New And/Or Interesting at PITTCON '99

As is our custom, and for the hopeful interest of readers who were not able to attend the recent PITTCON Conference in Orlando, FL, in the following we have attempted to summarize what was presented as new and/or interesting in microscopy

★ **Digital Instruments,** the world leader in Scanning Probe/Atomic Force Microscopy (SPM/AFM), exhibited its complete line of NanoScope® SPMs, including the MultiMode™ SPM, the world's highest resolution SPM. Featured this year are the new Dimension™ 3100 SPM with enhanced sample positioning and illumination, and the BioScope™ AFM, now enhanced to su-port phase contrast and Nomarsky/DIC with its easily removable AFM unit, as well as new micropositioning stages and enhanced noise floor. All our AFMs ,measure nano-topography, magnetic force, lateral force, electrochemical interactions, mechanical properties (for polymers, etc.), and perform phase imaging, temperature mapping (scanning thermal microscopy) and nanoindenting/scratching for thin film wear and hardness testing. The featured application was Polymer Studies Under Variable Temperature Control. Digital Instruments also sponsored its second PITTCON session devoted to Applications of Atomic Force Microscopy, which was attended by 300 people. Watch for next year's session in this publication. Digital Instruments, Veeco Metrology: (805)967-1400, fax: (805)967-7717, www.di.com

★ **EDAX INC.** featured the EDAX Eagle II µ-probe. The Eagle II is a combination of the Eagle µ-XRF spectrometer with the Phoenix X-ray analyzer. The new Eagle II with X-ray Polycapillary Lens (Eagle II XPL) was fully operational and available for demonstrations. The Eagle section of the EDAX booth highlighted micro-XRF applications with images and captions. Applications included forensic laboratories, museums, power plants, banks (banknotes and coins), analytical laboratories (engine debris particles, precious metals, ceramics, glass, lamp filaments), research institutes, and universities. Interest at the show included paper, gemstones, precious metals, forensics, metal, glass analysis and more. EDAX INC.: (201)529-4880, Fax: (201)529-3156, www.edax.com

★ **FEI Company** emphasized advances in their FIB, XL SEM and ESEM, and Tecnai TEM product lines. They featured the guaranteed and equal high resolution SE imaging specifications for the XL30 ESEMs that is achievable in both the high vacuum and ESEM modes of operation. FEI also announced their new 1500° C high temperature stage for conducting dynamic heating experiments in their XL30 ESEMs. The Philips ESEM is robust enough to permit the use of inert, oxidizing and reducing gases in the chamber without damaging the system. The Philips ESEM can also operate at sufficient chamber pressures to maintain water in a liquid state, allowing studies over the full range of relative humidity values. FEI showed the newest addition to the Philips ESEM family, the XL30 ESEM TMP. This ESEM was designed for affordability, offering a lower purchase price and eliminating cooling water and compressed air requirements. FEI Company: (503)640-7500, Fax: (503)640-7509. www.feic.com

★ **HNU Systems** demonstrated the new HNU XR500, a low cost and high performance XRF system which can be both dedicated (internal processor) and progammable (from a PC). The instrument can be programmed in the lab and used without a PC on the plant floor by production personnel. This small footprint XRF features an X-ray tube for excitation with a single position sample tray and single or multiple element capability. A high performance electronically-cooled Si(Pin) detector is used for simultaneous analysis from sodium to uranium. A thin window is available for imroved light element detection. HUN Systems: (617)964-6690, Fax: (617)558-0056, www.hnu.com

★ **JEOL** introduced its new model JSPM-4200 Multi-Environmental Scanning Probe Microscope. This SPM is distinguished by its ability to image under all of the environments that SPMs have claimed to be able to uperate under in one instrument. The JSPM-4200 is capable of operating in ambient laboratory air, under controlled gases, under vacuum and in fluids. This instrument supports all currently available modes of operation including: STM, scanning tunnneling spectroscopy, current imaging funneling spectroscopy, static (contact) mode AFM, dynamic (non-contact and "tapping") mode AFM, lateral force microscopy, magnetic force microscopy, electric force microscopy, scanning Kelvin probe microscopy, force modualtion microscopy and phase-lag detection microscopy. Further, the JSPM-4200 has been designed so that it will be expandable as additional probe techniques are developed. JEOL USA, Inc.: (978)535-5900, Fax: (978)536-2205, www.jeol.com

