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## **Radio detection of high-energy cosmic rays at the Pierre Auger Observatory**

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### **Abstract content**

The Southern Auger Observatory provides an excellent test bed to study the radio detection of extensive air showers as an alternative, cost-effective, and accurate tool for cosmic-rays physics. The data from the radio setup can be correlated with those from the well-calibrated Auger baseline detectors. Furthermore, human-induced radio noise levels at the Southern Auger site are relatively low. We have started an R&D program to test various radio-detection concepts. Our studies will reveal Radio Frequency Interferences (RFI) caused by natural effects such as day-night variations, thunderstorms, and by human-made disturbances. These RFI studies are required to optimise detection parameters such as antenna design, frequency interval, antenna spacing and signal processing. The data from our initial setups, which presently consist of typically 3-4 antennas, will be used to characterise the shower from radio signals and to optimise the initial concepts. Furthermore, the operation of a large detection array requires autonomous detector stations. The current design is aiming at stations with antennas for two polarizations, solar power, wireless communication, and local trigger logic. The results of this initial phase provides an important stepping stone for the design of a few tens kilometers square engineering array.

### **If this papers is presented for a collaboration, please specify the collaboration**

for the Pierre Auger Collaboration

### **Summary**

### **Reference**

Proceedings of the 30th International Cosmic Ray Conference; Rogelio Caballero, Juan Carlos D'Olivo, Gustavo Medina-Tanco, Lukas Nellen, Federico A. Sánchez, José F. Valdés-Galicia (eds.); Universidad Nacional Autónoma de México, Mexico City, Mexico, 2008; Vol. 5 (HE part 2), pages 885-888

**Primary author(s) :** THE PIERRE AUGER COLLABORATION, - (The Pierre Auger Observatory); Dr. VAN DEN BERG, Ad (Kernfysisch Versneller Instituut)

**Presenter(s) :** Dr. VAN DEN BERG, Ad (Kernfysisch Versneller Instituut)

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