

Recent results from the study of emittance evolution in MICE

The Muon Ionization Cooling Experiment (MICE) has measured the evolution of beam emittance due to ionization cooling. A muon beam is focused by a large aperture solenoid onto an absorber (Lithium hydride or liquid hydrogen). Detectors are placed upstream and downstream of the focus, enabling the phase space coordinates of each muon to be reconstructed and the change in beam emittance of ensembles of muons to be measured. Data taken during 2016 and 2017 are currently under study to evaluate the change in emittance due to the absorber for muon beams with various initial emittances, momenta, and settings of the magnetic lattice. Simulations have been used to estimate the regimes in which heating and cooling are expected and to evaluate the equilibrium emittance, at which neither heating nor cooling is observed. The results of the simulations have been compared to the measured emittance changes. The current status and the most recent results of these analyses will be presented

Authorship annotation

The author is the chair of the speakers bureau of the MICE Collaboration and will identify a member of the collaboration to present the contribution, if accepted.

Session and Location

Wednesday Session, Poster Wall #62 (Auditorium Gallery Right)

Poster included in proceedings:

yes

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Track Classification: Poster (not participating in poster prize competition)