[RIBF-ULIC-miniWS-025] Prospects on reaction studies using polarized targets with low energy beams

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Polarized targets offer new opportunities to investigate nuclear structure of exotic nuclei as well as nuclear interaction properties. Experimental studies of elastic scattering have been performed at RIKEN using a solid polarized proton target operated in a low magnetic field and at a high temperature [1,2]. More recently, a nucleon quasi-free scattering experiment at high energy using the same target technology has been performed at RIBF using beams of neutron-rich oxygen isotopes. The workshop aims to investigate the opportunity of using polarized targets to study reactions relevant to lower incident energies regime, e.g. transfer reactions, resonant scattering and also reactions of interest for few body physics. During the meeting, a point will be made on presently existing targets and ongoing developments, focusing especially on the abovementioned polarized proton target as well as the polarized 3He gas cell target. For the reactions of interest, we will recall the “plus” brought by spin observables as compared to studies with non-polarized beams/targets. Then we will discuss a few physics cases that can be tackled with e.g. slowed-down beams that RIBF can produce and examine the difficulties to perform inverse kinematics experiments using low energies beams of unstable nuclei with such targets.

[1] T.Uesaka et al., Phys.Rev. C 82, 021602 (2010)
[2] S.Sakaguchi et al., Phys.Rev. C 84, 024604 (2011)