

PEPS-PTI WORKSHOP - Strong correlations and disorder in cold atoms
ENS de Lyon - Salle du CECAM (LR6)
December 6th-8th 2011

Tuesday, December 6th

Session 1) Out-of-equilibrium properties in cold gases (I)

15h00-15h35 (30+5): Short review talk

Patrizia Vignolo: "Shortcuts to adiabaticity for trapped ultracold gases"

15h35-16h00 (20+5): Dominique Delande: "Experimental Test of Universality of the Anderson Transition"

16h00-16h25 (20+5): Mateusz Łański: "Numerical Computation of Excited States of Many-Body Systems"

16h25-16h50 (20+5): Guillaume Roux: "Interaction quantum quenches in bosonic gases"

16h50-17h20: Coffee Break

Session 2) Dynamics of low-dimensional cold gases

17h20-18h00 (35+5): Review talk

Jean-Michel Maillet: "Form-factor approach to the dynamical correlation functions of the 1D Bose gas"

18h00-18h25 (20+5): Edmond Orignac: "Light scattering in inhomogeneous Tomonaga-Luttinger Liquids"

18h25-18h50 (20+5): Edouard Boulat: "Exotic phases in large-spin ultracold one-dimensional ultracold fermions".

20h00: Dinner at "Les Adrets" - Rue du Boeuf, Vieux Lyon

Wednesday, December 7th

Session 1) Disorder and dynamics of cold atoms (I)

9h00-9h40 (35+5): Review talk

Laurent Sanchez-Palencia: "Ultracold atoms in three-dimensional disorder: Recent advances and perspectives"

9h40-10h05 (20+5): Marie Piraud: "Anderson Localization of matter waves in tailored disorders"

10h05-10h30 (20+5): Bart van Tiggelen: "Observation of the Abraham force on neutral atoms and the question of corrections from the quantum vacuum"

10h30-11h00: Coffee Break

Session 2) Strongly correlated systems and cold gases

11h00-11h25 (20+5): Frédéric Hebert: "Spin-1/2 bosons"

11h25-11h50 (20+5): Axel Euverte: "Magnetic correlations at the Mott insulator/metal interface"

11h50-12h15 (20+5): Louis-Paul Henry: TBA

12h15-12h40 (20+5): Tommaso Roscilde: "Frustrated bosons on the triangular lattice"

12h40-14h00: Lunch break

Session 3) Correlations and dynamics in low-dimensional cold gases

14h00-14h25 (20+5): Isabelle Bouchoule: Momentum correlations in a weakly interacting Bose gas : from BEC to quasi-BEC

14h25-14h50 (20+5): Frank Hekking: Stirring ultracold bosons on a 1D ring trap: Overview and Luttinger approach

14h50-15h15 (20+5): Christoph Schenke: Stirring ultracold bosons on a 1D ring trap: Probing 1D superfluidity of a Tonks-Girardeau gas

15h15-15h50 (20+5): Anna Minguzzi: Stirring ultracold bosons on a 1D ring trap: nonadiabatic creation of macroscopic superpositions of strongly correlated bosons

15h40-16h10 Coffee Break

Session 4) Disorder and dynamics of cold atoms (II)

16h10-16h50 (35+5): Review talk

Denis Basko: "Local origin of chaos in disordered classical nonlinear chains"

16h50-17h15 (20+5): Sergey Skipetrov: "Random Green matrices for waves in random media"

17h15-17h40 (20+5): Thomas Kloss: "Relaxation dynamics of bosons coupled to a bath of phonons"

17h40-18h40: Round-table discussion: Open problems and experimental/theoretical perspectives on disordered and low-dimensional cold gases; future of the PEPS-PTI network

19h30-20h00 - Aperitif at the Christmas Market and Dinner at "Brasserie Georges"

Thursday, December 8th

Session 1) Quantum Hall effects and topological phases

9h00-9h40 (35+5): Review talk

Thierry Jolicoeur: "Exact fractional quantum Hall states"

9h40-10h05 (20+5): Paul Soulé: "The fractional quantum Hall effect on the cylinder"

10h05-10h30 (20+5): Peter Holdsworth: "The Kasteleyn transition: neutron scattering, topology and critical fluctuations"

10h30-11h00: Coffee break

Session 2) Disorder and dynamics of cold atoms (III)

11h00-11h25 (20+5): Thibaut Jacqmin: "Probing correlations in a 1D Bose gas on an atom chip"

11h25-11h50 (20+5): Christian Miniatura: "Coherent Backscattering of Ultracold Matter Waves: Momentum Space Signatures"

11h50-12h15 (20+5): Pierre-Elie Larré: "Quantum fluctuations and Hawking radiation around black hole horizons in Bose-Einstein condensates"

12h15-12h40 (20+5): Andrei Fedorenko: "2D Dirac fermions in the presence of long-range correlated disorder"

12h40-13h10 (20+5): Sébastien Giraud: "Interaction effects between polarons in polarized Fermi gases"

13h10: Lunch and departure of the participants