

Hebin Li

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Curriculum Vitae

CURRENT POSITION

Professor	Department of Physics, University of Miami	2024 –
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EDUCATION

Ph.D. in Physics	Texas A&M University	2004 – 2010
B.S. in Physics	Wuhan University, China	1997 – 2001

PREVIOUS POSITIONS

Associate Professor	Department of Physics, Florida International University	2019 – 2024
Assistant Professor	Department of Physics, Florida International University	2013 – 2019
Research Associate	JILA, CU Boulder and NIST (Advisor: Prof. Steven Cundiff)	2010 – 2013
Research Assistant	Texas A&M University (Advisor: Prof. Marlan Scully)	2004 – 2010
Project Manager	Wuxi Zhongxing Optoelectronics Technology Co.	2003
R&D Engineer	Wuhan Telecommunication Devices Co.	2001 – 2003

PROFESSIONAL SERVICE EXPERIENCE

- Topical Editor, Journal of the Optical Society of America B (2025 ~)
- Program committee member for CLEO conference (2025, 2026)
- Advisory committee, Florida Quantum Conference 2026
- Member of the 2025 SESAPS Beams award committee (2025)
- Referee for scientific journals including Physical Review Letters, Physical Review A, Optics Letters, Optics Express, Applied Optics, Journal of the Optical Society of America B, Journal of Physics B, Scientific Reports, Journal of Physical Chemistry, Nanoscale (2009 – present)
- NSF Proposal reviewer (2015, 2017, 2018, 2019, 2020, 2021, 2025), panelist (2017, 2018, 2019, 2021, 2023, 2025), DOE proposal reviewer (2020), and ACS PRF proposal reviewer (2016, 2019)
- Executive committee for the AVS Florida chapter (2017 – 2018)
- Session organizer for Winter Colloquium on the Physics of Quantum Electronics (PQE 2024, 2015)
- Science advisor to the Laser Show at Philip and Patricia Frost Museum of Science in Miami
- Faculty mentor for the FIU Research Experience for Teachers program (2014 – 2016)
- Faculty advisor for the FIU student chapter of the OSA (2015 – present)
- Internal referee of pre-submission articles for NIST employees (Jan. 2010 – Aug. 2013)
- Volunteer with “JILA Physics Frontier Center (PFC) Partnerships for Informal Science Education in the Community (PISEC)” outreach program (Spring 2012)

- Member of graduate student admission committee, Department of Physics, University of Colorado (Spring 2011)
- Founder and president of Texas A&M University student chapter of the OSA (2008 – 2009)

AWARDS AND HONORS

FIU Faculty Senate Award for Excellence in Research	2023
Optica (Formerly OSA) Senior Member	2019 ~
William R. Jones Outstanding Mentor Award	2021
Army Research Lab (ARL) Summer Faculty	2020
Florida International University Top Scholar	2020
College of Arts, Sciences & Education Research Award	2017, 2020, 2023

PROFESSIONAL MEMBERSHIPS

Senior member	Optica (Formerly OSA)
Member	American Physical Society (APS)

MENTORING

PhD students

Dr. Michael Titze (PhD, 2019)

Dr. Maria Munoz (PhD, 2021)

Dr. Danfu Liang (PhD, 2022)

Dr. Stephen Revesz (PhD, 2025)

I am currently mentoring 5 graduate students in my research group. I am serving and have served as a dissertation committee member for over 10 PhD students in physics, math, chemistry, and engineering.

Undergraduate students

I have mentored over 20 undergraduate students in research. Many of them have been admitted to physics graduate programs.

RESEARCH GRANTS

1. *“Optical two-dimensional coherent spectroscopy of color centers in silicon carbide,”* Army Research Office (ARO), 08/2023 ~ 07/2027, \$800,000, My role: PI
2. *“FIU-JILA partnership for research and education in AMO physics,”* National Science Foundation (NSF), PHY-2216824, 06/2022 ~ 05/2025, \$900,000, My role: PI
3. *“Enhancing future quantum optics with quantum computing and cyber workforce via dedicated mentoring and leadership-based learning activities,”* Microsoft, 05/2023 ~ 04/2024, \$50,000, My role: co-PI
4. *“Probing molecular dynamics near plasmonic surfaces by optical two-dimensional coherent spectroscopy,”* National Science Foundation (NSF), CHE-2003785, 08/15/2020 ~ 07/31/2023, \$511,833, My role: PI
5. *“Transmission electron microscope (TEM) for research and education in nano-engineered materials,”* Army Research Office (ARO), 07/2022 ~ 06/2023, \$599,950, My role: co-PI
6. *“NASA MIRO Center for Research and Education in 2D Optoelectronics (CRE2DO) at FIU,”* NASA, 10/2022 ~ 09/2024, \$2,000,000, My role: Participating faculty

7. “*FIU-2D crystal consortium partnership for research and education in materials*,” National Science Foundation (NSF), DMR-2122078, 07/2021 ~ 06/2027, \$3,780,000, My role: Participating faculty
8. “*Many-body dipole-dipole interactions in atomic ensembles*,” National Science Foundation (NSF), PHY-1707364, 08/01/2017 ~ 07/31/2021, \$360,000, My role: PI
9. “*Acquisition of an ultrafast amplified laser system for research and education in material science*,” Army Research Office (ARO), 09/11/2017 ~ 09/10/2018, \$404,835, My role: PI

