

JEFFREY S. BANDAR, PH.D.

Colorado State University | Department of Chemistry
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EDUCATION

Ph.D.	Chemistry, Columbia University, New York, NY	2014
M.Phil.	Chemistry, Columbia University, New York, NY	2011
M.A.	Chemistry, Columbia University, New York, NY	2011
B.A.	Chemistry, Saint John's University, Collegeville, MN <i>egregia cum laude</i> , 4.00 GPA	2009

APPOINTMENTS AND POSITIONS

Assistant Professor	Colorado State University, Fort Collins, CO	2017-present
NIH Postdoctoral Fellow	Massachusetts Institute of Technology, Cambridge, MA	2014-2017
▪	Advised by Professor Stephen L. Buchwald	
NSF and NDSEG Graduate Fellow	Columbia University, New York, NY	2009-2014
▪	Advised by Professor Tristan H. Lambert	
NSF-REU Fellow	Columbia University, New York, NY	2008
▪	Advised by Professor Tristan H. Lambert	
Undergraduate Researcher	Saint John's University, Collegeville, MN	2007-2008
▪	Advised by Professors Brian Johnson and T. Nicholas Jones	

AWARDS AND HONORS**INDEPENDENT CAREER AT CSU**

CSU College of Natural Sciences Early Career Faculty Excellence in Teaching and Mentoring Award	2021
ACS Academic Young Investigator Symposium invitee	2021
Cottrell Scholar Award	2021
National Institutes of Health Maximizing Investigators' Research Award (MIRA R35)	2020
National Science Foundation CAREER Award	2020
ACS Petroleum Research Fund Doctoral New Investigator Award	2019
Thieme Chemistry Journals Award	2019

POSTDOCTORAL

Ruth L. Kirschstein National Research Service Award (NIH F32 Fellowship)	2014-2017
EdTech Teaching Program Certificate (MIT Teaching and Learning Laboratory)	2016
Kaufman Teaching Program Certificate (MIT Teaching and Learning Laboratory)	2015

GRADUATE

Pegram Award, Columbia University	2014
National Science Foundation Graduate Research Fellowship	2011-2014
Sigma Aldrich Graduate Student Innovation Award	2012
Roche Symposium: Excellence in Chemistry Award	2012
National Defense Science and Engineering Graduate Fellowship	2009-2012
Abbott Scholars Symposium participant	2011

UNDERGRADUATE

American Chemical Society Inorganic Undergraduate Award	2009
American Institute of Chemists Award	2009
SJU Dean's List, eight semesters	2005-2009
NSF-REU Fellowship, Columbia University	2008
Undergraduate Award for Achievement in Organic Chemistry	2007
CRC Press Freshman Chemistry Achievement Award	2006

