

Carl K. Brozek

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Professional Appointments

Associate Professor, University of Oregon	2025–present
Assistant Professor, University of Oregon	2018–2025
Postdoctoral Fellow, University of Washington (Advisor: Daniel Gamelin)	2015–2018

Education

Ph.D. in Inorganic Chemistry (Advisor: Mircea Dincă) *Massachusetts Institute of Technology*, June, 2015
S.B. Honors in Chemistry (Advisor: Gregory Hillhouse) *University of Chicago*, June, 2010

Awards and Honors

Fulbright U.S. Scholar Award	2025
Research Fellow, Japanese Society for the Promotion of Science	2024
NSF CAREER Award	2024
Dream Chemistry Award	2022
Cottrell Scholar Award	2022
Emerging Investigator for <i>Chemical Communications</i>	2022
Emerging Investigator for <i>Journal of Materials Chemistry</i>	2020
Young Investigator Award – ACS Division of Inorganic Chemistry	2016
Alan Davison Prize (Best Inorganic Thesis) – MIT	2015
Washington Research Foundation Innovation Fellow in Clean Energy	2015
MIT School of Science Appreciation Award	2015
National Science Foundation Graduate Research Fellowship	2010-2014
Beckman Scholars Program in Molecular Sciences Fellowship	2007-2009

External Funding

“CAREER: Colloidal Nanoparticle Interfaces Probed by Vibrational Sum-Frequency Scattering Spectroscopy” <i>National Science Foundation, Division of Chemistry</i> – \$700,000 – Single-PI	2025-2030
“Impacts of Dynamic Bonding on the Properties of Porous Materials” <i>Department of Energy, Basic Energy Sciences</i> – \$648,637 – Single-PI	2024-2027
“Synthetic Control over MOF Particle Growth and Surface Chemistry” <i>National Science Foundation, Division of Materials Research</i> – \$450,000 – Single-PI	2021-2025
“Impacts of Dynamic Bonding on the Properties of Porous Materials” <i>Department of Energy, Basic Energy Sciences</i> – \$525,000 – Single-PI	2021-2024
“Clean Water from Porous Nanocrystals” <i>Cottrell Scholar Award, Research Corporation</i> – \$100,000 – Single-PI	2022-2025
“Direct Reduction of Metal Oxides to Metals for Electrowinning and Energy Storage” <i>Department of Energy, Basic Energy Sciences</i> – \$752,144 – Co-PI	2022-2025
“MRI: MRI: Track 1 Physical Property Measurement System for diverse materials research and education” <i>National Science Foundation, Division of Materials Research</i> – \$539,890 – Co-PI	2025-2028
“MRI: Acquisition of a Direct Detection Electron Camera for an Existing Scanning Transmission Electron Microscope for Low-Dose and Phase-Sensitive Imaging of Materials” <i>National Science Foundation, Division of Materials Research</i> – \$390,733 – Co-PI	2022-2025

Research Group Members and Alumni

Current

Audrey Davenport (PhD candidate)
Faiqa Khaliq (PhD candidate)
Dwaipayan Roychowdhury (PhD candidate)
Hannah Negri (PhD candidate - *Anticipated*)

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Hannah Reynolds (PhD candidate - *Anticipated*)
Lillian Johnson (PhD candidate - *Anticipated*)
Dr. Erik Svensson Grape (postdoctoral fellow)
Dr. Jonathan Rowell (postdoctoral fellow)
Saul Bramel (undergraduate)
Nolan Poole (undergraduate)
Audrey Boeschoten (undergraduate)
Miles Griffith (undergraduate)
Emma Mahady (undergraduate)

Alumni – Current Position

Quinn Valentine – PhD, 2025 – University of Toronto, Postdoctoral Fellow
Jacob McKenzie – PhD, 2024 – Kolitch Romano Dascenzo Gates LLC, Technology Specialist
Ashley Mapile – PhD, 2024 – Springer Nature, Editor
Michael A. LeRoy – PhD, 2024 – Google, Data Analyst
Dr. Jiawei Huang – Postdoc – August 2021 through March 2024 – *Sr. Electrochemical Engineer – Eleryc*
Kevin Fabrizio – PhD, 2023 – Transaera, Principal Materials Engineer
Checkers R. Marshall – PhD, 2022 – Svante, Materials Synthesis R&D Chemist
Dr. Kasinath Ojha – Postdoc – February 2022 through August 2023 – *Sr. Electrochemist – Utility Global*
Dr. Kentaro Kadota – Postdoc – August 2020 through August 2022 – *Assist. Prof. – Kyoto University*
Dr. Konstantinos Lazarou – Postdoc – September 2019 through April 2020 – CAS
Augie Witkowski – M.S. – June 2020 through April 2021 – *Medtronic*
Emma E. Timmel – M.S. – June through August 2020 – *Evidera*
Maria Anderson – Undergraduate – October 2019 through June 2020
Sara A. Staudhammer – Undergraduate – June 2018 through June 2020 – *Ph.D. Candidate – ETH Zurich*
Micaela Verbitsky – Undergraduate – October 2019 through June 2021
Jiayi Yin – Undergraduate – September 2019 through March 2020
Jeremy Love – Undergraduate – September 2019 through June 2023
Jeffrey Gombart – Undergraduate – May 2022 through June 2023
Kelsie Heffernan – Undergraduate – June 2021 through March 2023

