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Date of Birth: October 19, 1965 (Southfield, MI)
Family: Wife (Jane Fisher); Daughters (Katherine-1996, Mary-1999, Helen-2002)

Education

1992 Ph.D., Physics, University of Colorado, Boulder CO (Advisor: Carl Wieman)
1987 S.B., Physics, Massachusetts Institute of Technology, Cambridge MA (Advisor: Michael Feld)
1983 Detroit Catholic Central High School, Redford MI

Positions

2007– Bice Sechi-Zorn Professor of Physics, University of Maryland, College Park MD
2007– Fellow, Joint Quantum Institute, NIST and University of Maryland, College Park MD
2006–2007 Director, FOCUS (NSF Physics Frontier Center on Ultrafast Optics), Univ. of Michigan, Ann Arbor MI
2006–2007 Professor, Electrical Engineering and Computer Science Dept., University of Michigan, Ann Arbor MI
2003–2007 Professor, Physics Dept., University of Michigan, Ann Arbor MI
2000–2003 Associate Professor, Physics Dept., University of Michigan, Ann Arbor MI
1995–2000 Adjunct Lecturer, Physics Dept., University of Colorado, Boulder CO
1994–2000 Staff Physicist, NIST, Boulder CO
1992–1994 NRC Postdoctoral Researcher, NIST, Boulder CO (Mentor: David Wineland)

Awards and Fellowships

Fellow, American Physical Society
Fellow, Institute of Physics (U.K.)
Scientific American “50” Research Award (2006)
University of Michigan Faculty Recognition Award (2005-2006)
American Physical Society Division of Laser Science Distinguished Traveling Lecturer (2002-2008)
American Physical Society I.I. Rabi Award (2001)
International Quantum Communication Award (Tamagawa University, Japan) (2000)
US Presidential Early Career Award for Scientists and Engineers (1997)
National Research Council Postdoctoral Fellowship (1992-1994)
University of Colorado Feldkamp Award for Graduate Research (1990)

Service

Executive Committee, American Physical Society Topical Group on Quantum Information (2008-2009)
National Academy of Sciences Committee on the future of AMO science (AMO2010 decadal report, 2005-2006)
American Physical Society Committee on Meetings, Chairman (2005) and Member (2003-2004).
Atomic Physics Gordon Conference, Chairman (2007) and vice-Chairman (2005)
American Physical Society Div. AMO Physics (DAMOP) Thesis Prize Selection Committee (2005)
American Physical Society Div. Laser Science (2006) and DAMOP (2005) Nominating Committee
Chairman and Organizer, International Workshop on “Trapped Ion Quantum Computing” (2004)
American Physical Society I.I. Rabi Prize Selection Committee (2003)
Editorial Board Member, *Journal of Optics B* (2003–)
Presenter at the Coalition of National Science Funding (CNSF) annual exhibit to U.S. Congress (2002)
Co-Director, *Enrico Fermi International School of Physics* on “Quantum Information Science” (2001)
Editorial Advisory Board Member, *Journal of Quantum Information* (Rinton Press, 2000–)
Co-Organizer, MCTP/FOCUS Workshop on “Control of Quantum Decoherence” (2002)
Program Chairman and Co-organizer, “Ann Arbor Quantum Applications Symposium” (2001)
Session Organizer and Program Committee Member for many APS and OSA meetings

Research Interests

I am an experimentalist in the areas of atomic, molecular, and optical physics, quantum optics, and quantum information science. My research interests include:

Cold Atomic Physics. Atoms can be localized to nanometer precision with electromagnetic fields and laser cooling techniques. My interest in this area involves the use of laser radiation to prepare, characterize, and exploit nearly-pure quantum states of internal (electronic) and external (motional) degrees of freedom of atoms in order to generate controllable interactions and quantum entanglement.

Quantum Information. Quantum information science exploits the properties of quantum superposition and quantum entanglement to store and process information in ways that are not possible classically. I have a longstanding interest in the fabrication of quantum hardware “from the bottom up” using atoms and photons, natural carriers of quantum information. This includes the design and realization of elementary entangling quantum logic gates between nearby atoms, the quantum networking of remotely-located atoms with photons, and the scaling to much larger numbers of atomic quantum bits with advanced microfabricated atom trap array structures. In addition, I am interested in the development of atomic quantum simulators that emulate intractable Hamiltonians that are found in other contexts such as quantum magnetism and strongly-correlated condensed matter.

Ultrafast Control of Cold Atoms. I am actively pursuing the use of ultrafast ($\sim 10^{-12}$ s) optical techniques for the manipulation and control of cold atomic systems and the generation of multi-atom entangled quantum states. Ultrafast control eliminates sensitivity to slower decoherence processes, and represents a new regime of ultracold atomic physics.

The Interface between Atomic and Condensed Matter Physics. My group has developed the use of microfabricated semiconductor structures for confining individual atomic ions in free space, while also characterizing the electrical noise processes of semiconductor and other electrode materials using single atoms as sensitive probes. More generally, I am interested in juxtaposing atomic systems with mesoscopic condensed-matter systems. This includes the photonic coupling between atomic ions and quantum dots, electro-mechanical couplings between high-Q mesoscopic cantilevers and charged atoms, and the control of motional states of trapped ions through photoconducting effects in semiconductor trap electrode structures. In other activity, I am interested in using atomic trapping and laser-cooling techniques to combine individual stationary atomic ions with laser-cooled neutral atoms, for the nanoscale probing of cold atomic gases and as an analog to the quantum transport of single impurities through condensed matter.

Foundations of quantum mechanics. I am deeply interested in the foundational aspects of quantum mechanics, from the quantum measurement problem, quantum decoherence, and alternative interpretations of quantum mechanics, to the general phenomenon of quantum entanglement and various forms of Bell’s Inequalities. I am interested in quantum metrology of atomic systems and the border between quantum and classical physics as system complexity grows.

Grants

- 2007-2012, DARPA Defense Science Office (\$12,000,000), “Quantum Simulation of Magnetic Spin Phases with Atoms and Ions in Optical Lattices,” PI and Director, with 13 co-PIs at 9 institutes.
- 2006-2009, NSF Physics at the Information Frontier (\$450,000) “Photonic Networking of Trapped Ion Qubits.”
- 2005-2006, DURIP – Army Research Office (\$115,000) “Ultrafast Photoionization Loading of Ion Traps.”
- 2005-2006, DARPA (\$205,000), “MEMS fabrication of silicon ion traps.”
- 2004-2008, Army Research Office and DTO (\$2,200,000) “Trapped Ion Quantum Information Processing,” with co-PI L.-M. Duan (Univ. Michigan).
- 2004, Army Research Office and DTO (\$15,000) “1st Workshop on Trapped Ion Quantum Computing.”
- 2003-2004, NIST SBIR and Aerophysics, Inc. (\$120,000) “Microscale Mass Spectrometer Arrays,” co-PIs: L. B. King (Michigan Tech) and S. Satyuk (Aerophysics, Inc.)
- 2003-2006, NSF Information Technology Research (\$2,300,000) “Trapped Ion Cavity-QED,” co-PIs: M. Chapman and L. You (Georgia Tech)
- 2001-2008, NSF Physics Frontier Centers (\$21,000,000) “FOCUS: Frontiers of Optical Coherent and Ultrafast Science,” PI and Director (2006-2007); co-PI with 26 others at Univ. Michigan and Univ. Texas.
- 2001-2004, Army Research Office and ARDA (\$1,600,000) “Trapped Ion Quantum Computing.”
- 2001-2002, DURIP -- Army Research Office (\$120,000) “High-fidelity Optical Processes in Trapped Atoms.”
- 2001-2004, NSF Information Technology Research (\$500,000) “Entanglement of Atomic Cadmium Ions.”
- 1995-2000, National Security Agency (\$2,500,000) “Ion Trap Quantum Computing,” co-PI: D. Wineland (NIST).

