

Abstract Submitted  
for the 4CF09 Meeting of  
The American Physical Society

**Predictions of the small scale clustering properties of ultra-high energy cosmic rays** PATRICK YOUNK, Colorado State University — I present theoretical estimates of the small scale clustering properties of ultra-high energy cosmic rays (UHECR) assuming that: (1) the UHECR sources are extragalactic, and (2) the Greisen-Zatsepin-Kuz'min effect is operational. I show that assumptions on the particle charge and intervening magnetic fields have a large effect on the predicted small scale clustering. Therefore, a measurement of the small scale clustering can be used to constrain the parameter space that describes the allowed distribution of particle charge and the allowed structure of the intervening magnetic fields. I show how such constraints can be determined in the near future.

Patrick Younk  
Colorado State University

Date submitted: 24 Sep 2009

Electronic form version 1.4