

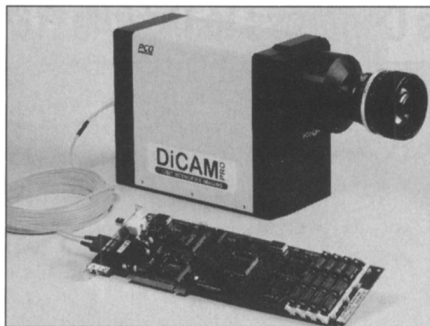
*A summary of new products and services
for materials research...*

Data Acquisition Kit: DATAQ Instruments' DI-150RS contains all hardware and software needed for two-channel data acquisition and waveform analysis, using the computer's serial port. Users can digitize a transducer's analog output with 12-bit measurement accuracy at rates up to 240 samples per second and record it to a hard disk. Two analog input channels can be software configured as two single-ended channels or one differential channel, both with a gain of 1 or 100. Features include one thermistor input and regulated excitation output.
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Spectroscopy Catalogs: EG&G ORTEC® offers two catalogs in one. One catalog on modular pulse-processing electronics and semiconductor radiation detectors covers time and energy spectroscopy, Ge and Si detectors, amplifiers, and instruments for time-of-flight, picosecond timing, single-photon counting, and x-ray fluorescence. The second catalog, on applied nuclear spectroscopy, offers 32-bit gamma and alpha spectroscopy products, the latest MCAs including the portable DART™ and digital DSPEC™, and systems for counting laboratories, water monitoring, and tritium collection.
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Thin Film Measurement System: Filmetric's F20 system can measure thickness, refractive index (n), and extinction coefficient (k) of dielectric or semiconductor thin films. Users can measure films from 10-nm to 50- μ m thick. Film thickness and wavelength-dependent optical constants are determined by analyzing the sample's reflectivity at 512 wavelengths. Reflectivity data are acquired in less than 1 s; measurement results are available within 2 s. Complex structures are characterized using the MultiLayer reflectivity simulation program integrated into the F20.
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Quadrupole ICP-MS: The fully automated ICP-MS PlasmaQuad3 from VG Elemental provides enhanced data quality, detection limits, and accuracy. Plasma-Screen Torch allows operation in a standard mode or a cool plasma mode that eliminates interferences and background noise for elements such as Na, K, Fe, or Ca. An ion sampling interface provides sensitivities exceeding 200×10^6 counts/s/ppm, which is one order of magnitude above standard instrument performance. The AutoRange Plus expands the dynamic range to three to eight orders of magnitude.
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Intensified Cooled CCD Imaging System: The DiCam-Pro from The Cooke Corporation offers a 12-bit dynamic range and a high-resolution (1,280,1024) CCD sensor. The system provides exposure times down to 3 ns and features single photon detection and spectral sensitivity from uv to NIR. A serial data stream is transferred via a fiber optic cable connecting the camera and PCI-interface board. The system is suitable for environments exposed to high interference and electrical noise and can be triggered by light or electrical input.
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Ultrafiltration and Nanofiltration Membranes: Koch Membrane Systems' SelRO membranes can be used in environments not suited for other polymeric membranes. In acid or caustic conditions or solvent environments, the membranes will remain stable and provide a longer useful life compared to conventional ultrafiltration and nanofiltration membranes. Applications include catalyst recovery, precious metals recovery from acids, acid recycling, and COD reduction in chemical wastewater treatment.
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Metric Conversions for Pumps and Fluids: Hydraulic Institute's free six-page booklet contains text and tables of units and procedures to convert pump and fluid data from U.S. customary units to metric units. The booklet includes special conversion factors for space and time, periodic and related phenomena, and heat and electricity. The booklet was derived from ANSI-approved Hydraulic Institute Pump Standards.
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Submicron CMOS Readout Multiplexer: Indigo Systems' ISC-9705 was developed for IR focal-plane-array applications. The 320×256 pixel system features integrated on-chip functionality and is compatible with p -on- n detectors fabricated from InSb, HgCdTe, or QWIP technologies indium bump-bonded to the

