25 October 2024
ScienceCast, Inc.
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Charles Winthrop Clark

I am a physicist whose work has encompassed basic and applied research, management, education and consulting. My primary areas of technical expertise are quantum information, computing, and communications; matter- and light-wave interferometry; ultracold matter; and applications of artificial intelligence. I have held management positions in civilian and military agencies of the U.S. Government, and elected offices in professional societies.

Vital data

Citizen of U.S.A. Born 9/30/1952, Minneapolis, Minnesota, eldest son of Robert Newhall Clark and Mary Quiatt Clark. Graduate of Seattle Public Schools; attended Henry M. Gunn High School, Palo Alto, CA and Menlo-Atherton High School, Atherton, CA. Married Deborah Jabon-Clark, 8/24/1974.

Scientific lineage

Link to scientific lineage at academictree.org. This open, user content-driven database is neither controlled nor maintained by me.

Work experience

Executive Vice President, ScienceCast, Inc.	10/2023 – present
Chief Research Scientist, Aspen Quantum Consulting	9/2023 – present
Member, Advisory Board, ScienceCast, Inc.	6/2023 – present
NIST Fellow Emeritus and Affiliate, Institute for Physical Science and Technology, University of Maryland, College Park, MD 20742	1/2023 – present
NIST Fellow (ST), Physical Measurement Laboratory National Institute of Standards and Technology Gaithersburg, MD 20899 Supervisors: Carl J. Williams (to 3/16), Jon Pratt (to 12/18), Gerald Fitzpatrick (to 12/2022)	12/2010 – 12/2022
Co-Director, Joint Quantum Institute National Institute of Standards and Technology/University of Maryland College Park, MD 20742	3/2011 – 3/2016

Fellow, Joint Quantum Institute 3/2007 – present
National Institute of Standards and Technology/University of Maryland
College Park, MD 20742

Program Manager, Atomic, Molecular and Quantum Physics 10/2003- 12/2014
Electronics S&T Division, Code 312
Office of Naval Research
United States Navy
800 N. Quincy Street
Arlington, VA 22217
Supervisors: Kristl Hathaway (to 6/2005), Preston Grounds (to 11/2010), Michael Pollock
Ship Rider aboard USS Saipan (LHA-2), USS Abraham Lincoln (CVN-72), and USS Wayne E. Meyer (DDG-108)

Chief, Electron and Optical Physics Division (SES) 8/1990 – 12/2010
Physics Laboratory / Physical Measurement Laboratory
National Institute of Standards and Technology, Gaithersburg, MD 20899
Supervisor: Katharine B. Gebbie

Acting Chief, Electron and Optical Physics Division 11/1989 - 8/1990
Center for Atomic, Molecular and Optical Physics
National Institute of Standards and Technology Gaithersburg, MD 20899
Supervisor: Katharine B. Gebbie

Physicist, Radiation Physics Division 3/1984 - 11/1989
National Institute of Standards and Technology, Gaithersburg, MD 20899
(to 10/1/1988, the National Bureau of Standards)
Supervisors: Robert P. Madden (to 10/1985); Thomas B. Lucatorto (from 10/1985)

Physicist (contractor) 10/1983 - 3/1984
National Bureau of Standards, Gaithersburg, MD 20899
Supervisor: Thomas B. Lucatorto

National Research Council Postdoctoral Fellow 10/1981- 10/1983
Atomic and Plasma Radiation Division
National Bureau of Standards, Gaithersburg, MD 20899
Supervisor: Andrew W. Weiss

Junior Research Associate 9/1979 - 10/1981
Daresbury Laboratory
Daresbury, Warrington, WA4 4AD England
Supervisors: Philip G. Burke and John B. Pendry

Research Associate 1/1979 - 9/1979
Department of Physics University of Chicago
Chicago, IL 60637
Supervisor: Ugo Fano

Educational experience

Ph.D. theses supervised

Ruizhi Pan, "Applications of artificial neural networks in learning quantum systems," Physics, University of Maryland, 2023

Yi-Hsieh Wang, "Pair creation and pair annihilation in Bose-Einstein condensates," Chemical Physics, University of Maryland, 2017

Alejandra Maldonando Trapp, "Correlations in quantum information protocols," Physics, University of Concepción, Chile, 2016 (co-supervised with L. Roa)

Jacob C. McComb, "Neutron detection by scintillation of noble-gas excimers," Nuclear Engineering, University of Maryland, 2012 (co-supervised with M. Al-Sheikhly and M. A. Coplan)

Daniel J. Rogers, "New technologies for broadband quantum key distribution: sources, detectors and systems," Chemical Physics, University of Maryland, 2008

Ana Maria Rey, "Ultracold bosonic atoms in optical lattices," Physics, University of Maryland, 2004. Winner, American Physical Society Award for Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics, 2005

Nicolai Nygaard, "Superfluidity in a degenerate atomic Fermi gas," Chemical Physics, University of Maryland, 2003

Robert J. Dodd, "Bose-Einstein condensation in atomic alkali gases," Chemical Physics, University of Maryland, 1997. Finalist, American Physical Society Award for Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics, 1998

Wei-Chih Liu, "High-order radiative processes of atoms in intense laser fields," Chemical Physics, University of Maryland, 1996

Teaching

"Physics of Quantum Devices," MSQC602, University of Maryland, Fall Semester, 2023. A core course in the Master of Professional Studies in Quantum Computing Program.

"Oxford@Morgan," an Oxford-style tutorial session, held weekly during academic term with two or three Physics undergraduates at Morgan State University, 2022 – present.

"Quantum Boot Camp," CHPH499F/CMSC488A/ENEE489F/PHYS499F, University of Maryland. Inaugural course of the University of Maryland Quantum Information Specialization: Fall Semester 2022, Summer Session 2022, Fall Semester 2021, Winter Session 2021, Summer Session 2020, Winter Term 2020.

"Foundations of Quantum Computing," University of Maryland Science Academy, June 2021. Inaugural edition of a course offering 2.7 Continuing Education Units. Production of this course led to University of Maryland System approval of a Graduate Certificate in Quantum Computing, for which enrollment began Fall Semester, 2023.

"Mathematical Elements of Quantum Physics: Laplace's equation, spherical harmonics, quantum oscillators and the hydrogen atom," PHYS499E/CHPH719E, University of Maryland. Winter Term, 2018, Winter Term, 2017.

"Exploring Quantum Physics," University of Maryland massive open online course designed and taught in collaboration with Victor Galitski, delivered on Coursera, March – May 2013; second edition, October – December 2013; third edition, April – June 2014; fourth edition, March – May 2015; fifth edition, January – March 2020. Over 100,000 students have enrolled

in this course. Over 800 are members of the LinkedIn Group, "Exploring Quantum Physics" Alumni.

"Kamp Kwal-i-fire," a preparation course for the Ph.D. qualifier exams in Physics and Chemical Physics at the University of Maryland, taught each summer during 1997- 2020, approximately ten two-hour sessions per summer.

"Responsible Conduct of Research," a one-day graduate course taught at the University of Maryland, June 4, 2010

"Case Studies in Scientific Ethics," CHPH 714, one-credit course, University of Maryland, Winter Term, 2010

"Bose-Einstein Condensation," CHPH 718P/PHYS 798P, three-credit course, University of Maryland, Autumn Term, 1998

"Atomic Collisions and Spectra," CHPH 718P, three-credit course, University of Maryland, Autumn Term, 1993

Graduate education

Ph.D., Physics 8/1979
University of Chicago
Chicago, IL 60637
Thesis: "Electron Scattering from Diatomic Polar Molecules" Supervisor: Ugo Fano

S.M., Physics 9/1974 - 3/1976
University of Chicago
Chicago, IL 60637

Undergraduate education

B.A. (honors), Mathematics and Physics magna cum laude 9/1970 - 6/1974
Western Washington State College
Bellingham, WA 98225

University of Washington Seattle, WA 98105 6/1973 - 8/1973

Undergraduate Honors Research Participation Program 1/1973 - 5/1973
Solid State Science Division
Argonne National Laboratory Argonne, IL 60439
Supervisor: Rudolf P. Hübener

Professional activities

Society leadership

Member at Large, Section P, Industrial Science and Technology, American Association for the Advancement of Science, 2024-2025

Secretary, Section P, Industrial Science and Technology, American Association for the Advancement of Science, 2022

Chair, Technical Group on Optical Cooling and Trapping, Optical Society of America, 2018-2020

Interim Past Chair, Mid-Atlantic Section, American Physical Society, 2012 – 2013

Retiring Chair (2011), Chair (2010) and Chair Elect (2009), Section B, Physics, American Association for the Advancement of Science
Past Chair (2006), Chair (2005), Chair-Elect (2004), and Vice-Chair (2003), Division of Atomic, Molecular, and Optical Physics, American Physical Society

