UNIVERSITÄT BERN

MIC training: **Light Sheet Microscopy for *in vivo* and cleared samples**

Date:	February 19-21, 2025
Time:	9 am – 5 pm
Location:	University of Bern, Institute of Anatomy, Bühlstrasse 26, room A263, 3012 Bern
Trainers:	Dr. Ines Marques, Dr. Yury Belyaev, Dr. Marco Meer (University of Bern, CH); Clément Laigle (Leica, Mannheim, DE); Dr. Rafael Kurtz (Miltenyi, Bergisch Gladbach, DE); Dr. Laura Batti, Dr. Stéphane Pagès (Wyss Center, Geneva, CH), Dr. Petr Strnad (Viventis/Leica, Lausanne, CH), Dr. Christian Tischer (EMBL Heidelberg, DE).
Organizers:	Dr. Ines Marques, Institute of Anatomy, University of Bern Dr. Yury Belyaev, MIC of the University of Bern. Supported by the PhD specialization Cutting Edge Microscopy.
Number of participants:	Minimum 4, maximum 8
Registration:	until February 12, 2025, here.
Target audience:	PhD students, postdocs, and everyone who needs analysis of microscopy images on single cell level in their research. Participants of Cutting-Edge Microscopy specialization program are particularly invited.
Credits:	Certificate of attendance. On request, PhD students of the Cutting Edge Microscopy program can obtain 1.5 ECTS upon presenting the learning outcome in the context of his/her project at a separate meeting.
Background:	Fluorescent Light Sheet Microscopy allows optical sectioning of 3D specimens at high speed. Only a thin slice of the sample is illuminated with the laser beam, minimizing photodamage. The Leica DLS is optimal for live and cleared samples of up to 2 mm. LaVision UM I is suitable for cleared samples of up to 10 mm size.
Content:	Principles of Light Sheet Microscopy. Preparation of samples for *in vivo* imaging and clearing protocols for fixed samples. Hands-on sessions including imaging of own samples and image analysis.
Learning outcome:	Participants will learn the basics of Light Sheet Microscopy, its suitability for imaging *in vivo* and fixed samples, and the fundamentals of presenting and analyzing of acquired images.
Course fee:	Free or charge. Cancelation after February 12, 2025 or no show – administrative fee of 100 CHF.
Schedule:	See next page.

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Time	Day 1 Wednesday, 19.02.2025	Day 2 Thursday, 20.02.2025	Day 3 Friday, 21.02.2025
09:00-12:00	Introduction to Light Sheet Microscopy, P. Strnad, Viventis Scientific talk live SPIM I. Marques, Anatomy Bern Leica Digital Light Sheet, C. Laigle, Leica Introduction to hands-on	Overview of clearing methods L. Batti, Wyss Center Scientific talk fixed SPIM S. Pagès, Wyss Center LaVision Ultra Microscope R. Kurtz, Miltenyi Introduction to hands-on	New file formats for big data C. Tischer, EMBL Introduction image processing M. Meer, University of Bern Deconvolution microscopy with Huygens Remote Manager (HRM) Y. Belyaev, University of Bern
12:00-13:30	Lunch break	Lunch break	Lunch break
13:30-17:00	Hands-on DLS sample preparation C. Laigle, Leica I. Marques, University of Bern Imaging with DLS C. Laigle, Leica I. Marques, University of Bern	Hands-on UM sample preparation L. Batti, Wyss Center S. Pagès, Wyss Center Imaging with UM R. Kurtz, Miltenyi Y. Belyaev, University of Bern	Visualisation and analysis of DLS and UM data with free and commercial software Work with own and demo data sets M. Meer, University of Bern Y. Belyaev, University of Bern