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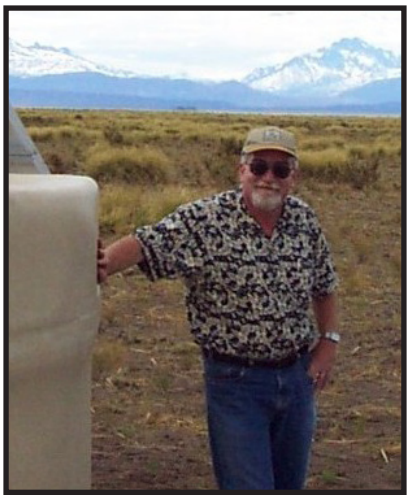
THE UNIVERSITY of WISCONSIN MADISON

Department of Physics Colloquium

Friday, September 10, 2010 • 4:00 P.M. • 2241 Chamberlin Hall

cookies & coffee served at 3:30 p.m

Recent Results from the Pierre Auger Observatory



Jim Matthews

Louisiana State University

The Pierre Auger Observatory in western Argentina is the largest cosmic-ray experiment ever conducted. Its purpose is to study the highest energy particles in the universe, those arriving at earth with energy in excess of 1020 eV. Such energy exceeds that which will ever be possible with earthly particle accelerators. Their origin, their identity, and the means by which they are accelerated are unknown.

I will discuss our most recent results: (i) the energy spectrum, (ii) correlations of the arrival directions with AGN (iii) evidence that iron nuclei may be the dominant kind of particle, and (iv) limits on how many of the particles can be photons or neutrinos. Plans for the future expansion of the observatory in the Northern Hemisphere will be described.