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# Radiation Safety Information Computational Center

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*The sense of humor is the oil of life's engine. Without it, the machinery creaks and groans. No lot is so hard, no aspect of things is so grim, but it relaxes before a hearty laugh.—G. S. Merriam*

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## Bug in MCNP5-1.50 Photon Calculations

The following notice was posted to the MCNP5 forum on January 15, 2009.

### NOTIFICATION:

MCNP5-1.50 was released by RSICC in December 2008 as part of RSICC package CCC-740. Users who received that package should be aware that there is a significant error in the photon Doppler broadening routine that can lead to incorrect results. This error occurs on all computing platforms (Windows/Linux/Mac/Unix). This error does NOT occur in previous versions of MCNP5 (1.40, 1.30, etc.), nor does it affect any versions of MCNPX. The error does NOT affect results for neutron-only criticality calculations, nor any problems that do not include photons.

Additional details will be posted on the [mcnp.lanl.gov](http://mcnp.lanl.gov) website shortly.

### IMMEDIATE CORRECTIVE ACTION:

Users of MCNP5-1.50 who compile the code themselves can apply the patch contained in the attached files. There is a PDF file with instructions for applying the patch, and also a text file containing the patch. Users who do not or cannot patch and recompile the code can disable the photon Doppler broadening treatment by adding the following card to the data-cards section of the input:

**phys:p 4j 1**

### FURTHER CORRECTIVE ACTION:

The MCNP team will correct the bug and re-release the code as MCNP5 1.51. This will be conveyed to RSICC for distribution.

RSICC has provided the following advice for users concerning the CCC-740 package:

If you do not have an urgent need for MCNP5 1.50, we request that you wait until 1.51 is released before ordering the code from RSICC. Announcement of availability will be posted on the RSICC website and newsletter. RSICC will send replacement DVDs to all recipients of MCNP5 1.50. No additional action is required to get the replacement DVD, which will be the new package containing MCNPX 2.6.0, MCNPDATA and the corrected MCNP5 1.51. Upon receipt of the new DVD, please delete all copies of MCNP5 1.50 and shred the original DVD. The same license and export control restrictions to which you agreed for the initial release apply to the new package.

Questions on this error can be directed to [mcnp@lanl.gov](mailto:mcnp@lanl.gov) for a quick response.

Thank you,

*Jeremy Sweezy*

## **CHANGES TO THE RSICC CODE AND DATA COLLECTION**

### **CCC-657/BETA-S 6**

Oak Ridge National Laboratory, Oak Ridge, Tennessee, contributed a newly frozen version of this code system to calculate beta-decay source terms and energy spectra in multigroup format for time-dependent radionuclide inventories of actinides, fission products, and activation products. Multigroup spectra may be calculated in any arbitrary energy-group structure. BETA-S 6 also calculates the total beta energy release rate from the sum of the average beta-ray energies as determined from the spectral distributions. The code also provides users with an option to determine principal beta-decaying radionuclides contributing to each energy group. The SCALE code system must be installed on the computer before installing BETA-S, which requires the SCALE subroutine library and nuclide-inventory generation from the ORIGEN-S code. This release is compatible with SCALE Versions 5.0, 5.1 and 6. The following enhancements were completed in this version:

- The BETA-S source code was converted to modern Fortran 90 standard.
- Dynamic memory allocation was implemented.
- The free-format input reading routines were replaced with reading modules in SCALE 5.
- The capability to obtain beta decay branching data from either a binary or card-image format ORIGEN data library (required for compatibility with ORIGEN-ARP) was added.
- An error associated with spectral calculation in highest energy group was corrected.
- Spectrum calculation by normalizing spectral energy to evaluated beta energy was improved.
- The capability to generate plot files compatible with PlotOPUS program was added.

BETA-S has been installed on Linux and Windows XP and Windows Vista operating systems. The code is written in Fortran 90. Several C language utility routines, primarily for system quality assurance functions, are obtained from the SCALE subroutine library. Included executables are compatible with SCALE Versions 5 and 6. They were created by linking with the SCALE 6 subroutine library on these systems:

- Fedora 8 Linux with the 32-bit Intel Fortran 11.0.069 compiler,
- Red Hat Enterprise Linux 4 with the 64-bit Intel 10.1.015 compiler, and
- Windows XP Service Pack 2 with the Intel Fortran 10.1.021 compiler.

The package is transmitted on one CD in a GNU compressed Unix tar file which includes BETA-S source files, ENSDF-95 library, test cases, executables and documentation. References: Informal report

(December 2008) and RC-1564 (COG-93-33-I) (April 1996). Fortran 90; Pentium running Linux or Windows (C00657/MNYCP/01).

### [CCC-753/GANAPOL-ABNTT](#)

The University of Arizona, Tucson, Arizona, through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France, contributed these analytical benchmarks and associated computer codes. The motivation for this benchmark compendium is to gather several analytical benchmarks appropriate for nuclear engineering applications under one cover. The following three subject areas are considered:

- neutron slowing down and thermalization without spatial dependence,
- one-dimensional neutron transport in infinite and finite media, and
- multidimensional neutron transport in a half-space and an infinite medium.

