Bloomsburg University of Pennsylvania

Department of Chemistry and Biochemistry

Annual Report 2017

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Bloomsburg University of Pennsylvania

Department of Chemistry and Biochemistry

Annual Report 2017 – Table of Contents

Support Chemistry:
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Department of Chemistry and Biochemistry

Chairperson's Remarks

Greg H. Zimmerman

It's all about the students! Whether it is in the classroom or the laboratory, courses for non-science majors or student research with our faculty, the department works to give the best experiences to our students so they can have successful careers.

Our Programs

The department awards two degrees, a B.A. in Chemistry or a B.S. in Chemistry. Within, the B.S. there are tracks (sub-plans) that include "standard" chemistry, a specialization in nanotechnology, and one in biochemistry. The nanotechnology program offers students an intensive semester or summer at Penn State University taking a core of courses and working in their nanotech facility. Additionally, students' degrees may become certified by the American Chemical Society (ACS) with the completion of certain breadth and research requirements beyond those in the "standard" B.S. Also, students in the biochemistry tracks may obtain certification by the American Society of Biochemistry and Molecular Biology (ASBMB) by achieving a certain score on the ASBMB certification exam. The department also has a formal agreement with the Pennsylvania College of Osteopathic Medicine (PCOM) to offer 3-4 and 4-4 bachelors-D.O. programs. This program consists of either three or four years at Bloomsburg University followed by four years at PCOM.

In 2017 we received final approval from Middle States for our **Certificate Program in Pre-Medical Studies.** This fills a need for students that wish to change career directions to a medical field. The program gives structure and the ability to schedule courses as well as an adviser to help guide them.

Enrollments

The department serves not only our majors but also other majors in natural science, nursing and exercise science, as well as non-science majors taking general education courses. The year 2017 saw enrollments of 124 students in courses for chemistry majors, 676 students from other sciences and 1008 students in general education.

Career Day

The department hosted a panel discussion during the October 6 COST Career Day. The panelists were Jonathan Shrimp '09, a chemistry graduate who obtained his Ph. D. at Cornell University and is currently in a post-doctoral position at the National Cancer Institute; Brooke Shannon '14, a biochemistry graduate who did research with Dr. Borland and who is now in their last year of medical school at Philadelphia College of Osteopathic Medicine.

Toni Trumbo Bell, Ph.D.

Professor of Chemistry & Biochemistry

Scholarly Interests

Mild traumatic brain injury (concussion)-In a collaborative project with Dr. Joseph Hazzard of Exercise Science, we are working toward finding biomarkers for concussion in human body fluid samples. Timothy Shuey (class of 2016, now a medical student at Philadelphia College of Osteopathic Medicine) was the first students working on the project. Since then, Diane Cruz (class of 2016, now a Second Lieutenant in the United States Army) and Andrew Denisenko (class of 2017, accepted to Geisinger Commonwealth School of Medicine) have furthered the project. Cruz and Denisenko discovered a potential marker. Through meta-analysis, Alison Martin (class of 2019) discovered that women soccer players have statistically significant higher levels of the marker in saliva than men soccer players. We are preparing a manuscript for publication in a neurology journal.

Alison Martin and Christopher Holdren (graduate student in Exercise Science, class of 2018) have begun to further investigate the differences in biomarker levels between women's soccer and men's soccer players. Levels of biomarker are being correlated with scores in a balance assessment. Holdren will write up the work as his master's thesis, as well as a manuscript for publication.

Zero calorie sweeteners-Zero calorie sweeteners (ZCS) are common dietary component for Americans who wish to restrict calorie and/or carbohydrate intake while still enjoying sweet foods and beverage. It is not known how carbohydrate-based ZCS, such as sucralose or extracts of the stevia plant, interact with digestive enzymes. The first enzyme we are targeting is amylase. Amylase is secreted by saliva glands into the mouth when foods containing starch are eaten. Amylase begins the breakdown of starch into glucose. Jessica Popolow (class of 2018) and Pinkay Oscar (class of 2019) finished working out the method and began data collection for uninhibited amylse in fall 2017. In spring 2018, Oscar and Popolow will compare the behavior of amylase with only starch, versus the same reaction in the presence of sucrose and then in the presence of sucralose.

Inhibitors of blood clot formation-Inappropriate formation of blood clots results in deep venous thrombosis, heart attack, and stroke. Many former researchers have helped me in my search for orally viable blood clot inhibitors. Most recently, Morgan Lewis (class of 2017) and Hovanes Gulasarian (class of 2017) have finished developing a method for rapid and inexpensive analysis of clot formation in the presence of an inhibitor.

Education

University of Louisville, Louisville, KY, Ph.D., 2002
University of Louisville, Louisville, KY, M.S., 2001
University of Louisville, Louisville, KY, B.A., 1996

2017 Teaching

Spring: CHEM108 Physiological Chemistry lecture and lab (and lab coordinator)
CHEM442 Biochemistry 2, lecture and lab
INTSTUDY300 Pre-Medical Sciences Seminar

Fall: CHEM230 Fundamentals of Organic Chemistry lecture and lab
¼ Release time for recruitment of high school students and transfer students

Selected 2017 Service Activities

fall 2004-present	Pre-Professional Advisory Committee
fall 2004-present	Coordinator-BU Science Iditarod
spring 2004-present	ACS High School Chemistry Exam
fall 2017	Chemistry and Biochemistry Search and Screen Committee
fall 2017-present	Transfers Strategic Enrollment Planning Work Group
fall 2017	elected to serve on the Bloomsburg Town Council

Michael Gregory Borland, Ph.D.

Associate Professor of Chemistry & Biochemistry

Scholarly Interests
Skin cancer preventatives and chemotherapeutics, molecular toxicology of nuclear hormone receptors, chromatin and DNA modifications in transcriptional regulation, in vitro models of molecular toxicology and carcinogenesis, development of novel undergraduate laboratory experiences, introduction of educational technologies to chemistry/biochemistry courses.

