Juliet T. Gopinath

CONTACT

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EDUCATION

Massachusetts Institute of Technology

Ph.D. in Electrical Engineering and Computer Science	2005
S.M. in Electrical Engineering and Computer Science	2000

University of Minnesota

B.S. in Electrical Engineering	1998

EMPLOYMENT

University of Colorado Boulder

Professor	2021-
Alfred T. and Betty E. Look Endowed Professor	2019 -
Associate Professor	2017 - 2021
Assistant Professor	2009 - 2017

MIT Lincoln Laboratory, Laser Technology and Applications

Technical Staff Member	2005 - 2009

AWARDS AND HONORS

University of Colorado Engineering Research Award	2025
Optica (formerly OSA) Fellow	2021
University of Colorado Boulder Provost Achievement Award	2016
R&D 100 Award : Wavelength Beam Combining Fiber-Coupled Diode Laser	2012
IEEE Senior Member	2011
National Science Foundation Graduate Fellowship	1998 - 2001

PROFESSIONAL SERVICE

Service to Journals

Deputy Editor, Optica	2025 -
Associate Editor, Optica	2020 - 2024
IEEE Publications Council	2018
IEEE Photonics Society Journal, Associate Editor	2011 - 2017

Service to Funding Agencies

Reviewer for grant agencies: NSF, AFOSR, ONR, NIH
Reviewer for CINT, Center for Integrated Nanotechnologies
Panelist for NSF and NIH

Leadership in the Academic Community

Secretary Treasurer, APS Division of Laser Science	2023 - 2026
APS DLS Anderson Dissertation Award Committee	2023 - 2024
Member-at-large, APS Division of Laser Science	2021 – 2023
Photonics Society Rep., IEEE Nanotechnology Council	2020 – 2021
Division of Laser Science/APS Nominating Committee	2019
OSA Charles Hard Townes Award Committee	2019 – 2021

Conference Organization

CLEO Science and Innovations Program Chair	2026
Optica Biophotonics Conference, Subcomm. Member	2022 - 2023
Advanced Solid State Lasers (ASSL), Subcomm. Member	2022
Hilton Head Workshop 2022/2024, Subcommittee Member	2021 - 2024
Ultrafast Optics Conf. 2023, Subcommittee Member	2022 - 2023
International Semiconductor Laser Conf., Subcomm Mem.	2022, 2023, 2024
Advanced Photonics Congress 2022, Subcomm. Member	2021 - 2022
Frontiers in Optics 2021, Subcommittee Member	2021
General Co-Chair for the Joint Symposium on Optics (OSA/OSK/OSJ)	2021
OSA/OSK/OSJ Symposium Committee	2019
CLEO 2023, 2024, Subcommittee Chair	2022-2024
CLEO 2023, 2024 Diversity Task Force	2022 - 2024
CLEO 2014-16, 2019-22, Subcommittee Member	2014-16/19 - 22
CLEO Steering Committee APS DLS Representative	2021-ongoing
Ultrafast Optics, Program Committee	2017
Colorado Photonics Industry Association Annual Meeting, Program Chair	2014 - 2017
OECC/ACOFT 2014, Program Committee,	2013 - 2014
OSA Optical Sensors Topical Meeting, Program Comm.	2012

University Service

CUbit, Associate Director	2019
Quantum Interdisciplinary Research Theme, Director	2018 - 2019

ONLINE TEACHING

Active Optical Devices Specialization — 2020 - ongoing
Coursera MOOC
Online course on semiconductor light sources, detectors & displays

OUTREACH

CU Boulder Women in ECEE, founder and faculty advisor — 2011- ongoing
Student group for women in electrical engineering

Fifth graders day at CU Boulder — 2023
Organized full day field trip for 50 5th graders to CU Boulder

Science Discovery Summer Electromagnetics Course — 2011- 2022
EM course for high school students

MIT EECS Rising Stars Workshop, panelist — 2021
Two-day career workshop for postdocs

APS Conf. for Undergrad. Women in Physics (CUWiP) — 2017
Workshop for undergraduate women in physics: panelist & speaker

PEER-REVIEWED PUBLICATIONS **h index = 31** **Google scholar profile (hyperlinked)**

1. G. L. Futia, M. Zohrabi, C. McCullough, A. Teel, F. Simoes de Souza, R. Oroke, E. J. Miscles, B. N. Ozbay, K. Kliborn, V. M. Bright, D. Restrepo, **J. T. Gopinath** and E. A. Gibson, "Opto2P-FCM: A MEMS based miniature two-photon microscope with two-photon patterned optogenetic stimulation," https://www.biorxiv.org/content/10.1101/2024.10.21.619528v1:
2. K. N. Dickson, Y. Lange Simmons, A. F. Ricks, A. M. Skipper, A. F. Briggs, A. J. Muhowski, S. R. Bank, and **J. T. Gopinath**, "Impact of Mechanically Applied Strain on Auger Recombination in InGaAs Multiple Quantum Wells," *Applied Physics Letters* **126**, 032105 (2025).
3. F. Speed, C. A. Saladrigas, A. Teel, S. Vieau, V. M. Bright, **J. T. Gopinath**, C. G. Welle, D. Restrepo, and E. A. Gibson, "High-speed in vivo calcium recording using structured illumination with self-supervised denoising," *Optica Continuum* 3, 20244 (2024).
4. E. Miscles, M. Zohrabi, **J. T. Gopinath** and V. M. Bright, "Direct laser write lithography for high optical quality electrowetting prisms," *Optics Express* 32, 36632 - 36645 (2024).
5. R. Oroke, E. J. Miscles, S. D. Gilinsky, M. Zohrabi, **J. T. Gopinath**, and V. M. Bright, "Electrowetting lens based on a conical aluminum cavity," *Sensors and Actuators: A. Physical* **379**, 115917 (2024).
6. K. Wootten, M. Zohrabi, Y. Wang, and **J. T. Gopinath,** "Using Orbital Angular Momentum for Temperature and Force Sensing in an Optical Fiber," *Optics Express* **32**, 29558-29565 (2024).
7. T. Shanavas, R. R. McLeod, M. E. Siemens, and **J. T. Gopinath**, "A fast finite difference solver for optical microscopy in deep biological tissue, "*Optics Letters* **49**(15), 4417-4420 (2024).
8. S. A. Pierce, J. Jacobellibi, K. S. Given, W. B. Macklin, **J. T. Gopinath**, M. E. Siemens, D. Restrepo, and E. A. Gibson, "OpenSTED: Open-Source DyMIN 1 system for STED Microscopy," *Journal of Neuroscience, special section on Open Source Tools and Techniques* **11**(3):034311 (2024), doi: 10.1117/1.NPh.11.3.034311.
9. G. Krueper, L. Cohen and **J. T. Gopinath**, "New Cascaded Architecture for Classical and Quantum Multiparameter Sensing", arXiv:2304.08545 [quant-ph], https://doi.org/10.48550/arXiv.2304.08545, *Physical Review A **111**, 012618 (2024).*
10. S. D. Gilinsky, D. N. Jung, G. L. Futia, M. Zohrabi, T. A. Welton, O. D. Supekar, E. A. Gibson, D. Restrepo, V. M. Bright, and **J. T. Gopinath**, "Tunable liquid lens for three-photon excitation microscopy" *Biomedical Optics Express* **15**, 3285-3300 (2024).
11. D. J. Park, O. D. Supekar, V. M. Bright, A. R. Greenberg, and **J. T. Gopinath**, "Raman spectroscopy for real-time concurrent detection of multiple scalants on RO membranes, " *Desalination* **565**, 116851 (2023).
12. S. D. Gilinsky, M. Zohrabi, O. D. Supekar, W. Y. Lim, V. M. Bright, and **J. T. Gopinath**, "Two-dimensional individually addressable electrowetting lens array" *Optics Express* **31**, 30550-30561 (2023).
13. V. Kumar, K. Behrman, F. Speed, C. A. Saladrigas, O. D. Supekar, Z. Huang, V. M. Bright, C. G. Welle, D. Restrepo, **J. T. Gopinath**, E. A. Gibson, and I. A. Kymissis, "A microLED light source for optical sectioning structured illumination microscopy," *Optics Express* **31**, 16709-16718 (2023) (2023).
14. E. J. Miscles, W. Y. Lim, O. D. Supekar, M. Zohrabi, **J. T. Gopinath** and V. M. Bright, "Axisymmetrical resonance modes in an electrowetting optical lens," *Applied Physics Letters* **122**, 201106 (2023).

