

# PROGRAM

WEDNESDAY, OCTOBER 10, 2018

From 09:00		Registration and coffee
09:50		Opening words by Niels de Jonge
SESSION 1 – ELECTRON MICROSCOPY OF PROTEINS AND CELLS Chair: Niels de Jonge		
10:00	invited	“Smart Microscopy: Automation of CLEM Using <i>In Situ</i> Fluorescence Detection” <i>Lucy Collinson</i> , The Francis Crick Institute, London, UK
10:30	invited	“Correlative Fluorescence and Electron Microscopy of Graphene-Enclosed Whole Cells for High Resolution Analysis of Cellular Proteins” <i>Indra Navina Dahmke</i> , INM – Leibniz Institute for New Materials, Saarbrücken, Germany
11:00	invited	“Single Particle Imaging with the Volta Phase Plate” <i>Radostin Danev</i> , The University of Tokyo, Japan
11:30		“Quantitative Studies of Membrane Proteins in Whole Cells with Different Methods of Liquid Phase Scanning Transmission Electron Microscopy” <i>Diana Peckys</i> , Saarland University, Homburg/Saar, Germany
11:50		“Imaging Graphene-Encapsulated Microtubules at Room Temperature with Electron Microscopy” <i>Sercan Keskin</i> , INM – Leibniz Institute for New Materials, Saarbrücken, Germany
12:10		LUNCH
SESSION 2 – SOFT MATTER AND BIOLOGICAL SPECIMENS Chair: Diana Peckys		
13:30	invited	“Translating Insights from Liquid Phase Microscopy into Theory and Design” <i>Joe P. Patterson</i> , University of California, Irvine, USA
14:00		“Contrast Analysis in Latex/Surfactant Aqueous Suspensions” <i>Karine Masenelli-Varlot</i> , Université Lyon, France
14:20		“ <i>In-Situ</i> Correlative Helium Ion Microscopy and Secondary Ion Mass Spectrometry For High-Resolution High-Sensitivity Nano-Analytics in Life Sciences” <i>Jelena Lovric</i> , Institute of Science & Technology (LIST), Belvaux, Luxembourg

14:40		“Liquid-Phase TEM of Biological Systems Reveals Nanoscale Dynamics” <i>Madeline Dukes</i> , Protochips Inc., Morrisville, USA
15:00		“Interactive Correlative <i>In-Situ</i> Analysis on the Nanoscale by Combination of AFM and SEM” <i>Christian Schwalb</i> , GETec Microscopy GmbH, Vienna, Austria
15:20		COFFEE BREAK
		SESSION 3 – STUDYING MATERIAL REACTIONS WITH <i>IN-SITU</i> SPECTROSCOPY Chair: Nigel Browning
15:50	Change!	“Using Engineered Graphene Liquid Cells to Study Dynamic Nanoparticle Behaviour in Liquids with STEM and EDX” <i>Daniel Kelly</i> , University of Manchester, UK
16:10		“ <i>In-Situ</i> Characterization of 2-Dim Materials at High Energy and Spatial Resolution” <i>Robert Klie</i> , University of Illinois, Chicago, USA
16:30		“Tracking the Structural and Chemical Evolution of Nanostructured Materials by <i>In-Situ</i> Experiments” <i>Zaoli Zhang</i> , Erich Schmid Institute of Material Science, Leoben, Austria
16:50		“Probing Functional Oxides by Ultra-High Resolution EELS under Variable-Temperature Stimuli” <i>Laura Bocher</i> , Laboratoire de Physique des Solides – CNRS, Université Paris-Sud, Orsay, France
17:10		POSTER AND EXHIBITOR SESSION WITH SNACKS AND DRINKS
-		
19:00		

## THURSDAY, OCTOBER 11, 2018

08:50 Opening words by Kristian Molhave

SESSION 4 – INNOVATIONS IN TECHNIQUES TO STUDY NANOMATERIAL PROCESSES

Chair: Kristian Molhave

09:00 invited “Toward Quantitative Liquid Cell Electron Microscopy through Kinetic Control of Solution Chemistry”

*Taylor J. Woehl*, University of Maryland, College Park, USA

09:30 “Exploring Nanoparticles’ Motion and Surface Charge by Liquid Phase Transmission Electron Microscopy and Off-Axis Electron Holography”

*Murat Nulati Yesibolati*, Technical University of Denmark, DTU Nanotech, Kongens Lyngby, Copenhagen, Denmark

09:50 “Utilizing Graphene Liquid Cell TEM to Elucidate the Mechanisms of Non-Equilibrium Etching of Metallic Nanocrystals”

*Matthew Hauwiller*, University of California, Berkley, USA

10:10 invited “Scanning Transmission Electron Microscopy and Diffraction in SEM: Novel Approaches for *In Situ* Studies”

*Erdmann Spiecker*, Universität Erlangen-Nürnberg, Germany

10:40 COFFEE BREAK

SESSION 5 – TOWARDS HIGH-SPEED LOW-DOSE *IN-SITU*

Chair: Joe Patterson

11:00 invited “Mapping Atomic Motions with Ultrabright Electrons: Fundamental Space-Time Limits to Imaging Chemistry and Biological Processes”

