



**LABORATORY
OF ELECTRON
MICROSCOPY**
České Budějovice

**BIOLOGY
CENTRE
ASCR**

**EURO
BIOIMAGING**
Image life, discover the future

**CZECH
BIOIMAGING**
Imaging principles of life

CSMS

**INSTITUTE OF
PARASITOLOGY**
Biology Centre, CAS

WORKSHOP OF ADVANCED ANALYSIS AND PROCESSING OF VOLUME EM DATA

From raw dataset to model: stitching, alignment, advanced filtering and segmentation
including AI powered approaches

České Budějovice 15th – 17th of May 2024

Laboratory of Electron Microscopy, Biology Centre, Czech
Academy of Sciences



[Information](#)

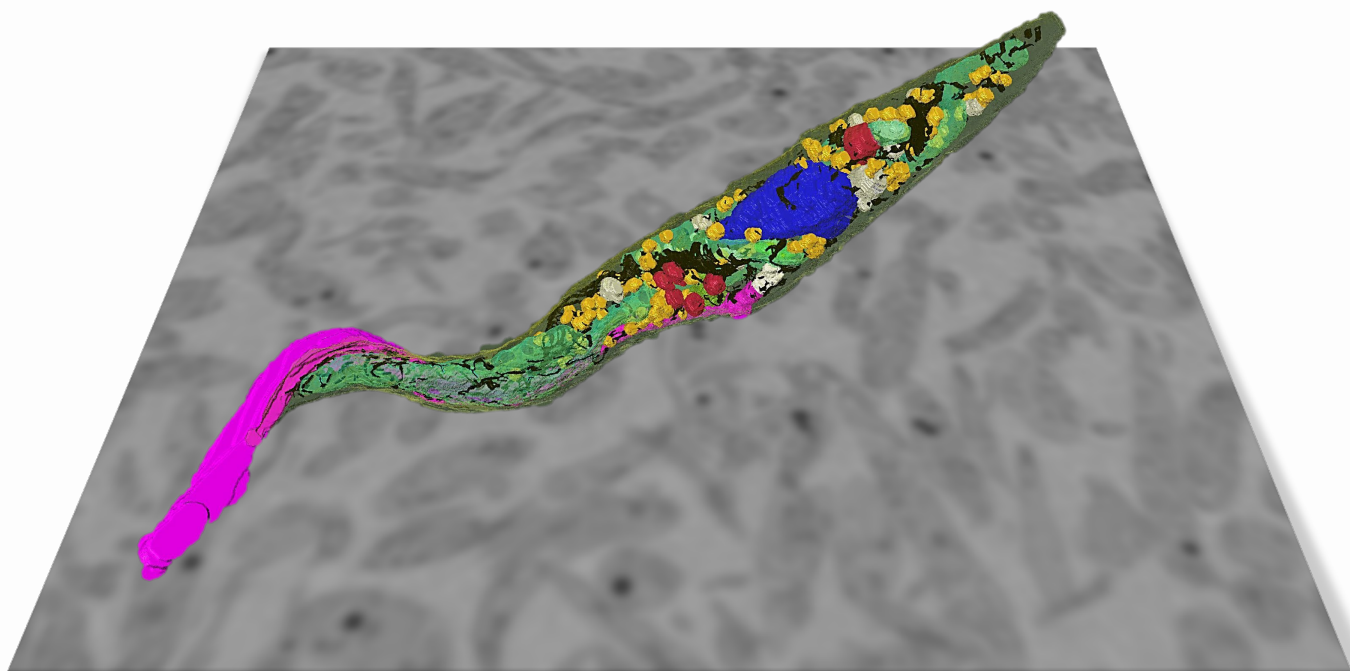
[Program](#)

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Amira™ 3D

thermoscientific



EMBL  **ThermoFisher
SCIENTIFIC**

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INFORMATION

This hands-on workshop is focused on advances in the data processing, segmentation and analysis obtained from the volume electron microscopy imaging techniques. Its main goal is to make the participants familiar with the new tools available for the data analysis mainly the AI-tools to make the image analysis and segmentation as effective and fast as possible.

