
Radiation Safety Information Computational Center



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Think as you work, for in the final analysis your worth to your company comes not only in solving problems but in anticipating them. — H. H. Ross



RSICC will observe the holiday season beginning December 22, 2012, through January 2, 2013. We will respond to your requests upon return.

Happy Holidays and Have a Happy New Year!!

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RETIREMENT

After 39 years of service to the Radiation Safety Information Computational Center, Nancy Hatmaker has decided to retire effective December 31, 2012. Nancy has provided an incredible service to RSICC and the broader nuclear research community through her efforts to support RSICC's mission. Nancy has served under many different directors and through many organizational changes at the Oak Ridge National Laboratory and has been a constant and reliable source of knowledge with regards to software and data acquisition and dissemination. She has helped to foster strong relationships with our collaborators at the Nuclear Energy Agency of the Organization for Economic Cooperation and Development as well as with Japan's Research Institute for Science and Technology. She was also a significant contributor to RSICC's support of the International Thermonuclear Experimental Reactor (ITER). Nancy's extensive knowledge of the history and operations of RSICC along with her expertise in export control rules and regulations has allowed RSICC to respond to the ever changing demands of our sponsors, regulators and customers. She will be sadly missed at RSICC by all of us who have been fortunate enough to work with her.

CHANGES TO THE RSICC CODE AND DATA COLLECTION

[CCC-792/ITS6](#)

Sandia National Laboratories, Albuquerque, New Mexico, USA, has contributed a new version of ITS. The TIGER series of time-independent coupled electron/photon Monte Carlo transport codes is a group of multimaterial and multidimensional codes designed to provide a state-of-the-art description of the production and transport of the electron/photon cascade. The continuous-energy ITS codes are based primarily on the ETRAN model, which combines microscopic photon transport with a macroscopic random walk for electron transport. The multigroup ITS codes are based primarily on the MORSE model, with a modification to model electron elastic scattering, both of which preserve the angular moments of scattering with discrete scattering angle models. Emphasis is on simplicity of application without sacrificing the rigor or sophistication of the physical model. Through a set of preprocessor directives, the user selects one of the many ITS codes. The ease with which the makefile system is applied combines with an input scheme based on order-independent descriptive keywords that makes maximum use of defaults and internal error checking to provide experimentalists and theorists alike with a method for the routine but rigorous solution of sophisticated radiation transport problems. Physical rigor is provided by employing accurate cross sections, sampling distributions, and physical models for describing the production and transport of the electron/photon cascade from 1.0 GeV down to 1.0 keV. The availability of source code permits the more sophisticated user to tailor the codes to specific applications and to extend the capabilities of the codes to more complex applications. Version 6, the latest version of ITS, contains (1) improvements to the ITS 5.0 codes, and (2) conversion to Fortran 95. The general user friendliness of the software has been enhanced through memory allocation to reduce the need for users to modify and recompile the code.

ITS is distributed on CD ROM and includes a manual, source files, and sample problems with outputs. A Fortran compiler is required since executables are not included in this package. Fortran 95, Shell Scripts; PC Windows, Linux, Mac (C00792PCX8600).

CCC-684/NRCDose 2.3.20

Chesapeake Nuclear Services, Inc, Annapolis, Maryland, contributed an updated version of NRCDose 2.3. NRCDose is a user-friendly 32-bit PC-based software interface for the LADTAP II, GASPAR II, and XOQDOQ programs, which operates under all Microsoft Windows™ platforms. LADTAP II, GASPAR II, and XOQDOQ are industry standards, originally created for mainframe computers and written using the Fortran programming language. While still utilizing the proven Fortran code modules, NRCDose allows the user to enter and retrieve data through a series of windows dialogs, making the use of the program much more user-friendly and efficient than its original design. This graphical interface also allows the user to create sets of data that can be named and retrieved at a later date for review or modification. Recent modifications in NRCDose include:

1. Minor editorial and cosmetic changes to dialogs. The dialog for reading input and output files is now resizable.

The installation package was updated to remove all unnecessary Microsoft system files and to load all DLLs and OCXs to the application directory to preclude interference with any other program installs.

