David S. Weiss

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Education:
B.A., summa cum laude, Physics, Amherst College, 1985
M.S., Physics, Stanford University, 1988
Ph.D, Physics, Stanford University, 1993
Advisor: Steven Chu; Thesis: A Precision Measurement of the Photon Recoil of an Atom Using Atomic Interferometry

Fellowships and Honors:
Davisson-Germer Prize, 2022
AAAS Fellow, 2019-
APS Fellow, 2007-
Penn State Faculty Scholars Medal, 2007
NIST Precision Measurement Grantee, 2004-07
Packard Fellow, 1997-2002
Sloan Fellow, 1997-98
NSF CAREER award recipient, 1996-2001
Hellman Family Faculty Fellow, 1996
ONR Young Investigator, 1995-98
DAMOP thesis award finalist, 1994
NSF Postdoctoral Fellowship, 1993
IBM Graduate Fellowship, 1988-90
Stanford Graduate Fellowship, 1987
Churchill Scholarship, 1986
Warren J. Stifler Physics Prize, Amherst College, 1985
Phi Beta Kappa, Amherst College, 1984

Academic Positions:
Distinguished Professor, Penn State, 2020-
Associate Head, Penn State Physics Dept., 2011-
Professor, Penn State, 2005-2020
Associate Professor, Penn State, 2001-05
Assistant Professor, U.C. Berkeley, 1994-2001
Postdoctoral Fellow with Serge Haroche, E.N.S., Paris, 1993-94

Professional:
APS Councillor for DAMOP, 2022-2026
DAMOP nominating committee chair, 2017
DAMOP Chair line, 2013-16
CAMOS (National Academy committee on atomic, molecular and optical science) 2009-2012
Aspen workshop on neutral atom quantum computing and simulation, co-organizer, 2009.
DAMOP fellowship committee, 2008-11
DAMOP conference co-chair, 2008

PACS working group, 2006-07
DAMOP program committee, 2005-08
APS Topical Group on Precision Measurements and Fundamental Constants, executive committee member at large, 2002-04
APS member, 1987-

Advisees: PhD, past (and current position)– S. Lukman Winoto (Leiden Measurement Tech.); Mark T. DePue (Devices at Microsoft), Trevor Wenger (chef), Fang Fang (Inst. Of Metrology, Beijing), Xiao Li (recipient of the PSU Alumni Association Dissertation Award; Apple), Neal Solmeyer (Honeywell Int.), Kunyan Zhu (Broadcom Inc.), Yang Wang (Qunnect), Cheng Tang (ASTI Ltd.), Laura Zundel, Aishwarya Kumar (delegate to the Nobel Lindau Laureate meeting, U. Chicago), Josh Wilson (Sandia NL), Tsung-Yao Wu (Atom Computing), Neel Malvania (Mitre Corp.), Teng Zhang (Argo AI), Felipe Giraldo Mejia (Qunnect)

PhD, current –Yuan Le, Peng Du, Zhenyu Wei, Maarten de Haan, Emma Hogan

Undergraduate thesis students (and grad school attended) – Steven Oliver (recipient of the 2000 Apker award for best undergraduate thesis; U.C. Berkeley); Josh Albert (Duke U.); Matthew Ebert (U. Wisconsin, Madison), Andrew McConnell (current)

Postdocs, past – D.J. Han (National Chung Cheng U.), Steffen Wolf (European Patent Office), Toshiya Kinoshita (Kyoto U.), Jingbiao Chen (Peking U.), Karl Nelson (Honeywell Int.), Xiao Li (JQI), Jean-Felix Riou (Nikon), Aaron Reinhard (Kenyon College), Ted Corcovilos (Dusquesne U.), Xianli Zhang (Microchip Technology), Lin Xia (Inst. of Physics, Beijing), Teng Zhang (Argo AI)

