

PHILLIP J. MILNER

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CURRENT POSITION

Assistant Professor, Department of Chemistry and Chemical Biology Cornell University, 2018–

PROFESSIONAL ASSOCIATIONS

Faculty Fellow, Cornell Atkinson Center for Sustainability Cornell University, 2020–
Field Member, Department of Chemical and Biomolecular Engineering Cornell University, 2020–
Member, Cornell Center for Materials Research Cornell University, 2019–
Member, Cornell Energy Systems Institute Cornell University, 2019–

EDUCATION

Postdoctoral Fellow (Advisor: Jeffrey Long) University of California, Berkeley 2015–2018
Ph.D. Chemistry (Advisor: Stephen Buchwald) Massachusetts Institute of Technology, 2015
B.A. Chemistry and Mathematics, *with honors* Hamilton College, 2010

ADDITIONAL RESEARCH EXPERIENCE

Undergraduate Research Assistant (Advisor: Ian Rosenstein) Hamilton College, 2006–2010
NSF REU Fellow (Advisor: Scott Snyder) Columbia University, 2009
Undergraduate Research Assistant (Advisor: Gary Molander) University of Pennsylvania, 2008

AWARDS AND FELLOWSHIPS (national awards in **bold**)

Camille Dreyfus Teacher-Scholar Award, 2023

Robert A. and Donna B. Paul Award for Excellence in Advising (Cornell), 2021

NSF CAREER Award, 2021

ACS Division of Organic Chemistry Academic Young Investigator, 2021

ACS DIC Award for Undergraduate Research (with Faith Chen), 2020

Scialog Fellow (Negative Emissions Science), 2020

DOE Early Career Award, 2020

NIH Maximizing Investigator's Research Award (MIRA), 2020

ACS PRF Doctoral New Investigator Award, 2019

NIH Ruth L. Kirschstein NRSA Postdoctoral Fellowship, 2016

CERC-WET Fellowship (UC Berkeley), 2016

ACS Division of Organic Chemistry Graduate Fellowship, 2014 (*declined*)

Award for Outstanding Teaching (MIT), 2011

NSF Graduate Research Fellowship, 2010

Norton Prize in Chemistry (Hamilton), 2010

Underwood Senior Prize in Chemistry (Hamilton), 2010

Barry M. Goldwater Scholarship, 2009

Donald J. Denney Prize in Physical Chemistry (Hamilton), 2009
Edward Huntington Memorial Mathematical Prize Scholarship (Hamilton), 2009
ACS POLYED Award for Achievement in Organic Chemistry (Hamilton), 2008
CRC Press First Year Prize in Chemistry (Hamilton), 2007
STEM Talent Expansion Program/Dreyfus Grant (Hamilton), 2006
Hans H. Schambach Scholarship (Hamilton), 2006

INVITED PRESENTATIONS (pending talks in *italics*)

9th International Conference on Metal-Organic Frameworks (MOF2024), 2024
Bucknell University, 2024
ACS National Meeting (INOR), Spring 2024
University of Pennsylvania, 2024
Chemical Separations Gordon Research Conference, 2024
Novonordisk Foundation COR Research Center, 2024
9th International Conference on Metal-Organic Frameworks Catalysis Webinar, 2024
University of Illinois, Chicago, 2023
University of Michigan, Ann Arbor, 2023
University of California, San Diego, 2023
University of California, Irvine, 2023
University of California, Los Angeles, 2023
University of California, Riverside, 2023
University of Southern California, 2023
California Institute of Technology, 2023
University of Illinois, Chicago, 2023
University of Minnesota, Twin Cities, 2023
University of Illinois, Urbana-Champaign, 2023
Stanford University, 2023
Yale University, 2023
Northwestern University, 2023
Harvard University, 2023
University of California, Berkeley, 2023
Massachusetts Institute of Technology, 2023
Telluride Meeting on Catalysis under Confinement, 2023
Telluride Meeting on Synthetic Porous Frameworks, 2023
Columbia University, 2023
University of Iowa, 2023
Pennsylvania State University, 2023
University of Indiana, Bloomington, 2023
Purdue University, 2023
Colorado State University, 2023
ACS National Conference (INOR), Spring 2023
Brandeis University, 2023
University of Maryland, 2023
Johns Hopkins University, 2023
Southern Methodist University, 2023