Other leadership positions

Official Nominator, VinFuture Foundation (2024)
Adjunct Professor of Physics, University of Maryland, 2007 – present
Visiting Scholar, National University of Singapore, 2007 – present
Fellow, Joint Quantum Institute, University of Maryland, 2007 – present
Adjunct Professor (1990 –) and Affiliate (2009 –), Institute for Physical Science and Technology, University of Maryland, 1990 – present
Chair, Shih-I Pai Lectureship Committee, Institute for Physical Science and Technology, University of Maryland, 2020
Co-Chair for Neutron Physics, 2018 American Conference on Neutron Scattering, College Park, MD, 6/2018
Organizer, Workshop on Matter-Wave Interferometry, Joint Quantum Institute, College Park, MD, 9/2016
Distinguished Visiting Professor of Quantum Physics, University of Malaya, 2013 – 2015
Adjunct Professor, Australian National University, 2012 – 2014
Member, Leadership Board, College of Sciences and Technology, Western Washington University, 2009 – 2014
Co-Organizer, Nanotechnology Symposium, 2014 USDA Agricultural Outlook Forum, Arlington, VA, 2/2014
Chair, Nominating Committee, Mid-Atlantic Section, American Physical Society, 2013
Chair, Advisory Board for the Australian Research Council Centre of Excellence in Antimatter-Matter Studies, 2006 - 2013
Chair, Organizing Committee, "Towards Quantum Standards: A Workshop on Quantum Information Technology," The Royal Society, London, 5/2006
Chair, NSERC Review Committee for the Institute for Quantum Computing, Waterloo, Ontario, 2006
Chair, Fellows and Honorary Members Committee, Optical Society of America, 2006
Chair, Organizing Committee, Workshop on Quantum Information Science and Emerging Technologies, Boulder, CO, 4/2004
Co-organizer, "Resonances and Reflections: Profiles of Ugo Fano's Physics and Its Influences," Satellite Meeting of the International Conference on Atomic Physics, Cambridge, MA, 7/2002
Co-organizer, Summer Programme on Bose-Einstein Condensation, European Centre for Theoretical Studies in Nuclear Physics and Related Areas, Trento, Italy, 7-8/2002
Chair, Physics Panel II, U. S. Civilian Research and Development Foundation, 2001
Co-organizer, Workshop on Computational Methods for Few-Body Dynamical Systems, Gaithersburg, MD, 11/2000
Chair, National Science Foundation Special Emphasis Panel for the Rochester Theory Center, 1998
Chair, Tellers Committee, Optical Society of America, 1995

Chair, Organizing Committee, NIST Workshop on Quantum Computing and Communication, Gaithersburg, MD, 8/1994
Chair, Selection Committee, American Physical Society Award for Outstanding Doctoral Thesis Research in Atomic, Molecular, or Optical Physics, 1993
Chair, Local Committee, 8th National Conference on Synchrotron Radiation Instrumentation, Gaithersburg, MD, 8/1993
Chair, National Academy of Sciences/National Research Council Committee on Line Spectra of the Elements - Atomic Spectroscopy, 1989-91
Co-director, NATO Advanced Study Institute on Atoms in Strong Fields, Kos, Greece, 10/1988
Co-organizer, "Atomic Spectra and Collisions in External Fields II," satellite meeting of the XV International Conference on the Physics of Electronic and Atomic Collisions, Egham, Surrey, England, 7/1987
Co-organizer, symposium on "Formation and Decay of Multiply-Excited States," IV International Conference on Multiphoton Processes, Boulder, CO, 7/1987
Organizer, symposium on "Physics of X-ray Lasers," 1986 Annual Meeting, Optical Society of America, Seattle, WA, 11/1986
Co-organizer, "Workshop on Atomic Spectra and Collisions in External Fields," Gaithersburg, MD, 10/1984

Board and committee service

Member, Mid-Term Review, Singapore Quantum Engineering Program, 2023 – 2025
Member, Governing Board, Centre for Quantum Technologies, Singapore, 2022 – 2025
Member, Advisory Board, NSF ExpandQISE Center on Neutral Atom Based Quantum Information Processing, University of Texas, Dallas, 2022 –
Member, Herbert P. Broida Award Selection Committee, American Physical Society, 2024
Member, International Advisory Board for Taiwan Neutron Science, Institute of Nuclear Energy Research, Taiwan, 2023
Member, International Advisory Panel, Strategic Research Review, Australian Nuclear Science and Technology Organization (ANSTO), 2021
U. S. Expert, 25th Meeting, Consultative Committee for Units, Bureau international des poids et mesures, 2021
Member, Advisory Board, Center for Quantum Research and Technology, University of Oklahoma, 2021-
Member, QEP2.0 International Evaluation Ranking Panel, Quantum Engineering Programme, National University of Singapore, 2021
Member, National Quantum Literacy Advisory Board, Morgan State University, 2021-
Member, NIST Colloquium Committee, National Institute of Standards and Technology, 2021 – 2022
Member, High Energy Review Panel, Planetary Instrument Concepts for the Advancement of Solar System Observations, National Aeronautics and Space Administration, 2020
Reviewer, *Manipulating Quantum Systems: An Assessment of Atomic, Molecular, and Optical Physics in the United States*, The National Academies, 2020
Member, The National Academies Panel on Review of Extramural Basic Research at the Army Research Laboratory (ARL), 2019-2020

Member, Australian Research Council Centres of Excellence 2020 Selection Advisory Committee, 2018-2019
Member, Nominating Committee, Division of Atomic, Molecular and Optical Physics, American Physical Society, 2016-2017
Member, Selection Committee, American Physical Society LeRoy Apker Award, 2013-2015
Member, Review Committee for the Atomic and Molecular Physics Laboratories, Research School of Physics and Engineering, Australian National University, 2012
Member, Selection Committee, Alan T. Waterman Award, National Science Foundation, 2010 – 2012
Member, Selection Committee, American Physical Society Congressional Fellows Program, 2010
Member, Scientific Committee, ICREA Workshop on Quantum Gauge Theories and Ultracold Atoms, 2009
Member, Board of Directors, Senior Executives Association, U.S. Department of Commerce, 2004-2009
Member, Physics Policy Committee, American Physical Society, 2005-2007
Member, Annual Meeting Program Committee, American Association for the Advancement of Science, 2000-2006
Member, Davisson-Germer Prize Committee, American Physical Society, 2004-2006
Member, Fellowship Committee, American Physical Society, 2003-2005
Member, Fellows and Honorary Members Committee, Optical Society of America, 2005
Member, Nominating Committee, Topical Group on Quantum Information, Concepts and Computation, American Physical Society, 2005
Member, Advisory Board, Institute for Theoretical Atomic and Molecular Physics, Harvard-Smithsonian Center for Astrophysics, 2001-2004
Member, Program Committee, March Meeting of the American Physical Society, 2001-2004
Member, International Advisory Committee, Eighth International Conference on Synchrotron Radiation Instrumentation, 2002-2003
Member, Screening Committee, Science Journalism Awards, American Association for the Advancement of Science, 2002
Member, Collaborative Computational Project 2 - Continuum States of Atoms and Molecules, Science and Engineering Research Council (United Kingdom), 1990 – 2002
Member, Peer Review Rapid Action Committee, Optical Society of America, 2001
Panelist, National Science Foundation Workshop on Computational Physics, 2001
Member, Committee of Visitors, Directorate for Mathematical and Physical Sciences, National Science Foundation, 1997
Member, Program Committee, Third International Conference on Quantum Functional Devices, Gaithersburg, MD, 11/1997
Member, Selection Committee, E. O. Lawrence Award of the U. S. Department of Energy, 1996
Member (Past Chair), Tellers Committee, Optical Society of America, 1996
Member, Local Committee, Conference on New Methods in Electronic Structure Calculation, St. Mary's College of Maryland, 5/1995
Member, Subcommittee on Laser Spectroscopy, Quantum Electronics and Laser Science Conference (QELS '95), 5/1995

Member, Program Committee, Topical Conference on High Field Interactions and Short Wavelength Generation, Optical Society of America, 8/1994
Member, Executive Committee, Division of Atomic, Molecular, and Optical Physics, American Physical Society, 1990-91
Consultant, Princeton Plasma Physics Laboratory, Princeton, NJ, 1984-1990
Member, National Academy of Sciences/National Research Council Committee on Line Spectra of the Elements - Atomic Spectroscopy, 1987-1989
Member, Ad Hoc Committee on Page Charge Analysis, Optical Society of America, 1987 – 1988
Member, Organizing Committee, IV International Conference on Multiphoton Processes, Boulder, CO, 7/1987
Member, Technical Program Committee, 1986 Annual Meeting, Optical Society of America, Seattle, WA, 11/1986

