Curriculum Vitae: Alexander L. Gaeta

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Education

B. S. (1983), M. S. (1985), and Ph. D. (1991) in Optics, University of Rochester, Rochester, New York; *Doctoral Thesis Title*: Stochastic and deterministic fluctuations in stimulated Brillouin scattering; *Advisor*: Professor R. W. Boyd.

Research Interests

Ultrafast nonlinear optics, nanophotonics, nonlinear propagation in fibers and bulk media, optical frequency combs, coherent interactions of laser light with matter, application of nonlinear optics to quantum information, stimulated scattering processes.

Professional Positions

Academic

David M. Rickey Professor of Applied Physics and Professor of Electrical Engineering, Columbia University, 2015-.

Samuel B. Eckert Professor of Engineering, School of Applied and Engineering Physics, Cornell University, 2013-2015.

Director, School of Applied and Engineering Physics, Cornell University, 2011 - 2014.

Director, NSF Center for Nanoscale Systems in Information Technologies, Cornell University, 2007-2012.

Professor, School of Applied and Engineering Physics, Cornell University, 2004 - 2013.

Associate Director, School of Applied and Engineering Physics, Cornell University, 2006 - 2007.

Director of Graduate Studies, School of Applied and Engineering Physics, Cornell University, 1999 - 2004.

Associate Professor, School of Applied and Engineering Physics, Cornell University, 1998 - 2004.

Assistant Professor, School of Applied and Engineering Physics, Cornell University, 1992 - 1998.

Postdoctoral Associate, Institute of Optics, University of Rochester, 1990 - 1992.

Commercialization

Co-founded PicoLuz, Inc. (w/ Michal Lipson and Alex Cable), 2010.

Co-founded Xscape Photonics, Inc. (w/ Michal Lipson, Keren Bergman, and Yoshi Okawachi), 2022.

Service

Selected Editorial Roles
Founding Editor-in-Chief, *Optica*, Optical Society of America (2013 - 2019).

Editorial Board, *New Journal of Physics*, 2005 - 2008.

Selected Research Administration and Service to Societies
Chair, Publications Council, Optical Society of America, 2021-2024.

Member, Long-Term Publications Group, Optical Society of America, 2010-2012.

Director-at-Large, Board of Directors, Optical Society of America, 2008-2010

I. I. Rabi Prize Committee of the American Physical Society, 2007-2010.

Member, Strategic Planning Committee, Optical Society of America, 2006-2008.

Chair, Science and Engineering Council Optical Society of America, 2004-2006.

Executive Committee, Member-at-Large, Division of Laser Science, American Physical Society, 2004-2005.

Chair, Division of Quantum Electronics, Optical Society of America, term 2000-2002.

Selected Conference Organization
Program Chair, Nonlinear Photonics Topical Meeting, July, 2014, Barcelona.

General Chair, Nonlinear Optics Topical Meeting, August 2009, Hawaii.

General Chair, 2007 Quantum Electronics and Laser Science Conference, Baltimore.

Program Chair, Nonlinear Optics Topical Meeting, August 2007, Hawaii.

Program Chair, 2005 Quantum Electronics and Laser Science Conference, Baltimore, MD.

Chair, Frontiers in Optics 2003: Annual Meeting of the Optical Society of America, Tucson, AZ.

Mentorship

PhD Students Supervised

Imad Agha (University of Dayton), Amar Bhagwat (Northwestern), Daniel Broaddus, Prathamesh Donvalkar (Intel), Alessandro Farsi (PsiQ), Mark Foster (Johns Hopkins), Saikat Ghosh (IIT-Kanpur), Jared Ginsberg, Taylor Grow (Coherent Technologies), Chris Hensley (Thorlabs), Doug Homoelle (LLNL), Adrea Johnson (Honeywell), Chaitali Joshi (Cal Tech), Chaitanya Joshi (Nokia), Mary Lanzerotti (Air Force Academy), Ryan Lau, Kevin Moll (Precision Photonics), Yoshi Okawachi (Columbia), Dimitre Ouzounov (Cornell), Gauri Patwardhan (Pacific Biosciences), Jinendra Ranka (JASR), Kasturi Saha (IIT-Bombay), Robert Schirmer (Applied Physics Labs), Samuel Schrauth (LLNL), Vivek Venkataraman (IIT-Delhi), Luat Vuong (UC-Riverside), Henry Wen (Oxford), Stephan Wielandy (Lucent-Alcatel), Mengjie Yu (Harvard)

