

Darin T. Zimmerman, Ph.D.

Head, Division of Mathematics and Natural Sciences

Professor of Physics

The Pennsylvania State University, Altoona College

101 Elm Bldg.

3000 Ivyside Park

Altoona, PA 16601-3760

(814) 949-5746 (Office) / (814) 949-5666 (Lab) / (814) 949-5838 (Fax)

email: dtz1@psu.edu

www: <http://www.personal.psu.edu/faculty/d/t/dtz1/>

EDUCATION

1997 Ph.D., Physics

Texas A&M University

Dissertation: *Vibrational Spectroscopy of Adsorbed Molecules Using Self-Assembling Tunnel Junctions*. (Advisor: Prof. Glenn Agnolet)

1990 B.S., Physics

University of California, Irvine

POSITIONS HELD

2009 – present Interim Head, Division of Mathematics and Natural Sciences, Penn State Altoona

2010 – present Professor of Physics, Penn State Altoona

2003 – 2010 Associate Professor of Physics, Penn State Altoona

1997 – 2003 Assistant Professor of Physics, Penn State Altoona

1999 – 2008 Adjunct Assistant Professor, Saint Francis University

1998 - 2008 Adjunct Math & Science Teacher, Great Commission Schools, Altoona, PA

1992 - 1997 Graduate Research Assistant (Agnolet Group), Texas A&M University

1990 -1997 Graduate Teaching Assistant (Physics), Texas A&M University

AWARDS AND RECOGNITION

- 2006 Nominated for the The George W. Atherton Award for Excellence in Teaching, Schreyer Institute for Teaching Excellence, The Pennsylvania State University.
- 2005 Nominated for the The George W. Atherton Award for Excellence in Teaching, Schreyer Institute for Teaching Excellence, The Pennsylvania State University.
- 1999 Robert A. Welch Postdoctoral Research Fellowship, Department of Physics, Texas A&M University, (summer).
- 1997 Summer Faculty Research Fellowship, American Chemical Society / Petroleum Research Fund, Collaborator: Paul S. Weiss, Department of Chemistry, Penn State University.
- 1996 Selected as The Outstanding Physics Teaching Assistant at Texas A&M University and elected to membership in the American Association of Physics Teachers.
- 1996 Outstanding Presentation Award from the Texas Section of the American Physical Society for a talk presented at the University of Texas at Arlington, October 11, 1996.
- 1994 McDonald's Award for Excellence in Teaching by Graduate Students, Texas A&M University. One of two most prestigious teaching awards presented annually to less than 1% of teaching assistants.

PUBLICATIONS

13. R.C. Bell, D.T. Zimmerman, and N.M. Wereley, "Impact of nanowires on the properties of magnetorheological fluids and elastomer composites," in *Electrodeposited Nanowires and Their Applications*, pp. 189-212, N. Lupu, ed., Intech Publishing, Croatia (2010).
12. D.T. Zimmerman, R.C. Bell, J.A Filer II, J.O. Karli, and N.M. Wereley, "Elastic percolation transition in nanowire-based magnetorheological fluids." *Appl. Phys. Lett.* **95**, 014102 (2009).
11. D.T. Zimmerman, J.D. Cardellino, K.T. Cravener, K.R. Feather, N.M. Miskovsky, and G.J. Weisel, "Microwave absorption in percolating metal-insulator Composites," *Appl. Phys. Lett.* **93**, 214103 (2008).
10. R.C. Bell, J.O . Karli, A.N. Vavreck, D.T. Zimmerman, G.T. Ngatu, and N.M. Wereley, "Magnetorheology of submicron diameter iron microwires dispersed in silicone oil," *Smart Mater. Struct.* **17**, 015028 (2008).

