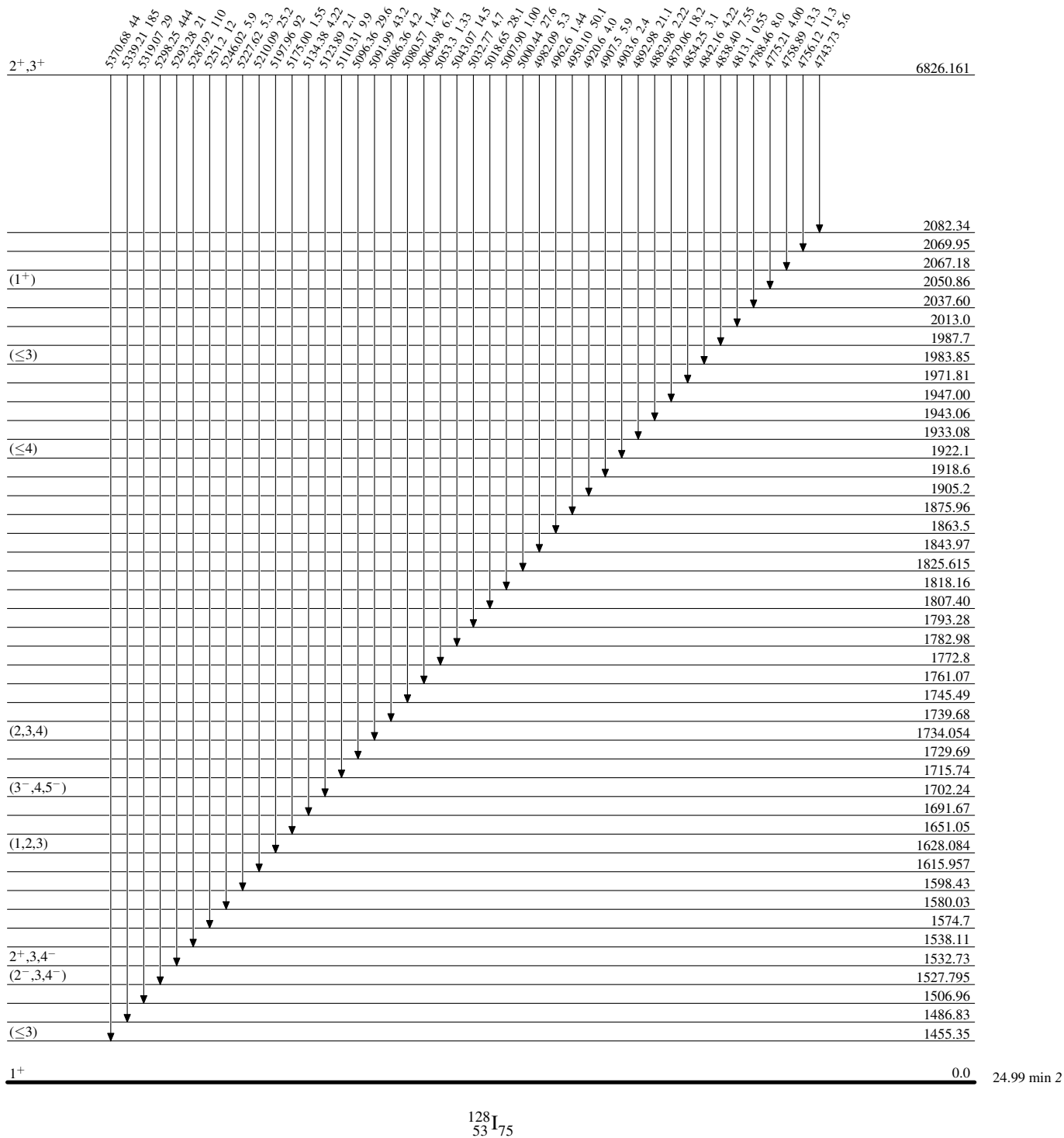
-----►  $\gamma$  Decay (Uncertain)



