Wednesday, October 09, 2019

PHOTONICS spectra

PHOTONICS MEDIA

Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue.
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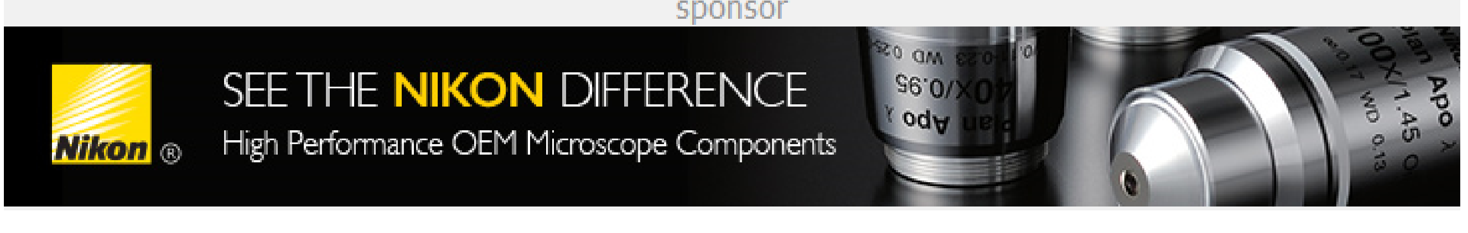
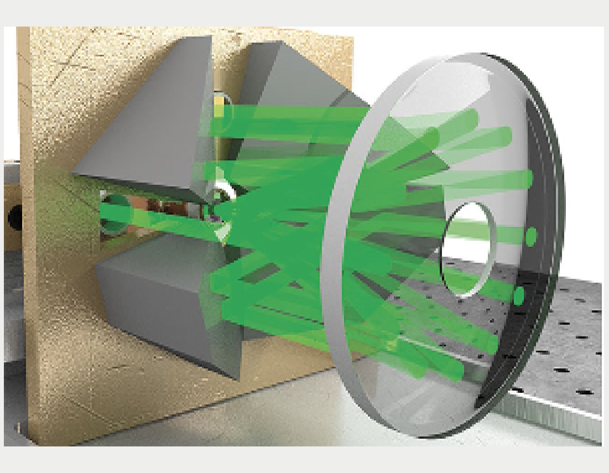


Face Recognition Systems and Consumer Devices

Many forms of biometric authentication are technically feasible, but one in particular has won acceptance in use cases that call for high security and minimal intrusiveness for the user: face recognition. Today, most people's interactions with face recognition will occur in one of two ways: They'll use it either to unlock their smartphones or to support authentication in applications such as mobile payments, or they'll use it at automated passport control machines when crossing a national border.

Read Article

Advancements in Ultrafast Multi-100-W Average-Power Thin-Disk Lasers



In both scientific research and in industrial materials processing, high-average-power diode-pumped solid-state lasers have become an indispensable tool. A crucial aspect of these lasers is the need for effective heat removal without introducing thermo-optic distortions. One way to address this challenge is by shaping the laser gain medium as a very thin disk, as demonstrated by A. Giesen and colleagues. Along with supporting power scaling by using a larger beam on the disk, this approach is advantageous for generating ultrashort pulses with high peak power. Since the laser beam only passes through a small amount of material, high peak powers can also be achieved before the onset of detrimental nonlinear optical effects. When implemented with ytterbium-doped gain materials, in particular ytterbium-doped yttrium aluminum garnet, femtosecond pulsed lasers with average powers at the kilowatt level have been obtained.