9. R.C. Bell, E.D. Miller, J.O. Karli, A.N. Vavreck, and D.T. Zimmerman, "Influence of particle shape on the properties of magnetorheological fluids," *International Journal of Modern Physics, B* **21**, 5018 (2007).
8. R.C. Bell, E.D. Miller, J.O. Karli, A.N. Vavreck, D.T. Zimmerman, "Influence of particle shape on the properties of magnetorheological fluids," in *Electrorheological Fluids and Magnetorheological Suspensions: Proceedings of the 10th International Conference on ERMR 2006*, F. Gordaninejad, O. Graeva, A. Fuchs, and D. York, eds., World Scientific Publishing Co., Inc., New York (2007).
7. J. Ma, J.F. Diehl, E.J. Johnson, K.R. Martin, N.M. Miskovsky, C.T. Smith, G.J. Weisel, B.L. Weiss, and D.T. Zimmerman, "Systematic study of microwave absorption, heating, and microstructure evolution of porous copper powder metal compacts," *J. Appl. Phys.* **101**, 074906 (2007).
6. D. T. Zimmerman and G. Agnolet, "Inelastic electron tunneling measurements using adjustable oxide-free tunnel junctions," *Rev. Sci. Instrum.* **72**, 1781 (2001).
5. G. Agnolet and D. T. Zimmerman. "Intensity studies of inelastic electron tunneling spectra." *Physica B* **284**, 1842 (2000).
4. G. Agnolet, S. R. Savitski, and D. T. Zimmerman "Zero bias features in self-assembling tunnel junctions." *Physica B* **284**, 1840 (2000).
3. D. T. Zimmerman and G. Agnolet. "A point contact device for use as an in-situ chemical sensor." *Chemical Sensors IV: Proc. Electrochem. Soc.* **99-23**, 390 (1999).
2. D. T. Zimmerman, M. B. Weimer, and G. Agnolet. "An adjustable oxide-free tunnel junction for vibrational spectroscopy of molecules." *Appl. Phys. Lett.* **75**, 2500 (1999).
1. D. T. Zimmerman, M. B. Weimer, and G. Agnolet. "Vibrational spectroscopy of molecules using self-assembling tunnel junctions." *Czech. J. Phys.* **46**, S5, 2835 (1996).

MANUSCRIPTS SUBMITTED

Zimmerman, D. T., *College Physics: The Core Concepts*, an algebra-based physics textbook for college students. Contract with McGraw-Hill Higher Education to develop and publish (target publication date of 01/01/2012). First draft is complete (30 chapters, 300,000 words) and externally reviewed. Second draft in progress (25/30 chapters completed); partially submitted for external review.

MANUSCRIPTS IN PREPARATION

D.T. Zimmerman, J.O. Karli, J.L. Planisek, and R.C. Bell, "Dynamic percolation behavior of nanowire-based magnetorheological elastomer composites." In preparation for submission to *Applied Physics Letters*.

D.T. Zimmerman, J.A. Filer II, J.O. Karli, R.C. Bell, and N.M. Wereley, "Influence of particle-shape on the percolation transition in nanowire-based magnetorheological fluids." In preparation for submission to *Journal of Applied Physics*.

RESEARCH GRANTS (Amount funded: \$785,286)

