David P. DeMille

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Positions

2004-	Professor of Physics, Yale University
2002-2004	Associate Professor of Physics, Yale University
1998-2002	Assistant Professor of Physics, Yale University
1997-98	Assistant Professor of Physics, Amherst College
1993-97	Postdoctoral Researcher, Lawrence Berkeley National Laboratory
1987-93	Graduate Student Research Assistant, Univ. of California, Berkeley
1985-86	Research Assistant, DESY and CERN

Education

1994	Ph.D., Physics, University of California, Berkeley
1989	M.S., Physics, University of California, Berkeley
1985	A.B., Physics, University of Chicago

Honors, Awards, and Service

Francis M. Pipkin Award, American Physical Society, 2006

Fellow of the American Physical Society, 2005

David and Lucile Packard Foundation Fellowship, 1999-2004

Yale University Condé Award for Teaching Excellence, 2004

Alfred P. Sloan Foundation Fellowship, 2000-2002

Research Corporation Cottrell Scholars Award, 2000

Research Corporation Research Innovation Award, 1998

Research Corporation Cottrell College Science Award, 1997

NIST Precision Measurement Grant, 2000-03

Service and committees:

APS DAMOP Executive Committee 2012-6; APS Topical Group on Precision Measurement and Fundamental Constants: Past Chair 2009-2010, Chair 2008-2009, Exec. Committee 2000-2003; DOE review for neutron EDM collaboration (2005; 2016); Conference program/advisory committees for: International Conference on Atomic Physics (2006-8, 13-16); APS DAMOP annual meeting (2005-7, 13-14); APS March Meeting (DAMOP subcommittee) (2013-4); Lepton Moments workshop (2014); Symmetries in Subatomic Physics conference (2014); KITP workshop on ultracold molecules (2013); ARO/DoD workshop on quantum computing with polar molecules (2005); CLEO/QELS (2005); "From zero to Z^0: A workshop on precision electroweak physics," Fermilab (2004); Vernon Hughes Memorial Symposium (2003); "Spin-statistics connection and commutation relations," (2000).

Invited talks:

Over 200 invited talks at department colloquia, seminars, and conferences.

Research Interests

Violations of discrete symmetries:

Search for time-reversal violation, as manifested by an electron electric dipole moment or a nuclear Schiff moment, in molecules (PbO, ThO, TlF). Measurement of neutral weak interaction couplings, using enhanced effects in diatomic free radicals (BaF). Theoretical calculations of symmetry violating effects in atoms and molecules. Search for small time variations in fundamental constants, using molecules and optically-excited nuclei. Search for small violations of the spin-statistics connection for photons, using atomic two-photon transitions. Measurement of parity-violating nuclear anapole moments, using both optical techniques (in atomic Yb) and radiofrequency methods (in atomic Fr and Dy, and in diatomic molecules). Associated spectroscopic measurements in atoms and molecules.

Ultracold polar molecules:

Development of methods for production and trapping of ultracold polar molecules, including direct laser cooling and trapping of molecules. Symmetry-violation tests using ultracold molecules. Development of architectures for quantum computation based on polar diatomic molecules as qubits. Spectroscopy of diatomic molecules.

Teaching and Mentoring

Research advisor for 15 postdoctoral fellows, 27 Ph.D. students (19 graduated), 3 Master's students, 41 undergraduate research projects (including 20 senior theses), and 4 high school students.

Published textbook "Atomic Physics: an exploration through problems and solutions" (with D. Budker and D. F. Kimball): Oxford Univ. Press, 2004; 2nd Edition 2008.

Developed new sophomore-level course Phys344b, "Quantum and nanoscale physics" (Spring 2005). An introduction to topics in quantum information and computation, accessible to any student with a one-year course in calculus-based physics.

Developed new curriculum for junior-level Physics laboratory course Phys382Lb. This introduced new, open-ended, multi-week "research-style" laboratory projects, which allow students to use cutting-edge equipment to study topics in NMR, laser spectroscopy, and quantum mechanics (e.g. a test of Bell's inequality).

Developed and co-taught new graduate seminars "Quantum Computation and Information", Spring 2001; "Advanced Topics in Atomic and Molecular Physics", Spring 2006; "Physics of Diatomic Molecules", Spring 2013.

Developed and co-taught new undergraduate course "Atomic Physics", Spring 1994.

Taught a variety of undergraduate courses, including introductory and advanced laboratories, introductory and intermediate electricity and magnetism, waves and modern physics, quantum mechanics, and electronics.

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Publications

[1.] D. J. McCarron, M. H. Steinecker, Y. Zhu, and D. DeMille. Magnetically-Trapped Molecules Efficiently Loaded from a Molecular MOT. arXiv:1712.01462 (2017); submitted to Phys. Rev. Lett.

[2.] E. Altuntas, J. Ammon, S. B. Cahn, and D. DeMille. Demonstration of a Sensitive Method to Measure Nuclear Spin Dependent Parity Violation. Submitted to Phys. Rev. Lett. (2017).

[3.] E. Altuntas, J. Ammon, S. B. Cahn, and D. DeMille. Measuring Nuclear Spin Dependent Parity Violation With Molecules: Experimental Methods and Analysis of Systematic Errors. arXiv:1711.01988 (2017); submitted to Phys. Rev. A.

[4.] M. S. Safronova, D. Budker, D. DeMille, D. F. Jackson Kimball, A. Derevianko, and C. W. Clark. Search for New Physics with Atoms and Molecules. arXiv:1710.01833 (2017); submitted to Rev. Mod. Phys.

