

Curriculum Vitae

Thomas S. Teets

Department of Chemistry
University of Houston
Lamar Fleming Jr. Building
3585 Cullen Blvd. Room 112
Houston, TX 77204-5003
Phone: (832) 842-9132
Email: tteets@uh.edu

Experience

- University of Houston** 2014–present
Assistant Professor of Chemistry
- California Institute of Technology** 2012–2014
Postdoctoral Scholar
Department of Chemistry
Advised by Prof. John Bercaw and Dr. Jay Labinger

Education

- Massachusetts Institute of Technology** 2012
Ph.D. Inorganic Chemistry
Research with Professor Daniel G. Nocera
Hertz Foundation Graduate Fellow
Thesis Title: Halogen-Elimination Photochemistry and Oxygen-Activation Chemistry of Late Transition-Metal Complexes
- Case Western Reserve University** 2007
B. S. Chemistry, *summa cum laude*
Research with Professor Thomas G. Gray
Thesis Title: Synthesis, Characterization and Photophysical Properties of Transition Metal Complexes of Tetraarylazadipyrromethenes

Awards and Fellowships

- ACS Division of Inorganic Chemistry Young Investigator Award 2012
Hertz Foundation Graduate Fellowship 2007–2012
IPMI Sabin Metals Corp. Graduate Student Award 2010
Alpha Chi Sigma Scholar Award 2007
Charles Mabery Undergraduate Thesis Prize, *CWRU* 2007
Hypercube Scholar Award 2007, *CWRU* 2007
Polymer Valley Undergraduate Research Award, *CWRU* 2006

W. R. Veazey Prize, <i>CWRU</i>	2005
Eli Lilly Award, <i>CWRU</i>	2005
SOURCE Summer Research Fellow, <i>CWRU</i>	2005–2006
Freshman Chemistry Achievement Award, <i>CWRU</i>	2004
National Merit Scholar	2003–2007
Trustee's Scholarship, <i>CWRU</i>	2003–2007

Publications

University of Houston

38. Maya, R.; Maity, A.; **Teets, T. S.** Fluorination of Cyclometalated Iridium β -Ketoiminate and β -Diketimate Complexes: Extreme Redox Tuning and Ligand-Centered Excited States. *Organometallics* **2016**, ASAP. DOI: 10.1021/acs.organomet.6b00453.
37. Na, H.; Maity, A.; **Teets, T. S.** Postsynthetic Systematic Electronic Tuning of Organoplatinum Photosensitizers via Secondary Coordination Sphere Interactions. *Organometallics* **2016**, *35*, 2267–2274.
36. Maity, A.; **Teets, T. S.** Main Group Lewis Acid-Mediated Transformations of Transition-Metal Hydride Complexes. *Chem. Rev.* **2016**, *116*, 8873–8911.
35. Maity, A.; Le, L. Q.; Zhu, Z.; Bao, J. **Teets, T.S.** Steric and Electronic Influence of Aryl Isocyanides on the Properties of Iridium(III) Cyclometalates. *Inorg. Chem.* **2016**, *55*, 2299–2308.
34. Kabir, E.; Wu, C.-H.; Wu, J. I.-C.; **Teets, T. S.** Heteroleptic Complexes of Cyclometalated Platinum with Triarylformazanate Ligands. *Inorg. Chem.* **2016**, *55*, 956–963.
33. Radwan, Y. K.; Maity, A.; **Teets, T. S.** Manipulating the Excited States of Cyclometalated Iridium Complexes with β -Ketoiminate and β -Diketimate Ligands. *Inorg. Chem.* **2015**, *54*, 7122–7131.

Previous Institutions

32. Halbach, R. L.; **Teets, T. S.**; Nocera, D. G. Oxygen Reduction Mechanism of Monometallic Rhodium Hydride Complexes. *Inorg. Chem.* **2015**, *54*, 7335–7344.
31. **Teets, T. S.**; Labinger, J. A.; Bercaw, J. E. Guanidine-Functionalized Rhenium Cyclopentadienyl Carbonyl Complexes: Synthesis and Cooperative Activation of H–H and O–H Bonds. *Organometallics* **2014**, *33*, 4107–4117.
30. **Teets, T. S.**; Labinger, J. A.; Bercaw, J. E. A Thermodynamic Analysis of Rhenium(I)-Formyl C–H Bond Formation via Base-Assisted Heterolytic H₂ Cleavage in the Secondary Coordination Sphere. *Organometallics* **2013**, *32*, 5530–5545.
29. Maity, A.; Choi, J.-S.; **Teets, T. S.**; Deligonul, N.; Berdis, A. J.; Gray, T. G. Cyclometalated Iridium(III) Complexes with Deoxyribose Substituents. *Chem. Eur. J.* **2013**, *Chem. Eur. J.* **2013**, *19*, 15924–15932.
28. Powers, D. C.; Chambers, M. B.; **Teets, T. S.**; Elgrishi, N.; Anderson, B. L.; Nocera, D. G. Halogen photoelimination from dirhodium phosphazene complexes via chloride-bridged intermediates. *Chem. Sci.* **2013**, *4*, 2880–2885.
27. **Teets, T. S.**; Nocera, D. G. Acidolysis and oxygen atom transfer reactivity of a diiridium hydroperoxo complex. *Dalton. Trans.* **2013**, *42*, 3521–3527.

