

$^{158}\text{Gd}(p,p'\gamma)$ 

| Type            | Author  | History Citation  | Literature Cutoff Date |
|-----------------|---------|-------------------|------------------------|
| Full Evaluation | N. Nica | NDS 141, 1 (2017) | 1-Feb-2017             |

[2012Sc10](#), [2010Sc06](#), [2008ScZZ](#): E=21.70 5 MeV. Used (p,p' $\gamma$ ) reaction as surrogate for  $^{157}\text{Gd}(n,n'\gamma)$   $\sigma(^{158}\text{Gd})$  measurement with STARS-LiBerACE detector arrays at LBNL. Measured p $\gamma$  coin of low-lying discrete  $\gamma$  lines and statistical  $\gamma$  spectrum. The four  $\gamma$  rays are marked in Fig. 5 (c) of [2010Sc06](#). The values for the energies of both  $\gamma$  rays and levels are the rounded-off values of those in Adopted Levels, Gammas dataset;  $J^\pi$  values are also the adopted ones.

 $^{158}\text{Gd}$  Levels

| E(level) | $J^\pi$        |
|----------|----------------|
| 0.0      | 0 <sup>+</sup> |
| 79.5     | 2 <sup>+</sup> |
| 261.5    | 4 <sup>+</sup> |
| 539.0    | 6 <sup>+</sup> |
| 904.1    | 8 <sup>+</sup> |

 $\gamma(^{158}\text{Gd})$ 

| $E_\gamma$ | $E_i(\text{level})$ | $J_i^\pi$      | $E_f$ | $J_f^\pi$      |
|------------|---------------------|----------------|-------|----------------|
| 79.5       | 79.5                | 2 <sup>+</sup> | 0.0   | 0 <sup>+</sup> |
| 181.9      | 261.5               | 4 <sup>+</sup> | 79.5  | 2 <sup>+</sup> |
| 277.6      | 539.0               | 6 <sup>+</sup> | 261.5 | 4 <sup>+</sup> |
| 365.1      | 904.1               | 8 <sup>+</sup> | 539.0 | 6 <sup>+</sup> |

 $^{158}\text{Gd}(p,p'\gamma)$ Level Scheme