

Scott K. Shaw, Professor
Department of Chemistry, The University of Iowa

Phone: (319) 384-1355

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E-mail: scott-k-shaw@uiowa.edu

EDUCATION AND PROFESSIONAL HISTORY

Higher Education

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

Professional and Academic Positions

- 2024 - Present **Professor**, Department of Chemistry, University of Iowa
- 2022 - Present **Director of Graduate Studies**, Department of Chemistry, University of Iowa
- 2019 - 2024 **Associate Professor**, Department of Chemistry, University of Iowa
- 2012 - 2019 **Assistant Professor**, Chemistry, University of Iowa
- 2010 - 2012 **NSF Postdoctoral Fellow**, 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

- 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
- 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

Accessible Research Summary: *People touch many different surfaces every day. Fingers touch phone screens. Phone screens touch the water or dirt that gets on them. Hot coffee touches the inside of a coated cup, your lips touch the cup, and maybe hot coffee touches your shirt. The Shaw Group studies what happens when these different materials meet to form a special phase of matter known as a chemical interface. We want to learn what makes material at interfaces behave differently from other materials, and how we might design or control them to make our lives easier and better. If we learn more about how surfaces work, and how they sometimes don't work, we can make better things - like batteries, bubbles, paints, or plane-wings - and maybe even learn how to get the coffee out of that shirt.*

TEACHING

Courses Taught at the University of Iowa

Terms	Title	Enrollment
Fall 2022 - 2024	Chemistry Graduate Orientation	18-28
Spring 2012-2025	Analytical Measurements (Instrumental Analysis)	12-35
Fall 2019	Fundamentals of Chemical Measurements (Quantitative Analysis)	32
Spring 2016, 2018, 2021	Analytical Chemistry Seminar	10-20
Fall 2012 - present	Undergraduate Research	4-8
Fall 2016, 2018	Graduate Analytical Spectroscopy	15-32
Fall 2012-2015	Advanced Analytical Chemistry	6-20

Innovations in Teaching

2024 – Present	Developing new laboratory procedure to integrate GC-MS into CHEM:3430 (Instrumental Analysis)
2022 – Present	Leading effort to develop a ‘Demonstration Laboratory’ with in Chemistry department, sponsored by Agilent Technologies, bringing ca. \$500,000 of new characterization instruments into instructional chemistry laboratories
2022 – Present	Led effort to integrate digital laboratory notebooks in analytical measurements – providing secure data sharing and storage, and better preparing students for professional careers. Portion of STF proposal submitted with department in spring 2023 is ca. \$18,000
2021 – Present	Developed and implemented a Course-based Undergraduate Research Experience (C.U.R.E.) in CHEM:3430 (Instrumental analysis), for quantitative analysis of nitrate and nitrite in environmental surface films
2022 – 2023	Leading departmental effort to develop a proposal writing course for chemistry

	graduate students
2019 – 2022	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 – 2021	Introduced student oral (video) presentation laboratory reports in Analytical Measurements, CHEM:3430. Currently the only undergrad chemistry course that develops students' oral presentation skills
2017 - 2019	Creation of Laboratory Practical Evaluations in Analytical Measurements, CHEM:3430 (Instrumental Analysis), aligning course assessments with the laboratory-based content
2016 - 2018	Developed a series of pre-laboratory videos for students in Analytical Measurements, introducing key features of advanced instrumentation used in CHEM:3430 (Instrumental Analysis)
2014 - 2016	Developed data analysis tutorial videos for each procedure in Analytical Measurements, CHEM:3430 (Instrumental Analysis)

Student Mentoring

Ph.D. Advisor, Chair

2024 - Present	Mariam Okunade
2023 - Present	Park, YeJun; <i>In Process</i>
2023 - Present	Parsapour, Setayesh; <i>In Process</i>
2022 - Present	Perera, Chamini; <i>In Process</i>
2022 - Present	Van Den Top, Michael B.; <i>In Process</i>
2021 - Present	Akporere, Grace; <i>In Process</i>
2018 - Present	Lasar, Colleen; <i>In Process</i>
2019 - 2022	Stumme, Nathan; (<i>Collins Aerospace</i>)
2018 - 2022	Ordikhani Seyedlar, Ramin; (<i>Albemarle Corporation</i>)
2016 - 2022	Horvath, Andrew; <i>Completed (3M Corporation)</i>
2017 - 2022	DeYoung, Jessica; <i>Completed (3M Corporation)</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	Anaredy, Radhika; <i>Completed (Sterling Pharma Solutions)</i>
2012 - 2017	Lucio, Anthony; <i>Completed (National Oceanographic Centre, University of Leicester, U.K.)</i>
2012 - 2017	Nania, Samantha; <i>Completed (Perkin Elmer)</i>

Ph.D. Advisor, Co-Chair

2024 - Present	Benjamin Carvill; <i>In Process with Prof. J Leddy</i>
2024 - Present	Kai Wang; <i>In Process with Prof. S. Daly</i>
2022 - Present	Sweet, Amelia; <i>In Process with Prof. S. Mason</i>
2021 - Present	Duffy, Darby; <i>In Process with Prof. S. Daly</i>
2018 - Present	Harmon, Whitney; <i>Completed with Prof. C. Cheatum (Lawrence</i>

	<i>Berkley National Laboratory)</i>
2015 - 2020	Luna, Javier; <i>Completed with Prof. S. Daly (Hach Company)</i>
<i>M.S. Advisor, Chair</i>	
2023 - 2024	Dudley, Harry; <i>Completed M.S. at UIowa (with Prof. D. Cwiertny)</i>
2017 - 2021	Pitawela, Niroodha; <i>Completed M.S. at UIowa. Now at Univ. Cincinnati Ph.D Program</i>
<i>Cognate Advisor</i>	
2022 - 2024	Bedell, Matthew; <i>West High School Student Science Program, matriculated to Northeastern University, Boston.</i>
2019 - 2024	Van Wyk, Andrea; <i>Completed Ph.D. with Prof. Renee Cole Completed. Now Faculty at Drake University</i>
2019	Mena Fernandez, Silvia; <i>Completed Ph.D. at Universitat Autonoma de Barcelona. Now junior faculté at Universitat Autonoma de Barcelona</i>
2016	Emberger, Jamie; <i>Completed M.S. with Prof. Renee Cole</i>
<i>Postdoctoral Research Supervision</i>	
2014 - 2015	Wang, Zhengia; <i>(N.C. State)</i>
<i>Undergraduate Research Students</i>	
2024 - Present	Rebecca Philipsen
2024 - Present	Anton Dittmer
2024 - Present	Owen Ferneding
2024 - Present	Claire Opdahl
2024 - Present	Alex Steffen
2024 - Present	Lauren Geerdes
2024 - Present	Levi Rosenboom
2024 - Present	Jenessa Johnson
2024 - Present	Carson Bantz
2024 - Present	Amy Millard
2024 - Present	Ricardo Mirafuentes Mar
2022 - Present	Brianna Cannoy
2022 - Present	Emily Bieber
2023 - 2024	Addison Arens
2023 - 2024	Elizabeth Hinman
2023 - 2024	Cade Machin
2023 - 2024	Daniel Schwartz
2023 - 2024	Elizabeth Theeler
2023 - 2024	Laurent Triggs
2023 - 2024	Analia Perez
2022 - 2024	Mathew Bedell (High School)

