



Scanning Probe Microscopy DIPC Week

A Tribute to Heinrich Rohrer

Sept 05-12, 2014
San Sebastian (Spain)

DIPC SCHOOL PROGRAMME

FRIDAY September 05, 2014

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| 14:30 - 16:00 | Registration & Coffee |
| 16:00 - 17:00 | Welcome and opening: Pedro M. Echenique |
| 17:00 - 18:00 | Uzi Landman
Computational Microscopy for the Nanoscale |
| 18:00 - 19:00 | Franz Giessibl
The atomic force microscope and its relation to the tunneling microscope |
| 19:00 | Reception at the Miramar Palace |

SATURDAY September 06, 2014

Tutorial Graduate & Undergraduate Level
(Basic concepts for Chemistry, Biophysics and Physics students)

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| 09:30 - 10:30
TUTORIAL | Nicolás Lorente
Physical concepts of scanning tunneling microscopy and its application to excitations and magnetic substrates |
| 10:30 - 11:00 | Coffee break - Discussions |
| 11:00 - 12:00
TUTORIAL | Rubén Pérez
High Resolution Dynamic Force Microscopy in a nutshell |
| 12:00 - 13:00
TUTORIAL | Juan José Sáenz
Physical concepts behind electrostatic and magnetic force microscopy |
| 13:00 - 15:00 | Lunch / Discussions
Free Afternoon |

SUNDAY September 07, 2014

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| Morning
12:30 | Trainera Regattas
(Kontxako Bandera at Concha bay)
Informal reception and Lunch at Igeldo Hill |
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MONDAY September 08, 2014

09:00-09:30 Posters Session

09:30 - 10:45
TUTORIAL **Miquel Salmeron**
Microscopy and Spectroscopy under ambient gas and liquid environments

10:45 - 11:15 Coffee break – Discussions

11:15 - 12:30
TUTORIAL **Agustina Asenjo**
Magnetic Force Microscopy

12:30 - 16:00 Lunch / Discussions / Excursions

16:00 - 17:15
TUTORIAL **Yongtao Cui**
Microwave Impedance Microscopy: Visualizing Electrical Property in Complex Quantum Materials

17:15 - 18:15 Coffee break – Discussions

18:15 - 19:00
Advanced Seminar **Rubén Pérez**
Graphene/metal Moirés: Can AFM resolve small electronic modulations?

TUESDAY September 09, 2014

09:00 - 10:15
TUTORIAL **Scott Carney**
Light localization in near-field optics: theoretical foundations of scattering and propagation in the near-field

10:15 - 10:55
Advanced Seminar **Agustina Asenjo**
Dissipation in Magnetic Force Microscopy: artifacts or information?

10:55 - 11:15 Coffee break – Discussions

11:15 - 12:30
TUTORIAL **Gabriel Gomila**
Electrical AFM techniques: Electrostatic force microscopy and current sensing AFM

12:30 - 16:00 Lunch / Discussions / Excursions

16:00 - 16:40
Advanced Seminar **Miquel Salmeron**
The new era of surface science: the solid-gas and solid-liquid interfaces

16:40 - 17:20
Advanced Seminar **Yongtao Cui**
Real Space Imaging of Quantum Hall Edge States in Graphene with Microwave Impedance Microscopy

17:20 - 18:00 Coffee break – Discussions

18:00 - 19:15
TUTORIAL **Christian Ast**
Scanning Tunneling Microscopy at lowest temperatures: How to access the smallest energy scales

