2D Materials
Physics of
van der Waals
[hetero]structures

SPP 2244

DFG Deutsche Forschungsgemeinschaft

Mid-term Report Colloquium

Dresden, March 21 – 23, 2022

Event Locations:

- Meeting venue: Penck Hotel Dresden (Ostra-Allee 33, 01067 Dresden)
- Hotel: Penck Hotel Dresden (rooms booked for all registered participants)
- Dinner Tuesday: Ballhaus Watzke (Kötzschenbroder Straße 1, 01139 Dresden)

Comments:

- The time slots for your talks are 5 minutes for single PI projects and 10 minutes for consortia. Each presentation is followed by a 5-minute discussion.
- The posters presented during the poster sessions can be found in the book of abstracts (see meeting website). Posters 1 – 17 will present in session A on Tuesday afternoon, posters 18 – 38 in session B on Wednesday morning.
- The closest train station to the meeting venue is "Dresden Mitte" within 6 minutes walking time.
- Ballhaus Watzke can be reached from the meeting venue by foot (walking distance ~3.5 km) or by public transport. For example, you can take tram nr. 11 from station "Dresden Kongresszentrum/Haus der Presse" to "Dresden Anton-/Leipziger Straße" and then tram nr. 4 or 9 to station "Dresden Altpieschen".

	Monday	Tuesday	Wednesday
09:00		Opening	Session 4
10:00		Session 1	
11:00		Coffee break	Coffee break
12:00		Session 2	Poster session 2
13:00		Lunch	Closing
14:00		Poster session 1	Lunch
15:00		Coffee break	Departure
16:00	Arrival + Registration	Session 3	
17:00			
18:00		Closing day 1	
19:00	Dinner Penck Hotel	Dinner Ballhaus Watzke	

Monday, March 21

From 16:00	**Arrival + Registration**
19:00	**Dinner (Penck Hotel) and individual discussions**

Tuesday, March 22

9:00	**Opening (Thomas Heine)**		
9:05 – 11:00	**Session 1 (Chair: Oisín Garrity)**		
	9:05 – 9:25	Jurgen Smet	*[Invited talk] Odd Integer Quantum Hall States with Interlayer Coherence in Twisted Bilayer Graphene*
	9:35 – 9:45	Hannah Nerl Katja Höflich	*Tuning and mapping hybrid polaritons at the nanoscale*
	9:50 – 10:00	Christopher Gies Christian Schneider Stephan Reitzenstein	*Light-matter coupling and cavity-QED with moiré excitons in van der Waals heterostructures*
	10:05 – 10:10	Stuart Parkin	*Artificial multiferroic van der Waals heterostructures*
	10:15 – 10:25	Kai-Qiang Lin Sebastian Bange	*Tuning excitonic quantum optics in stacked van-der-Waals semiconductors*
	10:30 – 10:35	Agnieszka Kuc	*Modelling TMDC/2D perovskite heterostructures for charge and energy transfer*
	10:40 – 10:45	Gabriel Bester	*Atomistic theory of excited states in van der Waals heterostructures: Moiré confinement strain and electric field effect*
11:00 – 11:30	**Coffee break**		
11:30 – 13:00	**Session 2 (Chair: Hossein Ostovar)**		
	11:30 – 11:50	Dante Kennes	*[Invited talk] Moiré metrology of energy landscapes in van der Waals heterostructures*
	12:00 – 12:10	Angelo Di Bernardo Hadar Steinberg Wolfgang Belzig Elke Scheer	*Towards 2D superconducting spintronics*
	12:15 – 12:25	Christoph Kastl Marko Burghard Alexander Holleitner	*Electronic control of spin-orbit and magnetic exchange coupling in graphene vdW-heterostructures (SOControl)*
	12:30 – 12:40	Xinliang Feng Thomas Heine Thomas Weitz	*Topological effects in graphene/2D polymer superlattices* (Speaker: Francesca Falorsi)
13:00 – 14:00	**Lunch**		
14:00 – 15:45	**Poster session 1**		
15:45 – 16:00	**Coffee break**		

16:00 – 18:00	**Session 3 (Chair: Jonas Bauer)**		
	16:00 – 16:05	Ermin Malic	*Light-matter interaction at TMDC-based interfaces*
	16:10 – 16:15	Jaroslav Fabian	*Proximity effects in 2D magnetic vdW (hetero)multilayers*
	16:20 – 16:30	Alexander Steinhoff Alexey Chernikov Alexander Högele	*Quantum gases in semiconductor van der Waals heterostructures*
	16:35 – 16:45	Tobias Korn Christian Schüller Andrey Turchanin	*Interlayer excitons in advanced, CVD-based van der Waals heterostructures with controlled moiré wavelength*
	16:50 – 17:00	Benoit Hackens Rebeca Ribeiro-Palau Christoph Stampfer	*Tunable twistronics: local tuning and probing of topological edge states and superconductivity in bilayer graphene*
	17:05 – 17:15	Markus Ternes Samir Lounis	*Subnanoscale engineering of 2D magnetism in van der Waals heterostructures*
	17:20 – 17:30	Tim Wehling Ursula Wurstbauer	*Correlated miniband and multivalley physics in twisted transition metal dichalcogenides*
	17:35 – 17:40	Felix Lüpke	*Topological superconductivity and Majorana states in van der Waals heterostructures characterized by scanning probe microscopy* (Speaker: Tobias Wichmann)
18:00	**Closing**		
19:00	**Dinner (Ballhaus Watzke)**		

Wednesday, March 23

9:00 – 11:00	**Session 4 (Chair: Francesca Falorsi)**		
	9:00 – 9:10	Rudolf Bratschitsch Michael Rohlfing	*Optical excitations in transition metal dichalcogenide heterostructures under pressure* (Speaker: Steffen Michaelis de Vasconcellos)
	9:15 – 9:20	Thomas Brumme	*Corrugation in twisted transition metal dichalcogenide heterostructures*
	9:25 – 9:30	Roland Bennewitz	*Compressive strain in stacked 2D materials: from proximity to metastable hybridization* (Speaker: Zhao Liu)
	9:35 – 9:40	Sergey Ganichev	*Terahertz nonlinear transport in twisted graphene and van der Waals heterostructures*

	9:45 – 9:55	Patryk Kusch Stephanie Reich	*Chasing polaritons: A pathway to investigate the optoelectronic properties of van der Waals heterostructures*
	10:00 – 10:10	Dante Kennes Carsten Honerkamp	*Microscopic understanding of correlation effects in twisted van der Waals [hetero]structures*
	10:15 – 10:25	Samuel Beaulieu Ralph Ernstorfer	*Tailoring electronic correlations, excitonics and topological properties in van der Waals heterostructures on ultrafast timescales*
	10:30 – 10:40	Jonathan Finley Fei Ding Rolf Haug	*Tunable moiré potentials in 2D-heterostructures using anisotropic strain*
11:00 – 11:30	**Coffee Break**		
11:30 – 13:15	**Poster session 2**		
13:15 – 13:30	**Closing (Thomas Heine)**		
13:30	**Lunch**		
14:30	**Departure**		