★ **LEO Electron Microscopy** demonstrated the LEO 438VP SEM, with their new Variable Pressure Secondary Electron Detector (VPSE). This patented detector allows true surface imaging of materials in the variable pressure mode. Prior Variable Pressure SEM's have used only backscattered electron images, which lack surface detail and include compositional contrast. Stunning VPSE images can be obtained at all operating voltages with chamber pressures ranging from 0.1 to 2.25 torr (10-300 Pa). Application areas are diverse with examples in botany, polymer science, electronics, tribology, and failure analysis. LEO Electron Microscopy: (800)356-1090, Fax: (914)681-7443, www.leo-em.co.uk

★ **Nicolet Instrument Corporation** unveiled a complete new series of high performance, fully upgradeable FT-IR spectrometers. The Nexus™ FT-IR series features Nicolet's exclusive smart system approach, including Nicolet's patented Smart Accesssories™. Nexus spectrometers feature plug and play beamsplitters, detectors and sources so the instrument may be operated across the near-, mid– and far-infrared spectral regions. Also, the Nexus Smart Page™ maintains purge when samples and accessories are changed. The Nexus spectrometer is ideal for complementary techniques including IR microscopy, GC/IR, LC/IR, TGA/IR and FT-Raman. Nicolet also introduced their Continuµm™ infrared microscope. The Continuµm gives crisp visual images and exceptional signal-to-noise due to its infinity corrected optical design. It provides continuous optical quality view of sample, even during data collection and enables the use of a wide variety of IR and visible optics. The Continuµm is fully upgradeable, from the basic microscope to a fully automated system. Nicolet Instrument Corporation: (608)276-6100, fax: (608)273-5046, www.nicolet.com

★ **NORAN Instruments** introduced its new line of Kevex microanalysis systems and x-ray detectors. Now selling the Kevex SIGMA Level 1 (Spectral Analysis) and the Kevex SIGMA Level 2 (Digital Imaging) microanalysis systems, NORAN Instruments offers full-featured, affordabily priced systems designed to meet the needs of materials microanalysis. A new Kevex SIGMA brochure is now available. Also demonstrated were several imsprovements to its VANTAGE line of microanalysis systems, including enhancements to its EasyEDS program and improved reporting capabilities. With the addition of the Kevex Superdry No-LN detector, and detector technology acquired from Kevex, NORAN offers a broad range of EDS detector options. The company also featured its exclusive MAXray parallel beam spectrometrer, and its application-

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specific IbeX detector. New EBSD tools for crystallographic compound identification and mapping, the R&D 100 winning Phase ID system, and the ORKID orientation mapping system were demonstated. NORAN Instruments: (608)831-6511, Fax: (608)836-7224

★ **NSA/Hitachi** presented two additions to the PC-SEM product line: the S-4300 Field Emission and S-3000N Variable Pressure SEMs. The S-4300 has a guaranteed resolution of 1.5 nm at 15 kV, and 5 nm at 1 kV. The S-3000N features Dual Bias, which boosts emission current levels at 5 kV and below, allowing low voltage microscopy *even in VP mode*. Each uses Windows 95, is network-ready, and works with any EDS system using Hitachi's unique "Hi-Mouse" integration. Both instruments demonstrated the PCI Image Management system, an extremely sophisticated archival/processing program, which also runs through Windows 95. PCI can be networked throughout the entire lab to manage images from any and all SEMs, TEMs, digital cameras, TWAIN devices, etc., to provide off-line viewing at any computer terminal connected to a LAN/WAN or internet browser. NSA/Hitachi: (800)227-8877, Fax: (650)961-0368, www.nissei.com

