

Scott K. Shaw
Associate Professor of Chemistry
The University of Iowa

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scott-k-shaw@uiowa.edu

EDUCATION AND PROFESSIONAL HISTORY

Higher Education

- 2008 **PhD**, Chemistry, The University of Illinois at Urbana-Champaign
Thesis: Investigation of Interfaces and Double Layer Structure using Visible/Infrared Sum Frequency Generation
- 2003 **Supporting areas / Minor:** Certificate in Business Administration
BA, Chemistry, Monmouth College
Thesis: Cobalt Ligand Exchange Dynamics in Acidic Environments
Supporting Areas / Minor: Science Teaching Certificate

Professional and Academic Positions

- 2019 - Present **Associate Professor**, Department of Chemistry, University of Iowa
- 2012 - 2019 **Assistant Professor**, Chemistry, University of Iowa
- 2010 - 2012 **NSF-ACC Postdoctoral Scholar**, University of Arizona
- 2010 **Postdoctoral Scholar**, University of Arizona
- 2010 **Consultant**, Sigma Technologies International
- 2009 **Marie Curie Experienced Researcher**, University of Liverpool
- 2008 **Visiting Scientist**, Durham University

Licensures and Certifications

- 2007 **Certificate in Business Administration**, University of Illinois at Urbana-Champaign
- 2003 **Secondary Science Education**, Monmouth College

Honors and Awards

- 2020 Editorial Advisory Board, Analytical Chemistry Journal, ACS
- 2019 CLAS Dean's Scholar, University of Iowa
- 2017 National Science Foundation CAREER Awardee
- 2016 Cottrell Scholar Award, Research Corporation for Science and Advancement
- 2016 Monmouth College Distinguished Young Alumni
- 2011 ACS-YCC Leadership Development Scholarship
- 2011 American Chemical Society, Postdoc to Faculty Scholarship Award
- 2010 NSF American Competitiveness in Chemistry Postdoctoral Fellowship
- 2009 Marie Curie, Experienced Researcher Designation
- 2009 Office of Naval Research, Travel Award
- 2008 Marie Curie, Visiting Scientist Funding
- 2006 Eastman-Kodak, Graduate Fellowship
- 2003 Monmouth College, Departmental Honors Graduate
- 2002 Monmouth College, Outstanding Man of the Year

Memberships

- 2014 - Present Center for Global & Environmental Research
- 2013 - Present The Electrochemical Society
- 2012 - Present Marie Curie Alumni Association
- 2012 - Present Society for Electroanalytical Chemistry
- 2010 - Present American Association for the Advancement of Science
- 2007 - Present American Chemical Society
- 2008 - 2011 Infrared and Raman Discussion Group (U.K.)

Research Interests:

- Batteries
- Chemistry
- Electrochemistry
- Energy
- Environment
- Interfaces
- Materials
- Microscopy
- Self-assembly
- Spectroscopy
- Surfaces
- Thin-Films

TEACHING

Courses Taught at the University of Iowa

Terms	Title	Enrollment Range
Fall 2019	Fundamentals of Chemical Measurements (Quantitative Analysis)	32
Spring 2012-2021	Analytical Measurements (Instrumental Analysis)	12-35
Spring 2016, 2018, 2021	Analytical Chemistry Seminar	10-20
Fall 2012 - present	Undergraduate Research	4-8
Fall 2016, 2018	Graduate Analytical Spectroscopy	15-28
Fall 2012-2015	Advanced Analytical Chemistry	6-20

Innovations in Teaching (Other Teaching Contributions)

Innovations in Teaching

2019 – Present	CHEM:3430 laboratory course videos for new instruments, methods, and safety considerations (updates since created in 2016). Funded by the Dept of Chemistry Carver Grant.
2019 – Present	Introducing student video presentation laboratory reports in Analytical Measurements, CHEM:3430, utilizing campus one-button studios. Sharpening students' oral presentation skills
2017 - 2019	Creation of Laboratory Practical Evaluations in Analytical Measurements, CHEM:3430 (Instrumental Analysis)
2016 - 2018	Laboratory introduction videos for Analytical Measurements, CHEM:3430 (Instrumental Analysis)
2014 - 2016	Data analysis videos in Analytical Measurements, CHEM:3430 (Instrumental Analysis)
2014 - 2016	Digital content development for Analytical Measurements, CHEM:3430 (Instrumental Analysis)

Student Mentoring

Ph.D. Advisor, Chair

2019 - Present	Stumme, Nathan; <i>In Process</i>
2018 - Present	Lasar, Colleen; <i>In Process</i>
2018 - Present	Ordikhani Seyedlar, Ramin; <i>In Process</i>
2017 - Present	DeYoung, Jessica; <i>In Process</i> *Currently a DOE-SCGSR graduate fellow at PNNL-EMSL*
2016 - Present	Horvath, Andrew; <i>In Process</i>
2015 - 2020	Hailu, Amanuel; <i>Completed (Hologic)</i>
2015 - 2020	Wrona, Jaclyn; <i>Completed (Exxon Mobil)</i>
2013 - 2018	Grant, Jacob; <i>Completed (Perkin Elmer)</i>
2012 - 2018	Anareddy, Radhika; <i>Completed (Cambrex)</i>
2012 - 2017	Lucio, Anthony; <i>Completed (Leicester Univ., U.K.)</i>

2012 - 2017 Nania, Samantha; *Completed (Perkin Elmer)*

Ph.D. Advisor, Co-Chair

2018 - Present Harmon, Whitney; *In Process with Prof. C. Cheatum*

2015 - 2020 Luna, Javier; *Completed with Prof. S. Daly (UIowa)*

M.S. Advisor, Chair

2017 - 2021 Pitawela, Niroodha; *Completed (Univ. Cincinnati)*

Cognate Advisor

2019 Van Wyk, Andrea (in process with Prof. Renee Cole)

2019 Mena Fernandez, Silvia (Ph.D. at Universitat Autònoma de Barcelona)

2016 Emberger, Jamie (M.S. with Prof. Renee Cole)

Postdoctoral Research Supervision

2014 - 2015 Wang, Zhengia; *(NC State)*

Undergraduate Research Students

2021 - Present Lauren Andrews

2021 - Present Hanna Bissen

2021 - Present Bricey Gorman

2021 - Present Alex Julius

2021 - Present Jack Tupper

2021 - Present Lizzie Van Es

2018 - Present Evangeline Holyoake

2018 - 2021 Michelle Cousineau

2019 - 2020 Marie Ohlinger

2019 - 2020 Nicholas Schany

2019 - 2020 Autumn Van der Brink

2017 - 2020 Gudenkauf, Kinsey

2019 (summer) Duffy, Darby

2018 - 2019 Fadness, Erick

2018 - 2019 Norton, Camryn

2017 - 2018 Ainsworth, Sam

2015 - 2018 Specht, Robert;

