Radiation Safety Information Computational Center

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"Be at war with your vices, at peace with your neighbors, and let every new year find you a better man."

-- Benjamin Franklin

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CHANGES TO THE RSICC CODE AND DATA COLLECTION

There is one update to the RSICC catalog for those individuals that may be interested.

CCC-638/TART2016

Lawrence Livermore National Laboratory, Livermore, California, contributed a newly frozen version of this coupled neutron-photon Monte Carlo transport code designed to use three dimensional (3-D) combinatorial geometry. Neutron and/or photon sources as well as neutron induced photon production can be tracked. It is a complete system to assist you with input preparation, running Monte Carlo calculations, and analysis of output results. TART2016 is also incredibly FAST. Use of the entire system can save a great deal of time and energy.

TART2016 extends the general utility of the code to even more areas of application than available in previous releases, by concentrating on improving the physics, particularly with regard to improved treatment of neutron fission, resonance self-shielding, molecular binding, and extending input options used by the code. Several utilities are included for creating input files and displaying TART results and data.

TART2016 is designed to run on any computer. It is presently implemented on Cray, various Unix workstations, IBM-PC (Windows and Linux), and MAC. For use on IBM-PC and MAC, the entire system is distributed in executable form, so that no compiler or loader is required on these systems.

Recent Updates in 2016:

- Eliminated ALL computer dependence; identical for IBMPC, LINUX, MAC, etc…
- Updated FORTRAN to allow improved optimization and speed
- Corrected various options
- Neutron Data files based on the latest ENDF/B-VII data and preliminary ENDF/B-VIII
- Photon Data files based on my EPICS2014; official ENDF/B electron and photon data
- Because of the above, sentl 18 photon/neutron source ratio no longer has any meaning
- Added utility code TimeKeff we display sub-critica time dependent K-eff

The package is distributed on CD in MAC, Windows and Linux formats. The CD contains the source codes, executables for IBMPC, data files and test cases for use on a variety of computers. Installation and verification instructions for each type of computer are also included with the package. Fortran and C; CRAY, UNIX workstations (Sun, IBM RS/6000; DEC-Alpha), IBM-PC (Windows or Linux) and MAC (C00638/MNYCP08).

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.orau.org/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

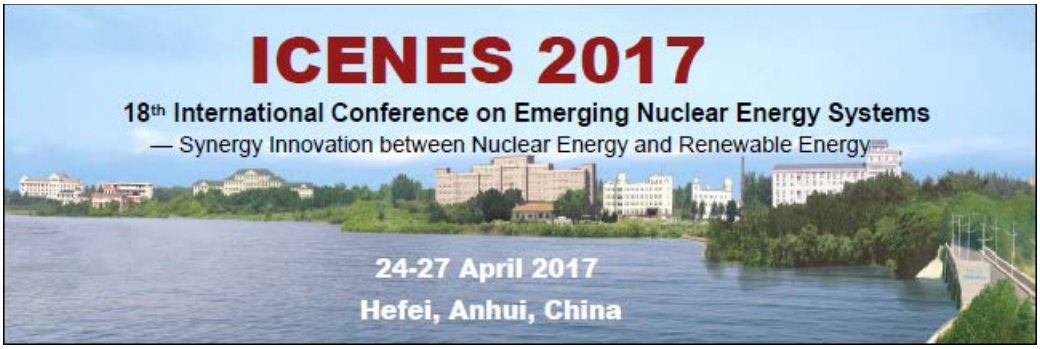
RSICC attempts to keep its customers and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email walkersy@ornl.gov with "conferences" in the subject line by the 20th 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

The ANS M&C 2017 meeting will take place **April 16-20, 2017** in Jeju, Korea, which is a beautiful semi-tropical island providing a relaxing and friendly environment. The reactor physics and computational science division (RPCSD) of the Korean Nuclear Society (KNS) will host the conference with the support of the strong nuclear industry of Korea in which 24 power reactors are operating to supply about 35% of the national electricity production.

For more information, please see the website at http://www.mc2017.org/.