21:00 Dinner

WEDNESDAY September 10, 2014

08:30 - 09:45 TUTORIAL	Fritz Keilmann Nanoscopy by scattering infrared light off a metal probe tip
09:45 - 11:00 TUTORIAL	Aristide Dogariu Optical forces in Near Field Scanning
11:00 - 11:30	Coffee break – Discussions
11:30 - 12:45 TUTORIAL	Tomoji Kawai STM and single molecules
12:45 - 16:00	Lunch / Discussions / Excursions
16:00 - 16:40 Advanced Seminar	Christian Ast The Zeeman Effect in Confined Superconductors: A new probe of absolute spin polarization on the atomic scale
16:40 - 17:20 Advanced Seminar	Gabriel Gomila Electric polarization properties of single viruses and bacteria
17:20 - 17:50	Coffee break – Discussions
17:50 - 18:30 Advanced Seminar	Scott Carney Nanoholography
18:30 - 19:10 Advanced Seminar	Aristide Dogariu Spin Hall effect of light and some mechanical consequences

THURSDAY September 11, 2014

08:30 - 09:45 TUTORIAL	Matthias Bode Spin-polarization in real and reciprocal space: Analyzing the spin structure of electronic states by spin-polarized STM
09:45 - 11:00 TUTORIAL	Cyrus Hirjibehedin STM+IETS: measuring low energy excitations at the atomic scale
11:00 - 11:30	Coffee break – Discussions
11:30 - 12:45 TUTORIAL	Sebastian Loth IETS+Time: resolving spin dynamics between milliseconds and picoseconds
12:45 - 15:00	Lunch / Discussions / Excursions

DIPC WORKSHOP PROGRAMME

THURSDAY September 11, 2014

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| 15:00 - 15:40
Invited | Fritz Keilmann
Infrared nanoscopy of biological and extraterrestrial minerals |
| 15:40 - 16:20
Invited | Jaime Colchero
Slow charge relaxation in (semi)-conducting polymers studied by Electrostatic Scanning Force Microscopy: Indication of Coulomb-Glass behaviour? |
| 16:20 - 16:40 | Martina Corso
Tracing the formation of a non-covalent bond between two neutral molecules |
| 16:40 - 17:00 | Coffee break / Posters Session |
| 17:00 - 17:40
Invited | Tomoji Kawai
STM and Gating Nanopores for Single Molecule DNA and RNA Electrical Sequencing |
| 17:40 - 18:20
Invited | Nicolas Lorente
Spontaneous magnetic switching due to spin decoherence |
| 18:20 - 18:40 | Alicia Forment
Magnetic Imaging and Manipulation of Molecular-based Nanoparticles |
| 18:40 - 19:00 | Elena Pinilla
Direct nanopatterning of atomically-thin TMDCs conducting layers via local oxidation nanolithography |
| 19:00 - 19:20 | Alexander Govyadinov
Recovery of Permittivity and Depth from Near-Field Data as a Step toward Infrared Nanotomography |
| 19:20 - 20:00 | Posters Session |
| 21:00 - 22:00 | School + Workshop Dinner |

FRIDAY September 12, 2014

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| 09:00 - 09:40
Invited | Matthias Bode
Spin-polarization in real and reciprocal space: Analyzing the spin structure of electronic states by spin-polarized STM and quasiparticle interference |
| 09:40 - 10:20
Invited | Cyrus Hirjibehedin
Using Electronic Coupling To Control Magnetic Properties at the Atomic Scale |
| 10:20 - 11:00 | Coffee break / Posters Session |

11:00 - 11:40 Invited	Sebastian Loth Spin interaction in atomically assembled quantum magnets
11:40 - 12:20 Invited	Joaquin Fernandez-Rossier STM probing of spin excitations in nanoengineered spin chains
12:20 - 12:40 Invited	Daniel S. Wastl Atomically Resolved Graphitic Surfaces in Air by Atomic Force Microscopy
12:40 - 15:00	Lunch / Discussions / Excursions
15:00 - 15:40 Invited	Pablo Alonso Controlling graphene plasmons with resonant metal antennas and spatial conductivity patterns
15:40 - 16:00	Dimas de Oteyza Revealing reaction mechanisms by direct visualization of covalent bond structure of reactants, intermediates and products
16:00 - 16:20	Marco Smerieri Ultrathin MgO/Ag(100) films: how the final morphology depends on growing conditions and interfacial oxygen
16:20 - 16:25	Closing Remarks