2017 - 2018 Atienza, Catia

2017 - 2018 VanZante, Morgan

2017 - 2018 Walker, Nikki

2015 - 2017 Muckenhirn, Logan

2015 - 2016 Woodard, Megan

2015 - 2016 Eller, Parker

2015 - 2016 Hoefler, Talon

2015 - 2016 Mortenson, Katelyn

2013 - 2016 Donovan, David

2013 - 2016 Roach, Lucas

2013 - 2015 Werner, Stephanie

2013 - 2014 Bell, Jay
 2012 - 2013 Wills, Emily

Comprehensive Exam Committee Chair

2021 Stumme, Nathan
 2020 Lasar, Colleen
 2020 Ordikhani, Ramin
 2020 Harmon, Whitney (co-chair, Prof. Cheatum)
 2019 DeYoung, Jessica
 2019 Pitawela, Niroodha
 2017 Hailu, Amanuel
 2017 Luna, Javier (co-chair, Prof. Daly)
 2017 Wrona, Jaclyn
 2015 Grant, Jacob
 2014 Anareddy, Radhika
 2014 Lucio, Anthony
 2014 Nania, Samantha

Dept of Chemistry Graduate Advisory Committee Memberships

Academic year	2021-22	2020-21	2019-20	2018-19
Number of GACs	25	34	39	30

Comprehensive Exam Committees

2021 Sweet, Amelia
 2021 Fuhrman, Ethan
 2021 Van Wyk, Andrea
 2021 Butzlaff, Ashley
 2020 Li, Changan
 2020 Petras, Hayley
 2020 Dang, Hoang
 2020 Coduto, Josh
 2020 Moorman, Katie
 2020 Augustine, Logan
 2020 Howell, Lucas
 2020 Jensen, Madeline
 2020 Ranasinghe, Nimesh
 2020 Li, Zuoheng
 2019 Culpepper, Johnathan
 2019 Schroeder, Evan
 2019 Forsythe, Grant
 2019 Haas, Christian

2019	Jubinsky, Matthew
2019	Lambach, Lauren
2019	Li, Changan
2019	Mihm, Tina
2019	Tun, Soe
2018	Don, Amith
2018	Forsythe, Grant
2018	Knutson, Chris
2018	Parker, Gavin
2018	Robben, Kevin
2018	Terrel, John
2017	Brown, Ian
2017	Islam, Robuil
2017	Kloepfer, Nicole
2017	Lee, Hansol
2017	Mauger-Sonnek, Katie
2017	Nada, Majid
2017	Spielvogel, Kyle
2016	Black, Nate
2016	Emberger, Jamie
2016	Wu, Fei
2015	Ray, Kamal
2015	Blake, Anastasia
2015	Carter, Justin
2015	Donahue, Courtney
2015	Gronenboom, John
2015	Trueblood, Jon
2014	Eitrheim, Eric
2014	Ghosh, Ananda
2014	Majewski, David
2014	Parin, Shah
2014	Xu, Changhui
2013	Corum, Katharine
2013	Gundameedi, Madhuri
2013	Morris, Angie
2013	Morris, Holly
2013	Mrugacz, Emily

Dissertation Committee Member

2021	Hapurachchige, Waruni Dona
2021	Lee, Hansol

2021	Spielvogel, Kyle
2021	Don Amith, Weththasinghage
2021	Fetrow, Taylor
2021	Webb, Danielle
2020	Fernandez, Silvia Mena
2020	Brown, Ian
2020	Samanta, Avik
2019	Thiher, Nicole
2019	Hasan, Nazmul
2019	Black, Nathan
2019	Wu, Fei
2019	Kanti-Ray, Kamal
2019	Nada, Majid
2018	Blake, Anastasia
2018	Carter, Justin
2018	Donahue, Courtney
2018	Kwon, Deokhyeon
2017	Eitrheim, Eric
2017	Ghosh, Ananda
2016	Morris, Holly
2015	McConnell, Matthew
2015	Verdugo, Edgard

SCHOLARSHIP

Peer Reviewed Publications

2021

1. Mena, Silvia; Ribas, Esteve; Richart, Clara; Gallardo, Iluminada; Faraudo, Jordi; Shaw, Scott K; Guirado, Gonzalo. Electrochemical tools to disclose the electrochemical reduction mechanism of CO₂ in aprotic solvents and ionic liquids. *Journal of Electroanalytical Chemistry*, 895, 115411, 2021.
2. McKee, Austin; Samanta, Avik; Rassoolkhani, Alan; Koonce, Jonathan; Huang, Wuji; Shaw, Scott K; Gomes, Joseph; Ding, Hongtao; Hussaini, Syed Mubeen Jawahar. Effect of Silver Electrode Wetting State on Oxygen Reduction Electrochemistry. *Chemical Communications*, 2021.
3. Pitawela, Niroodha R; Shaw, Scott K. Imidazolium Triflate Ionic Liquids' Capacitance–Potential Relationships and Transport Properties Affected by Cation Chain Lengths. *ACS Measurement Science Au*. 2021
4. Samanta, Avik; Huang, Wuji; Bell, Martell; Shaw, Scott K; Charipar, Nicholas; Ding, Hongtao. Large-area surface wettability patterning of metal alloys via a maskless laser-assisted functionalization method. *Applied Surface Science*. 568, 150788, 2021.
5. Huang, Wuji; Samanta, Avik; Chen, Yong; Baek, Stephen; Shaw, Scott K; Ding, Hongtao. Machine learning model for understanding laser superhydrophobic surface functionalization. *Journal of Manufacturing Process*. 69, 491-502. 2021
6. Samanta, Avik; Huang, Wuji; Parveg, ASM Sazzad; Kotak, Parth; Auyeung, Raymond CY; Charipar, Nicholas A; Shaw, Scott K; Ratner, Albert; Lamuta, Caterina; Ding, Hongtao; Enabling Superhydrophobicity-Guided Superwicking in Metal Alloys via a Nanosecond Laser-Based Surface Treatment Method. *ACS Applied Materials and Interfaces*. 2021.

7. Horvath, Andrew; Curry, Jaclyn; Haverhals, Luke M; Shaw, Scott K; Practical Online Monitoring of Ionic Liquid Fiber Welding Solvent. *ACS Omega*. 6, 34, 22367-22373.
8. Pitawela, N.; Shaw, S. K., Capacitive Hysteresis Effects in Ionic Liquids: 1-Ethyl-3-methylimidazolium Trifluoromethanesulfonate on Polycrystalline Gold Electrode. *Journal of The Electrochemical Society* 2021.
9. DeYoung, J.; Shaw, S. K., Evaluating Environmental Film Maturation through a Deliquescence–Efflorescence Model. *ACS Earth and Space Chemistry* 2021.

