Mercedeh Khajavikhan

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Personal Information

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Appointments

- 01/2022, Professor, University of Southern California, Electrical and Computer Engineering Dept.
- 01/2022, Professor, University of Southern California, Physics and Astronomy Dept. Joint appointment
- 08/2019-01/2022, Associate Professor, University of Southern California, Electrical and Computer Engineering Dept.
- 08/2019, Courtesy Professor, University of Central Florida, CREOL, The College of Optics & Photonics
- 05/2018 – 08/2019, Associate Professor, University of Central Florida, CREOL, The College of Optics & Photonics
- 07/2012 – 05/2018, Assistant Professor, University of Central Florida, CREOL, The College of Optics & Photonics
- 01/2012 – 07/2012, Researcher, University of California San Diego, Electrical Engineering and Computer Science Dept.
- 10/2009 – 10/2011, Post-doctoral Scholar, University of California San Diego, Electrical Engineering and Computer Science Dept.
- 09/2004 – 09/2009, Research Assistant, University of Minnesota, Electrical Engineering Dept.

Education

- 09/2004 – 09/2009, Ph.D., Electrical Engineering, University of Minnesota, MN
- 09/2000 – 09/2003, M.S., Electrical Engineering, Amirkabir University of Technology, Iran
- 09/1996 – 09/2000, B.S., Electrical Engineering, Amirkabir University of Technology, Iran

Area of Research

Optics and Photonics, Laser Science and Engineering, Semiconductor Lasers, Integrated Photonics, Nanophotonic, Nanofabrication

Honors and Awards

- 2021, Fellow of Optica (formerly Optical Society of America (OSA))
- 2020, DARPA Director's Fellowship
- 2018, UCF Luminary Award- *given to an exceptional faculty whose work in advancing their discipline and making a difference*
- 2018, CREOL-UCF Research Incentive Award
- 2018, DARPA Young Faculty Award
- 2017, Best student paper award in SPIE Optics and Photonics conference
- 2017, CREOL Teaching Incentive Award
- 2016, Excellence in Graduate Teaching Award- UCF CREOL
- 2016, ONR Young Investigator Award
- 2016, UCF Reach for the Stars Award
- 2015, NSF CAREER Award
- 2005, University of Minnesota, Norton Fellowship for Academic Excellence

Synergetic Activities

- *Publishing:*
  Topical Editor: Optica, (since May 2022), Optics Express (2016-2022)
  Optica nominating and selection committee: OL Chief Editor, 2019
  APL Editorial Advisory Board (since 2019)
  Advisory board of Photonics and Nanostructures: Fundamentals and Applications, edited by Elsevier (since 2021)
  Topical Editor: Advances in Physics (2015-2017)
  Guest Editor: Applied Physics Letters (2020-2021)
- *Conferences:*
  General Chair:
  CLEO/QELS 2022
  Program Chair,
  CLEO/QELS 2020, NLO 2023
  Subcommittee Chair:
  CLEO/QELS Nonlinear Optics and Novel Phenomena (FS5), 2018-2019
  Member of technical committee:

CLEO/QELS Nonlinear Optics and Novel Phenomena (FS5), 2015-2017, OSA nonlinear optics (NLO) since 2019, IEEE photonics conference 2017-2019, SPIE Europe 2018, SPIE Photonics West 2019, OSA Advances in Photonics 2018, CLEO-Europe 2018, SPIE Optics and Photonics, 2018-2019, Mid-Infrared Coherent Sources (MICS) 2020 Topical Meeting, OSK-OSA-OSJ meeting 2021, Frontier in Optics 2021,2023

Organizer:

9th IMACS International conference on "Nonlinear evolution equations and wave phenomena: Computation and theory", 2014, Meta 2017 session on "Advances in Nanolasers", IEEE Summer Topicals 2018 on "Non-Hermitian, Topological and Active Photonics", George Stegeman Symposium 2018

Other:

Advisory board of NSF NRT LinQ

Optica Fellow Selection Committee 2023

- *OSA Foundation:* Invited lecturer at the Siegman International School on Lasers, 2017
- Member and faculty adviser of UCF Women in Lasers and Optics (WiLO), 2016-2019
- Member of USC Viterbi Women in Science and Engineering, 2019-present
- Proposal reviewer for Airforce Research Office, Army Research Office, Department of Energy, National Science Foundation, ERC. European Union, Research Grants Council (Hong Kong), Oakridge Associated Universities, NSERC and Mitacs (Canada), Department of Energy (DoE), Moore Foundation.
- 2008-present, Ad hoc reviewer for Nature, Nature Physics, Nature Photonics, Nature Communications, Science, Science Advances, Optica, Optics Letters, Optics Express, PRL, PRA, PRE, ACS Nano, ACS Photonics, IEEE Photonics Technology Letters, IEEE Journal of Selected Topics in Quantum Electronics, IEEE Journal of Lightwave Technology
- USC committees: USC's Research Committee for the 2020-2021, USC -Faculty Representation and Experience Working Group 2020-present, DEI Learning Community liaison 2020-present, ECE-EP representative on Viterbi's Engineering Faculty Council 2021-2023
- PI for a Multi-Disciplinary Research Initiative (MURI) on the study of the optoelectronic properties of Weyl semimetals since 2020
- CLEO 2024 DEI co-Chair

<u>Journal Publications</u> (84 papers since 2008, total citation> 10780)

Our work has been featured in several science and technology news outlets and popular science magazines including *BBC, Nature, Huffington Post, EE Times, IEEE Spectrum, Optics & Photonics News Magazine, Laser Focus world, Photonics Spectra Magazine, etc.*

Published or accepted for publication:

1. H. Lou, Y. Wei, F. Wu, G. Pirialakos, D. N. Christodoulides, M. Khajavikhan, "Trojan optical beams: guiding light via Lagrange points," to appear in Nature Physics, (2024)
2. H Ren, GG Pyrialakos, FO Wu, PS Jung, NK Efremidis, M Khajavikhan, DN Christodoulides, "Nature of Optical Thermodynamic Pressure Exerted in Highly Multimoded Nonlinear Systems," Physical Review Letters 131 193802 (2023)
3. L. M. Muniz, F. O. Wu, P. S. Jung, M. Khajavikhan, D. N. Christodoulides, and U. Peschel, "Observation of photon-photon thermodynamic processes under negative optical temperature conditions," Science 379 1019-1023 (2023)
4. M. A. Selim, G. G. Pyrialakos, F. O. Wu, Z. Musslimani, K. G. Makris, M. Khajavikhan, D. N. Christodoulides, "Thermalization of the Ablowitz–Ladik lattice in the presence of non-integrable perturbations," Optics Letters 48 (8), 2206-2209 (2023)
5. G. G Pyrialakos, A. Apostolidis, M. Khajavikhan, N. V. Kantartzis, D. N. Christodoulides, "Antichiral topological phases and protected bulk transport in dual-helix Floquet lattices," Physical Review B 107 174313 (2023)
6. M. Selim, F. Wu, G. G. Pyrialakos, M. Khajavikhan, D. N. Christodoulides, "Coherence properties of light in highly multimoded nonlinear parabolic fibers under optical equilibrium conditions," Optics Letters 48 1208-1211 (2023)
7. Hadiseh Nasari, Georgios G. Pyrialakos, Demetrios N. Christodoulides, and M. Khajavikhan, "Non-Hermitian topological photonics," Optical Materials Express 13 870-885 (2023)
8. Y. G. N. Liu, O. Hemmatyar, G. G. Pyrialakos, P. S. Jung, D. N. Christodoulides, M. Khajavikhan, "Complex Skin Modes in Non-Hermitian Coupled Laser Arrays," Light: Science & Applications 11 336 (2022)
9. Tian, Y. Jia, H. Luo, H. S. Arachchige, D. Mandrus, J. G. Lu, D. N. Christodoulides, and M. Khajavikhan, "Weyl semimetal integrated 3-unit polarimeters", Optica 9 1115-1120 (2022)
10. H. Ren, H. Luo, M. A Selim, G. G Pyrialakos, F. O Wu, M. Khajavikhan, D. N. Christodoulides, "Rigorous analysis of optical forces in dielectric structures based on the Minkowski-Helmholtz formula," Physical Review A 106 033517 (2022)
11. Koulas-Simos, G. Sinatkas, T. Zhang, J.-L. Xu, W. E. Hayenga, Q. Kan, R. Zhang, M. Khajavikhan, C.-. Ning, and S. Reitzenstein. "Extraction of silver losses at cryogenic temperatures through the optical characterization of silver-coated plasmonic nanolasers," Optics Express 30, 21664-21678 (2022).
12. P. S. Jung, G. G. Pyrialakos, F. O. Wu, M. Parto, M. Khajavikhan, W. Krolikowski, D. N. Christodoulides, "Thermal control of the topological edge flow in nonlinear photonic lattices," Nature Communications 13, 4393 (2022)
13. G. G. Pyrialakos, H. Ren, P. S. Jung, M. Khajavikhan, D. N. Christodoulides, "Thermalization dynamics of nonlinear non-Hermitian optical lattices," Physical Review Letters 128, 213901 (2022)

