Yoshitomo Okawachi, Ph.D.

Applied Physics and Applied Mathematics
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Research and Professional Experience

Research Scientist, Columbia University (Jul. 2015 - Present)
Principal Investigator: Alexander L. Gaeta

- Lab Manager for Gaeta Group
- Mentoring postdoctoral associate, Ph.D. students, and undergraduates
- Writing and editing manuscripts, progress reports, and research proposals

Research Associate, Cornell University (Jun. 2011 - Jun. 2015)
Principal Investigator: Alexander L. Gaeta

Postdoctoral Associate, Cornell University (Jun. 2008 - May 2011)
Principal Investigator: Alexander L. Gaeta

Visiting Research Assistant, University of Campinas (Jul. - Aug. 2007)
Principal Investigator: Hugo L. Fragnito

Education

Cornell University, School of Applied and Engineering Physics

Ph.D., *Applied Physics*, 2008

- Dissertation Title: "Slow Light and Tunable All-Optical Delays"
- Thesis Committee: Alexander L. Gaeta (Chair), Michal Lipson, Chris Xu

M.S., *Applied Physics*, 2006

M.Eng., *Engineering Physics*, 2003

B.S., *Engineering Physics*, 2002

Research Interests

We study and engineer nonlinear interaction between light and matter in photonic structures. Research areas include optical frequency comb generation in silicon-based waveguides and microresonators, coherent computing based on degenerate optical parametric oscillation in microresonators, parametric nonlinear interactions in photonic devices, slow light, and all-optical signal processing using space-time duality techniques.

Professional Activities

- Associate Editor for Optics Letters: Nonlinear Optics and Ultrafast Photonics (2018 – Present)
- Vice Chair, Ultrafast Optical Phenomena (OU), OSA Technical Group (2020 – Present)
- Vice Chair, Integrated Photonics (PI), OSA Technical Group (2019 – Present)
- Asia Communications and Photonics Conference Subcommittee: Micro-, Nano-, and Quantum Photonics (2020 – 2021)
- Frontiers in Optics Subcommittee 2: Optical Interactions (2019 – 2020)
- CLEO Subcommittee S&I 4: Nonlinear Optical Technologies (2015 – 2018)
- Latin America Optics and Photonics Conference Subcommittee: Nonlinear Optics (2018 – 2019)
- OSA Publishing Journal Rapid Action Committee (2017)
- OSA Tellers Committee (2015 – 2017)
- Reviewer: Science, Nat. Mater., Nat. Photon., Nat. Phys., Nat. Commun., Science Adv., Optica, Laser Photonics Rev., Phys. Rev. Lett., Phys. Rev. X, Sci. Rep., APL Photonics, Commun. Phys., IEEE J. Sel. Top. Quantum Electron., Opt. Lett., Opt. Express, Appl. Phys. Lett., IEEE/OSA J. Lightwave Technol., IEEE Photon. J., IEEE Photon. Technol. Lett., IEEE

J. Quantum Electron., Appl. Phys. B, J. of the Opt. Soc. Am. B, Appl. Opt., Opt. Commun., J. Mod. Opt.

- Ivan P. Kaminow Outstanding Early Career Professional Prize Review Committee (2018,2019)
- Siegman International School on Lasers Review Committee (2018)
- Reviewer for OSA Chapter & Section Grant, OSA Foundation Jean Bennett Memorial Travel Grant, OSA Foundation Youth Science Outreach Grant, and Student Chapter and Local Section Excellence Awards
- Conference on Lasers and Electro-Optics Session Presider (2013, 2014, 2016 – 2020)
- Frontiers in Optics Session Presider (2008, 2010,2020)
- Student Chapter Leadership Programming Committee (2011)
- Reviewer for OSA's Optics Discovery Kit (youth education resource)

Teaching Experience

Substitute Lecturer, School of Applied and Engineering Physics
Cornell University, Ithaca, New York, USA

- A&EP 3620 Intermediate Quantum Mechanics, Spring 2015.
- A&EP 4400 Nonlinear Optics, Spring 2012, 2014.

Teaching Assistant, School of Applied and Engineering Physics
Cornell University, Ithaca, New York, USA

- A&EP 1100 Lasers and its Applications in Science, Medicine and Technology, Fall 2002, 2003.
- A&EP 4340 Continuum Physics, Spring 2003.

University Activities

Faculty Advisor, Cornell University OSA Student Chapter (Jul. 2012 - Jun. 2015)

President, Cornell University OSA Student Chapter (Apr. 2006 - Mar. 2008)

Honors and Awards

- OSA Fellow (2021)
- OSA Ambassador (2017)
- Recipient, Tingye Li Innovation Prize (2017)
- Semi-Finalist, Tingye Li Innovation Prize (2016)
- *Physics World* Top 10 Breakthroughs (2011)
- Finalist, New Focus/Bookham Student Award (2007)

Patents

1. B. Stern, M. Lipson, X. Ji, A. L. Gaeta, and **Y. Okawachi**, *Fully integrated chip platform for electrically pumped frequency comb generation.* Provisional US Patent Application, Serial No: 62/650,086.
2. A. L. Gaeta, M. Lipson, A. R. Johnson, and **Y. Okawachi**, *Parametric comb generation via nonlinear wave mixing in high-Q optical resonator coupled to built-in laser resonator,* Patent. No. 20,160,134,078 (2016).
3. M. Lipson, A. L. Gaeta, A. G. Griffith, J. Cardenas, R. K. W. Lau, **Y. Okawachi**, and R. Fain, *On-chip integrated gas sensor based on photonic sensing,* Patent. No. 20,150,323,450 (2015).

