

KITP Conference: Exploring Non-equilibrium Long-range Quantum Matter

(Nov 13-16, 2023)

Coordinators: Alexey Gorshkov, Tommaso Macri, Giovanna Morigi and Lea F. Santos

Monday, Nov 13, 2023

8:50am Lars Bildsten (KITP)	Welcome[Video]
9:00am Hossein Sadeghpour (ITAMP)	Universality class of a spinor BEC far from equilibrium[Video][CC]
9:45am Tobias Donner (ETH Zurich)	Engineering of many-body states in a driven-dissipative cavity QED system[Slides][Video][CC]
10:30am	Morning Break
11:00am Guido Pagano (Rice)	Trapped-Ion Simulation of Closed and Open Quantum Systems with Long-Range Interactions[Embargoed]
11:45am Archana Kamal (UMass Lowell)	Quantum reservoir engineering for fast and scalable entanglement stabilization[Video][CC]
12:30pm	Lunch Break
2:00pm Leo Radzihovsky (CU Boulder)	Coulomb Universality[Slides][Video][CC]
2:45pm Fabio Cinti (U Florence)	Bosons in unconventional geometries[Video][CC]
3:30pm	Afternoon Break
4:00pm Roger Melko (U. Waterloo)	Language models for Rydberg atom quantum simulation[Video][CC]
4:45pm Andrea Trombettoni (U Trieste)	Critical geometry approach to phase transitions[Video][CC]
5:30pm	SHUTTLE TO BWSCI

Tuesday, Nov 14, 2023

9:00am Tomotaka Kuwahara (RIKEN)	Optimal light cone and digital quantum simulation of interacting bosons[Slides][Video][CC]
9:45am Tanja Mehlstaubler (PTB)	Non-Equilibrium Dynamics and Nanofriction In Ion Coulomb Crystals[Slides][Video][CC]
10:30am	Morning Break
11:00am Nicolo Defenu (ETH Zurich)	Emulating long-range interactions via disorder[Video][CC]
11:45am Angela Foerster (UFRGS)	Design of integrable long-range quantum devices[Slides][Video][CC]
12:30pm	Lunch Break
2:00pm Susanne Yelin (Harvard)	QED with cooperative atom arrays and applications[Video][CC]
2:45pm Stefan Kehrein (U Goettingen)	Page curve-like behavior in an exactly solvable model[Slides][Video][CC]
3:30pm	Afternoon Break
4:00pm Michael Kastner (Stellenbosch U)	Equilibration timescales of isolated quantum systems: the role of locality[Slides][Video][CC]
4:45pm Marcos Rigol (Penn State Eberly College of Science)	Far-from equilibrium dynamics of quantum many-body scars in near-integrable one-dimensional dipolar quantum gases[Slides][Video][CC]
5:30pm	RECEPTION and POSTER SESSION I
6:00pm	SPECIAL EVENTS DINNER
8:00pm	SHUTTLE TO BWSCI

Wednesday, Nov 15, 2023

9:00am Norman Yao (Harvard)	Spin liquids in a dipolar Rydberg array[Video][CC]
9:45am Or Katz (Cornell)	Exploring Phases of Matter in Long-Range Trapped-Ion Crystals[Video][CC]
10:30am	Morning Break
11:00am Andy Lucas (CU Boulder)	Long-range-enhanced surface codes[Video][CC]
11:45am Zhexuan Gong (Colorado School of Mines)	Speed limit of quantum state transfer in a fully-connected quantum computer[Video][CC]
12:30pm	Lunch Break
2:00pm Misha Lukin (Harvard)	Long-range interactions and quantum error correction frontier[Embargoed]
2:45pm Fabian Heidrich-Meisner (U Goettingen)	Kinetic constraints and disorder: Competition or cooperation?[Slides][Video][CC]
3:30pm	Afternoon Break
4:00pm Moderators: Alexey Gorshkov (U Maryland) Tommaso Macri (Quera Computing)	Panel Discussion[Embargoed]
4:45pm	Poster Session 2
5:30pm	RECEPTION
6:00pm	SPECIAL EVENTS DINNER
8:00pm	SHUTTLE TO BWSCI

Thursday, Nov 16, 2023

9:00am Mark Srednicki (UCSB)	Introduction to Eigenstate Thermalization[Video][CC]
9:45am Ceren Dag (Harvard)	Breaking ergodicity: quantum scars, quantum many-body scars and regular eigenstates[Video][CC]
10:30am	Morning Break
11:00am Luca Tagliacozzo (CSIC)	Tensor networks algorithms and their cost for out-of-equilibrium dynamics[Video][CC]

11:45am Maksim Serbyn (IST)

Quantum many-body scars with periodic driving: stabilization, entanglement steering, and exact models [\[Slides\]](#) [\[Video\]](#) [\[CC\]](#)

12:30pm

Lunch Break

2:00pm **-CONFERENCE END- SHUTTLE TO BWSCI** *Also available to SB Airport and SB Airbus, Goleta location (See Registration Desk BEFORE THURSDAY to sign up.)