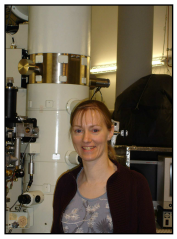
people and places

New TEM for Georgia Tech



JEOL USA has announced that it will deliver the first of its new 120 kV transmission electron microscopes to the Georgia Institute of Technology in January 2007. The JEOL JEM-1400 is a versatile, compact TEM, optimized for biological, polymer, and materials research and designed for cryo-EM applications.

The TEM will eventually be installed in a new state-of-the-art, cryoelectron microscope facility in the Marcus Nanotechnology Building to be completed in summer 2008.

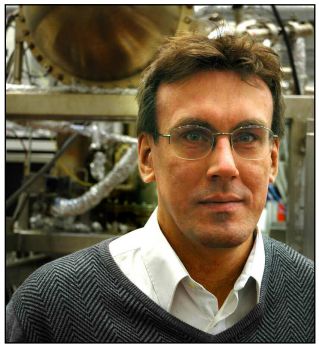
Biophysicist and assistant biology professor Dr Ingeborg Schmidt-Krey will oversee the TEM installation and setup for diverse applications in the biology department. Dr Schmidt-Krey uses electron crystallography to study the structure and function of eukaryotic membrane proteins, with relevance to asthma and blood coagulation. "Eukaryotic membrane proteins comprise approximately sixty percent of all drug targets and are consequently immensely important for biomedical research," Schmidt-Krey said.

Electron Nanoscopy Centre

The Technical University of Denmark (DTU) at Lyngby, north of Copenhagen, has placed a $11.5 million dollar order for seven FEI microscopes that will form the core of the university's new Center for Electron Nanoscopy. Installation of the systems is targeted for the second half of 2007 and DTU's Center for Electron Nanoscopy is scheduled to open at the end of 2007.

The order represents the largest product sale ever for FEI and includes two Titan scanning/transmission electron microscopes (S/TEMs), a Tecnai 20S-Twin TEM, a Helios NanoLab 600 DualBeam, a Quanta 200 3D ESEM DualBeam, a Quanta FEG SEM and an Inspect S low-vacuum SEM.

The microscopes will be used for a wide spectrum of advanced research conducted by DTU's researchers and companies that operate at the university. One of the Titan S/TEMs will be equipped with an environmental chamber and will be used for collaboration between DTU and FEI to advance environmental TEM applications for in-situ catalyst observations. Such studies will play an important role in catalyst research and development for alternative fuel cells, environmental catalysis, and petrochemical industries. Some of the equipment will be used to teach entry level SEM applications for the university's curriculum.



Dr Rafal Dunin-Borkowski, director of the new DTU Center for Electron Nanoscopy. Photo by Peter Hoffmann.

Dr Rafal Dunin-Borkowski, director of the new center said: "The seven electron microscopes from FEI will provide an outstanding suite of complimentary tools for characterizing new materials. DTU is very pleased to be working with FEI on the use and development of electron microscopy to advance scientific knowledge."

One of the Titans at DTU will combine aberration correction and monochromation with the ability to introduce gases into the TEM to allow catalyst materials to be studied in their working environment. Such capabilities are a big step forward for the development of new materials and nanotechnology in general.

MIT Imaging Deal

Definiens AG and the Massachusetts Institute of Technology in Cambridge have announced that MIT will implement the Definiens Enterprise Image Intelligence Suite of products in the Whitehead Institute-MIT BioImaging Center directed by Prof. Paul Matsudaira. The Center is renowned for uniting the power of highly evolved microscopy and advanced computational systems to study the structure, dynamics and function of biomolecules. By joining forces, MIT and Definiens will increase the insight into the most complex issues in biology.

China Office

The British Ambassador to China, William Ehrman, has officially opened a new office for Belfast-based Andor Technology in Beijing. Executive Chairman of Andor Dr Bryan Keating said: "China is a key market and setting up this office is a logical extension of our local focus. Over the past eight years, group revenue generated in China has increased dramatically. Today's announcement confirms our intention to become the leader in high performance light measurement solutions for the global scientific and commercial marketplace."

Gatan Training Schools

Gatan has announced the schedule for its 2007 Electron Microscopy Training Schools. These professional training schools offer electron microscopists extensive and comprehensive education and laboratory training on the latest specimen preparation, imaging, and analysis techniques and technologies. The instructors are highly trained and experienced scientists and experts in their fields. Each school offers a unique, interactive curriculum combining both classroom teaching and extensive laboratory sessions.

All schools are held at Gatan's Research and Development Headquarters in Pleasanton, California, USA in April and May. The courses include:

Introduction to EELS Imaging and Analysis: April 17-20, 2007. This course provides a thorough grounding in the basic theory and practice of EELS imaging and analysis in the TEM.

EELS Imaging and Analysis: April 24-27, 2007. A course on practical techniques, deployment of EELS hardware and software systems, and advanced EELS and EFTEM applications.

TEM Specimen Preparation: April 30 - May 2, 2007. A hands-on training course on the art and science of broad-beam TEM specimen preparation.

SEM Specimen Preparation: May 3-4, 2007. A course on ion-beam etching methods for preparing high-quality SEM and Light Microscopy specimens.

For complete school information and online registration, visit: www.gatan.com/training/index.html.

Leica to Develop STED

Professor Stephan Hell, Director of the Max Planck Institute for Biophysical Chemistry in Göttingen, was presented with the prestigious German Future Award on November 23, 2006 by Federal President Horst Köhler (left in picture). Hell received this annual technology and innovation award, worth 250,000 euros, in recognition of his invention of stimulated emission depletion (STED) microscopy.

The patented STED technique has now been licensed to Leica Microsystems, which is developing STED microscopy into a user-friendly instrument to be launched on the market in 2007. The new fluorescence system will be produced in Wetzlar and Mannheim, Germany.

Hell was the first to find a way of overcoming the 130-year-old Abbé limit in a diffraction-limited fluorescence microscope. STED works by reducing the side-lobes of the Airy pattern. The attainable resolution is now purely a question of technical design. Hell and his team have already achieved resolutions of 20 nanometrers, i.e. 10 times over the Abbé limit. As protein complexes are in the 10-200 nanometre range, this microscope has the potential to probe life on a molecular scale soon and open the door to an understanding of intracellular life processes.