



**CHEMISTRY &
BIOCHEMISTRY**

DATE **TIME** **LOCATION**
11/14/2025 | 10:30am | SSB 130

CHEMISTRY & BIOCHEMISTRY SEMINAR SERIES: New Reactivity to Solve Chemical Challenges

Abstract:

We are developing iron-catalyzed reactions and heterocyclic rearrangements for molecule synthesis. In the field of iron catalysis, we discovered a cross-electrophile reaction that couples benzyl halides with disulfides to yield thioether products in the absence of a terminal reductant and photoredox conditions. Mechanistic experiments provide insight on the workings of the cross-electrophile coupling and have led to the development of additional iron-catalyzed reactivity. As for the heterocyclic rearrangements, we broke through reactivity barriers first encountered in 1850. We applied the rearrangement chemistry to unlock the final static structural compartment in donor-acceptor Stenhouse adducts and are now studying the photophysical and switching structure-property relationships of novel photoswitchable molecules. We are also developing additional pyrrole rearrangements to be used in other synthetic endeavors. Given the broad applicability of iron-catalysis, heterocyclic rearrangements, and the resultant products, including photoswitches, we expect this presentation to be of interest to the greater scientific community.



Elias Picazo

Assistant Professor
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About the Speaker:

Elias was born and raised in California. He studied chemistry and math at the University of California, Santa Barbara (UCSB). At UCSB, Elias performed undergraduate research with Armen Zakarian working on stereoselective trifluoromethylation methodology development. Elias then moved to study with Neil Garg at the University of California, Los Angeles (UCLA) for his doctoral work. At UCLA, Elias discovered various reactions and applied them to make, for the first time since their discovery in the 1800s, several complex bioactive akuammiline alkaloids. In 2018, Elias completed his doctoral studies and subsequently moved to study with Eric Jacobsen at Harvard University as a postdoctoral researcher. At Harvard, Elias developed stereoselective and catalytic reactions using hydrogen-bond-donor organocatalysts. Over the years, Elias has gained expertise in synthesis, catalysis, reaction development, and bioactive molecule discovery. At USC, Elias develops reactions and uses them to create and characterize novel light-responsive and bioactive compounds.

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