

$^{140}\text{Tb}$   $\varepsilon\text{p}$  decay (2.0 s) 2006Xu03

| Type            | Author                                      | History | Citation          | Literature Cutoff Date |
|-----------------|---------------------------------------------|---------|-------------------|------------------------|
| Full Evaluation | P. K. Joshi, B. Singh, S. Singh, A. K. Jain |         | NDS 138, 1 (2016) | 15-Oct-2016            |

Parent:  $^{140}\text{Tb}$ :  $E=0.0$ ;  $J^\pi=7^+$ ;  $T_{1/2}=2.0$  s 5;  $Q(\varepsilon\text{p})=763\times 10^1$  80;  $\% \varepsilon\text{p}$  decay=0.26 13

$^{140}\text{Tb}$ - $T_{1/2}$ : From 2006Xu03.

$^{140}\text{Tb}$ - $J^\pi$ : From 2006Xu03 based on comparison of calculated proton branches with measured values.  $7^-$  is also possible, but possible configuration= $\nu 9/2[514]\otimes \pi 5/2[532]$  is assigned to this state.

$^{140}\text{Tb}$ - $\% \varepsilon\text{p}$  decay:  $\% \varepsilon\text{p}=0.26$  13 from Adopted Levels of  $^{140}\text{Tb}$ .

2006Xu03 (also 2003Xu04):  $^{140}\text{Tb}$  produced from fusion evaporation reaction:  $^{106}\text{Cd}(^{40}\text{Ca}, \alpha\text{pn})$  at  $E=232$  MeV. Measured  $\text{p}\gamma$ -coin, lifetimes. Isotopic half-life extracted from decay curve.

 $^{139}\text{Eu}$  Levels

| E(level) | $J^\pi^\dagger$ |
|----------|-----------------|
| 0        | (11/2 $^-$ )    |
| 323.0 10 | (15/2 $^-$ )    |
| 427.0 10 | (13/2 $^-$ )    |
| 531.0 10 | (13/2 $^-$ )    |
| 877.0 15 | (19/2 $^-$ )    |

$^\dagger$  From Adopted Levels.

 $\gamma(^{139}\text{Eu})$ 

| $E_\gamma$ | $E_i(\text{level})$ | $J_i^\pi$    | $E_f$ | $J_f^\pi$    |
|------------|---------------------|--------------|-------|--------------|
| 323        | 323.0               | (15/2 $^-$ ) | 0     | (11/2 $^-$ ) |
| 427        | 427.0               | (13/2 $^-$ ) | 0     | (11/2 $^-$ ) |
| 531        | 531.0               | (13/2 $^-$ ) | 0     | (11/2 $^-$ ) |
| 554        | 877.0               | (19/2 $^-$ ) | 323.0 | (15/2 $^-$ ) |

Delayed Protons ( $^{139}\text{Eu}$ )

| $E(^{139}\text{Eu})$ | $I(\text{p})^\dagger$ | Comments                            |
|----------------------|-----------------------|-------------------------------------|
| 323.0                | 30 4                  | I(p): Normalized to 30 by 2006Xu03. |
| 427.0                | 12 3                  |                                     |
| 531.0                | 8.5 20                |                                     |
| 877.0                | <1                    |                                     |

$^\dagger$  Relative values, normalized to 30 for proton branch to 323 level (2006Xu03). Proton branch to the ground state could not be measured in this work as the data were obtained as  $\text{p}\gamma$ -coincidences.

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Decay Scheme

