^{176}Yb(^{28}Si,Xγ) 2005Pa48

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	D. Abriola(a), A. A. Sonzogni	NDS 109, 2501 (2008)	1-Apr-2008

Includes ^{176}Yb(^{31}P,xγ).

^{176}Yb(^{28}Si,xγ): E=145 MeV. Measured Eγ, Iγ, $\gamma\gamma$ with the EUROGAM II array, consisting of 54 escape-suppressed Ge detectors, 30 of which were of large-volume coaxial design with the remaining 24 being of the four-element clover type.

^{176}Yb(^{31}P,xγ): E=152 MeV. Measured Eγ, Iγ, $\gamma\gamma$ with the EUROBALL IV array, comprising 15 cluster, 26 clover and 30 tapered single-crystal Ge detectors. Each cluster detector consisted of seven closely-packed, large-volume encapsulated Ge crystals.

^{96}Zr Levels

E(level)[†]	J$^\pi$[‡]	Comments
0.0	0^+	
1750.4 *3*	2^+	
1896.8 *4*	3^-	
2857.2 *4*	4^+	
3081.8 *5*	4^+	
3119.2 *5*	5^-	
3308.8 *6*	$(5^+,6^+)$	J$^\pi$: quoted without parentheses in level scheme figure 8 of 2005Pa48.
3482.9 *5*	6^+	
3772.3 *5*	6^+	
4234.0 *5*	7^-	
4389.8 *5*	8^+	
4570.2 *6*		
4689.5 *6*		
4907.4 *6*	(10^+)	
5484.1 *6*	(10^+)	
5738.2 *7*	(11^+)	
6246.2 *8*	(12^+)	
6461.0 *8*	(13^+)	
6821.8 *9*	(14^+)	

[†] From least-squares fit to Eγ's; ΔEγ=0.3 keV assumed for each transition.

[‡] Authors' tentative assignments based on well known low-spin states from literature, comparison with theoretical calculations and by assuming spin values increase with excitation energy of levels. Tentative assignments are supported by comparison of corresponding states in neighboring Zr isotopes using a weak-coupling scheme.

γ(^{96}Zr)

E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	E$_\gamma$[†]	I$_\gamma$	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$
146.4	66 *3*	1896.8	3^-	1750.4	2^+	751.1	5.1 *7*	4234.0	7^-	3482.9	6^+
214.8	16.1 *8*	6461.0	(13^+)	6246.2	(12^+)	830.8	24.0 *17*	5738.2	(11^+)	4907.4	(10^+)
227.0	3.2 *10*	3308.8	$(5^+,6^+)$	3081.8	4^+	906.9	19.3 *13*	4389.8	8^+	3482.9	6^+
336.2	4.3 *5*	4570.2		4234.0	7^-	915.1	43 *4*	3772.3	6^+	2857.2	4^+
360.8	9.7 *12*	6821.8	(14^+)	6461.0	(13^+)	1094.3	8.7 *12*	5484.1	(10^+)	4389.8	8^+
363.7	28.7 *12*	3482.9	6^+	3119.2	5^-	1106.7	45 *4*	2857.2	4^+	1750.4	2^+
455.5	5.2 *6*	4689.5		4234.0	7^-	1114.8	13.7 *12*	4234.0	7^-	3119.2	5^-
508.0	19.9 *12*	6246.2	(12^+)	5738.2	(11^+)	1185.0	8.3 *10*	3081.8	4^+	1896.8	3^-
517.6	29 *3*	4907.4	(10^+)	4389.8	8^+	1222.5	55 *4*	3119.2	5^-	1896.8	3^-
617.4	37.6 *14*	4389.8	8^+	3772.3	6^+	1750.4	100	1750.4	2^+	0.0	0^+

[†] Assignment of transitions to ^{96}Zr based on coincidence of γ rays with those of known transitions from complementary fission fragments, ^{102}Ru and ^{105}Rh isotopes, and/or γ rays of ^{96}Zr already known in the literature.