Postdoctoral Associates Supervised

Alessandro Farsi (PsiQ), Stephane Clemmen (Ghent), Mark Foster (Johns Hopkins), Moti Fridman (Bar Ilan), Xiaohui Gao (Shaoxing University), David Geraghty (Stanford), Amiel Ishaaya (Ben Gurion), Mehdi Jadidi (PsiQ, Inc,)Alexander Klenner, Onur Kuzucu (Middle East Technical University), Michael Lamont (Cornell), Pablo Londero (Yale), Sven Ramelow (Humboldt University-Berlin), Reza Salem (Thorlabs), Jay Sharping (UC–Merced), Bonggu

Shim (SUNY – Binghamton), Aaron Slepkov (Trent University), Alexandre Streltsov (Corning, Inc.)

Awards

Charles H. Townes Award, Optical Society of America (2019).

Thomson Reuters Highly Cited Researcher (2019, 2021).

Fellow of the Institute for Electrical and Electronics Engineers (IEEE).

Fellow of the American Physical Society (APS).

Fellow of the Optical Society of America (OSA).

College of Engineering Teaching Award, Cornell University, 1997, 2000, 2003, and 2007.

Army Research Office Young Investigator Award, 1995.

Office of Naval Research Young Investigator Award, 1993.

Publications [Total citations: >34,000, *h*-index: 92 (Google Scholar)]

1. C. Joshi, B. Sparkes, A. Farsi, T. Gerrits, V. Verma, S. Ramelow, S. W. Nam, A. L. Gaeta, "Picosecond-resolution single-photon time lens for temporal mode quantum processing," to be published in *Optica* (2022).
2. M. Yu, C. Reimer, D. Barton, P. Kharel, R. Cheng, L. He, L. Shao, D. Zhu, Y. Hu, H. R. Grant, L. Johansson, Y. Okawachi, A. L. Gaeta, M. Zhang, and M. Lončar, "Femtosecond pulse generation via an integrated electro-optic time lens," arXiv:2112.09204.
3. E. Shim, A. Gil-Molina, O. Westreich, Y. Dikmelik, K. Lascola, A. L. Gaeta, and M. Lipson, "Tunable narrow linewidth chip-scale mid-IR laser," *Commun. Phys.* **4**, 268 (2021).
4. Y. Zhao, J. K. Jang, Y. Okawachi, A. L. Gaeta, "Theory of $\chi^{(2)}$-microresonator-based frequency conversion," *Opt. Lett.* **46**, 5393 (2021).
5. Y. Okawachi, B. Y. Kim, Y. Zhao, X. Ji, M. Lipson, and A. L. Gaeta, "Dynamic control of photon lifetime for quantum random number generation," *Optica* **8**, 1458 (2021).
6. B. Y. Kim, J. K. Jang, Y. Okawachi, X. Ji, M. Lipson, and A. L. Gaeta, "Synchronization of non-solitonic Kerr combs," *Sci. Adv.* **7**, eabi4362 (2021).
7. X. Ji, D. Mojahed, Y. Okawachi, A. L. Gaeta, C. P. Hendon, and M. Lipson, "Millimeter-scale chip–based supercontinuum generation for optical coherence tomography," *Sci. Adv.* **7**, eabg8869 (2021).
8. R. Oliver, Y. Okawachi, X. Ji, A. R. Johnson, A. Klenner, M. Lipson, and A. L. Gaeta, "Soliton-effect compression of picosecond pulses on a photonic chip," *Opt. Lett.* **46**, 4706 (2021).
9. J. K. Jang, Y. Okawachi, Y. Zhao, X. Ji, C. Joshi, M. Lipson, and A. L. Gaeta, "Conversion efficiency of soliton Kerr combs," *Opt. Lett.* **46**, 3657 (2021).
10. G. N. Patwardhan, J. S. Ginsberg, C. Y. Chen, M. M. Jadidi, and A. L. Gaeta, "Nonlinear refractive index of solids in mid-infrared," *Opt. Lett.* **46**, 1824 (2021).
11. R. R. Domeneguetti, Y. Zhao, X. Ji, M. Martinelli, M. Lipson, A. L. Gaeta, and P. Nussenzveig, "Parametric sideband generation in CMOS-compatible oscillators from visible to telecom wavelengths," *Optica* **8**, 316 (2021).

