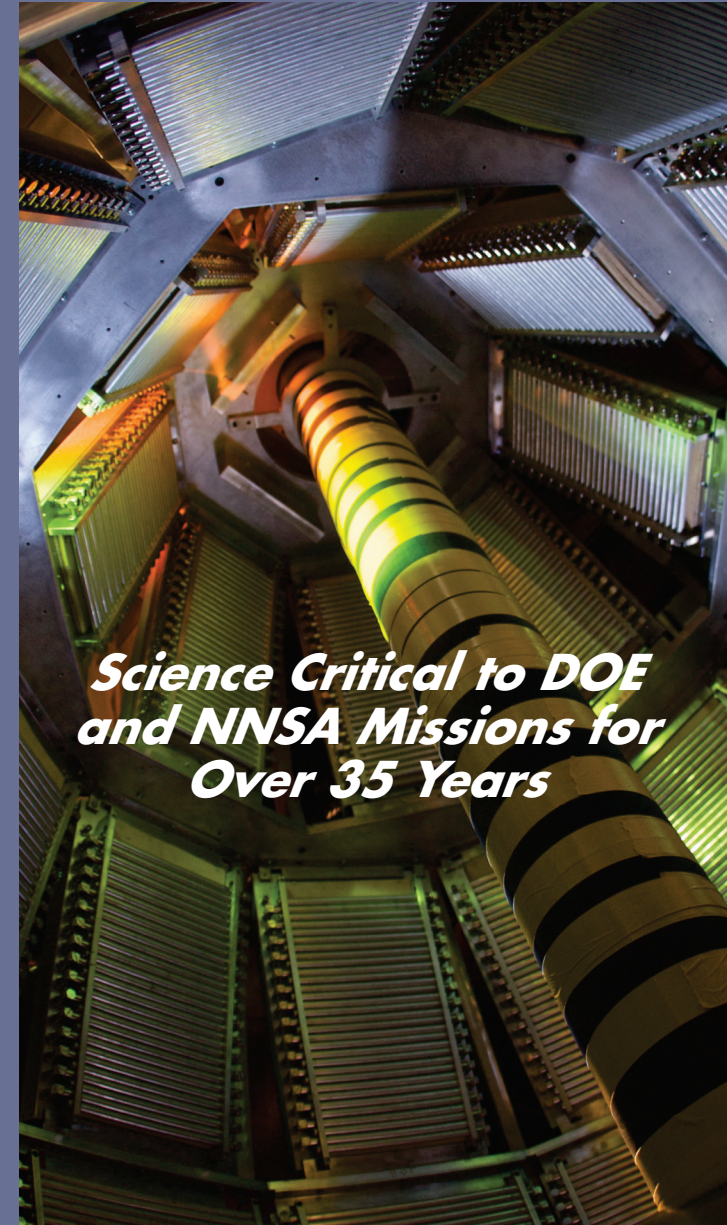


- 1 800-MeV Linear Accelerator
- 2 Isotope Production Facility
- 3 Proton Radiography
- 4 Materials Test Station
- 5 Ultracold Neutrons
- 6 Weapons Neutron Research
- 7 Lujan Center



LANSCE

Los Alamos Neutron Science Center



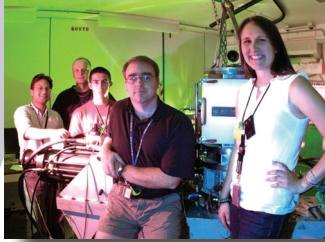
*Science Critical to DOE
and NNSA Missions for
Over 35 Years*

Future missions require improving LANSCE capabilities to support five principal research areas.

- 1) Improving capabilities at the Lujan Center—to use neutrons to probe soft materials—will improve understanding of the performance and aging of weapons materials, and will support development of the broad spectrum of materials needed for stockpile stewardship and threat reduction.
- 2) Enhancing high-accuracy nuclear cross-section measurements of actinide and short-lived isotopes for higher-fidelity weapons-nuclear-data.
- 3) Improving pRad imaging at 800 MeV for a better understanding of weapons-relevant hydrodynamics.
- 4) Intensifying burst-production of neutrons for testing electronic components of weapons and elements of the Homeland Security mission.
- 5) Advancing irradiation capabilities for testing materials and nuclear fuels at the Materials Test Station.

Who We Are

LANSCE is a National User Facility with one of the nation's most powerful linear accelerators (LINAC). We are unique because of the intensity and energy spectrum of the neutrons our LINAC produces.



