IME2 • 5:00 p.m. Invited

IME3 • 5:30 p.m.
High Efficiency SOI Fiber-to-Waveguide Grating Couplers Fabricated Using CMOS Technology, Gunther Roelkens1, Diedrik Vermeulen1, Dries Van Thourhout1, Roel Baets1, Stephanie Brisset1, Philippe Lyon1, Pauline Gautier1, Jean-Marc Fedeli2, 'Ghent Univ., Belgium, 'CEA/LETI-MINATEC, France. -2.6 dB coupling efficiency between a silicon-on-insulator waveguide circuit and a single mode optical fiber was obtained, based on a grating coupling structure fabricated in a CMOS line. The -1 dB optical bandwidth is 50 nm.

IME4 • 5:45 p.m.
Implementation of Silicon Microphotonic Devices in a Geographically-Distributed Fiber optic Network, J. T. Robinson1, J. D. Marcov1, N. Sherwood-Droz1, A. Cerqueira, Jr., Hugo H. Figueroa1, H. L. Fragnito1, Michal Lipson1; 'Electrical and Computer Engineering Dept., Cornell Univ., USA, 'Optics and Photonics Res. Ctr., Unicamp, IFGW, Brazil. We experimentally investigate the performance of silicon microphotonic devices for filtering 10Gb/s data sent through a 40km fiber path from a real geographically-distributed fiber optic network.

IME5 • 6:00 p.m.
Wide Temperature Range Operation of Resonant Silicon Electro-Optic Modulators, Sasikant Manipatruni, Rajeev Dokania, Bradley Schmidt, Jagat Shukla, Alyssa Apel, Michal Lipson; Cornell Univ., USA. We demonstrate wide-temperature range operation of a micron-size high-speed silicon electrooptic modulator over a temperature range of 15 K. We show that modulation can be maintained by varying the bias current to counter temperature changes.

IME3 • 5:15 p.m.
Analyzing Second Harmonic Generation in Photonic Crystals by Dirichlet-to-Neumann Maps, Lijun Yuan, Ya Yan Lu; City Univ. of Hong Kong, Hong Kong. A numerical method is developed for analyzing second harmonic generation in 2-D photonic crystals. The method makes use of the DtN maps of the unit cells to significantly reduce the total number of unknowns.

IME4 • 5:50 p.m.
Construction of Band Edge Diagrams for 2-D Photonic Crystals with Arbitrary 3-D Anisotropy by the Finite Element Method, Sen-ming Hsu, Hung-chun Chang; Natl. Taiwan Univ., Taiwan. A full-vectorial finite element method based eigenvalue algorithm is developed for the band structure analysis of two-dimensional photonic crystals with arbitrary three-dimensional anisotropy under the out-of-plane wave propagation. The band edge diagram is then constructed.

IME5 • 5:45 p.m. Invited
Flexible Modelling Approaches for Nanophotonics, Phillip Szewell, Trevor M. Benson, Ana Vukovic; Univ. of Nottingham, UK. We discuss challenges facing designers of photonics-simulation software. Flexibility, accuracy and scale are still the principal drivers for research. We consider the role of numerical schemes today and in the context of future generalized optimizations.
High Efficiency SOI Fiber-to-Waveguide Grating Couplers Fabricated Using CMOS Technology

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Presentation Number: IME3

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