

Inside: Materials advances result from study of cold fusion

MRS Bulletin

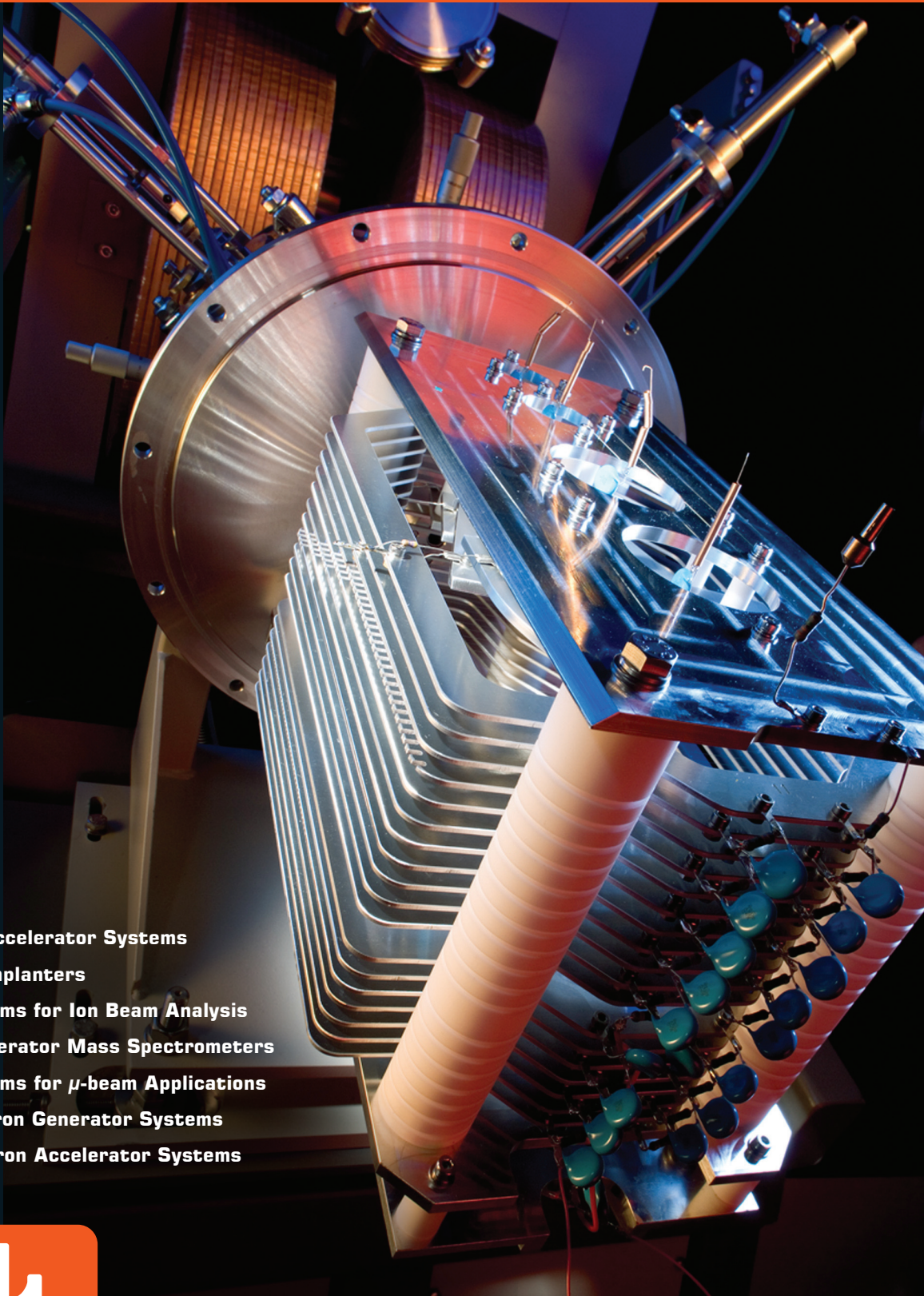
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**High-temperature materials
for structural applications**

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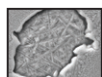
CONTENTS

HIGH-TEMPERATURE MATERIALS FOR STRUCTURAL APPLICATIONS



- 847 **High-temperature materials for structural applications: New perspectives on high-entropy alloys, bulk metallic glasses, and nanomaterials**

E-Wen Huang and Peter K. Liaw, Guest Editors



- 854 **Precipitation-hardened high-entropy alloys for high-temperature applications: A critical review**

Boxuan Cao, Tao Yang, Wei-hong Liu, and C.T. Liu



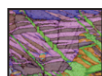
- 860 **Elevated-temperature creep of high-entropy alloys via nanoindentation**

