JACOB M. TAYLOR

CONTACT INFORMATION

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ACADEMIC HISTORY

Joint Center for Quantum Information and Computer Science 2014–present
Co-Director and QuICS Fellow

Joint Quantum Institute/National Institute of Standards and Technology 2009–present
Physicist and JQI Fellow;
Adjunct at the University of Maryland, College Park

Research Center for Advanced Science and Technology, University of Tokyo 2014–present
RCAST Fellow

Isaac Newton Institute, Cambridge University 2014
Visiting Fellow

Massachusetts Institute of Technology 2006-2009
Pappalardo Fellow

Harvard University, Department of Physics 2001-2006
PhD (advisor: M. D. Lukin; committee: C. M. Marcus, B. I. Halperin)

University of Tokyo, Astronomy Department 2000-2001
Luce Scholar

Harvard University 1996-2000
AB in Astronomy & Astrophysics and Physics, *summa cum laude*, Phi Beta Kappa

FELLOWSHIPS AND HONORS

- IUPAP C15 Young Scientist award, 2014
- Department of Commerce Silver Medal, 2014
- Samuel J. Heyman Service to America Medal: Call to Service, 2012
- NIST Sigma Xi Young Scientist Award, 2012
- Presidential Early Career Award for Science and Engineering, 2010
- Newcomb Cleveland Prize of the AAAS, 2006
- Luce Scholar (University of Tokyo, Astronomy Department), 2000–2001

PHD STUDENTS GRADUATED

Prabin Adhikari (2014), Haitan Xu (2014), Dvir Kafri (2015), Xunnong Xu (2016).

TEACHING EXPERIENCE

- Physics 720 (cross listed in Electrical Engineering, ENEE 798M for Spring 2016), "Quantum technology" (University of Maryland, College Park, Spring 2016, Spring 2017): an introductory course for graduate students and advanced undergraduates introducing quantum bits, quantum communication, quantum computation, and quantum-limited metrology, with a focus on understanding current approaches for building devices that function with the advantages quantum mechanics can provide.
- Physics 828, "The physics of quantum information" (University of Maryland, College Park, Spring 2012): an advanced graduate student class covering principles and practices in quantum information science, from quantum cryptography, algorithms, and error correction, to the physics of specific hardware implementations.
- Physics 721, "Atomic physics: from cold atoms to quantum information" (University of Maryland, College Park, Fall 2009, Fall 2010): an advanced graduate student class covering modern topics in atomic physics as applied to quantum phenomenon and quantum information science.
- Short course on "Quantum Technology" (University of Tokyo, 2nd quarter 2016): six week, twelve lecture class on magnetometry, optomechanics, qubits in solid-state systems, and quantum architectures.
- Fudan atomic and optical physics summer school (Shanghai, China, 2016)
- Cambridge Quantum Winter School (Oxford, UK, 2015).
- Princeton Summer School for Condensed Matter Theory (Princeton, NJ, 2012).
- Taitung Winter School on Quantum Information (Taitung, Taiwan, January 2008).

ACADEMIC SERVICE

- Reviewer for the Ann. der Physik, European Journal of Physics D, Europhysics Letters, EPSERC, National Science Foundation, Nature, Nature Communications, Nature Nanotechnology, Nature Photonics, Nature Physics, New Journal of Physics, Optics Communications, Physical Review Letters, Physical Review A, Physical Review B, Quantum Information and Computation, Science, and Science Reports.
- Panel work for national and international grant programs, details confidential
- Organizer for Quantum Error Correction 2017, College Park, MD (Fall 2017)
- Organizer for QCrypt 2016, College Park, MD (Fall 2016)
- Organizer for Frontiers in Quantum Information, College Park, MD (Fall 2015)
- Organizer for the ICAP 2014 summer school, Williamsburg, VA (Summer 2014)
- Organizer for Symposium on Quantum Information and Computer Science at the JQI, College Park, MD (Spring 2014).
- Organizer for OSA Incubator on Topological Light at the OSA, Washington, DC (Spring 2014).
- Organizing committee for IQEC/CLEO Pacific Rim 2011.
- Organized workshop on "Quantum information, quantum complexity, and post-quantum information security" at the JQI, College Park, MD (Oct 2010).

PUBLICATION LIST FOR J. M. TAYLOR

1. "High-Order Multipole Radiation from Quantum Hall States in Dirac Materials," Michael J. Gullans, Jacob M. Taylor, Atac Imamoglu, Pouyan Ghaemi, Mohammad Hafezi, arXiv:1701.03464.

2. "Optomechanically-induced chiral transport of phonons in one dimension" Xunnong Xu, Jacob M. Taylor, arXiv:1701.026990

3. "A quasi-mode theory of chiral phonons", Xunnong Xu, Seunghwi Kim, Gaurav Bahl, Jacob M. Taylor, arXiv:1612.09240

4. "Quantum-enhanced machine learning", Vedran Dunjko, Jacob M. Taylor, Hans J. Briegel, Phys. Rev. Lett. 117, 130501 (2016)

5. "Figures of merit for quantum transducers", Emil Zeuthen, Albert Schliesser, Anders S. Srensen, Jacob M. Taylor, arXiv:1610.01099

6. "Dynamically induced robust phonon transport and chiral cooling in an optomechanical system", Seunghwi Kim, Xunnong Xu, Jacob M. Taylor, and Gaurav Bahl, submitted Nature Communications, arxiv:1609.08674 (2016).

7. "Cooling a harmonic oscillator by optomechanical modification of its bath" Xunnong Xu, Thomas Purdy, Jacob M. Taylor, arXiv:1608.05717.

8. "Double Quantum Dot Floquet Gain Medium" J. Stehlik, Y.-Y. Liu, C. Eichler, T. R. Hartke, X. Mi, M. J. Gullans, J. M. Taylor, J. R. Petta, arXiv:1607.08229.

9. "Valley blockade in a silicon double quantum dot", Justin K. Perron, Michael J. Gullans, Jacob M. Taylor, M. D. Stewart, Jr., Neil M. Zimmerman, arXiv:1607.06107.

10. "A Landauer formulation of photon transport in driven systems", Chiao-Hsuan Wang, J. M. Taylor, arXiv:1605.08715.

11. "Quantum Correlations from a Room Temperature Optomechanical Cavity", T. P. Purdy, K. E. Grutter, K. Srinivasan, J. M. Taylor, arXiv:1605.05664.

