

## Redshift Estimates for Short Gamma-Ray Bursts from the Fermi-GBM Catalogue Using $E_{p,i}$ - $E_{iso}$ Correlation

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Currently operating and future planned missions need robust methods in determining the distances to GRBs. We purpose to provide a simple method for estimating distances to cosmological gamma-ray bursts. We construct  $E_{p,i}$ - $E_{iso}$  correlation for short gamma-ray bursts based on events with well established spectral peak energies. Applying minimal criteria, we sample SGRBs from the GBM catalogue and calculate spectral peak energy and isotropic energy using a range of distances between maximal and minimal observed redshifts. We iterate through a range of redshifts, and each event is examined for the condition to cross the main line of the  $E_{p,i}$ - $E_{iso}$  relation and additionally, its  $\pm 1\sigma$  and  $\pm 3\sigma$  uncertainty areas. Consequently, we take those intersections as the best redshift estimates for an individual burst. Redshifts estimated in such a way are then compared to those bursts with measured distances.

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