

Jane D. Flood
Associate Professor of Physics
Muhlenberg College

Education

Hunter College, Bachelor of Arts, Summa Cum Laude, Physics, June 1977
Phi Beta Kappa, Sigma Pi Sigma
University of Pennsylvania, Doctorate in Physics, December 1983
Sigma Xi, Associate member

Academic Appointments

Muhlenberg College, Allentown, PA

Department of Physics – Associate Professor, September 1995 – present

Assistant Professor, September 1989 – August 1995

California Polytechnic State University, San Luis Obispo, CA

Department of Physics - Lecturer, September 1988-June 1989

Santa Barbara City College, Santa Barbara, CA

Department of Physics - Instructor, September 1987-June 1988

Recent Teaching Responsibilities and Awards

Courses Taught: Organic Local and Fair Trade, Physics for Life, Physics of Music, Energy and the Environment, General Physics I (Lecture and Lab), General Physics II (Lecture and Lab).
Modern Physics, Optics and Thermal and Statistical Physics

The Paul C. Empie Memorial Award 2009

Academic Support Bridge Builder Award 2002, 2003, 2004, 2005

Distinguished Service Award, Central Pennsylvania Section of the American Association of Physics Teachers 2004

Administrative Positions and Grants

Chair, Physics Department, Muhlenberg College, Allentown, PA 2007 – present

Principal Investigator, Sustainable Energy Fund Solar Scholars Award, November 2008-November 2009

Principal Investigator, NSF DUE-0309942 “An Interdisciplinary, Inquiry-based "Physics of Music" Course”, August 2003 – August 2006

Principal Investigator, NSF CCLI Grant #99-50305 “Adaptation of Workshop Physics for an Integrated Lecture/Laboratory Course”, July 1999 – June 2001

Co-Director, Muhlenberg College Faculty Center for Teaching, June 1994 - December 1995

Research

University of California, Santa Barbara, CA

Department of Chemistry, Postdoctoral Researcher, March 1987-August 1987

I worked on setting up a scanning tunneling microscope.

Department of Electrical and Computer Engineering, Assistant Research Engineer, January 1986-January 1987, Visiting Assistant Research Engineer, September 1983- December 1985.

My research was concerned primarily with the characterization of gallium arsenide and aluminum gallium arsenide superlattices and epilayers, using photoluminescence.

University of Pennsylvania, Philadelphia, PA

Department of Physics

Research Assistant, June 1978 - June 1982

My graduate research was on the magnetic properties of polyacetylene.

Publications

“The Effect of Rapid Thermal Annealing for the Compositional Disordering of Si Implanted AlGaAs/GaAs Superlattices”, J. Kobayashi, T. Fukunaga, K. Ishida, H. Nakashima, J.D. Flood, G. Bahir and J.L. Merz, *Appl.Phys.Lett.* 50 (1987) 519

“Effect of Si Implantation and Rapid Thermal Annealing on GaAs/AlGaAs Superlattice Disordering”, J.D. Flood, G. Bahir, J.L. Merz, J. Kobayashi, T. Fukunaga, K. Ishida and H. Nakashima, in *Interfaces, Superlattices and Thin Films*, Mat.Res.Soc.Symp.Proc. 77 (1987)

“Luminescence Investigation of Copper Diffusion into Cadmium Telluride”, K.M. James, J.D. Flood, J.L. Merz and C.E. Jones, *J.Appl.Phys.* 59 (1986) 3596

“Selective-area epitaxy of GaAs through silicon dioxide windows by molecular beam epitaxy” J.M. Hong, S. Wang, J.D. Flood, J.L. Merz, T. Sands and J. Washburn, *J.Vac.Sci.Technol.* B4 (1986) 629

“Effects of Dopants on Disordering of AlGaAs-GaAs Superlattices by Zinc Diffusion”, Y.J. Wu, M. Werner, S. Wang, J. Flood and J.L. Merz, *Electronics Letters*, 22, (1986) 115

“Selective-area epitaxy of GaAs through silicon dioxide windows by molecular beam epitaxy”, J.M. Hong, S. Wang, T. Sand, J. Washburn, J.D. Flood, J.L. Merz and T. Low, *Appl.Physics Lett.* 48 (1986) 142

“Solitons at high density in trans-(CH)_x: collective transport by mobile, spinless charged solitons”, T.C. Chung, F. Moraes, J.D. Flood and A.J. Heeger, *Phys.Rev.B.*, 29 (1984) 2341

