

Telltale signs of a hypermassive neutron star: a search for kHz QPOs in short GRBs

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It is known from theoretical models and the observation of GW170817 that short gamma ray bursts (SGRBs) can be emitted by the merger of two neutron stars. The outcome of this merger may produce a short-lived (~ 100 ms) hypermassive neutron star (HMNS) before collapsing to a black hole. If the SGRB is emitted during the HMNS phase, it may be modulated by oscillations of the HMNS, with expected QPOs in the 1-5 kHz range. We review this scenario and present preliminary results from our search of the QPO signal in Fermi/GBM and Swift/BAT data using a Bayesian model, discussing the implications of possible candidates.

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