John F. Hartwig *Henry Rapoport Professor of Chemistry*

Department of Chemistry, University of California Berkeley
718 Latimer Hall MC# 1460, Berkeley, CA 94720-1460
Email: jhartwig@berkeley.edu
http://www.cchem.berkeley.edu/jfhgrp/

Personal

Born August 7, 1964 in Elmhurst, IL

Employment

2011-present ***University of California, Berkeley*** Henry Rapoport Professor of Chemistry.
2011-present ***Lawrence Berkeley National Laboratory, Berkeley*** Senior Faculty Scientist.

2006-2011 ***University of Illinois Urbana-Champaign*** Kenneth L. Rinehart Jr. Professor of Chemistry.

2004-2006 ***Yale University, New Haven, CT Irénée*** DuPont Professor of Chemistry.
1998-2004 ***Yale University, New Haven, CT Professor*** of Chemistry.
1996-1998 ***Yale University, New Haven, CT*** Associate Professor of Chemistry.
1992-1996 ***Yale University, New Haven, CT*** Assistant Professor of Chemistry. Appointment commenced July 1, 1992.

1990-1992 ***Massachusetts Institute of Technology, Cambridge, MA*** American Cancer Society Postdoctoral Associate.

1986-1989 ***University of California, Berkeley, CA*** Graduate Student Instructor. Taught organic chemistry to undergraduate students and inorganic chemistry to graduate students.

1985 ***Monsanto Japan Ltd., Kawachi, Japan*** Worked among an all-Japanese staff for three months on an agricultural and surface science research project.

1984 ***General Electric Research and Development, Schenectady, NY*** Synthesis of novel monomers, ionomers and polymer blends.

Education

1990-1992 ***Massachusetts Institute of Technology, Cambridge, MA***
Postdoctoral Advisor: Prof. Stephen J. Lippard
Studied the Pt-DNA adducts formed by an orally active platinum antitumor drug and the ability of these adducts to block DNA replication and bind cellular proteins. Designed, synthesized, and analyzed a platinum antitumor drug possessing a fluorescent ligand for in vivo monitoring.

1986-1990 ***University of California, Berkeley, CA*** Ph.D., Chemistry.
Ph.D. Advisors: Robert G. Bergman, Richard A. Andersen

Studied the synthesis, transformations, and reaction mechanisms of complexes containing ruthenium-oxygen, ruthenium-nitrogen, and ruthenium-carbon bonds.

1982-1986 ***Princeton University, Princeton, NJ*** AB, Chemistry, High Honors.
Thesis Advisor: Maitland Jones Jr.
Uncovered a photochemical dihalo-carbene source to study the stereochemistry of their additions to strained olefins.

Awards

2023 Sven Berggren Prize, Royal Physiographic Society, Sweden
2023 Akira Suzuki Award
2022 Emanuel Merck Lectureship Award
2021 Arthur C. Cope Award
2020 Clarivate Citation Laureate
2020 John Gamble Kirkwood Award
2019 Wolf Prize in Chemistry
2018 Tetrahedron Prize for Creativity in Organic Chemistry
2018 Elected as a Fellow of the Royal Society of Chemistry
2018 Centenary Prize, Royal Society of Chemistry
2018 John C. Bailor Jr. Medal, University of Illinois
2015 J. Willard Gibbs Medal Award, Chicago Section of the American Chemical Society
2015 Elected Member, American Academy of Arts & Sciences
2014 *Organometallics* Senior Fellowship
2014 Janssen Pharmaceutica Prize for Creativity in Organic Synthesis
2014 Sierra Nevada Section of the ACS Distinguished Chemist Award
2014 Tetrahedron Chair at the Belgium Symposium on Organic Synthesis
2014 Nagoya Gold Medal Award
2014 National Institutes of Health MERIT Award
2013 ACS Catalysis Lectureship for the Advancement of Catalytic Science
2013 Herbert C. Brown Award for Creative Research in Synthetic Methods
2012 Elected Member, National Academy of Sciences
2011 Einstein Visiting Fellowship, Berlin
2010 GlaxoSmithKline Scholars Award
2009 Edward Mack Jr. Memorial Award, Ohio State University
2009 Mitsui Chemicals Catalysis Science Award, Japan
2009 Joseph Chatt Award of the Royal Society of Chemistry
2008 International Catalysis Award from the International Association of Catalysis Societies
2008 Mukaiyama Award from the Society of Synthetic Organic Chemistry, Japan
2008 Paul N. Rylander Award of the Organic Reactions Catalysis Society
2007 Raymond and Beverly Sackler Prize in the Physical Sciences
2007 Tetrahedron Young Investigator Award in Organic Synthesis
2006 ACS Award in Organometallic Chemistry
2005 Fellow of the American Association for the Advancement of Science
2004 Thieme-IUPAC Prize in Synthetic Organic Chemistry
2004 Solvias Ligand Prize
2004 Chemical Abstract Service Science Spotlight Award
2003 Leo Hendrik Baekeland Award

1998	A.C. Cope Scholar Award
1998	Eli Lilly Award Grantee
1997	Camille Dreyfus Teacher-Scholar Award
1996	Alfred P. Sloan Research Fellowship
1995, 1996	Union Carbide Innovative Recognition Award
1995	Yale University Junior Faculty Fellowship
1994	National Science Foundation Young Investigator Award
1992	DuPont Young Professor Award
1992	Dreyfus Foundation New Faculty Award
1990-1992	American Cancer Society Postdoctoral Fellow
1990	National Institutes of Health Postdoctoral Fellowship (declined)
1988	University of California Regents Fellow
1986	Princeton University Department of Chemistry, High Honors

Recent Collaborators:

Recent Collaborators & Co-Editors: Weston Borden (U. North Texas), Michael Bühl (Mülheim), Richard Finke (Colorado State), Karen Goldberg (U. of Pennsylvania), Michael Hall (Texas A&M), Marc Hillmyer (U. Minnesota), Tatsuo Ishiyama (Hokkaido), William Jones (U. Rochester), Norio Miyaura (Hokkaido), Huimin Zhao (UIUC), Scott Denmark (UIUC), Todd Marder (U. Würzburg).

Former Postdocs:

Adrian Tlahuext Aca (Senior Scientist at Corteva Agriscience), Erik Alexanian (Assistant Professor at University of North Carolina), Elsa Alvaro (Northwestern University Library), Chulsung Bae (University of Nevada, Las Vegas), Joseph Bair (ExxonMobil), Rhett Baillie (Dow Houston), Mark Bartlett (Gilead Sciences), Neal Beare (Gracefield Research in New Zealand), Jason Beiger (Amgen). Timothy Boebel (Dow AgroSciences), Timothy Boller (Dow AgroSciences), Andrew Brusoe (Boehringer-Ingelheim Pharmaceuticals), Ala Bunescu (Junior Professor at U. of Bonn, Germany), Wojciech Chaladaj (Institute of Organic Chemistry, Polish Academy of Sciences), Huiyuan Chen (Compton Corp.), Liye Chen (Postdoc at UCSF), Ming Chen (Assistant Professor, Auburn University), Wenyong Chen (Merck), Hee Yeon Cho (Assistant Professor at Loyola University Chicago), Seung Hwan Cho (Assistant Professor at Pohang University of Science and Technology, South Korea), Kyoungmin Choi (Senior Research at Korea Research Institute of Chemical Technology), Kevin Cook (Sem Equip in Halifax), José Cuevas-Vicario (Universidad de Burgos), Connor Delaney (Assistant Professor at U. of Texas at Dallas), Juana Du (Gilead), Erin Burger Dunn (Deciphera Pharmaceuticals), Pawel Dydio (Director, U. of Strasbourg, France), Julian Egger (Bayer Healthcare), Masha Elkin (Assistant Professor at MIT), Alexander Fawcett (Postdoc at U. of Cambridge), Manuel Fernandez-Rodriguez (U. of Oviedo), Fang Gao (Biogen Idec), Martí Garçon (Research Associate at University of Cambridge, UK), Shaozhong Ge (Assistant Professor at National U. of Singapore), Ramesh Giri (Professor at Penn State U., PA), Felix Goodson (Westchester University, PA), Aditya Gottumukkala (PPG Industries), Timm Graening (TU Berlin-Berlin University of Technology), Daniel Griffith (Assistant Professor at Lafayette College), Yang Gu (Associate Professor at Shenzhen Institutes of Advance Technology, Chinese Academy of Sciences), Jean-Denys Hamel (Assistant Professor at University of Lethbridge, Canada), Marko Hapke (Research Associate at the Leibniz-Institute for Catalysis , University of Rostock, Germany), Blake Hamman (Attbi), Sheila Hauck (AstraZeneca), Hiroki Hayashi (Specially Appointed Assistant Professor at Hokkaido Univ.), Alexander Haydl (BASF SE), Xiaoming He (Chief Executive Officer at Xgas Tech), Zhitao He (Professor at Shanghai Institute of Organic Chemistry), Seth Herzon (Assistant Professor at Yale), Jeffrey Holder (LEK

Consulting), Mark Hooper, Zheng Huang (Professor at Shanghai Institute of Organic Chemistry), Pengfei Ji (Professor at Zhejiang Univ.), Lisa Julian (Lecturer at U. of Illinois at Urbana-Champaign), Eunhye Grace Kang (LG Chem), Kazumori Kawamura (Mitsui), Rashad Karimov (Assistant Professor, Auburn University), Motoi Kawatsura (Professor at Nihon University Bunrigakubu Chemistry, Tokyo, Japan), Christoph Kiener (Basel), Masahiro Kojima (Assistant Professor at Hokkaido University, Japan), Yuichiro Kondo (Takeda), Doris Kunz (Professor at Tübingen University, Germany), Ryoichi Kuwano (Professor at Kyushu U.), Joshua Lawrence (Centenary College of Louisiana), Chin-Fa Lee (Associate Professor at National Chung Hsing University), Dae-Yon Lee (with Toshiaki at NIAIST in Tsukuba, Japan), Sarah Lee (Assistant Professor at Yonsei U., South Korea). Sunwoo Lee (Chonnam National University), Andreas Leitner (BASF), Bijie Li (Assistant Professor at Tsinghua U., China), Haoquan Li (Dow Chemical Co.), Qian Li (Teacher at Tsinghua School), Xuebin Liao (Genomics Institute of the Novartis Research Foundation), Nichole Litvinas (Dept. of Energy), Xiaoxiang Liu (Wyeth), Zhijian Liu (Merck), Oliver Löber (BASF), Haige Lu (Biotech Analyst at Fist Manhattan), Hiroyuki Morimoto (Associate Professor at Kyushu Institute of Technology), Paramita Mukherjee (Pfizer Inc.), Sean Natoli (Scientist at Procter & Gamble Company), Ulrike Nettekowen (Solvias), Raphael Oeschger (Lonza), Tokutaro Ogata (Faculty of Pharmaceutical Sciences at Hokuriku University), Toshimichi Ohmura (Associate Professor at Kyoto University), Benjamin Partridge (University of Sheffield, UK), Frédéric Paul (Chargé de Researche at Renne in the CNRS), Phong Pham (Lecturer at Vietnam National University), Florian Rampf (Bayer), Ritwika Ray (Postdoc at UCSF), André Ridder (Heumann Pharma), Jason Rohde (Walter Reed Army Institute of Research), Devon Rosenfeld (Dow Chemicals), Erik Romero (Assistant Professor at UCSD), Per Ryberg (Ferring Pharmaceuticals), Norio Sakai (Associate Professor at Tokyo University of Science), Sabine Schlecht (Professor at Freie Universität Berlin), York Schramm (Siegfried Holding AG), Alexey Sergeev (Lecturer at University of Liverpool), Eric Simmons (Bristol-Myers Squibb), Bjorn Schlummer (Bayer), Kevin Shaughnessy (Professor at University of Alabama), Ankit Sharma (Amgen Inc.), Quinetta Shelby (Associate Professor at DePaul University), Ruja Shrestha (BioCollection Inc.), Chutian Shu (KBP Biosciences), Bo Su (Professor at Nankai University), Andrew Solovyev (Andrey Solovyev's Molecular Games), Levy Stanley (Associate Professor at Iowa State University), Shaun Stauffer (Director of the center for Therapeutics Discovery, Cleveland Clinic), Makoto Takahashi (Mitsubishi Chemicals), Jun Takaya (Associate Professor at Tokyo Institute of Technology), Akihiro Takemiya (Mitsubishi Pharma), Ba Tran (Postdoc, Pacific Northwest National Laboratory), Jesse Tye (Associate Professor at Ball State), Christoph Tzschucke (Freie Universität Berlin), Mitsuhiro Ueda (Associate Professor at Osaka Prefecture University), Masaru Utsunomiya (Mitsubishi Chemicals), Keith Wampler (Principal Scientist at Provivi Inc.), Johnathan Webb (Senior Scientist at Imperial Oil), Daniel Weix (Associate Professor at the University of Wisconsin), Zhiqiang Weng (Professor at Fuzhou University), Tyler Wilson (Senior Scientist at Gilead), Lingyun Wu (Senior Director at WuXi App Tec), Makoto Yamashita (Professor at Chuo University), Yasuhiro Yamashita (Assistant Professor at the University of Tokyo), Makoto Yoritate (Assistant Professor at Kyushu University); Mingshuo Zeng (Senior Scientist at Genentech), Qing-Wei Zhang (Assistant Professor at University of Science and Technology of China)). Pinjing Zhao (Associate Professor at North Dakota State University), Jing Zhang (Assistant Professor at Wuhan University, China), Jianrong Zhou (Assistant Professor at Nanyang Technological University).

Former Graduate Students:

Luis Alcazar-Roman (Ph.D., now as a Chief Chemist at A.N.C. Waterproofing Industries, Ltd., Cyprus), Natia Anastasi (Ph.D., now an External Research Expert at Neapolis University Pafos and a Senior Scientist at A.N.C. Waterproofing Industries, Ltd., Cyprus), Sophie Arlow (Ph.D.),

Fabiola Barrios-Landeros (Ph.D., now an Assistant Professor at Yeshiva University.), Mathew Berger (M.S.), Brandon Bloomer (Ph.D., now a Postdoc at Princeton), Trevor Butcher (Ph.D., now a Postdoc at Caltech), Brad Carrow (Ph.D., now an Assistant Professor at University of Houston), Rei Chi Chen (Ph.D., now Scientist at Gilead), Chen Cheng (Ph.D., now at Merck), Darcy Culkin (Ashland Inc.), Michael Driver (Ph.D., now at Chevron, CA), Patrick Fier (Ph.D., now at Merck), Rebecca Green (Ph.D., now at Bristol-Myers Squibb), Patrick Hanley (Ph.D., now at Dow Midland), Steven Hanna (Ph.D.), Zachary Herrera (M.S.), Christopher Hill (Ph.D., now Founder at Atom Made, LLC), David Huang (M.S., now Scientist at Foghorn Therapeutics, Inc.), Xingyu Jiang (Senior Scientist I, Medicinal Chemistry at Pharmacyclics, an AbbVie Company), Adam Johns (Ph.D., now at Materia), Eric Kalkman (Ph.D., now a Senior Scientist at Dow), Caleb Karmel (Ph.D., now at AbbVie), Hanna Key (Ph.D., now at Davidson College), Jessica Klinkenberg (Ph.D., now at Dow Midland), Jaclyn Murphy Knight (Ph.D. now at Dow Marlborough), Christopher Krug (Ph.D., now at Merck), Matthew Larsen (Ph.D., now at Merck), Taegyo Lee (Ph.D., now at Pfizer Inc.), Carl Liskey (Ph.D., now at UOP-Honeywell), Zachary Litman (Ph.D., now at WuXi STA, a subsidiary of WuXi AppTec), Zhennan Liu (Ph.D., now at Research Scientist, the Institute of Chemical and Engineering Sciences, Singapore), Janis Louie (Ph.D,. now Professor and Henry Eyring Fellow at University of Utah), Senjie Ma (Ph.D., now at Bristol-Myers Squibb), Sherzod Madrahimov (Ph.D., now Assistant Professor at Texas A&M Qatar), Amy Roy MacArthur (Ph.D. now Associate Professor at US Naval Academy), Grace Mann (Ph.D., now Senior Director, Global Clinical Oncology at Corcept Therapeutics), Seth Marquard (Ph.D., now a Staff Scientist at Ecolab), Michael Mormino (Ph.D. now at Nurix Therapeutics), Clare Muhoro (Ph.D. now Associate Professor at Towson University and Research Advisor and AAAS Fellow at USAID), D. Matthew Peacock (Ph.D. now Postdoc at UCSF). Mark Pouy (Ph.D. now a Lead Scientist at Booz Allen Hamilton), Yehao Qiu (Ph.D., now at Incyte Corporation), Casseday Richers (Ph.D., now a Postdoctoral Associate at University of Illinois), Daniel Robbins (Ph.D. now Scientist II at Nurix, Inc.), Noam Saper (Senior Research Chemist, Exemplify BioPharma), Christo Sevov (Ph.D., now an Assistant Professor at Ohio State University), Qilong Shen (Ph.D. now Professor at Shanghai Institute of Organic Chemistry), Shashank Shekhar (Ph.D. now a Senior Scientist II at AbbVie), Heather Smith-Hesslink (M.S.), James Stambuli (Ph.D. now a Senior Scientist II at AbbVie), Alexandra Strom (Ph.D., Assistant Professor at Smith College), Yichen Tan (Ph.D. now a Research Investigator II at Bristol-Myers Squibb), Giang Vo (Ph.D. now a Senior Research Investigator at Dupont, CR&D), Karen Waltz (Ph.D.), Justin Wang (Ph.D., now a Senior Scientist at Chevron), Joanna Wolkowski (M.S. now a Project Leader at the Boston Consulting Group), Carolyn Wei (M.S. now a Research Investigator I at Bristol-Myer Squibb), Jake Wilson (Ph.D., now at Incoming Consultant at Bain & Company), Yumeng Xi (Ph.D., now an Assistant Professor at National University of Singapore), Jing Zhao (Ph.D. now Professor at Nanjing and Peking Universities).

Former Visiting Scholars:

Joshua Arens (U. South Dakota), Alessandro Bismuto (U. Bonn), Miguel Alvarez-Falcon (U. Murcia), Alessandro Bismuto (U. Edinburgh), Philip Boehm (Technical U. of Munich), Bonito Busk (), Ruth Dorel (ICIQ, Tarragona, Spain), Domingo Garcia, Thomas Gogsig (Aarhus University), Tatsuo Ishiyama (Associate Professor at Hokkaido), Martin Jarenmark, Yushu Jin (Kyushu University, Japan), Morten Jorgensen (Lundbeck), Eric Kalkman (University of Minnesota), Noriyasu Kataoka (Ajinomoto), Patricia Lara Munoz (Laboratoire de Chimie de Coordination, Toulouse, France), Jens Larsen (Danish University of Pharmaceutical Sciences), Sunwoo Lee (Chonnam National University, So. Korea), Fernando Lopez (postdoc with Ben Feringa), Thomas O'Connor (UC Berkeley), Dean Markovic (EPFL, Switzerland), Yasunori Minami (Osaka U.),

Harunobu Mitsunuma (U. of Tokyo), Johannes Morstein (U. Columbia), Yoshiaki Nakao (Assistant Professor with Tamao at Kyoto U.), Florian Puschmann (postdoc with Grützmacher at ETH), Jan Pawlas (Acadia Pharmaceuticals), Trang Nguyen (Hanoi University of Science), Sebastian Peil (Leibniz University, Hannover), Susana Pérez-Ferreras, Dieter Schaarschmidt (Chemnitz U. of Tech.), Dan Sheeran (Eastern Illinois University), Christian Steffens (Institute for Technical and Macromolecular Chemistry), Tetsu Tsubogo (U. Tokyo), Satoshi Ueno (Assistant Professor at Kyushu University), Akira Yada (Max Planck Institute), Hideaki Yamamichi (Sumitomo Chemical), Yasuhiro Yamashita (University of Tokyo). Fengfeng Guo (China), James Shanahan, Christian Bold, Hiro Serizawa, Hiroki Hayashi (Assistant Professor at Kyushu University), Marie Wong (Oxford University), Sol Puenzo, Eunhye Kang (LG Chem), Johannes Morstein (University of New York), Matthias Freitag, Victor Laserna Ayora (ICIQ, Tarragona, Spain), Yajie Wang, Yichen Weng (Tsinghua University).

Current Students:

John Brunn, Sukriyo Chakraborty, Nico Ciccia, Richard Conk, Shirley Guo, Nicholas Hadler, Gabe Herrera, Calvin Huffman, Isaac Joyner, Yi Chen Kang, Colby Kayrouz, Chris La, Jenna Manske, Jose Mondragon, Jeremy Nicolai, Christina Pierson, Andrew Quest, Jake Shi, Yuanzhe Xie, Nicole Xu, Isaac Yu.

Current Postdoctoral Associates:

Kyan D'Angelo, Molly McFadden, Ian Rinehart, Jin Fay Tan, Akira Tanushi, Wei Zhao.

Teaching

Fall 1992	Chem 452a/552a "Organometallic Chemistry" 25 students
Fall 1993	Chem 452a/552a "Organometallic Chemistry" 24 students
Spring 1994	Chem 555b "Mechanistic Transition Metal Chemistry" 12 students
Fall 1994	Chem 457a/557a "Modern Coordination Chemistry" 25 students
Spring 1995	Chem 555b "Mechanistic Transition Metal Chemistry" 8 students
Fall 1995	Junior Faculty Fellowship
Spring 1996	Junior Faculty Fellowship
Fall 1996	Chem 452a/552a "Organometallic Chemistry" 12 students
Spring 1997	Chem 114 "Comprehensive General Chemistry" 150 students
Fall 1997	Chem 452a/552a "Organometallic Chemistry" 16 students
Spring 1998	Chem 114 "Comprehensive General Chemistry" ca. 150 students
Fall 1998	Chem 452a/552a "Organometallic Chemistry" 12 students
Spring 1998	Faculty Leave
Fall 1999	Chem 457a/557a "Coordination Chemistry" 11 Students
Spring 2000	Chem 555b "Mechanistic Transition Metal Chemistry" 15 students
Fall 2000	Chem 452a/552a "Organometallic Chemistry" 13 students
Spring 2001	Chem 252 "Introduction to Inorganic Chemistry" 5 students
Fall 2002	Chem 555b "Mechanistic Transition Metal Chemistry" 8 students
Spring 2003	Chem 252 "Introduction to Inorganic Chemistry" 25 students
Fall 2003	Chem452a/552a "Organometallic Chemistry" 20 students
Spring 2004	Chem 252 "Introduction to Inorganic Chemistry" 12 students
Fall 2004	Chem452a/552a "Organometallic Chemistry" 25 students
Spring 2005	Faculty Leave
Fall 2005	Chem 452/552 "Organometallic Chemistry" 9 students

Spring 2006	Chem 555b “Mechanistic Transition Metal Chemistry” 19 students
Spring 2007	Chem 538a “Organometallic Chemistry” 30 students
Fall 2007	Chem 538a “Organometallic Chemistry” 30 students
Spring 2008	Chem 530 “Organic Structure and Spectroscopy”
Fall 2008	Chem 538a and b “Organometallic Chemistry” 25 students
Spring 2009	Chem 530 “Organic Structure and Spectroscopy” 19 students
Fall 2009	Chem 535 “Organic Chemistry Seminar” 7 students
Spring 2010	Chem 530 “Organic Structure and Spectroscopy” 22 students
Fall 2010	Chem 535 “Organic Chemistry Seminar” 8 students
Spring 2011	Chem 530 “Organic Structure and Spectroscopy” 23 students
Spring 2012	Chem 262 “Metal in Organic Synthesis” 20 students
	Chem 263 A and B “Synthesis Design I and II” 21 students
Spring 2013	Chem 104B “Advanced Inorganic Chemistry” 66 students
	Chem 262 “Metal in Organic Synthesis” 18 students
	Chem 263 A “Synthesis Design I” 12 students
Spring 2014	Chem 104B “Advanced Inorganic Chemistry” 63 students
	Chem 262 “Metal in Organic Synthesis” 14 students
	Chem 263 A “Synthesis Design I” 12 students
Fall 2014	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 7 students
Spring 2015	Chem 104B “Advanced Inorganic Chemistry” 74 students
	Chem 262 “Metal in Organic Synthesis” 10 students
Fall 2015	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 20 students
Spring 2016	Chem 262 “Metal in Organic Synthesis” 20 students
Fall 2016	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 19 students
Spring 2017	Chem 262 “Metal in Organic Synthesis” 21 Students
Fall 2017	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 18 students
Spring 2018	Chem 262 “Metal in Organic Synthesis” 17 students
	Chem 263 A and B “Synthesis Design I and II” 16 students
Fall 2018	Chem 265 “Nuclear Magnetic Resonance Theory and Application”
Spring 2019	Chem 262 “Metal in Organic Synthesis” 27 students
	Chem 263 A and B “Synthesis Design I and II” 21 students
Fall 2019	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 23 students
Spring 2020	Chem 262 “Metal in Organic Synthesis” 24 students
	Chem 263 A and B “Synthesis Design I and II” 24 students
Fall 2020	Chem 265 “Nuclear Magnetic Resonance Theory and Application”
Spring 2021	Chem 262 “Metal in Organic Synthesis” 15 students
	Chem 263 A and B “Synthesis Design I and II” 16 students
Fall 2021	Chem 260 “Reaction Mechanisms” 35 students
Spring 2022	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 27 students
	Chem 262 “Metal in Organic Synthesis” 22 students
	Chem 263 A and B “Synthesis Design I and II” 21 students
Fall 2022	Chem 260 “Reaction Mechanisms” 25 students
Spring 2023	Chem 262 “Metal in Organic Synthesis” 27 students
	Chem 263 A and B “Synthesis Design I and II” 24 students
	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 25 students
Fall 2023	Chem 260 “Reaction Mechanisms” 42 students
Spring 2024	Chem 265 “Nuclear Magnetic Resonance Theory and Application” 23 students
	Chem 262 “Metal in Organic Synthesis” 31 students
	Chem 263 A and B “Synthesis Design I and II” 25 students

University Service

Cornell University, Ithaca

2023 External Review Committee for the Department of Chemistry and Chemical Biology (the Spring semester of 2023)

University of Illinois, Urbana-Champaign

2006-2011 Diversity Committee
2009-2010 Chair, Diversity Committee
2006-2009 Committee on Staff
2009-2010 Chair, Committee on Staff
2007-2011 Facility Committee – NMR representative
2008 Search Committee for the X-ray Crystallography Facility
2008 Search Committee for the NMR Facility

University of California, Berkeley

2011-2012 Planning Committee
2011-present Safety Committee
2012 Ad hoc Committee
2012-2014 Planning Committee, Chair
2012-2014 Graduate Life Committee
2014-2015 Organic Seminar Chair
2018-2019 Inorganic Seminar Chair
2018-2019 Miller Program Advisory Committee
2020 Miller Program Advisory Committee Chair
2020-2021 Junior Faculty Search Committee
2020-present Admissions, Enrollment, and Preparatory Education (AEPE) Committee
2023-2024 Search Committee for the Organic Faculty

Lawrence Berkeley National Laboratory

2012 Chemical Sciences Division Director Search Committee
2013-present Program Lead for the LBNL Catalysis Center
2013-present Divisional Council Member

Meeting Organization

1998 National Academy of Sciences, Frontiers of Science Symposium: Chemistry session on “Femtochemistry”
1999 National Academy of Sciences, Frontiers of Science Symposium: Chemistry session on “Combinatorial Chemistry beyond Pharmaceuticals”
2000 National Academy of Sciences, Frontiers of Science Symposium: Chemistry session on “Cell Surfaces and Molecular Recognition”
2000 Spring ACS National Meeting: Session on Combinatorial Catalyst Development
2001 Fall ACS National Meeting: Session on Homogeneous Catalysis in the Petrochemical Industry
2012 DARPA, Workshop: “Low-temperature Electrochemical Oxidation of Hydrocarbon Fuels”

Professional Activities

2010-current AAAS Chemistry Section, Council Delegate
2018-2020 Member SBCA Study Section

2020-2022 Chair of SBCA Study Section
2023 External Review of Chemistry & Chemical Biology, Cornell University, Ithaca, NY

Community Activities

1999 The Science Coalition, Washington DC, Congressional Lobbying Day

Journal Activities

2006-2009 Editorial Advisory Board for *Organometallics*
2009-current Editorial Advisory Board for *CHEMCATCHEM*
2012-current Editorial Advisory Board for Accounts of Chem. Res.
2012-current Editorial Advisory Board for Angew. Chemie.
Extensive reviewing for ACS journals, Science, Nature Journals, Cell Journals, Wiley Journals, Royal Society Journals, and Tetrahedron journals.

Consulting

Member of the Scientific Advisory Board for Johnson-Matthey Catalysts
Member of the Scientific Advisory Board for Micurx
Member of the Scientific Advisory Board for Applica Tech
Member of the Scientific Advisory Board for Cambridge Major Laboratories
Member of the Scientific Advisory Board for Aspira
Consultant for Halcyon Molecular
Consultant for Dow Chemicals
Consultant for Eli Lilly
Consultant for Myriant Corp.
Founder of Catylix, Inc.