PUBLICATIONS

Book

1. H. Li, B. Lomsadze, G. Moody, C. Smallwood, and S. Cundiff,
“Optical multidimensional coherent spectroscopy,”
Oxford University Press, to be published in Jan. 2023 (ISBN: 9780192843869)

Peer-reviewed journal articles

1. S. Revesz, R. Gatamov, A. Misiara, and H. Li,
“Collinear Optical Two-Dimensional Coherent Spectroscopy with Fluorescence Detection at 5 kHz Repetition Rate,”
Submitted. (arXiv: 2408.03412) (2024).
2. MF Munoz, C Fei, H Wang, and H Li,
“Ultrafast dynamics of transient exciton state in methylammonium lead iodide perovskite at room temperature,”
The Journal of Chemical Physics 162, 214202 (2025). (Editor's Pick)
3. A. Misiara, S. Revesz, I Boulares, and H. Li,
“Effects of localized laser-induced heating in the photoluminescence of silico-vacancy color centers in 4H-SiC,”
Journal of Applied Physics 137, 153107 (2025). (Editor's Pick)
4. S. Revesz, A. Misiara, J.B.S. Abraham, E.S. Bielejec, H. Li, and M. Titze,
“Effect of Negative Thermal Expansion on the Zero-Phonon Line of Implanted Silicon Vacancy Color Centers in Diamond,”
ACS Photonics 11, 2221 (2024).
5. D. Huang, K. Sampson, Y. Ni, Z. Liu, D. Liang, K. Watanabe, T. Taniguchi, H. Li, E. Martin, J. Levinsen, M.M. Parish, E. Tutuc, D.K. Efimkin, and X. Li,
“Quantum Dynamics of Attractive and Repulsive Polarons in a Doped MoSe₂ Monolayer,”
Physical Review X 13, 011029 (2023).
6. C. Falvo, and H. Li,
“Double-quantum spectroscopy of dense atomic vapors: Interplay between Doppler and self-broadening,”
The Journal of Chemical Physics, 159, 064304 (2023).
7. D. Liang, L.S. Rodriguez, H. Zhou, Y. Zhu, and H. Li,
“Optical two-dimensional coherent spectroscopy of cold atoms,”
Optics Letters 47, 6452 (2022).

8. J. Yan, S. Revesz, D. Liang, and H. Li,
“Broadband optical two-dimensional coherent spectroscopy of a rubidium atomic vapor,”
Physical Review A 105, 052810 (2022).
9. D. Liang, Y. Zhu, and H. Li,
“Collective resonance of D states in rubidium atoms probed by optical two-dimensional coherent spectroscopy,”
Physical Review Letters 128, 103601 (2022).
10. S. Yu, Y. Geng, D. Liang, H. Li, and X. Liu,
“Double-quantum-zero-quantum 2D coherent spectroscopy reveals quantum coherence between collective states in an atomic vapor,”
Optics Letters 47, 997 (2022).
11. G.O. Ariunbold, V.A. Sautenkov, H. Li, R.K. Murawski, X. Wang, M. Zhi, T. Begzjav, A.V. Sokolov, M.O. Scully, and Y.V. Rostovtsev,
“Observation of ultrafast superfluorescent beatings in a cesium atomic vapor excited by femtosecond laser pulses,”
Physics Letters A 428, 127945 (2022).
12. D. Liang and H. Li,
“Optical two-dimensional coherent spectroscopy of many-body dipole-dipole interactions and correlations in atomic vapors,”
Journal of Chemical Physics 154, 214301 (2021).
13. S. S. Huang, N. Liu, J.Q. Liang, and H. Li,
“Collapse of superradiant phase and Dicke phase transition at finite temperature in a hybrid optical-mechanical system,”
Physica Scripta 96, 095801 (2021).
14. N. Liu, S. Huang, S. Jia, J.Q. Liang, and H. Li,
“Finite-temperature Dicke phase transition and the collapse of superradiant phase in an optomechanical-atomic cavity,”
Results in Physics 31, 104939 (2021).
15. E. Zhu, C. Zhao, and H. Li,
“Frequency-domain model of optical frequency-comb generation in optical resonators with second- and third-order nonlinearities,”
Physical Review A 102, 053508 (2020).
16. M.F. Munoz, A. Medina, T.M. Autry, G. Moody, M.E. Siemens, A.D. Bristow, S.T. Cundiff, and H. Li,
“Fast phase cycling in non-collinear optical two-dimensional coherent spectroscopy,”
Optics Letters 45, 5852 (2020).
17. S. Namuduri, M. Titze, S. Bhansali, and H. Li,
“Machine learning enabled lineshape analysis in optical two-dimensional coherent spectroscopy,”
Journal of the Optical Society of America B 37, 1587 (2020).

