Coulomb excitation **1972Ha59,1971Gr33,1970Kl03**

History

Type	Author	Citation	Literature Cutoff Date
Full Evaluation	F. G. Kondev, S. Lalkovski	NDS 112, 707 (2011)	1-Aug-2010

1972Ha59: Facility: Chalk River tandem; Beam: E(α)=15-18 MeV, E(^{16}O)=69-80 MeV; Target: enriched to 99.8% in ^{208}Pb; Detectors: two Ge(Li) and one surface-barrier; Measured: γ, $\gamma\gamma$, DSAM; Deduced: E, B(Eλ) and $T_{1/2}$; Other from the same collaboration: 1974Ha34.

1970Kl03,1971Gr31: Facility: Heidelberg Tandem; Beam: E(α)=15 and 18 MeV, E(^{16}O)=70 and 80 MeV; Target: natural lead and enriched to 92.4% in ^{207}Pb; Detectors: Ge(Li); Measured: γ, $\gamma(\theta)$, DSAM.

1973Do20: E(^{16}O)=61, 68 MeV.

1971Gr33: E(α)=15, 18 MeV. E(^{16}O)=70, 80 MeV.

Others: 1966Br15, 1966Ko16, 1965An13, 1962Na06, 1955St57.

^{207}Pb Levels

E(level)[†]	J$^\pi$[‡]	$T_{1/2}$[#]	Comments
0	1/2$^-$		configuration: $\nu(3p_{1/2})^{-1}$.
569.7028 *20*	5/2$^-$	130 ps *4*	$T_{1/2}$: From B(E2). B(E2)↑: 0.213 *6*, weighted average of 0.0214 *10* (1972Ha59), 0.0210 *15* (1971Gr31) and 0.0213 *9* (1966Ko16). configuration: $\nu(2f_{5/2})^{-1}$.
897.78 *8*	3/2$^-$	0.115 ps *15*	$T_{1/2}$: Weighted average of 0.104 ps *21* (1973Do20), 0.132 ps *28* (1972Ha59), and 0.118 ps *35* (1971Gr31), all DSAM. B(E2)↑: 0.0121 *5* (1972Ha59) and 0.0124 *10* (1971Gr31). configuration: $\nu(3p_{3/2})^{-1}$.
2339.948? *11*	7/2$^-$		configuration: $\nu(2f_{7/2})^{-1}$.
2623.5 *5*	5/2$^+$	0.09 ps *4*	$T_{1/2}$: Other: 0.17 ps *14* (1971Gr31). B(E3)↑: 0.23 3 (1972Ha59) and 0.19 2 (1971Gr31). configuration: $\nu(3p_{1/2})^{-1}\otimes 3^-$.
2662.4 *6*	7/2$^+$	0.66 ps *14*	$T_{1/2}$: Other: >0.41 ps (1971Gr31). B(E3)↑: 0.29 *2* (1972Ha59) and 0.26 *3* (1971Gr31). configuration: $\nu(3p_{1/2})^{-1}\otimes 3^-$.

[†] From a least-squares fit to Eγ.
[‡] From the Adopted Levels.
[#] From DSAM in 1972Ha59, unless otherwise noted.

$\gamma(^{207}Pb)$

E$_i$(level)	J$_i^\pi$	E$_\gamma$[‡]	I$_\gamma$[#]	E$_f$	J$_f^\pi$	Mult.[@]	α[†]	Comments
569.7028	5/2$^-$	569.698 *2*	100	0	1/2$^-$	E2	0.0216	α(K)=0.01583 *23*; α(L)=0.00439 *7*; α(M)=0.001081 *16*; α(N+..)=0.000330 *5* α(N)=0.000274 *4*; α(O)=5.21×10^{-5} *8*; α(P)=4.29×10^{-6} *6* Mult.: From A2=0.186 25; A4=−0.021 18 in 1970Kl03.
897.78	3/2$^-$	328.1 *4*	0.59 *9*	569.7028	5/2$^-$	[M1]	0.334	α(K)=0.273 *4*; α(L)=0.0466 *7*; α(M)=0.01090 *16*; α(N+..)=0.00338 *5* α(N)=0.00277 *4*; α(O)=0.000552 *8*; α(P)=5.91×10^{-5} *9* E$_\gamma$,I$_\gamma$: From 1974Ha34.