“Photogeneration of solitons in trans-(CH)_x: the reversed spin-charge relation of the photoexcitations”, J.D. Flood and A.J. Heeger, *Phys.Rev.B* 28 (1983) 2356

“Photogeneration of solitons in trans-(CH)_x: the reversed spin-charge relation of the photoexcitations”, J.D. Flood and A.J. Heeger, *J.Phys.Colloq.* 44 (1983) 397

“ESR Studies of in trans-(CH)_x During Photoexcitation”, J.D. Flood, E. Ehrenfreund, A.J. Heeger and A.G. MacDiarmid, *Solid State Comm.* 44 (1982) 1055

“Preliminary Paleomagnetic Measurements from the Ionian (Site 125) and Tyrrehenian (Site 132) Basins of the Mediterranean Sea”, William B.F. Ryan and Jane D. Flood, *Initial Reports of the Deep Sea Drilling Project* 13, (NSFSP-13) 599

Papers Presented

“Good Vibrations: A Transdisciplinary Success Story”, accepted for presentation at the meeting of the Northeast Section of the College Music Society, March 24, 2007

“Good Vibrations: Team Teaching the Physics of Music”, Diane Follet and Jane D. Flood, Meeting of the College Music Society, San Francisco, CA, November 4, 2004

“Adaptation of Workshop Physics for an Integrated Lecture-Laboratory Course”, Jane D. Flood, Summer Meeting of the American Association of Physics Teachers (AAPT), Rochester, NY, August 2001

“The Union of Concerned Scientists’ Global Warming Map and Teaching Tools” Summer Meeting of the American Association of Physics Teachers (AAPT), University of Guelph, Guelph, Ontario, August, 2000

"Conceptual Change in Introductory Physics Courses", Jane D. Flood, Karen M. Gross and Laura L. Snodgrass, Summer meeting of the American Association of Physics Teachers, Notre Dame University, Indiana, August 1994

"Conceptual Change in Introductory Physics", Karen M. Gross, Jane D. Flood and Laura L. Snodgrass, Annual Meeting of the Central Pennsylvania Section of the American Association of Physics Teachers, Muhlenberg College, Allentown, PA. April 1994

Posters

“An Interdisciplinary, Inquiry-based ‘Physics of Music’ Course”, Jane D. Flood and Diane Follet, Winter Meeting of the American Association of Physics Teachers, Albuquerque, New Mexico, January 12, 2005

“An Interdisciplinary, Inquiry-based ‘Physics of Music’ Course”, Jane D. Flood and Diane Follet, Impact and Innovation Conference, organized by The American Association for the Advancement of Science and the National Science Foundation, April 16-18, 2004

Service to Professional Organizations

American Association of Physics Teachers

Committee for Science Education for the Public, member, July 2005 – January 2008

Nominating Committee, member, January 2004-August 2005

Membership and Benefits Committee, member, January 2001- January 2004

Physics and Society Education Group, Steering Committee – Augusts 1999 – present

Sessions organized or presided at

Organizer, Physics and Society Education Crackerbarrel; Summer meetings 1999 – 2006, January 2007

Organizer, Physics and Society Education Invited/Contributed Sessions, August 1999 (San Antonio), August 2003 (Madison)

Presider, Physics and Society Education: Arms Control and Other Societal Issues, August 4, 2004

Section Representative from Central Pennsylvania
April 1999- April 2004
April 1994 - April 1996

Central Pennsylvania Section of the American Association of Physics Teachers
Distinguished Service Award, March 2004
Past President April 1995 – April 1996
President April 1994– April 1995
Vice President April 1993 – April 1994
Secretary- Treasurer April 1992 – April 1993

Conferences and Workshops

Embedding Assessment of Student Learning Outcomes in Regularly Scheduled Assignments and Effective Reporting and Tracking Embedded Assessment Data, College Misericordia , Dallas, PA, October 2006

Workshop on Academic Program Assessment, Muhlenberg College, October 5, 2006

Universal Design in STEM Education, Chemical Heritage Society, Philadelphia, PA, April 29, 2005

Basic Educational Statistics Summer meeting of the American Association of Physics Teachers (AAPT) Madison, WI, August, 2003

What Every Physics Teacher Should Know about Cognitive Research, Summer Meeting of AAPT, Madison, WI, August, 2003

Problem Solving in Physics, Summer Meeting of AAPT, Boise, ID, August 2002

Grant Funded Projects, Summer Meeting of AAPT, Rochester, NY July , 2001

Visual Quantum Mechanics, Summer meeting of AAPT, Rochester, NY, 2001

3-D Optics, Summer Meeting of AAPT, Rochester, NY July 2001

Just-in-Time Teaching (JiTT), Winter Meeting of AAPT, January 2001, San Diego, CA