**Adopted Levels, Gammas**

**Level Scheme (continued)**

Intensities: Relative photon branching from each level

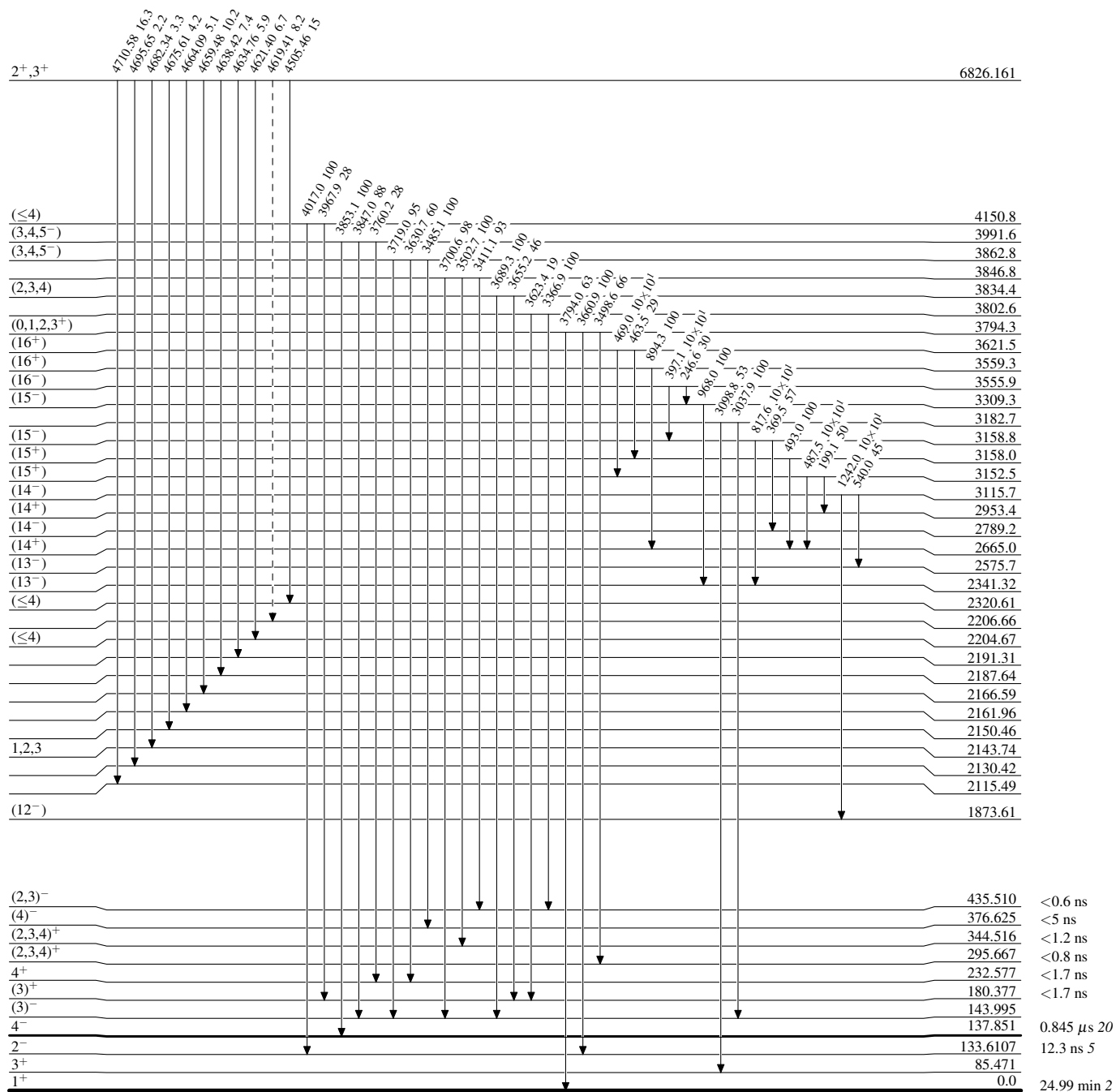


## Adopted Levels, Gammas

Legend

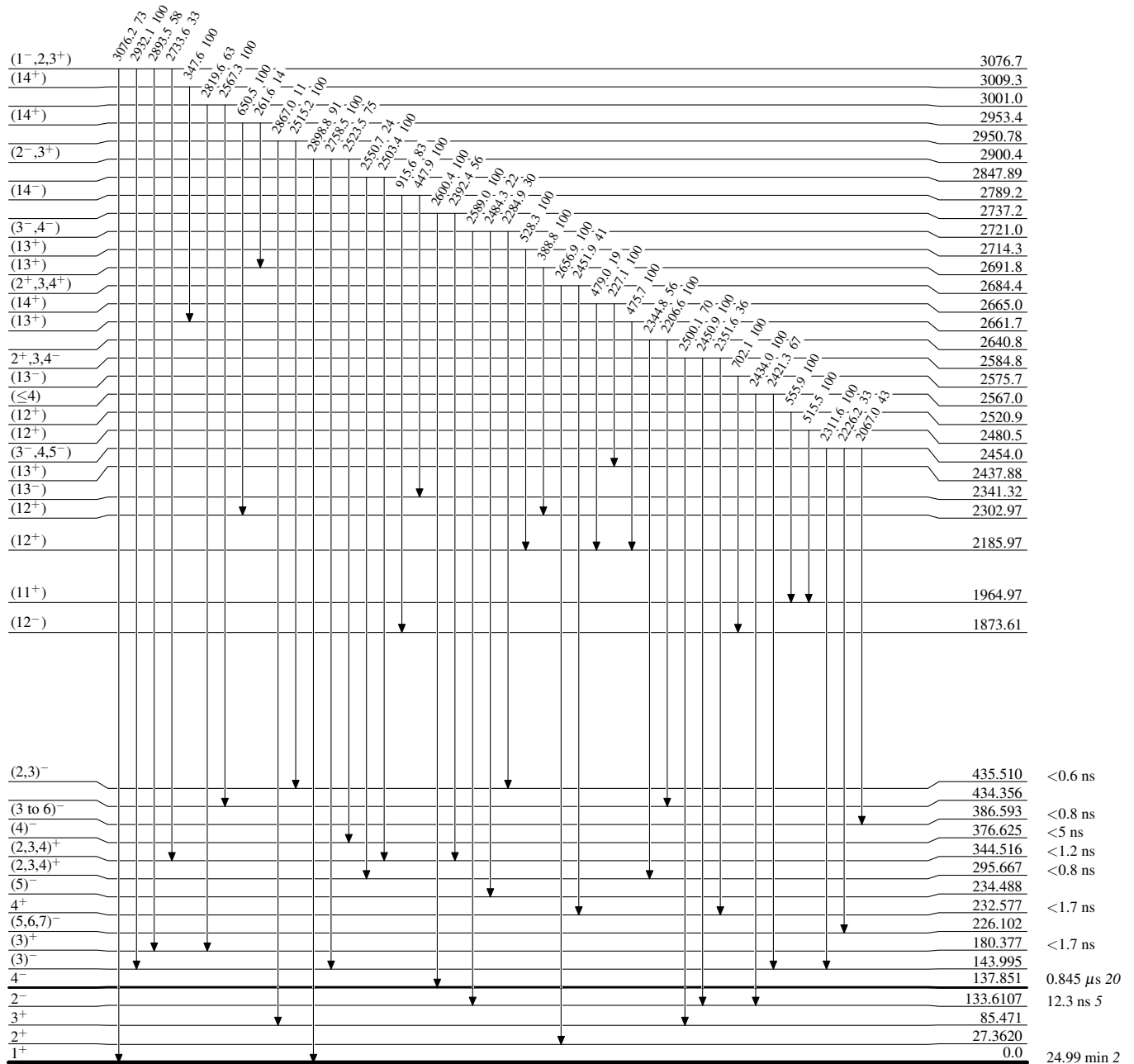
## Level Scheme (continued)

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)