Journal Publications (>6000 citations)

2008

79. “Quantum Information Processing with Atomic Qubits,” C. Monroe and D. J. Wineland, *Scientific American* (to appear, 2008).
78. “On the Transport of Atomic Ions in Multidimensional Ion Trap Arrays,” D. Hucul, M. Yeo, S. Olmschenk, W. K. Hensinger, J. A. Rabchuk, and C. Monroe, *Quant. Inf. Comp.* **8**, 501-578 (2008); *quant-ph/0702175*.
77. “Bell inequality violation with two remote atomic qubits,” D. Matsukevich, P. Maunz, D. L. Moehring, S. Olmschenk, and C. Monroe, *Phys. Rev. Lett.* (to appear, 2008); *quant-ph/0801.2184*.
76. “Robust Quantum Information Processing with Atoms, Photons, and Atomic Ensembles,” L.-M. Duan and C. Monroe, *Advances in Atomic, Molecular, and Optical Physics*, vol. 55, E. Arimondo, P.R. Berman and C.C. Lin, eds. (Elsevier, 2007), pp. 419-464.

2007

75. “Manipulation and detection of a trapped Yb^+ hyperfine qubit,” S. Olmschenk, K. C. Younge, D. L. Moehring, D. Matsukevich, P. Maunz, and C. Monroe, *Phys. Rev. A* **76**, 052314.
74. “Magneto-optical trapping of cadmium,” K.-A. Brickman, M.-S. Chang, M. Acton, A. Chew, D. Matsukevich, P. C. Haljan, V. S. Bagnato, and C. Monroe, *Phys. Rev. A* **76**, 043411 (2007).
73. “Entanglement of single-atom quantum bits at a distance,” D. L. Moehring, P. Maunz, S. Olmschenk, K. C. Younge, D. N. Matsukevich, L.-M. Duan, and C. Monroe, *Nature* **449**, 68 (2007).
72. “Quantum interference of photon pairs from two remote trapped atomic (Yb) ions,” P. Maunz, D. L. Moehring, S. Olmschenk, K. C. Younge, D. N. Matsukevich and C. Monroe, *Nature Physics* **3**, 538 (2007).
- 71 “The Trap Technique: Toward a Chip-Based Quantum Computer,” D. Stick, J. D. Sterk, and C. Monroe, *IEEE Spectrum* (August, 2007), p. 5378.
70. “Quantum Networking with Photons and Trapped Atoms,” D. L. Moehring, M. J. Madsen, K. Younge, R. N. Kohn, Jr., P. Maunz, L.-M. Duan, and C. Monroe, *J. Opt. Soc. Amer.* **24**, 300 (2007).

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69. “Quantum Interference of Photon Pairs from Two Trapped Atomic (Cd) Ions,” P. Maunz, D. L. Moehring, M. J. Madsen, R. N. Kohn, Jr., K. Younge, and C. Monroe, *quant-ph/0608047*.
68. “Efficient Photoionization-Loading of Trapped Ions with Ultrafast Pulses,” L. Deslauriers, M. Acton, B. B. Blinov, K.-A. Brickman, P. C. Haljan, W. K. Hensinger, D. Hucul, S. Katnik, R. N. Kohn, P. J. Lee, M. A. Madsen, P. Maunz, D. L. Moehring, S. Olmschenk, D. Stick, and C. Monroe, *Phys. Rev. A* **74**, 063421 (2006).
67. “Scaling and Suppression of Anomalous Quantum Decoherence in Ion Traps,” L. Deslauriers, S. Olmschenk, D. Stick, and C. Monroe, *Phys. Rev. Lett.* **97**, 103007 (2006).
66. “Trapped ion quantum computation with transverse phonon modes,” Shi-Liang Zhu, C. Monroe, and L.-M. Duan *Phys. Rev. Lett.* **97**, 050505 (2006).
65. “Semiconductor Traps for Laser-Cooled Atomic Ions and Scalable Quantum Computing,” D. Stick, W. K. Hensinger, S. Olmschenk, and C. Monroe, *IEEE Lasers and Electro-Optic Society Newsletter* **20** (3), 13 (June, 2006)
64. “Probabilistic Quantum Gates between Remote Atoms through Interference of Optical Frequency Qubits,” L.-M. Duan, M. J. Madsen, D. L. Moehring, P. Maunz, R. N. Kohn, and C. Monroe, *Phys. Rev. A* **73**, 062324 (2006).
63. “Ultrafast Coherent Coupling of Atomic Hyperfine and Photon Frequency Qubits,” M. J. Madsen, D. L. Moehring, P. Maunz, R. N. Kohn, L.-M. Duan, and C. Monroe, *Phys. Rev. Lett.* **97**, 040505 (2006).
62. “Near-Perfect Simultaneous Detection of a Qubit Register,” M. Acton, L. Deslauriers, K.-A. Brickman, P. C. Haljan, P. J. Lee, S. Olmschenk, and C. Monroe, *Quant. Inf. Comp.* **6**, 465 (2006); *quant-ph/0511257*.
61. “Precision Lifetime Measurement of a Single Trapped Ion with Ultrafast Laser Pulses,” D. L. Moehring, B. B. Blinov, D. W. Gidley, R. N. Kohn, M. J. Madsen, T. B. Sanderson, R. S. Vallery, and C. Monroe, *Phys. Rev. A* **73**, 023413 (2006).
60. “T-junction ion trap array for two dimensional ion shuttling, storage and manipulation” W. K. Hensinger, S. Olmschenk, D. Stick, D. Hucul, M. Yeo, M. Acton, L. Deslauriers, J. Rabchuk, and C. Monroe, *Appl. Phys. Lett.* **88**, 034101 (2006).

59. "Arbitrary-speed quantum gates within large ion crystals through minimum control of laser beams," Shi-Liang Zhu, C. Monroe, L.-M. Duan, ***Europhys. Lett.*** **73** (4), 1 (2006); *quant-ph/0508037*.
58. "Ion Trap in a Semiconductor Chip," D. Stick, W. K. Hensinger, S. Olmschenk, M. J. Madsen, K. Schwab, and C. Monroe, ***Nature Physics*** **2**, 36 (2006).
57. "Broadband Laser Cooling of Trapped Atoms with Ultrafast Laser Pulses," B. B. Blinov, R. N. Kohn, M. J. Madsen, D. L. Moehring, and C. Monroe, ***J. Opt. Soc. Am. B*** **23**, 1170 (2006); *quant-ph/0505111*.

