



## Susan Daniel

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<http://scholar.google.com/citations?user=if8lttkAAAAJ>

*Our research investigates how the organization of molecules at a surface impacts the interactions of the interface with other materials and the dynamic phenomena that result from those interactions. We study phenomena at both biological interfaces and chemically patterned surfaces that interact with soft matter – liquids; polymers; and biological materials, like cells, viruses, proteins, and lipids. In the pursuit of our studies, we also develop precision imaging and experimental platforms to carry out our investigations.*

### EDUCATION

Lehigh University, Bethlehem, PA	Chemical Engineering	B.S., 1999
Lehigh University, Bethlehem, PA	Chemical Engineering	M.S., 2001
Lehigh University, Bethlehem, PA	Chemical Engineering	Ph.D., 2005
Texas A&M University, College Station, TX	Chemistry	Postgraduate, 2005-2007

### APPOINTMENTS

2016 - Present	Director of Graduate Studies, Chemical and Biomolecular Engineering, Cornell University
2014 - Present	Associate Professor, School of Chemical and Biomolecular Engineering, Cornell University
2014 - 2015	Visiting Scientist, Department of Bioelectronics, Ecole Nationale Supérieure des Mines de Saint Etienne, Gardanne, France
2007 - 2014	Assistant Professor, School of Chemical and Biomolecular Engineering, Cornell University
2005 - 2007	Postdoctoral Fellow, Department of Chemistry, Texas A&M University

### GRADUATE FIELD MEMBERSHIPS

2013 - Present	Graduate Field Member, Chemistry and Chemical Biology, Cornell University
2013 - Present	Graduate Field Member, Theoretical and Applied Mechanics, Cornell University
2012 - Present	Graduate Field Member, Biomedical Engineering, Cornell University
2012 - Present	Faculty Fellow, David R. Atkinson Center for a Sustainable Future, Cornell University
2011 - Present	Program Member in Infection and Pathobiology in the Department of Microbiology & Immunology, Cornell Veterinary School

### HONORS AND AWARDS

2020	Elected co-chair of the Gordon Research Conference on Bioanalytical Sensors
2017	Plenary Lecturer in Interfacial Phenomena at the American Institute of Chemical Engineers Annual Meeting
2016	Selected for the top eight shortlist for the international GEDC Airbus Diversity Award
2016	Schwartz Award in Life Sciences, Cornell University
2015	Alice H. Cook Award, for improving the climate for women at Cornell
2014	Zellman Warhaft Commitment to Diversity Award, College of Engineering, Cornell University
2012	Denice Denton Emerging Leader Award, Anita Borg Institute
2011	NSF CAREER Award
2011	American Society of Engineering Education Outstanding Teaching Award, St. Lawrence Section
2009	President's Council of Cornell Women Affinito-Stewart Award
2008	NSF BRIGE Award

### PUBLICATIONS

\* = corresponding author; † = undergraduate student from Daniel group; # = graduate student (or teaching assistant) from Daniel group; § = post doc from Daniel group

#### Peer reviewed in archival journals:

1. Hsu, H.L., Millet, J.K., Whittaker, G.R., and S. Daniel, *Evaluation of the pandemic potential of influenza A (H10N8) according to HA pH stability and membrane fusion attributes*. In review.
2. Lai, A.L., Millet, J.K., Daniel, S., Freed, J.H., and G.R. Whittaker, *The SARS-CoV Fusion Peptide forms an Extended Bipartite Fusion Platform that Perturbs Membrane Order in a Calcium-Dependent Manner*. In review.