PUBLICATIONS

INDEPENDENT CAREER AT CSU

36. Bone, K. I.; Puleo, T. R.; **Bandar, J. S.** “Direct C–H Hydroxylation of *N*-Heteroarenes and Benzenes via Base-Catalyzed Halogen Transfer” *J. Am. Chem. Soc.* **2024**, Articles ASAP.
35. Hooker, L. V.; **Bandar, J. S.** “Synthetic Advantages of Defluorinative C–F Bond Functionalization” *Angew. Chem. Int. Ed.* **2023**, e202308880.
34. Bone, K. I.; **Bandar, J. S.** “C–H Etherification via Base-Catalyzed X-Transfer” *Trends in Chemistry* **2023**, *5*, 646–647. “Mechanism of the Month” highlight article.
33. Pajk, S. P.[‡]; Qi, Z.[‡]; Sujansky, S. J.; **Bandar, J. S.** “A Base-Catalyzed Approach for the anti-Markovnikov Hydration of Styrene Derivatives” *Chem. Sci.* **2022**, *13*, 11427–11432. [‡]Indicates equal contribution.
32. Wright, S. E.; **Bandar, J. S.** “A Base-Promoted Reductive Coupling Platform for the Divergent Defluorofunctionalization of Trifluoromethylarenes” *J. Am. Chem. Soc.* **2022**, *144*, 13032–13038.
 ○ Highlighted in *Org. Process Res. Dev.* **2022**, *26*, 2997–3009 and **2022**, *26*, 3181–3189.
 ○ Highlighted in *Synfacts* **2022**, *18*, 1139
31. Luo, C.[‡]; Alegre-Requena, J. V.[‡]; Sujansky, S. J.; Pajk, S. P.; Gallegos, L. C.; Paton, R. S.*; **Bandar, J. S.*** “Mechanistic Studies Yield Improved Protocols for Base-Catalyzed anti-Markovnikov Alcohol Addition Reactions” *J. Am. Chem. Soc.* **2022**, *144*, 9586–9596. [‡]Indicates equal contribution. *Corresponding authors.
30. Puleo, T. R.; **Bandar, J. S.** “2,3-Diiodobenzo[*b*]thiophene” *Encyclopedia for Reagents in Organic Synthesis*. **2022**, DOI: 10.1002/047084289X.rn02468.
Note: Publications 28–30 are invited contributions highlighting background and utility of halogen transfer reagents reported by our group in publication 27 below.
29. Puleo, T. R.; **Bandar, J. S.** “2-Iodothiophene” *Encyclopedia for Reagents in Organic Synthesis*. **2022**, DOI: 10.1002/047084289X.rn02467.
28. Puleo, T. R.; **Bandar, J. S.** “2,5-Dibromothiophene” *Encyclopedia for Reagents in Organic Synthesis*. **2022**, DOI: 10.1002/047084289X.rn02466.
27. Puleo, T. R.; Klaus, D. R.; **Bandar, J. S.** “Nucleophilic C–H Etherification of Heteroarenes Enabled by Base-Catalyzed Halogen Transfer” *J. Am. Chem. Soc.* **2021**, *143*, 12480–12486.
26. Reidl, T. W.; **Bandar, J. S.** “Lewis Basic Salt-Promoted Organosilane Coupling Reactions with Aromatic Electrophiles” *J. Am. Chem. Soc.* **2021**, *143*, 11939–11945.
25. Puleo, T. R.; Sujansky, S. J.; Wright, S. E.; **Bandar, J. S.** “Organic Superbases in Recent Synthetic Methodology Research” *Eur. J. Chem.* **2021**, *27*, 4216–4229.
 ○ Selected for Showcase of outstanding Review-type articles
24. Puleo, T. R.; **Bandar, J. S.** “Base-Catalyzed Aryl Halide Isomerization Enables the 4-Selective Substitution of 3-Bromopyridines” *Chem. Sci.* **2020**, *11*, 10517–10522.
23. Luo, C.; **Bandar, J. S.** “Selective Defluoroallylation of Trifluoromethylarenes” *J. Am. Chem. Soc.* **2019**, *141*, 14120–14125.
 ○ Highlighted in “Spotlights on Recent *JACS* Publications” (*J. Am. Chem. Soc.* **2019**, *141*, 15719)
22. Puleo, T. R.; Strong, A. J.[‡]; **Bandar, J. S.** “Catalytic α -Selective Deuteration of Styrene Derivatives” *J. Am. Chem. Soc.* **2019**, *141*, 1467–1472. [‡]Indicates CSU undergraduate.
21. Luo, C.; **Bandar, J. S.** “Synthesis of β -Phenethyl Ethers via Base-Catalyzed Alcohol Addition Reactions to Aryl Alkenes” *Synlett.* **2018**, *29*, 2218–2224 (invited Synfacts review article).
20. Luo, C.; **Bandar, J. S.** “Superbase-Catalyzed anti-Markovnikov Alcohol Addition Reactions to Aryl Alkenes.” *J. Am. Chem. Soc.* **2018**, *140*, 3547–3550.
 ○ Highlighted in *Synform* **2018**, *08*, A123–A125 and *Synfacts* **2018**, *14*, 0647

