

CURRICULUM VITAE

Rhett Herman

CONTACT INFORMATION

Department of Physics
PO Box 6983
Radford University
Radford, VA 24142
(540)831-5441 (office)
rh Herman@radford.edu

Home Address
105 Sheppard Avenue
Radford, VA 24141
(540)831-5652 (department)
<http://www.radford.edu/rherman>

EDUCATION

PhD	Physics	1996	Montana State University—Bozeman
MS	Physics	1991	Montana State University—Bozeman
Matriculated	Medical School	1985-1988	Wake Forest University School of Medicine
BS	Physics, Chemistry	1985	Wake Forest University

DISSERTATION

Title: Generalized DeWitt-Schwinger Point-Splitting Expansions for the Charged Scalar Field in Curved Space

Advisor: William A. Hiscock

SUBMITTED FOR PUBLICATION

- “Simple ways to make real capacitors,” submitted to *The Physics Teacher* August, 2013.

PUBLICATIONS (In preparation)

- “GPR study of a prehistoric archaeological site near Point Barrow, Alaska,” with Dr. Anne Jensen (to be submitted to TBD refereed journal). This is based on the poster of the same title that we presented at the 2012 Fall Meeting of the American Geophysical Union.

PUBLICATIONS

- “Simple ways to make real capacitors,” *The Physics Teacher*, **52**, 482 (2014).
- “Spreadsheet physics: examples in meteorology and planetary science,” *American Journal of Physics*, December 2009.
- “As simple as possible,” *The Physics Teacher*, **40**, 21 (March 2002)
- “An introduction to electrical resistivity in geophysics,” *American Journal of Physics*, **69** (9) 943 (2001).
- Answer to the question “What causes objects such as stars and black holes to spin?” published by *Scientific American* magazine on their website (<http://www.sciam.com>) under their refereed “Ask the Experts” web-based column (<http://www.sciam.com/askexpert/index.html>). My response, written with Dr. Tsunefumi Tanaka, is on their web page at <http://www.sciam.com/askexpert/physics/physics51/physics51.html>. Answer posted on March 1, 1999.

- Answer to the question “How fast is the earth moving?” published by *Scientific American* magazine on their website (<http://www.sciam.com>) under their refereed “Ask the Experts” web-based column (<http://www.sciam.com/askexpert/index.html>). My response is on their web page at <http://www.sciam.com/askexpert/astronomy/astronomy31/astronomy31.html>. Answer posted on October 26, 1998.
- “A method for calculating the imaginary part of the Hadamard Elementary function $G^{(1)}(x,x')$ in a static spherically symmetric spacetime,” *Physical Review* **D58** 084028 (1998)
- Answer to the question “What is ‘dark matter’? Is it theory or fact?” published by *Scientific American* magazine on their website (<http://www.sciam.com>) under their refereed “Ask the Experts” web-based column (<http://www.sciam.com/askexpert/index.html>). My response, written with Shane L. Larson of Montana State University, is on their web page at <http://www.sciam.com/askexpert/physics/physics43/physics43.html>. Answer posted on June 15, 1998.
- “Renormalization of the charged scalar field in curved space,” *Physical Review* **D53** 3285 (1996) (with William A. Hiscock)
- “Discharge of a Reissner-Nordström black hole within the event horizon,” *Physical Review* **D49**, 3946 (1994) (with William A. Hiscock)
- “Strength of the mass inflation singularity,” *Physical Review* **D46**, 1863 (1992) (with William A. Hiscock)