Each benchmark is briefly described, followed by a detailed derivation of the analytical solution representation. Finally, a demonstration of the evaluation of the solution representation includes qualified numerical benchmark results. All accompanying computer codes are suitable for the PC computational environment and can serve as educational tools for courses in nuclear engineering. While this benchmark compilation does not contain all possible benchmarks, it does include some of the most prominent ones and should serve as a valuable reference. Twelve reference calculations in transport theory are presented in order of progressive complexity, from problems in only the energy or only the spatial variables to problems with both variables. The electronic book is in PDF format and can be viewed on any computer running the Adobe Reader. The computer codes run on personal computers. Executables for Windows PCs are included as are the Fortran source files for 14 computer codes. The package is transmitted on a CD which contains the electronic report, source files, executables, and test cases. Reference: NEA/DB(2008)1, ISBN 978-92-64-99056-2, OECD 2008, NEA No. 6292 (2008). Fortran 77; Pentium. (C00753MNYCP00).

## NEW PUBLICATIONS

James E. Doyle, ed., *Nuclear Safeguards, Security, and Nonproliferation: Achieving Security with Technology and Policy* (Burlington, MA: Butterworth-Heinemann, 2008), Hardcover, 592 pages, ISBN: 978-0-7506-8673-0.

With an increase in global security concerns over potential terrorist acts, the threat of WMDs, and increasing political issues with nations seeking nuclear capability, the need to track, detect, and safeguard nuclear material globally has never been greater. *Nuclear Safeguards, Security and Nonproliferation* is a comprehensive reference that covers cutting-edge technologies used to trace, track, and safeguard nuclear material with sections contributed by scientists from Los Alamos, Sandia, and Pacific Northwest National Labs. The book is divided into 3 sections and includes 30 chapters on such topics as - the security of nuclear facilities and material, the illicit trafficking of nuclear materials, improvised nuclear devices, and preventing nuclear terrorism. International case studies of security at nuclear facilities and illegal nuclear trade activities provide specific examples of the complex issues surrounding the technology and policy for nuclear material protection, control and accountability. Specific cases include analysis of the timely issues in the nuclear programs of countries such as North Korea, Iran, and Kazakhstan among others. Nuclear Security is a must-have volume for the dozens of private and public organizations involved in driving Homeland Security, domestic, and international policy issues relating to nuclear material security, non-proliferation, and nuclear transparency.

*Nuclear Safeguards, Security, and Nonproliferation* can be ordered directly from Elsevier at <http://www.elsevierdirect.com/index.jsp> or at Amazon: [http://www.amazon.com/Nuclear-Safeguards-Security-Nonproliferation-Technology/dp/0750686731/ref=sr\\_1\\_1?ie=UTF8&s=books&qid=](http://www.amazon.com/Nuclear-Safeguards-Security-Nonproliferation-Technology/dp/0750686731/ref=sr_1_1?ie=UTF8&s=books&qid=)

[1231449095&sr=1-1](#). You may also contact the editor James E. Doyle by phone 505 667-2844 or email [jdoyle@lanl.gov](mailto:jdoyle@lanl.gov).

## 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 [riceaf@ornl.gov](mailto:riceaf@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. If the meeting is on a website, please include the url.

Every attempt is made to ensure that the links provided in the Conference and Calendar sections of this newsletter are correct and live. However, the very nature of the web creates the possibility that the links may become unavailable. In that case, please call or mail the contact provided.

### Introductory and Advanced MCNP Visual Editor Training

Date 2009	Class	Location
March 16–20	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Seattle, WA
May 11–15	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Las Vegas, NV
June 8–12	Introduction to MCNP using the MCNP/MCNPX Visual Editor	San Francisco, CA
July 20–24	Advanced Visual Editor	Albuquerque, NM
August 10–14	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Los Angeles, CA
October 26–30	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Reno, NV

Classes are taught using the most recent (beta) version of the Visual Editor Code. Beta versions will only be available to students who received the RSICC version 5 release. Bring proof of receipt (letter or email) to the class.

The introductory classes combine teaching on MCNP physics, along with instructions on how to use the Visual Editor. The advanced class assumes the user has experience using MCNP or MCNPX and focuses on Visual Editor topics. Computer demonstrations and exercises will focus on creating and interrogating input files with the Visual Editor. Advanced visualization work using MCNP will also be demonstrated. Both the introductory and advanced classes will be taught on Pentium computers running Windows 2000. Attendees are encouraged to bring their own input files for viewing and modifying in the visual editor. The course description and registration information can be found at <http://www.mcnpvised.com/index.html>.

