Radiation Safety Information Computational Center

No. 558   **September 2011**

You must be the change you wish to see in the world.—Mahatma Gandhi

VARSKIN 4 Workshop Canceled

Enrollment for VARSKIN 4 workshop scheduled for **October 24–25, 2011** failed to meet the minimum required enrollments and has been canceled.

NEA Data Bank Welcomes Matsumoto

On May 12, 2011, the NEA Data Bank welcomed its new Head, Mr. Kiyoshi Matsumoto. Before joining the NEA, he was the General Manager of the Centre for Computational Science and e-Systems at the Japan Atomic Energy Agency (JAEA). Mr. Matsumoto has also worked for Sandia National Laboratory in the United States (specializing in nuclear power plant safety) and the Korean Peninsula Energy Development Organisation (KEDO) in New York.

RSICC has enjoyed a long and productive relationship with the Data Bank and we look to forward to continued cooperation with the Data Bank in the future.

CHANGES TO THE RSICC CODE AND DATA COLLECTION

CCC-759/TITAN V 1.24

Georgia Institute of Technology, Atlanta, Georgia, contributed an updated version of TITAN, a time-independent deterministic radiation transport simulation code in 3-D Cartesian geometry. The hybrid approach in the TITAN code allows different transport solvers (Sn or ray-tracing) to be applied in different regions. TITAN solves both the k-effective and fixed-source forward/adjoint problems. It has been benchmarked on a number of OECD/NEA benchmark problems. Version 1.24 adds:

- SPECT simulation parallel performance improvements.
- Improved differencing schemes.
- Continuous run and command line option to load flux moments from previous run results.
- Input deck processing improvements.

Titan1.24 was tested on X86-64 computers under Windows 7 and Linux Operating Systems. The package is transmitted on CD in Windows and Linux format and includes an installation procedure, executables, source files, sample input and output and documentation. Fortran 90; X86 (RSICC ID: C00759PCX8603).

CCC-768/NRCDose72 1.2.1

Chesapeake Nuclear Services, Inc, Annapolis, Maryland, contributed an updated version of NRCDose72, a Code System for Evaluating Routine Radioactive Effluents from Nuclear Power Plants. NRCDose72, an updated version of the NRCDose program, was developed by Chesapeake Nuclear Services and integrates the NRC Fortran programs LADTAP II, GASPAR II and XOQDOQ and provides a user-friendly interface for running the codes on a PC. LADTAP, GASPAR and XOQDOQ were developed by NRC for implementing the atmospheric transport (XOQDOQ) of Regulatory Guide 1.111 and the dose modeling (GASPAR for gaseous and LADTAP for liquid releases) of Regulatory guide 1.109. These codes provide an accepted regulatory basis for assessing doses to the public as required for the licensing assessments for both license renewal and new build nuclear plants.

This version corrected adult inhalation dose factors for isotopes of niobium in the library files (LADTAP1.LIB and LADTAP2.LIB). These values all decreased, so there is no adverse impact on calculated inhalation doses. Some file handling enhancements were also added: 1) Modified LADT, GASP, and XOQD modules so that input and output (DAT) files are written and read from the subdirectory where the initial input (INP or DAT) file was read from, 2) Modified modules to check for Fortran input and output files after selection of the binary or DAT input file and enable main menu dialog buttons as appropriate. Also, disabled deletion of the output file upon exit from the program.

NRCDose72 was tested on X86 computers under Windows XP, Windows Vista and Windows 7. The distributed executables were created with the Microsoft Fortran PowerStation Version 4.0 and Microsoft Visual Basic 6.0. Source files are not included, so this code system can be run only on PCs under Windows. The package is transmitted on CD in Windows format and includes an installation procedure, PC executables, data files and documentation. Reference: "NRCDose72 for Windows User's Guide," (July 21, 2011); CNSI Report No 2010-001 (February 22, 2010). Fortran and Visual Basic; X86 (RSICC ID: C00768PCX8602).

