

# MRS SYMPOSIUM PROCEEDINGS

Volume 1516 • 2012 MRS Fall Meeting

## Intermetallic-Based Alloys — Science, Technology and Applications

### EDITORS

Ian Baker

Martin Heilmaier

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Kyosuke Yoshimi

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**MATERIALS RESEARCH SOCIETY**  
*Advancing materials. Improving the quality of life.*

# **Intermetallic-Based Alloys—Science, Technology and Applications**

**MATERIALS RESEARCH SOCIETY  
SYMPOSIUM PROCEEDINGS VOLUME 1516**

# **Intermetallic-Based Alloys—Science, Technology and Applications**

Symposium held November 25–30, 2012, Boston, Massachusetts, U.S.A.

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Symposium JJ on “Intermetallics-Based Alloys: Science, Technology and Applications,” held November 26<sup>th</sup> through November 28<sup>th</sup> at the 2012 MRS Fall Meeting in Boston, Massachusetts, was the fifteenth in a series of symposia on intermetallic phases held every two years at the MRS Fall Meetings. It encompassed six oral sessions and one poster session, attracted about 150 participants from all over the world, and made it one of the best attended regular meetings on intermetallic phases.

This symposium focused on new understanding and developments within the realm of microstructure, processing, and properties of intermetallic compounds and multiphase alloys where intermetallic compounds are the major constituents. Topics which were dealt with included fundamentals of phase stability and their effects on microstructural design and microstructural degradation in extreme environments/service, physical and mechanical response to various loading conditions and the role of defects in influencing them, developments in innovative processing from the solid, liquid and vapor states, and technological considerations for successful commercial applications. Intermetallic phases of interest included aluminides, silicides, Laves phases and Heusler phases, and various other geometrically- and topologically-close-packed compounds. An entire oral session was devoted to shape memory alloys based on intermetallic phases. From an applications perspective, insights were given into structural and functional applications for high temperature use in the aerospace and automotive industries, the fossil fuel and nuclear industries, for ferromagnetic applications, catalysis, and thermoelectric power.

This volume presents forty-six papers which together give 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.

Ian Baker  
Martin Heilmaier  
Sharvan Kumar  
Kyosuke Yoshimi

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