14. H. Luo, Y. Jia, F. Tian, M. Khajavikhan, D. Christodoulides, “Network analysis of Weyl semimetal photogalvanic systems”, Optics Letters 47, 2450-2453 (2022)
15. G. G. Pyrialakos, J. Beck, M. Heinrich, L. J. Maczewsky, M. Khajavikhan, N. V. Kantartzis, A. Szameit, and D. N. Christodoulides, “Bimorphic Floquet topological insulators” Nature Materials 21, 634-639 (2022)
16. Hadiseh Nasari, G. Lopez-Galmiche2, H. E. Lopez-Aviles, A. Schumer, A. U. Hassan, Q. Zhong, S. Rotter, P. LiKamWa, D. N. Christodoulides, M. Khajavikhan, “Parametric Steering of a Hamiltonian System in the Vicinity of a Non-Hermitian Singularity” Nature 605, 256-261 (2022)
17. A. Schumer, Y. G. N. Liu, J. Leshin, L. Ding, Y. Alahmadi, A. U. Hassan, H. Nasari, S. Rotter, D. N. Christodoulides, P. LiKamWa, M. Khajavikhan, “Topological Modes in a Laser Cavity via Exceptional State Transfer”, Science, 375, 884-888 (2022)
18. P. S. Jung, M. Parto, H. Nasari, M. Khajavikhan, W. Krolikowski, D. N. Christodoulides, “Optical Thouless pumping transport and nonlinear switching in a topological low-dimensional discrete nematic liquid crystal array”, Physical Review A 105, 013513 (2022)
19. M. A. Selim, F. O. Wu, H. Ren, M. Khajavikhan, D. N. Christodoulides “Thermodynamic description of the near- and far-field intensity patterns emerging from multimode nonlinear waveguide arrays”, Physical Review A 105, 013514 (2022)
20. C. Xu, W. E. Hayenga, D. N. Christodoulides, M. Khajavikhan, P. Likamwa, “Direct Modulation of Electrically Pumped Coupled Microring Lasers,” Opt. Express 30, 1143-1151 (2022)
21. F Capolino, M Khajavikhan, A Alù, “Metastructures: From physics to application,” Applied Physics Letters 120, 060401 (2022)
22. Bahari, J.-H. Choi, Y. G. N. Liu, M. Khajavikhan, "Majorana Bound State Cavities", Physical Review B 104, 235423 (2021)
23. H. Deng, M. Khajavikhan, “Parity–time symmetric optical neural networks,” Optica 8, 1328-1333 (2021)
24. A. George, A. Bruhacs, A. Aadhi, W. E. Hayenga, R. Ostic, E. Whitby, M. Kues, Z. M. Wang, C. Reimer, M. Khajavikhan, R. Morandotti, “Time-resolved second-order coherence characterization of broadband metallic nanolasers,” Laser & Photonics Review, (2021)
25. J.-H Choi, W. Hayenga, Y. Liu, M. Parto, B. Bahari, D. N. Christodoulides, M. Khajavikhan, “Room temperature electrically pumped topological insulator lasers,” Nature communications 12 (1), 3434 (2021)
26. Y. N. G. Liu, O. Hemmatyar, A. U. Hassan, P. Jung, J.-H. Choi, D. N. Christodoulides, M. Khajavikhan, “Engineering Interaction Dynamics in Active Resonant Photonic Structures,” APL Photonics 6, 050804 (2021), Editor’s Pick
27. Y. N. G. Liu, M. Parto, P. Jung, D. N. Christodoulides, M. Khajavikhan, “Gain induced topological response via long range interactions,” Nature Physics 17, pages 704–709 (2021)
28. M. Parto, Y. Liu, B. Bahari, M. Khajavikhan, D. N. Christodoulides, “Non-Hermitian and topological photonics: optics at an exceptional point,” Nanophotonics 10, 403-423 (2020)
29. F. Wu, P. Jung, M. Parto, M. Khajavikhan, D. N. Christodoulides, “Entropic thermodynamics of nonlinear photonic chain networks,” Nature Communications Physics 3 216 (2020)
30. M. Parto, W. E. Hayenga, A. Marandi, D. N. Christodoulides, M. Khajavikhan, “Nanolaser-based emulators of spin Hamiltonians,” Nanophotonics 9, 4193-4198 (2020)
31. S. Kreinberg, K. Laiho, F. Lohof, W. E. Hayenga, P. Holewa, C. Gies, M. Khajavikhan, S. Reitzenstein, “Thresholdless transition to coherent emission at telecom wavelengths from coaxial nanolasers,” Laser & Photonics Review 14 2000065 (2020)
32. C. Xu, W. E. Hayenga, H. Hodaei, D. N. Christodoulides, M. Khajavikhan, P. Likamwa, “Modulation bandwidth enhancement in PT-symmetric lasers,” Optics Express 28 19608 (2020)
33. N. S. Nye, A. E. Halawany, C. Markos, M. Khajavikhan, D. N. Christodoulides, “Flexible PT-symmetric optical metasurfaces,” Physical Review Applied 13, 064005 (2020)
34. M. Parto, W. E. Hayenga, A. Marandi, D. N. Christodoulides, M. Khajavikhan, “Realizing spin-Hamiltonians in nanoscale active photonic lattices,” Nature Materials 19, 725-731 (2020)
35. M. P. Hokmabadi, A. Schumer, D. N. Christodoulides, M. Khajavikhan, “Non-Hermitian Ring Laser Gyroscopes with Enhanced Sagnac Sensitivity,” Nature 576, 70 (2019)
36. Q. Zhong, S. Nelson, M. Khajavikhan, D.N. Christodoulides, R. El-Ganainy, “Bosonic discrete supersymmetry for quasi-two-dimensional optical arrays,” Photon. Res. 7, 1240 (2019)
37. W. E. Hayenga, M. Parto, J. Ren, F. Wu, M. P. Hokmabadi, C. Wolff, R. El-Ganainy, N. A. Mortensen, D. N. Christodoulides, M. Khajavikhan, “Direct generation of tunable orbital angular momentum beams in microring lasers with broadband exceptional points,” ACS Photonics, 6, 1895 (2019)
38. W. E. Hayenga, H. Garcia-Gracia, E. Sanchez Cristobal, M. Parto, H. Hodaie, P. LiKamWa, D. N. Christodoulides, M. Khajavikhan, “Electrically Pumped Microring Parity-Time Symmetric Lasers,” Proceedings of the IEEE, Accepted (2019)
39. C. Xu, W. E. Hayenga, M. Khajavikhan, P. Likamwa, “Measuring the frequency response of optically pumped metal-clad nanolasers,” Opt. Express 27, 21834-21842 (2019)
40. R. El-Ganainy, M. Khajavikhan, D. N. Christodoulides, S. Ozdemir, “The dawn of non-Hermitian optics”, Nature Communications Physics (2019) – perspective.
41. Q. Zhong, J. Ren, M. Khajavikhan, D. N. Christodoulides, S. K. Ozdemir, R. El-Ganainy, “Sensing with exceptional surfaces: combining sensitivity with robustness”, Physical Review Letters 122, 153902 (2019)
42. M. P. Hokmabadi, N. Nye, R. El-Ganainy, D. N. Christodoulides, M. Khajavikhan, “Supersymmetric Laser Arrays”, Science 363 623 (2019)

