

DAVID C. MILLER

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Employment

Oklahoma State University <i>Assistant Professor, Department of Chemistry</i>	Stillwater, OK, USA 2022 – Present
California Institute of Technology <i>Ruth L. Kirschstein NRSA Postdoctoral Fellow</i> Adviser: Frances H. Arnold	Pasadena, CA, USA 2018 – 2022

Education

Princeton University – Ph.D. (Chemistry) Adviser: Robert R. Knowles	Princeton, NJ, USA 2013 – 2018
Johns Hopkins University – B.A. with Honors (Chemistry) Advisers: Thomas C. Lectka and Tyrel M. McQueen	Baltimore, MD, USA 2009 – 2012

Awards and Honors

Arts and Sciences Research Program, Summer Salary Award	2024
NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship	2018
Arthur A. Patchett '51 Graduate Fellowship in Chemistry	2017
Bristol Myers Squibb Graduate Research Fellowship	2016
Chemistry Department Citation for Academic Excellence (Princeton University)	2014
Chemistry Departmental Honors (Johns Hopkins University)	2012
General University Honors (Johns Hopkins University)	2012

Presentations and Conferences

Oklahoma State University, Student ACS Chapter	2022
Caltech Center for Molecular and Cellular Medicine	2021
Bristol Myers Squibb Research Symposium	2016
Gordon Research Conference: Heterocycles (Poster)	2016

Teaching and Mentorship

CHEM 3053 – Organic Chemistry I	Fall 2022 – 2025
CHEM 5063 – Foundations of Organic Chemistry	Spring 2023, 2025
CHEM 4990 – Special Problems in Chemistry	Fall 2023 – Present
CHEM 2890 – Chemical Demonstrations	Spring 2025
CHEM 3890 – Contemporary Issues in Chemistry and Biochemistry	Fall 2023

Current Graduate Students

Yashodha Aluth Gedara (3rd Year Student)
William Jones III (3rd Year Student)
Robert A. Myers (3rd Year Student)
Pratap Rijal (2nd Year Student)

Current Undergraduate Students

Beau Thompson
Nathan Woods
Mackenzie Armstrong

Former Undergraduate Students

Nicholas "DM" York (OSU '25)
Noah B. Smith (OSU '24)
Menley C. Westhoff (OSU '24)

Professional Activities and Memberships

Member: NIH F04A Fellowship Panel (Biochemistry and Biophysics A)	2025
Temporary Member/Early Career Reviewer: NIH, CSB Study Section	2024
Member: American Chemical Society	2012 – Present

Reviewer: *Journal of the American Chemical Society*, *Journal of Organic Chemistry*, *Chem*, *Accounts of Chemical Research*, *ACS Catalysis*, *New Journal of Chemistry*
Proposal Reviewer: *ACS Petroleum Research Fund*, *Elsevier Acquisitions*

