

Sarah L. Perry

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Research Interests

My research utilizes self-assembly, molecular design, and microfluidic technologies to generate biologically relevant microenvironments for the study and application of biomacromolecules. Individually, microfluidics represent an enabling technology for the time-resolved analysis of enzyme structural dynamics, while control over molecular interactions in self-assembling polyelectrolyte systems can be used to examine the interplay between biomacromolecules and the intracellular environment. Together, these capabilities can be coupled to generate artificial organelle-like structures for use in applications ranging from biochemistry to bioenergetics, biocatalysis, and biomedicine. Furthermore, this work has tremendous pedagogical potential to inspire students to work at the intersection of chemistry, biology, and engineering.

A. Academic Positions

Assistant Professor – Department of Chemical Engineering – University of Massachusetts Amherst, 2014 – present

Adjunct Faculty – Department of Polymer Science & Engineering, University of Massachusetts Amherst

Postdoctoral Researcher – Institute for Molecular Engineering – University of Chicago, 2012 – 2014

Prof. Matthew Tirrell, Advisor

Postdoctoral Researcher – Department of Bioengineering – University of California at Berkeley, 2011 – 2012

Prof. Matthew Tirrell, Advisor

B. Education

Ph.D. – Chemical & Biomolecular Engineering – University of Illinois at Urbana-Champaign, 2010

Title: "Microfluidic Platforms for the Characterization of *In Meso* Membrane Protein Crystallization"

Prof. Paul J.A. Kenis, Advisor

M.S. – Chemical Engineering – University of Arizona, 2005

Title: "Development of Novel Gas Phase Passivation Chemistries for Silicon Surfaces"

Prof. Anthony J. Muscat, Advisor

B.S. – Chemistry – University of Arizona, 2003

Magna cum Laude

B.S. – Chemical Engineering – University of Arizona, 2002

Magna cum Laude, Honors College Degree

C. Honors and Awards

3M Non-Tenured Faculty Award, 2019

College of Engineering Diversity Student Ally Award, 2017

College of Engineering Outstanding Teacher Award, 2017

College of Engineering Faculty Advocate for Diversity, 2015

Residential First-Year Experience Student Choice Award Recipient, 2015

Best Speaker: Distinguished Young Scholars Seminar Series (University of Washington), 2013

Baxter Innovation Award, 2009

AIChE Separations Division Graduate Student Award, 2009

Ruth L. Kirschstein National Research Service Award (Predoctoral Fellowship, NIH), 2008 – 2010

List of Teachers Ranked as Excellent Spring, 2007

Mavis Memorial Fund Scholarship Recipient for Merit in both Engineering Research and Education, 2007

School of Chemical Sciences Award for Teaching Excellence, 2007

Intel Foundation/Semiconductor Research Corporation Master's Scholarship Recipient, 2003 – 2005

PUBLICATIONS, PATENTS, AND PRESENTATIONS

D. Publications (h-index: 22, total citations: 1153)

D1. Peer-Reviewed Publications (cont')

(*corresponding author, †equal contribution, ‡undergraduate)

1. J. Madinya, L.W. Chang, S.L. Perry,* C.E. Sing,* *Sequence-Dependent Self-Coacervation in High Charge-Density Polyampholytes* (in press).
2. I.S. Kurtz,† S. Sui,† X. Hao,†† M. Huang, S.L. Perry,* J.D. Schiffman, *Bacteria-resistant, Transparent, Free-standing Films Prepared from Complex Coacervates*, ACS Applied Bio Materials, (in press).
3. T.K. Lytle,† L.W. Chang,† N. Markiewicz,‡ S.L. Perry,* C.E. Sing,* *Designing Electrostatic Interactions via Polyelectrolyte Monomer Sequence*, ACS Central Science, 2019, **5**(4), 709-718.
4. W.C. Blocher McTigue, S.L. Perry,* *Design Rules for Encapsulating Proteins into Complex Coacervates*, Soft Matter, 2019, **15**, 3089-3103 (invited paper).
5. S.L. Perry,* *Phase Separation: Bridging Polymer Physics and Biology*, Current Opinion in Colloid and Interface Science, 2019, **39**, 86-97 (invited paper).
6. X. Meng, J.D. Schiffman,* S.L. Perry,* *Electrospinning Cargo-containing Polyelectrolyte Complex Fibers: Correlating Molecular Interactions to Complex Coacervate Phase Behavior and Fiber Formation*, Macromolecules, 2018, **51**(21), 8821-8832.
7. S.L. Perry,* D.A. Hoagland, *Obituary for Prof. Paul Dubin*, Soft Matter, 2018, **14**, 8083-8084.
8. M. Skinner,† B.M. Johnston,†† Y. Liu, R. Selhorst, I. Xenidou, S.L. Perry, T. Emrick, *Synthesis of Zwitterionic Pluronic Mimics*, Biomacromolecules, 2018, **19**(8), 3377-3389.
9. P.M. McCall, S. Srivastava, S.L. Perry, D.R. Kovar, M.L. Gardel, M.V. Tirrell, *Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates*, Biophysical Journal, 2018, **114**(7), 1636-1645.

Featured on the journal cover.

10. S. Sui, Y. Wang, C. Dimitrakopoulos, S.L. Perry,* *A Graphene-based Microfluidic Platform for Electro-crystallization and In Situ X-ray Diffraction*, Crystals, 2018, **8**(2), 76 (invited paper).
11. L.W. Chang,† T.K. Lytle,† M. Radhakrishna, J.J. Madinya, J. Vélez,‡ C.E. Sing,* S.L. Perry,* *Sequence and Entropy-Based Control of Complex Coacervates*, Nature Communications, 2017, **8**, 1273.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, Nanotechnology Now, November 2nd, 2017.
Highlighted in: *Bioinspired Polymers Get Their Charge From Electrostatic Force*, Electronics 360, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, EurekAlert!, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, My Science, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, Science Newsline, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, R&D, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, Nanowerk, November 2nd, 2017.
Highlighted in: *Electrostatic Force Takes Charge in Bioinspired Polymers*, Phys.org, November 2nd, 2017.
Highlighted in: *Progress Towards Controlling Self-Assembly of Artificial Materials*, AZO Materials, November 3rd, 2017.
Highlighted in: *UMass Engineer Makes Bioinspired Polymers with Electrostatic Force*, BusinessWest.com, November 4th, 2017.
12. Y. Liu, B. Momani, H.H. Winter, S.L. Perry,* *Rheological Characterization of Liquid-to-Solid Transitions in Bulk Polyelectrolyte Complexes*, Soft Matter, 2017, **13**, 7332-7340 (invited paper).
13. B.M. Johnston,‡ C. W. Johnston,‡ R. A. Letteri, T.K. Lytle, C.E. Sing, T. Emrick, S.L. Perry,* *The Effect of Comb Architecture on Complex Coacervation*, Organic and Biomolecular Chemistry, 2017, **15**, 7630-7642 (invited paper).
Highlighted in: *Organic & Biomolecular Chemistry Blog*, November 13th, 2017.
14. W.C. Blocher, S.L. Perry,* *Biomimetic Complex Coacervate-Based Materials for Biomedicine*, WIREs Nanomedicine and Nanobiotechnology, 2017, **9**(4), e1442 (invited paper).

This article was one of the journal's top cited papers from January 2017 to December 2018 (data from Clarivate Analytics).

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

D1. Peer-Reviewed Publications (cont')

(*corresponding author, †equal contribution, ‡undergraduate)

15. X. Meng, S.L. Perry,* J.D. Schiffman,* *Complex Coacervation: Chemically Stable Fibers Electrospun from Aqueous Polyelectrolyte Solutions*, ACS Macro Letters, 2017, **6**, 505-511.
Highlighted in: *Data from University of Massachusetts Advance Knowledge in Tissue Engineering*, Biotech Week, June 28th, 2017.
16. M. Radhakrishna, K. Basu,† Y. Liu, R. Shamsi,† S.L. Perry, C.E. Sing,* *Molecular Connectivity and Correlation Effects on Polymer Coacervation*, Macromolecules, 2017, **50**(7), 3030-3037.
17. S. Sui, S.L. Perry,* *Microfluidics: From Crystallization to Serial Time-Resolved Crystallography*, Structural Dynamics, 2017, **4**(3), 032202 (invited paper).
18. S. Galarza, S.L. Perry, S. R. Peyton, *A Student-Created, Open Access, Living Textbook*, Chemical Engineering Education, 2017, **51**(1), 2-9.
19. Y. Liu, H.H. Winter, S.L. Perry,* *Linear Viscoelasticity of Complex Coacervates*, Advances in Colloid and Interface Science, 2017, **239**, 46-60 (invited paper).
As of July/August 2017, this highly cited paper received enough citations to place it in the top 1% of the academic field of Chemistry based on a highly cited threshold for the field and publication year (data from Essential Science Indicators).
20. S. Sui, Y. Wang, K.W. Kolewe, V. Šrajer, R. Henning, J.D. Schiffman, C. Dimitrakopoulos, S.L. Perry,* *Graphene-Based Microfluidics for Serial Crystallography*, Lab on a Chip, 2016, **16**, 3082-3096 (invited paper).
Lab on a Chip themed collection on Emerging Investigators.
Highlighted in: *Serial Crystallography Enhanced by Graphene*, Chemistry World, 2016.
Highlighted in the *2016 Annual Report* for the Advanced Photon Source.
21. D. Priftis, L. Leon, Z. Song, S.L. Perry, K.O. Margossian,† A. Tropnikova,† J. Cheng, M. Tirrell,* *Self-Assembly of α -Helical Polypeptides Driven by Complex Coacervation*, Angewandte Chemie International Edition, 2015, **54**(38), 11128-11132.
22. S.L. Perry,* C.E. Sing,* *PRISM-based Theory of Complex Coacervation: Excluded Volume versus Chain Correlation*, Macromolecules, 2015, **48**(14), 5040-5053.
23. A.S. Pawate, V. Šrajer, J. Schieferstein, S. Guha, R. Henning, I. Kosheleva, M. Schmidt, Z. Ren, P.J.A. Kenis, S.L. Perry,* *Towards Time-Resolved Serial Crystallography in a Microfluidic Device*, Acta Crystallographica, Section F: Structural Biology Communications, 2015, **71**, 823-830.
24. K.Q. Hoffmann, S.L. Perry, L. Leon, D. Priftis, M. Tirrell, J.J. de Pablo,* *A Molecular View of the Role of Chirality in Charge-Driven Polypeptide Complexation*, Soft Matter, 2015, **11**, 1525-1538.
25. S.L. Perry,† L. Leon,† K.Q. Hoffmann, M.J. Kade, D. Priftis, K.A. Black, D. Wong,† R.A. Klein,† C.F. Pierce,† K.O. Margossian,† J.K. Whitmer, J. Qin, J.J. de Pablo, M. Tirrell,* *Chirality Selected Phase Behavior in Ionic Polypeptide Complexes*, Nature Communications, 2015, **6**, 6052.
26. S.L. Perry,* S. Guha, A.S. Pawate, R. Henning, I. Kosheleva, V. Šrajer, P.J.A. Kenis, Z. Ren, *In Situ Serial Laue Diffraction on a Microfluidic Crystallization Device*, Journal of Applied Crystallography, 2014, **47**, 1975-1982.
27. D.V. Krogstad, S.H. Choi, N.A. Lynd, D.J. Audus, S.L. Perry, J.D. Gopez, C.J. Hawker, E.J. Kramer, M. Tirrell,* *Small Angle Neutron Scattering Study of Complex Coacervate Micelles and Hydrogels Formed from Ionic Diblock and Triblock Copolymers*, Journal of Physical Chemistry B, 2014, **118**, 13011-13018.
28. K.A. Black, D. Priftis, S.L. Perry, J. Yip,† W.Y. Byun,† M. Tirrell,* *Protein Encapsulation via Polypeptide Complex Coacervation*, ACS Macro Letters, 2014, **3**, 1088-1091.
Highlighted on the C&EN Biological and Materials SCENES.
Highlighted in: *Charged Polymers Package Proteins*, Chemical & Engineering News, 2014, **92**(45), 30.
29. S.L. Perry,* Y. Li, D. Priftis, L. Leon, M. Tirrell, *The Effect of Salt on the Complex Coacervation of Vinyl Polyelectrolytes*, Polymers, 2014, **6**, 1756-1772 (invited paper).
30. J. Qin, D. Priftis, R. Farina, S.L. Perry, L. Leon, J.K. Whitmer, K.Q. Hoffman, M. Tirrell, J.J. de Pablo,* *Interfacial Tension of Polyelectrolyte Complex Coacervate Phases*, ACS Macro Letters, 2014, **3**, 565-568.
31. D. Priftis,* X. Xia,† K.O. Margossian,† S.L. Perry, L. Leon, J. Qin, J.J. de Pablo, M. Tirrell, *Ternary, Tunable Polyelectrolyte Complex Fluids Driven by Complex Coacervation*, Macromolecules, 2014, **47**(9), 3076-3085.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

D1. Peer-Reviewed Publications (cont')

(*corresponding author, †equal contribution, ‡undergraduate)

32. D.S. Khvostichenko, J.J.D. Ng, ‡ S.L. Perry, M. Menon, ‡ P.J.A. Kenis,* *Effects of the Detergent β -Octylglucoside and Phosphate Salt Solutions on the Phase Behavior of Monoolein Mesophases*, *Biophysical Journal*, 2013, **105**(8), 1848-1859.