18. S. Yu, M. Titze, Y. Zhu, X. Liu, and H. Li,
 “Long range dipole-dipole interaction in low-density atomic vapors probed by double-quantum two-dimensional coherent spectroscopy,”
Optics Express 27, 28891 (2019).
19. M. Titze, C. Fei, M. Munoz, X. Wang, H. Wang and H. Li,
 “Ultrafast carrier dynamics of dual emissions from orthorhombic phase in methylammonium lead iodide perovskites revealed by two-dimensional coherent spectroscopy,”
The Journal of Physical Chemistry Letters, 10, 4625 (2019).
20. S. Yu, M. Titze, Y. Zhu, X. Liu, and H. Li,
 “Observation of scalable and deterministic multi-atom Dicke states in an atomic vapor,”
Optics Letters 44, 2795 (2019).
21. M. Titze, B. Li, X. Zhang, P.M. Ajayan, and H. Li,
 “Intrinsic coherence time of trions in monolayer MoSe₂ measured via two-dimensional coherent spectroscopy,”
Physical Review Materials 2, 054001 (2018).
22. Y. Hu, F. Zhang, M. Titze, B. Deng, H. Li*, and G.J. Cheng*,
 “Straining effects in MoS₂ monolayer on nanostructured substrates: temperature dependent photoluminescence and exciton dynamics,”
Nanoscale 10, 5717 (2018).
23. M. Titze, and H. Li,
 “Interpretation of optical three-dimensional coherent spectroscopy,”
Physical Review A 96, 032508 (2017).
24. R. Singh, M. Richter, G. Moody, M.E. Siemens, H. Li, and S.T. Cundiff,
 “Localization dynamics of excitons in disordered semiconductor quantum wells,”
Physical Review B 95, 235307 (2017).
25. H. Li and S.T. Cundiff,
 “2D Coherent Spectroscopy of Electronic Transitions,”
Advances in Atomic, Molecular, and Optical Physics 66, 1 (2017).
26. F. Gao, Y. Gong, M. Titze, R. Almeida, P.M. Ajayan, and H. Li,
 “Valley trion dynamics in monolayer MoSe₂,”
Physical Review B 94, 245413 (2016).
27. F. Gao, S.T. Cundiff, and H. Li,
 “Probing dipole-dipole interaction in a rubidium gas via double-quantum 2D spectroscopy,”
Optics Letters 41, 2954 (2016).
28. R. Singh, G. Moody, M.E. Siemens, H. Li, and S.T. Cundiff,
 “Quantifying spectral diffusion by direct measurement of the correlation function for excitons in semiconductor quantum wells,”
Journal of the Optical Society of America B 33, C137 (2016).

29. G. Nardin, T.M. Autry, G. Moody, R. Singh, H. Li, and S.T. Cundiff,
“Multi-dimensional coherent optical spectroscopy of semiconductor nanostructures: Collinear and non-collinear approaches,”
Journal of Applied Physics 117, 112804 (2015).
30. A.P. Spencer, H. Li, S.T. Cundiff, and D.M. Jonas,
“Pulse propagation effects in optical 2D Fourier-transform spectroscopy: Theory,”
Journal of Physical Chemistry A 119, 3936 (2015).
31. A.E. Almand-Hunter, H. Li, S.T. Cundiff, M. Mootz, M. Kira, and S.W. Koch,
“Quantum droplets of electrons and holes,”
Nature 506, 471 (2014).
32. G. Moody, I.A. Akimov, H. Li, R. Singh, D.R. Yakovlev, G. Karczewski, M. Wiater, T. Wojtowicz, M. Bayer, and S.T. Cundiff,
“Coherent Coupling of Excitons and Trions in a Photoexcited CdTe/CdMgTe Quantum Well,”
Physical Review Letters 112, 097401 (2014).
33. G. Nardin, G. Moody, R. Singh, T.M. Autry, H. Li, F. Morier-Genoud, and S.T. Cundiff,
“Coherent excitonic coupling in an asymmetric double InGaAs quantum well,”
Physical Review Letters 112, 046402 (2014).
34. H. Li, A.P. Spencer, A. Kortyna, G. Moody, D.M. Jonas, and S.T. Cundiff,
“Pulse propagation effects in optical 2D Fourier-transform spectroscopy: Experiment,”
Journal of Physical Chemistry A, 117, 6279 (2013).
35. R. Singh, T.M. Autry, G. Nardin, G. Moody, H. Li, K. Pierz, M. Bieler, and S.T. Cundiff,
“Anisotropic homogeneous linewidth of the heavy hole exciton in (110)-oriented GaAs quantum wells,”
Physical Review B 88, 045304 (2013).
36. G. Moody, R. Singh, H. Li, I.A. Akimov, M. Bayer, D. Reuter, A.D. Wieck, A.S. Bracker, and D. Gammon, and S.T. Cundiff,
“Biexcitons in semiconductor quantum dot ensembles,”
Physica Status Solidi (b) 250, 1753 (2013).
37. G. Moody, R. Singh, H. Li, I.A. Akimov, M. Bayer, D. Reuter, A.D. Wieck, and S.T. Cundiff,
“Correlation and dephasing effects on the non-radiative coherence between bright excitons in an InAs quantum dot ensemble measured with 2D spectroscopy,”
Solid State Communications 163, 65 (2013).
38. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff,
“Unraveling quantum pathways using optical 3D Fourier-transform spectroscopy,”
Nature Communications 4, 1390 (2013).
39. H. Li, G. Moody, and S.T. Cundiff,
“Reflection optical two-dimensional Fourier-transform spectroscopy,”
Optics Express 21, 1687 (2013).

