

A search for ultra-high energy neutrinos particles using the Pierre Auger Observatory

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Neutral particles play a crucial role in understanding the origin of ultra-high energy cosmic rays. Neutrinos keep the directional information as they are not deviated by the magnetic fields and would point back to the sources. In the 1.0 EeV energy range, neutrinos are expected to be produced in the same sources where cosmic rays are thought to be accelerated. The Radio Detector of the Pierre Auger Observatory is sensitive to neutrinos of all flavours above 1.0 EeV. The neutrinos interact through charged and neutral currents in the atmosphere giving rise to extensive air showers. When interacting deeply in the atmosphere at nearly horizontal incidence, neutrinos can be distinguished from regular hadronic cosmic rays by the geometry of the radio footprint of the air showers. In this talk, I will present an analysis based on down-going neutrinos using radio detectors and summarize the search procedure and the reconstruction of the air showers.

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