

Adopted Levels, Gammas

| Type            | Author       | History<br>Citation | Literature Cutoff Date |
|-----------------|--------------|---------------------|------------------------|
| Full Evaluation | Jean Blachot | NDS 110,1239 (2009) | 1-Feb-2008             |

$Q(\beta^-) = -8634.8$ ;  $S(n) = 9429.10$ ;  $S(p) = 3427.9$ ;  $Q(\alpha) = 2500.9$  [2012Wa38](#)

Note: Current evaluation has used the following Q record  $-8538.0$  SY9.28E+3 9 3230.0 SY2.67E+3 11 [2003Au03](#).

$\Delta Q(\beta^-) = 311$ ,  $\Delta S(p) = 212$  ([2003Au03](#)).

Sources:  $^{94}\text{Mo}(^{20}\text{Ne}, 3n)$  [1967Ka01](#);  $^{102}\text{Pd}(^{12}\text{C}, 3n)$  [1967Bo41](#), [1967Bo43](#), [1968Ba53](#), [1973Ka18](#).

Identification: genetics with  $283\gamma$  ( $^{110}\text{In}$ ) via  $^{110}\text{Sn}$  (4 h) decay, and  $658\gamma$  ( $^{110}\text{Cd}$ ) via  $^{110}\text{In}$  (5 h) decay of  $^{111}\text{Te}$  delayed-proton precursor; see [1967Bo43](#).  $(\beta^+)(p)$ -coin measured ([1968Ba53](#)).

[1973Ka18](#) studied fine structure of delayed-p spectra.

$Q(\epsilon)(^{111}\text{Te}) - S(p)(^{111}\text{Sb}) = 5070.70$  E(p) max ([1968Ba53](#)) p-singles,  $(\beta^+)(p)$ -coin.

Calculated p-branching  $\approx 0.12\%$ : [1973Ha77](#).

Calculated  $\beta$ -strength function: [1975KoYX](#), [1975KoZA](#).

 $^{111}\text{Te}$  LevelsCross Reference (XREF) Flags

A  $^{56}\text{Fe}(^{58}\text{Ni}, 2p n \gamma)$   
B  $^{58}\text{Ni}(^{58}\text{Ni}, 4p n \gamma)$

| E(level) <sup>†</sup> | $J^\pi$ <sup>‡</sup> | $T_{1/2}$  | XREF | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|-----------------------|----------------------|------------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0                   | $(5/2)^+$            | 19.3 s 4   |      | $\% \epsilon + \% \beta^+ = 100$ ; $\% \beta^+ p = ?$<br>$T_{1/2}$ : weighted av: 19.0 s 7 ( <a href="#">1967Ka01</a> ), 19.5 s 5 ( <a href="#">1967Bo41</a> ). Others: <a href="#">1967Ma44</a> , <a href="#">1967Bo43</a> .<br>$J^\pi$ : M1, E2 from $(7/2)^+$ , $5/2^+$ proposed by <a href="#">1967Bo41</a> ; $7/2^+$ for N=59 $^{109}\text{Sn}$ g.s. (atomic beam).<br>$J^\pi$ : M2 from $11/2^-$ . Possible configuration = $\nu g 7/2$ . |
| 117.1 & 3             | $(7/2)^+$            |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 538.0 10              | $(7/2^+)$            |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 768.1 & 4             | $(9/2)^+$            |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 824.0 10              | $(9/2^+)$            |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 839.4 # 6             | $11/2^-$             | 32.2 ns 14 | AB   | $T_{1/2}$ : $723\gamma(t)$ ( <a href="#">2000St03</a> ).<br>$J^\pi$ : $\nu h 11/2$ isomer, syst of isomers $T_{1/2}$ , M2 transition and excit energy ( <a href="#">2000St03</a> ).                                                                                                                                                                                                                                                             |
| 882.1 & 4             | $(11/2)^+$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1378.5 # 6            | $15/2^-$             |            | AB   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1519.7 & 5            | $(13/2)^+$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 1757.4 & 5            | $(15/2^+)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2061.9 # 6            | $19/2^-$             |            | AB   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2292.6 & 5            | $(17/2)^+$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2495.6 @ 6            | $(17/2^-)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2635.3 & 5            | $(19/2)^+$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2673.7 c 6            | $(19/2^-)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 2777.3 # 6            | $23/2^-$             |            | AB   | $J^\pi$ : configuration = $(\nu h 11/2)$ coupled ( $^{110}\text{Te}$ $6^+$ ).                                                                                                                                                                                                                                                                                                                                                                   |
| 3050.5 @ 6            | $(21/2^-)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3382.6 c 6            | $(23/2^-)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3738.6 a 6            | $(23/2^+)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3756.3 @ 6            | $(25/2^-)$           |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3768.4 # 6            | $27/2^-$             |            | AB   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| 3823.5 7              |                      |            | B    |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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**Adopted Levels, Gammas (continued)** $^{111}\text{Te}$  Levels (continued)

