

# How do we know?

## Mechanism and Organotransition Metal Catalysis

### *Chemistry Seminar*

Thursday, Nov 2  
3:45 pm  
Room 410

Donuts will be provided

To an undergraduate student it can seem that reaction mechanisms have always been known and were devised solely to torture. But all reaction mechanisms are hypotheses that have been contrived to account for different kinds of data that may include reaction kinetics, stereochemistry, the movement of labels, interception and characterization of chemical intermediates, etc. This talk will examine methods of determining catalytic reaction mechanisms as illustrated by the catalytic polymerization of alkenes in the presence of organohafnium complexes.

### **Clark Landis, Chair of Chemistry, University of Wisconsin-Madison**



CLARK R. LANDIS is the Shain Professor and Chair of the Department of Chemistry at the University of Wisconsin-Madison. After receiving B.Sc. at the University of Illinois-ChampaignUrbana in 1979, Clark performed research on the mechanism of asymmetric hydrogenation under the mentorship of the late Jack Halpern at the University of Chicago. He received the PhD in 1983. His professional career began as research chemist in the Corporate Research Lab of Monsanto Company. Three years in industry were followed by academic posts at the University of Colorado, Boulder (1986) and, the University of Wisconsin (1990-present). Clark's research interests include NOE-based methods for solution structure determination, the development of novel force field methods, chemical catalysis and the determination of catalytic reaction mechanisms, localized chemical bonding theory, and novel instrumentation development. Industrially relevant catalytic processes such as alkene polymerization and hydroformylation have been the subjects of his recent mechanistic and catalyst development studies. These studies motivated the development of NMR stopped-flow and high-pressure

reactors by his group to enable operando studies of homogeneous catalysts. His contributions to chemical bonding theory include the books, *Valency and Bonding* and *Discovering Chemistry with NBOs* with Professor Frank Weinhold. Clark's professional interests include pedagogy in Chemistry. He served as co-PI of the New Traditions Systemic Reform Project in Chemical Education, co-PI of the UW Chemistry REACH restructuring of General Chemistry, and co-author of *Chemistry ConcepTests: A Pathway to Interactive Classrooms*. Awards include the Galler Award for Most Distinguished Thesis in the Physical Sciences at the University of Chicago (1983), Dreyfus Distinguished New Faculty Award (1986), Fellowship in the Japan Society for the Promotion of Science (2006), Fellowship in the American Association of Arts and Sciences (2008), American Chemical Society Award in Organometallic Chemistry (2010), Chini Lectureship of the Italian Chemical Society (2018), and Fellow of the American Chemical Society (2010). His contributions to education were recognized by the Chemistry Department Teaching Award and University of Wisconsin Chancellor's Teaching Award (2010).