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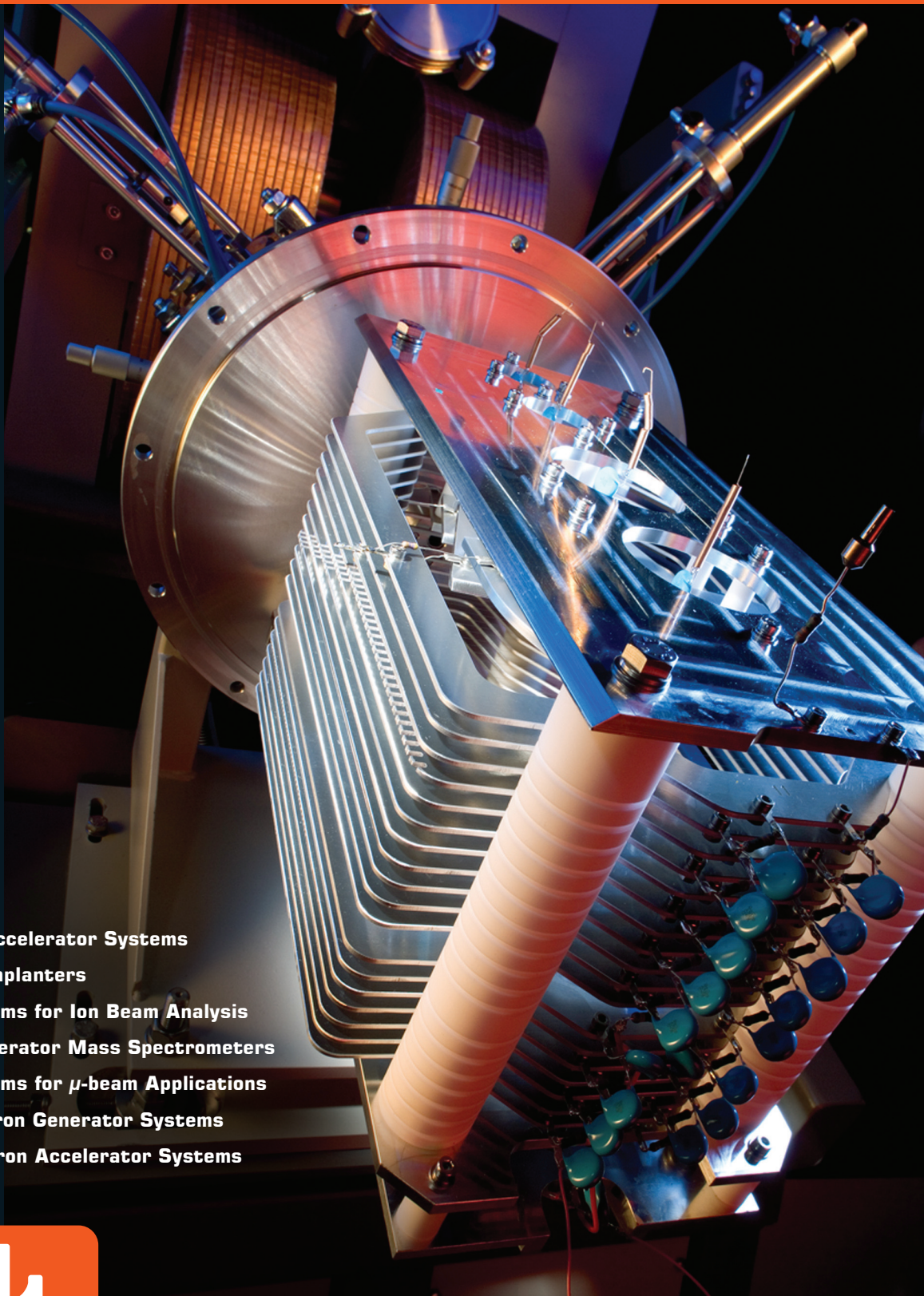
Joining of dissimilar lightweight materials

ALSO IN THIS ISSUE

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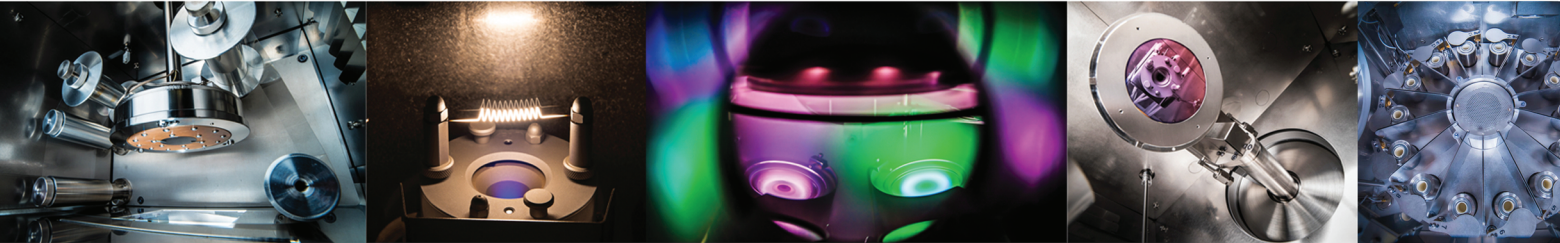


