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The fifteen papers published in this issue of *Journal of Phase Equilibria and Diffusion* reflect some of the talks presented during the symposium entitled “Multi-component Alloy Thermodynamics” sponsored by the Alloy Phase Committee of the joint EMPMD/SMD of the Minerals, Metals, and Materials Society (TMS), held in San Antonio, Texas, USA, March 12–16, 2006, to honor the 2006 William Hume-Rothery Award recipient, Professor W. Alan Oates of the University of Salford, UK. Over a period of more than 35 years, Alan Oates has made significant contributions to the field of alloy thermodynamics.

This symposium reviewed three days of leading-edge research on experimental and theoretical developments in the study of alloy thermo-chemistry, in the spirit of the studies carried out by Alan Oates. Most of the participants were invited speakers in order to review important subjects in the field. Specifically, this symposium provided an assessment of our current understanding of alloy thermodynamics as it applies to complex multi-component materials. Topics presented by the participants included the modeling of substitutional and interstitial phases, extrapolation and estimation procedures, calculation of phase diagrams for multi-component and multi-phase systems, experimental and theoretical studies of metal alloys, oxides and metal hydrides, and the use of thermodynamic properties in describing microstructures and related properties of materials. Papers presented here in this issue spanned from “first-principles” through semi-empirical to phenomenological approaches as well as experimental studies.

Overall, the symposium discussed in lively and constructive fashion current research issues and the implementation of new concepts in efficient experimental and computational tools that are relevant for addressing the increasingly complex materials challenges of the future, with ample illustrations.

The organizers would like to thank all the invited speakers who contributed to the symposium, and especially those who made the publication of their research available in this *Journal* possible. We also acknowledge the assistance of the TMS staff in helping us making this symposium a success, and of Prof. J. F. Smith, the Editor of the *Journal of Phase Equilibria and Diffusion*, for his support and encouragement, as well as the ASM staff in having these papers peer-reviewed and published in a timely manner. Y. Austin Chang wishes particularly to thank one of his graduate students, Hongbo Cao, for his effort in communicating with all of the authors.

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