### MCNP Class Schedule

February 23–27, 2009	<a href="#">Introduction to MCNP5 and MCNPX</a>	Los Alamos, NM
March 23–27, 2009	<a href="#">MCNP/MCNPX Intermediate Workshop</a>	Paris, France
April 20–23, 2009	<a href="#">Advanced: Criticality</a>	Los Alamos, NM
April 27–30, 2009	<a href="#">Advanced: Variance Reduction</a>	Los Alamos, NM
May 18–22, 2009	<a href="#">MCNP/MCNPX Intermediate Workshop</a>	US, Location TBD
June 1–5, 2009	<a href="#">Introduction to MCNP5 and MCNPX</a>	Los Alamos, NM
June 8–12, 2009	<a href="#">Introduction to MCNP5 and MCNPX</a>	Los Alamos, NM

Introductory classes are for people 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 specification), 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 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 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 students. Classes on specific topics are offered when there is sufficient interest. In the recent past, classes on variance reduction and on criticality have been taught.

Registration and the most current information can be found at <http://mcnp-green.lanl.gov/classinformation.html>.

### **SCALE Training Courses at ORNL**

<b>2009</b>	<b>Title</b>	<b>Description</b>
March 9–13	<b>TSUNAMI</b>	1-D and 3-D sensitivity/uncertainty analysis using XSDRNPM and KENO V.a
March 23–27	<b>TRITON and ORIGEN-ARP</b>	TRITON: 2-D reactor physics analysis using NEWT ORIGEN-ARP: Isotopic depletion/decay and source terms using latest version of ORIGEN
March 30–April 3	<b>KENO-VI/MAVRIC</b>	KENO-VI: Criticality safety using the generalized geometry version of KENO MAVRIC: 3-D automated variance reduction for deep-penetration and complex shielding problems

The registration fee is \$1800 for each course. A late fee of \$300 will be applied after February 9. A discount of \$300 per each additional week will be applied for registration to multiple courses. Class size is limited and course may be canceled if minimum enrollment is not obtained one month prior to the course. Course fees are refundable up to one month before each class. Note that all attendees must be registered SCALE 5 or 5.1 users. All foreign national visitors must register a minimum of 40 days prior to the start date of the training course they plan to attend. Course descriptions may be found at [http://www.ornl.gov/sci/scale/course\\_description.htm](http://www.ornl.gov/sci/scale/course_description.htm).

### **ANALYTICAL BENCHMARKS: CASE STUDIES IN NEUTRON TRANSPORT THEORY**

The OECD/Nuclear Energy Agency, Issy-les-Moulineaux, France, is sponsoring a course on Analytical Benchmarks: Case Studies in Neutron Transport Theory, March 16–20, 2009. Participants will

be provided with a copy of the course text and the handbook: B. Ganapol, *Analytical Benchmarks for Nuclear Engineering Applications: Case Studies in Neutron Transport Theory* (ISBN 978-92-64-99056-2), in hard copy, and a CD-ROM with the corresponding computer codes.\*

The training course is free of charge. Participation will be limited to the first 24 registrations. Information on accommodation can be found in the following page:  
<http://www.nea.fr/html/general/hotels.html>.

## **Nuclear Safeguards and Non-Proliferation**

The 5<sup>th</sup> ESARDA Course on Nuclear Safeguards and Non Proliferation will be held March 30–April 3, 2009, in Ispra, Italy. The course is organized by the European Safeguards Research & Development Association (ESARDA) and is hosted by the Nuclear Safeguards Unit, Joint Research Centre, Ispra, Italy.

The course is open to master's degree students, particularly nuclear engineering students, and to young professionals and international relations/law students. It complements nuclear engineering studies by including nuclear safeguards in the academic curriculum. The basic aim of the course is to stimulate students' interest in safeguards. The course addresses aspects of the efforts to create a global nuclear nonproliferation system and how this system works in practice: the Treaty on Nonproliferation of Nuclear Weapons (NPT), safeguards technology, and export control. Also regional settings, such as the Euratom Treaty, will be presented and discussed. The course deals in particular with the technical aspects and application of safeguards; i.e. how to implement safeguards principles and methodology within different nuclear facilities. The course will present an overview on inspection techniques, ranging from neutron/gamma detectors, to design information verification, to environmental sampling, etc. The registration form can be found at [http://esarda2.jrc.it/internal\\_activities/WC-MC/Web-Courses/5-contacts.html](http://esarda2.jrc.it/internal_activities/WC-MC/Web-Courses/5-contacts.html) and must be completed and returned by **December 31, 2008**, to the NUSAF-Secretariat (email [jrc-nusaf-secretariat@ec.europa.eu](mailto:jrc-nusaf-secretariat@ec.europa.eu) or fax +39 0332 78 9185). Additional information about the course is available at [http://esarda2.jrc.it/internal\\_activities/WC-MC/Web-Courses/index.html](http://esarda2.jrc.it/internal_activities/WC-MC/Web-Courses/index.html).

## **8th FLUKA User Course**

The 8th FLUKA User Course will be held in Athens, March 30–April 3, 2009. The course is intended for beginners and for more experienced users wishing to deepen their knowledge about the underlying physical models. Registration is open until February 15, 2009 at <http://www.fluka.org/fluka.php?id=course&sub=intro&which=demokritos2009>. A preliminary program and other details about the course is available on the course website indicated above. The number of participants is limited to 30, and applications will be treated according to the 'first come, first served' policy.