12. V. Srinivasa, J. M. Taylor, C. Tahan "Entangling distant resonant exchange qubits via circuit quantum electrodynamics", arXiv:1603.04829

13. Stephen Ragole, Jacob M. Taylor, "Interacting atomic interferometry for rotation sensing approaching the Heisenberg Limit", arXiv:1601.02549

14. "Sisyphus Thermalization of Photons in a Double Quantum Dot", M. J. Gullans, J. Stehlik, Y.-Y. Liu, C. Eichler, J. R. Petta, J. M. Taylor, Phys. Rev. Lett., 117, 056801 (2016).

15. "Observation of optomechanical buckling phase transitions", H. Xu, U. Kemiktarak, J. Fan, S. Ragole, J. Lawall, J. M. Taylor, arXiv:1510.04971.

16. "Serialized Quantum Error Correction Protocol for High-Bandwidth Quantum Repeaters", Andrew N. Glaudell, Edo Waks, Jacob M. Taylor, arXiv:1508.05966 (accepted New Journal of Physics).

17. "Injection Locking of a Semiconductor Double Quantum Dot Micromaser", Y.-Y. Liu, J. Stehlik, M. J. Gullans, J. M. Taylor, J. R. Petta, Phys. Rev. A 92, 053802 (2015).

18. “A Quantum Model for an Entropic Spring”, Chiao-Hsuan Wang, Jacob M. Taylor, Phys. Rev. B 93, 214102 (2016).

19. “Framework for learning agents in quantum environments”, Vedran Dunjko, Jacob M. Taylor, Hans J. Briegel, arXiv:1507.08482 (accepted PRL).

20. “Optical Control of Donor Spin Qubits in Silicon”, M. J. Gullans, J. M. Taylor, Phys. Rev. B 92, 195411 (2015).

21. “Dynamics of an Ion Coupled to a Parametric Superconducting Circuit”, Dvir Kafri, Prabin Adhikari, Jacob M. Taylor, Phys. Rev. A 93, 013412 (2016).

22. “Distinguishing Quantum and Classical Many-Body Systems”, Dvir Kafri, Jacob Taylor, arXiv:1504.01187.

23. “Phonon-Assisted Gain in a Semiconductor Double Quantum Dot Maser”, M. J. Gullans, Y.-Y. Liu, J. Stehlik, J. R. Petta, J. M. Taylor, *Phys. Rev. Lett.* 114 (2015) 196802.

24. “Optomechanical reference accelerometer” O. Gerberding, F. Guzman-Cervantes, J. Melcher, J. Pratt, and J. M. Taylor, Metrologia 52 (2015) 654.

25. “Semiconductor double quantum dot micromaser”, Y. Y. Liu, J. Stehlik, C. Eichler, M. J. Gullans, J. M. Taylor, J. R. Petta *Science* 347 (2015), 285-287

26. “Capacitively coupled singlet-triplet qubits in the double charge resonant regime”, V. Srinivasa, J. M. Taylor, Phys. Rev. B 92, 235301 (2015).

27. “Environment-assisted quantum control of a solid-state spin via coherent dark states” Jack Hansom, Carsten H. H. Schulte, Claire Le Gall, Clemens Matthiesen, Edmund Clarke, Maxime Hugues, Jacob M. Taylor, Mete Atatüre, *Nature Phys.* 10 (2014), 725.

28. “From membrane-in-the-middle to mirror-in-the-middle with a high-reflectivity sub-wavelength grating” Corey Stambaugh, Haitan Xu, Utku Kemiktarak, Jacob Taylor, John Lawall, *Ann. der Physik* 527 (2014) 81

29. “Scanning localized magnetic fields in a microfluidic device using single spin in a nano-diamond” Kangmook Lim, Chad Ropp, Benjamin Shapiro, Jacob M. Taylor, Edo Waks, *Nano Lett.* 15 (2015) 1481

30. “A chemical potential for light” M. Hafezi, P. Adhikari, J. M. Taylor, Phys. Rev. B 92, 174305 (2015)

31. “Quantum Nonlinear Optics Near Optomechanical Instabilities” Xunnong Xu, Michael Gullans, Jacob M. Taylor, *Phys. Rev. A* 91, (2015) 013818

32. “Bounds on quantum communication via Newtonian gravity” D. Kafri, G. J. Milburn, J. M. Taylor, *New J. Phys.* 17 (2015) 015006

33. “Topologically Robust Transport of Photons in a Synthetic Gauge Field,” S. Mittal, J. Fan, F. Saez, A. Migdall, J. M. Taylor, M. Hafezi *Phys. Rev. Lett.* 113 (2014) 087403

34. “Photon Emission from a Cavity-Coupled Double Quantum Dot,” Y.-Y. Liu, K. D. Petersson, J. Stehlik, J. M. Taylor, J. R. Petta *Phys. Rev. Lett.* 113, (2014) 036801

35. “A classical channel model for gravitational decoherence,” D. Kafri, J.M. Taylor, G. J. Milburn *New J. Phys.* 16 (2014) 065020

36. "Tunable Spin Qubit Coupling Mediated by a Multi-Electron Quantum Dot," V. Srinivasa, H. Xu, J. M. Taylor, *Phys. Rev. Lett.* 114 (2015) 226803.

37. "Ultra-sensitive chip-based photonic thermometry using ring resonator structures", H. Xu, M. Hafezi, J. Fan, J. Taylor , G. Strouse, Z. Ahmed *Optics Express* 22 (2014) 3098

38. "A noise inequality for falsifying classical gravity", D. Kafri and J. M. Taylor, arXiv:1311.4558

39. "A single photon transistor based on superconducting systems" Marco T. Manzoni, Florentin Reiter, Jacob Taylor, Anders S. Sørensen, *Phys. Rev. B* 89 (2014) 180502.