Featured on the journal cover. Cover art by S.L. Perry.

33. S.L. Perry,* S.G. Neumann, T. Neumann, J. Weinstein, K. Cheng, ‡ J. Ni, ‡ D.V. Schaffer, M. Tirrell, *Challenges in Nucleic Acid-Lipid Films for Transfection*, *AIChE Journal*, 2013, **59**(9), 3203-3213 (invited paper).

34. D.S. Khvostichenko, E. Kondrashkina, S.L. Perry, K. Brister, P.J.A. Kenis,* *An X-ray Transparent Microfluidic Platform for Screening the Phase Behavior of Lipidic Mesophases*, *The Analyst*, 2013, **138**, 5384-5395.

35. S.L. Perry, † S. Guha, † A.S. Pawate, A. Bhaskarla, V. Agarwal, S. Nair, P.J.A. Kenis,* *A Microfluidic Approach for Protein Structure Determination at Room Temperature via On-Chip Anomalous Scattering*, *Lab on a Chip*, 2013, **13**(16), 3183-3187.

Featured on the inside front cover.

Highlighted in the Lab on a Chip Top 10% web collection.

Selected as a Lab on a Chip HOT Article.

36. E. Kondrashkina,* D.S. Khvostichenko, S.L. Perry, J. Von Osinski, P.J.A. Kenis, K. Brister, *Using Macromolecular-Crystallography Beamline and Microfluidic Platform for Small-Angle Diffraction Studies of Lipidic Matrices for Membrane-Protein Crystallization*, *Journal of Physics, Conference Series*, 2013, **425**(1), 012013.

37. S. Guha, S.L. Perry, A.S. Pawate, P.J.A. Kenis,* *Fabrication of X-ray Compatible Microfluidic Platforms for Protein Crystallization*, *Sensors and Actuators B*, 2012, **174**, 1-9.

38. S.L. Perry, J.J.L. Higdon, P.J.A. Kenis,* *Design Rules for Pumping and Metering of Highly Viscous Fluids*, *Lab on a Chip*, 2010, **10**(22), 3112-3124.

Highlighted amongst the top ten most accessed online articles for Lab on a Chip for October 2010.

39. S. Talreja, S.L. Perry, S. Guha, V. Bhamidi, P.J.A. Kenis,* C.F. Zukoski,* *Determination of the Phase Diagram for Soluble and Membrane Proteins*, *Journal of Physical Chemistry B*, 2010, **114**(13), 4432-4441.

40. S.L. Perry, J.D. Tice, G.W. Roberts, ‡ P.J.A. Kenis,* *Microfluidic Generation of Lipidic Mesophases for Membrane Protein Crystallization*, *Crystal Growth & Design* 2009, **9**(6), 2566-2569.

Highlighted in: *Finding Crystallization Sweet Spots*, *Chemical & Engineering News*, 2009, **87**(22), 27.

D2. Submitted Manuscripts

(*corresponding author, †equal contribution, ‡undergraduate)

1. J. Sun, S.L. Perry,* J.D. Schiffman,* *Electrospinning Nanofibers from Chitosan/Hyaluronic Acid Complex Coacervates* (submitted).

2. J. Zhuang, B. Zhao, X. Meng, J.D. Schiffman, S.L. Perry, R.W. Vachet, S. Thayumanavan,* *A Programmable Chemical Switch using Click-based Bonding and Debonding Reactions*, (submitted).

D3. Manuscripts in Preparation

(*corresponding author, †equal contribution, ‡undergraduate)

1. Y. Liu, C.F. Santa Chalarca, R.N. Carmean, R.A. Olson, B.S. Sumerlin, T. Emrick, S.L. Perry,* *Effect of Polymer Chemistry on the Linear Viscoelasticity of Polyelectrolyte Complexes*.

2. W.C. Blocher McTigue, E. Voke, ‡ L.W. Chang, S.L. Perry,* *The Benefit of Poor Mixing: Tracking the Kinetics of Complex Coacervation*.

3. W.C. Blocher McTigue, † X. Mi, † C.L. Heldt,* S.L. Perry,* *Stabilization of Viruses via Complex Coacervation*.

4. S.L. Perry, †* C.E. Sing, †* *Recent Progress in the Science of Complex Coacervation*, (invited paper).

5. M. Labbe, ‡ Y. Liu, M. Corradini,* S.L. Perry,* *Molecular Rotors for the Rheological Characterization of Polyelectrolyte Complexes*.

6. Y. Liu, † L.W. Chang, † J. Sun, W.C. Blocher McTigue, K. Basu, ‡ S.L. Perry,* *Hofmeister Effects on the Phase Behavior and Rheology of Complex Coacervates*.

7. J. Sun, J.D. Schiffman,* S.L. Perry,* *Time-Alcohol and Time-Salt Superposition Analysis Chitosan-Hyaluronic Acid Complex Coacervates*.

8. W.C. Blocher McTigue, S.L. Perry,* *Protein Encapsulation using Complex Coacervates: What Nature has to Teach Us*, (invited paper).

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

D3. Manuscripts in Preparation (cont')

(*corresponding author, †equal contribution, ‡undergraduate)

9. S. Sui, J. McGee, ‡ S. Saha, D. Filiatreault, A. Mulichak, R. Kulathila, R. Chopra,* S.L. Perry,* *High-Throughput Screening of Pharmaceutical Compounds by Microfluidic Devices*.
10. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry,* J.D. Schiffman,* *Electrospinning Oligomers: No Entanglements but Sticky Points in Complex Coacervates*.

D4. Patents

(‡undergraduate)

1. S.L. Perry, S. Sui, *Graphene-Based Electro-Microfluidic Devices and Methods for Protein Structural Analysis*, US Patent Application No. 16/444,240, 2019.
2. X. Meng, S.L. Perry, J.D. Schiffman, *Ultra-stable Printing and Coatings using Aqueous Complex Coacervates, and Compositions and Methods Thereof*, US Patent Application No. 15/985,855, 2018.
3. S. Sui, Y. Wang, C. Dimitrakopoulos, S.L. Perry, *Microfluidic Devices and Methods of Manufacture and Use Thereof*, US Patent Application No. 62/430,005, 2017.
4. X. Meng, S.L. Perry, J.D. Schiffman, *Polymer Nanofibers from Electrospinning of Complex Coacervates, and Compositions and Methods Thereof*, US Patent Application No. 15/725,465, 2017 (allowed, patent pending).
5. S.L. Perry, S. Sui, Y. Wang, C. Dimitrakopoulos, *Graphene Microfluidics*, Provisional US Patent Application, 2016.
6. P.J.A. Kenis, J.D. Tice, S.L. Perry, G.W. Roberts, ‡ *Microfluidic Device for Preparing Mixtures*, US Patent Number 7,976,789 B2, July 12, 2011.

E. Presentations

E1. Invited Seminars and Symposium Presentations (71 Total)

(‡undergraduate)

1. S.L. Perry, *Nature-Inspired Biomaterials*, Systems Chemistry Gordon Research Conference, Newry, ME, June 2020.
2. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemistry, University of California Santa Cruz, Santa Cruz, CA, June 2020.
3. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Program in Polymers and Soft Matter, Massachusetts Institute of Technology, Cambridge, MA, February 2020.
4. S.L. Perry, L.W. Cheng, T.K. Lytle, W.C. Blocher McTigue, A. Cabral, S. Traiger, C.E. Sing, *Coacervation of Sequence Controlled Polypeptides: Understanding Biology and Designing Materials*, AIChE Annual Meeting, Orlando, FL, November 2019.
Area 8A Plenary - Emerging Areas in Polymer Science and Engineering
5. C.L. Heldt, X. Mi, W.C. Blocher McTigue, M. Bunker, P.U. Joshi, S.L. Perry, *Understanding Virus Surface Interactions and Stability*, AIChE Annual Meeting, Orlando, FL, November 2019.
6. S.L. Perry, Y. Liu, X. Meng, L.W. Chang, T.K. Lytle, J. Madinya, J.D. Schiffman, C.E. Sing, *The Science and Engineering of Complex Coacervates*, Okinawa Colloids, Okinawa Japan, November 2019.
7. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, October 2019.
8. S.L. Perry, *Using Sequence and Chemistry to Engineer Complex Coacervate Materials*, ACS National Meeting, San Diego, CA, August 2019.
9. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Air Force Research Laboratory, Dayton, OH, August 2019.
10. S.L. Perry, X. Meng, Y. Liu, J. Sun, J.D. Schiffman, *Understanding the Electrospinnability of Complex Coacervates*, ECI Conference on Colloidal, Macromolecular and Biological Gels II, Cork, Ireland, July 2019.
11. S.L. Perry, X. Meng, Y. Liu, J. Sun, J.D. Schiffman, (poster) *Electrospinning Complex Coacervates*, ECI Conference on Colloidal, Macromolecular and Biological Gels II, Cork, Ireland, July 2019.
12. S.L. Perry, *Sequence Control: From Biology to Coacervates*, MRS Spring Meeting & Exhibit, Phoenix, AZ, April 2019.
13. S.L. Perry, (poster) *Bio-Inspired Encapsulation of Actives*, 3M Science & Engineering Faculty Day, Minneapolis, MN, June 2019.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E1. Invited Seminars and Symposium Presentations (cont')

([‡]undergraduate)

14. W.C. Blocher McTigue, X. Mi, C. Heldt, S.L. Perry, *Reducing Cold Chain Dependence: Encapsulation and Thermal Stability of Biologics with Complex Coacervates*, Soft Materials for Life Sciences National Research Traineeship Retreat, Amherst, MA, May 2019.
15. S.L. Perry, Sequence Controlled Polypeptides: Understanding Biology via Coacervation, ACS National Meeting, Orlando, FL, April 2019.
16. S.L. Perry, Microfluidics and/or Microgravity for Protein Crystallization, ACS National Meeting, Orlando, FL, April 2019.
17. X. Meng, J. Sun, S.L. Perry, J.D. Schiffman, Electrospinning Cargo-Containing Complex Coacervates from Synthetic and Natural Polyelectrolytes, ACS National Meeting, Orlando, FL, April 2019.
18. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical and Biomolecular Engineering, University of Illinois at Urbana-Champaign, Urbana, IL, March 2019.
19. S.L. Perry, Molecular Engineering Complex Coacervate Materials Using Sequence, APS March Meeting, Boston, MA, March 2019.
20. W.C. Blocher McTigue, *Complex Coacervation as a Novel Method for Thermal Stabilization of Biomacromolecules*, Department of Veterinary and Animal Science, University of Massachusetts Amherst, January 2019.
21. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering Grain Processing Seminar, Michigan Technical University, Houghton, MI, December 2018.
22. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Physics Soft Matter and Biological Physics Seminar, Virginia Technical University, Blacksburg, VA, December 2018.
23. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Moderna Therapeutics Seminar, Cambridge, MA, October 2018.
24. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, International Symposium on Polyelectrolytes, Wageningen, Netherlands, August 2018.
25. S.L. Perry, *Microfluidics for Room Temperature Crystallography*, Harvard University Crystallography Group, Cambridge, MA, August 2018.
26. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Polymer Physics Gordon Conference, South Hadley, MA, July 2018.
27. S.L. Perry, *Microfluidics for In Situ Crystallography*, CASIS Microgravity Molecular Crystal Growth Workshop, Buffalo, NY, July 2018.
28. W.C. Blocher, S.L. Perry, R. André, *Stability and Properties of Polyelectrolyte Complexes at High Concentration of Surfactant*, BASF NORA Collaboration Days, Amherst, MA, June, 2018.
29. S.L. Perry, *Microfluidics for Room Temperature Crystallography*, Hauptman-Woodward Institute, Buffalo, NY, April 2018.
30. S.L. Perry, *Graphene Microfluidics for Room Temperature Crystallography*, 5th Annual BioXFEL International Conference, New Orleans, February 2018.
31. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering, University of New Hampshire, Durham, NH, December 2017.
32. S.L. Perry, *Graphene Microfluidics*, Merck & Co., Kenilworth, NJ, November 2017.
33. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, 3M Technical Forum Seminar, Minneapolis, MN, November 2017.
34. S.L. Perry, *Sequence, Architecture, and Entropy-Based Control of Complex Coacervates*, 9th Sino-US Joint Conference of Chemical Engineering, Beijing China, October, 2017.
35. X. Meng, S.L. Perry, J.D. Schiffman, Functional Fibers Electrospun from Polyelectrolyte Complex Coacervates, ACS National Meeting, Washington DC, August, 2017.
36. S.L. Perry, *Ultra-low Background Graphene Microfluidics*, CHESS User's Meeting, Ithaca, June 2017.
37. S.L. Perry, *Patterning and Molecular Control in Complex Coacervation*, Telluride Science Research Center Workshop on Molecular Engineering of Soft Matter: Spanning Small Molecules to Macromolecules, Telluride, June, 2017.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E1. Invited Seminars and Symposium Presentations (cont')

