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Status of MICE, the international Muon Ionisation Cooling Experiment

Muon ionization cooling provides the only practical solution to prepare high brilliance beams necessary for a neutrino factory or muon colliders. The muon ionization cooling experiment (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. A first measurement of emittance is performed in the upstream magnetic spectrometer with a scintillating fiber tracker. A cooling cell will then follow, alternating energy loss in liquid hydrogen and RF acceleration. A second spectrometer identical to the first one and a particle identification system provide a measurement of the outgoing emittance. In July 2010 the beam and most detectors will be commissioned and the time of the first measurement of input beam emittance closely approaching. The plan of steps of measurements of emittance and cooling, that will follow in the rest of 2010 and later, will be reported.

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