

Robbyn K. Anand (Perdue)

Assistant Professor of Chemistry

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Education

- Ph.D., Analytical Chemistry, University of Texas at Austin, 2010.
Thesis title: "Electrokinetic focusing of charged species at a bipolar electrode in a microfluidic device"
Advisor: Prof. Richard M. Crooks.
- B.A., Chemistry (minors in physics and biology), Anderson University (IN), 2004.

Professional Experience

- Assistant Professor of Chemistry, Iowa State University
- 2011 – 2015: Post-doctoral Research Associate at the University of Washington in Seattle (Prof. Daniel T. Chiu). Developed dielectrophoresis at bipolar electrodes. Enabled capture of circulating tumor cells with low expression of target antigens.
- 2004 – 2010: Graduate Research and Teaching Assistant at the University of Texas at Austin.

Honors and Awards

2021	Clinical Omics 2021 Pioneers Under 40
2021	Pittsburgh Conference Achievement Award
2021	Royce W. Murray Young Investigator Award, Society of Electroanalytical Chemistry
2021	Satinder Ahuja Award for Young Investigators in Separation Science
2020 – 2023	3M Non-Tenured Faculty Award
2020	Suresh Faculty Fellowship, Iowa State University, inaugural fellow
2019 – 2022	National Institutes of Health, National Institute of Biological Imaging and Bioengineering (NIBIB), Trailblazer Award
2019 – 2024	National Science Foundation, CAREER Award
2019	Cottrell Scholars Award
2018	Society of Analytical Chemists of Pittsburgh Starter Grant
2018	Top 40 Under 40 Power List, <i>The Analytical Scientist</i>
2014 – 2015	National Institute of Health Ruth Kirschstein National Research Service Award – T32 Training Program in Nanotechnology and Physical Science in Cancer Research (NIH NRSA T32 NPSCR)
2014 – 2015	Secretary, American Chemical Society Puget Sound Local Section
2012 – 2013	NIH NRSA T32 NPSCR
2007 – 2010	National Science Foundation Graduate Research Fellowship
2004 – 2005	Graduate Merit/Association of Former Students Fellowship – Texas A&M University
2005	Teaching Excellence Award – University of Texas at Austin