## **Advances in Nuclear Fuel Management IV**

Advances in Nuclear Fuel Management IV will be held April 12–15, 2009, in Hilton Head, South Carolina. The meeting is a forum for addressing a broad spectrum of front-end nuclear fuel management activities, within the context of reactor physics and fuel cycle economics. Topics will range from methods development and verification to design and implementation of new in-core fuel products and strategies.

A list of technical sessions follows.

- addressing practical design constraints on fuel management
- advanced fuel assembly and burnable absorber designs

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\*Valid for NEA Data Bank Member Countries; all others should inquire on the procedure to be followed for obtaining a copy (see: [http://www.nea.fr/html/dbprog/nea\\_dbmembers.htm](http://www.nea.fr/html/dbprog/nea_dbmembers.htm)).



- advanced fuel management and multi-dimensional burnup analysis
- advances in reactor stability
- automated and interactive fuel management design and optimization tools
- error quantification of core simulation capabilities
- experiences and advances in on-line core monitoring
- extended fuel cycles and economic analysis
- fuel and core design based on thorium cycles
- fuel cycle core design for advanced reactor concepts
- fuel temperature feedback for steady-state and transients
- generation of cross section libraries and whole core transport calculations
- generation-iv design concepts
- high enrichment >5wt% uo2 studies
- innovative core loading strategies and methods
- management, design, and operation issues of advanced reactor fuels
- model comparisons against measured reactor power data
- monte carlo-based depletion and full core analysis: new developments and issues
- mox utilization in reactors
- nodal and lattice physics methods
- nuclear data needs to enhance core simulation fidelity
- reactor-based plutonium disposition
- research reactor topics—fuel management practices
- simulation and study of advanced nuclear fuel cycles
- utilities experience in reload design and licensing
- utilization of zero power physics tests and core follow data to enhance core simulation fidelity
- validation of core analysis tools for fuel management

General Chair for the conference is John Siphers, Progress Energy (phone 919-546-4032, email [john.siphers@pgnmail.com](mailto:john.siphers@pgnmail.com)) and the Technical Program Co-chairs are Ivan Maldonado, University of Tennessee (phone 865-974-7562, email [imaldona@utk.edu](mailto:imaldona@utk.edu)) and Atul Karve, Global Nuclear Fuel, (phone 910-675-5802, email [atul.karve@gnf.com](mailto:atul.karve@gnf.com)). Additional details are posted at the conference web site: <http://anfm2009.org>.

## **2009 International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics**

The 2009 International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics will be held May 3–7, 2009, in Saratoga Springs, New York. The Conference will provide an international forum to present and discuss recent research in mathematical modeling and computing as applied to nuclear engineering and particle transport. This conference is part of a series of topical meetings organized by the Mathematics and Computation Division of the American Nuclear Society. The technical program will consist of plenary sessions, parallel oral presentation sessions, and poster sessions. There will also be one or more workshops.

Check the conference website [http://local.ans.org/ne-ny/topical\\_2009\\_neny.html](http://local.ans.org/ne-ny/topical_2009_neny.html) for general conference information. General chair of the conference is Ray Gamino ([ray.g.gamino@lmco.com](mailto:ray.g.gamino@lmco.com)).

## **Operational Radiation Protection for Accelerators in Research and Medicine**

The course Operational Radiation Protection for Accelerators in Research and Medicine will be held in Erice, Sicily (Italy), May 13–20, 2009, at the “Ettore Majorana Foundation and Centre for Scientific

Culture” within the framework of the International School of Radiation Damage and Protection. The course is focused on operational radiation protection, including environmental aspects, safety systems, training and radioactive waste management at high-energy accelerators and hadron therapy facilities. Emphasis is given to all aspects of practical implementation of the principles of operational radiation protection at such facilities. The course will provide a series of presentations given by acknowledged experts with practical experience in the field. There will be ample opportunity for in-depth discussions on current problems. Details can be found at the Webpage at <http://www.cern.ch/radschool>.

### **ANIMMA**

The 1<sup>st</sup> International Conference on Advancements in Nuclear Instrumentation, Measurement Methods and their Applications (ANIMMA) will be held in France at the Marseilles Convention Center, June 7–10, 2009. For information regarding the conference organization contact: [animma@cea.fr](mailto:animma@cea.fr) (phone 33 442 257 588) url <http://www.animma.com/>.

