

# PHOTONICS



# spectra

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](https://www.photonics.com/subscribe).

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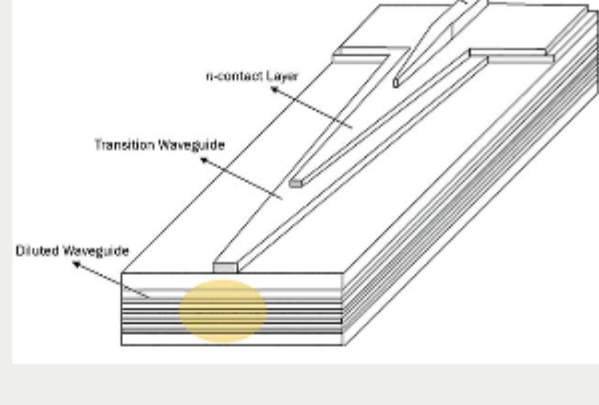
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## Lasers for Hybrid Silicon Photonic Integration

The wide adoption of smartphones, high-definition content streamed on social media, the Internet of Things, data saved to the cloud, and artificial intelligence used in massive data analytics have ushered in the current era of digital economies and Industry 4.0. These applications demand high-bandwidth optical networks and digital infrastructures capable of massive data processing. As a result of these demands, there has been an emergence worldwide of hyperscale data centers and 5G access networks. Today, CMOS nano electronics integrated circuits comprise the majority of information processing systems. Traditionally, optical fiber telecom networks were long-distance information carriers wherein III-V semiconductor-based optoelectronics components such as laser diodes and photodetectors were key devices in optotransceivers. The demand for high interconnect bandwidth in hyperscale data centers and access networks has brought about the replacement of copper-based system interconnects with optical interconnects.



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## Hyperspectral and Multispectral Imaging

Over the past two decades, hyperspectral imaging (HSI) and multispectral imaging (MSI) have been growing in prominence and utility. Although the terms are often conflated, they represent two distinct imaging practices, each fitting its own application spaces. Both technologies present advantages over standard machine vision imaging, which uses light only from the visible spectrum. However, with the benefits of HSI and MSI comes increased complexity of the imaging systems in terms of lighting, filtering, and optical designs.



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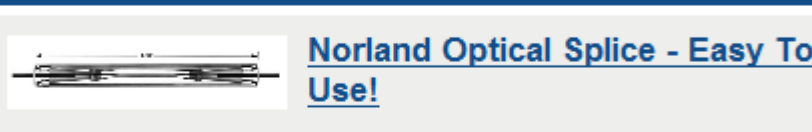
## High-Pulse-Energy Air-Cooled Lasers

Size, weight, and power (SWaP) are key attributes of laser transmitters for military, defense, and aerospace applications. Battlefield lasers must be compact, lightweight, and have high wall-plug efficiencies to meet aggressive demands. Fiber lasers can meet these stringent SWaP requirements in the fundamental (~1 μm) wavelengths, but have limited pulse energies and are less efficient in harmonic (visible or UV) wavelengths. Actively and passively Q-switched lasers can have very impressive size and weight form factors, but because they typically have low pulse energies and/or only operate at low pulse repetition rates (~10 Hz), they have low average powers and yield low wall-plug efficiencies. Next-generation intracavity (IC) harmonic diode-pulse-pumped lasers could usher in a new era of SWaP performance and deliver high pulse energies with high wall-plug efficiencies in the fundamental — and especially harmonic — wavelengths in a compact, lightweight, air-cooled form factor.



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## Featured Products



[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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[FISBA READYBeam™](#)

### FISBA AG

The FISBA READYBeam™ is an extremely compact multi-color laser module including full electronic integration and active thermal management. Currently two versions are available, a READYBeam™ bio and a READYBeam™ ind covering 405/488/638 nm and 450/520/660 nm.

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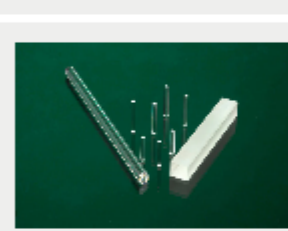


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### Kentek Corp.

LSO, Basics & Industrial Laser Safety Training Courses Kentek is making it easier for you to get your laser safety training. Convenient online laser safety courses save time and eliminate travel.

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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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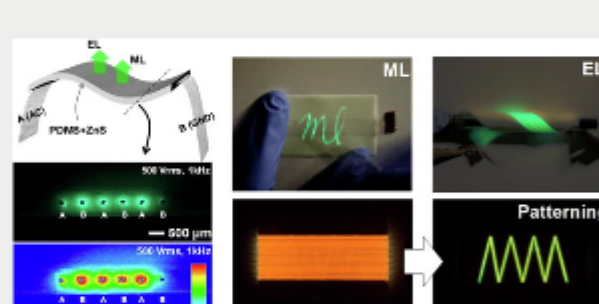
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## In Case You Missed It

### In-Plane Electroluminescent Technology Could Improve LEDs for Displays and Wearables

Luminescence technology developed at Daegu Gyeongbuk Institute of Science and Technology, using an in-plane electric field generated in parallel to the light-emitting layer of an LED, could help improve the efficiency of light-emitting elements used in billboards and banners. According to the research team, the LEDs produced this way emit light in a more flexible, stable way than conventional LEDs.



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### Researchers Demonstrate Microwave-Optical Entanglement via Mechanical Interface

Using lasers, researchers at the Niels Bohr Institute at the University of Copenhagen have developed a way to entangle electromagnetic fields from microwave radiation and optical beams. Creating entanglement between microwave and optical fields could help scientists solve the challenge of sharing entanglement between two distant quantum computers operating in the microwave regime.

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### Researchers Test Fiber Optics Seismology Solution

University of Michigan (U-M) researchers have demonstrated the potential for using existing networks of buried optical fibers as an inexpensive observatory for monitoring and studying earthquakes. The study provides new evidence that the same optical fibers that deliver high-speed internet and HD video to homes could one day double as seismic sensors.

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## Webinars

### Getting Specific About Coating Specifications

Wed, Apr 15, 2020 1:00 PM - 2:00 PM EDT  
In this webinar, the technical team at North American Coating Laboratories (NACL) will provide a basis for specifying, testing, and confirming that your coating needs are clearly stated on drawings and are clearly conveyed to your coating solutions provider. To achieve this, the NACL team asks that you let them know what challenges you have faced or are facing currently with regard to specifying and testing optical coatings and meeting your coating requirements. You can do this when you complete the registration process. The NACL team will review all responses and prepare a presentation that is customized to the concerns of the registrants.



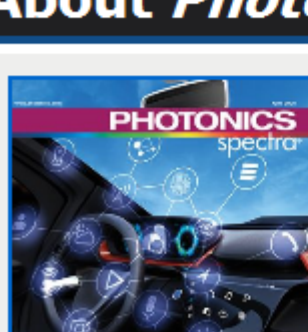
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## Next issue:

**Features**  
Auto Sensors, 3D and 4D Imaging, Scanning Lidar, and more.

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