

Subject: JEOLink - June Microscopy News from JEOL USA

JEOLink

JEOL USA Newsletter

June 2007

In This Issue

Harvard Uses SEM to Map Brain
McSwiggen Offers Microprobe
Support
New Field Emission SEM
Stage Navigation is GPS for SEM
Minnesota Users Meeting

JEOL Recognized for Award-
Winning Service & Support
in 2007



We are enormously pleased to announce our recent recognition for Service & Support. We know we can offer our customers the best support in the industry, but we appreciate the feedback and confirmation that we're doing a good job. Thank you to our customers - we are glad to be a part

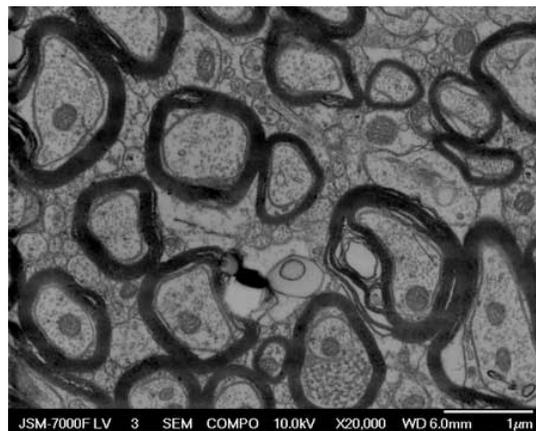
Dear Colleague,

This is the second issue of a new email newsletter from JEOL USA. We invite your suggestions and hope you find the information to be of interest. Should you prefer not to receive future issues, you can select unsubscribe at the bottom of this document . Or, you can [contact us](#) to suggest information you'd like to see. Enjoy!

High Resolution SEM Images to Be Used to Map Brain in 3D

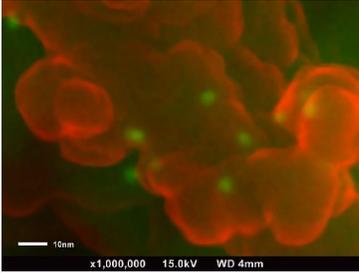
Harvard's Lichtman Lab Exploring How Brain is "Wired"

Researchers at Harvard University's Department of Molecular and Cellular Biology have selected JEOL as a partner in a collaborative effort to map the brain using high resolution SEM images. Harvard biologist Professor Jeff Lichtman, post-doctorate Narayanan (Bobby) Kasthuri, and University of Southern California Research Assistant Kenneth Hayworth plan to use a JEOL scanning electron microscope (SEM) to ultimately produce a 3D image of the entire mouse brain. Harvard will take delivery of a JEOL high resolution field emission SEM in June 2007.



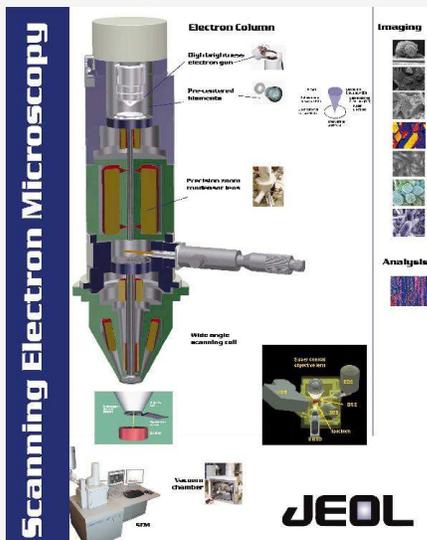
of your work.

Extreme Image



A 1,000,000X image of 2-4nm gold immunolabeled cells. Imaged with a JEOL [JSM-7500F](#) field emission SEM.

New Poster Illustrates SEM Technology



A new, full color poster highlights features of the electron column and SEM technology. Every SEM lab should have one! To request yours, contact us at jeolink@jeol.com.

Working together, the JEOL and Harvard teams will customize the JSM-7001FLV, one of JEOL's most popular SEMs used for advanced imaging and research, to sequentially allow fast acquisition of hundreds of thousands of high pixel density images at the nanometer scale. "We'll ultimately be using image recognition software for montaging at very high pixel resolution - approximately five nanometers - to acquire up to twenty megabyte images in about three seconds," said Charles Nielsen, JEOL USA SEM Product Manager and Vice President.

The work will be presented at Microscopy & Microanalysis, Fort Lauderdale, Florida, on Tuesday, August 7, 2007, at 9:15 a.m. during the symposium "Multiscale Imaging of the Nervous System."

[More](#)

[Click here for 3D movie](#)

Focus on JEOL Partners: *McSwiggen Offers Microprobe Support*



Known for expertise in microprobe applications, Peter McSwiggen began working with JEOL as a demo and applications consultant ten years ago. He is also principal analyst at his service lab in St. Anthony, Minnesota, which opened in 2002, and maintains an extensive microprobe website where applications notes can be downloaded (www.mcswiggen.com).

Microprobes are historically the quantitative analytical instrument of choice for energy resolution, allowing microanalysis of very small volumes (typically one-billionth of a cubic millimeter) in situ without contamination from the surrounding matrix or destruction of the sample. They use Wavelength Dispersive Spectrometry (WDS) to clearly differentiate between x-rays that have close to the same energy. For example, Peter explains, "An alloy of gold niobium and platinum will appear as one peak on EDS whereas WDS can quantify or map it without the need for mathematical deconvolution."

