

MICHAL LIPSON, PHD

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ADDRESS

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EDUCATION

B.S. Physics , Technion, Israel, 1992

M.S. Physics, Technion, Israel, 1994

Ph.D. Physics, Technion, Israel, 1998

ACADEMICS

Eugene Higgins Professor of Electrical Engineering, Columbia University, Columbia University, 2015-present

Given Professor of Engineering, School of Electrical and Computer Engineering, Cornell University, 2013-2015

Associate Professor, School of Electrical and Computer Engineering, Cornell University, 2007-2013

Assistant Professor, School of Electrical and Computer Engineering, Cornell University, 2001 – 2007

Postdoctoral Associate, Department of Material Science, Massachusetts Institute of Technology (MIT) 1999 – 2001

HONORS AND AWARDS

IEEE PHOTONICS AWARD, 2019

R. W. Wood Prize, Optical Society of America (OSA), 2017

Thomson-Reuter, top 1% most highly cited researcher in Physics every year since 2014

IEEE Fellow, 2013

MacArthur Fellow, 2010

Blavatnik Award, NY State Academy of Science, 2010

Optical Society of America (OSA) Fellow, 2007

Fulbright Fellowship, 2007

IBM Faculty Award, 2006

NSF CAREER Award, 2004

ADVISORY BOARD MEMBERSHIP

National Academies AMO Decadal Survey Committee (2018 -
Scientific Board Member, The Quantum Valley Ideas Lab (QVIL), Waterloo, CA (2018-
Elected Board Member, Optical Society of America, (2016-
Advisory Board Member, Department of Electrical and Computer Engineering (ECE) at Rice
University (2013-)
Scientific Board Member, the New York Academy of Sciences Blavatnik Award for Young
Scientists (2013-)
Co-Founder and Board Member, PicoLuz, Inc. (2009-)
Board Member, CRANN Nanoscience Institute, Trinity College Dublin, Ireland (2012-)
Editorial advisory Board Member, Advanced Optical Materials (2014-2016)
Elected Member of the Board of Governors, IEEE Photonics (2009-2012).
Editorial Board Member, Scientific Reports, Nature Publishing Group, (2012-2013)
Advisory Board Member, IEEE Photonics Journal, (2008-2012)

SELECTED SOCIETY AND CONFERENCE ORGANIZATION LEADERSHIP

General Chair, Conference on Lasers and Electro Optics (CLEO), San Jose, CA, 2019.
Technical Chair, Conference on Lasers and Electro Optics (CLEO), San Jose, CA, 2017.
Organizer, Workshop on Emerging Topics in Optics, institute for match and its applications,
university of Minnesota, April 24 - 28, 2017
Technical Program Committee Member, Conference on Lasers and Electro Optics (CLEO), San
Jose, CA, May 10-15, 2010-2015.
Member, IEEE 2013 Young Investigator Award Committee 2012.
Technical Program Committee member, Optical Society of America (OSA) Annual Meeting-
Frontiers in Optics (FiO), Orlando, FL, October 6-10, 2013.
Subcommittee member, Light-Matter Interactions at the Nanoscale, Conference on Lasers and
Electro-Optics Europe(CLEO/Europe) and International Quantum Electronics Conference
(IQEC), Munich, Germany, June 16-20, 2013.
Subcommittee member, Latin America Optics and Photonics (LAOP) Conference, Sao Paulo,
Brazil, 11-13 November, 2012.
Subcommittee member, Nanophotonics, Conference on Lasers and Electro Optics (CLEO),
2010-2011
Subcommittee member, Nanophotonics Devices and Applications, Integrated Photonics
Research and Applications (IPRA), Monterey, California, July 25-28 2010.
Guest Editor, IEEE Journal of Selected Topics in Quantum Electronics 2009
Committee member, 2009,NAE Frontiers of Engineering, Beckman Center, Irvine CA
September 10-12, 2009.
Subcommittee Chair, Micro- & Nano-Photonics, Conference on Lasers and Electro Optics
(CLEO), 2007-2009.
Subcommittee Chair, Optical Society of America (OSA) Integrated Optics Technical Group,
2004- 2007.

