

## PUBLICATIONS

### Refereed Journal Papers

- [J1] S. Li, N. G. Tarr and **W. N. Ye**, "Optical Loss Evaluation of Metal Thin Layers on Low Loss SOI Waveguide," Submitted to *Optics Express*, Aug 2017.
- [J2] D. Gostimirovic and **W. N. Ye**, "Ultracompact CMOS-compatible optical logic using carrier depletion in microdisk resonators," Accepted for publication at *Scientific Reports*, Sep 2017.
- [J3] O. Marsh, Y. Xiong and **W. N. Ye**, "Slot Waveguide Ring Assisted Mach Zehnder for Sensing Applications," *IEEE Selected Topics in Quantum Electronics*, 23(2), 8200404, March 2017.
- [J4] Y. Sun, Y. Xiong and **W. N. Ye**, "Experimental demonstration of a two-mode (de)multiplexer based on a taper-etched directional coupler," *Optics Letters*, 41(16), pp. 3743-3746, Jul 2016.
- [J5] M. Papes, P. Cheben, **W. N. Ye**, J. H. Schmid, D.-X. Xu, S. Janz, D. Benedikovic, C. A. Ramos, R. Halir, A. Ortega-Monux, A. Delage and V. Vasinek, "Fiber-Chip Edge Coupler with Large Mode Size for Silicon Photonic Wire Waveguides," *Optics Express*, 24(5), pp. pp. 5026-5038, 2016.
- [J6] Y. Sun, Y. Xiong and **W. N. Ye**, "Compact SOI Polarization Rotator using Asymmetric Periodic Loaded Waveguides," *IEEE Photonics Journal*, 8(1), Feb. 2016.
- [J7] Y. Xiong, D.-X. Xu, J. H. Schmid, P. Cheben, and **W. N. Ye**, "High extinction ratio and broadband silicon TE-pass polarizer using subwavelength grating index engineering," *IEEE Photonics Journal*, 7(5), pp. 1-7, Oct 2015.
- [J8] S. Abdul-Majid, R. Maldonado-Basilio, C. Lei, H. Awad, I. Hasan, **W. N. Ye**, and T. J. Hall, "Performance analysis of a photonic integrated interferometer circuit based on silicon-on-insulator," *Optical Quantum Electronics*, 47(7), pp. 1965–1971, Jul 2015.
- [J9] Y. Xiong, J. G. Wangüemert-Pérez, D.-X. Xu, J. H. Schmid, P. Cheben, and **W. N. Ye**, "Polarization splitter and rotator with subwavelength grating for enhanced fabrication tolerance," *Optics Letters*, 39(24), pp. 6931-6934, Dec. 2014.
- [J10] Y. Xiong, D.-X. Xu, J. H. Schmid, P. Cheben, S. Janz, and **W. N. Ye**, "Fabrication tolerant and broadband polarization splitter and rotator based on a taper-etched directional coupler," *Optics Express*, 22 (14), pp. 17458-17465, Jul. 2014.
- [J11] R. Veenkamp and **W. N. Ye**, "Plasmonic metal nanocubes for broadband photocurrent enhancement in thin-film a-Si solar cells", *Journal of Applied Physics*, 115, 124317 p.1-8, Apr 2014.
- [J12] T. Tut, Y. Dan, P. Duane, **W. N. Ye**, F. Degirmenci, Y. Yu, M. Wober, K. B. Crozier, "Silicon photodetectors integrated with vertical silicon nitride waveguides as image sensor pixels: fabrication and characterization," *Journal of Vacuum Science & Technology B*, 32, 031201 p.1-8, Mar. 2014.
- [J13] Y. Xiong, D.-X. Xu, J. H. Schmid, P. Cheben, S. Janz, and **W. N. Ye**, "Robust silicon waveguide polarization rotator with an amorphous silicon overlayer," *IEEE Photonics Journal*, 6(2), 2200308, Apr 2014.
- [J14] B. A. Dorin and **W. N. Ye**, "Two-mode division multiplexing in a silicon-on-insulator ring resonator," *Optics Express*, 22 (4), pp.4547-4558, Feb. 2014.
- [J15] B. A. Dorin and **W. N. Ye**, "Conditions for single-mode and birefringence-free ultrasmall SOI rib waveguides at 1310 nm," *IEEE Journal of Lightwave Technology*, 31 (22), pp. 3420 - 3424, Sep 2013.
- [J16] **W. N. Ye** and Y. Xiong, "Review of Silicon Photonics: History and Recent Advances," *Journal of Modern Optics*, 60 (16), pp. 1299-1320, Oct. 2013.
- [J17] Y. Xiong and **W. N. Ye**, "Silicon MMI-coupled slotted conventional and MZI racetrack microring resonators," *IEEE Photonics Technology Letters*, 25 (19), pp. 1185-1888, Jul. 2013.
- [J18] Y. Xiong and **W. N. Ye**, "All-optical switching of a single wavelength in a silicon-based ring-assisted Mach-Zehnder interferometer," *Applied Optics*, 51 (32), pp. 7788-7793, Nov. 2012.

