Radiation Safety Information Computational Center

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"Effort only fully releases its reward after a person refuses to quit."

Napoleon Hill

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CHANGES TO THE RSICC CODE AND DATA COLLECTION

There were two updates or additions to the RSICC catalog for those individuals that may be interested.

PSR-607/COGLibMaker2014

Lawrence Livermore National Laboratory, Livermore, California, has contributed COGLibMaker2014. COG LibMaker contains various utilities to convert common data formats into a format usable by the COG – Multi-particle Monte Carlo Code System package, (RSICC ID# C00777MNYCP01).

Utilities included:

ACEtoCOG - Creates a COG library from ACE formatted neutron data.
ACEUtoCOG - Creates a COG library ACEU formatted photonuclear data.
ACTLtoCOG – Creates a COG library from ENDL formatted activation data COG library.
EDDLtoCOG - Creates a COG library from ENDL formatted LLNL deuteron data.
ENDLtoCOG - Creates a COG library from ENDL formatted LLNL neutron data.
EPDLtoCOG - Creates a COG library from ENDL formatted LLNL photon data.
LEX – Creates a COG dictionary file.
SAB.ACEtoCOG - Creates a COG library from ACE formatted S(a,b) data.
SABtoCOG - Creates a COG library from ENDF6 formatted S(a,b) data.
URRtoCOG - Creates a COG library from ACE formatted probability table data.

This package also includes library checking and bit swapping capability for each respective format.

The package is transmitted on CD and includes the FORTRAN source code, Linux executables. README files; Fortran, Linux, and Windows. Windows Users will need a functioning FORTRAN compiler. (P607MNYCP00).

PSR-608/SAPHIRE 8.0.9

SAPHIRE: Systems Analysis Programs for Hands-On Integrated Reliability Evaluations. Version 8.0.9 was contributed by Idaho National Laboratory, Idaho Falls, Idaho through the Nuclear Regulatory Commission (USNRC). Using SAPHIRE 8 on a PC, an analyst can perform a PRA for any complex system, facility, or process. Regarding nuclear power plants, SAPHIRE can be used to model a plant's response to initiating events, quantify associated core damage frequencies, and identify important contributors to core damage (Level 1 PRA). It can also be used to evaluate containment failure and release models for severe accident conditions, given that core damage has occurred (Level 2 PRA). It can be used for a PRA assuming that the reactor is at full power, at low power, or at shutdown conditions. Furthermore, it can be used to analyze

both internal and external initiating events, and it has special features for transforming models built for internal event analysis to models for external event analysis. It can also be used in a limited manner to quantify risk for release consequences to both the public and the environment (Level 3 PRA). For all of these models, SAPHIRE can evaluate the uncertainty inherent in the probabilistic models. SAPHIRE has evolved with advances in computer technology.

One self-extracting executable containing precompiled executable for Windows systems, sample problem input and documentation. (P00608PCX8600).

DLC-273/COG Supplemental Libraries for ENDL2011 and MCNP6.1-ENDF/B-VII. 1, Version 1.0

Lawrence Livermore National Laboratory, Livermore, California, USA has contributed COG Supplemental Libraries. The LLNL Evaluated Nuclear Data Library has existed since 1958 in a succession of forms and formats. The data included here is a binary file, ENDL2011, containing the point wise continuous neutron cross-sections from the 2011 version of the library as formatted for use in the LLNL COG11 (C777MNYCP01) code.
The Evaluated Nuclear Data File has existed since 1968 and is maintained by the National Nuclear Data Center located at Brookhaven National Laboratory. The data included here are three binary files: MCNP. 71nc containing the point-wise continuous cross-sections; PT.MCNP.71nc containing the probability tables for the unresolved resonance region; and, T.MCNP.71nc containing thermal scattering data, respectively, from the ENDF/B-VI I.1 version of the library as originally distributed by Los Alamos National Laboratory with the MCNP6.1 code package but reformatted here for use in the LLNL COG code.
The libraries have been provided to facilitate code inter-comparisons between COG and other codes using these data libraries. The COG Supplemental Library package includes four binary files, ENDL2011, MCNP.71nc, PT.MCNP.71nc and T.MCNP.71nc. Binary, Linux, MacOS, Windows (D00271MNYCP00).