ICENES 2017

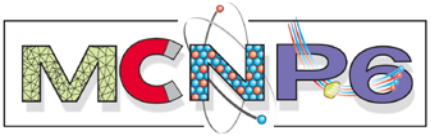
The 18th International Conference on Emerging Nuclear Energy Systems (ICENES 2017) will be held **April 24-27, 2017** in Hefei, Anhui, China. It is the outstanding international conference as an intellectual exchange platform on most recent advancements in emerging nuclear energy systems, and on possible synergy innovation with renewable energy. This conference will be hosted by Institute of Nuclear Energy Safety Technology (INEST·FDS), CAS, and held in Hefei, China. Papers are welcome on the strategies, innovative concepts, emerging materials and technologies related to innovative nuclear systems, and the synergy with renewable energy.

Please see the website for more information at http://icenes2017.org/dct/page/1.

IEEE Computing Conference

The Computing Conference (formerly called Science and Information (SAI) Conference) is a research conference that will be **July 18-20, 2017**, London, U.K. The goal of the conference is to be a premier venue for researchers and industry practitioners to share new ideas, research results and development experiences in the areas of Computer Science, Electronics and Communication. Accepted papers will be published in IEEE Xplore and indexed in various databases. Please see their website for more information at http://www.saiconference.com/Computing2017.

TRAINING COURSES



LANL MCNP6 Class Schedule for 2017

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

March 7-9, 2017 Los Alamos, NM	Using NJOY to Create MCNP® ACE Files & Visualize Nuclear Data Non-US citizens must register by 2016-12-12 | Tues 10:00 - Thur 5:00	$1200 or $900*
Apr 3-7, 2017 Los Alamos, NM	Criticality Calculations with MCNP6 Non-US citizens must register by 2017-01-09 | Mon 10:30 - Fri 12:00	$1800 or $1500*
Apr 10-14, 2017 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2017-01-16 | Mon 10:30 - Fri 12:00	$1800 or $1500*
May 16-19, 2017 Los Alamos, NM	Unstructured Mesh with Attila4MC Non-US citizens must register by 2017-02-20 | Tues 12:30 - Fri 4:30	$1500 or $1200*
June 5-9, 2017 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2017-03-13 | Mon 10:30 - Fri 12:00	$1800 or $1500*
July 31 - Aug 4, 2017 Los Alamos, NM	Introduction to MCNP6 Non-US citizens must register by 2017-05-08 | Mon 10:30 - Fri 12:00	$1800 or $1500*
Aug 7-11, 2017 Los Alamos, NM	Variance Reduction with MCNP6 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*

MCNP6 Training for 2017

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

Current Classes (tuition for all US classes is $2300 with an early payment discount of $300)			
Date (Click Date for Info)	**Class**	**Course Content**	**Location**
March 6-10, 2017	**MCNP6 Advanced Workshop**	**To see an outline for the course, Click Here.**	**Daejeon, South Korea**
April 3-7, 2017	**MCNP6 Intermediate Workshop**	**To see an outline for the course, Click Here.**	**Paris, France**
October 9-13, 2017	**MCNP6 Intermediate Workshop**	**To see an outline for the course, Click Here.**	**Paris, France**

MCNP6 Visual Editor Training for 2017

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

January 30-February 3, 2017	**Intermediate Visual MCNP6 for Shielding Calculations**		**Detailed Description**	**Richland, WA**
February 6-10, 2017	**Intermediate Visual MCNP6 for Criticality Calculations**		**Detailed Description**	**Richland, WA**
February 13-17, 2017	**Intermediate Visual MCNP6 for Medical Physics Calculations**		**Detailed Description**	**Richland, WA**
March 27-31, 2017	**Beginning Visual MCNP6. The NEA handles registration for this course.**		**Detailed Description**	**Paris, France**
May 15-19, 2017	**Beginning Visual MCNP6**		**Detailed Description**	**Las Vegas, NV**
May 22-26, 2017	**Advanced Visual MCNP6 with Applications in Mesh Tallies and Variance Reduction.**		**Detailed Description**	**Las Vegas, NV**
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**

