

Thomas P. Vaid

Curriculum Vitae

September 26, 2019

Address: University of Michigan
Department of Chemistry
930 N. University
Ann Arbor, MI 48109-1055
734-615-3207
vaidt@umich.edu

Education: B.S. in Chemistry; University of Illinois, Urbana-Champaign; May, 1992.
Undergraduate Research Advisor: Prof. Thomas B. Rauchfuss.

Ph.D. in Chemistry; Cornell University; August, 1997.
Thesis Advisor: Prof. Peter T. Wolczanski.

Professional History:

1997 - 2000	Postdoctoral Scholar, California Institute of Technology. Advisor: Professor Nathan S. Lewis.
2000 - 2008	Assistant Professor of Chemistry, Washington University, St. Louis, Missouri.
2008 - 2015	Assistant Professor of Chemistry, University of Alabama, Tuscaloosa, Alabama.
2016 - 2017	Research Associate with Prof. Robin Rogers McGill University, Montreal, Canada
2017 - present	Assistant Research Scientist with Prof. Adam Matzger and Prof. Melanie Sanford University of Michigan, Ann Arbor, Michigan

Awards and Honors:

NSF CAREER Award, 2002-2007.
Research Corporation, Research Innovation Award, 2002-2003.
NSF Materials Research Traineeship, Cornell University, 1993-1997.
Phi Beta Kappa, University of Illinois, 1992.
American Institute of Chemists Award, University of Illinois, 1992.

Professional Societies:

The American Chemical Society, 1991-present.

Publications:

Cornell University

1. “Covalent 3- and 2-Dimensional Titanium-Quinone Networks”, Vaid, T. P.; Lobkovsky, E. B.; Wolczanski, P. T. *J. Am. Chem. Soc.* **1997**, *119*, 8742-8743.
2. “Extracting Absolute Titanium-Alkyl and -Hydride Bond Enthalpies from Relative D(TiR(H)) in (silox)₂(^tBu₃SiNH)TiR: Electronegativity and ECT Models”, Bennett, J. L.; Vaid, T. P.; Wolczanski, P. T. *Inorg. Chim. Acta.* **1998**, *270*, 414-423.
3. “Structural Dichotomy in Six-coordinate d(0) Complexes: Trigonal Prismatic (^tBu₃SiCC)₆Ta⁻ and Octahedral (^tBu₃SiCC)₆M²⁻ (M = Zr, Hf)”, Vaid, T. P.; Veige, A. S.; Lobkovsky, E. B.; Glassey, W. V.; Wolczanski, P. T.; Liable-Sands, L. M.; Rheingold, A. L.; Cundari, T. R. *J. Am. Chem. Soc.* **1998**, *120*, 10067-10079.
4. “Covalent Three-Dimensional Titanium(IV)-Aryloxy Networks”, Vaid, T.P.; Tanski, J.M.; Pette, J.; Lobkovsky, E.B.; Wolczanski, P.T. *Inorg. Chem.* **1999**, *38*, 3394-3405.
5. “Covalent Metal-Organic Networks: Pyridines Induce 2-Dimensional Oligomerization of (μ-OC₆H₄O)₂Mpy₂ (M = Ti, V, Zr)”, Tanski, J.M.; Vaid, T.P.; Pette, J.; Lobkovsky, E.B.; Wolczanski, P.T., *Inorg. Chem.* **2000**, *39*, 4756-4765.
6. “Hydrogen Bonds Between Polyphenol (*p*-HOC₆H₄O)₆W and Bipyridines: (4,4'-bipy HOC₆H₄O)₆W and 3-D Networks [(4,4'-(NC₅H₄)₂(CH₂CH₂))_n{(HOC₆H₄O)₆W}]_∞ (n = 2, 3)”, Vaid, T. P.; Sydora, O. L.; Douthwaite, R. E.; Wolczanski, P. T.; Lobkovsky, E. B. *Chem. Commun.* **2001**, 1300-1301.
7. “Syntheses and Electrochemistry of (*p*-XC₆H₄O)₆W (1-X, X = H, CH₃, OCH₃, Cl, Br, OH, OCH₂Ph) and (*p*-XC₆H₄O)₅W(OC₆H₄OH) (X = H, CH₃, OCH₃, Cl, Br): An Approach to Electrocatalytic CH Bond Activation”, Sydora, O. L.; Goldsmith, J. I.; Vaid, T. P.; Miller, A. E.; Wolczanski, P. T.; Abruña, H. D. *Polyhedron* **2004**, *23*, 2841-2856.

