Title: Halide perovskites at high pressure and varying temperatures

Yu Lin
lyforest@slac.stanford.edu
Stanford Institute for Materials and Energy Sciences, SLAC National Accelerator Laboratory, Menlo Park, California 94025, United States

Abstract: Halide perovskites are a class of versatile crystalline semiconductors that have recently shown great promise in a range of optoelectronic applications in clean energy including photovoltaics and solid-state lighting. Halide perovskites, in contrast to oxide perovskites, exhibit much softer and more deformable lattices, where mild compression can induce dramatic changes in their structural, photophysical, and transport properties. In this talk, I will focus on how pressure combined with varying temperatures can alter their electronic landscapes and access and preserve metastable phases not available through conventional syntheses. I will also discuss future challenges and exciting opportunities as we further the study on halide perovskites in a wide pressure-temperature space.