University of North Texas, 2023
Rice University, 2023
University of Oregon, 2023
University of Washington, 2023
University of Texas at Austin, 2023
University of Chicago, 2023
University of Rochester, 2023
University of Notre Dame, 2023
The Ohio State University, 2023
University of North Carolina, Chapel Hill, 2023
Texas A&M University, 2022
University of Wisconsin, Madison, 2022
New York University, 2022
Wayne State University, 2022
Michigan State University, 2022
Advanced Functional Materials for Emerging Science and Technology (Clarkson), 2022
ACS Northeast Regional Meeting (2 talks), 2022
Foster Chemistry Colloquium, University at Buffalo, 2022
Dartmouth College, 2022
Colorado School of Mines, 2022
University of Pittsburgh, 2021
SUNY Geneseo, 2021
Siena College, 2021
University of Vermont, 2021
Union College, 2021
Franklin & Marshall College, 2021
Ithaca College, 2021
Colgate University, 2021
Young Academic Investigators Symposium (ORGN), ACS National Conference, Fall 2021
North American Solid-State Chemistry Conference, 2021
ACS Mid-Atlantic Regional Meeting, 2021
University of California, Berkeley, 2019
Hamilton College, 2019

National Organic Symposium, 2015 (Poster)
ACS Division of Organic Chemistry Graduate Research Symposium, 2014
Boston Symposium on Organic and Bioorganic Chemistry, 2013

TEACHING

CHEM 6070 / MSE 6210: Solid State Chemistry

Spring 2022: Instructor rating: 4.83/5.00; overall course rating: 4.83/5.00

Spring 2021: Instructor rating: 4.50/5.00; overall course rating: 4.67/5.00

Spring 2020: Instructor rating: 4.89/5.00; overall course rating: 4.85/5.00

Fall 2018: Instructor rating: 4.11/5.00; overall course rating: 4.22/5.00

CHEM 3600: Honors Organic Chemistry II

Fall 2022: Instructor rating: 4.33/5.00; overall course rating: 4.00/5.00

Fall 2021: Instructor rating: 4.43/5.00; overall course rating: 4.29/5.00
Fall 2020: Instructor rating: 4.25/5.00; overall course rating: 4.38/5.00
Fall 2019: Instructor rating: 4.21/5.00; overall course rating: 4.05/5.00

ADDITIONAL ACTIVITIES AND SERVICE

To Cornell University:

Organizer of Baker Symposium, 2023
Industrial Relations Committee, 2023–
Chair of Student Awards Committee, 2022–
Co-Chair of Diversity, Equity, and Inclusion Committee, 2020–
Graduate Student Committee, 2018–
Faculty Search Committee, 2018, 2019, 2021, 2023
Seminar Committee, 2022–
Safety Committee, 2019–2021
Faculty Advisor for Chemistry Peer Advisors, 2021–
Faculty Advisor for the Professional Chemistry Fraternity, 2022–
College of Arts and Sciences Teaching and Advising Award Committee, 2022–
Grant Reviewer, Cornell Atkinson Center for Sustainability
Co-organizer of Department viewing of “Picture a Scientist,” 2021
Co-organizer of Department viewing of “Forgotten Genius,” 2021
Chemistry Career-Oriented Webinar, 2019
Faculty mentor at GET SET Teaching Workshop Conference, 2019
“What I Wish I Knew Before Joining Cornell as an Assistant Professor” panel, 2023

To the Chemistry Community:

Early Career Advisory Board, *ChemNanoMat*, 2024–
Grant Reviewer for: DOE (BES, BER), NSF (DMR, CBET, GRFP), ACS Petroleum Research Fund, Swiss National Science Foundation
Judge for Division B Regional Science Olympiad Competition
Manuscript reviewer for >30 journals, including: *Proc. Natl. Acad. Sci.*; *Nat. Commun.*; *J. Am. Chem. Soc.*; *Angew. Chem. Int. Ed.*; *Chem. Sci.*; *Chem. Soc. Rev.*; *Org. Lett.*; *Chem. Mater.*; *Chem. Eur. J.*; *Macromolecules*; *ACS Appl. Mater. Interfaces*; *ACS Materials Lett.*; *ACS Sustain. Chem. Eng.*; *J. Mater. Chem. A*; *Chem. Commun.*; *Organometallics*; *Inorg. Chem.*; *Adv. Funct. Mater.*; *Dalton Trans.*; *Environ. Sci. Technol.*; *Nano Lett.*; *Ind. Eng. Chem. Res.*; *ACS Omega*; *Sci. Adv.*; *Comms. Mater.*; *Polyhedron*; *J. Clean Prod.*; *Langmuir*; *Sci. Rep.*; *Chem. Eng. Sci.*; *J. Chem. Ed.*; *Inorg. Chem. Front.*; *Small*; *Sustain. Energy Fuels*; *Rare Metals*; *AIChE*

PUBLICATIONS (undergraduate co-authors underlined; *corresponding author)

62) Tristan A. Pitt, Haojun Jia, Tyler J. Azbell, Mary E. Zick, Aditya Nandy, Heather J. Kulik, Phillip J. Milner*. "Benchmarking Nitrous Oxide Adsorption and Activation in Metal-Organic Frameworks Bearing Coordinatively Unsaturated Metal Centers." *Submitted*.

61) Jaehwan Kim, Jianheng Ling, Yihuan Lai. "Redox-Active Organic Materials: From Energy Storage to Redox Catalysis." *In review*.

- 60) Tristan A. Pitt, Tyler J. Azbell, Jaehwan Kim, Matthew A. Addicoat, **Phillip J. Milner***. “A Strongly Reducing sp^2 Carbon-Conjugated Covalent Organic Framework Formed by N-Heterocyclic Carbene Dimerization.” *In review*.
- 59) Huaiguang Li, Mary E. Zick, Teedhat Trisukhon, Xinyu Liu, Helen Eastmond, Shivani Sharma, Tristan Spreng, Jack Taylor, Jamie Gittins, Cavan Farrow, **Phillip J. Milner**, Alexander C. Forse*. “Capturing Carbon Dioxide from Air with Charged Sorbents.” *In review*. [\[Preprint\]](#)
- 58) Arjun Halder, David C. Bain, Tristan A. Pitt, Zixiao Shi, Julia Oktawiec, Jung-Hoon Lee, Stavrini Tsangari, Marcus Ng, José J. Fuentes-Rivera, Alexander C. Forse, Tomče Runčevski, David A. Muller, Andrew J. Musser, **Phillip J. Milner**. "Trapping of Photoluminescent Kinetic Intermediates During High-Concentration Synthesis of Non-Emissive Metal-Organic Frameworks." *Chem. Mater.* **2023**, *Accepted*. [\[Link\]](#)
- 57) Reum N. Scott,* Claire E. Frank, Maya M. Martirosyan, **Phillip J. Milner***, Julia Dshemuchadse*. “Two-Dimensional Metal-Organic Framework Self-Assembly and Defect Engineering Studied via Coarse-Grained Simulations.” *Chem. Mater.* **2023**, *Accepted*. [\[Link\]](#)
- 56) Tyler J. Azbell,‡ Tristan A. Pitt,‡ Ronald T. Jerozal, Ruth M. Mandel, **Phillip J. Milner***. “Simplifying the Synthesis of Metal-Organic Frameworks.” *Acc. Mater. Res.* **2023**, *Accepted*. ‡Contributed equally. [\[Link\]](#)
- 55) Kaitlyn T. Keasler, Mary E. Zick,‡ Emily E. Stacy,‡ Jung-Hoon Lee, Jaehwan Kim, Lida Aeindartehran, Tomče Runčevski, **Phillip J. Milner***. “Handling Fluorinated Gases as Solid Reagents using Metal-Organic Frameworks.” *Science*, **2023**, *381*, 1455–1461. ‡Contributed equally. [\[Link\]](#) *Highlighted by Cornell Chronicle, Synform, the Royal Society of Chemistry, and the Cornell Daily Sun.*
- 54) Jaehwan Kim, Yogita Shirke, **Phillip J. Milner***. “Flexible Backbone Effects on the Redox Properties of Perylene Diimide-Based Polymers.” *ACS Appl. Mater. Interfaces* **2023**, *ASAP*. [\[Link\]](#) *Invited submission to the Forum on Organic Battery Materials.*
- 53) Yihuan Lai, Arjun Halder, Jaehwan Kim, Thomas J. Hicks, **Phillip J. Milner***. “Electroreductive Borylation of Unactivated (Hetero)Aryl Chlorides Without Light by Using Cumulene-Based Redox Mediators.” *Angew. Chem. Int. Ed.* **2023**, e202310246. [\[Link\]](#)
- 52) Jaehwan Kim,‡ Minh H. Le,‡ Makayla C. Spicer, Cassandra M. Moisanu, Suzi M. Pugh, **Phillip J. Milner***. “Zinc Bromide: A General Mediator for the Ionothermal Synthesis of Microporous Polymers via Cyclotrimerization Reactions.” *J. Mater. Chem. A*, **2023**, *11*, 17159–17166. ‡Contributed equally. [\[Link\]](#)
- 51) Bayu I. Z. Ahmad,‡ Kaitlyn T. Keasler,‡ Emily E. Stacy,‡ Sijing Meng, Thomas J. Hicks, **Phillip J. Milner***. “MOFganic Chemistry: Challenges and Opportunities for Metal–Organic Frameworks in Synthetic Organic Chemistry.” *Chem. Mater.* **2023**, *35*, 4883–4896. ‡Contributed equally. [\[Link\]](#) *Invited submission.*
- 50) Ronald T. Jerozal, Tristan A. Pitt, Samantha N. MacMillan, **Phillip J. Milner***. “High-Concentration Self-Assembly of Zirconium- and Hafnium-Based Metal–Organic Materials.” *J. Am. Chem. Soc.*, **2023**, *145*, 13273–13283. [\[Link\]](#)
- 49) Yelin Ko, Tyler J. Azbell, **Phillip J. Milner**, Juan Hinestroza*. “Sustainable and Direct Upcycling of Dyed Polyethylene Terephthalate (PET) Fabrics into Copper-1,4-

