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Particle identification using boosted decision trees for the CALICE highly granular SiPM-on tile calorimeter. — •VLADIMIR BOCHARNIKOV for the CALICE-D-Collaboration — DESY, Hamburg — NRNU MEPHI Moscow, Russia

The Analog Hadron Calorimeter (AHCAL) is a highly granular SiPMon-tile sampling calorimeter developed by the CALICE collaboration for future e^+e^- colliders such as the International Linear Collider (ILC) or the Compact Linear Collider (CLIC). The AHCAL technological prototype consists of 39 active layers alternating with 1.72 cm steel absorber plates. Each active layer is equipped with 576 $3 \times 3 \ cm^2$ scintillator tiles with individual readout by silicon photomultipliers. The prototype was tested with muon, electron and pion beams at the CERN SPS facilities in 2018. The high granularity provides detailed spatial information about energy depositions of particles in the detector material that can be used for the event characterisation. We perform a gradient boosted decision tree method to classify events according to incoming particle type. Monte-Carlo simulations were used to train and test the classification model. In this contribution, the particle identification method, its efficiency in simulations and the results of data purification will be discussed.

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