Radiation Safety Information Computational Center

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The smallest actual good is better than the most magnificent promise of impossibilities.—Macaulay

CHANGES TO THE RSICC CODE AND DATA COLLECTION

CCC-767/SWORD 4.0

U.S. Naval Research Laboratory, Washington, D.C., through the Department of Homeland Security, Washington, D.C., has released an update to SWORD. SoftWare for Optimization of Radiation Detectors (SWORD) is a framework to allow easy simulation and evaluation of radiation detection systems. It is targeted at system designers, who want to evaluate and optimize system parameters without actually building the hardware first, sponsors who need to evaluate proposed or actual system designs independent of the supplier, without having access to actual hardware, and operators who want to use simulation to evaluate observed phenomena.

SWORD 4.0 includes updates on:

- Moving object simulation
- Run Manager for managing multi-core runs
- Standard library tab reorganized
- Standard library objects added and/or improved
- Improved image viewer with containment circle calculation
- Spectrum Analyzer line fitting and identification tool
- Improved array handling for imaging detectors
- Improved Compton imager analysis to allow unrestricted image plane selection
- Coded Aperture imager analysis improvements
- Analysis setup window rearranged and expanded
- Coded Aperture mask definition by file input
- Surface shooting towards inside of object
- Improved surface and volume shooting support for MCNPX
- Muonic x-ray shot type
- Neutron and proton energy cut-offs user-adjustable for Geant4
- MCNPX tally parsing rewritten to work from MCTAL file
- Added perspective view to main geometry viewer window
- Added white background option to geometry viewer
- User can specify flux.dat and heprep file names
- Virtual machine OS upgraded to Ubuntu 10.04

SWORD gives the user the option of running a simulation using one of two well-known simulation engines: GEANT 4 from CERN and MCNPX from Los Alamos National Laboratory. Installation instructions are included in the documentation. Note: GEANT4 V8.1 is included with this distribution. MCNPX is distributed as a separate package from RISCC. Users should be aware that MCNPX precompiled executables will not work with this version of SWORD. If the user desires to use MCNPX with SWORD, the user will have to cross compile MCNPX.

SWORD 4.0 runs on any Intel-based Windows, Linux or Mac OSX platform with at least 3 GB of RAM and 30 GB of free disk space. Current distribution is available as a VMware virtual appliance only available at (http://www.vmware.com/). It can run under a free VMware server or player (player recommended) on a Windows or Linux host or under VMware Fusion (purchase only) on an Intel-based Mac OSX host. SWORD 4.0 was tested at RSICC using Windows and Linux platforms. The package is distributed as a zip file (created with WinZip 11 on Windows XP) which contains the virtual appliance, reference, and installation and tutorial guides. C++, Java, Python; PC, Linux, and Mac. (C00767MNYCP03).

PSR-566/FLANGE-ORNL

FLANGE-ORNL was contributed by Oak Ridge National Laboratory, Oak Ridge, Tennessee through the Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France. FLANGE-ORNL calculates appropriate loads, stresses, and displacements for the flanges, bolts, and gaskets that

comprise a flanged piping joint for internal pressure or moment loading on the pipe, temperature difference between the flange hub and ring, and variations in bolt load that result from pressure, hub-ring temperature gradient and/or bolt-ring temperature differences. Flanges considered may be tapered-hub, straight or blind. In common with all shell-type analyses, the analysis gives anomalous results at points of abrupt thickness change or meridional direction change. In particular, the stresses at the juncture of the hub to the ring represent only the gross loading effect; detailed local stresses are not determined by the theory. Displacements should be represented fairly accurately.

The FLANGE-ORNL package includes a self-extracting compressed Windows file that includes FORTRAN-IV source files, sample input and output files, and the referenced document. No executables are included in the package. FORTRAN-IV; IBM 360 (P00566I036000).