15. M. Zohrabi, W. Y. Lim, S. Gilinsky, V. M. Bright and **J. T. Gopinath**, "Adaptive aberration correction using an electrowetting array," *Applied Physics Letters* **122**, 081102 https://doi.org/10.1063/5.0133473 (2023).
16. M. Grayson, G. Krueper, B. Xu, M. Zohrabi, D. Hjelme, **J. T. Gopinath**, and W. Park, "On-chip mid-infrared optical sensing with GeSbSe waveguides and resonators," *Opt. Express* **31**, 877- 889 (2023)
17. T. Shanavas, M. Grayson, B. Xu, M. Zohrabi, W. Park, and J. T. Gopinath, "Cascaded forward Brillouin lasing in a chalcogenide whispering gallery mode microresonator," *APL Photonics* 116108 (2022) https://doi.org/10.1063/5.0112847.
18. D. J. Park, O. D. Supekar, A. Greenberg, **J. T. Gopinath** and V. M. Bright, "In-situ monitoring of calcium carbonate scale progression on reverse osmosis membranes using Raman spectroscopy," *Desalination and Water Treatment* **273**, 92–103 (2022).
19. M. Grayson, B. Xu, T. Shanavas, M. Zohrabi, K. Bae, **J. T. Gopinath** and W. Park, "Fabrication and Characterization of High Quality GeSbSe Reflowed and Etched Ring Resonators," *Optics Express* **30**, 31107 - 31121 (2022).
20. A. Q. Anderson, E. F. Strong, S. C. Coburn, G. B. Rieker, and **J. T. Gopinath**, "Orbital Angular Momentum-Based Dual-Comb Interferometer for Ranging and Rotation Sensing," *Optics Express* **30**, 21195-21210 (2022).
21. O.D. Supekar, A. Sias, S.R. Hansen, G. Martinez, G.C. Peet, X. Peng, V.M. Bright, E.G. Hughes, D. Restrepo, D.P. Shepherd, C.G. Welle, **J.T. Gopinath**, and E.A. Gibson, "Miniature Structured Illumination Microscope for in vivo 3D Imaging of Brain Structures with Optical Sectioning", *Biomedical Optics Express* **13**, 2530-2541 (2022).
22. G. Krueper, C. Yu, S. B. Libby, R. Mellors, L. Cohen, and **J. T. Gopinath**, "Realistic Model of Entanglement-Enhanced Sensing in Optical Fiber," *Optics Express* **30**, 8652-8666 (2022).
23. B. Heffernan, P. Riley, O. Supekar, S. Meyer, D. Restrepo, M. Siemens, E. A. Gibson, and **J. T. Gopinath**, "Two-photon fiber-coupled super-resolution microscope for biological imaging," *APL Photonics* **7**, 036102 (2022), DOI: 10.1063/5.0075012.
24. W. Y. Lim, M. Zohrabi, J. Zhu, T. Socco, T. Carmon, **J. T. Gopinath** and V. M. Bright, "Spectrally tunable liquid resonator based on electrowetting," *Optics Express* **30**, 18949-18965 (2022).
25. Y. L. Simmons, K. J. Underwood, O. D. Supekar, B. M. Heffernan, T. A. Welton, E. A. Gibson, and **J. T. Gopinath**, "Femtosecond diode-based time lens laser for multiphoton microscopy," *Biomed. Opt. Express* **12**, 6269-6276 (2021)
26. B. Xu, B. M. Heffernan, K. Bae, M. Siemens, **J. T. Gopinath** and W. Park, "Selective excitation of plasmon resonances with cylindrical vector beams," *Optics Express* **29**, 13071 (2021).
27. E. F. Strong, A. Q. Anderson, M. P. Brenner, B. M. Heffernan, N. Hoghooghi, **J. T. Gopinath** and G. B. Rieker, "Angular velocimetry for fluid flows: an optical sensor using structured light and machine learning," *Optics Express* **29**, 9960 (2021).
28. A. Q. Anderson, E. F. Strong, B. M. Heffernan, M. E. Siemens, G. B. Rieker and **J. T. Gopinath**, "Observation of the Rotational Doppler Shift in Spatially Incoherent Light," *Optics Express* **29,** 4058-4066 (2021).
29. J. Zhu, T. M. Horning, M. Zohrabi, W. Park and **J. T. Gopinath**, "Photo-induced writing and erasing of gratings in As2S3 chalcogenide microresonators," *Optica* **7**, 1645-1648 (2020).
30. D. Park, O. D. Supekar, A. R. Greenberg, **J. T. Gopinath** and V. M. Bright, "Real-time monitoring of calcium sulfate scale removal from RO desalination membranes using Raman spectroscopy," 497, 114736 (2021).
31. K. Bae, J. Zhu, C. Wolenski, A. Das, T. M. Horning, S. Pampel, M. Grayson, M. Zohrabi, **J. T. Gopinath** and Won, Park, "Indium Tin Oxide Nanoparticle-Coated Silica Microsphere with Large Optical Nonlinearity and High Quality Factor," *ACS Photonics*, https://pubs.acs.org/doi/10.1021/acsphotonics.0c01079 (2020).

32. E. L. Strong, A. Anderson, **J. T. Gopinath** and G. Rieker, "Centering a beam of light to the axis of rotation of a planar object", *Review of Scientific Instruments* **91**, 105101 (2020).
33. S. Pampel, K. Bae, M. Zohrabi, M. Grayson, T. M. Horning, W. Park and **J. T. Gopinath**, "Third-Harmonic Generation Enhancement in an ITO Nanoparticle-Coated Microresonator," **28**, 30004 *Optics Express* (2020).
34. K. J. Underwood, A. F. Briggs, S. D. Sifferman, V. B. Verma, N. Sirica, R. P. Prasankumar, S. -W. Nam, K. L. Silverman, S. R. Bank and **J. T. Gopinath**, "Strain dependence of Auger recombination in 3 mm GaInAsSb/GaSb type-I active regions," *Applied Physics Letters* **116***,* 262103 (2020).
35. A. Q. Anderson, E. F. Strong, B. M. Heffernan, M. E. Siemens, G. B. Rieker, and **J. T. Gopinath**, "Detection Technique Effect on Rotational Doppler Measurements," *Optics Letters* **45,** 2636-2639 (2020).
36. M. Zohrabi, W. Y. Lim, V. M. Bright and **J. T. Gopinath**, "High extinction ratio, low insertion loss, optical switch based on an electrowetting prism," *Optics Express* **28**,5991-6001 (2020).
37. W. Y. Lim, M. Zohrabi, **J. T. Gopinath**, and V. M. Bright, "Calibration and characteristics of an electrowetting laser scanner," *IEEE Sensors* **20**, 3496-3503 (2020).
38. O. D. Supekar, D. J. Park, A. R. Greenberg, **J. T. Gopinath**, and V. M. Bright, "Real-Time Detection of Early-Stage Calcium Sulfate and Calcium Carbonate Scaling Using Raman Spectroscopy," *Journal of Membrane Science* **596**, 117603 1-9 (2020).
39. M. Grayson, M. Zohrabi, K. Bae, J. Zhu, **J. T. Gopinath** and W. Park, "Enhancement of third-order nonlinearity of thermally evaporated GeSbSe waveguides through annealing," *Optics Express* **27** , 33606-33620 (2019).
40. J. Chiles, N. Nader, E. J. Stanton, D. Herman, G. Moody, J. Zhu, C. Skehan, B. Guha, A. Kowligy, **J. T. Gopinath**, K. Srinivasan, S. A. Diddams, I. Coddington, N. R. Newbury, J. M. Shainline, S. W. Nam, and R. Mirin, "Multi-functional integrated photonics in the mid-infrared with suspended AlGaAs on silicon," *Optica* **6**, 1246-1254 (2019).
41. B. M. Hefferman, S. A. Meyer, D. Restrepo, M. E. Siemens, E. A. Gibson and **J. T. Gopinath**, "A fiber-coupled stimulated emission depletion microscope for bend-insensitive through-fiber imaging," *Scientific Reports* **9**, 11137 (2019).
42. J. Zhu, M. Zohrabi, K. Bae, T. M. Horning, M. B. Grayson, W. Park, and **J. T. Gopinath**, "Nonlinear characterization of silica and chalcogenide microresonators," *Optica* **6**, 716-722 (2019).
43. M. Zohrabi, W. Y. Lim, R. H. Cormack, O. D. Supekar, V. M. Bright, and **J. T. Gopinath**, "Lidar system with nonmechanical electrowetting-based wide-angle beam steering," *Optics Express* 27, 4404-4415 (2019).
44. J. M. Anderson, S. N. Alperin, A. A. Voitiv, W. G. Holtzmann, **J. T. Gopinath** and M. E. Siemens, "Characterizing vortex beams from a spatial light modulator with collinear phase shifting holography," *Applied Optics* **58**, 404-409 (2019).
45. W. Y. Lim, O. D. Supekar, M. Zohrabi, **J. T. Gopinath** and V. M. Bright, "Liquid combination with high refractive index contrast and fast scanning speeds for electrowetting adaptive optics," *Langmuir* 34 DOI: 10.1021/acs.langmuir.8b02849, 14511-14518 (2018).
46. O. D. Supekar, J. Brown, A. R. Greenberg, **J. T. Gopinath** and V. M. Bright, "Real-time detection of reverse-osmosis membrane scaling via Raman spectroscopy," *Industrial and Engineering Chemistry Research***,** DOI: 10.1021/acs.iecr.8b01272 (2018)
47. B. N. Ozbay, G. L. Futia, M. Ma, V. M. Bright, **J. T. Gopinath**, E. G. Hughes, D. Restrepo, and E. A. Gibson, "Three dimensional two-photon imaging of neural activity in freely moving mice using a miniature fiber coupled microscope with dynamic focusing," *Scientific Reports* **8**, 8108, DOI: 10.1038/s41598-018-26326-3 (2018).
48. O. D. Supekar, B. N. Ozbay, M. Zohrabi, P. D. Nystrom, G. L. Futia, D. Restrepo, E. A. Gibson, **J. T. Gopinath**, and V. M. Bright, "Two-photon laser scanning microscopy with electrowetting-based prism scanning," *Biomedical Optics Express* **8**, 5412-5426, (2017).
49. M. Zohrabi, R. H. Cormack, C. McCullough, O. D. Supekar, E. A. Gibson, V. M. Bright and

J. T. Gopinath, “Wavefront aberration correction using multielectrode electrowetting-based devices,” *Optics Express* **25** 31451-31461 (2017).

