

Bern, 20<sup>th</sup> November 2019

### **Symposium ‘Seeing is believing’**

The international [EMBO](#) symposium ‘[Seeing is Believing - Imaging the Molecular Processes of Life](#)’ took place in Heidelberg, Germany, on October 9-12, 2019. More than 400 participants attended this meeting that brought together the leading developers of imaging methods. Among the speakers were Stefan Hell and William Moerner, both Nobel Prize laureates for their work on super-resolution fluorescence microscopy in 2014. Emphasis was set on methods to capture the dynamics of life, from molecular resolution to imaging of whole organisms. Accordingly, the topics of this year were: imaging across scales, image analysis, super-resolution microscopy, probes and biosensors, and biological processes discovered by imaging, new biology super-resolved. The meeting also included an extensive company program with workshops, exhibitions and presentations.

Jakobus van Unen and Paolo Gagliardi from the group of Prof. Olivier Pertz at the Institute of Cell Biology presented the posters ‘Using acute perturbation techniques to dissect spatio-temporal Rho GTPase signaling networks’ and ‘Apoptotic epithelial cells trigger an ERK/Akt activity wave in the neighbors to protect them from apoptosis’, which were very well-received by the audience.

### **Interdisciplinary symposium on 3D Microscopy**

The [Interdisciplinary Symposium on 3D Microscopy](#) was organised by the [Swiss Society for Optics and Microscopy \(SSOM\)](#) and took place in Engelberg, Switzerland, with more than 70 participants from Switzerland and abroad on October 1-4, 2019. Dimitri Vanhecke, member of the MIC committee, was part of the scientific committee. The aim of this symposium was to bring together researchers from different disciplines but with a common interest in three-dimensional imaging or spectroscopy. The panel sessions covered advances in 3D imaging, TEM tomography, image processing, 3D in vivo microscopy, machine learning, volume SEM and 3D correlative techniques. The intensive networking between participants during coffee breaks, hiking in nearby mountains and conference dinner further improved the interdisciplinary exchange during this meeting.

Representatives of the Microscopy Imaging Center (MIC) of the University of Bern were Guillaume Witz and Yury Belyaev. Guillaume gave a talk on automated image analyses processes and supervised a workshop on Jupyter notebooks. Yury presented a collaborative project with Benoît Zuber and Adolfo Odriozola, Institute of Anatomy, and Hans van der Voort, Scientific Volume Imaging ([www.svi.nl](http://www.svi.nl)), entitled ‘Deconvolution of serial block face scanning electron microscopy images allows for faster imaging’.

### **Retreat of the MIC committee**

On September 18, 2019 the MIC committee gathered at Schloss Bümpliz to discuss how to improve the efficiency of the MIC. Amongst the aspects examined were the MIC committee itself as well as the MIC portfolio of instruments, software and expertise to be included and developed. Suggested adaptations will be discussed and decided at the next MIC commission meeting.



## Booking system for microscopes

At that moment, microscopes and add-on devices are available for reservation at [MICBOOK](#). Due to security issues, the login to MICBOOK may be corrupted from 2020. Therefore, MIC has formed a task force that searched for alternative booking systems. The decision has been taken to switch to [Open Iris](#) as instrument scheduling platform for the MIC instruments. For administrators, MIC will offer consultation-hours on December 10, 11 and 13. More detailed information has been sent to all users and all instrument administrators of MICBOOK.

## New microscopes of the MIC

### Calcium Imaging

A high-end calcium imaging system for ratiometric Fura-2 calcium imaging measurements in living cells is available at the Institute of Biochemistry and Molecular Medicine ([IBMM](#)). It includes a Zeiss Axio Vert.A1 microscope equipped with a Till Photonics Polychrome V monochromator and a QImaging Retiga R1 camera. The automated ALA scientific pressurized 4-vessel perfusion system provides for a quick bath solution exchange and Visitron VisiView software enables real time data evaluation. For more information see MIC services [here](#).

### Patch-clamp

A state of the art patch-clamp imaging setup with GFP, dsRed, and YFP fluorescence detection is formed by a Zeiss Axio Vert.A1 microscope, a HEKA EPC 10 USB patch-clamp amplifier with a red star headstage, two Sutter MP-225 micromanipulators, and a manual 4-vessel perfusion system is available at the [IBMM](#). For more information see MIC services [here](#).

## Highlights and important dates of the MIC

MIC Symposium:	November 29, 2019 <b>Machine Learning in Imaging</b> University of Bern, UniS, lecture hall A003, Schanzeneckstrasse1, 3012 Bern More information <a href="#">here</a> .
MIC Commission meetings:	December 12, 2019 February 27, 2020 May 14, 2020 August 27, 2020 December 10, 2020
MIC Research Day:	July 8, 2020
MIC Summer School:	July 8 – 10, 2020
Swiss Core Facility Day	September 2, 2020
MIC Symposium:	November 27, 2020

## Call for communication of events and presentations

The MIC aims to improve collaborations between researchers at the University of Bern. Please announce lectures of team members or guests to the [MIC coordinator](#) for publication on the MIC homepage and the MIC newsletter!



## **MIC Presentations, Trainings, Workshops, Demonstrations – upcoming events at the University of Bern**

### **November 19 – 20, 2019**

Nikon Workshop: Automated microscopy with [Nikon JOBS](#).

Location: University of Bern, Mittelstrasse 43, room 216, 3012 Bern, more information [here](#).

### **November 28, 2019**

Seminar by [Robert Prevedel](#), EMBL, Heidelberg.

Title: Visualising dynamic biological processes using light-field microscopy.

Where & when: Theodor Kocher Institute, Freiestrasse 1, 2nd floor, club room, at 4.00 pm.

## **Trainings, Workshops, Demonstrations – further events in Switzerland and abroad**

### **November 21 - 22, 2019, Vienna, Austria**

Conference on Multimodality Imaging in Life Sciences. Offered by the Cost initiative Correlated Multimodal Imaging in Life Sciences ([COMULIS](#)) and [BioImaging Austria/CMI](#). More information [here](#).

### **November 25 – 27, 2019, Prague, Czech Republic**

Superresolution in Light Microscopy; IMG CAS Prague, organized by the [European light microscopy initiative \(ELMI\)](#), further information see [here](#).

### **December 4-5, 2019, Freiburg, Germany**

MIAP Bioimage Analysis Workshop (ImageJ/Fiji basic), organized by [ELMI](#), further information see [here](#). Application deadline 24 November 2019.

### **December 11-13, 2019, Freiburg, Germany**

MIAP Advanced Imaging Techniques (AIT) Workshop, organized by [ELMI](#), further information see [here](#). Application deadline 24 November 2019.

### **January 19 – 24, 2020; Zurich, Switzerland**

14th Zurich Winter School 2020 on Advanced Microscopy. Further information [here](#).

### **January 20 – 24, 2020, Heidelberg, Germany**

Deep Learning for Image Analysis, EMBL course, more information see [here](#).

### **February 29 – March 6, 2020, Bordeaux, France**

4th conference of the [Network of European BioImage Analysts \(NEUBIAS\)](#). More information [here](#).

**Previous MIC newsletters** are available to you for download on the **MIC Homepage** [here](#) and on **ILIAS** [here](#).

