

## BETH A. CUNNINGHAM

### ADDRESS:

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**EDUCATION:**

May 1987	Ph.D., Physics, Kent State University, Kent, OH
August 1983	M.A., Physics, Kent State University, Kent, OH
May 1982	B.S., Physics (Magna Cum Laude), Kent State University, Kent, OH

### PROFESSIONAL EXPERIENCE:

#### Illinois Wesleyan University, Bloomington, IL

August 2006 – Present                      Provost and Dean of the Faculty and Professor of Physics

#### Bucknell University, Lewisburg, PA

August 2000 – June 2006                      Associate Dean of Faculty, College of Arts & Sciences  
September 2002 – June 2006                      Professor, Physics Department  
September 1995 - August 2002                      Associate Professor, Physics Department  
September 1989 - August 1995                      Assistant Professor, Physics Department

#### Gettysburg College, Gettysburg, PA

September 1988 - August 1989                      Assistant Professor, Physics Department

#### The Hormel Institute, University of Minnesota, Austin, MN

August 1986 - August 1988                      Postdoctoral Fellow

#### Department of Physics & The Liquid Crystal Institute, Kent State University, Kent, OH

January 1984 - June 1986                      Teaching Fellow and Research Assistant

#### American Liquid Xtal Chemical Corporation, Kent, OH

June 1983 - November 1983                      Staff Physicist

#### Department of Physics, Kent State University, Kent, OH

June 1982 - May 1983                      Graduate Teaching Assistant

### ADMINISTRATIVE EXPERIENCE:

#### Illinois Wesleyan University, Bloomington, IL

##### Provost and Dean of Faculty

##### August 2006 - present

Responsibilities include: supervising the Associate Provost, Associate Dean of the Faculty, and all academic department/program/school heads; overseeing the resources and administrative heads of the library, athletics programs, the registrar's office, and information technology;

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authorizing and recruiting new and replacement faculty members in consultation with department, program, and school heads; managing faculty resources to meet the needs of students in fulfilling program and degree requirements, including supervision of course offerings and scheduling of courses; evaluating individual faculty members in consultation with Department Chairs/School Directors and the Promotion and Tenure Committee with regard to advancement in rank, salary, and tenure; sharing with the Associate Dean of the Faculty administrative responsibilities for curricular design and the implementation of the will of the faculty in curricular matters; developing policies and planning procedures, in consultation with the Council on University Programs and Policy and the President; editing the *Faculty Handbook*; reviewing and approving operating budgets for all academic departments, programs, and schools; serving as the sexual harassment officer for the University.

### **Bucknell University, Lewisburg, PA Associate Dean of Faculty, College of Arts and Sciences August 2000 – June 2006**

Responsibilities include: design and supervise programs for faculty development in the areas of teaching, scholarship, and professional development; represent the Dean of Arts and Sciences on the Faculty Development Committee (during AY 2000-02), Faculty and Academic Personnel Committee, Committee on Academic Computing, and the Space Committee; assist faculty in applying for external grants; help administer mentoring program for junior faculty; hire and evaluate part-time and temporary faculty; assist the Dean of Arts and Sciences with merit reviews of tenured faculty; advise the Dean of Arts and Sciences in determining faculty replacement needs and costs; advise the Dean of Arts and Sciences with hiring of tenure track faculty; review academic department and interdisciplinary program capital budget requests and advise the Dean of Arts and Sciences concerning allocation of funds; and *ex officio* member of the Institutional Review Board. Special projects include: continuing conversation and development of undergraduate research in the College of Arts and Sciences; member of team developing and updating new grants webpage for faculty; search committee chair for the Director of the Center for the Study of Race, Ethnicity, and Gender during spring 2005.

### **Co-Administrator, Summer Research Program in Physics (NSF Sponsored REU Site) March 1995 – June 2006**

Responsibilities include: design advertisement for the program, coordinate faculty mentors, solicit and process applications from undergraduate science majors across the U.S., assist undergraduate participants with daily logistics during the program, update program's web page, write annual and final reports, review budget and allocate funds, and write renewal proposals. (Assisted by co-PI on the grant.)