[5.] D. DeMille, J. M. Doyle, and A. O. Sushkov. Probing the frontiers of particle physics with tabletop-scale experiments. Science **357**, 990 (2017).

[6.] E. B. Norrgard, E. R. Edwards, D. J. McCarron, M. H. Steinecker, D. DeMille, Shah Saad Alam, S. K. Peck, N. S. Wadia, and L. R. Hunter. Hyperfine structure of the B $^3\Pi_1$ state and predictions of optical cycling behavior in the X→B transition of TlF. Phys. Rev. A **95**, 062506 (2017)

[7.] ACME Collaboration: J. Baron *et al.* Methods, Analysis, and the Treatment of Systematic Errors for the Electron Electric Dipole Moment Search in Thorium Monoxide. New J. Phys. **19**, 073029 (2017).

[8.] T. Shimasaki, Jin-Tae Kim, and D. DeMille. Production of RbCs Molecules in the Rovibronic Ground State via Short-Range Photoassociation to the 2 $^1\Pi_1$, 2 $^3\Pi_1$, and 3 $^3\Sigma^+_1$ States. ChemPhysChem **17**, 3667 (2016).

[9.] M.H. Steinecker, D.J. McCarron, Y. Zhu, and D. DeMille. Improved radio-frequency magneto-optical trap of SrF molecules. ChemPhysChem **17**, 3664 (2016).

[10.] A. West, Z. Lasner, D. DeMille, E. West, C. Panda, J. Doyle, G. Gabrielse, A. Kryskow, and C. Mitchell. An underappreciated radiation hazard from high voltage electrodes in vacuum. Health Phys. **112**, 33 (2017).

[11.] C. D. Panda, B. R. O'Leary, A. D. West, J. Baron, P. W. Hess, C. Hoffman, E. Kirilov, C. B. Overstreet, E. P. West, D. DeMille, J. M. Doyle, and G. Gabrielse. Stimulated Raman adiabatic passage preparation of a coherent superposition of ThO $H\,^3\Delta_1$ states for an improved electron electric-dipole-moment measurement. Phys. Rev. A **93**, 052110 (2016). [PRA Editor's suggestion]

[12.] E. B. Norrgard, N. Sitaraman, J. F. Barry, D. J. McCarron, M. H. Steinecker, and D. DeMille. In-vacuum scattered light reduction with black cupric oxide surfaces for sensitive fluorescence detection. Rev. Sci. Instrum. **87**, 053119 (2016).

[13.] E.B. Norrgard, D.J. McCarron, M.H. Steinecker, M.R. Tarbutt, and D. DeMille. Sub-millikelvin dipolar molecules in a radio-frequency magneto-optical trap. Phys. Rev. Lett. **116**, 063004 (2016). [PRL Editor's suggestion; Featured in "Physics"]

[14.] D. DeMille. Diatomic molecules, a window onto fundamental physics. Phys. Today **68**, 34 (2015).

[15.] D.L. Kokkin, T.C. Steimle, and D. DeMille. Characterization of the I ($|\Omega|$=1)–X $^1\Sigma^+$(0, 0) band of thorium oxide. Phys. Rev. A **91**, 042508 (2015).

[16.] D.J. McCarron, E.B. Norrgard, M.H. Steinecker, and D. DeMille. Improved magneto-optical trapping of a diatomic molecule. New J. Phys. **17**, 035014 (2015).

[17.] T. Shimasaki, M. Bellos, C. D. Bruzewicz, Z. Lasner and D. DeMille. Production of rovibronic ground state RbCs molecules via two-photon cascade decay. Phys. Rev. A **91**, 021401(R) (2015).

[18.] D.L. Kokkin, T.C. Steimle, and D. DeMille. Branching ratios and radiative lifetimes of the U, L, and I states of thorium oxide. Phys Rev. A **90**, 062503 (2014).

[19.] V. V. Flambaum, D. DeMille, and M. G. Kozlov. Time-reversal symmetry violation in molecules induced by nuclear magnetic quadrupole moments. Phys. Rev. Lett. **113**, 103003 (2014).

[20.] J.F. Barry, D. McCarron, E.B. Norrgard, M.H. Steinecker, and D. DeMille. Magneto-optical trapping of a diatomic molecule. Nature **512**, 286 (2014).

[21.] A.N. Petrov, L.V. Skripnikov, A.V. Titov, N.R. Hutzler, P.W. Hess, B.R. O'Leary, B. Spaun, D. DeMille, G. Gabrielse, J.M. Doyle, Zeeman interaction in ThO H $^3\Delta_1$ for the electron EDM search. Phys. Rev. A **89**, 062505 (2014).

[22.] S. B. Cahn, J. Ammon, E. Kirilov, Y. V. Gurevich, D. Murphree, R. Paolino, D.A. Rahmlow, M.G. Kozlov, and D. DeMille. Zeeman-tuned rotational level-crossing spectroscopy in a diatomic free radical. Phys. Rev. Lett. **112**, 163002 (2014).

[23.] C.D. Bruzewicz, M. Gustavsson, T. Shimasaki, and D. DeMille. Continuous formation of vibronic ground state RbCs molecules via photoassociation. New J. Phys. **16,** 023018 (2014).

[24.] ACME Collaboration, J Baron *et al.* Order of magnitude smaller limit on the electric dipole moment of the electron. Science **343**, 269 (2014).

