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Transfer reaction measurements using SNACK at KoBRA

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KoBRA (KORea Broad acceptance Recoil spectrometer and Apparatus) [1] will produce RI beams with energies of 5 to 10 MeV/u from stable ion beams (10 ~ 40 MeV/u) delivered from the superconducting linear accelerator SLC3 of RAON (Rare isotope Accelerator complex for ON-line experiments) [2]. In its early phase of operation, transfer reaction measurements with these RI beams can be performed for nuclear astrophysics studies.

SNACK (Silicon detector array for Nuclear Astrophysics study at KoBRA) has been developed at RISP (Rare Isotope Science Project) in order to measure the light ejectiles from the transfer reactions. With the beam trajectories obtained from upstream PPACs (Parallel Plate Avalanche Counter), excitation energy levels in the heavy recoils can be reconstructed by measuring light ejectile's energies and scattering angles. The expected results of transfer reaction measurements with SNACK and KoBRA beamline detectors were calculated by using a Monte Carlo simulation. This talk with present details of the detector development and simulation results.

[1] K. Tshoo *et al.*, Nucl. Instrum. Methods Phys. Res. B 376 (2013) 188.

[2] D. Jeon *et al.*, J. Korean Phys. Soc. 65 (2014) 1010.

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