Selected Named Lectureships

1998 R.C. Fuson Lectureship, Urbana-Champaign, Illinois
2000 Frontiers of Chemistry Lecturer, Kloster Seeon, Germany
2000 Astra-Zeneca Lecture Stockholm, Sweden
2001 Carl Ziegler Lecture Mülheim, Germany
2001 Gerhard Closs Lectureship, University of Chicago
2002 Roche Lecturer, University of Colorado
2003 Karcher Lectureship, University of Oklahoma
2004 Sasol Lectureship, University of Ottawa
2004 Eli Lilly Lecturer, Colorado State University
2004 Novartis Lectureship Series
2004 Methylgene Lecturer, University of Montreal
2005 2005 Merck Frosst Lecturer, University of Victoria
2005 Frank Burnett Dains Memorial Lecture, University of Kansas
2005 Stuart Rosenfeld Lecture, Smith College
2006 Dalton Lecture, University of California, Berkeley
2006 Eli Lilly Symposium, Harvard University
2007 Clark Lecturer, West Virginia University
2008 Frontiers in Chemical Research Lecturer, Texas A&M University
2008 Frontiers in Chemistry, Wayne State University, Michigan
2008 Gassman Lecturer, University of Minnesota, Minneapolis
2009 Peter C. Reily Lectureship, Notre Dame, Indiana

2009 UC Irvine-Novartis Lectureship, California
2009 Schulich Visiting Professor Lectureship, Technion-Israel Institute of Technology
2009 RSC Joseph Chatt Lectureship, United Kingdom
2009 Visiting Miller Professor Lecture, University of California, Berkeley
2010 Heck Lectureship, University of Delaware, Newark
2011 Hutchison Lecturer, University of Rochester
2011 Richard A. Walton Lecturer, Purdue University
2012 Moses Gomberg Lecturer, University of Michigan
2012 Behringer-Simon Lecturer, Swiss Federal Institute of Technology (ETH) Zürich
2012 Russell Marker Lecturer, Penn State University
2013 Baker Lecturer, Cornell University
2013 Chevron Phillips' Frontier's of Technology Speaker at Chevron Phillips Chemical, Kingwood, TX
2013 Plenary Lecturer at the 17th IUPAC International Symposium on Organometallic Chemistry Directed Towards Organic Synthesis, Fort Collins, CO
2013 Student Selected Lecturer, Indiana University
2013 Aldrich Lectureship, Oklahoma State University
2013 Student Invited Talk, Stanford University
2013 Pettit Lectureship, University of Texan, Austin
2014 Max Tishler Prize Lecturer, Harvard University, Cambridge, MA
2014 The 31st H.C. Brown Lecture in Organic Chemistry, Purdue University, West Lafayette, IN
2014 The Student-hosted Symposia at Shenzhen Graduate School, Peking University, Beijing, China
2014 Keynote Speaker, the Eli Lilly Ph.D. Students Awards, Madrid, Spain
2014 2014 Nagoya Medal of Organic Chemistry Award, Gold Medal Lecture 1, Nagoya University, Nagoya, Japan
2014 H.J. Backer Lecture 2014 at University of Groningen, The Netherlands
2015 Musher Memorial Lectureship at The Hebrew University of Jerusalem, Israel
2015 Keynote Speaker at the 2015 Gordon Research Conference on Mechanisms in Catalysis, Galveston, TX
2015 Keynote Speaker at the 16th Tetrahedron Symposium: Challenges in Bioorganic & Organic Chemistry, Berlin, Germany
2015 Scynexis Lecture at University of North Carolina, Chapel Hill, NC
2015 Lloyd B. Thomas Chemistry Scholar/Lectureship at the University of Missouri, Columbia, MO
2016 Visions in Chemistry, The Torkil Holm Symposium, Copenhagen, Denmark
2016 Smart Lecture, West Florida, Pensacola, FL
2016 Keynote Lecture at Hong Kong Polytechnic University, Hong Kong, China
2016 Plenary Lecturer at the XXVI Biennial Meeting in Organic Chemistry of the Royal Society of Chemistry, Huelva, Spain
2016 MacLean Lecturer at McMaster University, Hamilton, Ontario, Canada
2016 Sigma Aldrich Lecturer, University of Toronto, Ontario, Canada
2016 Camille & Henry Dreyfus Lectureship, University of Basel, Switzerland
2017 McNelis Distinguished Lectureship, New York University
2017 Boulder Scientific Lecturer, Colorado State University
2017 Shulich lectureship, Technion University, Haifa, Israel
2017 Robert Robinson Lectures, University of Oxford, England
2017 BMS Lecturer, University of Michigan, Ann Arbor, MI

2017 Hamilton Lectures, University of Nebraska, Lincoln, NE
2017 Fishel lecture, Vanderbilt University, Nashville, TN
2018 Edgar Fahd Smith Award from the Philadelphia Section of the ACS, University of Pennsylvania, Philadelphia, PA
2018 John C. Bailar Lectures, University of Illinois, Urbana-Champaign, IL
2018 Stauffer Lectureship, University of Southern California, Los Angeles, CA
2018 Keynote Speaker at the 8th Annual Lester Andrews Graduate Research Symposium, Mississippi State University, Mississippi, MS
2018 Plenary Lecturer at the 28th International conference on Organometallic Chemistry, Florence, Italy
2018 2018 Charles Reed Lecture, Department of Chemistry & Chemical Biology at Rensselaer Polytechnic Institute, Troy, NY
2018 Dreyfus Foundation Teacher-Scholar Symposium – Research Frontiers in the Chemical Sciences, New York, NY
2018 Chemistry Colloquium Seminar, University of Washington, Seattle, WA
2019 Plenary Speaker at the 30th Annual Frontiers in Chemistry Symposium, The Scripps Research Institute, La Jolla, CA
2019 Department of Chemistry, University of Massachusetts, Amherst, MA
2019 Inorganic Seminar at University of Utah, Salt Lake City, UT
2019 Royal Society of Chemistry Award Lectures at the University of Sheffield, Loughborough University, Queen's University, Belfast, United Kingdom
2019 Student Seminar at Department of Chemistry, University of Minnesota, Minneapolis, MN
2019 11th Eisch Distinguished Lecture, Binghamton University, Binghamton, NY
2020 2020 Broadbent Lecture, Brigham Young University, Provo, UT
2020 Plenary Speaker at the Applied Late-Stage Functionalization: Where Chemistry Meets Biology Symposium, Manchester, UK
2020 Merck Lecturer at University of Cambridge, Cambridge, UK
2021 Boehringer-Ingelheim Lecturer, UCLA, Los Angeles, CA
2021 The 4th World Laureates Forum, China (virtual)
2022 Emanuel Merck Lectureship, University of Darmstadt, Germany
2022 Plenary Speaker at the 38th Reunion BIENAL, Granada, Spain
2023 Phillips Lecturer, University of Pittsburgh, PA
2023 Ojima Distinguished Lecturer, State University of New York at Stony Brook, NY
2023 The Frank J. Welcher Lecture at IUPUI, Indianapolis, IN
2023 The Gilbert Stork Lectures at the University of Wisconsin, Madison, WI

Invited Seminars

1. 05/07/93 New England Workshop on Organometallic Chemistry, New Haven, CT, "Transition Metal Boryl Complexes: Unusual Metal-Ligand Interactions"
2. 07/15/93 Organometallic Gordon Conference, Newport, RI, "Transition Metal Boryl Complexes: Unusual Metal-Ligand Interactions"
3. 08/23/93 American Chemical Society Meeting, Session on Main Group Organometallic Chemistry: Novel Structures and Reactivity, Chicago, IL, "Covalent Main Group-Transition Metal Bonds: Synthesis, Structure, and Reactivity of Late Metal-Boryl Complexes"

4. 11/18/93 Dartmouth College Chemistry Seminar, Hanover, NH, "The Chemistry of Compounds Containing Reactive Metal-Boron and -Nitrogen Bonds"

5. 03/11/94 Miles Pharmaceutical Division, West Haven, CT, "Chemistry at Transition Metal-Boron and -Nitrogen Bonds: Applications to Catalytic Hydroboration, Hydroamination, and Hetero Cross Couplings"

6. 03/14/94 American Chemical Society Meeting, Awards Symposium in Honor of Stephen J. Lippard and Tobin J. Marks, San Diego, CA, "Catalytic and Stoichiometric Formation of Carbon-Nitrogen Bonds"

7. 05/24/94 DuPont Central Research and Development, Wilmington, DE, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

8. 10/13/94 Rutgers University, Newark, NJ, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

9. 11/02/94 Massachusetts Institute of Technology, Cambridge, MA, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

10. 11/17/94 Brown University, Providence, RI, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

11. 02/09/95 New York Academy of Sciences, New York, NY, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

12. 02/13/95 Cornell University, Ithaca, NY, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

13. 03/07/95 Stanford University, Stanford, CA, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

14. 03/09/95 University of California, Davis, CA, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

15. 03/10/95 University of California, Berkeley, CA, "Transition Metals, Boron, Nitrogen, and Sulfur. Fundamentals to Homogeneous Catalysis"

16. 04/07/95 American Chemical Society Meeting, Symposium on Transition Metal-Catalyzed Coupling Chemistry, Anaheim, CA, "Mechanism of Carbon-Heteroatom Bond Forming Coupling Reactions: A Novel Reductive Elimination Reaction"

17. 04/13/95 University of Pittsburgh, Pittsburgh, PA, "The Organometallic Chemistry of Transition Metal-Boryl, -Amido, and -Thiolato Complexes: From Bonding Principles to Catalytic Applications"

18. 04/14/95 University of West Virginia, Morgantown WV, "The Organometallic Chemistry of Transition Metal-Boryl, -Amido, and -Thiolato Complexes: From Bonding Principles to Catalytic Applications"

19. 05/05/95 Hoescht-Celanese, Corpus Christi, TX, "The Organometallic Chemistry of Transition Metal-Boryl, -Amido, and -Thiolato Complexes: From Bonding Principles to Catalytic Applications"

20. 05/12/95 Union Carbide, Charleston, WV, Innovative Recognition Award Symposium: "The Organometallic Chemistry of Transition Metal-Boryl, -Amido, and -Thiolato Complexes: From Bonding Principles to Catalytic Applications"

21. 07/07/95 Organometallic Gordon Conference, Newport, RI, "Mechanism of Carbon-Heteroatom Bond Forming Coupling Reactions: A Novel Reductive Elimination Reaction"

22. 10/10/95 Boehringer-Ingelheim, Ridgefield, CT, "Palladium-Catalyzed Amination and Thiation of Aromatic Halides"

23. 11/13/95 DuPont Central Research, Wilmington, DE, "Recent Results in the Catalytic Amination of Aryl Halides"

24. 11/14/95 University of Pennsylvania, Philadelphia, PA, "Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds"

25. 01/10/96 Guelph-Waterloo Centre for Graduate Work in Chemistry, Waterloo, Ontario "Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds"

26. 01/11/96 University of Toronto, Toronto, Ontario "Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds"

27. 01/12/96 University of Chicago, Chicago, IL, "Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds"

28. 02/05/96 University of Hamburg, Hamburg, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

29. 02/06/96 University of Göttingen, Göttingen, Germany "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

30. 02/07/96 University of Bielefeld, Bielefeld, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

31. 02/09/96 University of Heidelberg, Heidelberg, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

32. 02/12/96 University of Aachen, Aachen, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

33. 02/13/96 University of Essen, Essen, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

34. 02/14/96 University of Würtzburg, Würtzburg, Germany "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

35. 02/15/96 University of Munich, Munich, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

36. 02/16/96 University of Bayreuth, Bayreuth, Germany, "Transition Metal Boryl Complexes and Reactions of Organometallic Compounds with Boranes"

37. 02/22/96 University of California, Irvine, CA, “Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds”

38. 02/23/96 University of California, San Diego, CA, “Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds”

39. 02/26/96 California Institute of Technology, Pasadena, CA, “Catalytic and Stoichiometric Organometallic Chemistry involving Compounds with Covalent Metal-Heteroatom Bonds”

40. 03/24/96 American Chemical Society National Meeting, New Orleans, LA, “Hydrocarbon Functionalization by Transition Metal Boryl Complexes”

41. 03/25/96 American Chemical Society National Meeting, New Orleans, LA, “N-H Bond Activation by Late Transition Metal Compounds”

42. 05/16/96 Union Carbide, Charleston, WV, Innovative Recognition Award Symposium: “Further Organometallic Chemistry of Transition Metal-Boryl, -Amido, and -Thiolato Complexes”

43. 06/07/96 NSF Workshop in Organometallic Chemistry: Orcas Island, WA, “Organometallic Chemistry of Metal Amide and Boryl Complexes”

44. 07/08/96 Ecole Polytechnique, Palaiseau, France, “Palladium Catalyzed Amination of Aryl Halides: Rational Catalyst Selection Through Mechanistic Understanding”

45. 07/09/96 Université de Rennes, Rennes, France, “Palladium Catalyzed Amination of Aryl Halides: Rational Catalyst Selection Through Mechanistic Understanding”

46. 07/11/96 Université de Strasbourg, Strasbourg, France, “Palladium Catalyzed Amination of Aryl Halides: Rational Catalyst Selection Through Mechanistic Understanding”

47. 07/16/96 Session Lecture, International Meeting on Boron Chemistry, Heidelberg, Germany, “Hydrocarbon Functionalization by Late Metal Boryls and Chemistry of Titanocene-Bound Catecholborane”

48. 08/25/96 American Chemical Society Meeting, Orlando FL, “Catecholborane Bound to Titanocene. A New Class of X-H Sigma Complex”

49. 10/01/96 Organic Seminar, University of Florida, Gainesville, FL, “Palladium Catalyzed Amination of Aryl Halides: Rational Catalyst Selection Through Mechanistic Understanding”

50. 10/15/96 Connecticut College, New London, CT, “Transition Metal-Catalyzed Nucleophilic Aromatic Substitution”

51. 11/19/96 University of Washington, Seattle, WA, “A Rational Approach to Palladium-Catalyzed Amination of Aryl Halides”

52. 11/20/96 University of California, Los Angeles, CA, “A Rational Approach to Palladium-Catalyzed Amination of Aryl Halides”

53. 11/21/96 University of Southern California, Los Angeles, CA, “Catalytic and Stoichiometric Formation of Carbon-Heteroatom Bonds by Transition Metals”

54. 12/02/96 University of Rochester, Rochester, NY, “Catalytic and Stoichiometric Formation of Carbon-Heteroatom Bonds by Transition Metals”

55. 12/16/96 Union Carbide Catalyst Skills Center, South Charleston, WV, “Catalytic and Stoichiometric Formation of Carbon-Heteroatom Bonds by Transition Metals”

56. 03/17/97 University of Wisconsin, Madison, WI, “Catalytic and Stoichiometric Formation of Carbon-Heteroatom Bonds by Transition Metals”

57. 03/19/97 University of Arkansas, Fayetteville, AK, “Catalytic and Stoichiometric Formation of Carbon-Heteroatom Bonds by Transition Metals”

58. 03/20/97 DuPont Central Research, Wilmington, DE, “Metal-Mediated Formation of C-N Bonds”

59. 04/15/97 Invited lecture for session on “Recent Developments in Organopalladium Chemistry,” American Chemical Society Meeting, San Francisco, CA, “Synthetic and Mechanistic Aspects of Palladium-Catalyzed Amination and Alkoxylation of Aryl Electrophiles”

60. 06/18/97 Lilly Research Laboratories, Indianapolis, IN, “Palladium Catalyzed Arylation of Amines, Alcohols, and Ketones: Fundamentals and Applications”

61. 09/03/97 University of Connecticut, Storrs, CT, Departmental Seminar “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

62. 10/01/97 Michigan State University, Lansing, MI, Departmental Seminar “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

63. 10/02/97 Notre Dame University, South Bend, IN, Departmental Seminar “Late Metal Boryl and Early Metal Borane Complexes: Alkane Functionalization and sigma-Complexes”

64. 10/17/97 General Electric Research and Development, Schenectady, NY, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

65. 11/12/97 Fifth Chemical Congress of North America, Cancún, Mexico, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

66. 11/12/97 Fifth Chemical Congress of North America, Cancún, Mexico, “Metal Mediated B-C Bond Formation: Metal Boryl and Borane Complexes”

67. 11/25/97 Shell Chemical, Houston, TX, “Hydrocarbon Functionalization with Transition Metal Boryl Complexes”

68. 02/26/98 Department of Chemistry, University of North Carolina, Chapel Hill, NC, “Late Metal Boryl and Early Metal Borane Complexes: Alkane Functionalization and New Sigma-Complexes”

69. 03/05/98 Princeton University, Princeton, NJ, Departmental Seminar “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

70. 03/11/98 Department of Chemistry, Stanford University, Stanford, CA, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

71. 04/18/98 Monsanto Organic Symposium, University of Illinois, Urbana-Champaign, IL, “Metal Mediated Aromatic Amination, Thiation, and Etheration: Fundamentals and Applications”

72. 04/27/98 North Jersey American Chemical Society Section “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

73. 05/08/98 Merck Pharmaceuticals, West Point, PA, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

74. 05/21/98 American Cyanamide, Princeton NJ, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

75. 06/04/98 Department of Energy Symposium, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

76. 06/12/98 Plenary Lecture, Nozaki Conference, Hokkaido, Japan, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

77. 06/14/98 Tsukuba Research Center, Tsukuba, Japan, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

78. 06/15/98 Ajinomoto, Kawasaki, Japan, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

79. 06/16/98 Tosoh Company, Yokkachi, Japan, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

80. 07/09/98 Zeneca Pharmaceuticals, Cheshire, England, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

81. 07/12/98 Keynote Lecture, International Conference on Homogeneous Catalysis, St. Andrews, Scotland, “Metal Mediated Aromatic Amination, Thiation, and Etheration: Fundamentals and Applications”

82. 08/25/98 Cope Scholar Award Seminar, American Chemical Society Meeting, Boston, MA

83. 09/30/98 RW Johnson, Spring House, PA, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

84. 10/06/98 University of Illinois Department of Chemistry, Urbana, IL, R.C. Fuson Visiting Scholar “Synthetic Aspects of Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones”, “Mechanistic Aspects of Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones”, “Late Metal Boryl and Early Metal Borane Complexes: Alkane Functionalization and New -Complexes”

85. 11/04/98 Pfeizer Pharmaceuticals, Groton CT, “Palladium and Nickel-Catalyzed Chemistry of Amines, Alcohols and Ketones. Fundamentals and Applications”

86. 12/11/98 Department of Chemistry, University of Virginia, Charlottesville, VA, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation”

87. 12/15/98 Department of Chemistry, Boston College, Boston, MA, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation”

88. 01/11/99 University of California, San Diego, CA, “Two Complementary Approaches to Catalyst Discovery”

89. 02/04/99 Zeneca Pharmaceuticals, Wilmington, DE, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation

90. 02/11/99 Department of Chemistry, SUNY Stony Brook, Stony Brook, NY, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation”

91. 02/19/99 Department of Chemistry, University of Miami, Miami, FL, “Alkane Functionalization by Metal-Boryl Complexes

92. 02/22/99 Symyx, Santa Clara, CA, “Two Complementary Approaches to Catalyst Discovery”

93. 03/01/99 Johnson Matthey, Cherry Hill, NJ, “Two Complementary Approaches to Catalyst Discovery”

94. 03/12/99 Bristol-Meyers Squibb, Princeton NJ, “New Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Reactions

95. 03/21/99 American Chemical Society Meeting, Symposium on C-H Activation, Anaheim CA “Alkane Functionalization by Metal-Boryl Complexes”

96. 03/22/99 American Chemical Society Meeting, Symposium on the Synthesis of Novel Polymeric Materials “Palladium Catalyzed Amination for the Synthesis of Triarylamine Polymers”

97. 04/10/99 Organometallics Conference, Taipei, Taiwan, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation”

98. 05/06/99 ETH, Zurich, Switzerland, “Two Complementary Approaches to Catalyst Discovery”

99. 05/11/99 Münich Chemical Society, Münich, Germany, “Two Complementary Approaches to Catalyst Discovery”

100. 05/30/99 Conference on Transition Metals in Catalysis, Toronto, Ontario, Canada, “Organometallic Chemistry of Catalytic Carbon-Heteroatom and Carbon-Carbon Bond Formation”

101. 07/18/99 IUPAC Conference on Organo-Metallic Chemistry Directed Towards Organic Synthesis “New Classes of Palladium-Catalyzed Arylation Reactions”

102. 09/16/99 Rensselear Polytechnic Institute, Troy, NY, “Selective Alkane Functionalization”

103. 10/08/99 Mini symposium on Organometallic Chemistry, The Danish Chemical Society, Copenhagen, Denmark

104. 10/26/99 University of Michigan, Ann Arbor, MI, “Selective Alkane Functionalization”

105. 10/27/99 Pharmacia & Upjohn, Kalamazoo, MI, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

106. 11/12/99 National Academy of Sciences, Frontiers of Science Conference, “Introduction to Combinatorial Chemistry in Catalysis and Materials Science”

107. 11/28/99 Rhone-Poulenc, Raleigh-Durham NC, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

108. 12/03/99 University of Maryland at College Park, MD, “Selective Alkane Functionalization”

109. 12/08/99 Louisiana State University, Baton Rouge, LA, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

110. 12/09/99 Cambridge Healthtech Institute, New Orleans, LA, Engineered Catalysis conference “High Throughput Methods For Analysis of C-C and C-N Bond-Forming Processes”

111. 01/19/00 Bristol-Meyers Squibb, Wallingford, CT, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

112. 01/26/00 Roche, Newark, NJ, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

113. 02/10/00 University of Alabama, Tuscaloosa, AL, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

114. 02/25/00 University of Connecticut, Storrs, CT, “Palladium-Catalyzed Synthesis of Arylamine Macromolecules”

115. 02/28/00 Colloquium at Brandeis University, Waltham, MA, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

116. 03/06/00 Ninth Biennial Lilly Grantee Symposium in Organic Chemistry, Indianapolis, IN, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

117. 03/12/00 Columbia University, New York, NY, Departmental Colloquium, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

118. 03/26/00 American Chemical Society National Meeting, San Francisco, CA, Transition Metals in Polymers and Polymerization, “Palladium-Catalyzed Synthesis of Arylamine Macromolecules”

119. 03/26/00 American Chemical Society National Meeting, San Francisco, CA, Combinatorial Catalyst Discovery, “High Throughput Screening for Carbon-Heteroatom and Carbon-Carbon Bond Forming Reactions”

120. 04/16/00 IBC USA Conferences and Sepracor, Naples, FL, New Synthetic Methods, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

121. 04/18/00 Florida Catalysis Conference, Palm Coast, FL, “Metal-Catalyzed Carbon-Heteroatom Bond Formation”

122. 04/27/00 University of Toronto, Toronto, Canada, “Regiospecific Functionalization of Alkanes”

123. 04/28/00 University of Toronto, Toronto, Canada, “New Classes of Transition Metal-Catalyzed Amine, Alcohol, Ketone and Amide Arylations. Mechanism, Methodology and Macromolecules”

124. 06/02/00 Second Annual Boston College-ArQule Symposium on Combinatorial Chemistry “High Throughput Screening for Carbon-Heteroatom and Carbon-Carbon Bond Forming Reactions”

125. 06/13/00 BP-Amoco, Naperville, IL, “Regioselective Functionalization of Alkanes”

126. 06/14/00 Union Carbide, Charleston, WV, “Regioselective Functionalization of Alkanes”

127. 06/20/00 SK Energy and Chemicals, Newark, NJ, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

128. 07/04/00 BASF, Ludwigshafen, Germany, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

129. 07/05/00 Ludvig Maximillian University, Munich, Germany, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

130. 07/07/00 Frontiers of Chemistry Symposium, Munich, Germany, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

131. 07/16/00 Gordon Research Conference on Organic Reactions and Processes, Roger Williams University, Bristol, RI, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

132. 07/30/00 Gordon Research Conference on Organometallic Chemistry, Salve Regina University, “Selective Alkane Functionalization”

133. 09/08/00 University of Kentucky, Lexington, KY, “Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work”

134. 09/23/00 IASOC-2000: New Challenges of Organic Synthesis in the 21st Century, University of Napoli, Ischia, Italy, "Palladium-Catalyzed C-N, C-O, and C-C Bond Forming Processes and How They Work"

135. 10/06/00 M.I.T. Symposium for Steven Lippard's 60th Birthday, Cambridge, MA, "Selective Alkane Functionalization"

136. 10/18/00 ACS Short-Course on "Chemical Discovery: Catalyst Discovery"

137. 10/20/00 Bristol Myers-Squibb Process Research, New Brunswick, NJ, "High Throughput Screening for Carbon-Heteroatom and Carbon-Carbon Bond Forming Reactions"

138. 10/25/00 Catalytica, Inc., Mountain View, CA, "Transition Metal-Catalyzed Hydroamination"

139. 10/27/00 Department of Chemistry, Stanford University, Stanford, CA, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

140. 10/28/00 Department of Chemistry, University of California, Berkeley, CA, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

141. 11/08/00 Exxon-Mobile, Annandale, NJ, "Selective Alkane Functionalization"

142. 11/10/00 Department of Chemistry, University of Rhode Island, Kingston, RI, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

143. 11/17/00 Department of Chemistry, University of Minnesota, Twin Cities, MN, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

144. 11/27/00 Department of Chemistry, Amherst College, Amherst, MA, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

145. 12/04/00 Department of Chemistry, University of Uppsala, Uppsala, Sweden "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

146. 12/05/00 Department of Chemistry, University of Stockholm, Stockholm, Sweden "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

147. 12/16/00 Pacifichem 2000 Symposium on Inorganometallic Chemistry of Group 13-16 Elements, Honolulu, HI, "Selective Alkane Functionalization"

148. 12/17/00 Pacifichem 2000 Symposium on "Selective Transformations with Later Transition Metals", Honolulu, HI

149. 12/18/00 Pacifichem 2000 Symposium on "Synthesis of Heterocycles", Honolulu HI, "Palladium-Catalyzed Aromatic and Saturated Carbon-Heteroatom Bond Formation"

150. 01/12/01 Connecticut Organic Symposium, New Haven, CT, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

151. 02/06/01 Department of Chemistry, University of Houston, TX, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

152. 02/07/01 Department of Chemistry, Texas A&M University, College Station, TX, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

153. 03/05/01 Department of Chemistry, University of Bristol, England, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

154. 03/06/01 Department of Chemistry, University of Southampton, England, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

155. 03/07/01 Department of Chemistry, University College of London, England, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

156. 03/08/01 Department of Chemistry, Merck, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

157. 03/29/01 Department of Chemistry, Northeastern University, Boston, MA, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

158. 04/12/01 Chemistry Departmental Colloquium, Purdue University, West Lafayette, IN, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

159. 04/29/01 Burgenstock Meeting on Stereochemistry "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

160. 05/07/01 Chemistry Department, University of Bern, Switzerland, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

161. 05/08/01 Chemistry Department, University of Freiburg, Switzerland, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

162. 05/09/01 Chemistry Department, University of Genève, Switzerland, "Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation"

163. 05/10/01 Chemistry Department, University of Basel, Switzerland, "Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation"

164. 05/11/01 Chemistry Department, University of Basel, Switzerland, "Regioselective Functionalization of Alkanes"

165. 05/17/01 Johnson Matthey Symposium on "Catalysis in Organic Synthesis" "Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation"

166. 05/30/01 Aventis Pharmaceuticals "Discovering and Understanding Transition Metal-Catalyzed Reactions"

167. 06/10/01 National Organic Symposium, Bozeman, MT, "Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation"

168. 07/01/01 Physical Organic Gordon Conference "Mechanistic Aspects of Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation"

169. 07/02/01 Combinatorial Chemistry Gordon Conference "Efficient Discovery and Optimization of Metal-Catalyzed Reactions"

170. 07/27/01 Post-OMCOS Meeting, Kyoto, Japan, "Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation"

171. 08/08/01 Schering Plough, “Transition Metal-Catalyzed Carbon-Heteroatom Bond Formation”

172. 08/27/01 ACS Meeting Symposium on Reactive M-N Bonds “Transition Metal-Catalyzed C-N Bond-Formation”

173. 08/27/01 ACS Meeting Symposium on Homogeneous Catalysis in the Petrochemical Industry “Catalytic, Regioselective Alkane Functionalization”

174. 09/24/01 Harvard University, Cambridge MA, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

175. 10/05/01 University of Nebraska, NE, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

176. 10/11/01 BASF “Recent Trends in Palladium-Catalyzed Processes”

177. 10/17/01 ACS Short Course on “Accelerated Chemical Discovery: From Drugs to Catalysts”

178. 11/05/01 Carl Ziegler Lectureship, Max Planck Institute, Mulheim Germany

179. 11/09/01 Bayer AG, Leverkusen, Germany “Discovering and Understanding Transition Metal-Catalyzed Reactions”

180. 11/19/01 Gerhard Closs Lecturer, University of Chicago, Chicago, IL, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

181. 01/19/02 Pharmacia “Discovering and Understanding New Palladium-Catalyzed Reactions”

182. 01/10/02 Michigan State University, East Lansing, MI, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

183. 01/22/02 McGill University, Montreal, Canada, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

184. 01/24/02 Cornell University, Ithaca, NY, “Discovering and Understanding Transition Metal-Catalyzed Reactions

185. 01/29/02 Rutgers University, Piscataway, NJ, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

186. 02/07/02 ETH, Zurich, Switzerland, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

187. 02/26/02 University of Colorado, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

188. 03/06/02 Kodak, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

189. 03/07/02 University of New Orleans, New Orleans, LA, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

190. 03/19/02 Wyeth Ayerst, Princeton, NJ, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

191. 04/04/02 University of Massachusetts at Amherst, MA, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

192. 04/07/02 C-H Activation Symposium, ACS Meeting, Orlando, FL, “Regioselective Functionalization of Alkanes”

193. 04/19/02 Albany Molecular, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

194. 04/23/02 University of Wisconsin, Madison, WI, “New Palladium-Catalyzed Coupling Processes”

195. 04/24/02 University of Wisconsin, Madison, WI, “Regioselective Functionalization of Alkanes”

196. 05/02/02 University of Montreal, Canada, Symposium on Organic Synthesis

197. 05/08/02 DuPont Pharmaceuticals, Wilmington, DE, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

198. 05/17/02 University of Toronto, Canada, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

199. 05/22/02 Pharmacia, St. Louis, MO, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

200. 05/31/02 Roche Biosciences, Menlo Park, CA, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

201. 06/01/02 Robert G. Bergman 60th Birthday Symposium, “Regiospecific Functionalization of Alkanes”

202. 06/03/02 Canadian National Chemical Society Meeting, Vancouver, Canada, “Enantioselective Hydroamination”

203. 06/04/02 Canadian National Chemical Society Meeting, Vancouver, Canada, “Regiospecific Functionalization of Alkanes”

204. 06/09/02 Crompton Corp., Middlebury, CT, “Transition Metal-Catalyzed, Regiospecific Functionalization of Alkanes”

205. 09/03/02 International Symposium on Homogeneous Catalysis, Taragonna, Spain

206. 09/12/02 ORCHEM Conference, Frankfurt, Germany, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

207. 09/16/02 Pfizer Symposium, University of California, Irvine, CA, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

208. 09/26/02 ACS Short Course on Accelerated Chemical Discovery “Combinatorial Catalyst Discovery”

209. 10/14/02 Chiral USA, Boston, MA, “Asymmetric Hydroamination and Related Chemistry”

210. 11/06/02 Stanford University, Stanford, CA, “Catalysis without Functional Groups”

211. 11/21/02 Princeton University, Princeton, NJ, “Discovery and Understanding of New Transition Metal-Catalyzed Reactions”

212. 12/11/02 Dow Chemicals, Midland, MI, “Transition Metal-Catalyzed Saturated Carbon-Heteroatom Bond Formation”

213. 01/26/03 WCMBC, Steamboat Springs, CO, “Catalytic, Regiospecific Functionalization of Alkanes and Arenes”

214. 02/06/03 University of Pittsburgh, PA, “Enantioselective Metal-Catalyzed Carbon-Nitrogen Bond Formation”

215. 02/16/03 Gordon Conference, Ventura, CA, “Inorganic Chemistry of Organic Methods”

216. 03/13/03 University of Oklahoma, Norman, OK, Karcher Lecturer, “Catalytic, Regiospecific Functionalization of Alkanes and Arenes”

217. 03/14/03 Array Biopharma, Boulder, CO, “Discovery, development and Understanding of New Palladium-catalyzed Coupling Reactions”

218. 03/17/03 Johnson & Johnson Pharmaceutical Research Institute, La Jolla, CA, “Discovery, Development and Understanding of New Palladium-Catalyzed Coupling Reactions”

219. 03/23/03 ACS Organic Symposium, New Orleans, LA, “Discovery and Understanding of New Transition Metal-Catalyzed Reactions”

220. 04/10/03 Swarthmore College, Swarthmore, PA, “Catalytic, Regiospecific Functionalization of Alkanes and Arenes”

221. 05/09/03 Brown University, Providence, RI, “Enantioselective Metal-Catalyzed Carbon-Nitrogen Bond Formation”

222. 06/25/03 Boehringer Ingelheim Pharma KG, Biberach, Germany, “Discovery, Development and Understanding of New Transition Metal-Catalyzed Reactions”

223. 06/26/03 Heidelberg Forum of Molecular Catalysis, Heidelberg, Germany, “Discovery, Development and Understanding of New Transition Metal-Catalyzed Reactions”

224. 07/06/03 Organometallic Chemistry in Organic Synthesis, Toronto, Canada, “Discovering and Understanding Transition Metal-Catalyzed Reactions”

225. 07/22/03 ISHHC 11, Evanston. IL, “Catalytic Regiospecific Functionalization of Alkanes and Arenes”

226. 08/19/03 Merck Research Laboratories, West Point, PA, “Discovery and Understanding of New Palladium-Catalyzed Coupling Reactions”

227. 08/20/03 DSM Pharmaceuticals, Greenville, NC, “Discovery and Understanding of New Transition Metal-Catalyzed Arylation and Allylation Reactions”

228. 08/28/03 Case Western Reserve University, Cleveland, OH, “Metal-Catalyzed Regioselective Functionalization of Alkanes and Arenes”

229. 10/16/03 ACS Short Course, Boston, MA, “Catalyst Discovery”

230. 10/31/03 Simon's Rock College, Great Barrington, MA, “Metal-Catalyzed Regioselective Functionalization of Alkanes and Arenes”

231. 11/07/03 SUNY at Buffalo, “Catalytic Regioselective Functionalization of Alkanes and Arenes”

232. 11/17/03 ACS 2003 Baekeland Award Symposium, *recipient*, Morristown, NJ, "Discovery and Understanding of New Transition Metal-Catalyzed Nucleophilic Substitution"

233. 12/15/03 AstraZeneca, Alderley Park, UK, "Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions"

234. 12/16/03 Sheffield Stereochemistry 2003, Sheffield, UK, "Discovery and Understanding of New Transition Metal-Catalyzed Reactions"

235. 01/13/04 Schering-Plough, Union, NJ, "Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions"

236. 02/12/04 Sasol Lecturer University of Ottawa, Canada, "New Transition Metal-Catalyzed Substitution Reactions"

237. 02/13/04 Sasol Lecturer University of Ottawa, Canada, "Catalytic Regiospecific Functionalization of Alkanes and Arenes"

238. 02/23/04 Indiana University, Bloomington, IN, "New Transition Metal-Catalyzed Substitution Reactions"

239. 03/01/04 ACS ProSpectives, Tampa, FL, "New Transition Metal-Catalyzed Substitution Reactions"

240. 03/08/04 Colorado State University, Fort Collins, CO, "New Transition Metal-Catalyzed Substitution Reactions"

241. 03/19/04 Novartis Horsham Research Centre, W. Sussex, England, "New Transition Metal-Catalyzed Substitution Reactions"

242. 03/28/04 ACS National Meeting, Anaheim, CA, "Mechanisms of Enantioselective Carbon-Heteroatom Bond Forming Reactions"

243. 04/06/04 Boehringer Ingelheim Pharmaceuticals, Inc., Ridgefield, CT, "New Transition Metal-Catalyzed Substitution Reactions"

244. 04/30/04 Yale Science Forum, Yale University, New Haven, CT, "Molecular Design of Catalysts"

245. 05/03/04 California Institute of Technology, Pasadena, CA, "Discovery and Development of New Transition Metal-Catalyzed Reactions"

246. 05/12/04 Eastman Chemical Co., Kingsport, TN, "New Metal-Catalyzed Nucleophilic Substitution Reactions"

247. 05/22/04 Catalysis Symposium, Boston College, Chestnut Hill, MA, "Transition Metal-Catalyzed Synthesis of Amines and Ethers"

248. 05/25/04 OBES Catalysis Contractors Conference, Rockville, MD, "Chemistry of Complexes with Transition Metal-Heteroatom Bonds: Novel Insertion Chemistry and Macromolecule Synthesis"

249. 06/04/04 Vicuron Pharmaceuticals, Inc., Fremont, CA, "Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions"

250. 06/08/04 Novartis, Vienna, Austria, "Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions"

251. 06/09/04 Novartis, Basel, Switzerland, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

252. 06/22/04 Astra-Zeneca, Montréal, Canada, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

253. 07/12/04 Organometallic Gordon Conference, Newport, RI, “Organometallic Chemistry of Carbon-Heteroatom Bond Formation”

254. 07/30/04 Proctor and Gamble Symposium on Organic Synthesis, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

255. 08/03/04 Thieme-IUPAC Award Lecture, Nagoya, Japan, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

256. 09/16/04 University of Pittsburgh, Pittsburgh, PA, “A Synergy of Synthetic Organic and Organometallic Chemistry”

257. 10/27/04 University of Glasgow, Scotland, “A Synergy of Synthetic Organic and Organometallic Chemistry”

258. 10/29/04 Forum on Asymmetric Synthetic Technology, Edinburgh, Scotland, “A Synergy of Synthetic Organic and Organometallic Chemistry”

259. 11/10/04 MethylGene Lecture, University of Montreal, Canada, “Development of Transition Metal-Catalyzed Substitution Reactions by a Synergy of Organic Organometallic Synthesis”

260. 01/19/05 Student-Invited Lecture, Lehigh University, Bethlehem, PA, “A Synergy of Synthetic Organic and Organometallic Chemistry”

261. 02/11/05 Frank Burnett Dains Memorial Lecture, University of Kansas, Lawrence, KS, “A Synergy of Synthetic Organic and Organometallic Chemistry”

262. 02/23/05 Emory University, Atlanta, GA, “A Synergy of Synthetic Organic and Organometallic Chemistry”

263. 02/24/05 Georgia Tech University, Atlanta, GA, “A Synergy of Synthetic Organic and Organometallic Chemistry”

264. 03/09/05 University of Illinois, Urbana, IL, “A Synergy of Synthetic Organic and Organometallic Chemistry”

265. 04/04/05 University of Victoria, BC, Canada, “A Synergy Between Synthetic Organic and Organometallic Chemistry”

266. 04/05/05 University of Washington, WA, “Activation and Functionalization of C-H and N-H Bonds”

267. 04/14/05 Penn State University, University Park, PA, “Synergy Between Organometallic Synthesis and Organic Methods”

268. 04/25/05 Brandeis University, Waltham, MA, “Synergy Between Organometallic and Organic Synthesis”