43. M. Parto, H. Lopez-Aviles, J. E. Antonio-Lopez, M. Khajavikhan, R. Amezcua-Correa, D. N. Christodoulides, "Observation of twist-induced geometric phases and inhibition of optical tunneling via Aharonov-Bohm effects," Science Advances, 5 eaau8135 (2019)
44. M. Khajavikhan, S. Wittek, M. Parto, J. Ren, D. N. Christodoulides, G. Harari, M. Segev, M. A. Bandres, "Topological Photonics Meets Lasers," OPN Year in Review (2018)
45. A. Mortensen, P. A. D. Goncalves, M. Khajavikhan, D. N. Christodoulides, C. Tserkezis, C. Wolff, "Optical Fluctuations and noise-limited sensing near the exceptional point of PT-symmetric resonator systems," Optica 5, 1342-1346 (2018)
46. Q. Zhong, M. Khajavikhan, D.N. Christodoulides, and R. El-Ganainy, "Winding around Non-Hermitian Singularities: General Theory and Topological Features," Nature Communications 9 4808 (2018)
47. J. Ren, Y. G. N. Liu, M. Parto, W. E. Hayenga, M. P. Hokmabadi, D. N. Christodoulides, M. Khajavikhan, "Unidirectional light emission in PT-symmetric microring lasers," Opt. Express 26, 27153-27160 (2018)
48. M. Parto, S. Wittek, H. Hodaei, G. Harari, M. A. Bandres, J. Ren, M. C. Rechtsman, M. Segev, D. N. Christodoulides, M. Khajavikhan, "Complex Edge-State Phase Transitions in 1D Topological Laser Arrays," Physical Review Letters, 120, 113901 (2018)
49. Q. Zhong, D. N. Christodoulides, M. Khajavikhan, K. Makris, R. El-Ganainy, "Power-law scaling of extreme dynamics near higher-order exceptional points", Phys. Rev. A 97, 020105 (2018)
50. M. Bandres, S. Wittek, G. Harari, M. Parto, J. Ren, M. Segev, D. N. Christodoulides, M. Khajavikhan, "Topological Insulator Laser: Experiments," Science, 359, 4003 (2018)
51. G. Harari, M. A. Bandres, Y. Lumer, M. C. Rechtsman, Y. D. Chong, M. Khajavikhan, D. N. Christodoulides, M. Segev, "Topological Insulator Laser: Theory," Science, 359, 4001 (2018)
52. A. U. Hassan, H. Hodaei, D. N. Christodoulides, M. Khajavikhan, "Exceptional Points: An Emerging Tool for Sensor Applications," Optics & Photonics News, January (2018)
53. R. El-Ganainy, K. Makris, M. Khajavikhan, Z. Musslimani, S. Rotter, D. N. Christodoulides, "Non-Hermitian paradigms in physics: PT symmetry and beyond," Nature Physics, 14, 11–19 (2018)
54. M. Khajavikhan, M. A. Miri, A. Alu, D. N. Christodoulides, "Parity-Time Symmetry in Optics," Encyclopedia of Modern Optics II, (2018) --Invited Article
55. A. U. Hassan, G. L. Galmiche, G. Harari, P. LiKamWa, M. Khajavikhan, M. Segev, D. N. Christodoulides, "Chiral state conversion without encircling an exceptional point," Physical Review A 96 052129 (2017)
56. H. Hodaei, A. U. Hassan, S. Wittek, J. H. Garcia-Gracia, R. El-Ganainy, D. N. Christodoulides, M. Khajavikhan, "Enhanced sensitivity in photonic molecule systems using higher order non-Hermitian exceptional points," Nature 548,187–191 (2017)
57. M. Parto, H. Lopez-Aviles, M. Khajavikhan, R. Amezcua-Correa, D. N. Christodoulides, "Topological Aharonov-Bohm suppersion of optical tunneling in twisted nonlinear multicore fibers," Physical Review A 96, 043816 (2017)
58. M. H. Teimouripour, M. Khajavikhan, D. N. Christodoulides, R. El-Ganainy, "Robustness and mode selectivity in parity-time (PT) symmetric lasers," Scientific Reports 7, 10756 (2017)
59. W. Hayenga, M. Khajavikhan, "Unveiling the Physics of Microcavity Lasers," Light: Science & Applications - New and Views (2017)
60. P. Aleahmad, M. Khajavikhan, D. N. Christodoulides, P. Likamwa, "Integrated multi-port structures for unidirectional optical information transport", Scientific Reports 7 Article number: 2129 (2017)
61. J. Ren, H. Hodaei, G. Harari, A. U. Hassan, W. Chow, M. Soltani, D. N. Christodoulides, M. Khajavikhan, "Ultrasensitive micro-scale parity-time-symmetric ring laser gyroscope," Opt. Lett. 42, 1556-1559 (2017)
62. A. U. Hassan, B. Zhen, M. Soljacic, M. Khajavikhan, D. N. Christodoulides, "Dynamically encircling exceptional points: Exact evolution and polarization state conversion", Physical Review Letters 118, 093002 (2017)
63. W. E. Hayenga, J.H. Garcia-Garcia, H. Hodaei, C. Reimer, R. Morandotti, P. Likamwa, M. Khajavikhan, "Second-order coherence properties of metallic nanolasers," Optica, 3 1187-1193 (2016)
64. H. Hodaei, M.A. Miri, A. U. Hassan, W. Hayenga, D. N. Christodoulides, M. Khajavikhan, "Dark state microring lasers: Mode management using exceptional points", Opt. Lett. 41, 3049 (2016)
65. A. AlHalawany, S. He, H. Hodaei, A. Bakry, M. A. N. Razvi, A. Alshahrie, N. J. J. Johnson, D. N. Christodoulides, A. Almutairi, M. Khajavikhan, "Enhanced UV upconversion emission using plasmonic nanocavities", Opt. Exp., 24,13999-14009 (2016)
66. A. U. Hassan, H. Hodaei, M.-A. Miri, M. Khajavikhan, D. N. Christodoulides, "Integrable nonlinear parity-time symmetric optical oscillator", Physical Review E, 93, 042219 (2016)
67. H. Hodaei, M. A. Miri, W. Hayenga, A. Ulhassan, M. Heinrich, D. N. Christodoulides, M. Khajavikhan, "Single mode lasing in transversely multi-moded PT-symmetric microring resonators", Laser and Photonics Review, 10 494–499, (2016)
68. W. E. Hayenga, H. Hodaei, J. H. Garcia-Garcia, Y. Fainman, M. Khajavikhan, "Metallic Coaxial Nanolasers", Advances in Physics: X, 1 262-275 (2016) Invited
69. N. Nye, A. Alhalawany, M. Khajavikhan, D. Christodoulides, "Passive PT-symmetric metasurfaces with directional field scattering characteristics", IEEE JSTQE 22 5000608 (2016)
70. H. Hodaei, A. U. Hassan, J.-H. Ren, W. E. Hayenga, M.A. Miri, D. N. Christodoulides, M. Khajavikhan, "Design considerations for single mode microring lasers using parity-time-symmetry", IEEE JSTQE, 22, 1500307 (2016)
71. R El-Ganainy, L Ge, M Khajavikhan, DN Christodoulides, "Supersymmetric laser arrays," Physical Review A 92 (3), 033818
72. A. U. Hassan, H. Hodaei, M.-A. Miri, M. Khajavikhan, D. N. Christodoulides, "Nonlinear reversal of PT-symmetric phase transition in a system of coupled semiconductor micro-ring resonators", Physical Review A., 92, 063807 (2015)

73. H. Hodaei, M. A. Miri, A. Ulhassan, W. Hayenga, M. Heinrich, D. N. Christodoulides, M. Khajavikhan, “Parity-time-symmetric coupled microring lasers operating around an exceptional point”, Opt. Lett., 40, 4955-4958 (2015)
74. R. El-Ganainy, L. Ge, M. Khajavikhan, D. Christodoulides, “Supersymetric laser arrays”, Physical Review A 92, 033818 (2015)
75. H. Hodaei, M. A. Miri, M. Heinrich, D. N. Christodoulides, M. Khajavikhan, “Parity-time–symmetric microring lasers,” Science 346, 975 (2014)
76. R. El-Ganainy, M. Khajavikhan, L. Ge, “Exceptional points and lasing self-termination in photonic molecules”, Physical Review A 90, 013802 (2014)
77. C. Lantigua, S. He, M. Akhlaghi Bouzan, W. Hayenga, N. J. J. Johnson, A. Almutairi, M. Khajavikhan, "Engineering upconversion emission spectra using plasmonic nanocavities," Opt. Lett. 39, 3710-3713 (2014)
78. M. Khajavikhan, A. Simic, M. Katz, J. H. Lee, B. Slutsky, A. Mizrahi, V. Lomakin and, Y. Fainman, "Thresholdless Nanoscale Coaxial Lasers", Nature 482 204–207 (2012)
79. J. Lee, M. Khajavikhan, A. Simic, Q. Gu, O. Bondarenko, B. Slutsky, M. P. Nezhad, and Y. Fainman, "Electrically pumped sub-wavelength metallo-dielectric pedestal pillar lasers", Opt. Express, 19, 21524-21531 (2011)
80. M. Nezhad, O. Bondarenko, M. Khajavikhan, A. Simic, Y. Fainman, "Etch-free Low Loss Silicon Waveguides Using Hydrogen Silsesquioxane Oxidation Masks", Opt. Express 19, 18827-18832 (2011)
81. S. Zamek, L. Feng, M. Khajavikhan, D. T. H. Tan, M. Ayache, and Y. Fainman, “Micro-resonator with metallic mirrors coupled to a bus waveguide,” Opt. Express 19, 2417-2425 (2011)
82. S. Zamek, Dawn T. H. Tan, M. Khajavikhan, M. Ayache, M. P. Nezhad, and Y. Fainman, "Compact chip-scale filter based on curved waveguide Bragg gratings," Opt. Lett. 35, 3477-3479 (2010)
83. M. Khajavikhan, K. John, J. R. Leger, “Experimental Measurements of Supermodes in Superposition Architectures for Coherent Laser Beam Combining,” Journal of Quantum Electronics, IEEE 46 1221 (2010)
84. M. Khajavikhan, J. R. Leger., “Modal Analysis of Path Length Sensitivity in Superposition Architectures for Coherent Laser Beam Combining,” Selected Topics in Quantum Electronics, IEEE 15 281(2009)
85. M. Khajavikhan, A. Hoyer-Leitzel, J. R. Leger, “Efficient conversion of light from sparse laser arrays into single-lobed far field using phase structures,” Opt. Lett. 33 2377 (2008)