Benzenedicarboxylate (CuBDC) Metal-Organic Frameworks.” *Ind. Eng. Chem. Res.* **2023**, *62*, 5771–5781. [\[Link\]](#) *Highlighted by Cornell Chronicle and phys.org.*

48) Tyler J. Azbell, Tristan A. Pitt, Melissa M. Bollmeyer, Christina Cong, Kyle M. Lancaster, **Phillip J. Milner***. “Ionothermal Synthesis of Metal-Organic Frameworks Using Low-Melting Metal Salt Precursors.” *Angew. Chem. Int. Ed.* **2023**, e202218252. [\[Link\]](#)

47) Abigail K. Nason, Ronald T. Jerozal, **Phillip J. Milner**, Jin Suntivich*. “Reactive Crystallization via Metal-Organic-Framework Formation Enables Separation of Terephthalic Acid from Textile Impurities.” *ACS Sustainable Chem. Eng.*, **2023**, *11*, 18–22. [\[Link\]](#) *Highlighted by Cornell Chronicle and phys.org.*

46) Christina Cong,[‡] Jaehwan Kim,[‡] Cara Gannett, Héctor D. Abruña, **Phillip J. Milner***. “Unexpected Direct Synthesis of Tunable Redox-Active Benzil-Linked Polymers via the Benzoin Reaction.” *ACS Appl. Poly. Mater.*, **2023**, *5*, 1056–1066. [‡]Contributed equally. [\[Link\]](#)

45) Arjun Halder, David C. Bain, Julia Oktawiec, Matthew A. Addicoat, Stavrini Tsangari, José J. Fuentes-Rivera, Tristan A. Pitt, Andrew J. Musser,* **Phillip J. Milner***. “Enhancing Dynamic Spectral Diffusion in Metal-Organic Frameworks Through Defect Engineering.” *J. Am. Chem. Soc.* **2023**, *145*, 1072–1082. [\[Link\]](#)