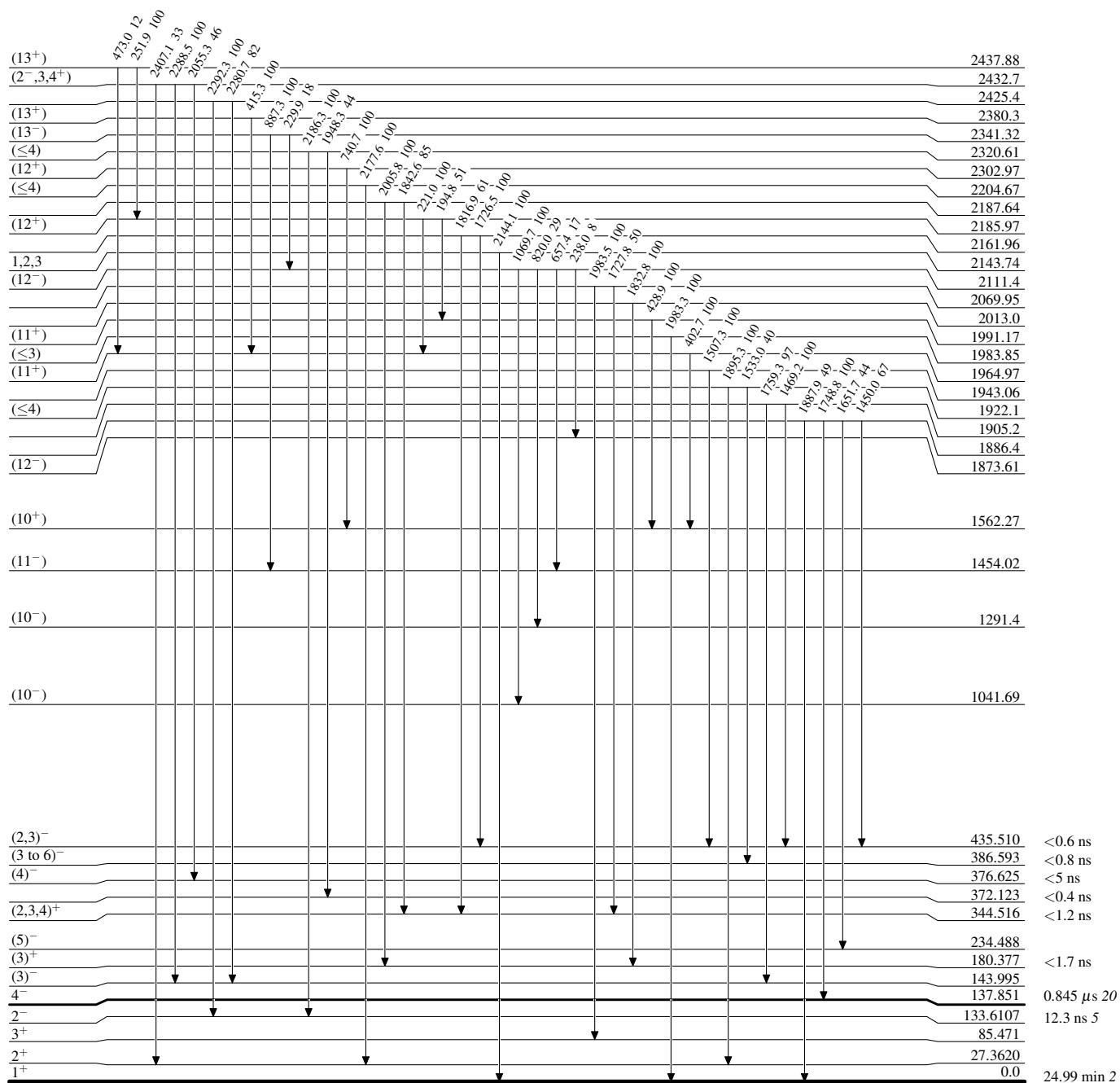
**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level



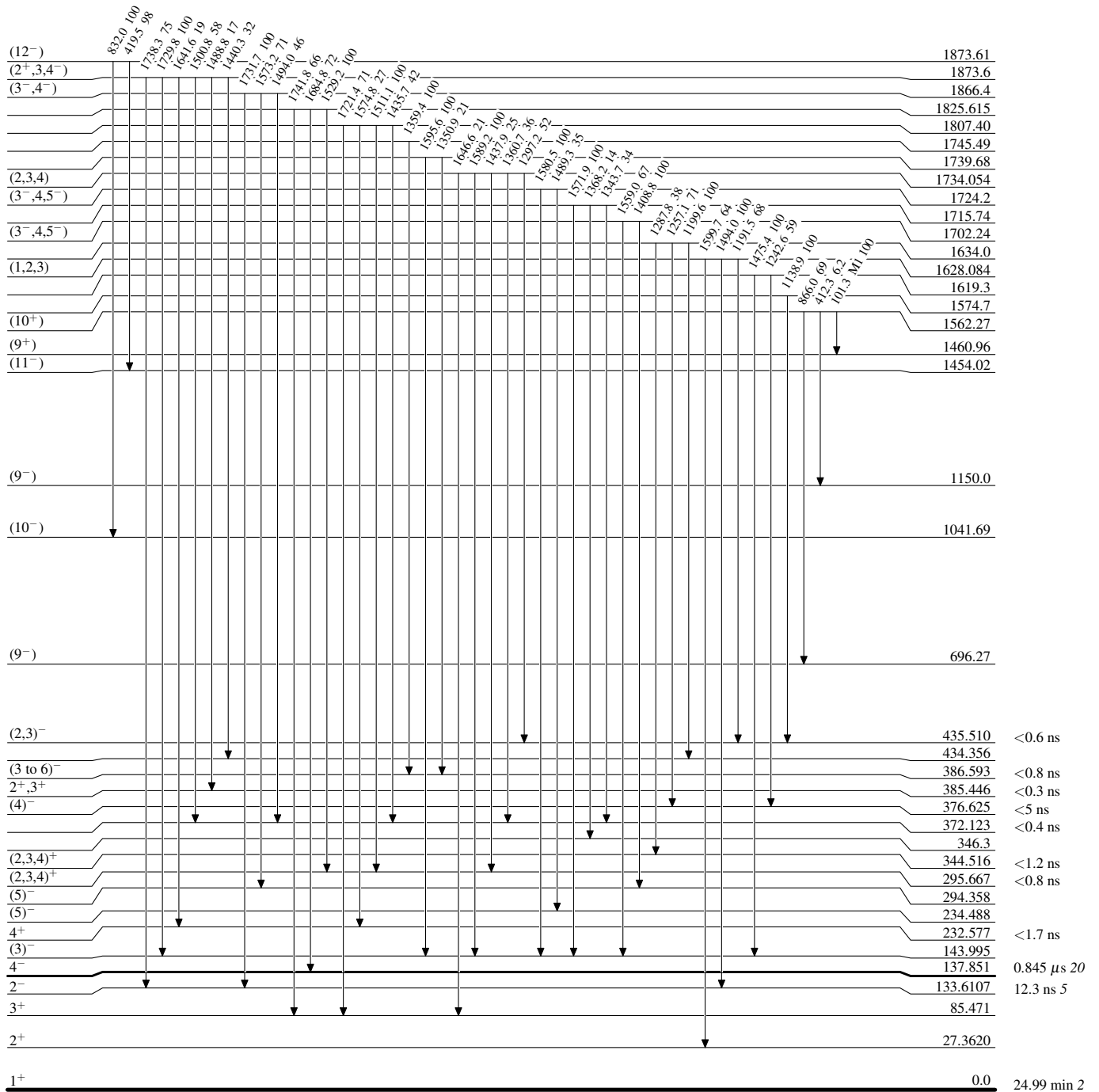
**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level



