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EDAX At the recent M&M conference held in Quebec City, EDAX successfully launched the next generation of x-ray microanalysis systems, the **GENESIS XMS**, including a new digital pulse processor, a new range of x-ray microanalysis detectors and the next version of the Genesis microanalysis software. Also launched was **Chi-Scan** a chemical pre filtering providing improved accuracy for materials characterization through simultaneous acquisition of EDS and EBSD data and interaction between the acquired data. The new x-ray detectors were the **CryoSpec**, a new reliable Si(Li) LN_2 free detector utilizing the latest cooling technology to improve the reliability of previous versions of LN Free detectors. The **LambdaSpec** is a new range of WDS systems with a version, LEXS (Low Energy X-Ray Spectrometer) utilizing the high collection optics and providing superior sensitivity (counts per second) than have previously been available. A silicon drift detector, the **MegaSpec**, was also launch capable of accepting over 1 million counts per second input count rates making it idea for fast x-ray mapping. For further information please visit www.edax.com.

FEI Company continues its tradition of microscopy innovation with enhancements to its premier line of SEM, TEM, and DualBeam™ tools. FEI's field upgradeable **Quanta™ HV SEM** is the only high-vac SEM available with the ability to add low-vac and ESEM capabilities as your needs change. The Quanta All in One SEM offers a new CF-11 Compliant Pharma Package, dedicated forensic SEM, and dynamic experiment package. New **Tecnai™ TEM tomography package** for life science and material science enables 3D reconstruction of samples ranging from cells to semiconductors. Tecnai also features single particle automation, automated exit wave reconstruction, and improved ergonomics for increased operational comfort. **Sirion™ high resolution SEM**, already reknowned for excellent beam stability, now offers high speed beam blanking capabilities, making it the leading SEM for e-beam lithography. New **Vitrobot™ sample preparation system** enables enhanced control over the process of plunge freezing aqueous samples. Robotics, stored environmental parameters, and automation guarantee high quality, reproducible sample freezing and high sample throughput. The industry-leading **Strata™ DualBeam** series for All in One 3D Failure Analysis combines new *in situ* TEM sample preparation applications with sub-1nm resolution imaging to quantifiably bridge the gap between UHR SEM and TEM analysis. FEI Company: sales@feico.com

E.A. Fischione Instruments, Inc. introduced two exciting new products, the **Model 2020 Advanced Tomography Holder** (Patent Pending) and the **Model 1030 Automated Sample Prep (*ASaP*) System** (Patent Pending). The **Model 2020** is a revolutionary room temperature TEM specimen holder that allows high tilt and extended fields of view in high resolution TEMs. It ideally addresses applications when three-dimensional (3D) information is required from both Life- and Physical Science specimens. The **Model 1030 *ASaP*** is a powerful and flexible tool that can significantly enhance image quality and analytical data derived from SEM specimens. It combines the features of Ion Beam Etching (IBE), Reactive Ion Beam Etching (RIBE), Reactive Ion Etching (RIE), High Resolution Coating (HRC), and Plasma Cleaning. The user can define sequences of any of these functions with an easy-to-use, graphical interface. Following insertion into a rapidly-pumped airlock, the specimen remains under vacuum while the instrument automatically performs the desired sequence of operations. Information for these and our other products can be found at www.fischione.com.

GATAN, Inc. introduces the **CT3500TR Tilt-Rotate Cryo-Transfer Holder**: Acquire Cryo-TEM images with ease and control. This Cryo-Transfer Holder is a must-have for any Cryo-TEM Laboratory. TEM cryo-transfer holders are mainly used to reduce specimen damage caused by the electron beam. Sensitive biological and polymer specimens are rapidly frozen, loaded into the cryo-transfer holder in a special liquid nitrogen cooled workstation and transferred to the microscope goniometer. Specimens are protected from frost and warming during transfer by a shutter, which totally encloses the specimen. By adding the possibility to rotate the specimen within the holder it is now possible to take a series of through tilt images of known angular relationship, thus improving data for 3D reconstruction. 2D crystals may also be aligned. Key features include: low drift and high resolution, precise temperature control, rapid, frost-free transfer, optimised specimen loading, motorised specimen rotation, and a secure specimen clamping system. For more information, visit: www.gatan.com

