

SHUO SUN

University of Colorado Boulder, 440 UCB, Boulder, CO 80309

Group Website: <https://jila.colorado.edu/sun/>

Email: shuosun@colorado.edu

EDUCATION

Dec 2016 Ph.D. in Electrical Engineering, University of Maryland, College Park

Dec 2015 M.S. in Electrical Engineering, University of Maryland, College Park

June 2011 B.S. in Optics, Zhejiang University

APPOINTMENTS

Aug 2020 - Present Assistant Professor, Department of Physics, CU Boulder

Aug 2020 - Present JILA Associate Fellow

July 2022 - Present Scientific Advisor, Icarus Quantum Inc

Dec 2019 - Aug 2020 Physical Science Research Scientist, Stanford University

Jan 2017 - Nov 2019 Postdoctoral Fellow, Stanford University

Aug 2011 - Dec 2016 Graduate Research Assistant, University of Maryland, College Park

HONORS AND AWARDS

1. NSF CAREER Award, National Science Foundation, 2024
2. Sloan Research Fellowship, Alfred P. Sloan Foundation, 2023
3. Ralph E. Powe Junior Faculty Enhancement Awards, Oak Ridge Associated Universities, 2021
4. IOP Publishing Reviewer Award, IOP Science, 2021
5. Second Prize of the Rising Stars of Light, Light: Science & Applications, 2020
6. Honorable Mention, Carl E. Anderson Division of Laser Science Dissertation Award, American Physical Society, 2017
7. Distinguished PhD Dissertation Award, Department of Electrical and Computer Engineering, University of Maryland College Park, 2016
8. Maiman Outstanding Student Paper Award, Optical Society of America, 2015
9. Grand Prize of the China Instrument and Control Society Scholarship, 2011
10. Chu Kochen Award (the highest honor in Zhejiang University), 2011
11. National Scholarship of China (2008, 2009, 2010)

PROFESSIONAL SERVICE

- Co-organizers of the Workshop on Quantum Light Generation, Detection, and Application (sponsored by JILA PFC, CUBit, & Toptica) (2024)
- Subcommittee of the focused session on “Optically active semiconductor qubits” in 2024 APS March Meeting (2023 - 2024)
- Co-organizers of the Workshop on Photonic Interface for Quantum Technologies (sponsored by NSF) (2023)
- CLEO Technical Program Committee (2022 - 2024)
- Photonics for Quantum Program Committee (2021 - 2022)

- Associate Topical Editor, Journal of the Optical Society of America B (2020 - 2024)
- Regular Reviewer of scientific publications for Nature, Nature Nanotechnology, Nature Physics, npj Quantum Information, Physical Review Letters, Physical Review X, Physical Review Applied, Physical Review A, Physical Review B, Nano Letters, ACS Photonics, Advanced Optical Materials, Scientific Reports, New Journal of Physics, Applied Physics Letters, Optical Express, Optics Letters, Journal of the Optical Society of America B, Quantum Science and Technology
- Reviewer for Funding Agency: NSF, DOE, Natural Sciences and Engineering Research Council of Canada (NSERC), Israel Science Foundation (ISF)
- Reviewer for CU internal competitions: Keck, Core Facility Assistance Grant Program, Ralph E. Powe Junior Faculty Awards
- External PhD Thesis Committee or Reviewer for: University of Calgary (Canada), Indian Institute of Technology Kanpur (India)
- CU PhD Defense Committee: Thariq Shanavas, Nanako Shitara, Gautam Kavuri, Zixuan Wang, Chuankun Zhang, Sarang Mittal, Alex Kwiatkowski, Chris Reetz, Bryce Primavera, Manoj Kalubovilage
- CU Physics Candidacy Exam Committee: Ben Whetten, Haixin Liu, Luca Talamo, Thanmay Sunil Menon, Margie Bruff, Joanna Lis, Nanako Shitara, Elizabeth Ruddy, Zixuan Wang, Alexander Kwiatkowski, Sarang Mittal, William Eckner, Manoj Kalubovilage
- CU Physics Comprehensive Exam Committee: Yongju Hai, Haoqing Zhang
- Members of CU Physics Department Committees: Junior Faculty Advisory Committee (2020 - Present); Graduate Advising Committee (2024 - 2025); Graduate Admission Committee (2020 - Present); Undergraduate Advising Committee (2020 - 2024); Comprehensive Exam Committee (2021 - 2022); Quantum Information Theory Faculty Search Committee (2022 - 2023).
- Members of JILA Committees: JILA Keck Lab Advisory Committee (2022 - Present) and Committee Chair (2024 - Present); JILA Quantum Experimental Fellow Search Committee (2023 - 2024).
- Members of other CU committees (Outside JILA & Physics): COSINC Advisory Committee (2021 - Present); Search Committee for the Karl Gustafson Endowed Chair of Quantum Engineering (2021 - 2025).