### **Radionuclide Therapy and Radiopharmaceutical Dosimetry**

The 3rd International Symposium on Radionuclide Therapy and Radiopharmaceutical Dosimetry and Workshop on Alpha-emitting Radionuclides in Therapy will convene June 13–17, 2009, in Toronto, Canada, in conjunction with the 2009 SNM Annual Meeting. The 3rd Symposium will blend with SNM sessions in oncology, radiopharmaceutical chemistry, radiobiology, and dosimetry. The workshop will highlight current progress in the use of alpha-emitters for cancer therapy, continuing a series of successful alpha-emitter workshops. Further information is posted at <http://isrtrd2009.labworks.org/> or may be obtained from George Sgouros, Vice-Chair, at [gsgouros@jhmi.edu](mailto:gsgouros@jhmi.edu).

### **2009 ANS Annual Meeting**

*Advancing Nuclear Technology for a Greater Tomorrow* is the theme for the 2009 ANS Annual Meeting which be held in Atlanta, Georgia, June 14–18. Summaries describing work that is new, significant, and relevant to the nuclear industry may be submitted beginning November 1 in response to the [Call for Papers](#). Summaries must be submitted electronically using Adobe Acrobat (PDF) files and original Microsoft Word documents and the ANS Electronic Submission System. Summaries not based on the ANS template will be rejected. General Chair for the meeting is Jeffrey T. Gasser (Southern Nuclear Operating Company); the Technical Program Chair is Bojan Petrovic (Georgia Institute of Technology). Information regarding the meeting is posted at [http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1).

### **Training Course on Natural Circulation Phenomena and Modelling in Water-Cooled Nuclear Power Plants**

The San Piero a Grado Nuclear Research Group (GRNSPG) of the University of Pisa in cooperation with the International Atomic Energy Agency (IAEA), Department of Nuclear Energy, are jointly organizing the “Training Course on Natural Circulation Phenomena and Modelling in Water-Cooled Nuclear Power Plants.” The course will be held June 22–26, 2009, on the premises of the San Piero a Grado Nuclear Research Group (GRNSPG) in Via Livornese 1291, San Piero a Grado (Pisa), Italy.

Passive safety systems based on natural circulation are key to evolutionary and innovative water-cooled reactor designs. Education on this issue is of key importance for countries working on the next generation of LWR. The course will provide a transfer of experience and know-how from recognized experts in the natural circulation fields and will transmit information, results and expertise shared through various international activities in the field (i.e. IAEA CRPs and European Commission supported



programs). It will thus contribute to maintain and increase technical competence and ensure sustainable development of nuclear technology. Further information may be requested at the following email address: [grnspg@ing.unipi.it](mailto:grnspg@ing.unipi.it) or may be obtained from the home page, [http://www.grnspg.ing.unipi.it/natural\\_circulation/](http://www.grnspg.ing.unipi.it/natural_circulation/), where information on the course, registration form and accommodation can also be found. The deadline for registration is **April 20, 2009**. Additional information may be obtained from Ms. Patricia Pla, San Piero a Grado Nuclear Research Group (GRNSPG), University of Pisa, Via Diotisalvi, 2, 56126 PISA (Italy) (phone + 39 050 2210 371, fax + 39 050 2210 384, email [grnspg@ing.unipi.it](mailto:grnspg@ing.unipi.it)) url [http://www.grnspg.ing.unipi.it/natural\\_circulation/](http://www.grnspg.ing.unipi.it/natural_circulation/).

## **ICENES-2009**

The 14th International Conference on Emerging Nuclear Energy Systems (ICENES-2009) will be held June 29–July 3, 2009, in Ericeira, Portugal. The main objective of the ICENES series is to provide an international forum for scientists, engineers, industry leaders, policy makers, decision makers and young professionals to present and discuss various advanced, innovative and non-conventional nuclear energy production systems. A new dimension of ICENES2009 will extend the forum to include innovative non-nuclear technologies, such as hydrogen energy, solar energy, deep space exploration, etc. A special new field in ICENES 2009 will be the discussion and proposals of new tools for a more efficient way to organize R&D in nuclear energy and related fields, and to boost international cooperation. ICENES2009 takes place in a special moment, at the dawn of a new era for nuclear energy, marked by the nuclear energy “renaissance” and following a major step forward towards the development and implementation of nuclear fusion energy, with the recent decision to build ITER. For more information contact the Conference Secretariat at [icenes2009@itn.pt](mailto:icenes2009@itn.pt) or fax: 351 21 994 1995. Check the website, <http://www.itn.pt/icenes2009/>, frequently for new and updated information.

## **50th INMM Annual Meeting**

The Institute of Nuclear Materials Management (INMM) will hold its 50<sup>th</sup> Annual Meeting July 12–16, 2009, in Tucson, Arizona. The Institute is a professional membership organization that promotes research and development in new concepts, approaches, techniques and equipment in the field of nuclear materials management (i.e., international safeguards, materials control and accountability, physical protection, nonproliferation and arms control, packaging and transportation, and waste management). The [Call for Papers](#) has been issued for papers in the following major topical areas:

- Policy, Regulations and Standards
- Methodologies and Best Practices
- Modeling and Analysis
- Technology and Development
- Systems and Applications
- Testing, Assessments and Lessons Learned
- Education, Training and Communication/Information Systems
- Counter Terrorism Measures and Responses
- Public and Homeland Security

Abstracts must be submitted by **February 1, 2009**. Details about submission and other information regarding the conference can be found at <http://www.inmm.org/meetings/index.cfm>. You may also contact INMM, 111 Deer Lake Road, Suite 100, Deerfield, IL 60015 (email [inmm@inmm.org](mailto:inmm@inmm.org), phone 847-480-9573, fax: 847-480-9282).

