

$^{168}\text{Er}(^{29}\text{Si}, 5n\gamma)$ 2010Wi08

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 113, 1871 (2012)	15-Jun-2012

$E(^{29}\text{Si})=154$ MeV, pulsed beam with 64.5 ns pulse separation from the 88" Cyclotron at Lawrence Berkeley National Laboratory; 1.1 mg/cm² ^{168}Er target with 5 mg/cm² Pb backing; measured $E\gamma$, $I\gamma$, $\gamma\gamma$ coin, $\gamma\gamma(\theta)$ (DCO), accepting events when (after Compton suppression) signals were obtained from at least four of the 102 Ge detectors in the Gammasphere array. This study focuses on the nature of three low-lying 8^+ states.

 ^{192}Pb Levels

$E(\text{level})^\dagger$	$J\pi^\ddagger$	$T_{1/2}^\#$	Comments
0.0	0^+		
854.0	2^+		
1355.0	4^+		
1859.0	5^-		
1920.0	6^+		
2302.7@	8^+	3.9 ns 3	Predominantly a $\pi(h_{9/2}, f_{7/2})^2$ excitation at oblate deformation.
2322.3	7^-		
2506.5	8^-		
2513.6	9^-	3.3 ns 2	
2519.5	8^+		Predominantly a spherical $\nu i_{13/2}^{-2}$ excitation.
2561.5	8^+		Complex structure, no evidence of prolate deformation for this state.
2580.2	10^+	166 ns 6	
2742.2&	11^-	756 ns 14	
2789.3@	9^+		
3159.7@	10^+		
3272.9&	12^-		
3645.7@	11^+		
3677.4&	13^-		
4174.6@	12^+		
4184.7&	14^-		
4286.3&	15^-		
4324.1@	13^+		

[†] From least-squares fit to $E\gamma$; uncertainties in $E\gamma$ data unstated by authors.

[‡] Authors' suggested values.

[#] From Adopted Levels.

@ Band(A): $\Delta J=1$ band based on 8^+ 2303.

& Band(B): $\pi=-$, $\Delta J=1$ band based on 11^- 2742.

 $\gamma(^{192}\text{Pb})$

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. [‡]	Comments
(7.2)	2513.6	9^-	2506.5	8^-		E_γ : from level energy difference; γ not observed.
(18.7)	2580.2	10^+	2561.5	8^+	[E2]	E_γ : from level energy difference; γ not observed.
60.7	2580.2	10^+	2519.5	8^+		
66.8	2580.2	10^+	2513.6	9^-		
101.6	4286.3	15^-	4184.7	14^-		
149.6	4324.1	13^+	4174.6	12^+		
162.0	2742.2	11^-	2580.2	10^+		

Continued on next page (footnotes at end of table)

$^{168}\text{Er}(^{29}\text{Si},5\text{n}\gamma)$ **2010Wi08** (continued) $\gamma(^{192}\text{Pb})$ (continued)

$E_\gamma^\dagger$	$E_i(\text{level})$	J_i^π	E_f	J_f^π	Mult. ‡	Comments
184.2	2506.5	8 ⁻	2322.3	7 ⁻	D	DCO=0.60 10
191.3	2513.6	9 ⁻	2322.3	7 ⁻	E2	DCO=1.49 3
210.9	2513.6	9 ⁻	2302.7	8 ⁺	E1+M2	DCO=0.81 3
216.7	2519.5	8 ⁺	2302.7	8 ⁺		
258.8 [@]	2561.5	8 ⁺	2302.7	8 ⁺		E_γ, I_γ : γ not observed; E_γ is from level energy difference. An upper limit of 8% is estimated by authors for this branch.
277.4	2580.2	10 ⁺	2302.7	8 ⁺		
370.4	3159.7	10 ⁺	2789.3	9 ⁺	D+Q	DCO=1.23 13
382.4	2302.7	8 ⁺	1920.0	6 ⁺		
402.4	2322.3	7 ⁻	1920.0	6 ⁺	D	DCO=0.78 3
404.5	3677.4	13 ⁻	3272.9	12 ⁻		
463.4	2322.3	7 ⁻	1859.0	5 ⁻	E2	DCO=1.42 2
486.0	3645.7	11 ⁺	3159.7	10 ⁺		
486.4	2789.3	9 ⁺	2302.7	8 ⁺		
501 [#]	1355.0	4 ⁺	854.0	2 ⁺		
504 [#]	1859.0	5 ⁻	1355.0	4 ⁺	E1	DCO=0.77 2
507.3	4184.7	14 ⁻	3677.4	13 ⁻		
528.9	4174.6	12 ⁺	3645.7	11 ⁺	D+Q	DCO=1.22 4
530.7	3272.9	12 ⁻	2742.2	11 ⁻	Q+D	DCO=1.48 2
565 [#]	1920.0	6 ⁺	1355.0	4 ⁺	E2	DCO=1.45 6
599.6	2519.5	8 ⁺	1920.0	6 ⁺		
608.9	4286.3	15 ⁻	3677.4	13 ⁻	E2	DCO=1.59 8
641.5	2561.5	8 ⁺	1920.0	6 ⁺	E2	DCO=1.46 6
678.4	4324.1	13 ⁺	3645.7	11 ⁺		
854 [#]	854.0	2 ⁺	0.0	0 ⁺		
856.3	3645.7	11 ⁺	2789.3	9 ⁺		
857.2	3159.7	10 ⁺	2302.7	8 ⁺		
911.8	4184.7	14 ⁻	3272.9	12 ⁻		
935.2	3677.4	13 ⁻	2742.2	11 ⁻		
1015.0	4174.6	12 ⁺	3159.7	10 ⁺		