269. 05/04/05 Bayer Research Center, West Haven, CT, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

270. 05/19/05 Johnson & Johnson R&D, Springhouse, PA, “Development and Understanding of Transition Metal Coupling Reactions”

271. 05/23/05 MARM Symposium, Rutgers University, NJ, “A Synergy between Synthetic and Organometallic Chemistry”

272. 06/02/05 ICSN Symposium, Gif, France, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

273. 07/13/05 MSM & Chiral USA, Princeton, NJ, “Principles in the Development of New Catalytic Synthetic Methods”

274. 07/18/05 Pfizer, St. Louis, MO, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

275. 09/09/05 Iowa State University, Ames, IA, “Development and Understanding of Transition Metal Catalyzed Reactions”

276. 09/22/05 FAST 2005, Cambridge, UK, “Simple Iridium Catalysts for Allylation Reactions”

277. 10/05/05 University of Loughborough, UK, “Discovery and Understanding of New Transition Metal-Catalyzed Processes”

278. 10/06/05 AstraZeneca R&D, Loughborough, UK, “Developments and Mechanism of Transition Metal-Catalyzed Substitution Reactions”

279. 10/31/05 Smith College, Northampton, MA, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

280. 11/10/05 University of Alberta, Edmonton, Canada, “Regioselective, Functionalization of Aryl and Alkyl C-H Bonds

281. 11/11/05 BSOC Symposium, Banff, Canada, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

282. 11/18/05 DuPont Crop Protection, Wilmington, DE, “Transition Metal-Catalyzed Substitution Reactions”

283. 01/13/06 Queen’s University, Ontario, Canada, “A Synergy between Synthetic Organic and Organometallic Chemistry”

284. 01/24/06 FMC Corporation, Princeton, NJ, “A Synergy between Synthetic Organic and Organometallic Chemistry”

285. 02/10/06 AstraZeneca R&D, Waltham, MA, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

286. 02/20/06 University of Chicago, “A Synergy between Synthetic Organic and Organometallic Chemistry”

287. 02/21/06 University of Michigan, Chicago, IL, “A Synergy between Synthetic Organic and Organometallic Chemistry”

288. 03/06/06 Exelexis, S. San Francisco, CA, “A Synergy between Synthetic Organic and Organometallic Chemistry”

289. 03/07/06 Symyx, Santa Clara, CA, “A Synergy between Synthetic Organic and Organometallic Chemistry”

290. 03/10/06 University of California, Berkeley, CA, “The Organometallic Chemistry of Metal-Heteroatom Bonds”

291. 03/28/06 ACS Award in Organometallic Chemistry Lecture, Atlanta, GA, “Organometallic Chemistry of Synthetic Methods”

292. 04/03/06 Harvard University, Cambridge, MA, “Organometallic Chemistry of Carbon-Heteroatom Bonds”

293. 05/01/06 Lilly Research Laboratories, Indianapolis, IN, “Discovery and Understanding of Transition Metal-Catalyzed Substitution Reactions”

294. 05/10/06 Merck, Rahway, NJ, “Discovery and Understanding of New Transition Metal-Catalyzed Substitution Reactions”

295. 05/11/06 Ohio State University, Columbus, OH, “Organometallic Chemistry of Metal-Heteroatom Bonds”

296. 06/19/06 Gordon Research Conference on Stereochemistry, Smithfield, RI, “Enantioselective Substitution Reactions”

297. 06/30/06 Reaction Mechanisms Conference, Baltimore, MD, “Organometallic Chemistry of Synthetic Methods”

298. 07/16/06 Gordon Research Conference on Reaction Processes, Smithfield, RI, “Transition Metal-Catalyzed Substitution Reactions”

299. 07/24/06 ICOMC, Zaragoza, Spain, Plenary Lecture, “The Organometallic Chemistry of Carbon-Heteraotom Bonds”

300. 09/26/06 Abbott Laboratories, North Chicago, IL, “Transition Metal-Catalyzed Substitution Reactions”

301. 12/06/06 UC Riverside, Riverside, CA, “The Organometallic Chemistry of Carbon-Heteraotom Bonds”

302. 12/07/06 Amgen, Thousand Oaks, CA, “Transition Metal-Catalyzed Substitution Reactions”

303. 01/26/07 Connecticut Organic Symposium, New Haven, CT, “Discovery and Understanding of Transition Metal-Catalyzed Reactions”

304. 03/12/07 Phi Lambda Upsilon 47th Friend E. Clark Lecture, West Virginia University, Morgantown, WV, “Catalyst Design in Chemistry and Beyond”

305. 03/13/07 Phi Lambda Upsilon 47th Friend E. Clark Lecture, West Virginia University, Morgantown, WV, “Organometallic Chemistry of Metal-Heteroatom Bonds”

306. 04/08/07 Southern Illinois University, Carbondale, IL, “Organometallic Chemistry of Metal-Heteroatom Bonds”

307. 04/19/07 FAST 2007, Cambridge, UK, “Enantioselective Palladium- and Iridium-Catalyzed Substitution Reactions”

308. 05/07/07 University of Pennsylvania, Philadelphia, PA, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

309. 05/14/07 First Idecat Conference on Catalysis, Porquerolles, France, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

310. 05/16/07 Rennes University, France, “Catalytic, Selective Functionalization of C-H Bonds”

311. 05/21/07 Plenary Lecture, GECOM-CONCOORD Symposium, Plancoët, France, “Organometallic Chemistry of Metal-Heteroatom Bonds”

312. 06/28/07 Tetrahedron Young Investigator in Organic Synthesis Award Lecture, Berlin, Germany, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

313. 08/14/07 Plenary Lecture, ICHAC, University of California, Riverside, CA, “Organometallic Chemistry of Metal-Heteroatom Bonds”

314. 08/20/07 Fall 2007 ACS Meeting, Symposium Lecture, Boston, MA, “Development and Understanding of Metal-Catalyzed Substitution Reactions”

315. 09/18/07 Organic Division, French Chemical Society Meeting, Palaiseau, France, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

316. 09/27/07 Pittcon Lecture, University of Pittsburgh, PA, “Catalyst Design in Chemistry and Beyond”

317. 09/28/07 Pittcon Lecture, University of Pittsburgh, PA, “Organometallic Chemistry of Metal-Heteroatom Bonds”

318. 10/12/07 Roche Biosciences, Palo Alto, CA, “Catalytic, Selective Functionalization of C-H Bonds”

319. 10/12/07 22nd Annual W.S. Johnson Symposium in Organic Chemistry, Stanford University, CA, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

320. 10/26/07 Organic Chemistry Seminar, Hoffmann-LaRoche, Nutley, NJ, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

321. 10/26/07 Organic Chemistry Seminar, Princeton University, NJ, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

322. 11/09/07 Organic Chemistry Seminar, University of Texas at Austin, TX, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

323. 11/15/07 Plenary Lecture, International Conference on Synergistic Effects for Creation of Functional Molecules, Tokyo, Japan, “Organometallic Chemistry of Carbon-Heteroatom Bonds”

324. 11/16/07 Organic Synthesis Lecture, Symposium in Optically Active Compounds, Tokyo, Japan, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

325. 01/17/08 Small Molecule Drug Discovery, Antigua, West Indies, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

326. 02/12/08 Cambridge Majors Laboratories, Germantown, WI, “Transition Metal-Catalyzed Substitution Reactions”

327. 02/18/08 Frontiers in Chemical Research, Texas A&M University, College Station, TX, “Selective C-H Bond Functionalization”

328. 02/19/08 Frontiers in Chemical Research, Texas A&M University, College Station, TX, “Iridium-Catalyzed Enantioselective Allylation”

329. 02/20/08 Frontiers in Chemical Research, Texas A&M University, College Station, TX, "Palladium-Catalyzed Processes"

330. 03/17/08 Frontiers in Chemistry Departmental Seminar, Wayne State University, Detroit, MI, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

331. 04/02/08 Rylander Award, Richmond, VA, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

332. 04/14/08 Gassman Lecture, University of Minnesota, Minneapolis, MN, "New Catalytic Coupling Processes"

333. 04/15/08 Gassman Lecture, University of Minnesota, Minneapolis, MN, "Catalytic Hydroamination of Alkenes"

334. 04/16/08 Gassman Lecture, University of Minnesota, Minneapolis, MN, "Regioselective Functionalization of Akanes"

335. 04/18/08 Comps Lecture, Carleton College, Northfield, MN, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

336. 05/10/08 Student-Invited Lecture, Columbia University, NY, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

337. 05/02/08 Merck Pharmaceuticals, West Point, PA "New Palladium-Catalyzed Coupling Processes"

338. 06/10/08 Plenary Lecture, French-American Chemical Society Meeting, Santa Barbara, CA, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

339. 06/30/08 Plenary Lecture, BalticumOrganicumSynthetum Conference, Vilnius, Lithuania, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

340. 07/15/08 Belgian Organic Synthesis Symposium, Gent, Belgium, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

341. 07/18/08 International Catalysis Award Lecture, Seoul, Korea, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

342. 09/08/08 Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, Shanghai, China, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

343. 09/10/08 Mukiayama Award Lecture, 25th Seminar on Synthetic Organic Chemistry, Kyushu, Japan, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

344. 09/11/08 Ajinomoto AminoScience Laboratories, Kawasaki, Japan, "New Developments in Palladium-Catalyzed Cross-Coupling Reactions"

345. 09/19/08 30th Annual Princeton ACS Fall Organic Chemistry Symposium, NJ, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

346. 11/12/08 Grinnell College, IA, "Catalysts: Importance and Design"

347. 11/18/08 Graduate Colloquium, Northern Illinois University, DeKalb, IL, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

348. 01/08/09 Peking University, China, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

349. 02/03/09 Peter C. Reilly Lecture, Notre Dame University, IN, “The Status of Catalyst Design. Case Studies on C-N Bond Formation”

350. 02/04/09 Peter C. Reilly Lecture, Notre Dame University, IN, “Practical, Catalytic, Regioselective C-H Bond Functionalization”

351. 02/05/09 Peter C. Reilly Lecture, Notre Dame University, IN, “Progress on Olefin Hydroamination”

352. 02/18/09 UC Irvine-Novartis Lecture, CA, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

353. 02/26/09 47th Annual Mack Award Lecture, Ohio State University, “Catalyst Design”

354. 02/27/09 47th Annual Mack Award Lecture, Ohio State University, “Catalytic Regioselective Functionalization of Alkanes and Arenes”

355. 03/11/09 Mitsui Chemicals Catalysis Science Award Lecture, Tokyo, Japan, “Discovery and Development of New Coupling and C-H Bond Functionalization Reactions”

356. 03/17/09 Amgen, Inc., Cambridge, MA, “Recent Developments in the Coupling and C-H Bond Functionalization of Arenes”

357. 03/18/09 Student-Invited Speaker, MIT Inorganic Seminar Series, Cambridge, MA, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

358. 04/17/09 California Institute of Technology, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

359. 04/20/09 Schulich Visiting Professor Lectureship, Organic Chemistry Seminar, Technion-Israel Institute of Technology, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

360. 04/22/09 Dean’s Podium Talk, Ben Gurion University of the Negev, Israel, “The Status of Catalyst Design: A Case Study of C-N Cross Coupling”

361. 04/23/09 Schulich Visiting Professor Lectureship, SchulichColloqium, Technion-Israel Institute of Technology, “The Status of Catalyst Design: A Case Study of C-N Cross Coupling”

362. 05/06/09 2009-2010 RSC Joseph Chatt Lectureship, University of York, UK, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

363. 05/07/09 2009-2010 RSC Joseph Chatt Lectureship, University of Manchester, UK, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

364. 05/09/09 Plenary Lecture, 19th Lakeland Heterocyclic Symposium, UK, “Catalytic Organometallic Carbon Heteroatom Bond Formation: C-H Bond Functionalization and Allylic Substitution Relevant to Heterocyclic Chemistry”

365. 05/11/09 Sygenta, Jealott’s Hill, UK, “Recent Developments in the Coupling and C-H Bond Functionalization of Arenes”

366. 06/02/09 Plenary Lecture, 92nd Canadian Chemistry Conference, Hamilton, Ontario, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

367. 06/18/09 10th International Isotope Society Meeting, Chicago, "Isotopes as Part of Catalytic Selective C-H Bond Functionalization"

368. 06/24/09 18th EuCheMS Conference on Organometallic Chemistry, Göteborg, Sweden, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

369. 07/13/09 Organometallic Chemistry Gordon Research Conference, Newport, RI, "Organometallic Chemistry of Synthetic Methods"

370. 07/27/09 Natural Products Gordon Research Conference, Tilton, NH, "Discovery and Understanding of Transition Metal-Catalyzed Reactions for Organic Synthesis"

371. 08/04/09 22nd International Congress on Heterocyclic Chemistry, St. John's, Canada, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

372. 10/27/09 2009 Welch Conference on Chemical Research, Houston, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

373. 11/17/09 Visiting Miller Professor Lecture, University of California, Berkeley, "Organometallic Chemistry of Synthetic Methods"

374. 02/05/10 Beling Lecture Series, Illinois Wesleyan University, "Catalysts by Design"

375. 02/11/10 University of California, Los Angeles, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

376. 02/12/10 Roche Lectureship, Scripps Research Institute, FL, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

377. 03/03/10 11th Netherlands Catalysis and Chemistry Conference, Noordwijkerhout "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

378. 03/04/10 16th PAC-Symposium, Amsterdam, "Making Sense of Homogeneous Catalysis–Understanding the Formation of Carbon-Heteroatom Bonds with Organometallic Catalysis"

379. 03/23/10 Spring 2010 ACS Meeting, Symposium Lecture, San Francisco, CA, "Organometallic Chemistry of Synthetic Methods"

380. 03/25/10 Lectures in Modern Chemistry, University of British Columbia, "Catalytic Organometallic Carbon-Heteroatom Bond Formation"

381. 04/16/10 Symposium on Organotransition Metal Chemistry, University of Illinois, Urbana, IL, "A Perspective on Twenty Years of Organometallics and Contributions to the Past Ten"

382. 05/05/10 Howard Lecture, University of Sydney, "Catalytic Regioselective Functionalization of Alkanes and Arenes"

383. 05/06/10 Howard Lecture, University of New South Wales, "Development and Understanding of Cross-Coupling Reactions"

384. 06/02/10 DoE BES Contractors' Meeting, Annapolis, "Chemistry of Complexes with Transition Metal-Heteroatom Bonds: Novel Insertion Chemistry and X-H Bond Activation"

385. 06/18/10 Sepracor, Marlborough, MA, “Discovery and Development of Transition Metal-Catalyzed Reactions”

386. 06/21/10 Heterocyclic Compounds Gordon Research Conference, Newport, RI, “Catalytic Processes for the Derivatization of Heterocycles”

387. 06/24/10 BMS, Wallingford, CT “Discovery and Understanding of Transition Metal-Catalyzed Reactions”

388. 07/14/10 1st International Conference on Molecular & Functional Catalysis, Singapore, “Recent Developments in the Transition Metal Catalyzed Borylation of C-H and C-X Bonds”

389. 07/15/10 Nanyang Technological University, Singapore, “Iridium-Catalyzed Enantioselective Allylic Substitution”

390. 08/22/10 Fall 2010 ACS Meeting, Symposium in Memory of Keith Fagnou, Boston, MA, “Mechanistic Aspects of Cross-Coupling Reactions that form C-C Bonds”

391. 08/22/10 Fall 2010 ACS Meeting, JOC 75th Anniversary Session, Boston, MA, “Catalytic Organometallic Carbon-Heteroatom Bond Formation”

392. 08/23/10 Fall 2010 ACS Meeting, Commemoration of the Founding of the ACS Journal Organometallics, Boston, MA, “Organometallic Chemistry of Synthetic Methods”

393. 08/23/10 Fall 2010 ACS Meeting, Inorganic Chemistry Symposium, Boston, MA, “Catalytic, Selective C-H Bond Functionalizations with Main Group Reagents”

394. 09/24/10 GSK Chemistry Symposium, Durham, NC, “Discovery and Understanding of Transition Metal-Catalyzed Reactions”

395. 09/30/10 Philadelphia Organic Chemists’ Club, “Understanding Transition Metal-Catalyzed Reactions”

396. 10/26/10 PKU-Lilly Symposium, Beijing, China, “Discovery and Understanding of New Transition Metal-Catalyzed Reactions”

397. 11/04/10 Loyola University, Chicago, IL, “Catalyst by Design”

398. 12/08/10 Inaugural KAUST Symposium on Catalysis, Saudi Arabia, “Discovery and Understanding of Transition Metal-Catalyzed Reactions”

399. 01/25/11 10th Winter Conference on Medicinal and Biochemistry Chemistry, Steamboat Springs, CO, “Catalytic Chemistry of Arenes”

400. 03/07/11 12th Annual Florida Heterocyclic and Synthetic IUPAC-Sponsored Conference (FLOHET), Gainesville, FL, “Catalytic Transformations of Arenes”

401. 03/08/11 Student-Invited Speaker, Scripps Florida Distinguished Lecture Series, Jupiter, FL, “Catalytic Transformations of Arenes”

402. 03/09/11 Invited Speaker, Emory University, Atlanta, GA “Catalytic Transformations of Arenes”

403. 03/24/11 Student Hosted Colloquium, University of Southern California, Los Angeles, "Selective Catalytic Functionalization of Aryl and Alkyl C-H Bonds"

404. 03/30/11 Spring 2011 ACS Meeting, Division of Organic Chemistry, Anaheim, CA, "Catalytic Modification of Arenes"

405. 04/27/11 AstraZeneca, Alderly Park, UK "Catalytic Modification of Arenes"

406. 04/28/11 11th Bristol Synthesis Meeting, Bristol, UK "Catalytic Modification of Arenes"

407. 06/06/11 Canadian Society for Chemistry Conference, Keith Fagnou Memorial Symposium "Catalytic Modification of arenes

408. 06/16/11 Cambridge Major Laboratories, Milwaukee, WI "Catalytic Modification of Arenes"

409. 06/28/11 CHAOS23, Czech Republic "Catalytic Modification of Arenes"

410. 07/01/11 Technical University of Berlin, Einstein Fellowship Lecture "The State of Catalyst Design"

411. 07/21/11 ICIQ Summer School, Tarragona, Spain "The State of Catalyst Design"

412. 07/22/11 ICIQ Summer School, Tarragona, Spain "Selective Functionalization of Aliphatic and Aromatic C-H Bonds"

413. 07/25/11 Spanish National Meeting, Madrid, Spain "Selective Functionalization of Aliphatic and Aromatic C-H Bonds"

414. 08/27/11 NSF Workshop on Catalysis "The State of Catalyst Design"

415. 08/28/11 ACS National Meetings, Denver, CO, Symposium on Catalysis Needs for Drug Discovery, Development, and Commercialization "Perspectives from summarizing twenty-two years of organometallic catalysis"

416. 08/29/11 ACS National Meetings, Denver, CO, Symposium on Frontiers in C-H Activation and Functionalization "Selective Functionalization of Aliphatic and Aromatic C-H Bonds"

417. 08/30/11 ACS National Meetings, Denver, CO, Symposium on Recycling Carbon: Catalyzed Conversion of Non-food Biomass to Fuels and Chemicals "Catalytic reductions of aromatic C-O bonds"

418. 09/12/11 University of Washington, Seattle, WA, Hydrocarbon Amination for Fine Chemical Synthesis, Overview of CENTC Research in the Area

419. 09/15/11 International Conference on the Interface of Homogeneous and Heterogeneous Catalysis, Berlin, Germany, Plenary Lecture "Catalytic Transformations of Arenes"

420. 10/05/11 Department of Energy, Washington D.C., Catalysis Lab Coordination Meeting

421. 10/12/11 Merck & Co., Inc., Rahway, NJ, "Catalytic Modification of Arenes"

422. 10/13/11 Merck & Co., Inc., Boston, MA, "Catalytic Modification of Arenes"

423. 11/02/11 Royal Society of Chemistry, London, England, "Catalytic Modification of Arenes"

424. 11/05/11 GlaxoSmithKline, Stevenage, UK, Catalysis Short Course

425. 11/14/11 Energy Biosciences Institute, Berkeley, CA, "Catalytic Carbon-Oxygen Bond Cleavage for Upgrading Biomass"

426. 11/17/11 R. A. Walton Lecture, Purdue University, West Lafayette, IN, "Selective Functionalization of Alkyl Aryl C-H Bonds"

427. 11/28/11 GlaxoSmithKline, Durham, NC, Catalysis Short Course Parts 1 and 2

428. 11/29/11 GlaxoSmithKline, Durham, NC, Catalysis Short Course Parts 3 and 4

429. 12/13/11 Gilead Sciences, Inc., Foster City, CA, "Catalytic Functionalization of Aryl and Alkyl C-H Bonds"

430. 03/06/12 University of California, Davis, CA, "Catalytic Modification of Arenes and Alkanes"

431. 03/26/12 ACS National Meetings, San Diego, CA, ACS Award in Pure Chemistry, "Inorganic Chemistry of Synthesis Methods"

432. 04/09/12 Cambridge Major Laboratories, Foster City, CA, Chemistry Trends in the Pharmaceutical Market Symposium "Catalytic C-H Bond Functionalization and Coupling Reactions"

433. 04/11/12 Moses Gomberg Lecture, University of Michigan, Ann Arbor, MI, "Catalytic Functionalization of Alkanes and Arenes"

434. 04/23/12 Behringer-Simon Lecture, Swiss Federal Institute of Technology (ETH) Zürich, Switzerland, "Catalytic Modification of Arenes"

435. 05/14/12 Durham Lecturer, Durham University, Durham, England, "Catalysts by Design. A Case Study of Arylamine Synthesis"

436. 05/15/12 Durham Lecturer, Durham University, Durham, England, "Selective Functionalization of Aryl and Alkyl C-H Bonds"

437. 05/16/12 Durham Lecturer, Durham University, Durham, England, "Making Sense of Copper-Catalyzed Coupling Reactions"

438. 07/04/12 19th International Conference on Organic Synthesis, Melbourne, Australia, "Selective, Catalytic Functionalization Reactions"

439. 07/10/12 18h International Symposium on Homogeneous Catalysis, Toulouse, France, "Selective, Catalytic Functionalization of Aryl and Alkyl C-H Bonds with Main Group Reagents"

440. 08/20/12 ACS National Meetings, Philadelphia, PA "Mechanistic studies of organometallic reactions to form carbon-heteroatom bonds"

441. 08/21/12 ACS National Meetings, Philadelphia, PA "N-Heterocyclic carbene complexes of nickel for C-O bond cleavage"

442. 10/06/12 1st International Symposium on C-H Activation, Peking University, Beijing, China, "Selective, Catalytic Functionalization of Alkyl and Aryl C-H Bonds"

443. 10/09/12 WuXi AppTec Co. Ltd., Shanghai, China, "Catalytic Functionalization of Alkanes and Arenes"

444. 11/12/12 TOC Physical Organic Chemistry Symposium, Uppsala, Sweden, "Understanding the mechanisms of metal-catalyzed reactions for organic synthesis"

445. 11/15/12 Russell Marker Lecturer, Pennsylvania State University, State College, PA, "Selective, Catalytic Functionalization of Alkyl and Aryl C-H Bonds"

446. 04/20/13 Baker Symposium, Cornell University, Ithaca, NY, "Catalysis and Synthesis at the Frontier"

447. 04/08/13 Herbert C. Brown Award for Creative Research in Synthetic Methods Talk, ACS National Meetings, New Orleans, LA "Catalytic Transformations of Arenes"

448. 04/09/13 ACS National Meetings, New Orleans, LA "Advances in Aromatic and Aliphatic C-H Bond Functionalization to Form Carbon-element and Carbon Heteroatom Bonds"

449. 06/03/13 Chevron Phillips' Frontier of Technology Speaker, Bartlesville, OK "Regioselective Functionalization of Aryl and Alkyl C-H Bonds"

450. 06/05/13 Gordon Research Conference, New London, NH "High Throughput Experimentation for Catalyst Discovery, Development, and Application"

451. 06/26/13 Technische Universität, Berlin, Germany "Catalysts by Design"

452. 08/01/13 17th IUPAC Conference on Organometallic Chemistry Directed Towards Organic Synthesis (OMCOS 17), Fort Collins, CO "Borylation, Silylation, Fluorination, and Fluoroalkylation"

453. 09/08/13 246th ACS Meetings, Indianapolis, IN "Metal-catalyzed and metal-mediated coupling reactions of fluoride and fluoroalkyl groups"

454. 09/09/13 246th ACS Meetings, Indianapolis, IN "Discovery and development of new catalytic transformations"

455. 09/13/13 60th Symposium on Organometallic Chemistry, Gakusyuin University, Toshima-Ku, Tokyo "Selective, catalytic transformations of aryl and alkyl groups for fine chemical applications"

456. 09/14/13 3rd Pharmaron Symposium on Synthetic and Medicinal Chemistry, Beijing, China "Borylation, Silylation, Fluorination, and Fluoroalkylation"

457. 10/01/13 ACS Student Selected Seminar Series, Indiana University, Bloomington, IN "Selective Functionalization of Alkyl and Aryl C-H Bonds"

458. 10/03/13 Aldrich Lecturer, Oklahoma State University, Tulsa, OK "Catalytic, Selective Functionalization of C-H Bond"

459. 10/24/13 Student Hosted Colloquium, Stanford University, Stanford, CA "Selective, Catalytic Functionalization of Alkyl and Aryl Groups"

460. 10/28/13 Annual Gilead Alberta Invited Lecturer, University of Alberta, Edmonton, Alberta, Canada "Practical, Selective, Catalytic Functionalization of C-H Bonds"

461. 11/13/13 15th Brazilian Meeting on Organic Synthesis (BMOS), Campos do Jordão, Brazil "Borylation, Silylation, Fluorination and Fluoroalkylation"

462. 12/13/13 Pettit Lectureship, University of Texas, Austin, TX "Catalytic Regioselective Functionalization of Aryl and Alkyl C-H Bonds"

463. 03/16/14 ACS National Meetings, Dallas, TX "Main Group Compounds as Reagents for Catalytic C-H Bond Functionalization"

464. 03/16/14 ACS National Meetings, Dallas, TX "Catalysis Additions of O-H, N-H and C-H Bonds to Alkenes"

465. 03/18/14 ACS National Meeting, Dallas, TX "C-H Bond Functionalization by the Introduction of a Temporary Functional Group"

466. 03/24/14 Max Tishler Prize Lecturer, Harvard University, Cambridge, MA "Catalytic, Regioselective Functionalization of C-H Bonds"

467. 04/19/14 H.C. Brown Award Symposium Recognition, Purdue University, Lafayette, IN "Selective, Catalytic Functionalization of Alkyl and Aryl C-H Bonds"

468. 05/09/14 5th Münster Symposium on Cooperative Effects in Chemistry, Universität Münster, Germany "Selective, Catalytic Functionalization of Aryl and Alkyl C-H Bonds"

469. 05/21/14 The Student-hosted Symposia at Shenzhen Graduate School, Peking University, Beijing, China "Selective Functionalization of Aryl and Alkyl C-H Bonds"

470. 05/29/14 Tsinghua University, Tsinghua, China "Catalytic site - selective functionalization of alkyl and aryl C-H bonds"

471. 05/30/14 Lectureship on Organic Chemistry, Nankai University, Tianjin, China "Catalytic, Regioselective Functionalization of Alkyl and Aryl C-H Bonds"

472. 06/17/14 Green Chemistry Education Seminar, Genentech, South San Francisco, CA "Synthetic Efficiency by C-H Bond Functionalization"

473. 07/14/14 14th Belgium Organic Synthesis Symposium, Louvain-la-Neuve, Belgium 1) "The elementary chemistry of organometallic catalysis. Hydrofunctionalizations of alkenes as a case study"; 2) "Catalyst evolution based on mechanistic aspects of cross coupling to form C-H bonds"; 3) "Evolution of asymmetric allylic substitution from palladium to iridium"; 4) "Metal-catalyzed and metal-mediated incorporation of fluorine into aromatic molecules"

474. 07/17/14 Janssen Pharmaceutica Prize for Creativity in Organic Synthesis Recipient Presentation at the 14th Belgium Organic Synthesis Symposium, Louvain-la-Neuve, Belgium "Discovery and development of practical C-H bond functionalization with main group reagents"

475. 08/05/14 17th International Symposium on Silicon Chemistry, Berlin, Germany "Selective, Catalytic Functionalization of Alkyl and Aryl C-H Bonds with Silicon Reagents"

476. 08/12/14 248th American Chemical Society National Meeting, The 2014 *Organometallics* Symposium, San Francisco, CA "New and evolving reactions catalyzed by transition metal complexes"

477. 09/03/14 Department of Chemistry, Rice University, Houston, TX "Selective Functionalization of Alkyl and Aryl C-H Bonds"

478. 09/25/14 Vertex Pharmaceutical, Oxford, UK "Metal-Mediated and Metal-Catalyzed Methods for Incorporation of Fluorine into Aromatic Molecules"

479. 09/26/14 Plenary Lecture at the Lilly Research Awards for Graduate Students, Alcobendas-Madrid, Spain "Selective Functionalization of Alkyl and Aryl C-H Bonds - Installation of Temporary Functional Groups"

480. 10/09/14 Sierra Nevada Distinguished Chemist Lecture, University of Nevada, Reno, NV "Catalysis: Speeding up Technology"

481. 10/10/14 Sierra Nevada Distinguished Chemist Lecture, University of Nevada, Reno, NV "Attaching Fluorine and Fluoroalkyl Groups to Arenes with Metals"

482. 10/27/14 2014 Nagoya Medal of Organic Chemistry Award, Gold Medal Lecture 1, Nagoya University, Nagoya, Japan "Regioselective Functionalization of Alkyl and Aryl C-H Bonds"

483. 10/29/14 Murai Symposium, Nara, Japan "Selective, Catalytic Functionalization of Alkyl and Aryl C-H Bonds"

484. 11/06/14 H.J. Backer Lecture 2014 at University of Groningen, The Netherlands "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

485. 01/06/15 The Musher Lecture at The Hebrew University of Jerusalem, Israel "Catalytic, Regioselective Functionalization of Alkyl and Aryl C-H Bonds"

486. 02/12/15 Department of Chemistry at Princeton University, Princeton, NJ "Selective Functionalization of Alkyl and Aryl C-H Bonds - Installation of Temporary Functional Groups"

487. 03/05/15 Keynote Speaker at the 2015 Gordon Research Conference on Mechanisms in Catalysis, Galveston, TX "Mechanism and Design on Catalytic Processes for Organic Synthesis"

488. 03/22/15 249th American Chemical Society National Meeting, Denver, CO "Selective functionalization of alkyl and aryl C-H bonds – installation of temporary functional groups"

489. 03/23/15 249th American Chemical Society National Meeting, Denver, CO "Metal-mediated and metal-catalyzed coupling for incorporation of fluorine into aromatic molecules"

490. 03/23/15 249th American Chemical Society National Meeting, Denver, CO "Selective, catalytic functionalization of alkyl and aryl C-H bonds with silicon reagents"

491. 04/10/15 5th SABPA/ACS San Diego Chemistry Symposium, San Diego, CA "Metal-Mediated and Metal-Catalyzed Incorporation of Fluorine into Aromatic Molecules"

492. 04/17/15 Department of Chemistry, Northwestern University, Evanston, IL "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

493. 04/20/15 Energy Biosciences Institute 2015 Spring Presentations, Berkeley, CA "Catalytic Carbon-Oxygen Bond Cleavage for Upgrading Biomass (including Catalytic Methods for the Valorization of Lignin)"

494. 04/21/15 Center for Sustainable Polymers Annual Meeting, University of Minnesota, MN "Design of Organosiloxane Polymers from Renewable Feedstocks"

495. 04/23/15 Organic Chemistry Seminar, University of Wisconsin, Madison, WI "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

496. 05/05/15 Department of Biochemistry, University of Texas Southwestern Medical Center, Dallas, TX "Catalytic Methods for the Introduction of Fluorine and Fluoroalkyl Groups into Aromatic Molecules"

497. 05/14/15 Abbvie Inc., North Chicago, IL "Catalytic Borylation, Silylation, Fluorination, and Fluoroalkylation of Aromatic Molecules"

498. 06/17/15 Keynote Speaker at the 16th Tetrahedron Symposium: Challenges in Bioorganic & Organic Chemistry, Berlin, Germany "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

499. 06/24/15 Tokyo Institute of Technology, Tokyo, Japan "Selective, Catalytic C-H Bond Functionalization with Main Group Reagents"

500. 06/25/15 Tokyo Institute of Technology, Tokyo, Japan "Metal-Catalyzed and Metal-Mediated Fluorination and Fluoroalkylation of Aromatic Compounds"

501. 06/26/15 Tokyo Institute of Technology, Tokyo, Japan "Selective, Catalytic C-H Bond Functionalization with Main Group Reagents"

502. 07/10/15 Tokyo Institute of Technology, Tokyo, Japan "Selective, Catalytic C-H Bond Functionalization with Main Group Reagents"

503. 09/24/15 UNC Scynexis Lecture, Chapel Hill, NC "Selective Functionalization of Alkyl and Aryl C-H Bonds - Installation of Temporary Functional Groups"

504. 10/13/15 Department of Chemistry, Boston College, Chestnut Hill, MA "Selective Catalytic Functionalization of Alkyl and Aryl C-H Bonds"

505. 11/11/15 16th Tetrahedron Asian Edition at the Shanghai Institute of Organic Chemistry (SIOC), Shanghai, China "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

506. 11/19/15 2015 Lloyd B. Thomas Chemistry Scholar/Lectureship at the University of Missouri, Columbia, MO "Influence and Opportunities for Catalysis"

507. 11/20/15 2015 Lloyd B. Thomas Chemistry Scholar/Lectureship at the University of Missouri, Columbia, MO "Attaching Fluorine to Aromatic Molecules. New Approaches and Challenges"

508. 12/16/15 2015 International Chemical Congress of Pacific Basin Societies, Honolulu, HI "Multistep, multicatalytic processes for organic synthesis"

509. 12/18/15 2015 International Chemical Congress of Pacific Basin Societies, Honolulu, HI "Selective functionalization of C-H bonds with main group reagents"