TEACHING

Spring 2026	PHYS 7560 Quantum Optics
Spring 2025	PHYS 7560 Quantum Optics
Fall 2024	PHYS 3220 Quantum Mechanics 1
Spring 2024	PHYS 3220 Quantum Mechanics 1
Fall 2023	PHYS 3310 Principles of Electricity and Magnetism 1
Spring 2023	PHYS 3310 Principles of Electricity and Magnetism 1
Fall 2022	PHYS 2150 Experimental Physics 2
Spring 2022	PHYS 1125 General Physics 2
Fall 2021	PHYS 2150 Experimental Physics 2
Fall 2020	PHYS 1120 General Physics 2

LECTURING IN WORKSHOPS AND SUMMER SCHOOLS

1. Lecturer of the Q School Single Photon Short Course, organized by CUBit at the University of Colorado Boulder, 8/6/2024 - 8/9/2024.
2. Lecturer of the Q School Single Photon Short Course, organized by CUBit at the University of Colorado Boulder, 2/21/2023 - 2/24/2023.

MENTORING AND ADVISING

1. Prithwiraj Ganguly (PhD student in Physics, 2025 - Present)
2. Harish Adsule (PhD student in Physics, 2024 - Present)
3. Joe Radel (PhD student in Physics, 2024 - Present, jointly with Kevin Silverman)
4. Joey Bush (PhD student in Physics, 2022 - Present, jointly with Kevin Silverman)
5. Thi Hoang (PhD student in Physics, 2021 - Present)
6. Austin Granmoe (PhD student in Physics, 2021 - Present)
7. Kinfung Ngan (PhD student in Physics, 2020 - Present)
8. Yuan Zhan (PhD student in Physics, 2019 - Present)
9. Connor Desrosiers (Undergraduate student in Physics & Electrical Engineering, 2024 - Present)
10. Hayoung Jeong (Postdoc associate, 2022 - 2023)
11. William Schenken (PhD student in Physics, 2022 - 2024)
12. Sylvia Whang (REU undergraduate student, 2025)
13. Chanakya Pandya (REU undergraduate student, 2024)
14. Joshua Jeng (Undergraduate student in Physics, 2022 - 2024)
15. Nathan Kochera (Undergraduate student in Computer Science, 2022 - 2023)
16. Tree Hiri-o-tuppa (Undergraduate student in Physics and Mathematics, 2021 - 2023)
17. Arunava Das (Intern student from IIT Delhi, 2021 - 2022n)
18. Jordan Lang (Undergraduate student in Engineering Physics, 2021 - 2022)
19. Yichuan Su (Undergraduate student in Engineering Physics, 2020 - 2022)

RESEARCH INTERESTS

- Broad definition: nanophotonics, quantum optics, quantum information
- Specific topics: cavity quantum electrodynamics, solid-state spin physics, semiconductor quantum dots, diamond color centers, photonic integrated circuits, entanglement distribution, non-classical light generation, quantum repeaters.

PEER-REVIEWED JOURNAL PUBLICATION

1. K. Ngan and **S. Sun**, *Physical Review A* **112**, 012424 (2025).
2. W. Wu, A. Strasser, Z. Xiu, K. Ngan, T. Hoang, S. Liu, H. Shen, L. Holtzman, J. Edgar, J. Hone, V. Perebeinos, **S. Sun**, J. Kono, X. Qian, S. Huang, *Nano Letters* **25**, 11226–11233 (2025).
3. X. Zhang, T. Pieshkov, D. Chen, S. Nonis, K. Ngan, E. Oliveira, T. Gray, A. Biswas, A. Puthirath, B. Pate, E. Garratt, G. Birdwell, M. Neupane, T. Ivanov, **S. Sun**, R. Vajtai, P. Ajayan, *Advanced Functional Materials* **2423174** (2025).
4. Y. Zhan and **S. Sun**, A single quantum dot passively mediates entanglement, *Nature Physics* **20**, 1363–1364 (2024).
5. A. Vezvaei, N. Shitara, **S. Sun** & A. Montoya-Castillo, Fourier Transform Noise Spectroscopy, *npj Quantum Information* **10**, 52 (2024).
6. K. Ngan, Y. Zhan, C. Dory, J. Vučković, **S. Sun**, Quantum Photonic Circuits Integrated with Color Centers in Designer Nanodiamonds, *Nano Letters* **23**, 9360–9366 (2023).
7. Y. Zhan, P. Hilaire, E. Barnes, S. E. Economou, and **S. Sun**, Performance analysis of quantum repeaters enabled by deterministically generated photonic graph states, *Quantum* **7**, 924 (2023).
8. R. Trivedi, D. Malz, **S. Sun**, S. Fan, and J. Vučković, Optimal two-photon excitation of bound states in non-Markovian waveguide QED, *Physical Review A* **104**, 013705 (2021).

