

## IndustryNews

### TESCAN Announces New FIB-SEM 3D Tomography Capabilities



TESCAN's new FIB-SEM package supports Rocking Stage, multi-modal, multi-channel acquisition and features that improve stability during acquisition. Data can be imported to TESCAN's new 3D Volume Analysis software for offline 3D data reconstruction and visualization. Plasma FIB-SEM provides high-speed milling for large-volume 3D data acquisition. Both plasma and Ga FIB-SEM can be used to acquire multiple datasets at different operating conditions for a more comprehensive analytical dataset.

TESCAN  
<https://www.tescan.com>

### ZEISS Revolutionizes Quantitative Petrography



The ZEISS Axioscan 7 expands automated petrography by combining unique motorized polarization acquisition modes with unprecedented speed and a rich software ecosystem for visualization, analysis, and collaboration. Fully automated acquisition offers high speed across large sample collections. Coupled with ZEISS optical quality, this ensures consistent and reproducible imaging and analysis. The ZEISS ZEN Pol Viewer allows complex multichannel polarization data to be visualized and interrogated in an intuitive environment.

ZEISS  
<https://www.zeiss.com>

### Researchers Create Performance Art from Temperature-Induced Material Phase Change Microscopy Images



Researchers at Ohme, an art and science production company in Brussels, Belgium, have created a choreographed audio-visual performance, *Tales of Entropy*, that follows the physical changes of organic materials from crystal to liquid crystal and finally liquid phase, as temperature is changed using Linkam temperature-controlled stages.

Linkam Scientific  
<https://www.linkam.co.uk>

### New SmartStage™ XY Linear Positioner from Dover Motion



Dover Motion, with over 30 years of precision motion design and manufacturing expertise, has launched their newest product: the SmartStage™ XY. The platform simplifies SEM stage motion and control into one package and combines the precise direct-drive motion of the X and Y axes with all the motion control components built inside the stage. The integrated components include controllers, amplifiers, encoders, I/O, and three communication options.

Dover Motion  
<https://dovermotion.com>

### EMBL-EBI and DeepMind Have Co-Developed the AlphaFold Protein Structure Database



The AlphaFold Protein Structure database is a joint project to openly share millions of AlphaFold protein-structure predictions with the scientific community. The database contains approximately 365,000 structures that covers over 20 reference proteomes. The database will increase to an estimated 130 million entries, and 3D models will be added in the coming months that cover all UniProt sequence clusters with up to 90% mutual sequence identity, that is, UniRef90.

AlphaFold DB  
<https://alphafold.ebi.ac.uk>

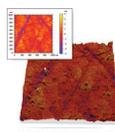
### WITec and attocube Launch cryoRaman, a New Low-Temperature Raman Microscope



WITec has announced the launch of cryoRaman, a new low-temperature Raman microscope. The system combines the sensitivity and modularity of WITec's alpha300 Raman microscope series with the leading-edge cryotechnologies of attocube. cytoRaman enables Raman imaging at very low temperatures down to 1.6K and in high magnetic fields with unmatched spatial resolution.

WITec  
[www.witec.de](http://www.witec.de)

### Covalent Metrology Partners with Digital Surf to Bring Cutting-Edge Analytical Solutions



Covalent Metrology, a leading analytical services provider that offers one of the largest portfolios of characterization techniques in North America, is working with Digital Surf, a global leader in analytical software development, to offer software tools for data processing and visualization. The collaboration will also allow both companies to pool customer insights to provide better services and more powerful analysis tools.

Digital Surf  
<https://www.digitalsurf.com>

### Olympus and Grundium Ltd. Partner to Make Digital Pathology More Accessible



Olympus and Grundium Ltd. are collaborating to combine their expertise in microscopy optics and digital imaging to benefit pathology. Grundium Ltd. has incorporated the Olympus high-performance X Line™ objectives into its Ocus® portable single-slide scanners to enable convenient creation and sharing of high-quality digital slides. As part of the partnership, Olympus now offers the Ocus product line with integrated X Line objectives across Europe and North America.