Education
Penn State University, University Park, PA, Ph.D., Biochemistry, Microbiology & Molecular Biology, 2010
National Science Foundation Graduate Research Fellow (2006 – 2009)

Penn State University, University Park, B.S., Biochemistry & Molecular Biology, 2005
Cum Laude & Schreyer Honors Scholar

2017 Publication:
Borland, M.G., Yao, P., Kehres, E.M., Lee, C., Pritzlaff, A.M., Ola, E., Wagner, A.L., Shannon, B.E., Albrecht, P.P, Zhu, B., Kang, B., Robertson, G.P., Gonzalez, F.G., and Peters, J.M. PPARβ/δ and PPARγ inhibit melanoma tumorigenicity by modulating inflammation and apoptosis. *Toxicological Sciences*. (2017). 159(2): 436-448. PMICD: 28962521.
This was an Editor's Highlight Article.

2017 Presentations with Students
Wagner, S.W. and Borland, M.G. PPARs Modulate Estrogen-dependent Signaling and Proliferation in Human Malignant Melanoma. Spring 2017 BU Chemistry Research Day. May 5, 2017. Research Talk.

Behrent, T.D. and Borland, M.G. Characterizing peroxisome proliferator-activated receptor (PPAR)-dependent epigenetic gene regulation mechanisms in human malignant melanoma. Spring 2017 BU Chemistry Research Day. May 5, 2017. Research Talk.

Wagner, S.W., Kehres, E.M., and Borland, M.G. PPARs Modulate Estrogen-dependent Signaling and Proliferation in Human Malignant Melanoma. Spring 2017 BU College of Science & Technology (COST) Research Day. April 7, 2017. Poster Presentation.
NOTE: Shana Wagner was awarded Second Prize for Best Poster.

Behrent, T.D., Kehres, E.M., and Borland, M.G. Characterizing peroxisome proliferator-activated receptor (PPAR)-dependent epigenetic gene regulation mechanisms in human malignant melanoma. Spring 2017 BU COST Research Day. April 7, 2017. Poster Presentation.

Drumm, M.R., Wagner, A.L., Peters, J.M., Kehres, E. M., and Borland, M.G. PPARs modulate glucocorticoid-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 107, Abstract 1079. Poster at the 2017 Society of Toxicology (SOT) Conference (Baltimore) and the 2017 BU COST Research Day.
Note: Mark Drumm was awarded Honorable Mention for Best Poster at BU COST Research Day.

Burke, M.E., Shannon, B.E., Peters, J.M., Borland, M.G., and Kehres, E.M. PPARs modulate vitamin-D-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 106, Abstract 1068. Poster at the 2017 SOT Conference (Baltimore).

2017 Faculty Funding

None

2017 Faculty Mentored Funding for Students

None

2017 Teaching
Spring 2017:
Chemistry 108 – Physiological Chemistry Lecture Course #: 1618, Lab Courses #: 1617
Chemistry 341 – Biochemistry 1 Lecture Course #: 1652, Lab Course #: 1650
Chemistry 493 – Chemical Research 2 Course #: 3013

Fall 2017:
Chemistry 101 – Introductory Chemistry Course #: 1707, 1708
Chemistry 341 – Biochemistry 1 Lecture Course #: 1771 Lab Courses #:1773

2017 Service Activities
National:
Accreditation Exam Scorer, American Society for Biochemistry & Molecular Biology (ASBMB)
Accreditation Exam Question Reviewer, ASBMB
Editor & Reviewer, Journal of Toxicological Education

Bloomsburg University:
Research Coordinator, cDNA Resource Center
Member, Faculty Professional Development Committee
Member, Health Sciences Symposium Committee
Member, URSCA Awards Committee
Member, Institutional Biosafety Committee
Member, Pre-Professional Advisory Committee

Association of Pennsylvania State College & University Faculties (APSCUF)
Member & Chairperson, APSCUF Membership Committee
Appointee, University Faculty Search & Screen Policy Working Group
Member, APSCUF Mobilization Committee

Chemistry & Biochemistry Department
Coordinator, ASBMB Accreditation Program (B.S. Chemistry – Biochemistry Option)
Chair, Department Search & Screen Committee

Member, Department Curriculum Committee
Library Liaison

2017 Professional Memberships
American Society for Biochemistry & Molecular Biology
Society of Toxicology
American Chemical Society
Association for Pennsylvania State College & University Faculties

Christopher P. Hallen, Ph.D.

Professor of Chemistry and Biochemistry

Education

University of New Hampshire, Durham, NH, Ph.D., Chemistry, 1986
Assumption College, Worcester, MA, A.B., Chemistry, 1980

2016-7 Presentations

Eric Thompson*, Christopher P. Hallen, Cynthia Venn, "(Paper 29-6) Determination of Water Quality of Natural Water Sources in State Parks Around the Susquehanna River Valley", 50th North Central Section, Geological Society of American, Indianapolis, IN, April 18-19, 2016.

Laura M. Sitler*, Christopher P. Hallen, "Whose Electrolytes Were These: A Water Quality Survey of the Towanda Creek Watershed, Bradford County, PA", Susquehanna Valley Research Symposium, Danville, PA July 27, 2016.

Daniel J. Steinhauser*, Eric Franz*, Cynthia Venn, and Christopher P. Hallen, "(Paper 47-6) Are There Effects of Hydraulic Fracturing on Crystal Lake in Lycoming County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

RJ Sullivan*, Lucas J. Wessner*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-2) A Geochemical Analysis of Residential Water Wells in Columbia County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

Matthew A. Brauckmann*, Dereck T. Ciecierski*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-4 Geochemical Analysis of Fishing Creek in Columbia County, PA), Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

James M. Adams*, Nathan S. Shapiro*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-17) An Ongoing Assessment of Scarlift 15 Abandoned Mine Drainage Remediation System, Ranshaw (Northumberland County) PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

Mitchell R. Lenker*, David Hooker*, Cynthia Venn, Christopher P. Hallen, "(paper 62-8) Inorganic Geochemical Analysis of the Water Quality of Catfish Bog at Crystal Lake Camps, Lycoming County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

Lauren J Barrett*, Christopher P. Hallen, "Assessment of Passive AMD Treatment Systems in Schuylkill County, Pennsylvania", 11th Susquehanna River Symposium, Bucknell University, Lewisburg, PA, November 11-12, 2017.