Courses Taught: Introductory Physics for Scientists and Engineers: mechanics (freshmen)
Introductory Physics for Scientists and Engineers: mechanics (honors freshmen)
Introductory Physics for Scientists and Engineers: E&M (freshmen)
Introductory Physics for Scientists and Engineers: E&M (honors freshmen)
Introductory Physics for Scientists and Engineers: modern (honors sophomore)
Modern Atomic Physics (advanced undergraduate)
Basic Semiconductor Circuits (advanced undergraduate)
Advanced Lab (advanced undergraduate)
Physics Research (graduate)
Modern Atomic, Molecular and Optical Physics (graduate)
Experimental Atomic Physics and Atom Manipulation (graduate)

Refereed Publications:

1. F. Giraldo, A. Kumar, T-Y Wu, P. Du, and D. S. Weiss, “State-selective electromagnetically induced transparency for quantum error correction in neutral atom quantum computers”, *Phys. Rev. A* **106**, 032425 (2022).
2. N. Malvania, Y. Zhang, Y. Le, J. Dubail, M. Rigol and D.S. Weiss, "Generalized hydrodynamics in strongly interacting 1D Bose gases", *Science **373***, 1129 (2021).

3. E. Altman, K.R. Brown, G. Carleo, L.D. Carr, E. Demler, C. Chin, B. DeMarco, S.E. Economou, M.A. Eriksson, K.-M.C. Fu, M. Greiner, K.R.A. Hazzard, R.G. Hulet, A.J. Kollar, B.L. Lev, M.D. Lukin, R. Ma, X. Mi, S. Misra, C. Monroe, K. Murch, Z. Nazario, K.-K. Ni, A.C. Potter, P. Roushan, M. Saffman, M. Schleier-Smith, I. Siddiqi, R. Simmonds, M. Singh, I.B. Spielman, K. Temme, D.S. Weiss, J. Vuckovic, V. Vuletic, J. Ye, M. Zwierlein, "Quantum Simulators: Architectures and Opportunities," *PRX Quantum* **2**, 017003 (2021).
4. J. Wilson, N. Malvania, Y. Le, Y. Zhang, M. Rigol and D.S.Weiss, "Observation of dynamical fermionization", *Science **367***, 1461 (2020).
5. L. Zundel, J. Wilson, N. Malvania, L. Xia, J.F. Riou, and D.S.Weiss, "Energy-dependent 3-body loss in 1D Bose gases", *Phys. Rev. Lett*. **122**, 013402 (2019).
6. T.-Y. Wu, A. Kumar, F. Giraldo, and D.S. Weiss, "Stern-Gerlach detection of neutral atom qubits in a state-dependent optical lattice", *Nature Physics* **15**, 538–542 (2019).
7. A. Kumar, T.-Y. Wu, F. Giraldo, and D.S. Weiss, "Sorting ultracold atoms in a 3D optical lattice in a realization of Maxwell's demon", *Nature* **561**, 83 (2018).
8. C. Tang, T. Zhang, and D.S. Weiss, "Improving sensitivity to magnetic fields and electric dipole moments by using measurements of individual magnetic sublevels", *Phys. Rev. A* **97**, 033404 (2018).
9. D.S. Weiss and M. Saffman, "Quantum computing with neutral atoms", *Physics Today* **70**, no. 7, 44 (2017).
10. Y. Wang, A. Kumar, T-Y Wu, and D.S. Weiss, "Single-qubit gates based on targeted phase shifts in a 3D neutral atom array", *Science* **352**, 1562 (2016).
11. Y. Wang, X. Zhang, T. Corcovilos, A. Kumar, and D.S. Weiss, "Coherent addressing of individual neutral atom in a 3D optical lattice", *Phys. Rev. Lett.* **115**, 043003 (2015). Editor's Choice.
12. L. Xia, L.A. Zundel, J. Carrasquilla, A. Reinhard, J. Wilson, M. Rigol, and D.S.Weiss, "Quantum distillation and confinement of vacancies in a doublon sea", *Nature Physics* **11**, 316-320 (2015).
13. A.J. Daley, M. Rigol, and D.S. Weiss,"Focus on out-of-equilbrium dynamics in strongly interacting one dimensional systems", *N.J. Phys* **16**, 095006 (2014).
14. J. F. Riou, L. A. Zundel, A. Reinhard, and D. S. Weiss, "The effect of optical lattice heating on the momentum distribution of a 1D Bose gas", *Phys. Rev. A.* **90**, 033401 (2014).
15. A. Reinhard, J. F. Riou, L. A. Zundel, and D. S. Weiss, "Dark-ground imaging of high optical thickness atom clouds", *Opt. Comm.* **324**, 30 (2014).
16. K. Zhu, N. Solmeyer, C. Tang, and D. S. Weiss, "Absolute Polarization Measurement Using a Vector Light Shift", *Phys. Rev. Lett.* **111**, 243006 (2013). Editor's Choice.

