



Department of Chemistry Seminar Series Fall 2022

Friday, October 7, 2022, 3:30 PM - **HS1 O112 (Health Sciences)**

Host: Fernando Uribe-Romo

Light-Metal Organic Framework Interactions: Oddities that arise from taking the molecular to the solid state



Prof. Amanda J. Morris
Professor, Department of Chemistry
Virginia Tech, Blacksburg, VA

The finite supply of fossil fuels and the possible environmental impact of such energy sources has garnered the scientific community's attention for the development of alternative, overall carbon-neutral fuel sources. The sun provides enough energy every hour and a half to power human civilization for an entire year. However, two of the remaining challenges that limit the utilization of solar energy are the development of cheap and efficient solar harvesting materials and advances in energy storage technology to overcome the intermittent nature of the sun. In the seminar, the research projects to be discussed focus on the development of an artificial photosynthetic array for solar energy storage. Photosynthetic systems consist of light harvesting arrays and redox mediators that can funnel the electrochemical potential stored in molecular excited states to catalytic centers to drive the oxidation of water and the reduction of CO₂ to sugars. Many artificial approaches to this chemistry have been reported. In the Morris group, we investigate metal organic frameworks (MOFs) as both light harvesters and high surface area catalysts as photosynthetic mimics. Aspects of both light harvesting and catalysis will be discussed.