## **Radiation Shielding for Medical Installations**

The Training Course on Radiation Shielding for Medical Installations (RSMI 2009) will be held July 19–21, 2009, in Ericeira, Portugal. This education and training initiative on shielding methodologies for medical imaging and therapy facilities will provide you with:

- The latest information on medical radiation shielding design from a rare assembly of shielding experts and professionals who will be available to provide their special insights into this field, including practical design tips which cannot be found in any formal reports, and observed common shielding mistakes (some very serious) to be avoided. Included will be diagnostic x-ray imaging (conventional, interventional, CT, digital, etc.); nuclear medicine (including PET/CT), and the latest in radiotherapy shielding design (including IMRT, Cyberknife, Tomotherapy, neutrons, and unique solutions to space limitations). These experts include the authors of the latest NCRP shielding design recommendations from the USA (NCRP reports #147 and #151 on Medical X-ray Imaging and Radiation Therapy Shielding Design), as well as the authors of current European shielding guideline documents as described in the list of speakers on this site, <http://www.rsmi2009.itn.pt/index.html>.
- Assess trends and needs in view of the rapid technological evolution in CT, PET, radiation therapy (IMRT, IGRT, and other emerging and advanced techniques) as well as in other medical applications of ionizing radiation.

A set of satellite meetings on specific radiation protection, radiation dosimetry and radiation shielding topics, as well as tutorials on topics of interest to the participants, will be organized around the meeting.

If you are a shielding designer (expert or otherwise), or an aspiring designer, this conference is one “not to be missed.” Even the shielding experts on the program are looking forward to this rare opportunity to exchange ideas and shielding philosophies with each other, as well as with the attendees. Information about the meeting may be obtained from the website, <http://www.rsmi2009.itn.pt/index.html>, or by contacting [rsmi2009@itn.pt](mailto:rsmi2009@itn.pt) (phone (+351) 21-994 6292 or fax (+351) 21-994 1995).

*Bob Dixon and Pedro Vaz  
on behalf of the organizers and lecturers*

## **GLOBAL 2009**

GLOBAL 2009 will be held in Paris, September 6–11, 2009. It will be the 9<sup>th</sup> in the series of world meetings held bi-annually on the nuclear fuel cycle (NFC) that began in 1993 in Seattle. The series has since been established as an international forum for experts to provide an overall review of the status and new trends of research applications and policies related to the nuclear fuel cycle (NFC). GLOBAL 2009 will highlight the technical challenges and successes involved in closing the NFC and recycling long lived nuclear waste. It will also be an excellent occasion to review and discuss social and regulatory aspects as well as national plans and international policies affecting the future of nuclear energy. This meeting will provide a forum for the exchange of the newest ideas and developments related to the initiatives establishing an acceptable, reliable and universal international non proliferation regime.

The technical program will consist of invited plenary and focused in-depth technical sessions organized along specific areas of technical interests listed below.

- Front end of the fuel cycle
- Current spent nuclear fuel recycling
- Waste management technologies and strategies

- Concepts for transportation and interim storage of spent fuels and conditioned waste
- Nuclear waste repository developments
- Advanced technologies for fuel recycling including partitioning of specific radionuclides
- Advances in reactor cores design and in-core fuel management
- Transmutation systems for long lived radionuclides
- Developments in nuclear non proliferation technology, policy and implementation
- Sustainable fuel cycle options and nuclear material management
- Dismantling, decommissioning and material management
- Crosscutting issues, policies and programs

The contact for the conference is Sylvie Delaplace, SFEN, 5 rue des Morillons, F75015 PARIS (phone +33-(0)1-53-58-32-16, fax +33-(0)1-53-58-32-11, email [global2009@sfen.fr](mailto:global2009@sfen.fr)). Current news will be posted at [https://www.sfen.fr/index.php/plain\\_site/global\\_2009/general\\_scope\\_overview](https://www.sfen.fr/index.php/plain_site/global_2009/general_scope_overview).

### **NCSD 2009**

NCSD 2009, the topical meeting of the ANS Nuclear Criticality Safety Division, will be held September 13–17, 2009, in Richland, Washington. The theme for the meeting is *Realism, Robustness, and the Nuclear Renaissance*. Electronic submission of abstracts will open January 9, 2009, for work that falls within the following topics:

- Realism and Criticality Safety—Input data, Cross sections, Modeling, Accident scenarios
- Applications and Realism— Benchmark selection, Tsunami and other methods, Sub-critical Measurements, Burn-up credit applications
- Robustness in controls—Development of criticality controls, Requirements documents (DOE, NRC), Standards role, Implementation of criticality controls, Examples, International experience
- Ready for the Renaissance—Status and scope of GNEP, Criticality safety needs for the fuel cycle (enrichment, fabrication, transportation, storage and disposal), Harvesting existing benchmark data (fuel cycle and nuclear data), In-situ measurements, Criticality safety and engineering design, Use of computers in operations controls, People needs, training and education

Contact the Technical Program Chairman, Calvin Manning at [Calvin.Manning@areva.com](mailto:Calvin.Manning@areva.com), if you have questions about the abstract requirements that might not be covered at the meeting website, <http://www.ncsd2009.com/>.

