

OEM-2D Workshop San Sebastian 2024

Program

TUESDAY 21.05

8.30 - 9.00 **Registration**

9.00 - 9.20 **Opening**

Session: GRAPHENE

9.20 - 10.00 **Joel Cox**

Keynote *Quantum and nonlinear plasmonics with 2D materials*

10.00 - 10.30 **Nicolás Lorente**

Invited *Understanding the Interlayer Coupling in 1T/1H-NbSe₂ Hetero-Bilayers*

10.30 - 11.00 **Włodzimierz Jaskólski**

Invited *On the robustness of gapless states in gated multilayer graphene*

11.00 - 11.30 **Coffee**

11.30 - 12.00 **Andres Castellanos**

Invited *2D straintronic adaptable photodetectors and transistor*

12.00 - 12.30 **Lorenzo del Re**

Invited *SU(N)-Hubbard models and their simulations in cold atom and moiré systems*

12.30 - 12.50 **Eric D. Switzer**

Contributed *Pathway to Quasi-2D Time Crystals Using NISQ Hardware*

1.00 - 2.30 **Lunch**

Session: MAGNETISM

2.30 - 3.10 **Gregory Fiete**

Keynote *Nonlinear optical probing and control of magnetic order and electronic band topology*

3.10 - 3.40 **Dario Bercioux**

Invited *Exploring Chiral Spin States in Curved Spaces: Insights from Ring Geometries*

3.40 - 4.00 **Pablo Moles Matías**

Contributed *Straintronics and adatoms to enhance and tune the magnetic response in graphene nanoribbons*

4.00 - 4.30 **Coffee**

4.30 - 5.10 **Leonor Chico**

Keynote *Nontrivial topological properties of pentagonal 2D PdSe₂*

5.10 - 5.40 **Hryhoriy Polshyn**

Invited *Magnetic properties of orbital Chern insulators in graphene moiré heterostructures*

5.40 - 6.00 **Sebastien Elie Hadjadj**

Contributed *Unconventional magnetic properties of epitaxially grown 2D Semiconductor FeBr₂ grown on Au(111)*

WEDNESDAY 22.05

Session: SUPERCONDUCTIVITY & OPTICS

9.00 - 9.40 **Frank Koppens**

Keynote *Optoelectronics of graphene moiré systems*

9.40 - 10.10 **Erez Berg**

Invited *Linear spectroscopy of collective modes and the gap structure in two-dimensional superconductors*

10.10 - 10.40 **Thomas Frederiksen**

Invited *Electron quantum optics with graphene nanoribbons*

10.40 - 11.00 **Julien Barrier**

Contributed *Bloch spectroscopy of graphene superlattices and applications in photon detection*

11.00 - 11.30 **Coffee**

11.30 - 12.00 **Eli Zeldov**

Invited *Imaging quantum oscillations in strongly correlated moiré systems*

12.00 - 12.30 **Magdalena Margańska**

Invited *Superconductivity from electronic interactions on a fragmented Fermi surface*

12.30 - 12.50 **Fernando de Juan**

Contributed *Photogalvanic effects in twisted bilayer graphene*

1.00 - 2.30 **Lunch**

Session: ADVANCED MEASUREMENTS

2.30 - 3.10 **Andrea Ferrari**

Keynote TBA

3.10 - 3.40 **Shahal Ilani**

Invited *News from the Quantum Twisting Microscope*

3.40 - 4.00 **Jonas D. Gerber**

Contributed *Enhanced and Tunable Spin-Orbit Coupling in Bilayer Graphene/Transition-Metal Dichalcogenide Quantum Devices*

4.00 - 6.00 **Coffee + Poster session**

THURSDAY 23.05

Session: OPTICS

9.00 - 9.40 **Eva Andrei**

Keynote TBA

9.40 - 10.10 **Carsten Rockstuhl**

Invited *Understanding Excitations in Nano-antennas made from 2D-materials and Hybrid Systems*

10.10 - 10.40 **Alejandro Manjavacas**

Invited *Collective optical modes in two-dimensional arrays of nanoparticles*

10.40 - 11.00 **Julen Ibanez-Azpiroz**

Contributed *Nonlinear optical phenomena in 2D-like materials*

11.00 - 11.30 **Coffee**

11.30 - 12.00 **Alexander Högele**

Invited *Exciton, charge and spin lattices in moiré heterostructures*

12.00 - 12.30 **Paweł Machnikowski**

Invited *Local field effects in ultrafast light–matter interaction revealed by nonlinear spectroscopy of monolayer materials*

12.30 - 12.50 **María Camarasa-Gómez**

Contributed *Non-empirical prediction of electronic and optical properties of van der Waals materials from a Wannier-localized optimally tuned screened range-separated hybrid functional*

1.00 - 2.30 **Lunch**

Session: NANOSTRUCTURES

2.30 - 3.10 **Fan Zhang**

Keynote *Quantum Anomalous Hall Effect in Rhombohedral Graphene*

3.10 - 3.40 **Michał Zieliński**

Invited *Exploiting Crystal Lattice for Efficient, Atomistic Computations of Multi-Million Atom Nanostructures*

3.40 - 4.00 **Gal Shavit**

Contributed *Quantum Geometry and Stabilization of Fractional Chern Insulators Far from the Ideal Limit*

4.00 - 4.30 **Coffee**

4.30 - 5.10 **Stevan Nadj-Perge**

Keynote *Superconductivity and strongly correlated phases in (un-)twisted graphene multilayers*

5.10 - 5.40 **Paweł Potasz**

Invited *Magnetic properties of moiré superlattice nanostructures*

5.40 - 6.00 **Yasser Saleem**

Contributed *Superexchange Mechanism in Coupled Triangulene Chains*

8.00 - ... **Dinner**

FRIDAY 24.05

Session: TMDC & OTHER 2D MATERIALS

9.00 - 9.40

Jaroslav Fabian

Keynote *Proximity effects in van der Waals materials*

9.40 - 10.10

Stephan Hofmann

Invited *Fast Descriptors and Accelerated Process Development for 2D materials*

10.10 - 10.30

Antton Babaze

Contributed *Coupling between single emitters and plasmonic nanoantennas: Quantum effects revealed by time-dependent density functional theory*

10.30 - 10.50

Lucas L. Lage

Contributed *Robustness of type-II Dirac cones in biphenylene-based structures*

10.50 - 11.30

Coffee

11.30 - 12.00

Xiaodong Cui

Invited *Exciton polarization in 2D TMDs*

12.00 - 12.30

Alexey Nikitin

Invited *Light-matter interaction in van der Waals crystals and molecules*

12.30 - 12.50

Andrea Aguirre

Contributed *Ferromagnetic order in 2D layers of transition metal dichlorides*

1.00 - 2.30

Lunch

Session: 2D MATERIALS

2.30 - 3.10

Richard Silver

Keynote *Solid State, Atom-based Devices for Analog Quantum Simulation and Quantum Manipulation*

3.10 - 3.30

Isabell Weimer

Contributed *Gate screening of Coulomb interactions in Bernal bilayer graphene*

3.30 - 3.50

Rodrigo Aguilera del Toro

Contributed *Exploring the Magnetic World of transition metal Imenenes*

3.50 - 5.00

Closing & Coffee