9. D. Awschalom, K. K. Berggren, H. Bernien, S. Bhave, L. D. Carr, P. Davids, S. E. Economou, D. Englund, A. Faraon, M. Fejer, S. Guha, M. V. Gustafsson, E. Hu, L. Jiang, J. Kim, B. Korzh, P. Kumar, P. G. Kwiat, M. Loncar, M. D. Lukin, D.A.B. Miller, C. Monroe, S. W. Nam, P. Narang, J. S. Orcutt, M. G. Raymer, A. H. Safavi-Naeini, M. Spiropulu, K. Srinivasan, **S. Sun**, J. Vučković, E. Waks, R. Walsworth, A. M. Weiner, and Z. Zhang, Development of Quantum Interconnects (QuICs) for Next-Generation Information Technologies, *PRX Quantum* **125**, 223601 (2020).
 10. Y. Zhan and **S. Sun**, Deterministic Generation of Loss-Tolerant Photonic Cluster States with a Single Quantum Emitter, *Physical Review Letters* **125**, 223601 (2020).
- Before joining CU Boulder:*
11. D. M. Lukin, A. D. White, M. A. Guidry, R. Trivedi, N. Morioka, C. Babin, J. U. Hassan, N. T. Son, T. Ohshima, P. K. Vasireddy, M. H. Nasr, **S. Sun**, J. W. MacLean, C. Dory, E. A. Nanni, J. Wrachtrup, F. Kaiser, J. Vučković, Spectrally reconfigurable quantum emitters enabled by optimized fast modulation, *npj Quantum Information* **6**, 80 (2020).
 12. A. E. Rugar, C. Dory, S. Aghaeimeibodi, H. Lu, **S. Sun**, S. D. Mishra, Z.-X. Shen, N. A. Melosh, J. Vučković, Narrow-Linewidth Tin-Vacancy Centers in a Diamond Waveguide, *ACS Photonics* **7**, 2356–2361 (2020).
 13. D. M. Lukin, C. Dory, M. A. Guidry, K. Y. Yang, S. D. Mishra, R. Trivedi, M. Radulaski, **S. Sun**, D. Vercruysse, G. H. Ahn and J. Vučković, 4H-silicon-carbide-on-insulator for integrated quantum and nonlinear photonics, *Nature Photonics* **14**, 330–334 (2020).
 14. A. E. Rugar, H. Lu, C. Dory, **S. Sun**, P. J. McQuade, Z.-X. Shen, N. Melosh, J. Vučković, Generation of Tin-Vacancy Centers in Diamond via Shallow Ion Implantation and Subsequent Diamond Overgrowth, *Nano Letters* **20**, 1614 - 1619 (2020).
 15. Z. Luo, **S. Sun**, A. Karasahin, M. K. Yakes, S. G. Carter, A. S. Bracker, D. Gammon and Edo Waks, A spin-photon interface using charge-tunable quantum dots strongly coupled to a cavity, *Nano Letters* **19**, 7072-7077 (2019).
 16. M. Radulaski, Y.-K. Tzeng, J. L. Zhang, K. G. Lagoudakis, H. Ishiwata, C. Dory, K. A. Fischer, Y. A. Kelaita, **S. Sun**, P. C. Maurer, K. Alassaad, G. Ferro, Z.-X. Shen, N. Melosh, S. Chu and J. Vučković, Nanodiamond Integration with Photonic Devices, *Laser and Photonics Review* **2019**, 1800316.
 17. C. Dory, D. Vercruysse, K. Y. Yang, N. V. Sapra, A. E. Rugar, **S. Sun**, D. M. Lukin, A. Y. Piggott, J. L. Zhang, M. Radulaski, K. G. Lagoudakis, L. Su and J. Vučković, Inverse-designed diamond photonics, *Nature Communications* **10**, 3309 (2019).
 18. A. E. Rugar, C. Dory, **S. Sun**, and J. Vučković, Characterization of optical and spin properties of single Tin-vacancy centers in diamond nanopillars, *Physical Review B* **99**, 205417 (2019).
 19. **S. Sun**, H. Kim, Z. Luo, G. S. Solomon and E. Waks, A single-photon switch and transistor enabled by a solid-state quantum memory, *Science* **361**, 57-60 (2018).
 20. **S. Sun***, J. L. Zhang*, K. A. Fischer*, M. J. Burek, C. Dory, K. G. Lagoudakis, Y.-K. Tzeng, M. Radulaski, Y. Kelaita, A. Safavi-Naeini, Z.-X. Shen, N. A. Melosh, S. Chu, M. Lončar and J. Vučković, Cavity-enhanced Raman emission from a single color center in a solid, *Physical Review Letters* **121**, 083601 (2018). (*contributed equally)
 21. K. Fischer*, **S. Sun***, D. Lukin, Y. Kelaita, R. Trivedi and J. Vučković, Coherent drive in the Jaynes-Cummings model, *Physical Review A* **98**, 021802(R) (2018). (*contributed equally)
 22. **S. Sun**, H. Kim, G. S. Solomon and E. Waks, Cavity-enhanced optical readout of a single solid-state spin, *Physical Review Applied* **9**, 054013 (2018).