Selected Peer-Reviewed Publications

Published as faculty at Iowa State University

1. Krishnamurthy, A.; **Anand, R. K.**, Recent advances in microscale extraction driven by ion concentration polarization. **2021** *To be submitted*.
2. Chen, H.; Ericksen, N.; **Anand, R. K.**; Anderson, J. L., Electropolymerization of a pyrrole-based ionic liquid to seal nanoliter-scale reaction chambers. **2021** *To be submitted*.
3. Berzina, B.; Peramune, U.; Kim, S.; DeVries, E.; Whitehill, K. C.; Ganapathysubramanian, B.; **Anand, R. K.**, Sensitive electrical detection of nucleic acids by conduction of ions along the surface of bioconjugated beads in an ion depleted zone. **2021** *To be submitted*.
4. Berzina, B.; Kim, S.; Peramune, U.; Ganapathysubramanian, B.; **Anand, R. K.**, Out-of-plane faradaic ion concentration polarization for scalable enrichment and separation of charged species. **2021** *To be submitted*.
5. Borchers, J. S.; Campbell, C.; VanScoy S.; **Anand, R. K.**, Redox cycling at an array of interdigitated bipolar electrodes for enhanced sensitivity in biosensing. **2021** *Submitted*.
6. Kim, S.; **Anand, R. K.**, Ganapathysubramanian, B., Modeling electrochemical systems with weakly imposed Dirichlet boundary conditions. **2021** *Submitted*.
7. Rahn, K. L.; **Anand, R. K.**, Recent advancements in bipolar electrochemical methods of analysis. *Anal. Chem.* **2020**, *93*, 103. *Annual Review Issue*
8. Berzina, B.; **Anand, R. K.**, Tutorial review: enrichment and separation of neutral and charged species by ion concentration polarization focusing. *Anal. Chim. Acta* **2020**, DOI: 10.1016/j.aca.2020.06.021.
9. Rahn, K. L.; Rhoades, T. D.; **Anand, R. K.**, Alternating current voltammetry at a bipolar electrode with smartphone luminescence imaging for point-of-need sensing. *ChemElectroChem* **2020**, *7*, 1172.
10. Kim, S.; Ganapathysubramanian, B.; **Anand, R. K.**, Concentration enrichment, separation, and cation exchange in nanoliter-scale water-in-oil droplets. *J. Am. Chem. Soc.* **2020**, *142*, 3196.
11. Varona, M.; Eitzmann, D. R.; Pagariya, D.; **Anand, R. K.**; Anderson, J. L., Solid-Phase Microextraction Enables Isolation of BRAF V600E circulating tumor DNA from human plasma for detection with a molecular beacon loop-mediated isothermal amplification assay. *Anal. Chem.* **2020**, *92*, 3346.
12. Rahn, K.; **Anand, R. K.**, Interfacing electronic and genetic circuits. *Nat. Chem.* **2019**, *12*, 14.
13. **Anand, R. K.**; Baker, L. A.; Sun, L.; Zamborini, F. P.; Zhan, W., A tribute to Richard M. Crooks on the occasion of his 65th birthday. *ChemElectroChem* **2019**, *7*, 1062.
14. Berzina, B.; **Anand, R. K.**, Continuous micellar electrokinetic focusing of neutral species driven by ion concentration polarization. *Lab Chip* **2019**, *19*, 2233.
15. Banovetz, J. T.; Li, M.; Pagariya, D.; Kim, S.; **Anand, R. K.**, Defining cell cluster size by dielectrophoretic capture at an array of wireless electrodes of several distinct lengths. *Micromachines* **2019**, *10*, 217. *Invited paper*
16. Borchers, J. S.; Riusech, O.; Rasmussen, E.; **Anand, R. K.**, Visual voltammogram at an array of closed bipolar electrodes in a ladder configuration. *Journal of Analysis and Testing* **2019** DOI: 10.1007/s41664-019-00098-9. *Invited paper*
17. Robole Z.; Rahn, K.; Lampkin, B. J.; **Anand, R. K.**; VanVeller, B. Tuning the electrochemical redox potentials of catechol with boronic acid derivatives. *J. Org. Chem.* **2019**, *84*, 2346.
18. Li, M.; **Anand, R. K.**, Integration of marker-free selection of single cells at a wireless electrode array with parallel fluidic isolation and electrical lysis. *Chem. Sci.* **2019**, *10*, 1506.
19. Qin, Y.; Wu, L.; Schneider, T.; Yen, G.; Wang, J.; Xu, S.; Li, M.; Paguirigan, A. L.; Smith, J. L.; Radich, J. P.; **Anand, R. K.***; Chiu, D. T.* Self-digitization dielectrophoretic (SD-DEP) chip for high efficiency single-cell capture, on-demand compartmentalization, and downstream nucleic-acid analysis. *Angew. Chem. Int. Ed.* **2018**, *57*, 11378.

20. Berzina, B.; **Anand, R. K.**, An electrokinetic separation route to source dialysate from excess fluid in blood. *Anal. Chem.* **2018**, *90*, 3720.
21. Li, M.; **Anand, R. K.**, Cellular dielectrophoresis coupled with single-cell analysis. *Anal. Bioanal. Chem.* **2018**, *410*, 2499. *Invited Review*
22. Li, M.; **Anand, R. K.**, High-throughput selective capture of single circulating tumor cells by dielectrophoresis at a wireless electrode array. *J. Am. Chem. Soc.* **2017**, *139*, 8950.
23. Li, M.; **Anand, R. K.**, Recent advancements in ion concentration polarization. *Analyst* **2016**, *141*, 3496.

