

# Microscopy AND Microanalysis

Table of Contents Preview  
Volume 15, Number 3, June 2009

## Biological Applications

Nanogold as a Specific Marker for Electron Cryotomography

*Yongning He, Grant J. Jensen, and Pamela J. Bjorkman*

A Comparison of Macroscopic and Microscopic Hair Color Measurements and a Quantification of the Relationship between Hair Color and Thickness

*Michelle R. Vaughn, Elizabeth Brooks, Roland A.H. van Oorschot, and Swati Baidur-Hudson*

A Unique Vascular Configuration among the Efferent Branchial Arteries and Splanchnic Arteries in the Yellow Stingray, *Urobatis jamaicensis*

*Bethany L. Basten, Robin L. Sherman, Alois Lametschwandtner, and Richard E. Spieler*

Optimizing Electron Backscatter Diffraction of Carbonate Biominerals—Resin Type and Carbon Coating

*Alberto Pérez-Huerta and Maggie Cusack*

## Materials Applications

The Applications of *In Situ* Electron Energy Loss Spectroscopy to the Study of Electron Beam Nanofabrication

*Shiahn J. Chen, David G. Howitt, Brian C. Gierhart, Rosemary L. Smith, and Scott D. Collins*

Mn Valency at  $\text{La}_{0.7}\text{Sr}_{0.3}\text{MnO}_3/\text{SrTiO}_3$  (001) Thin Film Interfaces

*Thomas Riedl, Thomas Gemming, Kathrin Dörr, Martina Luysberg, and Klaus Wetzig*

Quantitative Cathodoluminescence Mapping with Application to a Kalgoorlie Scheelite

*Colin M. MacRae, Nicholas C. Wilson,<sup>1</sup> and Joel Brugger*

Evaluation of Controlled-Drift Detectors in X-Ray Spectroscopic Imaging Applications

*Andrea Castoldi, Chiara Guazzoni, Cigdem Ozkan, Giorgio Vedani, Robert Hartmann, and Aniouar Bjeoumikhov*

The Effect of Oxide Overlayers on Secondary Electron Dopant Mapping

*Maurizio Dapor, Mark A. E. Jepson, Beverley J. Inkson, and Cornelia Rodenburg*

Three-Dimensional Measurement of Line Edge Roughness in Copper Wires Using Electron Tomography

*Peter Ercius, Lynne M. Gignac, C.-K. Hu, and David A. Muller*

High-Angle Annular Dark Field Scanning Transmission Electron Microscopy on Carbon-Based Functional Polymer Systems

*Erwan Sourty, Svetlana van Bavel, Kangbo Lu, Ralph Guerra, Georg Bar, and Joachim Loos*

## Atomic Force Microscopy

Modeling Rectangular Cantilevers during Torsion and Deflection for Application to Frictional Force Microscopy

*Victor C. Hayden and Luc Y. Beaulieu*

## Book Review

Polymer Microscopy. Third edition by L. C. Sawyer, D. T. Grubb, and G. F. Meyers.

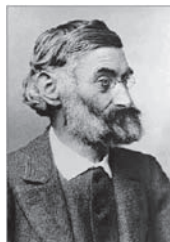
*Yuhong Wu*

Calendar of Meetings and Courses

**Indexed in Chemical Abstracts, Current Contents,  
BIOSIS, and MEDLINE (PubMed)**

**MSA members receive both *Microscopy Today* and *Microscopy and Microanalysis* FREE!**

## HUMOR



### Dear Abbe

Dear Abbe,

We have a user in our core facility that always seems to break stuff. I don't think he intends to break things, but mysteriously the equipment will develop various ailments once he's been in the room. For example, every time he steps into the SEM room the filament blows. We don't want to ban him from the facility. What can be done?

