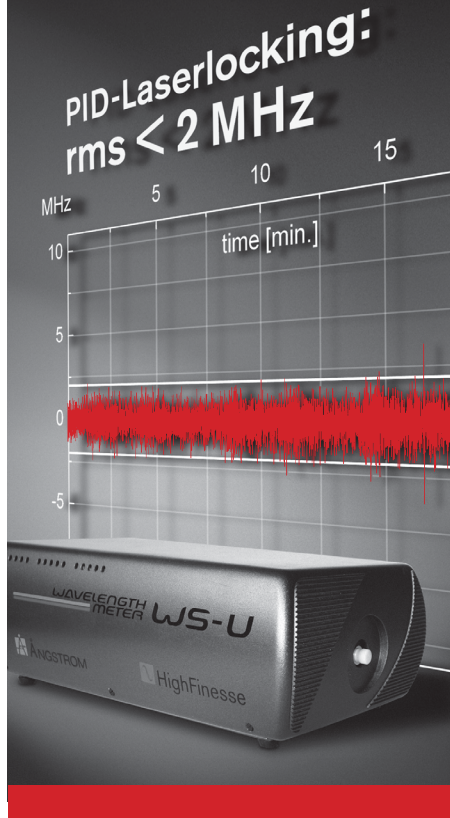




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new products

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. For more information about a particular product, visit the website at the end of the product description.

Lawrence G. Rubin

Focus on lasers and optics

High-power laser diodes

Intense Ltd has announced the Hermes family of high-power laser diodes, stacks, and bars. The compact, modular units are based on the company's quantum well intermixing process, which increases the quantum well bandgap of a semiconductor laser such that active and passive sections can be created in the same laser cavity. The result is devices with superior power, unrivaled brightness, and high reliability and efficiency. The lasers are available in multiple wavelengths, including 808, 940, and 980 nm, and can operate in both CW and quasi-continuous wave modes. Other wavelengths can be ordered as custom products. Also available are single emitters with powers of up to 7 W, bars in conductively cooled packages with powers up to 60 W, fiber-coupled packages, and microchannel cooled bars. *Intense-HPD, 1200A Airport Road, North Brunswick, NJ 08902, <http://www.intenseco.com>*

See www.pt.ims.ca/12308-131

Fiber-coupled diode lasers

JENOPTIK Laserdiode has introduced its fiber-coupled diode laser modules, JOLD-100-CPXF-2P W and JOLD-140-CPXF-2P W. Incorporating 400- μ m fiber, with a numerical aperture of 0.22, the JOLD-100 series provides 100 W continuous wave optical output power at wavelengths between 915 and 980 nm. The JOLD-140 modules with 600- μ m fiber (and the same NA) operate at 140-W output power at 940- and 980-nm wavelengths or 100 W at 808-nm wavelength. The new products feature integrated temperature sensors and a

pilot laser, and they can be convectively cooled with industrial water. As an option, one module is also available with a power level of 75 W that uses an integrated thermoelectric cooler. The expected lifetime of the diode lasers is greater than 20 000 h at constant current. Applications include pumping of solid-state and fiber lasers and material processing in industry. *JENOPTIK Laserdiode GmbH, Goeschwitzer Strasse 29, 07745 Jena, Germany, <http://www.jold.com>*
See www.pt.ims.ca/12308-132

Deep-UV laser

The new AVIA 266-3 from Coherent Inc is a second-generation deep-UV laser that combines high-power output, superior beam quality, industrial-grade reliability, and an increase of 25% to 40 000 h in the lifetime of the consumable crystal. The laser provides more than 3 W of Q-switched output at 266 nm and pulse repetition rates as high as 100 kHz. The AVIA 266-3 uses the company's PosiLock beam-pointing active stabilization system to deliver



maximum possible spatial control and resolution, ThermEQ for uniform pulse energy across a burst of pulses, and PulseEQ for locked pulse energy across a range of pulse repetition rates. Applications include drilling microvias; micromachining synthetic materials, including FR4 and acrylics; and drilling and micromachining tougher materials such as steel, tungsten, and aluminum nitride. *Coherent Inc, 5100 Patrick Henry Drive, Santa Clara, CA 95054, <http://www.coherent.com>*

See www.pt.ims.ca/12308-133

Wavelength-stabilized laser diodes

Photonic Products is offering Ondax wavelength-stabilized laser diodes, which are miniature lasers in a TO package. Stabilization is achieved using the Ondax volume holographic grating PowerLocker, which increases the spectral brightness of laser diodes, thus ensuring a precise center wavelength over