Prior to Assistant Professorship at Iowa State University

24. Johnson, E. S.; **Anand, R. K.**; Chiu, D. T., Improved detection by ensemble-decision aliquot ranking of circulating tumor cells with low numbers of a targeted surface antigen. *Anal. Chem.* **2015**, *87*, 9389.
25. **Anand, R. K.**; Johnson, E. S.; Chiu, D. T., Negative dielectrophoretic capture and repulsion of single cells at a bipolar electrode: the impact of faradaic ion enrichment and depletion. *J. Am. Chem. Soc.* **2015**, *137*, 776.
26. Liu, D.; Hakimi, B.; Volny, M.; Rolfs, J.; **Anand, R. K.**; Turecek, F.; Chiu, D. T., Modulating patterns of two-phase flow with electric fields. *Biomicrofluidics* **2014**, *8*, 044106.
27. Zhao, M.; Nelson, W. C.; Wei, B.; Schiro, P. G.; Hakimi, B. M.; Johnson, E. S.; **Anand, R. K.**; Gyrurkey, G. S.; White, L. M.; Whiting, S. H.; Coveler, A. L.; Chiu, D. T., New generation of ensemble-decision aliquot ranking based on simplified microfluidic components for large-capacity trapping of circulating tumor cells. *Anal. Chem.* **2013**, *85*, 9671.
28. Knust, K. N.; Hlushkou, D.; **Anand, R. K.**; Tallarek, U.; Crooks, R. M., Electrochemically mediated seawater desalination. *Angew. Chem. Int. Ed. Engl.* **2013**, *52*, 8107.
29. Knust, K. N.; Sheridan, E.; **Anand, R. K.**; Crooks, R. M., Dual-channel bipolar electrode focusing: simultaneous separation and enrichment of both anions and cations. *Lab Chip* **2012**, *12*, 4107.
30. **Anand, R. K.**; Chiu, D. T., Analytical tools for characterizing heterogeneity in organelle content. *Curr. Opin. Chem. Biol.* **2012**, *16*, 391.
31. Sheridan, E.; Hlushkou, D.; **Anand, R. K.**; Laws, D. R.; Tallarek, U.; Crooks, R. M., Label-free electrochemical monitoring of concentration enrichment during bipolar electrode focusing. *Anal. Chem.* **2011**, *83*, 6746.
32. **Anand, R. K.**; Sheridan, E.; Knust, K.; Crooks, R. M., Bipolar electrode focusing: faradaic ion concentration polarization. *Anal. Chem.* **2011**, *83*, 2351.
33. Dumitrescu, I.; **Anand, R. K.**; Fosdick, S. E.; Crooks, R. M., Pressure-driven bipolar electrochemistry. *J. Am. Chem. Soc.* **2011**, *133*, 4687.
34. **Anand, R. K.**; Sheridan, E.; Hlushkou, D.; Tallarek, U.; Crooks, R. M., Bipolar electrode focusing: tuning the electric field gradient. *Lab Chip* **2011**, *11*, 518.
35. Mavré, F.; **Anand, R. K.**; Laws, D. R.; Chow, K-F.; Chang, B. Y.; Crooks, J. A.; Crooks, R. M. Bipolar electrodes: a useful tool for concentration, separation, and detection of analytes in microelectrochemical systems. *Anal. Chem.* **2010**, *82*, 8766.
36. **Perdue, R. K.**; Laws, D. R.; Hlushkou, D.; Tallarek, U.; Crooks, R. M., Bipolar electrode focusing: the effect of current and electric field on concentration enrichment. *Anal. Chem.* **2009**, *81*, 10149.
37. Laws, D. R.; Hlushkou, D.; **Perdue, R. K.**; Tallarek U.; Crooks, R. M., Bipolar electrode focusing: simultaneous concentration enrichment and separation in a microfluidic channel containing a bipolar electrode. *Anal. Chem.* **2009**, *81*, 8923.
38. Hlushkou, D.; **Perdue, R. K.**; Dhopeswarkar, R.; Crooks, R. M.; Tallarek, U. Electric field gradient focusing in microchannels with embedded bipolar electrode. *Lab Chip* **2009**, *9*, 1903.

