

Workshop on Correlations and Coherence in Quantum Systems

Évora, Portugal, 8-12 October 2012

Scientific Program

Monday, 8 October

09:00 Welcome

09:10 – 9:40 Invited: Hans-Peter Büchler
Anomalous behavior of spin systems with dipolar interactions

09:40 – 10:10 Invited: Marcos Rigol
Dynamics and description after relaxation of disordered quantum systems after a sudden quench

10:10 – 10:30 Contributed: Marcus Cramer
Thermalization under randomized local Hamiltonians

10:30 – 11:00 Coffee break

11:00 – 11:30 Invited: Jun-Peng Cao
Exactly solvable models in the cold atomic systems

11:30 – 12:00 Invited: Johannes Hecker-Denschlag
A trapped ionic impurity in a sea of ultracold neutral atoms

12:00 – 12:20 Contributed: Gergely Szirmai
Spin liquid phases of alkaline earth atoms at finite temperatures

12:20 Lunch break

15:00 – 15:30 Invited: Pedro Schlottmann
Phase separation and FFLO phases in ultra-cold gas of fermionic atoms with attractive potential in a one-dimensional trap

15:30 – 16:00 Invited: Giovanni Modugno
Disordered ultracold bosons in one dimension

16:00 – 16:30 Invited: Masaki Tezuka
Dynamics of interacting fermions on a bichromatic optical lattice

16:30 – 17:00 Coffee break

17:00 – 17:30 Invited: Yusuke Nishida
Efimov effect in quantum magnets

17:30 – 17:45 In memoriam by Daniel Arovas
Adilet Imambekov

17:45 – 18:00 In memoriam by Pedro Sacramento
Zlatko Tesanovic

Tuesday, 9 October

09:00 – 09:30 Invited: Jorge Dukelsky
Integrable pairing models in mesoscopic physics

09:30 – 10:00 Invited: Emil Yuzbashyan
Quantum integrability in systems with finite number of levels

10:00 – 10:20 Contributed: Alexandre Faribault
Decoherence in the central spin model

10:20 – 10:50 Coffee break

10:50 – 11:20 Invited: Monique Combescot
BEC-BCS crossover in an excitonic system

11:20 – 11:40 Contributed: Pedro Ribeiro
Superconductivity in nanostructures

11:40 -12:20 Invited: Jan Zaanen
Quantum criticality, superconductivity and the AdS/CFT correspondence

12:20 – 15:00 Lunch break

15:00 – 15:30 Invited: Nicolas Garcia
Graphite is a narrow band semiconductor

15:30 – 16:00 Invited: Pablo Esquinazi
Evidence for superconductivity at graphite interfaces

16:00 – 16:30 Invited: Pedro Sacramento
Anomalous Hall effect in superconductors with spin-orbit interaction

16:30 – 16:50 Coffee break

16:50 – 17:25 Poster presentations (2 minutes each)

17:25 Poster session I

Wednesday, 10 October

09:00 – 9:30 Invited: Amir Caldeira
Cats, decoherence and quantum measurement

09:30 – 10:00 Invited: Karlo Penc
Long-range ordering in $SU(3)$ and $SU(4)$ Heisenberg models

10:00 – 10:30 Invited: Carlo Di Castro
Ferronematic order in underdoped cuprates

10:30 – 11:00 Coffee break

11:00 – 11:40 Invited: Anders Sandvik
Exploring quantum fluctuations and quantum phase transitions in spin models

11:40 – 12:40 Invited: Patricia Conde Muiño
(Multidisciplinary Colloquium): *Overview of recent Higgs searches results*

12:40 Lunch break

14:30 Bus excursion to megalithic monuments about 6 000 years old.

20:00 Banquet *
Restaurant *Fanatismo*
Praça do Giraldo, 69
7000-872 Évora

* For the young workshop participants who were awarded a grant the banquet will be for free. For the remaining participants, a partial contribution of 7:50 Euros is requested. Please, pick up your banquet ticket at the workshop secretariat.

Thursday, 11 October

09:00 – 09:30 Invited: Henrik Johannesson

Electrical control of the Kondo effect in a helical edge liquid

09:30 – 10:00 Invited: Kai Chang

Quantum transport in topological edge states

10:00 - 10:20 Contributed: Eduardo V. Castro

Topological phases driven by electron interactions in certain two-dimensional lattices

10:20 – 10:40 Contributed: Dmitri Ivanov

Phase transitions in full counting statistic

10:40 – 11:10 Coffee break

11:10 – 11:30 Contributed: Edina Szirmai

Exotic magnetic orders for high spin ultracold fermions

11:30 – 12:00 Invited: Jian-Qiang You

Quantum open system in a fermionic bath: A quantum trajectory approach

12:00 – 12:20 Contributed: Daniel Arovas

Visibility of the amplitude (Higgs) mode in condensed matter

12:20 – 15:00 Lunch break

15:00 – 15:30 Invited: André A. Pasa

Determination of the spin diffusion length in silicon at low temperatures

15:30 – 16:00 Invited: Chang-Qin Wu

A quantum entanglement induced effect: Magneto-mobility in organic semiconductors

16:00 – 16:20 Coffee break

16:20 – 16:50 Invited: Sandro Sorella

Recent advances in the numerical simulation of the Hubbard model

16:50 – 17:10 Contributed: Enrico Arrigoni

Variational cluster approach for correlated many-body systems out of equilibrium

17:10 - Poster session II

Friday, 12 October

09:00 – 09:40 Invited: Gora Shlyapnikov
Novel macroscopic quantum states in dipolar systems

09:40 – 10:00 Contributed: Nikola Paunković
Fidelity spectrum and characterization of different phases of quantum systems

10:00 – 10:20 Contributed: Xi Chen
Shortcuts to adiabaticity: Theory and application

10:20 – 10:40 Contributed: Fabrizio Illuminati
Factorization, frustration and entanglement order parameters in complex quantum systems

10:40 – 11:10 Coffee break

11:10 – 11:40 Invited: Zhi-Guo Wang
Artificial acoustic atom and crystal

11:40 – 12:20 Invited: Paolo Zanardi
Quantum entanglement for typical and less typical states

12:20 Summary and closing remarks