Caltech

8. “Quantitative Study of the Resolving Power of Arrays of Carbon Black-Polymer Composites in Various Vapor-Sensing Tasks”, Doleman, B. J.; Lonergan, M. C.; Severin, E. J.; Vaid, T. P.; Lewis, N. S. *Anal. Chem.* **1998**, *70*, 4177-4190.
9. “The Use of 'Electronic Nose' Sensor Responses to Predict the Inhibition Activity of Alcohols on the Cytochrome P-450 Catalyzed *p*-Hydroxylation of Aniline”, Vaid, T. P.; Lewis, N. S. *Bioorg. Med. Chem.* **2000**, *8*, 795-805.
10. “Cross Reactive Chemical Sensor Arrays”, Albert, Keith J.; Lewis, Nathan S.; Schauer, Caroline L.; Sotzing, Gregory A.; Stitzel, Shannon E.; Vaid, Thomas P.; Walt, David R. *Chem. Rev.* **2000**, *100*, 2595-2626.
11. “Electrochemical and Electrical Behavior of (111)-Oriented Si Surfaces Alkoxyated through Oxidative Activation of Si-H Bonds”, Haber, J. A.; Lauermann, I.; Michalak, D.; Vaid, T. P.; Lewis, N. S. *J. Phys. Chem. B* **2000**, *104*, 9947-9950.

12. "Comparison of the Performance of Different Discriminant Algorithms in Analyte Discrimination Tasks Using an Array of Carbon Black-Polymer Composite Vapor Detectors", Vaid, T. P.; Burl, M. C.; Lewis, N. S. *Anal. Chem.* **2001**, *73*, 321-331.
13. "Classification Performance of Carbon Black-Polymer Composite Vapor Detector Arrays as a Function of Array Size and Detector Composition", Burl, M. C.; Sisk, B. C.; Vaid, T. P.; Lewis, N. S. *Sens. Actu. B* **2002**, *B87*, 130-149.

Washington University

14. "Investigations of the 9,10-Diphenylacridyl Radical as an Isostructural Dopant for the Molecular Semiconductor 9,10-Diphenylanthracene", Vaid, T. P.; Lytton-Jean, A. K.; Barnes, B. C. *Chem. Mater.* **2003**, *15*, 4292-4299.
15. "Isolation and Characterization of Phenyl Viologen as a Radical Cation and Neutral Molecule", Porter, W. W., III; Vaid, T. P. *J. Org. Chem.* **2005**, *70*, 5028-5035.
16. "An Antiaromatic Porphyrin Complex: Tetrphenylporphyrinato(Silicon)(L)₂ (L = THF or Pyridine)", Cissell, J. A.; Vaid, T. P.; Rheingold, A. L. *J. Am. Chem. Soc.* **2005**, *127*, 12212-12213.
17. "Aluminum and Lithium Octa(pentoxo)phthalocyanine Radicals", Deng, X.; Porter, W. W., III; Vaid, T. P. *Polyhedron* **2005**, *24*, 3004-3011.
18. "Synthesis and Characterization of a Highly Reducing Neutral 'Extended Viologen' and the Isostructural Hydrocarbon, 4,4'''-Di-*n*-octyl-*p*-quaterphenyl", Porter, W. W., III; Vaid, T. P.; Rheingold, A. L. *J. Am. Chem. Soc.* **2005**, *127*, 16559-16566.
19. "Aluminum Tetrphenylporphyrin and Aluminum Phthalocyanine Neutral Radicals", Cissell, J. A.; Vaid, T. P.; Rheingold, A. L. *Inorg. Chem.* **2006**, *45*, 2367-2369.
20. "The Doubly Oxidized, Antiaromatic Tetrphenylporphyrin Complex [Li(TPP)][BF₄]", Cissell, J. A.; Vaid, T. P.; Yap, G. P. A. *Org. Lett.* **2006**, *8*, 2401-2404.
21. "Doping of an Organic Molecular Semiconductor by Substitutional Cocrystallization with a Molecular n-Dopant", Porter, W. W., III; Vaid, T. P., *J. Mater. Chem.* **2007**, *17*, 469-475.
22. "Photophysics of Reduced Silicon Tetrphenylporphyrin", Song, H.-E.; Cissell, J. A.; Vaid, T. P.; Holten, D., *J. Phys. Chem. B* **2007**, *111*, 2138-2142.
23. "Has Monopotassium Phthalocyanine, KPc, Been Synthesized?", Cissell, J. A.; Vaid, T. P., *Inorg. Chem.* **2007**, *46*, 4360-4361.
24. "Reversible Oxidation State Change in Germanium(tetrphenylporphyrin) Induced by a Dative Ligand: Aromatic Ge^{II}(TPP) and Antiaromatic Ge^{IV}(TPP)(pyridine)₂", Cissell, J. A.; Vaid, T. P.; Yap, G. P. A., *J. Am. Chem. Soc.* **2007**, *129*, 7841-7847.
25. "Germanium Phthalocyanine, GePc, and the Reduced Complexes SiPc(pyridine)₂ and GePc(pyridine)₂ Containing Antiaromatic Pi-electron Circuits", Cissell, J. A.; Vaid, T. P.; DiPasquale, A. G.; Rheingold, A. L. *Inorg. Chem.* **2007**, *46*, 7713-7715.

