

NEW PRODUCTS

The descriptions of the new products listed in this section are based on information supplied to us by the manufacturers. 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.

LAWRENCE G. RUBIN

FOCUS ON LASERS

UV Diode-Pumped Laser

Lambda Physik has introduced the Gator UV 355-3, a new industrial grade, UV diode-pumped solid-state laser. The instrument's 355 nm wavelength and high peak power density—greater than 100 J/cm^2 at 15 ns pulse duration—is said to provide improved performance for micro-drilling and micromachining hard materials. The UV wavelength and TEM₀₀ beam profile of the Gator UV 355-3 reduce the heat-affected zone, yielding aspect ratios as high as 50:1 in materials such as stainless steel alloys, titanium, and aluminum and copper alloys, and ceramics such as alumina. The laser's high pulse-repetition rate of 10 kHz, combined with a pulse energy of several millijoules, allows average drilling rates in the centimeter per second range with micrometer-range accuracy in the microholes. *Lambda Physik Inc, 3201 West Commercial Boulevard, Fort Lauderdale, Florida 33309*

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Fiber-Coupled Laser Diodes

The new iFLEX-200 series of fiber-coupled laser diodes from Point Source consists of a range of visible and near-IR semiconductor laser diodes permanently coupled to single-mode fibers. The resulting "pure mode" laser beam can be substituted for He-Ne lasers in many scientific laser applications. The device's precision-aligned optics ensure that the boresight error (concentricity) is less than 1 milliradian; the pure Gaussian and circular output beam is said to eliminate diode astigmatism and ellipticity. The beam-pointing stability is less than 1 microradian/°C. With seven operating wavelengths from 635 to 830 nm, the iFLEX-200 series offers output powers from 1 to 50 mW. There is a choice of lengths from 1 to 10 m and a choice of output termi-

nations. *Point Source, Leylands Park, Colden Common, Winchester, Hampshire SO21 1TH England*

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Laser for Particle Image Velocimetry Applications

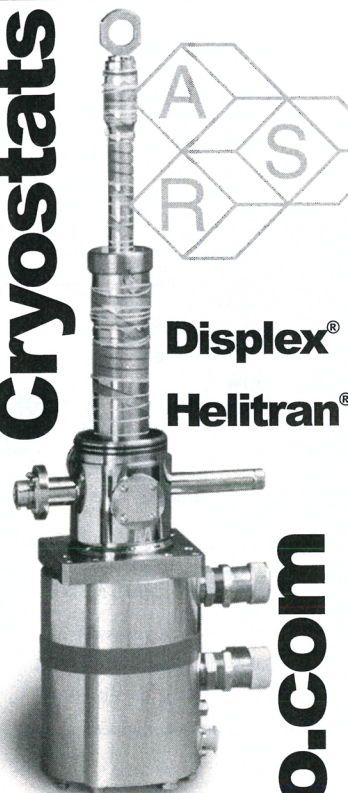
New Wave Research has announced the Solo PIV, an Nd:YAG laser for particle image velocimetry (PIV) applications. The compact, Q-switched laser system features a dual-head 532 nm laser powered by a single power supply. The Solo PIV is available in four models, with 15–50 mJ pulse energy levels; each model has a pulse repetition width of 5–7 ns and an energy stability of $\pm 4\%$ at 532 nm. The beam diameter is either 2.5 or 3.5 mm, depending on the model. The laser may be fired by a continuous internal trigger that provides a variable repetition rate from 1 Hz to a maximum of either 15 or 30 Hz, depending on the model. An external trigger can activate both the laser lamp and Q-switch from a single pulse, or separate pulses can control the lamp and Q-switch independently. An optional motorized optical attenuator can reduce the maximum energy by 20:1. *New Wave Research, 47613 Warm Springs Boulevard, Fremont, California 94539*

