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Department of Chemistry

Dow Lecture Series

9:45 a.m. Thursday, October 11, 2012 • 331 Smith Hall

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Photoredox Catalysis: Enabling Chemical Synthesis with Visible Light

Research is focused primarily upon the development of new strategies and methodologies for the synthesis of natural products. Of particular interest are the discovery of practical new processes which utilize the redox chemistry of visible light activated metal complexes.

Website: <http://www.bu.edu/chemistry/faculty/stephenson/>



Abstract

Visible light sensitization is an attractive means to initiate organic reactions due to the lack of visible light absorbance by organic compounds reducing side reactions often associated with photochemical reactions conducted with high energy UV light. In particular, the use of photocatalysts such as $\text{Ru}(\text{bpy})_3\text{Cl}_2$ with an appropriate quencher permits the selective functionalization of many organic molecules. These processes offer improved chemoselectivity over current approaches while enabling the reduction of stoichiometric waste byproducts and toxic or hazardous reagents. Our synthetic and mechanistic investigations into generalizing the utility of visible light photoredox catalysis as a means of accessing organic reactive intermediates (free radicals, radical anions, radical cations) along with their application in complex molecule synthesis will be presented.

Host: Professor Christopher Douglas
Refreshments will be served prior to the seminar.