
Radiation Safety Information Computational Center



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The measure of a man's real character is what he would do if he knew he would never be found out. -- Macaulay

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CHANGES TO THE RSICC CODE AND DATA COLLECTION

[CCC-804/MCUNED](#)

The Universidad Nacional de Educación a Distancia, SPAIN contributed MCUNED. MCUNED is an MCNPX extension that handles light-ions (proton, deuteron, triton, helium-3, alpha) evaluated data libraries in ACE format. Since MCUNED is an MCNPX extension, all MCNPX capabilities remain unaltered.

ACE-formatted data libraries from TENDL can be used for deuterons, tritons, ^3He , and alpha particles in addition to the ENDF/B and other ACE-formatted data libraries for neutrons, protons, and photonuclear physics. The light-ion data are available from the TENDL library which also includes additional proton data. The TENDL library is in ACE format and is a nuclear data library which provides the output of the TALYS nuclear model code system for both basic physics and applications.

The package is transmitted on one CD with the documentation, patch file, and Windows and Linux executables. There are no source files included with this package. Fortran 77; Windows, Linux (C00804PCX8600).

DLC-264/EACRP-D2O-LATTICES

The OECD/NEA Committee on Reactor Physics, Paris, France through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France has released EACRP-D2O-LATTICES, a compilation of reactor physics measurements in HWRs lattices. The Heavy Water Lattice Data compilation with identification EACRP-L-42 was collected and prepared by European American Committee on Reactor Physics between the years 1958 and 1963. The original collection contains data from critical and exponential experiments performed in a variety of laboratories in different European countries, Canada and in the USA. The experiments were performed in the late 50's and early 60's.

The EACRP-D2O-LATTICES package is transmitted on CD and includes documentation and data files. Microsoft Word and Acrobat Reader are required; PC, UNIX Workstations, MAC (D00264MNYCP00).

DLC-265/NEACRP-H2O-LATTICES

The OECD/NEA Committee on Reactor Physics, Paris, France through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France has released NEACRP-H2O-LATTICES, a compilation of reactor physics measurements in LWRs lattices. The Light Water Lattice Data compilation with identification NEACRP-U-190 contains 317 different benchmark cases. This original collection contains data from different critical, sub-critical and exponential experiments performed in a variety of laboratories around the world. The purpose of this collection was to provide a list of experimental data for validation of different unit cell calculation tools developed in the 70's. As a consequence, data collected in the LWL report are not complete benchmark reports. The reports are in particular limited only to two dimensions, which are needed to model unit cells. In addition, several parameters - such as burnup and temperature effects - are outside the scope of the experiments reported in LWL compilation.

The NEACRP-H2O-LATTICES package is transmitted on CD and includes documentation and data files. Microsoft Word and Acrobat Reader are required; PC, UNIX Workstations, MAC (D00265MNYCP00).

PSR-584/KCUT

The Korea Atomic Energy Research Institute, Daejeon, Republic of Korea through the Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France contributed KCUT, a simple code to generate minimal cut sets for fault trees. KCUT takes Boolean equations as input so that a fault tree can be converted into Boolean form. KCUT expands the fault tree into cut sets and deletes non-minimal cut sets.

The KCUT package includes documentation, source files and sample input and output files. C; IBM PC; Windows NT and XP (P00584IBMPC00).

PSR-585/ETOE-2

Argonne National Laboratory, Argonne, IL through the Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France contributed ETOE-2, Cross-Sections Library for Program MC**2 Generator from

ENDF/B. ETOE (ENDF/B to MC**2 data conversion) accepts cross section data from a mode 2 ENDF/B tape and prepares the binary cross section and Legendre polynomial tape for the MC**2 code. The ETOE program processes formats I, II, and III ENDF/B data. ETOE is made up of six overlays. Overlays 1-5 process the ENDF/B data. Overlay 6 rearranges the Legendre polynomial expansion data to the MC**2 format.

The ETOE-2 package includes documentation, source files and data. Fortran, Assembler; IBM 3033 (P00585I303300).

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>. 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, COURSES, SYMPOSIA

RSICC attempts to keep its users 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 to arwoodjw@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.