([‡]undergraduate)

38. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2017.
39. S.L. Perry, *Ultra-low Background Graphene Microfluidics*, Workshop on the Measurement and Interpretation of Diffuse Scattering in X-Ray Diffraction, NSLS II Users' Meeting, Brookhaven National Laboratory, May 2017.
40. S.L. Perry, *Graphene Microfluidics for Room Temperature Crystallography*, Symposium on Synchrotron-Based Drug Discovery: The Next 25 Years, APS/CNM Users' Meeting, Argonne National Laboratory, May 2017.
41. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, MRS Spring Meeting & Exhibit, Phoenix, AZ, April 2017.
42. S.L. Perry, *Patterning and Structure in Polypeptide-Based Coacervates*, ACS National Meeting, San Francisco, April, 2017.
43. S.L. Perry, *Material Dynamics in Complex Coacervates*, ACS National Meeting, San Francisco, April 2017.
44. S.L. Perry, *Graphene-Based Microfluidics for Serial Crystallography*, NSLS II Friday Seminar, Brookhaven National Laboratory, March 2017.
45. S.L. Perry, *Using Graphene to Understand Biology*, Brookhaven Women in Science Colloquium, Brookhaven National Laboratory, March 2017.
46. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Pan-American Polymer Science Conference, Guarujá, Brazil, March 2017.
47. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering, Worcester Polytechnic Institute, Worcester, MA, January 2017.
48. S.L. Perry, *Molecular Engineering of Nature-Inspired Materials*, New England Complex Fluids Workshop, Cambridge, MA, December 2016.
49. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Polymer Science & Engineering, University of Massachusetts Amherst, Amherst, MA, October 2016.
50. S.L. Perry, *Graphene Microfluidics*, Center for Biological Physics Seminar, University of Massachusetts Amherst, Amherst, MA, September 2016.
51. S.L. Perry, *Microfluidics for Serial Crystallography*, Novartis, Cambridge, MA, September 2016.
52. S.L. Perry, *Nature-Inspired Materials Design*, Squishy Physics Seminar, Harvard University, August 2016.
53. S.L. Perry, *Molecular Engineering of Nature-Inspired Materials*, BASF North American Center for Research on Advanced Materials, Meredith, NH, June 2016.
54. S.L. Perry, *Microfluidic Platforms for Time-Resolved Serial Protein Crystallography*, CHESS-U Workshop: Biomolecules in Motion, June 2016.
55. S.L. Perry, *Nature-Inspired Materials Design*, Department of Chemistry, Stony Brook University, May 2016.
56. S.L. Perry, *Microfluidic Platforms for Time-Resolved Serial Protein Crystallography*, APS-CNM Users Meeting, Argonne National Laboratory, May 2016.
57. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, APS-CNM Users Meeting, Argonne National Laboratory, May 2016.
58. S.L. Perry, *Nature-Inspired Materials Design*, Department of Chemical Engineering, Carnegie Mellon University, May 2016.
59. S.L. Perry, *Microfluidics for Serial Crystallography*, Crystallization: Focus on Micro and Nano Crystals and High Throughput Methods, SLAC National Accelerator Laboratory, April 2016.
60. S.L. Perry, *Nature-Inspired Materials Design*, Department of Veterinary and Animal Science, University of Massachusetts Amherst, February 2016.
61. S.L. Perry, *Patterning and Structure in Biomimetic Polypeptide-Based Coacervates*, Colloidal, Macromolecular & Polyelectrolyte Solutions Gordon Research Conference, Ventura, February 2016.
62. S.L. Perry, *Nature-Inspired Materials Design*, Department of Physics, University of Massachusetts Amherst, January 2016.
63. S.L. Perry, *Nature-Inspired Materials Design*, Chemical Biology Interface Program Chalk Talk, University of Massachusetts Amherst, December 2015.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E1. Invited Seminars and Symposium Presentations (cont')

([‡]undergraduate)

64. S.L. Perry, J.D. Schiffman *Nature-Inspired Materials Design*, BASF North American Center for Research on Advanced Materials, November 2015.
65. S.L. Perry, *Microfluidic Platforms for Dynamic Protein Crystallography*, Cornell Laboratory for Accelerator-Based Sciences and Education (CLASSE), Ithaca, October 2015.
66. S.L. Perry, *Chirality, Architecture, and Charge Patterning in Ionic Polypeptide Complexes*, International Symposium on Multivalent Interactions in Polyelectrolytes: New Physics, Biology and Materials, Chicago, October 2015.
67. S.L. Perry, *Nature-Inspired Materials Design*, Johnson & Johnson Science Series Seminar, August 2015.
68. S.L. Perry, *Polymer Coacervation*, Johnson & Johnson – Science Polymer & Surface Chemistry Platform for Skin Care Seminar, August 2015.
69. S.L. Perry, P. McCall, S. Srivastava, D. Kovar, M.L. Gardel, M. Tirrell, *Biomimetic Effects on Actin Cytoskeletal Filament Growth*, ACS National Meeting, Boston, August 2015.
70. S.L. Perry, *Engineering Biomimetic Coacervate Environments for Protein-Based Applications*, New England Nanotechnology Association Meeting, Amherst, May 2015.
71. S.L. Perry, *Biomimetic Polypeptide-Based Coacervates*, MRSEC Symposium, University of Massachusetts Amherst, October, 2014.

E2. Invited Seminars and Presentations Prior to UMass Amherst (18 Total)

([‡]undergraduate)

1. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical and Environmental Engineering, University of Massachusetts Amherst, March 2014.
2. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical and Environmental Engineering, University of Arizona, March 2014.
3. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical Engineering, Stanford University, February 2014.
4. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical and Biomolecular Engineering, University of Maryland, February 2014.
5. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, McKetta Department of Chemical Engineering, University of Texas at Austin, February 2014.
6. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical and Biological Engineering, University at Buffalo, February 2014.
7. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical and Biological Engineering, Iowa State University, February 2014.
8. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical & Biomolecular Engineering, University of Illinois at Urbana-Champaign, January 2014.
9. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical Engineering, University of Washington, January 2014.
10. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Chemical Engineering, University of Virginia, January 2014.
11. S.L. Perry, *Microfluidic and Biomimetic Approaches to Study and Control Biomolecule Function*, Department of Macromolecular Science and Engineering, Case Western Reserve University, January 2014.
12. S.L. Perry, *Stereoregularity Inhibits Complex Coacervation of Polypeptides*, Distinguished Young Scholars Seminar, Department of Chemical Engineering, University of Washington, August 2013.
Awarded best speaker for the 2013 DYSS series.
13. S.L. Perry, *Microfluidic Platforms for Protein Crystallography*, Workshop on Dynamic X-ray Scattering in Structural Biology, Argonne National Laboratory, Argonne, IL, November 2011.
14. S.L. Perry, P.J.A. Kenis, *Microfluidic Platforms for In Meso Membrane Protein Structural Biology*, Baxter Innovation Award Seminar, Baxter Healthcare, Deerfield, IL, September 2009.
15. S.L. Perry, G.W. Roberts, S. Talreja, J.D. Tice, R.B. Gennis, C.F. Zukoski, P.J.A. Kenis, *Microfluidic Platforms for Protein Crystallization*, Nano Hour Seminar, Beckman Institute, University of Illinois, October 2008.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E2. Invited Seminars and Presentations Prior to UMass Amherst (cont')

([‡]undergraduate)

16. S.L. Perry, *Microfluidic Platforms for Protein Crystallization*, Practical Protein Crystallization Course, Uppsala University, Sweden, September 2008.
17. S.L. Perry, S. Talreja, G.W. Roberts,[‡] J.D. Tice, R.B. Gennis, C.F. Zukoski, P.J.A. Kenis, *Microfluidic Platforms for Membrane Protein Crystallization*, Crystallization: Focus on Membrane Proteins Course, Brookhaven National Laboratory, June 2008.
18. S.L. Perry, G.W. Roberts,[‡] J.D. Tice, P.J.A. Kenis, *Microfluidic Platforms for Protein Crystallization*, National Synchrotron Light Source Seminar, Brookhaven National Laboratory, April 2008.

E3. Contributed Presentations (121 Total)

([‡]undergraduate)

1. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry, J.D. Schiffman, *Electrospinning Coacervates – No Chain Entanglements Required*, AIChE Annual Meeting, Orlando, FL, November 2019.
2. S.L. Perry, W.C. Blocher McTigue, A. Cabral,[‡] S. Traiger,[‡] *Encapsulating Proteins into Complex Coacervates*, AIChE Annual Meeting, Orlando, FL, November 2019.
3. J. McGee,[‡] J. Brandner,[‡] S. Taylor, S. Sui, J. Klier, S.L. Perry (poster), *Microfluidic Synthesis and Purification of Protein Nanoparticles*, The 23rd International Conference on Miniaturized Systems for Chemistry and Life Sciences, Zürich, Switzerland, October 2019.
4. W.C. Blocher McTigue, A. Cabral,[‡] S. Traiger,[‡] X. Mi, C.L. Heldt, S.L. Perry (poster), *Protein and Virus Encapsulation: Stepping Stones Toward Thermal Stability*, BMES Annual Meeting, Philadelphia, PA, October 2019.
5. S.L. Perry, W.C. Blocher McTigue, A. Cabral,[‡] S. Traiger,[‡] *Design Rules for Encapsulating Proteins into Complex Coacervates*, ACS Colloids and Surface Science Symposium, Atlanta, GA, June 2019.
6. S.L. Perry, X. Meng, J. Sun, J.D. Schiffman, *Electrospinning Polyelectrolyte Complex Fibers*, ACS Colloids and Surface Science Symposium, Atlanta, GA, June 2019.
7. S.L. Perry, S. Sui, S. Saha, J. Wierman, C.R. Frank, A. Cohen, *High-Throughput Microfluidics for Use at X-ray Free-Electron Lasers*, ACS Colloids and Surface Science Symposium, Atlanta, GA, June 2019.
8. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry, J.D. Schiffman, *Shifting the Paradigm of Electrospinning: Forming Fibers with Complex Coacervates*, Soft Materials for Life Sciences National Research Training Grant Retreat, Amherst, MA, May 2019.
9. Y. Liu, C.F. Santa Chalarca, R.N. Carmean, R.A. Olson, B.S. Sumerlin, T. Emrick, S.L. Perry, (poster) *The Effect of Polymer Chemistry on the Linear Viscoelasticity on Polyelectrolyte Complexes*, Cabot Student Materials Research Forum, Billerica, MA, May 2019.
10. E. Voke,[‡] W.C. Blocher McTigue, S.L. Perry, *The Effects of Charge Patterning on the Kinetics of Complex Coacervation*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
11. S. Szemethy,[‡] S.L. Perry (poster), *The Aesthetic Applications of Microfluidic Devices*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
12. H. Tjo,[‡] W.C. Blocher McTigue, S.L. Perry, (poster) *Exploring the Phase Behavior of Polyelectrolyte-Surfactant Systems*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
13. J.E. McGee,[‡] J.R. Brandner,[‡] J. Klier, S.L. Perry, *Microfluidic Synthesis and Purification of Albumin Nanoparticles for Drug Delivery*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
14. A. Cabral,[‡] S. Traiger,[‡] W.C. Blocher McTigue, S.L. Perry (poster), *Encapsulation of Biomolecules Through Complex Coacervation*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
15. S. Kolev,[‡] A. Gershenson, S.L. Perry, *Microfluidic Device Development for Characterization of A1AT Folding*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
16. B. Chua,[‡] R. Walker, S.L. Perry, *iCons: Developing a Portable, Low-Cost System for Producing Medical-Grade Intravenous Solutions Using Bottled Water*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.
17. L. Perryclear,[‡] J. Newman, S.L. Perry (poster), *iCons: Pre-Crystallization Protein Concentration Testing on the Microfluidic Scale*, 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

([‡]undergraduate)

