

Curriculum Vitae for Anderson L. Marsh

Chemistry Department
Lebanon Valley College
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Annville, Pennsylvania 17003
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Education and Experience

2011 – present, Associate Professor of Chemistry, Lebanon Valley College
2005 – 2011, Assistant Professor of Chemistry, Lebanon Valley College

2003 – 2005, Postdoctoral Scholar, University of California, Berkeley and Guest Scientist,
Lawrence Berkeley National Laboratory
Advisor: Prof. Gabor A. Somorjai

2003, Ph.D. in Physical Chemistry, University of Michigan
Dissertation Title: “Mechanisms of Deep Catalytic Oxidation of Aromatic Hydrocarbons on a
Platinum Single Crystal Surface”
Dissertation Chair: Prof. John L. Gland

1999 – 2003, Guest Scientist, National Synchrotron Light Source, Brookhaven National
Laboratory
Advisor: Dr. Daniel A. Fischer

1998, ACS-certified B.S., *magna cum laude*, Honors in Chemistry, Hampden-Sydney College
Honors Thesis Title: “ESR Studies of the Thermal Polymerization of Phenylacetylene”
Honors Advisor: Prof. Herbert J. Sipe, Jr.

1997, Undergraduate Research Assistant, Los Alamos National Laboratory
Advisor: Dr. Jon R. Schoonover

Honors and Awards

Vernon and Doris Bishop Endowed Chair in Chemistry, 2015 – present
Commencement Speaker, Lebanon Valley College, May 2014
Thomas Rhys Vickroy Distinguished Teaching Award, Lebanon Valley College, 2013
E. Emmet Reid Award in Chemistry Teaching at Small Colleges, ACS Middle Atlantic, 2013
NSF IGERT Molecularly Designed Materials Program Fellowship, 1999 – 2001
Phi Beta Kappa Society
Pi Mu Epsilon Honorary Mathematics Fraternity
Outstanding Senior Chemistry Major, Hampden-Sydney College, 1998
Chi Beta Phi Honorary Scientific Fraternity
ACS Division of Analytical Chemistry Award, Hampden-Sydney College, 1997

POLYED/ACS Division of Polymer Chemistry Award, Hampden-Sydney College, 1996
CRC Press Freshman Chemistry Award, Hampden-Sydney College, 1995
Jonathan Cushing Merit Scholarship, Hampden-Sydney College, 1994 – 1998

Workshops Attended

POGIL PCL, Virginia Commonwealth University, February 2015
Caveman Chemistry, Biennial Conference on Chemical Education, August 2014
POGIL PCL, Biennial Conference on Chemical Education, August 2014
WebMO Hands-On, Biennial Conference on Chemical Education, August 2014
POGIL Northeast Regional Workshop, June 2013
ACS Leadership Institute, January 2012
Council on Undergraduate Research Proposal Writing Institute, July 2006
Lebanon Valley College Writing Workshop, May 2006

Teaching Experience

CHM 311–312: Physical Chemistry I–II
CHM 321–322: Physical Laboratory I–II
CHM 115–116: Techniques of Chemistry I–II
FYE 111: First Year Experience I
CHM 412: Advanced Physical Chemistry
CHM 490: Environmental Chemistry
CHM 510: Chemical Research
FYS 100: First Year Seminar
CHM 111–112: Principles of Chemistry I–II
CHM 113–114: Introductory Laboratory I–II
DSP 390: The Energy Colloquium

Professional Activities and Service

Co-Chair, 2017 ACS General Chemistry Paired Question Exam Committee
Program Co-Chair, ACS Division of Chemical Education, 249th National Meeting of the American Chemical Society, March 2015
Co-Organizer, Symposium on Overcoming Obstacles in Teaching Physical Chemistry, 249th National Meeting of the American Chemical Society, March 2015
Member-at-Large, Southeastern PA ACS Section, 2015 – 2017
2015 ACS General Chemistry Conceptual Exam Committee
ACS Division of Chemical Education Program Committee, 2013 – 2015
Past Chair, Southeastern PA ACS Section, 2014
Chair, Southeastern PA ACS Section, 2013
Chair-Elect, Southeastern PA ACS Section, 2012
NDSEG Fellowship Panel, 2012, 2016
Ad hoc peer reviewer for ACS PRF and NSF RUI proposals
2012 ACS First Semester General Chemistry Exam Committee
2011 ACS Full Year General Chemistry Exam Committee

NSF GRFP Panel, 2010, 2013, 2014

Webmaster, Southeastern PA ACS Section, 2008 – 2014

Member, Council on Undergraduate Research

Peer reviewed manuscripts for *ACS Applied Materials & Interfaces*, *ACS Catalysis*, *Applied Catalysis B: Environmental*, *Applied Clay Science*, *Catalysis Letters*, *The Chemical Educator*, *Chemistry of Materials*, *Journal of the American Chemical Society*, *Journal of Catalysis*, *The Journal of Chemical Education*, *Journal of Colloid and Interface Science*, *Journal of Luminescence*, *Journal of Nanoparticle Research*, *The Journal of Physical Chemistry*, *Journal of Undergraduate Chemistry Research*, *Langmuir*, *Nano Research*, *Nanoscale*, *Optical Materials*, *Physica E*, and *Solid State Sciences*

Member, Alpha Chi Sigma Fraternity

Member, American Chemical Society

Division of Chemical Education

Division of Colloid and Surface Chemistry

College and Departmental Service

EvaluationKIT Working Group, 2016 – present

Faculty Steering Committee, 2016 – 2017 (Secretary)

