Curriculum Vitae: Yun-Pil Shim, PhD

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Contact Information

Name :	Yun-Pil Shim
Address :	Department of Physics
	The University of Texas at El Paso
	500 W. University Ave.
	El Paso, TX 79968, USA
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Education

Dec. 2006	**Doctor of Philosophy (Physics)**, The University of Texas at Austin, USA
	Thesis: *Pair Condensation in Polarized Fermion Systems*
	Supervisor: Prof. Allan H. MacDonald
Feb. 2000	**Bachelor of Science (Physics)**, Seoul National University, Republic of Korea

Appointments

Sep. 2020 - present	**Assistant Professor (tenure-track)**
	Department of Physics, The University of Texas at El Paso
	El Paso, TX, USA
Mar. 2016 - Aug. 2020	**Faculty Specialist**
	Department of Physics, University of Maryland
	& Laboratory for Physical Sciences
	College Park, MD, USA
Nov. 2012 - Mar. 2016	**Research Associate**
	Department of Physics, University of Maryland
	& Laboratory for Physical Sciences
	College Park, MD, USA
Sep. 2009 - Nov. 2012	**Research Associate**
	Department of Physics, University of Wisconsin-Madison
	Madison, WI, USA
Dec. 2006 - Sep. 2009	**CIFAR-IMS Research Associate**
	Quantum Theory Group, Institute for Microstructural Sciences
	National Research Council of Canada
	Ottawa, ON, Canada

Teaching

2025 Fall	PHYS6321/5321 Mechanics (graduate)
2025 Spring	PHYS1403 General Physics
2025 Spring	PHYS6321/5321 Mechanics (graduate)
2024 Fall	PHYS6368 Quantum Computing (graduate)
2024 Spring	PHYS2320 Introductory Mechanics
2023 Fall	PHYS2321 Introductory Electromagnetism
2023 Fall	PHYS5321 Mechanics (graduate)
2023 Spring	PHYS2320 Introductory Mechanics
2022 Fall	PHYS2321 Introductory Electromagnetism
2022 Fall	PHYS5321 Mechanics (graduate)
2022 Fall	PHYS4393 Special Topics in Physics (Intro Quantum Computing)
2022 Spring	PHYS2320 Introductory Mechanics
2022 Spring	PHYS4393 Special Topics in Physics (Intro Quantum Computing)
2021 Spring	PHYS2420 Introductory Mechanics
2021 Fall	PHYS2420 Introductory Mechanics

Students Advised

Henry Barnor	Graduate (PhD, Physics, UTEP), 2024-present
Miguel Rodriguez	Graduate (PhD, Physics, UTEP), 2020-present
Edward Takyi	Graduate (MS, Physics, UTEP), 2021-2022
Joshua White	Undergraduate (Physics, UTEP), 2023-present
Leonardo Chavez	Undergraduate (Physics, UTEP), 2023-2024
Carlos Gonzalez	Undergraduate (CS, UTEP), 2022-2023
Joel Martinez Alvarado	Undergraduate (CS, UTEP), 2022-2023
Hector A. Hernandez	Undergraduate (Physics, UTEP), 2022
Minseo Kim	High School (Coronado HS), 2021-2022

Postdocs Advised

Dr. Omadillo Abdurazakov UTEP, 2021-present

Services

2024 Fall - Present	Graduate Committee Member
2024 Fall - 2025 Spring	Physics Quantum Science Search Committee Chair
2024 Fall - 2025 Spring	Physics RREP Search Committee Member
2020 Fall - 2021 Spring	Physics Search Committee Member

Professional Activities

Journal Reviews	Nature journals (Nature, Nat. Nanotechnol., Nat. Comm., npj Quantum Information), Physical Review journals (PRL, PRA, PRB, PRX, PRX Quantum, PRApplied), Nano Letters, Solid State Communications, Journal of Physics: Condensed Matter, Nanoscale, Advanced Materials, National Science Review, Physica Status Solidi B Europhysics Letters, Canadian Journal of Physics
Grant Reviews	NSF, DOE, AFOSR, NSERC (Canada), LA BoRSF
Membership	American Physical Society (APS) & Division of Quantum Information (DQI) Korean-American Scientists and Engineers Association (KSEA)

