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Muon Ionization Cooling Experiment: results & prospects.

Thursday, 25 February 2021 10:00 (20 minutes)

A neutrino source based on decay of an intense muon beam would make an ideal source for measurement of neutrino oscillation parameters. Muon beams may be created through the decay of pions produced in the interaction of a proton beam with a target. The muons are subsequently accelerated and injected into a storage ring where they decay producing a beam of neutrinos. Cooling of the muon beam would enable more muons to be accelerated resulting in a more intense neutrino source. Ionization cooling is the novel technique by which it is proposed to cool the beam. The Muon Ionization Cooling Experiment collaboration has constructed a section of an ionization cooling cell and used it to provide the first demonstration of ionization cooling. Here the observation of ionization cooling is described. The cooling performance is studied for a variety of beam and magnetic field configurations. The future outlook for muon ionization cooling demonstrations is discussed.

Collaboration name

MICE: Muon Ionization Cooling Experiment

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