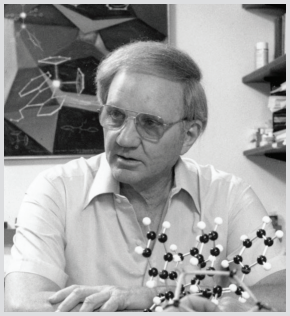
MARVIN D. RAUSCH LECTURESHIP IN ORGANOMETALLIC CHEMISTRY



Professor Marvin D. Rausch was a devoted faculty member of the Department of Chemistry at UMass Amherst from 1963 to 2001. He was widely recognized for research in organometallic chemistry and authored or co-authored over 350 scientific articles and served on the editorial boards of several journals in this area of chemistry. Professor Rausch mentored over 40 PhD students during his tenure here, and his course in advanced laboratory methodology set a standard for the training of advanced undergraduate and beginning graduate students. In addition to sponsoring this honorary seminar, he was also a generous donor to UMass Amherst's Athletic program and gave part of his fantastic crystal and mineral collection to the Department of Geosciences. To see a sample of the collection go to www.geo.umass.edu/rauschmineralgallery/

The ***Marvin D. Rausch Lectureship in Organometallic Chemistry*** was established to provide support for a lecture series which will be presented by individuals with outstanding established reputations in any aspect of organometallic chemistry. In this context, organometallic chemistry is described as the chemistry of chemical components which possess a direct carbon-to-metal bond. Areas of potential expertise for the focus of the ***Marvin D. Rausch Lectureship in Organometallic Chemistry*** include synthesis, catalysis, structure, bonding, spectroscopy, applications, or related areas.

We are extremely grateful to the late **Prof. Rausch** and family for the endowment of this seminar series.

Previous Speakers:

Professor Eric Jacobsen, 2018
Professor Stephen Buchwald, 2017
Professor Wolfgang Herrmann, 2016
Professor Karl Wieghardt, 2015
rofessor Tobin J. Marks, 2014
Professor Jerry L. Atwood, 2013
Professor Robert G. Bergman, 2012

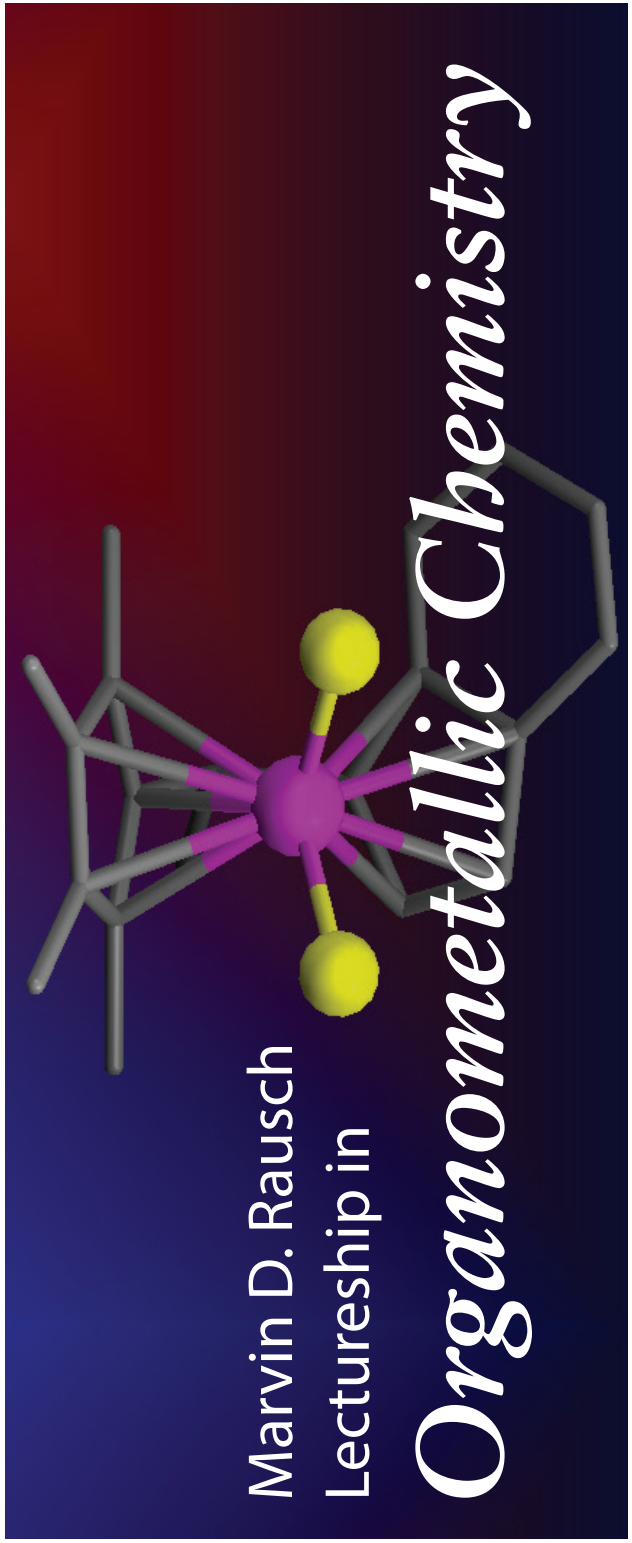
The Department of Chemistry, University of Massachusetts Amherst
presents