Editorial positions

Editor for Scientific Applications, *NIST Digital Library of Mathematical Functions*, 1998–2024
Editor, *Quantum*, 2022
Member, Editorial Advisory Board, *Springer Series on Atomic, Optical, and Plasma Physics* (Springer Verlag), 2002 – 2010
Member, Editorial Board, *Journal of Physics B: Atomic, Molecular, and Optical Physics*, 1996 – 2006
Associate Editor, *Optics Express*, 1997 – 2000
Guest Editor, Feature Issue on Bose-Einstein Condensation, *Journal of Research of the National Institute of Standards and Technology*, 1996
Topical Editor for Atomic Spectroscopy, *Journal of the Optical Society of America B*, 1986–1992

Societies

American Association for the Advancement of Science (Fellow)
American Physical Society (Life Member and Fellow)
Bangladesh Physical Society (Life Member and Honorary Fellow)
Cosmos Club
Institute of Physics (Fellow)
National Society of Black Physicists
Optica, formerly Optical Society of America (Life Member and Fellow)
Philosophical Society of Washington
Washington Academy of Sciences (Fellow)

Honors and awards

Election to NIST Gallery of Distinguished Alumni, National Institute of Standards and Technology (2023)
Visiting Scholar, Merton College, University of Oxford (2023)
Associate Member, Common Room, Christ Church, University of Oxford (2023)
NIST Symposium: "From Atomic Structure to Bose Condensates: A 40-year NIST journey with Charles Clark (2022)
Member, Cosmos Club (2022)
Honorary Fellow, Bangladesh Physical Society (2021)

Visiting Scholar, Merton College, University of Oxford (2019)
Visiting Scholar, Merton College, University of Oxford (2017)
Edward Uhler Condon Award, National Institute of Standards and Technology (2013)
Award for Information Technology Achievement, *Government Computer News* (2011)
Gold Medal, U.S. Department of Commerce (2011)
Appointed NIST Fellow (2010)
Bronze Medal, National Institute of Standards and Technology (2009)
R&D 100 Award, *R&D Magazine* (2008)
Distinguished Presidential Rank Award, U.S. Senior Executive Service (2007)
Gold Medal, U.S. Department of Commerce (2004)
Physical Sciences Award, Washington Academy of Sciences (2003)
Fellow, Washington Academy of Sciences (2003)
Archie Mahan Prize, Optical Society of America (2002)
Edward Uhler Condon Award, National Institute of Standards and Technology (2002)
Safety Award, National Institute of Standards and Technology (2002)
Fellow, American Association for the Advancement of Science (2001)
Dr. Lee Visiting Fellow, Christ Church, University of Oxford (1999)
Fellow, Institute of Physics (1999)
Appointed to Senior Executive Service, U.S. Department of Commerce (1997)
Silver Medal, U.S. Department of Commerce (1994)
Fellow, Optical Society of America (1994)
Fellow, American Physical Society (1992)
Visiting Fellow, Research School of Physical Sciences, Australian National University (1992)
Equal Employment Opportunity Award, National Institute of Standards and Technology (1991)
Excellence in Research Award, National Bureau of Standards Chapter of Sigma Xi (1987)
Visiting Fellow, Research School of Physical Sciences, Australian National University (1986)
National Research Council Postdoctoral Research Associateship, National Bureau of Standards (1981 - 83)

Invited presentations (from 1985)

"Postquantum Cybersecurity," Panelist on "The quantum advantage: leveraging community and collaboration for success," Economist Impact (online), 10/8/2024
"Quantum Resistance and the Internet of Things," Guest Lecture, AMSC698Q, Advanced Topics in Applied Mathematics; The Mathematics of Quantum Information Science, University of Maryland, College Park, MD, 9/19/2024
"Landscape of Artificial Intelligence Regulation," Nikkei Asia, Taipei, Taiwan (remote), 7/14/2024
"Quantum Resistance and the Internet of Things," Atomtronics 2024, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, 5/22/2024
"Quantum Resistance and the Internet of Things," Superconducting Quantum Materials and Systems Center Seminar, Fermi National Accelerator Laboratory, Batavia, IL, 1/25/2024
"Generation, Detection and Application of Twisted Waves of Light and Neutrons," Fermilab Colloquium, Fermi National Accelerator Laboratory, Batavia, IL, 1/24/2024
"Quantum Resistance and the Internet of Things," Tutorial, Midwest Cold Atom Workshop, Chicago, IL, 11/3/2023

"Generation, Detection and Application of Twisted Waves of Light and Neutrons," Physics Colloquium, University of Chicago, Chicago, IL, 11/2/2023
"Generation, Detection and Application of Twisted Waves of Light and Neutrons," Dr. Shih-I Pai Lecture in Fluid Dynamics and Plasma Dynamics, University of Maryland, College Park, MD, 10/12/2023
"Twisting Neutron Waves: Accomplishments and Prospects," International Advisory Board for Taiwan Neutron Science, Institute of Nuclear Energy Research, Taoyuan City, Taiwan, 9/5/2023
"Measurements and standards for artificial intelligence," BCI Summit: Transforming Data and AI, New York, NY, 6/28/2023
"The Gay '70s of Atomic Physics at the University of Chicago," Tim Gay 70th Birthday Festspiele, University of Nebraska, Lincoln, NE, 4/29/2023
"Animal Supernavigators," Coastal Empire Lecture, Sigma XI, Georgia Southern University, Statesboro, GA, 4/19/2023
"Animal Supernavigators," Coastal Empire Lecture, Sigma XI, Armstrong Campus, Georgia Southern University, Savannah, GA, 4/18/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," Dublin City University, Dublin, Ireland, 2/28/2023
"Animal Supernavigators," Schools Talk, Dublin City University, Dublin, Ireland, 2/27/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," Atomic, Molecular Optical and Positron Physics Seminar, University College London, London, England, 2/23/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," ISIS Neutron and Muon Source Seminar, Rutherford Appleton Laboratory, Harwell Science and Innovation Campus, Oxfordshire, England, 2/22/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," 2023 Ludwig Boltzmann Forum, Tokyo, Japan (delivered online), 2/20/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," UK Quantum Technology Hub Seminar, University of Birmingham, Birmingham, England, 2/16/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," Atomic and Laser Physics Seminar, Clarendon Laboratory, University of Oxford, Oxford, England, 2/13/2023
"Generation and Detection of Twisted Waves of Neutrons and Light," Physics Colloquium, University of Bristol, Bristol, England, 2/6/2023
"Neutron Imaging, Interference and Detection," Naval Quantum Information Science and Technology Working Group, United States Navy, 11/8/2022
"Neutron Imaging, Interference and Detection," Institute of Nuclear Energy Research, Taoyuan City, Taiwan, 10/27/2022
"Quantum Literacy for the Reserve Officers Training Corps," National Quantum Literacy Conference 1.0, U.S. Naval Academy, Annapolis, MD, 10/6/2022
"Acceleration of Quantum Sciences & Engineering, and Comprehensibility, Via Metascience," Birds of a Feather, IEEE International Conference on Quantum Computing and Engineering – QCE22, Broomfield, CO, 9/22/2022
"Four decades at NIST," Quantum Measurement Division Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 9/13/2022
"Quantum Resistance and the Internet of Things," Cosmos Club Science Group, The Cosmos Club, Washington, DC 9/12/2022

