

Workshop « Correlations, Fluctuations and Disorder »
Joint event of GDR MesoImage and PEPS-PTI “Quantum gases and condensed matter”

December 13–15, 2010, Grenoble, France

Final program

Monday December 13, 2010

- 09:00 – 09:50** **Registration, coffee at the Maison des Magistères**
- 09:50 – 10:00: Welcome remarks
Anna Minguzzi and Sergey Skipetrov
- 10:00 – 12:00:** **Session I**
Chair: Sergey Skipetrov (Grenoble)
- 10:00 – 10:40: *3D Anderson localization of cold atoms in optical speckle*
Bart van Tiggelen (Grenoble)
- 10:40 – 11:20: *Multifractality of wavefunctions at the Anderson transition*
Dominique Delande (Paris)
- 11:20 – 12:00 *Control of spontaneous emission in complex materials*
Willem Vos (Twente)
- 12:10 – 14:00** **Lunch at the H2 restaurant**
- 14:00 – 16:00:** **Session II: special session on correlations in low-dimensional systems – I**
Chair: Julia Meyer (Grenoble)
- 14:00 – 14:40: *Density fluctuations in 1D Bose gases : from 1D to 3D physics and from weakly to strongly interacting gases*
Isabelle Bouchoule (Palaiseau)
- 14:40 – 15:20: *Phase diagram and momentum distribution of an interacting Bose gas in a bichromatic lattice*
Roberta Citro (Salerno)
- 15:20 – 16:00: *Ground state degeneracy of a strongly interacting Bose-Fermi mixture in a 1D harmonic confinement*
Patrizia Vignolo (Nice)
- 16:00 – 16:30:** **Coffee break at the Maison des Magistères**
- 16:30 – 18:00:** **Poster session at the Maison des Magistères**

Tuesday December 14, 2010

09:00 – 12:00:

Session III

Chair: Bart van Tiggelen (Grenoble)

09:00 – 09:40: *Sonic black holes and Hawking radiation in Bose-Einstein condensates*

Nicolas Pavloff (Orsay)

09:40 – 10:20: *What can we learn about spin glasses from their electronic transport properties?*

David Carpentier (Lyon)

10:20 – 10:50:

Coffee break at the Maison des Magistères

10:50 – 11:30: *Scaling theory of localization, correlations and the two-dimensional metal-insulator transition*

Xavier Waintal (Grenoble)

11:30 – 12:00: *C_0 speckle correlation and near-field interactions in strongly scattering media*

Romain Pierrat (Paris)

12:10 – 14:00

Lunch at the H2 restaurant

14:00 – 16:00:

Session IV: special session on correlations low-dimensional systems – II

Chair: Anna Minguzzi (Grenoble)

14:00 – 14:40: *Phase diagram of spin 1/2 bosons in optical lattices*

Frederic Hebert (Nice)

14:40 – 15:20: *Phenomenological bosonization in multicomponent mixtures*

Edmond Orignac (Lyon)

15:20 – 16:00: *Topological quantum phase transition of spinless fermions in a honeycomb lattice*

Christian Miniatura (Singapore and Nice)

16:00 – 16:30:

Coffee break at the Maison des Magistères

16:30 – 18:20:

Session V: special session on imaging in random media

Chair: Nicolas Cherroret (Freiburg)

16:30 – 17:10: *Mathematical approaches to imaging in complex media*

Habib Ammari (Paris)

17:10 – 17:50: *Optical imaging in soft matter physics*

Frank Scheffold (Fribourg)

17:50 – 18:20: *Locating a small change in a multiple-scattering environment*

Vincent Rossetto (Grenoble)

20:00

Workshop dinner at the “Caffè Forté”

Wednesday December 15, 2010

09:00 – 12:10: Session VI
Chair: Thomas Wellens (Freiburg)

09:00 – 09:40: *Effect of interaction/nonlinearity on the dynamics in 1D Anderson insulators: quantum versus classical*
Denis Basko (Grenoble)

09:40 – 10:20: *Coherent backscattering of Bose-Einstein condensates in two-dimensional disorder and chaotic billiards*
Peter Schlagheck (Liège)

10:20 – 10:50: Coffee break at the Maison des Magistères

10:50 – 11:30: *An approach to localization in 3D non-linear disordered media*
Felix Eckert (Freiburg)

11:30 – 12:10: *Random matrix theory applied to acoustic backscattering and imaging in complex media*
Alexandre Aubry (London)

12:20 – 14:00 Lunch at the H2 restaurant

14:00 – 16:00: Session VII
Chair: Gabriel Lemarié (Saclay)

14:00 – 14:40: *Two- and three-dimensional strong localization of matter waves by atomic scatterers*
Mauro Antezza (Montpellier)

14:40 – 15:20: *Towards Anderson localization on Bose-Einstein condensates in 3D random potentials*
Vincent Josse (Palaiseau)

