

table of contents preview

Special Section: Keystone Meeting on Extracellular Matrix

Introduction

Borg and Lindsey

Review Articles

The Glomerular Basement Membrane as a Model System to Study the Bioactivity of Heparan Sulfate Glycosaminoglycans

Kevin J. McCarthy and Deborah J. Wassenhove-McCarthy

Diabetes-Induced Alterations in the Extracellular Matrix and Their Impact on Myocardial Function

Brittany Law, Vennece Fowlkes, Jack G. Goldsmith, Wayne Carver, and Edie C. Goldsmith Myofibroblasts in the Infarct Area: Concepts and Challenges

Evangelos P. Daskalopoulos, Ben J.A. Janssen, and W. Matthijs Blankestijn

Structural Remodeling and Mechanical Function in Heart Failure

Bridget Louise Leonard, Bruce Henry Smaill, and Ian John LeGrice

Endothelial Cell-Pericyte Interactions Stimulate Basement Membrane Matrix Assembly: Influence on Vascular Tube Remodeling, Maturation, and Stabilization

Amber N. Stratman and George E. Davis

Feature Articles

Matrix Metalloproteinase-28 Deletion Amplifies Inflammatory and Extracellular Matrix Responses to Cardiac Aging

Yonggang Ma, Ying Ann Chiao, Jianhua Zhang, Anne M. Manicone, Yu-Fang Jin, and Merry L. Lindsey

Cigarette Smoke Exacerbates Ventricular Remodeling and Dysfunction in the Volume Overloaded Heart

Jessica M. Bradley, Jonathan B. Nguyen, Alyssa C. Fournett, and Jason D. Gardner

Self-Organizing Tissue-Engineered Constructs in Collagen Hydrogels

Robert G. Gourdie, Tereance A. Myers, Alex McFadden, Yin-xiong Li, and Jay D. Potts

Desmoplakin is Important for Proper Cardiac Cell-Cell Interactions

Stephanie L.K. Bowers, William A. McFadden, Thomas K. Borg, and Troy A. Baudino

The Use of Neural Networks and Texture Analysis for Rapid Objective Selection of Regions of Interest in Cytoskeletal Images

Amanda D. Felder Derkacs, Samuel R. Ward, and Richard L. Lieber

Biological Applications

Uranium Microdistribution in Renal Cortex of Rats after Chronic Exposure: A Study by Secondary Ion Mass Spectrometry Microscopy

Christine Tessier, David Suhard, François Rebière, Maâmar Souidi, Isabelle Dublineau, and Michèle Agarande

Dye Surface Coating Enables Visible Light Activation of TiO₂ Nanoparticles Leading to Degradation of Neighboring Biological Structures

Jay Blatnik, Lanette Luebke, Stephanie Simonet, Megan Nelson, Race Price, Rachael Leek, Leyong Zeng, Aiguo Wu, and Eric Brown

Quantitative Mineralogical Properties (Morphology-Chemistry-Structure) of Pharmaceutical Grade Kaolinites and Recommendations to Regulatory Agencies

Meral Dogan, A. Umrhan Dogan, Aktham Aburub, Alta Botha, and Dale Eric Wurster

Materials Applications

A Transmission Electron Microscopy Study of the Effect of Interfaces on Bubble Formation in He-Implanted Cu-Nb Multilayers

D. Bhattacharyya, M.J. Demkowicz, Y.-Q. Wang, R.E. Baumer, M. Nastasi, and A. Misra

Microstructural Evolution in a CeO₂-Gd₂O₃ System

Fei Ye, Ding Rong Ou, and Toshiyuki Mori

Characterization of Nanometer-Scale Porosity in Reservoir Carbonate Rock by Focused Ion Beam-Scanning Electron Microscopy

Bijoyendra Bera, Naga Siva Kumar Gunda, Sushanta K. Mitra, and Douglas Vick

Techniques Development

Phase Contrast Synchrotron Microtomography: Improving Noninvasive Investigations of Fossil Embryos *In Ovo*

Vincent Fernandez, Eric Buffetaut, Eric Maire, Jérôme Adrien, Varavudh Suteethorn, and Paul Tafforeau

Improving AFM Images with Harmonic Interference by Spectral Analysis

Marek Kiwiłszo, Artur Zieliński, Janusz Smulko, and Kazimierz Darowicki

Use of Astronomy Filters in Fluorescence Microscopy

Jörg Piper

Quantitative High-Resolution Transmission Electron Microscopy of Single Atoms

Björn Gamm, Holger Blank, Radian Popescu, Reinhard Schneider, André Beyer,

Armin Götzhäuser, and Dagmar Gerthsen

Optimized Deconvolution for Maximum Axial Resolution in Three-Dimensional

Aberration-Corrected Scanning Transmission Electron Microscopy

Ranjan Ramachandra and Niels de Jonge

Improving Accuracy and Precision of Strain Analysis by Energy-Filtered Nano-Beam

Electron Diffraction

Angelika Hähnel, Manfred Reiche, Oussama Moutanabbir, Horst Blumtritt, Holm Geisler,

