

## Jennifer D. Schuttlefield Christus, Ph.D.

Assistant Professor of Chemistry

Chemistry Department

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### Education

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Ph.D. University of Iowa, Iowa City, IA, 2008, Chemistry

B. S. University of Iowa, Iowa City, IA, 2003, Chemistry

B. A. University of Iowa, Iowa City, IA, 2003, Economics

### Positions Held

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2015 – Present	<b>Director of the UW System Women &amp; Science Program</b> , Oshkosh, WI
2017 – Present	<b>Associate Professor</b> , University of Wisconsin Oshkosh, Oshkosh, WI
2010 – 2017	<b>Assistant Professor</b> , University of Wisconsin Oshkosh, Oshkosh, WI
2008 – 2010	<b>Postdoctoral Research Scholar</b> , University of Wyoming, Laramie, WY
2005 – 2008	<b>Graduate Research Assistant</b> , University of Iowa, Iowa City, IA
2003 – 2005	<b>Graduate Teaching Assistant</b> , University of Iowa, Iowa City, IA
1999 – 2002	<b>Undergrad Lab Tech</b> , Center for Advanced Drug Development, Coralville, IA

### Professional Honors and Awards

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2007	University of Iowa Chemistry Fellowship
2012	Celebration of Scholarship Undergraduate Award (Trevor Sires)
2014	University of Wisconsin Oshkosh Edward M. Penson Faculty Award
2014	14th Annual UW System Symposium for Undergraduate Research and Creative Activity Best Poster Award (Yuqi She)
2015	University of Wisconsin Oshkosh Edward M. Penson Faculty Award
2018	University of Wisconsin Oshkosh Inclusive Excellence Award
2018	UW Oshkosh College of Letters and Science Diversity Leadership Award

### Peer Reviewed Publications (\*designates undergraduate author)

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Varra, T.; Simpson, A.; Roesler, B.; Nilsson, Z.; Ryan, D.; Van Erdewyk, M.; **Schuttlefield Christus, J.D.**; and Sambur, J.B. "A Homemade Smart Phone Microscope for Single-Particle Fluorescence Microscopy", *Journal of Chemical Education*, 2020, 97, 2, 471-478, <https://doi.org/10.1021/acs.jchemed.9b00670>

Kirinovic, E.\*; Leichtfuss, A.R.\*; Navizaga, C.; Zhang, H.; **Schuttlefield Christus, J.D.**; and Baltrusaitis, J. "Spectroscopic and Microscopic Identification of the Reaction Products and Intermediates During the Struvite ( $\text{MgNH}_4\text{PO}_4 \cdot 6\text{H}_2\text{O}$ ) Formation from Magnesium Oxide ( $\text{MgO}$ ) and Magnesium Carbonate ( $\text{MgCO}_3$ ) Microparticles", *ACS Sustainable Chemistry & Engineering*, 2017, DOI: 10.1021/acssuschemeng.6b02327.

Shaner, S.; Hooker, P.; Nickel, A.M.; Leichtfuss, A.; Adams, C.; Delacerda, D.; She, Y.; Gerken J.; Pokhrel, R.; Ambrose, N.; Khaliqi, D.; Stahl, S.S.; and **Schuttlefield Christus, J.D.** "Discovering Inexpensive, Effective Catalysts for Solar Energy Conversion: An Authentic Research Laboratory

Experience", 2016, *Journal of Chemical Education*, 93, 4, 650–657, DOI: 10.1021/acs.jchemed.5b00591

Mayes, R. L.; Rittschof, K.; Forrester, J. H.; **Schuttlefield Christus, J. D.**; Watson, L.; and Peterson, F., Quantitative Reasoning in Environmental Science: Rasch Measurement to Support QR Assessment, 2015, *Numeracy*, Vol. 8: Issue 2, Article 4, DOI: <http://dx.doi.org/10.5038/1936-4660.8.2.4>

Baltrusaitis, J.; Jansen, I.; and **Schuttlefield Christus, J.** “Renewable energy based catalytic CH<sub>4</sub> conversion to liquid fuels”. *Catalysts Science and Technology*, 2014, DOI. 10.1039/c4cy00294f.

Mayes, R.; Forrester, J.; **Schuttlefield Christus, J.**; Peterson, F.; and Walker, R. “Quantitative Reasoning Learning Progression: The Matrix”. *Numeracy*, 2014, Vol. 7, Issue 2, Article 5. DOI:<http://dx.doi.org/10.5038/1936-4660.7.2.5>.

Forrester, J.H.; **Christus, J.S.**; Mayes, R.; Peterson, F.; and Yestness, N. “Quantitative Reasoning in Environmental Science: A learning progression.” *International Journal of Science Education*. 2013, DOI: 10.1080/09500693.2013.819534.

Anunson, P. N.; Winkler, G.R.; Winkler, J.R.; Parkinson, B.A.; and **Schuttlefield Christus, J.D.** “Involving Students in a Collaborative Project to Help Discover Inexpensive, Stable Materials for Solar Photoelectrolysis”, *Journal of Chemical Education*, 2013, 90, 10, 1333-1340.

**Schuttlefield, J. D.**; MacGregor, M.; and Moore, J. “Quantitative Reasoning Examples for Developing Quantitatively Literate Citizens” *WISDOM<sup>e</sup> Monograph: Quantitative Reasoning and Mathematical Modeling: A Driver for STEM Integrated Education and Teaching in Context*, 2012, Vol. 2, p 217-229, R. Mayes, L. Hatfield, & S. Belbase, (Eds.), Laramie, WY: University of Wyoming.

**Schuttlefield, J.D.**; Kirk, J.; Pienta, N.J.; and Tang, H. “Problem Difficulty in Ideal Gas Law Problems.” *Journal of Chemical Education*, 2012, 89, 5, 586-591.

**Schuttlefield, J.D.**; Sambur, J.B.; Eggleston, C.A.; and Parkinson, B.A. “Photooxidation of Chloride by Oxide Minerals: Implications for Perchlorate on Mars.” *Journal of American Chemical Society*, 2011, 133, 44, 17521-17523.

