

# 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.

## Microbeam lens

Kovar Engineering's new magnetic-quadrupole microbeam lens is intended to be incorporated into ion-beam systems for microfabrication or microanalysis. In Kovar's new design, the iron magnet poles are separated from one another by glass-ceramic spacers, and from the yolk by a thin plastic film. The magnetic poles can thus serve also as an electric quadrupole by being simultaneously at voltage. The principal section of the electric-quadrupole lens is inclined at 45° with respect to that of the magnetic lens. This "electrical rotation" can be used to align the two lenses in a mechanically fixed quadrupole doublet, thus minimizing the first-order aberration associated with misalignment of doublets.

The two magnetic quadrupole lenses forming a doublet are assembled in a common frame. Each lens has a bore of 0.1332 inches, a pole-tip radius of 0.0766 inches and a length of 2.36 inches, fabricated with a precision of 0.0005 inches. The field at the pole tips can go up to a Tesla. At such a field strength, the lens can focus protons and alpha particles with energies up to 2 MeV. *Kovar Engineering Services, 80 Felton Street, Waltham, Mass. 02154.*

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## Optical couplers

Panasonic has introduced a family of infrared optical couplers designed to provide a high degree of electrical isolation between input and output signals for digital control circuits, feedback circuits, signal amplifiers and other situations requiring good noise rejection. An electrical input signal results in the emission of an infrared signal by the input light-emitting diode. This LED signal is in turn picked up by a matched phototransistor located next to the LED in the same package. These units are standard 6-pin dual-in-line plastic packages.

The couplers use high-output gallium-arsenide LEDs and npn silicon

phototransistors. The phototransistors have collector-to-emitter voltages up to 35 volts dc, and maximum collector currents up to 50 mA. They can therefore drive low-power relays and logic circuitry (DTL, TTL, MOS) directly. *Panasonic, One Panasonic Way, Secaucus, N.J. 07094.*

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## Fresnel lenses

Klinger Scientific is offering a new series of acrylic, high-contrast Fresnel lenses, particularly suited to applications where thickness and weight are major considerations. These lenses are claimed to provide significantly better contrast and



resolution than previous Fresnel designs. They are available in an extensive selection of focal lengths and diameters. All lenses are corrected for spherical aberration, and they provide better than 90% transmission in the spectral range from 0.4 to 1 micron. Prices start at \$47. *Klinger Scientific Corp., 11-20 Jamaica Ave., Richmond Hill, N.Y. 11418.*

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## Multichannel analyzer

Tracor Northern emphasizes that its TN-4500 multichannel analyzer is capable of "true" foreground/background operation. Fortran IV programs can run in the background, simultaneous with routine pulse-height-analysis operation

# BANISHING STRAY LIGHT

1403 wavenumber drive  
1404 wavelength drive

## NEW Double Spectrometers

0.85m, f/7.8

- ▶ Novel optical design combines unsurpassed luminosity resolution spectral coverage stray light rejection
- ▶ Side and front entrance slits
- ▶ Side and front exit ports
- ▶ Thermostatting option
- ▶ Compatible with versatile, time-tested SPEXessories

## Typical Applications

- ▶ Raman and other frequency-shifted scattering
- ▶ Exacting radiometry
- ▶ High-resolution luminescence
- ▶ Inductively coupled plasma analysis

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# LUMONICS MODEL TEA-821 20 HZ TEA/CO<sub>2</sub> LASER



- 50 watts average power at 20 Hz
- Optional line tuning
- Optional unstable resonator
- High reliability

The TEA-821 is a versatile high average power source of pulsed tunable radiation in the 9-11 micrometer region. It has been designed for continuous operation over long runs to facilitate applications in photochemistry, spectroscopy or other areas of research.

The complete system, housed in a single cabinet, is simple to set up and operate, and is well shielded against RF emissions.

Please call or write for additional details.

**LUMONICS**  
RESEARCH LIMITED

105 Schneider Road, Kanata,  
Ontario, Canada K2K 1Y3  
Tel: (613) 592-1460 Telex 053-4503

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## new products

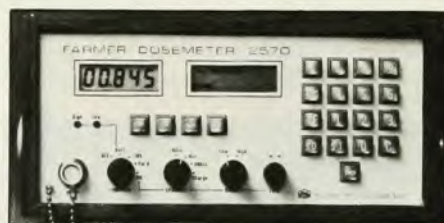
in the foreground. Fortran programs are available in the user library for automatic isotope analysis with Ge(Li) or NaI detectors, and neutron-activation analysis.

