

Abstract Submitted  
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**Multi-Messenger Time-Domain Astronomy with the Fermi Gamma-ray Burst Monitor** ADAM GOLDSTEIN, USRA - Huntsville, FERMI GBM TEAM — With exciting new detections of gravitational waves by LIGO and astrophysical neutrinos by IceCube and ANTARES, the era of multi-messenger time-domain astronomy has arrived. The Fermi Gamma-ray Burst Monitor (GBM) continuously observes the entire sky that is not occulted by the Earth in gamma-rays from 8 keV - 40 MeV with 2 microsecond temporal resolution, and that continuous data is downlinked every few hours. This wealth of near-real-time all-sky data has led to the development of continuous data searches for gamma-ray events, such as Gamma-Ray Bursts (GRBs), in coincidence with astrophysical neutrinos and gravitational wave events. Additionally, GBM has the ability to localize triggered and un-triggered transient events to a few-degree accuracy, rapidly disseminate the alerts and localization sky maps, and there have been several successful follow-up attempts by wide-field optical telescopes, such as the Palomar Transient Factory, to catch the fading optical afterglow of GBM-triggered GRBs. We discuss the current applications and importance of Fermi GBM in leading multi-messenger time-domain astronomy in the gamma-ray regime.

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