Sambur, J.B.; Averill, C.; Bradley, C.; **Schuttlefield, J.D.**; Reynolds, J.; Schanze, K.; Seoung, H.; and Parkinson, B.A. “Interfacial Morphology and Photoelectrochemistry of Conjugated Polyelectrolytes Adsorbed on Single Crystal TiO<sub>2</sub>.” *Langumir*, 2011, 27, 19, 11906-11916.

Baltrusaitis, J.; **Schuttlefield, J.**; Zeitler, E.; and Grassian, V.H. “Carbon dioxide adsorption on metal oxide surfaces” *Chemical Engineering Journal*, 2011, 170 (2-3), 471-481.

Hatch, C. D.; Gierlus, K. M.; Zahardis, J.; **Schuttlefield, J.**; and Grassian, V.H., Water uptake of humic and fulvic acid: Aerosols and thin film measurements, *Journal of Environmental Chemistry*, 2009, 6(5), 380-388.

**Schuttlefield, J. D.**; Rubasinghege, G.; El-Maazawi, M.; Bone, J.; and Grassian, V.H., Photochemistry of adsorbed nitrate, *Journal of the American Chemical Society*, 2008, 130, 37, 12210-12211.

Hatch, C. D.; Gierlus, K.M.; **Schuttlefield, J.D.**; and Grassian, V. H., Water adsorption and cloud condensation nucleus activity of calcite and calcite coated with model humic and fulvic acids, *Atmospheric Environment*, 2008, 42, 5672-5684.

**Schuttlefield, J.** and Grassian, V.H., ATR-FTIR Spectroscopy in the undergraduate chemistry laboratory: Part I. Fundamentals and examples, *Journal of Chemical Education*, 2008, 85, 279-281.

**Schuttlefield, J.**; Larsen, S.C.; and Grassian, V.H., ATR-FTIR spectroscopy in the undergraduate chemistry laboratory: Part II. Introduction of a new laboratory experiment on surface adsorption, *Journal of Chemical Education*, 2008, 85, 282-284.

Baltrusaitis, J.; **Schuttlefield, J. D.**; Zeitler, E.; Jensen, J.H.; and Grassian, V.H., Surface Reactions of Carbon Dioxide at the Adsorbed Water-Oxide Interface, *Journal of Physical Chemistry C*, 2007, 111, 40, 14870-14880. <https://doi.org/10.1021/jp0746771>

**Schuttlefield, J. D.**; Cox, D.; and Grassian, V.H., An investigation of water uptake on clays minerals using ATR-FTIR spectroscopy coupled with quartz crystal microbalance measurements, *Journal of Geophysical Research-Atmospheres*, 2007, 112, D21303, doi:10.1029/2007JD008973.

**Schuttlefield, J.**; Al-Hosney, H.; Zachariah, A.; and Grassian, V. H., Attenuated total reflection Fourier transform infrared spectroscopy to investigate water uptake and phase transitions in atmospherically relevant particles, *Applied Spectroscopy*, 2007, 61, 283-292.

Baltrusaitis, J.; **Schuttlefield, J.**; Jensen, J.H.; and Grassian, V.H., FTIR spectroscopy combined with quantum chemical calculations to investigate adsorbed nitrate on aluminum oxide surfaces in the presence and absence of co-adsorbed water, *Physical Chemistry Chemical Physics*, 2007, 9, 4970-4980.

**Schuttlefield, J.** and Grassian, V.H. Is a Picture Really Worth a Thousand Words? The Role of Scanning Probe Microscopy as an Educational Tool in the Chemistry Curriculum Seminar, *The Chemist*, Volume 82, Issue 1 Spring 2005.

## **Presentations and Demonstrations**

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\* Designates presenter(s), Undergraduates are underlined

### **2020**

**OPID 2020 Spring Conference on Teaching & Learning: The Joys of Teaching & Learning: Creating Transformative Experiences – Madison, WI, April 2020 (Cancelled)**

“Meeting Students Where They’re At: Moving Beyond Talk to Action” J.H. Landry, J.D. Schuttlefield Christus, D. Kvam, and H. Nicholls

**American Association of University Women Branch Meeting – Oshkosh, WI, April 28, 2020 (Cancelled)**

“Women in STEM: Current Challenges”, **J. D. Schuttlefield Christus**

### **2019**

**258<sup>th</sup> American Chemical Society National Meeting – San Diego, CA, August 2019**

“Solar Army: Incorporating real-time research experiences into the curriculum” **J. D. Schuttlefield Christus**

**258<sup>th</sup> American Chemical Society National Meeting – San Diego, CA, August 2019**

*Symposium in Honor of Prof. Vicki H. Grassian (Invited)*

“Surface chemistry at a primarily undergraduate institution” **J.D. Schuttlefield Christus**

### **2018**

**2018 Biennial Conference on Chemical Education Workshop – South Bend, IN, July 2018**

“HARPOON: Finding inexpensive, effective catalysts for solar energy conversion” Z. A. Chambers, L. A. Rowley and **J. D. Schuttlefield Christus\***

**2018 Biennial Conference on Chemical Education Workshop – South Bend, IN, July 2018**

“Juice from Juice” Z. A. Chambers, L. A. Rowley, and **J. D. Schuttlefield Christus\***

**Center for Chemical Innovation Solar Fuels Capstone Meeting – Ventura, CA, July, 2018**

“End of an era: Lessons learned from 10 years of Outreach at a NSF-funded center” **J. D. Schuttlefield Christus**

**Center for Excellence in Teaching and Learning (CETL) Inclusive Excellence Workshop – Oshkosh, WI, May 2018**

“Inclusive Group Work”, J. D. Schuttlefield Christus

**UW System Women & Science Program Spring Conference – Wisconsin Dells, WI, April 2018**  
“The UW System Women and Science Program: Where do we go from here?” **J. D. Schuttlefield Christus**

