

Curriculum Vitae
Jason R. Petta

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Research Interests

Experimental condensed matter physics

- Circuit quantum electrodynamics with quantum dots.
- Spin-based quantum information processing.
- Strongly driven quantum systems.
- Synthesis of semiconductor nanostructures.

Education

- B.S. in Engineering Physics, University of Illinois at Urbana-Champaign, January 1998.
- M.S. in Physics, Cornell University, August 2001.
- Ph.D. in Physics, Cornell University, May 2003.
Thesis title: “Effects of spin-orbit coupling on single quantum states in metallic quantum dots.”
Thesis advisor: Professor Daniel Ralph.

Appointments

- Postdoctoral Fellow, Harvard University, 2003 – 2006.
- Assistant Professor, Princeton University, 2007 – 2012.
- Associate Professor, Princeton University, 2012 – 2015.
- Professor, Princeton University, 2015 – present.

Honors

- Ernest M. Lyman Prize, 1998. Awarded to the outstanding senior in physics, UIUC.
- University of Illinois Bronze Tablet, 1998. Awarded to the top 3% of the graduating class.
- National Science Foundation Graduate Fellow, 1998 – 2001.
- Lee-Osheroff-Richardson Prize, 2006. Awarded annually by Oxford Instruments “for sustained achievement in research employing experimental low temperature techniques.”
- AAAS Newcomb Cleveland Prize, 2006. Awarded annually to the authors of an outstanding paper in Science magazine.
- McMillan Award, 2007. Awarded “for pioneering experiments involving quantum manipulation of spin and charge in solid state devices.”
- Alfred P. Sloan Research Fellow, 2008.
- Army Research Office Young Investigator Award, 2008.
- David and Lucille Packard Fellow, 2008.
- NSF Career Award, 2009.
- Presidential Early Career Award for Scientists and Engineers, 2010.
- Gordon and Betty Moore Experimental Investigator in Quantum Materials, 2014.
- E-Council Excellence in Teaching Award (PHY 104), 2016.

Academic Service

Reviewer for ACS Nano, Applied Physics Letters, Applied Sciences, Journal of Applied Physics, Journal of Vacuum Science and Technology A, Nano Letters, Nanotechnology, Nature, Nature Communications, Nature Materials, Nature Nanotechnology, Nature Physics, New Journal of Physics, Physical Review Applied, Physical Review B, Physical Review Letters, Physical Review X, Science, and Scientific Reports.

Publications are available at <http://pettagroup.princeton.edu/publications.html>

1. *Multiple magnetization paths in Barkhausen noise*, J. R. Petta, M. B. Weissman, K. P. O'Brien, Physical Review E (Rapid Communication) **54**, 1029 (1996).
2. *Dependence of Barkhausen pattern reproducibility on hysteresis loop size*, J. R. Petta, M. B. Weissman, G. Durin, Physical Review E **56**, 2776 (1997).
3. *Barkhausen pulse structure in an amorphous ferromagnet: Characterization by high-order spectra*, J. R. Petta, M. B. Weissman, G. Durin, Physical Review E **57**, 6363 (1998).
4. *Determination of Barkhausen signal scaling from higher order spectral analysis*, J. R. Petta, M. B. Weissman, G. Durin, IEEE Transactions on Magnetics **34**, 1171 (1998).
5. *Nonlinear ac response and noise of a giant magnetoresistive sensor*, J. R. Petta, T. Ladd, M. B. Weissman, IEEE Transactions on Magnetics **36**, 2057 (2000).
6. *Measurements of discrete electronic states in a gold nanoparticle using tunnel junctions formed from self-assembled monolayers*, J. R. Petta, D. G. Salinas, D. C. Ralph, Applied Physics Letters **77**, 4419 (2000).
7. *Studies of spin-orbit scattering in noble-metal nanoparticles using energy-level tunneling spectroscopy*, J. R. Petta, D. C. Ralph, Physical Review Letters **87**, 266801 (2001).
8. *Coulomb blockade and the Kondo effect in single-atom transistors*, J. Park, A. N. Pasupathy, J. I. Goldsmith, C. Chang, Y. Yaish, J. R. Petta, M. Rinkowski, J. P. Sethna, H. D. Abruna, P. L. McEuen, D. C. Ralph, Nature **417**, 722 (2002).
9. *Measurements of strongly anisotropic g factors for spins in single quantum states*, J. R. Petta, D. C. Ralph, Physical Review Letters **89**, 156802 (2002).
10. *30 nm channel length pentacene transistors*, Y. J. Zhang, J. R. Petta, S. Ambily, Y. Shen, D. C. Ralph, G. G. Malliaras, Advanced Materials **15**, 1632 (2003).
11. *Spin-dependent transport in molecular tunnel junctions*, J. R. Petta, S. K. Slater, D. C. Ralph, Physical Review Letters **93**, 136601 (2004).
12. *Manipulation of a single charge in a double quantum dot*, J. R. Petta, A. C. Johnson, C. M. Marcus, M. P. Hanson, A. C. Gossard, Physical Review Letters **93**, 186802 (2004).
13. *Triplet-singlet spin relaxation via nuclei in a double quantum dot*, A. C. Johnson, J. R. Petta, J. M. Taylor, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, A. C. Gossard, Nature **435**, 925 (2005).
14. *Coherent manipulation of coupled electron spins in semiconductor quantum dots*, J. R. Petta, A. C. Johnson, J. M. Taylor, E. A. Laird, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, A. C. Gossard, Science **309**, 2180 (2005).
15. *Singlet-triplet spin blockade and charge sensing in a few-electron double quantum dot*, A. C. Johnson, J. R. Petta, C. M. Marcus, M. P. Hanson, A. C. Gossard, Physical Review B **72**, 165308 (2005).
16. *Pulsed-gate measurements of the singlet-triplet relaxation time in a two-electron double quantum dot*, J. R. Petta, A. C. Johnson, A. Yacoby, C. M. Marcus, M. P. Hanson, A. C. Gossard, Physical Review B (Rapid Communication) **72**, 161301 (2005).

