Arne Schwettmann

Curriculum Vitae
01/22/2023

The University of Oklahoma, Dept. of Physics
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PROFESSIONAL EXPERIENCE

2020 – present **Associate Professor**
Department of Physics, The University of Oklahoma, Norman, Oklahoma

2014 – 2020 **Assistant Professor**
Department of Physics, The University of Oklahoma, Norman, Oklahoma

2012 – 2014 **Postdoctoral Research Associate**
Joint Quantum Institute, NIST and the University of Maryland, Gaithersburg, Maryland
Supervisor: Dr. Paul D. Lett (group of Nobel laureate Dr. William D. Phillips)

2005 – 2011 **Graduate Research Assistant**
Department of Physics, The University of Oklahoma, Norman, Oklahoma
Adviser: Prof. James P. Shaffer
Thesis Committee: Prof. Eric Abraham, Prof. Gregory Parker, Prof. Kieran Mullen, Prof. Wai Tak Yip

2004 – 2008 **Teaching Assistant**
Department of Physics, The University of Oklahoma, Norman, Oklahoma

2003 – 2004 **Graduate Research Assistant**
Department of Physics, University of North Texas, Denton, Texas
Adviser: Prof. Paolo Grigolini

2002 – 2003 **Teaching Assistant**
Department of Physics, University of North Texas, Denton, Texas

EDUCATION

2012 **Ph.D. in Physics**
Department of Physics, The University of Oklahoma, Norman, Oklahoma
Adviser: Prof. James P. Shaffer
Thesis title: "Atom chip setup for cold Rydberg atom experiments"

2003 **M.S. Degree in Physics**
Department of Physics, University of North Texas, Denton, Texas
Adviser: Prof. Paolo Grigolini
Master's Essay: "Ballistic deposition: global scaling and local time series"

2001 **B.S. equivalent in Physics with a minor in Computer Science**
Fachbereich Physik, Universität Hannover, Hannover, Germany

GRANTS AND FELLOWSHIPS

2020 – 2023 **DOD DEPSCOR Award ($584,418)**
"Harnessing entanglement in ultracold atomic gases," awarded by the Department of Defense.

2019 – 2024 **NSF CAREER Award (initial award $311,908, expected to total $500,000)**
"CAREER: Matter-wave quantum optics in spin-space in ultracold sodium gases," awarded by the National Science Foundation.

2016 **Junior Faculty Fellowship Award ($7,000)**
"An optical trap to study spin-exchange collisions in ultracold sodium gases," awarded by The University of Oklahoma College of Arts and Sciences

2016 **Faculty Funding Assistance Program ($3,011)**
"Introductory Lab Technology Upgrade," awarded by the University of Oklahoma College of Arts and Sciences

2016 **Faculty Assistance Program Award** (**$850**)
"Superconductance Demo Experiment," awarded by The University of Oklahoma College of Arts and Sciences, written together with undergraduate students.

2015 **Junior Faculty Fellowship Award ($7,000)**
"Spin-changing collisions in ultracold atomic gases," awarded by The University of Oklahoma Research Council

AWARDS

2012 **Nielsen Prize for Outstanding Dissertation in Research**
Department of Physics, The University of Oklahoma, Norman, Oklahoma

PROFESSIONAL AFFILIATIONS AND SERVICE

2022 **Co-hosted and co-chaired** the inaugural "1st Workshop on Quantum Science and Technology" at the CQRT at The University of Oklahoma

2019 **Chair of session at APS DAMOP conference**

2014 – present **Journal Referee** for Nature Communications, Physical Review A, Journal of Physics A and B, New Journal of Physics, Review of Scientific Instruments

2002 – present **Member of the American Physical Society**

TEACHING/MENTORING EXPERIENCE

Fall 2022 Instructor for "PHYS2303: Electronics Lab"

Spring 2022 Instructor for "PHYS1300: General Physics Lab I and II"

Fall 2021 Instructor for "PHYS2303: Electronics Lab"