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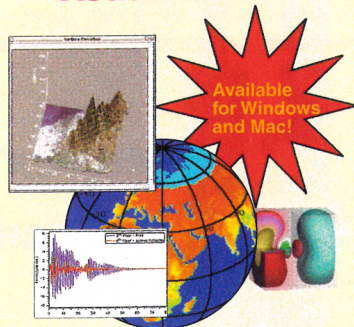
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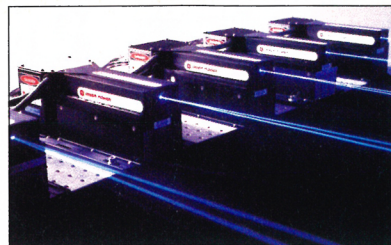
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Ultrafast Laser Amplification System

Coherent has combined its RegA 9000 regenerative amplifier with the company's Vitesse Duo Ti:sapphire oscillator in a system that provides high-power ultrafast pulses. Said to be the first ultrafast laser design to incorporate both the amplifier seed and pump source in a single package, the system provides high-power light for femtosecond micromachining and spectroscopy, and works as a pump for optical parametric amplifiers. The RegA 9000 operates at variable repetition rates up to 100 kHz. The Vitesse Duo features dual output beams of 532 nm (CW) and 800 nm (modelocked, 100 fs). Active pointing control within the laser assures long-term head alignment; light loop stabilization provides power stability. *Coherent Inc, 5100 Patrick Henry Drive, P.O. Box 54980, Santa Clara, California 95056-0980*

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produce two output beams with the same mode quality and equal output power, using AlGaAs semiconductor lasers to pump an Nd-doped vanadate crystal, followed by a doubler crystal.

The 58 BSD series operates in a TEM₀₀ mode; the 58 BLD series uses special optics that force the laser into a single longitudinal mode (TEM_{00g} with a coherence length of greater than 5 m. The company claims that its diode-pumped blue lasers operate with 10 times the efficiency of argon-ion lasers, the only other commercially available source of blue laser light in the same power range. *Melles Griot Laser Group, 2051 Palomar Airport Road, Carlsbad, California 92009*

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UV Laser for Writing Fiber Bragg Gratings

Oxford Lasers has launched the UV-CVL, a UV (255 nm) copper vapor laser for writing fiber Bragg gratings (FBG) used in optical communications. The laser is designed for high-speed operation with a pulse repetition range of 4–8 kHz. The UV-CVL series consists of three models, with output powers of 250, 600, or 1000 mW, providing the UV power required for FBG writing, but with sufficiently low pulse energy to prevent unwanted damage to the optical fiber. Each model generates the 255 nm UV wavelength; options are available for outputs of 271 and 289 nm, and for the visible wavelengths 511 and 578 nm. The UV-CVL series has good spatial coherence and a temporal coherence length of 4 cm. The company claims that the copper vapor laser is superior to either argon ion or excimer lasers for FBG writing. *Oxford Lasers Inc, 29 King Street, Littleton, Massachusetts 01460-1528*

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Vertical-Cavity Surface-Emitting Laser

EMCORE's new Gigalase with OxideGuide vertical-cavity surface-emitting lasers (VCSELs), operating at 850 nm, reportedly have higher speeds, lower current thresholds, and greater uniformity than existing ion-implanted VCSELs. The new devices are designed for use in data communications networks, in which transceivers are now approaching speeds of 2.5 gigabits per second (Gbps). New fiber channel applications also require cost-effective lasers operating at 2.12 Gbps, instead of today's 1.06 Gbps lasers. EMCORE's lasers are useful for applications such as storage area networks and local area networks, and are said to meet the requirements of existing and future gigabit Ethernet standards. *EMCORE MODE, 5741 Midway Park Place Northeast, Albuquerque, New Mexico 87109*

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High-Power Blue Microlaser

Melles Griot has introduced the 58 BLD and BSD series of diode-pumped solid-state lasers with a high-power, low-noise, single-frequency blue (457 nm) output. The five models in each series offer output powers ranging from 50 to 400 mW. All the systems

Deep-UV Laser Source

Positive Light has announced the Indigo-DUV, a deep-UV solid-state laser source producing up to 10 mW of single-frequency 193 nm light in a

