

Program

Day 1

Nov. 5 (Mon)

16:00 – 21:00	Onsite Registration & Reception (3F)
16:00 – 18:00	Bruker Nano Miniworkshop (2F)
18:30 – 21:00	Mixer (3F)

Day 2

Nov. 6 (Tue)

8:40 – 8:50	Yasuhiro Furuichi Hokuriku Innovation Cluster for Health Science, Japan	Opening Remarks	
Chair Toshio Ando			
8:50 – 9:15	Yuri Korchev Imperial College London, UK	Scanning ion conductance microscopy of soft biological samples	1
9:15 – 9:30	Yasufumi Takahashi Tohoku University, Japan	Electrochemical and topographical imaging of living cell using SECM-SICM	2
9:30 – 9:55	Tatsuo Ushiki Niigata University, Japan	Scanning ion conductance microscopy for imaging biological samples in liquid	3
9:55 – 10:20	Takaharu Okajima Hokkaido University, Japan	Fluctuations of single cells measured by atomic force microscopy and scanning ion conductance microscopy	4
10:20 – 10:40	Sang-Joon Cho Park Systems, Korea	SICM applications and its future perspectives in live single cell research	5
10:40 – 11:00	Coffee Break & Exhibition		
Chair Peter Hinterdorfer			
11:00 – 11:25	Simon Scheuring U1006 INSERM, Université Aix-Marseille, France	High-speed atomic force microscopy of protein-protein interactions	6
11:25 – 11:40	Adai Colom U1006 INSERM, Université Aix-Marseille, France	High-speed atomic force microscopy: Cooperative adhesion and dynamic equilibrium of junctional microdomain in native eye lens membrane	7
11:40 – 12:05	Pierre-Emmanuel Milhiet Inserm, Unité 1054, University of Montpellier, France	Characterization of GM1 nanodomains using high-speed AFM	8
12:05 – 12:30	Allard Katan Delft Univ. Technology, Netherlands	Single molecule studies of chromatin with magnetic tweezers and HS-AFM	9
12:30 – 14:00	Lunch		
Chair Christoph Gerber			
14:00 – 14:20	Noriyuki Kodera Kanazawa University, Japan	Imaging study on intrinsically disordered proteins by high-speed atomic force microscopy	10
14:20 – 14:35	Ignacio Casuso U1006 INSERM, Université Aix-Marseille, France	High-speed AFM at up to 100 frames per second visualizes membrane protein rotation	11
14:35 – 14:50	Teru Ogura Kumamoto University, Japan	High-speed atomic force microscopy of ATP-dependent rotational movements of p97/VCP and its interaction with amyloid fibrils of TDP-43	12
14:50 – 15:10	Takayuki Uchihashi Kanazawa University, Japan	Image analysis of HS-AFM movies for dynamic events on biological molecules: F ₁ -ATPase and cellulase	13

15:10 – 15:25	H. Flechsig Fritz Haber Institute of the Max Planck Society, Germany	Structurally resolved modeling of molecular motors - investigation of ATP-dependent conformational motions and entire operation cycles	14
15:25 – 15:45	Eric Lesniewska University of Bourgogne, France	Protein-membrane interaction investigated by high-speed atomic force microscopy	15
15:45 – 16:05	Coffee Break & Exhibition		
Chair Simon Scheuring			
16:05 – 16:30	Daniel Müller ETH Zürich, Switzerland	Guiding receptors to control neuronal recognition and guide neuronal outgrowth	16
16:30 – 16:45	Seyed Mohammad Ali Haghparast Osaka University, Japan	A novel AFM method to probe biomechanical properties of suspended cells	17
16:45 – 17:00	Shan Zou National Research Council, Canada	Correlated imaging and force mapping on model membranes and cell surface markers	18
17:00 – 17:15	Yoonhee Lee Pohang University of Science and Technology, Korea	A cluster size of individual ssDNA on surface observed by high resolution AFM force mapping	19
17:15 – 17:40	Yves Dufrêne University Catholique de Louvain, Belguim	Force nanoscopy of microbial cells	20
17:40 – 17:55	Morten Bertz Waseda University, Japan	Linked protein complexes for studying protein-protein interaction mechanics using single molecule force spectroscopy	21
17:55 – 18:10	Jae-Eun Lee Pohang University of Science and Technology, Korea	Force mapping on the peptide-ribosome-mRNA complex	22
18:10 – 18:25	Taro Yamada RIKEN, Japan	AFM force curve analysis of phase-separated model cell membranes by probe-protein-conjugated tips	23
18:25 – 19:00	Break & Exhibition		
19:00 – 21:00	Gala Dinner		

Day 3
Nov. 7 (Wed)

Chair Pierre-Emmanuel Milhiet			
8:50 – 9:05	Petr Vladimirovich Gorelkin Lomonosow Moscow State Univ., Russia	Receptor layers for nanomechanical cantilever sensors	24
9:05 – 9:20	Alexander Sergeyevich Erofeev Lomonosov Moscow State Univ. & Biosensor Academy, Russia	Ammonia cantilever sensor based on polymer-metal complex receptor	25
9:20 – 9:35	Joon Won Park Pohang Univ. of Science & Technology, Korea	Protein biomarker detection and single molecule manipulation with AFM	26
9:35 – 10:00	Christoph Gerber University of Basel, Switzerland	Nanomechanical diagnostics in life sciences	27
10:00 – 10:15	Patrick Frederix Nanosurf AG, Switzerland	FluidFM: A new tool for force controlled cell manipulation	28
10:15 – 10:35	Coffee Break & Exhibition		
Chair Kuinio Takeyasu			
10:35 – 11:00	Maria Gaczynska Univ. of Texas San Antonio, USA	The dynamic proteasome revealed by atomic force microscopy imaging	29