Spring 2021 Instructor for "PHYS6283: Adv. Atomic, Molecular and Optical Physics"

Fall 2020 Instructor for "PHYS2303: Electronics Lab"

Spring 2020 Instructor for "PHYS1215: Introductory Physics for Majors 2"

Fall 2019 Instructor for "PHYS2303: Electronics Lab"

Spring 2019 Instructor for "PHYS4813/5813: Atomic, Molecular and Optical Physics"

Fall 2018 Instructor for "PHYS1205: Introductory Physics for Majors"

Spring 2018 Instructor for "PHYS4813/5813: Atomic, Molecular, and Optical Physics"

Fall 2017 Instructor for "PHYS1205: Introductory Physics for Majors"

Spring 2017 Instructor for "PHYS6283: Adv. Atomic, Molecular and Optical Physics"

Fall 2016 Instructor for "PHYS1205: Introductory Physics for Majors"

Fall 2015 Instructor for "PHYS1205: Introductory Physics for Majors"

2014 – 2015 Instructor for "PHYS1300: General Physics Lab I and II"

2014 – present **Graduate advising**: Continuously advised four Ph.D. students daily in the lab and in group meetings twice a week. Current group: Hio Giap Ooi Sankalp Prajapatni, Sam Manley (all working towards Ph.D.).

2016 – 2021 **Graduate advising**: Mentored and advised two Ph.D. and two M.S. students to completion on research in my lab: Shan Zhong (Ph.D. 2022), dissertation title "Spin-mixing and interferometry in microwave-dressed sodium spinor Bose-Einstein Condensates;" Qimin Zhang (Ph.D. 2021), dissertation title:

"Nonlinear Processes in Hot Sodium Vapors and Sodium Spinor Bose-Einstein Condensates for Entanglement Generation;" Anita Bhagat (M.S. 2017), thesis title: "An apparatus to study matter-wave quantum optics in spinor Bose-Einstein Condensates;" Isaiah Morgenstern successfully completed a non-thesis M.S. degree working in my lab in 2020.

2014 – present **Undergraduate advising**: Mentored and advised 15 undergraduate students through successful completion of senior research projects (Capstone) and summer research projects (NSF-REU) in my lab: Joseph Altermatt (Capstone 2015), Kyle Yates (Capstone 2015), Justin Kittel (REU 2016), Bao Tran (Capstone 2016), Jeremy Norris (REU 2017), Logan Baker (Capstone 2018), Matthew Peters (Capstone 2018), Michael Osisanya (Capstone 2018), John Wrench (Capstone 2018), Dana Peirce (REU 2018), Cameron Cinnamon (REU 2019), Tyler Lazarek (Capstone 2020), Chase Heinen (REU 2020), Jason Gordon (REU 2022), Matthew Krupowicz (Capstone 2022)

CITATIONS

All Time **Sum of times cited over all time**, according to Web of Science (apps.webofknowledge.com): **893**, without self-citations

2021 **Sum of times cited in 2022 only**, according to Web of Science (apps.webofknowledge.com): **101**

January 2021 **h-index,** according to Web of Science (apps.webofknowledge.com): **13**

PUBLICATIONS

24. Q. Zhang, H. G. Ooi, S. Kim, M. Peters, A. M. Marino, and A. Schwettmann, "Four-Wave Mixing in Hot Sodium Vapor Cells," *in preparation*.

23. S. Zhong, H. G. Ooi, S. Prajapati, Q. Zhang, A. Schwettmann, "Seeded spin-mixing interferometry with long-time evolution in microwave-dressed sodium spinor Bose-Einstein condensates," *submitted to J. Phys. B*

22. J. Jie, S. Zhong, Q. Zhang, I. Morgenstern, H. G. Ooi, Q. Guan, A. Bhagat, D. Nematollahi, A. Schwettmann, and D. Blume, "Dynamical mean-field driven spinor condensate physics beyond the single-mode approximation," arXiv:2301.06461 [cond-mat.quant-gas], *submitted to Phys. Rev. A*

21. Q. Guan, G. W. Biedermann, A. Schwettmann, and R. J. Lewis-Swan, "Tailored generation of quantum states in an entangled spinor interferometer to overcome detection noise," Phys. Rev. A **104**, 042415 (2021).

