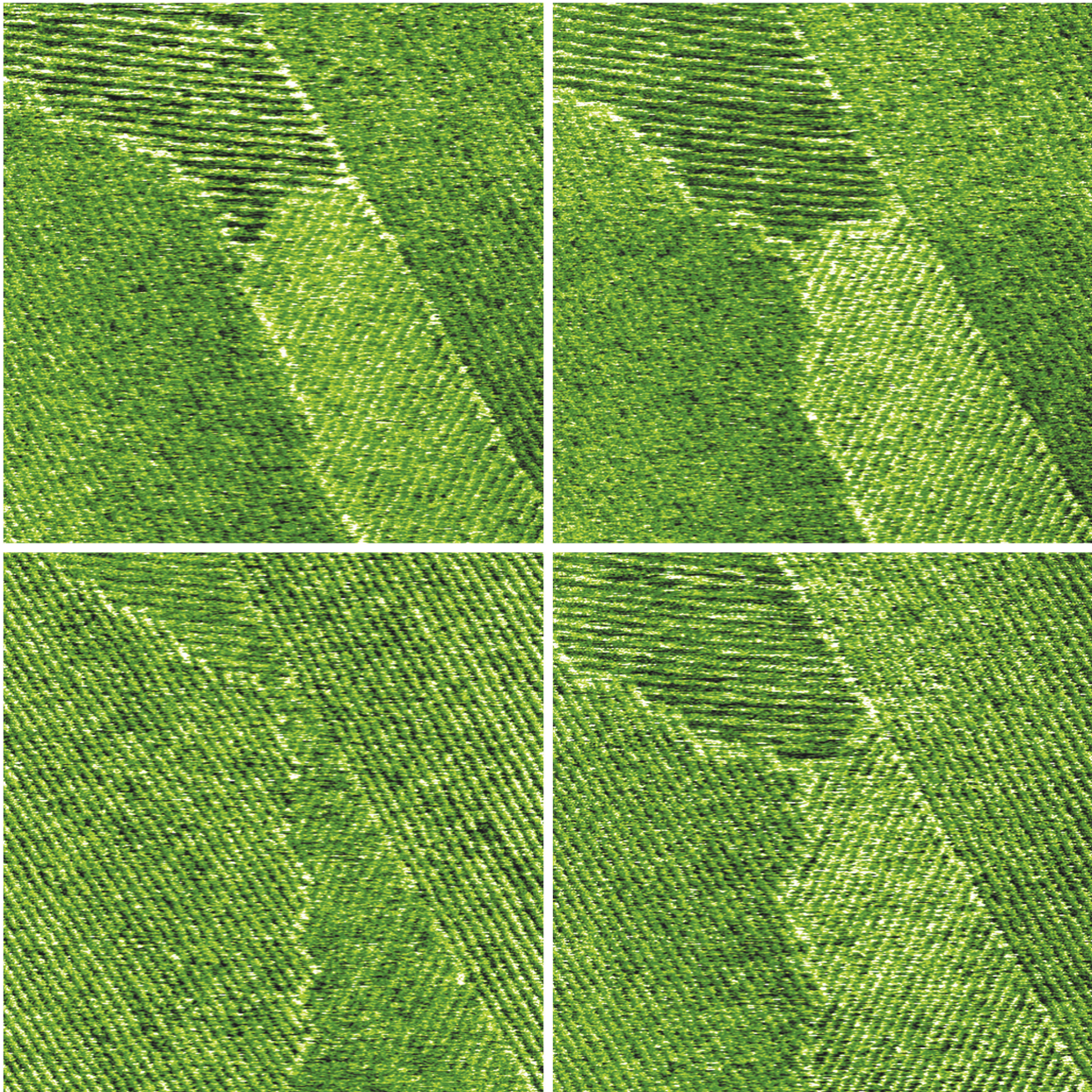


Microscopy TODAY

Volume 26 Number 6 2018 November



The Ultimate Solution for Efficiency

The All-New SU7000 Ultra-High Resolution Variable-Pressure Analytical Schottky FE-SEM



High-Resolution Imaging

- 0.9 nm resolution at 1 keV
- 0.8 nm resolution at 15 keV

Enhanced Versatility

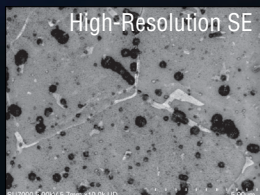
- Large chamber handles samples 200 mm Φ or 80 mm tall
- 18 accessory ports for analytical options

Fast Data Collection

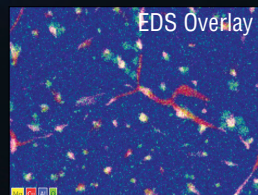
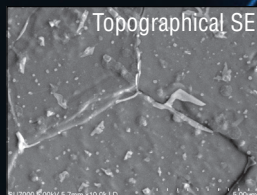
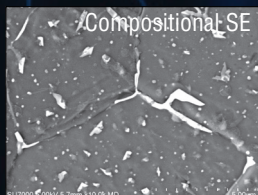
- 200 nA beam current
- Synchronized working distance for imaging and analysis
- Fully integrated sample navigation camera
- Simultaneous 6-signal acquisition

Visit Hitachi at 2018 MRS Fall
Nov. 25-30, Boston, Massachusetts
Booth #1305

All data collected **simultaneously at 6 mm WD!**



Sample: Heat-treated aluminum alloy



Innovation ♦ Synergy ♦ Solutions



Science for a better tomorrow

Hitachi High Technologies America, Inc.
www.hitachi-hightech.com/us Tel. 800-253-3053 E-mail: microscopy@hitachi-hta.com

Expand your Knowledge of Microscopy with MSA Membership!