2020

10. Wang, Q.; Samanta, A.; Shaw, S. K.; Hu, H.; Ding, H., Nanosecond laser-based high-throughput surface nanostructuring (nHSN). *Applied Surface Science* 2020, 507, 145136.
11. Wang, Q.; Samanta, A.; Hailu, A.; Shaw, S. K.; Ding, H., Fabrication of mechanically enhanced superhydrophobic surface using nanosecond laser-based high-throughput surface nanostructuring (nHSN). *Procedia CIRP* 2020, 87, 257-262.
12. Spielvogel, K. D.; Luna, J. A.; Loria, S. M.; Weisburn, L. P.; Stumme, N. C.; Ringenberg, M. R.; Durgaprasad, G.; Keith, J. M.; Shaw, S. K.; Daly, S. R., Influence of Multisite Metal–Ligand Cooperativity on the Redox Activity of Noninnocent N2S2 Ligands. *Inorganic Chemistry* 2020, 59 (15), 10845-10853.
13. Samanta, A.; Wang, Q.; Singh, G.; Shaw, S. K.; Toor, F.; Ratner, A.; Ding, H., Nanosecond pulsed laser processing turns engineering metal alloys antireflective and superwicking. *Journal of Manufacturing Processes* 2020, 54, 28-37.
14. Samanta, A.; Wang, Q.; Shaw, S. K.; Ding, H., Roles of chemistry modification for laser textured metal alloys to achieve extreme surface wetting behaviors. *Materials & Design* 2020, 108744.
15. Samanta, A.; Huang, W.; Chaudhry, H.; Wang, Q.; Shaw, S. K.; Ding, H., Design of chemical surface treatment for laser-textured metal alloys to achieve extreme wetting behavior. *ACS applied materials & interfaces* 2020, 12 (15), 18032-18045.
16. Petersen, R. J.; Rozeboom, B. J.; Oburn, S. M.; Blythe, N. J.; Rathje, T. L.; Luna, J. A.; Kibby, S. K.; O'Brien, E. A.; Rohr, K. G.; Carpenter, J. R., Cambiarenes: Single-Step Synthesis and Selective Zwitterion Binding of a Clip-Shaped Macrocycle with a Redox-Active Core. *Chemistry–A European Journal* 2020, 26 (9), 1928-1930.
17. Hailu, A.; Tamijani, A. A.; Mason, S. E.; Shaw, S. K., Efficient Conversion of CO₂ to Formate Using Inexpensive and Easily Prepared Post-Transition Metal Alloy Catalysts. *Energy & Fuels* 2020, 34 (3), 3467-3476.
18. Hailu, A.; Shaw, S. K., Implications of Surface Strain for Enhanced Carbon Dioxide Reduction on Copper-Silver Alloys. *Journal of The Electrochemical Society* 2020, 167 (12), 126509.
19. Durgaprasad, G.; Luna, J. A.; Spielvogel, K. D.; Haas, C.; Shaw, S. K.; Daly, S. R., Ru (II) Complexes with a Chemical and Redox-Active S₂N₂ Ligand: Structures, Electrochemistry, and Metal-Ligand Cooperativity (vol 36, pg 4020, 2017). *ORGANOMETALLICS* 2020, 39 (24), 4754-4754.

2019

20. Wang, Q.; Samanta, A.; Toor, F.; Shaw, S.; Ding, H., Colorizing Ti-6Al-4V surface via high-throughput laser surface nanostructuring. *Journal of Manufacturing Processes* 2019, 43, 70-75.
21. Spielvogel, K. D.; Coughlin, E. J.; Petras, H.; Luna, J. A.; Benson, A.; Donahue, C. M.; Kibasa, A.; Lee, K.; Salacinski, R.; Bart, S. C., The Influence of Redox-Innocent Donor Groups in Tetradentate Ligands Derived from o-Phenylenediamine: Electronic Structure Investigations with Nickel. *Inorganic chemistry* 2019, 58 (19), 12756-12774.
22. Samanta, A.; Wang, Q.; Singh, G.; Shaw, S. K.; Toor, F.; Ratner, A.; Ding, H., Nanosecond pulsed laser processing turns engineering metal alloys antireflective and superwicking. *Procedia Manufacturing* 2019, 34, 260-268.
23. Samanta, A.; Wang, Q.; Shaw, S. K.; Ding, H., Nanostructuring of laser textured surface to achieve superhydrophobicity on engineering metal surface. *Journal of Laser Applications* 2019, 31 (2), 022515.
24. Hu, G.; Anareddy, R. S.; Alamri, M.; Liu, Q.; Pandey, G. P.; Ma, C.; Liu, M.; Shaw, S. K.; Li, J.; Wu, J. Z., Probing the relationship of cations-graphene interaction strength with self-organization behaviors of the anions at the interface between graphene and ionic liquids. *Applied Surface Science* 2019, 479, 576-581.
25. Grant, J. S.; Zhu, Z.; Anderton, C. R.; Shaw, S. K., Physical and chemical morphology of

- passively sampled environmental films. *ACS Earth and Space Chemistry* 2019, 3 (2), 305-313.
26. Grant, J. S.; Richards, P. M.; Anderton, C. R.; Zhu, Z.; Mattes, T. E.; Shaw, S. K., Passively Sampled Environmental Films Show Geographic Variability and Host a Variety of Microorganisms. *ACS Earth and Space Chemistry* 2019, 3 (12), 2726-2735.
 27. Curry, J. N.; Shaw, S. K., Thermotropic Phase Transitions in Butyltrimethylammonium Bis (trifluoromethylsulfonyl) imide Ionic Liquids are Dependent on Heat Flux. *The Journal of Physical Chemistry B* 2019, 123 (22), 4757-4765.
 28. Anaredy, R. S.; Shaw, S. K., Directing Long-Range Molecular Ordering in Ionic Liquid Films: A Tale of Two Interfaces. *The Journal of Physical Chemistry C* 2019, 123 (14), 8975-8982.

2018

29. Nania, S. L.; Wrona, J.; Shaw, S. K., Effects of Fluid Confinement and Temperature in Supported Acetophenone Films. *The Journal of Physical Chemistry C* 2018, 122 (43), 24652-24657.
30. Lucio, A. J.; Shaw, S. K.; Zhang, J.; Bond, A. M., Double-layer capacitance at ionic liquid–boron-doped diamond electrode interfaces studied by Fourier transformed alternating current voltammetry. *The Journal of Physical Chemistry C* 2018, 122 (22), 11777-11788.
31. Lucio, A. J.; Shaw, S. K., Effects and controls of capacitive hysteresis in ionic liquid electrochemical measurements. *Analyst* 2018, 143 (20), 4887-4900.
32. Lucio, A. J.; Shaw, S. K., Capacitive hysteresis at the 1-ethyl-3-methylimidazolium tris (pentafluoroethyl)-trifluorophosphate–polycrystalline gold interface. *Analytical and bioanalytical chemistry* 2018, 410 (19), 4575-4586.
33. Hailu, A.; Shaw, S. K., Efficient Electrocatalytic Reduction of Carbon Dioxide in 1-Ethyl-3-methylimidazolium Trifluoromethanesulfonate and Water Mixtures. *Energy & fuels* 2018, 32 (12), 12695-12702.
34. Hailu, A.; Horvath, A.; Shaw, S. K., Probing Electrochemical Ionic Liquid Interfaces. *ECS transactions* 2018, 86 (14), 125.
35. Anaredy, R. S.; Shaw, S. K., Developing distinct chemical environments in ionic liquid films. *The Journal of Physical Chemistry C* 2018, 122 (34), 19731-19737.

