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A. EDUCATION AND TRAINING

- 1999-2001 Postdoc; Massachusetts Institute of Technology (Advisor: Stephen L. Buchwald)
- 1996-1999 Postdoc; Massachusetts Institute of Technology (Advisor: Stephen J. Lippard)
- 1991-1996 Ph.D.; University of Pennsylvania (Advisor: Bradford B. Wayland)
- 1985-1988 M.S.; Beijing Normal University, China (Advisor: Bo-Li Liu)
- 1981-1985 B.S.; Anhui Normal University, China (Advisor: Huai-Zhu Ma)

B. POSITIONS AND HONORS

Positions and Employments

- 2015-Now Professor, Department of Chemistry, Boston College
- 2010-2015 Professor, Department of Chemistry, University of South Florida
- 2006-2010 Associate Professor, Department of Chemistry, University of South Florida
- 2001-2006 Assistant Professor, Department of Chemistry, University of Tennessee
- 1999-2001 Postdoctoral Associate, Department of Chemistry, MIT
- 1996-1999 NIH Postdoctoral Fellow, Department of Chemistry, MIT

Other Experience and Professional Memberships

- 2016-Now Scientific Consultant, Zafgen, Inc.
- 2016-Now Scientific Consultant, bioAffinity Technologies, Inc.
- 2018 Member, Organometallic Catalysis Panel, National Science Foundation
- 2016 Ad Hoc Member, SBCA Study Section, National Institutes of Health
- 2015 Ad Hoc Member, SBCA Study Section, National Institutes of Health
- 2011-2012 Key Laboratory Senior Visiting Scholarship, Fudan University
- 2010-Now Charter Member of National Academy of Inventors
- 2002-2003 Member, Catalysis Center Planning Committee, Oak Ridge National Laboratory

Honors and Awards

- 2009 Thieme Chemistry Journal Award
- 2008 University Research Merit Award, University of South Florida
- 2007 Outstanding Research Achievement Award, University of South Florida
- 2006 NSF CAREER Award
- 2005 Chancellor's Professional Development Award, University of Tennessee
- 2003 ORAU Ralph Powe Junior Faculty Award
- 1996 NIH Postdoctoral Fellow

C. RESEARCH INTERESTS

- ❖ Development of One-Electron Catalytic Approaches for Homolytic Radical Chemistry
- ❖ Conceptualization, Formulation and Establishment of Metalloradical Catalysis (MRC)
- ❖ Design and Synthesis of Metalloradical-Based Catalysts for Metalloradical Catalysis
- ❖ Application of Metalloradical Catalysis for Stereoselective Radical Cyclization Reactions
- ❖ Application of Metalloradical Catalysis for Stereoselective Radical C–H Functionalization
- ❖ Application of Metalloradical Catalysis for Stereoselective Radical Cascade Processes
- ❖ Application of Metalloradical Catalysis for Radical Construction of Complex Molecules

D. SELECTED RECENT PUBLICATIONS

- Li, C.-Q.; Lang, K.; Lu, H.-J.; Hu, Y.; Cui, X.; Wojtas, L.; Zhang, X. P. "Catalytic Radical Process for Enantioselective Amination of C(sp³)–H Bonds" *Angew. Chem. Int. Ed.* **2018**, 10.1002/anie.201808923. [\[Link\]](#)
- Wen, X.; Wang, Y.; Zhang, X. P. "Enantioselective Radical Process for Synthesis of Chiral Indolines by Metalloradical Alkylation of Diverse C(sp³)–H Bonds" *Chem. Sci.* **2018**, 9, 5082–5086. [\[Link\]](#)
- Wang, Y.; Wen, X.; Cui, X.; Zhang, X. P. "Enantioselective Radical Cyclization for Construction of 5-Membered Ring Structures by Metalloradical C–H Alkylation" *J. Am. Chem. Soc.* **2018**, 140, 4792–4796. [\[Link\]](#)
- Jiang, H.-L.; Lang, K.; Lu, H.-J.; Wojtas, L.; Zhang, X. P. "Asymmetric Radical Bicyclization of Allyl Azidoformates via Cobalt(II)-Based Metalloradical Catalysis" *J. Am. Chem. Soc.* **2017**, 139, 9164–9167. [\[Link\]](#)
- Xu, X.; Wang, Y.; Cui, X.; Wojtas, L.; Zhang, X. P. "Metalloradical Activation of α -Formyldiazoacetates for Catalytic Asymmetric Radical Cyclopropanation of Alkenes" *Chem. Sci.* **2017**, 8, 4347–4351. [\[Link\]](#)
- Wang, Y.; Wen, X.; Cui, X.; Wojtas, L.; Zhang, X. P. "Asymmetric Radical Cyclopropanation of Alkenes with In Situ-Generated Donor-Substituted Diazo Reagents via Co(II)-Based Metalloradical Catalysis" *J. Am. Chem. Soc.* **2017**, 139, 1049–1052. [\[Link\]](#)
- Pegis, M. L.; McKeown, B. A.; Kumar, N.; Lang, K.; Wasylenko, D. J.; Zhang, X. P.; Raugei, S.; Mayer, J. M. "Homogenous Electrocatalytic Oxygen Reduction Rates Correlate with Reaction Overpotential in Acidic Organic Solutions" *ACS Cent. Sci.* **2016**, 2, 850–856. [\[Link\]](#)
- Jiang, H.-L.; Lang, K.; Lu, H.-J.; Wojtas, L.; Zhang, X. P. "Intramolecular Radical Aziridination of Allylic Sulfamoyl Azides via Co(II)-Based Metalloradical Catalysis: Effective Construction of Strained heterobicyclic Structures" *Angew. Chem. Int. Ed.* **2016**, 55, 11604–11608. [\[Link\]](#)
- Lu, H.-J.; Lang, K.; Jiang, H.-L.; Wojtas, L.; Zhang, X. P. "Intramolecular 1,5-C(sp³)–H Radical Amination via Co(II)-Based Metalloradical Catalysis for Five-Membered Cyclic Sulfamides" *Chem. Sci.* **2016**, 7, 6934–6939. [\[Link\]](#)
- Liu, Q.-J.; Wang, L.-J.; Kang, Q.-K.; Zhang, X. P.; Tang, Y. "Cy-SaBOX/Copper(II)-Catalyzed Highly Diastereo- and Enantioselective Synthesis of Bicyclic N,O Acetals" *Angew. Chem. Int. Ed.* **2016**, 55, 9220–9223. [\[Link\]](#)

