

# CHEMISTRY COLLOQUIUM

## Title: Developing Early Transition Metal Complexes for the Catalytic Synthesis of Amine



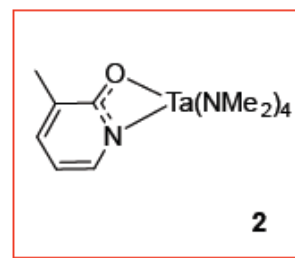
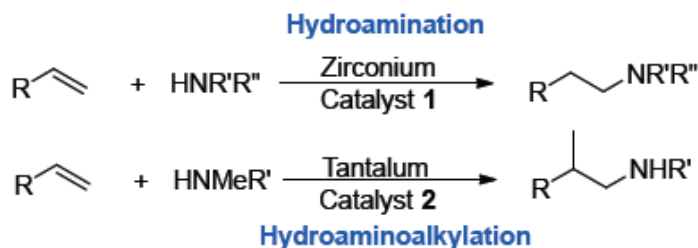
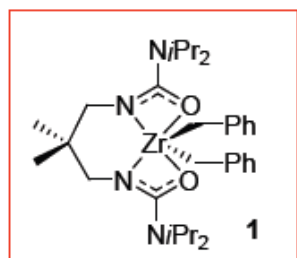
WED., NOVEMBER 2<sup>ND</sup>, 2016, 12:00PM  
HUTCHISON HALL ROOM 140  
LANDER AUDITORIUM

University of Rochester  
Department of Chemistry



### GUEST SPEAKER:

**PROFESSOR LAUREL L. SCHAFER**  
**UNIVERSITY OF BRITISH COLUMBIA**  
**DEPARTMENT OF CHEMISTRY**



### Abstract:

N,O-chelated early transition metal complexes are an easily accessed family of catalysts that have shown promise for the catalytic synthesis of amines. Efficient approaches for the catalytic synthesis of selectively substituted amines from alkene substrates is a long-standing challenge in the field. The direct reaction of amines with alkenes can be achieved by 2 complementary methods: 1) Hydroamination, a C-N bond forming reaction resulting from the addition of an N-H bond across a C=C multiple bond or 2) Hydroaminoalkylation, a C-C bond forming reaction resulting from the addition of a C-H bond adjacent to N across a C=C multiple bond. Zirconium precatalyst 1 can achieve the hydroamination of terminal alkenes with selectivity for the linear product. Alternatively tantalum precatalyst 2 can realize the hydroaminoalkylation of terminal alkenes to give the branched product selectively. Mechanistic insights for these complementary reaction manifolds will be presented. Enhanced ligand design for improved reactivity and substrate scope will be disclosed.

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