

## Software and Techniques Development

Z Dependence of Electron Scattering by Single Atoms into Annular Dark-Field Detectors  
*Michael M.J. Treacey*

Automated Grain Mapping Using Wide Angle Convergent Beam Electron Diffraction in Transmission Electron Microscope for Nanomaterials  
*Vineet Kumar*

Three-Dimensional Analysis by Electron Diffraction Methods of Nanocrystalline Materials  
*Christoph Gammer, Clemens Mangler, Hans-Peter Karnthaler, and Christian Rentenberger*

Disordered Spheres with Extensive Overlap in Projection: Image Simulation and Analysis  
*Christopher D. Chan, Michelle E. Seitz, and Karen I. Winey*

Image Processing and Lattice Determination for Three-Dimensional Nanocrystals  
*Linhua Jiang, Dilyana Georgieva, Igor Nederlof, Zunfeng Liu, and Jan Pieter Abrahams*

Plan-View Preparation of TEM Specimens from Thin Films Using Adhesive Tape  
*Zsolt Czirány*

Multiple Double Cross-Section Transmission Electron Microscope Sample Preparation of Specific Sub-10 nm Diameter Si Nanowire Devices  
*Lynne M. Gignac, Surbhi Mittal, Sarunya Bansaruntip, Guy M. Cohen, and Jeffrey W. Sleight*

Fuzzy Rule Based Classification and Quantification of Graphite Inclusions from Microstructure Images of Cast Iron  
*Pattan Prakash, V.D. Mytri, and P.S. Hiremath*

Compton Scattering Artifacts in Electron Excited X-Ray Spectra Measured with a Silicon Drift Detector  
*Nicholas W.M. Ritchie, Dale E. Newbury, and Abigail P. Lindstrom*

Identifying Weak Linear Features with the "Coalescing Shortest Path Image Transform"  
*Pascal Vallotton, Changming Sun, David Lovell, Martin Savelsbergh, Matthew Payne, and Gerald Muench*

A Method for Quick, Low-Cost Automated Confluency Measurements  
*Gil Topman, Orna Sharabani-Yosef, and Amit Gefen*

Nonrigid Registration of CLSM Images of Physical Sections with Discontinuous Deformations  
*Jan Michálek, Martin Čapek, and Lucie Kubínová*

## Materials Applications

Three-Dimensional Imaging of Sulfides in Silicate Rocks at Submicron Resolution with Multiphoton Microscopy  
*Antoine Bénard, Sabine Palle, Luc Serge Doucet, and Dmitri A. Ionov*

Scanning Photoemission Spectromicroscopic Study of 4-nm Ultrathin SiO<sub>3.4</sub> Protrusions Probe-Induced on the Native SiO<sub>2</sub> Layer  
*Rupesh S. Devan, Shun-Yu Gao, Yu-Rong Lin, Shun-Rong Cheng, Chia-Er Hsu, Chia-Hao Chen, Hung-Wei Shiu, Yung Liou, and Yuan-Ron Ma*

Voltage-Pulsed and Laser-Pulsed Atom Probe Tomography of a Multiphase High-Strength Low-Carbon Steel  
*Michael D. Mulholland and David N. Seidman*

Matrix Effects in the Energy Dispersive X-Ray Analysis of CaO-Al<sub>2</sub>O<sub>3</sub>-MgO Inclusions in Steel  
*Petrus Christiaan Pistorius and Neerav Verma*

Chemical and Morphological Study of Gunshot Residue Persisting on the Shooter by Means of Scanning Electron Microscopy and Energy Dispersive X-Ray Spectrometry  
*Zuzanna Brožek-Mucha*

Point Defect Clusters and Dislocations in FIB Irradiated Nanocrystalline Aluminum Films: An Electron Tomography and Aberration-Corrected High-Resolution ADF-STEM Study  
*Hosni Idrissi, Stuart Turner, Masatoshi Mitsuhashi, Binjie Wang, Satoshi Hata, Michael Coulombier, Jean-Pierre Raskin, Thomas Pardoën, Gustaaf Van Tendeloo, and Dominique Schryvers*

