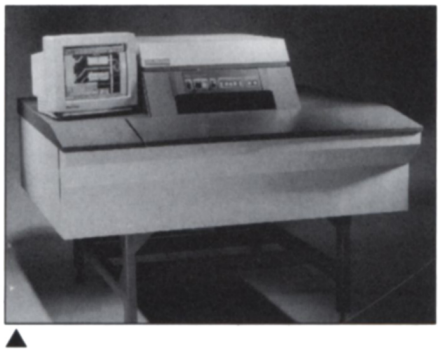
A summary of new products and services for materials research...

Fiber Optic Temperature Sensor: Nortech Fibronic's NoEMI-TS Hand Held provides temperature measurements in electromagnetic, microwave, and RF environments, and spans temperatures from -40 to 250°C. Users can measure temperature by utilizing the same sensors at several distinct points or with several fixed sensors grouped in a patch panel. The battery-operated device also features interchangeable probes, with varying probe length from 1 m to 1 km. An RS-232 interface is standard.
Circle No. 70 on Reader Service Card.

Polymeric Precursors for Ceramics: Report from Rapra Technology reviews synthetic routes to polycarbosilane and other polysilane precursors for conversion to silicon-carbide fibers, and polysilazanes for conversion to silicon nitride and carbonitride. Pyrolytic conversion and the properties of the resulting ceramics are described, as well as routes to other nonsilicon materials. References direct readers to additional theoretical and experimental data, and 200 key abstracts are included from the Rapra Abstracts database on rubbers, plastics, and polymer-based composites.
Circle No. 71 on Reader Service Card.

UV Radiometer: Spectronics' Spectroline® DM-365X features auto-zeroing that eliminates zero adjustment during calibration or use. Accuracy is better than ±5% traceable to NIST over the measurement range of 0–19,990 $\mu W/cm^2$, and resolution is 10 $\mu W/cm^2$. The interference filter controls spectral coverage (320–400 nm), and second readings normally done to compensate for IR sensitivity are not required.
Circle No. 72 on Reader Service Card.

Software for Design of Laminated Composites: General Composite Analyzer and Designer Version 1.3 software from Technomic Publishing enables users to choose variable parameters, objective functions, and constraints during design or analysis. Users can select from and specify up to 18 characteristics, including stiffness, strength, thermoelastic, heat, dissipative, mass, and cost characteristics. Users can predict properties of a laminated composite structure, analyze the relationship between structure properties and variation of structure parameters, and search for structures with properties that are superior to the structure under analysis.
Circle No. 75 on Reader Service Card.



Coating Thickness Measurement System: The XRF-5400 Series from Veeco/UPA Technology offers coating thickness measurement systems with chambers that provide 24 in. (0.6 m) of stage movement in the x-axis and 18-in. (0.46 m) in the y-axis. A low-profile unit, designed for large panel circuit boards and sheet stock, offers 1-in. (2.54 cm) of z-axis. A high-profile unit, with 6 in. (0.15 m) of usable z-axis, is suitable for large parts commonly used in metal finishing. Both units are equipped with x- and y-axis servo drivers and motorized stage programming.
Circle No. 80 on Reader Service Card.

Atomic Force/Optical Lens: Technical Instrument's DualScope, which measures 1.75 in. (4.5 cm) long, can transform an optical microscope into an atomic force microscope. The 8-oz. (0.23 Kg) lens screws into a standard optical microscope's nosepiece. With an "umbilical cord" to a central electronics and software unit, the lens then turns the microscope into an atomic force microscopy system capable of noncontact examination of a specimen within a resolution of <15 nm and producing 3-D images. After the lens is attached, the unit can be used in other modes, such as a standard optical or confocal scanning microscope.
Circle No. 74 on Reader Service Card.

Oil-Free Diaphragm Vacuum Pumps: Technotrade's Saskia diaphragm vacuum pumps feature oil-free operation to below 2 mbar as well as linear actuation to eliminate rocking and wobbling. The pumps incorporate a double membrane system, and the pump head can be heated to 200°C to eliminate condensation. As an alternative to waterjet pumps and as an oil-free replacement for oil-sealed rotary vane pumps, the Saskia pumps are available in sizes from 6 to 200 l/m.
Circle No. 76 on Reader Service Card.

Surface Profiler: Tencor Instruments' FP-20 offers a scan length of 100 mm on flat panel displays up to 650 × 650 mm. Step heights below 10 nm, as well as microroughness, can be measured with 0.05 nm resolution. A low-force measurement head allows stylus forces down to 0.5 mg for measurement of soft surfaces. Options include a pattern recognition feature and a robotic handling system for processing multiple substrates.
Circle No. 77 on Reader Service Card.

Manipulator with Integral Wafer Elevator: Surface/Interface's UHV Frogleg manipulator enables users to transfer multiple wafers among four process modules without breaking vacuum. The integral elevator allows wafer introduction through a top-mounted loadlock, reducing the cluster tool's floor space requirements. The Frogleg's reach can be customized to fit the process chamber, and the elevator provides a vertical lift up to 60 in. (1.5 m). The Frogleg and elevator motions are computer-interfaced for preprogrammed or joystick control.
Circle No. 73 on Reader Service Card.

Mini Planar Targets: Tosoh's mini Quantum™ planar targets are intended for those who are retrofitting Varian 3180/3190 sputtering systems. The cathode replaces the ConMag® I cathode in Varian 3180/3190 systems. Targets are available in all materials, including aluminum, titanium, and precious metals. They are fabricated under ISO 9001 guidelines, featuring electron-beam welding, nondestructive grain size testing, diffusion bonding, vacuum testing, and diamond surface finish.
Circle No. 78 on Reader Service Card.

Wafer Stepper: Ultratech Stepper's Titan™ facilitates polyimide processing for thin and ultrathin packaging of memory and logic devices. The gh-line of optics enables use of photosensitive polyimide that is g-line sensitive, allowing device manufacturers to use buffer coatings above 20 μm. Resolution is 1.2 μm, with a 3.5 μm depth of focus. The broadband optics utilize wavelengths from 390 to 450 nm. Titan features ≥1,200 mW/cm^2 exposure irradiance at the wafer plane. When coupled with the 44 mm × 22 mm field size, this exposure energy delivers an 8-in. (0.2 m) wafer throughput of 85 wafers at 100 mJ/cm^2 and 75 wafers at 300 mJ/cm^2.
Circle No. 79 on Reader Service Card.