^{204}Pb(^{6}Li,3nγ) 1981Sj01

History

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

1981Sj01: populated in ^{204}Pb(^{6}Li,3n) reactions with E(^{6}Li)=34 MeV. Target: enriched (>99%) ^{204}Pb foil that was 10 mg/cm^2 thick; Detectors: two largeGe(Li) and one small planar Ge. Measured: $\gamma\gamma$, γ(t), $\gamma(\theta)$, pulsed beam.

^{207}At Levels

E(level)†	J$^\pi$‡	T$_{1/2}$	Comments
0	9/2$^-$	1.81 h *3*	J$^\pi$,T$_{1/2}$: From Adopted Levels. configuration: $(\pi\ h_{9/2})^{+3}_{9/2-}(\nu^{-4})_{0+}$.
344.3 *3*	7/2$^-$		J$^\pi$: From Adopted Levels.
643.25 *25*	11/2$^-$		configuration: $(\pi\ h_{9/2})^{+3}_{9/2-}(\nu^{-4})_{2+}$.
686.35 *25*	13/2$^-$		configuration: $(\pi\ h_{9/2})^{+3}_{9/2-}(\nu^{-4})_{2+}$.
1055.3 *3*	13/2$^-$		
1084.6 *3*	15/2$^-$		configuration: Predominantly $(\pi\ h_{9/2})^{+3}_{9/2-}(\nu^{-4})_{4+}$.
1115.7 *4*	(13/2)		
1233.8 *4*	17/2$^-$		configuration: Predominantly $(\pi\ h_{9/2})^{+3}_{9/2-}(\nu^{-4})_{4+}$.
1495.4 *5*	21/2$^-$		configuration: Predominantly $(\pi\ h_{9/2})^{+3}_{21/2-}(\nu^{-4})_{0+}$.
1631.4 *5*	(15/2)		
1897.6 *6*	23/2$^-$		configuration: Predominantly $(\pi\ h^{+2}_{9/2}\ f^{+1}_{7/2})_{23/2-}(\nu^{-4})_{0+}$.
1971?			
2117.2 *7*	25/2$^+$	108 ns *2*	g=0.30 *1* T$_{1/2}$: From 219.6γ(t). g: From 1981Sj01 deduced using the perturbed angular distribution technique and H=12.6 *1* kG from g=0.914 *1* for the 8$^+$ state in ^{210}Po (1976Ha56). Value is corrected for diamagnetism and Knight shift. configuration: Predominantly $(\pi\ h_{9/2})^{+3}_{9/2+}(\nu^{-2},\ i^{-1}_{13/2},\ f^{-1}_{5/2})_{9-}$.

† From a least-squares fit to Eγ.

‡ From 1981Sj01 based on deduced γ-ray transition multipolarities, unless otherwise specified.

γ(^{207}At)

E$_\gamma$†	I$_\gamma$†	E$_i$(level)	J$_i^\pi$	E$_f$	J$_f^\pi$	Mult.‡	Comments
(29.3)		1084.6	15/2$^-$	1055.3	13/2$^-$		E$_\gamma$: Transition not observed. Its existence is suggested by the 108-ns component observed for the 412γ. Eγ from level energy difference.
149.3 *3*	9 *1*	1233.8	17/2$^-$	1084.6	15/2$^-$	M1+E2	Mult.: A$_2$=−0.33 *8*.
219.6 *3*	13 *1*	2117.2	25/2$^+$	1897.6	23/2$^-$	E1	Mult.: A$_2$=−0.11 *7* A$_4$=0.1 *1*; α(exp) deduced from an intensity balance in the 108-ns delayed spectrum.
261.6 *3*	33 *7*	1495.4	21/2$^-$	1233.8	17/2$^-$	E2	Mult.: A$_2$=0.2 *1* A$_4$=−0.1 *1*.
339.5#		1971?		1631.4	(15/2)		
344.3 *3*	65 *7*	344.3	7/2$^-$	0	9/2$^-$	M1+E2	Placement of this transition is from Adopted Levels, gammas. Mult.: A$_2$=0.00 *3* A$_4$=−0.09 *5*.
369.0 *3*	13 *1*	1055.3	13/2$^-$	686.35	13/2$^-$	M1+E2	Mult.: A$_2$=0.1 *1*.
398.3 *3*	11 *1*	1084.6	15/2$^-$	686.35	13/2$^-$	M1+E2	Mult.: A$_2$=−0.55 *5*.
402.2 *3*	28 *3*	1897.6	23/2$^-$	1495.4	21/2$^-$	M1+E2	Mult.: A$_2$=−0.19 *3*; α(exp) deduced from an intensity balance in the 108-ns delayed spectrum.
412.1 *3*	12 *1*	1055.3	13/2$^-$	643.25	11/2$^-$	M1+E2	Mult.: A$_2$=−0.68 *5*.
441.4 *3*	34 *3*	1084.6	15/2$^-$	643.25	11/2$^-$	E2	Mult.: A$_2$=0.21 *3* A$_4$=−0.09 *6*.
472.4 *3*	27 *3*	1115.7	(13/2)	643.25	11/2$^-$	D	Mult.: A$_2$=−0.17 *5*.
515.7 *3*	17 *2*	1631.4	(15/2)	1115.7	(13/2)	M1+E2	Mult.: A$_2$=−0.59 *5* A$_4$=−0.11 *8*.

