

The Search for Gamma-ray Emission from Fermi-GBM Coincident with LVK O4 Events

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Since the detection of the binary neutron star merger (GW170817) in coincidence with the short gamma ray burst (GRB 170817A), the search for electromagnetic emission from similar events has been an imperative part of multi-messenger astronomy. The LIGO\Virgo\Kagra Collaboration (LVK) is currently in the middle of their fourth observing run (O4), which began in May 2023. Of is the most sensitive gravitational wave search to date and predicts a large number of GW detections. Using Fermi-GBM on-board triggers and two sub-threshold searches, the Targeted and the Untargeted Search, The Fermi-GBM team has been searching for coincident gamma-ray emission to these GW events in real time. To date, no new joint events beyond GRB 170817A and GW170817 have been found, however, we place upper limits on the associated gamma-ray luminosity for the events and present joint upper limit skymaps.

Primary author: FLETCHER, Corinne (USRA)

Presenter: FLETCHER, Corinne (USRA)

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