NORTHWESTERN UNIVERSITY

GERALD GABRIELSE

Board of Trustees Professor in Physics
Director, Center for Fundamental Physics

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Northwestern Homepage: http://cfp.physics.northwestern.edu/gabrielse-group/gabrielse-resume.html
Unauthorized bio: http://en.wikipedia.org/wiki/Gerald_Gabrielse

DEGREES

Ph.D. in physics, University of Chicago, Chicago, Illinois, 1980
M.S. in physics, University of Chicago, Chicago, Illinois, 1975
B.S. in physics (honors), Calvin College, Grand Rapids, Michigan, 1973

POSITIONS

Northwestern University, Evanston, IL

Director, Center for Fundamental Physics, 2017-
Board of Trustees Professor in Physics, 2017-

Harvard University, Cambridge, MA

George Vasmer Leverett Professor of Physics, 2003-2017; emeritus 2018-
Chair of the Harvard Physics Department, 2000-2003
Professor of Physics, 1987-

University of Washington, Seattle, WA

Associate Professor, University of Washington., Seattle, WA, 1986-1987
Assistant Professor, University of Washington, Seattle, WA, 1985-1986
Research Assistant Professor, University of Washington, Seattle, WA, 1982-1985
Research Associate, University of Washington, Seattle, WA, 1978-1982

Secondary Positions

Visiting Scientist at Max Planck Institute for Quantum Optics, Garching, Germany, 2007-2008
Visiting Scientist at the Ludwig Maximilian University, Munich, Germany, 2007-2008
Distinguished Fellow of the Cockcroft Institute, Liverpool, UK, 2007-
Consultant, Polychip, 1999
Consultant, Intermagnetics General Corporation, 1995
Scientist in Residence, Lexington Christian Academy, 1995-1996

HONORS

Faculty Member

Norman F. Ramsey Prize of the American Physical Society, 2024
Member of the U.S. National Academy of Sciences, 2007-
Member of the American Academy of Arts and Sciences, 2019-
Trotter Prize, Texas A&M University, 2013
Julius Lilienfeld Prize of the American Physical Society, 2011
Davisson-Germer Prize of the American Physical Society, 2002
Alexander von Humboldt Research Award, Germany, 2005

Premio Caterina Tomassoni and Felice Pietro Chisesi Prize, Italy, 2008
Levenson Prize for Excellence in the Education of Undergraduates, Harvard University, 2000
George Ledlie Prize for Excellence in Research, Harvard University, 2004
Fellow of the American Physical Society, 1992-
Distinguished Alumnus Award, Trinity College, 1999
Distinguished Alumni Award, Calvin College, 2006
Källén Lecturer, Lund, Sweden, 2007
William H. Zachariasen Lecturer at the University of Chicago for 2007-2008
Poincaré Lecturer, Paris, 2007

Research Associate

Chaim Weizmann Post-Doctoral Fellowship, 1979-82

Graduate

Instructor of Physics at Trinity Christian College (part-time) 1976-78
Argonne Graduate Fellowship, 1976-78
Research Assistantship, 1975-76
Danforth Graduate Fellowship, 1973-1978

Undergraduate

Calvin College Research Assistantship, 1972-73
Calvin College Teaching Assistantship, 1971-72
Calvin College Faculty Scholarship, 1971-73
Trinity College Faculty Scholarship, 1970-71

SAMPLE OF COMMITTEES AND SERVICES

American Physical Society.
Division of Atomic, Molecular and Optical Physics of the American Physical Society,
2012: Past Chair; 2011: Chair; 2010: Chair-Elect; 2009: Vice-chair
Executive Committee, APS Topical Group for Precision Measurements, 1990-1993

National Academy of Sciences
Committee on Precision Time and Time Interval Science and Technology of the NAS 2001-2003
Committee on High-Energy-Density Plasma Phys. of the National Acad. of Sciences, 2001-2003
Freedom Car Committee of the National Academy of Sciences, 2010-2012
U.S. Drive Committee of the National Academy of Sciences, 2011-2012
Committee on Overcoming Barriers to Electric Vehicle Deployment of the NAS, 2012-2014
Chair of the Atomic, Molecular and Optical Physics Screening Panel of the NAS, 2013 – 2015
Research Reactor Conversion Committee of the National Academy of Sciences, 2014 – 2015
Board on Physics and Astronomy of the National Academy of Sciences, 2014 - 2016
Committee on the Use of Highly Enriched Uranium in Civilian Research Reactors, 2014-2016
Committee on Reproducibility and Replicability, 2019

Boards of Colleges, Schools and Foundations
Board of Trustees, Calvin College, 1995-2000
Board of Trustees, Trinity Christian College, 2003-2006
Board of Directors (Vice Chair), North Shore Christian School, 1994-1995
Board of Advisors, Templeton Foundation, 2005-2007, 2009-2011, 2014

Brief Research Summary

Establishing new paradigms for understanding physical reality requires devising and implementing methods to test their predictions. Gerald Gabrielse probes the predictions, symmetries and extensions to the standard model of particle physics with exquisite sensitivity, with methods that derive their sensitivity from precision rather than energy.

His 1 part in 10^{13} measurement of the electron magnetic moment, the most precisely measured property of an elementary particle, tests the standard model's most precise prediction. He and nearly 20 graduate students, one PhD thesis at a time, developed a set of new methods. For the first time, one quantum transition between the lowest cyclotron and spin states of an electron suspended in the magnetic field of a Penning trap were observed and used for measurement. They demonstrated the possibility to achieve the same precision with a positron from a weak radioactive source and now seek to compare the electron and positron moments 200 times more precisely.

Remarkably, his measurement confirms the standard model's most precise prediction to a part per trillion. Several sectors of the standard model are tested. The Dirac equation predicts most of the moment. Quantum Electrodynamics (QED) predicts a 1 part in 10^3 correction; tenth order terms (tens of thousands of Feynman diagrams) are calculated to achieve the experimental precision. Calculated couplings to hadrons are significant. Weak interaction calculations are important to establish that they are just smaller than the current measurement precision.

Despite this success, a standard model that cannot explain why a universe made of matter is possible cannot be the whole story. Gabrielse used very different experimental methods to test modifications to the standard model proposed to fix its shortcomings. Where the standard model predicts an electron electric dipole moment is too small to measure, the proposed modifications (e.g. supersymmetric models) typically predict a much larger moment. He (with collaborators DeMille and Doyle) took advantage of the extremely strong electric field within the ThO molecule to twice measure the electron's electric moment, with both measurements being about 12 times more precise than had previously been possible, testing the standard model at and beyond the TeV scales that the LHC currently probes.

Gabrielse also tested the fundamental CPT symmetry of the standard model by comparing one-particle antiproton and proton cyclotron clocks to compare the charge-to-mass ratios of the antiproton and proton to 9 parts in 10^{11} to make the most sensitive CPT test with baryons. That these antimatter and matter clocks run at the same rate suggests that the gravitational interaction of these particles is the same to a part in 10^6 – the most precise direct comparison of antimatter and matter gravity to test the weak equivalence principle. Gabrielse and his team made the first direct one-particle comparison of the antiproton and proton magnetic moments, improving on previous comparisons by a factor of 680.

Finally, Gabrielse started low energy antiproton and antihydrogen physics. He proposed and demonstrated the slowing, trapping and cooling of antiprotons. Antihydrogen formed using his nested Penning trap is magnetically trapped in its ground state as he proposed. Hundreds currently use his methods at the CERN storage ring built to pursue his antiproton and antihydrogen dreams to test standard model symmetries even more precisely.

Since his move to Northwestern, Gabrielse has stepped back from personal involvement in antihydrogen physics and is concentrating upon new research initiatives being carried out at the Center for Fundamental Physics that he directs. He is developing vacuum UV laser systems to cool a hydrogen beam for precise spectroscopy, exploring new cooling possibilities, and pursuing a cavity-based search for dark matter. He is developing new detection methods to mitigate detection back action in pursuit of a 10 times improved measurement of the electron magnetic moment and the mentioned 200 times improved comparison of the electron and positron moments. A third generation of the ACME measurements that aims for a third order-of-magnitude sensitivity increase is now being commissioned in his Northwestern laboratory.

PUBLICATIONS

Undergraduate (*indicates abstract only)

1. "Density of Liquid Metals: Calcium, Strontium and Barium",
S. Hiemstra, D. Prins, G. Gabrielse, J.B. Van Zytveld,
Phys. Chem. Liq. **6**, 271 (1977).

Graduate

2. "Mean-life Measurements of Ionized Ar and Cl Excited States at Grazing Incidence Wavelengths",
H.G. Berry, J. Desesquelles, P. Tryon, P. Schnur, G. Gabrielse,
Phys. Rev. A **14**, 1457 (1976).

3.* "Analysis of Hydrogenic Coherence Effects by the Applied Electric Field Technique",
G. Gabrielse and Y.B. Band,
Bull. Am. Phys. Soc. **21**, 1251 (1976).

4.* "Orientation of Fast Ions by Surface Scattering",
H.G. Berry, G. Gabrielse, J. Desesquelles, R.M. Schectman,
Bull. Am. Phys. Soc. **21**, 1265 (1976).

5. "Spatial Distribution of Orientation of Fast Ions Excited by Grazing-Surface Collisions"
H.G. Berry, G. Gabrielse, A.E. Livingston, R.M. Schectman, J. Desesquelles,
Phys. Rev. Lett. **38,** 1473 (1977).

6. "Coherent State Multipole Moments: Source of Important Scattering Information"
G. Gabrielse and Y.B. Band,
Phys. Rev. Lett. **39,** 697 (1977).

7.* "Foil Material and Beam Current Dependence of Alignment in Beam-Foil Spectroscopy",
H.G. Berry, G. Gabrielse and A.E. Livingston,
Bull. Am. Phys. Soc. **22,** 82 (1977).

8.* "Comparisons of Tilted Foil- and Tilted Surface-Beam Spectroscopy",
A.E. Livingston, H.G. Berry and G. Gabrielse,
Bull. Am. Phys. Soc. **22**, 82 (1977).

9.* "Spatial Distribution of Orientation Produced by Fast Ions by Collisions with Copper Surfaces",
G. Gabrielse, H.G. Berry and A.E. Livingston,
Bull. Am. Phys. Soc. **22**, 82 (1977).

10. "Measurement of the Stokes Parameters of Light",
H.G. Berry, G. Gabrielse and A.E. Livingston,
Applied Optics **16**, 3200 (1977).

11. "Material-dependent Variations of Alignment in Beam-Foil Excitation",
H.G. Berry, G. Gabrielse, T. Gay and A.E. Livingston,
Phys. Scripta **16,** 99 (1977).

12.* "Opposite Parity Coherence in Thin Foil Excitation of Hydrogen n=2",

G. Gabrielse,
Bull. Am. Phys. Soc. **22,** 1320 (1977).

13.* "An Intuitive Picture of the Coherent Excitation of Hydrogen by Electron Impact: Why Plane Wave and Distorted Wave Born Approximations are Inappropriate",
G. Gabrielse and Y.B. Band,
Bull. Am. Phys. Soc. **22**, 1312 (1977).

14.* "Calculation of Hydrogen Coherence Multipoles Produced by Electron Impact",
Y. Band and G. Gabrielse,
Bull. Am. Phys. Soc. **22,** 1312 (1977).

15. "Production of Orientation and Alignment in Heavy Ion-Surface Collisions",
H.G. Berry, G. Gabrielse and A.E. Livingston,
Phys. Rev. A **16,** 1915 (1977).

16. "Alignment of Helium Excited by Thin Carbon Foils",
R.D. Hight, R.M. Schectman, H.G. Berry, G. Gabrielse and T. Gay,
Phys. Rev. A **16,** 1805 (1977).

17. "Optical Observations of the Dissociation of Fast Molecules in Thin Foils",
H.G. Berry, A.E. Livingston and G. Gabrielse,
Phys. Letters A **64**, 68 (1977).

18. "Significance of Time-Reversal Symmetry for Time Resolved Measurements of Hydrogenic and Other Atomic Observables",
G. Gabrielse,
Phys. Rev. A **22,** 138 (1980).

19. "Measurement of the n=2 Density Operator for Hydrogen Atoms Produced by Passing Protons Through Thin Carbon Targets",
G. Gabrielse,
Phys. Rev. A **23,** 775 (1981).

Postgraduate

20.* "Proposal to Detect Spin Flips in Geonium via Linked Axial Excitation",
H. Dehmelt, R.S. Van Dyck, P.B. Schwinberg and G. Gabrielse,
Bull. Am. Phys. Soc. **24**, 675 (1979).