CCC-789/ SRNA-2K5

SRNA-2K5, a code for Proton Transport Simulation by Monte Carlo Techniques, was contributed by the Institute of Nuclear Sciences VINCA Physics Laboratory (010), Beograd, Serbia, through the OECD Nuclear Energy Agency Data Bank (NEADB), Issy-les-Moulineaux, France. SRNA-2K5 performs a Monte Carlo transport simulation of protons in 3D source and 3D geometry of arbitrary materials. The proton transport is based on a condensed history model and on a compound nuclei decay model created in non-elastic nuclear interaction by proton absorption. The SRNA-2K5 package was developed for time-independent simulation of proton transport by Monte Carlo techniques for numerical experiments in complex geometry, using PENGEOM from PENELOPE with different material compositions, and arbitrary spectrum of proton generated from the 3D source. This package, developed for 3D proton dose distribution in proton therapy and dosimetry, is based on the theory of multiple scattering. Included are the referenced documents, source, data, Windows executables, and sample input and output files. FORTRAN 77 and C; PC, Linux, Mac (C00789PCX8600).

BCC-004/MCNP6_BETA2/MCNP5/MCNPX

Los Alamos National Laboratory, Los Alamos, New Mexico, USA has contributed a new BETA version of MCNP6. MCNP6 is simply and accurately described as the merger of MCNP5 and MCNPX capabilities, but it is much more than the sum of these two computer codes. MCNP6 is the result of five years of effort by the MCNP5 and MCNPX code development teams. These groups of people, residing in Los Alamos National Laboratory's (LANL) X Computational Physics Division, Monte Carlo Codes Group (XCP-3) and Decision Applications Division, Radiation Transport & Applications Team (D-5) respectively, have combined their code development efforts to produce the next evolution of MCNP. While maintenance and bug fixes will continue for MCNP5 1.60 and MCNPX 2.7.0 for upcoming years, new code development capabilities only will be developed and released in MCNP6. In fact, this initial release of MCNP6 (MCNP6_Beta2) contains 16 new features not previously found in either code. These new features include the abilities to import unstructured mesh geometries from the finite element code ABAQUS, to transport photons down to 1.0 eV, to transport electrons down to 10.0 eV, to model complete atomic relaxation emissions, and to generate or read mesh geometries for use with the LANL discrete ordinates code PARTISN, amongst other capabilities:

- Adjoint-based sensitivity coefficients
- Geometry mesh file creation
- Unstructured mesh geometry
- Low energy photon and electron transport for atomic cross sections
- Complete photon-induced atomic relaxation
- Explicit tracking of all charged particles in magnetic fields.
- Nested *dxtran* spheres
- Uncollided secondaries
- Time bins for mesh tallies
- Enhanced photon form factors
- Surface and cell flagging are now possible with MCNP5-style mesh tallies
- Upgrade to CEM03.03 and LAQGSM03.03
- Generation of gamma rays from muonic atoms
- Pre-collision next event estimator
- Double differential particle interaction cross section generator
- Corrections

RSICC Note: MCNP6_Beta2 is a true BETA version. It is intended for intermediate and advanced users to begin testing this merged code in their field of expertise. It is not intended to be used for production calculations. Intel 11 is the only supported compiler. RSICC successfully compiled and tested MCNP6_Beta2 with Intel 11.1. No windows installer is included in the package. (The Cost Recovery Fee is waived for this package.)

The package is distributed on two DVDs. The executables-only package, B00004MNYCP03, includes one DVD containing the BETA release [(executables for PC Windows, PC Linux, and MacOS systems), MCNPDATA, documentation, and V&V documentation] and one DVD containing the previous MCNP5/MCNPX-EXE release, C00740MNYCP09, including MCNP5/MCNPX executables for PC Windows and PC Linux systems; MCNPDATA; test problems and the referenced documentation.

The B00004MNYCP02 package includes one DVD containing the BETA release (with the source code along with the "executable" items mentioned above) and one DVD containing the previous MCNP5/MCNPX release, C00740MNYCP08, including source code, make files, build scripts, and some additional documentation and utilities for use with MCNP5/MCNPX. Export control regulations restrict the distribution of FORTRAN source code. If restrictions apply, RSICC will send the executables-only version. Please order the package you prefer, and your preference will be honored if possible. FORTRAN 90 and C; Windows PCs, Linux PC, Mac for MCNP6_Beta2 and MCNP5 and Sun for MCNPX [Package ID: B00004MNYCP02 (full source distribution) and B00004MNYCP03 (executables-only distribution)].

