



# CERN Joint EP/PP Seminars

SPEAKER: Mirko Boezio (Istituto Nazionale di Fisica Nucleare (INFN))

TITLE: **The Science and First Results of the PAMELA Space Mission**

DATE: Tue 02/09/2008 16:30

PLACE: Main Auditorium\*\*

## ABSTRACT

On the 15th of June 2006 the PAMELA satellite-borne experiment was launched from the Baikonur cosmodrome and it is collecting data since July 2006. The core of the instrument is a silicon-microstrip magnetic spectrometer combined with a time-of-flight system, a silicon-tungsten electromagnetic calorimeter, a shower tail catcher scintillator, a neutron detector and an anticoincidence system. This telescope allows precision studies of the charged cosmic radiation to be conducted over a wide energy range (100 MeV - 100's GeV) with high statistics. The primary scientific goal is the measurement of the antiproton and positron energy spectra in order to search for exotic sources, such as dark matter particle annihilations. PAMELA is also searching for primordial antinuclei (anti-helium) and performing precise measurements of light nuclei and their isotopes for testing cosmic-ray propagation models. Other objectives are the monitoring of the solar activity, the detection of solar flares and the study of the solar and terrestrial relationships in the energetic particle acceleration in the heliosphere.

The status of the apparatus will be reviewed and preliminary results concerning the different items and in particular the antiparticle measurements and dark-matter indirect searches will be presented.