

## FOREWORD

Welcome to the 2009 *AIST Steel Properties & Applications Conference*, held in conjunction with *MS&T'09*, the *Materials Science & Technology 2009 Conference and Exhibition*. The following proceedings are a compilation of the steel-related content from the entire conference, held October 25–29, 2009, in Pittsburgh, Pennsylvania. It was compiled by AIST volunteer members and staff.

MS&T'09 is a partnership of four leading materials-focused professional societies: The American Ceramic Society (ACerS), Association for Iron & Steel Technology (AIST), ASM International (ASM) and The Minerals, Metals & Materials Society (TMS). The conference is annually one of the largest materials-related conferences, and the programming is diverse to meet the needs of all four societies. AIST remains committed to providing steel-focused programming as a major scope of the conference. We also compile papers from the whole conference, from both AIST and non-AIST sponsored symposia, for the AIST proceedings. The conference gives AIST an opportunity to identify areas of mutual interest with the societies.

AIST annually seeks input on the programming for MS&T. If you are interested in developing steel-related programming for future MS&T conferences, please submit a proposal when the call for symposia proposals comes out in the spring. The AIST volunteer members and staff will help you organize and prepare your symposium for the next MS&T meeting. The due date for MS&T'10 symposia proposals has already passed, but AIST is looking for programming ideas for the 2011 meeting.

These proceedings include papers from the Iron and Steel theme of MS&T'09, which were organized into the following symposia:

### **Advances in Zinc-Coated Steel Sheet: Processing and Properties**

Organizer: Frank Goodwin (ILZRO); Co-Organizer: Joseph R. McDermid (McMaster University)

### **Electron Backscatter Diffraction Analysis of Steels**

Organizer: Matt Merwin (U. S. Steel); Co-Organizer: Stuart Wright (EDAX-TSL)

### **Inclusions and Clean Steels**

Organizer: Lifeng Zhang (Missouri University of Science & Technology);

Co-Organizers: Hongbin Yin (ArcelorMittal), Brian Thomas (University of Illinois at Urbana-Champaign), Kent Peaslee (Missouri University of Science & Technology), Ronald O'Malley (Nucor Steel), Les Niemi (Affival, Inc.)

### **Processing, Microstructure, and Properties of Cast, Forged, and Specialty Steels**

Organizer: Srinath Viswanathan (University of Alabama, Tuscaloosa);

Co-Organizers: Ian Dempster (Wyman Gordon Forgings), Rajiv Shipuri (The Ohio State University), Von Richards (Missouri University of Science & Technology), Malcolm Blair (Steel Founders Society of America)

### **Recent Developments in Steel Processing**

Organizer: Riad Asfahani (U. S. Steel)

### **Steel Product Metallurgy and Applications**

Organizer: Riad Asfahani (U. S. Steel)

Several papers in the Steel Product Metallurgy and Applications symposium were presented in special sessions that honored Professor David Edmonds of the University of Leeds for his vast contributions to ferrous metallurgy. In addition to the papers from the Iron and Steel theme, papers featuring steel from other themes and symposia have been included. These papers have been selected from themes such as: Ceramic and Glass Materials, Electronic and Magnetic Materials, Environmental and Energy Issues, Fundamentals and Characterization, Materials and Systems, Nanotechnology, Processing and Product Manufacturing, and Special Topics.

The papers included in this volume reflect the hard work and creativity of the contributing authors, and their efforts are gratefully acknowledged. Special thanks also are extended to the symposia organizers, specifically those in the Iron and Steel theme. The service of the session chairs in facilitating the presentations is also greatly appreciated. And lastly, but certainly not least, thank you to the AIST staff for their dedication and effort to ensure MS&T'09 was a success.

A handwritten signature in black ink that reads "Kip O. Findley". The signature is written in a cursive, flowing style.

Kip O. Findley  
Colorado School of Mines  
AIST Representative to the MS&T'09 Program Coordinating Committee