50. B. M. Heffernan, R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, “Tunable higher-order angular momentum using polarization maintaining fiber,” *Optics Letters* **42**, 2683-2686 (2017).
51. G. Kang, M. R. Krogstad, M. Grayson, D.-G. Kim, H. Lee, **J. T. Gopinath** and W. Park, "High quality chalcogenide-silica hybrid wedge resonator," *Optics Express* **25**, 15581-15589 (2017).
52. O. D. Supekar, M. Zohrabi, **J. T. Gopinath**, and V. M. Bright, "Enhanced response time of electrowetting lenses with shaped input voltage functions ," *Langmuir* **33**, 4863-4869 (2017).
53. R. D. Niederriter, B. N. Ozbay, G. L. Futia, E. A. Gibson, and **J. T. Gopinath**, “Compact diode-laser-based pulse source for multiphoton biological imaging,” *Biomedical Optics Express* **8**, 315-322 (2016).
54. R. D. Niederriter, M. E. Siemens, and **Juliet T. Gopinat**h, “Simultaneous control of orbital angular momentum and beam profile in two-mode polarization-maintaining fiber,” *Optics Letters* **41**, 5736-5738 (2016).
55. K. Underwood and **J. T. Gopinath**, "Control of the state of a mode-locked fiber laser using an intracavity Martinez compressor," *Optics Letters* **41**, 5393-5396 (2016).
56. M. R. Krogstad, S. Ahn, W. Park, and **J. T. Gopinath**, “Optical characterization of chalcogenide Ge-Sb-Se waveguides at telecom wavelengths,” *Photonics Technology Letters* **28**, 2720 (2016).
57. S. N. Alperin, R. D. Niederriter, **J. T. Gopinath** and M. E. Siemens, "Quantitative measurement of the orbital angular momentum of light with a single, stationary lens," *Optics Letters* **41,** 5019 (2016).
58. M. Zohrabi, R. H. Cormack and **J. T. Gopinath**, “Wide-angle non-mechanical beam steering using liquid lenses,” *Optics Express* **24**, 23798 (2016).
59. R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, “Continuously tunable orbital angular momentum generation in polarization maintaining fiber,” *Optics Letters* **41**, 3213 (2016).
60. R. D. Montoya, K. Underwood, S. Terrab, A. M. Watson, V. M. Bright, and **J. T. Gopinath**, “Large extinction ratio optical electrowetting shutter,” *Optics Express* **24**, 9660-9666 (2016).
61. S. Terrab, A. M. Watson, C. Roath, **J. T. Gopinath** and V. M. Bright, “Adaptive electrowetting lens-prism element,” *Optics Express* **23** 25838 - 25845(2015).
62. A. M. Watson, K. Dease, S. Terrab, C. Roath, **J. T. Gopinath**, and V. M. Bright, “Focus-tunable low power electrowetting lenses with thin parylene films,” *Applied Optics* **54**, 6224- 6229 (2015).
63. K. J. Underwood, A. M. Jones, and **J. T. Gopinath**, “Optical pulse generation by Fourier synthesis of three cw semiconductor lasers using an FPGA-based gradient descent phase-locking algorithm,” *Applied Optics* **54**, 5624 (2015).
64. B. N. Ozbay, J. T. Losacco, R. Cormack, R. Weir, V. M. Bright, **J. T. Gopinath**, D. Restrepo, and E. A. Gibson, “Miniaturized fiber-coupled confocal microscope with a continuously moving focus using no moving parts,” *Opt. Lett.* **40**, 2553-2556 (2015). *Also appears in Virtual Journal for Biomedical Optics (2015).*
65. M. R. Krogstad, S. Ahn, W. Park, and **J. T. Gopinath**, “Nonlinear characterization of $Ge_{28}Sb_{12}Se_{60}$ bulk and waveguide devices,” *Opt. Exp.* **23**, 7877(2015).
66. A. M. Jones and **J. T. Gopinath**, “Fast-to-slow axis mode imaging for brightness enhancement of a broad-area laser diode array,” *Opt. Exp.* **21**, 17912-17919(2013).
67. R. D. Niederriter, A. M. Watson, R. N. Zahreddine, C. J. Cogswell, R. H. Cormack, V. M. Bright, and **J. T. Gopinath**, “Electrowetting lenses for compensating phase and curvature distortion in arrayed laser systems,” *Appl. Opt.* **52**, 3172 (2013).
68. R. D. Niederriter, **J. T. Gopinath** and M. E. Siemens, "Measurement of the M2 beam propagation factor using a focus-tunable liquid lens," *Applied Optics* **52**, 1591-1598(2013).

69. **J. T. Gopinath**, V. M. Bright, C. C. Cogswell, R. D. Niederriter, A. Watson, R. Zahreddine, and R. H. Cormack, "Simulation of electrowetting lens and prism arrays for wavefront compensation," *Appl. Opt.* **51**, 6618 (2012).
70. P. W. Juodawlkis, J. J. Plant, W. Loh, L. Missaggia, F. O'Donnell, D. C. Oakley, A. Napoleone,, J. Klamkin, **J. T. Gopinath**, D. J. Ripin, S. Gee, P. J. Delfyett, and J. P. Donnelly, "High-Power, Low-Noise 1.5-µm Slab-Coupled Optical Waveguide (SCOW) Emitters: Physics, Devices, and Applications," *IEEE J. of Sel. Top. in Quant. Electron.* **17**, 1698-1714 (2011).
71. K-H Hong, **J. T. Gopinath**, D. Rand, A. M. Siddiqui, S-W Huang, E Li, B. J. Eggleton, J. D. Hybl, T. Y. Fan, and F. X. Kaertner, "High-energy, kHz-repetition-rate, ps cryogenic Yb:YAG chirped-pulse amplifier," *Optics Letters* **35**, 1752-1754 (2010).
72. K-H Hong, A. Siddiqui, J. Moses, **J. T. Gopinath**, J. Hybl, F. O. Ilday, T. Y. Fan, and F. X. Kaertner, "Generation of 287-W, 5.5-ps pulses at 78-MHz repetition rate from a cryogenically-cooled Yb:YAG amplifier seeded by a fiber chirped-pulse amplification system," *Optics Letters* **33**, 2473-2475 (2008).
73. **J. T. Gopinath**, B. Chann, T.Y. Fan, and Antonio Sanchez, "1450-nm high-brightness wavelength-beam combined diode arrays and stacks," *Optics Express* **16**, 9405-9410 (2008).
74. **J. T. Gopinath**, B. Chann, R. K. Huang, C. Harris, J. J. Plant, L. Missaggia, J. P. Donnelly, P. W. Juodawlkis, and D. J. Ripin, "980-nm monolithic passively modelocked diode lasers with 62 pJ of pulse energy," *IEEE Photonics Technology Letters* **19**, 937-939 (2007).
75. J. J. Plant, **J. T. Gopinath**, B. Chann, D. J. Ripin, R. K. Huang, and P. W. Juodawlkis, "250 mW, 1.5µm monolithic passively mode-locked slab-coupled optical waveguide laser," *Optics Letters* **31**, 223-225 (2006).
76. **J. T. Gopinath**, H. M. Shen, H. Sotobayashi, E. P. Ippen, T. Hasegawa, T. Nagashima, and N. Sugimoto, "Highly nonlinear bismuth-oxide fiber for supercontinuum generation and femtosecond pulse compression," *Journal of Lightwave Technology* **23**, 3591–3596 (2005).
77. F. J. Grawert, S. Akiyama, **J. T. Gopinath**, F. O. Ilday, H. M. Shen, J. Liu, K. Wada, L. C. Kimerling, E. P. Ippen, and F. X. Kaertner, "220 fs Er-Yb:glass laser mode-locked by a broadband low-loss Si/Ge saturable absorber," *Optics Letters* **30**, 329-331 (2005).
78. P. T. Rakich, H. Sotobayashi, **J. T. Gopinath**, S. G. Johnson, J. W. Sickler, C. W. Wong, J. D. Joannopoulos, and E. P. Ippen, "Nano-scale photonic crystal microcavity characterization with an all-fiber-based 1.2 – 2.0 µm supercontinuum," *Optics Express* **13**, 821-825 (2005).
79. F. J. Grawert, F. O. Ilday, D. Kielpinski, **J. T. Gopinath**, L. A. Kolodziejski, G. S. Petrich, E. P. Ippen, and F. X. Kaertner, "Automatic feedback control of an Er-doped fiber laser with an intracavity loss modulator," *Optics Letters* 30, 1066-1068 (2005).
80. **J. T. Gopinath**, M. Soljačić, E. P. Ippen, V. N. Fuflyigin, W. A. King, and M. Shurgalin, "Third-order nonlinearities in Ge-As-Se-based glasses for telecommunications applications," *Journal of Applied Physics* **96**, 6931-6933 (2004). *Also appeared as an* ***Invited Paper in Virtual Journal of Ultrafast Science*** *December 2004.*
81. **J. T. Gopinath**, H. M. Shen, H. Sotobayashi, E. P. Ippen, T. Hasegawa, T. Nagashima, and N. Sugimoto, "Highly nonlinear bismuth-oxide fiber for smooth supercontinuum generation at 1.5- m," *Optics Express* **12**, 5697-5702 (2004).
82. S. N. Tandon, **J. T. Gopinath**, A. A. Erchak, G. S. Petrich, L. A. Kolodziejski, and E. P. Ippen. "Large area oxidation of AlAs layers for dielectric stacks and thick buried oxides," *Journal of Electronic Materials* **33**, 774-779 (2004).
83. H. Sotobayashi, **J. T. Gopinath**, E. M. Koontz, L. A. Kolodziejski, and E. P. Ippen, "Wavelength tunable, passively mode-locked Bismuth Oxide-based Erbium-doped fiber laser," *Optics Communications* **237 no. 4-6**, 399-403 (2004).
84. R. P. Prasankumar, I. Hartl, **J. T. Gopinath**, E. P. Ippen, J. G. Fujimoto, P. Mak and M. F. Ruane, "Design and characterization of semiconductor-doped silica film saturable

absorbers," *Journal of the Optical Society of America B (Optical Physics)* **21**, 851-857 (2004).