40. G. Moody, R. Singh, H. Li, I.A. Akimov, M. Bayer, D. Reuter, A.D. Wieck, and S.T. Cundiff,
“Fifth-order nonlinear optical response of excitonic states in an InAs quantum dot ensemble
measured with 2D spectroscopy,”
Physical Review B 87, 045313 (2013).
41. G. Moody, R. Singh, H. Li, I.A. Akimov, M. Bayer, D. Reuter, A.D. Wieck, A.S. Bracker, D.
Gammon, and S.T. Cundiff,
“Influence of confinement on biexciton binding in semiconductor quantum dot ensembles
measured with 2D spectroscopy,”
Physical Review B 87, 041304 (2013). [Rapid]
42. D. B. Turner, P. Wen, D. H. Arias, K. A. Nelson, H. Li, G. Moody, M. E. Siemens, and S. T.
Cundiff,
“Persistent exciton-type many-body interactions in GaAs quantum wells measured using two-
dimensional optical spectroscopy,”
Physical Review B 85, 201303 (2012). [Rapid]
43. X. Dai, M. Richter, H. Li, A.D. Bristow, C. Falvo, S. Mukamel, and S.T. Cundiff,
“Two-dimensional double-quantum spectra reveal collective resonances in an atomic vapor,”
Physical Review Letters 108, 193201 (2012).
44. S. T. Cundiff, A. D. Bristow, M. E. Siemens, G. Moody, H. Li, D. Karauskaj, X. Dai, T. Zhang,
“Optical two-dimensional Fourier-transform spectroscopy of semiconductor nanostructures,”
IEEE Journal of Selected Topics in Quantum Electronics 18, 318 (2012). [Invited]
45. M.E. Siemens, G. Moody, H. Li, A.D. Bristow, and S.T. Cundiff,
“Resonance lineshapes in two-dimensional Fourier transform spectroscopy,”
Optics Express 18, 17699 (2010).
46. P.K. Jha, H. Li, V.A. Sautenkov, Y.V. Rostovtsev, and M.O. Scully,
“Phase dependent interference effects on atomic excitation,”
Optics Communications 284, 2538 (2011).
47. P.K. Jha, Y.V. Rostovtsev, H. Li, V.A. Sautenkov, and M.O. Scully,
“Experimental observation of carrier-envelope-phase effects by multicycle pulses,”
Physical Review A 83, 033404 (2011).
48. G.O. Ariunbold, M.M. Kash, V.A. Sautenkov, H. Li, Y.V. Rostovtsev, G.R. Welch, and M.O.
Scully,
“Observation of picosecond UV pulses produced by coherent scattering of IR femtosecond pulses
in atomic rubidium vapor,”
Journal of the Optical Society of America B 28, 515 (2011).
49. V.A. Sautenkov, H. Li, M.A. Gubin, Y.V. Rostovtsev, and M.O. Scully,
“Variable spectral filter based on optically saturated selective reflection,”
Laser Physics 21, 153 (2011).
50. H. Li, V.A. Sautenkov, Y.V. Rostovtsev, M.M. Kash, G.R. Welch, P. Anisimov, and M.O. Scully,

- “Carrier envelope phase effect on atomic excitation by few-cycle RF pulses,”
Physical Review Letters 104, 103001 (2010).
51. V.A. Sautenkov, H. Li, Y.V. Rostovtsev, and M.O. Scully,
“Ultradispersive adaptive prism based on a coherently prepared atomic medium,”
Physical Review A 81, 063824 (2010).
 52. G.O. Ariunbold, M.M. Kash, V.A. Sautenkov, H. Li, Y.V. Rostovtsev, G.R. Welch, and M.O. Scully,
“Observation of picosecond superfluorescent pulses in rubidium atomic vapor pumped by 100-fs laser pulses”
Physical Review A 82, 043421 (2010).
 53. H. Li, H. Chen, M.A. Gubin, Y.V. Rostovtsev, V.A. Sautenkov, and M.O. Scully,
“Observation of electromagnetically induced transparency in cesium molecules,”
Laser Physics 20, 1725 (2010).
 54. V.A. Sautenkov, T.S. Varzhapetyan, H. Li, D. Sarkisyan, and M.O. Scully,
“Selective reflection of a laser beam from a dilute rubidium vapor,”
Journal of Russian Laser Research 31, 270 (2010).
 55. H. Li, V.A. Sautenkov, Y.V. Rostovtsev, G.R. Welch, P.R. Hemmer, and M.O. Scully,
“Electromagnetically induced transparency controlled by a microwave field,”
Physical Review A 80, 023820 (2009).
 56. Y.V. Rostovtsev, H. Eleuch, A. Svidzinsky, H. Li, V.A. Sautenkov, and M.O. Scully,
“Excitation of atomic coherence using off-resonant strong laser pulses,”
Physical Review A 79, 063833 (2009).
 57. H. Li, V.A. Sautenkov, Y.V. Rostovtsev, and M.O. Scully,
“Excitation dependence of resonance line self-broadening at different atomic densities,”
Journal of Physics B: Atomic, Molecular and Optical Physics 42, 065203 (2009).
 58. V.A. Sautenkov, H. Li, Y.V. Rostovstev, G.R. Welch, J.P. Davis, F.A. Narducci and M.O. Scully,
“Using phase dynamics in EIT to probe ground state relaxation in rubidium vapor,”
Journal of Modern Optics 56, 975 (2009).
 59. T.S. Varzhapetyan, H. Li, G.O. Ariunbold, V.A. Sautenkov, Y.V. Rostovtsev, and M.O. Scully,
“Intensity correlations in resonance nonlinear magneto-optical rotation,”
Optics Communications 282, 39 (2009).
 60. H. Li, V.A. Sautenkov, M.M. Kash, A.V. Sokolov, G.R. Welch, Y.V. Rostovtsev, M.S. Zubairy, and M.O. Scully,
“Optical imaging beyond the diffraction limit via dark states,”
Physical Review A 78, 013803 (2008).
 61. H. Li, V.A. Sautenkov, T.S. Varzhapetyan, Y.V. Rostovtsev, and M.O. Scully,
“Atomic noise spectra in nonlinear magneto-optical rotation in a rubidium vapor,”
Journal of the Optical Society of America B 25, 1702 (2008).