★ **Oxford Instruments Microanalysis Group** displayed its newest EDS system, the Inca. Inca ia an extremely innovative system, incorporating Oxford's renowned expertise in x-ray analysis with a new, guided user interface that makes x-ray analysis easier and faster than ever before. The software in Inca was written using the most advanced 32 bit software development tools and operates in the industry standard Windows NT platform. New imaging hardware and digital pulse processor provides full spectrum acquisition at each pixel point, allowing the user to extract maps, linescans, cameo images, or phase maps for any element either during the acquisition or from stored data. In addition, Inca incorporates extensive on-line multimedia-based assistance, including tutorials, movies, audio and educational information, providing all of the background and training that is required. Oxford Instruments Microanalysis Group: (978)369-9933, Fax: (978) 369-8287, www.oxford-america.com

★ **Princeton Gamma-Tech** announced PGT Avalon, the best value in X-ray microanalysis and digital imaging. The Avalon System provides an economical upgrade from older EDS systems to current PC technology and X-ray pulse processing. Avalon can be interfaced to any manufacturer's detector, or one may choose from the full line of PGT PRISM detectors. The addition of Avalon to the PGT microanalysis product line extends the range of products from low cost, basic X-ray upgrades through the advanced applications of the IMIX system. All are backed by PGT's total suport commintment including system and detector service and applications assistance. Princeton Gamma-Tech: (609)924-7310, Fax: (609)924-1729, www.pgt.com

★ **Spectra-Tech Inc.** announced their *New CPC Collector Accessory*, ed for the infrared analysis of solid samples, especially powdered materials. This accessory continues to be one of the most advanced and versatile accessories for diffuse reflectance infrared Fourier transform spectroscopy (DRIFTS). The *New Enhanced* Thunderdome, a unique single reflection Horizontal Attenuated Total Reflectance accessory optimized for use with your FT-IR spectrometer was also announced. The *New* Thunderdome has the highest throughput of all ATR Accessories. Also announced their *New* Near-IR UpDrift accessory, an innovative top loading diffuse reflectance accessory. The UpDrift utilizes a unique optical focusing system that virtually eliminates the specular reflected component, which can distort spectral results. Spectra-Tech Inc.: (203)944-6224, Fax: (203)926-8909, www.spectra-tech.com

★ **SPI Supplies** announced the introduction of the OPC-40 Osmium Plasma Coater. Covered by a U.S. Patent and in use by some of Japan's leading researchers, with both FESEMs and conventional SEMs, the osmium coating is not only completely amorphous (zero grain size), but unlike chromium coatings, it is inert and will not change with time. Also displayed was the recently enhanced CrC-150 Chromium/Thin Film Coater, optimized for the coating of chromium for FESEM applications. It is not only an outstanding value for those requiring a good chromium coating of the smallest possible grain size, but it is a system that has general applicability as an instrument for thin film coatings research. In addition to chromium, this coater can also sputter, using its magnetron source, metals such as W, Cu, dielectrics and even Teflon®. SPI Supplies: (610)436-5400, Fax: (610) 436-5755, www.2spi.com

★ **ThermoMicroscopes** of Sunnyvale, California, formed by the recent merger of TopoMetrix Corporation and Park Scientific Instruments, hit the ground running at Pittcon 99 with the introduction of two new systems. The Explorer PolymerSystem™ adds thermal and mechanical analysis to the micro imaging and analytical arsenal of scanning probe microscopy, providing a comprehensive micro characterization solution for industrial and research laboratories in the polymer community. The AutoProbe® CP Research scanning probe microscope combines multiple imaging modes in a single head to provide the capability, flexibility, and convenience required by researchers and analytical laboratories. ThermoMicroscopes also featured their Aurora near-field scanning optical microscope (NSOM). The Aurora's new Accutune™ sensor head facilitates the routine use of NSOM by using a non-optical positioning feed back method to eliminate stray light interference and tedious alignment procedures.ThermoMicroscopes: (408)747-1600, Fax: (408)747-1601, www.thermomicro.com

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