

7th Multifrequency AFM Conference, April 18th-20th, 2018, Madrid

Wednesday 18th April 2018

Time	Duration (minutes)	Type	Title, Speaker, Affiliation
08:00-09:30	1h 30	Registration	Participant Registration
Opening			
09:30-09:45	15	Welcome	15 years of Multifrequency AFM Ricardo Garcia, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
Multifrequency AFM Moderator: Arvind Raman Room: Amsterdam			
09:45-10:10	25	Invited	Quantitative, wide modulus range and fast mechanical mapping with bimodal AMFM Roger Proksch, <i>Asylum Research USA</i>
10:10-10:30	20	Expert	Nanomechanical spectrometry of biological entities: from viruses to cells Javier Tamayo, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
Coffee Break 10:30-11:00			
Nanoscale imaging Moderator: Robert Magerle Room: Amsterdam			
11:00-11:25	25	Invited	Beyond Stiffness: Reveling the full spectrum of surface properties From Multifrequency AFM Matteo Chiesa, <i>Masdar Institute, UAE</i>
11:25-11:45	20	Expert	Functional high-speed AFM imaging using photothermal off-resonance tapping Georg Fantner, <i>École Polytechnique Fédérale de Lausanne (EPFL), Switzerland</i>
11:45-12:05	20	Expert	Engineering the Tip-Sample Interactions in Tapping Mode AFM Hammed Sadeghian, <i>Netherlands Organisation for Applied Scientific Research (TNO), The Netherlands</i>
15' break			

Nanomechanical resonators and sensing Moderator: Ernst Meyer Room: Amsterdam			
12:20-12:40	20	Expert	Scanning force microscopy based on co-resonantly coupled cantilever probes Thomas Mühl, <i>IFW Dresden, Germany</i>
12:40-12:55	15	Oral	Multimode Resonant Sensing: From Inertial Imaging to Microdroplet and Cell Characterization with Microwave Sensors M. Selim Hanay, <i>Bilkent University, Turkey</i>
12:55-13:10	15	Oral	Advanced Sensing and Control with Active Cantilevers for Multimodal Atomic Force Microscopy Michael G. Ruppert, <i>The University of Newcastle. UK</i>
Lunch break 13:10-15:00			
Viscoelasticity at the nanoscale Moderator: Santiago D. Solares Room: Amsterdam			
15:00-15:25	25	Invited	On Modeling and Measuring Viscoelasticity with dynamic Atomic Force Microscopy David Haviland, <i>Royal Institute of Technology (KTH), Sweden</i>
15:25-15:45	20	Expert	Multifrequency AFM for measuring multiscale viscoelasticity of living systems Sonia A. Contera, <i>University of Oxford, UK</i>
15:45-16:00	15	Oral	A Dynamic Scanning Indentation Technique for Quantitative Viscoelastic Property Mapping Mathew D. Eaton, <i>Northwestern University, USA</i>
16:00-16:15	15	Oral	Analytical Solutions for an AFM tip tapping a viscoelastic surface with multiple relaxation times Enrique A. Lopez-Guerra, <i>The George Washington University, USA</i>
Coffee Break 16:15-16:45			
Multifrequency AFM Moderator: Gabriel Gomila Room: Amsterdam			
16:45-17:05	20	Expert	The effect of edge compliance on the contact between a spherical indenter and a high-aspect-ratio rectangular fin Georghe Stan, <i>National Institute Standards and Technology, USA</i>
17:05-17:20	15	Oral	Photo-Assisted Kelvin Probe Force Microscopy to study the surface charge changes in the enhanced photo-catalytic activity of TiO₂ (110) Monica Luna, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
17:20-17:35	15	Oral	Nanosecond time resolution in EFM with Intermodulation Riccardo Borgani, <i>KTH, Sweden</i>
Posters (with coffee & drinks) 17:45 – 19:15 Moderators: Christian Dietz, Celia Polop, Kislou Voitchovsky Room: Pekin			

Thursday 19th April 2018

Atomic, molecular and nanoscale spatial resolution imaging

Moderator: Sergei V. Kalinin

Room: Amsterdam

9:00-9:25	25	Invited	High resolution force microscopy of molecules Ernst Meyer, <i>University of Basel, Switzerland</i>
9:25-9:45	20	Expert	Atomic Resolution Imaging of Topography, Surface Potential and Dipole Moment on TiO₂(110) Surface with Double-OH Defects Yasuhiro Sugawara, <i>Osaka University, Japan</i>
9:45-10:00	15	Oral	Chemical bond imaging using higher eigenmodes of tuning fork sensors in atomic force microscopy Daniel Ebeling, <i>Justus Liebig University Giessen, Germany</i>
10:00-10:15	15	Oral	High resolution ambient AFM imaging of supramolecular heterostructures: Where is the limit? Vadlimir Korolkov, <i>University of Nottingham, UK</i>
10:15-10:30	15	Oral	Amplitude dependence of image quality in atomically-resolved bimodal atomic force microscopy Dominik Kirpal, <i>University of Regensburg, Germany</i>

