Vitae for Peter Sheldon

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Department of Physics
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Education

University of Massachusetts, Amherst, MA
Ph.D., Physics, 1996
Thesis: "NMR and Third Sound Studies of ^{3}He-^{4}He Mixtures on a Nuclepore Substrate"

University of Massachusetts, Amherst, MA
M.S., Physics, 1991

Amherst College, Amherst, MA
B.A. with Cum Laude honors, Physics, 1989
Honors Thesis: "Properties of Optical Rotations"
B.A., Mathematics, 1989

Professional Experience

2006-present **Assistant Coach,** Randolph College Men's and Women's Cross-Country

Started the team in 2005 as unofficial head coach. Participate in all administrative aspects of the team including recruiting and NCAA compliance. Teach activity class: Running.

2002-present **Associate Professor and Chair,** Randolph College* Department of Physics. (*Founded as Randolph-Macon Woman's College, Randolph College changed its name and began accepting men in 2007.)

Full teaching responsibilities for all levels of undergraduate physics courses. Developed innovative curricular materials for introductory physics using technology and active learning. Developed all labs and courses from scratch. Research program includes science education, low temperature surface science, and laser spectroscopy. Developed a curriculum and taught physics and computers to sixth through ninth graders in the Macon Achievers' Camp summer program. Developed a science curriculum for a summer program for kids, ages 8-12, at the Jubilee Family Development Center. Have presented numerous workshops in teacher education and in web development. Developed research programs that include student research in educational physics. Have received significant internal and external grants for research and curriculum development, including an NSF CCLI grant. Additional responsibilities include committee assignments, departmental administration, and student advising.

Designed a new "Engineering Physics" major and implemented 3/2 Physics/Engineering program (2003). In charge of the Engineering Program. Re-designed the department's BA and BS degrees. Carried out a significant ("Ten Year") review of the Department and its resources and implemented necessary changes (2002-2003). Member of the College's Strategic Planning Steering Committee (2004-2006), to help the College plan for the future and

find new directions. Key member of a committee that proposed, designed, and received a grant to start the college's Summer Research Program; Director of that program from 2007-2010. Key member of a committee that proposed, designed, received a grant for, and hired faculty for the college's Environmental Studies program. Key member of a group that proposed that the college add a Business major.

Traveled to Pakistan in 2005 as a consultant for Forman Christian College to help its academic departments transition to a four-year college curriculum.

Member of active national committees that include the Committee for the Status of Women in Physics and the Multimedia Educational Resource for Learning and Online Teaching. Working with the Educational Testing Service to grade and to improve the AP exam in physics.

Advising responsibilities include major advising, first year advising, sophomore advising, honors project advising, pre-engineering advising, scholarship advising, and faculty advisor for student groups.

2000-2005 **Assistant Editor,** Multimedia Educational Resource for Learning and Online Teaching.

Reviewer of online teaching materials for the Physics Discipline Group.

1998-2002 **Assistant Professor,** Randolph-Macon Woman's College Department of Physics.

See description above. Received tenure in January 2002.

1997-1999 **Visiting Research Associate**, Wake Forest University Department of Physics.

Study defects in insulating crystals utilizing ultrafast laser spectroscopy. Familiar with the Ar^+, YAG and Ti:Sapphire lasers, and the Positive Light Regenerative Amplifier. Part-time during the semester and full-time during the summer.

1996-1998 **Visiting Assistant Professor**, Davidson College Department of Physics.

Full teaching responsibilities for General Physics, the algebra based physics course for majors and pre-medical students, General Physics lab, and for How Things Work, the survey course for non-science majors. Regularly used the World Wide Web to post curricular materials. Set up a low temperature research lab in which projects could be done with undergraduates. Was awarded a Davidson College Faculty Study and Research grant to work with a student on an independent research project in Fall '97: "Helium Adsorption Isotherm on Nuclepore Filters". Organized the departmental seminar series for two years. Rewrote the lab manual and wrote a demo manual, both for the World Wide Web. Frequently gave invited talks on my research and other subjects of interest at area Universities. Created web pages for various organizations on and off campus (e.g. Reach Out, public service organization) and taught students to create personal web pages.

