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Exploring the connection between FRBs and neutron star mergers

Neutron star (NS) mergers, detected via gravitational wave (GW) signals by LIGO and Virgo, create extreme magnetized environments, providing optimal conditions for coherent radio emission observable as a fast radio burst (FRB). The temporal and spatial coincidences between GW events and FRBs offer a unique opportunity to directly identify FRB progenitors, test models of magnetar formation, and probe the behavior of ultra-dense matter. In particular, some NS mergers produce an intermediate-lived hypermassive neutron star (HMNS), which may power delayed FRB emission before collapsing into a black hole. However, confirming these associations remains challenging due to detection sensitivities, sky localization constraints, and uncertainties in the time delay between the merger and the FRB. In this talk, I will discuss possible connections between GW events, FRBs, and NS mergers, as well as the observational constraints that can help test this link.

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