

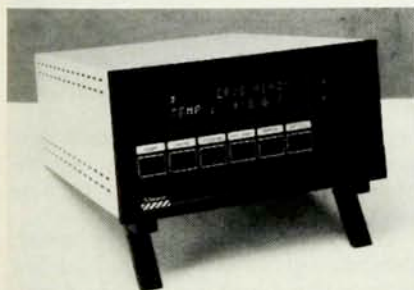
new products

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.

Cryopump system controller with autoregeneration

Edwards High Vacuum has introduced the Autoregenerator 1701, a fully automatic, microprocessor-based cryopump system controller described as "featuring a trouble-free autoregeneration cycle." Depending on the gauge head used, it covers the pressure range of 760 to 10^{-4} torr.

Operated in conjunction with a fully valved vacuum and vent system, the Autoregenerator 1701 is intended to insure that the correct pumping and valve sequences are accurately and safely followed with a minimum of intervention. Regeneration can be initiated at any convenient time. In its standard configuration the Autoregenerator 1701 takes control of the cryopump system regeneration either by operator initiation or external com-



mand. With the addition of a few extra components, the unit can be expanded into a complete cryopump vacuum system controller, managing operation of all vacuum hardware, even opening of the high-vacuum valve.

Though it is designed for use with the Edwards Coolstar range of cryopumps and Cryodrive compressor, the Autoregenerator 1701 will work equally well with any cryopump fitted with a Lakeshore B-series or other suitable silicon diode temperature sensor. The system interface is a special optical relay unit,

which can be mounted in a convenient position. The unit provides 12 relay outputs and four optical inputs with capability for expansion. Connection between the relay unit and the Autoregenerator 1701 is made by a 26-way screened ribbon cable, letting one mount the unit as far as 3 meters from the autoregenerator. *Edwards High Vacuum, 3279 Grand Island Boulevard, Grand Island, New York 14072*
Circle number 140 on Reader Service Card

Confocal scanning microscope with laser source

A new confocal scanning optical microscope has been introduced by Bio-Rad Polaron Instruments. Using a laser as the imaging light source, we are told, enables the microscope to produce images of exceptional clarity and contrast. The Lasersharp SOM 100 microscope is designed to overcome the limitations of conventional optical microscopes for such applications as materials microscopy and semiconductor device assessment. Its point probe is claimed to "unlock previously unavailable contrast mechanisms, and its ultimate spatial resolution exceeds that of the best conventional microscopes."

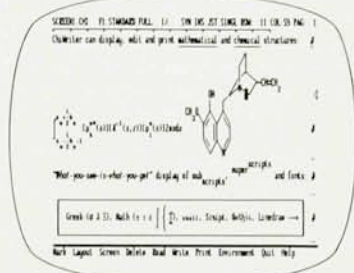
Unlike the conventional optical microscope, the SOM 100 with its confocal optics can produce images free from out-of-focus information or stray reflected light. Confocal microscopy lets one image the surfaces of transparent overlayers such as protective coatings. Translucent diffuse reflectors can be imaged without stray reflected light degrading image contrast. Confocal sectioning also gives strong contrast in the imaging of porous surfaces. On semitransparent materials such as emulsions, it permits imaging the structure of the bulk material; conventional microscopes image only the surface. In the examination of irregular surfaces, one can get images in which

ChiWriter



Powerful Scientific/Multifont Word Processing at a Reasonable Price.

ChiWriter is a powerful word processing program, designed especially for scientific and foreign language text. ChiWriter is ideal for typing manuscripts, reports, lecture notes, exams, even books. Best of all, ChiWriter is completely "what-you-see-is-what-you-get." Even typing complicated formulas is easy because the screen display corresponds exactly to the printout.



An actual ChiWriter screen display

ChiWriter is a complete word processor. Its features include Cut and paste, margin justification, search and replace, automatic pagination, footnotes and variable headers and footers. In addition, ChiWriter contains commands especially designed to make formula editing easy and intuitive. ChiWriter is widely regarded as superior to other scientific word processors costing hundreds of dollars more, yet the basic system has a price of only \$79.95.

Thousands of Satisfied Users

Since we introduced ChiWriter in 1985, we received enthusiastic feedback from researchers, students and secretaries in universities and research centers around the world.

"This program is an extraordinary value. It is easy to use, requires only a minimum of equipment and is inexpensive compared to competing products. I recommend this program highly."

