



**TENNESSEE VALLEY CHAPTER
AMERICAN
VACUUM SOCIETY**

P. O. Box 5734

Oak Ridge, Tennessee 37831-5734

Vol. 16, No. 4

April 1996

ENGINEERING OF NEW MATERIALS AND INTERFACES

16th Annual Symposium and Equipment Exhibit

Sponsored Jointly by the
Tennessee Valley Chapter of the American Vacuum Society
and the
East Tennessee Section of the Materials Research Society

May 21, 1996

Holiday Inn Select at Cedar Bluff
304 Cedar Bluff Road
Knoxville TN 37923
(Interstate 40 at Cedar Bluff Road)

Organizers:

Hanno H. Weitering
The University of Tennessee - Knoxville,
and the Oak Ridge National Laboratory
Phone: 423-974-7841 or 423-574-5502
Internet: hanno@solid.ssd.ornl.gov

Z. Ben Xue
The University of Tennessee - Knoxville
Phone: 423-974-3443
Internet: xue@utk.edu

PROGRAM

8:00 - 8:25 Registration
8:25 - 8:30 Opening Remarks by Dan Lubben, AVS & Tom Callcott, MRS

Session I: Synthesis of new Materials

Chair: Z. Ben Xue

8:30 - 9:10 The Silicon Revolution and Its
Materials Limitations
9:10 - 9:50 Novel Dielectrics for Microelectronics
9:50 - 10:10 Synthesis of Thin-Films of Lead
Lanthanum Titanate

L. C. Feldman, Vanderbilt U.

J. P. Sullivan, Sandia
D. B. Beach, ORNL

10:10-10:30 Break

Session II: Nanostructures

10:30 - 11:10 Electron Correlations in Ultrasmall Interacting Quasi-1D Systems
 11:10 - 11:30 Self-Limiting Growth Kinetics of 3D Coherent Islands: A Pathway to Monosized Quantum Dots
 11:30 - 11:50 The Physics and Chemistry of Carbon Based Nanoclusters
 11:50 - 12:10 TITLE NOT AVAILABLE
 12:10 - 1:20 Lunch

Chair: Hanno H. Weitering

K. Kempa, Boston College
 K. Chen, ORNL
 R. N. Compton, U. Tennessee, ORNL
 D. B. Geohegan, ORNL

Session III: Interfaces

1:20 - 2:00 The Polymer/Polymer Interface: Interfacial Segregation and Stability
 2:00 - 2:20 The Role of Copolymer Architecture on the Interfacial Structure of a Ternary Polymer Blend
 2:20 - 2:40 Conductance and Magnetoconductance of Magnetic Multilayers Calculated from first Principles Electronic Structure
 2:40 - 3:20 GMR Materials and Applications
 3:20 - 3:40 Break

Chair: Z. Ben Xue

R. J. Composto, U. Penn
 M. Dadmun, U. Tennessee
 W. Butler, ORNL
 B. Gurney, IBM Almaden

Session IV: Scanning Probe Microscopy of Surfaces

3:40 - 4:00 Molecular Manipulation and Nanofabrication with a Scanning Tunneling Microscope
 4:00 - 4:20 Immobilization, Imaging, and Site-specific Mapping of Proteins on DNA by AFM
 4:20 - 4:40 Direct Observation of a Surface Charge Density Wave
 4:40 - 5:00 A Low Temperature Reconstruction Pathway Studied with Scanning Tunneling Spectroscopy
 5:30 Reception

Chair: Hanno H. Weitering

W. W. Pai, ORNL
 D. P. Allison, ORNL
 J. Carpinelli, U. Tennessee
 H. H. Weitering, U. Tennessee, ORNL

Registration fees are as follows:

	Prior to May 13	After May 13
AVS or MRS Member	\$35	\$45
Nonmember	\$45	\$55
Student or Retiree	\$10	\$10

For additional information contact the organizers or:

Dan Lubben
 P. O. Box 2008
 Oak Ridge, TN 37831-6030
 Internet: lubbendc@ornl.gov

1995-1996 EXECUTIVE COMMITTEE

PRESIDENT:	Dan Lubben	423-574-6289
VICE PRESIDENT:	Harry Meyer	423-576-3866
PAST PRESIDENT:	John Caughman	423-574-5131
SECRETARY:	Ida Lee	423-241-6695
TREASURER:	Art Baddorf	423-574-5241
EXECUTIVE BOARD		
	David Beach	423-574-5024
	Walt Gardner	423-574-1121
	James Mabon	423-574-0928
	Michelle Solomon	423-481-8138
	Anna Swan	423-241-4828
	David Zehner	423-574-6291
SUBCOMMITTEES:		
Awards:	Anna Swan	423-241-4828
Short Courses:	Dan Lubben	423-574-6289
Newsletter Editor:	Walt Gardner	423-574-1121