

*Workshop on*

# **Aberration-Corrected Microscopy and Spectroscopy for Materials**

September 22 - 23, 2008,  
Oak Ridge National Laboratory

## **Organizer:**

A. Borisevich (albinab@ornl.gov)

## **Tutorials:**

A. Lupini

A. Borisevich

M. Oxley

L. Allard

M. Varela

## **Invited speakers**

M. Watanabe (LBNL)

R. Klie (UIC)

L. Houben (FZJ)

P. Voyles (U. Wisc)

O. Lourie (Nanofactory Inc.)

<http://cnms.ornl.gov/workshops/2008/announcement.shtml>

Workshop on

# Aberration-Corrected Microscopy and Spectroscopy for Materials

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The SHaRE User Facility and the Center for Nanophase Materials Sciences invite you to attend the **Workshop on Aberration-Corrected Microscopy and Spectroscopy for Materials**.

Intended audience: researchers interested in advanced microscopy for materials research applications, and particularly in new opportunities presented by aberration-corrected microscopy.

## Sept. 22: Tutorial Session:

- ↳ Overview of Aberration Correction (A. Lupini, ORNL)
- ↳ Microscopy of Catalysts and 3D STEM (A. Borisevich, ORNL)
- ↳ EELS in an aberration-corrected microscope (M. Oxley, ORNL)
- ↳ In-Situ Heating and Gas Reaction Experiments in the Aberration-Corrected JEOL 2200FS STEM/TEM, Using Protochips Heating and Environmental Cell Technologies (L. Allard, ORNL)
- ↳ Interface Studies in the Aberration-Corrected STEM (M. Varela, ORNL)

## Sept. 23: Invited Talks:

- ↳ M. Watanabe, Lawrence Berkeley National Laboratory
- ↳ R. Klie, University of Illinois at Chicago
- ↳ L. Houben, Forschungszentrum Jülich
- ↳ P. Voyles, University of Wisconsin – Madison
- ↳ O.Lourie, Nanofactory Inc.

## **Aberration-Corrected Microscopy and Spectroscopy for Materials**

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### **Monday, September 22**

- 8.30 a.m – 8.35 a.m. Opening Remarks (A. Y. Borisevich, ORNL)
- 8.35 a.m. – 9:50 a.m. **Tutorial:** "An Introduction to Aberration-Corrected STEM"  
(A. R. Lupini, ORNL)
- 9.50 a.m. – 10.15 a.m. Coffee break**
- 10.15 a.m. – 11.30 a.m. **Tutorial:** "Microscopy of Catalysts and 3D STEM"  
(A. Y. Borisevich, ORNL)
- 11.30 a.m – 12.30 p.m. Lunch**
- 12:30 p.m. – 1.45 p.m. **Tutorial:** "In-Situ Heating and Gas Reaction Experiments in the Aberration-Corrected JEOL 2200FS STEM/TEM, Using Protochips Heating and Environmental Cell Technologies."  
(L.F. Allard, ORNL)
- 1.45 p.m. – 2.00 p.m. Coffee break**
- 2.00 p.m. – 3.25 p.m. **Tutorial:** "Inelastic image formation in the STEM"  
(M. P. Oxley, ORNL)
- 3.25 p.m. – 4.40 p.m. **Tutorial:** "Interface studies in the aberration corrected STEM"  
(M. Varela, ORNL)

### **Tuesday, September 23**

- 8.30 a.m. – 9.15 a.m. **Invited talk** "Improvements of Nano-Characterization Based on Spectrometric Approaches in Aberration-Corrected Instruments"  
(M. Watanabe, NCEM and LBNL)
- 9:15 am – 10:00 am **Invited talk** "Atomic-Scale Studies of Complex Oxide Interfaces Using Aberration-Corrected Z-contrast Imaging and EELS" (R.F. Klie, UIC)
- 10.00 a.m. – 10.15 a.m. Coffee break**
- 10.15 a.m. – 11.00 a.m. **Invited talk** "Procedures and applications of quantitative aberration-corrected high-resolution TEM"  
(L. Houben, FZ-Juelich)
- 11.00 a.m. – 11:45 a.m. **Invited talk** "Flexible Probe Formation in an Aberration-Corrected STEM" (P.M. Voyles, UW – Madison)
- 11.45 p.m – 12.45 p.m. Lunch**
- 12.45 p.m. – 1.30 p.m. **Invited talk** "Current research in the STEM Group at Orsay, France"  
(M. Walls, UPS – Orsay)
- 1.30 p.m. – 2.15 p.m. **Invited talk** "In-situ characterization using SPM-TEM systems"  
(O. Lourie, Nanofactory Instruments AB)
- 2.15 p.m. – 2.30 p.m. Coffee break**
- 2.30 p.m. – 5.00 p.m. Demonstrations of aberration corrected microscopes