85. H. Sotobayashi, **J. T. Gopinath**, Y. Takushima, K. Hsu, and E. P. Ippen, "Broadband wavelength tunable, single frequency, and single polarization Bismuth Oxide-based Erbium- doped fiber laser." *IEEE Photonics Technology Letters* **16**, 1628-1630 (2004).
86. S.N. Tandon, **J. T. Gopinath**, H. M. Shen, G. S. Petrich, L. A. Kolodziejski, F. X. Kärtner, and E. P. Ippen, "Large area broadband saturable bragg reflectors using oxidized AlAs," *Optics Letters* **29**, 2551-2553 (2004).
87. T. R. Schibli, J. Kim, O. Kuzucu, **J. T. Gopinath**, S. N. Tandon, G. S. Petrich, L. A. Kolodziejski, J. G. Fujimoto, E. P. Ippen, and F. X. Kaertner, "Attosecond active synchronization of passively mode-locked lasers using balanced cross-correlation," *Optics Letters* **28**, 947-949 (2003).
88. H. Sotobayashi, **J. T. Gopinath**, and E. P. Ippen, "23 cm long Bi_2O3-based EDFA for picosecond pulse amplification with 80 nm gain bandwidth," *Electronics Letters* **39**, 1374-1375 (2003).
89. **J. T. Gopinath**, H. Sotobayashi, and E. P. Ippen, "Broadband amplification of picosecond pulses in a 23 cm length of Bi_2O_3-based Erbium-doped fiber," *OSA TOPS* **92** (Optical Amplifiers and Their Applications), 50-53 (2003).
90. D. J. Ripin, **J. T. Gopinath**, H. M. Shen, G. S. Petrich, L. A. Kolodziejski, F. X. Kaertner, and E. P. Ippen, "Oxidized GaAs/AlAs mirror with a quantum-well saturable absorber for ultrashort-pulse Cr^{4+}:YAG laser," *Optics Communications* **214**, 285-289 (2002).
91. K. S. Abedin, **J. T. Gopinath**, L. A. Jiang, M. E. Grein, H. A. Haus, and E. P. Ippen, "Self-stabilized passive, harmonically mode-locked stretched pulse Erbium fiber ring laser," *Optics Letters* **27**, 1758-1760 (2002).
92. K. S. Abedin**, J. T. Gopinath**, E. P. Ippen, C.E. Kerbage, R. S. Windeler, and B. J. Eggleton, "Highly nondegenerate femtosecond four-wave mixing in tapered microstructure fiber," *Applied Physics Letters* **81**, 1384-1387 (2002).
93. D. J. Ripin, C. Chudoba, **J. T. Gopinath**, J. G. Fujimoto, E. P. Ippen, U. Morgner, F. X. Kartner, V. Scheuer, G. Angelow, and T. Tschudi, "Generation of 20-fs pulses by a prismless Cr^{4+}:YAG laser," *Optics Letters* **27**, 61-63 (2002).
94. **J. T. Gopinath**, E. R. Thoen, E. M. Koontz, M. E. Grein, L. A. Kolodziejski, E. P. Ippen, and J. P. Donnelly, "Recovery dynamics in proton-bombarded semiconductor saturable absorber mirrors," *Applied Physics Letters* **78**, 3409-3411 (2001).

CONFERENCE PRESENTATIONS

1. J. T. Gopinath, ***Invited presentation for Optical Fiber Conference (OFS)*** (2025).
2. J. T. Gopinath, "Chalcogenide glasses for nonlinear photonics," ***Invited keynote talk at 22nd International Symposium on Non-Oxide and New Optical Glasses*** (ISNOG 2024).
3. M. Zohrabi, G. Futia, C. M. McCullough, A. Teel, F. de Souza, R. Oroke, V. M. Bright, D. Restrepo, E. Gibson, and J. T. Gopinath, "A MEMS based miniature two-photon microscope with patterned optogenetic stimulation for all optical neural recording and modulation, *Presented at Society for Neuroscience* (2024).
4. S. Reynolds, P. Fowler; A. Voitiv, D. Restrepo, E. Gibson, J. Gopinath, and M. Siemens, "SpiralVortex Superresolution Localization With a Stable Excitation Beam," *Presented at Frontiers in Optics Conference* (2024).
5. D. R. Quiroz, E. J. Miscles, M. Zohrabi, V. M. Bright, and J. T. Gopinath, "Characterization of two-dimensional dynamic scanning with electrowetting tunable prisms," *Presented at presentation at the IEEE Photonics Society Conference* (2024).

6. S. D. Gilinsky, E. J. Miscles, J. Musgrave, J. Bartos, S. -W. Huang, V. M. Bright and J. T. Gopinath, "Nonmechanical spectral-domain optical coherence tomography using an electrowetting prism," *Presented at presentation at the IEEE Photonics Society Conference* (2024).
7. E. Miscles, C. A. Saladrigas, M. Zohrabi, V. Kumar, I. Kymissis, J. T. Gopinath and V. M. Bright, "Monolithic electrowetting prism for structured illumination microscopy," *Presented 2024 Hilton Head workshop* (2024).
8. G. L. Futia, M. Zohrabi, C. McCullough, A. Teel, F. Simoes de Souza, R. Oroke, V. M. Bright, D. Restrepo, J. T. Gopinath and E. A. Gibson, "Opto2P-FCM: A MEMS Based Miniature Two-Photon Microscope with Patterned Optogenetic Stimulation," *Postdeadline, Presented at Biophotonics Congress* (2024).
9. V. Kumar, C. A. Saladrigas, O. Durnan, F. Speed, E. A. Gibson, **J. T. Gopinath** and I. Kymissis, "MicroLED arrays as light source for optical sectioning-SIM and targeted illumination imaging," *Presented at Display Week* (2024).
10. **J. T. Gopinath**, "Nonlinear chalcogenide microresonator devices," ***Invited presentation, Photonics West***, paper 12871-1 (2024).
11. F. Speed, C. A. Saladrigas, S. Vieau, V. Kumar, A. Teel, V. M. Bright, D. Restrepo, I. Kymissis, **J. T. Gopinath**, C. G. Welle, and E. A. Gibson, "Calcium Recording in Hippocampal CA1 Pyramidal Neurons with Enhanced Contrast Using OS-SIM," *Presented at the Optica Biophotonics Congress* (2024).
12. B. Lu, B. Xu, G. Krueper, M. Zohrabi, **J. T. Gopinath** and W. Park, "High-quality mid-infrared chalcogenide ring resonator," *Accepted for presentation at Conference on Lasers and Electro-Optics* (CLEO), (2024).
13. C. A. Saladrigas, E. J. Miscles, V. Kumar, I. Kymissis, V. M. Bright and **J. T. Gopinath**, "Wobulation in structured illumination microscopy using a tunable electrowetting prism," *Accepted as a highlight talk at Conference on Lasers and Electro-Optics* (CLEO), (2024).
14. Y.L. Simmons, K. Dickson, A.F. Ricks, A.M. Skipper, A.F. Briggs, A.J. Muhowski, S.R. Bank, and **J.T. Gopinath**, "Impact of Mechanical Strain on Auger Recombination in InGaAs/InP," *Accepted for presentation at Conference on Lasers and Electro-Optics* (CLEO) (2024)
15. F. Speed, V. Kumar, C. Saladrigas, S. Vieau, I. Kymissis, **J. Gopinath**, V. Bright, C. Welle, D. Restrepo, E. Gibson. Illumination methods for voltage imaging with a microLED light source. Program No. PSTR574.22. *2023 Neuroscience Meeting Planner*. Washington, D.C.: Society for Neuroscience (2023).
16. K. Wootten, M. Zohrabi, M. E. Siemens, and **J. T. Gopinath**, "Temperature and strain fiber sensing using orbital angular momentum," *Presented at the IEEE Photonics Society Annual Meeting* (2023).
17. S. D. Gilinsky, D. N. Jung, G. L. Futia, M. Zohrabi, T. A. Welton, E. A. Gibson, D. Restrepo, V. M. Bright, and **J. T. Gopinath**, "Electrowetting lens for focus-tunable three-photon excitation microscopy," *Presented at the IEEE Photonics Society Annual Meeting* (2023).
18. R. Oroke, E. J. Miscles, S. D. Gilinsky, M. Zohrabi, **J. T. Gopinath**, and V. M. Bright, "Machined Aluminum Electrowetting Lens," *Presented at the IEEE Photonics Society Annual Meeting* (2023).
19. E. J. Miscles, M. Zohrabi, **J. T. Gopinath**, and V. M. Bright, "Enhancing Imaging Performance in Electrowetting Prism Scanners through Electrode Gap Reduction," *Presented at the IEEE Photonics Society Annual Meeting* (2023).
20. **J. T. Gopinath**, Shedding light on the brain: Super-resolution and multiphoton microscopy, ***Invited Presentation, NanoNeuro*** (2023).
21. **J. T. Gopinath**, "Photonic devices based on chalcogenides," ***Invited presentation, Photonics North*** (2023).

