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Simulation study of Dual-Readout Calorimeter for a forward calorimeter at the Electron-Ion Collider

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The Electron-Ion Collider (EIC) is a future particle accelerator to be built at the Brookhaven National Laboratory, and the primary purpose of experiments at the EIC is to resolve the question of partonic structure of nucleons and nuclei. To achieve the physics goals of the EIC, a hadron calorimeter of high energy resolution is required at forward rapidity. A Dual-readout Calorimeter (DRC) which has been developed for future collider experiments is considered as an upgrade option of the forward hadron calorimeter for the ECCE experiment at the EIC. The DRC consisting of two types of optical fiber, Cherenkov and Scintillation fibers, can achieve high energy resolution by measuring a fraction of electromagnetic shower in a hadronic shower. A performance study of DRC for the EIC such as geometry, material, and energy resolution is ongoing based on the existing simulation framework for high energy experiments, and the DRC simulation details will be transported to the EIC simulation framework. In this presentation, we will introduce the simulation study of the DRC for the EIC.

Present via

Offline

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