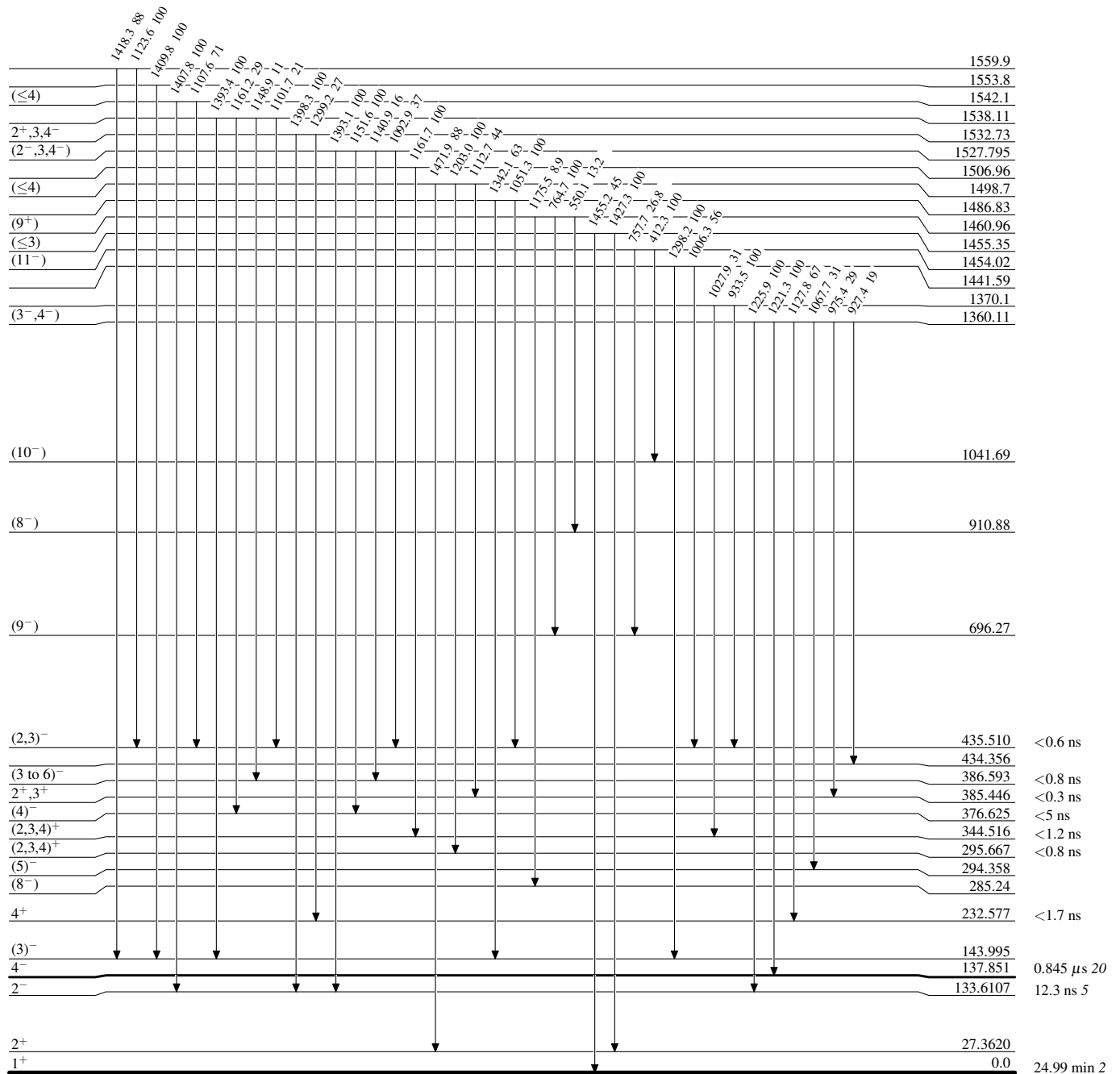
**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level



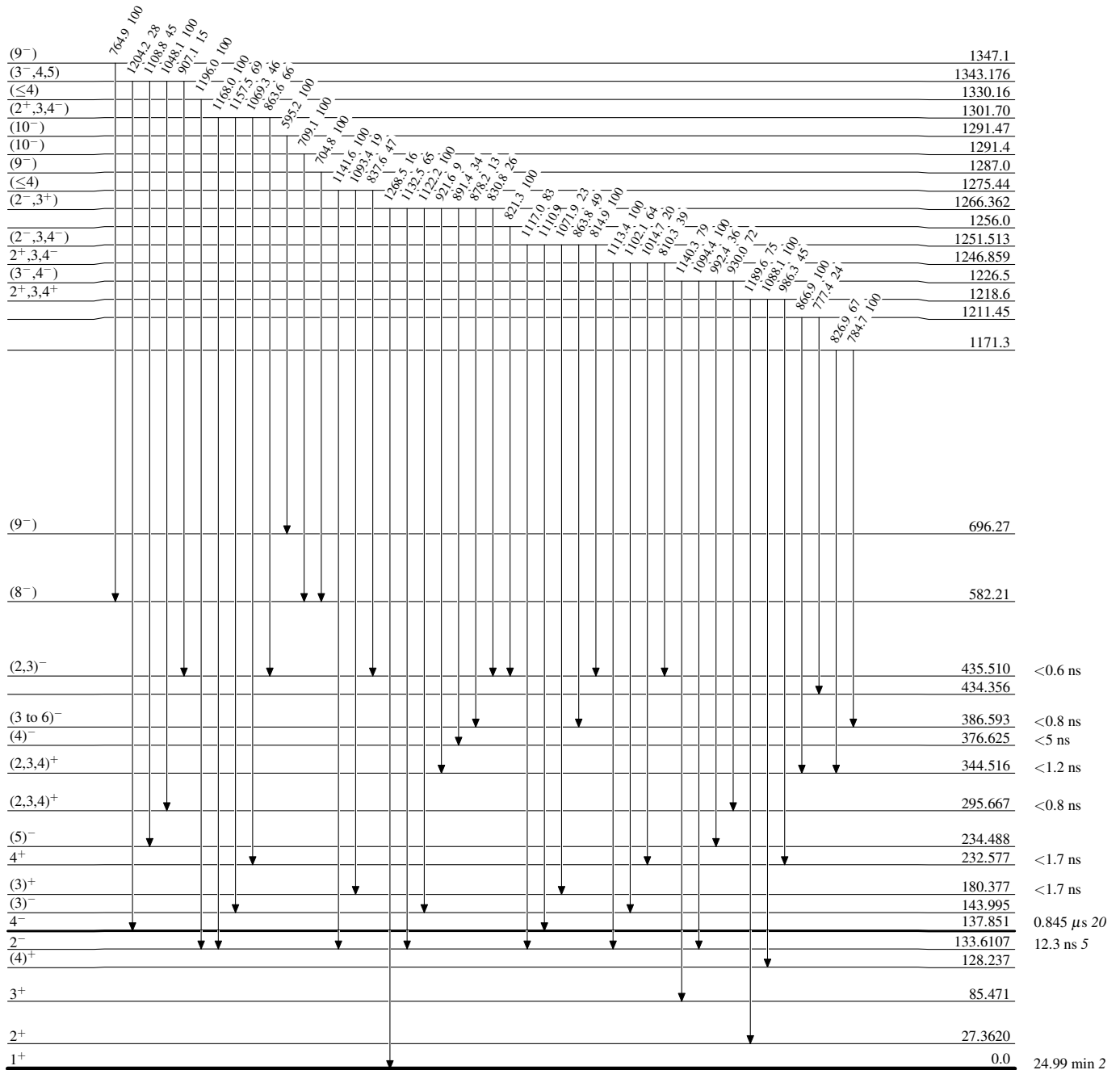
**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Relative photon branching from each level



