

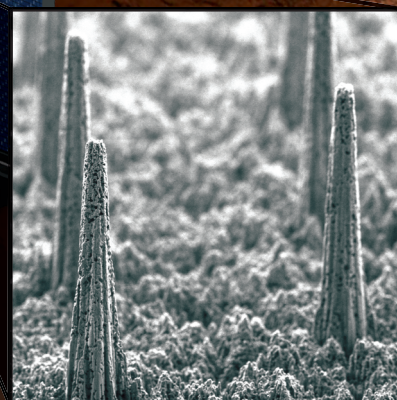
MRS Bulletin

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October 2015 Vol. 40 No. 10
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Engineered nanomaterials in aerospace



ALSO IN THIS ISSUE

DFT guided advances in phase-change materials and memories

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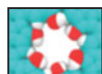
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CONTENTS

ENGINEERED NANOMATERIALS IN AEROSPACE

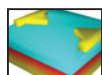


- 804 **Engineered nanomaterials in aerospace**
Sivaram Arepalli and Padraig Moloney, Guest Editors

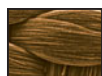
812 **Meet Our Authors**



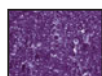
- 815 **Taking nanotechnology to new heights: The potential impact on future aerospace vehicles**
Michael A. Meador



- 822 **Nanoelectronics and nanosensors for space exploration**
M. Meyyappan, Jessica E. Koehne, and Jin-Woo Han



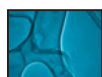
- 829 **Structural nanocomposites for aerospace applications**
Emilie J. Siochi and Joycelyn S. Harrison



- 836 **Nanomaterials for radiation shielding**
Sheila A. Thibeault, Jin Ho Kang, Godfrey Sauti, Cheol Park, Catharine C. Fay, and Glen C. King

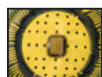


- 842 **Nanoengineered thrusters for the next giant leap in space exploration**
Paulo C. Lozano, Brian L. Wardle, Padraig Moloney, and Suraj Rawal



- 850 **Shape-controlled carbon nanotube architectures for thermal management in aerospace applications**
Pooja Puneet, Apparao M. Rao, and Ramakrishna Podila

TECHNICAL FEATURE



- 856 **Density-functional theory guided advances in phase-change materials and memories**
Wei Zhang, Volker L. Deringer, Richard Dronskowski, Riccardo Mazzarello, Evan Ma, and Matthias Wuttig

DEPARTMENTS



NEWS & ANALYSIS

790 **Materials News**

- **Quantum model predicts thermoelectric figure of merit for superlattices**
Jenna Bilbrey
- **Observation of highest ever superconductivity transition temperature confirms conventional theory**
David T.R. Stewart
- **NMR reveals unexpected defects in lithium-ion battery electrodes**
Antonio Cruz
- **Synthetic biomaterials advance stem cell engineering**
Lukmaan Bawazer
- **Large-scale graphene gas barrier sets new record**
Tyler W. Farnsworth
- **White Paper: Mapping nanomechanical properties of polymers with AFM**

799 **Science Policy**

- **20 years of US nuclear stockpile stewardship fuels materials research**
Prachi Patel
- **South Africa seeks to strengthen cooperation with Japan for hydrogen economy**



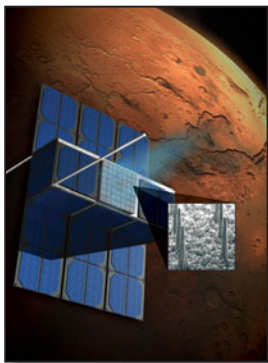
870 SOCIETY NEWS

- **Preview: 2015 Materials Research Society Fall Meeting & Exhibit**
- **Richard H. Friend to receive 2015 Von Hippel Award for materials phenomena and device concepts**
- **Jacob Klein selected for 2015 David Turnbull Lectureship Award**
- **Steven G. Louie receives 2015 Materials Theory Award**
- **Richard B. Kaner selected as MRS Medalist for synthesizing methods**
- **Chad A. Mirkin of Northwestern University to give plenary address at 2015 MRS Fall Meeting**



FEATURES

- 801 **Beyond the Lab
Cycle for Science**
Gail Oare
- 880 **Books**
- **Metals in Past Societies: A Global Perspective on Indigenous African Metallurgy**
Shadreck Chirikure
Reviewed by Ram Devanathan
 - **Nanostructured Carbon Materials for Catalysis**
Philippe Serp and Bruno Machado
Reviewed by Walid M. Daoush
 - **Micro and Nano Fabrication: Tools and Processes**
Hans H. Gatzel, Volker Saile, and Jürg Leuthold
Reviewed by Rosaria A. Puglisi
- 888 **Image Gallery
Look Again**



ON THE COVER

Engineered nanomaterials in aerospace. Aerospace applications have historically been a driver of advanced materials. The articles in this issue of *MRS Bulletin* review some of the more promising aerospace applications of nanomaterials with a focus on space applications. High-performance miniaturized propulsion will enable deep space exploration using small and inexpensive spacecraft, such as

the shoebox-sized CubeSat illustrated on the cover thrusting toward Mars. These electric rockets are enabled by micro- and nanostructured materials. The image inset shows a scanning electron image of a dense array of tips microfabricated on a porous material from which high-energy ion beams are emitted to produce thrust. Images courtesy of Fernando Mier-Hicks and Corey Fucetola, Massachusetts Institute of Technology Space Propulsion Laboratory. See the technical theme that begins on page 804.



882 CAREER CENTRAL

ADVERTISERS IN THIS ISSUE

Page No.

AIP Publishing/Physics Today	795
Aldrich Materials Science	Inside back cover
American Elements	Outside back cover
High Voltage Engineering.....	Inside front cover
Janis Research Company, Inc.....	841
The Kavli Foundation.....	789
Lake Shore Cryotronics, Inc.....	785
National Electrostatics Corp.....	814
Rigaku Corporation.....	828
SIAM Conference.....	798



www.mrs.org/bulletin

www.mrs.org/energy-quarterly

www.mrs.org/mymrs

<http://journals.cambridge.org>

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The Materials Research Society (MRS), a not-for-profit scientific association founded in 1973 and headquartered in Warrendale, Pennsylvania, USA, promotes interdisciplinary materials research. Today, MRS is a growing, vibrant, member-driven organization of over 16,000 materials researchers spanning over 80 countries, from academia, industry, and government, and a recognized leader in the advancement of interdisciplinary materials research.

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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