17. *Effect of exchange interaction on spin dephasing in a double quantum dot*, E. A. Laird, J. R. Petta, A. C. Johnson, C. M. Marcus, A. Yacoby, M. P. Hanson, A. C. Gossard, *Physical Review Letters* **97**, 056801 (2006).
18. *Charge and spin manipulation in a few-electron double dot*, J. R. Petta, A. C. Johnson, J. M. Taylor, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Physica E* **34**, 42 (2006).
19. *Preparing, manipulating, and measuring quantum states on a chip*, J. R. Petta, A. C. Johnson, J. M. Taylor, E. A. Laird, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Physica E* **35**, 251 (2006).
20. *Relaxation, dephasing, and quantum control of electron spins in double quantum dots*, J. M. Taylor, J. R. Petta, A. C. Johnson, A. Yacoby, C. M. Marcus, M. D. Lukin, *Physical Review B* **76**, 035315 (2007).
21. *Spins in few-electron quantum dots*, R. Hanson, L. P. Kouwenhoven, J. R. Petta, S. Tarucha, L. M. K. Vandersypen, *Reviews of Modern Physics* **79**, 1217 (2007).
22. *Dynamic nuclear polarization with single electron spins*, J. R. Petta, J. M. Taylor, A. C. Johnson, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Physical Review Letters* **100**, 067601 (2008).
23. *Quantum dots: Time to get the nukes out*, M. D. Schroer, J. R. Petta, *Nature Physics* **4**, 516 (2008).
24. *Suppressing spin qubit dephasing by nuclear state preparation*, D. J. Reilly, J. M. Taylor, J. R. Petta, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Science* **321**, 817 (2008).
25. *High-quality quantum point contact in two-dimensional GaAs (311)A hole system*, J. Shabani, J. R. Petta, M. Shayegan, *Applied Physics Letters* **93**, 212101 (2008).
26. *Measurement of temporal correlations of the Overhauser field in a double quantum dot*, D. J. Reilly, J. M. Taylor, E. A. Laird, J. R. Petta, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Physical Review Letters* **101**, 236803 (2008).
27. *Electronic refrigeration on the micron scale*, J. R. Petta, *Physics* **2**, 27 (2009).
28. *Coherent holes in a semiconductor quantum dot*, M. H. Kolodrubetz, J. R. Petta, *Science* **325**, 42 (2009).
29. *A coherent beam splitter for electronic spin states*, J. R. Petta, H. Lu, A. C. Gossard, *Science* **327**, 669 (2010).
30. *Development and operation of research-scale III–V nanowire growth reactors*, M. D. Schroer, S. Y. Xu, A. M. Bergmann, J. R. Petta, *Review of Scientific Instruments* **81**, 023903 (2010).
31. *Correlating the nanostructure and electronic properties of InAs nanowires*, M. D. Schroer, J. R. Petta, *Nano Letters* **10**, 1618 (2010).
32. *Exchange control of nuclear spin diffusion in a double quantum dot*, D. J. Reilly, J. M. Taylor, J. R. Petta, C. M. Marcus, M. P. Hanson, A. C. Gossard, *Physical Review Letters* **104**, 236802 (2010).
33. *Harnessing the GaAs quantum dot nuclear spin bath for quantum control*, H. Ribeiro, J. R. Petta, G. Burkard, *Physical Review B* **82**, 115445 (2010).
34. *Quantum coherence in a one-electron semiconductor charge qubit*, K. D. Petersson, J. R. Petta, H. Lu, A. C. Gossard, *Physical Review Letters* **105**, 246804 (2010).
35. *Field tuning the g factor in InAs nanowire double quantum dots*, M. D. Schroer, K. D. Petersson, M. Jung, J. R. Petta, *Physical Review Letters* **107**, 176811 (2011).
36. *Nonadiabatic quantum control of a semiconductor charge qubit*, Y. Dovzhenko, J. Stehlik, K. D. Petersson, J. R. Petta, H. Lu, A. C. Gossard, *Physical Review B (Rapid Communication)* **84**, 161302 (2011).