Visiting Scientists – Dates

Itsuki Yamada – Visiting Ph.D. student, University of Tokyo – May 2026-present
Haeun Chang – Visiting Ph.D. student, UC–San Diego – October 2022
Sergio Tatay – Visiting Professor, ICMol – May 2022
Hooman Parhizkar – Joint Ph.D. student, UO Architecture – September 2019-June 2022
Natalia Padiál – Visiting Professor, ICMol – July-September 2023

Publication List (67 total, see Google Scholar) – h-index 33 – ~5600 citations

*# denotes undergraduate coauthor; * denotes corresponding co-author*

Since joining the University of Oregon

- (67) Khaliq, F.; Shakar, R.; Smith, C.; **Brozek, C. K.***
"Low-Voltage Electrophoretic Deposition with Metal-Organic Framework Nanoparticles"
In Review 2026.
- (66) Davenport, A.; Mezerkor, C.; Negri, H.; Kempler, P.; Hamachi, L.; Bazak, J. D.; **Brozek, C. K.***
"Spectroscopic Probes of the MOF Nanoparticle Interphase Region"
In Review 2026.
- (65) Davenport, A.; Svensson Grape, E.; Mahady, E.;[#] Kadota, K.; Horike, S.; Dunning, S.;
Boeschoten, A.; Brodale, P.; Hendon, C. H.; **Brozek, C. K.***
"Particle Size Controls Phase Selectivity and Lattice Flexibility in Copper Triazolate MOF
Nanoparticles"
In Review 2026.
- (64) Chen, H.; Zhao, T.; Li, W.; He, L.; Guo, J.; Yao, Z.-F.; Ma, C.; Fan, Y.; Jiang, B.; Zhang, L.;

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- Zhang, H.-Y.; Liu, S.; Zhang, Z.; Sun, L.; Yang, L.; **Brozek, C. K.**; Zheng, Y.-Q.; Li, J.; Chen, T.; Sun, J.; Dou, J.-H.*
"Aligning chemical kinetics with crystallization enables millimeter-scale single crystals of conductive MOFs"
J. Am. Chem. Soc. **2026**, *Just Accepted*
- (63) Clayton, T. D.; Spaulding, V. R.; Davenport, A. M.; Zakharov, L. N.; **Brozek, C. K.**; Jasti, R.*
"Redox-Active Multi-Thianthrene Cycloparaphenylenes: Synthesis and Supramolecular Properties"
Chem. Commun. **2026**, *Just Accepted*
- (62) Wang, Y.; Miao, X.; Kempler, P. A.; Dou, J. H.; **Brozek, C. K.**; L Sun, L.*
"Screening-Enabled Chemiresistive Moisture Sensing with Tetrathiafulvalene-Based Electrically Conductive Metal–Organic Frameworks"
J. Am. Chem. Soc. **2025**, *147*, 48158.
- (61) Khaliq, F.; Beck, R.; Svensson Grape, E.; Navidi, G.; Griffith, M.; Marshall, C.; Li, X.; **Brozek, C.K.***
"Size-Dependent Band Gaps in Metal-Organic Framework Nanoparticles"
J. Am. Chem. Soc. **2025**, *147*, 45748.
