

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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KITP Conference: Geometry from the Quantum

(Jan 13-17, 2020)

**Coordinators: Tom Faulkner, Veronika Hubeny, Juan Maldacena and
Eva Silverstein**

Monday, Jan 13, 2020

Session Chair: Juan Maldacena (IAS)

8:50am	Lars Bildsten (KITP)	Welcome
9:00am	Steve Shenker (Stanford)	Beyond geometry
9:45am	Netta Engelhardt (MIT)	Remarks on Quantum Extremality (tentative)
11:00am	Ahmed Almheiri (IAS)	Replica wormholes and the entropy of Hawking radiation part 1
11:45am	Tom Hartman (Cornell)	Replica wormholes and the entropy of Hawking radiation part 2
12:30pm		Lunch Break

Session Chair: Robert Myers (Perimeter)

2:00pm	Douglas Stanford (Stanford)	Replica wormholes and the black hole interior
2:45pm	Geoffrey Penington (Stanford)	The Python's Lunch: Geometric Obstructions to Decoding Hawking Radiation
3:30pm		Afternoon Break
4:00pm	Xiaoliang Qi (Stanford)	Toy models for evaporating black hole
4:45pm	Daniel Harlow (MIT)	Euclidean vs. Lorentzian quantum gravity
5:30pm		SHUTTLE TO BWSCI

Tuesday, Jan 14, 2020

Session Chair: Donald Marolf (UCSB)

9:00am	Herman Verlinde (Princeton)	Quantum error correction and the black hole interior
9:45am	Sergei Dubovsky (NYU)	Geometry from Confinement
10:30am		Morning Break
11:00am	Wei Song (Tsinghua U /IAS)	Black strings from TsT and irrelevant deformations
11:45am	Edgar Shaghoulian (Cornell)	1d T-Tbar and Hamiltonian deformations in quantum mechanics
12:30pm		Lunch Break

Session Chair: Raphael Bousso (UC Berkeley)

2:00pm	Eva Silverstein (Stanford)	A detailed audit of the Gibbons-Hawking dS entropy
2:45pm	Ronak Soni (Stanford)	TTbar as a Movie, With and Without 3d Glasses.
3:30pm		Afternoon Break
4:00pm	Victor Gorbenko (IAS)	On QFT in dS
4:45pm	Henry Maxfield (UCSB)	Return of the baby universes
5:30pm		RECEPTION
6:00pm		SPECIAL EVENT DINNER
8:00pm		SHUTTLE TO BWSCI

Wednesday, Jan 15, 2020

Session Chair: Ted Jacobson (UMD)

9:00am	Steve Giddings (UCSB)	Localization of information in quantum gravity
9:45am	Aron Wall (Cambridge U)	Holographic Cosmology and Negative Probability
10:30am		Morning Break
11:00am	Mark Mezei (Stonybrook)	Entanglement hydrodynamics
11:45am	Daniel Jafferis (Harvard)	Entanglement entropy in JT gravity
12:30pm		Lunch Break
2:00pm		SHUTTLE TO BWSCI

Thursday, Jan 16, 2020

Session Chair: Xi Yin (Harvard)

9:00am	Leonardo Rastelli (Stonybrook/CERN)	The analytic bootstrap, sphere packing and quantum gravity
9:45am	David Simmons Duffin (Caltech)	Transverse spins in the light-ray OPE
10:30am		Morning Break
11:00am	Eric Perlmutter (Caltech)	Geometry from the Quantum Corrections: Loop Amplitudes and Extra Dimensions in AdS/CFT
11:45am	Mukund Rangamani (UC Davis)	Open quantum systems and holographic thermal baths
12:30pm		Lunch Break

Session Chair: Veronika Hubeny (UC Davis)

2:00pm	Roberto Emparan (Barcelona)	Recent progress and future prospects in the large-D approach to gravity
2:45pm	Nick Warner (USC)	The States of Microstate Geometries
3:30pm		Afternoon Break
4:00pm	Walter Goldberger (Yale)	Effective field theory for quantum black hole horizons

4:45pm Nima Arkani-Hamed (IAS) Emergent Bulk Causal Diamonds, Generalized Particles and Strings, and Cluster Algebras

5:30pm **RECEPTION**

6:00pm **SPECIAL EVENT DINNER**

8:00pm **SHUTTLE TO BWSCI**

Friday, Jan 17, 2020

Session Chair: Mark Srednicki (UCSB)

9:00am John Preskill (Caltech) The ghost in the radiation: Robust encodings of the black hole interior

9:45am Lenny Susskind (Stanford) Three Aspects of Complexity

10:30am **Morning Break**

11:00am Brian Swingle (UMD) Spacetime Locality and the Motion of Quantum Information

11:45am Patrick Hayden (Stanford) Black hole microstates versus the additivity conjecture

12:30pm **Lunch Break**

2:00pm Tadashi Takayanagi (Kyoto) Looking at Shadows of Entanglement Wedges

2:45pm Matt Headrick (Brandeis U) Bit threads and the holographic entropy cone

3:30pm **CONFERENCE ENDS-SHUTTLE BACK TO BWSCI-*Also available to SB Airport and SB Airbus, Goleta location (See Registration Desk BEFORE FRI-DAY to sign up***