SUPERVISED CAREER PRIOR TO CSU

19. Seibel, Z. M.; **Bandar, J. S.**; Lambert, T. H. “Enantioenriched α -substituted glutamates/pyroglutamates via enantioselective cyclopropenimine-catalyzed Michael addition of amino ester imines” *Beilstein J. Org. Chem.* **2021**, *17*, 2077–2084.
18. Litterscheidt, J.; **Bandar, J. S.**; Ebert, M.; Forschner, R.; Bader, K.; Lambert, T. H.; Frey, W.; Bühlmeier, A.; Brändle, M.; Schulz, F.; Laschat, S. “Self-Assembly of Aminocyclopropenium Salts: En Route to Deltic Ionic Liquid Crystals” *Angew. Chem. Int. Ed.* **2020**, *59*, 10557–10565.
17. Zhou, Y.; Engl, O. D.; **Bandar, J. S.**; Chant, E. D.; Buchwald, S. L. “CuH-Catalyzed Asymmetric Hydroamidation of Vinylarenes” *Angew. Chem. Int. Ed.* **2018**, *57*, 6672–6675.

16. Litterscheidt, J.; Judge, P.; Bühlmeier, A.; Bader, K.; **Bandar, J. S.**; Lambert, T. H.; Laschat, S. "When size matters: exploring the potential of aminocyclopropenium cations as head groups in triphenylene-derived ionic liquid crystals in comparison with guanidinium and ammonium units." *Liquid Crystals*. **2018**, *45*, 1250-1258.
15. Zhou, Y.; **Bandar, J. S.**; Liu, R. Y.; Buchwald S. L. "CuH-Catalyzed Asymmetric Reduction of α,β -Unsaturated Carboxylic Acids to β -Chiral Aldehydes." *J. Am. Chem. Soc.* **2018**, *140*, 606-609.
14. Zhou, Y.; **Bandar, J. S.**; Buchwald, S. L. "Enantioselective CuH-Catalyzed Hydroacylation Employing Unsaturated Carboxylic Acids as Aldehyde Surrogates." *J. Am. Chem. Soc.* **2017**, *139*, 8126-8129.
13. Gribble, M. W. Jr.; Pirnot, M. T.[‡]; **Bandar, J. S.**[‡]; Liu, R. Y.; Buchwald, S. L. "Asymmetric Copper Hydride-Catalyzed Markovnikov Hydrosilylation of Vinylarenes and Vinyl Heterocycles." *J. Am. Chem. Soc.* **2017**, *139*, 2192-2195. [‡]Indicates equal authorship.
12. Freyer, J. L.; Brucks, S. D.; Gobieski, G. S.; Russell, S. T.; Yozwiak, C. E.; Sun, M.; Chen, Z.; Jiang, Y.; **Bandar, J. S.**; Stockwell, B. R.; Lambert, T. H.; Campos, L. M. "Clickable Poly(ionic liquids): A Materials Platform for Transfection" *Angew. Chem. Int. Ed.* **2016**, *55*, 12382.
11. **Bandar, J. S.**; Ascic, E.; Buchwald, S. L. "Enantioselective CuH-Catalyzed Reductive Coupling of Aryl Alkenes and Activated Carboxylic Acids" *J. Am. Chem. Soc.* **2016**, *138*, 5821-5824.
10. **Bandar, J. S.**[‡]; Pirnot, M. T.[‡]; Buchwald, S. L. "Mechanistic Studies Lead to Dramatically Improved Reaction Conditions for the Cu-Catalyzed Asymmetric Hydroamination of Olefins" *J. Am. Chem. Soc.* **2015**, *137*, 14812-14818. [‡]Indicates equal authorship.
9. Stukenbroeker, T. S.; **Bandar, J. S.**; Zhang, X.; Lambert, T. H.; Waymouth, R. M. "Cyclopropenimine Superbases: Competitive Initiation Processes in Lactide Polymerization." *ACS Macro Lett.* **2015**, *4*, 853-856.
8. **Bandar, J. S.**; Tanaset, A.; Lambert, T. H. "Phase-Transfer and Other Types of Catalysis with Cyclopropenium Ions" *Chem. Eur. J.* **2015**, *21*, 7365-7368.
7. Jiang, Y.; Freyer, J. L.; Cotanda, P.; Brucks, S. D.; Killips, K. L.; **Bandar, J. S.**; Torsitano, C.; Balsara, N. P.; Lambert, T. H.; Campos, L. M. "The evolution of cyclopropenium ions into functional polyelectrolytes" *Nat. Commun.* **2015**, *6*, Article number 5950.
6. **Bandar, J. S.**; Barthelme, A.; Mazori, A. Y.; Lambert, T. H. "Structure-activity relationship studies of cyclopropenimines as enantioselective Brønsted base catalysts" *Chem. Sci.* **2015**, *6*, 1537-1547.
5. **Bandar, J. S.**[‡]; Sauer, G. S.[‡]; Wulff, W. D.; Lambert, T. H.; Veticatt, M. J. "Transition State Analysis of Enantioselective Base Catalysis by Chiral Cyclopropenimines" *J. Am. Chem. Soc.* **2014**, *136*, 10700-10707. [‡]Indicates equal authorship.
4. **Bandar, J. S.**; Lambert, T. H. "Aminocyclopropenium Ions: Synthesis, Properties and Applications." *Synthesis* **2013**, *45*, 2485-2498.
3. **Bandar, J. S.**; Lambert, T. H. "Cyclopropenimine-Catalyzed Enantioselective Mannich Reactions of *t*-Butyl Glycinates with *N*-Boc-Imines" *J. Am. Chem. Soc.* **2013**, *135*, 11799-11802.
2. **Bandar, J. S.**; Lambert, T. H. "Enantioselective Brønsted Base Catalysis with Chiral Cyclopropenimines" *J. Am. Chem. Soc.* **2012**, *134*, 5552-5555.
1. **Bandar, J. S.**; Coscia, R. C.; Lambert, T. H. "Demonstration of the facile reversibility of fulvene formation." *Tetrahedron* **2011**, *67*, 4364-4370.

