

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.

Rapid Holography System Uses Thermoplastic Film

The Holoroid instant holography system from Ultra-Res captures and stores a hologram on a thermoplastic film. Because there is no need for a darkroom or other developing apparatus, the process is said to be about 50 times less expensive than most currently available holographic recording processes.

During the recording process, the film is sensitized by a corona discharge, exposed, heated to softening and then cooled to freeze the hologram into the film. The film can be reused several times. Uncharged film is not sensitive to light and it can be stored indefinitely at temperatures below 150 °F. Once charged, the film is sensitive to light from 400 to 800 nanometers and has a resolution of 1000 lines per millimeter.

The entire system, including the recording camera, controller and film, weighs 10 pounds, and it records both transmission and reflection holograms. Suggested applications include holographic image recognition, interferometry, education, embossing and setup verification. *Ultra-Res*, 1395 Greg Street, Suite 107, Reno, Nevada 89431

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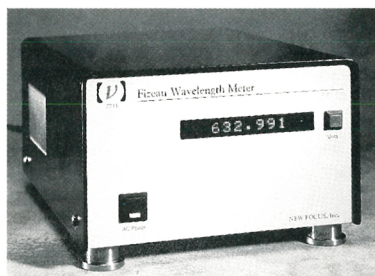
Diode-Pumped, Solid-State, 5-Watt, Green-Light Laser

The diode-pumped Millennia laser from Spectra-Physics produces 5 watts of power at 532 nanometers and is intended as an efficient alternative to argon-ion lasers. The Millennia has a z-fold Nd:YVO₄ laser head, which is

pumped by two fiber-coupled diode bars. The laser's intracavity doubling technique uses longitudinal modes to generate second harmonics. This is said to give 100 times the wall-plug efficiency of stabilized ion lasers while producing 10 times less peak-to-peak amplitude noise. As a result, the Millennia can be powered by a 110-volt ac outlet. The laser should find application in spectroscopy, medicine, semiconductor inspection and reprographics. It can also be used as a pump source for Ti:sapphire lasers. *Spectra-Physics Lasers*, 1334 Terra Bella Avenue, P. O. Box 7013, Mountain View, California 94039-7013

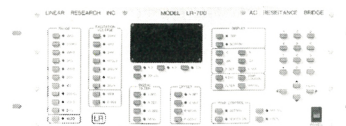
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High-Resolution Fizeau Wavelength Meter



New Focus has introduced its Model 7711 Fizeau wavelength meter, which is said to measure wavelengths from 400 to 1000 nanometers with an accuracy of 0.01 nm and a resolution of 0.001 nm. Rather than the more usual Michelson interferometer, the 7711 uses a Fizeau interferometer, in which transmitted and reflected light in a crystal interfere. A charge-coupled detector array reads the interference pattern and analysis software uses the

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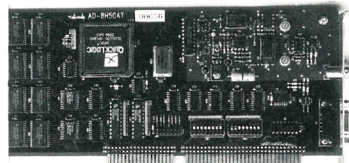
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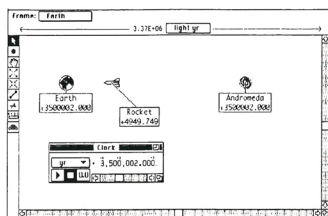
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interference pattern to calculate the wavelength. The meter is said to have very few moving parts and a minimum of optical systems. *New Focus*, 2630 Walsh Avenue, Santa Clara, California 95051-0905

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Optical Power Meter and Integrated Light Source

Exfo Electro-Optical Engineering's FOT-40 optical power meter communicates with a compatible power meter to match the sending and receiving wavelengths during fiber-optic calibration. This ensures that fibers are calibrated at the correct wavelength. The FOT-40's five calibrated wavelengths are said to be well suited to local-area network, data communication and similar environments. The meter comes with a protective polyvinyl chloride holster that provides space for a spare battery and optical adapters. *Exfo Electro-Optical Engineering*, 465 Godin Avenue, Vanier, Quebec G1M 3G7, Canada

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Wavelength-Tunable Fabry-Perot Etalon Filters

Queensgate Instruments has made available a range of miniature, wavelength-tunable Fabry-Perot etalon filters. Each filter has a controller that scans the wavelength range in a linear and repeatable manner. The capacitance micrometry technique used to control the optical cavity spacing is said to ensure a low noise level. When powered with a 15-volt source, the filters consume 120 milliamperes. They can be controlled from a personal computer via a 14-bit interface.



Filters are available to handle optical beams up to 15 millimeters. Applications include environmental monitoring, Raman and Brillouin spectroscopy, lidar and Doppler velocimetry. The filters for larger beam sizes have

low wavefront-distortion substrates and so can be used for imaging. *Queensgate Instruments*, Suite 600, 90 Merrick Avenue, East Meadow, New York 11554

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Miniature Fiber-Optic Near-Infrared Spectrometer

The PbS-256 miniature fiber-optic near-infrared spectrometer from Ocean Optics records spectra from 1 to 3 microns at 256 wavelengths simultaneously. Light is fed into the device by a single-strand optical fiber, dispersed by a fixed grating, and then detected by a 256-element PbS linear charge-coupled device focal-plane array with an on-board multiplexer. One can adjust integration times from 1 microsecond up to 100 milliseconds for measurements at high and low light levels, respectively. The system also has detector-based dark-current subtractors that correct the current measured by the entire system and by individual pixels.