"Random number generation on quantum computers," ColdQuanta, Inc., Boulder, CO, 6/10/2022
"Neutron Jon," Jonathan P. Dowling Memorial Conference on Quantum Science and Technology, Louisiana State University, Baton Rouge, LA 5/12/2022
"Ettore Majorana and the birth of autoionization," Atomtronics 2022, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, 5/4/2022
"Random number generation on quantum computers," Institute for Quantum Computing, University of Waterloo, Waterloo, Ontario, 4/5/2022
"Random number generation on quantum computers," Undergraduate Quantum Association, University of Maryland, College Park, MD 3/14/2022
"Neutrons and water on the Moon," Radiation Physics Division Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 2/2/2022
"Stirring, Shocking, Quantum and Thermal Fluctuations in Atom Circuits," 51st Winter Colloquium on the Physics of Quantum Electronics," Snowbird, UT, 1/10/2022
"Random Presentation," Center for Quantum Research and Technology Seminar, University of Oklahoma, Norman, OK, 11/5/2021
"Holy COW! Fundamental Constants, Gravity, the Neutron and Quantum Mechanics," Physics Colloquium, Pabna University of Science and Technology, Pabna, Bangladesh, 10/27/2021
"Atomtronics and quantum interferometry," 40th Anniversary of the Center for Theoretical Physics, Polish Academy of Sciences, Warsaw, Poland, 8/31/2021
"Neutron detection with far-ultraviolet scintillations induced by the n(^{10}B,^{7}Li)α reaction," Technical Meeting on Advances in Neutron Detectors for Neutron Scattering and Imaging Applications, International Atomic Energy Agency, Vienna, Austria, 8/31/2021
"Producing flow in racetrack atom circuits by stirring," Atomtronics@AbuDhabi2021, Technology Innovation Institute, Abu Dhabi, United Arab Emirates, 6/8/2021
"Learn Quantum Cryptography," Guest Lecture, MISC 302: Introduction to Military Training Management, Morgan State University, Baltimore, MD, 4/13/2021
"The Quantum Neutron," International e-Conference on Physics - 2021, Bangladesh Physical Society, Dhaka, Bangladesh, 2/6/2021
"The history and future of quantum information," National Science Foundation Convergence Accelerator Overview, National Science Foundation, 11/30/2020
"Quantum literacy in military education," National Quantum Literacy Network Team Meeting, Morgan State University, 11/10/2020
"How to ace technical interviews in quantum technology," IEEE International Conference on Quantum Computing and Engineering - QCE20, online, 10/14/2020
"Quantum Enterprise Integration" (panelist), BCI Talks | Quantum Enterprise Integration, online, 9/23/2020
"Neutron Imaging, Interference and Detection," Materials Science and Engineering Seminar, Department of Materials Science and Engineering, University of Maryland, College Park, MD, 9/18/2020
"Vortices of light and matter waves," 2,424th Meeting, Philosophical Society of Washington, Washington, DC, 9/11/2020
"Learn Quantum Cryptography 3. Less certainty, more security," Philadelphia/Harrisburg Quantum Computing Meetup, Harrisburg University of Science and Technology, Harrisburg, PA, 8/26/2020

"Learn Quantum Cryptography 2. Quantum randomness," Philadelphia/Harrisburg Quantum Computing Meetup, Harrisburg University of Science and Technology, Harrisburg, PA, 8/25/2020

"Learn Quantum Cryptography 1. Codes and their cracking," Philadelphia/Harrisburg Quantum Computing Meetup, Harrisburg University of Science and Technology, Harrisburg, PA, 8/24/2020

"Quantum cryptography and quantum cryptanalysis," BCI Quantum Computing | Cyber, online, 7/16/2020

"Lunar Cellular Network Neutron Spectrometer," Lunar Surface Science Workshop 2020, Denver, Colorado, 4/29/2020 (meeting rescheduled)

"Optical detection of neutrons with silicon photomultipliers," Advanced Photon Counting Techniques XIV, Anaheim, California, 4/29/2020

"From Feature to Bug, and Back Again," Radiation Physics Division Seminar, National Institute of Standards and Technology, 3/4/2020

"Animal Supernavigators," Western Washington University, Bellingham, WA, 2/18/2020

"Particle Therapy: Perspectives from Physics, Medicine and Economics," Annual Meeting of the American Association for the Advancement of Science, Seattle, WA, 2/14/2020

"Animal Supernavigators," The Optical Society, Washington, DC, 11/21/2019

"Classical, Quantum and Post-Quantum Cybersecurity," BCI Summit Quantum, New York, NY, 11/8/2019

"Old Deuteronomy," Physics/Theory Colloquium Series, Los Alamos National Laboratory, Los Alamos, NM, 9/19/2019

"Vortex lattices of light and neutrons," Quantum Lunch Seminar, Los Alamos National Laboratory, Los Alamos, NM, 9/19/2019

"Over the Rainbow: The Other World Seen by Animals," National Museum of Australia, Canberra, Australia, 5/26/2019

"Vortex lattices of light and neutrons," Atomtronics 2019, Centro de Ciencias de Benasque Pedro Pascual, Benasque, Spain, 5/8/2019

"Over the Rainbow: The Other World Seen by Animals," Kennedy College of Sciences Lecture Series on Science and Society sponsored by Eric and Lola Chaisson, University of Massachusetts Lowell, Lowell, MA, 4/4/2019

"Neutron Particles and Neutron Waves," Quantum Light and Matter Seminar, Durham University, Durham, England, 2/27/2019

"Quantum and Animal Vision," Public Lecture, Joint Quantum Centre Durham-Newcastle, Newcastle University, Newcastle upon Tyne, England, 2/25/2019

"Holy COW! Gravity, the Neutron and Quantum Mechanics," Atomic, Molecular Optical and Positron Physics Seminar, University College London, London, England, 2/20/2019

"Neutron Particles and Neutron Waves," Quantum Optics and Laser Science Seminar, Imperial College, London, England, 2/1/2019

"Multum in Parvo," Physics and Astronomy Colloquium, University of Tennessee Knoxville, Knoxville, TN, 11/5/2018

"Holy COW! Gravity, the Neutron and Quantum Mechanics," Physics and Astronomy Colloquium, Purdue University, West Lafayette, IN, 10/11/2018

"NIST Programs in Quantum Science and Technology," Frontiers in Optics/ Laser Science, Washington, DC, 9/19/2018

"Multum in Parvo," Banquet Address, Annual Meeting of the Division of Atomic, Molecular and Optical Physics, American Physical Society, Fort Lauderdale, FL, 5/30/2018
"Subatomic Boulder," Physical Measurement Laboratory Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 3/8/2018
"Subatomic Boulder," Physical Measurement Laboratory Seminar, National Institute of Standards and Technology, Boulder, CO, 3/6/2018
"Geophysical neutrons," Neutron Physics Group Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 1/23/2018
"Induced density correlations in a sonic black hole condensate," AtomChip Workshop, Centre for Quantum Technologies, Pangkil Island, Indonesia, 12/14/2017
"The enigma: do fundamental constants of nature vary in time?" Lunch Talk, Centre for Quantum Technologies, National University of Singapore, Singapore, 12/11/2017
"The neutron as a quantum particle and wave," 10th Anniversary Symposium, Centre for Quantum Technologies, National University of Singapore, Singapore, 12/8/2017
"Neutron Particles and Neutron Waves," Physics Colloquium, Simon Fraser University, Vancouver, BC, 10/27/2017
"Neutron Particles and Neutron Waves," Physics Colloquium, Western Washington University, Bellingham, WA, 10/25/2017
"Neutron Particles and Neutron Waves," Physics Colloquium, University of Washington, Seattle, WA, 10/24/2017
"Neutron Particles and Neutron Waves," Physics Colloquium, University of Oregon, Eugene, OR, 10/19/2017
"Neutron Particles and Neutron Waves," Physics Colloquium, Washington State University, Pullman, WA, 10/17/2017
"Neutron Particles and Neutron Waves," Physics Seminar, U.S. Naval Academy, Annapolis, MD, 9/30/2017
"Spinor Bose-Einstein Condensates of Positronium," POSMOL 2017 - XIX International Workshop on Low-Energy Positron and Positronium Physics, Magnetic Island, Queensland, Australia, 7/23/2017
"Twisting the Neutron Wavefunction," 15th Anniversary Symposium, Institute for Quantum Computing, Iqaluit, Nunavut, Canada, 7/10/2017
"Twisting the Neutron Wavefunction," Radiation Physics Division Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 6/20/2017
"CAMOP and Camelot," Katharine Blodgett Gebbie Symposium, National Institute of Standards and Technology, Gaithersburg, MD, 5/18/2017
"Atomtronics: a very short introduction," 2017 Atomtronics Workshop, Benasque, Spain, 5/11/2017
"Induced density correlations in a sonic black hole condensate," 2017 Atomtronics Workshop, Benasque, Spain, 5/8/2017
"The Strange New World Seen by Animals," Take Our Daughters and Sons to Work Day, Office of the General Counsel, U S. Department of Commerce, Washington, DC, 4/27/2017
"Twisting the Neutron Wavefunction," NIST Center for Neutron Research Seminar, National Institute of Standards and Technology, Gaithersburg, MD, 4/18/2017
"Twisting Neutron Wavefunctions," Optics Division Seminar, Department of Physics, University of Strathclyde, Glasgow, Scotland, 3/2/2017