Coffee Break: 10:30-11:00

Solid-liquid interfaces

Moderator: Rubén Pérez

Room: Amsterdam

11:00-11:25	25	Invited	Probing molecular processes at solid-liquid interfaces Adam S. Foster, <i>Aalto University, Finland</i>
11:25-11:45	20	Expert	Single ions at bio-interfaces: local dynamics and nano-mechanics Kislon Voïtchovsky, <i>Durham University, UK</i>
11:45-12:00	15	Oral	Identification of Single Adsorbed Cations on Mica-Liquid Interfaces by 3D Force Microscopy Daniel Martín-Jiménez, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
12:00-12:15	15	Oral	In-situ AFM imaging of liquid-liquid interfaces Luca Costa, <i>INSERM UMR, France</i>

15' break

Mechanical and electrical interactions Moderator: David Haviland Room: Amsterdam					
12:30-12:55	25	Invited	Material Property Models in Atomic Force Microscopy: The Case of Viscoelastic Materials Santiago D. Solares, <i>The George Washington University, USA</i>		
12:55-13:20	25	Invited	Nanoscale dielectric microscopy of ultrathin molecular layers at the solid-liquid interface Gabriel Gomila, <i>University of Barcelona, Spain</i>		
Lunch break: 13:20-15:00					
Multifrequency AFM parallel sessions		Magnetic, electrical and optical properties Moderator: Agustina Asenjo Room: Pekin		Mapping nanomechanical properties Moderator: Matteo Chiesa Room: Amsterdam	
15:00-15:20	20	Expert	Multi-frequency techniques for high-resolution Magnetic Force Microscopy Hans J. Hug <i>Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</i>	Expert	Nanorheological AFM for Soft Polymeric Materials Ken Nakajima, <i>Tokyo Institute of Technology, Japan</i>
15:20-15:40	20	Expert	Optical nano-imaging through AFM cantilever mechanical detection Antonio Ambrosio <i>Harvard University, USA</i>	Expert	Sensing in-plane nanomechanical surface and sub-surface properties of polymers Christian Dietz <i>Technische Universität Darmstadt, Germany</i>
15.40-15:55	15	Oral	High-aspect- ratio magnetic force microscopy probes for measurements in liquid media Miram Jaafar, <i>Consejo Superior de Investigaciones Científicas (CSIC) , Spain</i>	Oral	Nanomechanical Spectroscopy of Soft Matter with Angstrom – Scale Resolution Carlos A. Amo, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
15:55-16:10	15	Oral	Gradient-based Electro-mechanical Surface Properties by Force Microscopy: Smart Mechanical Materials Neus Domingo, <i>Institut Català Nanociencia i Nanotecnologia, Spain</i>	Oral	Resolving the stress puzzle in polycrystalline films with AFM Celia Polop, <i>Universidad Autonoma de Madrid, Spain</i>
16:10-16:25	15	Oral	Resonance-enhanced detection modes for high resolution subsurface imaging using electric and stress fields in AFM Maria J. Cadena <i>Purdue University, USA</i>	Oral	Nanomechanical Characterization of Self-Assembled Monolayers Using Bimodal AFM Evangelia N. Athanasopoulou, <i>EPFL, Switzerland</i>
Coffee break: 16:25-16:55					

