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**The MIDAS experiment: MICrowave DETECTION of AIR SHOWERS**

PEDRO FACAL, MARTINA BOHACOVA, MARIA MONASOR, PAOLO PRIVITERA, LUIS C. REYES, CRISTOPHER WILLIAMS, University of Chicago — Recent measurements suggest that extensive air showers initiated by high energy cosmic rays (above 1 EeV) emit signals in the microwave band of the EM spectrum caused by the collisions of the free-electrons with the atmospheric neutral molecules in the plasma produced by the passage of the shower. Such emission is isotropic and could allow the detection of air showers with 100% duty cycle and a calorimetric-like energy measurement - a significant improvement over current detection techniques. We have built a MIDAS prototype, which consists of a 4.5 m diameter antenna with a cluster of 55 feed-horns in the 4 GHz range, covering a  $10^\circ \times 10^\circ$  field of view, with self-triggering capability. The details of the prototype and first results will be presented.

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