

Pulse fitting of short GRBs with known redshift detected by Fermi Gamma Ray Burst Monitor

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Short gamma-ray bursts (SGRBs) are located at cosmological distances and their progenitors are compact binary mergers. These luminous events last for $T_{90} < 2$ seconds. However, they are not the only events that last for that long. Magnetars, which are located in our galaxy or in nearby galaxies produce giant flares (MGFs). MGFs are short-hard energetic gamma-ray transients, similar to SGRBs that originate from highly magnetised neutron stars called Magnetars originating from star forming galaxies. Due to difficulties to easily distinguish these two transients, it is clear that the time interval that consists of 90% of the gamma-ray fluence is not sufficient to distinguish cosmological SGRBs from MGFs. In this study short GRBs with known redshift detected by Fermi Gamma ray burst monitor were selected for spectral studies in the energy range 10 keV - 40 MeV. The prominent peaks of the pulses were fit with the so-called Norris function. The function is a mathematical model that gives the rising and falling times of the pulses. This enables a better criteria to distinguish the two events by differentiating the rising and decaying times of SGRBs and MGF pulses.

Track

GRBs

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