
Radiation Safety Information Computational Center



Oak Ridge National Laboratory
Post Office Box 2008
Oak Ridge, Tennessee 37831-6003
Managed by
UT-Battelle, LLC
for the U.S. Department of Energy
under contract DE-AC05-00OR22725

phone 865-574-6176 fax 865-241-4046
email PDC@ORNL.GOV
www <http://rsicc.ornl.gov/>

Timothy E. Valentine, Ph.D. - RSICC Director

No. 626

July 2017

"There are two types of people who will tell you that you cannot make a difference in this world: those who are afraid to try and those who are afraid you will succeed."

-- Ray Goforth

TABLE of CONTENTS

TABLE of CONTENTS.....	1
CHANGES TO THE RSICC CODE AND DATA COLLECTION	2
REGISTRATION REQUIREMENTS.....	2
SINGLE-USER LICENSE AGREEMENT REVISED.....	2
SCIENCE EDUCATION PROGRAMS AT OAK RIDGE NATIONAL LABORATORY	3
CONFERENCES, TRAINING COURSES, SYMPOSIA.....	3
CONFERENCES.....	4
BEPU 2018	4
TRAINING COURSES	5
SARP Shielding/Criticality Safety Analyst Course.....	5
LANL MCNP6 Class Schedule.....	6
MCNP6 Training.....	7
MCNP6 Visual Editor Training.....	8
NEA Nuclear Energy Agency.....	9
SCALE User's Group Workshop	10
SCALE Training Courses – Fall 2017.....	11

SYMPOSIA	14
2017 CALENDAR	14
2018 CALENDAR	14
2019 CALENDAR	15

CHANGES TO THE RSICC CODE AND DATA COLLECTION

There are no updates to the RSICC catalog for those individuals that may be interested.

REGISTRATION REQUIREMENTS

RSICC does not permit individuals to “pre-register” or “pre-order” software for use at a temporary or alternate location. The single user license and export control agreements are specific to the individual’s end use and the location at which the software will be used. During the registration process, individuals are required to provide the name of the institution at which they will use the software, an institutional mailing address and an institutional e-mail address. As an example, students that work at a location other than their university are required to update their registration with RSICC and submit a new request for any software that they intend to use after they have begun work at the new location.

SINGLE-USER LICENSE AGREEMENT REVISED

The single-user license agreement has been revised to address concerns regarding changes in end-use and employment changes of individuals that have received packages from RSICC. In some instances, individuals obtain approvals from our Federal regulators for use of software packages for very specific purposes or while employed or associated with specific organizations. To address this concern, the single-user license agreement has been modified to indicate that the license is only valid for the end-use as stated in the Licensee's request and only while associated with the organization under which the request is being made. After February 1, 2015, the individual's single-user license would no longer be valid if they change their end-use or are no longer associated with the organization for which they obtained the original license. In these cases, the individual would need to submit a new request to RSICC for the package for the new end-use or the new affiliation.

SCIENCE EDUCATION PROGRAMS AT OAK RIDGE NATIONAL LABORATORY

Looking for an internship or post-graduate opportunity at Oak Ridge National Laboratory? The Science Education Programs at Oak Ridge National Laboratory provide paid opportunities for undergraduates, grad students, recent graduates, and faculty to participate in high-quality research alongside world-class scientists to solve real-world problems. Opportunities are available for internships and co-ops, research appointments, and sabbaticals.

You can access all available opportunities through the website at <http://www.ornl.gov/ornl>. The Talent and Opportunity System allows you to create a profile, and then answer only 5 or 6 questions for each program or job posting for which you apply.

All levels of participants from undergraduates to faculty are encouraged to publish research papers with their mentors. Please browse through the Research Profiles on the different participants and their research experiences at the right-hand side of the bottom of the web site listed above. Also, there is a video of research participants at ORNL sharing their thoughts on how access to world-class research facilities and staff has catapulted their careers in science and technology. You can find it on YouTube at <http://ow.ly/2EQLz>.

