

PHAROS Conference 2020: The multi-messenger physics and astrophysics of neutron stars



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Neutron star EOS constraints through gravitational-wave observations (Invited)

Wednesday 1 April 2020 09:00 (30 minutes)

Observing binary neutron star mergers with gravitational-wave observatories allows for new constraints to be set on the properties of high-density matter in the core of neutron stars. I will discuss an absolute constraint on the minimum radius of neutron stars, based on source characteristics derived by the GW170817 event and on a minimal set of assumptions. Upgraded or third-generation gravitational-wave observatories will have sufficient sensitivity at high frequencies to also allow for the detection of gravitational waves from the post-merger phase of binary neutron star mergers. I will discuss a set of empirical relations for gravitational-wave asteroseismology in the post-merger phase, which can lead to accurate radius constraints, with maximum uncertainties of just a few hundred meters for typical neutron star masses.

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Session Classification: Invited Talks

Track Classification: Invited Talks