

- 1999 Allen Goodrich Schenstone Prize for Outstanding Work in Experimental Physics, Department of Physics, Princeton University
- 1999 Sigma Xi Honor Society
- 1997 Awards from the Class of 1934 Special Assistance Fund, the Fred Fox Class of 1939 Fund, and the Horton-Elmer Classes of 1942 and 1992 Fund, Princeton University
- 1995 National Science Scholar
- 1994 Third Place Grand Award, Physics, International Science and Engineering Fair, Birmingham, Alabama; United Technologies Corp. Special Award in Physics
- 1994 Second Place Florida State Science and Engineering Fair, Physics

Publications

- 17) S. Gopalakrishnan, B. Lev, and P. Goldbart, *Emergent crystallinity and frustration with Bose-Einstein condensates in multimode cavities*, Nature Physics **5**, 845-850 (2009). Nature Physics **News and Views** (November 2009); Preprint: cond-mat/0903.2254
- 16) B. Fregoso, K. Sun, E. Fradkin, and B. Lev, *Biaxial nematic phases in ultracold dipolar Fermi gases*, New Journal of Physics **11**, 103003 (2009). Preprint: cond-mat/0902.0739
- 15) H. J. Kimble, B. Lev, and J. Ye, *Optical interferometers with reduced sensitivity to thermal noise*, Physical Review Letters **101**, 260602 (2008). Preprint: quant-ph/0806.3750
- 14) M. Lara, B. Lev, and J. Bohn, *Loss of molecules in magneto-electrostatic traps due to nonadiabatic transitions*, Physical Review A **78**, 033433 (2008). Preprint: physics/0806.2245
- 13) B. Lev, A. Vukics, E. Hudson, B. Sawyer, P. Domokos, H. Ritsch, and J. Ye, *Prospects for the cavity-assisted laser cooling of molecules*, Physical Review A **77**, 023402 (2008). Preprint: quant-ph/0705.3639
- 12) B. Sawyer, B. Stuhl, B. Lev, J. Ye, and E. Hudson, *Mitigation of loss within a molecular Stark decelerator*, European Journal of Physics D **48**, 197 (2008). Preprint: physics/0705.3442
- 11) B. Sawyer, B. Lev, E. Hudson, B. Stuhl, M. Lara, J. Bohn, and J. Ye, *Magneto-electrostatic trapping of ground state OH molecules*, Physical Review Letters **98**, 253002 (2007). **Cover of Physical Review Letters** (22 June 2007); **Science's Editor's Choice** (13 July 2007); Preprint: physics/0702146
- 10) B. Lev, E. Meyer, E. Hudson, B. Sawyer, J. Bohn, and J. Ye, *OH hyperfine ground state: from precision measurement to molecular qubits*, Physical Review A, Rapid Communications **74**, 061402 (R) (2006). Preprint: physics/0608194
- 9) J. Ye, S. Blatt, M. M. Boyd, S. M. Foreman, E. R. Hudson, T. Ido, B. Lev, A. D. Ludlow, B. C. Sawyer, B. Stuhl and T. Zelevinsky, *Precision measurement based on ultracold atoms and cold molecules*, in Atomic Physics 20, XX International Conference on Atomic Physics (C. Roos et al., Eds., AIP Conf. Proc. 869, 2006), pp. 80-91. Also in: International J. Mod Phys. D (IJMPD) **16**, 2481 - 2494 (2007).
- 8) P.E. Barclay, B. Lev, K. Srinivasan, O. Painter, and H. Mabuchi, *Integration of Fiber Coupled High-Q Silicon Nitride Microdisks with Magnetostatic Atom Chips*, Applied Physics Letters **89**, 131108 (2006). **Cover of Applied Physics Letters** (25 September 2006); Preprint: quant-ph/0605234
- 7) P. Treutlein, T. Steinmetz, Y. Colombe, B. Lev, P. Hommelhoff, J. Reichel, M. Greiner, O. Mandel, A. Widera, T. Rom, I. Bloch, and T. W. Hänsch, *Quantum Information Processing in Optical Lattices and Magnetic Microtraps*, Fortschritte der Physik **54**, 702 (2006). Also in: Elements of Quantum

Information, ed. by W.P. Schleich and H. Walther (Wiley-VCH, Weinheim, Germany, 2007), pp. 121-144. Preprint: quant-ph/0605163