2021 - 2024	Jack Tupper (Sophomore DoC Alumni Award Winner, 2022)
2023 - 2023	Emma Philips
2022 – 2023	Sophie Long
2022 – 2023	Vanessa Zheng
2022 – 2023	Taizhe Liu
2023 - 2023	Dhatchayani Rajkumar
2021 - 2023	Ferris (Hanna) Bissen
2021 - 2023	Bricey Gorman
2021 - 2023	Lizzie Van Es
2021 - 2022	Alex Julius
2018 - 2022	Evangeline Holyoake
2021	Lauren Andrews
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
2017 - 2018	Jenkins, Spencer (High School)
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

Dept. of Chemistry Graduate Advisory Committee Memberships Table

Academic year	2024-25	2023-24	2022-23	2021-22	2020-21	2019-20
Number of Committees	29	28	31	25	34	39

Graduate Advisory Committee Memberships

2024	Kai Wang
2024	Mariam Okunade
2024	Benjamin Carvell
2024	Harry Dudley
2024	S. Marayam Vaghefi Esfidani
2024	Audrey Kocher
2024	Hannah Crull
2024	Chamini Perera
2024	Michael Van Den Top
2024	Abby Carlin
2023	Okey, Nnamdi
2023	Weerasinghe, Ruwini
2023	Parsapour, Setayesh
2023	Holle, Maddie
2023	Eisenberg, Shaun
2023	Das, Dishan
2023	Parveg, Sazzad
2023	Ogbodo, Raphael
2023	Ezekiel, Charles
2023	Huang, Wuji
2023	Duffy, Darby
2023	Akporere, Grace
2023	Bichitra, Borah
2022	Wei, Michelle
2022	Schuely, Jacob
2022	Wickremasinghage, Shanari
2022	Tanmoy, Debojit
2022	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	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 Memberships

2024	Wuji Huang
2024	Andrea Van Wyk
2024	Zhuoheng Li
2024	Wuji Huang
2024	Janeshtha Fernando
2024	Grant Forsythe
2023	Logan Augustine
2023	Hoang Dang
2023	Joshua Coduto
2023	Lucas Howell
2023	Michelle Wei
2023	Nimesh Ranasinghe
2022	Chris Knutson
2022	Changan Li
2022	Christian Haas
2022	Madeline Jensen
2022	Soe Tun
2022	Tina Mihm
2021	Waruni Dona Hapurachchige
2021	Johnathan Culpepper
2021	Katie Mauger-Sonnek
2021	Kevin Robben
2021	Lee, Hansol
2021	Robiul Islam
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

CLAS System * = Senior Author, Major Contribution, ** = Secondary Contribution, *** = Equal Contribution, **** = Minor Contribution
 († indicates undergraduate student mentee, ^ indicates graduate student mentee, # indicates postdoctoral researcher mentee)

Peer Reviewed Publications

2024

1. Computational Insights into the Impact of Extreme Concentrations on the Dynamics of Molecular Systems for Nonaqueous Redox-Flow Batteries. Anton Sameera Perera, Sashen Ruhunage, Nathan Stumme[^], Andrew Horvath[^], Scott Shaw,^{*} Chad M Risko. 2024. 10, 5066.
2. Chemical Differences in Environmental Films Collected on Surfaces with Different Hydrophilicity. Jessica L DeYoung[^], Uchechukwu Grace Akporere[^], Zezhen Cheng, Swarup China, Gregory W Vandergrift, Christopher R Anderton, Yadong Zhou, Zihua Zhu, Scott K Shaw^{*}. ACS Earth and Space Chemistry. 201. 8, 12, 2411-2419.
3. Increasing Cation Ion Symmetry Reduces Ionic Liquid Ordering in Thin Films. Michael Blake Van Den Top[^], Andrew Horvath[^], Spyridon Koutsoukos, Frederik Philippi, Daniel Rauber, Tom Welton, Scott K Shaw^{*}. JPCB, 2024, 128, 45, 11251-11257.
4. *In the Mix*: A Workshop Merging Computational Chemistry and Electrochemistry Alongside Data Science. Rebekah Duke, Amelia Sweet[^], Nathan C Stumme[^], Ramin Ordikhani-Seyedlar[^], Souradeep Chattopadhyay, Chih-Hsuan Yang, Hsin-Jung Yang,

Anton S Perera, Lisa Green, Kyle Endres, Mary E Losch, Baskar Ganapathysubramanian, Sara E Mason, Soumik Sarkar, Scott K Shaw**, Chad Risko, Judith L Jenkins, Craig M Teague. *Journal of chemical education*. 2024. 101, 11, 5060-5067.

5. ExpFlow: a graphical user interface for automated reproducible electrochemistry. R Duke, S Mahmoudi, AP Kaur, V Bhat, IC Dingle, NC Stumme[^], SK Shaw*, ... Chad Risko. *Digital discovery* 2024, 3, 163-172
6. Oral carbon monoxide enhances autophagy modulation in prostate, pancreatic, and lung cancers. Jianling Bi, Emily Witt, Megan K McGovern, Arielle B Cafi, Lauren L Rosenstock, Anna B Pearson, Timothy J Brown, Thomas B Karasic, Lucas C Absler, Srija Machkanti, Hannah Boyce, David Gallo, Sarah L Becker, Keiko Ishida, Joshua Jenkins, Alison Hayward, Alexandra Scheifflinger, Kellie L Bodeker, Ritesh Kumar, Scott K Shaw, **** Salma K Jabbour, Vitor A Lira, Michael D Henry, Michael S Tift, Leo E Otterbein, Giovanni Traverso, James D Byrne. *Advanced Science* 11 (9), 2308346
7. Evolving surface wettability in laser-powder bed fusion printed metal parts. B Nelson, W Huang, N Shen, S K Shaw****, C Lamuta, H Ding. *Manufacturing Letters* 2024, 40, 45-49

2023

8. Stumme, Nathan[^]; Perera, Anton; Horvath, Andrew[^]; Ruhunage, Sashen; Duffy, Darby[^]; Koltonowski, Elise †; Tupper, Jackson †; Dzierba, Chad; McEndaffer, Alie; Teague, Craig; Risko, Chad; Shaw, Scott K.* Probing redox properties of extreme concentrations relevant for non-aqueous redox-flow batteries. *ACS Applied Energy Materials*, 2023, 6 (5), 2819-2831.
9. Oral Carbon Monoxide Enhances Autophagy Modulation in Prostate, Pancreatic, and Lung Cancers J Bi, E Witt, MK McGovern, AB Cafi, LL Rosenstock, AB Pearson, SK Shaw**** ... JD Byrne. *Advanced Science* 11 (9), 2024. 2308346
10. Towards Reproducible and Automated Electrochemistry. R Duke, S Mahmoudi, AP Kaur, V Bhat, I Dingle, N Stumme[^], S. K. Shaw*, C. Risko. chemrxiv.org doi:10.26434/chemrxiv-2023-cds00

