

table of contents preview

BIOLOGICAL APPLICATIONS

- Time-Lapse Evaluation of Interactions Between Biodegradable Mg Particles and Cells
Florencia Alvarez, Rosa M. Lozano Puerto, Blanca Pérez-Maceda, Claudia A. Grillo, and Mónica Fernández Lorenzo de Mele
- Intracellular Biosynthesis of Fluorescent CdSe Quantum Dots in *Bacillus subtilis*: A Strategy to Construct Signaling Bacterial Probes for Visually Detecting Interaction Between *Bacillus subtilis* and *Staphylococcus aureus*
Zheng-Yu Yan, Xiao-Xia Ai, Yi-Long Su, Xin-Ying Liu, Xiao-Hui Shan, and Sheng-Mei Wu
- Calcium Deposits in the Crayfish, *Cherax quadricarinatus*: Microstructure versus Elemental Distribution
Gilles Luquet, Yannick Dauphin, Aline Percot, Murielle Salomé, Andreas Ziegler, Maria S. Fernández, José L. Arias
- Microscopy and Microanalysis of Blood in a Snake Head
Dey et al.
- Changes in Synapsin Levels in the Millipede *Gymnastreptus olivaceus* Schubart, 1944 Exposed to Different Concentrations of Deltamethrin
Annelise Francisco, Pablo H. Nunes, Roberta F. C. Nocelli, Carmem S. Fontanetti
- Comparison of Aortic Collagen Fiber Angle Distribution in Mouse Models of Atherosclerosis Using Second-Harmonic Generation (SHG) Microscopy
Shana R. Watson, Piaomu Liu, Edsel A. Peña, Michael A. Sutton, John F. Eberth, and Susan M. Lessner
- Innovative High Gas Pressure Microscopy Chamber Designed for Biological Cell Observation
Mélanie Ragon, Hue N. Thi Minh, Stéphane Guyot, Pauline Loison, Gaëtan Burgaud, Sébastien Dupont, Laurent Beney, Patrick Gervais, and Jean-Marie Perrier-Cornet

MATERIALS APPLICATIONS

- Quantitative Energy-Dispersive X-Ray Analysis of Catalyst Nanoparticles Using a Partial Cross Section Approach
Katherine E. MacArthur, Thomas J. A. Slater, Sarah J. Haigh, Dogan Ozkaya, Peter D. Nellist, and Sergio Lozano-Perez
- Scanning Electron Microscope-Cathodoluminescence Analysis of Rare-Earth Elements in Magnets
Susumu Imashuku, Kazuaki Wagatsuma, and Jun Kawai
- Application of SEM/EDS for characterization of detrital minerals in karst cave speleothems
Nina Zupančič, Miloš Miler, Stanka Sebel, and Simona Jarc
- Phase Identification of Dual Phase (DP980) Steels by EBSD and Nanoindentation Techniques
Fan Zhang, Annie Ruimi, and David P. Field
- Photoluminescence Studies of Both the Neutral and Negatively Charged Nitrogen-Vacancy Center in Diamond
Kaiyue Wang, John W. Steeds, Zhihong Li, and Yuming Tian
- Dopant-site Determination in Y- and Sc-Doped $(\text{Ba}_{0.5}\text{Sr}_{0.5})(\text{Co}_{0.8}\text{Fe}_{0.2})\text{O}_{3.8}$ by Atom Location by Channeling Enhanced Microanalysis and the Role of Dopant Site on Secondary Phase Formation
Matthias Jeffert, Heike Störmer, and Dagmar Gerthsen
- Characterization of Al_2O_3 in High-Strength Mo Alloy Sheets by HRTEM
Yucheng Zhou, Yimin Gao, Shizhong Wei and Yajie Hu
- FIB Plan View Preparation and Electron Tomography of Ga-Containing Droplets Induced by Melt-Back Etching in Si
Katharina I. Gries, Katharina Werner, Andreas Beyer, Wolfgang Stolz, and Kerstin Volz
- Three-Phase 3D Reconstruction of a LiCoO_2 Cathode via FIB-SEM Tomography
Zhao Liu, Yu-chen Karen Chen-Wiegart, Jun Wang, Scott A. Barnett, Katherine T. Faber
- Microstructure of Concrete with Aggregates from Construction and Demolition Waste Recycling Plants
Miguel Bravo, A. Santos Silva, Jorge de Brito, and L. Evangelista
- Fractal and Lacunarity Analyses: Quantitative Characterization of Hierarchical Surface Topographies
Edwin J. Y. Ling, Phillip Servio, and Anne-Marie Kietzig
- In Situ Ptychography of Heterogeneous Catalysts using Hard X-Rays: High Resolution Imaging at Ambient Pressure and Elevated Temperature
Sina Baier, Christian D. Damsgaard, Maria Scholz, Federico Benzi, Amelie Rochet, Robert Hoppe, Torsten Scherer, Junjie Shi, Arne Wittstock, Bitta Weinhausen, Jakob B. Wagner, Christian G. Schroer, and Jan-Dierk Grunwaldt
- Microscopy and Cathodoluminescence Spectroscopy Characterization of Quartz Exhibiting Different Alkali-Silica Reaction Potential
Aneta Kuchařová, Jens Götz, Šárka Šachlová, Zdeněk Pertold, and Richard Příkrýl
- TECHNIQUES, SOFTWARE, AND EQUIPMENT DEVELOPMENT**
- Auto Focus by Bayes-Spectral-Entropy Applied to Optical Microscopy
Steffen Podlech
- Automatic Detection of Pearlite Spheroidization Grade of Steel using Optical Metallography
Naichao Chen, Yingchao Chen, Jun Ai, Jianxin Ren, Rui Zhu, Xingchi Ma, Jun Han, Qingqian Ma
- Monte Carlo Simulations of Electron Energy-Loss Spectra with the Addition of Fine Structure from Density Functional Theory Calculations
Mohammed Attarian Shandiz, Maxime J.-F. Guinel, Majid Ahmadi, and Reynald Gauvin
- Theoretical and Experimental X-ray Peak/Background Ratios and Implications for Energy Dispersive Spectrometry in the Next Generation Analytical Electron Microscope
Nestor J. Zaluzec
- High Dynamic Range Pixel Array Detector for Scanning Transmission Electron Microscopy
Mark W. Tate, Prafull Purohit, Darol Chamberlain, Kayla X. Nguyen, Robert M. Hovden, Celesta S. Chang, Pratiti Deb, Emrah Turgut, John T. Heron, Darrell G. Schlom, Daniel C. Ralph, Gregory D. Fuchs, Katherine S. Shanks, Hugh T. Philipp, David A. Muller, Sol M. Gruner
- A Simple TEM Method for Fast Thickness Characterization of Suspended Graphene and Graphite Flakes
Sultan Akhtar, Stefano Rubino and Klaus Leifer
- Microscopy and Microanalysis website:** <http://journals.cambridge.org/MAM>
Indexed in Chemical Abstracts, Current Contents, BIOSIS, and MEDLINE (PubMed)