2016-7 Funding

Degenstein Foundation via Susquehanna River Heartland Coalition for Environmental Studies, co-PI, awarded April 2016, $25,000

Degenstein Foundation via Susquehanna River Heartland Coalition for Environmental Studies, co-PI, awarded April 2017, $25,000

2017 Teaching

Spring: Introductory Chemistry Lecture Course # 1605 & 1606
Instrumental Analytical Chemistry Lecture Course # 1648, Lab # 1647
Summer: Chemistry for Sciences 1 Lab # 1305 & 1306
Fall: Chemistry for Sciences 2 Lecture Course # 1740, Lab #1741
Analytical Chemistry 1 Lecture Course # 1761, Lab # 1762

2017 Service Activities

APSCUF Negotiations team
APSCUF Mobilization Committee
Treasurer, APSCUF
APSCUF Budget Committee
APSCUF Investment Committee
APSCUF CAP Committee
BU APSCUF Executive Committee
BU APSCUF CAP Committee - Chair
Delegate to APSCUF Legislative Assembly
COST PEG Reviewer

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Eric J. Hawrelak, Ph.D.

Associate Professor of Chemistry and Biochemistry

Education

Virginia Polytechnic Institute & State University, Blacksburg, VA, Ph.D., Chemistry, 2002

University of Kentucky, Lexington, KY, M.S., Chemistry, 1998
Hamilton College, Clinton, NY, B.A., Chemistry, 1995

2017 Presentations

Olivia Fry and Hawrelak E.J. "Comparative Study of the Cyclotrimerization Reaction Using a Substituted and Unsubstituted Cobalt Catalyst," 253th American Chemical Society National Meeting, San Francisco, CA, March 2017.

2017 Teaching

Spring: Chemistry for the Sciences 2, Lecture course #: 1638 Lab course #: 1636 & 1637
Inorganic Chemistry, Lecture course #: 1645
Chemical Research 2, Course #: 2989
Fall: Chemistry for the Sciences 1, Lecture course #: 2907 Lab course #: 2902, 2903 & 2906
Chemical Research 1, Course #: 3039

2017 Service Activities

APSCUF Vice President
APSCUF Mobilization Committee
APSCUF PR Committee
APSCUF Audit Committee
APSCUF Budget Committee
Delegate to Legislative Assembly
Columbia Montour Boy Scout Chemistry Merit Badge Counselor
Chemistry Demonstration Show Memorial Elementary School, Bloomsburg
Chemistry Demonstration/Student Experiment Classroom Visit, Central Columbia Elementary, Bloomsburg
BU Chemistry Club Faculty Advisor
Chemistry & Biochemistry Evaluation Committee, Chairperson
Chemistry & Biochemistry Search and Screen Committee

Ellen M. Kehres, Ph.D.

Assistant Professor of Chemistry & Biochemistry

Scholarly Interests
Investigating the biochemical functions of the peroxisome proliferator-activated receptors (PPARs) in skin cancers by examining the possibility and mechanism in which PPAR expression and/or modulators (agonists/antagonists) can be can be combined with other known melanoma therapeutics as part of future chemotherapeutics.

Education
Penn State University, State College, PA, Ph.D., Chemistry, 2004
Mansfield University of Pennsylvania, Mansfield, PA, B.S., Chemistry, Minor in Mathematics 2000
Summa Cum Laude

2017 Publication:
Borland, M.G., Yao, P., Kehres, E.M., Lee, C., Pritzlaff, A.M., Ola, E., Wagner, A.L., Shannon, B.E., Albrecht, P.P, Zhu, B., Kang, B., Robertson, G.P., Gonzalez, F.G., and Peters, J.M. PPARβ/δ and PPARγ inhibit melanoma tumorigenicity by modulating inflammation and apoptosis. *Toxicological Sciences*. (2017). 159(2): 436-448. PMICD: 28962521.
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2017 Presentations with Students
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Behrent, T.D., Kehres, E.M., and Borland, M.G. Characterizing peroxisome proliferator-activated receptor (PPAR)-dependent epigenetic gene regulation mechanisms in human malignant melanoma. Spring 2017 BU COST Research Day. April 7, 2017. Poster Presentation.

Drumm, M.R., Wagner, A.L., Peters, J.M., Kehres, E. M., and Borland, M.G. PPARs modulate glucocorticoid-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 107, Abstract 1079. Poster at the 2017 Society of Toxicology (SOT) Conference (Baltimore) and the 2017 BU COST Research Day.
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Burke, M.E., Shannon, B.E., Peters, J.M., Borland, M.G., and Kehres, E.M. PPARs modulate vitamin-D-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 106, Abstract 1068. Poster at the 2017 SOT Conference (Baltimore).

2017 Teaching

Spring: Chemistry 108 – Physiological Chemistry Lecture Course #: 1611; Lab Course #: 1610
Chemistry 341 – Biochemistry I Lab Course #: 1651
Fall: Chemistry 115 – Chemistry for the Sciences I Lecture Course #: 1725 Lab Course #: 1728
Chemistry 341 – Biochemistry I Lab Course #: 1772

2017 Service Activities

Research Coordinator, cDNA Resource Center
COST (College of Science and Technology) Communication Director
Search and Screen Committee – Department of Chemistry
APSCUF – elected Public Relations Committee
Curriculum Committee – Department of Chemistry
Sabbatical Committee – Department of Chemistry
Space Renovation Committee – Department of Chemistry
Placement Exam Committee – Department of Chemistry

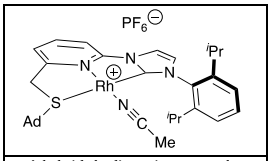
2017 Professional Memberships

American Chemical Society
Association for Pennsylvania State College & University Faculties

Philip L. Osburn, Ph.D.

Associate Professor of Chemistry & Biochemistry

Scholarly Interests



A hybrid rhodium pincer complex that effectively catalyzes transfer hydrogenation.