Gary Cornell, Mathematical Intelligencer

Equipment Requirements

ChiWriter's equipment requirements are surprisingly modest. The program runs on an IBM PC or compatible computer with 256K memory, a graphics card, one floppy disk drive and a printer. A hard disk is not required. The basic package contains support for the IBM color graphics adaptor (CGA) and most popular 9 pin printers, including the Epson MX-FX series and compatibles, IBM Proprinter and Okidata ML92. To run ChiWriter with a Hercules graphics or EGA card on a monochrome monitor or with a 24 pin printer (Epson LQ and Toshiba series), order the appropriate support disks.

☐ ChiWriter Program	☐ EGA support	\$19.95
☐ Hercules support	☐ AT&T 6300 support	\$19.95
☐ 24 Pin Printer support	☐ Foreign Keyboard support	\$19.95
☐ HP LaserJet support	☐ Chemistry Font Set	\$49.95
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LOW-COST INTELLIGENT STEPPING

THE NEW SMC-202A PROVIDES INTELLIGENT STEPPING MOTOR CONTROL FOR MUCH LESS THAN YOU WOULD EXPECT.

A Motorola 6809 microprocessor provides intelligent motion control including acceleration/deceleration ramping, stored program control, relative and absolute positioning. RS-232C interface standard, GPIB/IEEE-488 optional.

Provides computer, manual, or joystick control of up to 2 stepping motors. Prices start at \$995 for complete controller with all power supplies and motor drives built in.

Standard and custom stepping motor controllers available.

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CALIFORNIA 94063. Tel: 415-368-4884

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new products

all regions of the surface are in focus, even at the highest spatial resolution, where depth of field is conventionally very small.

The scanning beam also permits examination of semiconductors by means of currents induced by the optical beam. The photoinduced current in the semiconductor device generates the image contrast. *Bio-Rad Polaron, 19 Blackstone Street, Cambridge, Massachusetts 02139.*

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High-speed process for optical spectrum analysis

Rofin-Sinar Laser UK has announced the introduction of the new high-speed RSO 6240 spectral processor, intended for use with their current line of optical spectrum analyzer equipment. The new instrument includes a more powerful processor, together with a number of system improvements such as dual double-density, double-sided 3 1/2" disc drives, an improved monitor and digitizing electronics.

The entire system has been repackaged with an integrated keyboard. Various accessories and software packages have been added to provide a package that measures transmission, absorption, reflection and color. One can now also do spectroradiometric and photometric measurements with a new software package. The system captures a complete spectrum in only 5 msec and stores it in 80 msec. The wavelength range is 200-5000 nm, which can be covered at one time using the "merge" software facility. *Rofin-Sinar Laser UK Limited, 2/3 Water-side, Hamm Moor Lane, Weybridge, Surrey, KT15 2SN, England*

Circle number 142 on Reader Service Card

Highly stable plane-mirror interferometer

Hewlett-Packard's new optical accessory, the HP 10706B high-stability plane-mirror interferometer, is designed to improve the performance of HP laser-transducer systems. It will, we are told, help metrology equipment designers and users gain greater accuracy and repeatability in precision measurement and control applications. This increase in performance is achieved by improving measurement stability during temperature changes. Temperature-induced drift is claimed to be only 5% of that typically suffered by conventional plane-mirror interfer-

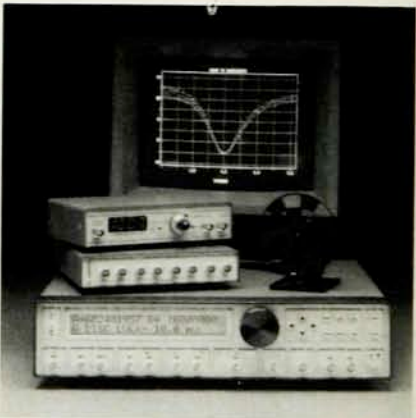
ometers. The new instrument is described as "almost as stable as the larger and more expensive HP 10715A differential interferometer."

A retrofitting accessory, the HP 10723A high-stability adapter, is available for upgrading the HP 10706A plane-mirror interferometer to achieve the HP 10706B's improved stability at less than one-fourth the \$3000 cost of a new HP 10706B. *Hewlett-Packard, 1820 Embarcadero Road, Palo Alto, California 94303*

Circle number 143 on Reader Service Card

Gated, dual-channel, 200-MHz photon counter

Stanford Research Systems has introduced the SR400, a complete gated photon-counting system in a single instrument, with a counting rate of 200 MHz. The unit includes two counter channels, a timer channel, two gates scannable from 10 nsec to 7 sec, and three discriminators with 5-nsec pulse-pair resolution. The SR400 offers full GPIB and RS232 interfaces, digital or



analog outputs for x-y recorders, programmable scanning of up to six parameters and storage of up to nine setups.

