

Department of Chemistry and Molecular Biology  
Seminar  
November 19, 2009  
3:45 pm in Dunbar 152

## New Catalytic Methods: A Systems Approach

**Dr. D. Tyler McQuade**

Department of Chemistry and Biochemistry,  
Florida State University, Tallahassee, Florida 32306

### Abstract

Multi-catalyst systems are the major strategy used by nature to construct complex molecules. We have had a long-standing desire to mimic these biosynthetic methods. Recently, we reported a multi-catalyst system enabled by the use of an encapsulated catalyst. Closer examination of the catalyst-catalyst interactions revealed that the urea-based capsule shell increased the activity of one of the catalysts. These results prompted us to examine other urea-catalyst interactions. Further insights lead us to develop NHC-based Cu(I) catalysts for asymmetric  $\beta$ -borylation reactions. We will discuss each of these catalyst systems from both a methods and mechanistic viewpoint.