21.* "Single Elementary Particles at Rest in Free Space",
H. Dehmelt, R.S. Van Dyck, P.B. Schwinberg and G. Gabrielse,
Bull. Am. Phys. Soc. **24,** 757 (1979).

22.* "Analyzing Individual Low-k Axial Motion Quantum States in Geonium",
H. Dehmelt and G. Gabrielse,
Bull. Am. Phys. Soc. **24,** 758 (1979).

1980

23.* "Observed Relativistic Mass Increase for 0.3 eV Electron",
G. Gabrielse and H. Dehmelt,

Bull. Am. Phys. Soc. **25,** 1149 (1980).

1981

24.* "Magnetic Bottles and Compensation for Geonium",
G. Gabrielse and H. Dehmelt,
Bull. Am. Phys. Soc. **26,** 598 (1981).

25.* "Misalignment of B for Geonium",
G. Gabrielse and R. S. Van Dyck,
Bull. Am. Phys. Soc. **26,** 598 (1981).

26.* "Faster, Simpler Schemes to Distinguish n=0,1 in Geonium",
H. Dehmelt and G. Gabrielse,
Bull. Am. Phys. Soc. **26,** 797, (1981).

1982

27. "Precision Spectroscopy of a Charged Particle in an Imperfect Penning Trap",
L. Brown and G. Gabrielse,
Rapid Communications of Phys. Rev. A **25**, 2423 (1982).

28.* "Fast Frequency Selective Excitation of Anharmonic (Relativistic) Cyclotron Motion",
H. Dehmelt and G. Gabrielse,
Bull. Am. Phys. Soc. **27**, 481 (1982).

1983

29. "A Relaxation Calculation of the Electrostatic Properties of Compensated Penning Traps with Hyperbolic Electrodes",
G. Gabrielse,
Phys. Rev. A **27**, 2277 (1983).

30.* "Geonium Spectra and the Finer Structure of the Electron",
R.S. Van dyck, P. Schwinberg, G. Gabrielse and H. Dehmelt, (1983).

1984

31. "Geonium Without a Magnetic Bottle - A New Generation",
G. Gabrielse and H. Dehmelt,
In *Precision Measurements and Fundamental Constants II*, edited by B. N. Taylor and W.D. Phillips,
(Natl. Bur. of Standards U.S., Spec. Publ. 617) p. 219 (1984).

32.* "Comb Excitation Scheme for Resolving the Cyclotron Spectrum of Geonium",
H. Dehmelt and G. Gabrielse,
Bull. Am. Phys. Soc. **29,** 44, (1984).

33. "Detection, Damping and Translating the Center of the Axial Oscillation of a Charged Particle in a Penning Trap with Hyperbolic Electrodes",
G. Gabrielse,

Phys. Rev. A **29**, 462 (1984).

34. "Cylindrical Penning Traps with Orthogonalized Anharmonicity Compensation",
G. Gabrielse and F. Colin MacKintosh,
Int. J. Mass Spectroscopy and Ion Processes **57**, 1 (1984).

35.* "Quasi-thermal, Multi-step Excitation Scheme for Geonium Cyclotron Spectroscopy",
H. Dehmelt and G. Gabrielse,
Bull. Am. Phys. Soc. **29**, 926 (1984).

36.* "Reduction of Geonium Linewidth via Decoupling from the Radiation Field",
G. Gabrielse, R. S. Van Dyck, Jr., P. Schwinberg and H. Dehmelt,
Bull. Am. Phys. Soc. **29**, 926 (1984).

37.* "Detection of 25 Millivolt Electron Energies via Special Relativity",
G. Gabrielse, W. Kells and H. Dehmelt,
Proceedings of ICAP IX **B87** (1984).

38.* "Achieving Cold Antiprotons in a Penning Trap",
W. Kells, G. Gabrielse, and K. Helmerson,
Proceedings of ICAP IX **B88** (1984).

39.* "New Trapping Tricks (Special Relativity below 20 milli-eV and the Inhibition of Spontaneous Emission)",
G. Gabrielse,
Proceedings of ICAP IX **B88** (1984).

40. "On Achieving Cold Antiprotons in a Penning Trap",
W. Kells, G. Gabrielse and K. Helmerson,
Fermilab - Conf. - 84/68 - E (1984).

1985

41. "Observation of a Relativistic Bistable Hysteresis in the Cyclotron Motion of a Single Electron",
G. Gabrielse, H. Dehmelt and W. Kells,
Phys. Rev. Lett. **54**, 537 (1985).

42. "Precision Comparison of Proton and Antiproton Masses in a Penning Trap",
G. Gabrielse, H. Kalinowsky and W. Kells,
In *Physics with Antiprotons at LEAR in the ACOL Era*, edited by U. Gastaldi, R. Klapisch, J.M. Richard and J. Tian Thanh Van (Editions Frontieres, Gif Sur Yvette, France), 665 (1985).

43. "Observation of Inhibited Spontaneous Emission",
G. Gabrielse and H. Dehmelt,
Phys. Rev. Lett. **55**, 67 (1985).

44. "Cyclotron Motion in a Microwave Cavity: Possible shifts of the Measured Electron g Factor",
L.S. Brown, G. Gabrielse, K. Helmerson and J. Tan,
Phys. Rev. Lett. **55**, 44 (1985).

45. "Cyclotron Motion in a Microwave Cavity: Lifetime and Frequency Shifts",
L.S. Brown, G. Gabrielse, K. Helmerson and J. Tan,

Phys. Rev. A **32**, 3204 (1985).

1986

46. "Geonium Theory: Single Electrons and Ions in a Penning Trap",
L.S. Brown and G. Gabrielse,
Rev. Mod. Phys. **58**, 233-311 (1986).

47. "Prospects for Experiments with Trapped Antiprotons",
G. Gabrielse, K. Helmerson, R. Tjoelker, X. Fei, T. Trainor, W. Kells, H. Kalinowsky,
In *Proceedings of Workshop on Low Energy Antiprotons*, edited by L. Pinsky and B. Bonner, (Fermilab, 1986).

48. "First Capture of Antiprotons in a Penning Trap: A KeV Source",
G. Gabrielse, X. Fei, K. Helmerson, S. L. Rolston, R. Tjoelker, T. A. Trainor, H. Kalinowsky, J. Haas, and W. Kells,
Phys. Rev. Lett. **57**, 2504 (1986).

1987

49. "Penning Traps, Masses and Antiprotons",
G. Gabrielse,
In *Fundamental Symmetries*, edited by P. Bloch, P. Paulopoulos and R. Klapisch, p. 59 (Plenum, New York, 1987).

50. "High Voltage Switching for In-flight Capture of KeV Antiprotons in a Penning Trap",
X. Fei, R. Davisson and G. Gabrielse,
Rev. of Sci. **58**, 2197 (1987).

51. "First Capture of Antiprotons in an Ion Trap and the Possibility of Antihydrogen",
G. Gabrielse,
In *Proceedings of Workshop on Cooling Condensation and Storage of Hydrogen*, edited by J. Bahns, Univ. of Dayton, (1987).

52. "First Antiprotons in an Ion Trap",
G. Gabrielse, X. Fei, K. Helmerson, S. L. Rolston, R. Tjoelker, T.A. Trainor, H. Kalinowsky, J. Haas, and W. Kells,
In *Laser Spectroscopy VIII*, edited by W. Persson and S. Svanberg (Springer-Verlag, New York, 1987).

53. "Antihydrogen Production",
G. Gabrielse, L. Haarsma, S. L. Rolston and W. Kells,
In *Laser Spectroscopy VIII*, edited by W. Persson and S. Svanberg (Springer-Verlag, New York) p. 26 (1987).

1988

54. "Cyclotron Motion in a Penning Trap Microwave Cavity",
L. S. Brown, G. Gabrielse, J. Tan, and K.C D. Chan,
Phys. Rev. **A37**, 4163 (1988).

55. "First Capture of Antiprotons in an Ion Trap: Progress toward a Precision Mass Measurement and Antihydrogen",
G. Gabrielse, X. Fei, K. Helmerson, S. L. Rolston, R. Tjoelker, T.A. Trainor, H. Kalinowsky, J. Haas and W. Kells,
Phys. Scripta **T22,** 36 (1988).

56. "Collisions with Trapped Antiprotons",
G. Gabrielse,
In *Electronic and Atomic Collisions*, edited by H.B. Gilbody, W.R. Newell, F.H. Read and A.C.H. Smith, (North-Holland, New York, 1988).

57. "Antihydrogen Production Using Trapped Plasmas",
G. Gabrielse, L. Haarsma, S. Rolston and W. Kells,
Physics Letters A **129**, 38 (1988).

58. "Self-shielding Superconducting Solenoid Systems",
G. Gabrielse and J. Tan,
J. Appl. Phys. **63** (10), 5143,(1988).

59. "Cooling Antiprotons in an Ion Trap",
S.L. Rolston and G. Gabrielse,
Hyperfine Interactions **44**, 233 (1988).

60. "Trapped Antihydrogen for Spectroscopy and Gravitation Studies: Is It Possible?",
G. Gabrielse,
Hyperfine Interactions **44**, 349 (1988.)

61. "Possible Antihydrogen Production Using Trapped Plasmas",
G. Gabrielse, S.L. Rolston, L. Haarsma and W. Kells,
Hyperfine Interactions **44**, 287 (1988).

1989

62. "Tests of CPT Invariance with Leptons and Baryons",
G. Gabrielse,
Nucl. Phys. **B8**, 448 (1989).

63. "Open-endcap Penning Traps for High Precision Experiments",
G. Gabrielse, L. Haarsma and S.L. Rolston,
Intl. J. of Mass Spec. and Ion Proc. **88**, 319 (1989).

64. "Barkas Effect With Antiprotons and Protons",
G. Gabrielse, X. Fei, L.A. Orozco, S.L. Rolston, R.L. Tjoekler, T.A. Trainor, J. Haas, H. Kalinowsky and W. Kells,
Rapid Comm. of Physics Rev. A **40**, 481 (1989).

65. "Positrons for Low Energy Antihydrogen Production",
G. Gabrielse and B. Brown,
In *The Hydrogen Atom*, edited by G.F. Bassani, M. Inguscio, T.W. Hansch, (Springer-Verlag, Berlin) p. 196 (1989).

66. "Cooling and Slowing of Trapped Antiprotons Below 100 meV",
G. Gabrielse, X. Fei, L.A. Orozco, R.L. Tjoelker, J. Haas, H. Kalinowsky, T. Trainor and W. Kells,
Phys. Rev. Lett. **63**, 1360 (1989).

67. "One Electron in a Cylindrical Microwave Cavity",
J. Tan and G. Gabrielse,
Appl. Phys. Lett. **55**, 2144 (1989).

1990

68. "Comment on "Single-Ion Cyclotron Resonance Measurement of $M(CO^+)/M(N^+_2)$",
G. Gabrielse,
Phys. Rev. Lett. **64**, 2098 (1990).

69. "Cavity Shifts of Measured Electron Magnetic Moments",
G. Gabrielse, J. Tan and L.S. Brown,
In *Quantum Electrodynamics*, edited by T. Kinoshita, (World Scientific, Singapore, 1990).

70. "Thousand-fold Improvement in the Measured Antiproton Mass",
G. Gabrielse, X. Fei, L.A. Orozco, R.L. Tjoelker, J. Haas, H. Kalinowsky, T.A. Trainor and W. Kells,
Phys. Rev. Lett. **65**, 1317 (1990).

Thesis Supervised (1): "Trapping Low Energy Antiprotons in an Ion Trap"
Xiang Fei, Harvard Ph.D. Thesis (May 10, 1990).

Thesis Supervised (2): "Antiprotons in a Penning Trap: A New Measurement of the Inertial Mass"
Robert L. Tjoelker, Harvard Ph.D. Thesis (September 26, 1990).

Patent Issued: "Shielding Superconducting Solenoid"
G. Gabrielse and J. Tan (November 26, 1990).

1991

71. "A Superconducting Solenoid System Which Cancels Fluctuations in the Ambient Magnetic Field",
G. Gabrielse, J. Tan, P. Clateman, L.A. Orozco, S.L. Rolston, C.H. Tseng and R.L. Tjoelker,
J. Mag. Res. **91,** 564 (1991).

72. "Synchronization of Parametrically Pumped Electron Oscillators with Phase Bistability",
J. Tan and G. Gabrielse,
Phys. Rev. Lett. **67**, 3090 (1991).

73. "Cryogenic Antiprotons: A 1000-Fold Improvement in Their Measured Mass",
G. Gabrielse, X. Fei, W. Jhe, L.A. Orozco, J. Tan, R.L. Tjoelker, J. Haas, H. Kalinowsky, T.A. Trainor and W. Kells,
In *Atomic Physics 12, Twelfth International Conference on Atomic Physics*, edited by J.C. Zorn, R.R. Lewis (American Institute of Physics, New York, NY), 549 (1991).

