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Mirror Design for an ARICH Detector in a Hadron Production Experiment

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EMPHATIC (Experiment to Measure the Production of Hadrons At a Testbeam In Chicagoland) is a low-cost, table-top-sized, hadron-production experiment located at the Fermilab Test Beam Facility (FTBF) that will measure hadron scattering and production cross sections that are relevant for neutrino flux predictions. High statistics data will be collected using a minimum bias trigger, enabling measurements of all relevant cross sections. Particle identification will be done using a compact aerogel ring imaging Cherenkov (RICH) detector, silicon strip detectors, a time-of-flight (ToF) wall, and a lead glass calorimeter array. The ARICH focuses on the kaons, pions and protons identification in a multitrack environment up to 8 GeV/c. In my presentation I will discuss the implementation of optical mirrors in the ARICH system used to reflect Cherenkov light outside of the PMT array acceptance onto the PMT array, thus increasing the angular acceptance of the experiment as a low cost improvement.

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Please select: Experiment or Theory

Experiment

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