

## C. Rose Kennedy

Assistant Professor of Chemistry  
University of Rochester • Department of Chemistry  
Hutchison 459 • 120 Trustee Rd. • Rochester, NY 14627-0216  
email: [c.r.kennedy@rochester.edu](mailto:c.r.kennedy@rochester.edu) • phone: 585.275.8778  
website: <https://www.sas.rochester.edu/chm/groups/kennedy/>

### Professional Appointments

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

### Education & Research Experience

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Jan. 2017 – Dec. 2019      **Postdoctoral Research Fellow, Princeton University**  
Kirschstein NRSA Postdoctoral Fellowship (NIH F32, 2018)  
Research Advisor: Professor Paul J. Chirik  
Research Area: Chemo- and Regioselective Iron-Catalyzed Olefin  
Cross-dimerization and Polymerization  
(6 publications, 2 patents + 2 provisional patents)

Jul. 2011 – Dec. 2016      **Doctorate of Philosophy (Chemistry), Harvard University**  
NSF Graduate Research Fellowship (NSF GRFP, 2011)  
Research Advisor: Professor Eric N. Jacobsen  
Dissertation: Mechanistic Studies in Enantioselective Ion-Pairing  
Catalysis with Dual Hydrogen-Bond Donors (8 publications)

Sept. 2007 – May 2011      **Bachelor of Science (Chemistry), University of Rochester**  
*Summa Cum Laude*, Phi Beta Kappa, Renaissance Scholarship  
Research Advisors: Professors Alison J. Frontier (*thesis*)  
& Kara L. Bren  
Research Areas: Synthetic Organic Methods Development &  
Bioinorganic Chemistry

May – July 2010      **DAAD RISE Fellow, Technische Universität Dortmund**  
Research Advisor: Professor Martin Hiersemann  
Research Area: Natural Product Total Synthesis

### Awards & Honors

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2018 – 2019      Ruth L. Kirschstein NRSA Postdoctoral Fellowship (NIH F32)

2017      ACS Green Chemistry Institute Pharmaceutical Roundtable Travel Grant

- 2016, 2014 Christensen Prize for Outstanding Research Achievement  
*Awarded by the Harvard University, Department of Chemistry and Chemical Biology for travel to present at a national scientific conference*
- 2015 Dudley R. Herschbach Teaching Award  
*Awarded by the Harvard University, Department of Chemistry and Chemical Biology for unusual dedication and success in teaching*
- 2012 Certificate of Distinction in Teaching *from Harvard University*
- 2011–2016 NSF Graduate Research Fellowship (NSF GRFP)
- 2011 Janet Howell Clark Memorial Award  
*Awarded by the University of Rochester to the senior woman who has shown the greatest promise for creative work in Physics, Chemistry, Biology, or Astronomy*
- 2011 John McCreary Memorial Prize  
*Awarded by the University of Rochester, Department of Chemistry to an outstanding senior undergraduate student*
- 2011 Carl A. Whiteman, Jr. Teaching Award  
*Awarded by the University of Rochester, Department of Chemistry to recognize exemplary teaching by an undergraduate student*