The program is dedicated to people who already have some experience with basic data processing. We will focus on work with “advanced” tools of Microscopy Image Browser and AMIRA (Thermo Fisher Sci.), such as AI powered segmenting tool - Segment Anything Model from META (MIB), AI Assisted Tool for CryoEM (AMIRA), deep learning (MIB and AMIRA), volume/surface rendering (MIB and AMIRA), etc.

Participants are required to bring their own laptop and have a google account active. Both MIB and AMIRA will be run on remote desktops.

Partners:



Sponsors



Organisers:

[Marie Vancová](#) (Laboratory of EM, Biology Centre CAS, České Budějovice)



Since 2021, the head of the LEM. The LEM provides state-of-art support for users to address different biological questions using EM techniques. Her scientific interests focus on EM investigation of the structure of tissues and cells using various techniques, including cryo-techniques, 3D reconstructions, and immunolocalization of molecules. She has lecturing experience at Faculty of Science, South Bohemia University; participated as a speaker/instructor of courses (e.g. EM practical EMBO Courses;

Biological Specimens in EM), workshops, etc.

[Jana Nebesářová](#) (Laboratory of EM, Biology Centre CAS, České Budějovice)



The head of the LEM for more than 20 years. Her research interests cover particularly biological specimen preparation for electron microscopy. She has long lecturing experience at Master/Doctoral level in Electron Microscopy Techniques and Methods at Faculty of Science, South Bohemia University, Charles University; co-organisation/speaker at EMBO practical EM courses, workshops, and other courses.

Speakers and instructors:

[Ilya Belevich](#) (University of Helsinki, Helsinki, Finland)



He is an image analysis expert who started with electron microscopy in 2010. His home laboratory in at the University of Helsinki in the scientific group of Eija Jokitalo. His main focus is on the development of image analysis workflows and software development. He is a father of Microscopy Image Browser (MIB) – a MATLAB based freeware, which he is constantly maintaining and improving. He will be presenting and teaching the tools and usage of MIB.

Julien Rousel

Julien's colleague...

[Jiří Týč](#) (Laboratory of EM, Biology Centre CAS, České Budějovice)



His main research interest is BIOIMAGING. He got his PhD in molecular biology, and during his postdoc at the Bioimaging unit at Oxford Brookes University (UK), he started with 3D EM. He focuses on 3D SEM techniques such as serial block-face SEM and array tomography and he has experience also with confocal and high-resolution fluorescence microscopy.

František Kitzberger (Laboratory of EM, Biology Centre CAS, České Budějovice)



PhD Student in the Laboratory of EM in České Budějovice focused on advanced methods of SEM, Volume EM and image segmentation and analysis. He is also a member of the laboratory of KONFMI and Electron microscopy units at Charles university He has experience in teaching electron microscopy and image analysis and segmentation on courses held on University of South Bohemia and Charles University .

PRELIMINARY PROGRAM

Wednesday	Intro	
13:00	Welcome Address	
13:10	Overview of the Volume EM methods	Jiří Týč
14:00	Overview of Image processing and filtering methods	???
15:00	Coffee break	
15:15	Recapitulation of image segmentation and processing methods	František Kitzberger
18:00	Social program??	
Thursday	MIB	
9:30	MIB – intro and hands-on (coffee break included)	Ilya Belevich
11:45	Lunch	
13:00-until the end	MIB – Hands-on (coffee break included)	Ilya Belevich
18:00	Social program??	
Friday	AMIRA	
9:30	AMIRA Intro and Hands-on	Julien and his colleague
11:45	Lunch	
13:00-until the end	AMIRA Hands-on	Julien and his colleague

REGISTRATION AND CONTACT

Registration Fees – Covered by sponsors

The course capacity is strictly limited, therefore we require you to provide the Letter of Motivation with your submission

