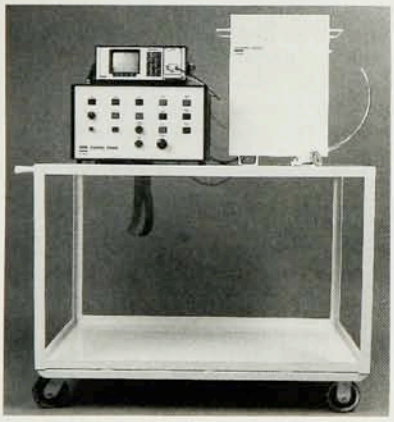
NEW PRODUCTS

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. To facilitate inquiries about a particular product, a Reader Service Card is attached inside the back cover of the magazine.

Gas Delivery of Positron Emission Tomography

The Victoreen Model 8301 gas delivery system for positron emission tomography provides for automatic collection of radioactive gas, monitoring of the activity of the gas and delivery of the gas to the PET subject. The gas is typically produced in a remotely located cyclotron and transported by way of a tube to the PET scanner



room. The Victoreen gas delivery system includes a gas-control station, an assay assembly and a Radocon V electrometer.

The gas delivery system lets the user choose bolus or continuous-mode gas delivery. In either mode, the system is designed to protect the patient and operator in the event of a malfunction. *Victoreen, 6000 Cochran Road, Cleveland, Ohio 44139-3395*

Circle number 140 on Reader Service Card

Injection Probes for Plasma Processing

TAFA has introduced a new system that can process either solids or gases at ultrahigh temperatures—up to 20 000 °F. Based on the firm's induction-plasma technology, the new method uses newly developed probes to inject materials into any preselected location in the plasma. This procedure makes it possible to take advantage of the very high temperatures within the heart of the plasma, rather than just probing the cooler tail of the flame.

Processing efficiency and throughput are thus increased substantially, we are told. Injection of materials directly into the arc region ensures complete heating, and it allows use of larger, more angular particles and more economical feedstocks. The new injection probes, which are cooled by high-pressure, high-velocity water flow, are offered in several lengths, for positioning at specific locations within the plasma. They are available either as part of new systems or as retrofits. The system can be used for thermal spraying and for plasma processing of materials such as alumina, zirconia and ceria, gases such as uranium hexafluoride and methane, and metals such as tungsten, tantalum, yttrium and various carbides. *TAFA, 146 Pembroke Road, Concord, New Hampshire 03301*

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Transient Digitizers with Gigahertz Analog Bandwidth

Tektronix has introduced a pair of fast, high-bandwidth transient digitizers intended for applications requiring high-speed, single-shot acquisition. The fast sample rate of these digitizers—Models SCD 5000 and SCD 1000—is claimed to yield excellent definition of short-duration, single-shot events. The instruments employ scan-converter technology to achieve high single-shot digitizing rates for capturing very fast events.

These SCD digitizers offer high analog bandwidth—4.5 GHz in the

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- ❑ Noise R.M.S. input current 10fa
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- ❑ Sensitivity Coefficient 0.1%/°C
- ❑ Standard ¼" threaded mount

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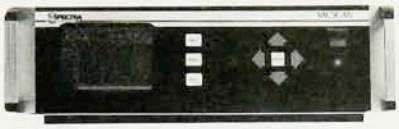

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SCD 5000 and 1 GHz in the SCD 1000. Combined with a sample rate of 200 gigasamples per second, this high bandwidth provides timing resolution to five picoseconds for fast-transient signal capture. Both models are single-channel digitizers; they have similar front-panel and GPIB operation and are the same size. They differ in analog bandwidth and amplifier performance: The SCD 5000 is a direct-access instrument (± 2.5 V) with external triggering, while the SCD 1000 has two switchable 1-GHz amplifiers with variable input, offset ranges with invert and add, and internal triggering. Applications for these gigahertz digitizers include high-energy physics and the study of laser-induced phenomena. *Tektronix, P. O. Box 500, Beaverton, Oregon 97007*

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Test Pattern for High-Definition Television

Sine Patterns is offering the new ZP-2 zone plate, a test pattern for determining the frequency response (modulation transfer function) of high-definition television systems. The zone plate is circularly symmetric, its spatial frequency increasing linearly with distance from the center of the pattern. The ZP-2 pattern has a length–width ratio of 1.77:1. The spatial frequency at its top and bottom edges is equivalent to 500 TV line pairs, and in the corners to about 1000 line pairs. The pattern has a black spot in the center and superposed lines to designate each 100 line-pair interval. Modulation is approximately 60%. It is essentially uniform over the frequency range.