Olympus and Grundium  
<https://www.olympus-lifescience.com/en>  
<https://grundium.com>

## New NSF Center for MDS-Rely Connects Materials Data Science Research with Industry

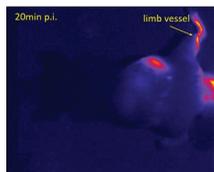


IUCRC

Case Western Reserve University and the University of Pittsburgh have launched a joint center that uses cutting-edge data science and materials research to help companies make more reliable and durable products. The Center for Materials Data Science for Reliability and Degradation (MDS-Rely) is a \$3 million center supported by a \$1.5 million grant from the National Science Foundation (NSF). It is part of the NSF's Industry–University Cooperative Research Centers (IUCRC) program.

IUCRC Program  
<https://iucrc.nsf.gov/about>

## BIOEMTECH $\phi$ -eye Extends to SWIR Imaging



BIOEMTECH has announced the first *in vivo* images from the new short wave infra-red (SWIR) light version of  $\phi$ -eye, which is based on the C-RED 2 camera from First Light Imaging. The overall compact size and easy-to-use interface offer a unique desktop solution for real-

time SWIR imaging in this rapidly evolving field and completes an imaging portfolio that already covers PET and SPECT isotopes, as well as optical imaging.

Bioemtech  
<https://bioemtech.com/product-2020>

## Excelitas Technologies Acquires Lumen Dynamics Group



In alignment with an ongoing integration of the Lumen business and operations into the Excelitas family, Lumen Dynamics Group legal entity has been merged with Excelitas Canada Inc., a wholly owned subsidiary of Excelitas Technologies Corp. All personnel, products, services, and operations at the Excelitas Mississauga site remain unchanged.

Excelitas Technologies  
<https://www.excelitas.com>

## Columbia CryoEM Facility is Available to External Users



The Columbia cryoEM facility (cryoem@cumc.columbia.edu), with its team of highly qualified staff lead by Robert Grassucci, has one TFS Glacios cryoEM with a Gatan K3 direct electron detector and four Krios G3i cryoEMs with Falcon 3 Counting and Bioquantum/K3 detectors.

The team welcomes both commercial and academic outside users.

Columbia University  
[www.vagelos.columbia.edu/research/researchers/core-and-shared-facilities/core-facilities-category/cryo-electron-microscopy-center](http://www.vagelos.columbia.edu/research/researchers/core-and-shared-facilities/core-facilities-category/cryo-electron-microscopy-center)

## SCOPEs Grant for K–12 Schools Encourages Scientific Epiphanies



While using a microscope, Vincent Cavaliere, as a sophomore at E. Hartford High School, remembers that this was when he started to love chemistry and microscopes. Two decades later, he still works with microscopes with Educational Microscopy for ZEISS Research Microscopy Solutions. He has given back to the school that molded him, as well as other schools, and offers ZEISS' donations of top-of-the-line microscopes and cameras through the Science Classroom Outreach Program for Educators (SCOPEs) Grant program.

ZEISS  
<https://www.zeiss.com>

## TEM *In Situ* Holder from Lightning



The Lightning holder offers unprecedented stability during both heating and imaging. The MEMS-based chips are designed for ultra-low drift. This makes it easier to make changes during an experiment without the need for constant refocusing, repositioning, or software intervention. Lightning also offers the highest temperature and largest biasing range on the market.

Nanoscience Instruments, Inc.  
[www.nanoscience.com](http://www.nanoscience.com)

## MERSCOPE's Gene Expression to Map Cells



Vizgen's MERSCOPE is the only integrated solution for running multiplexed error-robust fluorescence *in situ* hybridization (MERFISH) experiments. This first complete platform for single-cell spatial genomics includes a user-friendly workflow, from sample preparation to measurement and finally data visualization and analysis. This enables spatial profiling of hundreds of individual transcripts within hundreds of thousands of cells in a single instrument run.

Vizgen  
<https://vizgen.com>

## Precisely Focusing Lasers onto TEM Samples

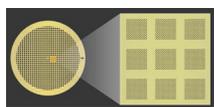


Using a JEOL ARM300F (300 kV) TEM and a new system by Integrated Dynamic Electron Solutions for precisely focusing lasers onto TEM samples, Advanced Industrial Science and Technology (AIST, Osaka University), has recorded atomic resolution *in situ* movies of growing carbon nanotubes. The structures were formed by laser irradiation of samples made of carbon films and iron nanoparticles. This combination enables extraordinary spatial resolution for *in situ* experiments.

