Adopted Levels, Gammas

History			
Type	Author	Citation	Literature Cutoff Date
Full Evaluation	A. Sonzogni, G. Mukherjee, H. Huang, A. Tarazaga,	NDS 114, 661 (2013)	28-Feb-2013

Q(β^-)=1367 *6*; S(n)=3834.6 *28*; S(p)=8534 *12*; Q(α)=3571 *30* 2012Wa38
S(2n)=9019.8 *30*, S(2p)=16430 *150* (syst) (2012Wa38).

^{211}Pb evaluated by A. Sonzogni, G. Mukherjee, H. Huang, $\beta\alpha$. Tarazaga, J. Wang.

^{211}Pb Levels

Cross Reference (XREF) Flags

A ^{215}Po α decay
B ^{210}Pb(t,d)
C ^{238}U(^{208}Pb,Xγ)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
0.0	9/2$^+$	36.1 min *2*	ABC	%β^-=100 μ=−1.4037 *8* (1986An06,1989Ra17,2011StZZ) Q=+0.087 *62* (1986An06,1989Ra17,2011StZZ) Evaluated nuclear rms charge radius <r^2>$^{1/2}$=5.5297 fm *17* (2008 update of 2004An14 work available on http://cdfe.sinp.msu.ru). See also 2009An12 for trends of nuclear radii. J$^\pi$: J=9/2 atomic beam (1986An06); π=+ from L=4 in ^{210}Pb(t,d) reaction. T$_{1/2}$: value of 1939Sa11 and 1965Nu03. μ,Q: from atomic beam laser fluorescence spectroscopy (ABLFS) method (1986An06).
438.9 *2*	(7/2)$^+$[a]		A	J$^\pi$: 438.9γ E2(+M1) to 9/2$^+$.
584			A	
598	(5/2$^+$)[a]		A	
643[&]	(11/2$^+$)[a]		AB	
733[b]	(13/2$^+$)[a]		A C	
815	(9/2$^+$)[a]		A	
894	(11/2$^+$)[a]		A	
1055.7[b] *3*	(17/2$^+$)		C	
1193.1[b] *4*	(21/2$^+$)	42 ns *7*	C	
1303 *10*	(15/2$^-$)[@]		B	
1377 *10*			B	
1412 *10*	(5/2$^+$)[@]		B	
1679.1[c] *4*	(23/2$^+$)		C	
1679.1+x[c]	(27/2$^+$)	159 ns *28*	C	%IT=100 Additional information 1.
1681 *10*	(7/2$^+$,9/2$^+$)[@]		B	
1722 *10*	1/2$^+$[@]		B	J$^\pi$: L=0 for ^{210}Pb(t,d) reaction.
1899 *10*	(3/2$^+$,5/2$^+$)[@]		B	
2043 *10*	1/2$^+$[@]		B	J$^\pi$: L=0 for ^{210}Pb(t,d) reaction.
2160 *10*			B	
2280 *10*			B	E(level): possibly a doublet.
2343 *10*			B	
2380 *10*	(7/2$^+$)[@]		B	
2419 *10*			B	

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Adopted Levels, Gammas (continued)

^{211}Pb Levels (continued)

E(level)[†]	J$^\pi$[‡]	T$_{1/2}$[#]	XREF	Comments
2512 *10*	(3/2$^+$)[@]		B	
2561 *10*	(7/2$^+$,9/2$^+$)[@]		B	
2629 *10*	(3/2$^+$,5/2$^+$)[@]		B	
2655 *10*			B	
2717 *10*			B	
2851.0+x *5*	(33/2$^-$)	5.9 ns *6*	C	J$^\pi$: possible configuration=$\nu(g_{9/2}i_{11/2}j_{15/2})$.
3414.4+x *7*	(33/2 to 37/2$^-$)		C	J$^\pi$: γ to (33/2$^-$).
4411.9+x *7*	(39/2$^+$)		C	J$^\pi$: possible configuration=$\nu(i_{11/2}j^2_{15/2})$.
5557.4+x *9*	(39/2 to 43/2$^+$)		C	J$^\pi$: γ to (39/2$^+$).