Technical program committee member, the 21st Annual Meeting of the IEEE Lasers and Electro-Optics (IEEE/LEOS) Society, Newport Beach, CA, November 9-13, 2008.

Technical program committee member, 2008 Slow and Fast Light Topical Meeting, Boston, MA, July 13-16, 2008.

Co-Chair, Frontiers in Nanophotonics and Plasmonics, Guaruja, SP Brazil, November 9-14, 2007.

Committee member, Optical Interconnects & Processing Systems Committee, Annual Meeting of the IEEE Lasers and Electro Optics Society, Lake Buena Vista, FL, October 21-25, 2007.

Program Committee member, Frontiers in Optics (FiO) - Optical Society of America (OSA) Annual Meeting, San Jose, California, September 16-20, 2007.

Subcommittee chair, Nanophotonics Devices and Applications Integrated Photonics Research and Applications (IPRA), Salt Lake City, July 9-13, 2007.

Subcommittee member, Nanophotonics Committee, Annual Meeting of the IEEE Lasers and Electro Optics (IEEE/LEOS) Society, Montreal, Quebec, Canada, October 29-November 2, 2006.

Topical Editor, Integrated Optics, Optics Letters, 2005-2006

Committee Member, International Advisory Committee, Group IV Photonics, Ottawa, Ontario, Canada, September 13-15, 2006.

Subcommittee chair, Nanophotonics Devices and Applications Integrated Photonics Research and Applications (IPRA), Salt Lake City, Utah, July 9-13, 2006.

Subcommittee member, Fundamentals of Metamaterials, Conference on Lasers and Conference on Lasers and Electro-Optics (CLEO), Long Beach, CA, May 21-26, 2006.

Co-Chair, MRS Symposium on Silicon Photonics, March, San Francisco, April 17-21, 2006.

JOURNAL PUBLICATIONS [CITATIONS: =34,295, H-INDEX: 92 (GOOGLE SCHOLAR)]

1. A. Mohanty, Q. Li, M.A. Tadayon, G. Bhatt, E. Shim, X. Ji, J. Cardenas, S. A. Miller, A. Kepecs, M. Lipson. "A reconfigurable nanophotonics platform for sub-millisecond, deep brain neural stimulation" *arXiv:1805.11663*, 2018
2. M. Yu, Y. Okawachi, C. Joshi, X. Ji, M. Lipson, and A. L. Gaeta. "Gas-Phase microresonator-based comb spectroscopy without an external pump laser" *ACS Photonics Article ASAP*, 2018
3. J.K. Jang, A Klenner, X Ji, Y Okawachi, M Lipson, AL Gaeta. "Synchronization of coupled optical microresonators" *arXiv:1806.02328*, 2018
4. M. Zadka, Y. Chang, A. Mohanty, C. T. Phare, S. P. Roberts, and M. Lipson. "On-chip platform for a phased array with minimal beam divergence and wide field-of-view." *Opt. Express* 26, 2528–2534, 2018.
5. A. Dutt, C. Joshi, X. Ji, J. Cardenas, Y. Okawachi, K. Luke, A. L. Gaeta, and M. Lipson. "On-chip dual-comb source for spectroscopy." *Science Advances* 4, no. 3, 2018.
6. C. Joshi, M. Yu, K. Luke, X. Ji, A. Klenner, Y. Okawachi, M. Lipson, and A. L. Gaeta. "Counter-rotating cavity solitons in a silicon nitride microresonator." *Optics Letters* 43, no. 3, 2018.
7. C. Wang, M. Zhang, B. Stern, M. Lipson, and M. Lončar. "Nanophotonic lithium niobate electro-optic modulators." *Optics Express* vol. 26, no. 2, pp. 1547 (2018)
8. M. Yu, J. K. Jang, Y. Okawachi, A. G. Griffith, K. Luke, S. A. Miller, X. Ji, M. Lipson, and A. L. Gaeta, "Breather soliton dynamics in microresonators," *Nature Communications*, vol. 8, 2017.