74. "Geonium 'K' Experiment Using Spin Dependency of Cyclotron Frequency Supports *g* Data of earlier Geonium 'S' work",
R. Mittleman, F. Palmer, G. Gabrielse and H. Dehmelt,
Proc. Natl. Acad. Sci. **88**, 9436 (1991).

Thesis Supervised (3): "Proton Antiproton Inertial Mass Comparison in a High Precision Penning Trap",
Julian Gröbner, Leopold-Franzens-Universität, Innsbruck, Diploma Thesis (October, 1991).

1992

75. "Cooling Elementary Particles",
G. Gabrielse,
in *Laser Manipulation of Atoms and Ions*, edited by E. Arimondo, W.D. Phillips and F. Strumia, (North Holland, New York) p. 631 (1992).

76. "Antiprotons, Positrons and Antihydrogen",
G. Gabrielse, W. Jhe, D. Phillips, R. Kaiser, H. Kalinowsky and J. Gröbner,
Mat. Sci. Forum **75,** 105-110 (1992).

77. "Extremely Cold Antiprotons",
G. Gabrielse,
Scientific American, December, 1992 p. 78-89.

Thesis Supervised (4): "Cooperative Behavior in Cavity-cooled, Parametrically-pumped Electron Oscillators",
Joseph N. Tan, Harvard Ph.D. Thesis (August 24, 1992).

1993

78. "Cylindrical Penning Traps and Self-Shielding Superconducting Solenoids for High Precision Experiments",
W. Jhe, D. Phillips, L. Haarsma, J. Tan and G. Gabrielse,
Physica Scripta **46**, 264 (1992); RPS **20**, 44 (1993).

79. "Precision Mass Measurements of Antiprotons in a Penning Trap",
W. Jhe, D. Phillips, G. Gabrielse, J. Gröbner and H. Kalinowsky,
Physica Scripta, **46**, 268 (1992); RPS **20**, 48 (1993).

80. "Parametrically-Pumped Electron Oscillators",
J. Tan and G. Gabrielse,
Phys. Rev. A., 48 3105 (1993).

81. "Extremely Cold Antiprotons, For Mass Measurements and Antihydrogen",
G. Gabrielse, W. Jhe, D. Phillips, W. Quint, C. Tseng, L. Haarsma, K. Abdullah, J. Gröbner and H. Kalinowsky,
In *Atomic Physics 13, Thirteenth International Conference on Atomic Physics*, (American Institute of Physics, New York, NY), p. 85 (1993).

82. "The Magnetic Moment of the Antiproton",
W. Quint and G. Gabrielse,

Hyperfine Interactions **76**, 379 (1993).

83. "(Anti)Hydrogen Recombination Studies in a Nested Penning Trap",
W. Quint, R. Kaiser, D. Hall, G. Gabrielse,
Hyperfine Interactions **76,** 181 (1993).

84. "Extremely Cold Antiprotons for Antihydrogen Production",
G. Gabrielse, W. Jhe, D. Phillips, W. Quint, C. Tseng, L. Haarsma, K. Abdullah, J. Gröbner and H. Kalinowsky,
Hyperfine Interactions **76,** 81 (1993).

85. "Portable Trap Carries Particles 5000 Kilometers",
C. Tseng and G. Gabrielse,
Hyperfine Interactions **76**, 381 (1993).

86. "Extremely Cold Positrons for Antihydrogen Production",
L. Haarsma, K. Abdullah and G. Gabrielse,
Hyperfine Interactions **76**, 143 (1993).

87. "Observing a Single Trapped Antiproton",
G. Gabrielse, W. Jhe, D. Phillips, W. Quint, H. Kalinowsky and J. Gröbner,
Nuclear Physics A **558,** 701c (1993).

88. "A Single Trapped Antiproton and Antiprotons for Antihydrogen Production",
G. Gabrielse, W. Jhe, D. Phillips, W. Quint, L. Haarsma, K. Abdullah, H. Kalinowsky and J. Gröbner,
Hyperfine Interactions **81**, 5 (1993).

1994

89. "One Electron in a Cavity",
G. Gabrielse and J. Tan,
In *Cavity Quantum Electrodynamics*, edited by P. Berman, (Academic Press, New York) p. 267 (1994).

90. "Trapped Positrons for Antihydrogen",
G. Gabrielse, L. Haarsma and K. Abdullah,
Hyperfine Interactions **89**, 371 (1994).

Thesis Supervised (5): "Accumulating Positrons in an Ion Trap",
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J. Wrubel, G. Gabrielse, W.S. Kolthammer, P. Larochelle, R. McConnell, P. Richerme, D. Grzonka, W. Oelert, T. Sefzick, M. Zielinski, J.S. Borbely, M.C. George, E.A. Hessels, C.H. Storry, M. Weel, A. Mullers, J. Walz and A. Speck,
Nucl. Inst. and Meth. A, **640**, 232 - 240 (2011).

168. "Magnetic and Electric Dipole Moments of the H $^3\Delta_1$ State in ThO"
A.C. Vutha, B. Spaun, Y.V. Gurevich, H.R. Hutzler, E. Kirilov, J.M. Doyle, G. Gabrielse and D. DeMille,
Phys. Rev. A **84**, 034502 (2011).

169. "A Cryogenic Beam of Refractory, Chemically Reactive Molecules with Expansion Cooling"
N.R Hutzler, M. Parsons, Y.V. Gurevich, P.W. Hess, E. Petzik, B. Spaun, A.C. Vutha, D. DeMille, G. Gabrielse and J.M. Doyle,
Phys. Chem Phys. **13**, 18976 - 18985 (2011). (arXiv:1101.4217).

Thesis Supervised (27): "Laser-Controlled Charge-Exchange Production of Antihydrogen",
Robert McConnell, Harvard Ph.D. Thesis (September, 2011).

Thesis Supervised (28): "Planar Penning Traps with Anharmonicity Compensation for Single-Electron Qubits",
Joshua David Goldman, Harvard Ph.D. Thesis (September 2011).

Thesis Supervised (29): "Antimatter Plasmas Within a Penning-Ioffe Trap",
W. Steven Kolthammer, Harvard Ph.D. Thesis (September, 2011).

2012

170. "Trapped Antihydrogen in Its Ground State"
G. Gabrielse, R. Kalra, W. S. Kolthammer, R. McConnell, P. Richerme, D. Grzonka, W. Oelert, T. Sefzick, M. Zielinski, D. W. Fitzakerley, M. C. George, E. A. Hessels, C. H. Storry, M. Weel, A. Müllers and J. Walz,
Phys. Rev. Lett. **108**, 113002 (2012).

171. "Direct Measurement of the Proton Magnetic Moment"
J. DiSciacca and G. Gabrielse,
Phys. Rev. Lett. **108**, 153001 (2012).

172. "Efficient transfer of positrons from a buffer-gas-cooled accumulator into an orthogonally oriented superconducting solenoid for antihydrogen studies"
D. Comeau, A. Dror, D. W. Fitzakerley, M. C. George, E. A. Hessels, C. H. Storry, M. Weel, D. Grzonka, W. Oelert, G. Gabrielse, R. Kalra, W. S. Kolthammer, R. McConnell, P. Richerme, A. Müllers and J. Walz,
New J. Phys. **14**, 045006 (2012).

173. "A semiconductor laser system for the production of antihydrogen"
A. Müllers, S. Böttner, D. Kolbe, T. Diehl, A. Koglbauer, M. Sattler, M. Stappel, R. Steinborn, J. Walz, G. Gabrielse, R. Kalra, W. S. Kolthammer, R. P. McConnell, P. Richerme, D. W. Fitzakerley, M. C. George, E. A. Hessels, C. H. Storry, M. Weel, D. Grzonka and W. Oelert, New J. Phys. **14**, 055009 (2012).

Thesis Supervised (30): "Preliminary Measurements for an Electron EDM Experiment in ThO",
Yulia Gurevich, Harvard Ph.D. Thesis (January, 2012).

Thesis Supervised (31): "Trapped Antihydrogen in Its Ground State",
Philip Richerme, Harvard Ph.D. Thesis (May, 2012).

2013

174. "Electric Fields Prevent Mirror-Trapped Antiprotons in Trapped Antihydrogen Studies"
P. Richerme, G. Gabrielse, S. Ettenauer, R. Kalra, E. Tardiff, D.W. Fitzakerley, M.C. George, E.A. Hessels, C.H. Storry, M. Weel, A. Mullers and J. Walz,
Phys. Rev. A **87**, 023422 (2013).

175. "One-Particle Measurement of the Antiproton Magnetic Moment"
J. DiSciacca, M. Marshall, K. Marable, G. Gabrielse, S. Ettenauer, E. Tardiff, R. Kalra, D.W. Fitzakerley, M.C. George, E.A. Hessels, C.H. Storry, M. Weel, D. Grzonka, W. Oelert and T. Sefzick,
Phys. Rev. Lett. **110**, 130801 (2013).

176. "Resolving an Individual One-Proton Spin Flip to Determine a Proton Spin State"
J. DiSciacca, M. Marshall, K. Marable and G. Gabrielse,
Phys. Rev. Lett. **110**, 140406 (2013).

177. "Review of the Research Program of the U.S. DRIVE Partnership, Fourth Report"
Committee on Review of the U.S. DRIVE Program, Phase 4,
(National Academies Press, Washington, DC, 2013).

178. "Shot-Noise-Limited Spin Measurements in a Pulsed Molecular Beam"
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,
Phys. Rev. A, **88**, 013844 (2013).

179. "Overcoming Barriers to Electric-Vehicle Deployment (Interim Report)"
Committee on Overcoming Barriers to Electric-Vehicle Deployment,
(National Academies Press, Washington, DC, 2013).

180. "The Standard Model's Greatest Triumph"
G. Gabrielse,
Physics Today, p. 64 (December 2013).

Thesis Supervised (32): "First Single Particle Measurements of the Proton and Antiproton Magnetic Moments",
Jack DiSciacca, Harvard Ph.D. Thesis (May 7, 2013).

Thesis Supervised (33): "Trapped Positrons for High Precision Magnetic Moment Measurements",

Shannon Fogwell Hoogerheide, Harvard Ph.D. Thesis (May 13, 2013).

Thesis Supervised (34): "Quantum Jump Spectroscopy of a Single Electron in a New and Improved Apparatus",
Joshua Dorr, Harvard Ph.D. Thesis (Sept. 9, 2013).

2014

181. "Order of Magnitude Smaller Limit on the Electric Dipole Moment of the Electron"
J. Baron, W.C. Campbell, D. DeMille, J. M. Doyle, G. Gabrielse, Y. V. Gurevich, P.W. Hess, N. R. Hutzler, E. Kirilov, I. Kozyryev, B.R. O'Leary, C. D. Panda, E. S. Petrik, B. Spaun, A.C. Vutha, and A.D. West,
Science **343** 269-272 (2014)

182. "Zeeman Interaction in ThO $H^3\,\Delta_1$ for the Electron EDM Search",
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 and J.M. Doyle
Phys. Rev. A **89**, 062505 (2014). arXiv: 1404.4024v1 [physics.atom-ph]

183. "Precise Matter and Antimatter Tests of the Standard Model with electrons, positrons, protons, antiprotons and antihydrogen"
G. Gabrielse, S. Fogwell Hoogerheide, J. Dorr and E. Novitski,
In *Fundamental Physics in Particle Traps*, edited by W. Quint and M. Vogel, (Springer, Darmstadt, 2014) 1 - 37. ISBN: 978-3-642-45200-0 (Print) 978-3-642-45201-7 (Online)

Thesis Supervised (35): "A Ten-Fold Improvement to the Limit of the Electron Electric Dipole Moment",
Benjamin Spaun, Harvard Ph.D. Thesis (May 16, 2014).

Thesis Supervised (36): "Improving the Limit on the Electron EDM - Data Acquisition and Systematic Studies",
Paul W. Hess, Harvard Ph.D. Thesis (May 16, 2014).

Thesis Supervised (37): "An Improved Antihydrogen Trap",
Rita Kalra, Harvard Ph.D. Thesis (October 14, 2014).

