



Contribution ID: 79

Type: **not specified**

Study of TeV-PeV cosmic-ray anisotropy with the IceCube, IceTop and AMANDA detectors

Wednesday, 22 May 2013 17:30 (30 minutes)

The study of the cosmic ray anisotropy in the TeV-PeV energy range could provide clues about the origin and propagation of cosmic rays in our galaxy. The measurement of this per-mille-anisotropy requires data sets with several billion cosmic-ray events. A sample of this size has been collected over the last six years by the IceCube neutrino telescope at the south pole, which detects cosmic-ray muons at a rate of about 2 kHz. In the IceCube data, we observe a significant anisotropy in the southern sky for primary energies between 20 and 400 TeV.

The anisotropy has a large-scale component of per-mille strength, accompanied by localized excess and deficit regions with smaller amplitudes and typical angular sizes between 10 degrees and 20 degrees. A study of the time variability of the anisotropy is performed by combining data from IceCube and its predecessor experiment, AMANDA, which operated between 2000 and 2007. Finally, A change in the shape and an increase in the amplitude of this anisotropy is observed at PeV energies by including events of IceTop, the air shower array above IceCube.

Primary author: SANTANDER, Marcos (UW-Madison)

Presenter: Dr DESIATI, Paolo (University of Wisconsin - Madison)

Session Classification: Parallel Session D