A major focus of our research program is the development of new organometallic catalysts designed to exhibit a phenomenon called *metal-ligand cooperativity* (MLC). Specifically, my group has recently completed the synthesis of a new class of organic molecules, *pincer ligands*, which display unique MLC effects upon binding to several catalytically important transition metals: palladium (Pd), nickel (Ni), and rhodium (Rh, shown at left). These novel complexes are active catalysts in several key reactions used in fine chemical, pharmaceutical, and agrochemical production. Our current work in this area is directed at: (1) expanding the scope of catalytic applications using our complexes; (2) expanding the current ligand family by synthesizing derivatives with different metal-binding properties; and (3) investigation of the binding of the pincer ligands to other metals, specifically those metals which are cheaper and more readily available alternative catalysts (manganese, iron, and cobalt).

Recent student presentations:

Relative Reactivity of a Series of SNC-Rh(I) and Ir(I) Pincer Complexes in Catalytic Transfer Hydrogenation and Arene Borylation Philip L. Osburn, Kelly N. Barko*; 253rd National Meeting of the American Chemical Society, San Francisco, CA, April **2017**

Rhodium(I) Complexes of a Pincer Ligand Bearing Thioether and N-Heterocyclic Carbene Donors: Catalytic Activity in Transfer Hydrogenation Philip L. Osburn, Teresa A. Grimes*; 249th National Meeting of the American Chemical Society, Denver, CO, March **2015**

Education

Alexander von Humboldt Postdoctoral Fellow, FAU Erlangen-Nürnberg, Erlangen, Germany (2001-2002)
NSF Graduate Research Fellow, Texas A&M University, College Station, TX (Ph.D., 2001)
University of Tennessee at Martin, Martin, TN (B.S., 1996)

2017 Teaching

Spring:	Chemistry 232 – Organic Chemistry 2 Lecture & Lab Courses
	Chemistry 333 – Advanced Organic Chemistry Lecture
Summer:	Chemistry 492 – Chemical Research 1(2 sections)
Fall:	Chemistry 231 – Organic Chemistry 1 Lecture & Lab Courses
	Chemistry 492 – Chemical Research 1(1 section)
	Chemistry 493 – Chemical Research 2 (2 sections)

2017 Service Activities

Responsible for review and revision of the Organic Chemistry lecture and laboratory curriculum
Department of Chemistry & Biochemistry Search and Screen Committee
COST PEG Committee
University-Wide Promotion Committee

Matthew J. Polinski, Ph.D.

Assistant Professor of Chemistry & Biochemistry

Scholarly Interests

My research is in the area of synthetic solid state inorganic chemistry, which bridges between physical, inorganic, engineering, and materials science. Our primary focus is to expand upon the fundamental chemistry of the *f*-elements (particularly the Lanthanides). We are interested in designing new synthetic techniques to produce functional materials for a wide array of uses as well as to produce complexes in which the metal is in an unusual oxidation state. We strive to produce these complexes so that they are both air and water stable as this adds to their potential usefulness as functional materials.

Academic Year 2017 – 2018 Research Group
Todd Poe, Dr. Polinski, Francis Dello Buono

Education

University of Notre Dame, Notre Dame, IN, Ph.D., 2013
Washington and Jefferson College, Washington, PA, B.A., 2010

Publications

Brown, C.; Lita, A.; Tao, Y.; Peek, N.; Crosswhite, M.; Mileham, M.; Krzystek, J.; Achey, R.; Fu, R.; Bindra, J.; **Polinski, M. J**.; Wang, Y.; van de Burgt, L.; Jeffcoat, D.; Profeta, S.; Stiegman, A.; Scott, S. "Mechanism of Initiation in the Phillips Ethylene Polymerization Catalyst: Ethylene Activation by Cr(II) and the Structure of the Resulting Active Site" *ACS Catal.*, **2017**, 7, 7442-7455.

Cary, S. K.; Galley, S. S.; Marsh, M. L.; Hobart, D. L.; Baumbach, R. E.; Cross, J. N.; Stritzinger, J. T.; **Polinski, M. J**.; Maron, L.; Albrecht-Schmitt, T. E. "Incipient Class II Mixed Valency in a Plutonium Solid-State Compound" *Nature Chem*, **2017**, 9, 856-861.

Silver, M. A.; Cary, S. K.; Johnson, J. A.; Baumbach, R. E.; Arico, A. A.; Luckey, M.; Urban, M.; Wang, J. C.; **Polinski, M. J.**; Chemey, A.; Liu, G.; Chen, K-W.; Van Cleve, S. M.; Marsh, M. L.; Eaton, T. M.; van de Burgt, L.; Grey, A. L.; Hobart, D. E.; Hanson, K.; Maron, L.; Gendron, F.; Autschbach, J.; Speldrich, M.; Kogerler, P.; Yang, P.; Braley, J.; Albrecht-Schmitt, T. E. "Characterization of Berkelium(III) Dipicolinate and Borate Compounds in Solution and the Solid State" *Science*. **2016**, 353, 888.

Brown, C.; Krzystek, J.; Achey, R.; Lita, A.; Fu, R.; Meulemberg, R.; **Polinski, M. J.**; Peek, N.; Wang, Y.; van de Burgt, L.; Profesta, S.; Stiegman, A.; Scott, S. "Mechanism of Initiation in the

Phillips' Ethylene Polymerization Catalyst: Redox Processes Leading to the Active Site" *ACS Catal.*, **2015**, 5, 5574-5583.

Cary, S. K.; Vasiliu, M.; Baumach, R. E.; Stritzinger, J. T.; Green, T. D.; Diefenbach, K.; Cross, J. N.; Knappenberger, K. L.; Liu, G.; Silver, M. A.; DePrince, A. E.; **Polinski, M. J.**; Van Cleve, S. M.; House, J. H.; Kikugaqa, N.; Gallagher, A.; Arico, A. A.; Dixon, D. A.; Albrecht-Schmitt, T. E. "Emergence of Californium as the Second Transitional Element in the Actinide Series" *Nature Chem*. **2015**, 6, 6827.

