MICROSCIENCE SHOW REVIEW

On the previous page you will have read an in-depth review, written by Rob Flavin Executive Director of the RMS, with regards to the Scientific content of the conference, the International Micrograph Competition, and the large number of posters and talks delivered over the three day conference. The review also tells us how the excellent conference combined with the large number of microscopic companies showing their products to other companies and researchers alike. Over the next two pages we have a chosen few companies to tell us about their exhibition and a review of a specially invited roundtable meeting on the current state of Nanotechnology.

AURION

AURION develops and manufactures a complete range of highest quality immunogold and auxiliary reagents to meet all your needs for immunogold detection experiments. A unique option to test the benefits of our reagents are the AURION ImmunoGold Silver Staining workshops, organised throughout the world.

During a 3-day training the theoretical and practical aspects of the most-up to-date methods and applications will be dealt with both for light- and electron microscopy. You are encouraged to work with your own specimens and primary antibodies so that applicability and advantages of the ImmunoGold Silver Staining technique can be maximally explored. Personal attention provides for optimum broadening of knowledge. This educational approach has been well-received by workshop attendees for over a decade. September 2006 we will organise our third workshop in the United Kingdom.

Circle no. 64

DIATOME

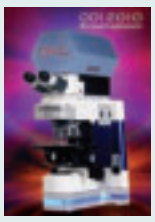
Diatome was showing the full range of diamond knives for Ultramicrotomy and accessories:

- ultra 35° and 45° for routine ultramicrotomy in both biology and materials science
- the new ultra AFM and cryo AFM knives
- the new and revolutionary ultra sonic knife
- the cryo immuno knife for immunocytochemistry
- the new cryo 25° knife for frozen hydrated biological specimens
- histo knives for semithin sectioning for optical microscopy
- the diamond trimming blades cryotrim 45 and cryotrim 20 for both room- and cryo temperature sample trimming
- the Static Line II ionizer for eliminating electrostatic charging in both room- and cryo temperature ultramicrotomy
- the Perfect Loop for easy section pick-up.

Circle no. 65

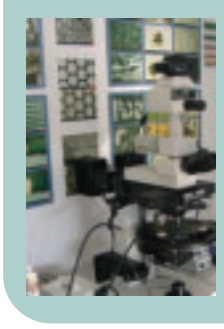
ELLIOT SCIENTIFIC LTD

Elliot Scientific Ltd is a leading distributor and manufacturer of Lasers, Optics, Fibre-Optics, Spectroscopy Equipment and Instrumentation, including the Craic Technologies range of Microscope Spectrometers (or Microspectrophotometers) shown at Microscience 2006 and mounted on the Kinetic Systems range of Vibration Isolation Platforms. The latest systems can be mounted to any standard microscope, but for highest resolution and sensitivity into extended UV and IR regions, the fully integrated QDI 2000 and QDI 2010 systems offer unrivalled performance. All systems come with a comprehensive suite of software and PC included. These systems provide the ability to isolate microscopic areas of a sample down to a 1x1um aperture within a much larger field of view and perform a detailed range of UV to IR spectroscopic analysis on the isolated area, including transmission, absorption, reflection and fluorescence and polarization spectroscopy. These systems, already established in forensic applications, and including Questioned document analysis and currency etc. and are now pushing back frontiers in semiconductor, telecommunication, minerals, chemical, pharmaceutical and life sciences.



Circle no. 66

GRAYFIELD OPTICAL INC



In 2004, Grayfield Optical was the first company to demonstrate a 3D Optical Microscope (3DOM) with over 28mm depth-of-field. That microscope system uses a special optical system, combined with a unique illumination system, to allow either shadow less or oblique imaging of objects with a considerably greater depth-of-field than is otherwise possible. An improved version of that microscope system with ever greater resolution and depth-of-field will be released at MicroScience this year. With a special swivel stage and transmitted light options, it is an ideal microscope for photographing objects like diamonds, allowing the cut surfaces to be imaged in high detail for the first time.

At this year's MicroScience Exhibition, we released two entirely new Ergonom research microscopes, the Ergonom 400-5 and 400-6. Making use of the exclusive Grayfield contrast technology, used in our Ergonom 500 research microscope, these two new optical microscopes have been designed to revolutionise optical microscopy at a price competitive with low to mid range SEM.

Circle no. 67

JEOL

JEOL had three instruments at microscience this year as well as a new look to the stand. The new 6490LV is the latest in a long line of Low Vacuum instruments which JEOL started producing in 1990. The 6490LV has a large chamber capable of taking samples up to 200mm in diameter, 80mm high and still take an EDS signal. Due to the robust 5 axis motorised stage, samples weighing up to 3Kg can be imaged and manipulated with ease. The 6490LV on the JEOL stand had a TMP pumping system which means that no water chiller is required. The microscope has options of TMP or DP pumping and the 6490LV on the learning zone had the DP system. The instrument is capable of 2.5nm resolution with the optional LaB6 gun but is still intuitive in operation, even for people who have never used an SEM.

