Radiation Safety Information Computational Center

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A great many people think they are thinking when they are really rearranging their prejudices—Edward R. Murrow

CCC-740/MCNP5/MCNPX

In February, the U. S. Department of Energy (DOE) asserted jurisdiction over distribution of MCNP and its derivatives, and distribution was suspended while new guidelines were developed. RSICC recently received new guidelines and has begun distributing MCNP code packages again. Some details must be worked out before the Nuclear Energy Agency Data Bank (NEADB) can begin distributing the software.

Software containing source code is restricted and limited. Non-US citizens are strongly urged to request the "executable only" version of the software which does not contain source code. Significant time delays will be experienced in the approval process for the "source" version of the software for foreign requests, and additional justification will be required by DOE.

Current packages affected include: MCNP5/MCNPX, MCNP5/MCNPX-EXE, MCNP-DSP, MCNP-POLIMI, and MRIPP. (For information about the compilers used to create executables in the MCNP5/MCNPX packages, click here http://rsicc.ornl.gov/rsiccnew/MCNP5-MCNPXcompilers.htm.

CHANGES TO THE RSICC CODE AND DATA COLLECTION

CCC-522/VARSKIN 3 Version 3.1.0

The Center for Nuclear Waste Regulatory Analyses, Southwest Research Institute, San Antonio, Texas, and the U.S. Nuclear Regulatory Commission contributed a correction to this code system to calculate the radiation dose (gamma and beta) to skin from radioactive contamination of skin or protective clothing. Varskin 3 Version 3.1.0 corrects a programming error in earlier versions of Varskin 3 that

occurred when calculating the percent of electronic equilibrium established for the photon dose model. In general, the correction will result in lower doses calculated for radionuclides that emit high-energy photons, especially at shallow skin depths. Although this correction makes photon dose calculations more accurate, it still assumes that the photon source is a point source; and build up as a function of depth is not modeled. Subsequent versions of Varskin will take into account distributed sources and build up. Six different predefined source configurations are available: point, disk, cylinder, sphere, slab, and syringe. Varskin 3 includes a backscatter correction for three-dimensional sources, an upgraded gamma dose model, air gap and cover material models. The package is transmitted on a CD which includes the referenced document and Fortran and Basic source files, Windows executables, built-in data libraries and on-line help. Reference: NUREG/CR-6918 (2006). Fortran and Visual Basic; Pentium (C00522PC58606).

DLC-238/VITENEA-J

ENEA – FIS-MET, Bologna, Italy, and Bologna University, Physics Department, Italy, through the OECD Nuclear Energy Agency Data Bank, Issy-Les Molineaux, France, contributed VITENEA-J. This is a coupled multigroup cross section library in the standard VITAMIN-J energy group structure (175 neutron + 42 gamma) in AMPX master library format for nuclear fusion applications. The library has been widely used by ENEA in neutron/gamma transport calculations for ITER safety assessment.

It is based on nuclear data from the general purpose Fusion Evaluated Nuclear Data Library (FENDL/E-2.0) and ENDF-B/VI. The data were prepared by processing basic nuclear data into a fine group problem independent format through an automatic calculation procedure using the modules of NJOY-94.105 and AMPX-77 Processing Systems. The translation of the multigroup data from the GENDF format produced by NJOY to the AMPX Master Library format was performed by the AMPX-77 SMILER module.

Of the 75 included nuclides, seventy were processed at four temperatures (300 K, 600 K, 900 K, 1500 K) at ten values for the background cross section s0. Thermal scattering cross sections were processed at the three temperatures (296 K, 600 K, 1200 K) available in the ENDF-B/VI thermal scattering law data file for four additional bound nuclides (H-1 in water, C in graphite, Be in beryllium metal and oxide). The package is transmitted on a CD-ROM which contains the documentation and the data files distributed in a Unix tar file. Reference: RTI/FIS/MET/2004/2. Card images in AMPX master library format; many computers (D00238/MNYCP/00).

Free to read - CSD Launch Collection

The publisher of *Computational Science & Discovery* has sent the following information regarding the availability of a new online publication.

> Computational Science and Discovery (CSD) is delighted to inform you about the online publication of its first articles. The Launch Collection can be accessed from the journal's web page, http://herald.iop.org/CSD/m178/hxp/270543/link/378, and is free to all readers.
>
> The journal is supported by a highly distinguished Editorial Board under the Editorship of Tony Mezzacappa of Oak Ridge National Laboratory. CSD is a multi-disciplinary journal focused on scientific advances and discovery made through computational science in physics, chemistry, biology and applied science. Articles feature the numerical algorithms used and the verification and validation of codes performed. Papers may also include specific details of the enabling technologies used that made the scientific advances possible and which might not be covered in other publications with a different focus. The journal therefore offers a unique opportunity for researchers to publish all the important components of their enterprise, together with their scientific results.

If you would like any further information about CSD and how to submit your own research to the journal, please visit www.iop.org/journals/csd or email csd@iop.org.

