

CONNECT

CONsortium of Nuclear sECurity Technologies

CONNECT Undergraduate Research Experience



Katherine Montoya, Ph.D.

Oak Ridge National Laboratory

Thursday, 20 June 2024

2:00PM - 3:30PM

BSB 3.03.02

Current efforts of TRISO particle research at Oak Ridge National Laboratory

Dr. Katherine Montoya joined the Particle Fuel Forms Group in January 2023 as a Research and Development Staff member. Dr. Montoya's primary research focuses on the microstructural characterization of irradiated and as-fabricated tristructural-isotropic (TRISO) coated particle fuel for advanced nuclear reactor applications. Dr. Montoya supports the characterization efforts of particles from the Advanced Gas Reactor Fuel Qualification and Development program and Space Nuclear Propulsion programs. Before joining ORNL, she earned her Ph.D. in Physics at the University of Texas San Antonio. Her dissertation focused on the thermal performance and microstructural analysis of matrix graphite and SiC under various high temperatures off-normal reactor conditions. During that time, Dr. Montoya completed a portion of her graduate research through the H.E.R.E program in the summer of 2019.

The presentation will focus on current research efforts on particle fuels at Oak Ridge National Laboratory. The Advanced Gas Reactor Fuel and Development program has focused on researching and developing the modern Tristructural isotropic (TRISO) coated particle fuel. TRISO fuel has been proposed for various advanced reactor types. This presentation will introduce advanced gas reactors (AGRs) and TRISO fuel. Methodologies that were developed at Oak Ridge National Laboratory for fuel qualification of TRISO and the challenges associated with commercializing this fuel will be covered. Different microstructural studies related to TRISO fuel performance studies and the importance of qualifying the fuel form will be presented.