NCSP
NUCLEAR CRITICALITY SAFETY PROGRAM

NEWSLETTER

Summer 2026

IN THIS ISSUE

A Message from the NCSP Manager 1

Criticality Safety Support Group (CSSG) Happenings 2

ZiaCore Critical Experiment Demonstrates Key Technologies for Nuclear Energy Systems 2

Beryllium Reflected Uranium (BeRU) Critical Experiments[4

Morgana Overview – NCERC Support for Dynamic Subcritical Experiments 6

Neutron transmission measurement of ^{63}Cu at LANSCE with DICER 8

Chlorine-Based TerraPower Experiments at NCERC 10

Nuclear Data Week 2026 12

Training and Education 13

Two-week Nuclear Criticality (NCS) Practitioner Course Dates 13

One-week Criticality Safety Officer (CSO)/Manager's Course Dates 13

MCNP® Courses 13

SCALE Courses 14

2026 MCNP® User Symposium 14

R-Matrix workshop brings nuclear data community to ORNL 15

ORNL's SCALE Team hosted its 10th annual users group workshop, with 152 participants from 25 countries 17

Please contact Marsha Henley for information or contributions:

henleym@ornl.gov

DATES TO REMEMBER

Hands-On Training & Education Course Dates:

- 2-week CSE Course – Sept 14 – 25, 2026 (Full)
- 1-week CSO Course – Dec 7 – 11, 2026 (Full)
- 2 -week CSE Course – Jan 25-Feb 5. 2027 (Full)
- 1-week CSO Course – March 15 – 19, 2027 (Open)
- 1 Week CSO Course – April 12 – 16, 2027 (Open)
- 2-week CSE Course – Aug 2 – 13, 2027 (NCERC Full)

LINKS TO REMEMBER

NCSP Website
NCSP Program Management
NCSP Mission and Vision
NCSP Five-Year Execution Plan
NCSP Planning Calendar
Previous NCSP Newsletters
CSSG Taskings
Nondestructive Assay Program

A Message from the NCSP Manager

Welcome to the summer edition of the NCSP newsletter! This quarter, we turn our focus to the recent Budget Execution Meeting (BEM) held in Las Vegas the week of July 13. At the BEM, the management team and the site program managers convened to review fiscal strategies, align priorities, and ensure the effective allocation of resources across the Nuclear Criticality Safety Program. The management team was able to complete a tour of the DAF, including NCERC, PULSE, the Schooner crater, and LLNL's Nuclear Accident Dosimetry lab to view the progress on the TEX Low Temperature experiment. The management team also got to observe the PUMA experiment, a collaboration with ASNR, France's nuclear safety regulator, which was underway at NCERC. It was also my first time to see the Control Room #1 upgrade complete.

I was also recently able to visit the Sandia Pulsed Reactor Facility – Critical Experiments with NA-ESH management and staff. Sandia and ORNL staff were conducting the neutron absorber plate experiments using the 7uPCX fuel.

President Trump's Executive Order 14301, issued on May 23, 2025, set an ambitious deadline to achieve criticality in at least three advanced nuclear reactors by July 4, 2026 to coincide with the United States' 250th birthday. This was part of a broader set of four executive orders aimed at reviving U.S. nuclear energy leadership, modernizing regulation, and accelerating deployment of new reactor technologies. My organization, NA-ESH, has been helping out performing the federal readiness reviews for these reactors, and many of you, including NCERC, have been helping as well. Four companies, Antares, Valar Atomics, Deployable Energy, and Aalo Atomics all achieved criticality by July 4, 2026. Isaiah Taylor, CEO of Valar Atomics, gave a shoutout to NCERC which you can see here starting at around the 7:24 minute mark: https://vimeo.com/1209997265/96656c42a6?fl=tl&fe=ec

Program Funding-wise, I've been told to expect a continuing resolution for FY27, so we will again start out the year limited to the previous year's approved appropriations. As I write this, the House has passed a CR with proposing funding through December 4.

Angela S. Chambers

NNSA National Nuclear Security Administration

U.S. DEPARTMENT OF ENERGY

Criticality Safety Support Group (CSSG) Happenings

This Spring Tracy Stover (SRNS) was appointed to the CSSG. Please visit the CSSG page on the NCSP website to view the full membership and CSSG Taskings/Responses.