19. "Comparative study of electrical and elastic percolation in ferromagnetic-elastomer composites," Penn State Altoona Senior Research Award, 2010, **\$4,654**. Darin T. Zimmerman, PI, Richard C. Bell, Co-PI.
18. "Nanowire-based-magnetorheological elastomers," Penn State Altoona College Summer Research program, summer 2009, **\$1500**. Darin T. Zimmerman, PI.
17. "Percolation in metal-insulator composites," Penn State Altoona Undergraduate Research Award, Spring 2009, **\$500**. Darin T. Zimmerman, PI.
16. "Using Percolation of Metal-insulator Mixtures As a Sensitive Chemical Sensor," Penn State Altoona Student Research Program, summer 2008, **\$750**. Darin T. Zimmerman, PI.
15. "Microwave Properties of Metal-insulator Mixtures," Penn State Altoona Student Research Program, summer 2008, **\$1,500**. Darin T. Zimmerman, PI.
14. "RUI: Systematic Study of the Rheology and Sedimentation of Microwire-Based Magnetorheological Fluids," Division of CBET / Fluid Dynamics and Hydraulics (NSF-CBET 0755696), **\$179,859**. Richard C. Bell (PI), Andrew N. Vavreck (Co-PI), Darin T. Zimmerman (Co-PI). Effective 07/2008 – 06/2011
13. "Numerical Modeling and Computer Simulations of Microwire Magnetorheological Fluids," Altoona College Research Development Grant, July 2007, **\$6,918**. D.T. Zimmerman, PI, R.C. Bell, J. Ma, A.N. Vavreck, Co-PIs.
12. "RUI: Studies of the Heating and Sintering of Powdered Metals in Separate Electric and Magnetic Fields Using a Single Mode Microwave Cavity," National Science Foundation – Research at Undergraduate Institutions, Division of Materials Research / Metals (NSF-DMR 0406584), **\$373,700** (includes \$73,750 from Penn State University). Darin T. Zimmerman (PI), Nicholas M. Miskovsky (Co-PI), Brock L. Weiss (Co-PI), Gary J. Weisel (Co-PI), Effective 06/2004 – 05/2008.

11. "Iron-Fiber Based Magnetorheological Fluids Realized by Matrix Drawing and Cryogenic Chopping," Altoona College Dean's Development Fund, November 2002, **\$2,700**. Darin T. Zimmerman, PI.
10. "Modifications of a Single-mode Microwave Cavity for Heating Rate Studies of Powdered Metals," Altoona College Research Development Grant, July 2002, **\$2,150**. Darin T. Zimmerman, PI.
9. "Rapid Heating of Powdered Metals in Microwave Electric and Magnetic Fields," Division of Mathematics and Natural Science, Penn State Altoona College Student Research Program, summer 2002, **\$1,500**. Darin T. Zimmerman, PI.
8. "An Undergraduate Laboratory for Examining the Separate Roles of E- and H- Fields in the Microwave Sintering of Powdered Metals and Semi-Metals." Altoona College Research Development Grant (RDG), July 2001, **\$2,150** (includes \$500 student stipend). Darin T. Zimmerman, PI.
7. "An Undergraduate Laboratory for Examining the Separate Roles of E- and H- Fields in the Microwave Sintering of Powdered Metals and Semi-Metals," Division of Mathematics and Natural Science, Penn State Altoona College Student Research Program (summer 2001), **\$1,500**. Darin T. Zimmerman, PI.
6. "Nanotube-based Fluids," Altoona College Dean's Development Fund, October 2000, **\$1,750**. Darin T. Zimmerman, Principal Investigator.
5. "Tip Mount for Novel Scanning Probe Microscope," Division of Mathematics and Natural Science, Penn State Altoona College Student Research Program (summer 2000), **\$1,500**. Darin T. Zimmerman, PI.
4. "RUI: Studies of Single Molecule Vibrational Spectra and Zero Bias Features Using Adjustable Point-Contact Tunnel Junctions," National Science Foundation-Research at Undergraduate Institutions, Division of Materials Research / Condensed Matter Physics (NSF-DMR 0072148), **\$196,813** (includes \$27,000 matching funds from Penn State University). Darin T. Zimmerman, PI. Effective 05/2000-2003.
3. "Gas Handling System for Undergraduate Research Laboratory," **\$2,950**, Altoona College Dean's Fund, February 1998.
2. "Data Acquisition Unit for Undergraduate Research Laboratory," **\$1,392**, Altoona College Research Development Fund (RDG), July 1998.
1. "Vacuum Chamber Cell and SATJ for Undergraduate Research Laboratory," **\$1,500**, Altoona College Research Development Fund (RDG), October 1997 .