SCIENCE EDUCATION PROGRAMS AT OAK RIDGE NATIONAL LABORATORY

Looking for an internship or post graduate opportunity at Oak Ridge National Laboratory? The Science Education Programs at Oak Ridge National Laboratory provide paid opportunities for undergraduates, grad students, recent graduates, and faculty to participate in high-quality research alongside world-class scientists to solve real-world problems. Opportunities are available for internships and co-ops, research appointments, and sabbaticals.

You can access all available opportunities through the website at http://www.orau.org/ornl. The Talent and Opportunity System allows you to create a profile, and then answer only 5 or 6 questions for each program or job posting for which you apply.

All levels of participants from undergraduates to faculty are encouraged to publish research papers with their mentors. Please browse through the Research Profiles on the different participants and their research experiences at the right hand side of the bottom of the web site listed above. Also, there is a video of research participants at ORNL sharing their thoughts on how access to world-class research facilities and staff have catapulted their careers in science and technology. You can find it on YouTube at http://ow.ly/2EQLz.

CONFERENCES, COURSES, SYMPOSIA

RSICC attempts to keep its users and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email to bennas@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.

2012 Classes for Visual Editor		
February 20–24	Introduction to MCNP/MCNPX using the MCNPX Visual Editor. The NEA handles registration for this course. Click here to go to the Registration Page.	Paris, France
April 16–20	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Las Vegas, NV

2012 Classes for Visual Editor		
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
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 30–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	Introduction to MCNP/MCNPX using the MCNPX Visual Editor	Myrtle Beach, SC
September 17–21	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.

MCNPX Classes 2012		
February 27–March 2	MCNP/X Intermediate Workshop	Paris, France
May 21–25	MCNP/X Intermediate Workshop	Honolulu, HI
July 2–6	MCNP/X Intermediate Workshop	Barcelona, Spain
September 24–28	MCNP/X Intermediate Workshop	Washington, DC

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.

SCALE

Spring 2012 Training Courses

Date	Title	Location	Registration Fee
April 9–13	**SCALE Lattice Physics and Depletion Course** *2D lattice physics calculations; 1D, 2D, and 3D depletion calculations; resonance self-shielding techniques including Monte Carlo; Dancoff factors for non-uniform lattices; generation of libraries for ORIGEN-ARP*	ORNL Oak Ridge, TN, USA	$2000
April 23–25	**SCALE/ORIGEN Activation and Decay Calculations Course** *Isotopic depletion/decay and source term characterization using ORIGEN/ORIGEN-ARP*	ORNL Oak Ridge, TN, USA	$1500
April 26–27	**SCALE Criticality Accident Slide Rule Course** *The Slide Rule for Nuclear Criticality Accident Response is intended for criticality safety and radiation protection engineers, health physicists, and emergency response personnel. The Slide Rule is available in working hand-held hard copy and as Windows PC software, and the workshop includes hands-on training with both versions. A hard copy of the working hand-held Slide Rule is available for an additional fee.*	ORNL Oak Ridge, TN, USA	$1200
April 30–May 4	**SCALE Criticality and Shielding Course** *Basic criticality calculations with KENO-VI;*	ORNL Oak Ridge,	$2000

Date	Title	Location	Registration Fee
	Shielding analysis with automated variance reduction using MAVRIC; Criticality accident alarm system analysis	TN, USA	
May 7–11	**SCALE Sensitivity and Uncertainty Analysis Course** *TSUNAMI: 1-D and 3-D sensitivity/uncertainty analysis using TSUNAMI with XSDRNPM and KENO. Advanced S/U methods for code and data validation.*	ORNL Oak Ridge, TN, USA	$2000
May 14–18	**SCALE Burnup Credit Calculations Course** *A new course in burnup credit analysis for transportation casks and fuel storage racks using ORIGEN-ARP, STARBUCS, and TRITON.*	ORNL Oak Ridge, TN, USA	$2000
May 21–25	**SCALE Lattice Physics and Depletion Course** *2D lattice physics calculations; 1D, 2D, and 3D depletion calculations; resonance self-shielding techniques including Monte Carlo; Dancoff factors for non-uniform lattices; generation of libraries for ORIGEN-ARP*	NEA Data Bank, Paris, France	€2000

Foreign National Visitors: You **must** register **at least 40 days** in advance to obtain security clearance.

