



Exciton Transport in 2D Materials Workshop

Miramar Palace, Donostia / San Sebastián, Spain

Tuesday, 30 May 2023

- 15:00 - 15:45 **Registration**
15:45 - 16:00 **Opening remarks**
16:00 - 16:30 **Milan Delor:** Ballistic excitons, polarons and polaritons in 2D semiconductors
16:30 - 17:00 **Diana Qiu:** Exchange and phonon mediated exciton scattering channels
17:00 - 17:30 **Coffee break**
17:30 - 18:00 **Alexander Steinhoff:** Many-body theory for quantum gases in van der Waals heterobilayers
18:00 - 18:30 **Ursula Wurstbauer:** Interlayer excitons in TMDC heterobilayers: hybridization, dense ensembles and interactions

Wednesday, 31 May 2023

- 09:00 - 09:30 **Mikhail Glazov:** Classical and quantum transport in Bose-Fermi mixtures
09:30 - 10:00 **Paulina Plochocka:** Soft organic inorganic perovskites: Exciting playground for exciton and polaron studies
10:00 - 10:30 **Alexander Högele:** Excitons in mesoscopically reconstructed moiré heterostructures
10:30 - 11:00 **Coffee break**
11:00 - 11:30 **William Tisdale:** Silver organochalcogenolates: An emerging family of low-dimensional excitonic materials
11:30 - 12:00 **Pina Romaniello:** Optical spectra of 2D monolayers from ab-initio theories
12:00 - 12:30 **Aaron Kelly:** Revealing ultrafast phonon-mediated inter-valley scattering through simulations of transient absorption and high harmonic generation spectroscopies
12:30 - 15:00 **Lunch break**
15:00 - 15:30 **Ferry Prins:** Mapping local energy landscapes in 2D perovskites using transient microscopy
15:30 - 16:00 **Leonid Butov:** Transport of indirect excitons
16:00 - 16:30 **Florian Dirnberger:** Cavity-controlled magnetic excitons in van der Waals magnets
16:30 - 18:00 **Poster session**

Thursday, 1 June 2023

- 09:00 - 09:30 **Andras Kis:** Exciton manipulation and transport in 2D heterostructures
09:30 - 10:00 **Parag Deotare:** Giving excitons some direction in life
10:00 - 10:30 **Dmitry Efimkin:** Anomalous drag in electron-Hole condensates with granulated order
10:30 - 11:00 **Coffee break**
11:00 - 11:30 **Felipe da Jornada:** First-principles methods for exciton scattering processes in 2D materials
11:30 - 12:00 **Christoph Kastl:** Effects of defects on band structure and excitons in 2D transition metal dichalcogenides
12:00 - 12:30 **Paulo de Faria Junior:** Valley Zeeman physics in van der Waals heterostructures
12:30 - 15:00 **Lunch break**
15:00 - 15:30 **Ronen Rapaport:** Strongly interacting dipolar excitons and polaritons
15:30 - 16:00 **Andrés Montoya-Castillo:** Fermi polaron formation resolves dynamic spectral shift and broadening in 2D transition metal dichalcogenides
16:00 - 16:30 **Laurent Lombez:** Spin and excitonic transport of negatively charged excitons in WSe₂ monolayer
18:00 - 21:00 **Social evening**

Friday, 2 June 2023

- 09:00 - 09:30 **Ermin Malic:** Interlayer exciton transport in TMD bilayers
09:30 - 10:00 **Rudolf Bratschitsch:** Ultrafast exciton transport in strained 2D semiconductors
10:00 - 10:30 **Fulvio Paleari:** Exciton-phonon interaction: insights from luminescence and open problems
10:30 - 11:00 **Coffee break**
11:00 - 11:30 **Laura Polimeno:** Strong light matter coupling in 2D materials
11:30 - 12:00 **Sahar Sharifzadeh:** The impact of electron-phonon interactions in 2D materials from first-principles
12:00 - 12:15 **Farewell**

Posters

- Edith Wietek** Mobile interlayer excitons up to the Mott transition in moiré-free heterostructures
- Tomer Amit** Complex excitons in monolayer MoS₂ with a sulphur vacancy and their magneto-optical properties: an ab-initio study
- Daniel Wigger** Ultrafast nonlinear spectroscopy of coherently coupled exciton complexes in a gated MoSe₂ monolayer
- Iris Niehues** Nanoscale carrier density mapping of intercalated MoS₂ by IR and THz s-SNOM
- Galit Cohen** Phonon-driven femtosecond dynamics of excitons in crystalline pentacene from first principles
- Andrzej Nowok** Temperature-induced enhancement of effective mass in hybrid organic-inorganic perovskites
- Katarzyna Posmyk** Exciton fine structure in two-dimensional perovskites
- Daniel Hernangómez Pérez** Charge and exciton quenching at defect states in TMDC-graphene heterostructures
- Jakub Jasiński** Valley polarisation in monolayer TMDs and TMD/2D perovskite heterostructures
- Philipp Parzefall** Diffusion of interlayer excitons in strained MoSe₂-WSe₂ heterobilayers
- Enrique Arevalo Rodriguez** Boosting the efficiency of transient microscopy using cylindrical lenses
- Guy Voscoboynik** Excitonic scattering processes in layered systems within a Fermi-polaronic description from first principles
- Beret Dorian** Exciton spectroscopy and unidirectional transport in MoSe₂-WSe₂ lateral heterostructures
- Nicolas Gauriot** Imaging carrier funnelling in a lateral heterojunction engineered by its dielectric environment
- Amir Kleiner** Mixed excitons at TMD-graphene heterostructures
- Giulia Lo Gerfo Morganti** Exciton diffusion in suspended MoSe₂ visualized by Thermally Enhanced Emission Microscopy (THEM)
- Marc Melendez** Towards global fitting of spatiotemporal transport of carriers