

Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue. Manage your Photonics Media membership at Photonics.com/subscribe.

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Laser Micromachining Fires Up the Next Little Thing

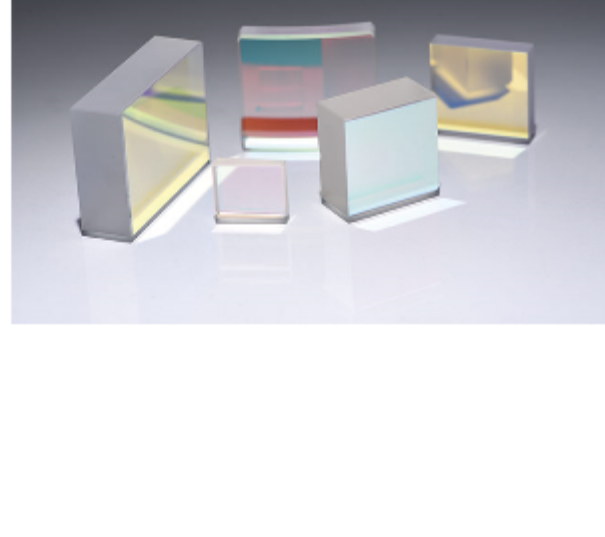
Micromachining encompasses a number of technologies that are capable of cutting, drilling, and welding miniature components and features. But laser micromachining stands out for the unique combination of advantages that it delivers. The ability to apply various wavelengths, powers, repetition rates, and pulse widths to the task allows lasers to machine a variety of materials, including metal, polymers, ceramics, and glass. Laser machining is also easily automated and, as a noncontact method, can help to prevent contamination of the workpiece.



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Optical Glass Selection Is Not Always So Transparent a Choice

Optical designers have many glass types to choose from when developing assemblies for imaging applications. Typically, a variety of these material options is available to meet the desired design specifications of a particular system. The challenge then is to narrow down the selection by identifying materials that can achieve the desired performance while providing other practical benefits, such as reliable availability from the manufacturer and supplier, consistent high quality of the product, and a stable, favorable price point.



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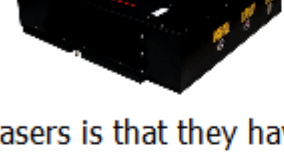
Spot Cooling Helps Industrial Lasers and Optics Stay on Point

The increasing demand in many end markets for advanced manufacturing systems that are able to increase production and cut costs have positioned laser systems as an important fabrication tool. High-powered lasers, such as CO2 sources, are used for coarse cutting of metals, while ultrafast lasers are employed for finer cutting and polishing of semiconductor materials. Fiber lasers have the versatility to perform both tasks. Miniaturization of consumer electronics, the electrification of vehicles, and the expansion of green energy are all trends that are driving the need for advanced laser machining systems, as well as laser additive manufacturing, to create complex designs. These and other trends require the use of a combination of laser technologies, sometimes running in parallel to accomplish coarse cutting, welding, fine cutting, or polishing at high speeds.



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.: Featured Products



[FCPA DE μJewel Lasers](#)

IMRA America Inc.

Key features of the FCPA DE

lasers is that they have a wide range of power and energy levels for femtosecond pulses in three wavelengths: IR, Green, and UV. This all-fiber based technology and design leads to an extended lifetime of UV generation modules. The DE lasers create a minimal heat affected zone and furthering...

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[MicroCalibir Compact Uncooled LWIR Cores](#)

Teledyne DALSA, Machine Vision OEM Components

MicroCalibir™ is Teledyne's new compact, low-power uncooled thermal camera platform featuring the smallest VGA, IR core module on the market, making it ideal for OEM drones, handhelds, helmet-mounted, and vehicular integration products. This core has a novel ROIC design which results in a 1000°C intra-scene...

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[High-Precision Aspherical Lenses & Acylindrical Lenses](#)

CASTECH INC.

CASTECH offers CNC precision-polished aspherical and acylindrical lenses up to 200mm. Our aspheric lenses are iteratively ground and polished under a software supported computer-controlled processing procedure to provide better controlled quality to guaranty the high performance of each aspheric lens.

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[RGA150 Motorized Rotation Stage](#)

MKS/Newport

The RGA150 low-profile and large aperture rotary stage addresses the need for quick angle adjustments of wafers and vacuum chucks. Although specifically tailored to semiconductor applications, the RGA150 can also be utilized in other industrial applications, such as through hole imaging/inspection or laser processing,...

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[Automated Glass Components Processing](#)

NYFORS Teknologi AB

The NYFORS SMARTSPLICER

is a CO2 laser glass-

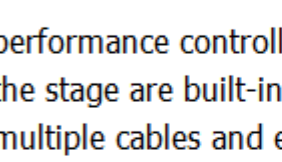
processing system designed for the production of high-

power and sensitive photonic

components. It offers contamination free end-capping, splicing, tapering, bundling, and many other glass-shaping processes.

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[SmartStage™ XY Dover Motion](#)

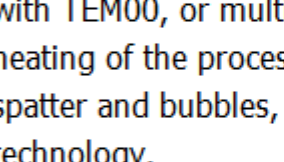
With a SmartStage™ XY

positioner, the high-

performance controller and all hardware to position the stage are built-in. By embedding what used to be multiple cables and external electronics, the control is seamless, and performance-optimized for low noise.

