

Mengjie Yu, Ph.D.



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Research Group

Gabilan Assistant Professor (Jan. 2022 -)
University of Southern California, Electrical & Computer Engineering
Group of Nanoscale Nonlinear and Quantum Photonics [\[link\]](#)

Education

Cornell University, School of Electrical and Computer Engineering Ithaca, NY, USA

Columbia University, Department of Applied Physics and Mathematics New York, NY, USA

Ph.D., Electrical Engineering (2012 - 2015, 2015 - 2018)

- Advisor: Professor Alexander L. Gaeta, Quantum and Nonlinear Photonics Group
- Committee: Professor Michal Lipson, Professor Farhan Rana
- Minor: Applied & Engineering Physics
- Research area: integrated silicon and silicon nitride photonics, mid-infrared photonics; Thesis Title: “Chip-based spectroscopy using microresonator frequency combs”

Master of Science, Electrical Engineering (2012 - 2015)

Zhejiang University, Department of Optical Engineering Hangzhou, Zhejiang, China

Bachelor of Engineering, Optical Engineering (2008 - 2012)

- GPA: 4.00/4.00, Top 1/145
- Minor: Advanced Honor Class of Engineering Education (ACEE), Chu Kochen Honors College

Research Experience

Harvard University, School of Engineering and Applied Sciences Cambridge, MA, USA

Postdoctoral Associate, Laboratory for Nanoscale Optics (Oct. 2018 - present)

- Principal Investigator: Professor Marko Lončar
- Research areas include photonic engineering in lithium niobate, mentoring graduate students, writing grants etc.

Teaching Experience

Teaching Assistant, School of Electrical and Computer Engineering
Cornell University, Ithaca, New York, USA (Jan. 2013 - Jun. 2013)

- Responsibilities include leading demo lab sessions, leading weekly recitations, grading homework assignments, proctoring examinations, grading examinations, and holding weekly office hours.
- ECE 2300 Digital Logic & Computer, Spring 2013

Teaching Lecturer, School of Engineering and Applied Sciences
Harvard University, Cambridge, Massachusetts, USA

- ENG-SCI 273 Optics and Photonics, Fall 2020 & 2021. ([Click to see the recording](#))

Teaching Lecturer, School of Information Technology and Electrical Engineering
University of Queensland, Brisbane, Australia

- COMS 4103 Photonics, Fall 2020.

Scholarship, Honors and Awards (2012 - now)

1. **2020 The Optical Society (OSA) Ambassador** ([My OSA Page](#))
2. **2020 and 2021 Finalist**, Tingye Li Innovation Prize, CLEO
3. **2019 The Rising Stars**, Women in Engineering Workshop, the Asian Deans' Forum [[link](#)]
4. **2019 Caltech's 2019 Young Investigator Lecturer** [[link](#)]
5. **2017 Semi-Finalist**, Tingye Li Innovation Prize, CLEO
6. **Grand Prize Winner, 2016 Maiman Student Paper Competition** at Conference on Lasers and Electro-Optics (CLEO) [[link](#)]
7. **Winner, 2016 Emil Wolf Student Paper Competition** at Frontiers in Optics + Laser Science (FiO) [[link](#)]
8. 2012 Cornell Fellow Fellowship

