

## Progress of studies on the Neutrinos from Stored Muons, nuSTORM, facility

*Friday, 5 August 2022 16:10 (30 minutes)*

The Neutrinos from Stored Muons, nuSTORM, facility has been designed to deliver a definitive neutrino-nucleus scattering programme using neutrino beams from the decay of muons confined within a storage ring. The facility is unique, it will be capable of storing muon beams of both charges with momentum of between 1 GeV/c and 6 GeV/c and a momentum spread of  $\pm 16\%$ . The neutrino beams generated will span neutrino energies from approximately 300 MeV to 5.5 GeV allowing neutrino-scattering measurements to be made over the kinematic range of interest to the DUNE and Hyper-K. At nuSTORM, the flavour composition of the beam and the neutrino-energy spectrum are both precisely known. The storage-ring instrumentation will allow the neutrino flux to be determined to a precision of 1% or better. nuSTORM will: serve the future long- and short-baseline neutrino-oscillation programmes by providing definitive measurements of scattering cross-sections with percent-level precision. It will extend the search for light sterile neutrinos beyond the sensitivities that will be provided by the FNAL Short Baseline Neutrino (SBN) programme and create an essential test facility for the development of muon accelerators to serve as the basis of a multi-TeV lepton-antilepton collider and a Neutrino Factory. Recent progress of R&D studies on nuSTORM are presented.

### Attendance type

In-person presentation

**Primary authors:** PASTERNAK, Jaroslaw (Imperial College/RAL-STFC); LONG, Kenneth (Imperial College London)

**Presenter:** PASTERNAK, Jaroslaw (Imperial College/RAL-STFC)

**Session Classification:** WG3: Accelerator Physics

**Track Classification:** WG3: Accelerator Physics