CONFERENCES, TRAINING COURSES, SYMPOSIA

RSICC attempts to keep its customers and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email walkersy@ornl.gov with “**Conferences for RSICC Newsletter**” in the subject line by the 15th of each month. Please include the announcement in its native format as an attachment to the message. Please provide a website address for the event if one is available.

Every attempt is made to ensure that the links provided in the Conference and Calendar sections of this newsletter are correct; however, if the links become unavailable, please call the point of contact for the event.

CONFERENCES



BEPU 2018

The Best Estimate Plus Uncertainty International Conference will be held **May 13-19, 2018**, in Lucca, Italy. The objective of the Conference is to provide a forum to exchange experience and views among professionals in the nuclear industry in the development and use of Best Estimate Plus Uncertainty (BEPU) methods in safety analyses and design of nuclear installations. Please see the website for more information www.nineeng.com/bepu.

TRAINING COURSES

Safety Analysis Report for Packaging (SARP)
Developed and Conducted by Oak Ridge National Laboratory

SARP Shielding/Criticality Safety Analyst Course

The U.S. Department of Energy (DOE) Packaging Certification Program (PCP), Office of Packaging and Transportation, is offering Safety Analysis Report for Packaging (SARP) shielding and nuclear criticality safety (NCS) course for SARP analysts.

The Analysts Course will provide detailed training on the radioactive material package shielding analyses and NCS evaluation fundamentals needed by analysts/practitioners (i.e., safety analysts and/or technical reviewers) to prepare and/or review technical analyses for the SARP documentation. The Analyst Course also provides an overview of regulations and guidelines in addition to detailed in-class exercises associated with the package shielding and NCS analyses. Regarding the in-class exercises, analysis teams will be faced with “staged” SARP examples in which several important decision processes in the generation of a SARP will be demonstrated and discussed. The SARP Analyst Course will be held at Oak Ridge National Laboratory in Oak Ridge, TN, at the National Transportation Research Center, **September 18-22, 2017**.

Course registration information is available at the following website link:
<https://public.ornl.gov/conferences/sarp/index.shtml>.

Contact Douglas G. Bowen by email (bowendg@ornl.gov) or phone (865) 576-0315.



LANL MCNP6 Class Schedule

Website: <https://laws.lanl.gov/vhosts/mcnp.lanl.gov/classes/classinformation.shtml>

Aug 7-11, 2017 Los Alamos, NM	Variance Reduction with MCNP6 - FULL Non-US citizens must register by 2017-05-15 Mon 10:30 - Fri 12:00	\$1800 or \$1500*
Aug 14-18, 2017 Los Alamos, NM	Criticality Calculations with MCNP6 Non-US citizens must register by 2017-05-22 Mon 10:30 - Fri 12:00	\$1800 or \$1500*
Nov 28-Dec 1, 2017 Los Alamos, NM	Using NJOY to Create MCNP® ACE Files & Visualize Nuclear Data Non-US citizens must register by 2017-09-25 Tues 10:00 - Thur 5:00	\$1500 or \$1200*
Dec 4-8, 2017 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2017-10-02 Mon 10:30 - Fri 12:00	\$1800 or \$1500*

MCNP® and Monte Carlo N-Particle® are registered trademarks owned by Los Alamos National Security, LLC, manager and operator of Los Alamos National Laboratory. Any third party use of such registered marks should be properly attributed to Los Alamos National Security, LLC, including the use of the ® designation as appropriate. Any questions regarding licensing, proper use, and/or proper attribution of Los Alamos National Security, LLC marks should be directed to trademarks@lanl.gov.