Professional and University Activities

1. **Editorial member**, New Early Career Editorial Advisory Board for APL Photonics (2022)
2. **Committee member**, OPTICA Advanced Photonic Congress: Nonlinear Photonics 2022 conference, Nonlinear Quantum Optics (2022)
3. **Committee member**, Optical Fiber Communication (OFC) Conference, Passive Optical Devices for Switching and Filtering (2023)
4. **Committee member**, Conference on Lasers and Electro-Optics Europe (CLEO), S&I 7: Micro and Nano-Photonic Devices (2023)
5. **Committee member**, the Asia Communications and Photonics Conference (ACP) & International Conference on Information Photonics and Optical Communications (IPOC), Micro, Nano, and Quantum Science and Applications (2022)
6. **Chair**, The Optical Society (OSA) Integrated Photonics Technical Group [[link](#)] (2019 - 2021)
7. **Invited Speaker** for OSA Student Leadership Conference in Presentation workshop, Career Path Panel, and Diversity and inclusion Roundtable, Sep 11-13, 2020; Women in Optics & Photonics network - Focus series, Feb 16, 2022; Suzanne R. Nagel Lounge OFC March 9, 2022; the Rose in Science March 8 2022 [[link](#)].
8. **Session Chair** in Frontiers in Optics (2020)
9. **Selection Committee** of OSA Bernard J. Couillaud Prize (2020)
10. **Prize winner** in OSA Innovation School (2020)
11. **Mentor** in OSA Innovation School (2021)
12. **Vice President**, Cornell University The Optical Society (OSA) Student Chapter (2014 - 2015)
13. **Student Member**, Columbia University OSA/SPIE Student Chapter (2015 - 2018)
OSA Chapter Booth of Optics Demonstrations at New York Maker Faire
14. **Member** of the Optical Society (OSA)
15. **Member** of the SPIE

16. **Reviewer:** Nature Photonics, Nature Communications, Optica, Scientific Reports, Optics Letters, Optics Express, IEEE Journal of Selected Topics in Quantum Electronics, APL Photonics, Applied Physics Letter, IEEE Photonics Journal, IEEE Photonics Technology Letter, Optical Material Express, Photonics Research, Journal of Applied Physics, Journal of the Optical Society of America B, Applied Optics, Nanophotonics.

Invited Seminars and Panels

1. **M. Yu**, “Nonlinear Photonics on Thin Film Lithium-Niobate,” **Purdue University**, West Lafayette, Indiana, USA, May 5, 2022 (via zoom).
2. **M. Yu**, “Nonlinear Photonics on Thin Film Lithium-Niobate,” Quantum & Nano-Photonics Webinar Series, hosted at **KAIST**, Korea, April 29, 2022 (via zoom).
3. **M. Yu**, “Nonlinear photonics on integrated lithium niobate platform,” Center for Nanoscale Systems (CNS) seminar, **Harvard University**, Cambridge, MA, USA, Oct 29, 2021.
4. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Department of Electrical and Computer Engineering, **University of Texas at Austin**, June 3, 2021 (via zoom).
5. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Department of Electrical and Computer Engineering, **University of Illinois at Urbana-Champaign**, May 17, 2021 (via zoom).
6. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Department of Engineering Science, **University of Oxford**, April 30, 2021 (via zoom).
7. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Viterbi School of Engineering, **University of Southern California**, April 12, 2021 (via zoom).
8. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” **ETH Zürich**, April 9, 2021 (via zoom).
9. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Electrical Engineering, **University of Notre Dame**, April 1, 2021 (via zoom).
10. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Electrical and Systems Engineering, **University of Pennsylvania**, March 30, 2021 (via zoom).
11. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Physics Department, **University of Texas at Austin**, March 22-23, 2021 (via zoom).
12. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” Department of Electrical and Computer Engineering, **University of Washington**, March 16, 2021 (via zoom).
13. **M. Yu**, “Integrated Nonlinear and Quantum Photonic Devices,” the Bradley Department of Electrical and Computer Engineering (ECE), **Virginia Tech**, March 4, 2021 (via zoom).
14. **M. Yu**, “Lithium-Niobate Nonlinear Photonic Devices,” hosted by the Optical Society at **The University of Campinas, UNICAMP**, Brazil, May 7, 2021 (via zoom).
15. **M. Yu**, “Pursuing a career in Optics and Photonics,” hosted by the Optical Society at **University of the Witwatersrand**, South African, Mar 17, 2021 (via zoom).
16. **M. Yu**, “Nonlinear photonic devices,” hosted by the Optical Society and IEEE Photonics Society Student Chapter at **UCLA**, Nov 12, 2020 (via zoom).
17. **M. Yu**, “Integrated lithium niobate photonics,” hosted by Photonics Society Student Chapter at **UCSB**, Nov 5, 2020 (via zoom). ([Click to see the recording](#)).
18. **M. Yu**, “Integrated nonlinear photonics,” hosted by **Max Planck Institute for the Science of Light**, Germany, Oct 20, 2020 (via zoom).
19. **M. Yu**, “Integrated nonlinear photonics,” and professional development talk, hosted by The Optical Society (OSA) student chapter, **University of Michigan, Ann Arbor**, Sep 22, 2020 (via zoom).
20. **M. Yu**, “Integrated lithium niobate photonics,” “1st Qiushi (Seeking-truth)” Forum of Advanced Photonics, **Zhejiang University**, China, Sep 20, 2020 (online).

