NEW PRODUCT NEWS

New Materials Characterization Techniques for Thin Films and Coatings: Conical Scan Crystallography for TEMS

TexSEM Laboratories, Inc. (TSL) has developed a new technique for rapid quantitative analysis of the crystallographic features of TEM samples of nanocrystalline thin films and coatings. The technique, known as *Conical Scan Crystallography*, enables materials scientists to determine grain size, sizes down to approximately 200 Angstroms. Up to 50,000 orientation measurements can be captured in less than one hour of TEM operation.

Conical Scan Crystallography combines the well-known dark field imaging technique, the more recently available conical scan capability of newer TEMs, and TSL's Orientation Imaging Microscopy™ (OIM™) software. The TEM is placed in dark field imaging mode, with conical scan under control of the OIM software. As the beam is rotated around the diffraction rings, the OIM software records the tilt/rotate parameters of the electron beam and the corresponding locations on the specimen which turn bright for each tilt/rotate condition of the beam. Following a series of calculations, the result is a crystallographic "fingerprint" which identifies the orientation of the crystal at each of 50,000 points on the specimen.

From this spatially specific crystallographic data, OIM software can produce virtually unlimited crystallographic distributions, histograms, and maps. For example, colored texture maps can be produced to reveal grain or subgrain orientation, size and shape distribution, and grain boundary or interphase type.

Headquartered in Provo, Utah and founded in 1993, TSL is a privately held company that offers the world's most technologically advanced products and services to quantify and analyze the microstructures of crystalline materials for both SEMs and TEMs. Patents are pending. Recognized for its leadership in providing OIM systems, consulting services, and educational seminars, TSL is committed to excellence in support of customer applications to discover, control, and enhance the microstructures of crystalline materials.

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The Philips XL50: A New Defect Tool for the Semiconductor Industry

Philips Electron Optics introduces the XL50, a highly integrated tool that combines an easy user interface, proven analytical performance and exceptional stage accuracy. Intended for use in the low yield analysis lab, the XL50 will allow classification of defects with imaging resolution of 3-5 nm. This data can then be fed back into quality control and continuous improvement processes, helping to minimize manufacturing deviations and hence raise yields and plant profitability. According to Bryan Tracy of AMD, a beta site for the XL50 DRT, one of the highlights of their experience to date has been in terms of its resolution "... we achieved 1.9 nm, nearly 2X better than the guaranteed value".

Based on the company's latest FEG SEMs, the XL50 combines a field emission electron source with a specially developed 200 x 200 mm, 5-axis movement stage. The stage average accuracy is within 1.5 microns across an entire 8" wafer (or 0.6 microns over a 25 mm die). Menu driven operation, entirely under the familiar MS-Windows environment, means operators can classify defects in a user-friendly manner.

The high precision stage enables a wide variety of wafers and wafer parts to be examined and navigation to the selected defects is both intuitive and straight-forward. Operating the new XL50 is very easy; functions such as ACB, Get, Track, and the compucentric rotation facility make navigating large wafers simple, and increase operator efficiency. Computer-driven column alignment allows operators to modify conditions such as the spot size and high voltage without having to find the defect again. Tracy of AMD, again "We continue to be impressed by the ease of use;..."

The field emission column of the XL50 uses the same Schottky-based gun design developed by Philips for its world-leading transmission FEG and high-throughput SEM FEG microscopes. This ultra-stable electron source is optimized for high brightness/high beam current operation (a unique feature), and extends the use of high spatial resolution for both elemental analysis and imaging. Productivity is also increased by the semi automatic load-lock which will change wafers quickly and easily.

For further information, contact Philips Electron Optics, Building AAE, PO Box 218, 5600 MD Eindhoven, The Netherlands. Tel.: +31 40 276 6225, Fax: +31 40 276 6587, eMail: marcom@eo.ie.philipsnl

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USED EQUIPMENT FOR SALE

☎ **Zeiss TEM Model 900** - Sheet Film Camera, Turbomolecular pump. Excellent Condition. Asking $29,000 or make offer. (904)775-4330.

☎ **Denton DV-502A Vacuum Evaporator,** like new condition, with tilt/rotate stage, carbon evaporation. Best reasonable offer. Contact Joe Kiely, Armstrong World: (717)396-5205, Fax: (717)396-5772.

☎ **MILITARY RESEARCH LAB IS CLOSING** — Military contractor is selling at drastically reduced prices its Reichart Polycut S motorized sliding microtome, refrigerated and rotary microtomes, Sorvall ultramicotome, Gatan Model 600 dual ion mill. Fisher embedding center, stereo microscopes, Perkin Elmer microdensitometer and LECO sulfur analyzer. For specification sheets, call: (202)544-0836.

☎ **Haskris Chiller,** Air Cooled, Model Number R075EA, 7-8 years old, good condition, $1850. EDAX 9100 (Dual Floppy) Analyzer complete with software, $500. Tel: (203)389-6065.

☎ ***Hitachi H-500 TEM.*** In excellent condition. Under service contract since 1980 to present. Top entry multi-specimen holder. B.O. Call Craig Radi: (608)266-2465, eMail: radica@CAHL.DATCP.STATE.WI.US

EMPLOYMENT OPPORTUNITIES

SALES MANAGEMENT: MICROSCOPY

We are the innovators of high resolution direct view 3D microscopy. We are seeking applications experts for sales positions. Successful candidates will be graduates in science, experienced in microscopy and laboratory techniques. They must be people-orientated, problem-solvers and comfortable with demonstrating equipment. They will be responsible for technical sales and marketing of our products to mainly research organizations. The positions will involve travel. Applications with C.V., with salary history, to be sent to:

Edge Scientific Instrument Company LLC.
1630 17th Street
Santa Monica, CA 90404

The Scientific Method

It is also a good rule not to put too much confidence in experimental results until they have been confirmed by theory.

Sir Arthur Eddington