P.H. Lin, H.S. Chou, J.C. Huang, W.S. Chuang, J.S.C. Jang, and T.G. Nieh



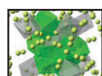
- 867 **Multicomponent bulk metallic glasses with elevated-temperature resistance**

A. Inoue, F.L. Kong, S.L. Zhu, and A.L. Greer



- 873 **Modeling twinning, detwinning, and dynamic recrystallization of magnesium alloys**

Huamiao Wang, Shuangming Li, Dayong Li, Gwénaëlle Proust, Yixiang Gan, Kun Yan, Ding Tang, Peidong Wu, and Yinghong Peng



- 878 **VULCAN: A “hammer” for high-temperature materials research**

Ke An, Yan Chen, and Alexandru D. Stoica

DEPARTMENTS



OPINION

- 829 **Letter from the President**

Promoting materials research and innovation

Michael R. Fitzsimmons



ON THE COVER

High-temperature materials for structural applications. Advances in metallurgy and metal mixology, together with high-performance computing, high-resolution microscopy, and advanced spectroscopy methods, reveal the potential of multicomponent advanced metals, such as multicomponent bulk metallic glasses and advanced high-entropy alloys for high-temperature structural applications. This issue of *MRS Bulletin* overviews the progress and directions for these multicomponent alloys for high-temperature structural applications. The cover shows the microstructure of a $\text{Ni}_{44}\text{Co}_{16}\text{Cr}_{12}\text{Fe}_{13}\text{Al}_{10}\text{Ti}_6$

precipitation-hardened high-entropy alloy after aging, showing high-density L_{1_2} -type precipitates embedded in a fcc matrix. The high-entropy approach provides new opportunities for obtaining preferred precipitate size, morphological shape, and composition, as well as tailoring lattice misfit between the matrix and the precipitation, important for high-temperature applications. Image courtesy of Boxuan Cao, City University of Hong Kong. See the technical theme that begins on page 847.



COMING IN DECEMBER

**Cryogenic Electron Microscopy
Techniques for Materials Science**



NEWS & ANALYSIS

- 833 **Feature Article**
- **Materials advances result from study of cold fusion**
Philip Ball
- 837 **Materials News**
- **DNA-enveloped particles show electron-like behavior in colloidal crystals**
Boris Dyatkin
 - **The carbon allotrope family welcomes a new member**
Tianyu Liu
 - **Designed crack-resistant cesium aluminoborate glass heals under hydration**
Hortense Le Ferrand
- 841 **Science Policy**
- **US grapples with security of the scientific enterprise**
Jennifer A. Nekuda Malik



SOCIETY NEWS

- 844 **MRS Journal Highlights**
- 886
- **Jerry D. Tersoff to receive 2019 Von Hippel Award for advancing the understanding of low-dimensional and nanoscale electronic materials**
 - **Paula T. Hammond selected for 2019 David Turnbull Lectureship Award**
 - **Lu Sham receives 2019 Materials Theory Award**
 - **Murphy and Zheng co-recipients of MRS Medal**
 - **Silvia Vignolini to present The Kavli Foundation Early Career Lectureship in Materials Science**
 - **Sharon C. Glotzer to present The Fred Kavli Distinguished Lectureship in Materials Science**
 - **Hatzell to receive MRS Nelson “Buck” Robinson Science and Technology Award for Renewable Energy**
- 890 **Karaoke enthusiasts unite for MRS Meeting event**
- 891 **2019 MRS Fall Meeting Exhibitors**
- 896 **MRS reports election results for 2020**



FEATURES

- 898 **Book Reviews**
- **Shape Memory Materials**
D.I. Arun, P. Chakravarthy, R. Arockia Kumar, and B. Santhosh
Reviewed by Peter M. Anderson
 - **Helmholtz: A Life in Science**
David Cahan
Reviewed by Richard F. Haglund
- 903 **Postterminaries**
- **A visit with one of the last “Radium Girls”**
Ainissa Ramirez



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ADVERTISERS IN THIS ISSUE

Page No.

American Elements.....	Outside back cover
<i>c&en</i> , American Chemical Society.....	884
* Goodfellow Corporation.....	853, 877
High Voltage Engineering.....	Inside front cover
* International Centre for Diffraction Data.....	883
The Kavli Foundation.....	825
* Kurt J. Lesker Company.....	885
* Lake Shore Cryotronics, Inc.....	Inside back cover
* Park Systems Inc.....	846
* Rigaku Corporation.....	885
Thermo-Calc Software Inc.....	832
* Wiley.....	843
* J.A. Woollam Company, Inc.....	840

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