37. *Single charge sensing and transport in double quantum dots fabricated from commercially grown Si/SiGe heterostructures*, C. Payette, K. Wang, P. J. Koppinen, Y. Dovzhenko, J. C. Sturm, J. R. Petta, Applied Physics Letters **100**, 043508 (2012).
38. *Radio frequency charge sensing in InAs nanowire double quantum dots*, M. Jung, M. D. Schroer, K. D. Petersson, J. R. Petta, Applied Physics Letters **100**, 253508 (2012).
39. *Electrically controlling single spin coherence in semiconductor nanostructures*, Y. Dovzhenko, K. Wang, M. D. Schroer, J. R. Petta, in: Quantum Dots: optics, electron transport and future applications, edited by A. Tartakovskii (Cambridge University Press, 2012).
40. *Landau-Zener-Stückelberg interferometry of a single electron charge qubit*, J. Stehlik, Y. Dovzhenko, J. R. Petta, J. R. Johansson, F. Nori, H. Lu, A. C. Gossard, Physical Review B (Rapid Communication) **86**, 121303 (2012).
41. *Structural and electrical characterization of Bi₂Se₃ nanostructures grown by metal-organic chemical vapor deposition*, L. D. Alegria, M. D. Schroer, A. Chatterjee, G. R. Poirier, M. Pretko, S. K. Patel, J. R. Petta, Nano Letters **12**, 4711 (2012).
42. *Controlled MOCVD growth of Bi₂Se₃ topological insulator nanoribbons*, L. D. Alegria, J. R. Petta, Nanotechnology **23**, 435601 (2012).
43. *Radio frequency charge parity meter*, M. D. Schroer, M. Jung, K. D. Petersson, J. R. Petta, Physical Review Letters **109**, 166804 (2012).
44. *Circuit quantum electrodynamics with a spin qubit*, K. D. Petersson, L. W. McFaul, M. D. Schroer, M. Jung, J. M. Taylor, A. A. Houck, J. R. Petta, Nature **490**, 380 (2012).
45. *Coherent adiabatic spin control in the presence of charge noise using tailored pulses*, H. Ribeiro, G. Burkard, J. R. Petta, H. Lu, A. C. Gossard, Physical Review Letters **110**, 086804 (2013).
46. *Quantum spintronics: Engineering and manipulating atom-like spins in semiconductors*, D. D. Awschalom, L. C. Bassett, A. S. Dzurak, E. L. Hu, J. R. Petta, Science **339**, 1174 (2013).
47. *Interplay of charge and spin coherence in Landau-Zener-Stückelberg-Majorana interferometry*, H. Ribeiro, J. R. Petta, G. Burkard, Physical Review B **87**, 235318 (2013).
48. *Cavity-mediated entanglement generation via Landau-Zener interferometry*, C. M. Quintana, K. D. Petersson, L. W. McFaul, S. J. Srinivasan, A. A. Houck, J. R. Petta, Physical Review Letters **110**, 173603 (2013).
49. *Charge relaxation in a single-electron Si/SiGe double quantum dot*, K. Wang, C. Payette, Y. Dovzhenko, P. W. Deelman, J. R. Petta, Physical Review Letters **111**, 046801 (2013).
50. *A ferromagnetic insulating substrate for the epitaxial growth of topological insulators*, H. Ji, R. A. Stokes, L. D. Alegria, E. C. Blomberg, M. A. Tanatar, A. Reijnders, L. M. Schoop, T. Liang, R. Prozorov, K. S. Burch, N. P. Ong, J. R. Petta, R. J. Cava, Journal of Applied Physics **114**, 114907 (2013).
51. *Comment on “Vacuum Rabi splitting in a semiconductor circuit QED system,”* A. Wallraff, A. Stockklauser, T. Ihn, J. R. Petta, A. Blais, Physical Review Letters **111**, 249701 (2013).
52. *Extreme harmonic generation in electrically driven spin resonance*, J. Stehlik, M. D. Schroer, M. Z. Maialle, M. H. Degani, J. R. Petta, Physical Review Letters **112**, 227601 (2014).
53. *Fast room-temperature phase gate on a single nuclear spin qubit in diamond*, S. Sangtawesin, T. O. Brundage, J. R. Petta, Physical Review Letters **113**, 020506 (2014).
54. *Photon emission from a cavity-coupled double quantum dot*, Y.-Y. Liu, K. D. Petersson, J. Stehlik, J. M. Taylor, J. R. Petta, Physical Review Letters **113**, 036801 (2014).
55. *Large anomalous Hall effect in ferromagnetic insulator-topological insulator heterostructures*, L. D. Alegria, H. Ji, N. Yao, J. J. Clarke, R. J. Cava, J. R. Petta, Applied Physics Letters **105**, 053512 (2014).

