# Radiation Safety Information Computational Center

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*Common sense is the knack of seeing things as they are, and doing things as they ought to be done. — Stowe*

# CHANGES TO THE RSICC CODE AND DATA COLLECTION

**BCC-004/MCNP6_BETA3/MCNP5/MCNPX**
The MCNP6 development team and RSICC are pleased to announce the release of MCNP6 Beta 3 through RSICC. This final beta release will resemble the final "Production" release of MCNP6; only a few capabilities and bug fixes will be added in to production. As with any beta release, MCNP6 beta source and executables are not intended for production calculations. Users are strongly encouraged to perform their own V&V acceptance tests, including running with their previous production code of choice – MCNP5 1.60 or MCNPX 2.7.0. Both MCNP5 and MCNPX are included in the MCNP6 Beta 3 package. Like the previous MCNP6 Beta 2, this version will not run after June 17, 2014, to encourage users to make the final switch to the production release when it becomes available.

**Note:  No changes have been made to MCNP5 1.60 or MCNPX 2.7.0 in this release.**

The package is distributed on three DVDs. The executables-only package, B00004MNYCP05, includes two DVDs containing the BETA release [(executables for PC Windows, PC Linux, and MacOS systems), MCNPDATA, documentation, and V&V documentation] and one DVD containing the previous

MCNP5/MCNPX-EXE release, C00740MNYCP09, including MCNP5/MCNPX executables for PC Windows and PC Linux systems; MCNPDATA; test problems and the referenced documentation. The B00004MNYCP04 package includes two DVDs containing the BETA release (with the source code along with the "executable" items mentioned above) and one DVD containing the previous MCNP5/MCNPX release, C00740MNYCP08, including source code, make files, build scripts, and some additional documentation and utilities for use with MCNP5/MCNPX. Export control regulations restrict the distribution of FORTRAN source code. If restrictions apply, RSICC will send the executables-only version. Please order the package you prefer, and your preference will be honored if possible. FORTRAN 90 and C; Windows PCs, Linux PC, Mac for MCNP6_Beta3 and MCNP5 and Sun for MCNPX [Package ID: B00004MNYCP04 (full source distribution) and B00004MNYCP05 (executables only distribution)].

## CCC-735/EASY-2010

EURATOM/CCFE Fusion Association, Culham Science Centre, Abingdon, Oxfordshire, United Kingdom through the OECD NEA Data Bank, Issy-les-Moulineaux, France, contributed the European Activation System - EASY-2010. EASY-2010 consists of a wide range of codes, data and documentation all aimed at satisfying the objective of calculating the response of materials irradiated in a neutron flux. The changes in this release include:

1. The "Readme.txt" file has been rewritten to be more explicit regarding the installation of the software.
2. The data for n fission were missing and are now included.
3. Data concerning uncertainties for 2010 version have been added.
4. Test cases for proton and deuteron for 2010 version have been corrected.

**Note: No changes have been made to the program itself in this release.**

The complete EASY package contains the FISPACT-2007 inventory code, the EAF-2003, EAF-2005, EAF-2007 and EAF-2010 libraries, and the EASY User Interface for the Windows version. FISPACT is an inventory code that has been developed for neutron, proton and deuteron-induced activation calculations for materials in fusion devices. FISPACT-2007 uses external libraries of nuclear data for all relevant nuclides to calculate the number of atoms of each species at a specified time during the irradiation or after a decay time following shutdown. The various species are formed either by a direct reaction on a starting material, by a series of reactions some of which can be on radioactive targets or by a decay or series of decays.

Executables created by the developers are included for IBM-AIX, Compaq-Alpha, SUN-Solaris, IBM-PC's running Red Hat Linux and Windows. The package is transmitted on 1 DVD which includes documentation, executable files for all systems named above, source codes, Makefiles, Windows installer, data files and test cases. Fortran and C; IBM, Unix Workstations, Solaris, Mac (C00735MNYCP03).

## CCC-802 /SACALC3

Ralph Whitcher, Crawley, United Kingdom through the OECD Nuclear Energy Agency Data Bank, Issy-Les Moulineaux, France, recently released SACALC3. SACALC3v1.4 calculates the average solid angle subtended by a right cylinder detector, a cuboid detector, a plane disc window detector, a plane rectangular window detector, or a spherical detector to a circular or rectangular, plane, thick or point source at any position and orientation to the detector. The program also calculates the number of hits on the detector sides and the average path length through the detector volume (assuming no scattering or absorption). The current performance of personal computers makes it realistic to achieve accuracies of

solid angle estimates typically better than 0.03 %.   The program also calculates the number of hits on the detector walls and the average path length through the detector volume (assuming no scattering or absorption).  The input data can be done on screen, or for batch processing, multiple cases can be entered as a text file.

Included in the SACALC3 package is documentation, readme files, pre-compiled Windows executables, and sample test input.  Note: no source code is included in the package.  Turbo Delphi; Microsoft Windows PC (C00802PCX8600).

# UPDATES TO NJOY99

Updates for NJOY99, creating NJOY99.393, have been posted to the http://t2.lanl.gov/codes/njoy99/ website.  This update includes many of the recent NEA updates as well as other improvements.  See the Readme393 file for details, particularly for those updates that have caused changes in the output of the standard test problems.  New output files are also posted to the web.

