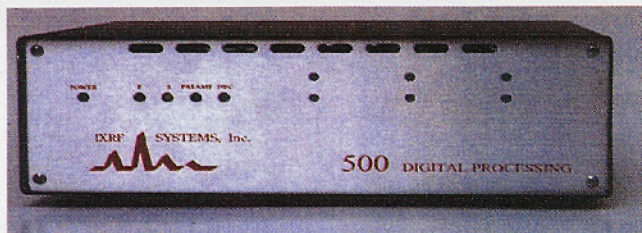
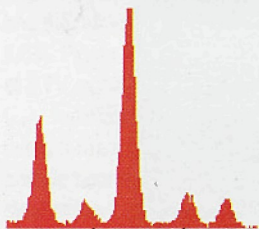


EDS Upgrades

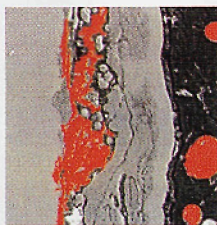
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Down With Magnification: The Micron Marker Rules!

Joe Geller

Geller Microanalytical Laboratory

With today's current wave of quality consciousness, our quality control people tell us we MUST calibrate our instruments using standards that are traceable to the national laboratories (NIST - National Institute of Standards and Technology in the U.S., NPL - National Physical Laboratory in the UK, and others). But, is it really magnification that should be calibrated?

While recently walking around the exhibit floor at the Microscopy & Microanalysis '98 Conference, I noticed the large SEM image display screens that now present our highly magnified specimens. Almost all vividly show a micron (using SI units this should be a "micrometer") marker as well as the magnification. No doubt the accuracy is within the $\pm 3\%$ that is commonly quoted by the manufacturers. So what's the problem? Maybe this is picky. The micrometer marker is probably within the stated accuracy but the magnification displayed is really only meant for the final image (which was probably recorded on Polaroid film). However, if the display screen is larger than the size of the recorded image, the magnification should be appropriately scaled. On the exhibit floor magnification errors increased with the display screen size. The bigger the display, the larger the error.

Since the micrometer marker scales with the image, it will always be "correct". Magnification is an absolute value which, when recorded on the image, will be correct for images at only one particular image size. Unless you are using the Polaroid image size (approximately 4" X 5"), and that image will forever stay that size, turn off your magnification display and only use the micrometer marker when recording images.

To calibrate your micrometer marker, either follow your manufacturer's recommendation or ask us for a copy of our free magnification calibration resource guide (tel.: (978)887-7000 or email: Jg@gellermicro.com). Your SEM service engineer can perform the fine adjustments to bring the instrument into calibration. They prefer to use your own trusted standard. That way the engineers are free of liability if theirs is not traceable

A new ASTM (American Society for Testing and Materials) "Standard Practice for Calibrating the Magnification of a Scanning Electron Microscope", which is now being balloted by the E-4 Metallography Committee, addresses these points. When available, it will be named E776-XX where the last two digits reflect the year of balloting for this standard. What will happen to the standard's name if it's approved in Y2K? ■

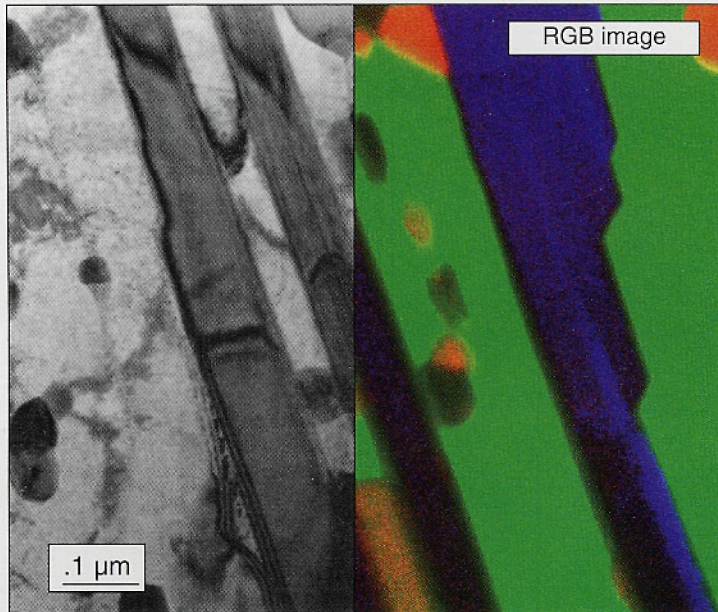
HISTOLOGY TECHNICIAN

Riverside Regional Medical Center seeks an experienced Histology Technician with Medical Electron Microscopy experience to work full-time in our laboratory department in the Histology Department. The hours are Monday - Friday, 8:00 a.m. to 4:30 p.m. Candidates must be able to work independently and with several physicians. Apply to:

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Color composite maps constructed with Gatan EFTEM software make it easy to distinguish between different kinds of carbides in high speed steel. Images were taken with a GIF 200 at FELMI TU-Graz, Austria.