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[peaXXus - Multispot Optics](#)

AdlOptica GmbH

Lossless laser beam shaping

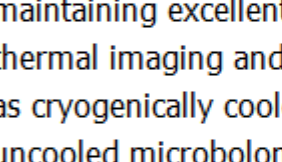
by splitting multi-kW laser

energy into 3x3 matrix of

spots with variable intensity for welding, cladding with TEM00, or multimode lasers. Optimizing heating of the processed area in order to reduce spatter and bubbles, thereby stabilizing the technology.

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[IR Filters for Thermal Imaging and Gas Detection](#)

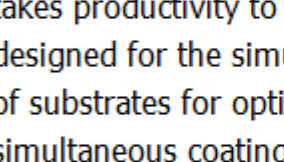
Spectrogon US

Spectrogon manufactures

infrared filters and windows with high transmission, high rejection outside the passband, while maintaining excellent coating uniformity — for thermal imaging and gas detection applications such as cryogenically cooled IR detectors and for uncooled microbolometers.

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[High-Speed Optical Coating](#)

VON ARDENNE GmbH

We provide advanced PVD

coating equipment for high-

precision optical filters and other applications that

takes productivity to the next level. The OPTA X is

designed for the simultaneous, double-sided coating

of substrates for optical filter applications. The

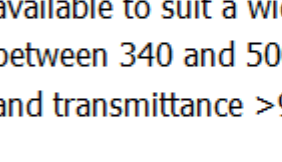
simultaneous coating enables 30% shorter

production time, and,...

production time, and,...

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[colorPol® Polarizer](#)

CODDX AG

colorPol® polarizers are

dichroic glass polarizers made

from a highly durable soda-lime glass containing silver nanoparticles. Different types of polarizers are available to suit a wide field of applications operating between 340 and 5000 nm with contrast >50 dB and transmittance >96%. colorPol® polarizers...

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.: In Case You Missed It

3D-Printed Ink Produces Elements with Disparate Optical Effects

A light-reflective, 3D-printable liquid crystal ink could make it possible to use cholesteric liquid crystal — a human-made material found in TVs and smartphones that possesses properties between liquids and solid crystals — to add tunable color and iridescence to a range of applications from wearable sensors to decorative lighting. The ink has more viscosity than previous liquid crystal inks, which makes it more suitable for rapid 3D-printing techniques.



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Three Argonne Projects Garner DOE Funding

Three projects at Argonne National Laboratory have received funding from the U.S. Department of Energy in a push to lay the groundwork for breakthroughs in quantum information science. The awards are part of a \$61 million investment in quantum science and engineering.

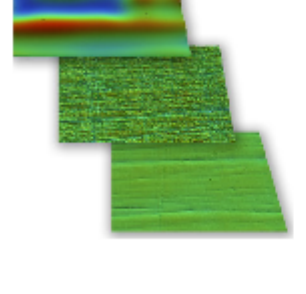
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Imaging Method Reveals Mechanism of Water Uptake by Plants

Researchers at the University of Nottingham report the development of a way to observe how plant roots take in and circulate water at the cellular level. The work could help to identify future drought- and flood-resistant crops.

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.: Upcoming Webinars

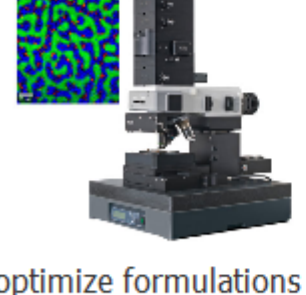


[Using Optical Profiling to Optimize Finishing Steps in Additive Manufacturing](#)

Wed, Oct 6, 2021 1:00 PM - 2:00 PM EDT
 Samuel Lesko, Ph.D., of Bruker explains how advanced optical profiling and area roughness parameters can improve the efficiency of finishing steps for additive-manufactured or 3D-printed parts.

Learn how to achieve quality control over a wide range of end-product characteristics, such as aesthetics, shininess, or wear resistance. Presented by Bruker.

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[Raman Imaging for the Complete Polymer Lifecycle: From Materials Science to Environmental Impact](#)

Thu, Oct 14, 2021 10:00 AM - 11:00 AM EDT

Raman imaging microscopy is the ideal tool for investigating polymer products at every stage of their lifecycle. From initial development to production and quality control, throughout use and eventual disposal, Raman spectroscopic characterization enables detailed analyses of polymers that can help optimize formulations and processes. This presentation with Nour Hafi, Ph.D., applications scientist at WITec, will describe relevant variations of Raman imaging and provide examples of their applications in various fields. Presented by WITec GmbH.

optimize formulations and processes. This presentation with Nour Hafi, Ph.D., applications scientist at WITec, will describe relevant variations of Raman imaging and provide examples of their applications in various fields. Presented by WITec GmbH.

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.: Featured Video



[Mildex Inc. - Automatic Lens Centering Machine with Robot](#)

Model SPCM-M1-AT50 lens centering machine features an integrated robot for loading and unloading the workpieces increasing throughput, efficiency and precision. This machine can process spherical lenses and/or plano-plano workpieces up to 82mm diameter.

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Features

Planar Waveguides, Quantum Cascade Lasers, Surface Analysis, and more.

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 Daniel McCarthy, Senior Editor, at Daniel.McCarthy@Photonics.com, or use our online submission form www.photonics.com/submitfeature.aspx.

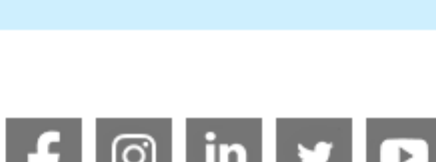
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