56. *Highly tunable formation of nitrogen-vacancy centers via ion implantation*, S. Sangtawesin, T. O. Brundage, Z. J. Atkins, J. R. Petta, Applied Physics Letters **105**, 063107 (2014).
57. *MOCVD synthesis of compositionally tuned topological insulator nanowires*, L. D. Alegria, N. Yao, J. R. Petta, Physica Status Solidi Rapid Research Letters **8**, 991 (2014).
58. *Semiconductor double quantum dot micromaser*, Y.-Y. Liu, J. Stehlik, C. Eichler, M. J. Gullans, J. M. Taylor, J. R. Petta, Science **347**, 285 (2015).
59. *Phonon-assisted gain in a semiconductor double quantum dot maser*, M. J. Gullans, Y.-Y. Liu, J. Stehlik, J. R. Petta, J. M. Taylor, Physical Review Letters **114**, 196802 (2015).
60. *A reconfigurable gate architecture for Si/SiGe quantum dots*, D. M. Zajac, T. M. Hazard, X. Mi, K. Wang, J. R. Petta, Applied Physics Letters **106**, 223507 (2015).
61. *Magnetotransport studies of mobility limiting mechanisms in undoped Si/SiGe heterostructures*, X. Mi, T. M. Hazard, C. M. Payette, K. Wang, D. M. Zajac, J. V. Cady, J. R. Petta, Physical Review B **92**, 035304 (2015).
62. *Fast charge sensing of a cavity-coupled double quantum dot using a Josephson parametric amplifier*, J. Stehlik, Y.-Y. Liu, C. M. Quintana, C. Eichler, T. R. Hartke, J. R. Petta, Physical Review Applied **4**, 014018 (2015).
63. *Injection locking of a semiconductor double-quantum-dot micromaser*, Y.-Y. Liu, J. Stehlik, M. J. Gullans, J. M. Taylor, and J. R. Petta, Physical Review A **92**, 053802 (2015).
64. *Sisyphus thermalization of photons in a cavity-coupled double quantum dot*, M. J. Gullans, J. Stehlik, Y.-Y. Liu, C. Eichler, J. R. Petta, and J. M. Taylor, Physical Review Letters **117**, 056801 (2016).
65. *Role of multilevel Landau-Zener interference in extreme harmonic generation*, J. Stehlik, M. Z. Maialle, M. H. Degani, and J. R. Petta, Physical Review B **94**, 075307 (2016).
66. *Double quantum dot Floquet gain medium*, J. Stehlik, Y.-Y. Liu, C. Eichler, T. R. Hartke, X. Mi, M. J. Gullans, J. M. Taylor, and J. R. Petta, Physical Review X **6**, 041027 (2016).
67. *Dispersive readout of valley splittings in cavity-coupled silicon quantum dots*, G. Burkard and J. R. Petta, Physical Review B **94**, 195305 (2016).
68. *Hyperfine-enhanced gyromagnetic ratio of a nuclear spin in diamond*, S. Sangtawesin, C. A. McLellan, B. A. Myers, A. C. Bleszynski Jayich, D. D. Awschalom, J. R. Petta, New Journal of Physics **18**, 083016 (2016).
69. *Scalable gate architecture for a one-dimensional array of semiconductor spin qubits*, D. M. Zajac, T. M. Hazard, X. Mi, E. Nielsen, and J. R. Petta, Physical Review Applied **6**, 054013 (2016).
70. *Strong coupling of a single electron in silicon to a microwave photon*, X. Mi, J. V. Cady, D. M. Zajac, P. W. Deelman, J. R. Petta, Science **355**, 156 (2017).
71. *Circuit quantum electrodynamics architecture for gate-defined quantum dots in silicon*, X. Mi, J. V. Cady, D. M. Zajac, J. Stehlik, L. F. Edge, and J. R. Petta, Applied Physics Letters **110**, 043502 (2017).
72. *Electron spin resonance at the level of 10^4 spins using low impedance superconducting resonators*, C. Eichler, A. J. Sigillito, S. A. Lyon, and J. R. Petta, Physical Review Letters **118**, 037701 (2017).
73. *Atom-by-atom construction of a quantum device*, J. R. Petta, ACS Nano (Article ASAP, 2017).

Pedagogical Lectures:

1. “Quantum control of electron spins,” The 7th Canadian Summer School on Quantum Information, Institute for Quantum Computing, Waterloo, Canada. Three lectures, May 30 – June 1, 2007.

