

Burst Properties of Two Magnetars: SGR J1818.0-1607 and PSR J1846.4-0258

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Magnetars are isolated, young ($< 10^5$ years), highly magnetic ($> 10^{14}$ G) neutron stars with long spin periods (2-12 s). All magnetars emit short repeated bursts in soft gamma rays; however, only a handful of magnetars show radio pulsations. After the detection of magnetar-like bursts from highly magnetic ($> 10^{13}$ G) Rotation Powered Pulsars (RPPs), the question of whether magnetar-like bursts from high-B RPPs have similar characteristics with other magnetars arose. To answer this question, we studied bursts from two magnetars, SGR J1818.0-1607 (a radio-loud magnetar) and PSR J1846.4-0258, both of which entered an active bursting episode in 2020, using *Fermi* Gamma-ray Burst Monitor (GBM) data. *Fermi* GBM triggered on December 13 in 2020, and January 6 & 24 in 2021 due to short bursts originating from SGR J1818.0-1607; and on August 1, 2020 due to a single burst coming from the direction of PSR J1846.4-0248. We searched for untriggered bursts and performed time-integrated spectral analysis for all identified bursts from both objects using three spectral models: Comptonized, black body, and sum of two black bodies with different kT values. Here, we present the results of our comprehensive burst search, identification and spectral analyses for both sources, and discuss their characteristics with each other, as well as burst properties from other magnetars.

Track

Pulsars

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