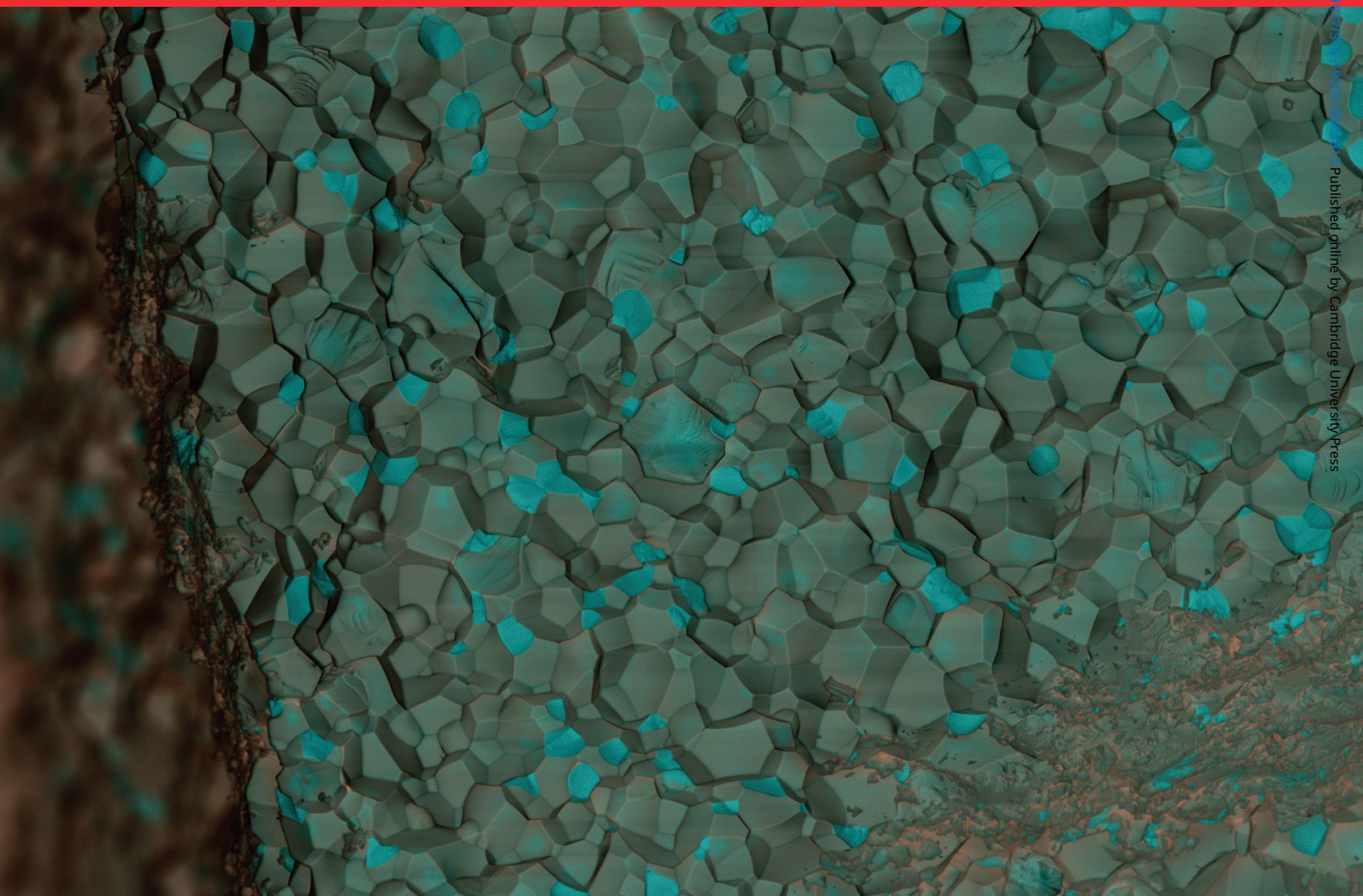
Whether your primary focus is in light, electron, or scanning probe microscopy, or the biological or the physical sciences, MSA takes your knowledge to the next level!

Members Receive:

- A personal subscription to MSA's official journal, *Microscopy and Microanalysis*, and MSA's popular bi-monthly magazine, *Microscopy Today*.
- Peer Networking through the Society's Focused Interest Groups and Local Affiliated Societies.
- Discounts on books, journals and other educational materials.
- MSA Awards Programs, Scholarships, Speaker Opportunities, and more!