3. Liu, H.-Y., Grant, H., Hsu, H.-L., Sorkin, R., Bošković, F., Wuite, G., and S. Daniel\*, *Planar Mammalian Membranes as Models of in vivo Cell Surface Architectures*. In review.
4. Chang, C.-T., Daniel, S., and Steen, P.H.\*, *Footprint Geometry and Sessile Drop Resonance*. **Physical Review E**, 95 (3): 033109, 2017.
5. Richards, M.J., and S. Daniel\*, *Two-Phase Contiguous Supported Lipid Bilayer Model for Membrane Rafts via Polymer Blotting and Stenciling*. **Langmuir**, 33 (5):1285-1294, 2017.
6. Song, Y.-H., Warncke, C., Choi, S.J., Choi, S., Chiou, A.E., Ling, L., Liu, H.-Y., Daniel, S., Antonyak, M.A., Cerione, R.A., and C. Fishbach\*, *Breast Cancer-Derived Extracellular Vesicles Stimulate Myofibroblast Differentiation and Pro-Angiogenic Behavior of Adipose Stem Cells*. **Matrix Biology**, in press. 10.1016/j.matbio.2016.11.008
7. Millet, J.K., Goldstein, M., Labitt, R., Hsu, H.L., Daniel, S., and G.R. Whittaker\*, *A camel-derived MERS-CoV with a variant spike protein cleavage site and distinct fusion activation properties*. **Nature Emerging Microbes & Infections**, 5: e126, 2016. doi:10.1038/emi.2016.125
8. Hsu, H.L., Millet, J.K., Costello, D.A., Whittaker, G.R., and S. Daniel\*, *Viral Fusion Efficacy of Specific H3N2 Influenza Virus Reassortant Combinations at Single-Particle Level*. **Nature Scientific Reports**, 6: 35537, 2016.
9. Lee, D.W., Hsu, H.-L., Bacon, K.B. †, and S. Daniel\*, *Image Restoration and Analysis of Influenza Virions Binding to Membrane Receptors Reveal Adhesion-Strengthening Kinetics*. **PLoS ONE**, 11 (10): e0163437, 2016. <http://dx.doi.org/10.1371/journal.pone.0163437>
10. Hsia, C.Y., Chen, L., Singh, R.R., DeLisa, M.P., and S. Daniel\*, *A Molecularly Complete Bacterial Outer Membrane Platform*. **Nature Scientific Reports**, 6: 32715, 2016.
11. Zhang, Y., Inal, S., Hsia, C.-Y., Ferro, M., Ferro, M., Daniel, S.\*, and Owens, R.\*, *Supported Lipid Bilayer Assembly on PEDOT:PSS Films and Transistors*, **Advanced Functional Materials**, 26 (40): 7304-7313, 2016. **\*\*Featured in MRS360 Online news**
12. Lee, D.W., Allison, A.B., Bacon, K.B. †, Parrish, C.R.\*, and S. Daniel\*, *Single-Particle Tracking Demonstrates a Point Mutation in the Carnivore Parvovirus Capsid Switches Binding to Host-Specific Transferrin Receptors*. **Journal of Virology**, 90: 4849-4853, 2016. **\*\*Featured in the JVI Spotlight**
13. Richards, M.J., Hsia, C.-Y., Singh, R.R., Haider, H. †, Kumpf, J., Kawate, T., and S. Daniel\*, *Membrane Protein Mobility and Orientation Preserved in Supported Bilayers Created Directly from Cell Plasma Membrane Blebs*. **Langmuir**, 32: 2963-2974, 2016.
14. Hsia, C.-Y., Richards, M.J., and S. Daniel\*, *A Review of Traditional and Emerging Methods to Characterize Lipid-Protein Interactions in Biological Membranes*. **RSC Analytical Methods**, 7: 7076-7094, 2015. (Richards and Hsia contributed equally)
15. Chaudhury, M.K.\*, Chakrabarti, A., and S. Daniel, *Generation of Motion of Drops with Interfacial Contact*. **Langmuir (Feature Article)**, 31: 9266-9281, 2015.
16. Chang, C.-T., Bostwick, J.B., Daniel, S., and Steen, P.H.\*, *Dynamics of Sessile Drops. Part 2. Experiment*. **Journal of Fluid Mechanics**, 768: 442-467, 2015.
17. Costello, D.A. #, Whittaker, G.R., and S. Daniel\*, *Variation of pH Sensitivity, Acid Stability, and Fusogenicity of Three Influenza H3 Subtypes*. **Journal of Virology**, 89: 350-360, 2015. **\*\*Work featured on the journal cover, Vol. 89, No. 2.**
18. Kunungo, M., Mettu, S., Law, K.-Y.\*, Daniel, S., *Effect of Roughness Geometry on Wetting and De-wetting of Rough PDMS Surfaces*. **Langmuir**, 30: 7358-7368, 2014.
19. Macner, A.M., Daniel, S.\*, and P. Steen\*, *Condensation on Surface Energy Gradient Shifts Drop-Size Distribution Towards Small Drops*. **Langmuir**, 30: 1788-1798, 2014.
20. Lee, D.W.#, Thapar, V., Clancy, P., and S. Daniel\*, *Stochastic Fusion Simulations and Experiments Suggest Passive and Active Roles of Hemagglutinin During Membrane Fusion*. **Biophysical Journal**, 106:843-854, 2014. (Lee and Thapar contributed equally)
21. Chang, C.-T., Bostwick, J.B., Steen, P.H.\*, and S. Daniel\*, *Substrate Constraints Modify the Rayleigh Spectrum of Vibrating Sessile Drops*. **Physical Review E**, 88: 023015, 2013.
22. Costello, D.A. #, Millet, J.K., Hsia, C.-Y.#, Whittaker, G.R., and S. Daniel\*, *Single Particle Assay of Coronavirus Membrane Fusion with Proteinaceous Receptor-embedded Supported Bilayers*. **Biomaterials**, 34: 7895-7904, 2013.
23. Chao, L. §, Richards, M.J.#, Hsia, C.-Y.# and S. Daniel\*, *Two-dimensional continuous extraction in multiphase lipid bilayers to separate, enrich, and sort membrane-bound species*. **Analytical Chemistry**, 85: 6696-6702, 2013. (Richards and Chao contributed equally)

