

Developing the high-performance DIRC detector for the future Electron-Ion Collider

Tuesday 25 May 2021 05:12 (18 minutes)

The Electron-Ion Collider (EIC) will be the next frontier project of nuclear physics in the United States. Excellent particle identification (PID) is one of the key requirements for the EIC central detector. A radially compact PID system using the Detection of Internally Reflected Cherenkov light (DIRC) principle is a very attractive solution to meet these requirements.

The R&D program performed by the EIC PID collaboration (eRD14) is focused on developing the innovative high-performance DIRC (hpDIRC) that would extend the DIRC pion/kaon separation power well beyond the state-of-the-art to 3 standard deviations or more up to at least 6 GeV/c. Key components of the hpDIRC are a 3-layer compound lens and small pixel-size photo-sensors.

This contribution presents major developments in the hpDIRC R&D program, with a focus on developing and validating the radiation-hard focusing optics, and the preparation of the hpDIRC prototype program with a Cosmic Ray Telescope and particle beams.

TIPP2020 abstract resubmission?

Funding information

Author: Dr KALICY, Greg (CUA)

Co-author: Dr WICKRAMAARACHCHI, Nilanga (CUA)

Presenter: Dr KALICY, Greg (CUA)

Session Classification: Sensor Posters: Light-based Detectors

Track Classification: Sensors: Sensors: Light-based detectors