2022

11. Spielvogel, Kyle; Stumme, Nathan[^]; Fetrow, Taylor; Wang, Li; Luna, Javier; Keith, Jason; Shaw, Scott K.*; Daly, Scott R. Quantifying variations in metal-ligand cooperative binding strength with cyclic voltammetry and redox-active ligands. *Inorganic Chemistry* 2022, 61, 5, 2391–2401
12. Sazzad Parveg, Ramin Ordikhani-Seyedlar[^], Tejasvi Sharma, Scott K Shaw*, Albert Ratner. A recycling pathway for Rare Earth Metals (REMs) from e-waste through co-gasification with biomass. Accepted at *Energies*, Nov 2022
13. Jessica DeYoung[^], Scott K Shaw*. Association of Chemical Aggregates and Fungal Moieties Affecting Native Environmental Films. *ACS Environmental Au*. 2022, 4, 310-313.
14. J. L. DeYoung,[^] S. K. Shaw*. Host Surface Orientation Impacts Environmental Film Accumulations. *Chemosphere*. 2022, 307, 135823
15. Wuji Huang, Ramin Ordikhani[^], S. K. Shaw*, Hongtao Ding, et. al., Superhydrophobic Surface Processing for Metal 3D Printed Parts. *Applied Materials*, 2022, 29, 101630.
16. A. Horvath[^], RS Anaredy[^], S K Shaw*, Solvents and Stabilization in Ionic Liquid Films. *Langmuir*. 2022, 38 (30) 9372-9381.
17. Wuji Huang, Ramin Ordikhani-Seyedlar[^], Avik Samanta, Scott K Shaw*, Hongtao

Ding. Surface functionalization quantification for laser-based superhydrophobic metal surfaces. *Colloids and Surfaces A: Physicochemical and Engineering Aspects* 2022, 636, 128126

2021

18. JL DeYoung, EA Holyoake, SK Shaw. What Are the Differences between Two Environmental Films Sampled 1 km Apart? *ACS Earth and Space Chemistry*. 2022, 5 (12), 3407-3413
19. Mena, Silvia; Ribas, Esteve; Richart, Clara; Gallardo, Iluminada; Farauo, 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.
20. 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, 57, 8003-8006
21. 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, 1, 3, 117–130.
22. 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.
23. 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.
24. 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, 13, 34, 41209–41219.
25. Horvath, Andrew; Curry, Jaelyn; Haverhals, Luke M; Shaw, Scott K; Practical Online Monitoring of Ionic Liquid Fiber Welding Solvent. *ACS Omega*. 6, 34, 22367-22373, 2021.
26. 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, 168, 046510.
27. DeYoung, J.; Shaw, S. K., Evaluating Environmental Film Maturation through a Deliquescence–Efflorescence Model. *ACS Earth and Space Chemistry* 2021, 5, 3, 645–650.

2020

28. Wang, Q.; Samanta, A.; Shaw, S. K.; Hu, H.; Ding, H., Nanosecond laser-based high-throughput surface nanostructuring (nHNS). *Applied Surface Science* 2020, 507, 145136.
29. 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 (nHNS). *Procedia CIRP* 2020, 87, 257-262.
30. 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.
31. 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.
 32. 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, 192, 108744.
 33. 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 and Interfaces* 2020, 12 (15), 18032-18045.
 34. 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 Macrocyclic with a Redox-Active Core. *Chemistry—A European Journal* 2020, 26 (9), 1928-1930.
 35. 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.
 36. 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.
 37. 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. *Organometallics* 2017, 36, 20, 4020-4031

2019

38. 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.
39. 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.
40. 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.
41. 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.
42. 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.
43. 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.
44. 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.
45. 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.
46. Anareddy, 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 and prior

47. 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.
48. 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.
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Funding Awards, Grants, and Contracts

Active awards

- 2024 - 2029 *ABCs of SUCCESS: Associating Biology and Chemistry to study SUCCESSION in Environmental SurfaceS*. Invited submission to Dept of Defense Army Research Office **MURI** program. Investigators: Scott K. Shaw (Lead) with Amanda Brown (Texas Tech), David Cwiertny (UIowa), Kaoru Ikuma (Iowa State), Julia Laskin (Purdue), Nhu Nguyen (Hawaii Manoa), and Alexei Tivanski (UIowa)
- May 2023 - *Renewable Rare Earth Metal Extraction: Biomining Municipal Trash- Phase 2*.
May 2025
KBIH Foundation
Investigators: Albert Ratner, (Co-Investigator) Scott K. Shaw (Co-Investigator)
- Aug 2023 - *Building Capacity across Iowa to Meet Human Needs from Things that Grow*.
July 2028
Submitted to National Science Foundation RII Track-1 in Aug 2022
Investigators: Laura Jarboe, Iowa State (Principal Investigator), et al.
- Oct 2020 – *Data-enabled Discovery and Design to Transform Liquid-based Energy Storage (D3TaLES)* Funded by the National Science Foundation.
May 2025

Investigators: Chad Risko (Co-Principal), Baskar Ganapathysubramanian (Co-Principal), Susan A Odom (Co-Principal), Scott K Shaw (Co-Principal)

Jan 2018 - *Collaborative for a Science Communication Enabled Community - Workshop*
 Jan 2026 Funded by Research Corporation for Scientific Advancement.
 Investigators: Scott K Shaw (Principal), Eric L Hegg (Co-Investigator), Thomas Markland (Co-Investigator), Chad Risko (Co-Investigator), Sean Roberts (Co-Investigator), Laurie Waters (Co-Investigator), Brooke Smith, Tobin Smith.

Completed Awards

Mar 2017 - *CAREER: Crossing and Controlling the Bulk to Interface Transition: Chemical Profiles*
 Feb 2024 *of Fluids Near Surfaces* Funded by National Science Foundation. Sole Investigator:
 Scott K Shaw

Jan 2021- *Renewable Rare Earth Metal Extraction: Biomining Municipal Trash*
 Jan, 2022 Funded by KBIH Foundation (external).
 Investigators: Prof. Albert Ratner (Co-Principal) and Prof. Scott K. Shaw (Co-Principal).

Jan 2019 - *Preparing Graduate STEM Students for Industry Success Via Mentored Team Training*
 Jan 2022 *with Communications and Business Professionals*
 Funded by University of Iowa Graduate College.
 Investigator/s: Amy Charles (Co-Investigator), Renee S Cole (Co-Investigator), Kajsa E Dalrymple (Co-Investigator), Scott K Shaw (Co-Investigator) Daniel E Khalastchi (Collaborator).

Jan 2018 - *Nanosecond Laser-Based High-Throughput Surface Nanostructuring (nHSN) and*
 Dec 2021 *Process Mechanisms*
 Funded by National Science Foundation.
 Investigator/s: Hontao Ding (Co-Principal), Scott K Shaw (Co-Principal), Shaoping Xiao (Co-Principal).

Jan 2018 - *Environmental Chemistry: Surface Films as Active Environmental Interfaces 71600-CH*
 June 2021 Funded by Department of Defense, Army Research Office.
 Investigator/s: Scott K Shaw (sole investigator).

June 2020 - *NSF-INTERN Award. A supplement for the NSF-CAREER award.*
 Jan 2021 Funded by National Science Foundation.
 Investigator/s: Scott K Shaw (sole investigator).

June 2018 - *NSF-INTERN Award. A supplement for the NSF-CAREER award.*
 Feb 2019 Funded by National Science Foundation.
 Investigator/s: Scott K Shaw (sole investigator).

Jan 2018 - *Physical Chemistry of Ionic Liquids*
 Aug 2019 Funded by Army Research Office.
 Investigator/s: Scott K Shaw (sole investigator)

Jan 2016 - *Chemical Measurements in Confined Liquid Films: Defining and Controlling the*
 Jan 2020 *Transition from Bulk to Interface*
 Funded by Cottrell Scholar: Research Corporation.
 Investigator/s: Scott K Shaw (sole investigator).

