
Gamma-ray bursts from non-uniform jets

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It is generally believed that gamma-ray bursts (GRBs) can be explained by internal shell collisions in a jet-like outflow. Here we consider the possibility of non-uniform jets which may be generic nature of the progenitor of GRBs. Assuming short cooling time scale, we investigate the pulse profiles, peak luminosity, and spectra of GRBs with non-uniform Lorentz factors and non-uniform curvature of the gamma-ray emitting shells. Constraints on the related parameters are also studied from the observational results.