

CISCHEM 2014 - PROGRAM

Tuesday, October 14, 2014

08:30		Registration and Coffee
09:00		Opening Words <u>Eduard Arzt</u> , Scientific Director and Chairman INM – Leibniz Institute for New Materials, Saarbrücken, Germany <u>Niels de Jonge</u> INM – Leibniz Institute for New Materials, Saarbrücken, Germany
		Session 1 CORRELATIVE AND IN-SITU ELECTRON MICROSCOPY IN BIOLOGY Chair: Niels de Jonge
09:15	invited	“Correlative Light and Electron Microscopy (CLEM): Ultrastructure Lights Up” <u>Ben Giepmans</u> , Department of Cell Biology, University Medical Center Groningen, The Netherlands
09:50	invited	“Improving our Vision of Nanobiology with <i>In-situ</i> TEM” <u>Deborah F. Kelly</u> , Virginia Tech Carilion School of Medicine and Research Institute, Roanoke (VA), USA
10:25		“Environmental Scanning Electron Microscopy for Studying Proteins and Organelles in Whole, Hydrated Eukaryotic Cells with Nanometer Resolution” <u>Diana B. Peckys</u> , INM – Leibniz Institute for New Materials, Saarbrücken, Germany
10:45		Coffee break
11:00	keynote	“Electron Cryomicroscopy <i>ex situ</i> and <i>in situ</i> ” <u>Wolfgang Baumeister</u> , Max-Planck-Institute of Biochemistry, Martinsried, Germany
11:45		“Integrated CLEM – Still Bridging the Resolution Gap” <u>Günther A. Blab</u> , Molecular Biophysics, Department of Physics, Utrecht University, The Netherlands
12:05		“Cellular Membrane Rearrangements Induced by Hepatitis C Virus” <u>Inés Romero-Brey</u> , Department of Infectious Diseases, Molecular Virology, Heidelberg University, Heidelberg, Germany
12:25		Lunch break

Session 2
IN-SITU OBSERVATIONS OF BIOMINERALIZATION PROCESSES
Chair: Kristian Mølhave

- 14:00 invited "Nucleation and Particle Mediated Growth in Mineral Systems Investigated by Liquid-Phase TEM"
James De Yoreo, Physical Sciences Division, Pacific Northwest National Laboratory, Richland (WA), USA
- 14:35 invited "Studying the *In-situ* Growth and Biodegradation of Inorganic Nanoparticles by Liquid-Cell Aberration Corrected TEM"
Damien Alloyeau, Laboratoire Matériaux et Phénomènes Quantiques, CNRS - Université Paris Diderot, France
- 15:10 "*In-situ* TEM Shows Ion Binding Is Key to Directing CaCO₃ Nucleation in a Biomimetic Matrix"
Paul Smeets, Eindhoven University of Technology, The Netherlands
- 15:30 Coffee break
- 15:45 "Crystallisation of Calcium Carbonate Studied by Liquid Cell Scanning Transmission Electron Microscopy"
Andreas Verch, INM – Leibniz Institute for New Materials, Saarbrücken, Germany

Session 1 continued
CORRELATIVE AND IN-SITU ELECTRON MICROSCOPY IN BIOLOGY - II
Chair: Kristian Mølhave

- 16:05 invited "Correlative Light Electron Microscopy 1 + 1 = 3"
Paul Verkade, Wolfson Bioimaging Facility, Schools of Biochemistry and Physiology & Pharmacology, University of Bristol, United Kingdom

SHORT PRESENTATIONS TO INTRODUCE POSTER SESSION

- 16:40 "Gold Nanoparticle Movement in Liquid Investigated by Scanning Transmission Electron Microscopy" (P1-01)
Marina Pfaff, INM – Leibniz Institute for New Materials, Saarbrücken, Germany
- 16:45 "Bridging the Gap between Electrochemistry and Microscopy: Electrochemical IL-TEM and *In-situ* Electrochemical TEM Study" (P2-01)
Nejc Hodnik, Max-Planck-Institut für Eisenforschung, Düsseldorf, Germany
- 16:50 "Platelet Granule Secretion: A (Cryo)-Correlative Light and Electron Microscopy Study" (P4-02)
Kasia Engbers-Moscicka, Dept. of Biomolecular Electron Microscopy, Utrecht University, The Netherlands

16:55	<p>“<i>In-situ</i> TEM on (De)hydrogenation and Oxidation/Reduction of Pd at High Pressures” (P3-06)</p> <p><u>Tadahiro Yokosawa</u>, INE, Karlsruhe Institute of Technology, Eggenstein-Leopoldshafen, Germany</p>
17:00	POSTER SESSION
18:30	Bus to restaurant “Stiefelbräu”
19:00	Conference dinner http://www.stiefelgastronomie.de