21. **M. Yu**, “Integrated nonlinear photonics,” Physics colloquium, host by OSA Student Chapter, **University of Auckland**, New Zealand, Sep 2, 2020 (via zoom).
22. **M. Yu**, “Integrated microcomb sources,” and professional development talk, host by Singapore Local Section of OSA, **Nanyang Technological University**, Singapore, Aug 31, 2020 (via zoom).
23. **M. Yu**, “Integrated lithium niobate photonics,” ([Click to see the recording](#)) – **The Optical Society (OSA) Ambassador webinar series**, Jul 21, 2020 (via zoom).
24. **M. Yu**, “Chip-scale nonlinear photonics and its applications,” Center for Quantum Information, **Korea Institute of Science and Technology (KIST)**, Oct 28, 2019.
25. **M. Yu**, “Chip-scale nonlinear photonics and its applications,” **Nokia Bell Laboratories**, Apr 26, 2019.
26. **M. Yu**, “Chip-scale nonlinear photonics and its applications,” **CalTech Young Investigator Lecture Series**, Division of Engineering and Applied Science (EAS) at Caltech, Mar 13, 2019.
27. **M. Yu**, “Silicon chip-based nonlinear photonics,” Electrical and Computer Engineering Department, **University of Delaware**, Aug 6, 2018.
28. **M. Yu**, “Silicon-chip-based nonlinear photonics,” Center for Astrophysics, **Harvard University**, Jun 8, 2018.
29. **M. Yu**, “Chip-based mid-infrared frequency combs and its application for spectroscopy,” Research Conference in Department of Applied Physics and Applied Mathematics (APAM), **Columbia University**, Apr 20, 2018.
30. **M. Yu**, “Silicon-chip-based nonlinear photonics,” **Northwestern University**, Apr 5, 2018.
31. **M. Yu**, “Silicon-chip-based nonlinear photonics,” Department of Materials Science and Engineering, **Massachusetts Institute of Technology (MIT)**, March 23, 2018.
32. **M. Yu**, “Silicon-chip-based nonlinear photonics,” John A. Paulson School of Engineering and Applied Sciences, **Harvard University**, March 22, 2018.

Invited Conference Presentations

1. **2019 SPIE/COS Photonics Asia invited speaker: M. Yu**, “Chip-scale nonlinear photonics and its applications,” SPIE/COS Photonics Asia, invited talk, Hangzhou, China, Oct. 20-23, 2019.
2. **2020 ACP/IOPC invited speaker: M. Yu**, “Lithium niobate nonlinear photonics,” the Asia Communications and Photonics Conference (ACP/IOPC), T1F.2, invited talk, Beijing, China, Oct 24-27, 2020.
3. **2020 SPIE Photonics West invited speaker: M. Yu**, and M. Lončar, “Electro-optic frequency combs and applications,” SPIE Photonics West, invited talk, San Francisco, California, USA, Feb. 4, 2020.
4. **2021 SPIE Photonics West invited speaker: M. Yu**, “Lithium niobate photonic devices,” SPIE Photonics West, invited talk, San Francisco, California, USA, March 6-11, 2021 (Sub-Committee on the Laser Resonators, Microresonators, and Beam Control XXIII).
5. **2021 CLEO/Europe invited speaker: M. Yu**, “Lithium niobate based frequency combs,” Conference on Lasers and Electro-Optics Europe (CLEO/Europe) and the European Quantum Electronics Conference (EQEC), invited talk, Munich, Germany, June 20 - 24, 2021 (Sub-Committee on EF – Nonlinear Phenomena, Solitons and Self-organization).
6. **2021 OFC invited speaker: M. Yu**, “Integrated lithium-niobate-based electro-optic frequency combs,” workshop on ‘Are Wide-band Optical Frequency Comb Capabilities Adequate to Address Evolving Capacity Demands?’, the Optical Fiber Communication Conference and Exhibition (OFC), invited talk, San Diego, CA, USA, June 6-10, 2021 (the Optical, Photonic and Microwave Photonic Subsystems Subcommittee).