## Publications

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

14. Beromi, M. M.; Kennedy, C. R.; Younker, J. M.; Carpenter, A. E.; Mattler, S. J.; Throckmorton, J. A.; Chirik, P. J. Iron Catalyzed Synthesis and Chemical Recycling of Telechelic, 1,3-Enchained Oligocyclobutanes. *Nature Chem.* 2021, DOI: [10.1038/s41557-020-00614-w](https://doi.org/10.1038/s41557-020-00614-w); *ChemRxiv*, 2020, DOI: [10.26434/chemrxiv.11994489.v1](https://doi.org/10.26434/chemrxiv.11994489.v1) [preprint]
13. Kennedy, C. R.;<sup>‡</sup> Joannou, M. V.;<sup>‡</sup> Steves, J. E.; Hoyt, J. M.; Kovel, C. B.; Chirik, P. J. Iron-Catalyzed Vinylsilane Dimerization and Cross-Cycloadditions with 1,3-Dienes: Probing the Origins of Chemo- and Regioselectivity. *ACS Catal.* 2021, 1368–1379. DOI: [10.1021/acscatal.0c04608](https://doi.org/10.1021/acscatal.0c04608)
12. Kennedy, C. R.; Choi, B. Y.;<sup>†</sup> Reeves, M.-G. R.;<sup>†</sup> Jacobsen, E. N. Enantioselective Catalysis of an Anionic Oxy-Cope Rearrangement Enabled by Synergistic Ion Binding. *Isr. J. Chem.* 2020, 60, 461–474. DOI: [10.1002/ijch.201900168](https://doi.org/10.1002/ijch.201900168) (Special issue dedicated to Profs. Stephen Buchwald and John Hartwig in celebration of their receipt of the 2019 Wolf Prize.)
11. 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.* 2020, 362, 404–416. DOI: [10.1002/adsc.201901289](https://doi.org/10.1002/adsc.201901289) (Special issue in honor of Professor Eric N. Jacobsen's 60th birthday.)
10. 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](https://doi.org/10.1039/C9GC02404B)
9. Kennedy, C. R.; Zheng, H.; Macaulay, R. L.;<sup>†</sup> 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](https://doi.org/10.1021/jacs.9b02443) (Highlighted as "Synfact of the Month": Knochel, P.; Balkenhohl, M. Diastereoselective [4+4] Cycloadditions. *Synfacts*, 2019, 15, 0879)
8. 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](https://doi.org/10.1021/jacs.8b00245)
  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](https://doi.org/10.1021/jacs.7b06811)
  6. **Kennedy, C. R.**,<sup>‡</sup> Lehnherr, D.,<sup>‡</sup> 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](https://doi.org/10.1021/jacs.6b09205)
  5. **Kennedy, C. R.**,<sup>‡</sup> Lin, S.,<sup>‡</sup> Jacobsen, E. N. The Cation– $\pi$  Interaction in Small-Molecule Catalysis. *Angew. Chem. Int. Ed.* **2016**, *55*, 12596–12624. DOI: [10.1002/anie.201600547R1](https://doi.org/10.1002/anie.201600547R1)
  4. **Kennedy, C. R.**; Guidera, J. A.,<sup>†</sup> 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](https://doi.org/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](https://doi.org/10.1021/acs.orglett.6b01435)
  2. Ford, D. D.; Lehnherr, D.; **Kennedy, C. R.**; Jacobsen, E. N. Anion-Abstraction Catalysis: The Cooperative Mechanism of  $\alpha$ -Chloroether Activation by Dual H-Bond Donors. *ACS Catal.* **2016**, *6*, 4616–4620. DOI: [10.1021/acscatal.6b01384](https://doi.org/10.1021/acscatal.6b01384)
  1. Ford, D. D.,<sup>‡</sup> Lehnherr, D.,<sup>‡</sup> **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](https://doi.org/10.1021/jacs.6b04686)

## Patents

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4. Harvey, B. G.; Rosenkoetter, K. E.; Chirik, P. J.; **Kennedy, C. R.** Producing Cyclic Fuels from Conjugated Diene. Patent No. [US10981846B1](https://patent.uspto.gov/patft/US10981846B1), 2021. (Application No. US16/542547)
3. Carpenter, A. E.; Culcu, G.; Cai, I. C.; Lin, T.-P.; Chirik, P. J.; **Kennedy, C. R.**; Beromi, M. M. Improved Method to Produce Step Dienes. U.S. Provisional Application Filed: February 26, 2021.
2. Chirik, P. J.; **Kennedy, C. R.**; Beromi, M. M. Depolymerization of Oligomers and Polymers Comprising Cyclobutane Units. U.S. Provisional Application No. 62/966,863. Filed: January 28, 2020.
1. Chirik, P. J.; **Kennedy, C. R.**; Russel, S. Oligomeric and Polymeric Species Comprising Cyclobutane Units. Patent No. [US11001667B2](https://patent.uspto.gov/patft/US11001667B2), 2019. (Application No. US16/239938)

## Teaching Activities

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2020, Fall                      CHEM 433: Advanced Organic Chemistry, *University of Rochester* (12 students)

