Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	C. W. Reich	NDS 113, 2537 (2012)	1-Mar-2012

Q(β^-)=−9.57×10^3 *5*; S(n)=10834 *19*; S(p)=3929 *14*; Q(α)=4810 *4* 2017Wa10
Q(ε)=3569 *13*; S(2n)=19476 *19*; S(2p)=5239 *14*; Q(εp)=1655 *11* 2017Wa10
Additional information 1.
Unless noted otherwise, data are from the ^{144}Sm(^{16}O,4nγ) reaction.

^{156}Yb Levels

Cross Reference (XREF) Flags

A ^{144}Sm(^{16}O,4nγ)
B ^{160}Hf α decay

E(level)	J$^\pi$	T$_{1/2}$	XREF	Comments
0[†]	0$^+$	26.1 s *7*	AB	%α=10 *2*; %ε+%β^+=90 *2* T$_{1/2}$: Weighted average of 25.8 s *10* (1977Ha48) and 26.7 s *6* (1980AfZZ) from α counting and 23.6 s *13* (1983Ml01) from counting α's and γ's following ε decay. Others: 24 s *1* (1970ToZS) and 23 s 1 (1982To14), both by the same authors as those of 1983Ml01. %α: Weighted average of 21 *6* (1979Ho10), 9 *2* (1983Ml01), and 10 *+5−2* (1984GaZY). Δ<r^2>(158-156)=0.235 and Δ<r^2>(156-154)=0.274 (values are from differences of values reported in 1994Ma57, but based on isotope shift data from 1989Sp04). Uncertainties propagated from data in 1994Ma57 are ≈0.06, but the unstated correlation terms would reduce these uncertainties by a large factor. The same Δ<r^2> data are given in plot form in 1990Sp05 and 1991Ho27. Others: Δ<r^2>(158-156)≈0.23 fm^2 (1987NeZW, obtained from graph by evaluator) and related λ values in the compilation by 1987Au06 and references therein. From an evaluation of data on nuclear rms charge radii, 2004An14 report <r^2>$^{1/2}$=5.116 fm *13*.
536.0[†]	2$^+$		A	J$^\pi$: E2 γ to 0$^+$.
1143.2[†]	4$^+$		A	J$^\pi$: E2 γ to 2$^+$ and expected band structure.
1728.0[†]	6$^+$		A	J$^\pi$: E2 γ to 4$^+$ and expected band structure.
2271.8[†]	8$^+$		A	J$^\pi$: E2 γ to 6$^+$ and expected band structure.
2955.5[†]	10$^+$		A	J$^\pi$: E2 γ to 8$^+$ and expected band structure.
3027.3[‡]	11$^-$	6.0 ns *5*	A	probable conf is ((ν i$_{13/2}$)(ν h$_{9/2}$))$_{11-}$. J$^\pi$: E1 γ to 10$^+$ and $\gamma(\theta)$.
3570.1[†]	12$^+$		A	J$^\pi$: Q γ to 10$^+$ and expected band structure.
3815.1[‡]	13$^-$		A	J$^\pi$: E2 γ to 11$^-$ and expected band structure.
4090.4[†]	14$^+$		A	J$^\pi$: γ to 12$^+$ and expected band structure.
4474.2[‡]	15$^-$		A	J$^\pi$: E2 γ to 13$^-$ level and expected band structure.
4732.3[†]	16$^+$		A	J$^\pi$: γ to 14$^+$ level and expected band structure.
4789.2			A	
4974.2[‡]	17$^-$		A	J$^\pi$: E2 γ to 15$^-$ level and expected band structure.
5284.8			A	
5464.2[†]	18$^+$		A	J$^\pi$: γ to 16$^+$ level and expected band structure.
5574.8[‡]	19$^-$		A	J$^\pi$: E2 γ to 17$^-$ level and expected band structure.
6197.5[†]	(20$^+$)		A	J$^\pi$: γ to 18$^+$ level and expected band structure.
6221.6[‡]	21$^-$		A	J$^\pi$: E2 γ to 19$^-$ level and expected band structure.
6844.3			A	

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Adopted Levels, Gammas (continued)

^{156}Yb Levels (continued)

E(level)	J^π	XREF	Comments
7028.4‡	23^-	A	J^π: E2 γ to 21^- level and expected band structure.
7403.8‡	25^-	A	J^π: E2 γ to 23^- level and expected band structure.
7774.2		A	
8028.3		A	
8369.0		A	
8697.3		A	
8774.3		A	
8930.5		A	
9245.8		A	
9306.8		A	
10231.9		A	

† Band(A): $K^\pi=0^+$ g.s. band.
‡ Band(B): Odd-spin, negative-parity band Possible conf is $((\nu\, f^2_{7/2})(\pi\, h^2_{11/2}))\otimes((\nu\, i_{13/2})\ (\nu\, h_{9/2}))_{11-}$.