### **Chair, Faculty and Academic Personnel Committee, Bucknell University, 1995-96.**

Responsibilities included: updating faculty on annual changes to benefits and implementing cost sharing of health care benefits, reviewing the merit system by surveying the faculty and evaluating merit distribution of tenured faculty, making recommendations to the faculty regarding allocations to merit and across-the-board portions of faculty salaries, and presenting information about these issues during university wide faculty meetings.

### **Chair, Committee on Education, American Physical Society, 2004.**

Responsibilities included: preparing for spring and fall meetings, worked with committee members and the American Physical Society Director of Education and Outreach on issues pertaining to K-16 education such as state teachers licensure issues, undergraduate physics education, pre-service teacher preparation, and graduate physics education. Worked collaboratively with American Association of Physics Teachers Committee on Undergraduate Physics Education to produce new "Guidelines for Self-Study and External Review of Undergraduate Physics Programs" published in 2005 by AAPT. Continuing work with APS COE on document about physics curriculum best practices in departments across the U.S.

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### TEACHING EXPERIENCE:

#### Department of Physics, Bucknell University, Lewisburg, PA

Faculty mentor for over 20 undergraduate research students.

Honors Thesis Advisor for Brooke Stutzman '95.

Faculty participant and course instructor in the Environmental College 1995.

Courses taught:

- Secrets of the Universe (Lecture and Laboratory) (for non-science majors)
- Introductory Astronomy laboratory (for non-science majors)
- Classical and Modern Physics I and II, Recitations and Laboratories; and Classical Mechanics Lectures (Fall 1990), Waves Lectures (Fall 1992), Particle Physics Lectures (Spring 1993 and Spring 1994), and Relativity Lectures (Fall 1993) (1<sup>st</sup> year level)
- Intermediate Physics II (sophomore level modern physics)
- Physics of Solids and Condensed Matter Physics (junior/senior level)
- Thermodynamics and Statistical Mechanics (senior level)
- Experimental Physics I and II (junior level laboratory course)
- Energy and the Environment (1<sup>st</sup> year seminar and Environmental College course)
- Eureka! The Process of Scientific Discovery (1<sup>st</sup> year seminar)
- The "Aha" of Discovery (capstone course)

#### Department of Physics, Pennsylvania State University, State College, PA

Instructor, "New World of Materials," a one week, team-taught, continuing education course for middle school and high school teachers, Summers 1999 and 2000.

#### Department of Physics, Gettysburg College, Gettysburg, PA

Courses taught:

- Introductory to Astronomy laboratory (for non-science majors)
- Modern Physics (sophomore level)
- Thermodynamics and Statistical Mechanics (senior level)

#### Department of Physics, Kent State University, Kent, OH

Courses taught:

- Introduction to Computer Hardware (1<sup>st</sup> year level)
- Introduction to Astronomy (for non-science majors)
- Computer Systems Design laboratory (senior level)

### RESEARCH EXPERIENCE:

Major Research Projects and Themes as Principal Investigator:

Effect of Monovalent Ions on Phosphatidylcholine Dispersions.

Interactive Forces Between Phospholipid Bilayers.

Effect of Sterols and Tocopherols on Phospholipid Dispersions.

Phase Behavior of Polyenoic Phospholipids.

Engineering the Lipid Membrane: Formation of Cubic Phases

Understanding Thermodynamic Principles at the Undergraduate Level Using Differential Scanning Calorimetry.

### AWARDS:

- Principal Investigator "MRI: Acquisition of a Differential Scanning Calorimeter for the Thermal Analysis of Biomaterials," submitted for review to the National Science Foundation.
- Co-Principal Investigator "Leadership Institutes" funded by the National Science Foundation (\$100,000), September 2007 – August 2010.

