

## **Detecting of the High-Energy Cutoffs for a Sample of Bright Fermi (GBM+LLE) GRBs**

Gamma-ray bursts (GRBs) are extremely energetic explosions that are powered by ultra-relativistic jets. It is suggested that the shape of the GRB spectrum in the high-energy spectral cutoff region is relevant to the cutoff region of the primary particles within the prompt emission. In this article, a joint-fit Fermi (GBM+LLE) spectral analysis is provided with a sample of 36 GRBs that were detected simultaneously. Attempts have been made to constrain the high-energy cutoff  $E_c$  achievable by the high-energy observations to  $> 130$  MeV using the BandCut model. We approved only three out of 36 GRBs that show such high energy cutoff  $E_c$ . Whereas others (4 GRBs) show an energy break,  $E_b$ , instead. The occurrence of the energy break  $E_b$  somewhere in the spectrum between 100-300 keV is due to the BandCut model not being well constrained towards the end of the high-energy LLE band at  $>130$  MeV. Which then results in spectral parameter values being obtained that are somewhat equivalent to the values obtained from the simple Band model with an energy peak  $E_{peak}$ . This is seemingly close to the high-energy cutoff  $E_c$  obtained from the BandCut model, and hence estimate Lorentz factor  $\Gamma$  for three GRBs in the sample.

**Primary author:** MONEER, Eman (Dr)

**Presenter:** MONEER, Eman (Dr)

**Session Classification:** Contributed posters