

## **A Search for bursts of TeV gamma rays with Milagro**

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The Very High Energy (VHE,  $E > 100$  GeV) component of gamma-ray bursts (GRBs) remains unmeasured, despite the fact that many models predict that the spectrum of GRBs extends beyond 1 TeV. Satellite detectors capable of observing GRBs lack the sensitivity to detect gamma-rays with energies greater than  $\sim 30$  GeV due to their small effective area. Air\sherenkov telescopes, capable of detecting TeV point sources with excellent sensitivity have limited sensitivity to GRBs due to their small fields of view and limited duty cycles. The detection of TeV emission from GRBs is further complicated by the attenuation of infrared VHE photons by interaction with the intergalactic . This process limits the horizon for TeV observations of GRBs to  $z < \sim 0.5$  or less. As only about 20 GRBs have well measured redshifts, the fraction of GRBs close enough to observe at TeV energies remains unknown. The Milagro Gamma Ray Observatory began operation in June 1999. The detector consists of a large man made pond ( $\sim 4000$  square meters) instrumented with an array of photomultiplier tubes. Milagro operates 24 hours a day and continuously observes the entire overhead sky ( $\sim 2$  sr). Because of its wide field of view and high duty cycle Milagro is uniquely capable of searching for TeV emission from gamma-ray bursts. An efficient algorithm has been developed to search the Milagro data for GRBs with durations from 250us to 40s. The search, while designed to search for the TeV component of GRBs, may also be sensitive to the evaporation of primordial black holes, or some yet undiscovered phenomenon. The results of this search will be presented.