CCC-769 /VESTA 2.0.3

VESTA 2.0.3 is a generic Monte Carlo code and depletion module interface code contributed by the Institut de Radioprotection et de Sureté Nucléaire, Cedex, France. In accordance with the generic nature of VESTA, a user can choose to use the traditional method of calculating the reaction rates with a Monte Carlo code. This gives the user an easy way to test the results obtained with the multigroup binning

approach. VESTA uses the relative flux distribution as calculated by the Monte Carlo code to calculate the absolute flux and power levels based on the input of the user (which can be constant flux irradiation or constant power irradiation). VESTA distributes the power production over the different materials using a relative power distribution, determined by every material's specific normalization power (which is in turn determined by the total recoverable energy from fission). VESTA also has the capability of performing material changes during irradiation. A user can change the density and/or temperature of any material that is not being burned (for instance, to simulate heating effects of water), etc. A user can also change the temperature of a burnable material or replace it with another burnable material (which can be a new material to simulate core reshuffling and reloading). Burnable materials that are being taken out of the model will, by default, undergo decay so that these materials can be used again at a later point in the irradiation history. Geometry changes (by using surface transformations), for instance for the simulation of control rod movement during the irradiation cycle, have also been implemented.

With VESTA the emphasis is on both accuracy and performance so that the code will be capable of providing accurate and complete answers in an acceptable amount of time compared to other Monte Carlo depletion codes without having to resort to excessive calculation power. For the current version, VESTA allows for the use of any version of MCNP/X (distributed by RSICC as MCNP5/MCNPX CCC-740) as the transport module and ORIGEN 2.2 (distributed by RSICC as CCC-371) as the depletion module. MCNP/X and ORIGEN2.2 are available from RSICC http://rsicc.ornl.gov/. The package is distributed on 3 DVDs in Linux format which includes an installation procedure, executables, scripts, data files and documentation. C/C++, XML X86 (RSICC ID C000769MNYWS00).

CCC-784/DIF3D10.0

Argonne National Laboratory, Argonne, Illinois, contributed DIF3D10.0, which revises the significantly expanded set of solution techniques using variational nodal methods introduced with DIF3D8.0/VARIANT8.0 release (distributed by RSICC as CCC-649). The nodal option of DIF3D solves the multigroup steady-state neutron diffusion equation in two- and three-dimensional hexagonal and Cartesian geometries and solves the transport equation in two- and three-dimensional Cartesian geometries. Eigen value, adjoint, fixed source and criticality (concentration) search problems are permitted as are anisotropic diffusion coefficients. Flux and power density maps by mesh cell and region-wise balance integrals are provided. Although primarily designed for fast reactor problems, upscattering and for finite difference option only internal black boundary conditions are also treated.

The package includes the referenced documents on one CD which also contains a Unix tar file which includes source code, sample problem input and output, code dependent BCD and binary card image file descriptions, scripts, a README file, an internal memorandum describing the revised Variant formulations and an internal technical memorandum for the HMG4C homogenization software. Fortran 90 and C source code for Linux PCs, MacOSX and SUN (RSICC ID: C00784MNYCP00).

PSR-550/ALICE2011

A collaboration of Lawrence Livermore National Laboratory, Livermore, California; Institut f. Reaktorsicherheit, Karlsruhe, Germany; Los Alamos National Laboratory, Los Alamos, New Mexico, Institute of Applied Physics, Academy of Sciences, Chisinau, Moldova, and the Institute of Physics and Power Engineering, Obninsk, Russia, produced a newly frozen version of this statistical model code system to calculate particle spectra from HMS (Hybrid Monte-Carlo Simulation) precompound nucleus decay. This release is designated HMS-ALICE-2011. The code uses the HMS precompound decay model, the Weisskopf-Ewing evaporation model (optional with s-wave approximation) and Bohr-Wheeler fission models, all with multiple particle emission cascades to estimate single- and double-differential emission spectra and product yields of nuclear reactions induced by probes from photons to heavy ions. Initial excitations up to 1 GeV should be tolerated, but a range of 0.2–250 MeV is advised as pion production channels have not yet been programmed into the physics. Product yields include A, Z of fission products. An option exists to give output of exclusive particle emission spectra of up to multiplicity 3. This version

of ALICE gives the option (parm=512) to override the A=12 default mass number as the mass at or below which Fermi decay is implemented. This version also differs from earlier versions in allowing isotopic targets to be used except for incident heavy ions (A>1.)It contains cluster exit channels on demand, precompound and compound (use PARM=128). An ENDF output for 1,2,3 n,p,alpha out reactions is an option. The logic used could be extended to include other clusters and to higher multiplicities if needed. Earlier versions permitted setting of coincident detector 'gates' to predict spectra such as might be measured in an experiment with multiple detectors.

ALICE2011 runs on PC under Windows or Linux and on Mac computers. A Fortran 95 compiler is required on all systems. This package has no executables in the package distribution. The package is transmitted on a CD in a WinZIP file which contains documentation, source code, and example problems. Reference: Manual (July 27, 2008). Fortran; PC and Mac (RSICC ID: P00550PCX8603).

