Table IV
Magnetic Moments of Shell-Model States in the Lead Region

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In this table, nuclear g factors of several shell-model states in the Pb region are listed.

(i) Since there is inconsistency in the corrections for the diamagnetism and the Knight shift between published data by different authors, g factors before the corrections are listed; g_{exp}(uncorr). Then the following corrections are applied to obtain the "Adopted g factor". For measurements in non-magnetic insulator hosts

$\Delta H/H = -1.4 \pm 0.4\%$ (diamagnetic correction).[1]

For metallic hosts

$\Delta H/H = 0.0 \pm 1.0\%$ (diamagnetic correction ($\approx -1.4\%$) + Knight-shift correction ($\approx 1.5\%$)).[2]

(ii) In the case where two or more experimental values of the g factor of the same state were reported, a simple average (without weights) of them after the corrections is listed in the column of the "Adopted g factor".

(iii) Values reported at this conference are indicated by underlines.

(1) Single-particle states

Nucleus	J^π	E^* (keV)	$T_{1/2}$	g_{exp} (uncorr)[a]	Ref.	Adopted g factor	Main configuration	$g_{Schmidt}$
^{207}Pb	$5/2^-$	570	129ps	0.288(28)	3	0.29(3)	$\nu f_{5/2}^{-1}$	0.547
				0.26(2)	3			
				0.316(15)	4			
^{207}Pb	$1/2^-$	gnd	stable	1.1673	5	1.184(5)[b]	$\nu p_{1/2}^{-1}$	1.275
^{209}Bi	$9/2^-$	gnd	$>2\times10^{18}$y	0.8975	5	0.910(4)[b]	$\pi h_{9/2}$	0.583
^{205}Tl	$1/2^+$	gnd	stable	3.223	5	3.269(13)[b]	$\pi s_{1/2}^{-1} \otimes (\nu p_{1/2}^{-2})_{0^+}$	5.586
^{205}Pb	$13/2^+$	1014	5.55ms	−0.150(4)	6	−0.150(6)	$\nu i_{13/2}^{-1} \otimes (\nu p_{1/2}^{-2})_{0^+}$	0.294
^{211}Bi	$7/2^-$	405	318ps	1.26(19)	3	1.26(19)	$\pi f_{7/2} \otimes (\nu g_{9/2}^{2})_{0^+,2^+}$	1.655
^{207}Po	$13/2^+$	1114	47μs	−0.1427(15)	7	−0.143(2)	$\nu i_{13/2}^{-1} \otimes (\nu p_{1/2}^{-2}\pi h_{9/2}^{2})_{0^+}$	0.294
^{211}Po	$15/2^-$	1065	16ns	−0.05(2)	8	−0.05(2)	$\nu j_{15/2} \otimes (\pi h_{9/2}^{2})_{0^+}$ $+ (3^- \otimes \nu g_{9/2})_{15/2^-} \otimes (\pi h_{9/2}^{2})_{0^+}$	−0.255[c]

a) Experimental values without any corrections for the Knight shift and chemical shift.
b) Corrected for the chemical shift of $-1.4 \pm 0.4\%$.[1]
c) Schmidt value for the $\nu j_{15/2}$ state.

(2) Many-particle states, $(j_1 \otimes j_2)J$, with $j_1 \neq j_2$.

Nucleus	J^π	E^* (keV)	$T_{1/2}$	g_{exp} (reported) uncorrected	g_{exp} (reported) corrected	Ref.	Adopted g factor	Main configuration	g_{cal}[d] (add.)	$g_{Schmidt}$
^{202}Tl	7^+	950	0.56ms	0.128(6)		9	0.128(6)	$\pi s_{1/2}^{-1} \nu i_{13/2}^{-1} \otimes (^{204}Pb)_{0^+}$	0.09[e]	0.126
^{206}Pb	6^-	2385	29ps	0.13(7)		10	0.13(7)	$\nu p_{1/2}^{-1} \nu i_{13/2}^{-1}$	−0.25[f]	−0.406
^{206}Pb	7^-	2200	123μs	−0.0217(2)	−0.0217(4)	11	−0.0217(4)	$\nu p_{1/2}^{-1} \nu i_{13/2}^{-1}$	−0.06[f]	−0.182
^{208}Pb	5^-	3198	297ps	−0.013(27)		12	0.02(1)	$\nu g_{9/2} \nu p_{1/2}^{-1}$	(−0.15)[g]	−0.255
				0.057(8)		13				
				0.021(7)		14				
^{206}Bi	6^+	gnd	6.24d		0.76(1)	3	0.76(1)	$\pi h_{9/2} \nu f_{5/2}^{-1} \otimes (\nu p_{1/2}^{-2})_{0^+}$	0.72	0.572
^{207}Bi	$21/2^+$	2102	182μs	0.325(3)	0.325(6)	11	0.325(6)	$(\nu p_{1/2}^{-1} \nu i_{13/2}^{-1})_{7^+} \otimes \pi h_{9/2}$	0.32	0.101
^{210}Bi	5^-	439	38ns[a]	(0.309(9))	0.306(9)	15	0.309(9)	$\pi h_{9/2} \nu g_{9/2}$		0.079
^{210}Bi	7^-	433	58ns[a]	(0.305(7))	0.302(7)	15	0.305(8)	$\pi h_{9/2} \nu g_{9/2}$		0.079
^{209}Po	$17/2^-$	1473	98ns[b]	0.88(5)		16	0.890(15)	$(\pi h_{9/2}^2)_{8^+} \otimes \nu p_{1/2}^{-1}$	0.926	0.624
					0.897(15)	17				
^{210}Po	11^-	2849	24ns	1.107(16)		18	1.107(19)	$\pi h_{9/2} \pi i_{13/2}$		1.038
^{210}Po	13^-	4392	93ns		0.546(12)	19	0.546(12)	$(\pi h_{9/2}^2)_{8^+} \otimes 5^-$(in ^{208}Pb)	0.56	(0.339)
^{210}At	15^-	2549	0.75μs[c]	1.044(6)		20	1.04(1)	$[(\pi h_{9/2}^2)_{8^+} \otimes \pi i_{13/2}]_{29/2^+} \otimes \nu p_{1/2}^{-1}$	1.07[h]	0.939
^{211}At	$29/2^+$	2641	70ns		1.03(4)	21	1.03(4)	$(\pi h_{9/2}^2)_{8^+} \otimes \pi i_{13/2}$	1.07[h]	0.928

