

contents

January/February 2015 • Vol. 94 No. 1

feature articles

Meet ACerS president Kathleen Richardson 13

Eileen De Guire

ACerS new president tells the Bulletin about her career in glass, what the Society means to her, and her goals for the year.

ACerS 116th Annual Meeting and 'State of the Society' report from President David Green 14

Eileen De Guire

The Society is financially sound and responding to new needs of the ceramic and glass communities, David Green reported at October's Annual Meeting.

Inside the engine environment—Synchrotrons reveal secrets of high-temperature ceramic coatings 22

Kevin Knipe, Albert Manero II, Sanna F. Siddiqui, Carla Meid, Janine Wischek, John Okasinski, Jonathan Almer, Anette M. Karlsson, Marion Bartsch, and Seetha Raghavan

Combining synchrotron X-rays with a recreated engine environment yields an innovative testing technique to analyze material responses of thermal barrier coatings.

Fabrication of laboratory-scale planar oxygen separation membrane modules 28

Patrick Niehoff, Falk Schulze-Küppers, Stefan Baumann, Wilhelm A. Meulenber, Olivier Guillon, and Robert Vaßen

A novel approach incorporates high-flux material and parallel modeling of oxygen transport to fabricate multilayer, planar, and fully-ceramic oxygen transport membranes with an eye on large-scale manufacturing.

meetings

Ceramics Expo 2015 32

EMA 2015: ACerS Electronic Materials and Applications 2015 34

ICACC'15: 39th Int'l Conference and Expo on Advanced Ceramics and Composites 35

GOMD-DGG 2015: ACerS Glass & Optical Materials Division Annual Meeting and Deutsche Glastechnische Gesellschaft Annual Meeting 39

Meeting highlights: Materials Science and Technology 2014 40

columns

Deciphering the Discipline 48

David Kok

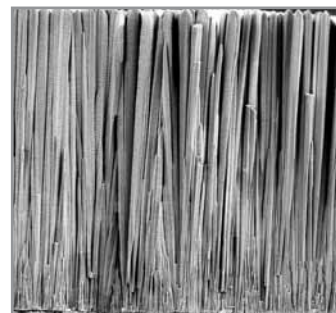
From combat to ceramics: A unique phase transformation

resources

Calendar 43

Classified Advertising 45

Display Advertising Index 47

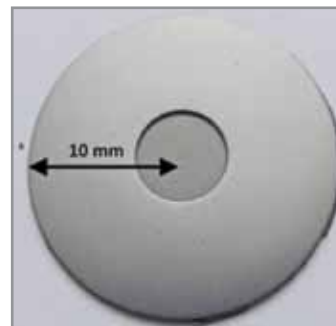


cover story

Inside the engine environment—Synchrotrons reveal secrets of high-temperature ceramic coatings

Credit: Uwe Schulz; DLR

— page 22



feature

Fabrication of laboratory-scale planar oxygen separation membrane modules

Credit: P. Niehoff

— page 28

departments

News & Trends 3

ACerS Spotlight 8

Ceramics in Biomedicine ... 15

Research Briefs 16

Ceramics in Energy 20

Editorial and Production

Eileen De Guire, Editor
ph: 614-794-5828 fx: 614-794-5815
edeguire@ceramics.org

April Gocha, Associate Editor
Jessica McMathis, Associate Editor
Russell Jordan, Contributing Editor
Tess Speakman, Graphic Designer

Editorial Advisory Board

Finn Giuliani, Chair, Imperial College London
G. Scott Glaesemann, Corning Incorporated
John McCloy, Washington State University
C. Scott Nordahl, Raytheon Company
Fei Peng, Clemson University
Rafael Salomão, University of São Paulo
Eileen De Guire, Staff Liaison, The American Ceramic Society

Customer Service/Circulation

ph: 866-721-3322 fx: 240-396-5637
customerservice@ceramics.org

Advertising Sales

National Sales

Mona Thiel, National Sales Director
mthiel@ceramics.org
ph: 614-794-5834 fx: 614-794-5822

