

## FRONTIERS OF MATERIALS RESEARCH

## POPULAR TOPICS BY EXPERTS IN THE FIELD

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Alan Russell, University of Pittsburgh  
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Christopher W. Lantman,  
Flex Products, Inc.  
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Eric Werwa, Otterbein College  
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Leon M. Lederman, Fermi  
National Accelerator Laboratory  
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Barbara Illman, USDA Forest Service  
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**NEW!** **Materials MicroWorld Walkthrough**

Merrilea Mayo, The Pennsylvania  
State University  
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**Defect Engineering in Semiconductors**

H.C. Gatos, Massachusetts  
Institute of Technology  
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**Recent Advances in Polymers**

H. Mark, Polytechnic  
Institute of New York  
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**Superconductor Design and Applications**

E.W. Collings, Battelle  
Columbus Laboratories  
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**Tribology Update**

K.C. Ludema, University of Michigan  
Playing time: 47:12  
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**Mechanics of Electronic Packaging Materials**

H. Hieber, Philips GmbH  
Playing time: 33:35  
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**Case History of Materials Development: Optical Fibers**

J.B. MacChesney,  
AT&T Bell Laboratories  
Playing time: 47:23  
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**State-of-the-Art Nondestructive Evaluation**

R. Green Jr.,  
Johns Hopkins University  
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**Fractals and Disorderly Growth**

P. Meakin, E.I. duPont de  
Nemours & Company  
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**Ultrathin Film Growth from Langmuir Blodgett to Self-Assembly**

A. Ulman, Eastman Kodak Company  
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**Failure Analysis in Materials Research**

M. Louthan Jr.,  
Savannah River Laboratory  
Playing time: 41:04  
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**Properties of Hydrogenated Amorphous Silicon**

R.A. Street, Xerox Palo Alto  
Research Center  
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## OTHER MRS VIDEOTAPES

## OUTSTANDING AWARD-WINNER PRESENTATIONS

**NEW!** **Arthur Bienenstock—Plenary Address from the 2000 MRS Spring Meeting**

Arthur Bienenstock, associate director for science in the White House Office of Science and Technology Policy, has sought general recognition of the interdependencies of the sciences and the need for the country to maintain broad scientific and technological strength. He has also focused on ensuring that the United States has a scientific and technological workforce to meet the nation's needs for the 21st century. His Plenary Address is titled *Seeking Balance in the Federal Research Budget*.

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**NEW!** **Francis M. Ross, Outstanding Young Investigator—2000 MRS Spring Meeting**

This MRS award has been established to recognize outstanding interdisciplinary materials research by a young scientist or engineer. The 2000 award was presented to Frances M. Ross, IBM T.J. Watson Research Center, for "innovative and powerful experimental studies, based upon development of novel *in situ* electron microscopy techniques, that have provided fundamental new understanding of nucleation, growth, oxidation and etching processes in a wide range of materials systems." Dr. Ross's award presentation is titled *Dynamic Studies of Semiconductor Growth Processes Using In Situ Electron Microscopy*.

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**The Golden Age of Crystal Defects**

A.S. Nowick, Columbia University  
1994 MRS Turnbull Lectureship  
Presentation

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**From Gibbsian Thermodynamics to Electronic Structure: Nonempirical Studies of Alloy Phase Equilibria**

Didier R. deFontaine, University of California at Berkeley  
1995 MRS Turnbull Lectureship  
Presentation  
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**Molecular Mechanisms in Smart Materials**

Robert E. Newnham, The  
Pennsylvania State University  
1996 MRS Turnbull Lectureship  
Presentation  
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**Linus Pauling—Plenary Address from the 1989 MRS Spring Meeting**

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## NEW TUTORIAL!

**Cu Interconnects: What are the Issues?**

**Robert Rosenberg**,  
IBM T.J. Watson Research Center  
**Tom Moffatt**, NIST  
**Vlasta Bruslic**, Cabot Corporation

This video tutorial provides an interdisciplinary introduction to the latest evolution in the fields relevant to Cu interconnects. Three instructors offer an overview of: the state of the art of Cu metallization for high-performance Si technology; the importance of electrochemistry for the understanding of electrochemical deposition; and the possible mechanisms of Cu corrosion.

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