Jan Höntschel, and Hans-Jürgen Engelmann

Examination of a Polycrystalline Thin-Film Model to Explore the Relation between Probe

Size and Structural Correlation Length in Fluctuation Electron Microscopy

Michael Treacy and J.M. Gibson

Book Review

Basic Confocal Microscopy, Edited by Robert. L Price and W. Gray (Jay) Jerome

John Oreopoulos



Dear Abbe

Dear Abbe,

I need to remove panels on a table-top SEM. Have you ever done this? I want to have the turbo molecular pump serviced.

Needing Access in Asilomar

Dear Needy,

Finally! A practical question with a practical answer. I prefer to break out my DEWALT 4½", Heavy-Duty, Small-Angle Grinder with a 7.0 Amp AC/DC, 11000 RPM motor, low-profile jam-pot gear case, and 2-position removable side handle, which provides increased comfort and control. The sparks it throws off while tearing through the enamel metal side plates is a delight to behold for young and old alike! Of course, if you are trying to hold down costs on maintenance equipment, you can always use a claw hammer or hacksaw. If you are unsure and wish to employ professionals, then do what I did once. I called the fire department and claimed my Supreme Champion Brown Classic Tabby Maine cat had become entrapped and they promptly removed it with the "jaws of life." Imagine my surprise when my precious was not in the SEM!

Dear Abbe,

I need advice on dismantling a Reichert 2800 cryostat. I cannot remove the handle. I've tried a hex wrench, but I can't get it to budge. Is there a magic alignment? Thanks for any help.

Beth in Athens GA

Dear Beth,

I applaud you for your adroit perception of the need for alignment. However, you should know by now that I only rely on empirical, scientific methods, not "magic"! Madam Dichroic suggests waiting for Neptune to be descendent on the fourth house of Saturn in the locked position. Then, once alignment has occurred, I would suggest securing the handle by way of titanium-reinforced, carbon fiber straps and hooking them to the harnesses of a dozen Siberian Malamutes. Then release a terrified rabbit directly in front of the lead dog. Experiments I performed with Johann von Zimmerman in Chemnitz, Germany, showed that a similar team of dogs can generate a force equal to 7.457 10¹² ergs/sec. (roughly 1,000 horsepower), which capably removed a similarly stuck flywheel from a 1896 Phoenix engine. Gottlieb Daimler was so pleased he had a case of Sekt sent over to the lab to show his appreciation. We gave some of this to the rabbit, which seemed to calm his nerves considerably.

If you need something unstuck, let Herr Abbe suggest a solution. All his correspondence is answered through his faithful human assistant at jpsields@uga.edu.



a powerful, white-light, solid-state illuminator

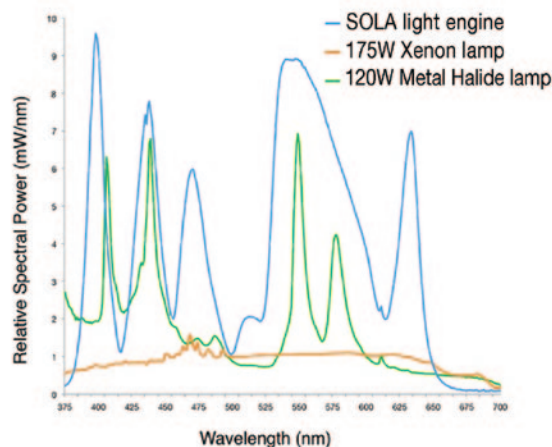
**why buy a lamp
when you can have a light engine?**



Solid State Sources, the Power of an Arc Lamp *and*

- Powerful, stable white light
- Minimal heat generation
- Illumination uniformity
- Short warm-up time
- Millisecond switching times
- Long life > 15,000 usable hours
- Off-the-shelf configurations
- Use with any microscopy software in the marketplace
- Couples to all major brands of microscope via 3mm LLG
- Integrates with existing filter cubes and hardware configurations

specific outputs are a function of instrument parameters - results will vary



Lumencor, Inc 14964 NW Greenbrier Parkway, Beaverton, OR 97006 USA T 503-213-4269 www.lumencor.com



Microscopy TODAY

2012 Innovation Awards

Entry deadline is March 1, 2012

Application forms are available at www.microscopy-today.com