17. S. Li, S. R. Manmana, A.M. Rey, R. Hipolito, A. Reinhard, J. F. Riou, L. A. Zundel, and D. S. Weiss, "Self-trapping dynamics in a 2D optical lattice", *Phys. Rev. A* **88**, 023419 (2013).

18. A. Reinhard, J.F. Riou, L.A. Zundel, D.S. Weiss, S. Li, A.M. Rey and R. Hipolito, "Self trapping in an array of coupled 1D Bose gases", *Phys. Rev. Lett.* **110**, 033001 (2013).

19. K. Zhu, N. Solmeyer, and D.S. Weiss, "A low noise, nonmagnetic fluorescence detector for precision measurements", *Rev. Sci. Instrum.* ***83,*** 113105 (2012).

20. J.F. Riou, A. Reinhard, L.A. Zundel, and D.S. Weiss, "Spontaneous-emission-induced transition rates between atomic states in optical lattices", *Phys. Rev. A* **86**, 033412 (2012).

21. X. Li, T.A. Corcovilos, Y. Wang and D.S. Weiss, "3D projection sideband cooling", *Phys. Rev. Lett.* **108**, 103001 (2012).

22. N. Solmeyer, K. Zhu and D. S. Weiss, "Mounting ultra-high vacuum windows with low stress-induced birefringence," *Rev. Sci. Instrum.* **82**, 066105 (2011).

23. F. Fang and D.S. Weiss, "Resonator-enhanced optical guiding and trapping of Cs atoms", *Optics Letters* **34**, 169 (2009).

24. B. Vaishnav and D. S. Weiss, "Site-resolved Bragg scattering", *Optics Letters* **33**, 375 (2008).

25. V.A. Yurovsky, M. Olshanii, and D. S. Weiss, "Collisions, correlations, and integrability in atom waveguides", *Adv. Opt At. Mol. Phys.* **55**, 61-138 (2007).

26. K. Nelson, X. Li, and D.S. Weiss, "Imaging single atoms in a three-dimensional array", *Nature Physics* **3**, 556 (2007).

27. T. Kinoshita, T. Wenger, and D.S. Weiss, "A quantum Newton's cradle", *Nature* **440**, 900 (2006).

28. J. Vala, K.B. Whaley, and D.S. Weiss, "Quantum error correction of a qubit loss in an addressable atomic system", *Phys. Rev. A* **72**, 052318 (2005).

29. T. Kinoshita, T. Wenger, and D.S. Weiss, "Local pair correlations in 1D Bose gases", *Phys. Rev. Lett.* **95**, 190406 (2005).

30. J. Vala, A. V. Thapliyal, S. Myrgren, U. Vazirani, D. S. Weiss, and K. B. Whaley, "Perfect pattern formation of neutral atoms in an addressable optical lattice", *Phys. Rev. A*. **71**, 032324 (2005).

31. T. Kinoshita, T. Wenger, and D.S. Weiss, "All-optical Bose-Einstein condensation using a compressible crossed dipole trap," *Phys. Rev. A* **71**, 011602(R) (2005).

32. D.S. Weiss, J. Vala, A.V.Thapliyal, S. Myrgren, U. Vazirani, and K.B. Whaley, "Another way to approach zero entropy for a finite system of atoms", *Phys. Rev. A* **70**, 040302(R) (2004).

33. T. Kinoshita, T. Wenger, and D. S. Weiss, “Observation of a One-Dimensional Tonks-Girardeau gas”, *Science* **305***,* 1125 (2004).