12. M. M. Jadidi, M. Kargarian, M. Mittendorff, Y. Aytac, B. Shen, J. C. König-Otto, S. Winnerl, N. Ni, A. L. Gaeta, T. E. Murphy, and H. D. Drew, "Nonlinear optical control of chiral charge pumping in a topological Weyl semimetal," *Phys. Rev. B* **102**, 245123 (2020).

13. X. Ji, J. K. Jang, U. D. Dave, M. Corato-Zanarella, C. Joshi, A. L. Gaeta, and M. Lipson, "Exploiting ultralow loss multimode waveguides for broadband frequency combs," *Laser Photonics Rev.* 2000353 (2020).

14. M. Glick, N. C. Abrams, Q. Cheng, M. Y. Teh, Y.-H. Hung, O. Jimenez, S. Liu, Y. Okawachi, L. Johannson, M. Ghobadi, L. Dennison, G. Michelogiannakis, J. Shalf, A. Liu, J. Bowers, A. L. Gaeta, M. Lipson, and K. Bergman, "PINE: Photonic integrated networked energy efficient datacenters (Enlightened program) [Invited]," *J. Opt. Commun. Netw*. **12**, 443 (2020).

15. J. S. Ginsberg, A. C. Overvig, M. M. Jadidi, S. C. Malek, G. N. Patwardhan, N. Swenson, N. Yu, A. L. Gaeta, "Enhanced harmonic generation in gases using an all-dielectric metasurface," *Nanophotonics* **10**, 733 (2020).

16. Y. Okawachi, M. Yu, J. K. Jang, X. Ji, Y. Zhao, B. Y. Kim, M. Lipson, and A. L. Gaeta, "Demonstration of chip-based coupled degenerate optical parametric oscillators for realizing a nanophotonic spin-glass," *Nat. Commun.* **11**, 4119 (2020).

17. Y. Okawachi, M. Yu, B. Desiatov, B. Y. Kim, T. Hansson, M. Lončar, A. L. Gaeta, "Chip-based self-referencing using integrated lithium niobate waveguides," *Optica* **7**, 707 (2020).

18. Y. Zhao, Y. Okawachi, J. K. Jang, X. Ji, M. Lipson, and A. L. Gaeta, "Near-degenerate quadrature-squeezed vacuum generation on a silicon-nitride chip," *Phys. Rev. Lett.* **124**, 193601 (2020).

19. L. M. Krüger, A. S. Mayer, Y. Okawachi, X. Ji, A. Klenner, A. R. Johnson, C. Langrock, M. M. Fejer, M. Lipson, A. L. Gaeta, V. J. Wittwer, T. Südmeyer, C. R. Phillips, and U. Keller, "Performance scaling of a 10-GHz solid-state laser enabling self-referenced CEO frequency detection without amplification," *Opt. Express* **28**, 12755 (2020).

20. C. Joshi, A. Farsi, A. Dutt, B. Y. Kim, X. Ji, Y. Zhao, A. M. Bishop, M. Lipson, A. L. Gaeta, "Frequency-domain quantum interference with correlated photons from an integrated microresonator," *Phys. Rev. Lett.* **124**, 143601 (2020).

21. Y. Zhao, X. Ji, B. Kim, P. Donvalkar, J. Jang, C. Joshi, M. Yu, C. Joshi, R. Domeneguetti, F. Barbosa, P. Nussenzveig, Y. Okawachi, M. Lipson, and A. Gaeta, "Visible nonlinear photonics via high-order-mode dispersion engineering," *Optica* **7**, 135 (2020).

22. M. Yu, Y. Okawachi, R. Cheng, C. Wang, M. Zhang, A. L. Gaeta, and M. Lončar, "Raman lasing and soliton modelocking in lithium-niobate microresonators," *Light Sci. Appl.* **9**, 9 (2020).

23. J. K. Jang, X. Ji, C. Joshi, Y. Okawachi, M. Lipson, and A. L. Gaeta, "Observation of Arnold tongues in coupled soliton Kerr frequency combs," *Phys. Rev. Lett.* **123**, 153901 (2019).

