INORGANIC CHEMISTRY SEMINAR

Advances in "Frustrated Lewis Pairs" Chemistry

by **Professor Douglas W. Stephan**

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Wednesday, February 13, 2013
Cram Conference Room, 3440 Mol Sci
4:30 pm

Refreshments will be served

Abstract

The activation of hydrogen by FLPs has led to development of metal free hydrogenation catalysts. Such systems have been shown to effect the heterolytic cleavage of hydrogen and applied to develop metal-free hydrogenations for C=N bonds in a variety of organic substrates. In addition, we have shown that FLP hydrogenation can be used to effect stoichiometric aromatic reductions converting substituted aniline to cyclohexylamine derivatives. More recently we have extended this to the catalytic reduction of olefins and polyaromatic hydrocabons. In an analogous development we previously reported phosphorus-boron FLP systems that effect stoichiometric capture and reduction of CO_2. Since then we have extend this concept to a range new main group and transition metal based systems that effect stoichiometric and catalytic reduction of CO_2 to CO. The implications of the discovery of FLP for future developments will be considered in this lecture.

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