- [J19] Y. Xiong and **W. N. Ye**, "Impact of LOCOS techniques on photonic wire waveguides," *Applied Optics*, 51 (29), pp. 7090-7093, Oct. 2012.
- [J20] M. Ibrahim, J. H. Schmid, A. Aleali, P. Cheben, J. Lapointe, S. Janz, P. J. Bock, A. Densmore, B. Lamontagne, R. Ma, D.-X. Xu, and **W. N. Ye**, "Athermal silicon waveguides with bridged subwavelength gratings for TE and TM polarizations," *Optics Express*, 20 (16), pp. 18356-18361, Jul. 2012.
- [J21] T. Smy, P. Gunupudi, S. McGarry and **W. N. Ye**, "Circuit-level Transient Simulation of Configurable Ring Resonators using Physical Models," *Journal of Vacuum Science & Technology B*, 28 (6), pp. 1534-1543, Jun. 2011.
- [J22] J. H. Schmid, M. Ibrahim, P. Cheben, J. Lapointe, S. Janz, P. J. Bock, A. Densmore, B. Lamontagne, R. Ma, **W. N. Ye**, and D.-X. Xu, "Temperature-independent silicon subwavelength grating waveguides," *Optics Letters*, 36 (11), pp. 2210-2212, Jun. 2011.
- [J23] **W. N. Ye**, P. Duane, M. Wober, K. B. Crozier, "Fabrication of high-aspect ratio lightpipes," *J. Vac. Sci. Technol. B*, 29 (3), 031206, pp.1-5, 2011.
- [J24] V. Raghunathan, **W. N. Ye**, J. Hu, T. Izahara, J. Michel, L. C. Kimerling, "Athermal operation of Silicon waveguides: spectral, second order and footprint dependencies," *Optics Express*, 18 (17), pp.17631-17639, Aug. 2010.
- [J25] E. Schonbrun, **W. N. Ye**, and K. B. Crozier, "Scanning microscopy using a short-focal-length Fresnel zone plate," *Optics Letters*, 34, pp. 2228-2230, Jul. 2009.
- [J26] **W. N. Ye**, J. Michel, and L. C. Kimerling, "Athermal high-index-contrast waveguide design," *IEEE Photonics Technology Letters*, 20 (11), pp. 882-884, June 2008.
- [J27] D.-X. Xu, **W. N. Ye**, S. Janz, A. Del age, P. Cheben, B. Lamontagne, E. Post, and P. Waldron, "Stress induced effects for advanced polarization control in silicon photonics components," *Advances in Optical Technologies*, ID: 689715, pp. 1-10, June 2008 (invited).
- [J28] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, P. Cheben, and N. G. Tarr, "Novel Passive Broadband Stress-induced SOI Polarization Splitters," *Optics Letters*, 32 (11), pp. 1492-1494, June 2007.
- [J29] S. Janz, P. Cheben, D. Dalacu, A. Delage, A. Densmore, B. Lamontagne, M.-J. Picard, E. Post, J. H. Schmid, P. Waldron, D.-X. Xu, K.-P. Yap, and **W. N. Ye**, "Microphotonic Elements for Integration on the Silicon-on-Insulator Waveguide Platform," *IEEE Selected Topics in Quantum Electronics*, 12 (6), pp. 1402-1415, Dec 2006.
- [J30] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, M.-J. Picard, B. Lamontagne, and N. G. Tarr, "Birefringence Control Using Stress Engineering for Silicon-on-insulator (SOI) Waveguides," *IEEE Journal of Lightwave Technology*, 23 (3), pp. 1308-1318, Mar 2005.
- [J31] D.-X. Xu, P. Cheben, D. Dalacu, A. Delage, S. Janz, B. Lamontagne, M.-J. Picard, **W. N. Ye**, "Eliminating the birefringence in silicon-on-insulator ridge waveguides using the cladding stress," *Optics Letters*, 29 (20), pp. 2384-2386, Oct 2004.
- [J32] **W. N. Ye**, L. Brzozowski, E. H. Sargent, and D. Pelinovsky, "Stable all-optical limiting in nonlinear periodic structures III: non-solitonic pulse propagation," *Journal of Vacuum Science & Technology B*, 20 (4), pp. 695-705, 2003; *Virtual Journal of Ultrafast Science*, 2 (4), 2003.

### **Books/Book Chapters**

- [J33] **W. N. Ye**, *Stress Engineering in Silicon-on-insulator Polarization Splitters*, VDM Verlag Dr. M uller, 2010.
- [J34] S. Janz, P. Cheben, A. Delage, B. Lamontagne, M.-J. Picard, D.-X. Xu, K.P. Yap, **W. N. Ye**, "Microphotonics: Current Challenges and Applications," in *Frontiers in Planar Lightwave Circuit Technology*, S. Janz, J. Ctyroky, S. Tanev eds., 1-38, (Springer, Dordrecht, 2006).

### **Patents**

- [P1] B. A. Dorin and **W. N. Ye**, “System and Method for an Optical Coupler,” US Patent#: US9445165B2, September 13, 2016.
- [P2] B. A. Dorin and **W. N. Ye**, “System and method for an optical phase shifter,” US Patent#: US8923660B2, December 30, 2014.
- [P3] T. Tut, P. Duane, **W. N. Ye**, M. Wober, K. B. Crozier, “Silicon nitride light pipes for image sensors,” US Patent #: US8890271B2, November 18, 2014.

