

Adopted Levels, Gammas

| Type            | Author                | History | Citation        | Literature Cutoff Date |
|-----------------|-----------------------|---------|-----------------|------------------------|
| Full Evaluation | E. Browne, J. K. Tuli | NDS     | 108,2173 (2007) | 1-Oct-2006             |

$Q(\beta^-)=6027.9$ ;  $S(n)=4882.17$ ;  $S(p)=9219.9$ ;  $Q(\alpha)=141.9$  [2012Wa38](#)

Note: Current evaluation has used the following Q record 5.88E+3 3 5070 609370 5010 40 [2003Au03](#).

$Q(\beta^-n)=1851.27$  (syst,[2003Au03](#)).

$^{235}\text{U}$ ,  $^{239}\text{Pu}$  n-induced fission yields: [2006Ro26](#), [2002Is13](#).

$^{238}\text{U}$  n-, p-induced fission yields: [2000Lh02](#).

$^{235}\text{U}$  fission yield: [1988Le21](#).

$\beta^-n$  Spectrum: measured neutrons ([1997Gr20](#)).

 $^{137}\text{I}$  LevelsCross Reference (XREF) Flags

**A**  $^{137}\text{Te}$   $\beta^-$  decay  
**B**  $^{248}\text{Cm}$  SF decay

| E(level) <sup>†</sup> | $J^\pi$ <sup>‡</sup> | $T_{1/2}$ | XREF      | Comments                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-----------------------|----------------------|-----------|-----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0.0                   | ( $7/2^+$ )          | 24.5 s 2  | <b>AB</b> | $\% \beta^- = 100$ ; $\% \beta^- n = 7.14$ 23<br>$\% \beta^- n$ from <a href="#">1993Ru01</a> . Other: 6.97 42 ( <a href="#">1989BrZI</a> ) from <a href="#">1989BrZI</a> .<br>$J^\pi$ : from systematics. Possible configuration= $(\pi g_{7/2})^3$ .<br>$T_{1/2}$ : from <a href="#">1974Ru08</a> , <a href="#">1974Gr29</a> , <a href="#">1970OsZZ</a> . Others: 24.4 s 4 ( <a href="#">1959Pe28</a> ), 24.7 s 2 ( <a href="#">1971De35</a> ), 24.3 s 8 ( <a href="#">1974Kr21</a> ), 24.8 s 2 ( <a href="#">1975As04</a> ), 24.25 s 12 ( <a href="#">1976Lu02</a> ). |
| 243.3                 | $5/2^+$              |           | <b>AB</b> | $J^\pi$ : from syst for Z=53 odd-A nuclei. Possible configuration= $(\pi g_{7/2})^3$ mixed with $(\pi d_{5/2})$ .                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 554.20@ 9             | $9/2^+$              |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 620.51# 9             | $11/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 954.39@ 10            | $13/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1108.74# 11           | $15/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1312.82@ 12           | $17/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 1608.64# 13           | $19/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2037.70@ 13           | $21/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2222.99# 14           | $23/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 2742.66@ 15           | $25/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3084.87# 16           | $27/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3166.98@ 17           | $29/2^+$             |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3651.45# 17           | $(31/2^+)$           |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 3852.82@ 19           | $(33/2^+)$           |           | <b>B</b>  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

<sup>†</sup> From least-squares fit to  $E\gamma$ 's.

<sup>‡</sup> From  $\gamma\gamma(\theta)$ , directional-polarization correlation,  $\gamma(\text{pol})$ . The level structure is interpreted in terms of  $^{136}\text{Te}$  core excitations coupled with  $7/2^+$  gs and  $5/2^+$  243 levels ([2001Ko78](#)).

# Band(A):  $\Delta J=2$  cascade band based on ( $7/2^+$ ) g.s..

@ Band(a):  $\Delta J=2$  cascade band based on ( $9/2^+$ ) 554.2 level.