OTHER ARTICLES/REPORTS/POSTERS

- “The Radford University Planetarium” *The Planetarian*, Journal of the International Planetarium Society, June 2009 (note that this is not the same article as the one below)
- “The Radford University Planetarium” *Southern Skies*, Journal of the Southeastern Planetarium Association, Spring 2009
- “The Civil War Battles for Saltville: Inventory and Assessment of Battlefield Resources Using GPS/GIS Technology” by Robert C. Whisonant, C. Clifford Boyd, Jr. and Rhett Herman, July 2007
- “Resistivity scan of parcel within Douglas Park, Arlington VA,” submitted to Douglas Park Historical Society. This report summarizes my findings and interpretation of the geophysical data I obtained in June, 2007 while searching for signs of burials in Douglas Park in Arlington, VA.
- “Electrical Resistivity Study of the North Polar Sea Ice Near Barrow, Alaska” 2006 Radford University Faculty/Student Collaborative Grant Presentation, April 19, 2006
- “Electrical resistivity surveys of Fort C. F. Smith and Fort Ethan Allen,” submitted to Scott Deibler, Park Manager for Fort C. F. Smith (Arlington, VA). This report summarizes my findings and interpretation of the geophysical data I obtained on August 1-2, 2005 at both Civil War earthen fortifications.
- “Reynolds Homestead Preliminary Data,” submitted to Leni Sorensen, Director of the Reynolds Homestead foundation. This report summarizes my interpretations of the geophysical data taken on December 17, 2002, at the Reynolds Homestead site.

PUBLICATIONS (Proceedings)

- “Learning Astronomy at the Green Bank National Radio Astronomy Observatory” *Proceedings of Capital Sciences 2006*, The Washington Academy of Sciences, March 2006.
- “Iron Artifact Conservation—Science on the Cheap” *Proceedings of Capital Sciences 2004*,

The Washington Academy of Sciences, March 2004.

- “Establishing and utilizing a nature conservancy for education, research, and outreach,” *Greening of the Campus* conference, Bowling Green State University, September 2001 (with Judy H. Neihaus, Ivan B. Liss, Patrick Mikesell, Richard Roth, Grace Edwards, Stephen Lenhart, Charles Brouwer)
- “The Radford University Radio Jove project”, *Virginia Journal of Science* **51** (2), 67 (Virginia Academy of Science, 2000), with K. C. St. Clair, Jason B. Shelton, Leigh A. Kitts, and Rian Q. Everett.
- “An inexpensive laptop-based multi-lead seismic array”, *Virginia Journal of Science* **51** (2), 75 (Virginia Academy of Science, 2000)
- “Charged pair production in the Reissner-Nordstrom black hole interior”, *Proceedings of the Seventh Marcel Grossmann Meeting on General Relativity* (World Scientific, New Jersey, 1997)
- “Using Euclidean space methods to calculate the imaginary part of $G^{(1)}(x,x')$ in a static spherically symmetric spacetime”, *Proceedings of the 7th Annual Midwest Relativity Conference* (Washington University, St. Louis, 1997)

MEETINGS ATTENDED AND PAPERS PRESENTED

- “A possible correlation between surface temperature and thickness of arctic sea ice,” poster presented at the 2014 Fall Meeting of the American Geophysical Union, San Francisco, California, December 14-18, 2014. With Corey Roadcap (RU alumnus), Melissa Brett (RU student), Cameron Baumgardner (RU student), Jordan Eagle (RU student), Sarah B. Montgomery (RU student), and Daniel Blake (Southwest Virginia Governor’s School and Radford University).
- “The capacity for capacitance,” talk presented at the 2013 Spring CS-AAPT meeting, J. Sargent Reynolds Community College, Richmond, VA, April 2013.
- “GPR study of a prehistoric archaeological site near Point Barrow, Alaska,” poster presented at the 2012 Fall Meeting of the American Geophysical Union, San Francisco, California, December 3-7, 2012. With Dr. Anne Jensen (Senior Scientist, Ukpeagvik Inupiat Corporation Science).
- “Correlation between the surface temperature & thickness of Arctic sea ice,” poster presented at the 2012 Fall Meeting of the American Geophysical Union, San Francisco, California, December 3-7, 2012. With Alec Frazier (RU student), Andrew Vaccaro (Southwest Virginia Governor’s School/Radford High School/Radford University student), and Dan Blake (Southwest Virginia Governor’s School and Radford University).
- “Human Grave Identification Using GPR and Its Implications for Recording Covert Burials of Greater Antiquity” poster presented at 2012 meeting of the American Academy of Forensic Sciences, Atlanta, Georgia, February 2012. With Dr. Cliff Boyd (Radford University).
- “A simple 2-lead seismometer for demonstrations and labs,” talk presented at the CS-AAPT meeting, Northern Virginia Community College, Annandale, VA, April 2011.
- “A ground penetrating radar study of the sea ice near Barrow, Alaska,” poster presented at the 2010 meeting of the American Geophysical Union, San Francisco, California, December 13-17, 2010. With Jeremy McLaughlin and Jason McLarty (RU student).
- “A study of the surface temperature and thickness of the arctic sea ice and time evolution of the ice/water boundary” poster presented at the 2010 meeting of the American Geophysical Union, San Francisco, California, December 13-17, 2010. With Biyuan Zhao (RU student) and Dan Blake.

