ICRC2015

ICRC
The Astroparticle Physics Conference
34th International Cosmic Ray Conference
July 30 - August 6, 2015
The Hague, The Netherlands

Contribution ID: **524** Type: **Oral contribution**

Measurement of (p+He)-induced anisotropy in cosmic rays with ARGO-YBJ

Thursday, July 30, 2015 12:15 PM (15 minutes)

Deviations from isotropy in the cosmic ray arrival direction distribution indicate the laboratory reference frame moving with respect to the cosmic radiation. When data are ordered in sidereal time, any effect is of great importance, as it may trace potential sources of cosmic rays and probe their propagation through magnetic fields. For the same reason, to decipher results implies unfolding effects from source distribution, energy spectrum and mass composition of cosmic rays, as well as magnetic field on regular and turbulent scales. Any efficient selection of cosmic ray mass would have a major impact on this scenario, as parameters related to cosmic rays production site, acceleration and propagation mechanisms would be importantly constrained in terms of rigidity. So far, no experiment managed to implement efficient mass selections and save high statistics at the same time.
The ARGO-YBJ experiment (located at the YangBaJing Cosmic Ray Observatory, Tibet, China, 4300 m asl) is the only detector able to select the cosmic ray light (p+He) component with high efficiency in the wide energy range few TeV - 10 PeV. In this contribution a preliminary measurement of the anisotropy for the p+He primary component is reported for the first time.

Collaboration

ARGO-YBJ

Registration number following ”ICRC2015-I/”

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Session Classification: Parallel CR01 Aniso

Track Classification: CR-EX