2015

184. "High Efficiency Positron Accumulation for High-precision Magnetic Moment Experiments"
S. Fogwell Hoogerheide, J.C. Dorr, E. Novitski and G. Gabrielse.
Rev. Sci. Instrum. **86**, no. 5 053301 (2015)

2016

185. "Reducing the Use of Highly Enriched Uranium in Civilian Research Reactors"
J. M. Phillips, P. Adelfang, G. Gabrielse, A. Glaser, D.W. Johnson, P. Lemoine, W.R. Martin, R. Pynn, W.H. Tobey and P.P.H. Wilson, (NAS Committee),
(The National Academies Press Washington, DC, 2016)

186. "Electron-Cooled Accumulation of 4 x 10^9 Positrons for Production and Storage of Antihydrogen Atoms"
D.W. Fitzakerley, M.C. George, E.A. Hessels, T.D.G. Skinner, C.H. Storry, M. Weel, G. Gabrielse, C.D. Hamley, N. Jones, K. Marable, E. Tardiff, D. Grzonka and M. Zielinski, J. Phys. B: Atomic and Molecular Physics **49**, 064001 (2016)

187. "Large Numbers of Cold Positronium Atoms Created in Laser-Selected Rydberg States Using Resonant Charge Exchange"
R. McConnell, G. Gabrielse, W.S. Kolthammer, P. Richerme, A. Müllers, J. Walz, D. Grzonka, W. Oelert, M. Zielinski, D. Fitzakerley, M.C. George, E.A. Hessels, C.H. Storry and M. Weel, J. Phys. B: Atomic and Molecular Physics **49**, 064002 (2016)

188. "Stimulated Raman Adiabatic Passage Preparation of a Coherent Superposition of ThO $H^3\,\Delta_1$ States for an Improved Electron EDM Measurement"
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, Phys. Rev. A **93**, 052110 (2016). (arXiv:1603.07707)

2017

189. "A Self-Calibrating Polarimeter to Measure Stokes Parameters"
V. Andreev, C. D. Panda, P. W. Hess, B. Spaun, G. Gabrielse (2017). arXiv:1703.00963 [physics.ins-det]. https://arxiv.org/abs/1703.00963

190. "An Underappreciated Radiation Hazard from High Voltage Electrodes in Vacuum"
A.D. West, Z. Lasner, D. DeMille, E.P. West, C.D. Panda, J.M. Doyle, G. Gabrielse, A. Kryskow, C. Mitchell. Health Physics **112**, 1 (2017).

191. "Methods, Analysis, and the Treatment of Systematic Errors for the Electron Electric Dipole Moment Search in Thorium Monoxide"
J. Baron, W. C. Campbell, D. DeMille, J. M. Doyle, G. Gabrielse, Y. V. Gurevich, P. W. Hess, N. R. Hutzler, E. Kirilov, I. Kozyryev, B.R. O'Leary, C. D. Panda, B. Spaun, A. C. Vutha, E.P. West, A. D. West, New J. Phys. **19**, 073029 (2017).

Thesis Supervised (38): "Apparatus and Methods for a New Measurement of the Electron and Positron Magnetic Moments", Elise M. Novitski, Harvard Ph.D. Thesis (December 19, 2017).

2018

192. "Lyman-α source for laser cooling antihydrogen"
G. Gabrielse, B. Glowacz, D. Grzonka, C. D. Hamley, E. A. Hessels, N. Jones, G. Khatri, S. A. Lee, C. Meisenhelder, T. Morrison, E. Nottet, C. Rasor, S. Ronald, T. Skinner, C. H. Storry, E. Tardiff, D. Yost, D. Martinez Zambrano, and M. Zielinski, Optics Letters **43**, 2905 (2018).

193. "Improved limit on the electric dipole moment of the electron"
ACME Collaboration: V. Andreev, D. G. Ang, D. DeMille, J. M. Doyle, G. Gabrielse, J. Haefner, N. R. Hutzler, Z. Lasner, C. Meisenhelder, B. R. O'Leary, C. D. Panda, A. D. West, E. P. West & X. Wu, Nature **562**, 355 (2018).

Thesis Supervised (39): "Order of magnitude improved limit on the electric dipole moment of the electron", Cristian D. Panda, Harvard Ph.D. Thesis (November 16, 2018).

2019

194. "Towards an Improved Test of the Standard Model's Most Precise Prediction"
Gabrielse, G.; Fayer, S.E.; Myers, T.G.; Fan, X. Towards an Improved Test of the Standard Model's Most Precise Prediction. Atoms **7**, 45 (2019). https://www.mdpi.com/2218-2004/7/2/45

195. "Gaseous ^{3}He Nuclear Magnetic Resonance Probe for Cryogenic Environments"
X. Fan, S. E. Fayer, and G. Gabrielse, Review of Scientific Instruments **90**, 083107 (2019). https://aip.scitation.org/doi/full/10.1063/1.5099379

196. "Roadmap on STIRAP applications"
Klaas Bergmann, Hanns-Christoph Nägerl, Cristian Panda, Gerald Gabrielse, Eduard Miloglyadov, Martin Quack, Georg Seyfang, Gunther Wichmann, Silke Ospelkaus, Axel Kuhn, Stefano Longhi, Alexander Szameit, Philipp Pirro, Burkard Hillebrands, Xue-Feng Zhu, Jie Zhu, Michael Drewsen, Winfried K. Hensinger, Sebastian Weidt, Thomas Halfmann, Hailin Wang, G. S. Paraoanu, Nikolay V. Vitanov, J. Mompart, Th. Busch, Timothy J. Barnum, David D. Grimes, Robert W. Field, Mark G. Raizen, Edvardas Narevicius, Marcis Auzinsh, Dmitry Budker, Adriana Pálffy, Christoph H. Keitel. J. Phys. B: At. Mol. Opt. Phys. **52** 202001 (2019). https://iopscience.iop.org/article/10.1088/1361-6455/ab3995

197. "Attaining the shot-noise-limit in the ACME measurement of the electron electric dipole moment"
C. D. Panda, C. Meisenhelder, M. Verma, D. G. Ang, J. Chow, Z. Lasner, X. Wu, D. DeMille, J. M. Doyle, and G. Gabrielse. Journal of Physics B: Atomic, Molecular and Optical Physics, **52**, 23 (2019).

198. "Reproducibility and Replicability in Science"
H. V. Fineberg, D. B. Allison, L. A. Barba, D. Chong, D. Donoho, J. Freire, G. Gabrielse, C. Gatsonis, E. Hall, T. H. Jordan, D. A. Scheufele, V. Stodden, S. Vazire, T. D. Wilson, W. Wood (NAS Committee), (The National Academies Press, Washington, DC, 2019)

Thesis Supervised (40): "New Apparatus and Methods for the Measurement of the Proton and Antiproton Magnetic Moments", Mason Claflin Marshall, Harvard Ph.D. Thesis (May 2019).

Thesis Supervised (41): "Progress towards a sub-ppb measurement of the antiproton magnetic moment", Kathryn Marable, Harvard Ph.D. Thesis (July 2019).

Thesis Supervised (42): "Progress Toward a Single-Electron Qubit in an Optimized Planar Penning Trap", Melissa Ann Wessels, Harvard Ph.D. Thesis (July 2019).

2020

199. "The metastable $Q\,^3\Delta_2$ state of ThO: a new resource for the ACME electron EDM search"
X. Wu, Z. Han, J. Chow, D. G. Ang, C Meisenhelder, C. D. Panda, E. P. West, G. Gabrielse, J. M. Doyle, and D. DeMille. New Journal of Physics, **22** 023013 (2020).

200. "Two-symmetry Penning-Ioffe trap for antihydrogen cooling and spectroscopy"
E. Tardiff, X. Fan, G. Gabrielse, D. Grzonka, C. Hamley, E.A. Hessels, N. Jones, G. Khatri, W.S. Kolthammer, D. Martinez Zambrano, C. Meisenhelder, T. Morrison, E. Nottet, E. Novitski, C.H. Storry. NIM A, **977** 164279 (2020).

201. "Searches for new sources of CP violation using molecules as quantum sensors"
N. R. Hutzler, A. Borschevsky, D. Budker, D. DeMille, V. V. Flambaum, G. Gabrielse, R. F. Garcia Ruiz, A. M. Jayich, L. A. Orozco, M. Ramsey-Musolf, M. Reece, M. S. Safronova, J. T. Singh, M. R. Tarbutt, and T. Zelevinsky, (2020). arXiv:2010.08709 [hep-ph]
https://arxiv.org/abs/2010.08709

Thesis Supervised (43): "Toward Antihydrogen Spectroscopy," Nathan Jones, Harvard Ph.D. Thesis (May 2020)

Thesis Supervised (44): "Improved Antihydrogen Production at the ATRAP Experiment," Edouard Nottet, Ph.D. Thesis (June 2020)

2021

202. "Switchable Damping for a One-Particle Oscillator"
X. Fan, S. E. Fayer, T. G. Myers, B. A. D. Sukra, G. Nahal, G. Gabrielse, Rev. Sci. Instrum. **92**, 023201 (2021).

203. "Circumventing Detector Backaction on a Quantum Cyclotron"
X. Fan and G. Gabrielse, Phys. Rev. Lett. **126**, 070402 (2021).

204. "Driven One-Particle Quantum Cyclotron"
X. Fan and G. Gabrielse, Phys. Rev. A **103**, 022824 (2021).

205. "Suppression of the optical crosstalk in a multi-channel silicon photomultiplier array"
T. Masuda, D. G. Ang, N. R. Hutzler, C. Meisenhelder, N. Sasao, S. Uetake, X. Wu, D. DeMille, G. Gabrielse, J. M. Doyle, and K. Yoshimura, Optics Express **29**, 16914 (2021).

206. "Simple Self-calibrating Polarimeter for Measuring the Stokes Parameters of Light"
V. Wirthl, C. D. Panda, P. W. Hess, and G. Gabrielse, OSA Continuum **4**, 2949 (2021).

2022

207. "Measurement of the $H^3\Delta_1$ Radiative Lifetime in ThO"
D.G. Ang, C. Meisenhelder, et al., *Phys. Rev. A*. **106**, 022808 (2022) DOI: 10.1103/PhysRevA.106.022808

208. "Electrostatic focusing of cold and heavy molecules for the ACME electron EDM search"
X. Wu, P. Hu, Z. Han, D. G. Ang, C. Meisenhelder, G. Gabrielse, J. M. Doyle, D. DeMille. *New J. Phys*. **24** 073043 (2022).

209. "Electric dipole moments and the search for new physics"
R. Alarcon, J. Alexander, V. Anastassopoulos, T. Aoki, R. Baartman, S. Baeβler, L. Bartoszek, D. H. Beck, F. Bedeschi, R. Berger, M. Berz, H. L. Bethlem, T. Bhattacharya, M. Blaskiewicz, T. Blum, T. Bowcock, A. Borschevsky, K. Brown, D. Budker, S. Burdin, B. C. Casey, G. Casse, G. Cantatore, L. Cheng, T. Chupp, V. Cianciolo, V. Cirigliano, S. M. Clayton, C. Crawford, B. P. Das, H. Davoudiasl, J. de Vries, D. DeMille, D. Denisov, M. V. Diwan, J. M. Doyle, J. Engel, G.

Fanourakis, R. Fatemi, B. W. Filippone, V. V. Flambaum, T. Fleig, N. Fomin, W. Fischer, G. Gabrielse, et. al, (2022). arXiv:2203.08103 [hep-ph]. https://arxiv.org/abs/2203.08103

210. "One-Electron Quantum Cyclotron as a Milli-eV Dark-Photon Detector"
X. Fan, G. Gabrielse, P. W. Graham, R. Harnik, T. G. Myers, H. Ramani, B. A. D. Sukra, S. S. Y. Wong, Y. Xiao. *Phys. Rev. Lett.* **129**, 261801 (2022).

Thesis Supervised (45): "An Improved Measurement of the Electron Magnetic Moment"
Xing Fan, Ph.D. Thesis (August 2022)

2023

211. "Measurement of the Electron Magnetic Moment"
X. Fan, T. G. Myers, B. A. D. Sukra, G. Gabrielse. *Phys. Rev. Lett.* **130**, 071801 (2023).
APS announcement of this result: https://physics.aps.org/articles/v16/22

Thesis Supervised (46): "Progress towards an improved measurement of the electric dipole moment of the electron," Daniel G. Ang, Ph.D Thesis (April 2023)

Thesis Supervised (47): "Advances in the Measurement of the Electron Electric Dipole Moment,"
Cole Meisenhelder, Ph.D. Thesis (May 2023)

Thesis Supervised (48): " Towards antihydrogen spectroscopy and CW Lyman-alpha via four-wave mixing in mercury,"
Tharon Morrison, Ph.D. Thesis (May 2023)

2024

212. "Highly Excited Electron Cyclotron for QCD Axion and Dark-Photon Detection"
X. Fan, G. Gabrielse, P. W. Graham, H. Ramani, S. S. Y. Wong, Y. Xiao, (2024). arXiv:2410.05549 [hep-ph]. https://arxiv.org/abs/2410.05549

213. Lower Limits on Scalar Ultralight Dark Matter from Optical Cavities
T. Deshpande, A. Ionescu, N. Miller, Z. Wang, G. Gabrielse, A. A. Geraci, T. Kovachy, (2024). arXiv:2412.20623 [hep-ex]. https://arxiv.org/abs/2412.20623

COLLOQUIA, INVITED TALKS, ETC.