Conference Presentations

1. H. Luo, H. Ma, Y. Wei, D. N. Christodoulides, and M. Khajavikhan, "TaAs Weyl semimetal single-unit multi-port integrated polarimeter," FiO, Seattle, WA (2023)- Postdeadline paper
2. H. Luo, H. Ma, Y. Wei, D. N. Christodoulides, and M. Khajavikhan, "TaAs Weyl semimetal single-unit multi-port integrated polarimeter," NLO, Honolulu, HI (2023)
3. Y. Wei, H. Luo, F. O. Wu, G. G. Pyrialakos, D. N. Christodoulides, and M. Khajavikhan, "Guiding light at Lagrange points," NLO, Honolulu, HI (2023)
4. H. Luo, Y. Wei, F. O. Wu, D. N. Christodoulides, and M. Khajavikhan, "Guiding light at Lagrange points," CLEO, San Jose, CA (2023)
5. H. Ma, H. Luo, Y. Wei, D. N. Christodoulides, and M. Khajavikhan, "TaAs Weyl semimetal single-unit multi-port integrated polarimeter," CLEO, San Jose, CA (2023)
6. M. A. Selim, G. G. Pyrialakos, P. S. Jung, M. Khajavikhan, and D. N. Christodoulides, "Statistical mechanics of the orbital angular momenta in the presence of radially symmetric random perturbations in nonlinear multimode fibers," CLEO, San Jose, CA (2023)
7. Y. G. N. Liu, Y. Zhao, C. T. Santis, M. Jarrahi, and M. Khajavikhan, "PT-symmetric AlGaAs Coupled DFB Lasers for Tunable THz Wave Generation," CLEO, San Jose, CA (2023)
8. H. Ren, Y. G. N. Liu, A. F. Abouraddy, D. N. Christodoulides, and M. Khajavikhan, "On-chip generation of non-diffracting space-time optical fields," CLEO, San Jose, CA (2023)
9. A. Wilkey, Y. Jia, Y. Zhao, M. Jarrahi, and M. Khajavikhan, "PT-Symmetric Coupled-Cavity AlGaAs Laser for Tunable THz Generation," CLEO-QELS, San Jose, CA (2022)
10. H. Nasari, G. Lopez-Galmiche, H. E. Lopez-Aviles, A. Schumer, A. U. Hassan, Q. Zhong, S. Rotter, P. L. LiKamWa, D. N. Christodoulides, and M. Khajavikhan, "Dynamics of Chiral State Transfer in the Vicinity of a Non-Hermitian Singularity," CLEO-QELS, San Jose, CA- accepted—promoted to invited talk
11. Y. G. N. Liu, O. Hemmatyar, D. N. Christodoulides, and M. Khajavikhan, "Non-Hermitian Skin Effect in Laser Arrays," CLEO-QELS, San Jose, CA (2022)
12. J. Beck, G. G. Pyrialakos, M. Heinrich, L. J. Maczewsky, M. Khajavikhan, N. V. Kantartzis, A. Szameit, and D. N. Christodoulides, "Observation of a Bimorphic Floquet Topological Insulator," CLEO-QELS, San Jose, CA (2022)
13. H. R. Chabok, T. Lu, M. R. Mostaan, B. Bahari, P. S. Jung, D. N. Christodoulides, and M. Khajavikhan, "3D Dynamic Lensing via Enhanced Light-Sound Interactions," CLEO-QELS, San Jose, CA (2022)
14. H. Luo, F. Tian, Y. Jia, D. N. Christodoulides, and M. Khajavikhan, "Network analysis of Weyl semimetal photogalvanic systems," CLEO-QELS, San Jose, CA (2022)
15. J. Ye, Y. G. N. Liu, Y. Wei, O. Hemmatyar, D. N. Christodoulides, and M. Khajavikhan, "Generation of spatio-temporal beams using orbital angular degrees of freedom," CLEO-QELS, San Jose, CA (2022)
16. Y. Jia, F. Tian, H. Luo, H. S. Arachchige, D. Mandrus, and M. Khajavikhan, "TaAs Weyl Semimetal Full-Stokes Integrated Polarimeter," CLEO-QELS, San Jose, CA (2022)

