



Paul J. Chirik

292 Frick Laboratory
Department of Chemistry
Princeton University
Princeton, NJ 08540
Office: 609-258-4130
pchirik@princeton.edu

Date of Birth: June 13, 1973

Experience

| | |
|---|--------------|
| Edwards S. Sanford Professor of Chemistry Princeton University, Princeton, NJ | 2011-present |
| Peter J. W. Debye Professor of Chemistry and Chemical Biology Cornell University, Ithaca, NY | 2009-2011 |
| Associate Professor of Chemistry and Chemical Biology Cornell University, Ithaca, NY | 2006-2009 |
| Assistant Professor of Chemistry and Chemical Biology Cornell University, Ithaca, NY | 2001-2006 |
| Postdoctoral Research Fellow Massachusetts Institute of Technology, Cambridge, MA Advisor: Professor Christopher C. Cummins | 2000-2001 |

Education

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|---|-------------|
| Doctor of Philosophy, Chemistry California Institute of Technology, Pasadena, CA Advisor: Professor John E. Bercaw Dissertation: <i>Ancillary Ligand Effects on Fundamental Transformations in Metallocene Catalyzed Olefin Polymerization.</i> | April, 2000 |
| Bachelor of Science, Chemistry; Magna Cum Laude Virginia Tech, Blacksburg, VA Research Advisor: Professor Joseph S. Merola | May, 1995 |

Selected Honors and Awards

ACS *Catalysis* Lectureship for Advancement of Catalysis Science (2017)
Winner, Presidential Green Chemistry Challenge Award (2016)
First JSCC International Award for Creative Work (2015)
Closs Lecturer, University of Chicago (2014)
Dalton Lecturer, University California – Berkeley (2011)
Winner, Blavatnik Award for Young Scientists, NYAS (2009)
Arthur C. Cope Scholar Award, American Chemical Society (2009)
Bessel Fellow of the Alexander von Humboldt Foundation (2008)
Camille Dreyfus-Teacher Scholar (2006)
Stephen and Margery Russell Distinguished Teaching Award (2005)
David and Lucile Packard Fellow in Science and Engineering (2004)
NSF CAREER Award (2003)
Herbert Newby McCoy Award for Outstanding Dissertation, Caltech (2000)

Synergistic Activities

Editor-in-Chief, *Organometallics*, 2015-
Chair, Department of Energy Basic Energy Sciences Contractor's Meeting, 2017
Associate Director for External Partnerships, Andlinger Center 2015-2016
Chair, *Inorganic Reaction Mechanisms Gordon Conference*, 2015
Chair, *NSF Workshop on Base Metal Catalysis*, 2013
Vice Chair, *Inorganic Reaction Mechanisms Gordon Conference*, 2013
Associate Editor, *Catalysis Science and Technology*, 2010-2014
Advisory Board, *Inorganic Chemistry*, 2012-2015
Advisory Board, *Dalton Transactions*, 2009-2011
Advisory Board, *Organometallics*, 2008-2011
Defense Science Study Group, 2010-2011

Named Lectureships

Allergan Lecture, University of California – Irvine (2017)
Singapore Nanyang Distinguished Lectureship (2017)
Nankai-Asymchem Lecture (2016)
Xingda Lecturer, Peking University (2015)
Closs Lecturer, University of Chicago (2014)
Dalton Lecturer of the Royal Society of Chemistry (2011)

Representative Recent Publications (170 total; h-index 53)