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Coulomb excitation **1972Ha59,1971Gr33,1970Kl03 (continued)**

$\gamma(^{207}Pb)$ (continued)

E_i(level)	J_i^π	E_γ[‡]	I_γ[#]	E_f	J_f^π	Mult.[@]	δ	α[†]	Comments
897.78	3/2$^-$	897.77 *12*	99.41 *9*	0	1/2$^-$	M1+E2	+0.091 *9*	0.0233	α(K)=0.0192 *3*; α(L)=0.00318 *5*; α(M)=0.000741 *11*; α(N+..)=0.000230 *4* α(N)=0.000188 *3*; α(O)=3.76×10^{-5} *6*; α(P)=4.04×10^{-6} *6* I$_\gamma$: Deduced by the evaluators as 100%-Iγ(328.1γ). Mult.: From A$_2$=−0.127 *8* in 1970Kl03; δ: From adopted gammas. Also δ=−2.19 *6*, as a second solution of the angular distribution in 1970Kl03, would imply almost a pure E2 transition, but this is incompatible with the substantial line Doppler broadening.
2339.948?	7/2$^-$	1442.20[&] *9*	2.1	897.78	3/2$^-$	E2		0.00337 *5*	α=0.00337 *5*; α(K)=0.00271 *4*; α(L)=0.000468 *7*; α(M)=0.0001098 *16*; α(N+..)=8.08×10^{-5} *12* α(N)=2.78×10^{-5} *4*; α(O)=5.50×10^{-6} *8*; α(P)=5.60×10^{-7} *8*; α(IPF)=4.69×10^{-5} *7*
		1770.237 *10*	98	569.7028	5/2$^-$	M1+E2	+0.087 *5*	0.00441 *7*	α=0.00441 *7*; α(K)=0.00341 *5*; α(L)=0.000554 *8*; α(M)=0.0001289 *19*; α(N+..)=0.000312 *5* α(N)=3.27×10^{-5} *5*; α(O)=6.54×10^{-6} *10*; α(P)=7.05×10^{-7} *10*; α(IPF)=0.000272 *4* δ: From adopted gammas.
2623.5	5/2$^+$	1725.7 *6*	>96	897.78	3/2$^-$	(E1)		0.001307 *19*	α=0.001307 *19*; α(K)=0.000818 *12*; α(L)=0.0001215 *17*; α(M)=2.79×10^{-5} *4*; α(N+..)=0.000340 α(N)=7.07×10^{-6} *10*; α(O)=1.407×10^{-6} *20*; α(P)=1.487×10^{-7} *21*; α(IPF)=0.000331 *5* I$_\gamma$: From 1971Gr31.
		2053.7 *7*	<4	569.7028	5/2$^-$				I$_\gamma$: From 1971Gr31.
2662.4	7/2$^+$	322.5[&]	<2	2339.948?	7/2$^-$				I$_\gamma$: From 1971Gr31.
		2092.7 *6*	>98	569.7028	5/2$^-$				I$_\gamma$: From 1971Gr31.

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Coulomb excitation 1972Ha59,1971Gr33,1970Kl03 (continued)

$\gamma(^{207}Pb)$ (continued)

† Additional information 1.
‡ From the adopted gammas, unless otherwise noted.
# From 1972Ha59, unless otherwise noted. Iγ is normalized to the sum intensity of the γ-ray transitions depopulating the respective level ($I\gamma/\Sigma_i(RI)_i$).
@ From the adopted gammas, unlest otherwise noted.
& Placement of transition in the level scheme is uncertain.

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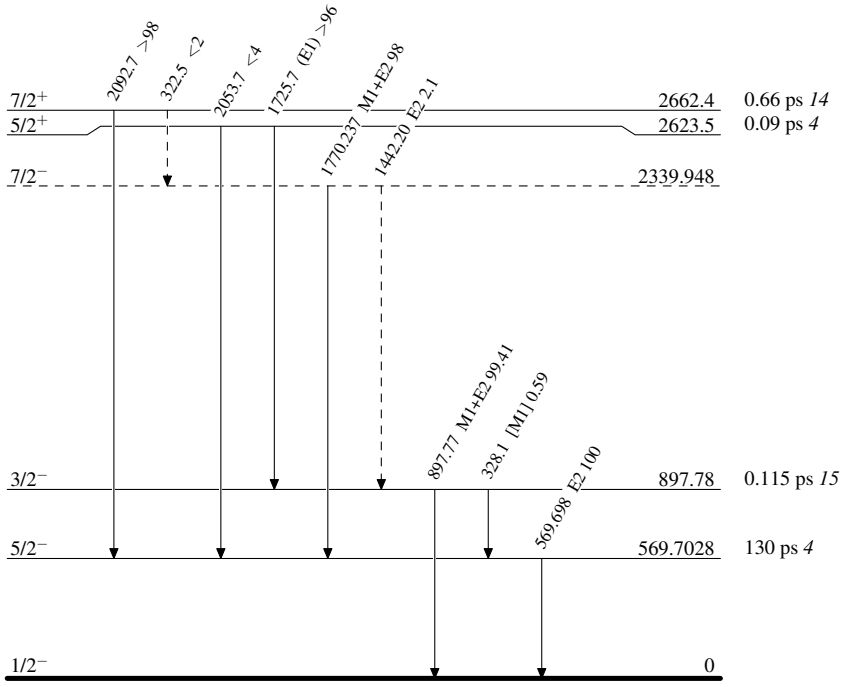
Legend

Level Scheme

Intensities: % photon branching from each level

γ Decay (Uncertain)



$^{207}_{82}Pb_{125}$