

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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**KITP Conference: Merging Visions: Exploring
 Compact-Object Binaries with Gravity and Light**
 (Jun 24-27, 2019)

Coordinators: Daniel Holz, Brian Metzger, and Alberto Sesana

Monday, Jun 24, 2019

**Setting the Stage: the Gravitational Wave Arena, Chair: Daniel Holz
 (Chicago)**

8:50am Lars Bildsten (KITP Director)	Welcome
9:00am Duncan Brown (Syracuse)	Towards Third-generation Gravitational Wave Observatories
9:45am Alberto Sesana (Bicocca)	Setting the GW stage: the Low Frequency Realm (LISA and PTA)
11:00am Ian Harry (Portsmouth)	Introduction to LIGO/Virgo Data Analysis and Results from Binary Neutron Star Observations in 01/02
11:30am Ben Farr (Oregon)	Results from Binary Black Hole Observations in 01/02 & Summary of Public Alerts from O3
12:00pm Marcelle Soares-Santos (Brandeis)	Electromagnetic Follow-ups of LIGO Detections
12:30pm	Lunch Break

**Formation Channels Of Compact Object Binaries, Chair: Philipp
 Podsiadlowski (Oxford)**

2:00pm Matteo Cantiello (Flatiron)	The Evolution of Massive Stars
2:30pm Chris Fryer (Los Alamos)	Remnants of Massive Stars
3:00pm Natasha Ivanova (Alberta)	Common Envelope Physics
3:30pm	Afternoon Break
4:00pm Yiva Gotberg (Carnegie)	Evolution of Massive Binaries
4:30pm Silvia Toonen (Birmingham)	Evolution of Hierarchical Triplets

5:00pm Yacine Ali-Haïmoud (NYU) Primordial Black Holes as GW Sources

5:30pm **SHUTTLE TO BWSCI**

Tuesday, Jun 25, 2019

Formation Channels of Compact Object Binaries (continue), Chair: Natasha Ivanova (Alberta)

9:00am Michela Mapelli (Padua) Dynamical Formation of Compact Binaries

9:30am Chris Belczynski (Copernicus Ctr) Field Formation of Compact Binaries

10:00am Carl Rodriguez (MIT) Black Holes: the Next Generation

10:30am **Morning Break**

Merging Neutron Stars: Observations and Numerical Simulations, Chair: Elena Gallo (Michigan)

11:00am Andreas Bauswein (GSI) Dynamics of Neutron Star Mergers

11:30am Ryan Foley (UCSC) The First Detection of an EM Counterpart to a GW Event

12:00pm Kunal Mooley (NRAO) Radio Observations of GW170817

12:30pm **Lunch Break**

Merging NSs: Observations and Numerical Simulations (continue), Chair: Juna Kollmeier (Carnegie)

2:00pm Edo Berger (Harvard) The Multi-band EM View of GW170817

2:30pm Mansi Kasliwal (Caltech) New Results from 03 follow-up

3:00pm Daniel Siegel (Columbia) R-processes in Merging Neutron Stars

3:30pm **Afternoon Break**

4:00pm Jennifer Barnes (Columbia) The Physics of Kilonovae

4:30pm Vasileios Paschalidis (Arizona) Black Hole -- Neutron Star Mergers

5:00pm Discussion (Brown, Metzger) What We Did Learn from LIGO-Virgo Observations so Far and What are the Open Issues

5:30pm **RECEPTION-KITP Courtyard**

6:00pm

SPECIAL EVENTS DINNER

8:00pm

SHUTTLE TO BWSCI**Wednesday, Jun 26, 2019****Neutron Star Physics, Chair: Brian Metzger (Columbia)**

9:00am Nils Andersson (Southampton)

Exploring Matter at the Extremes

9:30am Cecilia Chirenti (UFABC)

QPOs from Soft Gamma-ray
Repeaters

10:00am Cole Miller (Maryland)

Constraining the High-density
Equation of State with Astronomical
Observations

10:30am

Morning Break

11:00am Jocelyn Read (Fullerton)

The Equation of State in
Gravitational Wave Observations

11:30am Reed Essick (Chicago)

Fluid Instabilities in Neutron Star
Mergers

12:00pm Philippe Landry (Chicago)

Neutron Star Tides and Quasi-
universal Relations

12:30pm

Lunch Break**Tests of Gravity and Cosmology with Multi-messenger Observations**

2:00pm Tessa Baker (Oxford)

Constraints on Cosmological Gravity
from GW170817

2:30pm Kent Yagi (Virginia)

Test of Gravity with Neutron Star
Mergers

3:00pm Hsin-Yu Chen (Harvard)

Prospects of Doing Cosmography
with Neutron Star Mergers

3:30pm

Afternoon Break

4:00pm Maya Fishbach (Chicago)

Measurements of H_0 with
GW170817

4:30pm Discussion (Holz, Metzger)

Prospects of Testing Fundamental
Gravity and Cosmology with GWs
and EM Observations

5:30pm

RECEPTION-KITP Courtyard

6:00pm

SPECIAL EVENTS DINNER-KITP COURTYARD

8:00pm

SHUTTLE TO BWSCI**Thursday, Jun 27, 2019****Massive Black Hole Binaries: Theory and Observations, Chair: Sterl Phinney (Caltech)**

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| 9:00am Rosa Valiante (INAF Roma) | Massive Black Hole Formation and Evolution |
| 9:30am Andrew MacFadyen (NYU) | Massive black Hole Binaries in Viscous Disks: Dynamics and Signatures |
| 10:00am Monica Colpi (Bicocca) | Viewing Massive Black Hole Coalescences with Ligh and GWs |
| 10:30am | Morning Break |
| 11:00am Mike Eracleous (Penn State) | Searching for Massive Black Hole Binaries from the Point of View of an Optical Observer |
| 11:30am Nicola Tamanini (AEI) | Astrophysics and Cosmology with LISA Sources |
| 12:00pm Emanuele Berti (Johns Hopkins) | Strong Gravity and New Physics with LISA |
| 12:30pm | Lunch Break |

Massive Black Hole Binaries (continue), Chair: Monica Colpi (Bicocca)

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| 2:00pm Megan DeCesar (Lafayette) | Pulsar Timing Arrays: Observations and Status |
| 2:30pm Sarah Vigeland (Milwaukee) | Astrophysics with Current Pulsar Timing Array Limits |
| 3:00pm Discussion (Sesana) | Seeing Massive Black Hole Binaries in Light and Gravitational Waves |
| 3:30pm Organizers | Concluding Remarks |
| 4:00pm | CONFERENCE END SHUTTLE TO BWSCI *Also available to SB Airport and SB Airbus, Goleta location. (See Registration Desk BEFORE Thursday to sign up.) |