PAPERS PRESENTED (first author presenting)

39. D.T. Zimmerman, K. Adu, R.C. Bell, T.D. Hooper, G.J. Weisel, "Electromagnetic transport in magnetorheological elastomer composites," March Meeting of the American Physical Society, Dallas, TX, March 2011.
38. D.T. Zimmerman, "Transport phenomena and percolation in metal-insulator composites," Invited talk, Departments of Physics and Electrical Engineering, Rostock University, Rostock Germany, October 12, 2010.
37. D.T. Zimmerman, "Transport phenomena and percolation in metal-insulator composites," Invited talk, Department of Materials Science, Christian-Albrechts University, Kiel Germany, October 8, 2010.
36. D.T. Zimmerman, R.C. Bell, J.A. Filer II, J.O. Karli, and N.M. Wereley, "Percolation behavior of cobalt-nanowire-based magnetorheological fluids," 2009 Nanoworkshop: The 4th International Workshop on Polymer/Metal Nanocomposites, Prague, Czech Republic, September 2 – 4, 2009.
35. D. T. Zimmerman, "Metal-insulator composites: from microwave sintering to percolation," Invited talk, Consortium for Electromagnetic Modeling and Inversion (CEMI), Department of Geology and Geophysics, University of Utah, May 15, 2009.
34. J.O. Karli, D.T. Zimmerman, J.A. Filer, R.C. Bell, and N.M. Wereley, "Percolation transition in nanowire magnetorheological fluids," March Meeting of the American Physical Society, Pittsburgh, PA, March 2009.
33. D.T. Zimmerman, J.D. Cardellino, K.T. Cravener, K.R. Feather, N.M. Miskovsky, and G.J. Weisel, "Microwave absorption in percolating metal-insulator composites," March Meeting of the American Physical Society, Pittsburgh, PA, March 2009.
32. R. Bell, J. Karli, J. Krug, and D. Zimmerman, "Length dependence of the magnetorheological properties of cobalt microwires dispersed in silicone oil," March Meeting of the American Physical Society, New Orleans, LA, March 2008.
31. D. Zimmerman, K. Martin, J. Cardellino, E. Johnson, J. Ma, N. Miskovsky, and G. Weisel, "Percolation Studies of Metal-insulator Composites at Microwave Frequencies," March Meeting of the American Physical Society, New Orleans, LA, March 2008.
30. D. Zimmerman, J. Diehl, E. Johnson, K. Martin, J. Ma, N. Miskovsky, C. Smith, G. Weisel, B. Weiss, "Systematic Study of Microwave Absorption, Heating, and Microstructure Evolution of Porous Copper Powder Metal Compacts," March Meeting of the American Physical Society, New Orleans, LA, March 2008.