510. 01/31/16 Visions in Chemistry, The Torkil Holm Symposium, Copenhagen, Denmark "Chemical Diversity by the Functionalization of Aryl and Alkyl C-H Bonds"

511. 02/23/16 2016 Smart Lecture, West Florida, Pensacola, FL "New Modes for Functionalization of Organic Molecules"

512. 02/25/16 Department of Chemistry, Texas A&M, College Station, TX "Selective Catalytic Functionalization Reactions"

513. 03/22/16 Anatolian Conference on Synthetic Organic Chemistry (ACSOC II), Aydın, Turkey "Selective Functionalization of Alkyl and Aryl C-H Bonds – Installation of Temporary Functional Groups"

514. 04/17/16 2016 CT Organic Chemistry Symposium, Yale University, New Heaven, CT "Approaches to Catalytic Functionalizations"

515. 04/23/16 Keynote Lecture at Hong Kong Polytechnic University, Hong Kong, China "Catalytic Functionalization of Aryl and Alkyl C-H Bonds"

516. 05/05/16 MacLean Lecturer at McMaster University, Hamilton, Ontario, Canada "Functionalizing Unreactive Bonds with Small and Large Catalysts – From Chemical Feedstocks to Natural Products"

517. 05/06/16 MacLean Lecturer at McMaster University, Hamilton, Ontario, Canada "Metal-Mediated and Metal-Catalyzed Coupling for Incorporation of Fluorine into Aromatic Molecules"

518. 05/23/16 Department of Chemistry, University of Chicago, Chicago, IL, "Functionalizing Unreactive Bonds with Small and Large Catalysts – From Chemical Feedstocks to Natural Products"

519. 05/31/16 3rd International Symposium on C-H Activation (ISCHA), Montreal, Quebec, Canada "Approaches to Selective Functionalization of C-H Bonds in Small and Complex Molecules"

520. 06/15/16 Plenary Lecturer, 26th Biennial Meeting in Organic Chemistry of the Royal Society of Chemistry, Huelva, Spain "Selective, Catalytic Functionalizations"

521. 06/23/16 Keynote Speaker Session: Perspective on Heterocyclic Chemistry, Gordon Research Conference, Newport, RI "Transition Metal-Catalyzed Reactions for the Synthesis and Modification of Heterocycles"

522. 07/28/16 Stereoselective Organometallic Catalysis, Gordon Research Conference, Newport, RI "Approaches to Asymmetric Functionalization with Artificial Metalloenzymes"

523. 08/23/16 253rd American Chemical Society National Meeting, Philadelphia, PA, "Isosteric Replacement by Catalytic Fluorination, Fluoroalkylation, Borylation, Silylation, and Amination"

524. 10/07/16 Sigma Aldrich Lecturer at University of Toronto, Ontario, Canada, "Selective Functionalization with Small and Large Catalysts"

525. 10/19/16 Camille & Henry Dreyfus Lectureship, Univ. of Basel, Switzerland, "Approaches to Selective Functionalization of Small and Complex Molecules"

526. 12/02/16 Riley Schaefer Endowed Lectureship at University of New Mexico, Albuquerque, NM, "Selective Functionalization with Small and Large Catalysts"

527. 03/21/17 Department of Chemistry, Colorado State University, Fort Collins, CO, "Selective Functionalizations with Small and Large Catalysts"

528. 03/28/17 Merck, Rahway, NJ "Merging Organometallic Chemistry and Biocatalysis with Artificial Metalloenzymes"

529. 03/29/17 McNelis Lecturer at New York University, New York, NY, "Sprinting for 24.75 Years"

530. 03/30/17 Department of Chemistry, New York University, New York, NY, "Functionalizations with Small and Large Catalysts"

531. 03/31/17 McNelis Distinguished Lecturer at New York University, New York, NY, "Catalysis – Changing What People Make"

532. 04/21/17 Department of Chemistry and Biochemistry, University of Bern, Bern, Switzerland "Selective Functionalization with Small and Large Catalysts"

533. 04/24/17 Organic and Inorganic Chemistry Seminar, Israel Institute of Technology, Haifa, Israel, "Functionalizations with Small and Large Catalysts"

534. 05/16/17 2017 International Symposium on Green Chemistry (ISGC), La Rochelle, France, "Selective Functionalization with Small and Large Catalysts"

535. 05/17/17 Robert Robinson Lecturer, Oxford University, Oxford, England, "Site Selective C-H Bond Functionalization Reactions"

536. 05/18/17 Robert Robinson Lecturer, Oxford University, Oxford, England, "Merging Organometallic and Enzymatic Catalysis"

537. 06/06/17 Bristol-Myers Squibb 2017 Symposium, University of Michigan, Ann Arbor, MI, "Catalysis Functionalizations with Small and Large Catalysts"

538. 07/11/17 Plenary Lecturer, 22nd Conference on Organometallic Chemistry, Amsterdam, Netherlands, "Selective Functionalization with Small and Large Catalysts"

539. 07/24/17 Gordon Research Conference, Stonehill College, Easton, MA, "Site-Selective Functionalization with Small and Large Catalysts"

540. 08/21/17 The 254rd American Chemical Society National Meeting, Washington, DC, "Site-Selective Oxidation, Amination, and Epimerization Reactions of Complex Polyols enabled by Transfer Hydrogenation"

541. 08/22/17 The 254rd American Chemical Society National Meeting, Washington, DC, "New Elementary Reactions, Catalytic Reactions, and Combinations of Catalytic Reactions"

542. 08/22/17 The 254rd American Chemical Society National Meeting, Washington, DC, "Revealing the Mechanisms of Copper-Catalyzed Synthetic Methods"

543. 10/05/17 2017 C.S. Hamilton Lecturer, Univ. of Nebraska, Lincoln, NE "Chemical Catalysis – Changing What People Make"

544. 10/06/17 2017 C.S. Hamilton Lecturer, Univ. of Nebraska, Lincoln, NE "Selective, Catalytic Functionalization by Small and Large Catalysts"

545. 10/24/17 Fishel Lecturer, Vanderbilt University, Nashville, TN "Site-Selective Functionalization with Small and Large Catalysts"

546. 01/22/18 Gordon Research Conference on Metal in Biology, Ventura, CA "Platinum-Group Organometallic Enzymes from Heme Proteins for Abiological Transformations"

547. 02/26/18 Graduate Student Seminar, North Carolina State University, Raleigh, NC "Selective Functionalization with Small and Large Catalysts"

548. 02/27/18 Sigma Aldrich Lecturer, Duke University, Durham, NC "Selective Functionalization with Small and Large Catalysts"

549. 03/14/18 Graduate Student-Invited Seminar at Georgetown University, Washington, DC "Selective Catalytic Functionalizations with Small and Large Catalysts"

550. 03/15/18 Edgar Fahs Smith Lecture, University of Pennsylvania, Philadelphia, PA "Selective Functionalization with Small and Large Catalysts"

551. 03/28/18 Bailar Lecturer, the University of Illinois at Urbana-Champaign, IL "Selective, Catalytic Functionalization of C-H Bonds"

552. 03/29/18 Bailar Lecturer, the University of Illinois at Urbana-Champaign, IL "Artificial Metalloenzymes with Noble Metals Created from Heme Proteins"

553. 04/12/18 The 46th John Stauffer Distinguished Lecturer, University of Southern California, Los Angeles, CA "Catalysis – Dictating What We Make and How We Make it"

554. 04/13/18 A Symposium in Honor of Prof. John F. Hartwig, University of Southern California, Los Angeles, CA "Selective Functionalization of Organic Molecules with Small and Large Catalysts"

555. 05/14/18 The 8th Annual Lester Andrews Graduate Research Symposium, Mississippi State University, Mississippi, MS "Selective, Catalytic Functionalization of C-H Bonds"

556. 07/18/18 Plenary Lecturer at the 28th International Conference on Organometallic Chemistry, Florence, Italy "Selective Functionalization with Small and Large Catalysts"

557. 08/20/18 The 256th American Chemical Society National Meeting, Boston, MA "New Catalytic Reactions for Agroscience"

558. 08/20/18 The 256th American Chemical Society National Meeting, Boston, MA "Mechanistic Analysis of Homogenous, Catalytic C-H Bond Functionalization Processes"

559. 10/24/18 2018 Charles Reed Lecture, Department of Chemistry & Chemical Biology at Rensselaer Polytechnic Institute, Troy, NY "Catalytic Functionalization with Small and Large Catalysts in a Flask and in a Cell"

560. 10/26/18 Dreyfus Foundation Teacher-Scholar Symposium – Research Frontiers in the Chemical Sciences, New York, NY "Accelerating Chemical Synthesis with Catalysis"

561. 11/09/18 Chemistry Colloquium Seminar University of Washington, Seattle, WA "Selective Functionalizations of C-H bonds with Small and Large Catalysts in Flasks and Cells"

562. 02/08/19 Distinguished Speaker at the 30th Annual Frontiers in Chemistry Symposium, at the Scripps Research Institute, La Jolla, CA "Selective Catalytic Functionalization of C-H Bonds from a Flask to a Cell"

563. 02/19/19 Inorganic Seminar at University of Utah, Salt Lake City, UT "Selective Catalytic Functionalization of C-H Bonds with Small and Large Catalysts"

564. 02/21/19 Department of Chemistry, University of Massachusetts, Amherst, MA "Selective Catalytic Functionalization of C-H Bonds with Small and Large Catalysts"

565. 03/22/19 Royal Society of Chemistry Award Lecture Series at University of Sheffield, Sheffield, England "Selective Catalytic Reactions for Synthetic Chemistry"

566. 03/25/19 Royal Society of Chemistry Award Lecture Series at Loughborough University, Loughborough, England "Selective Catalytic Reactions for Synthetic Chemistry"

567. 03/27/19 Royal Society of Chemistry Award Lecture Series at Queen's University, Belfast, England "Selective Catalytic Reactions for Synthetic Chemistry"

568. 04/01/19 The 257th American Chemical Society National Meeting, Orlando, FL "Selective functionalization of C-H bonds Functionalizations of C-H bonds in a flask and a cell"

569. 04/02/19 The 257th American Chemical Society National Meeting, Orlando, FL "Functionalizations of C-H bonds in a flask and a cell"

570. 05/10/19 The 11th Eisch Distinguished Lecturer, Binghamton University, Binghamton, NY "Selective, Catalytic Functionalization of C-H Bonds with Small and Large Catalysts"

571. 05/16/19 Student Seminar at University of Minnesota, Minneapolis, MN "Selective, Catalytic Functionalization of C-H Bonds in Small and Large Molecules"

572. 08/26/19 The 258th American Chemical Society National Meetings, San Diego, CA "Catalytic substitution and C-H bond functionalization reactions"

573. 10/15/19 Plenary Lecture at the Korean Chemical Society Meeting, Changwon, So. Korea "Selective, Catalytic Functionalization of C-H Bonds"

574. 01/13/20 2020 Broadbent Lecture, Brigham Young University, Provo, UT "Changing Chemical Synthesis with Catalysis"

575. 01/14/20 2020 Broadbent Lecture, Brigham Young University, Provo, UT "Selective, Catalytic Functionalization of C-H Bonds"

576. 02/19/20 Plenary Talk at the Applied Late-Stage Functionalization: Where Chemistry Meets Biology Symposium, Manchester, UK "Catalytic Regioselective Functionalization of C-H Bonds"

577. 02/20/20 Merck Lectureship at University of Cambridge, Cambridge, UK "Selective Catalytic Functionalization of C-H Bonds"

578. 10/22/20 Boehringer-Ingelheim Lecture at University of California Los Angeles, CA, “Selective Catalytic Functionalization of C-H Bonds” (via Zoom meeting)

579. 10/26/20 The Plastic Seminar at Institute for Integrated Catalysis, Pacific Northwest National Laboratory, Richland, WA, “Upgrading Polyolefins by C-H Bond Functionalization” (via Zoom meeting)

580. 04/20/21 Organic Seminar, Department of Chemistry, University of California, Berkeley, “Understanding for Design: Selective Catalytic Reactions of C-H and N-H Bonds” (via Zoom meeting)

581. 05/19/21 Biogen Med Chem Seminar at Biogen, Massachusetts, MA “Selective, Catalytic Functionalization Reactions” (via Zoom meeting)

582. 05/22/21 Department of Chemistry, Nankai University, Tianjin, China, “Selective, Catalytic Functionalization Reactions” (via Zoom meeting)

583. 07/30/21 Amgen Scholars Program at the University of California, Berkeley, CA, “Accelerating Chemical Synthesis with Catalysis” (via Zoom meeting)

584. 08/24/21 The 262nd American Chemical Society National Meetings, Atlanta, GA “Artificial metalloenzymes and biosynthesis with artificial metalloenzymes”

585. 09/08/21 Department of Chemistry and Chemical Engineering, Lahore University of Management Sciences, Lahore, Pakistan, "Accelerating Chemical Synthesis with Catalysis" (via Zoom meeting)

586. 09/14/21 Plenary Lecture at the Eli Lilly Symposium "Selective, Catalytic Functionalization of C-C and C-H Bonds" (via Zoom meeting)

587. 09/20/21 Mitsubishi, Japan “Selective, Catalytic Functionalization Reactions” (via Zoom meeting)

588. 10/09/21 Modern Organic Synthesis Symposium in honor of Janusz Jurczak, Warsaw, Poland, “Selective, Catalytic Functionalization Reactions” (via Zoom meeting)

589. 10/29/21 The 2nd World Laureates Association Mobius Forum Session, China, “Addressing Human and Planetary Needs with Chemical Synthesis” (via Zoom meeting)

590. 11/11/21 Department of Chemistry, Texas A&M, College Station, TX, “Selective, Catalytic Functionalization Reactions” (via Zoom meeting)

591. 12/16/21 The 2021 International Chemical Congress of Pacific Basin Societies, Honolulu, HI, “Catalytic Functionalization of Alkyl and Aryl C-H Bonds with Borane n Silane Reagents” (via Zoom meeting)

592. 12/17/21 The 2021 International Chemical Congress of Pacific Basin Societies, Honolulu, HI, “Multicomponent Chemical and Biocatalytic Systems” (via Zoom meeting)

593. 12/17/21 The 2021 International Chemical Congress of Pacific Basin Societies, Honolulu, HI, “Discovery and Mechanistic Analysis of Metal-Catalyzed Enantioselective Fluoroalkylation Reactions” (via Zoom meeting)

594. 01/07/22 Department of Chemistry, Nankai University, Tianjin, China, "Selective Abiotic Reactions Catalyzed by Natural and Unnatural Metalloenzymes in vitro and in vivo" (via Zoom meeting)

595. 01/17/22 Plenary Lecturer at the 25th Winter Fluorine Conference, Clearwater Beach, FL, "Metal-Catalyzed Coupling Reactions of Fluoroalkyl Groups"

596. 01/27/22 Department of Chemistry and Biochemistry, Northern Arizona University, "Changing Chemical Synthesis with Catalysis" (via Zoom meeting)

597. 02/03/22 Department of Chemistry, University of North Carolina, Chapel Hill, NC, "Functionalization and Cleavage of Existing and New Polymers" (via Zoom meeting)

598. 03/10/22 Plenary Lecture at the 8th Latin American Symposium on Coordination and Organometallic Chemistry (SILQCOM8), "Selective Catalytic Functionalization of C-H Bonds" (online)

599. 03/22/22 The American Chemical Society National Meetings Spring 2022, San Diego, CA, "Organometallic catalysis in cells: From artificial enzymes to artificial biosynthesis"

600. 03/22/22 The American Chemical Society National Meetings Spring 2022, San Diego, CA, "Catalytic upcycling of polyolefins by C-H bond functionalization"

601. 03/22/22 The American Chemical Society National Meetings Spring 2022, San Diego, CA, "The Inorganic Chemistry of Synthetic Methods"

602. 03/22/22 The American Chemical Society National Meetings Spring 2022, San Diego, CA, "Catalyst Discovery and Development for Synthetic Methods"

603. 05/12/22 Julius Stieglitz Lecturer, Department of Chemistry, the University of Chicago, Chicago, IL, "Catalytic Functionalization Reactions by Organometallic Catalysts in a Flask and in a Cell"

604. 05/24/22 Emanuel Merck Lectureship, University of Darmstadt, Germany, "Catalyzing Organic Synthesis"

605. 05/25/22 Emanuel Merck Lectureship, Merck KAaG, Darmstadt, Germany, "Transporting Laboratory Chemistry into Proteins...inside Cells...into Biosynthesis"

606. 05/26/22 Emanuel Merck Lectureship, University of Darmstadt, Germany, University of Darmstadt, Germany, "One Perspective on Career Paths and Project Choice"

607. 06/28/22 Plenary Lecture at the 38th Reunion BIENAL, Granada, Spain, "Selective Catalytic Functionalization of C-H and C-C Bond"

608. 07/01/22 Department of Chemistry, Institute of Chemical Research of Catalonia (ICIQ), Tarragona, Spain, "Catalytic Functionalization Reactions by Organometallic Catalysts in a Flask and in a Cell"

609. 08/21/22 The American Chemical Society National Meetings Fall 2022, Chicago, IL, "Catalytic functionalization of alkyl and aryl C-H bonds with borane and silane Reagents"

610. 08/23/22 The American Chemical Society National Meetings Fall 2022, Chicago, IL, "Catalytic Upcycling of Polyolefins by C-H Bond Functionalization."

611. 09/14/22 The 2022 Ibers Lecturer, University of Northwestern, Evanston, IL, "The (unexpected) Inorganic Chemistry of Cross Coupling to Form Carbon-Heteroatom Bonds."

612. 09/15/22 The 2022 Ibers Lecturer, University of Northwestern, Evanston, IL, "Complexes with Metal-Boron and -Silicon Bonds for the Selective Functionalization of C-H Bonds."

613. 09/16/22 The 2022 Ibers Lecturer, University of Northwestern, Evanston, IL, "Laboratory Organometallic Chemistry in a Protein…in a Cell…in Artificial Biosynthesis."

614. 10/03/22 The 2022 Kirkwood Award Lecturer, Yale University, New Haven, CT, "Catalyzing Organic Synthesis."

615. 10/11/22 The Next Generation Materials Scientists Webinar Series, Institute of Materials Research and Engineering (IMRE), Singapore, "Polymer Upcycling by C-H Bond Functionalization."

616. 11/02/22 The 15th International Symposium on Organic Reactions, National Chung Hsing University, Taichung, Taiwan, "Catalytic Regioselective Functionalization of C-H Bonds."

617. 12/09/22 The Sir Geoffrey Wilkinson Annual Lecture, Imperial College, London, England, "Catalyzing Organic Synthesis."

618. 12/12/22 Plenary Speaker at the Singapore International Chemistry Conference (SICC), Singapore, "Selective Catalytic Functionalization of C-H and C-C Bonds."

619. 01/10/23 The 2nd Akira Suzuki Award Recipient and Lecturer, Hokkaido University, Hokkaido, Japan, "Catalyzing Organic Synthesis." (online).

620. 01/12/23 Merck & Co., Inc., Kenilworth, NJ, "Catalytic Substitution and C-H Bond Functionalizations."

621. 03/26/23 The American Chemical Society National Meetings Spring 2023, Indianapolis, IN "Mechanistic studies of aryl halide amination catalyzed by first-row mental complexes."

622. 05/03/23 The 2023 Phillips Lecturer, University of Pittsburgh, PA, "Catalyzing Organic Synthesis."

623. 05/04/23 The 2023 Phillips Lecturer, University of Pittsburgh, PA, "(Unexpected) Mechanisms of Carbon-Heteroatom Couplings with First-Row Metal Catalysts."

624. 05/05/23 The 2023 Ojima Distinguished Lecturer, State University of New York, Stony Brook, NY "Catalyzing Organic Synthesis."

625. 05/25/23 (Virtual Seminar) Opportunities and Challenges in C-H Activation (OCCHA 2023), "Catalytic, Undirected Functionalization of Alkyl C-H Bonds"

626. 06/11/23 The 2023 Shanghai Carbon Neutrality Science Forum, Shanghai, China, "A More Circular Plastics Economy"

627. 07/10/23 The 2023 Plastics Recycling and Upcycling, Gordon Research Conference, Southern New Hampshire University, Manchester, NH "Catalytic Functionalization and Deconstruction of Polyolefins"

628. 07/25/23 International Symposium on Carbene and Nitrene Chemistry University of Amsterdam, Nederland, "Selective Abiotic Carbene Transfers Catalyzed Natural and Unnatural Metalloenzymes in vitro and in vivo"

629. 08/13/23 The American Chemical Society National Meetings Fall 2023, San Francisco, CA "Deconstruction of polyethylene enabled by selective C-H bond functionalization"

630. 08/13/23 The American Chemical Society National Meetings Fall 2023, San Francisco, CA "Transition metal-catalyzed fluoroalkylation reactions"

631. 08/15/23 The American Chemical Society National Meetings Fall 2023, San Francisco, CA "C-H bond functionalization of polyolefins to create new materials"

632. 09/14/23 University of Science and Technology of China, Hefei, China "Catalyzing organic synthesis"

633. 09/15/23 College of Chemistry and Molecular Sciences, Wuhan University, China "Catalyzing organic synthesis"

634. 10/04/23 The 2023 Sven Berggren Prize, the Royal Physiographic Society, Lund, Sweden "Catalyzing Chemical Synthesis"

635. 11/06/23 The 6th World Laureates Forum, Shanghai, China, "Laboratory Chemistry in a Cell for Artificial Biosynthesis"

636. 11/14/23 The Frank J. Welcher Lecture at IUPUI, Indianapolis, IN, "(unexpected) Organometallic Chemistry of Cross Coupling to Form Carbon-Heteroatom Bonds"

637. 11/15/23 The Frank J. Welcher Lecture at IUPUI, Indianapolis, IN, Catalyzing Organic Synthesis"

638. 12/04/23 The Gilbert Stork Lectures at the University of Wisconsin, Madison, WI, "Selective Catalytic Functionalizations of C-H and C=C Bonds"

639. 12/05/23 The Gilbert Stork Lectures at the University of Wisconsin, Madison, WI, "Catalytic Functionalization and Deconstruction of Polyolefins"

640. 01/30/24 Organic Chemistry Seminar at Pacific University, Stockton, CA, "Catalyzing Organic Synthesis"

641. 02/26/24 Myron Rosenblum Lecture/Brandeis Colloquium at Brandeis University, Waltham, MA, "Catalytic Functionalization of C-H and C=C bonds in Small and Large Molecules by Small and Large Catalysts"

Ph.D. Theses:

1. Driver, Michael S. 1997. “Late Transition Metal Amido and Pyrrolyl Complexes: Reductive Eliminations, Nitrogen-Hydrogen Bond Activations, and Catalytic Aminations,” Ph.D. dissertation, Yale University, New Haven, CT.

2. Louie, Janis. 1998. “Palladium-Catalyzed Aryl Amination: Mechanism, Methodology, and Synthetic Applications,” Ph.D. dissertation, Yale University, New Haven, CT.

3. Mann, Grace. 1999. “Palladium-Mediated C-S, C-N, and C-O Bond Formation: Reductive Elimination and Catalytic Reactions,” Ph.D. dissertation, Yale University, New Haven, CT.

4. Muhoro, Clare N. 1999. “Titanocene Borane Sigma Complexes and the Catalytic Hydroboration of Alkenes and Alkynes by Titanium(II) Complexes,” Ph.D. dissertation, Yale University, New Haven, CT.

5. Waltz, Karen M. 2000. “Functionalization of Hydrocarbons by Transition-Metal Boryl Complexes,” Ph.D. dissertation, Yale University, New Haven, CT.

6. Alcazar-Roman, Luis. 2001. “Mechanism of the Palladium-Catalyzed Amination of Aryl Halides: Kinetic Studies of the Oxidative Addition of Aryl Halides and Sulfonates to Phosphine Complexes of Pd(0) and of the Catalytic Reaction of Amines with Aryl Halides and Base,” Ph.D. dissertation, Yale University, New Haven, CT.

7. Anastasi, Natia. 2002. “Borylation of Arenes Catalyzed by Transition Metal Complexes,” Ph.D. dissertation, Yale University, New Haven, CT.

8. Roy, Amy H. 2003. “Oxidative Addition of Aryl Halides and Sulfonates to Palladium(0) and Reductive Elimination of Aryl Halides and Diaryl Ethers from Palladium(II): Mechanistic Investigation and Synthetic Applications,” Ph.D. dissertation, Yale University, New Haven, CT.

9. Stambuli, James P. 2003. “Discovery and Development of transition Metal Catalysts for Carbon-Carbon and Carbon-Heteroatom Bond Formation: Isolation and Reactivity of Catalytic Intermediates,” Ph.D. dissertation, Yale University, New Haven, CT.

10. Krug, Christopher P. 2004. “Novel Insertion Reactions of Aldehydes, Imines and Alkenes of Aryl Amido Complexes of Rhodium(I) and Nickel(II),” Ph.D. dissertation, Yale University, New Haven, CT.

11. Culkin, Darcy A. 2004. “Synthesis and Reactivity of Palladium Complexes of Functionalized Alkyls. Selection of Catalysts for the alpha-Arylation of Nitriles and Amides,” Ph.D. dissertation, Yale University, New Haven, CT.

12. Zhao, Jing. 2004. “Beta-Hydrogen Elimination from Late Transition Metal Alkoxide Complexes, N-H Bond Forming Reductive Elimination, and N-H Oxidative Addition to Late Transition Metal Complexes,” Ph.D. dissertation, Yale University, New Haven, CT.

13. Shekar, Shashank. 2006. “Understanding the Mechanisms of Carbon-Carbon and Carbon-Nitrogen Bond Forming Processes in Catalytic Reactions.” Ph.D. dissertation, Yale University, New Haven, CT.

14. Shen, Qilong. December 2007. “A Highly Reactive, General, and Long-Lived Catalyst for Palladium-Catalyzed Amination of Heteroaryl and Aryl Halides.” Ph.D. dissertation, Yale University, New Haven, CT.

15. Barrios-Landeros, Fabiola. 2007. “Oxidative Addition of Haloarenes by Pd(O) Complexes of Bulky Alkyl Phosphines: Synthesis of Intermediates and Mechanistic Studies.” Ph.D. dissertation, Yale University, New Haven, CT.

16. Johns, Adam M. 2007. “Advances in Palladium-Catalyzed Hydroamination: Improvements in Rates, Scope, and Regioselectivity, Thermodynamic Measurements, and Mechanistic Investigations.” Ph.D. dissertation, Yale University, New Haven, CT.

17. Murphy, Jaclyn M. May 2009. “The Synthesis of Organoboron Compounds by Metal-Catalyzed C-H Borylation of Alkanes and Arenes.” Ph.D. dissertation, Yale University, New Haven, CT.

18. Pouy, Mark P. October 2009. “Studies on Iridium-Catalyzed Allylic Substitution.” Ph.D. dissertation, Yale University, New Haven, CT.

19. Vo, Giang D. September 2010. “Development and Mechanistic Investigation of the Palladium-Catalyzed α-Arylation of Aldehydes and *N*-Arylation of Ammonia.” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

20. Carrow, Brad P. January 2011. “Mechanistic Studies on Palladium-Catalyzed Coupling Reactions.” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

21. Marquard, Seth September 2011. “Reductive Elimination to Form sp^3-C-N Bonds” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

22. Klinkenberg, Jessica May 2012. “Palladium-Catalyzed Reactions of Ammonia, Carbon Monoxide, and Ammonia” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

23. Robbins, Daniel June 2012. “New Methodologies and Approaches to Reaction Discovery in Transition Metal Catalysis” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

24. Madrahimov, Sherzod June 2012. “Mechanistic studies on iridium catalyzed allylic substitution” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

25. Hanley, Patrick November 2012. “New Carbon-Nitrogen Bond-Forming Reactions of Palladium” Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

26. Tan, Yichen January 2013. “Palladium-Catalyzed Direct Functionalization of Aromatic C-H Bonds: Development of Methods for Direct Amination and Mechanistic Studies of Direct

Arylation of Benzene and Pyridine N-Oxide" Ph.D. dissertation, University of California, Berkeley, CA.

27. Richers, Casseday April 2013. "The Effects of Ancillary Ligand Properties on the Reactions of Rhodium Diphosphine Alkoxo Alkene Complexes" Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

28. Liskey, Carl May 2013. "Iridium-Catalyzed Borylation of Aromatic and Aliphatic C-H Bonds: Methodology and Mechanism" Ph.D. dissertation, University of Illinois at Urbana-Champaign, IL.

29. Sevov, Christo May 2014. "Iridium-Catalyzed Reactions of C–H, N–H, and O–H Bonds with Alkenes: Methodologies and Mechanisms" Ph.D. dissertation, University of California, Berkeley, CA.

30. Fier, Patrick S. December 2014. "Transition-Metal Mediated Fluorination and Fluoroalkylation Reactions" Ph.D. dissertation, the University of California, Berkeley, CA.

31. Strom, Alexandra E. August 2015. "Synthetic and Mechanistic Studies of Transition Metal-Mediated Carbon-Nitrogen Bond Forming Reactions" Ph.D. dissertation, the University of California, Berkeley, CA.

32. Green, Rebecca February 2016. "Nickel- and Palladium-Catalyzed Cross-Coupling Reactions: Reaction Development and Mechanistic Studies" Ph.D. dissertation, University of California, Berkeley, CA.

33. Key, Hanna E. August 2016. "Synthesis, Characterization, and Stoichiometric and Catalytic Reactivity of Metalloproteins Binding Noble Metals in Place of Native Metals" Ph.D. dissertation, the University of California, Berkeley, CA.

34. Larsen, Matthew May 2017. "Iridium-Catalyzed Borylation of C-H Bonds" Ph.D. dissertation, the University of California, Berkeley, CA.

35. Cheng, Chen May 2017. "Catalytic Silylation of C-H Bonds: Reaction Development, Mechanism, and Applications and Development of Degradable Polymers from Biorenewable Sources" Ph.D. dissertation, the University of California, Berkeley, CA.

36. Mormino, Michael May 2017. "Development of Transition Metal-Catalyzed Fluoroalkylation Reactions of Aryl Electrophiles" Ph.D. dissertation, the University of California, Berkeley, CA.

37. Litman, Zachary May 2017. "Palladium-Catalyzed C-H Oxidation Reactions and Cooperative Catalytic Reactions" Ph.D. dissertation, the University of California, Berkeley, CA.

38. Peacock, David M. May 2017. "Palladium-Mediated Formation of Alkyl-Nitrogen Bonds" Ph.D. dissertation, University of California, Berkeley, CA.

39. Hill, Christopher August 2018. “Discovery of Ruthenium Tris-phosphine Complexes for Poly-alcohol Functionalization and Alkene Hydroamination” Ph.D. dissertation, University of California, Berkeley, CA.

40. Arlow, Sophie May 2018. “The Development of Transition Metal-Catalyzed Fluoroalkylation and Fluoroenolate Arylation Reactions” Ph.D. dissertation, University of California, Berkeley, CA.

41. Lee, Taegyo May 2018. “Transition Metal-Catalyzed Enantioselective Silylation of C–H Bonds: Reaction Development and Mechanistic Studies” Ph.D. dissertation, University of California, Berkeley, CA.

42. Jiang, Xingyu December 2018. “Iridium-Catalyzed Asymmetric Allylic Substitution Reactions with Unstabilized Enolates and Prochiral Enolates” Ph.D. dissertation, University of California, Berkeley, CA.

43. Xi, Yumeng December 2019. “Development of Transition-Metal Catalysts for Selective Hydrofunctionalization of Unactivated Alkenes” Ph.D. dissertation, University of California, Berkeley, CA.

44. Saper, Noam May 2020. “Activation and Functionalization of Strong Bonds with *N*-Heterocyclic Carbene-Ligated Nickel Catalysts” Ph.D. dissertation, the University of California, Berkeley, CA.

45. Wang, Justin May 2020 “Mechanistic Studies of Pd-catalyzed C-N Bond Forming Reactions” Ph.D. dissertation, the University of California, Berkeley, CA.

46. Karmel, Caleb May 2020 “Selective Silylation of Aromatic and Aliphatic C–H Bonds” Ph.D. dissertation, the University of California, Berkeley, CA.

47. Liu, Zhennan December 2020 “In vivo assembly and evolution of artificial metalloenzymes towards new-to-nature metabolism” Ph.D. dissertation, the University of California, Berkeley, CA.

48. Butcher, Trevor May 2021 “Transition-Metal Catalyzed Asymmetric Fluoroalkylation and C–F Activation” Ph.D. dissertation, the University of California, Berkeley, CA.

49. Hanna, Steven August 2021 “Tandem Catalytic Processes Involving Olefins” Ph.D. dissertation, University of California, Berkeley, CA.

50. Kalkman, Eric May 2022 “Investigations into the Reactivities of Transition Metal Fluoroalkyl Complexes for the Formation of Fluoroalkylarenes” Ph.D. dissertation, the University of California, Berkeley, CA.

51. Ma, Senjie May 2023 “Development of Late Transition Metal Catalysts for the Hydroamination of Unactivated Alkenes” Ph.D. dissertation, the University of California, Berkeley, CA.

52. Qiu, Yehao May 2023 "Formation of C–O and C–C Bonds Catalyzed by Transition Metal Complexes" Ph.D. dissertation, the University of California, Berkeley, CA.

53. Bloomer, Brandon May 2023 "Development of Generalizable Platforms for the Mechanistic Investigation and Whole Cell Directed Evolution of Iridium-Containing Cytochromes" Ph.D. dissertation, the University of California, Berkeley, CA.

54. Chen, Rei Chi May 2023 "Development of Natural and Unnatural Metalloproteins for Abiotic Catalysis" Ph.D. dissertation, the University of California, Berkeley, CA.

