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 the pedagogical potential to inspire students to work at the intersection of chemistry, biology, and engineering.

A. Academic Positions

Associate Professor – Dept. of Chemical Engineering – University of Massachusetts Amherst, 2020 – present

Adjunct Professor – Dept. of Polymer Science & Engineering – University of Massachusetts Amherst, 2019 – present

Assistant Professor – Dept. of Chemical Engineering – University of Massachusetts Amherst, 2014 – 2020

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 (selected)

Biomaterials Science Emerging Investigator, 2021
Faculty Early Career Development Program Award, National Science Foundation, 2020
3M Non-Tenured Faculty Award, 2019 – 2021
Editorial Advisory Board for *Soft Matter* 2019 – 2022
Editorial Advisory Board for *ACS Macro Letters* 2019 – 2022
Soft Matter Emerging Investigator, 2018
College of Engineering Diversity Student Ally Award, 2017
College of Engineering Outstanding Teacher Award, 2017
Lab on a Chip Emerging Investigator, 2016
College of Engineering Faculty Advocate for Diversity, 2015
Best Speaker: Distinguished Young Scholars Seminar Series (University of Washington), 2013
Ruth L. Kirschstein National Research Service Award (Predoctoral Fellowship, NIH), 2008 – 2010

PUBLICATIONS, PATENTS, AND PRESENTATIONS

D. Publications (h-index: 33, total citations: 3159)

D1. Peer-Reviewed Publications

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

1. A.R. Johnston, E. Albert-Minckler, M. Shockley, L. Matsushima, S.L. Perry, A.L. Ayzner,* *Conjugated Polyelectrolyte-Based Complex Fluids as Aqueous Exciton Transport Networks,* Angewandte Chemie International Edition, 2022, **61**(20), e202117759.
2. J. Sun, J.D. Schiffman,* S.L. Perry,* *Linear Viscoelasticity and Time-Alcohol Superposition of Chitosan/Hyaluronic Acid Complex Coacervates*, ACS Applied Polymer Materials, 2022, **4**(3), 1617-1625.
3. M. Lee, S.L. Perry, R.C. Hayward,* *Complex Coacervation of Polymerized Ionic Liquids in Non-Aqueous Solvents*, ACS Polymers Au, 2021, **1**(2), 100-106.
4. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry,* J.D. Schiffman,* *Electrospinning Fibers from Oligomeric Complex Coacervates: No Chain Entanglements Needed*, Macromolecules, 2021, **54**, 5033-5042.
5. S. Sui, A. Mulichak, R. Kulathila, J. McGee,‡ D. Filiatreault, S. Saha, A. Cohen, J. Song, H. Hung, J. Selway,‡ C. Kirby, O.K. Shrestha, W. Weihofen, M. Fodor, M. Xu, R. Chopra,* S.L. Perry,* *A Capillary-based Microfluidic Device Enables Primary High-throughput Room-temperature Crystallographic Screening*, Journal of Applied Crystallography, 2021, **54**(4), 1034-1046.
6. A.R. Johnston, S.L. Perry, A.L. Ayzner,* Salt-Induced Associative Phase Separation of π-Conjugated Polyelectrolytes Couples Photophysical and Mechanical Properties, Chemistry of Materials, 2021, **33**(4), 1116-1129.
7. W.C. Blocher McTigue, S.L. Perry,* *Incorporation of Proteins into Complex Coacervates*, Methods in Enzymology, 2021, **646**, 277-306, (invited paper).
8. R. Otten, R.A.P. Pádua, H.A. Bunzel, V. Nguyen, W. Pitsawong, M. Patterson, S. Sui, S.L. Perry, A. Cohen, D. Hilvert, D. Kern,* *How Directed Evolution Reshapes Energy Landscapes to Boost Catalysis*, Science, 2020, **370**(6523), 1442-1446.
9. X. Mi,† W.C. Blocher McTigue,† P.U. Joshi, M.K. Bunker,‡ C.L. Heldt,* S.L. Perry,* *Thermostabilization of Viruses via Complex Coacervation*, Biomaterials Science, 2020, **8**, 7082-7092 (invited paper).

   2021 Biomaterials Science Emerging Investigators Issue.
   Highlighted in the Biomaterials Science Most Popular 2020 themed collection.
10. W.C. Blocher McTigue, E. Voke,‡ L.W. Chang, S.L. Perry,* *The Benefit of Poor Mixing: Tracking the Kinetics of Complex Coacervation*, Physical Chemistry Chemical Physics, 2020, **22**, 20643-20657.
11. Y. Liu, C.F. Santa Chalarca, R.N. Carmean, R.A. Olson, J. Madinya, B.S. Sumerlin, C.E. Sing, T. Emrick, S.L. Perry,* *Effect of Polymer Chemistry on the Linear Viscoelasticity of Polyelectrolyte Complexes*, Macromolecules, 2020, **53**(18), 7851-7864.
12. H.S. Azevedo, S.L. Perry, P.A. Korevaar, D. Das, *Complexity Emerges from Chemistry*, Nature Chemistry, 2020, **12**, 793-794, (invited meeting report).
13. W.C. Blocher McTigue, S.L. Perry,* *Protein Encapsulation using Complex Coacervates: What Nature has to Teach Us, Small*, 2020, **16**(27), 1907671 (invited review).
14. S.L. Perry, D.J. McClements,* *Recent Advances in Encapsulation, Protection, and Oral Delivery of Bioactive Proteins and Peptides using Colloidal Systems*, Molecules, 2020, **25**(5), 1161.
15. C.E. Sing,†* S.L. Perry,†* *Recent Progress in the Science of Complex Coacervation*, Soft Matter, 2020, **16**, 2885-2914 (invited review).

    Highlighted in the Soft Matter Most Popular 2020 themed collection.
    Highlighted as top 3% of highly cited works from American institutions in 2021.
16. 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*, Chem. Sci., 2020, **11**, 2103-2111.
17. J. Madinya, L.W. Chang, S.L. Perry,* C.E. Sing,* *Sequence-Dependent Self-Coacervation in High Charge-Density Polyampholytes*, Mol. Syst. Des. Eng., 2020, **5**, 632-644 (invited paper).
18. S.L. Perry,* C.E. Sing,* 100th Anniversary of Macromolecular Science Viewpoint: Opportunities in the Physics of Sequence-Defined Polymers, ACS Macro Letters, 2020, **9**, 216-225.
19. J. Sun, S.L. Perry,* J.D. Schiffman,* *Electrospinning Nanofibers from Chitosan/Hyaluronic Acid Complex Coacervates*, Biomacromolecules, 2019, **20**(11), 4191-4198.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

Publications (cont') (**corresponding author, †equal contribution, ‡undergraduate*)

20. 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, 2019, **2**(9), 3926-3933.
21. 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.
22. W.C. Blocher McTigue, S.L. Perry,* *Design Rules for Encapsulating Proteins into Complex Coacervates*, Soft Matter, 2019, **15**, 3089-3103 (invited paper).

    Correction: Soft Matter, 2019, **15**, 8412-8412.
23. S.L. Perry,* *Phase Separation: Bridging Polymer Physics and Biology*, Current Opinion in Colloid and Interface Science, 2019, **39**, 86-97 (invited review).
24. 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.
25. S.L. Perry,* D.A. Hoagland, *Obituary for Prof. Paul Dubin*, Soft Matter, 2018, **14**, 8083-8084.
26. 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.
27. 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.
28. 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).
29. 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*, (1) Nanotechnology Now, (2) Electronics 360, (3) EurekAlert!, (4) My Science, (5) Science Newsline, (6) R&D, (7) Nanowerk, (8) 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.
30. 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).
31. 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.
32. 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).
33. 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.
34. 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.
35. S. Sui, S.L. Perry,* *Microfluidics: From Crystallization to Serial Time-Resolved Crystallography*, Structural Dynamics, 2017, **4**(3), 032202 (invited paper).
36. S. Galarza, S.L. Perry, S. R. Peyton, *A Student-Created, Open Access, Living Textbook*, Chemical Engineering Education, 2017, **51**(1), 2-9.

D1. Peer-Reviewed Publications (cont')

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

37. 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).

38. S. Sui, Y. Wang, K.W. Kolewe, V. Srajer, 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.

39. 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.

40. S.L. Perry,* C.E. Sing,* PRISM-based Theory of Complex Coacervation: Excluded Volume versus Chain Correlation, Macromolecules, 2015, **48**(14), 5040-5053.

41. 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.

42. 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.

43. 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.

44. 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.

45. 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.

46. 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.

47. 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).

48. 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.

49. 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.

50. 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.

51. 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).

52. 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.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

D1. Peer-Reviewed Publications (cont')

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

53. 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.

54. 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.

55. 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.

56. 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.

57. 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.

58. 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*)

D3. Manuscripts in Preparation

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

1. M. Labbe,‡ Y. Liu, M. Corradini,* S.L. Perry,* Molecular Rotors for the Rheological Characterization of Polyelectrolyte Complexes.
2. I. Ramírez Marrero, Y. Liu, L.W. Chang, J. Sun, W.C. Blocher McTigue, X. Meng, L. Boudreau,‡ K. Basu,‡ S.L. Perry,* *Hofmeister Effects on the Phase Behavior and Rheology of Complex Coacervates*.

D4. Patents

(*‡undergraduate*)

1. S.L. Perry, S. Sui, Graphene-Based Electro-Microfluidic Devices and Methods for Protein Structural Analysis, US Patent No. 11,175,244, Nov. 16, 2021.
2. S. Sui, Y. Wang, C. Dimitrakopoulos, S.L. Perry, *Microfluidic Devices and Methods of Manufacture and Use Thereof*, US Patent No. 10,792,657, Oct. 6, 2020.
3. X. Meng, S.L. Perry, J.D. Schiffman, Ultra-stable Printing and Coatings using Aqueous Complex Coacervates, and Compositions and Methods Thereof, US Patent No. 10,767,060 B2, Sept. 8, 2020.
4. X. Meng, S.L. Perry, J.D. Schiffman, Polymer Nanofibers from Electrospinning of Complex Coacervates, and Compositions and Methods Thereof, US Patent No. 10,428,444 B2, Oct. 1, 2019.
5. 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.