34. M. Olshanii and D. Weiss, “Producing Bose condensates using optical lattices”, *Phys. Rev. Lett.* **89**, 090404 (2002).

35. M.T. DePue, D.J. Han, and D.S. Weiss, “Loading and compressing Cs atoms in a very far-off-resonance light trap”, *Phys. Rev. A* **63***,* 023405 (2001).

36. S. Wolf, S.J, Oliver and D.S. Weiss, “Suppression of recoil heating by an optical lattice”, *Phys. Rev. Lett.* **85**, 4249 (2000).

37. D.J. Han, S. Wolf, S. Oliver, C. McCormick, M.T. DePue, and D.S. Weiss, “3D Raman sideband cooling at high density, *Phys. Rev. Lett* **85**, 724 (2000).

38. M. T. DePue, S.L. Winoto, D.J. Han, and D.S. Weiss, “Transient compression of a MOT and high intensity fluorescent imaging of optically thick clouds of atoms”, *Opt. Comm.* **180**, 73 (2000).

39. M.T. DePue, C. McCormick, S.L. Winoto, S. Oliver, and D.S. Weiss, “Unity occupation of sites in a 3D optical lattice”, *Phys. Rev. Lett.* **82**, 2262 (1999).

40. S.L. Winoto, M.T. DePue, N.E. Bramall, and D.S. Weiss, “Laser cooling at high density in deep far-detuned optical lattices”, *Phys. Rev A* **59**, R19 (1999).

41. D.S. Weiss, V. Sandoghar, J. Hare, V. Lefevre Seguin, J.-M. Raimond, and S. Haroche, “Splitting of high-Q Mie modes induced by light backscattering in silica microspheres”, *Opt. Lett.* **20**, 1835 (1995).

42. F. Treussart, J. Hare, L. Collot, V. Lefevre, D.S. Weiss, V. Sandoghar, J.M. Raimond, and S. Haroche, "Quantized Atom-Field Force at the Surface of a Microsphere", *Opt. Lett.* **19**, 1651 (1994).

43. D.S. Weiss, B. Young, and S. Chu, "A Precision Measurement of $\hbar/m_{Cs}$ based on photon recoil using laser-cooled atoms and atomic interferometry", *Appl. Phys. B*. **59**, 217 (1994).

44. D.S. Weiss, B. Young, and S.Chu, "Precision measurement of the photon recoil of an atom using atomic interferometry", *Phys. Rev. Lett.* **70**, 2706 (1993).

45. K.A. Moler, D. S. Weiss, M. Kasevich, and S. Chu, "Theoretical analysis of velocity-selective Raman transitions", *Phys. Rev. A* **45**, 342 (1992).

46. M. Kasevich, D. S. Weiss, E. Riis, K.A. Moler, S. Kasapi, and S. Chu, "Atomic velocity selection using stimulated Raman transitions", *Phys. Rev. Lett.* **66**, 2297 (1991).

47. E. Riis, D. S. Weiss, K. A. Moler, and S. Chu, "Atom funnel for the production of a slow, high-density atomic beam", *Phys. Rev. Lett.* **64**, 1658 (1990).)

48. M. Kasevich, D. S. Weiss, and S. Chu, "Normal-incidence reflection of slow atoms from an optical evanescent wave", *Opt. Lett.* **15**, 607 (1990).

49. D. S. Weiss, E. Riis, Y. Shevy, P. J. Ungar, and S. Chu, "Optical molasses and multilevel atoms: experiment", *J. Opt. Soc. Am. B* **6**, 2072 (1989).

50. P. J. Ungar, D. S. Weiss, E. Riis, and S. Chu, "Optical molasses and multilevel atoms: theory", *J. Opt. Soc. Am. B* **6**, 2058 (1989).

51. Y. Shevy, D. S. Weiss, P. J. Ungar, and S. Chu, "Bimodal speed distributions in laser-cooled atoms", *Phys. Rev. Lett.* **62**, 1118 (1989).

52. L.R Hunter, W. A. Walker, D.S. Weiss, "Observation of an atomic Stark-electric quadrupole interference", *Phys. Rev. Lett.* **56**, 823 (1986).