- “One demo, two force plates and Newton's Third Law,” talk presented at the CS-AAPT meeting, George Mason University, Fairfax, VA, October 2009.
- “The fractal structure of the ice/water boundary for sea ice near Barrow, Alaska,” poster presented at the 2008 meeting of the American Geophysical Union, San Francisco, California, December 15-19, 2008. With Jeremy McLaughlin, Laura Sweat, Trevor Twyford (all RU students).
- “Comparison of capacitively coupled resistivity and GPR data from an archaeological investigation in Guadalcanal,” poster presented at the 2008 meeting of the American Geophysical Union, San Francisco, California, December 15-19, 2008.
- “Spreadsheet physics: examples in meteorology and planetary science,” talk presented at the CS-AAPT meeting, Tidewater Community College, Virginia Beach, VA, October 2008.
- “Electrical Resistivity Study of a Pleistocene Riverbed in Saltville, VA” poster presented at the 2008 Joint Assembly of the American Geophysical Union, Fort Lauderdale, Florida, May 27-30, 2008. With Dr. Robert C. Whisonant and Elizabeth K. Gichana.
- “The exponential atmosphere in the classroom,” talk presented at the CS-AAPT meeting, Radford University, Radford, VA, November 2007.
- “Small Scale Structure of the Sea Ice Near Barrow, Alaska” talk presented at the 2007 Joint Assembly of the American Geophysical Union, Acapulco, Mexico, May 22-25 2007.
- “Electrical Resistivity and Archaeology Near Barrow, Alaska” poster presented at the 2007 Joint Assembly of the American Geophysical Union, Acapulco, Mexico, May 22-25 2007 (with Dr. Anne Jensen of Ukpeagvik Inupiat Center).
- “An affordable multilead seismic array for geophysics labs,” talk presented at the CS-AAPT, Towson University, Towson, MD, March 2007.
- “Relativity in almost-everyday life,” talk presented at the CS-AAPT meeting, James Madison University, Harrisonburg, VA, October 2006.
- “Electrical resistivity studies of the Nuvuk area near Barrow, Alaska,” talk presented in conjunction with Dr. Anne Jensen of the Ukpeagvik Inupiat Science Center, September 23, 2006.
- “Capacitively Coupled Resistivity Survey of the Polar Sea Ice Near Barrow, Alaska” poster presented at the 2006 Joint Assembly of the American Geophysical Union, Baltimore, MD, May 23-26 2006.
- “Learning Astronomy at the Green Bank National Radio Astronomy Observatory” talk presented at the combined CS-AAPT and the Washington Academy of Sciences “Capital Sciences 2004 Meeting”, NSF Headquarters, Washington DC, March 2006.
- “The Future of the Saltville Battlefields: A Report on the American Battlefield Protection Program Mapping Project” presented at the “Saltville Symposium 2005,” Saltville, VA, October 1, 2005; with Dr. Robert C. Whisonant, Dr. C. Clifford Boyd, Jr., Alex Elvis Badillo (RU student), Angela M. Dautartas (RU student), Kristen L. Stevens (National Park Service)
- “Electrical resistivity surveying of Civil War earthworks,” invited talk given to a group of Arlington citizens, Arlington County staff and members of the National Park Service who form an ad hoc committee on Civil War preservation in the area. This talk was given during their monthly brown bag lunch, held at Fort C. F. Smith. August 1, 2005.
- “Iron Artifact Conservation—Science on the Cheap” talk presented at the combined CS-AAPT and the Washington Academy of Sciences “Capital Sciences 2004 Meeting”, NSF Headquarters, Washington DC, March 2004.
- “Physics and Meteorology—Lessons Learned by All Involved” talk presented at the CS-AAPT

