^{208}Pb(d,pγ) 1975Du08,1967El05,1978Ju02

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	J. Chen [#] and F. G. Kondev	NDS 126, 373 (2015)	30-Sep-2013

1975Du08: E=11 MeV deuteron beam was produced from the Heidelberg EN tandem accelerator. A 200 μg/cm^2 thick self-supporting ^{208}Pb target was used. Charged particles were detected with three silicon surface barrier detectors, FWHM=14 keV (singles), 120 keV (pγ-coin), and γ-rays were detected by a Ge(Li) detector FWHM=4 keV at Eγ=4 MeV. Measured σ(E$_p$), Eγ, Iγ. Deduced levels, γ-branching ratios, transition probabilities.

1967El05 and 1969El02: E=12 MeV deuteron beam was produced from the Niels Bohr Institute tandem accelerator. A 40 μg/cm^2 thick self-supporting target of ^{208}Pb (99.3% enriched) was used. Protons were detected with a Si(Li) detector (FWHM=50 keV) and γ-rays were detected with a Ge(Li) detector and a NaI(Tl) detector. Measured Eγ, pγ-coin, pγ(t). Deduced levels, T$_{1/2}$.

1978Ju02: E=10 MeV. Measured particle spectrum, pγ(t). Deduced levels, T$_{1/2}$.

^{209}Pb Levels

E(level)[†]	T$_{1/2}$[‡]	L[#]	Comments
0.0			
779 *1*	<1.0 ns		
1423 *1*	1.36 ns *30*		T$_{1/2}$: from P(644γ)(t) (1967El05).
1567 *1*	<0.5 ns		
2032 *1*	160 ps *6*		T$_{1/2}$: from P(465γ)(t) (1978Ju02).
2319 *3*			
2465 *4*			
2491 *1*			
2537 *1*			
2588 *2*			
2736 *5*			
3047 *5*			
3302 *5*			
3361 *2*			
3423 *5*			
3650 *7*			
3676? *5*			
3897 *5*			
3936 *2*			
3940 *4*			
3977 *3*		≥4	
4005 *5*		≥4	
4016 *6*		≥4	
4129 *5*		≥5	

[†] From a least-squares fit to γ-ray energies.
[‡] From pγ(t) (1967El05), except for the 2032 level which is from pγ(t) of 1978Ju02.
[#] Lower limits are given for unbound states by 1975Du08 based on competition between γ-ray decay and neutron emission.

γ(^{209}Pb)

E$_i$(level)	E$_\gamma$[†]	I$_\gamma$[‡]	E$_f$
779	779 *1*		0.0
1423	644 *2*	10 *1*	779
	1423 *1*	90 *2*	0.0
1567	1567 *1*		0.0
2032	465 *1*		1567
2319	287 *2*		2032

Continued on next page (footnotes at end of table)

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$\gamma(^{209}Pb)$ (continued)

E_i(level)	E_γ †	I_γ ‡	E_f	Comments
2465	898# *6*	20 *20*	1567	
	2465 *4*	80 *40*	0.0	
2491	1712 *2*	3.0 *5*	779	
	2491 *1*	97 *1*	0.0	γ-branching: possible 924γ to 1567 level not observed, I(924γ):I(2491γ)<1:99 (1975Du08).
2537	970 *1*		1567	γ-branching: possible 505γ to 2032 level not observed, I(505γ):I(970γ)<1:99 (1975Du08).
2588	2588 *2*		0.0	
2736	1169 *5*		1567	
3047	1624 *5*		1423	
3302	3302 *5*		0.0	
3361	824 *2*	55 *10*	2537	
	870 *2*	30 *5*	2491	
	1794 *5*	15 *5*	1567	
3423	2000 *5*		1423	
3650	3650 *7*		0.0	
3676?	1644# *4*		2032	
3897	3897 *5*		0.0	
3936	1399 *3*	15 *10*	2537	
	1904 *2*	85 *10*	2032	
3940	2517 *4*	40 *10*	1423	
	3940 *5*	60 *10*	0.0	
3977	2554 *4*	30 *10*	1423	
	3198 *5*	15 *10*	779	
	3977 *5*	55 *10*	0.0	
4005	2582 *4*		1423	
4016	4016 *6*		0.0	
4129	4129 *5*		0.0	

† From 1975Du08.
‡ Quoted uncertainties in 1975Du08 include contributions from p-γ correlations.
# Placement of transition in the level scheme is uncertain.