26. Symes, M. D.; Lutterman, D. A.; **Teets, T. S.**; Anderson, B. L.; Breen, J. J.; Nocera, D. G. Photo-active Cobalt Cubane Model of an Oxygen-Evolving Catalyst. *ChemSusChem* **2013**, *6*, 65–69.
25. Schwalbe, M.; Metzinger, R.; **Teets, T. S.**; Nocera, D. G. Terpyridine-Porphyrin Hetero-Pacman Compounds. *Chem. Eur. J.* **2012**, *18*, 15449–15458.
24. Elgrishi, N.; **Teets, T. S.**; Chambers, M. B.; Nocera, D. G. Stability-enhanced hydrogen-evolving dirhodium photocatalysts through ligand modification. *Chem. Commun.* **2012**, *48*, 9474–9476.
23. Keith, J. M.; **Teets, T. S.**; Nocera, D. G. O₂ Insertion into Group 9 Metal-Hydride Bonds: Evidence for Oxygen Activation through the Hydrogen-Atom-Abstraction Mechanism. *Inorg. Chem.* **2012**, *51*, 9499–9507.
22. **Teets, T. S.**; Nocera, D. G. Oxygen Reduction Reactions of Monometallic Rhodium Hydride Complexes. *Inorg. Chem.* **2012**, *51*, 7192–7201.
21. Partyka, D. V.; **Teets, T. S.**; Zeller, M.; Updegraff, J. B. III, Hunter, A. D.; Gray, T. G. Constrained Digold(I) Diaryls: Syntheses, Crystal Structures, and Photophysics. *Chem. Eur. J.* **2012**, *18*, 2100–2112.
20. Pizano, A. A.; Lutterman, D. A.; Holder, P. G.; **Teets, T. S.**; Stubbe, J.; Nocera, D. G. Photo-ribonucleotide reductase $\beta 2$ by selective cysteine labeling with a radical phototrigger. *Proc. Natl. Acad. Sci. USA* **2012**, *109*, 39–43.
19. **Teets, T. S.**; Nocera, D. G. Mechanistic Studies of O₂ Reduction Effected by Group 9 Bimetallic Hydride Complexes. *J. Am. Chem. Soc.* **2011**, *133*, 17796–17806.
18. **Teets, T. S.**; Nocera, D. G. Photocatalytic hydrogen production. *Chem. Commun.* **2011**, *47*, 9268–9274.
17. **Teets, T. S.**; Cook, T. R.; McCarthy, B. D.; Nocera, D. G. Redox Chemistry, Acid Reactivity, and Hydrogenation Reactions of Two-Electron Mixed Valence Diiridium and Dirhodium Complexes. *Inorg. Chem.* **2011**, *50*, 5223–5233.
16. **Teets, T. S.**; Cook, T. R.; McCarthy, B. D.; Nocera, D. G. Oxygen Reduction to Water Mediated by a Dirhodium Hydrido-Chloride Complex. *J. Am. Chem. Soc.* **2011**, *133*, 8114–8117.
15. Schwalbe, M.; Dogutan, D. K.; Stoian, S. A.; **Teets, T. S.**; Nocera, D. G. Xanthene-Modified and Hangman Iron Corroles. *Inorg. Chem.* **2011**, *50*, 1368–1377.
14. **Teets, T. S.**; Neumann, M. P.; Nocera, D. G. Heterobimetallic rhodium-gold halide and hydride complexes. *Chem. Commun.* **2011**, *47*, 1485–1487.
13. Dogutan, D. K.; Stoian, S. A.; McGuire, R. Jr.; Schwalbe, M.; **Teets, T. S.**; Nocera, D. G. Hangman Corroles: Efficient Synthesis and Oxygen Reaction Chemistry. *J. Am. Chem. Soc.* **2011**, *133*, 131–140.
12. Cook, T. R.; Dogutan, D. K.; Reece, S. Y.; Surendranath, Y.; **Teets, T. S.**; Nocera, D. G. Solar Energy Supply and Storage for the Legacy and Nonlegacy Worlds. *Chem. Rev.* **2010**, *110*, 6474–6502.
11. **Teets, T. S.**; Cook, T. R.; Nocera, D. G. The Diphosphine tfepma and its Diiridium Complex Ir₂^{0,II}(tfepma)₃Cl₂. *Inorg. Synth.* **2010**, *35*, 164–168.
10. McGuire, R. Jr.; Dogutan, D. K.; **Teets, T. S.**; Suntivich, J.; Shao-Horn, Y.; Nocera, D. G. Oxygen reduction reactivity of cobalt(II) hangman porphyrins. *Chem. Sci.* **2010**, *1*, 411–414.

