

**Functional Materials at
Surfaces - Fabrication,
Atomic-scale
Characterization, and
Advances Towards
Application**

809. WE-Heraeus-Seminar

05 May - 10 May 2024

at the Physikzentrum Bad Honnef, Germany

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program (CET)

Sunday, 05 May 2024

16:00 – 20:00	Registration	
From 18:00	<i>BUFFET SUPPER</i>	
19:30 – 19:45	Scientific Organizers	Welcome and Opening
19:45	Michael Crommie	Controlling Electronic Filling in Molecular Assemblies

Monday, 06 May 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Melanie Müller	Advances in light-coupled STM: ultrafast dynamics and spectroscopy at atomic scales
10:00 – 10:45	Sebastian Loth	Ultrafast surface dynamics of 2D materials studied with THz-STM
10:45 – 11:15	<i>COFFEE BREAK</i>	
11:15 – 12:00	Søren Ulstrup	Visualizing field-tunable flat bands and many-body effects in twisted heterostructures with nanoARPES
12:00 – 12:45	Marcel Reutzell	Momentum microscopy & 2D materials: Excitons in space and time
12:45	<i>LUNCH</i>	
14:00 – 15:00	Gabriela Borin Barin	Bottom-up graphene nanoribbons: from molecules to devices
15:00 – 15:45	Martina Lihter	Nanofabrication and functionalization of 2D materials for sensing and nanofluidic applications

Program (CET)

Monday, 06 May 2024

15:45 – 16:15 *COFFEE BREAK*

16:15 – 17:00 Aran Garcia-Lekue **Functional 1D and 2D molecular nanoarchitectures: insights from theory and simulations**

17:00 – 17:45 Alessandro Sala **Multiscale characterization of functionalized 2D materials: from quantum confinement to embedding of foreign atoms**

17:45 – 18:30 Marc González Cuxart **Growth and atomic-scale insights into 2D materials beyond graphene**

18:30 – 19:45 *DINNER*

19:45 **Meet the editor with Christian Kuttner (Nature Communications)**

Program (CET)

Tuesday, 07 May 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Shigeki Kawai	Manipulation of single molecules and their structures
10:00 – 10:45	Kwan Ho Au-Yeung	A nanocar and rotor in one molecule
10:45 – 11:15	<i>COFFEE BREAK</i>	
11:15 – 12:00	Florian Albrecht	Selectivity in single-molecule reactions by tip-induced redox chemistry
12:00 – 12:45	Grant Simpson	Directional motion on surfaces investigated at the single-molecule scale
12:45	<i>LUNCH</i>	
14:00 – 15:00	Alexander Weismann	Tuning molecular magnetism and vibrational excitations by supramolecular manipulation
15:00 – 15:45	Poster flash	
15:45 – 16:15	<i>COFFEE BREAK</i>	
16:15 – 18:30	Poster session I	
18:30	<i>DINNER</i>	

Program (CET)

Wednesday, 08 May 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Stephan Rauschenbach	Atomic resolution molecular imaging based on soft-landing electrospray ion beam deposition
10:00 – 10:45	Andreas Walz	Soft-landing meets mass-spectrometry - gentle UHV deposition for large, reactive or fragile molecules to create functional nano-architectures
10:45 – 11:15	<i>COFFEE BREAK</i>	
11:15 – 12:00	Kelvin Anggara	Single molecule analysis of biomolecules by direct imaging
12:00 – 12:45	Xiaocui Wu	Imaging of conjugated polymers unveiling polymerization defects
12:45	<i>LUNCH</i>	
14:00 – 18:30	Excursion	
18:30	<i>HERAEUS DINNER</i> <i>(social event with cold & warm buffet and complimentary drinks)</i>	

Program (CET)

Thursday, 09 May 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Mikhail Fonin	Electrospray deposition and on-surface investigation of single molecule magnets
10:00 – 10:45	Rémy Pawlak	Giant thermal expansion of a two-dimensional supramolecular network triggered by alkyl chain
10:45 – 11:15	<i>COFFEE BREAK</i>	
11:15 – 12:00	Lukas Grossmann	Mesoscale ordered 2D polymers by on-surface photopolymerization – The substrate influence
12:00 – 12:45	Sabine Maier	On-surface synthesis: a bottom-up strategy to atomically precise nanographenes
12:45	<i>LUNCH</i>	
14:00 – 15:00	Meike Stöhr	Metal-organic and covalently bonded nanostructures on metals and graphene
15:00 – 15:45	Poster flash	
15:45 – 16:15	<i>COFFEE BREAK</i>	
16:15 – 18:30	Poster session II	

Program (CET)

Friday, 10 May 2024

08:00	<i>BREAKFAST</i>	
09:00 – 10:00	Erik Vesselli	Ligation and molecular activation at 2D biomimetic functional materials. A surface science perspective
10:00 – 10:45	Elizabeth Boer-Duchemin	Local electrical excitation of excitons in 2D semiconductors
10:45 – 11:15	<i>COFFEE BREAK</i>	
11:15 – 12:00	Markus Huber	Ultrafast terahertz nanoscopy of quantum materials
12:00 – 12:45	Scientific organizers	Poster Prize Awards & Closing Remarks
12:45	<i>LUNCH</i>	

End of the seminar and departure