Publications

14. Miller, D.C.; Lal, R.G.; Marchetti, L.A.; Arnold, F.H. Biocatalytic One-Carbon Ring Expansion of Aziridines to Azetidines via a Highly Enantioselective [1,2]-Stevens Rearrangement. *J. Am. Chem. Soc.* **2022**, *144*, 4739. DOI: [10.1021/jacs.2c00251](https://doi.org/10.1021/jacs.2c00251)
13. Miller, D.C.; Athavale, S.V.; Arnold, F.H. Combining chemistry and protein engineering for new-to-nature biocatalysis. *Nature Synthesis*, **2022**, *1*, 18. DOI: [10.1038/s44160-021-00008-x](https://doi.org/10.1038/s44160-021-00008-x)
12. Miller, D.C.; Ganley, J.M.; Musacchio, A.J.; Sherwood, T.C.; Ewing, W.R.; Knowles, R.R. Anti-Markovnikov Hydroamination of Unactivated Alkenes with Primary Amines. *J. Am. Chem. Soc.* **2019**, *141*, 16590. DOI: [10.1021/jacs.9b08746](https://doi.org/10.1021/jacs.9b08746)
11. Brandenberg, O.F.; Miller, D.C.; Markel, U.; Chaib, A.O.; Arnold, F.H. Engineering Chemoselectivity in Hemoprotein-Catalyzed Indole Amidation. *ACS Catal.* **2019**, *9*, 8271. DOI: [10.1021/acscatal.9b02508](https://doi.org/10.1021/acscatal.9b02508)
10. Biegasiewicz, K.F.; Cooper, S.J.; Emmanuel, M.A.; Miller, D.C.; Hyster, T.K. Catalytic promiscuity enabled by photoredox catalysis in nicotinamide-dependent oxidoreductases. *Nature Chemistry*, **2018**, *10*, 770. DOI: [10.1038/s41557-018-0059-y](https://doi.org/10.1038/s41557-018-0059-y)
09. Choi, G.J.; Zhu, Q.; Miller, D.C.; Gu, C.J.; Knowles, R.R. Catalytic alkylation of remote C-H bonds enabled by proton-coupled electron transfer. *Nature*, **2016**, 539, 268. DOI: [10.1038/nature19811](https://doi.org/10.1038/nature19811)
08. Miller, D.C.; Tarantino, K.T.; Knowles, R.R. Proton-Coupled Electron Transfer in Organic Synthesis: Fundamentals, Applications, and Opportunities. *Top Curr. Chem.* **2016**, 374, 30. DOI: [10.1007/s41061-016-0030-6](https://doi.org/10.1007/s41061-016-0030-6)
07. Miller, D.C.; Choi, G.J.; Orbe, H.S.; Knowles, R.R. Catalytic Olefin Hydroamidation Enabled by Proton Coupled Electron Transfer. *J. Am. Chem. Soc.* **2015**, *137*, 13492. DOI: [10.1021/jacs.5b09671](https://doi.org/10.1021/jacs.5b09671)
06. Tarantino, K.T.; Miller, D.C.; Callon, T.A.; Knowles, R.R. Bond-Weakening Catalysis: Conjugate Aminations Enabled by the Soft Homolysis of Strong N-H Bonds. *J. Am. Chem. Soc.* **2015**, *137*, 6640. DOI: [10.1021/jacs.5b03428](https://doi.org/10.1021/jacs.5b03428)

05. Cottingham, P.; Miller, D.C.; Sheckelton, J.P.; Feyenson, M.; Hug, A.; McQueen, T.M. Dynamic Charge Disproportionation in the 1D Chain Material PdTel. *J. Mater. Chem. C*, **2014**, 2, 3238.
DOI: [10.1039/C3TC32051K](https://doi.org/10.1039/C3TC32051K)
04. Bloom, S.P., Pitts, C.R., Miller, D.C., Haselton, N.; Holl, M.G., Urheim, E.; Lectka, T. A Polycomponent Metal-Catalyzed Aliphatic, Allylic, and Benzylic Fluorination. *Angew. Chem. Int. Ed.* **2012**, 51, 10580.
DOI: [10.1002/anie.201203642](https://doi.org/10.1002/anie.201203642)
03. Erb, J.; Strull, J.; *Miller, D.*; He, J.; Lectka, T. The Diels-Alder Cyclization of Ketenimines. *Org. Lett.* **2012**, 14, 2191.
DOI: [10.1021/ol300742t](https://doi.org/10.1021/ol300742t)
02. Caron J.M.; Neilson J.R.; Miller, D.C.; Arpino K.; Llobet, A.; McQueen T.M. Orbital Selective Magnetism in the Spin-Ladder Iron Selenides $\text{Ba}_{1-x}\text{KFe}_2\text{Se}_3$ *Phys. Rev. B*, **2012**, 85, 180405.
DOI: [10.1103/PhysRevB.85.180405](https://doi.org/10.1103/PhysRevB.85.180405)
01. Caron, J.M.; Neilson J.R., Miller, D.C.; Llobet, A.; McQueen, T.M. Iron Displacements in the Antiferromagnetic Spin-Ladder Compound BaFe_2Se_3 . *Phys. Rev. B*, **2011**, 84, 180409.
DOI: [10.1103/PhysRevB.84.180409](https://doi.org/10.1103/PhysRevB.84.180409)