

Scanning Probe Techniques - Current and Future Trends

844. WE-Heraeus-Seminar

**16 Nov - 20 Nov 2025
at the Physikzentrum Bad Honnef, Germany**

**WILHELM UND ELSE
HERAEUS-STIFTUNG**



Program

Sunday, November 16, 2025

17:00 – 20:00 Registration

18:00 – 19:30 *BUFFET SUPPER and informal get-together*

19:30 Scientific organizers **Opening and Welcome**

19:45 – 20:45 Ulrike Diebold **Keynote I**
**Non-contact Atomic Force Microscopy:
The Ideal Tool for Investigating
Insulating Oxides**

Monday, November 17, 2025

08:00 *BREAKFAST*

Session I: Superconductors

09:00 – 09:45 Deungjang Choi **From spins to superconductors:
Unlocking Majorana edge states**

09:45 – 10:30 Laétitia Farinacci **Tuning the properties of Yu-Shiba-
Rusinov states induced by magnetic
molecules**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Jörg Kröger **A tour d’horizon: forces, vibrations,
spin excitations at the atomic scale**

11:45 – 12:30 **Poster flash**

12:30 – 12:35 **Conference Photo**

12:35 *LUNCH*

Program

Monday, November 17, 2025

14:00 – 15:00 **Poster session I**

15:00 – 15:45 *COFFEE BREAK*

Session II: Spins on surfaces

15:45 – 16:30 Stepan Kovarik **Probing electron spin resonance of molecular spins with scanning tunneling microscopy**

16:30 – 17:15 Taner Esat **Atomic-Scale Quantum Sensing and Magnetism with Molecular Nanostructures**

17:15 – 18:00 Philip Willke **Electron Spin Resonance of Individual Atomic and Molecular Spins on Surfaces**

18:00 – 18:15 Stefan Jorda **About the Wilhelm and Else Heraeus Foundation**

18:15 – 19:30 *DINNER*

19:30 – 20:30 Nan Jiang **Keynote II
Probing Chemistry at the Ångström-Scale via Scanning Tunneling Microscopy Combined Tip-Enhanced Raman Spectroscopy**

Program

Tuesday, November 18, 2025

08:00 *BREAKFAST*

Session III: Designer quantum matter

09:00 – 09:45 Daniel Wegner **Quantum simulator to study electronic structure – from molecules to lattices to the Hofstadter butterfly**

09:45 – 10:30 Peter Wahl **Atomic scale imaging of emergent quantum states**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Jiani Hong **Atomic-scale insights into ice and water via high-resolution SPM**

11:45 – 12:30 Fabian Schulz **Tuning pi-magnetism in atomically precise graphene nanostructures**

12:30 *LUNCH*

14:00 – 18:00 **Excursion**

18:00 – 19:30 *HERAEUS DINNER at the Physikzentrum
(cold and warm buffet, with complimentary drinks)*

19:30 – 20:30 Jascha Repp **Keynote III**
**Non-equilibrium at atomic scales:
shaken or stirred... and scanned**

Program

Wednesday, November 19, 2025

08:00 *BREAKFAST*

Session IV: On-surface chemistry

09:00 – 09:45 Michael Gottfried **New Carbon Allotropes and Nanographenes via On-Surface Synthesis and Single-Molecule Manipulation**

09:45 – 10:30 Christian Wäckerlin **Magnetic functionality of metal-organic low-D materials unraveled by XMCD and SPM**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Pascal Ruffieux **Nanographene Spin Chains**

11:45 – 12:30 Christian Kuttner **Inside Nature portfolio: editorial process and innovations**

12:30 *LUNCH*

14:00 – 15:00 **Poster session II**

15:00 – 15:45 *COFFEE BREAK*

Session V: Advanced AFM

15:45 – 16:30 Florian Albrecht **Intermediates, Reactions and Products of Cyclocarbons**

16:30– 17:15 Jay Weymouth **Force microscopy on its side: A unique look at atoms and molecules with Lateral Force Microscopy**

17:15– 18:00 Laerte Patera **Molecular Assembly and Coupling on Surfaces: From Electrostatics to Heterocyclic Systems**

18:00– 19:30 *DINNER*

19:30 – 20:30 Katharina Franke **Keynote IV**
Single-atom Josephson junctions: Shapiro steps and diode-like behavior

Program

Thursday, November 20, 2025

08:00 *BREAKFAST*

Session VI: Light-coupled STM

09:00 – 09:45 Tomáš Neumann **Theory of Imaging Molecules Using
Light in a Scanning Tunneling
Microscope**

09:45 – 10:30 Katharina Kaiser **Tuning the luminescence of single
molecules**

10:30 – 11:00 *COFFEE BREAK*

11:00 – 11:45 Shaoxiang Sheng **Atomic-scale investigation of electron
and phonon dynamics using ultrafast
scanning tunneling microscopy**

11:45 – 12:30 Karina Morgenstern **Laser-induced on-surface processes
imaged by STM**

12:30 – 12:45 Scientific organizers **Poster Awards
Concluding remarks**

12:45 *LUNCH*

End of seminar and departure