39. Liu, D.; **Perdue, R. K.**; Sun, L.; Crooks, R. M. Immobilization of DNA onto poly(dimethylsiloxane) surfaces and application to a microelectrochemical enzyme-amplified DNA hybridization assay. *Langmuir* **2004**, *20*, 5905.
40. Kijak, A. M.; **Perdue, R. K.**; Cox, J. A. Modification of electrodes with nanostructured films containing dirhodium-substituted polyoxometalates. *J. Solid State Electrochem.* **2004**, *8*, 376.

Patents

1. Kim, S.; Ganapathysubramanian, B.; **Anand, R. K.** Concentration enrichment, separation and cation exchange in water-in-oil droplets. **2020**. Provisional patent application filed.
2. Berzina, B.; **Anand, R. K.** Device for electrokinetic focusing and electrical detection of particles and chemical species facilitated by a porous electrode. **2020**. Provisional patent application filed.
3. Li, M.; **Anand, R. K.** Integrated selective capture, sequestration, fluidic isolation, electrical lysis and analysis of single cells. **2018**. Provisional patent application filed (Serial No. 62/741,622).
4. Berzina, B.; **Anand, R. K.** Electrokinetic route to a wearable device for kidney disease management. **2017**. U.S. Patent Application PCT/US2019/0125951, filed May 2, 2019. Patent pending.
5. Li, M.; **Anand, R. K.** High-throughput selective capture of biological cells by dielectrophoresis at a bipolar electrode array. **2016**. US Patent No. 10,953,400, issued March 23, 2021.
6. Chiu, D. T.; **Perdue, R. K.**; Johnson, E. S. Apparatus and method for manipulation of discrete polarizable objects and phases. **2014**. International Application No. PCT/US2014/53242, filed August 28, 2014. Patent pending.
7. Crooks, R. M.; Knust, K. N.; **Perdue, R. K.** Membraneless seawater desalination. **2013**. U.S. Letters Patent 9,932,251, issued April 3, 2018.

Invited Presentations (2019-2021 only)

As faculty at Iowa State University

1. Electrochemical detection of nucleic acids following electrokinetic enrichment in a bed of bioconjugated beads, **2021** American Chemical Society National Meeting. *Virtual Event*
2. Electrochemical detection of nucleic acids following electrokinetic enrichment in a bed of bioconjugated beads, **2021** Ohio State University, Columbus, OH.
3. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells, **2021** University of Illinois, Urbana-Champaign, IL.
4. Integration of dielectrophoretic selective single-cell capture at a wireless electrode array with on-chip analysis, **2021** Indiana University, Bloomington, IN.
5. Electrochemical detection of nucleic acids following electrokinetic enrichment in a bed of bioconjugated beads. **2021** Pittcon. *Virtual Event*
6. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2021** Pittcon. *Virtual Event*
7. Integration of dielectrophoretic selective single-cell capture at a wireless electrode array with on-chip analysis, **2021** Pittcon. *Virtual Event*
8. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2021** University of Utah, Salt Lake City, UT.
9. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2021** Non-Tenured Faculty Award Symposium, 3M Corporation, St. Paul, MN.
10. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2021** Purdue University, West Lafayette, IN.
11. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2021** University of North Carolina, Chapel Hill, NC.

