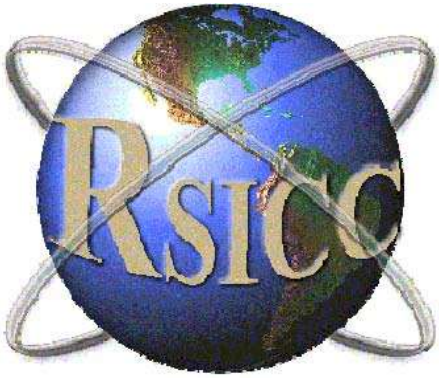
Radiation Safety Information Computational Center



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"Good humor is a tonic for mind and body. It is the best antidote for anxiety and depression. It is a business asset. It attracts and keeps friends. It lightens human burdens. It is the direct route to serenity and contentment."

Grenville Kleiser

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MESSAGE FROM THE DIRECTOR

The month of September was an extremely busy time for RSICC with the release of the latest beta version of MCNP6. RSICC received nearly 500 requests for MCNP6.1.1 Beta and has sent out many of these packages to our customers. As most of our customers know, RSICC is delivering both the latest beta version of MCNP6.1 as well as the latest production release of MCNP with these requests. Over 275 of the requests came from individuals that are not supported by RSICC's sponsors and normally would have been required to pay the cost recovery fee associated with our operations. However, RSICC was also able to utilize some of its existing funding to offset the costs of many of the requests that would have been required to pay the cost recovery fee. In particular, we at RSICC wanted to ensure that many individuals from member countries of the Data Bank of the Organization for Economic Cooperation and Development – Nuclear Energy Agency (OECD-NEA) would receive the MCNP6.1.1 Beta at no cost. RSICC has had a long history of cooperation with the OECD-NEA and values it partnership with the OECD-NEA. Both organizations have similar goals in providing the tools and data needed by the nuclear industry and benefit by sharing codes and data with our respective customer bases. We also look forward to many more years of cooperation with the OECD-NEA and look for ways to strengthen our relationship with the OECD-NEA. Regrettably, due to funding restrictions, RSICC could not continue to provide the code at no cost indefinitely. However, those individuals that are supported by RSICC's sponsors will continue to receive the codes at no cost including the approved nuclear engineering programs at U.S. Universities. The requests are being filled and deliveries are being made as the approvals are obtained. As a reminder, RSICC has no control over the time that it takes for our regulators to review the requests, but rest assured that if approval is obtained we will deliver the package in short order.

In other news, RSICC is happy to announce that the cost recovery fee for our customers is being reduced significantly. The cost recovery fee for those individuals that require more extensive export control and nonproliferation reviews will be $650 in fiscal year 2015 while the cost recovery fee for those individuals that do not require the extensive reviews will be $150. This cost savings is a result of improvements in our processing systems and in the improvements in the review and approval processes required by the U.S. Federal Government. We at RSICC are pleased to be able to pass along these savings to our customers.

We thank you for doing business with RSICC.

CHANGES TO THE RSICC CODE AND DATA COLLECTION

There was one update or addition to the RSICC catalog for those individuals that may be interested.

MIS-009/HOTSPOT

HOTSPOT 3.0.2 Health Physics Codes were contributed by the National Atmospheric Release Advisory Center, Lawrence Livermore National Laboratory, Livermore, CA. The HOTSPOT Health Physics codes were created to provide Health Physics personnel with a fast, field-portable calculational tool for

evaluating accidents involving radioactive materials. HOTSPOT codes are a first-order approximation of the radiation effects associated with the atmospheric release of radioactive materials.

Four general programs, PLUME, EXPLOSION, FIRE, and RESUSPENSION, calculate a downwind assessment following the release of radioactive material resulting from a continuous or puff release, explosive release, fuel fire, or an area contamination event. Other programs deal with the release of plutonium, uranium, and tritium to expedite an initial assessment of accidents involving nuclear weapons. Additional programs deal specifically with the release of plutonium, uranium, and tritium to expedite an initial assessment of accidents involving nuclear weapons. The FIDLER program can calibrate radiation survey instruments for ground survey measurements and initial screening of personnel for possible plutonium uptake in the lung.

