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Education

- Ph.D. in Physics, Indiana University, 1999.
Thesis adviser: William L. Schaich.
Thesis title: *Theory of Photon-Drag Effect in Simple Metals*
- M.S. in Physics, Indiana University, 1993.
- B.S. in Physics and Mathematics, Vanderbilt University, 1992.

Academic Positions

- University of Sheffield (UK), Associate Visiting Staff, Department of Mechanical Engineering (01-Sep-08 to 30-Jun-09).
- Lynchburg College, Associate Professor of Physics (Fall 2006 - present).
- Lynchburg College, Chair, Department of Physics (Fall 2003 - present).
- Lynchburg College, Assistant Professor of Physics (Fall 2002 - Spring 2006).
- Oberlin College, Visiting Assistant Professor, Department of Physics (Fall 2000 - Spring 2002).
- Kenyon College, Visiting Assistant Professor, Department of Physics (Fall 1999 - Spring 2000).
- Indiana University, Associate Instructor, Department of Physics (Fall 1992 - Spring 1999).
- Indiana University, Physics Instructor, Extended Studies Division School, Owen Hall (Spring 1998 - Summer 1999).
 - Sole instructor for roughly sixty students enrolled in one of two correspondence courses in energy and technology. Responsible for entire course, including grading, grading scale, and interacting with off-campus students.

Courses Taught (Lynchburg)

- College Physics I Lab (1 time): Course for pre-med majors.
- College Physics II Lab (1 time): Course for pre-med majors.
- Physics I (and its associated lab) (6 times): Course for physics majors.
- Physics II (and its associated lab) (6 times): Course for physics majors.
- Experimental Physics (1 time): Course for physics majors.
- Classical Mechanics (6 times): Course for physics majors.
- Quantum Mechanics (3 times): Course for physics majors.

- Computational Physics (4 times): Course for physics majors.
- Statistical Thermodynamics (3 times): Course for physics majors.
- Optics (2 times): Course for physics majors.

Courses
Taught
(Oberlin)

- Classical Mechanics: Course for physics majors.
- Advanced Electromagnetism: Course for physics majors.
- Quantum Mechanics: Course for physics majors.
- Elementary Physics I: Non-calculus introductory course for non-physics majors (predominately premeds). Topics included mechanics, fluids, sound, and optics.
- Introductory Physics Lab (six sections): Calculus-based course covering most of the standard electricity and magnetism labs.
- Physics of Sports (twice): Survey course for a general audience.

Courses
Taught
(Kenyon)

- Electromagnetic Theory: Course for physics majors.
- Thermodynamics and Statistical Mechanics: Course for physics majors.
- Introductory Physics I: Non-calculus introductory course for non-physics majors (predominately premeds). Topics included mechanics, fluids, sound, and some electrostatics.
- Introductory Physics Lab I (one section): Standard first-semester labs. Video technology used extensively.
- Introductory Physics Lab II (two sections): Some standard second-semester labs and modern physics labs such as nuclear spectroscopy and x-ray diffraction.

Projects

- Research Project (Lynchburg): Chaotic tumbling of Hyperion with Lynchburg College student Crystal M. Moorman, 2008.
- Research Project (Lynchburg): A first look at semiconductors and solar cells with Lynchburg College student Jermal Hill, 2008.
- Virginia Foundation for Independent Colleges Undergraduate Science Summer Research Program (Lynchburg): An introduction to gravity from theoretical and computational points of view with Lynchburg College student Crystal M. Moorman, 2007.
- Research Project (Lynchburg): Golden ratio in a mechanical system with Lynchburg College student Crystal M. Moorman, 2007.
- Research Project (Lynchburg): A Computational Study of the Ising Model with Lynchburg College student Brandon Cook, 2007.
- Research Project (Lynchburg): Parameter Space for Successful Soccer Kicks with Lynchburg College student Brandon Cook, 2006.
- Independent Study Project (Lynchburg): Basic Inquiries into Fluid Mechanics with Lynchburg College student Brandon Cook, 2006.
- Research Project (Lynchburg): Modeling of 2005 Tour de France with Lynchburg College graduate Benjamin Hannas, 2005.
- Virginia Foundation for Independent Colleges Undergraduate Science Summer Research Program (Lynchburg): Parameter Space for Successful Soccer Kicks with Lynchburg College student Brandon Cook, 2005.

- Independent Study Project (Lynchburg): Wave-Packet Propagation in One-Dimensional Potentials with Lynchburg College student Stuart Farrell, 2005.
- Research Project (Lynchburg): Modeling of 2004 Tour de France with Lynchburg College graduate Benjamin Hannas, 2004.
- Independent Study Project (Lynchburg): Understanding Coupled Oscillators with Lynchburg College student Dan Hartlaub, 2004.
- Research Project (Lynchburg): Modeling of 2003 Tour de France with Lynchburg College graduate Benjamin Hannas, 2003.
- Reading Project (Lynchburg): A more in-depth study of classical mechanics than that provided in the normal course with Lynchburg College student Dan Hartlaub, 2003.
- Reading Project (Oberlin): Advanced electrodynamics, 2002.
- Reading Project (Oberlin): Theory of holography, 2001.
- Senior Research Project with Kenyon College student Ryan Depew (Kenyon): “The Physics of Pitched Baseballs.” Project included theoretical studies as well as analyzing filmed pitching, 2000.

