

¹⁵³Eu(n,γ) E=2.4 eV res **1987Ba25**

| Type | Author | History Citation | Literature Cutoff Date |
|-----------------|---------|------------------|------------------------|
| Full Evaluation | N. Nica | NDS 200,2 (2025) | 22-Aug-2022 |

Additional information 1.

These data (principally the I_γ values of the primary γ transitions) are from 2.4-eV resonance neutron capture. For experimental details, see the ¹⁵⁴Eu(n,γ) E=th data set.

¹⁵⁴Eu Levels

| E(level) [†] | J ^π & | E(level) [†] | J ^π & | E(level) [†] | J ^π & | E(level) [†] | J ^π & |
|-----------------------|--------------------------------|-----------------------|------------------|-----------------------|------------------|-------------------------|------------------|
| 0.0 [‡] | 3 ⁻ | 214.14 11 | 3 ⁻ | 402.0 5 | | 485.12 16 | |
| 80.90 12 | 4 ⁻ | 235.7 6 | 4 ⁻ | 408.23 19 | | 514.82 18 | |
| 98.37 25 | 3 ⁺ | 250.3 6 | | 419.3 3 | 2 ⁻ | 522.8 5 | 3 ⁺ |
| 129.11 24 | | 327.96 17 | | 424.6 10 | | 572.0 3 | 4 ⁻ |
| 162.68 16 | 1 ⁻ | 334.4 3 | | 429.1 5 | | 583.88 15 | 3 ⁻ |
| 173.34 11 | 3 ⁻ | 341.93 11 | | 467.1 5 | 4 ⁻ | 592.58 13 | |
| 186.6 7 | 2 ⁺ | 349.5 8 | 2 ⁺ | 471.59 18 | | 599.38 15 | 2 ⁻ |
| 204.2 3 | 3 ⁺ ,4 ⁺ | 390.30 11 | | 478.54 14 | 3 ⁻ | 6442.22 [#] 24 | 3 ⁺ @ |

[†] From 2-keV resonance-averaged n capture.

[‡] Level not reported as being populated directly by a primary γ from this capture state.

[#] n-capture state. Listed value is S(n), without adding the 2.4-eV resonance energy.

@ s-wave capture by the ¹⁵³Eu (J^π=5/2⁺) g.s. indicates J^π=2⁺,3⁺. From n-resonance studies, J^π=3⁺ is indicated (see 2006MuZX).

& From 1987Ba52 and based on all neutron-capture data available, namely, with thermal, 2-keV resonance-averaged, 2.4-eV resonance, and 3.3-eV resonance neutrons. In several cases, a level represents two or three levels reported in thermal-neutron capture. In these cases, the J^π values are not listed. They can be found in the Adopted Levels data set.

γ(¹⁵⁴Eu)

| E _γ [†] | I _γ [‡] | E _i (level) | J _i ^π | E _f | J _f ^π | E _γ [†] | I _γ [‡] | E _i (level) | J _i ^π | E _f | J _f ^π |
|-----------------------------|-----------------------------|------------------------|-----------------------------|----------------|-----------------------------|-----------------------------|-----------------------------|------------------------|-----------------------------|----------------|--------------------------------|
| 5842.8 | 6.8 12 | 6442.22 | 3 ⁺ | 599.38 | 2 ⁻ | 6051.9 | 23.8 12 | 6442.22 | 3 ⁺ | 390.30 | |
| 5849.6 | 43.3 26 | 6442.22 | 3 ⁺ | 592.58 | | 6092.7 | 5.0 7 | 6442.22 | 3 ⁺ | 349.5 | 2 ⁺ |
| 5858.3 | 2.4 12 | 6442.22 | 3 ⁺ | 583.88 | 3 ⁻ | 6100.3 | 22.1 11 | 6442.22 | 3 ⁺ | 341.93 | |
| 5870.2 | 14.0 13 | 6442.22 | 3 ⁺ | 572.0 | 4 ⁻ | 6107.8 | 5.7 9 | 6442.22 | 3 ⁺ | 334.4 | |
| 5919.4 | 15.9 20 | 6442.22 | 3 ⁺ | 522.8 | 3 ⁺ | 6114.2 | 23.8 13 | 6442.22 | 3 ⁺ | 327.96 | |
| 5927.4 | 3.8 14 | 6442.22 | 3 ⁺ | 514.82 | | 6191.9 | 1.8 6 | 6442.22 | 3 ⁺ | 250.3 | |
| 5957.1 | 7.3 10 | 6442.22 | 3 ⁺ | 485.12 | | 6206.5 | 26.9 13 | 6442.22 | 3 ⁺ | 235.7 | 4 ⁻ |
| 5963.7 | 14.6 16 | 6442.22 | 3 ⁺ | 478.54 | 3 ⁻ | 6228.1 | 10.4 9 | 6442.22 | 3 ⁺ | 214.14 | 3 ⁻ |
| 5970.6 | 3.5 13 | 6442.22 | 3 ⁺ | 471.59 | | 6238.0 | 2.7 5 | 6442.22 | 3 ⁺ | 204.2 | 3 ⁺ ,4 ⁺ |
| 5975.1 | 5.8 9 | 6442.22 | 3 ⁺ | 467.1 | 4 ⁻ | 6255.6 | 16.1 13 | 6442.22 | 3 ⁺ | 186.6 | 2 ⁺ |
| 6013.1 | 7.2 16 | 6442.22 | 3 ⁺ | 429.1 | | 6268.9 | 4.5 7 | 6442.22 | 3 ⁺ | 173.34 | 3 ⁻ |
| 6017.6 | 8 4 | 6442.22 | 3 ⁺ | 424.6 | | 6279.5 | 2.0 6 | 6442.22 | 3 ⁺ | 162.68 | 1 ⁻ |
| 6022.9 | 22 3 | 6442.22 | 3 ⁺ | 419.3 | 2 ⁻ | 6313.1 | 14.4 14 | 6442.22 | 3 ⁺ | 129.11 | |
| 6034.0 | 8.6 10 | 6442.22 | 3 ⁺ | 408.23 | | 6343.8 | 6.8 6 | 6442.22 | 3 ⁺ | 98.37 | 3 ⁺ |
| 6040.2 | 14.5 11 | 6442.22 | 3 ⁺ | 402.0 | | 6361.3 | 23.7 12 | 6442.22 | 3 ⁺ | 80.90 | 4 ⁻ |