Awards & Honors

04/2025	UTEP's Research & Innovation Annual Innovation Award (Early-Career Innovator)
09/1999	SNU Development Fund Scholarship, Seoul National University
03/1999	University scholarship (Superior academic performance), Seoul National University
09/1998	University scholarship (Superior academic performance), Seoul National University
03/1992	University scholarship (Superior academic performance), Seoul National University

Patents

09/13/2022	System for induced quantum dots for material characterization and quantum computers Charles George Tahan, Rousko T. Hristov, **Yun-Pil Shim**, Hilary Hurst US Patent 11444184B1
08/25/2020	Systems, methods, and devices for noise-insensitive qubit gate operations **Yun-Pil Shim** and Charles George Tahan US Patent 10755191
06/12/2018	Microwave-free control of a superconductor-based quantum computer **Yun-Pil Shim** and Charles George Tahan US Patent 9996801

List of Publications

34. R. K. L. Colmenar, Arthur Lin, Omadillo Abdurazakov, **Yun-Pil Shim**, Garnett W. Bryant, Charles Tahan, *Anisotropy reduction and tunability of hole-spin qubit g-factor in strained parabolic Ge/SiGe quantum wells*, arXiv:2602.21287 (2026).

33. Miguel G. Rodriguez and **Yun-Pil Shim**, *Three-qubit entangling gates with simultaneous exchange controls in spin qubit systems*, arXiv:2512.13558 (2025).

32. **Yun-Pil Shim**, Edward Takyi, Jianjia Fei, Sangchul Oh, Xuedong Hu, and Mark Friesen *Implementation of single-qubit gates with two rotations around axes in a plane*, APL Quantum **2**, 026112 (2025) (Editor's Pick).

31. Omadillo Abdurazakov, Chunqiang Li, and **Yun-Pil Shim**, *Formation of dark excitons in monolayer transition metal dichalcogenides by a vortex beam: optical selection rules*, Physical Review B **108**, 125435 (2023).

30. **Yun-Pil Shim**, *Pauli Spin Blockade in a Resonant Triple Quantum Dot Molecule*, Journal of Applied Physics **132**, 064402 (2022).

29. Daniel L. Campbell, **Yun-Pil Shim**, Bharath Kannan, Roni Winik, David K. Kim, Alexander Melville, Bethany M. Niedzielski, Jonilyn L. Yoder, Charles Tahan, Simon Gustavsson, and Will Oliver, *Universal Nonadiabatic Control of Small-Gap Superconducting Qubits*, Physical Review X **10**, 041051 (2020).

28. **Yun-Pil Shim**, Rusko Ruskov, Hilary M. Hurst, and Charles Tahan, *Induced quantum dot probe for material characterization*, Applied Physics Letters **114**, 152105 (2019).
This paper was selected as *Featured* by the editors, and appeared at AIP Scilight.

27. **Yun-Pil Shim** and Charles Tahan, *Barrier versus tilt exchange gate operations in spin-based quantum computing*, Physical Review B **97**, 155402 (2018).

26. **Yun-Pil Shim** and Charles Tahan, *Charge-noise-insensitive gate operations for always-on, exchange-only qubits*, Physical Review B **93**, 121410(R) (2016).

25. **Yun-Pil Shim** and Charles Tahan, *Semiconductor-inspired design principles for superconducting quantum computing*, Nature Communications **7**, 11059 (2016).
This paper featured at Eurekalert.

24. Jianjia Fei, Jo-Tzu Hung, Teck Seng Koh, **Yun-Pil Shim**, Susan Coppersmith, Xuedong Hu, and Mark Friesen, *Characterizing gate operations near the sweet spot of an exchange-only qubit*, Physical Review B **91**, 205434 (2015).

23. **Yun-Pil Shim** and Charles Tahan, *Superconducting-semiconductor quantum devices: from qubits to particle detectors*, IEEE Journal of Selected Topics in Quantum Electronics **21**, 9100209 (2015).

22. **Yun-Pil Shim** and Charles Tahan, *Bottom-up superconducting and Josephson junction devices inside a group-IV semiconductor*, Nature Communications **5**, 4225 (2014).
This paper featured at Eurekalert.