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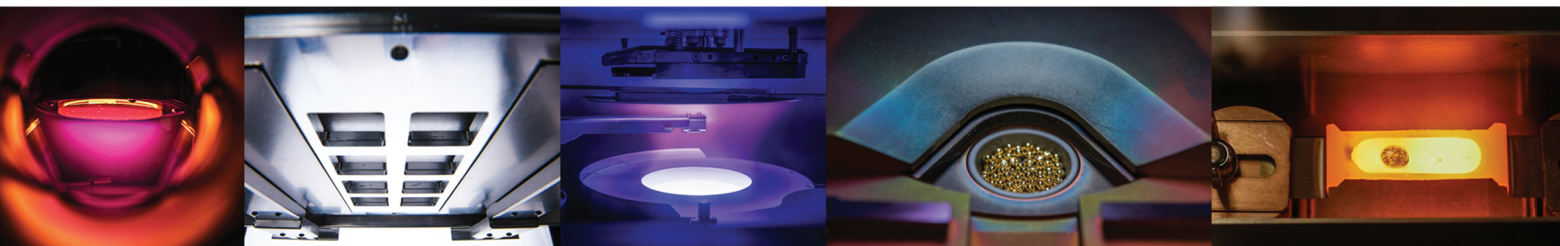
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CONTENTS

JOINING OF DISSIMILAR LIGHTWEIGHT MATERIALS



608 Enabling sustainable transportation through joining of dissimilar lightweight materials

Sarah Kleinbaum, Cindy Jiang, and Steve Logan,
Guest Editors



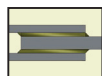
613 Advances in dissimilar metals joining through temperature control of friction stir welding

Kenneth Ross, Md. Reza-E-Rabby, Martin McDonnell,
and Scott A. Whalen



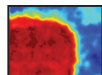
619 Nondestructive evaluation of resistance spot-welded Al-steel joints

Blair E. Carlson, Amberlee S. Haselhuhn, Jian Chen,
and Zhili Feng



625 Influence of adherend properties on the strength of adhesively bonded joints

Mariana D. Banea



630 Ultrasonic welding of AZ31B magnesium alloy

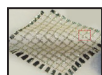
Jian Chen, Yong-Chae Lim, Hui Huang, Zhili Feng,
and Xin Sun



637 Vaporizing foil actuator welding

Brian P. Thurston, Anupam Vivek, Bhuvu S.L. Nirudhoddi,
and Glenn S. Daehn

TECHNICAL FEATURE



643 Nanomaterials-based flexible and stretchable bioelectronics

2018 MRS Fall Meeting

Symposium X (Frontiers of Materials Research) presentation

Jun-Kyul Song, Kyungsik Do, Ja Hoon Koo,
Donghee Son, and Dae-Hyeong Kim (presenter)



ON THE COVER

Joining of dissimilar lightweight materials. Assembling multimaterial structures is challenging because of differences in melting temperature, formation of intermetallic compounds, differences in coefficient of thermal expansion, and galvanic corrosion potential. While the number of joining techniques continues to grow, for high-volume production, there is a continued desire for a single joining method that can assemble advanced high-strength steel, aluminum, magnesium, and composite materials, and combinations of some of these materials, consistently and robustly. This is especially crucial for the trans-

portation sector, since it is one of the largest contributors to greenhouse gas emissions, especially in the United States. Even small reductions in weight can have a significant effect on the fuel consumption and emissions of the transportation sector. The cover shows an electron backscatter diffraction image of impact-welded silver (top) and copper (bottom), with colors representing the orientations of grains in the two materials and the interface; this is one of the techniques showing great promise for dissimilar materials joining. Image courtesy of Taeseon Lee and Taylor Dittrich of The Ohio State University. See the technical theme that begins on p. 608.



COMING IN SEPTEMBER

Phase-Change Materials in Electronics and Photonics

DEPARTMENTS



OPINION

- 597 **Material Matters**
Marine biology requires new line of inquiry in materials research
Zhen Zhang, Bruce H. Robison, and Shriram Ramanathan



NEWS & ANALYSIS

- 600 **Materials News**
- **Water droplet encased by polymer membrane**
Hortense Le Ferrand
 - **Polymers embedded with mechanophores emit white photoluminescence**
Ahmad R. Kirmani
 - **Plasma-enhanced CVD dopes carbon into WS₂**
Tianyu Liu
- 604 **Science Policy**
- **EU Graphene Flagship signals industrial 2D materials**
Michael Kenward
 - **South Africa builds on hydrogen fuel-cell program**



SOCIETY NEWS

- 606 **MRS Journal Highlights**
- 657 **MRS authors recently elected to the US National Academy of Engineering**
- 658 **Materials Research Science and Engineering Centers (MRSECs) provide collaboration and diversity in research and outreach**
Prachi Patel and Lori A. Wilson



FEATURES

- 661 **Book Reviews**
- Photovoltaic Science and Technology**
J.N. Roy and D.N. Bose
Reviewed by Mariana Amorim Fraga
- Carbon Materials: Science and Applications**
Deborah D.L. Chung
Reviewed by Anuptha Pujari and Mark Schulz
- 664 **Image Gallery**
Look Again



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ADVERTISERS IN THIS ISSUE

Page No.

| | |
|--------------------------------|--------------------|
| American Elements | Outside back cover |
| Angstrom Engineering Inc. | 593 |
| High Voltage Engineering | Inside front cover |
| J.A. Woollam Co., Inc. | 655 |

Erratum: In the original publication of the article titled "DNA nanotechnology for building artificial dynamic systems" (July 2019), an incorrect image was used as the graphical abstract and the title page image. The Materials Research Society apologizes for this discrepancy. The online version of the article has been corrected appropriately. doi: 10.1557/mrs.2019.155.



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The Society's interdisciplinary approach differs from that of single-discipline professional societies because it promotes information exchange across many scientific and technical fields touching materials development. MRS conducts three major international annual meetings and also sponsors numerous single-topic scientific meetings. The Society recognizes professional and technical excellence and fosters technical interaction through University Chapters. In the international arena, MRS implements bilateral projects with partner organizations to benefit the worldwide materials community. The Materials Research Society Foundation helps the Society advance its mission by supporting various projects and initiatives.

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