ZiaCore Critical Experiment Demonstrates Key Technologies for Nuclear Energy Systems

LA-UR-26-26997

Author: Nicholas Thompson, Los Alamos National Laboratory

ZiaCore is a LANL Laboratory Directed Research and Development (LDRD) project focused on developing and demonstrating key technologies for future nuclear energy systems. The project itself was split into three tasks:

1) Design of the ZiaCore Reactor, a UO2 fueled, graphite and zirconium-hydride (ZrH) moderated, heat pipe cooled micro-reactor
2) Development of the ZrH and heat pipes components
3) Performance of a critical experiment with a representative portion of the ZiaCore reactor incorporating the ZrH and heat pipes developed and made at LANL

The experiment used the Deimos testbed, replacing the inner platen region with a vacuum chamber surrounded by graphite. The vacuum chamber contained graphite core blocks, a sodium heat pipe, three quartz-encapsulated ZrH rods, 42 UO_2 fuel pins, electric heaters and thermocouples surrounded by multi-layer insulation. The vacuum chamber both prevented high temperature oxidation of the graphite within the chamber and, in combination with multi-layer insulation, minimized heating of the assembly outside of the chamber. Figure 1 shows the vacuum chamber being installed.

The central core was surrounded by the Deimos outer region containing CNPS HALEU TRISO fuel cups, polyethylene rods, and stainless-steel rods. Approach to critical was performed on number of CNPS fuel cups and insertion distance. The final high temperature configuration had 272 CNPS fuel cups, 42 UO2 fuel pins, ten layers of top reflector graphite, and a 1-inch spacer.

Figure 1: Chandler De Leon with the ZiaCore vacuum chamber mounted on the Comet Critical Assembly.

The critical experiment took place over five weeks between April and June 2026, reaching criticality on 5/7/2026. The experiment culminated on 5/20/2026 with a critical measurement at a temperature of 826.1°C with an operating heat pipe.

The four weeks of operations included two extended workdays to allow slow, methodical heating of the test region. During the experiment, temperature data was recorded along the length of the heat pipe (including in the heat rejection region above the core) and throughout the graphite core blocks.

This experiment was a cross-division collaboration between MST-8, SIGMA, NEN-2, and other groups at LANL. The project was led by Principal Investigator (PI) Topher Matthews along with Co-PI's Samantha Lawrence and Nicholas Thompson. Theresa Cutler was the Crew Chief for the NCERC critical experiment. There were also many other people at LANL and NNSS who enabled the experiment, from getting the fuel delivered to NNSS, to moving components into the facility, to the RCTs and other DAF facility staff – thank you to all who helped make the experiment a success!

Figure 2: Crew and Visitors during initial heated testing. From left, James Owen, Chris Stanek, Kester Clark, Samantha Lawrence, Steve Wender, Matt Jackson, Tarik Saleh, Nicholas Thompson, Suzanne Nowicki, Olga Martin, Nicola Winch, Theresa Cutler, Johnna Marlow, Scott Stinson, Natalie Cannon, Schuyler Tyler, Topher Matthews, Nuria Putnam, John Downey.

Beryllium Reflected Uranium (BeRU) Critical Experiments

LA-UR-26-26265

Authors: R. Sanchez, T. Grove, S. Kong, M. Zerkle, Z. Lemke, J. Lamproe, J. Goda, L. Kotredes, D. Kelly, A. Daniel

Beryllium is an important component of both High-Performance Research Reactors (HPRR) and many Small Modular Reactors (SMRs) designs. An experimental campaign consisting of critical configurations of highly enriched uranium (HEU) reflected by varying thicknesses of beryllium metal and moderated by high-density polyethylene (HDPE) was recently completed at the National Criticality Experiments Research Center (NCERC). The Beryllium Reflected Uranium (BeRU) experimental series was a collaboration between Los Alamos National Laboratory (LANL) and the Naval Nuclear Laboratory (NNL). The goal of the experimental campaign was to design, build, and measure critical configurations to provide integral data for validation of beryllium neutron cross sections in fast, intermediate, and thermal neutron energy regimes.

The Advanced Test Reactor (ATR), a materials testing reactor at the Idaho National Laboratory, uses a beryllium reflector to reflect neutrons back into the core. ATR is the primary facility in the USA used for irradiating material components in a high thermal neutron flux environment. The reflector contains holes throughout for irradiation test locations. The BeRU experiments will strengthen the validation of beryllium cross sections and the beryllium metal thermal neutron scattering law to improve the accurate modeling of ATR test configurations.

Five critical configurations were performed using the Planet vertical-lift assembly machine at NCERC. The neutron spectrum of each experiment was adjusted by varying the thickness of the HDPE moderator. The fast spectrum critical experiment (F1) had no HDPE moderator between HEU plates and a three-inch-thick beryllium reflector. The remaining configurations (intermediate spectrum I1, and thermal spectrum T1, T2, and T3) had varying thicknesses of HDPE and four- to five-inch-thick beryllium reflectors. A photo of the T1 benchmark configuration loaded on the Planet assembly is shown in Figure 1.

