

**Jessica M. Hoover**  
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**PROFESSIONAL POSITIONS**

**West Virginia University, Morgantown, WV**  
Assistant Professor of Chemistry

July 2012 – present

**EDUCATION & TRAINING**

**University of Wisconsin, Madison, WI**

2009 – 2012

Postdoctoral Research Associate  
Camille and Henry Dreyfus Environmental Chemistry Fellow  
Advisor: Professor Shannon S. Stahl  
*Copper-Catalyzed Aerobic Alcohol Oxidation Reactions*

**University of Washington, Seattle, WA**

2004 – 2009

Ph.D. in Chemistry, Inorganic  
Advisors: Professors James M. Mayer and Forrest E. Michael  
*Reactivity of Hydrazines with Low-Valent Late Metal Complexes*

**Harvey Mudd College, Claremont, CA**

2000 – 2004

B.S. in Chemistry with distinction  
Advisor: Professor Adam R. Johnson  
*Ti- and Zr-Catalyzed Asymmetric Hydroamination Reactions*

**AWARDS AND HONORS**

*WEST VIRGINIA UNIVERSITY*

C. Eugene Bennett Department of Chemistry Outstanding Faculty Award	2016
ACS PRF Award	2016
NSF CAREER Award	2015
NRCCE Shale Gas Flash Funding Award	2014
Brodie Discovery and Innovation Award	2013

*UNIVERSITY OF WISCONSIN-MADISON*

Dreyfus Postdoctoral Fellowship in Environmental Chemistry	2009-2011
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*UNIVERSITY OF WASHINGTON-SEATTLE*

ACS Division of Inorganic Chemistry Travel Award	2006
University of Washington Ritter Fellowship	2004

## PUBLICATIONS

INDEPENDENT PUBLICATIONS (Undergraduate student coauthor indicated with \*\*)

1. "Silver-Mediated Oxidative Decarboxylative Trifluoromethylthiolation of Coumarin-3-Carboxylic Acids" Li, M.; Petersen, J. L.; Hoover, J. M. *Org. Lett.* **2017**, doi: [acs.orglett.6b03806](https://doi.org/10.1021/acs.orglett.6b03806).  
<http://pubs.acs.org/doi/abs/10.1021/acs.orglett.6b03806>
2. "Copper and Silver Benzoate and Aryl Complexes and Their Implications for Oxidative Decarboxylative Coupling Reactions" Baur, A.; Bustin, K. A.;\*\* Aguilera, E.;\*\* Petersen, J. L.; Hoover, J. M. *Org. Chem. Front.* **2017**, doi: 10.1039/C6QO00678G.  
<http://pubs.rsc.org/en/content/articlelanding/2017/qo/c6qo00678g/unauth#divAbstract>
3. "Ammonia activation at a metal" Hoover, J. M. *Science*, **2016**, *354*, 707-708. *Invited Perspective*  
<http://science.sciencemag.org/content/354/6313/707.full>
4. "Mechanistic Aspects of Copper-Catalyzed Decarboxylative Coupling Reactions of (Hetero)aryl Carboxylic Acids" Hoover, J. M. *Comments on Inorganic Chemistry*, **2016**, doi: GCIC-2016-0136.  
<http://www.tandfonline.com/doi/full/10.1080/02603594.2016.1261023>
5. "Formation of Urea from a Mononuclear Iron Tris(Isocyanide) Complex" Gowda, A. S.; Baur, A.; Scaggs, C. A.;\*\* Petersen, J. L.; Hoover, J. M. *Organometallics*, **2016**, *35*, 3720-3727.  
<http://pubs.acs.org/doi/full/10.1021/acs.organomet.6b00687>
6. "Aerobic Copper-Catalyzed Decarboxylative Thiolation" Li, M.; Hoover, J. M. *Chem. Commun.* **2016**, *52*, 8733-8736.  
<http://pubs.rsc.org/en/content/articlelanding/2016/cc/c6cc04486g#divAbstract>
7. "Copper-Catalyzed Oxidative Decarboxylative C-H Arylation of Benzoxazoles with 2-Nitrobenzoic Acids" Chen, L.; Bustin, K. A.;\*\* Hoover, J. M. *Chem. Commun.* **2015**, *51*, 15059-15062.  
<http://pubs.rsc.org/en/content/articlelanding/2015/cc/c5cc06645j#divAbstract>

