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Type: Oral presentation using Zoom

## Digital Hadron Calorimetry

*Wednesday, 27 October 2021 19:25 (20 minutes)*

Particle Flow Algorithms (PFAs) attempt to measure each particle in a hadronic jet individually, using the component or detector subsystem providing the best energy/momentum resolution. Calorimeters that can fully exploit the power of PFAs emphasize spatial granularity over single particle energy resolution. In this context, the CALICE collaboration developed the Digital Hadron Calorimeter (DHCAL).

The DHCAL uses Resistive Plate Chambers as active media and is read out with 1 x 1 cm<sup>2</sup> pads and digital (1-bit) resolution. The DHCAL was tested with steel and tungsten absorber structures, as well as with no absorber structure, at the Fermilab and CERN test beam facilities over several years. The test program yields a unique dataset of electromagnetic and hadronic interactions with unprecedented spatial resolution. In addition to conventional calorimetry, the DHCAL offers detailed measurements of event shapes, rigorous tests of simulation models and various analytical tools to improve calorimetric performance.

Here we report on the results from the analysis of DHCAL data and comparisons with the Monte Carlo simulations across various test campaigns.

### 1st preferred time slot for your oral presentation

10:00-12:00 JST (3:00-5:00 CEST, 21:00-23:00 EDT, 18:00-20:00 PDT)

### 2nd preferred time slot for your oral presentation

19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)

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**Session Classification:** B-3: Calorimeters

**Track Classification:** Parallel sessions: Detectors: Session B: Calorimeters