1996, 1998, 1999 Summers and

1995-1996 **Visiting Assistant Professor**, Wake Forest University Department of Physics.

Full teaching responsibilities for two physics courses with a total of 180 students and 8 laboratory sections: two sections of General Physics, calculus based physics for majors and pre-medical students, and one section of Introductory Physics, a non-calculus survey course. Also taught General Physics in an

intensive five week summer course. Used the World Wide Web as resource to interact and share information about all aspects of the class.

1989-1995 **Graduate Research Assistant**, University of Massachusetts Dept. of Physics.

Designed and built experiments for exploring phenomena in helium films at low temperatures from 24 mK - 4.2 K. Maintained and operated a pulsed NMR spectrometer. Maintained and operated dilution and pumped ^{4}He bath refrigerators. Wrote software to use PCs to control instruments and collect data via the GPIB. Familiar with vacuum technology, gas handling systems, leak detection using a mass spectrometer, low temperature techniques, machining, soldering, RF electronics, CAMAC data acquisition hardware, and vacuum evaporation of metals. Programming experience in C, Pascal, and Fortran. Used a variety of data analysis and presentation packages on PCs and a VAX, as well as AutoCAD to generate machine drawings. Experienced in DOS, Windows, and VMS computing environments.

1989-1994 **Graduate Teaching Assistant**, Amherst College and University of Mass.

Taught physics discussion sections and labs, graded lab reports, and created and graded quizzes.

Professional Development Workshops/Seminars

2007	AAPT New Faculty Reunion Workshop
2006	AAPT Demonstration Resources Workshop
2004	R-MWC Technology Workshops
2004	Grants Workshop, Washington and Lee University
2004	PKAL Educational Technologies Workshop
2004	AAPT Calculus-Based Physics Course Workshop
2004	Adobe Creative Suite Seminar
2004	Faculty Development Teaching Workshop, R-MWC
2003	GIS Certification Course, Lynchburg College
2003	Faculty Development Teaching Workshop, R-MWC
2003	Faculty Development Seminar, R-MWC
2002	Faculty Development Teaching Workshop, R-MWC
2000	Hands on LabView Workshop, National Instruments
2000	Advanced Web Development and Administration, Learning Tree International
2000	Grants Workshop, Washington and Lee University
2000	Amusement Park Physics Workshop, AAPT National Meeting
1999	VFIC Web Workshop, Bridgewater College
1999	VFIC MathCad Workshop, at Lynchburg College
1999	Culpeper Web Workshop, Sweet Briar College
1999	Culpeper Technology Workshop, R-MWC
1998	Workshop for New Physics Faculty, AAPT Headquarters
1998	Webizing Courseware, Davidson College
1998	WebPhysics Project, AAPT Winter Meeting
1997	Increasing Your Teaching Effectiveness, Davidson College

Awards

External

2007	Bauder Fund Grants (“Physics Day for 3rd-6th Graders” and “Jubilee Science Camp”)
2007	Mednick Fellowship (“Optical Spectroscopy of Defects in Yttrium Orthovanadate (YVO4) Crystals”)

2006 VFIC Summer Research Grant ("Optical Spectroscopy of Defects in Yttrium Orthovanadate (YVO4) Crystals")
2005 VA Department of Education Grant for research and workshops related to inquiry-based science teaching in grades K-8
2005 Jessie Ball duPont Grant for a new faculty member in Env. Sci. and Phys.
2000 National Science Foundation Course, Curriculum, and Laboratory Improvement Grant ("Computerizing Introductory Laboratories to Improve Student Learning")
2000 Virginia Foundation for Independent Colleges and AT&T Foundation Grant ("A PC-Based Physics Laboratory for Learning Technology")
2000 Jessie Ball DuPont Grant for implementing Summer Research Program
1999 Mednick Fellowship ("Characterization of a Surface via an Isotherm Measurement: the Porous Polycarbonate, Nuclepore")
1998 AAPT New Physics Faculty Workshop
1989-1993 James Z. Naurison Scholarship (Graduate Study)