Presentations

Dello Buono, F. A.; **Polinski, M. J.** "Synthetic Investigations of Metal Bromate Complexes", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2017. (Student Presentation)

Poe, T. N.; **Polinski, M. J.** "Synthesis and Analysis of Ion Exchange Capabilities in *d/f*-Heterobimetallic Cationic Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2017. (Student Presentation)

Brittain, K. L.; **Polinski, M. J.** "Synthesis and Characterization of a Trivalent Eurpoium Squarate Complex *via* an *in situ* Hydrothermal Synthesis", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Spring 2017. (Student Presentation)

Kerstetter, L.; **Polinski, M. J.** "Synthetic Investigations of Low Valent Lanthanide and Transition Metal Based Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2016. (Student Presentation)

Poe, T. N.; **Polinski, M. J.** "Hydrothermal Synthesis of Lanthanide and Tellurite Based Cationic Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2016. (Student Presentation)

Brittain, K. L.; **Polinski, M. J.** "Synthesis and Characterization of Cationic Inorganic Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Spring 2016. (Student Presentation)

Kolb, D. R.; **Polinski, M. J.** "Synthesis and Characterization of Nickel Containing Lanthanide Tellurites", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Spring 2016. (Student Presentation)

Polinski, M. J. "Synthesis and Characterization of Novel Trivalent *f*-Element Borates" Student Affiliation of the American Chemical Society 2nd Annual Winter Conference, Washington and Jefferson College, Washington, PA, February 7, 2016. (Invited Talk).

Kolb, D. R.; **Polinski, M. J.** "Ionothermal Synthesis of Tellurium Based Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2015. (Student Presentation)

Funding

M. J. Polinski (PI), "Synthetic Investigations of Low Valent Lanthanide-Based Materials Derived from *in situ* Hydrothermal Reduction", Bloomsburg University of Pennsylvania Research and Scholarship Grant, $15,000, 5/6/16.

M. J. Polinski (PI), "Rational Design of Cationic Materials for Trapping of Anionic Pollutants", NSF RUI-DMR, $146,685, 6/18 – 6/21, Submitted

2017 Teaching

Spring: Chemistry 115 – Chemistry for the Sciences I Lecture Course #: 1622 Lab Course #: 1619
Chemistry 116 – Chemistry for the Sciences 2 Lecture Course #: 1635 Lab Course #: 1633
Chemistry 493 – Chemical Research 2 Course #: 2990

Summer: Chemistry 115 – Chemistry for the Sciences I Lecture Course #: 1304

Fall: Chemistry 115 – Chemistry for the Sciences I Lecture Course #: 1713 Lab Course #: 1715
Chemistry 452 – Advanced Inorganic Chemistry Lecture Course #: 1780 Lab Course#: 1781
Chemistry 492 – Chemical Research 1 Course #: 3039
Chemistry 493 – Chemical Research 2 Course #: 3041

2017 Service Activities

Dept. of Chemistry Search and Screen Committee
Dept. of Chemistry Five Year Review Committee
Teaching and Learning Enhancement (TALE) Ambassador
Dept. of Chemistry Seminar Coordinator
University Forum Representative
General Chemistry Laboratory Coordinator
Dept. of Chemistry Curriculum Committee
Reviewer for Radiochimica Acta (Journal)
Reviewer for Inorganic Chemistry (Journal)
Reviewer for Crystal Growth and Design (Journal)

Michael Eugene Pugh, Ph.D.

Professor of Chemistry and Biochemistry

Scholarly Interests
Population genetics studies of *Thunnus* sp. tuna mtDNA, microsatellite sequence determination of bay scallops, X-Ray fluorescence of gunshot residues

Education
Arizona State University, Tempe, AZ, Ph.D. Chemistry, 1983
University of California Davis, Davis, CA, B.S. Biochemistry, 1976

2017 Sabbatical and Bloomsburg Univesrsity Research Activities
Introgression of albacore mtDNA into other tuna species- VA Institute of Marine Science, College of William and Mary and continued at Bloomsburg University

2017 Grant Submission
National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Department of Commerce FY18 Bluefin Tuna Research Program grant for $44,848.

2017 Publications
Sabbatical research manuscripts in preparation

2017 Funding
Bloomsburg University - 2016 Henry Carver Margin of Excellence Grant entitled: “Complete Mitochondrial DNA Sequencing and Analysis of Four Species of Tuna (genus *Thunnus)* ($10K funded to support 2016-2017 sabbatical at the Virginia Institute of Marine Science, College of William and Mary).

Bloomsburg University - 2016 Research and Scholarship Grant (Category B) entitled: “Complete Mitochondrial DNA Sequencing and Analysis of Four Species of Tuna (genus *Thunnus)”* ($10K funded to support 2016-2017 sabbatical at the Virginia Institute of Marine Science, College of William and Mary).

2017 Teaching
Spring: On sabbatical leave
Fall: CHEM 101, CHEM 105, CHEM 115

Mark A. Tapsak, Ph.D.

Professor of Chemistry & Biochemistry

Scholarly Interests

Dr. Tapsak is a polymer chemist, and interested in polymers used in long term implantable medical devices. He is also interested in the efficient and cost effective recycling of co-mingled plastics.

Education
University of Southern California, Los Angeles, CA, Ph.D., 1995
St. Cloud State University, St. Cloud, MN, B.E.S., 1992

2017 Publications
US 9,840,595, Silicone rubber, *issued December* **2017**.
US 9,804,114, Sensor head for use with implantable devices, *issued October* **2017**.
US 9,801,574, Techniques to improve polyurethane membranes for implantable glucose sensors, *issued October* **2017**.
US 9,597,027, Oxygen enhancing membrane systems for implantable devices, *issued March* **2017**.
US 9,532,741, Membrane for use with implantable devices, *issued January* **2017**.

2017 Presentations
"Narrowing UHMWPE Polydispersity by High Shear Polymer Modification", B.S. Patel, S.E. Shanahan, M. Janse, M.A. Tapsak, ACS Advances in Polyolefins, Santa Rosa, CA **2017**.
"Influencing UHMWPE Molecular Weight Distributions by High Shear Polymer Modification", M.A. Tapsak, 8th International UHMWPE Conference, Torino Italy, **2017**.
"UHMWPE Compounding with High Shear Polymer Modification, and Challenging Examples", M.A. Tapsak, 8th International UHMWPE Conference, Torino Italy, **2017**.

