



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

Flatlands Beyond Graphene 2023 (25-29/9, Hotel Olšanká)

Monday 25 September

Time	ID	Title	Presenter	Page
12:00	Welcome Reception and Registration			
Session 1: Keynote and Oral Presentations, Chair: Christoph Gadermaier				
15:00		CONFERENCE OPENING	Zdeněk Sofer	
15:10	P1	A concise history of 2D materials (layered compounds) in Intercalation batteries	Reshef Tenne	
15:30	O1	In-situ observation of 2D materials' growth on liquid substrates	Miroslav Kolibal	
15:45	O2	Structural and chemical investigation of sub-monolayer antimony on Ag(110)	Stefanie Hilgers	
16:00	O3	Bendable Xenon-based Membranes	Chiara Massetti	
16:15	O4	Relaxation effects in transition metal dichalcogenide bilayer heterostructures	Wei Li	
16:30	O5	Highly optical tunability of monolayer and bilayer MoS ₂ over LaF ₃ by gating	Onur Cakiroglu	
16:45	O6	Twist-angle dependent dehybridization of momentum-indirect excitons in MoSe ₂ /MoS ₂ heterostructures	Nikodem Sokołowski	
17:00	O7	An atom-by-atom aberration-corrected STEM study of liquid-exfoliated PtSe ₂	Ilias-Panagiotis Oikonomou	
17:15	O8	Vertical and lateral electron transport in bilayer MoS ₂ : edge termination influence	Alireza Ghasemifrad	
17:30	O9	Electronic fingerprint mechanism of NO _x sensor based on single-material SnP ₃ logical junction	Agnieszka Kuc	
17:45	O10	Exploring new horizons: synthesis, characterization and applications of novel 2D materials for fully van der Waals heterostructures	Aljoscha Söll	
18:00	O11	Lattice reconstruction in MoSe ₂ -WSe ₂ heterobilayers synthesized by chemical vapor deposition	Farsane Tabataba-Vakili	
18:15	O12	Unipolar black phosphorus field effect transistor for photodetector and memory applications	Arun Kumar	



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

Tuesday 26 September

Session 1: Keynote and Plenary Talks 1, Chair: Robert Kudrawiec

9:00	P2	Co-discovery of p-type dopants for 2D field-effect transistors using atomistic simulation, synthesis, and transport measurements	Saptarshi Das	
9:30	P3	2D organic-inorganic halide perovskite – Exciting playground for exciton and polaron studies	Paulina Plochocka	
10:00	K1	Surface chemistry on 2D materials – ways towards reliable sensors	Georg Duesberg	
10:20	K2	From the atomic structure to the optoelectronic properties studies of 2D materials via TEM	Raul Arenal	
10:40	Coffee Break			

Session 2: Oral Presentations 1, Chair: Paulina Plochocka

11:00	O13	Field-induced hybridization of moiré excitons in MoSe ₂ /WS ₂ heterobilayers	Subhradeep Misra	
11:15	O14	Absorption spectroscopy under hydrostatic pressure on MPS ₃ layered compounds	Beatriz de Simoni	
11:30	O15	Ab initio study of laser driven ultrafast spin dynamics at 2D limit	Junjie He	
11:45	O16	Optical response of birefringent 2D materials: correlating optical microspectroscopy with a 4x4 transfer matrix	Michael Niebauer	
12:00	O17	Are 2D materials limited to van der Waals layered materials?	Mar Garcia Hernandez	
12:15	S1	Sponsor presentation: Attocube systems AG	Adrian Cernescu	
12:30	Lunch			

Session 3: Keynote, Plenary Talks and Oral Presentations 2, Chair: Thomas Heine

13:30	P4	Thickness dependence excitonic properties in the van der Waals Iron-phosphorus trichalcogenides	Efrat Lifshitz	
13:50	K3	Near sensor security based on multifunctional monolayer MoS ₂ FETs	Akhil Dodda	
14:10	K4	Nanoscale engineering of two-dimensional Xenes and transition metal dichalcogenides	Alessandro Molle	
14:30	O18	One-dimensional confinement in Moiré superlattices of twisted 1T'-WTe ₂ bilayers	Samuel Magorrian	
14:45	O19	Noble-metal dichalcogenides: Strain dependent optoelectronic and non-linear response	Paul Seifert	
15:00	O20	Approaching the intrinsic properties of moiré structures using atomic force microscopy ironing	Swaroop Kumar Palai	
15:30	Coffee Break			

Session 4: Oral Presentations 3, Chair: Gotthard Seifert

16:00	S2	Sponsor presentation: NenoVision	Pavel Komarov	
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16:15	O21	Large straining of 2D semiconductors integrated with Si technology	Yong Xie	
16:30	O22	Tuning the magnetic order in MPS_3 via interlayer interactions	Thomas Brumme	
16:45	O23	Large area arrays of van der Waals MoS_2 - WS_2 heterostructures for enhanced photoconversion	Matteo Gardella	
17:00	O24	Two-dimensional non-van der Waals materials by design	Rico Friedrich	
17:15	POSTER SESSION – SHOTGUN PRESENTATIONS – DINNER			