Hexed in Halifax

Dear Hexed,

Although not common this medical condition, known as "magneto-sequela" occurs in one in every 12,372.5 people. While I understand your desire to not alienate your users you must do everything in your power to keep these people away from your valuable equipment. Their peculiar form of bad vibrations is easily transmitted through any electrical system, thus they should not be allowed to control a microscope via remote microscopy, and in fact I would not even answer the phone when they call. Faced with a similar situation we arranged for two tins cans to be strung together with a fine wire and pulled taut to go from the laboratory to a nearby park. There the accursed user would scream into one of the cans while a technician on the other end patiently waited to describe what they saw through the microscope. Of course we never heard a thing and the screaming lunatic was soon hauled away by police for disturbing the peace. We all enjoyed a good laugh at his expense and soon went back to emptying wiederkoms of our favorite Pilsner.

*Nothing is too mundane or inane for the Professor! If you need assistance with your petty problems, please contact his personal secretary at [js Shields@cb.uga.edu](mailto:js Shields@cb.uga.edu).*

### **3M Harry Heltzer Multidisciplinary Chair in Science and Technology**

**University of Minnesota, Minneapolis, MN USA**

The Graduate School and the Institute of Technology at the University of Minnesota—Twin Cities invites applications and nominations for the position of 3M Harry Heltzer Multidisciplinary Chair in Science and Technology. This is a tenured and endowed position at the rank of associate or full professor (dependent upon qualifications and experience) in the area of physical and biological structures characterization using microscopy and imaging. Candidates must have outstanding academic and research records, with several years of successful research and teaching experience. A Ph.D. degree and dedication to teaching, graduate student advising, and regular and sustained interaction with industry are required. Candidates are sought whose research agenda will contribute to building cross-disciplinary and cross-college collaboration in one or more areas of strategic importance university-wide, including within the Institute of Technology and with other units at the University of Minnesota. This endowed chair is intended to foster industry-university research interaction and collaboration while advancing scientific and technological expertise in new frontiers of knowledge relevant to the Institute of Technology and 3M. Candidates with a background in any relevant areas of science or engineering are encouraged to apply. Department affiliation will depend on the candidate's area of expertise, with the possibility of a joint appointment with one or more units in the Institute of Technology or elsewhere in the University.

Applications should be submitted online at: <https://employment.umn.edu>, under Req. # 154636, and include a cover letter, curriculum vitae (including list of publications), research description/plan, statement of teaching interest, and contact information for three references. Review of applications will begin immediately and continue until the position is filled. For further information, contact Douglas Ernie at [ernie@umn.edu](mailto:ernie@umn.edu).

***The University of Minnesota is an equal opportunity educator and employer***

## **Research and Technical Staff Positions at Northwestern University**

The Keck Inorganic Signatures of Life Program in collaboration with the Quantitative Bioelement Imaging Center (QBIC) (<http://www.clp.northwestern.edu>) and NUANCE Center (<http://www.nuance.northwestern.edu>) at Northwestern University have openings for two Keck Fellows and one technical staff member with backgrounds in cryo-biological sample preparation, electron microscopy, element specific characterization, and/or oocyte maturation and fertilization.

The Fellows, appointed at a postdoctoral or research assistant professor level, depending on qualifications, will work as part of a collaborative team with Profs. Dravid, Woodruff and O'Halloran using a variety of S/TEMs including customized Hitachi STEM configured with HAADF, EELS and dual EDS. The technical staff position is primarily for biological sample preparation, especially oocytes, for SEM/TEM.

Send applications and three references to Mr. K. McCumber ([ohalloran-ofc@northwestern.edu](mailto:ohalloran-ofc@northwestern.edu)).

*Northwestern University is EEOC*

# M&M 2009 Registration NOW OPEN

Register before June 16 at <http://mm2009.microscopy.org> to get the early rate and save \$100!

For more information, email  
[MeetingManager@microscopy.org](mailto:MeetingManager@microscopy.org)  
or visit <http://mm2009.microscopy.org>

## THE UNIVERSITY OF ALABAMA Tuscaloosa, Alabama Instrumentation Specialist

The Central Analytical Facility (CAF) at the University of Alabama ([www.caf.ua.edu](http://www.caf.ua.edu)) seeks candidates to fill the position of Instrumentation Specialist. The Instrumentation Specialist is responsible for the day-to-day operation and routine maintenance of their assigned instrument cluster within the Central Analytical Facility. The specialist will assure the instrumentation is working according to specifications, perform routine maintenance, train operators (undergraduate students, graduate students, post docs and external users) in the safe, productive use of the instrumentation and work with internal (UA) and external (other universities, government laboratories and industry) to obtain and interpret data.