- Meeting, Tidewater Community College, Virginia Beach, Virginia, November 2003.
- “A Quick Digital Camera Adapter for a Telescope” demo presented at the CS-AAPT Meeting, Tidewater Community College, Virginia Beach, Virginia, November 2003.
 - “Electromagnetic methods in geophysics and their field applications,” invited talk presented at the annual meeting of the West Virginia Association of Professional Soil Scientists, Shepherd College, Shepherdstown, West Virginia, June 2003.
 - “A semester project for electricity in introductory physics—some examples,” talk presented at the CS-AAPT Meeting, Radford University, Radford, Virginia, October 2002.
 - “Loud and clear,” talk presented at the Chesapeake Section of the American Association of Physics Teachers (CS-AAPT) meeting, Loyola College, Baltimore, Maryland, April 2001
 - “An inexpensive laptop-based multi-lead seismic array,” talk presented at the Virginia Academy of Sciences, Radford University, Radford, Virginia, May 2000
 - “The Radford University Radio Jove project,” talk presented at the Virginia Academy of Sciences, Radford University, Radford, Virginia, May 2000, with K. C. St. Clair (main presenter), Jason B. Shelton, Leigh A. Kitts, and Rian Q. Everett.
 - “The Radford University observatory: an update,” talk presented at the Fourth Annual Virginia Astronomers Meeting, Virginia Polytechnic and State University, Blacksburg, Virginia, March 2000
 - “An introductory geophysics laboratory for electrical resistivity: concepts and instrumentation,” talk presented at the Chesapeake Section of the American Association of Physics Teachers Meeting, Randolph-Macon College, Ashland, Virginia, November 1999
 - “Building your own classroom electrical resistivity apparatus,” workshop presented at the National Association of Geoscience Teachers–Eastern Section Meeting, University of Pittsburgh at Johnstown, Johnstown, Pennsylvania, May 1999
 - “The Radford University Observatory: taking shape in a barn” and “Daily variation in Earth’s magnetic field,” talks given at the 3rd Annual Virginia Astronomers Meeting, Hampden-Sydney College, Hampden-Sydney, Virginia, April 1999
 - “Measurements of tidal forces of the sun and moon on the surface of Earth”, talk given at the 2nd Annual Virginia Astronomers Meeting, Radford University, Radford, Virginia, March 1998
 - “A method for calculating the imaginary part of the Hadamard Elementary function $G^{(1)}(x,x')$ in a static spherically symmetric spacetime”, talk given at the 14th Annual Pacific Coast Gravity Meeting, University of Oregon, Eugene, Oregon, March 1998
 - “Using Euclidean space methods to calculate the imaginary part of $G^{(1)}(x,x')$ in a static spherically symmetric spacetime”, talk given at the 7th Annual Midwest Relativity Conference, Washington University, St. Louis, November 1997
 - “Do charged black holes hide tunnels to other universes?”, talk presented at the First Annual Virginia Astronomers Meeting, Virginia Military Institute, April, 1997
 - “Quantum field theory studies of charged, curved spacetimes,” invited colloquium presented to the faculty and students of the Department of Physics of Wake Forest University, November, 1996
 - “The DeWitt-Schwinger approximation for the stress-energy tensor for a complex scalar field in curved space,” talk given and the 6th Annual Midwest Relativity Meeting, Bowling Green State University, November, 1996
 - “Current results in point-splitting,” talk given at the 12th Pacific Coast Gravity Meeting, University of Utah, March 1996

- “Renormalization of the charged scalar field in curved space,” talk given at the 5th Annual Midwest Relativity Meeting, University of Wisconsin-Milwaukee, November 1995
- “Charged pair production in the Reissner-Nordström black hole interior,” talk given at the 7th Marcel Grossmann Meeting on General Relativity, Stanford University, July 1994
- “Charged pair production in the Reissner-Nordström black hole interior,” talk given at the 10th Pacific Coast Gravity Meeting, Oregon State University, March 1994
- “Electron-positron pair production in charged gravitational collapse,” poster presented at the Cornelius Lanczos International Centenary Conference, North Carolina State University, December 1993
- “Teaching rotational kinematics: Are we going in circles?” talk presented (with Gregory Francis) at the AAPT Winter Meeting, New Orleans, January 1993