53. L.R Hunter, G. M. Watson, D.S. Weiss, and A.G. Zajonc, "High precision measurements of lifetimes and collisional decay parameters in Ca 1D states using the two-photon Hanle effect", *Phys. Rev. A* **31**, 2268 (1985).

Conference Proceedings

1. D.S.Weiss, “Advantages and limitations of laser cooling in optical lattices”, in *Laser Spectroscopy XV*, edited by S. Chu, V. Vuletic, A.J. Kerman, and C. Chin, (World Scientific, 2002), pp. 202-209.

2. D.S. Weiss, S. L. Winoto, and M.T. DePue, “Cooling atoms in a far-detuned optical lattice”, in *Atom Optics*, edited by M.G. Prentiss and W.D. Phillips, Proceedings of SPIE Vol. 2995, pp 156-162 (1997).

3. D.S. Weiss, K. Gibble, B. Young, A. Peters, and S. Chu , “Precision measurements with cold atoms”, in *ELICOLS ‘93*, edited by L. Bloomfield, T. Gallagher, and D. Larson (AIP, 1994), pp 23-8.

4. D. S. Weiss, M. Kasevich, B. Young, and S. Chu, "Atomic Interferometry", in *Atomic Physics 13*, edited by T. W. Hänsch, H. Walther, and B. Neizert, (AIP, 1993), pp. 132-142.

5. M. Kasevich, K.A. Moler, E. Riis, E. Sunderman, D. S. Weiss, and S. Chu, "Applications of laser cooling and trapping", in *Atomic Physics 12*, edited by J. C. Zorn and R. R. Lewis, (Am. Inst. Phys., 1991), pp. 47-57.

6. D. S. Weiss, E. Riis, M. Kasevich, K. A. Moler, and S. Chu, "The production and uses of slow atomic beams", in *Light Induced Kinetic Effects on Atoms, Ions and Molecules*, edited by I. Moi, S. Gozzini, C. Gabbanini, E. Arimondo, and F. Strumia, (ETS Editrice, Pisa, 1991), pp. 35-44.

7. S. Chu, E. Riis, P. J. Ungar, and D. S. Weiss, "Optical molasses with a new twist", in *Laser Spectroscopy 9*, edited by M. Feld, J. E. Thomas, and A. Mooradian, (Academic Press, 1989), pp. 12-16.

8. S. Chu, D. S. Weiss, Y. Shevy, and P. J. Ungar, "Laser cooling due to atomic dipole orientation", in *Atomic Physics 11,* edited by S. Haroche, J. Gay, and G. Grynberg, (World Scientific, 1989), pp. 636-638.

9. Y. Shevy, D. S. Weiss, and S. Chu, "New surprises in laser cooling", in *Spin Polarized Quantum Systems* edited by S. Stringari, (World Scientific, 1989), pp. 287-294.