| E(level) <sup>†</sup> | J <sup>π</sup> <sup>‡</sup> | XREF | Comments                                                          |
|-----------------------|-----------------------------|------|-------------------------------------------------------------------|
| 3880.6 6              |                             | B    |                                                                   |
| 4127.1 <sup>c</sup> 6 | (27/2 <sup>-</sup> )        | B    |                                                                   |
| 4315.2 <sup>a</sup> 6 | (27/2 <sup>+</sup> )        | B    |                                                                   |
| 4430.8 <sup>b</sup> 7 | (29/2)                      | B    | J <sup>π</sup> : conf: possible octupole excit coupled to νh11/2. |
| 4556.5 <sup>@</sup> 6 | (29/2 <sup>-</sup> )        | B    |                                                                   |
| 4707.3 7              |                             | B    |                                                                   |
| 4731.4 <sup>#</sup> 7 | 31/2 <sup>-</sup>           | AB   |                                                                   |
| 4887.2 <sup>c</sup> 6 | (31/2 <sup>-</sup> )        | B    |                                                                   |
| 5007.8 <sup>a</sup> 6 | (31/2 <sup>+</sup> )        | B    |                                                                   |
| 5345.7 <sup>@</sup> 6 | (33/2 <sup>-</sup> )        | B    |                                                                   |
| 5353.4 <sup>b</sup> 7 | (33/2)                      | B    |                                                                   |
| 5486.0 8              |                             | B    |                                                                   |
| 5706.5 <sup>#</sup> 7 | 35/2 <sup>-</sup>           | AB   |                                                                   |
| 5796.3 <sup>a</sup> 7 | (35/2 <sup>+</sup> )        | B    |                                                                   |
| 6071.2 <sup>b</sup> 7 | (37/2)                      | B    |                                                                   |
| 6356.6 8              |                             | B    |                                                                   |
| 6653.4 <sup>a</sup> 7 | (39/2 <sup>+</sup> )        | B    |                                                                   |
| 6819.2 <sup>#</sup> 8 | (39/2 <sup>-</sup> )        | B    |                                                                   |
| 6990.2 <sup>b</sup> 8 | (41/2)                      | B    |                                                                   |
| 7491.5 8              |                             | B    |                                                                   |
| 7677.0 <sup>a</sup> 8 | (43/2 <sup>+</sup> )        | B    |                                                                   |
| 7752.0 <sup>b</sup> 8 |                             | B    |                                                                   |
| 7873.9 8              |                             | B    |                                                                   |
| 8652.4 <sup>b</sup> 9 |                             | B    |                                                                   |
| 8727.5 <sup>a</sup> 9 | (47/2 <sup>+</sup> )        | B    |                                                                   |
| 9863.2 <sup>a</sup> 9 | (51/2 <sup>+</sup> )        | B    |                                                                   |
| 9957.8 <sup>b</sup> 9 |                             | B    |                                                                   |