$\gamma(^{156}$Yb)

E_i(level)	J^π_i	E_γ	I_γ	E_f	J^π_f	Mult.†	α‡	Comments
536.0	2^+	536.0	100	0	0^+	E2		
1143.2	4^+	607.2	100	536.0	2^+	E2		
1728.0	6^+	584.8	100	1143.2	4^+	E2		
2271.8	8^+	543.8	100	1728.0	6^+	E2		
2955.5	10^+	683.7	100	2271.8	8^+	E2		
3027.3	11^-	71.8	100	2955.5	10^+	E1(+M2)	0.809	B(E1)(W.u.)=5.8×10^{-5} *6* δ: See the discussion of the δ value for this transition in the high-spin data set. α: Value for a pure E1 transition.
3570.1	12^+	614.6	100	2955.5	10^+			
3815.1	13^-	787.8	100	3027.3	11^-	E2		
4090.4	14^+	520.3	100	3570.1	12^+			
4474.2	15^-	659.1	100	3815.1	13^-	E2		
4732.3	16^+	641.9	100	4090.4	14^+			
4789.2		315.0	100	4474.2	15^-			
4974.2	17^-	185.0		4789.2				
		500.0	100	4474.2	15^-	E2		
5284.8		310.6	100	4974.2	17^-	E2		
5464.2	18^+	731.9	100	4732.3	16^+			
5574.8	19^-	290.0	13.7 *4*	5284.8				
		600.6	100 *3*	4974.2	17^-	E2		
6197.5	(20^+)	733.3	100	5464.2	18^+			
6221.6	21^-	646.8	100	5574.8	19^-	E2		
6844.3		622.7	100	6221.6	21^-			
7028.4	23^-	184.1		6844.3				
		806.8	100	6221.6	21^-	E2		
7403.8	25^-	375.4	100	7028.4	23^-	E2		
7774.2		370.4	100	7403.8	25^-			
8028.3		624.5	100	7403.8	25^-	D		
8369.0		965.2	100	7403.8	25^-			
8697.3		923.1	100	7774.2				
8774.3		405.3	100	8369.0				
8930.5		156.2	100	8774.3				
9245.8		315.3	100	8930.5				

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Adopted Levels, Gammas (continued)

$\gamma(^{156}Yb)$ (continued)

