DEPARTMENT OF
Chemistry
UNIVERSITY OF WISCONSIN-MADISON

Ph.D. THESIS DEFENSE

Yongping Fu – Jin research group

August 10, 2018 at 10:00 am in room 8335 Chemistry

"*Metal halide perovskite nanostructures for optoelectronic applications and* fundamental studies"

Abstract: Nanostructures of inorganic semiconductors have revolutionized many areas of science and technology. The rational and controlled synthesis of new semiconductor nanostructures lead to novel physical properties, better device performance, and new areas for exploration. Recently, lead halide perovskites have excited the photovoltaic solar material research community due to their high solar conversion efficiencies and ease of solution processing; they also hold great promise for optoelectronic applications, such as light emitting diodes and lasers. My graduate research is focused on the synthesis, characterization, and applications of metal halide perovskite nanostructures with controllable compositions, dimensionality, morphologies, and orientations. I will discuss new synthetic methods, advantageous optical properties, improved structural and chemical stability, and potential optoelectronic applications, such as lasing, using high quality single-crystal perovskite nanostructures. Studies on fundamental physical properties, such as carrier dynamics, utilizing these nanostructures and their heterostructures as versatile platforms will also be highlighted.