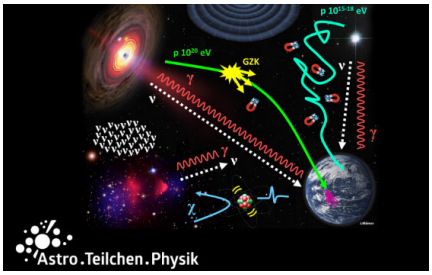

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Entering the next phase of UHE cosmic-ray studies with the Radio Detector of the Pierre Auger Observatory

Wednesday, October 16, 2024 5:35 PM (2 minutes)

Ultra-high energy cosmic rays (CRs) are messengers that open a window to understanding the most extreme environments in the universe. In order to find out what the sources of these particles are, giant arrays of detectors on earth measure the signals from extensive air-showers that are created in the interaction of those CRs with the atmosphere. While the studies made with these detector arrays enter into a new phase of sensitivity, the now-matured radio detection technique is becoming a key player. At the Pierre Auger Observatory in Argentina, the deployment of the new Radio Detector (RD) is currently being finalized. When completed, it will consist of 1660 radio antennas, one installed on each of the Surface Detector stations of the Observatory, covering an area of 3000 km². The RD will detect air showers with inclinations above 60 degrees and provide a clean measurement of the electromagnetic shower component. In combination with measurements from the water-Cherenkov detectors, studies of the muon content of air-showers and of the CR mass composition will be possible with unprecedented sensitivity. Furthermore, the RD will be able to independently probe the absolute CR energy scale of the Pierre Auger Observatory. In this contribution, we present the current status and prospects of the Radio Detector.

Summary

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