

Abstract Submitted  
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**Physics from the Milagro observation of Cosmic-Ray Shadows of the Moon and Sun** GRANT CHRISTOPHER, New York University, MILAGRO COLLABORATION — Preliminary results will be presented on studies of the the Solar and Lunar cosmic-ray shadows observed with Milagro. Milagro is a water-erenkov detector for astrophysical TeV gamma and cosmic rays situated near Los Alamos NM. In the geomagnetic field, TeV cosmic rays are deflected on the order of a few degrees. The Moon acts a sink for cosmic rays so it is possible to observe a shadow of the Moon in the otherwise nearly isotropic arrival of cosmic rays. Such a shadow has been previously seen by several observatories. However, Milagro's unique capabilities allow measurement of the dependence of shadow's characteristics on cosmic-ray particle energy. This can provide the first energy calibration for an extensive air shower detector which is essentially independent of monte carlo simulations. The Sun is also a sink in the sky for cosmic rays and a Solar shadow has also been observed by several experiments. However, the Sun has it's own time varying magnetic field which is not completely known. Direct measurements have been made of this field on the Solar surface from the Zeeman effect and in areas of the far-field region through which satellites have passed. Milagro observation of the Solar shadow can be compared with simulations using theoretical models of the solar magnetic field to put constraints on the field in the near-Sun region.

Grant Christopher  
New York University

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