17. F. Tian, Y. Jia, H. Luo, D. N. Christodoulides, and M. Khajavikhan, "Photocurrent Frequency Response of TaAs Weyl Semimetal," CLEO-QELS, San Jose, CA (2022)
18. H. Deng and M. Khajavikhan, "Parity–time symmetric optical neural networks," CLEO-QELS, San Jose, CA – accepted
19. G. G. Pyrialakos, J. Beck, M. Heinrich, M. Khajavikhan, A. Szameit, and D. N. Christodoulides, "A Floquet Topological Phase Induced by PT-symmetry in 2D Photonic Lattices," CLEO-QELS, San Jose, CA (2022)
20. Y. G. Liu, O. Hemmatyar, A. U. Hassan, P. S. Jung, J. Choi, D. N. Christodoulides, M. Khajavikhan "Engineering interaction dynamics in active resonant photonic structures," SPIE Nanoscience + Engineering, San Diego, CA (2021)
21. B. Bahari, J-H. Choi, S. A. Benis, P. S. Jung, F. O. Wu, D. N. Christodoulides, M. Khajavikhan, "Optical Thermalization in Highly Multimoded Integrated Nonlinear 2D Photonic Membrane Systems," CLEO- QELS, San Jose, CA (2021)
22. H. Ren, F. O. Wu, P. S. Jung, N. K. Efremidis, M. Khajavikhan, D. N. Christodoulides, "Establishing a rigorous relation between thermodynamic and electrodynamic pressures in highly multimoded nonlinear dielectric waveguides," CLEO- QELS, San Jose, CA (2021)
23. F. O. Wu, Q. Zhong, H. Ren, P. S. Jung, M. Khajavikhan, D. N. Christodoulides, "Thermalization of orbital angular momentum in highly multimoded nonlinear optical fibers," CLEO- QELS, San Jose, CA (2021)
24. Y. G. N. Liu, P. S. Jung, M. Parto W. E. Hayenga, Demetrios N. Christodoulides, M. Khajavikhan, "Gain Induced Topological Response via Tailored Long-range Interactions," CLEO- QELS, San Jose, CA (2021)
25. Y. G. N. Liu, A.Winoto, G. E. Hoefler, D. N. Christodoulides, M. Khajavikhan, "Towards an Integrated Exceptional Point Enhanced Ring Laser Gyroscope," CLEO- QELS, San Jose, CA (2021)
26. J-H. Choi, W. E. Hayenga, Y. G. N. Liu, M. Parto, B. Bahari, D. N. Christodoulides, M. Khajavikhan, "Room temperature electrically pumped topological insulator laser based on quantum spin Hall effect," CLEO- QELS, San Jose, CA (2021)- **promoted to invited**
27. H. Nasari, G. Lopez-Galmiche, H. E. Lopez Aviles, A.U. Hassan, A. Schumer, P. L. LiKamWa, M. Khajavikhan, D. N. Christodoulides, "Towards a Common Path Photonic Emulator for Dynamically Encircling an Exceptional Point," CLEO- QELS, San Jose, CA (2021)
28. L. Ding, A. Schumer, J. Leshin, Y. Alahmadi, A. Ul-Hassan, G. L. Galmiche, P. Likamwa, S. Rotter, D. N. Christodoulides, M. Khajavikhan, "Bimodal Directional Laser," CLEO- QELS, San Jose, CA (2020)
29. M. Parto, F. O. Wu, P. S. Jung, M. Khajavikhan, D. N. Christodoulides, "Brightness Enhancement in Multimode Nonlinear Systems via Thermodynamic Optical Cooling," CLEO- QELS, San Jose, CA (2020)
30. J.-H. Choi, W. Hayenga, M. Parto, Y. Liu, B. Bahari, D. Christodoulides, M. Khajavikhan, "Electrically Pumped Topological Insulator Lasers," CLEO- QELS, San Jose, CA (2020)
31. M. P. Hokmabadi, A. Schumer, D. N. Christodouides, M. Khajavikhan, "Exceptional Point Based He-Ne Ring Laser Gyroscope," CLEO- QELS, San Jose, CA (2020)
32. G. Lopez-Galmiche, H. E. L. Aviles, A. U. Hassan, A. Schumer, T. Kottos, P. L. LiKamwa, M. Khajavikhan, D. N. Christodoulides, "Omnipolarizer Action via Encirclement of Exceptional Points," CLEO- QELS, San Jose, CA (2020)
33. P. S. Jung, F. O. Wu, M. Parto, Y. G. N. Liu, M. Khajavikhan, D. N. Christodoulides, "Optical thermodynamic properties of nonlinear topological Haldane lattices," CLEO- QELS, San Jose, CA (2020)
34. A. L. M. Muniz, P. S. Jung, F. O. Wu, M. Parto, M. Khajavikhan, D. N. Christodoulides, U. Peschel, "Optical Thermodynamics in Nonlinear Photonic Lattices," CLEO- QELS, San Jose, CA (2020)
35. M. Parto, W. Hayenga, A. Marandi, D. N. Christodoulides, M. Khajavikhan, "Realizing Spin-Hamiltonians in Nanolaser Lattices," CLEO- QELS, San Jose, CA (2020)
36. H. Ren, F. O. Wu, P. Jung, M. Khajavikhan, D. N. Christodoulides, "Thermodynamic pressure emerging from highly multimoded nonlinear optical systems," CLEO- QELS, San Jose, CA (2020)
37. Y. G. N. Liu, P. Jung, M. Parto, W. E. Hayenga, D. N. Christodoulides, M. Khajavikhan, "Topological Haldane Lattice," CLEO- QELS, San Jose, CA (2020)- **upgraded to invited**
38. M. Parto, W. E. Hayenga, D. N. Christodoulides1, M. Khajavikhan, "Mode-Dependent Coupling and Vectorial Optical Vortices in Metallic Nanolaser Arrays," CLEO- QELS, San Jose, CA (2019)
39. M. P. Hokmabadi, N. Nye, R. El-Ganainy, D. N. Christodoulides, "Supersymmetric Laser Arrays," CLEO- QELS, San Jose, CA (2019)
40. J. Leshin, Y. Alahmadi, A. U. Hassan, G. Lopez Galmiche, P. LiKamWa, D. N. Christodoulides, M. Khajavikhan, "Bimodal Directional Laser via Dynamically Encircling an Exceptional Point," CLEO- QELS, San Jose, CA (2019)
41. C. Xu, W. E. Hayenga, M. Khajavikhan, P. Likamwa, "Measuring the Frequency Response of Metallic Nanolasers," CLEO- QELS, San Jose, CA (2019)
42. Y. Liu, P. Jung, M. Parto, J. Leshin, D. N. Christodoulides, M. Khajavikhan, "Towards a Non-magnetic Topological Haldane Laser, CLEO- QELS," San Jose, CA (2019)
43. W. E. Hayenga, J. Ren, M. Parto, F. Wu, M. P. Hokmabadi, C. Wolff, R. El-Ganainy, N. A. Mortensen, D. N. Christodoulides, M. Khajavikhan, "Tunable Orbital Angular Momentum Microring Lasers Using Chiral Exceptional Points," CLEO- QELS, San Jose, CA (2019)
44. J. Leshin, A. U. Hassan, D. Christodoulides, M. Khajavikhan, "Dynamically encircling exceptional points in active media," Photonics West SPIE, San Francisco CA (2019)
45. Y. G. N. Liu, J. Leshin, M. Parto, D. N. Christodoulides, M. Khajavikhan, "Dynamical Stabilization and Phase-locking in Laser Arrays with Non-Hermitian Coupling," Photonics West SPIE, San Francisco CA (2019)

46. M. Segev, M. A. Bandres, G. Harari, S. Wittek, D. N. Christodoulides, M. Khajavikhan, “Experimental Realization of Magnetic-Free Topological Insulator Laser,” IEEE Summer Topicals Hawaii (2018)
47. J. Ren, W. Hayenga, M. Parto, F. Wu, D. N. Christodoulides, M. Khajavikhan, “Tunable Orbital Angular Momentum Microring Laser,” IEEE Summer Topicals Hawaii (2018)
48. M. P. Hokmabadi, W. Hayenga, J. Ren, E. Sanchez Cristobal, S. Faryadras, R. El-Ganainy, D. N. Christodoulides, M. Khajavikhan, “Experimental Realization of Supersymmetric Laser,” IEEE Summer Topicals Hawaii (2018)
49. J. Ren, M. Parto, S. Wittek, M. P. Hokmabadi, D. N. Christodoulides, and M. Khajavikhan, "Unidirectional Light Generation in PT-symmetric Microring Lasers," CLEO-QELS San Jose CA (2018)— **upgraded to invited**
50. W. E. Hayenga, E. Sanchez-Cristobal, H. Garcia-Gracia, M. Parto, H. Hodaei, J. Ren, P. LiKamWa, D. N. Christodoulides, and M. Khajavikhan, "Demonstration of Electrically Injected Parity-Time-Symmetric Microring Lasers," CLEO-QELS San Jose CA (2018)
51. M. Parto, H. Lopez-Aviles, J. E. Antonio-Lopez, J. C. Alvarado Zacarias, M. Khajavikhan, R. Amezcua-Correa, and D. N. Christodoulides, "Observation of Aharonov-Bohm Suppression of Optical Tunneling in Twisted Multicore Fibers," CLEO-QELS San Jose CA (2018)
52. W. E. Hayenga, M. Parto, E. S. Cristobal, D. N. Christodoulides, and M. Khajavikhan, “Direct Generation of Structured Light in Metallic Nanolaser Arrays” CLEO-QELS San Jose CA (2018)
53. J. Ren, G. Harari, A. U. Hassan, W. Chow, M. Soltani, M. P. Hokmabadi, D. Christodoulides, and M. Khajavikhan, "PT-Symmetric Microring Laser Gyroscope," CLEO-QELS San Jose CA (2018)
54. C. Xu, M. Khajavikhan, and P. LiKamWa, "Silicon Nitride Grating Couplers with High Efficiency and Wide Bandwidth," CLEO-QELS San Jose CA (2018)
55. M. Parto, S. Wittek, H. Hodaei, G. Harari, M. A. Bandres, J. Ren, M. C. Rechtsman, M. Segev, D. N. Christodoulides, and M. Khajavikhan, "Complex Edge-State Phase Transitions in 1D Topological Laser Arrays," CLEO-QELS San Jose CA (2018)
56. E. S. Cristobal, W. E. Hayenga, J. H. Garcia-Gracia, M. P. Hokmabadi, P. LiKamWa, and M. Khajavikhan, "Electrically Pumped Metallic Coaxial Nanolasers," CLEO-QELS San Jose CA (2018)
57. M. P. Hokmabadi, S. Faryadras, R. El-Ganainy, D. N. Christodoulides, and M. Khajavikhan, "Single Mode Supersymmetric Laser Array," CLEO-QELS San Jose CA (2018)
58. M. A. Bandres, S. Wittek, G. Harari, M. Parto, J. Ren, M. Segev, D. N. Christodoulides, and M. Khajavikhan, "Experimental Realization of Magnetic-Free Topological Insulator Laser," CLEO-QELS San Jose CA (2018)
59. J. Ren, G. Harari, A. Hassan, W. Chow, M. Soltani, D. Christodoulides, M. Khajavikhan “Ultrasensitive parity-time-symmetric micro-ring laser gyroscope” IEEE Photonics Conference, Orlando FL (2017)
60. S. Wittek, M. Parto, H. Hodaei, G. Harari, M. Bandres, M. Rechtsman, M. Segev, D. Christodoulides, M. Khajavikhan “PT-symmetry breaking of topological edge-states in SSH micro-ring laser arrays” IEEE Photonics Conference, Orlando FL (2017)
61. M. Segev, G. Harari, M. Bandres , S. Wittek, H. Hodaei, Y. Lumer, M. Rechtsman, M. Khajavikhan, Y. Chong, D. Christodoulides “Topological Insulator Lasers” IEEE Photonics Conference, Orlando FL (2017)- Invited
62. W. Hayenga , M. Parto H. Garcia-Gracia E. Sanchez-Cristobal H. Hodaei , P. Likamwa , D. Christodoulides, M. Khajavikhan “Towards electrically injected parity-time-symmetric micro-ring lasers” IEEE Photonics Conference, Orlando FL (2017)
63. H. Hodaei, Absar U. Hassan, Steffen Wittek, Midya Parto, Hipolito Garcia-Gracia, R. El-Ganainy, D. N. Christodoulides, M. Khajavikhan “Higher-order exceptional points in photonic systems,” SPIE Optics and Photonics, San Diego , CA (2017)--- **Recipient of the best paper award**.
64. H. Hodaei, A. U. Hassan, S. Wittek, H. Garcia-Gracia, R. El-Ganainy, D. Christodoulides, M. Khajavikhan “PT-symmetric Micro-resonators: High Sensitivity at Exceptional Points” CLEO, San Jose CA (2017)
65. W. E. Hayenga, M. Parto, H. Hodaei, P. Likamwa, D. N. Christodoulides, M. Khajavikhan, “Coupled Metallic Nanolaser Arrays,” CLEO, San Jose CA (2017)
66. A. U. Hassan, B. Zhen, M. Soljacic, M. Khajavikhan, D. N. Christodoulides, “Polarization state conversion through exceptional point encirclement,” CLEO, San Jose CA (2017)
67. S. Wittek, G. Harari, M. Bandres, H. Hodaei, M. Parto, P. Aleahmad, M. Rechtsman, Y. Chong, D. Christodoulides, M. Khajavikhan, M. Segev, “Towards the Experimental Realization of the Topological Insulator Laser,” CLEO, San Jose CA (2017)
68. M. Parto, H. E. Lopez Aviles, M. Khajavikhan, R. A. Correa; D. Christodoulides, “Topological Aharonov-Bohm Suppression of Optical Tunneling in Twisted Nonlinear Multicore Fibers,” CLEO, San Jose CA (2017)
69. H. Hodaei, A. U. Hassan, W. E. Hayenga, H. Garcia-Gracia, D. Christodoulides, M. Khajavikhan “Enhanced sensitivity in PT symmetric coupled resonators” Photonics West SPIE, San Francisco CA (2017)
70. M. Heinrich, H. Hodaei, M.A. Miri, A.U. Hassan, W.E. Hayenga, D.N. Christodoulides, M. Khajavikhan “Non-Hermitian microring systems: PT-symmetric lasers, mode management and enhanced emission efficiency” The 10th International Congress on Advanced Electromagnetic Materials in Microwaves and Optics, Crete Greece (2016)
71. H. Hodaei, A. U. Hassan, J. Ren, W. E. Hayenga, D. Christodoulides, M. Khajavikhan “Ultra-sensitive PT-symmetric coupled cavities” CLEO San Jose CA (2016)
72. W. Hayenga, H. Garcia-Garcia, H. Hodaei, P. LiKamWa, M. Khajavikhan, “Second-Order Coherence Measurement of a Metallic Coaxial Nanolaser” CLEO San Jose CA (2016)
73. A. Alhalawany, S. He, H. Hodaei, N.J. J. Johnson, D. Christodoulides, A. Almutairi, M. Khajavikhan, “Enhanced UV Upconversion Emission Using Plasmonic Nanocavities” CLEO San Jose CA (2016) (Poster Presentation)