7. **2021 EOSAM invited speaker: M. Yu**, "Integrated lithium niobate electro-optic devices", The European Optical Society Annual Meeting, invited talk, Rome, Italy, Sep 13-17, 2021 (Topical meetings on nonlinear and quantum optics).
8. **2021 AusIMPACT invited speaker: M. Yu**, "Integrated lithium niobate platform for frequency comb generation," A workshop on Integrated Microcavities for Photonic Applications of Comb Technology with the Australian Community, AusIMPACT 2021, invited talk, Sydney, Australia, Sep 29-30, 2021.
9. **2022 PIERS invited speaker: M. Yu**, "Integrated Lithium Niobate Electro-Optic Device", the 43rd PIERS (Photonics and Electromagnetics Research Symposium) international conference, invited talk, Hangzhou, China, Apr 25-29, 2022.
10. **2022 CLEO invited speaker: M. Yu***, R. Cheng, C. Reimer, L. He, K. Luke, E. Puma, L. Shao, A. Shams-Ansari, H. Grant, L. Johansson, M. Zhang, and M. Lončar, "Electro-Optic-Modulator-Based Integrated Optical Isolator," invited talk, CLEO. STu1C.1, San Jose, California, USA, May 2022.
11. **2022 Advanced Photonics Congress of Optica (former OSA) invited speaker: M. Yu**, "Integrated photonics on thin-film lithium niobate", Advanced Photonics Congress, subcommittee for Integrated Photonics Applications, invited talk, Maastricht, Netherlands, July 24-28, 2022.

Upcoming

- **2022 FiO invited speaker: M. Yu**, "Integrated Photonic Components on Thin Film Lithium Niobate for Optical Communication", Frontiers in Optics + Laser Science (FiO LS), invited talk, Rochester, New York, USA, Oct 16-20, 2022
- **2022 SPIE Photonex invited speaker: M. Yu**, "Thin Film Lithium Niobate Photonics", SPIE conference on Emerging Applications in Silicon Photonics, SPIE Photonex, invited talk, Birmingham, United Kingdom, Dec 6-12, 2022
- **2023 SPIE Photonics West invited speaker: M. Yu**, title to be decide, SPIE Photonics West, invited talk, San Francisco, California, USA, Jan 28- Feb 2, 2023 (Sub-Committee on Quantum Sensing and Nano Electronics and Photonics XVIII).
- **2023 MRS Spring Meeting invited speaker: M. Yu**, title to be decide, MRS Spring Meeting, invited talk, Symposium EL-06: Adaptive Nanophotonics—Dynamic Metasurfaces/Metamaterials, Programmable Photonic Integrated Circuits and Neuromorphic Photonics, San Francisco, California, USA, April 10-14, 2023 (Sub-Committee on Quantum Sensing and Nano Electronics and Photonics XVIII).

Publications [Equal contribution denoted with * ; H-index = 28; >2900 total citations (Google Scholar)]

