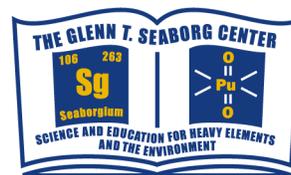




Glenn T. Seaborg Center Seminar



Professor Richard A. Andersen
Department of Chemistry
University of California

The Bivalent Lanthanide Metallocenes, $(\text{Me}_5\text{C}_5)_2\text{M}$, are Good Models for Understanding Weak Metal to Ligand Bonding

Wednesday, April 2, 2003

4 pm

Building 70A-3377

The bivalent lanthanide metallocenes of the type $(\text{Me}_5\text{C}_5)_2\text{M}$, where M is Eu, Sm or Yb, are monomeric in the gas phase and they have bent sandwich structures in the solid and gaseous (Yb) state. In hydrocarbon solution the equilibrium constants for the reaction between the metallocenes and carbon monoxide have been measured as a function of temperature. The change in enthalpy is exothermic but tiny, 10 to 40 kJ/mole depending on the metal. The CO stretching frequencies of the 1:1 adducts (Eu or Sm) are greater than that of free CO but the stretching frequencies in the 1:1 and 1:2 adducts of ytterbium are lower than that in free CO. These and other reactions with non-polar ligands will be described and discussed.