23. J. L. Zhang*, **S. Sun***, M. J. Burek*, C. Dory, Y.-K. Tzeng, K. A. Fischer, Y. Kelaita, K. G. Lagoudakis, M. Radulaski, Z.-X. Shen, N. A. Melosh, S. Chu, M. Loncar and J. Vučković, Strongly cavity-enhanced spontaneous emission from silicon-vacancy centers in diamond, *Nano Letters* 18 (2), 1360-1365 (2018). (*contributed equally)
24. L. Hanschke, K. A. Fischer, S. Appel, D. Lukin, J. Wierzbowski, **S. Sun**, R. Trivedi, J. Vučković, J. J. Finley and K. Müller, Quantum dot single-photon sources with ultra-low multi-photon probability, *njp Quantum Information* 4, 43 (2018).
25. J. L. Zhang, K. G. Lagoudakis, Y.-K. Tzeng, C. Dory, M. Radulaski, Y. Kelaita, K. A. Fischer, **S. Sun**, Z.-X. Shen, N. A. Melosh, S. Chu, and J. Vučković, Complete coherent control of silicon vacancies in diamond nanopillars containing single defect centers, *Optica* 4, 1317-1321 (2017).
26. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, A quantum phase switch between a single solid-state spin and a photon, *Nature Nanotechnology* 11, 539-544 (2016).
27. **S. Sun** and E. Waks, Single-shot optical readout of a quantum bit using cavity quantum electrodynamics, *Physical Review A* 94, 012307 (2016).
28. **S. Sun** and E. Waks, Deterministic generation of entanglement between a quantum-dot spin and a photon,” *Physical Review A* 90, 042322 (2014).
29. **S. Sun**, H. Kim, G. S. Solomon and E. Waks, “Strain tuning of a quantum dot strongly coupled to a photonic crystal cavity,” *Applied Physics Letters* 103, 151102 (2013).

BOOK CHAPTERS

1. **S. Sun** and K. Mueller, Single-photon nonlinear optics with a semiconductor quantum dot, *Semiconductors and Semimetals* 105, 387-416 (Elsevier 2020).

Before joining CU Boulder:

2. **S. Sun** and E. Waks, Interfacing single quantum dot spins with photons using a nanophotonic cavity, *Quantum dots for quantum information processing*, 359-378 (Springer 2017).

CONFERENCE PROCEEDINGS

1. T. Hoang (invited) and **S. Sun**, A portable single photon source based on quantum dots in open microcavities, SPIE Quantum West (2026)
2. C. Desrosiers, N. Shitara, A. Montoya-Castillo, **S. Sun**, Experimental application of variational quantum noise spectroscopy to nitrogen vacancy centers, Frontier in Optics (2025)
3. K. Ngan, Y. Choi, S. Li, D. D. Kang and **S. Sun**, A hybrid photonic circuit for spin-photon interfaces, Conference on Lasers and Electro-Optics (2025)
4. T. D. Hoang, F. Mahdikhany, P. Imany, K. Silverman, **S. Sun**, Building a compact and robust single-photon source with a quantum dot inside a tunable microcavity, Conference on Lasers and Electro-Optics (2025)
5. Y. Zhan, Z. Wang, R. P. Mirin, K. L. Silverman, and **S. Sun**, Resonance fluorescence spectra from a two-level system strongly driven by optical and acoustic fields, Conference on Lasers and Electro-Optics (2025)
6. Y. Zhan and **S. Sun**, Relaxation of a quantum dot electron spin coupled with a Fermi sea, APS Global Physics Summit (2025)
7. C. Desrosiers and **S. Sun**, Generating a Synchronized TTL Signal for Data Gating in Vibration Sensitive Cryogenic Experiments, 2024 Annual Meeting of the APS Four Corners Section (2024)
8. K. Ngan, Y. Zhan, C. Dory, J. Vuckovic, and **S. Sun**, Hybrid photonic integration of color centers in designer nanodiamond with SiN nanophotonic devices, Frontier in Optics (2024)

