TEM | EUROPEAN PLATFORM OF IPCMS STRASBOURG

IPCMS

SCIENTIFIC WORKSHOP

"Electron Microscopy at high Spatial and Temporal Resolution"

Program

Inauguration of Transmission Electron Microscopy OPERANDO (Grand ARM 2)

Cronenbourg Campus, 23 rue du Loess, Strasbourg

Monday 13, 2025

11:00-12:30, Auditorium IPCMS – Building 69

Outreach lectures : From Next-Generation Materials to Advanced Analytical Tools: An Essential Partnership

Developing new materials is essential to address the challenges of tomorrow, whether it is producing and storing energy, designing new catalytic solutions, protecting the environment, or improving health. Understanding the materials of the future can no longer rely on a single analytical method: it requires combining complementary techniques and exploring matter across multiple scales. Electron microscopy plays a key role in this endeavor, allowing us today to observe nanomaterials in action with unparalleled resolution, under conditions close to their formation or real-world use. The conference will also highlight the complementarity between electron microscopy and other advanced techniques, such as those based on synchrotron radiation.

Chairman : Prof. Ovidiu ERSEN

11:00 – 11:45 AM
Prof. Clément Sanchez, LCMCP CNRS-Sorbonne Université-Collège de France Paris, USIAS Strasbourg
« Integrative Materials Science: A domain where chemistry, biology, physics and engineering meet »

11:45 – 12:30 AM
Prof. Gianluigi Botton, Diamond Light Source (UK) and McMaster University (CA)
« Probing the atomic and electronic structure of functional materials with electron microscopy and spectroscopy »

14:30-16:30, Amphitheater Perey - Building 01

Official Inauguration (CNRS, University of Strasbourg, Foundation Jean-Marie Lehn, Local authorities, Alsace region etc.)

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Tuesday 14, 2025

9:00-17:00, Amphitheater Grünewald - Building 25

Scientific workshop : Electron Microscopy at High Spatial and Temporal Resolution: Current Status and Future Perspectives in Material Characterization

Chairman (Morning) : Prof. Florian Banhart

9:00 – 9:45 AM
Prof. Marc-Georg Willinger, Department of Chemistry, School of Natural Sciences Technical University of Munich (Germany)
« Dynamics at phase boundaries and their relation to catalytic function: Insights from operando electron microcopy »

9:45 – 10:30 AM
Prof. Naoya Shibata, Institute of Engineering Innovation, School of Engineering, The University of Tokyo and Nanostructures Research Laboratory, Japan Fine Ceramic Center (Japan)
« Development of magnetic-field-free atomic resolution electron microscope »

10:30 – 11:00 AM – Coffee Break

11:00 – 11:45 AM
Prof. Joke Hadermann, Electron microscopy for materials science (EMAT), University of Antwerp (Belgium)
« Crystal structure evolution tracking using in situ 3D ED and 4D-STEM tomography »

11:45 – 12:30 AM
Dr. Arnaud Demortierre, Laboratoire de Réactivité et de Chimie des Solides (LRCS), CNRS, Amiens
« Pushing the Limits of 4D-STEM in Battery Research: ACOM Mapping and Electron Ptychography »

12:30 – 1:30 PM – Lunch Break

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Chairman (Afternoon) : Dr. Maria Letizia De Marco

1:30 – 2:15 PM
Prof. Odile Stephan, Laboratoire de Physique des Solides (LPS), Université Paris-Saclay - CNRS, Orsay
« Recent advances in monochromated STEM EELS and related spectroscopy techniques »

2:15 – 3:00 PM
Dr. Sophie Meuret, Centre d'élaboration de matériaux et d'études structurales (CEMES), CNRS, Toulouse
« Dynamics of semiconductors heterostructures with an Ultrafast Transmission Electrons Microscope »

3:00 – 3:30 PM – Coffee Break

3:30 – 4:15 PM
Dr. Patricia Abellan, Institut des Matériaux de Nantes Jean Rouxel (IMN), CNRS, Nantes
« The radiolysis of water ice interfaces and aromatic compounds in the electron microscope »

4:15 – 5:00 PM
Dr. Patrick Schultz, Institut de Génétique et de Biologie Moléculaire et Cellulaire (IGBMC), CNRS – Université de Strasbourg
« 3D imaging of hydrated samples, lessons from biology »