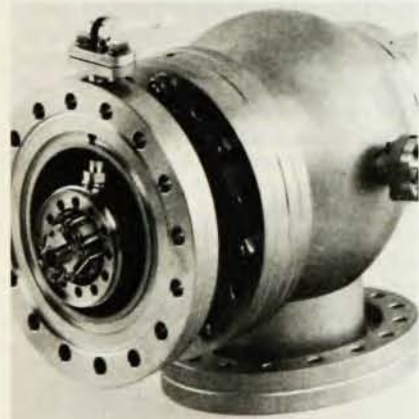


new products

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers, and in some cases by independent sources. PHYSICS TODAY can assume no responsibility for their accuracy.

Plasma monitoring

Blazers announces the availability of a new plasma monitoring system for research, sputtering and etching applications. This special housing and inlet system is designed to operate with Blazer's line of quadrupole mass spectrometers and a variety of semiconductor processing equipment. Together, the PMA 150 plasma monitor and mass spectrometer are claimed to provide an accurate, reproducible indication of the process-chamber environment, including ion and neutral-particle analysis. Special features of the system include an adjustable insertion depth, which positions the analyzer close to the plasma for accurate sampling. The sampling shield can be constructed of Monel for use in reactive sputtering applications. Additionally, the plasma monitor is differentially pumped so chamber venting does not contaminate the analyzer.



The system includes an externally operated valve to perform residual gas analysis, before the actual sputtering or etching process is started. Blazers' quadrupole mass spectrometers used with the plasma monitor are said to offer good abundance sensitivity with no peak tailing, so small impurities can be detected. The systems also claims excellent linearity over the whole mass range and high resolution at hydrogen

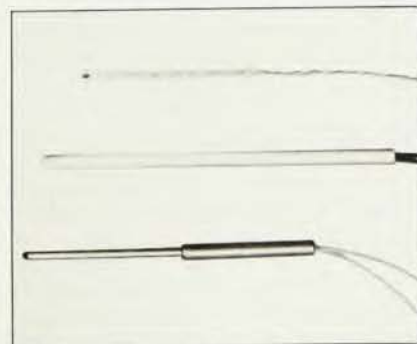
and deuterium masses. *Blazers, 8 Sagamore Park Road, Hudson, New Hampshire 03051*

Circle number 140 on Reader Service Card

Thermoprobes

The CSP series of thermoprobes from Thermometrics consists of ultra-stable probe thermistors that have been calibrated to an accuracy of 0.01 °C. Each probe is furnished with six-inch leads insulated with silicone rubber. The entire unit has a thin, conformal coating of silicone rubber, which makes it suitable for immersion in a water bath.

Two versions of the CSP Thermoprobe are offered: Model CSP60B A252M has a nominal resistance of 2500 ohms at 25 °C and is furnished with calibration tables for the range of 0 to 50 °C, providing data for every 0.25 °C in this range. The CSP60BT103M has a nominal resistance of 10 K ohms at 25 °C and is furnished with calibration tables for the range of 0 °C to 100 °C, providing data for every 0.5 °C. Both units are provided with interpolation equations that are claimed to be accurate to 0.01 °C. Tables that furnish data every 0.01, 0.05 and 0.1 °C are also available. Either unit can be supplied with calibration tables over different temperature ranges, with longer leads and different coating. Thermoprobes are also available in stainless steel housings for use in extreme environments. The manufacturer stresses the low cost: \$95 for the A252M and \$110 for the



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new products

T103M, in small quantities. *Thermometrics, 808 US Highway 1, Edison, New Jersey 08817*

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Light transducer

The model A from Photamp, a new firm, is a complete general-purpose light transducer that may be used to monitor ambient light levels, measure



the amplitude of chopped-light beams or to recover the signal of modulated light sources. It is claimed to be the only such instrument commercially available. The sensor is a silicon photodetector followed by dc-coupled amplifier circuitry. The output voltage is proportional to the light striking the silicon photodetector. Four gain positions are provided, giving relative gains, factors of 1, 10, 100, and 1000. The upper limit of the frequency response (to sinusoidally modulated light) varies from 85 kHz at the low gain position (where the responsivity is 0.4 V/mW at 850 nm) to 5.3 kHz at the highest gain position (with a responsivity of .4 V/mW). The spectral response of the detector ranges from the near ultraviolet into the infrared, peaking at 850 nm.

The transducer operates from a regulated ± 15 -volt power supply. Available accessories include an optical shade tube to exclude extraneous light, a concentrating lens assembly, three mounting plates and a power supply. The price is \$234. *Photamp, P.O. Box 1120, Burbank, California 91507*

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Ion beam system

Denton Vacuum offers a new ion-beam system that cold sputters metals by using an inverted magnetron ion source. The new ion source, designated model IMS-10, is described as "extremely small for its performance, and completely self-contained." It pro-

duces an intense, concentrated beam that can achieve 5 mA at 1 to 10 kV, with beam voltage and current independently variable. Its size and flexible fixturing enables it to be installed in most vacuum systems.

