



22.-23. July 2025

Max-Delbrück-Communication Center MDC.C (Geb. 83)
Robert-Rössle-Straße 10, 13125 Berlin
Hörsaal "Axon I"

ACEM – Symposium:

Bridging Electron Microscopy in Life Sciences and Material Sciences – Common Challenges and Opportunities

Tuesday, July 22, 2025

09:00 Registration

Program

09:45 **Welcome and Introduction**
Matthias Ochs, Charité & Speaker of the ACEM

Session: Volume SEM

Chairs: M. Ochs (CHA), S. Kunz (MDC)

10:00 ***Mechanosensitive nuclear pores***
Martin Beck, MPI Frankfurt

10:45 ***Volume electron microscopy of the neuromuscular junction***
Carsten Dittmayer, Charité

11:05 ***Comprehensive solutions for volume EM data challenges***
Norman Rzepka, Scalable Minds GmbH, Potsdam

11:50 ***Volume electron microscopy to reveal mitochondrial adaptations supporting hypoxia tolerance***
Gary Lewin, Max Delbrück Center

12:10 ***VolumeEM – from larger volumes to single particles***
Andrea Lepper, JEOL

12:30 ***Lunch Break (120 min)***

Session: Artificial Intelligence in Electron Microscopy

Chairs: C. Koch (HU), K. Ludwig (FU)

- 14:30 ***Computational Imaging of Biological and Soft Materials using 4DSTEM***
Colin Ophus, Stanford University, USA
- 15:15 ***AI-assisted processing of 2D and 3D EM image data***
Yannic Kerkhoff, FU Berlin / Zuse-Institut Berlin
- 15:35 ***What we can learn about Corona when we combine EM information***
Andrea Thorn, Helmholtz-Zentrum Berlin
- 16:20 *Coffee Break (20 min)*
- 16:40 ***Deep Learning-based Advances in Cryo-Electron Tomography***
Noushin Hajarolasvadi, Zuse-Institut Berlin
- 17:00 ***Learn how to train your own Deep Neural Network, in 15 min.***
Matthias Gänge, ZEISS
- From 17:20 *Get-Together with Barbecue*
- Closing: 20:30 pm



Seeing beyond



Wednesday, July 23, 2025

Session: Quantitative Phase-sensitive S/TEM-Methods

Chairs: M. Lehmann (TU), C. Diebolder (CHA)

- 09:15 ***Momentum-resolved STEM in Physical and Life Sciences: Versatile phase retrieval or 4-dimensional noise?***
Knut Müller-Caspary, LMU München
- 10:00 ***Dynamic nanoscale architecture of synaptic vesicle fusion in mouse hippocampal Neurons***
Jana Kroll, Max Delbrück Center
- 10:20 ***Optical Near-Field Electron Microscopy: a novel non-invasive widefield technique for prolonged super-resolution dynamic imaging***
Ilia Zykov, University of Vienna
- 11:05 *Coffee Break (20 min)*
- 11:25 ***3D Strain Field Reconstruction by Inversion of Dynamical Diffraction***
Laura Niermann, TU Berlin
- 11:45 ***Pixelated sensor technology designed for ultrafast EBSD***
Daniel Goran, Bruker
- 12:05 *Lunch Break & Poster Session (115 min)*

Session: In Operando and Time Resolved EM

Chairs: D. Berger (TU), M. Wahl (FU)

- 14:00 ***Dynamics of active catalysts: insights from multi-scale operando electron microscopy***
Marc-Georg Willinger, TU München
- 14:45 ***Investigating the Influence of FIB-Preparation Induced Surface Effects in Operando Semiconductor TEM-Lamellae***
Hüseyin Çelik, TU Berlin
- 15:05 ***Time resolved cryoEM reveals the mechanisms of ubiquitin chain synthesis and recognition***
David Haselbach, IMP Vienna
- 15:50 *Coffee Break (20 min)*

- 16:10 ***Approaches for time-resolved cryo-EM in vitro and in the cellular context***
Magdalena Schacherl, Charité
- 16:30 ***Introducing Krios 5 - Cutting edge solutions across SPA and Cryo-ET***
Javier Fernandez Collado, ThermoFisher Scientific
- 16:50 **Closing Remarks**
Matthias Ochs, Charité & Speaker of the ACEM
- Closing 17 pm



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Seeing beyond