*R. J. Dwayne Miller*, Max Planck Institute for the Structure and Dynamics of Matter, Hamburg, Germany

11:30 invited “Using Sub-Sampling/Inpainting to Control the Kinetics and Observation Efficiency of Dynamic Processes in Liquids”

*Nigel Browning*, University of Liverpool, UK

12:00 invited “Sparse and Adaptive Sampling in Scanning Electron Microscopy”

*Tim Dahmen*, Deutsches Forschungszentrum für Künstliche Intelligenz, Saarbrücken, Germany

12:30 LUNCH

KEYNOTE SPEECH

13:45 invited “High Resolution *In Situ* and Transmission Environmental Electron Microscopy of Material Reactions”

*Robert Sinclair*, Stanford University, USA

SESSION 6 – NANO-CATALYSTS

Chair: Taylor J. Woehl

- 14:40 invited “Electron Microscopy Advances in Catalysis”  
*Stig Helveg*, Haldor Topsoe A/S, Lyngby, Denmark
- 15:10 invited “Revealing the Surface Energetics and Reactivity of Bimetallic Copper-Gold Catalyst Nanoparticles by *In Situ* Environmental TEM”  
*Jaysen Nelayah*, Université Paris Diderot, Paris, France
- 15:40 “Imaging the Attachment of Iron Oxide Nanoparticles to Carbon Nanotubes with Liquid Phase Electron Microscopy”  
*Nynke A. Krans*, Utrecht University, The Netherlands
- 16:00 COFFEE BREAK
- 16:15 “Studying Electrocatalysts in *Operando* Conditions: Correlating TEM Imaging and X-Ray Spectroscopies”  
*Nathaly Ortiz Peña*, IPCMS-Université de Strasbourg, France
- 16:35 “Environmental Gas TEM for Catalysis in *Operando* Conditions”  
*Mounib Bahri*, IPCMS, Strasbourg, France
- 16:55 “Pattern Formation in Catalyzed Surface Reactions Studied by *In Situ* SEM”  
*Marc Willinger*, ETH Zürich, ScopeM, Zürich, Switzerland
- 17:15 invited “Introducing and Controlling Water Vapor in Gas-Cell Microscopy Experiments”  
*Kinga A. Unocic*, Oak Ridge National Laboratory, USA
- 17:45 POSTER AND EXHIBITOR SESSION (PART 2)
- 18:45 Bus to the conference dinner location
- 19:00 CONFERENCE DINNER „Bistro Malzeit im Kunstwerk“

FRIDAY, OCTOBER 12, 2018

08:50		Opening words by Damien Alloyeau
SESSION 7 – NANOMATERIAL PROCESSES AND DYNAMICS		
Chair: Damien Alloyeau		
09:00	invited	“ <i>Operando</i> Liquid-Electrochemical TEM for Monitoring the Charge/Discharge Processes in a NA-O <sub>2</sub> Battery” <i>Arnaud Demortière</i> , CNRS, Amiens, France
09:30		“ <i>In-Situ</i> Template Assisted Growth of Ag@Au Bimetallic Nanostructures” <i>Nabeel Ahmad</i> , Swiss Federal Labs for Materials Science, Zürich, Switzerland
09:50	Change!	“Probing the Dynamics and the Atomic Structure of Gold Nanorods in Solution with Liquid-Cell TEM” <i>Abdelali Khelifa</i> , CNRS / Paris-Diderot University, Paris, France
10:10		“Molecular Beam Epitaxy of Germanium in the Atomic-Resolution Transmission Electron Microscope” <i>Jean-Luc Maurice</i> , LPICM, CNRS, École polytechnique, Palaiseau, France
10:30		COFFEE BREAK
SESSION 8 – HIGH TEMPERATURE <i>IN-SITU</i> EXPERIMENTS		
Chair: Kinga A. Unocic		
10:50		“ <i>In-Situ</i> 3D Characterization of Au/Pd Octapods while Heating” <i>Wiebke Albrecht</i> , University of Antwerp, Belgium
11:10		“ <i>In-Situ</i> Transmission Electron Microscopy Annealing for Crystallization and Phase Stability Studies in the GA <sub>2</sub> O <sub>3</sub> -IN <sub>2</sub> O <sub>3</sub> -AL <sub>2</sub> O <sub>3</sub> System” <i>Toni Markurt</i> , Leibniz-Institut für Kristallzüchtung, Berlin, Germany
11:30		“First Stage of Sintering of ThO <sub>2</sub> Microspheres: a HT-ESEM and HT-HRTEM Study” <i>Renaud Podor</i> , ICSM, UMR 5257, Bagnols-sur-Cèze, France
11:50		“Elevated Temperature <i>In-Situ</i> Transmission Kikuchi Diffraction for the Characterization of Ultra-Thin Metal Films in Nanofabrication Applications” <i>Matteo Todeschini</i> , Technical University of Denmark, Kongens Lyngby, Denmark
12:10		CLOSING WORDS
BROWNBAG LUNCH		