**255<sup>th</sup> National American Chemical Society Meeting – New Orleans, LA March 2018**  
“End of an era: Lessons learned from 10 years of Outreach at a NSF-funded center” Michelle De Boever and **J. D. Schuttlefield Christus\***

## **2017**

**UW System Women & Science Program Opening Workshop – Wisconsin Dells, WI, October 2017,**  
“Navigating Institutional Policies” J. D. Schuttlefield Christus

**254<sup>th</sup> National American Chemical Society – Washington D.C., August 2017**  
“Solar Army: Incorporating real-time research into outreach efforts” Michelle De Boever and J. D. Schuttlefield Christus

**2017 American Chemical Society Great Lakes Regional Meeting – Fargo, ND, June 2017**  
“Laboratory experiment using biogas in General Chemistry” Lisa Dorn, Jim Feldman, J. D. Schuttlefield Christus, and Kevin Crawford\*

**Center for Excellence in Teaching and Learning (CETL) Inclusive Excellence Workshop – Oshkosh, WI, May 2017**  
“Inclusive Group Work”, J. D. Schuttlefield Christus

**Spring 2017 Honors Thesis Symposia – Oshkosh, WI, May 2017**  
“A Spectroscopic and Reactionary Analysis of Struvite Microparticle Formation from the Addition of Magnesium Precursors to Simulated Wastewater” Amanda Leichtfuss\* and J. D. Schuttlefield Christus

**4W Summit- Madison, WI, April 2017**  
“UW System Women and Science Program: Celebrating 20 Years of Promoting Diversity, Equity, and Excellence” Jennifer Mihalick, Kimberly Sargent, Janis Eels, and J. D. Schuttlefield Christus (co-presenters)

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**  
“A Spectroscopic and Reactionary Analysis of Struvite Microparticle Formation from the Addition of Magnesium Precursors to Simulated Wastewater” Amanda Leichtfuss\* and J. D. Schuttlefield Christus

**Celebration of Scholarship – Oshkosh, WI, April 2017**  
“A Spectroscopic and Reactionary Analysis of Struvite Microparticle Formation from the Addition of Magnesium Precursors to Simulated Wastewater” Amanda Leichtfuss\* and J. D. Schuttlefield Christus

**253<sup>rd</sup> American Chemical Society Meeting – San Francisco, CA, April 2017**  
“Discovering inexpensive, effective catalysts for solar energy conversion through educational outreach”, J. D. Schuttlefield Christus

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA, January 2017**  
“International Update: The Solar Army”, J. D. Schuttlefield Christus

## **2016**

**UW System All-Dean’s Meeting – Oshkosh, WI**  
“The UW System Women and Science Program” **J.D. Schuttlefield Christus**

**Wisconsin Technical College System Science, Technology, Engineering, & Math System-Called Meeting - Fond du lac, WI**  
“The UW System Women and Science Program” **J.D. Schuttlefield Christus**

**UW System Women & Science Program Opening Workshop – Wisconsin Dells, WI**

“Work-Life Navigation” **J. D. Schuttlefield Christus**

**2016 Biennial Conference on Chemical Education – Greeley, CO**

“Leveling the playing field: Implementing online pre-lab simulations in General Chemistry” K. Crawford, Y. Tang, and **J. D. Schuttlefield Christus\***

**2016 Biennial Conference on Chemical Education Workshop – Greeley, CO**

“HARPOON: Finding inexpensive, effective catalysts for solar energy conversion” A. Leichtfuss\* and **J. D. Schuttlefield Christus\***

**2016 Biennial Conference on Chemical Education Workshop – Greeley, CO**

“Juice from Juice” A. Leichtfuss\* and **J. D. Schuttlefield Christus\***

**International Congress on Mathematical Education (ICME) – Hamburg, Germany**

“Quantitative Reasoning: Rasch Measurement to Support QR Assessment” R.L. Mayes\*, K. Rittschof, J. Forrester, and **J. D. Schuttlefield Christus**

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**

“Exploring Metal Oxide Combinations for Water Splitting” Y. She\* and **J.D. Schuttlefield Christus**

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**

“Solar Water Splitting Catalysis” K. Prochaska\* and **J.D. Schuttlefield Christus**

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA**

“The Solar Army”, **J. D. Schuttlefield Christus**

**2015**

**UW System Women & Science Program Opening Workshop – Wisconsin Dells, WI**

“Inclusive Teaching: What does that mean in STEM?” **J. D. Schuttlefield Christus**

**UW System Women & Science Program Spring Conference – Wisconsin Dells, WI**

“The Solar Army: A New Paradigm in Laboratory Experiments” **J. D. Schuttlefield Christus**

**Center for Chemical Innovation National Science Foundation Site Visit – Pasadena, CA**

“The Solar Army: Informal Science Education and Broader Impacts” **J.D. Schuttlefield Christus**

**National Association for Research in Science Teaching (NARST) 2015 Annual International Conference – Chicago, IL**

“Quantitative Reasoning Learning Progressions in Environmental Science: Rasch Analysis and Student Learning” R. Mayes\*, J. Forrester, **J. D. Schuttlefield Christus**, K. Rittschof, & F. Peterson

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA**

“The Solar Army: A Year in Review!” **J. D. Schuttlefield Christus**

**2014**

**2014 Biennial Conference on Chemical Education - Allendale, MI**

“Solar Energy Activity Lab (SEAL): A collaborative project to help discover inexpensive, stable materials for solar photoelectrolysis”

**J. D. Schuttlefield Christus**

**2014 Biennial Conference on Chemical Education - Allendale, MI**

“HARPOON: A research project to explore electrochemistry and catalysis in the context of solar energy conversion” S. Shaner, J. Gerken\*, **J. D. Schuttlefield Christus**, and Shannon S. Stahl

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**

“Agricultural Clays as a Reaction Surface for Atmospheric Methane” J. Klein\* and **J.D. Schuttlefield**

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**  
“Materials for the Photoelectrolysis of Water: The Future of Energy” C. Adams\* and **J.D. Schuttlefield**