"Twisting Neutron Wavefunctions," Occam Lecture, Merton College, University of Oxford, Oxford, England, 2/27/2017
"Atomtronics: a very short introduction," Flash Talk, Annual Meeting of the American Association for the Advancement of Science, Boston, MA, 2/17/2017
"Twisting Neutron Wavefunctions," Atomic, Molecular Optical and Positron Physics Seminar, University College London, London, England, 2/8/2017
"Black holes and atomtronics," AtomChip Workshop, Centre for Quantum Technologies, Pangkil Island, Indonesia, 12/15/2016
"Twisting Neutron Wavefunctions," Colloquium, Centre for Research in Photonics, University of Ottawa, Ottawa, ON, 11/16/2016
"Over the rainbow: the other world seen by animals," IQC Public Lecture, Institute for Quantum Computing, University of Waterloo, Waterloo, ON, 11/15/2016
"Twisting Neutron Wavefunctions," IQC Seminar, Institute for Quantum Computing, University of Waterloo, Waterloo, ON, 11/15/2016
"Hawking radiation in laboratory Bose-Einstein condensates," High Energy Astrophysics Group Seminar, University of Maryland, College Park, MD, 11/4/2016
"Twisting Neutron Wavefunctions," Networks and Communication Research Seminar, U. S. Army Research Laboratory, Adelphi, MD, 11/3/2016
"Twisting the quantum," Physics Colloquium, Louisiana State University, Baton Rouge, LA, 10/13/2016
"Fauxing radiation from Bose-Einstein condensates", Quantum Krispy Kreme Seminar, Louisiana State University, Baton Rouge, LA, 10/12/2016
"Elections: Quantum Dense Coding of American History," Perspectives on Quantum Optics, University of Warsaw, Poland, 9/25/2016
"Mechanisms of stimulated Hawking radiation in laboratory Bose-Einstein condensates," National Laboratory of Atomic, Molecular and Optical Physics, Nicolaus Copernicus University, Toruń, Poland, 9/19/2016
"Twisting Neutron Wavefunctions," Center for Theoretical Physics, Polish Academy of Sciences, Warsaw, Poland, 9/16/2016
"How American Presidents are Chosen," Institute of Physics, Polish Academy of Sciences, Warsaw, Poland, 9/14/2016
"Mechanisms of stimulated Hawking radiation in laboratory Bose-Einstein condensates," 40th International Conference on Theoretical Physics: Correlations and Coherence at Different Scales, Ustroń, Poland, 9/8/2016
"Twisting Neutron Wavefunctions," American Conference on Neutron Scattering, Long Beach, CA, 7/13/2016
"How quantum mechanics cracked the nuclear code," Colloquium, Johns Hopkins University Applied Physics Laboratory, Laurel, MD, 6/3/2016
"How quantum mechanics cracked the nuclear code," Mechanical Engineering 432 guest lecture, University of Maryland, College Park, MD, 4/21/2016
"Twisting the quantum," Physics Colloquium, University of Colorado, Boulder, CO, 4/6/2016
"Twisting the quantum," Atominstitut Seminar, Technische Universität Wien, Vienna, Austria, 3/7/2016
"Twisting the quantum," Research Institute for Symbolic Computation Seminar, Linz, Austria, 3/3/2016

"Resonant wavepackets and shock waves in an atomtronic SQUID," Institute for Quantum Optics and Quantum Information Seminar, Innsbruck, Austria, 3/2/2016
"Is Brooklyn expanding?" Joint Center for Quantum Information and Computer Science Seminar, University of Maryland, College Park, MD 2/24/2016
"Resonant wavepackets and shock waves in an atomtronic SQUID," AtomChip Workshop, Centre for Quantum Technologies, Pangkil Island, Indonesia, 12/15/2015
"Twisting neutron waves," Laboratory for Physical Sciences, College Park, MD, 10/14/2015
"By river and road to Atomic City," Neutron Physics Group Seminar, National Institute of Standards and Technology, Gaithersburg, MD 10/13/2015
"Is Brooklyn expanding?" American Physical Society Local Link, Washington, DC 10/12/2015
"Over the rainbow: other worlds seen by animals," 2,350th Meeting, Philosophical Society of Washington, Washington, DC, 09/25/2015
"Twisting neutron waves," XVIII International Workshop on Low-Energy Positron and Positronium Physics (POSMOL 15), Lisbon, Portugal, 07/16/2015
"Twisting neutron waves," Center for Optical Quantum Technologies, University of Hamburg, Hamburg, Germany, 07/01/2015
"The other world seen by animals," IONS Karlsruhe 2015, Karlsruhe, Germany, 06/28/2015
"The other world seen by animals," Take Our Daughters and Sons to Work Day, National Institute of Standards and Technology, Gaithersburg, MD 04/23/2015
"Over the rainbow: the other world seen by animals," Stanford Optical Society, Stanford University, Stanford, CA 02/17/2015
"Next-Generation Atomtronics," Assistant Secretary of Defense for Research and Engineering Basic Research Forum, Arlington, VA, 01/22/2015
"Over the rainbow: the other world seen by animals," Neutron Physics Group Seminar, National Institute of Standards and Technology, Gaithersburg, MD 01/13/2015
"Hysteresis in a quantized superfluid atomtronic circuit," AtomChip Workshop, Centre for Quantum Technologies, Pangkil Island, Indonesia, 12/16/2014
"Experiences as a Coursera student and instructor," Physics and Applied Physics Seminar, Nanyang Technological University, Singapore, 12/12/2014
"Over the rainbow: the other world seen by animals," Science in the Café, Science Centre Singapore, 12/10/2014
"Adventures inside the atom," Quantum Measurement Division Seminar, National Institute of Standards and Technology, 10/16/2014
"The Other World Seen by Animals," Physics Colloquium, American University, Washington, DC, 10/01/2014
"Exploring Quantum Physics," Coursera Meetup, University of Maryland, College Park, MD, 06/13/2014
"Exploring Quantum Physics," Coursera Meetup, University of Maryland, College Park, MD, 05/28/2014
"The Joint Quantum Institute of the National Institute of Standards and Technology and the University of Maryland," Standards Alumni Association, Gaithersburg, Maryland, 04/17/2014
"Hysteresis in a quantized superfluid atomtronic circuit," Atomic, Molecular, Optical and Positron Physics Seminar, University College London, London, England, 03/26/2014

"Optics – The Science of Everything," Presidential Award for Excellence in Mathematics and Science Teaching, Office of Science and Technology Policy, Washington, DC, 03/03/2014
"Atomtronics of Matter Waves," Physics Colloquium, Temple University, Philadelphia, PA, 01/27/2014
"Stirring Ring Bose-Einstein Condensates," AtomChip Workshop, Centre for Quantum Technologies, Pangkil Island, Indonesia, 12/17/2013
"Fundamental Constants/100th Birthday of the Bohr Model of the Atom," Coursera Meetup, University of Malaya, Kuala Lumpur, Malaysia, 12/11/2013
"Exploring Quantum Physics," Coursera Meetup, Optical Society of America, Washington, DC, 11/22/2013
"Niels Bohr's Nutcracker," Physics Colloquium, Georgia Southern University, Statesboro, GA, 11/11/2013
"Extreme Ultraviolet: The Grand Adventure," Materials Science and Engineering Seminar, University of Maryland, College Park, MD, 11/1/2013
"How Quantum Mechanics Cracked the Nuclear Code," Physics 405 guest lecture, University of Maryland, College Park, MD, 10/16/2013
"Exploring Quantum Physics," Coursera Meetup, University of Central Florida, Orlando, FL, 10/8/2013
"Niels Bohr's Nutcracker," Symposium on the 100th Anniversary of the Bohr Atom, Frontiers in Optics 2013/Laser Science XXIX, Hilton Bonnet Creek, Orlando, FL, 10/6/2013
"Extreme Ultraviolet: The Grand Adventure," Banquet Speech, 17th Pan-American Synchrotron Radiation Instrumentation Conference, Gaithersburg Hilton, Gaithersburg, MD, 6/20/2013
"The Other World Seen by Animals," Sigma Xi Awards Banquet, National Institute of Standards and Technology, Gaithersburg, MD, 6/11/2013
"Experience in online education as a student and instructor," HERO Seminar, National Chiao Tung University, Hsinchu City, Taiwan, 6/3/2013
"Experience in online education as a student and instructor," Centre for Quantum Technologies Seminar, National University of Singapore, Singapore, 5/30/2013
"Experience in online education as a student and instructor," Vietnam National University – University of Science, Ho Chi Minh City, Vietnam, 5/27/2013
"Experience in online education as a student and instructor," Hanoi National University of Education, Hanoi, Vietnam, 5/24/2013
"Experience in online education as a student and instructor," High Impact Research Seminar, University of Malaya, Kuala Lumpur, Malaysia, 5/22/2013
"The Other World Seen by Animals," High Impact Research Seminar, University of Malaya, Kuala Lumpur, Malaysia, 5/22/2013
"Extreme Ultraviolet: The Grand Adventure," Physics Applied to Advances in Measurement Technology, A Symposium in Honor of Dr. Katharine B. Gebbie, National Institute of Standards and Technology, Gaithersburg, MD, 5/8/2013
"The Other World Seen by Animals," Take Our Children to Work Day, National Institute of Standards and Technology, Gaithersburg, MD, 4/25/2013
"The Other World Seen by Animals," Physics Colloquium, California State University, Sacramento, CA 4/18/2013
"Photon, Atom and Neutron: How Quantum Mechanics Cracked the Nuclear Code," Physics Colloquium, Pennsylvania State University, University Park, PA, 2/28/2013

