

Gamma-ray bursts and the most distant supernovae in the Universe

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A discovery of the connection between long-duration gamma-ray bursts (GRBs) and core-collapse supernovae (SNe) is the most important achievement in this domain in recent 10 years. Now a search for SN signatures in photometry and spectra of GRB optical transients becomes the main observational direction both for large ground-based telescopes and space platforms. The GRBs themselves are already considered as a probe for studying processes of massive star-formation at cosmological distances up to $z \sim 10$. Irrespective of specific models of this phenomenon, it can be said now that, while observing GRBs, we observe SNe which, probably, are always related to relativistic collapse of massive stellar cores in very distant galaxies.