

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.

COMPACT RADIOISOTOPE DELIVERY SYSTEM

CTI has introduced the Model 112/00 RDS, a self-shielded radioisotope delivery system optimized to produce substantial quantities of the major positron-emitting isotopes (C^{11} , N^{13} , O^{15} , F^{18}) under full automation. The system employs recent advances in cyclotron technology to optimize beam size, energy and shielding, and to minimize floor-space requirements, building modifications and operating costs.

The radioisotope delivery system is available in a self-shielded configuration that eliminates the need for a vault and requires only 418 square feet of floor space. Portions of the shield are hydraulically movable to allow easy access for maintenance. The system's energy of 11 MeV is high enough to produce substantial yields of positron emitters, but low enough to keep down costs for neutron shielding, installation and maintenance.

Four different targets can be mounted simultaneously. Simple stripping foils for beam extraction instead of the usual electrostatic extractors are said to provide higher extraction efficiency and a high-quality uniform beam for improved reliability and yield. Any target can be irradiated simply by the automated insertion of a thin carbon stripping foil into the internal beam path. In 10 minutes at 40 amps, for example, the system yields 1.8 curies of oxygen-15. CTI, 810 Innovation Drive, Knoxville, Tennessee 37932

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MAGNETOMETER FOR SUPERCONDUCTIVITY MEASUREMENT

EG&G Princeton Applied Research has introduced a new vibrating-sam-



ple magnetometer. This Model 4500 is claimed to offer improved system sensitivity, lower noise, high stability and absolute accuracy better than 2% of reading.

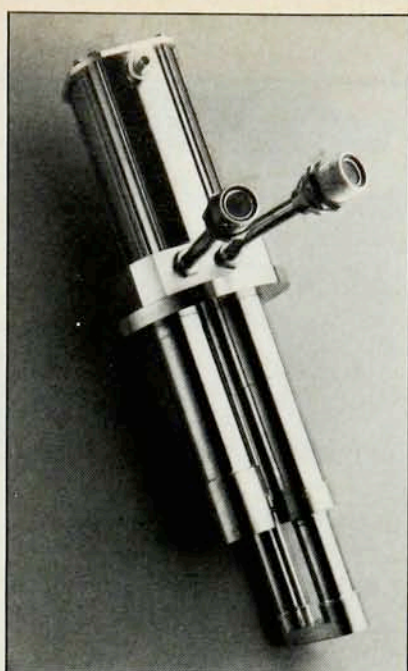
The standard version allows measurements to be made over the temperature range 100–1050 K. There is also a cryogenic version, which allows sample temperatures to be varied from 1.5 K to 300 K. One can control the operations fully from the front panel or by using an IEEE bus. Applications software is provided. The firm stresses that this instrument will be of particular interest to researchers involved with superconducting materials. EG&G PARC, P. O. Box 2565, Princeton, NJ 08543

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TEST SYSTEM FOR HIGH- T_c SUPERCONDUCTORS

APD Cryogenics, a subsidiary of Intermagnetics General Corporation, is offering a new system for determining the characteristics and potential of material samples of high-temperature superconductors. This Superconductor Characterization Cryostat is designed to provide the low-temperature environment needed to test high-temperature superconductors. The SCC requires no cryogenic liquids or previous experience with low-temperature cryogenics.

The system characterizes material samples through fundamental mea-



The biggest G-M yet.

Cryomech's new GB37, a two-stage Gifford McMahon closed cycle cryorefrigerator, has more power than any other G-M available because of our unique, parallel piston design: 10 watts < 11K or 30 watts < 18K with 60 watts at 70K on the first stage.

Plus, the GB37 uses a field-proven compressor with built-in safety controls to ensure proper operation and extra oil separators for enhanced gas filtration.

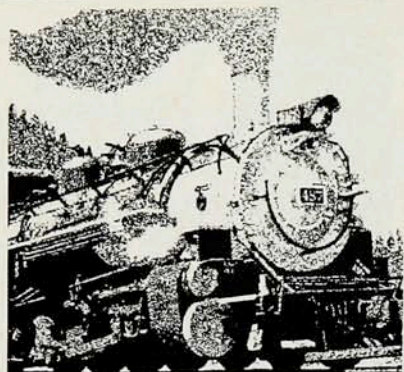
Cryomech manufactures a full line of standard size, single- and two-stage cryorefrigerators for temperatures down to 7K. Customized UHV systems are also available. And applications assistance—for any capacity, at any temperature—is our specialty.

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TOPICAL MEETING ON FREE-ELECTRON LASER APPLICATIONS IN THE ULTRAVIOLET

MARCH 2-5, 1988

THE LODGE
CLOUDCROFT, N.M.