D5. Patent Applications

(*‡undergraduate*)

1. S.L. Perry, I.A. Ramírez Marrero, R. Konradi, B. von Vacano, N. Kaiser, R. Gutzler, *Liquid Complex Coacervates, Articles Derived Therefrom, and Methods for the Manufacture Thereof*, U.S. Provisional Patent Application 63/277,715, 2021.
2. C. Martin, E. Cavac, K.H. Malagoda Pathiranage, S. Sui, S.L. Perry, Y. Gholamalipour, *Novel Enzymatic Methods to Generate High Yields of Sequence Specific RNA Oligonucleotides with Extreme Precision*, U.S. Nonprovisional Patent Application 16/857,563, 2020.

E. Presentations

E1. Invited Seminars and Symposium Presentations (108 Total)

(‡*undergraduate*)

1. S.L. Perry, *Polyelectrolyte Complex Materials*, ACS Fall Meeting, Chicago, IL, August 2022.
2. S.L. Perry, M. Zhou, M. Santore, *Brushy Nanoparticle Complex Coacervates*, International Materials Research Congress, Cancun, Mexico, August 2022.
3. S.L. Perry, *Coacervate-driven Compartmentalization*, Systems Chemistry Gordon Research Conference, Sunday River, ME, June 2022.
4. I. Ramírez Marrero, S.B. Hong, R. Gutzler, N. Kaiser, B. von Vacano, R. Konradi, S.L. Perry, *Understanding the Mechanical Properties of Polyelectrolyte Complex Materials*, BASF NORA Collaboration Days, Amherst, MA, June 2022.
5. P. Kaushik, W. Xu, C. Finch, J.D. Schiffman, S.L. Perry, *Exploring Complex Coacervates to Regulate the Release of Agricultural Actives*, BASF NORA Collaboration Days, Amherst, MA, June 2022.
6. M. Santore, S.L. Perry, *Integrating Particles in Complex Fluids: A Story of Coacervates*, Spring 2022 Polymer Event, University of Massachusetts Amherst, Amherst, MA, May 2022.
7. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, University of Florida Department of Chemical Engineering Seminar, Gainesville, FL, April 2022.
8. S.L. Perry, *Polyelectrolyte Complex Materials*, APS March Meeting, Chicago, IL, March 2022.
   Dillon Medal Award Symposium
9. S.L. Perry, The Effect of Chemistry, Sequence, and Architecture on Complex Coacervation, APS March Meeting, Chicago, IL, March 2022.
10. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, Princeton Department of Chemical and Biological Engineering Seminar, Princeton, NJ, March 2022.
11. S.L. Perry, *Sequence Control of Complex Coacervation*, Chemistry and Biology of Peptides Gordon Research Conference, Ventura, CA, February 2022 (postponed).
12. S.L. Perry, *Bioinspired Polyelectrolyte Complex Materials*, Pacifichem International Chemical Congress, Honolulu, HI, December 2021.
13. S.L. Perry, Thermodynamics and Molecular Engineering of Complex Coacervates, AIChE Annual Meeting, Boston, MA, November 2021.
14. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, Fall 2021 Polymer Event, University of Massachusetts Amherst, Amherst, MA, October 2021.
15. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, Texas A&M Department of Chemistry Seminar (Student-Invited), College Station, TX, October 2021.
16. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, University of Rhode Island Department of Chemistry Seminar, Kingston, RI, September 2021.
17. S.L. Perry, Microfluidics for High-throughput Room-temperature Crystallographic Screening, CHESS 2021 Ambient Crystallography Workshop, September 2021.
18. S.L. Perry, Charge Patterning, Polymer Chemistry, and Complex Coacervation, IDP Seminars, August 2021.
19. S.L. Perry, *Charge Patterns and Proteins to Control Complex Coacervation*, Virtual Workshop on Active Coacervates, August 2021.
20. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, ACS POLY/PMSE Virtual Macromolecular Science Seminar Series, August 2021.
21. S.L. Perry, Molecular Engineering of Polyelectrolyte Complex Materials, Colgate-Palmolive, May 2021.
22. J.E. McGee, S.L. Perry, *Microfluidics for Nanoparticle Synthesis, Purification, and Characterization*, Eighth Annual iCons Senior Exposition, University of Massachusetts Amherst, May 2021.
23. L.W. Chang, T.K. Lytle, J. Madinya, Y. Liu, X. Zeng, I. Ramírez Marrero, A. Sathyavageeswaran, C.E. Sing, S.L. Perry, *Charge Patterning, Polymer Chemistry, and Complex Coacervation*, ACS Spring Meeting, April 2021.
24. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, University of California Santa Cruz Department of Chemistry Seminar, March 2021.

E1. Invited Seminars and Symposium Presentations (cont') (‡*undergraduate*)

25. S.L. Perry, B.U. von Vacano, *Sustainable Materials from Complex Coacervates*, BASF STAR Community Week, March 2021.
26. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical & Biochemical Engineering, Rutgers University, February 2021.
27. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical and Life Science Engineering, Virginia Commonwealth University, February 2021.
28. W.C. Blocher McTigue, X. Zeng, S.L. Perry, *Mapping the Phase Space of Protein Encapsulation via Complex Coacervation*, MRS Fall Meeting & Exhibit, December 2020.
29. S.L. Perry, *Creating Independent Researchers*, AIChE Annual Meeting, November 2020.
30. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemistry, Macromolecular Division, Louisiana State University, November 2020.
31. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical and Biomolecular Engineering, North Carolina State University, October 2020.
32. S.L. Perry, C.E. Sing, *Thermodynamics and Design of Sequence-Defined Polyelectrolyte Complexes*, Georgia Tech Chemical and Biomolecular Engineering virtual seminar series hosted by AIChE, October 2020.
33. S.L. Perry, J.D. Schiffman, *Complex Coacervation: How Fundamentals Enable Applications*, NORA Collaboration Days 2020, June 2020.
34. S.L. Perry, *Designing Phase Separation in Complex Systems*, Virtual Symposium on Systems Chemistry, Advanced Science Research Center, New York, NY, May 2020.
35. L.W. Chang, T.K. Lytle, J. Madinya, C.E. Sing, S.L. Perry, *Patterning Charges and Complex Coacervation*, ACS National Meeting, Philadelphia, PA, March 2020 (canceled).
36. J. Sun, X. Meng, S.L. Perry, J.D. Schiffman, *Electrospinning Nanofibers from Aqueous Biopolyelectrolyte Complex Coacervate Solutions*, ACS National Meeting, Philadelphia, PA, March 2020 (canceled).
37. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Program in Polymers and Soft Matter, Massachusetts Institute of Technology, Cambridge, MA, February 2020.
38. S.L. Perry, L.W. Chang, 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
39. 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.
40. 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.
41. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemistry, University of Massachusetts Lowell, Lowell, MA, October 2019.
42. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, NORA Meets BASF Challenges 2019, Cambridge, MA, October 2019.
43. S.L. Perry, Using Sequence and Chemistry to Engineer Complex Coacervate Materials, ACS National Meeting, San Diego, CA, August 2019.
44. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Air Force Research Laboratory Seminar, Dayton, OH, August 2019.
45. 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.
46. 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.
47. S.L. Perry, *Sequence Control: From Biology to Coacervates*, MRS Spring Meeting & Exhibit, Phoenix, AZ, April 2019.
48. S.L. Perry, (poster) *Bio-Inspired Encapsulation of Actives*, 3M Science & Engineering Faculty Day, Minneapolis, MN, June 2019.

E1. Invited Seminars and Symposium Presentations (cont') (‡*undergraduate*)

49. V. Liadinskaia, S.L. Perry, J.D. Schiffman, *Improving Delivery of Fungicides Using Complex Coacervates*, 2019 NORA Collaboration Days, Amherst, MA, June 2019.
50. 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.
51. S.L. Perry, Sequence Controlled Polypeptides: Understanding Biology via Coacervation, ACS National Meeting, Orlando, FL, April 2019.
52. S.L. Perry, Microfluidics and/or Microgravity for Protein Crystallization, ACS National Meeting, Orlando, FL, April 2019.
53. 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.
54. 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.
55. S.L. Perry, Molecular Engineering Complex Coacervate Materials Using Sequence, APS March Meeting, Boston, MA, March 2019.
56. 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.
57. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering Grain Processing Seminar, Michigan Technical University, Houghton, MI, December 2018.
58. 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.
59. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Moderna Therapeutics Seminar, Cambridge, MA, November 2018.
60. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, International Symposium on Polyelectrolytes, Wageningen, Netherlands, August 2018.
61. S.L. Perry, *Microfluidics for Room Temperature Crystallography*, Harvard University Crystallography Group, Cambridge, MA, August 2018.
62. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Polymer Physics Gordon Conference, South Hadley, MA, July 2018.
63. S.L. Perry, *Microfluidics for In Situ Crystallography*, CASIS Microgravity Molecular Crystal Growth Workshop, Buffalo, NY, July 2018.
64. 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.
65. S.L. Perry, *Microfluidics for Room Temperature Crystallography*, Hauptman-Woodward Institute, Buffalo, NY, April 2018.
66. S.L. Perry, *Graphene Microfluidics for Room Temperature Crystallography*, 5th Annual BioXFEL International Conference, New Orleans, February 2018.
67. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering, University of New Hampshire, Durham, NH, December 2017.
68. S.L. Perry, *Graphene Microfluidics*, Merck & Co., Kenilworth, NJ, November 2017.
69. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, 3M Technical Forum Seminar, Minneapolis, MN, November 2017.
70. S.L. Perry, *Sequence, Architecture, and Entropy-Based Control of Complex Coacervates*, 9th Sino-US Joint Conference of Chemical Engineering, Beijing China, October, 2017.
71. X. Meng, S.L. Perry, J.D. Schiffman, Functional Fibers Electrospun from Polyelectrolyte Complex Coacervates, ACS National Meeting, Washington DC, August, 2017.
72. S.L. Perry, *Ultra-low Background Graphene Microfluidics*, CHESS User's Meeting, Ithaca, June 2017.