Circle no. 68

CUSTOM INTERCONNECT LTD

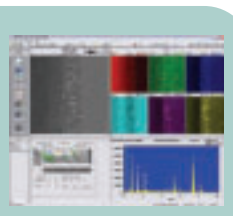
A new LED light source for fluorescence microscopy that is bright, stable and long lasting makes its world debut on Stand K3. The precisExcite uses new, patented LED array technology to make it the first practical LED light source for this application.

Experienced users say that it is bright enough for all projects, including live cell samples, fixed tissue sections and plant material; even penetrating deep into drosophila larvae preparations.

In addition, it has none of the safety issues surrounding mercury bulbs and users will never have to carry out bulb alignment again. They can also expect a typical product lifetime of between 15 and 25 years, depending on how it is used.

Circle no. 69

ISS



The ISS stand featured the UK launch of 3 new products which generated considerable interest.

Thermo Noran's latest EDX analysis system was demonstrated on a Topcon SM300 SEM and Kammrath & Weiss had an impressive display of miniature stages, tensile testers, hot stages and probes for use in scanning electron microscopes.

NanoMegas Spinning Star technology for generating enhanced diffraction patterns was demonstrated and some customers were spending up to 2 hours looking at the system. I-Solution low cost image analysis from IMT and Infinity USB2 digital cameras were also a popular products. Other equipment shown were RMC's latest ultra microtome and Nikon's new LV150 materials microscope.

Circle no. 70

LASER COMPONENTS (UK) LTD

Laser Components is a manufacturer and distributor of UV to FIR optoelectronic components, including, lasers diodes, fibre optics, laser optics, detectors and measurement modules. The wide range of exciting products on show included their Codixx polarizer sets, fibre optic assemblies, laser optics, laser safety eye ware, optical filters and gratings, spectrometer and light source solutions, detectors and emitters and many more products.

The show was an ideal venue to demonstrate their high performance optical filter cubes, their Flexpoint® range of laser diode modules, and our Tristan range of spectrometry kits ideal for material determination and analysis. If you missed them, don't worry they have dedicated technical support staff who can help you with your enquiry and are also available online.

Circle no. 71

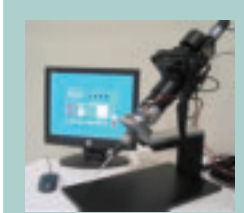
MEIJI TECHNO

MicroScience 2006 saw the launch of Meiji Techno's new family of upright light microscopes to the UK market. Using a new infinity corrected optical system called ICOS™, these microscopes come in various configurations to provide the user a broad choice to meet both their application and budget.

Meiji's new family is completed with the MX 9000 polarizing microscopes which employ all new and improved strain-free S. Planachromat optics. ICOS™ (Infinity Corrected Optical System) makes the study of thin sections of minerals, polymers, composites and other mounted samples a straightforward task for the materials scientist.

Circle no. 72

OMNIPROBE INC

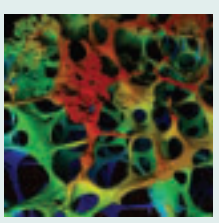


SEM-FIB Solutions is a UK based company providing sales and technical support for all Omniprobe products in Europe. Omniprobe Inc is a world leading manufacturer of innovative accessories that extend the capabilities of FIB-SEMs. Hardware for the AutoprobeTM 300 and OmniGIS systems was displayed in the booth at Microscience. The new AutoProbeTM 300 is the latest and most complete solution for high through-put TEM sample preparation, providing a complete and efficient solution for in-situ lift-out. The OmniGISTM (programmable multi-gas injection system) provides a single-port, multiple gas delivery solution for FIB and FIB-SEM users; ideal for small systems with limited port availability and/or advanced users wishing to have the capability of gas switching under software "recipe" control. The AutoProbeTM range with the OmniGISTM (programmable multi-gas injection system) enable new frontiers in nanomechanical testing, TEM preparation and microengineering in the FIB-SEM. SEM-FIB Solutions also offers on-site custom training for SEM, FIB and, FIB-SEM instrument and can provide assistance with applications development.

Circle no. 73

SYNCROSCOPY

On show were Auto-Montage Essentials, a budget software for generating in-focus images of 3-D samples. Based on Auto-Montage, the leading image reconstruction technology invented by Syncroscopy, Auto-Montage Essentials selects and combines the focused areas from source image files (Bitmap, JPEG and TIFF format) captured by any digital camera. It then produces an in-focus 'Montage' image, as well as a Depth Map and 3-D anaglyph in seconds. For microscopists requiring advanced 3-D imaging software, Syncroscopy is also showing its Auto-Montage Pro. This software, with its clean split image/user interface screen directly acquires source images from an optical microscope and it can save users time by automatically choosing the correct number of source images to capture using its image collection calibration. For optimum imaging of different samples, the software has a range of montaging methods, and a measurement option is available to automate analysis of sample length, depth and volume.