24. B. Y. Kim, Y. Okawachi, J. K. Jang, M. Yu, X. Ji, Y. Zhao, C. Joshi, M. Lipson, and A. L. Gaeta, "Turn-key, high-efficiency Kerr comb source," *Opt. Lett.* **44**, 4475 (2019).

25. M. Yu, Y. Okawachi, A. Griffith, M. Lipson, and A. L. Gaeta, "Microfluidic mid-infrared spectroscopy via microresonator-based dual-comb source," *Opt. Lett.* 44, 4259 (2019).

26. A. Shams-Ansari, P. Latawiec, Y. Okawachi, V. Venkataraman, M. Yu, B. Desiatov, H. Atikian, G. L. Harris, N. Picqué, A. L. Gaeta, and M. Lončar, "Supercontinuum generation in angle-etched diamond waveguides," *Opt. Lett.* **44**, 4056 (2019).

27. X. Ji, X. Yao, A. Klenner, Y. Gan, A. L. Gaeta, C. P. Hendon, and M. Lipson, "Chip-based frequency comb sources for optical coherence tomography," *Opt. Express* **27**, 19896 (2019).

28. S. Ramelow, A. Farsi, Z. Vernon, S. Clemmen, X. Ji, J. E. Sipe, M. Liscidini, M. Lipson, and A. L. Gaeta, "Strong nonlinear coupling in a Si_3N_4 chip," *Phys. Rev. Lett.* **122**, 153906 (2019).

29. G. Patwardhan, X. Gao, A. Sagiv, A. Dutt, J. Ginsberg, A. Ditkowski, G. Fibich, and A. L. Gaeta, "Loss of polarization in collapsing beams," *Phys. Rev. A* **99**, 033824 (2019).

30. A. L. Gaeta, M. Lipson, and T. J. Kippenberg, "Photonic-chip-based frequency combs," *Nat. Photon.* **13**, 158 (2019).

31. M. Yu, B. Desiatov, Y. Okawachi, A. L. Gaeta, and M. Lončar, "Coherent two-octave-spanning supercontinuum generation in lithium-niobate waveguides," *Opt. Lett.* **44**, 1222 (2019).

32. D. Waldburger, A. S. Mayer, C. G. E. Alfieri, J. Nürnberg, A. R. Johnson, X. Ji, A. Klenner, Y. Okawachi, M. Lipson, A. L. Gaeta, and U. Keller, "Tightly locked optical frequency comb from a semiconductor disk laser," *Opt. Express* **27**, 1786 (2019).

33. L. Koehler, P. Chevalier, E. Shim, B. Desiatov, A. Shams-Ansari, M. Piccardo, Y. Okawachi, M. Yu, M. Loncar, M. Lipson, A. Gaeta, and F. Capasso, "Direct thermo-optical tuning of silicon microresonators for the mid-infrared," *Opt. Express* **26**, 34965 (2018).

34. J. K. Jang, A. Klenner, X. Ji, Y. Okawachi, M. Lipson, and A. L. Gaeta, "Synchronization of coupled optical microresonators," *Nature Phot.* **12**, 688 (2018).

35. B. Stern, X. Ji, Y. Okawachi, A. L. Gaeta, and M. Lipson, "Battery-operated integrated frequency comb generator," *Nature* **561**, 401 (2018).

36. Y. Okawachi, M. Yu, J. Cardenas, X. Ji, A. Klenner, M. Lipson, A. L. Gaeta, "Carrier envelope offset detection via simultaneous supercontinuum and second harmonic generation in a silicon-nitride waveguide," *Opt. Lett.* **43**, 4627 (2018).

37. T. J. Kippenberg, A. L. Gaeta, M. Lipson, M. L. Gorodetsky, "Dissipative Kerr solitons in optical microresonators," *Science* **361**, 567 (2018).

38. M. Yu, Y. Okawachi, C. Joshi, X. Ji, M. Lipson, A. L. Gaeta, "Gas-phase microresonator-based comb spectroscopy without an external pump laser," *ACS Photonics* **5**, 2780 (2018).