One can employ up to 8 independent, multiport data memories with the TN-4500 to support separate analog-to-digital converters and multichannel-scaling interfaces. To provide a faster central processor for efficient quantitative analysis, a PDP-11/34 computer can be added, with up to 118 K of memory. Standard equipment includes dual-density floppy disks for program storage. For greater mass storage capacity one can add an RL-01 hard disk. *Tracor Northern, 2551 West Beltline Highway, Middleton, Wisconsin 53562.*

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## Dosimeter

Nuclear Enterprises, of Reading, England, describe their new Farmer-2570 dosimeter as the first microprocessor-based dosimeter. The microprocessor provides automatically corrected readout, with keyboard entry of pressure, temperature and chamber correction factors. This eliminates tedious adjustments and



calculations. A quartz clock is built in for greater precision of dose measurement. The light-weight Farmer-2570 is battery powered for portable use.

The dosimeter comes with an 0.6 cc chamber, which can be conveniently stored in the instrument and has a fully guarded stem. Autoranging eliminates range-setting errors. *Nuclear Enterprises Ltd., Bath Road, Beenham, Reading, England RG7 5PR.*

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## Crystal grower

Metals Research Ltd, a British firm, is offering a new pulling head for integrated, automatic, high-pressure control of crystal growth. It is claimed that this new Malvern-Czochralski pulling head permits the production of crystals of better quality and with greater reliability than has hitherto been obtainable, whether it is used as the basis for a custom-built crystal grower or is retrofitted into an existing grower.

The design of the new pulling head is

based on the Malvern crystal growers, widely used to grow a variety of oxide and semiconductor crystals. The new device uses a high-pressure version of the head to provide melt pressures up to 100 bar for high-pressure crystal growth. The lift and rotation mechanism is claimed to be of a particularly reliable coaxial design. Even at the low speeds needed for some oxides, the pulling head provides smooth, "stiction-free" control. *Metals Research Ltd, Melbourn, Royston, Herts., England SG8 6EJ.*

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## Low-noise preamplifier

Ithaco claims that its new model-1201 low-noise preamplifier is the only computer-programmable preamplifier in its class. Its low-noise performance and dc stability, together with high common-mode rejection (to 140 dB) and gate operation, suit it to the measurement of



low-level signals in infrared radiometry, optical and photoacoustic spectroscopy, Hall-effect and nuclear-quadrupole-resonance studies. Other applications include the measurement of the very weak "evoked" encephalographic potentials, deep-level transient spectroscopy and high-resolution calorimetry.

The model 1201 can be interfaced to computers and calculators for remote control and systems applications. The preamplifier can be gated by any waveform input, permitting control of input signal transmission in a variety of applications. Gating permits low-level signal detection immediately following high-level experimental stimuli. The preamplifier has high impedance, true differential inputs, and wideband operation to 400 kHz. Gain is selectable from 10 to 25 000, with an accuracy better than 1%. The price is \$1525, the remote-programming option costing an additional \$450. *Ithaco Inc., 735 West Clinton Street, Ithaca, N.Y. 14850.*

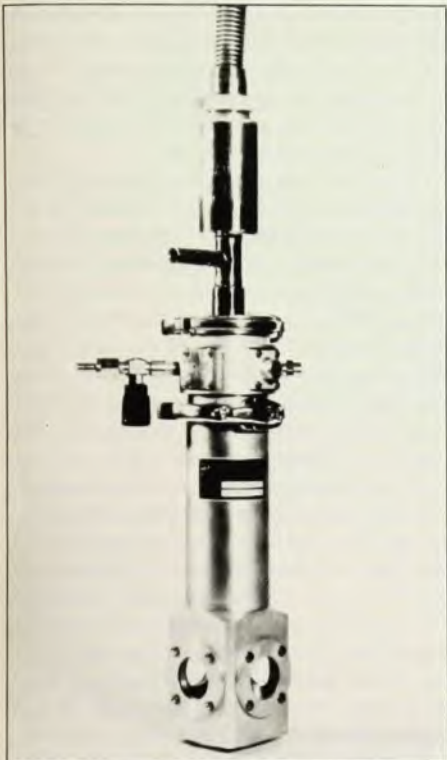
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## Cryostat

Janis claims that its Supertran continuous-flow cryostat can cool a sample from room temperature to 4.2 K in less than ten minutes. It is intended for rapid cooling of samples to very low temperatures for spectroscopy, x-ray and neutron diffraction.

tion, magnetic-susceptibility studies and the like. It is also applicable to semiconductor lasers, infrared detectors and ultrahigh vacuum.

