

## C. Rose Kennedy

Assistant Professor of Chemistry  
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### 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, 3 patents + 1 patent pending)

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 (Junior  
Election), 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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2021–2023      ACS Petroleum Research Fund Doctoral New Investigator (PRF-DNI) Award  
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 (travel fellowship)  
(Harvard University, Department of Chemistry and Chemical Biology)
- 2015 Dudley R. Herschbach Teaching Award  
(Harvard University, Department of Chemistry and Chemical Biology)
- 2011–2016 NSF Graduate Research Fellowship (NSF GRFP)
- 2011 Janet Howell Clark Memorial Award (University of Rochester, Arts & Sciences)  
*Senior woman showing greatest promise in Physics, Chemistry, Biology, or Astronomy*
- 2011 John McCreary Memorial Prize (University of Rochester, Chemistry)
- 2011 Carl A. Whiteman, Jr. Teaching Award (University of Rochester, Chemistry)

## Publications

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

16. Hanaway, D. H.<sup>†</sup>; Kennedy, C. R.\* An Automated Variable E-Field DFT Application (A.V.E.D.A.) for Evaluation of Optimally Oriented Electric Fields on Chemical Reactivity. *ChemRxiv*. **2022**, DOI: [10.26434/chemrxiv-2022-4wr1m](https://doi.org/10.26434/chemrxiv-2022-4wr1m) [preprint]
15. Craig, S. M.<sup>†,‡</sup>; Malyk, K. R.<sup>‡</sup>; Silk, E. S.<sup>†,‡</sup>; Nakamura, D. T.<sup>†</sup>; Brennessel, W. W.; Kennedy, C. R.\* Synthesis and characterization of Ni(0) complexes supported by an unsymmetric C,N ligand. *J. Coord. Chem.* **2022**, *accepted*. (Invited contribution to *Emerging Leaders Special Issue*.)
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**, *13*, 156–162. DOI: [10.1038/s41557-020-00614-w](https://doi.org/10.1038/s41557-020-00614-w); [preprint] *ChemRxiv*, **2020**, DOI: [10.26434/chemrxiv.11994489.v1](https://doi.org/10.26434/chemrxiv.11994489.v1)
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**, *11*, 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.‡; 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](https://doi.org/10.1021/jacs.6b09205)
5. Kennedy, C. R.‡; Lin, S.‡; 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.†; 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.; Bendel-Smith, 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.‡; 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](https://doi.org/10.1021/jacs.6b04686)

## Patents

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4. 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. Application No. 17/680,556. Filed: February 25, 2022. U.S. Provisional Application No. 63/154,043. Filed: February 26, 2021.
3. Chirik, P. J.; Kennedy, C. R.; Beromi, M. M. Depolymerization of Oligomers and Polymers Comprising Cyclobutane Units. [WO2021154931A1](https://patent.google.com/patent/WO2021154931A1) **2021**. Application No. PCT/US2021/015403. Filed: January 28, 2021. U.S. Provisional Application No. 62/966,863. Filed: January 28, 2020.
2. Harvey, B. G.; Rosenkoetter, K. E.; Chirik, P. J.; Kennedy, C. R. Producing Cyclic Fuels from Conjugated Diene. Patent No. [US10981846B1](https://patent.google.com/patent/US10981846B1), **2021**. Application No. US16/542547. Filed: August 16, 2019
1. Chirik, P. J.; Kennedy, C. R.; Russel, S. Oligomeric and Polymeric Species Comprising Cyclobutane Units. Patent No. [US11001667B2](https://patent.google.com/patent/US11001667B2), **2021**. Application No. US16/239938. Filed: January 4, 2019

## Presentations

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| 2022 | SUNY Buffalo State (invited department seminar)            |
|      | Juniata College (invited department seminar)               |
|      | SUNY Potsdam (invited department seminar; planned 2022-05) |

	GRC – Organometallic Chemistry (poster; planned 2022-07)
	Williams College (invited department seminar; planned 2022-11)
	Rochester Institute of Technology (invited department seminar; planned 2022-10)
	Southeast Regional Meeting of the American Chemical Society (SERM ACS) (invited seminar; planned 2022-10)
2020	Eric N. Jacobsen 60 <sup>th</sup> Birthday Symposium @ Harvard University (flash talk)
2019	The College of New Jersey (Senior Seminar Invited Guest)
2018	GRC – Organometallic Chemistry (poster); GRS – Organometallic Chemistry (oral)
2017	ACS Green Chemistry & Engineering Conference (oral)
2016	ACS National Meeting, Philadelphia (oral); GRC – Organic Reactions & Processes, (poster); 1 <sup>st</sup> Annual Catalysis in Chemistry Symposium (poster)