2005

56. "Entanglement of Trapped-Ion Clock States," P. C. Haljan, P. J. Lee, K.-A. Brickman, M. Acton, L. Deslauriers, and C. Monroe, ***Phys. Rev. A*** **72**, 062316 (2005).
55. "Implementation of Grover's Quantum Search Algorithm in a Scalable System," K.-A. Brickman, P. C. Haljan, P. J. Lee, M. Acton, L. Deslauriers, and C. Monroe, ***Phys. Rev. A*** **72**, 050306 (2005).
54. "Phase Control of Trapped Ion Quantum Gates," P. J. Lee, K.-A. Brickman, L. Deslauriers, P. C. Haljan, L.-M. Duan, and C. Monroe, ***Journal of Optics B*** **7**, S371 (2005).
53. "Ion trap transducers for quantum electromechanical oscillators", W. K. Hensinger, D. W. Utami, H.-S. Goan, K. Schwab, C. Monroe, and G. J. Milburn, ***Phys. Rev. A*** (2005).
52. "Spin-dependent Forces on Trapped Ions for Phase-Stable Quantum Gates and Motional Schrödinger Cat States," P. C. Haljan, K.-A. Brickman, L. Deslauriers, P. J. Lee, and C. Monroe, ***Phys. Rev. Lett.*** **94**, 153602 (2005).

2004

51. "Experimental measurement of a Bell inequality violation between an atom and a photon," D.L. Moehring, M.J. Madsen, B.B. Blinov, and C. Monroe, ***Phys. Rev. Lett.*** **93**, 090410 (2004).
50. "Zero-point cooling and beating of Trapped Cd^+ ions," L. Deslauriers, P. Haljan, P. Lee, K.-A. Brickman, M. Madsen, B. B. Blinov, and C. Monroe, ***Phys. Rev. A*** **70**, 043408 (2004).
49. "Quantum computing with trapped ion hyperfine qubits," B. B. Blinov, D. Leibfried, C. Monroe, and D. J. Wineland, ***Quantum Inf. Proc.*** **3**, 45 (2004).
48. "Control of trapped-ion quantum states with optical pulses," C. Rangan, A.M. Bloch, C. Monroe, P.H. Bucksbaum, ***Phys. Rev. Lett.*** **92**, 113004 (2004).
47. "Scalable trapped ion quantum computation with a probabilistic ion-photon mapping," L.-M. Duan, B. B. Blinov, D. L. Moehring, and C. Monroe, ***Quantum Inf. Comp.***, **4**, 165 (2004); *quant-ph/0401185*.
46. "Observation of entanglement between a single trapped atom and a single photon," B. B. Blinov, D. L. Moehring, L.-M. Duan, and C. Monroe, ***Nature*** **428**, 153 (2004).
45. "Planar ion trap geometry for microfabrication," M.J. Madsen, W. Hensinger, D. Stick, J. Rabchuk, and C. Monroe, ***Applied Physics B: Laser and Optics*** **78**, 639 (2004); *quant-ph/0401047*.

2002-2003

44. "Atomic qubit manipulations with an electro-optic modulator," P.J. Lee, B.B. Blinov, K. Brickman, L. Deslauriers, M.J. Madsen, R. Miller, D.L. Moehring, D. Stick, and C. Monroe, ***Optics Letters*** **28**, 1582 (2003).
43. "Quantum dynamics of single trapped ions," D. Leibfried, R. Blatt, C. Monroe, and D. Wineland, ***Rev. Mod. Phys.*** **75**, 281 (2003).
42. "Decoherence of motional superpositions of a trapped ion," C. A. Sackett, C. Monroe, and D. J. Wineland, ***Chaos, Solitons, and Fractals*** **16**, 431 (2003).
41. "Sympathetic cooling of trapped Cd^+ isotopes," B. Blinov, L. Deslauriers, M. P. Lee, M. Madsen, R. Miller, and C. Monroe, ***Phys. Rev. A***, 040304 (2002).
40. "Quantum information processing with atoms and photons," C. Monroe, ***Nature*** **416**, 238 (2002).
39. "Architecture for a large scale ion-trap quantum computer," D. Kielpinski, C. Monroe, and D. Wineland, ***Nature*** **417**, 709 (2002).

2000-2001

38. “*Experimental demonstration of entanglement-enhanced rotation angle estimation using trapped ions*,” V. Meyer, M. Rowe, D. Kielpinski, C. Sackett, W. Itano, C. Monroe, and D. Wineland, ***Phys. Rev. Lett.* 86**, 5870 (2001).
37. “*A Decoherence-Free Quantum Memory Using Trapped Ions*,” D. Kielpinski, V. Meyer, M. A. Rowe, C. A. Sackett, W. Itano, C. Monroe, and D. Wineland, ***Science* 291**, 1013 (2001).
36. “*Experimental Violation of a Bell’s Inequality with Efficient Detection*,” M. A. Rowe, D. Kielpinski, V. Meyer, C. A. Sackett, W. Itano, C. Monroe, and D. Wineland, ***Nature* 409**, 791 (2001).
35. “*Computing with atoms and molecules?*” C. Monroe and D. Wineland, ***Science Spectra***, Issue 23, 17 (2000).
34. “*Experimental Entanglement of Four Particles*,” C. Sackett, D. Kielpinski, Q. Turchette, V. Meyer, M. Rowe, C. Langer, C. Myatt, B. King, W. Itano, D. Wineland, and C. Monroe, ***Nature* 404**, 256 (2000).
33. “*Decoherence and Decay of Motional Quantum States of a Trapped Atom Coupled to Engineered Reservoirs*,” Q. Turchette, C. Myatt, D. Kielpinski, B. King, C. Sackett, W. Itano, C. Monroe, and D. Wineland, ***Phys. Rev. A* 62**, 053807 (2000).
32. “*Heating of Trapped Ions From the Quantum Ground State*,” Q. Turchette, D. Kielpinski, B. King, C. Myatt, C. Sackett, W. Itano, C. Monroe, and D. Wineland, ***Phys. Rev. A* 61**, 063418 (2000).
31. “*Decoherence of Quantum Superpositions Coupled to Engineered Reservoirs*,” C. Myatt, D. Kielpinski, B. King, C. Sackett, Q. Turchette, W. Itano, C. Monroe, and D. Wineland, ***Nature* 403**, 269 (2000).
30. “*Quantum Logic Using Sympathetically Cooled Ions*,” D. Kielpinski, B. King, Q. Turchette, C. Myatt, C. Sackett, D. Kielpinski, W. Itano, C. Monroe, D. Wineland, and W. Zurek, ***Phys. Rev. A* 61**, 032310 (2000).
29. “*Superposition and quantum measurement of trapped atoms*,” D.J. Wineland, C.R. Monroe, C. Sackett, D. Kielpinski, M. Rowe, V. Meyer, and W. Itano, ***Ann. der Physik* 9**, 851 (2000).