[For registration click here](#)

Contact: [Jiří týč](#)

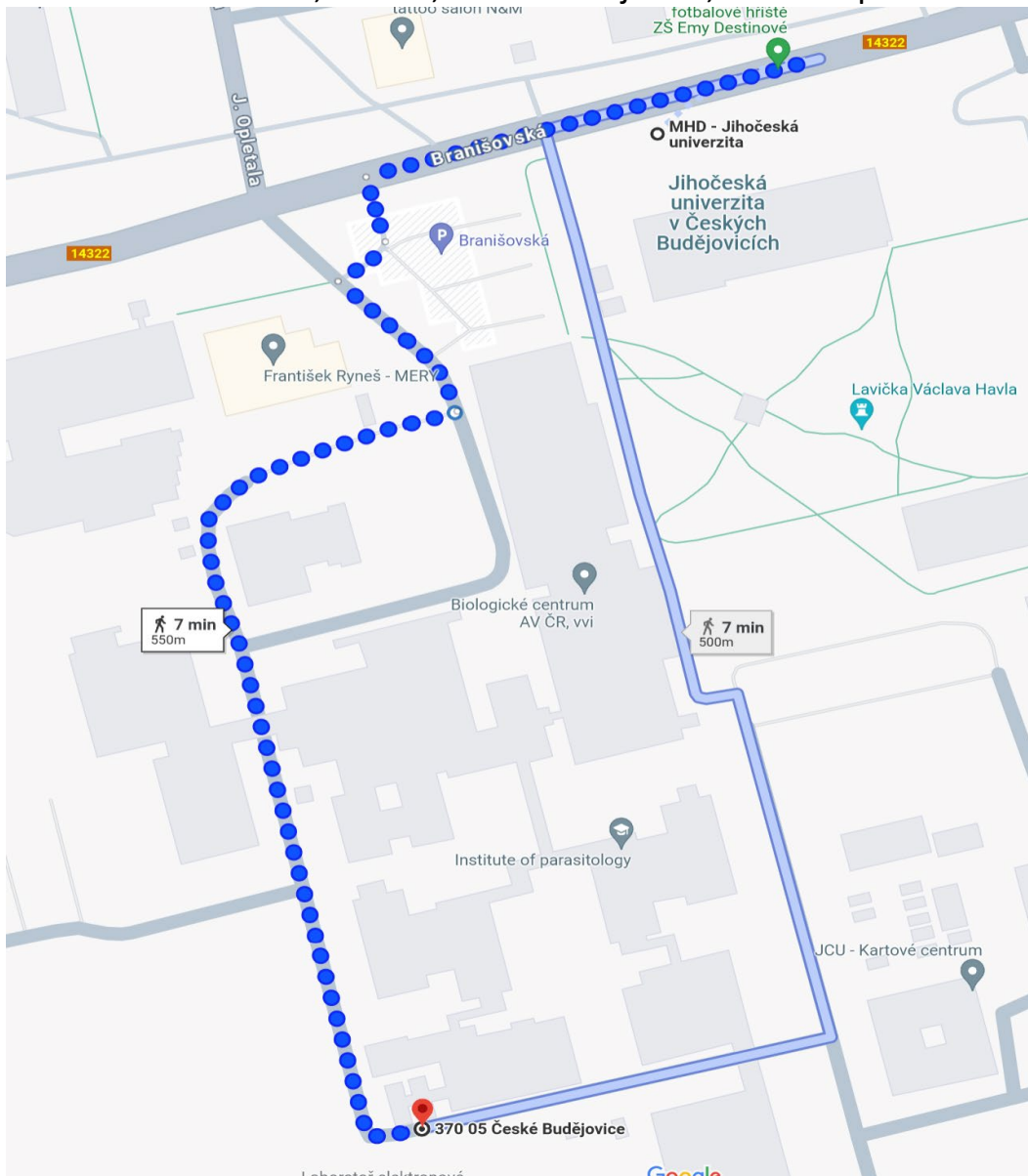
[František Kitzberger](#)