20. J. Jie, Q. Guan, S. Zhong, A. Schwettmann, and D. Blume, "Mean-field spin-oscillation dynamics beyond the single-mode approximation for a harmonically trapped spin-1 Bose-Einstein condensate," Phys. Rev. A **102**, 023324 (2020).

19. I. Morgenstern, S. Zhong, Q. Zhang, L. Baker, J. Norris, B. Tran, and A. Schwettmann, "A Versatile Microwave Source for Cold Atom Experiments Controlled by a Field Programmable Gate Array," Rev. Sci. Instrum. **91**, 023202 (2020).

18. Q. Zhang and A. Schwettmann, "Quantum interferometry with microwave-dressed F=1 spinor Bose-Einstein condensates: Role of initial states and long-time evolution," Phys. Rev. A **100**, 063637 (2019).

17. J. P. Wrubel, A. Schwettmann, D. P. Fahey, Z. Glassman, H. K. Pechkis, P. F. Griffin, R. Barnett, E. Tiesinga, and P. D. Lett, "Spinor Bose-Einstein-condensate phase-sensitive amplifier for SU(1,1) interferometry," Phys. Rev. A **98**, 023620 (2018).

16. J. Sedlacek, A. Schwettmann, H. Kübler, and J. P. Shaffer, "Atom based vector microwave electrometry using rubidium Rydberg atoms in a vapor cell," Phys. Rev. Lett. **111**, 063001 (2013).

15. H. K. Pechkis, J. P. Wrubel, A. Schwettmann, P. F. Griffin, R. Barnett, E. Tiesinga, and P. D. Lett, "Spinor dynamics in an antiferromagnetic spin-1 thermal Bose gas," Phys. Rev. Lett. **111** 025301 (2013).

14. J. A. Sedlacek, A. Schwettmann, H. Kübler, R. Löw, T. Pfau, and J. P. Shaffer, "Microwave electrometry with Rydberg atoms in a vapour cell using bright atomic resonances," Nature Phys. **8,** 819-824 (2012).

13. A. Schwettmann, J. Sedlacek, and J. P. Shaffer, "FPGA-based locking circuit for external cavity diode laser frequency stabilization," Rev. Sci. Instrum. **82**, 103103 (2011).

12. J. S. Cabral, J. M. Kondo, L. F. Goncalves, V. A. Nascimento, L. G. Marcassa, D. Booth, J. Tallant, A. Schwettmann, K. R. Overstreet, J. Sedlacek, and J. P. Shaffer, "Effects of electric fields on ultracold Rydberg atom interactions," J. Phys. B: At. Mol. Opt. Phys. **44**, 184007 (2011).

11. K. R. Overstreet, A. Schwettmann, J. Tallant, D. Booth, and J. P. Shaffer, "Observation of electric-field-induced Cs Rydberg atom macrodimers," Nature Phys. **5**, 581 - 585 (2009).

10. V. A. Nascimento, L. L. Caliri, A. Schwettmann, J. P. Shaffer, and L. G. Marcassa, "Electric Field Effects in the Excitation of Cold Rydberg-Atom Pairs," Phys. Rev. Lett. **102**, 213201 (2009).

9. A. Schwettmann, K. Richard Overstreet, J. Tallant, and J. P. Shaffer, "Analysis of long-range Cs Rydberg potential wells," J. Mod. Opt. **54,** 2551-2562 (2007).

8. K. R. Overstreet, A. Schwettmann, J. Tallant, and J. P. Shaffer, "Photoinitiated collisions between cold Cs Rydberg atoms," Phys. Rev. A **76**, 011403(R) (2007).