<sup>†</sup> From least-squares fit to E<sub>γ</sub>'s (by evaluator).<sup>‡</sup> From γ multiplicities and band assignments. Conf from 2000St03.# Band(A): ΔJ=2, band, based on 11/2<sup>-</sup>. configuration=ν,h11/2 favored.@ Band(B): ΔJ=2, band, based on (17/2<sup>-</sup>). configuration=ν,h11/2 unfavored.& Band(C): ΔJ=1, band, based on (7/2<sup>+</sup>).<sup>a</sup> Band(D): ΔJ=2, band, based on (23/2<sup>+</sup>).<sup>b</sup> Band(E): ΔJ=2, band, based on (29/2).<sup>c</sup> Band(F): ΔJ=2, band, based on (23/2<sup>-</sup>).γ( $^{111}\text{Te}$ )

| E <sub>i</sub> (level) | J <sub>i</sub> <sup>π</sup> | E <sub>γ</sub> | I <sub>γ</sub> | E <sub>f</sub> | J <sub>f</sub> <sup>π</sup> | Mult. |
|------------------------|-----------------------------|----------------|----------------|----------------|-----------------------------|-------|
| 117.1                  | (7/2) <sup>+</sup>          | 117.1 3        | 100.0          | 0.0            | (5/2) <sup>+</sup>          | M1,E2 |
| 538.0                  | (7/2) <sup>+</sup>          | 538            |                | 0.0            | (5/2) <sup>+</sup>          |       |
| 768.1                  | (9/2) <sup>+</sup>          | 650.9 3        | 100            | 117.1          | (7/2) <sup>+</sup>          | M1,E2 |
| 824.0                  | (9/2) <sup>+</sup>          | 824            |                | 0.0            | (5/2) <sup>+</sup>          |       |
| 839.4                  | 11/2 <sup>-</sup>           | 723            |                | 117.1          | (7/2) <sup>+</sup>          | M2    |
| 882.1                  | (11/2) <sup>+</sup>         | 765.0 3        | 100.0          | 117.1          | (7/2) <sup>+</sup>          | E2    |
| 1378.5                 | 15/2 <sup>-</sup>           | 539.1 3        | 100            | 839.4          | 11/2 <sup>-</sup>           | E2    |
| 1519.7                 | (13/2) <sup>+</sup>         | 637.8 3        | 25 5           | 882.1          | (11/2) <sup>+</sup>         | M1,E2 |

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**Adopted Levels, Gammas (continued)**

