

This lecture will discuss the advent and development of new concepts in chemical synthesis, specifically the application of visible light photoredox catalysis to the discovery or invention of new chemical transformations. This lecture will explore a strategy the discovery of chemical reactions using photoredox catalysis. Moreover, we will further describe how mechanistic understanding of these discovered processes has led to the design of new yet fundamental chemical transformations that we hope will be broadly adopted. In particular, a new catalysis activation mode that allows for the development of C–H abstraction and decarboxylative coupling reactions that interface with organometallic catalysis.