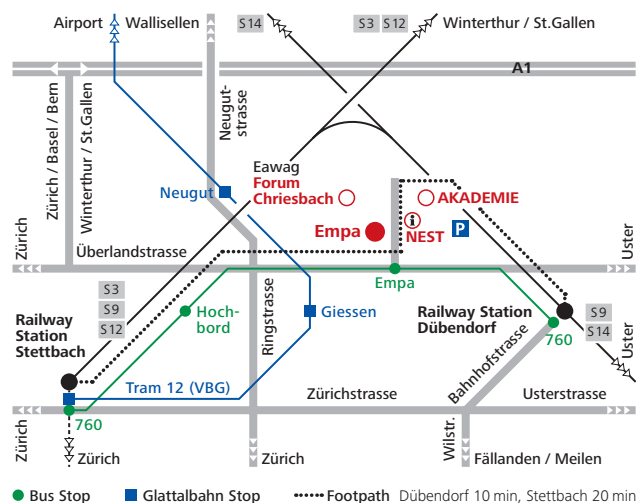


## GENERAL INFORMATION

Location	Empa, Dübendorf Überlandstrasse 129 AKADEMIE
Costs	The event is sponsored by Empa and free of charge.
Registration	<a href="http://www.empa-akademie.ch/imaging">www.empa-akademie.ch/imaging</a> You will receive a confirmation by e-mail.
Deadline	March 19, 2017
Contact	Michele Griffa Phone +41 58 765 43 60 <a href="mailto:michele.griffa@empa.ch">michele.griffa@empa.ch</a> <a href="http://www.empa.ch/x-ray">www.empa.ch/x-ray</a>

Rolf Kaufmann  
Phone +41 58 765 60 95  
[rolf.kaufmann@empa.ch](mailto:rolf.kaufmann@empa.ch)  
[www.empa.ch/x-ray](http://www.empa.ch/x-ray)

**How to get here** Please do use public transport.  
There is only very limited parking available.

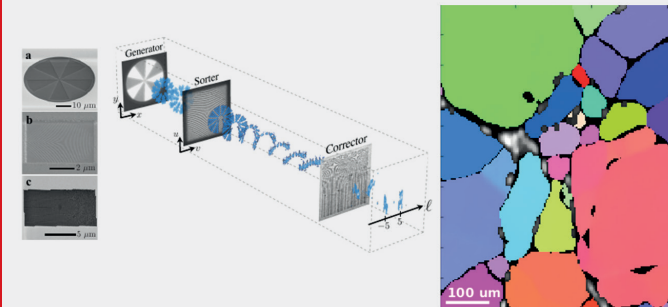


In this edition of the Topical Days on Imaging and Image Analysis, the focus of the morning session is on **diffraction** and **scattering-based imaging** with **hard X-rays**, **neutrons** and **electrons**. Compared with “macroscopic attenuation”, being the most frequently exploited mechanism generating contrast in the images, diffraction and (small-angle) scattering are relatively “newly” exploited processes for imaging purposes, bringing different types of information about the imaged object, specifically nano- and micro-structural and chemical information.

The afternoon session is dedicated to presentations of latest imaging/image analysis-related research and development work done at Empa.

## TOPICAL DAY

# Imaging and Image Analysis IX



Empa, Dübendorf, Überlandstrasse 129  
Tuesday, April 4, 2017, from 8:30 to 17:30

Online registration:  
[www.empa-akademie.ch/imaging](http://www.empa-akademie.ch/imaging)

## TOPICS

Imaging, from scanning electron microscopy, scanning probe microscopies, optical microscopy to X-ray/neutron radiography/tomography and more, as well as different methods and techniques used in performing image analysis.

## TARGET AUDIENCE

Scientists, PhDs and postdocs working with different imaging techniques and image analysis procedures.

## OBJECTIVES

The series of Topical Days on Imaging and Image Analysis offers to scientists both of the ETH Domain and of other public/private institutions a platform for keeping abreast of the latest developments and for sharing experience in the fields of imaging/image analysis.

In this edition, the focus is on **diffraction** and **scattering-based imaging** with **hard X-rays**, **neutrons** and **electrons**.

## PROGRAM

08:30 Welcome Coffee, Registration

08:50 Opening Remarks  
Rolf Kaufmann, Center for X-ray Analytics  
Michele Griffo, Concrete/Construction Chemistry Laboratory  
Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

### MORNING SESSION

09:00 Unconventional transmission electron microscopy using electron holograms: from vortex beams to diffraction interferometry  
Vincenzo Grillo, National Research Council  
Nanosciences Institute, Modena (Italy)

09:40 Full-field X-ray orientation microscopy  
Wolfgang Ludwig, European Synchrotron Radiation Facility (ESRF), Grenoble, and MTEIS, INSA Lyon (France)

10:20 Coffee Break

10:40 X-ray color tomography  
Robert Cernik, University of Manchester,  
Manchester (United Kingdom)

11:20 Scanning-SAXS microscopy: higher dimensionality, information level and reconstruction complexity  
Viviane Lütz-Bueno, Coherent X-ray Scattering Group, Laboratory for Macromolecules and Bioimaging, Paul Scherrer Institut, Villigen (Switzerland)

12:00 Lunch

### AFTERNOON SESSION

13:00 Diffractive imaging with neutrons  
Marc Raventos, Neutron Imaging and Activation Group, Paul Scherrer Institut, Villigen (Switzerland)

13:40 CO<sub>2</sub> hydrogenation reactions followed by neutron imaging  
Jasmin Terreni, Laboratory for Advanced Analytical Technologies, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

14:05 Combining *in situ* SAXS and Electron Microscopy techniques to study self-assembly in Biology  
Stefan Salentinig, Laboratory for Biointerfaces, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

14:30 Correlative Bioimaging: from Light to Electron Microscopy, from 2D to 3D  
Kerda Keevend, Laboratory for Particles-Biology Interactions, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

14:55 Coffee Break

15:15 An ImageJ plugin for *in situ* monitoring of wear rate in a complex tribological system  
Bastian Meylan, Laboratory for Advanced Materials Processing, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

15:40 THz topography of hidden objects  
Erwin Hack, Laboratory for Reliability Science and Technology, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

16:05 4D X-ray imaging of water in yarn  
Marcelo Parada, Laboratory for Multiscale Problems in Building Physics, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

16:30 Multi-contrast X-ray imaging of water transport in cement-based materials  
Fei Yang, Center for X-ray Analytics and Concrete/Construction Chemistry Laboratory, Swiss Federal Laboratories for Materials Science and Technology (Empa), Dübendorf (Switzerland)

16:55 Dislocation and crack dynamics in silicon analyzed by X-ray diffraction imaging  
Andreas N. Danilewsky, Kristallographie, Universität Freiburg, Freiburg (Germany)

17:20 New material analysis and simulation options on voxel data  
Sandra Engels, Volume Graphics GmbH, Heidelberg (Germany)

17:35 Closing