[25.] D. DeMille, J. F. Barry, E. R. Edwards, E. B. Norrgard, and M. H. Steinecker. On the transverse confinement of radiatively slowed molecular beams. Mol. Phys. **111**, 1805 (2013).

[26.] E. Kirilov, W. C. Campbell, J. M. Doyle, G. Gabrielse, Y. V. Gurevich, P. W. Hess, N. R. Hutzler, B. R. O'Leary, E. Petrik, B. Spaun, A. C. Vutha, and D. DeMille. Shot-noise-limited spin measurements in a pulsed molecular beam. Phys. Rev. A **88**, 013844 (2013).

[27.] S. Eckel, P. Hamilton, E. Kirilov, H. W. Smith, and D. DeMille. Search for the electron electric dipole moment using Ω-doublet levels in PbO. Phys. Rev. A **87**, 052130 (2013).

[28.] M.P. Hehlen, R.R. Greco, W.G. Rellergert, S.T. Sullivan, D. DeMille, R.A. Jackson, E.R. Hudson, and J.R. Torgerson. Optical spectroscopy of an atomic nucleus: Progress toward direct observation of the Th-229 isomer transition. J. of Luminescence, **133**, 91 (2013).

[29.] J.F. Barry and D. DeMille. LOW-TEMPERATURE PHYSICS: A chilling effect for molecules. Nature **491**, 539 (2012).

[30.] G. Yang, J.F. Barry, E.S. Shuman, M.H. Steinecker, and D. DeMille. A low-cost, FPGA-based servo controller with lock-in amplifier. JINST **7**, P10026 (2012).

[31.] S. Sainis, J. Sage, E. Tiesinga, S. Kotochigova, T. Bergeman, and D. DeMille. Detailed spectroscopy of the Cs_2 a $^3\Sigma^+_u$ state and implications for measurements sensitive to variation of the electron-proton mass ratio. Phys. Rev. A **86**, 022513 (2012).

[32.] J.F. Barry, E.S. Shuman, and D. DeMille. Laser radiation pressure slowing of a molecular beam. Phys. Rev. Lett. **108**, 103002 (2012). [Featured in "Physics"]

[33.] L.R. Hunter, S.K. Peck, A.S. Greenspon, S. Saad Alam, and D. DeMille. Prospects for Laser Cooling TlF. Phys. Rev. A **85**, 012511 (2012).

[34.] J.F. Barry, E.S. Shuman, and D. DeMille. A Bright, Slow Cryogenic Molecular Beam Source for Free Radicals. Phys. Chem. Chem. Phys. **13**, 18936 (2011).

[35.] N.R. Hutzler, M. Parsons, Y.V. Gurevich, P.W. Hess, E. Petrik, B. Spaun, A.C. Vutha, D. DeMille, G. Gabrielse, J.M. Doyle. A cryogenic beam of refractory, chemically reactive molecules with expansion cooling. Phys. Chem. Chem. Phys. **13**, 18976 (2011).

[36.] A. C. Vutha, B. Spaun, Y. V. Gurevich, N. R. Hutzler, E. Kirilov, J. M. Doyle, G. Gabrielse, and D. DeMille. Magnetic and electric dipole moments of the H $^3\Delta_1$ state in ThO. Phys. Rev. A **84**, 034502 (2011).

[37.] T. C. Steimle, S. Frey, A. Le, D. DeMille, D.A. Rahmlow, and C. Linton. Molecular-beam optical Stark and Zeeman study of the A $^2\Pi$--X $^2\Sigma^+$ (0,0) band system of BaF. Phys. Rev. A **84**, 012508 (2011).

[38.] D. I. Schuster, Lev S. Bishop, I. L. Chuang, D. DeMille, and R. J. Schoelkopf. Cavity QED in a molecular ion trap. Phys. Rev. A. **83**, 012311 (2011).

[39.] E.S. Shuman, J.F Barry, and D. DeMille. Laser Cooling of a Diatomic Molecule. Nature **467**, 820 (2010).

[40.] S. Kotochigova and D. DeMille. Electric-field-dependent dynamic polarizability and state-insensitive conditions for optical trapping of diatomic polar molecules. Phys. Rev. A **82**, 063421 (2010).

[41.] A.C. Vutha and D. DeMille. Geometric phases without geometry. arXiv:0907.511; Submitted to Am. J. Phys. (2010).

[42.] W.G. Rellergert, D. DeMille, R.R. Greco, M.P. Hehlen, J.R. Torgerson, and E.R. Hudson. Constraining the evolution of the fundamental constants with a solid-state optical frequency reference based on the ^{229}Th nucleus. Phys. Rev. Lett. **104**, 200802 (2010).

[43.] A.C. Vutha, W.C. Campbell, Y.V. Gurevich, N.R. Hutzler, M. Parsons, D. Patterson, E. Petrik, B. Spaun, J.M. Doyle, G. Gabrielse, and D. DeMille. Search for the electric dipole moment of the electron with thorium monoxide. J. Phys. B **43**, 074007 (2010).

[44.] E.S. Shuman, J.F. Barry, D.R. Glenn, and D. DeMille. Radiative Force from Optical Cycling on a Diatomic Molecule. Phys. Rev. Lett. **103**, 223001 (2009). [PRL Editor's Suggestion]

[45.] R.A. Jackson, J.B. Amaral, M.E.G. Valerio, D.P. DeMille, and E.R. Hudson. Computer modelling of thorium doping in $LiCaAlF_6$ and $LiSrAlF_6$: application to the development of solid state optical frequency devices. J. Phys.: Condens. Matter **21**, 325403 (2009).

