

## Energy reconstruction and particle identification based on BDT

**Abstract:** The CALICE Semi-digital Hadronic Calorimeter (SDHCAL) prototype with Glass Resistive Plate Chambers is the first technological prototype in a family of high-granularity calorimeters. It was exposed to beams of hadrons, electrons and muons several times on the CERN PS and SPS in 2012, 2015 and 2016. Based on the Boosted Decision trees method, we discuss the effect on the improvement of energy resolution and linearity of SDHCAL and present the results on the particle identification performance using both GEANT4-based simulation and collected data in the energy range between 10 and 80 GeV with 10 GeV energy step.

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