7. A. Schwettmann, C. McGuffey, S. Chauhan, K. R. Overstreet, and J. P. Shaffer, "Tunable four-pass narrow spectral bandwidth amplifier for use at ~508 nm," Appl. Opt. **46** 1310-1315 (2007).

6. A. Schwettmann, J. Crawford, K. R. Overstreet, and J. P. Shaffer, "Cold Cs Rydberg-gas interactions," Phys. Rev. A **74**, 020701(R) (2006).

5. J. Tallant, K. R. Overstreet, A. Schwettmann, and J. P. Shaffer, "Sub-Doppler magneto-optical trap temperatures measured using Rydberg tagging," Phys. Rev. A **74**, 023410 (2006).

4. K. Overstreet, P. Zabawa, J. Tallant, A. Schwettmann, and J. P. Shaffer, "Multiple scattering and the density distribution of a Cs MOT," Optics Express **13**, 9672 (2005).

3. A. Schwettmann, J. Franklin, K. R. Overstreet, and J. P. Shaffer, "Stark slowing asymmetric rotors: Weak-field-seeking states and nonadiabatic transitions," J. Chem. Phys. **123**, 194305 (2005).

2. M. Ignaccolo, A. Schwettmann, R. Failla, M. C. Storrie-Lombardi, and P. Grigolini, "Stromatolites: why do we care?" Chaos, Solitons & Fractals, **20**, 145-148 (2004).

1. R. Failla, P. Grigolini, M. Ignaccolo, and A. Schwettmann, "Random growth of interfaces as a subordinated process," Phys. Rev. E **70**, 010101 (2004).

INVITED PRESENTATIONS

13. "Quantum-Enhanced Sensing with Spin-1 Sodium Spinor Bose-Einstein Condensates," invited poster presentation at the DEPSCoR Day Workshop, University of South Dakota, Vermillion, SD (July 19, 2022).

12. "Quantum-Enhanced Sensing with Spinor Bose-Einstein Condensates," invited talk at the Entangled Quantum Sensing Workshop, Purdue University, West Lafayette, IN (February 17, 2021, Online via Zoom).

11. "Entanglement in microwave-dressed sodium spinor Bose-Einstein condensates," invited talk at the Purdue Quantum Science and Engineering Institute Seminar Series, Purdue University, West Lafayette, IN (October 13, 2020, Online via Zoom).

10. "Squeezing Spins in Ultracold Atomic Gases," invited talk at the Department of Physics colloquium, Miami University, Oxford, OH (November 16, 2016).

9. "Matter-wave quantum optics in antiferromagnetic spinor gases," invited talk at the APS New Laser Scientist conference, Rochester, NY (October 17, 2016).

8. “Matter-wave quantum optics in ultracold atomic gases,” invited talk at the Department of Physics colloquium, Texas A&M University-Commerce, Commerce, TX (September 22, 2016).

7. “Collisions in an ultracold sodium quantum gas,” invited talk at the Department of Physics colloquium, Wichita State University, Wichita, KS (January 28, 2015).

6. “Spin dynamics in an ultracold sodium quantum gas,” invited talk at the Department of Physics colloquium, The University of Oklahoma, Norman, OK (February 27, 2014).

5. “Spin dynamics in an ultracold sodium quantum gas,” invited talk at the Department of Physics colloquium, University of Reno, NV (February 21, 2014).

4. “Spin dynamics in an ultracold sodium quantum gas,” invited talk at the Department of Physics colloquium, California State University, Fullerton, CA (February 4, 2014).

3. “Spin dynamics in an ultracold sodium quantum gas,” invited talk at the Department of Physics colloquium, Haverford College, PA (November 20, 2013).

2. “Probing Rydberg atoms using nonlinear optics,” invited talk at the Quantum Measurement Division seminar, National Institute of Standards and Technology, MD (October 20, 2011).

1. “Cs Rydberg atom macrodimers,” invited talk at the Cheng Chin research group seminar, University of Chicago, IL (March 12, 2010).