Courses
Taught
(Indiana)

- 31 discussion sections. Class sizes ranged from twenty to forty students. Discussions taught: basic physics for non-science majors, non-calculus-based introductory physics for non-physics science majors, premed, etc., and calculus-based introductory physics for physics majors. Teaching duties included creating quiz and exam problems, grading, and one-on-one interaction with students in office hours. Implemented evening problem-working sessions to promote student problem-solving confidence. Created a web site using HTML for one semester’s discussion sections.
- 17 laboratory sections. Class sizes ranged from twenty to twenty-five students. Labs taught: basic physics for non-science majors, non-calculus-based introductory physics for non-physics science majors, premed, etc., and calculus-based introductory physics for physics majors. Experience includes using Socratic Dialogue techniques as a teaching tool, working with software such as *MacMotion* to acquire and analyze data, and using oscilloscopes. Contributions made to laboratory manual and experiments now in use.
- Physics of Sports assistant (two semesters). Class sizes were roughly fifty students who were mostly non-science majors. Duties included creating exam problems, grading, and assisting with class demonstrations. Gained experience using *VideoPoint* and *Excel* to analyze data coming from sports “movies” in this course.
- Grader for graduate course in particle physics.
- Grader for graduate course in nuclear astrophysics.

Research
Interests

- Numerical Computations in Condensed Matter Physics.
 - Skills include fluency in FORTRAN, *Mathematica*; very able with UNIX and LINUX machines, parallel computing, and using graphics software such as Grace and xfig.

- Physics of Surfaces.
- Optics.
- Classical Mechanics.
- Physics of Sports.

Publications

- *Gold Medal Physics*, The Johns Hopkins University Press (Baltimore, MD), 2010. ISBN: 9780801893216 (hardback), 9780801893223 (paperback).
- “Trajectory analysis of a soccer ball,” John Eric Goff and Matt J. Carré, *American Journal of Physics* **77**, 1020-1027 (2009).
- “Golden ratio in a coupled-oscillator problem,” Crystal M. Moorman and John Eric Goff, *European Journal of Physics* **28**, 897-902 (2007).
- “Parameter space for successful soccer kicks,” Brandon G. Cook and John Eric Goff, *European Journal of Physics* **27**, 865-874 (2006).
- “Inclined-plane model of the 2004 Tour de France,” Benjamin Lee Hannas and John Eric Goff, *European Journal of Physics* **26**, 251-259 (2005).
- “Heuristic model of air drag on a sphere,” John Eric Goff, *Physics Education* **39**, 496-499 (2004).
- “Turning Around Newton’s Second Law,” John Eric Goff, *The Science Education Review* **3**, 97-102 (2004).
- “Model of the 2003 Tour de France,” Benjamin Lee Hannas and John Eric Goff, *American Journal of Physics* **72**, 575-579 (2004).
- “A FUN General Education Course: Physics of Sports,” John Eric Goff, *The Physics Teacher* **42**, 280-283 (2004).
- “Theory of the photon-drag effect in simple metals,” John Eric Goff and W. L. Schaich, *Physical Review B* **61**, 10471-10477 (2000).
- “Hydrodynamic theory of photon drag,” John Eric Goff and W. L. Schaich, *Physical Review B* **56**, 15421-15430 (1997).

Talks Given

- *Bending It Across the Pond*, Sigma Xi Lecture, Randolph College, 2009.
- *Making Sport of Physics*, Lynchburg College *Science Gang* Lecture, 2009.
- *Soccer Physics from Sheffield*, Fall Chesapeake Section of the American Association of Physics Teachers, George Mason University, 2009
- *Mathematica examples from the LC undergraduate physics curriculum*, Fall Chesapeake Section of the American Association of Physics Teachers, Radford University, 2007.
- *Tour de France and World Cup Modeling*, New College of Florida, 2007 (invited).
- *Three-Year Study of Tour de France Modeling*, Fall Chesapeake Section of the American Association of Physics Teachers, American Center for Physics, 2005.
- *Modern Application for Introductory Physics: Bloodstain Pattern Analysis*, Spring Chesapeake Section of the American Association of Physics Teachers, Lynchburg College, 2005. **I arranged for this meeting to take place at Lynchburg College, and I coordinated it while it took place.**