Jan 2016 - *DURIP: Vibrational Sum Frequency Generation Spectrometer*
 Jan 2017 Funded by Department of Defense, Army Research Office.

- Investigator/s Scott K Shaw (sole investigator).
- Jan 2016 - *Vibrational Sum Frequency Generation Spectrometer*
 Jan 2017 Funded by Iowa Energy Center.
 Scott K Shaw (sole investigator).
- Jan 2016 - *Vibrational Sum Frequency Generation Spectrometer*
 Jan 2017 Funded by Optical Science and Technology Center.
 Investigator/s: Scott K Shaw (sole investigator).
- Jan 2015 - *Chemical Fuels from CO₂: Electrochemical Reduction in Task-Specific Solvents*
 Dec 2016 Funded by Iowa Energy Center.
 Investigator/s: Scott K Shaw (sole investigator).
- Dec 2015 - *Acquisition of an Ultraviolet-Visible-Near-Infrared Spectrophotometer and Elemental*
 Dec 2016 *Analyzer for the Department of Chemistry Shared Instrumentation Facility*
 Funded by Carver Charitable Trust.
 Investigator/s: Mark A Arnold, Lou Messerle, Scott K Shaw.
- Jan 2015 - *Hydrocarbons from CO₂: Electrochemical Reduction in Task-Specific Solvents*
 Dec 2018 Funded by American Chemical Society Petroleum Research Fund.
 Investigator/s Scott K Shaw (sole investigator).
- Jan 2014 - *Pilot Program for Content Delivery and Grading via Tablet Devices in Chemistry*
 Dec 2015 *Laboratories*
 Funded by College of Liberal Arts and Sciences – Student Technology Fee Program
 Investigator/s Scott K Shaw (sole investigator).
- Jan 2014 - *Transforming Content Delivery in Advanced Chemistry Laboratory Courses*
 Dec 2015 Funded by Iowa Teaching with Technology Awards.
 Investigator/s: Renee S Cole (Co-Principal), Scott K Shaw (Co-Principal).
- Jan 2014 - *Understanding a Surface Film's Role in Atmospheric Chemistry: Creating Molecular*
 Dec 2015 *Views of Urban Films*
 Funded by Center for Global and Regional Environmental Research.
 Investigator/s: Scott K Shaw (sole investigator).
- Jan 2013 - *The Synthesis of Oxaquinonacyclophanes*
 Dec 2015 Funded by Iowa Academy of Science.
 Investigator/s: Jay Wackerly (Principal), Scott K Shaw (Supporting).
- Jan 2014 - *Quantifying and Controlling Structures of Ionic Liquid Thin Films*
 Dec 2014 Funded by College of Liberal Arts and Sciences - Old Gold.
 Investigator/s Scott K Shaw (sole investigator).
- Jan 2011 - *Structure and Dynamics of Solvent Layers at Polymer Interfaces: The Role of*
 Dec 2012 *Molecular Interactions*
 Funded by National Science Foundation.
 Investigator/s: Scott K Shaw (sole investigator)

Invited Lectures and Conference Presentations

Colloquia and Invited Lectures

2025

1. Environmental film succession on material surfaces. *Presenters/Authors: Shaw, Scott K. Dept of Defense, DEVCOM, US Army Natick Soldier Systems Center, March 2025*

2. Investigating ionic liquids as energy storage materials – phase transitions 101. *Presenters/Authors: Shaw, Scott K.* University of Kentucky Center for Energy Research, February 2025
 3. Measuring molecules near surfaces *Presenters/Authors: Shaw, Scott K. University of Kentucky, Dept. of Chemistry, February 2025*
- 2024
4. *Characterizing cellulose fibers from bacteria and plants for flexible and rigid materials. Presenters/Authors: Shaw, Scott K. ACS MWRM, (October 2024)*
 5. Interfacial Phenomena & Dynamics in Electrochemical Systems. *Presenters/Authors: Shaw, Scott K. ACS National meeting, Denver, CO (August 2024)*
 6. Phase transitions in Ionic Liquids. 2024 Gordon Research Conference on Ionic Liquids. *Presenters/Authors: Shaw, Scott K. (August 2024)*
- 2023
7. Measuring Molecules near Surfaces. University of Iowa, Dept. of Chemistry. *Presenters/Authors: Shaw, Scott K. (September 2023)*
 8. Measuring Molecules Near Surfaces. Kansas State University, Dept. of Chemistry. *Presenters/Authors: Shaw, Scott K. (May 2023)*
 9. Solvents and solutes near (electrode) surfaces. Universitat Autònoma de Barcelona, Spain. *Presenters/Authors: Shaw, Scott K. (April 2023)*
 10. Solvents and solutes near (electrode) surfaces. University of Liverpool, U.K. *Presenters/Authors: Shaw, Scott K. (April 2023)*
- 2022
11. *Environmental Films in and around Iowa City.* American Chemical Society's Midwest Regional Meeting, Iowa City. *Presenters/Authors: Shaw, Scott K., DeYoung, J., and Akporere, G.*
 12. *Environmental Films: Sticky, Salty, and Alive.* Dept of Defense, ARO/ARL Seminar Series. *Presenters/Authors: Shaw, Scott K., DeYoung, Jessica L., Grace Akporere*
- 2021
13. *Environmental Surface Films.* The University of Iowa, College of Engineering. *Presenters/Authors: Shaw, Scott K., DeYoung, Jessica L.*
 14. Measuring Molecules Near Surfaces. University of Delaware Department of Chemistry and Biochemistry. *Presenters/Authors: Shaw, Scott K., Spielvogel, Kyle; Stumme, Nathan, Daly, Scott. R..*
 15. *Environmental Surface Films.* Rochester Institute of Technology, Department of Chemistry. *Presenters/Authors: Shaw, Scott K., DeYoung, Jessica L.*
 16. *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.*
 17. *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

18. *Measuring Molecules Near Surfaces*, The University of Illinois at Urbana Champaign, Urbana, Illinois, United States Presenters/Authors: Shaw, Scott K 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

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

Prior to 2018

21. *Measuring Molecules Near Surfaces: Better than a Needle in a Haystack*, Montana State University, Bozeman, Montana, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L, Wrona, Jacklyn, Horvath, Andrew
22. *Analytical Surface Science in Fluid Films*, University of Utah, Salt Lake City, Utah, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
23. *Energy on Earth*, Kiwanis Club of Grinnell, Grinnell, Iowa Presenters/Authors: Shaw, Scott K
24. *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., Woodard, Meagan M
25. *Chemical Surfaces and Measurement Science*, Michigan State University, East Lansing, Michigan, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
26. *Measuring Molecules Near Surfaces*, Texas Tech University, Lubbock, Texas, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
27. *Measuring Molecules Near Surfaces*, University of Houston, Houston, Texas, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
28. *Chemical Surfaces and Measurement Science*, Iowa State University, Ames, Iowa, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
29. *Measuring Molecules Near Surfaces*, Baylor University, Waco, Texas, United States Presenters/Authors: Shaw, Scott K., Anaredy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Nania, Samantha L
30. *Monmouth College Colloquium, Molecular Measurements of Chemical Interfaces*, Monmouth, Illinois, United States Presenters/Authors: Shaw, Scott K., Anaredy,