Other Presentations

- “The strange evolution of a career,” initial talk of the school year given at the senior seminar meeting of the Southwest Virginia Governor’s School, Dublin, Virginia, August 24, 2010; August 16, 2011; August 22, 2012; August 20, 2013; August 19, 2014.
- “Radford University Science Days: Or, How to deal with 150 5th graders in our building!” Presentation given as part of a panel at the Radford University Forum on University-Community Partnerships, April 12, 2013.
- “Student-Driven Polar Sea Ice Research in Barrow, Alaska” talk given for the CSAT STEM Club, Radford University, April 26, 2012.
- “Radford University’s Polar Research Program” talk given for the Radford University Board of Visitors meeting, Roanoke, Virginia, November 10, 2011.
- “Radford University’s Polar Research Program” talk given for the Radford University Homecoming celebration, Radford, Virginia, October 15, 2011, with Dan Blake (Southwest Virginia Governor’s School).
- “Radford University’s Polar Research Program” talk given for the Radford University Homecoming celebration, Radford, Virginia, October 15, 2011, with Dan Blake (Southwest Virginia Governor’s School).
- “The continuing evolution of a career,” talk given at the weekly senior seminar meeting of the Southwest Virginia Governor’s School, Dublin, Virginia, August 16, 2011.
- “A brief introduction to ground penetrating radar” part of the RU Forensic Science Institute/National Institute of Justice workshop “Validation of best practice recommendations for conducting forensic searches involving covert human remains,” May 11-13, 2011.
- “Radford University’s Polar Research Program,” public talk given at RU sponsored by the RU Museum of the Earth Sciences, March 14, 2011, with Dan Blake (Southwest Virginia Governor’s School).
- “The strange evolution of a career,” talk given at the weekly senior seminar meeting of the Southwest Virginia Governor’s School, Dublin, Virginia, August 24, 2010.
- “Radford University’s Polar Research,” talk given at the monthly meeting of the Pulaski Science Club, Dublin, Virginia, June 8, 2010.
- “Radford University’s Polar Research,” featured talk given at the Radford University Assessment Symposium, Radford, Virginia, May 19, 2010.
- “Student involvement in science at Radford University,” public talk given at the Barrow Arctic Research Center as part of the UIC “Schoolyard Saturday” lecture series sponsored by the National Science Foundation, Barrow, Alaska, March 6, 2010.

- “Radford University’s Polar Research,” talk given at the January 14 2010 meeting of the Rotary Club of Blacksburg, Blacksburg, Va.
- “Science & Religion, Friends or Foes? Is Antimatter the God Particle?” talk presented at the Radford City Public Library, June 6, 2009 (with Rev. Dr. Mike Ellerbrock, Professor of Agriculture at Virginia Tech)
- “Electrical resistivity and GPR studies of the sea ice near Barrow, Alaska,” invited talk given to the Cryospheric Research Branch of the NASA Goddard Space Flight Center, March 10, 2009. With Jeremy McLaughlin, Laura Sweat, Trevor Twyford (all RU students).
- Interview on the NPR radio program With Good Reason, show titled “The Lost Patrol of Guadalcanal,” August 2008 (show aired throughout early September).
- Interview by Pete French on WUVT in Blacksburg about black holes and pending trip to Guadalcanal, June 2008.
- “An Introduction to Radio Astronomy: Radford University Physics Students at the Green Bank National Radio Astronomy Observatory” Public talk given at the UIC Science Center as part of the “Schoolyard Saturday” lecture series sponsored by the National Science Foundation, Barrow, Alaska, March 15, 2008
- “Measuring the thickness of the arctic ocean ice cap” Public talk for the Radford University Museum of the Earth Sciences Lecture Series, November 13, 2007.
- “The Civil War Battlefields at Saltville, Virginia: Mapping, Archaeological, and Geological Investigations,” with Dr. Robert C. Whisonant, Geology, and Dr. Cliff Boyd, Anthropology. Public talk for the Radford University Museum of the Earth Sciences Lecture Series, February 12, 2007.
- “Renormalization in quantum field theory,” talk for the Radford University Society of Physics Students (SPS) Physics Lecture Series, November 10, 2006.
- “Electrical Resistivity Study of the North Polar Sea Ice Near Barrow, Alaska” 2006 Radford University Faculty/Student Collaborative Grant Presentation, April 19, 2006
- “Creating a System for Receiving and Processing Weather/Environmental Data from Earth-orbiting Satellites,” 2003 Radford University Faculty Lecture Series, March 24, 2003
- “Aqua Validation Launch” live web broadcast in conjunction with the NASA Goddard Special Projects Initiative Office, Vandenberg Air Force Base, Lompoc, California, May 2 2002. My 30-minute segment involved the “Physics of Rockets” and an interview with Mr. Stan Saloff, a rocket engineer with Boeing who works on their “Delta” series of rockets. The webcast is archived at <http://aqua.nasa.gov> .