Select Peer Reviewed Publications

h-index = 41; >7800 total citations (Google Scholar); Equal contribution denoted with †

1. **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).
2. **Y. Okawachi**, M. Yu, B. Desiatov, B. Y. Kim, T. Hansson, M. Lončar, and A. L. Gaeta, "Chip-based self-referencing using integrated lithium niobate waveguides," *Optica* **7**, 702 (2020).
3. 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).
4. M. Yu†, **Y. Okawachi**†, R. Cheng, C. Wang, M. Zhang, A. L. Gaeta, and M. Lončar, "Raman lasing and soliton modelocking in a lithium-niobate microresonator," *Light Sci. Appl.* **9**, 9 (2020).
5. B. Stern, X. Ji, **Y. Okawachi**, A. L. Gaeta, and M. Lipson, "Battery-operated integrated frequency comb generator," *Nature* **562**, 401 (2018).
6. M. Yu, **Y. Okawachi**, A. G. Griffith, N. Picqué, M. Lipson, and A. L. Gaeta, "Silicon chip-based mid-infrared dual-comb spectroscopy," *Nature Commun.* **9**, 1869 (2018).
7. **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).
   Selected as Editor's Pick (September, 2016).
8. M. Yu, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Mode-locked mid-infrared frequency combs in a silicon microresonator," *Optica* **3**, 854 (2016).
9. **Y. Okawachi**, K. Saha, J. S. Levy, Y. H. Wen, M. Lipson, and A. L. Gaeta, "Octave-spanning frequency comb generation in a silicon nitride chip," *Opt. Lett.* **36**, 3398 (2011).
10. **Y. Okawachi**, M. S. Bigelow, J. E. Sharping, Z. Zhu, A. Schweinsberg, D. J. Gauthier, R. W. Boyd, and A. L. Gaeta, "Tunable all-optical delays via Brillouin slow light in an optical fiber," *Phys. Rev. Lett.* **94**, 153902 (2005).

Other Peer Reviewed Publications

11. 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]," (*accepted for publication in J. Opt. Comm. and Netw.* 2020).
12. 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. Südemeyer, C. R. Phillips, and U. Keller, "Performance scaling of 10-GHz solid-state laser enabling self-referenced CEO frequency detection without amplification," *Opt. Express* **28**, 12755 (2020).
13. Y. Zhao, X. Ji, B. Y. Kim, P. Donvalkar, J. K. Jang, C. Joshi, M. Yu, R. R. Domeneguetti, F. A. S. Barbosa, P. Nussenzveig, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "Visible nonlinear photonics via high-order-mode dispersion engineering," *Optica* **7**, 135 (2020).
14. 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).

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

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

17. 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).
    Selected as Editor's Pick (August, 2019).

18. 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).
    Selected for Spotlight on Optics (March, 2019).

19. 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).

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

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

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

23. 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* **5**, 2780 (2018).

24. 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," *Sci. Adv.* **4**, e1701858 (2018).

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

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

27. M. Yu, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Microresonator-based high-resolution gas spectroscopy," *Opt. Lett.* **42**, 4442 (2017).
    Selected as Editor's Pick (November, 2017).

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

29. 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).

30. M. Yu, J. K. Jang, **Y. Okawachi**, S. Miller, K. Luke, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Breather soliton dynamics in microresonators," *Nature Commun.* **8**, 14569 (2017).

31. 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).

32. 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 midinfrared frequency comb based on optical parametric amplification in a periodically poled lithium niobate waveguide," *Phys. Rev. Applied* **6**, 054009 (2016).

33. A. G. Griffith, M. Yu, **Y. Okawachi**, J. Cardenas, A. Mohanty, A. L. Gaeta, and M. Lipson, "Raman-assisted coherent, mid-infrared frequency combs in silicon microresonators," *Opt. Express* **24**, 13044 (2016).

34. C. S. 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).

    Selected for Spotlight on Optics (June, 2016).

35. A. Klenner, A. S. Mayer, A. R. Johnson, K. Luke, M. R. E. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Self-referenced gigahertz frequency combs based on silicon nitride waveguides," *Opt. Express* **24**, 11043 (2016).

36. **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).

37. A. R. Johnson, A. S. Mayer, A. Klenner, K. Luke, E. S. Stranford, M. R. E. Lamont, **Y. Okawachi**, F. W. Wise, M. Lipson, U. Keller, and A. L. Gaeta, "Octave-spanning coherent supercontinuum from a silicon nitride waveguide," *Opt. Lett.* **40**, 5117 (2015).

    Selected for Spotlight on Optics (November, 2015).

38. 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).

    Selected for Spotlight on Optics (October, 2015).

39. 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 SiC waveguides," *Opt. Lett.* **40**, 4138 (2015).

40. S. Miller, **Y. Okawachi**, S. Ramelow, K. Luke, A. Farsi, M. Lipson, and A. L. Gaeta, "Tunable frequency combs based on dual microring resonators," *Opt. Express* **23**, 21509 (2015).

41. 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).

42. 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 silicon nitride waveguide," *Opt. Express* **23**, 15440 (2015).

43. A. 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 Commun.* **6**, 6299 (2015).

44. M. Fridman, **Y. Okawachi**, S. Clemmen, M. Menard, M. Lipson, and A. L. Gaeta, "Waveguide-based single-shot temporal cross-correlator," *J. Opt.* **17**, 035501 (2015).