The “File/New” functionality was modified to immediately prompt for a binary input file name. The program was modified so that input and output (DAT) files are written to, and read from, the subdirectory where the initial input (?NP or DAT) file was selected.

Modules were modified to check for Fortran module input and output files after selection of the binary or DAT input file and enable main menu dialog buttons as appropriate.

LADTAP - corrected display of default invertebrate consumption parameters, which are based on site type - fresh or salt water.

XOQDOQ - Modified VB XOQD so that if KOPT(1) = 0 (Calms distribution), then Variables menu item "Wind Data\Calms Data" dialog is disabled.

GASPAR - corrected extra blank line that was being written when multiple sources are used. Updated irrigated foods linkage between pathway and locations. Limited the number of titles of receptor types to 5 (per Fortran code), and updated receptor type handling. Updated Job Control Options dialog to address the “Individual Doses Only” and alternate met file interactions (“Individual Doses Only” option requires Special Location(s) dispersion data inputs - it does not read other met data, be it inputted into the module or provided as an alternate met input file). (v2.3.18)

2. Minor editorial and cosmetic changes to dialogs.

LADTAP - added previously omitted functionality - allowing for calculation of dilution factors by the Fortran code.

GASPAR - added warning messages to limit the number of special locations to five (5) per source term, in accordance with the Fortran code. (v2.3.19)

3. Implemented file handling corrections, and UAC (User Access Control) modifications. (v2.3.20)

NRCDose was tested on x86_64 and i686 computers under Windows XP, Vista and Windows 7. The distributed executables were created with the Microsoft Fortran PowerStation Version 4.0 and Microsoft

Visual Basic 6.0. Source files are not included, so this code system can only be run on PCs under Windows. The package is transmitted on CD in Windows format. Fortran and Visual Basic (C00684PC58614).

CCC-768 / NRC Dose72 1.2.3

Chesapeake Nuclear Services, Inc, Annapolis, Maryland, contributed an updated version of NRC Dose72, a Code System for Evaluating Routine Radioactive Effluents from Nuclear Power Plants. NRC Dose72 is a software program developed by Chesapeake Nuclear Services that integrates the NRC's Fortran programs LADTAP II, GASPAR II, and XOQDOQ and provides a user-friendly interface for running the codes on a PC. These codes provide an accepted regulatory basis for assessing doses to the public as required for the licensing assessments for both license renewal and new build nuclear plants. Chesapeake Nuclear Services undertook an effort to update the dose conversion factors (DCFs) used in NRC Dose72 to the factors reported in ICRP-72, naming the new program NRC Dose72. The original NRC Dose72 program is equipped to perform calculations with up to 169 radionuclides, seven organs (bone, liver, total body, thyroid, kidney, lung, and GI-LLI) and four age ranges (infant, child, teenager, and adult). The ICRP-72 methodology contains additional parameters, including dose factors for 25 discrete organs, plus a remainder organ and effective DCF. Also, there are a total of six different age ranges (newborn, 1-yr. old, 5-yr. old, 10-yr. old, 15-yr. old, and adult). Finally, ICRP-72 contains DCFs for a variety of chemical forms (H-3 as vapor or Organically Bound Tritium, for example) or inhalation classes (F, M or S for nearly all radionuclides).

Recent modifications in NRC Dose72 include:

Minor editorial and cosmetic changes to dialogs. The dialog for reading input and output files is now resizable. File handling corrections were implemented as well as UAC (User Access Control) modifications.

The installation package was updated to remove all unnecessary Microsoft system files and load all DLLs and OCXs to the application directory to preclude interference with any other program installs.

The "File/New" functionality was modified to immediately prompt for a binary input file name. Modified the program so that input and output (DAT) files are written to, and read from, the subdirectory where the initial input (?NP or DAT) file was selected.

Modules were modified to check for Fortran module input and output files after selection of the binary or DAT input file and enable main menu dialog buttons as appropriate.

Air immersion dose factor was corrected for XE138: from 1.25E-03 to 1.25E-02 (transcription error). Ground dose conversion factor was corrected for CS137. Shoreline and submersion DCFs were updated for Zr97, Ru106, Sn126, Te133m, I135, Cs137, and Ce144 in LIB files.

LADTAP - corrected display of default invertebrate consumption parameters, which are based on site type - fresh or salt water.

