

Abstract Submitted
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A One-Dimensional RICH Detector with Wavelength Shifter Readout – Principle and Monte Carlo Simulations¹ NAIPY PEREZ, BRIAN BECKFORD, JOERG REINHOLD, Florida International University — Ring imaging Čerenkov detectors (RICH) measure a particle’s velocity by projecting the Čerenkov light cone on a plane and determining the radius of the resulting ring. Traditional detectors either employ a large number of photomultipliers (PMTs) or gaseous detectors with a highly segmented photosensitive cathode. Both principles require the readout of a large number of channels. For selected applications it may be sufficient, however, to measure a one-dimensional projection of the ring. This could be achieved with a plane of wavelength shifting bars that are read out by PMTs on both sides. This would result in a significantly reduced number of channels and therefore also more affordable designs. The photon collection efficiency of a wavelength shifting plate has been determined in a beam test performed at the PS facility at KEK. The talk will present the principle idea, Monte Carlo simulations of the performance of such a system based on the results from the beam test.

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