VENUE AND ACCOMMODATION

Venue

Laboratory of Electron Microscopy, Biology Centre ASCR - Institute of Parasitology

Branišovská 31, 370 05, Ceske Budejovice, Czech Republic



(Click on the map to open in the browser)

GPS

Loc.: 48.97609487481923, 14.447112729646566

How to get to the venue

By public transport:

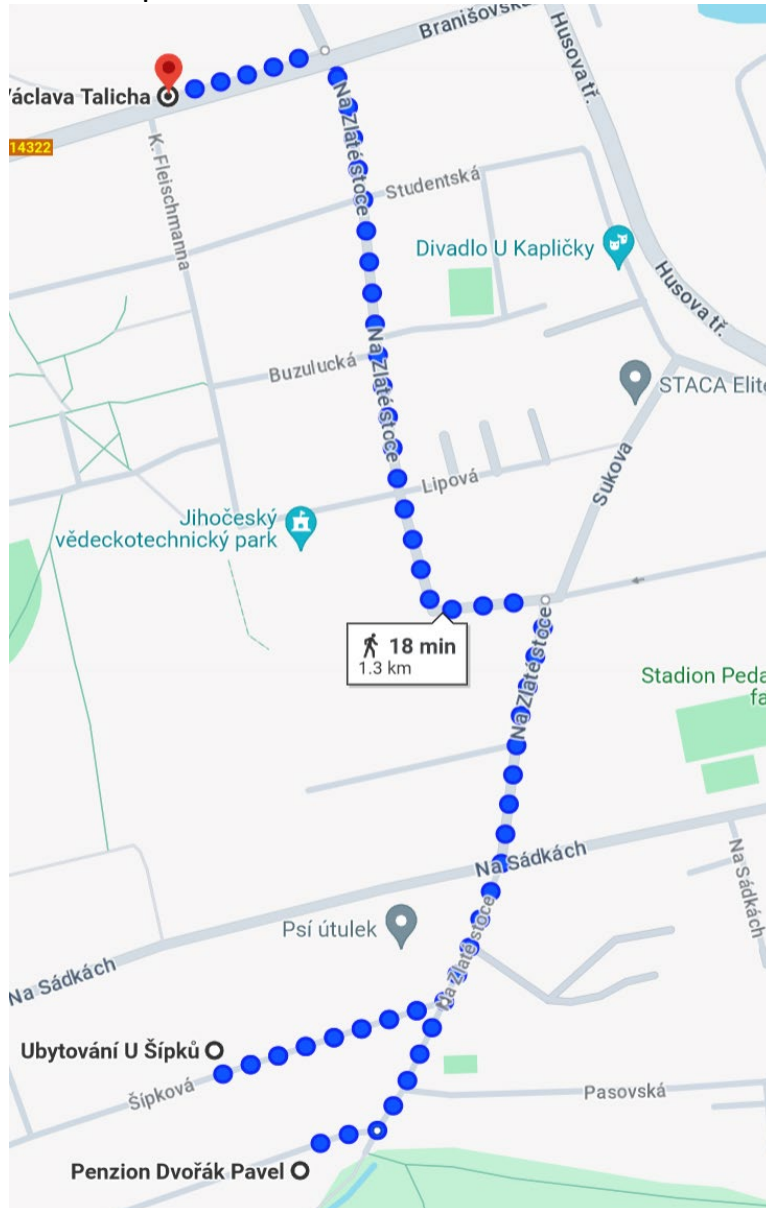
From the train station of the bus station, go the bus stop located under the Mercury shopping center and take bus No. 3 in direction Máj – Antonína Barcala and get off at the bus stop Jihočeská Univerzita. Then cross the street to the university campus and from go to the building of the laboratory.