The instrumentation specialist reports to the Manager of the CAF. In the past five years, the CAF has infused >\$5M of new analytical instruments through federally funded awards and internal infrastructure investments. The instruments in the CAF include an Imago Scientific Instruments Local Electrode Atom Probe, FEI Quanta 3D dual beam Focus Ion Beam (FIB) microscope, FEI Tecnai TEM, Hitachi H8000 TEM, JEOL 7000 SEM, JEOL 8600 electron microprobe, Philips XL 30 SEM, Kratos 165 Auger/x-ray photoelectron spectrometer and a variety of specimen preparation equipment.

The candidates must have the following: Bachelor's degree or higher and at least three (3) years of relevant experience; or Associate's degree in a technical discipline and at least five (5) years of relevant experience; or High School diploma or GED and at least seven (7) years of relevant experience. Salary is dependent with experience. Candidates can apply for this position online at <http://jobs.ua.edu>

*The University of Alabama is an Equal Opportunity/Affirmative Action Employer*

## THE UNIVERSITY OF ALABAMA Tuscaloosa, Alabama Instrumentation Specialist

The Central Analytical Facility (CAF) at the University of Alabama ([www.caf.ua.edu](http://www.caf.ua.edu)) seeks candidates to fill the position of Instrumentation Specialist. The Instrumentation Specialist is responsible for the day-to-day operation and routine maintenance of their assigned instrument cluster within the Central Analytical Facility. The specialist will assure the instrumentation is working according to specifications, perform routine maintenance, train operators (undergraduate students, graduate students, post docs and external users) in the safe, productive use of the instrumentation and work with internal (UA) and external (other universities, government laboratories and industry) to obtain and interpret data.

The instrumentation specialist reports to the Manager of the CAF. In the past five years, the CAF has infused >\$5M of new analytical instruments through federally funded awards and internal infrastructure investments. The instruments in the CAF include an Imago Scientific Instruments Local Electrode Atom Probe, FEI Quanta 3D dual beam Focus Ion Beam (FIB) microscope, FEI Tecnai TEM, Hitachi H8000 TEM, JEOL 7000 SEM, JEOL 8600 electron microprobe, Philips XL 30 SEM, Kratos 165 Auger/x-ray photoelectron spectrometer and a variety of specimen preparation equipment.

The candidates must have the following: Bachelor's degree or higher and at least three (3) years of relevant experience; or Associate's degree in a technical discipline and at least five (5) years of relevant experience; or High School diploma or GED and at least seven (7) years of relevant experience. Salary is dependent with experience. Candidates can apply for this position online at <http://jobs.ua.edu>

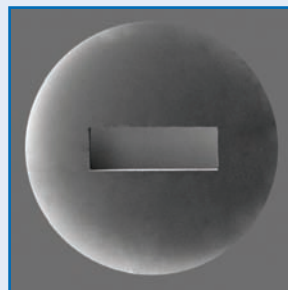
*The University of Alabama is an Equal Opportunity/ Affirmative Action Employer*

PELCO®

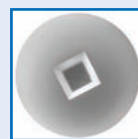
## Silicon Nitride Membranes

Next Generation  
Si<sub>3</sub>N<sub>4</sub> TEM Support Films

- Durable and inert planar 50 and 200nm substrates
- 3.0mm circular frame
- EasyGrip™ edges
- Free from debris
- Complimented with Holey Membranes and Silicon Dioxide Substrates



Holey  
Si<sub>3</sub>N<sub>4</sub>  
Membrane



Silicon  
Dioxide  
Membrane

**TED PELLA, INC.**  
Microscopy Products for Science and Industry

[sales@tedpella.com](mailto:sales@tedpella.com) 800-237-3526 [www.tedpella.com](http://www.tedpella.com)

SPEND LESS. GET MORE.  
**www.labx.com**



**labX**  
AUCTIONS, CLASSIFIEDS & NEW PRODUCTS

BUY & SELL MICROSCOPES AND LAB EQUIPMENT