

# ORGANIC SEMINAR

## *New Electron-Transfer Concepts in Organic Synthesis*

### Professor Eric Nacsa

Department of Chemistry  
Penn State University



The Nacsa Group uses electron transfer techniques to address challenges in organic synthesis. Our lab works in two main areas. The first uses electrochemistry to develop new approaches for dehydration reactions, such as the synthesis of amides and esters from carboxylic acids, with an emphasis on catalysis. Dehydrative transformations are workhorse operations in pharmaceutical R&D, but owing to the wasteful reagents overwhelmingly used to accomplish them, industry has long called for methods that avoid these reagents. We have identified new electrochemical strategies for the substitution of carboxylic acids that meet these demands. Our second program leverages radical-mediated migration events, usually initiated by photoinduced electron transfer, as key design elements in complexity-generating transformations. We have shown that olefin difunctionalizations underpinned by this approach can access product classes and achieve stereoselectivities that have otherwise proven challenging or impossible. More recently, we have discovered conceptually novel and synthetically enabling methods for the amination of aromatics and the stereoselective  $\alpha$ -functionalization of carbonyls.



Tuesday, February 25, 2025



4:30 pm



WTHR 104



James Tarpo Jr. and Margaret Tarpo  
Department of Chemistry