Wednesday 27 September

Session 1: Keynote and Plenary Talks 1, Chair: Juan Francisco Sánchez Royo

9:00	P5	Magnetic Carbon	Thomas Heine	
9:30	P6	Understanding and controlling charge, heat, and spin at atomically precise interfaces	Paul Weiss	
10:00	K5	High-quality 2D materials for energy applications	Francesco Bonaccorso	
10:20	K6	Mixed-dimensional nanostructures by van der Waals epitaxy	Ernesto Joselevich	
10:40	Coffee Break			

Session 2: Oral Presentations 1, Chair: Joohoon Kang

11:00	O25	2D physics in Physical Review Letters: Remarks from an editor	Samindranath Mitra	
11:15	O26	Out-of-plane trion emission in monolayer WSe_2 revealed by whispering gallery modes of dielectric microresonators	Juan Francisco Sánchez Royo	
11:30	O27	Magnetic phases and stability of MPS_4	Beatriz Costa Guedes	
11:45	O28	Recent progress in laser processing of 2D nanomaterials	Arie Borenstein	
12:00	O29	Electronic signatures of graphene and hBN implemented in twisted bilayer MoS_2	Florian Arnold	
12:15	S3	Sponsor presentation: HORIBA	Agnès Tempez	
12:30	Lunch			

Session 3: Keynote, Plenary Talks and Oral Presentations 2, Chair: Reshef Tenne

13:30	P7	Solution-processed 2D materials for vdW heterostructures	Joohoon Kang	
13:50	K7	Nanoribbon network field effect devices via organic masks and water-induced ferroelectric switching of graphene nanoribbons	Aleksandar Matkovic	
14:10	K8	Simultaneous electrochemical exfoliation and functionalization of 2D materials	Ian Kinloch	
14:30	O30	Integration of circuits and memory devices in a wafer-scale MoS_2 monolayer platform	Guilherme Migliato Marega	



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

14:45	O31	Inducing low-lying correlated gapped states in graphene-like 2D-COFs by mechanical strain and stress	Ibério de P.R. Moreira
15:00	O32	Strain and stacking effects on WS ₂ bilayer optics for flexible electronics	Valentino Jadriško
15:30	Coffee Break		
Session 4: Oral Presentations 3, Chair: Nathan Wilson			
16:00	S4	Sponsor presentation: Renishaw	Josef Sedlmeier
16:15	O33	Electronic structure and optical properties of getchellite crystal	Agata Sabik
16:30	O34	Van der Waals contact engineering for PtSe ₂ field effect transistors	Muhammad Awais Aslam
16:45	O35	Graphene/MoS ₂ heterostructure-based photodetectors: fabrication, photo-response, and charge transfer mechanism	Roberto Muñoz
17:00	O36	Mo _x W _{x-1} S ₂ nanotubes for advanced field emission application	Bojana Višić
17:15	O37	Emergent spin frustration in 2D covalent organic radical frameworks: a potential quantum materials platform	Jordi Ribas
17:30	O38	Solid-state NMR investigations of 2D materials	Nikolaj Lopatik
17:45	O39	Quantifying the effect of morphology on percolative conduction and piezoresistance of printed nanosheet networks	Jose Munuera
19:30	Conference Dinner: Obecní Dům (Náměstí Republiky 5, Prague 1 - Old Town)		

Thursday 28 September

Session 1: Keynote and Plenary Talks 1, Chair: Doron Naveh			
9:00	P8	What limits charge transport in printed nanosheet networks?	Jonathan Coleman
9:30	P9	Measuring and controlling the dimensions of liquid-exfoliated nanosheets	Claudia Backes
10:00	K9	Strong light-matter coupling in van der Waals magnets	Florian Dirnberger
10:20	K10	Templated design of functional composites using the segregated network approach	Alan Dalton
10:40	Coffee Break		
Session 2: Oral Presentations 1, Chair: Andras Kis			
11:00	O40	Calculating phonon-assisted luminescence of layered materials with indirect band gap	Ludger Wirtz
11:15	O41	Magnetic properties of CrPS ₄ studied by Raman magnetospectroscopy	Jan Suffczyński



