



# Inorganic Chemistry Seminar Series

Tuesday, September 3, 2019, 12:30 pm  
Verna and Peter Dauterive Hall (VPD), Room 105

## Professor Federico A. Rabuffetti

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### ***Synthesis, Crystal-Chemistry, and Reactivity of Bimetallic Fluoroacetates: From Serendipity to a New Family of Organic–Inorganic Hybrids***

Extended inorganic hybrids incorporating multiple metals bridged by organic halogenated ligands have the potential to allow tunable pathways for energy-transfer like those required in optical energy conversion applications. These hybrids exhibit infinite bonding connectivity of the metals in at least one dimension, facilitating metal-to-metal energy-transfer. In the past, extended inorganic hybrids have been synthesized using geometrically flexible halogenated ligands to bridge two metals. In this talk I will summarize research efforts aimed at expanding this chemical space using fluorinated monocarboxylates as bridging ligands. The crystal growth and crystal-chemistry of bimetallic fluoroacetates will be explained in detail. Emphasis will be placed on highlighting the ability of the fluoroacetato ligand to satisfy the electronic and geometric requirements of two distinct metals, thus providing access to a chemically and structurally diverse family of hybrid crystals. Finally, I will describe the luminescence and reactivity of bimetallic fluoroacetates and show that these hybrids serve as thermosensitive light emitters and self-fluorinating single-source precursors to mixed-metal fluorides.

Hosted by Professor Richard Brutchey

*The scientific community is invited*