Neil Scriven, Publisher
Computational Science & Discovery

ANS News

Call for Nominations - 2010 National Election

ANS members are urged to nominate candidates for the Society's elected offices for terms starting in June 2010. The offices to be filled are:

- Vice President/President Elect
- Four (4) - At-Large US Resident Board Members
- One (1) - At-Large Non-US Resident Board Member

Candidates for Officers and Board of Directors must be fellows, members, or emeritus members of the Society in good standing; they should be broadly representative of the disciplines pertaining to nuclear science and technology, with due consideration to the proportional representation of the voting membership.

Please send nominations by Friday, **August 7, 2009** to:

Dr. William E. Burchill
Nominating Committee Chair
American Nuclear Society
555 North Kensington Avenue
La Grange Park, Illinois 60526 USA
Fax 708-579-8283

Join the ANS Group on LinkedIn

Members are invited to join the ANS group on the business networking Web site LinkedIn, allowing them to display the ANS logo on their LinkedIn profiles and connect with ANS colleagues. The ANS group on LinkedIn also provides areas for sharing news and participating in online discussions. To join, visit http://www.ans.org/goto/nad.cgi?id=1244350800-11.

2010 ANS Student Conference

ANS and the University of Michigan Student Section will host the 2010 ANS Student Conference at the University of Michigan, April 8–11, 2010. Information will be available on the Student Sections Committee's Web site at http://www.ans.org/goto/nad.cgi?id=1244350800-21.

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 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.

TRAINING

Introductory and Advanced MCNP Visual Editor Training

Date 2009	Class	Location
July 20–24	Advanced Visual Editor	Albuquerque, NM
August 10–14	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Anaheim, CA
October 26–30	Introduction to MCNP using the MCNP/MCNPX Visual Editor	Reno, NV
November 2–6	Advanced Visual Editor	Las Vegas, NV

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.

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.

MCNPX Training

The MCNPX team at Los Alamos National Laboratory offers interactive workshops for training users in the capabilities of MCNPX. Three levels of workshop are currently offered: introductory (for users with 0-1 year of experience), intermediate (for users with 1-3 years of experience), and advanced (for users with more than 3 years of experience). The list of workshops below is somewhat tentative, as workshops may be added, removed, or modified throughout the year, depending on user interests.

2009 Classes		
August 3–7	**Inter./Safeguards**	**San Francisco**
September 14–18	**Inter./Homeland Security**	**Washington, DC**
October 5–9	**Inter./Threat Reduction**	**TBD, Europe***

***This workshop will be held at a location in Europe. Contact NEA Computer Program Service for additional information.**

Cost of the U.S. workshops is $2,300 US with an early registration discount of $300 (i.e., if paid 30 days before the scheduled workshop). This fee includes applicable Gross Receipt taxes. Workshops with fewer than 15 registrants on the early registration date are subject to cancellation or rescheduling.

In order to process non-US citizens by the class date, non-US citizens shall register at least 6 weeks prior to the start of the training class. All non-US 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.

To register send an email to Gregg McKinney, indicating the workshop of interest to you.

MCNP Class Schedule

October 13–16, 2009	Advanced: Criticality Calculations	Los Alamos, NM
October 19–23, 2009	Introduction to MCNP5 and MCNPX	Los Alamos, NM
October 26–29, 2009	Advanced: Variance Reduction	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 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.

Short Courses on Monte Carlo Analysis and Nuclear Criticality Safety

The Department of Nuclear Engineering at the University of Tennessee-Knoxville is offering short courses for radiation transport and criticality safety specialists during Tennessee Industries Week (TIW-44), August 10–14, 2009.

Radiological Assessment—This three-day course is based on selected topics from University of Tennessee courses on Radiological Assessment, Internal Dosimetry, and Uncertainty Analysis, and is intended for personnel working in areas associated with radiological assessment or internal dosimetry. Individuals professionally established in a particular area would benefit from exposure to a number of important topics, and those who are new to this area of science would benefit from the integration of a variety of important and relevant topics.

Fundamentals of nuclear physics, health physics, and internal dosimetry will be presented for review and to establish a common framework for subsequent presentations. Information presented on radionuclide transport and pathways analysis will include basic theory and solutions to several tutorial examples. Descriptions of several computer programs used for internal dosimetry and for radiological assessment will be presented, and details from several studies will be used as examples.

Information on external dosimetry generally follows material in the cited text. Materials presented on internal dosimetry will go beyond the reference text and will involve computational methods as well as

practical examples. Methods for analyzing bioassay program data will be carefully reviewed and case studies will be discussed.

Nuclear Criticality Safety—Engineers, scientists, and technical managers who wish to increase their knowledge and understanding of nuclear criticality safety will be interested in this intensive one-week short course. The topics covered in the course are based primarily on the experience of the five instructors which totals over 120 years of nuclear criticality safety related experience. Such a wealth of experience needs to be shared with the criticality safety community including both new professionals in the field as well as experienced professionals.

