Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh	NDS 110, 1 (2009)	20-Nov-2008

Q(β^-)=5555 *21*; S(n)=4450 *21*; S(p)=1.24×10^4 *4*; Q(α)=−3.39×10^3 *3* 2017Wa10
S(2n)=10698 *21*; S(2p)=2.27×10^4 *4* 2017Wa10
Additional information 1.
^{151}Ce produced by 2006Ko25 from thermal neutron-induced fission of ^{235}U (93% enriched) followed by on-line mass separation at KURISOL facility in Kyoto.
Mass separated fission product from spontaneous fission of ^{252}Cf (1969WiZX). Atomic number is securely known from (x ray)γ coin but mass assignment allows 149, 150, 151. Subsequent work identified 4.0-s ^{150}Ce and 5.2-s ^{149}Ce, thus establishing ^{151}Ce by elimination, none of the γ rays assigned to the decay of ^{151}Ce by 1969WiZX has been confirmed by 2006Ko25. Thus the activity observed by 1969WiZX does not belong to the decay of the g.s. of ^{151}Ce. It is possible that the 1.02-s activity is connected with an isomer of ^{151}Ce.
Mass measurement (Penning-trap method): 2006Sa56 (also 2004Cl07).
Additional information 2.

^{151}Ce Levels

Cross Reference (XREF) Flags

A ^{248}Cm SF decay

E(level)†	Jπ‡	$T_{1/2}$	XREF	Comments
0.0	(5/2$^+$)	1.76 s *6*	A	%β^-=100 Jπ: possible 5/2[642] state from $\nu i_{13/2}$ orbital as suggested by systematics of N=93 isotones (1997Ho11). $T_{1/2}$: From time decay of several γ rays from ^{151}Ce decay (2006Ko25). Other: 1.02 s *6* (1969WiZX), from time decay of 84.79γ an 118.57γ, but none of these γ rays is confirmed by 2006Ko25 as belonging to ^{151}Ce decay. The 1.02 s activity may possibly belong to an isomer of ^{151}Ce which is not populated in the production method used by 2006Ko25.
0+x?		1.02 s *6*		%β^-=? E(level),$T_{1/2}$: Tentative assignment from 1969WiZX and 1970WiZN from ^{252}Cf SF decay. The evaluator assumes this to be an isomer of ^{151}Ce.
75.3# *2*	(7/2$^+$)		A	
166.0# *2*	(9/2$^+$)		A	
285.8# *3*	(11/2$^+$)		A	
409.7# *3*	(13/2$^+$)		A	
573.6# *4*	(15/2$^+$)		A	
724.8# *4*	(17/2$^+$)		A	
930.5# *4*	(19/2$^+$)		A	
1104.6# *5*	(21/2$^+$)		A	
1348.8# *5*	(23/2$^+$)		A	
1543.2# *6*	(25/2$^+$)		A	
1823.4# *6*	(27/2$^+$)		A	
2036.6# *6*	(29/2$^+$)		A	
2581.8# *7*	(33/2$^+$)		A	

Continued on next page (footnotes at end of table)

Adopted Levels, Gammas (continued)

^{151}Ce Levels (continued)

† From least-squares fit to Eγ′s, assuming Δ(Eγ)=0.3 keV for each γ ray.
‡ Possible assignment to 5/2[642] band (1997Ho11). Since 75.2γ and 90.6γ are not E1, the band is an alternating-parity band.
# Band(A): ν5/2[642] band (?). Tentative assignment, the band shows signature splitting.

γ(^{151}Ce)

