Emerson Center Lectureship Award Symposium

Revolutionizing Strategies for Carbon-Carbon and Carbon-Heteroatom Bond Formation: Interplay of Theory and Experiment

C. L. Emerson

April 27, 2011
Harland Cinema, Dobbs University Center, Emory University

AWARD WINNER & KEYNOTE SPEAKER: **Ei-ichi Negishi,** **Purdue University**

2010 Nobel Prize Winner in Chemistry

Magical Power of *d*-Block Transition Metals: Pd-Catalyzed Cross-Coupling and Zr-Catalyzed Asymmetric Carboalumination of Alkenes (ZACA)

Half a century ago, a wide range of possibilities for use of d-block transition metals (TM) as catalysts for organic synthesis were recognized. These opportunities stem from mainly two fundamental properties of these TMs: (1) simultaneous presence or availability of one or more filled-nonbonding (HOMO) and empty (LUMO) valence orbitals; (2) ability to undergo ready and reversible redox processes under one-set of reaction conditions. These properties have led to the development of a large number and widely ranging processes including critically important C–C bond formation reactions proceeding through: (a) reduction elimination (ex. Pd-catalyzed cross-coupling); (b) carbometalation (ex. ZACA reaction); (c) migration insertion (ex. carbonylation including "oxo" process). In this lecture, a brief discussion of the Pd-catalyzed cross-coupling (mostly Negishi coupling) will be followed by a more detailed discussion of the **Z**r-catalyzed **a**symmetric **c**arboalumination of **a**lkenes (ZACA reaction).

INVITED SPEAKERS

Lanny Liebeskind
Department of Chemistry, Emory University

Christopher Jones
School of Chemical & Biomolecular Engineering, Georgia Institute of Technology

Huw Davies
Department of Chemistry, Emory University

Peter Zhang
Department of Chemistry, University of South Florida

CO-SPONSORS:

EVENTS SCHEDULE

9:00 – 9:20	**OPENING CEREMONY & AWARD PRESENTATION**
9:20 – 10:20	**E. Negishi**: *Magical Power of d-Block Transition Metals: Pd-Catalyzed Cross-Coupling and Zr-Catalyzed Asymmetric Carboalumination of Alkenes (ZACA)*
10:20–11:20	**L. Liebeskind**: *Desulfitative Carbon-Carbon Bond Formation Catalyzed by Thiophilic Metals. Principles and Applications*.
11:20 –1:00	POSTER SESSION
1:00 – 2:00	LUNCH
2:30 – 3:30	**C. Jones**: *Supported Molecular Pd Catalysts in High Temperature Heck and Suzuki Reactions*
3:30 – 3:50	COFFEE BREAK
3:50 – 4:50	**H. Davies:** *Designing Stereoselective C-H Functionalization by a Combined Theoretical and Experimental Approach*
4:50 – 5:50	**Peter Zhang:** *Selective C–H Amination via Co(II)-Based Metalloradical Catalysis with Azides*
5:50	CLOSING
6:30 – 8:30	DINNER (by invitation)

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COMPUTATIONAL & LIFE SCIENCES INITIATIVE (CLS)
CENTER FOR STEREOSELECTIVE C-H FUNCTIONALIZATION
DEPARTMENT OF PHYSICS; THE HIGHTOWER FOUNDATION

REGISTRATION:
http://www.emerson.emory.edu/conferences/form/index.html

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Registration is free. Please register to attend.
Abstracts of invited talks are available online