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

8th International Conference on High Levels of Natural Radiation and Radon Areas

The 8th International Conference on High Levels of Natural Radiation and Radon Areas (8 ICHLNRRA) will be held in Prague, Czech Republic from **September 1-5, 2014**. It will be organized by the International Committee on High levels of Natural Radiation and Radon Areas (ICHLNRRA) in cooperation with the Czech Technical University through the Department of Dosimetry and Applications of Ionizing Radiation. High level natural background radiation and radon areas in many parts of the world provide ample opportunities to researchers to measure low dose chronic environmental radiation exposure indoors and outdoors and investigate their effects on human population as well as non-human species. In this context, some International Conferences on High Levels of Natural Radiation and Radon Areas have been held in the past in Brazil (1977), India (1981), Iran (1990), China (1996), Germany (2000), Japan (2004) and India (2010). In extending our invitation, we request all the scientists and researchers as well as graduate students involved in the field of high background radiation areas and related fields of dosimetry and public dose and health assessment to actively participate in this conference and share their wealth of information/findings and put forth their suggestions to tackle the unresolved issues.

For up-to-date information about this conference, visit their website at
http://www.ichlnrra2014prague.cz/

23rd International Conference Nuclear Energy for New Europe

In 2014, the Nuclear Society of Slovenia will organize the 23rd International Conference Nuclear Energy for New Europe. The conference will be held in the attractive maritime resort of Portorož, Slovenia, during **September 8-11, 2014**.

The conference is a traditional annual meeting of professionals from nuclear research and educational institutions, nuclear vendors, utilities and regulatory bodies. It attracts around 200 participants from more than 20 countries. The topics discussed are general and include reactor physics, thermal hydraulics, probabilistic safety assessment, severe accidents, nuclear fusion, nuclear power plant operation, nuclear materials, waste management and new reactor designs.

For up-to-date information about this conference, visit their website at www.nss.si/nene2014/.

18th Topical Meeting of the ANS Radiation Protection & Shielding Division

The 18th Topical Meeting of the Radiation Protection & Shielding Division of ANS will be held **September 14-18, 2014** at the Hilton Downtown, Knoxville, Tennessee USA. The conference explores the scientific, technological and engineering issues associated with particle and ionizing radiation shielding in its broadest context, including nuclear energy systems, accelerator facilities, space and other radiation environments.

For up-to-date information about this conference and the Call for Papers, visit their website at www.rpsd2014.org .

PHYSOR 2014 International Conference

The ANS Reactor Physics Topical Meeting will be held at The Westin Miyako, Kyoto, Japan **September 28 – October 3, 2014.** The technical program will include timely and relevant special topics. Students will be actively involved in all technical events and activities. Exciting workshops and technical tours will be also offered.

For up-to-date information about this conference, visit their website at http://physor2014.org/#.

4th International Conference on Nuclear & Renewable Energy Resources (NURER2014)

This event will consist of a knowledge-based and comprehensive scientific program, featuring oral and poster presentations with possible commercial exhibitions from energy and publishing sectors. Thus, it will provide a good opportunity to become familiar with the most recent R&D tools in innovative nuclear and renewable energy systems, as well as looking at cutting-edge ideas on a sound scientific-technical basis. The aim is to combine the intellectual debates on the leading practical applications on nuclear and non-nuclear technologies, such as hydrogen energy, wind energy, solar concentrating systems, PVs, power systems, alternative energy tools, deep space exploration, etc. This conference will take place **October 26-29, 2014** in Antalya, Turkey.

For up-to-date information about this conference, visit their website at www.nurer2014.org.

3rd International Technical Meeting on Small Reactors "Applications of Research Reactors and Small Modular Reactors" (ITMSR-3)

The 3rd International Technical Meeting on Small Reactors (ITMSR-3) will be held in Ottawa, Ontario, Canada, **November 5-7, 2014** at the Ottawa Marriott Hotel. This technical meeting will focus on the applications of research reactors and small modular reactors. Detailed information is available at www.cns-snc.ca/events/3tm/. A Call for Papers for the ITMSR-3 is attached for your information and distribution. The technical meeting will provide a great opportunity for you to interact and exchange ideas with researchers and designers of other domestics and international organizations, publish advancements and expertise in the subject areas.

For up-to-date information about this conference, visit their website at www.cns-snc.ca/events/3tm/.

