

Welcome!

As the organizers we take great pleasure in welcoming you to the 4th *International Workshop on Advanced Atomic Force Microscopy Techniques 2013*. The workshop again will be a forum for stimulating discussions and the exchange of new ideas which will help to explore the nanoworld in more detail. We especially thank our invited speakers and all of you, who contribute to the talks, the posters and the discussions. On the following pages please find the detailed conference program.

The workshop will take place in the lecture hall of the Institute of Nanotechnology (INT) on Campus North of the Karlsruhe Institute of Technology (KIT). A map of the KIT and travel instructions how to reach the Campus North of the KIT are also included in this booklet.

We acknowledge financial support for this workshop from the KIT, the Institute of Microtechnology (IMT), the Institute of Nanotechnology (INT), and the Karlsruhe NanoMicro Facility (KNMF) as well as from the companies Accurion GmbH, Agilent Technologies, Atomic Force F&E GmbH, Bruker Nano, JPK Instruments AG, NanoAndMore GmbH, NT-MDT Europe BV, Omicron Nanotechnology GmbH, Schaefer Technologie GmbH, SPECS Surface Nano Analysis GmbH, and Zürich Instruments. Special thanks go to SPECS Surface Analysis GmbH for sponsoring the Best Poster Award again.

We hope that you will enjoy the workshop and have a wonderful time in Karlsruhe, and we are looking forward to welcome you at the KIT.

Hendrik Hölscher

Thomas Schimmel

Monday, March 4, 2013

- 10:00 SHUTTLE BUS from the Renaissance Hotel Karlsruhe to the Institute of Nanotechnology (INT) located at the Campus North of the KIT
- 10:30 OPENING COFFEE & REGISTRATION
Chair: Hendrik Hölscher & Thomas Schimmel
- 10:50 WELCOME
Hendrik Hölscher & Thomas Schimmel, Karlsruhe Institute of Technology
- 11:00 Surface Confined Electrochemistry without Electrolyte
Jacob Sagiv, Weizmann Institute of Science
- 11:40 Cold-Atom Scanning Probe Microscopy
Andreas Günther, University of Tübingen
- 12:20 LUNCH
Chair: Angelika Kühnle
- 13:50 High-resolution Imaging and Atom Manipulation with Bimodal Dynamic Force Microscopy/Spectroscopy
Shigeki Kawai, University of Basel
- 14:30 Scanning Probe Thermometry in Nanosystems
Fabian Menges, IBM Research Zürich
- 14:50 Mapping the Creep Compliance of Polymer Composites
Tilman E. Schäffer, University of Tübingen
- 15:30 POSTER SESSION with COFFEE, SNACKS & REFRESHMENTS
Chair: Shigeki Kawai
- 17:30 Dynamic Friction Force Microscopy: Imaging via Control of Nonlinear Cantilever Oscillation
Felix Mertens, Justus-Liebig-University Giessen
- 17:50 The Power of AFM Characterization in the Development of Novel Solid Pharmaceutical Dosage Forms
Ali Al-khattawi, Aston University
- 18:10 Giant Non-contact Friction Observed on NbSe₂ Measured with Pendulum AFM
Markus Langer, University of Basel

- 18:30 SHUTTLE BUS from the KIT Campus North to Campus South
- 19:00 CONFERENCE DINNER at the Gastdozentenhaus "Heinrich Hertz"
located at the Campus South of KIT
- 22:00 Short guided tour by Thomas Schimmel through the city of Karlsruhe (ends at
the Renaissance Hotel Karlsruhe)

Tuesday, March 5, 2013

- 8:45 SHUTTLE BUS from the Renaissance Hotel Karlsruhe to the KIT Campus North
- Chair: Tilman Schäffer*
- 9:30 Covalent Linking of Organic Building Blocks on the Calcite(10.4) Surface
Angelika Kühnle, University of Mainz
- 10:10 FIM meets AFM: Quantification of Long-Range Forces in Non-Contact Atomic
Force Spectroscopy using Field Ion Microscopy Characterized Tips
André Schirmeisen, Justus-Liebig-University, Giessen
- 10:30 Water Splits Epitaxial Graphene and Intercalates
Sabine Maier, University of Erlangen-Nürnberg
- 10:50 COFFEE BREAK
- Chair: Thilo Glatzel*
- 11:20 Probing Photo-ionization of nitrogen-vacancy centers in nanodiamonds
Remy Pawlak, University of Basel
- 11:50 Microscopic Analysis of Current and Mechanical Properties at Polymer
Electrolyte Membranes studied by Atomic Force Microscopy
Renate Hiesgen, University of Applied Sciences Esslingen
- 12:10 Comparison of AFM and SICM for Live Cell Imaging
Jan Seifert, University of Tübingen
- 12:30 Physical Properties of Materials and Liquids in Insect Adhesive Systems
Probed by AFM
Henrik Peisker, Kiel University
- 12:50 LUNCH