- *Check on Model Robustness: 2004 Tour de France*, Fall Chesapeake Section of the American Association of Physics Teachers, Mary Baldwin College, 2004.
- *Model of the 2003 Tour de France*, Spring Chesapeake Section of the American Association of Physics Teachers, Washington Academy of Sciences *Capital Science 2004*, National Science Foundation, 2004.
- *A FUN General Education Physics Course: Physics of Sports*, Fall Chesapeake Section of the American Association of Physics Teachers, Radford University, 2002.
- *Photon-Drag Effect in a Simple Metal*, Case Western Reserve University, 2001 (invited).
- *Theory of Photon-Drag Effect in Metals*, 1999 Centennial Meeting of the American Physical Society, Atlanta, GA.
- *Photon-Drag Effect in Metals*, The College of Wooster, 1998 (invited).
- *Simple Models of Photon Drag in Metals*, 1996 March Meeting of the American Physical Society, St. Louis, MO.
- *Photon-Drag in Jellium Metals and Two-Dimensional Electron Gas*, Indiana University, 1995.
- *Hydrodynamic Model of Photon Drag in Jellium Metals*, Fall Meeting of The Ohio Section of the American Physical Society, 1995.
- *Hydrodynamic Model of the Photon-Drag Effect*, Indiana University, 1994.

**Workshops
and Short
Courses**

- Gordon Research Conference entitled *Physics Research and Education* (emphasis on computational physics), Bryant University, Smithfield, RI, June, 2008.
- Gordon Research Conference entitled *Physics Research and Education* (emphasis on electricity and magnetism), Mount Holyoke College, South Hadley, MA, June, 2006.
- Gordon Research Conference entitled *Nonlinear Science*, Colby College, Waterville, ME, June-July, 2005.
- *Activity Based Physics Faculty Institutes* workshop focusing on introductory physics teaching, University of Oregon, Eugene, OR, June, 2005.
- *Computational Physics for Physics Educators* workshop run by the National Computational Science Institute, Centenary College, Hackettstown, NJ, July, 2004.
- Gordon Research Conference entitled *Physics Research and Education* (emphasis on classical mechanics and nonlinear dynamics), Mount Holyoke College, South Hadley, MA, June, 2004.
- Chautauqua Short Course entitled *Data Analysis and Visualization Using Mathematica*, Christian Brothers University, Memphis, TN, May, 2004.
- Chautauqua Short Course entitled *The History and Future of Aeronautics*, Dryden Flight Research Center at Edwards Air Force Base, Edwards, CA, June, 2003.

- *Workshop on Opportunities in Materials Theory*, National Science Foundation and Georgetown University, October, 2002.
- *Workshop for New Physics and Astronomy Faculty*, American Center for Physics, College Park, MD, November, 2002.

Other Work Experience

- Consultant for Dolmen in Dublin, Ireland, November and December 2008.
- Book reviewer for The Johns Hopkins University Press, 2007-09.
- Author for American Institutes for Research, 2006 and 2009.
- Consultant for Belvac Production Machinery, Inc. in Lynchburg, VA, July and August, 2003.
- Undergraduate member of Vanderbilt's Free Electron Laser Group, Vanderbilt University, (Summer 1989 - Summer 1992).
 - Assisted with laser installation, performed minor electrical and mechanical tasks, and helped with experiments once installation was complete. Solved applied problems using theoretical methods in optics.
- Research Experiences for Undergraduates at North Carolina State University, Project in Theoretical Atomic Physics, (Summer 1991).

Awards

- Talk given at Chesapeake Section of American Association of Physics Teachers at George Mason University won Frank R. Haig Prize for best paper from a four-year college, Fall 2009.
- James A. Huston Award for Excellence in Scholarship, Lynchburg College, 2009.
- *Bridging the Gaps* Visiting Scholar, University of Sheffield (UK), Fall 2008.
- Mednick Memorial Fellowship, given by the Virginia Foundation for Independent Colleges, 2008.
- Talk given at Chesapeake Section of American Association of Physics Teachers at Mary Baldwin College won Frank R. Haig Prize for best paper from a four-year college, Fall 2004.
- Talk given at Chesapeake Section of American Association of Physics Teachers at National Science Foundation won Frank R. Haig Prize for best paper from a four-year college, Spring 2004.
- Talk given at Chesapeake Section of American Association of Physics Teachers at Radford University won Frank R. Haig Prize for best paper from a four-year college, Fall 2002.
- Bernice Eastwood Covalt Memorial Scholarship recipient as graduate student, Spring 1998.
- Excellence in Teaching Recognition Award as graduate student, Spring 1997.

Affiliations

- Society of Physics Students (1989 - 1992, 2003 - present).
- Sigma Xi (2002 - present).
- American Association of Physics Teachers (2002 - present).

- Chesapeake Section (2002 - present).
- American Physical Society (1992 - present).
 - Division of Computational Physics.
 - Division of Condensed Matter Physics.
 - Forum on Industrial and Applied Physics.
 - Forum on Education.
 - Forum on International Physics.
 - Southeastern Section.
 - Topical Group on Statistical and Nonlinear Physics.