Invited Talks at Conferences

- AFOSR program review, Arlington, VA, 2022
- APS, DAMOP (plenary), Orlando, FL, 2022
- APS March meeting, Chicago, IL 2022
- Topology, disorder, and hydrodynamics in non-equilibrium quantum systems, ESI, Vienna, Austria, (virtual) 2021
- Ergodicity and anomalous transport conference, MPIPKS, Dresden, Germany, (virtual) 2021
- Energy and information transport in non-equilibrium quantum systems workshop, KITP, Santa Barbara, CA, (virtual) 2021
- Non-equilibrium universality workshop, KITP, Santa Barbara, CA, 2021
- Division of Atomic and Molecular Physics, American Physical Society (APS, DAMOP) (virtual) 2021
- Josef-Stefan Days, Ljubliana, Slovenia, (virtual) 2021
- Nonequilibrium quantum workshop, Krvavec, Slovenia, (virtual) 2020
- Virtual Atomic Molecular Optical Physics series (VAMOS), (virtual) 2020
- ARO Program Review, Raleigh, NC, 2020
- European conference on few-body problems in physics, Guildford, UK, 2019
- Emergent phenomena in ultracold atoms workshop, KITS, Beijing, China, 2019
- Graph state workshop, Arlington, VA, 2019
- Workshop on trapped quantum systems, KAIST, Daejeon, South Korea, 2019
- ARO Program Review, Raleigh, NC, 2018
- Dynamics of quantum information, KITP, Santa Barbara, CA, 2018
- FiO/LS, Washington, DC, 2018
- Quantum integrability workshop, Wuppertal, Germany, 2018
- Quantum path workshop, ESI, Vienna, Austria, 2018
- APS March Meeting, Los Angeles, 2018
- ITAMP workshop on quantum thermodynamics, Cambridge, MA, 2017
- APS Mid-Atlantic Sectional meeting, Newark, NJ 2017
- OCPA9, Meeting of Chinese Physicists Abroad, Beijing, China, 2017
- ARO Program Review, Cocoa Beach, FL, 2017
- QS3 Summer School, Baltimore, MD, 2017
- APS, DAMOP, Sacramento, CA, 2017
- Mini-symposium on discrete quantum simulators, Bonn, Bermany, 2017
- Future directions in quantum computing, Arlington, VA, 2016
- Quantum non-equilibrium phenomena, Natal, Brazil, 2016
- NASA Fundamental physics workshop, Dana Point, CA, 2016
- Munich-Michigan EDM meeting, East Lansing, MI, 2016
- Conference on non-equilibrium dynamics of stochastic and quantum integrable systems, KITP, Santa Barbara, CA, 2016
- Continuous atomic sources and extreme cooling of atoms and molecules workshop, Les Houches, France, 2016
- Grand challenges in quantum fluids, Buffalo, NY, 2015
- Workshop beyond integrability, Montreal, Canada, 2015

- Taiwan International Symposium on Contemporary Atomic and Optical Physics, National Center for Theoretical Sciences, Taipei, Taiwan, 2015
- APS, DAMOP Columbus, OH, 2015
- SPIE Conference, Baltimore, MD 2015
- Pittsburgh Quantum Institute, Pittsburgh, PA 2015
- APS March Meeting, San Antonio, TX 2015
- Physics at the Falls, Buffalo, NY, 2014
- Many-body quantum systems far from equilibrium, Aspen, CO, 2014
- Lepton moments 2014, Cape Cod, MA, 2014
- Non-equilibrium phenomena in string theory and condensed matter, Trieste, Italy, 2014
- Non-equilibrium workshop (2 talks), Dresden, Germany, 2013
- APS, DAMOP, Quebec City, Canada, 2013
- DARPA OLE, San Francisco, CA, 2013
- Finite temperature non-equilibrium superfluid systems, Queenstown, New Zealand, 2013
- Quantum many-body dynamics in open systems, Bad Honnef, Germany, 2013
- EDM's in storage rings, Trento, Italy, 2012
- Dynamics and thermalization in isolated quantum systems, KITP, Santa Barbara, 2012
- Disequilibrium 2012, Minneapolis, MN, 2012
- Workshop on non-equilibrium dynamics, CUNY, NY, 2012
- AWCNPCG (2 talks), London, England, 2011
- Many-body quantum dynamics workshop, Barcelona, Spain, 2011
- Princeton Condensed Matter Summer School, Princeton, NJ, 2011
- Non-equilibrium and quantum systems, ICTP, Trieste, 2011
- DARPA QuEST meeting, Los Angeles, CA, 2011
- DARPA OLE Workshop, Hollywood, FL, 2010
- Beyond standard optical lattices, KITP, Santa Barbara, CA, 2010
- Ultra-cold gases beyond equilibrium, Natal, Brazil, 2010
- Quantum matter in low dimensions, Stockholm, Sweden, 2010
- Lepton moments IV, Cape Cod, MA, 2010
- Franklin Medal Symposium, Philadelphia, PA, 2010
- Non-equilibrium dynamics, ICTP, Trieste, Italy, 2009
- Atomic Physics Gordon Conference, Tilton, NH, 2009
- Aspen Center for Physics, Aspen, CO, 2009
- Aspen Center for Physics (public lecture), Aspen, CO, 2009
- APS March meeting (tutorial), Pittsburgh, PA, 2009
- Southwest Quantum Information Theory (SQUINT), Seattle, WA, 2009
- DARPA QuEST kickoff meeting, Duck Key, FL, 2009
- Frontiers of degenerate gases, Beijing, China, 2008
- Gordon conference on Quantum Information, Big Sky, MT, 2008
- Steve Chu Symposium, Berkeley, CA, 2008
- International Conference on Atomic Physics (ICAP), Storrs, CT, 2008
- Michigan Quantum Summer School, Ann Arbor, 2008
- DARPA OLE Workshop, State College, PA, 2008
- APS April Meeting, St. Louis, April, 2008.

