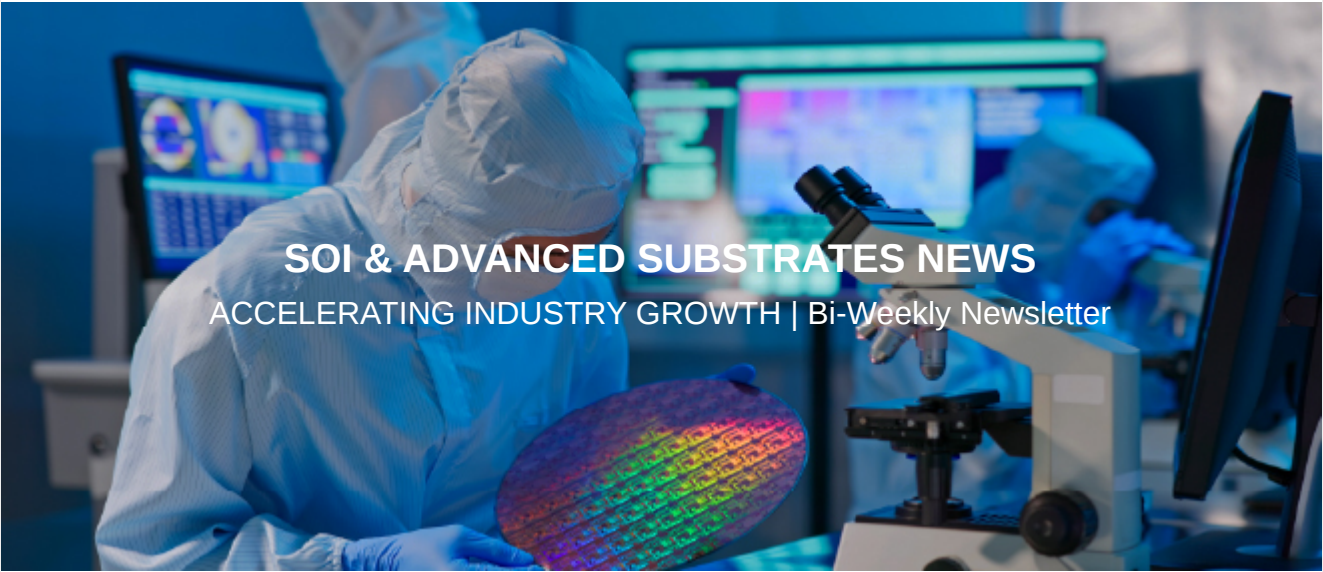




SOI & ADVANCED SUBSTRATES NEWS
ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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FEATURED IN THIS EDITION

OPTIMIZATION OF GRATING COUPLER OVER SINGLE-MODE SILICON-ON-INSULATOR WAVEGUIDE TO REACH < 1 DB LOSS THROUGH DEEP-LEARNING-BASED INVERSE DESIGN

Using a deep-learning model combined with an inverse-design process, researchers achieved <1 dB losses for grating couplers implemented over single-mode silicon-on-insulator (SOI) waveguides. It is suggested that the approach may be used to improve the performance of other types of nanophotonic devices in the future.

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CAVITY-COUPLED TELECOM ATOMIC SOURCE IN SILICON

By integrating single T centers with a low-loss, small mode-volume silicon photonic crystal cavity, this work demonstrates an enhancement of the fluorescence decay rate by a factor of F = 6.89. The nanophotonic devices are fabricated on a SOI sample which is situated on the cold finger of a closed-cycle cryostat.

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A POLYMER TRENCH FILLING BASED SILICON ISOLATION TECHNIQUE AND ITS APPLICATION TO TWO-AXIS SCANNING COMB-DRIVE MICROMIRRORS

A polymer filling method is proposed to form electrical insulation trenches in the silicon device layer of SOI wafers. Results show that the benzocyclobutene (BCB)-filled trenches demonstrate excellent electrical insulation performance and mechanical stability and the fabricated 2-axis mirrors can achieve a large field of view and stand high impact.

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ROOM-TEMPERATURE WAVEGUIDE-COUPLED SILICON SINGLE-PHOTON AVALANCHE DIODES

This work reported a proof-of-concept realization of room-temperature waveguide-coupled silicon (Si) single-photon avalanche diodes in a monolithically integrated Si photonic platform. The dark count rate can be improved by optimizing the junction design and moving to a silicon-on-insulator (SOI) substrate.

