Abstract Submitted
for the MAS14 Meeting of
The American Physical Society

Searching for the source of the highest energy cosmic ray detected with the Pierre Auger Observatory BRYAN REYNOLDS, MIGUEL MOSTAFA, Pennsylvania State Univ, PIERRE AUGER OBSERVATORY COLLABORATION — The origins of ultra-high energy cosmic rays, particles capable of reaching energies on the order of 10^{20} eV, remain largely unknown. The Pierre Auger Observatory uses an array of surface detectors to record air showers of secondary particles and infer information about the primary cosmic ray particle, including its arrival direction and energy. According to the most recent analysis, the highest energy cosmic ray detected with the Pierre Auger Observatory, a particle with an energy of 1.3×10^{20} eV, does not correlate with any known extra-galactic source. To further investigate this specific event, its arrival direction was cross-correlated with the location of nearby active galactic nuclei (AGNs). Energy losses during propagation imply that possible sources of a cosmic ray of such energy must be within 100 Mpc. The angular separation between a candidate AGN and the arrival directions of cosmic rays with energies above 4×10^{19} eV was examined to determine the viability of the potential sources. Both the angular deflections as a function of energy obtained from data and the expectation from an isotropic distribution of cosmic rays will be presented.

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Date submitted: 27 Aug 2014 Electronic form version 1.4