2017

36. Schmidt-McCormack, J. A.; Muniz, M. N.; Keuter, E. C.; Shaw, S. K.; Cole, R. S., Design and implementation of instructional videos for upper-division undergraduate laboratory courses. *Chemistry Education Research and Practice* 2017, 18 (4), 749-762.
37. Nania, S. L.; Shaw, S. K., Structural Changes in Acetophenone Fluid Films as a Function of Nanoscale Thickness. *Langmuir* 2017, 33 (7), 1623-1628.
38. Lucio, A. J.; Shaw, S. K.; Zhang, J.; Bond, A. M., Large-Amplitude Fourier-Transformed AC Voltammetric Study of the Capacitive Electrochemical Behavior of the 1-Butyl-3-methylimidazolium Tetrafluoroborate–Polycrystalline Gold Electrode Interface. *The Journal of Physical Chemistry C* 2017, 121 (22), 12136-12147.
39. Hu, G.; Pandey, G. P.; Liu, Q.; Anaredy, R. S.; Ma, C.; Liu, M.; Li, J.; Shaw, S. K.; Wu, J., Self-organization of ions at the interface between graphene and ionic liquid DEME-TFSI. *ACS applied materials & interfaces* 2017, 9 (40), 35437-35443.
40. Gummadi Durgaprasad, J. A. L., Kyle D. Spielvogel, Christian Haas, Scott K. Shaw, Scott R. Daly, Ru(II) Complexes with a Chemical and Redox-Active S2N2 Ligand: Structures, Electrochemistry, and Metal–Ligand Cooperativity. *Organometallics* 2017.
41. Grant, J. S.; Shaw, S. K., A model system to mimic environmentally active surface film roughness and hydrophobicity. *Chemosphere* 2017, 185, 772-779.

Prior to 2017

42. Anaredy, R. S.; Shaw, S. K., Long-range ordering of ionic liquid fluid films. *Langmuir* 2016, 32 (20), 5147-5154.
43. Anaredy, R. S.; Lucio, A. J.; Shaw, S. K., Adventitious water sorption in a hydrophilic and a hydrophobic ionic liquid: analysis and implications. *ACS omega* 2016, 1 (3), 407-416.
44. Wang, Z.; Nania, S. L.; Shaw, S. K., Structure of Aqueous Water Films on Textured–OH-Terminated Self-Assembled Monolayers. *Langmuir* 2015, 31 (8), 2382-2389.
45. Nania, S. L.; Shaw, S. K., Analysis of fluid film behaviour using dynamic wetting at a smooth and roughened surface. *Analytical methods* 2015, 7 (17), 7242-7248.
46. Lucio, A. J.; Shaw, S. K., Pyridine and pyridinium electrochemistry on polycrystalline gold electrodes and implications for CO₂ reduction. *The Journal of Physical Chemistry C* 2015, 119

- (22), 12523-12530.
47. Anaredy, R. S.; Lucio, A. J.; Shaw, S. K., Ionic Liquid Structure in Thin Films. *ECS transactions* 2014, 64 (4), 135.
 48. Shaw, S. K.; Berná, A.; Feliu, J. M.; Nichols, R. J.; Jacob, T.; Schiffrin, D. J., Role of axially coordinated surface sites for electrochemically controlled carbon monoxide adsorption on single crystal copper electrodes. *Physical Chemistry Chemical Physics* 2011, 13 (12), 5242-5251.
 49. Shaw, S. K.; Lagutchev, A.; Dlott, D. D.; Gewirth, A. A., Electrochemically driven reorientation of three ionic states of p-aminobenzoic acid on Ag (111). *The Journal of Physical Chemistry C* 2009, 113 (6), 2417-2424.
 50. Shaw, S. K.; Lagutchev, A.; Dlott, D. D.; Gewirth, A. A., Sum-frequency spectroscopy of molecular adsorbates on low-index Ag surfaces: Effects of azimuthal rotation. *Analytical chemistry* 2009, 81 (3), 1154-1161.
 51. Shaw, S. K.; Gewirth, A. A., Potential dependence of the structure of water at the hydrophobic liquid interface. *Journal of Electroanalytical Chemistry* 2007, 609 (2), 94-98.
 52. Schultz, Z. D.; Shaw, S. K.; Gewirth, A. A., Potential Dependent Organization of Water at the Electrified Metal– Liquid Interface. *Journal of the American Chemical Society* 2005, 127 (45), 15916-15922.

Publications in Progress

- Wuji Huang, Ramin Ordikhani-Seyedlar, Avik Samanta, Scott K Shaw, Hongtao Ding. Surface functionalization quantification for laser-based superhydrophobic metal surfaces. *Under review at Applied Surface Science*
- Kyle Spielvogel, Nathan Stumme, ... Scott K Shaw, Scott Daly. Quantifying variations in metal-ligand cooperative binding strength with cyclic voltammetry and redox-active ligands. *Under review at Inorganic Chemistry*
- Jessica DeYoung, Scott K Shaw. Measurements of elements localized on biotic moieties in native environmental films. *Under review at ACS Environmental Au*
- Jessica DeYoung, Evangeline Holyoake, Scott K Shaw. What are the differences between two environmental films sampled one kilometer apart? *Under revision for ACS Earth and Space Chemistry*

Invited Lectures and Conference Presentations

Colloquia and Invited Lectures

2021

1. *Environmental Surface Films*. The University of Iowa, College of Engineering. Presenters/Authors: Shaw, Scott K., DeYoung, Jessica L.
2. *Ionic liquids, solvation, and catalysis*, The University of Delaware, Newark, Delaware. Presenters/Authors: Shaw, Scott K.; Daly, Scott R.; Horvath, Andrew; Hailu, Amanuel; Lasar, Colleen; Pitawela, Niroodha; Stumme, Nathan; Luna, Javier; Spielvogel, Kyle.
3. *Exploring chemical and physical properties of Environmental Surface Films*, The International Chemical Congress of Pacific Basin Societies, Pacificchem, 2021, Honolulu, Hawaii. Presenters/Authors: Scott K. Shaw, Jess L DeYoung, Evangeline Holyoake.

2019

4. *Measuring Molecules Near Surfaces*, The University of Illinois at Urbana Champaign, Urbana, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Muckenhirn, Logan, Xu, Jianchao, Gudenkauf, Kinsey

2018

5. *Measuring Molecules Near Surfaces: Better than a Needle in a Haystack*, The University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Muckenhirn, Logan, Xu, Jianchao
6. *Measuring Molecules Near Surfaces: Better than a Needle in a Haystack*, The Ohio State University, Columbus, Ohio, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Muckenhirn, Logan, Xu, Jianchao

2017

7. *Measuring Molecules Near Surfaces: Better than a Needle in a Haystack*, Montana State University, Bozeman, Montana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L, Wrona, Jacklyn, Horvath, Andrew
8. *Analytical Surface Science in Fluid Films*, University of Utah, Salt Lake City, Utah, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
9. *Energy on Earth*, Kiwanis Club of Grinnell, Grinnell, Iowa Presenters/Authors: Shaw, Scott K
10. Celebration of Learning, *The Quest to Covalently Attach Carbohydrates to Gold Surfaces Using Click Chemistry*, Augustana University, Rock Island, Illinois, United States Presenters/Authors: Biggin, Mary E, Melo, Valeria, Shaw, Scott K Student Presenters/Authors: Woodard, Meagan M
11. *Chemical Surfaces and Measurement Science*, Michigan State University, East Lansing, Michigan, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
12. *Measuring Molecules Near Surfaces*, Texas Tech University, Lubbock, Texas, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
13. *Measuring Molecules Near Surfaces*, University of Houston, Houston, Texas, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
14. *Chemical Surfaces and Measurement Science*, Iowa State University, Ames, Iowa, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L