E1. Invited Seminars and Symposium Presentations (cont') (‡*undergraduate*)

73. 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.
74. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2017.
75. 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.
76. 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.
77. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, MRS Spring Meeting & Exhibit, Phoenix, AZ, April 2017.
78. S.L. Perry, *Patterning and Structure in Polypeptide-Based Coacervates*, ACS National Meeting, San Francisco, April, 2017.
79. S.L. Perry, *Molecular Design of Polyelectrolyte Complex Materials*, Pan-American Polymer Science Conference,
80. S.L. Perry, *Material Dynamics in Complex Coacervates*, ACS National Meeting, San Francisco, April 2017.
81. S.L. Perry, *Graphene-Based Microfluidics for Serial Crystallography*, NSLS II Friday Seminar, Brookhaven National Laboratory, March 2017.
82. S.L. Perry, *Using Graphene to Understand Biology*, Brookhaven Women in Science Colloquium, Brookhaven National Laboratory, March 2017.
83. Guarujá, Brazil, March 2017.
84. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Chemical Engineering, Worcester Polytechnic Institute, Worcester, MA, January 2017.
85. S.L. Perry, *Molecular Engineering of Nature-Inspired Materials*, New England Complex Fluids Workshop, Cambridge, MA, December 2016.
86. S.L. Perry, *Molecular Engineering of Polyelectrolyte Complex Materials*, Department of Polymer Science & Engineering, University of Massachusetts Amherst, Amherst, MA, October 2016.
87. S.L. Perry, *Graphene Microfluidics*, Center for Biological Physics Seminar, University of Massachusetts Amherst, Amherst, MA, September 2016.
88. S.L. Perry, *Microfluidics for Serial Crystallography*, Novartis, Cambridge, MA, September 2016.
89. S.L. Perry, *Nature-Inspired Materials Design*, Squishy Physics Seminar, Harvard University, August 2016.
90. S.L. Perry, *Molecular Engineering of Nature-Inspired Materials*, BASF North American Center for Research on Advanced Materials, Meredith, NH, June 2016.
91. S.L. Perry, Microfluidic Platforms for Time-Resolved Serial Protein Crystallography, CHESS-U Workshop: Biomolecules in Motion, June 2016.
92. S.L. Perry, *Nature-Inspired Materials Design*, Department of Chemistry, Stony Brook University, May 2016.
93. S.L. Perry, *Microfluidic Platforms for Time-Resolved Serial Protein Crystallography*, APS-CNM Users Meeting, Argonne National Laboratory, May 2016.
94. S.L. Perry, *Molecular Engineering Polyelectrolyte Complex Materials*, APS-CNM Users Meeting, Argonne National Laboratory, May 2016.
95. S.L. Perry, *Nature-Inspired Materials Design*, Department of Chemical Engineering, Carnegie Mellon University, May 2016.
96. S.L. Perry, *Microfluidics for Serial Crystallography*, Crystallization: Focus on Micro and Nano Crystals and High Throughput Methods, SLAC National Accelerator Laboratory, April 2016.
97. S.L. Perry, *Nature-Inspired Materials Design*, Department of Veterinary and Animal Science, University of Massachusetts Amherst, February 2016.
98. S.L. Perry, *Patterning and Structure in Biomimetic Polypeptide-Based Coacervates*, Colloidal, Macromolecular & Polyelectrolyte Solutions Gordon Research Conference, Ventura, February 2016.

E1. Invited Seminars and Symposium Presentations (cont') (‡*undergraduate*)

99. S.L. Perry, *Nature-Inspired Materials Design*, Department of Physics, University of Massachusetts Amherst, January 2016.
100. S.L. Perry, *Nature-Inspired Materials Design*, Chemical Biology Interface Program Chalk Talk, University of Massachusetts Amherst, December 2015.
101. S.L. Perry, J.D. Schiffman *Nature-Inspired Materials Design*, BASF North American Center for Research on Advanced Materials, November 2015.
102. S.L. Perry, *Microfluidic Platforms for Dynamic Protein Crystallography*, Cornell Laboratory for Accelerator-Based Sciences and Education (CLASSE), Ithaca, October 2015.
103. 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.
104. S.L. Perry, *Nature-Inspired Materials Design*, Johnson & Johnson Science Series Seminar, August 2015.
105. S.L. Perry, *Polymer Coacervation*, Johnson & Johnson – Science Polymer & Surface Chemistry Platform for Skin Care Seminar, August 2015.
106. 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.
107. S.L. Perry, *Engineering Biomimetic Coacervate Environments for Protein-Based Applications*, New England Nanotechnology Association Meeting, Amherst, May 2015.
108. 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.

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

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.
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 (188 Total) (‡*undergraduate*)

1. C.L. Heldt, P. Joshi, C. Decker,‡ X. Zeng, A. Sathyavageeswaran, S.L. Perry, *Virus Encapsulation in Polypeptide Complex Coacervates for Vaccine Formulations*, AIChE Annual Meeting, Phoenix, AZ, November 2022.
2. S.L. Perry, M. Zhou, M. Santore, *Brushy Nanoparticle Complex Coacervates*, AIChE Annual Meeting, Phoenix, AZ, November 2022.
3. I. Ramírez Marrero, R. Gutzler, N. Kaiser, B. von Vacano, R. Konradi, S.L. Perry, *Green Plastics: Understanding the Material Properties of Polyelectrolyte Complexes*, The 2022 SACNAS National Diversity in STEM Conference, San Juan, PR, October 2022.
4. I. Ramírez Marrero, R. Gutzler, N. Kaiser, B. von Vacano, R. Konradi, S.L. Perry, *Identifying the Glass Transitions and Material Properties of Polyelectrolyte Complex Materials*, Society of Rheology Meeting, Chicago, IL, October 2022.
5. S. Saha, C. Özden, M.M. Stratton, S.L. Perry, *Counter Diffusive Protein Crystallization and Liquid handling in Polymer Based Microfluidic Device*, EMBL Conference: Microfluidics 2022, Heidelberg, Germany, July 2022.
6. S.L. Perry, S. Saha, C. Özden, M. Stratton, *High Throughput Screening of Crystallization Condition for Protein using X-ray Transparent Microfluidics*, 96th ACS Colloid and Surface Science Symposium, Golden, CO, July 2022.
7. S.L. Perry, J. Sun, J.D. Schiffman, *Time-Alcohol Superposition of Chitosan/Hyaluronic Acid Complex Coacervates*, 96th ACS Colloid and Surface Science Symposium, Golden, CO, July 2022.
8. S. Saha, Y. Chen,‡ C. Özden, M.M. Stratton, S.L. Perry (poster), *Polymer Microfluidics and X-ray Crystallography*, CBI Retreat, Amherst, MA, May 2022.
9. S. Saha, Y. Chen,‡ C. Özden, M.M. Stratton, S.L. Perry (poster), *Polymer Microfluidics and X-ray Crystallography*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
10. Y. Chen,‡ S. Saha, S. Koprek,‡ K. Seifert,‡ S.L. Perry (poster), *Electrically Actuated X-Ray Compatible Microfluidics for Protein Crystallization and Crystallography*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
11. J. Bonesso Sabadini, S.L. Perry, C. Oliveira, W. Loh (poster), *On Complex Coacervate Core Micelles (C3M): Versatile and Tunable Platform for Encapsulation*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
12. D. Rathinam Palaniswamy, S.L. Perry (poster), *High Throughput Screening of Coacervate Phase Behavior*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
13. I. Ramírez Marrero, R. Gutzler, N. Kaiser, B. von Vacano, R. Konradi, S.L. Perry (poster), *Identifying the Glass Transitions and Mechanical Properties of Polyelectrolyte Complex Materials*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
14. S.B. Hong, I. Ramírez Marrero, S.L. Perry (poster), *Bio-Based Films Prepared by CMC-DEAE Dextran Polyelectrolyte Complexes*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
15. A. Sathyavageeswaran, S. McIntosh,‡ S.L. Perry (poster), *Role of Charge Patterning and Hydrophobicity in Peptide-based Complex Coacervates*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