The course topics include illustrative applications using the SCALE system developed at Oak Ridge National Laboratory with emphasis on the Monte Carlo code KENO, standards, regulations, review of accidents, hand calculation methods, subcritical limits, code validation techniques, accident response planning and management, and transient excursion modeling.

Monte Carlo Analysis—Monte Carlo is often the method of choice to solve complex problems in nuclear criticality safety and radiation shielding. To use Monte Carlo effectively, the analyst must understand the theoretical and computational fundamentals of the method, as well as the computational options available in particular computer tools. Also, it is sometimes advantageous to create new special-purpose Monte Carlo programs to solve particular problems rather than use an existing program. The Monte Carlo course runs for 5 days and has the following objectives:

1. To familiarize the student with the basic concepts of the Monte Carlo method in a general (non-transport) context to add to the students' ability to apply method to a variety of problems in mathematics, physics, and engineering.
2. To familiarize the student with the particular mathematical techniques and probability distributions that are used in analog Monte Carlo solutions of neutral-particle radiation transport problems. This is reinforced through an in-class exercise that develops an analog Monte Carlo code solution to a simple slab transport problem.
3. To familiarize the student with the mathematical basis for variance reduction techniques: non-analog mathematical methods that increase the efficiency of the calculation without biasing the solution. This is reinforced with a continuation of the in-class exercise to incorporate variance reduction techniques.
4. To apply the lessons learned to the most commonly used Monte Carlo code, MCNP. In a series of hands-on exercises with the PC version of MCNP, the novice user will learn to set up simple problems, and all levels of users will gain experience in using the variance reduction techniques offered by the MCNP code.

Special attention will be given to the understanding of the use of adjoint calculations in transport analyses, both as an alternate means of obtaining system responses and as importance functions for accelerating Monte Carlo forward solutions. Advantages and disadvantages of the adjoint mode versus the forward mode of analysis will be described. In addition, the relationship of Monte Carlo methods to deterministic methods will be described, including strategies involving the hybrid use of both methods to more efficiently solve certain transport problems.

Case Studies in Neutron Transport Theory—The study of the neutron transport equation is a delicate blend of theoretical mathematics, numerical methods and computational strategies describing the interaction of neutrons and nuclei. Not only do we gain physical insight from the solution to the transport equation, but we also create new mathematics and numerical methods for the solution of equations. This short course is offered to those individuals who want to experience the elegance of analytical transport theory and how this theory can impact the development of transport methods for application.

This course will concentrate on transforming theoretical solution representations of the neutron transport equation into numerically useable forms. The course will study reactor physics from neutron slowing down to multidimensional multigroup theory and criticality. Though the backdrop is reactor physics, our emphasis will be on analytical manipulations of the transport equation and the numerical realization of its solutions.

The deadline for registration is **July 24, 2009**. Classes are limited in size and will be filled on a first-come, first-serve basis. For additional information on these and other courses offered during TIW-44, contact Kristin England at the University of Tennessee, phone (865) 974-5048, email kengland@utk.edu, url http://www.engr.utk.edu/nuclear/TIW.html.

Practical MCNP for the Health Physicist, Medical Physicist, and Rad Engineer

DATES: August 17-21, 2009
FEE: $1,800 per person
PLACE: The MESA Complex, Room 130, University of New Mexico-Los Alamos Campus

Monte Carlo type calculations are ideally suited to solving a variety of problems in radiation protection and dosimetry. The Los Alamos MCNP™ code is a general and powerful Monte Carlo transport code for photons, neutrons, and electrons, and can be safely described as the "industry standard." This course is aimed at the HP, medical physicist, and rad engineer with no prior experience with Monte Carlo techniques. The focus is almost entirely on the application of MCNP™ to solve a variety of practical problems in radiation shielding and dosimetry. The intent is to "jump start" the student toward using MCNP™ productively. With a little practice and study of the examples, many will find they are able to solve problems that have, in the past, been out of reach.

Course content: Extensive interactive practice sessions are conducted on a personal computer. Topics will include an overview of the MCNP™ code and the Monte Carlo method, input file preparation, geometry, source definition, standard MCNP tallies, interpretation of the output file, exposure and dose rate calculations, radiation shielding, photon skyshine, detector simulation and dosimetry. Students will be provided with a comprehensive class manual and a CD containing all of the practice problems. This course has been granted 32 Continuing Education Credits by the AAHP (2005-00-003), and 4.5 CM points by the American Board of Industrial Hygiene. The course is offered by the Health Physics Measurements Group at the Los Alamos National Laboratory and is co-sponsored by RSICC.

Registration is available online at: http://drambuie.lanl.gov/~esh4/mcnp.htm. Non-US citizens need to register 60 days in advance to allow for necessary visitor approvals. Make checks payable to the University of California (checks must be in U.S. dollars on a U.S. bank) and mail together with name, address, and phone number to:

David Seagraves, Mail Stop J573, Los Alamos National Laboratory, Group RP-2, MCNP Class, Los Alamos, NM 87545.

Inquiries regarding registration and class space availability should be made to David Seagraves, 505-667-4959, fax: 505-665-7686, e-mail: dseagraves@lanl.gov. Technical questions may also be directed to Dick Olsher, 505-667-3364; e-mail: dick@lanl.gov.

