Adopted Levels, Gammas

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	D. De Frenne	NDS 110,2081 (2009)	1-Mar-2009

Q(β^-)=7204 *11*; S(n)=4299 *13*; S(p)=13937 *11*; Q(α)=−7734 *10* 2012Wa38
Note: Current evaluation has used the following Q record $ 6950 *90* 4.70E3 121.377E4 14 −861E1 13 2003Au03.
Q(β^-) =7501 *70* (2007Ha32) using Penning trap at IGISOL.
Produced by U(p,f) (1996Lh04) and ^{238}U(α,Fγ) (2004Hu02). Mass-separated source.

^{103}Zr Levels

Cross Reference (XREF) Flags

- A ^{252}Cf SF decay
- B ^{248}Cm SF decay
- C ^{103}Y β^- decay
- D ^{238}U(α,Fγ)

E(level)†	J$^\pi$‡	$T_{1/2}$	XREF	Comments
0.0@	(5/2$^-$)	1.3 s *1*	ABCD	%β^-=100 J$^\pi$: From Zr systematics. Suggested Nilsson configuration: 5/2[532] (2004Hu02). No direct measurement of J$^\pi$ performed. $T_{1/2}$: from decay curves of the most intense γ transitions in ^{103}Zr β^- decay (1980ScZZ). Although the authors no longer support the relative intensities for the γ rays, they state that the $T_{1/2}$ value is still valid.
109.1& *3*	(7/2$^-$)	<3 ns	BCD	$T_{1/2}$: from $\beta\gamma\gamma$(t) using 109.1γ.
256.5@	(9/2$^-$)		B D	
258.9 *3*	(3/2$^+$)#		C	
357.1 *4*	(5/2$^+$)#	<3 ns	C	$T_{1/2}$: from $\beta\gamma\gamma$(t) using 98.2γ.
428.0&	(11/2$^-$)		B D	
657.3@	(13/2$^-$)		B D	
882.2&	(15/2$^-$)		B D	
1211.7@	(17/2$^-$)		D	
1473.3&	(19/2$^-$)		D	
1914.0@	(21/2$^-$)		D	
2196.5&	(23/2$^-$)		D	
3048.5&	(27/2$^-$)		D	
4028.0&	(31/2$^-$)		D	

† From least-squares fit to Adopted gammas energies.
‡ J values are based on observed band structure, Nilsson diagram for neutrons, syst for deformation parameters and level systematics in ^{101}Rb and ^{105}Nb.
# Suggested from γ decay pattern.
@ Band(A): ν5/2[532], α=+1/2 (2004Hu02).
& Band(a): ν5/2[532], α=−1/2 (2004Hu02).

Adopted Levels, Gammas (continued)

$\gamma(^{103}Zr)$

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
109.1	$(7/2^-)$	109.1 *3*	100	0.0	$(5/2^-)$	882.2	$(15/2^-)$	224.8 *7*	59	657.3	$(13/2^-)$
256.5	$(9/2^-)$	146.8 *7*	100	109.1	$(7/2^-)$			454.4 *7*	100	428.0	$(11/2^-)$
		256.6 *7*	20	0.0	$(5/2^-)$	1211.7	$(17/2^-)$	328.1		882.2	$(15/2^-)$
258.9	$(3/2^+)$	258.9 *3*	100	0.0	$(5/2^-)$			552.7		657.3	$(13/2^-)$
357.1	$(5/2^+)$	98.2 *3*	100 *17*	258.9	$(3/2^+)$	1473.3	$(19/2^-)$	261.6		1211.7	$(17/2^-)$
		248‡	67	109.1	$(7/2^-)$			589.7		882.2	$(15/2^-)$
		357‡		0.0	$(5/2^-)$	1914.0	$(21/2^-)$	702.3		1211.7	$(17/2^-)$
428.0	$(11/2^-)$	172.0 *7*	100	256.5	$(9/2^-)$	2196.5	$(23/2^-)$	723.2		1473.3	$(19/2^-)$
		318.8 *7*	92	109.1	$(7/2^-)$	3048.5	$(27/2^-)$	852.0		2196.5	$(23/2^-)$
657.3	$(13/2^-)$	229.6 *7*	95	428.0	$(11/2^-)$	4028.0	$(31/2^-)$	979.5		3048.5	$(27/2^-)$
		401.6 *7*	100	256.5	$(9/2^-)$						

† Weighted average of data taken from ^{103}y β^- decay, ^{248}Cm SF decay or ^{238}U(α,Fγ), unless noted otherwise. Intensities given are relative γ branchings from each level.

‡ Placement of transition in the level scheme is uncertain.

