Poster Session #E
Astrophysics and Gravitational Waves

E06

Inferences of GRB 190114C for the Crab pulsar and the supernova remnant

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The understanding of binary-driven hypernovae of type I (BdHNe I) has identified the central role of the explosion of the supernova ("SN-rise") as well as of the role of the hypercritical accretion of the SN ejecta onto the binary companion neutron star (NS) and onto the newborn NS (νNS) in determining the GRB dynamics. We model the νNS through the equilibrium sequence of Maclaurin spheroids. By requiring that the νNS period extrapolated on 1000 yr coincides with the one of PSR B0531 + 21 (the Crab pulsar), we determine the initial spin of the νNS to be 0.9 ms, and follow the subsequent rotational and gravitational evolution of the eccentricity. The observed changes in the braking index are proposed to be correlated to pulsar glitches, whose intensities are predicted to be strongly correlated with the pulsar spin. We propose that the progenitor of the Crab nebula and of the Crab pulsar is a GRB very similar to GRB 190114C.