Secretary of the Faculty, 2016 – 2017

Chair, IDEA Task Force, 2015 – 2016

Working Group to Review Peer Institutions, 2015

Chair, Analytical Chemistry Faculty Search, 2014

Faculty Advisor, Chemistry Honor Society, 2014 – present

Faculty and Student Policies Committee, 2014 – 2016 (Secretary 2015 – 2016)

Academic Affairs Committee of the Board of Trustees, 2014 – 2016

Ad Hoc Committee on Intellectual Property Rights, 2012 – 2013

College Store Selection Committee, 2012

Institutional Research Committee, 2011 – 2013

Middle States Reaccreditation General Education Work Group, 2010 – 2011

Curriculum Committee, 2010, 2012 – 2013

Search Committee for Systems and Electronic Services Librarian, 2009

Search Committee for Assistant Dean for Student Success and Academic Advising, 2009

General Education Reform Task Force, 2007 – 2009

Writing Center Advisory Committee, 2007 – 2012

Ad Hoc Committee for General Education Assessment, 2007 – 2009

General Education Advisory Committee, 2006 – 2012

Director of the 3+2 Engineering Chemistry Track, 2005 – present

External Grants Awarded

4. 2013 – 2016, ACS Petroleum Research Fund Type UR, “Selectivity Control in Aqueous Phenol Hydrogenation Using Palladium Nanocatalysts,” \$65,000

3. 2008 – 2010, Research Corporation Cottrell College Science Award, “Elementary Photoreactions for the Synthesis of Amino Acids on a Model Interstellar Surface,” \$44,820

2. 2007 – 2010, National Science Foundation Research in Undergraduate Institutions, “Selectivity Control in Ketone Hydrogenation on Nanoscale Platinum Catalysts,” \$144,600

1. 2003 – 2005, ACS Petroleum Research Fund Type AEF, “Hydrogen Production from the Indirect and the Direct Partial Oxidation of Methane: Development of Molecular-Level Mechanisms from In-Situ Studies on Platinum Single Crystal Surfaces,” \$100,000

Internal Grants Awarded

2. 2013 – 2014, Lebanon Valley College Center for Excellence in Teaching and Learning Course Enhancement Grant, “The Development and Pilot Use of Resources to Enhance Academics & Learning (REAL),” \$2,000, Co-PI with Walter Patton

1. 2013, Lebanon Valley College Faculty Development Grant, “Attendance at the ACS National Meeting,” \$1,700

Research Students Supervised

<i>Name</i>	<i>Years in Group</i>	<i>Postgraduate Education/Status</i>
Brandon Arndt	2005 – 2006	Senior Chemist, Lancaster Laboratories
Thomas Gordon	2005 – 2007	Ph.D., Physical Chemistry, University of Pennsylvania, 2013; Postdoc, Penn State University; Chemist, Adhesives Research
Jason Navin	2005 – 2008	Ph.D., Physical Chemistry, University of Virginia, 2014
Michael Porambo	2006 – 2009	Ph.D. Physical Chemistry, University of Illinois Urbana-Champaign, 2015; National Security Analyst, Applied Physics Laboratory, Johns Hopkins University
Carrie Kauffmann	2007 – 2008	M.S., Physical Chemistry, University of Illinois Urbana-Champaign, 2011; Analytical Researcher, Battelle
Christopher Berg	2007 – 2009	Ph.D., Physical Chemistry, University of Illinois Urbana-Champaign, 2014; Defense Nuclear Facilities Safety Board
Kimberly Manbeck	2007 – 2010	M.S., Inorganic Chemistry, University of Rochester, 2013; Chemist, Houghton International
Joseph Ault	2008	
Oliver Lyons	2008 – 2009	Actuarial Intern, ACE Group
Karyn Camilo	2008 – 2009	Chemistry Technician, Exelon Corporation
Heather Howard	2008 – 2010	Masters in Child Development, University of California, Davis, 2014; Analyst, California Department of Social Services

Nathan Musselwhite	2008 – 2011	Ph.D., Physical Chemistry, University of California, Berkeley, 2015; Process Engineer, Lam Research Corporation
Ellen Adams	2009 – 2010	Physical Chemistry Ph.D. program, The Ohio State University
Michael Schmidt	2009 – 2011	Soil Science Ph.D. program, Penn State University/Cornell University
Lindsay Carl	2009 – 2012	Physical Chemistry Ph.D. program, University of California, Berkeley
Sarah Wagner	2009 – 2012	
Ciera Kalnoski	2010	
Collin Straka	2010 – 2012	Account Executive, Mindteck, Inc.
Kyle Gross	2010 – 2013	Process Chemist, OXEA Corporation
Monica Carey	2011 – 2012	Inorganic Chemistry Ph.D. program, Michigan State University
Edward “Bo” Beall	2011 – 2013	Physical Chemistry Ph.D. program, University of Pittsburgh
Jason Shay	2012 – 2013	QC Analyst, McNeil Consumer Healthcare
P. Steven Donmoyer	2014 – 2015	HPLC Chemist, Lancaster Laboratories
Joshua Kauffman	2012 – 2016	Materials Chemistry Ph.D. program, Pennsylvania State University
Jeffery Pellow	2014	Chemist, Lancaster Laboratories
Gaige Vandezande	2014	
Antoinette Issis	2015 – 2016	Chemist, ALS Oil & Gas
Nate Ginder	2015 – 2016	3-2 Dual Degree Program in Chemical Engineering, Case Western Reserve University
Nicholas Muench	2013 – present	LVC senior
Nicholas Pollak	2014 – present	LVC junior
Alex Lehman	2015 – present	LVC junior
Kristen Kelsall	2015 – present	LVC sophomore
Justin Cammarota	2015	LVC sophomore
Stephen Slimak	2016 – present	LVC sophomore
Katie Gingrich	2016 – present	LVC sophomore
Joe Olives	2016 – present	LVC sophomore
Abbey Samuelsen	2016 – present	LVC sophomore

Publications (undergraduate co-authors denoted in **bold**)

Lebanon Valley College

11. Marsh, A. L. Using NMR Spectroscopy to Elucidate the Effect of Substituents on Keto-Enol Equilibria. In *NMR Spectroscopy in the Undergraduate Curriculum*; Soulsby, D., Anna, L. J., Wallner, A. S., Eds.; ACS Symposium Series 1128; American Chemical Society: Washington, DC, 2013; pp 205–210.

