

## INDUSTRY NEWS

**Thermo Electron** announces that a new **comprehensive catalog** featuring FT-IR, FT-IR Microscopy, FT-NIR, and Raman spectroscopy accessories, supplies, and consumables is now available. This printed catalog is a necessary resource for every laboratory, enabling scientists to find tools to maximize the capabilities of their spectrometer systems. Each product page contains a picture and description of the accessory along with product benefits and applications, and the types of samples the accessory can analyze. Part numbers and ordering information are also listed.

**Thermo Electron Corporation** launches its new **NXR FT-Raman system** combining faster detectors and sampling automation to make high-throughput screening applications possible. The new NXR FT-Raman platform is primarily targeted at chemists, materials scientists, forensic scientists and process developers in pharmaceutical and polymer production. The new NXR FT-Raman spectrometers combine the Raman analytical technique known for its minimal sample preparation and fluorescence-free data collection with new high-performance detectors. The NXR Genie germanium detector delivers new levels of speed, signal-to-noise ratio, and hold time, allowing high-speed scanning without compromising on data quality. The instruments also integrate a unique MicroStage FT-Raman microscope enabling easy macro- and micro-sampling from the same stage. Smaller objects can be viewed and the versatility of the platform means that high-end experimentation can be performed efficiently and accurately. The NXR FT-Raman family includes a combination of standalone and modular FT-IR systems: The NXR 9650 FT-Raman spectrometer designed for researchers requiring the highest performance available. The NXR FT-Raman Module brings the power and simplicity of the NXR FT-Raman platform to the complementary Nicolet FT-IR series spectrometer from Thermo. The module is also compatible with earlier Thermo FT-IR instruments such as the Nicolet™ Nexus™ and Magna™ spectrometers. The NXR 9610 FT-Raman spectrometer provides robust, reliable and economical FT-Raman with InGaAs detector options and a robust yet economical semiconductor laser. The MicroStage FT-Raman microscope incorporates a motorized x-y-z stage, which is fully controlled by the OMNIC™ software. Optional μView™ software permits the operator to select the analysis point simply by clicking on the video image. Atlas™ mapping software package enables automated collection of line and area maps in addition to the sampling of multiple, user-specified points on the sample. The optional Array Automation software package fully controls array analysis.

**Thermo Electron Corporation** introduces its **FT-Raman System Qualification Package**, which provides standardized manufacturer-accepted test protocols to establish proper system performance. This new package is designed to dramatically reduce the burden on scientists and materials analysts performing the time-consuming task of system qualification. A first for Raman spectroscopy, the qualification package enables owners of FT-Raman systems manufactured by Thermo to check the basic operation of their system, and to demonstrate that the system is performing as specified by the manufacturer. The package is available for the Nicolet T 960 FT-Raman spectrometer, the FT-Raman Module for the

Nicolet NexusT and the Nicolet NXR Series of FT-Raman systems. The package includes printed documentation covering software operation, material standard care and use, and qualification report forms. A copy of the ASTM Method E1840-96 (2002) covering Raman standards for spectrometer calibration is also included. For more information on Thermo's spectroscopy instrumentation and accessories, please call +1 800-532-4752 or e-mail [analyze@thermo.com](mailto:analyze@thermo.com) or [www.thermo.com/raman](http://www.thermo.com/raman)

**JEOL** is pleased to announce the introduction of an advanced **Electron Probe Microanalyzer (EPMA)** with a thermal field emission electron gun designed specifically for high resolution, low-accelerating-voltage microanalysis and ultra-high resolution imaging of solid materials. The ability to achieve high probe currents and small probe diameters, especially at low accelerating voltages, makes the EPMA well suited for high-precision elemental analysis of extremely small analytical volumes.

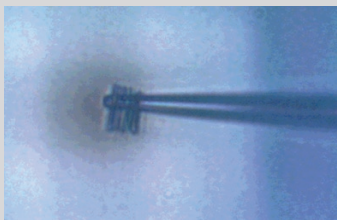
**JEOL USA, Inc.** introduces a new compact **Cross Section Polisher (CSP)** specially designed to prepare large-area cross sections of specimens for imaging with its comprehensive line of Scanning Electron Microscopes (SEMs). The CSP, JEOL's model SM-09010, is a simple-to-use, cross section polisher that enables observation of multi-layer structures, interfaces, composites of soft and hard materials, polymers, powder grains, and crystalline structures of metals and ceramics with few artifacts. In a single step, it produces clean, polished samples suited for SEM imaging, EDS, WDS, and EBSD analysis. The CSP uses an argon ion beam to prepare up to 11mm(W) x 10mm(D) x 2mm(H) samples of soft or hard materials while preserving internal structures, voids between interfaces, adhesions between layers, and precipitates. Unlike conventional mechanical polishers, the CSP minimizes deformation of the polished surface, enabling clear observation of crystalline structures. The high power optical microscope in the JEOL CSP allows the user to position a sample to within a few microns of the cross section position. During milling, the sample is rocked automatically to avoid creating beam striations on the cross sectioned surface. Due to the glancing incidence of the ion beam, argon is not implanted into the sample surface. The CSP is a benchtop device that features a vacuum chamber evacuated by a turbomolecular pump and a specimen stage supporting X-Y movement and angle control. The argon ion gun obtains high current density that enables high speed, consistent milling. Additional benefits include low operating cost and clean operation. Contact: Charles Nielsen, Tel. 978-536-2261, email [Nielsen@jeol.com](mailto:Nielsen@jeol.com) or Visit our web site at: <http://www.jeol.com> for all JEOL information.

