

DIS2023: XXX International Workshop on Deep-Inelastic Scattering and Related Subjects



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Particle Identification with the EPIC detector at the EIC

Tuesday 28 March 2023 09:20 (20 minutes)

EPIC is a general-purpose detector designed to deliver the full physics program of the Electron-Ion Collider (EIC). Particle identification (PID) at the EIC is an essential asset as well as a challenge: the PID systems have to provide excellent separation of pions, kaons, and protons over a large phase space with significant pion/electron suppression. EPIC addresses the physics requirements by utilising multiple state-of-the-art particle identification technologies.

This talk presents the EPIC detector PID subsystems, with particular emphasis on the high-momentum particle-identification systems based on DIRC and RICH techniques exploiting Cherenkov light emission by charged particles. R&D activities are under way to evaluate the use of SiPMs as photosensors for the RICH detectors, to explore the capabilities of the novel LAPPD detectors and to evaluate the compatibility of commercial MCP-TMP with the magnetic field conditions of the experiment. The projected performance of the PID detector system studied via detailed Geant4 simulations will also be discussed as well as possible future upgrades.

Submitted on behalf of a Collaboration?

Yes

Participate in poster competition?

No

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