Internal

2008 Curricular Initiatives Grant for "Human Hamster Wheel"
2008, 2007, 2006, 2005, 2004, 2003, 2002, 2001, 2000, 1999, 1998
R-MWC Professional Development Grants for national conference presentations
2006, 2005, 2004, 2003, 2002, 2001
R-MWC Summer Research Grants for research with students
2005, 2003, 2001
R-MWC Faculty Development Grants for workshops and conferences
2003, 2002, 2001, 2000, 1999
R-MWC Instructional Technology Grants for implementing new technology
2002 R-MWC Borker Grant (Women in Physics Website)
1999 R-MWC Professional Development Grant (Research Funds)
1998 Davidson College Teaching Improvement Grant (WebPhysics Workshop)
1997 Davidson College Faculty Study and Research Grant (Student Research)

Professional Society Membership

American Physical Society
American Association of Physics Teachers
Advanced Laboratory Physics Association
Physics Education Research Topical Group
Council on Undergraduate Research
Multimedia Educational Resource for Learning and Online Teaching, Editorial Board
Project Kaleidoscope Faculty of the 21st Century
Sigma Xi (President, Lynchburg Chapter 2001-2003)
Society of Physics Students

Honors

R-MWC Advisor of the Year, 2005-2006
Chosen as a Project Kaleidoscope Faculty of the 21st Century, Class of 2001
Society of Physics Students Chapter Awards 2005, 2006 (faculty advisor)
Society of Physics Students Blake Lilly Prize 2008 (faculty advisor)

National Committees

2005-2008 APS's Committee for the Status of Women in Physics
Vice Chair in 2006
Blewett Scholarship Selection Committee Chair 2007-2008
Session Chair at APS March Meeting 2008
2000-2005 Multimedia Educational Resource for Learning and Online Teaching
Editorial Board

2002, 2005, 2008 NSF Grant Panels (CCLI, ADVANCE, ADVANCE)

Committees

2007-2010	Director, Summer Research Program
2008	Presidential Inauguration Research Showcase Committee
2008-2011	Health Professions Advisory
2007-2008	Institutional Effectiveness
2007-2008	Faculty Re-appointment Committee (Chair)
2007	Presidential Scholars Selection
2006-2007	Athletics Search Committees
2005-2007	Sexual Harassment Review Board (Chair 2006-2007)
2005-2006	Environmental Studies/Physics Faculty Search (Chair)
2004-2006	Strategic Planning Steering Committee
2004	Portal Committee
2003-2004	4/4 Task Force
2002-2005	Faculty Representative Committee
2002-2004	Judicial Appeals
2001-2005	Institutional Technology Advisory Committee
2000-present	Sigma Xi Scientific Research Society (President 2001-2003)
2000-present	Lynchburg Roadrunners' Club
1999-present	College Club (Co-President 2000-2002, Produced The Show 2002-2003 and 2006-2007, President 2004-2005)
2002-2004	Electronic Portfolio Committee
2002-2003	Campus Environmental Issues
2002-2004	Environmental Studies Advisory Council
2001-2002	Campus Tolerance and Diversity
2001-2002	Alumnae Technology Advisory Council
2000-2002	Faculty Representative to Judiciary
1999-2002	Academic Computing (Chair 2000-2002)
1999-2002	Undergraduate Summer Research
2002	Environmental Studies Faculty Search
2002	Quillian Professor Hire
2000-2001	IT Coordinator Search
2000	Co-Curricular Leadership Awards Committee
2000	Director of Special Programs Search
1999	IT Director Search
1999	Symposium

