DEPARTMENT OF CHEMISTRY & BIOCHEMISTRY • THE OHIO STATE UNIVERSITY
100 W. 18TH AVE • COLUMBUS, OH 43210 • PHONE:(614)-688-2108
EMAIL: MCGRIER.1@OSU.EDU • WEBSITE: HTTPS://RESEARCH.CBC.OSU.EDU/MCGRIER.1/

PSARAS LAMAR MCGRIER

EDUCATION

2010	Ph.D. Organic/Polymer Chemistry, Georgia Institute of Technology (GT), Atlanta, GA
2004	B.S. Chemistry, University of South Carolina, Aiken (USCA), Aiken, SC

PROFESSIONAL EXPERIENCE

2020-Present	Associate Professor, Department of Chemistry and Biochemistry, The Ohio State University (OSU), Columbus, OH
2013-2020	Assistant Professor, Department of Chemistry and Biochemistry, The Ohio State University (OSU), Columbus, OH
2010-2013	Postdoctoral Scholar, Northwestern University, Evanston, IL *Research Advisor: Professor Sir Fraser Stoddart*
2010-2005	Research and Teaching Assistant, Department of Chemistry & Biochemistry, GT, Atlanta, GA *Research Advisor: Professor Uwe Bunz*
2004-2005	Lecturer, USCA, Aiken, SC

HONORS AND AWARDS

2020	Molecular Systems Design & Engineering Emerging Investigator Award
2018	American Chemical Society (ACS) Division of Polymeric Materials: Science and Engineering (PMSE) Young Investigator Award
2017	Journal of Materials Chemistry C Emerging Investigator Award
2015	American Chemical Society Petroleum Research Fund Doctoral New Investigator (ACS-PRF-DNI) Awardee ($110,000)
2013	Recipient of the GT Facilitating Academic Careers in Engineering and Science (FACES) and National Science Foundation (NSF) Career Initiation Grant
2010	Recipient of the GT-FACES and NSF Postdoctoral Grant ($35,000)
2010	Recipient of the GT Center for Organic Photonics and Electronics (COPE) Travel Grant ($1,000)

2008 The 8th International Symposium on Functional π-Electron Systems (Fπ8) Poster Winner for "Hydroxy Cruciforms: Amine-Responsive Fluorophores"

2005-2010 GT-FACES Fellow

2001-2004 South Carolina Legislative Incentive for Future Excellence (LIFE) Scholar

PUBLICATIONS (AT OSU)

[26] Covalent Organic Frameworks as Electrode Materials for Rechargeable Batteries. Wolfson, E. R.; Moscarello, E. M.; Haug, W. K.; McGrier, P. L.* *Organic Materials* **2021**, *3*, 67-89. (**Invited Contribution**)

[25] A Nickel-Doped Dehydrobenzoannulene-Based Two-Dimensional Covalent Organic Framework for the Reductive Cleavage of Inert Aryl C-S Bonds. Haug, W. K.; Wolfson, E. R.; Morman, B. T.; Thomas, C. M.; McGrier, P. L.* *J. Am. Chem. Soc.* **2020***, 142 (12),* 5521-5525.

[24] The Luminescent and Photophysical Properties of Covalent Organic Frameworks. Haug, W. K.; Moscarello, E. M.; Wolfson, E. R.; McGrier, P. L.* *Chem. Soc. Rev.* **2020**, *49*, 839-864. **(Featured in the 2020 New Frontiers in Covalent Organic Frameworks: Design and Applications Themed Collection)**

[23] A Dehydrobenzoannulene-based Two-Dimensional Covalent Organic Framework as an Anode Material for Lithium-Ion Batteries. Wolfson, E. R.; Xiao, N.; Schkeryantz, L.; Haug, W. K.; Wu, Y.; McGrier, P. L.* *Mol. Syst. Des. Eng.* **2020, *5*,** 97-101. (**Featured in the 2020 MSDE Emerging Investigators Themed Collection**)

[22] A Ruthenium Porphyrin-Based Porous Organic Polymer for the Hydrosilylative Reduction of CO_2 to Formate. Eder, G.; Pyles, D. A.; Wolfson, E. R.; McGrier, P. L.* *Chem. Commun.* **2019**, *55(50)*, 7195-7198.