45. A. R. Johnson†, **Y. Okawachi**†, M. R. E. Lamont, J. S. Levy, M. Lipson, and A. L. Gaeta, "Microresonator-based comb generation without an external laser source," *Opt. Express* **22**, 1394 (2014).

46. **Y. Okawachi**, M. R. E. Lamont, K. Luke, D. O. Carvalho, M. Yu, M. Lipson, and A. L. Gaeta, "Bandwidth shaping of parametric frequency combs via dispersion engineering," *Opt. Lett.* **39**, 3535 (2014).

47. S. Miller, K. Luke, **Y. Okawachi**, J. Cardenas, A. L. Gaeta, and M. Lipson, "On-chip ultra-broadband frequency conversion via simultaneous second and third-order optical nonlinearity," *Opt. Express* **22**, 26517 (2014).

48. S. Ramelow, A. Farsi, S. Clemmen, J. S. Levy, A. R. Johnson, **Y. Okawachi**, M. R. E. Lamont, M. Lipson, and A. L. Gaeta, "Strong polarization mode coupling in ring resonators," *Opt. Lett.* **39**, 5134 (2014).

49. 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 waveguides," *Opt. Lett.* **39**, 4518 (2014).

50. M. R. E. Lamont, **Y. Okawachi**, and A. L. Gaeta, "Route to stabilized ultrabroadband micoresonator-based frequency combs," *Opt. Lett.* **38**, 3478 (2013).

51. K. Saha, **Y. Okawachi**, B. Shim, J. S. Levy, M. A. Foster, R. Salem, A. R. Johnson, M. R. E. Lamont, M. Lipson, and A. L. Gaeta, "Modelocking and femtosecond pulse generation in chip-based frequency combs," *Opt. Express* **21**, 1335 (2013).

    Selected for Spotlight on Optics (February, 2013).

52. **Y. Okawachi**, R. Salem, A. R. Johnson, K. Saha, J. S. Levy, M. Lipson, and A. L. Gaeta, "Asynchronous single-shot characterization of high-repetition-rate ultrafast waveforms using a time-lens-based temporal magnifier," *Opt. Lett.* **37**, 4892 (2012).

53. K. Saha[†], **Y. Okawachi**[†], J. S. Levy, K. Luke, R. K. W. Lau, M. A. Foster, M. Lipson, and A. L. Gaeta, "Broadband parametric frequency comb generation with a 1-μm pump source," *Opt. Express* **20**, 26935 (2012).

54. J. S. Levy, K. Saha, **Y. Okawachi**, M. A. Foster, A. L. Gaeta, and M. Lipson, "High-performance silicon-based multiple-wavelength source," *Photon. Technol. Lett.* **24**, 1375 (2012).

55. R. Halir, **Y. Okawachi**, J. S. Levy, M. A. Foster, M. Lipson, and A. L. Gaeta, "Ultrabroadband supercontinuum generation in a CMOS-compatible platform," *Opt. Lett.* **37**, 1685 (2012).

    Selected for Virtual Journal for Biomedical Optics (June, 2012).

56. **Y. Okawachi**, O. Kuzucu, M. A. Foster, R. Salem, A. C. Turner-Foster, A. Biberman, N. Ophir, K. Bergman, M. Lipson, and A. L. Gaeta, "Characterization of nonlinear optical crosstalk in silicon nanowaveguides," *Photon. Technol. Lett.* **24**, 185 (2012).

57. **Y. Okawachi** and A. L. Gaeta, "Nonlinear photonics: Compressing light and sound," *Nature Photonics* **6**, 274 (2012).

58. **Y. Okawachi**, A. L. Gaeta, and M. Lipson, "Breakthroughs in nonlinear silicon photonics 2011," *Photon. J.* **4**, 601 (2012).

59. N. Ophir, R. K. W. Lau, M. Ménard, X. Zhu, K. Padmaraju, **Y. Okawachi**, R. Salem, M. Lipson, A. L. Gaeta, and K. Bergman, "Wavelength conversion and unicast of 10-Gb/s data spanning up to 700 nm using a silicon nanowaveguide," *Opt. Express* **20**, 6488 (2012).

60. 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.* **37**, 875 (2012).

61. N. Ophir, R. K. W. Lau, M. Ménard, R. Salem, K. Padmaraju, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and K. Bergman, "First demonstration of a 10-Gb/s end-to-end link at 1884 nm based on four-wave mixing of telecom-band RZ data in silicon waveguides," *Photon. Technol. Lett.* **24**, 276 (2012).

62. M. Fridman, A. Farsi, **Y. Okawachi**, and A. L. Gaeta, "Demonstration of temporal cloaking," *Nature* **481**, 62 (2012).

63. B. Shim, S. Schrauth, L. T. Vuong, **Y. Okawachi**, and A. L. Gaeta, "Dynamics of elliptical beams in the anomalous group-velocity dispersion regime," *Opt. Express* **19**, 9139 (2011).

64. R. K. W. Lau, M. Ménard, **Y. Okawachi**, M. A. Foster, A. C. Turner-Foster, R. Salem, M. Lipson, and A. L. Gaeta, "Continuous-wave mid-infrared frequency conversion in silicon nanowaveguides," *Opt. Lett.* **36**, 1262 (2011).

65. Y. Zhu, E. Cabrera-Granado, O.G. Calderon, S. Melle, **Y. Okawachi**, A.L. Gaeta, D.J. Gauthier, "Competition between the modulation instability and stimulated Brillouin scattering in a broadband slow light device," *J. Opt.* **12**, 104019 (2010).