TRAINING COURSES



LANL 2013 MCNP CLASS SCHEDULE

Date	Course Name and Description	Location	Cost
June 10-14, 2013	Introduction to MCNP6 Registration is open to all. Non-U.S. citizens must register by 4/8/13. Minimum of 8 students-Maximum of 15, Monday 12:30 p.m. - Friday 12:00 p.m.	Los Alamos, NM	\$1,900 or \$1,600*
August 5-9, 2013	Criticality Calculations with MCNP6 Registration is open to all. Non-U.S. citizens must register by 6/3/13. Minimum of 8 students-Maximum of 15, Monday 12:30 p.m. - Friday 12:00 p.m.	Los Alamos, NM	\$1,900 or \$1,600*
August 12-16, 2013	Variance Reduction with MCNP6 Registration is open to all. Non-U.S. citizens must register by 6/10/13. Minimum of 8 students-Maximum of 15, Monday 12:30 p.m. - Friday 12:00 p.m.	Los Alamos, NM	\$1,900 or \$1,600*
October 7-11, 2013	Introduction to MCNP6 Registration is open to all. Non-U.S. citizens must register by 8/5/13. Minimum of 8 students-Maximum of 15, Monday 12:30 p.m. - Friday 12:00 p.m.	Los Alamos, NM	\$1,900 or \$1,600*

*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.

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>.



MCNPX 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 2013		
June 10-14, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Barcelona, Spain
June 24-28, 2013	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Barcelona, Spain
July 15-19, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Livermore, CA
July 22-26, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Anaheim, CA
July 29-August 2, 2013	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Livermore, CA
August 19-23, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV
August 26-30, 2013	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Albuquerque, NM
September 3-6, 2013	Advanced MCNPX Visual Editor with emphasis on solving user problems.	Myrtle Beach, SC
September 16-20, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor.	Myrtle Beach, SC
September 23-27, 2013	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Myrtle Beach, SC

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>.

MCNPX Classes 2013		
June 17-21, 2013	MCNP/MCNPX Intermediate Workshop <i>(The NEA handles registration for this class.)</i>	Barcelona, Spain
September 9-13, 2013	MCNP/MCNPX Intermediate Workshop	Washington, DC

The MCNPX team at Los Alamos National Laboratory offers interactive workshops for training users in the capabilities of MCNPX at the intermediate level.

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://mcnpx.lanl.gov/>. To register send an email to Randy Schwarz at randyschwarz@mcnpvised.com, indicating the workshop of interest to you.



Sara A. Pozzi, Shaun D. Clarke, Marc Ruch
 July 24 – 26, 2013 *University of Michigan*
Department of Nuclear Engineering and Radiological Sciences
 2355 Bonisteel Blvd. Ann Arbor, MI 48109

The MCNPX-PoliMi code is an enhanced version of MCNPX v. 2.7.0 that provides unique capabilities for simulating correlated-particle measurements and detector response. This three-day workshop will introduce new users to the capabilities of the MCNPX-PoliMi code and acquaint experienced users with new features.

- MCNPX-PoliMi source capabilities
- Detector-response calculations with the MPPost code
- Simulations of time-of-flight and cross-correlation distributions
- Simulations of multiplicity distributions

Seating is limited; therefore, the registrations will be accepted on first-come-first-serve basis. Registration deadline: July 5, 2013. Additional information about the courses can be found at the website, http://www-ners.engin.umich.edu/labs/dnng/polimi_workshop.html .



Nuclear Reactor Simulation Hands-On Training

The Nuclear Research Group of San Piero a Grado (GRNSPG) of the University of Pisa (UNIFI), the Nuclear Research Institute (UJV Rez) and the Innovative Systems Software (ISS) are jointly organizing Hands-on Trainings directed toward beginner and intermediate users of System Thermal-Hydraulic Codes and 3D Neutron Kinetic Coupling. The seminar-trainings will take place in Prague, Czech Republic from June 24-28, 2013 at the Nuclear Research Institute (UJV Rez).

The seminar is open to vendors, utilities, regulatory bodies, national laboratories, consulting companies and universities. A website with the latest news is available at: <http://www.grnspg.ing.unipi.it/nrshot/>.



OECD Nuclear Energy Agency-Data Bank Training Courses

June 10-13, 2013	PHITS Monte-Carlo Particle and Heavy Ion Transport Code System	NEA, Paris, France
July 2-5, 2013	PENELOPE	University of Barcelona, Spain
October 16-18, 2013	EASY, the European Activation System	NEA, Paris, France
November 4-8, 2013	TRIPOLI 4	NEA, Paris, France

These workshops combine teaching by the authors on program physics, along with instructions on how to use the software. The courses include a large number of practical exercises. Note that the number of participants to the courses is limited. Priority is given to nationals from NEA Data Bank member

countries. Class sizes are limited and courses may be cancelled if minimum enrollment is not obtained one month prior to course. Course fees are refundable up to one month before each class. After one month, course fees will not be refunded. Note that all attendees must be registered users. Registration information is available at: <http://www.oecd-nea.org/dbprog/trainingcourses.htm>.



