

Intermetallic-Based Alloys for Structural and Functional Applications

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PREFACE

Symposium N, “Intermetallic-Based Alloys for Structural and Functional Applications,” held Nov. 29–Dec. 3 at the 2010 MRS Fall Meeting in Boston, Massachusetts, was the 14th in a series of symposia on intermetallic phases held every other year at the MRS Fall Meetings. Once again, it attracted about 150 participants from all over the world, making it the longest lasting and best attended regular meeting on intermetallic phases.

Intermetallics for functional and structural applications were covered, and topics ranged from first-principles calculations and the investigation of thermodynamics of intermetallic alloy systems, through characterizing defect structures to the evaluation of mechanical properties, corrosion behavior, and processing of intermetallic alloys. Within the realm of functional applications, investigations on NiTi-based shape memory alloys, intermetallic-related alloys for hydrogen storage, and intermetallic phases with thermoelectric or catalytic properties, were of major interest. For structural applications, aluminides of titanium, iron, nickel, and a variety of silicides were covered. Specific emphasis was placed on the development and the microstructure-property relations of γ -TiAl-based alloys, which are used for automotive applications and for components in aero engines. Besides research on these more established intermetallic phases, recent advances in novel Co-based superalloys and basic research on Laves phases were presented.

This volume presents a representative overview of the current state of research on intermetallic phases, providing an insight into the current state of development of individual intermetallic alloy systems and identifying areas for future research.

Martin Palm
Bernard P. Bewlay
K. Sharvan Kumar
Kyosuke Yoshimi

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