MCNP6 Training

For more information, see the website: http://mcnpvised.com/train_mcnp.html

Current Classes (tuition for all US classes is \$2800 with an early payment discount of \$300)			
Date (Click Date for Info)	Class	Course Content	Location
<u>August 21-25, 2017</u>	MCNP6 Intermediate Workshop	To see an outline for the course, <u>Click Here.</u>	Anaheim, CA
October 9-13, 2017	MCNP6 Intermediate Workshop	To see an outline for the course, <u>Click Here.</u>	Paris, France

MCNP6 Visual Editor Training

For more information, see the website: <http://mcnpvised.com/train.html>

August 28- Sept. 1, 2017	Using Nucwiz for Rapid Geometry Development and Advanced Analysis		About Nucwiz	Anaheim, CA
September 11-15, 2017	Beginning Visual MCNP6		Detailed Description	Las Vegas, NV
September 18-22, 2017	Advanced Visual MCNP6 with Applications in Mesh Tallies and Variance Reduction.		Detailed Description	Las Vegas, NV
October 2- 6, 2017	Beginning Visual MCNP6. The NEA handles registration for this course.		Detailed Description	Paris, France



NEA Nuclear Energy Agency

We are pleased to inform you that the NEA Data Bank is co-organising the following workshop / training course:

Date	Class	Course content	Price	Location
2-6 October 2017	Beginning Visual MCNP6	Course description To register, click here	2200 EUR	Paris, France
9-13 October 2017	MCNP6 intermediate	Course description To register, click here	2200 EUR	Paris, France

Class sizes are limited and workshops may be cancelled if minimum enrollment is not obtained one month prior to the workshop. Workshop fees paid are refundable up to one month before each class.

Please note that all attendees must be registered users. Should you be interested in attending, information is available at:

<http://www.oecd-nea.org/dbprog/trainingcourses.htm> or contact: programs@oecd-nea.org

SCALE User's Group Workshop



SCALE Users' Group Workshop
Oak Ridge National Laboratory, Oak Ridge, TN, USA
September 26-28, 2017

scale
Nuclear Systems Modeling & Simulation

Oak Ridge National Laboratory will host a SCALE Users' Group Workshop September 26-28, 2017. The workshop will provide a highly interactive forum for a fruitful exchange between SCALE users and developers and will include a mix of short presentations, open discussions, and tutorial sessions.

Topical areas to be discussed include: criticality safety, reactor physics, depletion and source terms, radiation shielding, nuclear data, and sensitivity and uncertainty analysis. Tours of ORNL facilities are also planned.

Contact information:
Matthew Jessee, jesseema@ornl.gov; Germina Ilas, ilasg@ornl.gov

Registration now open at <https://scale2017.ornl.gov>



SCALE Training Courses – Fall 2017

Training is delivered by developers and expert users from the SCALE team. Courses provide a review of theory, description of capabilities and limitations of the software, and hands-on experience running problems of varying levels of complexity.

All attendees MUST be licensed SCALE 6.2.1 users. SCALE 6.2.1 is available from [ORNL/RSICC](#) in the USA, the [OECD/NEA Data Bank](#) in France, and the [RIST/NUCIS](#) in Japan. All currently scheduled SCALE Courses are described below.

Date	Course Name and Description	Location	Cost
October 2-6, 2017	<p>SCALE/TRITON Lattice Physics and Depletion Course SCALE supports a wide range of reactor physics analysis capabilities. SCALE reactor physics calculations couple neutron transport calculations with ORIGEN to simulate the time-dependent transmutation of various materials of interest. TRITON is SCALE's modular reactor physics sequence for a wide variety of system types. Attendees of this course will learn how to use TRITON for depletion analysis. The TRITON training material is centered around using the NEWT 2-D transport module for 2-D depletion analysis and briefly touches on 3-D depletion analysis. The course will instruct users on the use of KENO in place of NEWT for 3-D Monte Carlo-based depletion; however, KENO is not covered in depth within this course. Additional applications of TRITON are incorporated into the training, including the creation of ORIGEN libraries for rapid spent fuel characterization calculations, defining appropriate unit cell calculations of various reactor types for cross section processing, performing restart calculations, and performing uncertainty analysis of reactor physics calculations using Sampler.</p>	ORNL Oak Ridge, TN USA	\$2000*
October 9-13, 2017	<p>SCALE/ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis Course This is a hands-on class that covers the use of ORIGEN for isotopic depletion, decay, decay heat, and radiation source-terms calculations. The course features the use of the Fulcrum consolidated SCALE graphical interface and Fulcrum plotting capabilities for displaying nuclear data and results. The class includes solving activation, spent fuel, and nuclear safeguards and security analyses. This class</p>	ORNL Oak Ridge, TN USA	\$2000*