**JEOL**, has introduced a **new LaB6 Transmission Electron Microscope (TEM)** for a wide range of advanced, high-resolution imaging and analytical applications in the fields of materials, nano-electronics, and biological sciences. The new **JEM-2100** TEM builds on JEOL's history of high-performance, richly expandable electron optical systems. It features the same versatile optics, sophisticated functionality, and simplified operation of JEOL's newest generation of ultrahigh resolution field emission TEMs. Highly accurate analysis and rapid data acquisition with outstanding stability of both accelerating voltage and beam current, the JEM-2100 achieves a high resolution of 0.19nm at 200kV. The TEM attains unparal-

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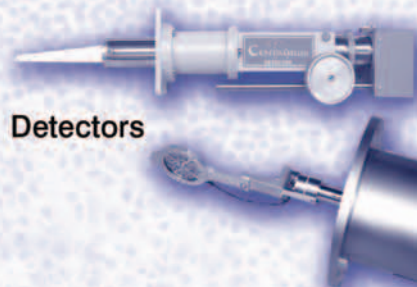
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leed EDS count rates with high peak-to-background ratios due to its ability to achieve a high solid angle and large takeoff angle when equipped with a unique Ultra High Resolution polepiece and an optimally interfaced, large surface-area EDS detector. The JEM-2100 has three independent condenser lenses, resulting in the highest probe currents for any given probe size, including the smallest probes available with any TEM. This offers the operator complete flexibility in defining the optimum optical illumination conduction for high resolution imaging applications. The newly designed goniometer stage achieves precise specimen movement at the nanometer scale. Positioning capabilities of better than 0.05 nm are possible using the built-in, newly designed piezo stage. A high-stability, LoDrift™ stage is also standard for this instrument. It has been specifically tuned for high tilt tomographic applications with drift rates guaranteed at less than 0.5nm/min. Using the optional JEOL TEMography™ software, the TEM can be equipped with a turnkey solution for automatic image acquisition and 3-D reconstructions, reducing the time it takes to produce a 3-D tomography image from days to hours. The JEM-2100 has an advanced control system that allows integration of a scanning transmission electron microscope (STEM), an energy dispersive X-ray spectrometer (EDS), and an electron energy-loss spectrometer (EELS) in any combination. The patented JEOL Alpha Selector provides a variety of illumination conditions, from full convergent beam to parallel illumination. See our web page to review the many other features available on this instrument.

**JEOL** introduces a **new Field Emission, Scanning Auger Microprobe** with the highest spatial resolution available today for surface analysis of micro areas. The **JAMP-9500F** achieves a minimum probe diameter of 3nm for SEI and 8nm for Auger imaging. The analytical resolution of the JAMP-9500F is comparable to the instrument's primary electron beam diameter -- ten times the spatial resolution of the most sensitive x-ray systems. Unsurpassed spatial resolution, combined with the ultrahigh vacuum of the JAMP-9500F, makes the microprobe ideal for identifying "killer defects" in interfaces and for analysis of coatings and composites. Additionally, the neutralizing ion gun and tilting specimen stage allow analysis of insulating materials and thin films without charge up. A patented "in-lens" Schottky field emission gun and low aberration objective lens are integrated in the JAMP-9500F electron optical system to produce large probe currents greater than 200nA and achieve small probe diameters that break the 10nm barrier. The JAMP-9500F features a hemispherical energy analyzer (HSA) with sensitivity that surpasses the cylindrical mirror analyzer (CMA) typically used in Auger microprobes. Additionally, the HSA design allows the energy resolution to be varied from 0.05% to 0.6% to provide for chemical state analysis or trace element detection. The HSA makes it possible to analyze smaller features of larger samples up to 95mm in diameter. Contact: Charles Nielsen, Tel. 978-536-2261, email Nielsen@jeol.com or Visit our web site at: <http://www.jeol.com>