FILED PATENTS

2. Lambert, T. H.; **Bandar, J. S.** "Cyclopropenimine Catalyst Compositions and Processes." World patent: WO2013059118 A1; 2013. *A chiral cyclopropenimine under this patent is currently licensed to Sigma Aldrich Co. for commercial production and sale (Product #900811).
1. Campos, L. M.; Lambert, T. H.; **Bandar, J. S.** "Cyclopropenium Polymers and Methods for Making the Same." World patent: WO2014022365 A1; 2014.

SEMINARS DELIVERED

32. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Baylor University; April 28, 2023; Waco, TX.
31. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Texas A&M University; April 27, 2023; College Station, TX.
30. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Bristol Myers Squibb; April 17, 2023; Lawrenceville, NJ.

29. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Colorado State University; April 13, 2023; Fort Collins, CO.
28. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of Michigan; April 11, 2023; Ann Arbor, MI.
27. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of California San Diego; April 3, 2023; San Diego, CA.
26. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Scripps Research; March 31, 2023; San Diego, CA.
25. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of San Diego; March 30, 2023; San Diego, CA.
24. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of Pittsburgh; March 23, 2023; Pittsburgh, PA.
23. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Cornell University; March 20, 2023; Ithaca, NY.
22. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Iowa State University; January 20, 2023; Ames, IA.
21. "New Base-Promoted Oxidative Coupling Reactions" Winter In-Person Organic Symposium; December 20, 2022; Honolulu, HI.
20. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of Minnesota; November 29, 2022; Minneapolis, MN.
19. "New Base-Promoted Oxidative and Reductive Coupling Reactions" AbbVie Discovery Chemistry Seminar Series; November 17, 2022; virtual visit.
18. "New Base-Promoted Oxidative and Reductive Coupling Reactions" University of California Santa Barbara; November 3, 2022; Santa Barbara, CA.
17. "Merging Base-Promoted Metalation with X-Transfer for New C–H Functionalization Reactions" ACS Western Regional Meeting, Innovation in Organometallics Symposium; October 21, 2022; Las Vegas, NV.
16. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Columbia University; September 29, 2022; New York, NY.
15. "New Base-Promoted Oxidative and Reductive Coupling Reactions" New York University; September 28, 2022; New York, NY.
14. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Eli Lilly Academic Contacts Committee Seminar; September 6, 2022; Indianapolis, IN.
13. "New Concepts in Acid-Base Chemistry for Chemical Synthesis" John K. Stille Symposium at Colorado State University; August 6, 2022.
12. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Janssen Pharmaceuticals; July 14, 2022; virtual visit.
11. "New Base-Promoted Oxidative and Reductive Coupling Reactions" Montana State University; April 30, 2022; Bozeman, MT.