18. J.E. McGee,[‡] J.R. Brandner,[‡] J.Klier, S.L. Perry, *Microfluidic Synthesis and Purification of Albumin Nanoparticles for Drug Delivery*, Northeast Regional AIChE Conference, Amherst, March 2019.
Awarded 2nd Place in the Poster Competition.
19. H. Tjo,[‡] W.C. Blocher McTigue, S.L. Perry, (poster) *Exploring the Phase Behavior of Polyelectrolyte-Surfactant Systems*, Northeast Regional AIChE Conference, Amherst, March 2019.
20. Y. Liu, C.F. Santa Chalarca, R.N. Carmean, R.A. Olson, B.S. Sumerlin, T. Emrick, S.L. Perry, *Polymer Chemistry and Effect on the Linear Viscoelasticity on Polyelectrolyte Complexes*, APS March Meeting, Boston, MA, March 2019.
21. X. Mi, W.C. Blocher McTigue, M. Bunker, P.U. Joshi, M.F. Gencoglu, S.L. Perry, C.L. Heldt, (poster) *Virus Encapsulation via Electrostatic Polypeptide Dense Phases*, ACS Regional Meeting of the Upper Peninsula Local Section, Marquette, MI, March 2019.
22. S. Sui, S.L. Perry, *X-ray Compatible Microfluidics for Advanced Room Temperature Crystallography*, BioXFEL Conference, San Diego, CA, February 2019.
Awarded Best Poster.
23. X. Mi, W.C. Blocher McTigue, M. Bunker, P.U. Joshi, M.F. Gencoglu, S.L. Perry, C.L. Heldt, *Virus Encapsulation via Electrostatic Polypeptide Dense Phases*, Michigan Technical University Graduate Research Colloquium, Houghton, MI, February 2019.
24. S. Sui, S.L. Perry, *X-ray Compatible Microfluidics for Advanced Room Temperature Crystallography*, 17th International Conference on the Crystallization of Biological Macromolecules, Shanghai, China, October 2018.
Awarded Best Poster.
25. L.W. Chang, T. Lytle, C.E. Sing, S.L. Perry, *Sequence Control of Complex Coacervation*, AIChE Annual Meeting, Pittsburgh, PA, October 2018.
26. E. Voke,[‡] W.C. Blocher McTigue, L.W. Chang, S.L. Perry, (poster) *The Effects of Charge Patterning on the Kinetics of Complex Coacervation*, AIChE Annual Meeting, Pittsburgh, PA, October 2018.
27. S. Srivastava, P. McCall, S.L. Perry, D. Kovar, M.L. Gardel, M.V. Tirrell, *Partitioning and Enhanced Self-Assembly of Actin in Polypeptide Coacervates*, AIChE Annual Meeting, Pittsburgh, PA, October 2018.
28. W.C. Blocher McTigue, L.W. Chang, X. Meng, V. Liadinskaia, Y. Liu, S.L. Perry, (poster) *Nature-Inspired Materials Design*, NORA Meets BASF Challenges, Cambridge, MA, October 2018.
29. X. Meng, S.L. Perry, J.D. Schiffman, *Shifting the Paradigm of Electrospinning: Forming Fibers from Complex Coacervates*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, October 2018.
30. X. Meng, S.L. Perry, J.D. Schiffman, (poster) *Encapsulating Cargo in Electrospun Complex Coacervate Fibers*, UMass-Amherst Fall Polymer Event, October 2018.
31. E. Voke,[‡] W.C. Blocher McTigue, L.W. Chang, S.L. Perry, (poster) *The Effects of Charge Patterning on the Kinetics of Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2018.
32. H. Tjo,[‡] W.C. Blocher McTigue, S.L. Perry, (poster) *Establishing Compositional Dynamics on Self-Assembly in Polyelectrolyte-Surfactant Systems*, UMass-Amherst Fall Polymer Event, October 2018.
33. W.C. Blocher McTigue, S.L. Perry, *Encapsulation and Thermal Stability of Biomacromolecules using Complex Coacervation*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, October 2018.
34. W.C. Blocher McTigue, X. Mi, C. Heldt, S.L. Perry, *Encapsulation and Thermal Stability of Biomacromolecules using Complex Coacervation*, UMass-Amherst Biophysics Lunch Seminar, Amherst, MA, September 2018.
35. L.W. Chang, W.C. Blocher McTigue, T.K. Lytle, C.E. Sing, S.L. Perry, (poster) *Molecular Design of Polyelectrolyte Complex Materials*, Frontiers of Molecular Engineering, Chicago, IL, September 2018.
36. L.W. Chang, T.K. Lytle, C.E. Sing, S.L. Perry, *Sequence Control of Complex Coacervation*, 75th New England Complex Fluids Workshop, Cambridge, MA, June, 2018.
37. S.L. Perry, *Electric Fields, Microfluidics, and Protein Crystallography*, ACS Colloids and Surface Science Symposium, State College, PA, June, 2018.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

([‡]undergraduate)

38. B. Chua,[‡] S.L. Perry, R. Walker, (poster) *A Portable, Low-Cost Method of Producing Medical-Grade Water for Intravenous Solutions*, 24th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2018.
39. K. Basu,[‡] E.B. Coughlin, S.L. Perry, (poster) *The Characterization of Off-Stoichiometric Polyelectrolyte Complexes for use in Energy Applications*, 24th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2018.
40. H. Tjo,[‡] W.C. Blocher, S.L. Perry, (poster) *Surfactant Incorporated Polyelectrolyte-Micelle Systems: A Fundamental Investigation*, 24th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2018.
41. T. Carpenter,[‡] V. Vattipalli, W. Fan, S.L. Perry, (poster) *Gas Permeability of Zeolite Loaded Polyelectrolyte Complex Membranes*, 24th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2018.
42. B. Johnston,[‡] C. Santa-Chalarca, C.E. Sing, T. Emrick, S.L. Perry, *The Effect of Polymer Architecture on Complex Coacervation*, 24th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2018.
43. K. Basu,[‡] E.B. Coughlin, S.L. Perry, (poster) *The Characterization of Off-Stoichiometric Polyelectrolyte Complexes for use in Energy Applications*, Eckhardt Northeast Student Regional Conference, Rochester, April 2018.
44. L.W. Chang, S.L. Perry, *Sequence Control of Complex Coacervation*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, April 2018.
45. Y. Liu, W.C. Blocher, X. Meng, M. Labbe,[‡] E. Voke,[‡] C. Boucher,[‡] H.H. Winter, M. Corradini, J.D. Schiffman, S.L. Perry, *Dynamics in Polyelectrolyte Complex Materials*, APS March Meeting, Los Angeles, March, 2018.
46. S. Sui, S.L. Perry, *Graphene-Integrated Microfluidics for Advanced Crystallography*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, December 2017.
47. Y. Liu, S.L. Perry, *Designing Material Dynamics in Polyelectrolyte Complexes*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, December 2017.
48. S. Sui, S.L. Perry, *Graphene-Integrated Microfluidics for Advanced Crystallography*, 7th Annual Life Sciences Graduate Research Symposium, University of Massachusetts Amherst, November 2017.
49. W.C. Blocher, R. Hershman,[‡] S.L. Perry, *Encapsulation and Thermal Stability of Immunological Biologics using Complex Coacervation*, AIChE Annual Meeting, Minneapolis, MN, October 2017.
50. S.L. Perry, S. Galarza, S.R. Peyton, *A Student-Created, Open Access, Living Textbook*, AIChE Annual Meeting, Minneapolis, MN, October 2017.
51. Y. Liu, B. Momani, M. Labbe,[‡] H.H. Winter, S.L. Perry, *Designing Material Dynamics in Polyelectrolyte Complexes*, AIChE Annual Meeting, Minneapolis, MN, October 2017.
52. T. Lytle, L.W. Chang, J. Madinya, S.L. Perry, C.E. Sing, *Tuning Complex Coacervation Using Sequence-Defined Polyelectrolytes: A Molecular Understanding*, AIChE Annual Meeting, Minneapolis, MN, October 2017.
53. W.C. Blocher, L.W. Chang, X. Meng, Y. Liu, S.L. Perry, (poster) *Nature-Inspired Materials Design*, NORA Meets BASF Challenges, Cambridge, MA, October 2017.
54. S. Sui, S.L. Perry, *Graphene-Integrated Microfluidics for Advanced Crystallography*, Chemical Biology Interface Program Chalk Talk, University of Massachusetts Amherst, October, 2017.
55. W.C. Blocher, S.L. Perry, *Encapsulation and Thermal Stability of Immunological Biologics Using Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2017.
56. W.C. Blocher, S.L. Perry, (poster) *Protein Encapsulation Using Complex Coacervation of Oppositely-Charged Polypeptides*, UMass-Amherst Fall Polymer Event, October 2017.
57. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2017.
58. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, UMass-Amherst Fall Polymer Event, October 2017.
59. X. Meng, S.L. Perry, J.D. Schiffman, (poster) *Encapsulating Cargo in Electrospun Complex Coacervate Fibers*, UMass-Amherst Fall Polymer Event, October 2017.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

([‡]undergraduate)

60. L.W. Chang, J. Vélez,[‡] T. Lytle, M. Radhakrishna, J. Madinya, C.E. Sing, S.L. Perry, (poster) *Sequence and Entropy-based Control of Complex Coacervation*, BASF Research Forum, Terry Town, NY, August 2017.
61. L.W. Chang, J. Vélez,[‡] T. Lytle, M. Radhakrishna, J. Madinya, C.E. Sing, S.L. Perry, *Sequence and Entropy-based Control of Complex Coacervation*, ACS National Meeting, Washington DC, August 2017.
62. C.E. Sing, S.L. Perry, Tuning Complex Coacervation Using Sequence-Defined Polyelectrolytes: A Molecular Understanding, ACS National Meeting, Washington DC, August 2017.
63. S.L. Perry (poster), *Microfluidics in the Classroom and Wiki-Textbooks*, ASEE Summer School for Chemical Engineering Faculty, Raleigh, NC, August 2017.
64. S.L. Perry, *Graphene Microfluidics for Room Temperature Crystallography*, ACS Colloids and Surface Science Symposium, New York, July, 2017.
65. X. Meng, S.L. Perry, J.D. Schiffman, *Encapsulating Cargo Using Electrospun Complex Coacervates Fibers*, ACS Colloids and Surface Science Symposium, New York, July, 2017.
66. X. Meng, S.L. Perry, J.D. Schiffman (poster), *Encapsulating Cargo Using Electrospun Complex Coacervates Fibers*, ACS Colloids and Surface Science Symposium, New York, July, 2017.
67. B. Johnston,[‡] C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry (poster), *The Effect of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, 23rd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2017.
68. C. Davis,[‡] S. Sui, S.L. Perry (poster), *Creation and Study of Microfluidic Devices for Crystallography Capable of In Situ Protein Activity Assays*, 23rd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2017.
69. R. Shamsi,[‡] X. Meng, S.L. Perry, J.D. Schiffman (poster), *Spin-Coating Coacervate Thin Films with Encapsulated Rhodamine*, 23rd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2017.
70. S.L. Perry, *Dynamics in Complex Coacervates*, APS March Meeting, New Orleans, March, 2017.
71. W.C. Blocher, Y. Liu, P. Harney,[‡] S.L. Perry, *Novel Method for Protein Stability and Delivery through the Formation of Complex Coacervates*, AIChE Annual Meeting, San Francisco, November 2016.
72. L.W. Chang, B. Johnston,[‡] M. Radhakrishna, C. Johnston,[‡] J. Vélez,[‡] R. Letteri, T. Emrick, C.E. Sing, S.L. Perry, *Effect of Charge Patterning and Polymer Architecture on Polypeptide-Based Coacervates*, AIChE Annual Meeting, San Francisco, November 2016.
73. S. Sui, Y. Wang, D. MacPherson, K.W. Kolewe, V. Srajer, R. Henning, J.D. Schiffman, J. Hardy, C. Dimitrakopoulos, S.L. Perry (poster), *Graphene-Based Microfluidics for Serial Microcrystallography*, AIChE Annual Meeting, San Francisco, November 2016.
74. S. Sui, Y. Wang, D. MacPherson, K.W. Kolewe, V. Srajer, R. Henning, J.D. Schiffman, J. Hardy, C. Dimitrakopoulos, S.L. Perry (poster), *Graphene-Based Microfluidics for Serial Crystallography*, Institute for Applied Life Sciences Grand Opening, Amherst, October 2016.
75. X. Meng, S.L. Perry, J.D. Schiffman (poster), *Electrospinning Polyelectrolyte Complex (PEC) Coacervates into Fiber Mats*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.
76. W.C. Blocher, S.L. Perry (poster), *Protein Encapsulation via Coacervation using Oppositely-Charged Polyelectrolytes*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.
77. L.W. Chang, S.L. Perry (poster), *Effect of Charge Patterning and Polymer Architecture on Polypeptide-Based Coacervates*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.
78. Y. Liu, B. Monami, H.H. Winter, S.L. Perry (poster), *Enabling Transitions in Polyelectrolyte Complexes*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.
79. B. Johnston,[‡] C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry (poster), *The Effect of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.
80. X. Meng, S.L. Perry, J.D. Schiffman, *Electrospinning Polyelectrolyte Complex Coacervates into Fiber Mats*, The Fiber Society 2016 Fall Meeting and Technical Conference, Ithaca, NY, October 2016.
81. S.L. Perry (poster), *Molecular Engineering of Polyelectrolyte Complex Materials*, Gordon Research Conference on Polymer Physics, South Hadley, MA, August 2016.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

