

${}^{82}\text{Se}({}^{13}\text{C},4n\gamma)$  2007Th07,2006ReZZ

Type	Author	History Citation	Literature Cutoff Date
Full Evaluation	Coral M. Baglin	NDS 114, 1293 (2013)	1-Sep-2013

**2007Th07:** E( ${}^{13}\text{C}$ )=50 MeV; self-supporting isotopically-enriched  ${}^{82}\text{Se}$  target; modified YRASTBALL array (6 clover detectors At  $90^\circ$  and 4 clover detectors At  $140^\circ$  (all but one Compton-suppressed), 2 LEPS detectors); measured  $E_\gamma$ ,  $\gamma\gamma$  coin; deduced level structure above the 3167-keV isomer; angular correlation and polarization data not yet analyzed. level scheme from **2007Th07** is assumed to supersede that from **2006ReZZ** where the reverse order was tentatively indicated for the 1545 $\gamma$ -901 $\gamma$  and 2141 $\gamma$ -305 $\gamma$  cascades. **2006ReZZ** also include 7 transitions below the isomer (all independently known), but they were not included In the tentative level scheme from **2007Th07**.

 ${}^{91}\text{Zr}$  Levels

E(level) <sup>†</sup>	$J^\pi$	$T_{1/2}$	Comments
0.0			
2131.2 9			
2169.8 9			
2259.6 11			
2287.4 18			
2856.4 11			
3146.4 15			
3167.3 4	(21/2 <sup>+</sup> )	4.35 $\mu\text{s}$ 14	%IT=100 E(level), $J^\pi$ , $T_{1/2}$ : from Adopted Levels. No deexcitation $\gamma$ reported by <b>2006ReZZ</b> ; $E_\gamma$ presumably too low to be observed In that experiment.
4712.1 7			E(level): shown As 4068 by <b>2006ReZZ</b> because order of 901 $\gamma$ -1545 $\gamma$ cascade was uncertain and tentatively reversed In their level scheme.
5308.2 7			
5495.6 8			
5613.2 7			E(level): shown As 3472 by <b>2006ReZZ</b> because order of 2141 $\gamma$ -305 $\gamma$ cascade was uncertain and tentatively reversed In their level scheme.
5741.3 7			
6773.3 9			
7014.3 8			
7213.9 8			
7367.5 10			
7645.3 10			
7665.5 9			
8359.4 11			
8471.4 10			
8627.9 12			
8889.2 10			
9132.4 11			
9188.4 13			
9465.2 14			
9596.2 14			
10068.4 13			
10442.4 17			
10531.2 18			
10659.2 18			
11063.2 20			
11165.4 20			
11639.4? 22			
12136.4? 22			
12773.3 23			

<sup>†</sup> From least-squares fit to  $E_\gamma$ , allowing 1 keV uncertainty In each datum and fixing E(3167 level) At the adopted value.

${}^{82}\text{Se}({}^{13}\text{C},4n\gamma)$  **2007Th07,2006ReZZ** (continued) $\gamma({}^{91}\text{Zr})$ 

$E_\gamma^\dagger$	$E_i(\text{level})$	$E_f$	$E_\gamma^\dagger$	$E_i(\text{level})$	$E_f$	$E_\gamma^\dagger$	$E_i(\text{level})$	$E_f$	$J_f^\pi$
90 $^\ddagger$	2259.6	2169.8	723	11165.4	10442.4	1273	7014.3	5741.3	
128	5741.3	5613.2	725 $^\ddagger$	2856.4	2131.2	1401	7014.3	5613.2	
241	7014.3	6773.3	773	9132.4	8359.4	1457	8471.4	7014.3	
261	8889.2	8627.9	829	9188.4	8359.4	1487	9132.4	7645.3	
290 $^\ddagger$	3146.4	2856.4	859 $^\ddagger$	3146.4	2287.4	1545	4712.1	3167.3	(21/2 <sup>+</sup> )
305	5613.2	5308.2	872	7645.3	6773.3	1601	7213.9	5613.2	
374	10442.4	10068.4	880	10068.4	9188.4	1626	7367.5	5741.3	
404	11063.2	10659.2	901	5613.2	4712.1	1710	12773.3	11063.2	
418	8889.2	8471.4	935	10531.2	9596.2	1718	7213.9	5495.6	
452	7665.5	7213.9	936	10068.4	9132.4	1904	7645.3	5741.3	
474 $^\#$	11639.4?	11165.4	971 $^\#$	12136.4?	11165.4	1924	7665.5	5741.3	
530	8889.2	8359.4	1032	6773.3	5741.3	2131 $^\ddagger$	2131.2	0.0	
576	9465.2	8889.2	1104	8471.4	7367.5	2141	5308.2	3167.3	(21/2 <sup>+</sup> )
596	5308.2	4712.1	1160	6773.3	5613.2	2170 $^\ddagger$	2169.8	0.0	
597 $^\ddagger$	2856.4	2259.6	1194	10659.2	9465.2	2328	5495.6	3167.3	(21/2 <sup>+</sup> )
694	8359.4	7665.5	1244	8889.2	7645.3	2502	7213.9	4712.1	
707	9596.2	8889.2	1260	8627.9	7367.5	2574	5741.3	3167.3	(21/2 <sup>+</sup> )