9. **Teets, T. S.;** Lutterman, D. A.; Nocera, D. G. Halogen Photoreductive Elimination from Metal–Metal Bonded Iridium(II)–Gold(II) Heterobimetallic Complexes. *Inorg. Chem.* **2010**, *49*, 3035–3043.
8. Dogutan, D. K.; Bediako, D. K.; **Teets, T. S.;** Schwalbe, M.; Nocera, D. G. Efficient Synthesis of Hangman Porphyrins. *Org. Lett.* **2010**, *12*, 1036–1039.
7. Partyka, D. V.; Gao, L.; **Teets, T. S.;** Updegraff, J. B. III; Deligonul, N.; Gray, T. G. Copper-Catalyzed Huisgen [3 + 2] Cycloaddition of Gold(I) Alkynyls with Benzyl Azide. Syntheses, Structures, and Optical Properties. *Organometallics* **2009**, *28*, 6171–6182.
6. Gao, L.; Peay, M. A.; Partyka, D. V.; Updegraff, J. B. III; **Teets, T. S.;** Esswein, A. J.; Zeller, M.; Hunter, A. D.; Gray, T. G. Mono- and Di-Gold(I) Naphthalenes and Pyrenes: Syntheses, Crystal Structures, and Photophysics. *Organometallics* **2009**, *28*, 5669–5681.
5. **Teets, T. S.;** Updegraff, J. B. III; Esswein, A. J.; Gray, T. G. Three-Coordinate, Phosphine-Ligated Azadipyromethene Complexes of Univalent Group 11 Metals. *Inorg. Chem.* **2009**, *48*, 8134–8144.
4. **Teets, T. S.;** Nocera, D. G. Halogen Photoreductive Elimination from Gold(III) Centers. *J. Am. Chem. Soc.* **2009**, *131*, 7411–7420.
3. Bachmann, J.; **Teets, T. S.;** Nocera, D. G. Proton storage in the periphery of zirconium(IV) porphyrinogen. *Dalton Trans.* **2008**, 4549–4551.
2. **Teets, T. S.;** Partyka, D. V.; Updegraff, J. B. III; Gray, T. G. Homoleptic, Four-Coordinate Azadipyromethene Complexes of d¹⁰ Zinc and Mercury. *Inorg. Chem.* **2008**, *47*, 2338–2346.
1. **Teets, T. S.;** Partyka, D. V.; Esswein, A. J.; Updegraff, J. B. III; Zeller, M.; Hunter, A. D.; Gray, T. G. Luminescent Three-Coordinate Azadipyromethene Complexes of d¹⁰ Copper, Silver, and Gold. *Inorg. Chem.* **2007**, *46*, 6218–6220.

Conferences and Seminars

15. Teets, T. S.; Maity, A.; Na, H.; Maya, R. A.; Radwan, Y.; Lai, P.-N. “Primary and Secondary Coordination Sphere Strategies for Modifying Organometallic Phosphors” Inorganic Chemistry Gordon Research Conference, June 19–24 2016, Biddeford, ME.
14. Teets, T. S. “Synthetic Modification of Organometallic Phosphors in the Primary and Secondary Coordination Spheres” Case Western Reserve University, April 21 2016, Cleveland, OH.
13. Teets, T. S.; Maity, A.; Radwan, Y. “Bis-cyclometalated iridium complexes supported by β-ketiminato (acNac) and β-diketiminato (NacNac) ligands” American Chemical Society National Meeting: INOR-409 August 18 2015, Boston, MA.
12. Teets, T. S.; Kabir, E. “Heteroleptic formazan complexes of cyclometallated platinum” American Chemical Society National Meeting: INOR-134 August 16 2015, Boston, MA.
11. Teets, T. S.; Radwan, Y. K.; Maya, R. A.; Maity, A. “Cyclometallated Iridium Complexes with β-Ketoiminato and β-Diketiminato Ligands” Organometallic Chemistry Gordon Research Conference, July 12–17 2015, Newport, RI.
10. Teets, T. S.; Labinger, J. A.; Bercaw, J. E. “Thermodynamic Aspects of Formyl C–H Bond Formation via Base-Assisted Heterolytic H₂ Cleavage”; Organometallic Chemistry Gordon Research Seminar and Conference, July 6–13 2013, Newport, RI.