XOQDOQ - Modified VB XOQD so that if KOPT(1) = 0 (Calms distribution), then Variables menu item "Wind Data\Calms Data" dialog is disabled.

GASPAR - corrected the extra blank line that was being written when multiple sources are used. Irrigated foods linkage was updated between pathway and locations. Limited

the number of titles of receptor types to 5 (per Fortran code), and updated receptor type handling. Updated Job Control Options dialog to address the "Individual Doses Only" and alternate met file interactions ("Individual Doses Only" option requires Special Location(s) dispersion data inputs - it does not read other met data, be it inputted into the module or provided as an alternate met input file). I135 and Ce144 DCFs in LIB files were updated. Clarified usage of average temperature value as it relates to relative/absolute humidity value inputs. File handling was updated to restore earlier functionality where when opening a file, the default location is the same as the location where the last file was opened - if this is not the first file opened.

The package is transmitted on CD in Windows format and includes installation procedure, PC executables, data files and documentation. Source files are not included, so this code system can only be run on PCs under Windows. Fortran and Visual Basic; X86 (C00768PCX8603).

PSR-540/GEM

Mitsubishi Research Institute, Inc., Tokyo, Japan, through the Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France, contributed GEM, a Monte-Carlo code for simulating a decaying process of an excited nucleus. GEM calculates the types, numbers, and kinetic energies of particles emitted from an excited nucleus. The code is based on a generalized evaporation model and the Atchison fission model. Type and kinetic energy of an emitted particle are randomly selected according to the probability distribution. A simulation continues as far as evaporation is energetically possible.

The GEM package contains source code, data libraries, documentation and sample input and output files. Executables are not included in the package. Fortran 77; Linux PC (P00540PC58600).

P574/BULK-I

Hitachi, Ltd. Power & Industrial Systems and High Energy Accelerator Research Organization, Applied Research Laboratory, Radiation Science Center, Japan, through the Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France, contributed BULK-I, a tool for calculating neutron and photon effective dose rates after penetrating through concrete or two layers with iron and concrete in a medium energy range proton accelerator facility (energies from 50 to 500 MeV). This tool is also capable of radiation shielding calculations considering various proton energies and proton beam directions like proton beam treatment facilities. In BULK I a simple formula adopted for not only the equilibrium region but also for the build-up region is proposed, and the parameters for concrete or two layers with iron and concrete are numerically obtained with the Monte Carlo code MCNPX. The geometry used in the tool consists of a target (radiation source) placed at the origin in the rectangular room surrounded by six concrete walls. The target is assumed to be thick iron as a typical component of the proton accelerator. Protons with various energies and directions are taken into account in the dose rate calculation based on the gantry employed in a proton beam treatment facility. The dose rates at estimator points are calculated considering the emission angle relative to each proton beam direction, and incident angle relative to X, Y or Z axis, which are automatically calculated by the tool. The distance from the target to the inner surface, and the thickness of each concrete wall are given by users. The fixed type and the beam direction dependent type of iron shields can be dealt with. For the former, the barrier thickness in iron as measured radiation path through the shield is given for each estimator, and for the latter the thickness and solid angle relative to the beam direction are given. Estimators are set at any positions in and outside the concrete walls. The attenuation in the air is ignored.

BULK-I runs on Pentium computers under Windows operating systems with EXCEL. Included in the package are the referenced documents, EXCEL spreadsheet, sample input and output files in a self-

extracting executable file on a single CD. EXCEL, VISUAL BASIC; PC 586 (P00574PCX8600).

OBITUARY

It is with profound sadness that we inform our user community of the passing of Henrietta Hendrickson, a long-time RSICC staff member from 1963 until her well-earned retirement in 1985. Henri came to RSIC on loan from the Union Carbide Nuclear Division Computing Technology Center at K-25 and officially joined RSICC in 1967. In her twenty-two years of service to RSICC as a computer programmer, Henri packaged, tested and maintained the RSICC code systems and data libraries that are the foundation of today's collection. From 1979 through 1981, Henri served unofficially as a goodwill ambassador for RSIC in her assignment at the International Atomic Energy Agency as a data services coordinator. Dr. J. J. Schmidt, head of the IAEA/NDS, credited her with a "significant contribution to improving the efficiency of the data, code and documentation services of the centre."