### Refereed Conference Articles

- [C1] D. Gostimirovic and **W. N. Ye**, “CMOS-Compatible N-bit addition and subtraction using voltage-induced free-carrier dispersion and stimulated Raman scattering -based Zeno switching,” accepted for an oral presentation at the Photonics West 2017, San Francisco, USA, Jan 28-Feb2, 2017.
- [C2] O. Marsh, Y. Xiong, and **W. N. Ye**, “SOI Sensor Based on MMI-coupled Ring-Assisted Mach Zehnder Interferometer (RAMZI),” IEEE Sensors 2016, Orlando, USA Oct 30 2016.
- [C3] Y. Sun and **W. N. Ye**, “SOI Polarization Rotators with Asymmetrical Periodic Perturbations,” 2016 *IEEE 13<sup>th</sup> International Conference on Group IV Photonics (GFP)*, Shanghai, China, Aug. 24-26, 2016.
- [C4] J. Schmid, P. Cheben, D.-X. Xu, S. Janz, J. Lapointe, M. Rahim, S. Wang, M. Vachon, R. Halir, A. Ortega-Monux, G. Wangüemert-Perez, I. Molina-Fernandez, J. Pond, D. Benedikovic, Y. Painchaud, M.-J. Picard, M. Poulin, M. Dado, J. Mullerova, **W. N. Ye**, M. Papes, V. Vasinek, “Subwavelength structures in silicon-on-insulator waveguides for efficient and broadband fiber-chip coupling,” 7<sup>th</sup> International Conference on Metamaterials, Photonic Crystals and Plasmonics (META’16), Torremolinos-Malaga, Spain, 25 to 28 July 2016.
- [C5] P. Cheben, J.H. Schmid, D.-X. Xu, S. Janz, J. Lapointe, M. Rahim, S. Wang, M. Vachon, R. Halir, A. Ortega-Moñux, G. Wangüemert-Pérez, I. Molina-Fernández, J. Pond, D. Benedikovic, C. Alonso-Ramos, J. Soler Penadés, M. Nedeljkovic, G.Z. Mashanovich, A.V. Velasco, M.L. Calvo, Y. Painchaud, M.-J. Picard, M. Poulin, M. Dado, J. Müllerová, **W.N. Ye**, M. Pápeš and V. Vašinek, “Subwavelength grating engineered metamaterial waveguide structures for silicon photonic integrated circuits,” 7<sup>th</sup> International Conference on Metamaterials, Photonic Crystals and Plasmonics (META’16), Torremolinos-Malaga, Spain, 25 to 28 July 2016.
- [C6] P. Cheben, J.H. Schmid, D.-X. Xu, S. Janz, J. Lapointe, M. Rahim, S. Wang, M. Vachon, R. Halir, A. Ortega-Moñux, G. Wangüemert-Pérez, I. Molina-Fernández, J. Pond, D. Benedikovic, C. Alonso-Ramos, L. Vivien, J. Soler Penadés, M. Nedeljkovic, G.Z. Mashanovich, A.V. Velasco, M.L. Calvo, Y. Painchaud, M.-J. Picard, M. Poulin, M. Dado, J. Müllerová, **W.N. Ye**, M. Pápeš and V. Vašinek, “Advances in silicon photonics: Exploiting subwavelength engineered metamaterials,” Photonics North, Jun 2016 (*Invited paper*)
- [C7] L. Goncharova, S. Dedyulin, R. Ge, **W. N. Ye**, S. Ding, “Lateral silicon structures for light-trapping enhancement in solar cells,” 2016 Canadian Association of Physicists (CAP16) Congress, Ottawa, Canada, Jun 2016.
- [C8] K. Aulakh, S. Zakaib, **W. N. Ye**, and W. Willmore, “Laser Induced Neuro-Stimulation Analysis,” 2016 Canadian Association of Physicists (CAP16) Congress, Ottawa, Canada, Jun 2016.
- [C9] Y. Sun and **W. N. Ye**, “CMOS compatible polarization rotator design based on asymmetrical periodic loaded waveguide structure,” oral presentation at the Photonics West 2016, San Francisco, USA, Feb 12-18, 2016.
- [C10] D. Gostimirovic and **W. N. Ye**, “Ultrafast all-optical adders based on hydrogenated amorphous silicon microring resonators,” oral presentation at the Photonics West 2016, San Francisco, USA, Feb 12-18, 2016. Proc. of SPIE Vol. 9752 97520X1-8, 2016.
- [C11] K. Aulakh, S. Zakaib, **W. N. Ye**, “Transcranial light-tissue interaction analysis,” oral presentation at the Photonics West 2016, San Francisco, USA, Feb 12-18, 2016.

- [C12] S. Li, N. G. Tarr, **W. N. Ye**, and P. Berini, "Pd Schottky Barrier Photodetector Integrated With LOCOS-Defined SOI Waveguides," 2015 *IEEE 12<sup>th</sup> International Conference on Group IV Photonics (GFP)*, Vancouver, Canada, Aug. 26-28, 2015.
- [C13] S. Y. Ding and **W. N. Ye**, "Nanotechnology for efficiency enhancement of single crystalline silicon solar cells," 17<sup>th</sup> Canadian Semiconductor Science and Technology Conference (CSSTC'15), Sherbrooke, Canada, Aug. 16-21, 2015.
- [C14] R. Ge, S. N. Dedyulin, L. V. Goncharova, S. Y. Ding and **W. N. Ye**, "Lateral silicon wires for effective light-trapping in solar cells," 17<sup>th</sup> Canadian Semiconductor Science and Technology Conference (CSSTC'15), Sherbrooke, Canada, Aug. 16-21, 2015.
- [C15] Y. Sun and **W. N. Ye**, "Novel Polarization Rotator Design Based on Asymmetrical Periodic Loaded SOI Waveguides", Photonics North 2015, Ottawa, Canada, June 9-12, 2015.
- [C16] D. Gostimirovic and **W. N. Ye**, "All-Optical Half-Adder Based on a Hydrogenated Amorphous Silicon Microring Resonator," Photonics North 2015, Ottawa, Canada, June 9-12, 2015.
- [C17] P. Cheben, D. Benedikovič, C. Alonso-Ramos, M. Pápeš, J.H. Schmid, D.-X. Xu, S. Janz, S. Wang, M. Vachon, G. Wangüemert-Pérez, R. Halir, A. Ortega-Moñux, I. Molina-Fernández, J.-M. Fédéli, J. Čtyroký, J. S. Penadés, M. Nedeljkovic, G. Mashanovic, **W. N. Ye**, M. Dado, J. Müllerová and V. Vašínek, "Subwavelength waveguide structures for optical interconnects and sensing," the International Conference on Transparent Optical Network (ICTON) 2015, July 5-9, 2015, Budapest, Hungary (invited).
- [C18] M. Papes, P. Cheben, **W. N. Ye**, J. H. Schmid, D.-X. Xu, S. Janz, D. Benedikovic, C. A. Ramos, R. Halir, A. Ortega-Monux, A. Delage and V. Vasinek, "Fiber-chip edge coupler with large mode size for silicon photonic wire waveguides", SPIE Europe Optics & Optoelectronics 2015, in *Proc. of SPIE* v. 9516, pp. 95160K1-6, Prague, Czech Republic. April 13-16, 2015.
- [C19] B. A. Dorin and **W. N. Ye**, "An Add-Drop Ring Resonator Constructed from Multimode Waveguides," 2014 *IEEE 11<sup>th</sup> International Conference on Group IV Photonics (GFP)*, pp. 131-132, Aug 27-29, 2014, Paris, France.
- [C20] Y. Xiong, D.-X. Xu, J. H. Schmid, P. Cheben, S. Janz, and **W. N. Ye**, "Broadband two-mode multiplexer with taper-etched directional coupler on SOI platform," 2014 *IEEE 11<sup>th</sup> International Conference on Group IV Photonics (GFP)*, pp. 39-40, Aug 27-29, 2014, Paris, France.
- [C21] R. Veenkamp and **W. N. Ye**, "ITO spacer for optimized plasmonic enhancement of aluminum nanocubes on a-Si solar cells," 2014 *IEEE 11<sup>th</sup> International Conference on Group IV Photonics (GFP)*, pp. 173-174, Aug 27-29, 2014, Paris, France.
- [C22] R. Veenkamp and **W. N. Ye**, "Enhancement in thin-film a-Si solar cells by metallic nanoparticles", 2014 *IEEE 14<sup>th</sup> International Conference on Nanotechnology (IEEE-Nano)*, pp. 560 – 562, Aug 18-21, 2014, Toronto, Canada.
- [C23] R. Veenkamp and **W. N. Ye**, "Plasmonic enhancement in thin-film a-Si solar cells using nanoparticles", *Photonics North 2014*, May 28-30 2014, Montreal, Canada.
- [C24] B. A. Dorin and **W. N. Ye**, "A two-mode division multiplexing filter demonstrated using a SOI ring resonator," 2014 *Optical Fiber Communications Conference and Exhibition (OFC)*, pp. 1-3, March 9-13, 2014, San Francisco, California, USA.
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- [C26] R. Veenkamp, S. Y. Ding, I. Smith, A. Bottomley, A. Ianoul, and **W. N. Ye**, "Silicon solar cell enhancement by plasmonic silver nanocubes", Photonics West 2014, in *Proc. SPIE* 8981, pp. 89811B1-6, San Francisco, CA, USA, Feb. 2014.
- [C27] S. Abdul-Majid, I. Hasan, R. Maldonado-Basilio, T. J. Hall, and **W. N. Ye**, "Photonic Integrated Interferometer Based on Silicon-on-Insulator Nano-Scale MMI Couplers," 2013 IEEE Photonics Conference (IPC), Bellevue, USA, Sep. 8-12, 2013.

