Abstract Submitted
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A g-factor puzzle for the N=38 nuclei:First measurement of the ^{70}Ge 4_1^+ magnetic moment. PLAMEN BOUTACHKOV, G. KUMBARTZKI, N. BENCZER-KOLLER, Rutgers University, S. ROBINSON, University of Sothern Indiana, A. ESCUDEROS, E. STEFANOVA, Y. SHARON, L. ZAMICK, Rutgers University, E. MCCUTCHAN, V. WERNER, H. AI, G. GURDAL, A. HEINZ, J. QIAN, E. WILLIAMS, R. WINKLER, Yale University, A. GARNSWORTHY, N. THOMPSON, University of Surrey, P. MAIER-KOMOR, Technische Universitat Munchen — The transient field technique in inverse kinematics allows g-factor studies of short-lived states. This method gives information on both the sign and the magnitude of the g factor. In a recent experiment, the g factor of the 4_1^+ state of $^{68}_{30}$Zn$_{38}$ was measured to be -0.37(17) suggesting a significant neutron $g_{9/2}$ contribution to the wave function[1]. However, shell model calculations in the $0f_{5/2}$,$1p_{3/2}$,$1p_{1/2}$,$0g_{9/2}$ space [1] predict a positive, nearly zero g factor. To obtain more information on this region we measured the magnetic moment of the 4_1^+ in $^{70}_{32}$Ge$_{38}$. The measurement was performed at WNSL, Yale, using a 275 MeV ^{70}Ge beam and a multilayered C+Gd+Cu target. A positive g factor was obtained. The measured magnetic moment was compared to full fp shell model calculations which we performed with the code ANTOINE using several effective interactions. The results were in good agreement with the experiment. The experiment and the implications of the new results will be discussed.
1. J. Leske *et al.*, Phys. Rev C **72**, 044301 (2005).

Plamen Boutachkov
Rutgers University

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