2016

15. *Measuring Molecules Near Surfaces*, Baylor University, Waco, Texas, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
16. Monmouth College Colloquium, *Molecular Measurements of Chemical Interfaces*, Monmouth, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Nania, Samantha L, Specht, Robert
17. *Measuring Molecules at Interfaces*, Western Illinois University, Macomb, Illinois Presenters/Authors: Shaw, Scott K
18. Creighton University Colloquium, *Chemical Behaviors of Thin Fluid Films*, Creighton University, Omaha, Iowa, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Nania, Samantha L, Anareddy, Radhika S, Lucio, Anthony J, Grant, Jacob S, Donovan, David F, Roach, Lucas T

2014

19. Civil and Environmental Engineering, *Chemical Behaviors of Thin Surface Films*, University of Iowa, Iowa City, Iowa Presenters/Authors: Shaw, Scott K
20. Chemical and Biochemical Engineering Seminar, *Measuring Molecules at Interfaces: Better than a Needle in a Haystack*, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K

2011

21. Electrochemistry Group, *Complex Fluid Structures at Solid Interfaces*, Argonne National Laboratory, Lemont, Illinois Presenters/Authors: Shaw, Scott K
22. Analytical Division Seminar, Dept. of Chemistry and Biochemistry, *Non-Linear Vibrational Spectroscopy of Interfacial Species*, University of Arizona, Tucson, Tucson, Arizona Presenters/Authors: Shaw, Scott K

2010 and prior

23. Energy Sciences Research Group, *Future application of Electrochemical Reduction of CO₂*, University of Arizona, Tucson, Tucson, Arizona Presenters/Authors: Shaw, Scott, Schiffrin, David J (2010)
24. ELCAT Meeting for Advanced Instrumental and Spectroscopic Techniques Applied to Electrocatalysis, *Vibrational Spectroscopy at Interfaces: Applications of Non-Linear Optics*, Bangor University, Bangor, Gwynedd, United Kingdom Presenters/Authors: Shaw, Scott K (2009)
25. Van Marum Colloquia in Catalysis and Surface Chemistry, *Interrogations of Interfaces and the Electric Double Layer*, Leiden University, Leiden, Netherlands Presenters/Authors: Shaw, Scott (2009)

Contributed Talks and Conference Presentations

2021 (to date and accepted)

1. *Oxidative effects on surface functionality in model environmental films*, International Chemical Congress of Pacific Basin Societies, December 16-21, 2021, oral presentation, Honolulu, HI. DeYoung, J.L., Shaw, S.K.
2. *Seasonality studies of collected environmental films using interfacial spectroscopy*, ACS national meeting, August 22-26, 2021 Atlanta, GA. DeYoung, J. L., Shaw, S. K.
3. Online monitoring of ionic liquid based natural fiber welding solvents via ATR-FTIR. ACS National Meeting, Atlanta, GA, United States, August 22-26, 2021. Horvath, Andrew W.; Haverhals, Luke M.; Shaw, Scott K.
4. *Dependence of particle maturation and mixing in environmental films on substrate tilt angle*, ACS national meeting April 5-30, 2021, Online presentation. DeYoung, J.L., Holyoake, E. A., Shaw, S.K.
5. Solvation effects on thin film properties of ionic liquids, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 8-12, 2021, Online presentation. Horvath, Andrew W. Shaw, Scott K.
6. *Maturation of Model Environmental Films via Deliquescence*, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 8-12, 2021, Online presentation. DeYoung, J. L, Shaw, S.K.
7. *A Novel Electrochemical Model for Equilibrium Constant Determination*. Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 8-12, 2021. Online presentation. Stumme, N. C., Shaw, S. K.
8. *Metal-ligand cooperative binding properties of ruthenium coordination complexes determined by cyclic voltammetry*. National American Chemical Society Conference, August 22-26, 2021, Atlanta, GA. Online presentation. Stumme, N, Spielvogel, K, Luna, J, Loria, S, Weisburn, L, Durgaprasad, G, Ringenberg, M, Keith, J, Daly, S, Shaw, S.
9. *Renewable Rare Earth Metal Extraction: Biomining Municipal Trash*, ACS Midwest

- Regional Meeting, Springfield, MO, October 20 - 22, 2021. Ordikhani-Seyedlar, R., Parveg, S., Ratner, A., Shaw S.K.
10. *Simultaneous Electrochemical and Vibrational Measurements on Bimetallic Electrocatalysts for Use in Direct Methanol Fuel Cells*, 240th ECS meeting, October 10-14, 2021, Online presentation. Ordikhani-Seyedlar, R., Yu, J., Shaw, S.K., Huang, W.
 11. *In depth analysis on the superhydrophobic metal surfaces fabricated by laser textured treatment and chemical modification process*, ACS national meeting, August 22-26, 2021 Atlanta, GA. Online presentation. Ordikhani-Seyedlar, R., Huang, W., Samanta, A., Shaw S.K., H. Ding
 12. *Spectro-electrochemical studies on single and bimetallic electrocatalysts as anode electrode in DMFCs*, ACS national meeting, April 5-30, 2021, Online presentation Ordikhani-Seyedlar, R., Yu, J., Shaw, S.K., Huang, W.
 13. *In-operando studies on single and bimetallic electrocatalysts as anode electrode for direct methanol fuel cells*, Mini symposium 2021 on Catalysis under Confinement, Stuttgart, Germany, May 12th, 2021, Online presentation. Ordikhani-Seyedlar, R., Yu, J., Shaw, S.K., Huang, W.

2020

14. Calorimetric and spectroscopic investigation into the thermodynamic behavior of ionic liquid dilutions. Lasar, Colleen Barbara; Curry, Jaelyn N.; Gudenkauf, Kinsey J.; Cousineau, Michelle L.; Duffy, Darby H.; Walker, Nikki L.; Bellott, Brian J.; Shaw, Scott K. Abstracts of Papers, 260th ACS National Meeting & Exposition, San Francisco, CA.
15. *Identifying the Range of Biotic Morphology on Environmental Films*, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 1-5, 2020, Chicago, IL. DeYoung, J.L., Shaw, S.K.
16. *Building an Automated System to Study Deliquescent Properties of Model Environmental Films*, Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy, March 2020, Chicago, IL. Holyoake, E.A., DeYoung, J.L., Shaw, S.K.
17. In situ vibrational studies of intermediates on PtZn-MCWNT electrocatalyst as anode electrode in DMFCs. By Ordikhani Seyedlar, Ramin; Shaw, Scott K.; Huang, Wenyu Abstracts of Papers, 260th ACS National Meeting & Exposition, San Francisco, CA.
18. Phase change behavior of solvate ionic liquid: Water dilutions revealed by differential scanning calorimetry. Duffy, Darby; Lasar, Colleen Barbara; Gudenkauf, Kinsey J.; Curry, Jaelyn N.; Bellott, Brian J.; Shaw, Scott K. Abstracts of Papers, 259th ACS National Meeting & Exposition, Philadelphia, PA.