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

Intensities: Relative photon branching from each level



# Adopted Levels, Gammas

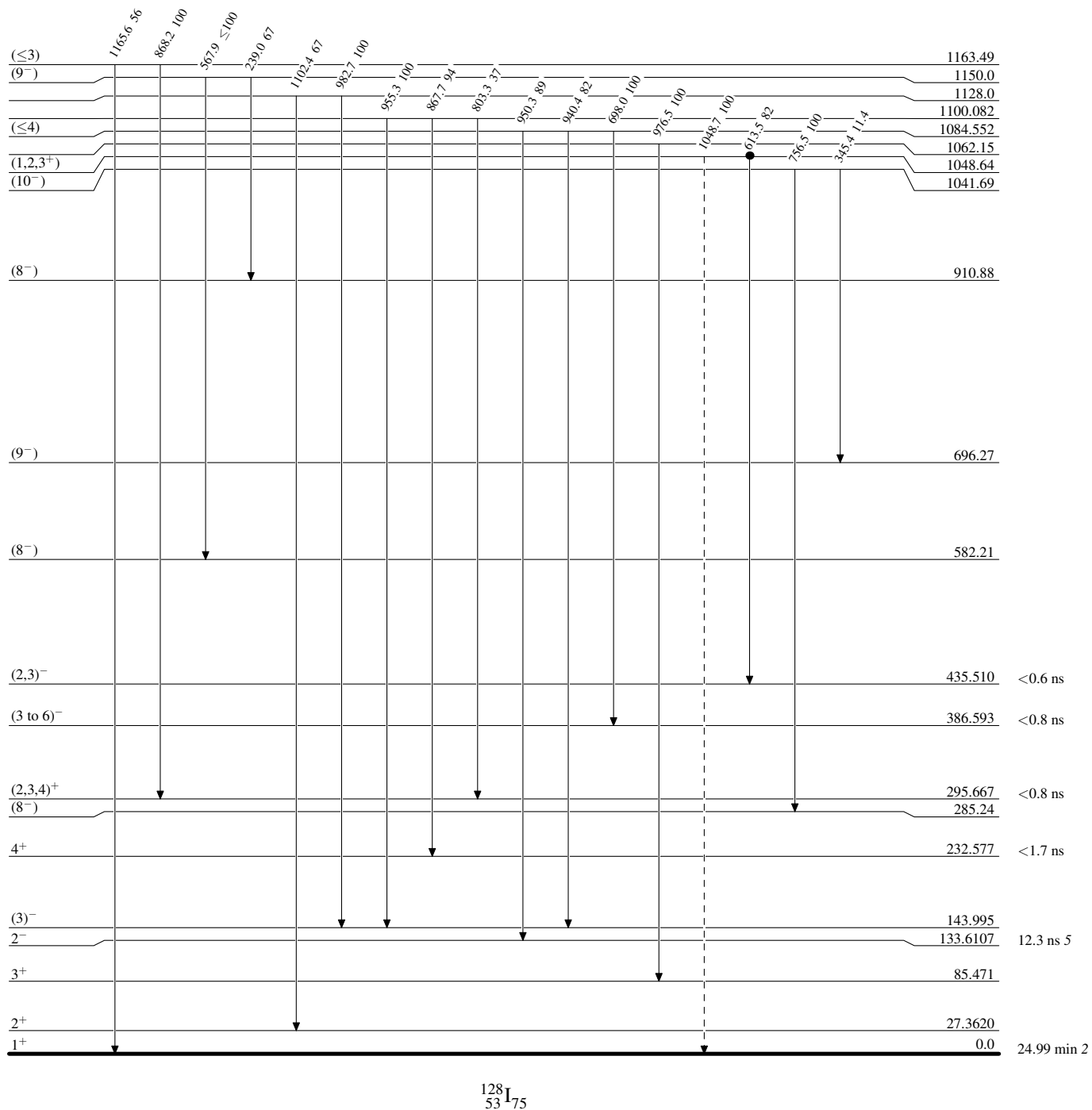
Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

-----►  $\gamma$  Decay (Uncertain)

