

Silicon-based photonic all-optical modulator



Overview

In a paper published in Nature Nanotechnology, researchers at Purdue University recently introduced a strategy to control light using only light (i., all-optical modulation) in a silicon device leveraging a so-called electron avalanche process. A strong optical linearity is of crucial importance for the development of ultrafast optical switches, devices that can control either light or electrical signals by modulating the properties of a light-based signal (e. Notably, these switches are central components of. Herein, an overview of current silicon modulator types and modern integration approaches is presented including direct bonding methods and micro-transfer printing. The proposed modulator can generate both intensity and phase modulation, optimizing performance without altering the underlying design or constraining platform limitations.



Article Content

Monolithic electro-optic platform on silicon with bandwidth of ...

To enable a silicon photonic platform for modulation and detection at bandwidths well beyond 100 GHz, we developed a fabrication flow to monolithically integrate GeSi electro-absorption...

Emerging Modulator Technologies in Silicon Photonics

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Recent breakthroughs in carrier depletion based silicon optical ...

The majority of the most successful optical modulators in silicon demonstrated in recent years operate via the plasma dispersion effect and are more specifically based upon free carrier

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Adds Plasmonics-based Modulation Technology and a Team with Deep Silicon Photonics Expertise to Advance Marvell's Optical Roadmap SANTA CLARA, Calif.-- (BUSINESS WIRE)--

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In this paper, we review the recent progress in the project granted to develop silicon-based reconfigurable AOSP chips, which aims to combine the merits of AOSP and silicon photonics

Silicon photonic modulator circuit with response

ption modulators on a silicon photonic platform. Experiments demonstrate precise control and optimization capabilities surpassing those of traditional modulator designs, marking a significant leap

A comprehensive survey on optical modulation techniques for

This article presents a comprehensive review of various optical modulation technologies, including electro-optic, all-optical, acousto-optic, thermo-optic, and magneto-optic modulation.

An ultimate-high linear silicon modulator based on all-optical ...

We proposed an ultimate-high linear silicon-based modulator based on all-optical linearization method, which demonstrates an SFDR as high as 131/127 dB Hz^{6/7} at 1/10 GHz.

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