JEOL USA Introduces Four New Electron Microscopes: JEOL, a leader in electron microscopes for scientific and industrial research and development, introduced four new instruments at M&M 2002. **Nanoscience SEM**—With 50% higher resolution, the JSM-7400F provides unprecedented imaging quality at low kV. The field emission SEM features an 8mm working distance and takeoff angle of 35°, sample sizes up to 200mm, and an automated five-axis eucentric stage. **Analytical SEMs**—For applications ranging from forensics to semiconductors, the new JSM-6360LV and JSM-6460LV provide an ultra-wide magnification range of 5X to 300,000X, low vacuum, high resolution, and a large specimen chambers. **Remote-operation STEM**—The new STEM-2500SE enables rapid bright and dark field, SEI, TEM, and diffraction pattern imaging in ambient light. Simple, remote operation allows all levels of operators to conduct high-resolution nanometer-level structural analysis. **SPM (and AFM) with Total Environmental Control**—The new JSPM-5200 explores the structure of surfaces in their native environments, including fluid, ambient or controlled air, and also in vacuum at temperatures from 130 to 800K. More than 20 measurement modes make this easily upgradable SPM with AFM capabilities a versatile research instrument. For more information about JEOL instruments, visit www.jeol.com

LEO Electron Microscopy Inc. introduced the **The 1540 XB LEO's CrossBeam® Dual focused ion beam/E-beam system.** This unique tool permits *simultaneous ion milling and e-beam imaging*, enabling more precise control of the entire milling process–ideal for circuit edit, failure analysis, and TEM prep. By utilizing our unique field emission Gemini column, used on our high resolution line of FESEM'S, you get the same ultra high-resolution images, with proven reliability and performance, that has become the benchmark for high-resolution field emission microscopy. The **LEO SUPRA line of field emission SEM (FESEM)s** is a range of ultra-high resolution FESEMs capable of delivering unrivaled imaging at both low kV (down to 100V) and at high kV. In addition our unique **Variable Pressure Systems (VP)** allows for analysis of uncoated specimens so as to handle a full range of samples for materials science, semiconductor, and life-science applications.

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With **the1400 Series extended pressure SEM's** LEO extended their line of conventional and LaB-6 SEM's with a new line of extended pressure SEM's that allows for analysis and study of wet samples. Now samples may be imaged during the drying process, for example, to compare anhydrous and hydrated samples. *For more information:* Contact LEO, at www.leo-usa.com

PGT announced improvements to the **Sahara Silicon Drift Detector (SDD)** at the meeting this summer in Quebec. The SDD now achieves better than 130eV resolution, and the light element sensitivity is significantly better than Si(Li) or HpGe detectors. Because PGT's design requires no entrance window, the Sahara is at least 50% more sensitive than traditional LN_2 detectors to elements as light as carbon. In addition, this performance is achieved with unparalleled convenience of operation. Warm-up and cooldown periods take less time than that required to vent or pump the microscope chamber. In a paper presented at M&M02, PGT also described the **AutoPhase Method** of mining the data in a spectrum image. In this method, which takes less than a second to run, the X-ray intensity data are sorted into phases and displayed as a phase image. The method does not require extensive statistical manipulation and permits operator control over the sensitivity of the analysis. It also lets the user instruct the computer to omit from consideration specific elements such as carbon in the coating. AutoPhase works on raw or quantitative maps, and even runs live during map acquisition. Once the phase image is constructed, operations such as quantitative analysis can be performed on a phase-by-phase basis. Consult www.pgt.com for more information.

The ***SensIR Technologies*** **IlluminatIR™**, a new light microscopy accessory based on internal reflection spectroscopy (IRS), is the first and only infrared spectrometer designed to integrate with an existing light microscope – *without compromising the microscope's full optical capability*. With a simple turn of an objective, microscopists can bring the power of molecular analysis directly to their light microscopes – without having to move their samples and without having to sacrifice additional space in their labs. The Illuminat*IR*™ conveniently mounts between the nose-piece and viewing head of a light microscope and provides immediate and accurate molecular information, helping to significantly speed up completion of analytical testing. For more information on SensIR, please go to www.sensir.com.