([‡]undergraduate)

82. S.L. Perry, S. Sui, Y. Wang, C. Dimitrakopoulos, V. Srajer, R. Henning, *Time Resolved Serial Protein Crystallography in Ultra-Thin Microfluidic Devices*, ACA Annual Meeting, Denver, July 2016.
83. S.L. Perry, S. Sui, Y. Wang, C. Dimitrakopoulos, V. Srajer, R. Henning, *Time Resolved Serial Protein Crystallography in Ultra-Thin Microfluidic Devices*, Gordon Research Conference on Diffraction Methods in Structural Biology, Lewiston, ME, July 2016.
84. S.L. Perry, S. Sui, Y. Wang, C. Dimitrakopoulos, V. Srajer, R. Henning (poster), *Time Resolved Serial Protein Crystallography in Ultra-Thin Microfluidic Devices*, Gordon Research Conference on Diffraction Methods in Structural Biology, Lewiston, ME, July 2016.
85. S. Sui, Y. Wang, D. MacPherson, K.W. Kolewe, V. Srajer, R. Henning, J.D. Schiffman, J. Hardy, C. Dimitrakopoulos, S.L. Perry, *Graphene-Based Microfluidics for Serial Crystallography*, 16th International Conference on the Crystallization of Biological Macromolecules, Prague, July 2016.
86. S. Sui, Y. Wang, D. MacPherson, K.W. Kolewe, V. Srajer, R. Henning, J.D. Schiffman, J. Hardy, C. Dimitrakopoulos, S.L. Perry (poster), *Graphene-Based Microfluidics for Serial Crystallography*, 16th International Conference on the Crystallization of Biological Macromolecules, Prague, July 2016.
Awarded the IUCr Poster Prize.
87. S. Sui, Y. Wang, D. MacPherson, K.W. Kolewe, V. Srajer, R. Henning, J.D. Schiffman, J. Hardy, C. Dimitrakopoulos, S.L. Perry, *Graphene-Based Microfluidics for Serial Crystallography*, ACS Colloid and Surface Science Symposium, Boston, June 2016.
88. L.W. Chang, Y. Liu, X. Meng, W. Blocher, J. Vélez,[‡] B. Johnston,[‡] R. Shamsi,[‡] R. Wang,[‡] M. Radhakrishna, R. Letteri, B. Momani, H.H. Winter, T. Emrick, C.E. Sing, J.D. Schiffman, S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, ACS Colloid and Surface Science Symposium, Boston, June 2016.
89. R. Shamsi,[‡] R. Wang,[‡] X. Meng, S.L. Perry, J.D. Schiffman (poster), *Harnessing the Liquid-to-Solid Transition of Polyelectrolyte Complexes to Enable Polymer Processing*, Northeast Regional AIChE Conference, Amherst, April 2016.
90. C. Kenny,[‡] G. Chang, T. Emrick S.L. Perry (poster), *Nanometer Layer Film Viability of Dispersed Droplets Prepared from Complex Coacervates*, Northeast Regional AIChE Conference, Amherst, April 2016.
91. J. Vélez,[‡] L.W. Chang, M. Radhakrishna, C.E. Sing, S.L. Perry (poster), *Effects of Charge Patterning on the Stability of Polyelectrolyte Complexes*, Northeast Regional AIChE Conference, Amherst, April 2016.
92. K. Basu,[‡] M. Leaf, Y. Liu, M. Radhakrishna, C.E. Sing, S.L. Perry (poster), *Quantifying Salt Partitioning During Complex Coacervation*, Northeast Regional AIChE Conference, Amherst, April 2016.
93. K. Basu,[‡] M. Leaf, Y. Liu, M. Radhakrishna, C.E. Sing, S.L. Perry (poster), *Quantifying Salt Partitioning During Complex Coacervation*, 22nd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2016.
94. B. Johnston,[‡] C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry (poster), *The Effect of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, 22nd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2016.
95. R. Wang,[‡] R. Shamsi,[‡] X. Meng, S.L. Perry, J.D. Schiffman, *Fabrication and Characterization of PSS/PDADMAC Coacervate Thin Films*, 22nd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2016.
96. P. Harney,[‡] W. Blocher, S.L. Perry (poster), *Coacervate-Based Hemoglobin Stabilization for Artificial Blood Applications*, 22nd Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2016.
97. P. Harney,[‡] W. Blocher, S.L. Perry (poster), *Coacervate-Based Hemoglobin Stabilization for Artificial Blood Applications*, University of Massachusetts Amherst iCons Research Showcase, Amherst, April 2016.
98. L.W. Chang, Y. Liu, B. Momami, J. Vélez,[‡] H.H. Winter, S.L. Perry, *Understanding and Controlling Transitions in Polyelectrolyte Complex Materials*, APS March Meeting, Baltimore, March 2016.
99. Y. Liu, B. Momani, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, Colloidal, Macromolecular & Polyelectrolyte Solutions Gordon Research Conference, Ventura, February 2016.
100. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, Colloidal, Macromolecular & Polyelectrolyte Solutions Gordon Research Conference, Ventura, February 2016.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

([‡]undergraduate)

101. L.W. Chang, Y. Liu, B. Johnston,[‡] C. Johnston,[‡] J. Vélez,[‡] R. Letteri, T. Emrick, S.L. Perry, *Effect of Charge Patterning and Polymer Architecture on Polypeptide-Based Coacervates*, AIChE Annual Meeting, Salt Lake City, November 2015.
102. C. Sing, M. Radhakrishna, S.L. Perry, *Correlation and Sequence Effects in Complex Coacervation*, AIChE Annual Meeting, Salt Lake City, November 2015.
103. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, UMass-Amherst Fall Polymer Event, October 2015.
104. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2015.
105. B. Johnston,[‡] C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry, (poster) *Effects of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2015.
106. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, ACS National Meeting, Boston, August 2015.
107. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, ACS National Meeting, Boston, August 2015.
108. C. Johnston,[‡] B. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry, (poster) *Effects of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, International Conference on Bioinspired and Zwitterionic Materials, Seattle, August 2015.
109. C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry, *Effect of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, ACS Colloids and Surface Science Symposium, Pittsburgh, June 2015.
110. S.L. Perry, V. Srajer, A.S. Pawate, J. Schieferstein, S. Guha, Z. Ren, P.J.A. Kenis, (poster) *Time Resolved Serial Protein Crystallography in a Microfluidic Device*, Physics & Chemistry of Microfluidics Gordon Conference, West Dover, June 2015.
111. C. Johnston,[‡] R. Letteri, T. Emrick, S.L. Perry, (poster) *Effect of Polymer Architecture and Zwitterionic Moieties on Complex Coacervation*, ACS-CVS Undergraduate Research Symposium, Hartford, April 2015.
Honored as the Best Poster.
112. C. Vieira Robalo,[‡] S.L. Perry, (poster) *X-ray Compatible Microfluidic Platforms for Protein Crystallography*, ACS-CVS Undergraduate Research Symposium, Hartford, April 2015.
113. S.L. Perry, P. McCall, S. Srivastava, D. Kovar, M.L. Gardel, M. Tirrell, *Biomimetic Coacervate Environments for Protein Analysis*, APS March Meeting, San Antonio, March 2015.
114. S.L. Perry, *Biomimetic Coacervate Materials and Beyond*, UMass Amherst Materials Discussions, February 2015.
115. S.L. Perry, V. Srajer, A.S. Pawate, J. Schieferstein, S. Guha, Z. Ren, P.J.A. Kenis, *Time Resolved Serial Protein Crystallography in a Microfluidic Device*, AIChE Annual Meeting, Atlanta, November 2014.
116. S.L. Perry, P. McCall, L. Leon, D. Priftis, J.R. Sachleben, M.L. Gardel, T.R. Sosnick, M. Tirrell, *Biomimetic Coacervate Environments for Protein Analysis*, AIChE Annual Meeting, Atlanta, November 2014.
117. C. Sing, S.L. Perry, M. Tirrell, M. Olvera de la Cruz, *Ion and Cooperativity Effects in Complex Coacervate Structure*, AIChE Annual Meeting, Atlanta, November 2014.
118. L. Leon Gibbons, S.L. Perry, C.H. Kuo, D. Priftis, D. Wong, Y. Fang, M. Tirrell, *Engineering Modular Delivery Vehicles Using Biomimetic Polyelectrolytes*, AIChE Annual Meeting, Atlanta, November 2014.
119. D. Priftis, L. Leon, Z. Song, S.L. Perry, K.O. Margossian, A. Tropnikova, J. Cheng, M. Tirrell, *Coacervate Driven Assemblies Using α -Helical Polypeptides*, AIChE Annual Meeting, Atlanta, November 2014.
120. S.L. Perry, V. Srajer, A.S. Pawate, J. Schieferstein, S. Guha, Z. Ren, P.J.A. Kenis, *Time Resolved Serial Crystallography in a Microfluidic Device*, 15th International Conference on the Crystallization of Biological Macromolecules, Hamburg, Germany, September 2014.
121. S.L. Perry, V. Srajer, A.S. Pawate, J. Schieferstein, S. Guha, Z. Ren, P.J.A. Kenis, (poster) *Time Resolved Serial Crystallography in a Microfluidic Device*, 15th International Conference on the Crystallization of Biological Macromolecules, Hamburg, Germany, September 2014.

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

F. Research Support

F1. Funded Research Grants and Contracts (Total: \$2,146,910)

1. *Cryptic Hydrogels*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.R. Peyton (PI), J. Klier (Co-PI), S.L. Perry (Co-PI), \$594,117.
2. *Parametric Investigation on the effect of Polymer Properties and Salt on Coacervation and Materials Processing*, BASF/UMass Cooperative Research Project, S.L. Perry (PI), J.D. Schiffman (PI), Mohsen Soleimani (PI), \$150,000.
3. *Encapsulation of Actives for Sensing, Delivery, and Wound Care*, 3M Non-Tenured Faculty Award, S.L. Perry (PI), \$15,000.
4. *At Home Detection of Antineoplastic Drugs and Hazardous Metabolites in Body Fluids*, Oncology Nursing Foundation Research Grant, R. Walker (PI), S.L. Perry (Co-I), \$24,949.
5. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2018 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), \$500.
6. *Rational Framework for Particle-Containing Coacervates*, National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems, Particulate and Multiphase Processes Program (CBET- 1804177), S.L. Perry (PI), M. Santore (Co-PI), 09/01/2018 – 08/30/2021, \$357,694.
7. *Novel Approach to Regulate Uptake and Enhance Rain-fastness of Pesticide Activate Ingredients on Leaf Surface*, BASF/UMass Cooperative Research Project, S.L. Perry (PI), J.D. Schiffman (PI), W. Xu (PI), C.W. Finch (PI), 10/01/2018 – 12/31/2019, \$150,000.
8. *Travel for Collaboration with Prof. Caryn Heldt at Michigan State University*, Center for Bioactive Delivery Microgrant, S.L. Perry (PI), 2017, \$1000.
9. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2016 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2017, \$500.
10. *Electrospinning Coacervate Nanofiber Mats*, National Science Foundation, Division of Civil, Mechanical and Manufacturing Innovation, Nanomanufacturing Program (CMMI-1727660), J.D. Schiffman (PI), S.L. Perry (PI), 09/01/2017 – 08/31/2020, \$338,076.
11. *Stability and Properties of Polyelectrolyte Complexes at High Concentrations of Anionic Surfactants*, BASF/UMass Cooperative Research Project, S.L. Perry (PI), R. da Conceicao Tavares André (PI), \$150,000, 06/27/2017 – 06/26/2018.
12. *Using Graphene Microfluidics to Study Protein Structural Dynamics*, BioXFEL Science and Technology Center, S.L. Perry (PI), C. Dimitrakopoulos (Co-PI), 05/01/2017 – 09/30/2018, \$102,000.
13. *Graphene Microfluidics for Room Temperature Fragment-Based Screening*, Novartis Institutes for Biomedical Research Inc., S.L. Perry (PI), R. Chopra (PI), 2017, \$4000.
14. *Electrospinning of Complex Coacervates*, UMass-Amherst Faculty Research Grant, S.L. Perry (PI), J.D. Schiffman (Co-PI), 01/01/2017 – 12/31/2017, \$11,874.
15. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2016 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2016, \$500.
16. *Electrochemical Surface Response of Novel Electrode Materials and Functionality as a Test Strip*, Materion Large Area Coatings, S.L. Perry (PI), 09/01/2016 – 08/31/2017, \$75,000.
17. *Advanced Formulations for Reduced-VOC Windshield Washer Fluid*, TURI Academic Research Grants, S.L. Perry (PI), J. Klier (Co-PI), \$25,000, 08/01/2016 – 07/31/2017.
18. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2015 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2015, \$500.
19. *Designing the Liquid-to-Solid Transition in Polyelectrolyte Complexes*, American Chemical Society Petroleum Research Fund New Doctoral Investigator Program (#56281-DNI7), S.L. Perry (PI), 06/01/2016 – 05/31/2018 \$110,000.
20. *Complex Coacervation: Principles and Applications - A Special Symposium at the 2015 American Chemical Society Fall Meeting*, National Science Foundation, Division of Materials Research, Biomaterials Program (DMR-1547258), S.L. Perry (PI), P.L. Dubin (Co-I), 07/01/2015 – 12/31/2015, \$5,000.
21. *Bio-Inspired Thermostable Vaccine Formulations*, from the Armstrong Fund for Science at UMass-Amherst, S.L. Perry (PI), 2015 – 2017, \$30,000.