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- Co-Principal Investigator “Bringing a Middle Eastern Scholar to Bucknell University” submitted to CIES Fulbright Scholar-In-Residence Program (\$22,500), funded for academic year 2005-06.
- Co-Principal Investigator “Acquisition of an NMR Spectrometer for High Resolution Spectroscopy of Macromolecules” funded by the National Science Foundation (\$475,000), August 2005 – July 2008.
- Principal Investigator “Summer Research Program in Physics” (a Research Experiences for Undergraduates program) funded by the National Science Foundation for Summers 1995 -1997 (\$115,700), Summers 1998-2000 (\$134,050), and Summers 2001-2005 (\$263,600), Summers 2006-2010 (\$337,698).
- Daresbury Laboratory Synchrotron Radiation Source Beamtime Grants: December 1992, November 1993, November 1994, August 1995, March 1996, September/October 1996, August 2000, January 2002 (awarded but unable to use because of beam line reconstruction), September 2003. Each award was for 2-4 days of beam time with a value of approximately \$12,000 per day.
- Bucknell University International Research Travel Award (May 2001 – December 2003).
- Bucknell University Sabbatical 75% Salary Funding 1996-97.
- Bucknell University Scholarly Development Grant (Summer 1993, Summer 1999).
- Burroughs Wellcome Travel Award: August 1990 (\$2,355) and Fall 1991 (\$2,355).
- 1986 Kent State University Graduate Student Senate Research Award.
- Sigma Xi (National Research Society) Grant-in-Aid of Research (April 1986).

### PROFESSIONAL ACTIVITIES:

#### Major University Committees:

- Faculty and Academic Personnel Committee, Bucknell University, 1994-96, Chair 1995-96.
- University Review Committee, Bucknell University, 1998-2000.

#### Grant Reviewer:

- National Science Foundation Research Experiences for Undergraduates review panel, December 1998, December 1999 (Chair), and October 2004.
- National Science Foundation Physics Course, Curriculum, and Laboratory Improvement review panel, October 2001.
- National Science Foundation Physics & Astronomy Graduate Research Fellowship Program review panel, February 2003, February 2004, and February 2005.
- Reviewer for the Central Pennsylvania Consortium Mellon Fellowships “A New Grant Program for Recently Tenured Faculty at Dickinson, Franklin & Marshall, and Gettysburg Colleges,” Summer 2005, Summer 2006, and Summer 2007.

#### Journal Referee:

*Physical Review E, Physical Review Letters, Biochimica et Biophysica Acta, Journal of Physical Chemistry, and Journal of Colloid and Interface Science*

#### Professional Society Activities:

- Member of the Project Kaleidoscope Faculty for the 21st Century Class of '95.
- Participant in Project Kaleidoscope Leadership Institute, June 1996.
- Council on Undergraduate Research Councilor, Physics and Astronomy Division, 2000-present; responsible for the Physics and Astronomy Division's mentoring program.
- American Physical Society Committee on Education, 2002-2004, Chair during 2004.
- Member of the Committee on Liberal Arts, Council of Colleges of Arts and Sciences, 2004 – 2006.

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- Member, Project Kaleidoscope Planning Committee, “What does it mean to be liberally educated in the 21<sup>st</sup> century.” Four regional conversations held during spring 2005 sponsored by the National Science Foundation; organized the Philadelphia conversation held in April 2005 at Bryn Mawr University. Attended (by invitation) the national conversation at the National Science Foundation in June 2005.
- Presentor/Facilitator at the Project Kaleidoscope/Murdock Workshop for Department Chairs held at Northwest Nazarene University, Nampa, Idaho, November 10-11, 2005.
- Collaborator on an undergraduate research assessment project with the Society of Physics Students and American Institute of Physics. The project has been approved by the SPS Council and we have started planning a small conference and drafting proposals to be submitted to funding agencies in support of this project.

### Program Evaluator:

- National Science Foundation Committee of Visitors, Division of Physics, February 2000.
- Chair, Bucknell University Writing Center Review Committee, Fall 2000-Spring 2002.
- Committee on Substantive Change, Middle States Commission on Higher Education, 2002-2006.
- Chair, Lafayette College Physics Department Review Committee, Spring 2003.
- Member, Hobart and William Smith Colleges Science Division Review Committee, April 2004.
- Member, Eastern Illinois University Physics Department Review Committee, Spring 2005.
- Member, Denison University Physics Department Review Committee, Spring 2006.
- Reviewer, Sweet Briar College Physics Department, Spring 2006.
- Reviewer, DePauw University Physics Department, Spring 2008.

