

# Particle Physics/High Energy Seminar

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**Title:** Correlation of the highest energy cosmic rays with nearby extra-galactic objects

**Abstract:** Using data collected at the Pierre Auger Observatory during the past 3.7 years, we demonstrate that there is a correlation between the arrival directions of cosmic rays with energy above  $6 \times 10^{19}$  eV and the positions of active galactic nuclei (AGN) lying within 75 Mpc. We reject the hypothesis of an isotropic distribution of these cosmic rays at over 99% confidence level from a prescribed a priori test. The correlation we observe is compatible with the hypothesis that the highest energy particles originate from relatively nearby extragalactic sources whose fluxes have therefore not been significantly reduced by interaction with the cosmic background radiation. AGN or objects having a similar spatial distribution are possible sources.

**Tuesday January 15, 2008**  
**4:10PM - Room 416 PHY/GEO**