39. X. Gao, G. Patwardhan, B. Shim, T. Popmintchev, H. C. Kapteyn, M. M. Murnane, and A. L. Gaeta, "Ionization-assisted spatiotemporal localization in gas-filled capillaries," *Opt. Lett.* **43**, 3112 (2018).

40. M. Yu, Y. Okawachi, A. G. Griffith, N. Picqué, M. Lipson, A. L. Gaeta, "Silicon-chip-based mid-infrared dual-comb spectroscopy," *Nature Comm.* **9**, 1869. (2018).

41. 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 Adv.* **4**, e1701858 (2018).

42. C. Joshi, A. Farsi, S. Clemmen, S. Ramelow, and A. L. Gaeta, "Frequency multiplexing for quasi-deterministic heralded single-photon sources," *Nature Comm.* **9**, 847 (2018).

43. D. A. Romanov, X. Gao, A. L. Gaeta, and R. J. Levis, "Intrapulse impact processes in dense-gas femtosecond laser filamentation," *Phys. Rev. A* **97**, 063411 (2018).

44. S. Clemmen, A. Farsi, S. Ramelow, A. L. Gaeta, "All-optically tunable buffer for single photons," *Opt. Lett.* **43**, 2138 (2018).

45. C. Joshi, A. Klenner, Y. Okawachi, M. Yu, K. Luke, X. Ji, M. Lipson, and A. L. Gaeta, "Counter-rotating cavity solitons in a silicon nitride microresonator," *Opt. Lett.* **43**, 547 (2018).

46. Y. Okawachi, M. Yu, J. Cardenas, X. Ji, M. Lipson, and A. L. Gaeta, "Coherent, directional supercontinuum via cascaded dispersive wave generation," *Opt. Lett.* **42**, 4466 (2017).

47. M. Yu, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Microresonator-based high resolution gas spectroscopy," *Opt. Lett.* **42**, 4442 (2017).

48. Y. Okawachi, M. Yu, V. Venkataraman, P. M. Latawiec, A. G. Griffith, M. Lipson, M. Loncar, and A. L. Gaeta, "Competition between Raman and Kerr effects in microresonator comb generation, *Opt. Lett.* **42**, 2086 (2017).

49. S. A. Miller, M. Yu, X. Ji, A. G. Griffith, J. Cardenas, A. L. Gaeta, and M. Lipson, "Low-loss silicon platform for broadband mid-infrared photonics," *Optica* **4**, 707 (2017).

50. X. Ji, F. A. S. 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* **4**, 619 (2017).

51. 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 Comm.,* **8**, 14569 (2017).

52. X. Gao, G. Patwardhan, S. Schrauth, D. Zhu, T. Popmintchev, H. C. Kapteyn, M. M. Murnane, D. A. Romanov, R. J. Levis, and A. L. Gaeta, "Picosecond ionization dynamics in femtosecond filaments at high pressures," *Phys. Rev. A* **95**, 013412 (2017).

53. S. Clemmen, A. Farsi, S. Ramelow, and A. L. Gaeta, "Ramsey interference with single photons," *Phys. Rev. Lett.* **117**, 223601 (2016).

54. Y. H. Wen, M. R. E. Lamont, S. H. Strogatz, and A. L. Gaeta, "Self-organization in Kerr-cavity-soliton formation in parametric frequency combs," *Phys. Rev. A* **94**, 063843 (2016).

55. 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* **24**, 28794 (2016).

56. A. S. Mayer, C. R. Phillips, C. Langrock, A. Klenner, A. R. Johnson, K. Luke, Y. Okawachi, M. Lipson, A. L. Gaeta, M. M. Fejer, and U. Keller, "Offset-free gigahertz mid-infrared frequency comb based on optical parametric amplification in a periodically poled lithium niobate waveguide," *Phys. Rev. Applied* **6**, 054009 (2016).

57. 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.* **41**, 4194 (2016).

58. R. I. Grynko, D. L. Weerawarne, X. Gao, H. Liang, H. J. Meyer, K.-H. Hong, A. L. Gaeta, and B. Shim, "Inhibition of multi-filamentation of high power laser beams," *Opt. Lett.* **41**, 4064 (2016).

59. M. Yu, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Modelocked mid-infrared frequency combs in a silicon microresonator," *Optica* **3**, 854 (2016).

60. 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* **24**, 13044 (2016).

61. 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.* **41**, 2565 (2016).

