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Few-degree anisotropies in the cosmic-ray flux observed by the ARGO-YBJ experiment

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The ARGO-YBJ experiment is a full coverage EAS array sensitive to cosmic rays with energy threshold few hundreds GeV.

Looking at all data collected since November 2007 several few-degree anisotropies in the arrival directions of cosmic rays have been found. The observation is highly significant (more than 17 s.d.) and the relative intensity with respect to the isotropic background flux reaches 10^3 . Each region seems to have its own energy spectrum, mostly harder than VHE cosmic rays and peaked at 10 TeV (protons). The presence of such regions challenges the standard model of cosmic rays, suggesting the presence of unknown features of the magnetic fields the charged cosmic rays propagate through, as well as potential contributions of nearby sources to the total flux of cosmic rays.

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Classification de Session: Cosmic Ray direct detection