10. **Weilnau, J. N.; Black, S. E.; Chehata, V. J.; Schmidt, M. P.; Holt, K. L.; Carl, L. M.; Straka, C. J.**; Marsh, A. L.; Patton, W. A.; Lappas, C. M. ZnS Nanocrystal Cytotoxicity Is Influenced by Capping Agent Chemical Structure and Duration of Time in Suspension. *J. Appl. Toxicol.* **2013**, *33*, 227–237.
9. **Manbeck, K. A.; Boaz, N. C.; Bair, N. C.; Sanders, A. M. S.**; Marsh, A. L. Substituent Effects on Keto-Enol Equilibria Using NMR Spectroscopy. *J. Chem. Educ.* **2011**, *88*, 1444–1445; **2012**, *89*, 421.
8. **Musselwhite, N. E.; Wagner, S. B.; Manbeck, K. A.; Carl, L. M.; Gross, K. M.**; Marsh, A. L. Activity and Selectivity of Colloidal Platinum Nanocatalysts for Aqueous Phase Cyclohexenone Hydrogenation. *Appl. Catal., A* **2011**, *402*, 104–109.
7. **Lyons, O. D.; Musselwhite, N. E.; Carl, L. M.; Manbeck, K. A.**; Marsh, A. L. Synthesis, Characterization, and Reaction Studies of a PVP-Capped Platinum Nanocatalyst Immobilized on Silica. *Langmuir* **2010**, *26*, 16481–16485.
6. **Manbeck, K. A.; Musselwhite, N. E.; Carl, L. M.; Kauffman, C. A.; Lyons, O. D.; Navin, J. K.**; Marsh, A. L. Factors Affecting Activity and Selectivity during Cyclohexanone Hydrogenation with Colloidal Platinum Nanocatalysts. *Appl. Catal., A* **2010**, *384*, 58–64.
5. **Kauffman, C.A.; Muza, A. M.; Porambo, M. W.**; Marsh, A. L. Use of a Commercial Silver-Silver Chloride Electrode for the Measurement of Cell Potentials to Determine Mean Ionic Activity Coefficients. *Chem. Educator* **2010**, *15*, 178–180.
4. **Porambo, M. W.; Howard, H. R.**; Marsh, A. L. Dopant Effects on the Photocatalytic Activity of Colloidal Zinc Sulfide Semiconductor Nanocrystals for the Oxidation of 2-Chlorophenol. *J. Phys. Chem. C* **2010**, *114*, 1580–1585.
3. **Gordon, T. R.**; Marsh, A. L. Temperature Dependence of the Oxidation of 2-Chlorophenol by Hydrogen Peroxide in the Presence of Goethite. *Catal. Lett.* **2009**, *132*, 349–354.
2. **Porambo, M. W.**; Marsh, A. L. Synthesis and Photoluminescent Properties of Doped ZnS Nanocrystals Capped by Poly(vinylpyrrolidone). *Opt. Mater.* **2009**, *31*, 1631–1635.
1. **Navin, J. K.**; Grass, M.; Somorjai, G. A.; Marsh, A. L. Characterization of Colloidal Platinum Nanoparticles by MALDI-TOF Mass Spectrometry. *Anal. Chem.* **2009**, *81*, 6295–6299.
*Highlighted in Perkel, J. M. Can Mass Spec Really Do That? *The Scientist* **2010**, *24*, 49.

Postdoctoral

5. Marsh, A. L.; Ribeiro, F. H.; Somorjai, G. A. Single Crystal Surfaces. In *Handbook of Heterogeneous Catalysis*, 2nd ed.; Ertl, G., Knözinger, H., Schüth, F., Weitkamp, J., Eds.; Wiley-VCH: New York, 2008; Vol. 3, p. 1259–1276.

4. Rioux, R. M.; Marsh, A. L.; Gaughn, J. S.; Somorjai, G. A. Oxidation and Reforming Reactions of CH₄ on a Stepped Pt(557) Single Crystal. *Catal. Today* **2007**, *123*, 265–275.
3. Marsh, A. L.; Becraft, K. A.; Somorjai, G. A. Methane Dissociative Adsorption on the Pt(111) Surface over the 300–500 K Temperature and 1–10 Torr Pressure Ranges. *J. Phys. Chem. B* **2005**, *109*, 13619–13622.
2. Marsh, A. L.; Somorjai, G. A. Structure, Reactivity, and Mobility of Carbonaceous Overlayers during Olefin Hydrogenation on Platinum and Rhodium Single Crystal Surfaces. *Top. Catal.* **2005**, *34*, 121–128.
1. Somorjai, G. A.; Marsh, A. L. Active Sites and States in the Heterogeneous Catalysis of Carbon-Hydrogen Bonds. *Phil. Trans. R. Soc. A* **2005**, *363*, 879–900.