● Coincidence



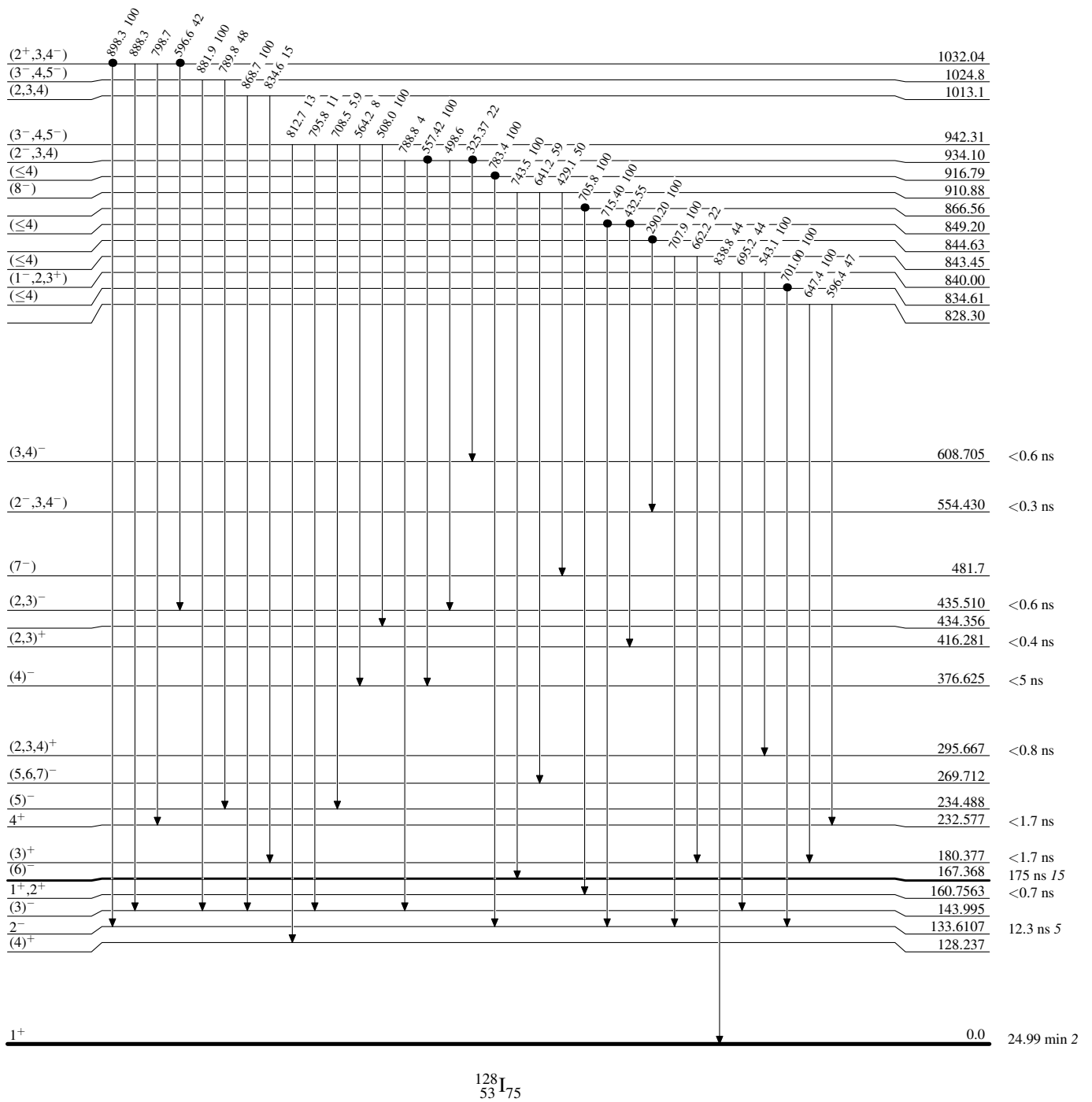
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

● Coincidence



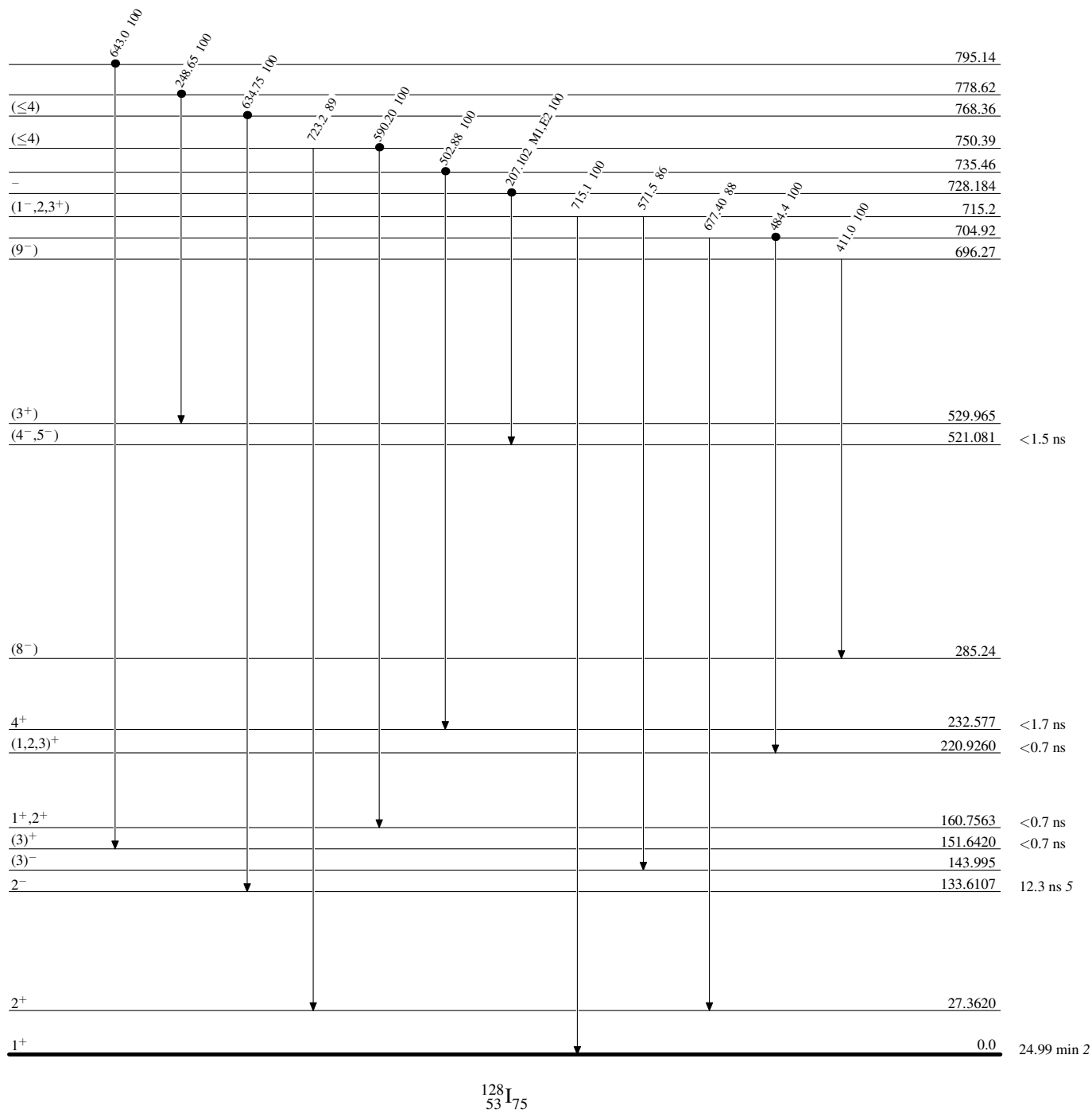
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