Soft Imaging System introduced several new items during the M&M 2002 exhibition in Quebec City: **Cantega-2k** is a 2048x2048 high-resolution, high sensitivity on-axis TEM camera. The camera employs a new internal amplification technique, resulting in superior sensitivity and true 16-bit dynamic range. The new camera will be available Q1/2003. **ColorView I:** An uncooled version of the wildly successful **ColorView II**, the CV-I digital camera balances sensitivity, resolution and price for almost any application. With 3.3 MegaPixels and a 12-bit dynamic range, there is very little this camera cannot do. **Wellnavigator**, deconvolution, time-lapse, Rule 11 compliance, etc.: A number of new modules for the analysis software makes this image processing application the obvious choice for ANY type of microscopy. Soft Imaging System can integrate software and cameras to fit specific needs for almost any industry or science including Life Science, Materials Science, or Biomedical.For more information see: www.soft-imaging.com

South Bay Technology, Inc. displayed the most recent advances in high resolution deposition systems for FESEM and also low energy ion milling systems for HRTEM. The **IBS/e** is a thin film deposition system that is designed to improve high resolution electron microscopy imaging by depositing ultra-thin, fine grain metal and carbon films on specimens. The **Gentle Mill** is a low energy ion milling system designed to elminate amorphous damage from TEM specimens using a low energy (100eV) ion beam milling technology. Please visit www.southbaytech.com for more information.

Thermo Nicolet displayed the **Centaurμs® infrared (IR) microscope**, designed for routine IR microsampling. The Centaurμs offers high performance and ease-of-use for the polymer, pharmaceutical, forensic and microelectronic industries. The microscope provides a simultaneous view (**Simul-View™**) of the sample area while collecting a spectrum—saving time by allowing the analyst to determine the important sample points before collecting data. The integrated, permanently aligned video camera delivers exceptional views of the sample image, providing the option to include the sample image with the spectrum on the printed report. The Centaurμs is a reliable, easy-to-use system ideal for routine analysis. The **Continuμm™**, also displayed, is Thermo Nicolet's research-grade infrared microscope. It features a fluorescence illumination option, increased video image capability and high-sensitivity capability for small samples. The Continuμm offers fluorescence illumination, polarized light, and differential interference contrast, eliminating the need for a separate optical microscope in applications involving enhanced contrast techniques. Pharmaceutical, polymer, biotechnological, semiconductor and many other application areas can benefit from combining the abilities of optical and infrared microspectroscopy, allowing the analyst to quickly locate defects or contamination based on the vivid images provided by these techniques. The Continuμm offers high-performance and flexibility for analytical and research applications. Please see: www.thermonicolet.com

Thermo NORAN announced the release of its newest microanalysis system, the **NORAN System SIX**. Combining Thermo NORAN's leading high-throughput all-digital acquisition electronics with next generation microanalysis software, System SIX integrates all microanalysis routines in a single application program written exclusively for Windows 2002/Windows XP. System SIX supports tradition qualitative and quantitative analysis, imaging, x-ray mapping and linescans, and features Spectral Imaging, which acquires a dead-time corrected spectra at every pixel in the electron image. COMPASS, a Thermo NORAN exclusive and a recent R&D 100 winner, performs a statistical analysis of a Spectral Imaging data set, quickly presenting an image/spectrum pair for each "pure" component in the sample. Because COMPASS runs with no user intervention, time-consuming point-by-point sampling and *a priori* assumptions about the sample's composition are eliminated. System SIX incorporates several innovative productivity tools, including Point-and-Shoot mode, **Project Manager**, one-click report printing, **SpectraCheck**, and several automatic "best choice" settings for acquisitions and analyses. Also announced at M&M 2002, the new **ORPHEUS EBSD system** combines Thermo NORAN's awarding Phase ID application and Crystal Orientation Mapping software in a single-camera EBSD system. When results count, count on Thermo NORAN. For more information, consult: www.thermonoran.com