

ALEXA BARNOSKI SERFIS

Curriculum Vitae

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EDUCATION

Rensselaer Polytechnic Institute, Troy, New York
Ph.D. in Chemistry (Physical), 1994
M.S. in Chemistry, 1992
Thesis Advisor: Gerald M. Korenowski
State University College, Oneonta, New York
B.S. in Chemistry, 1988

PROFESSIONAL EXPERIENCE

Associate Dean for Student Affairs, The Graduate School, Saint Louis University, August 2009-present
Interim Director of Advising for the Medical Center, Saint Louis University, September 2008-July 2009
Director, Pre-Professional Health Studies, Saint Louis University, July 2006-July 2009
Professor of Chemistry, Saint Louis University, July 2006-present

Associate Professor of Chemistry, Saint Louis University, July 2000-June 2006
Assistant Professor of Chemistry, Saint Louis University, August 1994-June 2000
Visiting Scientist, Rensselaer Polytechnic Institute, May 1996-June 1996
Research Assistant, Rensselaer Polytechnic Institute, 1991-1994
Teaching Assistant, Rensselaer Polytechnic Institute, 1989-1991

AWARDS

Summa Cum Laude, State University of New York, College at Oneonta

American Institute of Chemists Outstanding Senior Award, 1988,
State University of New York, College at Oneonta

Citation for Excellence in Research, presented by the President of Saint Louis University
on April 25, 1997

Outstanding Advisor Award, Saint Louis University College of Arts and Sciences, 2001

Finalist, Avis E. Meyer Outstanding Advisor Award, Saint Louis University, 2004

Excellence in Teaching Award, College of Arts and Sciences, Saint Louis University, 2005

Faculty Award for Excellence in Service to Undergraduate Students, College of Arts and Sciences,
Saint Louis University, 2007

PROFESSIONAL AFFILIATIONS

American Chemical Society, Association for Women in Science, Sigma Xi,
National Association of Advisors of Pre-Health Professions

PUBLICATIONS

Research Papers Published at Rensselaer Polytechnic Institute

A.A. Barnoski, G.S. Frysinger, G.L. Gaines, Jr., and G.M. Korenowski, "Macroscopic and Microscopic Surface Characterization of a Vitamin K Monolayer on Water", *Colloids and Surfaces*, 88, **1994**, 123-128.

G.S. Frysinger, A.A. Barnoski, G.L. Gaines, Jr., and G.M. Korenowski, "Molecular Arrangement of a poly(acrylonitrile-co-4-vinyl pyridine) Monolayer on Water", *Langmuir*, 10, **1994**, 2277-2280.

A.A. Barnoski, G.L. Gaines, Jr., and G.M. Korenowski, "The Molecular Arrangement of a Vitamin K Monolayer at the Air-Water Interface", *Colloids and Surfaces*, 94, **1995**, 59-65.

Research Papers Published at Saint Louis University

(* indicates undergraduate and **indicates graduate SLU student co-authors)

Alexa Serfis and Amit Doshi*, "The Effects of Electrolyte and Polymer Addition on the Stability of Metal Colloids", *Proceedings of the Tenth National Conference on Undergraduate Research*, **1996**, 1704-1708.

Alexa Serfis and Rebecca Katzenberger*, "A Comparison of the Behavior of Vitamin K₁ and K₂ Monolayers at the Air-Water Interface", *Colloids and Surfaces*, 138, **1998**, 91-95.

Alexa Serfis and Kristi Williams*, "Penetration of Factors I and VII into Phospholipid Monolayers on Water," *Proceedings of the Thirteenth National Conference on Undergraduate Research*, **1999**, 1436-1440.

Alexa Barnoski Serfis, Rebecca Katzenberger**, Kristi Williams*, and Ngoc Tran**, "Association of Blood Clotting Factors I and VII with Phospholipid Monolayers at the Air-Water Interface," *Journal of Colloid and Interface Science*, 215 **1999**, 356-363.

Alexa Barnoski Serfis and Rebecca Katzenberger*, "Formation and Orientation Studies of a Z-Type Polymeric Langmuir-Blodgett Film," *Journal of Colloid and Interface Science*, 220, **1999**, 1-5.

Ngoc Tran**, Alexa Barnoski Serfis, Rebecca Davis, John C. Osiecki, Lisette Coye**, Wendy L. Picking, and William Picking, "Interaction of *Shigella flexneri* IpaC with Phospholipid Model Membranes Correlates with IpaC Effects on Cultured Cells," *Infection and Immunity*, 68, **2000**, 3710-3715 .

Sam Brancato* and Alexa Barnoski Serfis, "Incorporation of Blood Clotting Proteins in Phospholipid Langmuir Monolayers: A Fluorescence Microscopy Study," *Journal of Colloid and Interface Science*, 239, **2001**, 139-144.

