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CALICE Imaging Calorimeters: A Review and New Results

Friday, 8 July 2022 17:00 (15 minutes)

The next generation of collider detectors will make full use of Particle Flow Algorithms, requiring high precision tracking and full imaging calorimeters. The latter, thanks to granularity improvements by two to three orders of magnitude compared to existing devices, have been developed during the past 15 years by the CALICE collaboration and are now reaching maturity. The state-of-the-art and the remaining challenges will be presented for all readout types investigated by CALICE: silicon diode and scintillator for electromagnetic calorimetry and gaseous, semi-digital readout and scintillator with SiPM readout for a hadronic calorimetry. We will describe the commissioning, including beam test results, of large-scale technological prototypes and results on energy resolution, linearity, and pattern recognition. New results obtained from 2021 and 2022 beam tests with a 44,000-readout cell technological prototype of a standalone highly granular silicon tungsten electromagnetic calorimeter and combined with the CALICE analogue hadron calorimeter (SiPM on tile) will be featured.

In-person participation

Yes

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Session Classification: Detectors for Future Facilities, R&D, novel techniques

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