Henri was an avid traveler and spent much of her retirement planning her next trip. She will be remembered most for her invaluable contributions to the growth and effectiveness of RSIC, her passion for travel and meeting new people, and her warm, outgoing personality. We will miss her.

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 have 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 mooretg@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

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.

2013 Classes for Visual Editor		
January 7-11, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV
January 21-25, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Livermore, CA
February 4-8, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Honolulu, HI
February 11-15, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Seoul, South Korea
February 18-22, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Sydney, Australia
March 4-8, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor <i>(The NEA handles registration for this class.)</i>	Paris, France
April 8-12, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Washington, DC
April 29-May 3, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV
June 10-14, 2013	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	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

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		
January 14-18, 2013	MCNP/MCNPX Intermediate Workshop	Las Vegas, NV
March 11-15, 2013	MCNP/MCNPX Intermediate Workshop <i>(The NEA handles registration for this class.)</i>	Paris, France
May 13-17, 2013	MCNP/MCNPX Intermediate Workshop	Pleasanton, CA
June 17-21, 2013	MCNP/MCNPX Intermediate Workshop <i>(The NEA handles registration for this class.)</i>	Barcelona, Spain

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.



[Los Alamos National Laboratory](#)
[General Course on Monte Carlo N-Particle \(MCNP\) Transport Code](#)

2013– MCNP Class Schedule

Date	Course name and description	Location	Cost
January 28-February 1, 2013	Introduction to MCNP6 Registration is open to all. Non-U.S. citizens must have completed registration by 11/26/12. 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*
March 25-29, 2013	Criticality Calculations with MCNP6 Registration is open to all. Non-U.S. citizens must register by 1/21/13. 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*
April 1-5, 2013	Variance Reduction with MCNP6 Registration is open to all. Non-U.S. citizens must register by 1/28/13. 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*
June 3-7, 2013	Introduction to MCNP6 Registration is open to all. Non-U.S. citizens must register by 4/1/13. 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*
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*
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*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 proceeds at a much faster pace and is 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>.



[OECD Nuclear Energy Agency-Data Bank Training Courses](#)

Date	Class	Course Content	Location
March 18-22, 2013	Training course on Analytical Benchmarks: Case Studies in Neutron Transport Theory	The main objective of this course is to provide a basis for understanding the fundamental concepts of analytical neutron transport theory. This will include recent theoretical as well as numerical advances in analytical benchmarking.	Paris, France

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.



Spring 2013 Training Courses

Date	Title	Location	Registration Fee
April 8–12, 2013	SCALE Criticality and Shielding Course <i>Basic criticality calculations with KENO-VI; Shielding analysis with automated variance reduction using MAVRIC; Criticality accident alarm system analysis</i>	ORNL Oak Ridge, TN, USA	\$2000
April 15–19, 2013	SCALE Sensitivity and Uncertainty Calculations Course <i>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</i>	ORNL Oak Ridge, TN, USA	\$2000
April 22–26, 2013	SCALE Lattice Physics and Depletion Course <i>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</i>	ORNL Oak Ridge, TN, USA	\$2000
April 29 – May 1, 2013	SCALE/ORIGEN Activation and Decay Calculations Course <i>Isotopic depletion/decay and source term characterization using ORIGEN/ORIGEN-ARP</i>	ORNL Oak Ridge, TN, USA	\$1500
May 27–31, 2013	SCALE/Criticality Safety Calculations Course <i>Introductory through advanced criticality calculations using KENO Va and KENO-VI; resonance self-shielding techniques</i>	NEA Data Bank, Issy-les- Moulineaux, France	€2000
June 3–7, 2013	SCALE/Sensitivity and Uncertainty Calculations Course <i>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</i>	NEA Data Bank, Issy-les- Moulineaux, France	€2000
Please register at least 40 days before the start of the desired course.			
For more information, including course descriptions, discounts, registration deadlines, and online registration, please visit http://scale.ornl.gov/training.shtml			

CONFERENCES

CONTE 2013

The 2013 Conference on Nuclear Training and Education (CONTE 2013) will be held in Jacksonville, Florida, February 3-6, 2013, at the Hyatt Regency Jacksonville-Riverfront. The General Chair for this event is Audeen Fentiman, Associate Dean for Graduate Education at Purdue University. For up-to-date information about this conference, visit their website at www.new.ans.org/meetings/c_2.