62. H. Li, T.S. Varzhapetyan, V.A. Sautenkov, Y.V. Rostovtsev, H. Chen, D. Sarkisyan and M.O. Scully,
“Improvement of spectral resolution by using the excitation dependence of dipole–dipole interaction in a dense atomic gas,”
Applied Physics B: Lasers and Optics 91, 229 (2008).
63. V.A. Sautenkov, H. Li, Y.V. Rostovtsev, G.R. Welch, J.P. Davis, F.A. Narducci and M.O. Scully,
“Dynamic control of EIT by changing optical phase,”
Journal of Modern Optics 55, 3093 (2008).
64. G.O. Ariunbold, M.M. Kash, H. Li, V.A. Sautenkov, Y.V. Rostovtsev, G.R. Welch, and M.O. Scully,
“A model experiment for stand-off sensing,”
Journal of Modern Optics 55, 3273 (2008).
65. V.A. Sautenkov, H. Li, Y.V. Rostovtsev, and M.O. Scully,
“Power spectra and correlations of intensity fluctuations in electromagnetically induced transparency,”
Journal of Modern Optics 54, 2451 (2007).
66. H. Chen, H. Li, Y. V. Rostovtsev, M. A. Gubin, V. A. Sautenkov and M. O. Scully,
“Near-infrared saturation spectroscopy of cesium molecules using a diode laser,”
Journal of the Optical Society of America B 23, 723 (2006).

Book chapter

1. H. Li, Y.V. Rostovtsev, “Beating diffraction limit using dark states,” in *Advances in Lasers and Electro Optics*, IN-TECH, 2010. ISBN: 978-953-307-088-9.

Popular science articles

1. A.E. Almand-Hunter, S.T. Cundiff, H. Li, M. Mootz, S.W. Koch, and M. Kira,
“Quantum-optical spectroscopy reveals dropletions in quantum wells,”
Optics and Photonics News 25, 42 (2014).
2. A.E. Almand-Hunter, H. Li, S.T. Cundiff, M. Mootz, M. Kira, and S.W. Koch,
“Dropleton – The new semiconductor quasiparticle,”
2physics.com (<http://www.2physics.com/2014/04/dropleton-new-semiconductor.html>)
3. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff,
“Determining the system Hamiltonian with optical 3-D spectroscopy,”
Optics and Photonics News 24, 50 (2013).

INVITED SEMINARS

1. Apr. 2024, 2DCC seminar, Penn State University, University Park, PA
2. Apr. 2024, Dirac Quantum Symposium, Florida State University, Tallahassee, FL
3. Feb. 2024, Department of Physics, University of Maryland Baltimore County, MD
4. Feb. 2024, Department of Physics, Jacksonville University, Jacksonville, FL

5. Jan. 2024, Department of Electric and Computer Engineering, FIU, Miami, FL
6. Nov. 2023, Department of Physics, University of Miami, Coral Gables, FL
7. Feb. 2023, Department of Physics, University of Texas at Dallas, Richardson, TX
8. Apr. 2022, Department of Physics, University of Michigan, Ann Arbor, MI
9. Dec. 2021, Army Research Lab, Adelphi, MD
10. Dec. 2021, National Institute of Standards and Technology, Gaithersburg, MD
11. Sep. 2021, Department of Physics, University of North Texas, Denton, TX
12. Aug. 2021, Microdevices Laboratory, Jet Propulsion Laboratory, Pasadena, CA (online)
13. Jul. 2021, Department of Physics, University of Bath, UK (online)
14. Nov. 2020, Department of Physics, Mississippi State University, Starkville, MS (online)
15. Sep. 2019, Department of Physics, West Virginia University, Morgantown, WV
16. Sep. 2018, Department of Physics, University of Illinois Urbana-Champaign, Urbana, IL
17. Feb. 2018, Department of Physics, University of South Florida, Tampa, FL
18. Feb. 2017, Department of Physics, University of Central Florida, Orlando, FL
19. Sep. 2016, Department of Physics, College of William and Mary, Williamsburg, VA
20. Oct. 2015, Department of Mechanical & Materials Engineering, FIU
21. Feb. 2015, Department of Biomedical Engineering, FIU
22. Mar. 2013, Department of Physics, University of Minnesota Duluth, Duluth, MN.
23. Mar. 2013, Department of Physics, Queens College, City University of New York, New York, NY.
24. Feb. 2013, Department of Physics, Temple University, Philadelphia, PA.
25. Jan. 2013, Department of Physics, Florida International University, Miami.
26. Jan. 2013, Physics Colloquium, University of Denver, Denver.
27. Oct. 2012, Cornell/Jin bi-group meeting, JILA, University of Colorado.
28. Mar. 2012, School of Science, Xi'an Jiaotong University, Xi'an, China.
29. Mar. 2012, Wuhan Institute of Physics and Mathematics, Chinese Academy of Sciences, Wuhan, China.
30. Sep. 2011, Becker group, JILA, University of Colorado.

