

# Workshop on ‘Dynamics and interactions in quantum gases’

## Maó (Menorca) - 4 to 6 September 2019

Venue: *Institut Menorquí d’Estudis*, Camí des Castell 28, Maó

### PROGRAM

#### Wednesday 4 September

10.30 11.00 Registration

##### **Session 1: Dilute BECs: vortices, sound and self-similarity**

11.00 11.40 Alexander Fetter: *Superfluid Vortex Dynamics on Curved Surfaces: cylinders and cones* [\[slides\]](#)

11.40 12.20 Jérôme Beugnon: *Dynamics of two-component 2D Bose gases* [\[slides\]](#)

12.20 13.00 Michele Modugno: *A new look at ‘old’ BEC topics: bosonic Josephson junctions & self-similar expansion* [\[slides\]](#)

**13.00 15.30 Lunch**

##### **Session 2: Quantum droplets**

15.30 16.10 Jordi Boronat: *Finite-range effects in dilute quantum gases* [\[slides\]](#)

16.10 16.50 Giovanni Ferioli: *Collision of self-bound quantum droplets* [\[slides\]](#)

**16.50 17.10 Coffee break**

##### **Session 3: Dipolar and spin-orbit coupled gases**

17.10 17.50 Lauriane Chomaz: *From roton excitations to supersolid behaviors in quantum Bose gases of highly magnetic atoms* [\[slides\]](#)

17.50 18.30 Peter Engels: *Spin-orbit coupled BECs: novel hydrodynamics and phases of matter* [\[slides\]](#)

**18.30 20.30 Posters & wine**

## Thursday 5 September

### Session 4: *Polarons and polaritons*

- 9.10 9.50 Georg Bruun: *Polarons and polaritons* [\[slides\]](#)  
9.50 10.30 Jesper Levinsen: *Microscopic description of exciton-polaritons in microcavities* [\[slides\]](#)  
**10.30 11.00 Coffee break**

### Session 5: *Fermions*

- 11.00 11.40 Chris Vale: *Excitations in strongly interacting Fermi gases* [\[slides\]](#)  
11.40 12.20 Laura Corman: *Beyond particle transport at a quantum point contact* [\[slides\]](#)  
12.20 13.00 Ralf Klemt: *Juggling with single atoms to understand many-body systems* [\[slides\]](#)  
**13.00 15.30 Lunch**

### Session 6: *Many-body localization and solitons*

- 15.30 16.10 Julian Léonard: *Many-body localization under the microscope* [\[slides\]](#)  
16.10 16.50 Victor Gurarie: *Dynamical singularities in many body localized systems* [\[slides\]](#)  
16.50 17.30 Maxim Olshanii: *Lax Integrability and Cheap Macroscopic Quantum Coherence with Matter-Wave Breathers* [\[slides\]](#)  
**17.30 20.30 Excursion: boat trip and guided walking tour of Maó**  
**20.30 Conference dinner at [Restaurant La Minerva](#)**

## Friday 6 September

### Session 4: *Topological phases*

- 9.10 9.50 Daniel Barredo: *A symmetry protected topological phase for interacting bosons in an array of Rydberg atoms* [\[slides\]](#)  
9.50 10.30 Matteo Rizzi: *Interacting topological systems* [\[slides\]](#)  
**10.30 11.00 Coffee break**

### Session 8: *Out-of-equilibrium phenomena*

- 11.00 11.40 Francesca Marchetti: *Early-time dynamics of Bose gases quenched into the strongly interacting regime* [\[slides\]](#)  
11.40 12.20 Anatoli Polkovnikov: *Using phase space methods for simulating dynamics of interacting fermions* [\[slides\]](#)  
12.20 13.00 Laurent Sanchez-Palencia: *Spreading of correlations and entanglement in long-range interacting systems* [\[slides\]](#)

**13.00**

**Concluding remarks and lunch**