

Scientific Programme

ICTP Summer School

**“Advances in Condensed Matter Physics:
New Trends and Materials in Quantum Technologies”**

May 07 - 15, 2019

Samarkand, Uzbekistan

Day 1, May 07	
8:30-10:20	<i>Registration</i>
10:20-10:30	<i>Opening</i>
Morning Session Chair: Karsten Flensberg	
10:30-11:30	Mikhail Kiselev. <i>About the ICTP activities and programs</i>
Coffee Break (11:30-12:00)	
12:00-13:00	Mikhail Kiselev. <i>Thermoelectrics of a quantum impurity</i>
Lunch break (13:00-15:00)	
Afternoon Session Chair: Thierry Martin	
15:00-16:00	Jan von Delft. <i>Uncovering non-Fermi-liquid behavior in Hund metals</i>
Coffee Break (16:00-16:30)	
16:30-17:00	Arpad Pasztor. <i>Holographic imaging of the complex charge density wave order parameter</i>
17:00-17:30	Tobias Gulden. <i>Prethermalization and topological transport in slowly-driven Floquet systems</i>
Dinner (18:30-21:00)	

Day 2, May 08	
Morning Session Chair: Francois Peeters	
10:00-11:00	Giulio Casati. <i>Signatures of chaos and entanglement in classical and quantum many-body systems</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Mikhail Kiselev. <i>Visual Wave Mechanics</i>
12:30 – 13:00	Discussions
Lunch break (13:00-15:00)	
Afternoon Session Chair: Giulio Casati	
15:00-16:00	Francois Peeters. <i>Atomic collapse and pseudo-magnetic fields in graphene</i>
Coffee Break (16:00-16:30)	
16:30-17:30	Anton Akhmerov. <i>Introduction to quantum transport simulations with Kwant</i>
17:30-18:00	Adel About. <i>Quantum Anomalous Hall Effect and Anderson Chern Insulating Regime in Noncollinear Antiferromagnetic 3Q State</i>
Dinner (18:30-21:00)	

Day 3, May 09

Morning Session Chair: Ady Stern	
10:00-11:00	Amnon Aharony. <i>Spin filters: writing quantum information on flying qubits</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Ora Entin-Wohlman. <i>Spin Orbit interactions, time reversal symmetry and spin filtering</i>
12:30 -13:00	Discussions
Lunch break (13:00-15:00)	
Afternoon Session Chair: Leonid Glazman	
15:00-16:00	Heung-Sun Sim. <i>Quantum entanglement in thermal states</i>
Coffee Break (16:00-16:30)	
16:30-17:30	Ady Stern. <i>Phase-controlled one-dimensional topological superconductivity</i>
17:30 -18:00	Yasser Omar. <i>Introduction to Complex Quantum Networks</i>
Dinner (18:30-21:00)	

Day 4, May 10

Morning Session Chair: Yuval Gefen	
10:00-11:00	Anton Akhmerov. <i>Design and simulation of Majorana devices</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Karsten Flensberg. <i>Readout and manipulation of Majorana qubits via quantum dots</i>
12:30-13:00	Discussions
Lunch break (13:00-15:00)	
Afternoon Session Chair: <u>Amnon Aharony</u>	
15:00-16:00	Yuval Oreg. <i>Coupled wire constructions of topological phases</i>
Coffee Break (16:00-16:30)	
16:30-17:30	Yuval Oreg. <i>Emergent supersymmetry in the insulating phase of a topological superconductor</i>
17:30-18:00	Iwan Setiawan. <i>Fast-forward of adiabatic quantum spin clusters</i>
Dinner (18:30-21:00)	

Day 5, May 11

10:00-13:00	Poster session
Lunch break (13:00-15:00)	
15:00 -18:30 Guided excursion in Samarkand	
Dinner (18:30-21:00)	

Day 6, May 12

Free day Tour in Bukhara	
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Day 7, May 13

Morning Session Chair: Felix von Oppen	
10:00-11:00	Yuval Gefen. <i>A primer to Quantum Hall Edge Physics</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Yuval Gefen. <i>Engineering composite edges of quantum Hall systems: what is it good for?</i>
Lunch break (13:00-15:00)	
Afternoon Session Chair: Yuval Oreg	
15:00-16:00	Felix von Oppen. <i>Elements of a topological quantum computation</i>
Coffee Break (16:00-16:30)	
16:30-17:30	Leonid Glazman. <i>Quantum Many-Body Physics of Qubits</i>
17:30-18:00	Doniyor Babajanov. <i>Charge transport in driven graphene nanoribbons.</i>
Dinner (18:30-21:00)	

Day 8, May 14	
Morning Session Chair: Rosario Fazio	
10:00-11:00	Subir Sachdev. <i>The phase diagram of the cuprates: the pseudogap and the strange metal</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Davron Matrasulov. <i>Charged impurities in graphene: Table top realization of relativistic supercritical phenomena</i>
12:30-13:00	Discussions
Lunch break (13:00-14:30)	
Afternoon Session Chair: Anton Akhmerov	
15:00-16:00	Rosario Fazio. <i>Dissipative preparation of quantum many-body states</i>
Coffee Break (16:00-16:30)	
16:30-17:30	Thierry Martin. <i>Quantum transport in hydride topological superconductor junctions 1</i>
17:30-18:00	Colin Woods. <i>Differential moiré features in doubly aligned hexagonal boron nitride/graphene heterostructures</i>
18:00-18:30	Heui Cheol Park. <i>Emergent localized states at the interface of a twofold PT-symmetric latticeters</i>
Dinner (18:30-21:00)	

Day 9, May 15	
Morning Session Chair: Subir Sachdev	
10:00-11:00	Thierry Martin. <i>Quantum transport in hydride topological superconductor junctions 2</i>
Coffee Break (11:00-11:30)	
11:30-12:30	Concluding discussions
Lunch break (13:00-15:00)	