**UW System Women & Science Program Spring Conference – Wisconsin Dells, WI**  
“Assessment of Quantitative Reasoning in the Sciences” **J. D. Schuttlefield Christus**

**Neenah High School – Neenah, WI**  
“The Solar Energy Activity Lab” Y. She and **J.D. Schuttlefield Christus (co-presented)**

**NSF Center for Chemical Innovation Meeting- Huntington Beach, CA**  
“CCI Solar Outreach Research: We Want You!” M. Hansen and **J. D. Schuttlefield Christus (co-presented)**

## **2013**

**NSF Center for Chemical Innovation Annual Meeting - Huntington Beach, CA**  
“The Solar Army” J. D. Blakemore\* and **J. D. Schuttlefield Christus**

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**  
“Materials for the Photoelectrolysis of Water: The Future of Energy” T. Sires\* and **J.D. Schuttlefield**

**NSF Center for Chemical Innovation Outreach Meeting – Marina del Ray, CA**  
“Reflections from an International Outreach Project” **J. D. Schuttlefield Christus**

## **2012**

**Psychology of Mathematics Education North American Chapter (PME-NA) Conference - Kalamazoo, Michigan**

“Quantitative Reasoning in Environmental Science: The Development of a Learning Progression” R. L. Mayes, J.H. Forrester\*, F. Peterson, and **J. Schuttlefield**

**NSF Center for Chemical Innovation Annual Meeting - Huntington Beach, CA**  
“The SHArK/SMD Project: An Update” **J.D. Schuttlefield**

**Women in Science Workshop – Laramie, WY**  
“The SHArK Project” J. Rowley, B.A. Parkinson, and **J.D. Schuttlefield\***

**Center for Chemical Innovation National Science Foundation Site Visit – Pasadena, CA**  
“The SHArK Project: International Outreach” **J.D. Schuttlefield**

**Neenah High School Chemistry Department Seminar – Neenah, WI**  
“The Direct Conversion of Sunlight to Fuel” P. Anunson and **J.D. Schuttlefield (co-presented)**

**University of Wisconsin Oshkosh Senior Seminar – Oshkosh, WI**  
“The Direct Conversion of Sunlight to Fuel” P. Anunson\* and **J.D. Schuttlefield**

## **2011**

**96<sup>th</sup> Ecological Society Association Annual Meeting – Austin, TX**  
“*Developing a learning progression for water in socio-ecological systems.*” **J. D. Schuttlefield\***, K.L. Gunckel, and B. A. Covitt

**96<sup>th</sup> Ecological Society Association Annual Meeting – Austin, TX**  
“*Role of quantitative reasoning on the development of environmental literacy.*” R.L. Mayes\*, M. Lyford, M. MacGregor, S. Parker, and **J.D. Schuttlefield**

**NSF Center for Chemical Innovation Annual Meeting - Huntington Beach, CA**  
“*The SHArK Project*” **J.D. Schuttlefield**

**Appleton High School Chemistry Club – Appleton, WI**

*“The Solar Hydrogen Activity Research Kit (SHArK) Project”* **J.D. Schuttlefield**

## **2010**

**University of Wisconsin Oshkosh, Chemistry Dept. Seminar – Oshkosh, WI**

*“Photoelectrochemistry of thin film semiconductors with applications to hydrogen fuel and the reduction of CO<sub>2</sub>”* **J.D. Schuttlefield**

**NSF Center for Chemical Innovation Retreat - Huntington Beach, CA**

Presentation and Demonstration

*“The SHArK Project: Moving Forward”* **J. D. Schuttlefield\***, C. Markum, and B.A. Parkinson

**217<sup>th</sup> Electrochemical Society Meeting – Vancouver, British Columbia, Canada**

*“The Solar Hydrogen Activity Research Kit Project: Dedicated to Splitting Water with Sunlight”* **J. D. Schuttlefield\***, C. Markum, and B. A. Parkinson

**Women in Science Workshop – Laramie, WY**

*“The SHArK Project”* **J. Schuttlefield\***, C. Markum, and B. A. Parkinson

## **Invited Presentations**

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241<sup>st</sup> American Chemical Society National Meeting, *“The SHArK Project: A new paradigm in science laboratory experiments”*, March 27<sup>th</sup>, 2011, **J. D Schuttlefield**

Northeast American Chemical Society Honors Banquet featured speaker, *“The SHArK Project”*, May 5<sup>th</sup>, 2011, **J.D. Schuttlefield**

Women In Science & Engineering Series Speaker, University of Minnesota, Minneapolis, MN

*“What does Economics have to do with Chemistry?”*, and *“The SHArK Project: Outreach for the 21<sup>st</sup> Century”*, December 7<sup>th</sup> & 8<sup>th</sup>, 2011, **J.D. Schuttlefield**

University of North Carolina Charlotte – Department Seminar speaker, *“The Solar Army: A new paradigm for lab experiments and outreach projects”*, April 15<sup>th</sup>, 2014, **J. D. Schuttlefield Christus**

University of Iowa – Physical and Environmental Chemistry Seminar speaker, *“Discovering Inexpensive, Effective Catalysts for Solar Energy Conversion,”* November 30<sup>th</sup>, 2015, **J. D. Schuttlefield Christus**

## **Poster Presentations**

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\*Designates presenter(s), Undergraduates are underlined

## **2019**

**258<sup>th</sup> American Chemical Society National Meeting – San Diego, CA, August 2019**

**SCI-MIX Poster**

*“Solar Army: Incorporating real-time research experiences into the curriculum”* **J. D. Schuttlefield Christus**

**2019 American Chemical Society Great Lakes Regional Meeting - Lisle, IL, May 1-4, 2019**

Zachary Chambers\* and Jennifer D. Schuttlefield Christus, *“Formation of Struvite in Simulated Wastewater Using Naturally Abundant Low-Soluble Magnesium Precursors”*