	provides an introduction to the ORIGAMI tool for convenient characterization of spent nuclear fuel with radially and axially varying burnup. Advanced applications including simulation of chemical processing, continuous feed and removal are also covered.		
October 16-20, 2017	<p>SCALE Criticality Safety and Radiation Shielding Course This course provides instruction on the use of the KENO-VI Monte Carlo code for criticality safety calculations and the MAVRIC (Monaco with Automated Variance Reduction using Importance Calculations) shielding sequence with 3-D automated variance reduction for deep-penetration problems. KENO-VI is a 3D eigenvalue Monte Carlo code for criticality safety and Monaco is a 3D fixed-source Monte Carlo code for shielding analysis. Both codes use the SCALE Standard Composition Library and the SCALE Generalized Geometry Package (SGGP), which allows for versatile modeling of complex geometries and provides convenient, efficient methods for modeling repeated and nested geometry configurations such as lattices. The MAVRIC sequence is based on the CADIS (Consistent Adjoint Driven Importance Sampling) methodology. For a given tally in a Monte Carlo calculation that the users wants to optimize, the CADIS method uses the result of an adjoint calculation from the Denovo 3D deterministic code to create both an importance map for weight windows and a biased source distribution. MAVRIC is completely automated in that from a single user input, it creates the cross sections (forward and adjoint), computes the adjoint fluxes, creates the importance map and biased source, and then executes Monaco. An extension to the CADIS method using both forward and adjoint discrete ordinates calculations (FW-CADIS) is included in MAVRIC so that multiple point tallies or mesh tallies over large areas can be optimized (calculated with roughly the same relative uncertainty). Both KENO and Monaco use ENDF/B-VII.0 or ENDF/B-VII.1 cross-section data distributed with SCALE to perform continuous energy (CE) or multigroup (MG) calculations. Both codes can also be used with the Fulcrum consolidated SCALE user interface and KENO3D for interactive model setup, computation, output review, and 3-D visualization. Instruction is also provided on the SCALE material input and resonance self-shielding capabilities and the data visualization capabilities within Fulcrum for visualizing fluxes, reaction rates, and cross-section data as well as mesh tallies. KENO-VI and MAVRIC can be applied together to perform an integrated criticality accident alarm system (CAAS) analysis.</p>	ORNL Oak Ridge, TN USA	\$2000*
October 23-27, 2017	<p>SCALE Sensitivity and Uncertainty Analysis for Criticality Safety Assessment and Validation Sensitivity and uncertainty analysis methods provide advanced techniques for criticality safety validation including the</p>	ORNL Oak Ridge, TN USA	\$2000*

