



Contribution ID: 727

Type: Poster

Measurement of emittance and emittance reduction in MICE

MICE is building at RAL a muon beam with tunable emittance and an array of detectors capable to measure the emittance of the beam before and after any ionization cooling device that will be designed in the future. This talk will present the details of the measurements of beam emittance and of emittance reduction, the tracking and particle identification instrumentation used for this purpose, the physical observables and the techniques being prepared to provide convincing evidence of effective ionisation cooling.

After the measurement of the transverse cooling performances of the cooling cell designed in early feasibility studies of a neutrino factory, the MICE beam and emittance measurement devices will remain as a facility for the study of new candidate cooling cell prototypes, including exchange between transverse and longitudinal emittance cooling. Some of those emerging options will also be briefly mentioned.

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Track Classification: 14 - Future Machines and Projects