26. "Synthesis, Structure, and Magnetic Properties of $[(\text{CH}_3\text{CN})_5\text{V}-\text{O}-\text{V}(\text{CH}_3\text{CN})_5][\text{BF}_4]_4$ ", Cissell, J. A.; Kaur, N.; Nellutla, S.; Dalal, N. S.; Vaid, T. P., *Inorg. Chem.* **2007**, *46*, 9672-9677.
27. "Semiconducting Lead-Sulfur-Organic Network Solids", Turner, D. L.; Vaid, T. P.; Stephens, P. W.; Stone, K. H.; DiPasquale, A. G.; Rheingold, A. L., *J. Am. Chem. Soc.* **2008**, *130*, 14-15.
28. "Hexakis(4-(*N*-butylpyridylum))benzene: A Six-Electron Organic Redox System", Han, Z.; Vaid, T. P.; Rheingold, A. L. *J. Org. Chem.* **2008**, *73*, 445-450.

University of Alabama

29. "Cadmium and Zinc Thiolate and Selenolate Metal-Organic Frameworks", Turner, D. L.; Stone, K. H.; Stephens, P. W.; Vaid, T. P. *Dalton Trans.* **2010**, *39*, 5070-5073.
30. "Hidden superlattice in $\text{Ti}_2(\text{SC}_6\text{H}_4\text{S})$ and $\text{Ti}_2(\text{SeC}_6\text{H}_4\text{Se})$ solved from powder X-ray diffraction", Stone, K. H.; Turner, D. L.; Singh, M. P.; Vaid, T. P.; Stephens, P. W. *Acta Crystallogr. B* **2011**, *67*, 409-415.
31. "A Porphyrin with a C=C Unit at Its Center", Vaid, T. P. *J. Am. Chem. Soc.* **2011**, *133*, 15838-15841.
Featured in *Chemical and Engineering News*: "Porphyrin's Hole Plugged by Ethylene", Arnaud, C. H. *Chem. Eng. News* **2011**, *89*(39), 27.
32. "Synthesis, Characterization, and Calculated Electronic Structure of the Crystalline Metal-Organic Polymers $[\text{Hg}(\text{SC}_6\text{H}_4\text{S})(\text{en})]_n$ and $[\text{Pb}(\text{SC}_6\text{H}_4\text{S})(\text{dien})]_n$ ", Turner, D. L.; Stone, K. H.; Stephens, P. W.; Walsh, A.; Singh, M. P.; Vaid, T. P., *Inorg. Chem.* **2012**, *51*, 370-376.
33. "Tuning Band Gap Energies in $\text{Pb}_3(\text{C}_6\text{X}_6)$ Extended Solid-State Structures", Stott, A. C.; Vaid, T. P.; Bylaska, E. J.; Dixon, D. A. *J. Phys. Chem. C* **2012**, *116*, 8370-8378.
34. "Synthesis of Protected Benzenepolyselenols", Turner, D. L.; Vaid, T. P. *J. Org. Chem.* **2012**, *77*, 9397-9400.
35. "Thermodynamic and Electronic Properties of Tunable II-VI and IV-VI Semiconductor Based Metal-Organic Frameworks from Computational Chemistry", Hendon, C. H.; Tiana, D.; Vaid, T. P.; Walsh, A., *J. Mater. Chem. C* **2013**, *1*, 95-100.
36. "Electronic Structure and Photophysics of (C=C)tetra-*p*-tolylporphyrin²⁺", Sung, Y. M.; Vasiliu, M.; Dixon, D. A.; Bonizzoni, M.; Kim, D.; Vaid, T. P. *Photochem. Photobiol. Sci.* **2013**, *12*, 1774-1779. (featured as cover image of journal issue)
37. "Computational Screening of Structural and Compositional Factors for Electrically Conductive Coordination Polymers", Tiana, D.; Hendon, C. H.; Walsh, A.; Vaid, T. P. *Phys. Chem. Chem. Phys.* **2014**, *16*, 14463-14472.

