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Pandora Particle Flow Algorithm Studies on CALICE AHCAL 2018 Prototype Test Beam Data — •Daniel Heuchel for the CALICE-D-Collaboration — DESY, Hamburg, Germany

The CALICE collaboration is developing highly granular calorimeters for a future e^+e^- collider, like ILC or CLIC. To achieve the desired jet energy resolution of 3-4% for jet energies between 40-500 GeV in such an experiment the Pandora Particle Flow Algorithm (PandoraPFA) can be used. The basic concept of PandoraPFA is to use the energy measurement of the sub-detector providing the best resolution for each individual particle. This means that charged particles are measured by the tracker, neutral particles by the calorimeters. For this pattern recognition framework high granularity in the calorimeter systems is crucial to correctly assign particle tracks to shower clusters and efficiently separate charged and neutral particles.
The current Analog Hadronic Calorimeter (AHCAL) technological prototype features 38 active layers with a total of 21888 channels each consisting of a 3x3cm^2 scintillating tile read-out by a Silicon Photomultiplier (SiPM). Three test beam periods at the SPS CERN have been performed in 2018 to proof the scalability to a full collider detector and to measure different particles for detailed shower analysis.
In this contribution, we will present first results of the application of PandoraPFA to AHCAL data. Focusing on the case of single particle reconstruction and the separation of a neutral hadron in the vicinity of a charged one, we are validating the simulated algorithm performance with test beam data.

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