



The Abdus Salam
**International Centre
for Theoretical Physics**



Advanced Workshop on Non-equilibrium Bosons: From Driven Condensates to Non-Linear Optics

Cosponsor(s): U.S. National Science Foundation & International Institute for Complex Adaptive Matter
Organizer(s): B.L. Altshuler (USA), S. Flach (New Zealand), A. Imamoglu (Switzerland), A. Kavokin (UK), V. Yudson (Russia). ICTP Local Organizer: M. Kiselev
Trieste - Italy, 19 - 23 August 2013

Venue: Adriatico Guest House Kastler Lecture Hall

Programme

Monday, 19 August 2013 (Room:Adriatico Guest House Kastler Lecture Hall)

- 08:30 - 09:30** (Room: Adriatico Guest House - Kastler Lecture Hall Area (Lower Level 1))
--- Registration and Administrative formalities ---
- 09:30 - 09:45** **Opening**
- 09:45 - 10:30** **M. Segev**
Light, Disorder, and Photonic Topological Insulators
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 11:45** **D. Stone**
A Scattering Approach to Complex Laser Systems and Coherent Perfect Absorption
- 11:45 - 12:30** **B. Deveaud**
Disorder stabilized topological defects in polariton condensates
- 12:30 - 14:00** --- Lunch ---
- 14:00 - 14:45** **E. Ostrovskaya**
Driven dissipative Bose-Einstein condensates in periodic potentials

- 14:45 - 15:00** **R. Frank**
Contributed talk: Photonics transport theory: Nonlinear response and random lasing in disordered complex media
- 15:00 - 15:30** --- Coffee break ---
- 15:30 - 16:15** **M. Wouters**
Nonequilibrium polariton quantum fluids
- 16:15 - 17:00** **N. Fabbri & M. Inguscio**
Ultra-cold bosons in one dimension
- 17:00 - 19:30** --- Free time/Discussions ---
- 19:30 - 21:30** (Room: Adriatico Guest House (Terrace))
 --- Welcome Reception ---

Tuesday, 20 August 2013 (Room:Adriatico Guest House Kastler Lecture Hall)

- 09:00 - 09:45** **C. Ciuti**
Quantum fluids of light and strongly correlated photons
- 09:45 - 10:30** **M. Fraser & Y. Yamamoto**
Modified excitation spectrum and superfluidity in open-dissipative polariton condensates
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 11:45** **Y. Rubo**
Dissipative coupling and symmetry breaking in exciton-polariton condensates
- 11:45 - 12:30** **A. Amo**
Dynamics of coupled polariton condensates
- 12:30 - 14:00** --- Lunch ---
- 14:00 - 14:30** **K. Rayanov**
Contributed talk: Amplification of evanescent waves - novel dynamical regimes with exciton-polariton condensates and optical couplers
- 14:30 - 15:00** **M. Kulkarni**
Contributed talk: Cavity-mediated near-critical dissipative dynamics of a driven condensate
- 15:00 - 15:30** --- Coffee break ---
- 15:30 - 16:15** **D. Krizhanovskii**
Polariton solitons in semiconductor microcavities and waveguides in the strong coupling regime
- 16:15 - 16:30** **P. Kirton**
Contributed talk: A non-equilibrium model of photon condensation
- 17:30 - 19:00** (Room: Leonardo da Vinci Building Main Lecture Hall)
A. Aspect
Colloquium: "From Einstein's intuition to quantum bits: a new quantum age?"

Wednesday, 21 August 2013 (Room:Adriatico Guest House Kastler Lecture Hall)

- 09:00 - 09:45** **J. Baumberg**
Quantum tornadoes: manipulating macroscopic quantum states in real time
- 09:45 - 10:30** **S. Hoefling**
Exciton-polariton lasers in a magnetic field
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 11:45** **N. Berloff**
Magnon condensate in Yttrium Iron Garnet films
- 11:45 - 12:30** **L.V. Butov**
Spontaneous coherence and spin currents in a gas of indirect excitons
- 12:30 - 14:00** --- Lunch ---
- 14:00 - 14:45** **A. Aspect**
Anderson localization of ultra-cold atoms
- 14:45 - 15:00** **X. Yu**
Contributed talk: Localization of disordered bosons and magnets in random fields
- 15:00 - 15:30** --- Coffee break ---
- 15:30 - 16:00** **M. Hafezi**
Contributed talk: Non-equilibrium quantum Hall physics with photons
- 16:00 - 16:15** **W. Nitsche**
Contributed talk: Quasi-long-range spatial coherence in an exciton-polariton condensate
- 16:15 - 17:00** **S. Fishman**
The nonlinear Schroedinger equation with a random potential: results and puzzles

Thursday, 22 August 2013 (Room:Adriatico Guest House Kastler Lecture Hall)

- 09:00 - 09:45** **A. Pikovsky**
First and second sound in strongly nonlinear lattices
- 09:45 - 10:30** **M. Ivanchenko**
Extended two-particle boson states in quasiperiodic chains
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 11:30** **D. Basko**
Contributed talk: Theory of non-linear diffusion in a weakly disordered anharmonic chain in the regime of strong chaos
- 11:30 - 12:15** **I.V. Lerner**
The role of duality in one-dimensional transport of interacting particles through a constriction
- 12:15 - 12:30** **S. Rodriguez**
Contributed talk: Thermalization and cooling of photonic/excitonic/plasmonic quasi-particles in a metallic nano-particle array: towards quantum condensation

- 12:30 - 13:45** --- Lunch ---
- 14:00 - 14:30** **A.L. Chudnovskiy**
Contributed talk: Doublon relaxation in the Bose-Hubbard model
- 14:30 - 15:00** **A. Mitra**
Contributed talk: Quench dynamics of the one-dimensional bosons in commensurate periodic potential: Prethermalization and thermalization
- 15:00 - 15:30** --- Coffee break ---
- 15:30 - 16:00** **M. Vavilov**
Contributed talk: Full-counting statistics of photons emitted by double quantum dot strongly coupled to high-Q resonator
- 16:00 - 16:30** **M. Ortuño**
Contributed talk: Numerical simulation of many-body localization
- 16:30 - 19:30** **Poster session/Free time/Discussions**

Friday, 23 August 2013 (Room:Adriatico Guest House Kastler Lecture Hall)

- 09:00 - 09:45** **P. Littlewood**
Polariton condensation and dynamics
- 09:45 - 10:30** **J. Bloch**
Polariton condensates in photonic circuits
- 10:30 - 11:00** --- Coffee break ---
- 11:00 - 11:45** **L. Ioffe**
TBA
- 11:45 - 12:30** **G. Shlyapnikov**
Finite temperature one-dimensional bosons in disorder
- 12:30 - 12:45** **Closing**