[21] Mechanistic Investigations into the Cyclization and Crystallization of Benzobisoxazole-Linked Two-Dimensional Covalent Organic Frameworks. Pyles, D. A.; Coldren, W. H.; Eder, G. M.; Hadad, C. M.; McGrier, P. L.* *Chem. Sci.*, **2018**, *9(30)*, 6417-6423.

[20] Subphthalocyanine-based Porous Organic Polymers. Eder, G. M.; Walker, B. R.; McGrier, P. L.* *RSC Adv.* **2017**, *7(47)*, 29271-29274.

[19] The Excited State Intramolecular Proton Transfer Properties of Three Imine-Linked Two-Dimensional Porous Organic Polymers. Jagadesan, P.; Eder, G.; McGrier, P. L.* *J. Mater. Chem. C.* **2017**, *5(23)*, 5676-5679. (**Featured in the 2017 Emerging Investigators and Hot Papers Themed Collections**) (**Cover Page**)

[18] The Excited State Intramolecular Proton Transfer Properties of Three Salicylideneaniline-Based Chromophores with Extended Conjugation. Jagadesean, P.; Whittemore, T.; Beirl, T.; Turro, C.; McGrier, P. L.* *Chem. Eur. J.*, **2017**, *23(4)*, 917-925.

[17] Metalation of a Mesoporous Three-Dimensional Covalent Organic Framework. Baldwin, L. A.; Crowe, J. W.; Pyles, D. A.; McGrier, P. L.* *J. Am. Chem. Soc.,* **2016**, *138(46)*, 15134-15137. (**Highlighted in ChemistryViews**)

[16] Luminescent Covalent Organic Frameworks Containing a Homogeneous and Heterogeneous Distribution of Dehydrobenzoannulene Vertex Units. Crowe, J. W.; Baldwin, L. A.; McGrier, P. L.* *J. Am. Chem. Soc.,* **2016**, *138(32)*, 10120-10123.

[15] Synthesis of Benzobisoxazole-Linked Two-Dimensional Covalent Organic Frameworks and Their Carbon Dioxide Capture Properties. Pyles , D. A.; Crowe, J. W.; Baldwin, L. A.; McGrier, P. L.* *ACS Macro Lett.* **2016**, *5(9)*, 1055–1058. *(#7* ***most downloaded article from Sept. 2016 – Aug. 2017***)

[14] 2D Covalent Organic Frameworks with Alternating Triangular and Hexagonal Pores. Baldwin, L. A.; Crowe, J. W.; Shannon, M. D.; Jaroniec, C. P.; McGrier, P. L.* *Chem. Mater.,* **2015***, 27*(18), 6169-6172. *(#****5 most downloaded article Sept. - Oct. 2015***)

PUBLICATIONS (PRIOR TO OSU)

[13] A Water Soluble pH-Triggered Molecular Switch. Grunder, S.†; McGrier, P. L.†; Whalley, A. C.; Boyle, M. M.; Stern, C.; Stoddart, J. F. *J. Am. Chem. Soc.*, **2013**, *135(47)*, 17691-17694. († equal contributions)

[12] ExBox: A Polycyclic Aromatic Hydrocarbon Scavenger. Barnes, J.; Juríček, M.; Strutt, N.; Frasconi, M.; Sampath, S.; Giesener, M.; McGrier, P. L.; Bruns, C.; Stern, C.; Sarjeant, A.; Stoddart, J. F. *J. Am. Chem. Soc.*, **2013**, *135(1)*, 183-192. (**Cover Page**)

[11] A Neutral Napthalene Diimide [2]Rotaxane. Jacquot de Rouville, H. P.; Lehi, J.; Bruns, C. J.; McGrier, P. L.; Frasconi, M.; Sarjeant, A. A.; Stoddart, J. F. *Org. Lett*., **2012**, *14(20)***,** 5188-5191**.**

[10] Synthesis, Structure, and Metalation of Two New Highly Porous Zirconium Metal-Organic Frameworks**.** Morris, W.; Volosskiy, B.; Demir, S.; Gandara, F.; McGrier, P. L**.**; Furukawa, H.; Cascio, D.; Stoddart, J. F.; Yaghi, O. M. *Inorg. Chem.*, **2012***, 51(12),* 6443-6445.

