$^{12}C(^{96}Ru,2\alpha\gamma)$ 2011To09

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	Balraj Singh and Jun Chen	NDS 172, 1 (2021)	31-Jan-2021

2011To09: E=350 MeV beam was supplied by ESTU tandem accelerator at WNSL, Yale. Multi-layered target with 0.61 mg/cm^2 carbon deposited on 6.42 mg/cm^2 Gd which was evaporated on 1.0 mg/cm^2 Ta foil backed by 5.6 mg/cm^2 Cu. External magnetic field was 0.07 T applied in the up and down directions. The γ rays were detected by four clover HPGe detectors. The scattered particles were detected by PIPS Si detector. Measured Eγ, Iγ, $\gamma\gamma$-coin, (particle)γ-coin, (particle)$\gamma(\theta)$. Deduced levels, g factors. Comparison with large-scale shell-model and collective model.

^{100}Pd Levels

g factors given under comments are measured in 2011To09 by transient magnetic field technique in inverse kinematics using half-lives measured by 2009Ra28 in ^{92}Mo(^{11}B,p2nγ).

E(level)†	J$^\pi$‡	Comments
0.0#	0^+	
665.51# *10*	2^+	g=+0.30 *14* (2011To09) g factor: use $T_{1/2}$=6.24 ps *28* in 2009Ra28.
1416.08# *22*	4^+	g=+0.45 *14* (2011To09) g factor: use $T_{1/2}$=2.50 ps *21* in 2009Ra28.
1587.23 *13*	$2^{(+)}$	
1924.8 *3*	$3^{(+)}$	
2055.6 *3*	(4^-)	
2188.8# *4*	6^+	g=+1.47 *87* (2011To09) g factor: use $T_{1/2}$=2.56 ps *35* in 2009Ra28.
2277.9 *3*	$5^{(+)}$	
2351.5 *8*	(4^+)	
2430.1 *3*	4	
2469.6 *4*	$6^{(+)}$	
2505.54 *24*	5^-	
2616.9 *4*	$(0^+$ to $4^+)$	

† From least-squares fit to Eγ data.
‡ From the Adopted Levels.
# Band(A): Yrast band.

$\gamma(^{100}Pd)$

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Comments
221.9 *3*	2.5 *3*	2277.9	$5^{(+)}$	2055.6	(4^-)	
280.90 *20*	0.60 *14*	2469.6	$6^{(+)}$	2188.8	6^+	
337.5 *3*	1.80 *20*	1924.8	$3^{(+)}$	1587.23	$2^{(+)}$	
353.6 *5*	1.4 *2*	2277.9	$5^{(+)}$	1924.8	$3^{(+)}$	
450.4 *3*	2.6 *3*	2505.54	5^-	2055.6	(4^-)	
505.30 *10*	9.1 *3*	2430.1	4	1924.8	$3^{(+)}$	
510.9‡ *4*	<7	1924.8	$3^{(+)}$	1416.08	4^+	E$_\gamma$: assignment taken by 2011To09 from 2009Ra06 in (^{3}He,2nγ).
639.5 *10*	3.80 *21*	2055.6	(4^-)	1416.08	4^+	
665.50 *10*	100	665.51	2^+	0.0	0^+	
750.50 *20*	38.0 *5*	1416.08	4^+	665.51	2^+	
773.0 *7*	6.0 *2*	2188.8	6^+	1416.08	4^+	

Continued on next page (footnotes at end of table)

$^{12}C(^{96}Ru,2\alpha\gamma)$ 2011To09 (continued)

$\gamma(^{100}Pd)$ (continued)

E_γ [†]	I_γ [†]	E_i(level)	J_i^π	E_f	J_f^π
862.0 *2*	2.80 *18*	2277.9	$5^{(+)}$	1416.08	4^+
921.70 *10*	7.3 *3*	1587.23	$2^{(+)}$	665.51	2^+
1053.5 *3*	1.23 *17*	2469.6	$6^{(+)}$	1416.08	4^+
1089.40 *10*	6.0 *3*	2505.54	5^-	1416.08	4^+
1260.0 *6*	10.3 *3*	1924.8	$3^{(+)}$	665.51	2^+
1587.3 *3*	2.4 *2*	1587.23	$2^{(+)}$	0.0	0^+
1686.0 *8*	2.4 *2*	2351.5	(4^+)	665.51	2^+
1951.4 *3*	2.20 *20*	2616.9	$(0^+$ to $4^+)$	665.51	2^+

[†] From 2011To09.
[‡] Placement of transition in the level scheme is uncertain.