[†] From level schemes In figs. 4 and 6 of **2010Wi08**, except As noted.

[‡] From DCO ratios read by the evaluator from fig. 3 of **2010Wi08**. $\Delta\pi$, if given, is taken from Adopted Gammas.

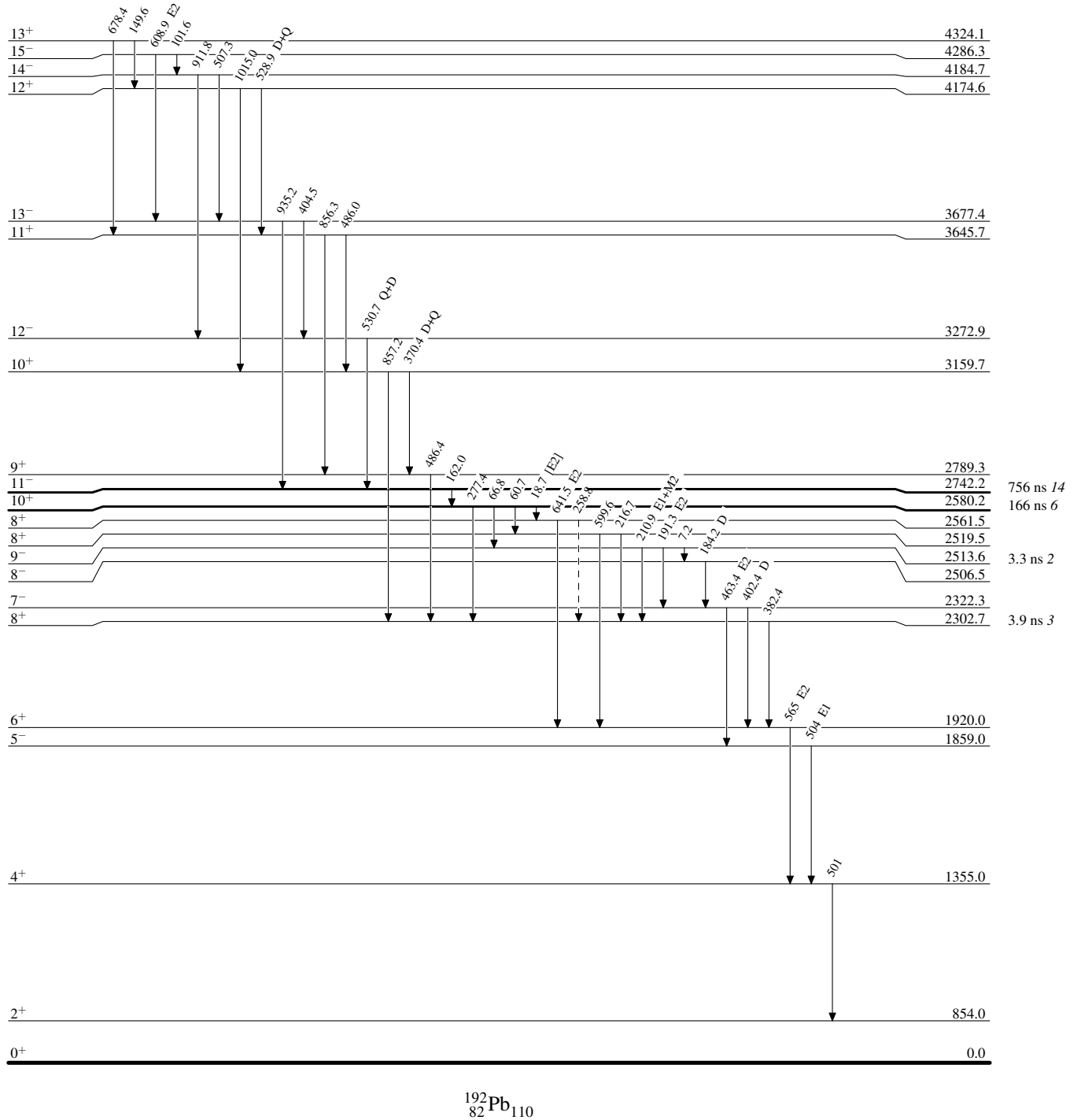
[#] From γ -162 γ delayed coin spectrum In figure 1 of **2010Wi08**.

[@] Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

-----► γ Decay (Uncertain)

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