

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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APP NOTE: LAMBDA 1090+ SPECTROMETER
Measure Absorbance & Refractive Index of Thin Films with UV/Vis/NIR



Fiber Optic Sensors Are Wired for Growth with Infrastructure Improvements

Distributed acoustic sensing is one way that fiber optic sensing systems are now being used to monitor infrastructure and detect unexpected activity in challenging environments. Compact, sensitive, and able to provide real-time location-specific data about the health of extended infrastructure, fiber optic sensors are lined up to see a new period of growth.



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E-Mobility Manufacturing Powers Opportunities for Laser Welding

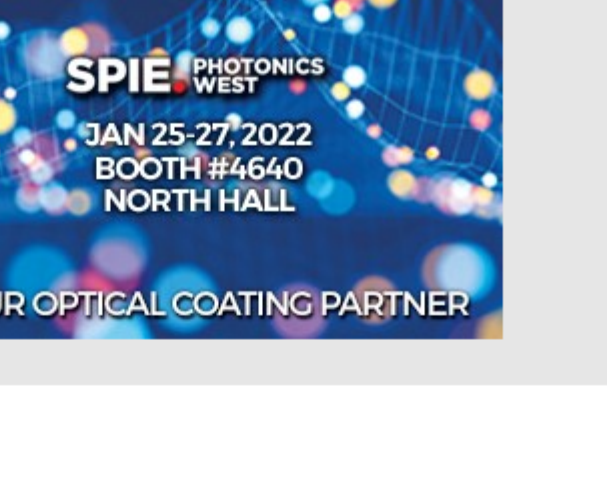
In 2017, researchers at UBS Securities disassembled a Chevy Bolt, the world's first mass-market electric vehicle, and a Volkswagen Golf, Europe's top-selling internal combustion engine car. When the UBS team compared the material compositions of the two vehicles, they unveiled one of the greatest emerging opportunities for photonics technologies in the automotive industry.



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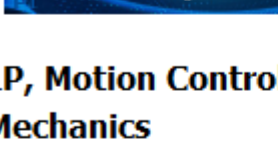
Metamaterials Unveil an Expanding Array of Optical Applications

Prepare for optical metamaterials to enter our pockets, kitchens, cars, and offices in the next three to five years. That's what experts in the field predict. Thanks to rapid maturation of technology and falling production costs, the doors are opening to some lucrative new markets for the materials.



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:: Featured Products



[Industry Leading Fast Focus Stages](#)

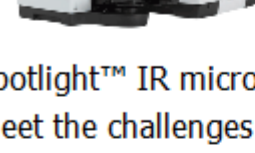
PI (Physik Instrumente)

LP, Motion Control, Air Bearings, Piezo Mechanics

Nanometer precision, high dynamics, long travel, maintenance-free voice coil motor, and ultrafast step and settle piezo flexure motor provide the solution for fast focusing and scanning tasks in semiconductor metrology, microscopy, life sciences, and slide scanning applications.

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[Spotlight 400 FT-IR Imaging System](#)

PerkinElmer

Spotlight™ IR microscope systems are designed to meet the challenges of an expanding laboratory by generating high-quality, reproducible data from a variety of sample types. The Spotlight 400 FT-IR Imaging System combines high sensitivity and rapid imaging with ease-of-use.

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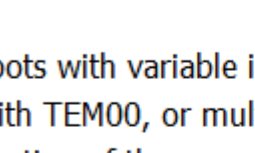
[MarSurf CM Micro-lens Measurements](#)

Mahr Inc.

Smaller diameters in micro-lenses presents several technical challenges for metrology instruments. Steep flanks at the edges of the lenses can cause data drop-out. Fast measurement times and high performance requirements are needed.

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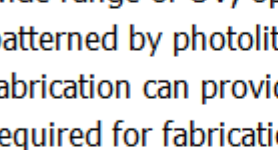
[peaXXus - Multispot Optics](#)

AdOptica 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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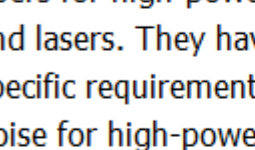
[Microelectromechanical Systems](#)

Materion Balzers Optics

Materion Balzers Optics has coating techniques for MEMS wafers, depositing a wide range of UV, optical, and visible coatings patterned by photolithography. Our 200 mm wafer fabrication can provide many of the operations required for fabrication on glass or silicon.

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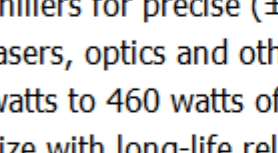
[Er/Yb Doped Fibers for Fiber Amplifiers & Lasers @1.5 μm](#)

iXblue, Photonics

iXblue offers a wide range of Er/Yb codoped optical fibers for high-power CW or pulsed fiber amplifiers and lasers. They have been optimized to address the specific requirements of high efficiency and low noise for high-power fiber lasers & amplifiers, with applications in LIDAR, CATV, & space.