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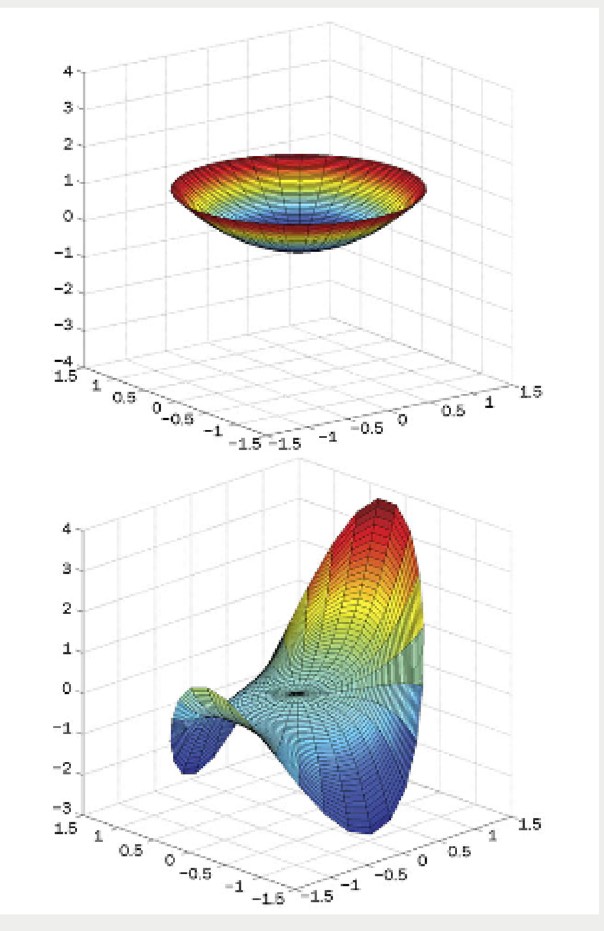
MEMBER EXCLUSIVE

Optimizing Freeform Optics



Astronomical imaging from both ground and space provides precise data, and each has its pros and cons. Ground-based observation benefits from flexible infrastructure with large telescopes and instruments but suffers from atmospheric turbulence and light pollution, whereas observation from space is free of turbulence, but the telescopes must meet onerous size, weight, and cost restrictions for launch. The size and weight of space telescopes continue growing while costs must be reduced.

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Featured Products

OEM Microscope Components

Nikon Instruments Inc.
Nikon provides a large range of microscopy components to satisfy diverse optical requirements. These components can be incorporated into imaging systems to fulfill unique experimental requirements. Nikon is staffed with a dedicated team to service large volume and OEM requests.

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Norland Optical Splice - Easy To Use!

Norland Products Inc.
The Norland UVC Optical Splice is the first really easy to use, high performance connection for optical fibers. This splice incorporates a precision TRW glass alignment guide and a proactive glass sleeve in a unique one piece design that minimizes handling of bare fiber.

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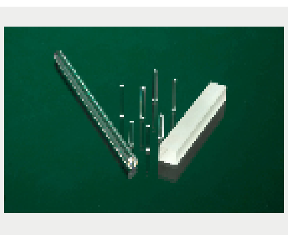

Light Pipes and Homogenizers

IRD Glass
IRD Glass specializes in high precision light homogenizers and light pipes. Light pipes and homogenizers are designed to smooth out the irregularities inherent in a raw non-uniform beam of light to create a more uniform and evenly distributed beam of output energy.

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TracePro **Optics and Illumination Software**

Lambda Research Corp.
TracePro combines a graphical user interface with solid modeling, Monte Carlo ray tracing, analysis features, CAD import/export, optimization methods, and a complete and robust macro language to solve a wide variety of problems in illumination design and optical analysis.

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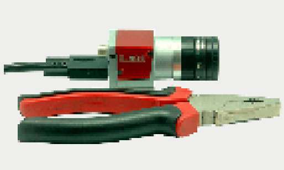

Ultra-Small High Speed Streaming Camera

AOS Technologies AG
If size or price are important, the AOS U Camera series is a perfect fit. The tiny USB 3.0-based high speed streaming camera offers superior performance: 1280 x 1024 pixel at up to 200 fps or 1920 x 1080 at 170 fps, and up to 5800 fps at reduced resolution. This small camera will exceed all expectations.