### **NEUDOS-11**

The 11<sup>th</sup> Neutron and Ion Dosimetry Symposium (NEUDOS-11), hosted by the Laboratory for Accelerator-Based Sciences (iThemba LABS), will be held October 12–16, 2009, in Capetown, South Africa. The Symposium is being held under the auspices of the European Dosimetry Group (EURADOS). All previous Symposia in the series, which began in 1972, have been held in Western Europe.

A full and diverse scientific program will be offered which will encompass the complete range of neutron and ion dosimetry topics. In addition, both oral and poster “young investigators” sessions will be held. At these sessions presentations on any topic related to the dosimetry of any radiation modality (i.e., not limited to neutron or ion dosimetry) can be presented. **May 31, 2009**, is the deadline for submitting abstracts.

Check the website, <http://www.neudos11.tlabs.ac.za>, frequently for new information. You may also contact Dr. D. Jones / Ms. N. Haasbroek, iThemba LABS, P O Box 722, Somerset West 7129, South Africa (phone +27 21 843 1259 / 1032, fax +27 21 843 3525, email [Neudos11@tlabs.ac.za](mailto:Neudos11@tlabs.ac.za)).

## 2010 Joint Symposium on Supercomputing in Nuclear Applications + Monte-Carlo

Planning has begun for the combined Supercomputing in Nuclear Applications (SNA) and Monte-Carlo (MC) 2010 meeting. The Japan Atomic Energy Agency Center for Computational Science and e-systems and Nuclear Science and Engineering Directorate will host the meeting October 18–21, 2010, at the Hitotsubashi Memorial Hall in Tokyo.

Extended abstracts of 1500 words may be submitted by **September 2009** on the following topics:

- Computational Applications ( Nuclear Reactor Analysis, Nuclear Safety, Thermal Hydraulics, Biomedicine, Nano-Science, Nuclear Fuel Cycle / Repository Performance, Materials, Fluid Dynamics, Plasma Physics/Fusion, Earthquake Proof, Structural Analysis, Shielding, Dosimetry, Radiation Effect, Space and Aviation, etc.)
- Computational Science (Applications, Methodology, Modeling, Code Development, Verification, Basic Data, etc.)
- Computer Science (Visualization, Tools, Hardware, Middleware, etc.)
- Information Technology and its applications (CAE, Communications, etc.)
- Computational Methods using High Performance Computers (Parallel Computing, Grid Computing, Custom computing, etc.)
- Theory for Monte Carlo Simulation
- Physics Modeling in Monte Carlo Simulation

Bookmark the website, <http://sna2010.jaea.go.jp/>, to keep abreast of developments for the meeting. You may also contact [sna2010@ml.jaea.go.jp](mailto:sna2010@ml.jaea.go.jp).

## CALENDAR

### March 2009

WM2009, March 1–5, 2009, Phoenix, Arizona. Contact: WMS Administration at 1-520-696-0399 or email at [papers@wmarizona.org](mailto:papers@wmarizona.org), url [http://www.wmsym.org/html/wm\\_conference.cfm](http://www.wmsym.org/html/wm_conference.cfm).

5th ESARDA Course on Nuclear Safeguards and Non Proliferation, March 30–April 3, 2009, Ispra, Italy. Contact: NUSAF-Secretariat (email [jrc-nusaf-secretariat@ec.europa.eu](mailto:jrc-nusaf-secretariat@ec.europa.eu) or fax +39 0332 78 9185) url [http://esarda2.jrc.it/internal\\_activities/WC-MC/Web-Courses/index.html](http://esarda2.jrc.it/internal_activities/WC-MC/Web-Courses/index.html).

International Symposium on Nuclear Security sponsored by the IAEA, March 30–April 3, 2009, Vienna, Austria. Contact: IAEA, Conference Services Section, Wagramer Strasse 5, P.O. Box 100, 1400 Vienna, Austria (phone 43-1-26000; fax 43-1-26007).

### April 2009

Advances in Nuclear Fuel Management IV, April 12–15, 2009, Hilton Head, SC. Contact: General Chair John Siphers (phone 919-546-4032, email [john.siphers@pgnmail.com](mailto:john.siphers@pgnmail.com)), or Technical Program Co-chairs Ivan Maldonado (phone 865-974-7562, email [imaldona@utk.edu](mailto:imaldona@utk.edu)) and Atul Karve (phone 910-675-5802, email [atul.karve@gnf.com](mailto:atul.karve@gnf.com)) url <http://anfm2009.org>.