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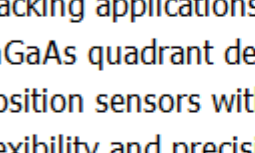
[TCube edge Thermoelectric Chillers](#)

Solid State Cooling Systems

Thermoelectric recirculating chillers for precise ($\pm 0.05^{\circ}\text{C}$) temperature control of lasers, optics and other applications, offering 230 watts to 460 watts of cooling capacity in a compact size with long-life reliability and many standard features.

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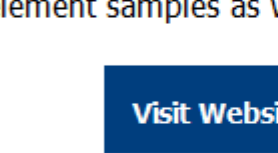
[NIR Position Sensors](#)

GPD Optoelectronics Corp.

GPD Optoelectronics offers Ge and InGaAs position sensing detectors for near-infrared beam alignment and tracking applications. Standard or high-speed InGaAs quadrant detectors and our lateral-effect position sensors with chip sizes up to 1 cm offer flexibility and precision.

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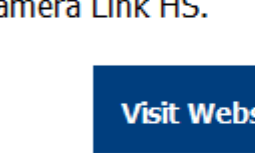
[QuickPRO™-CUBE-MINI](#)

Opto-Alignment Technology Inc.

Newly enhanced QuickPRO-CUBE-MINI features rapid, dual-sided QA/PC of molded, aspherical, and free-form optics. Takt time of 1 to 2 minutes for both surfaces. Wide range of fixtures and inserts are available to accommodate single-element samples as well as micro-lens arrays.

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[True High Performance](#)

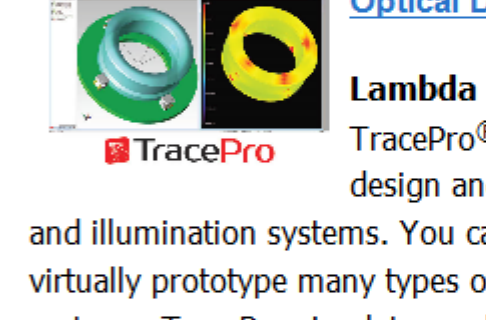
Teledyne DALSA, Machine Vision OEM Components

When you need true high-performance imaging, turn to the Falcon4-CLHS. Using Teledyne's advanced CMOS architectures, the Falcon4-CLHS offers unique, unprecedented capabilities for large area, high resolution, high speed imaging. Models include 11.2M at 609 fps and 86M at 16 fps, both with a Camera Link HS.

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:: Featured Video

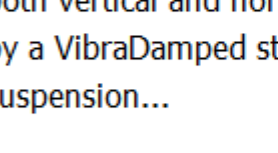


Ranking Smartphone Displays by Best Performance - Radiant Vision Systems

A DXOMARK score is an objective benchmark of a device's performance under real user conditions. To score smartphone displays, DXOMARK evaluates display readability in scenarios from web browsing to in-car navigation, in all lighting conditions. Watch a video to see how DXOMARK applies scientific imaging and photometric measurement from Radiant Vision Systems to evaluate smartphone display performance in various use cases and rank devices using objective data.

[Watch Now](#)

:: More Featured Products



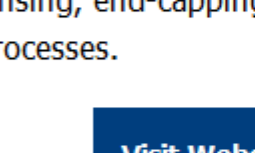
[Optical Design Software](#)

Lambda Research Corp.

TracePro® is software for the design and analysis of optical and illumination systems. You can simulate and virtually prototype many types of devices and systems. TracePro simulates and optimizes light pipes, light guides, and nonimaging lenses and mirrors.

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[Single-channel Picosecond EOM Driver](#)

Highland Technology Inc.

The TH130 is a USB/RS-232 enabled pulse generator suitable for driving LiNbO3 Mach-Zehnder and similar electro-optical devices. It has a built-in edge-triggered width generator that is adjustable for delay and width, spanning 250 picoseconds to 300 nanoseconds across three ranges.

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[Vibration Isolation Workstation](#)

Kinetic Systems Inc.

Designed to isolate sensitive instruments and experiments up to 1300 lbs., the 9100 can be customized by adding a variety of work surfaces and accessories. Providing both vertical and horizontal isolation and supported by a VibraDamped steel frame with an Active-Air suspension...

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[Fiber Array and Ball Lensing Processing](#)

NYFORS Teknologi AB

offers CO2 laser glass-processing capabilities designed to produce high-power and sensitive photonic components and complex structures. It offers contamination-free fiber array splicing, ball lensing, end-capping, and many other challenging processes.

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[AFL's LZM-125 Series Splicer](#)

AFL

AFL's LAZERMasteR® LZM-125 Series is a splicing and glass processing system that features a CO2 laser heat source designed for splicing, tapering, lensing, ablation and other glass shaping operations of fibers ranging from 80 μm up to 2.0 mm in diameter.

