

# Identification of high-energy antiprotons on electrons background based on calorimeter data in PAMELA experiment

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In modern experimental physics a heterogeneous coordinate-sensitive calorimeters are widely used due to their good characteristics and possibilities to obtain a three-dimensional information of particles interactions. Especially it is important at high-energies when electromagnetic or hadronic showers are arise. We propose a quit efficient method to identify antiprotons (positrons) with energies more than 10 GeV on electron (proton) background by calorimeter of such kind. We construct the AdaBoost classifier to separate particles into two classes, different combinations of energy release along reconstructed particle trajectory were used as feature vector. We test a preliminary version of the method on a calorimeter of the PAMELA magnetic spectrometer. For high-energy particles we got a good quality of classification: it lost only  $4 * 10^{-4}$  of antiprotons, while less than  $10^{-3}$  of electrons were classified to antiproton class.

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