21. **Yun-Pil Shim**, Sangchul Oh, Jianjia Fei, Xuedong Hu, and Mark Friesen, *Probing Quantum Phase Transitions on a Spin Chain with a Double Quantum Dot*, Physical Review B **87**, 155405 (2013).

20. Sangchul Oh, **Yun-Pil Shim**, Jianjia Fei, Mark Friesen, and Xuedong Hu, *Resonant Adiabatic Passage with Three Qubits*, Physical Review A **87**, 022332 (2013).

19. Jianjia Fei, Dong Zhou, **Yun-Pil Shim**, Sangchul Oh, Xuedong Hu, and Mark Friesen, *Mediated gates between spin qubits*, Physical Review A **86**, 062328 (2012).

18. Chang-Yu Hsieh, **Yun-Pil Shim**, Marek Korkusinski, and Pawel Hawrylak, *Physics of lateral triple quantum dot molecules with controlled electron numbers*, Reports on Progress in Physics **75**, 114501 (2012).

17. Sangchul Oh, **Yun-Pil Shim**, Jianjia Fei, Mark Friesen, and Xuedong Hu, *Effect of Randomness on Quantum Data Buses of Heisenberg Spin Chains*, Physical Review B **85**, 224418 (2012).

16. Zhan Shi, C. B. Simmons, J. R. Prance, John King Gamble, Teck Seng Koh, **Yun-Pil Shim**, Xuedong Hu, D. E. Savage, M. G. Lagally, M. A. Eriksson, Mark Friesen, and S. N. Coppersmith, *Fast Hybrid Silicon Double-Quantum-Dot Qubit*, Physical Review Letters **108**, 140503 (2012).

15. Chang-Yu Hsieh, **Yun-Pil Shim**, and Pawel Hawrylak, *Theory of electronic properties and quantum spin blockade in a gated linear triple quantum dot with one electron spin each*, Physical Review B **85**, 085309 (2012).

14. Sangchul Oh, Lian-Ao Wu, **Yun-Pil Shim**, Jianjia Fei, Mark Friesen, and Xuedong Hu, *Heisenberg spin bus as a robust transmission line for quantum-state transfer*, Physical Review A **84**, 022330 (2011).

13. **Yun-Pil Shim**, Sangchul Oh, Xuedong Hu, and Mark Friesen, *Controllable Anisotropic Exchange Coupling between Spin Qubits in Quantum Dots*, Physical Review Letters **106**, 180503 (2011).

12. **Y.-P. Shim**, A. Sharma, C.-Y. Hsieh, and P. Hawrylak, *Artificial Haldane gap material on a semiconductor chip*, Solid State Communications **105**, 2065 (2010).

11. **Y.-P. Shim**, F. Delgado, and P. Hawrylak, *Tunneling spectroscopy of spin-selective Aharonov-Bohm oscillations in lateral triple quantum dot molecules*, Physical Review B **80**, 115305 (2009).

10. L. Gaudreau, A. S. Sachrajda, S. Studenikin, A. Kam, F. Delgado, **Y. P. Shim**, M. Korkusinski, and P. Hawrylak, *Coherent Transport Through a Ring of Three Quantum Dots*, Physical Review B **80**, 075415 (2009).

9. **Y.-P. Shim** and A. H. MacDonald, *Spin-Orbit Interactions in Bilayer Excitonic Condensate Ferromagnets*, Physical Review B **79**, 235329 (2009).

8. **Y.-P. Shim**, F. Delgado, M. Korkusinski, L. Gaudreau, S. Studenikin, A. Kam, A. S. Sachrajda, and P. Hawrylak, *Theory of electronic and transport properties of resonant triple quantum dot molecules*, Physica Status Solidi B, **246**, 736 (2009).

7. F. Delgado, **Y.-P. Shim**, M. Korkusinski, L. Gaudreau, S. A. Studenikin, A. S. Sachrajda, and P. Hawrylak, *Spin-selective Aharonov-Bohm oscillations in a lateral triple quantum dot*, Physical Review Letters **101**, 226810 (2008).

6. **Yun-Pil Shim** and Pawel Hawrylak, *Gate-controlled spin-spin interactions in lateral quantum dot molecules*, Physical Review B **78**, 165317 (2008).