| $\gamma(^{111}\text{Te})$ (continued) |                     |                      |            |        |                     |       |
|---------------------------------------|---------------------|----------------------|------------|--------|---------------------|-------|
| $E_i(\text{level})$                   | $J_i^\pi$           | $E_\gamma$           | $I_\gamma$ | $E_f$  | $J_f^\pi$           | Mult. |
| 1519.7                                | (13/2) <sup>+</sup> | 751.6 3              | 100 12     | 768.1  | (9/2) <sup>+</sup>  | E2    |
| 1757.4                                | (15/2) <sup>+</sup> | 875.1 3              | 100        | 882.1  | (11/2) <sup>+</sup> |       |
| 2061.9                                | 19/2 <sup>-</sup>   | 682.9 3              | 100.0      | 1378.5 | 15/2 <sup>-</sup>   | E2    |
| 2292.6                                | (17/2) <sup>+</sup> | 534.7 3              | 19 8       | 1757.4 | (15/2) <sup>+</sup> | M1,E2 |
|                                       |                     | 773.0 3              | 100 11     | 1519.7 | (13/2) <sup>+</sup> | E2    |
| 2495.6                                | (17/2) <sup>-</sup> | 433.3 3              | 78 22      | 2061.9 | 19/2 <sup>-</sup>   | E2    |
|                                       |                     | 1117.8 3             | 100 22     | 1378.5 | 15/2 <sup>-</sup>   | M1,E2 |
| 2635.3                                | (19/2) <sup>+</sup> | 342.4 3              | 10.9 23    | 2292.6 | (17/2) <sup>+</sup> | M1,E2 |
|                                       |                     | 878.2 3              | 100 10     | 1757.4 | (15/2) <sup>+</sup> |       |
| 2673.7                                | (19/2) <sup>-</sup> | 1295.1 3             | 100        | 1378.5 | 15/2 <sup>-</sup>   | E2    |
| 2777.3                                | 23/2 <sup>-</sup>   | 715.0 3              | 100.0      | 2061.9 | 19/2 <sup>-</sup>   |       |
| 3050.5                                | (21/2) <sup>-</sup> | 273.2 3              | 37 8       | 2777.3 | 23/2 <sup>-</sup>   | M1,E2 |
|                                       |                     | 376.7 3              | 37 8       | 2673.7 | (19/2) <sup>-</sup> | M1,E2 |
|                                       |                     | 415.0 3              | 100 14     | 2635.3 | (19/2) <sup>+</sup> | E1    |
|                                       |                     | 555.1 3              | 37 6       | 2495.6 | (17/2) <sup>-</sup> | E2    |
|                                       |                     | 989.0 3              | 71 14      | 2061.9 | 19/2 <sup>-</sup>   | M1,E2 |
| 3382.6                                | (23/2) <sup>-</sup> | 605.0 3              | 100 13     | 2777.3 | 23/2 <sup>-</sup>   | M1,E2 |
|                                       |                     | 1320.7 3             | 42 9       | 2061.9 | 19/2 <sup>-</sup>   | E2    |
| 3738.6                                | (23/2) <sup>+</sup> | 1103.3 3             | 100        | 2635.3 | (19/2) <sup>+</sup> | E2    |
| 3756.3                                | (25/2) <sup>-</sup> | 373.3 3              | 17 4       | 3382.6 | (23/2) <sup>-</sup> | M1,E2 |
|                                       |                     | 706.0 3              | 100 6      | 3050.5 | (21/2) <sup>-</sup> | E2    |
| 3768.4                                | 27/2 <sup>-</sup>   | 991.1 3              | 100        | 2777.3 | 23/2 <sup>-</sup>   | E2    |
| 3823.5                                |                     | 1046.2 3             | 100        | 2777.3 | 23/2 <sup>-</sup>   |       |
| 3880.6                                |                     | 1245.4 3             | 100        | 2635.3 | (19/2) <sup>+</sup> | E2    |
| 4127.1                                | (27/2) <sup>-</sup> | 358.4 3              | 19 6       | 3768.4 | 27/2 <sup>-</sup>   | E2    |
|                                       |                     | 744.6 3              | 100 13     | 3382.6 | (23/2) <sup>-</sup> | E2    |