The 17th International Conference on Emerging Nuclear Energy Systems (ICENES2015)

This conference will consist of an informative and comprehensive scientific program, featuring oral and poster presentations and a commercial exhibition. This will provide a unique opportunity to become familiar with the most recent advancements in innovative nuclear energy systems, as well as looking at "bold" and "unthinkable" ideas on a sound scientific-technical basis. The forum will also be open to intellectual debate leading to practical applications around innovative non-nuclear technologies, such as hydrogen energy, solar energy, deep space exploration and others. This conference will take place **May 10-14, 2015** inclusive, in Antalya, Turkey.

For up-to-date information about this conference, visit their website at http://www.icenes2015.org.

TRAINING COURSES

LANL MCNP6 Class Schedule

Date	Course Name and Description	Location	Cost
October 20-24, 2014	Introduction to MCNP6 Non-US citizens must register 2014-08-18 Min 8 students – Max 15 Mon 12:30 – Fri 12:00	Los Alamos, NM	$1,900 or $1,600*
October 27-29, 2014	Unstructured Mesh with AttilaMCNP Non-US citizens must register 2014-08-25 Min 8 students – Max 15 Mon 12:30 – Wed 4:30	Los Alamos, NM	$1,000 or $800*

***Early payment discount:** A discount of $300 per student is given when the registration payment is received in full at least 4 weeks prior to the start of class.

Introductory classes are for those who have little or no experience with MCNP. This class surveys the features of MCNP so the beginning user will be introduced to the capabilities of the program, and will have hands-on experience at running the code to solve simple problems. Course topics include Basic Geometry, Source Definitions, Output (Tallies), Advanced Geometry (repeated structures specifications), Variance Reduction Techniques, Statistical Analysis, Criticality, Plotting of Geometry and Tallies, and Neutron / Photon / Electron Physics.

Intermediate workshops cover the entire spectrum of MCNP/MCNPX, but proceed at a much faster pace and are more in-depth than the introductory classes. These workshops are open to new users; the first day of class is a review of basics. However, the intermediate workshops are targeted toward more experienced users and are more problem solving than lecture classes. Intermediate workshops feature flexible course content, skip topics of least interest to the participants, and provide significantly more depth than introductory classes.

Intermediate class Unstructured Mesh with Attila4MCNP is an introduction to the new unstructured mesh capability in MCNP6 and the Attila4MCNP problem-setup Graphical User Interface (GUI) from Transpire, Inc (www.transpireinc.com). Attendees should have prior experience with MCNP; no experience with the other codes is required. In this class, the participant will learn how to develop 3-D geometries in SpaceClaim (www.spaceclaim.com), import these CAD geometries into Attila4MCNP, mesh the geometry, setup the entire MCNP6 input file with the GUI, and run the calculation using the MCNP6 unstructured mesh capability. Part of the CAD instruction will involve CAD cleanup and defeaturing of existing CAD files. The participant will also learn how to run the Attila solver to generate weight windows with the CADIS methodology. The MCNP6 pre- and post-processor programs will be taught. The material is organized with group exercises.

Advanced classes- Variance Reduction and Criticality are for people with MCNP experience who want to extend their knowledge and gain depth of understanding. Most areas of MCNP operation will be discussed in detail, with emphasis on Advanced Geometry, Advanced Variance Reduction Techniques, and other advanced features of the program. Time will be available to discuss approaches to specific

problems of interest to participants. Classes on specific topics are offered when there is sufficient interest.

Note: While MCNP supports a number of platforms, LANL class computers are Windows based.

More information about the MCNP courses at LANL is available on their website at https://laws.lanl.gov/vhosts/mcnp.lanl.gov/classes/classinformation.shtml.

MCNP6, Penelope, and Visual Editor Training

Classes are taught using the most recent (beta) version of the Visual Editor Code. All class attendees must have a valid MCNP/MCNPX RSICC license. Bring proof of receipt (letter or email) to the class.