40. "Trapping atoms using nanoscale quantum vacuum forces" D. E. Chang, K. Sinha, J. M. Taylor, H. J. Kimble, *Nat. Comm.* 5 (2014) 4343

41. "Engineering three-body interaction and Pfaffian states in circuit QED systems," Mohammad Hafezi, Prabin Adhikari, J. M. Taylor, *Phys. Rev. B.* 90 (2013) 060503R

42. "Optical detection of radio waves through a nanomechanical transducer," T. Bagci, A. Simonsen, S. Schmid, L. G. Villanueva, E. Zeuthen, J. Appel, J. M. Taylor, A. Sørensen, K. Usami, A. Schliesser, E. S. Polzik, *Nature* 507 (2014) 81-85

43. "Graphene on silicon nitride for optoelectromechanical micromembrane resonators," Silvan Schmid, Tolga Bagci, Emil Zeuthen, Jacob M. Taylor, Patrick K. Herring, Maja C. Cassidy, Charles M. Marcus, Luis Guillermo Villanueva, Bartolo Amato, Anja Boisen, Yong Cheol Shin, Jing Kong, Anders S. Sørensen, Koji Usami, Eugene S. Polzik, *J. Appl. Phys.* 115 (2014) 054513

44. "The Resonant Exchange Qubit," J. Medford, J. Beil, J. M. Taylor, E. I. Rashba, H. Lu, A. C. Gossard, C. M. Marcus, *Phys. Rev. Lett.* **111** (2013) 050501

45. "Electrically-protected resonant exchange qubits in triple quantum dots," J. M. Taylor, V. Srinivasa, J. Medford, *Phys. Rev. Lett.* **111** (2013) 050502

46. "Beating the standard quantum limit for force sensing with a coupled two-mode optomechanical system" X. Xu, J. M. Taylor, *Phys. Rev. A* 90 (2014) 043848

47. "Simultaneous Spin-Charge Relaxation in Double Quantum Dots", V. Srinivasa, K. C. Nowack, M. Shafiei, L. M. K. Vandersypen, J. M. Taylor, *Phys. Rev. Lett.* **110** (2013) 196803

48. "Self-Consistent Measurement and State Tomography of an Exchange-Only Spin Qubit", J. Medford, J. Beil, J. M. Taylor, S. D. Bartlett, A. C. Doherty, E. I. Rashba, D. P. DiVincenzo, H. Lu, A. C. Gossard, C. M. Marcus, *Nature Nano.* **8** (2013) 654

49. "Non-equilibrium Fractional Quantum Hall state of light", M. Hafezi, M. D. Lukin, and J. M. Taylor, *New J. Phys.* **15** (2013) 063001

50. "Preparation of Non-equilibrium Nuclear Spin States in Double Quantum Dots", M. Gullans, J. J. Krich, J. M. Taylor, B. I. Halperin, and M. D. Lukin, *Phys. Rev. B* **88** (2013) 035309

51. "Imaging topological edge states in silicon photonics", M. Hafezi, J. Fan, A. Migdall, and J. M. Taylor, *Nature Photonics* 7 (2013) 1001

52. "High sensitivity optomechanical reference accelerometer over 10 kHz" F. Guzman-Cervantes, L. Kumanchik, J. Pratt, and J. M. Taylor, *App. Phys. Lett.* 104 (2014) 221111

53. "Nonlinear Optics Quantum Computing with Circuit QED", Prabin Adhikari, Mohammad Hafezi, and J. M. Taylor, *Phys. Rev. Lett.* **110** (2013) 060503.

54. "Algorithmic Cooling of a Quantum Simulator", Dvir Kafri, J. M. Taylor arXiv:1207.7111

55. "The equilibrium states of open quantum systems in the strong coupling regime" Y. Subasi, C. H. Fleming, J. M. Taylor, and B. L. Hu, *Phys. Rev. E* **86** (2012) 061132.

56. "Circuit Quantum Electrodynamics with a Spin Qubit" K. D. Petersson, L. W. McFaul, M. D. Schroer, M. Jung, J. M. Taylor, A. A. Houck, and J. R. Petta, *Nature* **490** (2012) 380–383.

57. "Quantum interface between an electrical circuit and a single atom", D. Kielpinski, D. Kafri, M. Woolley, G. Milburn, and J. M. Taylor, *Phys. Rev. Lett.* **108** (2012) 130504.

58. "An atomic interface between microwave and optical photons", M. Hafezi, Z. Kim, S. L. Rolston, L. A. Orozco, B. L. Lev., and J. M. Taylor, *Phys. Rev. A* **85** (2012) 020302R.

59. "Laser cooling and optical detection of excitations in a LC electrical circuit", J. M. Taylor, A. S. Sørensen, C. M. Marcus, and E. S. Polzik, *Phys. Rev. Lett.* **107** (2011) 273601.

60. "Thin-film Superconducting Resonator Tunable to the Ground-state Hyperfine Splitting of 87Rb", Z. Kim, C. P. Vlahacos, J. E. Hoffman, J. A. Grover, K. D. Voigt, B. K. Cooper, C. J. Ballard, B. S. Palmer, M. Hafezi, J. M. Taylor, J. R. Anderson, A. J. Dragt, C. J. Lobb, L. A. Orozco, S. L. Rolston, and F. C. Wellstood, *AIP Advances* **1** (2011) 042107.

61. "Atoms talking to squids," J.E. Hoffman, J. A. Grover, Z. Kim, A.K. Wood, J.R. Anderson, A.J. Dragt, M.Hafezi, C.J. Lobb, L.A. Orozco, S.L. Rolston, J. M. Taylor, C. P. Vlahacos, and F.C. Wellstood, *Revista Mexicana de Fisica S* **57** (2011) 1.

62. "Developing a robust approach to implementing non-Abelian anyons and topological quantum computing in a modified Kitaev honeycomb lattice model," Haitan Xu, J. M. Taylor arxiv:1104.0024.

63. "Robust optical delay lines via topological protection" Mohammad Hafezi, Eugene Demler, Mikhail Lukin, J. M. Taylor, *Nature Physics* **7** (2011) 907.

64. "A nanometer-scale optical electrometer" A. N. Vamivakas, Y. Zhao, S. Fält, A. Badolato, J. M. Taylor, M. Atature, *Phys. Rev. Lett.* **107** (2011) 166802.

65. "Fast and robust quantum computation with ionic Wigner crystals" J. D. Baltrusch, A. Negretti, J. M. Taylor, T. Calarco, *Phys. Rev. A* **83** (2011) 042319.

66. "Coupling molecular spin states by photon-assisted tunneling" L. R. Schreiber, F. R. Braakman, T. Meunier, V. Calado, J. Danon, J. M. Taylor, W. Wegscheider, L. M. K. Vandersypen, *Nature Communications* **2** (2011) 556

67. "Interferometry with Synthetic Gauge Fields" Brandon M. Anderson, Jacob M. Taylor, Victor M. Galitski, *Phys. Rev. A* **83** (2011) 031602(R).