HotSpot Version 3.0.2 Release Notes:

Eliminated the following software bugs:

- Ground Shine Dose rate factor for ICRP 30 with international (non-English) Windows environment* in international mode, a specific ICRP 30 ground shine dose conversion factor was being initialized incorrectly resulted in incorrect doses for any scenarios involving ground shine from the ICRP 30 library. Two of the Quality Control tests: the General Explosion and General Fire scenarios were such examples and so were failing the QC test.
- KML Writer for Google Earth Output* In international or non-USA mode, the format for contour coordinates in Google Earth KML files was based on the Windows Language settings and Google Earth was not able to display the data. Contour coordinates in KML files are now always formatted with English settings which seems to be what Google Earth always expects. Contour information such as the legend table is still based on the Windows Language settings.
- Small images in the Map window (Either width less than 793 pixels and/or height less than 600 pixels) being distorted. When importing such background images into the Map Window, they were being stretched and distorted to fill up the entire window. This caused latitude and longitude coordinates to be calculated incorrectly.
- Display of Contour legend information for two levels in Map Window. In scenarios where the highest of three contours was not reached, leaving only two valid contours to plot, the legend information for the two remaining contours was displayed in reverse colors. The map or plotted contours were being displayed correctly though.
- Print to clipboard option not working in Contour and Centerline display windows
- Ability to generate textual output of the contours (PLM files) in latitude/longitude coordinates as opposed to x/y.
- User defined wind direction was not being saved between sessions in non-USA mode.*
- Inconsistencies for users canceling out of inputting wind speed and direction values.

* Users of HotSpot within the US would not be affected by this bug.

The package is transmitted in a ZIP file on one CD including a User's Guide, PC executables, and sample problems. No source files are included in the package. BASIC; IBM PC (M009IBMPC03).

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.

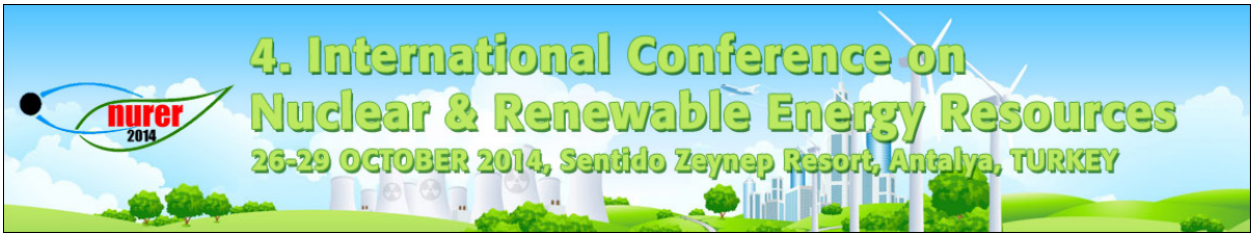
All levels of participants from undergraduates to faculty are encouraged to publish research papers with their mentors. Please browse through the Research Profiles on the different participants and their research experiences at the right hand side of the bottom of the web site listed above. Also, there 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



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.

1st Workshop on Methodologies for Spent Nuclear Fuel Pool Simulations

This workshop will introduce participants to the use, accuracy, and limitations of methodologies/tools employed for the evaluation of safety and safeguards for spent nuclear fuel pools. It will be held **October 28-30, 2014** at the Virginia Tech Research Center in Arlington, Virginia.

For up-to-date information about this conference, visit their website at www.cpe.vt.edu/nuclear.

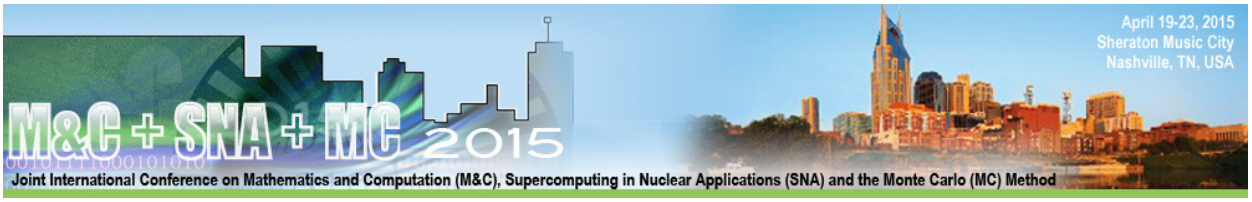
MCNP for the Health Physicist

The next "Practical MCNP for the Health Physicist, Rad. Engineer and Medical Physicist" class presented by the Radiation Measurements Group at Los Alamos National Laboratory has been scheduled for **November 3-7 2014**. The course, to be held in Los Alamos, has recently been updated to reflect the recent release of MCNP6. Further details can be found on RSICC's homepage (https://rsicc.ornl.gov/Default.aspx) under the "Workshops" link.

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/.



