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## The WASA-FRS project at GSI and its perspective

*Tuesday, 4 October 2022 11:00 (30 minutes)*

Studies of sub-atomic bound systems with hyperons and an mesons can provide essential information on the fundamental baryonic interaction and the origin of the mass. They can be studied by employing energetic heavy ion beams and proton beams above 2 A GeV. For these studies, the precision for measuring ejectiles moving to the very forward directions and other associated particles from the reaction and decay of nuclei of interest emitted with a wider angular distribution is the key. We have developed a novel technique for these studies by employing the fragment separator FRS at GSI and the WASA detector, and the project employing this technology is so-called “the WASA-FRS project”[1]. The WASA detector with a superconducting solenoid magnet and other associated detectors is mounted at the mid-focal plane of the FRS, and light particles like mesons and protons are measured by the WASA detector. Heavier ejectiles like deuterons and helium isotopes were measured by the FRS behind the mid-focal plane with an excellent momentum resolving power. Experiments for studying light hypernuclei and  $\eta'$ -nuclei were already performed in the first quarter of 2022. The details of the WASA-FRS project and its perspective will be discussed.

[1] Takehiko R. Saito et al., Nature Reviews Physics volume 3, pages 803-813 (2021).

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