| 4315.2                                | (27/2) <sup>+</sup> | 434.6 3              | 32 5       | 3880.6 |                     | E2    |
|                                       |                     | 558.8 3              | 100 13     | 3756.3 | (25/2) <sup>-</sup> | E1    |
|                                       |                     | 576.6 3              | 95 13      | 3738.6 | (23/2) <sup>+</sup> | E2    |
| 4430.8                                | (29/2)              | 662.3 3              | 100        | 3768.4 | 27/2 <sup>-</sup>   | D     |
| 4556.5                                | (29/2) <sup>-</sup> | 429.0 3              | 19 4       | 4127.1 | (27/2) <sup>-</sup> | M1,E2 |
|                                       |                     | 800.1 3              | 100 13     | 3756.3 | (25/2) <sup>-</sup> | E2    |
| 4707.3                                |                     | 938.9 3              | 100        | 3768.4 | 27/2 <sup>-</sup>   |       |
| 4731.4                                | 31/2 <sup>-</sup>   | 963.1 3              | 100        | 3768.4 | 27/2 <sup>-</sup>   | E2    |
| 4887.2                                | (31/2) <sup>-</sup> | 760.1 3              | 100 13     | 4127.1 | (27/2) <sup>-</sup> | E2    |
|                                       |                     | 1119.1 3             | 92 18      | 3768.4 | 27/2 <sup>-</sup>   | E2    |
| 5007.8                                | (31/2) <sup>+</sup> | 451.3 3              | 23 6       | 4556.5 | (29/2) <sup>-</sup> | E1    |
|                                       |                     | 692.7 3              | 100 6      | 4315.2 | (27/2) <sup>+</sup> | E2    |
| 5345.7                                | (33/2) <sup>-</sup> | 458.8 3              | 80 15      | 4887.2 | (31/2) <sup>-</sup> | M1,E2 |
|                                       |                     | 788.9 <sup>†</sup> 3 | 100 40     | 4556.5 | (29/2) <sup>-</sup> | E2    |
| 5353.4                                | (33/2)              | 622.1 3              | 27 4       | 4731.4 | 31/2 <sup>-</sup>   | D     |
|                                       |                     | 922.4 3              | 100 11     | 4430.8 | (29/2)              |       |
| 5486.0                                |                     | 778.7 3              | 100        | 4707.3 |                     |       |
| 5706.5                                | 35/2 <sup>-</sup>   | 975.1 3              | 100        | 4731.4 | 31/2 <sup>-</sup>   | E2    |
| 5796.3                                | (35/2) <sup>+</sup> | 788.5 3              | 100        | 5007.8 | (31/2) <sup>+</sup> | E2    |
| 6071.2                                | (37/2)              | 364.7 3              | 13.0 19    | 5706.5 | 35/2 <sup>-</sup>   | D     |
|                                       |                     | 717.8 3              | 100 10     | 5353.4 | (33/2)              |       |
| 6356.6                                |                     | 870.6 3              | 100        | 5486.0 |                     |       |
| 6653.4                                | (39/2) <sup>+</sup> | 857.1 3              | 100        | 5796.3 | (35/2) <sup>+</sup> | E2    |
| 6819.2                                | (39/2) <sup>-</sup> | 1112.7 3             | 100        | 5706.5 | 35/2 <sup>-</sup>   | E2    |
| 6990.2                                | (41/2)              | 919.0 3              | 100        | 6071.2 | (37/2)              |       |
| 7491.5                                |                     | 838.1 3              | 100        | 6653.4 | (39/2) <sup>+</sup> |       |
| 7677.0                                | (43/2) <sup>+</sup> | 1023.6 3             | 100        | 6653.4 | (39/2) <sup>+</sup> | E2    |
| 7752.0                                |                     | 761.8 3              | 100        | 6990.2 | (41/2)              |       |
| 7873.9                                |                     | 883.7 3              | 100        | 6990.2 | (41/2)              |       |