Visual Editor Classes 2014 & 2015		
September 2-5, 2014	Beginning Visual MCNP (Four day format for Holiday)	Montreal, Canada
September 8-12, 2014	Intermediate Visual MCNP	Montreal, Canada
September 22-26, 2014	Beginning Visual MCNP	Myrtle Beach, SC
September 29-October 3, 2014	Intermediate Visual MCNP	Myrtle Beach, SC
October 20-24, 2014	Beginning Visual MCNP	Barcelona, Spain
October 27-31, 2014	Intermediate Visual MCNP	Barcelona, Spain
December 1-5, 2014	Beginning Visual MCNP	London, UK
December 8-12, 2014	Intermediate Visual MCNP	London, UK
January 5-9, 2015	Beginning Visual MCNP	Las Vegas, NV
January 19-23, 2015	Beginning Visual MCNP	Las Vegas, NV
February 2-6, 2015	Beginning Visual MCNP	Seoul, Korea
February 9-13, 2015	Intermediate Visual MCNP	Seoul, Korea
February 16-20, 2015	Beginning Visual MCNP	Sydney, Australia
February 23-27, 2015	Beginning Visual MCNP	Honolulu, Hawaii
March 16-20, 2015	Beginning Visual MCNP	Paris, France
March 30-April 3, 2015	Intermediate Visual MCNP	Barcelona, Spain

April 13-17, 2015	Beginning Visual MCNP	Las Vegas, NV
April 20-24, 2015	Intermediate Visual MCNP	Las Vegas, NV
May 11-15, 2015	Visual MCNP6 for Shielding Calculations (Class size limited to six students.)	Barcelona, Spain
May 18-22, 2015	Visual MCNP6 for Criticality Calculations (Class size limited to six students.)	Barcelona, Spain
May 25-29, 2015	Visual MCNP6 for Medical Physics (Class size limited to six students.)	Barcelona, Spain
June 15-19, 2015	Beginning Visual MCNP	Prague, Czech Republic
October 5-9, 2015	Beginning Visual MCNP	Paris, France

The introductory workshops combine teaching on MCNP basics and how to create MCNP input files using the Visual Editor. The intermediate Visual Editor workshops focus on more advanced topics such as tallies and variance reduction using the Visual Editor.

Exercises will focus on creating input files and visualizing output data with the Visual Editor. Attendees are encouraged to bring their own input files for viewing and modifying in the Visual Editor; this is particularly important for the intermediate workshop.

The course description and registration information can be found at http://www.mcnpvised.com/index.html.

MCNP6 Workshops 2014 & 2015		
November 24-28, 2014	MCNP6 Intermediate Workshop	Paris, France
January 12-16, 2015	MCNP6 Intermediate Workshop	Las Vegas, NV
March 23-27, 2015	MCNP Intermediate Workshop	Paris, France
April 27-May 1, 2015	MCNP Intermediate Workshop	Livermore, CA

Intermediate Workshops cover the entire spectrum of MCNP6 but proceed at a much faster pace and are more in-depth than Introductory Classes. These workshops are open to new users; the first day is a review of basics. However, the intermediate workshops are targeted toward more experienced users and are more problem solving than lecture classes. Intermediate workshops feature flexible course content, skip topics of least interest to the participants, and provide significantly more depth than introductory classes.

The list of workshops is tentative, as workshops may be added, removed, or modified throughout the year, depending on user interests. Workshops with fewer than 12 registrants on the early registration date are subject to cancellation or rescheduling.

In order to process non-U.S. citizens by the class date, non-U.S. citizens must register at least 6 weeks prior to the start of the training class. All non-U.S. citizens who reside in countries listed in the U.S. Code of Federal Regulations, Title 10, Part 810.8, are required to register at least 8 weeks prior to the start of the training class. These participants must be processed by the DOE and should not make travel arrangements until approval from DOE has been obtained.

Additional information about the courses can be found at the website, http://www.mcnpvised.com/train.html.

To register send an email to Randy Schwarz at randyschwarz@mcnpvised.com, indicating the workshop of interest to you.

SCALE Training Courses – Summer 2014

Training courses are 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.

Please see http://scale.ornl.gov/training_2014_summer.shtml for more information.

Dates	Course	Registration Fee
August 4–8, 2014	**SCALE Criticality Safety Calculations** Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA Introductory through advanced criticality calculations using KENO V.a and KENO-VI; resonance self-shielding techniques	Registration Closed
August 11–15, 2014	**SCALE Sensitivity and Uncertainty Calculations** Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA TSUNAMI: 1D, 2D, and 3D k_{eff} sensitivity/uncertainty analysis; 2D generalized sensitivity analysis for lattice physics; reactivity sensitivity analysis; advanced S/U methods for code and data validation using trending analysis and data assimilation (data adjustment) techniques; k_{eff} burnup credit validation	Registration Closed
August 18–22, 2014	**SCALE Lattice Physics and Depletion** Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA 2D lattice physics calculations; 1D, 2D, and 3D depletion calculations; resonance self-shielding techniques including Monte Carlo Dancoff factors for non-uniform lattices; generation of libraries for ORIGEN-ARP	$2000 Registration Closes August 8
August 25–28, 2014	**SCALE/ORIGEN Stand-alone Fuel Depletion, Activation, and Source Term Analysis Course** Oak Ridge National Laboratory, Oak Ridge, Tennessee, USA Isotopic depletion, activation analysis, and source term characterization using ORIGEN/OrigenArp	$1800 Registration Closes August 15

