

“Dynamics of Materials Revealed by Electron Microscopy”

June 9-10, 2005

**Seitz Materials Research Laboratory
University of Illinois, Urbana**

The goal of this workshop was to maintain the dialog with the scientific community regarding needs and opportunities for in-situ science within the TEAM project. The meeting was organized on behalf of the Midwest Microscopy and Microanalysis Society. More information on the conference can be found at <http://cmm.mrl.uiuc.edu/MMMS05/index.htm>

Organizing and Program Committee

Ivan Petrov

UIUC (Conference Chair)

Ramona Simpson

UIUC (Conference Administrator)

Timothy Spila,

UIUC (Local Arrangements Chair)

Jianguo Wen

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Dean Miller

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Yasuo Ito

NIU (MMMS Chair)

Robert Mierzwa

JEOL (MMMS past-Chair)

Program

J. C. H. Spence

Arizona State University

Electron diffraction from a laser aligned beam of proteins

Frances Ross

Thomas J. Watson Research Center

Dynamic observation of nanostructure growth processes

John Balk

University of Kentucky

New Insights into Thin Film Plasticity by in situ Transmission Electron Microscopy

Marija Gajdardziska-Josifovska

University of Wisconsin Milwaukee

Polar Oxide Surfaces and Interfaces: Ex-situ and In-situ Electron Microscopy Studies

Yasuo Ito/Nestor Zaluzec

Northern Illinois University/ANL

Sensing magnetic anisotropy by momentum resolved EELS

Bernd Kabius

Argonne National Laboratory

Aberration correction and prospects for in-situ TEM

Mark Kirk

Argonne National Laboratory

Diffuse electron scattering by individual defects and dislocations in metals

Laurence Marks

Northwestern University

Oxide Surfaces: Finding the Atoms then Finding the Electrons

Eva Olsson

Chalmers University, Sweden

Local Probing of Electron Transport Properties and Structure Using TEM-STM

Ian Robertson

University of Illinois

Correlating dislocation behavior with macroscopic mechanical properties

Renu Sharma

Arizona State University

Combining nanoscale synthesis and characterization using environmental transmission electron microscope

Eric Stach

Purdue University

In-situ nanoindentation: a novel technique for understanding nanoscale deformation mechanisms

Xiaoli Tan

Iowa State University Ames

In situ TEM study of the electric field-induced phenomena in ferroelectric ceramics

Paul Voyles

University of Wisconsin

Medium-Range Order in Amorphous Metals

Judith Yang

University of Pittsburgh

Surface Oxidation Kinetics

Jim Zuo

University of Illinois

Coherent Nanoarea Electron Diffraction and the Solution of Phase Problem

John Abelson

University of Illinois

Fluctuation Electron Microscopy of Crystalline Nuclei in Amorphous Semiconductors

Robert Klie

Brookhaven National Laboratory

Atomic resolution EELS analysis of defects and interfaces in functional oxide materials

In addition, 27 posters were presented by students from around the Midwest area. The total number of registered participants was over 90, while there were additional 30-50 people that attended the sessions without registration.

Overall the meeting reaffirmed the conclusion from previous workshops that in-situ microscopy is of great interest to the community, that there is a great need for an in-situ version of the TEAM instrument and that scientists are ready to work with the Electron Scattering User Facilities to design, build and exploit such instruments.