12. Concentration enrichment, separation, and cation exchange in nanoliter-scale water-in-oil droplets. **2020** University of Wisconsin, Eau Claire, WI.
13. Concentration enrichment, separation, and cation exchange in nanoliter-scale water-in-oil droplets. **2020** University of Washington, Seattle, WA.
14. Electromechanical lysis and rapid enzymatic assay of droplet-encapsulated cells. **2020** Oregon Health and Science University, Portland, OR.
15. Integration of dielectrophoretic selective single-cell capture at a wireless electrode array with on-chip analysis. **2020** University of California, Irvine, CA.
16. Concentration enrichment, separation, and cation exchange in nanoliter-scale water-in-oil droplets. **2020** Pittcon, Chicago, IL.
17. Concentration enrichment, separation, and cation exchange in nanoliter-scale water-in-oil droplets. **2020** University of Notre Dame, South Bend, IN.
18. Integration of electrokinetic and electrochemical methods at bipolar electrodes for single-cell analysis. **2020** Gordon Research Conference in Electrochemistry, Ventura, CA.
19. Selective assembly and analysis of melanoma cells and cell clusters at an array of bipolar electrodes. **2019** University of Nebraska, Lincoln, NE.
20. Non-linear electrokinetic and electrochemical methods for the selective analysis of rare cells. **2019** University of Texas, Austin, TX.
21. Selective assembly and analysis of cell clusters at an array of bipolar electrodes. **2019** Symposium honoring Prof. Chris Easley who received the AES Midcareer Award, SciX, Palm Springs, CA.
22. Selective assembly and analysis of cell clusters at an array of bipolar electrodes. **2019** Wayne State University, Detroit, MI.
23. Integration of dielectrophoretic selective single-cell capture at a wireless electrode array with on-chip analysis. **2019** ACS Sensors Young Investigators. ACS National Meeting, San Diego, CA.
24. Development of case study materials that teach core undergraduate chemistry concepts through the lens of electrochemistry. **2019** Cottrell Scholars Conference, Tucson, AZ.
25. Direct detection of inflammatory markers in tear fluid in a paper strip following electrokinetic pre-enrichment. **2019** Society of Analytical Chemists of Pittsburgh, Former Chairs Night, Duquesne University, Pittsburgh, PA.
26. Micellar electrokinetic focusing driven by ion concentration polarization. **2019** Pittcon, Philadelphia, PA.
27. Integration of dielectrophoretic selective single-cell capture at a wireless electrode array with on-chip fluidic isolation and electrical lysis. **2019** Pittcon, Philadelphia, PA.
28. Micellar electrokinetic focusing driven by ion concentration polarization. **2019** Department of Chemistry, Auburn University, Auburn, AL.
29. Micellar electrokinetic focusing driven by ion concentration polarization. **2019** Department of Chemistry, Vanderbilt University, Nashville, TN.
30. Micellar electrokinetic focusing driven by ion concentration polarization. **2019** Department of Chemistry, University of Virginia, Charlottesville, VA.

Research Support

Current

PI: R. Anand

Title: Ultrasensitive and Multiplexed Lateral Flow Assays Based on Electrokinetic Focusing of Biological Analytes

Source: Roy J. Carver Charitable Trust, \$300,793

Period of Support: 11/01/2020-10/31/2022

PI: R. Anand

Title: CAREER: Advancing Ion Concentration Polarization to Enrich New Classes of Analytes from Complex Media and to Interface with Analysis: Breaking the Glass Ceiling on Enrichment

Source: NSF, Chemistry, Center for Measurement and Imaging (CMI), \$690,170

Period of Support: 01/01/2019-12/31/2023

PI: R. Anand

Title: Extracting Kinetic Rate Constants from Bipolar Electrochemistry: AC Voltammetry of Electrically Coupled Faradaic Reactions

Source: Research Corporation for Science Advancement, Cottrell Scholars Program, \$100,000

Period of Support: 01/01/2019-12/31/2021

PI: R. Anand, **Co-I:** J. Anderson (ISU), M. Henry (UI)

Title: Parallel Selective Capture of Single Circulating Melanoma Cells and Integrated On-Chip Determination of Mutational Status

Source: NIH NIBIB, Early Investigator Trailblazer Award (R21), \$556,484

Period of Support: 07/01/2019-06/30/2022

PI: R. Anand

Title: An integrated single-cell analysis device for increased patient access to tailored cancer therapies

Source: 3M Corporation, Non-Tenured Faculty Award Program, \$45,000

Period of Support: 7/01/2020-6/30/2023

PI: R. Anand

Title: Electric Field-Driven Antigen Enrichment to Achieve Detection of SARS-CoV-2 Nucleocapsid Protein in Urine at the Point-of-Need