Publications

1. Contributor to Physics for Scientists and Engineers, 6ed., Paul A. Tipler and Gene P. Mosca, W.H. Freeman and Company (New York 2006).
2. Contributor to Physics for Scientists and Engineers, 4ed., Douglas Giancoli, Prentice Hall (New York 2006).
3. "Influence of Inquiry Science," Jennifer Lundy, Carly Torisky, Margaret Schimmoeller, Peter Sheldon, Proceedings of the National Conference on Undergraduate Research, 2005. To be published in August, 2005.
4. "Does Playing With Dolls Make Me a Bad Scientist?" Peter Sheldon, Lynchburg, VA News & Advance, February 6, 2005.
5. "Be Complete with Enthusiasm: the Process of Writing the CCLI A&I Grant," P. A. Sheldon, Council on Undergraduate Research Quarterly 22, 3 (March 2002).

6. Contributed to an article in the Council of Independent College's Fall Newsletter on MERLOT (Nov 2002).
7. "3He spin diffusion measurements in 3He-4He mixture films," P. A. Sheldon and R. B. Hallock, **Physical Review Letters** 85, 1468 (2000).
8. "Short pulse excitation and spectroscopy of KNbO3, LiNbO3, and KTiOPO4," H. M. Yochum, *et al* (incl. P. A. Sheldon), **Radiation Effects and Defects in Solids** 150, 271 (1999).
9. "Ultrafast spectroscopy of hole and exciton self-trapping in halide crystals," E. D. Thoma, H. M. Yochum, P. A. Sheldon and R. T. Williams, Dynamical Processes in Excited States of Solids Conference Proceedings, **Journal of Luminescence** 76&77, 43 (1998).
10. "Subpicosecond Absorption Spectroscopy of Band-Gap Excitation and Defect Formation in Alkali Halide Crystals," E.D. Thoma, P.A. Sheldon, H.M. Yochum, and R.T. Williams, Radiation Effects in Insulators-9 Conference Proceedings**, Nuclear Instruments and Methods in Physics Research B** 141, 552 (1998).
11. "The Properties of 2D ^{3}He on very thin ^{4}He Films," P.A. Sheldon and R.B. Hallock, **Physical Review Letters** 77, 2973 (1996).
12. "Localization of 2D ^{3}He on a ^{4}He film," P.A. Sheldon and R.B. Hallock, 1996 LT-21 Low Temperature Conference Proceedings, **Czech Journal Of Physics** 46, 425 (1996).
13. "Experiments to Search for a Substrate State for ^{3}He Adjacent to Surfaces in ^{3}He-^{4}He Mixtures," P.A. Sheldon, J.P. Vithayathil, and R.B. Hallock, 1995 Symposium on Quantum Fluids and Solids Conference Proceedings, **Journal of Low Temperature Physics** 101, 231 (1995).
14. "Third Sound and NMR Studies of Helium Mixtures in Nuclepore," P.A. Sheldon and R.B. Hallock, 1995 Symposium on Quantum Fluids and Solids Conference Proceedings, **Journal of Low Temperature Physics** 101, 403 (1995).
15. "Absence of a 'Substrate State' for ^{3}He in a ^{3}He-^{4}He Bulk Mixture in Proximity to a Strong Binding Surface," P.A. Sheldon and R.B. Hallock, **Physical Review B** 52, 12530 (1995).
16. "Third Sound and Energetics in ^{3}He-^{4}He Mixture Films," P.A. Sheldon and R.B. Hallock, **Physical Review B**, 50, 16082 (1994).
17. "Binding Energy of ^{3}He in Thin ^{4}He Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, 1993 LT-20 Low Temperature Conference Proceedings, **Physica B** 194-196, 629 (1994). Edited by R.J. Donnelly.
18. "^{3}He Spin Diffusion in Thin ^{4}He Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, 1993 LT-20 Low Temperature Conference Proceedings, **Physica B** 194-196, 631 (1994). Edited by R.J. Donnelly.
19. "Third Sound in ^{3}He-^{4}He Mixture Films," P.A. Sheldon, D.T. Sprague, N. Alikacem, J. Vithayathil, and R.B. Hallock, 1993 LT-20 Low Temperature Conference Proceedings, **Physica B** 194-196, 877 (1994). Edited by R.J. Donnelly.
20. "^{3}He Binding Energy in Thin Helium-Mixture Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, **Physical Review Letters** 72, 384 (1994).
21. "Spin Diffusion and Magnetization Studies of ^{3}He in ^{3}He-^{4}He Mixture Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, **Journal of Low Temperature Physics** 89, 605 (1992).