[†] From Eγ data when available. Otherwise from ^{210}Pb(t,d).
[‡] For high-spin (J>9/2) states, assignments are from (^{208}Pb,Xγ) based on multipolarities for selected transitions, configurations, and decay pattern. In such reactions, ascending spins are assumed with increasing excitation energy.
[#] From ^{238}U(^{208}Pb,Xγ).
[@] From L-values in ^{210}Pb(t,d) experiment. Angular distributions in study by 1976El07 are essentially structureless; their assignments are based on the different slopes at laboratory angles greater than and less than about θ=35°−40° and a comparison with $\sigma(\theta)$ for ^{208}Pb(t,d) for states in ^{209}Pb with known single-particle structure.
[&] From ^{215}Po α decay.
[a] J$^\pi$ predicted by shell-model calculation (1998Li53).
[b] Member of configuration=$\nu g^3_{9/2}$.
[c] Member of configuration=$\nu(g^2_{9/2}i_{11/2})$.

$\gamma(^{211}Pb)$

E$_i$(level)	J$_i^\pi$	E$_\gamma$	I$_\gamma$	E$_f$	J$_f^\pi$	Mult.[‡]	α[†]	Comments
438.9	(7/2)$^+$	438.9 *2*	100	0.0	9/2$^+$	E2(+M1)	0.10 *6*	α(K)=0.08 *5*; α(L)=0.015 *6*; α(M)=0.0037 *13*; α(N)=0.0009 *4*; α(O)=0.00018 *7* α(P)=1.8×10^{-5} *10* Mult.: from ^{215}Po a decay. α: for δ=1.
584		584	100	0.0	9/2$^+$			
598	(5/2$^+$)	598	100	0.0	9/2$^+$			
643	(11/2$^+$)	643	100	0.0	9/2$^+$			
733	(13/2$^+$)	733.7 *2*	100	0.0	9/2$^+$			E$_\gamma$: from ^{238}U(^{208}Pb,Xγ).
815	(9/2$^+$)	815	100	0.0	9/2$^+$			
894	(11/2$^+$)	(310)		584				
		894		0.0	9/2$^+$			
1055.7	(17/2$^+$)	322.0 *2*	100	733	(13/2$^+$)	(E2)	0.0939	α(K)=0.0551 *8*; α(L)=0.0290 *5*; α(M)=0.00743 *11*; α(N)=0.00188 *3*; α(O)=0.000346 *5* α(P)=2.20×10^{-5} *4* Mult.: α(exp) allows E1 or E2, but ΔJ^π requires E2.
1193.1	(21/2$^+$)	137.4 *2*	100	1055.7	(17/2$^+$)	E2	1.72	α(K)=0.371 *6*; α(L)=1.003 *16*; α(M)=0.264 *4*; α(N)=0.0667 *11*; α(O)=0.01194 *19* α(P)=0.000515 *8* B(E2)(W.u.)=1.36 *23*
1679.1	(23/2$^+$)	486.0 *2*	100	1193.1	(21/2$^+$)			
1679.1+x	(27/2$^+$)	x		1679.1	(23/2$^+$)			E$_\gamma$: the measured lifetime agrees with that expected for a low-energy 27/2$^+$ to 23/2$^+$, E2 transition.

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Adopted Levels, Gammas (continued)

$\gamma(^{211}Pb)$ (continued)

E_i(level)	J_i^π	E_γ	I_γ	E_f	J_f^π	Mult.[‡]	α[†]	Comments
								observed by 2005La01.
2851.0+x	(33/2$^-$)	1171.9 *5*	100	1679.1+x	(27/2$^+$)	(E3)	0.01083	α(K)=0.00825 *12*; α(L)=0.00196 *3*; α(M)=0.000476 *7*; α(N)=0.0001211 *17*; α(O)=2.35×10^{-5} *4* α(P)=2.21×10^{-6} *4* B(E3)(W.u.)=25 *3*
3414.4+x	(33/2 to 37/2$^-$)	563.4 *5*	100	2851.0+x	(33/2$^-$)			
4411.9+x	(39/2$^+$)	1560.9 *5*	100	2851.0+x	(33/2$^-$)	[E3]		
5557.4+x	(39/2 to 43/2$^+$)	1145.5 *5*	100	4411.9+x	(39/2$^+$)			

† Additional information 2.
‡ From $^{238}U(^{208}Pb,X\gamma)$, unless otherwise stated.