RESRAD Training Courses

Argonne National Laboratory will conduct a series of training courses on the use of RESRAD (onsite) And RESRAD-OFFSITE risk assessment codes from September 23-27, 2013. A total of 37 CECs has been approved by the AAHP for these training courses. The latest version of RESRAD codes will be used. For additional information and registration, please go online at <http://web.ead.anl.gov/resrad/training/>. Any questions please send email to: RESRAD@anl.gov.



48th Tennessee Industries Week

TIW-48 will be held on the University of Tennessee Main Campus August 12-16, 2013. Tennessee Industries Week (TIW) began over forty years ago as a small short course program with instructors from the College of Engineering at The University of Tennessee, and attendees primarily from industry in Tennessee. Through the years, it has grown in scope and importance. The instructional staff is still composed mostly of UT professors but now also involves industry and government experts from throughout the U.S. and the world. Attendees also come from around the world. The emphasis is on putting knowledge to work and the atmosphere is organized but casual. Instructors present carefully planned lectures and demonstrations, and dialogues between instructors and attendees are encouraged in order to maximize benefits.

TIW-48 will include courses on Nuclear Criticality Safety, Radiological Assessment, and several other topics of interest (see <http://www.engr.utk.edu/nuclear/TIW.html> for more detailed information).

CONFERENCES



25th Symposium on Fusion Engineering (SOFE25)

The Symposium on Fusion Engineering (SOFE) is a biennial event organized and sponsored by the Fusion Technology Committee (FTC) of the IEEE Nuclear & Plasma Sciences Society and is to be held June 10-14, 2013 in San Francisco, CA. The Symposium covers engineering and scientific advances in both inertial confinement and magnetic confinement fusion, with attendees from major fusion energy research centers worldwide. For up-to-date information about this conference, visit their website at <http://sofe2013.org/>.



2013 IEEE Nuclear and Space Radiation Effects Conference

The 2013 IEEE Nuclear and Space Radiation Effects Conference will be held in San Francisco at the Hyatt Regency on July 8-12, 2013. The conference features a technical program consisting of eight to ten technical sessions of contributed papers describing the latest observations in radiation effects, a Short Course on radiation effects offered on July 8, a Radiation Effects Data Workshop, and an Industrial Exhibit. The technical program includes oral and poster sessions. For up-to-date information about this conference, visit their website at <http://www.nsrec.com/>.

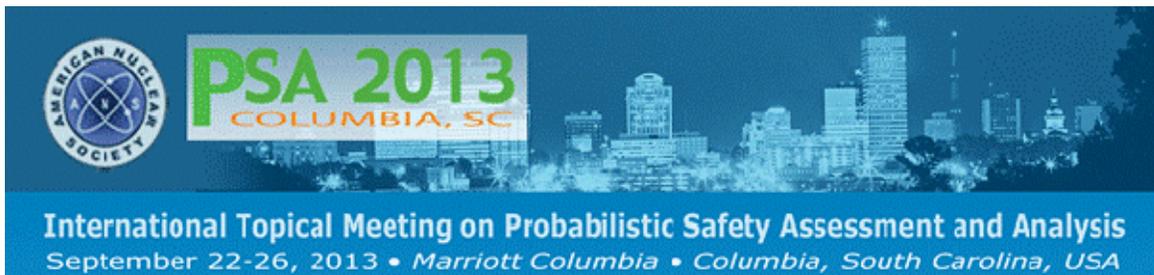
2013 IEEE Nuclear Science Symposium and Medical Imaging Conference

“Beyond Imagination of Future Science” will be held in Seoul, South Korea from October 27th - November 2nd, 2013 at the COEX Convention Center. In addition to the presentation of original work, the conference will provide extensive educational opportunities via short courses and special emphasis seminars before and during the conference. This meeting has always been a great place to exchange ideas and share knowledge and experience in the nuclear science, medical imaging, and room-temperature semiconductor X-Ray and Gamma-Ray detector fields. For up-to-date information about this conference, visit their website at <http://www.nss-mic.org/2013/NSSMain.asp>.



2013 INMM Packaging and Transportation of Radioactive Materials Conference (PATRAM)

The 2013 INMM Packaging and Transportation of Radioactive Materials (PATRAM) will be held at the Hilton San Francisco Union Square in San Francisco, CA August 18-23, 2013. This conference brings together experts from government, industry and research organizations worldwide to exchange information on all aspects of packaging and transporting radioactive materials around the globe. For up-to-date information about this conference, visit their website <http://www.patram.org/>.



