



Contribution ID: 35

Type: Oral

Extreme matter with gravitational wave observations

Thursday, 21 September 2023 14:00 (30 minutes)

Gravitational-wave observatories have established a new field of transient astronomy. The most recent LIGO-Virgo-Kagra catalog, GWTC-3, identifies 90 merging binaries, which range from a double neutron star with a total mass of 2.7 at 40 Mpc (GW170817) to a double black hole with a total mass of 150 at 5.3 Gpc (GW190521). These observations have many potential implications for dense matter physics: revealing the remnants of supernovae in merging binary systems, constraining rates and astrophysical environments of heavy-element nucleosynthesis events, and illuminating the dense matter dynamics inside the mergers of neutron stars. Here, I will describe the imprint of dense matter physics and implications from existing observations, and outline prospects for the coming years including the science potential of proposed next-generation observatories like Cosmic Explorer and Einstein Telescope.

Primary author: READ, Jocelyn (CSU Fullerton)

Presenter: READ, Jocelyn (CSU Fullerton)

Session Classification: Astrophysical, multi-messenger observations

Track Classification: Astrophysical, multi-messenger observations