22. B. Xu, M. Grayson, T. Shanavas, **J. T. Gopinath**, and W. Park, "Dispersion control of high-quality Ge23Sb7S70 reflowed wedge resonators," *Presented at the Conference on Lasers and Electro-Optics* (2023).
23. G. M. Brodnik, H. Lu, J. Erikson, D. R. Carlson, **J. T. Gopinath**, J. A. Black, and S. B. Papp, "Robust wavelength control of microresonator parametric oscillation with nanophotonic bandgaps," *Presented at the Conference on Lasers and Electro-Optics* (2023).
24. G. Krueper, L. Cohen, R. Mellors, S. B. Libby, M. Messerly, J. Combes, and **J. T. Gopinath**, "Quantum Multiparameter Estimation Model of Cascaded Phases in Optical Fiber," *Presented at the Conference on Lasers and Electro-Optics* (2023).
25. T. Shanavas, R. McLeod, M. E. Siemens, and J. T. Gopinath, "Comparison of coherent and incoherent donut beams for deep tissue STED microscopy," *Presented at the Conference on Lasers and Electro-Optics* (2023).
26. D. J. Park, O.D. Supekar, A. R. Greenberg, **J. T. Gopinath**, and V. M. Bright, "Raman Chemical Fingerprints for Real-time Detection of Membrane Fouling," *Presented at the 31st Annual Meeting of the North American Membrane Society (NAMS)* (2022).
27. G. Krueper, L. Cohen, J. Combes, S. B. Libby, R. Mellors, M. Messerly, and **J. T. Gopinath**, "Modeling of Cascaded Phase Sensing in Optical Fiber Using Squeezed Light," *Presented at APS March Meeting* (2023).
28. **J. T. Gopinath**, B. Heffernan, S. A. Meyer, D. Restrepo, M. E. Siemens, and E. A. Gibson, 'A window into the brain: Advances in super-resolution microscopy," ***Invited presentation, Conference on Optics Photonics and Quantum Optics 2022*** (2022).
29. S. D. Gilinsky, M. Zohrabi, O. D. Supekar, W. Y. Lim, V. M. Bright, and **J. T. Gopinath**, "Two-Dimensional Individual Addressable Electrowetting Micro-Lens Array," *Presented at the IEEE Photonics Society Annual Meeting* (2022).
30. E. J. Miscles, W. Y. Lim, O. D. Supekar, M. Zohrabi, **J. T. Gopinath** and V. M. Bright, "Vibration suppression in an electrowetting lens," *Presented at the IEEE Photonics Society Annual Meeting* (2022).
31. **J. T. Gopinath**, "From water filtration to autonomous navigation: Using photonics to enable new sensing modalities", ***Plenary, Optical Sensors and Sensing Congress (2022).***
32. M. Grayson, G. Krueper, B. Xu, D. Hjelme, **J. T. Gopinath** and W. Park, "GeSbSe Devices for Mid-Infrared Optical Sensing," *Presented at Optical Sensors and Sensing Congress 2022 SM4E.2* (2022).
33. O. Supekar, A. Sias, S. Hansen, G. Martinez, G. Peet, X. Peng, V. Bright, E. Hughes, D. Shepherd, C. Welle, **J. Gopinath** and E. Gibson, "SIMscope3D: A structured illumination miniature microscope for high resolution brain imaging," *Presented at the 2022 Biophotonics Congress: Biomedical Optics* (2022).
34. O. D. Supekar, Y. Lange Simmons, V. M. Bright, and **J. T. Gopinath**, "Narrow linewidth picosecond source at 760 nm generating 50 nJ pulses using four-wave mixing," *Presented at the 2022 Conference on Lasers and Electro-Optics (CLEO)* (2022).
35. T. Shanavas, M. B. Grayson, M. Zohrabi, W. Park, and **J. T. Gopinath**, "Cascaded Forward Brillouin Scattering in a Chalcogenide Microsphere," *Presented at the 2022 Conference on Lasers and Electro-Optics (CLEO)* (2022).
36. A. Q. Anderson, E. F. Strong, S. C. Coburn, G. Rieker, and **J. T. Gopinath**, "Dual Comb Ranging and Rotation Sensing with Orbital Angular Momentum," *Presented at the 2022 Conference on Lasers and Electro-Optics (CLEO)* (2022).
37. E. F. Strong, S. C. Coburn, A. Q. Anderson, R. Cole, **J. T. Gopinath**, S. Becker, and G. Rieker, "Broadband hyperspectral spectroscopy imging using dual frequency comb spectroscopy and compressive sensing," *Presented at the 2022 Conference on Lasers and Electro-Optics (CLEO)* (2022).
38. Y. Wang, B. M. Heffernan, M. Zohrabi, J. Farrell, M. E. Siemens, and **J. T. Gopinath**, "Fiber sensing using higher-order spatial modes and the orbital angular momentum of light," *Presented at the 2022 Conference on Lasers and Electro-Optics (CLEO)* (2022).

39. E. F. Strong, A. Q. Anderson, B. M. Heffernan, M. P. Brenner, N. Hoghooghi, **J. T. Gopinath** and G. B. Rieker, "Sensing angular velocity with optical orbital angular momentum and machine learning," *Presented at OSA Imaging and Applied Optics Congress* (2021).
40. S. A. Meyer, M. E. Siemens, **J. T. Gopinath**, D. Restrepo, and E. A. Gibson, "OpenSTED: Inexpensive and open-source implementation of Dynamic Intensity Minimum (DyMIN) for Stimulated Emission Depletion (STED) microscopy," *Presented at the OSA Biophotonics Congress* (2021).
41. G. R. Krueper, R. Mellors, C. Yu, S. B. Libby, M. Messerly, and **J. T. Gopinath**, "Entangled-enhanced interferometry in optical fiber," *Presentated at the Conference on Lasers and Electro-Optics (2021).*
42. B. M. Heffernan, P. Riley, O. D. Supekar, S. A. Meyer, N. M. George, D. Restrepo, M. E. Siemens, E. A. Gibson, and **J. T. Gopinath**, "Two-photon fiber STED microscopy using polarization maintaining fiber," *Presented at the Conference on Lasers and Electro-Optics (2021).*
43. A. Q. Anderson, E. F. Strong, B. M. Heffernan, M. E. Siemens, G. B. Rieker, and **J. T. Gopinath**, "Rotation measurement using spatially incoherent light and the rotational Doppler shift," *Presented at the Conference on Lasers and Electro-Optics (2021).*
44. B. M. Heffernan, B. Xu, K. Bae, M. E. Siemens, W. Park and **J. T. Gopinath**, "Tailoring the multipole content at tight focus using cylindrical vector beams with orbital angular momentum," *Presented at the Conference on Lasers and Electro-Optics (2021).*
45. B. Xu, B. M. Heffernan, K. Bae, M. Siemens, **J. T. Gopinath** and W. Park, "Group theory guided symmetry coupling between cylindrical vector beams and localized surface plasmon resonances," *Presented at the Conference on Lasers and Electro-Optics (2021).*
46. W. Y. Lim, M. Zohrabi, J. Zhu, **J. T. Gopinath** and V. M. Bright, "Electrowetting-based tunable liquid droplet microresonator," *Presented at the IEEE MEMS Conference (2021)*.
47. D. Park, O. Supekar, A. Greenberg, **J. T. Gopinath** and V. M. Bright, "Novel Sensors for Real-time Detection of Membrane Fouling in RO Desalination Systems," *Presented at the AGU Fall Meeting (2020)*.
48. **J. T. Gopinath**, "Nonlinear chalcogenide photonic devices," ***Invited presentation at the IEEE Photonics Society Conference* (2020).**
49. S. Pampel, T. M. Horning, K. Bae, M. Zohrabi, M. Grayson, W. Park and **J. T. Gopinath**, "Enhanced Nonlinearity in a Functionalized Whispering Gallery Mode Microcavity," *Presented at the Frontiers in Optics Conference* (2020).
50. **J. T. Gopinath**, "Fiber-Coupled Stimulated Emission Depletion Microscopy (STED)," ***Invited presentation at OSA Imaging and Sensing Congress* (2020).**
51. A. F. Briggs, S. D. Sifferman, K. J. Underwood, L. J. Nordin, **J. T. Gopinath** and S. R. Bank, "Auger Recombination in Strained GaInAsSb Quantum Well Membranes*," Presented at EMC* (2020).
52. G. Martinez Sanchez, O. D. Supekar, G. L. Futia, B. N. Ozbay, C, Welle, V. M. Bright, **J. T. Gopinath**, D. Restrepo, D. Shepherd, and E. A. Gibson, "Widefield fluorescence optical sectioning microscopy in a miniature fiber-coupled microscope with active axial scanning" *Presented at Conference on Lasers and Electro-Optics* (2020).
53. A. Q. Anderson, E. F. Strong, B. M. Heffernan, M. E. Siemens, G. B. Rieker, and **J. T. Gopinath**, "Detection strategies for measuring rotation with the rotational Doppler effect" *Presented at Conference on Lasers and Electro-Optics* (2020).
54. E. F. Strong, A. Q. Anderson, B. M. Heffernan, M. P. Brenner, **J. T.Gopinath**, and G. B. Rieker, "An angular velocity sensor using machine learning and optical orbital angular momentum" *Presented at Conference on Lasers and Electro-Optics* (2020).
55. K. Bae, T. M. Horning, S. Pampel, M. Zohrabi, M. B. Grayson, **J. T. Gopinath**, and W. Park, "On-chip high-quality Ge23Sb7S70 round-wedge resonators for broadband dispersion engineering," *Presented at Conference on Lasers and Electro-Optics* (2020).
56. K. J. Underwood, A. F. Briggs, S. D. Sifferman, V. Verma, N. Sirica, R. Prasankumar, S.