readout device. Snapshot-mode integration affords simultaneous image acquisition of all pixels in the array to eliminate temporal and spatial artifacting during high-speed events.
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Four-Module Platform for 300-nm Wafer Processing: The Millennium from GaSonic International uses downstream microwave source technology for 0.18- μ m photoresist removal, post-etch residue removal, and isotropic etch applications, with extension to 0.12- μ m devices. The multiple process step capability enables segmentation of long resist removal and clean processes into several short steps. Each process station is optimized for a single process of choice.
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Coating Thickness Gauge: The PosiTector 6000® FHS from DeFelsko® can be used to measure thick nonmagnetic coatings on ferrous metals. Measuring range is 0-750 mils, with resolution of 1 mil in the 0-400 mil range and 5mils in the 400-750 mil range. The FHS probe is one of seven interchangeable probes designed for use with the PosiTector 6000 Series. Functional with the FHS probe are one feature for zeroing on rough substrates and another for measuring within preset thickness limits.
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Fine Mesh Ion Exchange Resin Guidelines: Dow Chemical offers a free brochure on using fine mesh ion exchange resins for column separations in chemical and pharmaceutical laboratory applications. DOWEX™ resins are produced by selectively controlling the suspension polymerization of microporous copolymers of styrene and divinylbenzene technology. The resulting resins consist of whole, spherical beads available with varied crosslinkages and in many particle sizes.
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Spectral Mapping Software: EDAX offers Spectral Mapping software for analyzing an entire area of a sample. After collecting spectra, users can create spectra, linescans, and x-ray maps from any location in the image. Three setup steps eliminate the need to decide on elements in advance. The software collects x-ray spectra at a pre-chosen pixel resolution, saving the information with encoded x-y coordinate information. Separate collections do not have to be performed for images, maps, linescans, and spectra.
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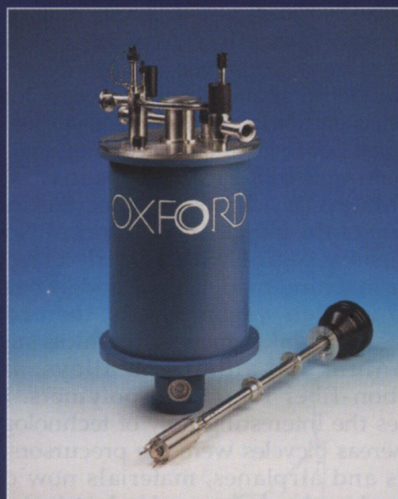
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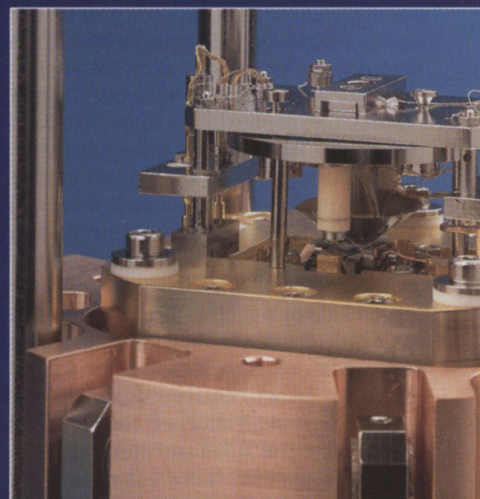
TOPSystem 3 STM Control System

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CryoSXM

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- CryoSXM/Optistat^{SXM} package optimised for minimal vibration.



Variable Temperature STM

- surface science applications, including metals from 50 – 1000 K
- open access allowing deposition during tunnelling
- low mass tip mount allows 'movie rate' in imaging
- same atoms in view during >200 K temperature range.

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Oxford Instruments Inc
130A Baker Avenue Extension, Concord, MA 01742-2121
telephone (978) 369-9933 fax (978) 369-6616
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