

Open Registration:

Wednesday, 2 June, 16:00 - 19:00

Thursday, 3 June, 07:00 - 08:00

Jagiellonian University, Collegium Novum building, ul. Golebia 24, first floor

Session One: Thursday, 3 June

In-Situ Life Science Studies, Biomaterials & Single-Molecule Characterization at the Nanoscale

Chair: **Prof. Peter Hinterdorfer, PhD**, University of Linz, Austria

08:00 - 08:30	Nano-Biology Using Atomic Force Microscopy Keynote Speaker: Prof. Kunio Takeyasu, Dr. Sci., Kyoto University, Japan
08:30 - 08:50	Mechanical Phenotype of Living Cells: Towards Nanodiagnosis Guest Speaker: Malgorzata Lekka
08:50 - 09:10	Molecular Dynamics of Protein Interactions Studied by AFM and Molecular Dynamic Simulations Guest Speaker: David Kaftan
09:10 - 09:30	Atomic Force Microscopy Single-Molecule Studies on Specific Interactions Between Immunogenic Chlorinated Ovalbumin and Macrophage Receptors Szczepan Zapotoczny
09:30 - 09:50	Temperature-Dependent Precipitation of Pathological Cryoglobulins Studied with Dynamic Force Spectroscopy Anna Radzik
09:50 - 10:10	Force-Activated Reactivity Switch in a Bimolecular Chemical Reaction at the Single-Molecule Level Robert Szoszkiewicz
10:10 - 10:30	Break
10:30 - 10:50	Combining AFM and Micro-Electrode Arrays (MEA) To Perform Local Mechanical Characterization and Stimulation on Living Cells Jose Francisco Saenz Cogollo
10:50 - 11:10	Nanomechanical Analysis of Human Prostate Du145 Cancer Cells Michal Sarna
11:10 - 11:30	Dynamics of Biomolecules Observed by High-Speed Atomic Force Microscopy Malgorzata Baranowska
11:30 - 11:50	Versatile Toolset for Nanometer-Scale Research in Life Science Gerald Kada
12:00 - 14:20	Lunch & Poster Session One

Session Two: Thursday, 3 June

Polymers - Nanomorphology, Controlled Fabrication & Property Characterization

Chair: **Dr. Sergei Magonov**, Agilent Technologies, Chandler, Arizona, United States

14:20 - 14:40	Self-Assembled Mono- and Multilayers in Hierarchically Organized Thin Films - from Polymerosomes to Functional Oligothiophene Films Guest Speaker: Prof. Martin Möller, PhD
14:40 - 15:00	Polymer Patterns Replicated by Adsorbing Proteins: Comparison of AFM and Fluorescence Images with Integral Geometry Analysis Joanna Zemla
15:00 - 15:20	Conductive AFM on Nanostructured Conducting Polymer Wires Carsten Hentschel
15:20 - 15:40	Break
15:40 - 16:00	Polymer Film Morphology of Pressure-Sensitive Adhesives Rudiger Stark
16:00 - 16:20	A New Approach for Quantum Dot Polymer Nanocomposite Design Bogdan Serban
16:20 - 16:40	Dendrimer (Artificial Protein) Probing of Natural and Synthetic Enamel Crystal Surfaces Brian Clarkson
16:40 - 19:00	Poster Session Three & Four
19:30	Dinner

Session Three: Friday, 4 June

Nanomechanical Properties of Organic & Inorganic Materials

Chairs: **Dr. Warren Oliver & Dr. George Pharr**, University of Tennessee-Knoxville, United States

- 08:00 - 08:30 **Nanoindentation Coupled with Microscopy: Unique & Necessary Insight into the Ultra-Small-Scale Mechanical Behavior of Materials**
Keynote Speaker: Emeritus Prof. Trevor Page (FREng), University of Newcastle upon Tyne, Advanced Materials Group, School of Chemical Engineering and Advanced Materials, Newcastle upon Tyne, United Kingdom
- 08:30 - 08:50 **Polymer Deformation During Nanostructure Fabrication by Mechanical Processing**
Guest Speaker: Graham Cross
- 08:50 - 09:10 **A Preliminary Study of Impact Indentation Using a Pendulum-Based Loading System**
Guest Speaker: T.W. Clyne
- 09:10 - 09:30 **Investigation of the Nano-Biomechanical Properties of Cornea Tissues Suffering Elevated Intra-Ocular Pressure** Wu Kok Sum
- 09:30 - 09:50 **Development and Application of a Novel Microfabricated Device for In-Situ Tensile Testing of 1D Nanomaterials** Dr. Jun Lou
- 09:50 - 10:10 **Break**
- 10:10 - 10:30 **Mechanical and Thermomechanical Behavior of Electroplated Copper through Silicon Vias** Kris Vansteels
- 10:30 - 10:50 **Using a Cusp-Shaped Indenter to Determine the Stress-Strain Curve of a Metal by Indentation** Jennifer Hay
- 10:50 - 11:10 **Comparative Investigations on the Strain Rate Sensitivity Behavior of Nanocrystalline Face-Center Cubic Materials** Verena Maier
- 11:10 - 11:30 **Microcompression as a Quantitative Technique: A Case Study on Fused Silica** Erica Lilleodden
- 11:30 - 11:50 **Age-Related Changes in the Mechanical Properties of Porcine Femoral Cortical Bone Measured by Nanoindentation** Iwona Jasiuk
- 12:00 - 14:00 **Lunch and Poster Session Two**

Session Four: Friday, 4 June

Materials at the Nanoscale - Imaging, Electrochemistry & Electrical Properties

Chair: **Prof. Marek Szymonski, PhD**, Jagiellonian University, Krakow, Poland

- 14:00 - 14:20 **Studying Single-Molecule Electrochemistry with EC-STM**
Guest Speaker: Tim Albrecht
- 14:20 - 14:40 **Single-Molecule Electronics and Single-Molecule Electrochemistry**
Guest Speaker: Richard Nichols
- 14:40 - 15:00 **High-Resolution Imaging of Lipid Molecular Films Using EC-STM**
Guest Speaker: Slawomir Sek
- 15:00 - 15:20 **A Versatile In-Situ Measuring System for Electrical Measurements in an FE-SEM**
Michael Noyong
- 15:20 - 15:40 **Kelvin Force Microscopy Investigation on Hydrogen Permeation in Palladium**
Ceylan Senöz
- 15:40 - 16:00 **Break**
- 16:00 - 16:20 **Gold Cantilevers for Tip-Enhanced Raman Spectroscopy: The Case of Graphene**
Dr. Raúl D. Rodriguez
- 16:20 - 16:40 **Limits of Potential and Lateral Resolutions in Kelvin Probe Force Microscopy**
Dr. Franciszek Krok
- 16:40 - 17:00 **Quantifying the Low-Frequency Dielectric Constant at the Nanoscale**
Georg Gramse