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

F1. Funded Research Grants and Contracts (cont')

22. *Microfluidic Membrane Protein Crystallization for High Resolution Proteomics*, Ruth L. Kirschstein National Research Service Award (Predoctoral Fellowship, F31 EB008330) from the National Institutes of Health, S.L. Perry (PI), P.J.A. Kenis and R.B. Gennis (Co-Sponsors), 2008 – 2010, \$133,230.

F2. Pending Research Proposals

1. *CCI Phase I: NSF Center on Synthetic Metabolism*, National Science Foundation, Center for Chemical Innovation, R. Ulijn (PI), D.G. Lynn (Co-I), M.A. Grover (Co-I), I. Korendovych (Co-I), S.L. Perry (Co-I), \$1.8M (Phase I Preliminary Proposal submitted).
2. *CAREER: Nature-Inspired Strategies for Protein Stabilization*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.L. Perry (PI), \$658K (submitted).
3. *Dense Phase Polyelectrolytes to Thermally Stabilize Viral Vaccines*, NIH R21, C.L. Heldt (PI), S.L. Perry (Co-PI) \$275,000, (submitted).
4. *Yielding Entrepreneurship and translational Science to Support Sexual well-being, Symptom Self-management and PLEASurE (YESSSSS, PLEASE)*, IALS/Manning Innovation Award, R. Walker (PI), G. Abelard (Co-I), M. Paterno (Co-I), R. LeBlanc (Co-I), S.L. Perry (Co-I), A. Paskausky (Co-I), (letter of intent submitted).
5. *Sequence Control of Phase Separation in Cells*, Department of Defense MURI S.L. Perry (PI), A. Obermeyer (PI), C.E. Sing (PI), D. Shukla (PI), M. Gruebele (PI), (white paper submitted, selected for full proposal).

F3. Submitted Research Proposals, Not Awarded

1. *Nature-Inspired Materials Design*, Camille Dreyfus Teacher-Scholar Award, S.L. Perry (PI), \$100,000 (not funded).
2. *Using Graphene Microfluidics to Study Protein Structural Dynamics*, BioXFEL Science and Technology Center, S.L. Perry (PI), \$180,000 (not funded).
3. *DMREF: Emulating Functional Bioenvironments by Designing Materials with Charged Patterns*, National Science Foundation, S.L. Perry (PI), C.E. Sing (Co-PI), A.C. Obermeyer (Co-PI), S. Elbaum (Co-PI), \$1,680,920 (not funded).
4. *Materials Strategy for Thermostable Vaccines*, Ruth L. Kirschstein National Research Service Award (Predoctoral Fellowship, F31) from the National Institutes of Health, W.C. Blocher McTigue (PI), S.L. Perry (Sponsor), C.L. Baldwin (Co-Sponsor), (not funded).
5. *Building Capacity to Address Human and Environmental Impacts of Chemotherapeutic Drugs and their Metabolites*, NSF Growing Convergent Research, S.L. Perry (PI), R. Walker (PI), P. Chien (Co-I), J. Jerry (Co-I), S. Hankinson (Co-I), (prospectus submitted, not selected).
6. *Polymer Zwitterions as Novel Reagents for Protein Crystallization*, NIH R21, S.L. Perry (PI), T. Emrick (Co-I), E.H. Snell (Co-I), \$468K (resubmission, not funded).
7. *Portable Self-Contained IV Fluid Production for Humanitarian Crises & Low Resource Settings*, M2D2 \$200K Challenge, M. Busa (PI), R. Walker (PI), S.L. Perry (Co-PI), \$200K (Challenge Runner-Up).
8. *Cryptic Hydrogels*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.R. Peyton (PI), J. Klier (Co-PI), S.L. Perry (Co-PI), \$600K (not funded).
9. *Coacervation as a Platform for Nature-Inspired Materials Design*, Johnson & Johnson WiSTEM²D Scholars Program, S.L. Perry (PI), \$150K (not funded).
10. *Design and Theory of Charge-Driven Coacervate-Core Micelle Assembly*, National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems, Process Systems, Reaction Engineering and Molecular Thermodynamics Program, S.L. Perry (PI), C.E. Sing (Co-PI), \$428K (not funded).
11. Encapsulation of Actives for Sensing and Delivery, 3M Non-Tenured Faculty Award, S.L. Perry (PI), (not funded).
12. Women in Science Undergraduate Research Experience, Women for UMass Amherst Fund, S.L. Perry (PI), \$8000 (not funded).
13. *Polymer Zwitterions: Multivalent Silver Bullets for Protein Crystallization*, NIH R21, S.L. Perry (PI), T.S. Emrick (Co-I), E.H. Snell (Co-I), \$468K (not funded).
14. *Mechanically Adaptive and Homeostatic Materials*, W.M. Keck Foundation, S.R. Peyton (PI), S.L. Perry (Co-PI), T.S. Emrick (Co-PI), R.C. Hayward (Co-PI), J. Klier (Co-PI), \$1.6M (not funded).
15. *Cryptic Hydrogels*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.R. Peyton (PI), J. Klier (Co-PI), M.D. Langer (Co-PI) S.L. Perry (Co-PI), \$551K (not funded).

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

F3. Submitted Research Proposals, Not Awarded (cont')

16. *Design and Theory of Charge-Driven Coacervate-Core Micelle Assembly*, National Science Foundation, Chemical, Bioengineering, Environmental, and Transport Systems, Process Systems, Reaction Engineering and Molecular Thermodynamics Program, S.L. Perry (PI), C.E. Sing (Co-PI), \$415K (not funded).
17. *A Biophysical and Reagent Based Approach to Promoting Crystallization Screening Outcomes*, NIH R01, E.H. Snell (PI), S.L. Perry (Co-PI), \$2.5M (not funded).
18. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, Smith Family Awards Program for Excellence in Biomedical Research, S.L. Perry (PI), \$300K (not funded).
19. *Coacervation as a Green Platform for the Delivery of Actives for Coatings*, 3M Non-Tenured Faculty Award, S.L. Perry (PI), (not funded).
20. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, 2017 Beckman Foundation Young Investigator Award, S.L. Perry (PI) (limited submission letter of intent submitted, not selected).
21. *CAREER: Nature-Inspired Strategies for Protein Stabilization*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.L. Perry (PI), \$594K (not funded).
22. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, David & Lucille Packard Foundation Fellowships for Science & Engineering, S.L. Perry (PI), \$875K (limited submission pre-proposal submitted, not selected).
23. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, from the UMass Center for Clinical & Translational Science and MassBiologics of UMass Medical School "Next Hundred Million" Pilot Project, S.L. Perry (PI), M. Leney (Co-PI), (not funded).
24. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, 2016 Beckman Foundation Young Investigator Award, S.L. Perry (PI), \$750K (submitted, not reviewed).
25. *Harnessing Self-Association to Drive Rational Biological Macromolecular Crystallization*, National Science Foundation, Division of Molecular and Cellular Biosciences, S.L. Perry (PI), E.H. Snell (Co-I), \$725K (not funded).
26. *Nature-Inspired Strategies for Refrigeration-Free Tetanus Vaccine*, Smith Family Awards Program for Excellence in Biomedical Research, S.L. Perry (PI), \$300K (not funded).
27. *CAREER: Nature-Inspired Strategies for Protein Stabilization*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.L. Perry (PI), \$569K (not funded).
28. *Thermostable Vaccine Formulations via Biomimetic Complex Coacervation*, from the UMass Center for Clinical & Translational Science and MassBiologics of UMass Medical School "Next Hundred Million" Pilot Project, S.L. Perry (PI), M. Leney (Co-PI), \$75K (not funded).
29. *Microfluidic Isolation of Epithelial Cells from Breast Milk*, from the Department of Defense Congressionally Directed Medical Research Program, S.L. Perry (PI), M.M. Santore (Co-I), K.F. Arcaro (Co-I), \$1.1M (not funded).
30. *Harnessing Biomimetic Microenvironments for the Study of Alzheimer's Disease*, from the Marion Milligan Mason Award for Women in the Chemical Sciences through the American Association for the Advancement of Science, S.L. Perry (PI), \$50K (not funded).

G. Research Advising Activities

G1. Mentored Postdoctoral Researchers (1 Total, 1 Current)

1. Dr. Vanda Liadinskaia (Oct. 2018 – present)
Advanced strategies for the formulation and safening of fungicides.

G2. Mentored PhD Student Researchers (6 Total, 6 Current)

1. Sarthak Saha (Chemical Engineering) (Nov. 2018 – present)
Development of microfluidic platforms for high throughput protein crystallization and drug discovery.
Awards: UMass Chemistry Biology Interface (CBI) Fellowship
Trainee – Chemistry Biology Interface (CBI) Training Program

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

G2. Mentored PhD Student Researchers (cont')

2. Whitney Blocher (Chemical Engineering) (Oct. 2015 – present)
Utilized sequence-controlled polypeptide-based complex coacervates to stabilize encapsulated proteins for applications such as refrigeration-free vaccines.
Awards: Eldridge Award for Best G.R.A.S.S. Presentation 2019
PPG Fellowship, Spring 2019
James M. Douglas Graduate Fellowship, Fall 2018
Eldridge Teaching Assistant Award, Fall 2017
Soft Materials for Life Sciences NRT Travel Grant
NSF Trainee Fellowship – Soft Materials for Life Sciences, an NSF Research Traineeship Program (NRT)
3. Xiangxi “Zoey” Meng (Chemical Engineering, joint with Jessica Schiffman) (Oct. 2015 – present)
Developed methods for encapsulating antimicrobial and catalytic molecules into thin films and nanofibers of polyelectrolyte complex-based materials.
Awards: Best Poster, Chemical Engineering Graduate Recruiting Weekend 2019
Maden Travel Award 2019
Soft Materials for Life Sciences NRT Travel Grant
Soft Materials for Life Sciences, an NSF Research Traineeship Program (NRT)
4. Li-Wei Cheng (Chemical Engineering) (Oct. 2014 – present)
Examined the effects of chemical patterning on the formation of polypeptide-based complex coacervates.
Awards: Soft Materials for Life Sciences NRT Travel Grant
Soft Materials for Life Sciences, an NSF Research Traineeship Program (NRT)
5. Yalin Liu (Chemical Engineering) (Oct. 2014 – present)
Examined the solid-to-liquid transition in polyelectrolyte complexes as a function of electrostatics, hydrogen bonding, and chemical patterning.
Awards: Soft Materials for Life Sciences NRT Travel Grant
Soft Materials for Life Sciences, an NSF Research Traineeship Program (NRT)
6. Shuo Sui (Chemical Engineering) (Oct. 2014 – present)
Developed microfluidic platforms for time-resolved protein crystallography.
Awards: Poster Prize at the BioXFEL Conference, February 2019
International Conference on the Crystallization of Biological Macromolecules IUCr Travel Award, October 2018
Poster Prize at the International Conference on the Crystallization of Biological Macromolecules (ICCBM17), October 2018
Tillwick and Eldridge Teaching Assistant Award, Spring 2017
IUCr Poster Prize at the International Conference on the Crystallization of Biological Macromolecules (ICCBM16), July 2016
International Conference on the Crystallization of Biological Macromolecules Young Scientist Travel Award, July 2016

G3. Mentored Masters Student Researchers (1 Total)

1. Juanfeng Sun (Chemical Engineering, joint with Jessica Schiffman) (Oct. 2017 – present)
Electrospinning of complex coacervates composed of natural biopolymers.

