

Abstract Submitted
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Detection of Cherenkov Light with Wavelength Shifting Acrylic Plastic¹ BRIAN BECKFORD², NAIPY PEREZ, ALEJANDRO DE LA PUENTE², JOERG REINHOLD, Florida International University — The collection efficiency for Cherenkov light from a fused silica radiator incident on a wavelength shifting acrylic plate (WLS) has been determined during a beam test at the proton synchrotron at the KEK facility. The yield of the photoelectrons produced through internally generated Cherenkov light as well as light incident from the radiator was measured as a function of the momentum of the incident beam. The yield is directly proportional to $\sin^2\Theta$ where Θ is the angle of the Cherenkov light created. This allows the extraction of the photon collection efficiency of the WLS which is roughly 50.8% for photons created in the fused silica radiator. This is comparable to more traditional means of detecting photons in RICH detectors, like CsI photocathodes or large PMT arrays. Currently, small prototype tests and Monte Carlo simulations are being conducted to investigate the feasibility of using arrays of WLS bars as a means of constructing cost efficient one-dimensional RICH detectors.

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