**Celebration of Scholarship - Oshkosh WI, April 25<sup>th</sup>, 2019**

Zachary Chambers\* and Jennifer D. Schuttlefield Christus, *“Formation of Struvite from Wastewater”*

**18<sup>th</sup> Annual UW System Symposium for Undergraduate Research and Creative Activity – Green Bay, WI, April 26<sup>th</sup>, 2019**

Zachary Chambers\* and Jennifer D. Schuttlefield Christus, *“Formation of Struvite from Wastewater”*

**2019 Regional Materials and Manufacturing Network Symposium on Materials and Process in Sustainable Manufacturing - Oshkosh WI, January 16<sup>th</sup>, 2019**

Zachary Chambers\* and Jennifer D. Schuttlefield Christus, “*Kinetics of Formation of Struvite from Wastewater*”

## 2018

**17<sup>th</sup> Annual UW System Symposium for Undergraduate Research and Creative Activity – Green Bay, WI, April 2018**

Zachary Chambers\* and Jennifer D. Schuttlefield Christus, “*Kinetics of Formation of Struvite from Wastewater*”

**Celebration of Scholarship – Oshkosh, WI, April 2018**

Zachary Chambers\*, and Jennifer D. Schuttlefield Christus, “*Kinetics of Formation of Struvite from Wastewater*”

Harry B. Gray, Michelle DeBoever, Jay R. Winkler, Siddharth Dasgupta, Shannon S. Stahl, Jorge Colón, Dino Villagrán, and Jennifer D. Schuttlefield Christus, *Center for Chemical Innovation in Solar Fuels*, NSF INCLUDES Summit: Broadening Participation through Center-Scale Research Activities – Alexandria, VA, January 2018

## 2017

**16<sup>th</sup> Annual UW System Symposium for Undergraduate Research and Creative Activity – Stevens Point, WI, April 2017**

Amanda Leichtfuss\*, Zachary Chambers, and Jennifer D. Schuttlefield Christus, “*Comparison of two experimental outreach kits for the discovery of inexpensive, effective catalysts for solar energy conversion*”

**Celebration of Scholarship – Oshkosh, WI, April 2017**

Amanda Leichtfuss, Zachary Chambers\*, and Jennifer D. Schuttlefield Christus, “*Comparison of two experimental outreach kits for the discovery of inexpensive, effective catalysts for solar energy conversion*”

**Celebration of Scholarship – Oshkosh, WI, April 2017**

Erica Kirinovic\*, Amanda Leichtfuss, Jonas Baltrusaitis, and Jennifer D. Schuttlefield Christus  
“*Struvite: A Promising Chemical Platform for Nutrient Recovery in Wastewater*”

**National Conferences on Undergraduate Research – Memphis, TN, April 2017**, Erica Kirinovic, Amanda Leichtfuss\*, Jonas Baltrusaitis, and Jennifer D. Schuttlefield Christus “*Struvite Formation from Simulated Anthropogenic Wastewater and Naturally Occurring Inorganic Magnesium Materials*,”

**252<sup>nd</sup> American Chemical Society (ACS) National Meeting – San Francisco, CA**

Amanda Leichtfuss\*, Zachary Chambers\*, and Jennifer D. Schuttlefield Christus, “*Comparison of two experimental outreach kits for the discovery of inexpensive, effective catalysts for solar energy conversion*”

## 2016

**World Congress on Undergraduate Research – Qatar University, Qatar**

Yuqi She\*, Brandon Coppersmith, Kelly Prochaska, and Jennifer D. Schuttlefield Christus “*Neutral Electrolyte Experiments in Metal Oxide Water Splitting*”

**9<sup>th</sup> Annual Wisconsin Science & Technology Symposium – Oshkosh, WI**

Zachary Chambers\*, Lenore Kubie, Bruce Parkinson, and Jennifer D. Schuttlefield Christus  
“*The SHArK v3.0: Discovering Inexpensive, Effective Catalysts for Solar Energy Conversion*”

**9<sup>th</sup> Annual Wisconsin Science & Technology Symposium – Oshkosh, WI**

Erica Kirinovic\*, Amanda Leichtfuss, Jonas Baltrusaitis, and Jennifer D. Schuttlefield Christus  
“*Struvite: A Promising Chemical Platform for Nutrient Recovery in Wastewater*”

**UW Oshkosh Celebration of Scholarship – Oshkosh, WI**

Amanda Leichtfuss,\* Bryan Nothem, Jonas Baltrusaitis, and **Jennifer D. Schuttlefield Christus**  
*“Halogenation of Natural Gas Components under Mild Conditions”*

**UW Oshkosh Celebration of Scholarship – Oshkosh, WI**

Yuqi She\*, Brandon Coppersmith, Kelly Prochaska\*, and **Jennifer D. Schuttlefield Christus** *“Neutral Electrolyte Experiment in Metal Oxide Water Splitting”*

**15th Annual UW System Symposium for Undergraduate Research and Creative Activity – Milwaukee, WI**

Amanda Leichtfuss,\* Bryan Nothem, Jonas Baltrusaitis, and **Jennifer D. Schuttlefield Christus**  
*“Halogenation of Natural Gas Components under Mild Conditions”*

**15th Annual UW System Symposium for Undergraduate Research and Creative Activity – Milwaukee, WI**

Yuqi She\*, Brandon Coppersmith, Kelly Prochaska, and **Jennifer D. Schuttlefield Christus** *“Neutral Electrolyte Experiment in Metal Oxide Water Splitting”*

**National Conferences on Undergraduate Research – Asheville, NC**

Yuqi She\* and **Jennifer D. Schuttlefield Christus** *“Quaternary Metal Oxide Investigation For Water Splitting”*

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA**

Yuqi She\*, Brandon Coppersmith, Kelly Prochaska\*, and **Jennifer D. Schuttlefield Christus** *“Neutral Electrolyte Experiment in Metal Oxide Water Splitting”*