The spectra are captured in a few milliseconds and fed into Windows-based acquisition and processing software, which includes functions for setting sensor integration time, averaging the signals and carrying out various optical measurements. One can view full spectra in real time (as voltage or as percent transmission or absorbance) or store them as ASCII files. Applications include telecommunications, biomedicine, chemistry, microelectronics and environmental monitoring. *Ocean Optics*, 1237 Lady Marion Lane, Dunedin, Florida 34698

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Uniform Radiance Standard for Radiometers

Labsphere's URS-600 is a calibrated radiating spherical light source that uses the integrating sphere technique to provide uniform radiance across a large aperture. Luminance can be controlled over a range of 10 to 20 000 foot-lamberts. The system's calibration is NIST-traceable for spectral radiance at wavelengths from 300 to 2400 nanometers. The device is intended for calibrating radiometers, photometers and electronic imaging devices. *Labsphere*, P. O. Box 70, North Sutton, New Hampshire 03260

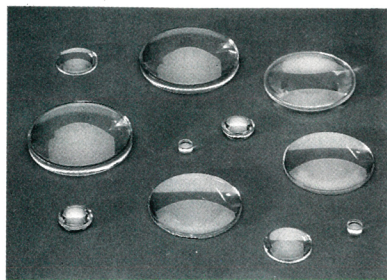
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Large-Area Quadrant Silicon Photodiode

Centronic's QD100-5T-COW is a quadrant silicon photodiode, consisting of four 25-mm² active areas separated by 0.2-mm-wide inactive areas. The photodiode is mounted on a printed circuit board that can be inserted into standard vector printed circuit boards. The detectors have a passivation layer to protect the photodiodes, and wire bonds are coated with epoxy to make them more durable. The diode is sensitive to light from 350 to 1000 nanometers (peaking at 950 nm); at 12 volts it has a total rise time per segment of 25 nanoseconds and a typical dark current of 2 nanoamperes. Crosstalk between quadrants is said to be about 2%. Suggested applications include laser beam position detection, target acquisition, machine controls and encoding. *Centronic, 2088 Anchor Court, Newbury Park, California 91320-1601*

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Precision Aspheric Optical Lenses



U. S. Precision Lens has made available its Apex series of polymer lenses in a variety of aspheric designs. The lenses have diameters ranging from 6 to 25 millimeters and effective focal lengths from 2.9 to 175 mm. The lenses can be used from -20 to 60 °C and are corrected for spherical aberration. Their focal length is said to be accurate to 1.5%. *U. S. Precision Lens, 4000 McMann Road, Cincinnati, Ohio 45245*

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Scanning Near-Field Optical and Shear-Force Microscope

Danish Micro Engineering's SNOM operates as a combined shear-force and scanning near-field optical microscope, making it possible to determine simultaneously the topography and optical

properties of a sample with a resolution better than a wavelength of light. The SNOM uses uncoated, tapered optical fibers, which are said to improve the ratio of incoming to outgoing light. The device can image both opaque and transparent samples, and it operates under the same software as the company's atomic force and scanning force microscopes. The SNOM should find application in materials science, condensed matter physics and biophysics. *Danish Micro Engineering, Transformervej 12, DK-2730 Herlev, Denmark*

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Coatings for High-Temperature Applications

ZYP Coatings has made available a series of paints, pastes and cements containing over 99.9% pure Y₂O₃, which is the most thermodynamically stable oxide; its enthalpy of formation (ΔH_{298}^0) is 455 450 calories per mole. The products' high melting points, low thermal conductivities, high electrical resistances and very low chemical reactivities (even at high temperatures) are said to make them suitable for high-temperature work with reactive molten metal or other reactive materials. Because of their low hardness, the materials can be used as high-temperature lubricants in superplastic forming and other operations. The coatings may also be used as anti-stick coatings for masks and molds or as braze stop offs. *ZYP Coatings, 120 Valley Court, Oak Ridge, Tennessee 37830*

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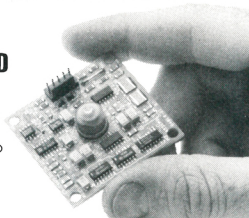
New Literature

Instrumentation and software—National Instruments has made available its 1996 *Instrumentation Reference and Catalog*, which details the company's hardware and software for data-acquisition and analysis, virtual machine environments and other applications. The catalog is available on paper or CD-ROM. It is also posted at the company's World Wide Web site at <http://www.natinst.com>. *National Instruments, 6504 Bridge Point Parkway, Austin, Texas 78730-5039*

Optics Catalog—Edmund Scientific's 224-page 1996 *Optics and Optical Components Catalog* lists over 8000 products, including optical components, microscopes, telescopes, magnifiers and machine vision systems. *Edmund Scientific, Department 16B1, N999 Edscorp Building, Barrington, New Jersey 08007*

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