74. A. U. Hassan, H. Hodaei, M. A. Miri, M. Khajavikhan, “Reversing the transition from an unbroken to a broken phase in a PT-symmetric dimer laser”, CLEO San Jose CA (2016)
75. P. Aleahmad, M. Khajavikhan, P. L. Likamwa, D. Christodoulides, “Monolithically Integrated Unidirectional Circulators Utilizing non-Hermiticity and Nonlinearity on InP”, CLEO San Jose CA (2016)
76. H. Hodaei, W. Hayenga, M.-A. Miri, A. Ulhassan, D. N. Christodoulides, M. Khajavikhan, “Dark state microring lasers: using exceptional points for mode management” CLEO Post deadline Session, San Jose CA (2015)
77. W. Hayenga; M.-A. Miri; H. Hodaei, A. Ulhassan, M. Heinrich, D. N. Christodoulides, M. Khajavikhan “Single Mode Broad Area PT-Symmetric Microring Lasers”, CLEO San Jose CA (2015)
78. R. El-Ganainy, M. Khajavikhan, D. N. Christodoulides, L. Ge “Supersymmetric Laser Arrays” CLEO, San Jose CA (2015)
79. H. Hodaei, W. E. Hayenga, M.-A. Miri, A. Ulhassan, D. N. Christodoulides, M. Khajavikhan “Tunable Parity-Time-Symmetric Microring Lasers” CLEO San Jose CA (2015)
80. A. Ulhassan, H. Hodaei, W. Hayenga, D. N. Christodoulides; M. Khajavikhan “Enhanced Sensitivity in Parity-Time-Symmetric Microcavity Sensors” Optical Sensors (SENSORS), Boston MA (2015)
81. H. Hodaei, M. A. Miri, M. Heinrich, D. Christodoulides, M. Khajavikhan, “PT-symmetric microring lasers”, SPIE Photonics West, San Francisco CA (2015)
82. W. Hayenga, M. Khajavikhan, “Rate Equation Analysis of High-Speed Nanolasers”, SPIE Photonics West, San Francisco CA (2015)
83. M.-A. Miri, N. Nye, M. Khajavikhan, D. N. Christodoulides, “PT-symmetric scatterers” SPIE Optics and Photonics, San Diego (2015) (Invited Paper)
84. A. Elhalawany, M. Khajavikhan, W. Hayenga, S. Alhasan, C. Lantigua “Enhanced ultraviolet upconversion emission using nanocavities”, FiO Tucson AZ (2014)
85. H Hodaei, MA Miri, M Heinrich, DN Christodoulides, M. Khajavikhan “PT symmetry breaking and transverse mode filtering in microring lasers”, FiO Laser Science, Tucson AZ (2014)
86. M.-A. Miri, H. Hodaei, M. Heinrich, M. Khajavikhan, D N Christodoulides, “PT-symmetric microring lasers”, FiO Tucson AZ (2014)
87. D. N. Christodoulides, M.-A. Miri, H. Hodaei, M. Heinrich, M. Khajavikhan, “PT symmetry in optics”, FiO Tucson AZ (2014) Invited
88. H. Hodaei, M. Miri, M. Heinrich, D. N. Christodoulides, and M. Khajavikhan, “PT symmetric large area single mode DFB lasers,” CLEO San Jose CA (2014)
89. W.E. Hayenga, M. Akhlaghi-Bouzan, P.J. Delfyett, M. Khajavikhan “High finesse silicon ring resonators for monolithic mode-locked lasers” SPIE Optics and Photonics, San Diego CA (2014)
90. A. Elhalawani, W.E. Hayenga, S. He, C. Lantigua, N. J. J. Johnson, A. Almutairi, M. Khajavikhan, “Increased upconversion quantum yield in plasmonic structures” SPIE Optics and Photonics, San Diego CA (2014)
91. H Hodaei, MA Miri, M Heinrich, DN Christodoulides, M Khajavikhan “Single mode PT symmetric large area lasers”, SPIE Optics and Photonics , San Diego CA (2014)
92. M. Khajavikhan, A. Simic, M. Katz, J.H. Lee, B. Slutsky, A. Mizrahi, V. Lomakin, Y. Fainman “Room-temperature and Continuous-wave Lasing with Nanoscale Coaxial Cavities”, CLEO San Jose CA (2012)
93. M. Khajavikhan, M. Katz, A. Simic, J. H. Lee, B. Slutsky, A. Mizrahi, V. Lomakin, Y. Fainman, "Thresholdless Nanoscale Coaxial Lasers", IEEE Photonic Society Meeting IPC Post deadline session, Arlington VA (2011)
94. Y. Fainman, O. Bondarenko, A. Simic, A. Mizrahi, V. Lomakin, Q. Gu, J. Lee, M. Khajavikhan, B. Slutsky, M. Nezhad, "Active and Passive Composite Metal-Dielectric", Nanophotonic Devices", CLEO San Jose (2011)
95. J. H. Lee, A. Simic, M. Khajavikhan, O. Bondarenko, Q. Gu, B. Slutsky, M. P. Nezhad, and Y. Fainman, "Electrically Pumped Subwavelength Metallo-dielectric Laser with Low Threshold Gain," CLEO (2011)
96. M. P. Nezhad, A. Simic, O. Bondarenko, Q. Gu; J. H. Lee, M. Khajavikhan, B. Slutsky, Y. Fainman "Fabrication approaches for metallo-dielectric nanolasers," *Winter Topicals (WTM) IEEE* 2011
97. S. Zamek, D. T. Tan, M. Khajavikhan, M. P. Nezhad, and Y. Fainman, "Curved Waveguide Bragg Gratings on a Chip," in *Frontiers in Optics*, OSA Technical Digest (CD) (Optical Society of America, 2010)
98. J. Leger, M. Khajavikhan, C. Wan "Common Cavity Resonators for Passive Laser Beam Combining: Effects of Path Length Errors", SPIE Photonics West (Invited Presentation), San Francisco (2010)
99. M. Khajavikhan, J. Leger, "Experimental Demonstration of Reduced Path-length Sensitivity in Coherent Beam Combining Architectures," Frontiers in Optics (FiO), San Jose (2009)
100. J. R. Leger, M. Khajavikhan, B. Tiffany, "Beam shaping in laser resonators and coherent laser arrays: An overview and current state of the art," SPIE Annual Meeting, San Diego, CA (August 2-6, 2009) (Invited)
101. M. Khajavikhan, J. Leger, "A Novel Common Cavity Approach for Coherent Beam Combining with Reducing Path-Length Sensitivity", FiO (2008)
102. M. Khajavikhan, J. Leger, "Conversion of Light from Sparse Laser Arrays into single-lobed Far-fields using phase structures", presentation, CLEO (2008)
103. J. Leger, Z. Yang, and M. Khajavikhan, "Spatial and temporal modal control of coupled lasers," High Power Laser Conference, Nizhny Novgorod, Russia (July 2006) (Invited Presentation)