PRIOR TO WEST VIRGINIA UNIVERSITY

8. "Copper/TEMPO-Catalyzed Aerobic Alcohol Oxidation: Mechanistic Assessment of Different Catalyst Systems" Hoover, J. M.; Ryland, B. L.; Stahl, S. S. *ACS Catal.* **2013**, *3*, 2599-2605.
9. "Continuous-Flow Aerobic Oxidation of Primary Alcohols with a Copper(I)/TEMPO Catalyst" Greene, J. F.; Hoover, J. M.; Mannel, D. S.; Thatcher, R. W.; Stahl, S. S. *Org. Process Res. Dev.* **2013**, *17*, 1247-1251.
10. "Air Oxidation of Primary Alcohols Catalyzed by Copper(I)/TEMPO. Preparation of 2-Amino-5-bromo-benzaldehyde" Hoover, J. M.; Stahl, S. S. *Org. Synth.* **2013**, *90*, 240-250.
11. "Mechanism of Copper(I)/TEMPO-Catalyzed Aerobic Alcohol Oxidation" Hoover, J. M.; Ryland, B. L.; Stahl, S. S. *J. Am. Chem. Soc.* **2013**, *135*, 2357-2367.
12. "The Copper(I)/TEMPO Catalyzed Aerobic Oxidation of Alcohols: A Green Chemistry Experiment" Hill, N.; Hoover, J. M.; Stahl, S. S. *J. Chem. Ed.* **2013**, *90*, 102-105.
13. "Copper(I)/TEMPO Catalyzed Aerobic Oxidation of Primary Alcohols to Aldehydes with Ambient Air" Hoover, J. M.; Steves, J. E.; Stahl, S. S. *Nature Protocols* **2012**, *7*, 1161-1166.
14. "A Highly Practical Copper(I)/TEMPO Catalyst System for Chemoselective Aerobic Oxidation of Primary Alcohols" Hoover, J. M.; Stahl, S. S. *J. Am. Chem. Soc.* **2011**, *133*, 16901-16910.
15. "Platinum-Catalyzed Intramolecular Hydrohydrazination; Evidence for Alkene Insertion into a Pt-N Bond" Hoover, J. M.; DiPasquale, A.; Mayer, J. M.; Michael, F. E. *J. Am. Chem. Soc.* **2010**, *132*, 5043-5053.
16. "Reactivity of Low-Valent Iridium, Rhodium, and Platinum Complexes with Di- and Tetrasubstituted Hydrazines" Hoover, J. M.; Freudenthal, J. M.; Michael, F. M.; Mayer J.

- M. Organometallics* **2008**, *27*, 2238-2245.
17. "Synthesis and Reactivity of a Ruthenium(III) Bis(anilide) Dimer by Oxidative Addition of an *N,N*-Disubstituted Hydrazine" Hoover, J. M.; DiPasquale, A.; Mayer, J. M.; Michael, F. M. *Organometallics*, **2007**, *26*, 3297-3305.
  18. "Titanium complexes with chiral amino alcohol ligands: synthesis and structure of complexes related to hydroamination catalysts" Peterson, J. R.; Hoover, J. M.; Kassel, W. S.; Rheingold, A. L.; Johnson, A. R. *Inorganica Chimica Acta*, **2005**, *358*, 687-694.
  19. "Catalytic Intramolecular Hydroamination of Substituted Aminoallenes by Chiral Titanium Amino-Alcohol Complexes" Hoover, J. M.; Peterson, J. R.; Pikul, J. H.; Johnson, A. R. *Organometallics*, **2004**, *23*, 4614-4620.