- 6) B. Lev, K. Srinivasan, P. Barclay, O. Painter, and H. Mabuchi, *Feasibility of Detecting Single Atoms using Photonic Bandgap Cavities*, *Nanotechnology* **15**, S556 (2004). Preprint: quant-ph/0402093
- 5) A. Hopkins, B. Lev, and H. Mabuchi, *Proposed Magneto-Electrostatic Ring Trap for Neutral Atoms*, *Physical Review A* **70**, 053616 (2004). Preprint: quant-ph/0402037
- 4) B. Lev, *Fabrication of Micro-Magnetic Traps for Cold Neutral Atoms*, *Quantum Information and Computation*, Vol. **3**, No. 5, 450-464, (2003). Preprint: quant-ph/0305067
- 3) B. Lev, Y. Lassailly, C. Lee, A. Scherer, and H. Mabuchi, *Atom Mirror Etched from a Hard Drive*, *Applied Physics Letters*, **83**, 395-397, (2003). Preprint: quant-ph/0304003
- 2) H. Mabuchi, M. Armen, B. Lev, M. Loncar, J. Vuckovic, H.J. Kimble, J. Preskill, M.L. Roukes, and A. Scherer, *Quantum Networks Based on Cavity QED*, *Quantum Information and Computation* **1**, Special Issue, 7-12, (2001).
- 1) B. Wixted, B. Lev, and P. Denes, *Radiation Hardness Evaluation of the Analog Devices AD9042 ADC for Use in the CMS Electromagnetic Calorimeter*, *Nuclear Instruments and Methods in Physics Research Section A*, **417**, 371-376, (1998).

Invited Talks (conferences, colloquia, seminars, and public outreach)

- 49) Condensed, Atomic and Molecular Physics Seminar, *Exploring strongly correlated matter with exotic atoms, cavity QED, and atom chips*, Penn State University, State College, PA, 10/09
- 48) Kick-off meeting for MURI: Quantum Optical Circuits of Hybrid Quantum Memories, *Quantum information processing with dysprosium*, JQI, University of Maryland, 10/09
- 47) Conference talk, DAMOP 2009, University of Virginia, Charlottesville, 5/09, *Quantum phase transitions, fluctuations, and stripe ordering in many-body cavity QED*
- 46) Conference talk, DAMOP 2009, University of Virginia, Charlottesville, 5/09, *Prospects for ultracold dipolar physics, microscopy, and quantum information processing with dysprosium*
- 45) Conference talk, DAMOP 2009, University of Virginia, Charlottesville, 5/09, *Biaxial nematic phases in ultracold dipolar Fermi gases*
- 44) Colloquium, Western Illinois University, Macomb, 4/09, *Exploring exotic matter with atoms*
- 43) Conference talk, Eleventh Annual Southwest Quantum Information and Technology Network (SQulnT), University of Washington, Seattle, 2/09, *Exploring exotic matter through the quantum manipulation of dipolar atoms*
- 41) Invited talk, 3rd annual Midwestern Cold Atom Workshop (MCAW), Argonne National Lab, Illinois, 11/08, *Exploring exotic matter through the quantum manipulation of dipolar atoms*
- 40) Invited talk, New Laser Scientists Conference, Rochester, New York 10/08, *Exploring exotic matter through the quantum manipulation of dipolar atoms*
- 39) Gas phase spectroscopy seminar, University of Illinois at Urbana-Champaign, 3/08, *Stark decelerated OH: magnetic trapping, precision measurement, and cooling*
- 38) Invited talk, European Science Foundation Research Conference: QUANTUM OPTICS: FROM PHOTONS AND ATOMS TO MOLECULES AND SOLID STATE SYSTEMS, Obergurgl, Austria, 2/08, *Cooling molecules in a cavity*

