CZECH OPTICAL CLUSTER | *Let's Make Optics for the Future. Together.*

We are pleased to invite you to a workshop on

Correlative materials characterization

Organized by Czech Optical Cluster
October 7th, 2021 | 9:00 – 16:30 CEST
Brno, Czech Republic or online (hybrid event)

Register here

The workshop will be dedicated to the exciting field of **Correlative Materials Characterization** and **Correlative Imaging**. The aim is to bring together communities from **Material and Life Science**, discuss and explore common interests in this microscopy phenomenon. The subject is open to all relevant microscopy techniques used for correlative material characterization. The main focus will be on **Electron microscopy, Atomic Force Microscopy, X-Ray microscopy, and light microscopy** in various forms.

Main speakers:

Ehrenfried Zschech

CTO & Co-founder of deepXscan

Correlative Material Characterization – Current Status and Perspectives

Pavel Tomančák

MPI Dresden, Germany - CEITEC, Czech Republic

Combining dynamical and ultrastructural studies to gain biological insights

Umberto Celano

University of Twente

Correlative Scanning Probe Microscopy in Site-specific Analysis of Nanoelectronics

Partners and supporters

TESCAN | ThermoFisher SCIENTIFIC | NenoVision | Innovative Bioimaging | telight

BRNO UNIVERSITY OF TECHNOLOGY | ISI CAS Institute of scientific instruments The Czech Academy of Sciences | crytur

Workshop program:

Opening session (09:00 – 10:30)
Chair: *Jan Neuman, NenoVision*

09:00 09:10 Welcome speech
Ilona Müllerová, VP CAS
09:10 09:50 Correlative Materials Characterization – Current Status and Perspectives, *Ehrenfried Zschech, deepXscan*
09:50 10:05 Correlative Cryo-Microscopy of Vitrified Bio-Samples
Miloš Hovorka, Thermo Fisher Scientific
10:05 10:20 Correlation of microscopy techniques for materials science research
Tomáš Šamořil, TESCAN
10:20 10:30 Correlative microscopy using AFM in SEM
Veronika Hegrová, NenoVision

Coffee break – 10:30 – 10:45
Correlative microscopy in materials science (10:45 – 12:15)
Chair: *Michal Urbánek*

10:45 11:15 Correlative Scanning Probe Microscopy in Site-specific Analysis of Nanoelectronics , Umberto Celano, University of Twente
11:15 11:30 Correative microscopy of magnetic nanostructures
Ondřej Wojewoda
11:30 11:45 Contamination mitigation strategy for electron microscopy/spectroscopy
Eliška Mikmeková (online)
11:45 12:00 How to streamline AI application in materials science
Carlosa Barbosa, ScienceDesk (on-line)
12:00 12:15 Prospects of correlative microscopy in steel research
Šárka Mikmeková

Lunch break - 12:15 – 13:30
Correlative microscopy in Life Science (13:30 – 15:00)
Chair: *Jiří Nováček*

13:30 14:00 Combining dynamical and ultrastructural studies to gain biological insights
Pavel Tomančák, MPI Dresden, Germany - CEITEC, Czech Republic
14:00 14:15 Cryo-SEM and Raman spectroscopy in microbiology
Kamila Hrubanova, ISI Brno
14:15 14:30 TBA
Marie Vancova, BC CAS
14:30 14:45 Setup for correlative light and electron microscopy at cryo-conditions
Jana Moravcova, CEITEC MU
14:45 15:00 TBA
Ales Benda, BIOCEV

Coffee break – 15:00 – 15:15

Panel discussion (15:15 – 16:30)
Chair: *Jiří Očadlík*
Speakers: Ehrenfried Zschech, deepXscan
Pavel Tomančák, MPI Dreseden, CEITEC
Dirk van der Wal, TESCAN
Tomáš Vystavěl, Thermo Fisher Scientific
Jan Neuman, NenoVision

Key note speakers biographies

Ehrenfried Zschech is CTO and Co-Founder of deepXscan GmbH, Dresden, Germany. His responsibilities include R&D in the field of high-resolution X-ray imaging and the development of customized solutions for a broad range of applications. He holds an adjunct professorship at Faculty of Chemistry of Warsaw University as well as honorary professorships for Nanomaterials at Brandenburg University of Technology Cottbus and for Nanoanalysis at Dresden University of Technology. Ehrenfried Zschech is Member of the Senate of the European Materials Research Society (E-MRS) and Honorary Member of the Federation of the European Materials Societies (FEMS). In 2019, he was awarded with the FEMS European Materials Gold Medal.

Pavel Tomančák is a Senior Research Group Leader at Max Planck Institute of Molecular Cell Biology and Genetics (MPI-CBG), Dresden, Germany, and since 2021 also the director of the CEITEC consortium in Brno, Czech Republic. His research is focused on understanding how embryonic development evolves. He has developed novel imaging approaches to study animal embryos based on Selective Plane Illumination Microscopy (OpenSPIM) including advanced quantitative 3D image analysis (open source project Fiji). Dr. Tomančák is an EMBO member since 2016, and his research was supported by ERC Starting and Advanced grants

Umberto Celano is a Principal Member of Technical Staff with imec (Belgium) and Asst. Professor at the University of Twente (The Netherlands), with expertise in materials analysis for semiconductor technology, device physics and nanoscale functional materials. He has an electrical engineer background and a master's in nanoelectronics. He received his Ph.D. in Physics from the University of Leuven - KU Leuven (Belgium) in 2015, working to establish a novel three-dimensional nanoscale imaging technique that combines sensing with sub-nm material removal to study materials in confined volumes. Currently, Dr. Celano's research interests encompass nanoelectronics, nanophotonic, functional materials and VLSI materials analysis. In these areas, he conducted research in various institutions including KU Leuven, Osaka University and Stanford University.

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