

Abstract Submitted
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Elastic scattering of polarized protons from neutron-rich helium isotopes at 71 MeV/A¹ SATOSHI SAKAGUCHI, RIKEN, R388N COLLABORATION², R399N COLLABORATION³ — In recent studies of unstable nuclei, increasing interest has been attracted by the manifestations of spin-dependent interactions in nuclei. Spin-dependent interactions such as tensor, spin-orbit, and three-nucleon forces have been investigated via direct reactions of polarized light ions. Application of this method to the physics of unstable nuclei should provide us with new information on the effects of spin-dependent interactions on the structure and reaction mechanisms involving unstable nuclei. For this purpose, we have successfully developed a solid polarized proton target which can be operated under a low magnetic field of 0.1 T and at high temperature of 100 K. Making use of this target, we measured vector analyzing powers for the elastic scattering of polarized protons from neutron-rich helium isotopes, ⁶He and ⁸He, at 71 MeV/A. Features of spin-orbit potential between protons and neutron-rich helium isotopes have been extracted by the phenomenological optical model analysis.

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²Collaboration for the R388n experiment at RIKEN.

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