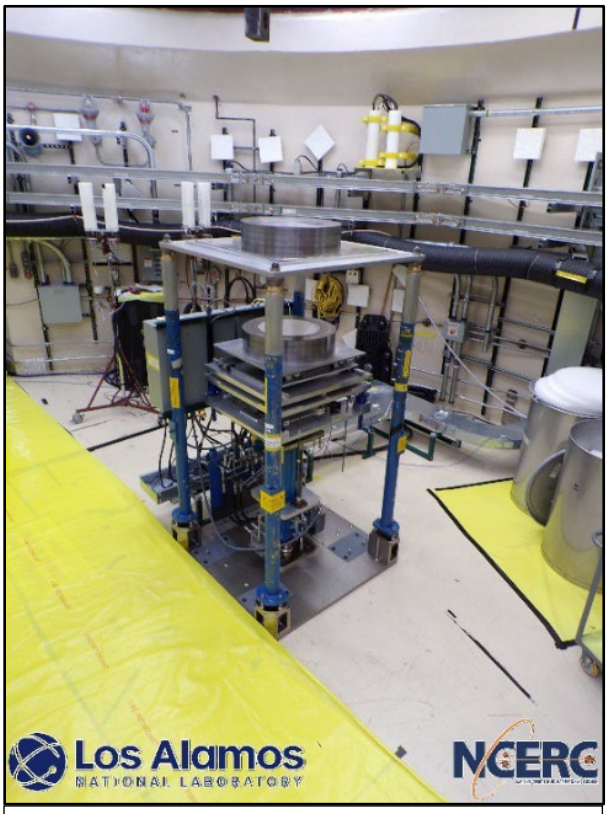


Figure 1. The T1 benchmark configuration loaded on Planet

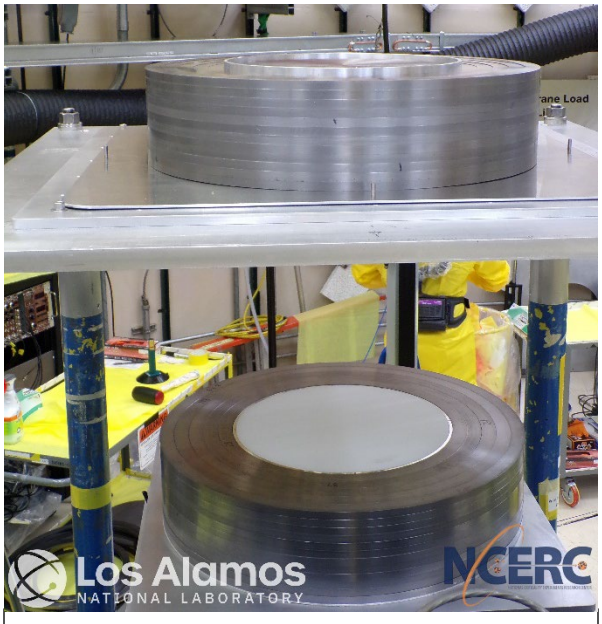


Figure 2. T3 configuration loaded on Planet.

The two lightest configurations were executed in September 2025. The remaining three were performed from April to June 2026, after Planet was upgraded to a higher lifting capacity. These experiments will be evaluated and submitted to the International Criticality Safety Benchmark Evaluation Project (ICSBEP) handbook.

In addition to determining critical benchmark configurations, an irradiation campaign was performed with gold, nickel, and cobalt activation foils (with and without cadmium covers) loaded onto sample plates placed in the fuel-moderator region and in the outer reflector region in one of the configurations (T3). The activation foils supply both continuum radiative capture (n, γ) throughout the energy range and threshold (n, 2n) reactions nearest to the fission peak energy range. The cadmium covered foils, in combination with the bare counterparts, separate the thermal, intermediate, and fast components of the neutron flux. An eight-hour high-power operation supplied a high neutron flux to activate the foils. After being retrieved, the foils were taken to

the NCERC Counting Laboratory for gamma spectroscopy measurements. The data from the gamma spectroscopy measurements will provide a measurement of neutron energy spectra that can validate neutron scattering cross section data for beryllium. Figure 2 shows the T3 (most thermal) configuration with the sample plate as part of the top and radial reflector. A top view of the central and outer reflector sample plates is shown in Figure 3.

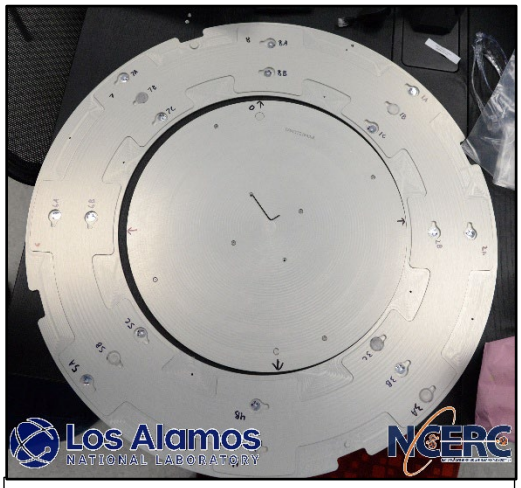


Figure 3. The irradiation foil sample plates for the center and outer reflector regions.