Biological Applications  
Imaging of Vascular Smooth Muscle Cells with Soft X-Ray Spectromicroscopy  
*Julia Sedlmair, Sophie-Charlotte Gleber, Semra Ozturk-Mert, Michael Bertilson, Olov von Hofsten, Jurgen Thieme, and Thomas Pfohl*

Mice Spermatogonial Stem Cells Transplantation Induces Macrophage Migration into the Seminiferous Epithelium and Lipid Body Formation: High-Resolution Light Microscopy and Ultrastructural Studies  
*Felipe F. Dias, Hélio Chiarini-Garcia, Gleydes G. Parreira, and Rossana C.N. Melo*

Adsorption of Humic Acid onto Carbonaceous Surfaces: Atomic Force Microscopy Study  
*Zhiguo Liu, Yuqiang Zu, Ronghua Meng, Zhimin Xing, Shengnan Tan, Lin Zhao, Tongze Sun, and Zhen Zhou*

Book Review  
*Scanning Transmission Electron Microscopy*. Edited by Stephen J. Pennycook and Peter D. Nellist  
*Archie Howie*



## Dear Abbe

### Dear Abbe,

*We do lots of immunolabeling on small bits of Drosophila tissue that always float on top of the fix due to the surface tension. We can use low amounts of triton x-100 to overcome this, but I would like to be able to leave detergents out until I am convinced the fixation is good. Do you know of a good surfactant that would break the surface tension but not permeabilize cells?*

*John from Jersey*

### Dear Johnny,

Ah, in my experience nothing breaks surface tension like a few shots of Becherovka! Not sure I can remember doing it with Drosophila, but I do vividly recall the summer of 1905 when Albert E., his wife Mileva, and I got totally hammered watching the *The Scarlet Pimpernel* (which had recently opened at the New Theatre in London). Albert had just finished working out how special relativity relates to Brownian motion, when I said "Lassen Sie uns getrunken gehen und erhalten!" Always one to rise to the occasion, Mileva challenged me to a game of quarters, which I handily won. Poor Albert spent most of the evening in the men's room praying to the porcelain goddess, while Mileva and I danced the night away. Like you, we ultimately ended up staining some tissue, but I'd better not go there, if you know what I mean.

### Dear Abbe,

*We would like to monitor our microscope usage more carefully. At the moment people log on and out of the computers with their own logins and record their time in the logbook afterward. The problem is that users are really not writing anything in the logbook, and thus it is difficult to follow who is doing what. We decided to implement some kind of "digital logbook" on the computers that control the microscopes. Hopefully when the user is finally logging out from the computer, he/she would be asked to give information about the usage and possibly about problems/malfunctions. Later, the people who are responsible for maintenance would be able to go through the usage history. Do you know any good software for this?*

*Teemu in Zurich*

### Dear Teemu,

Oh, how I long for the days when one's personal integrity and the threat of swift physical violence were all that were needed to cajole users into exhibiting good behavior. One of the most egregious cases I ever witnessed was that of a user who substituted a fine Zeiss objective with a Lomo Planapo 63× N.A. 1.30. DIN standards be damned! I did not travel all the way to Bern and visit my dear friend Edmund von Fellenberg to collect the fluorite of Oltschenalp just to have it swapped for this obviously inferior piece of glass. No, my friend, try as you might one simply cannot trust today's users to behave in a way that would make Chancellor Bismarck proud. Two tricks that I employ are to coat all parts of the microscope, except the focus knobs, with a thin solution of osmium tetroxide. If anything is amiss, simply look for those users with blackened fingertips or who show signs of respiratory failure. This is a sure indication that they have been overstepping their authority. Alternatively, one can place those ever-present surveillance cameras throughout the lab. I am particularly fond of the models that are fashioned after the HAL 9000 computer. The inner door to our scope room will not unlock until the user has completed the necessary paperwork while the insistent, yet firm, voice of HAL repeatedly tells them that the mission is far too important to be left to mere humans.

*Have a technical problem? Personal hygiene problem? Just need to vent? Write to Abbe and give him a piece of your mind at [jpshield@uga.edu](mailto:jpshield@uga.edu).*

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