Waste Management Conference

The annual Waste Management Conference, presented by Waste Management Symposia (WMS), will be held on February 24-28, 2013, at the Phoenix Convention Center in Phoenix, AZ. This conference is widely regarded as the premier international conference for the management of radioactive material and related topics. WMS is a non-profit organization dedicated to education and opportunity in waste management. It was founded to provide a forum for discussing and seeking cost-effective and environmentally responsible solutions to the safe management and disposition of radioactive waste and radioactive materials.

Supporting organizations include the American Nuclear Society, International Atomic Energy Agency, International Framework for Nuclear Energy Cooperation, and the Organisation for Economic Co-operation and Development/Nuclear Energy Agency. The conference is also organized in cooperation with the U.S. Department of Energy, U.S. Nuclear Regulatory Commission, U.S. Environmental Protection Agency, and the U.S. Department of Defense. For up-to-date information about this conference, visit their website at www.wmsym.org/.



[International Conference on Nuclear Data for Science and Technology](#)

The International Conference on Nuclear Data for Science and Technology will be held on March 4-8, 2013, at the Sheraton New York Hotel & Towers, New York, NY, USA. The purpose of the conference is to bring together scientists and engineers involved in the production and use of nuclear data for various applications.

Conference sponsors and co-sponsors include Brookhaven National Laboratory, National Nuclear Data Center, U.S. Department of Energy, Office of Science, Nuclear Energy Agency, and Los Alamos National Laboratory. For up-to-date information about this conference, visit their website at www.bnl.gov/nd2013/.



[International Congress on Advances in Nuclear Power Plants](#)

The 2013 International Congress on Advances in Nuclear Power Plants (ICAPP 2013) will be held on April 14-18, 2013, at the Lotte Hotel Jeju in Jeju Island, South Korea. This congress will bring together international experts of the nuclear industry involved in the operation, development, building, regulation, and research related to nuclear power plants. The program will cover the full spectrum of nuclear power plant issues from design, deployment and construction of plants to research and development of future designs and advanced systems.

For up-to-date information about this conference, visit their website at <http://www.icapp2013.org/>.



The 35th European Safeguards Research and Development Association (ESARDA) annual meeting will be a symposium on Safeguards and Nuclear Non-Proliferation, held at the Congrescentrum Oud St. Jan in Bruges, Belgium on May 27-30, 2013. The symposium will be preceded by meetings of the ESARDA Working Groups on May 27, 2013.

The symposium will be an opportunity for research organizations, safeguards authorities, and nuclear operators to exchange information on new aspects of international safeguards and non-proliferation, as

well as recent developments in nuclear safeguards and non-proliferation related research activities and their implications for the safeguards community.

The symposium is anticipated to include a number of contributions from internationally-renowned authorities in the field.

For up-to-date information about this conference, visit their website at http://esarda2.jrc.it/events/esarda_meetings/bruges-2013/index.html.

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 <https://www.sfen.fr/SNA-and-MC-2013>.

2013 CALENDAR

February

2013 Conference on Nuclear Training and Education (CONTE 2013), February 3-6, 2013, Jacksonville, FL. For up-to-date information about this conference, visit their website at www.new.ans.org/meetings/c_2.

Waste Management Conference, February 24-28, 2013, Phoenix, AZ. For up-to-date information about this conference, visit their website at <http://www.wmsym.org/>.

March

International Conference on Nuclear Data for Science and Technology (ND2013), March 4-8, 2013, New York, NY. For up-to-date information about this conference, visit their website at www.bnl.gov/nd2013/.

April

2013 International Congress on Advances in Nuclear Power Plants (ICAPP 2013), April 14-18, 2013, Jeju Island, South Korea. For up-to-date information about this conference, visit their website at <http://www.icapp2013.org/>.

May

35th European Safeguards Research and Development Association (ESARDA), May 27-30, 2013, Bruges, Belgium. For up-to-date information about this conference, visit their website at <http://esarda2.jrc.it/about/index.html>.

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>.