The five BeRU configurations will be evaluated, reviewed, and submitted to the ICSBEP handbook by NNL and LANL staff. Scientific journal articles will also be authored to compare the results of these experiments to simulations.

NCERC is operated by Los Alamos National Laboratory (LANL) and located at the Device Assembly Facility (DAF) at the Nevada Nuclear Security Site (NNSS). These experiments were supported by the US Naval Nuclear Propulsion Program. NCERC is supported by the DOE Nuclear Criticality Safety Program, funded and managed by the National Nuclear Security Administration for the Department of Energy.

Morgana Overview – NCERC Support for Dynamic Subcritical Experiments

The LANL Subcritical Experiments Program (SCE) recently executed the Morgana Subcritical Experiment at the NNSS. This was the first subcritical experiment executed by LANL for several years (since 2021). It was also notably the first that required SCE personnel to have FMH qualifications for a portion of the work conducted under nuclear criticality safety limits.

The LANL SCE team approached NEN-2 around 2022 for assistance with developing and standing up their Fissionable Material Handling program to ensure nuclear criticality safety in their operations. After some discussion, they requested that the device assembly team (V-5) be added to the NCERC Fissionable Material Handler (FMH) program. Over the next few years, the V-5 team traveled to Nevada to participate in NCERC operations and were mentored toward their FMH qualification.

In the March-April 2025 timeframe, with the Morgana SCE firmly on the schedule, efforts to prepare for the FMH operations intensified. The NEN-2 NCERC Team developed FMH training specifically for SCE-related duties. A focused week of training was provided to the V-5 team in June 2025, in which NCERC FMH Subject Matter Experts (SME) instructed, evaluated, and tested 5 candidates. All passed and were qualified under the NCERC FMH program.

Without enough time to develop a Fissionable Material Person-In-Charge (FMPIC), the NEN-2 NCERC Team agreed to loan an experienced FM PIC to the Morgana project. This allowed them to comply with the NCERC FMH program (which requires an FM PIC) and to have someone who routinely performs operations in the DAF to assist with the operations.

Morgana Receipt Team in NCERC highbay

In late October/early November 2025, the Morgana special nuclear material (SNM) arrived at the DAF. NCERC staff received the shipment and staged the item in the NCERC CSI vault until the SCE project was ready to take the item. *Attached photo shows the team involved in the receipt.*

In early January, the SCE project was ready to begin the assembly process. NCERC and SCE personnel moved the item to the SCE building. *Attached photo shows the item after being moved to a SCE building.* From this point forward, the NCERC FM PIC assisted the various teams in conducting operations on the east side of the DAF. This included unpacking the SNM, downdraft table operations, radiography, metrology and diagnostics installation, high explosives (HE) assembly, packing the assembly for transportation, and loading the packaged assembly. DAF operations for Morgana concluded in April 2026.

The Subcritical Experiments Program has repeatedly expressed their appreciation of the NCERC support in not only supporting the fissionable material operations but also in navigating DAF operations efficiently. They appreciate that the Nuclear Criticality Safety Program (NCSP) maintains the NCERC capability. Efforts continue to integrate SCE and NCERC operations for best efficiency.

Morgana Move to SCE building

Neutron transmission measurement of ^{63}Cu at LANSCE with DICER

LA-UR-26-24614

Authors: Thanos Stamatopoulos, Denise Neudecker, Matt Devlin, Theresa Cuttler

A successful differential experiment was executed at the Los Alamos Neutron Science CEnter (LANSCE) at the DICER (Device for Indirect Experiments on Radionuclides) instrument in November 2025 to measure the 63Cu(n,tot) reaction. Two types of thin (1.1 mm diameter) wire samples were prepared at Oak Ridge National Laboratory (ORNL)– one natural Cu and one isotopically enriched in 63Cu. They were loaded in the DICER 1 mm collimator, shown in Fig. 2. The collected data span the energy range from 5 meV up to 400 keV– the first time DICER (est. 2022) performed a measurement in the 100's of keV. The DICER data set is the only one in the literature that spans such a broad energy range for 63Cu. DICER can be used to generate similar data for other isotopes. The selection of 63Cu was driven by the PARallel Approach of Differential and Integral Measurements (PARADIGM) project.