Sinusoidal test-pattern arrays are also available, in various sizes and formats, for evaluating the modulation transfer functions of materials, devices and optical systems. *Sine Patterns, 236 Henderson Drive, Penfield, New York 14526*

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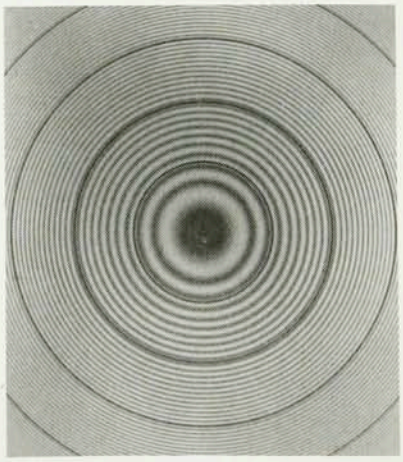
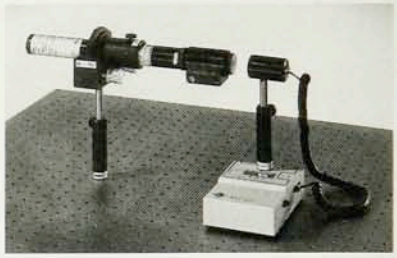


Single-Frequency Lasers Stabilized by RF Induction

Aerotech has introduced its new 100SF series of single-frequency laser systems. They offer frequency stabilization within 1 MHz, amplitude stability within 0.1% and rms amplitude noise less than 0.1%. These single-frequency systems can be operated as linearly or randomly polarized lasers, with polarization extinction ratios exceeding 5000:1. The stabilization adapter uses a proprietary rf induction technique that is claimed to achieve superior frequency stability thanks to faster servo response. It also permits a more compact package than standard thermal-conduction methods would allow. Prices start at $2450. *Aerotech, Electro-Optical Product Group, 101 Zeta Drive, Pittsburgh, Pennsylvania 15238*



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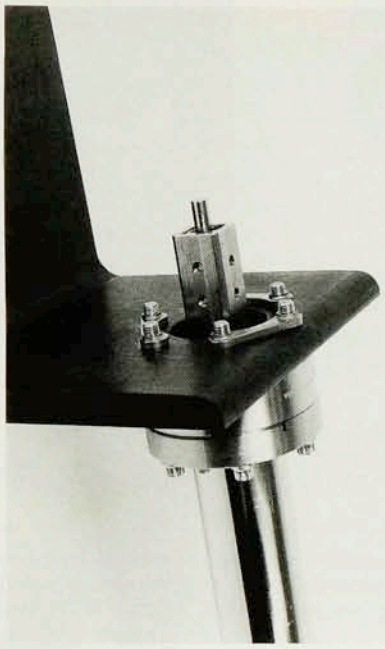
Linear and Rotary Magnetic Manipulations for UHV

Surface/Interface has introduced a family of precise, magnetically operated linear and linear–rotary sample manipulation systems for operation in ultrahigh vacuum. The rotational motion is independent of the linear motion. This independence is claimed to be unique among such manipulators. Rotational and linear motion can be activated in combination or separately. Applications that require this independent motion include the locking of devices during transfer and the use of a precision rho–theta stage for accessing every location on a wafer.

The new systems are claimed to



handle more axial force and torque and to exhibit better compliance and load capability than one expects from a magnetically coupled feedthrough. The greater force and torque are said to result in low stiction, backlash and friction. The linear force is 30 lb.; rotary torque is 12 in.-lb.; compliance is 0.0025 in./lb.