M&C + SNA + MC 2015

The Oak Ridge/Knoxville Section of the American Nuclear Society (ANS) will host and sponsor the FIRST combined Mathematics and Computations (M&C) ANS topical, Supercomputing in Nuclear Applications (SNA), and Monte Carlo (MC) 2015. The joint international conference will be held at the Sheraton Music City in Nashville, Tennessee during the week of A**pril 19-23, 2015**. M&C is the latest in the series organized by the Mathematics and Computation Division of the American Nuclear Society. Prior to 2010, SNA and MC existed as separate conferences. In 2010, SNA and MC combined and held SNA+MC 2010 in Tokyo, Japan. This was followed by SNA+MC 2013 held in Paris, France.

For up-to-date information about this conference, visit their website at http://mc2015.org.

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*
2015 Los Alamos, NM	MCNP class schedule for 2015 is being developed and will be posted when available (probably early October). Dates and classes will be similar to the 2014 schedule.		

***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		
December 1-5, 2014	Beginning Visual MCNP (Location has changed)	Barcelona, Spain
December 8-12, 2014	Intermediate Visual MCNP (Location has changed)	Barcelona, Spain
January 5-9, 2015	Beginning Visual MCNP	Las Vegas, NV
January 19-23, 2015	Intermediate 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	Visual MCNP6 for Shielding Calculations (class size limited to six students)	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
June 29-July 3, 2015	Intermediate Visual MCNP6	Barcelona, Spain
August 17-21, 2015	Beginning Visual MCNP6	Orlando, FL
August 24-28, 2015	Intermediate Visual MCNP6	Orlando, FL
September 14-18, 2015	Beginning Visual MCNP6	Las Vegas, NV
September 21-25, 2015	Intermediate Visual MCNP6	Las Vegas, NV
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	MCNP6 Intermediate Workshop	Paris, France
April 27-May 1, 2015	MCNP6 Intermediate Workshop	Livermore, CA
June 22-26, 2015	MCNP6 Intermediate Workshop	Prague, Czech Republic
August 31-September 4, 2015	MCNP6 Intermediate Workshop	Orlando, FL
October 12-16, 2015	MCNP6 Intermediate Workshop	Paris, France

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.

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

SCALE Training Courses – 2015

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 6.1 users. SCALE 6.1 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 2-6, 2015	**SCALE Criticality Safety and Radiation Shielding Course** Basic criticality calculations with KENO-VI; shielding analysis with automated variance reduction using MAVRIC; criticality accident alarm system analysis	ORNL Oak Ridge, TN USA	$2000*
February 9-13, 2015	**SCALE Lattice Physics and Depletion Course** 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	ORNL Oak Ridge, TN USA	$2000*
February 16-20, 2015	**SCALE/ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis Course** Isotopic depletion, activation analysis, and source term characterization using ORIGEN/OrigenArp	ORNL Oak Ridge, TN USA	$2000*
March 2-6, 2015	**SCALE Criticality Safety and Radiation Shielding Course** Basic criticality calculations with KENO-VI; shielding analysis with automated variance reduction using MAVRIC; criticality accident alarm system analysis	OECD/NEA Data Bank, Paris, France	2000 Euro
March 9-13, 2015	**SCALE Sensitivity and Uncertainty Calculations** 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	OECD/NEA Data Bank, Paris, France	2000 Euro
August 10-14, 2015	**SCALE Criticality Safety Calculations Course** Introductory through advanced criticality calculations using KENO V.a and KENO-VI; resonance self-shielding techniques	ORNL Oak Ridge, TN USA	$2000*

August 17-21, 2015	**SCALE Sensitivity and Uncertainty Calculations Course** TSUNAMI: 1D, 2D, and 3D $\mathbf{k_{eff}}$ 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; $\mathbf{k_{eff}}$ burnup credit validation	ORNL Oak Ridge, TN USA	$2000*
August 24-28, 2015	**SCALE Lattice Physics and Depletion Course** 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	ORNL Oak Ridge, TN USA	$2000*
August 31 - September 4, 2015	**SCALE/ORIGEN Standalone Fuel Depletion, Activation, and Source Term Analysis Course** Isotopic depletion, activation analysis, and source term characterization using ORIGEN/OrigenArp	ORNL Oak Ridge, TN USA	$2000*

**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 this class, visit their website at http://scale.ornl.gov/training_2015.shtml

SYMPOSIA

2014 CALENDAR

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. For up-to-date information about this conference, visit their website at http://hps.org/meetings/meeting41.html.

April

CHEP2015 21st International Conference on Computing in High Energy and Nuclear Physics, April 13-17, 2015, Okinawa, Japan. For up-to-date information about this conference, visit their website at http://chep2015.kep.jp/.

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.