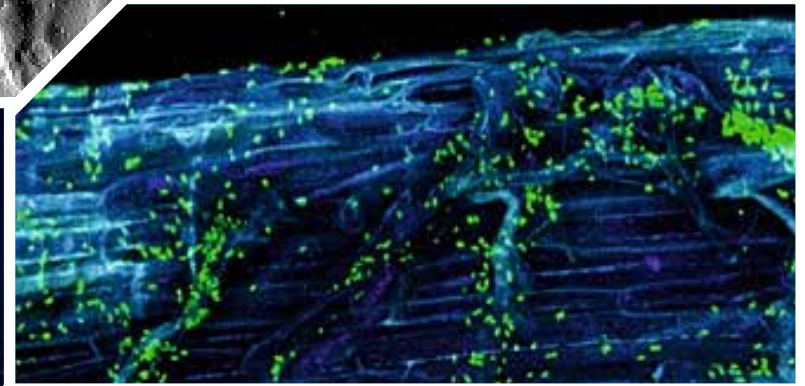


TRAINING COURSE AND WORKSHOP

ADVANCED MICROSCOPY TECHNIQUES FOR PLANT-MICROBE INTERACTION ANALYSIS

Vienna / Tulln (Austria), Nov 27th - Dec 2nd 2017





LECTURES AND PRACTICAL WORK

Microbe transformation, staining methods, FISH fundamentals, confocal microscopy, atomic force microscopy, scanning electron microscopy, image analysis, 3D modelling.

WORKSHOP FEES:

Fees for PhD students:	1290 EUR
Academic researchers:	1490 EUR
Non academic:	1790 EUR
Early bird rebate:	300 EUR
<small>(until August 15th 2017)</small>	

LIMITED TO 16 PARTICIPANTS

Fees include training, lectures, lunches, coffee breaks, and a conference dinner in Vienna!

CONTACT

microscopy@ait.ac.at

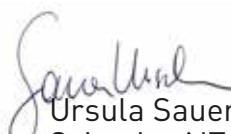
AIT Austrian Institute of Technology GmbH
Konrad-Lorenz-Straße 24
3430 Tulln | Austria

We cordially welcome you to this one-week training during which you will be exposed to cutting edge technologies and acquire know-how on various microscopy methods applied in plant-microbe interactions research. We offer a well-balanced blend of lectures and lab work presented by leading scientists in the field. Learn to efficiently handle microscopes and discover new developments of techniques and instrumentation.

The workshop is open to an international audience eager to acquire expertise in visualization of plant-microbe association.

Interested applicants, please, send CV and motivation letter to microscopy@ait.ac.at before July 1st. Selected candidates will be contacted before the early bird deadline.

We look forward to spending an inspiring week together and exploring microbes on and within plant tissues with you.


Ursula Sauer
Scientist AIT


Stéphane Compant
Scientist AIT

SPEAKERS



URSULA SAUER
AIT Austrian Institute of Technology

Biopic: Dr. Ursula Sauer received her Master in Biology at the University of Vienna and her PhD from the Vienna University of Technology. She is expert for the characterization of technical and biological surfaces and interfaces by means of fluorescence microscopy, scanning electron microscopy (SEM), and atomic force microscopy (AFM). A special focus of her work is on characterization of the phyllosphere and implications for plant ecology. Further, she is working on formulations for bio-control agents as well as on development of environmentally sustainable formulations of plant growth promoting bacteria (PGPB).

AFM and SEM: close-ups of the phyllosphere: Plant cuticles are lipophilic membranes with protective function consisting of a polymer matrix covered with epicuticular waxes. Both, topography and chemistry control microhabitat quality in the phyllosphere and hence the abundance as well as the biodiversity of colonizing microbes. AFM and SEM are excellent tools for studying this habitat at the microscale.



LEVI A. GHEBER
Department of Biotechnology Engineering
Ben-Gurion University of the Negev

Biopic: Dr. Gheber holds a Ph.D. in Physics of condensed matter (1995), followed by a 4 years postdoctoral training in biology in the Johns Hopkins University. He has joined the Department for Biotechnology Engineering at the Ben-Gurion University in 1999 and currently he serves as the Chairman of the Department. His lab conducts research on Nanobiotechnology and Biophysics. Dr. Gheber has published numerous articles in leading peer-reviewed journals, as well as several book chapters. He has served as an editorial board member for Biophysical Journal and is currently an editorial board member of Scientific Reports.

Atomic Force Microscopy for Biologists: The Atomic Force Microscope (AFM) was introduced in 1986 and has rapidly become an almost routine instrument in research labs. It owes its popularity to the fact that it can work on biological samples (unlike its "big brother", the STM that was introduced 4 years earlier, and requires a conductive sample). The AFM enabled for the first time high resolution images on live biological specimens. We will discuss the components and modes of operation of AFM and will explain how the interactions between the AFM and the sample can create artifacts and how these can be avoided.

Image Analysis : The introduction of digital imaging has revolutionized the scientific world as much as it has, years later, revolutionized photography. We will discuss properties of digital images and the files that hold them. We will get acquainted with digital image handling software and learn how to perform basic analysis and simple processing of digital images. These basic steps should allow the curious listener to launch on an autodidactic journey into more advanced topics.



BIRGIT MITTER
AIT Austrian Institute of Technology

Biopic: Dr. Birgit Mitter (previously Reiter) is microbiologist and molecular biologist with strong experience in the field of beneficial plant-microbe interactions, in particular bacterial endophytes. Activities include the cultivation-independent analysis of microbial populations by D/TGGE, T-RFLP, sequence analysis, gene expression studies, as well as the functional analysis of isolates. B. Mitter applies (meta-) genomic approaches to elucidate functional roles of (uncultivated) endophytes and classical genetics such as knock-out and over-expression of selected genes to study the genetic background of beneficial plant-microbe interactions.

How microscopy adds to our understanding of plant microbe interactions: Similar to humans, plants are colonized by complex microbial communities and the role of plant colonizing microorganisms in plant development and health is well acknowledged. Successful plant colonization by microorganisms is the basic requirement for plant-microbe interaction. Thus, studies on the routes and niches of plant colonization have always been a central aspect in the research of plant-microbe interaction. An overview on recent developments and findings on plant-microbe interaction is presented and challenges, limitations and future outlook are discussed.



STÉPHANE COMPANT
AIT Austrian Institute of Technology

Biopic: Dr. Stéphane Compant is Scientist working on beneficial plant-microbe interactions at the AIT and Associate Professor of Microbiology at the National Polytechnic Institute of Toulouse in France. Stéphane Compant received his PhD degree from the University of Reims Champagne-Ardenne in France. He is one of the leading research experts on microbial ecology of endophytic bacteria interacting with plants, on microscopy of plant-microbe interactions in general, and bio-control of plant diseases using various biocontrol agents from different sources.

Microscopy of plant-microbe interactions. Microorganisms living on and inside plants can be detected by various microscopy methods enabling to investigate their behaviour, their niches, and how they colonize their hosts. Different techniques are applied depending on whether single strains, full or synthetic microbiomes are studied. This talk will provide an introduction in the application of microscopy techniques in order to adequately visualize the microorganisms in their natural environment. Using these tools allows us to track the microorganisms and to determine how they interact with the plants and how they are associated with various plant organs under different plant growth and environmental conditions.



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