16. X. Zeng, A. Lawton,‡ P. Joshi, C.L. Heldt, S.L. Perry (poster), *Exploring the Effects of Osmolytes on Complex Coacervation*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
17. P. Pandey, P. Kaushik, S.L. Perry (poster), *Effect of Hofmeister Series on Microrheological Properties of Coacervates*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
18. P. Kaushik, S.L. Perry, J.D. Schiffman (poster), *Exploring Coacervates to Regulate Uptake and Release of Active Ingredients*, Center for UMass Industry Research on Polymers Spring Polymer Event, Amherst, MA, May 2022.
19. K. Nilov,‡ S.L. Perry, *Temperature Effects on Salt Dependent Phase Separation in Complex Coacervate Systems*, Massachusetts Undergraduate Research Conference, April 2022.
20. L. Boudreau,‡ S.L. Perry (poster), *Michaelis-Menten Kinetics for Chymotrypsin in Complex Coacervates*, Massachusetts Undergraduate Research Conference, April 2022.
21. M.M. Santore, M. Zhou, S.L. Perry, *Particle-Integrated Complex Coacervates and the Role of Surface Brushes*, ACS Spring Meeting, San Diego, CA, March 2022.
22. M.M. Santore, M. Zhou, S.L. Perry, Brushing Up on Coacervates: How Chain Anchoring Can Incorporate Solid Particles into Fluid Polyelectrolyte Complexes, APS March Meeting, Chicago, IL, March 2022.
23. S. Saha, D. Rathinam Palaniswamy, S.L. Perry, *Microfluidics for Tissue Engineering vs. for Macromolecule Structural Analysis*, Biotech tAles, University of Massachusetts Amherst, February 2022.
24. S. Saha, C. Özden, S. Russi, A. Cohen, M. Stratton, S.L. Perry, *A Microfluidic Device for Room Temperature Crystallography*, BioXFEL Meeting, February 2022.
25. S. Saha, S.L. Perry, *Polymer based Microfluidics for Protein Structure Determination,* Indian Institute of Technology, Kharagpur, India, December 2021.
26. I. Ramírez Marrero, R. Gutzler, N. Kaiser, B. von Vacano, R. Konradi, S.L. Perry, *Materials Processing Using Complex Coacervation*, AIChE Annual Meeting, Boston, MA, November 2021.
27. A. Sathyavageeswaran, J. Madinya, C.E. Sing, S.L. Perry, *Role of Charge Patterning and Hydrophobicity in Peptide-based Complex Coacervates*, AIChE Annual Meeting, Boston, MA, November 2021.
28. S. Saha, S. Sui, S.L. Perry, *Liquid Handling Strategies for X-ray Compatible Microfluidics*, AIChE Annual Meeting, Boston, MA, November 2021.
29. X. Zeng, P.U. Joshi, C. Heldt, S.L. Perry, *Exploring the Effects of Osmolytes on Complex Coacervation*, AIChE Annual Meeting, Boston, MA, November 2021.
30. K. Nilov,‡ S.L. Perry (poster), *Temperature Effects on Salt Dependent Phase Separation in Complex Coacervate Systems*, AIChE Annual Meeting, Boston, MA, November 2021.
31. A. Lawton,‡ X. Zeng, S.L. Perry (poster), *Effects of Osmolyte Concentrations on Complex Coacervate Systems*, AIChE Annual Meeting, Boston, MA, November 2021.
32. L. Boudreau,‡ I. Ramírez Marrero, S.L. Perry (poster), *Role of Charge Patterning and Hydrophobicity in Peptide-Based Complex Coacervates*, AIChE Annual Meeting, Boston, MA, November 2021.
33. S. Saha, S.L. Perry (poster), *Polymer Based Centrifugal Device for On-Chip Crystallization and In Situ X-ray Crystallography*, 25th International Conference on Miniaturized Systems for Chemistry and Life Sciences, Palm Springs, CA, October 2021.
34. S. Saha, S.L. Perry, *Polymer based Microfluidics for Protein Structure Determination*, University of Massachusetts Amherst Department of Chemical Engineering G.R.A.S.S. Seminar, Amherst, MA, October 2021.
35. S. Saha, S.L. Perry, *Chaotic and Counter Diffusive Mixing in Centrifugal Device*, 87th New England Complex Fluids Workshop, June 2021.
36. M. Zhou, S.L. Perry, M. Santore, *Polymer-Nanoparticle Complex Coacervates*, 95th ACS Colloid and Surface Science Symposium, June 2021.
37. E. Cavaç, R. Banerjee, K. MalagodaPathiranage, S. Sui, S.L. Perry, C.T. Martin (poster), *Co-tethered and Flow Synthesis of RNA by T7 RNA Polymerase Substantially Reduces Primer Extended Impurities*, 2021 RNA Therapeutics Symposium: From Concept to Clinic, June 2021.
38. H. Tjo,‡ S.L. Perry, *Molecular Engineering of Polyelectrolyte-Micelle Complexes*, Eighth Annual iCons Senior Exposition, University of Massachusetts Amherst, May 2021.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

39. H. Tjo,‡ S.L. Perry, *iCons: Molecular Engineering of Polyelectrolyte-Micelle Complexes*, Massachusetts Undergraduate Research Conference, April 2021.
40. J.E. McGee,‡ S.L. Perry, *Microfluidic Synthesis and Purification of Protein Nanoparticles*, Massachusetts Undergraduate Research Conference, April 2021.
41. W.C. Blocher McTigue, J.A. Hardy, S.L. Perry, *Biomacromolecules in Ternary Complex Coacervates*, APS March Meeting, March 2021.
42. S. Saha, S.L. Perry (poster), *X-ray Compatible Centrifugal Device for Protein Crystallography*, BioXFEL International Conference, February 2021.
43. H. Tjo,‡ S.L. Perry, The Role of Charge Density in Polyelectrolyte-Micelle Coacervation, AIChE Annual Meeting, November 2020.
44. H. Tjo,‡ S.L. Perry (poster), *Charge Density Rules for Polyelectrolyte-Micelle Coacervation*, AIChE Annual Meeting, November 2020.
45. H. Tjo,‡ S.L. Perry, *Charge Density Roles in Nature-Inspired Materials*, 12th Annual Gulf Coast Undergraduate Research Symposium, Rice University, October 2020.

    Awarded Best Presentation - Biomolecular.
46. H. Tjo,‡ S.L. Perry, *Charge Density Roles in Polyelectrolyte-Micelle Self-Assembly*, North Carolina State Future Leaders in Chemical Engineering National Award Symposium for Undergraduate Researchers, October 2020.
47. J. McGee,‡ S.L. Perry, *Microfluidic Synthesis and Purification of Protein Nanoparticles*, North Carolina State Future Leaders in Chemical Engineering National Award Symposium for Undergraduate Researchers, October 2020.
48. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry, J.D. Schiffman, (poster) *Electrospinning Complex Coacervates: No Entanglements Required*, UMass-Amherst Fall Polymer Event, October 2020.
49. H. Tjo,‡ S.L. Perry, *Unpacking the Role of Charge Density in Polyelectrolyte-Micelle Complexation,* 83rd New England Complex Fluids Meeting, Amherst, MA June 2020.
50. G. Donovan,‡ X. Meng, S.L. Perry, J.D. Schiffman, *Enhancing the Mechanical Properties of Polyelectrolyte Complex (PEC) Thin Films,* 26th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA, April 2020 (canceled).
51. H. Tjo,‡ W.C. Blocher McTigue, S.L. Perry, *Molecular Engineering of Polyelectrolyte-Micelle Systems,* 26th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA, April 2020 (canceled).
52. A. Rauch,‡ A. Gershenson, S.L. Perry (poster), *Using a Microfluidic Device to Study Alpha-1 Antitrypsin Folding,* 26th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, MA, April 2020 (canceled).
53. E. Voke,‡ W.C. Blocher McTigue, J. Rasmussen, S.L. Perry, Encapsulation of Human Immunoglobin G Via Complex Coacervation of Ligand Functionalized Substrates with Enhanced Binding Capacity and Poly(L-lysine), 26th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2020 (canceled).
54. R. Walker, S.L. Perry, Invention of Microfluidic Technology to Detect Antineoplastic Drugs in Body Fluids: A Nurse-Engineering Partnership, 32nd Eastern Nursing Research Society Annual Scientific Sessions, Boston, MA, March 2020 (canceled).
55. W.C. Blocher McTigue, X. Mi, A. Cabral,‡ S. Traiger,‡ C.L. Heldt, S.L. Perry, *Protein and Virus Formulation: Stepping Stones Toward Thermal Stability*, ACS National Meeting, Philadelphia, PA, March 2020 (canceled).
56. S.L. Perry, *Charge Patterns, Clusters, and Complex Coacervation*, UMass-Amherst Biophysics Lunch Seminar, Amherst, MA, March 2020.
57. S. Sui, S. Saha, A.E. Cohen, S.L. Perry, *X-ray Compatible Microfluidics for Advanced Protein Crystallography*, BioXFEL Conference, San Juan, Puerto Rico, February 2020.
58. S. Sui, S. Saha, A.E. Cohen, S.L. Perry (poster), *X-ray Compatible Microfluidics for Advanced Protein Crystallography*, BioXFEL Conference, San Juan, Puerto Rico, February 2020.
59. S. Saha, S. Sui, S.L. Perry, (poster) *Microfluidic Devices for Protein Crystallization and Crystallography*, Life Science Graduate Research Symposium, Amherst, MA, November 2019.
60. W.C. Blocher McTigue, X. Mi, A. Cabral,‡ S. Traiger,‡ C.L. Heldt, S.L. Perry, *Protein and Virus Encapsulation: Stepping Stones Toward Thermal Stability*, Life Science Graduate Research Symposium, Amherst, MA, November 2019.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

61. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry, J.D. Schiffman, *Electrospinning Coacervates – No Chain Entanglements Required*, Life Science Graduate Research Symposium, Amherst, MA, November 2019.

    2nd Place Student Presentation

62. 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.

63. S.L. Perry, W.C. Blocher McTigue, A. Cabral,‡ S. Traiger,‡ *Encapsulating Proteins into Complex Coacervates*, AIChE Annual Meeting, Orlando, FL, November 2019.

64. H. Tjo,‡ W.C. Blocher McTigue, S.L. Perry, (poster) *Predicting Polyelectrolyte-Micelle Phase Transitions: A Study in Charge Densities*, AIChE Annual Meeting, Orlando, FL, November 2019.

    2nd Place in the 2019 AIChE Annual Meeting Undergraduate Poster Session

65. J. McGee,‡ J. Brandner,‡ S. Taylor, S. Sui, J. Klier, S.L. Perry (poster), *Microfluidic Synthesis and Purification of Protein Nanoparticles*, AIChE Annual Meeting, Orlando, FL, November 2019.

    1st Place in the 2019 AIChE Annual Meeting Undergraduate Poster Session

66. 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.

67. X. Meng, Y. Du, Y. Liu, E.B. Coughlin, S.L. Perry, J.D. Schiffman, (poster) *Electrospinning Complex Coacervates: No Entanglements Required*, UMass-Amherst Fall Polymer Event, October 2019.

68. H. Tjo,‡ W.C. Blocher McTigue, S.L. Perry, (poster) *Mapping the Phase Behavior of Polymer-Surfactants Systems*, UMass-Amherst Fall Polymer Event, October 2019.

69. S. Sui, S. Saha, S.L. Perry (poster), *Enabling Microfluidic Technology*, NORA Meets BASF Challenges 2019, Cambridge, MA, October 2019.

    Awarded best poster.

70. V. Liadinskaia, S.L. Perry, J.D. Schiffman (poster), *Improving Delivery of Fungicides Using Complex Coacervates*, NORA Meets BASF Challenges 2019, Cambridge, MA, October 2019.

