Contribution ID : **202** Type : **not specified**

Comparison of hadron shower data in the PAMELA experiment with Geant 4 simulations

Friday, 9 October 2015 14:00 (15)

The sampling imaging electromagnetic calorimeter of ˜ 16.3 radiation lengths and ˜ 0.6 nuclear interaction length designed and constructed by the PAMELA collaboration as a part of the large magnetic spectrometer PAMELA. Calorimeter consists of 44 single-sided silicon sensor planes interleaved with 22 plates of tungsten absorber (thickness of each tungsten layer 0.26 cm). Silicon planes are composed of a 3x3 matrix of silicon detectors, each segmented into 32 read-out strips with a pitch of 2.4 mm. The orientation of the strips of two consecutive layers is orthogonal and therefore provides two-dimensional spatial information. Due to the high granularity, the development of hadronic showers can be study with a good precision. In this work a Monte Carlo simulations based on Geant4, performed using different available models, and including detector and physics effects, compared with the experimental data obtained on the near Earth orbit. The response of the PAMELA calorimeter to hadronic showers investigated including shower radius, longitudinal and transverse shower profiles etc.

Presentation type

Section talk (10+5 min)

Primary author(s) : MAYOROV, Andrey (National Research Nuclear University MEPhI); Mr. LUKYANOV, Anton (Yaroslavl State P.G. Demidov University); Mr. ALEKSEEV, Vladislav (Yaroslavl State P.G. Demidov University); Mr. BOGOMOLOV, Yuri (Yaroslavl State P.G. Demidov University)

Presenter(s) : MAYOROV, Andrey (National Research Nuclear University MEPhI); Mr. LUKYANOV, Anton (Yaroslavl State P.G. Demidov University); Mr. ALEKSEEV, Vladislav (Yaroslavl State P.G. Demidov University); Mr. BOGOMOLOV, Yuri (Yaroslavl State P.G. Demidov University)

Session Classification : Cosmic rays - parallel V

Track Classification : Cosmic rays