By car:

In case you plan to get here by the car, go to the address: Branišovská 31, 370 05, České Budejovice. You can park your car on the parking lot at the Biology Centre. (ring at the gate and tell that you participate on this course if asked). Other parking possibility is at the recommended accommodation site.

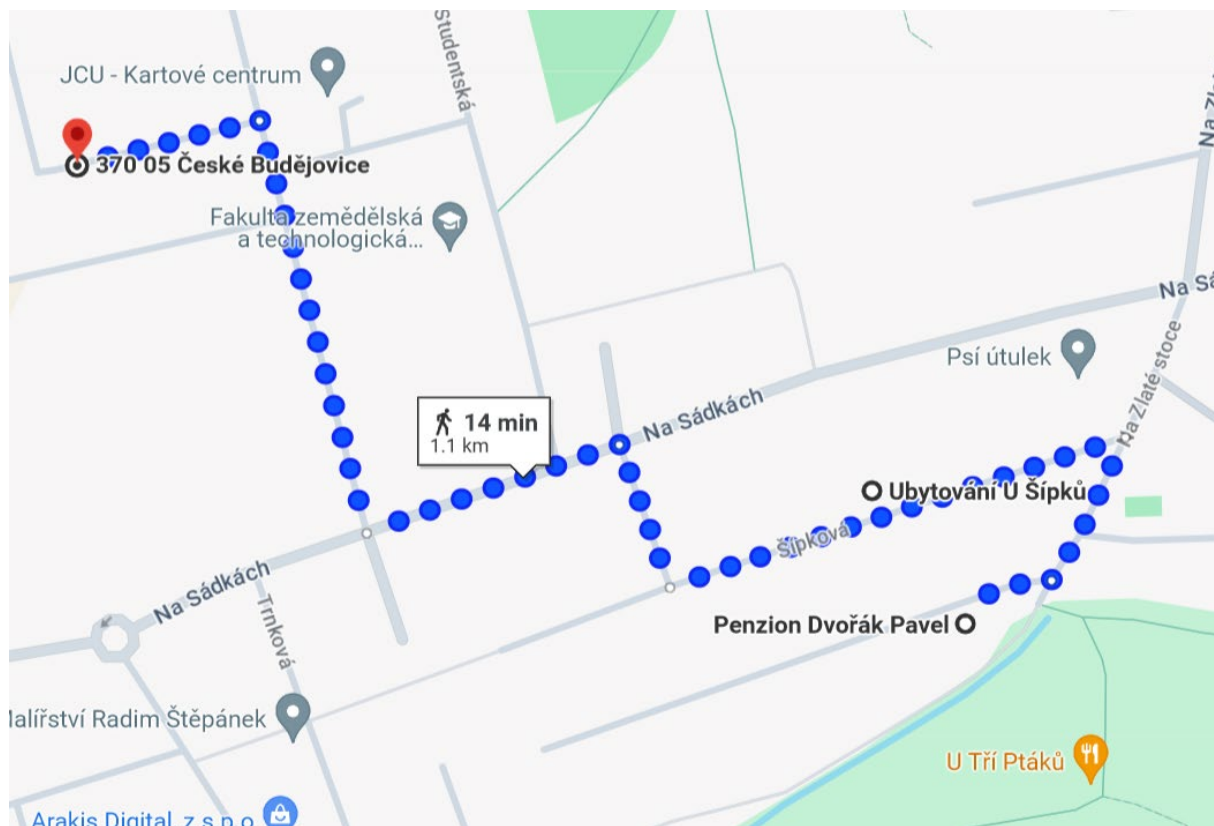
Accommodation

You can arrange your accommodation either in the Penzion U Šípku (contact person: Marie Hloušková, +420 604 375 441, usipku.cb@seznam.cz), or in the Penzion Dvořák (+420 721 810 410, PenzionDvorak@email.cz). Both of the pensions are located within 15 minutes of walk from the venue. For closer information see the map.



(Click on the map to open in the browser)

From the accommodation to the venue



(Click on the map to open in the browser)