9. Teets, T. S.; Nocera, D. G. "Rhodium and iridium hydrides: GO_2 guys for oxygen activation and reduction"; 244th American Chemical Society National Meeting: INOR-63 August 19–23 2012, Philadelphia, PA (*Invited*).
8. Teets, T. S.; Nocera, D. G. "Redox chemistry, acid reactivity and hydrogenation reactions of a new class of two-electron mixed valence dirhodium and diiridium complexes"; 242nd American Chemical Society National Meeting: INOR-565 August 28–September 1 2011, Denver, CO.
7. Teets, T. S.; Nocera, D. G. "Mechanism of O_2 Reduction Reactions Mediated by Dirhodium and Diiridium Complexes"; Inorganic Reaction Mechanisms Gordon Research Conference, March 6–11 2011, Galveston, TX (*Selected for poster talk*).
6. Teets, T. S. "Synthesis, Thermal Reactivity and Photochemistry of Late Transition Metal Halide and Hydride Complexes"; Department of Chemistry, Massachusetts Institute of Technology; September 8, 2010.
5. Teets, T. S.; Neumann, M. P.; Nocera, D. G. "Synthesis, Reactivity and Photochemistry of Heterobimetallic Rhodium-Gold Halide and Hydride Complexes"; 240th American Chemical Society National Meeting: INOR-682 August 22–26 2010, Boston, MA.
4. Teets, T. S. "A New Mechanism for Photocatalytic HCl Splitting Mediated by Dirhodium Complexes"; Inorganic Chemistry Gordon Research Seminar (oral, *invited*) and Conference (poster), June 19–25 2010, University of New England, Biddeford, ME.
3. Teets, T. S. "Halogen Photoreductive Elimination from Late Transition Metal Complexes"; 22nd Boston Regional Inorganic Colloquium, June 12 2010, Brandeis University, Waltham, MA (*Invited*).
2. Teets, T. S.; Nocera, D. G. "Halogen Elimination from Monomeric and Dimeric Au^{III} Complexes"; 237th American Chemical Society National Meeting: INOR-680 March 22–26 2009, Salt Lake City, UT.
1. Teets, T. S.; Nocera, D. G. "Halogen Elimination from Monomeric and Dimeric Au^{III} Complexes"; Osaka University Forum on Bio-Environmental Chemistry, December 8–10 2008, San Francisco, CA.

Teaching Experience

University of Houston

General Chemistry (CHEM 1331)

Fall 2014,

Spring 2016

Fall 2015

Physical Inorganic Chemistry I (CHEM 6374)

Massachusetts Institute of Technology

Graduate Teaching Assistant

2007–2008

Courses Taught: General Chemistry, Introductory Chemistry Lab

Case Western Reserve University

Supplemental Instructor (SI)

2004–2007

Courses Taught: General Chemistry, General Chemistry for Engineers, Introductory Organic Chemistry

Service and Outreach

UH Honors College STEM Graduate Fellowship Workshop: Panelist

Science Engineering Fair of Houston: Judge

Intel International Science and Engineering Fair: Grand Award Judge (2014)

Los Angeles County Science Fair: Judging chair, general chemistry division.

Caltech Summer Undergraduate Research Fellows Seminar Day: Session chair and judge.

Pasadena Unified School District: Science Fair judge and outreach modules.

Science Buddies: “Water to Fuel to Water: The Fuel Cycle of the Future”: Online electrocatalysis lab module for high school students (sciencebuddies.com)

MIT Center for Materials Science and Engineering Middle School Program: “Energy Conversion”: Outreach course teaching fundamentals of electrochemistry, energy conversion, photophysics, and photochemistry

MIT Museum Innovation Sunday: Interactive demonstration on photochemistry and electrochemistry