**2015**

**WiSys Board of Trustees 13<sup>th</sup> Annual Luncheon – Oshkosh, WI (Invited)**

Amanda Leichtfuss,\* Bryan Nothem, Jonas Baltrusaitis, and **Jennifer D. Schuttlefield Christus**  
*“Halogenation of Natural Gas Components under Mild Conditions”*

**250<sup>th</sup> American Chemical Society (ACS) National Meeting – Boston, MA**

Amanda Leichtfuss,\* Bryan Nothem, Jonas Baltrusaitis, and **Jennifer D. Schuttlefield Christus**  
*“Halogenation of Natural Gas Components under Mild Conditions”*

**19<sup>th</sup> ACS Annual Green Chemistry & Engineering Conference – Bethesda, MD**

Amanda Leichtfuss\*, Jonas Baltrusaitis, and **Jennifer D. Schuttlefield Christus** *“Natural Gas Halogenation using Metal Halide Photocatalysts and Renewable Energy”*

**Center for Chemical Innovation National Science Foundation Site Visit – Pasadena, CA**

Sarah E. Shaner, Amanda Leichtfuss, Carissa Adams, James B. Gerken, Dionisia Delacerda, Ravi Pokhrel, Nicholas Ambrose, Anne-Marie Nickel, Paul Hooker, David Khaliqi, **Jennifer D. Schuttlefield Christus**\*, and Shannon S. Stahl *“HARPOON: A Distributed Research Program to Explore Electrochemistry and Catalysis in the Context of Solar Fuels”*

**Center for Chemical Innovation National Science Foundation Site Visit – Pasadena, CA**

Amanda Leichtfuss, Sarah E. Shaner, Carissa Adams, James B. Gerken, Dionisia Delacerda, Ravi Pokhrel, Anne-Marie Nickel, Paul Hooker, Nicholas Ambrose, David Khaliqi, Lauren King, John Rowley, Michelle DeBoever, Gates R. Winkler, Juliana Morbec, Giulia Galli, Dino Villagran, Siddharth Dasgupta, Jay R. Winkler, Bruce A. Parkinson, Shannon S. Stahl, and **Jennifer D. Schuttlefield Christus**\* *“The Solar Army: Broad Impacts from the CCI Solar Fuels”*

**14th Annual UW System Symposium for Undergraduate Research and Creative Activity – Milwaukee, WI**

Amanda Leichtfuss\* and **Jennifer D. Schuttlefield Christus** *“Natural Gas Halogenation using Metal Halide Photocatalysts and Renewable Energy”*

**14th Annual UW System Symposium for Undergraduate Research and Creative Activity – Milwaukee, WI (Award Winning)**

Yuqi She\* and **Jennifer D. Schuttlefield Christus** “*Quaternary Metal Oxide Investigation for Water Splitting*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI**

Amanda Leichtfuss\* and **Jennifer D. Schuttlefield Christus** “*Natural Gas Halogenation using Metal Halide Photocatalysts and Renewable Energy*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI**

Yuqi She\* and **Jennifer D. Schuttlefield Christus** “*Quaternary Metal Oxide Investigation for Water Splitting*”

**National Association for Research in Science Teaching (NARST) 2015 Annual International Conference – Chicago, IL**

Robert Mayes, Jennifer H. Forrester\*, **Jennifer D. Schuttlefield Christus**, Kent Rittschof & Franziska Peterson “*Learning Pathways To Environmental Science Literacy: QR Learning Progressions*”

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA**

Amanda Leichtfuss\* and **Jennifer D. Schuttlefield Christus** “*Investigation of Ni-Fe Ternary Oxides for Water Splitting*”

**NSF Center for Chemical Innovation Annual Meeting - Newport Beach, CA**

Yuqi She and **Jennifer D. Schuttlefield Christus\*** “*Quaternary Metal Oxide Investigation for Water Splitting*”

**2014**

**13th Annual UW System Symposium for Undergraduate Research and Creative Activity – Milwaukee, WI**

Jesse Klein\* and **Jennifer D. Schuttlefield Christus** “*Mineral Aerosols as a Reaction Surface in Atmospheric Processes.*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI**

Carissa Adams\*, Jesse Klein, and **Jennifer D. Schuttlefield Christus** “*Ternary Metal Oxide Investigation For Water Splitting*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI**

Casey Freiherr\*, William Wacholtz, and **Jennifer D. Schuttlefield Christus** “*Determination of Acetaminophen in Children’s Tylenol*”

**247th American Chemical Society National Meeting - Dallas, TX**

Paige N. Anunson, Trevor M. Sires, and **Jennifer D. Schuttlefield Christus\*** “*Investigating mixed metal oxide semiconductor materials for CO<sub>2</sub> conversion: Application to renewable energy sources*”

**NSF Center for Chemical Innovation Annual Meeting - Huntington Beach, CA**

Carissa Adams\*, Jesse Klein\*, and **Jennifer D. Schuttlefield Christus** “*Ternary Metal Oxide Investigation For Water Splitting*”

**NSF Center for Chemical Innovation Annual Meeting - Huntington Beach, CA**

Sarah E. Shaner\*, James B. Gerken, **Jennifer D. Schuttlefield Christus**, and Shannon S. Stahl “*HARPOON: A Distributed Research Program to Explore Electrochemistry and Catalysis in the Context of Solar Fuels*”

**2013**

**NSF Center for Chemical Innovation Meeting - Huntington Beach, CA**

Trevor Sires\* and **Jennifer D. Schuttlefield Christus** “*Investigation of Ternary BiVMO<sub>x</sub> Combinations for Water Splitting*”

**National Conference on Undergraduate Research - La Crosse, WI**

Trevor Sires\* and **Jennifer D. Schuttlefield Christus** “*Investigation of Ternary BiVMO<sub>x</sub> Combinations for Water Splitting*”

## 2012

**NSF Center for Chemical Innovation Meeting- Huntington Beach, CA**

Paige Anunson\* and **Jennifer D. Schuttlefield** “*Investigation of Combinations for Photoelectrolysis of Water Via Spray Deposition.*”