- (60) Svensson Grape, E.; Davenport, A.; Kadota, K.; Horike, S.; **Brozek, C. K.***
"Crystallographic Evidence of Size-Dependent Bond Flexibility in MOF Nanocrystals"
ACS Mater. Lett. **2025**, *7*, 3893.
- (59) Svensson Grape, E.; **Brozek, C. K.***
"Turn-on Conductivity with Proton-Coupled Electron Transport in Metal–Organic Frameworks"
J. Am. Chem. Soc. **2025**, *147*, 40981.
- (58) Banning, D. H.; Davenport, A. M.; Lakanen, N. M.; Huang, J.; **Brozek, C. K.***, Johnson, D. W.*
"ChemFET Anion Sensor Based on MOF Nanoparticles"
ChemPlusChem **2024** e202400622.
- (57) McKenzie, J.; Pennington, D. L.; Kadota, K.; Ericson, T.; Cope, E.; Cozzolino, A. F.; Hendon, C. H.*; **Brozek, C. K.***
"Tunable Interlayer Interactions in 2D van der Waals Frameworks"
Adv. Mater. **2024** 2409959.
- (56) Mapile, A. N.; Svensson Grape, E.; **Brozek, C. K.***
"Solvation of Nanoscale Materials"
Chem. Mater. **2024**, *36*, 9075.
- (55) Davenport, A. M.; Marshall, C. R.; Kadota, K.; Andreeva, A. B.; Horike, S.; **Brozek, C. K.***
"Size-Dependent Spin Crossover and Bond Flexibility in Metal-Organic Framework Nanoparticles"
J. Am. Chem. Soc. **2024**, *146*, 23692.
- (54) Huang, J.; Heffernan, K.;[#] Debela, T. T.; Marshall, C. R.; Davenport, A. M.; McKenzie, J.; Meikun Shen, M.; Hou, S.; Mitchell, J. B.; Ojha, K.; Hendon, C. H.; **Brozek, C. K.***
"Electrochemical Anion Sensing in Conductive Porous Manifolds"
J. Am. Chem. Soc. **2024**, *146*, 21099.
- (53) Svensson Grape, E.; Huang, J.; Roychowdhury, D.; Debela, T.; Chang, H.; Jenkins, A.;[#] Schimpf, A.; Hendon, C. H.; **Brozek, C. K.***
"Converting Heat to Electrical Energy Using Highly Charged Polyoxometalate Electrolytes"
ACS Appl. Energy Mater. **2024**, *acsam.4c00036*.
Invited as part of the "Early Career Forum 2024" Issue.
- (52) Mapile, A. N.; LeRoy, M. A.; Fabrizio, K.; Scatena, L. F.; **Brozek, C. K.***
"The Surface of Colloidal Nanocrystals Revealed by Vibrational Sum Frequency Scattering Spectroscopy"
ACS Nano **2024**, *18*, 13406.
- (51) LeRoy, M. A.; Perera, A. S.; Lamichhane, S.; Mapile, A. N.; Khaliq, F.; Kadota, K.; Zhang, X.; Ha, S.; **Brozek, C. K.***
"The Colloidal Stability and Solubility of Metal-Organic Framework Particles"
Chem. Mater. **2024**, *36*, 3673.
- (50) Svensson Grape, E.; Davenport, A. M.; **Brozek, C. K.***
"Dynamic metal-linker bonds in metal-organic frameworks"