62. A. Klenner, A. S. Mayer, A. R. Johnson, K. Luke, M. R. E. 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* **24**, 11043 (2016).

63. 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.* **41**, 223 (2016).

64. D. Popmintchev,C. Hernández-García, F. Dollar, C. Mancuso, J. A. Pérez-Hernández, M.-C. Chen, A. Hankla, X. Gao, B. Shim, A. L. Gaeta, M. Tarazkar, D. A. Romanov, R. J. Levis, J. A. Gaffney, M. Foord, S. B. Libby, A. Jaron-Becker, A. Becker, L. Plaja, M. M. Murnane, H. C.

Kapteyn, T. Popmintchev, "Ultraviolet surprise: Efficient soft x-ray high-harmonic generation in multiply ionized plasmas," *Science* **4**, 1225 (2015).

65. P. S. Donvalkar, S. Ramelow, S. Clemmen, and A. L. Gaeta, "Continuous generation of Rubidium vapor in hollow-core photonic bandgap fibers," *Opt. Lett.* **40**, 5379 (2015).
66. 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.* **40**, 5267 (2015).
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68. K. Luke, Y. Okawachi, M. R. E. Lamont, A. L. Gaeta, and M. Lipson, "Broadband mid-infrared frequency comb generation in a Si_3N_4 microresonator," *Opt. Lett.* **40**, 4823 (2015).
69. J. Cardenas, M. Yu, Y. Okawachi, C. B. Poitras, R. K. W. Lau, A. Dutt, A. L. Gaeta, and M. Lipson, "Optical nonlinearities in high-confinement silicon carbide waveguides," *Opt. Lett.* **40**, 4138 (2015).
70. 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* **23**, 21527 (2015).
71. R. K. W. Lau, M. R. E. Lamont, Y. Okawachi, and A. L. Gaeta, "Effects of multiphoton absorption on parametric comb generation in silicon microresonators," *Opt. Lett.* **40**, 2778 (2015).
72. A. S. Mayer, A. Klenner, A. R. Johnson, K. Luke, M. R. E. Lamont, Y. Okawachi, M. Lipson, A. L. Gaeta, and U. Keller, "Frequency comb offset detection using supercontinuum generation in silicon nitride waveguides," *Opt. Express* **23**, 15440 (2015).
73. A. Dutt, K. Luke, S. Manipatruni, A. L. Gaeta, P. Nussenzveig, and M. Lipson, "On-chip optical squeezing," *Phys. Rev. Applied* **3**, 044005 (2015).
74. A. G. Griffith, R. K W. Lau, J. Cardenas, Y. Okawachi, A. Mohanty, R. Fain, Y. H. D. Lee, M. Yu, C. T. Phare, C. B. Poitras, A. L. Gaeta, and M. Lipson, "Silicon-chip mid-infrared frequency comb generation," *Nature Comm.* **6**, 6299 (2015).
75. M. Fridman, Y. Okawachi, S. Clemmen, M. Menard, M. Lipson, A. L. Gaeta, "Waveguide-based single-shot temporal cross-correlator," *J. Opt.* **17**, 035501 (2015).
76. D. L. Weerawarne, B. Shim, X. Gao, and A. L. Gaeta "Higher-order nonlinearities revisited and their effect on harmonic generation," *Phys. Rev. Lett.* **114**, 093901 (2015).
77. 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* **22**, 26517 (2014).
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79. R. K. W. Lau, M. R. E. Lamont, A. Griffith, Y. Okawachi, M. Lipson, and A. L. Gaeta, "Octave-spanning mid-infrared supercontinuum generation in silicon nanowaveguides," *Opt. Lett*. **39**, 4518 (2014).
80. Y. Okawachi, M. R. E. 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*. **39**, 3535 (2014).

81. P. S. Donvalkar, V. Venkataraman, S. Clemmen, K. Saha, and A. L. Gaeta, "Frequency translation via four-wave mixing Bragg scattering in Rb filled photonic bandgap fibers," *Opt. Lett.* **39**, 1557 (2014).

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84. D. J. Moss, R. Morandotti, A. L. Gaeta, and M. Lipson, "New CMOS-compatible platforms based on silicon nitride and Hydex for nonlinear optics," *Nature Phot.* **7**, 597 (2013).

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