APS Conference Abstracts

1. “Impact of Inquiry-Based Learning on Attitudes and Science Content Knowledge of Elementary School Teachers and Students,” P. Sheldon, P. Schimmoeller, Bulletin of the American Physical Society, 53 (March 2008).
2. “Why Not Solar Power?” R. Pokharel, P. Sheldon, Bulletin of the American Physical Society, 53 (March 2008).
3. “Optical Spectroscopy of Defects in Yttrium Orthovanadate (YVO4) Crystals,” W. Cheung, K. Wiechmann, P. A. Sheldon, H. Yochum, M. Yochum, Bulletin of the American Physical Society (April 2007).
4. "The Use of Interactive Technologies to Improve Student Learning from Middle School to College," P. A. Sheldon and T. Wellington, Bulletin of the American Physical Society (March 2003).
5. “Things I Wish They Had Told Me: Advice From a Newly Tenured Faculty Member From a Small, Liberal Arts College,” P. A. Sheldon, Bulletin of the American Physical Society (April 2002). Invited Talk.
6. “Revitalizing the Physics Department: The Use of Interactive Technologies to Improve Student Learning,” P. A. Sheldon and H. Groover, Bulletin of the American Physical Society, (April 2002).
7. "Picosecond Transient Absorption Spectroscopy of CdWO4 and PbWO4," H.M. Yochum, K.B. Ucer, R.T. William, P.A. Sheldon and V. Nagirny, Bulletin of the American Phsyical Society, 44, (1999).
8. "Third Sound in ^{3}He-^{4}He Mixture Films," P.T. Finley, P.A. Sheldon and R.B. Hallock, Bulletin of the American Physical Society, 41, 83 (1996).
9. "^{3}He Mobility in a Thin ^{4}He Film," P.A. Sheldon and R.B. Hallock, Bulletin of the American Physical Society, 41, 83 (1996).
10. "Temperature and Drive Power Dependence of the Phase of Third Sound Modes in ^{3}He-^{4}He Mixture Films," P.A. Sheldon and R.B. Hallock, Bulletin of the American Physical Society, 40, 1048 (1995).
11. "Density Dependence of the Energetics of ^{3}He in a Thin ^{4}He Film," P.A. Sheldon and R.B. Hallock, Bulletin of the American Physical Society, 40, 206 (1995).
12. "^{3}He Binding Energies to Thin ^{4}He Mixture Films," P.A. Sheldon, D.T. Sprague, J. Vithayathil, and R.B. Hallock, Bulletin of the American Physical Society, 39, 1125 (1994).
13. "Third Sound and Energetics of Thin Helium Mixture Films," P.A. Sheldon, D.T. Sprague, J. Vithayathil, and R.B. Hallock, Bulletin of the American Physical Society, 39, 1125 (1994).
14. "Third Sound in ^{3}He-^{4}He Mixture Films," P.A. Sheldon, D.T. Sprague, J. Vithayathil, and R.B. Hallock, Bulletin of the American Physical Society, 38, 846 (1993).
15. "Third Sound in Thin ^{3}He-^{4}He Mixture Films," P.A. Sheldon, D.T. Sprague, N. Alikacem, J. Vithayathil, and R.B. Hallock, Bulletin of the American Physical Society, 38, 846 (1993).
16. "^{4}He Coverage Dependence of the Spin Susceptibility and Relaxation Times of ^{3}He Adsorbed to ^{4}He Films," N. Alikacem, D.T. Sprague, P.A. Sheldon, and R.B. Hallock, Bulletin of the American Physical Society, 37, 952 (1992).
17. "Spin Diffusion Measurements of Quasi Two Dimensional ^{3}He in ^{4}He Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, Bulletin of the American Physical Society, 37, 875 (1992).

