

Fast Radio Bursts, Short Gamma-Ray Bursts, and Gravitational Wave Bursts from Mergers of Binary Neutron Stars

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Fast radio bursts (FRBs) are millisecond-duration flashes of coherent GHz radio emission. Most of them arise from high Galactic latitudes, but their inferred dispersion measures are much larger than expected for propagation through the cold plasma of the Galaxy and its halo, strongly suggesting that they are at cosmological distances. They may fall into two types: repeating and non-repeating. In this talk, I'll first give a review of observations and models of FRBs. In particular, together with the possible association of FRB 131104 with a gamma-ray transient, I'll then discuss the binary neutron star (BNS) merger model of non-repeating FRBs in detail. It has been widely argued that the BNS mergers can lead to short-duration gamma-ray bursts (GRBs) and gravitational wave bursts (GWBs). Finally, therefore, I'll discuss implications and prospects of such three triplets from the BNS mergers.