These magnetic manipulators mount to vacuum systems with a 2.75-inch CFF. Accessories include a rho–theta stage and an external drive that lets one place knob controls near the front flange and attach motor drives. Each manipulator can be ordered with polymeric or metal external bearings. *Surface/Interface, 476 Ellis Street, Mountain View, California 94043*

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Rectangular-Target Magnetrons

Vacuum Inc has added several new types of rectangular-target magnetrons to its Mini/PM series of research-size cathodes. These new additions include external-mount units as well as coaxial and flexible-water-lead models. All the targets are 3.5 inches wide. They are available in lengths of 6, 8, 10, 12, 15 and 20 inches.

The Mini/PM series also includes round cathodes in 2- and 3-inch target sizes. These magnetrons are available in external, internal, extended-lead and ultrahigh-vacuum-bakeable external models. All of the Mini/PM cathodes are available in mounted arrays of multiple cathodes for use on new or existing vacuum coaters.

The firm offers a wide line of planar magnetron cathodes. Other models include round cathodes from 4 to 20 inches in diameter and rectangular cathodes from 5 × 6 to 12 × 120 inches. Designs to meet specific needs are also available. *Vacuum Inc, 5541 Central Avenue, Boulder, Colorado 80301*

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New Literature

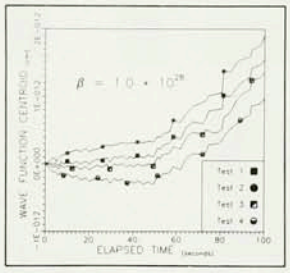
Charge-coupled devices—Photometrics is offering a free booklet entitled "Charged-Coupled Devices for Quantitative Electronic Imaging." This 30-page booklet describes the theory and application of CCD imagers for applications requiring high linearity and dynamic range. Performance limitations are discussed, together with calibration and noise reduction techniques. The advantages of slow-scan CCD cameras for scientific applications are also considered. *Photometrics, 2010 North Forbes Boulevard, Tucson, Arizona 85745*

Optical catalog—Edmund Scientific's new 172-page reference guide and catalog describes more than 5000 optical and industrial products, including PCX and DCX lenses, achromats, prisms, beam splitters, corner cube reflectors, microscopes, telescopes, magnifiers and accessories. *Edmund Scientific, Edscorp Building, Barrington, New Jersey 08007*

Research instrumentation—Le Croy has published its 1990 *Research Instrumentation Catalog*, a 360-page, illustrated volume describing the firm's extensive line of electronic instruments. The catalog includes technical data sheets, specifications and application notes. Product areas covered include a variety of high-density, high-speed, data acquisition systems, high-performance components, fast pattern-recognition and trigger electronics, and high-voltage systems. *Le Croy, 700 Chestnut Ridge Road, Chestnut Ridge, New York 10977-6499*

Vacuum products—Huntington Laboratories' 1990 catalog, a 192-page, two-color compendium of vacuum products, introduces dozens of new proprietary manipulators, motion feedthroughs and motion mounting platforms. The catalog lists more than 200 individual uhv positioning devices among 3000 items, including, we are told, the industry's largest selection of flanges, fittings, feedthroughs and roughing accessories. *Huntington Mechanical Laboratories, 1040 L'Avenida, Mountain View, California 94043* ■

SCIENTIFIC GRAPHICS



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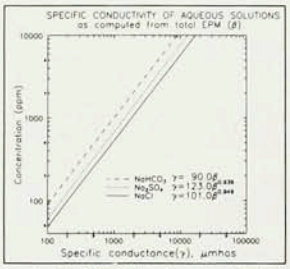

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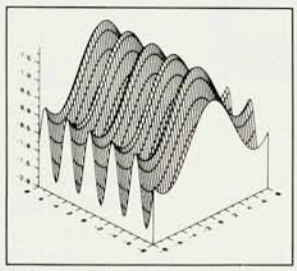

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