In the conventional nuclear data pipeline, differential experiments are performed and theory developed first, followed by evaluation of the differential data. Integral experiment results are used to validate or adjust the evaluations. This linear, sequential structure makes it difficult to identify early on which measurements most effectively reduce uncertainties and biases in application-relevant predictions. The approach developed by the LDRD-DR team PARADIGM replaces this workflow with a parallel strategy that jointly considers candidate differential and integral experiments at the planning stage. By combining prior knowledge, nuclear theory, historical data, and machine-learning–enabled optimization, the PARADIGM approach identifies the experiment combinations that maximally reduce uncertainties across all relevant data. This shift enables faster progress by targeting the most impactful measurements upfront and executing complementary experiments in parallel rather than sequentially.

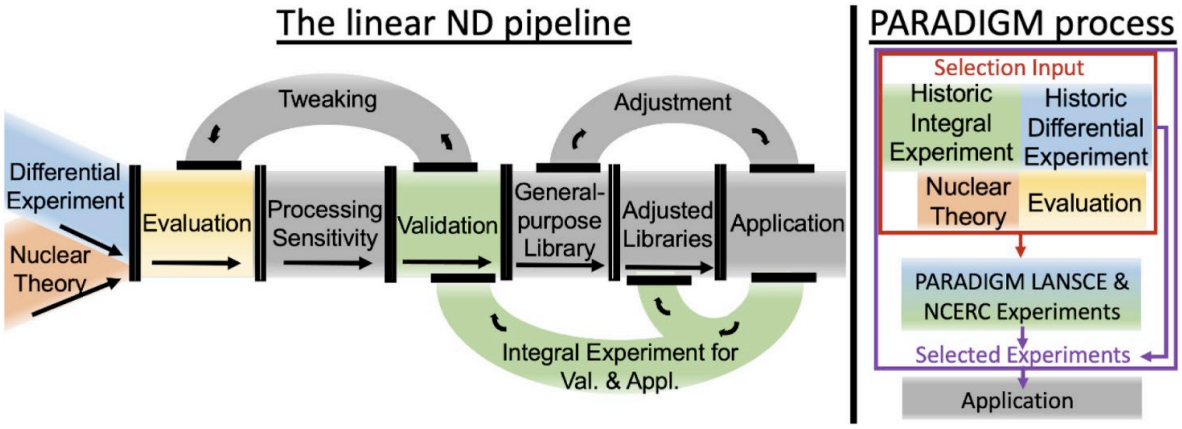


Figure 1 *The linear nuclear data (ND) pipeline (left) is contrasted to PARADIGM's approach (right) that optimizes combined selection of differential and integral experiments to maximally reduce nuclear data bias and uncertainties [Phys. Rev. X 15, 021086]*

This approach identified an integral experiment paired with a differential measurement to reduce bias in 239Pu nuclear data from 1-600 keV. The 63Cu(n,tot) reaction was identified because the selected integral experiment used copper as a reflector. The PARADIGM integral experiment is described in the NCSP Summer 2025 newsletter.

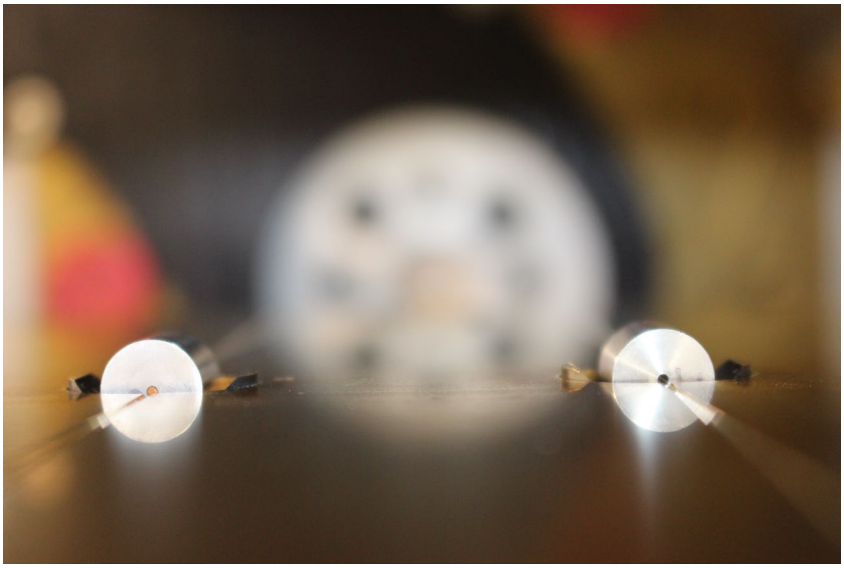


Figure 2 *Samples, encased in aluminum canisters, loaded at DICER's 1 mm collimator. The figure shows an isotopically enriched ^{63}Cu wire on the left and a blank canister on the right. The samples were prepared at ORNL.*

Figure 3 *Members of the PARADIGM collaboration from across the nuclear data pipeline, participated in a sample change at DICER during the experiment execution. From left to right: Ryan Amberger (LANL Student), Theresa Cuttler (LANL Engineer), Denise Neudecker (LANL Scientist), Noah Walton (LANL postdoc), Mike Grosskopf (LANL Scientist), Jesson Hutchinson (LANL Engineer), Thanos Stamatopoulos (LANL Scientist).*

Acknowledgements
LANSCE is a National User Facility, operated by Los Alamos National Laboratory for the National Nuclear Security Administration of the US Department of Energy.