38. "3D Printed Molecules and Extended Solid Models for Teaching Symmetry and Point Groups", Scalfani, V. F.; Vaid, T. P. *J. Chem. Educ.* **2014**, *91*, 1174-1180. (featured as cover image of journal issue)
- Featured in *Chemical and Engineering News*: "3-D Models, Without The Kit", Halford, B. *Chem. Eng. News* **2014**, *92(20)*, 32-33.
39. "Electrical Conductivity in Two Mixed-Valence Liquids", Yao, W.; Kelley, S. P.; Rogers, R. D.; Vaid, T. P., *Phys. Chem. Chem. Phys.* **2015**, *17*, 14107-14114.
40. "Synthesis of 9,10-Dimethyl-2,3,6,7-Anthracenetetra(Thioacetate) and Benzenepentathiol; Improved Syntheses of 1,2,4,5-Benzenetetra(Thioacetate) and Benzenehexathiol ", Hu, H.; Singh, M. P.; Baghel, G. S.; Dye, G. W.; Gerlach, D. L.; Vaid, T. P., *ChemistrySelect* **2016**, *1*, 2163–2166.

McGill University

41. "Metal carbonate complexes formed through the capture of ambient O₂ and CO₂ by elemental metals in 1-methylimidazole: molecular Cu(CO₃)(MeIm)₃ and polymeric M(CO₃)(MeIm)₂·2H₂O (M = Co, Zn)", Vaid, T. P.; Kelley, S. P.; Rogers, R. D. *Dalton Trans.* **2017**, *46*, 8920-8923.
42. "Structure-directing effects of ionic liquids in the ionothermal synthesis of metal-organic frameworks", Vaid, T. P.; Kelley, S. P.; Rogers, R. D. *IUCrJ* **2017**, *4*, 380-392.
43. "Polythianthrene Ladder Oligomers Function as an Organic Battery Electrode with a High Oxidation Potential", Vaid, T. P.; Easton, M. A.; Rogers, R. D., *Synth. Met.* **2017**, *231*, 44-50.
44. "Crystallographic Insights into the Behavior of Highly Acidic Metal Cations in Ionic Liquids from Reactions of Titanium Tetrachloride with [1-Butyl-3-Methylimidazolium][X] Ionic Liquids (X = Chloride, Bromide, Tetrafluoroborate)", Mishra, M. K.; Kelley, S. P.; Dilip, M.; Vaid, T. P.; Cordes, D. B.; Griffin, S. T.; Rogers, R. D. *Inorg. Chem.* **2019**, *58*, 1764-1773.

University of Michigan

45. "Adsorption of tetranitromethane in zeolitic imidazolate frameworks yields energetic materials", Kent, R. V.; Vaid, T. P.; Boissonnault, J. A.; Matzger, A. J., *Dalton Trans.* **2019**, *48*, 7509-7513.
46. "An Organic Super-Electron-Donor as a High Energy Density Negative Electrolyte for Nonaqueous Flow Batteries", Vaid, T. P.; Sanford, M. S., *Chem. Commun.* **2019**, *55*, 11037-11040.
47. "Salt Loading in MOFs: Solvent-Free and Solvent-Assisted Loading of NH₄NO₃ and LiNO₃ in UiO-66", Seth, S.; Vaid, T. P.; Matzger, A. J., *Dalton Trans.* **2019**, *48*, 13483-13490.