2017 Funding
None applied for, none received.

2017 Teaching
On leave during 2016-17 academic year.
Appointed to Interim Dean of the Graduate School and Sponsored Research in May 2017.

2017 Service Activities
On leave during 2016-17 academic year
Appointed to Interim Dean of the Graduate School and Sponsored Research in May 2017.

Gregory H. Zimmerman, Ph.D.

Professor of Chemistry & Biochemistry

Department Chair

Scholarly Interests

Measurement and modelling of the physical properties of aqueous electrolytes at high temperatures and pressures, with a specialty on electrical conductivity measurements using flow techniques.

Education
University of Delaware, Newark, DE, Ph.D., 1994
Millersville University, Millersville, PA, B.S.Ed., 1986

2017 Publications
Ferguson, J.; Arcis, H.; Zimmerman G. H.; Tremaine, P. R., "Ion-Pair Formation Constants of Lithium Borate and Lithium Hydroxide under Pressurized Water Nuclear Reactor Coolant Conditions" *Ind. Eng. Chem. Res.*, **2017**, 56, 8121 - 8132.

Arcis, H.; Ferguson, J. P.; Applegarth, L. M.; Zimmerman G. H.; Tremaine, P. R., "Ionization of Boric Acid in Water from 298 K to 623 K by AC Conductivity and Raman Spectroscopy" *J. Chem. Thermodynamics*, **2017**, 106, 187-198.

2017 Presentations in Collaboration with Students
"Determination of the limiting equivalent conductivity and thermodynamic equilibrium constant for the formation of $LaCl^{2+}$ ion-pairs at 25 °C using lanthanum chloride/sodium chloride mixtures", Blake Durante and Gregory Zimmerman, 253rd National Meeting of the American Chemical Society, San Francisco, CA, April 2-6, **2017**

"*An Engineer-Friendly Equation for Calculating the Ionic Mobility in Aqueous Potassium Chloride Solutions under Extreme Conditions*", Daniel J. Staros and Greg Zimmerman, 7th Annual Susquehanna Valley Undergraduate Research Symposium, Bloomsburg University, PA, August 2, **2017**.

2017 Funding Awarded to Students

Blake Durante - **U**ndergraduate **R**esearch, **S**cholarship, and **C**reative **A**ctivity, Summer 2017
Daniel Staros - **U**ndergraduate **R**esearch, **S**cholarship, and **C**reative **A**ctivity, Summer 2017
Blake Durante - **P**ersonal **E**xperience **G**rant**,** Fall 2017
Daniel Staros - **P**ersonal **E**xperience **G**rant**,** Fall 2017

2017 Teaching

Spring: Chemistry 362 – Physical Chemistry 2 Lab and Lecture
Chemistry 493 – Chemical Research 2
Fall:
Chemistry 361 – Physical Chemistry I Lab and Lecture
Chemistry 492 – Chemical Research 1

Students Helping Students

The department continued its Chemistry Consultants program where upperclass majors are hired to provide tutoring in specific freshman and sophomore classes. This along with the Chemistry Club's volunteer tutoring program provide ample outside of class help to our larger enrollment courses.

Also, the Chemistry Club has been very active doing demonstrations at schools in the area, providing socializing activities for chemistry majors, and helping the department in its student recruitment efforts.

Students at the ACS National Meeting in San Francisco

The department continued its tradition of sending students to present their research to the ACS National meeting which was held in San Francisco on April 2 - 6, 2017. Those attending (along with "friends" Millie and the "Mole Mascot") are shown below: (left to right) Kelly Barko, Shelby Coleman, Dr. Hawrelak, Blake Durante and Olivia Fry.

Graduates

Graduates May 2017

- Tyler Behrent – BS Biochemistry – He is working on his Ph.D. at the University of Pennsylvania.
- Kristi Brittain – B.S. Chemistry (ACS) - She is working as a Junior Development in chemistry at Polymeric Systems Inc.
- Daniel Callen – B.S. Chemistry – He is working on his Ph.D. at Florida State University.
- Olivia Fry – B.S. Chemistry – She is working on her Ph.D. at the University of Delaware.
- Morgan Lewis – B.S. Biochemistry – She is completing "Teach for America."
- Katherine Mullen – B.S. Biochemistry – She is currently a Preventative Search and Rescue Intern at Yosemite National Park. She then plans on coming back to PA and working as an EMT while getting her Ski Patrol Certification with the long-term goal of medical school.
- Shana Wagner – B.S. Biochemistry – She is working on her Ph.D. at the University of Pittsburgh in Biological Chemistry.

Graduates December 2017

- Blake Durante – B.S. Chemistry – He is working at Eurofins Scientific Company.
- Stephanie Celio – B.S. Chemistry

Honors and Awards

- **Todd Poe** (Class of 2018)
  Junior Chemistry Achievement Award 2017

- **Eric Hilbert** (Class of 2019)
  David Murphy Memorial Scholarship 2016

- **Kim Hollister** (Class of 2019)
  POLYED Undergraduate Award for Achievement in Organic Chemistry 2016

- **Tyler Behrent** (Class of 2017)
  ACS Outstanding Senior Award 2017
  Phi Lambda Upsilon National Chemistry Honor Society inductee 2017

- **Olivia (Fry) Bercher** (Class of 2017)
  ACS Outstanding Senior Award 2017
  ACS Undergraduate Award in Inorganic Chemistry 2017

- **Dan Callen** (Class of 2017)
  Phi Lambda Upsilon National Chemistry Honor Society inductee 2017

- **Katie Mullen** (Class of 2017)
  Phi Lambda Upsilon National Chemistry Honor Society inductee 2017
  American Institute of Chemists Foundation, Outstanding Senior Award 2017

- **Natasha Brenner** (Class of 2020)
  Freshman Chemistry Award for
  2016-17

Research and Scholarship

- Research is alive and well in the department, especially projects that involve our students. In 2017 students took research for credit eleven times.

