

A Staged Approach for Muon-based Facilities

We present a staged approach for muon based facilities for intensity and energy frontier science, building upon existing and proposed facilities at Fermilab. Each stage would provide both a project exploring new physics as well as provide an R&D platform to develop technology needed for following stages. The program could begin with nuSTORM, which would provide precision neutrino measurements while developing the technology of using and cooling muons. This could be followed by low-luminosity and higher-intensity stages of a neutrino factory that would use the enhanced intensity of stages of Project X and the LBNE detector facility for detailed exploration of neutrino properties, while establishing the technology of using intense bunched muon beams. This could be followed by muon colliders, starting at 125 GeV with measurements of the Higgs resonance at sub-MeV levels and continuing to multi-TeV Colliders for the exploration of physics beyond the standard model at the energy frontier.

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