

WITec Academy

Advanced Instruments & Software Operation Training

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WITec
focus innovations



WITec Academy

WITec Academy is an advanced training program for all instrument and software operations as well as potential applications of the WITec product line. Due to a course structure with basic and advanced elements it not only addresses new users but also more experienced users of WITec microscope systems. With seminars and extensive hands-on training sessions, WITec Academy serves as a forum for providing a comprehensive instruction covering a variety of techniques for productive and innovative research in the fields of Confocal Raman and Scanning Probe Microscopy.

The Courses

Entry level instrument and software training for Confocal Raman Microscopy

The entry level instrument and software training is ideally suited for users new to the *alpha300* or *alpha500* Confocal Raman Microscopes requiring an introduction to the operational principals of the system and the software packages. A detailed description of the various components will set the basis for a hands-on session using WITec test samples. An introduction to the WITec software concept will play an important role during the training as thorough software knowledge is essential for successful Raman image acquisition.

Block I Components & Software Concept

The first block of the entry level training will introduce the attendees to all relevant parts of

the system and the software. This will include a presentation and a working demonstration of the system. During this, the basic alignment and fundamental steps necessary to acquire Raman spectra as well as the principles of white light microscopy will be introduced.

Block II Introduction to the measurement modes and operational principles

In this session, the measurement modes of the system will be introduced. These include acquisition of single spectra, line scans, time series and Confocal Raman images in plane and depth scans. The spatial and spectral correlation between the various data objects as well as the links to the white light images will be illustrated. Additionally, the application of filters to the data

sets in order to extract the relevant information from the spectra will be taught as well as some basic software evaluation features.

Block III Hands-on session

Participants will learn to operate the system by themselves under the guidance of WITec personnel. This will include complete alignment of the system as well as trouble-shooting issues. Following this, the participants will perform various measurement tasks on samples supplied by WITec.

Entry level instrument and software training for AFM and SNOM

During this course, participants will learn the basic aspects of successful hard- and software operation of the AFM and SNOM capabilities of the *alpha300* and *alpha500* microscope series. It will include a detailed introduction to the instrument components and its functions for the two measurement methods. During a detailed software session, the features of the WITec Software packages will be outlined. An extended hands-on session will give the participants the opportunity to apply this knowledge to given test samples.

Block I Components & Software Concepts with a special focus on AFM and SNOM

The first block of the entry level training will introduce the attendees to all relevant parts of the system and the software. This will include a presentation and demonstration of the system. During this, the basic alignment and fundamental steps required in order to acquire AFM and SNOM images, as well as the principles of white light microscopy, will be introduced.


Block II Introduction to the AFM and SNOM modes and the operational principles of the alpha300 series

In this session the basic operational principles of AFM in Contact and AC mode, as well as SNOM, will be introduced. The entire alignment of the

system will be demonstrated for the different measurement modes. Additionally, measurements in all modes will be demonstrated. The spatial correlation between the various data objects as well as the links to the white light images will be illustrated. This session will also include the introduction of some basic software evaluation features.

Block III Hands-on session

Participants will learn to operate the system by themselves under the guidance of WITec personnel. This will include complete alignment of the system as well as trouble-shooting issues. Following this, the participants will perform various measurement tasks on samples supplied by WITec.



Confocal Raman Spectroscopy data and image processing with *WITec Project*

Our software course will cover all aspects of spectral data evaluation and image processing with the *WITec Project* software. The participants will learn in detail how to process the acquired raw data in order to obtain the most presentable images and graphs for successful publication. Topics relevant to the participant's specific background will be outlined in an "Advanced Individual Data Analysis Tutorial", in which individual measurements will be processed under guidance of the instructors. Each attendee will work during the course at an individual computer workstation equipped with two monitors and configured with the latest version of the *WITec Project* software. As the course will mainly cover expert-level features, the participants should have at least a basic knowledge of the *WITec Project* Software Package.

Block I Basics

The first part of the course will provide a brief introduction to the general concept and user interface of the *WITec Project* data evaluation and image processing software. Basic features of the various "Tool and Action Windows" will be described and demonstrated sequentially, leading to a fundamental understanding of the software's data and image processing principles.