- Radhika S, Grant, Jacob S, Nania, Samantha L, Specht, Robert
31. *Measuring Molecules at Interfaces*, Western Illinois University, Macomb, Illinois Presenters/Authors: Shaw, Scott K
 32. Creighton University Colloquium, *Chemical Behaviors of Thin Fluid Films*, Creighton University, Omaha, Iowa, United States Presenters/Authors: Shaw, Scott K., Nania, Samantha L, Anareddy, Radhika S, Lucio, Anthony J, Grant, Jacob S, Donovan, David F, Roach, Lucas T
 33. Civil and Environmental Engineering, *Chemical Behaviors of Thin Surface Films*, University of Iowa, Iowa City, Iowa Presenters/Authors: Shaw, Scott K
 34. 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
 35. Electrochemistry Group, *Complex Fluid Structures at Solid Interfaces*, Argonne National Laboratory, Lemont, Illinois Presenters/Authors: Shaw, Scott K
 36. 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
 37. 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)
 38. 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)
 39. 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 Presentations

- 1.
- 2024**
2. Effects of ion symmetry on molecular ordering transitions in ionic liquid films. ACS National Meeting, Denver. August 2024. Presenters/Authors: Michael Van Den Top, Andrew Horvath, Colleen Lasar, Daniel Rauber, Frederik Philippi, Spyridon Koutsoukos, Thomas Welton, Scott K. Shaw
 3. Bedell, M., Duffy, Perera, C., D.H., Ordikhani, R., Stumme, N.C., Perera, A. S.; Horvath, A.; Ruhunage, S.; Koltonowski, E. M.; Tupper, J.; Dzierba, C.; McEndaffer, A. D.; Teague, C. M.; Risko C.; Shaw, S.K. Variable Charged TEMPO+ Concentrations for Use in Nonaqueous Redox Flow Batteries: A Spectro Electrochemical Study, 2024 State Science Technology Fair of Iowa, April 4-5, 2024, Ames, IA (Poster Presentation).
 4. Bedell, M., Duffy, Perera, C., D.H., Ordikhani, R., Stumme, N.C., Perera, A. S.; Horvath, A.; Ruhunage, S.; Koltonowski, E. M.; Tupper, J.; Dzierba, C.; McEndaffer, A. D.; Teague, C. M.; Risko C.; Shaw, S.K. Variable Charged TEMPO+ Concentrations for Use in Nonaqueous Redox Flow Batteries: A Spectro Electrochemical Study, the Eastern Iowa Science & Engineering Fair, March 6, 2024, Cedar Rapids, IA (Poster Presentation).
 5. Akporere, Uchechukwu G.; Roy, Sreya, Okafor, Cynthia C, Shaw, Scott K. Physical and

- chemical characterization of bacteria and plant nanocellulose. Poster presentation at the NSF EPSCoR meeting, Ames, United States July 24, 2024
6. Investigating electrochemical, spectroscopic, and physical properties of neutral and charged TEMPO for applications in redox flow batteries. ACS National Meeting, Denver. August 2024. Presenters/Authors: Darby Duffy, Chamini Perera, Matthew Bedell, Ramin Ordikhani Seyedlar, Anton Perera, Sashen Ruhunage, Chad Dzierba, Alie McEndaffer, Craig Teague, Chad Risko, Scott K. Shaw
 7. Synthesis and characterization of dinuclear cobalt coordination complexes with tetradentate ligand scaffolds. ACS National Meeting, Denver. August 2024. Presenters/Authors: Darby Duffy, Megan Wilson, Kyle Spielvogel, Scott K. Shaw, Scott Daly
 8. Effects of ion symmetry on molecular ordering transitions in ionic liquid films. Colleen B. Lasar, Andrew Horvath, Daniel Rauber, Frederik Philippi, Spyridon Koutsoukos, Tom Welton, Scott K. Shaw. ACS National Meeting, New Orleans. March 2024
 9. Surface hydrophobicity affects environmental film formation and maturation. Uchechukwu Grace Akporere, Scott K. Shaw. ACS National Meeting, New Orleans. March 2024
 10. Phase Transitions in Ionic Liquids. Scott K. Shaw, Colleen B. Lasar. ACS National Meeting, New Orleans. March 2024
 11. Environmental films as particles on surfaces: Chemistry, morphology, and maturation. Scott K. Shaw, Uchechukwu Grace Akporere. ACS National Meeting, New Orleans. March 2024

2023

12. Substrate hydrophobicity affects environmental films' physical and chemical properties. Uchechukwu Grace Akporere, Jessica L. DeYoung, Scott K. Shaw. ACS-MWRM, St. Louis. October 2023
13. Effects of ion symmetry on molecular ordering transitions in ionic liquid films. Colleen B. Lasar, Andrew Horvath, Daniel Rauber, Frederik Philippi, Spyridon Koutsoukos, Tom Welton, Scott K. Shaw. ACS-MWRM, St. Louis. October 2023
14. Molecular ordering and phase transitions in ionic liquids mixed with co-solvents. Scott K. Shaw, Colleen B. Lasar. ACS-MWRM, St. Louis. October 2023
15. Molecular ordering and phase transitions in ionic liquids mixed with co-solvents. Scott K. Shaw, Radhika S. Anareddy, Andrew A. Horvath., Lasar, C. Congress on Ionic Liquids. Lyon, France. April 2023
16. Effects of ion symmetry on molecular ordering transitions in ionic liquid films Authors: Scott K. Shaw, Colleen B. Lasar, Andrew Horvath, Daniel Rauber, Frederik Philippi, Spiros Koutsoukos, Tom Welton. Congress on Ionic Liquids. Lyon, France. April 2023
17. Akporere, Uchechukwu G.; DeYoung, Jessica L.; Shaw, Scott K. Change in rate of environmental film formation on surfaces with different hydrophobicity. Oral presentation from American Chemical Society Spring National Meeting, Indianapolis, United States, March 26 – 30, 2023. Division of Environmental Chemistry PAPER ID: 3825519. March 2023
18. Stumme, N, Shaw, S. Concentration dependence of ionic liquid supporting electrolytes for organic non-aqueous redox flow battery systems. Oral presentation at National American Chemical Society Conference, Indianapolis, IN. March 2023
19. Sashen Ruhunage, Presenter; Anton Perera; Nathan Stumme; Scott Shaw; Chad Risko. Redox-active species in variable states of charge in electrolytes: A molecular dynamics

- investigation Oral presentation at National American Chemical Society Conference, Indianapolis March 2023
20. Rebekah Duke, Presenter; Hussein Hijazi; Aman Kaur; Nathan Stumme; Taylor Matthews; Scott Shaw; Judith Jenkins; Susan Odom; Chad Risko. Mixed-valence tri-aryl amines as redox-active molecules for non-aqueous organic redox-flow batteries. Oral presentation at National American Chemical Society Conference, Indianapolis March 2023
 21. Stumme, N, Duke, R, Sweet, A, Chattopadhyay, S, Yang, C, Yang, H, Teague, C, Jenkins, J. Teaching collaborative science: Merging computational and physical chemistry alongside data science in the classroom. Oral presentation at National American Chemical Society Conference, Indianapolis, IN. Division of Physical Chemistry PaperID: 3822835 March 2023
 22. Zachary Burton, Presenter; Nathan Stumme; Mr. Ramin Ordikhani Seyedlar; Scott K. Shaw; Kaoru Ikuma. Exploring the relationship between environmental biofilms and the corrosion of metal surfaces. Oral presentation at National American Chemical Society Conference, Indianapolis March 2023