  There are two updates of particular note …
- In PURR an error was reported related to the temperature.  A parameter passed to the psi/chi function that contained the expression (Tref/Tuser), where Tref is 300K and Tuser is the User requested temperature, should have been given as sqrt(Tref/Tuser).  This error has existed in all versions of NJOY.
- In HEATR coding was added to recognize the fission energy release polynomial coefficient format that was defined by CSEWG several years ago and is now used in a number of ENDF/B-VII.1 minor actinide evaluations.  Unfortunately, the quadratic term, when present in all ENDF/B-VII.1 files, was given in 1/MeV energy units rather than 1/eV.  The mf1/mt451 nmod and lrel variables are used to identify these files and correct these coefficients prior to their use in HEATR.  Note: this is not a correction to the underlying ENDF/B-VII.1 file, just to the use of these data by HEATR.  If similar data appear in other evaluated files where nmod is not 7 and lrel is not 1, NJOY will assume those coefficients are given in the correct units.

# 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 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 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



## <u>Los Alamos National Laboratory</u>
## <u>General Course on Monte Carlo N-Particle (MCNP) Transport Code</u>
## <u>2013 – MCNP Class Schedule</u>

| Date | Course name and description | Location | Cost |
|---|---|---|---|
| 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* |

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.

| 2013 Classes for Visual Editor | | |
|---|---|---|
| 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 *(The NEA handles registration for this class.)* | 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 | | |
|---|---|---|
| March 11-15, 2013 | MCNP/MCNPX Intermediate Workshop *(The NEA handles registration for this class.)* | Paris, France |
| May 13-17, 2013 | MCNP/MCNPX Intermediate Workshop | Pleasanton, CA |
| June 17-21, 2013 | MCNP/MCNPX Intermediate Workshop *(The NEA handles registration for this class.)* | 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.

## 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.

## RESRAD Training Courses

Argonne National Laboratory will conduct a series of training courses on the use of RESRAD family of risk assessment codes from March 12-22, 2013. A total of 65 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.

# Spring 2013 Training Courses

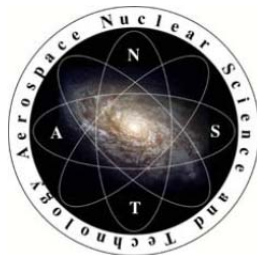| Date | Title | Location | Cost |
|---|---|---|---|
| April 8–12, 2013 | **SCALE Criticality and Shielding Course** <br> *Basic criticality calculations with KENO-VI; Shielding analysis with automated variance reduction using MAVRIC; Criticality accident alarm system analysis* | ORNL <br> Oak Ridge, TN, USA | $2000 |
| April 15–19, 2013 | **SCALE Sensitivity and Uncertainty Calculations Course** <br> *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* | ORNL <br> Oak Ridge, TN, USA | $2000 |
| April 22–26, 2013 | **SCALE Lattice Physics and Depletion Course** <br> *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 <br> Oak Ridge, TN, USA | $2000 |
| April 29 – May 1, 2013 | **SCALE/ORIGEN Activation and Decay Calculations Course** <br> *Isotopic depletion/decay and source term characterization using ORIGEN/ORIGEN-ARP* | ORNL <br> Oak Ridge, TN, USA | $1500 |
| May 27–31, 2013 | **SCALE/Criticality Safety Calculations Course** <br> *Introductory through advanced criticality calculations using KENO Va and KENO-VI; resonance self-shielding techniques* | NEA Data Bank, Issy-les-Moulineaux, France | €2000 |
| June 3–7, 2013 | **SCALE/Sensitivity and Uncertainty Calculations Course** <br> *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* | NEA Data Bank, Issy-les-Moulineaux, France | €2000 |

# CONFERENCES



## 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/.



## Nuclear and Emerging Technologies for Space (NETS-2013)

The Aerospace Nuclear Science and Technology Division (ANSTD) of the American Nuclear Society (ANS) will hold the 2013 Nuclear and Emerging Technologies for Space (NETS 2012) topical meeting at the Albuquerque Marriott February 25-28, 2013 in Albuquerque, NM. NASA is currently developing capabilities for robotic and crewed missions to the Moon, Mars, and beyond. Strategies that implement advanced power and propulsion technologies, as well as radiation protection, will be important in accomplishing these missions in the future. NETS serves as a major communications network and forum

for professionals and students working in the area of space nuclear technology. Every year it facilitates the exchange of information among research and management personnel from international government, industry, academia, and the national laboratory systems. To this end, the NETS 2013 meeting will address topics ranging from overviews of current programs to methods of meeting the challenges of future space endeavors.  For up-to-date information about this conference, visit their website at http://anstd.ans.org/NETS2013/AboutNETS2013.html.



## 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/.

## **European Safeguards Research Development Association Annual Meeting**

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.



## **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/.


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*

**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/.

**Nuclear And Emerging Technologies for Space (NETS-2013),** February 25-28**,** 2013, Albuquerque, NM.  For up-to-date information about this conference, visit their website at http://anstd.ans.org/NETS2013/AboutNETS2013.html.

### *March*

**International Conference on Fast Reactors and Related Fuel Cycles: Safe Technologies and Sustainable Scenarios (FR$_{13}$),** March 4-7, 2013, Paris, France.  For up-to-date information about this conference, visit their website at  http://www-pub.iaea.org/iaeameetings/45441/International-Experts-Meeting-on-Human-and-Organizational-Factors-in-Nuclear-Safety-in-the-Light-of-the-Accident-at-the-Fukushima-Daiichi-Nuclear-Power-Plant.

**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/.

**2013 International High-Level Radioactive Waste Management (2013 IHLRWM),** April 28-May 2, 2013, Albuquerque, NM.  For up-to-date information about this conference, visit their website at http://www.new.ans.org/meetings/c_2.

### *May*

**International Conference on Mathematics and Computational Methods Applied to Nuclear Science and Engineering (M&C 2013),** May 5-9, 2013, Sun Valley, ID. For up-to-date information about this conference, visit their website at http://www.mc2013.org/.

**35$^{th}$ 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.

### *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.

**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.

**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/.

### *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.

### *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.