

## CT-4, Advanced Reactor Safeguards

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# ARS Program Overview

- The goal of the Advanced Reactor Safeguards (ARS) program is to address, through R&D, near term challenges that advanced reactor vendors face in meeting domestic materials accountancy and physical protection requirements for advanced reactors.
- The ARS program is focused on domestic regulatory requirements (NRC) and does not examine international safeguards.
- Our vision is to help reduce roadblocks in the deployment of new and advanced reactors by solving regulatory challenges, reducing safeguards and security costs, and utilizing the latest technologies and approaches for plant monitoring and protection.
- Note: MPACT Work Scope (FC-3) covers MC&A issues related to fuel cycle facilities and the ARS Work Scope (CT-4) is for the advanced reactors.

# FY21 CINR ARS Work Scope Objectives and Priorities

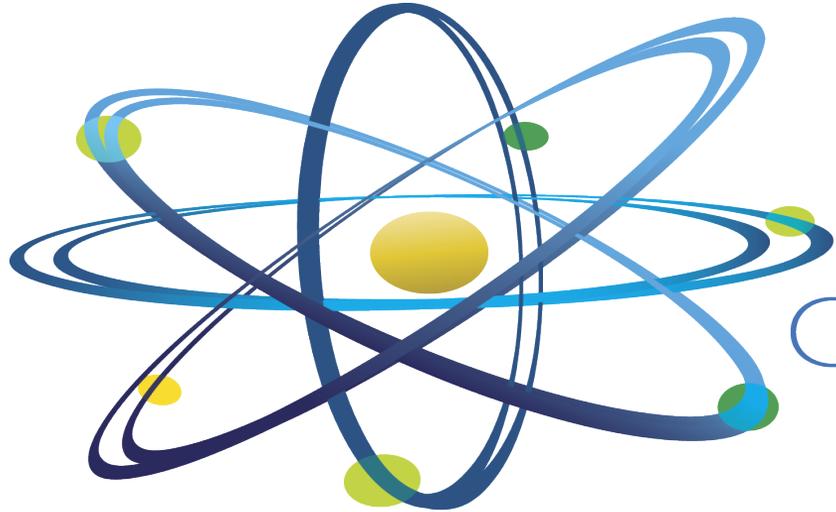
- **Materials Accountancy Priorities:**
  - Regulatory issues, accountancy approaches, and measurement technologies for MSRMs
  - Accountancy approaches and monitoring technologies for Pebble Beds
  - Regulatory issues and measurement technologies for Microreactors
  - Regulatory issues for the use of HALEU
- **Physical Protection Priorities:**
  - Reduce physical security operational costs (drastic reduction in on-site responders)
  - Reduce physical security up front costs
  - Provide methods to take advantage of enhanced safety features
  - Consider unique sabotage targets

# FY21 CINR Work Scope for CT-4, Advanced and Small Modular Reactor Material Accountancy & Physical Protection

- Eligible to lead: Universities Only
- Duration : Up to 2 Years
- Award amount: \$400,000
- Scope (new scope added for FY 2021)

Advanced nuclear reactors, small modular reactors, and microreactors face challenges in meeting domestic materials control and accountability (MC&A) and physical protection system (PPS) requirements while still maintaining cost-effectiveness. New and novel approaches that may be used for process monitoring and MC&A for advanced reactors are needed to increase safeguards efficiency. This is particularly needed for reactors with more novel fuel types, such as liquid fueled and pebble bed designs. New and novel PPS approaches are also needed that can drastically reduce either up-front or operational security costs for the life of the reactor. Proposals should focus on regulatory needs and describe how the proposed work addresses those needs. Proposals focused on international safeguards and security requirements will not be considered for this area.

# Questions?



Clean. **Reliable. Nuclear.**