1998-1999

28. “*Deterministic Entanglement of Two Trapped Ions*,” Q. Turchette, C. Wood, C. Myatt, B. King, D. Leibfried, W. Itano, C. Monroe, and D. Wineland, ***Phys. Rev. Lett.* 81**, 17 (1998).
27. “*Initializing the Collective Motion of Trapped Ions for Quantum Logic*,” B. King, C. Wood, C. Myatt, Q. Turchette, D. Leibfried, W. Itano, C. Monroe, and D. Wineland, ***Phys. Rev. Lett.* 81**, 1525 (1998).
26. “*Trapped-Ion Quantum Simulator*,” D. Wineland, C. Monroe, W. Itano, B. King, D. Leibfried, C. Myatt, and C. Wood, ***Physica Scripta* T76**, 147 (1998).
25. “*Shadows and Mirrors: Reconstructing the Quantum State of Atom Motion*,” D. Leibfried, T. Pfau, and C. Monroe, ***Physics Today* 51**, 22 (April, 1998).
24. “*Experimental Primer on the Trapped Ion Quantum Computer*,” D. Wineland, C. Monroe, W. Itano, B. King, D. Leibfried, D. Meekhof, C. Myatt, and C. Wood, ***Fortschritte der Physik* 46**, 363 (1998).
23. “*Quantum Computing*,” G. Brassard, I. Chuang, S. Lloyd, and C. Monroe, ***Proc. Nat. Acad. Science* 95**, 11032 (1998).
22. “*Quantum State Manipulation of Trapped Atomic Ions*,” D. Wineland, C. Monroe, D. Meekhof, B. King, D. Leibfried, W. Itano, J. Bergquist, D. Berkeland, J. Bollinger, and J. Miller, ***Proc. R. Soc. A* 454**, 411 (1998).
21. “*Coherent Quantum State Manipulation of Trapped Ions*,” D. Wineland, C. Monroe, D. Meekhof, B. King, D. Leibfried, W. Itano, J. Bergquist, D. Berkeland, J. Bollinger, J. Miller, ***Adv. in Quantum Chemistry* 30**, 41 (1998).
20. “*Issues in Coherent Quantum Manipulation of Trapped Atomic Ions*,” D. Wineland, C. Monroe, W. Itano, D. Leibfried, B. King, and D. Meekhof, ***NIST Journal of Research* 103**, 259 (1998).

1995-1997

19. “*Experimental Creation and Measurement of Motional Quantum States of a Trapped Ion*,” D. Meekhof, D. Leibfried, C. Monroe, B. King, W. Itano, and D. Wineland, ***Brazilian Journal of Physics* 27**, 178 (1997).
18. “*Atomic Physics in Ion Traps*,” C. Monroe and J. Bollinger, ***Physics World* 10**, 37 (March 1997).
17. “*News and Views: Shaping Atoms in Optical Lattices*,” C. Monroe, ***Nature* 338**, 719 (1997).
16. “*Experimental Preparation and Measurement of the State of Motion of a Trapped Atom*,” D. Leibfried, D. Meekhof, B. King, C. Monroe, W. Itano, and D. Wineland, ***Journal of Modern Optics* 44**, 2485 (1997).

15. “*Simplified Quantum Logic with Trapped Ions*,” C. Monroe, D. Leibfried, B. King, D. Meekhof, W. Itano, and D. Wineland, **Phys. Rev. A** **55**, R2489 (1997).
14. “*Experimental Determination of the Motional Quantum State of a Trapped Atom*,” D. Leibfried, D. Meekhof, B. King, C. Monroe, W. Itano, and D. Wineland, **Phys. Rev. Lett.** **77**, 4281 (1996).
13. “*A Schrödinger Cat Superposition State of an Atom*,” C. Monroe, D. Meekhof, B. King, D. Wineland, **Science** **272**, 1131 (1996).
12. “*Manipulating the Motion of a Single Trapped Atom*,” C. Monroe, D. Meekhof, B. King, D. Leibfried, W. Itano, and D. Wineland, **Accounts of Chemical Research** **29**, 585 (1996).
11. “*Generation of nonclassical motional states of a trapped atom*,” D. Meekhof, C. Monroe, B. King, W. Itano, and D. Wineland, **Phys. Rev. Lett.** **76**, 1796 (1996).
10. “*Demonstration of a Universal Quantum Logic Gate*,” C. Monroe, D. Meekhof, B. King, W. Itano, and D. Wineland, **Phys. Rev. Lett.** **75**, 4714 (1995).
9. “*Resolved-Sideband Raman Cooling of a Bound Atom to the 3D Zero-Point Energy*,” C. Monroe, D. Meekhof, B. King, S. Jefferts, W. Itano, D. Wineland, and P. Gould, **Phys. Rev. Lett.** **75**, 4011 (1995).
8. “*Paul Trap for Optical Frequency Standards*,” S. Jefferts, C. Monroe, A. Barton, and D. Wineland, **IEEE Trans. on Instrum. and Measur.** **44**, 148 (1995).
7. “*A Coaxial-Resonator Driven rf (Paul) Ion Trap for Strong Confinement*,” S. Jefferts, C. Monroe, E. Bell, D. Wineland, **Phys. Rev. A** **51**, 1235 (1995).

1989-1994

6. “*A New Magnetic Suspension System for Atoms and Bar Magnets*,” C. Sackett, E. Cornell, C. Monroe and C. Wieman, **Amer. Jour. Phys.** **61**, 304 (1993).
5. “*Measurement of Cs-Cs Elastic Scattering at T=30 μ Kelvin*,” C. Monroe, E. Cornell, C. Sackett, C. Myatt, and C. Wieman, **Phys. Rev. Lett.** **70**, 414 (1993).
4. “*Multiply Loaded, AC Magnetic Trap for Neutral Atoms*,” E. Cornell, C. Monroe and C. Wieman, **Phys. Rev. Lett.** **67**, 2439 (1991).
3. “*Observation of the Cesium Clock Transition using Laser-Cooled Atoms in a Vapor Cell*,” C. Monroe, H. Robinson and C. Wieman, **Opt. Lett.** **16**, 50 (1991).
2. “*Very Cold Trapped Atoms in a Vapor Cell*,” C. Monroe, W. Swann, H. Robinson and C. Wieman, **Phys. Rev. Lett.** **65**, 1571 (1990).
1. “*Collisional Losses from a Light Force Atom Trap*,” D. Sesko, T. Walker, C. Monroe, A. Gallagher and C. Wieman, **Phys. Rev. Lett.** **63**, 961 (1989).

Book Chapters, etc.

17. “*Ion Trap Networking: Cold, Fast, and Small*,” D. L. Moehring, M. Acton, B. B. Blinov, K.-A. Brickman, L. Deslauriers, P. C. Haljan, W. K. Hensinger, D. Hucul, R. N. Kohn, P. J. Lee, M. J. Madsen, P. Maunz, S. Olmschenck, D. Stick, M. Yeo, and C. Monroe, *Laser Spectroscopy XVII*, E. Hinds, A. Ferguson, and E. Riis, eds. (World Scientific, 2005) pg. 421.
16. “*What Quantum Computers Tell Us About Quantum Mechanics*,” Chapter 17 of *Science and Ultimate Reality: Quantum Theory, Cosmology, and Complexity* (Cambridge University Press, 2003).
15. *Experimental Quantum Computation and Information. Proceedings of the International School of Physics Enrico Fermi*, F. DeMartini and C. Monroe, eds. (North Holland, Amsterdam, 2002).
14. “*Scalable Entanglement of Trapped Ions*,” C. Monroe, C. Sackett, D. Kielpinski, B. King, C. Langer, V. Meyer, C. Myatt, M. Rowe, Q. Turchette, W. Itano, and D. Wineland, in *Atomic Physics 17* (AIP, N.Y., 2001), pg 173.
13. “*From Microscopic Towards Mesoscopic: Quantum State Engineering with Cold Trapped Ions*,” B. King, Q. Turchette, C. Myatt, C. Wood, D. Leibfried, D. Kielpinski, W. Itano, C. Monroe, and D. Wineland, in *Mesoscopic and Macroscopic Quantum Phenomena*, ed. by J.R. Friedman and S. Han (Nova, New York, 2000).