Invited Lectures and other Presentations:

1. University of Missouri, Columbia, MO; Feb. 6, 2001, "Vapor Discrimination by an Array of Polymer-Carbon Black Composite Films".
2. Fudan University, Shanghai, China; Feb 28, 2002, "Vapor Discrimination by an Array of Polymer-Carbon Black Composite Films".
3. Tsinghua University, Beijing, China; March 6, 2002, "Vapor Discrimination by an Array of Polymer-Carbon Black Composite Films".
4. Sixth International Symposium on Functional π -Electron Systems, Ithaca, NY, June 14-18, 2004, "Isostructural Doping of Molecular Semiconductors".
5. Gordon Research Conference, Electronic Processes in Organic Materials, Mount Holyoke College, MA, July 25-30, 2004, "Isostructural Doping of Molecular Semiconductors". (poster)
6. Gordon Research Conference, Chemistry of Electronic Materials, Connecticut College, New London, CT, July 17-22, 2005, "Isostructural Doping of Molecular Semiconductors". (Presented a poster and was invited to give a short talk.)
7. American Chemical Society National Meeting, Washington, D.C., Aug. 27-31, 2005, "Isostructural Doping of Molecular Semiconductors". (Presented a talk and presided over the session.)
8. 13th NSF Workshop on Materials Chemistry, Alexandria, VA, Oct. 28-30, 2005, "Isostructural Doping of Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
9. University of Pittsburgh, Department of Chemistry, Pittsburgh, PA, Feb. 23, 2006, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
10. Cornell University, Department of Chemistry and Chemical Biology, Ithaca, NY, March 2, 2006, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
11. University of Wisconsin, Department of Chemistry, Madison, WI, March 9, 2006, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
12. University of Michigan, Department of Chemistry, Ann Arbor, MI, March 16, 2006, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
13. Dartmouth College, Department of Chemistry, Hanover, NH, May 11, 2006, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
14. Gordon Research Conference, Electronic Processes in Organic Materials, Mount Holyoke College, MA, July 30-Aug. 3, 2006, "Isostructural Dopants for Molecular Semiconductors". (poster)

15. Gordon Research Conference, Renewable Energy: Solar Fuels, Ventura, CA, Jan. 21-26, 2007, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States". (Presented a poster and was invited to give a short talk.)
16. American Chemical Society National Meeting, Chicago, IL, March 24-28, 2007, "Aromaticity and Antiaromaticity in Main-Group Porphyrin Complexes". (contributed talk)
17. CERC3 Young Chemists' Workshop on Organic Photovoltaics, Spa, Belgium, April 17-20, 2007, "Isostructural Dopants for Organic Molecular Semiconductors". (invited talk)
18. Southern Illinois University, Department of Chemistry and Biochemistry, Carbondale, IL, June 1, 2007, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
19. Gordon Research Conference, Inorganic Chemistry, Salve Regina University, Newport, RI, July 15-20, 2007, "Aromaticity and Antiaromaticity in Main-Group Porphyrin and Phthalocyanine Complexes". (poster)
20. University of North Dakota, Department of Chemistry, Grand Forks, ND, January 11, 2008, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
21. University of Alabama, Department of Chemistry, Tuscaloosa, AL, January 15, 2008, "Isostructural Dopants for Molecular Semiconductors: Organic Molecules in Unusual Oxidation States".
22. American Chemical Society National Meeting, New Orleans, LA, April 6-10, 2008, "Semiconducting Metal-Sulfur-Organic Network Solids". (contributed talk)
23. American Chemical Society National Meeting, Philadelphia, PA, August 16-20, 2008, "Porphyrins and Phthalocyanines as Non-innocent Ligands in Main-Group Metal Complexes". (invited symposium speaker)
24. 16th NSF Workshop on Materials Chemistry, St. Louis, Missouri, Oct. 2-5, 2008, "Semiconducting Metal-Sulfur-Organic Network Solids". (invited speaker)
25. University of Florida, Department of Chemistry, Gainesville, FL, March 30, 2009, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".
26. Florida State University, Department of Chemistry, Tallahassee, FL, March 31, 2009, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".
27. University of Alabama, Birmingham, Department of Chemistry, September 3, 2009, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".
28. Mississippi State University, Department of Chemistry, Starkville, MS, September 11, 2009, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".

