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The nuSTORM experiment

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The nuSTORM facility will provide \nu_e and \nu_\mu beams from the decay of low energy muons confined within a storage ring. The instrumentation of the ring, combined with the excellent knowledge of muon decay, will make it possible to determine the neutrino flux at the %-level or better. The neutrino and anti-neutrino event rates are such that the nuSTORM facility serving a suite of near detectors will be able to measure \nu_eN and \nu_\muN cross sections with the %-level precision required to allow the next generation of long-baseline neutrino-oscillation experiments to fulfil their potential. By delivering precise cross section measurements with a pure weak probe nuSTORM may have the potential to make measurements important to understanding the physics of nucleii. The precise knowledge of the initial neutrino flux also makes it possible to deliver uniquely sensitive sterile-neutrino searches. The concept for the nuSTORM facility will be presented together with an evaluation of its performance. The status of the planned consideration of nuSTORM at CERN in the context of the Physics Beyond Colliders workshop will be summarised.

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