

Stereocontrolled Photochemical Synthesis

Yoon, T. P.

Department of Chemistry, 1101 University Avenue, Madison WI 53706

University of Wisconsin–Madison

United States

tyoon@chem.wisc.edu

Photochemistry is intriguing as a synthetic tool because the absorption of light by an organic molecule results in the formation of exceptionally energetic reactive intermediates that can react in ways that are inaccessible to ground-state molecules. However, this high reactivity is also a challenge for stereoselective synthesis: control over the stereochemistry of photochemical reactions, particularly using enantioselective catalysts, has been a long-standing challenging synthetic problem with few general solutions. One solution developed in our laboratory involves the use of chiral visible-light-absorbing transition metal complexes, the photophysical and chemical properties of which facilitate the discovery of a wide range of highly enantioselective excited-state organic transformations.