Block II

Advanced Data and Image Processing Modes

The various analytical features and filter options will be explained in detail during this session. The participants will learn how to apply the different filters and "drop actions" to a given data set. This will result in a more thorough understanding of the filter and processing algorithms that produce different graph and image files will also be presented.

Block III

Advanced Individual Data Analysis Tutorial

To apply the knowledge of the first two sessions, participants are encouraged to bring their individual data sets for a more comprehensive individual analysis under the guidance of the course instructors.

Advanced instrument operation training for Confocal Raman Imaging

This one day training course is intended for experienced users of the *alpha300 R* and *alpha500 R* Confocal Raman Microscopes covering expert level features of the instrument and its accessories. During individual hands-on sessions, the participants will have the opportunity to discuss and evaluate the requirements for successful Raman measurements on their own samples. Therefore, participants are encouraged to bring a sample for analysis under guidance of the instructor. Finally the course will include a "Tips & Tricks" session for the various measurement techniques. Participants should have a working knowledge of the operation of the system as well as the software.

Block I

Short review of basic instrument features and operational principles

This first block will review the details of the entry level training. In particular, the basic alignment and operation of the system along with the standard features of the software will be discussed.

Block II

Advanced measurement features

Advanced modes such as polarization dependent measurement modes, EMCCD measurements, auto focusing as well as automated measurement tasks (*alpha500*) will be demonstrated in this session. The switching of wavelengths will additionally be taught, and a short course on objective selection will be included. This will illustrate the effect different objectives have on collection efficiency, (depth) resolution and chromatic aberration.

Block III

Individual sample analysis

For this session, participants are encouraged to bring their own samples along for measurement and analysis. The participants will then measure and evaluate the samples by themselves under the guidance of WITec personnel.

Block IV

Tips and Tricks

Participants will learn how to optimize the coupling of the laser into the optical fiber. Additionally, fluorescence issues and how to overcome them will be discussed and demonstrated. Various modes of the CCD cameras, which can be used to enhance the quality of the spectra, will be applied.

Advanced instrument operation and software training for AFM and SNOM

The subjects of this course will include a variety of expert level software and instrumentation operation topics for the *alpha300* AFM and SNOM series. During an individual sample analysis session, the participants will learn how to apply advanced operational procedures to their samples for superior results. Participants should have at least a basic knowledge of the operation of the system as well as the software.

Block I

Short review of basic instrument features and operation sequences

This first block will review the details of the entry level training and in particular, the basic alignment

and operation of the system. The basic software principles will also be reviewed in this session.

Block II

Advanced measurement features

This session will concentrate on the comparison of various AFM measurement modes with a special focus on the capabilities of *Pulsed Force* and *Digital Pulsed Force Mode*. The correlation between Pulsed Force curves and standard force-distance curves will be demonstrated. Improvement of phase contrast in AC mode AFM images as well as the assignment of material properties from *Pulsed Force Mode* images will be discussed. AFM related features of the *WITec Project* software will be highlighted. In SNOM, the advanced measurement modes consist of SNOM Fluorescence as well as SNOM Pick-Up Mode (=illumination from below and detection through the SNOM tip).

Block III

Individual sample analysis

Participants are encouraged to bring their own samples along for measurement and analysis during this session. The participants will then measure and evaluate the samples by themselves under the guidance of WITec personnel.

Block IV

Tips and Tricks

General tips and tricks on how to optimize the acquisition of AFM images will be discussed specifically incorporating the experience of the attendees. Additionally, this session will include advanced SNOM alignment procedures for cantilevers with very small apertures.