5. **Y.-P. Shim**, F. Delgado, M. Korkusinski, and P. Hawrylak, *Spin-transitions in a triple lateral quantum dot molecule in a magnetic field*, Physica E **40**, 1133 (2008).

4. F. Delgado, **Y.-P. Shim**, M. Korkusinski, and P. Hawrylak, *Theory of spin, electronic, and transport properties of the lateral triple quantum dot molecule in a magnetic field*, Physical Review B **76**, 115332 (2007).

3. **Y.-P. Shim**, R. A. Duine, and A. H. MacDonald, *Fulde-Ferrell-Larkin-Ovchinnikov vortex lattice states in fermionic cold-atom systems*, Physical Review A **74**, 053602 (2006).

2. S. K. Lyo, E. Bielejec, J. A. Seamons, J. L. Reno, M. P. Lilly, and **Yun-Pil Shim**, *Nonlinear resonant tunneling in low-dimensional systems in a magnetic field: Energy dispersion*, Physica E **34**, 425 (2006).

1. S.-R. E. Yang, J. Sinova, T. Jungwirth, **Y. P. Shim**, and A. H. MacDonald, *Non-Drude optical conductivity of* (III,Mn)V *ferromagnetic semiconductors*, Physical Review B **67**, 045205 (2003).

Presentations

Invited Talks/Seminars/Colloquia/Lectures

42. *Hole spin qubits in semiconductor quantum dots*, invited talk, MRS 2026 Spring, Honolulu, HI, USA, April 29,2026.

41. *Spin Qubits and Encoded Qubits in Semiconductor Quantum Dot Systems*, seminar, University of Texas at El Paso, El Paso, TX, USA, March 05, 2026.

40. *Simultaneous Control of Exchange Couplings in Quantum Dot Spin Qubit Systems*, invited talk, PQS2D workshop, Chateau Montebello, ON, Canada, June 19, 2025.

39. *Semiconductor Quantum Dot Spin Qubit Systems*, seminar, Korea Research Institute of Standards and Science (KRISS), Daejeon, Korea, July 12, 2024.

38. *Hole-Based Spin Qubits in Semiconductor Quantum Dot Systems*, invited talk, Nano Korea 2024, Kintex, Korea, July 03, 2024.

37. *Semiconductor Quantum Dot Spin Qubits: Electron, Hole, and More*, seminar, Samsung Advanced Institute of Technology, Suwon, Korea, July 04, 2023.

36. *Quantum Computing and Quantum Technology*, seminar, Gachon University, Seongnam, Korea, June 29, 2023.

35. *Principles of Quantum Computers*, seminar, Korea Institute for Advanced Study, Seoul, Korea, June 22, 2023.

34. *Encoded qubit with spin qubits*, (virtual) lecture, LPS QD meeting, College Park, MD, USA, May 15, 2023.

33. *Quantum Mechanics and Quantum Computing*, (virtual) lecture, Daegu Gyeongbuk Institute of Science and Technology (DGIST), Daegu, South Korea, June 07, 2022.

32. *Creating Excitons with Structured Light in Transition Metal Dichalcogenides*, invited talk, QC2DM 2022, Ottawa, ON, Canada, May 27, 2022.

31. *Optimal Qubit and Quantum Gate Schemes for Semiconductor Spin Qubits*, (virtual) colloquium, San Jose State University, San Jose, CA, USA, April 28, 2022.

30. *Semiconductor quantum dot spin qubits and encoded qubits*, invited talk, ACS Spring Meeting, San Diego, CA, USA, March 23, 2022.

29. *Efficient quantum circuit implementation on superconducting quantum computing devices*, invited talk, KAIST SRC Winter Workshop (virtual), January 24, 2022.

28. *Lectures on Quantum Computation and Superconducting Qubits*, (virtual) lectures, Gwangju Institute of Science and Technology (GIST), Gwangju, South Korea, August 10-14, 2020.

27. *High fidelity encoded gate operations for composite superconducting qubit*, invited talk, KPS Spring Meeting (virtual), July 14, 2020.

26. *Composite qubit approach to superconducting quantum computing*, invited talk, KSEA VWMRC 2020 (virtual), May 09, 2020.