● Coincidence



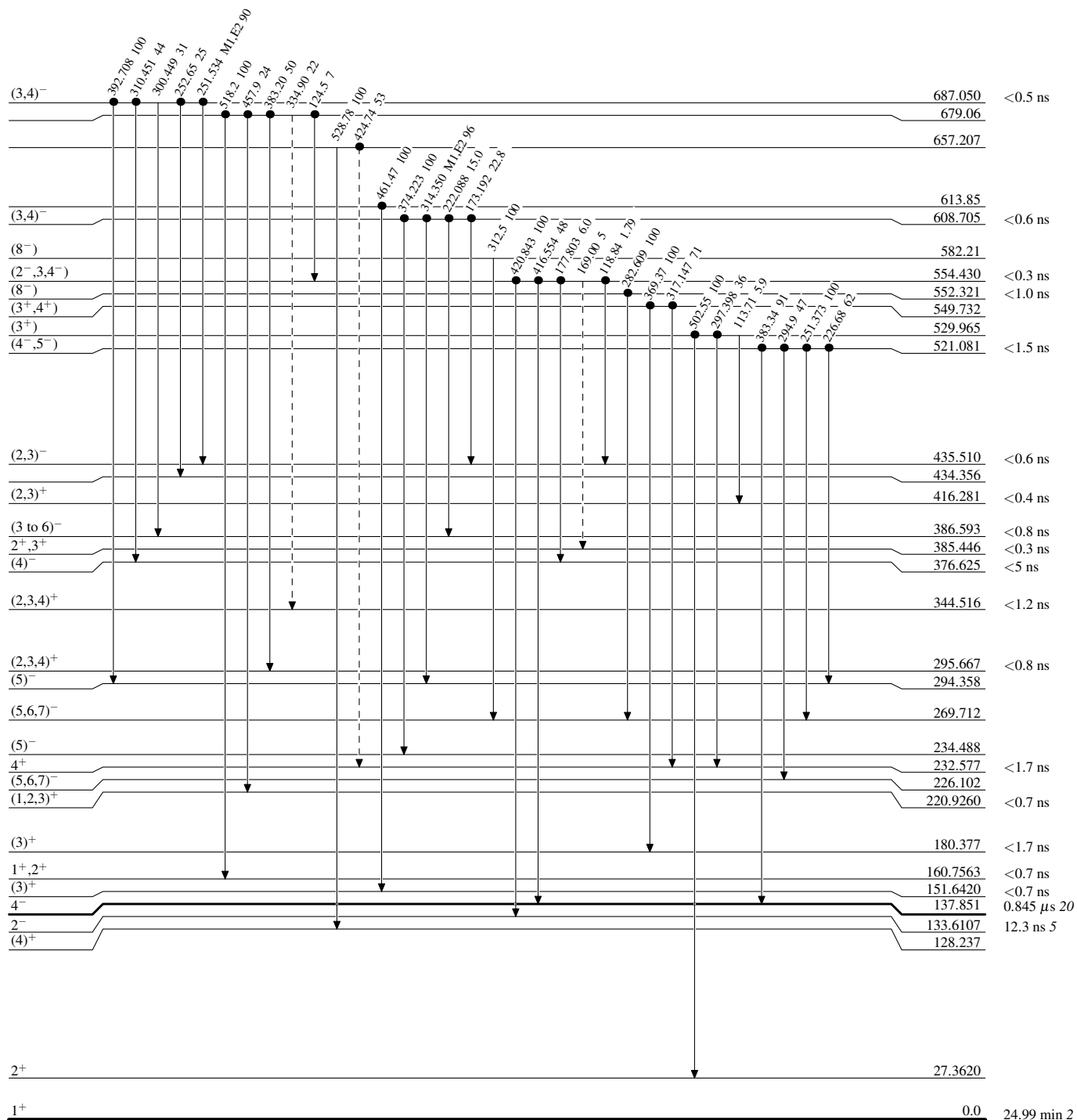
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