Note that this course is separate from and independent of the courses being offered by the MCNP and MCNPX Teams at LANL

OECD-NEA Workshop on Future Criticality Safety Research Needs

The Organisation for Economic Cooperation and Development (OECD) Nuclear Energy Agency (NEA), U.S. DOE Nuclear Criticality Safety Program (NCSP), Idaho National Laboratory (INL), and Idaho State University (ISU) are joining in the sponsorship and organization of the OECD-NEA Workshop on Future Criticality Safety Research Needs which will be held September 21–22, 2009, at Idaho State University, Pocatello, Idaho. The primary purpose of the workshop is to help the international nuclear criticality safety community identify future criticality safety research needs so it will be better prepared to respond to those needs as future nuclear energy systems are developed. All sessions will be conducted by leading international nuclear experts. You may contact Lori Braase, 208-526-7763, lori.braase@inl.gov, for details and visit the website at https://secure.inl.gov/oecdneaws09.

WONDER 2009

The 2nd Workshop on Nuclear Data Evaluation for Reactor Applications, WONDER 2009, will be held September 29–October 2, 2009, in Cadarache, France. The workshop is organised by the CEA and NEA. The main objective of the workshop is to review the current modelling and evaluation methods of nuclear data at low energy (thermal, resolved and unresolved ranges) and to discuss possible areas of improvements. The workshop will cover the following topics:

- nuclear data measurements: new techniques and facilities to cover reactor nuclear data needs (GEN III, GEN IV),
- theory, modelling and evaluation of nuclear data,
- evaluation in the resonance range, in particular the unresolved resonance region format and formalism, in connection with the NEA/NSC/WPEC SG 32 ‘unresolved resonance treatment for cross section and covariance representation,’
- uncertainties and covariance matrices,
- status and development of evaluation codes, and
- gamma production data for reactor physics.

Presentation sessions of forty minutes (including ten minute discussions), and shorter talks (twenty minute and five minute discussions) are planned. Space for posters will also be available during the workshop. Registration and detailed information can be found at http://www.nea.fr/html/science/meetings/WONDER2009/. You may also contact the conference secretariat for additional information: Geneviève ARROYO, CEA - Cadarache, Building 230, F-13108 Saint-Paul-Lez-Durance, France (phone +33 (0) 4 42 25 75 49, fax +33 (0) 4 42 25 70 09, email genevieve.arroyo@cea.fr).

NUCLEAR FUEL CYCLE 2009

An international training event on the nuclear fuel cycle in France will be held October 12–23, 2009, in Saclay, France. Comprehensive information and in-depth knowledge on the industrial operations related to the nuclear fuel cycle in France, from the extraction of the uranium ore to the reprocessing of spent fuel, as well as the management of waste produced during the different stages of the fuel cycle, will be presented through lectures and technical visits. The registration deadline is September 7. For further information or to obtain a registration form, please contact the organizer, Nadia Nowacki at nadia.nowacki@cea.fr. The Technical Officer is Lionel Bion, ENEN – INSTN, CEA/Saclay, F-91191 Gif-sur-Yvette Cedex, FRANCE (email lionel.bion@cea.fr, phone +33 1 69 08 30 92, fax +33 1 69 08 77 82). The url is http://www.enen-assoc.org.

3D S.UN.COP 2009

The University of Pisa (UNIPI), the Royal Institute of Technology (KTH), the University of Zagreb (FER), and the School of Industrial Engineering of Barcelona (ETSEIB) are jointly organizing the Seminar and Training to transfer competence, knowledge and experience in the area of **S**caling, **Un**certainty and 3D **Co**u**p**led Code Calculations (3D S.UN.COP 2009).

The Seminar will take place from October 12–30, 2009, Royal Institute of Technology (KTH) in Stockholm, Sweden. The deadline for registration is June 5, 2009. The seminar is divided into three parts and participants may choose to attend a one-, two- or three-week course depending on their interest in the following topics:

1) Fundamental Theoretical Aspects of the Methodologies;

2) Industrial Applications (e.g. AECL, AREVA, Westinghouse, GE) Coupling Methodologies and Code Hands-on Training (e.g. RELAP, CATHARE, PARCS, TRACE, Star-CD) and Special Sessions devoted to Computational Fluid Dymanics and Severe Accident Analysis; BWR Safety Analysis and, WWER, and CANDU Technologies;

3) Code Hands-on Training for Transient Analysis in ITF.

Further details are provided will be available soon at: http://dimnp.ing.unipi.it/3dsuncop.

