



Chemical & Physical Sciences

UNIVERSITY OF TORONTO

MISSISSAUGA

COLLOQUIUM SEMINAR SERIES

SYNTHETIC INORGANIC CHEMISTRY AS A TOOLKIT FOR FORMATION OF BESPOKE FUNCTIONAL MATERIALS



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Silicon, aluminum and oxygen are some of the most abundant elements in the earth crust and are commonly found in naturally occurring minerals. The chemical identity of these minerals have served as an inspiration for formation of synthetic materials that are routinely used in the modern chemical industry. Despite the industrial relevance of such materials, our understanding of their surface structure is far from complete with complications stemming from the inherent complexity of the solid-state, the chosen synthetic routes, as well as limitations in the characterization techniques. As the majority of the chemical reactivity is confined to the interfacial region, such knowledge gap prevents us from improving on the existing processes to make them more efficient, atom economical and sustainable.

In this talk I will demonstrate how synthetic inorganic chemistry can address the issue of complexity in solid-state materials. Specifically, I will discuss how precise chemical elaboration can yield well-defined materials. These can be viewed as models for the ill-defined materials used in industry. Furthermore, I will show that the tools of synthetic inorganic chemistry allow for formation of bespoke metal sites on the surfaces of materials with applications extending beyond industrial chemical production. I will close the talk with an overview of a new class of materials that can offer unparalleled opportunities in terms of their synthetic elaboration.

Join us on

Wednesday, September 28, 2022

at 3:30pm in CC 2150