



2008 Annual Joint Symposium
Florida Chapter of the AVS
Science and Technology Society
and the Florida Society for
Microscopy

SHORT COURSES
March 10-13, 2008



University of Central Florida

MATERIALS CHARACTERIZATION FACILITY



Major
Analytical
Instrumentation
Center



www.flavs.org/Scourses.htm

The Florida chapter (FLAVS) of AVS and Florida Society for Microscopy (FSM) are offering 5 short courses in conjunction with their joint symposium in Orlando, Florida in March 2008. The list of short courses includes 2 National AVS sponsored Vacuum Technology courses and 4 courses sponsored by the local chapter, FLAVS.

The **Characterization Courses** combine lecture and laboratory sessions. The short courses are described below.

RBS/SIMS - March 10

Instructors: Dr. Maggie Puga-Lambers, MICROFABRITECH, University of Florida.
Dr. Kevin Coffey, AMPAC, University of Central Florida.

Course Description:

This course is directed towards those interested in gaining a basic understanding of the application and operation of Rutherford Backscattering Spectroscopy (RBS) and Secondary Ion Mass Spectrometry (SIMS) starting with the basic principles. A brief review of different types of RBS and SIMS instruments commonly used will be presented illustrating the advantages of each type. Emphasis will be given to data acquisition, reduction and interpretation.

Auger and XPS Spectroscopy - March 11

Instructor: Eric Lambers, Major Analytical Instrumentation Center (MAIC), University of Florida.

Course Description:

This course is intended for someone with minimal experience with surface analysis wanting to learn to operate AES or XPS instrumentation more efficiently and/or have a better understanding of this type of data. Theoretical aspects of the physics involved in the techniques will be covered as needed. Emphasis will be on obtaining and interpreting "good" data and how various instrument parameters affect the data. The class will be taught utilizing a demo version of software available from RBD Enterprises "AugerScan 3.2.0 Demo" available at:
www.rbdenter.com/Software/downloads.htm.

Scanning Electron Microscopy and Energy Dispersive Spectroscopy- March 12 & 13

Instructor: Dr. L. Amelia Dempere, Director of the Major Analytical Instrumentation Center (MAIC), University of Florida.

Course Description: This course is designed for individuals with limited previous exposure to Scanning Electron Microscopy and Energy Dispersive Spectroscopy. The course will provide the fundamental components and principles of these two techniques, including data reduction, analysis and interpretation.

2008 Joint Symposium of the Florida AVS Science and Technology Society and the Florida Society for Microscopy
March 10-13, Student Union Building, University of Central Florida, Orlando, Florida

Introduction to Photovoltaics - March 13

Instructor: Dr. Neelkanth G. Dhere, Sachin S. Kulkarni and Shirish A. Pethe, FSEC, University of Central Florida.

Course Description:

This course is directed towards those interested in gaining a basic understanding of solar cells, photovoltaic (PV) modules, systems, applications and economics. A brief review of semiconductors, junctions and solar irradiance will be provided followed by description of operation and technologies of various solar cells, design of PV modules, systems, cost analysis, and PV potential to reduce global warming.

The National AVS Short Courses to be offered are:

An Overview of Applied Vacuum Technology - March 10 & 11

Instructors: Dr. Paul Holloway and Dr. Mark Davidson, Materials Science and Engineering and MICROFABRITECH, University of Florida.

Course Description:

The course begins with a definition of vacuum and a description of the physical conditions existing in a vacuum environment. Following this introduction is a discussion of gases at low pressures and the interactions between gases and solids. The phenomena of gas flow through vacuum systems are examined. The course continues to describe primary components of vacuum systems, with an emphasis on pumps and gauges. Requirements for materials compatible with the vacuum

environment are discussed. Commonly used sealing techniques, including coverage of all demountable flange systems, are described. Common vacuum system configurations and operational procedures are outlined. The course finishes with a description of vacuum leak detection methods and the far-reaching applications of vacuum technology today, for individuals with minimal training in vacuum technology.

Operation and Maintenance of Vacuum Pumping Systems - March 12 & 13

Instructors: Dr. Paul Holloway and Dr. Mark Davidson, Materials Science and Engineering and MICROFABRITECH, University of Florida.

Course Description:

The major thrust of this course is to show how vacuum pumping systems can be operated most effectively, to achieve maximum performance while holding downtime for maintenance to a minimum. Typical procedures used for systems that employ oil-sealed rotary, roots, vapor diffusion, turbo-molecular, sputter-ion, and cryogenic pumps are described. There are also discussions of possible variations in typical procedures that may be used in special cases. Troubleshooting and performance-testing techniques are presented as well as methods of leak detection that are most effective for operating vacuum systems.

Cost:

\$450	RBS-SIMS	March 10, 2008
\$850	SEM-EDS	March 11-12, 2008
\$450	Auger & XPS	March 13, 2008
\$450	Introduction to Photovoltaics	March 13, 2008
\$950	Overview of Applied Vacuum Technology	March 10-11, 2008
\$950	O & M of Vacuum Pumping Systems	March 12-13, 2008

Registration & Payment

To sign up for one or more of the short courses, please email:

Helge Heinrich (hheinric@mail.ucf.edu) or Kevin Coffey (krcoffey@mail.ucf.edu).

You will receive an email with instructions on how to send a check for your attendance fees.