#### INVITED LECTURES (scheduled future lectures in italics)

Nov. 7, 2017	<i>SERMACS, Recent Advances in Org. Synth. Symposium</i>	Charlotte, NC
June 4, 2017	<i>ACS MARM, Organometallic Chemistry Symposium</i>	Hershey, PA
June 4, 2017	<i>ACS MARM, Women in Organic Chemistry Symposium</i>	Hershey, PA
April 6, 2017	<i>University of Washington, Seattle</i>	Seattle, WA
Feb. 24, 2017	<i>Marquette University</i>	Milwaukee, WI
Feb. 22, 2017	<i>University of Wisconsin, Madison</i>	Madison, WI
Feb. 1, 2017	<i>Worcester Polytechnic Institute</i>	Worcester, MA
Oct. 21, 2016	<i>Youngstown State University</i>	Youngstown, OH
Oct. 4, 2016	<i>Virginia Tech</i>	Blacksburg, VA
Mar. 22, 2016	<i>Anatolian Conf. On Synth. Org. Chem.</i>	Kuşadasi, Aydin, Turkey
Sept. 16, 2015	<i>The College of New Jersey</i>	Ewing, NJ
Feb. 10, 2015	<i>Fairmont State University</i>	Fairmont, WV
Oct. 29, 2014	<i>ACS Central Regional Meeting</i>	Pittsburgh, PA
Oct. 14, 2014	<i>Campbell University</i>	Buies Creek, NC
Sept. 17, 2013	<i>Waynesburg University</i>	Waynesburg, PA
Mar. 20, 2013	<i>Marcellus to Manufacturing</i>	Charleston, WV
Mar. 16, 2013	<i>WVU, ACS Student Affiliates</i>	Morgantown, WV
Nov. 15, 2012	<i>Hood College</i>	Frederick, MD

#### CONTRIBUTED PRESENTATIONS

*Presenting author is underlined. Undergraduate student coauthor indicated with \*\**

1. "Synthesis of Silver(I) Complex Intermediates" Caitlin M. Embly\*\*, Aaron P. Honeycutt, Jessica M. Hoover, Poster Presentation, WVU Undergraduate Research Symposium, Morgantown, WV. July 2016. *Awarded 2<sup>nd</sup> place in the physical sciences category*
2. "Community Engagement in Science Through Art: Promoting Appreciation of Chemistry by Engaging the Community through the Interactive Sculpture Glukupikron" Jessica M. Hoover, Jason Lee, Todd Hamrick, Zachary Bonham\*\*, Philip Evans\*\*, Erin Matheson\*\*, Charlie Scott, Donovan Steele\*\*, Aaron Williams.
3. "Copper-Catalyzed Decarboxylative Coupling: Reaction Development and Mechanistic Insights" Andreas Baur, Lijun Chen, Lin Ju, Minghao Li, Jessica M. Hoover, Poster Presentation, Organic Reactions and Processes Gordon Research Conference, Easton, MA. July 2016.
4. "Copper-Catalyzed Decarboxylative Coupling: Reaction Development and Mechanistic Insights" Andreas Baur, Lijun Chen, Lin Ju, Minghao Li, Jessica M. Hoover, Poster Presentation, Organometallic Chemistry Gordon Research Conference, Newport, RI. July 2016.
5. "Coupling of Diverse Nucleophiles and *tert*-Butylisocyanide" Elliot Guerra-Blackmer\*\*, John M. Riedesel, Jessica M. Hoover, Poster Presentation, Louis Stokes Alliance for Minority Participation Symposium, Lexington, KY. April 2016.

