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Detection of cosmic rays using microwave radiation at the Pierre Auger Observatory

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Radiation in the microwave band from the passage of charged particles has been measured in accelerator test beams. This radiation could provide a new technique for ultra-high energy cosmic rays, its main advantage being the possibility to instrument a large area, with 100% duty cycle and virtually no atmospheric attenuation, using relatively cheap equipment. Cosmic ray detection in the GHz band is being actively pursued at the Pierre Auger Observatory with three different set-ups: MIDAS and AMBER are prototypes of an imaging parabolic dish detector, while EASIER instruments a surface detector tank with a radio receiver of wide angular coverage. The status of microwave R&D activities at Auger, including the first event detected by EASIER, will be reported.

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