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- Dalton Trans.* **2024**, 53, 1935.
Invited as part of the "2024 Frontier and Perspective" articles.
- (49) Kadota, K.; Chen, T.; Gormley, E.; Hendon, C. H.; Dincă, M.; **Brozek, C. K.***
"Electrically Conductive [Fe₄S₄]-based Organometallic Polymers"
Chem. Sci. **2023** 14, 11410.
- (48) Fabrizio, K.; Gormley, E.; Davenport, A. M.; Hendon, C. H.;* **Brozek, C. K.***
"Gram Scale Synthesis of MIL-125 Nanoparticles and their Solution Processability"
Chem. Sci. **2023**, 14, 8946.
- (47) Huang, J.; Marshall, C. R.; Ojha, K.; Shen, M.; Golledge, S.; Kadota, K.; McKenzie, J.; Fabrizio, K.; Mitchell, J. B.; Khaliq, F.; Davenport, A. M.; LeRoy, M. A.; Mapile, A. N.; Debela, T. T.; Twight, L. P.; Hendon, C. H.; **Brozek, C. K.***
"Giant Redox Entropy in the Intercalation versus Surface Chemistry of Nanocrystal Frameworks with Confined Pores"
J. Am. Chem. Soc. **2023**, 145, 6257.
- (46) Fabrizio, F.; Andreeva, S. B.;# Kadota, K.; **Brozek, C. K.***
"Guest-Dependent Bond Flexibility in UiO-66, a 'Stable' MOF"
Chem. Commun. **2023**, 59, 1309.
Invited as part of the "2022 Emerging Investigators" Issue.
- (45) Fabrizio, K.; **Brozek, C. K.***
"Size-dependent Thermal Shifts to MOF Nanocrystal Optical Gaps Induced by Dynamic Bonding"
Nano Lett **2023**, 23, 905.
- (44) McKenzie, J.; Kempler, P. A.; **Brozek, C. K.***
"Solvent-Controlled Ion-Coupled Charge Transport in Microporous Metal Chalcogenides"
Chem. Sci. **2022** 13, 12747.
- (43) Nolan McNeill, J. N.; Karas, L. J.; Bard, J. P.; Fabrizio, K.; Zakharov, L. N.; MacMillan, S. N.; **Brozek, C. K.**; Wu, J. I.; Johnson, D. W.;* Haley, M. M.*
"Controlling Tautomerization in Pyridine-Fused Phosphorus-Nitrogen Heterocycles"
Chem—Eur. J. **2022** 28, e2022004.
- (42) Fabrizio, K.; Le, K. N.; Andreeva, S. B.;# Hendon, C. H.*; **Brozek, C. K.***
"Determining Optical Band Gaps of MOFs"
ACS Mater. Lett. **2022** 4, 457.
- (41) McKenzie, J.; Le, K. N.; Bardgett, D. J.;# Collins, K.; Ericson, T.; Wojnar, M. E.; Chouinard, J.; Golledge, S.; Cozzolino, A. F.; Johnson, D.C.; Hendon, C. H.*; **Brozek, C. K.***
"Conductivity in Open Framework Chalcogenides Tuned via Band Engineering and Redox Chemistry"
Chem. Mater. **2022** 34, 1905.
- (40) Marshall, C. R.; Dvorak, J. P.; Twight, L. P.; Chen, L.; Kadota, K.; Andreeva, A. B.;# Overland, A. E.;# Ericson, T.; Cozzolino, A. F.; **Brozek, C. K.***
"Solution-Processable Nanocrystals of Conductive MOFs"
J. Am. Chem. Soc. **2022**, 144, 5784.
- (39) Andreeva, S. B.;# Le, K. N.; Kadota, K.; Horike, S.; Hendon, C. H.*; **Brozek, C. K.***
"Cooperativity and Metal Linker Dynamics in Spin Crossover Framework Fe(1,2,3-Triazolate)₂"
Chem. Mater. **2021**, 33, 8534.
- (38) López-Olvera, A.; Flores, J. G.; Aguilar-Pliego, J.; **Brozek, C. K.***; Gutierrez-Alejandre, A.*; Ibarra, I.*
"Chemical transformation of H₂S within the pores of MOFs: formation of polysulfides"
Chem. Mater. **2021**, 33, 6269.
- (37) Mancuso, J.; Fabrizio, K.; **Brozek, C. K.***; Hendon, C. H.*
"On the limit of proton-coupled electronic doping in a Ti(IV)-containing MOF"
Chem. Sci. **2021**, 12, 11779.
- (36) Araujo, J.; **Brozek, C. K.**; Liu, H.; Merkulova, A.; Li, X.; Gamelin, D.
"Tunable Band-Edge Potentials and Charge Storage in Colloidal Tin-Doped Indium Oxide (ITO) Nanocrystals"
ACS Nano. **2021**, 15, 14116.
- (35) Allendorf, M.*; Stavila, V.; Witman, M.; **Brozek, C. K.**; Hendon, C. H.
"What Lies Beneath a MOF Crystal Structure: New Design Principles from Unexpected

