

# IMAGING PRINCIPLES OF LIFE 2023

## PROGRAM

### Tuesday 3 October

10:00–13:00 **Arrivals and Registration**

12:00–13:00 **Lunch**

13:00–13:15 **Welcome by Pavel Hozák, Director of Czech-BioImaging**

13:15–15:00 **SESSION I Chaired by Marie Vancová and Milan Ešner**

13:15 **Marcos González López, Faculty of Medicine, Masaryk University, Brno**  
BEE-ST Method: 4D-Monitoring of Biomineralization Dynamics in Bones and Teeth

13:30 **Ivona Mladineo, Biology Centre of the Czech Academy of Sciences, České Budějovice**  
Shape of the nucleus of a nematode gland cell: when the only way round, is branching out

13:45 **Jakub Karas, PragoLab s.r.o.**  
Leica STELLARIS confocal platform with focus on White Light Laser and HyD detector in details

14:00 **Albert Cairo, Central European Institute of Technology (CEITEC), Masaryk University, Brno**  
Imaging biocondensates during plant reproduction

14:15 **Hasan Hashimi, Faculty of Science, University of South Bohemia, České Budějovice**  
Volumetric electron microscopy demonstrates a giant virus-encoded protein remodels mitochondria

14:30 **Rudolf Krentik, Ametek GmbH**  
Imaging by direct electron detection optimized for 100 – 200kV range

14:45 **Daria Tashyreva, Biology Centre of the Czech Academy of Sciences, České Budějovice**  
Studying protist cellular architecture by methods of Volume-EM combined with 3D reconstruction

15:00–16:00 **POSTER SESSION & Coffee Break**

16:00–17:45 **SESSION II Chaired by Kateřina Malínská and Michal Mikl**

16:00 **Jan Kremláček, Faculty of Medicine in Hradec Králové, Charles University, Hradec Králové**  
Nonparametric retrospective correction of pulse artifact in fMRI signal

16:15 **Sarah Suergiu, Institute for Clinical and Experimental Medicine, Prague**  
The development of a tool for pancreatic islets quantification

16:30 **Pavel Krist, Carl Zeiss spol. s.r.o.**  
ZEISS LSM 9 confocal family with the Dynamics Profiler - Strengthen Your Live Imaging Analyses with Molecular Insights

16:45 **Eliška Bartečková, Faculty of Medicine, Masaryk University and University Hospital, Brno**  
Neural Implications of Post-COVID-19 Condition: Preliminary Insights

17:00 **Mike Karampelias, Institute of Experimental Botany of the Czech Academy of Sciences, Prague**  
Imaging plants with hormone-sensitive autonomous bioluminescence: challenges and perspectives

17:15 **Barbora Kobidová, Altium International s.r.o.**  
Igniting new confocal Imaging Potential of Nikon AX/AX-R in a Combination with new Super-resolution Module NSPARC

17:30 **Kristína Mitterrová, Central European Institute of Technology (CEITEC), Masaryk University, Brno**  
Neurocognitive markers of brain stimulation efficacy and decline

19:00–22:00 **Conference Dinner (sponsored by Thermo Fisher Scientific)**

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### Wednesday 4 October

9:00–10:30 **SESSION III Chaired by Vlada Filimonenko and Aleš Benda**

9:00 **Pavína Šliková, Institute of Biotechnology of the Czech Academy of Sciences, Vestec**  
Anillin and myosin II synergistically contract single actin filaments and complex structures

9:15 **Guillaume Brunetti, JEOL (EUROPE) SAS**  
JEOL Solution for Life Science

9:30 **Dominik Pinkas, Institute of Molecular Genetics of the Czech Academy of Sciences, Prague**  
Precise light and fluorescent microscopy guided cryo-FIB lamella preparation from multicellular samples

9:45 **Vitaly Polovinkin, ELI Beamlines Facility, Extreme Light Infrastructure, ERIC; Štěpánka Tomková, University of South Bohemia, České Budějovice**  
The potential of using in cellulo grown protein crystals and 3D electron diffraction to solve challenging protein structures

10:00 **Jakub Javůrek, TESCAN GROUP, a.s.**  
Advanced EM solutions for 3D cell & tissue characterization

10:15 **Petr Rada, Biotechnology and Biomedicine Centre (BIOCEV), Charles University, Prague**  
The hidden world of parasites in the light of microscopy

10:30–11:00 **Coffee Break**

11:00–12:30 **SESSION IV Chaired by Martin Mistrík and Zenon Starčuk**

11:00 **Václav Ranc, Palacký University Olomouc, Olomouc**  
Discrimination of resected glioma tissues using surface enhanced Raman imaging and Au@ZrO<sub>2</sub> nanocomposites

11:15 **Dagmar Bezděková, accela s.r.o.**  
Spatial Omics and Multiplexed Imaging to Explore New Insights in Biology

11:30 **Amit Khairnar, International Clinical Research Center of St. Anne's University Hospital (FNUSA-ICRC), Brno**  
Diffusion kurtosis imaging detects the MPTP-induced neurodegenerative changes in a mouse model of Parkinson's Disease

11:45 **Ivana Malcová, Institute of Microbiology of the Czech Academy of Sciences, Prague**  
Visualization of the T3SS-needle-tip protein Bsp22 in Bordetella cells

12:00 **Ondřej Sedlák, Nikon Europe B.V., český odštěpný závod**  
Microscopy Simplified

12:15 **Martin Hrubý, Institute of Macromolecular Chemistry of the Czech Academy of Sciences, Prague**  
Advanced polymer materials for in situ in vivo sensing of inflammation and infection in real-time

12:30–13:30 **Lunch**

13:30–15:15 **SESSION V Chaired by Miroslav Hyliš and Štěpán Kortus**

13:30 **Jan Vávra, Abberior Instruments GmbH**  
Nanoscopy with minimum photon flux

13:45 **Minseok Kang, Institute of Experimental Medicine of the Czech Academy of Sciences, Prague**  
Sensorineural hearing loss in mice with deleted GABAB receptor-associated KCTD12 proteins

14:00 **Tomáš Horák, Brno University of Technology, Brno**  
Invasiveness of tumor cells into a 3D artificial tissue environment using holographic quantitative phase imaging

14:15 **Kristýna Kárová, Institute of Experimental Medicine of the Czech Academy of Sciences, Prague**  
PI3K $\delta$  gene therapy in spinal cord injury leads to axon regrowth and function restoration

14:30 **Josef Lavický, Faculty of Medicine, Masaryk University, Brno**  
The Development of Dentin Microstructure Is Controlled by the Type of Adjacent Epithelium

14:45 **Meri Eichner, Centre Algatech, Institute of Microbiology of the Czech Academy of Sciences, Prague**  
Photosynthesis in diazotrophic cyanobacteria: A CryoFM approach

15:00 **Zuzana Šedrllová, Faculty of Chemistry, Brno University of Technology, Brno**  
Characterization of biotechnologically relevant bacterial cells

15:15 **Conference Closing by Pavel Hozák, Director of Czech-BioImaging**