- Goswami, M.; Lyaskovskyy, V.; Domingos, S. R.; Buma, W. J.; Woutersen, S.; Troeppner, O.; Ivanovic-Burmazovic, I.; Lu, H.-J.; Cui, X.; Zhang, X. P.; Reijerse, E. J.; DeBeer S.; van Schooneveld, M. M.; Pfaff, F.; Ray, K.; de Bruin, B. "Characterization of Porphyrin-Co(III)-'Nitrene Radical' Species Relevant in Catalytic Nitrene Transfer Reactions" *J. Am. Chem. Soc.* **2015**, *137*, 5468–5479. [[Link](#)]
- Cui, X.; Xu, X.; Jin, L.-M.; Wojtas, L.; Zhang, X. P. "Stereoselective Radical C–H Alkylation with Acceptor/Acceptor-Substituted Diazo Reagents via Co(II)-Based Metalloradical Catalysis" *Chem. Sci.* **2015**, *6*, 1219–1224. [[Link](#)]
- Lu, H.-J.; Li, C.-Q.; Jiang, H.-L.; Lizardi, C. L.; Zhang, X. P. "Chemoselective Amination of Propargylic C(sp³)-H Bonds via Co(II)-Based Metalloradical Catalysis" *Angew. Chem. Int. Ed.* **2014**, *53*, 7028–7032. [[Link](#)]
- Paul, N. D.; Mandal, S.; Otte, M.; Cui, X.; Zhang, X. P.; de Bruin, B. "A Metalloradical Approach to 2*H*-Chromenes" *J. Am. Chem. Soc.* **2014**, *136*, 1090–1096. [[Link](#)]
- Jin, L.-M.; Lu, H.-J.; Cui, Y.; Lizardi, C. L.; Arzua, T. N.; Wojtas, L.; Cui, X.; Zhang, X. P. "Selective Radical Amination of Aldehydic C(sp²)-H Bonds with Fluoroaryl Azides via Co(II)-Based Metalloradical Catalysis: Synthesis of *N*-Fluoroaryl Amides from Aldehydes under Neutral and Nonoxidative Conditions" *Chem. Sci.* **2014**, *5*, 2422–2427. [[Link](#)]
- Xu, X.; Zhu, S.-F.; Cui, X.; Wojtas, L.; Zhang, X. P. "Cobalt(II)-Catalyzed Asymmetric Olefin Cyclopropanation with α -Ketodiazooacetates" *Angew. Chem. Int. Ed.* **2013**, *52*, 11857–11861. [[Link](#)]
- Jin, L.-M.; Xu, X.; Lu, H.; Cui, X.; Wojtas, L.; Zhang, X. P. "Effective Synthesis of Chiral *N*-Fluoroaryl Aziridines via Enantioselective Aziridination of Alkenes with Fluoroaryl Azides" *Angew. Chem. Int. Ed.* **2013**, *52*, 5309–5313. [[Link](#)]
- Cui, X.; Xu, X.; Wojtas, L.; Kim, M. M.; Zhang, X. P. "Regioselective Synthesis of Multisubstituted Furans via Metalloradical Cyclization of Alkynes with α -Diazocarbonyls: Construction of Functionalized α -Oligofurans" *J. Am. Chem. Soc.* **2012**, *134*, 19981–19984. [[Link](#)]
- Meng, L.; Cheng, Q.; Kim, C.-S.; Gao, W.-Y.; Wojtas, L.; Chen, Y.-S.; Zaworotko, M. J.; Zhang, X. P.; Ma, S.-Q. "Crystal Engineering of a Microporous, Catalytically Active fcu Topology MOF Using a Custom-Designed Metalloporphyrin Linker" *Angew. Chem. Int. Ed.* **2012**, *51*, 10082–10085. [[Link](#)]
- Lu, H.-J.; Jiang, H.-L.; Hu, Y.; Wojtas, L.; Zhang, X. P. "Stereoselective Radical Amination of Electron-Deficient C–H Bonds by Co(II)-Based Metalloradical Catalysis: Synthesis of α -Amino Acid Derivatives via α -C–H Amination of Esters and Amides" *Org. Lett.* **2012**, *14*, 5158–5161. [[Link](#)]
- Xu, X.; Lu, H.-J.; Ruppel, J. V.; Cui, X.; de Mesa, S. L.; Wojtas, L.; Zhang, X. P. "Highly Asymmetric Intramolecular Cyclopropanation of Acceptor-Substituted Diazoacetates by Co(II)-Based Metalloradical Catalysis: Iterative Approach for Development of New Generation Catalysts" *J. Am. Chem. Soc.* **2011**, *133*, 15292–15295. [[Link](#)]
- Lyaskovskyy, V.; Suarez, A. I. O.; Lu, H.-J.; Jiang, H.-L.; Zhang, X. P.; de Bruin, B. "Mechanism of Cobalt(II) Porphyrin-Catalyzed C–H Amination with Organic Azides: Radical Nature and H-Atom Abstraction Ability of Cobalt(III)-Nitrene Key Intermediates" *J. Am. Chem. Soc.* **2011**, *133*, 12264–12273. [[Link](#)]