CONFERENCE PRESENTATIONS

Invited

1. H. Li
 "Optical two-dimensional coherent spectroscopy of color-center arrays in diamond,"
 TAMU-Princeton-Casper-Baylor-CSU-UIUC Summer School
 Casper, Wyoming, July 21 – 25, 2025.
2. H. Li
 "Thermal effects on optical properties of color centers in diamond and silicon carbide,"

33st Annual International Laser Physics Workshop (LPHYS 2025)
Szeged, Hungary, June 30 – July 4, 2025.

3. H. Li
“Abnormal thermal expansion of ion implanted silicon vacancy color centers in diamond,”
Physics of Quantum Electronics (PQE)
Snowbird, UT, Jan. 5 – 10, 2025.
4. H. Li
“*Optical multidimensional coherent spectroscopy of many-body interaction and correlation,*”
XI International Symposium of Ultrafast Dynamics & Ultrafast Bandgap Photonics
Crete, Greece, Jun. 16 – 21, 2024.
5. H. Li
“*Optical 2D coherent spectroscopy of ultrafast carrier dynamics in methylammonium lead iodide perovskites,*”
Physics of Quantum Electronics (PQE)
Snowbird, UT, Jan. 8 – 12, 2024
6. H. Li, “Ultrafast meets ultracold: optical 2D coherent spectroscopy of cold atoms,”
31st Annual International Laser Physics Workshop (LPHYS 2023)
Online, Jul. 3 – 7, 2023
7. H. Li
“*Optical 2D Coherent Spectroscopy for Probing Interaction and Correlation in Quantum Emitters,*”
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 8 – 12, 2023
8. H. Li,
“Extract molecular dynamics from optical two-dimensional coherent spectroscopy by machine learning,”
ACS Fall Meeting
Chicago, IL, Aug. 21 – 25, 2022
9. H. Li,
“*Optical 2D coherent spectroscopy of many-body dipole-dipole interactions and correlations in atomic ensembles,*”
Physics of Quantum Electronics (PQE)
Snowbird, UT, Jan. 10 – 14, 2022
10. H. Li,
“*Multi-dimensional snapshots of many-body quantum dynamics: from atoms to 2D semiconductors,*”
TAMU-Princeton-Baylor Summer School on New Trends in Quantum Optics
Casper, Wyoming, Jul. 22 – 26, 2019
11. H. Li,
“*Trion valley dynamics in monolayer MoSe₂,*”
2018 FLAVS Symposium,

UCF, Orlando, FL, May 7 – 8, 2018

12. H. Li,
“*Optical 2D coherent spectroscopy of valley dynamics in monolayer transition metal dichalcogenide*,”
Ultrafast Bandgap Photonics III
Orlando, FL, Apr. 16 – 19, 2018
13. H. Li,
“*Many body interaction and correlation in atomic vapors*,”
TAMU-Princeton-Baylor Summer Symposium on Quantum Science and Engineering
Casper, Wyoming, Jul. 23 – 29, 2017
14. H. Li,
“*Optical Multi-dimensional coherent spectroscopy*,”
American Chemistry Society 92nd Florida Annual Meeting and Exposition
Tampa, FL, May 5 – 7, 2016.
15. M. Titze, F. Gao, S.T. Cundiff, and H. Li
“*Probing dipole-dipole interactions in a dilute rubidium vapor via double-quantum 2D coherent spectroscopy*,”
Physics of Quantum Electronics (PQE)
Snowbird, UT, Jan. 4 – 9, 2015.
16. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff
“*Optical three-dimensional coherent spectroscopy*,”
Photonics West 2014
San Francisco, CA, Feb. 1 – 6, 2014
17. H. Li
“*Determining system Hamiltonian with optical three-dimensional coherent spectroscopy*,”
Physics of Quantum Electronics (PQE)
Snowbird, UT, Jan. 5 – 9, 2014
18. H. Li, A.D. Bristow, X. Dai, G. Moody, M.E. Siemens, and S.T. Cundiff
“*Optical multidimensional Fourier transform spectroscopy*,”
21th International Laser Physics Workshop (LPHYS)
Calgary, Canada, July 23 – 28, 2012
19. H. Li, V.A. Sautenkov, Y.V. Rostovtsev, M.M. Kash, P.M. Anisimov, G.R. Welch, and M.O. Scully
“*Carrier-envelope phase effect of RF pulses: cosine vs sine*,”
Physics of Quantum Electronics (PQE)
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Contributed