25. *Encoded qubit approach to superconducting quantum computing*, seminar, The University of Texas at El Paso, El Paso, TX, USA, January 27, 2020.

24. *Encoded qubit approach to superconducting quantum computing*, seminar, University of Rhode Island, Kingston, RI, USA, January 22, 2020.

23. *Superconducting Qubit based Quantum Computing I & II*, lectures, The 8th School of Mesoscopic Physics, Pohang, South Korea, May 24, 2019.

22. *Composite qubit approach to superconducting quantum computing*, seminar, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea, May 22, 2019.

21. *Composite qubit approach to superconducting quantum computing*, seminar, Electronics and Telecommunications Research Institute (ETRI), Daejeon, South Korea, May 22, 2019.

20. *Composite qubit approach to superconducting quantum computing*, colloquium, Binghamton University - The State University of New York, Binghamton, NY, USA, February 18, 2019.

19. *Semiconductor quantum dot spin qubits and mitigating charge noise on exchange interaction*, seminar, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea, May 2, 2018.

18. *Semiconductor quantum dot spin qubits and mitigating charge noise on exchange interaction*, seminar, Center for Quantum Nano Science, Ewha Womans University, Seoul, South Korea, April 30, 2018.

17. *Mitigating charge noise in exchange gate operations between spin qubits*, invited talk, KPS Spring Meeting, Daejeon, South Korea, April 26, 2018.

16. *Basic theory of quantum dot devices*, lecture, Seoul National University, Seoul, South Korea, May 31, 2017.

15. *Introduction to Quantum Computation*, lecture, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea, May 29, 2017.

14. *Quantum dot basics, quantum manipulation and measurements in semiconductors I & II*, lectures, The 6th School of Mesoscopic Physics, Pohang, South Korea, May 25, 2017.

13. *Quantum Computing in Solid State Devices - Superconducting and semiconductor qubits*, seminar, Korea Research Institute of Standards and Science (KRISS), Daejeon, South Korea, May 24, 2017.

12. *New designs for superconducting and semiconductor qubits by learning from each other*, LPS Seminar, Laboratory for Physical Sciences, College Park, MD, USA, April 27, 2016.

11. *Semiconductor-inspired superconducting quantum computing*, invited talk, APS March Meeting, Baltimore, MD, USA, March 16, 2016.

10. *Semiconductor-inspired superconducting quantum computing*, invited talk, Joint AKPA-KPS session in APS March Meeting, Baltimore, MD, USA, March 13, 2016.

9. *Superconducting semiconductors and their applications*, seminar, University of Ottawa, Ottawa, ON, Canada, November 19, 2014.

8. *Bottom-up superconducting and Josephson junction devices and qubits inside a Group-IV semiconductor*, invited talk, APS March Meeting, Denver, CO, USA, March 4, 2014.

7. *Superconducting and Josephson junction devices inside a Group-IV semiconductor*, LPS QC Seminar, Laboratory for Physical Sciences, College Park, MD, USA, November 1, 2013.

6. *Quantum Computation on a Spin Chain*, seminar, Laboratory for Physical Sciences, College Park, MD, USA, July 23, 2012.

5. *Engineering non-Heisenberg interactions between quantum dot spin qubits*, seminar, National Research Council of Canada, Ottawa, ON, Canada, August 05, 2010.

4. *Electronic, spin, and transport properties of a triple quantum dot molecule*, seminar, Institute for Quantum Computing at University of Waterloo, Waterloo, ON, Canada, May 08, 2009.

3. *Electronic, spin, and transport properties of a triple quantum dot molecule*, seminar, University of Wisconsin-Madison, Madison, WI, USA, May 06, 2009.

2. *Ferromagnetic Excitonic Condensation*, seminar, National Research Council of Canada, Ottawa, ON, Canada, March 16, 2007.

1. *Ferromagnetic Excitonic Condensation*, seminar, University of Oklahoma, Norman, OK, USA, July 21, 2006.

Contributed Presentations at Conferences/Workshops

55. *Effects of the spin-orbit coupling and confinement geometry on germanium hole spin qubits*, oral presentation (presenter: Omadillo Abdurazakov), TAO APS meeting, TCU, Fort Worth, TX, October 11, 2025.