CONFERENCE ACTIVITY

Contributed Talks

21. S. Zhong, J. Jie, Q. Guan, Q. Zhang, I. Morgenstern, H. G. Ooi, A. Bhagat, D. Nematollahi, H. Lee, D. Blume, and A. Schwettmann, “Spin dynamics beyond the single mode approximation in a sodium spinor BEC,” DAMOP, Portland, OR (Online, June 1-5, 2020). (co-author, presented by S. Zhong)

20. Q. Zhang, S. Kim, M. Peters, A. M. Marino, and A. Schwettmann, “Experimental Investigation of Four-Wave Mixing in Hot Sodium Vapor Cells,” DAMOP, Milwaukee, WI (May 27-31, 2019). (co-author, presented by Q. Zhang)

19. S. Zhong, Q. Zhang, I. Morgenstern, H. G. Ooi, and Arne Schwettmann, “Atomic Interferometry in Antiferromagetic Spinor Bose-Einstein Condensates in the Regime of Long Evolution Time,” DAMOP, Milwaukee, WI (May 27-31, 2019). (co-author, presented by S. Zhong)

18. D. Fahey, A. Schwettmann, G. Summy, J. Luskin, and P. Lett, “Spin synchronization in a finite temperature F=1 Bose-Einstein condensate,” DAMOP, Milwaukee, WI (May 27-31, 2019). (co-author, presented by D. Fahey)

17. Q. Zhang, A. Schwettmann, and E. Tiesinga, "Quantum Interferometry with Microwave-dressed F=1 Spinor Bose-Einstein Condensates: Role of Initial States and Long Time Evolution," DAMOP, Sacramento, CA (June 5-9, 2017). (co-author, presented by Q. Zhang)

16. D. Fahey, Z. Glassman, A. Schwettmann, G. Summy, R. Wilson, E. Tiesinga, and P. Lett, "Spinor dynamics in a partially Bose-condensed sodium gas," DAMOP, Columbus, OH (June 8-12, 2015). (co-author, presented by D. Fahey)

15. A. Schwettmann, G. Summy, H. Pechkis, J. Wrubel, R. Barnett, R. Wilson, E. Tiesinga, and P. Lett, "Reversal of spin dynamics in an antiferromagnetic F = 1 spinor Bose-Einstein condensate," DAMOP, Madison, WI (June 2-6, 2014).

14. H. K. Pechkis, J. P. Wrubel, A. Schwettmann, P. F. Griffin, R. Barnett, E. Tiesinga, and P. D. Lett, "Spinor dynamics in a 23-Na spin-1 thermal Bose gas," DAMOP, Quebec City, Canada (June 3-7, 2013).

13. J. Sedlacek, A. Schwettmann, H. Fan, and J. P. Shaffer, "Polarization Dependent Dark Resonances in Electromagnetically Induced Transparency with Rydberg Atoms," DAMOP, Orange County, CA (June 4-8, 2012). (co-author, presented by J. Sedlacek)
12. D. Booth, J. Tallant, A. Schwettmann, and J. P. Shaffer, "Anisotropic Rydberg Interactions," DAMOP, Orange County, CA (June 4-8, 2012). (co-author, presented by D. Booth)

11. A. Schwettmann, J. Sedlacek, C. Gentry, and J. P. Shaffer, "Probing RF electric fields with Rydberg atoms," DAMOP, Atlanta, GA (June 13-17, 2011).

10. D. Booth, J. Tallant, A. Schwettmann, J. P. Shaffer, J. Cabral, J. Kondo, L. Goncalves, and L. Marcassa, "Electric field effects on decay of Rb Rydberg atom pairs," DAMOP, Houston, TX (May 25-29, 2010). (co-author, presented by D. Booth)

9. A. Schwettmann, K. R. Overstreet, J. Tallant, D. Booth, and J. P. Shaffer, "Observation of Cs Rydberg atom macrodimers," DAMOP, Charlottesville, VA (May 18-23, 2009).

