Abstract Submitted
for the DNP17 Meeting of
The American Physical Society

Nuclear structure studies of ^{141}Ce and ^{147}Sm using deep-inelastic collisions[1] E. J. GASS, Stony Brook University, E. A. MCCUTCHAN, A. A. SONZOGNI, Brookhaven National Laborotory, W. LOVELAND, J. S. BARRETT, R. YANEZ, Oregon State University, C. J. CHIARA, J. L. HARKER, W. B. WALTERS, University of Maryland, S. ZHU, A. D. AYANGEAKAAI, M. P. CARPENTER, J. P. GREENE, R. V. F. JANSSENS, T. LAURITSEN, Argonne National Laborotory, H. NADJA, Universit de Strasbourg — Nuclei with a few valence nucleons outside of the magic numbers are essential for testing the nuclear shell model and gathering information on the residual interactions and energies of single-particle levels. The present work focused on the high-spin structures of ^{141}Ce (N = 83) and ^{147}Sm (N = 85). These nuclei are not produced by heavy-ion fusion-evaporation or fission reactions, therefore little was known about their high-spin structure. A deep-inelastic reaction using a beam of ^{136}Xe incident on a thick target of ^{208}Pb was used to populate excited states in the nuclei. The Gammasphere array at Argonne National Laboratory was used to detect the resulting de-excitation -ray transitions. The level schemes of both nuclei were significantly extended to high angular momentum and high excitation energy. In ^{141}Ce, this included a number of states built on the $i_{13/2}$, 1369-keV level. Results of the present analysis will be compared to state-of-the-art shell model calculations.

[1]Supported by US DOE under the SULI Program and Grant Nos. DE-FG06-97ER41026 and DE-FG02-94ER40834 and Contract Nos. DE-AC02-06CH11357 and DE-AC02-06CH10886.

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Date submitted: 01 Aug 2017 Electronic form version 1.4