Ligand Effects on the Structure and Reactivity of Yttrocene Complexes

I. Introduction
   A. Overview of Group 3 Transition Metals
      1. Scandium and Yttrium
      2. Lanthanides
   B. Application Overview
      1. Alkene Polymerization, hydroamination, etc.

II. Structural Characterization of Yttrocene Complexes
   A. Cp*₂YN(TMS)₂, Cp*₂YCH(TMS)₂
      1. Synthesis
      2. Crystal Structures and spectroscopic characterization
   B. Structural Differences
      1. Electronic differences at metal center, bond lengths, etc.

III. Applications to Hydroamination
   A. Mechanism of Hydroamination for Group 3 Metals
      1. Catalytic cycle
      2. Substrates
   B. Ligand effects on Hydroamination
      1. Rate
      2. Stereocontrol

IV. Ansa-yttrocene and chiral yttrocene complexes
   A. Ansa-yttrocene complexes
      1. Structure
      2. Effects on Reactivity (rate, stereocontrol)
   B. Chiral ligands
      1. Structure
      2. Reactivity
References


H. Sukwon, T.J. Marks *Accounts of Chemical Research* 2004, 37, 673-686