6. "Copper-Catalyzed Oxidative Decarboxylative C-H Arylation Reactions" Jessica M. Hoover. Oral Presentation. Anatolian Conference on Synthetic Organic Chemistry. Kuşadasi, Aydin, Turkey. March 2016.
7. "Synthesis and Reductive Coupling Reactivity of Tripodal Iron Isocyanide Complexes" Jessica M. Hoover. Oral Presentation. American Chemical Society. 251<sup>st</sup> National Meeting. San Diego, CA. March 2016.
8. "Copper-Catalyzed Oxidative Decarboxylative C-H Arylation Reactions" Jessica M. Hoover. Oral Presentation. American Chemical Society. 251<sup>st</sup> National Meeting. San Diego, CA. March 2016.
9. "Copper-Catalyzed Decarboxylative C-H Arylation Reactions" Lijun Chen, Lin Ju, Katie Bustin,\*\* Jessica M. Hoover, Poster Presentation, Organometallic Chemistry Gordon Research Conference, Newport, RI. July 2015.
10. "Copper Mediated Oxidative Decarboxylative Trifluoromethylation of C-H Bonds with Trifluoroacetic Acid as the CF<sub>3</sub> Source" Lin Ju, Jessica M. Hoover. Poster Presentation. American Chemical Society, Central Regional Meeting. Pittsburgh, PA October 2014.
11. "The Synthesis and Reactivity of New Iron Hydrotris(mercaptoimidazolyl)borate Complexes for the Reductive Coupling of Isocyanides and Carbon Monoxide" Anitha S. Gowda, Jessica M. Hoover. Poster Presentation. WVU Shale Gas Network Forum, Morgantown, WV. September 2014.
12. "Copper Mediated Oxidative Decarboxylative Cross-Coupling Reactions" Jessica M. Hoover. Oral Presentation. American Chemical Society, 248<sup>th</sup> National Meeting. San Francisco, CA. August 2014.
13. "The Synthesis and Reactivity of New Iron Hydrotris(mercaptoimidazolyl)borate Complexes for the Reductive Coupling of Carbon Monoxide and Isocyanides" Anitha S. Gowda, Jeffrey L. Petersen, Jessica M. Hoover. Oral Presentation. American Chemical Society, 248<sup>th</sup> National Meeting. San Francisco, CA. August 2014.
14. "Copper-Mediated Oxidative Decarboxylative Coupling Reactions" Lijun Chen, Lin Ju, Jessica M. Hoover, Poster Presentation, Organometallic Chemistry Gordon Research Conference, Newport, RI. July 2014.
15. "Synthesis and Decarboxylation of New Copper Trifluoroacetate Compounds for the Trifluoromethylation of Arenes" Alex Mullins,\*\* Zach Claudio,\*\* Jessica M. Hoover. Poster Presentation. American Chemical Society 247<sup>th</sup> National Meeting, Dallas, TX. March 2014.
16. "New Methods for C-C Bond Formation Using First-Row Transition-Metal Catalysts" Departmental Seminar, West Virginia University, Morgantown, August 2012.

*PRIOR TO WEST VIRGINIA UNIVERSITY*

17. "The Selective Aerobic Oxidation of Functionalized Alcohols and Unprotected Diols Using Ambient Air" Jessica M. Hoover, Shannon S. Stahl. Poster Presentation. CaRLa Winter School, Heidelberg, Germany. March, 2011.
18. "Scalable Catalytic Methods for Selective Aerobic Oxidation of Alcohols" Xuan Ye, Tianning Diao, Jessica M. Hoover and Shannon S. Stahl. Poster Presentation. Gordon Conference on Green Chemistry, Davidson, NC, July 2010.
19. "Synthesis and Reactivity of a Ruthenium(III) Bis(anilide) Dimer by Oxidative Addition of an *N,N'*-Disubstituted Hydrazine" Hoover, J. M.; DiPasquale, A.; Mayer, J. M.; Michael, F. M. Oral Presentation. American Chemical Society 232<sup>nd</sup> National Meeting, San Francisco, CA, September 2006.
20. "Catalytic hydroamination of aminoallenes by chiral titanium amino-alcohol complexes." Johnson, Adam R.; Hoover, Jessica M.; Petersen, Juliette R. Poster Presentation. American Chemical Society 227<sup>th</sup> National Meeting, Anaheim, CA, March 2004.

## FUNDING

### CURRENT FUNDING

9/2016-8/2018. *Understanding the Reductive Coupling of Isonitriles by Mononuclear Iron Mercaptoimidazolyl Complexes*

Source: American Chemical Society

Award (Amount): Petroleum Research Fund, Doctoral New Investigator (\$110,000)

Role: Sole PI

1/2015-2/2020. *CAREER: Copper Catalyzed Oxidative Decarboxylative Coupling Reactions for the Direct Functionalization of Arenes*

Source: National Science Foundation, CAREER Award

Award (Amount): CHE-1454879 (\$631,516)

Role: Sole PI

1/2017-12/2017. *Direct Methane Oxidation to Methanol Catalyzed by Immobilized Homogeneous Catalysts*

Source: O'Brien Energy Research Fund

Award (Amount): Seed Grant(\$60,000)

Role: PI, collaborative grant with 3 co-PIs

9/2014-8/2017. *MRI: Acquisition of an in situ infrared spectroscopy system for research and teaching*

Source: National Science Foundation, Major Research Instrumentation

Award (Amount): CHE-1427136 (\$251,181)

Role: co-PI

### PRIOR FUNDING

9/2013-8/2016. *MRI: The Acquisition of an Automated Single-Crystal X-ray Diffractometer for Research and Teaching*