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

11:30	O42	Surface stabilisation of the high-spin state of Fe(II) spin-crossover complexes	Archit Dhingra	
11:45	O43	Electrical control of hybrid exciton transport in a van der Waals heterostructure	Edoardo Lopriore	
12:00	O44	Probing elementary excitations in magnetic flatlands	Subhadeep Datta	
12:15	S5	Sponsor presentation: Heidelberg Instruments	ZhengMing Wu	
12:30	Lunch			
Session 3: Keynote, Plenary Talks and Oral Presentations 2, Chair: Claudia Backes				
13:30	P10	Self-calibrated nonlinear micro-spectrometer	Doron Naveh	
13:50	K11	Photophysics of thin films and functional heterojunctions of few-layer transition metal dichalcogenides obtained from liquid phase exfoliation	Christoph Gadermaier	
14:10	K12	Boosting electrocatalytic performance of MXene materials with polyoxometalates for hydrogen generation and CO ₂ reduction	Bahareh Khezri	
14:30	O45	Magneto-optical sensing of the pressure-driven magnetic ground states in bulk CrSBr	Amit Pawbake	
14:45	O46	Quasi-1D edge-decoration of tungsten diselenide nanoribbon network with plasmonic nanoparticles	Gennadiy Murastov	
15:00	O47	Crystal phase engineering of silicene by Sn-modified Ag(111)	Guido Fratesi	
15:30	Coffee Break			
Session 4: Oral Presentations 3, Chair: Ursula Wurstbauer				
16:00	S6	Sponsor presentation: Quantum Design	Eveline Gehrke	
16:15	O48	Deep learning assisted reconstruction of the magnetization from the 2D antiferromagnetic van der Waals material CrSBr	Riccardo Silvioli	
16:30	O49	Nanoscale Turing patterns in a bismuth monolayer	Yuki Fuseya	
16:45	O50	Wireless Electrochemical Processes on Two-Dimensional Materials	Mohsen Beladi Mousavi	
17:00	O51	Accurate RPA calculations in periodic systems	Edoardo Spadetto	
17:15	POSTER SESSION – SHOTGUN PRESENTATIONS – DINNER			



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

Friday 29 September

Session 1: Keynote and Plenary Talks 1, Chair: Florian Dirnberger

9:00	P11	Ferroelectric domain structures in twistrionic 2D crystals	Vladimir Falko	
9:30	P12	Reconfigurable circuits and devices based on MoS ₂	Andras Kis	
10:00	K13	1D Arsenic-Phosphorus alloy nanoribbons	Adam Clancy	
10:20	K14	Magnetic and electrostatic control of excitons in a 2D magnetic semiconductor	Nathan Wilson	
10:40	Coffee Break			

Session 2: Oral Presentations 1, Chair: Lena Yadgarov

11:00	O52	Optical markers of magnetic phase transition in CrSBr	Wojciech Linhart	
11:15	O53	Mobile interlayer excitons up to the Mott transition in moiré-free heterostructures	Edith Wietek	
11:30	O54	Transparent, flexible, and tuneable graphene-based strain gauges	Joseph Neilson	
11:45	O55	Valley polarisation in monolayer TMDs and TMD/2D perovskite heterostructures	Jakub Jasiński	
12:00	O56	Excellent excitonic properties of novel hexagonal MA ₂ Z ₄ monolayers	Tomasz Woźniak	
12:15	S7	Sponsor presentation: SPECS-GROUP	Stefan Boettcher	
12:30	Lunch			

Session 3: Keynote, Plenary Talks and Oral Presentations 2, Chair: Tobias Korn

13:30	P13	Collective excitations in two-dimensional quantum materials	Ursula Wurstbauer	
13:50	K15	Exploring near-field exciton-polariton dynamics towards tailored light-matter interactions	Lena Yadgarov	
14:10	K16	Electromodulation spectroscopy of Fermi level position in hybrid van der Waals/(Al)GaN heterostructures	Robert Kudrawiec	
14:30	O57	MoS ₂ /quantum dot hybrid photodetectors on flexible substrates	Ozan Yakar	
14:45	O58	Algorithmic analysis of UV-Vis spectra for reproducible metrics	Stuart Goldie	
15:00	O59	Optical spectroscopy reveals ferroelectric domains in 3R-MoS ₂	Swarup Deb	
15:30	Coffee Break			

Session 4: Oral Presentations 3, Chair: Adam Clancy

16:00	O60	Liquid phase exfoliation and characterization of SnSe and PtSe ₂	Noemi Fabiano	
16:15	O61	Interlayer excitons in hBN separated van der Waals heterostructures	Asmund Ottesen	



FLATLANDS

beyond graphene 2023

Prague 25. - 29- September

16:30	O62	Electrical control of ultrafast many-body physics in 1L-WS ₂	Irantzu Landa	
16:45	O63	Rapid spin depolarization in the layered 2D perovskite (BA)(Ma)PbI	Tobias Korn	
17:00	O64	MXene-induced energy transfer	Lorena Manzanares	
17:30	O65	Crystal growth and exfoliation of 2D materials	Zdeněk Sofer	
17:45	CONFERENCE CLOSURE			