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**Adopted Levels, Gammas (continued)**

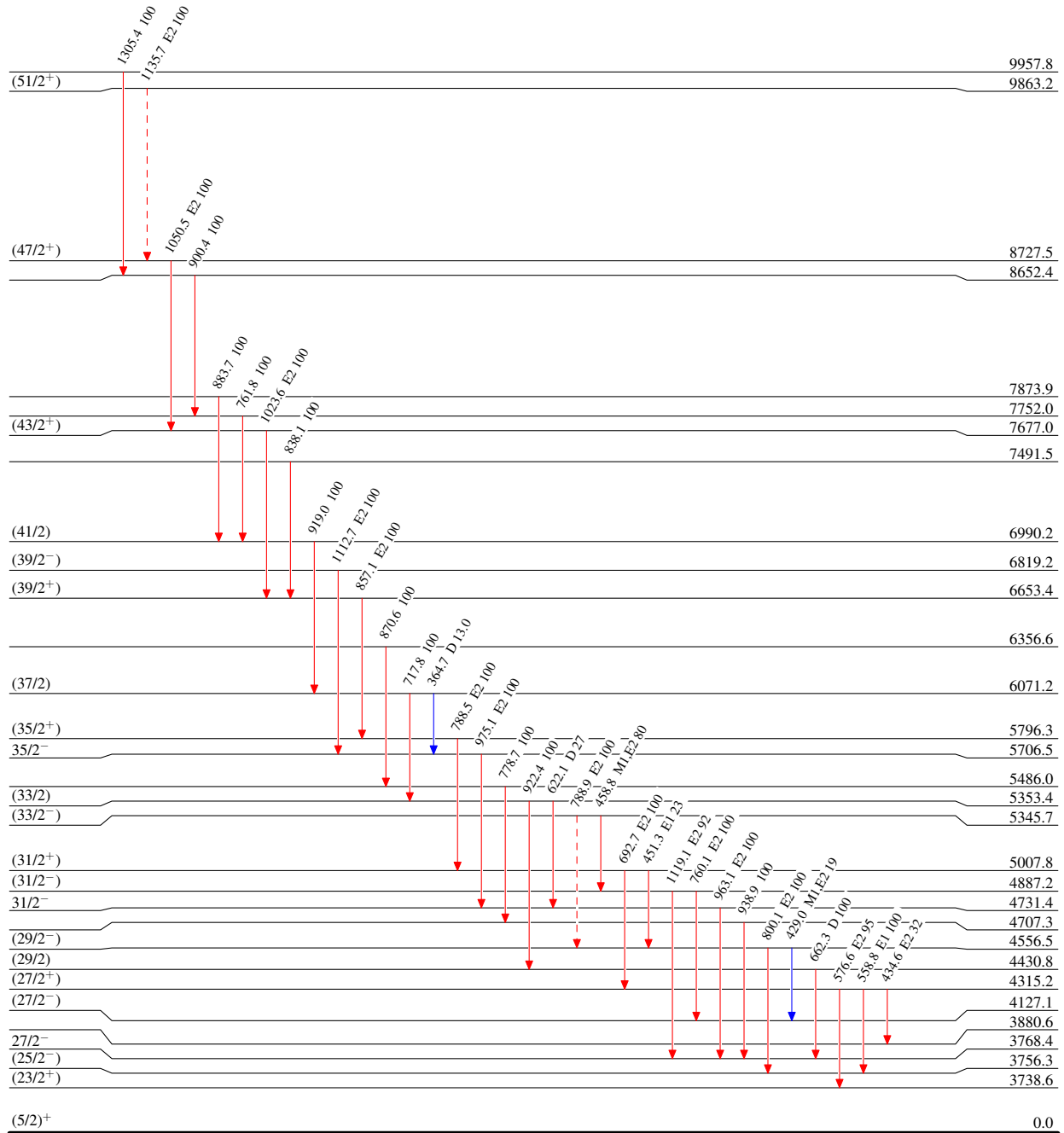
| <u>γ(<sup>111</sup>Te) (continued)</u> |                                  |                       |                      |                      |                                  |              |
|----------------------------------------|----------------------------------|-----------------------|----------------------|----------------------|----------------------------------|--------------|
| <u>E<sub>i</sub>(level)</u>            | <u>J<sub>i</sub><sup>π</sup></u> | <u>E<sub>γ</sub></u>  | <u>I<sub>γ</sub></u> | <u>E<sub>f</sub></u> | <u>J<sub>f</sub><sup>π</sup></u> | <u>Mult.</u> |
| 8652.4                                 |                                  | 900.4 3               | 100                  | 7752.0               |                                  |              |
| 8727.5                                 | (47/2 <sup>+</sup> )             | 1050.5 3              | 100                  | 7677.0               | (43/2 <sup>+</sup> )             | E2           |
| 9863.2                                 | (51/2 <sup>+</sup> )             | 1135.7 <sup>†</sup> 3 | 100                  | 8727.5               | (47/2 <sup>+</sup> )             | E2           |
| 9957.8                                 |                                  | 1305.4 3              | 100                  | 8652.4               |                                  |              |