Wednesday, October 15, 2014

		<p>Session 3 DESIGNING IN-SITU EXPERIMENTS Chair: Damien Alloyeau</p>
09:00	invited	<p>“Studies of Transport Properties using <i>In-situ</i> Microscopy”</p> <p><u>Eva Olsson</u>, Department of Applied Physics, Chalmers University of Technology, Gothenburg, Sweden</p>
09:35		<p>“Microchip-Systems for <i>In-situ</i> Electron Microscopy of Processes in Gases and Liquids”</p> <p><u>Kristian Mølhave</u>, Technical University of Denmark, Department of Micro- and Nanotechnology, Lyngby, Denmark</p>
09:55		<p>“Scanning Transmission Electron Microscopy of Liquid Specimens”</p> <p><u>Niels de Jonge</u>, INM – Leibniz Institute for New Materials, Saarbrücken, Germany</p>
10:15	invited	<p>“Calibrated <i>In-situ</i> Transmission Electron Microscopy for the Study of Nanoscale Processes in Liquids”</p> <p><u>Patricia Abellan</u>, Fundamental and Computational Sciences Directorate, Pacific Northwest National Laboratory, Richland, WA, USA</p>
10:50		Coffee break
11:05		<p>“Scanning Electron Spectro-Microscopy in Liquids and Dense Gaseous Environment through Electron Transparent Graphene Membranes”</p> <p><u>Andrei Kolmakov</u>, Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg, MD, USA</p>

11:25 “Multimodal Imaging with TEM-SIMS: Correlative Microscopy in Materials Science and Biology for High-Resolution, High-Sensitivity Elemental Mapping”

Santhana Eswara Moorthy, Department Science and Analysis of Materials, Centre de Recherche Public – Gabriel Lippmann, Belvaux, Luxembourg

Session 4

HIGH-TEMPERATURE AND OTHER IN-SITU EXPERIMENTS

Chair: Andreas Verch

11:40 “*In-situ* HT-ESEM Observation of CeO₂ Nanospheres Sintering: From Neck Elaboration to Microstructure Design”

Galy I. Nkou Bouala, Institut de Chimie Séparative de Marcoule, Bagnols-sur-Cèze, France

11:55 “3D Crack Self-Healing in a Glassy Composite”

Renaud Podor, Institut de Chimie Séparative de Marcoule, Bagnols-sur-Cèze, France

12:10 “*In-situ* Transmission Electron Microscopy of High-Temperature Phase Transitions in Ge-Sb-Te Alloys”

Katja Berlin, Paul-Drude-Institut für Festkörperelektronik, Berlin, Germany

12:25 “Reversible *In-situ* TEM Electrochemical Studies of Fluoride Ion Battery”

Venkata Sai Kiran Chakravadhanula, Helmholtz Institute Ulm for Electrochemical Energy Storage (HIU), Ulm, Germany

12:40 Lunch break

Session 5

CORPORATE PRESENTATIONS

Chair: Diana Peckys

14:00 “Quantitative Tools for *In-situ* Electron Microscopy in Liquids and Gases”

Madeline Dukes, Protochips Inc., Raleigh (NC), USA

14:15 “Living Cells toward Electron Microscopy? Let’s Do CLEM, It Can Be Easy!”

Alex de Marco, FEI Munich, Gräfelfing, Germany

14:30 “Illuminating Correlative Research Using Light, X-ray and Electron Microscopy”

Lars-Oliver Kautschor, Carl Zeiss Microscopy GmbH, Oberkochen, Germany

14:45 “Realizing High Performance TEM Cameras for the 21st Century”

Andreas Kastenmüller, Gatan GmbH, Germany

15:00 “Array Tomography – Scanning Electron Microscopy on the Way from 2D towards 3D”

Jörg Lindenau, Carl Zeiss Microscopy GmbH, Oberkochen, Germany

15:15 “Integrated Light and Electron Microscopy of Ultrathin Resin Sections Containing GFP”

Diane van Rossum, FEI Company, Eindhoven, The Netherlands

15:30 "Imaging Kinetics at Atomic Level"
Eric Kievit, DENSSolutions, Delft, The Netherlands

15:45 Coffee break

Session 6
IN-SITU TEM OF CATALYTIC NANOPARTICLES
Chair: Justus Hermansdoerfer

16:00 invited "Correlative Microscopy for *In-situ* Characterization of Catalyst Nanoparticles under Reactive Environments"
Renu Sharma, Center for Nanoscale Science and Technology, National Institute of Standards and Technology, Gaithersburg (MD), USA

16:35 invited "Applications of Environmental TEM for Catalysis Research"
Jakob B. Wagner, Center for Electron Nanoscopy, Technical University of Denmark, Lyngby, Denmark

17:10 Closing remarks
Kristian Mølhave
Denmark Technical University, Lyngby, Denmark