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Probing the neutron star equation of state with gravitational waves: higher-order tidal terms in compact binary waveforms

Gravitational waves from compact binaries are probably the most promising probe of the behaviour of matter in the inner core of neutron stars. Recently the tidal deformability of neutron stars has been measured by LIGO/Virgo, leading to a reliable estimate of the radius and to constraints on the equation of state. I will discuss how these measurements can be made more accurate, providing valuable information on the neutron star equation of state, including higher-order tidal terms in the gravitational wave template.

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