24. Costello, D.A.<sup>#</sup>, Hsia, C.-Y.<sup>#</sup>, Porri, T., Millet, J.K., and S. Daniel\*, *Membrane Fusion-competent Virus-like Proteoliposomes and Proteinaceous Supported Bilayers Made Directly from Cell Plasma Membranes*. **Langmuir**, 29: 6409-6419, 2013.
25. Longley, J.E., Dooley, E., Givler, D.M., Napier, W.J., Chaudhury, M.K., and S. Daniel\*, and, *Ratcheting Motion of Sessile Droplets Induced by Shape Deformation on Surface Energy Gradients*. **Langmuir**, 28:13912-13918, 2012.
26. Costello, D.A.<sup>#</sup>, Lee, D.W.<sup>#</sup>, Drewes, J., Vasquez, K.A.<sup>†</sup>, Kisler, K.<sup>§</sup>, Wiesner, U., Pollack, L., Whittaker, G.R., and S. Daniel\*, *Influenza Virus-Membrane Fusion Triggered by Proton Uncaging for Single Particle Studies of Fusion Kinetics*. **Analytical Chemistry**, 84: 8480-8489, 2012.
27. Hamilton, B.S., Whittaker, G.R.\* and S. Daniel, *Influenza Virus-mediated Membrane Fusion: Determinants of Hemagglutinin Fusogenic Activity and Experimental Approaches for Assessing Virus Fusion*. **Viruses**, 4: 1144-1168, 2012.
28. Chao, L.<sup>§</sup> and S. Daniel\*, *Measuring the Partitioning Kinetics of Membrane Biomolecules using Patterned Two-phase Coexistent Lipid Bilayers*, **Journal of the American Chemical Society**, 133: 15635-15643, 2011.
29. Kang, S., Park, T., Chen, X., Dickens, G.J.E., Lee, B., Lu, K., Rakhilin, N., Daniel, S., and M. M. Jin\*, *Tunable Physiologic Interactions of Adhesion Molecules for Inflamed Cell-selective Drug Delivery*, **Biomaterials**, 32: 3487-3498, 2011.
30. Diaz, A.J., Albertorio, F., Daniel, S., and P.S. Cremer\*, *Double Cushions Preserve Mobility in Supported Bilayer Systems*, **Langmuir**, 24: 6820-6826, 2008.
31. White, R.J., Ervin, E.N., Yang, T., Chen, X., Daniel, S., Cremer, P.S.\* and H.S. White\*, *Single Ion-Channel Recordings using Glass Nanopore Membranes*, **Journal of the American Chemical Society**, 129:11766-11775, 2007.
32. Daniel, S., Diaz, A.J., Martinez, K.M., Bench, B.J., Albertorio, F., and P.S. Cremer\*, *Separation of Membrane-Bound Compounds by Solid-Supported Bilayer Electrophoresis*, **Journal of the American Chemical Society**, 129: 8072-8073, 2007.
33. White, R.J., Zhang, B., Daniel, S., Tang, J., Ervin, E.N., Cremer, P.S.\* and H.S. White\*, *The Ionic Conductivity of the Aqueous Layer Separating a Lipid Bilayer Membrane and a Glass Support*, **Langmuir**, 22: 10777-10783, 2006.
34. Daniel, S., Albertorio, F., and P.S. Cremer\*, *Making Membranes Rough, Tough, and Ready to Hit the Road*, **MRS Bulletin**, 31: 536-540, 2006.
35. Albertorio, F., Daniel, S., and P.S. Cremer\*, *Supported Lipopolymer Membranes as Nanoscale Filters: Simultaneous Protein Recognition and Size-Selection Assays*, **Journal of the American Chemical Society**, 128: 7168-7169, 2006.
36. Chaudhury, M.K.\* and Daniel, S., Callow, M., Callow, J., and J. Finlay, *Settlement Behavior of Swimming Algal Spores on Gradient Surfaces*, **Biointerphases**, 1:18-21, 2006.
37. Daniel, S., Chaudhury, M. K.\* and P.-G. De Gennes, *Vibration Actuated Liquid Drop Motion on Surfaces for Batch Process Microfluidic Devices*, **Langmuir**, 21: 4240-4248, 2005.
38. Daniel, S., Sircar, S., Gliem, J., and M. K. Chaudhury\*, *Ratcheting Motion of Liquid Drops on Gradient Surfaces*, **Langmuir**, 20: 4085-4092, 2004.
39. Mahadevan, L.\* and Daniel, S., and M. K. Chaudhury\*, *Biomimetic Ratcheting Motion of a Soft Slender Sessile Gel*, **Proceedings of the National Academy of Sciences**, 101: 23-26, 2003.
40. Daniel, S. and M.K. Chaudhury\*, *Rectified Motion of Liquid Drops on Gradient Surfaces Induced by Vibration*, **Langmuir**, 18: 3403-3407, 2002.
41. Daniel, S., Chaudhury, M.K.\* and J.C. Chen, *Fast Drop Movements Resulting from the Phase Change on a Gradient Surface*, **Science**, 291: 633-636, 2001.