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SOI ECOSYSTEM NEWS

NAVITAS GAN AND SIC TECHNOLOGIES TO ENABLE NEXT-GEN AI POWER DELIVERY

Navitas unveils plans for 8–10kW power platform supporting 2025 AI power requirements. The platform will utilize newer GaN and SiC technologies and further advances in architecture to set all-new industry standards in power density, efficiency and time-to-market.

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VISHAY INTERTECHNOLOGY ACQUIRES NEXPERIA'S NEWPORT WAFER FAB FOR \$177 MILLION

The Newport wafer fab, located on 28 acres, is the UK's largest semiconductor fab with a long history in supplying components to the automotive and industrial markets. Vishay plans to position the facility as a manufacturing excellence center focusing on Net Zero Transformation of decarbonization and electrification.

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CEA-LETI RESEARCHERS ACHIEVE WORLD RECORD IN MICRO-OLED OPTICAL COMMUNICATIONS

Faced with concerns of resource sovereignty, Organic LEDs (OLEDs) have grown in importance thanks to their use of organic materials. CEA-Leti researchers have achieved two world records in terms of micro-OLED performance, opening the way to wider real-life applications.

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HAS SILICON PHOTONICS FINALLY FOUND ITS KILLER APPLICATION?

Multiple AI companies envision the use of integrated silicon photonics as the next natural evolutionary step for optical interconnects architecture targeting next-generation AI cloud computing infrastructure. Underlying this evolution are advanced materials platforms on which integrated photonics solutions will be designed and fabricated.

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COMPOUND SEMICONDUCTOR

WELSH GOVERNMENT INVESTS £5.8M IN CARDIFF OFFICE TO BOOST SEMICONDUCTOR CLUSTER EXPANSION

The decision is rooted in the Welsh Government's commitment to nurturing the compound semiconductor industry. By offering a dedicated space for startups and expanding companies, the government aims to stimulate innovation and job creation within this high-tech sector.

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UNIVERSITY OF JENA AND TU BRAUNSCHWEIG COLLABORATING ON GAN-BASED PHOTONIC DEVICES

A novel etching technique could enable the combining of optoelectronic light sources and photonic fiber optics. Researchers at Friedrich Schiller University Jena and Technische Universität Braunschweig have launched the joint project OptoGaN ('Highly integrated microphotonic modules in nitride technologies') focusing on porous gallium nitride.

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XINGDONG-SEMI SIGNS MOU WITH ST TO SECURE SIC SUPPLY

As electric vehicles continue to drive semiconductor demand, China-based Xindong Semiconductor Technology recently announced that it had signed an MoU with STMicroelectronics. The agreement is expected to bring Xindong-Semi stable Silicon Carbide (SiC) supply and help the company grow its business.

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DEMONSTRATION OF RECYCLING PROCESS FOR GAN SUBSTRATES USING LASER SLICING TECHNIQUE TOWARDS COST REDUCTION OF GAN VERTICAL POWER MOSFETS

Researchers have reported on the potential for recycling gallium nitride (GaN) substrates with a view to reducing costs for high-performance power devices. The team comments: "The proposed recycling process is an effective method for reducing the cost of GaN substrates and has the potential to encourage the popularization of GaN vertical power devices."

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SEMI BLOG

FOCUSING ON TEAM AND CULTURE WITH JOHN LEE OF ANSYS

Cultivating trust and keeping his team agile and innovative as they engage with technology partners and customers is a core focus of John Lee, GM and VP of the Ansys Electronics, Semiconductors, and Optics Business Unit. Robert (Bob) Smith, Executive Director of the ESD Alliance, recently spoke with Lee, a serial entrepreneur and a member of the ESD Alliance Governing Council, about his career and move from technical roles into management and how he motivates members of his team.

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SEMI NEWS HIGHLIGHT

SEMICONDUCTOR CLIMATE CONSORTIUM ELECTS NEW GOVERNING COUNCIL AND EXPANDS MEMBERSHIP

SEMI announced recently the election of four new Semiconductor Climate Consortium (SCC) Governing Council members and an expanded membership. Beginning their two-year terms immediately, the new SCC Governing Council members join those elected last year in guiding the Consortium in its mission to reduce greenhouse gas emissions across the global semiconductor value chain.

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