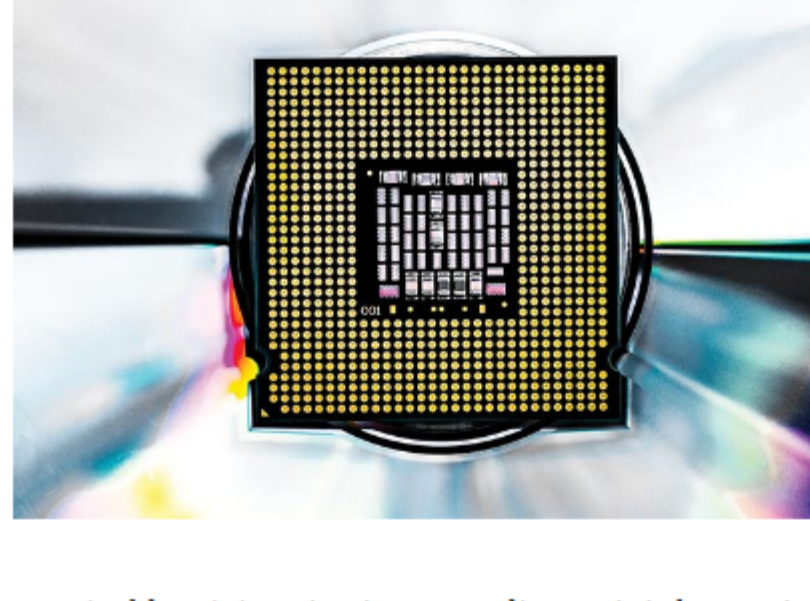




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Monthly newsletter from the editors of Photonics Spectra, with features, popular topics, new products, and what's coming in the next issue. [Photonics.com/subscribe](http://Photonics.com/subscribe).

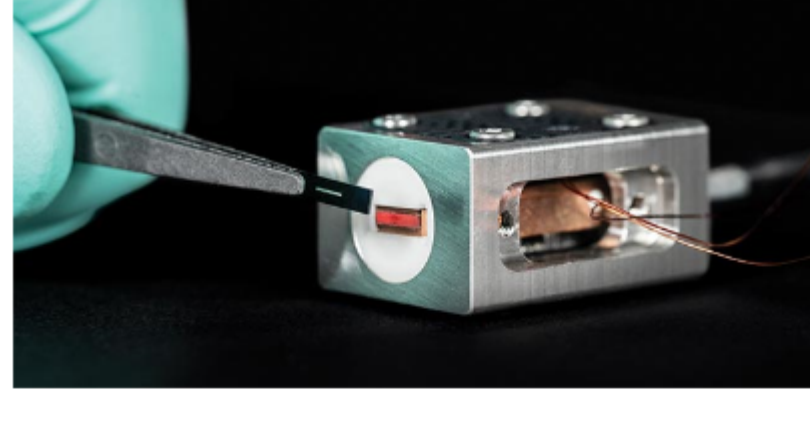
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**Positioning Technology Proves to Be Pivotal in High-Precision Manufacturing**

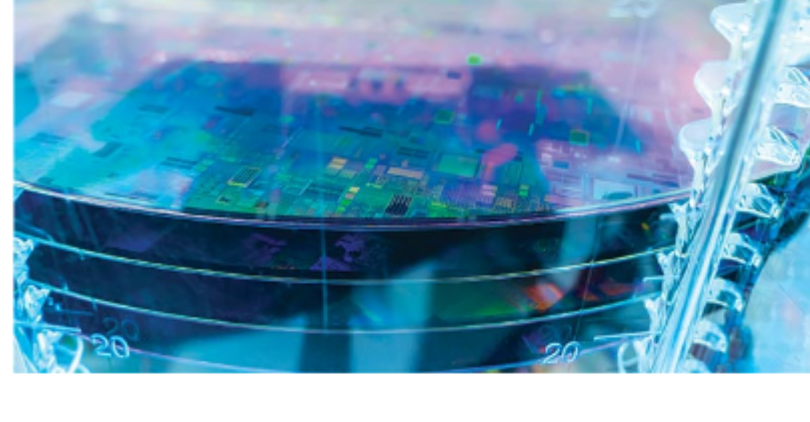
As it relates to semiconductor and electronics manufacturing, miniaturization seems to have no limits. Yet despite the ubiquity of miniaturization in modern manufacturing, the processes and technologies necessary to fabricate nanostructures present dynamic challenges. Manufacturers supporting the semiconductor and consumer electronics industries have overcome many constraints on the road to

sustainable miniaturization, or scaling, as it is known in the semiconductor industry. [Read Article](#)



**A Small Photon Source Promises to Enhance Quantum Communication**

In recent years, quantum computers have made headlines, while quantum communication solutions have made it to markets. Simple solutions, such as quantum random number generators, have been transferred into smartphones. Similar quantum encryption modules for terrestrial telecom router systems are available off-the-shelf. [Read Article](#)



**Illuminating the Future: Navigating the Integrated Photonics Industry and Supply Chain**

The integration of photonic devices at the wafer scale has emerged as a transformative force, offering a reliable and scalable pathway to implement complex photonic functions cost-effectively on a chip. While integrated photonics has long

been synonymous with optical communications, today's landscape presents unprecedented challenges and opportunities — including those that fall outside the bounds of traditional optical telecommunications and data communications. [Read Article](#)

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**In Case You Missed It**

**Light-Based Communication Connects Air, Land, Sea**  
A team of researchers from Nanjing University of Posts and Telecommunications has demonstrated a prototype mobile all-light communications network, paving the way for seamless connectivity across air, land, and underwater environments, even when communication nodes are on a moving vehicle. The advance could enable uninterrupted data exchange in dynamic and challenging settings for navigation, emergency response, research, and commercial operations. [Read Article](#)

**Electrically-Pumped Laser Grown on Silicon Wafer**  
An international research team has developed an electrically-pumped continuous wave semiconductor laser suitable for seamless silicon integration. According to the team, this is the first laser of its kind directly grown on a silicon wafer. [Read Article](#)

**Quantum Dot Recycling Improves Sustainability of Lasers**  
To make quantum dot technology more sustainable, researchers at the University of Strathclyde developed a practical, inexpensive way to recycle the colloidal quantum dots (CQDs) used to make microscopic supraparticle lasers. The researchers created new lasers from the recycled CQDs and demonstrated that the performance of these lasers was comparable to their predecessors. [Read Article](#)



**Photonics Spectra Now Reviews the Biggest Stories from 2024**  
2024 was packed with big business headlines, powerful team-ups, changes of leadership for leading organizations, and life-changing breakthroughs. But before we recap the year's top headlines, Photonics Spectra Now starts off with breaking news as Zebra Technologies Global makes moves to acquire Photoneo. Sponsored by Nyfors Teknologi AB and LightPath Technologies.

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Liquid Optics, Specialty Optical Fiber, Low-Power Lasers, and Optoelectronic Sensors

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