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62 - EMPHATIC detector development

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The next generation of long-baseline neutrino oscillation experiments that will search for CP-violation of neutrinos will be limited by systematic uncertainties. One of the systematic uncertainties that needs to be reduced is the neutrino flux uncertainty, which can be improved with more precise measurements of the pion and kaon production by beams of protons. The EMPHATIC experiment plans to use the Fermilab test beam to measure pion and kaon production using beams of protons with momenta between 1 GeV/c and 120 GeV/c to measure the forward production rates of pions and kaons that can be used to improve neutrino flux production simulation. A compact spectrometer has been designed that includes silicon strip detectors for tracking, a permanent dipole magnet for momentum measurement, an aerogel ring imaging cherenkov detector for pion versus kaon separation, a time of flight detector, and a lead glass calorimeter. This talk will discuss the detector design, and the development of components of the detector.

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