[9] Hydroxydialkylamino Cruciforms: Amphoteric Materials with Unique Photophysical Properties. McGrier, P. L.; Solntsev, K. M.; Zucchero, A. J.; Miranda, O. R.; Rotello V. M.; Tolbert, L.; Bunz, U. H. F. *Chem. Eur. J.* **2011**, *17(11)*, 3112-3119. (**Frontispiece**)

[8] Hyperbranched Conjugated Polymers: Postfunctionalization. Kub, C; Tolosa, J., Zucchero, A. J., McGrier, P. L., Subramani, C., Khorasani, A., Rotello, V. M.; Bunz, U. H. F. *Macromolecules*. **2010**, *43(5)*, 2124-2129.

[7] Cross-Conjugated Cruciform Fluorophores**.** Zucchero, A. J., McGrier, P. L., Bunz, U. H. F. *Acc. Chem. Res.* **2010**, *43(5)*, 397-408. (**Cover page**)

[6] Acidochromicity of Bisarylethynylbenzenes: Hydroxy versus Dialkylamino Substituents. Brombosz, S. M., Zucchero, A. J., McGrier, P. L., Bunz, U. H. F. *J. Org. Chem*, **2009**, *74(23)*, 8909-8913. (**Featured Article**)

[5] Cruciform-Silica Hybrid Materials. Zucchero, A.J., Shiels, R.A., McGrier, P. L**.**, Alicia To, M., Jones, C. W., Bunz, U. H. F. *Chem. Asian. J*. **2009**, *4(2)*, 262-269.

[4] Hydroxycruciforms: Amine-Responsive Fluorophores. McGrier, P. L.; Solntsev, K. M.; Miao, S.; Tolbert, L. M.; Miranda, O. R.; Rotello, V. M.; Bunz, U. H. F. *Chem. Eur. J.* **2008**, *14(15)*, 4503-4510. (**Cover page**)

[3] Anomalous Photophysics of Bis(hydroxystyryl)benzenes: A Twist on the Para/Meta Dichotomy. Solntsev, K. M.; McGrier, P. L.; Fahrni, C. J.; Tolbert, L. M.; Bunz, U. H. F. *Org. Lett.* **2008**, 10(12), 2429-2432.

[2] Hydroxy-cruciforms**.** McGrier, P. L**.**; Solntsev, K. M.; Schonhaber, J; Brombosz, S; Tolbert, L. M.; Bunz, U. H. F. *Chem. Commun.* **2007**, 2127-2129.

[1] Evaluation of Melt Rate Through Higher Waste Loading. Lorier, T. H., McGrier, P. L. *Environmental Issues and Waste Management Technologies in the Ceramic and Nuclear Industries IX.* **2006**, Volume 155 (eds J. D. Vienna and D. R. Spearing), John Wiley & Sons, Inc., Hoboken, NJ, USA. DOI:10.1002/9781118407004.ch25

INVITED LECTURES

[21] Chemistry Department Colloquium. Worcester Polytechnic Institute, Worcester, MA; Apr. 17, 2019. "Synthesis and Design of Functional Covalent Organic Frameworks"

[20] Chemistry Department Colloquium. University of Vermont, Burlington, VT; Apr. 15, 2019. "Synthesis and Design of Functional Covalent Organic Frameworks"

[19] Chemistry Department Colloquium. Wayne State University, Detroit, MI; Apr. 10, 2019. "Synthesis and Design of Functional Covalent Organic Frameworks"

[18] Chemistry Department Colloquium. Indiana University Bloomington, Bloomington, IN; Mar 25, 2019. "Synthesis and Design of Functional Covalent Organic Frameworks"

[17] Chemistry Department Colloquium. University of Houston, Houston, TX; Mar. 5, 2019. "Synthesis and Design of Functional Covalent Organic Frameworks"

