

# CONDENSED MATTER SCIENCES SEMINAR

## Professor Chunjing Jia

University of Florida

**Host**

**Dr Hitesh Changlani**

**Title**

**Theoretical investigation of strain engineered perovskite nickelates**

**Friday, March 28<sup>th</sup>, 2025**

**1<sup>st</sup> Floor – B101**

**15:00-16:00**

**Abstract**

Recent discoveries of superconductivity in layered nickelates under pressure and in thin films under epitaxial strain have garnered significant attention. In this talk, I will present our recent theoretical investigations into strain-engineered superconductivity in bilayer nickelates, focusing on the understanding from first-principles calculations and microscopic electronic structure modeling. I will also discuss how these findings align with recent angle-resolved photoemission spectroscopy (ARPES) measurements on superconducting bilayer nickelates in epitaxially strained thin films. In the second part of the talk, I will discuss how artificial intelligence techniques are being utilized to extract material parameters from ARPES data, offering a novel approach to advance the understanding of microscopic materials information in perovskite nickelates and other quantum materials.