

INT Workshop INT-18-72R

INT-JINA Symposium: First multi-messenger observations of a neutron star merger and its implications for nuclear physics

March 12 - 14, 2018

***ALL TALKS WILL BE HELD IN THE SEMINAR ROOM, C520,
UNLESS STATED OTHERWISE***

Monday, March 12, 2018

- 8:00 AM Registration, C411
- 8:50 AM Welcome to the INT - Larry McLerran, INT Director
- 9:00 AM "Searching for and measuring gravitational waves: opportunities and challenges"
Overview: Bangalore Sathyaprakash (GWs & data analysis)
- 9:40 AM "Measuring tidal parameters and the EOS for the BNS event GW170817 with advanced LIGO"
Benjamin Lackey, Max Planck Institute for Gravitational Physics
- 10:00 AM "GW170817 and the rate of binary neutron star mergers"
Greg Mendell, Caltech
- 10:20 AM Coffee Break**
- 10:50 AM "Observations of the late merger and post-merger gravitational wave signal from binary neutron star coalescence & constraints on the neutron star equation of state: results from GW170817 and prospects for future detections and instrumentation"
James Clark, Georgia Institute of Technology
- 11:10 AM "Searches for continuous gravitational waves in LIGO/Virgo data and the post-merger remnant following the binary neutron star merger GW170817"
Evan Goetz, LIGO Hanford Observatory
- 11:30 AM Discussion session
Moderator: Bangalore Sathyaprakash, Penn State University
- 12:30 PM Lunch**
- 2:00 PM "Constraints on neutron star structure and equation of state from GW170817"
Overview: James Lattimer (EOS, MR and Tidal Polarizability)
- 2:40 PM "Equation of state, NS deformability and fate of the remnant"
Chuck Horowitz, Indiana University
- 3:00 PM "Extracting Radii from the Tidal Deformabilities of GW170817", or "Parametric Hot Equations of State for use in Neutron Star Mergers"
Carolyn Raithel, University of Arizona
- 3:20 PM "Dense matter EOS for mergers"
Madappa Prakash, Ohio University
- 3:40 PM Coffee Break**
- 4:00 PM "Experimental constraints on the Equation of State"
Betty Tsang, Michigan State University
- 4:20 PM "EOS constraints from modern nuclear interactions and neutron star observations"
Kai Hebeler, TU Darmstadt
- 4:40 PM "Quantum Monte Carlo calculations of the neutron matter EOS"
Stefano Gandolfi, LANL
- 5:00 - 6:00 PM Discussion session
Moderator: James Lattimer, Stony Brook University

Tuesday, March 13, 2018

- 9:00 AM "EM observations of GW170817"
Overview: Raffaella Margutti (Observations)
- 9:40 AM "Modelling Kilonova"
Overview: Dan Kasen (Kilonova theory)
- 10:20 AM "Detection rates for GW170817-like events with ZTF and LSST"
Eric Bellm, University of Washington
- 10:40 AM Coffee Break**
- 11:10 AM "Nuclear physics impact on kilonova light curves"
Gabriel Martinez-Pinedo, GSI Darmstadt and TU Darmstadt
- 11:30 AM "r-process nucleosynthesis yields and their heating rate"
Meng-Ru Wu, Academia Sinica
- 11:50 AM "Beta-delayed and neutron induced fission in the dynamical ejecta of mergers"
Mathew Mumpower, Los Alamos National Lab
- 12:10 PM "Neutrino flavor transformation in compact object mergers and its effect on element synthesis"
Gail McLaughlin, North Carolina State University
- 12:30 PM **Lunch**
- 2:00 PM "Simulations of neutron star mergers: Status and prospects"
Overview: David Radice (NR and simulations)
- 2:40 PM "The equation of state of nuclear matter and gravitational waves"
Kenta Kiuchi, Yukawa Institute for Theoretical Physics
- 3:00 PM "Outflows from neutron star merger remnant accretion disks"
Rodrigo Fernandez, University of Alberta
- 3:20 PM "Dynamical ejecta and nucleosynthetic yields from eccentric neutron star binaries"
Roman Gold, Institute for Theoretical Physics
- 3:40 PM Coffee Break**
- 4:00 PM "Jets and shocks in GW170817"
Maxim Lyutikov, Purdue University
- 4:20 PM "Multi-messenger constraints on the NS maximal mass from GW170817"
Ben Margalit, Columbia University
- 4:40 - 5:40 PM Discussion session
Moderators: Daniel Kasen, UC Berkeley, & David Radice, Princeton University

Wednesday, March 14, 2018

- 9:00 AM "Overview: Nuclear experiments for the r-process"
Overview: Jason Clark, Argonne National Laboratory
- 9:40 AM "Implications for the EOS from observations of accreting neutron stars"
Ed Brown, Michigan State University
- 10:00 AM "Constraints on the formation of double neutron star systems from moment of inertia and tidal deformability measurements"
Will Newton, Texas A&M University-Commerce
- 10:20 AM "Constraints on neutron star radii and tidal deformabilities from qLMXBs and LIGO"
Andrew Steiner, UTK/ORNL
- 10:40 AM Coffee Break**
- 11:00 AM "The neutron-star equation of state from chiral EFT and constraints from gravitational waves from neutron-star mergers"
Ingo Tews, Institute for Nuclear Theory

- 11:20 AM "Combining experimental and Monte-Carlo data with gravitational wave observations to constrain the nuclear equation of state"
Michael Forbes, Washington State University
- 11:40 AM "Matching the EOS of dense neutron-rich matter from terrestrial experiments and astrophysical observations"
Bao-An Li, Texas A&M University-Commerce
- 12:00 PM "Probing quark matter inside neutron stars?"
Tobias Fischer, Institute of Theoretical Physics
- 12:20 PM **Lunch**
- 2:00 PM "Dark matter in neutron star mergers"
Sanjay Reddy, Institute for Nuclear Theory
- 2:20 PM "Reverse engineering the masses of rare-earth nuclei using the observed solar r-process abundances"
Nicole Vassh, University of Notre Dame
- 2:40 PM "Free neutron ejection from shock breakout in binary neutron star merger"
Ayako Ishii, University of Tokyo
- 3:00 PM Coffee Break**
- 3:30 - 4:30 PM Panel discussion: Open Issues and Near Term Prospects
Moderators: Chuck Horowitz, Indiana University, & David Radice, Princeton University