9. B. S. Lee, M. Zhang, F. A. Barbosa, S. A. Miller, A. Mohanty, R. St-Gelais, and M. Lipson, "On-chip thermo-optic tuning of suspended microresonators," *Opt. Express*, vol. 25, no. 11, pp. 12109–12120, 2017.
10. Y. Okawachi, M. Yu, J. Cardenas, X. Ji, M. Lipson, and A. L. Gaeta, "Coherent, directional supercontinuum generation," *Opt. Lett.*, vol. 42, no. 21, pp. 4466–4469, 2017.
11. M. Yu, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Microresonator-based high-resolution gas spectroscopy," *Opt. Lett.*, vol. 42, no. 21, pp. 4442–4445, 2017.
12. A. Mohanty, M. Zhang, A. Dutt, S. Ramelow, P. Nussenzveig, and M. Lipson, "Quantum interference between transverse spatial waveguide modes," *Nature Communications*, vol. 8, p. 14010, 2017.
13. R. St-Gelais, G. R. Bhatt, L. Zhu, S. Fan, and M. Lipson, "Hot Carrier-Based Near-Field Thermophotovoltaic Energy Conversion," *ACS Nano*, vol. 11, no. 3, pp. 3001–3009, 2017.
14. R. Fain, F. Barbosa, J. Cardenas, and M. Lipson, "Photonic Needles for Light Delivery in Deep Tissue-like Media," *Sci. Rep.*, vol. 7, no. 1, p. 5627, 2017.
15. X. Ji, F. A. Barbosa, S. P. Roberts, A. Dutt, J. Cardenas, Y. Okawachi, A. Bryant, A. L. Gaeta, and M. Lipson, "Ultra-low-loss on-chip resonators with sub-milliwatt parametric oscillation threshold," *Optica*, vol. 4, no. 6, pp. 619–624, 2017.
16. B. Stern, X. Ji, A. Dutt, and M. Lipson, "Compact narrow-linewidth integrated laser based on a low-loss silicon nitride ring resonator," *Opt. Lett.*, vol. 42, no. 21, pp. 4541–4544, 2017.
17. B. Zhao, K. Chen, S. Buddhiraju, G. Bhatt, M. Lipson, and S. Fan, "High-performance near-field thermophotovoltaics for waste heat recovery," *Nano Energy*, vol. 41, pp. 344–350, 2017.
18. C. Joshi, J. K. Jang, K. Luke, X. Ji, S. A. Miller, A. Klenner, Y. Okawachi, M. Lipson, and A. L. Gaeta, "Thermally controlled comb generation and soliton modelocking in microresonators," *Opt. Lett.*, vol. 41, no. 11, pp. 2565–2568, 2016.
19. J. K. Jang, Y. Okawachi, M. Yu, K. Luke, X. Ji, M. Lipson, and A. L. Gaeta, "Dynamics of mode-coupling-induced microresonator frequency combs in normal dispersion," *Opt. Express*, vol. 24, no. 25, pp. 28794–28803, 2016.
20. M. Yu, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Mode-locked mid-infrared frequency combs in a silicon microresonator," *Optica*, vol. 3, no. 8, pp. 854–860, 2016.
21. Y. Okawachi, M. Yu, K. Luke, D. O. Carvalho, M. Lipson, and A. L. Gaeta, "Quantum random number generator using a microresonator-based Kerr oscillator," *Opt. Lett.*, vol. 41, no. 18, pp. 4194–4197, 2016.
22. A. Klenner, A. S. Mayer, A. R. Johnson, K. Luke, M. R. Lamont, Y. Okawachi, M. Lipson, A. L. Gaeta, and U. Keller, "Gigahertz frequency comb offset stabilization based on supercontinuum generation in silicon nitride waveguides," *Opt. Express*, vol. 24, no. 10, pp. 11043–11053, 2016.
23. A. S. Mayer, C. R. Phillips, C. Langrock, A. Klenner, A. R. Johnson, K. Luke, Y. Okawachi, M. Lipson, A. L. Gaeta, and M. M. Fejer, "Offset-free gigahertz mid-infrared frequency comb based on optical parametric amplification in a periodically poled lithium niobate waveguide," *Physical Review Applied*, vol. 6, no. 5, p. 054009, 2016.
24. R. St-Gelais, L. Zhu, S. Fan, and M. Lipson, "Near-field radiative heat transfer between parallel structures in the deep subwavelength regime," *Nature Nanotech*, vol. 11, no. 6, pp. 515–519, 2016.
25. A. G. Griffith, M. Yu, Y. Okawachi, J. Cardenas, A. Mohanty, A. L. Gaeta, and M. Lipson, "Coherent mid-infrared frequency combs in silicon-microresonators in the presence of Raman effects," *Opt. Express*, vol. 24, no. 12, pp. 13044–13050, 2016.
26. A. Dutt, S. Miller, K. Luke, J. Cardenas, A. L. Gaeta, P. Nussenzveig, and M. Lipson, "Tunable squeezing using coupled ring resonators on a silicon nitride chip," *Opt. Lett.*, vol. 41, no. 2, pp. 223–226, 2016.
27. A. R. Johnson, A. S. Mayer, A. Klenner, K. Luke, E. S. Lamb, M. R. Lamont, C. Joshi, Y. Okawachi, F. W. Wise, and M. Lipson, "Octave-spanning coherent supercontinuum