#### Peer reviewed book chapters:

1. Nathan, L., and S. Daniel\*, Single Virion Tracking Microscopy for the Study of Virus Entry Processes. In *Advances in Experimental Medicine and Biology (Series) Physical Virology - Virus Structure & Mechanics*; Urs Greber (Ed.) upcoming in 2017.
2. Costello, D.A., and S. Daniel\*, Single Particle Assay to Study Coronavirus Membrane Fusion. In *Coronaviruses: Methods and Protocols in Methods in Molecular Biology*; Maier, H.J., Bickerton, E., Britton, P. (Eds.) Vol. 1282, Humana Press; Springer, New York, 2015.
3. Daniel, S.\* and Chao, L.<sup>§</sup>, Supported Lipid Bilayer Electrophoresis for Analytical Studies of Cell Membrane Biomolecules. In *Interfaces and Interphases in Analytical Chemistry*, American Chemical Society, 2011.

## Education-focused publications and proceedings:

1. Sorg, V.C., Johnson, L.C, Westbrook, A.M., and S. Daniel, *Focusing on the Family: Engineering Outreach Targeting Rural High School Females and their Parents*, **2016 Proceedings of American Society Engineering Education, St. Lawrence Section Meeting.**
2. Yang, A.H.J.#, Dimiduk, K., and S. Daniel\*, *A Simplified Model of Human Alcohol Metabolism that Integrates Biotechnology and Human Health into a Mass Balance Team Project*, **Chemical Engineering Education**, 45: 21-29, 2011.
3. Yang, A.H.J.#, Dimiduk, K., and S. Daniel\*, *Applying Mass Balances to Alcohol Metabolism: A Team Project that Applies Fundamental Chemical Engineering Skills to Biotechnology*, **Proceedings of the American Society of Engineering Education**, 2010 Annual Conference and Exposition.
4. W. D. Jones, S. Daniel, K. Dimiduk\*, *Games in Recitation: Increasing Student Engagement While Teaching Mass and Energy Balances in Chemical Engineering*, **2010 Proceedings of American Society Engineering Education, St. Lawrence Section Meeting.**