The Leaders in TEM Accessories

New Energy Filters

The Next Generation EFTEM system is here—the GIF 2000. The GIF 2000 is the first energy filter on the market to fully correct 3rd order imaging aberrations. The improved electron optics produce lower distortion, better isochromaticity, and simplified operation. Coupled with easy-to-use AutoFilter software, the GIF 2000 is your best choice for EFTEM.

New Software

Gatan Spectrum Imaging for PEELS and GIF systems is just one of many new software applications and features available with DigitalMicrograph 3.3. New page layout capabilities, image processing and analysis functions, reporting, and WYSIWYG printing capabilities have all been added to DM3.x for Mac or 95/NT computers.

New CCD Cameras

TV-rate viewing and digital imaging are now available in one platform with two new products by Gatan — the DualView for wide angle applications and MatScan for high resolution. Coupled with MultiScan cameras, Gatan has a digital imaging choice for every TEM application.

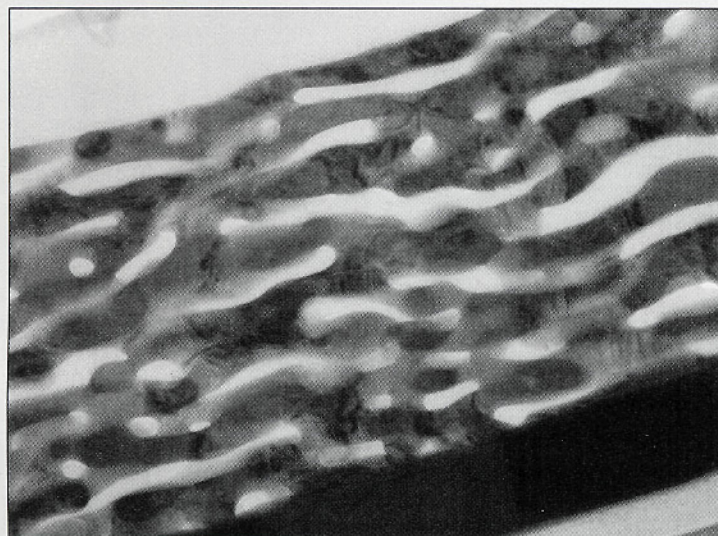
New Specimen Holders

Gatan continues its innovation in TEM specimen holders with the introduction of three new holders. The 677.FIB multiple specimen holder for FIB milling, the 630 High Tilt Cryotransfer holder, and the Double Tilt Rotate holder.

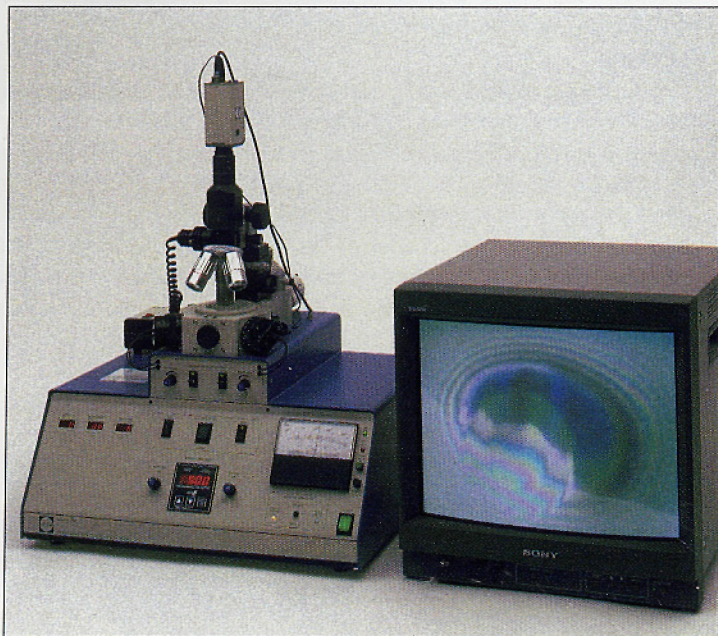
New Specimen Preparation

Remote viewing of milling samples is now possible with the new PIPS microscope camera system with magnifications up to 2100X.

Stop by our booth at ICEM to see the latest hardware and software innovations from Gatan.



A cross sectional TEM image of thin films of PZT and platinum on a Si substrate. The specimen was ion milled in the PIPS and the image was taken using a Gatan MatScan CCD camera.



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