Wendy L. Picking, , Lisette Coye**, John C. Osiecki, Alexa Barnoski Serfis, and William D. Picking, "Identification of Functional Domains Within Invasion Plasmid Antigen C (IpaC) of *Shigella flexneri*", *Molecular Microbiology*, 39, **2001**, 100-111.

Sam Brancato*, Alexa Barnoski Serfis, and Steven J. Fliesler, "Comparative Behavior of Sterols in Phosphatidylcholine-Sterol Monolayer Films", *Biochimica et Biophysica Acta (Biomembranes)*, 1511, **2001**, 341-348.

John C. Osiecki, Jeff Barker, Wendy L. Picking, Alexa Barnoski Serfis, Erin Berring*, Shreya Shah, Amanda Harrington, and William D. Picking, "IpaC from *Shigella* and SipC from *Salmonella* Possess Similar Biochemical Properties but are Functionally Distinct", *Molecular Microbiology*, 42, **2001**, 469-481.

Jeffrey Craft*, Kimberly Epps*, Sam Brancato*, and Alexa Serfis, "Incorporation of Blood Clotting Factor X into Phospholipid Model Membranes: Fluorescence Microscopy Imaging and Subphase Effects in the Lipid Phase Transition Region", *Journal of Colloid and Interface Science*, 268, **2003**, 181-187.

Erin Berring**, Sam Brancato*, Katherine Grant*, Elizabeth Schaper**, Sheena Kadavil*, Helen Smagin*, Safet O. Hatic II, William Picking, and Alexa Barnoski Serfis, "Destabilization of Phospholipid Model Membranes by YplA, a Phospholipase Secreted by *Yersinia enterocolitica*", *Chemistry and Physics of Lipids*, 131, **2004**, 135-149.

Erin Berring**, Kimberly Borrenpohl**, Steven J. Fliesler, and Alexa Barnoski Serfis, "A Comparison of the Behavior of Cholesterol and Selected Derivatives in Mixed Sterol-Phospholipid Langmuir Monolayers: A Fluorescence Microscopy Study", *Chemistry and Physics of Lipids*, 136, **2005**, 1-12.

Kimberly Lintker**, Peter Kpere-Daibo*, Steven Fliesler, and Alexa Serfis, "A Comparison of the Packing Behavior of Egg Phosphatidylcholine with Cholesterol and Biogenically Related Sterols in Langmuir Monolayer Films," *Chemistry and Physics of Lipids*, 161, **2009**, 22-31.

Non-Research Publications

Dhara Sheth* and Alexa Serfis, "Providing Chemistry Camaraderie", *InChemistry*, November/December **2004**. (This is the magazine of the Student Affiliates published by the American Chemical Society.)

Julia Lutovich* and Alexa Serfis, "Integrating Teaching and Research: A Worthwhile Partnership between Faculty and Undergraduate Students", Center for Teaching Excellence Newsletter, Saint Louis University, Volume 7, Issue 3, **2005**.

RESEARCH PRESENTATIONS

Selected lectures and conference presentations (24 total)

"Fluorescence Microscopy Characterization of Sterol/Phospholipid Langmuir Monolayers," presented to the Department of Chemistry, Union College, Schenectady, NY, May 15, 2003 (invited lecture).

"Surface Characterization of Sterol/Phospholipid Langmuir monolayers," presented to the Department of Chemistry, University of Missouri, Columbia, MO, April 20, 2004 (invited lecture).

"Interaction of Wild and Mutant Forms of *Yersinia enterocolitica* PLA2 with Phospholipid Model Membranes", presented at the SLU workshop entitled "Making the Link: A Faculty Forum on Undergraduate Teaching and Research" January 7, 2005 (invited poster).

“Characterization of Phospholipid and Sterol Packing in Model Membranes using the Langmuir Monolayer Technique,” presented to the Department of Chemistry, Wichita State University, February 23, 2005 (invited lecture).

“A Comparison of Langmuir Isotherms for Cholesterol and Selected Derivatives: How Does Sterol Structure Affect Packing with Phospholipids?,” presented at the Surface and Colloid Division Poster Session, National Meeting of the American Chemical Society Meeting, San Diego, CA, March 12, 2005 (contributed poster).

“Characterization of Sterol/Phospholipid and Sterol/Sphingolipid Langmuir Monolayers”, presented at the Midwest Regional Meeting of the American Chemical Society, Joplin, MO, October 28, 2005 (contributed oral).

Selected presentations given by undergraduate research students working under my direction (63 total)

Peter Kpere-Daibo, “Comparison of Sterol Behavior in Phospholipid/Sterol Langmuir Monolayers,” presented at the Undergraduate Research Poster Session, National Meeting of the American Chemical Society, New Orleans, LA, March 24, 2003 (poster).