    Awarded best poster.

71. S.L. Perry (poster), *Nature-Inspired Materials Design*, NORA Meets BASF Challenges 2019, Cambridge, MA, October 2019.

72. S. Saha, S. Sui, S.L. Perry, *Polymer-based Microfluidic Devices for Protein Crystallography*, New England Complex Fluids Workshop, Waltham, MA, September 2019.

73. 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.

74. S.L. Perry, X. Meng, J. Sun, J.D. Schiffman, *Electrospinning Polyelectrolyte Complex Fibers*, ACS Colloids and Surface Science Symposium, Atlanta, GA, June 2019.

75. 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.

76. 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.

77. 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.

78. S. Szemethy,‡ S.L. Perry (poster), *The Aesthetic Applications of Microfluidic Devices,* 25th Annual Massachusetts Statewide Undergraduate Research Conference, Amherst, April 2019.

79. 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.

80. 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.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

81. 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.
82. 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.
83. 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.
84. 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.
85. 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.
86. 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.
87. 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.
88. 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 Penninsula Local Section, Marquette, MI, March 2019.
89. S. Sui, S.L. Perry, X-ray Compatible Microfluidics for Advanced Room Temperature Crystallography, BioXFEL Conference, San Diego, CA, February 2019.

    Awarded Best Poster.
90. 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.
91. 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.
92. L.W. Chang, T. Lytle, C.E. Sing, S.L. Perry, *Sequence Control of Complex Coacervation*, AIChE Annual Meeting, Pittsburgh, PA, October 2018.
93. 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.
94. 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.
95. 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.
96. 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.
97. X. Meng, S.L. Perry, J.D. Schiffman, (poster) *Encapsulating Cargo in Electrospun Complex Coacervate Fibers*, UMass-Amherst Fall Polymer Event, October 2018.
98. 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.
99. 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.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

100. 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.
101. 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.
102. 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.
103. 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.
104. S.L. Perry, *Electric Fields, Microfluidics, and Protein Crystallography*, ACS Colloids and Surface Science Symposium, State College, PA, June, 2018.
105. 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.
106. 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.
107. 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.
108. 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.
109. 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.
110. 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.
111. 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.
112. 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.
113. 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.
114. 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.
115. S. Sui, S.L. Perry, *Graphene-Integrated Microfluidics for Advanced Crystallography*, 7th Annual Life Sciences Graduate Research Symposium, University of Massachusetts Amherst, November 2017.
116. 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.
117. S.L. Perry, S. Galarza, S.R. Peyton, *A Student-Created, Open Access, Living Textbook*, AIChE Annual Meeting, Minneapolis, MN, October 2017.
118. 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.
119. 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.
120. 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.
121. S. Sui, S.L. Perry, *Graphene-Integrated Microfluidics for Advanced Crystallography*, Chemical Biology Interface Program Chalk Talk, University of Massachusetts Amherst, October, 2017.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

122. W.C. Blocher, S.L. Perry, Encapsulation and Thermal Stability of Immunological Biologics Using Complex Coacervation, UMass-Amherst Fall Polymer Event, October 2017.
123. W.C. Blocher, S.L. Perry, (poster) *Protein Encapsulation Using Complex Coacervation of Oppositely-Charged Polypeptides*, UMass-Amherst Fall Polymer Event, October 2017.
124. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2017.
125. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, UMass-Amherst Fall Polymer Event, October 2017.
126. X. Meng, S.L. Perry, J.D. Schiffman, (poster) *Encapsulating Cargo in Electrospun Complex Coacervate Fibers*, UMass-Amherst Fall Polymer Event, October 2017.
127. 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.
128. 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.
129. C.E. Sing, S.L. Perry, Tuning Complex Coacervation Using Sequence-Defined Polyelectrolytes: A Molecular Understanding, ACS National Meeting, Washington DC, August 2017.
130. S.L. Perry (poster), *Microfluidics in the Classroom and Wiki-Textbooks*, ASEE Summer School for Chemical Engineering Faculty, Raleigh, NC, August 2017.
131. S.L. Perry, *Graphene Microfluidics for Room Temperature Crystallography*, ACS Colloids and Surface Science Symposium, New York, July, 2017.
132. 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.
133. 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.
134. 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.
135. 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.
136. 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.
137. S.L. Perry, *Dynamics in Complex Coacervates*, APS March Meeting, New Orleans, March, 2017.
138. 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.
139. 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.
140. 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.
141. 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.
142. 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.
143. W.C. Blocher, S.L. Perry (poster), *Protein Encapsulation via Coacervation using Oppositely-Charged Polyelectrolytes*, Soft Materials for Life Sciences Retreat, Amherst, October 2016.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

144. 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.
145. 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.
146. 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.
147. 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.
148. S.L. Perry (poster), *Molecular Engineering of Polyelectrolyte Complex Materials*, Gordon Research Conference on Polymer Physics, South Hadley, MA, August 2016.
149. 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.
150. 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.
151. 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.
152. 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.
153. 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.
154. 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.
155. 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.
156. 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.
157. 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.
158. 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.
159. 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.
160. 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.
161. 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.
162. 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.

E3. Contributed Presentations (cont')

(‡*undergraduate*)

163. 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.
164. 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.
165. 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.
166. 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.
167. 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.
168. 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.
169. C. Sing, M. Radhakrishna, S.L. Perry, *Correlation and Sequence Effects in Complex Coacervation*, AIChE Annual Meeting, Salt Lake City, November 2015.
170. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, UMass-Amherst Fall Polymer Event, October 2015.
171. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, UMass-Amherst Fall Polymer Event, October 2015.
172. 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.
173. Y. Liu, H.H. Winter, S.L. Perry, (poster) *Liquid-to-Solid Transitions in Polyelectrolyte Complexes*, ACS National Meeting, Boston, August 2015.
174. L.W. Chang, S.L. Perry, (poster) *Effect of Charge Patterning on Polypeptide-Based Complex Coacervation*, ACS National Meeting, Boston, August 2015.
175. 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.
176. 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.
177. 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.
178. 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.
179. C. Vieira Robalo,‡ S.L. Perry, (poster) *X-ray Compatible Microfluidic Platforms for Protein Crystallography*, ACS-CVS Undergraduate Research Symposium, Hartford, April 2015.
180. 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.
181. S.L. Perry, *Biomimetic Coacervate Materials and Beyond*, UMass Amherst Materials Discussions, February 2015.
182. 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.
183. 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.
184. 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.
185. 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.

PUBLICATIONS, PATENTS, AND PRESENTATIONS (cont')

E3. Contributed Presentations (cont')

(‡*undergraduate*)

186. 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.
187. 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.
188. 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

F. Research Support

F1. Funded Research Grants and Contracts (Total: $7,392,683, Total for Perry Lab: $4,293,473)

1. 3M 3-Pronged Outreach Programming in Materials and Polymer Science at UMass Amherst, L. Bradley (PI), S.L. Perry (Co-PI), $75K.
2. *CHEM-ENG 535 Microfluidics and Microscale Analysis in Materials and Biology*, 2021 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), $500.
3. *A Flow Transcription Device for High Purity/Low Cost mRNA Manufacturing*, Wellcome Leap R3 Program, C.T. Martin (PI), S.L. Perry (Co-PI), S.R. Peyton (Co-PI), $1.61M.
4. *DMREF: A Computationally-driven Predictive Framework for Stabilizing Viral Therapies*, National Science Foundation, S.L. Perry (PI), C.L. Heldt (Co-PI), S. Sarupria (Co-PI), $1.8M.
5. *Engineering Flow Transcription for High Purity/Low Cost RNA Manufacturing*, Manning-IALS Innovation Award, C. Martin (PI), R. Banerjee, S.L. Perry, S. Peyton, B. Roy, $100K.
6. *Encapsulation for Enhanced Protection and Delivery of Flavors*, Colgate-Palmolive/UMass Cooperative Research Project, S.L. Perry (PI), J. Lee (PI), $79K.
7. Parametric Investigation on the effect of Polymer Properties and Salt on Coacervation and Materials Processing, BASF/UMass Cooperative Research Project, S.L. Perry (PI), R. Konradi (PI), $300K.
8. *CHEM-ENG 402 At-Home Senior Lab Projects*, 2020 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), $500.
9. *Designing an AI Framework for High-Throughput Materials Development*, University of Massachusetts Amherst Interdisciplinary Faculty Research Award, P. Bai (PI), M. Katsoulakis (Co-PI), S.L. Perry (Co-I), J. Klier (Co-I), $40,000.
10. *Dense Phase Polyelectrolytes to Thermally Stabilize Viral Vaccines*, NIH R21, C.L. Heldt (PI), S.L. Perry (Co-PI), 3/6/2020 – 2/28/2022, $428,620.
11. *CAREER: Nature-Inspired Strategies for Protein Stabilization*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.L. Perry (PI), 03/01/2020 – 02/28/2025, $643,543.
12. *3M Diversity Lecture Series: Polymers, Materials, and Processes*, 3M Corporation, 11/01/2019 – 10/31/2021, $20,000.
13. *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 – 12/10/2020, $300,000.
14. *CHEM-ENG 535 Microfluidics and Microscale Analysis in Materials and Biology*, 2019 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), $500.
15. *Cryptic Hydrogels*, National Science Foundation, Division of Materials Research, Biomaterials Program, S.R. Peyton (PI), J. Klier (Co-PI), S.L. Perry (Co-PI), $600,169.
16. *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.
17. Encapsulation of Actives for Sensing, Delivery, and Wound Care, 3M Non-Tenured Faculty Award, S.L. Perry (PI), $30,000.

