Abstract Submitted
for the DNP10 Meeting of
The American Physical Society

Structure of ^{32}P at high spins[1] R. CHAKRABARTI, UDC KC, India, S. MUKHOPADHYAY, Mississippi State Univ., R. BHATTACHERJEE, S.S. GHUGRE, A.K. SINHA, UDC KC, India, A. DHAL, IUAC, India, L. CHATURVEDI, G. Ghasidas Univ., India, M. KUMAR RAJU, Andhra Univ., India, N. MADHAVAN, R.P. SINGH, S. MURALITHAR, IUAC, India, B.K. YOGI, Govt. College, Kota, India, U. GARG, Univ. of Notre Dame — High spin states in ^{32}P were populated for the first time using heavy ion fusion reaction ^{18}O(^{16}O, 1p1n)^{32}P. De-exciting γ rays were detected with the multi-clover (18 clovers) Indian National Gamma Array. The observed excitation energies for the low-lying negative and positive parity states were reproducible within the truncated sd-pf shell model calculations without resorting to the lowering of the sd-pf shell gap as done for nuclei in this mass region [1]. Lifetime and spin-parity measurements have been undertaken and the experimental branching ratios were obtained. Comparison of the above observed values with the theoretical predictions are expected to yield valuable insight into the role of the intruder configurations and an understanding of the transition in shell structure as one approaches the island of inversion.

[1] P. C. Bender et al., Phys. Rev. C 80, 014302 (2009).

[1]Supported in part by C.S.I.R., Govt. of India.

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Date submitted: 01 Jul 2010 Electronic form version 1.4