2019

19. Comparative capacitive study of room temperature imidazolium-based ionic liquids with differing cation chain lengths near a charged polycrystalline gold electrode. Pitawela, Niroodha Rathnamaali; Shaw, Scott K. Abstracts of Papers, 258th ACS National Meeting & Exposition, San Diego, CA.
20. Electrochemical reduction of carbon dioxide to formate and carbon monoxide on lead-tin alloys. Hailu, Amanuel; Shaw, Scott K. Abstracts of Papers, 258th ACS National Meeting & Exposition, San Diego, CA, United States
21. Electrochemical and electrocatalytic analysis of Ru (II) complexes with redox-active S₂N₂ ligands: Applications towards CO₂ reduction J Luna, K Spielvogel, S Loria, F Evans, L Weisburn, G Durgaprasad, ..., S. K. Shaw, S. R. Daly. 258th ACS National Meeting & Exposition, San Diego, CA.
22. Dilution effects on the behavior of thin ionic liquid films probed with electrochemistry and vibrational spectroscopy. A Horvath, R Anareddy, S. K. Shaw. 258th ACS National Meeting & Exposition, San Diego, CA.
23. Probing students' understanding of experimental design and process through laboratory practical experiences J DeYoung, L. Kelly, S 258th ACS National Meeting & Exposition,

- San Diego, CA.
24. Heterogeneity in urban environmental films J. DeYoung, J. Grant, S. K. Shaw 258th ACS National Meeting & Exposition, San Diego, CA.
 25. Electrochemical reduction of carbon dioxide to formate and carbon monoxide on lead-tin alloys. A Hailu, S. K. Shaw. 258th ACS National Meeting & Exposition, San Diego, CA.
 26. Thermal and spectroscopic analysis of ionic liquid solvent mixtures. J. Wrona, S. K. Shaw, N. Walker, K. Gudenkauf. 258th ACS National Meeting & Exposition, San Diego, CA.
 27. Examination of ionic liquid water dilution effects using differential scanning calorimetry. N Walker, J Wrona, B Bellott, S Shaw. American Chemical Society Meeting 257
- 2018**
28. Chemical dynamics in model urban films probed via quartz crystal microbalance and sum frequency spectroscopy. DeYoung, Jessica; Grant, Jacob S.; Shaw, Scott K. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, United States, October 21-23 (2018), MWRM-198
 29. Electrochemical analysis of Ru(II) complexes with redox non-innocent S₂N₂ ligands and their applications in the reduction of CO₂. Luna, Javier A.; Spielvogel, Kyle D.; Durgaprasad, Gummadi; Haas, Christian; Shaw, Scott K.; Daly, Scott R. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, United States, October 21-23 (2018), MWRM-580
 30. Water and Proton Concentration Affects the Electrocatalytic Conversion of Carbon Dioxide in Ionic Liquids. 233rd ECS Meeting Abstracts, 1840. Seattle, WA. S.K. Shaw, A. Hailu.
 31. Examination of ionic liquid water dilution effects using differential scanning calorimetry. Walker, Nicole L.; Wrona, Jaclyn; Shaw, Scott K. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, United States, October 21-23 (2018), MWRM-207
 32. Electrochemical analysis of Ru (II) complexes with redox non-innocent S₂N₂ ligands and their applications in the reduction of CO₂. J Luna, G Durgaprasad, K Spielvogel, C Haas, S Shaw, S Daly. American Chemical Society Meeting 255
 33. Electrochemical double layer structure of imidazolium based ionic liquids. Pitawela, Niroodha; Horvath, Andrew; Shaw, Scott K. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, United States, October 21-23 (2018), MWRM-205
 34. ECS and SMEQ Joint International Meeting, *Ionic Liquid Interfaces Probed with Spectroscopy and Electrochemistry*, The Electrochemical Society, Cancun, Mexico Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Lucio, Anthony J, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Xu, Jianchao, Walker, Nicole
 35. Ionic Liquids as a Critical Enabling Technology for Meeting Current and Future Needs in Energy, Materials, and Living Systems, *Near-Surface and Extended Structures of Ionic Liquids*, Gordon Research Conference, Newry, Maine, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Xu, Jianchao
 36. 255th ACS National Meeting & Exposition, *Electrochemical analysis of Ru(II) complexes with redox non-innocent S₂N₂ ligands and their applications in the reduction of CO₂*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Durgaprasad, Gummadi, Shaw, Scott K, Daly, Scott R Student Presenters/Authors: Luna, Javier A, Spielvogel, Kyle D, Haas, Christian
 37. 255th ACS National Meeting & Exposition, *Metal-ligand cooperativity with redox-active*

- tetradentate ligands*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Durgaprasad, Gummadi, Shaw, Scott K, Daly, Scott R Student Presenters/Authors: Luna, Javier A, Spielvogel, Kyle D, Haas, Christian
38. 255th ACS National Meeting & Exposition, *Native urban films' spatial and chemical heterogeneity reported by microscopy and SIMS analysis*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Grant, Jacob S
 39. 255th ACS National Meeting & Exposition, *Ni complexes with redox-active tetradentate ligands: Structures, electrochemistry, and reactivity studies with CO₂*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Shaw, Scott K, Daly, Scott R Student Presenters/Authors: Spielvogel, Kyle D, Luna, Javier A, Benson, Austin
 40. 255th ACS National Meeting & Exposition, *Reversible, micron-scale ordering in ionic liquid films*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Specht, Robert
 41. 255th ACS National Meeting & Exposition, *Spectroscopic and calorimetric analysis of multiple ionic liquid phase transitions in bulk and thin film systems*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Wrona, Jacklyn
 42. Pittcon 2018, *Long-Range Ordering in Ionic Liquid Films and the Influence of Water*, Orlando, Florida, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S

2017

43. Pittcon 2017, *Experimental Studies of the Capacitive-Potential Relationship for Ionic Liquids-Electrode Interfaces*, The Electrochemical Society, Washington D.C., United States Presenters/Authors: Zhang, Jie, Bond, Alan, Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J
44. Pittcon 2017, *Probing Self-Organization of Molecular Ions at the Interface between Graphene and Ionic Liquids*, The Electrochemical Society, Washington D.C., United States Presenters/Authors: Shaw, Scott K, Wu, Judy
45. Pittcon 2017, *Spectroelectrochemical Studies of IL/Electrolyte Interfaces*, The Electrochemical Society, Washington D.C., United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S, Lucio, Anthony J, Wrona, Jacklyn
46. ACS-MARM 2017, *Chemical measurements in confined liquid films & addressing the urban-rural gap in undergraduate research*, American Chemical Society, Hershey, Pennsylvania, United States Presenters/Authors: Shaw, Scott K
47. ACS-MARM 2017, *Ionic liquid ordered structures near and far from solid surfaces*, American Chemical Society, Hershey, Pennsylvania, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J, Anareddy, Radhika S, Wrona, Jacklyn N, Hailu, Amanuel
48. Spring Undergraduate Research Festival, *Nanoscale surface modification through click chemistry and its effect on biofilm formation*, University of Iowa, Iowa City, Iowa Presenters/Authors: Biggin, Mary E, Shaw, Scott K Student Presenters/Authors: Muckenhirn, Logan W, Donovan, David F
49. Pittcon 2017, *Analysis of Fluid Slip at the Fluid-Solid Interface: Wetting Velocity Dependence*, Spectroscopy Society of Pittsburgh and the Society for Analytical Chemistry of Pittsburgh, Chicago, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Nania, Samantha L
50. Pittcon 2017, *Extended Ordering of Ionic Liquids at Solid-Liquid Interface*, Spectroscopy Society of Pittsburgh and the Society for Analytical Chemistry of Pittsburgh, Chicago,

Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S

51. Pittcon 2017, *Unique Electrochemical Double Layer Response in Ionic Liquids from Large Amplitude Fourier Transformed AC Voltammetry*, Spectroscopy Society of Pittsburgh and the Society for Analytical Chemistry of Pittsburgh, Chicago, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J
52. Pittcon 2017, *Urban Films as Active Environmental Interfaces*, Spectroscopy Society of Pittsburgh and the Society for Analytical Chemistry of Pittsburgh, Chicago, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Grant, Jacob S
53. Pittcon 2017, *Examining the Morphology of Native Urban Surface Films*, Spectroscopy Society of Pittsburgh and the Society for Analytical Chemistry of Pittsburgh, Chicago, Illinois, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Grant, Jacob S

2016

54. 51st American Chemical Society's Midwest Regional Meeting, *Ionic Liquid Electrolyte Architectures*, American Chemical Society, Manhattan, Kansas Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J, Anareddy, Radhika S, Specht, Robert
55. Midwestern University Analytical Chemistry Conference, *Building a Chemical Model of a 'Real-World' Environmental Surface*, University of Illinois, Urbana, Illinois Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Grant, Jacob S
56. Gordon Research Conference on Ionic Liquids, *Electrowinning of materials from ionic liquids*, Gordon Research Conference, Newry, Maine Presenters/Authors: Shaw, Scott K
57. 2016 Cottrell Scholar Conference, *Chemical Measurements in Confined Liquid Films: Defining and Controlling the Transition from Bulk to Interface*, Research Corporation, Tucson, Arizona Presenters/Authors: Shaw, Scott K

2015

58. Midwest Universities Analytical Chemistry Conference, *Quantifying Water in Ionic Liquids and Effects on Interfacial Structure*, Midwest Universities Analytical Chemistry Conference, Minneapolis, Minnesota Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J, Anareddy, Radhika S
59. 227th ECS Meeting, *Spectroelectrochemical Study of the Role of Pyridinium in Carbon Dioxide Reduction*, Electrochemical Society, Chicago, Illinois Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J
60. 249th ACS National Meeting, *Analysis of interactions at fluid-solid interface: exploring the complete slip boundary condition*, American Chemical Society, Denver, Colorado, United States Presenters/Authors: Nania, Samantha L, Shaw, Scott K
61. 249th ACS National Meeting & Exposition, *Model system development for urban films and environmental adsorption*, American Chemical Society, Denver, Colorado, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Grant, Jacob S
62. 249th ACS National Meeting, *Pyridinium as the Electrocatalyst in Carbon Dioxide Reduction on Polycrystalline Gold Electrodes*, American Chemical Society, Denver, Colorado, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J
63. 249th ACS National Meeting, *Studying the molecular orientation and behavior of ionic liquid films at solid-liquid interface*, American Chemical Society, Denver, Colorado, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anareddy, Radhika S

2014

64. Midwest Universities Analytical Chemistry Conference, *Interfacial Structure of Thin Water Films on –OH Terminated Self Assembled Monolayers*, Midwest Universities Analytical Chemistry Conference, Ames, Iowa, United States Presenters/Authors: Wang, Zhengia, Shaw, Scott K
65. Midwest Universities Analytical Chemistry Conference, *Structure and Behavior of Ionic Liquid Interfaces and Thin Films*, Midwest Universities Analytical Chemistry Conference, Ames, Iowa, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anaredy, Radhika S
66. 226th Meeting of the Electrochemistry Society, *Ionic Liquid Structure in Thin Films*, Electrochemical Society, Cancun, Mexico Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J, Anaredy, Radhika S
67. 248th ACS National Meeting & Exposition, *Chemical analysis of fluids at the solid surface: Testing the complete slip boundary condition*, American Chemical Society, San Francisco, California, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Nania, Samantha L
68. 248th ACS National Meeting & Exposition, *Structure and behavior of ionic liquid interfaces and thin films*, American Chemical Society, San Francisco, California, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J, Anaredy, Radhika S, Roach, Lucas T
69. 51st American Chemical Society's Midwest Regional Meeting, *Enhancing advanced analytical chemistry students' laboratory experience in a round-robin style course using pre-laboratory videos and quizzes*, 23rd Biennial Conference on Chemical Education, Allendale, Michigan, United States Presenters/Authors: Cole, Renee S, Shaw, Scott K Student Presenters/Authors: Schmidt, Jennifer A, Keuter, Ellie

2013

70. 246th ACS National Meeting & Exposition, *Effect of hydrogen sulfide gas on silicone films*, American Chemical Society, Indianapolis, Indiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Anaredy, Radhika S, Wills, Emily M, Werner, Stephanie M
71. 246th ACS National Meeting & Exposition, *Increasing diffusion rates of CO₂ in ionic liquids: Toward CO₂ recycling*, American Chemical Society, Indianapolis, Indiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Lucio, Anthony J
72. 246th ACS National Meeting & Exposition, *Interfacial analysis of fluids at the solid surface: The complete slip boundary condition*, American Chemical Society, Indianapolis, Indiana, United States Presenters/Authors: Shaw, Scott K Student Presenters/Authors: Nania, Samantha L
73. ACS National Meeting & Exposition, *Relating surface disorder of self-assembled monolayers to fluid dewetting and molecular slip*, American Chemical Society, Indianapolis, Indiana, United States Presenters/Authors: Shaw, Scott K
74. Undergraduate ACS Chapter, Faculty Lecture Series, *Energy for our Society: an Earth Day Delight or Dilemma?*, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K
75. 245th ACS National Meeting, *Thin surface films of water on hydrophilic and hydrophobic substrates: Changes in film behavior and H-bonding character studied by optical spectroscopies*, American Chemical Society, New Orleans, Louisiana, United States Presenters/Authors: Shaw, Scott K, Pemberton, Jeanne E

2012

76. Undergraduate ACS Chapter, Faculty Lecture Series, *Colorful Surfaces: Important Concepts for Understanding Interfaces*, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K

77. Analytical Division Seminar, *Measuring Molecular Architectures at Interfaces*, Dept. of Chemistry, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K
78. Physical and Environmental Division Seminar, Dept. of Chemistry, *Creating Commodity Chemicals from Carbon Dioxide*, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K
79. 243rd ACS National Meeting, *Evidence for the molecular entanglement of alkane oligomers*, American Chemical Society, San Diego, California Presenters/Authors: Shaw, Scott K, Mudalige, Anoma, Pemberton, Jeanne E Student Presenters/Authors: Burkett, Colleen M
80. 243rd ACS National Meeting, *Investigating Solid-Fluid Interfaces using Forced Dewetting*, American Chemical Society, San Diego, California, United States Presenters/Authors: Pemberton, Jeanne E, Mudalige, Anoma, Schalnatz, Matthew, Shaw, Scott K
81. Society of Western Analytical Professors (SWAP), *Evidence for Interfacial Molecular Entanglement*, University of Arizona, Tucson, Arizona Presenters/Authors: Shaw, Scott

