C. Rose Kennedy, Ph.D.
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Professional Appointments

Assistant Professor of Chemistry *University of Rochester* beginning Jan. 2020
Research Areas: *Catalysis & Synthetic Methods, Organometallic Chemistry, Mechanistic & Physical Organic Chemistry*

Education & Research Experience

Postdoctoral Research Fellow *Princeton University* 2017–present
- NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship (F32)
- Advisor: Professor Paul J. Chirik
- Topic: *Regio- and Stereocontrolled Iron-Catalyzed Coupling Reactions of Alkenes and Dienes* (4 publications + 2 pending, 1 patent)

Doctorate of Philosophy, Chemistry *Harvard University* 2011–2016
- NSF Graduate Research Fellowship
- Advisor: Professor Eric N. Jacobsen
- Dissertation: *Mechanistic Studies in Ion-Pairing Catalysis with Dual Hydrogen-Bond Donors* (7 publications)

Bachelor of Science, Chemistry *University of Rochester* 2007–2011
- *Summa Cum Laude*, Phi Beta Kappa
- Research Advisors: Professor Alison J. Frontier (thesis), Professor Kara L. Bren

DAAD RISE Fellow *Technische Universität Dortmund* 2010
- Advisor: Professor Martin Hiersemann

Awards & Honors

NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship 2018–present

ACS Green Chemistry Institute Pharmaceutical Roundtable Travel Grant 2017

NSF Graduate Research Fellowship 2011–2016

Christensen Prize for Outstanding Research Achievement *from Harvard CCB* 2016
Travel fellowship to present at the ACS Fall National Conference

Dudley R. Herschbach Teaching Award *from Harvard CCB* 2015
Awarded for unusual dedication and success in teaching

Christensen Prize for Outstanding Research Achievement *from Harvard CCB* 2014
Travel fellowship to present a poster at the GRC–Stereochemistry

Certificate of Distinction in Teaching *from Harvard University* 2012

Janet Howell Clark Memorial Award *from the University of Rochester* 2011
Awarded to the senior woman who has shown the greatest promise for creative work in Physics, Chemistry, Biology, or Astronomy

John McCreary Memorial Prize *from University of Rochester Chemistry* 2011
Awarded to an outstanding senior undergraduate student

Carl A. Whiteman, Jr. Teaching Award *from University of Rochester Chemistry* 2011
Awarded to recognize exemplary teaching by an undergraduate student

Catherine Block Memorial Prize *from the University of Rochester* 2010
Awarded to a junior woman for outstanding ability and achievement in the field of science

Junior Scholar Award *from University of Rochester Chemistry* 2010
Awarded to two juniors who showed outstanding accomplishment and promise for a professional career in chemistry

Gladys Anderson Emerson Scholarship *from Iota Sigma Pi* 2010
Awarded to two women nationally for excellence in chemistry or biochemistry

Elected to Phi Beta Kappa *at the University of Rochester* 2010

CRC Freshman Chemistry Achievement Award *from University of Rochester Chemistry* 2008

Renaissance Scholarship *from the University of Rochester* 2007–2011

National Merit Scholarship *from the University of Rochester* 2007–2011

Publications & Patents

12. **Kennedy, C. R.**; Zhong, H.; Joannou, M. V.; Chirik, P. J. Pyridine(diimine) Iron Diene Complexes Relevant to Catalytic [2+2]-Cycloaddition Reactions. *Adv. Synth. Catal.* **2019**, *Accepted Article*. DOI: 10.1002/adsc.201901289 *(Special issue in honor of Professor Eric N. Jacobsen's 60th birthday.)*

11. Rosenkoetter, K.; **Kennedy, C. R.**; Chirik, P. J.; Harvey, B. G. [4+4]-Cycloaddition of Isoprene for the Production of High-Performance Bio-Based Jet Fuel. *Green Chem.* **2019**, *21*, 5616–5623. DOI: 10.1039/C9GC02404B

10. **Kennedy, C. R.**; Zheng, H.; Macaulay, R. L.;† Chirik, P. J. Regio- and Diastereoselective, Iron-Catalyzed [4+4]-Cycloaddition of 1,3-Dienes. *J. Am. Chem. Soc.* **2019**, *141*, 8557–8573. DOI: 10.1021/jacs.9b02443 *(Highlighted as "Synfact of the Month":* Knochel, P.; Balkenhohl, M. Diastereoselective [4+4] Cycloadditions. *Synfacts*, **2019**, *15*, 0879.)