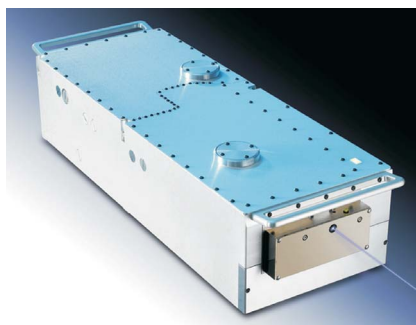
the locked region and improving temperature stability and yield. The short external cavity enabled by the Power-Locker is claimed to provide better mode selection than systems based on Littrow and Littman cavities. The laser has a single-mode, narrow linewidth of less than 50 MHz and a low temperature dependence of less than $0.03 \text{ nm}/^\circ\text{C}$, and it is locked to better than $\pm 1 \text{ nm}$. The device is available in standard wavelengths of 640 nm (a maximum of 10 mW of power), 658 nm (40 mW), 685 nm (50 mW), and 785 nm (90 mW). *Photonic Products USA, 16152 Beach Boulevard, Suite 117, Huntington Beach, CA 92647, <http://www.photonic-products.com>*
See www.pt.ims.ca/12308-134

Polarizing beamsplitter cubes

Precision Photonics has announced epoxy-free polarizing beamsplitter cubes for high-energy laser applications in the visible and NIR regions. The units are produced by combining advanced ion-beam-sputtered (IBS) coating technology with in-house fabrication capabilities and chemically activated direct-bonding technology. The cubes offer high extinction ratios (greater than 1000:1) and a high transmission of greater than 95% while maintaining excellent wavefront quality. They have been tested to withstand energy densities of greater than $10 \text{ J}/\text{cm}^2$ at 1064 nm in both transmission and reflection. Standard beamsplitter cubes are available in operating ranges of 700–1100 nm and at 1064 nm and include IBS antireflection coatings on all entrance and exit surfaces. *Precision Photonics, 3180 Sterling Circle, Boulder, CO 80301, <http://www.precisionphotonics.com>*
See www.pt.ims.ca/12308-135

High-power UV laser

Newport Corp's Spectra-Physics Lasers Division has developed the Pulseo high-power, Q-switched, UV laser. With 20 W of output power at 355 nm and a short pulse width of 20 ns at a repetition rate of 100 kHz, the Pulseo laser oscillator generates the high-intensity peak power necessary for scribing and dicing applications. The master oscillator power amplifier is pumped by the company's fiber-coupled, field-replaceable FCbar ProLite diodes, which require no realignment of the laser head when installed. Other laser features include high pulse energy (greater than $200 \mu\text{J}/\text{pulse}$), a wide repe-



tion rate of 1 Hz–250 kHz, and excellent pulse-to-pulse stability. Advanced indexable harmonic generation with high conversion efficiency provides increased output power with minimal loss. *Newport Corporation, Spectra-Physics Lasers Division, 1335 Terra Bella Avenue, Mountain View, CA 94039, <http://www.newport.com>*
See www.pt.ims.ca/12308-136

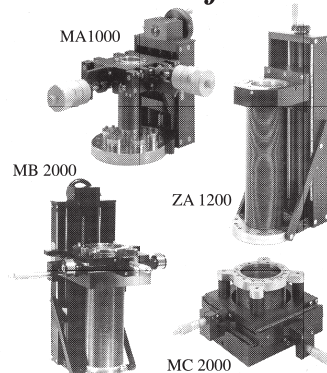
Laser wavelength meters

Bristol Instruments' 621 series of laser wavelength meters measure absolute CW wavelength to an accuracy of $\pm 0.2 \text{ ppm}$ in the 621A model and $\pm 1.0 \text{ ppm}$ for the less-exacting 621B. Those accuracies are guaranteed because they are continuously calibrated with a built-in helium neon laser standard. The input power required for measurement is as low as $10 \mu\text{W}$. The instruments are furnished in one of three wavelength ranges: 350–1100 nm (VIS), 500–1700 nm (NIR), and 1.5–5.0 μm (IR). The nine-digit display includes wavelength (nm), wavenumber (cm^{-1}), and frequency (GHz). Every measurement can be displayed at a rate as high as 10 Hz, or a running average of 2 to 100 measurements can be calculated. The 621 series also measures absolute optical power to an accuracy of $\pm 15\%$; it has a USB instrument interface to connect to a PC. *Bristol Instruments Inc, 7647 Main Street Fishers, Suite 101, Victor, NY 14564-8909, <http://www.bristol-inst.com>*
See www.pt.ims.ca/12308-137

High-power violet laser

Power Technology has introduced a new microprocessor-controlled IQ (instrument quality) laser module that emits 400 mW of violet output at $405 \pm 5 \text{ nm}$. The unit includes a PID temperature controller, which produces a temperature stability of $\pm 0.02^\circ\text{C}$, and a precision current source that work to ensure stable wavelength and output.

