

## RESOURCES

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

### Low-Noise Spectroscopic CCD

**Detectors:** Roper Scientific offers the RS Princeton Instruments LN/CCD 1340 series of detectors using cryogenic cooling. The detectors have low read noise of  $<3 e^-$  at 50 kHz and  $7 e^-$  at 1 MHz. Resolutions are  $1340 \times 100$ ,  $1340 \times 400$ , and  $1340 \times 1300$  arrays, each with 20- $\mu\text{m}$  pixels. Sensors are available in front- and back-illuminated versions. Deep-depletion devices made of high-resistivity silicon are available for near-IR sensitivity, as are coatings to enhance sensitivity in the near-IR and UV. **Circle No. 61 on Inside Back Cover.**

**Quadrupole ICP-MS:** The PQ ExCell from VG Elemental uses an Infinity Lens™ system to provide high sensitivity in excess of  $60 \times 106$  cps/ppm and low backgrounds of  $<0.1$  cps. A Collision Cell Technology option allows selective attenuation of unwanted polyatomic interferences to minimize interference and improve detection limits. The automated PlasmaScreen™ torch yields cool-plasma operation and provides further flexibility in eliminating argon-based interferences and high backgrounds associated with easily ionizable elements. Elements such as Li, Na, K, Ca, Fe, As, and Se can be determined at the ng/L level in many sample matrices. **Circle No. 60 on Inside Back Cover.**

### Portable Ductless Fume Hoods:

Captair Labx offers self-contained Captair™ Toxicap ductless fume enclosures. The hoods feature a prefilter and revolving filtration system that incorporates dual molecular filters with specific surface areas from 1800 to 2000  $\text{m}^2/\text{g}$ . The units provide 99.999% filtration efficiency and require no plumbing or installation. A user's manual lists more than 600 chemical products, their toxicity levels, filter types, and retention capacities. **Circle No. 62 on Inside Back Cover.**

### Kilohertz Optical Parametric Amplifier:

The OPA-800C from Spectra-Physics measures  $68 \times 41 \times 21 \text{ cm}^3$  and can generate tunable output from 1.1 to 1.6  $\mu\text{m}$  with near transform-limited high-energy (up to 100 uJ) ultrafast pulses. Wavelength extension options can extend the tuning range from  $<300 \text{ nm}$  to  $>10 \mu\text{m}$ . The system can be pumped by the diode-pumped solid-state one-box amplifier Hurricane or the Spitfire kHz regenerative amplifier system. It is available in both femtosecond and picosecond configurations offering various pulse widths depending on pump configuration. **Circle No. 63 on Inside Back Cover.**



**Resistivity Meter:** The HiResta UP from OAI is a high-resistance surface and volume resistivity meter that measures resistance in the range of  $10^4$ – $10^{13} \Omega$  and stores resistivity correction factors in memory. Users can take direct readings of surface resistivity in ohms per square and volume resistivity in ohm-centimeters. Measurement data can be output to a computer or an optional printer. Two-pin and circular probes are available to ensure repeatability. **Circle No. 64 on Inside Back Cover.**

**UV Radiometer:** Spectronics' Spectroline® DM-365XA digital UV radiometer measures long-wave UV (320–400 nm) with accuracy better than +5%, traceable to NIST standards, over its entire measurement range of 0–19,900  $\mu\text{W}/\text{cm}^2$ . The photodiode is hermetically sealed within the water-resistant housing, and a series of baffles and a self-sealing mechanism combine to ensure zero light leakage. The interference filter resists degradation and eliminates sensitivity to IR and other radiation. Users can obtain true values with only one intensity reading rather than two. **Circle No. 65 on Inside Back Cover.**

**Dual Beam Test Station:** McPherson's VUVaS is a 115 nm–380 nm scanning vacuum spectrophotometer for inspecting and analyzing dehydrated silica, calcium, and magnesium fluorides, as well as 193/157 nm laser source damage. The unit tests absorbance, transmittance, and reflectance at variable angles. A vacuum UV double beam system simultaneously collects sample and reference spectra. Individual spectral or ratio results are displayed during acquisition. Beam collimation delivers a consistent, wavelength-independent spot size to the sample. Standard units accept five 25-mm-diameter or three 50 mm  $\times$  50 mm samples; custom mounts accommodate large wafers. Detector angles can be set from  $10^\circ$  to  $180^\circ$ . **Circle No. 66 on Inside Back Cover.**

### GC/MS Column Reference Guide:

J&W Scientific offers a reference guide on products and technical applications for those performing trace-level GC analysis where sensitivity and instrument performance are important. Included are information on how to choose a GC/MS column, selectivity options for GC/MS analysis, benefits of using ion trap tested columns, the technology of the GS-GasPro PLOT column for GC/MS, custom-built DuraGuard™ columns with built-in guard column or transfer lines, a selection of GC accessories, R&D Separations' MegaSorp™ helium gas purifier, and chromatograms for easy reference. **Circle No. 67 on Inside Back Cover.**

### Portable UV Curing System:

The UV-4 from UV III Systems is a line-of-sight, flood-cure, 3D UV curing system that dries high and 100% solids to hardness in 10–30 s. A hand-held scanner with a 375-W/in. lamp and defocused reflector performs 3D and flat line curing. The system operates on 110 VAC and can be used by scanning the item to be cured from 3 to 9 in. ( $\sim 7.6$  to 22.9 cm) away. Gallium-doped lamps are available for color curing. **Circle No. 68 on Inside Back Cover.**

### Oil-Free Vacuum Pumps:

Vacuum Research's oil-free dry pumps are suitable for vacuum ovens, freeze dryers, and solvent removal, and pose no risk for contaminating products. The pumps provide up to 20,000 h of operation without maintenance or service. Capacities range from 6 to 32 CFM with ultimate pressures of 20 or 700 mT. The optional VRC Soft Start Speed Control automatically slows the pump when gas loads are small and immediately increases speed if pressure starts to rise. **Circle No. 69 on Inside Back Cover.**

### Power Amplifier/Piezo Driver:

TREK's Model 603 DC-stable power amplifier/piezo driver provides precise control of output voltages in the ranges of 0 to  $\pm 125 \text{ V}$ , 0 to  $-50 \text{ V}$ , or 0 to  $\pm 250 \text{ V}$  dc or peak ac with output current capability of 0 to  $\pm 40 \text{ mA}$  dc or 0 to  $\pm 80 \text{ mA}$  peak ac for all voltage ranges. The four-quadrant active output stage sinks or sources current into reactive or resistive loads throughout the voltage range essential to achieve accurate output response and high slew rates demanded by reactive loads. A dynamics adjust feature optimizes ac response to the output signal. **Circle No. 70 on Inside Back Cover.**

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