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Educational Background

- 1986, PhD., Nuclear Physics, State University of New York at Stony Brook
- 1980, Bachelor of Arts, Wesleyan University, Middletown, CT

Academic Appointments at UMD

- 2009, Marquee Professor of Science and Technology, 2009-Present
- 2003, Professor, Department of Physics, 2003- Present

Administrative Appointments at UMD

- 2016-present, Chair, Dept. of Physics
- 2008-2017 Co-Director, Joint Quantum Institute
- 2006-2009, Associate Chair, Dept. of Physics

Other Employment

- 1988-2003, Physicist, National Institute of Standards and Technology
- 1987-1988, Post-Doctoral Research Associate, Harvard University, Atomic Physics
- 1986-1987, Post-Doctoral Research Associate, University of Washington, Atomic Physics

RESEARCH, SCHOLARLY AND CREATIVE ACTIVITIES

Articles in Refereed Journals

- “Collective quantum beats from distant multilevel emitters,” A Lee, HS Han, FK Fatemi, SL Rolston, K Sinha, *Physical Review A* 107, 013701 (2023)
- “Resonant enhancement of three-body loss between strongly interacting photons,” M Kalinowski, YD Wang, P Bienias, MJ Gullans, DP Ornelas-Huerta, AN Craddock, SL Rolston, JV Porto, HP Buchler, AV Gorshkov, *Physical Review Research* 4, L022059 (2022)
- “Observation of Vacuum-Induced Collective Quantum Beats,” A Lee, HS Han, FK Fatemi, SL Rolston, K Sinha, *Physical Review Letters* 127, 073604 (2022).
- “Tunable Three-Body Loss in a Nonlinear Rydberg Medium,” DP Ornelas-Huerta, P Bienias, AN Craddock, MJ Gullans, AJ Hachtel, M Kalinowski, ME Lyon, AV Gorshkov, SL Rolston, JV Porto, *Physical Review Letters* 126, 173401 (2022).
- “Observation of vacuum-induced collective quantum beats,” H. Han, A. Lee, K. Sinha, F. Fatemi, and S. L. Rolston, *Phys. Rev. Lett.* **127**, 073604 (2021).
- “Tunable three-body loss in a nonlinear Rydberg medium,” D. Ornelas-Huerta, P. Bienias, A. Craddock, M. Gullans, A. Hachtel, M. Kalinowski, M. Lyon, A. Gorshkov, S. L. Rolston, and J. Porto, *Phys. Rev. Lett.* **126**, 173401 (2021).
- “Exotic photonic molecules via Lennard-Jones-like potentials,” P. Bienias, M. Gullans, M.

