

A SEARCH FOR PHOTON-INDUCED ASYMMETRY IN THE AZIMUTHAL DISTRIBUTION OF GIANT AIR SHOWERS

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McBreen and Lambert (1981) pointed out that photons of energy above 10^{19} eV would produce pairs in the magnetic field of the earth. Such an effect might be used to search for a flux of primary photons at extreme energies. This issue has recently become topical because of the predictions of large photon fluxes above 10^{19} eV from the decay of super-heavy relic particles and because the Pierre Auger Observatory offers promise of large number of events even at 10^{20} eV. Bertou et al (2000) have explored the potential of the Auger instrument for such a search in some detail.

One of us (Hinton 1999, unpublished) has searched for an azimuthal asymmetry using a sample of Haverah Park events without success. We will report the results of an extended search for which we have included a new sample of events above 10^{19} eV that arrived at large zenith angles (Ave et al. 2000).