The Supertran is claimed to be frugal with liquid cryogen, consuming only 0.7



liters per hour at liquid-helium temperature, and only 0.1 liters per hour at 77 K (liquid-nitrogen). Making use of an adjustable phase separator/thermal impedance, it provides temperature stability of  $\pm 0.005$  K below 25 K. No expensive "shield" gas is required. The refrigeration capacity of the Supertran exceeds 2 watts at 4.2 K. Depending on configuration, it costs from \$3500 to \$4500. Janis Research, 22 Spencer Street, Stoneham, Mass. 02180.

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## Mathematical software

International Mathematical & Statistical Libraries (IMSL) is offering for lease a new computer program called TWODEPEP (Two-Dimensional Elliptic, Parabolic and Eigenvalue Problems). This small, finite-element program is claimed to be easy to use in solving a large class of time-dependent, steady-state and eigenvalue problems in general two-dimensional regions. The program is suited to problems involving the Schrödinger equation, the Navier-Stokes equation, diffusion and heat-conduction, or minimal surfaces.

A preprocessor and automatic mesh-refinement and grading system help to minimize user effort in solving quite general partial differential equations. The solution of problems with large storage requirements is made possible by

TWODEPEP's out-of-core storage capability. The program can solve highly non-linear problems, and it can handle complex regions, with holes or curved boundaries. The program is totally maintained and supported by IMSL. It leases for \$1500 per year, with substantial academic discounts. International Mathematical & Statistical Libraries, Inc., 6th floor-GNB Building, 7500 Bellaire Blvd., Houston, Texas 77036.

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## Photomultiplier tubes

Hamamatsu is offering two new hysteresis-free cesium-antimony photomultipliers. Both are  $1\frac{1}{8}$ -inch side-on tubes. The model 1P21 is described as a premium quality S-4 photomultiplier, with very low dark current. This would suit it to critical applications in spectrophotometers, calorimeters, thermoluminescent dosimeters and radiation thermometers. The model 1P28 is a standard S-5 photomultiplier tube with ultraviolet-transmitting glass that extends the device's range below 185 nanometers for applications such as emission spectroscopy and chromatography.

The anti-hysteresis construction of both tubes is claimed to eliminate anode-current overshoot and undershoot. Hamamatsu Corp, 420 South Avenue, Middlesex, N.J. 08846.

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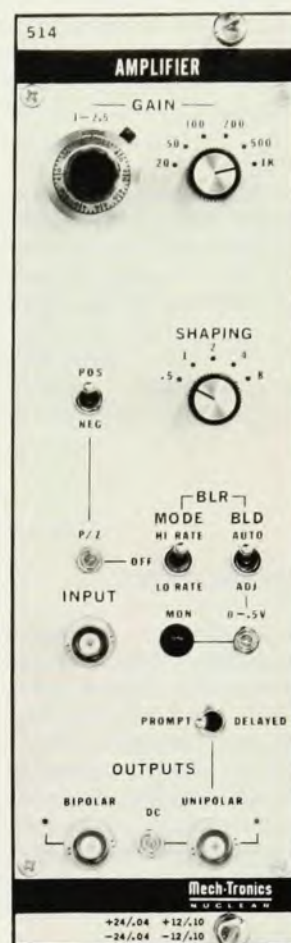
## New Literature

**Optical catalog**—Valtec has published a new 32-page catalog of filters and other optical components. Listings include Valtec's light-weight, high-precision replicated optical mirrors and shutters and a variety of laser reflectors. Surplus components are offered at reduced price. Stock Component Dept, Valtec Optical Group, 1244 Highland Street, Holliston, Mass. 01746.

**Two-photon spectroscopy**—Chromatix is offering a 9-page applications note describing the use of a flashlamp-pumped tunable dye laser in two-photon spectroscopy. The authors are chemists at the University of California, Riverside. Chromatix, 560 Oakmead Parkway, Sunnyvale, Calif. 94086.

**Optical catalog**—Rolyn's 1979 catalog lists its extensive line of optical and microscopy components, with prices and technical data. To facilitate incorporation of components into systems, the catalog includes technical data on common optical materials, and a compilation of frequently used formulae. Rolyn Optics, 300 Rolyn Place, PO Box 148, Arcadia, California 91006. □

## THE SPECTROSCOPY AMPLIFIER



**Model 514**  
**\$800.00**



- Bipolar Gated Baseline Restorer accepts Active and Pulse Feedback Preamps
- Built-in Pileup Rejector provides Deadtime Correction and Reject Outputs
- Automatic or Manual BLR Threshold Selection with Setup Monitor Lamp
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