

$^{154}\text{Sm}(p,2n\gamma)$  1984Bo13

| Type            | Author  | History Citation  | Literature Cutoff Date |
|-----------------|---------|-------------------|------------------------|
| Full Evaluation | N. Nica | NDS 170, 1 (2020) | 16-Aug-2020            |

E(p)=18 MeV. Results are summarized primarily in a level scheme. On this level scheme the authors indicate which levels are seen in (p,2n $\gamma$ ); these levels and their energies are listed here along with the authors'  $J^\pi$  and band assignments. The text indicates the energies and placements for 5  $\gamma$ 's.

 $^{153}\text{Eu}$  Levels

| E(level) <sup>†</sup>  | $J^\pi$ <sup>‡</sup> | E(level) <sup>†</sup>  | $J^\pi$ <sup>‡</sup> | E(level) <sup>†</sup>  | $J^\pi$ <sup>‡</sup> | E(level) <sup>†</sup>  | $J^\pi$ <sup>‡</sup> |
|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|------------------------|----------------------|
| 0.0 <sup>#</sup>       | 5/2 <sup>+</sup>     | 321.9 <sup>@</sup>     | 11/2 <sup>-</sup>    | 634.6 <sup>c</sup>     | 1/2 <sup>+</sup>     | 825.5 <sup>@</sup>     | 17/2 <sup>-</sup>    |
| 83.4 <sup>#</sup>      | 7/2 <sup>+</sup>     | 325.0 <sup>#</sup>     | 11/2 <sup>+</sup>    | 654.7 <sup>#</sup>     | 15/2 <sup>+</sup>    | 827.4 <sup>e</sup>     | 7/2 <sup>+</sup>     |
| 97.4 <sup>@</sup>      | 5/2 <sup>-</sup>     | 396.4 <sup>&amp;</sup> | 9/2 <sup>+</sup>     | 681.8 <sup>d</sup>     | 5/2 <sup>-</sup>     | 851.4 <sup>#</sup>     | 17/2 <sup>+</sup>    |
| 103.2 <sup>&amp;</sup> | 3/2 <sup>+</sup>     | 477.9 <sup>@</sup>     | 13/2 <sup>-</sup>    | 694.2 <sup>c</sup>     | 5/2 <sup>+</sup>     | 876.4 <sup>b</sup>     | 9/2 <sup>+</sup>     |
| 151.6 <sup>@</sup>     | 7/2 <sup>-</sup>     | 481.0 <sup>#</sup>     | 13/2 <sup>+</sup>    | 706.6 <sup>e</sup>     | 5/2 <sup>+</sup>     | 892.4 <sup>&amp;</sup> | 15/2 <sup>+</sup>    |
| 172.9 <sup>&amp;</sup> | 5/2 <sup>+</sup>     | 537.9 <sup>&amp;</sup> | 11/2 <sup>+</sup>    | 711.5 <sup>a</sup>     | 9/2 <sup>+</sup>     | 955.0 <sup>@</sup>     | 19/2 <sup>-</sup>    |
| 193.0 <sup>#</sup>     | 9/2 <sup>+</sup>     | 569.5 <sup>a</sup>     | 7/2 <sup>+</sup>     | 716.2 <sup>&amp;</sup> | 13/2 <sup>+</sup>    | 1061.0 <sup>#</sup>    | 19/2 <sup>+</sup>    |
| 235.3 <sup>@</sup>     | 9/2 <sup>-</sup>     | 589.6 <sup>@</sup>     | 15/2 <sup>-</sup>    | 718.6 <sup>c</sup>     | 3/2 <sup>+</sup>     | 1116? <sup>&amp;</sup> | 17/2 <sup>+</sup>    |
| 269.7 <sup>&amp;</sup> | 7/2 <sup>+</sup>     | 617.9 <sup>b</sup>     | 5/2 <sup>+</sup>     | 732.6 <sup>b</sup>     | 7/2 <sup>+</sup>     | 1261.9 <sup>@</sup>    | 21/2 <sup>-</sup>    |

<sup>†</sup> From results from several reaction and not specifically the (p,2n $\gamma$ ) data.

<sup>‡</sup> From authors.

<sup>#</sup> Band(A): 5/2[413] band.

<sup>@</sup> Band(B): 5/2[532] band.

<sup>&</sup> Band(C): 3/2[411] band.

<sup>a</sup> Band(D): 7/2[404] band.

<sup>b</sup> Band(E): 5/2<sup>+</sup> band. Assigned as 5/2[413]+Q<sub>20</sub> band in Adopted Levels.

<sup>c</sup> Band(F): 1/2[420] band. Strongly mixed configuration according to 2005Bu02.

<sup>d</sup> Band(G): 3/2[541] band. Strongly mixed configuration according to 2005Bu02.

<sup>e</sup> Band(H): 5/2[402] band. According to results and analysis of particle-transfer data (2005Bu02), the level at 706.6 is expected to be highly mixed with complex configurations; and 5/2[402] strength is fragmented over many levels.