ACADEMIC POSITIONS

2009-present	Professor	Department of Physics (formerly part of Department of Chemistry and Physics, then School of Environmental and Physical Science 2009-2011) Radford University
2002-2009	Associate Professor	Department of Chemistry and Physics Radford University
1996-2002	Assistant Professor	Department of Chemistry and Physics Radford University
1995-1996	Teaching Assistant	Department of Physics

		Montana State University
1993-1995	U.S. Dept. of Energy Research Fellow	Department of Physics Montana State University
1992-1993	Research Assistant	Department of Physics Montana State University
1991-1992	NASA Research Fellow	Department of Physics Montana State University
1990-1991	Teaching Assistant/Lecturer	Department of Physics Montana State University
1989-1990	Teaching Assistant	Department of Physics Montana State University

COMMITTEE ASIGNMENTS

Radford University Faculty Senate Secretary	2010-2012
Faculty Senate Curriculum Committee (secretary)	2012-present
Physics Department Personnel Chair	2012-present
Radford University Academic Policy and Procedure Committee	2010-present
School of Environmental and Physical Science Personnel Chair	2011-2012
Department of Chemistry & Physics Personnel Committee	2002-present (Chair 2003-2004, 2005-2006)
Department of Chemistry & Physics Program Review Committee	1998-2001, 2005-2006
Department of Chemistry & Physics Library Liaison	1997-2000
Department of Chemistry & Physics Curriculum Committee	1996-present
Radford University Judicial Board	1997-2002 (Chair, 1999-2000)
Radford University Foundation Scholars Committee	1997-2005

COURSES TAUGHT

Radford University	
Physics 111, 112	General Physics I, II
Physics 301	Meteorology (renumbered Fall 2006, was solely PHSC 301)
Physics 307	Intermediate Electricity and Magnetism
Physics 330	Thermodynamics and Statistical Mechanics
Physics 406	Geophysics—dual listed with GEOL 406
Physics 420	Electricity and Magnetism—later split into PHYS 421:422 sequence
Physics 421 Lab	Electricity and Magnetism—lab portion (basic electronics)
Physics 450	Selected Topics in Physics: Astrophysics
Physics 450	Selected Topics in Physics: Geophysics
Physics 450	Selected Topics in Physics: Arctic Geophysics
Physics 450	Selected Topics in Physics: Geophysical and Archaeological Search and Recovery
Physics 481	Undergraduate Research
Physics 488H	Senior Honors Thesis
Physics 498	Independent Study
Geology 406	Geophysics—dual listed with PHYS 406

Geology 606	Applied Geophysics (no longer offered; now only PHYS (GEOL) 406)
Astronomy 111	General Astronomy I
Astronomy 421	Solar System Astronomy (Astrophysics)
Physical Science 301	Meteorology
Physical Science 431	Energy and the Environment
Physical Science 498	Independent Study
Physical Science 531	Physics for Teachers
Physical Science 611	Topics: Electricity and Magnetism for Teachers

Montana State University

Physics 201	Physics for Teachers
Physics 205, 206	College Physics I, II
Physics 311	Introduction to Astronomy
Guest Lecturer in Physics 500 (Research Seminar) and Physics 524 (General Relativity II)	

AWARDS

“Frank R. Haig Prize” for the best paper from a four-year college, awarded at the Chesapeake Section of the American Association of Physics Teachers Meeting, Northern Virginia Community College, Annandale, Virginia, April 2011.

Advisory Excellence Award for work with the Pre-Dental Club, presented by the Student Awards Committee, April 2010.