Join MSA Today!
Visit www.microscopy.org



Aluminum nitride ceramic with yttrium inclusions.

Prisma E SEM for Materials Science

The Thermo Scientific™ Prisma™ E scanning electron microscope (SEM) combines a wide array of imaging and analytical modalities with new advanced automation to offer the most complete solution of any instrument in its class. It is ideal for industrial R&D, quality control, and failure analysis applications that require high resolution, sample flexibility and an easy-to-use operator interface. Prisma E SEM succeeds the highly successful Quanta SEM.



Find out more at thermofisher.com/EM-Sales

ThermoFisher
SCIENTIFIC

Contents

Scanning Probe Microscopy

- 12 Tapping Mode AFM Imaging in Liquids with blueDrive Photothermal Excitation**
 Aleksander Labuda, Sophia Hohlbauch, Marta Kocun, F. Ted Limpoco, Nathan Kirchhofer, Ben Ohler, and Donna Hurley
- 18 Functional Imaging with Higher-Dimensional Electrical Data Sets**
 P. De Wolf, Z. Huang, B. Pittenger, A. Dujardin, M. Febvre, D. Mariolle, N. Chevalier, and T. Mueller
- 28 Ultra-Thin AFM Enables Integration with Light Microscope**
 Andy Erickson and Tim Ballinger

Patent Applications

- 34 Patenting an Accessory for a Light Microscope**
 Douglas Clark

Presidential Remarks

- 40 The Microscopy Society of America: Continuing to Grow and Excel**
 Robert (Bob) Price

Pioneers of Microscopy

- 42 Pioneers in Optics: Henri Hureau de Sénarmont**
 Eric Clark

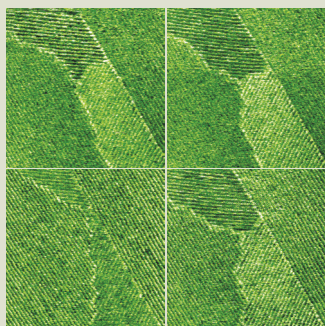
Letter to the Editor

- 48 Stereo-Spurious**
 Alwyn Eades
- 48 Author Response**
 Robert Sturm
- 49 Author Response**
 Christophe Mignot

Departments

- | | |
|--------------------------------------|--------------------------------|
| 7 Editorial | 46 Product News |
| 8 Carmichael's Concise Review | 51 Calendar of Meetings |
| 44 Industry News | 57 Dear Abbe |
| | 58 Index of Advertisers |

About the Cover



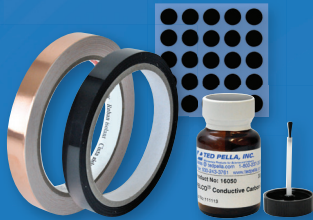
Tapping-mode AFM phase images of cetyl trimethylammonium bromide (CTAB) hemimicelles self-assembled on highly oriented pyrolytic graphite (HOPG) during perfusion of a dilute solution of isopropyl alcohol. The images represent individual frames from a movie acquired at ~2 s per image. Clockwise from upper left: image at time = 0, 1:02 min, 1:40 min, and 6:56 min. Image width = 250 nm.

See article by Labuda et al.



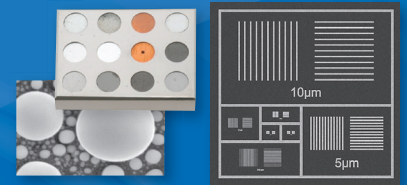
Providing microscopy supplies and specimen preparation equipment to our valued customers for half a century.

Visit us November 27–29 in Boston, MA
MRS FALL | BOOTH 516



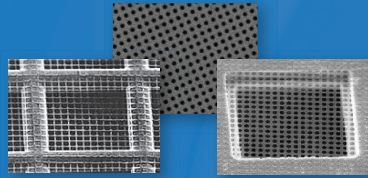
Adhesives

Conductive Tape, Carbon Tabs
Carbon, Silver & Gold



Calibration Standards,

Pelcotec™ CDMS-XY, Magnification,
Resolution, LM/SEM/FESEM



NEW Quantifoil®
TEM Substrates



**NEW Products for Specimen
Thinning in Preparation for
Electron Microscopy**

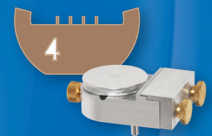


Tools for Microscopy

Tweezers, Scribes, Vacuum Pick-Up



**PELCO® Modular SEM
Holders & Mounts**



FIB Supplies

Lift Out Grids, Storage,
Probes, FIB Mounts



Cressington Coating Systems
Carbon Evaporation & Metal Sputtering



**NEW PELCO® Video
Alignment Microscope**



PELCO® AFM Tools & Supplies

AFM Discs, Disc Carriers, AFM Probes,
Diskpenser, Disc Grippers & Pickup Tools



www.tedpella.com sales@tedpella.com 800-237-3526