### Recent Faculty Development Workshops:

- “Making Connections with Undergraduates: Research in Physics,” B.A. Cunningham and N.B. Abraham, presented at the Project Kaleidoscope 1998 National Assembly, Chicago, IL.
- “Undergraduate Research Across the Disciplines,” S. Koutsoliotas, J. Murray, S. Morris, M. Higgins, and B. Cunningham, presented to the faculty, Bucknell University, January 2001.
- “Getting Students to Imagine Other Realities and Accept Differences,” E. Crespo, B. Cunningham, R. Gosson, and J. Hunter, presented to the faculty, Bucknell University, April 2001.
- "Show Me the Money: Writing Better Proposals," (series of workshops on grant proposal writing) A. Halpern, M. Hill, S. Penney, L. Engle, R. Rosenberg, K. Buffington, M. O'Brien, and B. Cunningham, presented to the Bucknell faculty Spring 2001, Spring 2002, Spring 2003, Spring 2004, Spring 2005, and Academic Year 2005-06.
- “Mentoring New Faculty: The First Year,” presented to the faculty at College of the Holy Cross, Worcester, MA, April 2002.
- "Institutional Review Boards (IRBs) at PUIs," A. Halpern, G. Gaffield, and B. Cunningham, presented at the 9<sup>th</sup> National CUR Conference (2002), Connecticut College, New London, CT.
- "Undergraduate Research Across the Disciplines," J. Murray and B. Cunningham, presented at the 9<sup>th</sup> National CUR Conference (2002), Connecticut College, New London, CT.
- “What Deans Can Do To Support Undergraduate Research: Deans’ Roundtable,” M. Nelson (University of Wisconsin – La Crosse), Norine Noonann (College of Charleston), M. Tannenbaum (Marist College), B. Cunningham, Neal Abraham (DePauw University), and Cora Marrett (University of Wisconsin System), presented at the 10<sup>th</sup> National CUR Conference (2004), University of Wisconsin, La Crosse, WI.

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- “Models of Successful Research in PUIs,” V. Agarwal (The College of Staten Island), P. DeYoung (Hope College), S. Padalino (State University of New York at Geneseo), and B. Cunningham, presented at the 10<sup>th</sup> National CUR Conference (2004), University of Wisconsin, La Crosse, WI.
- “Student Retention With Regards To A Changing Student Population And Diminishing Resources,” J. Hoffman (Frostburg State University), C. Herzog (Frostburg State University), R. Smith (Frostburg State University), T. Jones (Salisbury University), B. Cunningham, and G. Intemann (Towson University), presented at the 2004 Annual Meeting of the Council of Colleges of Arts and Sciences, San Antonio, TX.
- “Scholarly Strategic Planning for 1<sup>st</sup> and 2<sup>nd</sup> Year Faculty,” Rick Rosenberg, Molly O’Brien, Keith Buffinton, and Beth Cunningham, presented to the Bucknell faculty January 2005.
- “What it Means to be Liberally Educated in the Sciences in the 21<sup>st</sup> Century: Making Society More Comfortable with Science and Making Scientists More Comfortable with Society,” Laurence Peterson (Kennesaw State University), Ralph Rascati (Kennesaw State University), Beth Cunningham, and David Brakke (James Madison University), presented at the 2005 Annual Meeting of the Council of Colleges of Arts and Sciences, Vancouver, B.C.
- “Scholarly Strategic Planning for Mid-Career Faculty,” Rick Rosenberg, Molly O’Brien, Keith Buffinton, and Beth Cunningham, presented to the Bucknell faculty January 2006.
- “Conducting a Faculty Search at a Primarily Undergraduate Institution,” David McGee (Drew University), Beth Cunningham, Martin Johnston (University of St. Thomas), and Sasha Dukan (Goucher College), to be presented at the 11<sup>th</sup> National CUR Conference (2006), DePauw University, Greencastle, IN.
- “Preparing a Tenure Package at a Primarily Undergraduate Institution,” Chris Hughes (James Madison University) and Beth Cunningham, to be presented at the 11<sup>th</sup> National CUR Conference (2006), DePauw University, Greencastle, IN.

### REFEREED PUBLICATIONS (undergraduate student co-authors indicated by \*):

"The Influence of Ion Species on Phosphatidylcholine Bilayer Structure and Packing," B.A. Cunningham, J.E. Shimotake, W. Tamura-Lis, T. Mastran, W.-M. Kwok, J.W. Kauffman, and L. J. Lis, *Chem. Phys. Lipids* 39 (1986) 135-143.