JEOL  
<https://www.jeolusa.com>

## ProductNews

### Au-Flat™ for High-Resolution Imaging



Au-Flat™ is an ultrastable Cryo-EM sample support with a 45 nm holey gold alloy film on 3 mm gold mesh grids. Au-Flat™ is a derivative of the patented C-Flat product. Au-Flat™ improves image quality and resolution with gold alloy film. Au-Flat™ is biocompatible, durable, and reduces beam-induced motion during imaging when compared to carbon films.

Electron Microscopy Sciences  
<https://www.emsdiasum.com>

### Video-Rate Atomic Force Microscope from Oxford Instruments and Asylum Research



Oxford Instruments/Asylum Research has announced their new Cypher VRS1250 video-rate atomic force microscope (AFM) with scan rates up to 1250 lines/second and frame rates up to 45 frames/second. This speed enables capture of nanoscale details of dynamic events, including biochemical reactions, 2D molecular self-assembly, and etch and dissolution processes. The system supports a range of modes and accessories, making it a versatile tool for interdisciplinary research groups.

Oxford Instruments/Asylum Research  
<https://AFM.oxinst.com/VRS1250>

### New Seiwa Optical FHL Telecentric Lens



Seiwa Optical's new FHL telecentric lens series is compatible with Toshiba-Teli's new BU2409M camera series. The high-resolution design is compatible with the latest CMOS sensor with a pixel size of less than 3 μm. All models have a coaxial lighting port, and high-uniformity lighting of samples can be obtained for each magnification.

Seiwa Optical America  
<https://www.seiwaamerica.com>

### Bruker's New EDS-EBSD System for Tabletop SEMs



Bruker's QUANTAX ED-XS is a new product package combining the unique eFlash XS EBSD detector with the robust XFlash® EDS detector under the versatile ESPRIT software suite. This hardware and software combination is an approach that provides powerful analytical tools to the microscopy community and can be installed on the Coxem tabletop SEM.

Bruker AXS  
<https://www.bruker.com>

### Tousimis Introduces Post-Process Data Review on Touchscreen Standalone CPD Systems



Tousimis has introduced a new Touchscreen Series C Multi-Application CPS instrument with post-process data review capability. Available in 4-, 6- and 8-inch chamber sizes, the system is integrated with the award-winning Autosamdri® software technology.

Tousimis  
<https://tousimis.com>

### ZEISS Introduces the First Crystallographic CT System



The ZEISS Xradia CrystalCT™ microCT system enables 3D crystallographic imaging of polycrystalline materials for analysis of a wide range of metals and alloys, additive manufacturing, ceramics, and pharmaceutical samples. A world-first commercial implementation, it is purpose-built to deliver diffraction contrast tomography (DCT) on a traditional computed tomography system, allowing researchers to complement absorption contrast tomography data with crystallographic information in three dimensions.

ZEISS  
<https://www.zeiss.com>

### New AFM Tips from ICSPi



ICSPi has announced two additions to the nGauge AFM product line-up. New sharp, diamond-like carbon tips offer the best lateral resolution and highest fidelity imaging on the nGauge AFM, enabling new applications. New AFM wedge tips offer a unique sharpened "wedge" design for robustness and consistency and are ideal for general-purpose imaging and pre-screening samples.

ICSPi  
<https://www.icspicorp.com>

### LI-COR Odyssey Family of Imaging Systems



The Odyssey® M and Odyssey DLx Imagers can perform macroscopic imaging of multiple tissue section slides simultaneously, allowing for high-throughput detection of tissue- or region-specific localization and expression of targets. Additionally, Odyssey imagers provide an industry-leading 6 logs of dynamic range, and the line scanning technology of the Odyssey M delivers exceptionally fast acquisition of tissue section images.

