UNIVERSITY OF RHODE ISLAND
Department of Chemistry
VIRTUAL SEMINAR

Zoom link on the next page
3:00 P.M., Monday, Feb. 28, 2022

Prof. Samuel Thomas

Tufts University
Department of Chemistry

"Harnessing cycloadditions of long acenes with singlet oxygen"

HOST

Lorenzo Mosca
Department of Chemistry
401-874-2364

Harnessing cycloadditions of long acenes with singlet oxygen

Prof. Samuel Thomas
Department of Chemistry
Tufts University

The most popular applications for long acenes such as tetracenes and pentacenes are organic optoelectronics. Long acenes are among the highest performing materials in transistors, and their unique electronic structures makes them strong candidates for singlet fission. These applications prioritize molecular stability, rendering problematic their reaction chemistry, including as dienes in cycloaddition reactions. Nevertheless, their cycloaddition reactions, particularly with singlet oxygen as a dienophile, are often rapid, clean, regioselective, and require only light and O_2 to proceed. This talk will summarize work by our group over the past several years that highlights how chemical structures of long acenes influence many aspects of these reactions, including their kinetics, products, and impact on spectroscopic features such as luminescence. Our physical organic approach to understanding acene-$^1O_2$ reactivity has revealed substitution patterns on long acenes that yield large yet predictable variation in spectroscopy, reactivity, and product structure. This talk will also relate these structure-property relationships of acenes to applications in luminescent nanomaterials for sensing singlet oxygen, photodegradable materials for drug delivery, and novel approaches to long acenes that resist direct photooxidation.

To join the seminar on Zoom:

Join Zoom Meeting
https://uri-edu.zoom.us/j/97853642452?pwd=Y3lqMTJvWWhlRUVJQVh0SjUzcTlsZz09

Meeting ID: 978 5364 2452
Passcode: 673594