44) Sayan Maiti, Jatan K. Sharma,[‡] Jianheng Ling,[‡] Dylan Tietje-Mckinney, Matthew P. Heaney, Tomče Runčevski, Matthew A. Addicoat, Francis D’Souza*, **Phillip J. Milner***, Anindita Das*. “Emissive Sub-Stoichiometric Covalent Organic Frameworks for Water Sensing and Harvesting.” *Macromol. Rapid Comm.* **2022**, 2200751. [‡]Contributed equally. [\[Link\]](#) *Invited submission.*

43) Mary E. Zick, Donovan Cho,[‡] Jianheng Ling,[‡] **Phillip J. Milner***. “Carbon Capture Beyond Amines: CO₂ Sorption at Nucleophilic Oxygen Sites in Materials.” *ChemNanoMat* **2022**, e202200436. [‡]Contributed equally. [\[Link\]](#)

42) Tyler J. Azbell,[‡] Ruth M. Mandel,[‡] Jung-Hoon Lee, **Phillip J. Milner***. “Reactive Chlorine Capture by Dichlorination of Alkene Linkers in Metal-Organic Frameworks.” *ACS Appl. Mater. Interfaces*, **2022**, *14*, 53928–53935. [‡]Contributed equally. [\[Link\]](#)

41) Cara N. Gannett,[‡] Jaehwan Kim,[‡] David Tirtariyadi, **Phillip J. Milner***, Héctor D. Abruña*. “Investigation of Ion-Electrode Interactions of Linear Polyimides and Alkali Metal Ions for Next Generation Alternative-Ion Batteries.” *Chem. Sci.* **2022**, *13*, 9191–9201. [‡]Contributed equally. [\[Link\]](#)

40) Elena Y. Chen,[‡] Ruth M. Mandel,[‡] **Phillip J. Milner***. “Comparing Solvothermal and Mechanochemical Routes towards the Metal-Organic Framework Mg₂(*m*-dobdc).” *CrystEngComm* **2022**, *24*, 7292–7297. [‡]Contributed equally. [\[Link\]](#) *Invited submission to the “New Talent” special issue.*

39) Mary E. Zick, Suzi M. Pugh, Jung-Hoon Lee, Alexander C. Forse, **Phillip J. Milner***. “Carbon Dioxide Capture at Nucleophilic Hydroxide Sites in Oxidation-Resistant Cyclodextrin-Based Metal-Organic Frameworks.” *Angew. Chem. Int. Ed.* **2022**, *61*, e202206718. [\[Link\]](#) *Highlighted by Cornell Chronicle, phys.org, and local news sources.*

38) Faith E. Chen,[‡] Tristan A. Pitt,[‡] Diane Okong’o, Luc G. Wetherbee, José J. Fuentes-Rivera, **Phillip J. Milner***. “A Structure-Activity Study of Aromatic Acid Modulators for the Synthesis of Zirconium-Based Metal-Organic Frameworks.” *Chem. Mater.* **2022**, *34*, 3383–3394. [‡]Contributed equally. [\[Link\]](#)

