

Abstract Submitted
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Irregular Cosmic Ray Air Showers JAMES MATTHEWS, AMIR HOSEIN SHADKAM, Louisiana State University — Ultra-high energy cosmic rays initiate extensive air showers in the atmosphere. The growth of the number of charged particles with depth in the atmosphere is well described by the semi-empirical Gaisser-Hillas function. Simulations indicate that occasionally showers will deviate significantly from this description and exhibit two distinct shower maxima. Such effects partly are due to a single leading particle from the initial interaction penetrating very deeply before it collides with an atmospheric nucleus. We present studies of this phenomena and discuss methods to extract information about interaction cross sections using measurements of shower development profiles.

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