

Aspiring PI Info:

- Name: Carol Smidts
- Position/Title: Professor
- Affiliation: The Ohio State University, Department of Mechanical and Aerospace Engineering



THE OHIO STATE
UNIVERSITY

Research interests:

- **Safety and Security of Cyber-Physical Systems in Safety Critical Systems**
 - Fault Analysis at the System Design Level
 - Design of Online Monitoring Systems
 - Root Cause Analysis through inference
 - Design of Intrusion Detection and Response Systems for Cyber-security

Current Project(s)

- Use of Formal Method based on Qualitative Physics and Propositional Logic to Design an On Line Monitoring System for Autonomous Advanced Reactors (Recently Completed)
- Simulation Environment for Risk Assessment of Cyber Defense Architectures (Recently Completed)
- Establishment of a Small Modular Reactor Full Scale Simulation Environment (Current)

Project Idea(s)...

- Impact on Society: Increase Safety and Security
- Who will benefit: The population at large, the nuclear industry, any industry using cyber-physical systems in safety critical applications
- Possible transition to practice: Tools developed and environments can be patented and commercialized. One patent currently granted, others are pending (3).
- Education and Outreach: System designers, system developers, graduate students, undergraduate students, local communities
- Quantify impacts if possible: Millions to 100s of Millions depending on criticality of the fault and its impact on the system (Fukushima: 82 Billion \$)

... and possible collaborators sought

- Qualitative Physics Modeling for various application domains
- Example cyber-physical applications
- Threat and vulnerability modeling
- Temporal Logic Modeling