- 37) Jaehwan Kim,[‡] Cassandra M. Moisanu,[‡] Cara Gannett, Arjun Halder, José J. Fuentes-Rivera, Sean H. Majer, Kyle M. Lancaster, Alexander C. Forse, Héctor D. Abruña, **Phillip J. Milner***. “Conjugated Microporous Polymers via Solvent-Free Ionothermal Cyclotrimerization of Methyl Ketones.” *Chem. Mater.* **2021**, *33*, 8334–8342. [‡]Contributed equally. [\[Link\]](#)
- 36) Faith E. Chen,[‡] Ruth M. Mandel,[‡] Joshua J. Woods, Jung-Hoon Lee, Jaehwan Kim, Jesse Hsu, José J. Fuentes-Rivera, Justin J. Wilson, **Phillip J. Milner***. “Biocompatible Metal-Organic Frameworks for the Storage and Therapeutic Delivery of Hydrogen Sulfide.” *Chem. Sci.* **2021**, *12*, 7848–7857. [‡]Contributed equally. [\[Link\]](#)
- 35) Zihao Wang, Arvin Bilegsaikhan, Ronald T. Jerozal, Tristan A. Pitt, **Phillip J. Milner***. “Evaluating the Robustness of Metal-Organic Frameworks for Synthetic Chemistry.” *ACS Appl. Mater. Interfaces*, **2021**, *13*, 17517–17531. [\[Link\]](#)
- 34) Jonathan B. Lefton, Kyle B. Pekar, Uroob Haris, Mary E. Zick, **Phillip J. Milner**, Alexander R. Lippert, Ljupčo Pejov, Tomče Runčevski*. “Defect Engineering and Amorphization of Zn-MOF-74 by Postsynthetic Adsorbate–Framework Interactions.” *J. Mater. Chem. A* **2021**, *9*, 19698–19704. [\[Link\]](#) *Invited submission.*
- 33) Mary E. Zick, Jung-Hoon Lee, Miguel I. Gonzalez, Ever O. Valasquez, Adam A. Uliana, Jaehwan Kim, Jeffrey R. Long, **Phillip J. Milner***. “Fluoroarene Separations in Metal–Organic Frameworks with Two Proximal Mg²⁺ Coordination Sites.” *J. Am. Chem. Soc.*, **2021**, *143*, 1948–1958. *Highlighted in:* Nelson, Y. A.; Spokoiny, A. M. *Matter* **2021**, *4*, 8, 2645–2647. [\[Link\]](#)
- 32) Jen-Yu Huang, Yuanze Xu, **Phillip J. Milner**, Tobias Hanrath*. “Processing-Structure-Performance Relationships of Microporous Metal-Organic Polymers for Size-Selective Separations.” *ACS Appl. Mater. Interfaces*, **2021**, *13*, 3521–3527. [\[Link\]](#)
- 31) Alexander C. Forse,* **Phillip J. Milner***. “New Chemistry for Enhanced Carbon Capture: Beyond Ammonium Carbamates.” *Chem. Sci.* **2021**, *12*, 508–516. [\[Link\]](#)
- 30) Zihao Wang, Zongzhe Li, Marcus Ng, **Phillip J. Milner***. “Rapid Mechanochemical Synthesis of Metal–Organic Frameworks using Exogenous Organic Base.” *Dalton Trans.* **2020**, *49*, 16238–16244. [\[Link\]](#) *Invited submission to the “New Talents: Americas” special issue.*
- 29) José J. Fuentes-Rivera, Mary E. Zick, M. Alexander Düfert*, **Phillip J. Milner***. “Overcoming Halide Inhibition of Suzuki-Miyaura Couplings with Biaryl Monophosphine-Based Catalysts.” *Org. Proc. Res. Dev.* **2019**, *23*, 1631–1637. [\[Link\]](#) *Invited submission to the “Honoring 25 Years of the Buchwald-Hartwig Amination” special issue.*
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- 28) Ziting Zhu, Hsinhan Tsai, Surya T. Parker, Jung-Hoon Lee, Yuto Yabuuchi, Henry Z. H. Jiang, Yang Wang, Shuoyan Xiong, Alexander C. Forse, Bhavish Dinakar, Adrian Huang, Chaochao Dun, **Phillip J. Milner**, Alex Smith, Pedro Guimarães Martins, Katie R. Meihaus, Jeffrey J. Urban, Jeffrey A. Reimer, Jeffrey B. Neaton, Jeffrey R. Long*. “High-Capacity, Cooperative CO₂ Capture in a Diamine-Appended Metal-Organic Framework through a Combined Chemisorptive and Physisorptive Mechanism.” *In review at J. Am. Chem. Soc.*
- 27) Ziting Zhu, Surya T. Parker, Alexander C. Forse, Jung-Hoon Lee, Rebecca L. Siegelman, **Phillip J. Milner**, Hsinhan Tsai, Mengshan Ye, Maria Paley, Adam A. Uliana, Julia Oktawiec, Bhavish Dinakar, Stephanie A. Didas, Katie R. Meihaus, Jeffrey A. Reimer, Jeffrey B. Neaton, Jeffrey R. Long*. “Cooperative Carbon Dioxide Capture in Diamine-Appended Magnesium-Olsalazine Frameworks.” *J. Am. Chem. Soc.* **2023**, *145*, 17151–17163. [\[Link\]](#)