Graduate

12. Burnett, D. J.; Gabelnick, A. M.; Fischer, D. A.; Marsh, A. L.; Gland, J. L. In-Situ Soft X-ray Studies of Ethylene Oxidation Mechanisms and Intermediates on the Pt(111) Surface. *J. Phys. Chem. B* **2005**, *109*, 5659–5666.
11. Burnett, D. J.; Gabelnick, A. M.; Fischer, D. A.; Marsh, A. L.; Gland, J. L. Mechanism of Acetylene Oxidation on the Pt(111) Surface using In Situ Fluorescence Yield Near-Edge Spectroscopy. *J. Catal.* **2005**, *230*, 282–290.
10. Burnett, D. J.; Capitano, A. T.; Gabelnick, A. M.; Fischer, D. A.; Marsh, A. L.; Gland, J. L. In-Situ Soft X-ray Studies of CO Oxidation on the Pt(111) Surface. *Surf. Sci.* **2004**, *564*, 29–37.
9. Burnett, D. J.; Gabelnick, A. M.; Marsh, A. L.; Lewis, H. D.; Yalisove, S. M.; Fischer, D. A.; Gland, J. L. Defect Enhanced Carbon Monoxide Oxidation at Elevated Oxygen Pressures on a Pt/Al₂O₃ Thin Film. *J. Phys. Chem. B* **2004**, *108*, 5314–5323.
8. Burnett, D. J.; Gabelnick, A. M.; Marsh, A. L.; Fischer, D. A.; Gland, J. L. Comparisons of Propylene and Propyne Catalytic Oxidation on a 100 Å Pt/Al₂O₃ Thin Film using In-Situ Soft X-ray Fluorescence Methods. *Surf. Sci.* **2004**, *553*, 1–12.
7. Marsh, A. L.; Gland, J. L. Effect of Coadsorbed Water on Deep Oxidation Mechanisms: Temperature-Programmed Reactions of Benzene and Hydroxyl on the Pt(111) Surface. *Catal. Lett.* **2004**, *93*, 165–170.
6. Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Gland, J. L. In-Situ Soft X-ray Studies of Toluene Catalytic Oxidation on the Pt(111) Surface. *J. Phys. Chem. B* **2004**, *108*, 605–611.
5. Marsh, A. L. Mechanisms of Deep Catalytic Oxidation of Aromatic Hydrocarbons on a Platinum Single Crystal Surface. Ph.D. Dissertation, University of Michigan, Ann Arbor, Michigan, 2003.

4. Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Gland, J. L. Benzene Intermediates and Mechanisms during Catalytic Oxidation on the Pt(111) Surface Using In-Situ Soft X-ray Methods. *J. Phys. Chem. B* **2003**, *107*, 12472–12479.
3. Marsh, A. L.; Gland, J. L. Mechanisms of Deep Benzene Oxidation on the Pt(111) Surface Using Temperature-Programmed Reaction Methods. *Surf. Sci.* **2003**, *536*, 145–154.
2. Evans, C. E.; Smith, A. C.; Burnett, D. J.; Marsh, A. L.; Fischer, D. A.; Gland, J. L. Polymer Conversion Measurement of Diacetylene-Containing Thin Films and Monolayers Using Soft X-ray Fluorescence Spectroscopy. *J. Phys. Chem. B* **2002**, *106*, 9036–9043.
1. Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Rasmussen, P. G.; Gland, J. L. Near Edge X-ray Absorption Fine Structure Characterization of Polymers Based on 2-Vinyl-4,5-dicyanoimidazole. *Polym. Mater. Sci. Eng.* **2001**, *84*, 1016–1017.

Undergraduate

4. Wang, H.; Aubuchon, S. R.; Thompson, D. G.; Osborn, J. C.; Marsh, A. L.; Nichols, W. R.; Schoonover, J. R.; Palmer, R. A. Temperature-Dependent Dynamic Mechanical Analysis-Fourier Transform Infrared Study of a Poly(ester urethane) Copolymer. *Macromolecules* **2002**, *35*, 8794–8801.
3. Schoonover, J. R.; Thompson, D. G.; Osborn, J. C.; Orlor, E. B.; Wroblewski, D. A.; Marsh, A. L.; Wang, H.; Palmer, R. A. Infrared Linear Dichroism Study of a Hydrolytically Degraded Poly(ester urethane). *Polym. Degrad. Stab.* **2001**, *74*, 87–96.
2. Graff, D. K.; Wroblewski, D. A.; Marsh, A. L.; Kober, E. M.; Smith, M. E.; Schoonover, J. R. Analysis of a Polyurethane Elastomer Using Thermal 2D FT-IR. *Polym. Mater. Sci. Eng.* **1998**, *78*, 24.
1. Marsh, A. L.; Schoonover, J. R. Infrared Spectroscopy of a Polyurethane Elastomer Under Thermal Stress. In *Fourier Transform Spectroscopy: Eleventh International Conference*; deHaseth, J. A., Ed.; American Institute of Physics: Woodbury, NY, 1998, p. 560–563.

Presentations

28. “Development of Physical Chemistry Guided Inquiry Activities for a Quantum First Approach.” Marsh, A. L. Presented at the 2016 Biennial Conference on Chemical Education, Greeley, CO, August 2016.
27. “Kinetic and surface analysis of active sites in the hydrogenation of phenol using palladium nanoparticles.” Marsh, A., Kauffman, J., Ginder, N., Lehman, A., Kelsall, K. Presented at the 251st National Meeting of the American Chemical Society, San Diego, CA, March 2016.

26. "The Liberal Arts and Service to Others." Marsh, A. L. Presented at the Wilson Center for Leadership in the Public Interest, Hampden–Sydney College, Hampden–Sydney, VA, November 2015.

25. "A guided inquiry experiment to determine the configuration of a polymer in aqueous solution." Marsh, A. L. Presented at the 250th National Meeting of the American Chemical Society, Boston, MA, August 2015.

24. "Effect of capping agent on the interactions of zinc sulfide nanocrystals with a model environmental surface." Schmidt, M. P.; Marsh, A. L. Presented at the 250th National Meeting of the American Chemical Society, Boston, MA, August 2015.

