

Vision

CMSNF will develop a first-principles-based understanding of *impact of complex defect structures on thermal transport in irradiated nuclear fuels*, with UO_2 as a model fuel system.

Research Plan and Directions

The research objectives of the center are:

- To achieve an understanding of the impact of complex defect structures on thermal transport in irradiated oxide fuel from first principles.
- To achieve the above for the case of irradiation induced defects in oxide fuel. As such, the center will also achieve a first-principles based understanding of the effects of irradiation on stoichiometry and microstructure in oxide fuel.
- By achieving these above goals, the center will also establish a new research direction that integrates the physics of thermal transport and the physics of defect and microstructure in irradiated oxide fuel.