Sponsored by the
OPTICAL SOCIETY OF AMERICA

GENERAL OBJECTIVE

Free-electron lasers (FELs) have a combination of physical properties to make them unique sources of broadly tunable photons. Encouraged by experimental operation of free-electron lasers in the visible and the far-infrared, several research centers are now designing and/or building devices to extend from the ultraviolet into the extreme-ultraviolet and soft x-ray regions. Below 300 nm, the peak- and average-power output of FEL oscillators should surpass the capabilities of any existing, continuously tunable photon sources by many orders of magnitude. Such dedicated facilities promise to enhance the research capabilities of a number of scientific disciplines and industrial applications beyond that possible with synchrotron light sources.

The objectives of this conference are to discuss, evaluate, and promote unique and new applications that are awaiting FEL devices that will operate at wavelengths below 300 nm.

TOPICS TO BE CONSIDERED

- atomic and molecular spectroscopy
- materials and surface physics
- surface photochemistry
- chemical dynamics
- industrial photochemical processes
- photoelectron spectroscopy
- photolithography
- materials processing
- biological structures and radiation effects
- plasma physics
- laser radar

ABSTRACT DEADLINE: Nov. 2, 1987

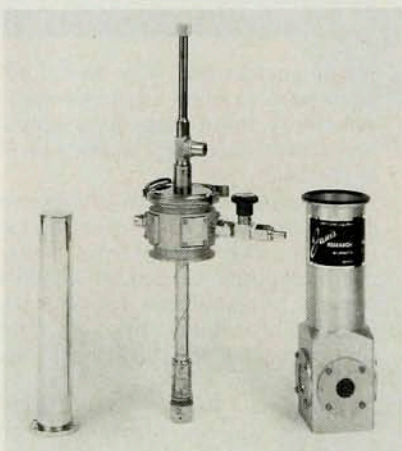
Further information is available from:
OPTICAL SOCIETY OF AMERICA, Meetings
Department, 1816 Jefferson Place, N.W.,
Washington, D.C. 20036; 202-223-0920

surements (charge carrier density, Meissner effect, specific heat, leadless critical current and the like) at closely controlled temperatures from 12 K to over 350 K, regulated at ± 0.5 K stability. It can also be used to detect very small fractions of high-temperature superconductors in otherwise normal materials. ADP Cryogenics, 1919 Vultee Street, Allentown, Pennsylvania 18103

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CONTINUOUS-FLOW CRYOGENIC SYSTEM

Janis Research has introduced the Supertran-B continuous-flow cryostat, which operates in the temperature range 1.8–300 K (600 K optional). The new configuration reduces cryogen consumption by about 22% compared with earlier designs. This is achieved by using superinsulated



vacuum technology in the transfer line and an effective heat exchange mechanism in the cryostat cold head. The cryostat is suited to a wide range of experiments, including high-temperature superconductivity (with liquid nitrogen), spectroscopy, detector cooling, device characterization and ultrahigh-vacuum studies. Systems are supplied with automatic temperature controllers and thermometers. Janis Research, 2 Jewel Drive, P.O. Box 696, Wilmington, MA 01887

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SOLID-STATE INFRARED MICROLASERS

Amoco Laser Company has introduced the ALC 1064-50 laser-diode-pumped solid-state infrared microlaser. Its $1\frac{3}{4}$ "-diameter, 4"-long laser head produces 50 mW of TEM₀₀ 1064-

mm light. Designed for testing optical coatings and nonlinear materials, alignment of high-power YAG systems, and general laboratory use, the new microlaser has a stability of $\pm 2\%$ and a noise level of less than 0.2% rms.

The firm's Model ALC 1320-25 is another miniaturized laser, essentially identical to the ALC 1064-50 except that its output wavelength is 1320 mm. Each sells for \$7500 including power supply. Amoco Laser Company, 1809 Mill Street, Naperville, Illinois 60540

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EXCIMER-PUMPED DYE LASER

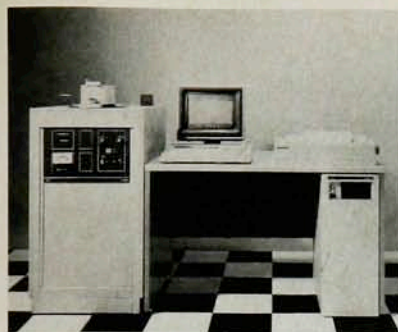
Questek has introduced its Model 5200 excimer-pumped dye laser. The instrument is designed for use with the firm's Series 2000 excimer lasers. The combined excimer-dye system offers tunable fundamental lasing wavelengths from 320 to 950 nm. This range can be extended to longer and shorter wavelengths with nonlinear techniques. The Model 5200 features grating-only linewidths of 0.18 cm⁻¹, high conversion efficiencies and low background from amplified spontaneous emission. Optional accessories include the Model 5210 air-spaced etalon assembly producing ultranarrow linewidths of 0.05 cm⁻¹, the Model 5220 motor control interface, and alternative pump optics for all standard excimer wavelengths. Questek, 44 Manning Road, Billerica, Massachusetts 01821

