

R&D status of a highly granular scintillator-steel hadronic calorimeter for the CEPC

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Based on the particle-flow paradigm, a highly granular sampling calorimeter with scintillator tiles as active material and stainless steel as absorber is proposed to address major challenges from precision measurements of jets at the future lepton colliders, such as the Circular Electron Positron Collider (CEPC). A wide range of R&D efforts are being carried on with the major aim to build a fully scalable prototype. This talk will present the latest progress on the studies of the detector unit, and front-end electronics, exploration of mass-production techniques, as well as optimizations of the detector design based on the evolving CEPC Particle-Flow Algorithm. Highlights include characterizations of silicon photomultipliers (SiPMs) from different vendors, especially a cost-effective high dynamic-range SiPM option from China, and testing of a new SiPM-readout ASIC developed within the CALICE collaboration that can potentially work continuously as required by a circular collider.

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