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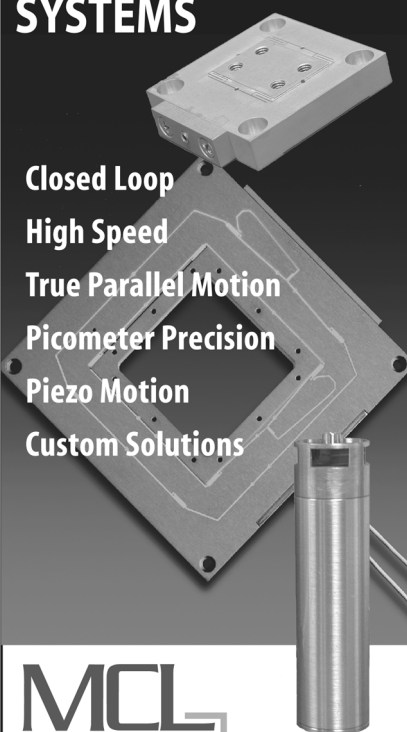
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somehow taken care of and
that you could get the full
power of the machine by writing
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heroics necessary."

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with the subject line "petaflop
challenge" by 10 August 2007. The
winner will receive a year's
subscription to *Computing in Science
& Engineering* magazine and will see
their entry published in the
magazine's November/December
2007 issue. SC07 will also cover the
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See www.pt.ims.ca/12308-38

Control can be either local (onboard) or
via a USB or RS232 interface. The device
features an adjustable focus, quality
glass optics, and optional beam-
expanding optics and is available with
a circularized beam or with standard el-
liptical output. The laser module can be
supplied with CW output or can be
modulated at a speed of 20 MHz, con-
trollable by a 1–5 VDC signal. Potential
laser applications range from flow cy-
tometry to high-resolution printing to
biodetection. *Power Technology Inc, P. O.
Box 191117, Little Rock, AR 72219-1117,
<http://www.powertechnology.com>*
See www.pt.ims.ca/12308-138

Laser ablation system

The UP193-FX short-pulse excimer
laser ablation system from New Wave
Research operates at 193 nm and fea-
tures up to 4 GW/cm² irradiance at
the sample to produce consistently
smaller aerosol particles from all ma-
terial for maximized ionization and
minimal fractionation. The system of-
fers 13 precalibrated spot sizes with
constant fluence. A proprietary beam



delivery design with beam homoge-
nizing optics further ensures flat, uni-
form craters. The laser can be operated
in a constant energy mode to produce
minimal energy drift over long abla-
tion runs. An optional optical attenua-
tor achieves uniform ablation at very
low energy levels for delicate samples.
The UP193-FX is compatible with all
commercially available inductively
coupled plasma mass spectrometers,
and its software platform provides a
wide range of ablation functionality.
New Wave Research Inc, 48660 Kato

*Road, Fremont, CA 94538, [http://www.
new-wave.com](http://www.new-wave.com)*

See www.pt.ims.ca/12308-139

Image stabilization system

Energen is offering an image stabili-
zation system that allows users to take
smooth, steady shots even when a
video camera or its platform is in mo-
tion. Integrated into the optics of the
camera, the ISS instantly compensates
for camera shake and is effective even
while panning or zooming. It is ideal for
reconnaissance and surveillance cam-
eras mounted, for example, on an air- or
space-based observation platform. De-
signed to stabilize images against low-
frequency (less than 100 Hz) vibrations,
the ISS is extendable up to 500 Hz. The
ISS consists of a gyro sensor that mea-
sures vibration, a lens assembly with a
CCD, a digital signal processor, and res-
ident software, and it features zero loss
in resolution or field of view. The device
achieves image stability to 25 μ radians,
extendable to 5 μ rad with a fiberoptic
gyro sensor. *Energen Inc, 175 Cabot
Street, Suite 301, Lowell, MA 01854,
<http://www.energeninc.com>*

See www.pt.ims.ca/12308-140

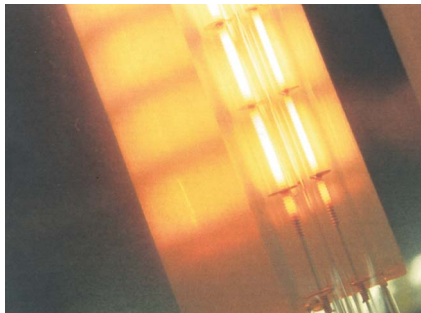
Optical design software

Lambda Research Corp has announced
TracePro 4.0, software for optical model-
ing, design, and analysis. Applications
include fluorescence modeling for life
sciences, photorealistic rendering for ac-
curate visualization of illumination de-
signs, and enhanced modeling of 3D sur-
face textures used in the design of LCD
backlight displays, projection systems,
light pipes, and microarrays. Trace-
Pro 4.0 includes an optimization module
for automation of the design steps when
searching for optimal luminaire, light
guide, and reflector geometry for maxi-
mum light intensity and uniformity.
Users will benefit from an increase in
ray-tracing speed, enhancements in the
user interface, and improved translators
that enable an easy import of lens designs
to TracePro 4.0. *Lambda Research Corpora-
tion, 25 Porter Road, Littleton, MA 01460-
1434, <http://www.lambdaresearch.com>*