54. *Three-qubit entangling gates for spin qubits with simultaneous exchange interactions*, oral presentation (presenter: Miguel Rodriguez), TAO APS meeting, TCU, Fort Worth, TX, October 10, 2025.

53. *Singlet-singlet qubit with two spins in a triple quantum dot*, oral presentation (presenter: Henry Barnor), TAO APS meeting, TCU, Fort Worth, TX, October 10, 2025.

52. *Multiqubit gates for superconducting qubits*, oral presentation (presenter: Joshua White), TAO APS meeting, TCU, Fort Worth, TX, October 10, 2025.

51. *Effects of the spin-orbit coupling and confinement geometry on germanium hole spin qubits*, poster presentation (presenter: Omadillo Abdurazakov), SiQEW 2025, Terranea Resort, Rancho Palos Verdes, CA, October 07, 2025.

50. *Quantum dot physics in semiconductor platforms for quantum science and technologies*, poster presentation (presenter: Omadillo Abdurazakov), ESW25 workshop, UTEP, El Paso, TX, June 10, 2025.

49. *Multiqubit entangling gates via simultaneous exchange in three- and four- spin qubit architectures*, poster presentation (presenter: Miguel Rodriguez), ESW25 workshop, UTEP, El Paso, TX, June 10, 2025.

48. *Multi-Qubit Entangling Gates for Superconducting Qubits*, poster presentation (presenter: Joshua White), ESW25 workshop, UTEP, El Paso, TX, June 10, 2025.

47. *Implementation of single-qubit gates with two rotations around axes in a plane*, oral presentation, APS Global Physics Summit, Anaheim, CA, USA, March 18, 2025.

46. *Multiqubit entangling gates with simultaneous exchange driving in three spin qubit systems*, oral presentation (presenter: Miguel Rodriguez), APS Global Physics Summit, Anaheim, CA, USA, March 18, 2025.

45. *Role of spin-orbit coupling in the effective g-factor anisotropy of germanium hole-spin qubits confined to an asymmetric quantum dot potential*, oral presentation (presenter: Omadillo Abdurazakov), APS Global Physics Summit, Anaheim, CA, USA, March 17, 2025.

44. *Theory on the Effective g-factor of a Hole-Spin Qubit in Semiconductor Quantum Dot Systems*, oral presentation, ICPS 2024, Ottawa, ON, Canada, August 02, 2024.

43. *Multiqubit entangling gates with multi-exchange interactions between spin qubits*, poster presentation (presenter: Miguel Rodriguez), APS March Meeting, Minneapolis, MN, USA, March 06, 2024.

42. *Emergence of spin-forbidden dark excitons in monolayer TMDs under a vortex beam*, oral presentation (presenter: Omadillo Abdurazakov), APS March Meeting, Minneapolis, MN, USA, March 05, 2024.

41. *Hole spin qubit in an asymmetric quantum dot*, poster presentation, Silicon Quantum Electronics Workshop (SiQEW) 2023, Kyoto, Japan, November 1, 2023.

40. *Efficient entanglement generation using a spin bus*, oral presentation (presenter: Miguel Rodriguez), APS March Meeting, Las Vegas, NV, USA, March 10, 2023.

39. *Effects of the spin-orbit coupling on hole spin qubits*, oral presentation (presenter: Omadillo Abdurazakov), APS March Meeting, Las Vegas, NV, USA, March 10, 2023.

38. *Exchange gate between hole spin qubits with Rashba spin-orbit coupling*, oral presentation, APS March Meeting, Chicago, IL, USA, March 15, 2022.

37. *Multiqubit gates for generating entangled states*, poster presentation (presenter: Miguel Rodriguez), APS March Meeting, Chicago, IL, USA, March 15, 2022.

36. *Creating and controlling excitons with structured light in monolayer transition metal dichalcogenides*, oral presentation (presenter: Omadillo Abdurazakov), APS March Meeting, Chicago, IL, USA, March 14, 2022.

35. *Multiqubit quantum gate operations for efficient quantum circuits and algorithms*, poster presentation, Sustainable Research Pathways Workshop (virtual), December 2, 2021.