1984

July 22	ICAP Workshop on Atomic Physics Tests of General Physical Principles (invited talk)
July 27	Organized ICAP Workshop on Ion Trapping
Sept. 1	University of British Columbia (physics colloquium)
Oct. 5	Los Alamos National Laboratory (AT colloquium)
Nov. 7	University of Pittsburgh (physics colloquium and particle physics seminar)
Dec. 20	University of Texas at Austin (atomic physics seminar)

1985

Jan. 25	LEAR Users Meeting, Savoie, France
Jan. 30	University of Mainz (atomic physics seminar)
Feb. 19	North Carolina State University (atomic physics seminar)
Feb. 20	University of Chicago (particle physics seminar)
Feb. 23	Purdue University (physics colloquium and electrical engineering colloquium)
Feb. 26	Massachusetts Institute of Technology (atomic physics colloquium)
Feb. 28	Hope College (physics colloquium)
Apr. 15	Open Session of Proton Synchrotron Committee, CERN
Apr. 17	ISOLDE Colloquium, CERN
Apr. 20	Workshop on Polarized Antiproton Sources Bodega Bay, California (invited talk)
Apr. 22	University of Arizona (physics colloquium)
Apr. 25	North Carolina State University (physics colloquium)
Jul. 1	Gordon Conference on Atomic Physics (invited talk)
Oct. 9	University of California at Berkeley (physics colloquium)
Oct. 23	State University of New York at Stony Brook (physics colloquium)
Oct. 24	IBM (Yorktown, New York)
Oct. 25	Columbia University (physics colloquium)
Dec. 9	Harvard University (physics colloquium)
Dec. 11	Fermi National Accelerator Laboratory (physics colloquium)

1986

Jan. 28	University of Guelph (physics colloquium)
Jan. 29	University of Western Ontario (physics colloquium)
Mar. 3	TRIUMF (physics colloquium)
Mar. 13	Science Fair Speaker for Watson Groen Christian Grade School
Mar. 27	Institute for Seattle Area Physics and Math Teachers
June 9	International Conference on Quantum Electronics XIV San Francisco (invited lecture)
Sept. 25	International School of Physics with Low Energy Antiprotons: Fundamental Symmetries (invited tutorial lecture)
Oct. 24	SPS Invited Lecture, Optical Society of America Meeting, Seattle, WA
Oct. 24	OSA session on Laser Instabilities and Interjection Locking (presider)
Nov. 13	University of Nebraska (physics colloquium)

1987

Jan. 8	Cluster Ion Conference, San Francisco (invited lecture)
Jan. 20	Brandeis University (physics colloquium)
Jan. 22	Brookhaven National Laboratory (physics colloquium)

Jan. 23	Columbia University (physics colloquim)
Mar. 19	Argonne National Laboratory (particle physics colloquium)
Apr. 20	American Physical Society Meeting, Crystal City, VA (invited lecture)
May 5	Northwestern University (physics colloquium)
May 7	University of Missouri-Rolla, Distinguished Visiting Professor Program (invited lecture)
May 20	American Physical Society Meeting, Boston, MA (invited lecture)
June 15	AFI Workshop and Symposium on Low Energy Particles, Stockholm, Sweden (invited lecture)
June 22	Laser Spectroscopy Conference, Are, Sweden (invited lecture)
July 22	International Conference on the Physics of Electrons and Collisions (ICPEAC) Brighton, England (invited lecture)
Oct. 1	Syracuse University (physics colloquium)
Nov. 2	Harvard University (physics colloquium)
Nov. 13	Yale University (physics colloquium)
Dec. 1	International Conference on Low Energy Antimatter Karlsruhe, Germany (invited lecture)

1988

Feb. 2	Calvin College (physics colloquium)
Feb. 3	Notre Dame (physics colloquium)
Feb. 4	University of Chicago (physics colloquium)
Feb. 25	Amherst College (physics colloquium)
Feb. 26	University of Connecticut (physics colloquium)
Apr. 7	Pennsylvania State University (physics colloquium)
May 16	Third Conference on the Interaction Between Particle and Nuclear Physics, Rockport, Maine (invited plenary lecture)
July 1	Symposium on the Hydrogen Atom at the Scuola, Normale Superiore, Pisa, Italy (invited lecture)
Sept. 6	IX European Symposium on Antiproton-Proton Interactions and Fundamental Symmetries, Mainz, West Germany (invited lecture)

1989

Jan. 10	College de France and Ecole Normale Superieure, Paris, France (invited lecture)
Feb. 15	University of Aarhus, Aarhus, Denmark (physics colloquium)
Feb. 23	California Institute of Technology (physics colloquium)
Feb. 28	University of California at San Diego (physics colloquium)
Mar. 2 - 4	First Annual Symposium on Frontiers of Science sponsored by the National Academy of Sciences (invited participant)
May 1	American Physical Society, Baltimore, Maryland (invited speaker)
June 9	University of Karlsruhe, Karlsruhe, West Germany (physics colloquium)
June 12	Hahn-Meitner Institute, West Berlin, West Germany (physics colloquium)
July 10	Combined Colloquium of the Technical University of Munich, the Maximillian University and the Max Planck Institute for Quantum Optics, Munich, West Germany
Aug. 23	Institute de Lau Langevin, Grenoble, France (physics colloquium)
Sept. 12	IBM Research Laboratory, Yorktown, New York (physics colloquium)
Sept. 22	University of Wisconsin at Madison (physics colloquium)
Sept. 28	Princeton University (physics colloquium)
Oct. 2	Harvard University (physics colloquium)
Oct. 20	University of Virginia, Charlottesville (physics colloquium)

Nov. 6 27th Annual New Horizons of Science Briefing of the Council for the Advancement of Science Writing at Cornell University (invited lecture)

1990

Jan. 12 Argonne National Laboratory, Chicago, Illinois (physics colloquium)
Jan. 24 University of Pennsylvania (physics colloquium)
Apr. 16 Washington D.C. Meeting of the American Physical Society (invited lecture)
Apr. 30 Rutherford Laboratory, Oxford, England (physics colloquium)
May 1 High Energy Physics Seminar, Oxford University, Oxford, England
May 23 Meeting of the Division of Electron, Atomic, Molecular and Optical Physics, Monterey, California (invited lecture)
July 4 Low Energy Antiproton Physics Conference, Stockholm, Sweden (invited lecture)
Aug. 3 International Conference of Atomic Physics, Ann Arbor, Michigan (invited lecture)
Aug. 15 Gordon Conference on Few Body Physics, New Hampshire (invited lecture)
Sept. 25 MIT (atomic physics colloquium)
Sept. 26 Boston University (physics colloquium)
Sept. 27 Los Alamos National Laboratory (physics colloquium)
Oct. 18 University of Chicago (physics colloquium)
Oct. 24 Division of Nuclear Physics Fall Meeting, University of Illinois at Urbana Champaign (invited lecture)
Nov. 6 Optical Society of America, Boston, Massachusetts (invited lecture)
Nov. 10 Society of Physics Students Zone Meeting, Rolla, Missouri (keynote speaker)
Dec. 6 New York University (physics colloquium)

1991

Jan. 18 New York Academy of Science (featured speaker)
Jan. 23 Rice University (physics colloquium)
Feb. 13 University of Massachusetts, at Amherst (physics colloquium)
Feb. 25 Cornell University (physics colloquium)
Mar. 21 Princeton University (plasma physics colloquium)
Apr. 1 Brown University (physics colloquium)
May 3 Yale University (physics colloquium)
July 4 Gordon Conference on Atomic Physics, New Hampshire (invited lecture)
July 12 Italian Physical Society Summer School, International School of Physics, Varenna, Italy (invited lecture)
Aug. 26 9th International Conference on Positron Annihilation, Szombathely, Hungary (invited lecture)
Oct. 11 Fermi National Accelerator Laboratory (physics colloquium)
Oct. 23 University of Rochester (physics colloquium)
Oct. 28 Haverford College (physics colloquium)
Nov. 7 Massachusetts Institute of Technology (physics colloquium)

1992

Feb. 25 York University, Toronto, (physics colloquium)
July 30 Antihydrogen Workshop, Munich, Germany (invited lecture)
Aug. 4 13th International Conference on Atomic Physics, Munich, Germany (invited lecture)
Aug. 10 CERN Summer Lecture Program, Geneva, Switzerland (invited lecture)
Sept. 19 Second Biennial Conference on Low-Energy Antiproton Physics - LEAP '92, Courmayeur, Italy (invited lecture)

Oct. 26	Coast Guard Academy, New London, CT (science colloquium)
Nov. 3	National Science Foundation and George Washington University (joint physics colloquium)
Nov. 24	University of Tennessee, Knoxville (physics colloquium)

1993

Feb. 11	American Association for the Advancement of Science, Public Science Day, Cambridge Rindge and Latin School (invited lectures)
Feb. 12	American Association for the Advancement of Science, Boston (invited lecture)
Feb. 17	University of Delaware (physics colloquium)
Feb. 25	Workshop on Traps for Antimatter and Radioactive Nuclei (TRIUMF), University of British Columbia, Vancouver (invited lecture)
Mar. 12	McGill University, Montreal (physics colloquium)
Mar. 25	Society of Physics Students, Worcester Polytechnic Institute (invited lecture)
Apr. 13	Washington D.C. Meeting of the American Physical Society (undergraduate address)
Apr. 14	Washington D.C. Meeting of the American Physical Society (invited lecture)
Apr. 20	Brookhaven National Laboratory (physics colloquium)
May 4	Quantum Electronics Laser Science Conference, Baltimore (invited lecture)
May 17	Meeting of the Division of Atomic, Molecular, and Optical Physics of the American Physical Society (Reno, NV) (invited lecture)
June 3	California Institute of Technology (physics colloquium)
June 15	GSI (Darmstadt, Germany) (physics colloquium)
June 22	University of Bern, Switzerland (physics colloquium)
June 23	University of Geneva, Switzerland (physics colloquium)
July 5	Gordon Conference (New Hampshire) (invited lecture)
July 16	Positron Satellite Meeting to ICPEAC, Bielefeld, Germany (invited lecture)
Sept. 15	2nd Workshop on Nucleon-Antinucleon Physics (NAN '93), Institute of Theoretical Physics, Moscow
Oct. 27	McMaster University, Hamilton, Ontario, Canada (physics colloquium)
Oct. 28	University of Toronto, Toronto, Canada (physics colloquium)
Nov. 8	Harvard University (physics colloquium)
Nov. 17	Manne Siegbahn Memorial Lecture, Stockholm, Sweden (invited lecture)

1994

Jan. 6	American Association of Physics Teachers, San Diego (plenary lecture)
Jan. 31	North Carolina State University, Raleigh (Derieux Science Lecture)
Mar. 11	Harvard University (joint seminar for the History and Philosophy of 20th Century Science)
July 20	Nonneutral Plasma Workshop, University of California, Berkeley (invited lecture)
Aug. 24	Nobel Symposium 91 on Trapped Charged Particles and Fundamental Physics, Lysekil, Sweden (invited lecture)
Sept.17	3rd Biennial Conference on Low-Energy Antiproton Physics (LEAP '94) Bled, Slovenia (invited lecture)
Nov. 7	University of Washington, Seattle (physics colloquium)

1995

Sept. 25	Harvard University (physics colloquium)
Sept. 27	Fermilab (physics colloquium)
Nov. 16	Wayne State University (physics colloquium)

Nov. 27	Stanford Linear Accelerator Center (SLAC) (physics colloquium)
Nov. 30	Korea University, Seoul, Korea (physics colloquium)
Dec. 1	Pohang University, Pohang, Korea (physics colloquium)
Dec. 4	Seoul National University, Seoul, Korea (physics colloquium)