SCALE Training Courses at ORNL

Date	Title	Description
October 19-23, 2009	**KENO-VI/MAVRIC**	KENO-VI: Criticality safety using the generalized geometry version of KENO MAVRIC: 3-D automated variance reduction for deep-penetration and complex shielding problems
October 26-30, 2009	**SCALE Lattice Physics and Depletion Course (ORIGEN-ARP/TRITON)**	ORIGEN-ARP: Isotopic depletion/decay and source terms using latest version of ORIGEN TRITON: 2-D reactor physics analysis using NEWT
November 3-6, 2009	**TSUNAMI Sensitivity/ Uncertainty Tools Course** (Experienced KENO users only)	1-D and 3-D sensitivity/uncertainty analysis using XSDRNPM and KENO V.a
November 9-13, 2009	**KENO V.a**	Criticality safety with the most widely used version of KENO

The registration fee is $2300 for each course. A discount of $200 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 6 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.

MCTP2009 Second European Workshop on Monte Carlo Treatment Planning

The MCTP2009 Second European Workshop on Monte Carlo Treatment Planning will be held in Cardiff (UK) from October 19–21, 2009. The introduction into clinical practice of more accurate algorithms for patient dose calculation is of paramount importance and algorithms based on the Monte Carlo method are widely regarded as the most accurate available in radiotherapy. MC techniques are also ideal research and development tools increasingly used in emerging areas including, among others, functional imaging, and molecular targeted radiotherapy. The number of publications reporting the use of MC in radiotherapy treatment planning (MCTP) has indeed increased exponentially in the last 25 years. The workshop is supported by the European Work Group on Monte Carlo Treatment Planning, Velindre NHS Trust, Cardiff University, and Cancer Research Wales.

The aim of MCTP2009 is to create a synergistic environment to maximize the integration of research, development and clinical implementation of MC technology in medical radiation physics devoted to the diagnosis and treatment of cancer. Check the workshop website, http://www.mctp2009.org/, often for current information. For information that may not be available on the website contact Campus Services Division, Cardiff University, Southgate House, PO Box 533, Cardiff CF14 3XZ (phone + 44 (0)29 2087 5508, fax + 44 (0)29 2087 4990, email workshop@mctp2009.org).

Advances in Applications of Burnup Credit for Spent Fuel Storage, Transport, Reprocessing, and Disposition

The Nuclear Safety Council of Spain (CSN) is leading in the organization of an *International Workshop on Advances in Applications of Burnup Credit for Spent Fuel Storage, Transport, Reprocessing, and Disposition*, to be held in Córdoba, Spain, October 27–30, 2009.

The objective of the workshop is to identify the benefits that accrue from recent improvements of the burnup credit analysis methodologies; to discuss and analyze the implications of applying improved burnup credit methodologies, focusing on both the safety-related and operational aspects; and to foster the exchange of international experience in licensing and implementation of burnup credit applications. Details about the workshop and the registration form can be found at http://www.csn.es/.

CONFERENCES

6th International Symposium on Release of Radioactive Materials from Regulatory Requirements

The 6th International Symposium on Release of Radioactive Materials from Regulatory Requirements will be held September 1–23, 2009, in Wiesbaden (near Frankfurt), Germany. It will focus on provisions for exemption and clearance. Both exemption and clearance have in common very low concentrations and very low total amounts of radioactivity associated with materials and equipment. These very low levels of radioactivity pose very small risks. As a consequence, regulators are faced with difficult decisions on how to make defensible regulations on how much radioactivity can be released to the general commerce and to the environment and still provide an adequate level of protection.

The scope of this symposium includes nearly all aspects of regulation of very low levels of radioactivity in seven topical sessions:

* Concepts
* Regulatory Framework
* Technical Aspects (including Standardization)
* Administrative Procedures
* Naturally Occurring Radioactive Materials (NORM)
* Public Acceptance
* Exemption and Orphan Radioactive Materials

Participants will present multi-national experiences, approaches and regulations as posters and oral presentations. The language of the Symposium is English. The conference organizer is TÜV NORD SysTec, Germany with support from the European Commission, OECD/NEA, IAEA, and the German Swiss Radiation Protection Association. Current information is posted at the website, http://www.tuev-nord.com/english/clearance.asp.

GLOBAL 2009

GLOBAL 2009 will be held in Paris, September 6–11, 2009. It will be the 9th 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). Current news will be posted at 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*. The program will include 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

The meeting website is http://www.ncsd2009.com/.

Nuclear Energy for New Europe 2009

Nuclear Energy for New Europe 2009 will be held September 14–17, 2009, in Bled, Slovenia. The theme of the conference is "Research and Education for Sustainable Nuclear Power." The primary objective of the meeting is to foster international cooperation amongst professionals active in nuclear research and educational institutions, nuclear vendors, utilities and regulatory bodies. Relevant information can be found at the conference website, http://www.nss.si/bled2009/. The conference contact is BLED2009, Nuclear Society of Slovenia, Jamova cesta 39, SI-1000 Ljubljana, Slovenia (email bled2009@ijs.si, phone +386 1 588 53 31, fax +386 1 588 53 77) url www.nss.si/bled2009.

16th Meeting on Reactor Physics and Thermal Hydraulics (XVI ENFIR)

The 16th Meeting on Nuclear Reactor Physics and Thermal Hydraulics (XVI ENFIR), which will meet in Rio de Janeiro, Brazil, September 27–October 2, 2009, will provide an international forum to present and discuss recent research and development in the issues related to innovations in nuclear technology for a sustainable future.

