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Microwave detection of cosmic ray showers at the Pierre Auger Observatory PEDRO FACAL, University of Chicago, THE PIERRE AUGER OBSERVATORY COLLABORATION — Microwave emission from the electromagnetic cascade induced in the atmosphere by ultra-high energy cosmic rays (UHECR) may allow for a novel detection technique, which combines the advantages of the well-established fluorescence technique - the reconstruction of the shower profile - with a 100% duty cycle, minimal atmospheric attenuation and the use of low-cost commercial equipment. Two complementary techniques are currently being pursued at the Pierre Auger Observatory. AMBER (Air-shower Microwave Bremsstrahlung Experimental Radiometer), MIDAS (Microwave Detection of Air Showers) and FDWave are prototypes for a large imaging dish antenna. In EASIER (Extensive Air Shower Identification using Electron Radiometer), the microwave emission is detected by antenna horns located on each surface detector of the Auger Observatory. MIDAS is a self-triggering system while AMBER, FDWave, and EASIER use the trigger from the Auger detectors to record the emission. The coincident detection of UHECR by the microwave prototype detectors and the fluorescence and surface detectors will prove the viability of this novel technique. The status of microwave R&D activities at the Pierre Auger Observatory will be reported.

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