[46.] L.D. Carr, D. DeMille, R.V. Krems, and Jun Ye. Cold and ultracold molecules: science, technology and applications. New J. Phys. **11**, 055049 (2009).

[47.] D. DeMille, S. Yelin, and R. Cote. Quantum information processing with ultracold polar molecules. In "Cold Molecules: Theory, Experiment, and Applications," ed. R.V. Krems, W.C. Stwalley, and B. Friedrich, CRC Press (2009).

[48.] E.D. Commins and D. DeMille. The electric dipole moment of the electron. In Lepton Dipole Moments, ed. B. L. Roberts and W.J. Marciano, World Scientific (2009).

[49.] S.R. Bickman, P. Hamilton, Y. Jiang, and D. DeMille. Preparation and detection of states with simultaneous spin alignment and molecular orientation in PbO. Phys. Rev. A **80**, 023418 (2009).

[50.] D. DeMille and E.R. Hudson. Ultracold molecules: the coldest polar region. Nature Phys. **4**, 911 (2008).

[51.] M. Raidal, A. van der Schaaf, I. Bigi *et al.* Flavor physics of leptons and dipole moments. Eur. Phys. J. C **57**, 13 (2008).

[52.] Eric R. Hudson, Nathan B. Gilfoy, S. Kotochigova, Jeremy M. Sage, and D. DeMille. Inelastic collisions of ultracold heteronuclear molecules in an optical trap. Phys. Rev. Lett. **100**, 203201 (2008).

[53.] M. Ascoli, E.E. Eyler, D. Kawall, and D. DeMille. High-resolution saturation spectroscopy of singly-ionized iron with a pulsed uv laser. Meas. Sci. Technol. **19**, 045602 (2008).

[54.] D. DeMille, S. Sainis, J. Sage, T. Bergeman, S. Kotochigova, and E. Tiesinga. Enhanced sensitivity to variation of m_e/m_p in molecular spectra. Phys. Rev. Lett. **100**, 043202 (2008).

[55.] D. DeMille, S.B. Cahn, D. Murphree, D. A. Rahmlow, and M. G. Kozlov. Using molecules to measure nuclear spin-dependent parity violation. Phys. Rev. Lett. **100**, 023003 (2008).

[56.] D. Murphree, S.B. Cahn, D. Rahmlow, and D. DeMille. An easily constructed, tuning-free, ultra-broadband probe for NMR. J. Magn. Res. **188**, 160 (2007).

[57.] E. Gomez, S. Aubin, G. D. Sprouse, L. A. Orozco, D. P. DeMille. Measurement method for the nuclear anapole moment of laser trapped alkali atoms. Phys. Rev. A **75**, 033418 (2007).

[58.] E.D. Commins, J.D. Jackson, and D. DeMille. The electric dipole moment of the electron: an intuitive explanation for the failure of Schiff's theorem. Am. J. Phys **75**, 532 (2007).

[59.] P. Rabl, A. Andre, P. Rabl, D. DeMille, J.M. Doyle, P. Zoller, M.D. Lukin, and R.J. Schoelkopf. Hybrid quantum processors: molecular ensembles as quantum memory for solid state CQED. Phys. Rev. Lett. **97**, 033003 (2006).

[60.] A. Andre, S.E. Maxwell, P. Rabl, D. DeMille, J.M. Doyle, P. Zoller, M.D. Lukin, and R.J. Schoelkopf. Polar molecules near superconducting resonators: a coherent, all-electrical atom-mesocopic interface. Nature Phys. **2**, 636 (2006).

[61.] A.V.Titov, N.S.Mosyagin, A.N.Petrov, T.A.Isaev, and D.DeMille. Study of P,T-parity violation effects in polar heavy-atom molecules. www.arXiv.org physics/0506038; Progress in Theoretical Chemistry and Physics, vol. 15, *Recent Advances in the Theory of Chemical and Physical Systems*, ed. Julien, J.-P.; Maruani, J.; Mayou, D.; Wilson, S.; Delgado-Barrio, G. (2006).

[62.] D. Kawall, Y. Gurevich, C. Cheung, S. Bickman, Y. Jiang, and D. DeMille. Stark-modulation spectroscopy of the B(1) [$^3\Pi$] state of PbO. Phys Rev. A **72**, 064501 (2005).

[63.] S.E. Maxwell, N. Brahms, R. deCarvalho, J. Helton, S. V. Nguyen, D. Patterson, J. M. Doyle, D. R. Glenn, J. Petricka, and D. DeMille. High-flux beam source for cold, slow atoms or molecules. Phys. Rev. Lett. **95**, 173201 (2005).

[64.] S. Bickman and D. DeMille. Large-Area, Low-Noise, High Speed, Photodiode-Based Fluorescence Detectors with Fast Overdrive Recovery. Rev. Sci. Instrum. **76**, 113101 (2005).

[65.] J. Sage, S. Sainis, T. Bergeman, and D. DeMille. Optical production of ultracold polar molecules. Phys. Rev. Lett. **94**, 203001 (2005).

[66.] A.N. Petrov, A.V. Titov, T.A. Isaev, N.S. Mosyagin, and D. DeMille. Configuration interaction calculation of hyperfine and P,T-odd constants on ^{207}PbO excited states for electron electric-dipole-moment experiments. Phys. Rev. A **72**, 022505 (2005).