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Level Scheme

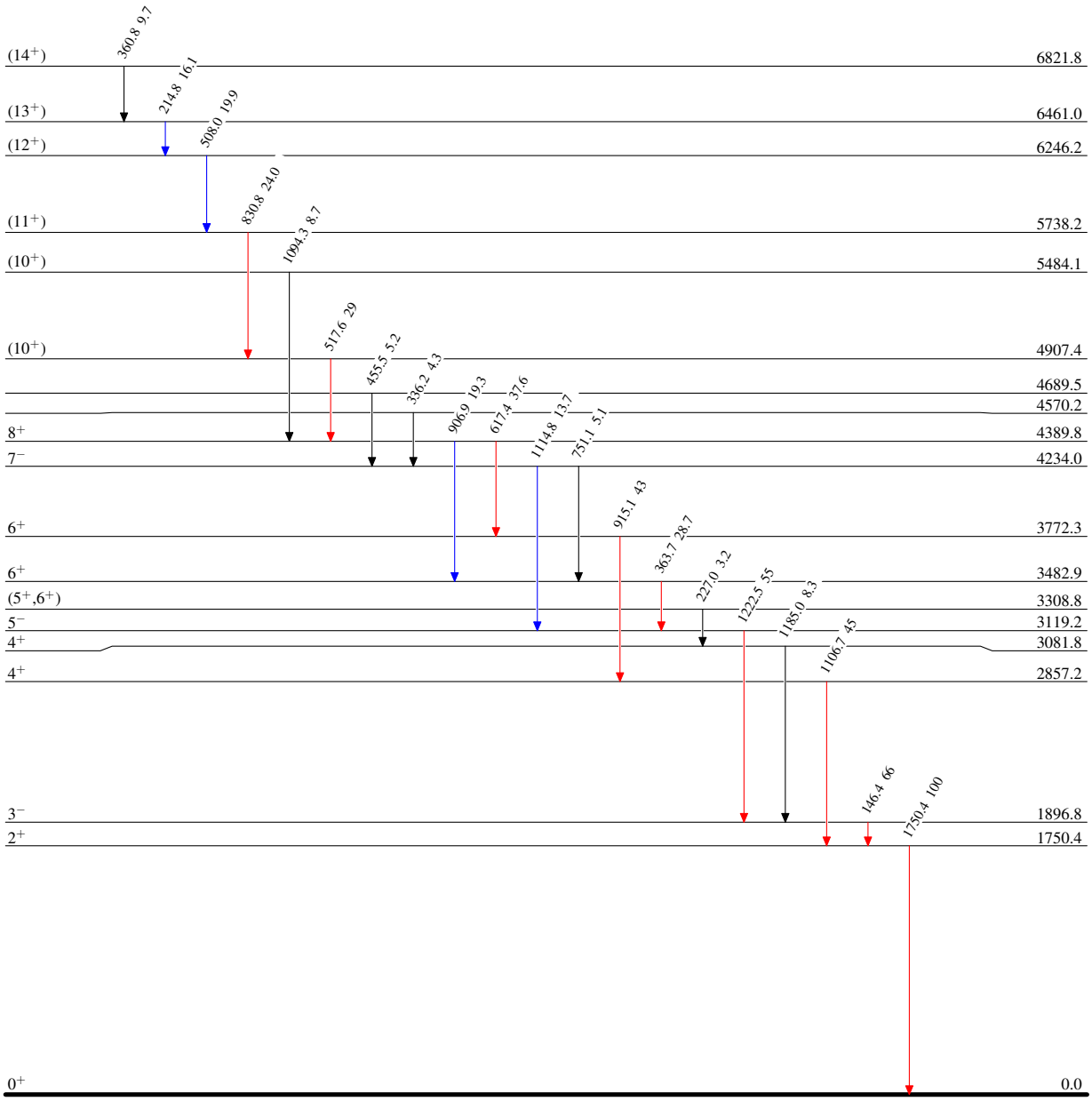
Intensities: Relative I_γ

Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$



$^{96}_{40}Zr_{56}$