

PHYSICS DEPARTMENT COLLOQUIUM

“Problems and Prospects in Galactic Cosmic Rays: GeV to PeV”

BY

Jonathan F. Ormes
University of Denver

As we approach the 100th anniversary of the discovery of cosmic rays, we still don't understand their astrophysical origin and acceleration. In this talk, I will present my view of the outstanding problems and recent progress, especially with the BESS balloon borne spectrometer. I will also discuss what new experiments will contribute and what has not yet been done. Much has been learned about potential sources from high energy photons, not only x-ray observatories, but also from the ground based air Cherenkov facilities. GLAST will launch soon and should contribute. Direct measurements of cosmic rays on balloons and satellites such as Pamela and AMS use magnetic rigidity spectrometers. Still needed are measurements of cosmic-ray electrons to probe nearby sources, of secondary to primary (B/C) ratios at high energy to determine the diffusion properties, and of composition at the knee to explore the endpoint of proposed acceleration processes.

Host: Miguel A. Mostafá

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