38. D. Zhu*, C. Chen*, **M. Yu***, L. Shao, Y. Hu, C. J. Xin, M. Yeh, S. Ghosh, L. He, C. Reimer, N. Sinclair, F. N. C. Wong, M. Zhang, and M. Lončar. “Spectral control of nonclassical light using an integrated thin-film lithium niobate modulator.” arXiv: 2112.09961 (*submitted* 2021)
37. **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. (*to appear in Nature* 2022)
36. Y. Hu*, **M. Yu***, N. Sinclair, D. Zhu, R. Cheng, C. Wang, and M. Lončar. “Mirror-induced reflection in the frequency domain,” arXiv: 2111.14743. (*to appear in Nature Commun.* 2022)
35. Y. Hu*, **M. Yu***, B. Buscaino, N. Sinclair, D. Zhu, R. Cheng, A. Shams-Ansari, L. Shao, M. Zhang, J. M. Kahn, and M. Lončar. “High-efficiency and broadband electro-optic frequency combs enabled by coupled micro-resonators.” <https://doi.org/10.1038/s41566-022-01059-y>, *Nature Photonics* (2022)
34. A. Shams-Ansari, D. Renaud, R. Cheng, L. Shao, L. He, D. Zhu, **M. Yu**, H. R. Grant, L. Johansson, M. Zhang, and M. Lončar. Submitted. “Electrically pumped high power laser transmitter integrated on thin-film lithium niobate,” *Optica* **9**, 408 (2022)
33. A. Shams-Ansari*, **M. Yu***, Z. Chen*, N. Picqué, M. Lončar, “An integrated lithium-niobate electro-optic platform for spectrally tailored dual-comb spectroscopy,” *Communication Physics* **5**, 88 (2022)
32. Y. Hu, **M. Yu**, D. Zhu, N. Sinclair, A. Shams-Ansari, L. Shao, J. Holzgrafe, E. Puma, M. Zhang, M. Lončar, “On-chip electro-optic frequency shifters and beam splitters,” *Nature* **599**, 587–593 (2021).
31. D. Zhu, L. Shao, **M. Yu**, R. Cheng, B. Desiatov, C. J. Xin, Y. Hu, J. Holzgrafe, S. Ghosh, A. Shams-Ansari, E. Puma, N. Sinclair, C. Reimer, M. Zhang, M. Lončar, “Integrated photonics on thin-film lithium niobate,” *Advances in Optics and Photonics* **13**, 242 (2021).
30. 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,” *Nature Commun.* **11**, 4119 (2020).
29. L. Shao, N. Sinclair, J. Leatham, Y. Hu, **M. Yu**, T. Turpin, D. Crowe, M. Lončar, “Integrated microwave acousto-optic frequency shifter on thin-film lithium niobate,” *Opt. Express* **28**, 23728 (2020).
28. 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).
27. **M. Yu***, Y. Okawachi*, R. Cheng, C. Wang, M. Zhang, A. L. Gaeta, and M. Lončar, “Raman lasing and soliton mode-locking in a lithium-niobate microresonator,” *Light Sci. Appl.* **9**, 9 (2020).
26. Y. Zhao, X. Ji, B. Y. Kim, P. Donvankar, J. K. Jang, C. Joshi, **M. Yu**, R. R. Domenegueti, F. A. S. Barbosa, P. Nussenzveig, Y. Okawachi, M. Lipson, and A. L. Gaeta, “Visible nonlinear photonics,” *Optica* **7**, 135 (2020).
25. L. Shao, **M. Yu**, S. Maity, N. Sinclair, L. Zheng, C. Chia, A. Shams-Ansari, C. Wang, M. Zhang, K. Lai, and M. Lončar, “Microwave-to-optical conversion using lithium niobate thin-film acoustic resonators,” *Optica* **6**, 12 (2019).
24. **M. Yu**, C. Wang, M. Zhang, and M. Lončar, “Chip-based lithium niobate frequency combs,” (**invited review**, *IEEE Photonics Technology Letters* **31**, 23 (2019)).
23. 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).
22. **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**, 4259-4262 (2019).
21. 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).

