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nuSTORM: input to the update of the European Strategy for Particle Physics

The nuSTORM facility has been designed to deliver beams of electron and muon neutrinos from the decay of a stored muon beam with a central momentum of 3.8 GeV and a momentum spread of 10%. The facility will serve a number of near detectors situated at which the electron-neutrino and muon-neutrino cross sections will be measured with a percent-level precision. A detector located at a distance of $\sim 2000\text{m}$ will be capable of making sensitive searches for sterile neutrinos.

The physics case for the facility is compelling. The facility can be implemented today for a modest cost and is well within the capabilities of the major HEP proton-accelerator laboratories. In addition, by delivering a first-rate physics programme using neutrinos produced in the decay of muons confined within a storage ring, nuSTORM will herald a new technique for particle physics, paving the way for the detailed studies of the properties of the neutrino that can be carried out at the Neutrino Factory.

Therefore, the case is made that the European Strategy for Particle Physics must provide for European contributions to the realisation of the nuSTORM facility.

Primary author: Prof. LONG, Kenneth (Imperial College London)