66. Y. Dai, **Y. Okawachi**, A. C. Turner-Foster, M. Lipson, A. L. Gaeta, and C. Xu, "Continuously tunable parametric delay via a cascading discrete stage," *Opt. Express* **18**, 333 (2010).

67. O. Kuzucu, **Y. Okawachi**, R. Salem, M. A. Foster, A. C. Turner-Foster, M. Lipson, and A. L. Gaeta, "Spectral phase conjugation via temporal imaging," *Opt. Express* **17**, 20605 (2009).

68. M. A. Foster, R. Salem, **Y. Okawachi**, A. C. Turner-Foster, M. Lipson, and A. L. Gaeta, "Ultrafast waveform compression using a time-domain telescope," *Nature Photon.* **3**, 581 (2009).
69. I. H. Agha, **Y. Okawachi**, and A. L. Gaeta, "Theoretical and experimental investigation of broadband cascaded four-wave mixing in high-Q microspheres," *Opt. Express* **17**, 16209 (2009).
70. Y. Dai, X. Chen, **Y. Okawachi**, A. C. Turner-Foster, M. A Foster, M. Lipson, A. L. Gaeta, and C. Xu, "1 μs tunable delay using parametric mixing and optical phase conjugation in Si waveguides: reply," *Opt. Express* **17**, 16029 (2009).
71. Y. Dai, X. Chen, **Y. Okawachi**, A. C. Turner-Foster, M. A Foster, M. Lipson, A. L. Gaeta, and C. Xu, "1 μs tunable delay using parametric mixing and optical phase conjugation in Si waveguides," *Opt. Express* **17**, 7004 (2009).
72. **Y. Okawachi**, R. Salem, M. A. Foster, A. C. Turner-Foster, M. Lipson, and A. L. Gaeta, "High-resolution spectroscopy using a frequency magnifier," *Opt. Express* **17**, 5691 (2009).
73. J. D. Marconi, S. Arismar Cerqueira Jr., J. T. Robinson, N. Sherwood-Droz, **Y. Okawachi**, H. E. Hernadez-Figueroa, M. Lipson, A. L. Gaeta, and H. L. Fragnito, "Performance investigation of microphotonic-silicon devices in a field-trial all-optical network," *Opt. Commun.* **282**, 849 (2009).
74. **Y. Okawachi**, M. A. Foster, X. Chen, A. C. Turner-Foster, R. Salem, M. Lipson, C. Xu, and A. L. Gaeta, "Large tunable delays using parametric mixing and phase conjugation in Si nanowaveguides," *Opt. Express* **16**, 10349 (2008).
75. **Y. Okawachi**, R. Salem, and A. L. Gaeta, "Continuous tunable delays at 10 Gb/s data rates using self-phase modulation and dispersion," *J. Lightwave Technol.* **12**, 3710 (2007).
76. **Y. Okawachi**, A. D. Slepkov, I. H. Agha, D. F. Geraghty, and A. L. Gaeta, "Absorption of ultrashort optical pulses in water," *J. Opt. Soc. Am. A* **24**, 3343 (2007).

    Selected for Virtual Journal of Ultrafast Science (November, 2007).
77. I. H. Agha, **Y. Okawachi**, M. A. Foster, J. E. Sharping, and A. L. Gaeta, "Four-wave mixing parametric oscillations in dispersion-compensated high-Q silica microspheres," *Phys. Rev. A* **76**, 043837 (2007).
78. **Y. Okawachi**, J. E. Sharping, C. Xu, and A. L. Gaeta, "Large widely tunable fractional delays based on wavelength conversion and dispersion," *Opt. Express* **14**, 12022 (2006).
79. **Y. Okawachi**, M. A. Foster, J. E. Sharping, A. L. Gaeta, Q. Xu, and M. Lipson, "All-optical slow-light on a photonic chip," *Opt. Express* **14**, 2317 (2006).
80. **Y. Okawachi**, J. E. Sharping, A. L. Gaeta, M. S. Bigelow, A. Schweinsberg, R. W. Boyd, Z. Zhu, and D. J. Gauthier, "All-optical tunable slow-light delays via stimulated scattering," **Optics in 2005** in *Optics and Photonics News* **16**, 46 (2005).
81. Z. Zhu, D. J. Gauthier, **Y. Okawachi**, J. E. Sharping, A. L. Gaeta, R. W. Boyd, and A. E. Willner, "Numerical study of all-optical slow-light delays via stimulated Brillouin scattering in an optical fiber," *J. Opt. Soc. Am. B* **22**, 2378 (2005).
82. J. E. Sharping, **Y. Okawachi**, J. van Howe, C. Xu, and A. L. Gaeta, "All-optical, wavelength and bandwidth preserving, pulse delay based on parametric wavelength conversion and dispersion," *Opt. Express* **13**, 7872 (2005).
83. J. E. Sharping, **Y. Okawachi**, and A. L. Gaeta, "Wide bandwidth slow light using a Raman fiber amplifier," *Opt. Express* **13**, 6092 (2005).

Other Publications

1. **Y. Okawachi**, "Social media illuminate optics," *Optics and Photonics News* **21**, 14 (2010).