"Ca<sup>2+</sup> Induced Phase Separations in Phospholipid Mixtures," W. Tamura-Lis, E.J. Reber, B.A. Cunningham, J.M. Collins, and L.J. Lis, *Chem. Phys. Lipids* 39 (1986) 119-124.

"Thiocyanate and Bromide Ions Influence the Bilayer Structural Parameters of Phosphatidylcholine Bilayers," B.A. Cunningham and L.J. Lis, *Biochim. Biophys. Acta* 861 (1986) 237-242.

"The Influence of Monovalent Anions on Dipalmitoylphosphatidylcholine Bilayer Phase Transitions: A Time Resolved X-Ray Diffraction Study," B.A. Cunningham, L.J. Lis, and P.J. Quinn, *Mol. Cryst. Liq. Cryst.* 141 (1986) 361-367.

"Time Resolved X-Ray Diffraction Measurements of Phosphatidylcholine-Phosphatidylethanolamine: Effect of Phosphatidylethanolamine Acyl Chain Length," B.A. Cunningham, W. Tamura-Lis, L.J. Lis, and P.J. Quinn, *J. Coll. Interface Sci.* 121 (1988) 193-197.

"Monovalent Ion-Phosphatidylcholine Interactions: An EPR Study", B.A. Cunningham, E. Gelerinter, and L.J. Lis, *Chem. Phys. Lipids* 46 (1988) 205-211.

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"Influence of Monovalent Cations on the Dipalmitoylphosphatidylcholine Phase Transitions," B.A. Cunningham, L.J. Lis, and P.J. Quinn, *Mol. Cryst. Liq. Cryst.* 163 (1988) 1-10.

"A Time-Resolved Study of Phase Transitions in Phosphatidylcholine-Phosphatidylethanolamine Mixtures," P.J. Quinn, L.J. Lis, and B.A. Cunningham, *J. Coll. Interface Sci.* 125 (1988) 437-443.

"Interactive Forces Between Phosphatidylcholine Bilayers in Monovalent Salt Solutions," B.A. Cunningham and L.J. Lis, *J. Coll. Interface Sci.* 128 (1989) 15-25.

"Enzymatic and Physical Characterization of Diacylglycerol-Phosphatidylcholine Interactions in Bilayers and Monolayers," B.A. Cunningham, T. Tsujita, and H.L. Brockman, *Biochemistry* 28 (1989) 32-40.

"Thermodynamic Properties of Acyl Chain and Mesophase Transitions for Phospholipids in KSCN," B.A. Cunningham, W. Tamura-Lis, L.J. Lis, and J.M. Collins, *Biochim. Biophys. Acta* 984 (1989) 109-112.

"Modulation of Phospholipid Phase Structures and Transitions Induced by Oxysterols," L.J. Lis, O. Kucuk, M.P. Westerman, W. Tamura-Lis, P.J. Quinn, B.A. Cunningham, J.M. Collins, and D.H. Wolfe, *Mol. Cryst. Liq. Cryst.* 213 (1992) 213-222.

"Phase Transitions Between Ripple Structures in Hydrated Phosphatidylcholine-Cholesterol Multilamellar Assemblies," D.H. Wolfe, L.J. Lis, O. Kucuk, M.P. Westerman, B.A. Cunningham, W. Bras, and P.J. Quinn, *Phys. Rev. Lett.* 68 (1992) 1085-1088.

"Interactive Forces Between Lipid Bilayers: An Evaluation of Relative Importance of the Various Force Components," J.M. Collins, B.A. Cunningham, D.H. Wolfe, W. Tamura-Lis, L.J. Lis, O. Kucuk, and M.P. Westerman, *J. Colloid Interface Sci.* 153 (1992) 592-595.

"Ripple Phase Stability in Lipid Systems that Form Interdigitated Bilayers," B.A. Cunningham, D.H. Wolfe, L.J. Lis, P.J. Quinn, J.M. Collins, W. Tamura-Lis, O. Kucuk, and M.P. Westerman, *Mol. Cryst. Liq. Cryst.* 225 (1993) 33-41.