2022

23. Ferris Bissen, Bricey Gorman, Lizzy Van Es, Scott K. Shaw; Microbial Growths on Disposable Masks: How Gross are They? Fall Undergraduate Research Festival, University of Iowa. 2022 (Poster)
24. Akporere, U.G.; DeYoung, J.L.; Julius, A.P.; Shaw, S.K. How the Morphology of Environmental Films Changes with Elevation. ACS Midwest Regional American Chemical Society Conference, Iowa City, IA. 2022, October. (Poster)
25. Ordikhani-Seyedlar, R.; Huang, W.; A.; Shaw, S.K.; Ding, H. *Fabrication of 3D printed metal superhydrophobic surfaces*, Midwest Regional American Chemical Society Conference, Iowa City, IA. 2022, October. (Oral)
26. Stumme, N.; Shaw, S. *Electrochemistry of organic redox-active systems using ionic liquid supporting electrolytes*. Oral presentation at Midwest Regional American Chemical Society Conference, Iowa City, IA. 2022, October. (Oral)
27. Lasar, C.B.; Curry, J.N.; Cousineau, M.L.; Gudenkauf, K.J.; Duffy, D.H.; Walker, N.L.; Bellott, B.J.; Shaw, S.K. *Designing the designer solvent: Investigating structural phase behavior of binary imidazolium-based ionic liquid molecular co-solvent mixtures*. Presented at American Chemical Society Midwest Regional Meeting, Iowa City, IA, October 2022. #392. (Oral)
28. Van Wyk, A.; Andrews, L.; Julius, A.; Shrestha, B.; Cole, R.S., Shaw, S.K.; *Lessons Learned from the Design and Implementation of an Analytical Chemistry CURE Investigating Indoor Films*. American Chemical Society Midwest Regional Meetings. October 2022. (Oral)
29. Ordikhani Seyedlar. R.; Stumme. N.; Shaw. S. K. Spectro-electrochemical studies on nitrobenzene as a cost-effective and efficient anolyte for non-aqueous redox flow batteries, American Chemical Society Conference, Chicago, IL, August 2022. (Oral)
30. Akporere, U.G.; DeYoung, J.L.; Julius, A.P.; Shaw, S.K. Salt Content of Environmental Films Changes with Height Increase. From Abstracts of Papers, American Chemical Society Conference, Chicago, IL. August 2022. (Oral)
31. Lasar, C.B.; Horvath, A.; Rauber, D.; Philippi, F.; Koutsoukos, S.; Welton, T.; Shaw, S.K. Effect of cation symmetry on the long-range ordering in ionic liquid films. American Chemical Society Fall 2022 National Meeting & Expo, August 21-25, 2022. PHYS 2505. PaperID:3744806. (Poster)

32. Lasar, C.B.; Cousineau, M.L.; Gudenkauf, K.J.; Duffy, D.H.; Bellott, B.J.; Shaw, S.K. Recording ionic liquid phase transitions in mixtures with (a)protic solvents via calorimetry and temperature-controlled infrared. Presented at American Chemical Society Fall 2022 National Meeting & Expo, August 21-25, 2022. PHYS 2503. PaperID:3744706. (Poster)
33. Stumme, N.; Spielvogel, K.; Daly, S.; Shaw, S. Electrocatalytic reduction of CO₂ with coordination complexes capable of metal-ligand cooperativity and ligand-centered redox activity. Oral presentation at National American Chemical Society Conference, Chicago, IL. (2022, August)
34. Stumme, N.; Shaw, S. Ionic liquids as supporting electrolytes in redox flow batteries. Poster presentation at Gordon Research Seminar, Newry, ME. (2022, August)
35. Lasar, C.B.; Curry, J.N.; Gudenkauf, K.J.; Cousineau, M.L.; Duffy, D.H.; Walker, N.L.; Bellott, B.J.; Shaw, S.K. Investigation of the thermal and structural behavior of imidazolium-based ionic liquid eutectics. Presented at Gordon Research Conference – Ionic Liquids, Newry, ME, August 7-12, 2022. #41 (Poster Presentation)
36. Lasar, C.B.; Curry, J.N.; Gudenkauf, K.J.; Cousineau, M.L.; Duffy, D.H.; Walker, N.L.; Bellott, B.J.; Shaw, S.K. Investigation of the thermal and structural behavior of imidazolium-based ionic liquid eutectics. Presented at Gordon Research Seminar – Ionic Liquids, Newry, ME, August 6-7, 2022. #5 (Oral Presentation)
37. Van Wyk, A.; Andrews, L.; Julius, A.; Shrestha, B.; Cole, R.S., Shaw, S.K.; *Lessons Learned from the Design and Implementation of an Analytical Chemistry CURE Investigating Indoor Films*. Biennial Conference on Chemistry Education. August 3, 2022 (Oral Presentation)
38. Stumme, N.; Horvath, H.; Duffy, D.; Shaw, S.K. *Electrochemical characterization of TEMPO as an electroactive species for redox flow battery applications*. ACS National Meeting, March 21-25, San Diego, CA. Oral, ENFL, Paper ID: 3642239
39. Horvath, A.; Shaw, S.K. *Film maturation in symmetric ionic liquids investigated by vibrational spectroscopy*, ACS National Meeting, March 21-25, San Diego, CA. Oral, PHYS, Paper ID: 3641726
40. DeYoung, J.L.; Cheng, Z.; China, S.; Vandergrift, G. W.; Zhou, Y.; Zhu, Z.; Shaw, S.K. *Chemical Differences of Passively Collected Environmental Films on Surfaces with Different Hydrophilicity*, ACS National Meeting, March 21-25, San Diego, CA. Oral, ENVR, Paper ID: 3651117
41. DeYoung, J.L.; Shaw, S.K. Tilt of Host Surface Affects the Maturation of Environmental Films, ACS national meeting, March 21-25, San Diego, CA. Oral, ENVR, Paper ID:3638357
42. Ordikhani-Seyedlar, R.; Parveg, S.; Ratner, A.; Shaw S.K. Rare earth metal extraction from refuse-derived fuel (RDF), March 21-25, San Diego, CA. Poster, ENVR, paper ID: 3654319

2021

43. *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.
44. *Seasonality studies of collected environmental films using interfacial spectroscopy*, ACS national meeting, August 22-26, 2021 Atlanta, GA. DeYoung, J. L., Shaw, S. K.
45. *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.
46. 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.
 47. *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
 48. *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.
 49. 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.
 50. *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.
 51. *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.
 52. *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.
 53. *Simultaneous Electrochemical and Vibrational Measurements on Bimetallic Electrocatalysts for Use in Direct Methanol Fuel Cells*, 240th ECS national meeting, October 10-14, 2021, Online presentation. Ordikhani-Seyedlar, R., Yu, J., Shaw, S.K., Huang, W.
 54. *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.
 55. *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

56. Calorimetric and spectroscopic investigation into the thermodynamic behavior of ionic liquid dilutions. Lasar, Colleen Barbara; Curry, Jaclyn 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.
57. *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.
58. *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.
59. 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.