Dear Abbe

Dear Abbe,

Help! Like many modern microscopists, I am seriously overworked. Between writing grants and contracts, reviewing other peoples' grants and contracts, staff meetings, progress reports, committee meetings, time-use reports, writing papers, reviewing papers, and other meetings, it seems the only time I have to do actual microscopy is during my commute. What can I do?

Harried in Harrisburg

Dear Harried,

Quit your whining! In my day we had microscopes even in our bathrooms so we could always be working. But a solution is coming soon. As you may be aware, auto manufacturers have been working on self-driving cars. Since many preparation instruments and most microscopes are becoming self-driving, Abbe Labs has been diligently working on a hybrid solution for microscopists. The microscopy instruments are contained in a self-driving car, and there you are! A whole new kind of micro-car! We call it the Microsetta.

Dear Abbe,

I'm using old steel re-sharpenable blades to section decalcified teeth. I realize most people use disposable blades these days. My concern is that people might think I'm a histology hipster. I get funny looks when people see me using the automatic knife sharpener. When people see me using an old AO 820 microtome, they think I'm some kind of historical histology re-enactor. Should I use the modern equipment we have available in our lab, or should I go full hipster historical histologist on them?

Hysterical in Rootstown

Dear Hysterical,

Ach, ja, I see the problem. You are nothing but a plausible poser. "Automatic knife sharpener" indeed! True hard-core histologists hand-sharpen their microtome knives and finish them on a leather strop. I call that a true Historical Histological Hipster. When I learned to section, we would travel to the forges of Volund (I recovered his wife's ring, and he owed me a favor) and forge our own microtomy knives. And woe be to the unfortunate student who couldn't slice a fresh liver biopsy into 1 μm serial sections with the new knife! Look closer at that "modern equipment"! You'll find it's just smoke and mirrors. Go to any histology lab, ignore the lab techs, and look for the real histologist behind the curtain. You'll find an 820, a proper selection of sharpening stones, a well-cared-for leather strop, and a harassed Histowizard snarling at the Landstreicher who dares disturb his slicing. Say "No" if they ask if you want a slice of meat pie.

Herr Abbe can't wait to hone his wisdom on the strop of sarcasm! Don't hesitate to send him a line at jpsshield@uga.edu.

MT