23. "Quantum first physical chemistry at a regional liberal arts college." Marsh, A. L. Presented at the 249th National Meeting of the American Chemical Society, Denver, CO, March 2015.

22. "Synthesis and characterization of tricarbocyanine dyes for use in physical chemistry laboratory." VandeZande, G. R.; Marsh, A. L. Presented at the 249th National Meeting of the American Chemical Society, Denver, CO, March 2015.

21. "Effect of ionic strength on the configuration of a polymer in aqueous solution." Marsh, A. L. Presented at the 2014 Biennial Conference on Chemical Education, Allendale, MI, August 2014.

20. "Integration of Nanoscience Research Projects into Teaching at a Liberal Arts College." Marsh, A. L. Presented at the 247th National Meeting of the American Chemical Society, Dallas, TX, March 2014.

*Invited as part of the Nanotechnology in Undergraduate Education and Research symposium

19. "Guided inquiry experiment for the determination of the configuration of a polymer in water." Marsh, A. L. Presented at the 246th National Meeting of the American Chemical Society, Indianapolis, IN, September 2013.

18. "Platinum and palladium nanocatalysts for aqueous phase hydrogenations." Marsh, A. L.; Shay, J. M.; Gross, K. M.; Carey, M. C.; Carl, L. M.; Musselwhite, N. M.; Manbeck, K. A. Presented at the 246th National Meeting of the American Chemical Society, Indianapolis, IN, September 2013.

17. "Surface Science at a Liberal Arts College." Marsh, A. L. Presented at the 245th National Meeting of the American Chemical Society, New Orleans, LA, April 2013.

16. "Development of a Nanoscience Research Program at a Primarily Undergraduate Institution." Marsh, A. L. Presented at the 244th National Meeting of the American Chemical Society, Philadelphia, PA, August 2012.

*Invited as part of the Nanomaterials in Undergraduate Education and Research symposium

15. "Effect of Capping Agent on Interactions of Zinc Sulfide Nanocrystals with an Aquatic Plant Species." Kulp, A. K.; Jenkins, A. L.; Carl, L. M.; Straka, C. J.; Marsh, A. L.; Urban, R. A. Presented at the 243rd National Meeting of the American Chemical Society, San Diego, CA, March 2012.

14. "Active and Selective Platinum Nanocatalysts for the Aqueous Phase Hydrogenation of Carbonyl Bonds." Musselwhite, N. E.; Manbeck, K. A.; Wagner, S. B.; Carl, L. M.; Gross, K. M.; Straka, C. J.; Marsh, A. L. Presented at the 241st National Meeting of the American Chemical Society, Anaheim, CA, March 2011.

13. "Factors Controlling Activity and Selectivity in 'Green' Chemoselective Hydrogenations using Colloidal Platinum Nanocatalysts." Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

12. "Yet Another Take on the Keto-Enol Equilibrium Experiment using NMR Spectroscopy." Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

11. "Platinum Nanocatalysts for 'Greener' Chemoselective Ketone Hydrogenations." Marsh, A. L.; Manbeck, K. A.; Musselwhite, N. E.; Lyons, O. D.; Carl, L. M. Presented at the 238th National Meeting of the American Chemical Society, Washington, DC, August 2009.

10. "Synthesis of Zinc Sulfide Nanocrystals and Their Application to Environmentally and Biologically Relevant Photoreactions." Marsh, A. L.; Porambo, M. W.; Berg, C. M.; Howard, H. R. Presented at the 237th National Meeting of the American Chemical Society, Salt Lake City, Utah, March 2009.

9. "Aqueous-Phase Hydrogenation of Ketones using Colloidal Platinum Nanocatalysts." Marsh, A. L.; Navin, J. K.; Kauffman, C. A.; Manbeck, K. A.; Porambo, M. W. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.

8. "Nanotechnology as a Topic for Teaching Freshman Writing." Marsh, A. L. Presented at the 234th National Meeting of the American Chemical Society, Boston, Massachusetts, August 2007.

7. "Size Characterization of Colloidal Metal Catalyst Nanoparticles by Matrix Assisted Laser Desorption Ionization Mass Spectrometry." Marsh, A. L.; Navin, J. K. Presented at the 232nd National Meeting of the American Chemical Society, San Francisco, California, September 2006.

*Invited as part of special symposium in honor of Gabor Somorjai

6. "High Pressure Methane Activation on Platinum Single Crystal Surfaces." Marsh, A. L.; Rioux, R. M.; Gaughn, J. S.; Somorjai, G. A. Presented at the 51st International Meeting of the American Vacuum Society, Anaheim, California, November 2004.

5. "Reactions of Benzene with Coadsorbed Oxygen and Water on the Pt(111) Surface." Marsh, A. L.; Gland, J. L. Presented at the 76th Colloid and Surface Science Symposium of the ACS Division of Colloid and Surface Chemistry, Ann Arbor, Michigan, June 2002.
4. "In Situ Characterization of Catalytic Benzene and Toluene Oxidation on the Pt(111) Surface." Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Gland, J. L. Presented at the 28th Annual Spring Symposium of the AVS Michigan Chapter, Detroit, Michigan, May 2001.
3. "Near Edge X-ray Absorption Fine Structure Characterization of Polymers Based on 2-Vinyl-4,5-dicyanoimidazole." Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Rasmussen, P. G.; Gland, J. L. Presented at the 221st National Meeting of the American Chemical Society, San Diego, California, April 2001.
2. "Characterization of a Polymerized Self-Assembled Monolayer Using NEXAFS." Marsh, A. L.; Burnett, D. J.; Fischer, D. A.; Evans, C. E.; Gland, J. L. Presented at the 47th International Meeting of the American Vacuum Society, Boston, Massachusetts, October 2000.
1. "Infrared Spectroscopy of a Polyurethane Elastomer Under Thermal Stress." Marsh, A. L.; Schoonover, J. R. Presented at the 11th International Conference on Fourier Transform Spectroscopy, Athens, Georgia, August 1997.