10. "New Base-Promoted Oxidative Coupling Reactions" Florida Heterocyclic Conference, Gainesville, FL; March 4, 2022.
9. "New Base-Promoted Oxidative Coupling Reactions" University of California Los Angeles; January 27, 2022; Los Angeles, CA.
8. "New Base-Promoted Oxidative Coupling Reactions" Marquette University; October 8, 2021; Milwaukee, WI.
7. "New Base-Promoted Oxidative Coupling Reactions" University of Kansas; September 23, 2021; Lawrence, KS.
6. "New Base-Promoted Oxidative Coupling Reactions" ACS Division of Organic Chemistry Academic Young Investigator Symposium; ACS National Meeting; August 25, 2021; virtual seminar.
5. "New Synthetic Methodology Enabled by Strong Base Chemistry" University of Northern Colorado, Greeley, CO; March 9, 2021; virtual seminar.
4. "New Synthetic Methodology Enabled by Strong Base Chemistry" Rocky Mountain Regional ACS Meeting, virtual; November 13, 2020.
3. "New Synthetic Methodology Enabled by Strong Base Chemistry" Florida Heterocyclic Conference, Gainesville, FL; March 2, 2020.
2. "New Organic Reactions Enabled by Superbase Chemistry" College of Saint Benedict and Saint John's University, St. Joseph, MN; March 28, 2019.
1. "Superbase-Catalyzed Alkene Functionalization" University of Denver, Denver, CO; April 5, 2018.

CONFERENCES AND WORKSHOPS (independent career at CSU)

13. Cottrell Scholar Conference; Research Corporation for Science Advancement, July 19-21, 2023 in Tucson, AZ.
12. Winter In-Person Organic Symposium; December 20, 2022; Honolulu, HI. Seminar delivered.
11. ACS Western Regional Meeting; October 20-22, 2022 in Las Vegas, NV. Co-chaired and organized a three-day symposium to support Prof. Stephen Buchwald's conference closing keynote lecture. Seminar delivered.
10. Organic Syntheses Workshop on Synthetic Organic Chemistry for Young Investigators; August 16-19, 2022 in Steamboat, CO. Chalk talk presentation delivered.
9. Stereochemistry; Gordon Research Conference; July 25-29, 2022 at Salve Regina in Newport, RI. Poster presentation delivered.
8. Florida Heterocyclic Conference; March 6-9, 2022 at University of Florida in Gainesville, FL. Seminar delivered.
7. Cottrell Scholar Conference; Research Corporation for Science Advancement, July 7-9, 2021. Virtual conference and teaching workshop.
6. Florida Heterocyclic Conference; March 1-4, 2020 at University of Florida in Gainesville, FL. Seminar delivered.
5. Organic Reactions and Processes; Gordon Research Conference. July 21-26, 2019 at Stonehill College in Easton, MA. Poster presentation delivered.
4. Organic Reactions and Processes; Gordon Research Conference. July 15-20, 2018 at Stonehill College in Easton, MA. Poster presentation delivered.
3. NIH Annual Mentoring Workshop for New Faculty in Organic and Biological Chemistry. June 26-28, 2018 in Kansas City, MO. Seminar delivered.
2. 2018 Early Career Investigator Workshop; NSF Division of Chemistry. March 26-27, 2018 in Alexandria, VA.
1. NSF Career Support Program Workshop; February 14, March 6 and March 21, 2018 at Colorado State University in Fort Collins, CO.

