

NA-PAC 2013 Abstract

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Abstract A muon collider and a muon-based neutrino factory are attractive options for particle physics. Their optimal realization requires demonstration of muon ionization cooling, a technique to rapidly reduce the emittance of the tertiary muon beam. MICE, performed by a team from the U.S., Europe, and Asia and sited at Rutherford Appleton Laboratory, will provide this demonstration. The experiment comprises one cell of a representative cooling channel, bracketed upstream and downstream by spectrometer solenoid magnets containing scintillating fiber tracking detectors. Characterization of the ISIS muon beam line is complete. Fabrication of the superconducting spectrometer solenoids is nearly complete, with one having passed its acceptance tests, and the second nearly ready for testing. The first focus coil is presently being tested, with a second unit ready shortly. A prototype coil for the 1.5-m-diameter coupling coil is also being tested, and its cryostat is ready for fabrication. Other required hardware, including RF cavities and liquid-H absorbers, is also fabricated. The status of the major hardware items and plans for carrying out the experiment are described.

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Footnote

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