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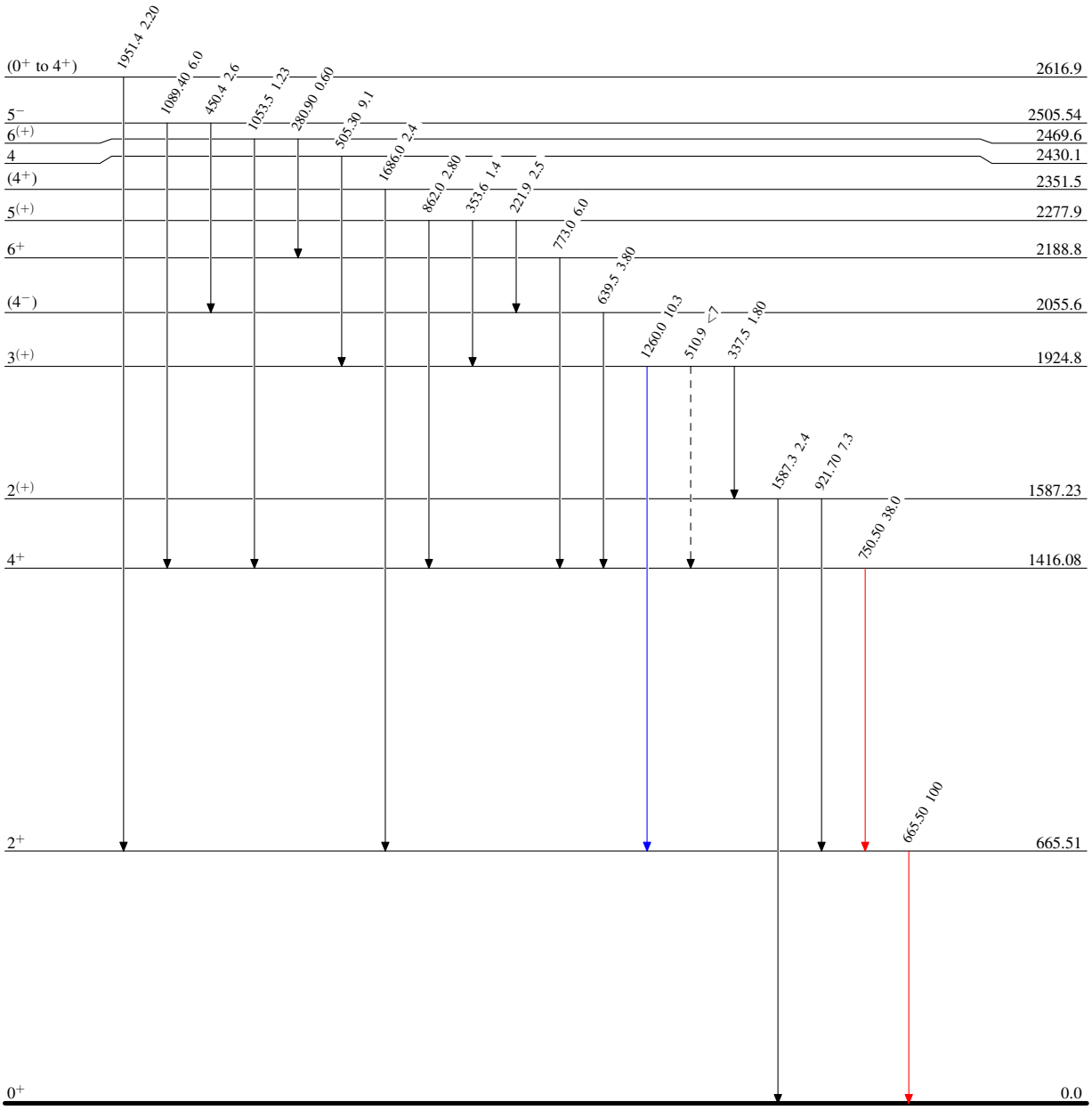
Level Scheme

Intensities: Relative I_γ

Legend

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



$^{100}_{46}Pd_{54}$

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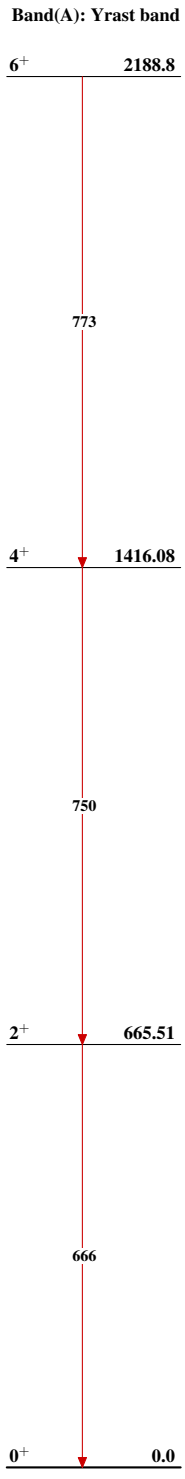

$^{100}_{46}Pd_{54}$