[16] Chemistry Department Colloquium. Miami University, Oxford, OH; July 19, 2018. "Synthesis and Design of Functional Covalent Organic Frameworks"

[15] Chemistry Department Colloquium. University of California, Los Angeles, Los Angeles, CA; Mar. 14, 2018. "Synthesis and Design of Functional Covalent Organic Frameworks"

[14] Chemistry Department Colloquium. University of Nebraska - Lincoln, Lincoln, NE; Feb. 23, 2018. "Synthesis and Design of Functional Covalent Organic Frameworks"

[13] Chemistry Department Colloquium. College of Wooster, Wooster, OH; Oct. 31, 2017. "Synthesis and Design of Functional Covalent Organic Frameworks"

[12] Chemistry Department Colloquium. University of Oregon, Eugene, OR; Oct. 27, 2017. "Synthesis and Design of Functional Covalent Organic Frameworks"

[11] Chemistry Department Colloquium. University of Texas at Dallas, Richardson, TX; Oct. 20, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[10] Chemistry Department Colloquium. Kent State University, Kent, OH; Oct. 12, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[9] Chemistry Department Colloquium. Case Western Reserve University, Cleveland, OH; Oct. 5, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[8] Chemistry Department Colloquium. University of North Carolina, Charlotte, Charlotte, NC; Sept. 28, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[7] Chemistry Department Colloquium. Purdue University, West Lafayette, IN; Sept 19, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[6] Chemistry Department Colloquium. Southern Illinois University, Carbondale, IL; Sept. 8, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[5] School of Chemistry. A Golden Age for Chemistry Symposium. University of Nottingham, Nottingham, UK; June 25-28, 2017. “Dehydrobenzoannulene-based Covalent Organic Frameworks”

[4] Department of Chemistry and the Center for Photochemical Sciences Colloquium. Bowling Green State University, Bowling Green, OH; April 26, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[3] Chemistry Department Colloquium. Marshall University, Huntington, WV; March. 10, 2017. “Synthesis and Design of Functional Covalent Organic Frameworks”

[2] Physics Department Exploration of Novel Complex Materials (ENCOMM) Seminar, The Ohio State University, Columbus, OH; April 22, 2015. “Synthesis and Design of Functional Covalent Organic Frameworks”

[1] Chemistry Department Colloquium. Youngstown State University, Youngstown State, OH; April 3, 2015. “Synthesis and Design of Functional Covalent Organic Frameworks

INVITED CONFERENCE PRESENTATIONS

[11] Gordon Research Conference: Physical Organic Chemistry, Holderness, NH; June 23-28 2019. “Synthesis and Design of Functional Covalent Organic Frameworks” Oral Presentation.

[10] 50th Central Regional Meeting of the American Chemical Society, Midland, MI, June 4-8, 2019. Synthesis & Characterization of Advanced Polymeric Materials, "Synthesis & characterization of a metalated porous organic polymer for the hydrosilylative reduction of CO_2 to formate".

[9] 256th American Chemical Society National Meeting, Boston, MA; August 19-23, 2018. PMSE Young Investigator Symposium. “Synthesis and Design of Functional Covalent Organic Frameworks”

[8] 256th American Chemical Society National Meeting, Boston, MA; August 19-23, 2018. Division of Polymeric Materials: Science and Engineering & Division of Polymer Chemistry: Porous Polymers 2018. **"**Benzobisoxazole-Linked Covalent Organic Frameworks"

[7] 255th American Chemical Society National Meeting, New Orleans, LA; March 18-22, 2018. Division of Inorganic Chemistry: Metal-Organic Frameworks: What are Next? **"**Benzobisoxazole-Linked Covalent Organic Frameworks"

[6] 47th Central Regional Meeting of the American Chemical Society, Covington, KY, May 18-21, 2016. Controlled Assembly of Functional Supramolecular Materials, "*Design &* Synthesis of Dehydrobenzoannulene-based 2D Covalent Organic Frameworks".

[5] 47th Central Regional Meeting of the American Chemical Society, Covington, KY, May 18-21, 2016. Organic Chemistry: Design of Functional Macromolecules, "Synthesis and Design of Benzoxazole-Linked Covalent Organic Frameworks".

