

Constraining the equation of state of nuclear matter with gravitational-wave observations

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Gravitational waves emitted by neutron stars in a variety of astrophysical processes carry information on the equation of state (EoS) of nuclear matter prevailing in their inner core. For instance, the EoS imprint is encoded in the frequencies at which a neutron star oscillates emitting gravitational waves, or in the tidal deformability parameter which affects the waveform emitted during the latest phases of a binary coalescence. I will discuss our current understanding of the most interesting processes, and the challenges that need to be met if we want to use gravitational waves to probe neutron star physics.

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