15:20 – 16:00: *Density of states in an optical speckle potential*
Andrey Fedorenko (Lyon)

16:00 – 16:30: Closing and coffee at the Maison des Magistères

List of posters

Non-invasive measurement of skeletal muscle contraction with time-resolved reflectance and diffusing-wave spectroscopy

M. Belau, M. Ninck, G. Hering, L. Spinelli, D. Contini, A. Torricelli and T. Gisler

Time correlations and dynamics of ion induced nanopattern formation on GaSb(001)

O. Bikondoa, D. Carbone, V. Chamard and T.H. Metzger

Berry phase of elastic waves: experimental study and stochastic model

J. Boulanger, V. Rossetto, S. Catheline and N. Le Bihan

Spectrally resolved time-of-flight measurements near Anderson localization

W. Bührer

Interference with quantum light in disordered media

N. Cherroret and A. Buchleitner

Ground state degeneracy of a strongly interacting Bose-Fermi mixture in a 1D harmonic confinement

Bess Yiyuan Fang

Useful quantum states in the presence of classical noise in a Bose Josephson junction

G. Ferrini, D. Spehner, A. Minguzzi, and F.W.J. Hekking

Eigenvalue distribution of large non-Hermitian Euclidean random matrices

A. Goetschy and S.E. Skipetrov

Universality and scale invariance in quasi-two-dimensional trapped Bose gases

M. Holzmann

Dynamics of diamagnetically levitated foams

N. Isert

Coherence in chaotic coupled logistic map lattices

M. Janowicz, A. Orłowski and M. Holthaus

Transient pattern formation and condensate-like behavior in coupled map lattices based on logistic map

M. Janowicz and A. Orłowski

The fountain effect in a Bose-Einstein condensate

T. Karpiuk, B. Grémaud, Ch. Miniatura, B.-G. Englert, and M. Gajda.

Thermal enhancement of interference effects in quantum point contacts

G. Lemarié

Superfluid motion of light

S. Moulieras

Controlling light inside disordered materials : matrix description and applications

S. M. Popoff, G. Lerosey, R. Carminati, M. Fink, A.C. Boccara and S. Gigan

Localizing atoms in an optical lattice with a Rabi pulse

T. Roscilde, S. Dürr, and B. Horstmann

Bosons stirred on a 1D ring

Ch. Schenke, A. Minguzzi and F. Hekking

2D transmission profile of light through highly scattering media

Tilo Sperling

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List of registered participants

Ammari	Habib	Le Bihan	Nicolas
Antezza	Mauro	Lemarié	Gabriel
Akridas-Morel	Panayotis	Mascaro	Benoît
Aubry	Alexandre	Maynard	Roger
Basko	Denis	Meyer	Julia
Belau	Markus	Miniatura	Christian
Bellando	Louis	Minguzzi	Anna
Bikondoa	Oier	Moulieras	Simon
Bouchoule	Isabelle	Obermann	Anne
Boulangier	Jérémie	Orignac	Edmond
Bührer	Wolfgang	Orlowski	Arkadiusz
Carpentier	David	Pavloff	Nicolas
Cazé	Alexandre	Petitjean	Cyril
Chabé	Julien	Pierrat	Romain
Cherret	Nicolas	Popoff	Sébastien
Citro	Roberta	Roscilde	Tommaso
Colin de Verdière	Yves	Rossetto	Vincent
Delande	Dominique	Scheffold	Frank
Deng	Xiaolong	Schenke	Christoph
Eckert	Felix	Schlagheck	Peter
Fang	Bess Yiyuan	Skipetrov	Sergey
Fedorenko	Andrey	Sperling	Tilo
Goetschy	Arthur	Van Tiggelen	Bart
Hebert	Frederic	Vignolo	Patrizia
Holzmann	Markus	Vos	Willem
Isert	Nathan	Waintal	Xavier
Janowicz	Maciej	Wellens	Thomas
Josse	Vincent	Wolf	Pierre-Etienne
Larré	Pierre-Elie		

Directions

Bus to/from Lyon Saint-Exupéry airport	“Suisse et Bordeaux” hotel 6, place de la Gare 38000 GRENOBLE Tel : 04.76.47.55.87	Caffè Forté 4, place Lavalette 38000 GRENOBLE Tel. : 04.76.03.22.83
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Railway station

Bus No. 30
to “Polygone scientifique”

Bus No. 34
to “Polygone scientifique”
(same side of the street as
the hotel “Suisse et Bordeaux”)

Restaurant H2

Site du
CNRS Alpes
(polygone scientifique)

Maison des Magistères
LPMMC
laboratoire
physique
de modification
des milieux condensés
(registration
and coffee breaks)

CNRS main building
Amphitheatre: take
the stairs on the right
from the entrance,
2nd floor

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