18. "Spin Diffusion Measurements in Thin ^{3}He-^{4}He Films," D.T. Sprague, N. Alikacem, P.A. Sheldon, and R.B. Hallock, Bulletin of the American Physical Society, 37, 353 (1992).
19. "Spin Susceptibility and Relaxation Time Measurements in Two-Dimensional ^{3}He Adsorbed to ^{4}He Films," N. Alikacem, D.T. Sprague, P.A. Sheldon, and R.B. Hallock, Bulletin of the American Physical Society, 37, 353 (1992).

Other Conference Presentations

1. "The Impact of Active Learning on Attitudes and Science Content Knowledge," P. Sheldon, M. Schimmoeller, J. Maidment, S. Joshi, American Association of Physics Teachers' National Meeting (July 2007).
2. "An Inquiry-Based Online Curriculum for Middle School Science Teachers," J. Lundy, C. Torisky, M. Schimmoeller, P. Sheldon, 19th National Conference on Undergraduate Research (April 2005).
3. "Interactive Electronic Resources Used to Improve Student Learning," P. Sheldon, American Association of Physics Teachers' National Meeting (January 2004).
4. "A Web-Based Inquiry Science Environment for K-8 Science Education," W. Bao, P. Schimmoeller, P. Sheldon, A. Gifford, and G. Griffin, American Association of Physics Teachers' National Meeting (January 2004).
5. "An Inquiry-Based Online Curriculum for K-8 Science Teachers," A. Gifford, P. Sheldon, P. Schimmoeller, G. Griffin, and W. Bao, American Association of Physics Teachers' National Meeting (January 2004).
6. "Science as Inquiry: Meeting the standards while counteracting the stereotypes," G. Griffin, P. Sheldon, P. Schimmoeller, W. Bao, and A. Gifford, American Association of Physics Teachers' National Meeting (January 2004).
7. "Measurement of the surface properties of materials, and in particular, the properties of Nuclepore filters," P. Sheldon, Council on Undergraduate Research 10th National Conference (June 2004).
8. "An Inquiry-Based Online Curriculum for K-8 Science Teachers," A. Gifford and Peter Sheldon, 2003 MARCUS Conference (October 2003).
9. "The Use of Interactive Technologies to Improve Student Learning," P. Sheldon and A. Giford, 127th Meeting of the American Association of Physics Teachers (August, 2003).
10. "Science Teaching: How can computer modules facilitate the development of science and pedagogical knowledge among prospective elementary teachers?" P. Schimmoeller and P. Sheldon, American Association for Teaching and Curriculum (October, 2001).
11. "Active Learning with Technology: Peer Instruction with the PRS," P. Sheldon, 12th International Conference on Teaching and Learning (April, 2001).
12. "Adsorption Isotherm of Nitrogen on a Nuclepore Surface at 77 K," S. Sydorko and P. Sheldon, American Physical Society Annual Meeting (April, 2001).
13. "Monte Carlo Modeling of JLab Spectrometers," M. Boswell and P. Sheldon, American Physical Society Annual Meeting (April, 2001).
14. "Multimedia Educational Resource for Learning and Online Teaching," P. Sheldon, American Association of Physics Teachers' Winter Meeting (January, 2001).
15. "Revitalizing the Physics Department at a Small Liberal Arts College," P. Sheldon and S. Sydorko, American Association of Physics Teachers' Winter Meeting (January, 2001).
16. "Advice to New Faculty," F. Farnsworth, P.A. Sheldon and E. K. Miller, Council on Undergraduate Research National Meeting (June, 2000).

17. "Effect of Active Learning Techniques as a Function of Gender," P. A. Sheldon and H. M. Yochum, American Association of Physics Teachers' National Meeting (January, 2000).

