

2020 36th Jim Isenberg PCGM

13-14 March 2020 / Mosher Alumni House

Friday, March 13

Session I (9am - 10:30am) Chair: Gary Horowitz (UCSB)

- (9:00-9:15) Gary Horowitz (UCSB): Opening Remarks
- (9:15-9:30) Thomas Hertog (KU Leuven)
"Does the universe have a (predictable) future?"
- (9:30-9:45) Gustavo Joaquin Turiaci (UCSB)
"Statistical mechanics of near extremal black holes"
- (9:45-10:00) Sergio Hernandez Cuenca (UCSB)*
"Reconstruction of bulk metrics with an asymptotically compact space"
- (10:00-10:15) Eric Hirschmann (Brigham Young University)
"Charging Myers Perry"
- (10:15-10:30) Arun Ravishankar (University of Arizona)*
"Horizon instability of the extremal BTZ black hole"

Coffee Break (10:30am - 11am)

Session II (11am - 12:15pm) Chair: G. Joaquin Turiaci (UCSB)

- (11:00-11:15) Matthew Mewes (Cal Poly)
"Testing Lorentz invariance with gravitational waves"
- (11:15-11:30) Lee Lindblom (CASS UCSD)
"Directed Searches for Continuous Gravitational Waves from Isolated Neutron Stars"
- (11:30-11:45) Derek Davis (Caltech)
"The impact of LIGO transient noise on the inference of gravitational-wave source properties"
- (11:45-12:00) Matthew Fox (Haverly Mudd)*
"Poking Holes in Schwarzschild-Tangherlini Black Holes"
- (12:00-12:15) Rhondale Tso (Caltech)*
"Probing Relativity Across the Gravitational Wave Spectrum"

Lunch Break (12:15pm - 2pm)

Session III (2pm - 3:30pm) Chair: Don Marolf (UCSB)

- **(2:00-2:15) Steve Giddings (UCSB)**
"Quantum first gravity"
- **(2:15-2:30) Jake Hauser (Pomona)***
"Time Travel Paradoxes and Multiple Histories"
- **(2:30-2:45) Temple He (UC Davies)**
"Asymptotic Symmetries in Arbitrary Dimensions"
- **(2:45-3:00) Venkatesa Chandrasekaran (UC Berkeley)***
"Gravitational edge modes at null boundaries in general relativity"
- **(3:00-3:15) Ted Jacobson (Maryland)**
"Rapidly Expanding BEC Ring: Analog Cosmology in a Lab"
- **(3:15-3:30) Diandian Wang (UCSB)***
"Instabilities with analytic boundary conditions"

Coffee Break (3:30pm - 4pm)

Session IV (4pm - 5:00pm) Chair: Eduardo Teste (UCSB)

- **(4:00-4:15) Charles Torre (Utah State University)**
"Homogeneous Electrovacua"
- **(4:15-4:30) Tucker Manton (Arizona State U)***
"New horizons in the classical double copy"
- **(4:30-4:45) Nikhil Monga (Arizona State U)***
"From Navier-Stokes to Maxwell. A look at the Fluid-Gravity Duality in the Context of the Double Copy"
- **(4:45-5:00) Ahmed Farag Ali (Quantum Gravity Research)**
"Black hole universal clock"

Saturday, March 14

Session I (9am - 10:30am) Chair: Beverly Berger (Stanford U)

- **(9:00-9:15) Rodrigo Andrade e Silva (Maryland)***
"Toward a quantization of causal diamonds in 2+1 dimensional gravity"
- **(9:15-9:30) Quentin G Bailey (Embry-Riddle Aeronautical University)**
"Status of spacetime-symmetry foundations of General Relativity"
- **(9:30-9:45) Shannon Wang (UCSB)***
"Probing Phase Transitions of Holographic Entanglement Entropy through Fixed Area States"
- **(9:45-10:00) Douglas Singleton (CSU Fresno)**
"Modified commutation relationship motivated by the Riemann Hypothesis"
- **(10:00-10:15) Michael Bishop (CSU Fresno)**
"Quantum Gravity Minimum Length Scales from Modified Commutators vs Modified Operators"
- **(10:15-10:30) Julio Parra-Martinez (UCLA)***
"Learning classical gravity using quantum gravity"

Coffee Break (10:30am - 11am)

Session II (11am - 12:30pm) Chair: Henry Maxfield (UCSB)

- **(11:00-11:15) Vijay Varma (Caltech)**
"Extracting the gravitational recoil from black hole merger signals"
- **(11:15-11:30) Yangyang Cai (University of Arizona)***
"Consistent Blandford-Znajek Expansion"
- **(11:30-11:45) Sam Gralla (University of Arizona)**
"Lensing, Photon Rings, and EHT"
- **(11:45-12:00) Alireza Parhizkar (Maryland)***
"Chemical potential of vacuum"
- **(12:00-12:15) Batoul Banihashemi (Maryland)***
"Thermodynamic ensembles with cosmological horizons"
- **(12:15-12:30) Matthew Giesler (Caltech)**
"Black hole ringdown: the importance of overtones"

Lunch Break (12:30pm - 2pm)

Session III (2pm - 3:30pm) Chair: Cynthia Keeler (Arizona State U)

- **(2:00-2:15) Suk Jung (CSULA)***
"Detection of Crystallite Formation in LIGO Dielectric Mirror Coatings Using Microscopy and Image Processing"
- **(2:15-2:30) Ka Yue Alvin Li (LIGO Laboratory, Caltech)***
"Targeted Sub-threshold Search for Strongly-lensed Gravitational-wave Events"
- **(2:30-2:45) Preston Jones (Embry Riddle Aeronautical University - Prescott)**
"Astrophysical and cosmological applications of gravitational wave vacuum production of electromagnetic radiation"
- **(2:45-3:00) Francois Hebert (Caltech)**
"Shock-capturing discontinuous Galerkin schemes in SpECTRE"
- **(3:00-3:15) Jordan Moxon (Caltech)**
"SpECTRE Cauchy Characteristic Evolution"
- **Announcement: DGRAV Student Prize Winner**

Coffee Break (3:30pm - 4pm)

Session IV (4pm - 4:45pm) Chair: G. Joaquin Turiaci (UCSB)

- **(4:00-4:15) Vesselin G. Gueorguiev (Institute for Advanced Physical Studies)**
"The Growth of the Density Fluctuations in the Scale-Invariant Vacuum Theory"
- **(4:15-4:30) Paul O'Brien (APS member)**
"When you combine black hole mass, (M), radius, (R), and temperature, (T), in one equation, then $(M)/(R^2(T)) = (2 \pi k)/(c^2 L p^2)$, this does prove BH 's radiate entropy as they grow, not evaporate. This conserves quantum information as duality with a dual basis"
- **(4:30-4:45) Jack Sarfatti (internet Science Education Foundation)**
"What value of "c" should we use in G/c^4 inside matter?"