Chlorine-Based TerraPower Experiments at NCERC

LA-UR-26-24851

Authors: Theresa Cutler, Eric Aboud, Joetta Goda

The validation of chlorine nuclear data has been the subject of several experiments performed by Los Alamos National Laboratory (LANL) researchers at the National Criticality Experiments Research Center (NCERC). Most recently, two configurations designed with high sensitivity to chlorine nuclear data in the epithermal and fast energy regions were executed by LANL in a collaboration with Lawrence Livermore National Laboratory (LLNL). The researchers used hydraulically pressed NaCl plates encapsulated in aluminum with highly enriched uranium (HEU) fuel plates from the NCERC inventory. These experiments were funded by the DOE/NRC Criticality Safety for Commercial-Scale HALEU Fuel Cycle and Transportation (DNCSH) Project and endorsed by TerraPower in support of the Molten Chloride Fast Reactor (MCFR) project.

The TerraPower critical experiments presented unexpected challenges – *the originally planned configurations did not go critical.* The team immediately took a two-pronged approach. They connected with chemistry researchers at LANL, provided representative samples, and obtained composition results in less than 48 hours! The results indicated the presence of impurities, including strong neutron absorbers that coupled with the neutron absorption properties of high-density chlorine salt, prevented a critical configuration with the planned fuel. Meanwhile, TerraPower, LLNL, and LANL calculated bounding estimates of the nuclear data uncertainty to show that the discrepancy could not be caused by nuclear data alone.

Phil Sandoval and Alex McSpaden (LANL) loading a salt plate during the TerraPower experiment.

In a demonstration of agility not possible in most nuclear operations, the team designed two new configurations (one epithermal and one fast) adapted from the original designs and accounting for the observed reactivity effects of the impurities. The fast experiment, using the Zeus copper reflector, is the first critical experiment designed and executed specifically to be sensitive to fast neutron chlorine nuclear data, important to molten salt applications.

These experiments built upon two previous critical experiments, differential measurements, and associated nuclear data evaluations. The Chlorine Worth Study (CWS), performed by LANL in 2020, used PVC and CPVC with plutonium fuel to address validation needs for aqueous chloride processing of plutonium and was programmatically funded. LANL evaluated the experiment and it was published in the International Criticality Safety Benchmark Evaluation Project (ICSBEP) Handbook. The TEX-Chlorine experiments, performed by LANL in 2024, used vibro-packed NaCl containerized in aluminum with the same HEU plates as used in the TerraPower experiment and were NCSP funded. The experimental data was evaluated by LLNL and published in the ICSBEP Handbook.

Differential measurements, performed at the Los Alamos Neutron Science Center (LANSCE) were taken as part of a Gateway for Accelerated Innovation in Nuclear (GAIN) voucher between LANL and TerraPower. Together, these experiments provided experimental constraints and validation to the theory-based nuclear data evaluation developed by a team at LANL to provide chlorine nuclear data that includes uncertainty quantification over the entire neutron energy range up to 20 MeV.

Members of the TerraPower Project Team at NCERC with the project leads Theresa Cutler (LANL, second from left) and Eric Aboud (LLNL, third from left).

The recent TerraPower critical experiments at NCERC expand the energy range of data available for validation of the chlorine nuclear data. They are currently being evaluated by Eric Aboud (LLNL) for inclusion in the ICSBEP Handbook.

Jeff Latowski, TerraPower Senior Vice President for the MCFR Project writes:

"… this unique dataset will provide validation data for chlorine-bearing systems in the epithermal and intermediate energy regions that are essential for the near-term value for both criticality safety and performance-based metrics. It is the resolve and expertise of the NCERC, LLNL, LANL, DOE staff and your leadership that make experiment successes like this possible."

The completed experiments were executed safely, compliantly and provided exceptionally valuable data.

Nuclear Data Week 2026

Please save the date for the 2026 Nuclear Data Week, which will be held on **November 2-6**, 2026, at Brookhaven National Laboratory.

The meeting is planned as hybrid, but we strongly encourage in-person participation.

