Adopted Levels

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

Q(β^-)=4448.6 *14*; S(n)=5521 *4*; S(p)=8575 *6*; Q(α)=−1751.5 *15* 2021Wa16
S(2n)=12365.6 *22*, S(2p)=18965.2 *13* (2021Wa16).
2020Or03 compiled for the XUNDL database by E.A. McCutchan (NNDC,BNL).
Production:
^{160}Gd(n,p), E(n)=14.8 MeV; enriched target. Assignment based on observation of 75- and 173-keV gammas in ^{160}Gd (1973Da05,1973Mo18).
^{252}Cf SF decay; chemical separation (1982Ba76).
^{235}U(n,F); on-line isotope separation (1986Ma12).
^{252}Cf SF decay (2018Ha19, 2020Or03); fission fragments from CARIBU facility thermalized in a He gas catcher, separated with an isobar separator and implanted for measurement on a moving tape system. Measured masses and excitation energies of isomers using Canadian Penning Trap (phase-imaging ion-cyclotron-resonance technique).

^{160}Eu Levels

E(level)	J$^\pi$[†]	T$_{1/2}$[‡]	Comments
0.0	(5$^-$)	42.6 s *5*	%β^-=100 J$^\pi$: Direct β-decay feeding to the (5$^-$) level at 1999 keV in the daughter ^{160}Gd nucleus and the proposed configuration. T$_{1/2}$: From summed β-γ(t) spectra using 413γ, 516γ, 822γ and 995γ (2018Ha19). Other values: 41 s *4* (1982Ba76), 50 s *10* (1973Da05), 53 s *10* (1973Mo18). configuration: K^π=5$^-$, π5/2[413]⊗ν5/2[523] (2018Ha19, 2020Or03).
93.0 *12*	(1$^-$)	30.8 s *5*	%β^-=100 E(level): From directly measured masses in 2018Ha19 and 2020Or03 (ME(^{160m}Eu)=−63400.4 keV *8* and ME(^{160}Eu)=−63493.4 keV *9*). J$^\pi$: Direct β-decay feeding to 2$^+$ structures in the daughter ^{160}Gd nucleus and the proposed configuration. J=1 is sustained from observation of β^- transitions having log ft<7.4 (log $f^{1u}t$<8.5) to 0$^+$ and 2$^+$ states in ^{160}Gd. T$_{1/2}$: From summed β-γ(t) spectra using 1088γ, 1188γ, 1276γ, 1351γ, 2278γ, 2287γ and 2464γ in 2018Ha19. Other value: 31 s *4* (1986Ma12). configuration: K^π=0$^-$, π5/2[413]⊗ν5/2[523] (2018Ha19, 2020Or03).

[†] The Gallagher-Moszkowski rules suggest that the g.s. in ^{160}Eu would have K(=J)=5 that is confirmed by the 42.6 *5* s activity discovered by 2018Ha19. The 30.8 s *5* activity also discovered by 2018Ha19 is associated by them with the K=0, J=1, 93.0 keV isomer decay. Both g.s and isomer have π=−. Previously J=1 was assigned to a 38 s *4* g.s. decay (2005Re18).
[‡] Before 2018Ha19 the following values were measured whose weighted average of 38 s *4* had been uniquely assigned to the J=1 g.s. decay (2005Re05) (which now are split in the table between the two listed levels): 31 s *4* (1986Ma12), 41 s *4* (1982Ba76), 50 s *10* (1973Da05), 53 s *10* (1973Mo18). Other: ≈2.5 min (1961Ta08).