The scientific program will consist of oral and poster technical sessions and round table discussions on nuclear renaissance born of environmental urgency. Topics include:

- Nuclear Reactor Physics
- Nuclear Reactor Thermal Hydraulics
- Deterministic Reactor Safety Analysis
- Probabilistic Reactor Safety Analysis
- Radiation Shielding
- Fuel Cycle Management and Services
- Nuclear Reactor Materials
- Nuclear Reactor Fuel Fabrication and Design
- Nuclear Reactor Instrumentation and Control
- Nuclear Reactor Licensing and Regulation
- Nuclear Power Plant Viability, Design, Construction and Operation
- Advanced Nuclear Reactors
- Structural Mechanics
- System and Equipment Design

- Computational Fluid Dynamics
- Applied Mathematics and Computation
- Artificial Intelligence
- Man Machine Interface
- Long-lived Radioactive Waste Management
- Optimization Methods

Further details are available by contacting Professor Ricardo Barros, Polytechnic Institut (IPRJ), University of State of Rio de Janeiro (UERJ), Nova Friburgo, RJ 28630-050 BRAZIL, (email inac@inac2009.com.br, phone + 55 21 99969271 and 22 99774643, fax +55 22 25288536), The conference website is http://www.inac2009.com.br/enfir.php.

Nuclear Reactions on Nucleons and Nuclei

The International Conference on Nuclear Reactions on Nucleons and Nuclei will be held October 5–9, 2009, in Messina, Italy. The Conference will focus on the new projects and new lines of research in the field of the nuclear reactions that will be developed in the main laboratories and research centers during the next 10–15 years. Therefore, the conference is open to contributions on various kinds of nuclear reactions (also of astrophysical interest) between nuclei, and between particles and nucleons.

The conference program will consist of invited talks, oral and poster presentations of contributed papers with the main emphasis on the discussion (from experimental and theoretical points of view) of processes leading to heavy- and light-reaction products (with or without compound nucleus formation), synthesis of superheavy nuclei, investigations of baryonic resonances by hadronic or electromagnetic interactions and their decay with the production of scalar and vector mesons. The conference language will be English. Correspondence concerning the Conference should be sent to conf2009@nucleo.unime.it. Information related to the conference will be posted to http://nucleo.unime.it/conf2009/committ.html.

NEUDOS-11

The 11th 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.

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).

Specific Applications of Research Reactors: Provision of Nuclear Data

The IAEA in collaboration with NEA/OECD is sponsoring a Technical Meeting on Specific Applications of Research Reactors: Provision of Nuclear Data, October 12–16, 2009, in Vienna. Research reactors (RRs) play a key role in the development of the peaceful uses of atomic energy. The main applications of most RRs continue to be radioisotope production, neutron beam applications, silicon doping and material irradiation for nuclear systems, as well as teaching and training for human resource development. On the other hand, the last International Conference on Nuclear Data for Science and

Technology, held in Nice (France), April 22–27, 2007, placed special emphasis on atomic and nuclear data needs for basic nuclear physics research, innovative power reactors and fuel cycles (e.g. dedicated reactors for nuclear waste transmutation, accelerator driven systems, Th-U fuel cycle, etc.), as well as efforts to realize fusion reactors (e.g. ITER) and to test materials needed for such facilities, medical applications including radioisotope production, computer simulations of radiation doses to patients and advanced cancer therapies, and analytical techniques adopted for cultural heritage diagnostics and materials composition analysis. RRs occupy an important place in these areas of study and application, along with dedicated accelerator-based neutron sources. For example, some installations like Lohengrin Fission Fragment Separator at Institut Laue-Langevin (ILL) in Grenoble, France, remains a unique place to study fission fragments and their properties from thermal neutron induced fission. Equally, one has to mention the importance of integral measurements performed at RRs to validate evaluated nuclear data libraries used by neutron transport and material evolution codes. In this respect, a new initiative of the NEA Working Party on Evaluation Cooperation has been launched in order to develop methods that combine integral experimental data from RRs and various differential data to examine targeted accuracies for different reactions, isotopes and energy ranges as long as they might affect the integral neutronic parameters used for the design of new nuclear reactors. Finally, some cross-section measurements for short-lived and on-line produced radioactive target nuclei are possible only at RRs because of the high neutron fluxes available. The TM website, http://www-naweb.iaea.org/napc/physics/meetings/TM38228.html, is the optimal source for information on all aspects of the meeting. You may also contact the Secretariat, Ms. Cecilia Devia Torres, NAPC Physics Section, International Atomic Energy Agency, Office A2307, Wagramer Strasse 5, P.O. Box 100, A1400 Vienna, Austria (email c.devia-torres@iaea.org, phone +43 1 2600-6393, fax +43 1 26007-21754).

