

## Hume-Rothery Symposium: Scattering Studies and the Fundamental Properties of Materials: Session IV

*Sponsored by:* The Minerals, Metals and Materials Society, TMS Electronic, Magnetic, and Photonic Materials Division, TMS: Alloy Phases Committee  
*Program Organizers:* Patrice Turchi, Lawrence Livermore National Laboratory; Wolfgang Donner, University of Houston; J. Robertson, Oak Ridge National Laboratory

Wednesday AM Room: Oceanic 7  
February 28, 2007 Location: Dolphin Hotel

*Session Chairs:* Gabrielle Long, Argonne National Laboratory; Wolfgang Donner, University of Houston

### 9:00 AM Invited

**Heusler Films and Multilayers: X-Ray Resonant Magnetic Scattering and Polarized Neutron Reflectivity Studies on the Relation between Structure and Magnetism:** *Hartmut Zabel*<sup>1</sup>; Kurt Westerholt<sup>1</sup>; Andre Bergmann<sup>1</sup>; Johannes Grabis<sup>1</sup>; <sup>1</sup>Ruhr-University Bochum

### 9:30 AM Invited

**Formation and Thickness Evolution of Periodic Twin Domains in Manganite Films Grown on SrTiO<sub>3</sub> (001) Substrates:** *Peter Wochner*<sup>1</sup>; U. Gebhardt<sup>1</sup>; N. Kasper<sup>1</sup>; A. Vigliante<sup>1</sup>; H. Dosch<sup>1</sup>; H.-U. Habermeier<sup>2</sup>; F. Razavi<sup>2</sup>; <sup>1</sup>MPI-MF; <sup>2</sup>MPI-FKF

### 10:00 AM Invited

**Sources of Non-Collinear Magnetism in Disordered Alloys:** *Malcolm Stocks*<sup>1</sup>; <sup>1</sup>Oak Ridge National Laboratory

### 10:30 AM Break

### 10:50 AM Invited

**Understanding the Origins of Positive and Negative Exchange Bias by a Combined Polarized Neutron and Resonant Magnetic X-Ray Scattering Study:** *Sumit Sinha*<sup>1</sup>; <sup>1</sup>University of California San Diego and Los Alamos National Laboratory

### 11:20 AM Invited

**Test of the Universality of the Hume-Rothery Electron Concentration Rule by Performing the First-Principles FLAPW and LMTO-ASA Band Calculations for Different Gamma-Brasses:** *Uichiro Mizutani*<sup>1</sup>; Ryoji Asahi<sup>2</sup>; Hirokazu Sato<sup>3</sup>; Tsunehiro Takeuchi<sup>4</sup>; <sup>1</sup>Toyota Physical and Chemical Research Institute; <sup>2</sup>Toyota Central R&D Laboratories; <sup>3</sup>Aichi University of Education; <sup>4</sup>Nagoya University

### 11:50 AM Invited

**Scattering on Overlapping Strain Fields Caused by Defects Groupings:** *Rozaliya Barabash*<sup>1</sup>; G. Ice<sup>1</sup>; E. Specht<sup>1</sup>; <sup>1</sup>Oak Ridge National Laboratory

### 12:20 PM Invited

**An Order-Disorder Phase Transition on a Quasicrystal: Chemical Disorder and Phason Fluctuations:** *Hiroshi Abe*<sup>1</sup>; Ken-ichi Ohshima<sup>2</sup>; <sup>1</sup>National Defense Academy; <sup>2</sup>University of Tsukuba

## Innovations in Measurement Science to Assess the Performance of New Materials in the Real-World: Characterization of Advanced Materials

*Sponsored by:* The Minerals, Metals and Materials Society, TMS Materials Processing and Manufacturing Division, TMS: Shaping and Forming Committee  
*Program Organizers:* Mark Stoudt, National Institute of Standards and Technology; Lyle Levine, National Institute of Standards and Technology; Tusit Weerasooriya, Army Research Laboratory

Wednesday AM Room: Australia 3  
February 28, 2007 Location: Dolphin Hotel

*Session Chairs:* Jeffery Fong, National Institute of Standards and Technology; Mahmoud Demeri, FormSys Inc

### 9:00 AM Invited

**The Influence of Constitutive Parameters on Sheet Forming and Formability:** *Frederic Barlat*<sup>1</sup>; Jeong-Whan Yoon<sup>1</sup>; <sup>1</sup>Alcoa Technical Center

### 9:30 AM Invited

**Measurement of Springback in Stretch-Draw Forming:** *Mahmoud Demeri*<sup>1</sup>; <sup>1</sup>FormSys Inc

### 10:00 AM

**Assessing the Relationships Between Surface Topography and Dynamic Friction During Metal Forming:** *Mark Stoudt*<sup>1</sup>; Joseph Hubbard<sup>1</sup>; David Pitchure<sup>1</sup>; <sup>1</sup>National Institute of Standards and Technology

### 10:25 AM

**Plastic Strain and Grain Size Effects in the Surface Roughening of Aluminum Alloys:** *Eric Moore*<sup>1</sup>; Mark Stoudt<sup>2</sup>; Robert Reno<sup>1</sup>; <sup>1</sup>University of Maryland Baltimore County; <sup>2</sup>National Institute of Standards and Technology

### 10:50 AM Break

### 11:00 AM

**Using Digital Image Correlation to Measure Full-Field Strains in Carbon Fiber Tensile Tow Experiments:** *Paul Moy*<sup>1</sup>; Allan Gunnarson<sup>1</sup>; <sup>1</sup>US Army Research Laboratory

### 11:25 AM

**A Comparative Study of Photoemission to Probe Surface Microstructure Evolution of Single Crystal Aluminum during Tensile Deformation Using Excimer Laser and Purified Mercury Lamp:** *Mingdong Cai*<sup>1</sup>; Lyle Levine<sup>2</sup>; Mark Stoudt<sup>2</sup>; David Pitchure<sup>2</sup>; J. Thomas Dickinson<sup>1</sup>; <sup>1</sup>Washington State University; <sup>2</sup>National Institute of Standards and Technology

### 11:50 AM

**Size Effects in Compression Testing of Periodic Cellular Metals:** *Brandon Bouwhuis*<sup>1</sup>; Glenn Hibbard<sup>1</sup>; <sup>1</sup>University of Toronto

## Innovations in Titanium Technology Symposium: Advances in Alloy Development

*Sponsored by:* The Minerals, Metals and Materials Society, TMS Structural Materials Division, TMS: Titanium Committee  
*Program Organizers:* Mehmet Gungor, Concurrent Technologies Corporation; M. Ashraf Imam, Naval Research Laboratory; F. H. (Sam) Froes, University of Idaho

Wednesday AM Room: Asia 3  
February 28, 2007 Location: Dolphin Hotel

*Session Chairs:* Daniel Eylon, University of Dayton; Stephen Gerdemann, U.S. Department of Energy

### 9:00 AM Invited

**Atomization of Titanium Alloys Containing Boron:** *Charles Yolton*<sup>1</sup>; <sup>1</sup>Crucible Materials Corporation