5th Annual
2025 MCNP® User Symposium

Agenda

Los Alamos NATIONAL LABORATORY

MCNP® MONTE CARLO N-PARTICLE

July 7 – 10, 2025

Monday, July 7, 2025

Los Alamos National Laboratory
TA-03, Building 0207, 2nd Floor

9:00	Check in	
9:15	Introduction and announcements	
9:20	Opening remarks	Charlie Nakhleh, LANL
9:30	MCNP6 Developments: A Year in Review	Michael Rising; LANL

MCNP ECOSYSTEM AND TOOLS

10:05	Variance Reduction for Complex Geometries in Well-Logging Radiation Transport Problems using COTTONWOOD and ADVANTG	Andreas Vogt
10:30	Break	
10:45	Zero-to-MCNP	Victor Kuhns
11:20	Attila4MC®-Tamarack	Andrew Cooper

SECURITY NOTICE: *The following articles are prohibited on Laboratory property: firearms, explosives, and dangerous weapons, including knives with blades longer than 2.5 inches; alcoholic beverages; controlled substances; and other items prohibited by law.*
The following privately owned devices are prohibited in Limited Areas and above: cell phones; smart watches; laptop or tablet computers; two-way pagers; memory devices such as thumb drives; and devices with Bluetooth or wireless connectivity, including medical devices. (Inform your host of any Bluetooth/wireless medical devices).
Photographic activity of any kind is prohibited on Laboratory property.
All vehicles and individuals on Laboratory property are subject to random inspections by the Protective Force at any time.

Purpose:	*MCNP 2025*		
Technical POC	*MCNP_2025@LANL.gov*	*Dress:*	*Business Casual*
LANL Protocol POC:	*Sarah Haag, CEA-PRO, 505-309-2048*	*Revised:*	*7/7/2025 8:54 AM*
Accessible Meeting:	*If you need an accommodation for a meeting, please let the meeting organizer know.*		
LANL Update:	*505-667-6622 or 1-877-723-4101; provides information about changes in the Laboratory schedule (i.e., closings or delays).*		

Agenda

11:45	An Interactive 2D Plotting Tool for MCNP Tally Data Visualization	Dusan Kral
12:00	Lunch	
13:30	An NCrystal extension for MCNP 6.3.0	Kyle Grammer
13:55	Burnup, Depletion, and Activation using MCNP Coupled to BSOLVE	Glenn Sjoden
14:20	Modern Reality-Capture Tools for High-Fidelity MCNP Geometry Definition	Josef Svoboda
14:40	Break	

Special Topics

14:55	MCNP6.3 and MCNP6.3.1 Performance Comparison	Jeff Bull

MCNP Ecosystem and Tools

15:20	Optimizing MCNP Parallelization for High-Performance Computing Efficiency on Rocinante	Elijah Boland

Nuclear Data and Experimental Design

15:40	EPRDATA Files	Wim Haeck
16:10	Day 1 Adjourns	

Tuesday, July 10, 2025

Los Alamos National Laboratory
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8:30	Check-In	
9:00	Keynote Address	John Perry, Kairos Power
	NUCLEAR DATA AND EXPERIMENTAL DESIGN	
9:20	PARADIGM Differential and Integral Experiments Aiming to Reduce 239Pu Nuclear Data Uncertainties from 1-600 keV	Theresa Cutler
9:55	Where nuclear data and neutron transport overlap: Probability tables in the URR & a note on the temperature dependent scattering threshold in MCNP	Noah Walton
10:20	Break	
10:35	Challenges in Explicit Modeling of TRISO in MCNP	Peter Brain
11:00	How to use Non-Default Nuclear Data Files with MCNP	Noah Kleedtke
11:20	FSEN Reaction Rate Calculations in MCNP	Peter Brain
11:40	Increased Fidelity and Associated Computational Cost of Detailed Integral Experiment Benchmarks	Zachariah Lemke
12:00	Lunch	
13:30	Refining Neutron Spectrum Guess Models for Gamble II Using Spectrally-Resolved MCNP Simulations	Luke Tyree
13:55	Mesh Cells to Augment In Situ Spectroscopy	Jose Cortes
14:15	Boosting Ultracold Neutron Production with Low Enriched Uranium	Marie Blatnik
14:35	Break	
14:50	Radiation Shielding Simulations for High-Intensity Muon Beams at PSI	Eremey Valetov
15:10	Creation of an Improved Source Definition for Neutron Radiography Models	Russell Jarmer