- During the summer of 2017, Dr. Matt Polinski traveled to Florida State University, to work as part of a team, led by Dr. Thomas Albrecht-Schmitt, to conduct experiments designed to enhance the understanding of the basic chemistry of Einsteinium (Es). Very little information is known about the element Einsteinium (Es) due to its intense radioactivity, short half-life of the most stable isotope (Es-254; $t_{1/2}$ = 275.7 days), and zero natural abundance. This marked the beginning of one of the largest studies on Einsteinium in the many decades since its discovery in 1952.

- Dr. Michael Pugh finished a yearlong sabbatical project at the Virginia Institute of Marine Science of the College of William and Mary doing DNA sequencing studies of tuna populations.

- Dr. Mark Tapsak has become the Interim Assistant Vice President, Dean of Graduate Studies and Sponsored Research.

Other fruits of our labors are described in the listings below. We are particularly proud of our students and the number of presentations they have made. Through the Wayne P. Anderson Student Travel Fund and the Chemistry Club, we are able to send our students to national meetings at no cost to the student.

2017 Grants Received

- **Hallen**: Degenstein Foundation via Susquehanna River Heartland Coalition for Environmental Studies, co-PI, awarded April 2017, $25,000.

BU Undergraduate Research, Scholarship and Creative Activity Summer Stipends

- *Lauren J. Barrett*, "Assessment of Passive AMD Treatment Systems in Schuylkill County, Pennsylvania". URSCA, Mentored with Dr. Chris Hallen

- *Blake Durante*, "Determination of the limiting equivalent conductivity and thermodynamic equilibrium constant for the formation of $LaCl^{2+}$ ion-pairs at 25 °C using lanthanum chloride/ sodium chloride mixtures", URSCA/PEG. Mentored with Dr. Gregory Zimmerman

- *Daniel J. Staros*, "An Engineer-Friendly Equation for Calculating the Ionic Mobility in Aqueous Potassium Chloride Solutions under Extreme Conditions", URSCA/PEG. Mentored with Dr. Gregory Zimmerman

- *Jacob Morris*, "Synthesis and catalytic reactivity of second-generation rhodium SNC pincer complexes." URSCA. Mentored with Dr. Philip Osburn
- *Kimberley Hollister*, "Synthesis of polymer-support bidentate triazole/NHC Rh(I) and Ir(I) complexes as recyclable hydrogen transfer catalysts", PEG. Mentored with Dr. Philip Osburn

- *Alison Martin*, "Analysis of UCHL-1 as a Biochemical Marker for Determination of Mild Traumatic Brain Injury", PEG. Mentored with Dr. Toni Bell

- *Elizabeth Grego*, "Catalytic applications of novel SNS-Ru pincer complexes", URSCA. Mentored with Dr. Philip Osburn

2017 Publications

- Borland, M.G., Yao, P., Kehres, E.M., Lee, C., Pritzlaff, A.M., Ola, E., Wagner, A.L., Shannon, B.E., Albrecht, P.P, Zhu, B., Kang, B., Robertson, G.P., Gonzalez, F.G., and Peters, J.M. PPARβ/δ and PPARγ inhibit melanoma tumorigenicity by modulating inflammation and apoptosis. *Toxicological Sciences*. (2017). 159(2): 436-448. PMICD: 28962521.
  This was an Editor's Highlight Article.

- Brown, C.; Lita, A.; Tao, Y.; Peek, N.; Crosswhite, M.; Mileham, M.; Krzystek, J.; Achey, R.; Fu, R.; Bindra, J.; **Polinski, M. J**.; Wang, Y.; van de Burgt, L.; Jeffcoat, D.; Profeta, S.; Stiegman, A.; Scott,
  S. "Mechanism of Initiation in the Phillips Ethylene Polymerization Catalyst: Ethylene Activation by Cr(II) and the Structure of the Resulting Active Site" *ACS Catal.*, **2017**, 7, 7442-7455.

- Cary, S. K.; Galley, S. S.; Marsh, M. L.; Hobart, D. L.; Baumbach, R. E.; Cross, J. N.; Stritzinger, J. T.; **Polinski, M. J**.; Maron, L.; Albrecht-Schmitt, T. E. "Incipient Class II Mixed Valency in a Plutonium Solid-State Compound" *Nature Chem*, **2017**, 9, 856-861.

- US 9,840,595, Silicone rubber, *issued December* **2017**. **Tapsak, Mark**

- US 9,804,114, Sensor head for use with implantable devices, *issued October* **2017**. **Tapsak, Mark**

- US 9,801,574, Techniques to improve polyurethane membranes for implantable glucose sensors, *issued October* **2017**. **Tapsak, Mark**

- US 9,597,027, Oxygen enhancing membrane systems for implantable devices, *issued March* **2017**. **Tapsak, Mark**

- US 9,532,741, Membrane for use with implantable devices, *issued January* **2017**. **Tapsak, Mark**

- Ferguson, J.; Arcis, H.; **Zimmerman G. H.**; Tremaine, P. R., "Ion-Pair Formation Constants of Lithium Borate and Lithium Hydroxide under Pressurized Water Nuclear Reactor Coolant Conditions" *Ind. Eng. Chem. Res.*, **2017**, 56, 8121 - 8132.

- Arcis, H.; Ferguson, J. P.; Applegarth, L. M.; **Zimmerman G. H.**; Tremaine, P. R., "Ionization of Boric Acid in Water from 298 K to 623 K by AC Conductivity and Raman Spectroscopy" *J. Chem. Thermodynamics*, **2017**, 106, 187-198.

2017 Presentations

Faculty and students made a number of presentations of their research this year:

(Key: *Student* **Faculty** *Presenter)

- "Narrowing UHMWPE Polydispersity by High Shear Polymer Modification", B.S. Patel, S.E. Shanahan, M. Janse, **M.A. Tapsak**, ACS Advances in Polyolefins, Santa Rosa, CA **2017**.

- "Influencing UHMWPE Molecular Weight Distributions by High Shear Polymer Modification",
  M.A. Tapsak, 8th International UHMWPE Conference, Torino Italy, **2017**.

