Abstract Submitted
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High-Spin Structures in the N=153 Nucleus ^{251}Cf[1] Y. QIU, S.S. HOTA, P. CHOWDHURY, C.J. GUESS, E.G. JACKSON, C.J. LISTER, V.S. PRASHER, University of Massachusetts Lowell, T.L. KHOO, M.P. CARPENTER, R.V.F. JANSSENS, J. GREENE, I. AHMAD, D. SEWERYNIAK, S. ZHU, M. ALBERS, M. ALCORTA, P.F. BERTONE, J. CHEN, C.J. CHIARA, C.R. HOFFMAN, F.G. KONDEV, T. LAURITSEN, Argonne National Laboratory, S.K. TANDEL, UM-DAE Centre for Excellence in Basic Sciences — In continuation of our exploration of band structures in neutron-rich Cf nuclei using inelastic and transfer reactions[1], we report new spectroscopic observations in the ^{251}Cf nucleus. High-spin states of neutron-rich Cf nuclei were populated using a ^{208}Pb beam from the ATLAS facility at Argonne, incident on a radioactive target mixture of ^{249,250,251}Cf. Prompt γ rays were detected by the Gammasphere array. Both signatures of the ground state band of ^{251}Cf were observed for the first time, with enhanced signal-to-noise achieved through appropriate gates on sum energy and fold parameters. Assignment of the band structure to ^{251}Cf is via coincidence with Cf X-rays as well as the excitation of the ^{208}Pb beam partner. Configurations are assigned to the observed band from experimental M1/E2 branching ratios from clean decays within the band. Further data analysis is in progress, and the new results will be discussed in the context of physics of the highest neutron orbitals accessible to spectroscopy in the A=250 region.

[1] S. S. Hota, Ph.D. Thesis, U. Mass Lowell, 2012

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