2. "Quantum control of spins in semiconductors," Princeton Condensed Matter Physics Summer School, Princeton, NJ. Three lectures, August 13 – 14, 2007.
3. "Electrical control of single spins in semiconductor quantum dots," Fifth International School and Conference on Spintronics and Quantum Information Technology, Cracow, Poland. July 7, 2009.
4. "Electrical control of single spins in semiconductor quantum dots," The 11th Canadian Summer School on Quantum Information, Jouvence, QB. Four lectures, June 9 – 10, 2011.
5. "Electrical control of single spin coherence in semiconductors," Tutorial at IEEE Intermag 2012, Vancouver, BC. May 7, 2012.
6. "Electrical control of single spin dynamics," International School of Physics "Enrico Fermi," Varenna, Italy. Three lectures, June 25 – 26, 2012.
7. "Big ideas in quantum materials: Quantum control and information," Big Ideas in Quantum Materials, La Jolla, CA. Introductory lecture, December 16, 2015.
8. "Strongly driven semiconductor double quantum dots," 12th Capri Spring School on Transport in Nanostructures, Capri, Italy. Three lectures, April 11 – 14, 2016.
9. "Spin dynamics in quantum dots and quantum wires," ICTP School on Driven Quantum Systems, Bariloche, Argentina. Three lectures, November 24 – 26, 2016.

Colloquia and Seminars:

1. "Applications of giant magnetoresistive sensors in the Free-Flying-Magnetometer," NASA Jet Propulsion Laboratory, Pasadena, CA. March 18, 1998.
2. "Measurements of discrete electronic states in Cu, Ag, and Au nanoparticles," Annual Meeting of the New York Section of the APS, IBM T. J. Watson Research Center, Yorktown Heights, NY. April 6, 2001.
3. "Fabrication of electrodes with nanometer separation using aligned e-beam lithography on the VB6," National Nanofabrication Users Network Workshop on Electron Beam Lithography, Cornell University, Ithaca, NY. January 14, 2002.
4. "Effects of spin-orbit coupling on individual quantum states," NIST, Boulder, CO. December 16, 2002.
5. "Effects of spin-orbit coupling on individual spin-states," APS March Meeting. March 3, 2003.
6. "Effects of spin-orbit coupling on individual quantum states," Stanford Condensed Matter Physics Seminar, Palo Alto, CA. March 13, 2003.
7. "Effects of spin-orbit coupling on individual quantum states," University of California at Santa Barbara iQUEST seminar, Santa Barbara, CA. March 18, 2003.
8. "Effects of spin-orbit coupling on individual quantum states," Yale Applied Physics Special Seminar, New Haven, CT. March 26, 2003.
9. "Charge and spin manipulation in few electron quantum dots," University of Illinois Condensed Matter Physics Seminar, Urbana, IL. December 10, 2004.
10. "On-chip singlet separation and dephasing," SFB Workshop on Quantum Information Processing, Munich, Germany. April 6, 2005.
11. "Charge and spin manipulation in few electron quantum dots," Basel University Condensed Matter Theory Seminar, Basel, Switzerland. April 8, 2005.
12. "Spin relaxation and dephasing in a two-electron double quantum dot," MIT Special Seminar, Cambridge, MA. May 3, 2005.
13. "Spin relaxation and dephasing in a two-electron double quantum dot," EP2DS-16 Conference, Albuquerque, NM. July 14, 2005.