Student Presentations (presenters denoted in **bold**)

63. "Determination of the Kinetics of Biodiesel Formation Using ^1H NMR." **Issis, A.**; Marsh, A. Presented at the 18th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2016.
62. "A Catalytic and Surface Analysis of the Hydrogenation of Phenol Using Palladium Nanoparticles." **Kauffman, J.**; Ginder, N.; Lehman, A.; Marsh, A. Presented at the 18th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2016.
*Awarded 2nd place in Poster Session II, Group OO Chemical Sciences
61. "Synthesis of Immobilized Palladium Nanocatalysts" **Lehman, A.**; Kelsall, K.; Marsh, A. Presented at the 18th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2016.
60. "Effect of Dopant Concentration on Solar Cell Performance." **Pollak, N.**; Cammarota, J.; Marsh, A. Presented at the 18th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2016.
59. "Activity and Selectivity of PVP-Capped Palladium Nanocatalysts Immobilized on Silica Microspheres for the Hydrogenation of Phenol." **Kauffman, J. E.**; Muench, N. D.; Marsh, A. L. Presented at the 249th National Meeting of the American Chemical Society, Denver, CO, March 2015.

58. "Selective Synthesis of Ribose via the Formose Reaction under Prebiotic Conditions." **Donmoyer, P. S.**; Marsh, A. L. Presented at the 249th National Meeting of the American Chemical Society, Denver, CO, March 2015.
57. "Synthesis and Characterization of Conjugated Polymethine Dyes." **VandeZande, G.**; Marsh, A. L. Presented at the 17th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2014.
56. "Analysis of the Catalytic Activity of Immobilized Palladium PVP-Capped Nanocatalysts Supported on Silica Microspheres by the Hydrogenation of Phenol." **Kauffman, J. E.**; Muench, N. D.; Shay, J. M.; Gross, K. M.; Marsh, A. Presented at the 16th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2014.
55. "Selective Synthesis and Derivation of Ribose via the Formose Reaction." **Donmoyer, P. S.**; Marsh, A. L. Presented at the 17th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2014.
54. "Catalytic Properties of Immobilized PVP-Capped Nanocatalysts on SiO₂ Support by Aqueous Phase Hydrogenations of Phenol." **Shay, J.**; Kauffman, J.; Muench, N.; Marsh, A. Presented at the 16th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2013.
53. "The Effects of Zinc Sulfide Nanoparticles and Capping Agents on *Spirodela polyrhiza*." **Dwyer, M.**; Marsh, A. L.; Urban, R. A. Presented at the 16th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2013.
52. "Comparison of Pt and Pd Foil Surfaces for the Deep Oxidation of Nitromethane." **Beall, E. J.**; Marsh, A. L. Presented at the 244th National Meeting of the American Chemical Society, Philadelphia, PA, August 2012.
51. "Effect of Capping Agent Molecular Weight on Catalytic Activity and Selectivity of Nanoscale Palladium Catalysts for Aqueous Phase Hydrogenations." **Gross, K. M.**; Marsh, A. L. Presented at the 244th National Meeting of the American Chemical Society, Philadelphia, PA, August 2012.
50. "Quantification of Active Surface Sites on Platinum Nanocatalysts Dispersed in Aqueous Solution by Attenuated Total Reflectance Infrared Spectroscopy." **Carey, M. C.**; Manbeck, K. A.; Musselwhite, N. E.; Carl, L. M.; Gross, K. M.; Marsh, A. L. Presented at the 243rd National Meeting of the American Chemical Society, San Diego, CA, March 2012.
49. "Factors Affecting Catalytic Activity for Nitrophenol Hydrogenation on Colloidal Platinum Nanocatalysts." **Carl, L. M.**; Carey, M. C.; Kalnoski, C. E.; Marsh, A. L.; Presented at the 243rd National Meeting of the American Chemical Society, San Diego, CA, March 2012.

48. "Singlet Oxygen Production using Zinc Sulfide Semiconductor Nanocrystals." **Wagner, S. B.**; Carl, L. M.; Straka, C. J.; Schmidt, M. P.; Berg, C. M.; Marsh, A. L. Presented at the 243rd National Meeting of the American Chemical Society, San Diego, CA, March 2012.
47. "Synthesis of Biocompatible Zinc Sulfide Nanocrystals and Their Use in Photodegradations." **Carl, L. M.**; Straka, C. J.; Schmidt, M. P.; Berg, C. M.; Marsh, A. Presented at the 14th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2011.
*Awarded 2nd place in Poster Session I, Chemical Sciences 7
46. "The Effect of Zinc Sulfide Nanoparticles on *Spirodela polyrhiza*." **Kulp, A. K.**; **Jenkins, A. L.**; Carl, L. M.; Straka, C. J.; Marsh, A. L.; Urban, R. A. Presented at the 14th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2011.
45. "Enhancement of Chemoselectivity in Cinnamaldehyde Hydrogenation Using Silica-Supported Platinum Nanocatalysts." **Carey, M. C.**; Gross, K. M.; Beall, E.; Musselwhite, N. E.; Marsh, A. L. Presented at the 14th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2011.
44. "Investigation of the Chemoselective Hydrogenation of Cinnamaldehyde Utilizing a Variety of Platinum Based Catalysts." **Musselwhite, N. E.**; Gross, K. M.; Straka, C. J.; Marsh, A. L. Presented at the 241st National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
43. "Aqueous-Phase Chemoselective Hydrogenation of Cyclohexenone Using Platinum Nanocatalysts." **Wagner, S. B.**; Musselwhite, N. E.; Gross, K. M.; Straka, C. J.; Marsh, A. L. Presented at the 241st National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
42. "Reactions of Water and Acetonitrile in the Investigation of Amino Acid in Space." **Carl, L. M.**; Howard, H. R.; Marsh, A. L. Presented at the 241st National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
41. "Synthesis of Biocompatible Zinc Sulfide Nanocrystals and Their Application to Phototherapeutic Reactions." **Schmidt, M. P.**; Berg, C. M.; Marsh, A. L. Presented at the 241st National Meeting of the American Chemical Society, Anaheim, CA, March 2011.
40. "Investigation of the Chemoselective Hydrogenation of Cinnamaldehyde Utilizing a Variety of Platinum Based Catalysts." **Musselwhite, N. E.**; Gross, K. M.; Straka, C. J.; Wagner, S. B.; Marsh, A. L. Presented at the 13th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2010.
39. "Aqueous-Phase Chemoselective Hydrogenation of Cyclohexenone Using Platinum Nanocatalysts." **Wagner, S. B.**; Musselwhite, N. E.; Gross, K. M.; Straka, C. J.; Marsh, A. L.