9. C. W. Marrder, W. Schenken, J. Reilly, **S. Sun**, G. Smith, M. J. Holland, Designing Quantum Control Sequences Using Reinforcement Learning, 55th Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (2024).
10. K. Ngan, Y. Zhan, C. Dory, J. Vuckovic, and **S. Sun**, Hybrid photonic integration of color centers in designer nanodiamond with SiN nanophotonic devices, Conference on Lasers and Electro-Optics (2024)
11. K. Ngan and **S. Sun**, Hybrid integration of color centers in nanodiamond with silicon nitride nanophotonics, APS March Meeting (2023).
12. N. Shitara, A. Vezvaei, A. Montoya-Castillo, and **S. Sun**, Noise spectroscopy without dynamical decoupling pulses, APS March Meeting (2023).
13. **S. Sun**, Deterministic generation of building-block photonic cluster states from a single quantum emitter, Quantum Nanophotonic Materials, Devices, and Systems, in SPIE Optics and Photonics (2022).
14. **S. Sun**, Towards Realizing a Quantum Repeater based on a Spin-Photon Quantum Interface, 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics (2022).
15. **S. Sun**, Towards Realizing an “All-Photonic” Quantum Repeater based on a Spin-Photon Quantum Interface, Quantum 2.0 Conference and Exhibition (2022).
16. Y. Zhan and **S. Sun**, Loss-tolerant photonic cluster state generation for one-way quantum repeaters, Annual Meeting of the APS Four Corners Section (2021).
17. Y. Zhan and **S. Sun**, Tree-Type Photonic Cluster State Generation with a Single Quantum Emitter, Conference on Lasers and Electro-Optics (2021).
18. Y. Zhan and **S. Sun**, Deterministic Generation of Photonic Tree and Repeater Graph States with a Single Quantum Emitter, APS March Meeting (2021).

Before joining CU Boulder:

19. A. E. Rugar, S. Aghaieibodi, C. Dory, H. Lu, P. J. McQuade, S. D. Mishra, **S. Sun**, Z.-X. Shen, N. A. Melosh, J. Vuckovic, Narrow linewidth tin-vacancy centers in diamond waveguides, APS March Meeting (2021).
20. L. Hanschke, K. Fischer, J. Wierzbowski, S. Appel, D. Lukin, **S. Sun**, R. Trivedi, M. Kremser, T. Simmet, C. Dory, J. Vuckovic, J. Finley and K. Mueller, Generation of single-photon and two-photon pulses from a self-assembled quantum dot, 11th International Conference on Quantum Dots (2020).
21. A. E. Rugar, H. Lu, C. Dory, **S. Sun**, P. J. McQuade, Z.-X. Shen, N. A. Melosh, and J. Vuckovic, Generation of Tin-Vacancy Centers in Diamond via Shallow Ion Implantation and Subsequent Diamond Overgrowth, Conference on Lasers and Electro-Optics (2020).
22. D. Lukin, M. Guidry, **S. Sun**, C. Dory, and J. Vuckovic, Control of the Silicon Vacancy in Silicon Carbide via Electric and Magnetic Fields, APS March Meeting (2020).
23. A. E. Rugar, H. Lu, C. Dory, **S. Sun**, P. J. McQuade, Z.-X. Shen, N. A. Melosh, and J. Vuckovic, Site-controlled generation of tin-vacancy centers in diamond via shallow ion implantation and subsequent diamond growth, APS March Meeting (2020).
24. A. E. Rugar, C. Dory, **S. Sun**, and J. Vuckovic, Optical Characterization of Single Tin-Vacancy Centers in Diamond Nanopillars, Conference on Lasers and Electro-Optics (2019).
25. C. Dory, D. Vercruyssen, K. Y. Yang, N. V. Sapra, A. E. Rugar, **S. Sun**, D. M. Lukin, A. Y. Piggott, J. L. Zhang, M. Radulaski, K. G. Lagoudakis, L. Su and J. Vuckovic, Diamond Photonic Circuits, Conference on Lasers and Electro-Optics (2019).

