

## Research progress of glass scintillator of HCAL

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Based on the particle-flow paradigm, a novel hadronic calorimeter (HCAL) with high granularity is proposed to address major challenges from precision measurements of jets at future lepton collider experiments, such as the Circular Electron Positron Collider (CEPC). Compared with the baseline designs, a new design scheme based on the glass scintillator (GS-HCAL) aims for further significant improvements of the hadronic energy resolution as well as the particle-flow performance, especially in the low energy region (typically below 10 GeV for major jet components), with a notable increase of the energy sampling fraction and hadronic response compensation due to its high density and doping of neutron-sensitive elements. The R&D group has been established to promote the investigation of high-performance glass scintillators with a density up to 6 g/cm<sup>3</sup> and a light yield of 1500 ph/MeV. Simultaneously, physics benchmark potentials of GS-HCAL in an optimized setup are explored in the CEPC software framework and standalone simulation. In this contribution, the latest R&D progress of glass scintillators and optimization of key parameters will be introduced.

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