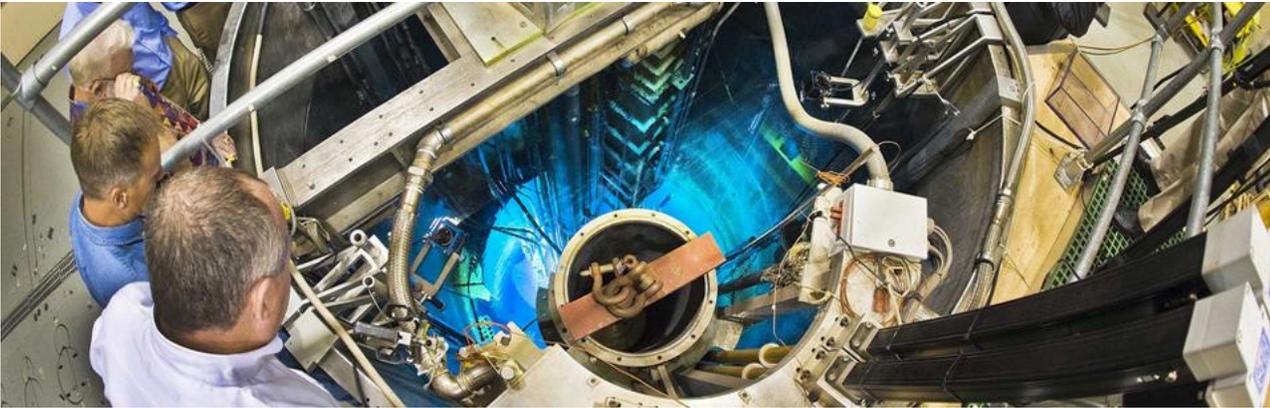


## Annular Core Research Reactor Facility



At the Annular Core Research Reactor (ACRR) facility, Sandia researchers can subject various test objects to a mixed photon and neutron irradiation environment featuring either a very rapid pulse rate or a long-term, steady-state rate. ACRR has operated since 1979.

### Research and other activities

The radiation produced at the ACRR is used for the following research activities:

- Neutron-scattering experiments
- Advanced reactor fuels development and testing
- Nondestructive testing, including neutron radiography
- Neutron activation analysis and testing of materials
- Basic radiation effects science
- Public outreach and education

Test articles, components, and systems irradiated at the ACRR include the following:

- Electronic circuit boards and components (e.g., transistors and diodes)
- Neutron or gamma dosimetry devices, both passive (e.g., activation and fission foils) and active (e.g., neutron/gamma detectors and semiconductor devices)
- Arming, fuzing, and firing systems and components
- Explosive components, including neutron generators, and radioactive materials (e.g., fission products and tritium)
- Experiment-holding/positioning fixtures
- Neutron-spectrum-modifying fixtures (e.g., moderators and neutron absorbers)
- Nuclear and nuclear fuel materials (e.g., fissionable material for commercial, experimental, and space reactor fuel types)

## Special features and equipment

The ACRR offers several special features:

- A large central cavity with very little radiation gradient, despite the reactor's capability to induce high radiation intensity
- The ability to determine with a high degree of accuracy the actual radiation dose delivered to each test article
- A limited capability to tailor the neutron energy spectrum and reduce or increase the photon intensity by selecting the appropriate interaction material to be positioned between the core and the test article