Invited Seminars and Panels

1. Apr. 2020 – University of Dayton SPIE/OSA Webinar: "On-chip nonlinear photonics"
2. Apr. 2020 – OSA Traveling Lecturer Webinar: "On-chip nonlinear photonics"
3. Jul. 2019 – Boston University ECE Seminar: "On-chip nonlinear photonics"
4. Mar. 2019 – Stevens Institute of Technology PHY Seminar Series: "On-chip nonlinear photonics"
5. Dec. 2018 – University of Electro-Communications Seminar: "Silicon chip based nonlinear photonics"
6. Jun. 2018 – Elenion Seminar: "Silicon chip-based nonlinear photonics"
7. May 2018 – Panelist at OSA Nonlinear Optics Technical Group Panel Discussion: "Emerging Trends in Nonlinear Optics – A Review of CLEO: 2018"
8. Sep. 2017 – 2017 OSA Student Leadership Conference: "Transitioning from student to early-career professional"
9. Aug. 2017 – Osaka University OSA Traveling Lecturer Seminar: "Are you getting the most of your graduate career? Networking and volunteering for career development"
10. Aug. 2017 – Keio University Seminar: "Silicon chip based nonlinear photonics"
11. Aug. 2017 – Tokyo University OSA Traveling Lecturer Seminar: "Chip based nonlinear photonics"
12. Jun. 2017 – Cornell OSA Traveling Lecturer Seminar: "Are you getting the most of your PhD? Networking and volunteering for career development"
13. May 2017 – Thorlabs Talk Series: "Chip-based nonlinear photonics"
14. Mar. 2017 – OFS Laboratories Monthly Seminar: "Silicon-based nonlinear photonics"

Select Conference Presentations (Presenter denoted with *)

1. **Y. Okawachi***, "Coherent supercontinuum generation in a silicon nitride chip," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), **invited paper** SW4H.3, San Jose, California, USA, May 7–9, 2019.
2. **Y. Okawachi***, "On-chip frequency combs," KEIO Symposium on Microresonator Frequency Comb, **invited paper**, Yokohama, Japan, Dec. 4-6, (2018).
3. **Y. Okawachi***, "Silicon nitride chip-based frequency combs," JSAP-OSA Joint Symposia 2018, **invited paper** 21p-221B-1, Nagoya, Japan, Sept. 18-21, (2018).
4. **Y. Okawachi***, "Silicon-microresonator-based mid-infrared comb spectroscopy," 2018 IEEE Photonics Society Summer Topicals Meeting Series, **invited paper** WA1.3, Waikoloa, Hawaii, USA, Jul. 9–11, 2018.
5. **Y. Okawachi***, "Silicon-based degenerate Kerr oscillator for coherent optical computing," 2016 IEEE Photonics Society Summer Topicals Meeting Series, **invited paper** MD2.1, Newport Beach, California, USA, Jul. 11–13, 2016.
6. A. L. Gaeta and **Y. Okawachi***, "Silicon-based parametric frequency combs for the mid-IR," High-Brightness Sources and Light-Driven Interactions Congress, Mid-Infrared Coherence Sources (MICS) Topical Meeting, **invited paper** MM8C.3, Long Beach, California, USA, Mar. 20–22, 2016.
7. **Y. Okawachi***, M. Lipson, and A. L. Gaeta, "Ultrafast nonlinear Si optics," Photonics West, **invited paper** 9347-2, San Francisco, California, USA, Feb. 7–12, 2015.
8. **Y. Okawachi***, "Microresonator-based parametric frequency combs," Photonics North, **invited paper**, Montreal, Canada, May 28–30, 2014.
9. **Y. Okawachi***, "Silicon-based parametric frequency combs," Photonics Europe, **invited paper** 8434-37, Brussels, Belgium, Apr. 16–20, 2012.

10. **Y. Okawachi***, K. Saha, J. Levy, Y. H. Wen, M. A. Foster, M. Lipson, and A. L. Gaeta, "Microresonator-based optical frequency comb generation," Photonics West, **invited paper** 8240-29, San Francisco, California, USA, Jan. 21–26, 2011.
11. **Y. Okawachi***, M. A. Foster, X. Chen, A. C. Turner-Foster, R. Salem, M. Lipson, C. Xu, and A. L. Gaeta, "Large tunable optical delays via conversion/dispersion techniques," Photonics West, **invited paper** 7226-13, San Jose, California, USA, Jan. 24–29, 2009.
12. **Y. Okawachi***, M. A. Foster, X. Chen, A. C. Turner-Foster, R. Salem, M. Lipson, C. Xu, and A. L. Gaeta, "Ultralong tunable delays," Slow and Fast Light Topical Meeting, **invited paper** SWD1, Boston, Massachusetts, USA, Jul. 14–16, 2008.
13. **Y. Okawachi***, J. E. Sharping, M. A. Foster, R. Salem, J. van Howe, C. Xu, A. L. Gaeta, A. C. Turner, Q. Xu, M. Lipson, M. S. Bigelow, A. Schweinsberg, R. W. Boyd, Z. Zhu, D. J. Gauthier, Y. Wang, and A. E. Willner, "Slow light in optical waveguides," Photonics West, **invited paper** 6904-02, San Jose, California, USA, Jan. 19–24, 2008.