Source: Research Corporation for Science Advancement, COVID Initiative, \$55,000

Period of Support: 06/15/2020-06/14/2021

PI: R. Anand

Title: Suresh Faculty Fellowship

Source: Iowa State University, \$50,000

Period of Support: 7/01/2020-6/30/2025

Advisees in the Anand Laboratory

Graduate

1. Thilini Rathnaweera, Spring 2021 – Present
2. Morgan Clark, Fall 2020 – Present
3. Echo DeVries, Fall 2020 – Present
4. Aparna Krishnamurthy, Fall 2019 – Present
5. Umesha Peramune, Fall 2019 – Present
6. Han Chen, Fall 2018 – Present
7. Sommer Osman, Fall 2018 – Present
8. Benjamin Rayborn, Spring 2018
9. Kira Rahn, Fall 2017 – Present
10. Darshna Pagariya, Fall 2017 – Present
11. Sungu Kim, Spring 2017 – Present
12. Joseph Banovetz, Fall 2016 – Present
13. Janis Borchers, Fall 2016 – Present
14. Christine Fukami, Summer 2016
15. Beatrise Berzina, Fall 2015 – Summer 2020 (PhD) Current: Postdoctoral Assoc., Leibniz Institute of Polymer Research, Dresden
16. Min Li, Fall 2015 – Fall 2018 (PhD), Current: Postdoctoral Assoc., Chemistry, Univ. of Utah

Undergraduate

1. Noella Masengesho, Summer 2021 – Present
2. Madison Strait, Summer 2021 – Present
3. Pooja Kasiviswanathan, Summer 2021 – Present
4. Kaitlyn Whitehill, Fall 2020 – Present
5. Quinlan Pollak, Fall 2020 – Present
6. Natalie Erichsen, Fall 2019 – Spring 2020
7. Savannah VanScoy, Fall 2019 – Present
8. Carter Stroud, Fall 2019 – Spring 2020
9. Tyler Rhoades, Summer 2019 – Spring 2020
10. Hannah Bishop, Summer 2019 – Fall 2019
11. Travis Johnston, Spring 2019
12. Claire Campbell, Fall 2018 – Spring 2020
13. Dorian Twedt, Spring 2018 – Spring 2020
14. Anne Wallace, Spring 2018 – Spring 2019
15. Saniya Shetty, Spring 2018
16. Brooklynn Sellers, Spring 2018 – Summer 2018
17. Dante Mautino, Fall 2017 – Summer 2018
18. Olga Riusech, Fall 2017 – Spring 2018
19. Eric Rasmussen, Spring 2017 – Spring 2019
20. Anna Schlueter, Spring 2017
21. Zihan Yang, Fall 2016 – Spring 2017
22. Benjamin Rayborn, Spring 2016 – Fall 2017
23. Lauren Dunteman, Spring 2016 – Spring 2017
24. Yoo Jung Seo, Spring 2016
25. Xuechen Luan, Fall 2015 – Spring 2016

Advisees as a Member of Program of Study Committee

In progress (40 total): Josiah Rensner, Tristen Taylor, Andrew Harkaway, Gage Hjort (ME), Cicero Pola (ME), Bryan Van Belle, Richard Lancaster, Charles Ward, Gabriela Keeney, Sarah Szakas, Stasia Harycki, Shu-An Hsieh, Donghyun Ryoo, Victoria Zeger, Philip Eor, Hussam Ibrahim (EE), Diwankar Awate (ME), Nabeel Abbassi, Xun Wu, Jiaqi Yu, Robert Hjort (ME), Luman Liu (CBE), Emily King, Muhammad Farooq, Ranjan Behera, Marco Dell-Anna (CBE), Sivaranjani Devarakonda (ME), Nathaniel Garland (ME), Balabhadra Khatiwada, Alan Medina-Gonzalez, Miranda Emaus, Biying Zhang, Evan Larson, Nicole Stephens, Jingzhe Li, Jennifer Bravo-Nacianceno, Minda Chen, Yu-Hui Li (ME), Pranjali Naik, Cheng Zhang

