Abstract Submitted
for the APR08 Meeting of
The American Physical Society

The g-factor measurement of the 4_1^+ state in ^{70}Zn G. GÜRDAL, Rutgers University, G. KUMBARTZKI, N. BENCZER-KOLLER, B. KRIEGER, Y.Y. SHARON, Rutgers University, D. MÜCHER, Universität zu Köln, K. SPEIDEL, Universität Bonn, R. CASPERSON, V. WERNER, E. WILLIAMS, WNSL, Yale University — The measurement of the g factors of excited nuclear states provide an indication of their microscopic structure since the g factors are very sensitive to the proton and neutron contributions to the wave functions. Recently, g factors of excited states in the even-even stable Zn nuclei were measured. The measured g factors of their 2_1^+ states were generally in good agreement with the results of shell model calculations as well as with the Z/A value, the characteristic of collective behavior. Also studied were the g factors of some 4_1^+ states, which are only weakly excited by Coulomb excitation. Possible contributions of $g_{9/2}$ neutrons to the wave function of the 4_1^+ states in the Zn isotopes would reduce the g factors of these states. To extend these systematic studies, the 4_1^+ state of ^{70}Zn was populated by the Coulomb excitation, on a C target, of a beam of ^{70}Zn in inverse kinematics, and its g-factor was studied using the Transient Field technique. The γ ray transition energies in ^{70}Zn have some near-degeneracies which make the extraction of the g-factor of 4_1^+ state difficult. Work supported by the U.S. National Science Foundation, U.S.D.O.E under grant DE-FG02-91ER-40609 and by German BMBF under grant number 06KY2051.

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Date submitted: 24 Jan 2008 Electronic form version 1.4