"Navigation, sensing and timekeeping with cold atoms," Defense Science and Technology Organisation, Edinburgh, South Australia, 12/3/2012
"Stirring Ring Bose-Einstein Condensates," Quantum Gas Workshop 2012, University of Queensland, Brisbane, Australia, 11/27/2012
"Use of advanced features of the Digital Library of Mathematical Functions," Neutron Physics Group Seminar, National Institute of Standards and Technology, Gaithersburg, MD 8/7/2012
"The Other World Seen by Animals," SURF Summer Seminar Series, National Institute of Standards and Technology, Gaithersburg, MD 6/28/2012
"Use of advanced features of the NIST Digital Library of Mathematical Functions," Institut Henri Poincaré, Paris, France, 5/21/2012
"Next-Generation Atomtronics," Observatoire de Paris, Paris, France, 5/16/2012
"Use of the NIST Digital Library of Mathematical Functions," Mathematics Seminar, University of Paris Diderot, Paris, France, 5/14/2012
"Next-Generation Atomtronics," Journées Fédération de Recherche en Mathématiques de Paris centre/GT-Informatique Quantique, Paris, France, 5/9/2012
"Photon, Atom and Neutron: How Quantum Mechanics Cracked the Nuclear Code," Physics Colloquium, University of California Riverside, Riverside, CA, 3/15/2012
"Next-Generation Atomtronics," Annual Meeting of the American Association for the Advancement of Science, Vancouver, BC, 2/18/2012
"The Other World Seen by Animals," Public Lecture, College of Sciences and Technology, Western Washington University, Bellingham, WA, 2/15/2012
"Ferdinand Brickwedde and the Discovery and Exploitation of Deuterium," Brickwedde Lecture, Department of Physics and Astronomy, Johns Hopkins University, Baltimore, MD, 2/9/2012
"NIST and the Nobel Prize in Chemistry: Deuterium," Physical Chemistry Seminar, University of Maryland, College Park, MD, 2/8/2012
"Photon, Atom and Neutron: How Quantum Mechanics Cracked the Nuclear Code," Public Lecture, Faculty of Science, National University of Singapore, Singapore, 1/18/2012
"Next-Generation Atomtronics," Frontier of Science Lecture, University of Malaya, Kuala Lumpur, Malaysia, 1/16/2012
"NIST and the Nobel Prize in Chemistry: Deuterium," Institute of Molecular Science Seminar, National Chiao Tung University, Hsinchu, Taiwan 1/11/2012
"Next-Generation Atomtronics," Institute of Atomic and Molecular Sciences Seminar, Academia Sinica, Taipei, Taiwan, 1/10/2012
"Neutron Research at the National Institute of Standards and Technology and the University of Maryland," Institute of Nuclear Energy Research, Longtan, Taiwan, 1/9/2012
"NIST and the Nobel Prize in Chemistry: Deuterium," Sigma Xi Lecture, National Institute of Standards and Technology, Gaithersburg, MD, 12/7/2011
"Detecting slow neutrons with atoms," MacQuarie University Research Centre in Quantum Science and Technology Seminar, Sydney, Australia, 11/10/2011
"Detecting slow neutrons with atoms," School of Chemical and Physical Sciences Seminar, Flinders University, Adelaide, Australia, 11/9/2011
"Detecting slow neutrons with atoms," Centre for Antimatter-Matter Studies Workshop, Canberra, Australia, 11/4/2011

"Slow neutron detection without helium-3: far ultraviolet noble-gas-excimer radiation induced by neutron reactions with lithium-6 and boron-10," Eighth International Workshop on Cold Neutrons, B.P. Konstantinov Petersburg Nuclear Physics Institute, St. Petersburg, Russia, 6/19/2011

"Next-generation atomtronics," International Conference of Young Scientists - Low Temperature Physics, B. Verkin Institute for Low Temperature Physics and Engineering, Kharkiv, Ukraine, 6/10/2011

"NIST's New Science and Engineering Research Tool: DLMF," NIST Colloquium, National Institute of Standards and Technology, Gaithersburg, MD, 5/13/2011

"The NIST Digital Library of Mathematical Functions (DLMF): a new platform for STEM education," Physics and Mathematics Colloquium, Georgia Southern University, Statesboro, GA, 4/29/2011

"The NIST Digital Library of Mathematical Functions," Center for Scientific Computing and Mathematical Modeling, University of Maryland, College Park, MD, 3/30/2011

"Over the rainbow: extreme adventures in the ultraviolet," Physics Colloquium, Bates College, Lewiston, ME, 3/11/2011

"The other world seen by animals," Public Lecture, University of Otago, Dunedin, New Zealand, 11/29/2010

"Relativity at a billionth of the speed of light," 2010 IONS-KOALA Conference, University of Otago, Dunedin, New Zealand, 11/29/2010

"Atomtronics," Workshop on Quantum Based Measurements and Quantum Information Science, Breckenridge, CO, 11/16/2010

"Relativity at a billionth of the speed of light," Student Chapter of the Optical Society of America, Autonomous University of San Luis Potosí, San Luis Potosí, Mexico, 11/05/2010

"The NIST Handbook of Mathematical Functions," Reiter's Scientific, Professional and Technical Books, Washington, DC, 6/26/2010

"Phases and phase fluctuations in ultracold gases," APCTP-KIAS Joint Workshop on Quantum Entanglement and Dynamics in Correlated Many-Body Systems, Pohang, Korea, 5/17/2010

"Condensed matter physics at nanograms/cubic centimeter," Student Chapter of the Optical Society of America, San Francisco State University, San Francisco, CA, 4/26/2010

"Over the rainbow: extreme adventures in the ultraviolet," Take Our Children to Work Day, National Institute of Standards and Technology, Gaithersburg, MD, 4/22/2009

"Over the rainbow: extreme adventures in the ultraviolet," Student Chapter of the Optical Society of America, Lafayette College, Easton, PA, 4/9/2009

"A decoherence-free neutron interferometer," Australian Nuclear Science and Technology Organization, Lucas Heights, New South Wales, Australia, 4/1/10

"Over the rainbow: extreme adventures in the ultraviolet," Physics Colloquium, University of Maryland, College Park, MD, 3/2/2010

"Over the rainbow: extreme adventures in the ultraviolet," Physics Colloquium, Georgetown University, Washington, DC, 11/3/2009

"Over the rainbow: extreme adventures in the ultraviolet," Physics Colloquium, Bucknell University, Lewisburg, PA, 10/26/2009

"Supersolids in ultracold gases," Guest Lecture, Physics 332 (Quantum Mechanics), Bucknell University, Lewisburg, PA, 10/26/2009

"Relativity at a billionth of the speed of light," Joint Atomic Physics Seminar, Harvard University, Cambridge, MA, 10/7/2009

"Next-generation atomtronics," Annual Meeting of the Engineering, Manipulation and Characterization of Quantum States of Matter and Light (EMALI) Network, Pisa, Italy, 9/14/2009

"Toolkits for quantum gauge potentials," Workshop on Quantum Gauge Potentials and Ultracold Atoms, San Benet, Spain, 9/4/2009

"Hack the quantum," two days of demonstrations of quantum randomness, DEFCON 17, Las Vegas, NV, 7/31-8/1/2009

"Extreme ultraviolet and optical signatures of neutron reactions," Workshop on Helium-3 Issues and Alternatives for Neutron Detection, Savannah River Site, SC, 6/17/2009

"Believe it or square root of NOT: quantum communication and quantum computing," Undergraduate Engineering Assembly, The Johns Hopkins University, Baltimore, MD, 5/7/2009

"Progress with NIST efforts with phantom development," Lung Cancer Workshop VI, Bethesda, MD, 5/5/2009

"Matter wave magic," Physics Seminar, University of Maryland, College Park, MD, 1/13/2009

"Relativity at a billionth of the speed of light," Centre for Quantum Technologies, National University of Singapore, Singapore, 11/24/2008

