Abstract Submitted
for the APR13 Meeting of
The American Physical Society

The Impact of Gamma-ray Halos on the Angular Anisotropy of the Extragalactic Gamma-ray Background TONIA VENTERS, NASA Goddard Space Flight Center, VASILIKI PAVLIDOU, University of Crete — The study of the development of electromagnetic cascades in intergalactic magnetic fields (IGMF) serves as a robust probe into the strength and structure of these magnetic fields. Charged particles in electromagnetic cascades are deflected by magnetic fields giving rise to gamma-ray halos around extragalactic sources of very-high energy gamma rays such as blazars. Such gamma-ray halos can have a profound impact on the intensity and angular properties of the contribution of VHE blazars to the extragalactic gamma-ray background (EGB) as measured by the Fermi-LAT at GeV energies. Previously, we demonstrated that the deflection of cascades by the IGMF could have a profound impact on the collective spectrum of blazar at and below GeV energies, and that the effect of the IGMF on cascades may leave an imprint on the angular anisotropy of the EGB as a function of energy. Thus, the measurement of the angular anisotropy of the EGB by the Fermi-LAT could be used as a probe of the IGMF. We provide an update of our work on the subject, including comparisons with Fermi anisotropy measurements.

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Date submitted: 11 Jan 2013 Electronic form version 1.4