- APS March Meeting, New Orleans, March, 2008.
- 38th Winter Colloquium on the Physics of Quantum Electronics (PQE), Snowbird, Utah, January, 2008
- Integrated atomic systems workshop, Atlanta, GA, November, 2007
- Bose Einstein condensation, San Felieu, Spain, September 2007
- Optical Society of America (OSA) Frontiers in Optics, San Jose, CA, September 2007
- Quantum Gases, Paris, France, June 2007
- APS, DAMOP, Calgary, Canada, June 2007
- KITP Workshop on strongly correlated phases, Santa Barbara, CA May 2007
- CIAR Quantum simulation workshop, Vancouver, Canada, February 2007
- Les Houches Predoctoral School, Les Houche, France, September 2006
- Lepton Moments III, Cape Cod, MA, June 2006
- Workshop on supersolids, Aspen Center for Physics, June 2006
- Non-equilibrium dynamics in interacting systems, Dresden, Germany, April, 2006
- APS March Meeting, Baltimore, MD, March, 2006
- ITAMP Workshop on non-equilibrium phenomena in strongly correlated quantum systems, Cambridge, MA, February, 2006
- CIAR Cold atom workshop, Toronto, Canada, October, 2005
- International Quantum Electronics Conference (IQEC), Tokyo, Japan, July, 2005
- Trieste Summer School on low dimensional systems, Trieste, Italy, July, 2005
- Atomic Physics Gordon Conference, Tipton, New Hampshire, June, 2005
- APS, DAMOP, Lincoln, Nebraska, May, 2005
- AAAS Annual Meeting, Washington, D.C. Feb., 2005
- 35th PQE, Snowbird, Utah, January, 2005
- ITAMP Workshop on quantum degenerate gases in low-dimensionality, Cambridge, MA, 2004
- Quantum Information Science and Technology (QuIST) Semi-Annual Meeting, Beverly Hills, CA, 2003
- Aspen Workshop- Exploring the interface between cold atoms and condensed matter Physics, Aspen, CO, 2003
- Lepton Moments II, Cape Cod, MA, 2003
- QuIST Site Visit, Berkeley, CA, 2003
- QuIST Annual Meeting, Boston, MA, 2002
- Packard Fellows Annual Meeting, Monterey, CA, 2002
- Cooling 2002, Visby, Sweden, 2002
- NIST Quantum computing workshop, Gaithersburg, MD 2002
- QuIST Kickoff Meeting, Dallas, TX 2001
- Interdisciplinary Laser Sciences (ILS), Long Beach, CA 2001
- International Conference on Laser Spectroscopy (ICOLS), Snowbird, UT, 2001
- Quantum Entanglement Symposium, Stanford, 2000
- Quantum Electronics and Laser Spectroscopy (QELS), Baltimore, 1999

- APS Centennial Meeting, Atlanta, 1999
- Packard Fellows Annual Meeting, Sante Fe, NM, 1998
- Nobel Symposium, Stockholm, Sweden, 1997
- Cold Atoms, Peyresque, France, 1994
- APS, DAMOP, Crystal City, VA, 1994
- Quantum Interference, Trieste, Italy, 1993
- Conference on Precision Electromagnetic Measurements, Paris, France, 1992
- Light Induced Kinetic Effects. Workshop, Elba, Italy, 1989
- QELS, Baltimore, 1988