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

F1. Funded Research Grants and Contracts (cont')

18. *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.
19. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2018 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), $500.
20. *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.
21. Travel for Collaboration with Prof. Caryn Heldt at Michigan State University, Center for Bioactive Delivery Microgrant, S.L. Perry (PI), 2017, $1000.
22. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2016 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2017, $500.
23. *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.
24. *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.
25. *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.
26. *Graphene Microfluidics for Room Temperature Fragment-Based Screening*, Novartis Institutes for Biomedical Research Inc., S.L. Perry (PI), R. Chopra (PI), 2017, $6,500.
27. *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.
28. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2016 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2016, $500.
29. 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.
30. *Advanced Formulations for Reduced-VOC Windshield Washer Fluid*, TURI Academic Research Grants, S.L. Perry (PI), J. Klier (Co-PI), 08/01/2016 – 07/31/2017, $25,000.
31. *CHEM-ENG 590E Microfluidics and Microscale Analysis in Materials and Biology*, 2015 Teaching Excellence & Faculty Development Flex Grant, S.L. Perry (PI), 2015, $500.
32. *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.
33. *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.
34. *Bio-Inspired Thermostable Vaccine Formulations*, from the Armstrong Fund for Science at UMass-Amherst, S.L. Perry (PI), 2015 – 2017, $30,000.
35. *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. Submitted Research Grants and Contracts

1. *Fixed-Target Platforms for Time-Resolved Crystallography,* NIH R01, S.L. Perry (PI), $936K (submitted).

G. Research Advising Activities

G1. Mentored Postdoctoral Researchers (4 Total, 3 Current)

1. Dr. Pankaj Pandey (Aug. 2021 – present)
   Encapsulation of antimicrobials in personal care products.

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

G1. Mentored Postdoctoral Researchers (cont')

2. Dr. Priyanka (Joint with Jessica Schiffman) (Nov. 2020 – present)
   Advanced strategies for the formulation and safening of agricultural products.
3. Dr. Mingjun Zhou (Joint with Maria Santore, currently Professor of Chemistry at Yantai University) (Oct. 2019 – Feb. 2022)
   Fundamentals of particle-polymer complex coacervates.
4. Dr. Vanda Liadinskaia (Joint with Jessica Schiffman, currently a researcher at the University of Twente) (Oct. 2018 – Jan. 2020)
   Advanced strategies for the formulation and safening of fungicides.
   Awards: Best Poster Award – NORA Meets BASF Challenges 2019

G2. Mentored PhD Student Researchers (10 Total, 5 Current)

1. Júlia Bonesso Sabadini (Institute of Chemistry at the University of Campinas, Brazil) (Jan. 2022 – present)
   Studied the encapsulation of proteins into complex coacervate-core micelles as compared with bulk coacervate materials.
   Awards: FAPESP Scholarship for International Study, 2022
2. Isaac Ramírez Marrero (Dec. 2020 – present)
   Examined the effects of polymer/copolymer chemistry on complex coacervates and the resulting polyelectrolyte complex solid materials with a goal of identifying potential markets for these materials.
   Awards: Eldridge Teaching Assistant Award, Fall 2021
3. Arvind Sathyavageeswaran (Dec. 2020 – present)
   Examined the effects of sequence control on the formation of complex coacervates and the incorporation and stabilization of enzymes and viruses for applications such as refrigeration-free vaccines.
4. Xianci Zeng (Mar. 2020 – present)
   Examined the effects of sequence control on the formation of complex coacervates and the incorporation and stabilization of enzymes for applications such as refrigeration-free vaccines.
   Awards: Department of Chemical Engineering Graduate Student Travel Award
   Trainee – Chemistry Biology Interface (CBI) Training Program
5. Sarthak Saha (Nov. 2018 – present)
   Development of microfluidic platforms for high throughput protein crystallization and drug discovery.
   Awards: EMBL Corporate Partnership Programme Travel Grant, 2022
   BioXFEL Support for External Conferences and Professional Development Events Award Recipient, 2022
   Chemistry-Biology Interface Travel Award, 2022
   Department of Chemical Engineering Graduate Student Travel Award, 2021
   PPG Fellowship, Fall 2020, Spring 2021
   BioXFEL Scholar
   UMass Chemistry Biology Interface (CBI) Fellowship
   Trainee – Chemistry Biology Interface (CBI) Training Program
   Best Poster Award – NORA Meets BASF Challenges 2019
6. Whitney Blocher McTigue (Currently a Postdoctoral Researcher at UIUC) (Oct. 2015 – July 2020)
   Utilized sequence-controlled polypeptide-based complex coacervates to stabilize encapsulated proteins for applications such as refrigeration-free vaccines.
   Awards: Department of Chemical Engineering Best Dissertation Award 2020
   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)

G2. Mentored PhD Student Researchers (cont')

7. Xiangxi "Zoey" Meng (Joint with Jessica Schiffman, currently a Postdoctoral Researcher at UCSB) (Oct. 2015 – Dec. 2020)
   Developed methods for electrospinning nanofibers of polyelectrolyte complex-based materials.
   Awards: 2nd Place Life Science Graduate Research Symposium 2019
   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)
8. Li-Wei Chang (Currently a Scientist at Henkel) (Oct. 2014 – Mar. 2020)
   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)
9. Yalin Liu (Currently a Scientist at Henkel) (Oct. 2014 – July 2020)
   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)
10. Shuo Sui (Currently a Senior Scientist at Pfizer) (Oct. 2014 – July 2020)
    Developed microfluidic platforms for time-resolved protein crystallography.
    Awards: Best Poster Award – NORA Meets BASF Challenges 2019
    Poster Prize at the BioXFEL Conference, February 2019
    ICCBM 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
    BioXFEL Scholar
    IUCr Poster Prize at ICCBM16, July 2016
    ICCBM Young Scientist Travel Award, July 2016

G3. Mentored Masters Student Researchers (5 Total, 2 Current)

1. SeungBo Hong (Oct. 2021 – present)
   Development of coacervate-based films and coatings using bio-based and biodegradable polymers
2. Diwakaran Rathinam Palaniswamy (Sept. 2021 – present)
   Microfluidics for time-resolved protein crystallography
   Awards: BioXFEL Scholar
3. Yimin Sun (Joint with John Klier, currently a Researcher at WuXi STA) (Oct. 2019 – May 2021)
   Coacervation-inspired cryptic materials.
4. Nicholas Bryant (Chemical Engineering, joint with John Klier, currently an Engineer with MacDermid) (Oct. 2019 – June 2021)
   Coacervation-driven films and coatings.
   Awards: Tillwick and Eldridge Teaching Assistant Award, Fall 2020
5. Juanfeng Sun (Joint with Jessica Schiffman, currently an Engineer at Complete Genomics) (Oct. 2017 – May 2019)
   Electrospinning of complex coacervates composed of natural biopolymers.

G4. Mentored Undergraduate Student Researchers (56 Total, 7 Current)

1. Mayayi Izzo (Brown University, MURALS REU student) (May 2022 – present)
2. Nickolas Holmlund (Apr. 2022 – present)
3. Emily Ng (Feb. 2022 – present)

G4. Mentored Undergraduate Student Researchers (cont')

4. Henry Xu (Feb. 2022 – present)
5. Arjun Iyer (Jan. 2022 – present)
6. Yaozu Chen (Sept. 2021 – present)
7. Rachel Maher (Sept. 2021 – present)
8. Veronika Panchenko (Holyoke Community College) (Jun. 2021 – Dec. 2021)
9. Luke Boudreau (May 2021 – May 2022)
10. Shannon McIntosh (Currently a Quality Engineer at Insulet) (May 2021 – May 2022)
11. Alexander Lawton (Feb. 2021 – Jan. 2022)
12. Katherine Nilov (Currently a PhD student in Chemical Engineering at Northeastern University) (Aug. 2020 – May 2022)
    Awards: 2022 Engineering Commencement Student Speaker
13. Alistaire Rauch (Joint with Ashish Kulkarni) (Oct. 2019 – Mar. 2020)
14. Ali Ahmad Jallow (Joint with Jessica Schiffman, currently a Process Engineer at 42° North Solutions, LLC) (Oct. 2019 – Mar. 2020)
    Awards: Fall 2020 Commonwealth Honors College Research Assistant Fellowship
15. Giuseppe Santaniello (Joint with Anne Gershenson) (Apr. 2019 – Aug. 2019)
16. Jonathan Selway (Oct. 2018 – May 2021)
17. Elizabeth McDermott (Currently an Engineer with Abbvie) (Sept. 2018 – May 2020)
18. Gregory Donovan (Joint with Jessica Schiffman, currently a PhD student in Chemical Engineering at the University of Colorado Boulder) (Sept. 2018 – May 2020)
19. Telvin Abariga (June 2018 – May 2019)
20. Abigail Cabral (Currently a MS student in Biomedical Engineering at Columbia University) (Apr. 2018 – Dec. 2019)
    Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
    Spring 2019 Commonwealth Honors College Research Assistant Fellowship
21. Shari Traiger (Apr. 2018 – Dec. 2019)
    Awards: Fall 2019 Commonwealth Honors College Research Assistant Fellowship
22. Joshua McGee (Currently a PhD student in Biomedical Engineering at Boston University) (Apr. 2018 – May 2021)
    Awards: 2021 National Science Foundation Graduate Research Fellowship
    2021 UMass Amherst Rising Researcher
    Spring 2021 Commonwealth Honors College Research Grant
    Fall 2020 Commonwealth Honors College Research Grant
    Spring 2020 Commonwealth Honors College Research Assistant Fellowship
    1st Place in the 2019 AIChE Annual Meeting Undergraduate Poster Session
    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
23. Devin Rafferty (Joint with Todd Emrick, Currently an Engineer with BMS) (Jan. 2018 – May 2020)
    Awards: Spring 2019 Commonwealth Honors College Research Assistant Fellowship
    Fall 2018 Commonwealth Honors College Research Assistant Fellowship

G4. Mentored Undergraduate Student Researchers (cont')