8. A. Schwettmann, V. A. Nascimento, L. L. Caliri, J. P. Shaffer, and L. G. Marcassa, "Electric field effects on cold Rydberg atom pair excitation," DAMOP, State College, PA (May 27-31, 2008).

7. K. R. Overstreet, A. Schwettmann, J. Tallant, and J. P. Shaffer, "Long Range, Cold Cs Rydberg Atom-Rydberg Atom Molecules," DAMOP, State College, PA (May 27-31, 2008). (co-author, presented by K. R. Overstreet)

6. J. Tallant, K. R. Overstreet, A. Schwettmann, and J. P. Shaffer, "Dipole-Dipole Interactions in a Cold Cs Rydberg Gas," DAMOP, State College, PA (May 27-31, 2008). (co-author, presented by J. Tallant)

5. A. Schwettmann, K. R. Overstreet, J. Tallant, and J. P. Shaffer, "Long-range Cs Rydberg molecules," DAMOP, Calgary, CA (June 5-9, 2007).

4. K. R. Overstreet, A. Schwettmann, J. Tallant, and J. P. Shaffer, “Resonant collision processes in a Cs Rydberg gas,” DAMOP Calgary, CA (June 5-9, 2007). (co-author, presented by K. R. Overstreet)

3. A. Schwettmann, J. Crawford, K. R. Overstreet, and J. P. Shaffer, “Rydberg Atom - Rydberg Atom Interaction Potentials," DAMOP, Knoxville, TN (May 16-20, 2006).

2. A. Schwettmann, J. Franklin, K. R. Overstreet, J. Tallant, and J. P. Shaffer, “Stark Slowing Asymmetric Rotors,” DAMOP, Knoxville, TN (May 16-20, 2006).

1. K. R. Overstreet, J. Tallant, J. Crawford, A. Schwettmann, and J. P. Shaffer, “Cold Cs Rydberg Atom Collisions: Line Shifts, Broadening and Inelastic Collisions,” DAMOP, Lincoln, NE (May 17-21, 2005). (co-author, presented by K. R. Overstreet)

Posters

30. H. G. Ooi, Q. Zhang, S. Kim, D. P. Petit, J. E. Furneaux, A. M. Marino, and A. Schwettmann, “A Custom Design Stainless-Steel Hot Sodium Vapor Cell with Sapphire Viewports for the Generation of Resonant Twin Beams,” DAMOP, Orlando, FL (Online, May 30-June 3, 2022).

29. S. Zhong, H. G. Ooi, S. Prajapati, J. Jie, J. E. Furneaux, D. Blume and A. Schwettmann, “Mapping a Spin Dynamics Resonance Beyond the Single-mode Approximation in a Sodium Spinor Bose-Einstein Condensate,” DAMOP, Orlando, Fl (Online, May 30-June 3, 2022).

28. H. G. Ooi, Q. Zhang, S. Zhong, C. Heinen, M. Osisanya, J. E. Moore-Furneaux, and A. Schwettmann, “Towards Rydberg Excitation of Sodium Spinor Bose-Einstein Condensates,” DAMOP, Virtual (Online, May 31-June 4, 2021).

27. S. Zhong, H. G. Ooi, Q. Zhang, J. E. Moore-Furneaux, G. Biedermann, and A. Schwettmann, “Quantum-Enhanced Sensing with Sodium Spinor Bose-Einstein Condensates,” DAMOP, Virtual (Online, May 31-June 4, 2021).

26. H. G. Ooi, Q. Zhang, S. Kim, A. Marino, and A. Schwettmann, “Four-Wave Mixing in a Hot Sodium Vapor Cell in the Large Single-Photon Detuning Regime,” DAMOP, Portland, OR (Online, June 1-5, 2020).