26. D. Lukin, C. Dory, M. Radulaski, **S. Sun**, S. D. Mishra, M. Guidry, D. Vercruysse, and J. Vuckovic, 4H-SiC-on-Insulator Platform for Quantum Photonics, Conference on Lasers and Electro-Optics (2019).
27. **S. Sun**, J. L. Zhang, K. A. Fischer, M. J. Burek, C. Dory, K. G. Lagoudakis, Y.-K. Tzeng, M. Radulaski, Y. Kelaita, A. Safavi-Naeini, Z.-X. Shen, N. A. Melosh, S. Chu, M. Loncar and J. Vuckovic, Frequency tunable single-photon emission from a single atomic defect in a solid, Conference on Lasers and Electro-Optics (2019).
28. C. Dory, D. Vercruysse, K. Y. Yang, N. V. Sapra, A. E. Rugar, **S. Sun**, D. M. Lukin, A. Y. Piggott, J. L. Zhang, M. Radulaski, K. G. Lagoudakis, and J. Vuckovic, Optimized Photonic Quantum Hardware in Diamond, APS March Meeting (2019).
29. D. M. Lukin, C. Dory, M. Radulaski, **S. Sun**, D. Vercruysse, and J. Vuckovic, 4H-SiC-on-insulator platform for quantum photonics with color centers, APS March Meeting (2019).
30. A. E. Rugar, **S. Sun**, C. Dory, and J. Vuckovic, "Study of single tin-vacancy centers in diamond," APS March Meeting (2019).
31. D. M. Lukin, C. Dory, M. Radulaski, **S. Sun**, D. Vercruysse, and J. Vuckovic, 4H-SiC-on-insulator platform for quantum photonics, Workshop on SiC quantum devices (2018).
32. L. Hanschke, K. Fischer, J. W., S. Appel, D. Lukin, **S. Sun**, R. Trivedi, M. Kremser, T. Simmet, C. Dory, J. Vuckovic, J. Finley and K. Mueller, Generation of single-photon and two-photon pulses from a self-assembled quantum dot, International Conference on Integrated Quantum Photonics (2018).
33. L. Hanschke, K. Fischer, J. W., S. Appel, D. Lukin, **S. Sun**, R. Trivedi, M. Kremser, T. Simmet, C. Dory, J. Vuckovic, J. Finley and K. Mueller, Generation of single-photon and two-photon pulses from a quantum two-level system, 34th International Conference on the Physics of Semiconductors (2018).
34. L. Hanschke, K. A. Fischer, S. Appel, D. Lukin, J. Wierzbowski, **S. Sun**, R. Trivedi, J. Vuckovic, J. J. Finley, and K. Mueller, Quantum dot single photon sources with ultra-low multi-photon probability, SPIE Optics and Photonics (2018).
35. E. Waks, **S. Sun**, J. Kim, C. Richardson, R. Leavitt and G. S. Solomon, Scalable quantum photonics using quantum dots, IEEE Photonics Society Summer Topical Meeting Series (2018).
36. M. Radulaski, Y.-K. Tzeng, J. L. Zhang, H. Ishiwata, K. G. Lagoudakis, C. Dory, K. A. Fischer, Y. A. Kelaita, **S. Sun**, P. C. Maurer, K. Alassaad, G. Ferro, Z.-X. Shen, N. A. Melosh, S. Chu, and J. Vuckovic, Diamond Color Center Integration with a Silicon Carbide Photonics Platform, Conference on Lasers and Electro-Optics (2018).
37. J. L. Zhang, **S. Sun**, M. Burek, C. Dory, Y.-K. Tzeng, K. A. Fischer, Y. Kelaita, K. G. Lagoudakis, M. Radulaski, Z.-X. Shen, N. A. Melosh, S. Chu, M. Loncar, and J. Vuckovic, Strongly Cavity-Enhanced Spontaneous Emission from Silicon-Vacancy Centers in Diamond, Conference on Lasers and Electro-Optics (2018).
38. M. Radulaski, Y.-K. Tzeng, J. L. Zhang, K. G. Lagoudakis, H. Ishiwata, C. Dory, K. A. Fischer, Y. A. Kelaita, **S. Sun**, P. C. Maurer, K. Alassaad, G. Ferro, Z.-X. Shen, N. Melosh, S. Chu and J. Vuckovic, Hybrid Diamond-Silicon Carbide Color Center Photonics, APS March Meeting (2018).
39. **S. Sun**, G. S. Solomon and E. Waks, Strong photon-photon interactions mediated by a single quantum dot spin, Conference on Lasers and Electro-Optics (2017).
40. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, Quantum information processing with quantum dot spin based cavity QED system, 9th International Conference on Quantum Dots (2015).
41. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, A quantum phase switch between a solid-state spin and a photon, APS March Meeting (2015).