29. University of Southern Mississippi, Department of Chemistry, Hattiesburg, MS, October 2, 2009, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".
30. Sixth International Conference on Porphyrins and Phthalocyanines, Santa Ana Pueblo, New Mexico, July 4-9, 2010, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes: Aromaticity and Antiaromaticity". (invited speaker)
31. Tuskegee University, Tuskegee, Alabama, September 29, 2010, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes: Aromaticity and Antiaromaticity".
32. Oklahoma State University, Department of Chemistry, Stillwater, OK, February 17, 2011, "Oxidized and Reduced Porphyrins and Phthalocyanines; Toward Metal-Organic Semiconducting Networks".
33. American Chemical Society National Meeting, Anaheim, CA, March 27-30, 2011, "Toward Semiconducting Inorganic-Organic Hybrid Materials". (invited symposium speaker)
34. Gordon Research Conference, Crystal Engineering, Waterville Valley Resort, Waterville Valley, NH, June 10-15, 2012, "Semiconducting Hybrid Organic-Inorganic Framework Materials". (poster)
35. University of Bath, Department of Chemistry, Bath, UK, August 2, 2012, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes; Toward Semiconducting Inorganic-Organic Hybrid Framework Materials".
36. University of York, Department of Chemistry, York, UK, August 6, 2012, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes; Toward Semiconducting Inorganic-Organic Hybrid Framework Materials".
37. Johns Hopkins University, Department of Chemistry, Baltimore, MD, Feb. 12, 2013, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes; Toward Semiconducting Inorganic-Organic Hybrid Framework Materials".
38. Georgetown University, Department of Chemistry, Washington, D.C., Feb. 14, 2013, "Oxidized and Reduced Main-Group Porphyrin and Phthalocyanine Complexes; Toward Semiconducting Inorganic-Organic Hybrid Framework Materials".
39. University of Georgia, Center for Computational and Quantum Chemistry, Athens, GA, March 28, 2013, "Aromaticity and Antiaromaticity in Main-Group Porphyrin and Phthalocyanine Complexes".
40. American Chemical Society National Meeting, New Orleans, LA, April 7-11, 2013, "Synthetic Efforts Toward Electrically Conducting MOFs, Guided by Computational Chemistry".
41. Southeast Regional Meeting of the American Chemical Society (SERMACS), Atlanta, GA, November 13-16, 2013, "Sulfur- and Selenium-Containing MOFs in the Search for Electrical Conductivity". (invited symposium speaker)

42. University of Mississippi, Department of Chemistry, Oxford, MS, Sept. 4, 2014, "Main-Group Porphyrin Complexes, Including a (C=C)-Centered Porphyrin; Semiconducting Inorganic-Organic Hybrid Frameworks".
43. Sandia National Laboratories, Albuquerque, NM, May 11, 2015, "Oxidized and Reduced Main-Group Porphyrin Complexes; Semiconducting Inorganic-Organic Hybrid Frameworks".
44. Gordon Research Conference, Ionic Liquids, Sunday River Resort, Newry, ME, August 14-19, 2016, "Ionic Liquids as Reactive Solvents in the Synthesis of Metal-Organic Frameworks". (poster)
45. JCESR Meeting, Argonne National Laboratory, Lemont, IL, Oct. 23-24, 2018, "New Molecules for Nonaqueous Flow Batteries". (poster)

Teaching:

Washington University

1. 2000, Fall semester, Chem 461, "Inorganic Chemistry".
2. 2001, Fall semester, Chem 461, "Inorganic Chemistry".
3. 2002, Fall semester, Chem 111, "General Chemistry I".
4. 2003, Spring and Fall semesters, design and testing of Chem 470, "Inorganic Chemistry Laboratory".
5. 2004, Spring semester, Chem 470, "Inorganic Chemistry Laboratory".
6. 2004, Fall semester, Chem 461, "Inorganic Chemistry".
7. 2005, Spring semester, Chem 470, "Inorganic Chemistry Laboratory".
8. 2006, Spring semester, Chem 470, "Inorganic Chemistry Laboratory".
9. 2006, Fall semester, Chem 461, "Inorganic Chemistry".
10. 2007, Spring semester, Chem 470, "Inorganic Chemistry Laboratory".