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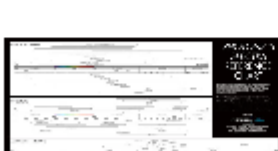
[Alluxa Ultra Series Filters and Coatings](#)

Alluxa

Alluxa Ultra Series Filters, including Narrowband, Dichroic, UV, IR, and Notch filters, provide the highest performance optical thin film solutions available today. For example, the Ultra Series Flat Top Narrowband filters offer the narrowest bandwidths and squarest filter profiles in the industry.

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[Hollow Retroreflectors](#)

Spectrum Scientific Inc. (SSI)

Spectrum Scientific's (SSI) hollow retroreflectors are manufactured from solid aluminum, making them insensitive to vibration and positioning. Our replication process allows for a high-volume repeatable performance down to 2 arcsec return beam accuracy.

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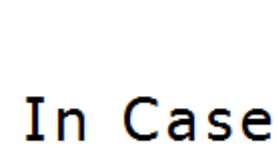
[Monolithic Microlens-Prisms](#)

SUSS MicroOptics SA

SUSS MicroOptics is a global leader in micro-optics technology and manufacturing. Innovative combination of process technology has allowed SUSS MicroOptics to integrate micro-lenses and prisms on wafer scale. In combination with the comprehensive offering of AR coating, metallization, and glue management options...

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[Photonics Spectra Reference Chart](#)

Photonics Media

This full-color, 30 × 20.5-inch poster of the photonics spectrum displays the major commercial laser lines, detectors and optical materials in the ultraviolet to the far-infrared and beyond. The chart was updated in 2021 to reflect the changing technologies in the photonics industry.

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[Multidimensional Technology](#)

Heidenhain Corporation

New multidimensional technology from HEIDENHAIN. Encoders that measure up to six degrees of freedom! The additional feedback from their multidimensional technology results in far greater measurement accuracy, letting you detect and compensate for system-relevant positional error in multiple dimensions.

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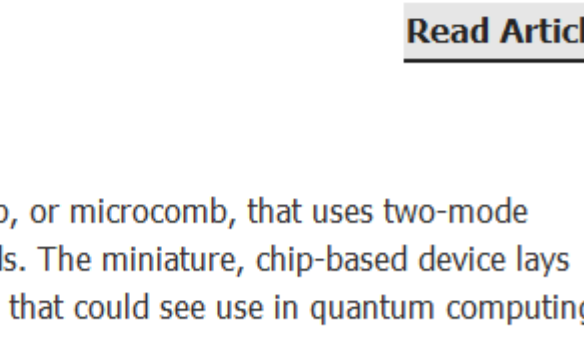
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:: In Case You Missed It

Organic Molecules Glow in the Dark, Offer Materials Solution for Bioimaging

A team at the Okinawa Institute of Science and Technology (OIST) has introduced a glow-in-the-dark material fabrication method that it believes could reduce reliance on inorganic crystals derived from rare-earth materials. The team used the method to generate glow-in-the-dark effects using readily available organic materials.

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Scalable Frequency Shifters Offer Chip-Based Solution for Next-Gen Communications

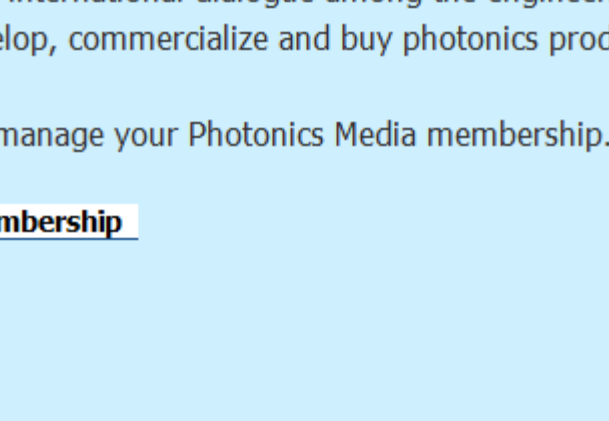
Researchers from the Harvard John A. Paulson School of Engineering and Applied Sciences (SEAS) have developed an on-chip frequency shift mechanism that could contribute to the next generation of photonic technologies. Frequency, or color, is among the most difficult properties of a photon to change. Changing a photon's frequency also means changing its energy.

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Quantum Microcomb Entangles Optical Fields

Researchers at the University of Virginia developed a tiny optical frequency comb, or microcomb, that uses two-mode squeezing to create unconditional entanglement between continuous optical fields. The miniature, chip-based device lays the groundwork for mass production of deterministic quantum frequency combs that could see use in quantum computing, quantum metrology, and quantum sensing.

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:: Upcoming Webinars



Si/SiN-Integrated Photonics for Lidar, Quantum, and Sensing

Wed, Jan 19, 2022 10:00 AM - 11:00 AM EST

In this webinar, Amin Abbasi, business development manager at imec, presents imec's recent collaborative progress on using integrated photonics for emerging applications such as on-chip lidar, quantum computing, and sensing. The added value of using integrated photonics-based solutions is a higher level of integration capacity, compactness, and scalability. Presented by imec.

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:: Next Issue:

Features

Aspheres, Beam Shaping, Quantum Cascade Lasers, 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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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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