

The 41st National Symposium of the American Vacuum Society to highlight Nanotechnology

During the week of October 24-28, 1994, the American Vacuum Society will hold its premier event of the year - the 41st National Symposium. Taking place at the Colorado Convention Center in Denver, CO, the Symposium will include technical programs on vacuum science, materials, surfaces, interfaces, and processes; over 40 short courses; an equipment exhibition with over 160 exhibitors; and three topical conferences on rapidly developing technologies, including "The Third International Conference on Nanometer-Scale Science and Technology" - "NANO 3".

NANO 3 will focus on the latest technological advances in nano-length scale science and technology: fabrication, characterization, and properties. The conference is multidisciplinary, with contributions from fields such as biology, chemistry, electronics, engineering, fabrication, magnetism, material science, medicine, metrology, optics, optoelectronics, and physics. Three plenary talks are scheduled, highlighting the research of the following internationally renowned speakers from the fields of supramolecular chemistry, magnetism, and condensed matter physics.

Supramolecular Structures: Nobel Laureate Professor Jean-Marie Lehn will speak on "Supramolecular Structures." Professor Lehn is considered the "Father" of supramolecular chemistry, a term which he defined in 1978 as "chemistry beyond the molecule, bearing on the organized entities of higher complexity that result from the association of one or more chemical species held together by intermolecular forces." His more recent work in this field includes molecular self-assembly and the design of programmed molecular systems for the storage and manipulation of molecular information. This field will potentially provide molecules that can recognize, react with, and possibly manipulate other molecular structures such as enzymes, proteins, viruses, and bacteria. Dr. Lehn is currently the Director of the Laboratoire de Chimie des Interactions Moleculaires at the College de France in Paris and

the Director of the Laboratoire de Chimie Moleculaires in Strasbourg.

Magnetic Properties of Nanostructures: Dr. Yoshinobu Sugiyama will talk on the "Magnetic Properties of Nanostructures." Dr. Sugiyama currently works at the Electrotechnical Laboratory (ETL) of the Ministry of International Trade and Industry in Japan and has done extensive work on semiconductor magnetic sensors, including the quantum Hall probe. His current research interests include quantum-effect sensors and microwave transistors with InP-based heterostructure semiconductors.

Novel Nanostructures: Dr. Don Eigler will discuss the "Novel Nanostructures" now possible with the atomic manipulation techniques that he and his colleagues developed. Using a cryogenic scanning tunneling microscope (STM), Dr. Eigler has shown that it is possible to individually move atoms to form structures that do not form naturally. His more recent work includes the arrangement of atoms in a ring or corral on a surface and measuring the electronic states of the resulting structures with the STM. Dr. Eigler is an IBM Fellow at the IBM Almaden Research Center.

Special Tutorial - "Nanostructures: Fabrication and Characterization"

As a prelude to NANO 3, the AVS will offer a special Sunday tutorial session entitled "Nanostructures: Fabrication and Characterization," which will review the entire nanofabrication process. This process consists of several steps that must all be compatible. A key issue to be covered is that the processing itself can radically affect the properties of the device or structure being fabricated.

This tutorial will also describe in detail both e-beam and proximal probe lithography as compared to other lithographic choices; metallization and high resolution dry etching; and the more novel techniques for forming nanostructures. The second part of this tutorial will also focus on the analysis of processed materials and nanostructures, and several innovative analysis techniques will be presented.

If you would like a program flier on the Symposium, or information about the Society's technical journals, short course programs, etc., please contact Angela Mulligan, American Vacuum Society, 120 Wall Street, 32nd Floor, New York, NY 10005, Tel.: (212)248-0200, eMail: angela@vacuum.org. ■

SPECIMEN PREPARATION WORKSHOPS (For LM, AFM, SEM, & TEM)

SITE/AREA-SPECIFIC CROSS-SECTIONING

WORKSHOP I: **WEDGE TECHNIQUE**

San Jose, CA ■ Nov. 1994

Precision Flat/Angle Lapping	SEM Nov. 1	SEM/TEM Nov. 1-4
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WORKSHOP II: **FIB TECHNIQUE**

Portland, OR ■ Nov. 1994

Focused Ion Beam (FIB) Milling (FIB-XSEM/XTEM)	SEM Nov. 8	SEM/TEM Nov. 8-11
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MATERIALS ULTRAMICROTOMY

WORKSHOP I: **UM for SURFACE PREP.**

Phoenix, AZ ■ Nov. 15-17, 1994

General Planar/Transverse Sectioning for LM/AFM/SEM

WORKSHOP II: **UM for SECTION PREP.**

Phoenix, AZ ■ Nov. 15-18, 1994

Room Temperature and Cryo-sectioning for LM/TEM

To receive a copy of the workshops brochure, call NanoTEM at (602) 759-2808 or write to:

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