25. Q. Zhang, S. Zhong, J. Jie, Q. Guan, I. Morgenstern, H. G. Ooi, A. Bhagat, D. Nematollahi, H. Lee, D. Blume, and A. Schwettmann, “Microwave Control of Spin Dynamics in F=1 Sodium Spinor Bose-Einstein Condensates,” DAMOP, Portland, OR (Online, June 1-5, 2020).

24. J. Jie, Q. Guan, S. Zhong, A. Schwettmann, and D. Blume, "Spin-oscillation dynamics beyond the single-mode approximation for a harmonically trapped spin-1 Bose-Einstein condensate," DAMOP, Portland, OR (Online, June 1-5, 2020).

23. I. Morgenstern, S. Zhong, Q. Zhang, and A. Schwettmann, "Improved FPGA-Controlled Microwave Source for Cold Atom Experiments," DAMOP, Milwaukee, WI (May 27-31, 2019).

22. H. G. Ooi, Q. Zhang, S. Kim, A. Marino, and A. Schwettmann, "Four-Wave Mixing in Hot Sodium Vapor Cells with Saturated Absorption," DAMOP, Milwaukee, WI (May 27-31, 2019).

21. I. Morgenstern, S. Zhong, Q. Zhang, L. Baker, J. Norris, B. Tran, and A. Schwettmann, "FPGA-Controlled Versatile Microwave Source for Cold Atom Experiments," DAMOP, Ft. Lauderdale, FL (May 28 – June 1, 2018).

20. S. Zhong, Q. Zhang, I. Morgenstern, H. G. Ooi, L. Baker, J. Kittel, and A. Schwettmann, "Quantum Interferometry with Microwave-Dressed Spinor Bose-Einstein Condensates in the Regime of Long Evolution Times," DAMOP, Ft. Lauderdale, FL (May 28 – June 1, 2018).

19. Q. Zhang, S. Kim, L. Narcomey, A. Marino, and A. Schwettmann, "Four-wave Mixing in Hot Sodium Vapor Cells," DAMOP, Ft. Lauderdale, FL (May 28 – June 1, 2018).

18. S. Zhong, A. Bhagat, Q. Zhang, and A. Schwettmann, "Improved Apparatus to Study Matter-Wave Quantum Optics in a Sodium Spinor Bose-Einstein Condensate," DAMOP, Sacramento, CA (June 5-9, 2017).
17. Z. Glassman, D. Fahey, A. Schwettmann, J. Wrubel, and P. Lett, "Spinor Dynamics Of A Freely Expanding F=1 Bose-Einstein Condensate," DAMOP, Sacramento, CA (June 5-9, 2017).

16. D. Nematollahi, Q. Zhang, J. Altermatt, S. Zhong, M. Goodman, A. Bhagat, and A. Schwettmann, "Apparatus to study matter-wave quantum optics in spin space in a sodium spinor Bose-Einstein condensate," DAMOP, Providence, RI (May 23-27, 2016).

15. Q. Zhang, A. Schwettmann, E. Tiesinga, "Collisional spin evolution in microwave-dressed F=1 spinor Bose-Einstein condensates," DAMOP, Providence, RI (May 23-27, 2016).

14. A. Foster, D. Nematollahi, A. Schwettmann, and E. Tiesinga, "Spinor Bose-Einstein condensates subject to time-dependent microwave dressing: Coherent states vs. Fock states," DAMOP, Columbus, OH (June 8-12, 2015).

13. D. Nematollahi, A. Foster, K. Yates, J. Altermatt, H. Lee, Q. Zhang, and A. Schwettmann, "Experimental apparatus to study cold collisions in sodium spinor Bose-Einstein condensates," DAMOP, Columbus, OH (June 8-12, 2015).

12. A. Schwettmann, H. K. Pechkis, J. P. Wrubel, R. Barnett, E. Tiesinga, and P. D. Lett, "Decoherence of spin oscillations in an ultracold F=1 sodium gas," DAMOP, Quebec City, Canada (June 3-7, 2013).