## Funding

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2021-09 – 2023-08	ACS Petroleum Research Fund Doctoral New Investigator Award [PI] <i>Magnetically Modulated Radical Relay Catalysis: Stimulus-Controlled Olefin Polymerization and Alkane C(sp<sup>3</sup>)-H Functionalization</i> Role: Principal Investigator                      Total Award Amount: \$110,000
2022-08– 2025-07	NSF Major Research Instrumentation Grant [co-PI] <i>MRI: Acquisition of a Cryoprobe 500 MHz Nuclear Magnetic Resonance (NMR) Spectrometer</i> Role: co-Principal Investigator                      Total Award Amount: \$605,314

## Mentored Researchers

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Current Research Group: 6 PhD students + 1 Postdoctoral Associate + 3 BS/BA students

Present	Dr. Abhishek Kadam (PD); Medina Afandiyeva (G); Daniel Akuomoah (G); Vivek Gangadharan Pillai (G); Roberto Leon Baxin (G); Kaycie Malyk (G); Hailemariam Mitiku (G); Daniel Nakamura (U); Xijue (Jade) Wu (U); Rebecca Reagan (U)
Alumni	Dalton Hanaway (MS, 2022; BS, 2021); Elliot Silk (BS, 2022); Katie Goerl (MS, 2021); Ryan Ballirano (MS, 2021); Sarah Craig (BS, 2021); Aliza Panjwani

## Synergistic Activities & Service

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**Teaching Activities**                      CHEM 433: Advanced Organic Chemistry, *University of Rochester* (2020, 2021);  
CHEM 172: First-Year Organic Chemistry II, *University of Rochester* (2020, 2022)

**Department Activities**                      Diversity, Equity, Inclusion & Outreach Committee (2020–; Chair, 2022–);  
DEI Forum Series Coordinator (2021–present);  
Graduate Recruiting Committee (2020–);  
Graduate Studies Committee (2020–2022);  
Graduate Orientation Co-organizer (2020–2021);  
Development/News-Outreach Committee (2021–2022);  
Ad Hoc Committee for Instructional-Track Faculty Hiring (2021);

	Ad Hoc Committee for Instructional-Track Faculty Review (2021); Ad Hoc Committee for Department Chair Selection (2021); ACS Bridge Partner Application Facilitator (2020)
<b>University Activities</b>	UR Undergraduate Research Discover Grant Reviewer (2022); UR Undergraduate Research Expo Judge (2021–2022); #URSTEMrecharge Co-organizer (2021); Sproull University Fellowship Reviewer (2020)
<b>Reviewing Activities</b> (Journals)	<i>Journal of the American Chemical Society; Chemical Reviews; Accounts of Chemical Research; ACS Catalysis; Journal of Organic Chemistry; European Journal of Organic Chemistry; Synlett; Organic Process Research &amp; Development; ChemCatChem</i>
<b>Reviewing Activities</b> (Funding)	National Institutes of Health (2022) American Chemical Society Petroleum Research Fund (2021–2022) National Science Foundation (2020–2022)
<b>Reviewing Activities</b> (Misc.)	SACNAS National Conference Research Presentation Applications (2021); International Thesis Assessment for the Institut Català d'Investigació Química (ICIQ) and the Universitat Rovira i Virgili (2021)
<b>National Activities</b>	<i>JACS Au</i> Early Career Advisory Board (2022); ACS Northeast Regional Meeting Symposium Co-Chair (planned 2022); Iota Sigma Pi, National Council, Members-at-Large Coordinator (2020–2023); Chemistry Women Mentorship Network, Mentor (2017–present);
<b>Professional Development</b>	University of Rochester Creating a Queer-Inclusive AS&E Workshop (2021); University of Rochester Fostering an Anti-Racist Campus Workshops (2020); University of Rochester Small Teaching/Active Learning Group (2020); NSF MPS Broadening Participation Workshop for Young Investigators (2019); ACS/Cottrell/Research Corp. New Faculty Workshop (2019) Harvard University Bok Teaching Seminars/Workshops (2012–2016)
<b>Affiliations</b>	American Chemical Society (ACS), Iota Sigma Pi, Phi Beta Kappa
<b>Prior Service</b>	Harvard University, Green Labs Representative (2014–2016); Harvard University, Academic Integrity Committee Member (2013–2016); Harvard University, Department of Chemistry & Chemical Biology, Laboratory Safety Committee Representative (2013–2016); 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)