W. Nam, K. L. Silverman, S. Bank, and **J. T. Gopinath**, "Auger Recombination in Strained Mid-Infrared Quantum Wells," *Presented at Conference on Lasers and Electro-Optics* (2020).

57. Y. L. Simmons, K. J. Underwood, B. M. Heffernan, O. Supekar, E. A. Gibson, and **J. T. Gopinath**, "Near-infrared Femtosecond Time Lens Diode Laser with kW Peak Powers for Two-Photon Microscopy, " *Presented at Conference on Lasers and Electro-Optics* (2020).
58. M. Grayson, M. Zohrabi, K. Bae, J. Zhu, **J. T Gopinath**, and W. Park, "Enhancement of third-order nonlinearity of thermally evaporated GeSbSe waveguides through annealing," *Presented at SPIE Photonics West*, Proceedings Volume 11283, Integrated Optics: Devices, Materials, and Technologies XXIV; 1128319 (2020)
59. J. Zhu, K. Bae, M. Zohrabi, T. M. Horning, M. B. Grayson, W. Park, and **J. T. Gopinath**, "In situ, nonlinear characterization of microresonators," *Presented at the Conference on Nonlinear Optics, Postdeadline* (2019).
60. K. Bae, J. Zhu, M. B. Grayson, M. Zohrabi, C. Wolenski, T. M. Horning, **J. T. Gopinath** and W. Park, "High-quality factor, nonlinear indium tin oxide nanoparticle-coated silica microsphere," *Presented at the Conference on Nonlinear Optics* (2019).
61. J. Zhu, M. Zohrabi, T. M. Horning, W. Park, and **J. T. Gopinath**, "Photosensitive Writing and Erasing of Gratings in an As2S3 Chalcogenide Microresonator," *Presented at the Conference on Nonlinear Optics* (2019).
62. **J. T. Gopinath**, M. Zohrabi, O. D. Supekar, W. Y. Lim, B. N. Ozbay, G. L. Futia, D. Restrepo, E. A. Gibson, and V. M. Bright, "Electrowetting adaptive optical devices for LIDAR," ***Invited presentation, Applied Industrial Optics* (2019).**
63. A. F. Briggs, S. D. Sifferman, K. J. Underwood, L. J. Nordin, **J. T. Gopinath** and S. R. Bank, "Externally applied strain on GaSb-based GaInAsSb quantum well membranes," *Presented at EMC (2019).*
64. **J. T. Gopinath**, B. M. Heffernan, S. A. Meyer, D. Restrepo, M. E. Siemens, and E. A. Gibson, "Imaging of HeLa cells with fiber stimulated emission depletion microscopy (STED)," *Presented at the International Conference on Orbital Angular Momemtum (ICOAM)* (2019).
65. B. M. Heffernan, S. A. Meyer, D. Restrepo, M. E. Siemens, E. A. Gibson, and **J. T. Gopinath**, "Bend-insensitive, through-fiber stimulated emission depletion (STED) imaging of HeLa cells," *Presented at the Conference on Lasers and Electro-Optics (CLEO)* (2019).
66. S. D. Sifferman, M. Motyka, A. F. Brights, K. J. Underwood, K. M. McNichoas, R. Kudrawiec, **J. T. Gopinath** and S. R. Bank, "Dilute-Bismide Alloys for GaSb-based Mid-Infrared Semiconductor Lasers" *Presented at the Conference on Lasers and Electro-Optics (CLEO),* 2018.
67. O. D. Supekar, B. N. Ozbay, M. Zohrabi, P. D. Nystrom, G. L. Futia, D. Restrepo, E. A. Gibson, **J. T. Gopinath**, and V. M. Bright, "Electrowetting prism for scanning in two-photon microscopy," *Presented at the Conference on Lasers and Electro-Optics (CLEO),* 2018.
68. O. D. Supekar, J. J. Brown, A. R. Greenberg, **J. T. Gopinath**, and V. M. Bright, "Real-time detection of scaling on reverse osmosis membranes with Raman spectroscopy," *Presented at Conference on Lasers and Electro-Optics (CLEO),* 2018.
69. B. M. Heffernan, S. A. Meyer, M. E. Siemens, D. Restrepo, E. A. Gibson, and **J. T. Gopinath**, "Stimulated emission depletion microscopy with polarization-maintaining fiber," *Presented at the Conference on Lasers and Electro-Optics (CLEO),* 2018.
70. K. Underwood, A. F. Briggs, S. D. Sifferman, S. R. Bank, and **J. T. Gopinath**, "Auger Recombination in Mid-Infrared Active Regions," *Presented at the Conference on Lasers and Electro-Optics (CLEO),* 2018.
71. S. Alperin, B. Heffernan, R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, "Generation and detection of tunable orbital angular momentum in optical fiber," Presented

at *ICOAM (International Conference on Orbital Angular Momentum)*, Capri, Italy (2017).

72. **J. T. Gopinath**,"Nonlinear chalcogenide materials and devices," *Invited presentation at Progress in Electromagnetic Research Symposium (PIERS)* (2017).
73. M. Zohrabi, R. H. Cormack, and **J. T. Gopinath**, "Nonmechanical beam steering using tunable lenses," *Presented at Conference on Lasers and Electro-Optics*, SW4L.2 (2017).
74. O. D. Supekar, M. Zohrabi, J. J. Brown, **J. T. Gopinath** and V. M. Bright, "Enhancing the response time of electrowetting lenses using voltage shaping," *Presented at Conference on Lasers and Electro-Optics*, SM4C.7 (2017).
75. B. M. Heffernan, R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, "Generation of higher-order orbital angular momentum in polarization-maintaining fiber," *Presented at Conference on Lasers and Electro-Optics*, STu4K.3 (2017).
76. G. Kang, S. Cho, M. R. Krogstad, **J. T. Gopinath**, and W. Park, "Design and fabrication of high-Q chalcogenide glass micro-disk resonators," *SPIE Photonics West*, Paper 10106-8 (2017).
77. R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, "Generation of tunable orbital angular momentum in polarization maintaining fiber," *Presented at Frontiers in Optics* FTh5B.2 (2016).
78. S. N. Alperin, R. D. Niederriter, **J. T. Gopinath**, and M. E. Siemens, "Quantitative measurement of the average orbital angular momentum of light with a cylindrical lens," *Presented at Frontiers in Optics* JW4A.87 (2016).
79. R. D. Niederriter, B. N. Ozbay, G. L. Futia, D. Restrepo, E. A. Gibson, and **J. T. Gopinath**, "Miniature picosecond diode laser system for two-photon fluorescence imaging of the mouse brain," *Presented at the Society for Neuroscience Meeting (SFN)* Poster 365.04/MMM37 (2016).
80. K. Underwood, R. D. Montoya, S. Terrab, A. M. Watson, V. M. Bright and **J. T. Gopinath**, "Large Extinction Ratio Electrowetting Optical Shutter", *Conference on Lasers and Electro-Optics (CLEO)*, JW2A.144 (2016).
81. K. Underwood and **J. T. Gopinath**, "Intracavity Martinez Compressor for Simultaneous Dispersion Compensation and Tunable Spectral Filtering," *Conference on Lasers and Electro- Optics (CLEO)*, STu3.P.2 (2016).
82. M. R. Krogstad, S. Ahn, W. Park, and **J. T. Gopinath**, "Linear and Nonlinear Properties of Ge-Sb-Se Waveguides at Telecom Wavelengths," *Conference on Lasers and Electro-Optics (CLEO)*, SF.1P.2 (2016).
83. S. Terrab, A. M. Watson, K. M. Dease, **J. T. Gopinath** and V. M. Bright, "Electrowetting-Based Variable Tuning Prism," *Presented at 2015 Conference on Lasers and Electro-Optics (CLEO)*, AW4K.4 (2015).
84. M. R. Krogstad, S. Ahn, W. Park, and **J. T. Gopinath**, "Characterization of $Ge_{28}Se_{12}Sb_{60}$ waveguides," *Presented at 2015 Conference on Lasers and Electro-Optics (CLEO)*, STh1G.7 (2015).
85. K. J. Underwood, A. M. Jones and **J. T. Gopinath**, "Synthesis of coherent optical pulses using a field-programmable gate array (FPGA)-based gradient descent phase locking algorithm with three semiconductor lasers," *Presented at 2015 Conference on Lasers and Electro-Optics (CLEO)*, SM3F.3 (2015).
86. S. N. Alperin, M. E. Siemens, R. D. Niederriter, and **J. T. Gopinath**, "Measuring orbital angular momentum of light with a single, stationary lens ," *Presented at 2015 Conference on Lasers and Electro-Optics (CLEO)*.
87. R. D. Niederriter, M. E. Siemens, and **J. T. Gopinath**, "Fiber Optic Sensors Based on Orbital Angular Momentum," *Presented at 2015 Conference on Lasers and Electro-Optics (CLEO)*, SM1L.5 (2015).
88. A. M. Jones and **J. T. Gopinath**, "Beam quality improvement of broad-area laser diodes by fast-to-slow axis mode imaging," *Presented at Conference on Lasers and Electro-*

Optics (CLEO) (June 2013), JW1J.3.

