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Neutrinos from STORed Muons, nuSTORM

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Neutrino beams produced from the decay of muons in a racetrack-like decay ring (the so called Neutrino Factory) provide a powerful way to
study neutrino oscillation physics and in addition provide unique beams for neutrino interaction studies. The Neutrinos from STORed Muons (nuSTORM) facility is a neutrino factory-like facility designed for short baseline neutrino oscillation and neutrino interaction studies. However, due to the particular nature of nuSTORM, it can also provide an intense, very pure, muon neutrino beam from pion decay which is possibly suitable for long-baseline neutrino oscillation searches as well. This so-called “Neo-conventional” muon neutrino beam from nuSTORM makes nuSTORM a hybrid neutrino factory.

In this talk, I will describe the facility and give a detailed description of the neutrino beam fluxes that are available at the facility and the precision to which these fluxes can be determined. I will present sensitivity plots that indicated how well the facility can
perform for short-baseline oscillation searches and show its potential for a neutrino interaction physics program. Finally, I will comment on the performance potential of the “Neo-conventional” muon neutrino beam available at the nuSTORM facility.

Summary

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