## LIST OF COURSES TAUGHT

### Course description and details:

1. *Unit Operations laboratory (CHEME 4320)*: Core Undergraduate class. Taught and led the fluidized bed experiment, including statistical analysis and laboratory report writing (writing intensive class). Emphasized safety and laboratory preparation to students.
2. *Mass and Energy Balances (ENGRD 2190)*: Core undergraduate class. Taught fundamental skills of conservation of mass and energy in multi-unit systems with and without reactions. Introduced students to a variety of career opportunities in chemical engineering. Included multiple group projects covering modern topics; introduced writing exercises and oral presentation skills.
3. *Physical and Chemical Kinetics (CHEME 7130)*: Core graduate class. Taught detailed treatment of mass transfer and diffusion with and without reactions, bridging microscale to macroscale behavior. Analysis of non-equilibrium processes. Taught critical reading of literature and presentation.
4. *Principles and Practices of Graduate Research (CHEME 7920)*: Introduction to graduate student life and research to aid in the transition from undergraduate to graduate student experience.

## PROFESSIONAL SOCIETY MEMBERSHIPS AND SERVICE TO THE PROFESSION

### Memberships:

American Institute of Chemical Engineers (AIChE) , American Chemical Society (ACS) , Biophysical Society (BPS), Materials Research Society (MRS), American Association for the Advancement of Science (AAAS), American Society for Engineering Education (ASEE)

### Service to the profession:

#### Conference Organization:

1. Co-chair, **Bioanalytical Sensors Gordon Research Conference** June 2020
2. Vice-co-chair, **Bioanalytical Sensors Gordon Research Conference** June 2018
3. Steering Committee, **Emerging Leaders Workshop**, June 3, 2016. Madison, WI. A faculty development conference focusing on the increasing skills, knowledge, and critical networks for mid-career faculty (asst./ assoc. professors) women & URM men in engineering, computer science and physical sciences. <http://ddd.umd.edu/>

#### Conference Session Chairs:

1. AIChE 2017 Annual Meeting "Biomolecules at Interfaces I & II"
2. AIChE 2016 Annual Meeting, 3 sessions: "Biomolecules at Interfaces I & II"; "Dynamic Processes at Interfaces"
3. American Society for Virology 2016, Workshop: "Viral Receptors and Entry II"
4. Bioanalytical Sensors Conference 2014, Session: "Clinical Applications of Bioanalytical Sensors"
5. 2013 SES/ASME(AMD), Session: "Complex Fluids: Suspensions, Emulsions, and Gels"
6. PepTalk 2013, Session: "Optimizing Purification Processes"
7. AIChE 2012 Annual Meeting, 2 sessions: "Microfluidics and Microscale Flows I & II"
8. Keck Biomembrane Retreat w/ Weill Cornell Med. School, June 2012, Session: "Cell Biology of Cell Membranes"

#### Journal Referee:

Nature Nanotechnology; Journal of the American Chemical Society; Journal of the Royal Society Interface; ACS Applied Materials and Interfaces; Scientific Reports; Langmuir; Proceedings of the Royal Society A; Journal of Physical Chemistry; Biomicrofluidics; Biomaterials; FEBS Letters; Journal of Colloid and Interface Science; Applied Physics Letters; Physics of Fluids; International Journal of Heat and Mass Transfer; Journal of Micromechanics and Microengineering, Soft Matter, BBA-Biomembranes; Biomaterials Science