- generation in a silicon nitride waveguide,” *Opt. Lett.*, vol. 40, no. 21, pp. 5117–5120, 2015.
28. B. Guha and M. Lipson, “Controlling thermo-optic response in microresonators using bimaterial cantilevers,” *Opt. Lett.*, vol. 40, no. 1, pp. 103–106, 2015.
 29. M. Zhang, S. Shah, J. Cardenas, and M. Lipson, “Synchronization and phase noise reduction in micromechanical oscillator arrays coupled through light,” *Phys. Rev. Lett.*, vol. 115, no. 16, p. 163902, 2015.
 30. S. A. Miller, Y. Okawachi, S. Ramelow, K. Luke, A. Dutt, A. Farsi, A. L. Gaeta, and M. Lipson, “Tunable frequency combs based on dual microring resonators,” *Opt. Express*, vol. 23, no. 16, pp. 21527–21540, 2015.
 31. S. L. Mouradian, T. Schröder, C. B. Poitras, L. Li, J. Goldstein, E. H. Chen, M. Walsh, J. Cardenas, M. L. Markham, and D. J. Twitchen, “Scalable integration of long-lived quantum memories into a photonic circuit,” *Physical Review X*, vol. 5, no. 3, p. 031009, 2015.
 32. Y. Okawachi, M. Yu, K. Luke, D. O. Carvalho, S. Ramelow, A. Farsi, M. Lipson, and A. L. Gaeta, “Dual-pumped degenerate Kerr oscillator in a silicon nitride microresonator,” *Opt. Lett.*, vol. 40, no. 22, pp. 5267–5270, 2015.
 33. K. Luke, Y. Okawachi, M. R. Lamont, A. L. Gaeta, and M. Lipson, “Broadband mid-infrared frequency comb generation in a Si₃N₄ microresonator,” *Opt. Lett.*, vol. 40, no. 21, pp. 4823–4826, 2015.
 34. M. Fridman, Y. Okawachi, S. Clemmen, M. Ménard, M. Lipson, and A. L. Gaeta, “Waveguide-based single-shot temporal cross-correlator,” *Journal of Optics*, vol. 17, no. 3, p. 035501, 2015.
 35. J. Cardenas, M. Yu, Y. Okawachi, C. B. Poitras, R. K. Lau, A. Dutt, A. L. Gaeta, and M. Lipson, “Optical nonlinearities in high-confinement silicon carbide waveguides,” *Opt. Lett.*, vol. 40, no. 17, pp. 4138–4141, 2015.
 36. Stern, X. Zhu, C. P. Chen, L. D. Tzuang, J. Cardenas, K. Bergman, and M. Lipson, “On-chip mode-division multiplexing switch,” *Optica*, vol. 2, no. 6, pp. 530–535, 2015.