- Kalinowski, A. Craddock, D. Orneals-Huerta, S. L. Rolston, J. Porto, and A. Gorshkov, *Phys. Rev. Lett.* **125**, 093601 (2020).
- “On-demand indistinguishable single photons from an efficient and pure source based on a Rydberg ensemble,” D. Ornelas-Huerta, A. Craddock, E. Craddock, A. Hachtel, Y. Wnag, P. Bienias, A. Gorshkov, S. L. Rolston, and J. Porto, *Optica*, **7**, 013306 (2020).
 - “Coherent optical nanotweezers for ultracold atoms, P. Bienias, S. Subhankar, Y. Wang, T. Tsui, F. Jendrzejewski, T. Tiecke, G. Juseliunas, L. Jiang, S. L. Rolston, J. Porto, and A. Gorshkov, *Phys. Rev. A* **102**, 013306 (2020).
 - “Realization of a stroboscopic optical lattice for cold atoms with subwavelength spacing,” T. Tsui, Y. Wang, S. Subhankar, J. Porto, and S. L. Rolston, *Phys. Rev. A* **101**, 041603 (2020).
 - “Non-Markovian collective emission from macroscopically separated emitters,” K. Sinha, P. Meystre, E. Goldschmidt, F. Fatemi, S. L. Rolston, and P. Solano, *Phys. Rev. Lett.* **124**, 043603 (2020).
 - “Quantum interference between photons from an atomic ensemble and a remote atomic ion,” A. Craddock, J. Hannegan, D. Orneals-Huerta, E. Goldschmidt, J. Porto, Q. Quaraishi, and S. L. Rolston, *Phys. Rev. Lett.* **123**, 213601 (2019).
 - “Floquet engineering of optical lattices with spatial features and periodicity below the diffraction limit,” S. Subhankar, P. Bienias, P. Titum, T. Tsui, Y. Wang, A. Gorshkov, S. L. Rolston, and J. Porto, *New Jour. Phys.* **21**, 113508 (2019).
 - “Griffiths physics in an ultracold Bose gas”, M. Reed, Z. Smith, A. Dewan, and S. L. Rolston, *Phys. Rev. A* **99**, 063611 (2019).
 - “Nanoscale atomic density microscopy,” S. Subhankar, Y. Wang, T. Tsui, S. L. Rolston, and J. Porto, *Phys. Rev. X* **9**, 021002 (2019).
 - (“Microcontroller based scanning transfer cavity lock for long-term laser frequency stabilization,” S. Subhankar, A. Restelli, Y. Wang, S. L. Rolston, and J. Porto, *Rev. Sci. Instrum.* **90**, 043115 (2109).
 - “Alignment-dependent decay rate of an atomic dipole near an optical nanofiber,” P. Solano, J. Grover, Y. Xu, P. Barberis, J. Munday, L. Orozco, W. Phillips, and S. L. Rolston, *Phys. Rev. A* **99**, 013822 (2019).
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 - “Ultracold neutral plasmas, M Lyon, SL Rolston, *Reports on Progress in Physics* 80 (1), 017001, (2016)
 - “Ultrahigh transmission optical nanofibers,” J. Hoffmann, S. Ravets, J. Grover, P. Solano, P. Kordell, D. Wong-Campos, L. Orozco, and S. L. Rolston, *AIP Advances* **4** 067124 (2014).
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 - “Sub-Doppler cooling of neutral atoms in a grating magneto-optical trap,” J. Lee, J. Grover, L. Orozco, and S. L. Rolston, *J. Opt. Soc. Amer. B* **30**, 2869 (2013).
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 - “Integrated optical dipole trap for cold neutral atoms with an optical waveguide coupler,” J. Lee, D. Park, S. Mittal, M. Dagenais, and S. L. Rolston, *New J. Phys.* **15** 043010 (2013).
 - “Precision measurement of transition matrix elements via light shift cancellation,” C. Herold, V. Vaidya, X. Li, S.L. Rolston, and J. Porto, *Phys. Rev. Lett.* **109**, 243003 (2012).
 - “Disorder-driven loss of phase coherence in a quasi-2D cold atom system,” M. Beeler, M. Reed,

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- “Atomic interface between microwave and optical photons , M. Hafezi, Z. Kim, S. L. Rolston, L. Orozco, B. Lev, and J. Taylor, *Phys. Rev. A* **85**, 020302 (2012).
 - “Electronic Detection of Collective Modes of an Ultracold Plasma,” K. Twedt and S.L. Rolston, *Phys. Rev. Lett.* **108**, 065003 (2012).
 - “Thin-film superconducting resonator tunable to the ground-state hyperfine splitting of Rb-87,” Z. Kim, C. Vlahacos, J. Hoffman, J. Grover, K. Voigt, B. Cooper, C. Ballard, B. Palmer, M. Hafezi, J. Taylor, J. Anderson, A. Dragt, C. Lobb, L. Orozco, S.L. Rolston, F. Wellstood, *AIP Advances* **1** 042107 (2011).
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 - “Quantum beats from four-wave mixing in Rubidium 87,” F. Becerra, R. Willis, S.L. Rolston, and L. Orozco, *Rev. Mex. De Fisica*, **57**, 23 (2011).
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 - “Electron evaporation from an ultracold plasma in a uniform electric field,” *Phys. of Plasmas*, **17**, 082101 (2010).
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 - “Adiabaticity and localization in one-dimensional incommensurate optical lattices,” E. E. Edwards, M. Beeler, T. Hong, and S. L. Rolston, *Phys. Rev. Lett.* **101**, 260402 (2008).
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 - “Bosons in optical lattices,” S. L. Rolston, *Intl. Jour. Mod. Phys. B* **20**, 2755 (2006).
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 - "Ultracold collisions and optical shielding in metastable xenon," K.-A. Suominen, K. Burnett, P. S. Julienne, M. Walhout, U. Sterr, C. Orzel, M. Hoogerland, and S. L. Rolston, Phys. Rev. A **53**, 1678 (1996).
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- "Heterodyne Spectrum of the Fluorescence from Optical Molasses", P.D. Lett, C.I. Westbrook, R.N. Watts, S.L. Rolston, C.E. Tanner, W.D. Phillips, and P.L. Gould, in *Coherence and Quantum Optics 6*, J. Eberly, L. Mandel, and E. Wolf, eds., (Plenum, 1990).
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- "Measurements of Fluorescence from Cold Atoms: Localization in Three-Dimensional Standing Waves", C.I. Westbrook, P. Jessen, C.E. Tanner, P.D. Lett, S.L. Rolston, R.N. Watts, and W.D. Phillips, *Atomic Physics 12* (World Scientific, 1990).
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Conferences, Workshops and Talks

