



Contribution ID: 1065

Type: Oral contribution

Large-Scale Distribution of Arrival Directions of Cosmic Rays Detected at the Pierre Auger Observatory and the Telescope Array above 10^{19} eV

Thursday, July 30, 2015 2:00 PM (15 minutes)

The large-scale distribution of arrival directions of high-energy cosmic rays is a key observable in attempts to understand their origin. The dipole and quadrupole moments are of special interest in revealing potential anisotropies. An unambiguous measurement of these moments as well as of the full set of spherical harmonic coefficients requires full-sky coverage. This can be achieved by combining data from observatories located in both the northern and southern hemispheres. To this end, a joint analysis using data recorded at the Pierre Auger Observatory and the Telescope Array above 10^{19} eV has been performed. For the first time, thanks to the full-sky coverage, the measurement of the dipole moment reported in this study does not rely on any assumption on the underlying flux of cosmic rays. As well, the sensitivity on the quadrupole and higher order moments is the best ever obtained. The resulting multipolar expansion of the flux of cosmic rays allows a comprehensive description of the angular distribution, and in particular to report on the first angular power spectrum of cosmic rays above 10^{19} eV.

Collaboration

Pierre Auger & Telescope Array

Registration number following "ICRC2015-I"

607

Primary author: DELIGNY, Olivier (CNRS/IN2P3)

Presenter: DELIGNY, Olivier (CNRS/IN2P3)

Session Classification: Parallel CR03 Aniso

Track Classification: CR-EX