

Computational Challenges in Gravitational Wave Astronomy

Monday January 28, 2019

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Manuela Campanelli** (Rochester Institute of Technology)
Shedding light on Binary Black Hole Mergers with Numerical Simulations
- 9:50–10:10 *Break*
- 10:10–11:00 **Matt Choptuik** (University of British Columbia)
Black hole formation in Randall-Sundrum II braneworlds
- 11:00–11:20 *Break*
- 11:20–12:10 **Melvin Leok** (University of California, San Diego (UCSD))
Variational discretizations of gauge field theories using group-equivariant interpolation spaces
- 12:10–2:00 *Lunch (on your own)*
- 2:00–2:50 **Jess McIver** (California Institute of Technology)
Mitigating noise artifacts in gravitational-wave detector data in the era of open public alerts
- 2:50–3:10 *Break*
- 3:10–4:00 **Frank Ohme** (Max Planck Institute für Gravitationsphysik, Albert-Einstein-Institut)
Modeling compact mergers in the era of regular gravitational-wave observations
- 4:30–5:30 **Barry Barish** (California Institute of Technology)
Public Lecture - Green Family Lecture Series: "From Einstein to Gravitational Waves"
- 5:30–6:45 *Poster Session & Reception (Hosted by IPAM)*

Tuesday January 29, 2019

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Massimiliano Razzano** (Università di Pisa)
Image-based deep learning to study transient noise in gravitational wave detectors
- 9:50–10:10 *Break*
- 10:10–11:00 **Elena Cuoco** (European Gravitational Observatory)
Wavefier: a prototype of real time classifier for transient signals
- 11:00–11:20 *Break*

(Tuesday schedule continued on next page)



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- 11:20–12:10 **Ik Siong Heng** (University of Glasgow)
A binary black hole waveform generator trained on numerical relativity waveforms
- 12:10–1:30 *Lunch (on your own)*
- 1:30–2:20 **Gunther Uhlmann** (University of Washington)
Seeing Through Space Time
- 2:20–2:40 *Break*
- 2:40–3:30 **Edward Porter** (Laboratoire Astroparticule & Cosmologie (APC))
A Hamiltonian Monte Carlo Algorithm for Bayesian Interference of CBC sources
- 3:30–3:40 *Break*
- 3:40–4:30 **Spyros Alexakis** (University of Toronto)
Singularity formation in black hole interiors: Polarized perturbations of Schwarzschild

Wednesday January 30, 2019

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Zvi Bern** (University of California, Los Angeles (UCLA))
High Post-Minkowskian Orders for Binary Systems
- 9:50–10:10 *Break*
- 10:10–11:00 **Serena Vinciguerra** (Max Planck Institute für Gravitationsphysik, Albert-Einstein-Institut)
Accelerating CBC parameter estimation with multi-band frequency domain waveforms
- 11:00–11:20 *Break*
- 11:20–12:10 **Yiran Wang** (Stanford University)
Convolutional neural networks in phase space and inverse problems for nonlinear wave equations
- 12:10–2:30 *Lunch (on your own)*
- 2:30–3:20 **William East** (Perimeter Institute for Theoretical Physics)
The Post-merger Dynamics of Compact Objects: Tackling Long Timescales in Gravitational Wave Sources
- 3:20–4:00 *Break*
- 4:30–5:30 **Barry Barish** (California Institute of Technology)
Public Lecture - Green Family Lecture Series: "Gravitational Waves and a Future New Science"
- 5:30–6:45 *Poster Session & Reception (Hosted by IPAM)*

Thursday January 31, 2019

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Pablo Cerdá-Durán** (University of Valencia)
Understanding GWs from core-collapse supernovae
- 9:50–10:10 *Break*
- 10:10–11:00 **Jade Powell** (Swinburne University of Technology)
The emission of gravitational waves in the explosion of single stars and stars in binary systems.
- 11:00–11:20 *Break*
- 11:20–12:10 **Alejandro Torres-Forné** (Max Planck Institute für Gravitationsphysik, Albert-Einstein-Institut)
Variational models and algorithms for GW denoising and reconstruction: applications
- 12:10–1:30 *Lunch (on your own)*
- 1:30–2:20 **Barry Barish** (California Institute of Technology)
Gravitational Waves from Detectors to Detection
- 2:20–2:40 *Break*
- 2:40–3:40 *Panel Discussion*

Friday February 1, 2019

- 8:00–9:00 *Check-In/Light Breakfast (Hosted by IPAM)*
- 9:00–9:50 **Andrzej Krolak** (Polish Academy of Sciences)
Computational challenges in searches for gravitational waves from pulsars
- 9:50–10:10 *Break*
- 10:10–11:00 **Hari Sundar** (University of Utah)
Dendro-GR: Enabling Adaptivity & Parallelism for Computational Relativity
- 11:00–11:20 *Break*
- 11:20–12:10 **Marco Cavaglia** (Missouri University of Science and Technology)
Background reduction in searches for gravitational-wave signals from supernovae: A machine learning approach