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- Cui, X.; Xu, X.; Lu, H.-J.; Zhu, S.-F.; Wojtas, L.; Zhang, X. P. “Enantioselective Cyclopropanation of Alkynes with Acceptor/Acceptor-Substituted Diazo Reagents via Co(II)-Based Metalloradical Catalysis” *J. Am. Chem. Soc.* **2011**, *133*, 3304–3307. [[Link](#)]
- Wang, X.-S.; Meng, L.; Cheng, Q.-G.; Kim, C.-S.; Wojtas, L.; Chrzanowski, M.; Chen, Y.-S.; Zhang, X. P.; Ma, S.-Q. “A Three-Dimensional Porous Metal-Metalloporphyrin Framework Consisting of Nanoscopic Polyhedral Cages with a High Density of Open Metal Sites” *J. Am. Chem. Soc.* **2011**, *133*, 16322–16325. [[Link](#)]
- Lu, H.-J.; Jiang, H.-L.; Hu, Y.; Wojtas, L.; Zhang, X. P. “Chemoselective Intramolecular Allylic C–H Amination over C=C Aziridination through Co(II)-Based Metalloradical Catalysis” *Chem. Sci.* **2011**, *2*, 2361–2366. [[Link](#)]
- Lu, H.-J.; Zhang, X. P. “Catalytic C–H Functionalization by Metalloporphyrins: Recent Development and Future Directions” *Chem. Soc. Rev.* **2011**, *40*, 1899–1909. [[Link](#)]
- Lu, H.-J.; Jiang, H.-L.; Wojtas, L.; Zhang, X. P. “Selective Intramolecular C–H Amination via Metalloradical Activation of Azides: Synthesis of 1,3-Diamines under Neutral and Nonoxidative Conditions” *Angew. Chem. Int. Ed.* **2010**, *49*, 10192–10196. [[Link](#)]
- Zhu, S.-F.; Xu, X.; Perman, J. A.; Zhang, X. P. “A General and Efficient Cobalt(II)-Based Catalytic System for Highly Stereoselective Cyclopropanation of Alkenes with α -Cyano-Diazoacetates” *J. Am. Chem. Soc.* **2010**, *132*, 12796–12799. [[Link](#)]
- Dzik, W. I.; Xu, X.; Zhang, X. P.; Reek, J. N. H.; de Bruin, B. “Carbene Radicals’ in Co^{II}(por)-Catalyzed Olefin Cyclopropanation” *J. Am. Chem. Soc.* **2010**, *132*, 10891–10902. [[Link](#)]
- Lu, H.-J.; Tao, J.-R.; Jones, J. E.; Wojtas, L.; Zhang, X. P. “Co(II)-Catalyzed Intramolecular C–H Amination of Phosphoryl Azides: Formation of 6- and 7-Membered Cyclophosphoramidates” *Org. Lett.* **2010**, *12*, 1248–1251. [[Link](#)]
- Subbarayan, V.; Ruppel, J. V.; Zhu, S.-F.; Perman, J. A.; Zhang, X. P. “Highly Asymmetric Cobalt-Catalyzed Aziridination of Alkenes with Trichloroethoxysulfonyl Azide (TcesN₃)” *Chem. Commun.* **2009**, 4266–4268. [[Link](#)]
- Ruppel, J. V.; Gauthier, T. J.; Snyder, N. L.; Perman, J. A.; Zhang, X. P. “Asymmetric Cobalt-Catalyzed Cyclopropanation with Succinimidyl Diazoacetate: General Synthesis of Optically Active Cyclopropyl Carboxamides” *Org. Lett.* **2009**, *11*, 2273–2276. [[Link](#)]
- Zhu, S.-F.; Perman, J. A.; Zhang, X. P. “Acceptor/Acceptor-Substituted Diazo Reagents for Carbene Transfers: Cobalt-Catalyzed Asymmetric (*Z*)-Cyclopropanation of Alkenes with α -Nitro-Diazoacetates” *Angew. Chem. Int. Ed.* **2008**, *47*, 8460–8463. [[Link](#)]
- Zhu, S.; Ruppel, J. V.; Lu, H.; Wojtas, L.; Zhang, X. P. “Cobalt-Catalyzed Asymmetric Cyclopropanation with Diazosulfones: Rigidification and Polarization of Ligand Chiral Environment via Hydrogen Bonding and Cyclization” *J. Am. Chem. Soc.* **2008**, *130*, 5042–5043. [[Link](#)]
- Ruppel, J. V.; Jones, J. E.; Huff, C. A.; Kamble, R. M.; Chen, Y.; Zhang, X. P. “A Highly Effective Cobalt Catalyst for Olefin Aziridination with Azides: Hydrogen Bonding-Guided Catalyst Design” *Org. Lett.* **2008**, *10*, 1995–1998. [[Link](#)]

- Chen, Y.; Ruppel, J. V.; Zhang, X. P. "Cobalt-Catalyzed Asymmetric Cyclopropanation of Electron-Deficient Olefins" *J. Am. Chem. Soc.* **2007**, *129*, 12074–12075. [[Link](#)]
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- Chen, Y.; Fields, K. B.; Zhang, X. P. "Bromoporphyrins as Versatile Synthons for Modular Construction of Chiral Porphyrins: Cobalt-Catalyzed Highly Enantioselective and Diastereoselective Cyclopropanation" *J. Am. Chem. Soc.* **2004**, *126*, 14718–14719. [[Link](#)]

