

(Microreactor Applications Research, Validation & EvaLuation),
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Microreactor Applications

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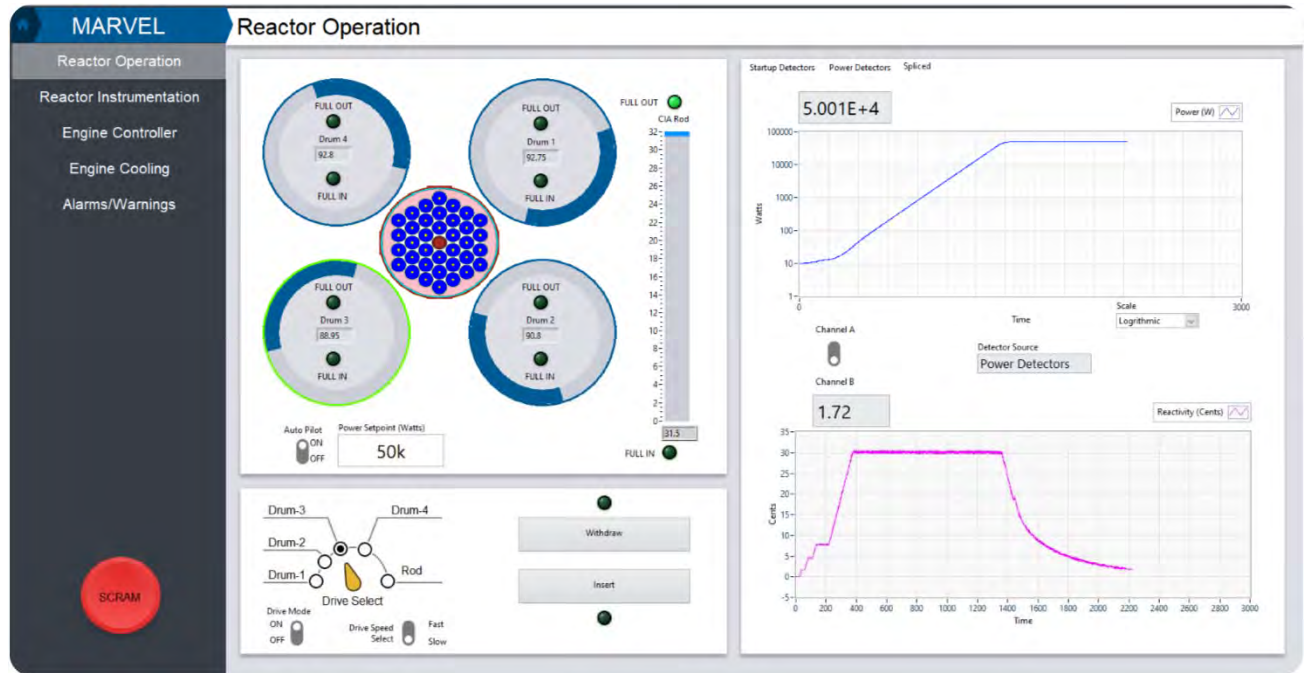
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MARVEL Simulator

- Based on TREAT's Automatic Reactor Control System
- Point kinetics Model
- Runs in real-time with MARVEL's expected reactivity feedback
- Design the Final HMI
- Train Operators



Share with Universities and Regulators for learning/education purposes





Reimagining Control Room of the future

- **Digital Twins** for 2D & 3D Mixed Reality Environments
- **Live instrumentation** data feed from real asset
- **Physics-based** transient simulation
- **Faster than real-time** modeling
- Enable **model-informed decision making**
- Enable “engaged” **remote monitoring**
- Enable testing of **Autonomous Control Systems**



Up Next...NEUP Projects

- **University of Michigan:** Evaluation of Semi-Autonomous Passive Control Systems for HTGR Type Special Purpose Reactors
- **Massachusetts Institute of Technology:** MIT Graphite Exponential Pile Autonomous Control
- **Purdue University:** Demonstrating Autonomous Control, Remote Operation, and Human Factors for Microreactors Under Prototypic Conditions in PUR-1

