The Structure and Signals of Neutron Stars, from Birth to Death



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The connection between core-collapse supernovae and Gamma-Ray Bursts

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A few long Gamma-Ray Bursts and X-ray Flashes at redshift lower than ~0.3 are firmly associated with well studied core-collapse stripped-envelope Supernovae with broad spectral lines and high kinetic energies. A number of higher redshift GRBs are also accompanied by Supernovae that have properties consistent with those of energetic core-collapse SNe. This suggests that the majority of long GRBs are generated by Supernovae. However, the exceptions compound this picture and suggest different evolutionary pathways and endpoints for the GRB progenitors.

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