### May 2009

2009 International Conference on Advances in Mathematics, Computational Methods, and Reactor Physics, May 3–7, 2009, Saratoga Springs, NY. Contact: Ray Gamino ([ray.g.gamino@lmco.com](mailto:ray.g.gamino@lmco.com)) url [http://local.ans.org/ne-ny/topical\\_2009\\_neny.html](http://local.ans.org/ne-ny/topical_2009_neny.html).

Operational Radiation Protection for Accelerators in Research and Medicine, May 13–20, 2009, Sicily (Italy). Contact: <http://www.cern.ch/radschool>.

### June 2009

ANIMMA, June 7–10, 2009, Marseilles, France. Contact: ANIMMA\_2009, CEA/DER/SPEX, Bat. 238 CEA Cadarache 13108, St Paul lez Durance Cedex FRANCE (fax +33 (0)4.42.25.78.76, email: [animma@cea.fr](mailto:animma@cea.fr)) url <http://www.animma.com/>.

3rd International Symposium on Radionuclide Therapy and Radiopharmaceutical Dosimetry and Workshop on Alpha-Emitting Radionuclides in Therapy, June 13–17, 2009, Toronto, Canada. Contact: George Sgouros ([gsgouros@jhmi.edu](mailto:gsgouros@jhmi.edu)) or Michael Lassmann ([Lassmann\\_M@klinik.uni-wuerzburg.de](mailto:Lassmann_M@klinik.uni-wuerzburg.de)) url [www.snm.org](http://www.snm.org).

2009 ANS Annual Meeting, “Advancing Nuclear Technology for a Greater Tomorrow,” June 14–18, 2009, Atlanta, GA. Contact: [http://www.new.ans.org/meetings/c\\_1](http://www.new.ans.org/meetings/c_1).

Training Course on Natural Circulation Phenomena and Modelling in Water Cooled Nuclear Power Plants, June 22–26, 2009, Pisa, Italy. Contact: Ms. Patricia Pla, San Piero a Grado Nuclear Research Group (GRNSPG), University of Pisa, Via Diotisalvi, 2, 56126 PISA (Italy) (phone + 39 050 2210 371, fax + 39 050 2210 384, email [grnspg@ing.unipi.it](mailto:grnspg@ing.unipi.it)) url [http://www.grnspg.ing.unipi.it/natural\\_circulation/](http://www.grnspg.ing.unipi.it/natural_circulation/).

ICENES-2009, June 29–July 3, 2009, Ericeira, Portugal. Contact: Conference Secretariat at [icenes2009@itn.pt](mailto:icenes2009@itn.pt) (fax: 351 21 994 1995) url <http://www.itn.pt/icenes2009/>.

### July 2009

50th INMM Annual Meeting, July 12–16, 2009, Tucson, Arizona. Contact: INMM, 111 Deer Lake Road, Suite 100, Deerfield, IL 60015 (email [inmm@inmm.org](mailto:inmm@inmm.org), phone 847-480-9573, fax: 847-480-9282) url <http://www.inmm.org>.

Radiation Shielding in Medical Installations 2009 (RSM2009), July 19–21, 2009, Ericeira, Portugal. Contact: [rsmi2009@itn.pt](mailto:rsmi2009@itn.pt) (phone (+351) 21-994 6292, fax (+351) 21-994 1995) url <http://www.rsmi2009.itn.pt/contact.html>.

### September 2009

GLOBAL 2009, Sept. 6–11, 2009, Paris. Contact: Sylvie Delaplace, SFEN, 5 rue des Morillons, F75015 Paris (phone +33-(0)1-53-58-32-16, fax +33-(0)1-53-58-32-11, email [global2009@sfen.fr](mailto:global2009@sfen.fr)) url [https://www.sfen.fr/index.php/plain\\_site/global\\_2009/general\\_scope\\_overview](https://www.sfen.fr/index.php/plain_site/global_2009/general_scope_overview).

NCSD 2009, Sept. 13–17, 2009, Richland, Washington. Contact: Technical Program Chairman, David Erickson at [David\\_G\\_Erickson@rl.gov](mailto:David_G_Erickson@rl.gov), url <http://www.ncsd2009.com/>.

### October 2009

NEUDOS-11, October 12–16, 2009, Capetown, South Africa. Contact: Dr. D. Jones / Ms. N. Haasbroek, iThemba LABS, P O Box 722, Somerset West 7129, South Africa (phone +27 21 843 1259 / 1032, fax +27 21 843 3525, email [Neudos11@tlabs.ac.za](mailto:Neudos11@tlabs.ac.za)) url <http://www.neudos11.tlabs.ac.za>.

### October 2010

SNA2010 and MC2010, Oct. 18–21, 2010, Tokyo. Contact: [sna2010@ml.jaea.go.jp](mailto:sna2010@ml.jaea.go.jp), url <http://sna2010.jaea.go.jp/>.