SCALE Training Courses – Winter 2017

Training is provided 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
February 13-17, 2017	**SCALE Lattice Physics and Depletion Course** 2D lattice physics calculations using TRITON and Polaris to generate few group constants for nodal core simulators; cross section processing and resonance self-shielding techniques; generation and use of ORIGEN reactor libraries for spent fuel characterization. Additional topics include statistical uncertainty analysis with Sampler, 3D continuous-energy Monte Carlo depletion calculations, and Monte Carlo Dancoff factors for non-uniform lattices.	ORNL Oak Ridge, TN USA	$2000*
February 20-24, 2017	**SCALE ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis Course** Isotopic depletion, activation analysis, and source term characterization using ORIGEN and the new ORIGAMI tool for convenient characterization of used nuclear fuel with radially and axially varying burnup.	ORNL Oak Ridge, TN USA	$2000*
February 27-March 3, 2017	**SCALE Criticality Safety and Radiation Shielding Course** Basic criticality calculations with KENO-VI; shielding analysis with automated variance reduction using MAVRIC; and criticality accident alarm system analysis. Calculations will be performed using multigroup and CE cross sections, including resonance self-shielding of multigroup data, optimized CE capabilities in KENO, and new coupled CE neutron and photon transport in Monaco.	ORNL Oak Ridge, TN USA	$2000*
March 6-10, 2017	**SCALE Computational Methods for Burnup Credit** This course describes the use of SCALE tools to meet the requirements of NRC Interim Staff Guidance 8 Rev. 3 for the use of actinide and fission product burnup credit. The course reviews the depletion capabilities of TRITON, details basic and advanced burnup credit criticality safety calculations with STARBUCS/KENO, and describes the validation requirements for k-eff and isotopic composition	ORNL Oak Ridge, TN USA	$2000*

	calculations, including uncertainty analysis. Applications of the ORIGAMI tool for convenient characterization of spent nuclear fuel with radially and axially varying burnup to burnup credit are also introduced. Previous experience with SCALE is recommended.		
March 13-17, 2017	**SCALE Sensitivity/Uncertainty Analysis and Uncertainty Quantification in Reactor Physics Calculations** In this updated class, participants will learn to apply the sensitivity/uncertainty analysis (SA) and uncertainty quantification (UQ) capabilities in SCALE, focusing on two approaches: 1) perturbation theory-based TSUNAMI sequences to perform nuclear data SA and UQ for eigenvalue and reaction rates using 1D, 2D and 3D tools, including multigroup and new CE Monte Carlo capabilities; and 2) stochastic sampling-based UQ analysis using the new Sampler super-sequence to perform UQ for any computed parameter with respect to uncertainties in many input quantities including nuclear data, dimensions, densities, temperatures, etc. Training will include workshop problems analyzing a variety of different systems including LWR (both UO2 and MOX fuel), HTGR, and fast systems.	OECD NEA Paris, France	2000 Euro
March 20-24, 2017	**SCALE Criticality Safety Calculations Course** This course provides instruction on the use of the KENO Monte Carlo codes for criticality safety calculations and is appropriate for beginning through advanced users. KENO V.a is a fast and easy-to-use code that allows users to build complex geometry models using basic geometrical bodies such as cuboids, spheres, cylinders, hemispheres, and hemicylinders. KENO-VI is a 3-D generalized geometry Monte Carlo code that allows for versatile modeling of complex geometries. Both versions of KENO provide convenient, efficient methods for modeling repeated and nested geometry configurations such as lattices. Both versions of KENO use the ENDF/B-VII cross-section data distributed with SCALE to perform either continuous energy (CE) or multigroup (MG) calculations.	OECD NEA Paris, France	2000 Euro

***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 classes, visit their website at
http://scale.ornl.gov/training_2017_feb-mar.shtml

SYMPOSIA

2017 CALENDAR

January

HPS 50th Midyear Meeting, January 22-25, 2017, Bethesda, Maryland. See website for more information http://hps.org/meetings/meeting45.html.

May

2017 International Symposium on Reactor Dosimetry, ISRD-16. May 7-12, 2017, Santa Fe, New Mexico. See website for more information http://reactordosimetry.org.

June

2017 American Nuclear Society (ANS) Annual Meeting. June 11-15, 2017, San Francisco, California.

July

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

October

2017 American Nuclear Society (ANS) Winter Meeting and Nuclear Technology Expo. October 29-November 2, 2017, Washington, DC.

2018 CALENDAR

June

2018 American Nuclear Society (ANS) Annual Meeting, June 17-21, 2018, Philadelphia PA.

July

HPS 63rd Annual Meeting, July 15-19, 2018, Cleveland. Ohio.

November

2018 American Nuclear Society (ANS) Winter Meeting, November 11-15, 2018, Orlando, FL.