68. "Coherent spin manipulation in an exchange-only qubit" E. A. Laird, J. M. Taylor, D. P. DiVincenzo, C. M. Marcus, M. P. Hanson, A. C. Gossard *Phys. Rev. B* **82** (2010) 075403.

69. "Unification of universal and non-universal topological quantum computation" Haitan Xu, J. M. Taylor, *Phys. Rev. A* **84** (2011) 012332.

70. “Coupling Nitrogen Vacancy Centers in Diamond to Superconducting Flux Qubits” D. Marcos, M. Wubs, J. M. Taylor, R. Aguado, M. D. Lukin, A. S. Sorensen *Phys. Rev. Lett.* **105** (2010) 210501.

71. “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, and A. C. Gossard *Phys. Rev. Lett.* 104 (2010) 236802.

72. “Dynamic Nuclear Polarization in Double Quantum Dots” M. Gullans, J. J. Krich, J. M. Taylor, H. Bluhm, B. I. Halperin, C. M. Marcus, M. Stopa, A. Yacoby, and M. D. Lukin *Phys. Rev. Lett.* **104** (2010) 226807.

73. “Scalable Quantum Networks based on Few-Qubit Registers” L. Jiang, J. M. Taylor, A. S. Sørensen, M. D. Lukin, *Int. J. Quantum Info.* **8** (2010) 93–104.

74. “Repetitive Readout of a Single Electronic Spin via Quantum Logic with Nuclear Spin Ancillae” L. Jiang, J. S. Hodges, J. R. Maze, P. Mauer, J. M. Taylor, D. G. Cory, P. R. Hemmer, R. L. Walsworth, A. Yacoby, A. S. Zibrov, M. D. Lukin , *Science* **326** (2009) 267.

75. “Qubit protection in nuclear-spin quantum dot memories” Z. Kurucz, M. W. Sørensen, J. M. Taylor, M. D. Lukin, M. Fleischhauer *Phys. Rev. Lett.* **103** (2009) 010502.

76. “Atomic Three-Body Loss as a Dynamical Three-Body Interaction” A. J. Daley, J. M. Taylor, S. Diehl, M. Baranov, and P. Zoller *Phys. Rev. Lett.* **102** (2009) p. 040402.

77. “Quantum Repeater with Encoding” Liang Jiang, Jacob M. Taylor, Kae Nemoto, William J. Munro, Rodney Van Meter, Mikhail D. Lukin *Phys. Rev. A* **79** (2009) 032325.

78. “Electron spin decoherence of single nitrogen-vacancy defects in diamond” J. R. Maze, J. M. Taylor, and M. D. Lukin *Phys. Rev. B* **78** (2008) 094303.

79. “Nanoscale magnetic sensing with an individual electronic spin in diamond” J. R. Maze, P. L. Stanwix, J. S. Hodges, S. Hong, J. M. Taylor, P. Cappellaro, L. Jiang, M. V. Gurudev Dutt, E. Togan, A. S. Zibrov, A. Yacoby, R. L. Walsworth, M. D. Lukin *Nature* **455** (2008), pp. 644-647.

80. “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** (2008), p. 718.

81. “Coherence of an Optically Illuminated Single Nuclear Spin Qubit,” L. Jiang, M. V. Gurudev Dutt, E. Togan, L. Childress, P. Cappellaro, J. M. Taylor, and M. D. Lukin, *Phys. Rev. Lett.* **100** (2008) 073001.

82. “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, and A. C. Gossard, *Phys. Rev. Lett.* **101** (2008) p. 236803.

83. “High-Sensitivity Diamond Magnetometer with Nanoscale Resolution,” J. M. Taylor, P. Cappellaro, L. Childress, L. Jiang, D. Budker, P. R. Hemmer, A. Yacoby, R. Walsworth, M. D. Lukin *Nat. Phys.* **4** (2008) pp. 810–816.

84. “Wigner crystals of ions as quantum hard drives” J. M. Taylor and T. Calarco *Phys. Rev. A* **78** (2008) 062331.

85. “A quantum dot implementation of the quantum NAND algorithm,” J. M. Taylor (arxiv:0708.1484).

86. “Distributed Quantum Computation Based-on Small Quantum Registers” Liang Jiang, Jacob M. Taylor, Anders S. Sørensen, Mikhail D. Lukin *Phys. Rev. A* **76** (2007) 062323.

87. "Optimal Approach to Quantum Communication Using Dynamic Programming," L. Jiang, J. M. Taylor, N. Khaneja, and M. D. Lukin, *Proc. Nat. Ac. Sci.* **104** (2007) pp. 17291–6.

88. "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, and A. C. Gossard, *Phys. Rev. Lett.* **100** (2008) p. 067601

89. "Fast and robust approach to long-distance quantum communication with atomic ensembles" L. Jiang, J. M. Taylor, and M. D. Lukin *Phys. Rev. A* **76** (2007) 012301.

90. "Coherent optical manipulation of triplet-singlet states in coupled quantum dots" H. E. Tureci, J. M. Taylor, and A. Imamoglu *Phys. Rev. B* **75** (2007) 235313.

91. "Spin-Photon Entangling Diode," C. Flindt, A. Sørensen, M. D. Lukin, and J. M. Taylor, *Phys. Rev. Lett.* **98** (2007) p. 240501.

92. "Coherent Dynamics of Coupled Electron and Nuclear Spin Qubits in Diamond," L. Childress, M.V. Gurudev Dutt, J.M. Taylor, A.S. Zibrov, F. Jelezko, J. Wrachtrup, P.R. Hemmer, M.D. Lukin, *Science* **314** (2006) 281–5.

93. "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, and M. D. Lukin, *Phys. Rev. B* **76** (2007) 035315.

94. "Cavity quantum electrodynamics with semiconductor double-dot molecules on a chip," J. M. Taylor, M. D. Lukin (cond-mat/0605144).

95. "Fault-tolerant Quantum Communication Based on Solid-state Photon Emitters," L. I. Childress, J. M. Taylor, A. S. Sorensen, and M. D. Lukin, *Phys. Rev. Lett.* **97** (2006) pp. 070504-1–4.

96. "Long-lived memory for electronic spin in a quantum dot: Numerical analysis" V. V. Dobrovitski, J. M. Taylor, M. D. Lukin *Phys. Rev. B* **73** (2006) 245318.

97. "Dephasing of quantum bits by a quasi-static mesoscopic environment" J. M. Taylor and M. D. Lukin *Quan. Info. Processing* **5** (2006) 503-536.

