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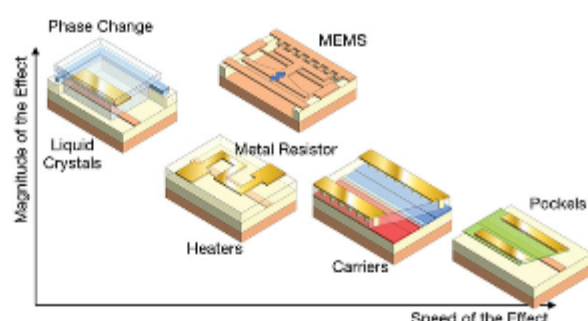
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Programmable Photonic Chips Adapt PICs to Multiple Futures

While electronics are perfect for performing fast calculations, photonics are ideal for moving information around. A major drawback of the latter, however, is the slow and costly development process for new photonic integrated chips, hampering their widespread use. If photonic chips could be reprogrammed for different applications, this would drastically lower development costs, shorten the time to market, and improve the sustainability of their use.



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Nuclear Fusion Drives Laser Development

It is a rare event when a successful experiment in basic research makes it to the evening news. In December 2022, the U.S. secretary of energy announced a breakthrough in laser-based nuclear fusion. The news was covered in all major media around the world: For the first time in history, humankind had ignited an inertial confinement nuclear fusion reaction that produced a net return on energy. In more starry terms, a research lab produced a tiny sun on Earth.



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Photovoltaics Power an Indoor Revolution

Readers of a certain age may recall getting through math and science courses with the assistance of a trusty solar-powered calculator that could harvest just enough ambient light from the classroom to power its rudimentary electronics and LCD screen. For many years, such devices were something of an anomaly in an otherwise wall plug- and battery-powered world, where most gadgets were too sophisticated to get by with just a few microamps of light-generated current.



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Featured Products & Services



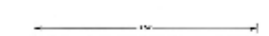
[Ethernet Time Interval Counter](#)

Highland Technology Inc.

The T680 contains five wide-range time stampers where each channel can snapshot the time of the rising edge of one electrical input to 12.2 ps resolution with 48 bit range. Controlled via 100 Mbit Ethernet and USB interfaces, the T680 comes in a compact extruded enclosure.

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[Norland Optical Splice](#)

Norland Products Inc.

Norland's optical splice provides a high-performance connection for optic fibers in a unique one-piece design.

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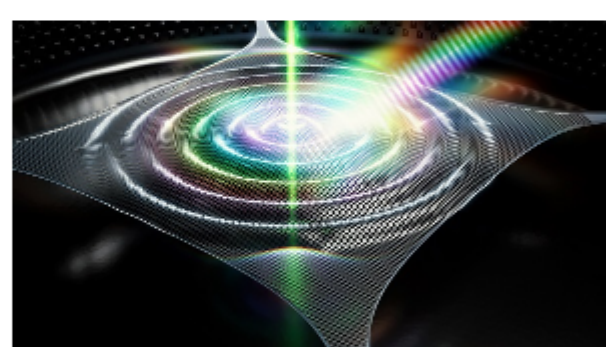
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In Case You Missed It

On-Chip Metrology Links Nobel Prize-Winning Techniques

A team from Delft University of Technology has developed on-chip technology to measure distances in materials at high precision — for example, underwater or for medical imaging. The technology relies on sound vibrations, and is useful for high-precision position measurements in opaque materials. Further, the instrument could lead to new techniques to monitor Earth's climate and human health.



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Researchers Create Single-Photon Emitters at Desired Positions

Researchers from the Helmholtz-Zentrum Dresden-Rossendorf (HZDR), TU Dresden, and Leibniz-Institut für Kristallzüchtung have demonstrated the controlled creation of single-photon emitters in silicon at the nanoscale. According to the researchers, the technology, which is compatible with current CMOS fabrication methods, represents a promising candidate for photonic quantum technologies, with a fabrication pathway that is compatible with very large-scale integration.

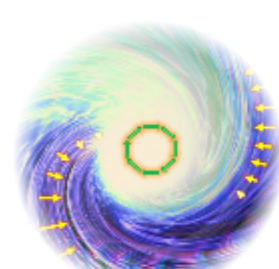
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Semiconductor Leaders Deploy NVIDIA Computational Lithography

According to NVIDIA, the computing company's cuLitho software library for computational lithography is being integrated by leading players in the semiconductor industry. The technology serves to accelerate design and manufacturing of next-generation chips, as current production process are nearing physical limits.

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Upcoming Webinars



Optical Vortices and Their Interactions

Tue, Apr 25, 2023 10:00 AM - 11:00 AM EDT

David Andrews, Ph.D., of the University of East Anglia provides a broad introduction to optical vortices, concisely explaining the key experimental methods and theory. He also shares the principles that determine the unusual features of optical vortex interactions with matter. At the quantum level, simple symmetry principles explain a range of novel effects, while in the broader fields of singular optics and structured light, topology is more relevant. Some of the latest studies reveal especially striking phenomena at the focal point of vortex beams. Despite optical vortices' simple basis, the field is one in which wave optics, quantum theory, and symmetry can all reveal their distinctive effects in straightforward experiments.

[Register Now](#)

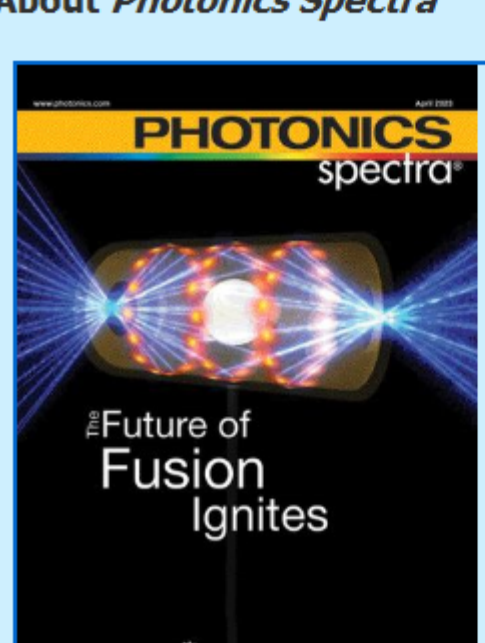
Next issue:

Features

Single-Photon Detection, Polymer Optics, Multifield Cameras, Display Test & Measurement, Dynamic Pixel Tuning

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