12. "Searches for anomalous interactions using trapped ions," D. J. Wineland, J. J. Bollinger, W. M. Itano, J. C. Bergquist, and C. Monroe, in CPT and Lorentz Symmetry, proc. of the First Meeting, Indiana University, Bloomington, November 1998, edited by V. A. Kostelecky (World Scientific, Singapore, 1999), p. 87-93.
11. "Quantum Logic with a Few Trapped Ions," C. Monroe, W. Itano, D. Kielpinski, B. King, D. Leibfried, C. Myatt, Q. Turchette, D. Wineland, and C. Wood, Trapped Charged Particles and Fundamental Physics, eds. D. Dubin and D. Schneider (American Inst. Phys., 1999), p. 378.
10. "Trapped ions, Entanglement, and Quantum Computing," C. Myatt, B. King, D. Kielpinski, D. Leibfried, Q. Turchette, C. Wood, W.M. Itano, C. Monroe, and D. Wineland, in Methods of Ultrasensitive Detection, edited by B.L. Fearey, SPIE conf. proc. 3270, p. 131 (1998).
9. "Entangled States of Atomic Ions for Quantum Metrology and Computation," D. Wineland, C. Monroe, D. Meekhof, B. King, D. Leibfried, W. Itano, J. Bergquist, D. Berkeland, J. Bollinger, J. Miller, in Atomic Physics XV (World Scientific, Singapore, 1997), pg 31.
8. "Quantum Harmonic Oscillator State Synthesis and Analysis," W. Itano, C. Monroe, D. Meekhof, D. Leibfried, B. King, and D. Wineland, in Atom Optics, SPIE vol. 2995 (1997).
7. "Experiments at NIST with Trapped Ions: 3-D Zero-Point Cooling, Quantum Gates, Bragg Scattering, and Atomic Clocks," C. Monroe, A. Barton, J. Bergquist, D. Berkeland, J. Bollinger, F. Cruz, W. Itano, S. Jefferts, B. Jelenkovic, B. King, D. Meekhof, J. Miller, M. Poitzsch, J. Tan, and D. Wineland, in Laser Spectroscopy XII (World Scientific, 1996), pg. 179.
6. "Quantum-Mechanically Correlated States and Atomic Clocks," C. Monroe, D. Meekhof, B. King, W. Itano, J. Bollinger, and D. Wineland, in Dark Matter, Clocks, and Tests of Fundamental Laws, (Editions Frontiers, Gif-sur-Yvette, 1995), pg. 391.
5. "The Low Temperature Road toward Bose-Einstein Condensation in Optically and Magnetically Trapped Cesium Atoms," C. Monroe, E. Cornell and C. Wieman, in Laser Manipulation of Atoms and Ions, Proceedings of the International School of Physics Enrico Fermi (North Holland, Amsterdam, 1992), pg. 361.
4. "Fundamental Physics with Optically Trapped Atoms," C. Wieman, C. Monroe and E. Cornell, in Laser Spectroscopy X (World Scientific, Singapore, 1992), pg. 37.
3. "Curious Behavior of Optically Trapped Atoms," C. Wieman, T. Walker, D. Sesko and C. Monroe, in Atomic Physics XII (Am. Instit. Phys., N.Y., 1991), pg 58.
2. "Collisional Loss Mechanisms in Light-Force Atom Traps," T. Walker, D. Sesko, C. Monroe and C. Wieman, in The Physics of Electronic and Atomic Collisions XVI (Am. Instit. Phys., N.Y., 1990), pg. 593.
1. "Enhanced and Suppressed Visible Spontaneous Emission by Atoms in a Concentric Optical Resonator," D. Heinzen, J. Childs, C. Monroe, and M.S. Feld, in Laser Spectroscopy VIII (Springer, Heidelberg, 1987), pg. 36.

Popular accounts of research covered by *Associated Press, Byte, CBS Evening News, CNN, the Christian Science Monitor, Tom Clancy, Discover, the Economist, IEEE Spectrum, MSNBC, National Public Radio, Nature, New Scientist, New York Times, Optics and Photonics News, Photonics Spectra, Physics Today, Physical Review Focus, Physics World, Popular Mechanics, Reuters, Science, Science News, Scientific American, Scientific Computing World, Scripps-Howard, Technology Review, and Wired.* (http://iontrap.umd.edu/popular_press)

Colloquia and Seminars

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| Apr-08 "Quantum Networks and Atomic action-at-a-distance," Michigan Tech. Univ. (Houghton, MI) | Dec-07 "Quantum Networks and Atomic action-at-a-distance," Univ. Maryland (College Park, MD) |
| Mar-08 "Quantum Computing with Atoms and Photons," Univ. Central Florida (Orlando, FL) | Dec-07 "Quantum Networks and Atomic action-at-a-distance," Penn. State Univ. (State College, PA) |
| Feb-08 "Quantum Networks with Atoms," Purdue Univ. (Lafayette, IN) | Mar-07, "The Physics of Music," University of Michigan Saturday Morning Physics Public Lecture |
| Feb-08 "Integrated Atomic Quantum Networks," Sandia National Laboratory (Albuquerque, NM) | Mar-07, "The Music of Quantum Physics," University of Michigan Saturday Morning Physics Public Lecture |
| Feb-08 "Quantum Networks with Atoms," Univ. New Mexico (Albuquerque, NM) | Mar-07 "Quantum Computing with Atoms and Photons," York University (Toronto, Ontario) |