14. "Charge and spin manipulation in few electron double dots," NEC Laboratories Special Seminar, Tsukuba, Japan. July 29, 2005.
15. "Spin relaxation and dephasing in a two-electron double quantum dot," Spintech Conference, Awaji Island, Japan. August 5, 2005.
16. "Coherent manipulation of coupled electron spins," Harvard University Condensed Matter Physics Seminar, Cambridge, MA. October 14, 2005.
17. "Coherent manipulation of coupled electron spins," SUNY Buffalo Physics Colloquium, Buffalo, NY. October 20, 2005.
18. "Coherent manipulation of coupled electron spins," University of Illinois Condensed Matter Physics Seminar, Urbana, IL. October 28, 2005.
19. "Coherent manipulation of coupled electron spins," Princeton University Condensed Matter Physics Seminar, Princeton, NJ. November 3, 2005.
20. "Controlling a singlet-triplet spin qubit," University of Michigan Condensed Matter Physics Seminar, Ann Arbor, MI. December 5, 2005.
21. "Controlling a singlet-triplet spin qubit," Workshop on Interactions and Dynamics in Low Dimensional Quantum Systems, Weizmann Institute of Science, Rehovot, Israel. January 5, 2006.
22. "Quantum control of coupled electron spins," Georgia Institute of Technology Physics Colloquium, Atlanta, GA. January 18, 2006.
23. "Quantum control of coupled electron spins," University of California at Berkeley Special Condensed Matter Physics Seminar, Berkeley, CA. January 24, 2006.
24. "Controlling a singlet-triplet spin qubit," Frontiers in Nanoscale Science and Technology Conference, San Francisco, CA. January 28, 2006.
25. "Quantum control of coupled electron spins," Caltech Physics Colloquium, Pasadena, CA. February 2, 2006.
26. "Quantum control of coupled electron spins," IBM T. J. Watson Research Center, Yorktown Heights, NY. February 6, 2006.
27. "Quantum control of coupled electron spins," International Winterschool on New Developments in Solid State Physics- Charges and Spins in Nanostructures: Basics and Devices. Mauterndorf, Austria. February 14, 2006.
28. "Controlling a singlet-triplet spin qubit," APS March Meeting, Baltimore, MD. March 17, 2006.
29. "Preparing, manipulating and measuring quantum states on a chip," Kavli Institute for Theoretical Physics Spintronics Conference, Santa Barbara, CA. March 20, 2006.
30. "Preparing, manipulating and measuring quantum states on a chip," Canadian National Research Council Seminar, Ottawa, Canada. April 27, 2006.
31. "Preparing, manipulating and measuring quantum states on a chip," Caltech Condensed Matter Physics Seminar, Pasadena, CA. October 27, 2006.
32. "Preparing, manipulating and measuring quantum states on a chip," Hughes Research Laboratory Seminar, Malibu, CA. November 9, 2006.
33. "Preparing, manipulating and measuring quantum states on a chip," University of California at Irvine Physics Colloquium, Irvine, CA. November 30, 2006.
34. "Quantum computing with electron spins," Princeton Institute for the Science and Technology of Materials (PRISM) Symposium, Princeton, NJ. March 19, 2007.
35. "Quantum control of electron spins," Princeton-Texas A&M Symposium on Quantum Mechanics, Informatics and Control, Princeton, NJ. April 7, 2007.

36. "Controlling electron spins and nuclear spins in GaAs double quantum dots," Columbia University Condensed Matter Physics Seminar, New York, NY. April 17, 2007.
37. "Controlling electron spins and nuclear spins in GaAs double quantum dots," Rutgers University Quantum Computing Seminar, New Brunswick, NJ. April 30, 2007.
38. "Electron-nuclear spin coupling in double quantum dots," International Conference on Strong Correlations in Low Dimensional Transport and Dynamics, Montauk Point, NY. September 3, 2007.
39. "Quantum circuits: controlling the quantum dynamics of electron spins," Rutgers University Physics Colloquium, New Brunswick, NJ. September 12, 2007.
40. "Controlling electron spins and nuclear spins in double quantum dots," NEC Workshop on Quantum Computing, Princeton, NJ. September 20, 2007.
41. "Controlling quantum coherence in semiconducting nanostructures," Princeton Center for Theoretical Physics Symposium on Frontiers in Quantum Computation, Princeton, NJ. September 26, 2007.
42. "Controlling quantum coherence in semiconducting nanostructures," Yale University Condensed Matter Physics Seminar, New Haven, CT. October 18, 2007.
43. "Quantum circuits: controlling the quantum dynamics of electron spins," University of Illinois Physics Colloquium, Urbana, IL. November 1, 2007.
44. "Dynamic nuclear polarization with single electron spins," University of Illinois Condensed Matter Physics Seminar, Urbana, IL. November 2, 2007.
45. "Controlling quantum coherence in semiconducting nanostructures," Center for Integrated Nanotechnologies Seminar, Albuquerque, NM. December 17, 2007.
46. "Controlling electron spins and nuclear spins in double quantum dots," National Institute of Standards and Technology Seminar, Gaithersburg, MD. January 28, 2008.
47. "Dynamic nuclear polarization in double quantum dots," University of Wisconsin Herb Seminar, Madison, WI. April 17, 2008.
48. "Quantum Circuits: Controlling the quantum dynamics of electron spins," 8th Southern School on Computational Chemistry and Materials Science, Jackson, MI. April 26, 2008.
49. "Controlling electron and nuclear spins in double quantum dots," Annual Meeting of the APS Division of Atomic, Molecular, and Optical Physics, State College, PA. May 30, 2008.
50. "Dynamic nuclear polarization in double quantum dots," Johns Hopkins University Condensed Matter Physics Seminar, Baltimore, MD. December 3, 2008.
51. "A coherent beam splitter for electronic spin states," University of Delaware Condensed Matter Physics Seminar, Newark, DE. November 17, 2009.
52. "A coherent beam splitter for electronic spin states," University of Pennsylvania Condensed Matter Physics Seminar, Philadelphia, PA. November 19, 2009.
53. "Strong-arming electron spin dynamics," University of California at Los Angeles Physics Colloquium, Los Angeles, CA. January 22, 2010.
54. "Strong-arming electron spin dynamics," Vanderbilt Physics Colloquium, Nashville, TN. February 25, 2010.
55. "A coherent beam splitter for electronic spin states," Joint Quantum Institute Seminar, College Park, MD. April 5, 2010.
56. "Strong-arming electron spin dynamics," Complex Quantum Systems Seminar, University of Texas at Austin, Austin, TX. May 6, 2010.
57. "Landau-Zener interferometry with spin qubits," International Conference on Spin-based Quantum Information Processing, Konstanz, Germany. August 19, 2010.

