SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
James E. Faller Wesleyan University	Precision measurement gravitational physics	1971-1973
Daniel Kleppner M.I.T.	Precision studies with the hydrogen maser	
Hugh G. Robinson Duke University	Precision determination of the ratio of atomic magnetic moments	
E. Norval Fortson University of Washington	Precision radio frequency spectroscopy with atomic ions by the ion storage exchange collision method	1972-1974
William H. Parker Univ. Calif., Irvine	Determination of h/m using macroscopic phase coherence in superconductors	
Arthur Rich University of Michigan	Precision measurement of ion cyclotron resonance	
Stuart B. Crampton Williams College	Investigations of hydrogen atom interactions using atomic hydrogen masers	1973-1975
Brij M. Khorana University of Notre Dame	Quantum properties of liquid helium	
Hans A. Schuessler Texas A&M University	Precision measurement of the hyperfine structure of stored heavy ions	
Theodor W. Hänsch Stanford University	Precision laser spectroscopy of one-electron atoms	1974-1976
Harold J. Metcalf SUNY, Stony Brook	Time resolved excited state spectroscopy	
Richard T. Robiscoe Montana State University	Measurement of the Lamb shift in H, $n = 2$, by the Ramsey method	
James E. Bayfield Yale University	Precision measurement of the fine structure constant and Lamb shifts using new fast excited one-electron ion production and detection techniques	1975-1977
Henry A. Hill University of Arizona	Precision solar measurements	
William H. Wing University of Arizona	Accurate measurement of vibration-rotational structure in molecular ions using a novel ion beam infrared laser resonance technique	
Douglas G. Currie University of Maryland	Extremely high spatial resolution measurements through turbulent atmosphere	1976-1978
John M. Goodkind Univ. Calif., San Diego	Precise measurements of variations in local gravity	
Daniel Larson Harvard University	Investigation of new magnetic effects in atoms and atomic nuclei	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
William M. Fairbank, Jr. and **George J. Collins** Colorado State University	Precision Doppler-free spectroscopy on helium: Lamb shift measurements and possible Rydberg constant determination on a two-electron atom	1978-1980
Robert S. Van Dyck, Jr. University of Washington	Mono-ion studies	
C. W. Francis Everitt and **Blas Cabrera** Stanford University	Studies of the London moment leading to a precise determination of h/m_e	1979-1981
Rogers C. Ritter University of Virginia	Precise mechanical rotations for fundamental measurements	
William C. Sauder Virginia Military Institute	Precision determination of the gas constant: first applications of the ultrasonic Michelson interferometer	1980-1982
Carl E. Wieman University of Michigan	Measurement of fundamental constants using three-level resonances in hydrogen	
William C. Oelfke Univ. of Central Florida	Quantum limited measurement of a harmonic oscillator	1981-1983
William H. Wing University of Arizona	Electronic trapping of neutral particles	
David F. Bartlett University of Colorado	Eötvös experiment–a cryogenic version	1982-1984
David A. Church Texas A&M University	Low energy, highly charged ion precision spectroscopy	
Charles E. Johnson North Carolina State Univ.	RF spectroscopy of atomic and molecular ions	
Michael G. Littman Princeton University	Fine-structure constant determination using precision Stark spectroscopy	
Robert W. Dunford Princeton University	Lamb-shift in singly ionized helium	1983-1985
Daniel C. Tsui Princeton University	The quantized Hall resistance as a primary resistance standard	
Carlton M. Caves Calif. Inst. of Technol.	Quantum-mechanical analysis of high-precision measurements on harmonic oscillators	1984-1986
Walter N. Hardy and **A. John Berlinsky** Univ. of British Columbia	Development of a cryogenic hydrogen maser	
Timothy E. Chupp Harvard University	A test of local Lorentz invariance using polarized ^{21}Ne nuclei	1985-1987
Michael J. Levine Carnegie-Mellon Univ.	Precision calculation of the anomalous magnetic moment of the electron using a specialized computational engine	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
Gerald Gabrielse University of Washington	Injection of protons, antiprotons, and heavy ions into a Penning trap for precision mass measurements	1986-1988
Larry R. Hunter Amherst College	A new method to search for an electric dipole moment of the electron	
Frederick R. Raab University of Washington	Atomic physics tests of gravity and the equivalence principle	1987-1989
Daniel R. Stinebring Princeton University	High precision timing of millisecond pulsars	