Keynotes

- 2014, Intl. Conf. on Plasma Science, Washington DC, Plenary Speaker, May 25 2014

Invited Talks

- 2015, S. L. Rolston, Optical Waveguides for trapped atoms, Workshop on Atoms on a Chip, Padua, Italy
- 2015, S. L. Rolston, Trapping atoms on nanofibers, Invited AMO Seminar, Technical University of Vienna
- 2015, S. L. Rolston, Where is my Quantum Computer?, Invited Sigma Xi Colloquium, Naval Research Laboratory
- 2014, Conference on Strongly Coupled Systems, Stony Brook, NY, Mar. 25, 2014

Colloquia

- 2014, Johns Hopkins Applied Physics Laboratory Colloquium, Laurel MD, Dec. 12, 2014
- 2014, Dept. of Physics, University of Toronto, Toronto, Canada, Nov. 10, 2014

Book Reviews, Notes and Other Contributions

Other

- 2015, S. L. Rolston, "Getting the measure of entanglement", *Nature*

TEACHING, MENTORING AND ADVISING

Advising: Research or Clinical

Undergraduate

- Fall 2014, Paul King, Fall 2014-

Mentorship

- Vladimir Manucharyan

SERVICE AND OUTREACH

Editorships, Editorial Boards and Reviewing Activities

Reviewing Activities for Journals and Presses

- Reviewer, Physical Review, Physical Review Letters, Nature

Reviewing Activities for Agencies and Foundations

- Reviewer, National Science Foundation, Research Corporation

Other

- Review Committee for Physical Review X, American Physical Society, Chair

Committees, Professional & Campus Service

Campus Service - University

- University Senate
- Co-Director, Joint Quantum Institute
- Chair, IREAP Internal Review Committee, 2009.
- Member, Facilities Advisory Committee, 2009
- Member, Purple Line Working Group, 2008
- Member, Physical Sciences Complex Committee, 2007
- Associate Chair for Facilities and Personnel, Physics, 2006-2009

Leadership Roles in Meetings and Conferences

- 2014, Organizing Committee, International Conference on Atomic Physics

Other Non-University Committees, Memberships, Panels, etc.

- Elect Division of Atomic, Molecular, and Optical Physics, American Physical Society, Vice Chair

Positions/Committee Members in Professional Organizations

- 2014-2017, Chair line, APS Division of Atomic, Molecular and Optical Physics (Chair in 2016)
- 2014-2016, Chair, AIP Public Policy Fellowship Committee

External Service and Consulting

Consultancies (to local, state and federal agencies; companies; organizations)

- 2015, Review of Wesleyan University Physics Department, Wesleyan University

Non-Research Presentations

Outreach Presentations

- 2015, C. Orzel, Quantum mechanics, Schrodinger Sessions

Selected Awards, Memberships:

Fellow, American Physical Society
Fellow, American Association for the Advancement of Science
Fellow, Optical Society of America
Member, Optical Society of America Public Policy Committee, 2010-
Member, American Physical Society Council 2007-
Member, National Science Foundation Panel on AMO Physics, 2001, 2009.
Member, Physical Review A Editorial Board 2002-2006.
Member, National Science Foundation LIGO Review Panel, 2004-2005.
Member, APS Precision Measurements Topical Group Executive Committee 2002-2005
Member, DAMOP Executive Committee 2002-2005
Chair, Atomic Physics Gordon Conference 2001
Vice-Chair, Atomic Physics Gordon Conference 1999
Visiting Professor, University of Innsbruck, Austria 2003
Lecturer, Enrico Fermi Summer School, Varenna, Italy 2001
Chair, ILS Program sub-committee 2000
Lecturer, Latin American Summer School in Physics, Mexico City, 1999
1991 RD100 for "parallel-processing RF spectrum analyzer"
1993 Sigma Xi Young Scientist Award
1996 U.S. Dept. of Commerce Silver Medal
2001 Arthur S. Flemming Award
2014 Kirwan Undergraduate Education Award