Parallel sessions		Nanomechanics Moderator: Georg Fantner Room: Amsterdam		Novel approaches Moderator: Neus Domingo Room: Pekin	
16:55-17:15	20	Expert	Nano-mechanical Properties of Interphases in Nanocomposite Materials by Intermodulation Atomic Force Microscopy Philippe Leclère <i>University of Mons, Belgium</i>	Expert	Photoinduced Thermal Desorption on an Atomic Force Microscope Platform Coupled with Mass Spectrometry for Multimodal Imaging Olga S. Ovchinnikova <i>Oak Ridge National Laboratory, USA</i>
17:15-17:30	15	Oral	Ultrahigh Pressure Local Tuning of Graphene Electronic Properties Pablo Ares, <i>Universidad Autónoma de Madrid, Spain</i>	Oral	Buckling instability-based sensitive detection of mechanical disturbances by a quartz tuning fork AFM Sangmin An, <i>Seoul National University, Korea</i>
17:30-17:45	15	Oral	Graphene-Based Broadband High-Frequency Ultrasound Detector G. J. Verbiest , <i>Aachen University, Germany</i>	Oral	Lifting the fog on functionalities: humidity control and distortion correction for SPM I.Gaponenko, <i>Univ. Geneva, Switzerland</i>
17:45-18:00	15	Oral	Friction Reduction of Nanoscale Sliding Contacts Through Ultrasonic Excitation Hossein J. Sharahi, <i>Univ. Calgary, Canada</i>	Oral	Off-resonance intermittent contact AFM mode using multiple harmonics Marcos Penedo, <i>Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland</i>
Plenary Talk Moderator: Ricardo Garcia Room: Amsterdam					
20:15	45	Plenary	Scanning Probe Microscopy: Exploring the Information Dimension Sergei V. Kalinin, <i>Oak Ridge National Laboratory, USA</i>		
Conference Dinner 21:30					

Friday 20 th April 2018			
Multifrequency AFM Symposium Cell and Soft Matter Nanomechanics Moderator: Felix Rico Room: Amsterdam			
9:00-9:30	30	Keynote	Forces guiding staphylococcal adhesion Yves Dufrêne, <i>Université Catholique de Louvain, Belgium</i>
9:30-9:55	25	Invited	Tracking a cell's mass in real time David Martinez-Martin, <i>Eidgenössische Technische Hochschule (ETH), Switzerland</i>
9:55-10:15	20	Expert	Bio-AFM is the new black in biomedical sciences Nuria Gavara, <i>Queen Mary University of London, UK</i>
10:15-10:30	15	Oral	Pinpointing Unlabeled RNA Within a Protein-RNA Complex Using T-Shaped Cantilevers Youngkyu Kim, <i>Columbia University, USA</i>
Coffee Break: 10:30-11:00			
Soft Matter Nanomechanics Moderator: Roger Proksch Room: Amsterdam			
11:00-11:25	25	Invited	3D Depth Profiling of the Tip-Sample Interaction on Hydrated Collagen Fibrils Robert Magerle, <i>Technische Universität Chemnitz, Germany</i>
11:25-11:45	20	Expert	Measuring the mechanical properties of biomolecules in liquids with large-scale atomistic molecular dynamics simulations Rubén Pérez, <i>Universidad Autónoma de Madrid, Spain</i>
11.45-12.05	20	Expert	Nanomechanics of Vesicles and Viruses Wouter H. Roos, <i>Rijksuniversiteit Groningen, The Netherlands</i>
10' break			
Fast force spectroscopy/microscopy Moderator: Yves Dufrêne Room: Amsterdam			
12:15-12:35	20	Expert	The HS-AFM and the cell membrane, news and views Ignacio Casuso, <i>Université Aix-Marseille, France</i>
12:55-13:15	20	Expert	Orthogonal fingerprinting for accurate and fast mechanical characterization of proteins Jorge Alegre - Cebollada, <i>Centro Nacional de Investigaciones Cardiovasculares (CNIC), Spain</i>
13:15-13:30	15	Oral	Dynamics of breaking intermolecular bonds in high-speed force spectroscopy Manuel R. Uhlig, <i>Consejo Superior de Investigaciones Científicas (CSIC), Spain</i>
Lunch break: 13:15 – 15:00			

Cell Nanomechanics Moderator: Sonia A. Contera Room: Amsterdam			
15:00-15:25	25	Invited	Probing the mechanics of living cells and tissues with AFM Guillaume T. Charras, <i>University College London, UK</i>
15:25-15:45	20	Expert	High-frequency microrheology of living cells Felix Rico, <i>Université Aix-Marseille, France</i>
15:45-16:00	15	Oral	Cellular Mechanics Heterogeneity Assessed by Integrated Spinning Disk Confocal and Multi-harmonic Atomic Force Microscopy Yuri M. Efremov, <i>Purdue University, USA</i>
16:00-16:15	15	Oral	Quantitative Nanomechanics of Living Cells with AFM in Conjunction with Super-Resolution Optical Microscopy Torsten Müller, <i>JPK Instruments, Germany</i>
16:15-16:30	15	Oral	Time-resolved nanomechanical rheology of a single cell under the depolymerization of the actin cytoskeleton Carlos R. Guerrero, <i>CSIC, Spain</i>