

PHYSICS AND ASTRONOMY COLLOQUIUM

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Radio Detection of Ultra-high Energy Particles

The highest energy cosmic rays arrive on Earth with the energy of a well thrown fastball and yet their origin eludes us. Identifying the sources responsible for the highest energy particles in the known Universe is a mystery involving their propagation through the cosmos, their interaction with cosmic background radiation, and deflection by galactic and intergalactic magnetic fields. Add to that the extreme rarity (<1 particle per km^2 per century) with which these particles arrive on Earth. Detecting the radio emission from ultra-high energy particles impacting the Earth may provide the data necessary to identify the highest energy particle accelerators in the Universe.



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