

Supernovae (SN) - Gamma Ray Burst (GRB) Connection

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We review the observational status of the supernova/gamma-ray burst connection. Present data suggest that SNe associated with GRBs form a heterogeneous class of objects including both bright and faint hypernovae and perhaps also 'standard' Ib/c events. Evidence for association with other types of core-collapse SNe (e.g. IIa) is much weaker. After combining the local GRB rate with the local SN-Ibc rate and beaming estimates, we find the ratio GRB/SNe-Ibc in the range ~0.5-4%. In most SN/GRB associations so far discovered, the SN and GRB events appear to go off simultaneously. In some cases data do not exclude that the SN explosion may have preceded the GRB by a few days. Finally we discuss a number of novel questions started by recent cases of GRB-SN associations.

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