The tentative schedule is:

- USNDP on Monday, Nov. 2nd
- NDAG (invitation only) on Tuesday, Nov. 3rd
- CSEWG for the rest of the week (Nov. 4-6)

There will also be a WANDA/NDWG planning meeting and possibly other related activities.

This year will be the **60th anniversary of CSEWG**.

More details and registration information to follow at www.nndc.bnl.gov

Training and Education

All NCSP training and education courses are found on the NCSP T&E web page.

Two-week Nuclear Criticality Safety (NCS) Practitioner Course Dates

- August 3 – 14, 2026 (Registration closed)
- September 14 – 25, 2026 (Registration closed)
- January 25 – February 5, 2027 (Registration closed)
- August 2 – 13, 2027 (NCERC Registration closed, SNL is open)

The first week (lectures and workshops) will be held at the National Atomic Testing Museum (NATM), while the second week (hands-on portion) will be held at the National Criticality Experiments Research Center (NCERC) and Sandia National Laboratories (SNL). The courses are designed to meet the ANSI/ANS-8.26, "Criticality Safety Engineer Training and Qualification Program," requirement for hands-on experimental training. The NATM portion of the course involves classroom lectures and workshops for Nuclear Criticality Safety (NCS) Evaluation development. The NCERC and SNL portions involve hands-on experiments with critical assemblies. MSTS, LANL, ORNL, LLNL, SNL, Y12, and NFO staff participate in the course execution.

One-week Criticality Safety Officer (CSO)/Manager's Course Dates

- December 7 – 11, 2026 @ NCERC (Registration is closed)
- **NEW** March 15 – 19, 2027 @ NCERC
- April 12 – 16, 2027 @ SNL
- December 6 – 10, 2027 @ NCERC

The courses are designed for fissile material handlers, process supervisors, line managers, and regulators with criticality safety responsibilities. MSTS, LANL, ORNL, LLNL, SNL, Y12, and Nuclear Facility Operator (NFO) staff participate in the course execution.

MCNP® Courses

Class Information: https://mcnp.lanl.gov/classes.html

Fees and Registration Information: https://mcnp.lanl.gov/class_registration.html

When	Where	What
August 31–September 3, 2026	**Online**	Using NJOY to Create MCNP ACE Files and Visualize Nuclear Data
October 5–9, 2026	**Los Alamos, NM**	Intermediate MCNP6
October 26–30, 2026	**Online**	Introduction to MCNP6

November 30–December 4, 2026	**Los Alamos, NM**	**Variance Reduction with MCNP6**
January 25–29, 2027	**Online + Los Alamos, NM (hybrid)**	**Introduction to MCNP6**
February 1–5, 2027	**Los Alamos, NM**	**Criticality Calculations with MCNP6**
February 22–26, 2027	**Los Alamos, NM**	**Intermediate MCNP6**

SCALE Courses

The next training block will be held in person at Oak Ridge National Laboratory October 5 – 30, 2026. Registration fee information is available here. The schedule, course description, and other related information are available on our website at https://www.ornl.gov/content/training-person-ornl

October 5-9, 2026	Source Terms for Advanced Reactor Spent Fuel Applications
October 12-16, 2026	SCALE Sensitivity and Uncertainty Analysis for Criticality Safety Assessment and Validation
October 19-23, 2026	SCALE Criticality Safety and Radiation Shielding
October 26-30, 2026	SCALE/ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis

2026 MCNP® User Symposium

The 2026 MCNP® User Symposium, hosted by Los Alamos National Laboratory, will bring together the international MCNP community for three days of technical presentations, discussions, and collaboration. As in previous years, the symposium will be offered as a hybrid event, enabling participation from users around the world while providing opportunities for in-person interaction with the MCNP Development Team and the Nuclear Data Team.

The symposium serves as the primary forum for communication between MCNP developers and users across government, industry, academia, and international organizations. Attendees will hear about recent advances in MCNP development, learn about challenging and innovative applications from the user community, and participate in open discussions on future capabilities and priorities.

This year's technical program will highlight several ongoing modernization efforts within the MCNP ecosystem. Presentations will showcase the continued evolution of the code infrastructure, including advances in software quality engineering and development practices that improve reliability, maintainability, testing, and long-term sustainability. Users will also see

demonstrations of new and expanding capabilities throughout the broader MCNP ecosystem, including the modernized Cinder depletion and transmutation capability and continued growth of the Python-based MCNP utilities package for pre-processing, automation, workflow development, and post-processing.

Beyond technical capabilities, the symposium emphasizes engagement with the user community. Sessions will discuss the MCNP support service, the online user forum, training opportunities, and mechanisms for incorporating user feedback into future development. Dedicated Q&A sessions will provide attendees with direct access to MCNP developers and nuclear data experts.