Presented at the 13th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2010.

38. "Synthesis of Biocompatible Zinc Sulfide Nanocrystals and Their Application to Phototherapeutic Reactions." **Schmidt, M. P.**; Berg, C. M.; Marsh, A. L. Presented at the 13th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2010.

37. "Reactions of Water and Acetonitrile in the Investigation of Amino Acid in Space." **Carl, L. M.**; Howard, H. R.; Marsh, A. L. Presented at the 13th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, MD, October 2010.

36. "Temperature-programmed desorption studies of nitrile photoreactions in the synthesis of amino acids in the interstellar medium." **Adams, E. M.**; Howard, H. R.; Wagner, S. B.; Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

35. "Employment of colloidal platinum nanocatalysts in aqueous-phase chemoselective ketone hydrogenation." **Musselwhite, N. E.**; Carl, L. M.; Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

34. "Effect of reactant structure on activity and selectivity in hydrogenations using 'green' colloidal Pt nanocatalysts." **Manbeck, K. A.**; Carl, L. M.; Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

33. "Use of biocompatible zinc sulfide nanocrystals in phototherapeutic applications." **Schmidt, M. P.**; Chehata, V. J.; Domeier, P. P.; Lappas, C. M.; Marsh, A. L. Presented at the 239th National Meeting of the American Chemical Society, San Francisco, CA, March 2010.

32. "Colloidal platinum nanocatalysts as a means for aqueous-phase chemoselective ketone hydrogenation." **Musselwhite, N. E.**; Lyons, O. D.; Marsh, A. L. Presented at the 12th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2009.

*Awarded 1st place in Poster Session I, Chemical Sciences 1

31. "Temperature-programmed desorption studies of interstellar surface photoreactions for the synthesis of amino acids." **Adams, E. M.**; **Wagner, S. B.**; Porambo, M. W.; Howard, H. R.; Marsh, A. L. Presented at the 238th National Meeting of the American Chemical Society, Washington, DC, August 2009.

30. "Colloidal platinum nanocatalysts as a means for aqueous-phase chemoselective ketone hydrogenation." **Musselwhite, N. E.**; **Lyons, O. D.**; Marsh, A. L. Presented at the 238th National Meeting of the American Chemical Society, Washington, DC, August 2009.

29. "Mechanisms of 'green' ketone hydrogenations using colloidal platinum nanocatalysts." **Manbeck, K. A.; Carl, L. M.;** Marsh, A. L. Presented at the 238th National Meeting of the American Chemical Society, Washington, DC, August 2009.
28. "Synthesis of biocompatible zinc sulfide nanocrystals and their application to phototherapeutic reactions." **Schmidt, M. P.;** Berg, C. M.; Marsh, A. L. Presented at the 238th National Meeting of the American Chemical Society, Washington, DC, August 2009.
27. "Amino Acids...In...Space! Development of Temperature Programmed Desorption Instrumentation and Preliminary Surface Chemistry Experiments." **Porambo, M. W.** Presented at the 73rd Annual Intercollegiate Student Chemists Convention, Lancaster, Pennsylvania, April 2009.
26. "A 'Green' Approach to Ketone Hydrogenations using Colloidal Platinum Nanocatalysts." **Manbeck, K. A.; Musselwhite, N. E.;** Kauffman, C. A.; Lyons, O. D.; Marsh, A. L. Presented at the 11th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2008.
25. "Development of a User-Friendly Software Program for Temperature-Programmed Desorption Studies of Interstellar Chemistry." **Porambo, M. W.; Howard, H. R.;** Navin, J. K.; Marsh, A. L. Presented at the 11th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2008.
*Judged 2nd place in chemistry division
24. "Hydrogenation of Cyclohexanone By Colloidal Platinum Nanocatalysts." **Kauffman, C. A.;** Marsh, A. L. Presented at the 72nd Annual Intercollegiate Student Chemists Convention, Elizabethtown, Pennsylvania, April 2008.
*Awarded 2nd place in Physical Chemistry division
23. "Photocatalytic Degradation of 2-Chlorophenol by Undoped and Doped Zinc Sulfide Nanocrystals Capped with Poly(vinylpyrrolidone)." **Porambo, M. W.;** Marsh, Anderson L. Presented at the 72nd Annual Intercollegiate Student Chemists Convention, Elizabethtown, Pennsylvania, April 2008.
*Awarded 1st place in Physical Chemistry division
22. "Kinetic Study of the Photocatalytic Activity of Zinc Sulfide Nanocrystals Capped by Amino Acids." **Berg, C. M.;** Marsh, A. L. Presented at the 72nd Annual Intercollegiate Student Chemists Convention, Elizabethtown, Pennsylvania, April 2008.
21. "Synthesis, characterization, and photocatalytic activity of zinc sulfide nanocrystals capped by amino acids." **Berg, C. M.;** Marsh, A. L. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.
20. "Photocatalytic degradation of 2-chlorophenol by undoped and doped colloidal zinc sulfide nanocrystals." **Porambo, M. W.;** Marsh, A. L. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.