Continued on next page (footnotes at end of table)

^{204}Pb(^{6}Li,3nγ) 1981Sj01 (continued)

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

E_γ[†]	I_γ[†]	E_i(level)	J_i^π	E_f	J_f^π	Mult.[‡]	Comments
547.4 *3*	20 *2*	1233.8	17/2$^-$	686.35	13/2$^-$	E2	Mult.: A_2=0.27 *4* A_4=−0.06 *6*.
643.3 *3*	100	643.25	11/2$^-$	0	9/2$^-$	M1+E2	Mult.: A_2=−0.60 *3* A_4=−0.02 *3*.
686.3 *3*	81 *16*	686.35	13/2$^-$	0	9/2$^-$	E2	Mult.: A_2=0.24 *9* A_4=−0.1 *1*.

[†] From 1981Sj01.
[‡] From 1981Sj01 based on $\gamma(\theta)$ and α(exp) deduced from intensity balances.
[#] Placement of transition in the level scheme is uncertain.

^{204}Pb(^{6}Li,3nγ) 1981Sj01

Level Scheme

Intensities: Type not specified

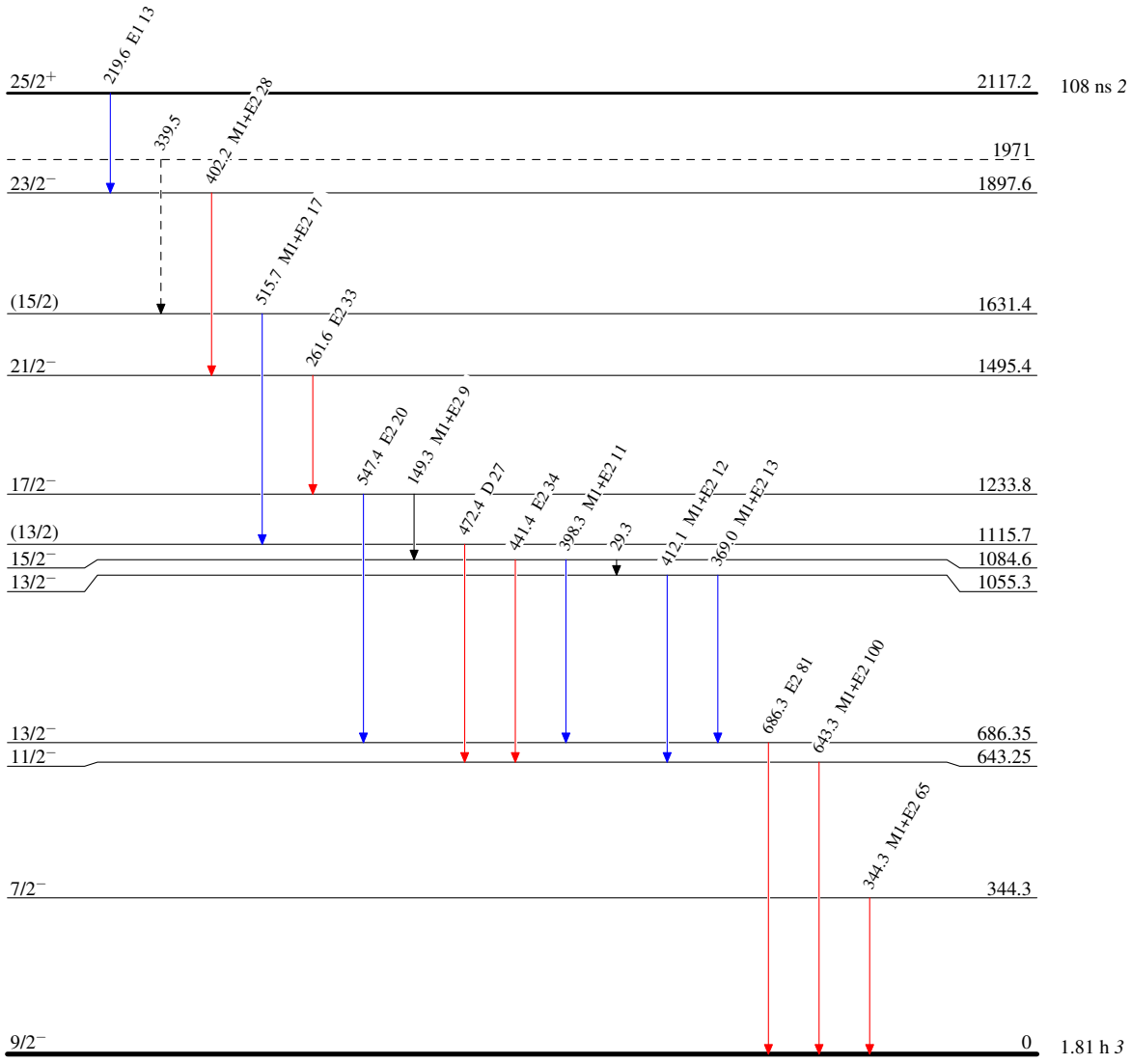
Legend

$I_\gamma < 2\% \times I_\gamma^{max}$

$I_\gamma < 10\% \times I_\gamma^{max}$

$I_\gamma > 10\% \times I_\gamma^{max}$

γ Decay (Uncertain)



$^{207}_{85}At_{122}$