E. FULL LIST OF RESEARCH PUBLICATIONS

- Li, C.-Q.; Lang, K.; Lu, H.-J.; Hu, Y.; Cui, X.; Wojtas, L.; Zhang, X. P. "Catalytic Radical Process for Enantioselective Amination of C(sp³)-H Bonds" *Angew. Chem. Int. Ed.* **2018**, *10.1002/anie.201808923*. [[Link](#)]
- Wen, X.; Wang, Y.; Zhang, X. P. "Enantioselective Radical Process for Synthesis of Chiral Indolines by Metalloradical Alkylation of Diverse C(sp³)-H Bonds" *Chem. Sci.* **2018**, *9*, 5082–5086. [[Link](#)]
- Wang, Y.; Wen, X.; Cui, X.; Zhang, X. P. "Enantioselective Radical Cyclization for Construction of 5-Membered Ring Structures by Metalloradical C-H Alkylation" *J. Am. Chem. Soc.* **2018**, *140*, 4792–4796. [[Link](#)] [Highlighted in [Synfacts](#)]
- Jiang, H.-L.; Lang, K.; Lu, H.-J.; Wojtas, L.; Zhang, X. P. "Asymmetric Radical Bicyclization of Allyl Azidoformates via Cobalt(II)-Based Metalloradical Catalysis" *J. Am. Chem. Soc.* **2017**, *139*, 9164–9167. [[Link](#)]
- Xu, X.; Wang, Y.; Cui, X.; Wojtas, L.; Zhang, X. P. "Metalloradical Activation of α -Formyldiazoacetates for Catalytic Asymmetric Radical Cyclopropanation of Alkenes" *Chem. Sci.* **2017**, *8*, 4347–4351. [[Link](#)]
- Wang, Y.; Wen, X.; Cui, X.; Wojtas, L.; Zhang, X. P. "Asymmetric Radical Cyclopropanation of Alkenes with In Situ-Generated Donor-Substituted Diazo Reagents via Co(II)-Based Metalloradical Catalysis" *J. Am. Chem. Soc.* **2017**, *139*, 1049–1052. [[Link](#)]
- Pegis, M. L.; McKeown, B. A.; Kumar, N.; Lang, K.; Wasylenko, D. J.; Zhang, X. P.; Raugei, S.; Mayer, J. M. "Homogenous Electrocatalytic Oxygen Reduction Rates Correlate with Reaction Overpotential in Acidic Organic Solutions" *ACS Cent. Sci.* **2016**, *2*, 850–856. [[Link](#)]
- Jiang, H.-L.; Lang, K.; Lu, H.-J.; Wojtas, L.; Zhang, X. P. "Intramolecular Radical Aziridination of Allylic Sulfamoyl Azides via Co(II)-Based Metalloradical Catalysis: Effective Construction of Strained heterobicyclic Structures" *Angew. Chem. Int. Ed.* **2016**, *55*, 11604–11608. [[Link](#)]
- Lu, H.-J.; Lang, K.; Jiang, H.-L.; Wojtas, L.; Zhang, X. P. "Intramolecular 1,5-C(sp³)-H Radical Amination via Co(II)-Based Metalloradical Catalysis for Five-Membered Cyclic Sulfamides" *Chem. Sci.* **2016**, *7*, 6934–6939. [[Link](#)]
- Liu, Q.-J.; Wang, L.-J.; Kang, Q.-K.; Zhang, X. P.; Tang, Y. "Cy-SaBOX/Copper(II)-Catalyzed Highly Diastereo- and Enantioselective Synthesis of Bicyclic N,O Acetals" *Angew. Chem. Int. Ed.* **2016**, *55*, 9220–9223. [[Link](#)]

- Liu, Q.-J.; Yan, W.-G.; Wang, L.-J.; Zhang, X. P.; Tang, Y. "One-Pot Catalytic Asymmetric Synthesis of Tetrahydrocarbazoles" *Org. Lett.* **2015**, *17*, 4014–4017. [[Link](#)]
- Goswami, M.; Lyaskovskyy, V.; Domingos, S. R.; Buma, W. J.; Woutersen, S.; Troeppner, O.; Ivanovic-Burmazovic, I.; Lu, H.-J.; Cui, X.; Zhang, X. P.; Reijerse, E. J.; DeBeer S.; van Schooneveld, M. M.; Pfaff, F.; Ray, K.; de Bruin, B. "Characterization of Porphyrin-Co(III)-'Nitrene Radical' Species Relevant in Catalytic Nitrene Transfer Reactions" *J. Am. Chem. Soc.* **2015**, *137*, 5468–5479. [[Link](#)]
- Subbarayan, V.; Jin, L.-M., Cui, X.; Zhang, X. P. "Room Temperature Activation of Aryloxysulfonyl Azides by [Co(II)(TPP)] for Selective Radical Aziridination of Alkenes via Metalloradical Catalysis" *Tetrahedron Lett.* **2015**, *56*, 3431–3434. [[Link](#)]
- Cui, X.; Xu, X.; Jin, L.-M.; Wojtas, L.; Zhang, X. P. "Stereoselective Radical C–H Alkylation with Acceptor/Acceptor-Substituted Diazo Reagents via Co(II)-Based Metalloradical Catalysis" *Chem. Sci.* **2015**, *6*, 1219–1224. [[Link](#)]
- Jin, C.-Y., Decker, A. M.; Huang, X.-P.; Gilmour, B. P.; Blough, B. E.; Roth, B. L.; Hu, Y.; Gill, J. B.; Zhang, X. P. "Synthesis, Pharmacological Characterization, and Structure-Activity Relationship Studies of Small Molecular Agonists for the Orphan GPR88" *ACS Chem. Neurosci.* **2014**, *5*, 576–587. [[Link](#)]
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- Ruppel, J. V.; Cui, X.; Xu, X.; Zhang, X. P. "Stereoselective Intramolecular Cyclopropanation of alpha-Diazoacetates via Co(II)-Based Metalloradical Catalysis" *Org. Chem. Front.* **2014**, *1*, 515–520. [[Link](#)]
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- Maza, W. A.; Vetromile, G. M.; Kim, C.-S.; Xu, X.; Zhang, X. P.; Larsen, R. W. "Spectroscopic Investigation of the Noncovalent Association of the Nerve Agent Simulant Diisopropyl Methylphosphonate (DIMP) with Zinc(II)porphyrins" *J. Phys. Chem. A.* **2013**, *117*, 11308–11315. [[Link](#)]
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- Paul, N. D.; Lu, H.-J.; Zhang, X. P.; de Bruin, B. “Carbene Radicals in Cobalt(II) Porphyrin-Catalyzed Carbene Carbonylation Reactions: A Catalytic Approach to Ketenes” *Chem. Eur. J.* **2013**, *19*, 12953–12958. [\[Link\]](#)
- Liu, L.; Xie, H.; Bostic, H. E.; Jin, L.-M.; Best, D. B.; Zhang, X. P.; Zhan, W. “Effects of Oriented Surface Dipole on Photoconversion Efficiency in an Alkane/Lipid-Hybrid-Bilayer-Based Photovoltaic Model System” *ChemPhysChem* **2013**, *14*, 2777–2785. [\[Link\]](#)
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- Cui, X.; Xu, X.; Wojtas, L.; Kim, M. M.; Zhang, X. P. “Regioselective Synthesis of Multisubstituted Furans via Metalloradical Cyclization of Alkynes with alpha-Diazocarbonyls: Construction of Functionalized alpha-Oligofurans” *J. Am. Chem. Soc.* **2012**, *134*, 19981–19984. [\[Link\]](#) [Highlighted in [SynForm](#)] [Highlighted in [Organic Chemistry Portal](#)]
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- Wang, X.-S.; Chrzanowski, M.; Gao, W.-Y.; Kim, C.-S.; Wojtas, L.; Chen, Y.-S.; Zhang, X. P.; Ma, S.-Q. “Quest for Highly Porous Metal-Metalloporphyrin Framework Based upon A Custom-Designed Octatopic Porphyrin Ligand” *Chem. Commun.* **2012**, *48*, 7173–7175. [\[Link\]](#)
- Hu, Y.; Zhang, X. P. “Selective Olefination of Carbonyl Compounds via Metal-Catalyzed Carbene Transfer from Diazo Reagents” *Top. Curr. Res.* **2012**, *327*, 147–162. [\[Link\]](#)
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F. ISSUED PATENTS