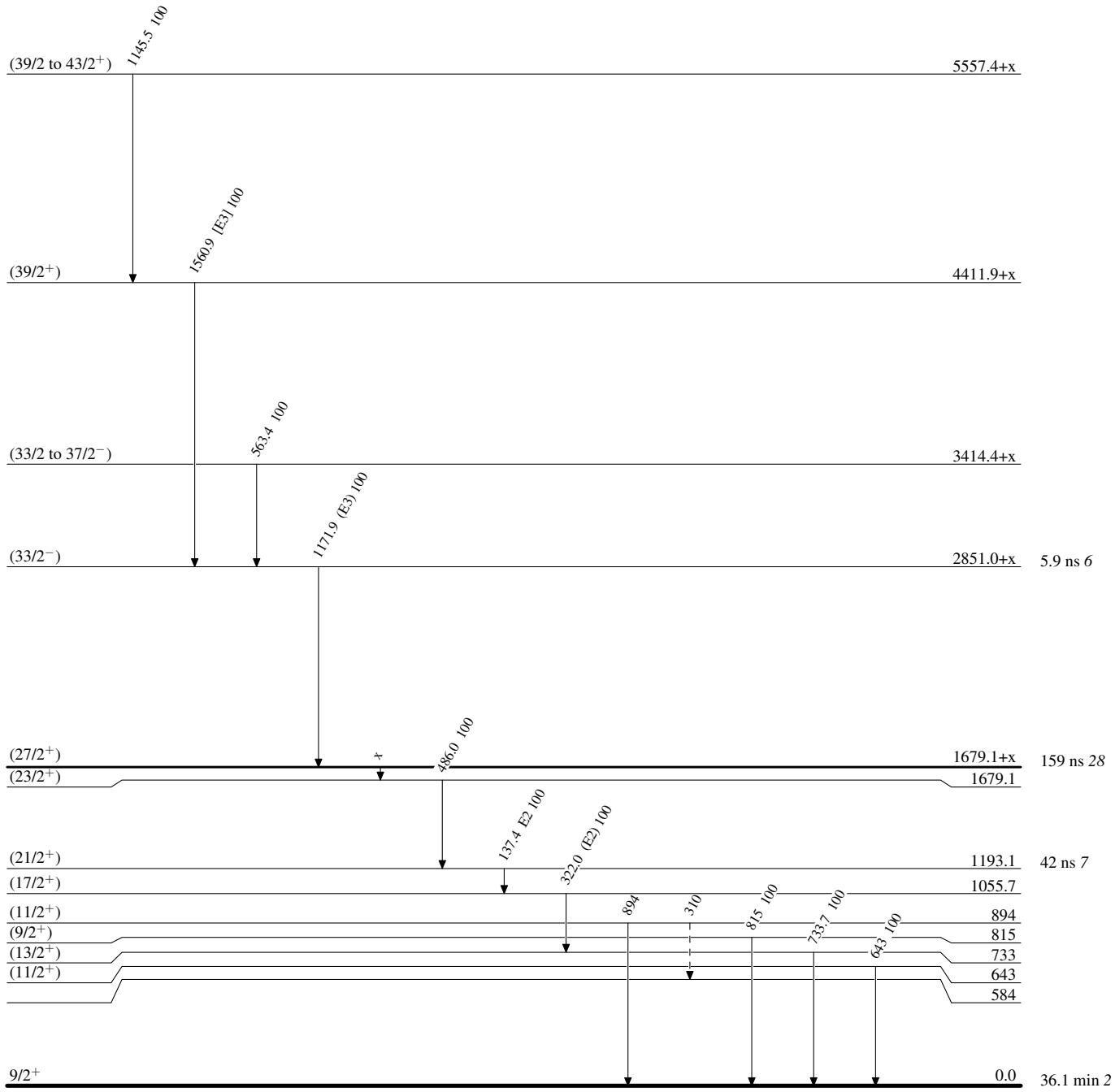
Adopted Levels, Gammas

Legend

Level Scheme

Intensities: Relative photon branching from each level

γ Decay (Uncertain)

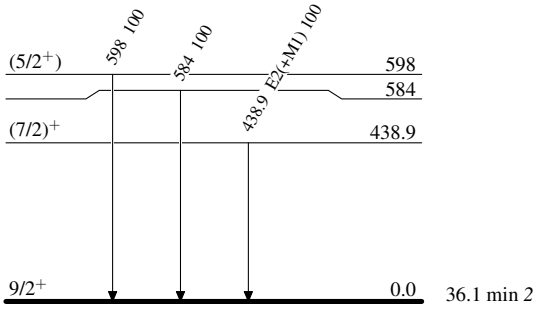


$^{211}_{82}Pb_{129}$

Adopted Levels, Gammas

Level Scheme (continued)

Intensities: Relative photon branching from each level



$^{211}_{82}Pb_{129}$