## ADVISING AND COMMUNITY OUTREACH

### **Advising/Mentoring:**

- 2008 - present Faculty advisor for Chemical Engineering Graduate Women's Group (*CBE Women*)\*\*  
\*\**Daniel received the 2012 Denise Denton Emerging Leadership Award in recognition of her leadership of this group and her impact on graduate women's education.*  
\*\**This group was awarded the 2011 CoE Alumni Association Student Leadership Award.*
- 2016 - present Faculty advisor for Chemical Engineering Graduate Student Association (*CheGSA*)
- 2017 - present Faculty-in-residence for Balch Dormitory for freshmen women

### **Community Outreach:**

- Annually (est. 2009) Faculty Advisor for *WOMEN* outreach event for rural high school girls, sponsored by CBE. Introduce rural high school girls and parents to STEM fields through hands-on demos, information sessions, and parent-student team lab activities.
- 2008, 2011, 2012 CBE Program coordinator for the CURIE Academy (high school girls' STEM summer camp)
- Summer 2009 Produced AES Cayuga Power Plant virtual plant tour video for undergraduate class, ENGRD 2190: *Mass and Energy Balances*, and for public outreach days at the power plant.

## INVITED LECTURES PRESENTED

External invited research lectures given (or upcoming) by S. Daniel:

1. *Interfacial Dynamics between Pathogenic Nanoparticles and Cell Membrane Surfaces*, **2017 AIChE Annual Meeting Plenary Lecture in Interfacial Phenomena**, Minneapolis, MN, October 2017.
2. *Molecularly Complete Supported Lipid Bilayers Bring Bioanalytical Devices Closer to in vivo Architectures*, **TETHMEM 2017**, Vienna, Austria, August 7-9, 2017.
3. *Bioanalytical Platforms for Studying Virus Infection*, **Department of Chemistry Seminar, Oregon State University**, Corvallis, OR, 2017.
4. *Tracking Host-Pathogen Interactions One Virion at a Time*, **Department of Chemistry Seminar, Indiana University**, Bloomington, IN March 21, 2017.
5. *An Engineering Approach to Probing Host-Pathogen Interactions using Single Virion Tracking Microscopy*, *Viruses with Membranes*, **Gordon Research Conference on Physical Virology**, Barga, Italy January 29 - February 3, 2017.
6. *Molecularly Complete Supported Lipid Bilayers Bring Bioanalytical Devices Closer to in vivo Architectures*, **Chemical & Biological Engineering Seminar, Rensselaer Polytechnic University**, Troy, NY November 7, 2016.
7. *Mobile, Oriented, Proteinaceous Supported Bilayers Made Directly from Cell Plasma Membranes for Bioanalytical Assays*, 2016 ANACHEM Award Symposium for Prof. Paul Cremer, **FACSS SciX Conference**, Minneapolis, MN September 18-23, 2016.
8. *Mobile, Oriented, Proteinaceous Supported Bilayers Made Directly from Cell Plasma Membranes for Bioanalytical Assays*, **Department of Bioelectronics Seminar, Centre Microélectronique de Provence**, Ecole Nationale Supérieure des Mines de Saint Etienne, Gardanne, France, April 3, 2016.
9. *An Engineering Approach to Probing Host-Pathogen Interactions*, **Department of Physics Seminar, Chalmers University of Technology**, Göteborg, Sweden, March 31, 2016.
10. *Mobile, Oriented, Proteinaceous Supported Bilayers Made Directly from Cell Plasma Membranes for Bioanalytical Assays*, **Pittcon**, Atlanta, GA, March 6-10, 2016.
11. *Wiggling, Giggling, Vibrating Drops on Surfaces 'Dance' with Specific Rhythms*, **Chemical & Biomolecular Engineering Seminar, Clarkson University**, Potsdam, NY, October 27, 2015.
12. *Introduction to Virology*, **4<sup>th</sup> Summer School "Biology for Physicists"**, Porquerolles, France, May 25-29, 2015.
13. *Single Particle Analytical Approaches for Characterizing Host-Pathogen Interactions*, **Department of Chemistry Seminar, Universität Regensburg**, Regensburg, Germany, April 24, 2015.
14. *Biomimetic Materials and In-vitro Approaches for Characterizing Pathogen-Host Interactions*, **2nd European Research Council BIOMIM Conference**, Grenoble, France, March 11-13, 2015.
15. *Probing Virus-cell Interactions and Viral Entry Kinetics with Single Virion Tracking*, **Institut Curie**, Paris, France, January 21, 2015.