Payment must be received at least one week prior to training course.

For more information and online registration, please visit http://scale.ornl.gov/training.shtml

Course on Practical MCNP for the Health Physicist, Medical Physicist, and Radiological Engineer

Los Alamos National Laboratory will present a course on "Practical MCNP for the Health Physicist, Medical Physicist, and Radiological Engineer" on July 9-13 at the University of New Mexico, Los Alamos, NM, MESA Complex, Room 130. This 4.5 day course introduces the basic concepts of Monte Carlo, demonstrates how to put together a MCNP input file, and illustrates some health and medical physics applications of the code. No prior knowledge of Monte Carlo is assumed. This course is ideally suited for professionals interested in performing radiation shielding and skyshine calculations, detector simulation studies, or dosimetry. For more information about this course, visit the website at http://www.lanl.gov/orgs/rp/mcnp.shtml.

MCNPX-PoliMi Training Workshop

The Detection for Nuclear Nonproliferation Group at the University of Michigan will present the MCNPX-PoliMi Training Workshop at the University's North Campus on July 25-26, 2012. The MCNPX-PoliMi code is an enhanced version of MCNPX v. 2.6.0 that provides unique capabilities for simulating correlated-particle measurements and detector response. This two-day workshop will introduce new users to the capabilities of the MCNP-PoliMi code and acquaint experienced users with new features.

- MCNPX-PoliMi source capabilities
- Detector-response calculations
- Simulations of time-of-flight and cross-correlations distributions
- Simulations of multiplicity distributions

Workshop attendees should have software licenses for both MCNPX and MCNP-PoliMi. There are two separate licenses that are available by registration and request at the Radiation Safety Information Computational Center (RSICC) at Oak Ridge National Laboratory. Requests for the required software licenses may be made at the RSICC website at www-rsicc.ornl.gov. It is recommended that requests for the software licenses be submitted as soon as possible as the licensing procedure can take upwards of several weeks to complete.

Registration available online at http://www-ners.engin.umich.edu/labs/dnng/polimi_workshop.html. Seating is limited; therefore, the registrations will be accepted on a first-come-first-serve-basis.

CONFERENCES

MARC IX (Methods and Applications of Radioanalytical Chemistry) will be held March 25–30, 2012, in Kailua-Kona, Hawaii. The MARC conferences promote a broad exchange of information on radioanalytical chemistry among scientists from participating countries. The MARC VIII conference attracted participants from more than 35 countries. The central geographic location of Hawaii encourages participation and attendance of scientists from Pacific Rim countries as well as providing European scientists with easy accessibility via major US airports. The scope of the conference includes, but is not limited to, techniques such as instrumental and radiochemical activation analysis; nuclear track analysis; radionuclide production; radiochemical separation methods; alpha, beta, gamma, x-ray and other nuclear spectrometries; *in situ* and remote sensing; radiochemical tracer methods, and mass spectrometry methods for the measurement of radionuclides. The conference will include both oral and poster sessions grouped around specific topics. Poster sessions will be organized around specific themes, similar, or in addition, to those included in the oral sessions. Papers presented at the conference will be peer reviewed and published in *The Journal of Radioanalytical and Nuclear Chemistry*.

Questions concerning the scope and organization of the conference should be addressed to the General Chair, Stephen P. LaMont, LANL (phone 505-667-1008, email lamont@lanl.gov). The conference web site address is http://altmine.mie.uc.edu/nuclear/marc/, where information about the conference will be updated.

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.