- [C28] Y. Xiong and **W. N. Ye**, “Slotted Silicon Microring Resonators with Multimode Interferometer couplers,” 2013 10<sup>th</sup> *IEEE International Conference on Group IV Photonics (GFP)*, pp. 118-119, Seoul, Korea, Aug. 28-30, 2013.
- [C29] A. Aleali, D.-X. Xu, J. H. Schmid, P. Cheben and **W. N. Ye**, “Optimization of stress-induced pockels effect in silicon waveguides for optical modulators,” 2013 10<sup>th</sup> *IEEE International Conference on Group IV Photonics (GFP)*, pp. 109-110, Seoul, Korea, Aug. 28-30, 2013.
- [C30] B. Dorin, D. J. Goodwill, E. Berner, and **W. N. Ye**, “Large-scale wavelength and polarization insensitive optical switch on SOI from 1260 nm to 1360 nm,” in *Proc. SPIE 8915*, pp. 89150T1-6, *Photonics North 2013*, Jun 2013.
- [C31] Y. Xiong, D.-X. Xu, J. H. Schmid, P. Cheben, S. Janz, and **W. N. Ye**, “Silicon polarization rotator based on mode evolution using a silicon nitride over layer,” *Photonics North’13*, Jun 2013.
- [C32] A. Aleali, D.-X. Xu, J. H. Schmid, P. Cheben and **W. N. Ye**, “Stress-Induced Pockels Effect in Silicon Modulators,” *Photonics North’13*, Jun 2013.
- [C33] Y. Xiong and **W. N. Ye**, “All-optical single resonance control using a silicon-based Ring-Assisted Mach-Zehnder Interferometer (RAMZI),” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8629, pp. 86291D1-6, *Photonics West’13*, San Francisco, USA, Feb 2-3 2013.
- [C34] F. Hejazi, S. Y. Ding, Y. Sun, A. Bottomley, A. Ianoul, and **W. N. Ye**, “Improving photovoltaic devices using silver nanocubes,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8620, pp. 862004\_1-9, *Photonics West’13*, Jan 2013.
- [C35] **W. N. Ye** and T. Mussivand, “Ultracompact Biophotonic Sensing for Nitric Oxide Using Silicon Ring Resonators,” 2012 *IEEE-EMBS Micro and Nanotechnology in Medicine Conference*, Hawaii, USA, Dec 3-7, 2012.
- [C36] S. Y. Ding, Y. Sun, F. Hejazi, A. Bottomley, A. Ianoul, and **W. N. Ye**, “Design of Plasmonic Enhanced Silicon-based Solar Cells,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8412, pp. 84121L1-7, *Photonics North’12*, Montreal, Canada, Jun 6-8, 2012.
- [C37] M. Abdalla, A. Nagy, T. Mussivand, and **W. N. Ye**, “Overview of photo-induced therapy for ATP production,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8412, pp.841206\_1-7, *Photonics North’12*, Montreal, Canada, Jun 6-8, 2012.
- [C38] M. Ibrahim, J.H. Schmid, P.Cheben, S. Janz, D.-X. Xu, and **W. N. Ye**, “Athermal Silicon Subwavelength Grating Waveguides,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8412, pp. 84120Z1-6, *Photonics North’12*, Montreal, Canada, Jun 6-8, 2012.
- [C39] Y. Xiong and **W. N. Ye**, “Low-loss photonic wires defined by LOCAL Oxidation of Silicon (LOCOS),” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8265, pp. 82650D1-6, *Photonics West’12*, San Francisco, USA, Jan. 21-26, 2012.
- [C40] Y. Xiong and **W. N. Ye**, “Temperature-independent vertically coupled double-ring sensor,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 8266, pp. 826603\_1-6, *Photonics West’12*, San Francisco, USA, Jan. 21-26, 2012.
- [C41] P. Cheben, J.H. Schmid, P.J. Bock, J. Lapointe, S. Janz, D.-X. Xu, A. Densmore, A. Delège, R. Ma, R. Halir, B. Lamontagne, A. Ortega-Moñux, I. Molina Fernandez, J.-M. Fédéli, M. Ibrahim, **W. N. Ye** and T.J. Hall, “Silicon subwavelength photonics,” *Asia Communications and Photonics Conference (ACP)*, Shanghai, China, November 13-16, 2011.
- [C42] S. M. Etemad and **W. N. Ye**, “PV Solar Cells: Advantages and Challenges,” *Inter. Conf. on Environ. Pollution and Remediation*, Paper 72, 5 pages, Ottawa, Canada, 17-19 August 2011.
- [C43] P. Cheben, P. J. Bock, J. H. Schmid, J. Lapointe, S. Janz, D.-X. Xu, A. Densmore, A. Delège, R. Ma, R. Halir, B. Lamontagne, A. Ortega-Moñux, I. M. Fernandez, J.-M. Fédéli, M. Ibrahim, and **W. N. Ye**, “Subwavelength structures in SOI waveguides,” 8<sup>th</sup> *IEEE International Conference on Group IV Photonics (GFP’11)*, pp. 42-44, London, UK, Sep. 2011 (invited).
- [C44] M. Ibrahim, J. H. Schmid, P. Cheben, S. Janz, D.-X. Xu, and **W. N. Ye**, “Athermal Silicon Subwavelength Grating Waveguides,” 8<sup>th</sup> *IEEE International Conference on Group IV Photonics (GFP’11)*, pp. 258 – 260, London, UK, Sep. 2011.

