Integrative and Interdisciplinary Aspects of Intermetallics

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Integrative and Interdisciplinary Aspects of Intermetallics

Symposium held November 29–December 1, 2004, Boston, Massachusetts, U.S.A.

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PREFACE

These proceedings contain papers presented at Symposium S, "Integrative and Interdisciplinary Aspects of Intermetallics," held November 29-December 1 at the 2004 MRS Fall Meeting in Boston, Massachusetts. The overarching theme of this symposium is the critical importance of microstructure and defects on the physical and mechanical properties of ordered intermetallics. These compounds have great promise for a variety of diverse and important applications such as high temperature structural materials, "smart" shape memory alloys, hydrogen storage media, thermoelectric power sources, and magnetic applications. The integrative aspects of this topic were highlighted to encourage a common platform for the presentation of intermetallics research that may have very different technological backgrounds and objectives, yet in all cases require a sound understanding of the elementary processes that govern structural and functional properties—from the atomistic through microstructural scales. The symposium highlighted the tremendous progress in the field with respect to processing and properties, as well as improved fundamental insights through novel experimentation and modeling activities. Symposium S brought together researchers from twenty countries, with particularly strong representation from Asian and European laboratories.

The papers are grouped by topical area, including iron aluminides, nickel aluminides, titanium aluminides, silicides, functional intermetallics (for shape memory, thermoelectric, magnetic and hydrogen storage applications) and more generic modeling of intermetallic compounds.

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