**NSF Center for Chemical Innovation Meeting - Huntington Beach, CA**

Trevor Sires\* and **Jennifer D. Schuttlefield** “*The Bismuth Effect: New Combinatorial Metal Oxides*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI**

Paige Anunson\* and **Jennifer D. Schuttlefield** “*Mixing and Application of Different Combinations of Metal Oxide Semiconductors for Reduction of Carbon Dioxide using Sunlight*”

**UW Oshkosh Celebration of Scholarship - Oshkosh, WI (Award Winning)**

Trevor Sires\* and **Jennifer D. Schuttlefield** “*The Bismuth Effect*”

**National Science Foundation Site Visit – Pasadena, CA**

Trevor Sires, Paige Anunson, Bruce A. Parkinson, James Gerken, Jamie Y. C. Chen, Robert C. Massé, Gates R. Winkler, Jay R. Winkler, Shannon Stahl, and **Jennifer D. Schuttlefield\*** “*A Solar Army: Outreach, Collaborations, and the Future*”

**39<sup>th</sup> Annual UW Chemistry Faculties Meeting – Whitewater, WI**

Trevor Sires\* and **Jennifer D. Schuttlefield** “*A Solar Army: A Combinatorial Approach to Solving the World's Energy Problems*”

## 2011

**Gordon Research Seminar - Ventura, CA**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson “*The SHArK Project: A new paradigm in chemistry laboratory experiments.*”

**Gordon Research Conference - Ventura, CA**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson “*The SHArK Project: A new paradigm in chemistry laboratory experiments.*”

**Gordon Research Conference - Ventura, CA**

**Jennifer Schuttlefield**, Justin Sambur, Carrick Eggleston, and Bruce Parkinson\* “*Photooxidation of chloride by oxide minerals: Implications for perchlorate on Mars.*”

**NSF Center for Chemical Innovation Meeting - Huntington Beach, CA**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson “*The SHArK Project: A new paradigm in chemistry laboratory experiments.*”

**NSF Center for Chemical Innovation Meeting - Huntington Beach, CA**

Paige Anunson\*, Craig Markum, **Jennifer Schuttlefield**, and Bruce Parkinson “*Combinatorial Investigation using Spray Pyrolysis of Thin Films for H<sub>2</sub> Production.*”

## 2010

**NSF Center for Chemical Innovation Retreat - Huntington Beach, CA**

**J. Schuttlefield\***, C. Markum, and B.A. Parkinson “*The SHArK Project: Moving Forward*”

**Environmental Science Literacy MSP 2010 Annual Meeting – Baltimore, MD**

Bob Mayes\*, Marjorie MacGregor, **Jennifer Schuttlefield**, Mark Lyford, and Sylvia Parker “*Quantitative Reasoning and Environmental Literacy.*”

**Environmental Science Literacy MSP 2010 Annual Meeting, - Baltimore, MD**

Andrew Warnock\*, Aubrey Cano, Bess Caplan, Beth Covitt, Kathreine Emergy, Kristin Gunckel, Bill Hoyt, Nichole LaDue, John Moore, Tom Noel, **Jennifer Schuttlefield**, Sara Syswerda, Dave Schwartz, and Ray Tschillard “*Schoolyard Water Processes & Pathways: A Learning Progression Based Teaching Experiment.*”

**37th Annual UW Chemistry Faculties Meeting, Platteville, WI**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson “*The SHaRK Project: A new paradigm in chemistry laboratory experiments.*”

**STEMAPALOOZA, Denver, CO**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson\* “*The SHaRK Project: A new paradigm in chemistry laboratory experiments.*”

**Fourth Annual Best Practices in Science, Math, and Engineering Teaching Conference - Baraboo, WI**

**Jennifer Schuttlefield\***, Craig Markum, Paige Anunson, and Bruce Parkinson “*The SHaRK Project: A new paradigm in chemistry laboratory experiments.*”

## **Funding**

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“*Conversion of Biogas Methane and Carbon Dioxide to Methanol via Solar Energy*”, BIOFerm Energy Systems, \$8000, June 2010 - October, 2012.

“*The Culturally Relevant Ecology, Learning Progressions and Environmental Literacy Project*” (NSF-0832173), National Science Foundation (Sub-Contract), \$16,668, November 2010 -Sept. 30, 2013

“*Photoreduction of Carbon Dioxide Using Mixed Metal Oxide Semiconductors: Application to Renewable Energy Sources*” University of Wisconsin Oshkosh Faculty Development Grant (FDR645), \$7,500, June 2011 - Nov. 1, 2013

“*Powering the Planet: A Chemical Bonding Center in the Direct Conversion of Sunlight into Chemical Fuel*” NSF Grants (CHE-0802907), Phase 2, National Science Foundation (Sub-Contract PI), \$141,407, April 2011 - July 31, 2013

“*HARPOON: Undergraduate Distributed Research Kits to Explore Solar Energy Conversion and Electrocatalysis.*” Camille & Henry Dreyfus Foundation, \$30,000, Funded, January 2013 - December 31, 2014

“*Powering the Planet: A Chemical Bonding Center in the Direct Conversion of Sunlight into Chemical Fuel*” NSF Grants (CHE-0802907), Phase 3, National Science Foundation (Sub-Contract PI), Funded, \$250,000, October 2013 – January 31<sup>st</sup>, 2019

“*Unconscious Bias and Gender Equity Workshop*” Lead-It-Yourself! NSF-funded Seed Grant, Funded, \$4000, Start: October 2016 - October 2017.

*Louis Stokes STEM Pathways and Research Alliance: Wisconsin LSAMP (WiscAMP)*, National Science Foundation (HRD-1911284), Funded, \$799,725, UWO Subaward: \$75,000, Start: Sept. 1, 2019 – August 31<sup>st</sup>, 2024

*Revolutionizing Inclusion at STEM in the Entry-level (RISE) at UWO*, Howard Hughes Medical Institute (Pre-proposal), Pending, January 2020.