Source: National Science Foundation, Major Research Instrumentation

Award (Amount): CHE- 1336071 (\$175,827)

Role: co-PI

5/2014-6/2014. *Homogeneous Catalysts for the Selective Synthesis of Hydrocarbons from Shale Gas*

Source: National Research Center for Coal and Energy

Award (Amount): Shale Gas Network Flash Funding Opportunity (\$10,000)

Role: PI

1/2013-12/2013. *Oxidative Decarboxylative Cross-Coupling as a Route to Trifluoromethyl Arenes*

Source: WVU Eberly College of Arts and Sciences

Award (Amount): Brodie Discovery and Innovation Award (\$30,000)

Role: PI

### PENDING FUNDING

2017-2022. *Iron Nitrogenase Mimics for the Conversion of Carbon Monoxide to Fuels*

Source: Department of Energy

Award (Amount): Early Career Research Program (\$779,742)

Role: PI

## STUDENTS TRAINED

### CURRENT GRADUATE STUDENTS (undergraduate institution)

1. Aaron Honeycutt (Wingate University) 2014-current  
C. Eugene Bennett Department of Chemistry Award
2. Rob Croak (St. Vincent College) 2015-current  
outstanding TA award, 2016
3. Jiaqi Liu (China Pharmaceutical University) 2015-current  
M.S. Duquesne University, 2015
4. Garrett Thomas (St. Vincent College) 2016-current

### CURRENT UNDERGRADUATE STUDENTS

1. Sierra Ciccone (Junior, West Virginia University c/o 2018) Spring 2017
2. Carl Scaggs (Senior, Fairmont State University, c/o 2017) Summer 2016-current

### CURRENT POSTDOCTORAL FELLOWS

1. Minghao Li (PhD, Huazhong Univ. of Sci. and Techn., Yanlong Gu) 2015-current  
postdoc with Prof. Shu Kobayashi, The University of Tokyo, Japan

### FORMER GRADUATE STUDENTS

1. Lin Ju (Shandong University, 2013) 2013-2015  
M.S. 2015 – current Virginia Tech Chemical Engineering  
Thesis: *“Copper-Mediated Oxidative Decarboxylative Coupling Reactions”*
2. Raymond Remus (Rutgers University, 2012) 2013-2014  
Current: USFDA
3. Shulong Yao (Hefei University of Technology, 2011) 2013-2014  
Current: University of North Texas M.S.
4. John Riedesel (West Virginia University, 2012) 2012-2016  
M.S. 2016 – current: 3M  
Thesis: *“First Row Transition Metal Mediated Redox Reactions of Hydrazines and Isonitriles”*
5. Lijun Chen (University of Science and Technology of China, 2012) 2012-2015  
M.S. 2015 – current: WVU Statistics M.S.  
Thesis: *“New Methods for Copper-Catalyzed Decarboxylative C-H Arylation Reactions”*

### FORMER UNDERGRADUATE STUDENTS (current position)

1. Meaghan DeBoer (West Virginia University, c/o 2016) Fall 2016
2. Kaelah Horwath (West Virginia University c/o 2018) Fall 2016
3. Caitlyn Embly (University of Virginia, BS student) Summer 2016
4. Elliot Guerra-Blackmer (WVU BS biochem student c/o 2017) Spring 2015-Spring 2016
5. Katelyn Bustin (Fulbright, Poland) Spring 2015-Spring 2016  
B.S. WVU 2016
6. Ellen Aguilera (Univ. of Michigan, PhD student) Fall 2015-Spring 2016  
B.S. WVU 2016
7. Stephen Rizkowski (WVU BS student c/o 2017) Fall 2015
8. Colin Siple Summer 2015  
B.S. WVU 2016
9. Corrie Burlas (Univ. of Alabama, PhD student) Spring 2014-Spring 2015  
B.S. WVU 2015
10. Torie Bosley Spring 2014
11. Samantha Borowski (UC San Diego, PhD Student) Spring 2014  
B.S. WVU 2015
12. Shaylyn Walter (UNC Chapel Hill, PhD student) Fall 2013-Spring 2014  
B.S. WVU 2015
13. Alexandria Mullins (UNC Chapel Hill, PhD student) Spring 2013-Spring 2014  
B.S. WVU 2014
14. Zachary Claudio (WVU, MD program) Summer 2013-Spring 2014  
B.S. WVU 2014
15. Elizabeth Neyer (Office of Special Investigations) Spring 2013-Fall 2013  
B.S. WVU 2014