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G. INVITED SEMINARS & TALKS

- ◆ Department of Chemistry, University California at Riverside; Riverside, CA; October 12, **2018**.
- ◆ Department of Chemistry & Biochemistry, University California at Santa Barbara; Santa Barbara, CA; October 10, **2018**.
- ◆ Department of Chemistry, University of Southern California; Los Angeles, CA; October 8, **2018**.
- ◆ Firmenich SA; Geneva, Switzerland; June 22, **2018**.
- ◆ EuChEMS Conference on Organic Free Radicals (ECOFR 2018); Marseille, France; June 17–20, **2018**.
- ◆ The Second Symposium of Metal-Carbene Consortium; Beijing, China; June 6-9, **2018**.
- ◆ School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou, China; June 5, **2018**.
- ◆ Department of Chemistry, Peking University Shenzhen Graduate School; Shenzhen, China; June 4, **2018**.
- ◆ Department of Chemistry, Shenzhen University; Shenzhen, China; June 2, **2018**.
- ◆ Department of Chemistry, South University of Science and Technology of China; Shenzhen, China; June 1, **2018**.
- ◆ Department of Chemistry, Columbia University; New York, NY; March 8, **2018**.
- ◆ Department of Chemistry, University of Wisconsin-Madison; Madison, WI; November 7, **2017**.
- ◆ Bristol-Myers Squibb, New Brunswick, NJ; October 5, **2017**.
- ◆ Department of Chemistry, North Carolina State University; Raleigh, NC; September 11, **2017**.
- ◆ College of Chemistry, Nanjing University of Science and Technology; Nanjing, China; July 18, **2017**.
- ◆ College of Chemistry, Nanjing University; Nanjing, China; July 18, **2017**.
- ◆ 4th EOC Symposium, College of Chemistry, Nankai University; Tianjin, China; July 15, **2017**.

