SuperFluctuations 2021 online – Scientific Program

Timeline of each talk: 23' talk, 7' discussion and connection time

European Central Time zone (Italian time), GMT +2

Monday 14 June

10:10-10:30 Opening

Claudio Pettinari, Rector, University of Camerino,
Flavio Seno, Dean of the Physics and Astronomy Department, University of Padova,
David Vitali, Dean of the School of Science and Technology, University of Camerino.

10:30-11:00 Massimo Capone, SISSA, Trieste, Italy

Flavour-selective localization in interacting lattice fermions via SU(N) symmetry breaking

11:00-11:30 Andrea Richaud, SISSA, Trieste, Italy

Interaction-resistant metals in multicomponent Fermi systems

11:30-12:00 Jonas Bekaert, University of Antwerp, Belgium

Multigap superconductivity and topological states in gallenene

12:00-12:30 Meera Parish, Monash University, Australia

Quantum behavior of a heavy impurity in a Bose gas

12:30-13:00 Alexei Vagov, Institute for Theoretical Physics III, University of Bayreuth, Germany; ITMO University, St. Petersburg, Russia

Current-induced self-organisation of mixed superconducting states

13:00-14:00 – Break

14:00-14:30 Sebastiano Pilati, University of Camerino, Italy

Simulating disordered quantum systems using artificial neural networks

14:30-15:00 Ilaria Maccari, KTH - Royal Institute of Technology, Sweden

Fragile glass transition in two-dimensional vortex lattice

15:00-15:30 Mohit Randeria, The Ohio State University, USA

Are there Upper Bounds on the Superconducting Transition Temperature?

15:30-16:00 Antonio Bianconi, RICMASS, Rome, Italy [*joint FCMP talk*]

The quantum mechanism giving room temperature superconductivity

16:00-16:30 - Break

16:30-17:00 Yasutomo Uemura, Columbia University, USA

BEC-BCS crossover in unconventional superconductors with competing orders

17:00-17:30 Carlos Sá de Melo, Georgia Institute of Technology, Atlanta, USA

Nematic-Orbit Coupling and Nematic Density Waves in Spin-1 Condensates

17:30-18:00 Leticia Tarruell, CFO - The Institute of Photonic Sciences, Mediterranean Technology Park, Barcelona, Spain [*joint FCMP talk*]

Realizing a one-dimensional topological gauge theory in an optically dressed Bose-Einstein condensate

Tuesday 15 June

10:00-10:30 Stefano Lupi, "Sapienza" University of Rome, Italy

Linear and non Linear Terahertz Photonics based on Topological Matter

10:30-11:00 Utpal Roy, IIT - Indian Institute of Technology, Patna, India

Quantum Simulation with Matter Waves in Engineered Optical Lattices

11:00-11:30 Paulsamy Muruganandam, Bharathidasan University, India

Soliton dynamics in spin-orbit coupled Bose-Einstein condensates

11:30-12:00 Yoji Ohashi, Keio University, Japan

Non-equilibrium BCS-BEC crossover in a strongly interacting driven-dissipative Fermi gas

12:00-12:30 Hiroyuki Tajima, University of Tokyo, Japan

Hidden pseudogap in the two-band BCS-BEC crossover

12:30-13:30 – Break

13:30-14:30 Question time and discussion on the video recorded seminars.

Presenting Authors: Mehdi Biderang, Alberto Cappellaro, Koichiro Furutani, Tomohiro Hata, Juan Carlos Obeso Jureidini and Victor Romero-Rochín, Benjamin McNaughton, Kazunari Ochi, Sathish Kumar Paramavisam, Lukas Rammelmuller, Victor Velasco Roland da Silva.

[Instructions to access the elearning platform have been sent by email.]

14:30-15:00 Yoshihiro Iwasa, The University of Tokyo, Japan. [*joint FCMP talk*]

2D BCS-BEC crossover in a layered superconductor

15:00-15:30 Amit Kanigel, Technion - Israel Inst. of Technology, Haifa, Israel [*joint FCMP talk*]

BCS-BEC crossover and topological superconductivity in an Iron based superconductor

15:30-16:00 Francesca Ferlaino, University of Innsbruck, Austria [*joint FCMP talk*]

Two-dimensional supersolidity in a dipolar quantum gas

16:00-16:30 Michele Pini, University of Camerino, Italy
Strong Fulde-Ferrell Larkin-Ovchinnikkov pairing fluctuations in polarized Fermi systems

16:30-17:00 Break

17:00-17:30 Antun Balaz, Institute of Physics, Belgrade, Serbia

Transition from BEC to supersolid to quantum droplets in dipolar condensates in a ring potential

17:30-18:00 Bruno Julia-Diaz, Universitat de Barcelona, Spain

Universal dimerized quantum droplets in a one-dimensional lattice

18:00-18:30 Andrea Tononi, University of Padova, Italy

Topological BKT transition in bubble-trapped condensates

Wednesday 16 June

13:30-14:00 Roberta Citro, University of Salerno, Italy

Evolution of quantum droplets in a dipolar Bose gas in 1D

14:00-14:30 Alessio Recati, University of Trento and INO-CNR BEC Center, Italy

Quantum-torque-induced breaking of Josephson dynamics in ultra-cold gases

14:30-15:00 Axel Pelster, TU Kaiserslautern, Germany

On the Dirty Boson Problem

15:00-15:30 Stefano Giorgini, University of Trento, Italy

Phase separation in finite temperature Bose mixtures

15:30-16:00 Felipe Isaule, Universitat de Barcelona, Spain

Functional renormalization group for cold atom mixtures

16:00-16:30 Tommaso Macrì, Universidade Federal do Rio Grande do Norte, Natal, Brazil

Solitons and polarons in ultracold bosonic mixtures

16:30-17:00 Break

17:00-17:30 Philip Kim, Harvard University, USA [*joint FCMP talk*]

Exciton Condensation in van der Waals heterostructures

17:30-18:00 David Neilson, University of Antwerp, Belgium

Toward a complete zero temperature phase diagram of coupled electron-hole conducting layers in solids.

18:00-18:30 Sara Conti, University of Antwerp, Belgium

Electron-hole superfluidity in strained Si/Ge type II heterojunctions

18:30-18:40 Closing