

$^{249}\text{Cf}(^{207}\text{Pb}, ^{207}\text{Pb}'\gamma)$  2010Ta22

| Type            | Author             | History<br>Citation  | Literature Cutoff Date |
|-----------------|--------------------|----------------------|------------------------|
| Full Evaluation | Khalifeh Abusaleem | NDS 112, 2129 (2011) | 31-Dec-2010            |

E=1430–MeV from ATLAS.  $\gamma$ -rays were detected with Gammasphere.

Measured:  $E\gamma$ ,  $I\gamma$ ,  $\gamma\gamma$ , (x ray) $\gamma$  coin and  $\gamma\gamma\gamma$ .

 $^{249}\text{Cf}$  Levels

| E(level) <sup>†</sup>  | $J^{\pi\ddagger}$    | Comments                  |
|------------------------|----------------------|---------------------------|
| 0 <sup>#</sup>         | 9/2 <sup>-</sup>     |                           |
| 62.47 <sup>@</sup> 5   | 11/2 <sup>-</sup>    | Additional information 1. |
| 135.9 <sup>#</sup> 10  | (13/2 <sup>-</sup> ) |                           |
| 220.5 <sup>@</sup> 10  | (15/2 <sup>-</sup> ) |                           |
| 316.9 <sup>#</sup> 13  | (17/2 <sup>-</sup> ) |                           |
| 425.6 <sup>@</sup> 13  | (19/2 <sup>-</sup> ) |                           |
| 544.8 <sup>#</sup> 14  | (21/2 <sup>-</sup> ) |                           |
| 675.7 <sup>@</sup> 14  | (23/2 <sup>-</sup> ) |                           |
| 817.7 <sup>#</sup> 14  | (25/2 <sup>-</sup> ) |                           |
| 970.7 <sup>@</sup> 15  | (27/2 <sup>-</sup> ) |                           |
| 1134.7 <sup>#</sup> 16 | (29/2 <sup>-</sup> ) |                           |
| 1308.7 <sup>@</sup> 16 | (31/2 <sup>-</sup> ) |                           |
| 1493.7 <sup>#</sup> 17 | (33/2 <sup>-</sup> ) |                           |
| 1688.7 <sup>@</sup> 18 | (35/2 <sup>-</sup> ) |                           |
| 1894.7 <sup>#</sup> 20 | (37/2 <sup>-</sup> ) |                           |
| 2107.7 <sup>@</sup> 20 | (39/2 <sup>-</sup> ) |                           |
| 2333.7 <sup>#</sup> 22 | (41/2 <sup>-</sup> ) |                           |
| 2564.7 <sup>@</sup> 23 | (43/2 <sup>-</sup> ) |                           |
| 2808.7 <sup>#</sup> 24 | (45/2 <sup>-</sup> ) |                           |
| 3054.7 <sup>@</sup> 25 | (47/2 <sup>-</sup> ) |                           |
| 3315 <sup>#</sup> 3    | (49/2 <sup>-</sup> ) |                           |

<sup>†</sup> From  $E\gamma$ 's, assuming 1 keV uncertainty for each  $E\gamma$ .

<sup>‡</sup> Adopted by the evaluator since the two bands are signature partners of a rotational band.

<sup>#</sup> Band(A):  $\nu 9/2[734]$ ,  $\alpha=+1/2$ .

<sup>@</sup> Band(a):  $\nu 9/2[734]$ ,  $\alpha=-1/2$ .

 $\gamma(^{249}\text{Cf})$ 

| $E_{\gamma}$ <sup>†</sup> | $E_i(\text{level})$ | $J_i^{\pi}$          | $E_f$  | $J_f^{\pi}$          | Comments                                                          |
|---------------------------|---------------------|----------------------|--------|----------------------|-------------------------------------------------------------------|
| 62.47                     | 62.47               | 11/2 <sup>-</sup>    | 0      | 9/2 <sup>-</sup>     | $E_{\gamma}$ : $^{249}\text{Es}$ $\varepsilon$ decay in 1976Ah07. |
| (136 I)                   | 135.9               | (13/2 <sup>-</sup> ) | 0      | 9/2 <sup>-</sup>     |                                                                   |
| 142 I                     | 817.7               | (25/2 <sup>-</sup> ) | 675.7  | (23/2 <sup>-</sup> ) |                                                                   |
| 153                       | 970.7               | (27/2 <sup>-</sup> ) | 817.7  | (25/2 <sup>-</sup> ) |                                                                   |
| 158 I                     | 220.5               | (15/2 <sup>-</sup> ) | 62.47  | 11/2 <sup>-</sup>    |                                                                   |
| 164                       | 1134.7              | (29/2 <sup>-</sup> ) | 970.7  | (27/2 <sup>-</sup> ) |                                                                   |
| 174                       | 1308.7              | (31/2 <sup>-</sup> ) | 1134.7 | (29/2 <sup>-</sup> ) |                                                                   |
| 181 I                     | 316.9               | (17/2 <sup>-</sup> ) | 135.9  | (13/2 <sup>-</sup> ) |                                                                   |
| 185                       | 1493.7              | (33/2 <sup>-</sup> ) | 1308.7 | (31/2 <sup>-</sup> ) |                                                                   |

