

Investigations of Forbush decreases in the PAMELA experiment

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A special phenomenon in the physics of cosmic rays, called Forbush decrease (FD), or Forbush effect was discovered in 1937 by S. Forbush. FD is a sudden suppression of galactic cosmic rays (GCRs) intensity near the Earth. However, despite long term of investigations the nature of this phenomenon is still not completely understood. Today, this effect is investigated mostly by the neutron monitors and muon hodoscopes, which are located on the surface of the Earth. But these monitors can detect only interaction products of GCRs with the Earth atmosphere. Therefore, investigations of this effect using the detectors which are installed on the satellites, allow to obtain more accurate information about the characteristics of FD. PAMELA experiment conducted research on board of the satellite for 10 years allowed to investigate the characteristics of the GCRs during FDs which occurred during the experiment. The possibility of investigation of this effect is shown on FDs which were registered in december 2006 and march 2012.

Primary author(s) : Mr. LAGOIDA, Iliya (NRNU MEPHI); Prof. VORONOV, Sergey (NRNU MEPHI); Dr. MIKHAILOV, Vladimir (NRNU MEPHI)

Presenter(s) : Mr. LAGOIDA, Iliya (NRNU MEPHI)

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