DLC-248/TENDL-2010-ACE

NRG - Nuclear Research and Consultancy Group, Petten, The Netherlands, contributed this new library for use with MCNP X. The TENDL-2010 library (TALYS-based Evaluated Nuclear Data Library), developed at NRG, was processed to the ACE format for use with Monte Carlo codes. It consists of a set of 348 neutron data files for isotopes from F-19 to Po-209, stable and long-lived nuclides, completely and consistently evaluated using the TALYS-1.2 nuclear reaction code package (distributed by RSICC as TALYS 1.2/PSR-548). For all isotopes and incident particles, the same methodology is applied to obtain cross sections, angular distributions, double differential data, gamma production data, isomeric production cross sections covariance information. The result is a nuclear data library with mutually consistent reaction and covariance information for all isotopes. ACE files are provided for neutrons, protons, deuterons, tritons, helions and alpha particles. The data libraries and documentation are transmitted on DVDs in WinZIP files which includes data libraries and xsdir files. ASCII card images; Unix workstation, PC, or Mac (RSICC ID: D00248MNYCP00).

ANS News

Edward Teller Award Presented to Fusion Energy Researchers

The American Nuclear Society (ANS) has presented Edward Teller Awards to Bruce A. Remington and Christine Garban-Labaune, two researchers in the field of fusion energy, ANS President Eric P. Loewen, PhD, announced today. "These two distinguished individuals have advanced our understanding of fusion science and technology and we're proud to acknowledge them," Loewen said.

Bruce A. Remington, Group Leader for Material Dynamics in the High Energy Density Experiments program at Lawrence Livermore National Laboratory (LLNL), has pioneered the use of lasers to study matter under ultra-high pressure conditions. A physicist at LLNL since 1988, and with a BS degree in mathematics and physics from Northern Michigan University and a PhD from Michigan State in nuclear physics, Dr. Remington's award recognizes his pioneering contributions in three major areas of high energy density research, namely, Inertial Confinement Fusion in which he performed seminal experiments, High Energy Density Laboratory Astrophysics where he was instrumental in the creation and development of the field, and Material Dynamics at Extreme Pressure and Strain Rate for the pioneering use of lasers to achieve high pressure conditions in solid materials.

Christine Garban-Labaune, Director of Research at Centre National de la Recherche Scientifique, Laboratoire pour l'Utilisation des Lasers Intenses (LULI), is internationally recognized for important contributions to understanding the plasma physics associated with laser-plasma interactions in inertial confinement fusion (ICF). She has been a group leader of Laser-Plasma Interaction Physics at the Laboratoire pour L'Utilization des Lasers Intenses at the École Polytechnique since 1984 after receiving her PhD from there in 1982. She received the 2009 Grand Prix Lazare Carnot de l'Académie des Science

Award and was elected to the Legion d'Honneur in 2010. This award recognizes that for more than 35 years, she has relentlessly devoted her energy to the field of plasma physics applied to Inertial Confinement Fusion and has worked to shed clarity on the plasma physics associated with laser plasma interactions (LPI) in inertial confinement fusion.

Robert Kauffman, the chair of the Awards Committee for the Seventh International conference on Inertial Fusion Sciences and Applications (IFSA), said, "Dr. Garban-Labaune and Dr. Remington are among the most distinguished of my colleagues in the field of fusion energy. As chair of the awards committee, I'm honored to recognize them for their work."

The Edward Teller Award recognizes pioneering research and leadership in the use of laser and ion-particle beams to produce unique high-temperature and high-density matter for scientific research and for controlled thermonuclear fusion. This award was established by the Fusion Energy Division of ANS which provided an endowment for its funding.

Concluded Loewen, "The breadth of seminal and vital research being done by ANS members is breathtaking, both in its originality and importance to the future of fusion. On behalf of the premier professional society for the nuclear community, we applaud the work of Drs. Garban-Labaune and Remington."

ANS press release, La Grange Park, IL (September 21, 2011)

Nuclear Non-Proliferation Technical Group

The ANS Board of Directors approved the formation of the Nuclear Non-Proliferation Technical Group. When you receive your 2012 membership renewal notice in mid-September, be sure to review the full list of divisions and technical groups. Two are included with your membership. Additional division memberships are only $8.50 each. Go to the NNTG web site for information about the work of the new group, http://www.ans.org/goto/nad.cgi?id=1315803600-6.