165. Krautwald, S.; Bezdek, M. J.; Chirik, P. J. "Cobalt-catalyzed 1,1-diboration of terminal alkynes: Scope, mechanism and synthetic applications." *J. Am. Chem. Soc.* **2017**, *139*, 3868-3875.
164. Palmer, W. N.; Zarate, C.; Chirik, P. J. "Benzyltriboronates: Building blocks for diastereo-selective carbon-carbon bond formation." *J. Am. Chem. Soc.* **2017**, *139*, 2589-2592.
163. Obligacion, J. V.; Bezdek, M. J.; Chirik, P. J. "C(sp²)-H borylation of fluorinated arenes using an air-stable cobalt pre-catalyst: Electronically enhanced site selectivity enables synthetic opportunities." *J. Am. Chem. Soc.* **2017**, *139*, 2825-2832.
162. Chirik, P. J. "Carbon-carbon bond formation in a weak ligand field: Leveraging open shell first row transition metal catalysts." *Angew. Chem. Int. Ed.* **2017**, *56*, 5170-5181.
160. Neely, J. M.; Bezdek, M. J.; Chirik, P. J. "Insight into transmetalation enables cobalt-catalyzed Suzuki-Miyaura coupling." *ACS Central Science* **2016**, *2*, 935-942.
159. Bezdek, M.; Guo, S.; Chirik, P. J. "Coordination induced bond weakening of ammonia, water, hydrazine with a molybdenum complex." *Science* **2016**, *354*, 730-733.
157. Pappas, I.; Chirik, P. J. "Titanocene amides, hydrazides, and imides: Determination of thermodynamic parameters relevant to nitrogen fixation." *J. Am. Chem. Soc.* **2016**, *138*, 13379-13389.
156. Obligacion, J. V.; Semproni, S. P.; Pappas, I.; Chirik, P. J. "Cobalt catalyzed C(sp²)-H borylation: Mechanistic insights inspire catalyst design." *J. Am. Chem. Soc.* **2016**, *138*, 10645-10653.
153. Pappas, I.; Treacy, S.; Chirik, P. J. "Alkene hydrosilylation using tertiary silanes with α -diimine nickel catalysts. Redox-active ligands promote a distinct mechanistic pathway from platinum catalysts." *ACS Catal.* **2016**, *6*, 4105-4109.
152. Schuster, C. H.; Diao, T.; Pappas, I.; Chirik, P. J. "Bench-stable, substrate activated cobalt carboxylate pre-catalysts for alkene hydrosilylation with tertiary silanes." *ACS Catal.* **2016**, *6*, 2632-2636.

149. Shevlin, M.; Friedfeld, M. R.; Sheng, H.; Pierson, N. A.; Hoyt, J. M.; Campeau, L.-C.; Chirik, P. J. "Nickel-catalyzed asymmetric alkene hydrogenation of α,β -unsaturated esters: High throughput experimentation enabled reaction discovery, optimization and mechanistic elucidation." *J. Am. Chem. Soc.* **2016**, *138*, 3562-3569.
148. Friedfeld, M. R.; Shevlin, M.; Margulieux, G. W.; Campaeu, L.-C.; Chirik, P. J. "Cobalt-catalyzed enantioselective hydrogenation of minimally functionalized alkenes: Isotopic labeling provides insight into the origin of stereoselectivity and alkene insertion preferences." *J. Am. Chem. Soc.* **2016**, *138*, 3314-3324.
147. Palmer, W. N.; Obligacion, J. V.; Pappas, I.; Chirik, P. J. "Cobalt-catalyzed benzylic borylation: Enabling polyborylation and functionalization of remote, unactivated C(sp³)-H bonds." *J. Am. Chem. Soc.* **2016**, *138*, 766-769.
146. Yu, R. P.; Hesk, D.; Rivera, N.; Pelczer, I.; Chirik, P. J. "Iron-catalyzed tritiation of pharmaceuticals." *Nature* **2016**, *529*, 195-199.
144. Hoyt, J. M.; Schmidt, V. A.; Tondreau, A. M.; Chirik, P. J. "Iron-catalyzed intermolecular [2+2] cycloadditions of unactivated alkenes." *Science* **2015**, *349*, 960-963.
143. Schmidt, V. A.; Hoyt, J. M.; Margulieux, G. W.; Chirik, P. J. "Cobalt-catalyzed [2 π +2 π] cycloadditions of alkenes: Scope, mechanism, and elucidation of electronic structure of catalytic intermediates." *J. Am. Chem. Soc.* **2015**, *137*, 7093-7914.
142. Chirik, P. J. "Iron- and cobalt-catalyzed alkene hydrogenation: Catalysis with both redox-active and strong field ligands." *Acc. Chem. Res.* **2015**, *48*, 1687-1695.
138. Pappas, I.; Chirik, P. J. "Ammonia synthesis by hydrogenolysis of titanium-nitrogen bonds using proton coupled electron transfer." *J. Am. Chem. Soc.* **2015**, *137*, 3498-3501.