Europe

Richard Rozelaar
media@alaincharles.com
ph: 44-(0)-20-7834-7676 fx: 44-(0)-20-7973-0076

Executive Staff

Charles Spahr, Executive Director and Publisher
cspahr@ceramics.org
Teresa Black, Director of Finance and Operations
tblack@ceramics.org
Eileen De Guire, Director of Communications & Marketing
edeguire@ceramics.org
Marcus Fish, Development Director
Ceramic and Glass Industry Foundation
mfish@ceramics.org
Sue LaBute, Human Resources Manager & Exec. Assistant
slabute@ceramics.org
Mark Mecklenborg, Director of Membership, Meetings
& Technical Publications
mmecklenborg@ceramics.org

Officers

Kathleen Richardson, President
Mrityunjay Singh, President-Elect
David Green, Past President
Daniel Lease, Treasurer
Charles Spahr, Secretary

Board of Directors

Michael Alexander, Director 2014–2017
Keith Bowman, Director 2012–2015
Geoff Brenneka, Director 2014–2017
Elizabeth Dickey, Director 2012–2015
John Halloran, Director 2013–2016
Vijay Jain, Director 2011–2015
Edgar Lara-Curzio, Director 2013–2016
Hua-Tay (H.T.) Lin, Director 2014–2017
Tatsuki Ohji, Director 2013–2016
David Johnson Jr., Parliamentarian

Connect with ACerS online!



<http://bit.ly/acerstwitter>



<http://bit.ly/acerslink>



<http://bit.ly/acersgplus>



<http://bit.ly/acersfb>



<http://bit.ly/acersrss>



Credit: iStockphoto



Want more ceramics and glass news throughout the month? Subscribe to our e-newsletter, *Ceramic Tech Today*, and receive the latest ceramics, glass, and Society news in your inbox each Tuesday, Wednesday, and Friday. Sign up at <http://bit.ly/acersctt>.

Top Tweets

 Have you connected with @acersnews on Twitter? Here are some top posts:

OLED airplane

Windowless aircraft offers lower carbon emissions and high-flying fun (with a view)
<http://bit.ly/11HhJ4H>



Bulletproof glass

Armored vehicle maker trusts bulletproof glass to stop AK-47 bullets
<http://bit.ly/1ulzsUq>



Peanut butter diamonds

Cut, clarity, crunchy, and creamy—The 4Cs of diamonds made from peanut butter
<http://bit.ly/1B3HjAA>

American Ceramic Society Bulletin covers news and activities of the Society and its members, includes items of interest to the ceramics community, and provides the most current information concerning all aspects of ceramic technology, including R&D, manufacturing, engineering, and marketing. *American Ceramic Society Bulletin* (ISSN No. 0002-7812). ©2014. Printed in the United States of America. *ACerS Bulletin* is published monthly, except for February, July, and November, as a "dual-media" magazine in print and electronic formats (www.ceramicbulletin.org). Editorial and Subscription Offices: 600 North Cleveland Avenue, Suite 210, Westerville, OH 43082-6920. Subscription included with The American Ceramic Society membership. Nonmember print subscription rates, including online access: United States and Canada, 1 year \$135; international, 1 year \$150.* Rates include shipping charges. International Remail Service is standard outside of the United States and Canada. *International nonmembers also may elect to receive an electronic-only, email delivery subscription for \$100. Single issues, January–October/November: member \$6 per issue; nonmember \$15 per issue. December issue (ceramicSOURCE): member \$20, nonmember \$40. Postage/handling for single issues: United States and Canada, \$3 per item; United States and Canada Expedited (UPS 2nd day air), \$8 per item; International Standard, \$6 per item.

POSTMASTER: Please send address changes to American Ceramic Society Bulletin, 600 North Cleveland Avenue, Suite 210, Westerville, OH 43082-6920. Periodical postage paid at Westerville, Ohio, and additional mailing offices. Allow six weeks for address changes.

ACSB7, Vol. 94, No. 1, pp 1–48. All feature articles are covered in Current Contents.