

# Conference on Quantum Dynamics of Disordered Interacting Systems



**11 - 15 June 2018**  
**Trieste, Italy**

Further information:

Activity URL: <http://indico.ictp.it/event/8316/>

E-mail: [smr3212@ictp.it](mailto:smr3212@ictp.it)

The Conference will address the physics of disordered quantum many-body systems, with an emphasis on quantum dynamics of systems that are under active experimental investigation. The focus will be on the fundamental physics exhibited by novel systems and on emerging phenomena.

## Description:

Quantum dynamics of disordered many-body systems remains a vibrant research area. In particular, recent years have witnessed an outstanding interest in Anderson localization, one of most fundamental and ubiquitous phenomena in modern condensed matter physics in the many-body setting. Experimentally, it has become possible to explore the remarkably rich interplay of interaction and localization phenomena in a variety of quantum many-body systems. Concepts of quantum information theory, such as entanglement entropy and spectra, play a prominent role in the characterization of phases of strongly interacting disordered matter. The interplay of disorder and interaction effects becomes particularly intricate in systems with non-trivial topology, such as surfaces and edges of topological insulators. The Conference will bring together theorists and experimentalists to discuss recent progress and future perspectives.

## Topics:

- Disordered quantum many-body systems, including cold atoms in magneto-optical traps, disordered semiconductors, electron glasses in amorphous systems, graphene, topological insulators, disordered superconducting films and wires, and various implementations of quantum circuits;
- Many-body localization;
- Periodically driven systems, time crystals;
- Quantum information and entanglement;
- Topological phases;
- Transport in disordered interacting systems;
- Superconductor-insulator transitions;
- Disordered bosons, superfluid-Bose glass transitions;
- Quantum quenches, far-from-equilibrium phenomena.

## How to apply:

Online application:  
<http://indico.ictp.it/event/8316/>

Female scientists are encouraged to apply.

## Grants:

A limited number of grants are available to support the attendance of selected participants, with priority given to participants from developing countries. There is no registration fee.

## Directors:

Alexander Mirlin, (Karlsruhe Inst. of Tech., Germany)

Felix von Oppen, (Freie Universität Berlin, Germany)

## Local Organizer:

Marcello Dalmonte, (ICTP, Trieste, Italy)

## Workshop Speakers:

John Bollinger (University of Colorado Boulder, USA)

Piet Brouwer (Freie Universität Berlin, Germany)

Pasquale Calabrese (SISSA, Trieste, Italy)

Eugene Demler (Harvard University, USA)

Jens Eisert (Freie Universität Berlin, Germany)

Rosario Fazio (ICTP, Trieste, Italy)

Yuval Gefen (Weizmann Institute, Israel)

Leonid Glazman (Yale University, USA)

Moty Heiblum (Weizmann Institute, Israel)

Nicolas Laflorencie (Paul Sabatier University, France)

Leonid Levitov (MIT, USA)

Netanel Lindner (Technion, Israel)

Mikhail Lukin (Harvard University, USA)

Laurens Molenkamp (University of Würzburg, Germany)

Joel Moore (University of California, Berkeley, USA)

Markus Müller (Paul Scherrer Institute, Switzerland)

Yuval Oreg (Weizmann Institute, Israel)

Frederic Pierre (CNRS / Université Paris-Sud, France)

Frank Pollmann (Tech. Univ., Germany)

Gil Refael (Caltech, USA)

Jörg Schmiedmayer (Tech. Univ. Wien, Austria)

Dan Shahar (Weizmann Institute, Israel)

Ady Stern (Weizmann Institute, Israel)

Lieven Vandersypen (Delft Tech. Univ., Netherlands)

Ali Yazdani (Princeton University, USA)



The Abdus Salam  
International Centre  
for Theoretical Physics  
[www.ictp.it](http://www.ictp.it)  
Trieste, Italy