16. *The Dynamics of Droplets on Surfaces with Applications in Heat Transfer*, **Abengoa Research**, Seville, Spain, November 10, 2014.
17. *Biomimetic Materials and In-vitro Approaches for Characterizing Pathogen-Host Interactions*, **Department of Bioelectronics Seminar, Centre Microélectronique de Provence**, Ecole Nationale Supérieure des Mines de Saint Etienne, Gardanne, France, October 10, 2014.
18. *Single Particle Analytical Approaches for Characterizing Host-Pathogen Interactions*, **Gordon Research Conference on Bioanalytical Sensors**, Salve Regina University, RI, June 22-27, 2014.
19. *Single Particle Approach for Characterizing Virus-Host Interactions and Entry Kinetics*, **Bioanalytical Sensors Conference**, Cambridge, MA, May 22-23, 2014.
20. *An Engineering Approach to Studies of Host-Pathogen Interactions*, **Cornell Infection and Pathobiology Retreat**, Geneva, NY, October 4, 2013. \*\*Student's choice speaker.
21. *Biomimetic Surfaces for Probing Virus-Cell Interactions and Viral Entry Kinetics*, **Chemical Engineering Seminar, City College of New York**, September 9, 2013.
22. *Substrate Constraints Modify the Rayleigh Spectrum of Vibrating Sessile Drops*, **Society of Engineering Science 50th Annual Technical Meeting and ASME-AMD Annual Summer Meeting**, Brown University, July 28-31, 2013.
23. *Biological Interfaces and Biomimetic Surfaces for Sensing Applications*, **Workshop on Interfacing Electronics with Cells**, Porquerolles, France, June 10-14, 2013.
24. *Biomimetic Surfaces for Probing Virus-cell Interactions and Viral Entry Kinetics*, **Chemical Engineering Seminar, Northeastern University**, April 3, 2013.
25. *Characterizing Viral Entry Kinetics Using a Single Particle Analytical Approach*, **Analytical Chemistry Colloquium, Penn State University**, March 27, 2013.
26. *A Single Particle Approach for the Study of Viral Entry Kinetics*, **Chemical Engineering Seminar, University of Rochester**, February 13, 2013.
27. *Dynamics of Mechanically-oscillated Sessile Drops and Applications in Droplet Transport on Surfaces*, **Xerox Research Center**, Rochester, NY, January 25, 2013.
28. *Separation and Characterization of Raft Associated Membrane Species Using a Patterned Supported Lipid Bilayer*, **Protein Purification & Recovery Meeting at PepTalk**, Palm Springs, CA, January 21-22, 2013.
29. *Biomimetic Surfaces for Characterizing Viral Entry Kinetics*, **MRS Fall Meeting**, Boston, MA, November 25-30, 2012.
30. *Stochastic Studies of Viral Entry Processes Using Biomimetic Membrane Chips*, **Chemical Engineering Seminar, University of New Mexico**, April 17, 2012.
31. *Studying Viral Entry Using Individual Virion Imaging Techniques and Stochastic Analysis*, **Vermont Center for Immunology & Infectious Diseases, University of Vermont College of Medicine**, March 23, 2012.
32. *Transport Processes and Dynamics at Biological Interfaces*, **Chemical Engineering Colloquium, Lehigh University**, March 14, 2012.
33. *Controlling Diffusion and Mobility of Lipids in Model Cell Membranes*, **Chemical Engineering Seminar, University of Akron**, October, 7, 2010.
34. *Solid Supported Bilayer Electrophoresis for Separation of Membrane Biomolecules*, **Chemical Engineering Seminar, University of Rhode Island**, October 8, 2009.
35. *The Motion of Liquid Drops on Surfaces Under the Influence of Vibration*, **Mechanical Engineering Department Seminar, University of Rochester**, January 30, 2009.
36. *Supported Lipid Bilayer Platforms for Bioanalytical Devices and Sensors*, **Chemical Engineering Seminar, Stanford University**, November 3, 2008.
37. *Separation of Membrane Components Using Bilayer Electrophoresis*, **5<sup>th</sup> New York Complex Matter Workshop Syracuse University**, December 14, 2007.
38. *Supported Lipopolymer Membranes for Biosensors*, **Condensed Matter Colloquium, University of California at Irvine**, May 24, 2006.
39. *Protein Channel Biosensing Devices*, **Department of Biomedical Engineering Colloquium, Texas A&M University**, October, 2005.
40. *Chemical Sensing by Artificial Ion Channels*, **Nano Summit 2005**, Houston, TX, July 28, 2005.