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

MCNPX and Visual Editor Training

Classes are taught using the most recent (beta) version of the Visual Editor Code. All class attendees must have a valid MCNP/MCNPX RSICC license. Bring proof of receipt (letter or email) to the class.

2011 Classes for Visual Editor		
October 3–7	Introduction to MCNP using the MCNPX Visual Editor	Knoxville, TN

November 14–18	Introduction to MCNP using the MCNPX Visual Editor	London, U.K.
	2012 Classes for Visual Editor	
January 9–13	MCNP/MCNPX Intermediate Workshop	Las Vegas, NV
January 16–20	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV
January 23–27	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Las Vegas, NV
February 20–24	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Paris, France
February 27–March 2	MCNPX Intermediate Workshop	Paris, France
April 16–20	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV
April 23–27	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Las Vegas, NV
May 14–18	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Honolulu, HI
May 21–25	MCNPX/MCNPX Intermediate Workshop	Honolulu, HI
July 16–20	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Livermore, CA
July 23–29	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Anaheim, CA
July 29–August 3	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Anaheim, CA
August 6–10	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Livermore, CA
September 10–14	MCNP/MCNPX Intermediate Workshop	Washington DC
September 17–21	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Myrtle Beach, SC
September 24–28	Intermediate MCNPX Visual Editor with a special emphasis on tallies and variance reduction.	Myrtle Beach, SC

The introductory workshops combine teaching on MCNP basics and how to create MCNP input files using the Visual Editor. The intermediate Visual Editor workshops focus on more advanced topics such as tallies and variance reduction using the Visual Editor.

Exercises will focus on creating input files and visualizing output data with the Visual Editor. Attendees are encouraged to bring their own input files for viewing and modifying in the Visual Editor; this is particularly important for the intermediate workshop.

The course description and registration information can be found at
http://www.mcnpvised.com/index.html.

2011 Classes for MCNPX		
November 7–11	MCNPX Intermediate Workshop	London, U.K.
2012 Classes		
January 9–13	MCNPX Intermediate Workshop	Las Vegas, NV
February 27–March 2	MCNPX Intermediate Workshop	Paris, France
May 21–25	MCNPX Intermediate Workshop	Honolulu, HI

The MCNPX team at Los Alamos National Laboratory offers interactive workshops for training users in the capabilities of MCNPX at the intermediate level.

The list of workshops is tentative, as workshops may be added, removed, or modified throughout the year, depending on user interests. Workshops with fewer than 12 registrants on the early registration date are subject to cancellation or rescheduling.

In order to process non-U.S. citizens by the class date, non-U.S. citizens must register at least 6 weeks prior to the start of the training class. All non-U.S. citizens who reside in countries listed in the U.S. Code of Federal Regulations, Title 10, Part 810.8, are required to register at least 8 weeks prior to the start of the training class. These participants must be processed by the DOE and should not make travel arrangements until approval from DOE has been obtained.

Additional information about the courses can be found at the website, http://mcnpx.lanl.gov/. To register send an email to Randy Schwarz at randyschwarz@mcnpvised.com, indicating the workshop of interest to you.

Analytical Benchmarks: Case Studies in Neutron Transport Theory

A training course on "Analytical Benchmarks: Case Studies in Neutron Transport Theory," sponsored by the Nuclear Energy Agency Data Bank, will be held March 5–9, 2012, at the NEA, Issy-les-Moulineaux, France. Using the Handbook (including computer codes) published on "Analytical Benchmarks for Nuclear Engineering Applications (Case Studies in Neutron Transport Theory)" the course is intended for transport methods developers and those who teach reactor physics and transport theory. In addition, the course would be appropriate for anyone with an analytical interest in solving equations and the application of numerical methods to obtain extreme accuracy. Prof. Barry D. Ganapol will instruct the class.

CONFERENCES

Progress in Nuclear Energy and Education

The Progress in Nuclear Energy and Education Conference will be held March 20–22, 2012, in London, UK. The conference provides a forum for nuclear scientists to discuss the cutting edge science and engineering aspects of nuclear energy together with increasingly more important safety, policy, resource and educational requirements of the industry.

The main areas of interest for this conference are advanced and evolutionary reactor designs, the safety of such plants, policy, engineering and resources, and educational challenges such as the shortfall of experience and skills in the sector.