"Matter wave magic," Physics Colloquium, Western Washington University, Bellingham, WA, 11/7/2008

"Relativity at a billionth of the speed of light," Stanford Photonics Research Center, Stanford University, Stanford, CA, 11/6/08

"Matter wave magic," Quantum Optics Seminar, Naval Air Systems Command, Patuxent River Naval Air Station, MD, 8/18/2008

"Quantum Spookshow," four days of live demonstrations of quantum cryptography at the 2008 Black Hat and DEFCON 16 meetings, Las Vegas, NV, 8/6-9/2008

"Observation of the $n(^3\mathrm{He},t)p$ reaction by detection of far-ultraviolet radiation," Symposium on Radiation Measurements and Applications (SORMA West), Berkeley, CA, 6/5/2008

"Matter wave magic," Physics Seminar, George Mason University, Fairfax, VA, 5/1/2008

"New approaches to standardization of CT image evaluation," Lung Cancer Workshop V, Hamburger University, Oak Brook, IL, 4/27/2008

"Condensed matter physics at nanograms/cubic centimeter," Physics Colloquium, University of Kentucky, Lexington, KY, 4/4/2008

"Condensed matter physics at nanograms/cubic centimeter," Laboratory for Physical Sciences, University of Maryland, College Park, MD, 3/5/2008

"Observation of the $n(^3\mathrm{He},t)p$ reaction by detection of far-ultraviolet radiation," Gaseous Electronics Meeting XV, Murramarang Resort, New South Wales, Australia, 2/5/2008

"Condensed matter physics at nanograms/cubic centimeter," Theoretical Atomic, Molecular and Optical Physics Seminar, The Queen's University of Belfast, Belfast, Northern Ireland, 11/27/2007

"Condensed matter physics at nanograms/cubic centimeter," Physics Colloquium, Tulane University, New Orleans, LA, 11/13/2007

"Condensed matter physics at nanograms/cubic centimeter," Inaugural Symposium, Joint Quantum Institute, College Park, MD, 3/27/2007

"Condensed matter physics at nanograms/cubic centimeter," Physics Colloquium, Weizmann Institute of Science, Rehovot, Israel, 1/18/2007
"Coherence and correlation in ultracold quantum gases," short course for the Student Chapter of the Optical Society of America, Weizmann Institute of Science, Rehovot, Israel, 1/16- 17/2007
"Measurements and standards for EUVL optics," Intel Ronler Acres Campus, Hillsboro, OR, 1/12/2007
"Coherence and correlation in ultracold gases – the legacy of Dan Walls," Inaugural Symposium, The Jack Dodd and Dan Walls Centre for Photonics and Ultra Cold Atoms, Auckland, NZ, 12/9/2006
"Condensed matter physics at nanograms/cubic centimeter," 2006 National Congress, Australian Institute of Physics, Brisbane, QLD, 12/6/2006
"Believe it or square root of NOT," XVII Undergraduate Research Symposium, Ana G. Mendez University System, San Juan, Puerto Rico, 9/15/2006
"Ugo Fano, Enrico Fermi, and spectral line shapes," Majorana Centenary Symposium, Gaithersburg, MD, 7/5/2006
"The NIST Quantum Information Program and the standards process," Towards Quantum Standards: A Workshop, The Royal Society, London, England, 5/24/2006
"Telling time with atoms on land, sea, and in the air," AMO Physics Seminar, University of Nebraska, 5/8/2006
"Prospects for commercial quantum technologies and their impact on society," Workshop on Industry in the Quantum Age, The Royal Society, London, England, 4/24/2006 (presentation given by videoconference)
"Telling time with atoms on land, sea, and in the air," Physics Colloquium, National University of Singapore, 4/10/2006
"Telling time with atoms on land, sea, and in the air," Physics Colloquium, Georgia Southern University, 3/9/2006
"Method and madness in quantum gases," Physics Colloquium, Kansas State University, Manhattan, KS, 5/2/2005
"Ugo Fano, Enrico Fermi, and spectral line shapes," AMO Physics Seminar, Kansas State University, Manhattan, KS, 5/2/2005
"Generation and application of coherent matter waves," Annual Meeting of the American Association for the Advancement of Science, Washington, DC, 2/20/2005
"Practical atomic spectroscopy," Physics 4243 - Atomic and Molecular Physics II, National University of Singapore, Singapore, 2/4/2005
"Method and madness in quantum gases," National University of Singapore, Singapore, 2/2/2005
"Method and madness in quantum gases," Tokyo University of Science, Tokyo, Japan, 1/26/2005
"Method and madness in quantum gases," University of Electro-Communications, Tokyo, Japan, 1/25/2005
"Method and madness in quantum gases," International Seminar on Atomic Processes, Shonan Village, Japan, 1/20/2005
"Superfluid and laser analogies with coherent matter waves," Informal Statistical Physics Seminar, University of Maryland, College Park, MD 11/23/2004

"Quantum information and quantum computing," XV Undergraduate Research Symposium, Universidad Metropolitana, San Juan, Puerto Rico, 10/1/2004

"Generation and application of coherent matter waves," Division Directors' Brown Bag Lunch, Office of Naval Research, Arlington, VA, 4/20/2004

"Superfluid and laser analogies with coherent matter waves," Laboratory for Computer Design of Materials Seminar, George Mason University, Fairfax, VA 2/23/2004

"Laser-like matter waves," Electronic and Computer Engineering Seminar, Johns Hopkins University, Baltimore, MD, 12/4/2003

"Coherent control of Bose-Einstein condensates," Atomic and Laser Physics Seminar, Clarendon Laboratory, University of Oxford, Oxford, England, 10/3/2003

"Optimal control of Bose-Einstein condensates and degenerate Fermi gases in harmonic traps," Symposium on Quantum Challenges, Warsaw, Poland, 9/4/2003

"Exciting science and engineering jobs in public service," Presidential Classroom: The Science, Technology and Public Policy Program, Washington, DC, 6/24/2003

"Laser-like matter waves," Huntsville Electro-Optical Society, Huntsville, AL 6/19/2003

"Open issues in neutral atoms confined in optical lattices," Workshop on Theory in Quantum Computing (ThInQC), Harpers Ferry, WV, 6/10/2003

"Introduction to Bose-Einstein condensation," Tutorial Program on New Directions in Dilute Gas Bose-Einstein Condensation, March Meeting of the American Physical Society, Austin, TX, 3/2/2003

"Superfluid and laser analogies in cold quantum gases," National Capital Section of the Optical Society of America, Wheaton, MD, 1/21/2003

"Superfluid and laser analogies in cold quantum gases," Physics Colloquium, University of Delaware, Newark, DE, 10/30/2002

"Superfluid and laser analogies in degenerate quantum gases," Resonances and Reflections: Profiles of Ugo Fano's Physics and Its Influences, Harvard-Smithsonian Institute for Theoretical Atomic and Molecular Physics, Cambridge, MA, 6/25/2002

"Over the rainbow: 200 years of infrared and ultraviolet radiation," 8th International Conference on New Developments and Applications in Optical Radiometry (NEWRAD 2002), Gaithersburg, MD, 5/20/2002

"Solitons and vortices in Bose-Einstein condensates," Quantum Coherence and Information Seminar, University of Maryland at College Park, 4/25/2002

"Over the rainbow," Department of Physics and University Honors Program Distinguished Lecture Series, Georgia Southern University, Statesboro, GA, 4/5/2002

"Solitons and vortices in Bose-Einstein condensates," Physics Colloquium, Georgia Institute of Technology, Atlanta, GA, 4/3/2002

"Superfluid and laser analogies in cold quantum gases," Physics Colloquium, Temple University, Philadelphia, PA, 3/25/2002

"Generation and application of coherent matter waves," NIST/UMCP AMO Day, College Park, MD, 2/12/2002

"Collective and single-particle excitations of Bose-Einstein condensates," MIT/Harvard Center for Ultracold Atoms, Cambridge, MA, 11/20/2001

"Soliton and vortex excitations of Bose-Einstein condensates," Quantum Optics V, Koscielisko, Poland, 6/25/2001

"Superfluid and laser analogies in quantum gases," 2001 Quantum Electronics and Laser Science Conference, Baltimore, MD, 5/10/2001

"Soliton and vortex excitations of Bose-Einstein condensates," March Meeting of the American Physical Society, Seattle, WA, 3/12/2001

"Theory and experiment in Bose-Einstein condensation," Symposium on Quantum Control of Atoms and Fields, University of Rochester, Rochester, NY, 10/20/2000

