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KITP Conference: Transport and Efficient Energy Conversion in Quantum Systems

(Aug 30 - Sep 2, 2021)

Coordinators: Jean-Phillipe Brantut, Giulio Casati, Jorge Kurchan, and Heiner Linke

Monday, Aug 30, 2021

Talks are 20 min + 10 min discussion

8:00am Masahito Ueda (U. Tokyo)	Nonequilibrium control of many-body systems beyond the hermitian framework of quantum physics
8:30am Isabelle Bouchoule (IOGS)	Effect of losses in correlated quantum gases
9:00am Gwendal Fève (Sorbonne U)	Processing quantum signals carried by electrical currents
9:30am Adolfo Del Campo (Luxembourg)	Probing the Universality of Topological Defect Formation in a Quantum Annealer
10:00am	Break
11:00am Christopher Jarzynski (Maryland)	Quantum impulse control
11:30am Johannes Schachenmayer (ISIS)	Modified transport properties of dark eigenstates under strong light-matter coupling
12:00pm Ivar Martin (ANL)	Topological Frequency Conversion
12:30pm Gabriele De Chiara (Queen's Belfast)	Quantum thermodynamically consistent local master equations

Tuesday, Aug 31, 2021

Talks are 20 min + 10 min discussion

8:00am Rosario Fazio (ICTP)	Geometric properties of adiabatic quantum thermal machines
8:30am Sungguen Ryu (IFISC)	Beating Carnot efficiency with periodically driven chiral conductors
9:00am Giuliano Benenti (U Insubria)	Optimal energy conversion through anti-adiabatic driving
9:30am Tilman Esslinger (ETH Zurich)	Transport and Efficient Energy Conversion in Quantum

10:00am	Break
11:00am Jukka Pekola (Aalto U)	Quantum heat transport by microwave photons
11:30am Maurizio Fagotti (U Paris-Saclay)	Emergent symmetries in strong coupling limits: the XXZ model in the folded picture
12:00pm Janine Splettstoesser (Chalmers)	General bounds on shot noise in the absence of currents: charge and heat transport
12:30pm Joe Jiang (Soochow U)	Inelastic Thermoelectricity: A New Light of an Old Field

Wednesday, Sep 01, 2021

Talks are 20 min + 10 min discussion

8:00am Keiji Saito (Keio U)	Effects of finite speed and quantum coherence in thermodynamic control: Heat engines and Landauer principle
8:30am Tomaz Prosen (U Ljubljana)	Superuniversality of superdiffusion
9:00am Janet Anders (Exeter)	Quantum Brownian Motion for Magnets
9:30am Martin Lebrat (Harvard)	Observing the coupled spin and density dynamics of a minimally doped Fermi-Hubbard system
10:00am	Break
11:00am Joel Moore (Berkeley)	Spin and energy hydrodynamics in low-dimensional materials
11:30am Jörg Schmiedmayer (Atominstytut)	Quantum Field Thermal Machines
12:00pm Monika Schleier-Smith (Stanford)	Programmable Interactions and Emergent Geometry in an Array of Atomic Ensembles

Thursday, Sep 02, 2021

Talks are 20 min + 10 min discussion

8:00am John Goold (Trinity Dublin)	Taking the temperature of a pure quantum state
8:30am Lev Vidmar (Jožef Stefan Inst.)	Phenomenology of spectral functions in finite disordered spin chains
9:00am Giacomo Roati (INO-CNR)	Tunnelling transport in strongly-interacting atomic Fermi gases
9:30am Monika Aidelsburger (U Munich)	Non-ergodicity and emergent Hilbert-space fragmentation in tilted Fermi-Hubbard chains
10:00am	Break
11:00am Benjamin Lev (Stanford)	Topological pumping into strongly correlated prethermal states
11:30am Leonid Glazman (Yale)	Inelastic photon scattering off a Josephson junction at the Schmid transition
12:00pm Vedika Khemani (Stanford)	Observation of time-crystalline eigenstate order on a quantum processor