Advanced Video Analysis, Summer Meeting of AAPT, Guelph, Ontario, August, 2000

University HS Partnerships Summer Meeting of AAPT, Guelph, Ontario, August 2000

Problem Solving Using Interactive Web-based Technology Winter Meeting of the American Association of Physics Teachers(AAPT), Kissimmee, Florida, January 2000

Modeling and Visualization Tools, Summer Meeting of the American Association of Physics Teachers (AAPT), Trinity University, San Antonio. Texas, August 3-7, 1999

The Role of Physics in the Human Body, Summer Meeting of the American Association of Physics Teachers (AAPT), Trinity University, San Antonio. Texas, August 3-7, 1999

LVAIC Workshop on Effective Grading led by Barbara Walwood, at Lehigh University May 10, 1999

Promoting Active Learning in Introductory Physics Courses , Chautauqua Short Course, Dickinson College, May 28-30, 1998

Interactive Methods in Large lecture Classes - (AAPT) Meeting, New Orleans, LA, January 4, 1998

Developing Critical Thinking Skills in a Student-Centered Classroom -AAPT Meeting, New Orleans, LA, January 3, 1998

Student Confidence -AAPT Meeting, University of Denver, August 10, 1997

Video Capture and Analysis in Physics Courses -AAPT Meeting, University of Denver, August 10, 1997

RealTime Physics II -AAPT Meeting, University of Denver, August 11, 1997

RealTime Physics and Interactive Lecture Demonstrations -AAPT Meeting, Phoenix, Arizona, January 5, 1997

Cooperative Group Problem Solving in Physics -AAPT Meeting, University of Notre Dame August 9, 1994

What Works: Building Effective Collaborative Learning Experiences - A conference sponsored by the National Center on Postsecondary Teaching, Learning and Assessment, State College, PA, June 25 -27, 1994

How Students Learn Physics: Summary of Research and Implications for Instruction.
Chautauqua Short Course, San Diego State University, February 1993

Membership in Learned Societies and Professional Organizations

Phi Beta Kappa

Sigma Xi, Associate member

American Physical Society

American Association of Physics Teachers

Consultations, Panels and Other Professional Activities

Reviewer of proposed changes to *Physics for Scientists and Engineers* by Randall Knight, July 2006

Reviewer, for the *Universal Design for Instruction* project at the University of Connecticut, April 2001 – November 2005

Workshop Leader Allentown School District Middle School Professional Development Program (organized by Mary Byrne), 2003

Reviewer for the revision plans for the text *Physics: A Contemporary Perspective*, by Randall Knight September 1999, May 2001, 2002?, 2003?

Workshop Leader Allentown School District Middle School Professional Development Program (organized by Mary Byrne), 2003

Participant in the *Union of Concerned Scientists' Climate Science and Education Event*, organized by the Union of Concerned Scientists' Sound Science Initiative (UCS-SSI), June 27 and June 28, 1999, Washington D.C

College Service

Faculty Standing Committees

Academic Policy Committee

Fall 1990 – Spring 1993, Fall 2001 – Spring 2004, *Chair 2001-2002, Fall 2003*

Curriculum Committee

Fall 1993 – Spring 1996

Self-designed majors – one year

Faculty Evaluation Committee

Fall 2004 – Spring 2007, *Chair 2006-2007*

Faculty Personnel and Policies Committee

Fall 2009 (-*Spring 2012*)

Nominating Committee

Fall 1998 – Spring 2001, *Chair 1999-2000*

Fall 2008 (*-Spring 2011*)

Ad Hoc Committees and Special Assignments

Middle States Task Force to Review Student Support Services, January 2004 – May 2005

President's Planning Group, October 2003 – December 2004, September 2007- January 2008

Science Planning Committee, November 2002 – December 2004

Budget Advisory Committee, Fall 1999, 2000, 2001, 2002

Advisory Board for Students with Disabilities, Fall 2004 – Present

Advising and Other Service

First Year Advisor – Class of '03, '05, '06, '08, '09, '11, '12, '13

June Advisor – Class of '07, '08, '09, '10, '11, '12, '13

Faculty Secretary : Fall 2005 – Spring 2008

Major Department Observation of Student Teaching

- James Jeffers, February 2009
- Manfred Schmidt, December 2005
- Michael Gross, May 2005

President, Phi Beta Kappa, Pi Chapter of Pennsylvania Fall 1999 – Spring 2002