Circle no. 74

LOT – ORIEL LTD

L.O.T. – your one stop shop for biotechnology and nanotechnology instrumentation (Stand A1)

- Manipulation/testing tools for micro and nanoscale R&D
- Electron multiplying CCDs for ultra low light level spectroscopy
- AFMs for life science and nanotechnology
- Confocal Raman Microscope – unrivalled resolution and sensitivity
- Contact/non-contact surface profilers for metrology applications
- Multispectral imaging systems for bright field/fluorescence microscopy and in-vivo analysis

Circle no. 75

STRATECH SCIENTIFIC LTD

At the Stratech Scientific Ltd. stand, the focus was on CoralHue™ Fluorescent Proteins (MBL). Researchers can now tightly control the activity and colour of the fluorescence, which lends this new generation of fluorescent probes to imaging technologies that capture FRET and FRAP processes etc.

The ever-popular Jackson ImmunoResearch Secondary antibodies were also featured on the stand. This product range has been in production for over 20 years and is unrivalled for both the quality and selection of antibodies it provides.

Both product ranges were featured in Vendor Workshop Seminars and a lot of interest was subsequently generated by this.

Circle no. 76

FEI Hosts Nanotech Roundtable

The role of nanotechnology in the generation and preservation /conservation of energy formed the basis of a lively and informative discussion, which was hosted and sponsored by FEI Company recently in London. This event, which took place just prior to the opening of the Royal Microscopy Society's Microscience 2006 Conference and Exhibition at the ExCel Centre in June, enabled members of the nanotechnology community to investigate issues such as funding, roadmap initiatives and the need for knowledge sharing, to not only develop tools capable of advancing scientific understanding of nanostructures, but to improve processes that will speed new materials and products commercially to market.

With current pressure on developed and emerging economies to reduce dependency on carbon-based economies, the question of future energy provision is a top priority. The UK government for example is currently considering a part return to nuclear fuel as one of the only options available for meeting the country's future energy demands. Attendees at the meeting however strongly supported claims that the science of the very small is already being applied to the energy industry and cannot be ignored as a supporting technology for closing the energy gap. Current applications given as examples by speakers, included nano-structure fuel additives for cars and buses, nano-filters in LEDs which could enable a 16% reduction in national power requirements and the use of nanoscale particles in the development of solar panels.

> ***"DR ROB FASTENAU SVP EUROPE, FEI COMPANY, COMMENTED ON HOW DEVELOPMENTS IN MICROSCOPY AND IMAGING ARE CONTINUING TO SUPPORT RESEARCH AT THE NANOSCALE"***

Dr Rob Fastenau SVP Europe, FEI Company, commented on how developments in microscopy and imaging are continuing to support research at the nanoscale:

"We work in the area of materials characterisation – hard materials, soft materials, biological materials – and their manipulation. We've seen, with our tools for ultrahigh resolution imaging and characterisation, that there is a lot happening in the world of nanoscience and nanotechnology (with) enormous progress in the field of semiconductors and data storage and these fields are approaching the situation where our customers want to know exactly where every atom sits in a three-dimensional structure."

"The US Department of Energy's Basic Science (has also) recently started to work with the FBI to design the microscope of the future that potentially can resolve atoms in a three-dimensional setting and know, from a block of material, any material, where all the atoms are with some level of accuracy. The next level would be to then apply these observations to scientific modelling and then to designing of novel materials with exciting new properties. So, it's that kind of development that is exciting us in FEI, to look at atoms in a three-dimensional way of any material, biological or non-biological, and connect it to solving these immense problems of mankind that need to be resolved in the next 50 years," he added. Speakers at the event included Del Stark, Chief Executive of the European Nanotechnology Trade Alliance; Paul Burrows, a laboratory fellow at the Pacific Northwest Laboratory which is operated on behalf of the US Department of Energy; Dr Kevin Matthews, Chief Executive of Oxonica; Dr. Bob Stevens from the Rutherford & Appleton Laboratory which is an adviser to government on issues such as nanotechnology; Dr Amarpreet Dhiman, research analyst at Frost & Sulllivan and Stephan Kujawa, TEM Production Manger, also from FEI Company.

We look forward to covering issues and subjects relevant to nanotechnology or nanoscience in future issues of ILM and would be delighted to hear from potential contributors in industry or research organisations.

Please contact **heather@intlabmate.com**

Circle no. 77