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- Behaviors"
J. Am. Chem. Soc. **2021**, *143*, 6705.
- (34) Fabrizio, K.; Lazarou, K. A.; Payne, L. I.; # Twight, L.; Hendon, C. H.*; **Brozek, C. K.***
"Tunable Band Gaps in MUV-10(M): A Family of Photoredox-Active MOFs with Earth-Abundant Open Metal Sites"
J. Am. Chem. Soc. **2021**, *143*, 12609.
- (33) Boettcher, S. W.*; Oener, S. Z.; Lonergan, M. C.; Surendranath, Y.; Ardo, S.; **Brozek, C. K.;**
Kempler, P. A.
"Potentially Confusing: Potentials in Electrochemistry"
ACS Energy Lett. **2020**, *6*, 261.
- (32) LeRoy, M. A.; Mroz, A. M.; Mancuso, J. L.; Miller, A.; Van Cleve, A.; Check, C.; Heinz, H.;
Hendon, C. H.; **Brozek, C. K.***
"Post-Synthetic Modification of Ionic Liquids Using Redox and Ligand-Exchange Coordination Chemistry."
J. Mater. Chem. A **2020**, *8*, 22674.
Invited as part of the "2020 Emerging Investigators Themed Issue"
- (31) Andreeva, S. B.; # Le, K. N.; Chen, L.; Kellman, M. E.; Hendon, C. H.*; **Brozek, C. K.***
"Soft Mode Metal-Linker Dynamics in Carboxylate MOFs Evidenced by Variable-Temperature Infrared Spectroscopy"
J. Am. Chem. Soc. **2020**, *142*, 19291.
- (30) Marshall, C. R.; Timmel, E.; Staudhammer, S. A.; # **Brozek, C. K.***
"Experimental Evidence for a General Model of Modulated MOF Nanoparticle Growth."
Chem. Sci. **2020**, *11*, 11539.
- (29) Schaub, T. A.; Prantl, E. A.; Kohn, J.; Bursch, M.; Marshall, C. R.; Leonhardt, E. J.; Lovell, T. C.;
Zakharov, L. N.; **Brozek, C. K.;** Waldvogel, S. R.; Grimme, S.; Jasti, R.
"Exploration of the Solid-State Sorption Properties of Shape-persistent Macrocyclic Nanocarbons as Bulk Materials and Small Aggregates."
J. Org. Chem. **2020**, *142*, 8763.
- (28) Jover, J.; **Brozek, C. K.;** Dincă, M.; Lopez, N.
"Computational exploration of NO single-site disproportionation on Fe-MOF-5"
Chem. Mater. **2019**, *31*, 8875.
- (27) Van Raden, J.; Leonhardt, E.; Zakharov, L.; Pérez-Guardiola, A.; Pérez-Jiménez, Á.; Marshall, C.; **Brozek, C.;** Sancho-García, J.-C.; Jasti, R.
"Precision Nanotube Mimics via Self-Assembly of Programmed Carbon Nanofoams"
J. Org. Chem. **2019**, *85*, 129.
- (26) Marshall, C. R.; Staudhammer, S. A.; # **Brozek, C. K.***
"Size Control of Metal-Organic Framework Porous Nanocrystals."
Chem. Sci. **2019**, *10*, 9396.
- Prior to the University of Oregon*
- (25) Araujo, J.; **Brozek, C. K.;** Kroupa, D.; Gamelin, D. R.; "Degenerately n-Doped Colloidal PbSe Quantum Dots: Band: Assignments and Electrostatic Effects."
Nano Lett. **2018**, *18*, 3893.
- (24) **Brozek, C. K.;** Zhou, D.; Liu, H.; Li, X.; Kittilstved, K. R.; Gamelin, D. R. "Soluble Supercapacitors: Large and Reversible Charge Storage in Colloidal Fe-Doped ZnO Nanocrystals."
Nano Lett. **2018**, *18*, 3297.
- (23) Hartstein, K. H.; **Brozek, C. K.;** Hinterding, S. O. M.; Gamelin, D. R. "Copper-Coupled Electron Transfer in Colloidal Plasmonic Copper-Sulfide Nanocrystals Probed by in Situ Spectroelectrochemistry."
J. Am. Chem. Soc. **2018**, *140*, 3434.
- (22) Liu, H.; **Brozek, C. K.;** Sun, S.; Lingerfelt, D. B.; Gamelin, D. R.; Li, X. "A Hybrid Quantum-Classical Model of Electrostatics in Multiply Charged Quantum Dots."
J. Phys. Chem. C **2017**, *121*, 26086.
- (21) **Brozek, C. K.;** Ozarowski, A.; Stoian, S. A.; Dincă, M. "Dynamic Structural Flexibility of Fe-MOF-5 Evidenced by ⁵⁷Fe Mössbauer Spectroscopy."

