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Proton Inelastic Scattering on ^{74}Ni S. KANNO, Rikkyo University, N. AOI, H. SAKURAI, T. MOTOBAYASHI, T. KUBO, S. TAKEUCHI, K. YONEDA, RIKEN, H. IWASAKI, H. SUZUKI, Department of Physics, University of Tokyo, T. NAKAMURA, Tokyo Institute of Technology, D. BAZIN, M.D. BOWEN, C.M. CAMPBELL, J.M. COOK, D.-C. DINCA, A. GADE, T. GLASMACHER, W.F. MUELLER, H. OLLIVER, J.R. TERRY, Department of Physics and Astronomy and National Superconducting Cyclotron Laboratory, Michigan State University — The proton inelastic scattering on the neutron-rich nucleus ^{74}Ni has been investigated aiming at exploring the evolution of the magicity at Z=28 in a very neutron-rich region. In the Ni isotopes lighter than ^{72}Ni, the first 2^+ states are located higher than those of the neighboring isotones, reflecting the magicity at Z=28. In the present experiment, the excitation energy of the first 2^+ state ($E_x(2^+)$) and the deformation parameter of a more neutron-rich Ni isotope ^{74}Ni were measured by proton inelastic scattering. ^{74}Ni was produced at NSCL by the projectile fragmentation of a 140 MeV/nucleon ^{86}Kr beam on a ^{9}Be target. The ^{74}Ni beam impinged on a liquid hydrogen (LH_2) target and the NaI(Tl) scintillator array (APEX) placed around the LH_2 target detected the de-excitation γ rays. $E_x(2^+)$ was determined from the γ-ray spectrum measured in coincidence with the scattered ^{74}Ni ions. The deformation parameter was extracted from the angle-integrated cross section.

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