### **Student Proposals**

“*Mixing and Application of Different Combinations of Metal Oxide Semiconductors for Reduction of Carbon Dioxide using Sunlight.*” Student-Faculty Collaboration Proposal with Paige Anunson Funded, Summer 2011

"Methane Conversion to Fuels using Metal Halide Photocatalysts and Renewable Energy", Student-Faculty Collaboration Proposal with Amanda Leichtfuss Funded, Summer 2015

"Magnesium Oxide: A Sustainable Nutrient Recovery Tool", Student-Faculty Collaboration Proposal with Erica Kirinovic Funded, Summer 2016

"Kinetics of Formation of Struvite", Student-Faculty Collaboration Proposal with Zachary Chambers Funded, Summer 2018

## **Undergraduate Research Students**

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**Paige N. Anunson** – Fall 2010 to Summer 2012, Employed at Kimberly Clark in Neenah, WI

**Trevor Sires** – Spring 2011 to Summer 2013, Employed at Sigma-Aldrich in Sheboygan, WI

**Andrew James** – Spring 2011 to Fall 2011

**Kimberly Schwarzkopf** – Fall 2011

**Eric Hoffmann** – Fall 2011

**Jesse Klein** – Fall 2011 to Spring 2014, Employed by Appvion in Appleton, WI

**Michael Hainstock** – Fall 2011

**Andrew Balliet** – Spring 2012, Employed at Georgia Pacific

**Rilee Zeinert** – Summer 2012, Graduate school at U Mass Amherst

**Isaac Jensen** – Summer 2012, Fall 2013

**Samuel Oldenburg** – Summer 2012 to Spring 2014, Employed at Candeo Creative

**Nathan Peplinski** – Fall 2012

**Mitchell Christensen** – Fall 2013

**Carissa Adams** – Spring 2013 to Spring 2014, Employed at Press Color, Inc.

**James Wiciak** – Spring 2013, Employed at UW Oshkosh

**Nicholas Ambrose** – Fall 2014 to Spring 2015

**Amanda Leichtfuss** – Fall 2013 to Spring 2017, Graduate School at UW Milwaukee

**Yuqi She** – Fall 2013 to Spring 2016, Graduate school at University of Wyoming

**Brandon Coppersmith** – Fall 2014 to Spring 2016, Applying to Dental School

**Bryan Nothem** – Spring 2015, Employed at Kerry Ingredients

**Dasan Yang** – Fall 2015

**Erica Kirinovic** – Fall 2015 – Summer 2016, Graduated

**Kelly Prochaska** – Fall 2015 – Spring 2016, Employed at Integrated Paper Services

**Zachary Chambers** – Spring 2016 to Present

**Brianna Fox** – Spring 2016 to F2017

**Lee (Andy) Rowley** – Fall 2017 – Fall 2018

**Lindsey Westphal** – Fall 2018 – present

**Allison Udulutch** – Spring 2020

**Brady Kollmann** – Spring 2020

## **Committee Appointments**

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### **Current**

2013 - 2017	University of Wisconsin Oshkosh Chemistry Assessment Committee
2015 - 2020	University of Wisconsin Oshkosh Chemistry <i>ah hoc</i> Merit Committee (current Chair)
2014 – 2017	University of Wisconsin Oshkosh Chemistry <i>ah hoc</i> First Year Committee
2012 – 2017	CETL/STEM Best Practices Certificate Planning Committee
2014 – 2020	Center for Excellence in Teaching and Learning Leadership Team
2014 – 2020	Inclusive Excellence Pedagogy Workshop Development Committee
2015 – 2020	Equity Scorecard Committee
2015 – 2020	Inclusive Excellence Council
2015 – 2020	Women's and Gender Studies Consortium Member

2016 – 2020 USP Council Member  
2016 – 2020 USP Council on Nature (current chair)  
2016 – 2017 COLS Student Success Committee  
2016 – 2017 COLS Student Success Degree Requirements Sub-committee  
2016 – 2017 Faculty Advocacy Committee Meeting

***Previous***

2011 University of Wisconsin Oshkosh Biochemistry Faculty Search Committee  
2010 – 2012 Chair, University of Wisconsin Oshkosh Chemistry Safety Committee  
2010 – 2012 Member of University of Wisconsin Oshkosh Chemistry Assessment Committee  
2012 Chair, University of Wisconsin Oshkosh Inorganic Faculty Search Committee  
2011 – 2014 Member of University of Wisconsin Oshkosh DFW Committee  
2013 - 2014 Faculty Staff Experience Working Group  
2012 - 2015 Member of University of Wisconsin Oshkosh Chemistry Curriculum Committee  
2012 – 2015 Gateway to Success Mentoring Program

**Review of Professional Materials**

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Student-Faculty Collaborative Grant Proposal Reviewer – reviewed and scored student proposals submitted during the 2011-2012 academic year.

Selected as a guest editor for a special energy related edition of the Journal of Nanotechnology (2011).

Reviewed papers for the following journals: The Journal of Physical Chemistry Letters, The Journal of Physical Chemistry, Journal of Chemical Education, Atmosphere & Environment, and Eurasia Journal of Mathematics, Science and Technology Education

Reviewer: Petroleum Research Fund grants, UW Oshkosh Student-Faculty Collaborative grants, Association of American Colleges & Universities STEM Conference Session Proposals (2015, 2016)

**Professional Societies & Activities**

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American Chemical Society – Member since 2003  
American Geophysical Union – Member from 2006 to 2010  
Union of Concerned Scientists – Member since 2008  
Member of COACH since 2012

Consultant to Math and Science Partnership Culturally relevant ecology, learning progressions and environmental literacy project (2013-2015)

ESTEEM Summer Institute (2014) and Oshkosh Area Schools College Day for Kids instructor (2014, 2016)

Co-CAPP Chemistry Liaison with Kevin Crawford (2015)

Attended Project Kaleidoscope (PKAL) 2014 *Summer Leadership Institute* funded by the Association of American Colleges and Universities (AAC&U) and was awarded the AAC&U Sustainability Fellowship Award (\$1000)