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[74.] M. Kozlov and D. DeMille. Enhancement of the electric dipole moment of the electron in PbO. Phys. Rev. Lett. **89**, 133001 (2002).

[75.] J.E. Stalnaker, D. Budker, D. DeMille, S.J. Freedman, and V.V. Yashchuk. Measurement of the forbidden $6s^2\ ^1S^0 \rightarrow 5d6s\ ^3D_1$ magnetic-dipole transition amplitude in atomic ytterbium. Phys. Rev. A **66**, 031403(R) (2002).

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[79.] D. DeMille, F. Bay, S. Bickman, D. Kawall, L. Hunter, D. Krause, Jr., S. Maxwell, and K. Ulmer. Search for the Electric Dipole Moment of the Electron Using Metastable PbO. In: Art and Symmetry in Experimental Physics: Festschrift for Eugene Commins, ed. D. Budker, P. Bucksbaum, and S. Freedman, AIP Conf. Pub. **596**, 72 (2001).

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[100.] S. Amendolia, *et al*. Gating in the ALEPH time projection chamber. Nucl. Inst. Meth. Phys. Res. A **252** (2-3), 403 (1986).

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Over 10,000 citations in the scientific literature. h-index = 43 [Google Scholar]

David P. DeMille

Invited Talks

[1.] American Chemical Society Spring Meeting, Mar. 2018 (scheduled)

[2.] Symposium on Fundamental Physics in Memory of Sidney Drell, Stanford Linear Accelerator Center, Jan. 2018 (scheduled)

[3.] Physics Department Colloquium, Univ. Groningen, Netherlands, Oct. 2017

[4.] Netherlands NNV AMO Physics Annual Meeting, Lunteren, Netherlands, Oct. 2017 (Plenary)

[5.] Gordon Conference on Atomic Physics, Newport, RI, June 2017 (Plenary)

[6.] APS DAMOP Meeting, Sacramento, CA, June 2017

[7.] MIT Lincoln Laboratories Basic Science Research Seminar, Feb. 2017

[8.] Physics Department Colloquium, UCLA, Jan. 2017

[9.] Laboratory for Nuclear Science Seminar, MIT, Dec. 2016

[10.] Physics Department Colloquium, Harvard University, Nov. 2016

[11.] Physics Department Colloquium, Smith College, Nov. 2016

[12.] American Chemical Society National Meeting, Philadelphia, Aug. 2016 [talk given by postdoc Daniel McCarron]

[13.] International Conference on Atomic Physics, Seoul, Korea, July 2016 (Plenary)

[14.] Les Houches Physics School: Lectures on Current Trends in Atomic Physics, July 2016 (4 lectures)

[15.] High Energy Physics Division Seminar, Argonne National Laboratory, April 2016

[16.] Cold and Controlled Molecules and Ions Conference, Weizmann Institute, Israel, Mar. 2016 (Keynote)

[17.] German Physical Society (DPG) Spring meeting, Hannover, Feb. 2016 (Plenary, Keynote)

[18.] Harvard Joint Quantum Sciences Seminar, Feb. 2016

[19.] OSA Traveling Lecturer Colloquium and Seminar, Univ. of San Luis Potosi, Mexico, Nov. 2015 (2 lectures)

[20.] Physics Department Colloquium, Amherst College, Nov. 2015

[21.] U.S.-Japan Seminar on Many-Body Quantum Systems, Madison, WI, Sept. 2015

[22.] Special Seminar, Institute for Quantum Optics and Quantum Information, Innsbruck, July 2015

[23.] Special Seminar, Max Planck Institute for Quantum Optics, Munich, July 2015

[24.] Institute Colloquium, Max Planck Institute for Physics, Munich, July 2015

[25.] Workshop on "Defining New Directions in Cold Chemical Physics", JILA/Univ. of Colorado, July 2015

[26.] Int'l Conference on Laser Spectroscopy, Singapore, July 2015 (Plenary; talk given by postdoc Daniel McCarron)

[27.] Physics Department Colloquium, Columbia University, April 2015

[28.] Physics Department Colloquium, Rice University, March 2015

[29.] Pacific Conference on Spectroscopy and Dynamics, Jan. 2015

[30.] Physics Department Colloquium, Temple University, Dec. 2014

[31.] Special Atomic Physics Seminar, Stanford University, Nov. 2014

[32.] Physics Department Colloquium, University of California at Berkeley, Nov. 2014

[33.] Joint Quantum Institute Seminar, University of Maryland/NIST, Oct. 2014

[34.] Physics Department Colloquium, University of Texas at Austin, Oct. 2014

[35.] International Conference on Atomic Physics, Aug. 2014 (Plenary)

[36.] Lepton Moments Symposium, Cape Cod, July 2014

[37.] APS DAMOP Meeting (Hot Topics Session), Madison, WI, June 2014

[38.] R.B. Woodward Lecture in the Chemical Sciences/Physical Chemistry Seminar, Department of Chemistry and Chemical Biology, Harvard University, April 2014

[39.] Chemistry Department "Club Med" Seminar, Yale University, March 2014

[40.] Physics Department Colloquium, Brookhaven National Laboratory, March 2014

[41.] Physics Department Colloquium, University of Delaware, Feb. 2014

[42.] Physics Department Colloquium, University of Colorado, Feb. 2014

[43.] Physics Department Colloquium, Yale University, Feb. 2014

[44.] Physics Department Colloquium, Wesleyan University, Jan. 2014

[45.] Royal Society International Scientific Seminar: The application of simple molecules to fundamental questions in science, Chicheley, UK, July 2013.

