

Abstract Submitted
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Single Particle States in ^{56}Ni ALISHER SANETULLAEV, W.G. LYNCH, M.B. TSANG, D. BAZIN, D. COUPLAND, V. HENZL, D. HENZLOVA, M. KILBURN, JENNY LEE, A.M. ROGERS, A. SIGNORACCI, Z.Y. SUN, M. YOUNGS, NSCL/MSU, M. FAMIANO, Department of Physics, WMU, S. HUDAN, Department of Chemistry, IU, P. O'MALLEY, W.A. PETERS, Department of Physics and Astronomy, RU, K. SCHMITT, Department of Physics and Astronomy, UT, D. SHAPIRA, ORNL, R.J. CHARITY, L.G. SOBOTKA, Department of Chemistry, WUSTL — Neutron spectroscopic factor of ^{56}Ni using (p, d) neutron transfer reaction has been measured using 37 MeV/u ^{56}Ni beam in inverse kinematics. The measurement was performed at NSCL using the high resolution silicon array, HiRA, to detect the deuterons in coincidence with the recoil residues detected in the S800 spectrometer. To test if ^{56}Ni is a good core, the most direct way is to measure the single particle nature of the neutrons or protons in the $f_{7/2}$ orbits. Direct measurements of the spectroscopic factors of the neutron hole state in ^{56}Ni using the pickup (p,d) reaction will determine if the neutron $f_{7/2}$ orbit is indeed a closed shell. In present work, preliminary experimental results will be presented.

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