



Multi-messenger Modeling of Neutron Star Mergers

May 8-10, 2023

Room 407 Jadwin Hall, Princeton University

Organizers: Elias Most and Carolyn Raithel



Starting with the first detection of gravitational waves (GW) from merging black holes in 2015, GW detections have led to breakthroughs in cosmology, relativistic astrophysics and multi-messenger astronomy alike. The coincident detection of electromagnetic counterparts, in particular, has the potential to provide novel constraints on dense matter and the properties of neutron stars. In May of this year, the LIGO-Virgo-KAGRA collaboration is expected to begin their next observing run (O4). The last observing run gave rise to many exciting GW detections, including the second ever binary neutron star merger and the first confirmed neutron star-black hole mergers, but saw no new electromagnetic counterparts. Thanks to new improvements to the detectors, it is highly anticipated that the new observing run will detect many more neutron star mergers, with up to a few electromagnetic counterparts expected per year. Interpreting this upcoming, new zoo of GW events with and without EM counterparts requires detailed multi-scale, multi-physics modeling, that touches on many different areas of physics and astronomy. This workshop will bring together a wide range of experts working on these topics, to discuss the extremes of the post-merger environment and current uncertainties in modeling the outflows, dynamics, and evolution of the post-merger remnant. By providing a unique opportunity to connect the various communities, this workshop will provide a stimulating environment to prepare for the interpretation of the exciting discoveries expected over the next year.

Free but required registration is now open on the PCTS website or scan the QR code.

Speakers

Andreas Bauswein
Sanjana Curtis
Pedro Espino
Rodrigo Fernandez
Francois Foucart
Sho Fujibayashi

Rosella Gamba
Kenta Hotokezaka
Davide Lazzati
Steven Liebling
Brian Metzger
Philipp Mösta
Ariadna Murguia-Berthier

Andrea Pavan
David Radice
Sherwood Richers
Milton Ruiz
Daniel Siegel