The system can be used like a boxcar, counting only events within a narrow gate, or like a lock-in amplifier, counting synchronously with a chopper input; all this, we are told, "without the drift, noise and dynamic reserve limitations of those analog instruments." The SR400 sells for \$4850. *Stanford Research Systems, 460 California Avenue, Palo Alto, California 94306.*

Circle number 144 on Reader Service Card

Nonmagnetic liquid helium transport containers

International Cryogenics offers a new line of liquid helium transport con-

tainers constructed of nonmagnetic stainless steel. Five integrally mounted nonmagnetic rubber casters are supplied as standard equipment. Thus the units are well suited for use in a magnetic environment. Computer-optimized heat shielding provides fast cool-down and low boil-off rates. Battery-operated liquid level indicators and absolute pressure relief valves for air transport are available as options. The containers are available in three sizes: 30, 100 and 250 liters. *International Cryogenics, 2319 Distributors Drive, Indianapolis, Indiana 46241*
Circle number 145 on Reader Service Card

Large-area silicon avalanche photodiodes

Recent advances in the fabrication of silicon avalanche photodiodes are making larger-area devices available. The new SH series of silicon avalanche photodiodes from Radiation Monitoring Devices are visible-light detectors with internal gain. They have been optimized for response to blue light to allow use with NaI(Tl) or bismuth germinate scintillators. Active area can be specified as 1 cm round or 1×1 cm square. The device is packaged in a cylindrical aluminum housing with a



quartz window over the sensitive area.

When used with a scintillator crystal, the avalanche photodiode is a sensitive detector of gamma- or x-ray photons with energies greater than 70 keV. Applications include detection of elements by spectral analysis, monitoring intensity and location of radiopharmaceuticals in the body, and detection and identification of high-energy photons in physics and medical research. The SH photodiodes have a quantum efficiency of 40% at 408 nm, and an avalanche gain of 150. *Radiation Monitor-*

ing Devices, 44 Hunt Street, Watertown, Massachusetts 02172

Circle number 146 on Reader Service Card

Acousto-optic Q-switch driver

Crystal Technology has introduced a new family of acousto-optic Q-switch drivers. The Model 1024 and 1027 radiofrequency drivers each provide 50–100 W of rf power to any acousto-optic Q switch for switching cw solid-state Nd:YAG lasers. The rf driver has built-in fault diagnostics: A fault caused by either the Q switch or the driver will result in automatic rf power shutoff.

Model 1024 operates at 24 MHz and Model 1027 operates at 27.12 MHz. Both have built-in pulse generators and remote switching between external and internal pulse generators. *Crystal Technology, 1060 East Meadow Circle, Palo Alto, California 94303*

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High-performance interface board for personal computers

Metabyte's DAS-20 is a high-performance analog and digital input-output board for the IBM PC, XT, AT and compatible computers. The DAS-20 plugs directly into any expansion slot within the computer. The board includes 16 single-ended or 8 differential-analog input channels with software-programmable input ranges. The board uses a 12-bit analog-to-digital converter and it provides input resolutions from 4.88 mV to 24.4 μ V. The maximum input sampling rate is 100 000 samples per second. A novel 2048-byte queuing RAM allows complex sequences of channels and gains to be scanned at high speed. In addition to its analog input capabilities, the DAS-20 provides two channels of 12-bit-resolution analog output.

The DAS-20 also provides 16 bits of parallel, logic-level digital input or output. An AMD-9513 counter timer chip can be used to set analog-digital conversion rates. Two channels of counter timer are left for external connections; they can be used to measure frequency, to count events or to generate fixed output frequencies. The DAS-20 comes complete with software, including an assembly level driver that can be called from BASIC; installation, test and calibration programs; and a wide variety of example programs. The base price is \$1495. *Metabyte, 440 Myles Standish Boulevard, Taunton, Massachusetts 02780*

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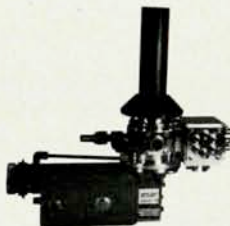
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