Publications: (over 98,206 citations and current h-index of 174 by Google Scholar)

1. Hartwig, J.F.; Jones, M. Jr; Moss, R.A.; Lawrynowicz, W. "A Photochemical Source of Dibromo- and Dichlorocarbene. A Cautionary Tale Regarding the Stereochemistry of Dibromocarbene Addition Reactions" *Tetrahedron Lett.* **1986**, *27*, 5907.
2. Sato, T.; Konosu, M.; Hartwig, J.F. "Adsorption of Butachlor to Soils" *J. Agric. and Food Chem.* **1987**, *35*, 397.
3. Hartwig, J.F.; Andersen, R.A.; Bergman, R.G. "Synthesis of a Highly Reactive (Benzyne)ruthenium Complex: C-C, C-H, N-H, and O-H Activation Reactions" *J. Am. Chem. Soc.* **1989**, *111*, 2717.
4. Hartwig, J.F.; Bergman, R.G.; Andersen, R.A. "Mechanism of the Carbon-Carbon Cleavage of Acetone by the Ruthenium Benzyne Complex (PM3)4Ru(h2-C6H4): Formation and Reactivity of an Oxametallacyclobutane Complex" *J. Am. Chem. Soc.* **1990**, *112*, 3432.
5. Hartwig, J.F.; Andersen, R.G.; Bergman, R.G. "Synthesis of Ruthenium Enolate (PMe3)4Ru(Me)(OC(CH2)Me) as an Equilibrium Mixture of Oxygen- and Carbon-Bound Transition-Metal Enolates. Thermal Elimination of Methane to Form an h4-oxatrimethylenemethane complex." *J. Am. Chem. Soc.* **1990**, *112*, 5670-5671.
6. Hartwig, J.F.; Andersen, R.A.; Bergman, R.G. "A Phosphorus-Carbon Bond Cleavage Reaction of Ruthenium Coordinated Trimethylphosphine in (PMe3)4Ru(OC6H4Me)2" *J. Organomet. Chem.* **1990**, *394*, 417. F.G.A. Stone Anniversary Issue.
7. Hartwig, J.F.; Bergman, R.G.; Andersen, R.A. "Structure, Synthesis, and Chemistry of Ruthenium Complex (PMe3)4Ru(eta2-Benzyne). Reactions with Arenes, Alkenes, and Heteroatom-Containing Organic Compounds. Synthesis and Structure of a Monomeric Hydroxide Complex." *J. Am. Chem. Soc.* **1991**, *113*, 3404.
8. Hartwig, J.F.; Andersen, R.A.; Bergman, R.G. "Synthesis and Chemistry of Ruthenium Hydrido Aryloxides and Arylamides. An Investigation of Structure, Nitrogen-Hydrogen and Oxygen-Hydrogen Elimination Processes, Proton-Catalyzed Exchange Reactions, and Relative Ru-X Bond Strengths." *Organometallics* **1991**, *10*, 1875.
9. Hartwig, J.F.; Andersen, R.A.; Bergman, R.G. "Alkyl, Aryl, Hydrido, and Acetate Complexes of (DMPM)2Ru [DMPM=*bis*(dimethylphosphino)methane]: Reductive Elimination and Oxidative Addition of Carbon-Hydrogen Bonds." *Organometallics* **1991**, *10*, 1710.
10. Hartwig, J.F.; Andersen, R.A.; Bergman, R.G. "Inter- and Intramolecular C-H Bond Forming and Cleavage Reactivity of Two Different Types of Poly(trimethylphosphine)-ruthenium Intermediates." *J. Am. Chem. Soc.* **1991**, *113*, 6492.

11. Hartwig, J.F.; Bergman, R.G.; Andersen, R.A. “Insertion Reactions of CO and CO2 with Ruthenium Benzyl Arylamido, and Aryloxide Complexes: A Comparison of the Reactivity of Ruthenium-Carbon, Ruthenium-Nitrogen, and Ruthenium-Oxygen Bonds.” *J. Am. Chem. Soc.* **1991**, *113*, 6499.

12. Hartwig, J.F.; Bergman, R.G.; Andersen, R.A. “Oxygen- and Carbon-Bound Ruthenium Enolates: Migratory Insertion, Reductive Elimination, β-Hydrogen Elimination, and Cyclometallation Reactions.” *Organometallics* **1991**, *10*, 3326.

13. Hartwig, J.F.; Bergman, R.G.; Andersen, R.A. “Structure and Reactions of Oxametallacyclobutanes and Oxometallocyclobutenes of Ruthenium.” *Organometallics* **1991**, *10*, 3344.

14. Hartwig, J.F.; Lippard, S.J. “DNA Binding Properties of [Pt(NH3)(C6H11NH2)(Cl)2], a Metabolite of an Orally Active Platinum Anticancer Drug” *J. Am. Chem. Soc.* **1992**, *114*, 5646.

15. Hartwig, J.F.; Pil, P.M.; Lippard, S.J. “Synthesis and DNA Binding Properties of a Cisplatin Analogue Containing a Tethered Dansyl Group” *J. Am. Chem. Soc.* **1992**, *114*, 8292-8293.

16. Burn, M.J.; Fickes, M.G.; Hartwig, J.F.; Hollander, F.J.; Bergman, R.G. “Synthesis of Monomeric Ruthenium Hydroxo Complexes $(PMe_3)_4Ru(R)(OH)$ (R=H, Me) and a Unique Dimeric Ruthenium Hydroxo Water Complex [*trans*-$Ru(H)(OH)(DMPE)_2 \cdot H_2O]_2$” *J. Am. Chem. Soc.* **1993**, *115*, 5875-5876.

17. Hartwig, J.F.; Huber, S. “Transition Metal Boryl Complexes: Structure and Reactivity of CpFe(CO)2Bcat and $CpFe(CO)_2BPh_2$” *J. Am. Chem. Soc.* **1993**, *115*, 4908.

18. Hartwig, J.F.; Bhandari, S. “Addition of Catecholborane to a Ruthenium-Alkyl: Evidence for ∫̇-Bond Metathesis with a Low Valent, Late Transition Metal” *J. Am. Chem. Soc.* **1994**, *116*, 1839.

19. Hartwig, J.F.; Huber, S. “A Continuum Resulting from Equilibrium between Two Structural Extremes in Tungstenocene and Niobocene Boryl and Hydridoborate Complexes. pi-Bonding in a d^2 Boryl System and the First d^0 Boryl Complex” *J. Am. Chem. Soc.* **1994**, *116*, 3661.

20. Rablen, P.D; Hartwig, J.F.; Nolan, S.P. “First Transition Metal-Boron Bond Energy and Quantitation of Large Differences in Sequential BDEs in Boranes” *J. Am. Chem. Soc.* **1994**, *116*, 4121.

21. Paul, F.; Patt, J.; Hartwig, J.F. “Palladium-Catalyzed Formation of Carbon-Nitrogen Bonds. Reaction Intermediates and Catalyst Improvements in the Hetero Cross-Coupling of Aryl halides and Tin Amides” *J. Am. Chem. Soc.* **1994**, *116*, 5969.

22. Barañano, D.; Hartwig, J.F. “Carbon-Heteroatom Reductive Elimination: Mechanism and Electronic Effects” *J. Am. Chem. Soc.* **1995**, *117*, 2937.

23. Driver, M.S.; Hartwig, J.F. “A Rare Low Valent Alkylamido Complex, a Diphenylamido Complex and Their Reductive Elimination of Amines by Three-Coordinate Intermediates” *J. Am. Chem. Soc.* **1995**, *117*, 4708.

24. Paul, F.; Patt, J.; Hartwig, J.F. “Structural Characterization and Simple Synthesis of Bis-*o*-Tolylphosphine Palladium(0). Spectroscopic and Structural Characterization of the Dimeric

Palladium(II) Complexes Obtained by Oxidative Addition of Aryl Bromides and their Reactivity with Amines" *Organometallics* **1995**, *14,* 3030.

25. Hartwig, J.F; Paul, F. "Dissociative Oxidative Addition of Aryl Bromides with 14-electron Bis-*o*-Tolylphosphine Palladium(0)" *J. Am. Chem. Soc.* **1995***, 117*, 5373.
26. Louie, J.; Hartwig, J.F. "Synthesis of Arylamines from Aryl Halides: Mechanistic Studies Lead to Coupling in the Absence of Tin" *Tetrahedron Lett.* **1995**, *36*, 3609.
27. He, X.; Hartwig, J.F. "Boryls of the Classic Iron Carbonyl System. The First Anionic Boryl Complex, a Rare Bis-Boryl Complex, and Their Structural and Reaction Chemistry," *Organometallics* **1995**, *15*, 400.
28. Louie, J.; Hartwig, J.F. "Transmetalation involving Organotin Aryl, Thiolate, and Amides. An Unusual Type of Dissociative Ligand Substitution Reaction" *J. Am. Chem. Soc.* **1995**, *117*, 11598.
29. Hartwig, J.F.; Waltz, K.; He, X.; Muhoro, C. "Hydrocarbon Functionalization by Transition Metal-Boryls" *J. Am. Chem. Soc.* **1995**, *117*, 11357.
30. He, X.; Hartwig, J.F. "True Catalytic Hydroboration with Titanium" *J. Am. Chem. Soc.* **1996**, *118*, 1696.
31. Hartwig, J.F.; He, X. "Reaction Chemistry of Tungstenocene with B-B and B-H vs. C-H Bonds" *Angew. Chem.*, *Int. Ed. Engl.* **1996**, *35*, 315.
32. Paul, F.; Louie, J.; Hartwig, J.F. "Catalysis with Platinum-Group Alkylamido Complexes. Identification of the Active Palladium Amide in Catalytic Aryl Halide Aminations" *Organometallics* **1996**, *15*, 2794-3005.
33. Hartwig, J.F.; Richards, S.; Barañano, D.; Paul, F. "Origins of Competing Reduction in the Amination of Aryl Halides. Two Pathways to Reduction and Factors Affecting Reductive Elimination vs. beta-Hydrogen Elimination" *J. Am. Chem. Soc.* **1996**, *118*, 3626.
34. Driver, M.S.; Hartwig, J.F. "N-H Activation of Alkylamines by a Late Transition Metal Complex: Thermodynamics, Reaction Mechanism, and Chemistry of Amido Complexes with □-Hydrogens," *J. Am. Chem. Soc.* **1996***, 118,* 4206.
35. Rablen, P.D; Hartwig, J.F. "Accurate Sequential Borane Bond Dissociation Energies by High Level ab Initio Computational Methods" *J. Am. Chem. Soc.* **1996***, 118,* 4648.
36. Driver, M.S.; Hartwig, J.F. "A Second Generation Catalyst for Aryl Halide Amination: Mixed Secondary Amines from Aryl Halides and Primary Amines Catalyzed by (DPPF)PdCl2" *J. Am. Chem. Soc.* **1996**, *118*, 7217.
37. Hartwig, J.F.; He, X; Muhoro, C.N.; Eisenstein, O; Bosque, R; Maseras, F. "Catecholborane Bound to Titanocene. Unusual Coordination of an X-H Sigma Bond" *J. Am. Chem. Soc*. **1996**, *118*, 10936.
38. Louie, J; Hartwig, J.F. "A Route To Pd(0) From Pd(II) Metallacycles in Amination and Cross-Coupling Chemistry" *Angew. Chem., Int. Ed. Engl*. **1996**, *35*, 2362.
39. Hartwig, J.F. "Palladium-Catalyzed Amination of Aryl Halides: Mechanism and Rational Catalyst Design" *Synlett* invited account **1997**, 329-340.

40. Hartwig, J.F. “Directly-Observed beta-Hydrogen Elimination from a Late Transition Metal Amido Complex and Unusual Fate of the Imine Byproduct” *J. Am. Chem. Soc.* **1996**, *118*, 7010.

41. Hartwig, J.F.; He, X. “Structural and Reaction Chemistry of Tungstenocene Boryl Complexes” *Organometallics* **1996**, *15*, 5350.

42. Hartwig, J. F.; Waltz, K. M.; Muhoro, C. N. “Hydrocarbon Functionalization by Late Metal Boryls and Chemistry of Titanocene-Bound Catecholborane” *Advances in Boron Chemistry*; W. Siebert, Ed.; The Royal Society of Chemistry, Cambridge **1997**, 373-380.

43. Louie, J.; Driver, M.S.; Hamann, B.C.; Hartwig, J.F. “Palladium-Catalyzed Amination of Aryl Triflates and the Importance of Triflate Addition Rate” *J. Org. Chem.* **1997**, *62*, 1268-1273.

44. Mann, G.; Hartwig, J.F. “Palladium Alkoxides: Potential Intermediacy in Catalytic Amination, Reductive Elimination of Ethers, and Catalytic Etheration. Comments on Alcohol Elimination from Ir(III)” *J. Am. Chem. Soc.* **1996**, *118,* 13109.

45. Mann, G.; Hartwig, J.F. “Nickel- vs. Palladium-Catalyzed Synthesis of Protected Phenols from Aryl Halides” *J. Org. Chem.* **1997**, *62*, 5413-5418.

46. Barañano, D; Mann, G.; Hartwig, J.F. “Nickel and Palladium-Catalyzed Cross-Coupling Processes that Form Carbon-Heteroatom and Carbon-Element Bonds” invited review, *Curr. Org. Chem.* **1997**, *1*, 287-325.

47. Muhoro, C.N; Hartwig, J.F. “Synthesis, Structure, and Reactivity Studies of Cp2Ti(HBcat)(PMe3): A Monoborane□-Complex” *Angew. Chem., Int. Ed. Engl.* **1997**, *36*, 1510-1512.

48. Waltz, K.M.; Hartwig, J.F. “Selective Functionalization of Alkanes by Transition-Metal Boryl Complexes” *Science* **1997**, *277*, 211.

49. Driver, M.S.; Hartwig, J.F. “Carbon-Nitrogen Bond-Forming Reductive Elimination of Arylamines from Pd(II)” *J. Am. Chem. Soc.* **1997**, *119*, 8232-8245.

50. Mann, G; Hartwig, J.F. “Palladium-Catalyzed Formation of Diaryl Ethers from Aryl Bromides. Electron Poor Phosphines enhance Reaction Yields” *Tetrahedron Lett.* **1997**, *38*, 8005-8008.

51. Louie, J.; Hartwig, J.F. “Discrete High Molecular Weight Triarylamine Dendrimers Prepared by Palladium-Catalyzed Amination” *J. Am. Chem. Soc.* **1997**, *119*, 11695-11696.

52. Driver, M.S.; Hartwig, J.F. “Energetics and Mechanism of Alkylamine N-H Bond Cleavage by Palladium Hydroxides: N-H Activation by Unusual Acid-Base Chemistry” *Organometallics* **1997**, *16*, 5706.

53. Hamann, B.C.; Hartwig, J.F. “Palladium-Catalyzed Direct **r**-Arylation of Ketones. Rate Acceleration by Sterically Hindered Chelating Ligands and Reductive Elimination from a Transition Metal Enolate Complex” *J. Am. Chem. Soc.* **1997**, *119*, 12382-12383.

54. Hamann, B.C.; Hartwig, J.F. “Systematic Variation of Bidentate ligands Used in Aryl Halide Amination. Unexpected Effects of Steric, Electronic and Geometric Perturbations” *J. Am. Chem. Soc.* **1998**, *120*, 3694-3703.

55. Hartwig, J.F. “Transition Metal-Catalyzed Synthesis of Arylamines and Aryl Ethers from Aryl Halides and Triflates: Scope and Mechanism” (Review) *Angew. Chem., Int. Ed. Engl.* **1998**, *37*, 2046-2067.

56. Mann, G.; Driver, M.S.; Fernández-Rivas, C.; Hartwig, J.F. "Palladium-Catalyzed C-N(sp^2) Bond Formation: *N*-Arylation of Aromatic and Unsaturated Nitrogen and the Reductive Elimination Chemistry of Palladium Azolyl and Methyleneamido Complexes" *J. Am. Chem. Soc.* **1998**, *120*, 827-828.

57. Goodson, F.E.; Hartwig, J.F. "Regiodefined Poly(*N*-arylaniline)s and Donor-Acceptor Copolymers *via* Palladium-Mediated Amination Chemistry" *Macromolecules* **1998**, *31*, 1700-1703.

58. Driver, M.S.; Hartwig, J.F. "Oxidative Addition and Reductive Elimination Reactions of *trans*-[Ir(PPh3)2(CO)(NC4H4)] and *trans, cis*-[Ir(PPh3)2(H)2(CO)(NC4H4)], Including N-H Bond-Forming Reductive Elimination of Pyrrole" *Organometallics* **1998**, *17*, 1134-1143.

59. Hartwig, J.F. "Synthesis, Structure and Reactions of a Palladium Hydrazonato Complex. A New Class of C-N Bond-Forming Reductive Elimination and the Catalytic Arylation of Benzophenone Hydrazone" *Angew. Chem., Int. Ed. Engl.* **1998**, *37*, 2090-2093.

60. Hamann, B.C.; Hartwig, J.F. "Sterically Hindered Chelating Alkyl Phosphines Provide Large Rate Accelerations in Palladium Catalyzed Amination of Aryl Iodides, Bromides, and Chlorides, and the First Amination of Aryl Tosylates" *J. Am. Chem. Soc.* **1998**, *120*, 7369-7370.

61. Louie, J.; Hartwig, J.F. "The Largest Discrete Oligo(*m*-Aniline). An Exponential Growth Strategy using Palladium-Catalyzed Amination of Aryl Sulfonates" *Macromolecules* **1998**, *31*, 6737-6739.

62. Hartwig, J.F. "Carbon-Heteroatom Bond-Forming Reductive Eliminations of Amines, Ethers, and Sulfides" *Acc. Chem. Res.* **1998**, *31*, 852-860.

63. Mann, G.; Barañano, D; Hartwig, J.F. "Carbon-Sulfur Bond-Forming Reductive Elimination Involving sp, sp^2, and sp^3-Hybridized Carbon. Mechanism, Steric Effects, and Electronic Effects on Sulfide Formation" *J. Am. Chem. Soc.* **1998**, *120*, 9205-9219.

64. Shaughnessy, K.H.; Hamann, B.C.; Hartwig, J.F. "Palladium Catalyzed Inter- and Intramolecular Arylation of Amides. Application of Intramolecular Amide Arylation to the Synthesis of Oxindoles" *J. Org. Chem.* **1998**, *63*, 6546-6543.

65. Shaughnessy, K.H.; Kim, P.; Hartwig, J.F. "A Fluorescence-Based Assay for High Throughput Screening of Coupling Reactions. Application to Heck Chemistry" *J. Am. Chem. Soc.* **1999**, *121*, 2123-2132.

66. Kawatsura, M.; Hartwig, J.F. "Simple, Highly Active Palladium Catalysts for Ketone and Malonate Arylation: Dissecting the Importance of Chelation and Steric Hindrance" *J. Am. Chem. Soc.,* **1999**, *121*, 1473-1478.

67. Mann, G.; Incarvito, C.; Rheingold, A.L.; Hartwig, J.F. "Palladium-Catalyzed C-O Coupling Involving Unactivated Aryl Halides. Sterically Induced Reductive Elimination to Form the C-O Bond in Diaryl Ethers" *J. Am. Chem. Soc.* **1999**, *121*, 3224-3225.

68. Muhoro, C.N.; He, X.; Hartwig, J.F. "Titanocene Borane -Complexes" *J. Am. Chem. Soc.* **1999**, *121*, 5033-5046.

69. Goodson, F.E.; Hauck, S.I.; Hartwig, J.F. "Palladium-Catalyzed Synthesis of Pure, Regiodefined Polymeric Triarylamines" *J. Am. Chem. Soc*. **1999**, *121*, 7527-7539.

70. Chen, H.; Hartwig, J.F. “Catalytic, Regiospecific, End-Functionalization of Alkanes. Rhenium-Catalyzed Borylation under Photochemical Conditions” *Angew. Chem.* **1999**, *38*, 3391-3393.

71. Hartwig, J.F.; Kawatsura, M.; Hauck, S.I.; Shaughnessy, K.H.; Alcazar-Roman, L.M. “Room Temperature Palladium-Catalyzed Amination of Aryl Bromides and Chlorides and Extended Scope of Aromatic C-N Bond Formation with a Commercial Ligand” *J. Org. Chem.* **1999**, *65*, 5575-5580.

72. Waltz, K.M.; Muhoro C.N.; Hartwig, J.F. “C-H Activation and Functionalization of Unsaturated Hydrocarbons by Transition-Metal Boryl Complexes” *Organometallics* **1999**, *18*, 3383-3393.

73. Hauck, S.I.; Lakshmi, K.V.; Hartwig, J.F. “Tetraazacyclophanes by Palladium-Catalyzed Aromatic Amination. Geometrically Defined, Stable, High-Spin Diradicals” *Org. Lett.* **1999**, *1*, 2057-26060.

74. Hartwig, J.F. “Approaches to catalyst discovery. New Carbon-Heteroatom and Carbon-Carbon Bond Formation” *Pure Appl. Chem.* **1999**, *71*, 1417.

75. Hartwig, J.F.; Muhoro, C.N. “Mechanistic Studies of Titanocene-Catalyzed Alkene and Alkyne Hydroboration: Borane Complexes as Catalytic Intermediates” *Organometallics* **2000**, *19*, 30-38.

76. Chen, H.; Schlecht, S.; Semple, T.C.; Hartwig, J.F. “Thermal, Regiospecific, Catalytic Functionalization of Alkanes” *Science* **2000**, *287*, 1995-1998.

77. Alcazar-Roman, L.M.; Hartwig JF, Rheingold, A.L., Liable-Sands, L.M., Guzei I.A. “Mechanistic Studies of the Palladium-Catalyzed Amination of Aryl Halides and the Oxidative Addition of Aryl Bromides to $Pd(BINAP)_2$ and $Pd(DPPF)_2$: An Unusual Case of Zero-Order Kinetic Behavior and Product Inhibition” *J. Am. Chem. Soc.* **2000**, *122*, 4618-4630.

78. Stauffer, S.R.; Lee, S.; Stambuli, J.P.; Hauck, S.I.; Hartwig, J.F. “High Turnover Number and Rapid, Room-Temperature Amination of Chloroarenes Using Saturated Carbene Ligands” *Org. Lett.* **2000**, *2*, 1423-1426.

79. Schlecht, S.; Hartwig, J.F. “sigma-Borane Complexes of Manganese and Rhenium” *J. Am. Chem. Soc.* **2000**, *122*, 9435-9443.

80. Kawatsura, M.; Hartwig, J.F. “Palladium-Catalyzed Intermolecular Hydroamination of Vinylarenes using Aromatic Amines” *J. Am. Chem. Soc.* **2000**, *122*, 9546-9547.

81. Shelby, Q.; Kataoka, N.; Mann, G.; Hartwig, J.F. “Unusual *in situ* Ligand Modification to Generate a Catalyst for Room Temperature Aromatic C-O Bond Formation” *J. Am. Chem. Soc*. **2000**, *122*, 10718-10719.

82. Ishiyama, T.; Hartwig, J.F. “A Heck-Type Reaction Involving Carbon-Heteroatom Double Bonds. Rhodium(I)-Catalyzed Coupling of Aryl Halides with *N*-Pyrazyl Aldimines” *J. Am. Chem. Soc.* **2000**, *122*, 12043-12044.

83. Waltz, K.M.; Hartwig, J.F. “Functionalization of Alkanes by Isolated Transition Metal Boryl Complexes” *J. Am. Chem. Soc.* **2000**, *122*, 11358-11369.

84. Stambuli, J.P.; Stauffer, S.I.; Shaughnessy, K.H.; Hartwig, J.F. “Screening of Homogeneous Catalysts by Fluorescence Resonance Energy Transfer. Identification of

Catalysts for Room Temperature Heck Reactions" *J. Am. Chem. Soc.* **2001**, *123*, 2677-2678.

85. Roy, A.H.; Hartwig, J.F. "Reductive Elimination of Aryl Halides from Pd(II)" *J. Am. Chem. Soc.* **2001**, *123*, 1232-1233.

86. Löber, O.; Kawatsura, M.; Hartwig, J.F. "Palladium-Catalyzed Hydroamination of 1,3-Dienes: A Colorimetric Assay and Enantioselective Additions" *J. Am. Chem. Soc.* **2001**, *123*, 4366-4367.

87. Kawatsura, M.; Hartwig, J.F. "Transition Metal-Catalyzed Addition of Amines to Acrylic Acid Derivatives. A High-Throughput Method for Evaluating Hydroamination of Primary and Secondary Alkylamines" *Organometallics* **2001**, *20*, 1960-1964.

88. Lee, S; Hartwig, J.F. "Improved Catalysts for the Palladium-Catalyzed Synthesis of Oxindoles by Amide-Arylation. Rate Acceleration, Use of Aryl Chloride Substrates and a New Carbene Ligand for Asymmetric Transformations" *J. Org. Chem.* **2001**, *66*, 3402-3415.

89. Zhao, J.; Hesslink, H.; Hartiwg, J.F. "Mechanism of beta-Hydrogen Elimination from a Square Planar 16-Electron Alkoxide Complex with Labile Dative Ligands" *J. Am. Chem. Soc.* **2001**, *123*, 7220-7227.

90. Stauffer, S.I.; Beare, N.A.; Stambuli, J.P.; Hartwig, J.F. "Palladium-Catalyzed Arylation of Ethyl Cyanoacetate. Fluorescence Resonance Energy Transfer as a Tool for Reaction Discovery" *J. Am. Chem. Soc.* **2001**, *123*, 4641-4642.

91. Culkin, D.A.; Hartwig, J.F. "C-C Bond-Forming Reductive Elimination of Ketones, Esters, and Amides from Isolated Arylpalladium(II) Enolates" *J. Am. Chem. Soc.* **2001**, 123, 5816-5817.

92. Lee, S.; Beare, N.A.; Hartwig, J.F. "Palladium-Catalyzed alpha-Arylation of Esters and Amino Acid Esters" *J. Am. Chem. Soc.* **2001**, *123*, 8410-8411.

93. Kawamura, K.; Hartwig, J.F. "Isolated Iridium(V) Boryl Complexes and Their Reactions with Hydrocarbons" *J. Am. Chem. Soc.* **2001**, *123*, 8422-8423.

94. Lee, S.; Jørgensen, M.; Hartwig, J.F. "Palladium-Catalyzed Synthesis of Arylamines from Aryl Halides and Lithium Bis(trimethylsilyl)amide as an Ammonia Equivalent" *Org. Lett.* **2001**, *3*, 2729-2732.

95. Chae, H.K.; Eddaoudi, M.; Kim, J.; Hauck, S.I.; Hartwig, J.F.; O'Keeffe, M.; Yagahi, O.M. "Tertiary Building Units: Synthesis, Structure, and Porosity of a Metal-Organic Dendrimer Framework (MODF-1)" *J. Am. Chem. Soc.* **2001**, *123*, 11482-11483.

96. Ishiyama, T.; Takagi, J.; Ishida, K; Miyaura, N.; Anastasi, N.R.; Hartwig, J.F. "Mild Iridium-Catalyzed Borylation of Arenes. High Turnover Numbers, Room Temperature Reactions, and Isolation of a Potential Intermediate" *J. Am. Chem. Soc.* **2002**,*124*, 390.

97. Alcazar-Roman, L.M.; Hartwig, J.F. "Mechanism of Aryl Chloride Amination: Base-Induced Oxidative Addition" *J. Am. Chem. Soc.* **2001**, *123*, 12905-12906.

98. Krug, C.; Hartwig, J.F. "Direct Observation of Aldehyde Insertion into Rhodium-Aryl and -Alkoxide Complexes" *J. Am. Chem. Soc.* **2002**, *124*, 1674-1679.

99. Nettekoven, U.; Hartwig, J.F. "A New Pathway for Hydroamination. Mechanism of Palladium-Catalyzed Addition of Anilines to Vinylarenes" *J. Am. Chem. Soc.* **2002**, *124*, 1166-1167.

100. Alcazar-Roman, L.M.; Hartwig, J.F. “Mechanistic Studies on Oxidative Addition Aryl Halides and Triflates to Pd(BINAP)$_2$ and Structural Characterization of an Aryl Palladium Triflate Complex” *Organometallics* **2002**, *21*, 491-502.

101. Pawlas, J.; Nakao, Y.; Kawatsura, M.; Hartwig, J.F. “A General Nickel-Catalyzed Hydroamination of 1,3-Dienes Using Alkyl Amines. Catalyst Discovery, Scope, and Mechanism” *J. Am. Chem. Soc.* **2002**, *124*, 3669-3679.

102. Kondo,Y.; García-Cuadrado,D.; Hartwig, J.F.; Boaen, N.K.; Wagner, N.L.; Hillmyer, M.A. “Rhodium-Catalyzed, Regiospecific Functionalization of Polyolefins in the Melt” *J. Am. Chem. Soc.* **2002**, *124*, 1164-1165.

103. Ranasinghe, M.I.; Varnavski, O.P.; Pawlas, J.; Hauck, S.I. Louie, J., Hartwig, J.F.; Goodson, T. “Femtosecond Excitation Energy Transport in Triarylamine Dendrimers” *J. Am. Chem. Soc.* **2002**, *124*, 6520-6521.

104. Alcazar-Roman, L.M.; Hartwig, J.F. “Mechanistic Studies on Oxidative Addition of Aryl Halides and Triflates to Pd(BINAP)$_2$ and Structural Characterization of the Product from Aryl Triflate Addition in the Presence of Amine” *Organometallics* **2002**, *21*, 491-502.

105. Beare, N.A.; Hartwig, J.F. “Palladium-Catalyzed Arylation of Malonates and Cyanoesters Using Sterically Hindered Trialkyl- and Ferrocenyldialkylphosphine Ligands” *J. Org. Chem.* **2002**, *67*, 541-555.

106. Hartwig, J. F. “Raising the Bar for the “Perfect Reaction” *Science* **2002**, *297*, 1653-1654.

107. Culkin, D.; Hartwig, J.F. “Synthesis, Characterization, and Reactivity of Arylpalladium Cyanoalkyl Complexes: Selection of Catalysts for the alpha-Arylation of Nitriles” *J. Am. Chem. Soc.* **2002**, *124*, 9330-9331.

108. Stambuli, J.P.; Bühl, M.; Hartwig, J.F. “Synthesis, characterization, and reactivity of monomeric, arylpalladium halide complexes with a hindered phosphine as the only dative ligand” *J. Am. Chem. Soc.,* **2002**, *124*, 9346-9347.

109. Kataoka, N.; Shelby, Q.; Stambuli, J. P.; Hartwig, J.F. “Air Stable, Sterically Hindered Ferrocenyl Dialkylphosphines for Palladium-Catalyzed C-C, C-N, and C-O Bond-Forming Cross-Couplings” *J. Org. Chem.* **2002**, *67*, 5553-5566.

110. Takagi, J.; Sato, K.; Hartwig, J. F.; Ishiyama, T.; Miyaura, N. “Iridium-catalyzed C-H coupling reaction of heteroaromatic compounds with bis(pinacolato)diboron: regioselective synthesis of heteroarylboronates” *Tetrahedron Lett*, **2002**, *43*, 5649-5651.

111. Ishiyama T.; Takagi J.; Hartwig J.F.; Miyaura N. “A Stoichiometric Aromatic C-H Borylation Catalyzed by Iridium(I)/2,2'-bipyridine Complexes at Room Temperature” *Angew Chem., Int. Ed.* **2002,** *41*, 3056-3058.

112. Jorgensen, M.; Lee, S.; Liu, X.; Wolkowski, J.P.; Hartwig, J.F. “Efficient Synthesis of alpha-Aryl Esters by Room-Temperature Palladium-Catalyzed Coupling of Aryl Halides with Ester Enolates” *J. Am. Chem. Soc.* **2002***, 124*, 12557-12565.

113. Kuwano, R.; Utsunomiya, M.; Hartwig, J.F. “Aqueous Hydroxide as a Base for Palladium-Catalyzed Amination of Aryl Chlorides and Bromides” *J. Org. Chem.* **2002**, *67*, 6479-6486.

114. Ohmura, T.; Hartwig, J.F. “Regio- and Enantioselective Allylic Amination of Achiral Allylic Esters Catalyzed by an Iridium–Phosphoramidite Complex” *J. Am. Chem. Soc.* **2002***, 124*, 15164-15165.

115. Wolkowski, J.; Hartwig, J.F. “Generation of Reactivity from Typically Stable Ligands: C–C Bond-Forming Reductive Elimination from Arylpalladium(II) Complexes of Malonate Anions” *Angew. Chem., Int. Ed.* **2002**, *41*, 4289-4291.

116. Anastasi, N.R.; Waltz, K.M.; Weerakoon, W.L.; Hartwig, J.F. “A Short Synthesis of TetraalkoxyDiborane(4) Reagents” *Organometallics* **2002**, *21*, 365-369.

117. Stambuli, J.P.; Kuwano, R.; Hartwig, J.F. “Unparalleled Rates for the Activation of Aryl Chlorides and Bromides: Coupling with Amines and Boronic Acids in Minutes at Room Temperature” *Angew. Chem., Int. Ed.* **2002**, *41*, 4746-4747.

118. Webster, C.E.; Fan, Y.; Hall, M.B.; Kunz, D.; Hartwig, J.F. “Experimental and Computational Evidence for a Boron-Assisted, sigma-Bond Metathesis Pathway for Alkane Borylation” *J. Am. Chem. Soc.* **2003**, *125*, 858-859.

119. Lopéz, F.; Ohmura, T.; Hartwig, J.F. “Regio- and Enantioselective Iridium-Catalyzed Intermolecular Allylic Etherification of Achiral Allylic Esters with Phenoxides” *J. Am. Chem. Soc.* **2003**, *125*, 3426-3427.

120. Mann, G.; Shelby, Q.; Roy, A.R.; Hartwig, J.F. “Electronic and Steric Effects on the Reductive Elimination of Diaryl Ethers from Palladium(II)” *Organometallics* **2003**, *22*, 2775-2789.

121. Liu, X.; Hartwig, J.F. “Palladium-Catalyzed alpha-Arylation of Azlactones to Form Quaternary Amino Acid Derivatives” *Org. Lett.* **2003**, *5*, 1915-1918.

122. Culkin, D.A.; Hartwig, J.F. “Palladium-Catalyzed alpha-Arylation of Carbonyl Compounds and Nitriles” *Acc. Chem. Res.* **2003**, *36*, 234-245.

123. Hooper, M.W.; Utsunomiya, M.; Hartwig, J.F. “Scope and Mechanism of Palladium-Catalyzed Amination of Five-Membered Heterocyclic Halides” *J. Org. Chem.* **2003**, *68*, 2861-2873.

124. Utsunomiya, M., Kuwano, R., Kawatsura, M., Hartwig, J.F. “Rhodium-Catalyzed Anti-Markovnikov Hydroamination of Vinylarenes” *J. Am. Chem. Soc.* **2003**, *125*, 5608-5609.

