LICENSING OPPORTUNITY: OPTOELECTROMECHANICAL SWITCH AND PROGRAMMING AN OPTICAL NETWORK

DESCRIPTION

Problem

Optical data communication solves the bandwidth and power dissipation problems on all scales from data centers to individual processors. Fast, high performance, low power, highly scalable chip-scale optical switching fabrics are needed to efficient optical networking.

Invention

An integrated photonic switching element that can be arrayed and leverages opto-electro-mechanical (OEM) effects in a hybrid-photonic-plasmonic configuration.

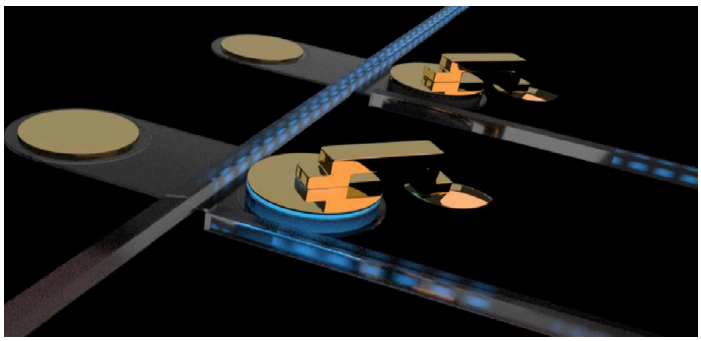
BENEFITS

Potential Commercial Applications

Optical switching fabrics. Reconfigurable wavelength division multiplexing on chip. All-optical data routing on scales from server farms to circuit boards. Reconfigurable optical neural networks used for pattern recognition at the speed of light. Reconfigurable integrated optical interconnect circuits to miniaturize tabletop quantum systems to microchip size.

Competitive Advantage

Fast, small, lower voltage, near-sero power dissipation, low loss, high contrast, scalable to large switch fabrics, batch produced chip-scale integrated photonics switch fabric. Does not require challenging integration of nonlinear optical materials. Unique combination of NEMS, integrated photonics and plasmonics on chip.



Plasmonic NEMS microdisk enables low loss, high contrast photonic switching with nanosecond response, low voltage and low power dissipation.

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