2013 International Topical Meeting on Probabilistic Safety Assessment and Analysis

PSA 2013, the International Topical Meeting on Probabilistic Safety Assessment and Analysis, the thirteenth meeting in the technical series sponsored by the American Nuclear Society (ANS) and its Nuclear Installations Safety Division (NISD) will take place September 22-27, 2013, in Columbia, South Carolina, USA. This edition of the PSA conference is dedicated in the memory of Professor David Okrent (1922-2012), a nuclear safety/design pioneer, and major contributor to PRA and probabilistic safety methods and analysis. PSA 2013 will be of interest to traditional applications including nuclear reactor facilities, nonreactor installations, processing, decontamination & decommissioning, and storage, as well as other non-traditional areas where probabilistic safety approaches are applied. The meeting will continue to follow lessons learned and impacts to PRA from the Fukushima Dai-ichi, explore progress on risk-informing regulation and fire PRA, provide status on the development of PRA standards, as well as many other topics during four days of planned paper and panel sessions. More information on PSA 2013 can be found at the conference website, <http://psa2013.org>



GLOBAL 2013: International Nuclear Fuel Cycle Conference

The GLOBAL 2013 International Nuclear Fuel Cycle Conference will be held September 29-October 3, 2013 in Salt Lake City, UT.

The conference is a forum for the discussion of the scientific, technical, social and regulatory aspects of the nuclear fuel cycle. Relevant topics include global utilization of nuclear energy, current fuel cycle technologies, advanced reactors, advanced fuel cycles, nuclear nonproliferation and public acceptance.

For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/m_158.

SNA & MC 2013

Joint International Conference on Supercomputing in Nuclear Applications & Monte Carlo

The Joint International Conference on Supercomputing in Nuclear Applications & Monte Carlo will be held on October 27-31, 2013, at the Cité des Sciences et de L'Industrie de la Villette in Paris, France.

The conference aims to highlight renewed strategy and simulation paradigms, and to identify future conceptual and technological breakthroughs. The objective is to increase the predictive capacity of the calculation tools designed and developed by teams of engineers and researchers all over the globe. The idea is to improve the performances accordingly in terms of calculation time, usability and maintainability. All these factors are indeed crucial for the central question of the role of a global nuclear application economy, including safety, optimizations, and costs.

For up-to-date information about this conference, visit their website at <https://www.sfen.fr/SNA-and-MC-2013>.

2013 CALENDAR

June

Society of Nuclear Medicine and Molecular Imaging (SNMMI) Annual Meeting, June 8-12, 2013 Vancouver, BC, Canada. For up-to-date information about this conference, visit their website at <http://interactive.snm.org/index.cfm?PageID=5934>.

25th Symposium on Fusion Engineering (SOFE25), June 10-14, 2013 San Francisco, CA. For up-to-date information about this conference, visit their website at <http://sofe2013.org/>.

American Nuclear Society (ANS) Annual Meeting, June 16-20, 2013 Atlanta, GA. For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/m_80.

Nuclear Reactor Simulation Workshop – Hands on Training, June 24-28, 2013, Nuclear Research Institute, NRI, Prague, Czech. For up-to-date information about this conference, visit their website at <http://www.grnspg.ing.unipi.it/nrshot/>.

July

Institute of Nuclear Materials Management (INMM) 54th Annual Meeting, July 14-18, 2013, Palm Desert, CA. For up-to-date information about this conference, visit their website at http://www.inmm.org/Meeting_Home.htm.

August

Utility Working Conference and Vendor Technology Expo, August 11-14, 2013, Hollywood, FL. For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/m_142.

48th Tennessee Industries Week, August 12-16, 2013, The University of Tennessee Main Campus, Knoxville, TN. For up-to-date information about this conference, visit their website at <http://www.engr.utk.edu/nuclear/TIW.html>.

September

2013 LWR Fuel Performance Meeting/Top Fuel, September 15-19, 2013, Charlotte, NC. For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/m_142.

International Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA 2013), September 22-26, 2013, Columbia, SC. For up-to-date information about this conference, visit their website at <http://psa2013.org/>.

Global 2013: International Nuclear Fuel Cycle Conference, September 29-October 3, 2013, Salt Lake City, UT. For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/m_158.

October

Joint International Conference on Supercomputing in Nuclear Applications & Monte Carlo, October 27-31, 2013, Paris, France. For up-to-date information about this conference, visit their website at <https://www.sfen.fr/SNA-and-MC-2013>.