

KAVLI INSTITUTE FOR THEORETICAL PHYSICS
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KITP Conference: Designer Quantum Systems Out of Equilibrium

(Nov 14-18, 2016)

Coordinators: Dima Abanin, Ehud Altman, Victor Galitski, Alexey Gorshkov
Scientific Advisors: Leo Radzihovsky

Monday, Nov 14, 2016

Periodically Driven Systems, Chair: Ehud Altman (Berkeley)

8:50am	Lars Bildsten (KITP)	Welcome
9:00am	Mark Rudner (Copenhagen)	Quantized Magnetization Density in Periodically Driven Quantum Systems
9:45am	Curt von Keyserlingk (Princeton)	Out of Equilibrium Analogues of Symmetry Protected Topological Phases of Matter
10:30am		Morning Break
11:00am	Paul Hess (Maryland)	Thermalization and Non-thermalization in a Programmable Spin Chain of Trapped Ions
11:45am	Ana-Maria Rey (Boulder)	Measuring out-of-time-order Correlations and Multiple Quantum Coherences in a Trapped Ion Quantum Magnet
12:30pm		Lunch Break

Quantum Transport and Quantum Dynamics, Chair: Roger Melko (Waterloo)

2:00pm	Maks Serbyn (Berkeley)	Many-body Localized Phase: Dynamics and Efficient Numerical Simulation
2:45pm	Thierry Giamarchi (Geneva)	Quantum Transport and Out of Equilibrium Phenomena in Cold Atomic Gases
3:30pm		Afternoon Break
4:00pm	Joel Moore (Berkeley)	Linear-response and Non-equilibrium Phenomena Emerging from Berry-phase Gauge Fields
4:45pm	Matthew Fisher (UCSB)	Can Thermalization Breakdown in Quantum Many-body Systems Without Disorder?
5:30pm		SHUTTLE TO BWSCI

Tuesday, Nov 15, 2016

Inducing New States with Light, Chair: Leo Radzihovsky (Boulder)

9:00am	Nuh Gedik (MIT)	Optical Manipulation of Electronic Bands Using Floquet-Bloch States
9:45am	Daniele Nicoletti (Hamburg)	Light Induced High Temperature Superconductivity

10:30am	Morning Break
11:00am Eugene Demler (Harvard)	Dynamical Cooper Pairing in Non-equilibrium Electron-phonon System
11:45am Atac Imamoglu (ETH Zurich)	Fermi-polarons and Polaritons in Two Dimensional Materials
12:30pm	Lunch Break

Synthetic Quantum Systems I, Chair: Karen Michaeli (Weizmann)

2:00pm Misha Lukin (Harvard)	From Ultra-cold Atoms to Black Diamond: Quantum Dynamics, Critical Thermalization and Time Crystals
2:45pm Wolfgang Lechner (Innsbruck)	Adiabatic Quantum Computing with Parity Constraints
3:30pm	Afternoon Break
4:00pm Mohammad Hafezi (Maryland)	Measurement Protocols for Many-body Properties in AMO Systems: Entanglement Spectrum and Out-of-time-order Correlators
4:45pm Aditi Mitra (NYU)	Entanglement Dynamics Following Quantum Quenches in 2d Floquet Chern Insulators and 3d Critical Systems
5:30pm	RECEPTION
6:00pm	SPECIAL EVENTS DINNER
8:00pm	SHUTTLE TO BWSCI

Wednesday, Nov 16, 2016

Topological Systems Out Of Equilibrium, Chair: Roni Ilan (Tel-Aviv)

9:00am Zahid Hasan (Princeton)	Ultrafast Physics in Topological Insulators & Weyl Fermion Semimetals
9:45am Karyn Le Hur (Paris)	Designing Novel Interacting Topological States, Time-Dependent Driving Protocols, and Bi-Partite Measurement
10:30am	Morning Break
11:00am Lorenza Viola (Dartmouth College)	Design and Characterization of Topological Boundary Modes: from Floquet Engineering to a Generalized Bloch Ansatz
11:45am Anatoli Polkovnikov (Boston U)	TBA
12:30pm	Lunch Break
	2-4pm Poster Session
5:00pm	SHUTTLE TO BWSCI

Thursday, Nov 17, 2016**Thermalization, Quantum Chaos, and Localization, Chair: Dima Abanin (Geneva)**

9:00am	Xiao-Liang Qi (Stanford)	Local Criticality, Diffusion and Chaos in Generalized Sachdev-Ye-Kitaev Models
9:45am	Sumilan Banerjee (Weizmann)	Solvable Model for a Dynamical Quantum Phase Transition from Fast to Slow Scrambling
10:30am		Morning Break
11:00am	Paola Cappellaro (MIT)	Many Body Localization with Nuclear Spins
11:45am	Erez Berg (Weizmann)	TBA
12:30pm		Lunch Break

Open Quantum Systems and Quantum Dynamics, Chair: Victor Galitski (Maryland)

2:00pm	Sebastian Diehl (Cologne)	Non-equilibrium Duality and the Phase Diagram of Low-dimensional Driven Open Quantum Systems
2:45pm	Marzena Szymanska (London)	Driven-dissipative Polariton Quantum Fluids In and Out of Equilibrium
3:30pm		Afternoon Break
4:00pm	Hans-Peter Buchler (Stuttgart)	Strongly Interacting Slow Light Rydberg Polaritons
4:45pm	Monika Schleier-Smith (Stanford)	Echoes of Entanglement: from Quantum Metrology to Scrambling
5:30pm		RECEPTION
6:00pm		SPECIAL EVENTS DINNER
8:00pm		SHUTTLE TO BWSCI

Friday, Nov 18, 2016**Synthetic Quantum Systems II, Chair: Jens Bardarson (Dresden)**

9:00am	Christian Gross (MPQ Munich)	Exploring Non-equilibrium Many-body Dynamics at the Single Atom Level
9:45am	Darrick Chang (ICFO Barcelona)	Mapping Atom-light Interactions to Spin Models and Matrix Product States
10:30am		Morning Break
11:00am	Leticia Tarruell (ICFO Barcelona)	Soliton to Droplet Crossover in an Attractive Bose-Bose Mixture
11:45am		Discussion
12:30pm		Lunch Break
2:00pm	CONFERENCE END- SHUTTLE TO BWSCI *Also available to SB Airport and SB Airbus, Goleta location. (See Registration	