1996

Feb. 26	VanderWaals-Zeeman Institute, University of Amsterdam (physics colloquium)
Feb. 27	DESY, Hamburg, Germany (physics colloquium)
Mar. 14	Florida State University (physics colloquium)
Mar. 16	Address to Harvard Graduate Alumni
Mar. 19	State University of New York, Stony Brook (physics colloquium)
Apr. 25	Phillips Laboratory, Kirtland AFB, NM, Contractor's Workshop (invited lecture)
May 24	Argonne National Laboratory (physics colloquium)
June 1	Workshop on K Physics, Orsay, France (invited lecture)
June 3	CE Saclay, Gif-sur-Yvette, France (physics colloquium)
June 4	LPNHE, École Polytechnique, Palaiseau, France (physics colloquium)
July 13	ITAMP Workshop on Exotic Atoms, Harvard University (invited lecture)
Aug. 9	15th International Conference on Atomic Physics - Zeeman Effect Centenary, (Amsterdam, The Netherlands) (invited lecture)
Aug. 29	4th Biennial Conference on Low-Energy Antiproton Physics (LEAP '96), (Dinkelsbuhl, Germany) (invited lecture)

1997

Jan. 10	University of Kentucky (physics colloquium)
Jan. 23	University of Chicago (physics colloquium)
Jan. 31	University of Connecticut (physics colloquium)
Feb. 5	Northwestern University Evanston (physics colloquium)
Feb. 12	Harvard University Science Center Lecture Series
Feb. 27	University of Missouri Rolla (physics colloquium)
Mar. 21	Cornell University (HEP seminar)
Apr. 18	Association of Washington D.C. Joint Meeting of the American Physical Society and American Physics Teachers (invited lecture)
Apr. 30	Indiana University (physics colloquium)

1998

May 15	CERN, LEAR Symposium (invited lecture)
June 10	University of Sofia, Bulgaria (physics colloquium)
June 12	Workshop on Frontier Tests of Quantum Electrodynamics and Physics of the Vacuum, Sandansky, Bulgaria (invited lecture)
June 29	FOM - Institute for Atomic and Molecular Physics (AMOLF), Amsterdam (physics colloquium)
July 27-31	XXXI Latin American School of Physics, El Colegio Nacional, ELAF 98 on New Perspectives in Quantum Mechanics, 5 one-hour lectures on Ion Traps, Mexico City, Mexico
Aug. 7	16th International Conference on Atomic Physics (ICAP 16), Windsor, Ontario, Canada (Hot Topics Session (invited lecture)
Aug. 31	Trapped Charged Particles and Fundamental Physics, Monterey, CA (invited lecture)
Oct. 19	Cornell University (physics colloquium)
Nov. 7	CPT and Lorentz Symmetry Conference, Indiana University (invited lecture)

1999

Jan. 13	Institute for Medium Energy Physics of the Austrian Academy of Sciences, Vienna (physics colloquium)
Jan. 27	Queen's University, Kingston, Ontario, Canada (physics colloquium)
Jan. 28	Queen's University, Kingston, Ontario, Canada (invited lecture)
Mar. 19	2nd North American FTICR Conference, San Diego, CA (invited lecture)
Mar. 24	American Physical Society Centennial Meeting, Atlanta (invited lecture)
Apr. 6	Michigan State University (physics colloquium)
May 24	Conference on Lasers and Electro-Optics/Quantum Electronics and Laser Science Conference (invited lecture)
June 10	Lepton Moments, Internationales Wissenschaftsforum in Heidelberg (invited lecture)
June 11	Physikalisches Institut, Heidelberg (physics colloquium)
Aug. 2	1999 Workshop on Nonneutral Plasmas, Princeton University (invited lecture)
Sept. 13	4th International Conference on Physics at Storage Rings (STORI'99), Bloomington, IN (invited lecture)
Sept. 20	Carnegie Mellon University - University of Pittsburgh (joint physics colloquium)
Sept. 29	Trinity Christian College, Palos Heights, IL (Alumnus of the Year Lecture)
Nov. 4	Workshop on Fragmentation and Recombination in Novel 3- and 4-body Systems, ITAMP, CFA, Harvard University (invited lecture)

2000

Jan. 14	Argonne National Laboratory (physics colloquium)
Feb. 8	Boston University (physics colloquium)
Feb. 11	Tufts University (physics colloquium)
Feb. 17	Calvin College (physics colloquium)
Feb. 28	Harvard University (physics colloquium)
Mar. 23	American Physical Society March Meeting 2000, Minneapolis, MN (invited lecture)
Apr. 29	American Physical Society April Meeting 2000, Long Beach, CA (invited lecture)
June 5	17th International Conference on Atomic Physics (ICAP 2000), Florence, Italy (invited lecture)
July 5	International Conference on Quantum Communication, Measurement and Computing (QCM&C Y2K), Capri, Italy (invited lecture)
July 21	ITAMP Workshop on Quantum Electrodynamics, Harvard University (invited lecture)
Aug. 9	12th International Conference on Positron Annihilation (ICPA-12) (Munich) (invited lecture)
Aug. 24	Biennial Conference on Low Energy Antiproton Physics (LEAP 2000), Venice (invited lecture)
Sept. 13	Fall Teaching Orientation, Derek Bok Center for Teaching and Learning, Harvard University
Sept. 22	2nd Euroconference of Atomic Physics at Accelerators: Mass Spectroscopy (APAC 2000), Cargèse, Corsica (France) (invited lecture)
Oct. 30	38th Annual Briefing - New Horizons in Science, Council for the Advancement of Science Writing, Houston, TX (invited lecture)
Dec. 6	Fermilab (physics colloquium)
Dec. 15	Yale University (physics colloquium)

2001

Jan. 10	Schröedinger Lectures, Austrian Academy of Sciences, Vienna (invited lecture)

Jan. 10	"Junior Academy", discussion with high school students, Vienna
Jan. 11	University of Vienna (physics colloquium)
Jan. 15	Structure of Hadrons, International Workshop XXIX on Gross Properties of Nuclei and Nuclear Excitations (Hirschegg '01), Hirschegg, Kleinwalsertal, Austria (invited lecture)
Mar. 30	Columbia University (plasma physics colloquium)
Apr. 12	University of Chicago (physics colloquium)
June 5	Harvard Graduate School Alumni Association Council (faculty presentation)
June 14	International Conference on CP Violation (KAON 2001), Pisa, Italy (invited lecture)
July 18	A Summer Study on the Future of Particle Physics (Snowmass 2001), Snowmass, CO (invited lecture)
July 30	2001 Workshop in Non-Neutral Plasmas, University of California, San Diego (invited lecture)
Aug. 18	2nd Meeting on CPT and Lorentz Symmetry, Indiana University, Bloomington (invited lecture)
Aug. 24	Alpbach Technology Forum, Alpbach, Austria (invited lecture)
Nov. 27	Center for Ultra-Cold Atoms, MIT (physics colloquium)

2002

Feb. 16	American Association for the Advancement of Science, Boston (invited lecture)
Apr. 11	Cold Antimatter Workshop, Institute for Theoretical Atomic and Molecular Physics, Harvard University, (invited lecture and conference organizer)
Apr. 23	American Physical Society April Meeting, Albuquerque, NM (invited lecture)
May 17	Faculty Workshop on the use of Technology in Teaching and Learning, Harvard University (invited lecture)
May 31	Davisson-Germer Prize Symposium, American Physical Society, College of William and Mary, Williamsburg, VA (invited lecture)
May 31	2002 Division of Atomic, Molecular and Optical Physics Annual Meeting (DAMOP), American Physical Society, College of William and Mary, Williamsburg, VA (invited lecture)
June 12	Cooling 2002, Visby, Island of Gotland, Sweden (invited lecture)
June 17-21	CERN Academic Training, 4 lectures on "Low energy experiments that measure fundamental constants and test basic symmetries, CERN, Geneva (invited lectures)
June 20	XIVth Rencontres, De Blois Matter-Antimatter Asymmetry, France (invited lecture)
July 1	Truth in Science, Truth in Religion, Harvard University (invited lecture)
July 26	Resonances and Reflections: Profiles of Ugo Fano's Physics and Its Influences Workshop, Institute for Theoretical Atomic and Molecular Physics (ITAMP), Harvard-Smithsonian Center for Astrophysics (invited lecture)
Aug. 1	International Conference on Atomic Physics (ICAP 02), MIT and Harvard (invited lecture)
Oct. 19	Hans Dehmelt Symposium, University of Washington, Seattle (invited lecture)
Dec. 5	Ouachita Baptist University, Arkadelphia, AR (Templeton/American Scientific Affiliation lecture)

2003

Mar. 5	University of Texas at Austin, (physics colloquium)
Mar. 11	CERN Particle Physics Seminar (invited lecture)
Mar. 12	l'Ecole Normale Supérieure, Laboratoire Kastler Brossel, (physics colloquium)
Mar. 26	University of Massachusetts, Lowell (physics colloquium)
Apr. 1	Massachusetts Institute of Technology, Center for Ultracold Atoms (physics colloquium)
Apr. 5	April Meeting of the American Physical Society (APS 03), Philadelphia, PA (invited

	lecture)
May 15	International Workshop "Future of AD Physics Program", Max-Planck-Institut für Quantenoptik, Garching, Germany (invited lecture)
May 19	International Workshop on Beam Cooling and Related Topics (COOL 03), Mt Fuji, Japan (invited lecture)
May 23	Division of Atomic, Molecular and Optical Physics (DAMOP) of the American Physical Society, Boulder, CO (invited lecture)
June 8	17th International Conference on Few-Body Problems in Physics (FB17), Duke University/TUNL, Durham, NC (plenary lecture)
June 9	Lepton Moments International Symposium, Yarmouthport, Cape Cod, MA (invited lecture)
June 12	Fourth International Conference on Physics Beyond the Standard Model (Beyond the Desert'03), Tegernsee, Germany (invited lecture)
July 9	Workshop on Non-Neutral Plasmas – 2003, Santa Fe, NM (invited lecture)
July 14	16th International Conference on Laser Spectroscopy (ICOLS03), Palm Cove, N. Queensland, Australia (invited lecture)
July 19	12th International Workshop on Low Energy Positron and Positronium Physics (POSITRON'03), Sønderborg, Denmark (invited lecture)
July 28	XXIII International Conference on Photonic, Electronic and Atomic Collisions (ICPEAC), Stockholm, Sweden (invited lecture)
July 31	Mini-Symposium on Cold Antihydrogen, Uppsala University, Sweden (invited lecture)
Sep. 18	Meeting of the "Users Group for Low-Energy Antiproton Physics at GSI", GSI, Darmstadt (invited speaker)
Oct. 6	University of Arizona, Tucson (physics colloquium)
Oct. 7	2003 Frontiers in Optics, 87th Optical Society of America Annual Meeting, Tucson, AZ (plenary lecture)
Oct. 8	Washington University, St. Louis (physics colloquium)
Oct. 16	2nd International Workshop on the Future Accelerator Facility for Beams of Ions and Antiprotons: Challenges and Opportunities, GSI, Darmstadt (invited speaker)
Nov. 7	12th Regional Conference of Undergraduate Research of the Murdock College Science Research Program, Pacific Lutheran University, Tacoma, WA (keynote address)
Nov. 10	University of California, Berkeley (physics colloquium)
Nov. 13	8th International Workshop on Atom Optics and Interferometry, Lunteren, The Netherlands (invited lecture)
Dec. 1	Cornell University (physics colloquium)
Dec. 2	Syracuse University (physics colloquium)
Dec. 3	University of Rochester, (physics colloquium)
Dec. 4	Northeastern University (physics colloquium)

2004

Jan. 13	Atomic and Molecular Interactions Group (AMIG) of the Institute of Physics, Dublin City University (invited speaker)
Feb. 3	CERN SPSC (antihydrogen progress lecture)
Feb. 11	University of Michigan (physics colloquium)
Feb. 12	University of Michigan (atomic, molecular and optical physics seminar)
Feb. 12	University of Michigan (science and religion lecture)
Mar. 2	University of Uppsala, Sweden (Lecture on attracting students to science and teaching science so they love it)
Mar. 3	University of Uppsala, Sweden (physics seminar)
Mar. 4	Umeå University, Sweden (physics colloquium)
Mar. 4	Umeå University, Sweden (atomic physics seminar)