98. "Quantum control of electron and nuclear spin qubits in the solid-state", Dutt, M. V. Gurudev; Childress, L.; Togan, E.; Taylor, J. M., Jiang, L., Zibrov, A. S., Hemmer, P. R., Jelezko, F., Wrachtrup, J., Lukin, M. D., *Atomic Physics 20* **869** (2006) pp. 119–127.

99. "Quantum measurement of a mesoscopic spin ensemble" G. Giedke, J. M. Taylor, D. D'Alessandro, M. D. Lukin, A. Imamoglu *Phys. Rev. A* **74** (2006) 032316.

100. "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, and A. C. Gossard, *Physica E* **35** (2006) 251-256.

101. "Charge and spin manipulation in a few-electron double dot J. R. Petta, A. C. Johnson, J. M. Taylor, E. A. Laird, A. Yacoby, M. D. Lukin, C. M. Marcus, M. P. Hanson, and A. C. Gossard, *Physica E* **34** (2006) 42-46.

102. "Fault-tolerant Architecture for Quantum Computation Using Electrically Controlled Semiconductor Spins," J. M. Taylor, H.-A. Engel, W. Dür, P. Zoller, A. Yacoby, C. M. Marcus, and M. D. Lukin, *Nature Physics* **1** (2005) pp. 177–83.

103. "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, and A. C. Gossard, *Science* **309** (2005) pp. 2180–4.

104. "Solid-state Circuit for Spin Entanglement Generation and Purification," J. M. Taylor, W. Dür, P. Zoller, A. Yacoby, C. M. Marcus, and M. D. Lukin, *Phys. Rev. Lett.* **94** (2005) pp. 236803-1–4. Also appears in the *Virtual Journal of Nanoscale Science & Technology*, **11**, 25 (2005) and the *Virtual Journal of Quantum Information*, **5**, 6 (2005).

105. "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, and A. C. Gossard, *Nature* **435** (2005) pp. 925–7.

106. "Fault-tolerant quantum repeaters with minimal physical resources and implementations based on single-photon emitters" L. Childress, J. M. Taylor, A. S. Sorensen, M. D. Lukin *Phys. Rev. A* **72** (2005) 052330.

107. "Quantum information processing using localized ensembles of nuclear spins" J. M. Taylor, G. Giedke, H. Christ, B. Paredes, J. I. Cirac, P. Zoller, M. D. Lukin, A. Imamoglu (arXiv:cond-mat/0407640) (2004).

108. "Tunable Nonlocal Spin Control in a Coupled-Quantum Dot System," N. J. Craig, J. M. Taylor, E. A. Lester, C. M. Marcus, M. P. Hanson, and A. C. Gossard, *Science* **304** (2004) pp. 565–567.

109. "Controlling a Mesoscopic Spin Environment by Quantum Bit Manipulation," J. M. Taylor, A. Imamoglu, and M. D. Lukin, *Phys. Rev. Lett.* **91** (2003) pp. 246802–5.

110. "Long-Lived Memory for Mesoscopic Quantum Bits," J. M. Taylor, C. M. Marcus, and M. D. Lukin, *Phys. Rev. Lett.* **90** (2003) pp. 206803–6. Also appears in the *Virtual Journal of Nanoscale Science & Technology*, **8**, 25 (2003).

111. "GSC 3948-1963: a New Short Period δ Scuti Variable," M. A. Stark and J. M. Taylor, *IAU IBVS* **5247** (2002) pp. 1–3.

112. "Helium White Dwarfs and BY Draconis Binaries in the Globular Cluster NGC 6397," J. M. Taylor, J. E. Grindlay, P. D. Edmonds, A. M. Cool, *Astrophysical Journal* **553** (2001) pp. L169–2.

113. "Dipole Polarizability of the Hydrogen Molecular Ion," J. M. Taylor, A. Dalgarno, and J. F. Babb, *Phys. Rev. A* **60** (1999) pp. R2630–2.

114. "Variational Calculations on the Hydrogen Molecular Ion," J. M. Taylor, Z.-C. Yan, A. Dalgarno, and J. F. Babb, *Molec. Phys.* **97** (1999) pp. 25-33.

CONF. PROCEEDINGS (REFEREED)

1. T. P. Purdy, K. E. Grutter, K. A. Srinivasan, N. N. Klimov, Z. Ahmed, J. M. Taylor, "Thermometry with optomechanical cavities", CLEO 2016, DOI:10.1364/CLEO_SI.2016.STh1H.2

2. Y. Bao, F. Guzman-Cervantes, A. K. Balijepalli, J. R. Lawall, J. M. Taylor, T. W. LeBrun, J. J. Gorman, "An optomechanical accelerometer with a high-finesse hemispherical optical cavity", IEEE International Symposium on Inertial Sensors and Systems, DOI:10.1109/ISISS.2016.7435556

3. "Optomechanical motion sensors", Felipe Guzman Cervantes, Oliver Gerberding, John Melcher, Julian Stirling, Jon R. Pratt, Gordon A. Shaw, and Jacob M. Taylor. American Society of Precision Engineering, Conference on Precision Interferometry, 2015.

4. “MEMS optomechanical accelerometry standards”, Felipe Guzman Cervantes, Yiliang Bao, Jason J. Gorman, John R. Lawall, Jacob M. Taylor, Thomas W. LeBrun. American Society of Precision Engineering, Conference on Precision Interferometry, 2015.

5. “Optomechanics with high-contrast gratings”, Utku Kemiktarak, Corey Stambaugh, Haitan Xu, Jacob Taylor and John Lawall, Proc. SPIE 8995, High Contrast Metastructures III, 89950P (February 19, 2014) http://dx.doi.org/10.1117/12.2044712

6. J. R. Maze, P. Cappellaro, L. Childress, M.V. G. Dutt, J. S. Hodges, S. Hong, L. Jiang, P. L. Stanwix, J. M. Taylor, E. Togan, A.S. Zibrov, P. Hemmer, A. Yacoby, R. L. Walsworth, M. D. Lukin, “Nanoscale magnetic sensing using spin qubits in diamond”, Advanced Optical Concepts in Quantum Computing, Memory, and Communication II, edited by Zameer U. Hasan, Alan E. Craig, Philip R. Hemmer, Proc. of SPIE Vol. 7225, 722509 (2009) doi: 10.1117/12.813802

7. “Self-organization in Peer-to-Peer Systems,” J. Ledlie, J. M. Taylor, L. Serban, and M. Seltzer, *Proc. 10th ACM SIGOPS European Workshop*, Saint-Emillion, France (2002).

