



ID de Contribution: 51

Type: oral presentation

Limits on the diffuse flux of ultra-high energy neutrinos using the Pierre Auger Observatory

jeudi 1 juillet 2010 09:30 (30 minutes)

The surface detector array of the Pierre Auger Observatory is sensitive to ultra-high energy neutrinos in the cosmic radiation. These particles can interact close to ground, both through charged and neutral currents in the atmosphere (down-going) and, for tau neutrinos, through the "Earth skimming" mechanism (up-going) where a tau lepton is produced in the Earth's crust that can emerge and decay in the atmosphere. Both types of neutrino induced events produce an inclined shower that can be identified by the presence of a broad time structure of signals in the water-Cherenkov detectors. Using data collected from the Pierre Auger Observatory, we present the corresponding limits on the diffuse ultra-high energy neutrino flux. Sources of possible backgrounds and systematic uncertainties are discussed. [Presented on behalf of the Pierre Auger Collaboration]

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Classification de Session: Auger and the radio projects, reviews and results