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Education

The Pennsylvania State University, Chemistry
University Park, PA
Chemistry Department, Professor Weiss

PostDoc (2004-2006)

Independent research projects on vesicles and topography, involving surface chemistry, patterning, lipid and cell protocols
Numerous presentations at national conferences (talks and posters)
Graduate and summer student mentor

University of Wisconsin-Madison, Material Science

M.S. (1999), PhD, (2002)

University of Wisconsin-Madison
Dissertation: Studies of Patterned Surfaces For Biological Microarrays
National Science Foundation fellow
Numerous presentations at national conferences (talks and posters)

Williams College, Chemistry

B.A. (1996)

Williamstown, MA

Honors Undergraduate Research Project: The Synthesis and Characterization of Zr based Liquid Crystals
GPA: 3.40 cumulative, 3.56 in major (Dean's List 7/8 semesters)

Experience: Industry

Senior Staff Scientist

2002-2003

Trex Enterprises Kihei, HI

Start-up company—Silicon Kinetics

Research and development of novel surfaces for protein sensors
Design, execution, and analysis of new experimental pathways
Performed conventional silicon photolithography and wet etching techniques
Routine protein assays
Instrumentation: AFM, reflection FTIR, optical microscopy

Experience: Academia

Assistant Professor, George Washington University, Chemistry

2007-

Current Position

Research

Eight (8) Publications total. Four (4) in ACS Journals

10+ invited talks

Patent 2014, Cerium Oxide Nanoparticles (partnership with start-up Peroxyium)

Mentoring

26 student presentations, posters and talks

Undergraduate Mentoring (14 total lab students)

Undergraduate awards: ABRC travel award (A. Tucker), Gamow (A. Barun), Rice (J. Barr),

OVPR fellowship (R. Gupta), Goldwater finalist (A. Lee).

Two conferred doctorates (M. Kessler, July 2015; R. Samuel, Aug 2015)

Teaching

Lecture Courses: Physical Chemistry (Fall 2007-09) and

General Chemistry (Spring 2010-15)

Laboratory Courses: Physical Chemistry (Spring 2007-09) and

Analytical Instrumentation (Fall 2012-2015)

Two Microscopy Workshops (2008, 2010)

Undergraduate Chemistry Research Symposium

Post Doctorate

2004-2006

Penn State University Park, PA

Chemistry Department, Professor Weiss

Performed independent research and contributed to six (6) publications

Reviewer for Langmuir, Biophysical Journal

Instrumentation: Fluorescence microscopy, routine clean room microfabrication

Professional Associations and Awards

Biophysical Society member (CPOW committee)

ACS member

Materials Research Society Conference 2001 Graduate Student Silver Award

National Science Foundation Fellow 1998-2001

Honors in chemistry undergraduate

Graduate Student Mentoring

Michael Kessler (July 2015)

Robin Samuel (August 2015)

Rahul Gupta—May 2012 graduate

Katie Baldwin—May 2011 graduate

Barun Aryal—May 2010 graduate

Arthur Lee—May 2010 graduate

Phoebe Aron—HS student, May 2009 graduate

Prastast Gandiga—May 2008 graduate

Liang Hwang—May 2008 graduate

Jillian Thomas—May 2008 graduate

Khalid Mohamood—summer student 2007

Undergraduate Mentoring

Asya Tucker—May 2015 graduate

Isaac Benavides—December 2014 graduate

Laura Kaye—May 2014 graduate

Jeremy Barr—May 2014 graduate

Sarah Millman—May 2012 graduate

Technical Expertise

- Developed SOPs for lab classes (Instrumental Analysis and Physical Chemistry)
- Developed instrumentation SOPs for lab classes and independent (research) lab
- Conducted studies, developed new assays, adapted known assays for research lab
- Validated new assays with known techniques
- Acted as the Scientific officer for independent lab, training and maintaining safely procedures for a clean, safe lab environment
- Coordinated with administration and safety officers at GW
- Characterized results using a combination of instrumentation techniques including but not limited to spectroscopies (IR, RAMAN, fluorescence) and imaging (optical, confocal, widefield, AFM)
- Collaborated with research groups on various topics, mentored students
- Co-authored several papers (list attached)
- Presented at several conferences and has been invited for 10+ outside talks
- Highly developed problem solving skills for scientific questions, administrative issues, time management, goal prioritization and team management

Instrumentation

Research (major instrumentation only):

- Optical Microscopy: including but not limited to fluorescence, differential interference contrast (DIC), phase contrast, widefield, confocal
- Differential Scanning Calorimetry (DSC)
- Dynamic Light Scattering (DLS)
- Fourier Transform Infrared Spectroscopy (FTIR)
- Fluorescence spectrometry
- Atomic Force Spectroscopy
- Routine room microfabrication

Teaching:

- Fluorescence and UV/Vis spectrometry,
- Atomic Absorption spectroscopy
- High Performance Liquid Chromatography
- Gas Chromatography
- Mass Spectroscopy

Publications

Mechanism and Kinetics of NA CATH, R. Samuel , B. A. Bishop and **S. Gillmor** *In Preparation; Not Yet Submitted*,

Structure of NA CATH antimicrobial peptide, H. Du, R. Samuel , B. Bishop, **S. Gillmor**, M. Massiah, *BBA-Biomembranes*, in press (2015).