$^\dagger$  From **2007Th07**, except As noted; authors do not state uncertainty.

$^\ddagger$  From **2006ReZZ** only; uncertainty unstated by authors.

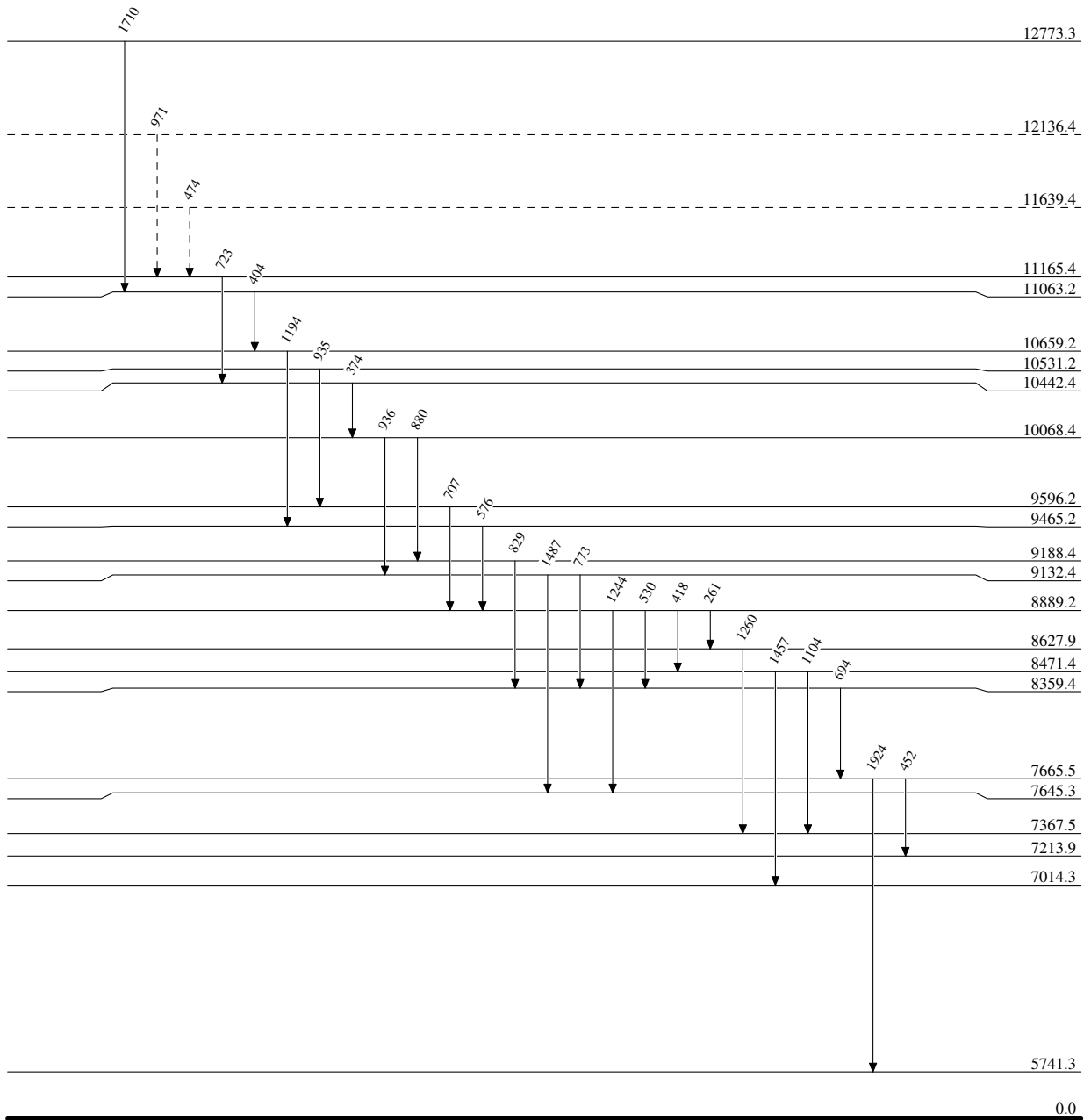
$^\#$  Placement of transition in the level scheme is uncertain.

