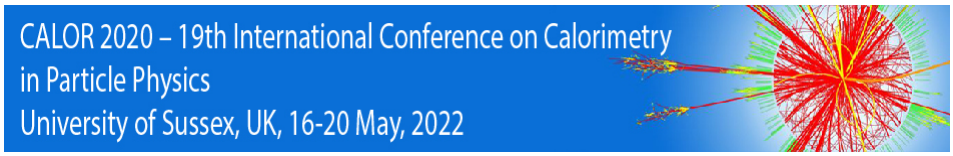

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3D shower shape reconstruction with the dual-readout calorimeter

In modern-day calorimetry, the shower shape reconstruction technique is rapidly evolving based on the outstanding achievements of the particle-flow algorithm in LHC experiments, leaving the question of feasibility to reconstruct longitudinal shower shapes for fiber-sampling calorimeters. Therefore, there were several efforts to speculate longitudinal shower shape for such calorimeters by utilizing timing information from photodetectors during the last decade. The dual-readout calorimeter is one of them, a next-generation calorimeter of the IDEA detector concept proposed for future e+e- colliers, including FCC-ee and CEPC. We explore the possibility of 3D shower shape reconstruction by combining lateral and longitudinal information and potential application to the particle-flow technique with a longitudinally unsegmented dual-readout calorimeter using signal processing on the silicon photomultipliers' timing information.

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