[46.] APS DAMOP Meeting, Quebec, Canada, June 2013

[47.] APS April Meeting, Denver, CO, April 2013

[48.] Physics Department Colloquium, Univ. of Massachusetts, Amherst, April 2013

[49.] Harvard/MIT Center for Ultracold Atoms Seminar, April 2013

[50.] KITP Conference on Ultracold Molecules, Santa Barbara, CA, March 2013

[51.] Atomic Physics Seminar, Georgia Institute of Technology, Oct. 2012

[52.] ITAMP Workshop on Research Frontiers in Ultra-Cold Atoms and Molecules: Unequal Mass Mixtures and Dipolar Molecules, May 2012

[53.] Physics Department Colloquium, Amherst College, April 2012

[54.] Norman Ramsey Memorial Symposium, Harvard Univ., March 2012

[55.] Physics Department Colloquium, Univ. of Michigan, Feb. 2012

[56.] Physics Department Colloquium, Johns Hopkins Univ., Nov. 2011

[57.] ITAMP Workshop on Fundamental Symmetries and Ultracold Molecules, Cambridge, MA, Sept. 2011

[58.] International Symposium on Molecular Spectroscopy, Columbus, OH, June 2011

[59.] APS DAMOP Meeting, Atlanta, GA, June 2011

[60.] Graduate Student Symposium, APS DAMOP Meeting, Atlanta, GA June 2011

[61.] International Conference on Laser Spectroscopy, Hameln, Germany, June 2011

[62.] CLEO/QELS Conference, Baltimore, MD, May 2011

[63.] James Franck Institute Colloquium, University of Chicago, April 2011

[64.] Special Seminar, Imperial College London, March 2011

[65.] Special Seminar, Institute for Quantum Optics and Quantum Information, Univ. Innsbruck, Austria, March 2011

[66.] Institute Colloquium, Max Planck Institute for Quantum Optics, March 2011

[67.] Physics Department Colloquium, MIT, Feb. 2011

[68.] Optical Society of America/Frontiers in Optics/Laser Science Conference, Rochester, NY, Oct. 2010

[69.] EUROQUAM Conference, Ischgl, Austria, Sept. 2010

[70.] Lepton Moments Symposium, July 2010

[71.] Physics Department Colloquium, Univ. of Washington, May 2010

[72.] Workshop on "Coherence in Ultracold Molecular Physics", University of British Columbia, May 2010

[73.] Joint Atomic Physics Colloquium, Harvard/ITAMP, April 2010

[74.] Symposium on "Physics and Chemistry of Coherently Controlled Quantum Systems", Institute for Molecular Spectroscopy, Inuyama, Japan, March 2010

[75.] Physics Department Colloquium, Trinity College, Dec. 2009

[76.] Colorado Cold Molecules (COCOMO) Workshop, July 2009

[77.] Gordon Conference on Atomic Physics, June 2009

[78.] Institute for Quantum Computing Colloquium, Univ. of Waterloo, June 2009

[79.] Physics Department Colloquium, University of California at Los Angeles, April 2009

[80.] Physics Department Colloquium, University of Wisconsin, March 2009

[81.] Physics Department Colloquium, Florida State University, Feb. 2009

[82.] Chemistry Department “Club Med” Seminar, Yale Univ., Nov. 2008

[83.] Physics Department Colloquium, Stony Brook University, Nov. 2008

[84.] Physics Department Colloquium, Bryn Mawr College, Nov. 2008

[85.] Center for Ultracold Atoms Seminar, Harvard/MIT, Oct. 2008

[86.] Physics Department Colloquium, University of Pennsylvania, Oct. 2008

[87.] ICAP Summer School, Harvard-MIT CUA, July 2008 (2 lectures)

[88.] APS DAMOP Meeting, May 2008

[89.] ICTP Workshop on Quantum Phenomena and Information, May 2008

[90.] APS April Meeting, April 2008

[91.] APS March Meeting, March 2008

[92.] European Science Foundation Research Conference on Quantum Optics, Obergürgl, Austria, Feb. 2008

[93.] Yale Society for Physics Students Talk, Jan. 2008

[94.] Yale Institute for Nanoscience and Quanum Engineering Seminar, Jan. 2008

[95.] Modern Optics and Spectroscopy Seminar, MIT, Dec. 2007

[96.] Physics Department Colloquium, University of Georgia, Oct. 2007

[97.] Physics Department Colloquium, Georgia Institute of Technology, Oct. 2007

[98.] DOE Atomic, Molecular, and Optical Sciences Program Meeting, Sept. 2007

[99.] Gordon Conference on Atomic Physics, July 2007

[100.] International Symposium on Molecular Spectroscopy, June 2007

[101.] ITAMP Workshop on Hybrid Quantum Processors, May 2007

[102.] Yale Science Forum, May 2007

[103.] APS April Meeting, April 2007

[104.] Gordon Research Conference on Quantum Information Science, April 2007

[105.] Canadian Institute for Advanced Research Workshop on Quantum Simulation, Feb. 2007

