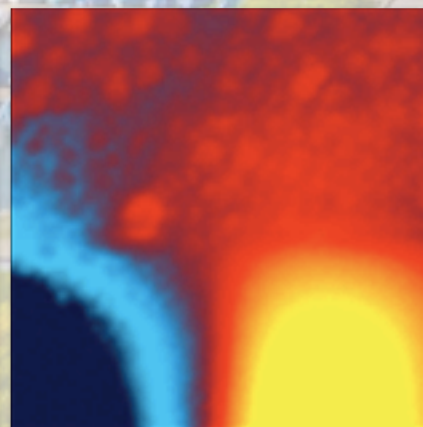
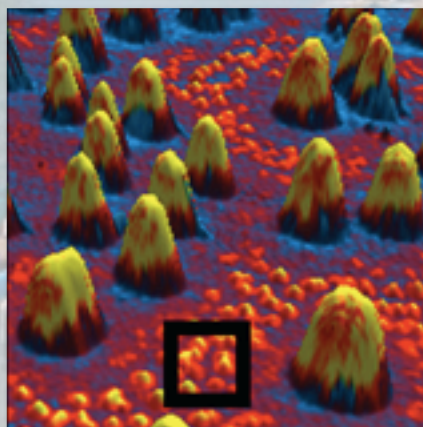
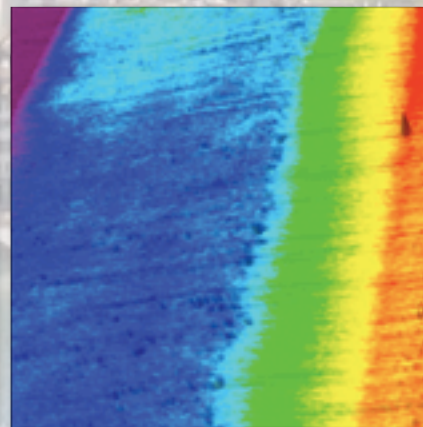
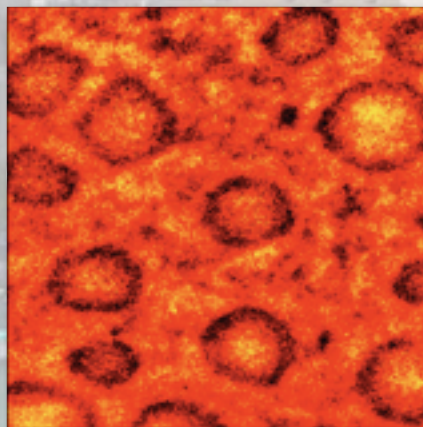
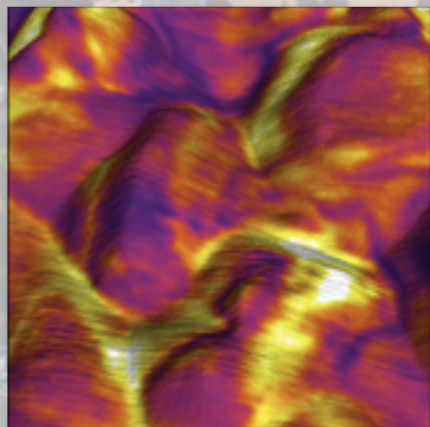
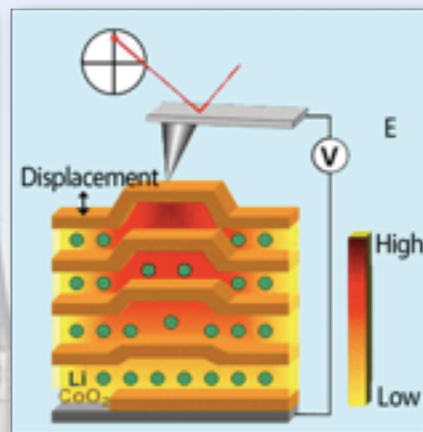
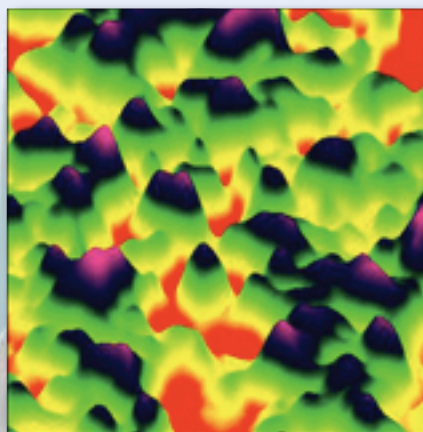
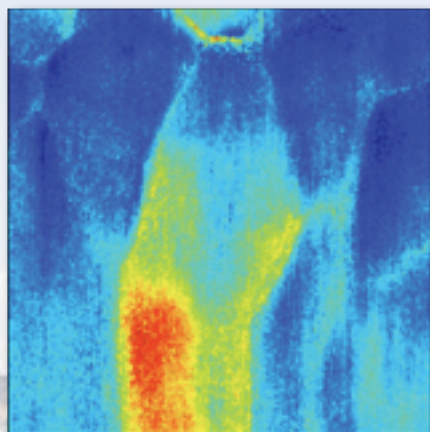