- [C45] A. W. Tam, M. Ibrahim, B. Lamontagne, N. G. Tarr, **W. N. Ye**, S. Janz and D.-X. Xu, "Deep Submicron LOCOS-defined SOI photonic-wire waveguides," *8<sup>th</sup> IEEE International Conference on Group IV Photonics (GFP'11)*, London, UK, pp. 249-251, Sep. 2011. (1)
- [C46] J. H. Schmid, M. Ibrahim, P. Cheben, J. Lapointe, S. Janz, P. J. Bock, A. Densmore, **W. N. Ye** and D.-X. Xu, "Athermal silicon waveguides using the subwavelength grating effect," *Integrated Photonics Research, Silicon and Nano Photonics (IPR'11)*, paper IME3, Jun. 2011.
- [C47] M. Ibrahim, J. H. Schmid, P. Cheben, S. Janz, D.-X. Xu, and **W. N. Ye**, "Athermal Silicon Subwavelength Grating Waveguides," in *Proc. SPIE Int. Soc. Opt. Eng.*, 8007, pp 80070L1-6, *Photonics North'11, Ottawa, Canada*, May 2011. (1)
- [C48] Y. Xiong and **W. N. Ye**, "Vertically Coupled Si-based Athermal Double-Ring Biosensor," in *Proc. SPIE Int. Soc. Opt. Eng.*, 8007, pp 80070V1-6, *Photonics North'11, Ottawa, Canada*, May 2011. (1)
- [C49] A. W. Tam, E. Huante-Ceron, N. G. Tarr, A. P. Knights, and **W. N. Ye**, "Self-Aligned SOI Implant Damage Photodetector via LOCOS," *Photonics North 2011*, Ottawa, Canada, May 2011.
- [C50] **W. N. Ye**, K. Goshu, A. W. Tam, "Vertically Coupled Si-based Ring Resonators For Sensing Applications," *7<sup>th</sup> IEEE International Conference on Group IV Photonics*, pp. 66 – 68, Beijing, China, Sep. 2010.
- [C51] **W. N. Ye**, K. Goshu, "Vertically-coupled MicroRing Resonators," *International Conference on Nanotechnology: Fundamentals and Applications*, International Academy of Science, Engineering and Technology (ASET), Paper 565, Ottawa, Aug. 2010.
- [C52] T. Tut, P. Duane, W. N. Ye, M. Wober, and K. B. Crozier, "Silicon nitride light pipes for image sensors," in *Proc. of SPIE Int. Soc. Opt. Eng.*, vol. 7780, pp. 77800W1-10, *SPIE Optics + Photonics 2010*, San Diego, USA, Aug 2010.
- [C53] V. Raghunathan, **W. N. Ye**, J. Hu, T. Izahara, J. Michel, L. C. Kimerling, "Athermal Silicon Ring Resonators," *Integrated Photonics Research, Silicon and Nano Photonics (IPR)*, pp. Paper IMC5, 3pages, Monterey, California, USA, Jul. 2010.
- [C54] **W. N. Ye**, P. Duane, M. Wober, K. B. Crozier, "Fabrication of High-aspect ratio optical lightpipes using a dielectric photomask," in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 7591, pp. 75910D1-8, Jan. 2010. (2)
- [C55] **W. N. Ye**, P. Duane, M. Wober, K. B. Crozier, "Fabrication of High Aspect Ratio Optical Light Pipes," *Frontiers in Optics (FiO'09)*, Paper FTuV, San Jose, USA, Oct 11-15, 2009.
- [C56] E. Schonbrun, **W. N. Ye**, and K. B. Crozier, "Optical Trapping and Fluorescence Collection Using a Dual-Wavelength Diffractive Optic," *CLEO'09*, Paper CFP7, Baltimore, Maryland, USA, May, 2009.
- [C57] **W. N. Ye**, R. Sun, J. Michel, L. Eldada, D. Pant, and L. C. Kimerling, "Thermo-optical Compensation in High-index-contrast Waveguides," *5<sup>th</sup> IEEE International Conference on Group IV Photonics*, pp. 401 – 403, Italy, Sept. 2009.
- [C58] **W. N. Ye**, J. Michel, L. Eldada, D. Pant, R. Sun, P. Dong, M. Lipson, and L. C. Kimerling, "Thermo-optical Compensation in High-index-contrast Waveguides using Polymer Claddings," *Integrated Photonics and Nanophotonics Research and Applications (IPNRA)*, Paper: IWG3, Boston, Jul. 2008.
- [C59] **W. N. Ye**, J. Michel, L. C. Kimerling, L. Eldada, R. Sun, P. Dong, "Polymer-cladded athermal high-index-contrast waveguides," in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 6897, pp. 68970S1-S8, Jan. 2008. (1)
- [C60] P. Cheben, J. Schmid, A. Del ge, A. Densmore, M. Florjanczyk, S. Janz, B. Lamontagne, J. Lapointe, E. Post, P. Waldron, D.-X. Xu, and **W. N. Ye**, "Silicon-based arrayed waveguide grating microspectrometers and subwavelength structures," *IEEE/LEOS 5<sup>th</sup> Workshop on Fibres and Optical Passive Components WFOPC*, Taiwan, Dec. 2007.
- [C61] P. Cheben, J. H. Schmid, P. Waldron, A. Del ge, A. Densmore, S. Janz, B. Lamontagne, J. Lapointe, E. Post, D.-X. Xu, **W. N. Ye**, "Integrated optical spectrometer design in the high-index