G4. Mentored Undergraduate Student Researchers (42 Total, 13 Current)

1. Giuseppe Santaniello (Joint with Anne Gershenson) (Apr. 2019 – present)
2. Jonathan Selway (Oct. 2018 – present)
3. Elizabeth McDermott (Sept. 2018 – present)
4. Gregory Donovan (Joint with Jessica Schiffman) (Sept. 2018 – present)
5. Telvin Abariga (June 2018 – present)

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

G4. Mentored Undergraduate Student Researchers (cont')

6. Joshua McGee (Apr. 2018 – present)
Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
2019 UMass Amherst Life Sciences Alumni Network Scholarship
2nd Place in the 2019 Northeast Regional AIChE Conference Poster Competition
Spring 2019 Commonwealth Honors College Research Assistant Fellowship
7. Abigail Cabral (Apr. 2018 – present)
Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
Spring 2019 Commonwealth Honors College Research Assistant Fellowship
8. Shari Traiger (Apr. 2018 – present)
Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
9. Devin Rafferty (Joint with Todd Emrick) (Jan. 2018 – present)
Awards: Spring 2019 Commonwealth Honors College Research Assistant Fellowship
Fall 2018 Commonwealth Honors College Research Assistant Fellowship
10. Ahzam Mustafa (Dec. 2017 – Jan. 2018)
11. Hansen Tjo (Dec. 2017 – present)
Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
Spring 2019 Commonwealth Honors College Research Assistant Fellowship
Fall 2018 Commonwealth Honors College Research Assistant Fellowship
12. Svilen Kolev (Joint with Anne Gershenson, Currently a PhD student in Chemical Engineering at Northeastern University) (Sept. 2017 – May 2019)
Awards: 2018 Commonwealth Honors College Honors Research Grant
13. Lila Durán Ruiz (Sept. 2017 – present)
14. Bryanne Zonghi (Currently Associate Research Scientist at Bristol-Myers Squibb) (July 2017 – May 2019)
15. Caleb Boucher (Currently Trail Crew for the Southwest Conservation Corps) (May 2017 – May 2019)
16. Xi (Ryan) Hao (Currently a PhD student in Macromolecular Science and Engineering at Virginia Tech) (Feb. 2017 – May 2018)
17. Matthew Labbe (Feb. 2017 – present)
Awards: Spring 2019 Commonwealth Honors College Research Assistant Fellowship
Fall 2018 Commonwealth Honors College Research Assistant Fellowship
Fall 2017 Commonwealth Honors College Research Assistant Fellowship
18. Elizabeth Voke (Feb. 2017 – present)
Awards: 2019 Commonwealth Honors College Research Grant
Fall 2018 Commonwealth Honors College Research Assistant Fellowship
19. Rachel Brody (Jan. 2017 – Feb. 2018)
20. Alexander Brosseau (Currently a Chemist at Mylan Technologies) (Sept. 2016 – May 2017)
21. Bryan Chua (Joint with Jessica Schiffman and Rachel Walker, Currently an Assistant Automation Engineer at Bristol Myers Squibb) (May 2016 – May 2019)
Awards: 2019 21st Century Leader Award
2019 Commonwealth Honors College Honors Research Grant
2018 Commonwealth Honors College Honors Research Grant
Spring 2018 Commonwealth Honors College Research Assistant Fellowship
Fall 2017 Commonwealth Honors College Research Assistant Fellowship
22. Brenna Walsh (Apr. 2016 – Dec. 2016)

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

G4. Mentored Undergraduate Student Researchers (cont')

23. Savannah Szemethy (Currently a Research Associate at Platelet Biogenesis) (Apr. 2016 – May 2019)
Awards: Research Art Science Exhibition Finalist – Spring 2019
MRS Science as Art Competition Finalist – Spring 2019
Spring 2018 Commonwealth Honors College Research Assistant Fellowship
MRS Science as Art Competition Finalist – Spring 2017
Fall 2017 Commonwealth Honors College Research Assistant Fellowship
24. Rebecca Hershman (Currently PhD student in Chemical Engineering at Tufts) (Apr. 2016 – May 2018)
25. Sid Vipura (Apr. 2016 – Aug. 2016)
26. Tyler Carpenter (Honors Thesis, Currently an Automation Engineer at Merck) (Apr. 2016 – May 2018)
Awards: 2017 Commonwealth Honors College Honors Research Grant
27. Christine Davis (Honors Thesis, Currently a Scientist at Shire Pharmaceuticals) (Apr. 2016 – May 2017)
28. Marzbed Margossian (Joint with Paul Dubin) (Oct. 2015 – May 2017)
29. Robin Zollner (Currently Materials, Process, and Physics Engineer at Boeing) (Sept. 2015 – May 2019)
30. Adam Murphy (Joint with Neil Forbes, Currently a Scientist I, Formulation at Thermo Fisher Scientific) (Sept. 2015 – May 2017)
31. Rui Pereira (Currently Process Engineer at Toray Plastics) (Sept. 2015 – Dec. 2015)
32. Kush Basu (Honors Thesis, Currently Research Engineer at Saint-Gobain) (May 2015 – Feb. 2019)
Awards: 2017 Commonwealth Honors College Honors Research Grant
Fall 2016 Commonwealth Honors College Research Assistant Fellowship
Spring 2016 Commonwealth Honors College Research Assistant Fellowship
33. Brenton Drew Knudson (Currently Associate Process Engineer at PaxVax, Inc.) (Apr. 2015 – May 2016)
34. Patrick Harney (Honors Thesis, Currently Chemist at Johnson Matthey Pharmaceuticals) (Apr. 2015 – May 2016)
35. Appa Salvi (Hampshire College) (Apr. 2015 – June 2015)
36. Brandon Johnston (Honors Thesis, Joint with Todd Emrick, Currently PhD student in Chemical Engineering at MIT) (Apr. 2015 – May 2018)
Awards: 2017 – 2018 UMass Amherst Rising Researcher
2017 Commonwealth Honors College Honors Research Grant
Spring 2017 Commonwealth Honors College Research Assistant Fellowship
Fall 2016 Commonwealth Honors College Research Assistant Fellowship
Spring 2016 Commonwealth Honors College Research Assistant Fellowship
37. Jon Vélez (Currently a Process Engineer at Pfizer) (Mar. 2015 – June 2016)
38. Ruoting Robert Wang (Honors Thesis, Joint with Jessica Schiffman) (Mar. 2015 – May 2016)
Awards: 2015 Commonwealth Honors College Honors Research Grant
39. Colton Kenny (Joint with Todd Emrick, Currently Process Engineer at Amphenol Printed Circuits) (Feb. 2015 – May 2016)
40. Cameron Johnston (Joint with Todd Emrick, Currently Process Engineer at Toray Plastics) (Oct. 2014 – June 2015)
Awards: Best Poster at 2015 ACS-CVS Undergraduate Research Symposium
41. Cristina Vieira Robalo (Sept. 2014 – May 2016)
Awards: Fall 2015 Commonwealth Honors College Research Assistant Fellowship
42. Rasmia Shamsi (Honors Thesis, Joint with Jessica Schiffman, Currently an Engineer at United Technologies) (Sept. 2014 – May 2017)
Awards: 2016 Commonwealth Honors College Honors Research Grant
Fall 2015 Commonwealth Honors College Research Assistant Fellowship

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

G5. Doctoral Committee Mentorship (31 Total, 8 Current)

1. Hazel Davis (Polymer Science and Engineering, Greg Tew advisor) (Apr. 2019 – present)
2. Suyue Han (Mechanical and Industrial Engineering, Yahya Modarres-Sadeghi advisor) (Feb. 2019 – present)
3. Emil Samson (Chemistry, S. "Thai" Thayumanavan advisor) (Nov. 2018 – present)
4. Oscar Zabala (Chemical Engineering, Peter Beltramo advisor) (Sept. 2018 – present)
5. Anh Nguyen (Chemical Engineering, Ashish Kulkarni advisor) (Sept. 2018 – present)
6. Matt Lampe (Polymer Science and Engineering, Alan Lesser advisor) (July 2018 – Feb. 2019)
7. Joshua Enokida (Polymer Science and Engineering, E. Bryan Coughlin advisor) (May 2018 – Aug. 2019)
8. Aritra Kundu (Chemical Engineering, Shelly Peyton advisor) (May 2018 – present)
9. Zipei Zhang (Food Science, D. Julian McClements advisor) (Mar. 2018 – Mar. 2019)
10. Hyeyoung Kim (Polymer Science and Engineering, Thomas Russell advisor) (Jan. 2018 – Aug. 2019)
11. Yiliang Zhou (Polymer Science and Engineering, James Watkins advisor) (Aug. 2017 – Oct. 2018)
12. Shane Taylor (Chemical Engineering, John Klier advisor) (July. 2017 – present)
13. Cristiam Santa Chalarca (Polymer Science and Engineering, Todd Emrick advisor) (Jan. 2017 – Dec. 2018)
14. Chinomso Nwosu (Polymer Science and Engineering, E. Bryan Coughlin advisor) (Sept. 2016 – June 2018)
15. Aditi Naik (Polymer Science and Engineering, James Watkins advisor) (Aug. 2016 – Sept. 2018)
16. Michael Leaf (Polymer Science and Engineering, M. Muthukumar advisor) (Apr. 2016 – May 2017)
17. Mike Kwasny (Polymer Science and Engineering, Greg Tew advisor) (Apr. 2016 – May 2019)
18. Xiao Liu (Chemistry, Stony Brook University, Surita Bhatia advisor) (Mar. 2016 – May 2016)
19. Mindy Dai (Food Science, Sam Nugen advisor) (Feb. 2016 – Mar. 2016)
20. Kiran Iyer (Chemical Engineering, M. Muthukumar advisor) (Dec. 2015 – present)
21. Kieran Ramos (Physics, Lori Goldner advisor) (Nov. 2015 – July 2019)
22. Prabhat Tripathi (Chemistry, M. Muthukumar advisor) (Oct. 2015 – July 2018)
23. Charmaine Koo (Food Science, Sam Nugen advisor) (Sept. 2015 – Mar. 2016)
24. Svetlana Morozova (Polymer Science and Engineering, M. Muthukumar advisor) (Aug. 2015 – Dec. 2016)
25. Brian Momani (Chemical Engineering, H. Henning Winter advisor) (June 2015 – Dec. 2017)
26. Daniel Seeman (Chemistry, Paul Dubin advisor) (Mar. 2015 – May 2015)
27. Stephen Strassburg (Polymer Science and Engineering, David Hoagland and Harry Bermudez advisors) (Jan. 2015 – Apr. 2018)
28. Elizabeth Cummings Bende (Chemical Engineering, Susan Roberts advisor) (Dec. 2014 – Apr. 2018)
29. Matthew Skinner (Polymer Science and Engineering, Todd Emrick advisor) (Dec. 2014 – Sept. 2017)
30. Bin Liu (Chemistry, S. "Thai" Thayumanavan advisor) (Dec. 2014 – Apr. 2019)
31. Fatih Comert (Chemistry, Paul Dubin advisor, served as co-chair) (July 2014 – Sept. 2018)

G6. Masters Committee Mentorship (2 Total, 1 Current)

1. Yuhan Tian (Biochemistry and Molecular Biology, S. Garman advisor) (Feb. 2019 – present)
2. Marcos Manganare (Molecular and Cellular Biology, Shelly Peyton advisor) (May 2015 – June 2015)

G7. Honors Thesis Committee Mentorship (11 Total, 1 Current)

1. Megha Shah (Chemical Engineering, Neil Forbes advisor) (July 2019 – present)
2. Miriam Lee (Chemical Engineering, M. Muthukumar advisor) (Sept. 2018 – June 2019)
3. Kavya Ramachandran (Chemical Engineering, Neil Forbes advisor) (July 2018 – May 2019)
4. Griffin Hurley (Chemical Engineering, Jessica Schiffman advisor) (Dec. 2017 – May 2018)
5. Annali Yurkevicz (Chemical Engineering, Shelly Peyton advisor) (Dec. 2017 – May 2018)
6. Thomas Baim (Electrical Engineering, Daniel Holcomb advisor) (Nov. 2017 – May 2018)
7. Jennifer Slade (Chemical Engineering, H. Henning Winter advisor) (Nov. 2017 – May 2018)
8. Christopher Kuo-Leblanc (Chemical Engineering, Jessica Schiffman advisor) (Sept. 2017 – May 2018)

RESEARCH PROPOSALS, STUDENT AWARDS, AND MENTORSHIP (cont')

G7. Honors Thesis Committee Mentorship (cont')

9. Alexander Smith (Mechanical Engineering, Juan Jiménez advisor) (Dec. 2016 – May 2017)
10. Michael Beauregard (Chemical Engineering, Neil Forbes advisor) (Aug. 2016 – May 2017)
11. Alexander Malanowski (Chemistry, Paul Dubin advisor) (Jan. 2015 – May 2015)

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE

H. Teaching Experience

H1. Courses Taught

University of Massachusetts Amherst Chemical Engineering (Amherst, MA)

Introduction to Chemical Engineering (ENGIN 110), Fall 2014 – 2019

This course is intended to provide beginning engineering students with a clear overview of the field of chemical engineering. Students will develop basic skills in problem solving, computation, process design, and communication that will help them in all future engineering courses.

