

Plenty of Room at the Bottom – New Developments in Scanning Probe Tools

801. WE-Heraeus-Seminar

13 Nov - 17 Nov 2023

at the Physikzentrum Bad Honnef, Germany

The WE-Heraeus Foundation supports research and education in science, especially in physics.
The Foundation is Germany's most important private institution funding physics.

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program (CET)

Monday, 13 November 2023

17:00 – 21:00	Registration	
From 17:45	<i>BUFFET SUPPER</i>	
19:30 – 19:45	Scientific organizers	Opening and Welcome
19:45 – 20:00	Stefan Jorda	About the Wilhelm and Else Heraeus Foundation
20:00 – 21:00	Keynote 1 Sander Otte	Atomic spins on surfaces: from early investigation to coherent control

Tuesday, 14 November 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Yujeong Bae	Quantum Control of Artificial Spin Structures Built Atom by Atom on surfaces
09:45 – 10:30	Nicolas Lorente	Theory of single-impurity electron spin resonance on surfaces
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Jose Lado	Hamiltonian learning and triplon quantum matter in atomically assembled spin lattices
11:45 – 12:30	Poster Flash	
12:30 – 12:35	Conference photo	

Program (CET)

Tuesday, 14 November 2023

12:35 – 14:00	<i>LUNCH</i>	
14:00 – 15:30	Poster Session I	
15:30 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Manuel Gruber	Molecular Magnetism on Surfaces
16:45 – 17:15	Lorenzo Poggini	Quantum features of magnetic molecules on surfaces: from “innocent” surfaces to type I superconductors
17:15 – 18:00	Christian Ast	Superconducting Quantum Interference at the Atomic Scale
18:00 – 20:00	<i>DINNER</i>	
20:00 – 21:00	Keynote 2 Sabine Maier	On-surface synthesis: A bottom up strategy to atomically precise materials

Program (CET)

Wednesday, 15 November 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Alexander Riss	Measuring Chemical Reactivity at the Atomic Scale
09:45 – 10:30	Oliver Gröning	Engineering of robust topological quantum phases in graphene-derived nanostructures
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Anna Rosławska	Light-matter interaction and photochemistry probed with sub-molecular precision
11:45 – 12:30	Daniel Ebeling	Chemical bond imaging: A tool to decipher on-surface reaction processes and construct organic nanomaterials molecule by molecule
12:30 – 14:00	<i>LUNCH</i>	
14:00 – 18:00	Excursion	
18:30	HERAEUS DINNER	
		<i>(social event with cold & warm buffet and complimentary drinks)</i>

Program (CET)

Thursday, 16 November 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Paolo Sessi	Interfacing magnetism with superconductivity: visualizing interactions from 0d to 2d
09:45 – 10:00	Benjamin Mallada	Visualization of π-hole in molecules by means of Kelvin probe force microscopy
10:00 – 10:15	Wantong Huang	Spin engineering in artificial atom-molecule hybrids
10:15 – 10:30	Song Jiang	A Universal Model for STM-Induced Luminescence
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Franz Giessibl	Exploring the femtoscale in forces and distances
11:45 – 12:30	Shadi Fatayer	Investigating molecular properties through charge-state control
12:30 – 14:00	<i>LUNCH</i>	
14:00 – 15:30	Poster Session II	
15:30 – 16:00	<i>COFFEE BREAK</i>	
16:00 – 16:45	Martin Setvin	Imaging and Tracking Single Polarons by STM/AFM
16:45 – 17:15	Angelika Kühnle	Desorption from surfaces: Impact of molecular-level details on desorption kinetics
17:15 – 18:00	Aparajita Singha	Quantum sensing with single spin sensitivity
18:00 – 20:00	<i>DINNER</i>	
20:00 – 21:00	Keynote 3 Joseph A. Stroscio	Unraveling Orbital Magnetism Contributions to Landau Levels in Moiré Quantum Matter

Program (CET)

Friday, 17 November 2023

08:00	<i>BREAKFAST</i>	
09:00 – 09:45	Bruno Schuler	Cross-Correlation Microscopy of Atomic Defects in Transition Metal Dichalcogenides
09:45 – 10:30	Markus Morgenstern	Scanning tunneling spectroscopy of 2D materials: Quantum Hall edge states and topological magnetic gaps
10:30 – 11:00	<i>COFFEE BREAK</i>	
11:00 – 11:45	Felix Lüpke	Artificial quantum states in assembled van der Waals heterostructures studied by scanning tunneling microscopy
11:45 – 12:30	Christian Lotze	From high-resolution molecular spectroscopy to moiré-tuned spin interactions of individual atoms: MoS₂/Au(111) as a versatile lab bench for STM studies
12:30 – 12:45	Scientific organizers	Poster Prize Awards & Closing Remarks
12:45 – 14:00	<i>LUNCH</i>	

End of the seminar and departure