LICENSING OPPORTUNITY: INTEGRATED OPTICAL PHASE SHIFTER USING BURIED ELECTRODES

DESCRIPTION

Problem

Efficiently incorporating thermo-optic phase shifters into air-clad integrated photonics.

Invention

We demonstrate the use of a buried heater layout for thermo-optic tuning of integrated photonic devices. Our method places heater electrodes underneath the photonic device layer, rather than the traditional approaches of placing electrodes on the sides of air-clad devices or on top of fully clad devices. This approach is particularly useful in applications requiring air-clad photonic elements and is compatible with all the high-temperature processing required for integrated photonic devices.

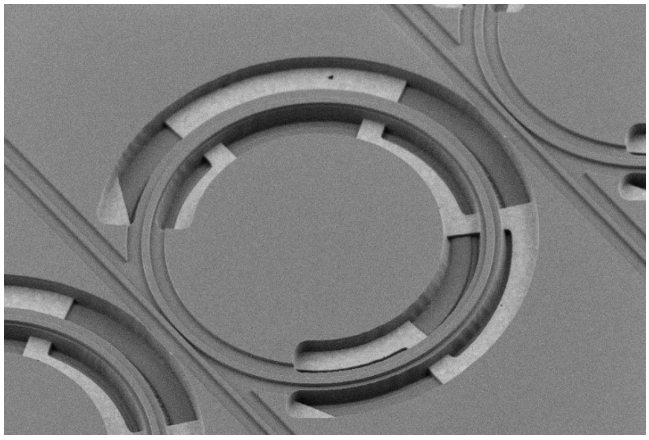
BENEFITS

Potential Commercial Applications

Applications in areas such as optical communications, optical sensors, integrated photonics, atomic clocks, and quantum computing.

Competitive Advantage

Placing heaters underneath the photonic device layer allows for more flexibility in the device layout, easier integration into air-clad geometries, and more efficient heating.



Scanning electron microscopy image showing electrodes placed underneath an air clad microresonator.

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