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A Blind Search for Transient Bursts of Very High Energy γ-rays using Milagro gamma-Rays Using Milagro VLASIOS VASILEIOU, University of Maryland, College Park, MILAGRO COLLABORATION — Milagro is a water-Cherenkov detector capable of observing air showers produced by γ rays. The wide field of view ($\sim$2 sr) and high duty cycle (>90%) of Milagro make it ideal for searching for transient very high energy emission. We will report on the results of a blind search of the Milagro data for very high energy γ-ray outbursts within the Milagro field of view for durations ranging from 1ms to 6 minutes. While this analysis is primarily aimed at detecting γ-ray bursts (GRBs), it could also be sensitive to other phenomena like primordial black-hole evaporation and soft γ-ray repeaters. No trigger from another instrument is required, instead the entire reconstructed data set is systematically searched in time, space and emission duration. Four years of Milagro data are searched, which corresponds to 2920 sr days of exposure. While the peak sensitivity of Milagro is above 1 TeV, the detector has substantial effective area at lower energies ($\sim$50 m^2 at 100 GeV, $\sim$2500 m^2 at 1 TeV).

Vlasios Vasileiou
University of Maryland, College Park

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