Nuclear g-Factors of High-Spin Isomers in ^{190,192,194}Pt ◇

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The **I**ntegral **P**erturbed **A**ngular **D**istribution (IPAD) method in an external magnetic field has been used to measure the g-factors of isomers in the ^{190,192,194}Pt nuclei. The isomers were populated and aligned in the ^{188,190,192}Os(α,2n)-reactions at an energy of 27 MeV. Osmium enriched targets of about 20 mg/cm^2 were prepared by depositing metallic powder on a thick bismuth backing. The results are as follows:

Nucleus	12^+	10^-	7^-
^{190}Pt	< 0	0.009(8)	0.45(35)
^{192}Pt	- 0.17(8)	0.010(6)	0.39(16)
^{194}Pt	- 0.13(5)		0.37(15)

Table 1: The g-factors of the 12^+, 10^- and 7^- states in ^{190,192,194}Pt

The intrinsic structure of the isomers is discussed. The 12^+ states have the rotational-aligned ($\nu i_{13/2}^{-2}$) structure. The missing rotation-aligned 12^+ state in ^{194}Pt is suggested to be isomeric instead of the 10^+ state. The $g =$ -0.13(5) value has then to be attributed to the $12k$. From previous work this isomeric state was believed to be 10^+. In ^{190}Pt and ^{192}Pt the anomalous orbital g-factor for neutrons has been derived as δg_l = - 0.032(6) from the g-factors of the 10^- state with the configuration $\nu 9/2^-[505]\otimes\nu 11/2^+[615]$. The positive values of the g-factors of the 7^- states indicate a change in the intrinsic structure of the negative-parity bands from mainly ($\nu i_{13/2}^{-2}$) to mainly ($\pi h_{11/2}^{-2}$) in going from the Hg isotopes to those of Pt.

The angular distribution coefficients A_2 and A_4 from refs. [1,2] were used in analysis of the experimental data. The geometrical factors can not be taken into account correctly. This can be a source of systematic errors. Therefore a new experiment is planned in which the logarithmic derivatives for the angular distribution and the magnetic moment precession effects will be measured under the same conditions (target, geometry, detectors etc).

References

[1] S.A. Hjorth, A. Johnson, T. Lindblad, L. Funke, P. Kemnitz and G. Wigner, Nucl. Phys. A **262** (1976) 328

[2] J.C. Cunnane, M. Piiparinen, P.J. Daly, C.L. Dors, T.L. Khoo and F.M. Bernthal, Phys. Rev. C **13** (1976) 2197

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