29. D.T. Zimmerman, "Microwave Heating and Sintering of Powdered Metals," Cabot Corporation, October 18, 2007, Billerica, MA.
28. J. Ma, C.T. Smith, G.J. Weisel, B.L. Weiss, N.M. Miskovsky, and D.T. Zimmerman, "Single Mode Microwave Heating of Copper Powder Metal Compacts," 2006 COMSOL Users Conference, October 22 – 24, Boston, MA.
27. D.T. Zimmerman, E.J. Johnson, J. Ma, K.R. Martin, N.M. Miskovsky, C.T. Smith, G.J. Weisel, and B.L. Weiss, "Microwave Heating and Pre-sintering of Copper Powder Metal Compacts in Separated Electric and Magnetic Fields," PM2006: World Congress on Powder Metallurgy, September 24–28, Busan, South Korea.
26. R.C. Bell, E.D. Miller, J.O. Karli, A.N. Vavreck, and D.T. Zimmerman, "Influence of Particle Shape on the Shear Strength of Magnetorheological Fluids," ERMR 2006: The 10th Conference on Electrorheological and Magnetorheological Fluids, June 18 – 22, Lake Tahoe, CA.
25. K.R. Martin, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Microwave Heating and Pre-sintering of Copper Powder Metal Compacts in Separated Electric and Magnetic Fields," Penn State Altoona Undergraduate Research Fair, April 11, 2006.
24. C.M. Lynch, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Complex Permittivity of Powder Metal Compacts by Cavity Perturbation Technique." Penn State Altoona Undergraduate Research Fair, April 11, 2006.
23. D.T. Zimmerman, "Making the Most of Metals in Your Microwave: Studies of the Heating and Sintering of Powdered Metals in Separate Electric and Magnetic Fields Using a Single Mode Microwave Cavity," Central Pennsylvania Section of the American Association of Physics Teachers, Pennsylvania College of Technology, April 8, 2006.
22. K.R. Martin, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Microwave Heating and Pre-sintering of Copper Powder Metal Compacts in Separated Electric and Magnetic Fields," Pennsylvania State University Undergraduate Research Exhibition, April 5, 2006.
21. C.M. Lynch, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Complex Permittivity of Powder Metal Compacts by Cavity Perturbation Technique." Pennsylvania State University Undergraduate Research Exhibition, April 5, 2006.

20. K.R. Martin, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Microwave Heating and Pre-sintering of Copper Powder Metal Compacts in Separated Electric and Magnetic Fields," March Meeting of the American Physical Society, Baltimore, MD, March 2006.
19. C.M. Lynch, E. Johnson, J. Ma, N.M. Miskovsky, G. J. Weisel, B. L. Weiss, and D.T. Zimmerman, "Complex Permittivity of Powder Metal Compacts by Cavity Perturbation Technique." March Meeting of the American Physical Society, Baltimore, MD, March 2006.
18. D.T. Zimmerman, "Making the Most of Metals in Your Microwave: Studies of the Heating and Sintering of Powdered Metals in Separate Electric and Magnetic Fields Using a Single Mode Microwave Cavity," Invited speaker, Penn State Altoona Colloquium, March 13, 2006.
17. D.T. Zimmerman, "Lorentz Force Tunneling Spectrometer for Studying Molecules on Single Crystal Surfaces," Invited Talk, Penn State University, Department of Physics, October 10, 2003.
16. D.T. Zimmerman, D. L. Sharp, and G. Agnolet, "Lorentz Force Tunneling Spectrometer for Studying Molecules on Single Crystal Surfaces," March Meeting of the American Physical Society, San Antonio, TX, March 2003.
15. D. L. Sharp, D. T. Zimmerman, and G. Agnolet, "Lorentz Force Feedback Scanning Tunneling Microscope," March Meeting of the American Physical Society, Indianapolis, IN, March 2002.
14. D. T. Zimmerman and G. Agnolet, "An Adjustable Oxide-free Tunnel Junction for Vibrational Spectroscopy of Molecules," Poster presentation at "Nanoscience: Underlying Physical Concepts and Phenomena," The Arthur M. Sackler Colloquia of the National Academy of Sciences, Washington, D. C., May 18-20, 2001.
13. G. Agnolet, S. R. Savitski, M. B. Weimer, and D. T. Zimmerman, "Zero Bias Features in Self-Assembling Tunnel Junctions," March Meeting of the American Physical Society, Minneapolis, MN, March 2000.
12. D. T. Zimmerman and G. Agnolet, "Intensity Studies of Inelastic Electron Tunneling Spectra," 2000 March Meeting of the American Physical Society, Minneapolis, MN.
11. D. T. Zimmerman and G. Agnolet, "A Point Contact Device for Use as an In-situ Chemical Sensor," Joint International Meeting of The Electrochemical Society and The Electrochemical Society of Japan, Honolulu HI, October 17-22 1999.

