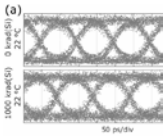
Sandia National Laboratories

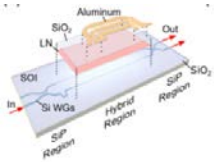
April 2019

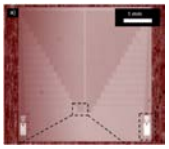
Selected Silicon Photonics Publications



The Effect of Gamma Radiation Exposure on Active Silicon Photonic Device Performance Metrics,
IEEE Trans. On Nuclear Science, Mar. 2019 DOI: 10.1109/TNS.2019.2907582

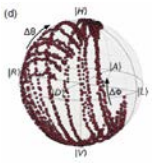
Bonded thin film $LiNbO_3$ modulator on a Si photonics platform exceeding 100 GHz 3-dB electrical modulation bandwidth,
Optics Express 26 (18), 23728-23739, Sep. 2018 DOI: 10.1364/OE.26.023728

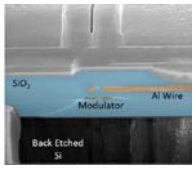




Accurate photonic waveguide characterization using an arrayed waveguide structure,
Optics Express 26 (14), 18082-18095, July 2018 DOI: 10.1364/OE.26.018082

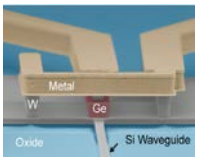
Low Power Thermal Tuning in Resonant Vertical Junction Silicon Modulators Through Substrate Removal,
IEEE Photonics Journal 10 (3), 1-12, Jun. 2018 DOI: 10.1109/JPHOT.2018.2824026

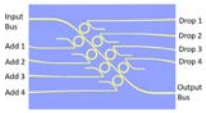




Metropolitan quantum key distribution with silicon photonics,
Phys. Rev. X 8 (021009), 1-12, April 2018 DOI: 10.1103/PhysRevApplied.9.054040

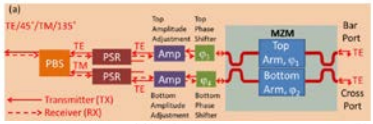
Athermal Silicon Optical Add-drop Multiplexers based on Thermo-optic Coefficient Tuning of Sol-gel Material,
Optics Express 25 (18), 212471-21482, Aug. 2017 DOI: 10.1364/OE.25.021471



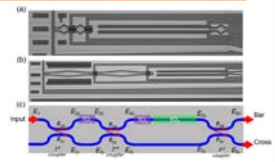


Single Photon Detection in a Waveguide-coupled Ge-on-Si lateral Avalanche Photodiode,
Optics Express 25 (14), 16130-16139, Jun. 2017 DOI: 10.1364/OE.25.016130

A Silicon Photonic Transceiver Circuit for High-Speed Polarization-Based Discrete Variable Quantum Key Distribution,
Optics Express 25 (11), 12282-12294, May 2017 DOI: 10.1364/OE.25.012282

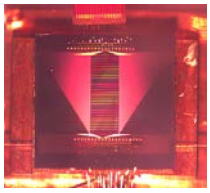


High Speed Ultra-broadband Amplitude Modulators with Ultrahigh Extinction >65 dB,
Optics Express 25 (10), 11254-11264, May 2017 DOI: 10.1364/OE.25.011254



Operation of High-Speed Silicon Photonics Micro-Disk Modulators at Cryogenic Temperatures,
Optica 4 (3), 374-382, Mar. 2017 DOI: 10.1364/OPTICA.4.000374 (Journal Cover)

Active Phase Correction of High Resolution Silicon Photonic Arrayed Waveguide Gratings,
Optics Express 25 (6), 6320-6334, Mar. 2017 DOI: 10.1364/OE.25.006320

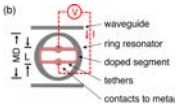


Compact Silicon Photonic Resonance-assisted Variable Optical Attenuator,
Optics Express 24 (24), 27600-27613, Nov. 2016 DOI: 10.1364/OE.24.027600

Radio Frequency Silicon Photonics at Sandia National Laboratories, TuA2.1,
AVFOP Conference Nov. 2016 (Invited) DOI: 10.1109/AVFOP.2016.7789912

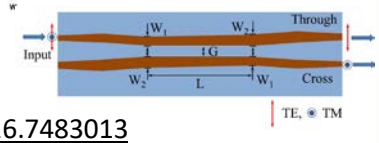
Challenges for Optical Interconnect for Beyond Moore's Law Computing,
IEEE Int. Conf. on Rebooting Computing (ICRC) Oct. 2016 DOI: 10.1109/ICRC.2016.7738696