- contrast silicon-on-insulator waveguide platform,” *13<sup>th</sup> Canadian Semiconductor Technology Conference*, Montreal, Canada, Aug. 2007.
- [C62] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, P. Cheben, J. Cabellaro, and N. G. Tarr, “Wavelength Independent SOI Polarization Splitter Based on Zero-order Arrayed Waveguide Grating,” *4<sup>th</sup> IEEE International Conference on Group IV Photonics*, pp. 1 – 3, Tokyo, Japan, Sept. 2007.
- [C63] D.-X. Xu, P. Cheben, A. Delâge, S. Janz, B. Lamontagne, M.-J. Picard, E. Post, P. Waldron and **W. N. Ye**, “Applications of Cladding Stress Induced Effects For Advanced Polarization Control in Silicon Photonics,” accepted for an oral presentation at the *Progress In Electromagnetics Research Symposium (PIERS’07)*, Beijing, China, Mar. 2007 (invited).
- [C64] S. Janz, P. Cheben, A. Delâge, A. Densmore, B. Lamontagne, E. Post, J. Schmid, P. Waldron, D.-X. Xu, K.P. Yap, and **W. N. Ye**, “Silicon Microphotonic Waveguide Technology for Sensing, Spectroscopy, and Communications,” in *Science and Technology of Dielectrics for Active and Passive Photonic Devices*, eds. P. Mascher, D. Misra, K. Worhoff, the *Electrochemical Society Fall Meeting (ECS’06)*, Cancun, Mexico, Oct. 2006, Vol. 3, no. 11, pp. 61-78 (invited).
- [C65] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, and N. G. Tarr, “Broadband Stress-induced SOI Polarization Splitters,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 6477, pp. 64770G1-G9, 2007.
- [C66] D.-X. Xu, S. Janz, P. Waldron, **W. N. Ye**, “Polarization-Insensitive Ring Resonators in SOI Using Cladding Stress,” in *Proc. SPIE Int. Soc. Opt. Eng.*, vol. 6477, pp. 64770D1-D12, 2007 (invited).
- [C67] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, and N. G. Tarr, “Stress-induced SOI Polarization Splitter Based on Mach-Zehnder Interferometers (MZI),” *IEEE Photonics Society’s 3<sup>rd</sup> International Conference on Group IV Photonics*, Ottawa, Canada, Sept. 2006, pp. 249 - 251. (1)
- [C68] D.-X. Xu, **W. N. Ye**, P. Cheben, A. Delâge, S. Janz, B. Lamontagne, M.-J. Picard, E. Post, “FEM Simulation Assisted Stress-Engineering for Polarization-Control in SOI Waveguide Components,” *Integrated Photonics Research Topical Meeting (IPR’06)*, Paper IME2, Connecticut, USA, Apr. 2006 (invited).
- [C69] D.-X. Xu, S. Janz, P. Cheben, **W. N. Ye**, “Design of Polarization-Insensitive SOI Ring Resonators Using Cladding Stress-Induced Birefringence and MMI Coupler,” *IEEE 2<sup>nd</sup> International Conference on Group IV Photonics*, pp. 201 – 203, Belgium, Sept. 2005.
- [C70] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, A. Delage, N. G. Tarr, “Novel Stress-induced Passive Polarization Splitters/Filters in Silicon-on-Insulator,” *12<sup>th</sup> Canadian Semiconductor Technology Conference*, Ottawa, Ontario, Aug. 2005.
- [C71] D.-X. Xu, **W. N. Ye**, A. Bogdanov, D. Dalacu, A. Delâge, P. Cheben, S. Janz, B. Lamontagne, M.-J. Picard, N. G. Tarr, “Stress engineering for the control of birefringence in SOI waveguide components,” *Photonics West 2005*, in *Proc. SPIE Int. Soc. Opt. Eng.* 5730, pp. 158-172, 2005 (invited). (6)
- [C72] D.-X. Xu, A. Delâge, P. Cheben, B. Lamontagne, S. Janz, **W. N. Ye**, “Silicon-on-insulator (SOI) as a photonics platform,” *12<sup>th</sup> International Symposium on Silicon-on-Insulator Technology and Devices*, Quebec City, May 2005 (invited).
- [C73] S. Janz, P. Cheben, A. Delage, B. Lamontagne, M.-J. Picard, D.-X. Xu, K.-P. Yap and **W. N. Ye**, “Enabling technologies for silicon-based microphotonics,” *Integrated Photonics Research and Applications/Nanophotonics for Information Systems Topical Meetings (IPRA’05)*, San Diego, CA, Feb. 2005 (invited).
- [C74] D.-X. Xu, J.-M. Baribeau, P. Cheben, D. Dalacu, A. Delâge, B. Lamontagne, S. Janz, M.-J. Picard, **W. N. Ye**, “Prospects and challenges for microphotonic waveguide components based on Si and SiGe,” *Electrochemical Society Fall Meeting (ECS’04) -SiGe: Materials Processing & Devices*, Honolulu, Hawaii, vol. 2004-07, Oct. 2004, pp. 619-633 (invited). (3)
- [C75] S. Janz, P. Cheben, A. Delage, B. Lamontagne, M.-J. Picard, D.-X. Xu, K.-P. Yap and **W. N. Ye**, “Silicon-Based Integrated Optics: Waveguide Technology to Microphotonics,” *Materials*

