

nuSTORM; Neutrinos from Stored Muons

Friday, August 5, 2022 4:10 PM (20 minutes)

The nuSTORM facility will provide ν_e and ν_μ beams from the decay of low energy muons confined within a storage ring. The neutrino and anti-neutrino energy distributions will be precisely known. The precision goals of the oscillation program require a realistic modeling of neutrino-nucleus scattering dynamics. nuSTORM can contribute to this effort by providing the ultimate experimental program of scattering measurements. The cross section for the scattering on complex nuclei is sensitive to energy and momentum transfers. Data with both muons and electrons in the final state are therefore very valuable. Sensitivity to physics beyond the Standard Model (BSM) is provided by nuSTORM's unique features. This allows sensitive searches for short-baseline flavour transitions, light sterile neutrinos, nonstandard interactions, and non-unitarity. In synergy with the scattering program, new physics searches would also profit from measurements of exclusive final states, allowing for BSM neutrino interactions to be probed in neutrino-electron scattering and by searching for exotic final states. The status of the development of nuSTORM will be reviewed in the context of the renewed effort to develop high-brightness stored muon beams and as a route to very-high energy lepton-anti lepton collisions in the muon collider.

Attendance type

In-person presentation

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