60. Phase change behavior of solvate ionic liquid: Water dilutions revealed by differential scanning calorimetry. Duffy, Darby; Lasar, Colleen Barbara; Gudenkauf, Kinsey J.; Curry, Jaclyn N.; Bellott, Brian J.; Shaw, Scott K. Abstracts of Papers, 259th ACS National Meeting & Exposition, Philadelphia, PA.

2019

61. 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.
62. 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
63. 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.
64. 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.
65. 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.
66. Heterogeneity in urban environmental films J. DeYoung, J. Grant, S. K. Shaw 258th ACS National Meeting & Exposition, San Diego, CA.
67. 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.
68. 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.
69. Examination of ionic liquid water dilution effects using differential scanning calorimetry. N Walker, J Wrona, B Bellott, S Shaw. American Chemical Society Meeting 257, Orlando, FL.

2018

70. 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
71. 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
72. 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.
73. Examination of ionic liquid water dilution effects using differential scanning calorimetry.

- Walker, Nicole L.; Wrona, Jaelyn; Shaw, Scott K. 53rd Midwest Regional Meeting of the American Chemical Society, Ames, IA, United States, October 21-23 (2018), MWRM-207
74. 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
75. 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
76. ECS and SMEQ Joint International Meeting, *Ionic Liquid Interfaces Probed with Spectroscopy and Electrochemistry*, The Electrochemical Society, Cancun, Mexico Presenters/Authors: Shaw, Scott K., Anareddy, Radhika S, Lucio, Anthony J, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Xu, Jianchao, Walker, Nicole
77. 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., Anareddy, Radhika S, Grant, Jacob S, Lucio, Anthony J, Wrona, Jacklyn, Horvath, Andrew, Hailu, Amanuel, Specht, Robert, Xu, Jianchao
78. 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., Luna, Javier A, Spielvogel, Kyle D, Haas, Christian
79. 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., Luna, Javier A, Spielvogel, Kyle D, Haas, Christian
80. 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., Grant, Jacob S
81. 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., Spielvogel, Kyle D, Luna, Javier A, Benson, Austin
82. 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., Anareddy, Radhika S, Specht, Robert
83. 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., Wrona, Jacklyn
84. Pittcon 2018, *Long-Range Ordering in Ionic Liquid Films and the Influence of Water*, Orlando, Florida, United States Presenters/Authors: Shaw, Scott K., Anareddy, Radhika S

Prior to 2018

85. 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., Lucio, Anthony J

86. 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
87. Pittcon 2017, *Spectroelectrochemical Studies of IL/Electrolyte Interfaces*, The Electrochemical Society, Washington D.C., United States Presenters/Authors: Shaw, Scott K., Anareddy, Radhika S, Lucio, Anthony J, Wrona, Jacklyn
88. 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
89. 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., : Lucio, Anthony J, Anareddy, Radhika S, Wrona, Jacklyn N, Hailu, Amanuel
90. 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., Muckenhirn, Logan W, Donovan, David F
91. 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., Nania, Samantha L
92. 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., Anareddy, Radhika S
93. 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., Lucio, Anthony J
94. 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., Grant, Jacob S
95. 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., Grant, Jacob S
96. 51st American Chemical Society's Midwest Regional Meeting, *Ionic Liquid Electrolyte Architectures*, American Chemical Society, Manhattan, Kansas Presenters/Authors: Shaw, scott K., Lucio, Anthony J, Anareddy, Radhika S, Specht, Robert
97. 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., Grant, Jacob S
98. Gordon Research Conference on Ionic Liquids, *Electrowinning of materials from ionic liquids*, Gordon Research Conference, Newry, Maine Presenters/Authors: Shaw, Scott K
99. 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
100. 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., Lucio, Anthony J, Anareddy, Radhika S
101. 227th ECS Meeting, *Spectroelectrochemical Study of the Role of Pyridinium in Carbon Dioxide Reduction*, Electrochemical Society, Chicago, Illinois Presenters/Authors: Shaw, Scott K., Lucio, Anthony J
 102. 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
 103. 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., Grant, Jacob S
 104. 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., Lucio, Anthony J
 105. 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., Anareddy, Radhika S
 106. 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
 107. 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., Anareddy, Radhika S
 108. 226th Meeting of the Electrochemistry Society, *Ionic Liquid Structure in Thin Films*, Electrochemical Society, Cancun, Mexico Presenters/Authors: Shaw, Scott K., Lucio, Anthony J, Anareddy, Radhika S
 109. 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., Nania, Samantha L
 110. 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., Lucio, Anthony J, Anareddy, Radhika S, Roach, Lucas T
 111. 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., Schmidt, Jennifer A, Keuter, Ellie
 112. 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., Anareddy, Radhika S, Wills, Emily M, Werner, Stephanie M
 113. 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., Lucio, Anthony J

114. 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., Nania, Samantha L
115. 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
116. 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
117. 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
118. 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
119. Analytical Division Seminar, *Measuring Molecular Architectures at Interfaces*, Dept. of Chemistry, University of Iowa, Iowa City, Iowa, United States Presenters/Authors: Shaw, Scott K
120. 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
121. 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., Burkett, Colleen M
122. 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, Schalnath, Matthew, Shaw, Scott K
123. Society of Western Analytical Professors (SWAP), *Evidence for Interfacial Molecular Entanglement*, University of Arizona, Tucson, Arizona Presenters/Authors: Shaw, Scott
124. 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
125. 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
126. 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
127. 238th ACS National Meeting, *The electrochemical reduction of carbon dioxide*, American Chemical Society, Washington D.C. Presenters/Authors: Shaw, Scott, Schiffrin, David J.
128. 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
129. 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
130. 233rd ACS National Meeting, *Dewetting at the aqueous-hydrophobic interface*, American Chemical Society, Chicago, Illinois Presenters/Authors: Shaw, Scott, Gewirth, Andrew A

SERVICE

Profession

- 2024 - Present Chairperson, Iowa Section of the American Chemical Society
- 2024 - Present Vice Chair, Gordon Research Conference for Ionic Liquids
- 2024 - Present Invited Speaker, Gordon Research Seminar for Ionic Liquids – Early Career Mentor
- 2016 - 2019,
2024 - Present U.S. Department of Energy, Proposal reviews: ad-hoc and Early Career Program
- 2023 - Present American Chemical Society, Division of Chemical Education, Exams Institute, 2025 Instrumental Analysis Examination Committee Member
- 2013, 2018, and
2023 American Chemical Society, Physical Chemistry Division and Division of Colloid and Surface Chemistry, Symposia (Co-)Organizer
- 2022 - Present Air Force Office of Scientific Research – Proposal Review
- 2022 - Present Canadian Science Publishing – Manuscript Review for: *Canadian Journal of Chemistry*
- 2022 - Present Natural Sciences and Engineering Research Council of Canada, Proposal reviews
- 2022 - Present Pittcon National Conference, Student poster session organizer
- 2022 - Present External Evaluator & letter writer for promotion and tenure
- 2022 - Present American Chemical Society New Faculty Workshop, Facilitator
- 2022 - Present Society of Electroanalytical Chemists, Board of Directors
- 2021 - Present American Chemical Society Analytical Chemistry Division Awards Committee
- 2019 - Present Midwest Universities Analytical Chemistry Conference, Organizing Committee
- 2018 - Present Research Corporation for Scientific Advancement, Cottrell Scholars Meeting, Organizing Committee
- 2018 - Present Research Corporation for Scientific Advancement, Cottrell Collaborative for Science Communication, 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 Reviewer
- 2016 - Present American Institute of Physics, Manuscript review for *Journal of Chemical Physics*, *Review of Scientific Instruments*
- 2015 - Present Nature Publishing Group, Manuscript review for *Nature Materials*, *Nature Chemistry*
- 2015 - Present American Chemical Society Petroleum Research Fund, proposal reviews
- 2014 - Present U.S. Department of Defense, Proposal reviews for Army Research Office, Army Research Laboratory, including Presidential Early Career Award for Scientists and Engineers (PECASE)

