

Development of the STRASSE system for quasi free scattering measurements at the RIBF

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STRASSE (Silicon Tracker for RAdioactive nuclei Studies at SAMURAI Experiments) is a new detection system under construction for quasi-free scattering (QFS) measurements at 200-250 MeV/nucleon at the RIBF facility of the RIKEN Nishina Center. It consists of a charged-particle silicon tracker coupled with a dedicated thick liquid hydrogen target (up to 150-mm long) in a compact geometry to fit inside large scintillator or germanium arrays. Its design was optimized for two types of studies using QFS: missing-mass measurements and in-flight prompt γ -ray spectroscopy. In this presentation, we will report on i) the resolution requirements needed to go beyond the sensitivity of existing systems for these two types of measurements, (ii) the conceptual design of the system using detailed simulations of the setup and (iii) its complete technical implementation and challenges (iv) the current status of the project. The STRASSE system aims at a sub-mm reaction vertex resolution and is expected to reach a missing-mass resolution below 2 MeV in σ for (p,2p) reactions when combined with the CsI(Na) CATANA array.

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