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ENERGY-DISPERSIVE X-RAY SPECTROMETER

Philips Electronic Instruments offers its new Model PV9550 energy-dispersive x-ray spectrometer, which it describes as a "low-cost spectrometer system designed specifically for fast, reliable, simultaneous, multi-element analysis of a wide variety of specimen types." The system is intended for use in laboratories where single-element techniques are too slow or require extensive sample preparation, and where more sophisticated alternatives are too expensive.

The PV9550 permits the identification and measurement of all elements from sodium to uranium at concentrations down to a few parts per million. It also provides nondestructive testing and data collection for multi-element analyses of materials in solid, thin film, powder or liquid form,



often with minimal sample preparation. Qualitative information, we are told, can usually be determined in seconds; quantitative determinations take a minute or two. *Philips Electron Instruments, 85 McKee Drive, Mahwah, New Jersey 07430*

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SOLID-STATE CAMERA FOR MACHINE VISION

Newport's new Model V-SSC-37 solid-state camera system, we are told, "includes one of the most reliable and sophisticated cameras commercially available for machine vision applications." Manufactured by Sony and employing charge-coupled device technology, the camera detects light with an array of silicon photodiodes integrated into a solid-state circuit substrate. Individual photodiodes are accurately positioned to eliminate geometric drift and distortion. The V-SSC-37 monitor includes capability for switchable underscan, allowing the user to view all of the pixels in the field of view. The system, including camera with power module, C-mount adapter, tripod adapter, 110 V ac to 12 V dc power supply, 25-mm C-mount lens, cabling and 12-inch black and white monitor, is priced at \$2165. *Newport Corporation, 18235 Mount Baldy Circle, P. O. Box 8020, Fountain Valley, California 92728*

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SCANNING ELECTRON MICROSCOPE WITH X-RAY ANALYSIS

Hitachi describes its new Model S-2300 scanning electron microscope as the beginning of "the next generation of SEM." It features multifunction microprocessor control and is capable of simultaneously making use of energy-dispersive and wavelength-dispersive x-ray spectra. A single button controls magnification, focus, and

astigmatism correction, resulting, we are told, in clear micrographs without the usual tedious manual adjustments.

This high-performance scanning electron microscope also includes high-takeoff-angle mounts so that one can easily add dispersive x-ray analysis systems to extend the instrument's analytical capabilities. The resolution is quoted at 45 Å. *Hitachi Scientific Instruments, 460 East Middlefield Road, Mountain View, California 94043*

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DATA ACQUISITION FOR MACINTOSH II

GW Instruments has released a new line of hardware and software to handle all aspects of data acquisition, data analysis and external control applications on the 32-bit Macintosh II. This new MacAdios II system joins the MacAdios 411 product line for the Macintosh and Macintosh Plus, introduced by GW Instruments in 1985.

The new system is a ten-board set that connects the Macintosh II to other devices through a number of analog and digital channels. With the fastest sampling rate available for any personal computer, we are told, the MacAdios II system is well suited for data acquisition, signal generation and analysis, and external process control and monitoring. The MacAdios II card can sample 12-bit data through one channel at 142 000 samples per second. The conversion time is 5 microsec with $\pm 0.02\%$ accuracy. The software-programmable instrumentation amplifier has three gain



settings: $\times 1$, $\times 10$ and $\times 100$. The AM9513A counter-timer chip has five 16-bit counters that handle event counting, frequency and pulse-width measurement, single pulse output and time-proportional output. Nine daughter boards can be attached to the platform board to perform a variety of input-output functions, including high-speed analog input at 833 000 samples per second. *GW Instruments, P. O. Box 2145, 264 Monsignor O'Brien Highway #8, Cambridge, Massachusetts 02141*

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A CALL FOR PAPERS

COMPUTERS IN PHYSICS

A new periodical from the American Institute of Physics

Computers in Physics, a combination magazine and peer-reviewed journal published bimonthly by the American Institute of Physics, is soliciting papers on computer use in physics and astronomy.

We are interested in papers which describe novel ways physicists have applied computers to their work in the lab or the classroom, as well as details of original research about computer applications in related fields such as optics, acoustics, geophysics, rheology, crystallography, vacuum science, and medical physics.

Please address all papers for this new publication to Robert R. Borchers, Editor, **Computers in Physics**, PO Box 5512, Livermore, CA 94550. Papers should be organized according to the American Institute of Physics Style Manual.

COMPUTERS IN PHYSICS