



SOI & ADVANCED SUBSTRATES NEWS

ACCELERATING INDUSTRY GROWTH | Bi-Weekly Newsletter

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POLARIZATION-INSENSITIVE SILICON OPTIC SWITCH BASED ON MODE MANIPULATED POWER SPLITTERS AND PHASE SHIFTERS

Silicon-on-insulator (SOI) is an attractive platform for realizing low fabrication cost photonic integrated circuits due to its complementary metal–oxide–semiconductor compatibility. In this work, a polarization-insensitive thermo-optic switch is proposed and demonstrated on the SOI platform with a 220 nm silicon core layer.

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ON-CHIP SILICON ELECTRO-OPTICAL MODULATOR WITH ULTRA-HIGH EXTINCTION RATIO FOR FIBER-OPTIC DISTRIBUTED ACOUSTIC SENSING

Ultra-high extinction ratio (ER) optical modulation is crucial for achieving high-performance fiber-optic distributed acoustic sensing (DAS) for various applications. This paper demonstrates on-chip silicon EOMs with ultra-high ER up to 68 dB in experiment. The EOMs consist of four serially-coupled microrings fabricated on silicon-on-insulator (SOI) wafers.

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MONOLITHIC SOI THROUGH-WAFER KNUDSEN PUMPS WITH MECHANICALLY ROBUST SI CHANNELS

Knudsen pumps (KPs) offer long lifetime and are attractive for complex microfluidic systems. This paper reports a type of monolithic KP with a facile microfabrication process and superior mechanical robustness. The pumping channels are fabricated in Si, through the device silicon layer of a silicon-on-insulator (SOI) wafer.

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DESIGN OF A PASSIVE SILICON-ON-INSULATOR-BASED ON-CHIP OPTICAL CIRCULATING NETWORK SUPPORTING MODE CONVERSION AND HIGH OPTICAL ISOLATION

In photonic integrated circuits, controlling optical signals to make them circulate in a specific direction is a highly researched area of study. However, achieving a purely passive on-chip optical circulating network on a SiPh platform is very challenging. Through simulations, this study proposes and demonstrates an on-chip optical circulator network on a silicon-on-insulator (SOI) platform.

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SOI ECOSYSTEM NEWS

INFINEON READIES 200MM SIC WAFERS, HYDROGEN

Infineon Technologies has preparing electrical samples of 200mm (8in) silicon carbide wafers in its fab in Villach and is looking at a move into the hydrogen power business, says Peter Wawer, president of the Green Industrial Power division, in an interview with EENews Europe.

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CEA-LETI WILL PRESENT GAINS IN ULTIMATE 3D, RF & POWER, AND QUANTUM & NEUROMORPHIC COMPUTING WITH EMERGING DEVICES

CEA-Leti papers at IEDM 2023, Dec. 9-13, in San Francisco, will present results in multiple fields, including ultimate 3D advances in radio frequency, such as performance improvement at cryogenic temperature.

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IMEC GRANTS PUBLIC ACCESS TO VIRTUAL FAB FOR QUANTIFYING ENVIRONMENTAL IMPACT OF IC MANUFACTURING

This web application utilizes data from its own fab, which is continuously benchmarked with data from equipment, material and fab partners such as Air Liquide, Applied Materials, ASM, ASML, Edwards, Kurita, Lam Research, SCREEN, Tokyo Electron, GlobalFoundries, Samsung Electronics and TSMC.

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KEYSIGHT EDA STRENGTHENS DESIGN AND SIMULATION SUPPORT FOR TOWER SEMICONDUCTOR RF PROCESS TECHNOLOGIES

Together with process design kits (PDKs) for Tower radio frequency (RF) technologies for circuit and physical designs, the new electro-thermal simulation enables integrated circuit designers to achieve first pass success, said in the press release.

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SEMI BLOG

MAXIMIZING EDGE INTELLIGENCE REQUIRES MORE THAN COMPUTING

Maximizing edge intelligence requires tailored algorithms and hardware to process data intelligently in real time using machine learning and Artificial Intelligence. Edge systems in real-world conditions need to be resilient to sub-optimal power, unreliable internet connectivity, and harsh environments. Therefore, we need to revisit the fundamental duo of on-chip and mist computing and edge-of-the-node sensing to maximize the utility of edge intelligence. This blog outlines some of the challenges and opportunities in the primary computing-sensing power sector, along with issues at the edge in the wireless and integration.

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SEMI NEWS HIGHLIGHT

SEMI KOREA 2023: RICH SET OF WORKFORCE PROGRAMS CULTIVATES TALENT FOR DOMESTIC CHIPMAKERS

While the semiconductor industry has its sights set on reaching \$1 trillion in revenue as soon as 2030, the longstanding workforce shortage continues unabated as companies across the global semiconductor supply chain struggle to recruit enough talent to meet their business needs. To help players across Korea's semiconductor ecosystem prepare talent for careers in the industry, SEMI Korea, through its Workforce Development Council, offers nearly 20 programs each year to improve the skills of not only college students but also junior engineers. SEMICON Korea 2023 featured three high-impact workforce development programs.

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