89. R. D. Niederriter, **J. T. Gopinath**, and M. E. Siemens, "Variable-focus method for characterizing general astigmatic laser beams," *Presented at Conference on Lasers and Electro-Optics (CLEO) (June 2013)*, CTu3D.
90. M. R. Krogstad, E. Rengnath, W. Park, and **J. T. Gopinath**, "Third-order nonlinearities of $Ge_{28}Sb_{12}Se_{60}$ for waveguide devices," *Presented at Conference on Lasers and Electro-Optics (CLEO) (June 2013)*, JW2A.
91. **J. T. Gopinath**, "Ultrafast and Ultrabright Lasers," Presented at New Laser Scientists Conference (October 2010).
92. K.-H. Hong, **J. Gopinath**, D. Rand, A. Siddiqui, S.-W. Huang, E. Li, B. Eggleton, J. Hybl, T. Y. Fan, and F. X. Kaertner, High-Energy, "Picosecond, Cryogenic Yb:YAG Chirped-Pulse Amplifier at kHz Repetition Rates for OPCPA Pumping, " *Presented at 2010 Conference on Lasers and Electro-Optics (CLEO) (June 2010),* JThD2.
93. **J. T. Gopinath**, K. F. Wall, J. Hybl, P. F. Moulton, and T.Y. Fan, "High-Power,Actively Modelocked Cryogenic Yb:YAG Laser," *Presented at 2010 Advanced Solid-State Photonics(ASSP)* (Feb. 2010), AWB22.
94. K. H. Hong, **J. T, Gopinath**, D. Rand, A. Siddiqui, J. Moses, J.-C. Lai, J. Hybl, T. Y. Fan, and F. X. Kaertner "Generation of 2-kHz, 40-mJ picosecond pulses from a cryogenic Yb:YAG chirped-pulse amplifier for OPCPA pumping," *Presented at 2010 Advanced Solid- State Photonics* (Feb 2010), Postdeadline paper.
95. K. H. Hong, **J. T. Gopinath**, A. Siddiqui, J. Moses, J. –C. Lai, J. Hybl, T. Y. Fan, "High-average-power cryogenically-cooled picoseconds Yb:YAG amplifier seeded by a fiber CPA system," *Presented at 2009 Conference on Lasers and Electro-Optics (CLEO)* (June 2009), CThJ4.
96. T. Y. Fan, D. J. Ripin, J. D. Hybl, **J. T. Gopinath**, A. K. Goyal, D. A. Rand, S. J. Augst, and J. R. Ochoa, "Cryogenically cooled solid-state lasers: recent developments and future prospects," *Presented at 2009 Conference on Lasers & Electro-Optics Europe & 11th European Quantum Electronics Conference (CLEO/EQEC)*(Feb. 2009), p. 1 .
97. **J. T. Gopinath**, J. Hybl, D. Ripin, J. Ochoa, T. Y. Fan, K. Hong, A. Siddiqui, J. Moses, and F. X. Kaertner, "Cryogenically cooled Yb:YAG amplifier with 287-W output power in 5.5-ps pulses," *Presented at Directed Energy Professional Society Ultrashort Pulse Laser Workshop (DEPS)* (Sept. 2008).
98. D. Pudo, H. Byun, **J. T. Gopinath**, G. S. Petrich, E. P. Ippen, F. X. Kärtner, and L. A. Kolodziejski, "Nonlinear phase response of a saturable Bragg reflector for modulation depth control," *Presented at Conference on Lasers and Electro-Optics* (CLEO) (May 2008), CWA2.
99. J. D. Hybl, **J. T. Gopinath**, R. L. Aggarwal, S. J. Augst, B. Chann, P. Foti, J. R. Ochoa, D. Rand, D. J. Ripin, and T.Y. Fan, "Ultrashort-pulse cryogenic Yb lasers," *Presented at Directed Energy Professional Society Meeting (DEPS)* (Oct. 2007).
100. **J. T. Gopinath**, B. Chann, T. Y. Fan, and A. Sanchez-Rubio, "High brightness wavelength- beam-combined eyesafe diode laser stacks," *Presented at 2007 Conference on Lasers and Electro-Optics (CLEO)* (June 2007), CThEE1.
101. **J. T. Gopinath**, J. J. Plant, B. Chann, R. K. Huang, C. Harris, L. Missaggia, J. P. Donnelly, P.
    W. Juodawlkis, and D. J. Ripin, "High power monolithic passively mode-locked slab-coupled optical waveguide lasers," ***Invited talk presented at the 2006 Conference on Lasers and Electro-Optics* (CLEO) (May 2006), CThH5**.
102. H. Sotobayashi, **J. T. Gopinath**, H. M. Shen, J. W. Sickler, P. W. Rakich, and E. P. Ippen, "Supercontinuum generation and its applications," *Presented at 2005 SPIE, Passive Optical Components for WDM Communications V (SPIE)* (October 2005), 6014-30.
103. P.T. Rakich, H.Sotobayashi, **J. T. Gopinath**, J. W. Sickler, C. W. Wong, M. Qi, S. G.

Johnson, E. Lidorikis, J. D. Joannopoulos, H. I. Smith ,and E. P. Ippen, "Broadband studies of 1D and 3D photonic crystals (invited paper)," *SPIE Optics East* (October 2005), 6017-02.

104. H. Sotobayashi, **J. T. Gopinath**, J. W. Sickler, and E. P. Ippen, "Broadband fiber lasers using bismuth oxide-based erbium-doped fiber amplifiers (invited)," *Presented at SPIE International Symposium on Information Technology and Communications (ITCom)* (October 2004), 5595-03.
105. **J. T. Gopinath**, H. M. Shen, H. Sotobayashi, and E. P. Ippen, "Novel highly nonlinear bismuth oxide fiber for supercontinuum generation," *Presented at the Lasers and Electro-Optics(LEOS) Annual Meeting*, (July 2004), p. 483-484.
106. P. T. Rakich, **J. T. Gopinath**, H. Sotobayashi, C. W. Wong, S. G. Johnson, J. D. Joannopoulos, and E. P. Ippen, "Broadband supercontinuum based measurements of high-index contrast photonic bandgap devices from 1 to 2 m," *Presented at the Lasers and Electro-Optics(LEOS) Annual Meeting*, (July 2004), pp. 813-814.
107. F. J. Grawert, S. Akiyama, **J. T. Gopinath**, F. O. Ilday, J. Liu, H. Shen, K. Wada, L. C. Kimerling, E. P. Ippen, and F. X. Kaertner, "Silicon-germanium saturable absorber mirrors," *Presented at the Lasers and Electro-Optics(LEOS) Annual Meeting* (July 2004), pp. 735-736.
108. H. Sotobayashi, **J. T. Gopinath**, J. W. Sickler, and E. P. Ippen, "Novel fiber laser technologies using broadband bismuth oxide-based erbium-doped fiber amplifiers (invited)," *Presented at the 9th European Conference on Networks & Optical Communications (ECOC)* (June 2004), paper 5.
109. S. N. Tandon, **J. T. Gopinath**, H. M. Shen, G. S. Petrich, L. A. Kolodziejski, F. X. Kaertner, and E. P. Ippen, "Broadband saturable Bragg reflectors from the infrared to visible using oxidized AlAs," *Presented at the 2004 Conference on Lasers and Electro-Optics (CLEO)* (June 2004), CThV5.
110. J. W. Sickler, **J. T. Gopinath**, S. N. Tandon, H. Sotobayashi, G. S. Petrich, L. A. Kolodziejski, and E. P. Ippen, "Femtosecond laser using broadband erbium-doped bismuth oxide gain fiber," *Presented at the 2004 Conference on Lasers and Electro-Optics (CLEO)* (June 2004), CThK6.
111. H. Sotobayashi, **J. T. Gopinath**, and E. P. Ippen, "Broadband bismuth oxide-based erbium- doped fiber lasers (invited)," *Presented at SPIE Photonics Europe 2004* **5460**, (April 2004), pp. 1-9.
112. **J. T. Gopinath**, M. Soljačić, E. P. Ippen, V. N. Fuflyigin, W. A. King, and M. Shurgalin, "Third-order nonlinearities in $Ge_{33}As_{12}Se_{55}$ glass for high-index contrast fiber devices," *Presented at the 2004 Conference on Lasers and Electro-Optics (CLEO)* (June 2004), CFA3.
113. H. Sotobayashi, **J. T. Gopinath**, Y. Takushima, E. P. Ippen, and K. Hsu, "90 nm wavelength tunable single frequency Bi_2O_3-based Erbium-doped fiber laser," *Presented at the Lasers and Electro-Optics(LEOS) Annual Meeting* (October 2003), pp. 796-797.
114. H. Sotobayashi, **J. T. Gopinath**, and E.P. Ippen, "Bi_2O_3-based erbium-doped fibers for broadband photonic network applications (invited)," *The 2nd Symposium on Photonics, Networking and computing (PNC 2003)* (September 2003), PNC-2.
115. H. Sotobayshi, **J. T. Gopinath**, E. M. Kootnz, L. A. Kolodziejski, and E. P. Ippen, "Passively modelocked Bi_2O_3-based Erbium-doped fiber laser with a 30 nm wavelength tunability in the L-band," *Presented at the European Conference on Optical Communications* (September 2003), pp. 464-465.
116. **J. T. Gopinath**, H. Sotobayshi, and E. P. Ippen, "Picosecond pulse amplfication over a bandwidth of 80 nm in a 23 cm length of Bi_2O_3-based Erbium-doped fiber," *Presented at the OSA Optical Amplifiers(OAA) Meeting* (July 2003), pp. 130-132.
117. S. N. Tandon, **J. T. Gopinath**, T. R. Schibli, G. S. Petrich, L. A. Kolodziejski, F. X. Kaertner, and E. P. Ippen, "Saturable absorbers with large area broadband bragg reflectors for femtosecond pulse generation," *Presented at Conference on Lasers and Electro-Optics (CLEO)* (June 2003), CWM5.
118. T. R. Schibli, J. Kim, L. Matos, A. W. Killi, **J. T. Gopinath**, S. Tandon, G. Petrich, J. G.