- Research Society Fall Meeting (MRS'04) - Group IV Semiconductor Nanostructures*, in MRS Proc. Vol. 832, Boston, MA, p3-14, Nov. 2004 (invited). (2)
- [C76] S. Janz, P. Cheben, A. Delage, B. Lamontagne, M.-J. Picard, D.-X. Xu, K. P. Yap, and **W. N. Ye**, "Microphotonics: current challenges and applications," *NATO Advanced Research Workshop on Frontiers in Planar Lightwave Circuit Technology*, Ottawa, Canada, Sept. 2004 (invited).
- [C77] S. Janz, P. Cheben, D. Dalacu, A. Del age, B. Lamontagne, M.-J. Picard, D.-X. Xu, **W. N. Ye**, "Tuning the modal birefringence in waveguide devices," *Integrated Photonics Research Topical Meeting (IPR'04)*, San Francisco, California, USA, Jun. 2004, Paper IFG3.
- [C78] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, M.-J. Picard, B. Lamontagne, and N. G. Tarr, "Stress Induced Birefringence in Silicon-on-insulator (SOI) Waveguides," in *Proc. SPIE Int. Soc. Opt. Eng.* 5357, pp. 57-66, Jan. 2004. (5)
- [C79] D.-X. Xu, S. Janz, P. Cheben, M.-J. Picard, B. Lamontagne, and N. G. Tarr, **W. N. Ye**, "Control and compensation of birefringence in SOI waveguides," Technical Digest, *IEEE Lasers and Electro-Optics Society: LEOS 16<sup>th</sup> Annual General Meeting*, Tucson, Arizona, USA, 2, pp. 590-591, 2003. (3)
- [C80] L. Brzozowski, **W. N. Ye**, and E. H. Sargent, "Pulse switching and compression in out-of-phase superimposed linear-nonlinear grating," Technical Digest, *IEEE Lasers and Electro-Optics Society: LEOS 2003 Summer Topical Meeting*, Vancouver, British Columbia, Canada, 1, pp.25-26, 2003.
- [C81] **W. N. Ye**, L. Brzozowski, E. H. Sargent, and D. Pelinovsky, "Nonlinear propagation of ultrashort pulses in nonlinear periodic materials with oppositely-signed Kerr coefficients," Technical Digest, *IEEE Lasers and Electro-Optics Society: LEOS 14<sup>th</sup> Annual General Meeting*, San Diego, California, USA, 2, pp. 441-442, 2001. (2)
- [C82] L. Brzozowski, E. V. Johnson, **W. N. Ye**, and E. H. Sargent, "Nonlinear periodic structures as building blocks of all-optical signal processing devices and systems," *Canada France Conference on Molecular Photonics and Electronics*, Chateau Montebello, Canada, 2001.

### **Non-refereed Papers and Presentations**

- [C83] **W. N. Ye**, "Silicon Waveguides and Waveguide-based Devices," invited talk Lumentum Operations LLC, Ottawa, Apr 28, 2017.
- [C84] **W. N. Ye**, "Silicon Photonics," invited seminar talk, IEEE Electron Devices Society (EDS) Vancouver Chapter, Vancouver, May 23, 2017.
- [C85] **W. N. Ye**, "Silicon-based Multimode Division Multiplexing," invited seminar talk, "Workshop on Passives" for the NSERC Silicon Electronic-Photonic Integrated Circuits (SiEPIC) Program, Ottawa, May 11, 2017.
- [C86] **W. N. Ye**, "Biomedical Applications of Photonics," invited seminar talk, IEEE-EMBS seminar, Nov 28, 2016.
- [C87] **W. N. Ye**, Y. Sun, Y. Xiong, B. Dorin, P. Cheben, J. H. Schmid, D.-X. Xu, S. Janz, "Ultracompact polarization splitter and rotators based on silicon-on-insulator," International conference on Advances in Electronic and Photonic Technologies – ADEPT'15,  trbsk  Pleso, High Tatras, Slovakia, Jun 1-5, 2015
- [C88] **W. N. Ye**, "Silicon-based nanophotonics for telecommunication, biomedical and renewable energy," Invited talk at the Physics seminar, University of Zilina, Slovakia, May 29, 2015 (invited)
- [C89] **W. N. Ye**, "Silicon photonics," Invited talk at the ECE seminar, University of Malaga, Spain, Sept 9, 2014 (invited).
- [C90] **W. N. Ye**, "Silicon photonics," Invited talk at the ECE seminar, University of Waterloo, Oct 18, 2013 (invited).
- [C91] **W. N. Ye**, "Silicon photonics," Invited talk at the Department of Physics Colloquium, University of Western Ontario, Oct 17, 2013 (invited).