2020, Spring	CHM 172: First-Year Organic Chemistry II, <i>University of Rochester</i> (35 students)
2012–2013, Fall	Chem 17: Principles of Organic Chemistry, <i>Harvard University</i> Head Teaching Fellow (2013), Teaching Fellow (2012), enrollment: ~250 students
2012, Spring	Chem 27: The Organic Chemistry of Life, <i>Harvard University</i> Head Teaching Fellow, enrollment: ~170 students
2008–2011	Workshop Leader & Teaching Assistant, <i>University of Rochester</i> CHM 131: Chemical Concepts, Systems, & Practices I (2008–2010, Fall) CHM 132: Chemical Concepts, Systems, & Practices II (2009–2011, Spring) CHM 203: Organic Chemistry I (2009–2010, Fall) CHM 204: Organic Chemistry II (2010–2011, Spring) CHM 231: Chemical Instrumentation Laboratory (Fall 2010) CHM 251: Physical Chemistry I (Fall 2010)

## Synergistic Activities & Service

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University Activities	Chemistry Graduate Recruiting Committee (2020–present); Chemistry Graduate Studies Committee (2020–present); Chemistry Diversity, Equity, Inclusion & Outreach Committee (2020–present); ACS Bridge Partner Application Facilitator (2020); Sproull University Fellowship Reviewer (2020); Chemistry Ad Hoc Committee for Lecture-Track Faculty Recruiting (2021); Chemistry Ad Hoc Committee for Department Chair Selection (2021); Phi Beta Kappa, Iota Chapter Executive Board, Member-at-Large (2020–2021); #URSTEMrecharge Co-organizer (2021);
Reviewing Activities	<i>Journal of the American Chemical Society</i> ; <i>Chemical Reviews</i> ; <i>Accounts of Chemical Research</i> ; <i>ACS Catalysis</i> ; <i>Journal of Organic Chemistry</i> ; <i>European Journal of Organic Chemistry</i> ; <i>Synlett</i> ; <i>Organic Process Research &amp; Development</i> ; <i>ChemCatChem</i> ; National Science Foundation; American Chemical Society Petroleum Research Fund; SACNAS National Conference Research Presentation Applications; International Thesis Assessment for the Institut Català d'Investigació Química (ICIQ) and the Universitat Rovira i Virgili,
National Activities	Chemistry Women Mentorship Network, Mentor (2017–present); Iota Sigma Pi, National Council, Members-at-Large Coordinator (2020–2023)
Affiliations	American Chemical Society, Iota Sigma Pi, Phi Beta Kappa
Prior Service	Harvard University, Academic Integrity Committee Member (2013–2016); Harvard University, Department of Chemistry & Chemical Biology, Laboratory Safety Committee Representative (2013–2016); Harvard University, Green Labs Representative (2014–2016); Harvard College, WISTEM Mentorship Program, Mentor (2014); Harvard College, Quincy House Non-Resident Tutor (2012–2013); Boston Women in Chemistry Symposium, Organizing Committee Member (2012)

## Presentations

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- *Eric N. Jacobsen 60<sup>th</sup> Birthday Symposium*, Harvard University, Boston, NY; 2020. (invited flash talk)

- *Senior Seminar Series*, The College of New Jersey, Ewing, NJ; 2019. **(invited lecture)**
- *Gordon Research Conference – Organometallic Chemistry*, Newport, RI; 2018. **(poster)**
- *Gordon Research Seminar – Organometallic Chemistry*, Newport, RI; 2018. **(oral)**
- *University of Rochester, Department of Chemistry, Organic Seminar Series*; 2018. **(invited lecture)**
- *ACS Green Chemistry & Engineering Conference*, Reston, VA; 2017. **(oral)**
- *ACS National Meeting*, Philadelphia, PA; 2016. **(oral)**
- *Gordon Research Conference – Organic Reactions & Processes*, Easton, MA; 2016. **(poster)**
- *1<sup>st</sup> Annual Catalysis in Chemistry Symposium*, Boston, MA; 2016. **(poster)**
- *4<sup>th</sup> Annual Boston Symposium for Organic & Bioorganic Chemistry*. Merck Research Laboratories, Boston, MA; 2015. **(poster)**
- *8<sup>th</sup> CaRLa Winter School*, University of Heidelberg/BASF, Heidelberg, Germany; 2015. **(poster)**
- *Gordon Research Conference – Stereochemistry*, Newport, RI; 2014. **(poster)**

## Funding

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2021-09 – ACS Petroleum Research Fund Doctoral New Investigator Award [PI]  
 2023-08 *Magnetically Modulated Radical Relay Catalysis: Stimulus-Controlled Olefin Polymerization and Alkane C(sp<sup>3</sup>)-H Functionalization*  
 Role: Principal Investigator                      Total Award Amount: \$110,000