 37. S. Y. Shah, M. Zhang, R. Rand, and M. Lipson, “Master-slave locking of optomechanical oscillators over a long distance,” *Phys. Rev. Lett.*, vol. 114, no. 11, p. 113602, 2015.
 38. C.T. Phare, Y.-H. D. Lee, J. Cardenas, and M. Lipson, “Graphene electro-optic modulator with 30 GHz bandwidth,” *Nat Photon*, vol. 9, no. 8, pp. 511–514, 2015.
 39. A. Dutt, K. Luke, S. Manipatruni, A. L. Gaeta, P. Nussenzeig, and M. Lipson, “On-chip optical squeezing,” *Physical Review Applied*, vol. 3, no. 4, p. 044005, 2015.
 40. Austin G. Griffith, Ryan K.W. Lau, Jaime Cardenas, Yoshitomo Okawachi, Aseema Mohanty, Romy Fain, Yoon Ho Daniel Lee, Mengjie Yu, Christopher T. Phare, Carl B. Poitras, Alexander L. Gaeta and Michal Lipson, “Silicon-chip mid-infrared frequency comb generation”, *Nature Communications* volume 6, 6299 (2015)
 41. A. S. Mayer, A. Klenner, A. R. Johnson, K. Luke, M. Lamont, Y. Okawachi, M. Lipson, A. L. Gaeta, and U. Keller, “Frequency comb offset detection using supercontinuum generation in silicon nitride waveguides,” *Opt. Express*, vol. 23, no. 12, pp. 15440–15451, 2015.
 42. J. Cardenas, C. B. Poitras, K. Luke, L.-W. Luo, P. A. Morton, and M. Lipson, “High coupling efficiency etched facet tapers in silicon waveguides,” *IEEE Photon. Technol. Lett.*, vol. 26, no. 23, pp. 2380–2382, 2014.
 43. Y. Okawachi, M. R. Lamont, K. Luke, D. O. Carvalho, M. Yu, M. Lipson, and A. L. Gaeta, “Bandwidth shaping of microresonator-based frequency combs via dispersion engineering,” *Opt. Lett.*, vol. 39, no. 12, pp. 3535–3538, 2014.
 44. R. K. Lau, M. R. Lamont, A. G. Griffith, Y. Okawachi, M. Lipson, and A. L. Gaeta, “Octave-spanning mid-infrared supercontinuum generation in silicon nanowaveguides,” *Opt. Lett.*, vol. 39, no. 15, pp. 4518–4521, 2014.
 45. A. R. Johnson, Y. Okawachi, M. R. Lamont, J. S. Levy, M. Lipson, and A. L. Gaeta, “Microresonator-based comb generation without an external laser source,” *Opt. Express*, vol. 22, no. 2, pp. 1394–1401, 2014.

