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ARGO-YBJ: physics results and detector stabilization

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The ARGO-YBJ experiment at 4300 m above sea level on the Tibet plateau is a full-coverage array of Resistive Plate Chambers (RPCs) operated in streamer mode, covering a surface of 74 ×78 m^2 surrounded by a guard ring. It has been running uninterruptedly with its complete layout since October 2007, providing results in gamma-ray astrophysics and cosmic-ray physics. The results of ARGO-YBJ in the study of TeV gamma rays from Supernova Remnants and from Active Galactic Nuclei and in the study of medium-scale cosmic-ray anisotropies will be described in detail.
The monitoring information is provided by the Detector Control System (DCS). The environmental parameters and the high-voltage power supplies are constantly monitored. The recorded changes of temperature and barometric pressure affect the density of the gas mixture inside the detector and consequently its behaviour, in particular the time resolution and, to a lesser degree, the efficiency. In view of an extended data-taking period for the experiment a procedure in order to stabilize the detector response was devised. It is based on the information provided by the DCS to trigger a feedback control algorithm acting on the high-voltage power supplies.
Here we present the main physics results obtained by the ARGO-YBJ Collaboration since the start of the data taking in 2007.
We also discuss the test which proves the feasibility of the control procedure devised to stabilize the response of the detector.

for the collaboration

ARGO-YBJ

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