1st International Nuclear & Renewable Energy Conference

The 1st International Nuclear & Renewable Energy Conference (INREC'10) will be held March 21–24, 2010, in Amman, Jordan. It is the first in a planned series of biannual meetings focusing on the practical aspects of nuclear energy. The meeting covers the synergetic integration of nuclear engineering with electrical power production, coupling to existing power grids and the design of smart grid systems, to intelligent instrumentation and control, and monitoring of processes relevant to radiation safety and nuclear safeguards. Research work addressing alternate energy forms are also welcome.

The call for papers has been issued for work related to the following main topics:

- Nuclear Reactor Technology
- Education & training
- Policy studies & issues
- Nuclear radiation and shielding
- Nuclear physics
- Nuclear power in developing countries
- Enabling technologies for nuclear applications
- Renewable energy
- Water, Hydrogen and energy storage

Authors should follow the guidelines posted in the symposium website: http://inrec10.inrec-conf.org/default.aspx?id=submission. Submitted papers will be peer-reviewed. Accepted and presented papers will be published in the proceedings of the INREC'10 conference. Further publication in one or more of reputable energy journals of select papers presented at the conference will be considered. A poster session will also be organized to to report latest research/project findings.

You will find the necessary conference information at the website, http://inrec10.inrec-conf.org/.

2010 Topical in Radiation Protection and Shielding (RPSD), Isotopes & Radiation (IRD), and Biology and Medicine (BMD)

The Radiation Protection and Shielding Division, the Isotopes and Radiation Division, and the Biology and Medicine Division of ANS are joining to organize the 2010 Topical in Radiation Protection and Shielding (RPSD), Isotopes & Radiation (IRD), and Biology and Medicine (BMD), April 19–23, 2010, in Las Vegas, Nevada. Extended abstracts may be submitted to the technical program chair at Robert.Hayes@WIPP.ws by October 10, 2009, for topics which fall under the following session tracks:

- Medical Physics Track
- Radiation Detection and Measurement Track
- Radiation Shielding Track
- Radiation Protection Track
- Radiation Transport Calculations Track

Check the conference website, http://local.ans.org/nv/jtm2010.html, often for up-to-date information.

The 2010 International Conference on Nuclear Data for Science and Technology will be held April 26–30, 2010, at Jeju Island, South Korea. The meeting is organized by the Korean Nuclear Society and Korea Atomic Energy Research Institute under the auspices of the OECD Nuclear Energy Agency. The conference is the 11th in a series held every three years.

The purpose of these conferences is to bring together scientists and engineers involved in the production or use of nuclear data for various applications. The ND2010 conference will cover measurements, theoretical model developments, evaluation, processing, validation and dissemination activities. The scope of the conference includes the following fields of application: fission and fusion energy, accelerator technology, dosimetry and shielding, astrophysics and cosmology, safeguards and security, space, medicine, environment. The corresponding needs for improved nuclear data will be addressed.

A call for papers has been announced for abstracts on the following topics:

- Nuclear structure and decay data
- Experimental facilities and detection techniques
- Nuclear data measurements and analysis
- Nuclear theories, models and data evaluation
- Standards
- Evaluated nuclear data libraries and processing
- Validation, benchmarking of evaluated data
- Integral experiments
- Uncertainty quantification and covariance matrix
- Data dissemination and international collaboration
- Fission energy applications
- Accelerator-related applications
- Fusion technology applications
- Dosimetry and shielding applications
- Safeguards and security
- Space, cosmic-ray applications, radiation effects on electronics
- Astrophysics and cosmology applications
- Medical and environmental applications

The deadline for submitting an abstract is **September 30, 2009**. Additional information about the conference may be obtained from Jonghwa Chang, jhchang@kaeri.re.kr or Young-Ouk Lee, yolee@kaeri.re.kr. The website is http://www.nd2010.org/.

PHYSOR 2010

The PHYSOR 2010 Topical Meeting will be held May 9–14, 2010, in Pittsburgh, Pennsylvania. The conference is sponsored by the American Nuclear Society (ANS) Reactor Physics Division and co-sponsored by the ANS Mathematics and Computation Division and the American Society of Mechanical Engineers (ASME). The conference theme, *Advances in Reactor Physics to Power the Nuclear Renaissance*, will provide a platform for international experts to exchange ideas and the latest developments in reactor physics, mechanical and material engineering and related nuclear technologies in light of the nuclear renaissance.

Full papers are to be submitted by **October 31, 2009,** for one of the following tracks:

- Nuclear Data
- Deterministic Transport Theory
- Monte Carlo Methods
- Reactor Analysis and Optimization
- Reactor Design and Operation
- Nuclear Fuel Cycle
- Nuclear Criticality Safety
- Transient and Safety Analysis
- Research Reactors and Spallation Sources
- Integral Experiments and Facilities for Safety Research
- Verification, Validation and Uncertainty Analysis
- Fuel, Materials and Mechanical Analysis
- Radiation Applications and Nuclear Safeguards
- Nuclear Power and Sustainable Development

Bookmark the website, www.physor2010.org, and check it periodically for news and updates. You may also contact the PHYSOR 2010 Technical Program Chair, Mohamed Ouisloumen, Westinghouse Electric Company, 4350 Northern Pike, Monroeville, PA 15146 (phone +1-412-374-2148, fax +1-412-374-4500, email info@physor2010.org).