"Effect of Ice on Membrane Lipid Phase Behaviour," P.W. Sanderson, W.P. Williams, B.A. Cunningham, D.H. Wolfe, and L.J. Lis, *Biochim. Biophys. Acta.* 1148 (1993) 278-284.

"Phase Behaviour of Membrane Lipids Containing Polyenoic Acyl Chains," W.P. Williams, P.W. Sanderson, B.A. Cunningham, D.H. Wolfe, and L.J. Lis, *Biochim. Biophys. Acta.* 1148 (1993) 285-290.

"Effects of Fibrinogens on Phase Transitions in Lipid Model Membrane Systems," B.A. Cunningham, O. Kucuk, H. Kwaan, M.P. Westerman, D. Tracy\*, and L.J. Lis, *Chem. Phys. Lipids*, 72 (1994) 1-6.

"Synchrotron X-ray Studies of Lipids and Membranes: A Critique," B.A. Cunningham, W. Bras, L.J. Lis, and P.J. Quinn, *J. Biochem. Biophys. Methods*, 29 (1994) 87-111.

"Real Time X-Ray Diffraction Study at Different Scan Rates of Phase Transitions for Dipalmitoylphosphatidylcholine in KSCN," B.A. Cunningham, P.J. Quinn, D.H. Wolfe, W. Tamura-Lis, L.J. Lis, O. Kucuk, and M.P. Westerman, *Biochim. Biophys. Acta* 1233 (1995) 68-74.

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"Sterols Stabilize the Ripple Phase Structure in Dihexadecylphosphatidylcholine," B.A. Cunningham, L. Midmore\*, O. Kucuk, L.J. Lis, M.P. Westerman, W. Bras, D.H. Wolfe, P.J. Quinn, and S.B. Qadri, *Biochim. Biophys. Acta* 1233 (1995) 75-83.

"A Combined SAXS/WAXS Investigation of the Phase Behaviour of Di-Polyenoic Membrane Lipids," W.P. Williams, B.A. Cunningham, D.H. Wolfe, G.E. Derbyshire, G.R. Mant, and W. Bras, *Biochim. Biophys. Acta* 1284 (1996) 86-96.

"X-ray Diffraction Study of Bilayer to Non-Bilayer Transitions in Aqueous Dispersions of Di-Polyenoic Phosphatidylethanolamines," W.P. Williams, A.P.R. Brain, B.A. Cunningham, and D.H. Wolfe, *Biochim. Biophys. Acta* 1326 (1997) 103-114.

"Transition State Thermodynamics of Lipid Bilayers Characterized by Differential Scanning Calorimetry," T. Ceckler and B.A. Cunningham, *The Chemical Educator*, 2 (1997) S1430-4171, published online.

"Ripple Phase Formation in Phosphatidylcholine: Effect of Acyl Chain Length, Position, and Unsaturation," B.A. Cunningham, A.-D. Brown\*, D.H. Wolfe, W.P. Williams, and A.P.R. Brain, *Phys. Rev. E.*, 58 (1998) 3662-3672.

"Starting an Institutional Review Board at a PUI (Primarily Undergraduate Institution)," B. Cunningham, G. Gaffield, A. Halpern, and J. Rackoff, *CUR Quarterly*, 22 (2001), 57-60.

"Phospholipid-Diacylglycerol Complexes Regulate Colipase Adsorption to Monolayers," N.K. Mizuno, J.M. Smaby, B.A. Cunningham, M.M. Momsen, and H.L. Brockman, *Langmuir*, 19 (2003) 1802-1808.

"Influence of Tocopherols on Phosphatidylcholine Polymorphic Behavior," B.A. Cunningham, A.-D. Brown\*, B. Stephen\*, O. Kucuk, P.J. Quinn, J.M. Collins, D.H. Wolfe, M.P. Westerman, and L.J. Lis, to be submitted to *Biochim. Biophys. Acta*.

"Effect of Tocopherols on the Hexagonal Phase of Phospholipids," B.A. Cunningham, K. Frato\*, D.H. Wolfe, and P.J. Quinn, in preparation.