34. *High fidelity encoded gate operations for composite superconducting qubit*, oral presentation, LPS-edition March Meeting, College Park, MD, March 3, 2020.

33. *Induced quantum dot probe for qubit and material characterization*, poster presentation, Silicon Quantum Electronics Workshop, San Sebastian, Spain, October 14, 2019.

32. *Encoded qubit approach to superconducting quantum computing*, poster presentation, ARO/LPS Quantum Computing Program Review #2, Raleigh, NC, USA, August 13, 2019.

31. *Induced quantum dot probe for qubit and material characterization*, poster presentation, ARO/LPS Quantum Computing Program Review #1, Annapolis, MD, USA, July 31, 2019.

30. *Induced quantum dot probe for qubit and material characterization*, oral presentation, APS March Meeting, Boston, MA, USA, March 05, 2019.

29. *Theoretical analysis on the composite qubit approach to superconducting quantum computing*, oral presentation, APS March Meeting, Boston, MA, USA, March 04, 2019.

28. *Theory of Barrier vs Tilt Exchange Gate Operations in Spin-based Quantum Computing*, oral presentation, APS March Meeting, Los Angeles, CA, USA, March 06, 2018.

27. *The case for always-on, exchange only (AEON) qubits*, oral presentation, International Workshop on Silicon Quantum Electronics, Hillsboro, Oregon, USA, August 19, 2017.

26. *Why barrier gates are better than tilting gates in quantum dot quantum computing*, poster presentation, International Workshop on Silicon Quantum Electronics, Hillsboro, Oregon, USA, August 19, 2017.

25. *Why barrier gates are better than tilting gates in quantum dot quantum computing*, poster presentation, ARO/LPS Quantum Computing Program Review #2, San Diego, CA, USA, August 16, 2017.

24. *Charge-noise-insensitive gate operations for always-on, exchange-only qubits*, oral presentation, APS March Meeting, New Orleans, LA, USA, March 14, 2017.

23. *Semiconductor-inspired superconducting quantum computing*, poster presentation, ARO/LPS Quantum Computing Program Review #2, Westminster, CO, USA, August 8, 2016.

22. *Charge-noise-insensitive gate operations for always-on, exchange-only qubits*, poster presentation, ARO/LPS Quantum Computing Program Review #1, Alexandria, VA, USA, July 20, 2016.

21. *Charge-noise-insensitive gate operations for always-on, exchange-only qubits*, poster presentation, Silicon Quantum Electronics Workshop, Delft, Netherlands, June 13, 2016.

20. *Semiconductor-inspired superconducting quantum computing*, poster presentation, ARO/NSA Quantum Computing Program Review #2, San Diego, CA, USA, August 11, 2015.

19. *Semiconductor-inspired superconducting quantum computing*, poster presentation, ARO/NSA Quantum Computing Program Review #1, Arlington, VA, USA, July 23, 2015.

18. *Spin-qubit inspired architectures for superconducting quantum computing*, oral presentation, APS March Meeting, San Antonio, TX, USA, March 4, 2015.

17. *Superconducting Silicon Quantum Devices*, oral presentation, Silicon Quantum Electronics Workshop, Albuquerque, NM, USA, August 19, 2014.

16. *Superconducting Semiconductor Quantum Devices*, poster presentation, ARO/NSA Quantum Computing Program Review, Arlington, VA, USA, August 14, 2014.

15. *Superconducting silicon Josephson junction devices*, poster presentation, ARO/NSA Quantum Computing & Quantum Algorithms Program Review, San Diego, CA, USA, August 15, 2013.

14. *Probing quantum phase transitions on a spin chain with a double quantum dot*, oral presentation, APS March Meeting, Baltimore, MD, USA, March 18, 2013.

13. *Remote Gates and Quantum Phase Transitions using Spin Bus*, poster presentation, DARPA QuEST program review meeting, Mt. Pleasant, SC, USA, April 25, 2012.

12. *Quantum phase transitions in spin bus systems*, oral presentation, APS March Meeting, Boston, MA, USA, February 29, 2012.

11. *Engineering anisotropic exchange interactions between quantum dot spin qubits*, oral presentation, APS March Meeting, Dallas, TX, USA, March 23, 2011.

