

Workshop III: Source inference and parameter estimation in Gravitational Wave Astronomy

Monday November 15, 2021

- 8:00–8:55 *Check-In/Light Breakfast (Hosted by IPAM)*
- 8:55–9:00 *Welcome & Opening Remarks: Dean Miguel García-Garibay (Dean of Physical Sciences, UCLA) and Dima Shlyakhtenko (Director, IPAM)*
- 9:00 *Session Chair: Katerina Chatziioannou (Caltech)*
- 9:00–9:15 **Katerina Chatziioannou** (California Institute of Technology)
Introduction to Single Source Inference
- 9:15–9:55 **Tyson Littenberg** (NASA - Marshall Space Flight Center)
Virtual Talk: Building flexible, but not too flexible, models of gravitational wave data
- 10:05–10:30 *Break*
- 10:30–11:15 **Kristen Lackeos** (Max Planck Institute for Radio Astronomy)
LISA and the global analysis of galactic binary gravitational wave signals
- 11:25–11:45 *Break*
- 11:45–12:30 **Arianna Renzi** (California Institute of Technology)
Stochastic background searches in GW experiments
- 12:40–2:30 *Lunch (on your own)*
- 2:30–3:15 **Sarah Vigeland** (University of Wisconsin-Milwaukee)
Supermassive Black Holes and Merging Galaxies: Low-Frequency Gravitational Wave Detection with Pulsar Timing Arrays
- 3:25–3:40 *Break*
- 3:40–4:30 *Discussion*
- 4:30–4:40 *Lightning Poster Presentations*
- 4:40–6:00 *Poster Session & Reception (Hosted by IPAM)*



Tuesday November 16, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Session Chair: Jose Antonio Font (University of Valencia)*
- 9:00–9:15 **Salvatore Vitale** (Massachusetts Institute of Technology)
Virtual Talk: Introduction to Population Inference
- 9:15–9:55 **Michela Mapelli** (University of Padova)
Virtual Talk: Astrophysical models of binary compact objects: open questions and main uncertainties
- 10:05–10:30 *Break*
- 10:30–11:10 **Rachel Gray** (Queen Mary University of London)
Virtual Talk: Cosmology with dark sirens: attempting to solve the Hubble constant tension
- 11:20–11:45 *Break*
- 11:45–12:30 **Maya Fishbach** (Northwestern University)
Black hole astrophysics with gravitational-wave catalogs
- 12:40–2:30 *Lunch (on your own)*
- 2:30–3:15 **Colm Talbot** (Massachusetts Institute of Technology)
Adventures in practical population inference
- 3:25–3:40 *Break*
- 3:40–4:30 *Discussion*

Wednesday November 17, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Session Chair: Alejandro Torres-Forné (University of Valencia)*
- 9:00–9:45 **Stephen Green** (Max Planck Institute for Gravitational Physics, Albert Einstein Institute)
Real-time gravitational-wave parameter estimation using machine learning
- 9:55–10:15 *Break*
- 10:15–10:55 **Scott Field** (University of Massachusetts Dartmouth)
Virtual Talk: Gravitational Wave Parameter Estimation with Compressed Likelihood Evaluations
- 11:05–11:30 *Break*

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- 11:30–12:10 **Joshua Speagle** (University of Toronto)
Virtual Talk: A Brief Introduction to Nested Sampling
- 12:20–2:00 *Lunch (on your own)*
- 2:00–2:45 **Dan Foreman-Mackey** (Flatiron Institute)
Methods for scalable probabilistic inference
- 2:55–3:15 *Break*
- 3:15–4:00 **Kyle Cranmer** (New York University)
Simulation-based Inference for Gravitational Wave Astronomy
- 4:10–4:25 *Break*
- 4:25–5:00 *Discussion*

Thursday November 18, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Session Chair: Geraint Pratten (University of Birmingham)*
- 9:00–9:40 **Asimina Arvanitaki** (Perimeter Institute for Theoretical Physics)
Virtual Talk: Searching for Ultra-Light Bosons with Black Hole Superradiance
- 9:50–10:15 *Break*
- 10:15–11:00 **Juan Calderon-Bustillo** (University of Santiago de Compostela)
The challenge of characterising high-mass compact mergers: the case of GW190521
- 11:10–11:30 *Break*
- 11:30–12:15 **Jocelyn Read** (California State University, Fullerton (CSU Fullerton))
Gravitational-wave observations of neutron-star mergers
- 12:25–2:00 *Lunch (on your own)*
- 2:00–2:45 **Jose Antonio Font** (University of Valencia)
Inference with core-collapse supernova waveforms
- 2:55–3:15 *Break*
- 3:15–3:55 **Ling Sun** (Australian National University)
Virtual Talk: Tracking a continuous gravitational-wave signal with a hidden Markov model
- 4:05–4:25 *Break*
- 4:25–5:00 *Discussion*

Friday November 19, 2021

- 8:00–9:00 *Check-in/Breakfast (hosted by IPAM)*
- 9:00 *Session Chair: Patricia Schmidt (University of Birmingham)*
- 9:00–9:15 **Patricia Schmidt** (University of Birmingham)
Introduction to Systematics
- 9:15–10:00 **Geraint Pratten** (University of Birmingham)
Waveform Systematics and Binary Black Holes
- 10:10–10:30 *Break*
- 10:30–11:10 **Rossella Gamba** (Friedrich-Schiller-Universität)
Virtual Talk: Waveform systematics in the gravitational-wave inference of tidal parameters and equation of state from binary neutron star signals
- 11:20–11:45 *Break*
- 11:45–12:30 **Sylvia Biscoveanu** (Massachusetts Institute of Technology)
The Effect of Power Spectral Density Uncertainty on Gravitational-Wave Parameter Estimation
- 12:40–2:30 *Lunch (on your own)*
- 2:30–3:10 **Ben Farr** (University of Oregon)
Virtual Talk: Nobody Likes a Glitch
- 3:20–3:40 *Break*
- 3:40–4:30 *Discussion*