TEACHING EXPERIENCE AND TRAINING

AS INSTRUCTOR

- Modern Organic Chemistry I, Colorado State University, Chem 341 *Springs 2020, 2021, 2022*
- Three credit course covering molecular orbital theory, conformational analysis, stereochemistry, substitution and elimination reactions, additions to alkenes/alkenes, and spectroscopy.
 - Classes of 260 to 325 non-chemistry major undergraduate students.
- Structure and Mechanism in Organic Chemistry, Colorado State University, Chem 543 *Falls 2017-2023*
- Two credit course covering molecular orbital theory, stereoelectronic effects, kinetic isotope effects and other mechanistic experiments in organic chemistry
 - Classes of 10-20 chemistry graduate students.
- Organic Chemistry I, Colorado State University, Chem 345 *Fall 2018*
- Three credit course covering molecular orbital theory, conformational analysis, stereochemistry, substitution and elimination reactions, additions to alkenes/alkenes, and spectroscopic techniques
 - Class of 45 chemistry major undergraduate students
- Organic Graduate Tutorial, MIT Chemistry 5.47 *2015*
- Month-long course for incoming graduate students covering structure, bonding and mechanisms in organic chemistry

TEACHING COURSES COMPLETED

- CSU TILT Teaching Courses and Workshops
- Teaching Online: Facilitation and Engagement (three-week course) *January 2021*
 - Best Practices in Online and Hybrid Teaching: An Introduction (workshop) *January 2021*
 - Best Practices in Online Teaching: Planning for Critical Thinking (workshop) *January 2021*
- CSU TILT Best Practices Course Series
- Teaching Online Courses (6-hour online course) *August 2020*
 - First Four Weeks module of TILT's Best Practices in Teaching (12-hour online course) *July 2020*
 - Student Motivation module of TILT's Best Practices in Teaching (12-hour online course) *August 2020*
 - Create Assignments module of TILT's Best Practices in Teaching (12-hour online course) *August 2020*
- EdTech Teaching Certificate Program (MIT Teaching and Learning Laboratory) *2016*
- Kaufman Teaching Program Certificate (MIT Teaching and Learning Laboratory) *2015*

SELECTED SERVICE ACTIVITIES**DEPARTMENT SERVICE AT CSU**

Graduate Recruiting and Admissions Committee Chair	2023-present
Chair of organizing committee for the 10 th John K. Stille Symposium at CSU	2021-present
Search committee member for junior faculty candidate	2021-2022
Graduate Recruiting and Admissions Committee member	2019-2023
Industrial Relations Committee member	2019-present
Organic Seminar Chair	2018-present
Faculty advisor to ten undergraduate chemistry majors	2018-present
Graduate Operations Committee, Colorado State University Department of Chemistry	2017-2019
NSF REU Faculty Coordinator	2019
Search committee member for CSU Organic Lab Coordinator	2018

UNIVERSITY SERVICE AT CSU

Analytical Resources Core Advisory Board Member (ARCA)	2020-present
▪ Search committee member for NMR spectroscopist	2021

PROFESSIONAL SERVICES

- Reviewer for: *Science*, *Journal of the American Chemical Society*, *Angewandte Chemie*, *ACS Catalysis*, *Chemical Science*, *Accounts of Chemical Research*, *Organometallics*, *Organic Letters*, *Journal of Organic Chemistry*, *Nature Catalysis*, *Chem*, *European Journal of Chemistry*, *European Journal of Organic Chemistry*, *Synlett*, *Chemical Reviews*, *iScience*, *ACS Omega*, *Chem Open*, *Molecules*, *Nature Communications*, *Israel Journal of Chemistry*
- Reviewer for: National Science Foundation (fives panels: 2020-present), American Chemical Society Petroleum Research Fund, Cottrell Scholar Award, NDSEG Fellowship
- Early Career Advisory Board for *Org. Chem. Front.* (2024 – present).
- American Chemical Society member