- 37) Seminar, NIST Gaithersburg, Maryland, 11/07; *Towards ultracold dipolar physics*
- 36) Invited talk, 2nd annual Midwestern Cold Atom Workshop (MCAW), University of Wisconsin-Madison, 11/07, *Towards ultracold dipolar physics*
- 35) Conference talk, Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), Calgary, Canada, 6/07; *Prospects for the cavity-assisted laser cooling of molecules*
- 34) Seminar, University of Virginia, 4/07; *Stark decelerated OH: magnetic trapping, cooling, and dipolar qubits*
- 33) Seminar, Oregon Center for Optics, University of Oregon, Eugene, 4/07; *Stark decelerated OH: magnetic trapping, cooling, and dipolar qubits*
- 32) Seminar, Research Institute for Solid State Physics and Optics, Budapest, Hungary, 3/07; *Prospects for the cavity-assisted laser cooling of molecules*
- 31) Ultracold Atoms Seminar, University of Innsbruck, Austria, 3/07; *Stark decelerated OH: magnetic trapping, cooling, and dipolar qubits*
- 30) APS March Meeting, session on Slow Molecular Beams and Quantum Optics, Denver, Colorado, 3/07; *Stark decelerated OH: magnetic trapping, precision measurement, and cooling*
- 29) Invited talk, Ninth Annual Southwest Quantum Information and Technology Network (SQInT), Caltech, Pasadena, California 2/07; *Stark decelerated OH: magnetic trapping, precision measurement, and cooling*
- 28) Invited talk, 36th Winter Colloquium on The Physics of Quantum Electronics (PQE), Snowbird, Utah, 1/07; *Prospects for cavity-assisted laser cooling of Stark decelerated OH*
- 27) Quantum Information Science Seminar, University of Illinois at Urbana-Champaign, 12/06; *Stark decelerated OH: magnetic trapping, precision measurement, and prospects for ultracold polar molecules*
- 26) Center for Advanced Studies Seminar, University of New Mexico, Albuquerque, 12/06; *OH hyperfine structure: from precision measurement to molecular qubits*
- 25) Invited talk, WE-Heraeus-Seminar on Cold Molecules, Bad Honnef, Germany, 10/06; *OH hyperfine structure: From precision measurement to molecular qubits (Magnetic trapping of OH)*
- 24) Invited talk, Quantum Enabled Science and Technology (QUEST) Summer Workshop, Santa Fe, New Mexico, 8/06; *Stark Deceleration of OH: Towards Ultracold Dipolar Gases*
- 23) Quantum Seminar, Los Alamos National Laboratory, New Mexico, 5/06; *Cavity QED, BECs, and Dipolar Gases: An exploration in quantum manipulation*
- 22) Annual Meeting of the Division of Atomic, Molecular, and Optical Physics (DAMOP), Knoxville, Tennessee, 5/06; *Cavity QED with atom chips and microresonators*
- 21) Physics Colloquium, Williams College, Williamstown, Massachusetts, 11/05; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 20) Physics Seminar, Yale University, New Haven, Connecticut, 11/05; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 19) Caltech Alumni Seminar Day, Pasadena, California 5/05; *The Atom Chip*
- 18) Everhart Distinguished Lecture, Caltech, Pasadena, California, 5/05; *The Atom Chip*

- 17) Invited talk, Southwest Quantum Information and Technology Network, Tucson, Arizona, 2/05
Magnetic Microtraps for Cavity QED, BECs, and Atom Optics
- 16) Photonics West 2005, San Jose, California, 1/05; *Nonlinear Dynamics in Single-Atom Cavity QED*
- 15) Physics Colloquium, California State University of Long Beach, California, 1/05; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 14) Ion Trapping Group Seminar, NIST, Boulder, Colorado. 10/04; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 13) JILA Seminar, University of Colorado and NIST, Boulder, Colorado, 10/04; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 12) Atomic, Molecular, and Optical Sciences Seminar, U. C. Berkeley, California, 9/04; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 11) IEEE Nanoscale Devices and System Integration Conference, Miami, Florida, 2/04; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 10) Seminar, Max Planck Institute for Quantum Optics, Garching, Germany, 10/03; *Magnetic Microtraps for Cavity QED, BECs, and Atom Optics*
- 9) MURI Kick-Off Meeting, Stanford, Palo Alto, 10/03; *Overview of Caltech MURI Center for Quantum Networks*
- 8) Seminar, Niels Bohr Institute, Copenhagen, Denmark, 5/03; *Magnetic Microtraps for Cavity QED*
- 7) Research Seminar, NIST Gaithersburg, Maryland, 3/03; *Magnetic Microtraps for Cavity QED*
- 6) Weekly Research Seminar, University of Heidelberg, Germany, 1/03; *Magnetic Microtraps for Cavity QED*
- 5) Weekly Research Seminar, Ludwig-Maximilians University, Munich, Germany, 1/03; *Magnetic Microtraps for Cavity QED*
- 4) Laser Seminar, The Max Planck Institute for Quantum Optics, Garching, Germany, 4/02; *Magnetic Microtraps for Cavity QED*
- 3) Ultracold Atoms Weekly Seminar, University of Innsbruck, Austria, 4/02; *Magnetic Microtraps for Cavity QED*
- 2) Weekly Research Seminar, University of Trento, Italy, 4/02; *Magnetic Microtraps for Cavity QED*
- 1) Quantum Technology Seminar, Los Alamos National Laboratory, New Mexico, 9/01; *Magnetic Microtraps for Cavity QED*