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

All attendees must be licensed users of SCALE 6.1, which is available from ORNL/RSICC in the USA, the OECD/NEA Data Bank in France, and the RIST/NUCIS in Japan.

Class size is limited, and course may be canceled if minimum enrollment is not obtained one month prior to the course. Course fees are refundable up to one month before each class.

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 this class, visit their website at
http://scale.ornl.gov/training_2014_summer.shtml

NEA Nuclear Energy Agency

Class sizes are limited and courses may be cancelled if minimum enrollment is not obtained one month prior to course. Course fees paid are refundable up to one month before each class.

Please note that all attendees must be registered users.

Date	Class	Course Content	Price	Location
24-28 November 2014	MCNP6 intermediate	Course description To register, click here	2000 Euros	Paris, France

* The fee includes the training course, luncheons and coffee breaks.

Contact: programs@oecd-nea.org

SYMPOSIA

2014 CALENDAR

August

19th Pacific Basin Nuclear Conference, August 24-28, 2014, Vancouver, British Columbia, Canada. For up-to-date information about this conference, visit their website at www.pbnc2014.org.

September

Topical Meeting of the ANS Radiation Protection and Shielding Division (RPSD 2014), September 14-18, 2014, Knoxville, TN. For up-to-date information about this conference and the Call for Papers, visit their website at www.rpsd2014.org.

PHYSOR 2014, September 28 – October 3, 2014, Kyoto, Japan**.** For up-to-date information about this conference, visit their website at http://physor2014.org/#.

November

2014 ANS Winter Meeting and Nuclear Technology Expo, Nuclear – The Foundation of Clean Energy, November 9-13, 2014, Anaheim, CA. For up-to-date information about this conference, visit their website at http://www.ans.org/meetings/c_1.

December

WINS 2014 Workshop on Elastic and Inelastic Neutron Scattering, December 3-5, 2014, Dresden, Germany. For up-to-date information about this conference, visit their website at http://www.hzdr.de/db/Cms?pNid=3221.

2015 CALENDAR

February

9th International Topical Meeting on Nuclear Plant Instrumentation, Control, and Human Machine Interface Technologies (NPIC&HMIT 2015), February 22-26, 2015, Charlotte, NC. For up-to-date information about this conference, visit their website at http://www.npic-hmit2015.org/.

Health Physics Society 48th Midyear Topical Meeting, February 1-4, 2015, Norfolk, VA. Website not yet available.

April

ANS Mathematics & Computation (M&C) 2015 & Supercomputing in Nuclear Applications (SNA) and Monte Carlo (MC), April 19-23, 2015, Nashville, TN. For up-to-date information about this conference, visit their website at http://mc2015.org/.

May

2015 International Congress on Advances in Nuclear Power Plants (ICAPP '15), May 3-6, 2015, Nice, France. For up-to-date information about this conference, visit their website at https://www.sfen.fr/ICAPP.

Used Fuel Management Conference, May 5-7, 2015, Orlando, FL. Website not yet available.

June

ANS Annual Meeting: Nuclear Technology: An Essential Part of the Solution, June 7-11, 2015, San Antonio, TX. Website not yet available.

July

U.S. Women in Nuclear Conference, July 12-15, 2015, Austin, TX. Website not yet available.

INMM 56th Annual Meeting, July 12-16, 2015, Indian Wells, CA. Website not yet available.

Health Physics Society 60th Annual Meeting, July 12-16, 2015, Indianapolis, IN. Website not yet available.

September

Global 2015 International Nuclear Fuel Cycle Conference, September 20-24, 2015, Paris, France. For up-to-date information about this conference, visit their website at. https://www.sfen.fr/GLOBAL.

November

ANS Winter Meeting and Nuclear Technology Expo, November 8-12, 2015, Washington, **DC.** Website not yet available.