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Measurement of the g -Factor of the $21/2^-$ State in ^{211}Pt

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The magnetic moments of the $(h_{9/2})^x$ proton states in ^{209}Bi , ^{208}Po , and ^{210}Po (ref. 1) show remarkable discrepancies to the single particle value, even if core polarization effects are taken into account. We measured the magnetic moment of the corresponding

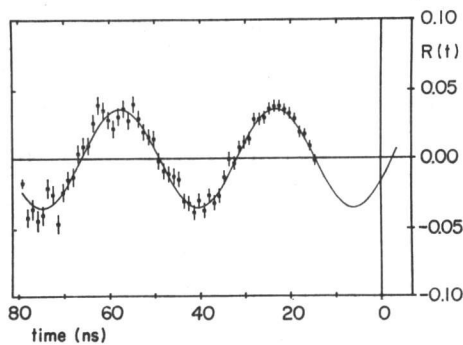


Fig. 1. Spin rotation pattern of ^{211}At nuclei in the $21/2^-$ state ($H_0 = 21.0$ kOe, pulse repetition time: 93.5 ns).

state in ^{211}At , a $21/2^- - (h_{9/2})^3$ proton state ($T_{1/2} = 50$ ns), using the DPAD method. The ^{211}At nuclei were excited by the reaction $^{209}\text{Bi}(\alpha, 2n)^{211}\text{At}$ with the 30 MeV α -particle beam provided by the cyclotron of the University of Hamburg. Our experiment yields an uncorrected g -factor of $g = +0.901 \pm 0.016$ (Fig. 1).

As the table shows, the $(h_{9/2})^x$ g -factors have the same value within the experimental errors. This again stresses the fact that coupling of one or two $h_{9/2}$ protons to the ^{209}Bi ground state has no effect on the g -factor. A detailed discussion concerning the deviation from the single particle value is given in ref. 2.

References

- 1) V. S. Shirley: *Proc. Conf. held at Rehovot, Israel, 1970, Hyperfine interactions in excited nuclei*, p. 1255.
- 2) H. Ingwersen, W. Klinger, G. Schatz, W. Witthuhn and R. Maschuw: to be published.

Table I. Comparison of the known g -factors of $(h_{9/2})^x$ proton states.

	^{209}Bi	^{208}Po	^{210}Po	^{211}At
Configuration	$\pi(h_{9/2})^1$	$\pi(h_{9/2})^2$ $\nu(p_{1/2})^{-2}$	$\pi(h_{9/2})^2$	$\pi(h_{9/2})^3$
Spin	$9/2^-$	8^+	8^+	$21/2^-$
Half-life	$>2.10^{18}\text{y}$	380 ns	110 ns	50 ns
$g_{\text{exp}}^{\text{a)}$	+0.9066	+0.911(6)	+0.920(10)	+0.897(16)

a) corrected for diamagnetic shielding and for Knight shift.