KITP Conference: Aspects and applications of many-body localization
(Nov 16-20, 2015)

Coordinators: Matthew Foster, Vadim Oganesyan, David Pekker
Scientific Advisor: Boris Altshuler

Monday, Nov 16, 2015

Session Chair: Boris Altshuler (Columbia U)

8:50am John Berlinsky (KITP) Welcome
9:00am Igor Aleiner (Columbia U) Basic theory of MBL -- weakly interacting fermions
10:00am Antonello Scardicchio (ICTP) Local integrals of motion in the MBL phase
10:30am Morning Break

11:00am Joel Moore (Berkeley) Overview of numerical approaches to MBL
12:00pm Maxim Vavilov (U.Wisconsin) Detecting mobility edges via quench
12:30pm Lunch Break

Session Chair: Leticia Cugliandolo (LPTHE)

2:00pm David Huse (Princeton) Overview of entanglement, thermalization, and MBL
3:00pm Tarun Grover (KITP) Universal aspects of MBL transition and Eigenstate Thermalization
3:30pm Afternoon Break

4:00pm Anushya Chandran (Perimeter) Two general constraints on the MBL-ETH transition
4:30pm Bela Bauer (Microsoft) Interaction effects in a system with localized and delocalized single-electron states
5:00pm Norman Yao (Berkeley) Quantum control in the many-body localized phase
5:30pm SHUTTLE AVAILABLE TO BWSCI
Tuesday, Nov 17, 2015

Session Chair: John Chalker (Oxford)

9:00am Dmitry Abanin (Geneva) A criterion for many-body localization-delocalization transition
9:30am Wojciech de Roeck (Brussels) Absence of many-body mobility edges
10:00am Richard Berkovits (Bar-Ilan) Signature of MBL in low-lying excitation: entanglement spectrum and entropy

10:30am Morning Break

11:00am Donna Sheng (CSUN) Many-body localization and mobility edge in disordered Heisenberg spin chains and ladders by DMRG
11:30am Vedika Khemani (Princeton) Dynamical Response of Many Body Localized Systems
12:00pm Bryan Clark (UIUC) A tensor network approach to many-body localization

12:30pm Lunch Break

Session Chair: Victor Gurarie (Boulder)

2:00pm Steven Kivelson (Stanford) Overview of T=0 localization phenomena with interactions
2:30pm S. Gopalakrishnan (Caltech) Rare regions and low-frequency response in many-body localized states
3:00pm Leticia Cugliandolo (LPTHE) Fluctuation-dissipation relations in classical and quantum out of equilibrium systems: efficient tools to test equilibration

3:30pm Afternoon Break

4:00pm Rahul Nandkishore (Boulder) Localized systems coupled to baths
4:30pm Yevgeny Bar Lev (Columbia) Nonequilibrium dynamics in many-body localization

5:30pm Reception

6:00pm Special Events Dinner

8:00pm Shuttle to BWSCI

Wednesday, Nov 18, 2015
Cold atoms and real-space RG theory

9:00am Ulrich Schneider (Cambridge)  Observation and characterization of many-body localization of interacting fermions in a quasi-random optical lattice
9:45am Brian DeMarco (UIUC)  Many-Body Localization and Relaxation in Optical Lattices
10:30am  Morning Break

11:00am Andrew Potter (Berkeley)  Universal scaling properties of many-body (de)localization transitions
11:30am Ivar Martin (ANL)  Dynamics of random Heisenberg model from real space RG
12:00pm Ehud Altman (Weizmann)  A renormalization group approach for critical thermalization and entanglement at the MBL transition
12:30pm  Lunch Break

2:00pm  FREE AFTERNOON -- SHUTTLE AVAILABLE TO BWSCI

Thursday, Nov 19, 2015

Session Chair: David Huse (Princeton)

9:00am Vladimir Kravtsov (ICTP)  Overview of multi-fractality
10:00am Lara Faoro (LPTHE)  Flux Noise in Superconducting Circuits: The Old Problem and the New Developments
10:30am  Morning Break

11:00am Lev Ioffe (Rutgers)  Non-ergodic metallic and insulating phases of Josephson junction chains
11:30am Victor Gurarie (Boulder)  Unconventional localization transition in high dimensions
12:00pm Deepak Iyer (Bucknell)  Link cluster expansions
12:30pm  Lunch Break

Session Chair: Ivar Martin (ANL)

2:00pm Gora Shlyapnikov (ORSAY)  Many-body physics with cold particles
3:00pm Sergej Flach (IBS, Korea)  Classical nonlinear lattices - any MBL ?
3:30pm  Afternoon Break
Friday, Nov 20, 2015

Session Chair: Donna Sheng (CSUN)

9:00am Frank Pollmann (MIP-PKS) Efficient numerical simulations of many-body localized systems
9:30am F. Heidrich-Meisner (Munich) Many-body localization characterized from a one-particle perspective
10:00am Miguel Ortuno (Murcia, Spain) Numerical Simulations of Many-Body Localization
10:30am Morning Break

11:00am Rajiv Singh (UC Davis) Early Breakdown of area-law entanglement at the many-body delocalization transition
11:30am Chris Monroe (UMD) Observation of MBL states in trapped ion spin chains
12:30pm Lunch Break

Free form discussions

5:30pm SHUTTLE AVAILABLE TO BWSCI *Also available to SB Airport and SB Airbus Goleta location* (see registration desk BEFORE FRIDAY to sign up)