- ◆ School of Pharmaceutical Sciences, Tsinghua University; Beijing, China; July 13, **2017**.
- ◆ Organic Synthesis Lecture; Department of Chemistry, MIT; Cambridge, MA; May 15, **2017**.
- ◆ 8th CGCC Annual Meeting; Department of Chemistry, McGill University; Montreal, QC, Canada; May 15, **2017**.
- ◆ Department of Chemistry, National Sun Yat-sen University; Kaohsiung, Taiwan; May 9, **2017**.
- ◆ Department of Chemistry, National Tsing Hua University; Hsinchu, Taiwan; May 8, **2017**.
- ◆ Department of Chemistry, National Taiwan University; Taipei, Taiwan; May 5, **2017**.
- ◆ BRIC; Department of Chemistry, Harvard University; Cambridge, MA; April 29, **2017**.
- ◆ School of Pharmacy, University of Iowa; Iowa City, IA; April 18, **2017**.
- ◆ Department of Chemistry, University of Connecticut; Storrs, CT; March 29, **2017**.
- ◆ The 6th CCHF Virtual C-H Functionalization Symposium; Atlanta, GA; March 28, **2017**.
- ◆ Department of Chemistry & Biochemistry, Florida State University; Tallahassee, FL; March 9, **2017**.
- ◆ Department of Chemistry, Trinity College; Hartford, CT; March 3, **2017**.
- ◆ Department of Chemistry & Biochemistry, Worcester Polytechnic Institute; Worcester, MA; February 15, **2017**.
- ◆ The 14th International Symposium for Chinese Organic Chemists (ISCOC-14); Singapore; December 8–10, **2016**.
- ◆ Department of Chemistry, University of Illinois at Chicago; Chicago, IL; November 8, **2016**.
- ◆ The 12th International Symposium on Organic Free Radicals (ISOFR-12); Shanghai, China; October 9–14, **2016**.
- ◆ Department of Chemistry, Duke University; Durham, NC; September 6, **2016**.
- ◆ Merck & Co., Inc., Boston, MA; August 11, **2016**.
- ◆ Gordon Research Conference on Stereochemistry; New Port, RI, July 24-29, **2016**.
- ◆ Symposium on Metalloporphyrinoids: Design, Spectroscopy and Application, *9th International Conference on Porphyrins and Phthalocyanines* (ICPP-9); Nanjing, China; July 3-8, **2016**.
- ◆ 2016 International Symposium for Metal Porphyrins and Phthalocyanines; Beijing, China; July 1-2, **2016**.
- ◆ Boehringer Ingelheim Pharmaceuticals, Inc.; Ridgefield, CT; April 1, **2016**.
- ◆ Department of Chemistry, University of South Dakota; Vermillion, SD; March 21, **2016**.
- ◆ Department of Chemistry, Brandeis University; Waltham, MA; March 7, **2016**.
- ◆ Department of Chemistry & Biochemistry, Old Dominion University; Norfolk, VA; February 26, **2016**.
- ◆ Application of C–H Functionalization, International Chemical Congress of Pacific Basin Society (Pacifichem); Honolulu, Hawaii; December 15-20, **2015**.
- ◆ Asymmetric Supramolecular Catalysis, International Chemical Congress of Pacific Basin Society (Pacifichem); Honolulu, Hawaii; December 15-20, **2015**.
- ◆ Department of Chemistry, University of Chicago; Chicago, IL; November 19, **2015**.
- ◆ GlaxoSmithKline MDR-Boston; Waltham, MA; October 28, **2015**.
- ◆ Firmenich SA; Geneva, Switzerland; September 24, **2015**.
- ◆ Institute of Chemical Sciences and Engineering; Ecole Polytechnique Federale de Lausanne (EPFL); Lausanne, Switzerland; September 23, **2015**.

- ◆ Ecole Polytechnique, Palaiseau, France; September 22, **2015**.
- ◆ Pierre and Marie Curie University (UPMC), Paris, France; September 21, **2015**.
- ◆ Department of Chemistry, Boston College, Chestnut Hill, MA; May 21, **2015**.
- ◆ Florida Award Session, 91st Florida Annual Meeting and Exposition (FAME 2015), Innisbrook, FL; May 7-9, **2015**.
- ◆ Organic Chemistry Session, 91st Florida Annual Meeting and Exposition (FAME 2015), Innisbrook, FL; May 7-9, **2015**.
- ◆ Pfizer Global Research & Development, Groton, CT; April 23, **2015**.
- ◆ Division of Chemistry and Biological Chemistry, Nanyang Technological University, Singapore; December 17, **2014**.
- ◆ 8th Singapore International Chemistry Conference, National University of Singapore, Singapore; December 14-17, **2014**.
- ◆ Department of Chemistry, Hong Kong University of Science and Technology, Hong Kong, China; December 12, **2014**.
- ◆ Department of Chemistry, Boston College, Chestnut Hill, MA; November 14, **2014**.
- ◆ Brad Wayland 50th Anniversary Symposium, Temple University, Philadelphia, PA; October 11, **2014**.
- ◆ Chiral China 2014, Hefei, China; September 28-October 1, **2014**. (Plenary Speaker)
- ◆ Merck Sharp & Dohme Corp, Rahway, NJ; July 23, **2014**.
- ◆ The Future of Asymmetric Catalysis, Telluride Conference, Telluride, CO; June 24-28, **2014**.
- ◆ Department of Chemistry & Biochemistry, University of Texas at Austin, Austin, TX; November 8, **2013**.
- ◆ Department of Chemistry, Chemical Biology, & Biomedical Engineering, Stevens Institute of Technology, Hoboken, NJ; October 23, **2013**.
- ◆ New Directions in Chemistry of Heterocyclic Compounds, *3rd International Conference for the Chemistry of Heterocyclic Compounds* (NDCHC-2013); Pyatigorsk, Russia; September 17-21, **2013**. (Keynote Speaker)
- ◆ Pharmaron, Beijing, China; August 2, **2013**.
- ◆ College of Chemistry and Molecular Engineering, Peking University, Beijing, China; August 1, **2013**.
- ◆ College of Chemistry and Biological Engineering, University of Science and Technology Beijing, Beijing, China; July 30, **2013**.
- ◆ Frontier Institute of Science and Technology, Xi'an Jiaotong University, Xi'an, China; July 23, **2013**.
- ◆ Department of Chemistry, Nanjing University, Nanjing, China; December 14, **2012**.
- ◆ Department of Chemistry, University of Minnesota, Minneapolis, MN; September 20, **2012**.
- ◆ Symposium on Metalloporphyrin-Based Catalytic Processes, *7th International Conference on Porphyrins and Phthalocyanines* (ICPP-7); Jeju, Korea; July 1-6, **2012**.
- ◆ Department of Chemistry and Biochemistry, University of Maryland, College Park, MD; March 1, **2012**.
- ◆ Department of Chemistry, Temple University, Philadelphia, PA; February 15, **2012**.
- ◆ Department of Chemistry, University of Pennsylvania, Philadelphia, PA; February 14, **2012**.
- ◆ Department of Chemistry, Drexel University, Philadelphia, PA; February 13, **2012**.