24. Hansen Tjo (Currently a PhD student in Chemical and Biological Engineering at Princeton University) (Dec. 2017 – Aug. 2021)
    Awards: Spring 2021 Commonwealth Honors College Research Grant
    Best Presentation – Biomolecular, Gulf Coast Undergraduate Research Symposium 2020
    Jack M. Wilson Presidential Scholarship
    Fall 2020 Commonwealth Honors College Research Grant
    Spring 2020 Commonwealth Honors College Research Grant
    2nd Place in the 2019 AIChE Annual Meeting Undergraduate Poster Session
    Fall 2019 Commonwealth Honors College Research Assistant Fellowship
    Spring 2019 Commonwealth Honors College Research Assistant Fellowship
    Fall 2018 Commonwealth Honors College Research Assistant Fellowship
25. Ahzam Mustafa (Dec. 2017 – Jan. 2018)
26. 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
27. Lila Durán Ruiz (Currently a MS student in Chemical Engineering at the University of Waterloo (Sept. 2017 – May 2020)
28. Bryanne Zonghi (Currently Associate Research Scientist at Bristol-Myers Squibb) (July 2017 – May 2019)
29. Caleb Boucher (Currently Trail Crew for the Southwest Conservation Corps) (May 2017 – May 2019)
30. Xi (Ryan) Hao (Currently a PhD student in Macromolecular Science and Engineering at Virginia Tech) (Feb. 2017 – May 2018)
31. Matthew Labbe (Currently a Process Engineer at HP) (Feb. 2017 – Dec. 2019)
    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
32. Elizabeth Voke (Currently a PhD student in Chemical Engineering at UC Berkeley) (Feb. 2017 – May 2020)
    Awards: 2021 National Defense Science and Engineering Graduate (NDSEG) Fellowship Award
    2020 UMass Amherst Rising Researcher
    2020 NSF Graduate Research Fellowship Honorable Mention
    Spring 2020 Commonwealth Honors College Research Grant
    2nd Place in the 2019 AIChE Annual Meeting Undergraduate Poster Session
    Fall 2019 Commonwealth Honors College Research Grant
    Fall 2018 Commonwealth Honors College Research Assistant Fellowship
33. Rachel Brody (Currently a Microbiology Engineer at Kuprion Inc.) (Jan. 2017 – Feb. 2018)
34. Alexander Brosseau (Currently a Chemist at Mylan Technologies) (Sept. 2016 – May 2017)
35. 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
36. Brenna Walsh (Apr. 2016 – Dec. 2016)

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

G4. Mentored Undergraduate Student Researchers (cont')

37. Savannah Szemethy (Currently a Research Associate at TScan Therapeutics) (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
38. Rebecca Hershman (Currently PhD student in Chemical Engineering at Tufts) (Apr. 2016 – May 2018)
39. Sid Vipura (Apr. 2016 – Aug. 2016)
40. Tyler Carpenter (Honors Thesis, currently an Automation Engineer at Merck) (Apr. 2016 – May 2018)
    Awards: 2017 Commonwealth Honors College Honors Research Grant
41. Christine Davis (Honors Thesis, currently a PhD student in Biological Engineering at MIT) (Apr. 2016 – May 2017)
42. Marzbed Margossian (Joint with Paul Dubin) (Oct. 2015 – May 2017)
43. Robin Zollner (Currently Materials, Process, and Physics Engineer at Boeing) (Sept. 2015 – May 2019)
44. Adam Murphy (Joint with Neil Forbes, currently a Scientist I, Formulation at Thermo Fisher Scientific) (Sept. 2015 – May 2017)
45. Rui Pereira (Currently Process Engineer at Toray Plastics) (Sept. 2015 – Dec. 2015)
46. Kush Basu (Honors Thesis, Currently Research Engineer at Optodot) (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
47. Brenton Drew Knudson (Currently Associate Process Engineer at PaxVax, Inc.) (Apr. 2015 – May 2016)
48. Patrick Harney (Honors Thesis, currently a Manufacturing Operations Senior Scientific Associate at Vertex Pharmaceuticals) (Apr. 2015 – May 2016)
49. Appa Salvi (Hampshire College) (Apr. 2015 – June 2015)
50. 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
51. Jon Vélez (Currently a Process Engineer at Pfizer) (Mar. 2015 – June 2016)
52. Ruoting Robert Wang (Honors Thesis, Joint with Jessica Schiffman) (Mar. 2015 – May 2016)
    Awards: 2015 Commonwealth Honors College Honors Research Grant
53. Colton Kenny (Joint with Todd Emrick, Currently Process Engineer at Amphenol Printed Circuits) (Feb. 2015 – May 2016)
54. 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
55. Cristina Vieira Robalo (Sept. 2014 – May 2016)
    Awards: Fall 2015 Commonwealth Honors College Research Assistant Fellowship
56. 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

G5. Mentored High School Student Researchers (1 Total, 1 Current)

1. Louisa Coughlin (June 2022 – Aug. 2022)

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

G6. Doctoral Committee Mentorship (49 Total, 18 Current)

1. Shao-Hsiang "Joe" Hung (Chemical Engineering, Jessica Schiffman advisor) (May 2022 – present)
2. Zachary Fink (Polymer Science and Engineering, Tom Russell advisor) (July 2021 – present)
3. Hong-Gyu Seong (Polymer Science and Engineering, Tom Russell and Todd Emrick advisors) (Jun. 2021 – present)
4. Jinning Liu (Food Science, D. Julian McClements advisor) (May 2021 – present)
5. Sizhe Huang (Biomedical Engineering, Siyuan Rao advisor) (Apr. 2021 – present)
6. Ruptanu Banerjee (Chemistry, Craig Martin advisor) (Nov. 2020 – present)
7. Adrian Lorenzana (Chemical Engineering, Shelly Peyton advisor) (Nov. 2020 – present)
8. Peiyao Zhao (Chemistry, Trisha Andrew advisor) (Nov. 2020 – present)
9. Christian Steinmetz (Polymer Science and Engineering, E.B. Coughlin advisor) (Aug. 2020 – Mar. 2022)
10. Mingqiu Hu (Polymer Science and Engineering, M. Muthukumar advisor) (Apr. 2020 – present)
11. Minjung Lee (Polymer Science and Engineering, Ryan Hayward advisor) (Jan. 2020 – Jan. 2022)
12. Chris Luby (Chemistry, Tufts University, Charlie Mace advisor) (Nov. 2019 – Dec. 2019)
13. Sparsh Makhaik (Chemistry, Jeanne Hardy advisor) (Nov. 2019 – present)
14. Ruolan Fan (Chemistry, Trisha Andrew advisor) (Oct. 2019 – present)
15. Ritam Das (Chemistry, S. "Thai" Thayumanavan advisor) (Oct. 2019 – present)
16. Stephanie Le (Chemistry, S. "Thai" Thayumanavan advisor) (Sept. 2019 – present)
17. Sadhana Chalise (Polymer Science and Engineering, M. Muthukumar advisor) (Sept. 2019 – May 2021)
18. Yan Cong (Polymer Science and Engineering, Tom McCarthy advisor) (Aug. 2019 – Dec. 2021)
19. Hazel Davis (Polymer Science and Engineering, Greg Tew advisor) (Apr. 2019 – Apr. 2022)
20. Suyue Han (Mechanical and Industrial Engineering, Yahya Modarres-Sadeghi advisor) (Feb. 2019 – present)
21. Emil Samson (Chemistry, S. "Thai" Thayumanavan advisor) (Nov. 2018 – present)
22. Oscar Zabala (Chemical Engineering, Peter Beltramo advisor) (Sept. 2018 – present)
23. Anh Nguyen (Chemical Engineering, Ashish Kulkarni advisor) (Sept. 2018 – present)
24. Matt Lampe (Polymer Science and Engineering, Alan Lesser advisor) (July 2018 – Feb. 2019)
25. Joshua Enokida (Polymer Science and Engineering, E. Bryan Coughlin advisor) (May 2018 – Aug. 2019)
26. Aritra Kundu (Chemical Engineering, Shelly Peyton advisor) (May 2018 – present)
27. Zipei Zhang (Food Science, D. Julian McClements advisor) (Mar. 2018 – Mar. 2019)
28. Hyeyoung Kim (Polymer Science and Engineering, Thomas Russell advisor) (Jan. 2018 – Aug. 2019)
29. Yiliang Zhou (Polymer Science and Engineering, James Watkins advisor) (Aug. 2017 – Oct. 2018)
30. Shane Taylor (Chemical Engineering, John Klier advisor) (July. 2017 – Aug. 2021)
31. Cristiam Santa Chalarca (Polymer Science and Engineering, Todd Emrick advisor) (Jan. 2017 – Dec. 2018)
32. Chinomso Nwosu (Polymer Science and Engineering, E. Bryan Coughlin advisor) (Sept. 2016 – June 2018)
33. Aditi Naik (Polymer Science and Engineering, James Watkins advisor) (Aug. 2016 – Sept. 2018)
34. Michael Leaf (Polymer Science and Engineering, M. Muthukumar advisor) (Apr. 2016 – May 2017)
35. Mike Kwasny (Polymer Science and Engineering, Greg Tew advisor) (Apr. 2016 – May 2019)
36. Xiao Liu (Chemistry, Stony Brook University, Surita Bhatia advisor) (Mar. 2016 – May 2016)
37. Mindy Dai (Food Science, Sam Nugen advisor) (Feb. 2016 – Mar. 2016)
38. Kiran Iyer (Chemical Engineering, M. Muthukumar advisor) (Dec. 2015 – Dec. 2019)
39. Kieran Ramos (Physics, Lori Goldner advisor) (Nov. 2015 – July 2019)
40. Prabhat Tripathi (Chemistry, M. Muthukumar advisor) (Oct. 2015 – July 2018)
41. Charmaine Koo (Food Science, Sam Nugen advisor) (Sept. 2015 – Mar. 2016)
42. Svetlana Morozova (Polymer Science and Engineering, M. Muthukumar advisor) (Aug. 2015 – Dec. 2016)
43. Brian Momani (Chemical Engineering, H. Henning Winter advisor) (June 2015 – Dec. 2017)
44. Daniel Seeman (Chemistry, Paul Dubin advisor) (Mar. 2015 – May 2015

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

G6. Doctoral Committee Mentorship (cont')