## Mentored Researchers

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Current Research Group: 2 PhD students + 1 MS student + 3 BS/BA students

12. **Medina Afandiyeva** (Graduate, *Nov. 2020–present*)  
 University of Rochester, 2020 Graduate Cohort (Chemistry)
11. **Kaycie Malyk** (Graduate, *Nov. 2020–present*)  
 University of Rochester, 2020 Graduate Cohort (Chemistry)
9. **Dalton Hanaway** (Undergraduate, *Summer 2020–present*)  
 University of Rochester, BS (Chemistry) 2021  
 University of Rochester, MS (Chemistry) anticipated 2022  
 Dean Marvin Summer Research Fellowship (2020), Flagg Award (2021)  
 CHEM 393: Senior Thesis Research (Fall 2020, Spring 2021)
8. **Elliot E. Silk** (Undergraduate, *Jan. 2020–present*)  
 University of Rochester, Class of 2022 (BS, Chemistry)  
 Dean Marvin Summer Research Fellowship (2021), Discover Grant (2021)  
 CHEM 395: Organometallic Chemistry Research (Spring 2020–Spring 2021)  
 CHEM 393: Senior Thesis Research (Fall 2021)
7. **Aliza Panjwani** (Undergraduate, *Jan. 2020–present*)  
 University of Rochester, Class of 2023  
 CHEM 395: Organic Chemistry Research (Spring 2020–Spring 2021)

6. **Daniel Nakamura** (Undergraduate, *Sept. 2020–present*)  
University of Rochester, Class of 2023  
CHEM 395: Organic Chemistry Research (Fall 2020, Spring 2021)
14. **Ryan M. Ballirano** (Graduate, *Jan. 2020–July 2021*)  
MS (Chemistry) 2021, University of Rochester
13. **Katie A. Goerl** (Graduate, *Jan. 2020–May 2021*)  
MS (Chemistry) 2021, University of Rochester  
University of Rochester Sproull Fellowship
10. **Sarah M. Craig** (Undergraduate, *Jan. 2020–May 2021*)  
University of Rochester, BS (Chemistry) 2021  
Dean Marvin Summer Research Fellowship (2020), Catherine Block Memorial Prize (2020)  
ACS Inorganic Chemistry Award (2021), Carl A. Whiteman Jr. Teaching Award (2021)  
CHEM 395: Organometallic Chemistry Research (Spring 2020)  
CHEM 393: Senior Thesis Research (Fall 2020, Spring 2021)
5. **Abhishek A. Kadam** (Postdoctoral Researcher, *Jan. 2020–Feb. 2021*)  
PhD 2019, Iowa State University (with Prof. Levi Stanley)
4. **Rachel L. Macaulay** (Undergraduate, *2017–2019*)  
with Professor Paul J. Chirik at Princeton University  
Princeton Leach Scholarship for Summer Research  
senior thesis, co-authored publication  
Projects: Ring-Opening Metathesis Polymerization of Disubstituted Cyclooctadienes; Iron-Catalyzed [3+2]- and [5+2]-Cycloaddition Reactions
3. **Bo Young Choi** (Undergraduate, *2015–2016*)  
with Professor Eric N. Jacobsen at Harvard University  
co-authored publication  
Projects: Umpolung, Enantioselective, Radical Cation Cycloaddition Reactions through Anion-Binding Catalysis; A Synergistic Ion-Binding Approach to Catalytic, Enantioselective oxy-Cope Rearrangements
2. **Mary-Grace R. Reeves** (Undergraduate, *2014–2016*)  
with Professor Eric N. Jacobsen at Harvard University  
Harvard PRISE Fellowship, Harvard Herchel Smith Fellowship  
co-authored publication  
Project: A Synergistic Ion-Binding Approach to Catalytic, Enantioselective oxy-Cope Rearrangements
1. **Jennifer A. Guidera** (Undergraduate, *2013–2015*)  
with Professor Eric N. Jacobsen at Harvard University  
Harvard PRISE Fellowship, Harvard Herchel Smith Fellowship  
senior thesis, co-authored publication  
Project: Computational Study of Synergistic Ion-Binding and the Basis for Enantioinduction in the Thiourea-Catalyzed [2,3]-Wittig Rearrangement