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 on April 15–20, 2012, in Knoxville, Tennessee at the Knoxville Convention Center. 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. For further news, information, and instructions, please visit their website at http://physor2012.org.

3D S.UN.COP 2012

The Nuclear Research Group of San Piero a Grado (GRNSPG) of University of Pisa (UNIPI), the Korea Atomic Energy Research Institute (KAERI), the University of Zagreb (FER) and the School of Industrial Engineering of Barcelona (ETSEIB) are jointly organizing Scaling, Uncertainty and 3D Coupled Code Calculations (3D S.UN.COP 2012).

The seminar will take place in Daejeon, South Korea, April 16-May 4, 2012. 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 of Best Estimate Plus Uncertainty (e.g. from AECL, AREVA, Westinghouse, GEH), Foundation of Statistical Methods, Coupling Methodologies and Code Hands-on Training (e.g. RELAP, CATHENA, PARCS, TRACG, GOTHIC, RELAP5/SCDAP, Star-CD) and Special Sessions devoted to Computational Fluid Dymanics, Severe Accident Analysis, BEPU and CANDU Technologies.
3) Advanced User Training, including Code Hands-on Training for Transient Analysis

Further information may be requested from Alessandro Petruzzi at the following email address: a.petruzzi@ing.unipi.it or may be obtained from the Seminar's home page: http://grnspg.ing.unipi.it/3dsuncop.

Monte Carlo Treatment Planning (MCTP2012)

The Third European Workshop on Monte Carlo Treatment Planning (MCTP2012) will be take place May 15–18, 2012, in Sevilla, Spain. The European Workgroup on MCTP is hosting the workshop. Since the first meeting in Ghent, Belgium (2006), and after the last workshop in Cardiff in 2009, the role of Monte Carlo in radiotherapy planning has continued to grow and become more relevant as more

sophisticated and ambitious techniques are introduced. IGRT and 4-D planning are facing new cumulative uncertainties which require accurate calculations to justify the additional workload involved. This Workshop on MCTP of the European Workgroup (EWG-MCTP) will stimulate information exchange and generate international collaborations

Contributions accepted for the workshop will be published as a book of extended abstracts. An agreement is also in place with *Physics in Medicine and Biology*. Papers from MCTP2012 will be considered for publication in PMB and published as a "special feature" of the journal. See the "Submissions" page of the workshop website, http://www.mctp2012.com/index.php. The technical contact for the workshop is Rafael Moreno, Adriano Spain DMC, Adriano St., 26-28, 41001 Sevilla, Spain (phone +34 954 215 900, fax +34 954 216 211, email sevilla@mctp2012.com).

The Energy and Materials Research Conference - EMR2012

The EMR2012 conference will be held at the Torremolinos Congress Center in Torremolinos (Malaga), Spain, on June 20-22, 2012. The EMR2012 will bring together researchers and professionals from a broad set of science and engineering disciplines with the aim of sharing the latest developments and advances in materials, processes and systems involved in energy generation, transmission-distribution, and storage. More information about this conference is available at http://www.formatex.org/emr2012/index.html.

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.

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.

ISFO-si 9

The 9th International Conference on Facility Operations- Safeguards Interface (ISFO-si 9) will be held on September 23-28, 2012, in Savannah, Georgia. The topical conference program committee invites individuals with professional interest in safeguards technology and nuclear material facility operations to participate. The Conference is sponsored by the American Nuclear Society Isotopes and Radiation Division, Oak Ridge/Knoxville Local Section and is cosponsored by the Institute of Nuclear Materials Management, Central Region Chapter, Southeast Chapter.

The purpose of the conference is to foster a better understanding of the relationships of operations in nuclear facilities and the application of safeguards under national and international regimes. This ninth conference in the series will provide an international forum for exchanging ideas and experiences, as well as describing progress in the areas of safeguards implementation. The conference will be timely considering the current activities to strengthen the international safeguards regime. The four and a half day conference will be held in nine half-day sessions at which policy, technical, and scientific aspects of safeguards implementation will be discussed.