10. G. Agnolet, D. T. Zimmerman, S. R. Savitski, and M. B. Weimer, "A New Geometry for Inelastic Electron Tunneling Spectroscopy," XXII International Conference on Low Temperature Physics, Helsinki, Finland, August 1999.
9. G. Agnolet, D. T. Zimmerman, S. R. Savitski, and M. B. Weimer, "Zero Bias Features In Self-Assembling Tunnel Junctions," XXII International Conference on Low Temperature Physics, Helsinki, Finland, August 1999.
8. D. T. Zimmerman, M. B. Weimer, and G. Agnolet, "A Point-Contact Tunnel Junction for Use as a Sensitive Chemical Detector and Force Transducer," 1999 March Meeting of the American Physical Society, Atlanta, Georgia.
7. D. T. Zimmerman, M. B. Weimer, and G. Agnolet, "Vibrational Spectroscopy of Acetylene Using Point-Contact Tunnel Junctions," 1998 March Meeting of the American Physical Society, Los Angeles, California.
6. D. T. Zimmerman, "Point-Contact Tunnel Junctions," Invited Talk, Paul S. Weiss Research Group, Department of Chemistry, Penn State University, February 24, 1998.
5. D. T. Zimmerman, M. B. Weimer, and G. Agnolet, "The Self-Assembling Tunnel Junction: An Adjustable Microscopic Junction for Vibrational Spectroscopy," 1997 March Meeting of the American Physical Society, Kansas City, Missouri.
4. D. T. Zimmerman, M. B. Weimer, and G. Agnolet, "The Self-Assembling Tunnel Junction: An Adjustable Microscopic Junction for Vibrational Spectroscopy," Texas Section Meeting of the American Physical Society, Arlington, Texas, October 1996.
3. Glenn Agnolet, Darin T. Zimmerman, Michael B. Weimer, "Vibrational Spectroscopy of Adsorbed Molecules Using Self-Assembling Tunnel Junctions," XXI International Conference on Low Temperature Physics, Prague, Czech Republic, August 1996.
2. Darin T. Zimmerman and Glenn Agnolet, "Vibrational Spectroscopy of Adsorbed Molecules Using Self-Assembling Tunnel Junctions," 1996 March Meeting of the American Physical Society, St. Louis, Missouri.
1. Darin T. Zimmerman and Glenn Agnolet, "Inelastic Electron Tunneling Spectroscopy Using Self-Assembling Tunnel Junctions," Texas Section Meeting of the American Physical Society, Lubbock, Texas, October 1995.

RESEARCH ASSISTANTS

Postdoctoral

JunKun Ma, Ph.D. (2005 – 2007); on the tenure track at SELU

Graduate

Timothy D. Hooper, M.S. Physics (2010 – present)

Kelly R. Feather, M. S. Materials (2006 – 2010, degree conferred 05/10/2010)

Matthew Gordon, M. S. Materials Science and Engineering (2006 – 2007)

Undergraduate

Lichi Li, B.S. Mathematics (2011 – present)

Johnny M. Serafin, B.S. Chemical Engineering (2011 – present)

Renhong Zhu, B.S. Science (2011 – present)

Evan P. Cullen, B.S. Mechanical Engineering (2011 – present)

Brennan L. Healy, B.S. Aerospace Engineering (2011 – present)

Scott C. Jorbel, B.S. Mechanical Engineering (2011 – present)

Benjamin M. Knisely, B.S. Mechanical Engineering (2011 – present)

Kevin M. Ninehouser, B.S. Materials Science & Engineering (2011 – present)

Joshua A. Noble, B.S. Electrical Engineering / Physics (2011 – present)

Ryan A. Plessinger, B.S. Nuclear & Mechanical Engineering (2009 – 2010)

Stephen M. Ruhl, B.S. Biology/Environmental Studies (2009 – 2010)

Joshua O. Karli, B.S. Science (2009 – 2010)

Kyle T. Cravener, B.S. Mechanical Engineering (2008 – 2009)

Jeremy D. Cardellino, B.S. Physics (2007 – 2009)

