

Abstract Submitted  
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**Radio Detection of Cosmic-Ray Air Showers at the Pierre Auger Observatory**<sup>1</sup> FRANK SCHROEDER, Bartol Research Institute, Department of Physics and Astronomy, University of Delaware, PIERRE AUGER COLLABORATION COLLABORATION — The Pierre Auger Observatory in Argentina features the world-largest array of surface detectors for ultra-high-energy cosmic rays. It consists of 1660 water-Cherenkov detectors spread with 1.5 km spacing over an area of 3000 km<sup>2</sup> for the detection of cosmic-ray air showers. As part of the AugerPrime upgrade, a scintillation panel and a radio antenna will enhance each of these surface detectors in order to increase the sensitivity to the mass of the primary cosmic-ray nuclei initiating the showers. Together with the muon measurements provided by the water-Cherenkov detectors, the antennas will enable a per-event discrimination of showers initiated by heavy and light nuclei and further tests of hadronic interactions models for very inclined air showers. The design builds on the expertise with the Auger Engineering Radio Array (AERA) covering 17 km<sup>2</sup> with about 150 antenna stations. The SALLA antenna used for the upgrade has been successfully tested in prototype stations in AERA as well as in the Tunka-Rex experiment. Among the many achievements of AERA is the demonstration of an accurate calorimetric measurement of the shower energy and of the feasibility to detect very inclined air showers.

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