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PREFACE

This bound volume contains the papers presented at the Fifteenth International Symposium on Processing and Fabrication of Advanced Materials (PFAM) XV held at Cincinnati, Ohio, USA during October 15–19, 2006. The American Society for Materials International (ASM Int.): The Materials Information Society with co-sponsorship by The Minerals, Metals and Materials Society (TMS) sponsored the seven-session symposia, spread over three days. It is the fifteenth in a series of symposia on PFAM with the prime objective of bringing together engineers, technologists, and researchers, from industry, universities and national/government laboratories, working on aspects related to the processing, fabrication, characterization and evaluation of advanced materials, to present and discuss their research findings, observations and inferences. The earlier symposia on PFAM were held as follows:

1. The first symposium was held in Cincinnati (USA) in 1991.
2. The second symposium was held in Chicago (USA) in 1992.
3. The third symposium was held in Pittsburgh (USA) in 1993.
4. The fourth in Cleveland (USA) in 1995;
5. The fifth in Cincinnati (USA) in 1996;
6. The sixth in Singapore in 1997;
7. The seventh was held in Rosemont, Illinois (USA) in 1998;
8. The eighth was held in Singapore in 1999;
9. The ninth was held in St. Louis, Missouri (USA) in 2000.
10. The tenth was held in Indianapolis, Indiana (USA) in 2001.
11. The eleventh was held in Columbus, Ohio (USA) in 2002
12. The twelfth was held in Pittsburgh, PA (USA) in 2003
13. The thirteenth was held in Singapore in 2004.
14. The fourteenth was held in Pittsburgh, PA (USA) in 2005

This bound volume is a collection of papers provided by students, practicing engineers, technologists, researcher scientists and academicians from ten countries. The 57 papers, to include both invited and contributed, were reviewed and accepted for oral presentation at the Materials Science & Technology 2006 Conference and Exhibition [MS&T'06] were divided into seven sessions. 40 of the papers accepted and received in time are included in this bound volume. The bound volume comprises seven sections: (i) Non-metallic materials, (ii) Advanced Metallic Alloys, (iii) Materials for Hydrogen Storage and Energy Conversion, (iv) Nanocrystalline and Amorphous Materials, and (v) Nanometals and Metal-Matrix Composites, (vi) Composite Materials, and (vii) Metals and Composites. The papers included in each section represent the truly diverse nature of the field. We, the conference co-organizers and editors of this bound volume, extend our warmest thanks to all the authors for their sustained interest, enthusiasm and participation.
As conference co-organizers, we also extend our most sincere thanks and gratitude to the following:

[A] **ASM International** (Materials Park, Ohio, USA) for sponsorship of the symposium (point of contact at ASM. **Mr. Thom Passek (Associate Managing Director)**) for his interest, encouragement and sustained help in ensuring approval, realization and synchronization of the two symposia. **Mr. Scott Henry (Senior Products Manager), Ms. Bonnie Sanders (Manager: Production) and Ms. Madrid Tramble (Senior Production Coordinator)** for their understanding and timely assistance in ensuring compilation of the bound volume.

[B] **Ms. Christina Raabe and Ms. Trudi Dunlap** of The Minerals, Metals and Materials Society (TMS at Warrendale, PA, USA) for providing direction and secretarial support for the event. **Mr. R. Makowski (Director Publications)** and **Mr. Stephen J. Kendall (Publication Manager)** for every conceivable effort in ensuring smooth collection, assembly and compilation of the bound volume. This extra enthusiasm and effort on their part is gratefully acknowledged, truly appreciated, immensely valued and enthusiastically applauded.

[C] To **Ms. Ramya Santhanam** (College of Engineering: University of Akron), abundance of thanks and gratitude is joyfully extended for her understanding, patience, diligent efforts and timely action in formatting several of the manuscripts in conformance with instructions to ensure a near uniform outlook of the manuscripts assembled in this bound volume.

As **editors of this bound volume** we anticipate that it would be of immense value and use to: (a) graduate students in materials science and engineering, metallurgical engineering and mechanical engineering, (b) practicing engineers, and (c) scientists, while also offering avenues for new perspectives and directions in their research and educational endeavors.

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