See www.pt.ims.ca/12308-141

Reflector for IR emitters

Heraeus Noblelight has developed a



new quartz reflector that enables heating processes to be carried out significantly better in vacuum or at high surrounding temperatures. IR radiation is a high-energy, contact-free method of heat transfer. Unlike conventional reflectors, the new product is not made of gold or metal oxides but of opaque quartz glass, which is extremely heat resistant and also resistant to attacks from aggressive substances. Measurements have shown that the quartz material has a reflectivity of about 60–70%. The new reflector sits directly on the emitter, and, unlike an external reflector, no additional fitting is needed to fix it in position. IR emitters with quartz reflectors are already being used in the manufacture of solar cells. *Heraeus Noblelight GmbH, Heraeusstrasse 12-14, D-63450 Hanau, Germany, <http://www.heraeus-noblelight.com>*

See www.pt.ims.ca/12308-142

Laser scribing machines

J P Sercel Associates has introduced the PV series, Class-1 enclosed laser scribing systems for isolation and series interconnection of thin-film solar cells. The machines use high-peak power, short-pulsed, diode-pumped solid-state laser sources to rapidly, selectively, and accurately remove a wide range of thin films from large glass, metal, or polymer substrates and to produce fine scribed lines with greater than 30-megohm isolation. Various laser wavelengths suitable for different layer materials are available, including 1064 nm, 532 nm, 355 nm, and 266 nm. The PV series workstations are modular and scalable to accommodate glass sheet sizes currently up to 1300 mm × 1300 mm. Large sheets are mounted horizontally, aligned automatically, and processed in orthogonal directions. *J P Sercel Associates Inc, 220 Hackett Hill Road, Manchester, NH 03102, <http://www.jpsalaser.com>*

See www.pt.ims.ca/12308-143

Digital compass

The OS1000 solid-state, three-axis digital compass from OceanServer Technology features tilt compensation up to $\pm 60^\circ$, a MEMS accelerometer, and Honeywell magnetoresistive sensors. The 1-inch-square instrument is accurate to $\pm 1^\circ$ at level heading and offers $\pm 0.1^\circ$ resolution, depending on the mounting and operating environment. It provides a 0.01–20 Hz continuous update rate and can easily be embedded into another device to provide precise heading and roll and pitch data, ideal for rapid attitude measurement. The OS1000 is well suited for OEM applications such as antenna positioning, GPS integration, robotics control, and laser range finding. The OS1000 can be supplied with a USB connection and a pressure transducer for water depth measurement. *OceanServer Technology Inc, 151 Martine Street, Fall River, MA 02723, <http://www.ocean-server.com>*

See www.pt.ims.ca/12308-144

New literature

Anchor Optics' 100-page spring 2007 color catalog is devoted to optics and optical equipment. It features an expanded line of 500 products and 14 new lines of commercial-grade quality optics that have been added to the company's inventory of 5000 products, with more than 5 million in stock. *Anchor Optics, 101 East Gloucester Pike, Barrington, NJ 08007, <http://www.anchoroptics.com>*

See www.pt.ims.ca/12308-145

A 140-page product catalog is available from Rolyn Optics. It includes in-stock simple and compound lenses, filters, prisms, mirrors, beamsplitters, optical flats, flat glass and windows, reticles, iris diaphragms, mirror and lens mounts, objectives, and eyepieces. *Rolyn Optics Co, 706 Arrowgrand Circle, Covina, CA 91722, <http://www.rolyn.com>*

See www.pt.ims.ca/12308-146

Burle Electro-Optics has published its *Time-Of-Flight Detector Selection Guide*, which covers detectors ranging from 8 mm to 40 mm in diameter and features the ultrafast 2- μ m pore TOF. The devices use the Extended Dynamic Range multiplier channel plates to provide high sensitivity and very wide dynamic range. *Burle Electro-Optics Inc (The Photonis Group), Sturbridge Business Park, P. O. Box 1159, Sturbridge, MA 01566, <http://www.burle-eo.com>*

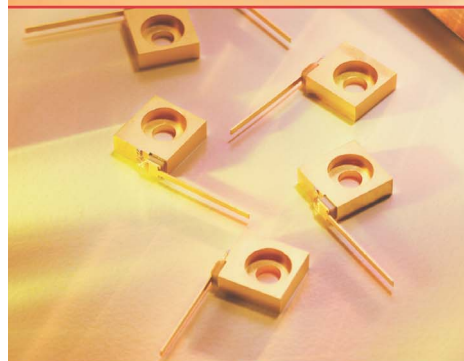
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