	<p>identification of appropriate experiments, detailed quantification of bias and bias uncertainty, identification of gaps in available experiments, and the design of new experiments. The Sampler sequence within SCALE provides a flexible tool for quantifying uncertainties due to manufacturing tolerances as well as composition and dimensional uncertainties in criticality safety assessments. This 5-day training class provides a foundation on sensitivity and uncertainty analysis and applies these methods to criticality safety validation applications, as well as instruction on the use of Sampler for uncertainty quantification.</p> <p>Topics covered include:</p> <ul style="list-style-type: none"> • The TSUNAMI sensitivity and uncertainty analysis techniques for determining the sensitivity of the k-eff eigenvalue to cross section uncertainties using both multigroup and continuous-energy physics. • SCALE's comprehensive cross section covariance data library, which is applied to these sensitivity coefficients to estimate the data-induced uncertainty in k-eff. • The TSUNAMI-IP code, which determines the correlation between benchmark and application systems in terms of their shared sources of data-induced uncertainty. • The USLSTATS trending analysis tool, which uses similarity coefficients from TSUNAMI-IP (among other parameters) to estimate the computational bias and bias uncertainty for design and licensing applications. • The TSURFER data adjustment tool, which uses generalized linear least squares to adjust nuclear data parameters to minimize discrepancies between computed predictions and the results of integral experiments; these adjustments can then be used to estimate bias and bias uncertainty in design and licensing applications. • The SAMPLER code for uncertainty assessment, which randomly samples nuclear data and/or system compositions and dimensions to quantify the uncertainty in system k-eff. <p>This course will cover the theoretical basis for these analysis techniques and will also conduct exercises for attendees to familiarize themselves with these tools. It is recommended that attendees are familiar with the KENO Monte Carlo code or are experienced SCALE users, although these are not necessary prerequisites.</p>		
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--	--

**Full-time university students can register at a reduced rate. Both professional and student registration fees are discounted \$200 for each course over one.*

FOREIGN NATIONAL VISITORS TO ORNL - *Payment MUST be received at least one week prior to attending the training course. All foreign national visitors must register 40 days before the start date of the training course they plan to attend.*

For more information regarding these courses, visit the website at <http://scale.ornl.gov/>.

SYMPOSIA

2017 CALENDAR

July

62nd Annual Health Physics Society (HPS) Meeting, July 9-13, 2017, Raleigh, North Carolina.
Website: <http://hps.org/meetings/meeting43.html>

U.S. Women in Nuclear Conference, July 23-26, 2017, San Francisco, California. Website:
<http://www.winus.org/Events/2017-National-Conference>

13th International Topical Meeting on Nuclear Applications of Accelerators (AccApp '17),
July 31-August 4, 2017, Quebec City, Quebec, Canada. Website: <http://accapp17.org/>

September

2017 Nuclear Criticality Safety Division Topical, September 10-15, 2017, Carlsbad, New Mexico.
Website: <http://carlsbadans.com/index.php/carlsbad-conference>

Nuclear Power for the People, September 11-14, 2017, Varna, Bulgaria.
Website: <http://www.bgns.bg/>

October

Fourth International Conference on Nuclear Power Plant Life Management, October 23-27, 2017,
Lyon, France. Website: <http://www-pub.iaea.org/iaeameetings/50811/Fourth-International-Conference-on-Nuclear-Power-Plant-Life-Management>

2017 American Nuclear Society (ANS) Winter Meeting and Nuclear Technology Expo,
October 29-November 2, 2017, Washington, DC. Website: http://www.ans.org/meetings/c_1

November

International Conference on Physical Protection of Nuclear Material and Nuclear Facilities,
November 13-17, 2017, Vienna, Austria. Website: <http://www-pub.iaea.org/iaeameetings/50819/International-Conference-on-Physical-Protection-of-Nuclear-Material-and-Nuclear-Facilities>

2018 CALENDAR

June

2018 American Nuclear Society (ANS) Annual Meeting, June 17-21, 2018, Philadelphia,
Pennsylvania. Website: http://www.ans.org/meetings/c_1

July

HPS 63rd Annual Meeting, July 15-19, 2018, Cleveland, Ohio. Website:
<http://hps.org/meetings/meeting46.html>

August

20th Topical Meeting of the Radiation Protection & Shielding Division of ANS (RPSD-2018), August 26-31, 2018, Santa Fe, New Mexico. Website: <http://rpsd2018.ans.org>.

November

2018 American Nuclear Society (ANS) Winter Meeting, November 11-15, 2018, Orlando, Florida.
Website: http://www.ans.org/meetings/c_1

2019 CALENDAR

June

2019 American Nuclear Society (ANS) Annual Meeting, June 9-13, 2019, Minneapolis, Minnesota.
Website: http://www.ans.org/meetings/c_1