8. “Differential Photometry with the GNAT 0.9 m Prototype,” J. M. Taylor, E. F. Crane, and M. Giampapa, *ASP Conf. Series* **189** (1999) 238.

BOOK CHAPTERS

1. “Architectures”, J. M. Taylor, in *Quantum Error Correction*, Ed. Daniel A. Lidar, Todd A. Brun, Cambridge Univ. Press (2013).

2. “Quantum metrology and simulation”, J. M. Taylor, in *Proc. of the Dalgarno Celebatory Symposium*, ed. J. F. Babb and K. Kirby (2010) pp. 340-354.

PATENTS

1. “Optical detector and amplifier for rf-detection”, US20160011044A1, Eugene Simon POLZIK, Albert Schliesser, Silvan Schmid, Anders Sondberg SORENSEN, Jacob M. Taylor, Koji USAMI, Tolga BAGCI, Anders SIMONSEN, Luis Guillermo Villanueva, Emil ZEUTHEN, Juergen Appel

2. “Optical temperature sensor and use of same”, US 20140321502, Zeeshan Ahmed, Steve Semancik, Jacob M Taylor, Jingyun Fan, Mohammad Hafezi, Haitan Xu, Gregory Strouse

3. “Two-dimensional coupled resonator optical waveguide arrangements and systems, devices, and methods thereof”, US 9052448, Mohammad Hafezi, Jacob Taylor, Eugene Demler, Mikhail Lukin.

4. “Electronic spin based enhancement of magnetometer sensitivity”, US 8547090, Mikhail D. Lukin, Ronald L. Walsworth, Amir Yacoby, Paola Cappellaro, Jacob M. Taylor, Liang Jiang, Lillian Childress.

5. “Method and Apparatus for Fault-Tolerant Quantum Communication Based on Solid-State Photon Emitters”, US 8913900, Mikhail Lukin, Lillian I. Childress, Jacob M. Taylor, Anders S. Sorensen.

INVITED TALKS

1. “Exploring quantum matter with photons”, Physics of Quantum Electronics, Snowbird (January 2017).

2. “Exploring quantum matter with photons”, CQT Colloquium, National University of Singapore (November 2016).

3. “Quantum simulation in the microwave domain”, IMPACT workshop, Tokyo, Japan (July 2016).
4. “Solving quantum information challenges with light”, OSA Boston Photonics Workshop, Lexington, MA (April 2016).
5. “Many-mode quantum optomechanics, Gordon Research Conference for Mechanical Systems in the Quantum Domain, Ventura, CA (March 2016).
6. “Exploring quantum phases of matter with light”, Dynamics of Artificial Quantum Systems symposium, Tokyo, Japan (Jan 2016).
7. “The quest for interacting photons and optical matter”, KITP Black Board talk for Many-body Physics with Light program, Santa Barbara, CA (Oct 2015).
8. “Nonlinear optics via hybrid quantum systems”, CLEO 2015, San Jose, CA (May 2015).
9. “Coupling semiconductor spins: from exchange to photons”, Physics Colloquium, University of Maryland Baltimore County, Baltimore, MD (March 2015).
10. “Building fractional quantum Hall states with light”, Physics of Quantum Electronics, Snowbird, UT (January 2015).
11. “Optomechanical sensors”, Physics of Quantum Electronics, Snowbird, UT (January 2015).
12. “Fault-resistant quantum simulation with fractional quantum Hall states of light”, Quantum Error Correction, ETH Zurich (December 2014).
13. “Quantum information science for the 21rst century”, RCAST Public Lecture, University of Tokyo, Tokyo, Japan (November 2014).
14. “Quantum sensing and simulation with light and matter”, University of Illinois at Urbana-Champaign Physics Colloquium (October 2014).
15. “Long(er) range coupling of spins”, 2nd Summer School and Workshop on quantum information processing with spins, Konstanz, Germany (August 2014).
16. “Quantum states of matter with light” NORDITA workshop on Quantum Engineering of Devices and States, Stockholm, Sweden (August 2014).
17. “Quantum optics for quantum information”, ICAP 2014, Washington, DC (August 2014).
18. “Hybrid quantum systems: a tutorial” DAMOP graduate student symposium, Madison, WI (June 2014).
19. “Scaling challenges for quantum dot-based quantum computing”, HRL workshop on spins in silicon, Malibu, CA (November 2013).
20. “Light and matter: towards macroscopic quantum systems”, Perimeter Institute Colloquium, Waterloo, ON, Canada (November 2013).
21. “Light and matter: towards macroscopic quantum systems”, Georgetown University Physics Colloquium, Washington, DC (November 2013).
22. “Many-body physics with optical and microwave light”, Many body quantum optics and correlated states of light Workshop, Chicheley Hall, Buckinghamshire, UK (October 2013).

23. “Beyond linear Paul traps: scaling ion trap systems” ITAMP workshop on physics with ion traps, Cambridge, MA (September 2013).

24. “Optical solutions for quantum information challenges”, PRAQCSYS 2013, Monterey, CA (August 2013).

25. “Quantum Hall physics with light” Workshop on Ultracold Atoms and Gauge Theory, ICTP, Trieste, Italy (May 2013).

26. “Topological systems with light” APS March meeting, Baltimore, MD (March 2013).

27. “Quantum simulation with photons”, Adiabatic Quantum Computing (2nd annual), London (March 2013).

28. “Coupling spins to photons”, Silicon Quantum Dots workshop, France (February 2013).

29. “Quantum channel tests of gravity”, KITP Quantum Control meeting, University of California, Santa Barbara (January 2013).

30. “Exploring the frontiers of quantum science with hybrid devices”, *Quo vadis, quantum hybridium*, Ischia, Italy (October 2012).

31. “Quantum simulation with photons”, Workshop on Quantum Simulation, Bilbao, Spain (October 2012).

32. “Hybrid quantum photonics”, Frontiers in Laser Science, OSA meeting, Rochester, NY (October 2012).

33. “Hybrid quantum photonics”, 6th International Conference on Spontaneous Coherence in Excitonic Systems, Stanford University, Palo Alto, CA (August 2012).

34. “Hybrid quantum systems with quantum dots”, Si quantum dots international workshop, Chowder Bay, Sydney, Australia (Feb 2012).

35. “Quantum transduction: from spins to photons”, Solid state quantum bits symposium, Princeton, NJ (Oct 2011).