Papers are encouraged in the following areas:

- Integrated design of facility safeguards systems,
- Nuclear material accountancy,
- Materials control and accountability activities,
- Measurement and instrument techniques,
- Transparency and confidence-building measures,
- Research and development in general safeguards technology,
- Extension of safeguards in light of the threat of radiological dispersal devices,
- Preparation for and implementation of the IAEA Additional Protocol,
- Safeguards by design,
- The impact of "fully information driven safeguards" on traditional safeguards,
- Advances in process monitoring, unattended measurements/monitoring, remote measurements/monitoring, and
- Application of safeguards earlier in the front end of the fuel cycle, mining and conversion.

Presentations are due by **April 1, 2012**, and should focus on current activities at nuclear materials facilities, including enrichment, weapons material utilization, mixed-oxide (MOX) fuel fabrication, reactors, spent fuel storage, reprocessing, and long-term storage of highly enriched uranium and plutonium. Conference information is posted at the website at http://ICFO-9.org.

2012 CALENDAR

February

Waste Management Conference, (WM2012), February 26–March 1, 2012, Phoenix, AZ. Contact WM Symposia (phone 480-557-0263, fax 520-829-3550) url www.wmsym.org.

March

European Research Reactor Conference 2012, March 18–22, 2012, Prague, Czech Republic. Contact: Kirsten Epskamp, ENS (phone 32-2-505-3054, fax 32-2-502-3902, email rrfm2012@euronuclear.org) url www.euronuclear.org/meetings/rrfm2012/index.htm.

18th Pacific Basin Nuclear Conference (PBNC 2012), March 18–23, 2012, Busan, South Korea. Contact: Technical Program Committee (phone 82-2-785-2570, fax 82-2-785-3975, email info@pbnc2012.org) url www.pbnc2012.org.

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

MARC IX, "Methods and Applications of Radioanalytical Chemistry," March 25–30, 2012, Kailua-Kona, Hawaii. Contact: Stephen P. LaMont, LANL (phone 505-667-1008, email lamont@lanl.gov) url http://altmine.mie.uc.edu/nuclear/marc/.

April

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

3D S.UN.COP 2012, April 16-May 4, 2012, Daejeon, South Korea. Contact: Alessandra Petruzzi (email: a.petruzzi@ing.unipi.it) or visit the website at http://grnspg.ing.unipi.it/3dsuncop.

May

Used Fuel Management Conference, May 7-10, 2012, St. Petersburg, FL. Contact: Linda Wells, NEI (phone 207-739-8039, email registrar@nei.org) url http://www.nei.org/newsandevents/conferencesandmeetings.

International Congress of the International Radiation Protection Association (IRPA13), May 13–18, 2012, Glasgow, Scotland. Contact: Congrex UK Limited, IRPA13 Glasgow Ltd, 4B, 50 Speirs Wharf, Port Dundas, Glasgow G4 9TH (phone +44 (0)141 331 0123, fax +44 (0)141 331 0234, email info@irpa13glasgow.com) url http://www.irpa13glasgow.com.

MCTP2012, 3rd European Workshop on Monte Carlo Treatment Planning, May 15–18, 2012, Sevilla, Spain. Contact: Rafael Moreno, Adriano Spain DMC, Adriano St., 26-28, 41001 Sevilla, Spain (phone +34 954 215 900, fax +34 954 216 211, email sevilla@mctp2012.com) url http://www.mctp2012.com/index.php.

June

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.

EMR2012, June 20-22, 2012, Torremolinos (Malaga), Spain. Follow the website for up-to-date information at http://www.formatex.org/emr2012/index.html.

July

MCNPX-PoliMi Training Workshop, July 25–26, 2012, Ann Arbor, MI, USA. Follow the website for up-to-date information, http://www-ners.engin.umich.edu/labs/dnng/polimi_workshop.html.

Practical MCNP for the Health Physicist, Medical Physicist, and Radiological Engineer, July 9-13, 2012, University of New Mexico, Los Alamos, NM. Follow the website for up-to-date information at http://www.lanl.gov/orgs/rp/mcnp.shtml.

September

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 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.