Clinton Jokerst, “Investigation of Raft Formation in Lipid/Sterol Langmuir Monolayers,” presented at the Undergraduate Research Poster Session, National Meeting of the American Chemical Society, New Orleans, LA, March 24, 2003 (poster).

Shelly Agarwal, “Characterization of Phospholipid/Sphingomyelin/Sterol Langmuir Monolayers”, American Chemical Society National Meeting, Undergraduate Research Poster Session, Anaheim, CA March 29, 2004 (poster).

Julia Lutovich, “Interaction of Wild and Mutant Forms of Phospholipase A2 from *Yersinia enterocolitica*,” presented at the Midwest Regional Meeting of the American Chemical Society, Manhattan, Kansas, October 20, 2004 (poster).

Julia Lutovich, “Interaction of Wild and Mutant Forms of *Yersinia enterocolitica* Phospholipase A2 with Model Membranes,” presented at the Undergraduate Research Poster Session, National Meeting of the American Chemical Society, San Diego, CA March 12, 2005 (poster).

Amanda Choy, “Cholesterol/Phospholipid Mixed Langmuir Monolayers: A Fluorescence Microscopy Study,” presented at the Undergraduate Research Symposium, sponsored by the St. Louis Section of the American Chemical Society, Florissant Valley Community College, St. Louis, MO, April 30, 2005 (poster).

Laura Burkemper, “Pressure-Area Isotherms Reveal Packing Behavior of Phospholipid, Sphingolipid, and 7-Ketocholesterol in Langmuir Monolayers”, presented at the SLU Chapter of Sigma Xi Research Symposium, February 21, 2006 (poster).

Jennifer Fraser, “Fluorescence Microscopy of Phospholipid/Oxysterol Langmuir Monolayers”, presented at the SLU Chapter of Sigma Xi Research Symposium, February 21, 2006 (poster).

Jennifer Fraser, “Characterization of Langmuir Monolayers of Phospholipid and Oxysterol ”, presented at the National Meeting of the American Chemical Society, Undergraduate Research Session, Atlanta, Georgia, March 27, 2006 (poster).

Laura Burkemper, "Pressure-Area Isotherms Reveal Packing Behavior of Phospholipid, Sphingolipid, and 7-Ketocholesterol in Langmuir Monolayers", presented at the National Meeting of the American Chemical Society, Undergraduate Research Session, Atlanta, Georgia, March 27, 2006 (poster).

Amanda Choy, "Characterization of Cholesterol/Mixed Phospholipid Langmuir Monolayers", presented at the National Meeting of the American Chemical Society, Undergraduate Research Session, Atlanta, Georgia, March 27, 2006 (poster).

Jennifer Fraser, "Characterization of Langmuir Monolayers of Phospholipid and Oxysterol", presented at the Marcus Award competition, St. Louis University, April 10, 2006 (oral).

Jennifer Fraser, "Characterization of Langmuir Monolayers of Phospholipid and Oxysterol", presented at the St. Louis Section of the American Chemical Society Undergraduate Research Symposium, SLU, April 29, 2006 (oral).

Amanda Choy, "Characterization of Cholesterol/Mixed Phospholipid Langmuir Monolayers", presented at the St. Louis Section of the American Chemical Society Undergraduate Research Symposium, SLU, April 29, 2006 (poster).

Selected presentations given by graduate students working under my direction (29 total)

Erin Berring, "Characterization of Phospholipid-Sterol Mixed Langmuir Monolayers using Surface Pressure and Fluorescence Microscopy Techniques," presented at the National Meeting of the American Chemical Society, Orlando, FL, Surface and Colloid Division Poster Session, March 24, 2003 (poster).

Kimberly Borrenpohl, "Comparison of 7-Dehydrocholesterol and Desmosterol in Ternary Sterol/Phospholipid Mixed Langmuir Monolayers", presented at the National Meeting of the American Chemical Society, Anaheim CA, Surface and Colloid Division Poster Session, March 29, 2004 (poster).

Rose Rowden, "Fluorescence Microscopy Investigation of Phospholipid/Cholesterol Derivatives/Sphingomyelin Packing in Langmuir Monolayers," presented at the National Meeting of the American Chemical Society, Surface and Colloid Division Poster Session, San Diego, CA, March 12, 2005 (poster).

Laura Burkemper, "A Comparison of Cholesterol and 7-Ketocholesterol Packing Behavior in Phospholipid Monolayers at the Air-Water Interface", presented at the SLU Graduate Student Association Research Symposium March 30, 2007 (poster).