36. “Quantum information science and metrology”, University of Vienna physics colloquium, Vienna, Austria (May 2011).

37. “Quantum devices for metrology and information science,” Pittsburgh University physics colloquium, Pittsburgh, PA (November 2010).

38. “Hybrid quantum systems,” MIT Pappalardo Symposium, Cambridge, MA (October 2010).

39. “Cooling quantum simulators,” Computation and Complexity conference, Santa Fe, NM (July 2010).

40. “Coupling disparate quantum systems,” DAMOP, Houston, TX (May 2010).

41. “Hybrid quantum systems,” APS March Meeting, Portland, OR (March 2010).

42. “Coupling spins to flux qubits,” Kavli Institute for Theoretical Physics seminar, Santa Barbara, CA (November 2009).

43. “Metrology with single spins,” Gordon Research Conference on Atomic Physics, Tilton School, NH (June 2009).

44. “Dynamic nuclear polarization with single electron spins,” APS March Meeting, Pittsburgh (March 2009).

45. “Controlling nuclear spins in quantum dots,” Solid State Quantum Information Workshop, Pisa (December 2008).

46. “Measuring magnetic fields with diamond,” PNAS US-France Frontiers in Science Symposium, Roscoff, France (November 2008).

47. “Quantum information in solid state systems” DLS Young Investigators Conference, Rochester (October 2008).

48. “Metrology and simulation with small quantum systems” Pappalardo Symposium, MIT, Cambridge (May 2008).

49. “Minimum resource approaches to quantum communication and computation,” Quantum Error Correction, USC, Los Angeles (December 2007).

50. “Quantum communication and computation with simple ion traps,” SFB Colloquium, University of Ulm and University of Stuttgart (December 2007).

51. “Quantum communication and computation with simple ion traps,” PCTP Quantum Information Series, Princeton University, Princeton, NJ (October 2007).

52. “Single spins in diamond: recent progress and new directions,” Asian conference on Quantum Information Science (AQIS), Kyoto, Japan (September 2007).

53. “An implementation of the quantum NAND algorithm,” Solid State Quantum Information Processing Workshop, Nils Bohr Institute, Copenhagen, Denmark (June 2007).

54. “Small-scale gadgets for quantum information processing,” Fault Tolerance II, Perimeter Institute, Waterloo, Canada (June 2007).

55. “Quantum information processing in artificial molecules,” DAMOP Thesis Prize session, Calgary, Canada (June 2007).

56. “Small quantum systems for large-scale processing,” ITAMP workshop: Hybrid Approaches to Scalable Quantum Information Systems, ITAMP, Cambridge, MA (May 2007).

57. “Artificial atoms and molecules in quantum information science,” ITAMP Joint Atomic Physics Colloquium, Cambridge, MA (February 2007).

58. “Progress towards the realization of quantum repeaters,” QCMC, Tsukuba, Japan (November 2006).

59. “Quantum control of coupled spins in a mesoscopic environment,” ETH Zürich theoretical physics symposium, Zürich, Switzerland (September 2006).

60. “Quantum control of coupled spins in a mesoscopic environment,” PRAQCSYS, Harvard University, Cambridge, MA (August 2006).

61. “Single spins in a mesoscopic environment: from quantum control to quantum information,” ETH Zürich Physics Colloquium, Zürich, Switzerland (May 2006).

62. “Architectures for solid-state quantum computation,” Gordon Research Conference on Quantum Information, Il Ciocco, Italy (May 2006).

63. “A systems approach to quantum computation,” NIST workshop on trapped ion quantum computation, Boulder, CO (February 2006).

64. “Fault-tolerant architecture for quantum computation Using Electrically Controlled Semiconductor Spins,” Frontiers in Nanoscale Science and Technology workshop, San Francisco, CA (January 2006).

65. “Fault-tolerant architecture for quantum computation using electrically controlled semiconductor spins,” IBM Workshop on Fault-Tolerant Quantum Computation, Yorktown, NY (August 2005).

66. “Controlling the nuclear spin Environment of Quantum Dots,” Obergurgl Meeting, Obergrugl, Austria (March 2005).

67. “Controlling the suclear spin environment of quantum dots: from dephasing to robust qubit storage and manipulation,” ITAMP workshop: Mesoscopic Physics, Quantum Optics, and Quantum Information, ITAMP, Cambridge, MA (May 2004).

68. “Preparation and control of a mesoscopic spin environment by quantum bit manipulation,” Center for Quantum Optics and Quantum Computation Colloquium, Innsbruck, Austria (March 2004).

69. “Exploring new interfaces between quantum optics and condensed matter,” Theory in Quantum Computing, Harpers Ferry, WV (June 2003).

70. “Black hole growth in galactic cores,” University of Tokyo Astronomy Colloquium, Tokyo, Japan (June 2001).

71. “HeWDs, BY Draconis, and other oddities in NGC 6397,” Stellar Collisions Conference, Rose Planetarium, Museum of Natural History, New York, NY (May 2000).

72. “Nonadiabatic polarizability of the hydrogen molecular ion,” APS-DAMOP joint meeting, Atlanta, GA (April 1999).

SEMINARS AND VISITING TALKS

- “Chiral optomechanics”, seminar at Meiji University, Tokyo, Japan (July 2016).
- “Black box testing of quantum simulators”, Keio SJC seminar, Japan (July 2016).
- “Black box testing of quantum simulators”, NII seminar, Tokyo, Japan (July 2016).
- “Solving quantum information challenges with light”, NTT Basic Research Labs special seminar, Atsugi, Japan (June 2016).
- “Towards quantum simulation with light”, Lincoln Laboratories special seminar, Lexington, MA (April 2016).
- “Optomechanically induced phase transitions in the thermodynamic limit”, KITP seminar series, Santa Barbara, CA (Oct 2015).
- “Coupling spins to superconductors: quantum dots to optical chemical potential”, QDev seminar, University of Copenhagen, Denmark (Sept 2015).
- “Approaching the quantum limit with mechanics: sensing, processing, and gravity”, Quantum optics seminar, University of Queensland, Brisbane, Australia (January 2015).

