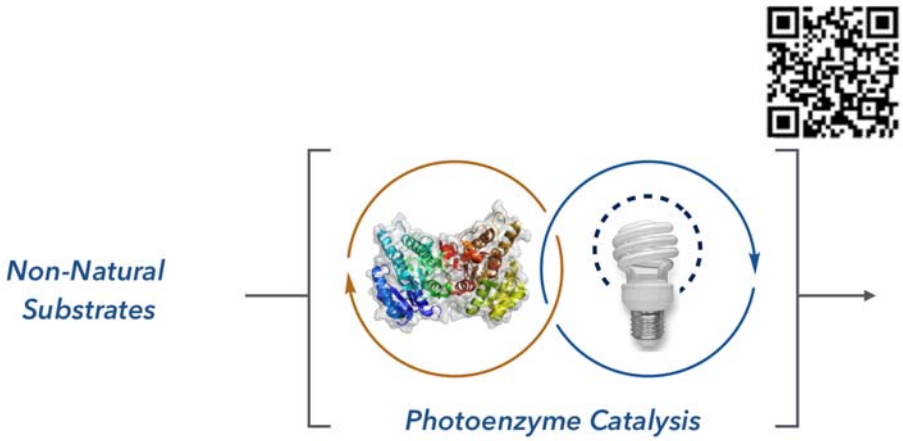
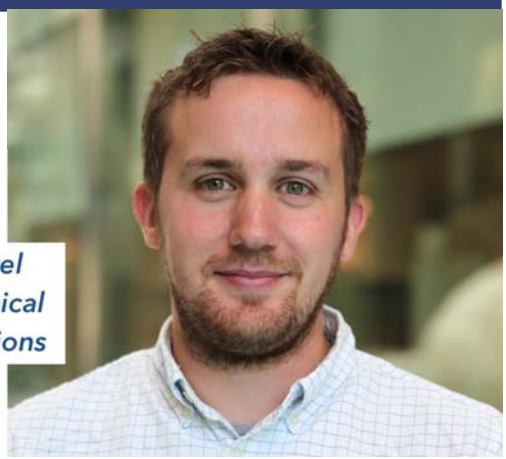
Organic Seminar

Title: "Photoenzymatic Catalysis - Using Light to Reveal New Enzyme Functions"





Friday, January 31st, 9:00am

Hutchison Hall 473

University of Rochester

Department of Chemistry

Guest Speaker:

Professor Todd Hyster

Princeton University

Department of Chemistry

Abstract: Enzymes are exquisite catalysts for chemical synthesis, capable of providing unparalleled levels of chemo-, regio-, diastereo- and enantioselectivity. Unfortunately, biocatalysts are often limited to the reactivity patterns found in nature. In this talk, I will share my groups efforts to use light to expand the reactivity profile of enzymes. In our studies, we have exploited the photoexcited state of common biological cofactors, such as NADH and FMN to facilitate electron transfer to substrates bound within enzyme active sites. In other studies, we found that enzymes will electronically activate bound substrates for electron transfer. In the presence of common photoredox catalysts, this activation can be used to direct radical formation to enzyme active sites.Using these approaches, we are able to develop biocatalysts to solve long-standing selectivity challenges in chemical synthesis.

Host: Rudi Fasan ● Email: rudi.fasan@rochester.edu