1. S. Revesz, R. Gatamov, A. Misiara, and H. Li,
“*Collinear optical 2D coherent spectroscopy with 5-kHz repetition rate femtosecond laser*,”
Frontiers in Optics + Laser Science (FiO LS)

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2. A. Misiara, S. Revesz, I. Boulares, B. VanMil, and H. Li,
“Effects of localized laser-induced heating in the photoluminescence of silicon-vacancy color centers in 4H-SiC,”
Fundamental Optical Processes in Semiconductors (FOPS)
St. Johns, NL, Canada, Jul. 21 – 26, 2024
3. S. Revesz, A. Misiara, J.B.S. Abraham, E.S. Bielejec, H. Li, and M. Titze,
“Effect of negative thermal expansion on the zero-phonon line of implanted silicon vacancy color centers in diamond,”
Fundamental Optical Processes in Semiconductors (FOPS)
St. Johns, NL, Canada, Jul. 21 – 26, 2024
4. L. Savio-Rodriguez, A. Zavala, and H. Li,
“Optical two-dimensional coherent spectroscopy of cold atoms,”
55th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP)
Fort Worth, TX, Jun. 3 – 7, 2024
5. A. Zavala, L. Savio-Rodriguez, and H. Li,
“Detection of collective resonances using optical two-dimensional coherent spectroscopy,”
55th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (DAMOP)
Fort Worth, TX, Jun. 3 – 7, 2024
6. S. Revesz, A. Misiara, J.B.S. Abraham, E.S. Bielejec, H. Li, and M. Titze,
“Negative thermal expansion in diamond probed using the zero-phonon line of silicon vacancy color centers,”
Conference on Lasers and Electro-Optics (CLEO)
Charlotte, NC, May 5 – 10, 2024
7. S. Revesz, H. Li, J.B.S. Abraham, E.S. Bielejec, and M. Titze,
“Effects of ion implantation damage on photoluminescence of silicon-vacancy centers in diamond,”
CAARI-SNEAP 2022
Denton, TX, Oct. 30 – Nov. 2, 2022
8. H. Li,
“*Multi-quantum optical two-dimensional coherent spectroscopy of many-body quantum coherence*,” [Talk]
International Conference on Ultrafast Phenomena,
Montreal, Quebec, Canada, July 18 – 22, 2022
9. H. Li,
“*Ultrafast meets ultracold: toward optical 2D coherent spectroscopy of cold atoms*,” [Talk]
The 10th International Conference on Coherent Multidimensional Spectroscopy
Austin, TX, June 21-24, 2022
10. D. Liang, Y. Zhu, and H. Li,

“Collective resonance of D states in rubidium atoms probed by optical two-dimensional coherent spectroscopy,” [Poster]
Austin, TX, June 21-24, 2022

11. C. Falvo, and H. Li,
“Double-quantum spectroscopy of atomic vapors, a new theoretical perspective,” [Poster]
Austin, TX, June 21-24, 2022
12. D. Liang, Y. Zhu, and H. Li,
“Optical two-dimensional coherent spectroscopy of cold atoms,” [Talk]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 15 – 20, 2019
13. M. Titze, C. Fei, M. Munoz, H. Wang, and H. Li,
“Carrier Dynamics Between the Ordered and Disordered Orthorhombic Lattice Domains in Methylammonium Lead Iodide Perovskite,” [Talk]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 5 – 10, 2019
14. S. Yu, M. Titze, Y. Zhu, X. Liu, and H. Li,
“Experimental observation of multi-atom Dicke states in an atomic vapor using optical 2D coherent spectroscopy,” [Poster]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 5 – 10, 2019
15. S. Yu, M. Titze, X. Liu, and H. Li,
“Multi-atom correlation and interaction in atomic vapor,” [Poster]
International Conference on Coherent Multidimensional Spectroscopy (CMDS)
Seoul, South Korea, June 25 – 29, 2018
16. M. Titze, and H. Li,
“Probing valley dynamics in monolayer MoSe₂ via optical 2D coherent spectroscopy,” [Poster]
International Conference on Coherent Multidimensional Spectroscopy (CMDS)
Seoul, South Korea, June 25 – 29, 2018
17. M. Titze, B. Li, P.M. Ajayan, and H. Li
“Intrinsic homogeneous linewidth of trions in monolayer MoSe₂,” [Talk]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 13 – 18, 2018
18. S. Yu, M. Titze, X. Liu, and H. Li
“Probing dipole-dipole interaction at cold-atom density range using two-dimensional coherent spectroscopy,” [Poster]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 13 – 18, 2018
19. M. Titze, F. Gao, R. Almeida, Y. Gong, P.M. Ajayan, and H. Li
“Ultrafast dynamics of trions in monolayer MoSe₂,” [Poster]
Fundamental Optical Processes in Semiconductors (FOPS)

