

Abstract Submitted
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Transfer of Neutrons from Deep Below the Fermi Surface via the (p,t) Reaction in the N=90 Region¹ P. HUMBY, E. WILSON, C.W. BEAUSANG, University of Richmond, A. SIMON, University of Richmond, University of Notre Dame, K. GELL, T. TARLOW, G. VYAS, University of Richmond, T.J. ROSS, University of Kentucky, R.O. HUGHES, J.T. BURKE, R.J. CASPERSON, J. KOGLIN, Lawrence Livermore National Laboratory, S. OTA, Lawrence Livermore National Laboratory, Rutgers University, J.M. ALLMOND, Oak Ridge National Laboratory, M. MCCLESKEY, E. MCCLESKEY, A. SAASTAMOINEN, R. CHYZH, M. DAG, Texas A&M University — The $^{152,154}\text{Sm}(p,t)$ reactions were used to investigate excited states populated by the transfer of neutrons from deep below the Fermi surface. States corresponding to the transfer of at least one neutron from below the N=82 shell closure are of particular interest since they provide a sensitive probe of the evolution of the shell closure with increasing deformation. In the present work, large quasi-discrete structures were observed in the triton energy spectra at excitation energies of 2-3 MeV and are interpreted in terms of the underlying Nilsson orbitals. The experiment utilized a 25 MeV proton beam from the K-150 cyclotron at the Cyclotron Institute of Texas A&M University and the outgoing charged particles and γ rays were detected using the STARLiTeR array.

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Peter Humby
University of Richmond

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