Mar. 9	Göteborg University, Sweden (physics colloquium)
Mar. 9	Göteborg University, Sweden (Lecture on attracting students to science and teaching science so they love it)
Mar. 10	Manne Sigbahn Laboratory, Stockholm (physics colloquium)
Mar. 11	University of Stockholm, Sweden (Alba Nova colloquium)
Mar. 12	Uppsala University, Sweden (physics colloquium)
Apr. 19	14th American Physical Society Topical Conference on Atomic Processes in Plasmas (APiP), Santa Fe, NM (the plenary lecture)
Apr. 22	Pluecker Lecture I, University of Bonn (physics colloquium)
Apr. 23	Pluecker Lecture II, University of Bonn (special audience lecture)
May 7	KVA Seminar, Groningen, The Netherlands
May 10	Free University of Amsterdam The Netherlands (physics colloquium)
May 13	Eindhoven University, The Netherlands (physics colloquium)
May 14	Nijmegen University, The Netherlands (physics colloquium)
May 15	US National Academy of Sciences CAMOS (invited lecture)
May 17	Aachen University, Germany (physics colloquium)
May 18	Johannes Gutenberg University and Max Planck Institute for Polymer Research, Mainz, Germany (physics colloquium)
May 24	University of Nottingham, UK (physics colloquium)
May 26	University of Sussex, UK (physics colloquium)
May 28	University of Liverpool, UK (particle physics seminar)
July 27	XIX International Conference on Atomic Physics, Rio de Janeiro (invited speaker)
Aug. 25	Laser Spectroscopy Conference, Novosibirsk, Russia (invited speaker)
Sept. 24	SPSC Meeting on a Future Fixed Target Programme at CERN, Villars, Switzerland (invited speaker)
Oct. 14	Calvin College (physics colloquium)
Nov. 16	Guelph-Waterloo Physics Institute, Guelph, Ontario (distinguished scientist lecture)
Dec. 2	California Institute of Technology (physics colloquium)
Dec. 3	California State University, Long Beach (physics colloquium)
Dec. 9	Wesleyan University (physics colloquium)
Dec. 14	MIT/Harvard Center for Ultracold Atoms seminar
Dec. 16	Brookhaven National Laboratory (particle physics seminar)

2005

Jan. 21	Ohio University (physics colloquium)
Jan. 27	Yale University (Hanan Rosenthal Memorial Lecture)
Jan. 28	Yale University (physics colloquium)
Feb. 4	University of Connecticut (physics colloquium)
Feb. 14	Harvard University (physics colloquium)
Feb. 24	International Conference on Exotic Atoms (EXA 2005), Vienna, Austria (invited lecture)
Mar. 7	Annual Meeting of the German Physical Society, Berlin (invited lecture)
Mar. 18	University of Virginia (graduate recruitment lecture)
Mar. 24	Annual Meeting of the Physical Society of Japan, Noda, Japan (invited lecture)
Mar. 30	University of Wisconsin, Madison (physics colloquium)
Apr. 22	Dunbar High School, Baltimore, MD (lectures to science classes)
May 10	Stanford University (physics colloquium)
May 20	Year of Einstein Lecture, Bonn, Germany (popular lecture of science associated with LEAP 2005).
July 28	International Workshop on Low Energy Positron and Positronium Physics, Campinas, Brazil (plenary lecture)
Aug. 6	Conference of the European Group for Atomic Systems (EGAS 37), Dublin City

	University (plenary lecture)
Sept. 28	Cold and Ultracold Plasma and Rydberg Physics Workshop, Institute for Theoretical Atomic, Molecular and Optical Physics, Harvard (invited lecture)
Oct. 8	Charles H. Townes Celebration, University of California, Berkeley (invited panel speaker)
Oct. 13	Dordt College, Sioux City, IA (science colloquium)
Oct. 13	Dordt College, Sioux City, IA (public science and religion lecture)
Oct. 28	50th Anniversary of the Discovery of the Antiproton Symposium, Lawrence Berkeley National Laboratory (invited lecture)
Nov. 15	Aachen University of Technology, Germany (physics colloquium)
Dec. 13	GSI, Darmstadt, Germany (physics colloquium)

2006

Jan. 24	CERN SPSC, Geneva, Switzerland
Jan. 27	Brookhaven National Laboratory (magnet group seminar)
Feb. 9	University of Illinois (physics colloquium)
Feb. 21	University of Grűnberg, European Graduate School Lecture Week, Germany (antihydrogen lecture)
Feb. 22	University of Grűnberg, European Graduate School Lecture Week, Germany (electron magnetic moment lecture)
Feb. 23	University of Grűnberg, European Graduate School Lecture Week, Germany (helium spectroscopy lecture)
Mar. 1	University of Cambridge, UK (physics colloquium)
Mar. 2	University of Cambridge, UK (Faraday Lecture in Science and Religion)
Apr. 7	Cultivating Inquiry Workshop, Lexington, MA (keynote address to 150 high school teachers)
Apr. 20	Dunbar High School, Baltimore, MD (lectures to science classes)
May 16	Division of Atomic, Molecular and Optical Physics (DAMOP), Knoxville, TN (invited lecture for graduate student symposium)
May 19	Calvin College (distinguished alumnus talks to faculty, boards and at commencement)
June 2	CIPANP Conference on the Intersections of Particle and Nuclear Physics (invited lecture), Puerto Rico (invited lecture)
June 19	Lepton Moments 2006, Cape Cod, MA (invited speaker)
July 20	International Conference on Atomic Physics (ICAP 2006), Innsbruck, Austria (invited speaker)
July 25	International Conference on Atomic Collisions in Solids (ICACS 2006), Berlin (special invited lecture)
Sept. 5	Trapped Charged Particles and Fundamental Physics Conference, Vancouver, Canada (invited lecture)
Sept. 15	National Institute of Standards and Technology, Gaithersburg (physics colloquium)
Sept. 18	Harvard University (physics colloquium)
Sept. 19	Center for Ultracold Atoms, MIT (seminar)
Oct. 10	Flavour in the Era of the LHC, CERN, Geneva (invited lecture)
Oct. 27	Conference on the Applications of Gamma Ray Diffraction, Grenoble, France (invited lecture)
Oct. 31	American Physical Society, Division of Plasma Physics, Philadelphia (invited tutorial)
Nov. 13	University of Washington, Seattle (physics colloquium)
Nov. 15	Rutgers University (physics colloquium)
Nov. 16	Princeton University (physics colloquium)
Dec. 7	University of Oklahoma, Norman (physics colloquium)

Dec. 8 Argonne National Laboratory (physics colloquium)

2007

Jan. 6 Physics of Quantum Electronics (PQE), Snowbird, Utah (invited lecture)
Jan. 16 York University, Toronto (physics colloquium)
Jan. 18 University of California, San Diego (physics colloquium)
Jan. 23 Ohio State University (physics colloquium)
Jan. 24 Fermilab (physics colloquium)
Jan. 25 Michigan State University (physics colloquium)
Jan. 30 University of Maryland (physics colloquium)
Feb. 2 University of New Mexico (physics colloquium)
Feb. 6 CERN SPSC, Geneva, Switzerland (invited lecture)
Feb. 15 MIT (physics colloquium)
Feb. 20 Massachusetts General Hospital, Boston (physics colloquia)
Feb. 21 Veritas Forum at Harvard University (introduction and moderator)
Feb. 27 Boston University (physics colloquium)
Feb. 28 Assumption College, Worcester, MA (science and religion lecture)
Mar. 7 University of Liverpool (Frohlich lecture)
Mar. 8 Imperial College, London (physics colloquium)
Mar. 27 Science and Secondary Education Lecture, Lexington
Mar. 28 Rice University, Houston (physics colloquium)
Apr. 2 Grant Writing for Scientific and English Students, Boston
Apr. 4 Sixth North American FT-ICR MS Conference, Lake Tahoe (plenary lecture)
Apr. 5 University of California, Los Angeles (physics colloquium)
Apr. 9 Columbia University (physics colloquium)
Apr. 14 American Physical Society Annual Meeting, Jacksonville, FL (plenary lecture)
Apr. 25 University of Notre Dame (physics colloquium)
Apr. 28 Lexington Christian Academy, Lexington, MA (science and religion lecture)
May 7 Dunbar High School, Baltimore (science and secondary education lecture)
May 10 Drexel University, Philadelphia (physics colloquium)
May 29 Källén Symposium on Nature's Laws and Nature's Constants, Lund, Sweden (plenary lecture on testing QED)
May 29 Källén Symposium on Nature's Laws and Nature's Constants, Lund, Sweden (plenary lecture on antimatter tests of fundamental symmetry)
May 30 Göteborg University, Sweden (physics colloquium)
May 31 Uppsala University, Sweden (physics colloquium)
June 1 Uppsala University, Sweden (antihydrogen lecture)
June 7 Foundations of Modern Physics (IQOQI), Vienna (invited lecture)
June 9 American Physical Society, Division of Atomic, Molecular and Optical Physics (DAMOP), Calgary, Canada (invited hot-topics lecture)
June 21 International Quantum Electronics Conference, (IQEC 2007), Munich (invited lecture)
June 25 International Conference on Laser Spectroscopy (ICOLS 07), Telluride, CO (invited lecture)
July 2 Gordon Conference on Atomic Physics, Tilton, NH (invited lecture)
Aug. 23 Alpbach Technology Forum, Alpbach, Austria (invited lecture)
Sept. 12 Quantum Atomic, Molecular and Plasma Physics (QuAMP 2007), University College London, UK (keynote speaker)
Sept. 28 Laboratory of Particle Physics (LAPP), Annecy, France (physics colloquium)
Oct. 5 International School on Quantum Metrology and Fundamental Constants, Les Hourches, France (invited lecture)
Oct. 16 American Institute of Physics Industrial Physics Forum, Seattle (invited lecture)

Nov. 7	ETH Zurich (physics colloquium)
Nov. 9	Free University, Berlin (physics colloquium)
Nov. 14	University of Michigan (Crane Centennial Lecture)
Nov. 15	University of Chicago (Zachariasen lecture)
Nov. 16	U.S. Department of Energy (invited lecture)
Nov. 26	University of Ulm, Germany (physics colloquium)
Nov. 27	University of Ulm, Germany (antihydrogen lecture)
Dec. 5	Extra-Low-Energy Antiproton Ring (ELENA) meeting, CERN, Geneva (invited lecture)
Dec. 8	Poincaré Seminar on Spin, Paris (invited lecture)

2008

Jan. 18	University of Heidelberg (physics colloquium)
Feb. 8	Umeå University, Sweden (physics colloquium)
Feb. 8	Umeå University, Sweden (antihydrogen lecture)
Feb. 12	Swedish Institute for Space Physics, Kiruna (physics colloquium)
Feb. 14	University of Stockholm, Alba Nova (physics colloquium)
Feb. 14	University of Stockholm, Alba Nova (antihydrogen lecture)
Feb. 29	University of Erlangen, Germany (special physics colloquium)
Mar. 4	Max Planck Institute of Quantum Optics, Garching (physics colloquium)
Mar. 6	Max Planck Institute of Quantum Optics, Garching (antihydrogen lecture)
Mar. 10	University of Florence, Italy (physics colloquium)
Mar. 12	LENS, Florence, Italy (atomic physics seminar)
Apr. 7	University of Rome, "La Sapienza" (Tomassoni Prize lecture)
Apr. 10	Heraeus Summer School, Bad Honnef, Germany (antiproton lecture)
Apr. 11	Heraeus Summer School, Bad Honnef, Germany (antiprotons in traps lecture)
Apr. 11	Heraeus Summer School, Bad Honnef, Germany (antihydrogen lecture)
May 6	University of Mainz (physics colloquium)
May 7	University of Mainz (antihydrogen lecture)
May 12	University of Bonn (physics colloquium)
May 20	Lancaster University, UK (physics colloquium)
May 21	Cockcroft Institute, Cheshire, UK (physics seminar)
May 30	Mass Olympics ECT Workshop, Trento, Italy (invited lecture)
June 3	GSI, Darmstadt (physics colloquium)
June 4	University of Copenhagen (Neils Bohr Lecture)
June 10	University of Innsbruck (physics colloquium)
July 28	International Conference on Atomic Physics, Storrs, CT (invited lecture)
Aug. 13	Generating Capital for the Christian Mind Conference; The Needs and Opportunities: The Physical Sciences (panelist)
Aug. 26	Conference on Exploring Fundamental Problems in Science, Brujuni, Croatia (invited magnetic moment lecture)
Aug. 28	Conference on Exploring Fundamental Problems in Science, Brujuni, Croatia (invited antihydrogen lecture)
Dec. 5	The College of William & Mary (William Small Distinguished Lecturer)

2009

Jan. 27	CERN SPSC, Geneva, Switzerland
Mar. 13	Veritas Lecture, MIT
May 11	New Opportunities in the Physics Landscape, Geneva, Switzerland (invited lecture)

May 29 Conference on the Intersections of Particle and Nuclear Physics (CIPANP), San Diego, CA (invited lecture)
June 2 Workshop on Atomic Physics with Rare Atoms, University of Michigan (invited lecture)
June 16 Science, Philosophy and Belief Lecture, Peking University, China (keynote speaker)
Aug. 31 Mazurian Lakes Conference on Physics, Piaski, Poland (invited lecture)
Nov. 12 Missouri University of Science and Technology (physics colloquium)
Nov. 13 Northwestern University (physics colloquium)

