

MARCH 16, 2018 - 12:00 Noon, H313

Visible Light Photoredox Catalysis in Organic Chemistry

CHEM 7P95 Seminar

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“Light” is an abundant and renewable energy source for performing green chemical reactions and photochemistry and photocatalysis have found broad utility in organic synthesis.¹ However, the lack of visible light absorption by many organic molecules has limited the application of photochemical synthesis. Hence, in order to overcome this barrier, visible light absorbing photocatalysts and their electron/energy transfer processes are employed to sensitize organic molecules to carry out required photochemical reactions.² In particular, Ru(II)polypyridine complexes are quite interesting due to their ease of synthesis, stability at room temperature, and excellent photoredox properties.³ Among these complexes, Ru(bpy)₃Cl₂, a commercially available complex, is one of the most widely employed photocatalyst. The photophysical properties of these catalysts,⁴ their application in organic synthesis and some examples in natural products synthesis⁵ will be discussed in the seminar.

¹Yoon, T. P.; Ischay, M. A.; Du, J. *Nat. Chem.*, **2010**, *2*, 527-532.

²Shaw, M. H.; Twilton, J.; MacMillan, D. W. C. *J. Org. Chem.* **2016**, *81*, 6898–6926.

³Narayanam, J. M. R.; Stephenson, C. R. J. *Chem. Soc. Rev.*, **2011**, *40*, 102–113.

⁴Tucker, J. W.; Stephenson, C. R. J. *J. Org. Chem.* **2012**, *77*, 1617–1622.

⁵Kärkäs, M. D.; Porco, J. A.; Stephenson, C. R. J. *Chem. Rev.* **2016**, *116*, 9683–9747.