DREXEL UNIVERSITY
Materials Science and Engineering
College of Engineering

**Department of Materials Science and Engineering**

**Ph.D. Thesis Proposal**

**March 1st, 2024 11:00 AM (EST)**
**Hill Conference Room (Lebow 240)**
**https://drexel.zoom.us/j/81963333072**

# Surfaces of Low Dimensional Materials: Controlling Properties through Chemical Modification

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## Abstract

Low-D materials have gained traction recently due to properties not seen in their 3D counterparts. 1D materials have been of particular interest due to their high concentration of reactive edge regions. However, there is a significant lapse in the quality, and overall availability, of studies related to understanding and modifying the surface of low-D materials. This work will focus on the fundamental surface characterization of a novel, simple to fabricate, 1D lepidocrocite titanate material. Exploration into existing, or the development of novel, surface functionalization methodologies will be another primary thrust; using chemical grafting to drive results. The impact of these modifications on surface-driven properties will be mentioned, including: colloidal stability, adsorption, and photocatalytic activity.