

PREFACE

This two-volume compendium contains the papers presented at the *Thirteenth International Conference on Processing and Fabrication of Advanced Materials XIII*, held at Singapore during December 6-8, 2004. The National University of Singapore and Singapore Institute of Manufacturing Technology with co-sponsorship by American Society for Materials International sponsored the 29-session conference, spread over three days. It was the thirteenth in a series of conferences 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 conferences were held as follows:

- (1) The **first** was held in Cincinnati (USA) in **1991**
- (2) The **second** was held in Chicago (USA) in **1992**
- (3) The **third** 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 at Pittsburgh, PA (USA) in **2003**

This conference is a collection of papers provided by students, practicing engineers, technologists, researcher scientists and academicians from ten countries. The 115 papers, to include both invited and contributed, that were reviewed and accepted for oral presentation at the three-day conference were divided into 29 sessions. Eighty-four of the papers accepted and received in time are included in this bound volume and cover a spectrum of topics that represent the truly diverse nature of the field. We, the conference co-organizers and editors of this bound volume, extend our warmest thanks to the authors for their interest, enthusiasm and participation.

As conference co-organizers we also extend our heartfelt thanks and gratitude to:

- (a) *ASM International* (Materials Park, Ohio, USA) for co-sponsorship of the symposium (point of contact at ASM: **Ms. Valerie Waite** for her interest, encouragement and help in ensuring successful approval and transition to the overseas site (Singapore).
- (b) **Ms. Lee Fong** of *Integrated Meeting Specialist Pte Ltd* (Singapore) for providing direction and secretarial support for the event and was positively a pillar of support, courteous, professional and always helpful. This is gratefully acknowledged, truly appreciated, immensely valued and enthusiastically applauded.

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