46. M. Soltani, J. Lin, R. A. Forties, J. T. Inman, S. N. Saraf, R. M. Fulbright, M. Lipson, and M. D. Wang, "Nanophotonic trapping for precise manipulation of biomolecular arrays," *Nature Nanotech*, vol. 9, no. 6, pp. 448–452, 2014.
47. R. St-Gelais, B. Guha, L. Zhu, S. Fan, and M. Lipson, "Demonstration of strong near-field radiative heat transfer between integrated nanostructures," *Nano Lett.*, vol. 14, no. 12, pp. 6971–6975, 2014.
48. L. D. Tzuang, M. Soltani, Y.-H. D. Lee, and M. Lipson, "High RF carrier frequency modulation in silicon resonators by coupling adjacent free-spectral-range modes," *Opt. Lett.*, vol. 39, no. 7, pp. 1799–1802, 2014.
49. L.-W. Luo, N. Ophir, C. P. Chen, L. H. Gabrielli, C. B. Poitras, K. Bergmen, and M. Lipson, "WDM-compatible mode-division multiplexing on a silicon chip," *Nature Communications*, vol. 5, p. 3069, 2014.
50. S. Miller, K. Luke, Y. Okawachi, J. Cardenas, A. L. Gaeta, and M. Lipson, "On-chip frequency comb generation at visible wavelengths via simultaneous second-and third-order optical nonlinearities," *Opt. Express*, vol. 22, no. 22, pp. 26517–26525, 2014.
51. S. Ramelow, A. Farsi, S. Clemmen, J. S. Levy, A. R. Johnson, Y. Okawachi, M. R. Lamont, M. Lipson, and A. L. Gaeta, "Strong polarization mode coupling in microresonators," *Opt. Lett.*, vol. 39, no. 17, pp. 5134–5137, 2014.
52. K. Padmaraju, X. Zhu, L. Chen, M. Lipson, and K. Bergman, "Intermodulation crosstalk characteristics of WDM silicon microring modulators," *IEEE Photonics Technology Letters*, vol. 26, no. 14, pp. 1478–1481, 2014.
53. L. D. Tzuang, K. Fang, P. Nussenzeig, S. Fan, and M. Lipson, "Non-reciprocal phase shift induced by an effective magnetic flux for light," *Nat Photon*, vol. 8, no. 9, pp. 701–705, 2014.
54. D. Moss, R. Morandotti, A. L. Gaeta, and M. Lipson, "New CMOS-compatible platforms based on silicon nitride and Hydex for nonlinear optics," *Nat Photon*, vol. 7, no. 8, pp. 597–607, 2013.
55. J. Cardenas, P. A. Morton, J. B. Khurgin, A. Griffith, C. B. Poitras, K. Preston, and M. Lipson, "Linearized silicon modulator based on a ring assisted Mach Zehnder interferometer," *Opt. Express*, vol. 21, no. 19, pp. 22549–22557, 2013.
56. S. Manipatruni, M. Lipson, and I. A. Young, "Device scaling considerations for nanophotonic CMOS global interconnects," *IEEE J. Select. Topics Quantum Electron.*, vol. 19, no. 2, pp. 8200109–8200109, 2013.
57. K. Luke, A. Dutt, C. B. Poitras, and M. Lipson, "Overcoming Si₃N₄ film stress limitations for high quality factor ring resonators," *Opt. Express*, vol. 21, no. 19, pp. 22829–22833, 2013.
58. J. Cardenas, M. Zhang, C. T. Phare, S. Y. Shah, C. B. Poitras, B. Guha, and M. Lipson, "High q sic microresonators," *Opt. Express*, vol. 21, no. 14, pp. 16882–16887, 2013.
59. Y.-H. D. Lee and M. Lipson, "Back-end deposited silicon photonics for monolithic integration on CMOS," *IEEE J. Select. Topics Quantum Electron.*, vol. 19, no. 2, pp. 8200207–8200207, 2013.
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61. B. Guha, J. Cardenas, and M. Lipson, "Athermal silicon microring resonators with titanium oxide cladding," *Opt. Express*, vol. 21, no. 22, pp. 26557–26563, 2013.
62. K. Saha, Y. Okawachi, B. Shim, J. S. Levy, R. Salem, A. R. Johnson, M. A. Foster, M. R. Lamont, M. Lipson, and A. L. Gaeta, "Modelocking and femtosecond pulse generation in chip-based frequency combs," *Opt. Express*, vol. 21, no. 1, pp. 1335–1343, 2013.
63. A. Liu, L. H. Gabrielli, M. Lipson, and S. G. Johnson, "Transformation inverse design," *Opt. Express*, vol. 21, no. 12, pp. 14223–14243, 2013.
64. M. Soltani, J. Inman, M. Lipson, and M. D. Wang, "Electro-Optofluidics: Achieving Dynamic Control On-Chip," *Biophysical Journal*, vol. 104, no. 2, p. 503a, 2013.
65. L. H. Gabrielli, D. Liu, S. G. Johnson, and M. Lipson, "On-chip transformation optics for