### FORMER POSTDOCTORAL SCHOLARS

1. Bhasker Radaram (PhD with Levine, Univ. of Rhode Island, 2015) 2015-2016  
Current: postdoctoral researcher with Prof. Alauddin,  
Univ. of Texas, M. D. Anderson Cancer Center
2. Anitha Shakara Linge Gowda (PhD with Ladipo, Univ. of Kentucky, 2013) 2013-2015  
Current: postdoctoral researcher with Carsten Milsmann, WVU

## CLASSROOM TEACHING

WEST VIRGINIA UNIVERSITY, Assistant Professor

- Instructor: Methods of Structure Determination (CHEM 335)** 2012-2016  
Course Description: undergraduate lecture & lab course on the use of spectroscopy (NMR, IR, MS) for the structural characterization of organic molecules
- Instructor: Organic Syntheses (CHEM 399)** 2015-2017  
Course Description: undergraduate lecture & lab course on synthetic methodology and techniques for multi-step syntheses
- Instructor: Organometallic Chemistry (CHEM 521)** 2013  
Course Description: graduate course on organometallic chemistry
- Instructor: Organic Chemistry I Laboratory (CHEM 235)** 2015-2016  
Course Description: introductory undergraduate organic chemistry laboratory
- Instructor: Organic Chemistry II Laboratory (CHEM 236)** 2013  
Course Description: second-semester undergraduate organic chemistry laboratory
- Instructor: Graduate Seminar in Organic Chemistry (CHEM 796B)** 2014-2016  
Course Description: graduate student literature and research seminar presentations

## OUTREACH PROGRAMS

*CESTA* (Community Engagement in Science Through Art)

<http://www.cestaprogram.com/>

*CESTA* is a cross-disciplinary outreach program started in collaboration with Jason Lee (Sculpture, WVU College of Creative Arts) and Todd Hamrick (Engineering and Robotics, WVU Statler College of Engineering). The 4-week summer program brings together students in the science, engineering, and art disciplines to design and build an interactive science-art installation in Morgantown.

Highlighted by West Virginia Public Radio:

<http://wvpublic.org/post/artists-scientists-collaborate-sculpture-project-wvu>

## PIECES CONSTRUCTED

1. *Glukupikron* 2016  
Installation planned for WVU Evansdale Campus Library grounds

## STUDENTS MENTORED THROUGH CESTA

1. Charlie Scott (Southern Illinois Univ., M.F.A. Sculpture student c/o 2018) 2016  
B.F.A. in Graphic Design, WVU, 2015
2. Aaron Williams (Univ. of Florida, M.F.A. Art & Technology student c/o 2018) 2016  
B.F.A. in Visual Arts, WVU 2011
3. Zachary Bonham (WVU, B.S. Chemistry student c/o 2019) 2016
4. Erin Matheson (Scripps College, Claremont CA, B.A. Biochemistry c/o 2018) 2016
5. Philip Evans (WVU, B.S. Mechanical Engineering c/o 2016) 2016
6. Donovan Steele (WVU, B.S. Mechanical Engineering c/o 2017) 2016

## PROFESSIONAL SERVICE

1. ACS National Award Selection Committee 2016, 2017
2. NSF Review Panel Member and Ad Hoc Proposal Reviewer 2016, 2015
3. Session Chair, ACS 248<sup>th</sup> National Meeting, San Francisco, CA. 2014
4. Session Chair, ACS Central Regional Meeting, Pittsburgh, PA. 2014
5. WITSON! Mentoring Program 2012
6. Journal Reviewer for: *Science*, *Chemical Science*, *Journal of the American Chemical Society*, *Chemical Reviews*, *ACS Catalysis*, *Chemical Communications*, *Inorganic Chemistry*, *Dalton Transactions*, *Organometallics*, *Advanced Synthesis and Catalysis*, *Organic Chemistry Frontiers*, *Catalysis Science and Technology*, *ACS Sustainable Chemistry and Engineering*, *Scientific Reports*