- Mar-07 “Quantum Information and Quantum Control,” Princeton University (Princeton, NJ)
- Feb-07 “Quantum Computing with Atoms and Photons,” Drexel University (Philadelphia, PA)
- Feb-07 “Quantum Computing with Atoms and Photons,” Miami University (Miami, OH)
- Dec-06 “Quantum Computing with Atoms and Photons,” Kansas State University (Manhattan, KA)
- Nov-06 “Quantum Computing with Atoms and Photons,” Iowa State University (Ames, IA)
- Nov-06 “Quantum Computers,” Albion College (Albion, MI)
- Sept-06 “Quantum Information Networking with Atoms and Photons,” Williams College (Williamstown, MA)
- Sept-06 “Quantum Computing” Hamilton College (Clinton, NY)
- Sept-06 “Quantum Information Networking with Atoms and Photons,” SUNY-Stonybrook (Stonybrook, NY)
- June-06, “Quantum Computing with Atoms,” University of Chicago (Chicago, IL)
- May-06, “Quantum Networking with Trapped Atomic Qubits,” Stanford University (Palo Alto, CA)
- Feb-06, “Quantum Networking with Trapped Ions,” Michigan State University (East Lansing, MI)
- Jan-06, “Quantum Networking with Trapped Ions,” MPQ Director’s Seminar (Garching, Germany).
- Dec-05, “The Second Quantum Revolution: Einstein in the 21st Century,” University of Michigan (Ann Arbor, MI)
- Nov-05, “Advanced Ion Traps and Ultrafast Control of Quantum Gates” Harvard/MIT CUA (Cambridge, MA)
- Sept-05, “Quantum Computing with Individual Atoms,” Grinnell College (Grinnell, IA)
- Apr-05, “Quantum Computing and Communication with Atoms and Photons,” Univ. Maryland (College Park, MD)
- Apr-05, “Quantum Networks with Atoms and Photons,” Univ. Windsor (Windsor, Ont, Canada)
- Feb-05, “Microscale Ion Traps for Quantum Information,” Sandia National Laboratory (Albuquerque, NM)
- Oct-04, “Quantum Computing and Communication with Atoms and Photons,” Washington Univ. (St. Louis, MO)
- Apr-04, “Atom entangled with photon: the best of both quantum worlds,” University of Michigan (Ann Arbor, MI)
- Nov-03, “Entanglement between a single atom and photon,” University of Illinois (Champaign, IL)
- Nov-03, “Quantum Computing with Individual Atoms,” University of Buffalo (Buffalo, NY)
- Oct-03, “Quantum Computing and Schrodinger’s Cat,” St. Cloud State (St. Cloud, MN)
- Apr-03, “Quantum Computing with Trapped Ions,” University of Connecticut (Storrs, CT)
- Apr-03, “Quantum Computation and Schrodinger’s Cat,” University of North Carolina (Wilmington, NC)
- Dec-02, “Quantum Information and the Individual Atom,” University of Michigan (Ann Arbor, MI)
- Nov-02, “Quantum Computation and Schrodinger’s Cat,” Georgia Tech (Atlanta, GA)
- Nov-02, “Quantum Computing with individual atoms,” Rhodes College (Memphis, TN)
- Sept-02, “Quantum Computing with individual atoms,” Wayne State University (Detroit, MI)
- May-02, “Control of Trapped Ions for Quantum Information Science,” MIT (Cambridge, MA)
- May-02, “Quantum Computers,” St. Olaf College Annual Science Symposium (Northfield, MN)
- Apr-02, “Quantum Computing with individual atoms,” Western Illinois University (Macomb, IL)
- Mar-02, “Storing quantum information in individual atoms,” Lucent Dist. Lect. Series (Ann Arbor, MI)
- Nov-01, “Quantum Computers and Schrodinger’s Cat,” University of Virginia (Charlottesville, VA)
- Nov-01, “Quantum Computing with Individual Atoms,” William and Mary (Williamsburg, VA)
- Apr-01, “Quantum Computers,” University of Toledo (Toledo, OH)
- Mar-01, “Bell Inequality Violations with Perfect Detectors,” Harvard University (Cambridge, MA)
- Feb-01, “Quantum information Science,” Calvin College (Grand Rapids, MI)
- Nov-00, “Quantum Computing with Trapped Ions,” University of Texas (Austin, TX)
- Oct-00, “Negative Probabilities and the Wigner Function,” University of Michigan (Ann Arbor, MI)
- Oct-00, “Quantum Computing with individual atoms,” Argonne National Laboratory (Argonne, IL)
- Apr-00, “Quantum Computing with Trapped Ions,” Univ. of New Mexico (Albuquerque, NM)
- Apr-00, “Entanglement of Four Particles,” Santa Fe Institute (Santa Fe, NM)
- Mar-00, “Quantum Information Science,” Florida Atlantic Univ. (Boca Raton, FL)
- Mar-00, “Entanglement of Trapped ions and Quantum Computing,” Univ. of Michigan (Ann Arbor, MI)
- Feb-00, “Quantum Computation,” Amherst College “What’s New in Physics” annual colloquium (Amherst, MA)
- Feb-00, “Entanglement and Quantum Information Science,” Yale University (New Haven, CT)

- Jan-00, "Trapped Ion Quantum Computing," University of Rochester (Rochester, NY)
- Oct-99, "Quantum Control of Trapped Ions for Quantum Computing," University of California (Berkeley, CA)
- May-99, "The Ion Trap Quantum Computer," National Security Agency (Fort Meade, MD)
- Apr-99, "Negative Probabilities, Quantum Entanglement, and Schrodinger's Cat," Univ. California (San Diego, CA)
- Feb-99, "Quantum Logic Gates with Individual Atoms," Colorado State University (Fort Collins, CO)
- Dec-98, "Quantum Computing and Schrodinger's Cat," Rice University (Houston, TX)
- Oct-98, "Negative Probabilities, Quantum Entanglement, Schrodinger's Cat," Indiana Univ. (Bloomington, IN)
- Sept-98, "Nonclassical States of the Harmonic Oscillator," Stanford University, Stanford, CA
- Jul-98, "On-demand Entanglement for Quantum Information Science," Ecole Normal Superiore (Paris, France)
- Mar-98, "Negative Probabilities," Photonics Research Ontario (Toronto, ONT)
- Mar-98, "Quantum Computing and Schrodinger's Cat," University of Toronto (Toronto, ONT)
- Dec-97, "Quantum Entanglement and its Uses," University of Rochester (Rochester, NY)
- Nov-97, "Quantum Computing," University of Washington (Seattle, WA)
- Nov-97, "Negative Probabilities and Wigner Functions," University of Colorado, JILA (Boulder, CO)
- Mar-97, "Quantum Computing," Michigan State University (East Lansing, MI)
- Jan-97, "Quantum Computing with Trapped Atoms," University of Michigan (Ann Arbor, MI)
- Jan-97, "Negative Probabilities, Quantum Entanglement, Schrodinger's Cat," Univ. of Wisc. (Madison, WI)
- Nov-96, "Quantum Information Science," Northwestern University (Evanston, IL)
- Oct-96, "Quantum Computing with Individual Atoms," University of Illinois (Champaign, IL)
- Oct-96, "Quantum Information, Schrodinger's Cat, and All That," MIT Dept. of Physics (Cambridge, MA)
- Oct-96, "Quantum Information Science," University of Florida (Gainesville, FL)
- Sept-96, "Quantum Computing," University of Wyoming (Laramie, WY)
- Aug-96, "Quantum Gates with Trapped Atomic Ions," University of California (Santa Barbara, CA)
- May-96, "Quantum Entanglement and Quantum Optics," Rocky Mountain Optical Soc. (Boulder, CO)
- Feb-96, "Quantum Computing with Individual Atoms," University of Colorado (Boulder, CO)
- Nov-95, "The Ion Trap Quantum Computer," IBM Almaden Labs (San Jose, CA)
- Jul-95, "Trapped Ion Tricks," Los Alamos National Lab. (Los Alamos, NM)
- Mar-95, "Demonstration of a Quantum Logic Gate," California Institute of Tech. (Pasadena, CA)
- Feb-95, "Entangling Quantum Logic Gates with Trapped Ions," University of Connecticut (Storrs, CT)
- Feb-95, "Demonstration of a Quantum Logic Gate," IBM Watson Laboratory (Yorktown Hts, NY)
- Feb-94, "Interactions between Cold Ions and Cold Neutral Atoms," University of Illinois at Chicago (Chicago, IL)

Invited Presentations at Meetings (including presentations by group members)