Other Conference Presentations (Presenter denoted with *)

14. **Y. Okawachi***, M. Yu, B. Desiatov, B. Y. Kim, M. Lončar, and A. L. Gaeta, "Frequency comb offset stabilization via integrated lithium niobate f-$2f$ interferometer," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF1G.6, San Jose, California, USA, May 10–15, 2020.
15. J. K. Jang*, X. Ji, C. Joshi, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "On-chip synchronization of Kerr frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FTh3J.3, San Jose, California, USA, May 10–15, 2020.
16. M. Yu*, L. Shao, **Y. Okawachi**, A. L. Gaeta, and M. Lončar, "Ultraviolet to mid-infrared supercontinuum generation in lithium-niobate waveguides," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu4H.1, San Jose, California, USA, May 10–15, 2020.
17. B. Y. Kim*, **Y. Okawachi**, J. K. Jang, M. Yu, X. Ji, M. Lipson, and A. L. Gaeta, "Turn-key, high-efficiency Kerr comb source," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu3H.6, San Jose, California, USA, May 10–15, 2020.
18. Y. Zhao*, **Y. Okawachi**, J. K. Jang, X. Ji, M. Lipson, and A. L. Gaeta, "On-chip squeezed-state generation via dual-pumped four-wave mixing," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FTu3C.2, San Jose, California, USA, May 10–15, 2020.
19. J. K. Jang*, **Y. Okawachi**, X. Ji, C. Joshi, M. Lipson, and A. L. Gaeta, "Universal conversion efficiency scaling with free-spectral-range for soliton Kerr combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), JTu2A.166, San Jose, California, USA, May 10–15, 2020.
20. **Y. Okawachi***, M. Yu, X. Ji, J. K. Jang, M. Lipson, and A. L. Gaeta, "Photonic Ising spin-glass via chip-based degenerate Kerr oscillators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM3L.2, San Jose, California, USA, May 10–15, 2020.
21. Y. Zhao*, B. Y. Kim, P. Donvalkar, C. Joshi, X. Ji, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "On-Chip Photon-Pair Generation in the Near-Visible," Frontiers in Optics, FM3D.6, Washington, DC, USA, Sep. 15–19, 2019.
22. **Y. Okawachi***, M. Yu, J. Cardenas, X. Ji, M. Lipson, and A. L. Gaeta, "Silicon-chip-based f-2f interferometer," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF3H.4, San Jose, California, USA, May 5–10, 2019. (*Chair's Pick*)

23. M. Yu*, **Y. Okawachi**, R. Cheng, C. Wang, M. Zhang, A. L. Gaeta, and M. Lončar, "Raman laser in a lithium-niobate microresonator," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), **postdeadline paper**, San Jose, California, USA, May 5–10, 2019.
24. Y. Zhao*, X. Ji, B. Y. Kim, P. Donvalkar, J. K. Jang, C. Joshi, M. Yu, R. R. Domeneguetti, F. A. S. Barbosa, P. Nussenzveig, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "Near-visible microresonator-based soliton combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STh3J.1, San Jose, California, USA, May 5–10, 2019.
25. M. Yu*, B. Desiatov, **Y. Okawachi**, A. L. Gaeta, and M. Lončar, "Coherent two-octave-spanning supercontinuum generation in lithium-niobate waveguides," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW3E.4, San Jose, California, USA, May 5–10, 2019.
26. M. Yu*, **Y. Okawachi**, A. Griffith, M. Lipson, and A. L. Gaeta, "Microfluidic mid-infrared spectroscopy via microresonator-based dual-comb source," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), JW2A.82, San Jose, California, USA, May 5–10, 2019.
27. **Y. Okawachi***, M. Yu, X. Ji, J. K. Jang, M. Lipson, and A. L. Gaeta, "Coupled degenerate parametric oscillators towards photonic coherent Ising machine," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FM1D.6, San Jose, California, USA, May 5–10, 2019.
28. J. K. Jang*, X. Ji, C. Joshi, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "Sub-harmonic synchronization of Kerr frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FM1D.4, San Jose, California, USA, May 5–10, 2019. (*Chair's Pick*)
29. J. K. Jang, A. Klenner, X. Ji, **Y. Okawachi**, M. Lipson, and A. L. Gaeta*, "Synchronization of microresonator optical frequency combs," Integrated Photonics Research (IPR), JW2I.1, Zurich, Switzerland, USA, Jul. 2–5, 2018.
30. J. K. Jang*, **Y. Okawachi**, and A. L. Gaeta, "Dynamics of Coupled Microresonator-Based Degenerate Optical Parametric Oscillators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FTh1E.4, San Jose, California, USA, May 13–18, 2018.
31. M. Yu*, **Y. Okawachi**, C. Joshi, X. Ji, X. Ji, M. Lipson, and A. L. Gaeta, "Dual-cavity scanning comb spectroscopy," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW4M.5, San Jose, California, USA, May 13–18, 2018.
32. J. K. Jang*, A. Klenner, X. Ji, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "Synchronization of coupled microresonator frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW3A.4, San Jose, California, USA, May 13–18, 2018.
33. P. Latawiec, A. Shams-Ansari*, **Y. Okawachi**, V. Venkataraman, M. Yu, H. Atikian, G. Harris, N. Picqué, A. L. Gaeta, and M. Lončar, "Supercontinuum generation in angle-etched diamond waveguides," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu3F.6, San Jose, California, USA, May 13–18, 2018.
34. D. Waldburger*, A. S. Mayer, C. G. E. Alfieri, J. Nümberg, A. R. Johnson, X. Ji, A. Klenner, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Fully stabilized optical frequency comb from a semiconductor disk laser," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM4L.7, San Jose, California, USA, May 13–18, 2018.
35. **Y. Okawachi***, M. Yu, J. Cardenas, X. Ji, M. Lipson, and A. L. Gaeta, "Coherent directional supercontinuum generation," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM3S.1, San Jose, California, USA, May 13–18, 2018.