- 26) Bhavish Dinakar, Alexander C. Forse, Henry Z. H. Jiang, Ziting Zhu, Jung-Hoon Lee, Eugene J. Kim, Surya T. Parker, Connor J. Pollak, Rebecca L. Siegelman, **Phillip J. Milner**, Jeffrey A. Reimer*, Jeffrey R. Long*. “Overcoming Metastable CO₂ Adsorption in a Bulky Diamine-Appended Metal–Organic Framework.” *J. Am. Chem. Soc.* **2021**, *143*, 15258–15270. [\[Link\]](#)
- 25) Eugene J. Kim, Rebecca L. Siegelman, Henry Z. H. Jiang, Alexander C. Forse, Jung-Hoon Lee, Jeffrey D. Martell, **Phillip J. Milner**, Joseph M. Falkowski, Jeffrey B. Neaton, Jeffrey A. Reimer, Simon C. Weston, Jeffrey R. Long*. “Cooperative Carbon Capture and Steam Regeneration with Tetraamine-Appended Metal–Organic Frameworks.” *Science* **2020**, *369*, 392–396. [\[Link\]](#) *Highlighted by Berkeley News.*
- 24) Jeffrey D. Martell,[‡] **Phillip J. Milner**,[‡] Rebecca L. Siegelman, Jeffrey R. Long*. “Kinetics of CO₂ Adsorption in Diamine-Appended Mg₂(dobpdc) Metal–Organic Frameworks.” *Chem. Sci.* **2020**, *11*, 6457–6471. [‡]Contributed equally. [\[Link\]](#)
- 23) Victor Y. Mao, **Phillip J. Milner**, Jung-Hoon Lee, Alexander C. Forse, Henry Z. H. Jiang, Eugene J. Kim, Rebecca L. Siegelman, C. Michael McGuirk, Leo B. Porter-Zasada, Jeffrey B. Neaton, Jeffrey A. Reimer, Jeffrey R. Long*. “Cooperative Carbon Dioxide Capture in Alcoholamine- and Alkoxyalkylamine-Functionalized Metal–Organic Frameworks.” *Angew. Chem. Int. Ed.* **2020**, *59*, 19468–19477. [\[Link\]](#)
- 22) Jun Xu*, Yifei Michelle Liu, Andrew S. Lipton, Jinxing Ye, Gina L. Hoatson, **Phillip J. Milner**, Thomas M. McDonald, Rebecca L. Siegelman, Alexander C. Forse, Berend Smit, Jeffrey R. Long, Jeffrey A. Reimer. “Amine Dynamics in Diamine-Appended Mg₂(dobpdc) Metal–Organic Frameworks.” *J. Phys. Chem. Lett.* **2019**, *10*, 7044–7049. [\[Link\]](#)
- 21) Sohee Jeong,[‡] **Phillip J. Milner**,[‡] Liwen F. Wan,[‡] Yi-Sheng Liu, Julia Oktawiec, Edmond W. Zaia, Alexander C. Forse, Noemi Leick, Thomas Gennett, Jinghua Guo, David Prendergast*, Jeffrey R. Long*, Jeffrey J. Urban*. “Runaway carbon dioxide conversion leads to enhanced uptake in a nanohybrid form of porous magnesium borohydride.” *Adv. Mater.*, **2019**, *31*, 1904252. [‡]Contributed equally. [\[Link\]](#) *Highlighted by C&EN News.*
- 20) Rebecca L. Siegelman,[‡] **Phillip J. Milner**,[‡] Jung-Hoon Lee, Alexander C. Forse, Jeffrey B. Neaton, Jeffrey A. Reimer, Jeffrey R. Long*. “Water Enables Effective CO₂ Capture from Natural Gas Flue Emissions in an Oxidation-Resistant Diamine-Appended Metal–Organic Framework.” *J. Am. Chem. Soc.* **2019**, *141*, 13171–13186. [‡]Contributed equally. [\[Link\]](#) *Highlighted by Lawrence Berkeley National Lab.*
- 19) Rebecca L. Siegelman,[‡] **Phillip J. Milner**,[‡] Eugene J. Kim, Simon C. Weston*, Jeffrey R. Long*. “Challenges and Opportunities for Adsorption-Based CO₂ Capture from Natural Gas Combined Cycle Emissions.” *Energy Environ. Sci.* **2019**, *12*, 2161–2173. [‡]Contributed equally. [\[Link\]](#)
- 18) C. Michael McGuirk, Rebecca L. Siegelman, Walter S. Drisdell, Tomče Runčevski, **Phillip J. Milner**, Julia Oktawiec, Liwen F. Wan, Gregory M. Su, Henry Z. H. Jiang, Douglas A. Reed, Miguel I. Gonzalez, David Prendergast, Jeffrey R. Long*. “Cooperative and Reversible Chemisorption of Carbon Disulfide in Diamine-Appended Metal–Organic Frameworks.” *Nat. Commun.* **2018**, *9*, 5133. [\[Link\]](#)
- 17) Alexander C. Forse, **Phillip J. Milner**, Jung-Hoon Lee, Halle N. Redfearn, Julia Oktawiec, Rebecca L. Siegelman, Jeffrey D. Martell, Bhavish Dinakar, Leo B. Porter-Zasada, Miguel I. Gonzalez, Jeffrey B. Neaton*, Jeffrey R. Long*, Jeffrey A. Reimer*. “Elucidating CO₂