2011

82. 242nd ACS National Meeting, *Investigating molecular entanglement of alkane oligomers on PDMS modified substrates*, American Chemical Society, Denver, Colorado Presenters/Authors: Shaw, Scott, Pemberton, Jeanne E, Burkett, Colleen M
83. 242nd ACS National Meeting, *Forced Dewetting of solid substrates from fluids at sub-critical velocities coupled with spectroscopy as a novel solid-liquid interface characterization strategy*, American Chemical Society, Denver, Colorado Presenters/Authors: Shaw, Scott, Mudalige, Anoma, Macech, Piotr, Pemberton, Jeanne
84. 241st ACS National Meeting, *Tunable Thin Film Water Structure via Changing Terminal SAM Functionality*, American Chemical Society, Anaheim, California Presenters/Authors: Shaw, Scott, Pemberton, Jeanne E

2010 and prior

- 2009 238th ACS National Meeting, *The electrochemical reduction of carbon dioxide*, American Chemical Society, Washington D.C. Presenters/Authors: Shaw, Scott, Schiffrin, David J
- 2008 63rd OSU International Symposium on Molecular Spectroscopy, *Resonant SFG Line-shapes on Single Crystal Surfaces*, Ohio State University, Columbus, Ohio Presenters/Authors: Shaw, Scott, Lagutchev, Alexi, Dlott, Dana D, Gewirth, Andrew A
- 2008 235th ACS National Meeting, *Potential dependent organization of three ionic states of p-aminobenzoic acid on Ag(111)*, American Chemical Society, New Orleans, Louisiana Presenters/Authors: Shaw, Scott, Gewirth, Andrew A
- 2007 233rd ACS National Meeting, *Dewetting at the aqueous-hydrophobic interface*, American Chemical Society, Chicago, Illinois Presenters/Authors: Shaw, Scott, Gewirth, Andrew A

SERVICE

Profession

- | | |
|----------------|---|
| 2021 - Present | ACS-MWRM 2022 Organizing Committee, Finance Chair |
| 2021 - Present | Editorial Advisory Board, Analytical Chemistry (ACS), Member |
| 2020 - Present | Book chapter reviews for ACS Books, Peer Reviewer, Publications |
| 2019 - Present | Midwest Universities Analytical Chemistry Conference, Organizing Committee |
| 2018 - Present | Research Corporation for Scientific Advancement, Annual Cottrell Scholars Meeting, Organizing committee |
| 2018 - Present | Research Corporation for Scientific Advancement, Science Communication |

Workshops, Chair

2018 - Present Society for Advancement of Chicanos/Hispanics & Native Americans in Science, Presentation Abstracts Reviewer

2018 - Present Society for Advancement of Chicanos/Hispanics & Native Americans in Science, Travel Award Application Reviewers, Reviewer

2016 - Present Manuscript review for American Institute of Physics, Peer Review Assignment, Reviewer,

2015 - Present Manuscript review for Nature Publishing Group, Peer Review Assignment, Reviewer,

2015 - Present Proposal review for the American Chemical Society Petroleum Research Fund, Reviewer,

2015 - Present Proposal review for the Society for Advancement of Chicanos and Native Americans in Science (SACNAS), Reviewer

2014 - Present American Chemical Society, Science Coaches, Member

2014 - Present Proposal review for Center for Global and Regional Environmental Research (CGRER),

2014 - Present Proposal review for Environmental Protection Agency, Reviewer,

2014 - Present Proposal review for Research Corporation for Science Advancement, Reviewer

2013 - Present Fellowship Application Review for American Chemical Society, Reviewer

2013 - Present Fellowship Application Review for Environmental Protection Agency, Reviewer

2013 - Present Fellowship Application Review for National Science Foundation, Reviewer,

2013 - Present Manuscript review for American Chemical Society, Peer Review, Adjudicative Review

2013 - Present Manuscript review for Elsevier, Peer Review Assignment, Reviewer, Publications

2013 - Present Manuscript review for Royal Society of Chemistry, Peer Review Assignment

2012 - Present Proposal review for National Science Foundation, Reviewer, Grant Proposals

2010 - Present Supporting quests for US citizenship by graduate students and postdocs in Chemistry and Chemical Engineering

2018 - 2019 The American Chemical Society, Postdoc to Faculty Workshop, Expert Panelist

2014 - 2019 Proposal review for Department of Defense, Reviewer, Grant Proposals

2014 - 2019 Proposal review for Iowa Energy Center, Reviewer, Grant Proposals

2013 - 2018 Proposal review for National Institutes of Health, Reviewer, Grant Proposals

2018 American Chemical Society, Physical Chemistry Division, Organizer

2017 Electrochemical Society, Physical and Analytical Electrochemistry Division, Organizer

2016 Session moderator for Ionic Liquids Gordon Research Conference

2013 American Chemical Society, Division of Colloid and Surface Chemistry, Organizer

University

2017 - Present University Fulbright Awards Faculty Committee

2015 - Present Belin Blank Advanced Science Summer School, Volunteer

2015 - Present Rural Scholar Research Program, Organizer

2014 - Present Sigma Phi Epsilon Fraternity Faculty Advisor

2012 - Present Undergraduate ACS Chapter, Faculty Advisor

2020 - 2021 Provost Office, Hawkeye First-Generation Initiative Committee

2019 - 2020 OVPR Broader Impacts Workshop, Expert Panel

2017 - 2019 OVPR NSF-CAREER preparation workshop, Expert Panel

2018 - 2020 Perry Research Scholars Institute, Volunteer

2019 Office of Student Life Search Committee, Member

2016 - 2018 University of Iowa Fall Undergraduate Research Festival, Reviewer

2017 Fraternity and Sorority Life Alcohol Task Force, Faculty Panel

2017 Science and Scholars Symposium, Expert Panel

2016 - 2017 University of Iowa Spring Undergraduate Research Festival, Reviewer
2017 Meet the Challenge Awards - Scholarship Panelist, Expert Panel
2016 Center for Student Involvement and Leadership Coordinator, Hiring Committee
2012 - 2016 University Chess Club, Faculty Advisor
2015 Negotiating Your Academic Job Offer - Panel, Expert Panel

Department

2021 - Present Witte Funds Proposal Review
2020 - Present Tenured Faculty Review Committee Member
2013 - 2016 & 2021 - Present Graduate Student Admissions Committee, Member
2019 - Present Graduate Education Committee Member
2013 - Present New Graduate Student Academic Advising, Member
2012 - Present Student ACS Chapter Advisor/Mentor
2012 - Present Graduate Recruitment Presentations / College Visits, Guest Speaker
2019 - 2020 Physical Chemistry Faculty Search Committee, Member
2016 - 2019 Chemistry Executive Committee, Member
2014 - 2019 Equipment Committee, Member
2012 - 2018 Division Research Presentations to First Year Graduate Students, Guest Speaker
2013 - 2014 Lecturer - Annual Review, Member
2012 - 2014 Library Committee, Chair
2012 - 2013 Graduate Student Awards Committee, Member
2012 - 2013 Lecturer Evaluation Committee, Member

Community

2015 - Present Rural Scholar Program Organizer
2013 - Present Solon High School Science Fair, Judge
2016 - 2018 Eastern Iowa Science and Engineering Fair, Judge
2014 - 2018 Kirkwood Elementary Science Coach, Organizer
2012 - 2016 Kennedy High School, STEM Event, Guest Speaker
2013 Prairie Creek 6th Grade STEM Day, Guest Speaker
2012 Iowa State Fair Science Booth, Volunteer