Wiley P. Kirk Texas A&M University	Quantized Hall resistance and fine-structure constant investigations: a study of uncertainty contributions	1988-1990
John D. Morgan III University of Delaware	High precision calculation of helium atom energy levels	
Edward A. Hinds and **Malcolm G. Boshier** Yale University	Two-photon spectroscopy of H and He^+	1989-1991
Randall G. Hulet Rice University	Measurement of the recombination rate of spin-polarized ultra-cold atoms	
Steven Chu Stanford University	Precision optical spectroscopy of positronium	1990-1992
Edward E. Eyler University of Delaware	Far ultraviolet spectroscopy with single-frequency lasers	
John E. Thomas Duke University	Precision atomic position measurement using optical fields	1991-1993
Ngai C. Wong M.I.T.	Optical frequency division using an optical parametric oscillator: applications to precision measurements	
Daniel J. Heinzen University of Texas, Austin	Quantum-limited cooling and detection with stored ions	1992-1994
Carol E. Tanner University of Notre Dame	Absolute calibration of atomic parity nonconservation measurements	
Alex de Lozanne and **Qian Niu** University of Texas, Austin	Quantum charge pump for a current standard	1993-1995
Thad G. Walker Univ. of Wisconsin, Madison	Beta-asymmetry experiments using trapped atoms	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
Mark Kasevich Stanford University	Development of an atom interferometer gyroscope for tests of general relativity	1994-1996
Ronald L. Walsworth Smithsonian Astrophysical Observatory	Development of a dual noble gas maser for use in a test of time reversal invariance	
Kurt Gibble Yale University	Laser cooled atomic clocks "without" cold collisions	1995-1997
Luis A. Orozco State University of New York at Stony Brook	Spectroscopy of francium: towards a precise parity non-conservation measurement in a laser trap	
Siu Au Lee Colorado State University	Measurement of the magnetically-induced QED birefringence of the vacuum	1996-1998
Jonathan Sapirstein University of Notre Dame	Calculations of higher order QED effects in helium	
Jens H. Gundlach University of Washington	Measurement of Newton's constant G using a new method	1997-1999
David C. Shiner University of North Texas	Laser spectroscopy of the helium atom for a determination of the fine-structure constant	
David E. Pritchard M.I.T.	Accurate atomic mass measurements	1998-2000
Suzanne T. Staggs Princeton University	Measurement of the polarization of the cosmic microwave background	
Elisabeth G. Gwinn University of California, Santa Barbara	Combining the quantum Hall and AC Josephson effects for electric current metrology	1999-2001
Protik K. Majumder Williams College	New search for T-violating forces in atomic thallium	
David P. DeMille Yale University	Search for the electron electric dipole moment in the a(1) state of PbO	2000-2002
Michael V. Romalis Princeton University	A test of CPT symmetry using a new K-^{3}He self-compensating magnetometer	
Umar Mohideen University of California, Riverside	Precision measurement of the Casimir force using an atomic force microscope	2001-2003
Robert Schoelkopf Yale University	Development of an electron-counting ammeter	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
Margaret Murnane University of Colorado, Boulder	Extending ultrafast time-domain measurements to attosecond timescales using quantum control and phase stabilization techniques	2002-2005
Harvey Gould Lawrence Berkeley National Laboratory	Electron electric dipole moment experiment using a cold cesium atom fountain	
Dmitry Budker University of California, Berkeley	Precision test of variation of fine structure constant in radio-frequency E1 transitions	2003-2006
Andrei Derevianko University of Nevada at Reno	Next generation high-precision calculations of parity nonconservation in atoms	
Edmund G. Myers Florida State University, Tallahassee	Measurement of the tritium/helium-3 mass difference using two ions in a Penning trap	2005-2008
David Weiss Pennsylvania State University	Search for the electron edm using Cs and Rb in 1D optical lattice traps	
J. C. Seamus Davis Cornell University	Precision measurement of gravitational forces at the submicron length scale	2006-2009
Krzysztof Szalewicz University of Delaware	High-precision calculations of density and dielectric virial coefficients of helium for new pressure and temperature standards	
Dallin S. Durfee Brigham Young University	Testing Coulomb's law with cold-ion matterwave interferometry	2007-2010
Krzysztof Pachucki Warsaw University	High-precision calculations of transition frequencies in three-electron atoms versus nuclear structure	