[106.] Physics Department Colloquium, Northwestern University, Oct. 2006
[107.] JILA Seminar, University of Colorado/JILA, Oct. 2006
[108.] Physics Department Colloquium, University of Colorado, Oct. 2006
[109.] Joint US-Japan Seminar on Quantum Coherence, Sept. 2006
[110.] International Conference on Atomic Physics, July 2006 (Plenary)
[111.] Lepton Moments Workshop, June 2006
[112.] Nuclear Physics Seminar, Michigan State University, June 2006
[113.] APS DAMOP Meeting, May 2006
[114.] Atomic Physics Seminar, Stanford University, May 2006
[115.] Physics Department Colloquium, Johns Hopkins University, April 2006
[116.] Physics Department Colloquium, Yale University, March 2006
[117.] German Physical Society AMOP Annual Meeting, March 2006
[118.] Molecular Physics Seminar, Fritz Haber Institute/Max Planck Society, Berlin, March 2006
[119.] Physics Department Colloquium, Simon Fraser University, Feb. 2006
[120.] Physics Department Colloquium, University of British Columbia, Feb. 2006
[121.] Physics Department Colloquium, Union College, Jan. 2006
[122.] Physics Department Colloquium, University of Toronto, Dec. 2005
[123.] Physics Department Colloquium, New York University, Nov. 2005
[124.] Particles and Nuclei International Conference (Plenary), Oct. 2005
[125.] Optical Society of America/APS Division of Laser Science, Oct. 2005
[126.] Physics Department Colloquium, Harvard University, Oct. 2005
[127.] DARPA Workshop on Atom Chips, Sept. 2005
[128.] Physics Department Colloquium, Indiana University, Sept. 2005
[129.] ARO Workshop on Quantum Computation with Polar Molecules, Sept. 2005
[130.] Telluride Workshop on Ultracold Molecules, July 2005
[131.] International Conference on Laser Spectroscopy (Plenary), June 2005
[132.] KAON 2005 Conference, June 2005
[133.] Physics Department Colloquium, Brookhaven National Laboratory, May 2005
[134.] Physics Department Colloquium, University of Kentucky, April 2005
[135.] Particle Physics Seminar, SUNY Stony Brook, March 2005
[136.] Physics Department Colloquium, Swarthmore College, March 2005
[137.] Nuclear Physics Seminar, University of Illinois, Dec. 2004
[138.] Physics Department Colloquium, Boston University, Dec. 2004
[139.] Physics Department Colloquium, University of Waterloo, Sept. 2004
[140.] Center for Ultracold Atoms Seminar, Harvard/MIT, Sept. 2004
[141.] American Chemical Society, Aug. 2004
[142.] APS Division of Atomic, Molecular, and Optical Physics, May 2004
[143.] Fermilab Colloquium, May 2004

[144.] Physics Department Colloquium, Old Dominion University, April 2004
[145.] APS March Meeting, March 2004
[146.] Atomic Physics Seminar, University of Texas at Austin, Feb. 2004
[147.] Physics Department Colloquium, University of Chicago, Feb. 2004
[148.] Workshop on Ultracold Polar Molecules, Harvard-Smithsonian ITAMP, Jan. 2004
[149.] Physics Department Colloquium, Princeton University, Dec. 2003
[150.] Nuclear Physics Seminar, Lawrence Berkeley National Laboratory, Dec. 2003
[151.] Physics Department Colloquium, Stanford University, Dec. 2003
[152.] Physics Department Colloquium, University of California at Berkeley, Dec. 2003
[153.] Vernon Hughes Memorial Symposium, Yale University, Nov. 2003
[154.] Physics Department Colloquium, Amherst College, Nov. 2003
[155.] Physics Department Colloquium, Williams College, Oct. 2003
[156.] Joint Atomic Physics Colloquium, Harvard/ITAMP, Oct. 2003
[157.] "Class of 1942" Public Science Lecture, Bridgewater State College, Oct. 2003
[158.] Joint US-Japan Seminar on Quantum Coherence, Sept. 2003
[159.] Discussion Leader, Gordon Conference on Atomic Physics, June 2003
[160.] Lepton Moments Workshop, Cape Cod, June 2003
[161.] APS Division of Atomic, Molecular, and Optical Physics, May 2003
[162.] Physics Department Colloquium, New York University, May 2003
[163.] Physics Department Colloquium, University of Nevada at Las Vegas, May 2003
[164.] Particle Physics Seminar, University of Chicago, Jan. 2003
[165.] Guest Lecturer, Yale Freshman "Perspectives on Science" Seminar, Nov. 2002
[166.] Physics Department Colloquium, University of Virginia, Nov. 2002
[167.] JILA Atomic Physics Seminar, University of Colorado/JILA, Nov. 2002
[168.] Physics Division Colloquium, Argonne National Laboratory, Nov. 2002
[169.] American Physical Society New England Section Meeting, Oct. 2002
[170.] LASSP Seminar, Cornell University, Oct. 2002
[171.] Workshop on Fundamental Symmetries and Weak Interactions, Inst. Nucl. Thy., Univ. of Washington, Oct. 2002
[172.] Physics Department Colloquium, Univ. of Oklahoma, March 2002
[173.] Yale Society of Physics Students undergraduate "pizza" talk, Feb. 2002
[174.] Physics Department Colloquium, University of Washington, Feb. 2002
[175.] Quantum Information Seminar, University of Connecticut, Dec. 2001

[176.] Workshop on Fundamental Symmetries, Harvard-Smithsonian ITAMP, Dec. 2001

[177.] Workshop on Ultracold Atoms: Beyond BEC, Harvard-Smithsonian ITAMP, Nov. 2001

