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The AugerPrime Radio Detector

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The Pierre Auger Observatory measures the spectrum of cosmic rays at energies well beyond 10^{19}eV with unprecedented accuracy. Currently, it is being upgraded to increase its mass-composition sensitivity. The upgrade includes the installation of a radio antenna on top of each of the 1661 autonomously operating water-Cherenkov detector stations, covering an area of 3000km^2. The radio antennas are fully integrated within the existing detector stations. This allows sharing the (particle-) trigger and wireless data acquisition system.
An introduction to the AugerPrime Radio Detector, its design and technical implementation, will be given. The first data taken with a prototype array are presented and ongoing calibration efforts discussed. Furthermore, first results of the expected performance, investigated with an end-to-end simulation study, are shown. Based on this, the scientific potential of coincident detection with the Auger radio and particle detectors is highlighted.

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No, this is an entirely new submission.

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