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.

CALENDAR

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, 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 (phone (+351) 21-994 6292, fax (+351) 21-994 1995) url http://www.rsmi2009.itn.pt/contact.html.

September 2009

6th International Symposium on Release of Radioactive Materials from Regulatory Requirements, Sept. 1–23, 2009, Wiesbaden (near Frankfurt) Germany. Current information is posted at the website, http://www.tuev-nord.com/english/clearance.asp.

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) url 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, url http://www.ncsd2009.com/.

Nuclear Energy for New Europe 2009, Sept. 14–17, 2009, Bled, Slovenia. Contact: BLED2009, Nuclear Society of Slovenia, Jamova cesta 39, SI-1000 Ljubljana, Slovenia (email bled2009@ijs.si, phone +386 1 588 53 31, fax +386 1 588 53 77) url www.nss.si/bled2009.

Release of Radioactive Materials from Regulatory Requirements: Provisions for Exemption and Clearance, 6th International Symposium, Sept. 21–23, 2009, Wiesbaden, Germany. Contact: TÜV NORD SysTec, Dr. J. Feinhals, Chairman of Executive Committee, Große Bahnstr. 31, D-22525 Hamburg, Germany (phone +49 40 8557-2253, fax +49 40 8557-2429, email jfeinhals@tuev-nord) url http://www.tuev-nord.com/english/clearance.asp.

16th Meeting on Nuclear Reactor Physics and Thermal Hydraulics (XVI ENFIR), Sept. 27–Oct. 2, 2009, Rio de Janeiro. Contact: Professor Ricardo Barros, Polytechnic Institute (IPRJ), University of State of Rio de Janeiro (UERJ), Nova Friburgo, RJ 28630-050 BRAZIL, (email inac@inac2009.com.br, phone + 55 21 99969271 and 22 99774643, fax +55 22 25288536), The conference website is http://www.inac2009.com.br/enfir.php.

October 2009

International Conference on Nuclear Reactions on Nucleons and Nuclei, Oct. 5–9, 2009, Messina, Italy. Contact: conf2009@nucleo.unime.it, url, http://nucleo.unime.it/conf2009/committ.html.

Computational Medical Physics Working Group (CMPWG III), Oct 7–9, 2009, Atlanta, GA. Contact: General Chair, Dr. Farzad Rahnema (Naz Consulting LLC) or Program Chair, Prof. Wayne Newhauser (University of Texas, MD Anderson Cancer Center).

NEUDOS-11, Oct. 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) url http://www.neudos11.tlabs.ac.za.

Technical Meeting on Specific Applications of Research Reactors: Provision of Nuclear Data, Oct. 12–16, 2009, in Vienna. Contact: Secretariat, Ms Cecilia Devia Torres, NAPC Physics Section, International Atomic Energy Agency, Office A2307, Wagramer Strasse 5, P.O. Box 100, A1400 Vienna, Austria (email c.devia-torres@iaea.org, phone +43 1 2600-6393, fax +43 1 26007-21754) url http://www-naweb.iaea.org/napc/physics/meetings/TM38228.html.

12th International Group on Research Reactors (IGORR), Oct. 28–30, 2009, CIAE-Beijing, P.R. China. Contact: igorr2009@ciae.ac.cn.

November 2009

2009 ANS Winter Meeting, Nov. 15–19, 2009, Washington, DC. Url http://www.new.ans.org/meetings/m_64.

March 2010

INREC'10, March 21–24, 2010, Amman, Jordan. Bookmark url http://inrec10.inrec-conf.org/.

April 2010

ANS Student Conference, April 8–11, 2010, Ann Arbor, Michigan. Contact Travis Trahan (tjtrahan@umich.edu) or Michaela Eddy (eddy.michaela@gmail.com) url http://committees.ans.org/students/.

1st Joint Topical Meeting of the Radiation Protection & Shielding, Isotopes & Radiation, and Biology & Medicine Divisions, April 19–24, 2010, Las Vegas, Nevada. Contact: http://local.ans.org/nv/jtm2010.html.

2010 International Conference on Nuclear Data for Science and Technology, April 26–30, 2010, Jeju Island, South Korea. Contact: Jonghwa Chang, jhchang@kaeri.re.kr or Young-Ouk Lee, yolee@kaeri.re.kr. The website is http://www.nd2010.org/.

May 2010

PHYSOR 2010, May 9–14, 2010, Pittsburgh, PA. Contact: Mohamed Ouisloumen, Westinghouse Electric Company, 4350 Northern Pike, Monroeville, PA 15146 (phone +1-412-374-2148, fax +1-412-374-4500, email info@physor2010.org) url: www.physor2010.org.

October 2010

SNA2010 and MC2010, Oct. 18–21, 2010, Tokyo. Contact: sna2010@ml.jaea.go.jp, url http://sna2010.jaea.go.jp/.