

Compact and Modular Ring Imaging Cherenkov Detector: Design and Performance

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A compact and modular ring imaging Cherenkov (mRICH) detector has been developed to provide K/π separation over a momentum coverage of 3 to 10 GeV/c, and an e/π separation of up to 2.5 GeV/c within the Electron-Ion Collider Generic R&D Consortium. The mRICH detector consists of an aerogel block, a Fresnel lens, a flat-mirror set, and a photosensor plane. The first prototype of this detector was successfully tested at Fermi National Accelerator laboratory (FNAL) in 2016 for verifying the detector work principles. The results of the first beam test were published in NIMA in 2017. The second prototype test was performed in 2018 at FNAL with a much improved optical design and photosensor integration. In September 2021, the third mRICH beam-test was carried at Jefferson Laboratory (JLab). In this talk, the results from the JLab test will be presented together with future plans of the continued mRICH R&D activities.

Requested length

20 minutes

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