

Merger of neutron-star binaries as a laboratory of neutron-star matter and nucleosynthesis

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Mergers of binary neutron stars and black hole-neutron star binaries is among the most promising regular sources for ground-based gravitational-wave detectors. Gravitational waves from these binaries will bring us information of neutron-star mass and radius (and/or tidal deformability), which can be valuable for constraining neutron-star equation of state. Furthermore, electromagnetic counterparts of neutron-star mergers carry information on the r-process nucleosynthesis of heavy elements. I will review the merger process of neutron-star binaries and how we can explore the neutron-star equation of state and nucleosynthesis from the observational results of gravitational waves and electromagnetic counterparts.