Wide-range and fast thermally-tunable silicon photonic microring resonators using the junction field effect,
Optics Express 24 (20), 23081-23093, Sep. 2016 DOI: 10.1364/OE.24.023081



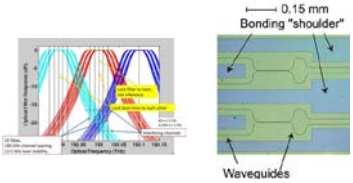
Effect of Precursors on Propagation Loss for Plasma-enhanced Chemical Vapor Deposition of SiNx:H Waveguides,
Optical Materials Express 6(9), 2892-2903 Sep. 2016 DOI: 10.1364/OME.6.002892

High Performance Waveguide-coupled Ge-on-Si Linear Mode Avalanche Photodiodes,
Optics Express 24 (17), 19072-19081, Aug. 2016 DOI: 10.1364/OE.24.019072



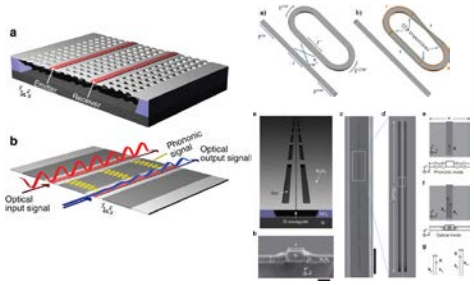
An Adiabatic/ Diabatic Polarization Beam Splitter,
IEEE Optical Interconnects Conference (OI), San Diego, CA, May 2016 DOI: 10.1109/OIC.2016.7483013

Lightwave Circuits in Lithium Niobate through Hybrid Waveguides with Silicon Photonics,
Scientific Reports 6(22301), Mar. 2016 DOI: 10.1038/srep22301



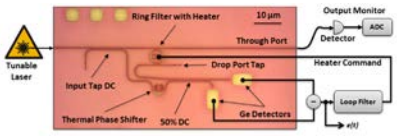
Challenges in the implementation of dense wavelength division multiplexed (DWDM) optical interconnects using resonant silicon photonics,
Proc. SPIE 9772 **Broadband Access Comm. Technologies X, 977207**, Feb. 2016 DOI: 10.1117 /12.2217429

Racetrack Resonator as a Loss Measurement Platform for Photonic Components,
Optics Express 23 (22), 28883-28895, Oct. 2015 DOI: 10.1364/OE.23.028883



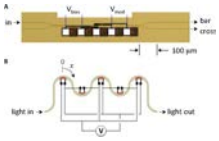
Tailorable Stimulated Brillouin Scattering in Nanoscale Silicon Waveguides
Nature Communications 4 (1944), Jun. 2013 DOI: 10.1038/ncomms2943

Control of Coherent Information via On-Chip Photonic-Phononic Emitter-Receivers
Nature Communications 6 (6427), Mar. 2015 DOI: 10.1038/ncomms7427



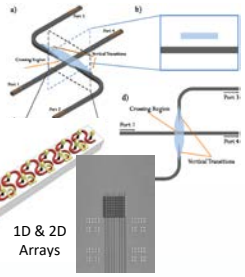
Control of Integrated Micro-Resonator Wavelength via Balanced Homodyne Locking
Optics Express 22 (9), 11279-11289 May 2014 DOI: 10.1364/OE.22.011279

Wideband Silicon-photonic Thermo-optic Switch in a Wavelength-division Multiplexed Ring Network
Optics Express 22(7), 8205-8218 Apr. 2014 DOI: 10.1364/OE.22.008205

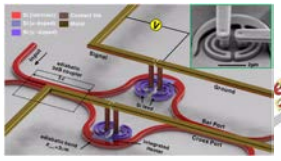


Ultra-Low Crosstalk, CMOS Compatible Waveguide Crossings for Densely Integrated Photonic Interconnection Networks
Optics Express 21 (10), 12002-12013 May 2013 DOI: 10.1364/OE.21.012002

Electronically Controlled Optical Beam-Steering by an Active Phased Array of Metallic Nanoantennas
Optics Express 21(4) 5198-5208 Feb. 2013 DOI: 10.1364/OE.21.005198



Adiabatic Thermo-Optic Mach–Zehnder Switch
Optics Letters 38 (5), 733-735 Feb. 2013 DOI: 10.1364/OL.38.000733



Sandia National Laboratories is a multimission laboratory managed and operated by National Technology & Engineering Solutions of Sandia, LLC, a wholly owned subsidiary of Honeywell International Inc., for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-NA0003525. SAND2019-3778 M