- [C92] **W. N. Ye**, “Silicon Photonics at Carleton University,” Invited talk at the Silicon Photonics Workshop, organized by the Canadian Photonics Industry Consortium (CPIC), Sep 10-11, 2012 (invited).
- [C93] J. H. Schmid, P. Cheben, P. J. Bock, J. Lapointe, S. Janz, D.-X. Xu, M. Ibrahim and **W. N. Ye**, “A new degree of freedom for silicon integrated optics,” SPIE Newsroom. DOI: 10.1117/2.1201203.004145, 17 April 2012.
- [C94] **W. N. Ye**, “Silicon Photonics,” Invited speaker at the Microwave Photonics Seminar Series organized by IEEE Ottawa Section AP / MTT Joint Chapter, IEEE Photonics Society Ottawa Chapter, and IEEE Ottawa Section on Silicon Photonics, Feb 23, 2012 (invited).
- [C95] **W. N. Ye**, “Introduction to Biophotonics,” Invited talk at the Department of Physics Colloquium, Queen’s University, Dec 2, 2011 (invited).
- [C96] M. Ibrahim, J. H. Schmid, P. Cheben, S. Janz, D.-X. Xu, and **W. N. Ye**, “Athermal Silicon Subwavelength Grating Waveguides,” *Canadian Institute for Photonic Innovations (CIPI) Student Conference 2011*, Niagra Falls, Canada, June 2011.
- [C97] **W. N. Ye**, “Nanophotonics: The fascinating world of light at the nano-scale,” Spring Conference, Gananoque, Canada, April 29-May 1, 2011 (invited).
- [C98] **W. N. Ye**, “Introduction to Biophotonics,” University of Ottawa Heart Institute (UOHI), Ottawa, Jan 25, 2011 (invited).
- [C99] **W. N. Ye**, “Silicon Photonics,” Invited talk at the Department of Physics Colloquium, Carleton University, Ottawa, Nov. 2, 2010.
- [C100] **W. N. Ye**, “Silicon Photonics in Nanotechnology: Biosensors and Thin-film Solar Cells,” *Carleton-Israel Nanotechnology Workshop*, Ottawa, Oct 4-5, 2010 (invited speaker).
- [C101] **W. N. Ye**, “Silicon-based sensors,” Ottawa Hospital Research Institute (OHRI), Ottawa, Canada, Sep. 21, 2010 (invited).
- [C102] **W. N. Ye**, “Silicon Photonics: Devices, Applications and Challenges,” *International Conference on Nanotechnology: Fundamentals and Applications*, International Academy of Science, Engineering and Technology (ASET), Ottawa, Aug. 2010 (invited keynote speaker).
- [C103] **W. N. Ye**, “Silicon-based sensors,” Children's Hospital of Eastern Ontario (CHEO) Research Institute, Ottawa, Canada, Jul. 19, 2010 (invited).
- [C104] **W. N. Ye**, “Silicon-based polarization splitters and sensors,” Neptec Design Group, Ottawa, Canada, Jul. 15, 2010 (invited).
- [C105] **W. N. Ye**, “Silicon-based polarization splitters and sensors,” Ciena Corporation, Ottawa, Canada, Jun. 30, 2010 (invited).
- [C106] **W. N. Ye**, K. Goshu, and A. Tam, “Vertically Coupled Si-based Ring Resonators For Sensing Applications,” *Canadian Institute for Photonic Innovations (CIPI) Student Conference 2010*, Niagra Falls, Canada, June 2010.
- [C107] **W. N. Ye**, “Optical Device Design, Fabrication and Characterization,” Seminar Series, Ottawa-Carleton Optical Society of America Student Chapter, Ottawa, Canada, Nov. 19, 2009 (invited).
- [C108] **W. N. Ye**, “Materials and Design Optimization for Opto-electronic Integration,” Department of Electronics Seminar Series, Carleton University, January 3, 2008 (invited).
- [C109] **W. N. Ye**, J. Michel, and L. C. Kimerling, “Athermal high-index-contrast waveguide design and its Applications in Opto-electronic Integration,” poster presentation at Materials Day, Massachusetts Institute of Technology, October 16, 2007.
- [C110] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, N. Garry Tarr, “Novel Stress-induced Passive Polarization Splitters/Filters ,” poster presentation at the 2007 MIT Microphotonics Center Spring Meeting, Cambridge, USA, April 17-18, 2007.
- [C111] **W. N. Ye**, D.-X. Xu, S. Janz, P. Waldron, N. Garry Tarr, “Stress Engineering For Polarization Control In SOI And Its Applications In Novel Passive Polarization Splitters/Filters,” poster

presentation at the *Canadian Institute for Photonic Innovations (CIPI) Student Conference 2006*, Quebec City, QC, Canada, June 2006.

[C112] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, B. Lamontagne, N. Garry Tarr, "Modeling, Design, and Fabrication of Novel Photonic Devices," *Japan Society for the Promotion of Science (JSPS) Summer Exchange Program*, Sokendai, Hayama, Japan, June 2005. [**Won Best Poster Presentation Award.**]

[C113] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, B. Lamontagne, N. Garry Tarr, "Silicon-on-Insulator (SOI) Platform For Making Multifunctional and High-density Integrated Photonics Devices," *German-Canadian Young Scientists Photonics Forum*, Munich, Germany, June 2005.

[C114] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, B. Lamontagne, M.-J. Picard, N. Garry Tarr, "Stress Engineering in Silicon-on-insulator (SOI) waveguides interferometric devices," poster presentation at *the Workshop for Si-based Photonics*, Hamilton, Ontario, Canada, Nov 12, 2004.

[C115] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, B. Lamontagne, M.-J. Picard, N. Garry Tarr, "Stress Engineering for birefringence control in Silicon-on-insulator (SOI) waveguides," poster presentation at *the Photonics Research Ontario (PRO) Student Forum*, Ottawa, Ontario, Canada, September 27 – 30, 2004 (invited). [**Won Best Student Poster Presentation Award.**]

[C116] **W. N. Ye**, D.-X. Xu, S. Janz, P. Cheben, B. Lamontagne, M.-J. Picard, N. Garry Tarr, "Birefringence Control Using Stress Engineering for Silicon-on-insulator (SOI) Waveguides," oral presentation at *the Canadian Institute for Photonic Innovations (CIPI) Student Conference 2004*, Sherbrooke, QC, Canada, June 19 – 22, 2004. [**Won Best Oral Presentation Award.**]

[C117] **W. N. Ye**, L. Brzozowski, and E. H. Sargent, "Periodic nonlinear optical signal processing devices," poster presentation at the *Photonics Research Ontario (PRO) Retreat*, Niagara-on-the-lake, Ontario, Canada, 2002.

[C118] L. Brzozowski and **W. N. Ye**, "Photonic crystals for integrated optical computing," poster presentation at *the Photonics Research Ontario (PRO) Retreat*, Niagara-on-the-lake, Ontario, Canada, 2001.

[C119] L. Brzozowski, **W. N. Ye**, C. Paquet, and E. H. Sargent, "Research in emerging technologies for the optical internet: periodicity and nonlinearity combined," *Nortel Networks Advanced Technology Group*, Ottawa, Canada, December 11, 2001.

[C120] E. H. Sargent, L. Brzozowski, **W. N. Ye**, C. Paquet, M. Allard, R. Golding, E. Istrate, E. Kumacheva, and J. Zhang, "Integrated optical interconnection, logic, routing and signal processing on planar substrates using self-organized photonic crystals," *Nortel Networks Advanced Technology Group*, Ottawa, Canada, December 12, 2001.

[C121] **W. N. Ye** and M. Frize, "Study of Artificial Neural Networks for Neonatal Intensive Care Unit (NICU)," Carleton University, Ottawa, Ontario, Canada, 2000.