125. Stauffer, S.R., Hartwig, J.F. “Fluorescence Resonance Energy Transfer (FRET) as a High-Throughput Assay for Coupling Reactions. Arylation of Amines as a Case Study” *J. Am. Chem. Soc.* **2003**, *125*, 6977-6985.

126. Stambuli, J., Hartwig, J.F. “Recent Advances in the Discovery of Organometallic Catalysts Using High-Throughput Screening Assays” *Curr. Opin. Chem. Biol.* **2003**, *7*, 420-426.

127. Roy A.H., Hartwig J.F. “Oxidative Addition of Aryl Tosylates to Palladium(0) and Coupling of Unactivated Aryl Tosylates at Room Temperature” *J. Am. Chem. Soc.* **2003**, *125*, 8704-8705.

128. Hooper M.W., Hartwig J.F. “Understanding the Coupling of Heteroaromatic Substrates: Synthesis, Structures, and Reductive Eliminations of Heteroarylpalladium Amido Complexes” *Organometallics* **2003**, *22*, 3394-3403.

129. Hama, T.; Liu, X.; Culkin, D.A.; Hartwig, J.F. “Palladium-Catalyzed Alpha-Arylation of Esters and Amides Under More Neutral Conditions” *J. Am. Chem. Soc.* **2003**, *125*, 11176-11177.

130. Roy, A.H.; Hartwig, J.F. “Directly Observed Reductive Elimination of Aryl Halides from Monomeric Arylpalladium(II) Halide Complexes” *J. Am. Chem. Soc.* **2003**, *125*, 13944-13945.

131. Kiener, C.; Shu, C.; Incarvito, C., Hartwig, J.F. “Identification of an Activated Catalyst in the Iridium-Catalyzed Allylic Amination and Etherification. Increased Rates, Scope and Selectivity” *J. Am. Chem. Soc.* **2003**, *125*, 14272-14273.

132. Utsunomiya, M.; Hartwig, J.F. “Intermolecular, Markovnikov Hydroamination of Vinylarenes with Alkylamines” *J. Am. Chem. Soc.* **2003**, *125*, 14286-14287.

133. Kanzelberger, M.; Zhang, X.; Emge, T.J.; Goldman, A.S.; Zhao, J.; Incarvito, C.; Hartwig, J.F. “Distinct Thermodynamics for the Formation and Cleavage of N-H Bonds in Aniline and Ammonia. Directly-Observed Reductive Elimination of Ammonia from an Isolated Amido Hydride Complex” *J. Am. Chem. Soc.* **2003**, *125*, 13644-13645.

134. Yamashita, M.; Cuevas-Vicario, J.; Hartwig, J.F. “Trans Influence on the Rate of Reductive Elimination. Reductive Elimination of Amines from Isomeric Arylpalladium Amides with Unsymmetrical Coordination Spheres” *J. Am. Chem. Soc.* **2003**, *125*, 16347-16348.

135. Utsunomiya, M.; Kawatsura, M.; Hartwig, J.F. “Palladium-Catalyzed Equilibrium Addition of Acidic O-H Bonds Across Dienes” *Angew., Chem. Int. Ed.* **2003**, *42*, 5865-5868.

136. Ishiyama, T.; Takagi J.; Yonekawa, Y.; Hartwig, J.F.; Miyaura, N. “Iridium-Catalyzed Direct Borylation of Five-Membered Heteroarenes by Bis(pinacolato)diboron: Regioselective, Stoichiometric, and Room Temperature Reactions” *Adv. Synth. Catal.* **2003**, *345*, 1103-1106.

137. Ishiyama, T.; Nobuta, Y.; Hartwig, J.F.; Miyaura, N. “Room Temperature Borylation of Arenes and Heteroarenes Using Stoichiometric Amounts of Pinacolborane Catalyzed by Iridium Complexes in an Inert Solvent” *Chem. Commun.* **2003,** *23*, 2924-2925.

138. Roy, A.H.; Hartwig, J.F. “Oxidative Addition of Aryl Sulfonates to Palladium(0) Complexes of Mono- and Bidentate Phosphines. Mild Addition of Aryl Tosylates and the Effects of Anions on Rate and Mechanism” *Organometallics* **2004**, *23*, 194-202.

139. Stambuli, J.P.; Incarvito, C.D.; Bühl, M.; Hartwig, J.F. “Synthesis, Structure, Theoretical Studies and Ligand Exchange Reactions of Monomeric, T-shaped Arylpalladium(II) Halide Complexes with an Additional, Weak Agostic Interaction” *J. Am. Chem. Soc.* **2004**, *126*, 1184-1194.

140. Krug, C., Hartwig, J.F. “Imine Insertion into a Late Metal-Carbon Bond to Form a Stable Amido Complex” *J. Am. Chem. Soc.* **2004**, *126*, 2694-2695.

141. Utsunomiya, M., Hartwig, J.F. “Ruthenium-Catalyzed Anti-Markovnikov Hydroamination of Vinylarenes” *J. Am. Chem. Soc.* **2004**, *126*, 2702-2703.

142. Liu, X., Hartwig, J.F. “Palladium-Catalyzed Arylation of Trimethylsilyl Enolates of Esters and Imides. High Functional Group Tolerance and Stereoselective Synthesis of alpha-Aryl Carboxylic Acid Derivatives” *J. Am. Chem. Soc.* **2004**, *126*, 5182.

143. Culkin, D.A., Hartwig, J.F. “Carbon-Carbon Bond-Forming Reductive Elimination from Arylpalladium Complexes Containing Functionalized Alkyl Groups. Influence of Ligand Steric and Electronic Properties on Structure, Stability, and Reactivity” *Organometallics* **2004**, *23*, 3398-3416.

144. Hartwig, J.F. “Development of Catalysts for the Hydroamination of Olefins” *Pure Appl. Chem.* **2004**, *76*, 507-516.

145. Yamashita, M., Hartwig, J.F. “Synthesis, Structure, and Reductive Elimination Chemistry of Three-coordinate Arylpalladium Amido Complexes” *J. Am. Chem. Soc.* **2004**, *126*, 5344-5345.

146. Leitner, A., Shu, C.T., Hartwig, J.F. “Editing the Stereochemical Elements in an Iridium Catalyst for Enantioselective Allylic Amination” *P. Natl. Acad. Sci. USA* **2004,** *101*, 5830-5833.

147. Roy, A., Hartwig, J.F. “Reductive Elimination of Aryl Halides Upon Addition of Hindered Alkylphosphines to Dimeric Arylpalladium(II) Halide Complexes” *Organometallics* **2004**, *23*, 1533-1541.

148. Shu, C.; Hartwig, J.F. “Iridium-Catalyzed Intermolecular Allylic Etherification with Aliphatic Alkoxides: Asymmetric Synthesis of Dihydropyrans and Dihydrofurans” *Angew. Chem.* **2004**, *43*, 4794-4797.

149. Shu, C.; Leitner, A.; Hartwig, J.F. “Enantioselective Allylation of Aromatic Amines after In Situ Generation of an Activated Cyclometalated Iridium Catalyst” *Angew. Chem.* **2004**, *43*, 4797-4800.

150. Krug, C.; Hartwig, J.F. “Reactions of an Arylrhodium Complex with Aldehydes, Imines, Ketones and Alkynones. New Classes of Insertion Reactions” *Organometallics* **2004**, *23*, 4594-4607.

151. Shekhar, S.; Hartwig, J.F. “Distinct Electronic Effects on Reductive Eliminations of Symmetric and Dissymmetric bis-Aryl Platinum Complexes” *J. Am. Chem. Soc.* **2004**,*126,* 13016-13027.

152. Leitner, A.; Larsen, J.; Steffens, C.; Hartwig, J.F. “Palladium-Catalyzed Addition of Mono and Dicarbonyl Compounds to Conjugated Dienes” *J. Org. Chem.* **2004**, *69*, 7552-7557.

153. Lawrence, J.D.; Takahashi, M.; Bae, C.; Hartwig, J.F. “Regiospecific Functionalization of Methyl C-H Bonds of Alkyl Groups in Reagents with Heteroatom Functionality” *J. Am. Chem. Soc.* **2004**, *126*, 15334-15335.

154. Cook, K.S.; Incarvito, C.D.; Webster, C.E.; Fan, Y.B., Hall, M.B., Hartwig, J.F. “Rhodium Silyl Boryl Hydride Complexes: Comparison of Bonding and the Rates of Elimination of Borane, Silane, and Dihydrogen” *Angew. Chem., Int. Ed.* **2004**, *43*, 5474-5477.

155. Bae, C; Hartwig, J.F.; Boaen, N.K.; Long, R.O.; Anderson, K.S.; Hillmyer, M.A. “Catalytic Hydroxylation of Polypropylenes” *J. Am. Chem. Soc.* **2005**, *127*, 767-776.

156. Hartwig, J.F.; Cook, K.S.; Hapke, M.; Incarvito, C.D.; Fan, Y.; Webster, C.E.; Hall, M.B. “Rhodium-Boryl Complexes in the Catalytic, Terminal Functionalization of Alkanes” *J. Am. Chem. Soc.* **2005**, *127*, 2538-2552.

157. Zhao, J.; Goldman, A.S.; Hartwig, J.F. “Oxidative Addition of Ammonia to Form a Stable Monomeric Amido Hydride Complex” *Science* **2005**, *307*, 1080-1082.

158. Shen, Q.; Shekhar, S.; Stambuli, J.P.; Hartwig, J.F. “Highly Reactive, General, and Long-Lived Catalysts for Coupling Heteroaryl and Aryl Chlorides with Primary Nitrogen Nucleophiles” *Angew. Chem., Int. Ed*. **2005**, *44*, 1395-1399.

159. Leitner, A.; Shu, C.; Hartwig, J.F. “Effects of Catalyst Activation and Ligand Steric Properties on the Enantioselective Allylation of Amines and Phenoxides” *Org. Lett.* **2005**, *7*, 1093-1096.

160. Lee, D.Y.; Hartwig, J.F. “Zinc Trimethylsilylamide as a Mild Ammonia Equivalent and Base for the Amination of Aryl Halides and Triflates” *Org. Lett.* **2005**; *7*, 1169-1172.

161. Zhao, J.; Hartwig, J.F. “Acceptorless, Neat, Ruthenium-catalyzed Dehydrogenative Cyclization of Diols and Lactones” *Organometallics* **2005**, *24*, 2441-2446.

162. Tsukada, N.; Hartwig, J.F. “Intermolecular and Intramolecular, Platinum-Catalyzed, Acceptorless Dehydrogenative Coupling of Hydrosilanes with Aryl and Aliphatic Methyl C-H Bonds” *J. Am. Chem. Soc.* **2005**, *127*, 5022-5023.

163. Takaya, J.; Hartwig, J. F. “Mechanistic Studies of Ruthenium-Catalyzed Anti-Markovnikov Hydroamination of Vinylarenes: Intermediates and Evidence for Catalysis through pi-Arene Complexes” *J. Am. Chem. Soc.* **2005**, *127*, 5756-5757.

164. Yan, X.Z.; Pawlas, J.; Goodson III, T.; Hartwig J.F. “Polaron Delocalization in Ladder Macromolecular Systems” *J. Am. Chem. Soc.* **2005**, *127*, 9105-9116.

165. Barrios-Landeros, F; Hartwig, J.F. “Distinct Mechanisms for the Oxidative Addition of Chloro, Bromo, and Iodoarenes to a Bisphosphine Palladium(0) Complex with Hindered Ligands” *J. Am. Chem. Soc.* **2005**, *127*, 6944-6945

166. Zhao, P.; Hartwig, J. F. “β-Aryl Eliminations from Rh(I) Iminyl Complexes” *J. Am. Chem. Soc.* **2005**, *127*, 11618-11619.

167. Zhao, P.; Krug, C.; Hartwig, J. F. “Transfer of Amido Groups from Isolated Rhodium(I) Amides to Alkenes and Vinylarenes” *J. Am. Chem. Soc.* **2005,***127*, 12066-12073.

168. Boller, T.M.; Murphy, J.M.; Hapke, M.; Ishiyama, T.; Miyaura, N.; Hartwig, J.F. “Mechanism of the Mild Functionalization of Arenes by Diboron Reagents Catalyzed by Iridium Complexes. Intermediacy and Chemistry of Bipyridine-Ligated Iridium Trisboryl Complexes” *J. Am. Chem. Soc.* **2005**, *127,* 14263-14278.

169. Leitner, A.; Shekhar, S.; Pouy, M.P.; Hartwig, J.F. “A Simple Iridium Catalyst with a Single Resolved Stereocenter for Enantioselective Allylic Amination. Catalyst Selection from Mechanistic Analysis” *J. Am. Chem. Soc.* **2005,** *127*, 15506-15514.

170. Wu, L.; Hartwig, J.F. “Mild Palladium-Catalyzed Selective Monoarylation of Nitriles” *J. Am. Chem. Soc.* **2005,** *127*,15824-15832.

171. Limmert, M.E.; Roy, A.H.; Hartwig, J.F. “Kumada Coupling of Aryl and Vinyl Tosylates Under Mild Conditions” *J. Org. Chem.* **2005**, *70*, 9364-9370

172. Bae, C.; Hartwig, J.F.; Chung, H.; Harris, N.K.; Switek, K.A.; Hillmyer, M.A. “Regiospecific Side-Chain Functionalization of Linear Low-Density Polyethylene with Polar Groups” *Angew. Chem., Int. Ed.* **2005**, *44*, 6410-6413.

173. Graening, T.; Hartwig, J.F., “Iridium-Catalyzed Regio- and Enantioselective Allylation of Ketone Enolates” *J. Am. Chem. Soc.* **2005**, *127*, 17192-17193.

174. Johns, A.M.; Utsunomiya, M.; Incarvito, C.D.; Hartwig, J.F. “A Highly Active Palladium Catalyst for Intermolecular Hydroamination. Factors that Control Reactivity and Additions of Functionalized Anilines to Dienes and Vinylarenes” *J. Am. Chem. Soc.* **2006**, *128*, 1828-1839.

175. Fernández-Rodríguez, M.A.; Shen, Q.L.; Hartwig, J.F. “A General and Long-Lived Catalyst for the Palladium-Catalyzed Coupling of Aryl Halides with Thiols” *J. Am. Chem. Soc.* **2006**, *128*, 2180-2181.

176. Johns, A.M.; Sakai, N.; Ridder, A.; Hartwig, J.F. "Direct Measurement of the Thermodynamics of Vinylarene Hydroamination" *J. Am. Chem. Soc.* **2006**, *128*, 9306-9307.

177. Shekhar, S.; Ryberg, P.; Hartwig, J. F. "Oxidative addition of phenyl bromide to Pd(BINAP) vs Pd(BINAP)(amine). Evidence for addition to Pd(BINAP)" *Org. Lett.* **2006**, *8*, 851-854.

178. Zhao, P. J.; Incarvito, C. D.; Hartwig, J. F. "Direct Observation of beta-Aryl Eliminations from Rh(I) Alkoxides" *J. Am. Chem. Soc.* **2006**, *128*, 3124-3125.

179. Shekhar, S.; Ryberg, P.; Hartwig, J. F.; Mathew, J. S.; Blackmond, D. G.; Strieter, E. R.; Buchwald, S. L. "Reevaluation of the mechanism of the amination of aryl halides catalyzed by BINAP-ligated palladium complexes", *J. Am. Chem. Soc.* **2006**, *128*, 3584-3591.

180. Hama, T.; Culkin, D.A.; Hartwig, J.F. "Palladium-Catalyzed Intermolecular alpha-Arylation of Zinc Amide Enolates under Mild Conditions" *J. Am. Chem. Soc.* **2006**, *128*, 4976-4985.

181. Takemiya, A.; Hartwig, J.F. "Rhodium-Catalyzed Intramolecular, Anti-Markovnikov Hydroamination. Synthesis of 3-Arylpiperidines" *J. Am. Chem. Soc.* **2006**, *128*, 6042-6043.

182. Sakai, N.; Ridder, A.; Hartwig, J.F. "Tropene Derivatives by Sequential Intermolecular and Transannular, Intramolecular Palladium-Catalyzed Hydroamination of Cycloheptatriene" *J. Am. Chem. Soc.* **2006**, *128*, 8134-8135.

183. Hartwig, J.F. "Discovery and Understanding of Transition Metal-Catalyzed Aromatic Substitution Reactions" *Synlett* Thieme-IUPAC Award account **2006**, 1283-1294.

184. Fujita, K.I.; Yamashita, M; Puschmann, F.; Alvarez-Falcon, M.M.; Incarvito, C.D.; Hartwig, J.F. "Organometallic Chemistry from Amidate Complexes. Reductive Elimination of N-Aryl Amidates from Palladium(II)" *J. Am. Chem. Soc.* **2006**, *128*, 9044-9045.

185. Zhao, P.; Incarvito, C.D.; Hartwig, J.F. "Carbon-Oxygen Bond Formation between a Terminal Alkoxo Ligand and a Coordinated Olefin. Evidence for Olefin Insertion into a Rhodium-Alkoxide" *J. Am. Chem. Soc.* **2006**, *128*, 9642-9643.

186. Shen, Q.; Hartwig, J. F. "Palladium-Catalyzed Coupling of Ammonia and Lithium Amide with Aryl Halides" *J. Am. Chem. Soc.* **2006**, *128*, 10028-10029.

187. Shekhar, S.; Trantow, B.; Leitner, A.; Hartwig, J. F. "Sequential Catalytic Isomerization and Allylic Substitution. Conversion of Racemic Branched Allylic Carbonates to Enantioenriched Allylic Substitution Products" *J. Am. Chem. Soc.* **2006**, *128*, 11770-11771.

188. Rosenfeld, D.C.; Shekhar, S.; Takemiya, A.; Utsunomiya, M.; Hartwig, J.F. "Hydroamination and Hydroalkoxylation Catalyzed by Triflic Acid. Parallels to Reactions Initiated with Metal Triflates" *Org. Lett.* **2006**, *8*, 4179-4182.

189. Su, W.; Raders, S.; Verkade, J.G.; Liao, X; Hartwig, J.F. "Palladium-Catalyzed alpha-Arylation of Trimethylsilyl Enol Ethers with Aryl Bromides and Chlorides. A Synergistic Effect of Two Metal Fluorides as Additives" *Angew. Chem.* **2006**, *45*, 5852-5855*,* VIP and cover article.

190. Murphy, J.M.; Lawrence, J.D. Kawamura, K.; Incarvito, C.; Hartwig, J.F "Ruthenium-Catalyzed Regiospecific Borylation of Methyl C-H Bonds" *J. Am. Chem. Soc.* **2006**, *128*, 13684-13684.

191. Fernández-Rodríguez, M.A.; Shen, Q.; Hartwig, J.F. "Highly Efficient and Functional-Group-Tolerant Catalysts for the Palladium-Catalyzed Coupling of Aryl Chlorides with Thiols" *Chem. Eur. J.* **2006**, *12*, 7582-7596.

192. Takemiya, A.; Hartwig, J.F. “Palladium-Catalyzed Synthesis of Aryl Ketones by Coupling of Aryl Bromides with an Acyl Anion Equivalent” *J. Am. Chem. Soc.* **2006**, *128*, 14800-14801.

193. Johns, A.M; Tye, J.W.; Hartwig, J.F. “Relative Rates for the Aminations of ^{3}-Allyl and ^{3}-Benzyl Complexes of Palladium” *J. Am. Chem. Soc.* **2006**, *128*, 16010-16011.

194. Shekhar, S.; Hartwig, J.F. “Effects of Bases and Halides on the Amination of Chloroarenes Catalyzed by $Pd[P(tBu_3)]_2$” *Organometallics* **2007**, *26*, 340-351.

195. Hartwig, J.F. “Electronic Effects on Reductive Elimination To Form Carbon-Carbon and Carbon-Heteroatom Bonds from Palladium(II) Complexes” *Inorg. Chem.* **2007**, *46*, 1936-1947.

196. Murphy, J.M.; Tzschucke, C.C.; Hartwig, J.F. “One-Pot Synthesis of Arylboronic Acids and Aryl Trifluoroborates by Ir-Catalyzed Borylation of Arenes” *Org. Lett.* **2007**, *9*, 757-760.

197. Tzschucke, C.C.; Murphy, J.M.; Hartwig, J.F. “Arenes to Anilines and Aryl Ethers by Sequential Iridium-Catalyzed Borylation and Copper-Catalyzed Coupling” *Org. Lett.* **2007**, *9*, 761-764.

198. Zhao, P.; Incarvito, C. D.; Hartwig, J. F. “Directly Observed Transmetalation from Boron to Rhodium. Beta-Aryl Elimination from Rh(I) Arylboronates and Diarylborinates” *J. Am. Chem. Soc*. **2007**, *129*, 1876-1877.

199. Herzon, S.B.; Hartwig, J.F. “Direct, Catalytic Hydroaminoalkylation of Unactivated Olefins with N-Alkyl Arylamines” *J. Am. Chem. Soc.* **2007**, *129*, 6690-6691.

200. Yamashita, Y.; Gopalarathnam, A.; Hartwig, J.F. “Iridium-Catalyzed, Asymmetric Amination of Allylic Alcohols Activated by Lewis Acids” *J. Am. Chem. Soc.* **2007**, *129*, 7508-7509.

201. Weix, D.J.; Hartwig, J.F. “Regioselective and Enantioselective Iridium-Catalyzed Allylation of Enamines” *J. Am. Chem. Soc.* **2007**, *129*, 7720-7721.

202. Shen, Q.; Hartwig, J.F. “Lewis Acid Acceleration of C-N Bond-Forming Reductive Elimination from Heteroarylpalladium Complexes and Catalytic Amidation of Heteroaryl Bromides” *J. Am. Chem. Soc.* **2007**, *129*, 7734-7735.

203. Johns, A.M.; Liu, Z.; Hartwig, J.F. “Primary tert- and sec-Allylamines via Palladium-Catalyzed Hydroamination and Allylic Substitution with Hydrazine and Hydroxylamine Derivatives” *Angew. Chem., Int. Ed.* **2007**, *46*, 7259.

204. Pouy, M.J.; Leitner, A.; Weix, D.J.; Ueno, S.; Hartwig, J.F. “Enantioselective Iridium-Catalyzed Allylic Amination of Ammonia and Convenient Ammonia Surrogates” *Org. Lett.* **2007**, *9*, 3949-3952.

205. Markovic, D.; Hartwig, J.F. “Resting State and Kinetic Studies on the Asymmetric Allylic Substitutions Catalyzed by Iridium-Phosphoramidite Complexes” *J. Am. Chem. Soc.* **2007**, *129*, 11680-11681.

206. Stambuli, J.P.; Weng, Z.; Incarvito, C.D.; Hartwig, J.F. “Reductive Elimination of Ether from T-Shaped, Monomeric Arylpalladium Alkoxides” *Angew. Chem., Int. Ed.* **2007**, *46*, 7674.

207. Murphy, J.M.; Liao, X.; Hartwig, J.F. “Meta Halogenation of 1,3-Disubstituted Arenes via Iridium-Catalyzed Arene Borylation” *J. Am. Chem. Soc.* **2007**, *129*, 15434-15435.

208. Liao, X.; Weng, Z.; Hartwig J.F. “Enantioselective-Arylation of Ketones with Aryl Triflates Catalyzed by Difluorphos Complexes of Palladium and Nickel” *J. Am. Chem. Soc.* **2008**, *130*, 195-200.

209. Liu, Z.; Hartwig, J.F. “Mild, Rhodium-Catalyzed Intramolecular Hydroamination of Unactivated Terminal and Internal Olefins with Primary and Secondary Amines” *J. Am. Chem. Soc.* **2008**, *130*,1570-1571.

210. Ueno, S.; Hartwig, J.F. “Direct, Iridium-Catalyzed Asymmetric Allylic Etherification with Aliphatic Alcohols” *Angew. Chem., Int. Ed.* **2008***, 47*, 1928-1931.

211. Vo, G.D.; Hartwig, J.F. “Palladium-Catalyzed α-Arylation of Aldehydes with Bromo- and Chloroarenes Catalyzed by $[Pd(allyl)Cl]_2$ and DPPF or Q-phos” *Angew. Chem., Int. Ed.* **2008***, 47*, 2127-2130 designated as a “Hot Paper.”

212. Shen, Q.; Ogata, T.; Hartwig, J.F. “Highly Reactive, General and Long-Lived Catalysts for Palladium-Catalyzed Amination of Heteroaryl and Aryl Chlorides, Bromides and Iodides: Scope and Structure-Activity Relationships” *J. Am. Chem. Soc.* **2008**, *130*, 6586-6596.

213. Barrios-Landeros, F.; Carrow, B.P.; Hartwig, J.F. “Autocatalytic Oxidative Addition of PhBr to $Pd(P^tBu_3)_2$ via $Pd(P^tBu_3)_2(H)(Br)$” *J. Am. Chem. Soc.* **2008**, *130*, 5842-5843.

214. Hagedorn, K.V.; Varnavski, O.; Hartwig, J.F.; Goodson III, T. “Exciton Trapping in an Organic Dendrimer Possessing No Energy Gradient” *J. Phys. Chem. C.* (Letters) **2008**, *112*, 2235-2238.

215. Hama, T.; Hartwig, J.F. “Palladium-Catalyzed α-Arylation of Esters with Chloroarenes” *Org. Lett.* **2008**, *10*, 1549-1552.

216. Hama, T.; Hartwig, J.F. “α-Arylation of Esters Catalyzed by the Pd(I) Dimer $\{[P(t\text{-}Bu)_3]PdBr\}_2$” *Org. Lett.* **2008**, *10*, 1545-1548.

217. Boebel, T. A.; Hartwig, J. F. “Silyl-Directed, Iridium-Catalyzed ortho-Borylation of Arenes. A One-Pot *ortho*-Borylation of Phenols, Arylamines, and Alkylarenes” *J. Am. Chem. Soc.* **2008**, *130*, 7534-7535.

218. Tye, J. W.; Weng, Z.; Johns, A. M.; Incarvito, C. D.; Hartwig, J. F. “Copper Complexes of Anionic Nitrogen Ligands in the Amidation and Imidation of Aryl Halide” *J. Am. Chem. Soc.* **2008**, *130*, 9971-9983.

219. Zhou, J.; Hartwig, J.F. “Iridium-Catalyzed H/D Exchange at Vinyl Groups without Olefin Isomerization” *Angew. Chem., Int. Ed.* **2008**, *47*, 5783-5787.

220. Zhao, P.: Hartwig, J.F. “Insertions of Ketones and Nitriles into Organorhodium(I) Complexes and β-Hydrocarbyl Eliminations from Rhodium(I) Alkoxo and Iminyl Complexes” *Organometallics* **2008**, *27*, 4749-4757.

221. Zhou, J.; Hartwig, J.F. “Intermolecular, Catalytic Asymmetric Hydroamination of Bicyclic Alkenes and Dienes in High Yield and Enantioselectivity” *J. Am. Chem. Soc.* **2008**, *130*, 12220-12221.

222. Shen, Q.; Hartwig, J.F. “$[(CyPF\text{-}^tBu)PdCl_2]$: An Air-Stable, One-Component, Highly Efficient Catalyst for Amination of Heteroaryl and Aryl Halides*” Org. Lett.* **2008**, *18*, 4109-4112.

223. Hartwig, J.F. "Evolution of a Fourth Generation Catalyst for the Amination and Thioetherification of Aryl Halides" *Acc. Chem. Res.* **2008**, *41*, 1534-1544.

224. Hartwig, J.F. “Carbon–Heteroatom Bond Formation Catalysed by Organometallic Complexes” *Nature* **2008**, *455*, 314-322.

225. Boebel, T.A.; Hartwig, J.F. “Conversion of 1,3-Disubstituted Arenes to Chiral , -Diaryl Methylammonium Chlorides Using Arene Borylation” *Tetrahedron* **2008**, *64*, 6824-6830.

226. Boebel, T.A.; Hartwig, J.F. “Iridium-Catalyzed Preparation of Silylboranes by Silane Borylation and Their Use in the Catalytic Borylation of Arenes” *Organometallics* **2008**, *27*, 6013-6019.

227. Herzon, S.B.; Hartwig, J.F. “Hydroaminoalkylation of Unactivated Olefins with Dialkylamines” *J. Am. Chem. Soc.* **2008**, *130*, 14940–14941.

228. Alexanian, E.J.; Hartwig, J.F. “Mechanistic Study of β-Hydrogen Elimination from Organoplatinum(II) Enolate Complexes” *J. Am. Chem. Soc.* **2008**, *130*, 15627-15635.

229. Ogata, T.; Hartwig, J.F. “Palladium-Catalyzed Amination of Aryl and Heteroaryl Tosylates at Room Temperature” *J. Am. Chem. Soc.* **2008**, *130*, 13848-13849.

230. Fernández-Rodríguez, M.A.; Hartwig, J.F. “A General, Efficient, and Functional-Group-Tolerant Catalyst System for the Palladium-Catalyzed Thioetherification of Aryl Bromides and Iodides” *J. Org. Chem.* **2009**, *74*, 1663-1672.

231. Madrahimov, S.T.; Markovic, D.; Hartwig, J.F. “The Allyl Intermediate in Regioselective and Enantioselective Iridium-Catalyzed Asymmetric Allylic Substitution Reactions *J. Am. Chem. Soc.* **2009**, *131*, 7228-7229.

232. Barrios-Landeros, F.; Carrow, B.P.; Hartwig, J.F. “Effect of Ligand Steric Properties and Halide Identity on the Mechanism for Oxidative Addition of Haloarenes to Trialkylphosphine Pd(0) Complexes” *J. Am. Chem. Soc.* **2009**, *131*, 8141-8154.

233. Alvaro, E.; Hartwig, J.F. “Resting State and Elementary Steps of the Coupling of Aryl Halides with Thiols Catalyzed by Alkylbisphosphine Complexes of Palladium” *J. Am. Chem. Soc.* **2009**, *131*, 7858-7868.

234. Stanley, L.M.; Hartwig, J.F. “Regio- and Enantioselective N-Allylations of Imidazole, Benzimidazole, and Purine Heterocycles Catalyzed by Single-Component Metallacyclic Iridium Complexes” *J. Am. Chem. Soc.* **2009**, *131*, 8971-8983.

235. Weix, D.J.; Markovic, D.; Ueda, M.; Hartwig, J.F. “Direct, Intermolecular, Enantioselective, Iridium-Catalyzed Allylation of Carbamates to Form Carbamate-Protected, Branched Allylic Amines” *Org. Lett.* **2009**, *11*, 2944-2947.

236. Vo, G.D.; Hartwig, J.F. “Palladium-Catalyzed Coupling of Ammonia with Aryl Chlorides, Bromides, Iodides, and Sulfonates: A General Method for the Preparation of Primary Arylamines” *J. Am. Chem. Soc.* **2009**, *131*, 11049-11061.

237. Pouy, M.J; Stanley, L.M.; Hartwig, J.F. “Enantioselective, Iridium-Catalyzed Monoallylation of Ammonia” *J. Am. Chem. Soc.* **2009**, *131*, 11312-11313.

238. Liskey, C.W., Wei C.S., Pahls, D.R., Hartwig J.F. “Pronounced Effects of Substituents on the Iridium-Catalyzed Borylation of Aryl C–H Bonds” *Chem. Commun.* **2009**, *37*, 5603-5605.

239. Stanley, L.M.; Hartwig, J.F. “Iridium-Catalyzed Regio- and Enantioselective N-Allylation of Indoles” *Angew. Chem. Int. Ed.* **2009,** *48*, 7841-7844 designated as a “Hot Paper.”

240. Tye, J.W.; Hartwig, J.F. "Computational Studies on the Relative Rates for Migratory Insertions of Alkenes into Square-Planar Methyl, Amido, and –Hydroxo Complexes of Rhodium" *J. Am. Chem. Soc.* **2009,** *131*, 14703-14712.

241. Ueda, M.; Hartwig, J.F. "Iridium-Catalyzed Regio- and Enantioselective Allylic Substitution with Aromatic and Aliphatic Sulfinates" *Org. Lett.* **2009**, *12*, 92-94.

242. Mkhalid, I.A.I.; Barnard, J.H.; Marder, T.B.; Murphy, J.M.; Hartwig, J.F. "C-H Activation for the Construction of C-B Bonds" *Chem. Rev.* **2010**, *110*, 890-931.

243. Marquard, S.L.; Rosenfeld, D.C.; Hartwig, J.F. "C(sp^3)-N Bond-Forming Reductive Elimination of Amines: Reactions of Bisphosphine-Ligated Benzylpalladium(II) Diarylamido Complexes" *Angew. Chem. Int. Ed.* **2010**, *49*, 793-796.

244. Carrow, B.P.; Hartwig, J.F. "Ligandless, Anionic, Arylpalladium Halide Intermediates in the Heck Reaction" *J. Am. Chem. Soc.* **2010**, *132*, 79-81.

245. Wei, C.S.; Jiménez-Hoyos, C.A.; Videa, M.F.; Hartwig, J.F.; Hall, M.B. "Origins of the Selectivity for Borylation of Primary over Secondary C–H Bonds Catalyzed by Cp*-Rhodium Complexes" *J. Am. Chem. Soc.* **2010**, *132*, 3078-3091.

246. Sawyer, K.R., Cahoon, J.F., Shanoski, J.E., Glascoe, E.A., Kling, M.F., Schlegel, J.P., Zoerb, M.C., Hapke, M., Hartwig, J.F., Webster, C.E., Harris, C.B. "Time-resolved IR Studies on the Mechanism for the Functionalization of Primary C−H Bonds by Photoactivated Cp*$W(CO)_3$(Bpin)" *J. Am. Chem. Soc.* **2010**, *132*, 1848-1859.

247. Robbins, D.W.; Boebel, T. A.; Hartwig, J.F. "Iridium-Catalyzed, Silyl-Directed Borylation of Nitrogen-Containing Heterocycles" *J. Am. Chem. Soc.* **2010**, *132*, 4068-4069.

248. Tan, Y.; Hartwig, J.F. "Palladium-Catalyzed Amination of Aromatic C–H Bonds with Oxime Esters" *J. Am. Chem. Soc.* **2010**, *132*, 3676-3677.