- May-08, Quantum Electronics and Laser Science (QELS), San Jose, CA
- Apr-08, Gordon Conference on Quantum Information Science, Big Sky, MT (**D. Matsukevich**)
- Feb-08, Ultrafast and Ultracold Processes, Kibbutz Ein Gedi, Israel (**P. Maunz**)
- Nov-07, Workshop on Integrated Atomic Systems, Georgia Tech (Atlanta, GA)
- Sept-07, NEC Workshop on Quantum Communication (Princeton, NJ)
- Aug-07, Quantum Enabled Science and Technology (QUEST), Santa Fe, NM (**D. Stick**)
- Jul-07, Gordon Conference on Quantum Control, Salve Regina College, RI
- Jun-07, APS Division of AMO Physics Annual Meeting, Calgary, Alberta
- Jun-07, Workshop on Quantum Engineering with Neutral Atoms and Light, Herrsching, Germany (**P. Maunz**)
- Jun-07, Workshop on Fault-Tolerant Quantum Error Correction, Perimeter Institute, Waterloo, Ont.
- Jun-07, International Conference on Quantum Information, Rochester, NY
- May-07, Harvard-Smithsonian ITAMP Workshop of Hybrid Quantum Information, Cambridge, MA
- May-07, Plenary Speaker, US-Canada Cross Border Workshop (Toronto, Ont, Canada)
- Apr-07, Gordon Conference on Quantum Information Science, Pisa, Italy
- Mar-07 "Quantum Networking with Atoms and Photons," Joint Quantum Institute Symposium (College Park, MD)
- Mar-07, APS March Meeting, Denver, CO

Mar-07, Int'l Workshop on Measurement-Based Quantum Computing, Oxford, UK (**D. Moehring**)

Feb-07, CIAR Conference on Quantum Simulations (Vancouver, BC)

Nov-06, IEEE-LEOS Annual Meeting, Montreal, Canada (**P. Maunz**)

Aug-06, Quantum Enabled Science and Technology (QUEST), Santa Fe, NM (**D. Moehring**)

Aug-06, "The Principles and Applications of Control in Quantum Systems," Harvard Univ., Cambridge, MA

July-06, IEEE-LEOS Topical on Quantum Communication Networks, Quebec City, Canada

Feb-06, Workshop on "Decoherence at the Crossroads," Vancouver, BC Canada (**L. Deslauriers**)

Feb-06, 2nd Int'l Workshop on Trapped Ion Quantum Computing, Boulder., CO

Feb-06, Southwestern Quantum Information Technology Annual Meeting, Albuquerque, NM (**P. Maunz**)

Nov-05, Hereaus Workshop: "The Photon-Generation, Detection and Application," Cologne, Germany

Nov-05, Midwestern Cold Atom Workshop, Champaign, IL (**Kathy-Anne Brickman**)

Nov-05, ARO-Harvard Workshop on Quantum Repeaters, Cambridge, MA

Oct-05, Optical Society of America Annual Meeting, Tucson, AZ (**M. Madsen, P. Lee**)

Aug-05, Quantum Enabled Science and Technology (QUEST), Santa Fe, NM (**L. Deslauriers**)

Jun-05, Gordon Conference on Atomic Physics, Tilton, NH (**P. Haljan**)

Jul-05, Hereaus Workshop: "Control of quantum correlations in tailored matter," Germany (**W. Hensinger**)

May-05, Quantum Physics of Nature: Theory, Experiment, and Interpretation, Vienna, Austria

May-05, APS Division of AMO Physics Annual Meeting, Lincoln, NE

Mar-05, Gordon Conference on Quantum Information Science, Ventura, CA (**P. Lee**)

Dec-04, National Academy of Sciences Frontiers of Science, "Quantum Metrology," Irvine, CA

Sept-04, Isaac Newton Programme on Quantum Information Theory, Cambridge, UK

Aug-04, Neils Bohr Symposium on Quantum Optics, Copenhagen, DK

Aug-04, Quantum Enabled Science and Technology (QUEST), Santa Fe, NM (**P. Haljan**)

Aug-04, 2nd Feynman Festival, College Park, MD (**W. Hensinger**)

Jun-04, FOCUS Workshop on Coherent Control Comp. Devices, Ann Arbor, MI

May-04, 1st Int'l Workshop on Trapped Ion Quantum Computing, Ann Arbor, MI

May-04, APS Division of AMO Physics annual meeting, Tucson, AZ (**B. Blinov**)

May-04, Harvard-Smithsonian ITAMP Mesoscopic Physics Workshop, Cambridge, MA

Apr-04, NIST Quantum Information Science and Emerging Technologies, Boulder, CO

Mar-04, QUEST European Network on Atoms/Ions as Qubits, Torino, Italy (**P. Haljan**)

Dec-03, European Union Focus Meeting on Few-Qubit Applications, Budmerice, Slovakia

Oct-03, Optical Society of America Annual Meeting, Tucson, AZ (**P. Haljan**)

Aug-03, Quantum Enabled Science and Technology (QUEST), Santa Fe, NM (**B. Blinov**)

Jul-03, European Network Meeting: Quantum Information Processing and Communication (QUIPC), Oxford, UK

Jun-03, Discussion Leader, Gordon Conference on Atomic Physics, Tilton School, NH

Jun-03, THINQC – NSA/ARDA Workshop on Theory in Quantum Computing, Harper's Ferry, WV

May-03, Quantum and Reversible Computation, Stony Brook, NY

May-03, Quantum Electronics and Laser Science, Baltimore, MD

Apr-03, APS Ohio Section Meeting, East Lansing, MI

Mar-03, Discussion Leader, Inaugural Gordon Conference on Quantum Information, Ventura, CA

Oct-02, External Invited Speaker, DOE Basic Energy Sciences Annual Meeting, Washington, DC

Oct-02, Optical Society of America Annual Meeting, Orlando, FL (**B. Blinov**)

Aug-02, Michigan Center for Theoretical Physics Wkshop on Quantum Decoherence, Ann Arbor, MI

Aug-02, Trapped Particles and Fundamental Interactions, Munich, Germany (**B. Blinov**)

Aug-02, Decoherence Control and Quantum Computing Workshop, Ann Arbor, MI

Jun-02, Neutral Atom Quantum Computing Workshop, NIST, Gaithersburg, MD

May-02, US-Canadian Cross-Border Workshop on Laser Science, Rochester, NY

Apr-02, Quantum Institute Inaugural, Michigan State University, East Lansing, MI

Mar-02, "Science and Ultimate Reality" symposium in honor of John A. Wheeler, Princeton, NJ