[4] 15th Material Science and Technology National Meeting, Columbus, OH; October 4-8, 2015. Hybrid Organic-Inorganic Materials for Alternative Energy. "Metal-Doped Covalent Organic Frameworks: From Practical Designs to Gas Storage Applications"

[3] 250th American Chemical Society National Meeting, Boston, MA; August 16-20, 2015. Division of Energy and Fuels: Porous Materials for Energy and Sustainability from Discovery to Application. **"**Synthesis and Design of Functional Covalent Organic Frameworks"

[2] 249th American Chemical Society National Meeting, Denver, CO; March 22-26, 2015. Division of Polymeric Materials: Science and Engineering: Design Principles of Functional Macromolecular Materials. "Synthesis and Design of Functional Porous Organic Polymers"

[1] First Ohio Conference on Sustainable Use of Greenhouse Gases, Columbus, OH; August 18, 2014. "Novel Porous Materials for CO_2 Uptake and Sequestration."

SUBMITED CONFERENCE PRESENTATIONS

[9] 8th International Symposium on Nanoporous Materials (NANO-8), Ottawa, Canada, July 9-12, 2017. "The Excited-State Intramolecular Proton Transfer Properties of Imine-linked Porous Organic Polymers"

[8] 253rd American Chemical Society National Meeting, San Francisco, CA; April 2-6, 2017. Division of Energy and Fuels: Functional Porous Materials for Sustainable Energy. "Dehydrobenzoannulene-based Covalent Organic Frameworks"

[7] 253rd American Chemical Society National Meeting, San Francisco, CA; April 2-6, 2017. Division of Energy and Fuels: Functional Porous Materials for Sustainable Energy. "Synthesis of Benzobisoxazole-linked Two-dimensional Covalent Organic Frameworks & Their Properties for Carbon-Dioxide Capture"

[6] Gordon Research Conference: Polymers, South Hadley, MA; June 14-19 2015. "Synthesis and Design of Functional Porous Organic Polymers" Poster Presentation.

[5] 14th International Symposium of Novel Aromatic Compounds, Eugene, Oregon; July 2011. "Cruciform Metal-Organic Frameworks*"* Poster Presentation.

[4] 9th International Symposium on Functional π-Electron Systems (Fπ9), Atlanta, Georgia; May 2010. **"**Hydroxy-Dialkylamino Cruciforms: Novel Materials With Unique Photophysical Properties" Poster Presentation.

[3] National Organization for the Professional Advancement of Black Chemists and Engineers (NOBCChE); Atlanta, Georgia, March 2010. "Hydroxycruciforms: Amine Responsive Fluorophores" Poster Presentation.

[2] 8th International Symposium on Functional π-Electron Systems (Fπ8), Graz, Austria; July 2008. "Hydroxycruciforms: Amine Responsive Fluorophores" Poster Presentation.

[1] South Carolina Academy of Science, Chemistry Session, Clemson, South Carolina; March 2003. *"Melt Rate Improvement for the DWPF: Higher Waste Loading Testing"*

RESEARCH FUNDING

[6] **PI:** Psaras McGrier **Funding Period:** 09/01/20-08/31/22
Title: "EAGER: The Development of Covalent Organic Frameworks as Anode Materials for Potassium-Ion Batteries"
Sponsor: NSF Division of Chem., Bioeng., Env., & Transp. Sys. (CBET-2037707)
Amount: $149,885

[5] **PI:** Psaras McGrier **Funding Period:** 07/01/19-06/31/22
Title: "SusChem: Earth Abundant Metal-Doped Covalent Organic Frameworks for Heterogeneous Catalysis"
Sponsor: NSF Division of Chemistry (CHE-1856442)
Amount: $450,000

[4] **PI:** Psaras McGrier **Funding Period:** 01/01/17-12/31/17
Title: "Synthesis of Novel Benzobisoxazole-Linked Covalent Organic Frameworks for the Catalytic Conversion of Carbon Dioxide to Value Added Chemicals"
Sponsor: OSU-Institute for Materials Research (IMR) Facility Grant
Amount: $2,000