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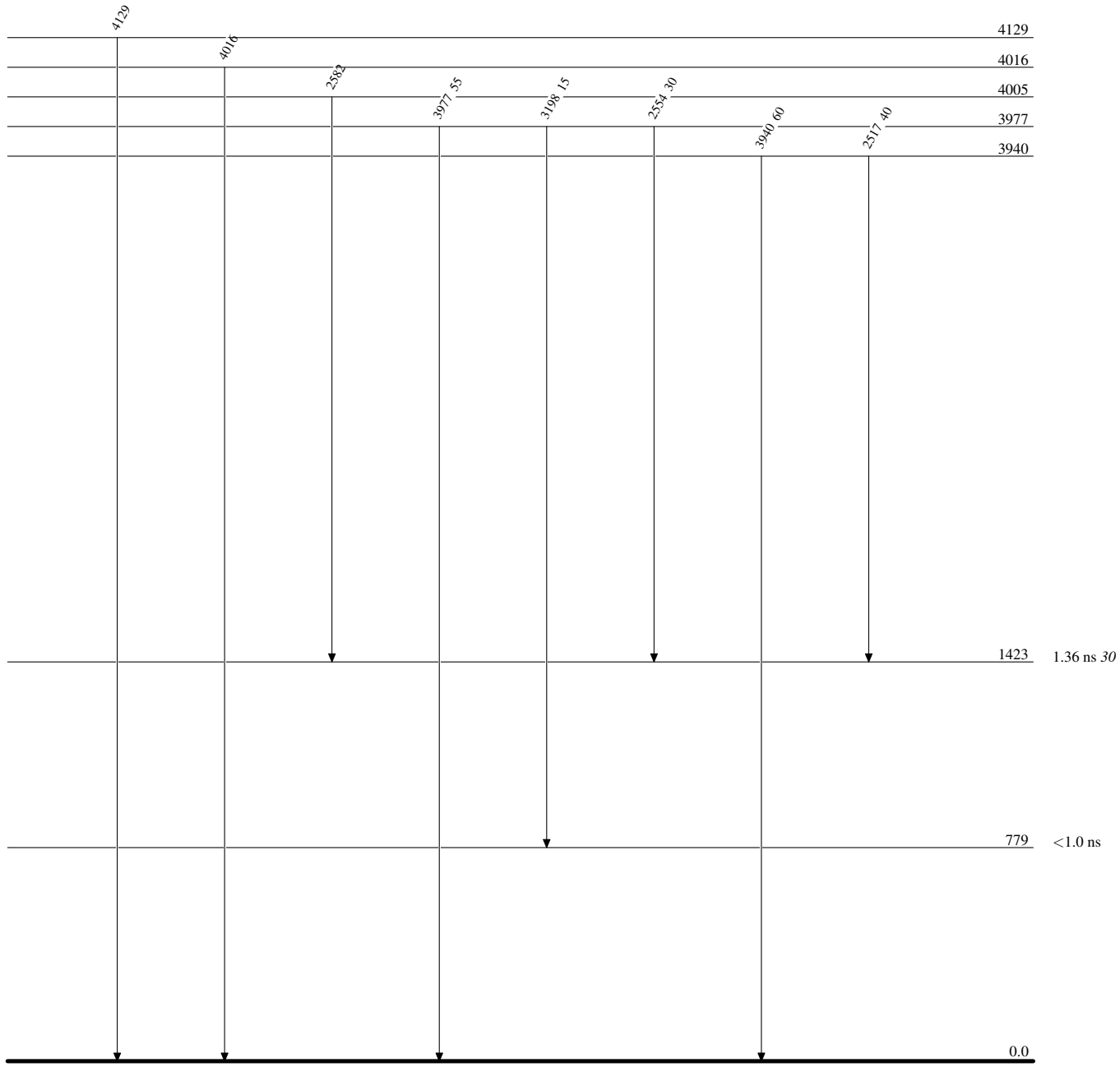
Level Scheme