Continued on next page (footnotes at end of table)

$^{249}\text{Cf}(^{207}\text{Pb}, ^{207}\text{Pb}'\gamma)$  **2010Ta22 (continued)** $\gamma(^{249}\text{Cf})$  (continued)

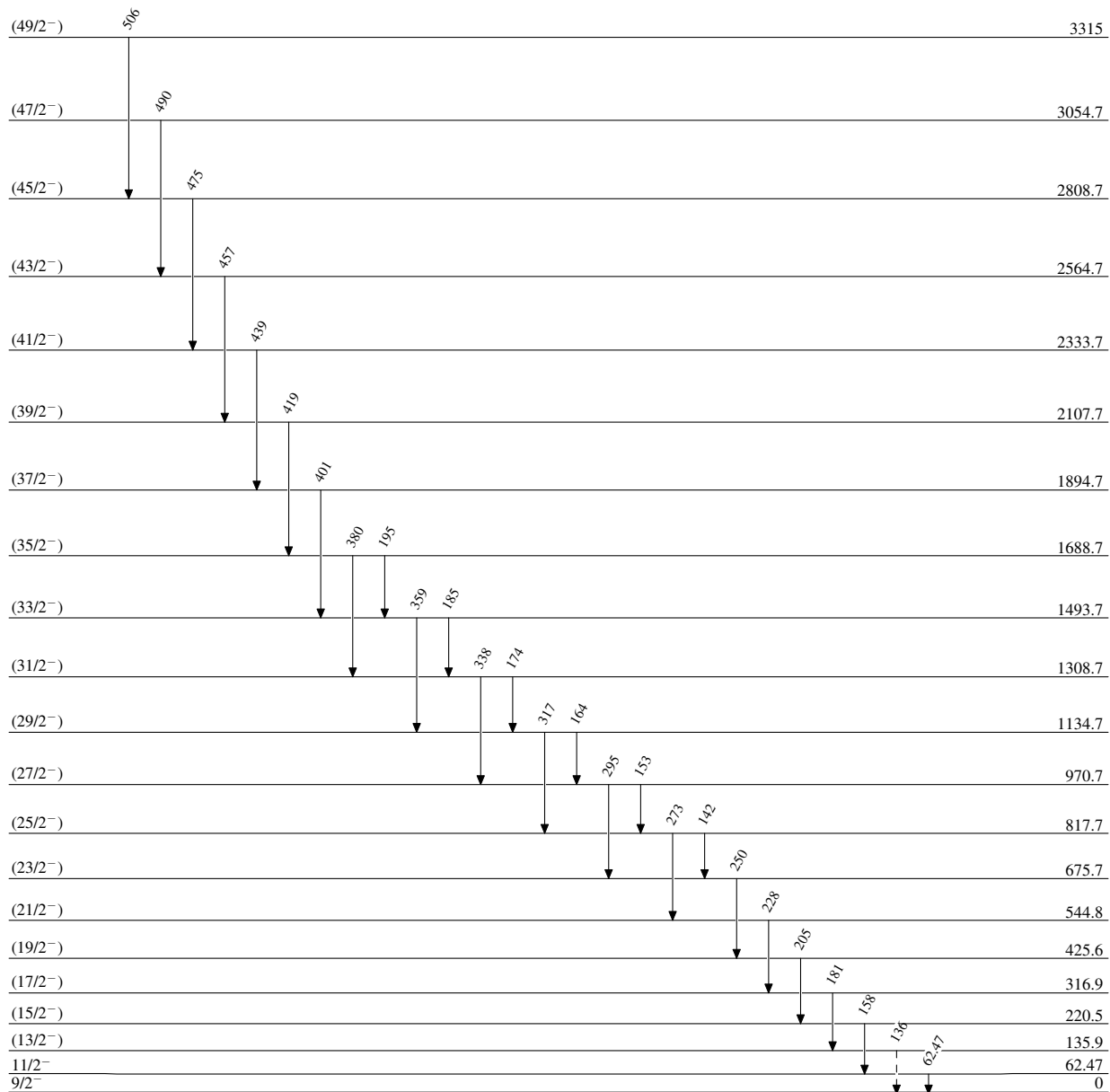
| $E_\gamma^\dagger$ | $E_i(\text{level})$ | $J_i^\pi$            | $E_f$  | $J_f^\pi$            | $E_\gamma^\dagger$ | $E_i(\text{level})$ | $J_i^\pi$            | $E_f$  | $J_f^\pi$            |
|--------------------|---------------------|----------------------|--------|----------------------|--------------------|---------------------|----------------------|--------|----------------------|
| 195                | 1688.7              | (35/2 <sup>-</sup> ) | 1493.7 | (33/2 <sup>-</sup> ) | 380                | 1688.7              | (35/2 <sup>-</sup> ) | 1308.7 | (31/2 <sup>-</sup> ) |
| 205 <i>I</i>       | 425.6               | (19/2 <sup>-</sup> ) | 220.5  | (15/2 <sup>-</sup> ) | 401                | 1894.7              | (37/2 <sup>-</sup> ) | 1493.7 | (33/2 <sup>-</sup> ) |
| 228 <i>I</i>       | 544.8               | (21/2 <sup>-</sup> ) | 316.9  | (17/2 <sup>-</sup> ) | 419                | 2107.7              | (39/2 <sup>-</sup> ) | 1688.7 | (35/2 <sup>-</sup> ) |
| 250 <i>I</i>       | 675.7               | (23/2 <sup>-</sup> ) | 425.6  | (19/2 <sup>-</sup> ) | 439                | 2333.7              | (41/2 <sup>-</sup> ) | 1894.7 | (37/2 <sup>-</sup> ) |
| 273 <i>I</i>       | 817.7               | (25/2 <sup>-</sup> ) | 544.8  | (21/2 <sup>-</sup> ) | 457                | 2564.7              | (43/2 <sup>-</sup> ) | 2107.7 | (39/2 <sup>-</sup> ) |
| 295                | 970.7               | (27/2 <sup>-</sup> ) | 675.7  | (23/2 <sup>-</sup> ) | 475                | 2808.7              | (45/2 <sup>-</sup> ) | 2333.7 | (41/2 <sup>-</sup> ) |
| 317                | 1134.7              | (29/2 <sup>-</sup> ) | 817.7  | (25/2 <sup>-</sup> ) | 490                | 3054.7              | (47/2 <sup>-</sup> ) | 2564.7 | (43/2 <sup>-</sup> ) |
| 338                | 1308.7              | (31/2 <sup>-</sup> ) | 970.7  | (27/2 <sup>-</sup> ) | 506                | 3315                | (49/2 <sup>-</sup> ) | 2808.7 | (45/2 <sup>-</sup> ) |
| 359                | 1493.7              | (33/2 <sup>-</sup> ) | 1134.7 | (29/2 <sup>-</sup> ) |                    |                     |                      |        |                      |