E_i(level)	E_γ	I_γ	E_f
9306.8	1278.5	100	8028.3
10231.9	925.1	100	9306.8

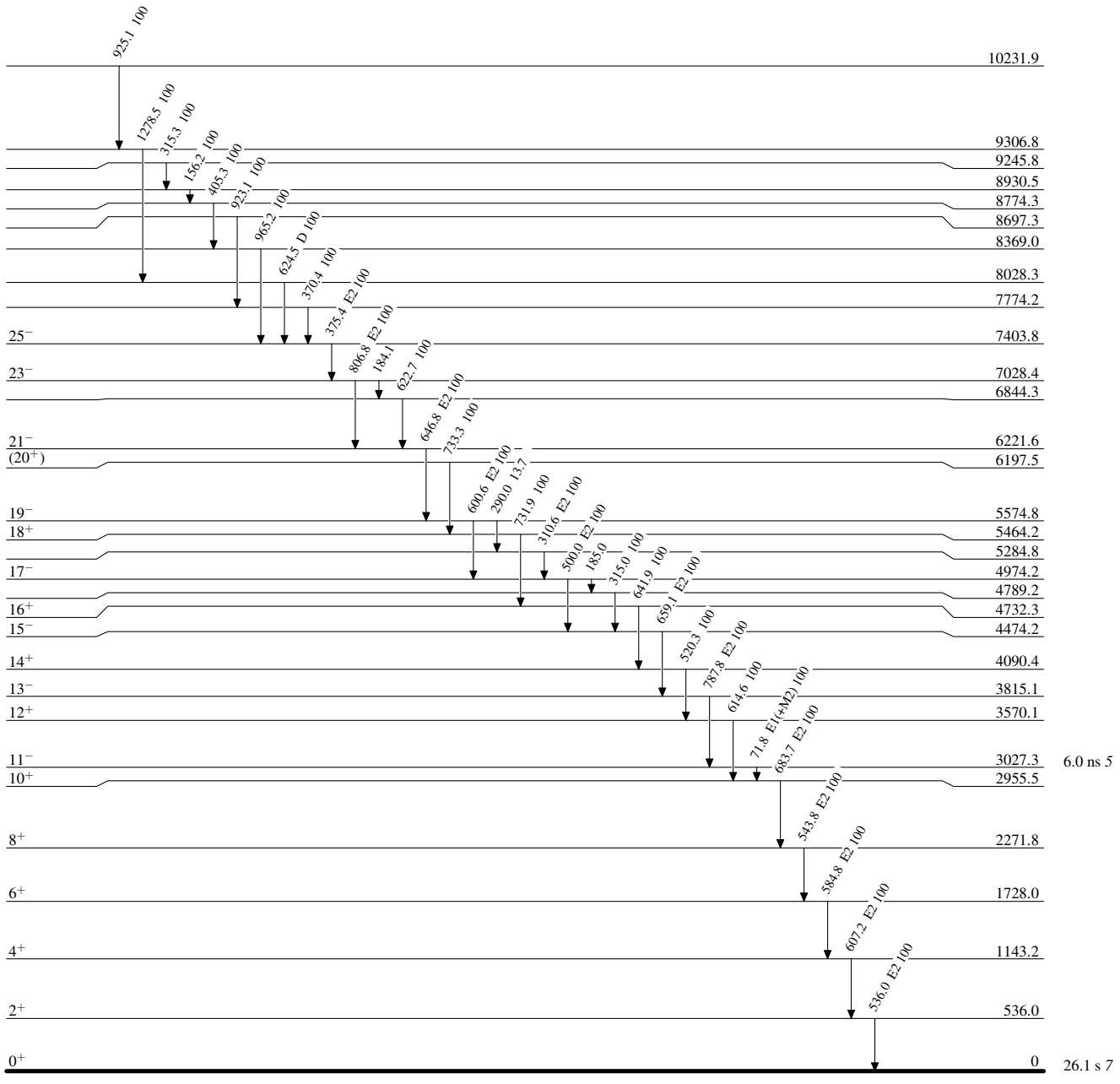
† From $^{144}Sm(^{16}O,4n\gamma)$, (1981Li09).

‡ Total theoretical internal conversion coefficients, calculated using the BrIcc code (2008Ki07) with Frozen orbital approximation based on γ-ray energies, assigned multipolarities, and mixing ratios, unless otherwise specified.

Adopted Levels, Gammas

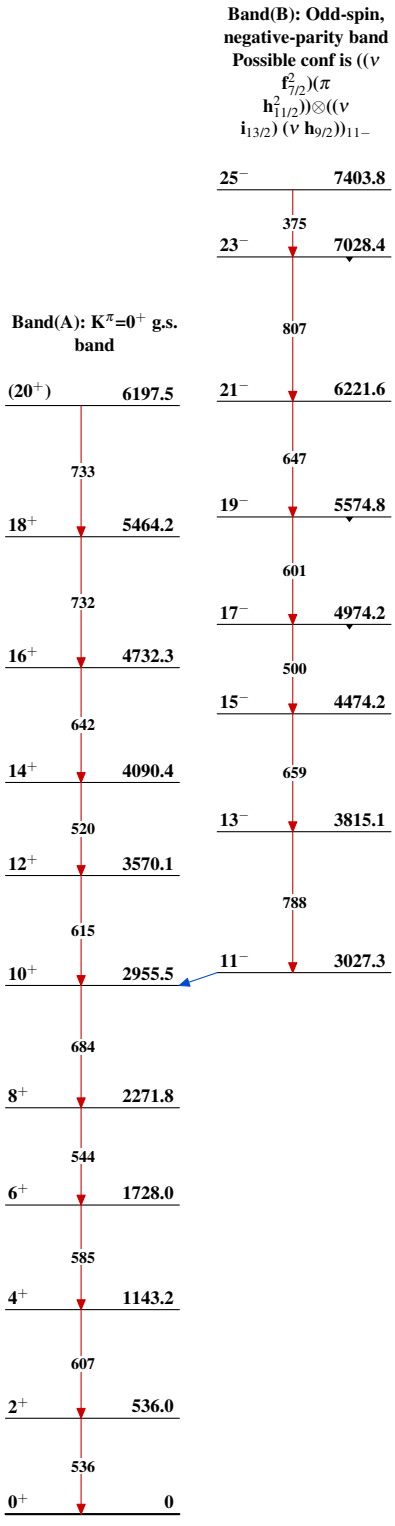
Level Scheme

Intensities: Relative photon branching from each level



$^{156}_{70}Yb_{86}$

Adopted Levels, Gammas



$^{156}_{70}Yb_{86}$