- "UHMWPE Compounding with High Shear Polymer Modification, and Challenging Examples",
  M.A. Tapsak, 8th International UHMWPE Conference, Torino Italy, **2017**.

At the 253rd American Chemical Society National Meeting, San Francisco, CA March 2017

- Olivia Fry and Hawrelak E.J. "Comparative Study of the Cyclotrimerization Reaction Using a Substituted and Unsubstituted Cobalt Catalyst," 253th American Chemical Society National Meeting, San Francisco, CA, March 2017.

- *Relative Reactivity of a Series of SNC-Rh(I) and Ir(I) Pincer Complexes in Catalytic Transfer Hydrogenation and Arene Borylation* Philip L. Osburn, Kelly N. Barko*; 253rd National Meeting of the American Chemical Society, San Francisco, CA, April **2017**

- *"Determination of the limiting equivalent conductivity and thermodynamic equilibrium constant for the formation of $LaCl^{2+}$ ion-pairs at 25 °C using lanthanum chloride/sodium chloride mixtures"*, Blake Durante and Gregory Zimmerman, 253rd National Meeting of the American Chemical Society, San Francisco, CA, April 2-6, **2017**

At the 2017 SOT Conference in Baltimore

- Drumm, M.R., Wagner, A.L., Peters, J.M., Kehres, E. M., and Borland, M.G. PPARs modulate glucocorticoid-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 107, Abstract 1079. Poster at the 2017 Society of Toxicology (SOT) Conference (Baltimore) and the 2017 BU COST Research Day.

- Burke, M.E., Shannon, B.E., Peters, J.M., Borland, M.G., and Kehres, E.M. PPARs modulate vitamin-D-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 106, Abstract 1068. Poster at the 2017 SOT Conference (Baltimore).

At the BU College of Science and Technology Research Day in April 2017

- Wagner, S.W., Kehres, E.M., and Borland, M.G. PPARs Modulate Estrogen-dependent Signaling and Proliferation in Human Malignant Melanoma. Spring 2017 BU College of Science & Technology (COST) Research Day. April 7, 2017. Poster Presentation.
  NOTE: Shana Wagner was awarded Second Prize for Best Poster.

- Behrent, T.D., Kehres, E.M., and Borland, M.G. Characterizing peroxisome proliferator-activated receptor (PPAR)-dependent epigenetic gene regulation mechanisms in human malignant melanoma. Spring 2017 BU COST Research Day. April 7, 2017. Poster Presentation.
- Drumm, M.R., Wagner, A.L., Peters, J.M., Kehres, E. M., and Borland, M.G. PPARs modulate glucocorticoid-dependent signaling and proliferation in human malignant melanoma. *The Toxicologist*. 156(1): Pg. 107, Abstract 1079. Poster at the 2017 Society of Toxicology (SOT) Conference (Baltimore) and the 2017 BU COST Research Day.
  Note: Mark Drumm was awarded Honorable Mention for Best Poster at BU COST Research Day.

- *Dello Buono, F. A.;* **Polinski, M. J.** "Synthetic Investigations of Metal Bromate Complexes", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2017. (Student Presentation)

- *Poe, T. N.*; **Polinski, M. J.** "Synthesis and Analysis of Ion Exchange Capabilities in *d/f*-Heterobimetallic Cationic Materials", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Fall 2017. (Student Presentation)

- *Brittain, K. L.*; **Polinski, M. J.** "Synthesis and Characterization of a Trivalent Eurpoium Squarate Complex *via* an *in situ* Hydrothermal Synthesis", College of Science and Technology Research Day, Bloomsburg University, Bloomsburg, PA, Spring 2017. (Student Presentation)

At the 11th Susquehanna River Symposium, Bucknell University, Lewisburg, PA, November 11-12, 2017

- Lauren J Barrett*, Christopher P. Hallen, "Assessment of Passive AMD Treatment Systems in Schuylkill County, Pennsylvania", 11th Susquehanna River Symposium, Bucknell University, Lewisburg, PA, November 11-12, 2017.

At the BU Department of Chemistry and Biochemistry Research Day May 5, 2017

- Wagner, S.W. and Borland, M.G. PPARs Modulate Estrogen-dependent Signaling and Proliferation in Human Malignant Melanoma. Spring 2017 BU Chemistry Research Day. May 5, 2017. Research Talk.

- Behrent, T.D. and Borland, M.G. Characterizing peroxisome proliferator-activated receptor (PPAR)-dependent epigenetic gene regulation mechanisms in human malignant melanoma. Spring 2017 BU Chemistry Research Day. May 5, 2017. Research Talk.

At the 51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 2017

- Daniel J. Steinhauser*, Eric Franz*, Cynthia Venn, and Christopher P. Hallen, "(Paper 47-6) Are There Effects of Hydraulic Fracturing on Crystal Lake in Lycoming County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

- RJ Sullivan*, Lucas J. Wessner*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-2) A Geochemical Analysis of Residential Water Wells in Columbia County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

- Matthew A. Brauckmann*, Dereck T. Ciecierski*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-4 Geochemical Analysis of Fishing Creek in Columbia County, PA), Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

- James M. Adams*, Nathan S. Shapiro*, Cynthia Venn, Christopher P. Hallen, "(Paper 62-17) An Ongoing Assessment of Scarlift 15 Abandoned Mine Drainage Remediation System, Ranshaw (Northumberland County) PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.
- Mitchell R. Lenker*, David Hooker*, Cynthia Venn, Christopher P. Hallen, "(paper 62-8) Inorganic Geochemical Analysis of the Water Quality of Catfish Bog at Crystal Lake Camps, Lycoming County, PA", Joint 52nd Northeast Annual Section/51st North-Central Annual Section, Geological Society of America, Pittsburgh, PA, March 19-21, 2017.

At the 7th Annual Susquehanna Valley Undergraduate Research Symposium, BU, August 2017

- "*An Engineer-Friendly Equation for Calculating the Ionic Mobility in Aqueous Potassium Chloride Solutions under Extreme Conditions*", Daniel J. Staros and Greg Zimmerman, 7th Annual Susquehanna Valley Undergraduate Research Symposium, Bloomsburg University, PA, August 2, **2017**.