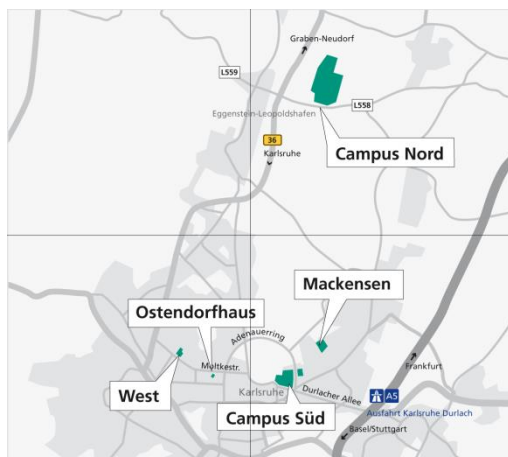
Chair: Thomas Schimmel

- 13:50 Amplitude Modulation Dynamic Force Microscopy Imaging in Liquids with Atomic Resolution: A Systematic Comparison of the Phase Contrasts in Single and Dual Mode Operation under Varying Imaging Conditions
Daniel Ebeling, University of Maryland
- 14:30 Peak Forces in Dynamic Atomic Force Microscopy Imaging of Soft Matter in Liquid
Horacio V. Guzman, Instituto de Ciencia de Materiales, Madrid
- 14:50 2D-Mapping on the 1014 Surface of Calcite
Christoph Marutschke, Johannes Gutenberg-University Mainz
- 15:10 BEST POSTER AWARD & CLOSING REMARKS
- 16:00 SHUTTLE BUS to Karlsruhe Hauptbahnhof (main station)

How to Reach the Karlsruhe Institute of Technology

The Karlsruhe Institute of Technology is distributed over several locations. While the Campus North is situated in the administrative district of Karlsruhe near Eggenstein-Leopoldshafen, the Campus South is about 10 km away in the heart of the city of Karlsruhe.

The AAFMT Workshop 2013 takes place at the Campus North (Campus Nord) in lecture hall of the Institute of Nanotechnology. You will be asked for your identity card at the front gate of Campus North of the KIT.



How to Reach the Campus North by Car

The Campus North is located in Eggenstein-Leopoldshafen (about 12 km north of Karlsruhe). The address for your GPS is: Hermann-von-Helmholtz-Platz 1, 76344 Eggenstein-Leopoldshafen

Coming from North: Frankfurt and Heidelberg (A5)

- Leave the motorway at the exit of Bruchsal and go in the direction of Karlsdorf-Neuthard / Germersheim / B35.
- Stay on this road for some 4 km, and then turn off on the B36.
- Leave the B36 after some 12 kilometers, at the exit of Eggenstein-Leopoldshafen / Forschungszentrum
- After about 1 km, you reach the entrance road to the Campus North on your left.

Coming from Northwest: Landau (A65)

- Leave the motorway at the Knielingen exit and go straight ahead on the road (Rheinbrückenstraße) for another 3 km as far as to the Neureuter Straße junction (after having passed the premises of Siemens AG).
- Then turn left in the direction of Mannheim (B 36). Go straight ahead at all following junctions.
- After some 10 km, turn right at the exit of Bruchsal / Stutensee / KIT Campus Nord.
- Go ahead for another 1 km until you reach the entrance road to the Campus North on your left.

Coming from East: Munich and Stuttgart (A8)

- At the Karlsruhe motorway triangle, turn off in the direction of Karlsruhe / Frankfurt (A5).
- Leave the motorway at the Karlsruhe-Mitte exit and go in the direction of Landau/Pfalz (B10).
- Stay on this road another 9 km and turn off in the direction of Mannheim (B36).
- Drive straight ahead on the B36 at all junctions.
- Leave the B36 after some 11 km at the exit of Bruchsal / Stutensee / Forschungszentrum.
- After about 1 km, you reach the entrance road to the Campus North on your left.

Coming from South: Basel and Freiburg (A5)

- Leave the motorway at the exit No 48 Karlsruhe Süd and go in the direction of Karlsruhe / Landau-Pfalz (B10).
- Stay on this road another 4 km and turn off in the direction of Mannheim (B36).
- Drive straight ahead on the B 36 at all junctions.
- Leave the B 36 after some 11 km at the exit of Bruchsal / Stutensee / KIT Campus Nord.
- After about 1 km, you reach the entrance road to the Campus North on your left.

How to Reach the Campus North by Public Transport

The Campus North is located in Eggenstein-Leopoldshafen. There are various ways to get there by bus or tram from Karlsruhe city or Central Train Station. The exact times of departure are available on the website of the Karlsruher Verkehrsverbund (www.kvv.de). Information about travel data of the German Railway is provided by Deutsche Bahn (www.bahn.de).

Please aware that the tram lines labeled with and without the letter "S" in front are different lines, i.e., the tram line **1** and **S1** go to different directions!

Tram lines S 1 / S 11 from Karlsruhe Hauptbahnhof (Central Station) to the destinations of Leopoldshafen/Hochstetten

- Trams operate in 20-minute intervals; traveling time is approx. 40 minutes.
- Go by tram to stop "Leopoldstraße" at Leopoldshafen, change to bus No. 195 as far as "KIT Campus Nord Südtor" (southern entrance gate to the Campus North).

Regional train from Karlsruhe Hauptbahnhof (Central Station) to the destinations of Blankenloch Station/Mannheim.

- Trains operate in 60-minute intervals; travelling time is 25 minutes.
- At Blankenloch Station, change to bus No. 195 as far as "KIT Campus Nord"

Tram line S 2 from the Karlsruhe Central Business District (Kaiserstrasse) via Durlacher Tor in the direction of Blankenloch Nord.

- Trams operate in 20-minute intervals; traveling time is 36 minutes.
- At the "Blankenloch Nord" stop, change to bus No. 195 as far as "KIT Campus Nord"