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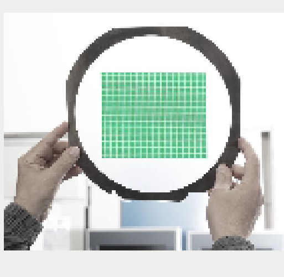

Optical Filters for Point of Care Applications

Delta Optical Thin Film A/S
Physically small custom optical filters. Delta Optical Thin Film can deliver physically small custom optical filters for research, clinical, and PoC fluorescence-based instruments in high volumes at low cost. By combining our optical filters with our knowledge in complete optical design, we help our customers with more than the optical filters.

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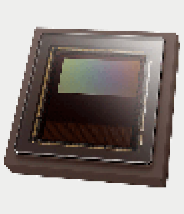

New CMOS Sensor Family, Targeted at 3D Laser Triangulation Applications

Teledyne e2v (UK) Ltd.
Teledyne e2v announces its Flash CMOS image sensor family, specifically tailored for 3D laser profiling/displacement applications and high speed, high resolution inspection. The new Flash sensors feature a 6 μm CMOS global shutter pixel which effectively combines high resolution and fast frame rate.

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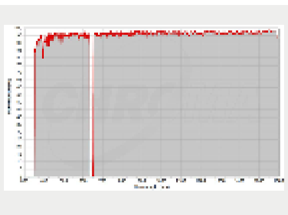

Highest Performing Notch Filter

Chroma Technology Corp.
Chroma Technology introduces the TopNotch™ line of narrow band, notch rejection filters. Offering best-in-class performance with transmission from 350-1600 nm and rejection FWHM of 3% of center wavelength. With a blocking range of at least 6 nm >OD6, TopNotch™ filters provide blocking for a wider range of laser diodes.

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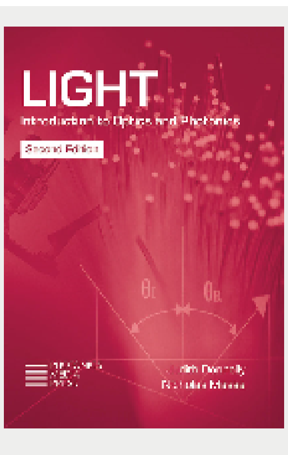

LIGHT: Introduction to Optics and Photonics, Second Edition

Photonics Media
Offering a comprehensive treatment of the subject as well as key applications, and employing minimal math, LIGHT: Introduction to Optics and Photonics was written with readers in mind. This textbook is for beginning students of optics and photonics in high school, community college, and university STEM courses.

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Smart MEMs Raman for Area Scanning

CloudMinds Technology Inc.
The newly released CloudMinds' XI^2 is a cloud AI MEMs Raman device specifically designed for area sampling. This novel XI^2 is built upon CloudMinds' prism award winning handheld Raman XITM but is also equipped with MEMs scanning mirror.

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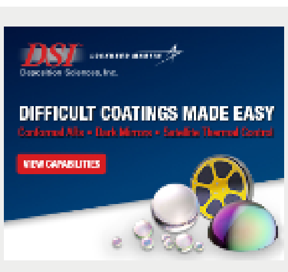

Specialty Coatings for Specialty Applications

Deposition Sciences Inc. (DSI)
Our mission at DSI is simple – to enable our customers to successfully complete projects and expand their own businesses. Complex optics applications need high-quality coatings, and backed by 35+ years of experience, DSI has a wide range of resources that enhance our coating capabilities, including several coating types, substrates, and testing equipment.

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Micro Injection Molding

Accumold
Accumold® is a high-tech manufacturer of precision micro, small and lead frame injection molded plastic components. Utilizing processes developed from Accumold's Micro-Mold® technology, the company designs, builds and produces unique molds and parts efficiently for markets that include Micro Electronics, Medical, Micro Optics, Automotive, and Military Applications.