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- Inorg. Chem. Front.* **2017**, 3 782.
- (20) Carroll, G. M.; Tsui, E. Y.; **Brozek, C. K.**; Gamelin, D. R. "Spectroelectrochemical Measurement of Surface Electrostatic Contributions to Colloidal CdSe Nanocrystal Redox Potentials." *Chem. Mater.* **2016**, 28, 7912.
- (19) **Brozek, C. K.**; Hartstein, K. H.; Gamelin, D. R. "Potentiometric Titrations for Measuring the Capacitance of Colloidal Photodoped ZnO Nanocrystals." *J. Am. Chem. Soc.* **2016**, 138, 10605.
- (18) Carroll, G. M.; **Brozek, C. K.**; Hartstein, K. H.; Tsui, E. Y.; Gamelin, D. R. "Potentiometric Measurements of Semiconductor Nanocrystal Redox Potentials." *J. Am. Chem. Soc.* **2016**, 138, 4310.
- (17) Metzger, E. D.; **Brozek, C. K.**; Comito, R. J.; Dincă, M. "Selective dimerization of ethylene to 1-butene with a porous catalyst" *ACS Central Science* **2016**, 2, 148.
- (16) Akimbekov, Z.; Wu, D; **Brozek, C. K.**; Dincă, M.; Navrotsky, A. "Thermodynamics of Solvent Interaction with the Metal-Organic Framework MOF-5" *Phys. Chem. Chem. Phys.* **2016**, 18, 1158.
- (15) **Brozek, C. K.**; Dincă, M. "Thermodynamic parameters of cation exchange in MOF-5 and MFU-4l" *Chem. Commun.* **2015**, 51, 11780.
- (14) Bellarosa, L.; **Brozek, C. K.**; Garcia-Melchior, M.; Dincă, M.; López, N. "When the Solvent Locks the Cage: Theoretical Insight into the Transmetalation of MOF-5 Lattices and its Kinetic Limitations" *Chem. Mater.* **2015**, 27, 3422.
- (13) **Brozek, C. K.**; Miller, J. T., Stoian, S. A.; Dincă, M. "NO Disproportionation at a Mononuclear Site-Isolated Fe²⁺ Center in Fe²⁺-MOF-5" *J. Am. Chem. Soc.* **2015**, 137, 7495.
- (12) **Brozek, C. K.**; Michaelis, V. K.; Ong, T.-C.; Bellarosa, L.; López, N.; Griffin, R. G.; Dincă, M. "Dynamic DMF Binding in MOF-5 Enables the Formation of Metastable Cobalt-Substituted MOF-5 Analogs " *ACS Central Science* **2015**, 1, 252.
- (11) Sheberla, D.; Sun, L.; Blood-Forsythe, M. A.; Er, S.; Wade, C. R.; **Brozek, C. K.**; Aspuru-Guzik, A.; Dincă, M. "High Electrical Conductivity in Ni₃(2,3,6,7,10,11-hexaiminotriphenylene)₂, a Semiconducting Metal-Organic Graphene Analogue" *J. Am. Chem. Soc.* **2014**, 136, 8859.
- (10) **Brozek, C. K.**; Dincă, M "Cation Exchange at the Secondary Building Units of Metal-organic Frameworks" *Chem. Soc. Rev.* **2014**, 43, 5456.
- (9) **Brozek, C. K.**; Bellarosa, L.; Soejima, T.; Clark, T. V.; Lopez, N.; Dincă, M "Solvent-Dependent Cation Exchange in Metal-organic Frameworks" *Chem.–Eur. J.* **2014**, 20, 6871.
- (8) Kuppuswamy, S.; Powers, T. M.; Johnson, B. M.; **Brozek, C. K.**; Krogman, J. P.; Bezpalko, M. W.; Berben, L. A.; Keith, J. M.; Foxman, B. M.; Thomas, C. M. "One-electron Oxidation Chemistry and Subsequent Reactivity of Diiron Imido Complexes" *Inorg. Chem.* **2014**, 53, 5429.
- (7) Cozzolino, A. F.; **Brozek, C. K.**; Palmer, R. D.; Yano, J.; Li, M.; Dincă, M. "Ligand Redox Non-innocence in the Stoichiometric Oxidation of Mn₂(2,5-dioxidoterephthalate) (Mn-MOF-74)" *J. Am. Chem. Soc.* **2014**, 136, 3334.
- (6) Kuppuswamy, S.; Bezpalko, M. W.; Powers, T. M.; Wilding, M. J. T.; **Brozek, C. K.**; C. K.; Foxman, B. M.; Thomas, C. M. "A Series of C₃-Symmetric Heterobimetallic Cr/M (M = Fe, Co, and Cu) Complexes" *Chem. Sci.* **2014**, 5, 1617.
- (5) **Brozek, C. K.**; Dincă, M. "Ti³⁺-, V^{2+/3+}-, Cr^{2+/3+}-, Mn²⁺-, and Fe²⁺-Substituted MOF-5 and Redox Reactivity in Cr- and Fe-MOF-5" *J. Am. Chem. Soc.* **2013**, 135, 12886.
- (4) **Brozek, C. K.**; Cozzolino, A. F.; Teat, S. J.; Chen, Y.-C.; Dincă, M. "Quantification of Site-Specific Cation Exchange in Metal-organic Frameworks Using Multi-Wavelength Anomalous X-ray Dispersion"