**The Kurt J. Lesker Company CCS Group** has extended their offering of **standard chambers** to include several new box and spherical designs. Constructed of 304L stainless steel and/or 6061 aluminum, their economical designs are perfect for both university and government lab analytical applications. Each chamber design

can be explored online ([www.lesker.com](http://www.lesker.com)) by viewing Adobe PDF versions of their 2D CAD files and by manipulating their 3D models using a free web plug-in (no CAD program required). All of our new standard chambers can be modified upon request to suit your requirements. Our new offering includes 12" and 18" spheres, as well as boxes measuring 12"x12"x24" and 24"x24"x24". Contact us at: 800-245-1656, [www.lesker.com](http://www.lesker.com), [sales@lesker.com](mailto:sales@lesker.com)

**Media Cybernetics Inc.** announce the release of **Image-Pro Plus Version 5.1**. Along with numerous enhancements and improvements, Image-Pro Plus Version 5.1 includes the following new features: **Memory Management** – The new memory management feature allows you to load and analyze image sets that are larger than your available RAM memory. Handle and access memory beyond the Windows® 2 GB per program memory limitation. **Advanced Automatic Tracking** – The object tracking feature has been expanded with a number of new features, including the ability to measure the objects being tracked and advanced automatic tracking. **Correlation Tracking** – Correlation tracking allows you to track objects when image segmentation is difficult or not possible. **Static & Dynamic Intensity Tracking** – Intensity tracking allow you to track and graph the changing of intensity parameters over time within an area of interest. **IQbase Version 1.1 Image Database** – Image-Pro Plus Version 5.1 now comes with a free desktop version of IQbase, image management software. IQbase allows you to archive, manage, and mine your images and related data directly from Image-Pro Plus. For more information about Media Cybernetics, visit [www.mediacy.com](http://www.mediacy.com).

**Wyatt Technology** announces the launch of its revolutionary **new HPLC Software System – ASTRA V**. The software compliments Wyatt's multi-angle light scattering detectors to make absolute molecular weight determinations a desirable alternative to traditional liquid chromatography methods. It can be used for both on-line HPLC measurements as well as off-line batch measurements. ASTRA V supports the following applications: Data collection and analysis for absolute molecular weight and size, determination from the DAWN EOS and miniDAWN Tristar MALS instruments, QELS data collection and analysis from the WyattQELS (Quasi Elastic Light Scattering) instrument, concentration measurements from the Optilab rEX and other refractometers, determination of intrinsic viscosity from the Wyatt ViscoStar, and differential viscometer, and the ability to correct for band-broadening (sample dispersion/spreading) for an unlimited number of instruments.

**Wyatt Technology** announces the availability of its revolutionary **Refractive Index (RI) Detector – the Optilab rEX**. This innovative product has 256 times the detection power and up to 50 times the dynamic range of *any* other RI detector in existence. The Optilab rEX presents a host of instrument firsts. These include the ability to view the full range of instrument detection at all times. In addition, the Optilab rEX can also measure the *dn/dc* of a solvent at the same wavelength of light as a light scattering instrument, enabling absolute molecular weight determinations. The Optilab rEX can also measure the *absolute* refractive index of a solution; this is a unique option not possible with any other on-line RI de-

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tectors. This new instrument shares the ability of its predecessor (the Optilab DSP) to reach below ambient temperatures as easily as above ambient ones. The no hassle temperature control can be programmed to as low as 4°C or as high as 50°C and is compatible with all HPLC systems. For more information about absolute macromolecular characterization and light scattering instrumentation, please visit [www.wyatt.com](http://www.wyatt.com) or e-mail [info@wyatt.com](mailto:info@wyatt.com)

**Oxford Instruments Analytical** has acquired substantially all of the share capital of **Metorex International OY**. Metorex is based near Helsinki, Finland, with subsidiaries in USA and Germany. It is a supplier of advanced instrumentation solutions and key components for chemical analysis and rapid elemental identification, primarily using X-ray technology. The company has built a strong market position in a number of market segments, including the sorting of alloys and the growing markets for recycling which are being driven by new environmental legislation.

**Oxford Instruments**, has launched a dedicated package developed specifically for the analysis and classification of steel inclusions, using **Energy Dispersive X-ray Microanalysis (EDS) in the scanning electron microscope (SEM) – INCASteel**. This package is applicable to either clean steel analysis or tire cord analysis. INCASteel is used to detect, measure and analyze the inclusions in steel. It processes the resulting data set and includes functionality to plot complex ternary diagrams. Steel cleanliness can be determined using the following published standards: This package is equally applicable for determining the number, size and chemical composition of non-metallic inclusions in wire rod, as required for tire cord analysis. The inclusions may be classified, and the results include details of the area analyzed, total numbers of inclusions detected, and the morphology and chemistry of each inclusion. This data can be plotted onto user defined ternary diagrams and the inclusion density can be calculated. For further information, please contact Lynn Shepherd at Oxford Instruments Analytical: Tel: +44 1494 479371 Fax: +44 1494 524129 Email: [lynn.shepherd@oxinst.co.uk](mailto:lynn.shepherd@oxinst.co.uk)