Invited Presentations

1. "Are They Engaged? Technology Can Enhance Methods of Interactive Learning," P. Sheldon, 130th National Meeting of the American Association of Physics Teachers, (January 2005).
2. "Physlet Physics," P. Sheldon, National Meeting of the American Physical Society (March 2005).
3. "The Ten Best Ways to Blow a Grant Proposal," N. Amos and P. Sheldon, Council on Undergraduate Research Dialogues (April, 2005).
4. "Does an On-line Science Resource Reduce Negative Science Stereotypes and Lead to Improved Science Teaching?" M. Schimmoeller, P. Sheldon, G. Griffin, C. Torisky, J. Lundy, American Educational Research Association's National Meeting (April 2005).
5. "The Ten Best Ways to Blow a Grant Proposal," N. Amos and P. Sheldon, Council on Undergraduate Research 10th National Conference (June 2004).
6. APS Bulletin, April 2002 (see above).
7. "Who Wants to be a Technologyaire? Good Pedagogical Approaches to Technology in the Classroom," VFIC Technology Symposium, Lynchburg College (November, 2000).
8. "The Science of Misinformation: Pseudoscience in the Media," Sweet Briar College Speaker Series (Fall, 2000).
9. "The Use of the World Wide Web in the Classroom," VFIC Web Workshop, Lynchburg College (August, 2000).
10. "The Use of the World Wide Web in the Classroom," Web Workshop, Marymount University (June, 2000).
11. "Helium: The Beauty of Low Temperature Physics," Hampden Sydney College Speaker Series (February, 2000).
12. "Helium Superfluidity and Other Oddities," James Madison University Speaker Series (September, 1999).
13. "Helium Superfluidity and Other Oddities," Western Carolina University Speaker Series (Fall, 1998).
14. "Optics, Optical Phenomena and the Eye," Pines Retirement Community Speaker Series (Summer, 1997).
15. "Why I Did Not Win the Nobel Prize: Helium Physics," Francis Marion University Speaker Series (Spring 1997).
16. "Newton's Laws Demo Show," Mooresville Middle School (Spring, 1997).
17. "Why I Did Not Win the Nobel Prize: Helium Physics," Wake Forest University Speaker Series (Spring, 1997).
18. "Why I Did Not Win the Nobel Prize: Helium Physics," University of North Carolina, Charlotte Speaker Series (fall 1996).
19. "Why I Did Not Win the Nobel Prize: Helium Physics," Davidson College Speaker Series (Spring, 1996).

Student Research Projects

2008	"Natural Optical Phenomena" with Tiffany Paonessa '09
2008	"Building a Wall-Following Robot" with Wai Sze Cheung '09
2008	"Physics of Joint Injuries in Baseball Players," with Emily Schuetz '08
2007-2008	"Roller-Coaster Physics," with Kacey Meaker '08
2007	"Development of Advanced Physics Lab Experiments," with Wai Sze Cheung '09
2007	"Solar Power," with Reeju Pokharel '08