45. Stephen Strassburg (Polymer Science and Engineering, David Hoagland and Harry Bermudez advisors) (Jan. 2015 – Apr. 2018)
46. Elizabeth Cummings Bende (Chemical Engineering, Susan Roberts advisor) (Dec. 2014 – Apr. 2018)
47. Matthew Skinner (Polymer Science and Engineering, Todd Emrick advisor) (Dec. 2014 – Sept. 2017)
48. Bin Liu (Chemistry, S. "Thai" Thayumanavan advisor) (Dec. 2014 – Apr. 2019)
49. Fatih Comert (Chemistry, Paul Dubin advisor, served as co-chair) (July 2014 – Sept. 2018)

G7. Masters Committee Mentorship (3 Total, 0 Current)

1. Yinghong "Lily" Liu (Chemical Engineering, John Klier advisor) (Jan. 2020 – May 2021)
2. Yuhan Tian (Biochemistry and Molecular Biology, S. Garman advisor) (Feb. 2019 – Jan. 2022)
3. Marcos Manganare (Molecular and Cellular Biology, Shelly Peyton advisor) (May 2015 – June 2015)

G8. Honors Thesis Committee Mentorship (15 Total, 2 Current)

1. Alistaire Rauch (Chemical Engineering, Ashish Kulkarni advisor) (Apr. 2022 – present)
2. Kimia Abedi (Biomedical Engineering, Chase Cornelison advisor) (Oct. 2021 – present)
3. Samuel Marsden (Chemical Engineering, Laura Bradley advisor) (Apr. 2020 – May 2021)
4. Abraham Waldman (Chemical Engineering, Jessica Schiffman advisor) (Mar. 2020 – May 2021)
5. Megha Shah (Chemical Engineering, Neil Forbes advisor) (July 2019 – May 2020)
6. Miriam Lee (Chemical Engineering, M. Muthukumar advisor) (Sept. 2018 – June 2019)
7. Kavya Ramachandran (Chemical Engineering, Neil Forbes advisor) (July 2018 – May 2019)
8. Griffin Hurley (Chemical Engineering, Jessica Schiffman advisor) (Dec. 2017 – May 2018)
9. Annali Yurkevicz (Chemical Engineering, Shelly Peyton advisor) (Dec. 2017 – May 2018)
10. Thomas Baim (Electrical Engineering, Daniel Holcomb advisor) (Nov. 2017 – May 2018)
11. Jennifer Slade (Chemical Engineering, H. Henning Winter advisor) (Nov. 2017 – May 2018)
12. Christopher Kuo-Leblanc (Chemical Engineering, Jessica Schiffman advisor) (Sept. 2017 – May 2018)
13. Alexander Smith (Mechanical Engineering, Juan Jiménez advisor) (Dec. 2016 – May 2017)
14. Michael Beauregard (Chemical Engineering, Neil Forbes advisor) (Aug. 2016 – May 2017)
15. 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 – 2021

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 ~50 to 155 students, while also organizing multiple graduate and undergraduate teaching assistants.

Modified instruction and course content for Fall 2020 for online teaching due to the COVID-19 pandemic.

Nominated for the Distinguished Teaching Award 2016, 2018, 2020.

Thermodynamics II (CHEM-ENG 325), Spring 2021

This course covers the fundamentals and applications of the thermodynamics of phase and chemical reaction equilibrium, as well as applications to industrial problems.

Co-taught classes and prepared materials for a class of 67 students, while also organizing three graduate and four undergraduate teaching assistants.

Modified instruction and course content for Spring 2021 for online teaching due to the COVID-19 pandemic.

H1. Courses Taught (cont')

Microfluidics and Microscale Analysis in Materials and Biology (CHEM-ENG 590E/535), Spring 2016 – 2020, 2022

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.

Modified instruction and course content for Spring 2020 for online teaching due to the COVID-19 pandemic.

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.

Guest Instructor – Process Control (CHEM-ENG 446), Fall 2021

Provided a guest lecture on the topic of ethics, equity, and environmental racism in the context of industrial scale chemical manufacturing.

Guest Instructor – Nanostructured Biomaterials (CHEM-ENG 589), Spring 2020

Provided a guest lecture on the topic of polymers.

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

Summer Engineering Institute (SENGI) (UMass Amherst) 2015 – 2020

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

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

Engineering and Society Summit (UMass Amherst) 2022

Developed a workshop on vaccine equity and reducing the need for the cold chain.

Served on a faculty panel about efforts to incorporate diversity, equity, inclusion, and social justice initiatives into the engineering curriculum.

Vaccine Apartheid Awareness Event (UMass Amherst) 2022

Presented on vaccine research and the need to reduce cold chain requirements for therapeutics.

Skype a Scientist (Joliet Central High School, Joliet, IL) 2020

Participated in a discussion with high school students about a career in STEM.

Women in Engineering and Computing Career Day (UMass Amherst) 2015 – 2016, 2019, 2021

Developed a paperfuge-based activity for participants, coordinated laboratory tours and participated as a lunch-table discussion leader with high school girls interested in Chemical Engineering.

Girl Scouts of Western Massachusetts 2016

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

Eureka!/Girls Inc. (UMass Amherst) 2015

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

TEACHING, OUTREACH, PROFESSIONAL AFFILIATIONS, AND SERVICE

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)
New England Complex Fluids Workgroup
Soft Materials for Life Sciences: An NSF Research Traineeship Program (SMLS-NRT)

I3. Professional Development

National Research Mentoring Network Mentor Training (UMass Amherst) November 2019
A workshop focused on best mentoring practices for faculty and students.

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.

Graduate Teaching Certificate (University of Illinois) 2007
A certification awarded by the Center for Teaching Excellence based on classroom teaching and pedagogy.

I4. Departmental Service

Undergraduate Program Director (Chemical Engineering) 2020 – present
Responsible for departmental curriculum review and improvement, ABET, and the department response to COVID-19.
Developed and oversaw changes to the undergraduate curriculum designed to decrease student burnout in the senior year and enhance learning.

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 and helped to support the department response related to COVID-19.

Diversity, Equity, and Inclusion Committee 2020 – 2021
Responsible for the development and evaluation of efforts related to improving the diversity, equity, and inclusivity of the department.

Department Head Search Committee (UMass-Amherst Chemical Engineering) 2020
Responsible for recruitment, evaluation, and selection of internal candidates for Department Head.

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.

Faculty Search Committee (Physics) 2019 – 2020
Responsible for recruitment, evaluation, and selection of faculty candidates in experimental soft matter.

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.

I4. Department Service (cont')

Member, Distinguished Seminar Committee (UMass-Amherst Chemical Engineering) 2019 – 2020
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 – 2019
Evaluated the written and oral performance of PhD students in the department.

I5. College Service

College Curriculum Committee (UMass-Amherst College of Engineering) 2021 – present
Responsible for curriculum review and improvement across the College of Engineering.

Office of Student Affairs Hiring Committee (UMass-Amherst College of Engineering) 2021
Responsible for hiring two new academic advisors for the College of Engineering.

NSF CAREER Proposal Workshop (UMass-Amherst College of Engineering) 2021
Served on a panel, providing guidance and advice to faculty considering submission of a CAREER proposal.

COVID-19 Fall Planning Group (UMass-Amherst College of Engineering) 2020
Developed plans for on-campus teaching and activities for the fall semester in response to the COVID-19 pandemic.

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.

I6. 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 – 2020
Responsible for the administration and evolution of the training grant.

Institute for Applied Life Sciences Center for Bioactive Delivery Steering Committee 2016 – 2020
Responsible for the vision, oversight, and growth of center activities.

I7. Professional Service

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 – 2020
Responsible for the planning, execution, management and hiring of this core facility.

I7. Professional Service (cont')

American Chemical Society

Chair for the *Colloids and Interfaces in Biology and Medicine* session, ACS Colloid & Surface Science Symposium 2020 (postponed to 2021)

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

Chair for the *Microfluidic and Nanoscale flows: Multiphase Systems and External Fields* 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

Poster Judge, Materials Science and Engineering Division, 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

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

Member of the DPOLY Education Committee 2020-2022

Poster Judge for DPOLY, APS March Meeting 2017

BioXFEL

Poster Judge, BioXFEL Annual Meeting 2019, 2021

Gordon Research Conferences

Organizer for the Power Hour at the Gordon Research Conference (GRC) on Systems Chemistry 2022

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

Okinawa Colloids Meeting

Poster Judge, Session 11, Symposium 8 Okinawa Colloids, Meeting 2019

I7. Professional Service (cont')

Protein Society

Chair for the *Diffraction Methods are Alive and Well* session, Annual Symposium of the Protein Society 2021

Quantitative Analysis of Dynamic Structures NRT External Advisory Board (Stony Brook University) 2021 – present

Responsible for providing feedback and an external perspective on the performance of the training grant.

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, Partnerships for International Research and Education (PIRE)

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

National Science Foundation, Division of Chemical, Bioengineering, Environmental and Transport Systems, Engineering of Biomedical Systems (EBMS, CAREER Panel)

National Science Foundation, Division of Chemical, Bioengineering, Environmental and Transport Systems, Particulate and Multiphase Processes

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 – 2020

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')

I7. Professional Service (cont')

Journal Peer Review

ACS Applied Materials & Interfaces
ACS Applied Polymer Materials
ACS Central Science
ACS Macro Letters
ACS Omega
ACS Polymers Au
Acta Crystallographica, Section D: Biological Crystallography
Acta Crystallographica, Section F: Structural Biology Communications
Advanced Biosystems
Advanced Materials
Advanced Materials Interfaces
Advances in Colloid and Interface Science
Analytical Chemistry
BiochemistryBiomacromolecules
ChemBioChem
Chemical Communications
Chemical Science
Chemical Society Reviews
Colloid and Polymer Science
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
JACS Au
Journal of the American Chemical Society
Journal of Colloid and Interface Science
Journal of Physical Chemistry
Journal of Polymer Science
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
Polymer Chemistry
Proceedings of the National Academy of Sciences of the U.S.A.
Progress in Polymer Science
Rheologica Acta
Science
Science Advances
Soft Matter