

^{252}Cf SF decay 1997Do20

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	N. Nica	NDS 176, 1 (2021)	1-May-2021

Parent: ^{252}Cf : $E=0$; $J^\pi=0^+$; $T_{1/2}=2.645$ y 8; %SF decay=?

Additional information 1.

1997Do20: ^{160}Sm produced as a product of the ^{252}Cf SF decay. Excited levels studied via the deexcitation of the highly excited nucleus, as formed in the fission process. Deexciting γ 's measured using 72 large-volume Compton-suppressed Ge detectors and two x-ray detectors in the Gammasphere array. X γ coincidences also measured using two high-resolution x-ray and two large-volume Compton-suppressed Ge detectors in a close geometry. Measured E γ , X $\gamma\gamma$, $\gamma\gamma$ and XX coincidences. Report yrast (g.s. band) levels up to the 8^+ level, with the 10^+ level shown as questionable.

This information also appears in 1997Ha64, albeit with a slightly different energy for the (10^+) level.

No I γ values are reported for the γ 's.

 ^{160}Gd Levels

E(level) [†]	J $^\pi$ [‡]	Comments
0 [#]	0 ⁺	
75.3 [#]	2 ⁺	
248.5 [#]	4 ⁺	
514.8 [#]	6 ⁺	
870.9 [#]	8 ⁺	
1307.0? [#]	10 ⁺	E(level): This differs from that reported in Coul. ex. because of the different E γ value given there.

[†] Computed from the listed E γ values.

[‡] Values assigned by 1997Do20, based on considerations of rotational-band structure and the deexcitation characteristics of the highly excited, high-spin, states produced in the spontaneous-fission process. These are the same as the Adopted Values (see the comment on the 10^+ level).

[#] Band(A): g.s. (yrast) band.

 $\gamma(^{160}\text{Gd})$

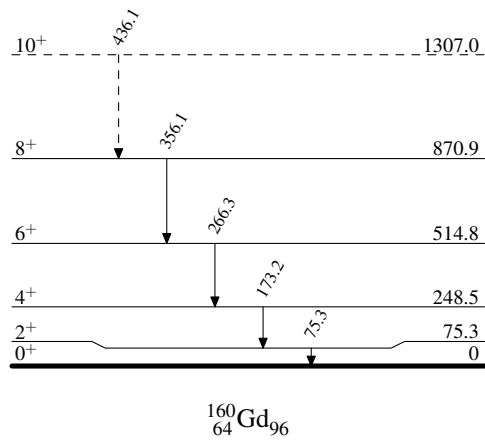
E γ	E $_i$ (level)	J $_i^\pi$	E $_f$	J $_f^\pi$	Comments
75.3	75.3	2 ⁺	0	0 ⁺	
173.2	248.5	4 ⁺	75.3	2 ⁺	
266.3	514.8	6 ⁺	248.5	4 ⁺	
356.1	870.9	8 ⁺	514.8	6 ⁺	
436.1 [†]	1307.0?	10 ⁺	870.9	8 ⁺	E γ : from 1997Do20. γ is shown as questionable there. 1997Ha64 (having many of the same authors as 1997Do20) report E γ =438 and not as questionable. E γ reported as 433 in Coul. ex.

[†] Placement of transition in the level scheme is uncertain.

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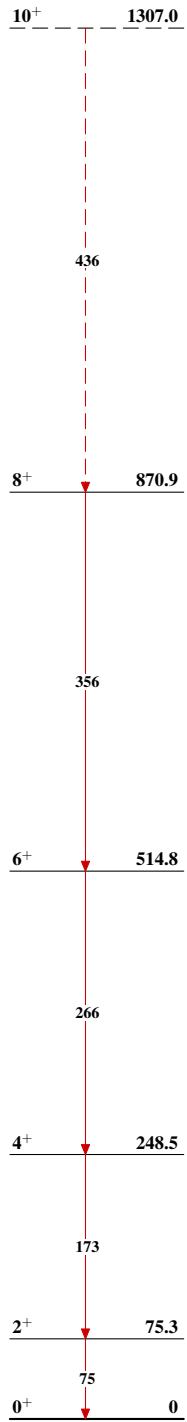
Legend

Level Scheme

-----► γ Decay (Uncertain)

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Band(A): g.s. (yrast)
band



$^{160}_{64}\text{Gd}_{96}$