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- Chem. Mater.* **2013**, *25*, 2998.
- (3) Kuppuswamy, S.; Powers, T. M.; Johnson, B. M.; Bezpalko, M. W.; **Brozek, C. K.**; Foxman, B. M.; Berben, L. A.; Thomas, C. M. "Metal-Metal Interactions in C₃-Symmetric Diiron Imido Complexes Linked by Phosphinoamide Ligands" *Inorg. Chem.* **2013**, *52*, 4802.
- (2) **Brozek, C. K.**; Dincă, M. "Lattice-Imposed Geometry in Metal-Organic Frameworks: Lacunary Zn₄O Clusters in MOF-5 Serve as Tripodal Chelating Ligands for Ni²⁺" *Chem. Sci.* **2012**, *3*, 2110.
- (1) Iluc, V. M.; Laskowski, C. K.; **Brozek, C. K.**; Harrold, N. D.; Hillhouse, G. L. "Monomeric and Dimeric Disulfide Complexes of Nickel(II)" *Inorg. Chem.* **2010**, *49*, 6817.

Patents

- (1) Dincă, M.; Metzger, E. M.; **Brozek, C. K.** "Compositions and methods for selective olefin oligomerization comprising metal-organic frameworks" **2016** – US10493441B2 – Active
- (2) Brozek, C.K.; Marshall, R. "Products comprising 1,2,3-triazolate metal-organic frameworks and methods of making and using the same" **2024** – 12,043,635 – Active
- (3) Brozek, C. K.; Huang, J. "Anion sensing using 1,2,3-triazolate metal-organic framework nanoparticles" **May 11, 2023** – U.S. Provisional Patent Application No. 63/463,837 – Filed
- (4) Brozek, C. K.; Davenport, A. M.; Svensson Grape, E. "Composition of copper-based metal-organic framework" **April 22, 2026** – U.S. Provisional Patent Application No. 64/046,893 – Filed
- (5) Brozek, C. K.; Khaliq, F. "Electrophoretic deposition of metal-organic framework particles" **May 8, 2026** – U.S. Provisional Patent Application No. 64/060,953 – Filed

Invited Seminars (Departmental)

- | | |
|---|---|
| (55) Korea Advanced Institute of Science & Technology | Daejeon, KR 2026 |
| (54) Nanyang Technological University | Singapore, SG 2026 |
| (53) Westlake University | Hangzho, CN 2026 |
| (52) Peking University | Beijing, CN 2026 |
| (51) Tohoku University | Sendai, JP 2025 |
| (50) Tokyo University | Tokyo, JP 2025 |
| (49) Kyushu University | Fukuoka, JP 2025 |
| (48) Kansei Gakuin University | Sanda, JP 2025 |
| (47) University of California—Santa Cruz | Santa Cruz, CA, June 2025 |
| (46) University of Washington | Seattle, WA, May 2025 |
| (45) University of Minnesota | Minneapolis, MN, May 2025 |
| (44) University of Tulsa | Tulsa, OK, November 2024 |
| (43) University of California—Berkeley | Berkeley, CA, September 2024 |
| (42) Argonne National Laboratory | Lemont, IL, August 2024 |
| (41) University of Illinois, Chicago | Chicago, IL, May 2024 |
| (40) Stanford University | Palo Alto, CA, April 2024 |
| (39) Indiana University—Bloomington | Bloomington, IN, March 2024 |
| (38) Massachusetts Institute of Technology | Cambridge, MA, February 2024 |
| (37) Harvard University | Cambridge, MA, February 2024 |
| (36) Institute of Organic Chemistry and Biochemistry of the CAS | Prague, CZ, December 2023 |
| (35) University of Alabama | Tuscaloosa, AL, October 2023 |
| (34) University of Pittsburgh | Pittsburgh, PA, September 2023 |
| (33) University of Illinois, UC | Urbana-Champaign, September 2023 |
| (32) Yale University | New Haven, CT, April 2023 |
| (31) University of Central Florida | Orlando, FL, January 2023 |
| (30) Rice University | Houston, TX, January 2023 |
| (29) Brandeis University | Waltham, MA, January 2023 |
| (28) University of California—Irvine | Irvine, CA, November 2022 |
| (27) California Institute of Technology | Pasadena, CA, November 2022 |
| (26) University of Southern California | Los Angeles, CA, November 2022 |
| (25) Columbia University | New York, NY, October 2022 |

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(24) Texas A&M University	College Station, TX, October 2022
(23) University of Notre Dame	South Bend, IN, September 2022
(22) University of Chicago	Chicago, IL, September 2022
(21) University of Valencia	Valencia, ES, July 2022
(20) Catalan Institute of Nanoscience and Nanotechnology	Barcelona, ES, July 2022
(19) Materials Science Institute of Madrid	Madrid, ES, July 2022
(18) University of California—San Diego	La Jolla, CA, April 2022
(17) University of California—Los Angeles	Los Angeles, CA, April 2022
(16) Mississippi State University	Starkville, MS, October 2021
(15) Texas Tech University	Lubbock, TX, October 2021
(14) Wayne State University	Detroit, MI, September 2021
(13) Michigan State University	East Lansing, MI, September 2021
(12) University of Michigan	Ann Arbor, MI, September 2021
(11) University of Washington	Seattle, WA, August 2021
(10) Pacific Lutheran University	Tacoma, WA, November 2019
(9) Cornell University	Ithaca NY, February 2018
(8) University of Colorado, Boulder	Boulder CO, February 2018
(7) University of California, Riverside	Riverside CA, January 2018
(6) Michigan State University	East Lansing MI, January 2018
(5) University of Oregon	Eugene OR, December 2017
(4) ETH-Zurich	Zurich CH, November 2017
(3) University of Washington	Seattle WA, January 2017
(2) Princeton University	Princeton NJ, January 2017
(1) California Institute of Technology	Pasadena CA, January 2017

Invited Seminars (Conferences)