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



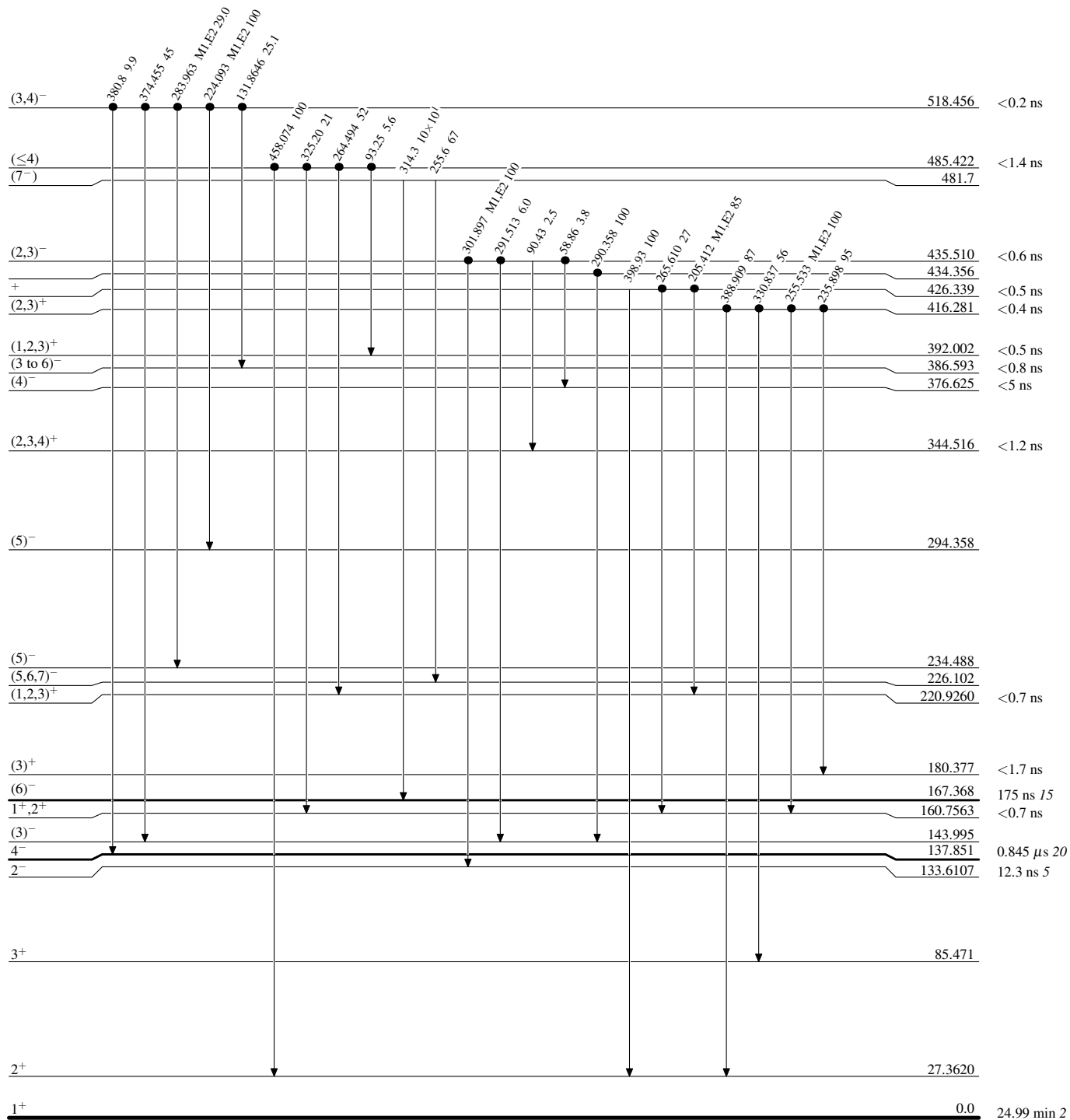
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

● Coincidence



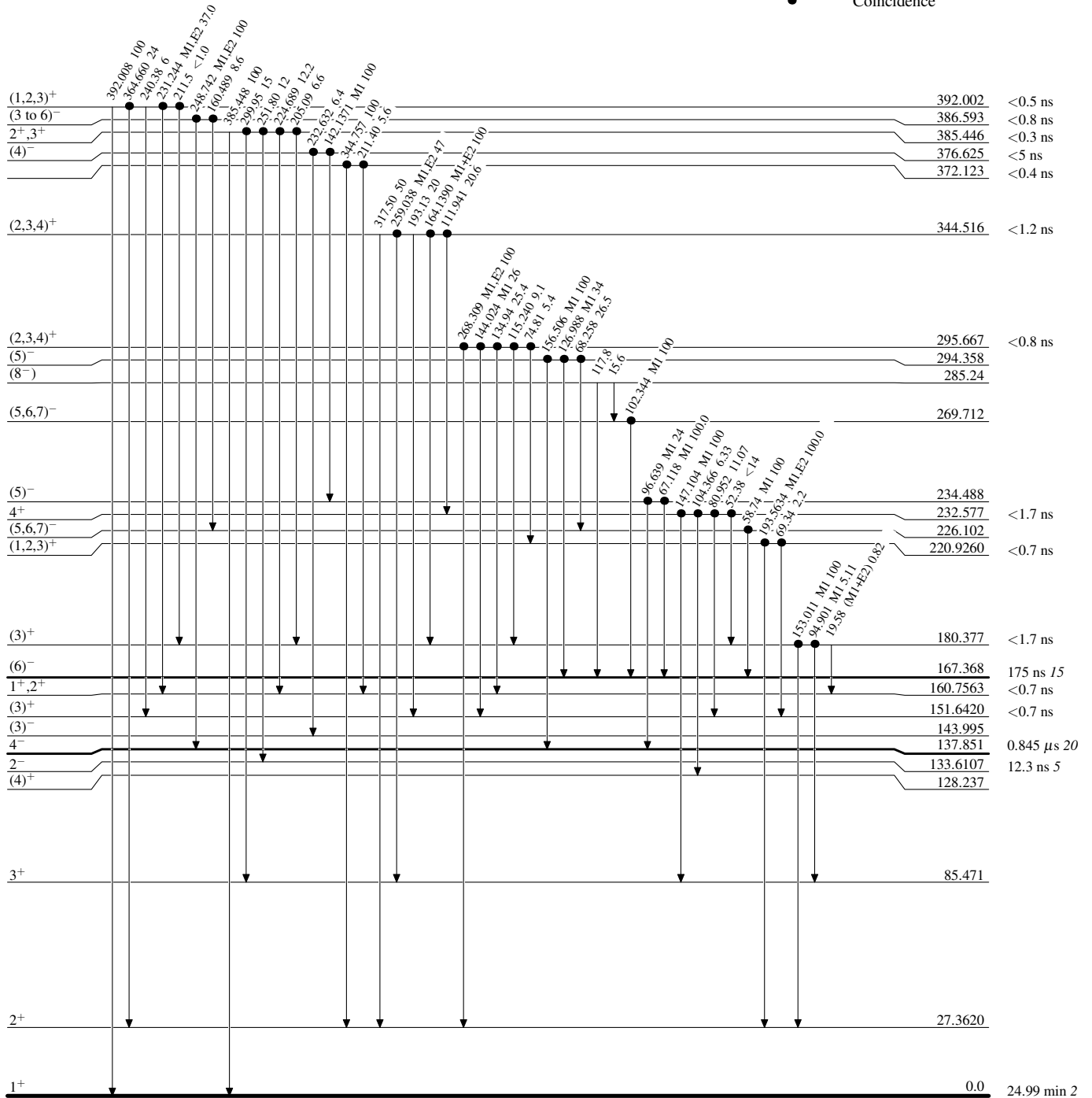
# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

● Coincidence



# Adopted Levels, Gammas

Legend

## Level Scheme (continued)

Intensities: Relative photon branching from each level

● Coincidence

