Development of reactor thermalhydraulics and safety research facilities at Kansas State University

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ABSTRACT:

The general scientific infrastructure grant from DOE's Office of Nuclear Energy will be used to enhance the Reactor Thermal hydraulics and Safety Research facilities by purchasing and installing advanced instrumentation and equipment. This will enable a wide variety of reactor thermal hydraulics experiments and high fidelity measurements. The advanced instrumentation and equipment acquired with this grant will be used by KSU students to conduct nuclear thermal hydraulics research and acquire skills needed in the design, regulation, construction and operation of advanced nuclear power plants in the US in the future. A unique capability of this laboratory with these proposed instruments will be to simultaneously obtain flow and temperature measurements, and material behavior using spectrally resolved high speed, high resolution non-intrusive imaging. These high fidelity measurements will help in understanding complex multiphysics problems such as thermal hydraulics induced oxidation or corrosion processes, and flow or temperature assisted deposition or removal of particles.