 $\gamma(^{153}\text{Eu})$ 

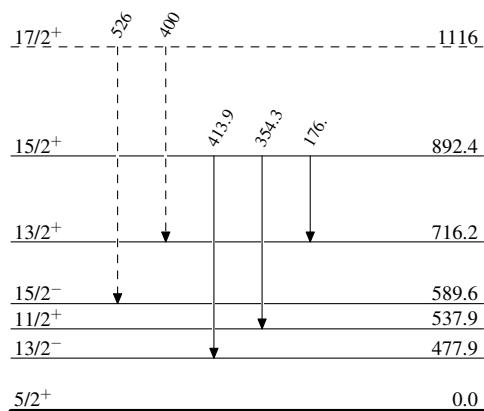
| $E_\gamma$       | $E_i(\text{level})$ | $J_i^\pi$         | $E_f$ | $J_f^\pi$         |
|------------------|---------------------|-------------------|-------|-------------------|
| 176.             | 892.4               | 15/2 <sup>+</sup> | 716.2 | 13/2 <sup>+</sup> |
| 354.3            | 892.4               | 15/2 <sup>+</sup> | 537.9 | 11/2 <sup>+</sup> |
| 400 <sup>†</sup> | 1116?               | 17/2 <sup>+</sup> | 716.2 | 13/2 <sup>+</sup> |
| 413.9            | 892.4               | 15/2 <sup>+</sup> | 477.9 | 13/2 <sup>-</sup> |
| 526 <sup>†</sup> | 1116?               | 17/2 <sup>+</sup> | 589.6 | 15/2 <sup>-</sup> |

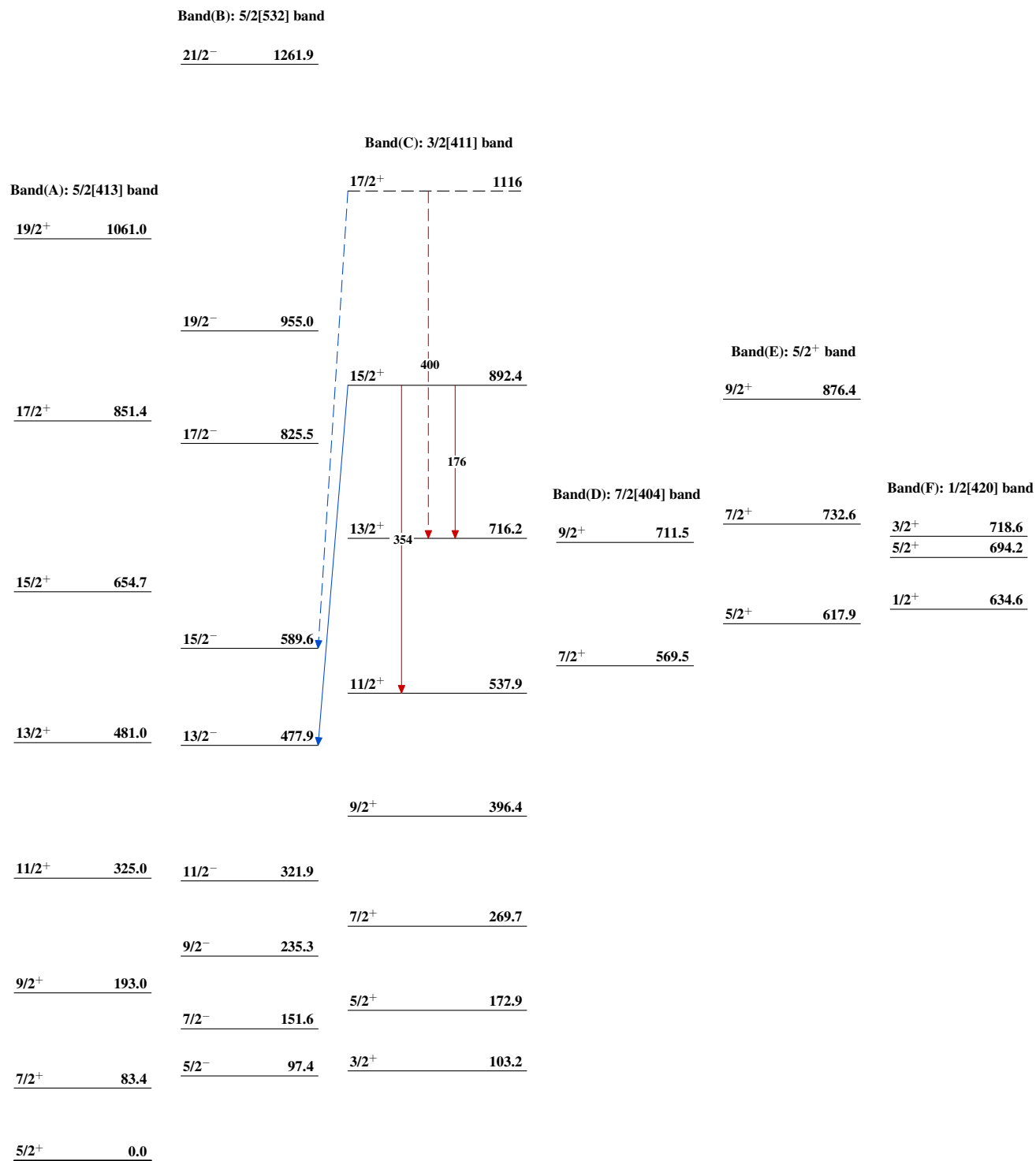
<sup>†</sup> Placement of transition in the level scheme is uncertain.

$^{154}\text{Sm}(\text{p}, 2\text{n}\gamma)$  **1984Bo13**

Legend

Level Scheme

 - - - - - ►  $\gamma$  Decay (Uncertain)

 $^{153}_{63}\text{Eu}_{90}$

$^{154}\text{Sm}(p,2n\gamma)$  1984Bo13

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 $^{154}\text{Sm}(\text{p},2\text{n}\gamma)$     **1984Bo13 (continued)**


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Band(H): 5/2[402] band

7/2<sup>+</sup>                      827.4

5/2<sup>+</sup>                      706.6

Band(G): 3/2[541] band

5/2<sup>-</sup>                      681.8

$^{153}_{63}\text{Eu}_{90}$

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