Abstract submission is open for oral and poster presentations on the following topics:

1. Advanced and Evolutionary Reactors
   Generation 3-plus and 4 reactors and modularization
   Small reactors in localized applications

2. Policy/Economics
   Nuclear fission for future energy
   Nuclear energy policy development

3. Safety
   New reactor types
   Fuel cycles and reprocessing
   Environmental impact assessment of new builds
   Regulatory issues
   Safety implications of novel fuel designs

4. Engineering and Resources
   New computational modeling needs
   Waste storage
   Developing new plant designs

5. Educational and Resource Challenges
   Human resources pressures
   Educational initiatives

Abstracts may be submitted using the online submission system on the conference website by **October 14, 2011**.

The conference is organized by Elsevier in association with the Dalton Nuclear Institute, and endorsed by the Nuclear Industry Association. The supporting journal is Progress in Nuclear Energy. Visit www.progressnuclearenergy.com for more information, to submit your abstract and to register.

PHYSOR 2012

PHYSOR 2012, hosted by the ANS Oak Ridge/Knoxville Local Section, will be held April 15–20, 2012, in Knoxville, Tennessee. The technical program will meet the high standards of recent PHYSOR meetings, including timely and relevant special topics. Students will be included in all events and activities. Exciting workshops and technical tours will be offered. Full Papers are solicited in the following 16 broad tracks:

1. Core Analysis Methods
2. Deterministic Transport Theory
3. Monte Carlo Methods and Developments
4. Reactor Concepts and Designs
5. Education in Reactor Physics
6. Reactor Operation and Safety
7. Fuel Cycle and Actinide Management
8. Advanced Modeling and Simulation in Reactor Physics
9. Research Reactors and Spallation Sources
10. Nuclear Criticality Safety
11. Nuclear Data
12. Sensitivity and Uncertainty Analysis
13. Fuel, Material, Mechanical Analysis and Behavior
14. Reactor Transient and Safety Analysis
15. Experimental Facilities and Experiments

16. Radiation Applications and Nuclear Safeguards

The deadline for submission of full papers is **October 31, 2011**. For further news, information, and instructions, please visit http://physor2012.org.

ICRS-12 and RPSD-2012

The 12th International Conference on Radiation Shielding (ICRS-12) and the 17th Topical Meeting of the Radiation Protection and Shielding Division of the American Nuclear Society (RPSD-2012) will be held in Nara, Japan, September 2–7, 2012. The first ICRS conference was held in 1958 at Cambridge, United Kingdom. Since then, ICRS has been held in Europe, Japan, and the United States. The ICRS series occurs every four or five years.

This conference, organized by the Atomic Energy Society of Japan, will explore the scientific, technological and engineering issues associated with particle and ionizing radiation shielding in its broadest context, including nuclear energy systems, accelerator facilities, space and other radiation environments. It is one of the premier international radiation shielding events, regularly drawing hundreds of the world's top scientists and engineers.

The conference will open with a special session summarizing the facts and circumstances surrounding the Fukushima accident and consequent environmental assessment and recovery. The special session will complement the conference topics. Abstracts may be submitted electronically beginning December 1, 2011, on the following topics:

Fission Reactor Facilities
Fusion Reactor Facilities
Fuel Cycle Facilities
Transportation & Storage Issues
Waste Management Facilities
Accelerator Facilities
Medical Facilities
Aircraft Dosimetry & Space Technology
Medical Applications
Industrial Applications
Shielding Experiments & Benchmarks
Source Term Measurement & Evaluation
Activation Measurement & Analysis
Standardization of Radiation Field & Measurement

Monte Carlo Methods & Applications
Deterministic Methods & Applications
Empirical Methods & Applications
Visualization & User Interface
Nuclear Data
Advanced Phantoms
Shielding Materials
Radiation Detections & Measurements
Radiation Protections
Radiation Dosimetry
Decommissioning
Clearance
Environmental Assessment
International Collaboration

The deadline for submitting abstracts is February 29, 2012. Check the website http://www.icrs12.org or contact ICRS-12 & RPSD-2012 Local Organizing Committee secretariat (office@icrs12.org) for further information.

CALENDAR

October 2011

2011 IEEE Nuclear Science Symposium and Medical Imaging Conference, Oct. 23–29, 2011, Valencia, Spain. Contact: David Townsend (phone +65-64788722, email david_townsend@sbic.a-star.edu.sg or nssmic2011@ciemat.es) url www.nss-mic.org/2011/.

2011 ICRP Symposium on the International System of Radiological Protection, Oct. 23–30, 2011, Bethesda, Maryland, USA. Contact: Lynn Lemaire (email admin@icrp.org) url www.icrp.org.