Intensities: % photon branching from each level



$^{209}_{82}Pb_{127}$

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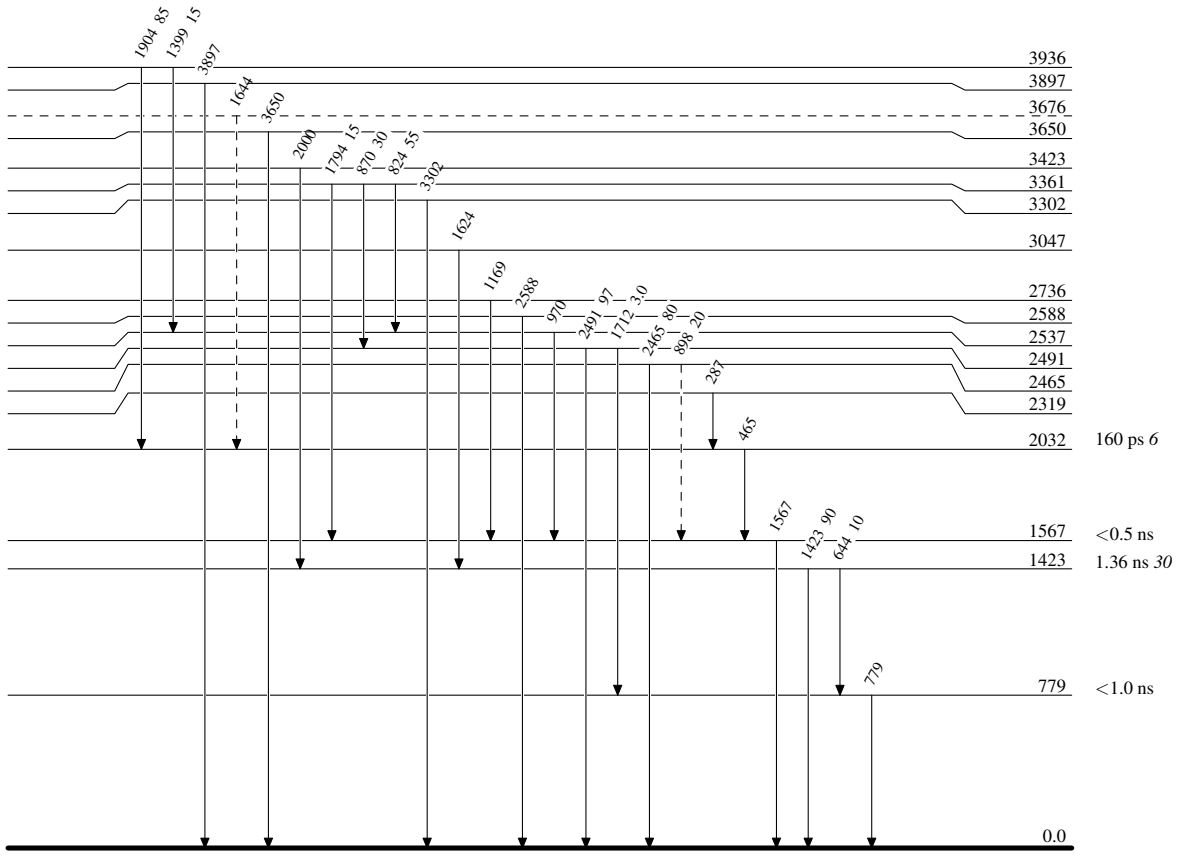
Legend

Level Scheme (continued)

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{209}_{82}Pb_{127}$