Patents

1. M. Khajavikhan, Y. Fainman, Nanoscale Coaxial Lasers, US Patent App. 13/975, 205 (2012)

2. M. Khajavikhan, D. Christodoulides, H. Hodaei, M. Soltani, Parity-time-symmetric ring laser gyroscope, U.S. Serial No. 62/415792 (2016)
3. Integrated Optical Circulator Apparatus, and Applications, US Serial No. 15/627,964 (2017)
4. Provisional patent application is filed by USC for the invention on Optical Neural Networks (USC 2022-037) (2021)
5. Provisional patent application is filed by USC for the invention on compact polarimeters (2022)

Book Chapters

1. M. Khajavikhan, J. R. Leger, "Modal theory of coupled resonators for external cavity beam combining," in Coherent Laser Beam Combining, A. Barrington, Ed. John Wiley & Sons, (2013)
2. M. Teimoripour, Q. Zhong, M. Khajavikhan, R. El- Ganainy, "Higher Order Exceptional Points in Discrete Photonics Platforms," In Parity-time Symmetry and Its Applications, D. Christodoulides, J. Yang, (Eds.) Springer (2018)

Invited Talks, Keynotes, Tutorials, Plenaries

1. "Micro- and Nano-lasers: From One to Many, Unleashing Endless Possibilities", Metamaterials Conference, Crete Greece, Sept. 2023 (Invited)
2. "Non-Hermitian laser arrays", 20th International Workshop on Pseudo-Hermitian Hamiltonians in Quantum Physics, Istanbul, Turkey, August 2023 (Invited)
3. "Micro- and Nano-lasers: From One to Many, Unleashing Endless Possibilities", Meta Conference, Paris France, July 2023 (Keynote)
4. "Micro- and Nano-lasers: From One to Many, Unleashing Endless Possibilities", IEEE Summer Topicals, Italy, July 2023 (Invited)
5. "Micro- and Nano-lasers: From One to Many, Unleashing Endless Possibilities", GRC bio and nano lasers, June 2023 (Invited)
6. "Micro- and Nano-lasers: From One to Many, Unleashing Endless Possibilities", CLEO, San Jose CA, May 2023 (Invited)
7. "A Journey Toward Light", IEEE Women in Photonics, May 2022
8. "Topological Photonics", APS March meeting- Tutorial speaker- March 2022
9. "Topological Photonics: Applications", School of Metamaterials- September 2021- Virtual
10. "Opportunities in non-Hermitian and topological photonics", ARO workshop on 3D nano, September 2021- Virtual
11. "Opportunities in non-Hermitian and topological photonics", Boston IEEE Chapter, Sept. 2021- Virtual
12. "Playing with gain in non-Hermitian photonics", ARO workshop on non-Hermitian optics, Aug. 2021- Virtual
13. "What's Next in Integrated Photonics", CLEO-QELS 2021- Virtual (Panelist)
14. "Parity-Time Symmetric Ring Laser Gyroscopes", CLEO-QELS 2021- Special Symposium on Micro-Photonic PNT Virtual (Invited)
15. "Thresholdless and Topological Lasers", Frontiers of Semiconductor Lasers DPG Spring Meeting, Dresden Germany 2020 (Tutorial)- not attended because of COVID
16. "Nanolaser Lattices for Emulating Spin Hamiltonians", Physics of Quantum Electronics (PQE), Snowbird, UT 2020 (Plenary)
17. "Parity-Time Symmetric Sensors", CLEO Pacific RIM, Sydney, Australia 2020 (Invited)- not attended because of COVID
18. "Active Topological Photonics", Rank Prize Symposium, Lake District, England 2020 (Senior Speaker)—postponed because of COVID
19. "Topological Photonics", 2020 MRS Spring Meeting in Phoenix, Phoenix, AZ 2020 (Invited)- not attended because of COVID
20. "Supersymmetric and Topological Laser Arrays", SPIE Photonics West, San Francisco, CA 2020 (Invited) presented by Mohammad Hokmabadi
21. "Exceptional Point based Gyroscopes", SPIE Photonics West, San Francisco, CA 2020 (Invited)-presented by Mohammad Hokmabadi
22. "Quantum inspired Photonic Devices", Lecture at the Quantum Optics Fall School, INAOE Mexico 2019, (Invited)- did not attend
23. "Ring Laser Gyroscopes with Enhanced Sagnac Sensitivity", US/Middle East Conference on Photonics, New York, NY 2019 (Invited)
24. "Ring Laser Gyroscopes with Enhanced Sagnac Sensitivity", European Workshop on Fibre Sensors (EWOFS), Cyprus 2019 (Invited)
25. "Supersymmetric Laser Arrays", IEEE Photonic Conference, San Antonio, TX 2019 (Invited)
26. "Supersymmetric lasers", FiO, Washington, District of Columbia, 2019 (Invited)
27. "Supersymmetric and topological lasers", ITQW, Ojai Valley, CA 2019 (Invited)
28. "Supersymmetric Lasers", SPIE Optics and Photonics Conference, San Diego, CA 2019 (Invited)
29. "Topological Photonics", IEEE Summer Topicals, Fort Lauderdale 2019 (Tutorial)
30. "Non-Hermitian Lasers", CLEO Europe, Munich 2019 (Invited)
31. "Enhanced Sagnac Sensitivity at Exceptional Point", Piers, Rome Italy 2019 (Invited)
32. "Topological Phenomena in Active Photonic Platforms", CLEO, Science and Innovation, San Jose, CA 2019 (Invited)
33. "Supersymmetric Laser Arrays," SPIE Photonics West, San Francisco, CA, 2019 (Invited)
34. "Active Topological Photonics", SPIE Photonics West, San Francisco, CA, 2019 (Invited)
35. "Topological phenomena in active platforms", Nature Conference, Washington University of Saint Louis, Missouri 2018 (Invited)
36. "PT-symmetry photonics: lasers and sensors", FiO, Washington DC, 2018 (Invited)
37. "Topological phenomena in active platforms", SPIE Optics and Photonics, San Diego 2018 (Invited)
38. "Non-Hermitian Photonics", Non-Hermitian Workshop, Dresden, Germany, 2018 (Invited)
39. "Enhancing Sensitivity of Micro-resonators Using Exceptional Points", Advanced Photonics Congress, Zurich, Switzerland 2018 (Invited)
40. "Non-Hermitian Photonics: Optics at an Exceptional Point", Advanced Photonics Congress, Zurich, Switzerland 2018 (Invited)
41. "Non-Hermitian Photonics: Optics at an Exceptional Point", SPIE Photonics North, Montreal, Canada 2018 (Invited)