"X-Ray Diffraction of the Ripple Phase in Phospholipids: A Review," B.A. Cunningham, D.H. Wolfe, and W.P. Williams, in preparation (to be submitted to *Journal of Physics: Condensed Matter*).

### **PRESENTATIONS (undergraduate student co-authors indicated by \*):**

77 presentations made from 1984 to 2006.

Full list available upon request.

"Ripple Phase Formation in a Phospholipids Containing Unsaturated Acyl Chains," B.A. Cunningham, presented at the Molecular Biophysics of Cellular Membranes FASEB Summer Conference (July 1996) Saxton's River, VT.

"Fun with Liquid Crystals," colloquium presented at Lycoming College (October 1996) and University of Scranton (April 1997).

"X-ray Diffraction of Biomembranes," colloquium presented at Temple University (January 1996), Indiana University of Pennsylvania (April 1996), Penn State University (Sept. 1996), Bryn Mawr University (March 1997), Lehigh University (September 1997) and Ursinus College (March 1998).

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“Ripple Phase Formation in Phosphatidylcholine: Effect of Acyl Chain Relative Length, Position, and Unsaturation,” B.A. Cunningham, A-D. Brown\*, D.H. Wolfe, A. Brain, and W.P. Williams, presented at the March meeting of the American Physical Society (1998), Los Angeles, CA.

“Calorimetry Experiments for Upper-Level Physics and Chemistry Courses,” B.A. Cunningham, T. Ceckler, M. Fogleman\*, and A. Lee\*, presented at the Central Pennsylvania American Association of Physics Teachers Annual Meeting (April 1998), Williamsport, PA.

“The Characteristics and Structure of Symmetric Long-Wavelength Ripple Formation and Evolution,” B.A. Cunningham, D.H. Wolfe, W. Patrick Williams, and A. Brain, presented at the March meeting of the American Physical Society (1999), Atlanta, GA. (Note: Also chair of the “Lipid Membranes” session .)

“Structural properties of the ripple phase formed in lipid membranes containing phospholipids with covalently attached poly(ethylene glycol),” D. Wolfe, B. Cunningham, J. Likar\*, S. Sydorko\*, and W.P. Williams, presented at the March Meeting of the American Physical Society (2000), Minneapolis, MN.

"Polymer lipids stabilize the ripple phase in lipid bilayers," B.A. Cunningham, J. Likar\*, D.H. Wolfe, and W.P. Williams, presented at the March Meeting of the American Physical Society (2001), Seattle, WA.

"Engineering the Lipid Membrane: Formation and Stabilization of Non-Lamellar Structures in Phosphatidylethanolamines," B.A. Cunningham, D.H. Wolfe, Z.J. Shiffler\*, and W.P. Williams, presented at the March Meeting of the American Physical Society (2002), Indianapolis, IN.

"Phase Structures of Phosphatidylethanolamine and Poly(ethylene glycol)-lipid Conjugates," Z.J. Shiffler\*, B.A. Cunningham, D.H. Wolfe, W.P. Williams, presented at the March Meeting of the American Physical Society (2002), Indianapolis, IN.

“Influence of Tocopherols (Vitamin E) on Model Membranes of 1-Palmitoyl, 2-Oleoyl Phosphatidylethanolamine,” B.A. Cunningham, K. Frato\*, D.H. Wolfe, Z.J. Shiffler\*, W.P. Williams, and P.J. Quinn, presented at the March Meeting of the American Physical Society (2003), Austin, TX.

“Production of Cubic Phases in Phospholipid and PEG-Lipid Mixtures,” D. Wolfe, B. Cunningham, and P. Williams, presented at the March Meeting of the American Physical Society (2004), Montreal, Canada.

“Cubic Phase Formation in Phospholipid and PEG-Lipid Mixtures,” K. Murley\*, B. Cunningham, D. Wolfe, and P. Williams, presented at the March Meeting of the American Physical Society (2005), Los Angeles, CA.

“Cubic Phase Formation in Peptide/Lipid Systems,” B. Scuffins\*, B. Cunningham, and D. Wolfe, presented at the March Meeting of the American Physical Society (2006), Baltimore, MD.

“Influence of Graduate Curriculum on Undergraduate Education,” B. Cunningham, presented at the APS-AAPT Physics Department Chairs Conference (2006) College Park, MD.