[178.] Workshop on CP violation, Univ. of Michigan Center for Theoretical Physics, Nov. 2001

[179.] Atomic Physics Seminar, Univ. of Michigan, Nov. 2001

[180.] Atomic Physics Seminar, Pennsylvania State Univ., Nov. 2001

[181.] Eugene Commins Festschrift Symposium, University of California, Berkeley, May 2001

[182.] Center for Ultracold Atoms Seminar, Harvard/MIT, April 2001

[183.] Workshop on the Muon EDM, Brookhaven National Laboratory, April 2001

[184.] Particle Astrophysics Seminar, Case Western Reserve Univ., April 2001

[185.] P-25 Seminar, Los Alamos National Laboratory, March 2001

[186.] Physics Division Colloquium, Los Alamos National Laboratory, March 2001

[187.] Nuclear Science Advisory Committee Town Meeting, Oakland, CA, Nov. 2000

[188.] Univ. of California at Berkeley Atomic Physics Seminar, Nov. 2000

[189.] Joint US-Japan Seminar, Oct. 2000

[190.] Conference “Spin-Statistics Connection and Commutation Relations”, June 2000

[191.] Physics Department Colloquium, Univ. of Connecticut, March 2000

[192.] Atomic Physics Seminar, SUNY Stony Brook, Nov. 1999

[193.] Workshop on Nuclear Electric Dipole Moments, GSI-Darmstadt, Germany, Nov. 1999

[194.] Workshop on Violations of Fundamental Symmetries in Atoms and Nuclei, Institute for Nuclear Theory, Univ. of Washington, July 1999

[195.] Atomic Physics Seminar, Yale University, Jan. 1998

[196.] Physics Division Colloquium, Brookhaven National Laboratory, Dec. 1997

[197.] Physics Department Colloquium, Amherst College, Dec. 1996

[198.] Atomic Physics Seminar, University of Washington, Nov. 1996

[199.] Physics Division Colloquium, TRIUMF, Vancouver, British Columbia, Canada, Nov. 1996

[200.] Physics Department Colloquium, California Institute of Technology, Oct. 1996

[201.] Atomic Physics Seminar, University of California at Berkeley, May 1996

David P. DeMille

Students and Postdocs Advised

Postdoctoral Associates: D. Kawall 1999-2004; A.J. Kerman 2002-2004; V. Prasad 2003-2005; E. Hudson 2006-8; D. Farkas 2006-8; S. Falke 2007-9; E. Shuman 2008-11; M. Gustavsson 2009-11; E. Kirilov 2009-12; A. Gaetan 2010-11; M. Bellos 2013-2015; A. West 2013-17; D. McCarron 2013-17; E. Norrgard 2016-17; X. Wu 2017-, L. Aldridge 2017-

Ph. D. Students: Frederik Bay (Ph.D. 2003), Sunil Sainis (Ph.D. 2006), Jeremy Sage (Ph.D. 2006), Sarah Bickman (Ph.D. 2007), Yong Jiang (Ph.D. 2007), Jessie Petricka (Ph.D. 2007), Dennis Murphree (Ph.D. 2008), David Glenn (Ph.D. 2009), David Rahmlow (Ph.D. 2010), Nathan Gilfoy (Ph.D. 2010), Paul Hamilton (Ph.D. 2010), Amar Vutha (Ph.D. 2011), John Barry (Ph.D. 2013), Colin Bruzewicz (Ph.D. 2014), Jeff Ammon (Ph.D. 2015), Eric Norrgard (Ph.D. 2016), Brendon O'Leary (Ph.D. 2016), Toshihiko Shimasaki (Ph.D. 2016), Emine Altuntas (Ph.D. 2017), Eustace Edwards (8^{th}), Zack Lasner (5^{th}), Matthew Steinecker (5^{th}), Yuqi Zhu (3^{rd}), Oskari Timgren (2^{nd}), Jakob Kastelic (1^{st}), Xinyi Chen (1^{st}), Varun Jorapur (1^{st})

Master's Students: M. Ascoli (Univ. of Pisa, "Laurea" = Master's project), P. Orth, C. Klumpp (Univ. Heidelberg)

Post-baccalaureate Students: H. Smith

Undergraduate students: N. Derr*[†], J. Roberts*, M. Wessling*[†], J. Young*, S. Bickman*, S. Maxwell*, D. Farkas[†], J. Brittingham[†], Y. Gurevich, C. Cheung, P. Gilbert[†], G. Burkhard[†], J. Weil[#], J. Waks[†], M. Nicholas[†], J. Thompson, Y. Huh, D. Price, C. Yerino, A. Garvan[†], R. Horne[‡], G. Billings, N. Sedlet[†], E. Berwick, M. Lawlor[†], C. Yale[†], T. Su[†], I. Kozyryev[†], M. Doud[†], T. Karpowitz, G. Yang[†], C. Zeng, N. Sitaraman[†], R. McKinnon, D. Ang*, R. Davies[†], K.B. Ng, J. Roberts[†], D. Pollack[†], B. Santiago[†], K. Jackson[†], J. Majumder[†]
(* = Amherst College; [#]=Univ. of Chicago; [‡]= Old Dominion Univ.; [†]=senior thesis)

High school students: Junno Tseng (Choate Academy), Allison Breeze (Guilford HS), Sean Hackett (Guilford HS), Isobel Nairn (Guilford HS)