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## Constraints on extreme density matter from GW observation of neutron star mergers

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Neutron stars in binary systems are among the strongest sources of gravitational waves and among the main targets for ground-based gravitational-wave interferometers Advanced LIGO and Virgo. The observation of these events in the gravitational-wave window can provide us with unique information on neutron stars' masses, radii, and spins, including the possibility to set strong constraints on the unknown equation of state of matter at supranuclear densities. A crucial and necessary step for the development of gravitational-wave astronomy with these sources is the precise knowledge of the dynamics of the sources and of the emitted waveforms. I will talk about recent developments on the modeling of gravitational waves from neutron star mergers using numerical simulations in general relativity, focusing on how these observations can constrain extreme density matter.

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