Our intense pulsed protons are used for proton radiography and to produce the wide energy spectrum of spallation neutrons needed to interrogate various materials—materials that improve safety and security, advance nuclear technology, and have commercial applications.

To meet DOE and NNSA missions, our LINAC supports five state-of-the-art scientific centers that operate simultaneously:

- 1) Lujan Center
- 2) Weapons Neutron Research
- 3) Proton Radiography
- 4) Isotope Production Facility
- 5) Ultracold Neutrons

What We Do

We support three of the NNSA's core scientific capabilities:

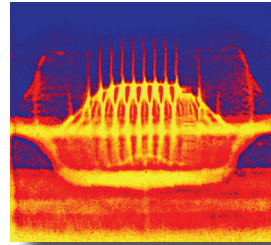
- 1) hydrodynamics, 2) weapons nuclear science, and
- 3) materials science. Our research is critical to

understanding nuclear weapons performance, reliability, and safety. We excel at research that helps validate predictive models of weapons performance. Our research also helps test new materials and new material models for stockpile stewardship.



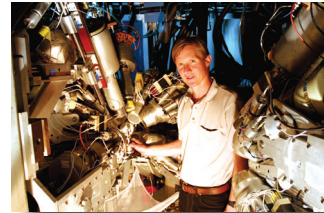
Hydrodynamics with Proton Radiography (pRad)

pRad is unique to LANSCE. pRad provides the capability to probe the dynamic response of materials to shocks, the detonation characteristics of high explosives under a range of environmental conditions, and to make high-speed movies of their dynamic systems.



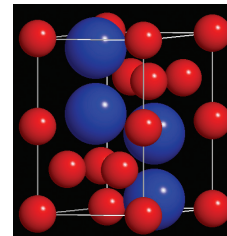
Weapons Nuclear Science

Our nuclear measurements are key to the success of the National Boost Initiative and for doing accurate nuclear forensics. Precision measurements of fission cross-sections and fission neutron-spectra in actinides are crucial for predicting and determining yield, and are required to accurately quantify the margins and uncertainties in weapons performance. We provide the NNSA the most efficient, cost-effective, and timely capabilities to meet mission requirements.



Materials Science for National Security

Our capabilities are specifically tailored to the materials and security requirements of stockpile stewardship and national security research. We are the only facility equipped to carry out classified materials research on stockpile materials and components using a LINAC.



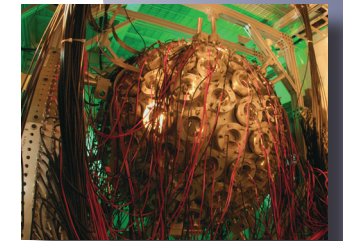
Energy Security

The quest for energy security requires R&D on a new class of nuclear reactors, fuels, and materials. Our research is important to the DOE's Advanced Fuel Cycle Initiative (AFCI), focusing on developing a new class of safer, cleaner, and more proliferation-resistant fuels—fuels the nation needs to provide energy security and independence, to protect the environment, and to impede nuclear terrorism.



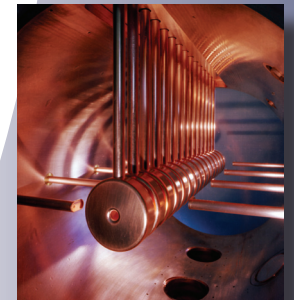
Nuclear Weapons Complex

We support all NNSA laboratories and the United Kingdom's Atomic Weapons Establishment in priority research for stockpile stewardship and national security.



LANSCE LINAC Risk Mitigation

Efforts to revitalize the LINAC are underway to ensure the LINAC continues to provide the scientific community with the spectrum and quantity of protons and neutrons the nation needs. Risk mitigation will ensure LANSCE remains a premier national research facility for defense and civilian science. The scope of work will bring the LINAC up to NNSA-mission performance requirements and enable the LINAC to provide DOE-NNSA mission deliverables for the next two decades.



"LANSCE is currently performing programmatic research of importance to the NNSA as well as fundamental science for the SC and materials research and testing relevant to nuclear energy...we anticipate the important research being done now will continue for at least a decade. . ."

Thomas D' Agostino, Under Secretary for Nuclear Security; Kristina M. Johnson, Under Secretary for Energy; Steven E. Koonin, Under Secretary for Science