Abstract Submitted
for the APR17 Meeting of
The American Physical Society

Searching for Coincident Electromagnetic Signals from Advanced LIGO Gravitational-Wave Candidates Using the Fermi Gamma-Ray Burst Monitor TYSON LITTENBERG, NASA/Marshall Space Flight Center, FERMI GBM TEAM, LIGO AND VIRGO COLLABORATION — With the dawn of gravitational-wave (GW) astronomy, multimessenger observations combining the electromagnetic and GW sky are eagerly anticipated. During Advanced LIGO's first observing run (O1), data from the Fermi Gamma-ray Burst Monitor (GBM) were analyzed in search of electromagnetic transients coincident with GW candidates. The GBM search employs a coherent analysis over all GBM detectors using the full sky-location-dependent instrument response, and ranks candidate events by a Bayesian likelihood statistic. The GBM analysis was performed on candidate events from a search of LIGO data for merging compact binaries of total mass between 2 and 100 solar masses. The gravitational-wave candidate arrival time and its reconstructed source position were used as priors for the search of GBM data. We describe the GBM search for counterparts of the O1 candidates, and highlight improvements to the analysis made in preparation for future LIGO/Virgo observations.

Tyson Littenberg
NASA/Marshall Space Flight Center

Date submitted: 30 Sep 2016 Electronic form version 1.4