## Education lectures given externally and at Cornell:

\* = presenting author, # = graduate or postdoctoral teaching mentee

1. Westbrooke, A.\*, and S. Daniel, *Preparing Female Graduate Students for Leadership in Academic and Industrial Careers*, 2016 American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November, 2016.
2. Padmanabhan, P., and S. Daniel, *Engaging High School Students and Their Parents in STEM through Engineering Outreach*, 2016 American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November, 2016.
3. Sorg, V.#, and S. Daniel, *Focusing on the Family: Engineering Outreach Targeting Rural High School Females and their Parents*, American Association of Engineering Education Conference, Ithaca, NY, April, 2016.
4. Meyer, S.#, and S. Daniel, *Engaging High School Students in Chemical Engineering through Hands-On Laboratories*, 2014 American Institute of Chemical Engineers Annual Meeting, Atlanta, GA, November, 2014.
5. Sorg, V. C.#, Aponte Rivera, C.#, and S. Daniel, *Adhesion Forces At Work: Daughters and Parents Working Together to Learn About Interfaces*, 2013 American Institute of Chemical Engineers Annual Meeting, San Francisco, CA, November, 2013.
6. Daniel, S.\*, *Scientists and Leaders as Conduits of Change*, Grace Hopper Celebration of Women in Computing, Baltimore, MD, October 3-6, 2012. **\*\*Invited award presentation for Daniel's 2012 Denice Denton Emerging Leader Award.**
7. Daniel, S.\*, *WOMEN: Women's Outreach in Materials, Energy, and Nanobiotechnology*, 2011 American Institute of Chemical Engineers Annual Meeting, Minneapolis, MN, October, 2011.
8. Daniel, S.\*, *Integrating Collaboration, Communication, and Biotechnology into a Sophomore-level Chemical Engineering Course*, American Society for Engineering Education Meeting, St. Lawrence Section, Excelsior College, March 18-19, 2011. **\*\*Invited award presentation for Daniel's 2011 ASEE St. Lawrence Section Outstanding Teaching Award.**
9. Daniel, S.\*, and K. Dimiduk, *Integrating Communication Skills and Fostering Collaboration in the Mass and Energy Balances Course with Team Activities*, 2010 American Institute of Chemical Engineers Annual Meeting, Salt Lake City, UT, November 10, 2010.
10. Carey, S., Daniel, S., and Reinhart-King, C.\*, *Digital Ink in the BME Classroom: Application in Quantitative Physiology*, 2010 Biomedical Engineering Society Annual Meeting, Austin, TX, October 6-9, 2010.
11. Yang, A.H.J.#, Dimiduk, K., and S. Daniel, *Applying Chemical Engineering Fundamentals to Alcohol Metabolism*, ASEE Annual Meeting, Louisville, KY, June 20-23, 2010.
12. Daniel, S.\*, *Engaging and Teaching the Internet Generation*, Spring 2010 Engineering College Council (ECC) Meeting, Cornell University, April 8, 2010. **\*\*Invited by the Dean.**
13. Jones, W.D.#, Daniel, S., and K. Dimiduk, *Games in Recitation: Addressing Different Learning Styles in Teaching Mass and Energy Balances in Chemical Engineering*, St. Lawrence Section ASEE Conference, March 26-27, 2010.

## **STUDENT/POST DOC SUPERVISION**

Graduate Committee Chair: 10 Ph.D. (4 conferred; 2 women); 2 MS (2 conferred); 3 M.Eng. (3 conferred; 1 women)

Graduate Committee Member: 19, 8 conferred (domestic); 4 conferred (international)

Post-doctoral fellows supervised: 5

Undergraduate researchers supervised: 20; 14 women; 6 URM