a) Ref. 22. b) Ref. 23. c) Ref. 24.
d) Calculated from the experimental g factors of the single-particle states with the additivity relation of the g factor.
e) $g(\pi s_{1/2}^{-1};\ ^{203}Tl)$ and $g(\nu i_{13/2}^{-1};\ ^{205}Pb)$ are used.
f) $g((\nu i_{13/2}^{-2})_{12^+};\ ^{206}Pb)$ is used for the g factor of the $\nu i_{13/2}^{-1}$ state.
g) $g(\nu g_{9/2}) = -0.30(1)$ deduced from the g factors of the 5^- and 7^- states of ^{210}Bi is used.
h) $g(\pi i_{13/2}) = 1.268(36)$[25] deduced from the g factor of the 11^- state of ^{210}Po is used.

(3) Proton-$h_{9/2}$ n-particle states.

Nucleus	J^π	E^* (keV)	$T_{1/2}$	g_{exp} (reported) uncorrected	g_{exp} (reported) corrected	Ref.	Adopted g factor	Main configuration
^{209}Bi	9/2$^-$	gnd	$>2\times10^{18}$y	(See Table (1))			0.910(4)	$\pi h_{9/2}$
^{210}Po	8$^+$	1557	110ns	0.925(11)		26	0.910(10)	$\pi h^2_{9/2}$
				0.904(14)		18		
					0.909(15)	27		
					0.901(13)	17		
^{210}Po	6$^+$	1473	41ns[a)]		0.93(2)	27	0.93(2)	$\pi h^2_{9/2}$
^{211}At	21/2$^-$	1417	50ns	0.901(16)	0.897(16)	28	0.901(20)	$\pi h^3_{9/2}$
^{212}Rn	8$^+$	≈ 1690	1.0μs		0.89(3)	29	0.89(3)	$\pi h^4_{9/2}$
^{204}Po	8$^+$	≈ 1650	140ns[b)]		0.905(40)	17	0.97(8)	$\pi h^2_{9/2} \otimes (\nu p^{-2}_{1/2} \nu f^{-4}_{5/2})_{0^+}$
					1.04 (8)	30		
^{206}Po	8$^+$	≈ 1590	212ns[c)]	0.926(16)	0.926(18)	31	0.93(3)	$\pi h^2_{9/2} \otimes (\nu p^{-2}_{1/2} \nu f^{-2}_{5/2})_{0^+}$
					0.905(18)	17		
					0.95 (4)	30		
^{208}Po	8$^+$	≈ 1530	380ns	0.915(6)		32	0.913(10)	$\pi h^2_{9/2} \otimes (\nu p^{-2}_{1/2})_{0^+}$
					0.911(10)	17		
^{209}Po	17/2$^-$	1473	98ns	(See Table (2))			0.890(15)	$(\pi h^2_{9/2})_{8^+} \otimes \nu p^{-1}_{1/2}$

a) Ref. 33. b) Ref. 34. c) Ref. 35.

(4) Neutron-$i_{13/2}$ n-particle states

Nucleus	J^π	E^* (keV)	$T_{1/2}$	g_{exp} (reported) uncorrected	g_{exp} (reported) corrected	Ref.	Adopted g factor	Main configuration
^{205}Pb	13/2$^+$	1014	5.55ms	−0.150(4)	−0.150(6)	6	−0.150(6)	$\nu i^{-1}_{13/2} \otimes (\nu p^{-2}_{1/2})_{0^+}$
^{206}Pb	12$^+$	4027	200ns	−0.1547(35)	−0.155(4)	36	−0.155(4)	$\nu i^{-2}_{13/2}$
^{207}Po	13/2$^+$	1114	47μs	−0.1427(15)	−0.143(2)	7	−0.143(2)	$\nu i^{-1}_{13/2} \otimes (\nu p^{-2}_{1/2} \pi h^2_{9/2})_{0^+}$

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