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Wednesday, April 20, 2011
Crowne Plaza Hotel, Somerset, New Jersey

Dr. Christopher W. Jones
2010 ACS Ipatieff Award winner
Professor and J. Carl & Sheila Pirkle Faculty Fellow
School of Chemical & Biomolecular Engineering
School of Chemistry and Biochemistry
Georgia Institute of Technology

**“Heterogenized M-Salen Catalysts for Enantioselective Reactions:
Catalyst Design, Structure-Reactivity Trends, and Deactivation Pathways”**

Metal salen complexes are widely applied as catalysts for numerous important enantioselective reactions. The reactions catalyzed by metal salen complexes generally follow either (i) monometallic mechanisms (e.g. Mn-salen for epoxidation or Ru-salen for cyclopropanation), whereby a single metal complex promotes the catalytic reaction or (ii) bimetallic mechanisms, where cooperation between two metal complexes is required for efficient catalysis (e.g. Co-salen for epoxide ring-opening or Al-salen conjugate additions of cyanide). The design of effective heterogenized catalysts should therefore take into account the reaction mechanism, as reactions in category (i) are hypothesized to be optimized by accessible yet isolated supported metal salen complexes, whereas reactions of type (ii) are hypothesized to require efficient complex mobility, facilitating metal salen – metal salen cooperative interactions.

Here, several new designs for (a) soluble polymer or oligomer supported metal salen complex catalysts, (b) insoluble polymer resin supported complexes, and (c) insoluble porous silica supported are described. Their utility in the cooperative Co-salen catalyzed hydrolytic kinetic resolution of epoxides and the monometallic Ru-salen catalyzed enantioselective cyclopropanation of olefins is reported. The kinetics of the reactions using both fresh and recycled catalysts are compared. Most catalysts are shown to deactivate during use, and the mechanisms of deactivation are explored. Strategies to reduce or mitigate catalyst deactivation are described. The potential causes for the limited impact of supported molecular catalysts on commercial practice over the last 40 years are discussed.

Dinner is a buffet, and includes <u>a choice of beef, chicken or fish</u>		Members	\$37
		Non-members	\$45
Social Hour (Cash Bar)	6:00 PM	Students	\$17 (<i>Student Members = \$5</i>)
Dinner	7:00 PM	Retired/Post-Doc/ Unemp.	\$37 (<i>Members = \$27</i>)
Presentation	7:45 PM	Annual Dues	\$15

Deadline for dinner reservations is 2:00 p.m. Friday, April 15, 2011

Call or email Amanda Josey (973) 245-6173 (amanda.josey@basf.com) for reservations. With the exception of extreme circumstances, anyone not canceling reservations by the above deadline will be billed for dinner regardless of attendance.

2010-2011 Officers: Marco Castaldi (Chair), Changkun Liu (Chair-Elect), Wolfgang Ruettinger (Past Chair), Israel Wachs (Catalysis Society Rep), Amanda Josey (Secretary), John Brody (Treasurer), Jennifer Wade (Webmaster), David Harris, Jeff Yang, John Byrne (Directors)