John Doyle Harvard University	Precision search for an electric dipole moment of the electron using ThO	2008-2011
Jason E. Stalnaker Oberlin College	Precision spectrocopy of cold lithium atoms based on a femtosecond frequency comb	
Ulrich Jentschura Missouri University of Science and Technology	Nonperturbative quantum electrodynamics, numerical methods, and fundamental constants	2009-2012
Holger Müller University of California, Berkeley	Large area interferometers for fundamental precision measurements	
Subhadeep Gupta University of Washington, Seattle	Measurement of the fine structure constant and test of QED at the sub-ppb level	2010-2013
Carol Tanner University of Notre Dame	A portable optical atomic clock in neutral silver	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
Alex Cronin University of Arizona, Tucson	Atomic polarizability measurements for atomic clocks and parity non-conservation studies	2011-2014
Eric A. Hessels York University, Toronto	Precise separated-oscillatory-field microwave measurements of the atomic helium $n = 2$ triplet P fine structure and of the atomic hydrogen $2S_{1/2}$–$2P_{1/2}$ Lamb shift	
Georg Raithel University of Michigan, Ann Arbor	Measurement of the Rydberg constant in a magic-wavelength optical lattice	2012-2015
Thomas Stace University of Queensland	Thermometry at the double shot-noise limit	
Richard Hill University of Chicago	Effective field theory analysis of proton structure in hydrogenic bound states	2013-2016
Tanya Zelevinsky Columbia University	A test of QED and the gravitational inverse-square law at the sub-nanometer scale using ultracold Sr_2 molecules	
Eric Hudson University of California, Los Angeles	Precision measurement of the optical transition in the ^{229}Th nucleus	2014-2017
William Snow Indiana University at Bloomington	Absolute Neutron Measurements for the NIST Penning Trap Neutron Lifetime	
Andrea De Marchi Politecnico di Torino, Turin	Determination of Newton's constant G with a new method using extremely high Q simple pendulums in free decay mode	2015-2018
Chen-Yu Liu Indiana University at Bloomington	A measurement of the neutron lifetime in a magneto-gravitational bottle	
Saïda Guellati-Khelifa Laboratoire Kastler Brossel, Université Pierre et Marie Curie	Precise determination of the fine structure constant α for the new International System of units	2016-2019
Dylan C. Yost Colorado State University	Spectroscopy of the Hydrogen 2S-8D Transition using a Cryogenic Atomic Beam	
David Kawall The University of Massachusetts at Amherst	CeNTREX: a tabletop experiment to search for time and parity violating physics in a nucleus	2017-2020
Holger Müller University of California at Berkeley	Measurement of h/m and the fine-structure constant with cesium atoms	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	Dates
Nicholas Hutzler California Institute of Technology	Precision Measurement of CP-Violation with Polyatomic Molecules	2018-2021
Francois Nez LKB, UPMC Sorbonne Université	High-resolution spectroscopy of hydrogen: determination of the Rydberg constant for the future international system of units	
Shimon Kolkowitz University of Wisconsin at Madison	Tests of relativity using a multiplexed optical lattice clock	2019-2022
Timothy Kovachy Northwestern University, Evanston	Development of Levitated, Macroscopically Delocalized Atom Interferometers for a New Measurement of Newton's Constant G	
Edmund Myers Florida State University, Tallahassee	Towards a Test of CPT with the Antihydrogen Molecular Ion	2020-2023
Saul Perlmutter University of California, Berkeley	NIST-Traceable Flux Calibration of Standard Stars for Cosmology	
Andrew Jayich University of California, Santa Barbara	Quantum Logic Spectroscopy of Ra^+	2021-2024
Jeroen Koelemeij Vrije University Amsterdam, Stichting VU	Hyperfine spectroscopy of trapped HD^+ molecular ions for an improved value of the proton-to-electron mass ratio m_p/m_e	
Samuel Brewer Colorado State University, Fort Collins	Precision Measurement of the 2p fine structure internval in trapped $^{7,9,10}Be^+$ as a test of quantum electrodynamics	2022-2025
Chen-Yu Liu University of Illinois, Urbana-Champaign	*In-situ* Proton Detection for the NIST Neutron Beam Lifetime Experiment	
Gregory Adkins Franklin & Marshall College, Lancaster	Calculation of Recoil Corrections to Muonium Hyperfine Splitting	2023-2026
Daniel Elliott Purdue University, West Lafayette	Precision Measurements of the vector polarizability of the $6s^2S_{1/2}$ to $7s^2S_{1/2}$ transition in cesium	

SUMMARY OF NIST PRECISION MEASUREMENT GRANTS

Recipient	Title of Grant	
Paolo Crivelli ETH University, Zurich Switzerland	High Precision Muonium Spectroscopy	2024-2027