Teaching, Outreach, and Service at the University of Illinois at Urbana-Champaign

- 7) Saturday Morning Physics public lecture, *The atom chip*, 11/09
- 6) Physics 401: Classical Physics Lab; Fall 2009
- 5) Physics undergraduate student mentor (2008 - present)
- 4) Physics 499: Physics Frontiers guest lecture for senior physics majors; Fall 2008, Fall 2009
- 3) Senior Personnel in the EnLiST NSF center: Designing and conducting an atomic clock lab for an entrepreneurial STEM leadership program focusing on high school physics teachers. 2008 - present

- 2) Graduate admissions committee (2008 - present)
- 1) Physics 214/213: Quantum and Thermal Physics; Discussion Leader; Spring 2008

Conference Proceedings, Abstracts, and Poster Presentations

- 17) S. M. Koltsev, B. Lev, J. Fortagh, and V. Baraulya, *Powerful narrow-line source of blue light for laser cooling Yb/Er and Dysprosium atoms*, Paper in LASE SPIE Photonics West conference, San Francisco, 1/10
- 16) S.-H. Youn, M. Lu, U. Ray, B. Lev, *Ultracold dipolar physics with dysprosium*, poster DAMOP 2009, University of Virginia, Charlottesville, 5/09
- 15) S. Gopalakrishnan and P. Goldbart, ESF-coordinated European EUROQUAM research network CMMC (Cavity mediated molecular cooling) Workshop on “Cavity Cooling of Atoms, Molecules, and Ions,” Obergurgl, Tirol, Austria, 2/09, *Quantum Phase Transitions and Frustration of Ultracold Gases in Multimode Cavities*
- 14) B. M. Fregoso, K. Sun, E. Fradkin, and B. L. Lev, *Fermi surface distortions in a neutral Fermi fluid with dipolar interactions*, APS March Meeting, Pittsburgh, 3/09
- 13) S. Gopalakrishnan, B. L. Lev, and P. Goldbart, *Quantum fluctuations and self-organization of a BEC in a multimode optical cavity*, APS March Meeting, Pittsburgh, 3/09
- 12) S.-H. Youn, M. Lu, U. Ray, and B. L. Lev, *Exploring exotic matter through the quantum manipulation of dipolar atoms*, 3rd annual Midwestern Cold Atom Workshop (MCAW), Argonne National Lab, Illinois, 11/07
- 11) 18th International Conference on Laser Spectroscopy (ICOLS), Telluride, Colorado, 6/07
- 10) B. C. Sawyer, B. L. Lev, E.R. Hudson, B. K. Stuhl, M. Lara, J. L. Bohn, and J. Ye, *Magneto-electrostatic trapping of Stark decelerated OH*, P4.00007 DAMOP Calgary, Alberta, Canada, 5/07.
- 9) ICAP 2006, Innsbruck, Austria, 7/06
- 8) E. R. Hudson, B. Sawyer, B. Lev, and Jun Ye, “Precision spectroscopy with cold molecules,” Training School and Workshop on Achievements and Perspectives of Cold Molecules (COMOL’06/CATS’06), Les Houches, France, February 26 – March 10, 2006.
- 7) Atomic Physics Gordon Research Conference, Tilton, New Hampshire, 6/05
- 6) Southwest Quantum Information and Technology Network 6th Annual Meeting, UCSD, San Diego, California, 2/04
- 5) Atomic Physics Gordon Research Conference, Tilton, New Hampshire, 6/03
- 4) Southwest Quantum Information and Technology Network 5th Annual Meeting, LANL, Santa Fe, New Mexico, 2/03
- 3) 18th International Conference on Atomic Physics, MIT, Boston, Massachusetts, 7/02
- 2) Southwest Quantum Information and Technology Network 4th Annual Meeting, NIST, Boulder, Colorado, 3/02
- 1) Southwest Quantum Information and Technology Network 3rd Annual Meeting, Caltech, Pasadena, California, 3/01