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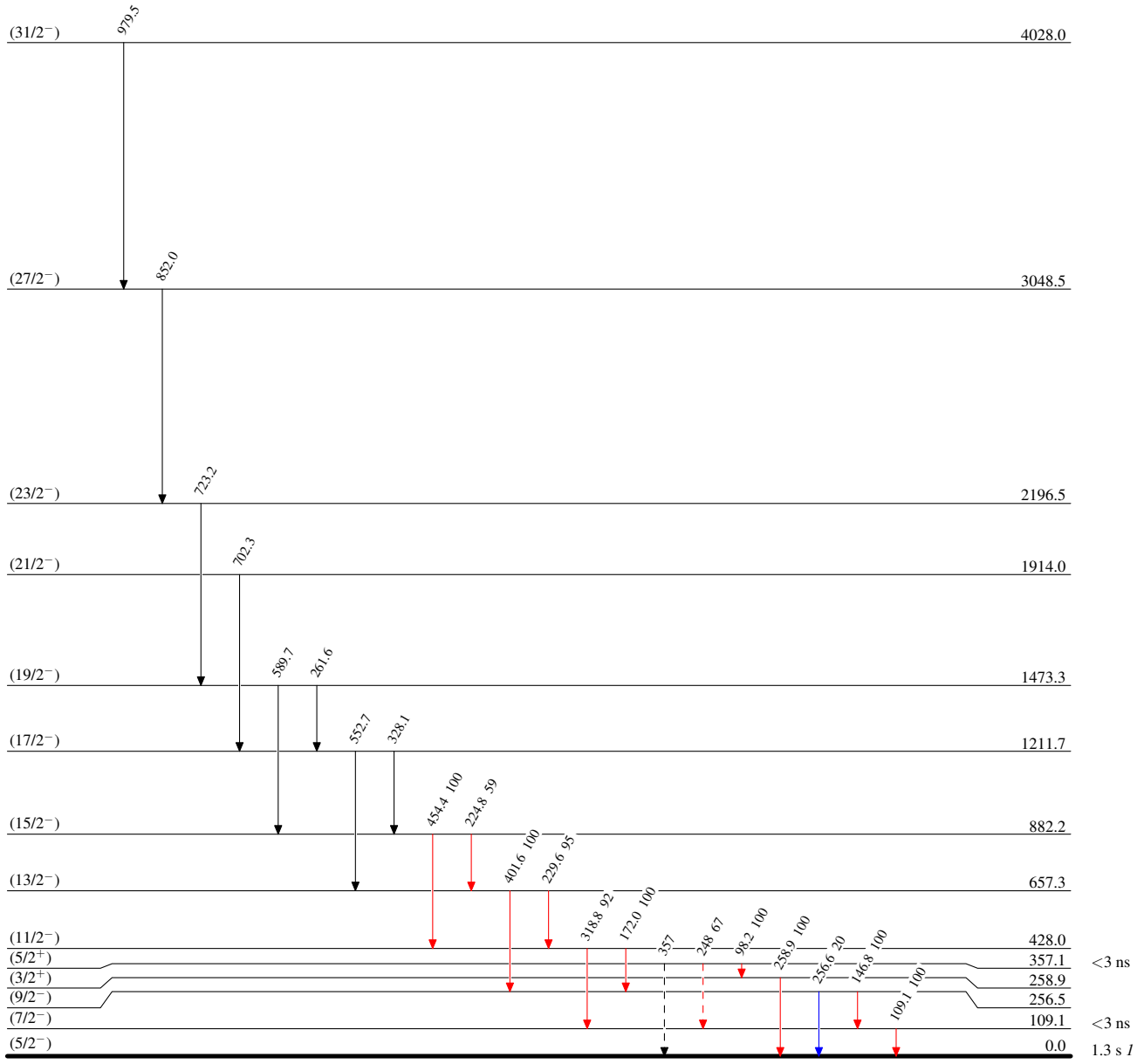
Level Scheme

Intensities: Type not specified

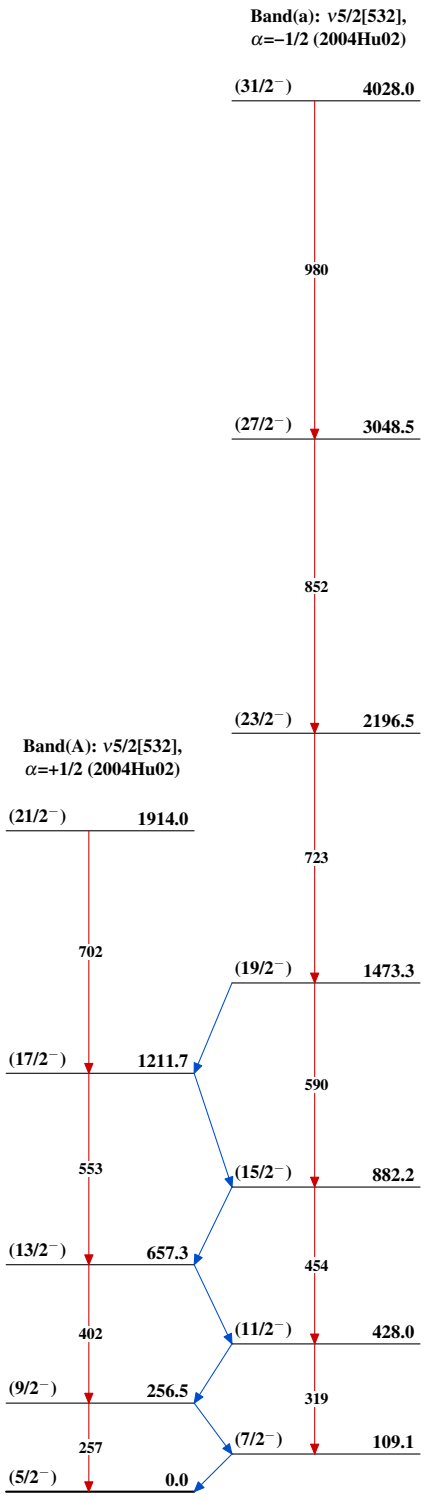
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$
$I_\gamma < 10\% \times I_\gamma^{max}$
$I_\gamma > 10\% \times I_\gamma^{max}$
γ Decay (Uncertain)



$^{103}_{40}Zr_{63}$

Adopted Levels, Gammas



$^{103}_{40}Zr_{63}$