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ID: 3329 MICE Step I: First Measurement of Emittance with Particle Physics Detectors

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Abstract The muon ionization cooling experiment (MICE) is a strategic R&D project intending to demonstrate the only practical solution to prepare high brilliance beams necessary for a neutrino factory or muon colliders. MICE is under development at the Rutherford Appleton Laboratory (UK). It comprises a dedicated beam line to generate a range of input emittance and momentum, with time-of-flight and Cherenkov detectors to ensure a pure muon beam. The emittance of the incoming beam is measured in the upstream magnetic spectrometer with a sci-fiber tracker. A cooling cell will then follow, alternating energy loss in Li-H absorbers and RF acceleration. A second spectrometer identical to the first and a second muon identification system measure the outgoing emittance. In the 2010 run the beam and most detectors have been fully commissioned and a first measurement of the emittance of a beam with particle physics (time-of-flight) detectors has been performed. The analysis of these data should be completed by the time of the Conference. The next steps of more precise measurements, of emittance and emittance reduction (cooling), that will follow in 2011 and later, will also be outlined.

Footnotes Abstract is submitted by the MICE Speakers Bureau.
If accepted, most likely Dr. Kaplan will present it.
As a first result in a novel sector, we propose it for an oral presentation

Funding Agency

Type of Presentation Poster

Main Classification 03 Linear Colliders, Lepton Accelerators and New Acceleration Techniques

Sub Classification A09 Muon Accelerators and Neutrino Factories

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