

« **Disordered Quantum Systems** »
Paris, April 23th – July 20th, 2012

Conference on
« **Disordered Quantum Systems** »
June 18th – 22nd, 2012
ENS - Salle Dussane
45, Rue D'Ulm, 75005 Paris

Registration on Monday will take place at Salle Dussane at the corner of rue Erasme and rue d'ULM



Organizers :

Boris Altshuler (Columbia University), **Benoît Doucot** (University Paris 6, LPTHE), **Marc Mézard** (University Paris-Sud, LPTMS), **Gora Shlyapnikov** (University Paris-Sud, LPTMS)

Chairs :

I. Aleiner (Columbia University), **B. Altshuler** (Columbia University), **B. Doucot** (University Paris 6, LPTHE), **I. Lerner** (University of Birmingham), **V. Pokrovsky** (Texas A&M University), **G. Shlyapnikov** (University Paris-Sud, LPTMS), **A. Tsvelik** (Brookhaven National Laboratory)

Speakers :

I. Aleiner (Columbia University), **G. Biroli** (IPhT CEA Saclay), **V. Bouchiat** (LPS, Orsay), **C. Castellani** (Universita di Roma La Sapienza), **L. Cugliandolo** (University Paris 6, LPTHE), **V. Falko** (Lancaster University), **M. Fink** (LOA – ESPCI, Paris), **S. Flach** (Max Planck Ins.), **A. Georges** (CPHT – École Polytechnique), **M. E. Gershenson** (Rutgers University), **T. Giamarchi** (University of Geneva), **L. Glazman** (Yale University), **S. Gueron** (LPS, Orsay), **V. Gurarie** (University of Colorado at Boulder), **J. Imbrie** (University of Virginia), **V. Josse** (Institut d'Optique, Palaiseau), **F. Klopp** (IMJ, UPMC), **A. Legendijk** (FOH Institute, Amsterdam), **C. Marcus** (Harvard/Copenhagen), **A. Millis** (Columbia University), **G. Modugno** (LENS, University of Florence), **L. Ponomarenko** (University of Manchester), **H. Pothier** (SPEC CEA, Saclay), **M. Segev** (SPEC CEA, Saclay), **D. Shahar** (Weizmann Institute), **D. Stone** (Yale University), **C. Texier** (LPS, Orsay), **B. Van Tiggelen** (LPMCM, Grenoble), **A. Yazdani** (Princeton University)

Program

Lectures (except Tuesday afternoon) will take place at Salle Dussane :

45, rue d'ULM, 75005 Paris

and all the others events : Coffee or Tea break, Poster sessions and Cocktail will take place at IHP :

11, rue Pierre et Marie Curie, 75005 Paris

Monday June 18th

08.30 am – 08.30 am Registration (corner of rue Erasme and rue d'Ulm)

08.50 am Opening of the conference

"Quantum fluids, superconductors, and waves in disorder" Chair G. Shlyapnikov

09.00 am – 09.50 am

T. Giamarchi Dirty bosons in one dimension.

09.50 am – 10.40 am

G. Modugno Experiments with interacting bosons in 1D quasiperiodic lattices.

10.40 am – 11.20 am

Coffee Break - IHP Ground floor

11.20 am – 12.10 am

V. Josse Localization of Ultracold Atoms in Disorder : 3D Localization and Coherent Backscattering.

12.10 pm – 01.00 pm

M. E. Gershenson Superconductor-insulator transition in Josephson junction arrays.

01.00 pm – 02.30 pm

Lunch

02.30 pm – 03.20 pm

A. Millis

Superconductivity and the Pseudogap in the two dimensional Hubbard Model and in copper-oxide superconductors.

03.20 pm – 04.10 pm **D. Stone** Random lasers and coherent random absorbers.
 04.10 pm – 04.50 pm *Tea break – IHP Ground floor*

04.50 pm – 05.40 pm **S. Flach** Nonlinear Waves in Disordered Systems.
 05.40 pm – 06.30 pm **A. Lagendijk** Classical waves: from transverse localization to Lifshitz tails.

Tuesday June 19th "Mesoscopic structures" Chair B. Altshuler

Morning lecture at Salle Dussane

09.00 am – 09.50 am **L. Glazman** Electron backscattering in a generic helical edge.
 09.50 am – 10.40 am **I. Aleiner** Localization and critical diffusion of quantum dipoles in two dimensions.

10.40 am – 11.20 am *Coffee break – IHP Ground floor*

11.20 am – 12.10 pm **C. Marcus** Proximity effect in semiconductor nanowires.
 12.10 pm – 01.00 pm **C. Castellani** Superfluid density and current patterns in disordered superconductors.

01.00 pm – 03.00 pm **Lunch**

Afternoon lecture at IHP Hermite Amphitheatre

03.00 pm – 03.50 pm **H. Pothier** Energy relaxation and dephasing in diffusive wires: a review.
 03.50 pm – 04.40 pm **C. Texier** Quantum transport and electronic interactions in mesoscopic metallic networks.
 04.40 pm – 05.30 pm **A. Yazdani** Visualizing Disordered Quantum Systems on the Nanoscale.

05.30 pm – 06.10 pm *Tea break – IHP Ground floor and Poster Session IHP – Ground floor in Rooms 01 & 05 from 5.30 pm to 7 pm*

Wednesday June 20th "Spin and electron glasses" Chair I. Aleiner

09.00 am – 09.50 am **L. Cugliandolo** From non equilibrium quantum Brownian motion to impurity dynamics in exotic quantum liquid baths.
 09.50 am – 10.40 am **G. Biroli** Difference between level statistics, ergodicity and localization transition on the Bethe lattice.
 10.40 am – 11.30 am **D. Shahar** Little-Parks Oscillations in an Insulator.

Thursday June 21st "Mathematical problems in disordered systems" Chair A. Tsvelik

09.00 am – 09.50 am **F. Klopp** Mathematical results on the statistics for eigenlevels and resonances in large one-dimensional ergodic systems.
 09.50 am – 10.40 am **J. Imbrie** A mathematical approach to many-body localization.

10.40 am – 11.20 am *Coffee break – IHP Ground floor*

"Strongly correlated systems" Chair I. Ierler

11.20 am – 12.10 pm **A. Georges** Interaction-induced impeding of decoherence and anomalous diffusion in a cold atom system.
 > 12.10 pm – 01.00 pm **V. Gurarie** **SU(N) symmetric magnets and chiral spin liquid.**

01.00 pm – 03.00 pm **Lunch**

"Physics of graphene" Chair V. Pokrovsky

03.00 pm – 03.50 pm **V. Falko** Weak and strong localisation in graphene.
 03.50 pm – 04.40 pm **S. Gueron** The Superconducting Proximity Effect through graphene from zero field to the Quantum Hall regime.

04.40 pm – 05.20 pm *Tea break and Poster session – IHP – Ground floor in Rooms 01 & Cafétéria*

06.30 pm Cocktail – IHP Ground floor

Friday June 22nd "Physics of graphene" (continuation)

09.00 am – 09.50 am **L. Ponomarenko** Electronic properties of graphene double-layer structures.
 09.50 am – 10.40 am **V. Bouchiat** Electrical control of superconductivity in tin decorated graphene.

10.40 am – 11.20 am *Coffee break – IHP Ground floor*

"Waves in disorder" Chair B. Doucot

11.20 am – 12.10 pm **B. Van Tiggelen** 3D Anderson localization of Cold Atoms.
 12.10 pm – 01.00 pm **M. Fink** Controlling waves in space and time at subwavelength scales through complex media.
 01.00 pm – 01.50 pm **M. Segev** Anderson localization of Light.