15:30	Modeling of Source Term Uncertainties in the Pedestal Region for Neutron Multiplication Monitoring in Fukushima Daiichi Fuel Debris Retrieval Operations	Lucas Rolison
16:15	Day 2 Adjourns	

Wednesday, July 9, 2025

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TA-03, Building 0207, 2nd Floor

8:30	Check-in	
9:00	Keynote Address	Gene Sosnovsky, Commonwealth Fusion Systems
	FUSION APPLICATIONS, UM, AND CAD	
9:20	Development of a Pseudo-Surface Flux Tally for MCNP Unstructured Mesh	Avery Grieve
9:40	Development of an HDF5-Based Unstructured Mesh Tracking Model in MCNP6	Jerawan Armstrong
	NUCLEAR DATA AND EXPERIMENTAL DESIGN	
10:10	Monte Carlo simulations to design neutron transmission experiments at DICER	Thanos Stamatopoulos
10:35	Break	
	MCNP DEVELOPMENT	
10:50	Enhancing MCNP® Visualization: A Native 3D Geometry Rendering Tool	Jeremy Sweezy
11:25	MCNP6 Element-Wise Densities and Temperatures	Pablo Vaquer
11:50	MCNP6.4 New Feature Preview: Electric Current Density Tally	Jeff Bull
12:05	Lunch	
13:35	A Revision of the MCNP Criticality Class	Colin Josey
14:10	Progress Report on Charged Particle Transport in MCNP6	Michael Lively
14:35	A Thick-Target Bremsstrahlung Model with Angularly Dependent Emission in the MCNP® Code	Aaron Tumulak

15:00	Break	
15:15	Functional Expansion Tallies Using MCNP6 PTRAC Files	Pablo Vaquer
15:35	A suite of Python Tools for MCNP users	Cole Frederick
15:45	A Python Tool for Reconstructing MCNP6 Particle Histories from an HDF5 PTRAC File	Colin Weaver
16:35	Day 3 Adjourns	

Gabriel's
Highway 285, Exit 176 Cuyamungue
4 Banana Ln
Santa Fe, NM, 87506

18:00 Dinner (in-person event, registration required)

Thursday, July 10, 2025

Los Alamos National Laboratory
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8:30	Check-in	

ACCELERATORS, REACTORS AND OTHER APPLICATIONS

9:00	Simulations and measurements for three beam destinations of the ESS proton linac	Elena Donegani
9:25	Metal Latticed Collimators for Radiation Portal Monitors	Ethan Wever
9:45	Fission-Matrix Acceleration in Burn-Up Calculations using MCNP6.3	Mauritius Hiller

SPECIAL TOPICS

10:05	On the MCNP Forum and its Community	Joel Kulesza
10:25	Break	
10:50	General Q&A with the MCNP Development Team and the Nuclear Data Team	XCP-3 & XCP-5

11:30 Lunch; attendees not on tours, depart

TOURS (REGISTRATION REQUIRED)

TA-18, MANHATTAN PROJECT PARK

12:30	Depart to TA-18
13:00	Historical Tour
16:00	Depart to JRO Center

JRO Center
TA-03, Building 0207

16:30	External attendees return badges; tour attendees depart

TA-03, BUILDING 2327, SUPERCOMPUTING TOUR

12:45	Walk to SCC
13:00	Supercomputing Tour
15:00	Walk to JRO Center

JRO Center
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15:30	External attendees return badges; tour attendees depart