Whether attendees are longtime MCNP users or are just beginning to use the code, the symposium provides a unique opportunity to learn about the latest developments, exchange ideas with colleagues, and help shape the future direction of MCNP.

Additional information, including registration and the symposium agenda, is available at https://mcnp.lanl.gov/symposia.html. While the deadline for non-US citizens has passed, US citizens can still register to attend the event until August 14, 2026. We look forward to seeing you there!

R-Matrix workshop brings nuclear data community to ORNL

Oak Ridge National Laboratory hosted the 2026 R-Matrix Workshop on Methods and Applications, July 13–17, bringing together students, early career researchers and established specialists from national laboratories, universities and international institutions.

The workshop, organized at ORNL by Marco Pigni, advances the use of R-matrix methods to analyze nuclear reactions, with particular emphasis on neutron-induced reactions. Participants explored theoretical advances, experimental techniques, resonance evaluation methods, uncertainty quantification, and computational tools that improve the efficiency and reliability of nuclear data evaluations. These evaluations support applications ranging from criticality safety and reactor analysis to nuclear astrophysics.

The weeklong event featured technical presentations and working discussions led by experts from ORNL, Los Alamos National Laboratory, the University of Notre Dame, Ohio University, the University of Tennessee, Michigan State University, and international research organizations. ORNL presenters included Jordan McDonnell, Chris Chapman, Dorothea Wiarda, Jesse Brown, Iyad Al-Qasir, and Rike Bostelman.

Participants also toured the Graphite Reactor and the Spallation Neutron Source, connecting workshop discussions with the laboratory facilities that support nuclear data measurement and validation.

The workshop concluded with a collaborative discussion on future R-matrix methods, applications, and research priorities.

Many thanks to Lynsey Schreiner, ORNL, for her support throughout the week.

National Nuclear Security Administration

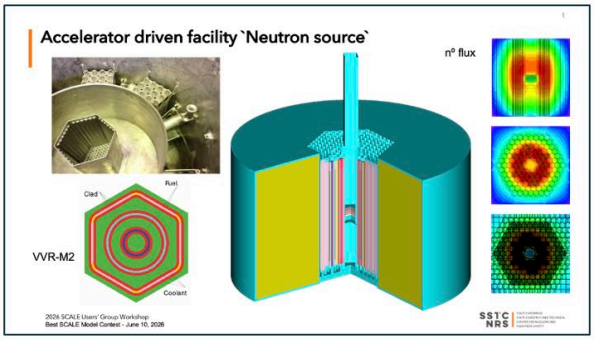
U.S. DEPARTMENT OF ENERGY

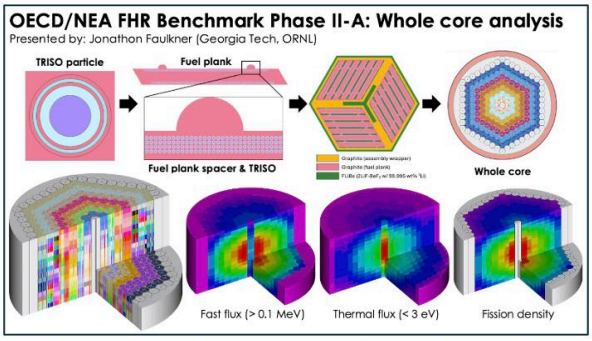
ORNL's SCALE Team hosted its 10th annual users group workshop, with 152 participants from 25 countries

SCALE users across 25 countries gathered online on June 8-12, 2025, for the 10th annual SCALE users group workshop organized by the ORNL's SCALE Team. The virtual meeting offered 15 hands-on tutorials on impactful and innovative applications of SCALE and included 5 technical sessions.

The SCALE software package, developed and maintained by ORNL, is widely recognized for its modeling and simulation capabilities in nuclear safety analysis and design. SCALE offers a comprehensive, verified, validated and user-friendly toolset for nuclear professionals in government, research, academia and utilities from around the world.

The winner of this year's "Best SCALE Model Contest" was Ievgen Bilodid from Ukraine's State Scientific and Technical Center for Nuclear and Radiation Safety, for his SCALE model of an accelerator-driven neutron source. Jonathan Faulkner, student at Georgia Institute of Technology in Atlanta was the second, with his model for the OECD/NEA FHR benchmark. The third place was shared by Sofiia Asadchykh, student at North Carolina State University, for her PULSTAR research reactor model, and a team from ORNL for modeling the HTR PROTEUS benchmarks.





Contributors: K. Bekar, R. Bostelmann, J. Brown, C. Celik, M. Dupont, L. Fassino, T. Ghaddar, T. Greene, D. Hartanto, R. Lefebvre, J. McDonnell, U. Mertyurek, G. Procop, G. Radulescu, Y. Robert, A. Shaw, S. Skutnik, W. Wieselquist