Stevenson, WA, Aug. 27 – Sep. 1, 2017

20. M. Titze, F. Gao, R. Almeida, Y. Gong, P.M. Ajayan, and H. Li
“*Valley trion dynamics in monolayer MoSe₂*,” [Poster]
Frontiers in Optics
Rochester, NY, Oct. 17 – 21, 2016
21. F. Gao, M. Titze, R. Almeida, Y. Gong, P.M. Ajayan, H. Li
“*Valley dynamics in monolayer MoSe₂ studied by pump-probe spectroscopy*,” [Poster]
Fundamental Optical Processes in Semiconductors (FOPS)
Breckenridge, CO, Aug. 2 – 7, 2015
22. H. Li, G. Moody, S.T. Cundiff, and M. Kira
“*Many-body interactions in GaAs quantum wells studied by pre-pulse 2DFT spectroscopy*,”
[Poster]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, June 9 – 14, 2013
23. H. Li, A. Kortyna, G. Moody, and S.T. Cundiff
“*Pulse propagation effects in 2DFT spectroscopy*,” [Poster]
International Conference on Coherent Multidimensional Spectroscopy (CMDS)
Berlin, Germany, July 16 – 18, 2012
24. H. Li, G. Moody, A.D. Bristow, M.E. Siemens, S.T. Cundiff
“*Optical multidimensional spectroscopy of atomic vapor*,” [Talk]
International Conference on Ultrafast Phenomena (UP)
Lausanne, Switzerland, July 8 – 13, 2012
25. H. Li, G. Moody, R. Singh, I. A. Akimov, D. R. Yakovlev, M. Bayer, G. Karczewski, T. Wojtowicz, and S. T. Cundiff
“*Evidence of exciton-trion coherent interactions in a CdTe/CdMgTe quantum well*,” [Talk]
Conference on Lasers and Electro-Optics (CLEO)
San Jose, CA, May 7 – May 11, 2012
26. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff
“*Experimental determination of Hamiltonian via 3D Fourier-transform spectroscopy*,” [Talk]
APS March Meeting,
Boston, MA, Feb. 27 – Mar. 2, 2012
27. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff
“*Experimental determination of full Hamiltonian via 3D Fourier-transform spectroscopy*,” [Poster]
Gordon Conference on Quantum Control of Light and Matter,
South Hadley, MA, Jul. 31 – Aug. 5, 2011
28. H. Li, A.D. Bristow, M.E. Siemens, G. Moody, and S.T. Cundiff
“*Three-dimensional Fourier-transform spectroscopy of potassium vapor*,” [Talk]
APS March Meeting,
Dallas, TX, Mar. 21 - 25, 2011

29. H. Li, X. Dai, A.D. Bristow, M.E. Siemens, D. Karauskaj, and S.T. Cundiff
"Multi-dimensional Fourier-transform spectroscopy of potassium vapor," [Poster]
 International Conference on Coherent Multidimensional Spectroscopy,
 Minneapolis, MN, Aug. 18 - 20, 2010
30. H. Li, V.A. Sautenkov, M.M. Kash, Y.V. Rostovtsev, and M.O. Scully
"Nonlinear optics with radio frequency field" [Talk]
 Frontiers in Optics (FiO)
 Rochester, NY, Oct. 19 - 23, 2008
31. H. Li, V.A. Sautenkov, Y.V. Rostovtsev, G.R. Welch, J.P. Davis, F.A. Narducci, and M.O. Scully
"Phase dynamics of Electromagnetically Induced Transparency" [Poster]
 Frontiers in Optics (FiO)
 Rochester, NY, Oct. 19 - 23, 2008
32. H. Li, V.A. Sautenkov, M.M. Kash, G.R. Welch, Y.V. Rostovstev, and M.O. Scully,
"Subwavelength imaging via dark state," [Talk]
 Lasers and Electro-Optics, Quantum Electronics and Laser Science Conference (CLEO/QELS),
 San Jose, CA, May 4 - 9, 2008
33. H. Li, V.A. Sautenkov, M.M. Kash, G.R. Welch, Y.V. Rostovtsev, and M.O. Scully
"Enhancement of imaging contrast via EIT" [Poster]
 Physics of Quantum Electronics (PQE)
 Snowbird, UT, Jan. 6 - 10, 2008
34. H. Li, V.A. Sautenkov, Y.V. Rostovstev, and M.O. Scully,
"An ultra-dispersive optically controlled atomic gas prism," [Talk]
 Lasers and Electro-Optics, Quantum Electronics and Laser Science Conference (CLEO/QELS),
 Baltimore, MD, May 6 - 11, 2007
35. H. Li, J. P. Davis, V. A. Sautenkov, Y. V. Rostovtsev, G. R. Welch, F. A. Narducci, and M. O. Scully
"Quantum control of EIT by optical phase," [Talk]
 APS Texas meeting,
 College Station, TX, Oct. 19 - 20, 2007
36. H. Li, H. Chen, Y.V. Rostovtsev, V.A. Sautenkov, and M.O. Scully
"Variable optical filter based on saturated selective reflection" [Poster]
 Physics of Quantum Electronics (PQE)
 Snowbird, UT, Jan. 2 - 6, 2006