36. B. Stern*, X. Ji, **Y. Okawachi**, A. L. Gaeta, and M. Lipson, "Fully integrated chip platform for electrically pumped frequency comb generation," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM1D.6, San Jose, California, USA, May 13–18, 2018.

37. D. Waldburger*, A. S. Mayer, C. G. E. Alfieri, A. R. Johnson, X. Ji, A. Klenner, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Octave-spanning supercontinuum generated in silicon nitride waveguide directly from a SESAM-modelocked VECSEL," Photonics West, **invited paper** 10515-17, San Francisco, California, USA, Jan. 27 – Feb. 1, 2018.

38. D. Waldburger*, A. S. Mayer, C. G. E. Alfieri, A. R. Johnson, X. Ji, A. Klenner, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Self-referenced CEO frequency detection of a semiconductor disk laser using a silicon nitride waveguide," Advanced Solid State Lasers (ASSL), ATu6A.3, Nagoya, Aichi, Japan, Oct. 1–5, 2017.

39. M. Yu*, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Microresonator-based scanning comb spectroscopy," Integrated Photonics Research (IPR), ITh1A.2, New Orleans, Louisiana, USA, Jul. 24–27, 2017.

40. **Y. Okawachi***, M. Yu, K. Luke, D. O. Carvalho, M. Lipson, and A. L. Gaeta, "Microresonator-based quantum random number generator," Integrated Photonics Research (IPR), IWA1.2, New Orleans, Louisiana, USA, Jul. 24–27, 2017.

41. A. R. Johnson*, X. Ji, M. R. E. Lamont, **Y. Okawachi**, M. Lipson, and A. L. Gaeta, "Coherent supercontinuum generation with picosecond pulses," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF1C.3, San Jose, California, USA, May 14–19, 2017.

42. C. Joshi*, **Y. Okawachi**, M. Yu, A. Klenner, X. Ji, K. Luke, M. Lipson, and A. L. Gaeta, "Counter-Propagating Solitons in microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FTh4D.2, San Jose, California, USA, May 14–19, 2017.

43. A. Dutt*, C. Joshi, X. Ji, J. Cardenas, **Y. Okawachi**, A. L. Gaeta, and M. Lipson, "Dual-comb spectroscopy using on-chip mode-locked frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STh3L.2, San Jose, California, USA, May 14–19, 2017.

44. **Y. Okawachi***, M. Yu, V. Venkataraman, P. Latawiec, M. Lončar, and A. L. Gaeta, "Competition between Raman and Kerr effects in microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW4N.6, San Jose, California, USA, May 14–19, 2017.

45. P. Donvalkar*, F. Barbosa, X. Ji, **Y. Okawachi**, R. McNally, A. Farsi, A. Klenner, M. Lipson, and A. L. Gaeta, "Broadband frequency comb generation in the near-visible using higher-order modes in silicon nitride microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu4J.5, San Jose, California, USA, May 14–19, 2017.

46. M. Yu*, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Chip-based tunable direct comb spectroscopy," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM4D.7, San Jose, California, USA, May 14–19, 2017.

47. **Y. Okawachi***, M. Yu, K. Luke, D. O. Carvalho, M. Lipson, and A. L. Gaeta, "Silicon chip-based quantum random number generator," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM1M.1, San Jose, California, USA, May 14–19, 2017.

48. C. R. Phillips*, A. Mayer, C. Langrock, A. Klenner, A. Johnson, K. Luke, **Y. Okawachi**, M. Lipson, A. Gaeta, M. Fejer, and U. Keller, "1-GHz Mid-Infrared Frequency Comb Based on PPLN-Waveguide Optical Parametric Amplification," in Lasers Congress 2016 (ASSL), AW4A.3, Boston, Massachusetts, USA, Oct. 30 – Nov. 3, 2016.

49. M. Yu*, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Mid-infrared dual-comb source using a silicon microresonator," Frontiers in Optics/Laser Science Conference (FiO/LS), FTu5D.2, Rochester, New York, USA, Oct. 17–21, 2016.

50. **Y. Okawachi**, M. Yu, K. Luke, D. Carvalho, A. Farsi, S. Ramelow, M. Lipson, and A. L. Gaeta*, "Silicon-based dual-pumped degenerate Kerr oscillator," Nonlinear Photonics (NP) Topical Meeting, NM5A.4, Sydney, Australia, Sep. 5–8, 2016.

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 solitons in microresonators," Nonlinear Photonics (NP) Topical Meeting, NM5A.2, Sydney, Australia, Sep. 5–8, 2016.

52. M. Lončar, P. Latawiec*, V. Venkataraman, M. Burek, **Y. Okawachi**, A. L. Gaeta, M. Markham, A. Edmonds, and D. Twitchen, "Diamond nonlinear photonics," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), **invited paper** SF2O.5, San Jose, California, USA, Jun. 5–10, 2016.

53. A. S. Mayer*, C. R. Phillips, C. Langrock, A. Klenner, A. R. Johnson, K. Luke, **Y. Okawachi**, M. Lipson, A. L. Gaeta, M. Fejer, and U. Keller, "1-GHz offset-free frequency comb in the mid-infrared," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF2O.1, San Jose, California, USA, Jun. 5–10, 2016.

54. M. Yu*, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Silicon-microresonator-based mid-infrared dual-comb source," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), **postdeadline paper** JTh4B, San Jose, California, USA, Jun. 5–10, 2016.