249. Tye, J.W.; Weng, Z.; Giri, R.; Hartwig J.F. "Copper(I) Phenoxide Complexes in the Etherification of Aryl Halides" *Angew. Chem. Int. Ed.* **2010**, *49*, 2185-2189.

250. Hanley, P.S.; Markovic, D.; Hartwig, J.F. "Intermolecular Insertion of Ethylene and Octene into a Palladium-Amide Bond. Spectroscopic Evidence for an Ethylene Amido Intermediate" *J. Am. Chem. Soc.* **2010**, *132*, 6302-6303.

251. Fernández-Rodríguez, M.A.; Hartwig, J.F. "One-Pot Synthesis of Unsymmetrical Diaryl Thioethers by Palladium-Catalyzed Coupling of Two Aryl Bromides and a Thiol Surrogate" *Chem.—Eur. J.* **2010**, *16*, 2355-2359.

252. Stanley, L. M.; Bai, C.; Ueda, M.; Hartwig, J. F. "Iridium-Catalyzed Kinetic Asymmetric Transformations of Racemic Allylic Benzoates" *J. Am. Chem. Soc.* **2010**, *132*, 8918-8920.

253. Huang, Z.; Zhou, J. Hartwig, J.F. "N-H Activation of Hydrazines by Iridium(I). Double N-H Activation to Form Iridium Aminonitrene Complexes" *J. Am. Chem. Soc.* **2010**,*132*, 11458-11460.

254. Liskey, C.W.; Liao, X.; Hartwig, J.F. "Cyanation of Arenes via Iridium-Catalyzed Borylation" *J. Am. Chem. Soc.* **2010**, *132*, 11389-11391.

255. Klinkenberg, J.L.; Hartwig, J.F. "Slow Reductive Elimination from Arylpalladium Parent Amido Complexes" *J. Am. Chem. Soc.* **2010**,*132*, 11830-11833.

256. Julian, J.D.; Hartwig, J.F. “Intramolecular Hydroamination of Unbiased and Functionalized Primary Aminoalkenes Catalyzed by a Rhodium Aminophosphine Complex” *J. Am. Chem. Soc.* **2010**,*132*, 13813-13822.

257. Giri, R.: Hartwig, J.F. “Cu(I) Amido Complexes in the Ullmann Reaction. Reactions of Cu(I)-Amido Complexes with Iodoarenes with and without Autocatalysis by CuI” *J. Am. Chem. Soc.* **2010**, *132*, 15860-15863.

258. Simmons, E.M.; Hartwig, J.F. “Iridium-Catalyzed Arene Ortho-Silylation by Formal Hydroxyl-Directed C-H Activation” *J. Am. Chem. Soc.* **2010**, *132*, 17092-17095.

259. Hartwig, J.F.; Stanley, L.M. “Mechanistically Driven Development of Iridium Catalysts for Asymmetric Allylic Substitution” *Acc. Chem. Res.* **2010**, *43*, 1461-1475.

260. Huang, D.S.; Hartwig, J.F. “Palladium-Catalyzed γ-Arylation of α,β-Unsaturated Esters from Silyl Ketene Acetals” *Angew. Chem. Int. Ed.* **2010**, *49*, 5757-5761 (designated as a “Hot Paper”).

261. Klinkenberg, J.L.; Hartwig, J.F. “Catalytic Organometallic Reactions of Ammonia” *Angew. Chem. Int. Ed.* **2011**, *50*, 86-95.

262. Hartwig, J.F. “Hydrocarbon Synthesis: Ringing the Chains” *Nature Chem.* **2011**, *3*, 99-101.

263. Liao, X.; Stanley, L.M.; Hartwig, J.F. “Enantioselective Total Syntheses of (−)-Taiwaniaquinone H and (−)-Taiwaniaquinol B by Iridium-Catalyzed Borylation and Palladium-Catalyzed Asymmetric α-Arylation” *J. Am. Chem. Soc.* **2011**,*133*, 2088–2091.

264. Huang, D.S.; DeLuca, R.J.; Hartwig, J.F. “α-Arylation of Esters Catalyzed by the Pd(I) Dimer [P(*t*-Bu)$_3$]Pd(□-Br)]$_2$” *Org. Synth.* **2011**, *88*, 4-13.

265. Carrow, B.P.; Hartwig, J.F. “Distinguishing Between Pathways for Transmetalation in Suzuki-Miyaura Reactions” *J. Am. Chem. Soc*. **2011**, *133*, 2116–2119.

266. Tan, Y.; Hartwig, J.F. “Assessment of the Intermediacy of Arylpalladium Carboxylate Complexes in the Direct Arylation of Benzene: Evidence for C-H Bond Cleavage by ‘Ligandless’ Species” *J. Am. Chem. Soc*. **2011**, *133*, 3308–3311.

267. Liu, Z.; Yamamichi, H.; Madrahimov, S.T.; Hartwig, J.F. “Rhodium Phosphine-π-Arene Intermediates in the Hydroamination of Alkenes” *J. Am. Chem. Soc*. **2011**, *133*, 2772–2782.

268. Morimoto, H.; Tsubogo, T.; Litvinas, N.D.; Hartwig, J.F. “A Broadly Applicable Copper Reagent for Trifluoromethylations and Perfluoroalkylations of Aryl Iodides and Bromides” *Angew. Chem. Int. Ed.* **2011**, *50*, 3793–3798.

269. Hartwig, J.F., “Regioselectivity of the borylation of alkanes and arenes” *Chem. Soc. Rev.* **2011**, *40*, 1992–2002 (critical review).

270. Sergeev, A.G.; Hartwig, J.F. “Selective, Nickel-Catalyzed Hydrogenolysis of Aryl Ethers” *Science* **2011**, *332*, 439–443.

271. Marquard, S.L.; Hartwig, J.F C(sp^3)–O Bond-Forming Reductive Elimination of Ethers from Bisphosphine-Ligated Benzylpalladium(II) Aryloxide Complexes” *Angew. Chem. Int. Ed.* **2011**, *50*, 7119–7123.

272. Hanley, P.S.; Hartwig, J.F. "Intermolecular Migratory Insertion of Unactivated Olefins into Palladium–Nitrogen Bonds. Steric and Electronic Effects on the Rate of Migratory Insertion" *J. Am. Chem. Soc.* **2011**, *133*, 15661-15673.

273. Ge, S.; Hartwig, J.F. "Nickel-catalyzed Asymmetric α-Arylation and Heteroarylation of Ketones with Chloroarenes: Effect of Halide on Selectivity, Oxidation State and Room Temperature Reactions" *J. Am. Chem. Soc*. **2011**, *133*, 16330-16333.

274. Robbins, D.W.; Hartwig, J.F. "A Simple, Multi-Dimensional Approach to High-Throughput Discovery of Catalytic Reactions" *Science* **2011**, *333*,1423-1427.

275. Huang, Z.; Hartwig, J.F. "Copper(I) Enolate Complexes in Alpha-Arylation Reactions: Synthesis, Reactivity, and Mechanism" *Angew. Chem. Int. Ed.* **2012**, *51*, 1028–1032.

276. Tan, Y.; Barrios-Landeros, F; Hartwig, J.F. "Mechanistic Studies on Direct Arylation of Pyridine N-Oxide: Evidence for Cooperative Catalysis between Two Distinct Palladium Centers" *J. Am. Chem. Soc.* **2012**, *134*, 3683–3686.

277. Simmons, E.M.; Hartwig, J.F. "Catalytic functionalization of unactivated primary C–H bonds directed by an alcohol" *Nature* **2012**, *483*, 70–73.

278. Klinkenberg, J.L.; Hartwig, J.F. "Reductive Elimination from Arylpalladium Cyanide Complexes" *J. Am. Chem. Soc.* **2012**, *134*, 5758–5761.

279. Hartwig, J.F. "Borylation and Silylation of C–H Bonds: A Platform for Diverse C–H Bond Functionalizations" *Acc. Chem. Res.* **2012**, *45*, 864-873.

280. Fier, P.S.; Hartwig, J.F. "Copper-Mediated Fluorination of Aryl Iodides" *J. Am. Chem. Soc.* **2012**, *134*, 10795-10798

281. Fier, P.S.; Hartwig, J.F. "Copper Mediated Difluoromethylation of Aryl and Vinyl Iodides" *J. Am. Chem. Soc.* **2012**,*134*, 5524-5527.

282. Sevov, C.S.; Zhou, J.; Hartwig, J.F. "Iridium-Catalyzed Intermolecular Hydroamination of Unactivated Aliphatic Alkenes with Amides and Sulfonamides" *J. Am. Chem. Soc.* **2012**, *134*, 11960-11963.

283. Liskey, C.W.; Hartwig, J.F. "Iridium-Catalyzed Borylation of Secondary C-H Bonds in Cyclic Ethers" *J. Am. Chem. Soc.* **2012**, *134*, 12422-12425.

284. Robbins, D.W.; Hartwig, J.F. "A C-H Borylation Approach to Suzuki-Miyaura Coupling of Typically Unstable 2-Heteroaryl and Polyfluorophenyl Boronates" *Org. Lett.* **2012**, *14,* 4266-4269.

285. Hanley, P.S.; Marquard, S.L.; Cundari, T.R.; Hartwig, J.F. "Reductive Elimination of Alkylamines from Low-Valent, Alkylpalladium(II) Amido Complexes" *J. Am. Chem. Soc.* **2012**, *134*, 15281-15284.

286. Litvinas, N.D.; Fier, P.S.; Hartwig, J.F. "A General Strategy for the Perfluoroalkylation of Arenes and Arylbromides by Using Arylboronate Esters and [(phen)CuR_F" *Angew. Chem. Int. Ed.* **2012**, *51*, 536-539.

287. Madrahimov, S.T.; Hartwig, J.F. "Origins of Enantioselectivity during Allylic Substitution Reactions Catalyzed by Metallacyclic Iridium Complexes" *J. Am. Chem. Soc.* **2012**, *134*, 8136-8147.

288. Chen, W.; Hartwig, J.F. “Iridium-Catalyzed Regioselective and Enantioselective Allylation of Trimethylsiloxyfuran” *J. Am. Chem. Soc.* **2012**, *134*, 15249–15252.

289. Chen, C.; Weng, Z.; Hartwig, J.F. “Synthesis of Copper(I) Thiolate Complexes in the Thioetherification of Aryl Halides” *Organometallics* **2012**, *31*, 8031-8037.

290. Sergeev, A.G.; Webb, J.D.; Hartwig, J.F. “A Heterogeneous Nickel Catalyst for the Hydrogenolysis of Aryl Ethers without Arene Hydrogenation” *J. Am. Chem. Soc.* **2012**, *134*, 20226–20229.

291. Bruck, A.; Gallego, D.; Wang, W. Y.; Irran, E.; Driess, M.; Hartwig, J. F. “Pushing the -Donor Strength in Iridium Pincer Complexes: Bis(silylene) and Bis(germylene) Ligands Are Stronger Donors than Bis(phosphorus(III)) Ligands” *Angew. Chem. Int. Ed.* **2012**, *51*, 11478–11482.

292. Ge, S.; Hartwig, J.F. “Highly Reactive, Single-Component Nickel Catalyst Precursor for Suzuki-Miyuara Cross-Coupling of Heteroaryl Boronic Acids with Heteroaryl Halides” *Angew. Chem. Int. Ed.* **2012**, *51*, 12837–12841.

293. Fier, P.S.; Hartwig, J.F. “Synthesis of Difluoromethyl Ethers with Difluoromethyltriflate” *Angew. Chem. Int. Ed.* **2013**, *52*, 2092–2095.

294. Partridge, B.M.; Hartwig, J.F. “Sterically Controlled Iodination of Arenes via Iridium-Catalyzed C-H Borylation” *Org. Lett.* **2013**, *15*, 140–143.

295. Robbins, D.W.; Hartwig, J.F. “Sterically Controlled Alkylation of Arenes through Iridium-Catalyzed C-H Borylation” *Angew. Chem. Int. Ed.* **2013**, *52*, 933–937.

296. Fier, P.S.; Luo, J.; Hartwig, J.F. “Copper-Mediated Fluorination of Arylboronate Esters. Identification of a Copper(III) Fluoride Complex” *J. Am. Chem. Soc.* **2013**, *135*, 2552−2559.

297. Sevov, C.S.; Hartwig, J.F. “Iridium-Catalyzed Intermolecular Asymmetric Hydroheteroarylation of Bicycloalkenes” *J. Am. Chem. Soc.* **2013**, *135*, 2116−2119.

298. Chen, W.; Hartwig, J.F. “Control of Diastereoselectivity for Iridium-Catalyzed Allylation of a Prochiral Nucleophile with a Phosphate Counterion” *J. Am. Chem. Soc.* **2013**, *135*, 2068−2071.

299. Liskey, C.W.; Hartwig, J.F. “Iridium-Catalyzed C–H Borylation of Cyclopropanes” *J. Am. Chem. Soc.* **2013**, *135*, 3375–3378.

300. Cho, S.H.; Hartwig, J.F. “Iridium-Catalyzed Borylation of Secondary Benzylic C–H Bonds Directed by a Hydrosilane” *J. Am. Chem. Soc.* **2013**, *135*, 8157–8160.

301. Shrestha, R.; Mukherjee, P.; Tan, Y.; Litman, Z.C.; Hartwig, J.F. “Sterically Controlled, Palladium-Catalyzed Intermolecular Amination of Arenes” *J. Am. Chem. Soc.* **2013**, *135*, 8480–8483.

302. Sevov, C.S.; Hartwig, J.F. “Iridium-Catalyzed, Intermolecular Hydroetherification of Unactivated Aliphatic Alkenes with Phenols” *J. Am. Chem. Soc.* **2013**, *135*, 9303–9306.

303. Liskey, C.W.; Hartwig, J.F. “Borylation of Arenes with Bis(hexylene glycolato)diboron” *Synthesis* **2013**, *45*, 1837–1842.

304. Cheng, C.; Simmons, E.M.; Hartwig, J.H. “Iridium-Catalyzed, Diastereoselective Dehydrogenative Silylation of Terminal Alkenes with $(TMSO)_2MeSiH$” *Angew. Chem. Int. Ed.* **2013**, *52*, 8984 –8989.

305. Strom, A.E.; Hartwig, J.H. “One-Pot Anti-Markovnikov Hydroamination of Unactivated Alkenes by Hydrozirconation and Amination” *J. Org. Chem.* **2013**, *78*, 8909-8914.

306. Hanley, P.S.; Hartwig, J.F. “Migratory Insertion of Alkenes into Metal–Oxygen and Metal–Nitrogen Bonds” *Angew. Chem. Int. Ed.* **2013**, *52*, 8510-8525.

307. Gallego, D.; Brück, A.; Irran, E.; Meier, F.; Kaupp, M.; Driess, M.; Hartwig, J.F. “From Bis(silylene) and Bis(germylene) Pincer-Type Nickel(II) Complexes to Isolable Intermediates of the Nickel-Catalyzed Sonogashira Cross-Coupling Reaction” *J. Am. Chem. Soc.* **2013**, *135*, 15617-15626.

308. Sharma, A.; Hartwig, J.F. “Enantioselective Functionalization of Allylic C–H Bonds Following a Strategy of Functionalization and Diversification” *J. Am. Chem. Soc.* **2013**, *135*, 17983-17989.

309. Fier, P.S.; Hartwig, J.F. “Selective C-H Fluorination of Pyridines and Diazines Inspired by a Classic Amination Reaction” *Science*, **2013**, *342*, 956-960.

310. Denard, C.A.; Hartwig, J.F.; Zhao, H. “Multistep One-Pot Reactions Combining Biocatalysts and Chemical Catalysts for Asymmetric Synthesis” *ACS Catal.* **2013**, *3*, 2856-2864.

311. Hama, T.; Ge, S.; Hartwig, J.F. “Palladium-Catalyzed α-Arylation of Zinc Enolates of Esters: Reaction Conditions and Substrate Scope” *J. Org. Chem.* **2013**, *78*, 8250-8266.

312. Denard, C.A.; Huang, H.; Bartlett, M.J.; Lu, L.; Tan, Y.; Zhao, H.; Hartwig, J.F. “Cooperative Tandem Catalysis by an Organometallic Complex and a Metalloenzyme” *Angew. Chem. Int. Ed.* **2014**, *53*, 465-469.

313. Chen, W.; Hartwig, J.F. “Cation Control of Diastereoselectivity in Iridium-Catalyzed Allylic Substitutions. Formation of Enantioenriched Tertiary Alcohols and Thioethers by Allylation of *5H*-Oxazol-4-ones and *5H*-Thiazol-4-ones” *J. Am. Chem. Soc.* **2014**, *136*, 377–382.

314. Ge. S.; Green, R.A.; Hartwig, J.F. “Controlling First-Row Catalysts: Amination of Aryl and Heteroaryl Chlorides and Bromides with Primary Aliphatic Amines Catalyzed by a BINAP-Ligated Single-Component Ni(0) Complex” *J. Am. Chem. Soc.* **2014**, *136*, 1617-1627.

315. Tran, B.L.; Li, B.; Driess, M.; Hartwig, J.F. “Copper-Catalyzed Intermolecular Amidation and Imidation of Unactivated Alkanes” *J. Am. Chem. Soc.* **2014**, *136*, 2555-2563.

316. Sevov, C.S; Zhou, J.; Hartwig, J.H. “Iridium-Catalyzed, Intermolecular Hydroamination of Unactivated Alkenes with Indoles” *J. Am. Chem. Soc.* **2014**, *136*, 3200-3207.

317. Cheng, C.; Hartwig, J.F. “Rhodium-Catalyzed Intermolecular C–H Silylation of Arenes with High Steric Regiocontrol” *Science*, **2014**, *343*, 853-857.

318. Ge, S.; Chaładaj, W.; Hartwig, J.F. “Pd-Catalyzed α-Arylation of α,α-Difluoroketones with Aryl Bromides and Chlorides. A Route to Difluoromethylarenes” *J. Am. Chem. Soc.* **2014**, *136*, 4149–4152.

319. Larsen, M.A.; Hartwig, J.F. “Iridium-Catalyzed C−H Borylation of Heteroarenes: Scope, Regioselectivity, Application to Late-Stage Functionalization, and Mechanism” *J. Am. Chem. Soc.* **2014**, *136*, 4287–4299.

320. Cho, S.H.; Hartwig, J.F. “Iridium-catalyzed diborylation of benzylic C–H bonds directed by a hydrosilyl group: synthesis of 1,1-benzyldiboronate esters” *Chem. Sci.* **2014**,*5*, 694-698.

321. Mormino, M.G.; Fier, P.S.; Hartwig, J.F. “Copper-Mediated Perfluoroalkylation of Heteroaryl Bromides with (phen)CuRF” *Org. Lett.* **2014**, *16*, 1744–1747.

322. Chen, M.; Hartwig, J.F. “Iridium-Catalyzed Enantioselective Allylic Substitution of Unstabilized Enolates Derived from α,β-Unsaturated Ketones” *Angew. Chem. Int. Ed.* **2014**, *53*, 8691-8695.

323. Li, Q.; Liskey, C.W.; Hartwig, J.F. “Regioselective Borylation of the C–H Bonds in Alkylamines and Alkyl Ethers. Observation and Origin of High Reactivity of Primary C–H Bonds Beta to Nitrogen and Oxygen” *J. Am. Chem. Soc.* **2014**, *136*, 8755–8765.

324. Li, Q.; Driess, M.; Hartwig, J.F. “Iridium-Catalyzed Regioselective Silylation of Aromatic and Benzylic C_H Bonds Directed by a Secondary Amine” *Angew. Chem. Int. Ed.* **2014**, *53*, 8471-8474.

325. Li, B.; Driess, M.; Hartwig, J.F. “Iridium-Catalyzed Regioselective Silylation of Secondary Alkyl C−H Bonds for the Synthesis of 1,3-Diols” *J. Am. Chem. Soc.* **2014**, *136*, 6586-6589.

326. Fier, P.S.; Hartwig, J.F. “Synthesis and Late-Stage Functionalization of Complex Molecules through C−H Fluorination and Nucleophilic Aromatic Substitution” *J. Am. Chem. Soc.* **2014**, *136*, 10139-10147.

327. Green, R.A.; Hartwig, J.F. “Palladium-Catalyzed Amination of Aryl Chlorides and Bromides with Ammonium Salts” *Org. Lett.* **2014**, *16*, 4388−4391.

328. Sevov, C.S.; Hartwig, J.F. “Iridium-Catalyzed Oxidative Olefination of Furans with Unactivated Alkenes” *J. Am. Chem. Soc.* **2014**, *136*, 10625-10631.

329. Cheng, C.; Hartwig, J.F. “Mechanism of the Rhodium-Catalyzed Silylation of Arene C−H Bonds” *J. Am. Chem. Soc.* **2014**, *136*, 12064-12072.

330. Chen, M.; Hartwig, J.F. “Iridium-Catalyzed Regio- and Enantioselective Allylic Substitution of Silyl Dienolates Derived from Dioxinones” *Angew. Chem. Int. Ed.* **2014**, *53*, 12172-12176.

331. Bair, J.S.; Schramm, Y.; Sergeev, A.G.; Clot, E.; Eisenstein, O.; Hartwig, J.F. “Linear-Selective Hydroarylation of Unactivated Terminal and Internal Olefins with Trifluoromethyl-Substituted Arenes” *J. Am. Chem. Soc.* **2014**, *136*, 13098-13101.

332. Chen, W.; Chen, M.; Hartwig, J.F. “Diastereo- and Enantioselective Iridium-Catalyzed Allylation of Cyclic Ketone Enolates: Synergetic Effect of Ligands and Barium Enolates” *J. Am. Chem. Soc.* **2014**, *136*, 15825-15828.

333. Ge, S.; Arlow, S.I.; Mormino, M.G.; Hartwig, J.F. “Pd-Catalyzed α-Arylation of Trimethylsilyl Enolates of α,α-Difluoroacetamides” *J. Am. Chem. Soc.* **2014**, *136*, 14401-14404.

334. Tran, B. L.; Driess, M.; Hartwig, J. F. "Copper-Catalyzed Oxidative Dehydrogenative Carboxylation of Unactivated Alkanes to Allylic Esters via Alkenes" *J. Am. Chem. Soc.* **2014**, *136*, 17292-17301.

335. Sharma, A.; Hartwig, J.H. "Metal-Catalyzed Azidation of Tertiary C–H Bonds Suitable for Late-Stage Functionalization" *Nature* **2015**, *517*, 600-604.

336. Green, R.A.; Hartwig, J.F. "Nickel-Catalyzed Amination of Aryl Chlorides with Ammonia or Ammonium Salts" *Angew. Chem. Int. Ed.* **2015**, *54*, 3768-3772.

337. Cheng, C.; Hartwig, J.F. "Iridium-Catalyzed Silylation of Aryl C−H Bonds" *J. Am. Chem. Soc.* **2015**, *137*, 592−595.

338. Denard, C.A.; Bartlett, M.J.; Wang, J.; Lu, L.; Hartwig, J.F.; Zhao, H. "Development of a One-Pot Tandem Reaction Combining Ruthenium-Catalyzed Alkene Metathesis and Enantioselective Enzymatic Oxidation to Produce Aryl Epoxides" *ACS. Catal.* **2015**, *5*, 3817-3822.

339. Lee, T.; Wilson, T.W.; Berg, R.; Ryberg, P.; Hartwig, J.F. "Rhodium-Catalyzed Enantioselective Silylation of Arene C-H Bonds: Desymmetrization of Diarylmethanols" *J. Am. Chem. Soc.* **2015**, *137*, 6742–6745.

340. Key, H.M.: Clark, D.S.; Hartwig, J.F. "Generation, Characterization, and Tunable Reactivity of Organometallic Fragments Bound to a Protein Ligand" *J. Am. Chem. Soc.* **2015**, *137*, 8261–8268.

341. Cheng, C.; Hartwig, J.F. "Catalytic Silylation of Unactivated C−H Bonds" *Chem. Rev.* **2015**, *115*, 8946-8975.

342. Brusoe, A.T.; Hartwig, J.F. "Palladium-Catalyzed Arylation of Fluoroalkylamines" *J. Am. Chem. Soc.* **2015**, *137*, 8460–8468.

343. Larsen, M.A.; Wilson, C.V.; Hartwig, J.F. "Iridium-Catalyzed Borylation of Primary Benzylic C–H Bonds without a Directing Group: Scope, Mechanism, and Origins of Selectivity" *J. Am. Chem. Soc.* **2015**, *137*, 8633–8643.

344. Schramm, Y.; Takeuchi, M.; Semba, K.; Nakao, Y.; Hartwig, J.F. "Anti-Markovnikov Hydroheteroarylation of Unactivated Alkenes with Indoles, Pyrroles, Benzofurans, and Furans Catalyzed by a Nickel–*N*-Heterocyclic Carbene System" *J. Am. Chem. Soc.* **2015**, *137*, 12215–12218.

345. Chen, M.; Hartwig, J.F. "Iridium-Catalyzed Enantioselective Allylic Substitution of Enol Silanes from Vinylogous Esters and Amides" *J. Am. Chem. Soc.* **2015**, *137*, 13972-13979.

346. Madrahimov, S.T.; Li, Q.; Sharma, A.; Hartwig, J.F. "Origins of Regioselectivity in Iridium Catalyzed Allylic Substitution" *J. Am. Chem. Soc.* **2015**, *137*, 14968-14981.

347. Xi, Y.; Butcher, T.W.; Zhang, J.; Hartwig, J.F. "Regioselective, Asymmetric Formal Hydroamination of Unactivated Internal Alkenes" *Angew. Chem. Int. Ed.* **2016**, *55*, 776-780.

348. Gao, F.; Webb, J.D.; Hartwig, J.F. “Chemo- and Regioselective Hydrogenolysis of Diaryl Ether C−O Bonds by a Robust Heterogeneous Ni/C Catalyst: Applications to the Cleavage of Complex Lignin-Related Fragments” *Angew. Chem. Int. Ed.* **2016**, *55*, 1474-1478.

349. Hartwig, J.F. “Evolution of C-H Bond Functionalization from Methane to Methodology” *J. Am. Chem. Soc.* **2016**, *138*, 2-24.

350. Wang, D.Y.; Choliy, Y.; Haibach, M.C.; Hartwig, J.F.; Krogh-Jespersen, K.; Goldman, A.S. “Assessment of the Electronic Factors Determining the Thermodynamics of “Oxidative Addition” of C–H and N–H Bonds to Ir(I) Complexes” *J. Am. Chem. Soc.* **2016**, *138*, 149-163.

351. Larsen, M.A.; Cho, S.H.; Hartwig, J.F. “Iridium-Catalyzed, Hydrosilyl-Directed Borylation of Unactivated Alkyl C–H Bonds” *J. Am. Chem. Soc.* **2016**, *138*, 762-765.

352. Arlow, S.I.; Hartwig, J.F. “Synthesis of Aryldifluoroamides by Copper-Catalyzed Cross-Coupling” *Angew. Chem. Int. Ed.* **2016**, *55*, 4567-4572.

353. Jiang, X.; Chen, W.; Hartwig, J.F. “Iridium-Catalyzed Diastereoselective and Enantioselective Allylic Substitutions with Acyclic 〈-Alkoxy Ketones” *Angew. Chem. Int. Ed.* **2016**, *55*, 5819-5823.

354. Key, H.M.; Dydio, P.; Clark, D.S.; Hartwig, J.F. “Abiological Catalysis by Artificial Haem Proteins Containing Noble Metals in Place of Iron” *Nature* **2016**, *354*, 534-537.

355. Hartwig, J.F.; Larsen, M.A. “Undirected, Homogeneous C−H Bond Functionalization: Challenges and Opportunities” *ACS Cent. Sci.* **2016**, *2*, 281-292.

356. Xi, Y.; Hartwig, J.F. “Diverse Asymmetric Hydrofunctionalization of Aliphatic Internal Alkenes through Catalytic Regioselective Hydroboration” *J. Am. Chem. Soc.* **2016**, *138*, 6703-6706.

357. Morstein, J.; Hou, H.; Cheng, C.; Hartwig, J.F. “Trifluoromethylation of Arylsilanes with [(phen)CuCF_3]” *Angew. Chem. Int. Ed.* **2016**, *55*, 8054-8057.

358. Lee, T.; Hartwig, J.F. “Rhodium-Catalyzed Enantioselective Silylation of Cyclopropyl C-H Bonds” *Angew. Chem. Int. Ed.* **2016**, *55*, 8723-8727.

359. Zhang, Q.; Brusoe, A.T.; Mascitti, V.; Hesp, K.D.; Blakemore, D.C.; Kohrt, J.T.; Hartwig, J.F. “Fluorodecarboxylation for the synthesis of trifluoromethyl aryl ethers” *Angew. Chem. Int. Ed.* **2016**, *55*, 9758-9762.

360. Strom, A.E.; Balcells, D.; Hartwig, J.F. “Synthetic and Computational Studies on the Rhodium-Catalyzed Hydroamination of Aminoalkenes” *ACS. Catal.* **2016**, *6*, 5651-5665.

361. Chen, M.; Hartwig, J.F. “Iridium-Catalyzed Regio- and Enantioselective Allylic Substitution of Trisubstituted Allylic Electrophiles” *Angew. Chem. Int. Ed.* **2016**, *55*, 11651-11655.

362. Peacock, D.M.; Roos, C.B.; Hartwig, J.F. “Palladium-Catalyzed Cross Coupling of Secondary and Tertiary Alkyl Bromides with a Nitrogen Nucleophile” *ACS Cent. Sci.* **2016**, *2*, 647-652.

363. Cheng, C.; Watts, A.; Hillmyer, M.A.; Hartwig, J.F. “Polysilylether: A Degradable Polymer from Biorenewable Feedstocks” *Angew. Chem. Int. Ed.* **2016**, *55*, 11872-11876.

364. Gao, F.; Webb, J.D.; Sorek, H.; Wemmer, D.E.; Hartwig, J.F. “Fragmentation of Lignin Samples with Commercial Pd/C under Ambient Pressure of Hydrogen” *ACS Catal.* **2016**, *6*, 7385-7392.

365. Zhang, J.; Shrestha, R.; Hartwig, J.F.; Zhao, P. “A Decarboxylative Approach for Regioselective Hydroarylation of Alkynes” *Nature Chem.* **2016**, 1144-1151.

366. Dydio, P; Key, H.M.; Nazarenko, A.; Rha, J.Y.-E.; Seyedkazemi, V.; Clark, D.S.; Hartwig, J.F. “An artificial metalloenzyme with the kinetics of native enzymes” *Science* **2016**, *6308*, 102-106.

367. Morstein, J.; Kalkman, E.D.; Cheng, C.; Hartwig, J.F. “Copper-Mediated C-N Coupling of Arylsilanes with Nitrogen Nucleophiles” *Org. Lett.* **2016**, *18*, 5244-5247.

368. Karimov, R.R.; Sharma, A.; Hartwig, J.F. “Late Stage Azidation of Complex Molecules” *ACS Cent. Sci.* **2016**, *2*, 715-724.

369. Lee, S.Y.; Hartwig, J.F. “Palladium-Catalyzed, Site-Selective Direct Allylation of Aryl C-H Bonds by Silver-Mediated C-H Activation: A Synthetic and Mechanistic Investigation” *J. Am. Chem. Soc.* **2016**, *138*, 15278-15284.

370. Jiao, Z.; Beiger, J.J.; Jin, Y.; Ge, S.; Zhou, J.; Hartwig, J.F. “Palladium-Catalyzed Enantioselective α-Arylation of α-Fluoroketones” *J. Am. Chem. Soc.* **2016**, *138*, 15980-15986.

371. Su, B.; Zhou, T.; Li, X.; Shao, X.; Xu, P.; Wu, W.; Hartwig, J.F.; Shi, Z. “A Chiral Nitrogen Ligand for Enantioselective, Iridium-Catalyzed Silylation of Aromatic C-H Bonds” *Angew. Chem. Int. Ed.* **2017**, *56*, 1092-1096.

372. Jiang, X.; Beiger, J.J.; Hartwig, J.F. “Stereodivergent Allylic Substitutions with Aryl Acetic Acid Esters by Synergistic Iridium and Lewis Base Catalysis” *J. Am. Chem. Soc.* **2017**, *139*, 87-90.

373. Dydio, P.; Key, H.M.; Hayashi, H.; Clark, D.S.; Hartwig, J.F. “Chemoselective, Enzymatic C-H Bond Amination Catalyzed by a Cytochrome P450 Containing an Ir(Me)-PIX Cofactor” *J. Am. Chem. Soc.* **2017**, *139*, 1750-1753.

374. Key, H.M; Dydio, P.; Liu, Z.; Rha, J.Y-E.; Nazarenko, A.; Seyedkazemi, V.; Clark, D.S.; Hartwig, J.F. “Beyond Fe: Iridium-Containing P450 Enzymes for Selective Cyclopropanations of Structurally Diverse Alkenes” *ACS Cent. Sci.* **2017**, *3*, 302–308.

375. Litman, Z.C.; Sharma, A.; Hartwig, J.F. “Oxidation of Hindered Allylic C-h Bonds with Applications to the Functionalization of Complex Molecules” *ACS Catal.* **2017**, *7*, 1998-2001.

376. Jin, Y.; Chen, M.; Ge, S.; Hartwig, J.F. “Palladium-Catalyzed, Enantioselective α-Arylation of α-Fluorooxindoles” *Org. Lett.* **2017**, *19*, 1390-1393.

377. Wang, Y.; Bartlett, M.J.; Denard, C.A.; Hartwig, J.F.; Zhao, H. “Combining Rh-catalyzed Diazocoupling and Enzymatic Reduction to Efficiently Synthesize Enantioenriched 2-substituted Succinate Derivatives” *ACS. Catal.* **2017**, 2548-2552.

378. Lee, T.; Hartwig, J.F. “Mechanistic Studies on Rhodium-Catalyzed Enantioselective Silylation of Aryl C–H Bonds” *J. Am. Chem. Soc.* **2017**, *139*, 4879-4886.

379. Xia, T.; He, L.; Liu, Y.A.; Hartwig, J.F.; Liao, X. “Palladium-Catalyzed Cross-Coupling of Ethyl Bromodifluoroacetate with Aryl Bromides or Triflates and Cross-Coupling of Ethyl Bromofluoroacetate with Aryl Iodides” *Org. Lett.* **2017**, *19*, 2610-2613.