20. C. Wang, M. Zhang, **M. Yu**, R. Zhu, H. Hu and M. Lončar, “Monolithic lithium niobate photonic circuits for Kerr frequency comb generation and modulation,” *Nature Commun.* **10**, 978 (2019).
19. **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).
18. 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).
17. Y. Okawachi, **M. Yu**, J. Cardenas, X. Ji, 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).
16. **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).
15. **M. Yu**, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, “Silicon-chip-based mid-infrared dual-comb spectroscopy,” *Nature Commun.* **9**, 1869 (2018).
Covered in News from Columbia Engineering (May, 2018).
14. 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).
13. Y. Okawachi, **M. Yu**, J. Cardenas, X. Ji, M. Lipson, and A. L. Gaeta, “Coherent directional supercontinuum generation,” *Opt. Lett.* **42**, 4466 (2017).
12. **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 (August, 2019).
11. 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).
10. S. Miller, **M. Yu**, X. Ji, A. Griffith, J. Cardenas, A. L. Gaeta, and M. Lipson, “Low-loss silicon platform for broadband mid-infrared photonics,” *Optica* **4**, 707 (2017).
9. **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).
8. 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,” *Opt. Express* **24**, 28794 (2016).
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 (August, 2019).
6. **M. Yu**, Y. Okawachi, A. G. Griffith, M. Lipson, and A. L. Gaeta, “Soliton modelocked mid-infrared frequency comb in silicon microresonators,” *Optica* **3**, 854 (2016).
5. 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).
4. 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).
3. 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).
2. 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).

1. 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).

Select Conference Presentations (Presenter denoted with *)

1. **M. Yu***, R. Cheng, C. Reimer, L. He, K. Luke, E. Puma, L. Shao, A. Shams-Ansari, H. Grant, L. Johansson, M. Zhang, and M. Lončar, “Electro-Optic-Modulator-Based Integrated Optical Isolator,” **invited talk**, CLEO. STu1C.1, San Jose, California, USA, May 2022.
2. **M. Yu***, C. Reimer, Y. Okawachi, P. Kharel, L. Shao, D. Zhu, Y. Hu, A. L. Gaeta, M. Zhang, and M. Lončar, “Photonic-Chip-Based Femtosecond Pulse Generator,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SM4L.8, San Jose, California, USA, May 10–14, 2021.
3. **M. Yu***, “Lithium niobate photonic devices,” SPIE Photonics West, **invited talk**, San Francisco, California, USA, March 6–11, 2021.
4. **M. Yu***, “Lithium niobate nonlinear photonics,” the Asia Communications and Photonics Conference (ACP/IOPC), T1F.2, **invited talk**, Beijing, China, Oct 24–27, 2020.
5. **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.
6. **M. Yu***, and M. Lončar, “Electro-optic frequency combs and applications,” SPIE Photonics West, **invited talk**, San Francisco, California, USA, Feb. 4, 2020.
7. **M. Yu***, “Chip-scale nonlinear photonics and its applications,” SPIE/COS Photonics Asia, **invited talk**, Hangzhou, China, Oct. 20–23, 2019.
8. **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.
9. **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.
10. **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.
11. **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.
12. **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.
13. **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.
14. **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.

15. **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.
16. **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.
Prize Winner for Emil Wolf Student Paper Competition Award (October, 2016).
17. **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, **invited paper** NM5A.2, Sydney, Australia, Sep. 5–8, 2016.
18. **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.
19. **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.
Grand Prize Winner for Maiman Student Paper Competition Award (June, 2016).
20. **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.

Other Conference Presentations (Presenter denoted with *)

21. R. Cheng*, **M. Yu**, A. Sham-Ansari, C. Reimer, M. Zhang, and M. Lončar, “Nonlinear Broadening of an Electro-Optic Pulse Source on Thin-Film Lithium Niobate,” CLEO. SM3O.4, San Jose, California, May 2022.
22. D. Barton*, **M. Yu**, R. Cheng, and M. Lončar, “Dispersion management in integrated lithium niobate photonics for femtosecond pulse generation,” CLEO. STh2F.1, San Jose, California, May 2022.
23. Y. Hu*, **M. Yu**, N. Sinclair, D. Zhu, R. Cheng, C. Wang, and M. Lončar, “Boundary-induced trapped state in electro-optic frequency combs,” CLEO FW1B.4, San Jose, California, May 2022.
24. R. Cheng*, **M. Yu**, Christian Reimer, Mian Zhang, and M. Lončar, “On-Chip Kerr Broadening of an Electro-Optic Pulse Source on Thin-Film Lithium Niobate,” OSA Nonlinear Optics Conference, NF1A, Virtual, August 2021.
25. Y. Hu*, **M. Yu**, B. Buscaino, N. Sinclair, D. Zhu, A. Shams-Ansari, L. Shao, M. Zhang, J. M. Kahn, and M. Lončar, “High-Efficiency and Broadband Electro-Optic Frequency Combs Using Coupled Lithium-Niobate Microresonators,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu2G.2, San Jose, California, USA, May 10–14, 2021.
26. D. Zhu*, Y. Hu, B. Desiatov, L. Shao, **M. Yu**, and M. Lončar, “Single-Sideband Modulation Through Polarization Interband Transition in Thin-Film Lithium Niobate Waveguide,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW3A.1, San Jose, California, USA, May 10–14, 2021.
27. Y. Hu*, **M. Yu**, D. Zhu, N. Sinclair, A. Shams-Ansari, L. Shao, J. Holzgrafe, E. Puma, M. Zhang, M. Lončar, “Electro-optic frequency shifting using coupled lithium-niobate microring resonators,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu4J.4, San Jose, California, USA, May 10–15, 2020.