- "Sensing and simulation with light", Physics seminar, Griffith University, Brisbane, Australia (January 2015).
- "Quantum sensing and simulation with light and matter", RCAST technical seminar, University of Tokyo, Japan (October 2014).
- "Connecting quantum channels to measurement and feedback," Newton Institute program on Quantum Control and Engineering, Cambridge, UK (August 2014).
- "Quantum simulation with light", Oxford University material science seminar, Oxford, UK (August 2014).
- "Quantum simulation with light", York University quantum optics seminar, York, UK (July 2014).
- "Introduction to quantum optomechanics for sensing", Newton Institute program on Quantum Control and Engineering, Cambridge, UK (July 2014).
- Optomechanical transduction and sensing in the quantum domain, Benasque workshop on Quantum Implementations, Benasque, Spain (July 2014).
- "Quantum simulation of many-body systems: what can we learn?", Benasque workshop on Quantum Implementations, Benasque, Spain (July 2014).
- "Quantum simulation and metrology with light", IQOQI Quantum optics seminar, Innsbruck, Austria (May 2014).
- "Quantum simulation and metrology with light", Atom Institut Atomic Physics seminar, Vienna, Austria (May 2014).
- "Quantum simulation and metrology with light", Saclay, France (April 2014).
- "Quantum simulation and metrology with light", ETH Zurich Quantum Optics seminar, Zurich, Switzerland (April 2014).
- "Quantum information with optical systems", RLE electrical engineering seminar, MIT, Cambridge, MA (February 2014).
- "Nonlinear optomechanics near instability", Niels Bohr Institute seminar, Copenhagen, Denmark (September 2013).
- "The resonant exchange qubit", HRL seminar, Malibu, CA (August 2013).
- "Optical solutions for quantum information challenges", Quantum-Nanoscience seminar, Dartmouth College, Hanover, NH (April 2013).
- "Hybrid quantum systems for metrology and simulation", Atomic Physics seminar, University of California, Berkeley, CA (November 2012).
- "Hybrid quantum photonics", Optics and Photonics seminar, Duke University, Durham, NC (September 2012).
- "Hybrid quantum photonics", Laboratory for Physical Science seminar series, College Park, Maryland (September 2012).
- "Hybrid quantum photonics", Quantum Information seminar, University of Ulm, Ulm, Germany (September 2012).

- "Hybrid quantum systems for metrology and computation", Quantum Information seminar, University College London, UK (July 2012).
- "Hybrid quantum systems for metrology and computation", Quantum optics seminar, Cambridge University, UK (July 2012).
- "Hybrid quantum systems for metrology: optomechanics beyond the standard quantum limit", Quantum optics seminar, Harvard University, Cambridge, MA (June 2012).
- "Photonics for topology and metrology", Condensed matter seminar, Princeton University, Princeton, NJ (May 2012).
- "Hybrid quantum systems for metrology", Atomic Physics seminar, Yale University, New Haven, CT (March 2012).
- "Metrology with hybrid quantum systems," Quantum optics seminar, University of Queensland, Brisbane, Australia (Feb 2012).
- "Hybrid devices for metrology and computation", Quantum information seminar, Sydney University, Sydney, Australia (Dec 2011).
- "Hybrid devices for metrology and computation", Quantum information seminar, University of New South Wales, Sydney, Australia (Dec 2011).
- "Devices for quantum information and transduction", University of Southern California Quantum Information seminar, Los Angeles, CA (September 2011).
- "Quantum devices for metrology and information science", NIST quantum metrology seminar, Boulder, CO (June 2011).
- "Cooling quantum simulators", University of New Mexico Quantum information seminar, Albuquerque, NM (December 2010).
- "Quantum devices for metrology and information science," Columbia University quantum optics seminar, New York, NY (November 2010).
- "Quantum devices for metrology and information science," Center for Quantum Computing seminar, New Mexico, NM (Dec 2010).
- "Quantum devices for metrology and information science," Columbia University physics seminar, New York, NY (November 2010).
- "Quantum devices for measurement and quantum information," Breckenridge, CO (November 2010).
- "Cooling LC resonators," Griffiths University physics seminar, Brisbane, Australia (August 2010).
- "Superconductors coupled to spins in diamond," TU Delft condensed matter seminar, Delft, The Netherlands (February 2010).
- "Hybrid quantum systems," University of Copenhagen, quantum optics seminar, Copenhagen, Denmark (January 2010).
- "Hybrid quantum circuits," Atomic Physics seminar, University of Illinois Urbana-Champaign, IL (October 2009).

- "Building circuits with quantum dots," Quantum Information seminar, Sandia National Labs, NM (August 2009).
- "Nuclear spin state engineering," Atomic Physics Seminar, Cambridge University, UK (April 2009).
- "Metrology and simulation with small quantum systems" Quantum Information Seminar, Ulm (September 2008).
- "Metrology, communication, and simulation with quantum systems" Quantum Optics Seminar, Kaiserslautern (July 2008).
- "Metrology, communication, and simulation with small quantum systems" Condensed Matter Seminar, Sherbrooke (February 2008).
- "Magnetometry with NV centers", Quantum Optics seminar, University of Innsbruck, Austria (December 2007).
- "Quantum communication and computation with minimal qubits", DAMP Seminar, Cambridge University, UK (December 2007).
- "High resolution magnetic field detection using diamond", Quantum Information seminar, University of Ulm, Ulm, Germany (November 2007).
- "Disorder and dephasing in the quantum NAND algorithm" ITAMP seminar, ITAMP, Cambridge, MA (July 2007).
- "Few qubit approaches to quantum information," NII seminar, National Institute for Informatics, Tokyo, Japan (March 2007).
- "Small-scale quantum information processing," MIT Quantum Information seminar, MIT, Cambridge, MA (March 2007).
- "Coupled spins in a mesoscopic environment," Quantum Information seminar, UAB, Barcelona, Spain (October 2006).
- "Coupling to nuclear spins: from one to many," Villa Garabald, Switzerland (September 2006).
- "Spins in a mesoscopic environment," Condensed Matter Theory Seminar, University of Basel, Basel, Switzerland (May 2006).
- "Solid State quantum computation: from physical gates to architectures," NIST QIBEC seminar, Gaithersburg, MD (December 2005).
- "Solid State quantum computation: from physical gates to architectures," MIT Quantum Information Seminar series, Cambridge, MA (November 2005).
- "Solid State quantum computation: from physical gates to architectures," Rutgers Condensed Matter Theory Seminar, NJ (October 2005).
- "Solid State quantum computation: from physical gates to architectures," IBM Quantum Information Seminar, Yorktown, NY (September 2005).
- "Quantum computation using semiconductor spins," Princeton Condensed Matter Seminar, Princeton, NJ (September 2005).