

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 AND OPTICS

Excimer Laser

Lambda Physik has introduced the Compex FBG, a pulsed UV-laser source equipped with a resonance geometry that provides high beam-pointing stability. This excimer laser, operating at a 248-nm wavelength, is tailored for phase-mask fiber Bragg grating (FBG) writing. The Compex FBG's internal energy control and a temperature-controlled laser tube allow an impressive long-term constant-energy operation with low pulse-to-pulse fluctuation. A new optics design allows the filtering out of highly divergent light inside the laser cavity, which results in a low-divergent laser beam of high focusability and a high spatial coherence of 2.0 nm (short axis) and 0.7 nm (long axis). The rectangular beam output profile is extremely flat along the long axis. The laser's maximum average output power of 15 W and a maximum repetition rate of 100 Hz makes it useful for FBG development work. *Lambda Physik Inc, 3201 West Commercial Boulevard, Fort Lauderdale, Florida 33309, <http://www.lambda Physik.com>*

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980-nm Laser Arrays

Intense Photonics has announced monolithic arrays of 980-nm EDFA (europium-doped fiber amplifier) pump lasers. The arrays can include up to 10 laser elements and are offered with three output power selections: less than 100 mW, 100–250 mW, and greater than 250 mW. Designated the IP980, the device has been fabricated using the company's quantum well intermixing (QWI) process that allows each indium gallium arsenide laser source element to be integrated with nonabsorbing mirrors on device facets. QWI is a technique that allows the energy gap of a semiconductor material to be controlled—making it opaque or transparent to light—such that multiple optical communica-

tions functions can be integrated on a monolithic photonic integrated-circuit chip. QWI reportedly simplifies the production of such chips by eliminating the requirement for standard regrowth techniques. *Intense Photonics Ltd, Hamilton International Technology Park, High Blantyre, G72 0UX, Scotland, <http://www.intensephotonics.com>*

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Pulsed Nd:YAG Laser

The Jasper from New Wave Research is a compact diode-pumped neodymium:YAG laser that is useful for microelectronics trimming and repair, shorting-bar cutting, and LCD panel repair. The laser offers repetition rates from 100 Hz to 10 kHz with an output power greater than 2.5 W at 10 kHz. It also incorporates a stable resonator design that promotes excellent beam quality with a TEM₀₀ spatial mode at 1064 nm. Jasper incorporates an electro-optical Q-switch that can be synchronized with other equipment for precise timing control of the laser energy pulse. There is an optional second-harmonic version of the laser and an optional motorized optical attenuator to provide precise energy control. *New Wave Research, 47613 Warm Springs Boulevard, Fremont, California 94539, <http://www.new-wave.com>*

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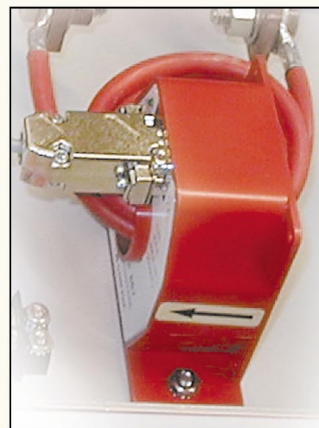


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Temp coefficient	< 0.5ppm/°C
Aging	< 0.5ppm/month
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Central aperture	26mm diam.

Price

\$446.50 ea. (U.S.A. list, Qty. 10)

Other models avail. for 600A, 1000A, 1500A, 2000A and 5000A.

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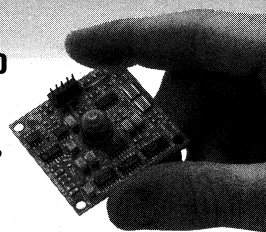
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Ultrafast Solid-State Laser

A new-generation laser from Spectra-Physics, the Mai Tai, is reportedly the first tunable, one-box titanium:sapphire femtosecond source. It combines the company's Millennia diode-pumped solid-state laser (now using only one pump diode) with ultrafast Ti:sapphire technology in a monolithic architecture. The Mai Tai uses an active stabilization system to deliver enhanced short- and long-term pointing stability that virtually eliminates beam wander as a function of temperature or output wavelength. The stabilization system is said to preclude the need for realigning downstream optics, even during wide spectral tuning. The laser has a tuning range from 750 to 850 nm, or 780 to 920 nm, and provides sub-100 fs pulses with up to 1 W of output power; an ultra-short-pulse version of the laser delivers shorter than 30 fs pulses at 800 nm. The Mai Tai solid-state power supply uses thermoelectric cooling technology to stabilize the temperature of the pump diode. *Spectra-Physics, 1344 Terra Bella Avenue, Mountain View, California 94043, <http://www.spectra-physics.com>*

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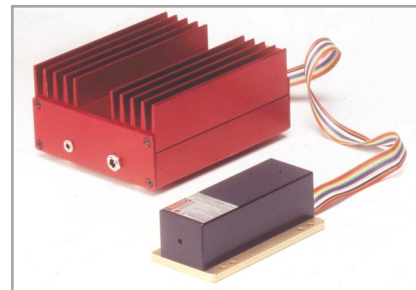
Quantum Dot Lasers