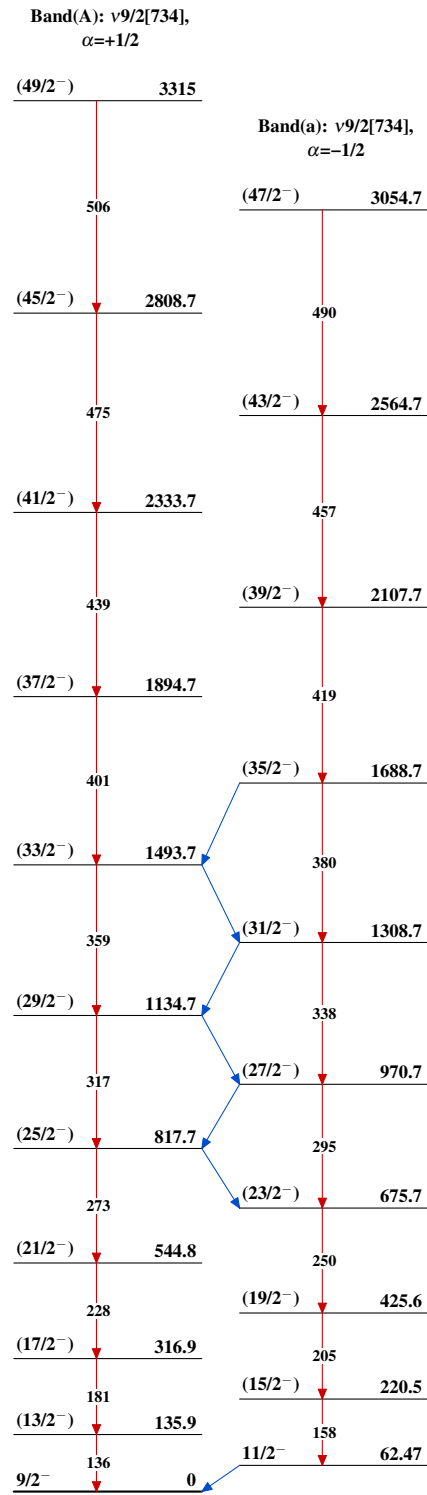
<sup>†</sup> Uncertainty is 0.3 keV for strong  $\gamma$ -rays and 1 keV for weak  $\gamma$ -rays, as communicated in an e-mail reply of Oct 18, 2010 from P. Chowdhury the second author.

$^{249}\text{Cf}(^{207}\text{Pb}, ^{207}\text{Pb}'\gamma)$  2010Ta22

Legend

## Level Scheme

-----►  $\gamma$  Decay (Uncertain)

 $^{249}_{98}\text{Cf}_{151}$

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