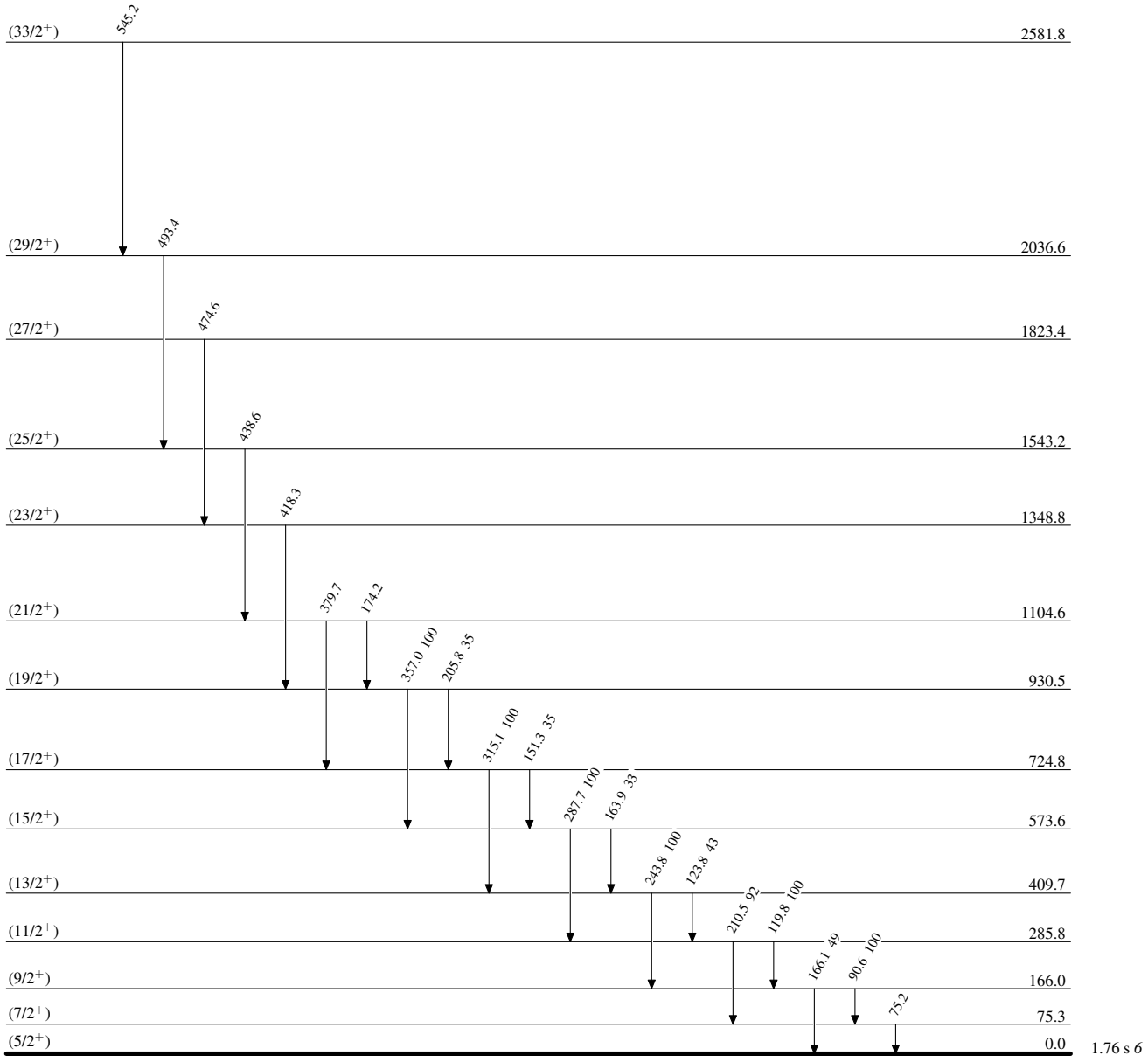
E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π	E_i(level)	J_i^π	E_γ†	I_γ†	E_f	J_f^π
75.3	(7/2$^+$)	75.2		0.0	(5/2$^+$)	724.8	(17/2$^+$)	315.1	100 *3*	409.7	(13/2$^+$)
166.0	(9/2$^+$)	90.6	100 *4*	75.3	(7/2$^+$)	930.5	(19/2$^+$)	205.8	35 *7*	724.8	(17/2$^+$)
		166.1	49 *4*	0.0	(5/2$^+$)			357.0	100 *7*	573.6	(15/2$^+$)
285.8	(11/2$^+$)	119.8	100 *8*	166.0	(9/2$^+$)	1104.6	(21/2$^+$)	174.2		930.5	(19/2$^+$)
		210.5	92 *8*	75.3	(7/2$^+$)			379.7		724.8	(17/2$^+$)
409.7	(13/2$^+$)	123.8	43 *3*	285.8	(11/2$^+$)	1348.8	(23/2$^+$)	418.3		930.5	(19/2$^+$)
		243.8	100 *3*	166.0	(9/2$^+$)	1543.2	(25/2$^+$)	438.6		1104.6	(21/2$^+$)
573.6	(15/2$^+$)	163.9	33 *5*	409.7	(13/2$^+$)	1823.4	(27/2$^+$)	474.6		1348.8	(23/2$^+$)
		287.7	100 *5*	285.8	(11/2$^+$)	2036.6	(29/2$^+$)	493.4		1543.2	(25/2$^+$)
724.8	(17/2$^+$)	151.3	35 *3*	573.6	(15/2$^+$)	2581.8	(33/2$^+$)	545.2		2036.6	(29/2$^+$)

† From ^{248}Cm SF decay.

Adopted Levels, Gammas

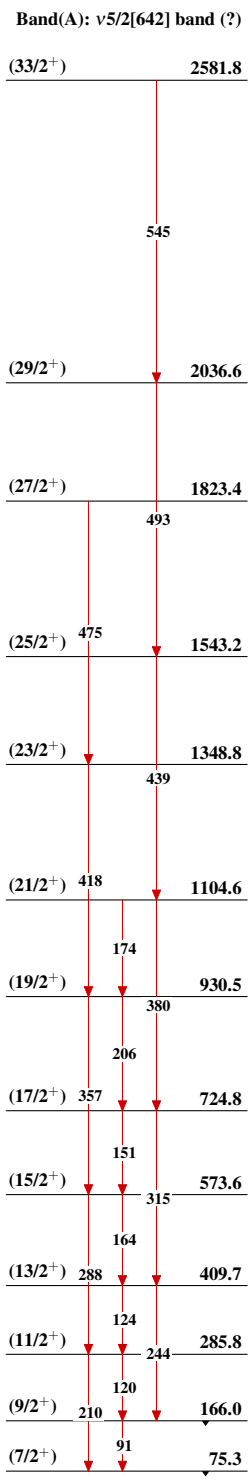
Level Scheme

Intensities: Relative photon branching from each level



$^{151}_{58}Ce_{93}$

Adopted Levels, Gammas



$^{151}_{58}Ce_{93}$