TEM₀₀ spatial mode. The laser incorporates the company's Nd:YLF diode-pumped Evolution laser, which, combined with its Indigo Ti:sapphire laser, provides 772 nm pulses at a repetition rate of up to 5 kHz, and with an average power of 1.5 W. A quadrupler harmonic generation scheme then produces up to 10 mW at 193 nm with a linewidth of less than 0.03 pm. The Indigo-DUV can be used for UV lithography, metrology, spectrometer calibration, and laser seeding. *Positive Light, 101 Cooper Court, Los Gatos, California 95030*

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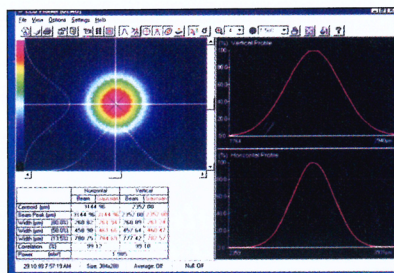
Portable Laser Exposure Meter

A new version of the LaserMPE portable laser exposure meter from Precision-Optical Engineering calculates the maximum permissible exposure (MPE) of the eye to laser radiation according to the American National Standard for Safe Use of Lasers. The instrument allows assessment of CW and pulsed laser safety, giving a digital readout of whether the MPE has been exceeded. It is equipped with different aperture ratios and neutral density filters; there are two measurement heads to cover either the 400–950 nm or 950–1600 nm ranges. The LaserMPE features the company's Psion computer, which calculates the MPE based on factors such as laser wavelength; duration of the exposure—the instrument is preprogrammed with exposure times of 0.25, 100, and 30 000 s; and whether the laser is continuous or pulsed. *Precision-Optical Engineering, 42 Wilbury Way, Hitchin, Herts SG4 0TP, England*

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CCD Laser Beam Profiler

Ophir Optronics has announced the BeamStar CCD laser beam profiler system for measuring the beam profiles of pulsed and CW lasers. The system offers up to 12 decades of dynamic range, enhanced by the technique of allowing users to look at the center of the beam with low sensitivity and the edges with high sensitivity. The BeamStar provides a shutter speed range of 1/50 s to 10⁻⁴ s and a maximum frame rate of 30 Hz. The company's software enables the system to capture and replay pictures and statistics from slowly pulsing lasers (1–100 Hz), while filtering out frames with no



laser pulse. Other software features include two- and three-dimensional displays, frame freeze, video recording, and peak and centroid indication. The BeamStar-V has a spectral range of 350–1100 nm; the BeamStar-U covers 190–1100 nm. *Ophir Optronics Inc, 9 Electronics Avenue, Danvers, Massachusetts 01923*

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High-Speed Power Meter

EXFO has introduced the PM-1600, a high-speed power meter for system monitoring in the 800–1700 nm wavelength range. The meter's InGaAs photodetector stabilizes within 15 ms for power fluctuations up to 95 dB, and the instrument has a continuous sampling rate reaching 250 Hz. If the automatic gain control algorithm is bypassed, a stabilization time of less than 1 ms and a sampling rate reaching 4096 Hz can be achieved. The PM-1600 provides two types of synchronization triggers: a power-level trigger to start an acquisition when the incident power reaches a threshold and an external voltage trigger. The PM-1613 has a single channel and the PM-1623, two channels; simultaneous measurements can be made on the two independent channels, and synchronization of the two channels is simultaneous for both types of triggers. *EXFO Inc, 465 Godin Avenue, Vanier, Quebec G1M 3G7, Canada*

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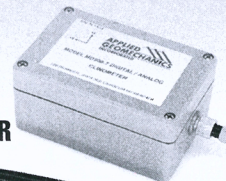
Wavelength Sensor

The WS-7.56 from Pacific Silicon Sensor is a wavelength sensor operating in the range of 450–950 nm. It can determine the wavelength of monochromatic light from lasers or LEDs, with a resolution of 0.01 nm and the spectral peak of multiple wavelength light. The sensor has an active area of 7.56 mm² and is housed in a TO-5 case. *Pacific Silicon Sensor Inc, 5700 Corsa Avenue #105, Westlake Village, California 91362*

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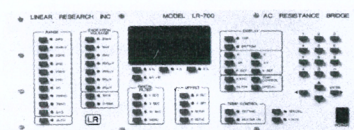
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