MEASUREMENT OF PRIMARY PROTONS AND ELECTRONS IN THE ENERGY RANGE OF 10^{11}-10^{13} EV IN THE PAMELA EXPERIMENT

A.M. Galper for PAMELA collaboration
Moscow State Engineering Physics Institute - Technical University
galper@incos.mephi.ru

A spacecraft borne magnetic spectrometer PAMELA is primarily aimed at measurement of antimatter particles with energy up to 2×10^{11} eV or 2×10^{11} eV /n. A modification of spectrometer is proposed to measure primary protons and electrons in the energy range of 10^{11}-10^{13} eV by addition of a neutron detector, consisting of ^{3}He counters enveloped by a polyethylene moderator. A particle energy is determined from the nuclear-electromagnetic cascades initiated in the PAMELA calorimeter by primary proton and electron. A separation between the primary proton and electron is implemented trough an evaluation of number of neutrons recorded in the neutron detector. Calculations show that the system of the PAMELA imaging calorimeter and the neutron detector allows to distinguish the primary electrons with energy 10^{11}-10^{13} eV from the proton flux with a rejection factor up to 10^{-4}.