"Dynamics of vortex formation in rotating Bose-Einstein condensates," Workshop on Rotating Bose-Einstein Condensates, European Centre for Theoretical Studies in Nuclear Physics, Trento, Italy, 6/11/2000

"New challenges in deep ultraviolet metrology," 2000 Measurement Science Conference, Anaheim, California, 1/21/2000

"Physics of degenerate quantum gases," Foundations and Frontiers of Physics, University of Maryland, College Park, MD, 11/15/1999

"Bose-Einstein condensation and the atom laser," Society of Physics Students, Morgan State University, Baltimore, MD, 11/3/1999

"Multiboson processes: coherent matter-wave analogues of multiphoton physics," Eighth International Conference on Multiphoton Processes, Monterey, California, 10/6/1999

"Vortices and solitons in trapped Bose gases," Tenth International Conference on Recent Progress in Many-Body Theories, Seattle, Washington, 9/14/1999

"The designer supergas," Physics Colloquium, University of Bristol, Bristol, England, 6/14/1999

"The designer supergas," John Anderson Research Colloquium, University of Strathclyde, Glasgow, Scotland, 5/24/1999

"The designer supergas," Atomic and Laser Seminar, Clarendon Laboratory, University of Oxford, Oxford, England, 5/10/1999

"The designer supergas," Laser Spectroscopy Seminar, Imperial College, London, England, 5/7/1999

"The designer supergas," Physics Department Colloquium, State University at Stony Brook, Stony Brook, NY, 3/16/1999

"Generating solitons and vortices in BECs by trap rotation and optical imprinting," Workshop on Bose-Einstein Condensation and Degenerate Fermi Gases, Boulder, CO, 2/12/1999

"Structure and spectra of Bose-Einstein condensates," Atomic Physics Seminar, University of Virginia, Charlottesville, VA, 11/23/1998

"Structure and spectra of Bose-Einstein condensates," Department of Physics and Astronomy Colloquium, University of Nebraska, Lincoln, NE, 10/22/1998

"Structure and spectra of Bose-Einstein condensates," Supercomputing, Collision Processes and Applications, Queen's University of Belfast, Northern Ireland, 9/14/1998

"Coherence properties of atom lasers at finite temperature," 7th International Workshop on Laser Physics, Berlin, Germany, 7/7/1998

"Modern BEC from the AMO perspective," Gordon Conference on Multiphoton Processes, Tilton, NH, 6/18/1998

"Bose-Einstein condensation, the atom laser, and nanokelvin thermometry," Distinguished LMS Lectureship, Laboratory for Molecular Sciences, California Institute of Technology, Pasadena, CA, 3/20/1998

"Structure and spectra of Bose-Einstein condensates," Atomic Physics Seminar, University of Southern California, Los Angeles, CA, 3/19/1998
"Collective excitations and coherence of Bose-Einstein condensates," Pennsylvania State University Physics Department Condensed, Atomic and Molecular Physics (CAMP) Seminar, State College, PA, 11/10/1997
"Collective excitations and coherence of Bose-Einstein condensates," Western Washington University Physics Department Colloquium, Bellingham, WA, 10/22/1997
"Collective excitations and coherence of Bose-Einstein condensates," University of Maryland Optical Interactions Seminar, College Park, MD, 10/ 2/1997
"Structure and spectra of trapped-atom Bose-Einstein condensates," Statistical Physics Seminar, University of Maryland, College Park, MD, 9/16/1997
"Structure and spectra of atomic Bose-Einstein condensates," Quantum Optics IV, Jaszowiec, Poland, 6/19/1997
"The NIST Digital Mathematical Library," NIST Center for Theoretical and Computational Materials Science Seminar, Gaithersburg, MD, 6/10/1997
"Structure and spectra of atomic Bose-Einstein condensates," Quantum Electronics and Laser Science Conference (QELS '97), Baltimore, MD, 5/20/1997
"Structure and spectra of atomic Bose-Einstein condensates," Royal Holloway, University of London, Egham, England, 5/16/1997
"Structure and spectra of atomic Bose-Einstein condensates," University of Birmingham, Birmingham, England, 5/15/1997
"Structure and spectra of atomic Bose-Einstein condensates," University of Manchester, Manchester, England, 5/12/1997
"Structure and spectra of atomic Bose-Einstein condensates," Dublin City University, Dublin, Ireland, 5/9/1997
"Structure and spectra of atomic Bose-Einstein condensates," Queen's University of Belfast, Belfast, Northern Ireland, 5/6/1997
"Atomic, molecular, and optical physics from an American perspective," Review Day for Atomic, Molecular, and Optical Physics, Engineering and Physical Sciences Research Council, London, England, 3/11/1997
"Closed-form solutions of the Schrödinger equation for a class of smoothed Coulomb potentials," Rochester Theory Center for Optical Science and Engineering, University of Rochester, Rochester, NY, 2/26/1997
"Structure and spectra of atomic Bose-Einstein condensates," Rochester Theory Center for Optical Science and Engineering, University of Rochester, Rochester, NY, 2/25/1997
"Structure and spectra of atomic Bose-Einstein condensates," Center for Research and Education in Optics and Lasers, University of Central Florida, Orlando, FL, 2/12/1997
"Finite-temperature and time-dependent phenomena in dilute Bose-Einstein condensates," Atom Laser Workshop, University of Arizona, Tucson, AZ, 1/23/1997
"Structure and spectra of atomic Bose-Einstein condensates," Joint Atomic Physics Colloquium, Harvard University, Cambridge, MA, 12/4/1996
"Structure and spectra of atomic Bose-Einstein condensates," Physics Colloquium, Tulane University, New Orleans, LA, 11/25/1996
"Structure and spectra of atomic Bose-Einstein condensates," Physics Department Colloquium, Toledo University, Toledo, OH, 11/14/1996

"Theory of Bose-Einstein condensation," European Research Conference on Quantum Optics, Castelvecchio Pascoli, Italy, 9/26/1996
"Excitation and engineering of atomic Bose-Einstein condensates," 1996 Annual Congress, Canadian Association of Physicists, Ottawa, Ontario, Canada, 6/18/1996
"Standard reference data for electronic structure calculations," Complex Systems Theory Branch Seminar, Naval Research Laboratory, Washington, DC, 4/10/1996
"Structure and spectra of dilute atomic Bose-Einstein condensates," Complex Systems Theory Branch Seminar, Naval Research Laboratory, Washington, DC, 4/10/1996
"Metrology on the internet," 25th Measurement Science Conference, Anaheim, CA 1/26/1996
"New angle on the Coulomb problem," Atomic and Molecular Theory Seminar, JILA, University of Colorado, Boulder, CO, 12/4/1995
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"Appearance intensities for multiply charged ions in a strong laser field," Workshop on Multiparticle Atomic Systems in Intense Laser Fields, Institute for Theoretical Atomic, Molecular, and Optical Physics, Cambridge, MA, 10/21/1995
"Computational physics at NIST," April Meeting of the American Physical Society, Washington, DC, 4/19/1995
"High-harmonic generation by atoms in strong laser fields," Theory Seminar, Institut für Festkörperforschung, Forschungszentrum Jülich, Jülich, Germany, 5/6/1994
"Laser-atom interaction at high intensities," Chemical Physics Seminar, University of Maryland, College Park, MD, 4/13/1994
"Solution of the time-dependent Schrödinger equation," International Conference on Quantum Optics III, Szczyrk, Poland, 9/6/1993
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"Strong-field laser-atom interaction: applications of massively parallel processing," Annual Meeting, Collaborative Computational Project 2 - Continuum States of Atoms and Molecules, University College London, London, England 4/3/1992
"Structure and Spectroscopy of Atoms," Summer School on Atomic and Molecular Physics and Quantum Optics, Department of Theoretical Physics, Australian National University, Canberra, Australia, six one-hour lectures, 1/1992
"Atoms in strong radiation fields," Physics Colloquium, University of Delaware, Newark, DE, 5/24/1991
"Negative-ion resonances and surface dynamics," Seminar, Cavendish Laboratory, Cambridge University, England, 4/18/1991

"Experience with massively parallel processing on the Connection Machine," Satellite Meeting on Multiphoton Absorption, Royal Holloway and Bedford New College, Egham, England, 4/12/1991

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"Lanthanum $N_{IV,V} \rightarrow O_{II,III}$ x-ray emission spectra and *f*-occupancy-induced multiplet structure," Sixth NIST Superconductivity Information Exchange Meeting, Gaithersburg, MD, 3/27/1991

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"Theory of highly-excited atoms in electric and magnetic fields," Symposium on Atomic Spectroscopy and Highly-Ionized Atoms, Hickory Ridge Conference Center, Lisle, IL, 8/17/1987
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