Named Commencement Speaker for the 2007 Winter Commencement at Radford University.

“Frank R. Haig Prize” for the best paper from a four-year college, awarded at the Chesapeake Section of the American Association of Physics Teachers Meeting, Radford University, Radford, Virginia, November 2007 (co-recipient with Dr. Jack Brockway of Radford University)

“Donald N. Dedmon Distinguished Teaching Professor Award,” Radford University, May 2007

“Dr. Preston Durrill Academic Advising Award 2003,” Omicron Delta Kappa National Leadership Honor Society

“College of Arts and Sciences Distinguished Teaching Award 1999-2000,” Radford University, May 2000

“Frank R. Haig Prize” for the best paper from a four-year college, awarded at the Chesapeake Section of the American Association of Physics Teachers Meeting, Randolph-Macon College, Ashland, Virginia, November 1999

“Douglas Eardley Prize for Best Research Talk” (by a student), awarded at the 10th Pacific Coast Gravity Meeting, Oregon State University, March 1994

ACADEMIC AND PROFESSIONAL ORGANIZATIONS

Sigma Pi Sigma ($\Sigma\Pi\Sigma$, Physics honor society)
 American Physical Society (APS)

American Geophysical Union (AGU)

Webmaster, Near-Surface Geophysics Focus Group, December 2006-December 2010

American Association of Physics Teachers (AAPT)

Chesapeake Section of the American Association of Physics Teachers (CS-AAPT)

President, October 2002-Oct. 2004

Vice President for Communications, Oct. 2004-Oct. 2014

National Association of Geoscience Teachers (NAGT)

GRANTS (status)

“We’re having an (Arctic) blast! An interdisciplinary pedagogical approach to exploring extreme environments using biophysics to study macro- and micro-habitats of Arctic wildlife,” submitted to the College of Science and Technology Basic, Applied, and Pedagogical Research Program, November 2014. With Dr. Sara O’Brien (RU Biology Department). Funded: \$14,435.

“Geophysical and Archaeological Investigation of a Cemetery in Blacksburg, VA,” submitted to the town of Blacksburg, July 2014. With Dr. Cliff Boyd (RU Forensic Science Institute). Funded: \$15,775.

“Mitigation of Infinities in Quantum Mechanics Using Wavelets,” submitted to the Radford University Office of Undergraduate Research and Scholarship, February, 2014. Funded: \$2,000.

Note: I had to withdraw from this project before the summer of 2014 due to family reasons. The other project mentor, Mr. John McGee from the Math/Statistics Department, used the funds to work with RU physics major Sarah House on another project with the approval of Dr. Joseph Wirgau, Director of the Office of Undergraduate Research and Scholarship.

“Geophysical and Archaeological Investigations of Civil War Sites near Radford, VA,” submitted to the Radford University Office of Undergraduate Research and Scholarship, April, 2013 (with Dr. Cliff Boyd and Dr. Robert C. Whisonant). Funded: \$2,000.

“Arctic Geophysics as a Scholar Citizen Class,” submitted to the Radford University Scholar Citizen Initiative, July 2013. Funded: \$5,000.

“Research at Undergraduate Institutions: Geophysical studies of the ice/water boundary in the Chukchi Sea and its potential for oil trapping,” submitted to the National Science Foundation Arctic Research Opportunities, November 2011. Amount: \$140,744. Status: Not funded.

“Radford University Planetarium Outreach Program,” submitted to the Community Foundation of the New River Valley, October 2011. Funded: \$1,120.

“Using Remote Sensing of Known Grave Sites to Develop a Forensic Science Model for Identifying Covert Burials” submitted to the Radford University Faculty Research Award Program, September 2011. Funded: \$15,542.

“Geophysical investigations of the Nuvuk burial site near Barrow, Alaska,” submitted to the College of Science and Technology of Radford University, October 2010. Funded: \$10,000.

“Blacklight bulbs for the Radford University Planetarium,” submitted to the Community Foundation of the New River Valley, May 2009. Funded: \$187.

“Geophysical survey within Douglas Park in Arlington,” submitted to the Douglas Park Historical Society, June 2007. Funded: \$1,713.

