

**Preview of the 1987 Fall Meeting Short Course Program**

The Short Course Program at the 1987 MRS Fall Meeting is designed to complement the MRS symposia and to introduce research professionals to current and emerging areas of materials science. These short courses provide an opportunity to develop new skills quickly and efficiently, especially in areas where written information may not be widely available. A cadre of expert instructors who have devoted much time and energy to developing effective programs are willing to share their direct experience and knowledge.

This year 29 courses will be offered throughout the week from November 29 to December 5. Most courses are on topics which have been well received at previous MRS meetings, and they cover a broad range of topics, many of them emphasizing materials characterization or processing. Nine courses are new to the MRS short course roster.

A special new course on superconductivity, *Conventional and High Temperature Superconductivity*, is scheduled for November 29, the Sunday afternoon and evening prior to the MRS symposium on High Temperature Superconductors. This course will present a basic treatment of superconductivity terminology, effects, properties, limitations, and applications. Experimental techniques for characterizing superconducting materials will be discussed. The course will cover both conventional and high temperature superconducting materials. Particular emphasis will be on the latest developments and potential applications of the new materials. Class size will be limited.

Other new courses include:

*Characterization of Powders and Porous Materials.* These materials are important in ceramic fabrication, powder metallurgy, catalysis, and related areas. This course will explain the classical methods for characterizing powder and porous materials, including the strengths and weaknesses of each method, and will review the most recent developments. Several methods will be demonstrated using commercial instruments.

*Atom Probe Microanalysis: Principles and Applications to Materials Problems.* Atom probe microanalysis allows the atomic

scale analysis of surface species. This analytical technique has a number of applications to metallurgical and semiconductor problems where small amounts of materials can have a significant influence on material properties.

*Scanning Tunneling Microscopy.* The course will introduce the theory and application of this new and rapidly developing technique for imaging the topography and electronic structure of surfaces.

*Nuclear Magnetic Resonance Spectroscopy.* NMR is a powerful tool for investigating the local electronic interactions of atoms. This course will introduce the fundamental aspects of NMR and its application both for scientific investigations and as an analytical tool.

*Scanning Electron Microanalysis and X-Ray Microanalysis.* SEM/XM allows the visualization and elemental analysis of a surface by electron-solid interactions. It is invaluable in failure analysis and process development. The course will introduce the technique along with its applications and limitations.

*Silicon Epitaxy: Present and Future.* Although silicon epitaxy by CVD is a mature technology, the strong dependence of a product's performance on fabrication variables warrants continuing attention to the subject. This course will review the fabrication process, the process variables, and their influence on the resulting material. Also included is a survey of reactor designs.

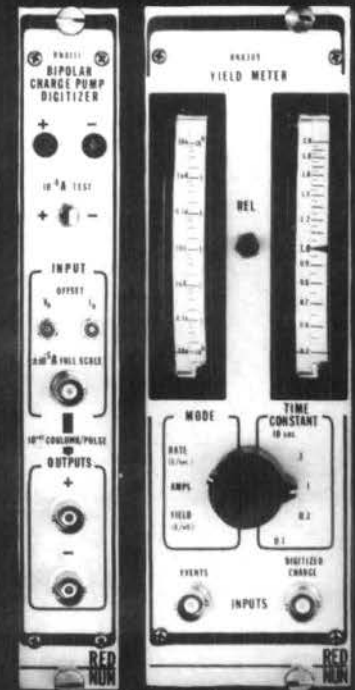
*Photon-Controlled Processing for Microelectronics.* Advances in high energy and tunable frequency lasers have opened up a new area for materials fabrication and processing. This course will review the fundamentals, applications and potentials of lasers and other photon-generating sources for materials processing.

*Crystalline Polymers.* Polymers are normally considered to be more like an amorphous material than a crystalline material. Crystalline polymers, however, have many of the same defect properties as other crystalline materials. This course will investigate the properties of these unique polymeric materials.

Most of these courses are also available for on-site presentation. Detailed outlines for all MRS short courses are available from the Short Course Manager. Contact:

Vivienne Harwood Mattox  
MRS Short Course Manager  
(505) 294-9532

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See p. 88 in this issue for a complete list of courses being offered at the MRS Fall Meeting, including dates, instructors, and fees.