9. Schmidt, V. A.; **Kennedy, C. R.**; Bezdek, M. J.; Chirik, P. J. Selective [1,4]-Hydrovinylation of 1,3-Dienes with Unactivated Olefins Enabled by Iron–Diimine Catalysts. *J. Am. Chem. Soc.* **2018**, *140*, 3443–3453. DOI: 10.1021/jacs.8b00245

8. Chirik, P. J.; **Kennedy, C. R.** Oligomeric and Polymeric Species Comprising Cyclobutane Units. U.S. Provisional Application No. 62/614,022. Filed: January 5, 2018; U.S. Patent Application No. 16/239,938. Filed: January 4, 2019.

7. Klausen, R. S.; **Kennedy, C. R.**; Hyde, A. M.; Jacobsen, E. N. Chiral Thioureas Promote Enantioselective Pictet–Spengler Cyclization by Stabilizing Every Intermediate and Transition State in the Carboxylic Acid-Catalyzed Reaction. *J. Am. Chem. Soc.* **2017**, *139*, 12299–12309. DOI: 10.1021/jacs.7b06811

6. **Kennedy, C. R.**;‡ Lehnherr, D.;‡ Rajapaksa, N. S.; Park, Y.; Ford, D. D.; Jacobsen, E. N. Mechanism-Guided Development of a Highly Active Bis-thiourea Catalyst for Anion-Abstraction Catalysis. *J. Am. Chem. Soc.* **2016**, *138*, 13525–13528. DOI: 10.1021/jacs.6b09205

5. **Kennedy, C. R.**;‡ Lin, S.;‡ Jacobsen, E. N. The Cation–π Interaction in Small-Molecule Catalysis. *Angew. Chem. Int. Ed.* **2016**, *55*, 12596–12624. DOI: 10.1002/anie.201600547R1 and 10.1002/ange.201600547R1

4. **Kennedy, C. R.**; Guidera, J. A.;† Jacobsen, E. N. Synergistic Ion-Binding Catalysis Demonstrated via an Enantioselective, Catalytic [2,3]-Wittig Rearrangement. *ACS Cent. Sci.* **2016**, *2*, 416–423. DOI: 10.1021/acscentsci.6b00125

3. Lehnherr, D.; Ford, D. D.; Bendelsmith, A. J.; **Kennedy, C. R.**; Jacobsen, E. N. Conformational Control of Chiral Amido-Thiourea Catalysts Enables Improved Activity and Enantioselectivity. *Org. Lett.* **2016**, *18*, 3214–3217. DOI: 10.1021/acs.orglett.6b01435

2. Ford, D. D.; Lehnherr, D.; **Kennedy, C. R.**; Jacobsen, E. N. Anion-Abstraction Catalysis: The Cooperative Mechanism of α-Chloroether Activation by Dual H-Bond Donors. *ACS Catal.* **2016**, *6*, 4616–4620. DOI: 10.1021/acscatal.6b01384

1. Ford, D. D.;‡ Lehnherr, D.;‡ **Kennedy, C. R.**; Jacobsen, E. N. On- and Off-Cycle Catalyst Cooperativity in Anion-Binding Catalysis. *J. Am. Chem. Soc.* **2016**, *138*, 7860–7863. DOI: 10.1021/jacs.6b04686

ORCID: orcid.org/0000-0003-3681-819X, † undergraduate co-author, ‡ equal contributor

Conferences & Presentations

10. Regio- and stereocontrolled, iron-catalyzed coupling reactions of alkenes and dienes. *Gordon Research Conference – Organometallic Chemistry*, Newport, RI; 2018. **(poster)**

9. Regio- and stereocontrolled, iron-catalyzed cycloaddition reactions of alkenes and dienes. *Gordon Research Seminar – Organometallic Chemistry*, Newport, RI; 2018. **(invited lecture)**

8. Leveraging Mechanistic Insight to Enable Regio- and Stereoselective C–C Bond Formation through Ion-Pairing Organocatalysis and Ligand-Controlled Iron Catalysis. *University of Rochester, Department of Chemistry, Organic Seminar Series*; 2018. **(invited lecture)**

7. Regio- and stereocontrolled, iron-catalyzed coupling reactions of commodity olefins. *ACS Green Chemistry & Engineering Conference*, Reston, VA; 2017. **(oral)**

6. Synergistic Ion-Binding Catalysis: Applications and Mechanistic Insights in the Enantioselective Catalysis of Anionic Sigmatropic Rearrangements. *ACS National Meeting*, Philadelphia, PA; 2016. **(oral)**