Chemisorption in Diamine-Appended Metal–Organic Frameworks.” *J. Am. Chem. Soc.* **2018**, *140*, 18016–18031. [\[Link\]](#)

16) Miguel I. Gonzalez,[‡] Matthew T. Kapelewski,[‡] Eric D. Bloch, **Phillip J. Milner**, Douglas A. Reed, Matthew R. Hudson, Jarad A. Mason, Gokhan Barin, Craig M. Brown, Jeffrey R. Long*. “Separation of Xylene Isomers Facilitated by the Interaction of One Molecule with Two Metal Sites in the Metal–Organic Frameworks Co₂(dobdc) and Co₂(*m*-dobdc).” *J. Am. Chem. Soc.* **2018**, *140*, 3412–3422. [‡]Contributed equally. [\[Link\]](#)

15) Alexander C. Forse, Miguel I. Gonzalez, Rebecca L. Siegelman, Velencia J. Witherspoon, Sudi Jawahery, Rocio Mercado, **Phillip J. Milner**, Jeffrey D. Martell, Berend Smit, Bernard Blümich, Jeffrey R. Long*, Jeffrey A. Reimer*. “Unexpected Diffusion Anisotropy of Carbon Dioxide in the Metal–Organic Framework Zn₂(dobpdc).” *J. Am. Chem. Soc.* **2018**, *140*, 1663–1673. [\[Link\]](#)

14) **Phillip J. Milner**, Jeffrey D. Martell, Rebecca L. Siegelman, David Gygi, Simon C. Weston, Jeffrey R. Long*. “Overcoming Double-Step CO₂ Adsorption and Minimizing Water Co-Adsorption in Bulky Diamine-Appended Variants of Mg₂(dobpdc).” *Chem. Sci.* **2018**, *9*, 160–174. [\[Link\]](#)

13) Jeffrey D. Martell, Leo B. Porter-Zasada, Alexander C. Forse, Rebecca L. Siegelman, Miguel I. Gonzalez, Julia Oktawiec, Tomče Runčevski, Jiawei Xu, Monika Srebro-Hooper, **Phillip J. Milner**, Kristen A. Colwell, Jochen Autschbach, Jeffrey A. Reimer, Jeffrey R. Long*. “Enantioselective Recognition of Ammonium Carbamates in a Chiral Metal–Organic Framework.” *J. Am. Chem. Soc.* **2017**, *139*, 16000–16012. [\[Link\]](#)

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