19. "Mechanistic insights into ketone hydrogenation from studies using model platinum nanocatalysts." **Navin, J. K.**; Marsh, A. L. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.
18. "Chemoselective hydrogenation of cyclic ketones by colloidal platinum nanocatalysts." **Kauffman, C. A.**; Marsh, A. L. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.
17. "Effect of capping agent on cyclohexanone hydrogenation using colloidal Pt nanocatalysts." **Manbeck, K. A.**; Kauffman, C. A.; Navin, J. K.; Marsh, A. L. Presented at the 235th National Meeting of the American Chemical Society, New Orleans, Louisiana, April 2008.
16. "Synthesis, Characterization, and Photocatalytic Activity of Zinc Sulfide Nanocrystals Capped by Amino Acids." **Berg, C. M.**; Marsh, A. L. Presented at the 2nd Annual Undergraduate Poster Competition in Nanoscience at Ohio University, Athens, Ohio, November 2007.
15. "Photocatalytic Degradation of 2-Chlorophenol by Undoped and Doped Zinc Sulfide Nanocrystals Capped with Poly(vinylpyrrolidone)." **Porambo, M. W.**; Marsh, A. L. Presented at the 10th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2007.
14. "Synthesis, Characterization, and Photocatalytic Activity of Zinc Sulfide Nanocrystals Capped by Amino Acids." **Berg, C. M.**; Marsh, A. L. Presented at the 10th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2007.
13. "Hydrogenation of Cyclohexanone by Colloidal Platinum Nanocatalysts." **Kauffman, C. A.**; Navin, J. K.; Manbeck, K. A.; Marsh, A. L. Presented at the 10th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2007.
12. "Nanotechnology Meets Green Chemistry: Aqueous-Phase Hydrogenation of Ketones using Nanoscale Platinum Catalysts." **Navin, J. K.**; **Kauffman, C. A.**; Marsh, A. L. Presented Undergraduate Research at the Capitol—Pennsylvania, Harrisburg, Pennsylvania, October 2007.
11. "Synthesis and Photoluminescent Properties of Doped ZnS Nanocrystals Capped by Poly(vinylpyrrolidone)." **Porambo, M. W.**; Marsh, A. L. Presented at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2006.
10. "Role of the Dissolution of Iron Species in the Aqueous Phase Oxidation of 2-Chlorophenol by Goethite." **Gordon, T. R.**; Marsh, A. L. Presented at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2006.
*Awarded 2nd place in Poster Session I, Chemical Sciences 4

9. "Hydrogenation of Cyclohexanone by Colloidal Platinum Nanocatalysts." **Navin, J. K.;** Marsh, A. L. Presented at the 9th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2006.
8. "Synthesis and Photoluminescent Properties of Doped ZnS Nanocrystals Capped by Poly(vinylpyrrolidone)." **Porambo, M. W.;** Marsh, A. L. Presented at the 232nd Northeast Regional Meeting of the American Chemical Society, Binghamton, New York, October 2006.
7. "Temperature dependence of the oxidation of 2-chlorophenol at the water-goethite interface." **Gordon, T. R.;** Marsh, A. L. Presented at the 232nd National Meeting of the American Chemical Society, San Francisco, California, September 2006.
*Winner Student Poster Award in Colloid and Surface Chemistry Division
6. "Determination of the size of polymer-coated metallic nanoparticles by MALDI-MS." **Navin, J. K.;** Marsh, A. L. Presented at the 232nd National Meeting of the American Chemical Society, San Francisco, California, September 2006.
5. "Temperature Dependence of the Aqueous Phase Oxidation of 2-Chlorophenol by Goethite." **Gordon, T. R.;** Marsh, A. L. Presented at the 38th Middle Atlantic Regional Meeting of the American Chemical Society, Hershey, Pennsylvania, June 2006.
4. "Determination of the Size of Polymer Encapsulated Metal Nanoparticles by Matrix Assisted Laser Desorption Ionization-Mass Spectrometry." **Navin, J. K.;** Marsh, A. L. Presented at the 38th Middle Atlantic Regional Meeting of the American Chemical Society, Hershey, Pennsylvania, June 2006.
3. "Temperature Dependence of the Aqueous Phase Oxidation of 2-Chlorophenol by Goethite." **Gordon, T. R.;** Marsh, A. L. Presented at the 70th Annual Intercollegiate Student Chemists Convention, Collegeville, Pennsylvania, April 2006.
2. "Temperature Dependence of the Aqueous Phase Oxidation of 2-Chlorophenol by Goethite." **Gordon, T. R.;** Marsh, A. L. Presented at the 8th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2005.
*Awarded 1st place in Poster Session II, Chemical Sciences 5
1. "Determination of the Size of Polymer-Coated Metallic Nanoparticles by MALDI-MS." **Navin, J. K.;** Marsh, A. L. Presented at the 8th Annual Undergraduate Research Symposium in the Chemical and Biological Sciences, Baltimore, Maryland, October 2005.
*Awarded 2nd place in Poster Session I, Chemical Sciences 3