- ◆ Department of Chemistry, Shanghai Jiaotong University, Shanghai, China; December 21, **2011**.
- ◆ Department of Chemistry, East China Normal University, Shanghai, China; December 20, **2011**.
- ◆ Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China; December 19, **2011**.
- ◆ Department of Chemistry, Anhui Normal University, Wuhu, China; December 16, **2011**.
- ◆ Department of Chemistry, Fudan University, Shanghai, China; December 8, **2011**.
- ◆ Department of Chemistry, Ohio State University, Columbus, OH; October 6, **2011**.
- ◆ USF-KAUST Symposium “New Horizon in Molecular Science 2011: Design and Application of Porous Frameworks” Department of Chemistry, University of South Florida, Tampa, FL; June 21, **2011**.
- ◆ Department of Chemistry, Dartmouth College, Hanover, NH; May 3, **2011**.
- ◆ Department of Chemistry, Georgia State University, Atlanta, GA; April 28, **2011**.
- ◆ Emerson Center Lectureship Symposium “*Revolutionizing Strategies for the Carbon-Carbon and Carbon-Heteroatom Bond Formation: Interplay of Theory and Experiment*”, Cherry L. Emerson Center for Scientific Computation, Emory University, Atlanta, GA; April 27, **2011**.
- ◆ Department of Chemistry, University of Kansas; Lawrence, KS; March 17, **2011**.
- ◆ Department of Chemistry and Biochemistry, North Dakota State University; Fargo, ND; March 10, **2011**.
- ◆ Department of Homogeneous and Supramolecular Catalysis, Van ‘t Hoff Institute for Molecular Sciences (HIMS), University of Amsterdam; Amsterdam, The Netherlands; January 9–12, **2011**.
- ◆ Department of Chemistry and Chemical Biology, University of New Mexico; Albuquerque, NM; November 5, **2010**.
- ◆ Department of Chemistry and Biochemistry, of New Mexico State University; Las Cruces, NM; November 4, **2010**.
- ◆ Department of Chemistry, University of Florida; Gainesville, FL; September 13, **2010**.
- ◆ Symposium on Functionalization of Tetrapyrroles, *6th International Conference on Porphyrins and Phthalocyanines*; Santa Ana Pueblo, NM; July 4-9, **2010**.
- ◆ Symposium on Metalloporphyrin-Catalyzed Selective Organic Synthesis, *6th International Conference on Porphyrins and Phthalocyanines*; Santa Ana Pueblo, NM; July 4-9, **2010**.
- ◆ *86th ACS Florida Section 83rd Annual Florida Meeting and Exposition (FAME 2010)*, Innisbrook, FL; May 13-15, **2010**.
- ◆ Department of Chemistry, West Virginia University; Morgantown, WV; October 7, **2009**.
- ◆ Department of Chemistry and Biochemistry, Miami University; Oxford, OH; September 24, **2009**.
- ◆ *The 1st Chinese-American Chemistry & Chemical Biology Professors Association (CAPA) Annual Conference*, Hilton Head Island, SC; July 31-August 2, **2009**.
- ◆ *The 5th Sino-US Symposium on Organic Chemistry*, Lanzhou University, Lanzhou, China; June 29-30, **2009**.
- ◆ Department of Biology and Chemistry, City University of Hong Kong, Hong Kong, China; June 26, **2009**.

- ◆ Department of Chemistry, University of Hong Kong, Hong Kong, China; June 25, **2009**.
- ◆ Department of Applied Biology and Chemical Technology, Hong Kong Polytechnic University, Hong Kong, China; June 24, **2009**.
- ◆ Department of Chemistry, Chinese University of Hong Kong, Hong Kong, China; June 24, **2009**.
- ◆ School of Chemistry and Chemical Engineering, South China University of Technology, Guangzhou, China; June 23, **2009**.
- ◆ Dalian Institute of Chemical Physics, Chinese Academy of Sciences, Dalian, China; June 19, **2009**.
- ◆ Department of Catalysis Chemistry and Engineering, Dalian University of Technology, Dalian, China; June 19, **2009**.
- ◆ *Catalysis Processes*, 5th International Conference on Porphyrins and Phthalocyanines, Moscow, Russia; July 6-11, **2008**.
- ◆ Department of Chemistry, Peking University, Beijing, China; January 4, **2008**.
- ◆ Department of Chemistry, Tsinghua University, Beijing, China; January 4, **2008**.
- ◆ Department of Chemistry, Beijing Normal University, Beijing, China; January 3, **2008**.
- ◆ Institute of Chemistry, Chinese Academy of Sciences, Beijing, China; January 2, **2008**.
- ◆ Department of Chemistry, Anhui Normal University, Wuhu, China; December 28, **2007**.
- ◆ Department of Chemistry, Shanghai Jiaotong University, Shanghai, China; December 27, **2007**.
- ◆ Department of Chemistry, Tongji University, Shanghai, China; December 26, **2007**.
- ◆ Department of Chemistry, Fudan University, Shanghai, China; December 26, **2007**.
- ◆ Department of Chemistry, East-China University of Science and Technology, Shanghai, China; December 25, **2007**.
- ◆ Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China; December 25, **2007**.
- ◆ Department of Chemistry, Hamilton College, Clinton, NY; October 19, **2007**.
- ◆ Drug Discovery Colloquium, Department of Chemistry, University of South Florida, Tampa, FL; October 16, **2007**.
- ◆ ACS Florida Section 83rd Annual Florida Meeting and Exposition (FAME 2007), Orlando, FL; May 10-12, **2007**.
- ◆ World Precision Instruments, Inc., Sarasota, FL; April 3, **2007**.
- ◆ Department of Chemistry, Central Michigan University, Mt. Pleasant, MI; March 19, **2007**.
- ◆ Symposium on Chiral Porphyrins for Self-Assembly and Catalysis, 4th *International Conference on Porphyrins and Phthalocyanines*, Rome, Italy; July 2-7, **2006**.
- ◆ *National Science Foundation Inorganic Chemistry Workshop*, Blaine, WA; June 6-9, **2006**.
- ◆ Department of Chemistry, University of South Florida, Tampa, FL; March 10, **2006**.
- ◆ Department of Chemistry, Georgia State University, Atlanta, GA; March 1, **2006**.
- ◆ Department of Chemistry and Biochemistry, University of Texas at Arlington, Arlington, TX; February 3, **2006**.
- ◆ Department of Chemistry, Texas Christian University, Fort Worth, TX; February 2, **2006**.
- ◆ Department of Chemistry and Biochemistry, Texas Tech University, Lubbock, TX; February 1, **2006**.