Zia Laser has developed quantum dot (QD) laser technology for data and telecommunications networks. The gallium arsenide-based 1310-nm DFB (distributed feedback) chip, designed as a ridge waveguide laser and capable of 10 gigabytes/s operation, produces 5 mW of output power, reportedly five times more stable compared to traditional quantum well lasers over uncooled operating temperature ranges. A laser array version of the device offers operating wavelengths of 1277–1333 nm, a cost-effective solution for CWDM (coarse wavelength division multiplexing) Ethernet applications. A 1550-nm indium phosphide-based tunable-gain chip, designed as the heart of a tunable external-cavity laser system, offers a tuning range that includes the S, C, and L bands. QD lasers are highly temperature insensitive and have a very broad gain spectrum and ultralow line widths. *Zia Laser Inc, 801 University Boulevard SE, Suite 105, Albuquerque, New Mexico 87106, <http://www.zialaser.com>*

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Diode-Pumped Lasers

Edmund Industrial Optics has announced a new line of compact, self-contained, thermoelectrically cooled diode-pumped solid-state lasers. They offer superior beam characteristics, such as high mode purity and low beam divergence, making them suitable for beam focusing as well as for long-distance beam



positioning. The lasers are available at wavelengths in the violet (405 nm with output powers of 4 or 20 mW); blue (475 nm with 4 or 10 mW); and green (532 nm with 5 or 10 mW). In addition, neodymium:YVO₄ lasers operating at the near IR wavelength of 1064 nm are suitable for optical trapping, material processing, and medical applications. All the lasers include a beam attenuator/shutter and provide typical lifetimes of 10 000 hours. *Edmund Industrial Optics, 101 East Gloucester Pike, Barrington, New Jersey 08007-1380, <http://www.edmundoptics.com>*

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Deep-UV Laser

The Indigo-DUV from Positive Light is a compact, solid-state, deep-UV laser providing more than 2 mW of single frequency radiation at wavelengths around 193 nm. The laser is based on a titanium:sapphire oscillator that is pumped by the company's neodymium:YLF laser. The oscillator is injection seeded by a tunable narrow-linewidth external-cavity diode laser producing an output at around 772 nm; a harmonics package converts that wavelength to 193 nm. The output of the Indigo-DUV offers a less than 0.1-pm time-averaged linewidth, reportedly narrower than commercially available excimer lasers, therefore providing a sensitivity and resolution for proper optical component calibration and testing. Operating at a 5-kHz repetition rate, the Indigo-DUV features a 3% peak-to-peak energy stability. *Positive Light, 101 Cooper Court, Los Gatos, California 95032, <http://www.poslight.com>*

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Laser Diode Burn-In System

Racal Instruments has introduced a new 96-channel laser diode burn-in system featuring device-under-test (DUT) optical spectrum measurement and peak-wavelength tracking capabilities; the system's optical spectrum analyzer provides a resolution of 0.06–10 nm. The burn-in system also measures relative optical power while monitoring photodiode detector current, individual baseplate temperature control, and thermoelectric cooler voltage and current. The temperature, current, and voltage of the DUT are also measured; up to 5 A of drive current can be supplied to the DUT. Operating over a temperature range of 20–85°C, the burn-in system provides a temperature accuracy of 0.1°C and a stability of 0.25°C. It was designed to provide the high-temperature accelerated aging tests of laser diodes required to ensure accurate predictions of the diodes' long-term performance and reliability in actual use conditions. *Racal Instruments, 4 Goodyear Street, Irvine, California 92618, <http://www.racalstruments.com>*

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Laser Safety Eyewear

Melles Griot has announced a new line of UVEX LSK-series safety eyewear. To decrease liability and injuries, laser safety officers require employees working around lasers to wear safety eyewear that reduces radiation to a Class I level. However, the wearers are also concerned about



comfort and appearance. LSK eyewear features adjustable ear pieces, rounded nose support, side eye protection, and standard antifog and antiscratch coatings. Designed for diffuse viewing, the LSK series varies

in optical density from 1 to 7 over a range of 190 nm to 10.6 μm and covers the major helium neon, argon and krypton ion, diode, and neodymium:YAG laser lines (including YAG harmonics). The eyewear transmits up to 65% of visible light. *Melles Griot, Photonics Components Division, 16542 Millikan Avenue, Irvine, California 92606, <http://www.mellesgriot.com>*

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Off-Axis Aspheric Mirrors

Space Optics Research Labs (SORL) produces custom aspheric mirrors for use in beam expanders, telescopes, and other applications. The mirrors reportedly provide better image quality and best collimation in applications with a narrow field of view. A wavefront accuracy of $\frac{1}{20}$ of a wavelength as well as optics up to 40 inches in diameter can be delivered. Convex or concave master optics can be produced. Zerodur, a high-stability ultralow expansion ceramic, is the substrate material of choice, but silicon, copper, and aluminum substrates are available on special order. SORL's off-axis parabolic mirrors can achieve high throughput and spectrally agile unobstructed optical designs. *Space Optics Research Labs, 7 Stuart Road, Chelmsford, Massachusetts 01824, <http://www.sorl.com>*

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New Literature

The *Technical Guide and Product catalog* from Optikos Corp provides information on the company's products and systems for the measurement of optical image quality across the spectrum from the UV, through the visible, to the near IR. *Optikos Corporation, 286 Cardinal Medeiros Avenue, Cambridge, Massachusetts 02141, <http://www.optikos.com>*

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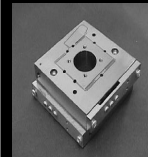
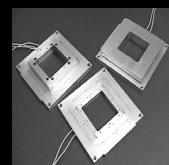
Ophir Optonics has introduced the new *Laser Measurement Instrumentation* catalog with information on the NOVA, Orion, Laserstar, and AN series displays, and photodiode, thermal, pyroelectric, repetitive pulse, and OEM measurement heads. *Ophir Optonics, 9 Electronics Avenue, Danvers, Massachusetts 01923, <http://www.ophiropt.com>*

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