Taught classes and prepared materials for a class of ~90 to 155 students, while also organizing multiple graduate and undergraduate teaching assistants.

Nominated for the Distinguished Teaching Award 2016, 2018.

University of Massachusetts Amherst Chemical Engineering (cont') (Amherst, MA)

Microfluidics and Microscale Analysis in Materials and Biology (CHEM-ENG 590E/535), Spring 2016 – 2019

This course is intended to provide to provide undergraduate and graduate students with a clear overview of microfluidics, microchemical systems, and microscale analysis. Following an introduction to the basic concepts of microfluidic device fabrication and operation, students will research and present on microscale technology relevant to a specific application in materials or biology. In parallel, students will apply this knowledge for the hands-on development of a microscale technology relevant to a topic of their interest.

Taught classes and prepared materials for a class of ~17-35 students with one graduate teaching assistant and multiple undergraduate teaching assistants.

Organized design projects sponsored by various labs and researchers on campus and beyond.

Instructor – SMLS NRT Foundations II, Spring 2018 – 2019

Provided a series of overview lectures on the topic of microfluidics, Microchemical systems, and microscale analysis for 9 graduate students in the SMLS NRT Program.

Instructor – SMLS NRT Laboratory Module, Spring 2018 – 2019

Provided hands-on training on microfluidic device design, photolithography, and soft lithography for graduate students in the SMLS NRT Program.

Michigan Technological University Chemical Engineering (Houghton, MI)

Guest Instructor – Special Topics in Polymer Science (CH 6690), March 2019

Discussed the use and science of polymer self-assembly and complex coacervation.

Guest Instructor – Biomanufacturing and Biosafety (CM 4780), December 2018

Discussed strategies for encapsulating therapeutics and the challenges of ensuring stability and efficacy.

H2. Outreach Activities

Girl Scouts of Western Massachusetts 2016

Organized a fluids-based physics and engineering-based summer workshop for girls in grades 2-5.

Summer Engineering Institute (SENGI) (UMass Amherst) 2015 – 2019

Developed paper microfluidics and particle-sorting design projects for high school students.

Guest lecturer, discussing research opportunities in the field of Chemical Engineering.

Women in Engineering and Computing Career Day (UMass Amherst) 2015 – 2016

Coordinated laboratory tours for high school girls interested in Chemical Engineering.

Participated as a lunch-table discussion leader with high school girls interested in Chemical Engineering.

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE (cont')

H2. Outreach Activities (cont')

Eureka!/Girls Inc. (UMass Amherst) 2015

Co-organized a fluids-based physics and engineering-based summer workshop for girls ages 12-18.

I. Professional and Service Accomplishments

I1. Professional Affiliations

American Association for the Advancement of Science (AAAS)

American Chemical Society (ACS)

American Crystallographic Association (ACA)

American Institute of Chemical Engineers (AIChE)
Education Division Member

American Physical Society (APS)

American Society for Engineering Education (ASEE)

International Union of Crystallographers (IUCr)

Massachusetts Society of Professors (MSP)

Materials Research Society (MRS)

Society of Women Engineers (SWE)

Omega Chi Epsilon Chemical Engineering Honorary

Tau Beta Pi Engineering Honorary

Order of the Engineer

I2. Collaborative and Research Affiliations

BioXFEL NSF Science and Technology Center

Center for Evolutionary Materials (CEM)

Chemistry-Biology Interface Training Program (CBI)

Institute for Applied Life Sciences (IALS)

Models to Medicine

Center for Bioactive Delivery

Center for Personalized Healthcare Monitoring

New England Complex Fluids Workgroup

Soft Materials for Life Sciences: An NSF Research
Traineeship Program (SMLS-NRT)

I3. Professional Development

ASEE Summer School for Chemical Engineering Faculty (North Carolina State University) August 2017

A workshop focused on providing guidance and resources for early-career Chemical Engineering faculty excel as teachers and as scholars.

Graduate Teaching Certificate (University of Illinois) 2007

A certification awarded by the Center for Teaching Excellence based on classroom teaching, feedback, reflection, and evaluation, as well as continuing education in the field of pedagogy.

I4. Departmental Service

Department Personnel Committee (Chemical Engineering) 2016 – 2017

Non-tenured committee member, responsible for evaluation of tenure and promotion, and annual faculty reviews.

Faculty Search Committee (Polymer Science & Engineering) 2015 – 2016

Responsible for recruitment, evaluation, and selection of faculty candidates in polymer physics.

Co-Chairperson, 3M Diversity Lecture Series: Polymers, Materials and Processes (Chemical Engineering and Polymer Science & Engineering) 2019 – present

Responsible for invitation and coordination of four annual diversity-focused seminars, sponsored by 3M.

Member, Distinguished Seminar Committee (UMass-Amherst Chemical Engineering) 2019 – present

Responsible for invitation and coordination of the department's invited Alumni and ExxonMobil Lectures.

Chairperson, Distinguished Seminar Committee (UMass-Amherst Chemical Engineering) 2015 – 2019

Responsible for invitation and coordination of the department's invited Alumni and ExxonMobil Lectures.

Seminar Coordinator (Chemical Engineering) 2015 – 2018

Responsible for organizing and coordinating speakers for the weekly departmental seminar.

PhD Qualifying Exam Committee (Chemical Engineering) 2015 – present

Evaluated the written and oral performance of PhD students in the department.

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE (cont')

14. Departmental Service (cont')

Undergraduate Program Committee (Chemical Engineering) 2014 – present

Responsible for departmental curriculum review and improvement, undergraduate laboratory planning, and ABET processes. Also organized a MATLAB training workshop for faculty and teaching assistants to enhance the use of MATLAB in the undergraduate curriculum.

15. College Service

Outstanding College Teacher Award Selection Committee (UMass-Amherst College of Engineering) 2018

Reviewed nominations and selected two winners of the College Outstanding Teacher Award.

Faculty Advisor for Tau Beta Pi, Massachusetts Zeta Chapter 2017 – present

Advised the reinvigoration of the Tau Beta Pi engineering honorary on campus.

New Student Orientation 2016 – present

Advising of new students admitted and transferring into the College of Engineering.

Engineering Women's Faculty Forum (e-WFF) Webmaster 2015 – present

Responsible for the development and maintenance of the website for the Engineering Women's Faculty Forum.

16. University Service

X-ray Scattering Facility Search Committee (UMass-Amherst Institute for Applied Life Sciences) 2017 – 2018

Responsible for recruitment, evaluation, and selection of the director for the X-ray scattering facility.

Soft Materials for Life Sciences NRT Leadership Team (UMass-Amherst) 2017 – present

Responsible for the administration and evolution of the training grant.

Institute for Applied Life Sciences Center for Bioactive Delivery Steering Committee 2016 – present

Responsible for the vision, oversight, and growth of center activities.

Materials Research Science and Engineering Center (MRSEC) Internal Advisory Board 2016 – 2017

Responsible for the vision, development, management, and execution of the MRSEC proposal and activities.

Institute for Applied Life Sciences Biophysical Characterization Core Facility Oversight Committee 2014 – present

Responsible for the planning, execution, management and hiring of this core facility.

Provost's Laboratory Safety Working Group (University of Chicago) 2013 – 2014

Served as the representative for the Institute for Molecular Engineering, helping to improve laboratory safety and safety communication on campus with a goal of creating a culture of safety.

17. Professional Service

American Chemical Society

Co-Chair for the *Formulation, Processing and Manufacturing* session and the *Bioinspired Materials* session, ACS Colloid & Surface Science Symposium 2019

Judge for the Doolittle Award (PMSE) Spring ACS Meeting 2019

Co-Organizer for the *Electrokinetics and Microfluidics* session, ACS Colloid & Surface Science Symposium 2018

Co-Organizer for a symposium on *Polyelectrolyte Coacervates, Precipitates, and Multilayers*, Fall ACS 2017

Co-Organizer for a symposium on *Molecular Engineering of Peptide Assembly*, Spring ACS 2017

Co-Chair for the *Self Assembly at the Molecular Scale* session, ACS Colloid & Surface Science Symposium 2016

Co-Organizer for a symposium on *Complex Coacervation: Principles and Applications*, Fall ACS Meeting 2015

American Institute of Chemical Engineers

Chair for the *Charged and Ion-Containing Polymers* session, AIChE Annual Meeting 2020

Panelist for the *Developing Your Career: Tips for Women and URM Graduate Students and Beyond* workshop, AIChE Annual Meeting 2019

Co-Chair for the *Excellence in Graduate Polymer Research* session, AIChE Annual Meeting 2017

Co-Chair for the *Charged and Ion-Containing Polymers* session, AIChE Annual Meeting 2017

Chair for the *8A Plenary: Emerging Areas in Polymer Science and Engineering*, AIChE Annual Meeting 2016

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE (cont')

17. Professional Service (cont')

American Institute of Chemical Engineers (cont')

Chair for the *Biomimetic Materials* session, AIChE Annual Meeting 2016

Co-Chair for the *Biomaterials I* session, AIChE Annual Meeting 2015

Chair for *Crystallization of Pharmaceutical and Biological Molecules*, AIChE Annual Meeting 2012 – 2014

American Physical Society

Poster Judge for DPOLY, APS March Meeting 2017

BioXFEL

Poster Judge, BioXFEL Annual Meeting 2019

International Organizing Board for the International Symposia on Polyelectrolytes (ISP) 2018 – present

Organized and supported the biannual International Symposia on Polyelectrolytes (ISP), as well as the related summer school workshop.

International Advisory Board for the International Symposia on Polyelectrolytes (ISP) 2016 – present

Organized and supported the biannual International Symposia on Polyelectrolytes (ISP), as well as the related summer school workshop.

International Organization for Biological Crystallization Council (IOBCr) 2014 – present

Organized and supported interdisciplinary workshops and schools that foster professional contacts and mutual education between (bio-)crystallographers, (bio-)chemists, (bio-)physicists, and engineers, including the biannual International Conference on Crystallization of Biological Macromolecules (ICCBM).

Materials Research Society

Session Chair for the *Hydrodynamics of Aqueous Two-Phase Systems (ATPS) Droplets* session, of the *Aqueous Cytomimetic Materials* at the MRS Spring Meeting 2017

Grant Review

The Netherlands Organisation for Scientific Research (NWO)

Frontier in Research Chemistry Foundation (University of Strasbourg)

Department of Energy Basic Energy Sciences, Biomolecular Materials

National Science Foundation, Chemistry, Chemical Measurement and Imaging (CMI)

National Science Foundation, Division of Materials Research, Biomaterials (BMAT)

National Science Foundation, Division of Ocean Sciences, Ocean Technology and Interdisciplinary Coordination

American Chemical Society Petroleum Research Fund (ACS-PRF)

Department of Defense, Defense Threat Reduction Agency (DTRA)

University of Massachusetts Amherst Armstrong Grant for Science

University of Massachusetts Amherst Commonwealth Honors College

Journal Editor

Editorial Board for *Polymers* 2019 – present

Editorial Advisory Board for *Soft Matter* 2019 – 2021

Editorial Advisory Board for *ACS Macro Letters* 2019 – 2022

Co-Guest Editor for a special issue of *Polymers* on Polyelectrolytes and Polyelectrolyte Complexes – in Memory of Prof. Paul Dubin 2018

Co-Guest Editor for a special issue of *Advances in Colloid and Interface Science* on complex coacervation 2016

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE (cont')

17. Professional Service (cont')

Journal Peer Review

ACS Applied Materials & Interfaces
ACS Applied Polymer Materials
ACS Macro Letters
ACS Omega
Acta Crystallographica, Section F: Structural
Biology Communications
Advanced Materials
Advanced Materials Interfaces
Advances in Colloid and Interface Science
Analytical Chemistry
Biochemistry
Biomacromolecules
ChemBioChem
Chemical Communications
Chemical Science
Chemical Society Reviews
Colloids and Surfaces A: Physicochemical and
Engineering Aspects
Colloids and Surfaces B: Biointerfaces
Coordination Chemistry Reviews
Crystal Growth & Design
Current Organic Chemistry
Industrial & Engineering Chemistry Research
Journal of the American Chemical Society
Journal of Colloid and Interface Science
Journal of Physical Chemistry
Journal of Visualized Experiments
Lab on a Chip
Langmuir
Macromolecules
Macromolecular Rapid Communications
Microfluidics and Nanofluidics
Micromachines
Nature Chemistry
Nature Communications
Physical Chemistry Chemical Physics
Proceedings of the National Academy of Sciences
of the U.S.A.
Rheologica Acta
Science
Science Advances
Soft Matter