- ◆ Department of Chemistry, University of Georgia, Athens, GA; December 9, **2005**.
- ◆ School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA; December 8, **2005**.
- ◆ Department of Chemistry, Emory University, Atlanta, GA; December 7, **2005**.
- ◆ Department of Chemistry and Biochemistry, University of California at San Diego, La Jolla, CA; December 2, **2005**.
- ◆ Department of Chemistry, University of California at Irvine, Irvine, CA; December 1, **2005**.
- ◆ Department of Chemistry, University of Southern California, Los Angeles, CA; November 29, **2005**.
- ◆ Division of Chemistry and Chemical Engineering, California Institute of Technology, Pasadena, CA; November 28, **2005**.
- ◆ Department of Chemistry, University of Akron, Akron, OH; November 22, **2005**.
- ◆ Department of Chemistry, Case Western Reserve University, Cleveland, OH; November 21, **2005**.
- ◆ Department of Chemistry, University of Kentucky, Lexington, KY; November 18, **2005**.
- ◆ Department of Chemistry, Indiana University, Bloomington, IN; November 10, **2005**.
- ◆ Department of Chemistry, Purdue University, West Lafayette, IN; November 8, **2005**.
- ◆ Department of Chemistry, East Carolina University, Greenville, NC; October 28, **2005**.
- ◆ Department of Chemistry and Biochemistry, Miami University, Oxford, OH; October 20, **2005**.
- ◆ Department of Chemistry, Duke University, Durham, NC; October 18, **2005**.
- ◆ Department of Chemistry, University of Tennessee at Chattanooga, Chattanooga, TN; October 14, **2005**.
- ◆ Department of Chemistry, University of Alabama, Tuscaloosa, AL; October 6, **2005**.
- ◆ Department of Chemistry, Georgia State University, Atlanta, GA; September 30, **2005**.
- ◆ Department of Chemistry and Biochemistry, University of Delaware, Newark, DE; September 22, **2005**.
- ◆ Department of Chemistry, University of Pennsylvania, Philadelphia, PA; September 20, **2005**.
- ◆ Chemical Science Division, Oak Ridge National Laboratory, Oak Ridge, TN; September 15, **2005**.
- ◆ Department of Chemistry, State University of New York at Buffalo, Buffalo, NY; September 7, **2005**.
- ◆ Department of Chemistry, Virginia Polytechnic Institute and State University, Blacksburg, VA; August 26, **2005**.
- ◆ Department of Chemistry, Fudan University, Shanghai, China; August 4, **2005**.
- ◆ Department of Chemistry, Shanghai Jiaotong University, Shanghai, China; August 3, **2005**.
- ◆ Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China; August 2, **2005**.
- ◆ Department of Chemistry, Peking University, Beijing, China; July 27, **2005**.
- ◆ Institute of Chemistry, Chinese Academy of Sciences, Beijing, China; July 26, **2005**.
- ◆ Department of Chemistry, Beijing Normal University, Beijing, China; July 25, **2005**.
- ◆ *Gordon Research Conference on Organometallic Chemistry*, New Port, RI, July 10-15, **2005**.
- ◆ Department of Chemistry, University of Chicago, Chicago, IL; May 27, **2005**.

- ◆ Department of Chemistry and Biochemistry, University of Mississippi, Oxford, MS; March 24, **2005**.
- ◆ Department of Chemical Engineering, University of Tennessee, Knoxville, TN; October 26, **2004**.
- ◆ Symposium on Organometallic and Materials Chemistry in the Southeast, *55th Southeast Regional Meeting of the American Chemical Society*, Atlanta, GA; November 16-19, **2003**.
- ◆ Department of Chemistry, West Kentucky University, Bowling Green, KY; November 1, **2002**.
- ◆ Department of Chemistry, University of West Florida, Pensacola, FL; February 8, **2002**.
- ◆ Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China; July 20, **2001**.
- ◆ Department of Chemistry, Anhui Normal University, Wuhu, China; July 16, **2001**.
- ◆ Department of Chemistry, Michigan State University, East Lansing, MI; January 18, **2001**.
- ◆ Department of Chemistry, North Carolina State University, Raleigh, NC; January 16, **2001**.
- ◆ Department of Chemistry, University of Tennessee, Knoxville, TN; January 12, **2001**.
- ◆ Department of Chemistry and Biochemistry, Ohio University, Athens, OH, January 8, **2001**.
- ◆ Department of Chemistry, New York University, New York, NY; January 4, **2001**.
- ◆ Department of Chemistry, University of Rochester, Rochester, NY; December 11, **2000**.
- ◆ Department of Chemistry, University of Toronto, Toronto, Canada; December 7, **2000**.
- ◆ Department of Chemistry, University of Nevada, Reno, NV; December 4, **2000**.
- ◆ School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA; November 30, **2000**.
- ◆ Department of Chemistry, University of Hawaii, Honolulu, HI; November 20, **2000**.
- ◆ Department of Chemistry, Boston University, Boston, MA; November 9, **2000**.
- ◆ Department of Chemistry, Wayne State University, Detroit, MI; November 7, **2000**.
- ◆ Department of Chemistry, University of Michigan, Ann Arbor, MI; October 30, **2000**.
- ◆ Department of Chemistry and Biochemistry, University of Colorado, Boulder, CO; January 20, **1999**.
- ◆ Department of Chemistry, University of Texas, Dallas, TX; November 25, **1998**.
- ◆ Department of Chemistry, New York State University, Binghamton, NY, November 20, **1998**.
- ◆ School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, November 16, **1998**.