# Euro AFM Forum 2011

September 7-9, ETH Zürich, Switzerland

## Timetable and Workshop Program



# Euro AFM Forum 2011 Timetable

Timetable				
Time	Wednesday	Thursday	Friday	
09:00				
09:15				
09:30		Invited Talks	Invited Talks	
09:45				
10:00				
10:15		Coffee Break	Coffee Break	
10:30				
10:45		Contributed Talks	Contributed Talks	
11:00	Registration	PFM/ESM	PFM/ESM	
11:15		Thermal characterization	Nano-indentation	
11:30		Force Spectroscopy	Imaging of cells	
11:45				
12:00	Welcome Snacks & Coffee	Coffee Break	Coffee Break	
12:15				
12:30		Contributed Talks	Contributed Talks	
12:45		High resolution fast scanning	KPFM/EFM / MFM	
13:00		Force mapping	Force mapping	
13:15		Imaging of cells	Force Spectroscopy	
13:30	Opening		Closing Remarks	
13:45		Lunch		
14:00				
14:15	Invited Talks			
14:30				
14:45		Invited Talks		
15:00	Coffee Break			
15:15				
15:30	Contributed Talks	Coffee Break		
15:45	PFM/ESM			
16:00	Thermal characterization			
16:15	Imaging in liquids	Contributed Talks		
16:30		High resolution imaging in liquids		
16:45	Coffee break	AFM Programming		
17:00	Contributed Talks	AFM / optical image overlay		
17:15	KPFM/EFM / MFM			
17:30	Nano-indentation			
17:45	AFM / optical image overlay		Posters with cheese and beer/wine	
18:00				
18:15				
18:30	Bus Transfer to harbor	Short hike to restaurant „Tessin Grotto“		
18:45				
19:00				
20:00	Boat trip on lake Zürich with „MS Etzel“	Conference Dinner		
21:00				
22:00				
23:00		Bus Transfer to Hotels		

## Conference Venue

ETH Hönggerberg Science City, Building HIL, Wolfgang-Pauli-Strasse, 8093 Zurich, Switzerland

### Travel information

**By air** Zurich airport is well connected to major cities around the world with direct flights. From the airport, take [S-Bahn no. 2 \(direction „Ziegelbrücke“\)](#) or [no. 16 \(direction „Meilen“\)](#) to Bahnhof „Oerlikon“, from Bahnhof „Oerlikon Nord“ by [bus no. 80 \(direction „Triemlispital“\)](#) to the bus stop "ETH Hönggerberg". Journey time: about 20 minutes. You need a valid ticket for 3 zones.

**By train** From Zurich main station, take S-Bahn (lines 2, 5, 6, 7, 8, 14, 16) to Bahnhof „Oerlikon“ and [bus no. 80 \(direction „Triemlispital“\)](#) from Bahnhof „Oerlikon Nord“ to bus stop "ETH Hönggerberg". Journey time: about 25 minutes. You need a valid ticket for zone no. 10 ("Stadt Zürich").

**By car** For GPS navigation use: ETH Hönggerberg - Science City, 8093 Zurich, Wolfgang-Pauli Strasse 10, Switzerland

**Links** <http://www.atomicforce.de/Euro-AFM-Forum-2011.php> , <http://www.ethz.ch/about/location>

**Email** [conference@atomicforce.de](mailto:conference@atomicforce.de)

**Hotels** <http://www.zuerich.com/en/kongresslandingpage/afm2011.html>

## Equipment Workshops Schedule

Workshop number	Time	Cypher	MFP-3D 1	MFP-3D 2
W1	Wednesday, 15:30-16:30	PFM/ESM	Thermal characterization	Imaging in liquids
W2	Wednesday, 17:00-18:00	KPFM/EFM/MFM	Nanoindentation	AFM / optical image overlay
T1	Thursday, 10:45-11:45	PFM/ESM	Thermal characterization	Force spectroscopy
T2	Thursday, 12:15-13:15	High resolution fast scanning	Force mapping	Imaging of cells
T3	Thursday, 16:00-17:00	High resolution imaging in liquids	AFM programming	AFM / optical image overlay
F1	Friday, 10:45-11:45	PFM/ESM	Nanoindentation	Imaging of cells
F2	Friday, 12:15-13:15	KPFM/EFM/MFM	Force mapping	Force spectroscopy