Numerical Investigations on the Role of Membrane Curvature in Strong Segregation Problems Frank Baginski, **Susan Gillmor**, Roberto Croce, Rolf Krause *Applied Mathematics and Computation*, **227** (15) 399-411 (2014).

Long-Term Reduction in Poly(dimethylsiloxane) Surface Hydrophobicity via Cold-Plasma Treatments B.J. Larson, **S.D. Gillmor**, J.M. Braun, L.E. Cruz-Barba, D.E. Savage, F.S. Denes, and M.G. Lagally *Langmuir*, **29** (42) 12990–12996 (2013).

Characterization and Performance of Short Cationic Antimicrobial Peptide Isomers Juba,M; Porter, D.; Dean, S.; Van Hoek, M.; **Gillmor, S. D.** and Bishop, B. (2013), *Biopolymers: Peptide Science* **100** (4) 387–401 (2013).

Polka-Dotted Vesicles: Lipid Bilayer Dynamics and Cross-linking Effects. Kessler, M.; Samuel, R.; **Gillmor, S. D.**, *Langmuir* **29** (9), 2982-2991 (2013).

The Role of Gauss Curvature in a Membrane Phase Separation Problem. **Gillmor, S. D.**; Lee, J.; Ren, R., *Physica D: Nonlinear Phenomena* **240**, 1913 (2011).

Temperature-Dependent Vesicle Response to Surface Topography. **S. D. Gillmor**, J. J. Heetderks, P. S. Weiss, *J Phys Chem B* **113**, 11490 (2009).

Dimpled Vesicles: The Interplay between Interfaces and Transient Pores. **S. D. Gillmor**, P. S. Weiss, *J Phys Chem B* **112**, 13629 (2008).

Microcontact Insertion Printing, T. J. Mullen, C. Srinivasan, J. N. Hohman, **S. D. Gillmor**, M. J. Shuster, Mark W. Horn, A. M. Andrews and P. S. Weiss, *Applied Physics Letters* **90**, 063114 (2007).

Displaceable Monolayers and Microdisplacement Printing: 1-Adamantanethiol Assembly and Application, T. J. Mullen, J. N. Hohman, A. A. Dameron, J. R. Hampton, **S. D. Gillmor**, and P. S. Weiss, *Materials Matters* **1** (2), 8 (2006). Unrefereed publication.

Enhanced Molecular Patterning via Microdisplacement Printing, A. A. Dameron, J. R. Hampton, **S. D. Gillmor**, J. N. Hohman, and P. S. Weiss, *Journal of Vacuum Science and Technology B* **23**, 2929 (2005).

Microdisplacement Printing, A. A. Dameron, J. R. Hampton, R. K. Smith, T. J. Mullen, **S. D. Gillmor**, and P. S. Weiss, *Nano Letters* **5**, 1834 (2005).

Controlled Deposition of Picoliter Amounts of Fluid Using an Ultrasonically Driven Micropipette, B. J. Larson, **S. D. Gillmor**, and M. G. Lagally *Review of Scientific Instruments* **75**(4), 832-836 (2004).

Computation with DNA on Surfaces, **S. D. Gillmor**, P. Rugheimer, and M. G. Lagally, *Surface Science* **500**, 699 (2002).

Hydrophilic/hydrophobic patterned surfaces as templates for DNA arrays, **S. D. Gillmor**, A. J. Thiel, T. C. Strother, L. M. Smith, and M. G. Lagally, *Langmuir*, **16**, 7223 (2000).

Progress toward demonstration of a surface based DNA computation: a one word approach to solve a model satisfiability problem, Q.H. Liu, A. G. Frutos, L. M. Wang, T. J. Thiel, S. D. Gillmor, T. C. Strother, A. E. Condon, R. M. Corn, M. G. Lagally, L. M. Smith, *Biosystems*, **52**, 25 (1999).

Surface-based DNA computing operations: DESTROY and READOUT, L. M. Wang, Q.H. Liu, A. G. Frutos, T. J. Thiel, S. D. Gillmor, T. C. Strother, A. E. Condon, R. M. Corn, M. G. Lagally, L. M. Smith, *Biosystems*, **52**, 189 (1999).

Characterization of chain molecular assemblies in long-chain, layered silver thiolates: A joint infrared spectroscopy and x-ray diffraction study, A.N. Parikh, **S. D. Gillmor**, J. D. Beers, K. M. Beardmore, R. W. Cutts, B. I. Swanson, *Journal of Physical Chemistry B* **103**(15),2850-2861, (1999).

Patents

James Leiter, Susan Gillmor, Aleksandar Jeremic, Ekaterina Vert-Wong, Gregg Fairbrothers, Method of Enhancing the Biodistribution and Tissue Targeting Properties of Therapeutic CeO₂ Particles via Nanoencapsulation and Coating, Patent. Filed March 15, 2014.