2006-2007	"Optical Spectroscopy of Defects in Yttrium Orthovanadate (YVO4) Crystals." with Wai Sze Cheung '09 and Katrina Wiechmann '09
2006	"Collaborative Institute in the Sciences: A Classroom-focused Professional Development Opportunity," with Jessica Maidment '06 and Sunnie Joshi '07
2005-2006	"Collaborative Institute in the Sciences: A Classroom-focused Professional Development Opportunity," with Kidest Tita '06.
2004-2005	"Effects of Outreach Programs on Attitudes towards Science," with Tracey Wellington '05.
2004-2005	"Wavelet Theory," with Weiqin Bao '05.
2004-2005	"The New Science Teacher: Educational Resources for the Science Educator", with Professor P. Schimmoeller, Carly Torisky '06, and Jennifer Lundy '05.
2004	"Diffusion of Liquids in Confined Geometries," with Stephanie Canyon '04.
2003-2004	"Influence of Inquiry Science on Student Achievement and Instruction in the K-5 Science Classroom," with Gemma Griffin '04.
2003-2004	"Strengthening K-8 Science Teaching Through the Science Pages: Web-based Initiatives for Science Educators," with Professor P. Schimmoeller, Weiqin Bao '05, Aliya Gifford '04, Gemma Griffin '04, Saba Sattar '04, and Megan Willis '04.
2003-2004	"Studies of Surface Properties of Materials, in Particular the Nuclepore Substrate," with Aliya Gifford '04.
2003	"Luminescence Spectroscopy," with Tracy Thorn '03.
2002-2003	"How Interactive Online Science Modules Influence the Development of Scientific Concepts and Pedagogical Knowledge of Prospective K-8 Educators," with Professor P. Schimmoeller, Tracey-Ann Wellington '05, and Lourdes Cuellar '03.
2002-2003	"Luminescence Spectroscopy of Optical Crystals Using a Home-Built Dye Laser," with Tracy Thorn '03.
2001-2002	"A Study of Solar Power," with Bianca Juganaru '02.
2001-2002	"Science Teaching: Using computer simulation modules to facilitate the development of science and pedagogical knowledge among perspective pre-service teachers," with Professor P. Schimmoeller, Katherine Flansburg and Karell Thompson.
2001	"Computerizing the Lab to Improve Student Learning," with Holly Groover '04.
2001	"Monte Carlo Modeling of a Jefferson Lab Spectrometer," with Melissa Boswell.
2000-2001	"Computerizing the Lab to Improve Student Learning," with Stephanie Sydorko and Jessica Maddox.
2000-2001	"Falling Springs, Surprising Things," with Stephanie Sydorko.
1999-2001	"Adsorption Isotherm Study of Nitrogen and Helium Gases on a Nuclepore Substrate," with Stephanie Sydorko, R-MWC Honors Research.
1999	"Scripting Interactive Physlets for use as Teaching Tools," with Huong Nguyen.
1999	"A study of the Spectral Indices of Active Galactic Nuclei," with Carrie Murray.
1997	"Helium Adsorption measurements of the Surface Area and the Van der Waals constant for 0.10 micron Nuclepore Filters," with Cabell Fisher, Davidson College.

Major Outreach Activities

2005-present	Direct and teach the Randolph College Annual Science Day for 3rd-6th Graders
2004-present	Direct and teach the Jubilee Development Center Summer Science Camp

Advising

2004-present	Goldwater Scholarship Advisor
2001-present	Faculty Mentor
2000-present	Pre-Engineering Advisor
1999-present	Academic Advisor for majors in Physics and Engineering
1999-present	Academic Advisor for First and Second Year Students (6-7/year)

1999-present	Faculty Advisor for Bridges, homosexual awareness organization
1998-present	Faculty Advisor for Society of Physics Students and Sigma-Pi-Sigma, National Honor Society for Physics
1998-2006	Faculty Advisor for R-MWC Running Club
2007-2008	Honors Research Committee: Kacey Meaker
2004-2005	Honors Research Committee: Weiqin Bao
2003-2004	Honors Research Committee: Aliya Gifford
2003-2004	Honors Research Committee: Gemma Griffin
2003-2004	Honors Research Committee: "Philosophy of Quantum Mechanics," Holly Groover
2001-2002	Honors Research Committee: "The Role of Drawing in Young Children's Memory Reports," Kim Cuevas
2001-2002	Honors Research Committee: "Thermal Lensing," Michelle Madden
2001-2002	Honors Research Committee: "The Dynamic Universe," Miranda Dettwyler
1999-2002	Academic Advisor for a self-designed Environmental Studies major

Avocation

- Competitive long distance runner since the age of 10.
- Trucker in R-MWC production *Rimers of Eldridge*, Fall 2004; Bob in R-MWC Senior production *Women of Manhattan*, Spring 2003; Daisy in R-MWC production *Baby with the Bathwater*, Fall 2000; Hutch in R-MWC production *The Country Club*, Spring 2001.
- Officiated Wedding Ceremonies, Summer 2000, Fall 2001, Summers 2005, 2007, 2008.