

UNIVERSITY OF RHODE ISLAND
Department of Chemistry
SEMINAR

Room 105 Beupre Center
3:00 p.m., Monday, November 8, 2021

Missy Smith

Graduate Student
Chemistry Department
URI

***“Observation of organic-inorganic tin halide
perovskite oxidation by in situ spectroscopy with ex
situ reduction”***

HOST

Jason Dwyer
Department of Chemistry
401-874-4648

Abstract: As organizations around the globe strive to match the Paris Climate Agreement of limiting the increase in average temperature to less than 1.5°C, we propose to characterize the stability of perovskite solar cells as a green energy initiative. Inorganic-organic Sn(II) halide perovskites may benefit the energy sector as a less toxic alternative to Pb-based materials but requires isolated mechanistic insight into the oxidation of Sn(II) to Sn(IV) in order to understand the overall degradation of the cell. We show through *in situ* X-ray absorption spectroscopy the oxidation kinetics of various grain sized Sn(II) perovskites with additional *ex situ* reduction of oxidized Sn(IV) to Sn(II).