

## **Research Assistantships in Cybersecurity of Nuclear Facilities and Critical Infrastructure**

**Institute for Space and Nuclear Power Studies (ISNPS), <https://isnps.unm.edu/>  
The University of New Mexico, Albuquerque, New Mexico**

Research Assistantships are available starting in the fall 2018 semester to qualified graduate students interested in pursuing their studies toward a PhD with emphases on cybersecurity and modeling and simulation of nuclear power plants and instrumentation. The research is part of a joint program with Sandia National Laboratories on cybersecurity of nuclear facilities and critical infrastructure. The objective is to develop a Nuclear Instrumentation and Control Simulation (NICSim) platform with novel emulotics capability to simulate control systems and components in nuclear power plants. The platform would use the DOE SCEPTRE emulation framework, developed at SNL to evaluate cyber-attacks on energy grids, to simulate digital instrumentation & control (I&C) systems in nuclear power plants. The emulated control system models would be coupled to simplified, physics-based models of a given nuclear power plant's components to enable real and direct feedback of the integrated I&C system's behavior, both nominally and while under cyber-attack. *The research is funded by a multi-year, DOE Nuclear Energy University Program grant to UNM-ISNPS.*

Full-time graduate students currently enrolled at UNM, who are US citizens or permanent residents with a GPA of 3.5 or higher, and prior research and professional experience in nuclear engineering, computer and electrical engineering, and computer science are strongly encouraged to apply. Candidate is expected to:

- Develop efficient, physics-based models of reactor instrumentation and transient models of nuclear power plant components for integration with into a dynamic nuclear plat simulator model
- Possess knowledge of computer programming, with an emphasis on the Python language, for coding and coupling simulation models to the DOE SCEPTRE emulotics framework
- Conduct dynamic simulation of the responses of a commercial nuclear power plant, both for nominal operation and while under cyber-attack
- Work independently, with little supervision, as well as part of a team, and has very good technical writing and communication skills

Those interested please send a CV with details of education background, and prior research and professional experience to: Dr. Timothy M. Schriener, Email: [schrient@unm.edu](mailto:schrient@unm.edu)