(23) NORM 2026	Boise, ID July 2026
(22) MOF 2026	New Orleans, LA May 2026
(21) Pacifichem 2025	Honolulu, HI January 2025
(20) American Conference on Inorganic Nanoscience	West Dover, VT July 2025
(19) TSRC Workshop on Porous Materials	Telluride, CO June 2025
(18) Fall 2024 American Chemical Society	Denver, CO August 2024
(17) Spring 2024 Electrochemistry Society	San Francisco, CA, June 2024
(16) GRC—Inorganic Chemistry	Newport, RI, June 2024
(15) Oregon Center for Electrochemistry	Eugene, OR, September 2023
(14) 9 th International DMRCS	Chiba, JP, August 2023
(13) 2 nd Kyoto Advanced Porous Science Symposium	Kyoto, JP, August 2023
(12) NORM 2023	Bozeman, MT, June 2023
(11) TSRC Workshop on Porous Materials (<i>Keynote Speaker</i>)	Telluride, CO, June 2023
(10) Fall 2022 ACS (<i>Young Investigator Symposium</i>)	Chicago, IL, August 2022
(9) Pacifichem 2021	Honolulu, HI, December 2021
(8) 14th Pacific Rim Conference	Vancouver, BC, Canada, December 2021
(7) MCARE 2021	Virtual, July 2021
(6) 259th National ACS Meeting (<i>anceled due to COVID-19</i>)	Philadelphia, PA, March 2020
(5) 2019 Southeastern Regional ACS Meeting	Savannah, GA, October 2019
(4) 2019 Nanoporous Materials GRS	Andover, NH, August 2019
(3) 255th National ACS Meeting, Inorganic Division	New Orleans LA, March 2018
(2) 252nd National ACS Meeting, Inorganic Division	Philadelphia PA, August 2016
(1) 8th Annual Mössbauer Symposium	Northeastern University, Boston MA, January 2015

Journal Review (> 200 manuscripts since 2018)

Journal of the American Chemical Society, Angewandte Chemie International Edition, Chemical Science, Chemical Society Reviews, Inorganic Chemistry, Dalton Transactions, ACS Applied Materials and Interfaces, Chemical Communications, ACS Applied Energy Materials, Materials Chemistry, Materials Chemistry Frontiers, Journal of Materials Science, Inorganica Chimica Acta, Crystal Growth and Design, ACS Nano, Nature Communications, ACS Materials Letters

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Grant Review

Ad hoc reviewer for the Department of Energy (BES)
Ad hoc reviewer for the ACS Petroleum Research Fund
Ad hoc reviewer for the National Science Foundation (DMR, CHE)
Ad hoc reviewer for the Murdoch Family Charitable Trust
Panel reviewer for the National Science Foundation (DMR, CHE)

Teaching Experience

Chem 225H: Advanced General Chemistry; Enrollment: 18-77 **2020–present**
Chem 410/510: Materials Chemistry; Enrollment: 12-25 **2018–present**
Chem 410/601: Research in Soft Materials; Enrollment: 5-12 **2018–present**
Chem 623: OIM Journal Club; Enrollment: 12-28 **2019–2021, 2023**

Departmental Service

Diversity, Equity, and Inclusion Committee **2019–2021**
Graduate Admissions Committee **2018–present**
PhD thesis member **>30 students since 2018**

University Service

P2P Exploratory Committee **2019-2021**
Faculty Advisory Committee for CAMCOR **2019–present**
Co-founder, Oregon Center for Electrochemistry **2019–present**
College of Arts and Sciences Fellowship Committee **2025–present**

Conference Organization

ACS NORM **2019**
Fall 2022 ACS **2022**
2nd Kyoto Advanced Porous Science Summit **2023**

Major Outreach and Mentoring

Co-founder, UO DuckREFS **2019–2022**
Co-founder, Mentor; Broader Impacts Cumulative Exam **2019–2022**

Collaborations and other affiliations

Danna Freedman (MIT), Hendrik Heinz (Colorado University, Boulder), Xiaosong Li (University of Washington), Daniel Gamelin (University of Washington), Christopher Hendon (University of Oregon), Ilich Ibarra (National Autonomous University of Mexico), Satoshi Horike (Kyoto University), Chad Risko (U. Kentucky), Anthony Cozzolino (Texas Tech University), Clemens Heske (University of Nevada)

Selected Press

"MIT faculty share best practices in graduate student advising" *MIT News*, **2015**
"Advising communication" *Science Magazine*, **2015**
"Improving student advising" *Science Magazine*, **2015**
"New Nanocrystals could remove contaminants from air and water" *Around the O*, **2022**
"Chemistry prof honored for research innovation, teaching" *Around the O*, **2022**
"From capturing energy to capturing the Dream Chemistry Award 2022" *dreamchemistryaward.org*, **2022**
"Training the next generation of green chemists" *CAS Connection*, **2025**
"Green chemistry for a green future" *CAS Connection*, **2025**