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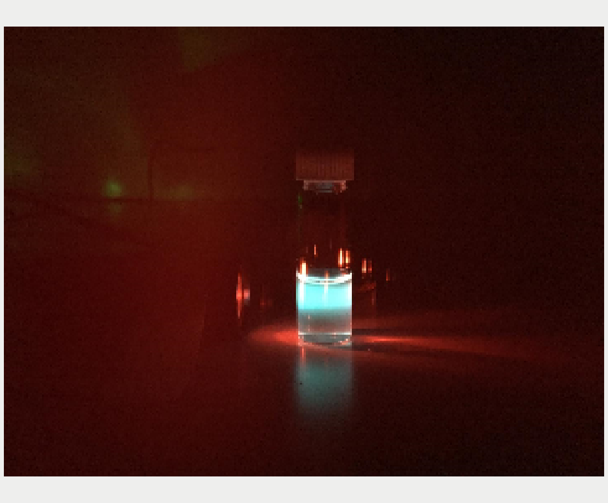
In Case You Missed It

Injected Nanoparticles Could Enable Sight Beyond Visible Spectrum



To enable the detection of longer wavelength light in mammals, scientists at the University of Massachusetts Medical School, working with colleagues at the University of Science and Technology of China, developed ocular-injectable photoreceptor-binding upconversion nanoparticles (UCNPs).

Read Article

Nanowires Can Be Tuned to Range of Wavelengths for Optoelectronics

A research team at Helmholtz-Zentrum Dresden-Rossendorf (HZDR), in collaboration with researchers at Technische Universität (TU) Dresden and Deutsches Elektronen-Synchrotron (DESY) in Hamburg, has produced nanowires with operating wavelengths that can be tuned over a wide range by altering the structure of the nanowire's shell.

Read Article

Plasmonic-Photonic Crystals Studied to Further Sensor, Laser Research

As part of their research into optical states of plasmonic-photonic crystals (PPCs), scientists at Kazan Federal University investigated three-dimensional opal-like plasmonic-photonic crystals (OLPPCs), focusing on why OLPPCs do not admit light of certain wavelengths.

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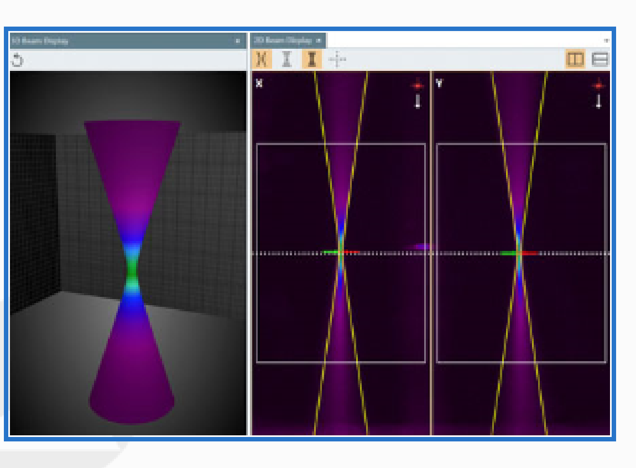
Webinars

What You Need to Know About Your AM Laser's Personality: Power Is Not the Complete Story



Tue, Oct 22, 2019 1:00 PM - 2:00 PM EDT

The performance of your laser will change over time. A power check will not give you the complete story; to keep the process running efficiently and product quality high, you need a more complete understanding of your laser's personality before and after each build. In this webinar, presented by Ophir, you will learn why laser system performance changes and why it is important to understand — as well as when, how, and how often to measure and analyze the laser's performance.

Register Now

Next Issue:

Features
Lidar, Detectors, Liquid Lenses

Photonics Media is currently seeking technical feature articles on a variety of topics for publication in our magazine *Photonics Spectra.* Please submit an informal 100-word abstract to Susan Petrie, Senior Editor, at Susan.Petrie@Photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

About *Photonics Spectra*

Since 1967, *Photonics Spectra* magazine has defined the science and industry of photonics, providing both technical and practical information for every aspect of the global industry and promoting an international dialogue among the engineers, scientists and end users who develop, commercialize and buy photonics products.

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