11. H. Fan, J. Sedlacek, A. Schwettmann, J. P. Shaffer, H. Kübler, and T. Pfau, "Quantum Assisted Sensing Using Rydberg Atom Electromagnetically Induced Transparency," DAMOP, Orange County, CA (June 4-8, 2012).

10. J. Sedlacek, A. Schwettmann, and J. P. Shaffer, "Generation of 480nm cw light for Rydberg excitation of Rb," DAMOP, Atlanta, GA (June 13-17, 2011).

9. A. Schwettmann, J. Sedlacek, L. Trafford, and J. P. Shaffer, "Atom-chip trap for Rydberg atom experiments," DAMOP, Houston, TX (May 25-29, 2010).

8. J. Tallant, D. Booth, A. Schwettmann, and J. P. Shaffer, "Rydberg tagging time-of-flight imaging: An improved apparatus for studying many-body processes," DAMOP, Houston, TX (May 25-29, 2010).

7. A. Schwettmann, J. Tallant, D. Booth, C. E. Savell and J. P. Shaffer, "Decoherence of a Rb BEC caused by stray magnetic fields and surface effects," DAMOP, Charlottesville, VA (May 19-23, 2009).

6. J. Tallant, A. Schwettmann, D. W. Booth, and J. P. Shaffer, "Rydberg tagging time-of-flight imaging to study 3-body recombination ," DAMOP, Charlottesville, VA (May 19-23, 2009).

5. D. Booth, A. Schwettman, J. P. Shaffer, J. S. Cabral, L. F. Goncalvez, L. G. Marcassa, "Electric field effects on cold Rydberg atom nD-nD pair collisions," DAMOP, Charlottesville, VA (May 19-23, 2009).

4. J. Tallant, K. R. Overstreet, A. Schwettmann, and J. P. Shaffer, "Rydberg tagging time-of-flight imaging to study ultracold collisions," DAMOP, Calgary, CA (June 5-9, 2007).

3. K. R. Overstreet, P. Zabawa, J. Tallant, A. Schwettmann, J. Crawford, and J. P. Shaffer, "Abel Inversion for study of multiple scattering in a Cs magneto-optical trap," DAMOP, Knoxville, TN (May 16-20, 2006).

2. J. Tallant, K. R. Overstreet, A. Schwettmann, and J. P. Shaffer, "Temperature Measurements Using Rydberg Tagging," DAMOP, Knoxville, TN (May 16-20, 2006).

1. A. Schwettmann, J. Franklin, K. R. Overstreet, J. Tallant, J. Crawford, and J. P. Shaffer, "Stark Slowing Asymmetric Rotors: Weak Field Seeking States and Nonadiabatic Transitions," DAMOP, Lincoln, NE (May 17-21, 2005)

SYNERGISTIC ACTIVITIES

Service to the scientific community: Co-hosted and co-organized, together with J. Tischler and D. Blume, the inaugural "1st Workshop on Quantum Science and Technology" at the Center for Quantum Research and Technology (CQRT) at The University of Oklahoma with invited speakers from many US and Canadian institutions (May 19-20, 2022)

Innovations in teaching and training: Hosted three evening sessions "Spektakuläre Physik" (Spectactular Physics in German), a joint event between the SPS and OU German Club, where I gave lab tours (with the yellow glowing ultracold sodium cloud) combined with an introduction about German language and history in physics. I presented physics demonstrations related to curiosities from German physics history. There were also presentations from students about studying abroad. Organized with help from the Society of Physics Students and the University's German Club. (2016-present)

Innovations in teaching and training: Offered a series of weekly summer lectures for graduate students on Bose-Einstein condensation in dilute gases at OU, where each week I delivered a lecture and a graduate student would deliver a second lecture on a related topic, and led a weekly AMO Journal club, where graduate students present and discuss research papers. (summer lectures: 2015, journal club: 2016-present)

Broadening Participation: Adviser to the Society of Physics Students Oklahoma Chapter, an organization of undergraduate students. (2014-2017)