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The development of a highly granular scintillator-steel hadron calorimeter for the CEPC

Based on the particle-flow algorithm, a highly granular sampling hadron calorimeter (HCAL) with scintillator tiles as active layers and stainless steel as absorber is proposed to achieve an unprecedented jet energy resolution to address major challenges of precision measurements at future lepton colliders, including the Circular Electron Positron Collider (CEPC). A wide range of R&D efforts are being carried on with a major aim to construct a scalable HCAL prototype for the CEPC. This talk will present the latest progress of the prototype development, with highlights from optimization studies of the HCAL design based on the evolving CEPC Particle Flow Algorithm “Arbor”, mass production and test of scintillators, quality test of SiPMs, design and production of the whole prototype’s mechanics, the function verification using single layer and the cosmic ray test using a few layers.

Author: SHI, Yukun

Co-authors: Prof. LIU, jianbei (USTC); Prof. LIU, yong (IHEP); Prof. YANG, haijun (SJTU)

Presenter: SHI, Yukun