**Adopted Levels, Gammas (continued)**

| $\gamma(^{137}\text{I})$ |                      |                    |                    |         |                      |                    |                  |
|--------------------------|----------------------|--------------------|--------------------|---------|----------------------|--------------------|------------------|
| $E_i(\text{level})$      | $J_i^\pi$            | $E_\gamma^\dagger$ | $I_\gamma^\dagger$ | $E_f$   | $J_f^\pi$            | Mult. <sup>†</sup> | $\delta^\dagger$ |
| 243.3                    | 5/2 <sup>+</sup>     | 243.3              | 100                | 0.0     | (7/2 <sup>+</sup> )  |                    |                  |
| 554.20                   | 9/2 <sup>+</sup>     | 554.2 <i>I</i>     | 100                | 0.0     | (7/2 <sup>+</sup> )  | M1+E2              | +1.1 6           |
| 620.51                   | 11/2 <sup>+</sup>    | 620.5 <i>I</i>     | 100                | 0.0     | (7/2 <sup>+</sup> )  | E2                 |                  |
| 954.39                   | 13/2 <sup>+</sup>    | 333.9 <i>I</i>     | 26.6 <i>I6</i>     | 620.51  | 11/2 <sup>+</sup>    | M1+E2              | +0.08 3          |
|                          |                      | 400.2 <i>I</i>     | 100 4              | 554.20  | 9/2 <sup>+</sup>     | E2                 |                  |
| 1108.74                  | 15/2 <sup>+</sup>    | 154.4 <i>I</i>     |                    | 954.39  | 13/2 <sup>+</sup>    |                    |                  |
|                          |                      | 488.2 <i>I</i>     | 100                | 620.51  | 11/2 <sup>+</sup>    | E2                 |                  |
| 1312.82                  | 17/2 <sup>+</sup>    | 204.1 <i>I</i>     |                    | 1108.74 | 15/2 <sup>+</sup>    |                    |                  |
|                          |                      | 358.4 <i>I</i>     | 100                | 954.39  | 13/2 <sup>+</sup>    | E2                 |                  |
| 1608.64                  | 19/2 <sup>+</sup>    | 295.8 <i>I</i>     | 100.0 <i>II</i>    | 1312.82 | 17/2 <sup>+</sup>    |                    |                  |
|                          |                      | 499.9 <i>I</i>     | 14 5               | 1108.74 | 15/2 <sup>+</sup>    |                    |                  |
| 2037.70                  | 21/2 <sup>+</sup>    | 429.1 <i>I</i>     | 3.6 9              | 1608.64 | 19/2 <sup>+</sup>    |                    |                  |
|                          |                      | 724.9 <i>I</i>     | 100 9              | 1312.82 | 17/2 <sup>+</sup>    | E2                 |                  |
| 2222.99                  | 23/2 <sup>+</sup>    | 185.3 <i>I</i>     | 51.4 <i>I5</i>     | 2037.70 | 21/2 <sup>+</sup>    |                    |                  |
|                          |                      | 614.3 <i>I</i>     | 100 <i>I5</i>      | 1608.64 | 19/2 <sup>+</sup>    |                    |                  |
| 2742.66                  | 25/2 <sup>+</sup>    | 519.6 <i>I</i>     | 30 5               | 2222.99 | 23/2 <sup>+</sup>    |                    |                  |
|                          |                      | 705.0 <i>I</i>     | 100 5              | 2037.70 | 21/2 <sup>+</sup>    |                    |                  |
| 3084.87                  | 27/2 <sup>+</sup>    | 342.3 <i>I</i>     | 8.3 <i>I7</i>      | 2742.66 | 25/2 <sup>+</sup>    |                    |                  |
|                          |                      | 861.9 <i>I</i>     | 100 6              | 2222.99 | 23/2 <sup>+</sup>    |                    |                  |
| 3166.98                  | 29/2 <sup>+</sup>    | 424.2 <i>I</i>     | 100                | 2742.66 | 25/2 <sup>+</sup>    |                    |                  |
| 3651.45                  | (31/2 <sup>+</sup> ) | 484.4 <i>I</i>     |                    | 3166.98 | 29/2 <sup>+</sup>    |                    |                  |
|                          |                      | 566.7 <i>I</i>     | 100                | 3084.87 | 27/2 <sup>+</sup>    |                    |                  |
| 3852.82                  | (33/2 <sup>+</sup> ) | 201.4 <i>I</i>     | 100                | 3651.45 | (31/2 <sup>+</sup> ) |                    |                  |

