

Tidal deformability of neutron stars and gravitational waves

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Gravitational waves (GW170817) produced in a binary neutron star inspiral have been observed followed by gamma-ray burst (GRB 170817A) and afterglows from X-ray to radio. By combining the distance obtained by gravitational waves and red shift obtained by electromagnetic waves, even Hubble constant has been estimated. This indicates the start of new era of multimessenger astronomy. In addition to the masses of inspiralling neutron stars, the tidal deformability which depends on the inner structure of neutron stars has been estimated from gravitational waves. This confirms that even strong interactions can be tested by gravitational waves. In this talk, I review the effect of tidal deformability of neutron stars to the gravitational waves produced in the inspiral process, and discuss the implications of detected tidal deformability to the neutron star equations of state.

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