42. “Non-Hermitian Photonics: Optics at an Exceptional Point”, Workshop on Topological Photonics, Odense, Denmark 2018 (Invited)
43. “Ultrasensitive micro-scale parity-time-symmetric ring laser gyroscope”, SPIE Photonics West, San Francisco, CA 2018 (Invited)
44. “Generating beams with orbital angular momentum in nanoscale laser arrays”, SPIE Photonics West, San Francisco, CA 2018 (Invited)
45. “Generating structured light using metallic nanolaser arrays”, PQE, Snowbird, UT 2018 (Invited)
46. “Photonics molecules with enhanced sensitivity at higher order exceptional points”, SPIE Nanophotonics Australasia, Melbourne, Australia 2017 (Invited)
47. “Advances in Microscale Parity-time-symmetric Lasers”, FiO and Laser Science APS meeting Washington DC 2017 (Invited)
48. “Parity-time-symmetric photonics: optics at an exceptional point”, The 24th Congress of the International Commission for Optics (ICO-24), Japan 2017 (Invited)
49. “Active parity-time symmetric systems”, SPIE Optics and Photonics Conference, San Diego, CA 2017 (Invited)
50. “ONR Young Investigator Program (YIP) Panel Discussion”, Naval Future Force Science and Technology, VA 2017 (Invited)
51. “Coherence properties of nanoscale lasers”, The Siegman International School on Lasers, Leon, Mexico 2017 (Invited)
52. “Collective behaviors in arrays of coupled nanolasers”, IEEE Summer Topicals, Puerto Rico 2017 (Invited)
53. “Novel photonic resonant arrangements using non-Hermitian exceptional points”, INRS, Canada, January 2017 (Invited)
54. “Symmetries for lasers and sensing”, ARO workshop on SUSY, Raleigh, North Carolina, 2016 (Invited)
55. “Lasing in PT-symmetric photonic molecules”, 17th International Workshop on "Pseudo-Hermitian Hamiltonians in Quantum Physics, Germany 2017- (Invited)
56. “Parity-time symmetric lasers”, OSA Incubator meeting, Washington DC, 2016 (Invited)
57. “Novel metallic sub-wavelength nanolasers”, SPIE Photonics North, Canada, 2016 (Invited)
58. “Lasing characteristics in parity-time-symmetric microcavities”, META’16, the 7th International Conference on Metamaterials, Photonic Crystals and Plasmonics in Malaga, Spain, 2016 (Invited)
59. “Parity-time symmetric lasers”, SPIE Photonics West in San Francisco (CA), USA, 2016 (Invited)
60. “Thersholdless nanoscale lasers”, AFRL, Dayton (OH), USA, 2015 (Invited)
61. “Non-Hermitian exceptional points for laser mode management”, IEEE Photonics Conference (IPC) in Reston (VA), USA, 2015 (Invited)
62. “Parity-time symmetric lasers”, IEEE Photonics Conference (IPC) in Reston (VA), USA, 2015 (Invited)
63. “Single-mode parity-time-symmetric micro-ring lasers”, CLEO Pacific-Rim in Busan Korea 2015 (Invited)
64. “Coaxial nanolasers”, IEEE Summer Topicals in Nassau, Bahamas, 2015 (Invited)
65. “PT symmetry in optics and nonlinear optics”, CLEO Europe in Munich, Germany, 2015 (Invited)
66. “Thresholdless nanoscale lasers”, TechConnect World in Santa Clara (CA), USA, 2012. (keynote speaker)

Seminars (Universities, Research Labs):

1. Colloquium at Department of Electrical Engineering, Princeton University at Princeton, New Jersey, November 2022.
2. Colloquium at Department of Applied Physics, Cornell University, Ithaca, New York, October 2022.
3. Colloquium at Department of Electrical Engineering, University of Science and Technology at Zewail City, Egypt: November 2021.
4. Colloquium at Department of Physics, University of Crete (Zoom): November 2021.
5. Colloquium at Department of Physics, Oklahoma University (Zoom): September 2021.
6. Seminar Lecture at the Fitzpatrick Institute for Photonics (FIP), Duke University, Durham, North Carolina, USA, October 2021.
7. Colloquium at Department of Electrical Engineering, University of Notre Dame (Zoom): April 2021.
8. Colloquium at Department of Electrical Engineering, Rice University (Zoom): February 2021.
9. Seminar at Airforce Research Lab (AFRL), Dayton, Ohio, February 2020.
10. Colloquium at Department of Applied Physics, Stanford, (Palo Alto, USA): January 2020.
11. Colloquium at Department of Physics, Boston College, (Boston, USA): April 2019.
12. Seminar at Electrical Engineering Department, University of Texas at Austin, (Austin, USA): January 2019.
13. Colloquium at Applied Physics Department, Yale University, (New Haven, USA): October 2018.
14. Colloquium at Engineering Physics Department, Ecole Polytechnique of Montreal, (Montreal, Canada): September 2018.
15. Seminar at Electrical Engineering Department, Brown University, (Providence, USA): March 2019.
16. Seminar at Advanced Graduate Research Center, CUNY, (New York, USA): March 2019.
17. Colloquium at Physics Department, University of New Mexico, (Albuquerque, USA): March 2018.
18. Seminar at Department of Nonlinear Physics, Canberra University (Canberra, Australia): December 2017.
19. Seminar at Department of Electrical Engineering, Columbia University (New York City, USA): November 2017.
20. Seminar at Department of Electrical Engineering, University of California, San Diego (San Diego, USA): November 2017.
21. Seminar at Department of Electrical Engineering, University of California, Los Angeles (Los Angeles, USA): November 2017.
22. Seminar at Department of Electrical Engineering, University of Southern California, Los Angeles (Los Angeles, USA): November 2017.
23. CREOL Affiliate’s Day (Orlando, USA): March 2016
24. Colloquium at Physics Department, University of New Mexico, (Albuquerque, USA): March 2015.
25. OSA Seminar at Georgia Institute of Technology, (Atlanta, USA): March 2015.
26. Colloquium at Physics Department, Michigan Technological University, (Houghton, USA): September 2014.
27. Colloquium at Electrical Engineering Department, Pennsylvania State University, (State College, USA): April 2014.

28. IEEE Student Chapter Seminar at CREOL-UCF, (Orlando, USA): November 2012.
29. Seminar at NanoEngineering Department, University of California in San Diego, (San Diego, USA): June 2012.
30. Colloquium at Electrical Engineering Department, University of New Mexico, (Albuquerque, USA): February 2012.
31. Colloquium at Electrical Engineering Department, University of Southern California, (Los Angeles, USA): November 2011.
32. Seminar at Media Lab, MIT, (Boston, USA): September 2009.

Doctoral Dissertations

1. Y. Liu, "Topological and non-Hermitian semiconductor lasers," Ph.D. Dissertation Submitted to the USC, Department of Electrical and Computer Engineering University of Southern California, Los Angeles, 2023
2. C. Xu, "High speed modulation characteristics of semiconductor nanolasers and coupled ring laser systems," Ph.D. Dissertation Submitted to the CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, 2021 (co-adviser- Patrick Likamwa)
3. M. Parto, "Artificial magnetism and topological phenomena in optics," Ph.D. Dissertation Submitted to the CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, 2019 (co-adviser- Demetrios Christodoulides)
4. W. Hayenga, "Fundamental Properties of Metallic Nanolasers," Ph.D. Dissertation Submitted to the CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, 2018 (PhD adviser)
5. H. Hodaei, "Novel Photonic Resonance Arrangements Using Non-Hermitian Exceptional Points," Ph.D. Dissertation Submitted to the CREOL, The College of Optics and Photonics, University of Central Florida, Orlando, 2017 (PhD adviser)
   Hossein Hodaei was selected as the student of the year at CREOL (2017)
6. M. Khajavikhan, "Coherent beam combining for high power laser applications," Ph.D. Dissertation Submitted to the Department of Electrical Engineering, University of Minnesota, 2009

Graduate Students and Postdocs (co)Supervised in the past

Hossein Hodaei. (works at Infinera)
William Hayenga (works at Intel)
Enrique Cristobal (PhD student at CREOL)
Jinhan Ren (works at KLA-Tencor)
Steffen Wittek (now with Bell Labs)
Mohammad P. Hokmabadi (Postdoc: now works at nLight)
Dante Aceti (visiting student, currently a PhD student in Berlin)
Alexander Schumer (visiting student co-advised with Stefan Rotter)
Hipolito Garcia-Gracia (postdoc: works at Tecnologico de Monterrey)
Chi Xu (works at Aeva)
Midya Parto (to start as a faculty at CREOL, UCF)
Jae- Hyuck Choi (Postdoc: KRISS (Korea Research Institute of Standards and Science)
Sepehr A. Benis (Postdoc: now works at SiLC)
Babak Bahari (postdoc: currently at Rockley Photonics)
Andrew Wilkey (postdoc: currently at Eikon Theraputics)
Yufei Jia (postdoc: currently at Amazon)
Haoqin Deng (undergard student, currently a grad student at Wash U)
Hongrui Ma (master's student, admitted for PhD at University of Wisconsin, Madison)
Hadiseh Nasari (postdoc)
Christos Santis (postdoc)

Current graduate students:

Yunxuan Wei (advisor)
Abraham Berman Bradley (advisor)
Hediyeh Mohammadi Dinani(advisor)
Jongheon Lee (advisor)
Mahmoud Selim (co-advisor)
Haokun Lou (co-advisor)
Huizhong Ren (co-advisor)

USC committees 2023:

- APT evaluation committee for Viterbi (met with the chairs to review the APT evaluation procedure and made recommendations)
- Viterbi Research Committee 2023
- Workshop for advising postdocs that plan to go to academia (Jan 2023)
- Recommendation on creating a more equitable review process (more diversity on committee – rank is considered in most units) without service burden

- USC Viterbi Sustainability group (Fall 2023)