

INTERDISCIPLINARY WORKSHOP ON QUANTUM MECHANICS AND DYNAMICAL SYSTEMS

Granada, October 8-10, 2011

The aim of this meeting is to bring together mathematicians with experience on the analysis of Differential Equations and Dynamical systems and leading experts on Quantum Physics.

Schedule

Saturday 8:

- 17:50-18:00. Presentation and opening remarks
- 18:00-18:45. Panos Kevrekidis: *Solitary Waves in BECs with Repulsive Interactions: from 1d dark solitons to multi-dimensional vortices and beyond*
- 18:45-19:30 David Hall: *Putting a Spin on Experiments with Vortex Clusters*
- 19:30 Welcome reception

Sunday 9:

- 9:30-10:15 Dimitri Frantzeskakis (University of Athens): *Dark solitons in single- and multi-component Bose-Einstein condensates*
- 10:15-11:00 Peter Schmelcher (University of Hamburg): *Tunneling dynamics of strongly correlated bosons: A key mechanism for atomtronic setups*
- 11:00-11:30 Coffee break
- 11:30-12:15 Augusto Rodrigues (University of Oporto): *Coherent structures in exciton-polariton systems*
- 12:15-13:00 Niurka Quintero (university of Sevilla): *Symmetries shape the current in ratchets: atom transport in BEC.*
- 15:30-16:15 Ricardo Carretero (San Diego State University): *Vortex ring dynamics and its GPU implementation*

- 16:15-17:00 Rosario González: Theoretical description of adiabatic laser alignment and mixed-field orientation: the need for a non-adiabatic model
- 17:00-17:30 Coffee break
- 17:30-18:00 Rafael Navarro (San Diego State University): *Normal Modes of Interacting Vortices in Trapped Bose-Einstein Condensates*
- 18:00-18:30 Dong Yan: *dark-bright solitons in Bose Einstein Condensates*
- 19:30-21:00 Open Problems: A Forward-Looking Session Part I

Monday 10:

- 9:30-10:15 Jesus Cuevas (University of Sevilla): *Dynamics of dark-bright solitons in Bose-Einstein condensates and waveguide arrays*
- 10:15-11:00 Nikos Karachalios (University of the Aegean): *Escape, blow-up and infinite dimensional dynamics in nonlinear lattices: The Discrete Klein-Gordon equation against the Discrete Nonlinear Schrödinger equation*
- 11:00-11:30 Coffee break
- 11:30-12:15 Juan Belmonte (University of Castilla-La Mancha): *Non-linear waves in a simple model of glioma growth*
- 12:15-12:45 Vassos Achilleos (University of Athens): *Stationary states of a nonlinear Schrödinger lattice with a harmonic trap*
- 12:45-13:15 Jan Stockhofe (University of Hamburg): *Impact of anisotropy on vortex clusters and their dynamics*
- 15:30-16:30 Open Problems: A Forward-Looking Session Part II (+ Concluding Remarks)
- 17:00-20:00 Visit to the Alhambra

Note from the organizers: the scientific sessions will take place at the Conference Hall of the Carmen de la Victoria. Attendance to this workshop is free and the only restriction is the capacity of the hall (70 persons). Therefore everybody is welcome and no registration fee is required. People interested in attending the workshop are kindly requested to look for travel and lodging by themselves.

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