PROFESSOR JOHN F. HARTWIG

University of California, Berkeley, CA
Department of Chemistry

"Selective, Catalytic Functionalization of C-H Bonds with Small and Large Catalysts"

Thursday, February 21, 2019
11:30 a.m.
1634 Lederle Graduate Research Tower
Refreshments at 11:00 a.m.



JohnHartwig

John F. Hartwig was born outside of Chicago in 1964 and was raised in upstate New York. He received a B.A. degree in 1986 from Princeton University, and a Ph.D. degree in 1990 from the University of California, Berkeley under the collaborative direction of Robert Bergman and Richard Andersen. After an American Cancer Society postdoctoral fellowship with Stephen Lippard, he began an appointment at Yale University in 1992, where he was an Assistant Professor, Associate Professor, and then full Professor until 2004. In 2004, he was named the Irénée P. duPont Professor of Chemistry. In August of 2006, Professor Hartwig moved to the University of Illinois Urbana-Champaign, where he was named the Kenneth L. Rinehart Jr. Professor of Chemistry. In August 2011, Professor Hartwig moved to his current position on the faculty at the University of California, Berkeley, where he is the Henry Rapoport Professor of Chemistry.

Professor Hartwig's research focuses on the discovery and understanding of new reactions catalyzed by transition metal complexes. He has developed a selective catalytic functionalization of alkanes, a method for formation of arylamines and aryl ethers from aryl halides or sulfonates, a method for the direct conversion of carbonyl compounds to alpha-aryl carbonyl derivatives, a system for the catalytic addition of amines to vinylarenes and dienes, and highly selective catalysts for the regio and enantioselective amination of allylic carbonates. With each system, his group has conducted extensive mechanistic investigations. He has revealed several new classes of reductive eliminations, has isolated discrete compounds that functionalize alkanes, and has reported unusual three-coordinate arylpalladium complexes that are intermediates in cross coupling.

ABSTRACT

"Selective, Catalytic Functionaliztion of C-H Bonds with Small and Large Catalysts"

Abstract: The selective introduction of functional groups into complex molecules at the positions of C-H bonds has been a longstanding challenge in catalysis. Our group has developed practical methods for the catalytic functionalization of C-H bonds with main group reagents, such as boranes and silanes, to create a comprehensive strategy to use one C-H bond functionalization process to form a range of products.

This catalysis inspired us to combine the reactions of C-H bonds catalyzed by small transition-metal complexes with the selectivity and evolutionary potential of enzymes. To do so, we have created artificial heme enzymes in which the iron of the heme has been replaced with noble metals to create catalysts for reactions that have not been catalyzed by natural or mutant heme enzymes.

This lecture will present recent directions of research in our group toward discovering selective reactions of C-H bonds catalyzed by both transition metal complexes and artificial metalloenzymes. The design and selection, as well as the intimate mechanism, of catalysts and catalytic reactions for these selective functionalization processes will be presented.