Former advisees (35 total): Obed Varona-Ortiz, Lin Wei, Trang Nguyen, Charles Nyamekye, Marilyn McNamara (ME), Jeffrey Purslow, Sadie Burkhaw, Kelly O'Neill, Jiwoo An, Anuradha Wijesekara (M. S.), Gabriel Odugbesi (M. S.), Md-Mir Hossen (CBE), He Nan, Paige Hinnens, Smita Patnaik, Xuechen Luan (M.S.), Ashley Bowers (M.S.), Chamari Wijesooriya, Xiaohui Tang (ME), John Hondred (ME), Mohsen Torabi-Dizaji (CBE, M.S.), Yang Qiu (CBE), Reihaneh Jamshidi (ME), Patrick McVey, Stephen Pierson, Zhiyuan Qi, Xioatong Chadderdon (CBE), Jonathan Bobbitt, John Matthiesen (CBE), David Chadderdon (CBE), Katherine-Jo Galayda, Omprakash Nacham, Younghun Park, Honglian Yu, Hosein Monshat (ME, M.S.)

University Service

2020	Presented to the LAS Dean's Advisory Council
2020 – Present	Department of Chemistry Diversity Committee, Chair
2017 – 2018	Midwest Regional Meeting 2018 Organization Committee, committee member
2017 – 2018	Graduate Selection Committee, committee member
2017	Presented to the ISU Governors and provided a laboratory tour
2017	Presented to the LAS Dean's Advisory Council and provided a laboratory tour
2015 – Present	Keck Microfabrication Facility Committee, committee member
2016 – 2017	Chemistry Learning Community Committee, committee member
2016	Polling Committee for Dept. Chair Review Process, committee member
2015 – 2017	Graduate Recruiting Committee, committee member

Service Activities

2020	Member of the Early Career Board for the journal <i>Analytical Chemistry</i>
2019	Chair, American Chemical Society Ames Local Section Executive Committee
2017 – Present	Long Range Program Planning (LRPP) Committee Member, ACS Division of Analytical Chemistry (ANYL)
2018 – Present	Board of Directors Member, Society for Electroanalytical Chemistry (SEAC)
2017 – Present	Organizing Committee Member for the 2018 ACS Midwest Regional Meeting
2016 – Present	Founder and chair of the organizing committee of the Midwest Retreat for Diversity in Chemistry (annual event)

Mentorship

2016-2018: Founded and organized the Midwest Women Chemists Retreat (MWCR) – an annual event aimed at the advancement of women in chemistry. This event brings together graduate and postdoctoral attendees from across the Midwest and is modeled after an event that I founded while a postdoctoral fellow.

2019: Organized the first Midwest Retreat for Diversity in Chemistry (MWRDC), which has an expanded scope that aims to serve all underrepresented groups in chemistry. Our specific objectives are 1) to guide attendees to develop strategies for career success and 2) to enhance the promotion of scientists from underrepresented groups into leadership roles.

Scientific Review

2015 – Present	Reviewer for journals: <i>Angewandte</i> , <i>ChemPhysChem</i> , <i>ChemElectroChem</i> , <i>Analytica Chimica Acta</i> , <i>Analyst</i> , <i>Small</i> , <i>RSC Advances</i> , <i>ACS Applied Materials and Interfaces</i> , <i>Analytical Methods</i> , <i>Science Advances</i> , <i>Lab on a Chip</i> , <i>Journal of Chromatography A</i> , <i>ACS Materials</i> , <i>Journal of the American Chemical Society</i> , <i>Analytical Chemistry</i> , <i>Langmuir</i> , <i>The Journal of Physical Chemistry</i> , <i>Nature Chemistry</i> , <i>Nanoscale</i> , <i>ACS Sensors</i> , <i>Micromachines</i> , and <i>ACS Nano</i> .
2020	Reviewer on panels for: National Institutes of Health, Instrument and System Design; National Science Foundation, Chemistry, Chemical Measurement and Imaging; Research Corporation for Scientific Advancement, Cottrell Scholars Program