

Please join

2010 Nobel Laureate **Ei-ichi Negishi**



to explore the

Magical Power of d-Block Transition Metals — Past, Present, and Future

Friday, February 25

Lecture 1:30 – 2:30 p.m. in Kane Hall Room 210

Reception following in the Walker Ames Room

Abstract

Until recently, most of the 24 d-block transition metals had been used primarily as useful materials for construction and as tools and containers; for precious and ornamental items; and for electromagnetic applications. Over the past several decades, their superb properties as chemically useful substances, especially as catalysts for chemical reactions, have been increasingly recognized. In most cases, their superb catalytic properties may be attributed to their ability to provide simultaneously both filled nonbonding valence-shell orbitals (one or more) and empty valence-shell orbitals (one or more) **within** thermally stable species and/or their ability to undergo simultaneously both reduction and oxidation under one set of reaction conditions in one reaction vessel. A combination of these two properties can be exploited in devising a wide variety of useful catalytic reactions for formation and cleavage of C-C, C-H, C-O and other bonds. For critically important C-C bond formation, reductive elimination, carbometalation, and migratory insertion may be exploited. Pd-catalyzed cross-coupling proceeding via reductive elimination and Zr-catalyzed asymmetric carboalumination of alkenes (ZACA) proceeding via carbometalation will be discussed. Many more novel catalytic one- and two-electron processes via organotransition metals will be discovered and developed.

About Ei-ichi Negishi, H.C. Brown Distinguished Professor at Purdue University



Dr. Negishi graduated from University of Tokyo with a BS in Chemistry in 1958, and obtained his PhD in Chemistry from University of Pennsylvania in 1963. He taught at Syracuse University from 1972-1979, then joined Purdue University, where he is currently H.C. Brown Distinguished Professor. In 2010 he was a Nobel Laureate in Chemistry and also was awarded the Japanese Order of Culture and The ACS Award for Creative Work in Synthetic Organic Chemistry. Most recently, Dr. Negishi was awarded the distinguished Asian American Engineer Award.