

FLEET-EU 2023 – Scientific Program

Transport in exciton condensates and exciton insulators

INVITED TALKS - Timeline of each talk: 25' talk, 5' discussion

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

Sunday 10 September

20:00: FLEET-EU Conference banquet

at Ristorantino sul Mare Pierre e Christian - Seafood Restaurant,

Via Publio Virgilio Marone. 1A, San Benedetto del Tronto.

Google Maps <https://goo.gl/maps/dK4Bhpsj3Sp7TCCo6>

(On exiting conference venue turn left, walk 200 metres north-west along Via A. Scipioni which becomes Viale Marconi, then turn left into Via P. V. Marone)

(Free for FLEET-EU registrants, accompanying persons €50)

Monday 11 September

08:30-09:00: Registration and Opening

Opening. Scientific Committee of FLEET-EU 2023:

Sara Conti, University of Antwerp, Belgium

Stefania De Palo, CNR-IOM, Trieste, Italy

Alexander R. Hamilton, University of New South Wales and FLEET, Australia

Milorad V. Milošević, University of Antwerp, Belgium

David Neilson, University of Antwerp, Belgium and FLEET, Australia (Chair)

Andrea Perali, University of Camerino, Italy and FLEET, Australia (Chair)

09:00-09:30: Michael Fuhrer, Monash University and FLEET, Australia

P-type Ohmic contact to a monolayer TMD semiconductor – towards indirect exciton devices

09:30-10:00: Fredrik Nilsson, Technical University of Denmark

Exciton superfluidity in van der Waal heterostructures: Material specific screening from first principles

10:00-10:30: Alexander Hamilton, University of New South Wales and FLEET, Australia

The Hunt for the Equilibrium Indirect Exciton Superfluid

10:30-11:00: David Neilson, University of Antwerp, Belgium and FLEET, Australia

Chester Supersolid of Spatially Indirect Excitons in Double-Layer Semiconductor Heterostructures

11:00-11:30 – Coffee Break

11:30-12:00: Dmitry Efimkin, Monash University and FLEET, Australia (*online talk*)
The fluctuational internal Josephson and the Coulomb drag-like effects in electron-hole bilayers

12:00-12:30: Gaetano Senatore, University of Trieste, Italy
Excitations in symmetric electron-hole bilayer: quasiparticle energies, collective excitations

12:30-13:00: Massimo Rontani, CNR-NANO, Italy
Monolayer WTe₂ and pressurized MoS₂ as ideal excitonic insulators

13:00-14:30 – Lunch Break

14:30-15:00: Stefania De Palo, CNR-IOM, Trieste, Italy
Excitonic condensation in an electron-hole bilayer: a Quantum Monte Carlo study

15:00-15:30: Oleh Klochan, University of New South Wales and FLEET, Australia
Making artificial electronic crystals

15:30-16:00: Andrea Perali, University of Camerino, Italy and FLEET, Australia
BCS-BEC crossover in electron-hole double layer superfluids

16:00-16:30 – Coffee Break

16:30-17:00: Jie Shan, Cornell University, U.S.A. (*online talk*)
Excitonic insulator in atomic double layers: an experimental realization

17:00-17:30: Zeb Krix, University of New South Wales and FLEET, Australia
Artificial crystals using bilayer graphene: A new platform for engineering strongly correlated effects

17:30-18:00: Filippo Pascucci, University of Antwerp, Belgium and University of Camerino, Italy
Josephson effect and superfluidity in electron-hole bilayer heterostructures

18:00-18:15: Closing remarks