## Invited talks

Time	Speaker	Title
Wednesday, 13:45-14:20	Lyubov Belova, KTH Stockholm	Functional SPM for electronics applications
Wednesday, 14:25-15:00	Ivo Rangelow, TU Ilmenau	SPM Activities at the Ilmenau University of Technology
Thursday, 09:00-09:35	Christian Greiner, KIT Karlsruhe	Temperature Effects in Nanoscale Friction Revealed by Thermal AFM Probes
Thursday, 09:40-10:15	Andras Kis, EPFL Lausanne	Thin Film Electronics
Thursday, 14:15-15:20	Celine Lichtensteiger, U Geneva	Ferroelectric domains in thin films and artificially layered superlattices
Thursday, 15:25-16:00	Karim Bouzouane, Thales	Scanning Probe Microscopies to study Multiferronics
Friday, 09:00-09:35	Stefan Mayr, Alexander Jakob, IOM Leipzig	Probing nanomechanics with contact-resonance atomic force microscopy - fundamentals, applications and challenges
Friday, 09:40-10:15	Rüdiger Berger, MPI Mainz	Reaction and Light Induced Changes in Surface Potentials

## Details of Equipment Workshops

KPFM/EFM/MFM	Kelvin Probe Force Microscopy (KPFM) generates a map of the potential at a sample surface by applying a voltage to the probe tip that is adjusted so that it matches the potential on the sample surface. Direct observation of potential changes at the surface is possible. Electrical Field Microscopy (EFM) and Magnetic Force Microscopy (MFM) map the electric or magnetic field gradient over the surface using tip at a potential different than the sample potential or a magnetic tip. Those techniques will be presented during the workshop.
PFM/ESM	Piezo Force Microscopy (PFM) maps the mechanical response of a sample to either an applied voltage through the tip by using the piezoelectric effect or the electrochemical strain. Electrochemical Strain Microscopy (ESM) generates images of the sample deformations caused by an ionic current when a voltage is applied to the sample and a current flows through the AFM probe tip. During this workshop basic and advanced PFM techniques (imaging and spectroscopy) will be discussed.
Thermal characterization	Using a tip that can be heated, Local Thermal Analysis (LTA) and Zeptoliter Thermal Analysis (Ztherm) probe the melting point at ample spot or image the sample with a heated tip. The workshop will use both techniques to thermally characterize a polymer sample.
Nanoindentation	Nanoindentation either uses a special very stiff indentation cantilever or an instrumented indent tip of known geometry (Berkovich or cube-corner) to measure hardness and elasticity / Young's modulus either qualitatively (cantilever method) or quantitatively (instrumented indenter). The workshop will discuss sample preparation and instrument control as well as data analysis.
Force mapping	The AFM cantilever can be used to probe the surface elasticity/stiffness/adhesion at many positions, usually arranged as a grid. This way, the AFM collects the most complete set of information about the sample surface, including topography. Examples of sample characterization and data analysis are discussed during the workshop.
High resolution fast scanning	High resolution fast scanning with atomic resolution can be performed on a variety of materials. Typically mica is used for AFM and graphite for STM operation. The workshop will deal with sample preparation and instrument control for both modes.
High resolution imaging in liquids	Some materials require high resolution imaging in liquids, such as delicate crystals like calcite or bio materials like bacterio rhodopsin. During this workshop, a calcite crystal will be imaged with atomic resolution in AC mode in water.
AFM programming	Commercial AFMs provide a very complete set of functions for AFM control and data analysis. However, a manufacturer can not foresee where science goes and therefore ideally provides a possibility for smaller or larger changes to source code or even generation of special functionality through dedicated home made software modules. Basic concepts of data handling and AFM control are subject of this workshop.
Imaging of cells	Successful imaging of living or fixed cells requires knowledge about the right sample preparation and also about the right AFM imaging parameters. Both will be discussed during this workshop.
AFM/optical image overlay	For samples with larger structures that can be accessed with an optical microscopy, an overlay of optical data and AFM data can simplify both navigation and data analysis. The workshop will show examples of image overlay and discuss the how-to.
Force spectroscopy	MFP stands for "Molecular Force Probe". The workshop will present the basic concepts and art of data analysis of force spectroscopy data taken from a biomolecule sample.
Imaging in liquids	Basic concepts of imaging in liquids for contact mode and AC mode imaging will be discussed. iDrive will be presented as a perfect tool to simplify any imaging work in liquids for infrequent AFM users.

Participants may sign up for up to two equipment workshops at registration on site. Lab space is based on a first-come, first-served basis.

Please note: Workshops may be adjusted to accommodate overflow that are interested in a certain topic.