2014 - Present Research Corporation for Science Advancement, Proposal reviews

2013 - Present American Chemical Society Fellowship Application reviews

2013 - Present American Chemical Society Journals, Manuscript Review and Adjudicative Review for: *Journal of the American Chemical Society*, *Journal of Physical Chemistry (A,B,C & Lett)*, *ACS Applied Nano Materials*, *ACS Applied Electronic Materials*, *ACS Applied Materials and Interfaces*, *ACS Earth and Space Chemistry*, *ACS Applied Engineering Materials*, *ACS Omega*, *Analytical Chemistry*, *Energy and Fuels*, *Environmental Science and Technology*, *ACS Applied Electronic Materials Journal of Chemical Education*, *Langmuir*, ...

2013 - Present Elsevier Journals, Manuscript Review: *Energy*, *Journal of Power Sources*, *Journal of Electroanalytical Chemistry*, *Chemosphere*, *Chemical Physics*

2013 - Present International Society of Electrochemistry, Manuscript Review: *Journal of Electroanalytical Chemistry*

2013 - Present Royal Society of Chemistry Journals, Manuscript Review and Adjudicative Reviewer for: *RCS Advances*, *Chemical Science*, *Physical Chemistry and Chemical Physics*, *Environmental Science: Processes and Impacts*, *Energy and Environmental Science*

2012 - Present National Science Foundation, Proposal reviews: ad-hoc (2012, 2013, 2015, 2017, 2018, 2019, 2020, 2021, 2022, 2023, and panelist (2015 x2, 2017 x2, 2019, 2021,

2010 - Present Supporting graduate student and postdoc quests for US citizenship

2021 - 2024 American Chemical Society's Analytical Chemistry, Editorial Advisory Board

2020 - 2024 American Chemical Society Books, Reviewer

2014, 2024 National Institute of Health, Biomedical Research Excellence program, Developmental Research Project program, Proposal Reviews (Nebraska INBRE)

2021 - 2023 American Chemical Society's 2022 Midwest Regional Meeting, Finance Chair

2013 - 2021 National Science Foundation Fellowship Application reviews

2013 - 2021 Environmental Protection Agency, Fellowship Application Review

2014 - 2020 Center for Global and Regional Environmental Research, Proposal review

2014 - 2020 American Chemical Society, "Science Coach Program" for K-12 teachers

2014 - 2020 U.S. Environmental Protection Agency Proposal reviews

2018 - 2020 American Chemical Society, Postdoc to Faculty Workshop, Expert Panelist

2014 - 2019 Iowa Energy Center, Proposal reviews

2015 - 2018 Society for Advancement of Chicanos and Native Americans in Science (SACNAS), Funding proposal review

2013 - 2018 National Institutes of Health, Proposal reviews

2017 Electrochemical Society, Physical and Analytical Electrochemistry Division, Symposium Organizer

2016 Session moderator for Ionic Liquids Gordon Research Conference

University

2024 - Present OVPR Research Counsel – Vice Chair

2023 - Present OVPR Research Counsel – Committee member

2022 - Present OVPR Celebrating Excellence Awards, Reviewer

2022 - Present	Grad College Director of Graduate Studies, bi-monthly meetings
2018 - Present	Perry Research Scholars Institute, Volunteer
2017 - Present	University Fulbright Awards, Faculty Review Committee
2015 - Present	Rural Scholar Research Program, Organizer
2014 - Present	Sigma Phi Epsilon Fraternity, Chapter Counselor
2015 – 2018, 2024 - present	Belin Blank Advanced Science Summer Schools, Volunteer
2020 - 2021	Provost Office, Hawkeye First-Generation Initiative Committee
2019 - 2020	OVPR Broader Impacts Workshop, Expert Panelist
2017 - 2019	OVPR NSF-CAREER preparation workshop, Expert Panelist
2019	Office of Student Life. Associate Director Search Committee, Member
2016 - 2018	University of Iowa Fall Undergraduate Research Festival, Reviewer
2017	Office of Student Life, Fraternity and Sorority Life Alcohol Task Force, Faculty Panel
2017	OVPR Scholars Symposium, Expert Panelist
2016 - 2017	University of Iowa Spring Undergraduate Research Festival, Reviewer
2017	Office of Student Life, Meet the Challenge Awards - Expert Reviewer
2016	Office of Student Life, Center for Student Involvement and Leadership Coordinator, Hiring Committee
2012 - 2016	University Chess Club, Faculty Advisor
2015	OVPR: Negotiating Your Academic Job Offer, Expert Panelist

College

2024 - Present	CLAS LEADS – Promotion and Tenure process review, Community Engaged Scholarship sub-committee
2023 - Present	Faculty Assembly – CLAS Sciences Representative
2022 - Present	CLAS - Director of Graduate Studies, monthly meetings
2023 - 2024	CLAS Stay at Iowa Survey – Results workup
2022 - 2024	Equity Audit Faculty Working Group
2022 - 2024	CLAS - Diversity Equity Inclusion Committee
2022 - 2023	CLAS - Departmental Review Committee – School of Social Work
2022 - 2023	Faculty Assembly Nominating Committee
2022 - 2023	Faculty Assembly Alternate Representative for Chemistry Dept

Department

2023 - Present	Course Scheduling Committee
2016 - 2019, 2022 - Present	Chemistry Executive Committee, Member
2022 - Present	Director of Graduate Studies, Chair of Graduate Education Committee
2022 - Present	Invited turkey chef, annual graduate student Thanksgiving
2021 - Present	Witte Funds Proposal Review

2020 - Present	Tenured Faculty Review Committee Member
2021 - Present	Pre-tenured Faculty Review Committee Member
2013 - Present	New Graduate Student Academic Advising, Member
2012 - 2018, 2021 - present	Division Research Presentation to First Year Graduate Students, Guest Speaker
2013 - 2016, 2021 - 2022	Graduate Program Admissions Committee, Member
2022	Alumni Development, Colloquium, and Publicity Committee - Colloquium lead
2019 - 2021	Graduate Education Committee Member
2012 - 2021	Undergraduate ACS Chapter, Faculty Advisor
2019 - 2020	Physical Chemistry Faculty Search Committee, Member
2014 - 2019	Equipment Committee, Member
2013 - 2014	Lecturer Annual Review Committee, Member
2012 - 2014	Library Committee, Chair
2012 - 2013	Graduate Student Awards Committee, Member
2012 - 2013	Lecturer Evaluation Committee, Member

Community

2022 - Present	Scouting BSA Troop 2000, Treasurer
2020 - Present	U.S. Army Corps of Engineers, Rock Island District, Invasive species cleanup volunteer
2013 - 2024	Solon High School Science Fair, Judge
2021 - 2022	Penn Elementary School Science Night, Volunteer/Presenter
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