[3] **PI:** Psaras McGrier **Funding Period:** 09/01/16-08/31/17
Title: "Synthesis and Design of Novel Graphyne and Graphdiyne-Based Metal-Organic Frameworks"
Sponsor: OSU-IMR Exploratory Materials Research Grant
Amount: $40,000

[2] **PI:** Psaras McGrier **Funding Period:** 09/01/15-08/31/17
Title: "Synthesis and Design of Novel Metal-Doped Porous Organic Polymers: The Enhancement of π-Complexation with Small Unsaturated Hydrocarbons"
Sponsor: ACS-PRF (55562-DNI7)
Amount: $110,000

[1] **PI:** Psaras McGrier **Funding Period:** 09/01/13-08/31/18
Title: "Synthesis & Design of Novel Luminescent Covalent Organic Frameworks: Functional Porous Materials for Environmental Safety & Gas Storage Applications"
Sponsor: GT-FACES and NSF
Amount: $30,000

TEACHING

Fall 2013-Present	CHEM 2510: Organic Chemistry I
Spring 2015-2018	CHEM 5420: Organic Spectroscopy
Fall 2018 -Present	CHEM 6420: Physical Organic Chemistry I

SERVICE

Within the Department of Chemistry and Biochemistry at OSU:

Fall 2013-Present	Graduate Admissions Committee
Fall 2015-Spring 2018	Inorganic/Organic Seminar Co-Coordinator
Fall 2014-Present	Mentor to the student National Organization for Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) chapter at OSU. Presented an invited NOBCChE career development seminar entitled "How to Obtain a Job in Academia: The Process and Challenges" to the undergraduate, graduate, and postdoctoral students across many diverse fields (e.g., chemistry, biochemistry, physics, and engineering) at OSU.
Summer 2014, 2016 2019	Organic Division Oral Exam Committee
Fall 2019 – Present	Co-Director of the OSU Chemistry and Biochemistry (CBC) Post-Baccalaureate Bridge Program

Member of many (>40) Ph.D candidacy exams, M.S. Thesis, and Ph.D. Dissertation Committees.

Other Synergistic Activities:

Reviewer for *Polymer Chemistry, Journal of Materials Chemistry C, Inorganica Chimica Acta, ACS Macro Letters, Journal of the American Chemical Society, ACS Applied Materials & Interfaces, Chemical Communications, ACS Omega, ChemSusChem, Chemistry, A European Journal, Nature Communications, Chemical Science, Chemistry of Materials, Industrial & Engineering Chemistry Research, Journal of Physical Chemistry Letters, ACS Applied Nano Materials, and Nature Reviews Chemistry*.

Proposal reviewer for ACS-PRF and the United States Department of Energy (DOE).

Session Organizer for the 47th Central Regional Meeting of the American Chemical Society (CERMACS), Covington, Kentucky; 18-21 May 2016. Session Topic: *Functional Porous & Polymeric Materials: Synthesis, Properties & Applications*.

NSF Panelist for the Division of Materials Research (DMR) and the Division of Chemistry (CHE).

2020 NSF CHE Committee of Visitors (COV) Member

DEGREES AWARDED

M.S., August 2015	Toni Beirl
M.S., May 2018	Jinchao Yin
Ph. D., May 2017	Luke Baldwin, Recipient of the 2016 Sci-Finder Future Leaders Award
Ph. D., May 2017	Jonathan Crowe
Ph. D., May 2018	Grace Eder, OSU Hayes Graduate Forum Finalist
Ph. D., May 2019	David Pyles

SUPERVISED CO-WORKERS

Graduate Students:

Spring 2017-Present	Karl Haug
Spring 2017-Present	Eric Wolfson
Spring 2018-Present	Erica Moscarello
Spring 2020-Present	Zweli Hlatshwayo
Spring 2021-Present	Bertha Lotsi
Spring 2021-Present	Jared Doremus

Undergraduate Students:

Spring 2018-Present	Blake Morman
Spring 2019-Present	Jonah Wilson
Spring 2019-Present	Jonah Paszek