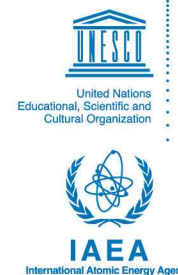




The Abdus Salam International Centre for Theoretical Physics



Workshop on Complex Quantum Systems: Non-Ergodicity, Glassiness and Localization

27 - 31 August 2012
Miramare, Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy, is organizing a **Workshop on Complex Quantum Systems: Non-Ergodicity, Glassiness and Localization**, to be held in Trieste from 27 to 31 August 2012.

Attempts to understand interacting disordered quantum systems in terms of their excitations, energy and charge transport, relaxation dynamics and thermalization have attracted much attention recently. In quantum systems, strong disorder may lead to non-ergodicity and entail permanent out-of-equilibrium, and even glassy behavior for two rather different reasons: Localization in Hilbert space due to many-body versions of Anderson localization; or confinement in configuration space due to high barriers arising from frustration between competing interactions, such as in quantum or classical spin glasses and other frustrated and disordered systems.

A unified understanding of the underlying mechanisms and the phenomenology of the entailing quantum glassiness is not yet available, but is starting to emerge. This workshop aims at bringing together experts from the localization, quantum complexity and glass communities to foster mutual cross-fertilization and the generation of unifying concepts and ideas in this active field of research.

TOPICS

- Theoretical and experimental advances in glassy quantum systems:
 - Bose glasses
 - Disordered superconductors, superfluids and insulators
 - Spin and electron glasses
 - Cold atoms
- Localization and interactions in many particle systems: non-ergodicity in disordered quantum systems
- Developments in quantum complexity theory, adiabatic algorithms, quantum cavity methods
- Quantum glassiness and the glass transition

PARTICIPATION

Scientists from all countries that are members of the UN, UNESCO or IAEA can attend the Workshop. The Organizers will select participants upon evaluation of the application forms. The main purpose of the Centre is to help researchers from developing countries within the framework of international cooperation. However, scientists from developed countries are most welcome to attend. As the Workshop will be conducted in English, participants must have an adequate working knowledge of that language.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. Limited funds are available for a limited number of applicants who are nationals of, and working in, developing countries. As scarcity of funds allows travel to be granted only in a few exceptional cases, every effort should be made by candidates to secure support for their fare from their home country. Such financial support is available only to those attending the entire Workshop. There is no registration fee to attend this activity.

How to apply for participation: candidates can access the Online Application Form through the activity webpage: <http://agenda.ictp.it/smr.php?2362>. Once in the website, comprehensive instructions will guide you step-by-step, on how to fill out and submit online the application.

Note: Prior to this Workshop, a School will be held at Les Houches on

"Strongly Interacting Quantum Systems Out of Equilibrium"

(http://dpmc.unige.ch/gr_giamarchi/poster_aug2012.htm), from 30 July to 24 August 2012, deadline 15 March 2012. ICTP and Les Houches support applications from developing countries for a limited number of participants who would attend both activities.

WORKSHOP SECRETARIAT: E-mail: smr2362@ictp.it

ICTP Home Page: <http://www.ictp.it>

ORGANIZERS

C. Chamon (Boston)
R. Moessner (MPI Dresden)
M. Müller (ICTP)
A. Scardicchio (ICTP)
F. Zamponi (ENS Paris)

INVITED SPEAKERS

G. Aeppli (London)
A. Amir (Harvard)
D. Basko (Grenoble)
F. Becca (SISSA)
T. Bourdel (Palaiseau)
C. Castelnovo (London)
L. Cugliandolo (Paris)
C. Dasgupta (Bangalore)
M. Foster (Rutgers)
P. Goldbart (Urbana-Champaign)
I. Hen (UCSC)
L. Ioffe (Rutgers)
J. Kurchan (Paris)
C. Laumann (Harvard)
P. Le Doussal (Paris)
M. Mézard (Orsay)
V. Oganesyan (CU New York)
Z. Ovadyahu (Jerusalem)
L. Sanchez-Palencia (Paris)
M. Schechter (Ben Gurion)
B. Spivak (Seattle)
P. Wolyne (UCSD)

DEADLINES

for requesting participation:

• 15 April 2012

(if financial support
and/or visa are needed)

• 27 May 2012

(if neither financial support
nor visa are needed)

Workshop webpage:

<http://agenda.ictp.it/smr.php?2362>