

This Week in PHOTONICS



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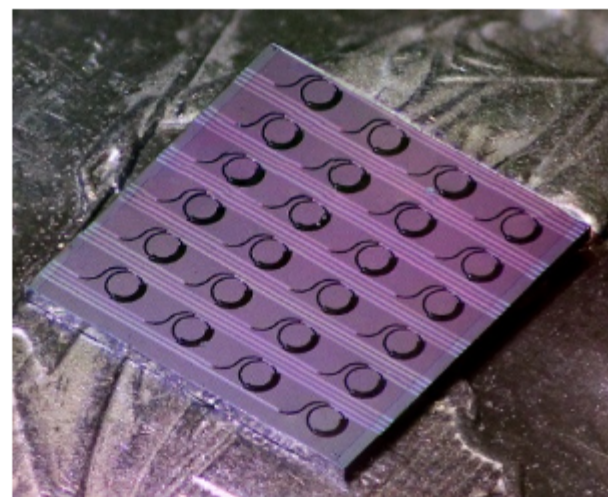
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.: Top Stories

Hybrid Platform Characterizes Tunable Laser Advancement

Researchers at École Polytechnique Fédérale de Lausanne (EPFL) and IBM have developed an ultrafast, tunable, hybrid laser based on lithium niobate (LiNbO3) that could significantly improve optical ranging technology. The EPFL researchers manufactured photonic integrated circuits (PICs) based on silicon nitride (Si3N4). The integrated circuits were bonded with LiNbO3 at IBM.

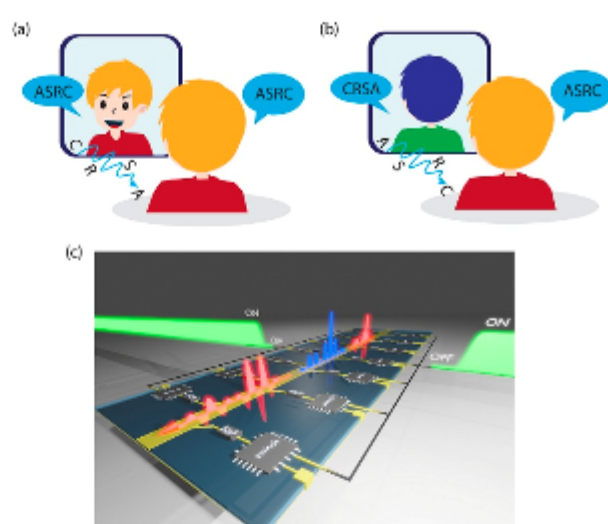
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Metamaterials Advancement Will Enable Extreme Photon Manipulation

An experiment performed by a team led by Andrea Alù, distinguished professor of physics at the CUNY Graduate Center and founding director of the CUNY Advanced Science Research Center Photonics Initiative, has demonstrated time reflections of electromagnetic signals in a tailored metamaterial. Combined with tailored spatial interfaces, the discovery offers the potential to open new directions for photonic technologies, as well as new ways to enhance and manipulate wave-matter interactions.

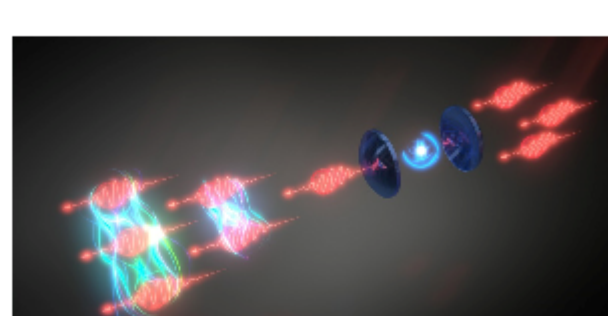
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Experiment Validates Stimulated Emission for Single Photons

Scientists at the University of Sydney and the University of Basel have demonstrated the ability to manipulate and identify small numbers of interacting photons with high correlation. The achievement, the researchers said, represents an important landmark in the development of quantum technologies such as photonic computing and quantum metrology. Stimulated light emission, postulated by Einstein in 1916, is widely observed for large numbers of photons and laid the basis for the invention of the laser. With this research, stimulated emission has now been observed for single photons.

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.: Upcoming Webinars

Recent Advancements in Structured-Light Lasers
Thu, Apr 6, 2023 10:00 AM - 11:00 AM EDT
Structured light provides the ability to tailor light within all of its degrees of freedom, including amplitude, phase, and polarization. There are many approaches to tailoring light, from using external tools that include spatial light modulators, geometric phase liquid crystal, and metasurface devices to at-the-source approaches that include bulk, microchip, and fiber lasers. Andrew Forbes, Ph.D., outlines the recent advancements in structuring light at the source, from orbital angular momentum and beyond. From concepts to applications, he highlights the current challenges and possible future trends.

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Machine Vision with Collaborative Robots
Wed, Apr 12, 2023 1:00 PM - 2:00 PM EDT
Guiding a robot with 2D or 3D vision increases flexibility and reduces cost in many different industrial robot applications. As collaborative robots, or cobots, gain popularity, they bring new possibilities to incorporate machine vision in the work cell. Josh Person of FANUC America Corp. focuses on how machine vision and collaborative robots work together for a wide range of applications. Cobots support unique solutions for real-world problems. Adding vision to a cobot provides yet another tool to help customers improve production processes, gain efficiencies, reduce floor space requirements, and stay competitive. Sponsored by Metaphase Technologies and Hamamatsu Corporation.

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