55. **Y. Okawachi***, M. Yu, K. Luke, D. O. Carvalho, S. Ramelow, A. Farsi, M. Lipson, and A. L. Gaeta, "Dual-pumped degenerate optical parametric oscillator in a silicon nitride microresonator," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW4E.6, San Jose, California, USA, Jun. 5–10, 2016.

56. A. Dutt*, J. Cardenas, **Y. Okawachi**, C. S. Joshi, X. Ji, K. Luke, A. L. Gaeta, and M. Lipson, "Generation of dual frequency combs using cascaded microring resonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW1E.5, San Jose, California, USA, Jun. 5–10, 2016.

57. M. Yu*, **Y. Okawachi**, A. G. Griffith, M. Lipson, and A. L. Gaeta, "Modelocked mid-infrared frequency combs in a silicon microresonator," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu1H.4, San Jose, California, USA, Jun. 5–10, 2016.

58. C. S. Joshi*, J. K. Jang, K. Luke, X. Ji, A. Klenner, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Thermally-controlled single-soliton modelocking in silicon nitride microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), **invited paper** STu4Q.3, San Jose, California, USA, Jun. 5–10, 2016.

59. A. Klenner*, C. S. Joshi, J. K. Jang, K. Luke, X. Ji, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Stability of modelocked microresonator frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu1H.5, San Jose, California, USA, Jun. 5–10, 2016.

60. A. Klenner*, A. S. Mayer, A. R. Johnson, K. Luke, M. R. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Compact low-noise frequency combs: microchip or photonic crystal fiber?," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM3H.2, San Jose, California, USA, Jun. 5–10, 2016.

61. M. Yu*, J. K. Jang, **Y. Okawachi**, A. Griffith, K. Luke; S. Miller, X. Ji, M. Lipson, and A. L. Gaeta, "Observation of breather solitons in microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FM2A.8, San Jose, California, USA, Jun. 5–10, 2016.

62. J. K. Jang*, **Y. Okawachi**, M. Yu, K. Luke, X. Ji, M. Lipson, and A. L. Gaeta, "Dynamics of mode-coupling-assisted microresonator frequency combs," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FM2A.6, San Jose, California, USA, Jun. 5–10, 2016.

63. A. S. Mayer*, A. Klenner, A. R. Johnson, K. Luke, M R. E. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Coherent silicon nitride chip-based supercontinuum for self-referencing of a 1-GHz diode-pumped solid-state laser," 10th International Conference on Ultrafast Optics, Beijing, China, Aug. 16–21, 2015.

64. A. Klenner*, A. S. Mayer, A. R. Johnson, K. Luke, M R. E. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Silicon nitride waveguides enable stabilization of gigahertz frequency combs from diode pumped solid-state lasers," The European Conference on Lasers and Electro-Optics and the European Quantum Electronics Conference (CLEO/Europe-EQEC), PD-A.5.0, Munich, Germany, Jun. 21–25, 2015.

65. A. S. Mayer*, A. Klenner, A. R. Johnson, K. Luke, M R. E. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Silicon nitride chip-based coherent supercontinuum for highly efficient self-referencing of a 1-GHz diode-pumped solid-state laser," The European Conference on Lasers and Electro-Optics and the European Quantum Electronics Conference (CLEO/Europe-EQEC), CH-8.6, Munich, Germany, Jun. 21–25, 2015.

66. A. R. Johnson*, A. S. Mayer, A. Klenner, K. Luke, E. S. Stranford, M R. E. Lamont, **Y. Okawachi**, F. W. Wise, M. Lipson, U. Keller, and A. L. Gaeta, "Coherent supercontinuum from a silicon nitride waveguide," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF2D.1, San Jose, California, USA, May 10–15, 2015.

67. J. Cardenas*, S. Miller, **Y. Okawachi**, S. Ramelow, A. G. Griffith, A. Farsi, A. L. Gaeta, and M. Lipson, "Parametric frequency conversion in silicon carbide waveguides," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF1D.7, San Jose, California, USA, May 10–15, 2015.

68. A. G. Griffith*, **Y. Okawachi**, J. Cardenas, A. L. Gaeta, and M. Lipson, "Low-noise silicon mid-infrared frequency comb," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SF1D.5, San Jose, California, USA, May 10–15, 2015.

69. S. Miller*, **Y. Okawachi**, K. Luke, A. L. Gaeta, and M. Lipson, "Tunable frequency combs based on dual microring resonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FTh1D.5, San Jose, California, USA, May 10–15, 2015.

70. A. S. Mayer*, A. Klenner, A. R. Johnson, K. Luke, M R. E. Lamont, **Y. Okawachi**, M. Lipson, A. L. Gaeta, and U. Keller, "Highly efficient self-referencing of a 1-GHz diode-pumped solid-state laser using a silicon nitride chip," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW4G.6, San Jose, California, USA, May 10–15, 2015.

71. 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," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu4I.8, San Jose, California, USA, May 10–15, 2015.

72. R. Salem*, **Y. Okawachi**, M. Yu, M. R. E. Lamont, K. Luke, P. Fendel, M. Lipson, and A. L. Gaeta, "Octave-spanning supercontinuum generation in a silicon nitride waveguide pumped by a femtosecond fiber laser at 1.9 μm," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu1I.7, San Jose, California, USA, May 10–15, 2015.

73. **Y. Okawachi***, S. Miller, S. Ramelow, K. Luke, A. Farsi, M. Lipson, and A. L. Gaeta, "Spectrally efficient comb source with coupled microresonators," Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM2M.3, San Jose, California, USA, May 10–15, 2015.

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