**Ascend Instruments** announces **Extreme Magic, a revolutionary new technique for enhanced TEM (Transmission Electron Microscopy) sample extraction** that eliminates many of the most difficult and time consuming steps from FIB (Focused Ion Beam)-based TEM sample preparation processes. The new approach works with Ascend's Extreme Access® nanomanipulator and offers scientists and engineers in semiconductor manufacturing and materials research a faster, more reliable process for preparing the site-specific, ultra-thin (<100 nm) samples required for atomic-resolution TEM analysis; while at the same time, eliminating the need for expensive gas deposition steps on the host FIB. The new process significantly reduces the time, cost, and difficulty of TEM sample preparation, resulting in increased reliability, throughput, and reduced cost per analysis. Extreme Magic employs a tiny nano-engineered "End Effector" (patent pending) to extract relatively thick, site-specific sample "biopsies." After extraction, the Xtreme Access nano-manipulator can be used to position the biopsy for final FIB thinning or quick STEM evaluations away from the bulk sample. This provides visual insight into the quality of the sample and eliminates the risk of contaminating the sample with re-deposited bulk

material, which can occur when thinning prior to lift-out. When adequately thin, the End Effector and sample are easily removed from the FIB chamber and then folded neatly into a universally compatible 3 mm disk, eliminating yet another transfer/attachment step typical in conventional lift-out approaches. More information is available at <http://www.ascendinstruments.com>

**WITec**, a specialist in high resolution microscopy has introduced the **UHTS 300, a new Raman Spectrometer** designed specifically for Confocal Raman Microscopy. Its ultrahigh throughput enables nearly twice as much transmission as conventional spectrometers. High transmission is extremely important in Raman Spectral Imaging, which requires thousands of Raman spectra to be acquired in a few minutes. With the UHTS 300, the acquisition time for a single Raman spectrum per image pixel is far less than 100 ms. The new spectrometer delivers exceptional image quality and will be supplied as an optional component for the WITec Confocal Raman Microscopy System CRM 200. Chemical information with resolution down to 200 nm laterally and 0,02 wavenumbers spectrally can be easily obtained with this highly-sensitive instrument. Contact Harald Fischer, [Harald.Fischer@WITec.de](mailto:Harald.Fischer@WITec.de), WITec GmbH, Phone: +49 (0) 700 94832 366, [www.WITec.de](http://www.WITec.de), or [info@WITec.de](mailto:info@WITec.de)

**Thomson Scientific Instruments** now offers complete **Spectrum Imaging with its PC based X-ray Microanalysis system, WINEDS®**. Spectrum Imaging allows the user to acquire a full dead time collected spectrum at each pixel, in effect, a complete data cube. Spectrum images can be analyzed, stored indefinitely and reanalyzed in the future. Aggressive data compression keeps data files to a reasonable size. As with all WINEDS® software, the Spectrum Imaging component behaves like all your other Windows™ applications, so it's predictable and easy to use. Results can be easily copied into other applications for quick report generation. Visit [www.tsi.com.au](http://www.tsi.com.au) or contact [info@tsi.com.au](mailto:info@tsi.com.au)

**NanoInk** announces **availability of a Nano-R Upgrade to an NSCRIPTOR System**. This product upgrade transforms Pacific Nanotechnology, Inc's Nano-R system from an atomic force microscope (AFM) to a complete NSCRIPTOR system, a high-performance patterning tool for use with the Dip Pen Nanolithography™ (DPN™) process. DPN is the process of writing nanoscale patterns of molecular "ink" onto a sample substrate via a coated SPM tip. There are several product features that differentiate the NSCRIPTOR system from all AFMs, but it is important to note that the Nano-R will maintain all previous AFM capabilities. The user's experience with this system is quite different from that of using a research AFM, because the NSCRIPTOR offers a distinct 3-step workflow: design, deposit, and inspect. These steps are made possible with the unique efficiency tools of the system including: (i) NanoInk's InkCAD™ software, which provides ink writing calibration and microscale & nanoscale alignment; (ii) environmental control, with both the temperature and humidity stabilization; and (iii) multi-pen technology for scaling up the patterning process of molecular deposition. Multi-probe technology turns the NSCRIPTOR into a scalable rapid prototyping tool for nanofabrication and nanomaterials discovery. NanoInk Contact Information: NanoInk, Inc., Ray Eby, Ph.D., Phone: 312-525-2885, [www.nanoink.net](http://www.nanoink.net) [info@nanoink.net](mailto:info@nanoink.net)