“Geophysical survey for the Barrow Arctic Science Consortium in Barrow, Alaska,” submitted to the Barrow Arctic Science Consortium (NSF facility), June 2006. Funded: \$1,892.

“Measuring sea/lake ice thickness with the OhmMapper resistivity system,” submitted to the RU Faculty Development Faculty-Student Collaborative Grants Program, October 2005. Funded: \$750.

“Measuring sea/lake ice thickness with the OhmMapper resistivity system,” submitted to the RU Faculty Development Center’s Scholarly and Creative Activities Program, October 2005. Funded: \$1,500.

“Geophysical Survey of Fort C. F. Smith and Fort Ethan Allen,” submitted to Scott Deibler and the Arlington County Department of Parks and Tourism, June 2005. Funded: \$1,269.

“Civil War Battles for Saltville, VA: Inventory and Assessment of Battlefield Resources Using GIS/GPS Technology,” National Park Service/Department of the Interior, August 2004. Co-PI with Dr. Charles C. Boyd (Anthropology) and Dr. Robert C. Whisonant (Geology). Funded: \$43,246.

“Geophysical Methods at Environmental Contaminant Sites,” submitted to Dean of the College of Arts and Science, Radford University, April 2004; Funded: \$9,000

“Summer Undergraduate Research Fellowship—Carmen Reedy,” submitted to the National Institutes of Standards and Technology, January 2004; funded by NIST: \$4,979

“Preservation of Civil War Battlefields at Saltville, VA,” submitted to Faculty Development Center’s Proposal Development Award Program, April 2003. Co-PI. Funded: \$7,916.

“Developing a system for image acquisition and data processing of GEOS satellite data,” submitted to Bay Mills Community College (NASA-backed). August 2002. Funded: \$5,000.

“A Weather Station for Radford University,” submitted to the Radford University Seed Grant Program, May 2002; funded: \$9,828

“Summer Undergraduate Research Fellowship—Timothy Dutton,” submitted to the National Institutes of Standards and Technology, January 2002; funded by NIST: \$6,462

“A High Resolution Picture Transmission (HRPT) Environmental Satellite Receiving Station for Radford University,” submitted to the Radford University Innovative Teaching Grant Program, October 2001; funded: \$5,000

“Upgrading the Program Offerings of the Radford University Planetarium,” submitted to the Radford University Foundation Faculty and Professional Instructional Development Grants Program, March 2000; funded: \$4,200.

“Electrical Resistivity Studies of a Potential Pond Site at the Selu Conservancy,” submitted to the Radford University Foundation Faculty and Professional Instructional Development Grants Program, April 1999; funded: \$1,050.

“Revitalizing the Astronomy and Astrophysics Curriculum Within the Department of Chemistry and Physics,” submitted to the Radford University Innovative Teaching Grant Program, March 1999; funded: \$6,856.

“Revitalizing the Astronomy and Astrophysics Curriculum Within the Department of Chemistry and Physics,” submitted to the Radford University Summer Faculty Stipend Program, March 1999; funded: \$2,500.

“Proposal for Equipping an Instructional Geophysics Laboratory,” submitted to the Radford University Innovative Teaching Grant Program, February 27, 1998; funded: \$9,500

“Semi-Classical General Relativity Applied to Studies of the Interior of Charged Black Holes,” submitted to the Radford University Seed Grant Program, March 1997; funded: \$2,550.

OTHER FUNDING

Secured donation (donor insisted on anonymity) for the Radford University Foundation to apply towards remote sensing research work. May 2002. Amount: \$25,000.

OTHER ACTIVITIES

Part of research team—in conjunction with NASA and others—to the north polar ice cap with the goal of measuring the thickness of the cap near the geographic pole. April, 2003.

Part of web broadcast team—in conjunction with NASA and others—for the April 2004 launch of Aqua satellite from Vandenberg Air Force Base in California.

Director, Radford University Planetarium, starting in 1999.

Along with physics/astronomy faculty from Virginia Tech, I have been one of the instructors for the Annual Astronomy Elderhostel program sponsored by the Wilderness Conservancy at Mountain Lake (falls 2002-2005). This event includes an entire afternoon in the Radford University Planetarium for an orientation to the sky and astronomical data acquisition.