Nuclear Engineering Seminar

Elizabeth Sooby Wood, Ph.D.
Assistant Professor
The University of Texas at San Antonio

Wednesday, October 24, 2018
3:30pm | WTHR 200

Advanced Reactor Fuel Fabrication and Testing at The University of Texas at San Antonio

Abstract
Since the disaster at the Fukushima Daiichi power plant in 2011, there has been a resurgence of nuclear fuels research across the globe. The Department of Energy Fuel Cycle Research and Development program supports a campaign to develop and assess ‘Accident Tolerant Fuels’, designed to be drop-in fuels for existing reactors. With proposals for new fuel concepts powering the core, new licensing and safety concerns arise. U3Si2 is a leading candidate as its enhanced thermal conductivity and uranium density compared to UO2 can potentially increase both safety and power margins. However, U3Si2 has been shown to rapidly oxidize in O2, and H2O containing atmospheres proving it susceptible to washout. Presented will be an overview of the growing capability for fuel metallic and intermetallic fuel fabrication and testing at UTSA alongside a discussion on the advancement of a particular accident tolerant fuel technology. The seminar will focus on both the opportunities and challenges for the deployment of non-oxide fuels and recent results on the development, fabrication, and steam oxidation testing of alloyed uranium silicide candidate fuel forms aimed to mitigate the water reaction.