2011 Fall Meeting of the American Physical Society's Division of Nuclear Physics, Oct. 26–29, 2011, East Lansing, Michigan, USA. Contact: Jennifer Carducci (email dnp2011@nscl.msu.edu) url meetings.nscl.msu.edu/dnp2011.

ANS Winter Meeting and Nuclear Technology Expo, Oct. 30–Nov. 3, 2011, Washington, D.C., USA. Contact: Joe Turnage (phone 410-470-4607) url www.new.ans.org/meetings/m_77.

- 1st Annual ANS Small Modular Reactor 2011 Conference, Oct. 30–Nov. 3, 2011, Washington, D.C., USA. Contact: Thomas Sanders (phone 505-281-5923, email formbj@aol.com) url www.new.ans.org/meetings/m_77.
- Young Professional Congress, Oct. 30–Nov. 3, 2011, Washington, D.C., USA. Contact: Peter Caracappa (phone 518-421-6931, email caracp3@rpi.edu) url www.new.ans.org/meetings/m_77.

November 2011

IPET 2011, 2nd International Conference on Clinical PET and Molecular Nuclear Medicine, Nov. 8–11, 2011, Vienna, Austria. Contact: D. Umgeher, IAEA (phone +43-1-260021324, email d.umgeher@iaea.org) url www.iaea.org.

International Conference on Research Reactors, Nov. 14–18, 2011, Rabat, Morocco. Contact: M. Neuhold, IAEA (phone +43-1-260021314, fax +43-1-26007, email m.neuhold@iaea.org) url www.iaea.org.

Technology Meeting on Fast Reactor Physics and Technology, Nov. 14–18, 2011, Kalpakkum India. Contact: Rozanna Bojdo, IAEA (phone +43-1-260021754, email r. bojdo@iaea.org) url www.iaea.org.

HST '11, 11th Annual IEEE Conference on Technologies for Homeland Security, Nov. 15–17, 2011, Boston, Massachusetts, USA. Contact: IEEE (email information@iccc-hst.org) url www.ieee-hst.org.

December 2011

9th International Conference on CANDU Maintenance, Dec. 4–6, 2011, Toronto, Ontario, Canada. Contact: CNS (phone 416-977-7620, fax 416-663-3504, email cns-snc@on.aibn.com) url cmc2011.ca/cmc2011html/cmc2011_home.html.

Global 2011, Dec. 11–15, 2011, Chiba, Japan. Contact: JAEA (email global2011@jaea.go.jp) url http://global2011.org.

Nuclear Power International 2011, Dec. 13–15, 2011, Las Vegas, Nevada, USA. Contact: Libby Smith, PennWell (phone 918-831-9560, fax 918-831-9161, email nuclearconference@pennwell.com or registration@pennwell.com) url www.nuclearpowerinternational.com.

March 2012

Progress in Nuclear Energy and Education Conference, March 20–22, 2012, London, UK. For details visit: http://www.progressnuclearenergy.com.

April 2012

- PHYSOR 2012, April 15–20, 2012, Knoxville, Tennessee. Contact: http://physor2012.org.

June 2012

2012 ANS Annual Meeting, June 24–28, 2012, Chicago, Illinois, USA. Follow the website for up-to-date information, http://www.new.ans.org/meetings/c_1.

- ICAPP '12, June 24–28, 2012, Chicago, Illinois. Contact: Lynne Schreiber, Administrator (email icapp@ans.org) url http://www.icapp.ans.org/icapp12/.

- NFSM 2012 "Nuclear Fuels and Structural Materials for the Next Generation Nuclear Reactors," June 24–28, 2012, Chicago, Illinois. Follow the website for up-to-date information, http://www.new.ans.org/meetings/c_1.
- Decommissioning, Decontamination and Reutilization and Technology Expo, June 24–28, 2012, Chicago, Illinois. Contact: Sue Aggarwal, Technical Program Chair (phone 303-984-5788, email saggarwal@nmnuclear.com) url http://ddrd.ans.org.

September 2012

ICRS-12 (12th International Conference on Radiation Shielding) and RPSD-2012 (17th Topical Meeting of the Radiation Protection and Shielding Division of the American Nuclear Society), Sept. 2–7, 2012, Nara, Japan. Contact: ICRS-12 & RPSD-2012 Local Organizing Committee secretariat (office@icrs12.org) url http://www.icrs12.org/.

November 2012

2012 ANS Winter Meeting and Nuclear Technology Expo, Nov. 11–15, 2012, San Diego, California, USA. Follow the website for up-to-date information, http://www.new.ans.org/meetings/c_1.