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ID: 3349 The Particle Identification System for the MICE Beamline Characterization

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Abstract The International Muon Ionization Cooling Experiment (MICE) will carry out a systematic investigation of a ionization cooling section of a muon beam, for the future Neutrino Factory and the future Muon Collider. As the emittance measurement will be done on a particle-by-particle basis, a sophisticated beam instrumentation is needed to measure both particle coordinates and timing vs RF in a harsh environment due to high particle rates, fringe magnetic fields and RF backgrounds. A PID system, based on three time-of-flight stations (with resolutions up to 50-60 ps), two Aerogel Cerenkov counters and a KLOE-like calorimeter (KL) has been constructed and has allowed the commissioning of the MICE muon beamline in 2010. It will be complemented in 2011 by an Electron Muon Ranger to determine the muon range at the downstream end of the cooling section. Detector performances, as obtained in the 2010 run, will be shown and the use of PD detectors for the beamline characterization, including a preliminary measure of emittance, fully illustrated.

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Type of Presentation Poster

Main Classification O6 Beam Instrumentation and Feedback

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