- multimode waveguide bends,” *Nature Communications*, vol. 3, p. 1217, 2012.
66. K. Padmaraju, J. Chan, L. Chen, M. Lipson, and K. Bergman, “Thermal stabilization of a microring modulator using feedback control,” *Opt. Express*, vol. 20, no. 27, pp. 27999–28008, 2012.
 67. P. A. Morton, J. Cardenas, J. B. Khurgin, and M. Lipson, “Fast thermal switching of wideband optical delay line with no long-term transient,” *IEEE Photon. Technol. Lett.*, vol. 24, no. 6, pp. 512–514, 2012.
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 72. M. Zhang, G. S. Wiederhecker, S. Manipatruni, A. Barnard, P. McEuen, and M. Lipson, “Synchronization of micromechanical oscillators using light,” *Phys. Rev. Lett.*, vol. 109, no. 23, p. 233906, 2012.
 73. H. Lira, Z. Yu, S. Fan, and M. Lipson, “Nonlinear Dynamics, Fluid Dynamics, Classical Optics, etc.-Electrically Driven Nonreciprocity Induced by Interband Photonic Transition on a Silicon Chip 033901,” *Phys. Rev. Lett.*, vol. 109, no. 3, 2012.
 74. Y. Yue, H. Huang, L. Zhang, J. Wang, J.-Y. Yang, O. F. Yilmaz, J. S. Levy, M. Lipson, and A. E. Willner, “UWB monocycle pulse generation using two-photon absorption in a silicon waveguide,” *Opt. Lett.*, vol. 37, no. 4, pp. 551–553, 2012.
 75. A. R. Johnson, Y. Okawachi, J. S. Levy, J. Cardenas, K. Saha, M. Lipson, and A. L. Gaeta, “Chip-based frequency combs with sub-100 GHz repetition rates,” *Opt. Lett.*, vol. 37, no. 5, pp. 875–877, 2012.
 76. Y. Okawachi, A. L. Gaeta, and M. Lipson, “Breakthroughs in nonlinear silicon photonics 2011,” *IEEE Photonics J.*, vol. 4, no. 2, pp. 601–606, 2012.
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 - A. Guha, K. Preston, and M. Lipson, “Athermal silicon microring electro-optic modulator,” *Opt. Lett.*, vol. 37, no. 12, pp. 2253–2255, 2012.
 81. N. Ophir, R. K. Lau, M. Ménard, R. Salem, K. Padmaraju, Y. Okawachi, M. Lipson, A. L. Gaeta, and K. Bergman, “First demonstration of a 10-Gb/s RZ end-to-end four-wave-mixing based link at 1884 nm using silicon nanowaveguides,” *IEEE Photonics Technology Letters*, vol. 24, no. 4, pp. 276–278, 2012.
 82. K. Saha, Y. Okawachi, J. S. Levy, R. K. Lau, K. Luke, M. A. Foster, M. Lipson, and A. L. Gaeta, “Broadband parametric frequency comb generation with a 1- μ m pump source,” *Opt. Express*, vol. 20, no. 24, pp. 26935–26941, 2012.