Matthew Gordon, M.S. Materials Science (2006 – 2007)

Kelly R. (Martin) Feather, B.S. Science (2005 – 2006)

Charles T. Smith III, B. S. Physics (2005 – 2007)

Derek H. Bailey, B.S. Mechanical Engineering (2006 – 2007)

John F. Diehl, B. S. Physics (2005 – 2007)

Christopher M. Lynch, B. S. Mathematics/Physics (2005 – 2006)

Devin F. Spratt, B. S. Mechanical Engineering (2005 – 2006)

Brad A. Petrilla, B. S. Aerospace Engineering (2004 – 2005)

John R. Rea, B. S. Electrical Engineering (2004 – 2005)

Darin S. Merrill, B. S. Electrical Engineering (2003 – 2004)

James R. Brenner, B. S. Mechanical Engineering (2003 – 2004)

Darrell L. Sharp, B. S. Electromechanical Engineering Technology (2000 – 2003)

Jamie D. McCulloch, B. S. Computer Engineering (2001 – 2002)

Steven Liao, B. S. Electrical Engineering (2001 – 2002)

Justin M. Huffman, B. S. Science (2001 – 2002)

Nathaniel A. Anderson, B. S. Computer Information Technology (2001 – 2002)

Brandon L. Kline, B. S. Mechanical Engineering (2001 – 2002)

Ross A. Rager, B. S. Mechanical Engineering (2001 – 2002)

Scott. D. Rodgers, B. S. Aerospace Engineering (2000 – 2001)

COLLABORATORS

Kofi Adu (Penn State Altoona, Physics)
Richard Bell (Penn State Altoona, Chemistry)
Nicholas Miskovsky (Penn State Altoona, Physics)
Gary Weisel (Penn State Altoona, Physics)
Vladimir Burtman (Dept. of Geophysics and Geology, University of Utah)
Michael Zhdanov (Dept. of Geophysics and Geology, University of Utah)
Glenn Agnolet (Department of Physics, Texas A&M University)
Norman Wereley (Department of Aerospace Engineering, University of Maryland)
Vladimir Zaporjchenko (Department of Physics, University of Kiel)
Ursula van Rienen (Department of Electrical Engineering, Rostock University)

TEACHING EXPERIENCE (postgraduate)

- 1997 – present PHYS 419 (advanced mechanics), PHYS 237 (modern physics), PHYS 211, 212, 213, 214 (calculus-based introductory physics sequence: mechanics, electromagnetism, and modern physics with calculus), PHYS 250 & 251 (algebra-based mechanics and electromagnetism), and PHYS 1 (conceptual physics) at Penn State University.
- 1998 – 2008 High school-level Physics, Chemistry, Biology, Geometry, Algebra II, and Algebra III (pre-calculus) at Great Commission Schools, Altoona, PA.
- 2000-2008 Physical Science 101 at Saint Francis University, Loretto, PA. This course is for non-science majors who are usually completing degrees in business or education. Most are non-traditional, adult students.

PROFESSIONAL AFFILIATIONS

American Association of Physics Teachers
American Physical Society

SERVICE (2004 – 2010)

- Ex-Officio Member, Academic Affairs Group, 2009 – present
- Ex-Officio Member, Scheduling Task Force Committee, 2009 – present
- Ex-Officio Member, Space Committee, 2009 – present

Ex-Officio Member, Enrollment Management Group, 2009 – present

Member, Academic Integrity Committee, 2009 – present

Member, eFAR Task Force Committee, 2009 – present

Member, Search Committee for Director of Business Operations, 2009

Member, Search Committee for Physics Tenure-track Faculty Member, 2009

Physics Discipline Coordinator, 2002 – 2009

Member, Executive Committee, Division of MNS, 2002 – present; currently Ex-Officio