University of Alabama

1. 2008, Fall semester, CH 101, "General Chemistry I". Enrollment, 191.
2. 2009, Fall semester, CH 101, "General Chemistry I". Enrollment, 157.
3. 2010, Spring semester, CH 601, "Advanced Inorganic Chemistry". Enrollment, 5.
4. 2010, Fall semester, CH 101, "General Chemistry I". Enrollment, 211.
5. 2011, Spring semester, CH 102, "General Chemistry II". Enrollment, 150.
6. 2011, Fall semester, CH 101, "General Chemistry I". Enrollment, 205.
7. 2012, Spring semester, CH 102, "General Chemistry II". Enrollment, 180.
8. 2012, Fall semester, CH 601, "Advanced Inorganic Chemistry". Enrollment, 7.
9. 2013, Spring semester, CH 102, "General Chemistry II". Enrollment, 209.
10. 2013, Fall semester, CH 101, "General Chemistry I". Enrollment, 258.
11. 2014, Spring semester, CH 601, "Advanced Inorganic Chemistry". Enrollment, 4.
12. 2014, Fall semester, CH 101, "General Chemistry I". Enrollment, 212.
13. 2015, Spring semester, CH 101, "General Chemistry I". Enrollment, 179.

Departmental Committees and Service:

Washington University

1. 2000-2008, Graduate Work Committee
2. 2000-2008, Graduate Admissions and Recruitment
3. 2001-2003, Seminar Committee (2002 Chair)
4. 2001 Physical Chemistry Faculty Search Committee
5. Physics Department, 2001 Condensed Matter/Materials Faculty Search Committee

University of Alabama

1. 2008-2015, Graduate Recruiting Committee
2. 2009 Organic Faculty Search Committee
3. 2010 Departmental Retention, Tenure, and Promotion Document Revision Committee

Other Professional Service:

1. Various NSF and other federal agency proposal reviews.
2. Reviewed manuscripts for *Journal of the American Chemical Society*, *Angewandte Chemie*, *Science*, *Chemistry of Materials*, *Inorganic Chemistry*, *Nano Letters*, and others.

Research Associates:

Postdoctoral Associates:

Dr. Liliana Miinea	Oct. 1, 2000-Dec. 14, 2001.
Dr. Xiaobin Deng	July 29, 2002-April 23, 2004.
Dr. Courtney Olmsted	March 7, 2005-Aug. 2005.
Dr. Zhenfu Han	July 17, 2006-Aug. 24, 2007.
Dr. Yanhui Shi	July 9, 2007- Aug. 31, 2007.
Dr. Palani Sasikumar	April 1, 2009-Jan. 15, 2010.
Dr. Mayank Singh	Feb. 1, 2010-Jan. 31, 2011.

Graduate Students:

Mr. William (Trey) Porter	Jan. 2001-June 2006.
Ms. Julie Cissell	Jan. 2003-April 2007.
Ms. Gina Jackson	Jan. 2003-Dec. 2003.
Mr. Joseph (Levi) Falin	Jan. 2004-March 2005.
Mr. Jhashanath (Subin) Adhikari	Jan. 2004-Aug. 2005.
Ms. Dayna Turner	Jan. 2004-March 2009.
Ms. Yinyin Song	Jan. 2006-Dec. 2006.
Mr. Gregory Dye	Jan. 2010-Jan. 2012.
Mr. Huaiyuan Hu (Ethan)	Jan. 2012-Aug. 2015.

Undergraduates:

Mr. Jacob Calkins	Oct. 2000-May 2001.
Mr. Navindra Gunawardena	Oct. 2000-May 2001.
Ms. Abigail Lytton-Jean	Jan. 2001-May 2002.
Mr. Leonard Tinker	June 2001-Aug. 2001.
Ms. Sara Ehrlich	May 2002-July 2002.
Mr. Aaron Zeide	May 2002-July 2002.
Ms. Ryan Roddy	Jan. 2009-May 2009.
Mr. Christopher Romanczuk	May 2009-Aug. 2009.
Mr. Mark Ledbetter	May 2010-Aug. 2010.
Mr. Melvin Watson-Richardson	May 2012-Aug. 2012.
Mr. Wenzhi Yao	March 2012-May 2015.
Mr. Thomas Regan	August 2012-May 2014.