Peter used microprobes in his earlier work with the Minnesota Geological Survey and the University of Minnesota, where he was an Adjunct Professor and taught microprobe operation. He has worked with many types of samples, from metals to minerals and glasses to ceramics, and his time spent on different applications using the JEOL microprobe continues to add to his expertise.

Newer instruments, such as the [JXA-8500F](#) JEOL field emission microprobe, have extremely high spatial resolution for the nanometer range.

"I've noticed in the last few years there seems to have been a change in what people consider small, when it comes to analyzing features," he says. "A few years ago, when people said they had a small feature to be analyzed, it was on the order of a micron. In last few years it's becoming more common that the small feature is now one-fifth of that - it's in the couple hundred-nanometer range. It may be an interest in an intermetallic layer that is only a couple hundred nanometers across. However these layers can be very important because they can control the adhesion of the two adjacent metal layers, and can determine whether the device fails or not."

Additionally, he has written software utility programs to help users with their specific applications, including monazite age dating software, which is now integrated into the JEOL microprobe.

"Monazite is a common accessory mineral that occurs in many different kinds of rocks. It has a high thorium content - thorium, rare earth phosphate - which is radioactive so an age can be calculate from the minerals composition. Monazite age dating is an easy, inexpensive way for geologists to determine the age of a rock, and has become very important in the geological community," Peter says.

Now on DVD - Cross Section Polishing



From sample preparation to setup and care of the Cross Section Polisher, this DVD demonstrates the simplicity of this popular instrument that produces some dramatic SEM imaging results. Ask your [local sales representative](#) for details.

Quick Links...

- [JEOL USA Online](#)
- [Products](#)
- [Resources](#)
- [Image Gallery](#)
- [Contact Us](#)

[Join Our Mailing List!](#)

JEOL USA Mission Statement

Achieve customer fulfillment and loyalty by delivering outstanding technology and superior support while maintaining a leadership position in the industries and institutions that we serve.

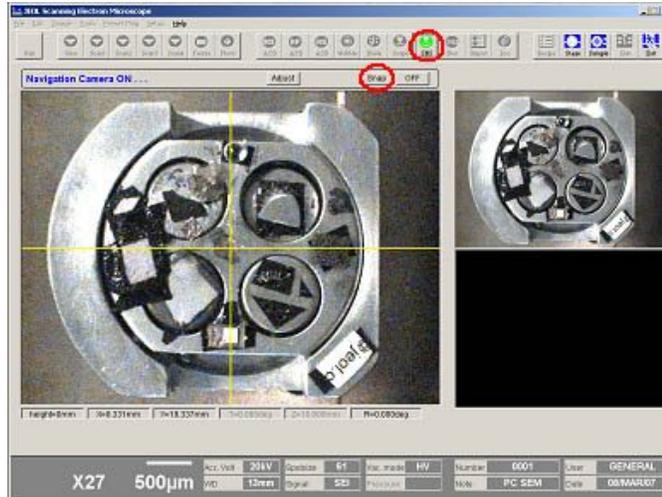
New Ultrahigh Resolution FE SEM - JSM-7500F



JEOL USA's open house at its Pleasanton, California demo facility brought visitors in from the area throughout the day, where they had a preview of the new Ultrahigh Resolution FE SEM. The JSM-7500F will be demonstrated at Semicon West.

The new, ultrahigh resolution Field Emission SEM with advanced optics clearly reveals intricate surface details during observation of nano structures of medical, biological, materials science, and semiconductor samples. [Read more.](#)

Stage Navigation is "GPS for SEM"



Stage navigation for SEM helps the user navigate directly to the area to be imaged. This new accessory for the JEOL 6X90 tungsten SEMs accurately guides the stage across a sample by referencing a color photograph taken from a CCD camera mounted on the top of the SEM sample chamber. [See the movie file](#) for yourself!

Action! *.AVI Acquisition for SEM



A picture may be worth a thousand words, but a movie can say even more. Live image capture and one-button movie acquisition will help you easily demonstrate a dynamic experiment. Available for the JEOL 6X90 tungsten SEMs. [For more information, click here.](#)

Upcoming Meetings and Tradeshows



[Semicon West](#) - San Francisco, California

[Microscopy & Microanalysis](#) - Ft. Lauderdale, Florida

[International Materials Research Congress](#) - Cancun, Mexico



Oklahoma Microscopy Society

The 29th annual Spring Workshop for the [Oklahoma Microscopy Society](#) was held at the University of Oklahoma on April 27th. Pictures show the JEOL JEM-2010F TEM and an Electron Energy Loss Spectroscopy (EELS) demo.

Twin Cities (Minnesota) User Meeting Features Topics in SEM & TEM

The annual Twin Cities User meeting was held at Medtronic's headquarters in Fridley, Minnesota on June 8th. Topics included:

Recent Advances in Low kV Backscatter Imaging & Low kV Microanalysis - Vern Robertson, JEOL USA

Silicon Drift Detector (SDD) - An Update to Rapidly Developing Technology - David Rohde, Thermo Fisher Scientific

3-Dimensional Representation of Data Using SEM & TEM - Robb Mierzwa, JEOL USA



Advances in Low(er) Voltage TEM - No Longer the "Little Sibling" of the Lab - Tom Isabell, JEOL USA

Electron Backscatter Diffraction (EBSD) - An Introduction to the Technique - Tim Maitland, Oxford Instruments

Visit a



Spotlight on the unique applications of SEM and TEM users.

JEOL USA | 11 Dearborn Road | Peabody | MA | 01960