11:00 – 11:15	Takehisa Dewa Nagoya Institute of Technology & JST/PRESTO, Japan	AFM observation of self-assembled nanostructure of light-harvesting membrane proteins in artificial lipid bilayers	30
11:15 – 11:30	Aiko Yoshida Kyoto University, Japan	Mechanism of recognition of green pepper dsRNA by viral RNA sensor	31
11:30 – 11:50	Heiko Haschke JPK Instruments, Germany	Advanced AFM imaging modes for high-resolution imaging	32
11:50 – 12:05	Shen Ye Hokkaido University, Japan	Enzyme-catalyzed hydrolysis of supported lipid bilayer investigated by atomic force microscopy (AFM)	33
12:05 – 12:20	Yoo Jin Oh Johannes Kepler University Linz, Austria	Characterization of curli A production on living bacterial surfaces by scanning probe microscopy	34
12:20 – 12:35	Yaminsky Lomonosow Moscow State Univ. & Biosensor Academy, Russia	FemtoScan online software for AFM data processing	35
12:35 – 14:00	Lunch		
Chair Yves Dufrêne			
14:00 – 14:20	Mikihiro Shibata Duke University Medical Center, USA	Development of high-speed atomic force microscopy for imaging of cultured hippocampal neurons	36
14:20 – 14:35	Shingo Fukuda Kanazawa University, Japan	High-speed AFM combined with optical microscopy	37
14:35 – 15:00	Georg Fantner École Polytechnique Fédéral de Lausanne, Switzerland	Investigating inhomogeneities in lipid membrane structure using AFM, HS-AFM and MD-simulation	38
15:00 – 15:20	Stephen Minne Bruker Nano, Inc., USA	Time-resolved nanometer scale AFM imaging of antimicrobial peptide activity on live <i>Escherichia coli</i> cells	39
15:20 – 15:45	Kunio Takeyasu Kyoto University, Japan	Modern atomic force microscopy applied to the studies of protein dynamics in cellular and genome organization	40
15:45 – 16:10	Peter Hinterdorfer Johannes Kepler University Linz, Austria	Antibody movement on regular antigen clusters: Fab arms are made for walking	41
16:10 – 16:30	Coffee Break & Exhibition		
Chair Eric Lesniewska			
16:30 – 16:50	Keiichi Torimitsu NTT Basic Research laboratories, Japan	Neuroreceptor analysis for artificial synaptic interface	42
16:50 – 17:05	Chun-hsien Chen National Taiwan University, Taiwan	Molecular junctions for the measurements of molecular conductance by tactile-feedback conductive AFM	43
17:05 – 17:20	Michael J. Higgins University of Wollongong, Australia	The cell–(electro)material Interface	44
Chair Daniel Müller			
17:20 – 17:45	Thomas Perkins National Institute of Standards and Technology & University of Colorado, USA	Reducing drift for high-precision biological atomic force microscopy	45
17:45 – 18:00	Yaron Silberberg National Institute of Advanced Industrial Science and Technology, Japan	A force-based approach for probing the intracellular cytoskeleton	46

18:00 – 18:15	Pedro J. de Pablo Univ. Autónoma de Madrid, Spain	Monitoring disassembly of individual adenovirus particles shows stepwise dismantling and core uncoating in real time	47
18:15 – 18:30	Grégory Francius Laboratoire de Chimie Physique et Microbiologie pour l'Environnement LCPME, France	Modification of bacterial EPS structure during biofilm formation: an Infrared-Raman and single-molecule force spectroscopies study	48
19:00 – 21:00	Going out to town, Dinner (Invited Speakers)		

Day 4

Nov. 8 (Thu)

Chair Stephen Minne			
9:00 – 9:25	Hirofumi Yamada Kyoto University, Japan	Molecular-scale visualization of biomolecules and their biochemical functions by frequency modulation atomic force microscopy	49
9:25 – 9:50	Takeshi Fukuma Kanazawa University, Japan	High-resolution imaging of mobile water and fluctuating surface structures at nanobio interfaces by 3D scanning force microscopy	50
9:50 – 10:15	Hiroshi Sugiyama Kyoto University, Japan	Direct observation of single enzymatic and chemical reactions in the DNA origami nanostructure	51
10:15 – 10:30	Hisashi Tadakuma University of Tokyo, Japan	Construction and functional analysis of DNA origami base DNA-RNAP hybrid nanomachine	52
10:30 – 10:45	Peng Huang Boston University, USA	High-speed atomic force microscopy enabled by novel scanning trajectories	53
10:45 – 11:05	Coffee Break		
Chair Toshio Ando			
11:05 – 11:25	Jason Cleveland Asylum Research, USA	Ultra-high resolution AM-AFM in liquids with small cantilevers	54
11:25 – 11:40	Tomoyasu Hasegawa Olympus Corp., Japan	BioLever for high speed and high resolution imaging	55
11:40 – 11:55	Neval Yilmaz RIKEN, Japan	Honeycomb formation of a pore-forming toxin on model membrane	56
11:55 – 12:05	Toshio Ando Kanazawa University, Japan	Closing remarks	
12:50	Gathering at Shiinoki Cultural Complex		
12:50 – 15:00	Lunch at Shiinoki Geihinkan		
15:00 – 16:30	Strolling in the Kenroku Garden		
16:30	Bus for Kanazawa University		
17:00 – 18:30	Lab Tour		
18:30	Bus for KKR Hotel Kanazawa		