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Full simulation results of a fully-projective dual-readout calorimeter for future lepton colliders

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The IDEA Experiment envisaged at future e^+e^- circular colliders (FCCee and CEPC) is currently under design and optimization with dedicated full-simulation investigations. In this talk, we review the performance of the IDEA fully-projective fiber-based dual-readout calorimeter using the GEANT4 toolkit, from calibration aspects to jet reconstruction. Results concerning complex topologies and the detector capability of identifying and disentangling single particles contribution with deep learning will be discussed as well. The ability to achieve dual-readout compensation in homogeneous crystals opens the possibility to instrument the hadronic calorimeter with a finely segmented crystal electromagnetic section, thus isolating photons contributions in jet and applying a proto-Particle-Flow approach for superior jet reconstruction. Results obtained with this hybrid configuration (the so-called IDEA crystal option) will be compared to the baseline experiment.

In-person participation

No

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