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Performances of the AMS-02 Electromagnetic Calorimeter flight model

AMS-02 is an astroparticle experiment that will operate on board of the ISS for a period of about 3 years. The main scientific goals of the experiment are the search for antimatter and dark matter and the study of gamma rays. In AMS-02 the Electromagnetic Calorimeter (ECAL) plays a key role for its high capability to measure e +, e− and gamma spectra and to discriminate electromagnetic showers from hadronic cascades in the energy range from few GeV up to one TeV. The detector has been designed following stringent requirements such as very high mechanical and thermal stability, low weight and power consuption, radiation hardness. After a full scale ECAL protype had successfully passed functional and space qualification tests, the detector flight model was assembled and tested at CERN in October 2006 using electrons and protons beams. Results of the measurements of the ECAL parameters and performances such as linearty, energy and angular resolution, are presented.

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