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TEXTBOOKS AND CHAPTERS

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SELECTED KEYNOTE AND PLENARY TALKS

7th conference on Advances in Optoelectronics and Micro/nano-optics (AOM 2018), Xi'an, China, October 9 -12, 2018 **(Plenary)**

International Quantum Cascade Laser School and Workshop, "Photonics on Chip", Cassis, France, September 2-7 2018 **(Keynote)**

NFO-15 The 15th International Conference on Near Field Optics, nanophotonics & Related Techniques, Troyes France August 26-31 2018 **(Plenary)**

SIAM Conference on Mathematical Aspects of Materials Science, "Photonics on Chip", Portland, Oregon, July 9-11 2018 **(Plenary)**

2018 OSA Advanced Photonics Congress, "Photonics on Chip", Zurich, Switzerland, July 2-5 2018 **(Keynote)**

2018 XLI Brazilian Physical Society, “ Next Generation Silicon Photonics” Foz do Iguaçu, Brazil, May 6 -11, 2018**(Plenary)**

The “Technology Innovation Science Match”. , “Photonics on Chip”, Franhauffer Institute, Berlin, Germany, February 22 2018 **(Keynote)**

The IEEE Photonics Annual Meeting, “Photonics on Chip” , Orlando, Florida, October 1-5, 2017 **(Plenary)**

International Conference on Optical MEMS and Nanophotonics (OMN2017) INCP 2017 Santa Fe NM, Aug 1-4, 2017 **(Keynote)**

10th International Conference on Nanophotonics, “Photonics on Chip” Recife-PE, Brazil, July 2-5, 2017 **(Keynote)**

EOSAM 2016, “Next Generation Silicon Photonics” Berlin, Germany, Sept 26-30, 2016 **(Plenary)**

FiO-Optical Society of America Annual Meeting, Rochester, NY October 10, 2016 **(Plenary)**

International Conference on Computer-Aided Design, “Manipulating Light on Chip”, Irvine, CA November 13-17 2016 **(Keynote)**

The Device Research Conference, University of Delaware, “Novel Materials for Photonics” Newark, Delaware, June 19-22 2016 **(Plenary)**

International Year of Light 2015 Celebration, University of Sydney, “Public lecture that looks forward and imagines the future”, Sydney, Australia, December 8, 2015 **(Keynote)**

Micro + Nano Materials, Devices, and Applications Conference, SPIES, “Strong Interaction between Photons, Phonons, and Electrons Enabled, by Silicon Photonics”, Sydney, Australia, December 7, 2015 **(Plenary)**

The 39th Annual Conference of the Division of Atomic, Molecular, and Optical Physics, The Dutch Physical Society AMO Meeting, “Extreme Manipulation of Light Using Nano Photonics”, Lunteren, Netherlands, October 13-14, 2015 **(Keynote)**

The 2015 Blavatnik Science Symposium, “Computing at the Speed of Light” The New York Academy of Science, New York, NY, August 6, 2015 **(Keynote)**

SPIE Europe 2014, “Pushing the boundaries of silicon photonics”, Brussels, Belgium, April 14-17, 2014 **(Plenary)**

SPIE- Photonics West “Pushing the boundaries of silicon photonics”, San Francisco, CA, February 1-6, 2014 **(Plenary)**

Progress In Electromagnetics Research Symposium (PIERS), “Photonic transitions for enabling non reciprocity in silicon”, Stockholm, Sweden, August 12-15, 2013 **(Keynote)**

Symposium on Nanophotonics for Detection and Sensing, Israel, “Fundamental phenomena in high confinement photonics”, Institute of Technology, Israel, January 20-21, 2013 **(Keynote)**

Optics and Photonics Taiwan, International Conference, “High confinement silicon photonics”, Taipei, Taiwan, December 6-8, 2012 **(Plenary)**

OptoElectronics and Communications Conference, “Silicon photonics”, Busan, Korea, July 2-6, 2012 **(Plenary)**

Centre for Advanced Systems and Technologies in Communications Summer School, McGill University, “Silicon photonics”, Montreal, Quebec, June 14-15, 2012 **(Keynote)**

Conference on Lasers and Electro-Optics (CLEO) Europe, “Manipulating light on chip”, Munich, Germany, May 22 – 26, 2011 (**Keynote**)

The International Conference Nanoscale Materials and Devices for Energy Conversion, “Manipulating light on chip”, Natal, Brazil, April 4 – 6, 2011 (**Plenary**)

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