

SEMINAR NOTICE

*Department of Physics and Engineering Physics
University of Saskatchewan*

SPEAKER: Jessica Freese, PhD Candidate,
Physics and Engineering Physics

TOPIC: *Examining titanate surface orbital reconstruction by
Resonant x-ray reflectometry.*

DATE: Tuesday November 26th, 2024

TIME: 3:30-4:30 p.m.

PLACE: *Physics 103*

Abstract:

Over the course of the last twenty years, research into correlated electron materials presenting emergent functional properties like high temperature superconductivity, colossal magnetoresistance, and metal-insulator transitions has grown dramatically. Surface and interface electronic and magnetic properties often differ significantly from the bulk, presenting an exciting opportunity to explore the tunability of these properties. Of particular interest is SrTiO₃ which has been shown to support a 2D electron gas at interfaces with LaAlO₃ and at bare surfaces.

Here we apply resonant x-ray reflectometry, a synchrotron technique which provides a depth-resolved probe with sensitivity to both element and electronic structure, to pristine surfaces in the perovskite titanates SrTiO₃, CaTiO₃, and BaTiO₃. This work aims to better understand the orbital reconstruction at these surfaces.

Coffee and Cookies available in Physics 177 lounge at 3:00pm to those attending the seminar.