Member, Promotion and Tenure Committee, Division of MNS, 2005 – 2009

Chair, Physics Faculty Search Committee, 2002 – 2009

Member, Geosciences Tenure-track Faculty Member, 2008 – 2009

Member, Promotion and Tenure Task Force Committee, 2008 – 2009

Chair, Peer-evaluation of Teaching Biology, Chemistry, and Physics Committees, 2009

Interim Head, Division of MNS, 2009 – present

Ex-Officio, Altoona College Faculty Senate, 2009 – present

Member, Strategic Planning Committee, 2001 – 2009

Co-Chair, Subcommittee on Academic Programs, Strategic Planning Committee, 2001 – 2002

Member, Goal 6 Subcommittee, Strategic Planning Committee, 2007 - 2008

Member, New Degree Programs Committee, 1998 – 2008

Member, Academic Integrity Committee, 2002 – 2009

Member, Research Advisory Committee, 2005 – 2009

Member, Chemistry Faculty Search Committee, 2002 – 2009

Member, Peer Evaluation of Teaching Committee for Chemistry, SP2006; Chair, 2008

Member, Peer Evaluation of Teaching Committee for Chemistry, 2007

Chair, Peer Evaluation of Teaching Committee for Physics, 2004, 2006

Chair, Peer Evaluation of Teaching Committee for Chemistry, 2006

Peer Evaluation of Teaching Committee for Mathematics, 2004

Chair, Applied Science Degree Committee, FA2003-SP2007

Manuscript Referee, American Journal of Physics

Manuscript Referee, Nanoscale Research Letters

Proposal Referee

U. S. Civilian Research & Development Foundation Young Investigators Program, Arlington, VA. "Investigation of Structure and Electronic Properties of Clean Metal Surfaces," A. Meyerovich, PI

National Science Foundation, "Electro-Discharge Consolidated Ultrafine-Grained Alloys: Processing and Characterization, " Fuqian Yang, PI.

Manuscript Reviewer

6. "Electromotive force generation with hydrogen released by salt water flow under a transverse magnetic field," by R. Deluca, *American Journal of Physics*
5. "Optimizing a water rocket for maximum range," by G. D. Bent and K. Silsbee, *American Journal of Physics*.
4. Giambattista, Richardson, and Richardson, *College Physics (1/e)*, McGraw – Hill Higher Education, Dubuque, IA (2001).
3. Saslow, W. M., *Electricity, Magnetism, and Electromagnetic Waves*, Harcourt / Academic Press, Burlington, MA (2000).
2. Doty, S. D., and S. L. Doty, *Introductory Physics I—Calculus Based: Four Basic Concepts*, Addison Wesley Longman Publishers, Menlo Park CA (1997).
1. Busza, W., S. Cartwright, and A. H. Guth, *Introductory Classical Mechanics: A Study Guide to MIT Course 8.01*. Addison Wesley Longman Publishers, Menlo Park CA (1997).

Outreach to Community

Scholastic Scrimmage, high school coach, WPSU Public Broadcasting, The Pennsylvania State University, 2007 – 2009.

High school faculty engineering advisor, 2006 Pittsburgh Regional Rube Goldberg Challenge

High School Coach, U. S. Department of Energy National Science Bowl, 2004 – 2008.

Presenter, “Physics at 321 Degrees Below Zero,” Penn State Altoona, February 24, 2001.

Senior Project Supervisor for Valerie Kaplan, student, The Grier School, Tyrone, PA, May, 2000.

Co-Organizer and Presenter, “The Wonders of Physics & Chemistry,” Foot of Ten Elementary School, Duncansville, PA 16635, May, 1999.

Co-Organizer and Presenter, “Hands-On Physics Laboratory for Elementary and Secondary School Students,” YMCA, Hollidaysburg, PA, July 1998.

Expert Source, “Blast Equal to Six Dynamite Sticks, Expert Says,” by William Kibler, *Altoona Mirror* pp. A1, A6, December 13, 1998.