2010

Jan. 19 CERN SPSC, Geneva, Switzerland
Apr. 2 Cornell Particle Physics Seminar (invited lecture)
Apr. 12 Trapped Charged Particles Conference, Saariselka, Finland invited lecture)
May 18 University of Milan (annual physics colloquium)
June 17 Brookhaven National Laboratory (Vernon Hughes Memorial Lecture)
July 1 CPT and Lorentz Symmetry Conference, Indiana University (invited lecture)
July 20 Lepton Moments International Symposium, Cape Cod, MA (invited lecture)
Sept. 6 Cold Rydberg Gases and Ultracold Atoms (CRYP10), Dresden, Germany (invited lecture)
Sept. 6 University of Dresden, Germany (physics colloquium)
Oct. 15 NRC Committee of Atomic, Molecular and Optical Sciences (CAMOS), Biosphere 2, Oracle, AZ (invited lecture)
Nov. 5 Second Annual Vernon W. Hughes Lecture, Yale (invited lecture)

2011

Jan. 12 University of Victoria (physics colloquium)
Jan. 13 University of British Columbia (physics colloquium)
Feb. 18 American Academy of Arts and Sciences Annual Meeting (invited lecture)
Mar. 11 Calvin College, Grand Rapids, MI (APS Lilienfeld Prize Lecture)
Mar. 17 TRIUMF, Vancouver (physics colloquium)
June 13 American Physical Society, Division of Atomic, Molecular and Optical Physics (DAMOP), Atlanta (graduate symposium)
June 14 American Physical Society, Division of Atomic, Molecular and Optical Physics (DAMOP), Atlanta (Lilienfeld Prize Lecture)
July 23 International Workshop on Low-Energy Positron and Positronium Physics (POSMOL), Maynooth, Ireland (invited lecture)
Sept. 5 International Conference on Exotic Atoms and Related Topics, Vienna (invited lecture)
Sept. 6 Precision Measurements in Physics Symposium (in celebration of Ingmar Bergstrom's 90th birthday), Stockholm (invited lecture)
Oct. 6 Amherst College (physics colloquium)
Dec. 2 U.S. Department of Energy, Fundamental Physics at the Intensity Frontier (invited lecture)

2012

Jan. 6 AFOSR, Atomic, Molecular and Optical Physics Program Review (invited lecture)
Jan. 17 CERN, SPSC, Geneva
Jan. 18 Physics at FOM, Veldhoven, Netherlands (invited lecture)
Feb. 20 George Fox University, Newberg, OR (Dalton Lecture)
Apr. 12 University of Chicago, (physics colloquium -APS Lilienfeld Prize Lecture)
May 3 Physics Prospects at FLAIR Workshop, GSI, Darmstadt (invited lecture)

May 11	Seattle Pacific University (Erickson Undergraduate Research Lecture)
May 14	University of Washington, Seattle (physics colloquium)
June 6	Norman Ramsey Commemoration Session, American Physics Society, Division of Atomic, Molecular and Optical Society, Orange County (invited lecture)
June 18	Symmetries in Subatomic Physics Symposium, Groningen, Netherlands (keynote address)
Sept. 10	European Conference on Trapped Ions (ECTI), Obergurfl, Austria

2013

Jan. 15	CERN, SPSC, Geneva
Jan. 18	Partners in Science Program National Conference, Murdock Charitable Trust (plenary lecture)
Jan. 24	Michigan State University (physics colloquium)
Jan. 24	Michigan State University, Campus Edge Fellowship (invited science and religion lecture)
Feb. 22	American Physical Society, Unit Leadership Convocation, College Park, MD (invited lecture)
Apr. 12	Texas A&M University, College Station, TX (Trotter Prize Lecture)
Apr. 19	Argonne National Lab (physics colloquium)
Apr. 22	Institute for Advanced Study, Princeton, NJ (invited lecture)
June 14	International Conference on Low Energy Antiproton Physics, Uppsala, Sweden (invited lecture)
June 15	International Conference on Low Energy Antiproton Physics, Uppsala, Sweden (invited public lecture)
June 18	SLAC National Accelerator Laboratory, Stanford (experimental seminar series lecture)
July 25	Course of the International School of Physics on Ion Traps for Tomorrow's Applications, Varenna, Italy (fundamental measurements with trapped electrons and ions lecture)
July 26	Course of the International School of Physics on Ion Traps for Tomorrow's Applications, Varenna, Italy (fundamental measurements lecture)
July 28	Course of the International School of Physics on Ion Traps for Tomorrow's Applications, Varenna, Italy (fundamental measurements lecture)
Aug. 9	International Symposium on Science Explored by Ultra Slow Muon, Matsue, Japan (invited lecture)
Aug. 28	International Conference of New Frontiers in Physics, Kolymbari, Crete (invited lecture)
Sept. 11	Physics of Fundamental Symmetries and Interactions at Low Energies and the Precision Frontier, PSI, Switzerland (invited lecture)
Sept. 12	Leopoldina Symposium on Spectroscopy and Molecular Dynamics at the Limit, ETH, Zurich (invited lecture)
Sept. 19	Institute of Research into the Fundamental Laws of the Universe, CEA, Saclay, France (physics colloquium)
Oct. 11	3rd Bonn Humboldt Award Winners' Forum on Frontiers in Quantum Optics: Taming the World of Atoms and Photons – 100 Years after Niels Bohr (invited lecture)
Oct. 31	SPARC Workshop, Jena, Germany (invited lecture)
Nov. 19	Fermi National Accelerator Laboratory (student lecture)
Nov. 20	Fermi National Accelerator Laboratory (physics colloquium)
Nov. 21	Fermi National Accelerator Laboratory (student lecture)

2014

Jan. 10	Fermi National Accelerator Laboratory, Joint Experimental-Theoretical Physics Seminar (wine and cheese seminar)
Jan. 14	CERN SPSC, Geneva
Apr. 8	Boston University (Benson T. Chertok Lecture)
Apr. 11	Innsbruck-Vienna SFB Meeting, Vienna (invited lecture)
Apr. 22	University of Mainz (physics colloquium)
Apr. 25	University of Massachusetts, Amherst (physics colloquium)
May 1	University of California, Riverside (physics and astronomy colloquium)
May 8	CERN Workshop: Questioning Fundamental Principles, Geneva, Switzerland (invited lecture)
May 11	Tel Aviv University (Sackler Distinguished Lecture in Physics and Eisenberg Memorial Colloquium)
June 2	Particlegenesis Workshop, Kavli Institute for Theoretical Particle Physics, Santa Barbara (invited lecture)
June 5	American Physical Society, Division of Atomic, Molecular and Optical Physics (DAMOP), Madison, WI (invited lecture)
July 14	From Parity Violation to Hadron Structure (PAVI 2014), Skaneateles, NY (invited lecture)
Sept. 18	5th International Conference on Exotic Atoms 2014, Vienna, Austria (invited lecture)
Oct. 1	University of Notre Dame (physics colloquium)
Oct. 6	University of Washington, Seattle (physics colloquium)
Oct. 14	Univ. of Connecticut (physics colloquium)

2015

Jan. 14	CERN SPSC
Jan. 30	Northwestern University, Evanston, IL (physics colloquium)
Feb. 16	Colorado State University (physics colloquium)
April 27	International Workshop on Baryon and Lepton Number Violation, BLV 2015, Amherst, MA (plenary lecture)
May 28	European Union "Historic Site" Designation of the Institute for Radium Research (now the Stefan Meyer Institute), Vienna, Austria (featured speaker)
June 8	Conference on Symmetries and Subatomic Physics, Victoria, Canada (invited lecture)
June 9	Annual DAMOP Meeting, Columbus, Ohio (featured public lecture)
June 11	Jagiellonian Symposium on Fundamental and Applied Suatomic Physics (featured public lecture)
June 28	International Conference on Laser Spectroscopy (ICOLS 2015), Singapore (keynote lecture)
July 29	High Energy Physics Meeting of the European Physical Society, Vienna, Austria (plenary lecture)
Aug. 29	Univ. of Notre Dame Celebration of H. Gordon Berry (plenary lecture)
Sept. 4	Ringwald Conference of the Max Planck Institute for Quantum Optics, Ringwald, Germany (plenary lecture)
Sept. 18	German Leopoldina Academy of Sciences, Halle, Germany (plenary lecture)
Sept. 21	US - Japan QELS-12, Madison, Wisconsin (invited lecture)
Oct. 8	Pennsylvania State University, (Whitfield Lecture)
Nov. 20	Ohio State University (physics colloquium)

2016

Jan. 19	CERN SPSLC

Jan. 20	Annual Dutch National Physics Society Conference, Veldhoven, The Netherlands (invited lecture)
April 19	APS Meeting in Salt Lake City, Utah (plenary lecture celebrating 60 years since the discovery of parity violation)
June 7	Munich Inst. for Astro and Particle Physics (invited lecture)
June 20	CPT-16, Bloomington, IN (invited lecture)
June 29	Humboldt Kolleg on Particle Physics, Kitzbühel, Austria (keynote lecture)

2017

Dec. 14	Quantum Sensing for High Energy Physics, Argonne National Laboratory, Invited Talk

(The record of talks for 2017 was lost in transition and has yet to be reconstructed.)

2018

Jan. 23	CERN SPSC
Feb. 23	National Science Foundation (invited talk)
April 24	Cambridge Roundtable on Science and Religion, Harvard University (after dinner talk)
May 21	COFI "Searching for Physics Beyond the Standard Models Using Charged Leptons" workshop, Puerto Rico (invited talk)
June 12	7th International Symposium on Symmetries in Subatomic Physics (SSP 2018), Aachen, Germany (invited talk)
July 26	University of Chicago Philosophy of Physics Summer School (invited talk)
Oct. 16	University of Oxford detector workshop (invited talk)
Nov. 26	6th Symposium on Prospects in the Physics of Discrete Symmetries, DISCRETE 2018, Vienna, Austria (invited talk)
Nov. 29	Wayne State University, Detroit, MI (physics colloquium)
Dec. 3	UCLA Schwingerfest (invited talk)
Dec. 5	Michigan State University (physics colloquium)

2019

Jan. 21	CERN SPSC
Jan. 25	Baltimore Teacher Workshop (featured speaker)
Feb. 27	Fermilab Colloquium
March 13	Argonne HEP Division Seminar
April 26	University of Kentucky Physics and Astronomy Colloquium
May 6	Conference on Flavor Physics and CP Violation (FPCP 2019), University of Victoria
May 15	Eighth Meeting on CPT and Lorentz Symmetry, Indiana University
May 28	DAMOP 2019 (invited talk)
June 24	Humboldt Kolleg conference (invited talk)
July 19	ASA, Wheaton College (plenary speaker)

2020

Feb. 3	SPIE Photonics West (invited talk), San Francisco, CA
Apr. 19	April APS Meeting (invited talk)
Aug. 21	University of New Mexico Physics and Astronomy Colloquium
Sept. 16	Snowmass workshop on Fundamental Physics in Small Experiments (invited electron EDM lecture)

Sept. 17	Snowmass Workshop on Fundamental Physics in Small Experiments (invited electron electric dipole moment lecture)
Oct. 14	University of Birmingham, UK (physics colloquium)
Nov. 18	Fermilab SQMS Lecture - Cavities for One-Particle Qubits
Dec. 9	Fermilab SQMS Lecture - Prospects for Electron and Positron Moments Measurements

2021

Feb. 19	Fermilab Public Lecture - Antimatter and Other Deep Mysteries
June 8	ICTP-SAIFR conference (invited lecture)
July 2	New Opportunities for Fundamental Physics Research with Radioactive Molecules (MIT, invited lecture)
Aug. 25	Moore and Sloan Electric Dipole Moment Workshop (invited talk)
Sept. 2	QuAMP 2021 conference (invited plenary talk)

2022

Feb. 11	Williams College Colloquium
Oct. 21	Northwestern University, Physics and Astronomy Colloquium
Oct. 27	Northwestern University Roundtable Talk on Science and Faith

2023

Jan. 31	Colloquium at York University
Feb. 9	Colloquium at University of Chicago
Mar. 30	Colloquium at University of Padua, Italy
Apr. 20	Talk at Fermilab National Laboratory
May 16	GSI/FAIR Colloquium, Germany
Jun. 9	Invited Talk at APS DAMOP
Nov. 7	SQMS Annual Meeting at Fermilab (invited talk)

2024

Jan. 10	Fermilab Program Advisory Committee (invited talk)
Mar. 5	APS March Meeting in Minneapolis (invited talk)
Jun. 4	APS DAMOP Ramsey Prize Lecture
Nov. 11	Physics Colloquium at Colorado State University
Nov. 12	Muon Workshop in Liverpool, UK
Nov. 12	Popular Science Lecture at Colorado State University

(updated 14 January 2025)