LI-COR Biosciences  
<https://www.licor.com>

## Self-Calibrating PTRam Process Development Raman System



The 19-inch rack-mountable PTRam™ Raman features a 785 nm laser with long-term stability and high-throughput optics. PTRam operates with Metrohm's Vision spectroscopic software for real-time analysis, including instrument control and data analysis. It is self-monitoring with self-calibration and system performance validation tests automated to ensure the validity of each measurement. The system testing provides instrumental status diagnosis, including Raman shift accuracy and photometric precision per USP 858.

B&W Tek  
<https://bwtek.com>

## SEMView8000: A Win10 Universal Operator Control Console for Used SEMs



Offering outstanding performance, the SEMView8000 replaces the original equipment manufacturer's scanning electron microscope (SEM) operator's console and can be placed on an existing SEM column or one that is supplied by SEMTech Solutions. The operator's console is designed and manufactured at SEMTech Solutions and comes complete with a SEM control board, Win10 SEM graphical user interface, and 64-megapixel imaging frame grabber (8k × 8k).

SEMTech Solutions  
<https://www.semtechsolutions.com>

## The World's Fastest 4D STEM Camera



Direct Electron has introduced Celeritas, a new direct detection camera for four-dimensional scanning transmission electron microscopy (4D STEM). Based on a next-generation direct detection sensor, Celeritas exceeds the frame rate of other 4D STEM detectors while delivering at least four times more pixels and exceptional image quality. 4D STEM is a cutting-edge technique that uses the richness of information available in STEM for exploring the structure of materials.

Direct Electron  
<https://www.directelectron.com>

## Auxiliary Air Fume Hood



The HEMCO Auxiliary Air fume hood exhaust requires no room air. With the sash in the half-open position and face velocity of 100 feet per minute, the cfm required equals the hood air supply. Exhaust plus auxiliary air make up for room supply deficiencies. When there is a shortage of air in the lab, it is less costly to provide an Auxiliary Air fume hood system than to change or enlarge the whole building air handling system.

HEMCO  
[www.hemcocorp.com](http://www.hemcocorp.com)

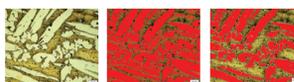
## New Digital Stereo System Expands Optical Microscope Capability



Vision Engineering Limited has launched the DRV Stereo CAM, a new and innovative stereo camera system that converts optical stereo microscopes into high-magnification, high-definition 3D digital stereo microscopes. DRV Stereo CAM integrates seamlessly with VE's ergonomic stereo microscope, the Lynx EVO. This system combines the benefits of high-resolution optical microscopy and VE's patented DRV "glasses-free" digital 3D stereo viewing technology.

Vision Engineering  
<https://www.visioneng.com>

## Deep Learning Streamlines Industrial Image Analysis



OLYMPUS Stream™ image analysis software leverages the power of artificial intelligence to bring next-generation image segmentation to industrial microscope inspections. Software version 2.5 adds the Olympus TruAI™ deep-learning technology, enabling users to train neural networks to automatically segment and classify objects in images for material inspections. A trained network can be applied to future analyses for a similar application to maximize efficiency.

Olympus  
<https://www.olympus-ims.com>

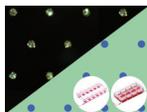
## Coxem Partners with Bruker Nano for First Tabletop SEM with EDS and EBSD



Developed for entry-level SEM users on a small budget, this partnership integrates EDS and EBSD with a tabletop SEM. The ED-XS features the small and reliable e-Flash XS EBSD detector and pairs it with Coxem's EM-30 series Tabletop SEM for a very capable and affordable package. This is a great analytical tool that offers automated features, including camera gain optimization and crystal phase setup.

Coxem  
<http://www.coxem.com>

## ibidi's Defined Cell Adherence With $\mu$ -Patterning



Ibidi provides three unique micropatterned  $\mu$ -Slides for precisely controlled cell adhesion. The technology uses defined adhesion spots that are surrounded by the completely non-adhesive Bioinert surface. Adherent single cells from a cell suspension are caught by these spots, leading to spatially controlled cell adhesion. The samples can be observed through the thin ibidi polymer coverslip bottom, which has the highest optical quality available when compared to glass and is ideally suited for high-resolution microscopy.

ibidi  
<https://ibidi.com>