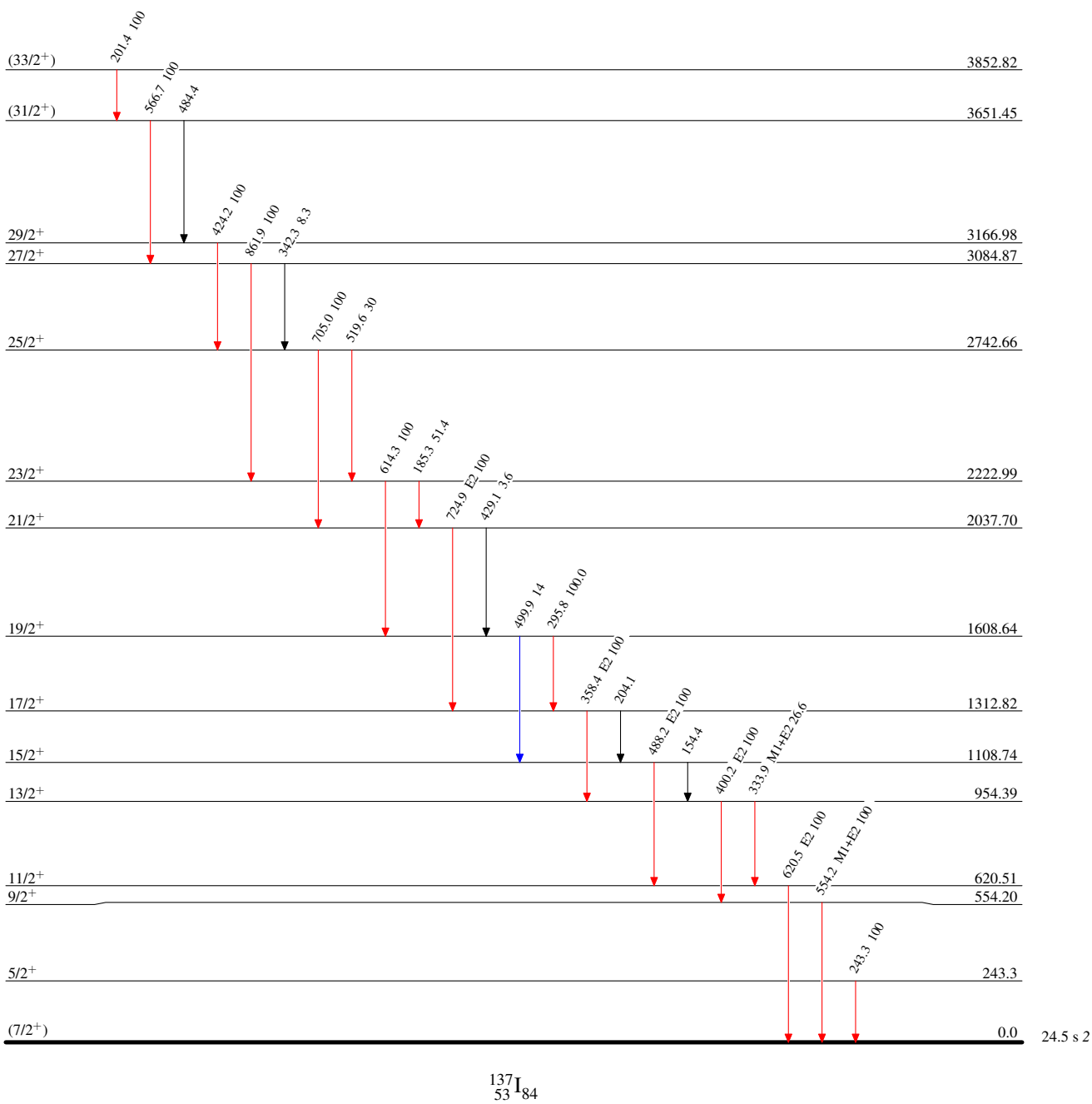
<sup>†</sup> From  $^{248}\text{Cm}$  SF decay (2001Ko78).

**Adopted Levels, Gammas**Level Scheme

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