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Legend

Level Scheme

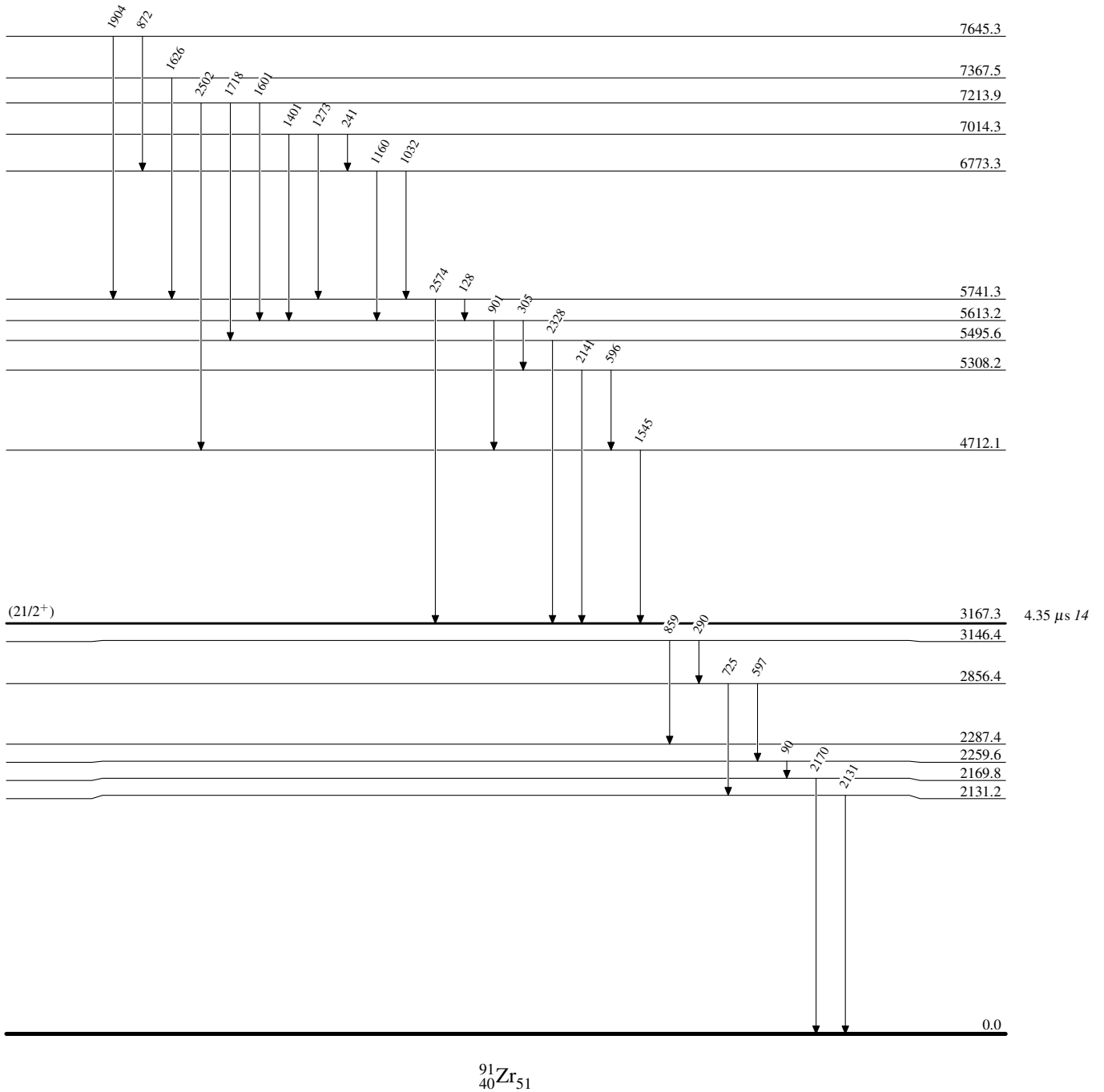
----->  $\gamma$  Decay (Uncertain)



$^{91}_{40}\text{Zr}_{51}$

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Level Scheme (continued)



$^{91}_{40}\text{Zr}_{51}$