[†] Nominal values for primary γ's only, computed from the difference of the capture-state energy (6442.2) and the respective final-state energy.

[‡] Values are those from 1987Ba52, divided by 10.

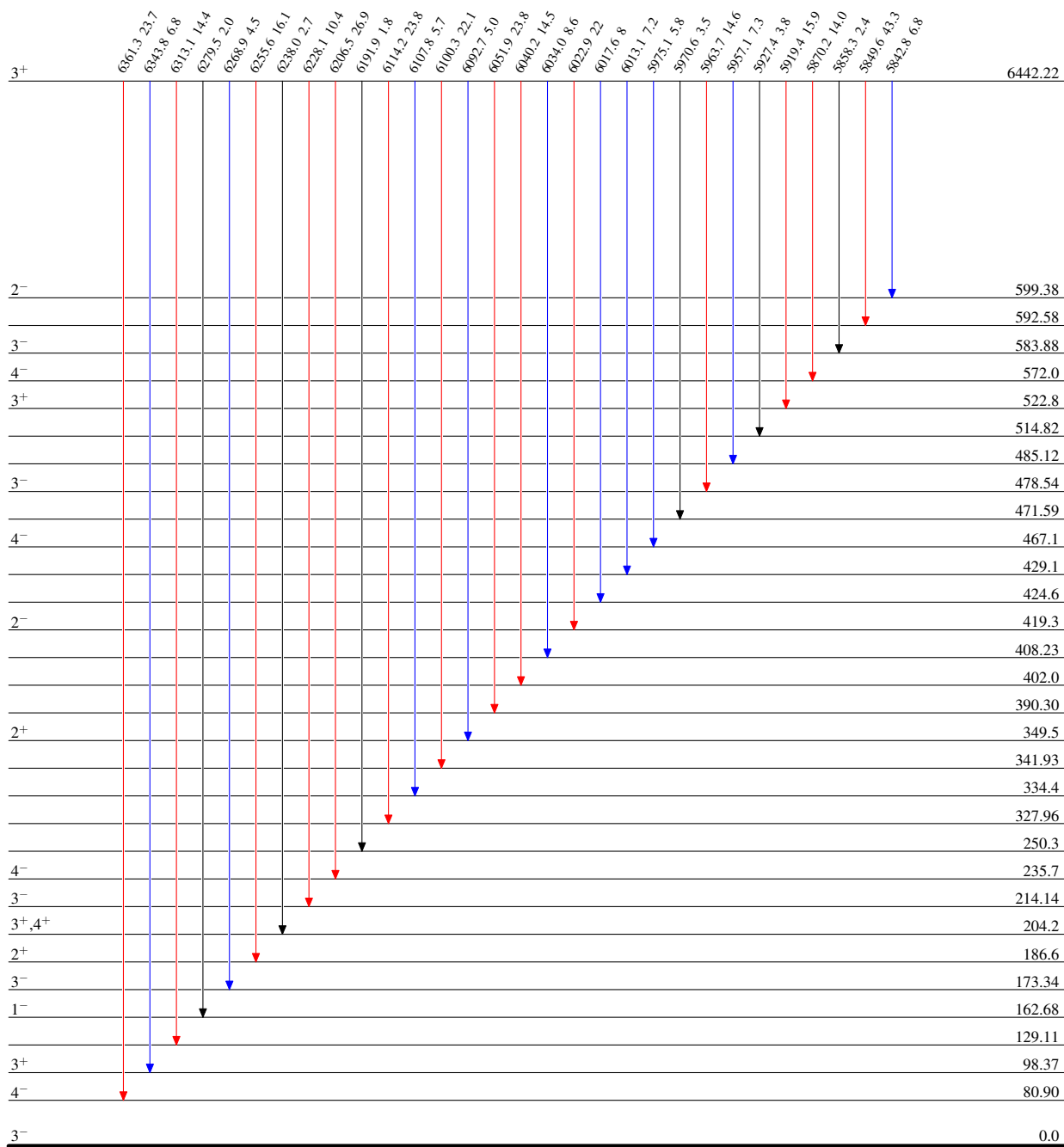
$^{153}\text{Eu}(n,\gamma) E=2.4 \text{ eV res}$ 1987Ba25

Level Scheme

Intensities: Type not specified

Legend

- $I_\gamma < 2\% \times I_\gamma^{\text{max}}$
- $I_\gamma < 10\% \times I_\gamma^{\text{max}}$
- $I_\gamma > 10\% \times I_\gamma^{\text{max}}$

 $^{154}_{63}\text{Eu}_{91}$