Fujimoto, E. P. Ippen, F. X. Kaertner, and L. A. Kolodziejski, "300 attosecond active synchronization of passively modelocked lasers using balanced cross-correlation," *Presented at Conference on Lasers and Electro-Optics (CLEO)* (June 2003), JTuC4.

119. T. R. Schibli, J. Kim, O. Kuzucu, **J. T. Gopinath**, S. N. Tandon, G. S. Petrich, L. A. Koldziejski, J. G. Fujimoto, E. P. Ippen, and F. X. Kaertner, "Attosecond active synchronization of passively modelocked lasers using balanced cross-correlation". *Presented at Advanced Solid-State Photonics 2003 (ASSL)* (Feb. 2003), Postdeadline paper.
120. K. S. Abedin, **J. T. Gopinath**, L. A. Jiang, M. E. Grein, H. A. Haus, and E. P. Ippen, "Self- organization of harmonic pulses in a passively modelocked stretched pulse Erbium fiber ring laser,*" Presented at 2002 IEEE Lasers and Electro-Optics Annual Meeting (LEOS)* (November 2002), pp. 465-466.
121. K. S. Abedin, **J. T. Gopinath**, E. P. Ippen, C. E. Kerbage, R. S. Windeler, and B. J. Eggleton, "Efficient highly nondegenerate four-wave mixing with tapered microstructure fiber,*" Presented at Nonlinear Optics OSA Topical Meeting (NLO)* (August 2002), pp. 415-417.
122. D. J. Ripin, **J. T. Gopinath**, H. M. Shen, F. X. Kaertner, E. P. Ippen, A. A. Erchak, G. S. Petrich, L. A. Kolodziejski and U. Morgner, "A few-cycle Cr^{4+}:YAG laser," *Presented at Conference on Lasers and Electro-Optics (CLEO)* (June 2002), pp. 24.
123. A. A. Erchak, D. J. Ripin, **J. T. Gopinath**, H. M. Shen, F. X. Kaertner, G. S. Petrich, L. A. Kolodziejski, and E. P. Ippen, "Large scale oxidation of AlAs layers for broadband saturable Bragg reflectors," *Presented at Conference on Lasers and Electro-Optics (CLEO)* (June 2002), pp. 225.
124. **J. T. Gopinath**, E. R. Thoen, E. M. Koontz, M. E. Grein, L. A. Kolodziejski, E. P. Ippen, and
J. P. Donnelly, "Ultrafast recovery times in implanted semiconductor saturable absorber mirrors at 1.5 μm," *Presented at Conference on Lasers and Electro-Optics (CLEO)* (June 2001), appears in Errata Section of Postconference Edition, pp. CWI4-1 to CWI4-3.
125. R. P. Prasankumar, I. Hartl, **J. T. Gopinath**, E. P. Ippen, J. G. Fujimoto, P. Mak and M. F. Ruane, "Ultrafast dynamics of non-epitaxially grown semiconductor-doped silica film saturable absorbers," *Presented at Quantum Electronics and Laser Science Conference (QELS)* (June 2001), pp. 103-104.

ISSUED PATENTS

J. Gopinath, V.M. Bright, A. Jones, "An Electrowetting-Actuated Optical Switch Based on Total Internal Reflection,", Issued 3/24/20 (US 10,598,919 B2).

J. Gopinath, V.M. Bright, A. M. Jones, "Optical Shutters Having Offset Liquid Lenses," Application No. 16/789, 704 "Electrowetting-Actuated Optical Shutters," Issued 8/2/22 (US patent 11,402,624 B2).

J. Gopinath, E. Gibson, V.M. Bright, R. Weir, D. Restrepo and B. Ozbay, "Optical Imaging Devices and Variable-Focus Lens Elements, and Methods for Using Them," Issued on 08/19/19 (European Patent 3, 097,443 B1); Issued 4/28/20 (US patent 10,634,899).

J.J. Brown, O. Supekar, V.M. Bright, **J. T. Gopinath**, A.R. Greenberg, "Methods and Devices for Real-Time Detection of Fouling Chemistry," Issued on 7/20/21 (US patent 11,067,511 B2)
.

J. T. Gopinath and R. D. Niederriter, "Miniature short-pulsed diode laser

system" Issued on 11/9/21 (US patent 11,171,467).

J. T. Gopinath, V. M. Bright, M. Zohrabi, and R. H. Cormack, "Wide-Angle Beam Steering," Issued on 1/11/22 (US patent 11,221,435)

J. T. Gopinath, V.M. Bright, M. Zohrabi, O.D. Supekar, R.H. Cormack, and Wei Yang Lim, "Enhanced Response Time of Tunable Electrowetting Elements with Shaped Input Voltage Functions," Issued on 11/8/22 (US patent number 11,493,749).

J. T. Gopinath, V.M. Bright, O. Supekar, W.Y. Lim, M. Zohrabi, "Electrowetting Prism for Scanning in High Resolution Fluorescence Microscopy," Issued 1/18/22 (US patent 11,226,479).

INVITED PRESENTATIONS

EPFL, Seminar (2024)

IIT Roorkee, Optical Traveling Lecturer (Fall 2023)

Vescent Photonics Seminar (Fall 2023)

Columbia University and CUNY ASRC Seminar (Spring 2022)

MNIT Jaipur, IEEE Photonics Society Student Chapter and SPIE Student Chapter, Webinar (Summer 2021)

University of Southern California, Photonics Seminar (Fall 2021)

Ball Aerospace, Seminar (Spring 2020)

NIST Applied Physics Division Seminar, Boulder (Fall 2019)

DMMI Workshop on Domestic Manufacturing Capabilities for Critical DoD Applications: Emerging Needs in Quantum Enabled Systems, Invited Panelist (Spring 2019)

Enabling Quantum Materials Workshop, Louisiana State University, Invited Speaker (Spring 2019)

Kansas State University, OSA Traveling Lecturer (Spring 2019)

University of Denver, Physics Colloquium (Spring 2019)

University of Texas at Austin (Fall 2018)

Donostia International Physics Center, Seminar (Spring 2018)

University of Colorado Boulder, Physics Colloquium (Fall 2017)

Miami University, Physics Colloquium (Spring 2017)

University of Minnesota, Electrical Engineering Colloquium (Fall 2016)

Harvard University, CEAS Seminar (2016)

IEEE Boston Photonics Society, Seminar (2016)

Ball Aerospace, Research Seminar (2015)

NIST Boulder, Research Seminar (2015)

Cornell University, Electrical Engineering Seminar (2015)

University of California San Diego, Electrical Engineering Seminar (2015)

University of Colorado-Boulder, IONS Conference Seminar, Boulder CO (2015)

University of Colorado-Boulder, Research Seminar Series on Optical, Electronic and Quantum Systems (2014)

Colorado School of Mines, Research Seminar (2013)

University of Colorado-Boulder, Physics Department Condensed Matter Seminar (2010)

China Lake Naval Air Warfare Center, Seminar Speaker (2010)

University of Colorado-Boulder, Electrical and Computer Engineering Department Seminar (2008) and (2014)

Colorado State University, Electrical and Computer Engineering Department Seminar (2007)