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Employment

Bucknell University, Lewisburg, PA

Physics Department Chair, 1996–2002, 2010–2014, Fall 2015

Chair of University Faculty, 2004–2008

Associate Professor of Physics, 1992–2020

Assistant Professor of Physics, 1988–1992

American Journal of Physics

Assistant Editor, 2002–2006

City College of the City University of New York, New York, NY

Assistant Professor, 1986–1988

Research Assistant Professor, 1984–1986

U.S. National Bureau of Standards, Gaithersburg, MD,

& Massachusetts Institute of Technology, Cambridge, MA

National Research Council Postdoctoral Fellow, 1983–1984

Grants

NSF: Bucknell Research Experiences for Undergraduates Program

Co-PI 1998-2006; PI 2006-2015.

Educational Consulting

Community College Philadelphia, Philadelphia, PA

Curriculum Consultant to the *Mathematics and its Applications Throughout the Curriculum* Consortium, (University of Pennsylvania, Villanova, and Community College of Philadelphia; funded by the National Science Foundation) 1996–2001

Education

Columbia University, New York, NY

Ph.D., Physics, 1983.

Thesis Title: Spectroscopy of Dense Potassium Vapors.

Thesis Adviser: Professor William Happer

Carleton College, Northfield, MN

B.A., Physics, *magna cum laude*, 1978.

Papers (undergraduate co-authors denoted with an asterisk)

1. “Quantum work fluctuations for identical particles in a time-dependent harmonic trap,” M. Ligare, C. Gay,* and K. Nicolich,* in preparation.
2. “Two-photon interference effects in a simple system of independent photons,” M. Ligare, F. King,* and M. Trias,* in preparation.
3. QBism and Greenberger-Horne-Zeilinger experiments: A simple worked example,” M. Ligare, submitted to Am. J. Phys.
4. “Introducing the statistical mechanics of identical particles: An exact microcanonical treatment of harmonically trapped particles,” M. Ligare, provisionally accepted for publication, Am. J. Phys.
5. “Manifestations of classical physics in the quantum evolution of correlated spin states in pulsed NMR experiments,” M. Ligare, Concepts Magn. Reson. Part A 2017;45A:e21398.
6. “Propagation of quantized fields through negative-index media,” M. Ligare, J. Mod. Optics., **58**, 1551 (2011).
7. “Classical thermodynamics of particles in harmonic traps,” M. Ligare, Am. J. Phys. **78**, 815 (2010).
8. “Electromagnetically induced transparency and reduced speeds for single photons in a fully quantized model,” T. Purdy and M. Ligare, J. Opt. B: Quantum Semiclass. Opt. **5**, 289 (2003); arXiv:quant-ph/0204173.
9. “Manifestation of classical group and phase delays in a fully-quantized model of the scattering of a single spontaneously emitted photon,” T. Purdy, D. R. Taylor, and M. Ligare, J. Opt. B: Quantum Semiclass. Opt. **5**, 85 (2003); arXiv:quant-ph/0204009.
10. “Comment on ‘Numerical analysis of Bose-Einstein condensation in three-dimensional harmonic oscillator potential’ by Martin Ligare [Am. J. Phys. **66** (3), 185-190 (1998)] — An extension to anisotropic traps and lower dimensions,” M. Ligare, Am. J. Phys. **70**, 76 (2002).
11. “The calculated photon: Visualization of a quantum field,” M. Ligare and R. Oliveri, Am. J. Phys. **70**, 58, (2002).
12. “Numerical analysis of Bose-Einstein condensation in a three-dimensional harmonic oscillator potential,” M. Ligare, Am. J. Phys. **66**, 185 (1998).
13. “Simple soluble models of quantum damping applied to cavity quantum electrodynamics,” M. Ligare and S. Becker, Am. J. Phys. **63**, 788 (1995).

14. "Recalculation of the infrared continuum spectrum of the lowest energy triplet transitions in K_2 ," M. Ligare and J. B. Edmonds, *J. Chem. Phys.* **95**, 3857 (1991).
15. "Dynamic origin of non-Abelian Berry's-phase effects in a simple atomic system," M. Ligare, *Phys. Rev. A* **42**, 5069 (1990).
16. "Resonance-enhanced multiphoton ionization of atomic hydrogen," L. R. Brewer, M. Ligare, F. Buchinger, and D. E. Kelleher, *Phys. Rev. A* **39**, 3912 (1989).
17. "Dressed-state analysis of three-level quantum-jump experiments," M. Ligare, *Phys. Rev. A* **37**, 3293 (1988).
18. "Resonant four-photon ionization of atomic hydrogen," D. E. Kelleher, M. Ligare, and L. R. Brewer, *Phys. Rev. A* **31**, 2747 (1985).
19. "Observation of the lowest triplet transitions $^3\Sigma_g^+ - ^3\Sigma_u^+$ in Na_2 and K_2 ," J. Huennekens, S. Schaefer, M. Ligare, and W. Happer, *J. Chem. Phys.* **80**, 4794 (1984) [Erratum, *J. Chem. Phys.* **83**, 915 (1985)].
20. "Infrared spectroscopy of a dense potassium vapor jet," M. Ligare, S. Schaefer, J. Huennekens, and W. Happer, *Opt. Comm.* **48**, 39 (1983).
21. "Laser-induced infrared fluorescence of Cs_2 and Rb_2 ," Z. Wu, M. Ligare, and W. Happer, *Phys. Lett. A* **89**, 7 (1982).
22. "Laser-induced fluorescence of CsH ($A^1\Sigma^+ \rightarrow X^1\Sigma^+$) to levels near the dissociation limit of $X^1\Sigma^+$," M. Ligare, Z. Wu, N. D. Bhaskar, and W. Happer, *J. Chem. Phys.* **76**, 3480 (1982).
23. "Photoproduction of spin-polarized hydrogen atoms and electrons in mixtures of cesium vapor and hydrogen gas," N. D. Bhaskar, J. Camparo, M. Ligare, and W. Happer, *Phys. Rev. Lett.* **46**, 1387 (1981).
24. "Role of Na-Xe molecules in spin relaxation of optically pumped Na in Xe gas," N. D. Bhaskar, M. Hou, M. Ligare, B. Suleman, and W. Happer, *Phys. Rev. A* **22**, 2710 (1980).

Published Conference Proceeding

1. "Manifestation of classical phase in a single spontaneously emitted photon," M. Ligare and D. R. Taylor, in *Coherence and Quantum Optics VIII*, N. P. Bigelow, J. H. Eberly, C. R. Stroud, and I. A. Walmsley, (Plenum, New York, 2003), also available at <http://www.linux.bucknell.edu/physics/ligare/>