10. *Entanglement and Phase Transitions on a Spin Bus*, poster presentation, DARPA QuEST program review meeting, Washington DC, USA, April 11, 2010.

9. *Gate-controlled spin-spin interactions in lateral quantum dot molecules*, poster presentation, Cifar Nanoelectronics meeting, Halifax, NS, Canada, November 14, 2008.

8. *Theory of Electronic and Transport Properties of Resonant Triple Quantum Dot Molecules*, oral presentation, QD2008, Gyeongju, Korea, May 13, 2008.

7. *Manipulation of electron spins in a lateral triple quantum dot molecule*, oral presentation, Coherent Spintronics Workshop, Waterloo, ON, Canada, January 10, 2008.

6. *Spin-transitions in a triple lateral quantum dot molecule in a magnetic field*, poster presentation, EP2DS-17, Genoa, Italy, July 17, 2007.

5. *Spin properties of the lateral triple quantum dot molecule in the presence of a magnetic field*, poster presentation, CIFAR nanoelectronics summer school, Vancouver, BC, Canada, June 28, 2007.

4. *FFLO state in a Rotating Cold Fermionic Atom System*, oral presentation, APS March Meeting, Baltimore, MD, USA, March 14, 2006.

3. *Spin-dependent Tunneling Conductance between 2D Layer and 1D Wire*, oral presentation, APS March Meeting, Los Angeles, CA, USA, March 22, 2005.

2. *The Ferromagnetic Excitonic Condensate State in a Bilayer Electron-Hole System*, oral presentation, APS March Meeting, Montreal, QC, Canada, March 25, 2004.

1. *Edge Spin Currents in a Confined 2DEG with Rashba Spin-Orbit Interactions*, poster presentation, APS March Meeting, Montreal, QC, Canada, March 22, 2004.

Other co-authored presentations

21. *Reduction of hole state g-factor anisotropy using parabolic Ge/SiGe quantum wells*, Arthur Lin, Ralph L. Colmenar, Yun-Pil Shim, Garnett W. Bryant, Charles G. Tahan, poster presentation, SiQEW 2025, Terranea Resort, Rancho Palos Verdes, CA, October 07, 2025.

20. *Pin-Pointing Two Level Systems Originating from Defects in Si Using RF-STM*, Jonathan J. Marbey, Michael Dreyer, Matthew Brooks, Yun-Pil Shim, Robert E. Butera, oral presentation, APS Global Physics Summit, Anaheim, CA, USA, March 18, 2025.

19. *Comparison of RF response of a tip induced quantum dot and local density of states measurements of Silicon at mK temperatures by RF-STM*, Michael Dreyer, Jonathan J. Marbey, Matthew Brooks, Yun-Pil Shim, Robert E. Butera, oral presentation, APS Global Physics Summit, Anaheim, CA, USA, March 18, 2025.

18. *Strain engineering hole state g-factors in parabolic Ge/SiGe quantum dots*, Arthur Lin, Ralph L. Colmenar, Omadillo Abdurazakov, Yun-Pil Shim, Garnett W. Bryant, Charles Tahan, oral presentation, APS Global Physics Summit, Anaheim, CA, USA, March 17, 2025.

17. *Dispersive Measurement of an STM-Tip Induced Quantum Dot in Si(100)*, Jonathan Marbey, Michael Dreyer, Mathew Brooks, Yun-Pil Shim, Robert E. Butera, oral presentation, APS March Meeting, Minneapolis, MN, USA, March 06, 2024.

16. *Computational thinking and specifications grading in an introductory calculus-based mechanics course at The University of Texas at El Paso (UTEP)*, Jorge A Munoz, Jose L Banuelos, Eunja Kim, Ramon J Ravelo, Yun-Pil Shim, oral presentation, APS March Meeting, Las Vegas, NV, USA, March 7, 2023.

15. *RF-STM of a Tip-Induced Quantum Dot in Si(100)*, Jonathan Marbey, Michael Dreyer, Mathew Brooks, Yun-Pil Shim, Robert E. Butera, Silicon Quantum Electronics Workshop (SiQEW) 2022, Orford, QC, Canada, October 3, 2022.

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