IMAGO NANOLYTICAL™ SERVICES

Course Description Details for both the Standard and Advanced LEAP Microscopy Training Classes Offered by Imago Scientific Instruments Corp.

DATES:

Modules 1-5, Fall 2009 – Call to request dates

Modules 6 or 7, Fall 2009 – Call to request dates

VISIT www.imago.com FOR MORE INFORMATION

An Introduction to LEAP Microscopy: Theory and Practice (5 day duration)

- Call for Quotation/Availability – Fall 2009 Dates TBD

Module 1: This module will provide the student with in depth knowledge of the creation of LEAP raw data by describing the entire chain of events from ionization to conversion of a detected ion to a digital file. The content is intended to cover both practical hands-on skills and technical theory. The material covered is beyond basic operation and safety. The goal is for the student to understand and choose operational modes of the LEAP system that optimize the results obtained. This class does not address basic operation, or laser theory.

- **System Description**
- **Hardware Impact to Data Creation**
- **Local Electrode Impact for samples**

Module 2: This module will provide the student with in depth knowledge of how the laser interacts with the sample. Information covered includes; creation of the laser beam, targeting and alignment, energy absorption / dissipation. The content is intended to cover both practical hands-on skills and technical theory. The goal is for the student to understand and choose operational modes of the LEAP laser system that optimize the results obtained.

- **System Description**
- **Practical System Operation**
- **Changes in Operation due to Laser Pulsing**

Module 3: The student will learn advanced techniques for getting three dimensional, nanoscale compositional data from both traditional and nontraditional sample types. Advanced sample preparation techniques and LEAP analysis parameters will be discussed in detail. The relationship between the local electrode and the specimen will be discussed in detail. Testing Local Electrodes will also be demonstrated.

- **Local Electrode Impact**
- **LEAP Enabled Sample Prep**
- **LEAP Analysis Parameters**
- **LEAP Microtip Analysis**

Module 4: This module will provide the student with in depth knowledge of the data reconstruction and basic analysis procedures. The content is intended to cover both practical hands-on skills and technical theory. The goal is for the student to understand and choose the best parameters to turn raw data into 3D reconstructed data.

- **Reconstruction Theory**
- **Analysis**

Module 5: This module will provide the student with in depth knowledge of the data reconstruction and analysis procedures. The content is intended to cover both practical hands-on skills and technical theory. The goal is for the student to understand and choose the best parameters to analyze the complex 3D data produced by an Imago system. The hands-on examples will include data collected during prior portions of this class series and data from the student's own samples whenever possible. Arrangements will be made in advance to make multiple copies of IVAS available to provide every two students one computer running IVAS.

- **Hands-on Reconstruction**
- **Analysis**
- **Examples**

The Advanced LEAP Microscopy Course (2 day duration)- Dates TBD

-Maximum 2 Students – Call for Quotation/Availability

Module 6: This module is a two day course that will provide the student with in depth knowledge of data analysis using IVAS. The goal is for the student to apply advanced analysis techniques to both be able to get the most from a dataset as well as apply analysis feedback to the reconstruction. The hands-on examples will include data standard datasets to demonstrate different advanced analysis techniques and data from the students own samples whenever possible.
The course is limited to a maximum of two students per class and will be customized to the needs of the student on a case by case basis. A 30 day IVAS license will be included in the class. Students are encouraged to bring the actual computer they will use for analysis to the course, but computers can be provided.

- **Review of Reconstruction**
- **SDM**
- **RDF**
- **Precipitate analysis**
- **Peak overlap correction**
- **Density correction**
- **Advanced reconstruction techniques**

********** **OR** **********

The Advanced LEAP Microscopy Course (2 day duration) – Dates TBD

-Maximum 2 Student – Call for Quotation/Availability

Module 7: This module will provide the student with in depth knowledge of bulk and site specific sample preparation procedures. The content will include in-depth hands on sample preparation. The goal is for the student to understand and choose the best way to create specimens from a wide variety of specimen classes. The hands on examples will include standard samples and samples from the students whenever possible.

- **Mechanical Preparation**
- **Electropolishing**
- **Focused Ion Beam sharpening and Lift-out**
- **Advanced Geometry FIB LO**