58. "Strong-arming electron spin dynamics," CNAM Condensed Matter Colloquium, University of Maryland, College Park, MD. December 20, 2010.
59. "Ultra-fast electrical control of single spin dynamics," Princeton University PRISM/MITRE Seminar, Princeton, NJ. February 2, 2011.
60. "Strong-arming electron spin dynamics," Case Western Reserve Condensed Matter Physics Seminar, Cleveland, OH. May 2, 2011.
61. "Strong-arming electron spin dynamics," Physics Colloquium, Princeton University, Princeton, NJ. September 22, 2011.
62. "Strong-arming electron spin dynamics," Physics Colloquium, Rochester University, Rochester, NY. October 12, 2011.
63. "Strong-arming electron spin dynamics," IBM Research Colloquium, IBM Yorktown Heights, Yorktown Heights, NY. October 21, 2011.
64. "Strong-arming electron spin dynamics," Yale Condensed Matter Physics Seminar, Yale University, New Haven, CT. November 10, 2011.
65. "Strong-arming electron spin dynamics," Institute for Quantum Computing Colloquium, University of Waterloo, Waterloo, ON. November 14, 2011.
66. "Strong-arming electron spin dynamics," University of Wisconsin at Madison Physics Colloquium, Madison, WI. December 2, 2011.
67. "Strong-arming electron spin dynamics," University of Konstanz Physics Colloquium, Konstanz, Germany. January 24, 2012.
68. "Hybrid quantum systems: Coupling spin-orbit qubits to superconducting resonators," University of Basel Condensed Matter Physics Seminar, Basel, Switzerland. January 27, 2012.
69. "Electrical control of single spin dynamics," APS March Meeting, Boston, MA. February 29, 2012.
70. "Circuit quantum electrodynamics with a spin-orbit qubit," University of Illinois Condensed Matter Physics Seminar, Urbana, IL. April 27, 2012.
71. "Circuit quantum electrodynamics with a spin qubit," University of British Columbia Condensed Matter Physics Seminar, Vancouver, BC. May 7, 2012.
72. "Strong-arming electron spin dynamics," Dartmouth Physics Colloquium, Hanover, NH. May 25, 2012.
73. "Quantum interconnects for spin qubits," Karles Invitational Conference, Naval Research Laboratory, Washington, DC. August 28, 2012.
74. "Quantum interconnects for spin qubits," MIT Chez Pierre Seminar, Cambridge, MA. September 24, 2012.
75. "Spooky action at a distance: Generating entanglement in quantum dots," University of Pittsburgh Physics Colloquium, Pittsburgh, PA. April 1, 2013.
76. "Entanglement generation via Landau-Zener interferometry," ICTP Workshop on Interferometry and Interactions in Non-equilibrium Meso- and Nano-systems, Trieste, Italy. April 8, 2013.
77. "Photon emission from a cavity-coupled double quantum dot," Canadian Institute for Advanced Research Quantum Cavities Meeting, Montreal, Quebec. May 2, 2013.
78. "Quantum interconnects for spin qubits," 16th Brazilian Workshop on Semiconductor Physics, Itirapina, Brazil. May 5, 2013.
79. "Spooky action at a distance: Generating entanglement in quantum dots," Federal University of Rio de Janeiro Physics Colloquium, Rio de Janeiro, Brazil. May 10, 2013.