Other Invited Talks

2021 Penn State, State College, PA (physics colloquium)
Kenyon College, Gambier, OH
University of Wisconsin, Madison, WI
2020 Rensselaer Polytechnic Institute, (virtual) Troy, NY
Caltech, Pasadena, CA
2019 Columbia University, NY, NY
Rice University, Houston, TX
U.C.L.A., Los Angeles, CA
U. of New Mexico, Albuquerque, NM (x2)
U. of Cambridge, Cambridge, UK
U. Chicago, Chicago, IL (x2)
2018 Rome Air Force Base, Rome, NY
Hamilton College, Troy, NY
U. Maryland (JQI), College Park, MD
Clemson U., Clemson, SC
Harvard U. (Center for Ultra Cold Atoms,) Cambridge, MA
Amherst College, Amherst, MA
2017 U. of Kyoto, Kyoto, Japan
Penn State (physics colloquium), State College, PA
U. of Bonn, Bonn, Germany
U. of Heidelberg, Heidelberg, Germany
2016 U. of Amsterdam, Amsterdam, Netherlands
2015 National Chun Cheng University, Chia-Yi, Taiwan
U. of Illinois, Urbana-Champaign, IL
2014 S.U.N.Y, Buffalo, Buffalo, NY
U. of Michigan, Ann Arbor, MI
U. of New Mexico, Albuquerque, NM
2013 Georgia Tech, Atlanta, GA
2012: Amherst College, Amherst, MA
U. Pittsburgh, Pittsburgh, PA
U. Texas, Austin, TX
2011: Oxford University, Oxford, UK
Rice University, Houston, TX
2010: University of Wisconsin, Madison, WI
Oklahoma State University, Stillwater, OK
2009: Columbia University, New York, NY

Los Alamos National Lab, Los Alamos, NM
Penn State (physical chemistry), University Park, PA
University of Maryland, College Park, MD
University of Toronto, Toronto, ON
Temple University, Philadelphia, PA

2008: IBM Research Center, Yorktown Heights, NY
Boston University, Boston, MA
Michigan State, E. Lansing, MI
Rice University, Houston, TX
Yale University, New Haven, CT

2007: Harvard University, Cambridge, MA
Argonne National Lab, Chicago, IL
Indiana University of Pennsylvania, Indiana, PA
Penn State (physics colloquium), State College, PA
University of Virginia, Charlottesville, VA
Williams College, Williamsport, MA
University. of Michigan, Ann Arbor, MI

2006: University of Colorado, Boulder, CO
University of Minnesota, Minneapolis, MN x2
Insitut d'Optics, Orsay, France
Ecole Normale Superieure, Paris, France
N.I.S.T., Gaithersberg, MD
University of Innsbruck, Innsbruck, Austria
University of Pennsylvania, Philadelphia, PA
Cornell University, Ithaca, NY

2005: Center for Ultracold Atoms, M.I.T., Cambridge, MA
Penn State (physics colloquium), State College, PA
University of Delaware, Newark, DE
University of Firenze, Firenze, Italy
New York University, New York, NY
University of Connecticut, Storrs, CT

2004: Georgetown University, Washington, D.C.
N.I.S.T., Gaithersburg, MD;
University of Illinois, Urbana-Champaign, IL

2003: Georgia Tech, Atlanta, GA
Penn State (CAMP), State College, PA
Swarthmore College, Swarthmore, PA
Lehigh University, Bethlehem, PA

2002: Penn State (materials science and engineering), State College, PA

2001: U.S.C., Los Angeles, CA
University of Arizona, Tucson, AZ
New York University, New York, NY
Penn State, State College, PA
Columbia University, New York, NY
S.U.N.Y. Stonybrook, Stonybrook, NY
Ohio State, Columbus, OH
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Penn State (chemical physics), State College, PA

Gettysburg College, Gettysburg, PA
2000: University of California, Berkeley, CA
ITAMP, Cambridge, MA
1999: A.L.S., LBNL, Berkeley, CA
1998: University of San Francisco, San Francisco, CA
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1994: University of California, Berkeley, CA
Williams College, Williams, MA
University of Chicago, Chicago, IL
University of New Mexico, Albuquerque, NM
Caltech, Pasadena, CA
1993: Ecole Normale Superieure, Paris, France
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