Nov-01, APS Southeastern Section Meeting, Charlottesville, VA

Jul-01, Quantum Applications Symposium, Ann Arbor, MI

- Jul-01, Quantum Communication Measurement & Computing, Capri, Italy
- Jun-01, National Academy of Sciences “Frontiers of Science,” Bad Homburg, Germany
- Jun-01, APS Division of AMO Physics Annual Meeting, London, ONT
- Jun-00, International Conference on Atomic Physics, Florence, Italy
- Sept-99, NIST Director’s Workshop on Cryptography, Gaithersburg, MD
- Jul-99, Gordon Conference on Atomic Physics, Plymouth, NH
- May-99, Quantum Electronics and Laser Science, Baltimore, MD
- Sept-98, Trapped Charged Particles and Fundamental Physics, Monterey, CA
- Jul-98, Workshop on Quantum Computing, Benasque, Spain
- Jun-98, Workshop on Quantum Control, Albuquerque, NM
- May-98, SPIE Aerosense meeting, Orlando, FL
- Nov-97, National Academy of Science “Frontiers of Science”, Irvine, CA
- Oct-97, Optical Society of America Annual Meeting, Long Beach, CA
- Aug-97, Harvard University Dept. of Physics and Smithsonian ITAMP, Cambridge, MA
- Jul-97, Gordon Conference on Nonlinear Optics, Colby-Sawyer, NH
- May-97, German Science Foundation (DFG) “Schwerpunktprogramm”, Bonn, Germany
- May-97, Quantum Control Workshop, Albuquerque, NM
- Mar-97, SPIE Optics in Computing, Incline Village, NV
- Feb-97, AAAS Annual Meeting, Seattle, WA
- Sept-96, European Science Foundation Quantum Optics Meeting, Castelvecchio, Italy
- Jun-96, Quantum Electronics and Laser Science, Anaheim, CA
- May-96, APS Division of AMO Physics Annual Meeting, Ann Arbor, MI
- Oct-95, DARPA “ULTRA” Electronics Meeting, Boulder, CO
- Sept-95, Optical Society of America Annual Meeting, Portland, OR
- Jun-95, Twelfth International Conference on Laser Spectroscopy, Capri, Italy
- Apr-95, American Chemical Society Annual Meeting, Anaheim, CA
- Jan-95, Rencontres de Moriond, Villars, Switzerland
- Apr-92, Quantum Electronics and Laser Science, Anaheim, CA

Lecture Series, Tutorials, Physics Schools

- Jun-08, Univ. Michigan Summer School on Quantum Physics, Ann Arbor, MI
- May-08, Les Houches International School of Physics, Chamoix, France
- Feb-06, 2nd Workshop on Trapped Ion Quantum Computing, Boulder, CO
- Jan-05, Ohio State University, Frontiers of Spectroscopy Lecture Series, Columbus, OH
- Aug-04, Neils Bohr Institute, Quantum Optics Summer School, Copenhagen, Denmark
- Jul-04, Perimeter Institute Summer School on Quantum Information, Waterloo, Ont, Canada
- May-02, APS Division of AMO Physics Annual Meeting Tutorial, Williamsburg, VA
- May-02, Cross Border Workshop on Laser Science, Rochester, NY
- Jul-01, Co-Director, Enrico Fermi School of Physics, “Quantum Information,” Varenna, Italy
- Mar-01, Les Houches International School of Physics, Chamoix, France
- Nov-99, Sweden Autumn Physics School, Stockholm, Sweden
- Aug-99, Co-Director, Southwestern Quantum Inf. Network (SQUINT) Summer School, Santa Barbara, CA
- Mar-98, APS March Meeting Tutorial, Los Angeles, CA
- Jan-96, Jorge Andre Swieca Summer School for Quantum Optics, Rio de Janeiro, Brazil

University Teaching

- 2008 Fall: Physics 273: Wave Mechanics (University of Maryland)
- 2006 Spring: Physics 340: Heat, Waves, and Relativity (University of Michigan)
- 2005 Fall: Physics 140: General Physics I: Calculus-Based mechanics (University of Michigan)
- 2005 Spring: Physics 340: Heat, Waves, and Relativity (University of Michigan)
- 2004 Fall: Physics 288/489: The Physics of Music (University of Michigan)
- 2004 Spring: Physics 340: Heat, Waves, and Relativity (University of Michigan)

2003 Fall: Physics 522/644: Advanced Atomic Physics and Quantum Information Science
2003 Spring: Physics 340: Heat, Waves, and Relativity (University of Michigan)
2002 Fall: Physics 125: General Physics I: Mechanics (University of Michigan)
2002 Spring: Physics 340: Heat, Waves, and Relativity (University of Michigan)
2001 Fall: Physics 522/644: Advanced Atomic Physics and Quantum Information Science

Student and Postdoctoral Advisees

Postdoctoral Researchers

Le Lui, JQI and Univ. Maryland (2008—)
Wesley Campbell, JQI and Univ. Maryland (2008—)
Kihwan Kim, JQI and Univ. Maryland (2008—)
Dzmitry Matsukevich, Univ. Michigan/Maryland (2006—)
Ming-Shien Chang, Univ. Michigan/Maryland (2006—)
Peter Maunz, Univ. Michigan/Maryland (2005—)
Paul Haljan, Univ. Michigan (2003-2005) – Asst. Prof., Simon Fraser Univ. (Canada)
Winfried Hensinger, Univ. Michigan (2003-2005) – Asst. Prof., Univ. Sussex (U.K.)
Boris Blinov, Univ. Michigan (2001-2005) – Asst. Prof., Univ. Washington
Mary Rowe, NIST (1999-2000) – Staff physicist, NIST
Quentin Turchette, NIST (1997-2000) – Physicist, Research Electrooptics (Boulder, CO)
Cass Sackett, NIST (1997-2000) – Assoc. Prof, Univ. Virginia
Christopher Wood, NIST (1996-1998) – Optical Physicist, Network Photonics (Boulder, CO)
Christopher Myatt, NIST (1996-1998) – CEO and Founder, Precision Photonics Inc. (Boulder, CO)
Dietrich Leibfried, NIST (1995-1997) – Staff physicist, NIST (Boulder, CO)
Dawn Meekhof, NIST (1994-1997) – Physicist (Seattle, WA)

Graduate Students

Rajibul Islam, Univ. Maryland (2007—)
Andrew Manning, Univ. Maryland (2007—)
David Hayes, Univ. Maryland (2007—)
Simcha Korenblit, Univ. Michigan/Maryland (2006—)
Yisa Rumala, Univ. Michigan (2006-2007) – grad. student with A. Leanhardt (U. Michigan)
Kelly Younge, Univ. Michigan (2005-2007) – grad. student with G. Raithel (U. Michigan)
Jon Sterk, Univ. Michigan/Maryland (2005—)
Steven Olmschenk, Univ. Michigan/Maryland (2004—)
Mark Acton, Univ. Michigan (2003-2007) – science teacher at Deerfield Academy, MA
Daniel Stick, Univ. Michigan (2002-2007) – physicsist at Sandia National Laboratory
Kathy-Anne Brickman, Univ. Michigan (2002-2007) – postdoc with C. Chin (Univ. Chicago)
David Moehring, Univ. Michigan (2002-2007) – postdoc with G. Rempe (Max Planck Inst. for Quantum Optics)
Martin Madsen, Ph.D., Univ. Michigan (2002-2006) – Asst. Prof., Wabash College, IN
Louis Deslauriers, Ph.D., Univ. Michigan (2001-2005) – postdoc with M. Kasevich, Stanford Univ.
Patricia Lee, Ph.D., Univ. Michigan (2000-2005) – NRC postdoc with W. D. Phillips, NIST
David Kielpinski, Ph.D., Univ. Colorado (1994-1999) – Asst. Prof., Griffith Univ. (Australia)
Brian King, Ph.D., Univ. Colorado (1994-1999) – Asst. Prof., McMaster Univ. (Canada)

Undergraduate Students

Andrew Chew, Univ. Michigan (2006—)
Dan Cook, Univ. Michigan (2006-2007)
Elizabeth Otto, Univ. Michigan (2005-2007)
Mark Yeo, Univ. Michigan (2004-2006) – graduate student with J. Ye (U. Colorado)
Rudolf Kohn, Univ. Michigan (2003-2006) –graduate student with D. Heinzen (U. Texas)
David Hucul, Univ. Michigan (2003-2006) – graduate student with W. Ketterle (MIT)
Russell Miller, Univ. Michigan (2001-2003) – graduate student with J. Kimble (CalTech)