Laura Burkemper, "A Comparison of Cholesterol and 7-Ketocholesterol Packing Behavior in Phospholipid Monolayers at the Air-Water Interface", presented at the National Meeting of the American Chemical Society, Surface and Colloid Chemistry Division, Chicago, IL, March 26, 2007 (poster).

Jennifer Fraser, "Characterization of Langmuir Monolayers of Phospholipid and Oxysterol", presented at the SLU Graduate Student Association Research Symposium, March 30, 2007 (poster).

Jennifer Fraser, "Physicochemical Properties of Langmuir Monolayers Composed of Phospholipid, Sphingolipid, and Oxysterol", presented at the National Meeting of the American Chemical Society, Surface and Colloid Chemistry Division, New Orleans, LA, April 7, 2008 (poster).

Jennifer Fraser, "Physicochemical Properties of Langmuir Monolayers Composed of Phospholipid, Sphingolipid, and Oxysterol", presented at the SLU Graduate Student Association Research Symposium, April 18, 2008 (poster).

INTERNAL RESEARCH SUPPORT

“Optical Characterization of New Biological and Polymeric Thin Films”

Summer Research Award, July 1, 1995-October 1, 1995. The total dollar amount of this award was \$6,148 including student and faculty stipends, student tuition, and supplies.

“Optical Characterization of Selected Organic Thin Solid Films”

Beaumont Faculty Development Fund, July 1, 1995-December 31, 1995. The award was for \$3,000 for equipment and supplies needed for research.

“Optical Characterization of New Biological and Polymeric Thin Films”

Summer Research Award, July 1, 1996-October 1, 1996. The total dollar amount of this award was \$6,865 including student and faculty stipends, student tuition, and supplies.

“Polarized Infrared Spectroscopy of Polymeric Thin Solid Films”

Beaumont Faculty Development Fund, July 1, 1996-May 30, 1997. The award was for \$3,000 for equipment and supplies needed for research.

“Association of Blood Clotting Proteins with Phospholipid Monolayers on Water”

Summer Research Award, July 1, 1997-October 1, 1997. The total dollar amount of this award was \$6,971 including faculty and student stipends, student tuition, and supplies.

“Fluorescence Microscopy of Protein-Phospholipid Monolayers”

Summer Research Award, July 1, 1999-October 1, 1999. The total dollar amount of this award was \$6,478 including faculty and student stipends, student tuition, and supplies.

“Effects of Ionic Variations on the Interactions of Blood Clotting Proteins with Phospholipid Monolayers”

Summer Research Award, July 1, 2000-October 1, 2000. The total dollar amount of this award was \$6,300 including faculty and student stipends, student tuition, and supplies.

SLU 2000 Faculty Research Leave: A semester was granted free of teaching duties to pursue research. (Spring 2002)

EXTERNAL RESEARCH SUPPORT

“Association of Blood Clotting Proteins with Phospholipid Monolayers on Water”,

Research Corporation, \$25,500, May 1997 through May 1999.

PROFESSIONAL ACTIVITIES*

Workshop Organizer, National Science Teachers Association, 1996 Convention, St. Louis, MO

Workshop Presenter, Math and Science Network of Greater St. Louis, March 1996 and March 2005

Career Panelist, Math and Science Network of Greater St. Louis, March 2006 and March 2008

Reviewer for *Langmuir*, *Journal of the American Chemical Society*, *Journal of Colloid and Interface*

Science, *Journal of Pharmacy and Pharmacology*, National Science Foundation, American Chemical Society Petroleum Research Fund, Research Corporation, W.H. Freeman Publishing

American Chemical Society, Saint Louis Local Section Activities:

Chair, 2006

Chair-Elect 2005

Councilor, 2009-present

National Chemistry Week Coordinator 1995, 2001, 2002

Alternate Councilor 1997, 1998, 1999, 2000

Director, ACS Board 2003, 2008, 2009

Member, Fundraising Committee, 2008, 2009

Awards Committee Chair 2002, 2003, 2004

Undergraduate Research Symposium Chair 1999, 2003

Chair, Undergraduate Programming, Midwest Regional Meeting 2000

Chair, Science Fair Awards 2001

ACS Peer Mentoring Workshop, Washington, D.C., 2000

Volunteer, National Chemistry Week Demonstrations, Science Fair Judge, Boy Scout

Merit Badge Clinic

Treasurer, Saint Louis University Chapter of Sigma Xi, 2003-present

Faculty Advisor, SLU Chemistry Club/ACS Student Affiliates Group (*Our group was recognized by ACS at the spring national meeting for our outstanding programming in 2001, 2002, 2005, and 2006.*)

Faculty Advisor, Alpha Epsilon Delta/Preprofessional Health Student Club, 2006-present

*In addition to numerous service activities at SLU at the Department, College, and University levels.

CERTIFICATIONS

Management and Development Certificate Program, Saint Louis University, 2007