380. Hartwig, J.F. “Catalyst-Controlled Site-Selective Bond Activation” *Acc. Chem. Res.* **2017**, *50*, 549–555.

381. Fier, P.S.; Hartwig, J.F. “Selective C-H Fluorination of Pyridines and Diazines with AgF_2” *Org. Synth.* **2017**, *94*, 46-53.

382. Su, B.; Zhou, T.; Xu, P.; Shi, Z.; Hartwig, J.F. “Enantioselective Borylation of Aromatic C-H Bonds with Chiral Dinitrogen Ligands” *Angew. Chem. Int. Ed.* **2017**, *56*, 7205-7208.

383. Jiang, X.; Hartwig, J.F. “Iridium-Catalyzed Enantioselective Allylic Substitution of Aliphatic Esters with Silyl Ketene Acetals as the Ester Enolates” *Angew. Chem. Int. Ed.* **2017**, *56*, 8887-8891.

384. Troshin, K.; Hartwig, J.F. “Snap Deconvolution: An Informatics Approach to High-throughput Discovery of Catalytic Reactions” *Science* **2017**, *357*, 175-181.

385. Bunescu, A.; Lee, S.; Li, Q.; Hartwig, J.F. “Catalytic Hydroxylation of Polyethylenes” *ACS Cent. Sci.* **2017**, *3*, 895-903.

386. Xi, Y.; Hartwig, J.F. “Mechanistic Studies of Copper-Catalyzed Asymmetric Hydroboration of Alkenes” *J. Am. Chem. Soc.* **2017**, *139*, 12758–12772.

387. Su, B.; Hartwig, J.F. “Ir-Catalyzed Enantioselective, Intramolecular Silylation of Methyl C-H Bonds” *J. Am. Chem. Soc.* **2017**, *139*, 12137-12140.

388. Hill, C.K.; Hartwig, J.F. “Site-Selective Oxidation, Amination and Epimerization Reactions of Complex Polyols Enabled by Transfer Hydrogenation” *Nature Chem.* **2017**, *9*, 1213-1221.

389. Arlow, S.I.; Hartwig, J.F. “Synthesis, Characterization, and Reactivity of Palladium Fluoroenolate Complexes” *J. Am. Chem. Soc.* **2017**, *139*, 16088-16091.

390. Saper, N.I.; Hartwig, J.F. “Mechanistic Investigations of the Hydrogenolysis of Diaryl Ethers Catalyzed by Nickel Complexes of *N*-Heterocyclic Carbene Ligands” *J. Am. Chem. Soc.* **2017**, *139*, 17667-17676.

391. Karmel, C.; Li, B.; Hartwig, J.F. “Rhodium-Catalyzed Regioselective Silylation of Alkyl C–H Bonds for the Synthesis of 1,4-Diols” *J. Am. Chem. Soc.* **2018**, *140*, 1460-1470.

392. Bunescu, A.; Butcher, T.W.; Hartwig, J.F. “Traceless Silylation of β-C(sp^3)–H Bonds of Alcohols via Perfluorinated Acetals” *J. Am. Chem. Soc.* **2018**, *140*, 1502-1507.

393. Giri, R.; Brusoe, A.; Troshin, K.; Wang, J.Y.; Font, M.; Hartwig, J.F. “Mechanism of the Ullmann Biaryl Ether Synthesis Catalyzed by Complexes of Anionic Ligands: Evidence for the Reaction of Iodoarenes with Ligated Anionic Cu^{I} Intermediates” *J. Am. Chem. Soc.* **2018**, *140*, 793-806.

394. Jiang, X.; Boehm, P.; Hartwig, J.F. “Stereodivergent Allylation of Azaaryl Acetamides and Acetates by Synergistic Iridium and Copper Catalysis” *J. Am. Chem. Soc.* **2018**, *140*, 1239-1242.

395. Karimov, R.R.; Hartwig, J.F. “Transition-Metal-Catalyzed Selective Functionalization of C(sp^3)-H Bonds in Natural Products” *Angew. Chem. Int. Ed.* **2018**, *57*, 4234-4241.

396. Peacock, D.M.; Jiang, Q.; Hanley, P.S.; Cundari, T.R.; Hartwig, J.F. “Reductive Elimination from Phosphine-ligated Alkylpalladium(II) Amido Complexes to Form sp^3 Carbon-Nitrogen Bonds” *J. Am. Chem. Soc.* **2018**, *140*, 4893-4904.

397. Wang, J.Y.; Strom, A.E.; Hartwig, J.F. “Mechanistic Studies of Palladium-Catalyzed Aminocarbonylation of Aryl Chlorides with Carbon Monoxide and Ammonia” *J. Am. Chem. Soc.* **2018**, *140*, 7979-7993.

398. Su, B.; Hartwig, J.F. “Iridium-Catalyzed, Silyl-Directed, *peri*-Borylation of C−H Bonds in Fused Polycyclic Arenes and Heteroarenes” *Angew. Chem. Int. Ed.* **2018**, *57*, 10163-10167.

399. Litman, Z.C.: Wang, Y.; Zhao, H.; Hartwig, J.F. “Cooperative Asymmetric Reactions Combining Photocatalysis and Enzymatic Catalysis” *Nature*, **2018**, *560*, 355-359.

400. Zhang, Q.; Hartwig, J.F. “Synthesis of Heteroaromatic Trifluoromethyl Ethers with Trifluoromethyl Triflate as the Source of the Trifluoromethoxy Group” *Chem. Comm.*, **2018**, *54*, 10124-10127.

401. Butcher, T.W.; Hartwig, J.F. “Enantioselective Synthesis of Tertiary Allylic Fluorides by Iridium-Catalyzed Allylic Fluoro alkylation” *Angew. Chem. Int. Ed.* **2018**, *57*, 13125-13129.

402. Peacock, D.M.; Jiang, Q.; Cundari, T.R.; Hartwig, J.F. “Reduction Elimination to Form C(sp^3)-N Bonds from Palladium(II) Primary Alkyl Complexes” *Organometallics*, **2018**, *37*, 3243-3247.

403. Su, B.; Lee, T.; Hartwig, J.F. “Iridium-Catalyzed, β-Selective C(sp^3)-H Silylation of Aliphatic Amines to Form Silapyrrolidines and 1,2-Amino Alcohols” *J. Am. Chem. Soc.* **2018**, *140*, 18032-18038.

404. He, Z.; Li, H.; Haydl, A.M.; Whiteker, G.T.; Hartwig, J.F. “Trimethylphosphate as a Methylating Agent for Cross Coupling: A Slow-release Mechanism for the Methylation of Arylboronic Esters” *J. Am. Chem. Soc.* **2018**, *140*, 17197-17202.

405. He, Z.; Hartwig, J.F. “Enantioselective α-functionalizations of Ketones via Allyllic Substitution of Silyl Enol Ethers” *Nature Chem.* **2018**, *11*, 177-183.

406. Jiang, Q.; Peacock, D.M.; Hartwig, J.F.; Cundari, T.R. “Carbon(sp^3)-Nitrogen Bond-forming Reductive Elimination from Phosphine-ligated Alkylpalladium(II) Amide Complexes: A DFT Study” *Tetrahedron* **2019**, *75*, 137-143.

407. Natoli, S.N.; Hartwig, J.F. “Noble-Metal Substitution in Hemoproteins: An Emerging Strategy for Abiological Catalysis” *Acc. Chem. Res.* **2019**, *52*, 326-335.

408. Haydl, A.M.; Hartwig, J.F. “Palladium-Catalyzed Methylation of Aryl, Heteroaryl, and Vinyl Boronate Esters” *Org. Lett.* **2019**, *21*, 1337-1341.

409. Hanna, S.; Holder, J.C.; Hartwig, J.F. “Multicatalytic Approach to the Hydroaminomethylation of α-Olefins” *Angew. Chem. Int. Ed.* **2019**, *58*, 3368-3372.

410. Saper, N.I.; Ohgi, A.; Small, D.W.; Semba, K.; Nakao, Y.; Hartwig, J.F. "Nickel-catalyzed anti-Markovnikov hydroarylation of unactivated alkenes with unactivated arenes facilitated by non-covalent interactions" *ChemRxiv* **2019**, 1-21.

411. Karmel, C.; Chen, Z.; Hartwig, J.F. "Iridium-Catalyzed Silylation of C–H Bonds in Unactivated Arenes: A Sterically Encumbered Phenanthroline Ligand Accelerates Catalysis" *J. Am. Chem. Soc.* **2019**, *141*, 7063-7072.

412. Hartwig, J.F.; Ward, T.R. "New 'Cats' in the House: Chemistry Meets Biology in Artificial Metalloenzymes and Repurposed Metalloenzymes" *Acc. Chem. Res.* **2019**, *52*, 1145-1145.

413. Hartwig, J.F.; Romero, E.A. 'Iridium-catalyzed silylation of unactivated C–H bonds" *Tetrahedron* **2019**, *75*, 4059-4070.

414. He, Z.; Hartwig, J.F. "Palladium-Catalyzed ⟨-Arylation of Carboxylic Acids and Secondary Amides via a Traceless Protecting Strategy" *J. Am. Chem. Soc.* **2019**, *141*, 11749-11753.

415. He, Z.; Jiang, X.; Hartwig, J.F. "Stereodivergent Construction of Tertiary Fluorides in Vicinal Stereogenic pairs by Allylic Substitution with Iridium and Copper Catalysts" *J. Am. Chem. Soc.* **2019**, *141*, 13066-13073.

416. Hanna, S.; Butcher, T.W.; Hartwig, J.F. "Contra-thermodynamic Olefin Isomerization by Chain-Walking Hydrofunctionalization and Formal Retro-hydrofunctionalization" *Org. Lett.* **2019**, *21*, 7129-7133.

417. Gu, Y.; Natoli, S.N.; Liu, Z.; Clark, D.S.; Hartwig, J.F. "Site-Selective Functionalization of (sp3)C-H Bonds Catalyzed by Artificial Metalloenzymes Containing an Iridium-Porphyrin Cofactor" *Angew. Chem. Int. Ed.* **2019**, *58*, 13954-13960.

418. He, Z.; Hartwig, J.F. "Palladium-Catalyzed α-Arylation for the Addition of Small Rings to Aromatic Compounds" *Nat. Comm.* **2019**, *10*, 1-14.

419. Oeschger, R.J.; Larsen, M.A.; Bismuto, A.; Hartwig, J.F. "Origin of the Difference in Reactivity between Ir Catalysts for the Borylation of C-H Bonds" *J. Am. Chem. Soc.* **2019**, *141*, 16479-16485.

420. Karmel, C.; Rubel, C.Z.; Kharitonova, E.V.; Hartwig, J.F. "Iridium-Catalyzed Silylation of Five-Membered Heteroarenes: High Sterically Derived Selectivity from a Pyridyl-Imidazoline Ligand" *Angew. Chem. Int. Ed.* **2020**, *59*, 6074-6081.

421. Kalkman, E.D.; Mormino, M.G.; Hartwig, J.F. "Unusual Electronic Effects of Ancillary Ligands on the Perfluoroalkylation of Aryl Iodides and Bromides Mediated by Copper(I) Pentafluoroethyl Complexes of Substituted Bipyridines" *J. Am. Chem. Soc.* **2019**, *141*, 19458-19465.

422. Yoritate, M.; Londregan, A.T.; Lian, Y.; Hartwig, J.F. "Sequential Xanthalation and O-Trifluoromethylation of Phenols: A Procedure for the Synthesis of Aryl Trifluoromethyl Ethers" *J. Org. Chem.* **2019**, *84*, 15767-15776

423. Saper, N.I.; Ohgi, A.; Small, D.W.; Semba, K.; Nakao, Y.; Hartwig, J.F. "Nickel-Catalyzed Anti-Markovnikov Hydroarylation of Unactivated Alkenes with Unactivated Arenes Facilitated by Non-Covalent Interactions" *Nat. Chem.* **2020**, *12*, 276-283.

424. Dorel, R.; Boehm, P.; Schwinger, D.P.; Hartwig, J.F. "Copper-Mediated Fluorination of Aryl Trisiloxanes with Nucleophilic Fluoride" *Chem. Eur. J.* **2020**, *26*, 1759-1762.

425. Larsen, M.A.; Oeschger, R.J.; Hartwig, J.F. "Effect of Ligand Structure on the Electron Density and Activity of Iridium Catalysts for the Borylation of Alkanes" *ACS Catal.* **2020**, *10*, 3415-3424.

426. Su, B; Bunescu, A.; Qiu, Y.; Zuend, S.J.; Ernst, M.; Hartwig, J.F. "Palladium-Catalyzed Oxidation of C(sp3)H Bonds of Primary Alkylamines through a Rare Four-Membered Palladacycle Intermediate" *J. Am. Chem. Soc.* **2020**, *142*, 7912-7919.

427. Buchwald, S.L.; Hartwig, J.F. "In Praise of Basic Research as a Vehicle to Practical Applications: Palladium-Catalyzed Coupling to Form Carbon-Nitrogen Bonds" *Isr. J. Chem.* **2020**, *60*, 177-179.

428. Karmel, C.; Hartwig, J.F. "Mechanism of the Iridium-Catalyzed Silylation of Aromatic C-H Bonds" *J. Am. Chem. Soc.* **2020**, *142*, 10494-10505.

429. Butcher, T.W.; Yang, J.L.; Amberg, W.M.; Watkins, N.B.; Wilkinson, N.D.; Hartwig, J.F. "Desymmetrization of Difluoromethylene Groups by C-F Bond Activation" *Nature* **2020**, *583*, 548-553.

430. Hanna, S.; Wills, T.; Butcher, T.W.; Hartwig, J.F. "Palladium-Catalyzed Oxidative Dehydrosilylation for Contra-Thermodynamic Olefin Isomerization" *ACS Catal.* **2020**, *10*, 8736-8741.

431. Jiang, Q.; Peacock, D. M.; Hartwig, J.F.; Cundari, T.R. "DFT Calculations Investigate Competing Pathways to form Dimeric Neopentylpalladium(II) Amido Complexes" *ChemRxiv*, **2020,** 1-8.

432. Huang, J.; Liu, Z.; Bloomer, B.J.; Clark, D.S.; Mukhopadhyay, A.; Keasling, J.D.; Hartwig, J.F. "Artificial Biosynthetic Pathway for an Unnatural Terpenoid with an Iridium-Containing P450" *ChemRxiv*, **2020,** 1-11.

433. Hartwig, J.F.; Shaughnessy, K.H.; Shekhar, S.; Green, R.A. "Palladium-Catalyzed Amination of Aryl Halides" *Organic Reactions* **2020**,*100*, 853-943.

434. Butcher, T.W.; Yang, J.L.; Hartwig, J.F. "Copper-Catalyzed Defluorinative Borylation and Silylation of *gem*-Difluoroallyl Groups" *Org. Lett.* **2020**, *22*, 6805-6809.

435. Richers, C.P.; Roediger, S.; Laserna, V.; Hartwig, J.F. "Effects of Ligands on the Migratory Insertion of Alkenes into Rhodium–Oxygen Bonds" *Chem. Sci.* **2020**, *11*, 10449-10456.

436. Xi, Y.; Su, B.; Qi, X.; Pedram, S.; Liu, P.; Hartwig, J.F. "Application of Trimethylgermanyl-Substituted Bisphosphine Ligands with Enhanced Dispersion Interactions to Copper-

Catalyzed Hydroboration of Disubstituted Alkenes" *J. Am. Chem. Soc.* **2020**, *142*, 18213-18222.

437. Oeschger, R.; Su, B.; Yu, I.; Ehinger, C.; Romero, E.; He, S.; Hartwig, J.F. "Diverse functionalization of strong alkyl C–H bonds by undirected borylation" *Science*, **2020**, *368*, 736-741.

438. Wang, J.Y.; Choi, K.; Zuend, S.J.; Borate, K.; Hartwig, J.F. "Cross-Coupling between Hydrazine and Aryl Halides with Hydroxide Base at Low Loadings of Palladium by Rate-Determining Deprotonation of Bound Hydrazine" *Angew. Chem. Int. Ed.* **2020**, *59*, 2-12.

439. Qiu, Y.; Hartwig, J.F. "Mechanism of Ni-Catalyzed Oxidations of Unactivated C(sp3)-H Bonds" *J. Am. Chem. Soc.* **2020**, *142*, 19239-19248. DOI: 10.1021/jacs.0c09157.

440. Xi, Y.; Ma, S.; Hartwig, J.F. "Catalytic asymmetric addition of an amine N-H bond across internal alkenes" *Nature* **2020**, *588*, 254-260.

441. Ma, S.; Hill, C.K.; Olen, C.L.; Hartwig, J.F. "Ruthenium-Catalyzed Hydroamination of Unactivated Terminal Alkenes with Stoichiometric Amounts of Alkene and an Ammonia Surrogate by Sequential Oxidation and Reduction" *J. Am. Chem. Soc.* **2021**, *143*, 359-368.

442. Tlahuext-Aca, A.; Hartwig, J.F. "Site-Selective Silver-Catalyzed C-H Bond Deuteration of Five-Membered Aromatic Heterocycles and Pharmaceuticals" *ACS Catal.* **2021**, *11*, 1119-1127.

443. Tlahuext-Aca, A.; Lee, S.Y.; Sakamoto, S.; Hartwig, J.F. "Direct Arylation of Simple Arenes with Aryl Bromides by Synergistic Silver and Palladium Catalysis" *ACS Catal.* **2021**, *11*, 1430-1434.

444. Chen, L.; Malollari, K.G.; Uliana, A.; Sanchez, D.; Messersmith, P.B.; Hartwig, J.F. "Selective, Catalytic Oxidations of C-H Bonds in Polyethylenes Produce Functional Materials with Enhanced Adhesion" *Chem* **2021**, *7*, 137-145.

445. Ji, P.; Park, J.; Gu, Y.; Clark, D.S.; Hartwig, J.F. "Abiotic reduction of ketones with silanes catalysed by carbonic anhydrase through an enzymatic zinc hydride" *Nat. Chem.* **2021**, *13*, 312-318.

446. Ray, R.; Hartwig, J.F. "Oxalohydrazide Ligands for Copper-Catalyzed C-O Coupling Reactions with High Turnover Numbers" *Angew. Chem. Int. Ed.* **2021**, *60*, 8203-8211.

447. Fawcett, A.; Keller, M. J.; Herrera, Z.; Hartwig, J.F. "Site selective chlorination of C(sp^3)-H bonds suitable for late-Stage functionalization" *Angew. Chem. Int. Ed.* **2021**, *60*, 8276-8283.

448. Chen, L.; Malollari, K.G.; Uliana, A.; Hartwig, J.F. "Ruthenium-Catalyzed, Chemoselective and Regioselective Oxidation of Polyisobutene" *J. Am. Chem. Soc.* **2021**, *143*, 4531-4535.

449. Fuentes, M. A.; Gava, R.; Saper, N. I.; Romero, E.; Caballero, A.; Hartwig, J. F.; Pérez, P. J., Copper-Catalyzed Dehydrogenative Amidation of Light Alkanes. *Angew. Chem. Int. Ed.* **2021**, *60*, 18467-18471.

450. Kalkman, E. D.; Hartwig, J. F. Direct Observation of Diastereomeric α-C-Bound Enolates during Enantioselective α-Arylations: Synthesis, Characterization, and Reactivity of Arylpalladium Fluorooxindole Complexes. *J. Am. Chem. Soc.* **2021**, *143*, 11741-11750.

451. Day, C.S.; Fawcett, A.; Chatterjee, R.; Hartwig, J.F. "Mechanistic Investigation of the Iron-Catalyzed Azidation of Alkyl C(sp^3)−H Bonds with Zhdankin's λ^3 -Azidoiodane" *J. Am. Chem. Soc.* **2021**, *143*, 16184-16196.

452. Huang, J.; Liu, Z.; Bloomer, B.J.; Clark, D.S.; Mukhopadhyay, A.; Keasling, J.D.; Hartwig, J.F. "Unnatural Biosynthesis by an Engineered Microorganism with Heterologously Expressed Natural Enzymes and an Artificial metalloenzyme" *Nat. Chem.* **2021**, *13*, 1186-1191.

453. Sakamoto, S.; Butcher, T.W.; Yang, J.L.; Hartwig, J.F. "*gem*-Difluoroallylation of Aryl Halides and Pseudo Halides with Difluoroallylboron Reagents in High Regioselectivity" *Angew. Chem. Int. Ed.* **2021**, *60*, 25746-25752.

454. Butcher, T.W.; Amberg, W.M.; Hartwig, J.F. "Transition-Metal-Catalyzed Monofluoroalkylation: Strategies for the Synthesis of Alkyl Fluorides by C-C Bond Formation" *Angew. Chem. Int. Ed.* **2022**, *61*, e202112251.

455. Su, B.; Hartwig, J.F. "Development of Chiral Ligands for the Transition-Metal-Catalyzed Enantioselective Silylation and Borylation of C-H Bonds" Angew. Chem. Int. Ed. **2022**, *61*, e202113343.

456. Gu, Y.; Bloomer, B.J.; Liu, Z.' Chen, R.: Clark, D.S.; Hartwig, J.F. "Directed Evolution of Artificial Metalloenzymes in Whole Cells" *Angew. Chem. Int. Ed.* **2022**, *61*, e202110519.

457. Liu, Z.; Huang, J.; Gu, Y.; Clark, D.S.; Mukhopadhyay, A.; Keasling, J.D.; Hartwig, J.F. "Assembly and Evolution of Artificial Metalloenzymes within E. coli Nissle 1917 for Enantioselective and Site-Selective Functionalization of C-H and C = C Bonds" *J. Am. Chem. Soc.* **2022**, *144*, 883-890.

458. Ma, S.; Xi, Y.; Fan, H.; Roediger, S.; Hartwig, J.F. "Enantioselective hydroamination of unactivated terminal alkenes" *Chem* **2022**, *8*, 532-542.

459. Hanna, S.; Bloomer, B.; Ciccia, N.R.; Butcher, T.W.; Conk, R.J.; Hartwig, J.F. "Contra-thermodynamic Olefin Isomerization by Chain-Walking Hydroboration and Dehydroboration" *Org. Lett.* **2022**, *24*, 1005-1010.

460. Choi, K.; Mormino, M.G.; Kalkman, E.D.; Park, J.; Hartwig, J.F. "Palladium-Catalyzed Aryldifluoromethylation of Aryl Halides with Aryldifluoromethyl Trimethylsilanes" *Angew. Chem. Int. Ed.* **2022**, *61*, e202208204.

461. Conk, R.J.; Hanna, S.; Shi, J.X.; Yang, J.; Ciccia, N.R.; Qi, L.; Bloomer, B.J.; Heuvel, S.; Wills, T.; Su, J.; Bell, A.T.; Hartwig, J.F. "Catalytic Deconstruction of Waste Polyethylene with Ethylene to Form Propylene" *Science* **2022**, *377*, 1561–1566.

462. Bloomer, B.J.; Clark, D.S.; Hartwig, J.F. "Progress, Challenges, and Opportunities with Artificial Metalloenzymes in Biosynthesis" *Biochem.* **2023**, *62*, 221-228.

463. Bloomer, B.J.; Natoli, S.N.; Garcia-Borras, M.; Pereira, J.H.; Hu, D.B.; Adams, P.D.; Houk, K.N.; Clark, D.S.; Hartwig, J.F. “Mechanistic and structural characterization of an iridium-containing cytochrome reveals kinetically relevant cofactor dynamics” *Nat. Cat.* **2023**, *6*, 39-51.

464. Ma, S.; Fan, H.; Day, C.S.; Xi, Y.; Hartwig, J.F. “Remote Hydroamination of Disubstituted Alkenes by a Combination of Isomerization and Regioselective N-H Addition” *J. Am. Chem. Soc.* **2023**, *145*, 3875-3881.

465. Yu, I.F.; Manske, J.L.; Diéguez-Vázquez, A.; Misale, A.; Pashenko, A.E.; Mykhailiuk, P.K.; Ryabukhin, S.V.; Volochnyuk, D.M.; Hartwig, J.F. “Catalytic undirected borylation of tertiary C–H bonds in bicyclo[1.1.1]pentanes and bicyclo[2.1.1]hexanes” *Nat. Chem.* **2023**, *15*, 685-693.

466. Huang, J.; Quest, A.; Cruz-Morales, P.; Deng, K.; Henrique Pereira, J.; Van Cura, D.; Kakumanu, R.; Baidoo, E.E.K.; Dan, Q.; Chen, Y.; Petzold, C.J.; Northen, T.R.; Adams, P.D.; Clark, D.S.; Balskus, E.P.; Hartwig, J.F.; Mukhopadhyay, A.; Keasling, J.D. “Complete integration of carbene transfer chemistry into biosynthesis” *Nature*, **2023**, *617*, 403–408.

467. Ma, S.; Hartwig, J.F. “Progression of Hydroamination Catalyzed by Late Transition-Metal Complexes from Activated to Unactivated Alkenes” *Acc. Chem. Res.* **2023**, *56*, 1565-1577.

468. Van Cura, D.; Ng, T.L.; Huang, J.; Hager, H.; Hartwig, J.F.; Keasling, J.D.; Balskus, E.P. “Discovery of the azaserine biosynthetic pathway uncovers a biological route for α-diazoester production” *Angew. Chem. Int. Ed.,* 2023, e202304646.

469. Caldeweyher, E.; Elkin, M.; Gheibi, G.; Johansson, M.; Skold, C.; Norrby, P-O, Hartwig, J. F. “Hybrid Machine Learning Approach to Predict the Site Selectivity of Iridium-Catalyzed Arene Borylation” *J. Am. Chem. Soc.* **2023**, *145*, 17367–17376.

470. Wilson, J. W.; Su, B.; Yoritate, M.; Shi, J. X.; Hartwig, J. F. “Iridium-Catalyzed, Site-Selective Silylation of Secondary C(sp^3)-H Bonds in Secondary Alcohols and Ketones” *J. Am. Chem. Soc.* 2023, 145, 19490–19495.

471. Luo, Y.; Li, Y.; Wu, J.; Xue, X. S.; Hartwig, J. F.; Shen, Q. “Oxidative addition of an alkyl halide to form a stable Cu(III) product” *Science* **2023**, *381*, 1072-1079.

472. Delaney, C. P.; Lin, E.; Huang, Q.; Yu, I. F.; Rao, G.; Tao, L.; Jed, A.; Fantasia, S. M.; Puntener, K. A.; Britt, R. D.; Hartwig, J. F. “Cross-coupling by a noncanonical mechanism involving the addition of aryl halide to Cu(II)” *Science* **2023**, *381*, 1079-1085.

473. Kalkman, E. D.; Qiu, Y.; Hartwig, J. F. “Transition-State Stabilization by Secondary Orbital Interactions between Fluoroalkyl Ligands and Palladium During Reductive Elimination from Palladium(aryl)(fluoroalkyl) Complexes” *ACS Catal.* **2023**, *13*, 12810-12825.

474. Shi, J. X.; Ciccia, N. R.; Pal, S.; Kim, D. D.; Brunn, J. N.; Lizandara-Pueyo, C.; Ernst, M.; Haydl, A. M.; Messersmith, P. B.; Helms, B. A.; Hartwig, J. F. “Chemical Modification of Oxidized Polyethylene Enables Access to Functional Polyethylenes with Greater Reuse” *J. Am. Chem. Soc.* **2023**, *145*, 21527-21537.

475. Yu, I. F.; Wilson, J. W.; Hartwig, J. F. “Transition-Metal-Catalyzed Silylation and Borylation of C-H Bonds for the Synthesis and Functionalization of Complex Molecules” *Chem. Rev.* 2023, 123, 19, 11619–11663.

476. Ciccia, N. R.; Shi, J. X.; Pal, S.; Hua, M.; Malollari, K. G.; Lizandara-Pueyo, C.; Risto, E. ; Ernst, M.; Helms, B. A.; Messersmith, P. B.; Hartwig, J. F. "Diverse functional polyethylenes by catalytic amination" *Science* **2023**, *381*, 1433-1440.

477. Bloomer, B. J.; Joyner, I. A.; Garcia-Borràs, M.; Hu, D. B.; Garçon, M.; Quest, A.; Ugarte Montero, C.; Yu, I. F.; Clark, D. S.; Hartwig, J. F. "Enantio- and Diastereodivergent Cyclopropanation of Allenes by Directed Evolution of an Iridium-Containing Cytochrome" *J. Am. Chem. Soc.* **2024**, *146*, 1819-1824.

478. Pierson, C. N.; Hartwig, J. F. "Mapping the Mechanism of Oxidative Addition in Cross-coupling Reactions Catalysed by Phosphine-ligated Ni(0)" *Nat. Chem.* **2024**, ASAP (10.1038/s41557-024-01451-x).

479. Sterling, A. J.**;** Ciccia, N. R.; Guo, Y.; Hartwig, J. F.; Head-Gordon, M. "Mechanistic Insights into the Origins of Selectivity in a Cu-Catalyzed C–H Amidation Reaction" *J. Am. Chem. Soc.* **2024**, *146*, ASAP (10.1021/jacs.3c13822).

Chapters of Edited Books

1. Hartwig, J.F.; Waltz, K.M.; Muhoro, C.N. "Hydrocarbon Functionalization by Late Metal Boryls and Chemistry of Titanocene-Bound Catecholborane" In *Advances in Boron Chemistry*; W. Siebert, Ed.; The Royal Society of Chemistry: Cambridge, **1997**, pp. 373-380.

2. Hartwig, J.F. "Palladium-Catalyzed Amination of Aryl Halides and Sulfonates" In *Modern Amination Methods*; Ricci, A., Ed.; Wiley-VCH: Weinheim, **2000**.

3. Hartwig, J.F. "Palladium-Catalyzed Amination of Aryl Halides and Sulfonates" In *Modern Arene Chemistry*; Astruc, C., Ed.; Wiley-VCH: Weinheim, **2002**, pp. 107-168.

4. Hartwig, J.F. "Palladium-Catalyzed Amination of Aryl Halides and Related Reactions" In *Handbook of Organopalladium Chemistry for Organic Synthesis*; Negishi, E.I., Ed.; Wiley-Interscience: New York, **2002**; *Vol. 1*, pp. 1051-1096.

5. Hartwig, J.F. "Palladium-Catalyzed Synthesis of Aryl Ethers and Related Compounds Containing S and Se" In *Handbook of Organopalladium Chemistry for Organic Synthesis*; Negishi, E.I., Ed.; Wiley-Interscience: New York, **2002**; *Vol. 1*, pp. 1097-1106.

6. Hartwig, J.F. "Metal Complexes as Catalysts for Carbon-Heteroatom Cross-coupling Reactions" in Comprehensive Coordination Chemistry, **2004**, Elsevier Ltd.: Oxford. pp. 369-398.

7. Shekhar, S.; Shen, Q.; Barrios-Landeros, F.; Hartwig, J.F. "Synthesis of Anilines" in *The Chemistry of Anilines*; Rappoport, Z., Ed.; Wiley-Interscience: New York, **2007**, pp. 455-536.

8. Hartwig, J.F. "Design and Serendipity in the Discovery and Development of Homogeneous Catalysts for Organic Synthesis" in *Catalysis of Organic Reactions: Twenty-Second Conference*; Prunier, M. L., Ed.; CRC Press: Boca Raton, **2008**, pp. 15-21.

9. Hartwig, J.F. Forward in *Chiral Amine Synthesis: Methods, Developments and Applications*; Nugent, T.C., Ed.; Wiley-VCH: Weinheim, **2010**, pp. VII-VIII.

10. Hartwig, J.F.; Pouy, M.J "Iridium-Catalyzed Allylic Substitution" Iridium Catalysis Book Series: Topics in Organometallic Chemistry, Andersson, P.G., Ed.; Springer-Verlag: Berlin, Germany, **2011**; *Vol. 34*, pp. 169-208.
11. Shen, Q.; Guo, F.; Hartwig, J.F. "Aryl- and Hetarylamines with Hetaryl Electrophiles" in Cross Coupling and Heck-Type Reactions 2, Wolfe, J.P., Ed.; Georg Thieme Verlag K: Stuttgart, Germany, **2012**; *Vol. 6*. Pp. 173-194.

Textbooks

Hartwig, J.F. *Organotransition Metal Chemistry: From Bonding to Catalysis*, University Science Books, Sausalito, CA, **2010**.

Patents Issued

1. 5,817,877 "Metal-catalyzed amination of organic sulfonates to organic amines"
2. 5,977,361 "Transition metal-catalyzed process for preparing N-aryl compounds"
3. 6,057,456 "Transition metal-catalyzed process for preparing alpha-arylated carbonyl-containing compounds"
4. 6,072,073 "Carbonyl arylations and vinylations using transition metal catalysts"
5. 6,100,398 "Transition metal-catalyzed process for preparing N-aryl amine compounds"
6. 6,235,938 "Transition metal-catalyzed process for preparing N-aryl amine compounds"
7. 6,384,282 "Transition metal-catalyzed process for addition of amines to carbon-carbon double bonds"
8. 6,451,937 "Selective, catalytic, thermal functionalization of primary C-H hydrocarbon bonds"
9. 6,562,989 "Catalyst for aromatic C–O, C–N, and C–C bond formation"
10. 7,732,365 "Enantioselective Amination and Etherification"
11. 8,058,477 "Process for the synthesis of arylamines from the reaction of an aromatic compound with ammonia or a metal amide"
12. 8,188,302 "Hydroamination of alkenes"
13. 9,193,648 "Fluoroalkylation methods and reagents"
14. 9,452,959 "Fluorination of Aryl Compounds"
15. 9,938,204 "Intermolecular C-H silylation of unactivated arenes"
16. 9,758,453 "One-component reagent for the fluoroalkylation reaction"
17. 9,701,635 "C-H fluorination of heterocycles with silver (II) fluoride"
18. 9,598,340 "Metal-catalyzed coupling of aryl and vinyl halides"
19. 9,475,756 "Difluoromethylation of aryl and vinyl iodides"
20. 15,953,331 "Artificial metalloenzymes containing noble metal-porphyrins"
21. 11,518,768 "Artificial Metalloenzymes Containing Noble Metal-Porphyrins"

22. WO 2023/177842 “Copper-Catalyzed Amidation of Polyolefins”
23. WO 2024015617 “Methods of Making an Alkene from a Polymer”