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

**Adopted Levels, Gammas****Legend****Level Scheme**

Intensities: Type not specified

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

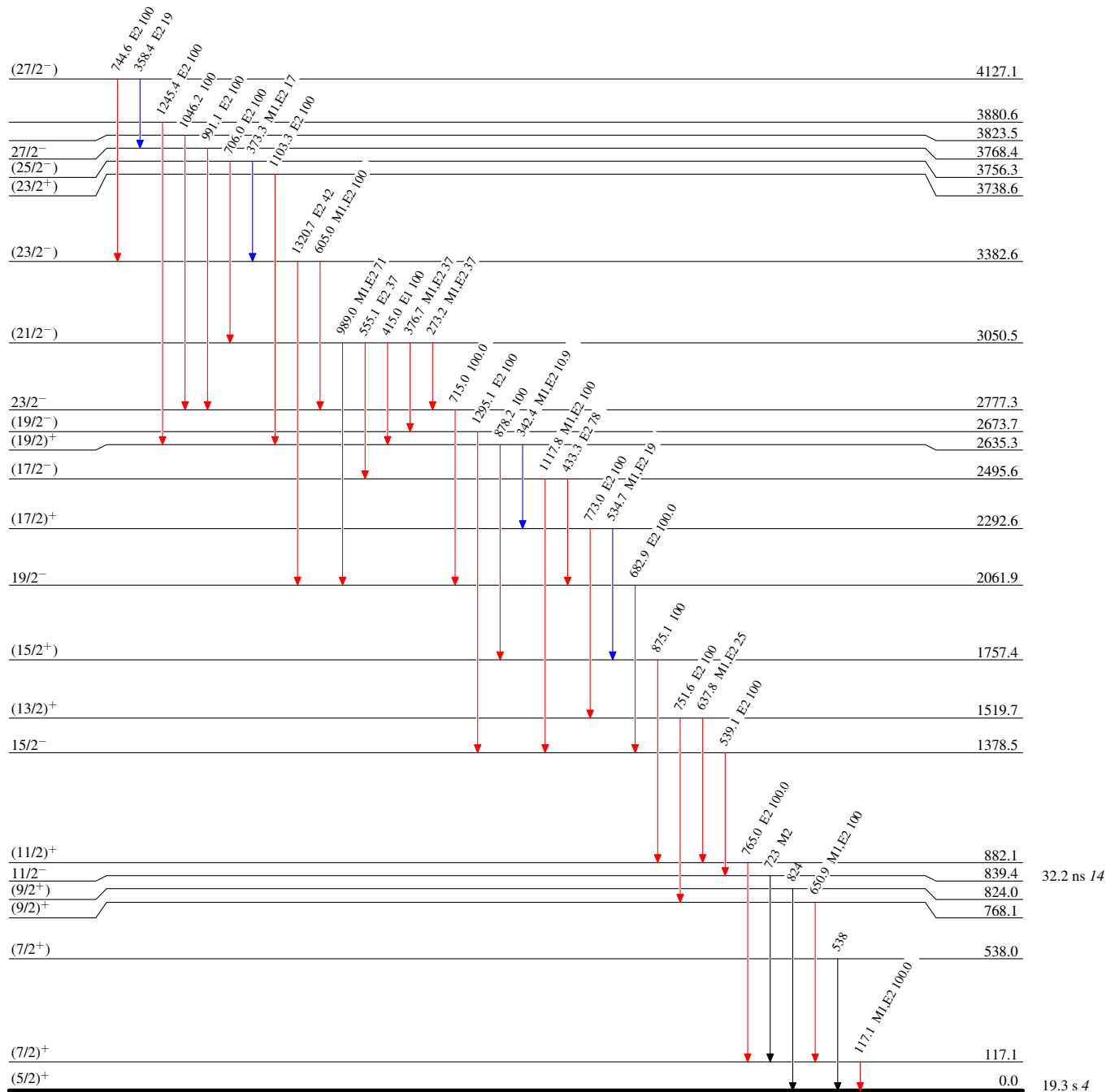


**Adopted Levels, Gammas****Level Scheme (continued)**

Intensities: Type not specified

**Legend**

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



Adopted Levels, Gammas