Course Schedule

WITec Headquarters . Ulm . Germany

WITec North America . Maryville . USA

18. May 2010, 09:00 - 17:00

Entry level instrument and software training for Confocal Raman Microscopy

19. May 2010, 09:00 - 17:00

Advanced instrument operation training for Confocal Raman Imaging

20. May 2010, 09:00 - 17:00

Confocal Raman Spectroscopy data and image processing with *WITec Project*

7. July 2010, 09:00 - 17:00

Entry level instrument and software training for AFM and SNOM

8. July 2010, 09:00 - 17:00

Advanced instrument operation and software training for AFM and SNOM

9. November 2010, 09:00 - 17:00

Entry level instrument and software training for Confocal Raman Microscopy

10. November 2010, 09:00 - 17:00

Advanced instrument operation training for Confocal Raman Imaging

11. November 2010, 09:00 - 17:00

Confocal Raman Spectroscopy data and image processing with *WITec Project*

8. June 2010, 09:00 - 17:00

Confocal Raman Spectroscopy data and image processing with *WITec Project*

16. November 2010, 09:00 - 17:00

Confocal Raman Spectroscopy data and image processing with *WITec Project*

Symposium

5. + 6. October 2010

Introduction to Confocal Raman Imaging

General Information & Registration

A maximum group size of 5 participants for each course guarantees individual mentoring, which provides the most thorough instruction. Each course is designed as a full day of training. For some courses we offer multiple dates so the participants can choose the one fitting best in their calendar. The course fee includes lunch, coffee, drinks and a certificate of attendance. For registered students we allow a 20% discount on single day registrations.

In order to register, please complete the form on the back and mail or fax it to WITec GmbH, Lise-Meitner-Str. 6, 89081 Ulm, Germany, Fax: +49 (0) 731 140 70200. You may also register by sending your contact information to events@witec.de. Upon confirmation, you will receive an invoice for the workshop fee. Only full payment qualifies you to attend the course. Due to the limited number of participants, we recommend that you book early to secure your place. The courses will take place at WITec Headquarters in Ulm, Germany or in Maryville, Tennessee, USA. For directions please visit www.witec.de.



Packages

Registrants will receive a 10% discount for booking 2 courses or 20% for booking 3. (Offer not valid for WITec Academy vouchers)



Workshop Series

The WITec Workshop series includes workshops and seminars to be held worldwide throughout the year, providing various dates and locations with changing programs and speakers. Please check the WITec events website at <http://www.witec.de/en/eventsseminars> for updated information on a workshop in your area.

Symposium "Introduction to Confocal Raman Imaging"

This symposium will provide a detailed theoretical introduction as well as an outline of the operational principles and instrumental configurations relevant to Confocal Raman Imaging. Speakers from universities and industry will cover several aspects of Raman imaging and its fields of application. An extensive demo session gives the participants the opportunity to apply this knowledge. Scientists interested in learning how to chemically identify and image the compounds of a sample at the highest spatial resolution are invited to participate. The final program and a registration form will be posted on our events-website at: <http://www.witec.de/en/eventsseminars>

Individual Onsite Training

For institutions requiring individual onsite group training, WITec can arrange customized training sessions for the various microscope series and relevant topics. Please contact us for detailed information.

Registration Form:

I would like to register for the following course. (As some of the courses are held twice a year, please check the date for the course you would like to attend.)

WITec Headquarters . Ulm . Germany

Course Fee:

Entry level instrument and software training for Confocal Raman Microscopy

290,- Euro + VAT

18. May 2010 or 9. November 2010

Advanced instrument operation training for Confocal Raman Imaging

340,- Euro + VAT

19. May 2010 or 10. November 2010

Confocal Raman Spectroscopy data and image processing with WITec Project

340,- Euro + VAT

20. May 2010 or 11. November 2010

Entry level instrument and software training for AFM and SNOM

290,- Euro + VAT

7. July 2010

Advanced instrument operation and software training for AFM and SNOM

340,- Euro + VAT

8. July 2010

WITec North America . Maryville . USA

Course Fee:

Confocal Raman Spectroscopy data and image processing with WITec Project

440,- USD

8. June 2010 or 16. November 2010

Please fill in the registration form and mail or fax it to:
WITec GmbH, Lise-Meitner-Straße 6,
89081 Ulm, Germany

Fax to: +49 (0) 731 140 70200

You may also register by sending your contact information to events@witec.de.

For holders of a WITec Academy voucher, it is required that the voucher be sent together with the filled-in registration form by standard mail.

Title

First & Last Name

Institution

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Signature

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