Abstract Submitted
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Results from (d,p) measurements in inverse kinematics at the HRIBF[1] K.L. JONES, Rutgers University (currently at the Univ. of Tennessee), R.L. KOZUB, Tennessee Technological University, ORRUBA COLLABORATION, RIBENS COLLABORATION — The Center of Excellence for Radioactive Ion Beam Studies has begun a program of (d,p) transfer experiments on fission fragment beams. These types of measurements probe the structure of nuclei away from stability, providing critical information for neutron-capture network models. The doubly-magic nuclei are used as bench marks for structure models. However, few exotic doubly-magic nuclei are available for in depth study, such as can be made using transfer reactions. Understanding the evolution of single-particle structure of nuclei close to the magic numbers, but away from the valley of stability, is crucial for improving models of the nucleus. This, in turn, provides critical information for neutron-capture network models. Fission fragment beams in the 132Sn region are available at Coulomb barrier energies at the Holifield Radioactive Ion Beam Facility (HRIBF). A major focus of our studies is on nuclei around the doubly-magic 132Sn nucleus. We have made a proof of principle study of (d,p) reactions in inverse kinematics in the A$\sim$132 region using a stable beam of 124Sn [1]. Results from the test measurement and the status of two experiments using radioactive 130Sn and 132Sn beams will be presented. [1] K.L. Jones et al., Phys. Rev. C 70, 067602 (2004).

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