28. L. Shao*, N. Sinclair, J. Leatham, Y. Hu, **M. Yu**, T. Turpin, D. Crowe, M. Lončar, “Integrated Lithium Niobate Acousto-optic Frequency Shifter,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STh1F.5, San Jose, California, USA, May 10–15, 2020.
(Highlighted talk)
29. L. Shao*, **M. Yu**, S. Maity, N. Sinclair, L. Zheng, C. Chia, A. Shams-Ansari, C. Wang, M. Zhang, K. Lai, and M. Lončar, “Integrated Lithium Niobate Acousto-optic Cavities for Microwave-to-optical Conversion,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FM2R.1, San Jose, California, USA, May 10–15, 2020.
(Highlighted talk)
30. 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.
31. 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.
32. 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.
33. 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.
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34. A. Shams-Ansari*, **M. Yu**, Z. Chen, C. Reimer, M. Zhang, N. Picqué, and M. Lončar, “Microring electro-optic frequency comb sources for dual-comb spectroscopy,” 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.
35. M. Zhang*, C. Reimer, L. He, R. Cheng, **M. Yu**, R. Zhu, and M. Lončar, “Microresonator frequency comb generation with simultaneous Kerr and electro-optic nonlinearities,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), FF2D.3, San Jose, California, USA, May 5–10, 2019.
36. Y. Zhao*, X. Ji, B. Y. Kim, P. Donvalkar, J. K. Jang, C. Joshi, **M. Yu**, R. R. Domenegueti, 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.
37. 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.
38. 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.
39. 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.

40. 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.
41. 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.
42. 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.
43. 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.
44. R. Fain*, S. Miller, **M. Yu**, A. G. Griffith, J. Cardenas, M. Lipson, “CMOS-compatible Mid-Infrared Silicon Detector,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu1N.4, San Jose, California, USA, May 14–19, 2017.
45. S. Miller*, **M. Yu**, X. Ji, A. G. Griffith, J. Cardenas, A. L. Gaeta, M. Lipson, “Silicon Photonics as a Broadband Platform for Parametric Oscillation in the Mid-Infrared,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu4J.6, San Jose, California, USA, May 14–19, 2017.
46. 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.
47. 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.
48. 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.
49. 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, **invited paper** NM5A.4, Sydney, Australia, Sep. 5–8, 2016.
50. 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.
51. 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.
52. S. Miller*, A. Griffith, **M. Yu**, A. L. Gaeta, and M. Lipson, “Low-loss air-clad suspended silicon platform for mid-infrared photonics,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), STu3Q.6, San Jose, California, USA, Jun. 5–10, 2016.

53. 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 $1.9\ \mu\text{m}$,” 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.
54. J. Cardenas*, **M. Yu**, Y. Okawachi, C. B. Poitras, R. K. W. Lau, A. L. Gaeta, and M. Lipson, “Optical nonlinearities in high confinement SiC waveguides,” Conference on Lasers and Electro-Optics and Quantum Electronics and Laser Science Conference (CLEO/QELS), SW3I.4, San Jose, California, USA, Jun. 8–13, 2014.