5. Synergistic Ion-Binding Catalysis: Catalytic, Enantioselective oxy-Cope Rearrangements. *Gordon Research Conference – Organic Reactions & Processes*, Easton, MA; 2016. **(poster)**

4. Synergistic Ion-Binding Catalysis: Applications and Mechanistic Insights in the Enantioselective Catalysis of Anionic Sigmatropic Rearrangements. *1st Annual Catalysis in Chemistry Symposium*, Boston, MA; 2016. **(poster)**

3. Synergistic Ion-Binding Catalysis of Anionic Sigmatropic Rearrangements: An Asymmetric, Catalytic [2,3]-Wittig Rearrangement. 4th Annual Boston Symposium for Organic & Bioorganic Chemistry. *Merck Research Laboratories*, Boston, MA; 2015. **(poster)**

2. Non-Covalent Enantioselective Catalysis of the [2,3]-Wittig Rearrangement of α-Allyloxy Dicarbonyl Compounds. *8th CaRLa Winter School*, University of Heidelberg/BASF, Heidelberg, Germany; 2015. **(poster)**

1. Non-Covalent Enantioselective Catalysis of the [2,3]-Wittig Rearrangement of α-Allyloxy Dicarbonyl Compounds. *Gordon Research Conference – Stereochemistry*, Newport, RI; 2014. **(poster)**

Teaching Experience

Undergraduate Research Mentor – Rachel L. Macaulay *at Princeton University* 2017–2019
- with Professor Paul J. Chirik
- Princeton Leach Scholarship for Summer Research, Senior Thesis in Progress
- Projects: *Ring-Opening Metathesis Polymerization of Disubstituted Cyclooctadienes; Iron-Catalyzed [3+2]- and [5+2]-Cycloaddition Reactions* (senior thesis, co-authored publication)

Undergraduate Research Mentor – Bo Young Choi *at Harvard University* 2015–2016
- with Professor Eric N. Jacobsen
- Projects: *Umpolung, Enantioselective, Radical Cation Cycloaddition Reactions through Anion-Binding Catalysis; A Synergistic Ion-Binding Approach to Catalytic, Enantioselective oxy-Cope Rearrangements* (co-authored publication in preparation)

Undergraduate Research Mentor – Mary-Grace R. Reeves *at Harvard University* 2014–2016
- with Professor Eric N. Jacobsen
- Harvard PRISE Fellowship, Harvard Herchel Smith Fellowship
- Project: *A Synergistic Ion-Binding Approach to Catalytic, Enantioselective oxy-Cope Rearrangements* (co-authored publication in preparation)

Undergraduate Research Mentor – Jennifer A. Guidera *at Harvard University* 2013–2015
- with Professor Eric N. Jacobsen
- Harvard PRISE Fellowship, Harvard Herchel Smith Fellowship
- Project: *Computational Study of Synergistic Ion-Binding and the Basis for Enantioinduction in the Thiourea-Catalyzed [2,3]-Wittig Rearrangement* (senior thesis, co-authored publication)

Head Teaching Fellow – Principles of Organic Chemistry *at Harvard University* Fall 2013
with Professor Eric N. Jacobsen

Teaching Fellow – Principles of Organic Chemistry *at Harvard University* Fall 2012
with Professor Eric N. Jacobsen

Head Teaching Fellow – Organic Chemistry of Life *at Harvard University* Spring 2012
with Professor George M. Whitesides and Dr. Marie Spong

Workshop Leader *at the University of Rochester* 2008–2011
Chemical Concepts, Systems, & Practices I & II; Organic Chemistry I & II, Physical Chemistry I, Chemical Instrumentation Laboratory (11 courses total)

Service

Chemistry Women Mentorship Network, Mentor 2018–present

Reviewer *for J. Am. Chem. Soc.; ACS Catal.; Chem. Rev.; J. Org. Chem.; Synlett; Org. Proc. Res. Develop.* 2016–present

Green Labs Group Representative *at Harvard University* 2014–2016

WiSTEM Mentorship Program, Mentor *at Harvard University* 2014

Academic Integrity Committee Member *at Harvard University* 2013–2016

Laboratory Safety Committee Member *at Harvard University* 2013–2016

Quincy House Non-Resident Tutor in Chemistry *at Harvard University* 2012–2013

Boston Women in Chemistry Symposium, Organizing Committee *at Harvard University* 2012