80. "Quantum interconnects for spin qubits," Canadian Institute for Advanced Research Quantum Information Processing Meeting, Edmonton, Alberta. June 12, 2013.
81. "Quantum interconnects for spin qubits," Integrated Quantum Information Technology Meeting, Corfu, Greece. September 25, 2013.
82. "Quantum interconnects for spin qubits," University of New South Wales Seminar, Sydney, Australia. October 28, 2013.
83. "Quantum interconnects for spin qubits," University of Melbourne Seminar, Melbourne, Australia. October 30, 2013.
84. "Quantum interconnects for spin qubits," University of Brisbane Seminar, Brisbane, Australia. October 31, 2013.
85. "Spooky action at a distance: Generating entanglement in quantum dots," University of New South Wales Physics Colloquium, Sydney, Australia. November 1, 2013.
86. "Cavity quantum electrodynamics with quantum dots," Buffalo University Condensed Matter Physics Seminar, Buffalo, NY. November 17, 2013.
87. "Cavity quantum electrodynamics with quantum dots," National Taiwan University Condensed Matter Physics Seminar, Taipei, Taiwan. December 2, 2013.
88. "Cavity quantum electrodynamics with quantum dots," National Cheng Kung University Condensed Matter Physics Seminar, Tainan, Taiwan. December 4, 2013.
89. "Spooky action at a distance: Generating entanglement in quantum dot circuits," University of Toronto Physics Colloquium, Toronto, Canada. January 16, 2014.
90. "Cavity quantum electrodynamics with quantum dots," University of Toronto Condensed Matter Physics Seminar, Toronto, Canada. January 17, 2014.
91. "Hybrid circuit QED with double quantum dots," APS March Meeting, Denver, CO. March 5, 2014.
92. "Single charge relaxation in a silicon double quantum dot," German Physical Society Meeting, Dresden, Germany. March 30, 2014.
93. "Entanglement generation via Landau-Zener interferometry," Third Workshop in Adiabatic Quantum Computing, University of Southern California, Los Angeles, CA. June 11, 2014.
94. "Electrical preparation, control, and readout of single spins in semiconductor nanowires," Rocky Mountain Conference on Magnetic Resonance, Copper Mountain, CO. July 14, 2014.
95. "Quantum dot micromaser driven by single electron tunneling," Caltech Physics Colloquium, Pasadena, CA. November 13, 2014.
96. "Quantum dot micromaser driven by single electron tunneling," Sandia National Laboratory SEQUIS Lecture Series, Albuquerque, NM. November 20, 2014.
97. "Two-atom masers," University of California at Santa Barbara Physics Colloquium, Santa Barbara, CA. December 9, 2014.
98. "Few-atom masers," Stanford Condensed Matter Physics Seminar, Palo Alto, CA. January 15, 2015.
99. "Disruptive technologies for semiconductor spin qubits," IARPA Multi-Qubit Coherent Operations Technical Exchange Meeting, New York City, NY. February 6, 2015.
100. "Fully reconfigurable gate architecture for Si/SiGe spin qubits," 17th Annual Southwest Quantum Information and Technology Workshop, Berkeley, CA. February 19, 2015.
101. "Landau-Zener interferometry of coupled quantum systems," University of California at Santa Barbara Condensed Matter/Terahertz Seminar, Santa Barbara, CA. April 16, 2015.
102. "Photoemission and masing in a cavity-coupled semiconductor double quantum dot," 46th Annual DAMOP Meeting, Columbus, OH. June 6, 2015.

103. "Maser action in cavity-coupled semiconductor double quantum dots," Charge Transfer Meets Circuit Quantum Electrodynamics, Max Planck Institute for the Physics of Complex Systems, Dresden, Germany. June 28, 2015.
104. "Reconfigurable gate architecture for Si/SiGe quantum dots," Beyond Exascale: Qubits for Quantum Computing Workshop, Oak Ridge National Laboratory, Oak Ridge, TN. August 21, 2015.
105. "Probing light-matter interactions at the level of single photons and electrons," APS March Meeting, Baltimore, MD. March 17, 2016.
106. "Quantum photonics with single-electron devices," Frontiers in Quantum Materials and Devices Workshop, Saitama, Japan. June 13, 2016.
107. "Silicon-based quantum electronics," Oak Ridge National Laboratory, Oak Ridge, TN. June 28, 2016.
108. "Photoemission and masing in cavity-coupled semiconductor double quantum dots," 33rd International Conference on the Physics of Semiconductors, Beijing, China. August 2, 2016.
109. "Isotopically enriched materials for quantum computing," Symposium on Quantum Materials, New York, NY. August 31, 2016.
110. "Generating microwave frequency photons with semiconductor double quantum dots," Rutgers University Laboratory for Surface Modification Seminar, New Brunswick, NJ. October 13, 2016.
111. "Quantum optics with semiconductor quantum dots," Physics Colloquium, Rochester University, Rochester, NY. November 2, 2016.
112. "Circuit quantum electrodynamics with silicon quantum dots," Workshop on Driven Quantum Systems, Bariloche, Argentina. November 28, 2016.
113. "Strong coupling of a single electron in silicon to a microwave photon," Princeton – Ecole Normale Supérieure workshop: Experimental realizations of topological phases, Paris, France, January 30, 2017.
114. "Scalable gate architecture for a one-dimensional array of semiconductor spin qubits," Heraeus-Seminar on 'Scalable Architectures for Quantum Simulation,' Bad Honnef, Germany, February 1, 2017.
115. "Sisyphus pumping of a single electron," Physics Colloquium, Pennsylvania State University, State College, PA. February 23, 2017.