42. **S. Sun** and E. Waks, A quantum gate between a single electron and a photon, International Conference On Optics of Excitons in Confined Systems (2015).
43. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, A solid-state spin-photon transistor, 8th International Conference on Nanophotonics (2015).
44. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, A solid-state spin-photon transistor, Conference on Lasers and Electro-Optics (2015).
45. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, Control of the cavity reflectivity using a single quantum dot spin, APS March Meeting (2015).
46. E. Waks, H. Kim, R. Bose, T. Cai, **S. Sun**, and G. S. Solomon, Controlling a photon with a solid-state quantum bit, SPIE NanoScience and Engineering (2014).
47. **S. Sun**, H. Kim, G. S. Solomon, and E. Waks, Strain tuning of a quantum dot strongly coupled to a photonic crystal cavity, Conference on Lasers and Electro-Optics (2014).

INVITED TALKS AT CONFERENCES AND WORKSHOPS

1. 56th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, UT, 01/2026, “Resonance fluorescence of a strongly driven two-level system with dynamically modulated frequency”
2. Photonics and Electromagnetics Research Symposium (PIERS) 2025, Chiba, Japan, 11/2025, “Hybrid quantum photonics with diamond color centers”
3. Atomic Physics Gordon Research Conference, Newport, RI, 11/2025, “Resonance Fluorescence Beyond the Mollow Triplet”
4. APS Global Physics Summit, 03/2025, “Resonance fluorescence of a strongly driven two-level system with dynamically modulated frequency”.
5. Rice Workshop on Functional Quantum Defects, Houston, TX, 11/2024, “A hybrid photonic cavity for spin-photon interfaces”.
6. 54th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, UT, 01/2024, “Hybrid photonic integration of color centers in designer nanodiamonds with SiN nanophotonic devices”.
7. The 12th Applied Optics and Photonics China (AOPC 2023), 07/2023, “Quantum photonics with solid-state quantum emitters”.
8. TMS annual meeting, San Diego, CA, 03/2023, “Quantum technologies with diamond”.
9. Scalable Information Processing with Quantum Nano-Photonics (SIPQNP), Oracle, AZ, 02/2023, flash talks on photonic graph states and integrated photonics.
10. SPIE Photonics West, San Francisco, CA, 01/2023, “Hybrid integration of color centers in nanodiamond with silicon nitride nanophotonics”
11. SPIE Optics and Photonics, San Diego, CA, 08/2022, “Deterministic generation of building-block photonic cluster states from a single quantum emitter”
12. Quantum 2.0 Conference and Exhibition, Boston, MA, 06/2022, “Towards Realizing an “All-Photonic” Quantum Repeater based on a Spin-Photon Quantum Interface”
13. The 53rd Annual Meeting of the APS Division of Atomic, Molecular and Optical Physics, Orlando, FL, 06/2022, “Loss-tolerant photonic cluster state generation for one-way quantum repeaters”
14. Photonics and Electromagnetics Research Symposium (PIERS) 2021, Hangzhou, China (Hybrid), 04/2022, “Deterministic Single-photon Optical Nonlinearity Enabled by a Quantum Dot Spin”

15. Boulder Quantum Optics Meetings, Virtual Meeting, 12/2021, “Proposal for Photonic Cluster State Generation from Quantum Emitters”
16. CINT Annual User Meeting, 09/2021, Virtual Meeting, 09/2021, “Hybrid photonic integration of diamond color centers”
17. Annual Meeting of the APS Four Corners Section, Virtual Meeting, 09/2021, “Single-photon level nonlinear optics with nanophotonic cavity QED”
18. iCANX Talks, Online, 10/2020, “Quantum nanophotonics: engineering atom-photon interactions on-a-chip”
19. IEEE Photonics Conference, Virtual Conference, 09/2020, “Nanophotonics for Quantum Information”

Before joining CU Boulder:

20. The 49th Winter Colloquium on the Physics of Quantum Electronics, Snowbird, Utah, 01/2019, “Engineering diamond for quantum optics and quantum simulation”
21. Quantum Innovators in Science and Engineering Workshop, Waterloo, Canada, 10/2018, “Quantum nanophotonics: engineering atom-photon interactions on a chip”
22. Advanced Light Source 2018 user meeting, Berkeley, CA, 10/2018, “Quantum nanophotonics: engineering atom-photon interactions on a chip”
23. INQNET The Future of Quantum Technologies Symposium, Palo Alto, CA, 08/2018, “Quantum nanophotonics: engineering atom-photon interactions on a chip”
24. Frontier in Optics, Washington DC, 2017/09, “A nanophotonic spin-photon quantum transistor”
25. Bay Area Cold Atom Meeting, Berkeley, CA, 07/2017, “Strong atom-photon interactions on a semiconductor chip”
26. OSA Incubator on Integrated Semiconductor Quantum Photonic Devices, Washington DC, 06/2017, “Ultrafast single photon transistor based on a single solid-state spin”
27. IEEE Baltimore Colloquium on Quantum Computing, College Park, MD, 2016/10, “Quantum information processing with quantum dot spins coupled to nanophotonic cavities”
28. Conference on Lasers and Electro-Optics (CLEO), San Jose, CA, 06/2016, “Nanophotonic quantum interface for a single solid-state spin”
29. SPIE Photonic West, San Francisco, CA, 02/2015, “Control of the cavity reflectivity using a single quantum dot spin”

INVITED COLLOQUIA AND SEMINARS

1. Virginia Tech, VTQ Seminar, 11/2025
2. University of Denver, Physics Colloquium, 05/2025
3. Colorado School of Mines, Physics Colloquium, 03/2025
4. University of Oregon, OMQ Seminar, 11/2023
5. University of California Davis, QuIST Seminar, 09/2023
6. Rice University, Quantum Seminars, 11/2021
7. Indiana University–Purdue University Indianapolis (IUPUI), Physics Department Seminar, 10/2021
8. Korea Advanced Institute of Science & Technology (KAIST), Optics Seminar, 02/2021
9. Korea Research Institute of Standards and Science (KRISS), 02/2021
10. Korea Institute of Science and Technology (KIST), Seminar at Center for Quantum Information, 01/2021
11. Ulsan National Institute of Science and Technology (UNIST), Physics Department Seminar, 01/2021

12. University of Colorado Boulder, Physics Graduate Research Opportunity Seminar, 09/2020

Before joining CU Boulder:

13. San Francisco State University, Physics & Astronomy Colloquium, 04/2019
14. University of Colorado Boulder, ECE Department Seminar, 03/2019
15. Cornell University, ECE Department Seminar, 03/2019
16. University of Illinois, Urbana-Champaign, ECE Department Seminar, 03/2019
17. University of New Mexico, CHTM Seminar, 03/2019
18. University of Utah, ECE Department Seminar, 03/2019
19. University of Pennsylvania, ESE Seminar, 03/2019
20. University of Maryland, College Park, QTC Seminar, 02/2019
21. University of Pittsburgh, ECE Department Seminar, 02/2019
22. University of California, Santa Barbara, Physics Department Colloquium, 02/2019
23. University of Calgary, Canada, Physics Department Seminar, 02/2019
24. University of Colorado Boulder, Special Physics Colloquium, 02/2019
25. Rochester University, Department of Physics and Astronomy Colloquium, 01/2019
26. Penn State University, Condensed Matter Physics Colloquium, 01/2019
27. UC Berkeley, AMOQI Seminar, 11/2018

INVITED AS PANELIST IN SCIENCE OR CAREER PANELS

1. Panelist at the “Building a Strong Faculty Proposal” panel hosted by the JILA postdoc group, 6/2/2023
2. Inside Quantum Technology The Hague conference, the Quantum Repeaters and Memories Session, The Hague, Netherland (Hybrid), 02/2022
3. Inside Quantum Technology Conference, the Roadmap for Quantum Repeaters and Quantum Memories Session, New York, NY (Hybrid), 11/2021

MEDIA COVERAGE AND INTERVIEWS

1. [Curious by Nature: Dr. Shuo Sun - A Fascinating Glimpse into Quantum Photonics](#), Newswise, 12/4/2024.
2. [Colorado's quantum revolution turning state into new Silicon Valley](#), CU Boulder Today, 6/28/2022.
3. [2022 Core Facility Assistance Grant and Voucher programs award \\$135K to faculty across disciplines](#), CU Research and Innovation Office, 6/15/2022.
4. [JILA Celebrates World Quantum Day 2022](#), JILA News, 4/14/2022.
5. [Quantum Computing Video featuring Shuo Sun](#), JILA News, 4/14/2022.