The IMS-10 is designed to deposit thin metal films on a variety of substrates for a number of applications. It is used in electron microscopy to provide shadow casting and electrically conductive coatings. It is capable of etching materials and modifying films during or after deposition. It can be used to clean substrates, and to form films from targets of tungsten, gold, molybdenum, copper, tin and other metals. Since the IMS-10 is a cold source, it can be used on heat-sensitive materials without shielding, cooling or other protective steps. There is no filament, yet the IMS-10 is claimed to be as powerful as many heat-emitting ion sources employing hot filaments.

A stable and efficient discharge is maintained under operating pressures from 8×10^{-6} to 5×10^{-3} Torr. The "well-formed" beams, composed of argon or other gaseous ions, dislodge atoms from the target. These atoms condense into films of various thicknesses on either stationary or rotating substrates. If a reactive gas is used, reactive deposition may be efficiently achieved without the use of heat, we are told. *Denton Vacuum, Cherry Hill Industrial Center, Cherry Hill, N. J. 08003*

Circle number 143 on Reader Service Card

Radon monitors

Terradex has introduced a new detector system for environmental and personnel radon monitoring. The system, designated type SF, incorporates several improvements that are claimed to make it valuable as a personnel monitor and for other applications requiring a small, compact radon detector. It is described as "rugged, lightweight and easy to use." It is portable, with no electrical or moving parts, and it can be used at remote locations where power is not available. The system's patented Track Etch technology employs special dielectric plastic detectors that are sensitive only to alpha radiation. Thus



there is no need to correct the readings when the detectors are used in high-gamma-radiation fields.

The type SF track etch detector is about 1 inch tall and less than 1½ inches in diameter. It weighs less than one-third of an ounce. A modified version can be supplied with a thoron filter that eliminates sensitivity to thoron and its daughter products. In this configuration the detector system is called the type SM. Both the SF and the SM systems have been extensively calibrated in the radon exposure chambers operated by DOE's Environmental Measurement Laboratory.

The SF detector differs from the Terradex's type B detector in responding only to radon and not to the radon daughters. Thus the SF is useful when precise radon concentration measurements are required and when radon-to-radon-daughter ratios are expected to vary over a wide range. The SF is similar to the type F in its use of special filter to eliminate airborne dust contamination. It is much smaller than the F, however. The SF can determine radon daughter (working level) exposures in areas where working-level ratios are known. Thus it is well suited as a personnel monitor in uranium mines or other facilities where one wants to know the total working-level exposures of the workers. *Terradex, 460 North Wiget Lane, Walnut Creek, California 94598*

Circle number 144 on Reader Service Card

Optical power meters

Laser Precision's new RT series of medium- to high-range optical power meters includes 10-, 150-, 300- and 1000-watt models. The series is claimed to be unique among thermopile instruments for a number of reasons: fast response (0.2 sec time constant); high flux capability (up to 600 W/cm²); low-noise circuitry, providing a 4-decade range without attenuators or splitters; and broad spectral response (from 0.3 to 30 microns), allowing measurements of a variety of optical sources.

The "Hisorb" surfaces of the thermopile sensors are said to afford improved burnout resistance and high reliability.



The user can easily change the sensing elements. The RT-C sensor head has a built-in electrical calibration device, making it easy to calibrate. The manufacturer stresses the high repeatability and accuracy of instruments. *Laser Precision, 1231 Hart Street, Utica, NY 13502*

Circle number 145 on Reader Service Card

Illuminator

The new Series Two Illuminator from Kratos is claimed to deliver "new standards" of beam uniformity and collimation. Using arc lamps up to 1000 W, this illuminator is said to be well suited for applications such as solar simulation (for which a complete set of filters is available) and photoresist exposure, as well as general illumination applications requiring high uniformity and collimation.

The Series Two Illuminator combines conventional arc lamps (xenon, xenon-mercury, or mercury) with a specially designed elliptical reflector. The elliptical reflector surrounds the lamp, collecting light normally lost in standard lamp housings, resulting in two- or threefold increase of radiation efficiency. The intense output is then redistributed by an ultraviolet-quartz optical integrator, producing a highly uniform output beam with less than ±5% variation in intensity across the beam. Collimation angle at the output is 2.5°. *Kratos Analytical Systems, 24 Booker Street, Westwood, New Jersey 07675*

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Elongation viscometer

The Rheology Division of Sangamo Schlumberger has introduced a new instrument for measuring the elongational viscosity of polymer solutions and similar fluids. The Sangamo Elongational Viscometer extrudes the fluid from a spinneret nozzle and extends it onto a rotating drum. The force thus generated is measured by the deflection of the thin-walled tube through which the fluid passes. The instrument determines the elongational stress and the rates of elongation along the extending fluid filament.

The measuring unit is housed in an environmental chamber with separate control electronics. The viscometer is capable of controlled operation on fluids with viscosities as low as 3 POIS and temperatures as high as 100 °C. The Sangamo Elongational Viscometer is priced from \$46 000. *Sangamo Schlumberger, Rheology Division, 1875 Grand Island Blvd, Grand Island, NY 14072*

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