# Radiation Safety Information Computational Center


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***Try not to become a man of success but rather try to become a man of value.—***
***Albert Einstein***



## CHANGES TO THE RSICC CODE AND DATA COLLECTION

DLC-251/POINT2012

Lawrence Livermore National Laboratory, Livermore, California, and the International Atomic Energy Agency (IAEA), Vienna, Austria, contributed this update to the temperature-dependent, linearly interpolable, tabulated cross section library based on the recently released ENDF/B-VII.1 data library. The latest ENDF/B-VII.1 data library is now freely available through the National Nuclear Data Center (NNDC), Brookhaven National Laboratory. This release completely supersedes all preceding releases of ENDF/B. The ENDF/B-VII.1 data library was processed into the form of temperature dependent cross sections and is being distributed as POINT2012. Details on this and previous versions of this library can be found in the included documentation. VII.1 is comprised of 423 evaluations including 32 new evaluations. For use in applications the ENDF/B-VII.1 library has been processed into the form of temperature dependent cross sections at eight neutron reactor like temperatures, between 0 K and 2100 K, in steps of 300 K (the exception being 293.6 K, for exact room temperature at 20 Celsius). It has also been processed to five astrophysics like temperatures—1, 10, and 100 eV; and 1 and 10 keV. For reference purposes, 300 K is approximately 1/40 eV, so that 1 eV is approximately 12,000 K. At each

temperature the cross sections are tabulated and linearly interpolable in energy. The library is in the computer-independent ENDF-VI character format, which allows the data to be easily transported between computers. The entire library requires approximately 15.1 gigabytes of storage. (D00251MNYCP00).

CCC-758/ACAB-2008

The Universidad Nacional de Educación a Distancia, Departamento de Ingenieria Energetica, and the Universidad Politecnica de Madrid, through the OECD Nuclear Energy Agency Data Bank, Issy-Les Moulineaux, France, contributed this code system which was designed to perform activation and transmutation calculations for nuclear applications. ACAB has been used to simulate realistic operational scenarios of very different nuclear systems: inertial fusion, magnetic fusion, accelerator driven systems, and fission reactors.

ACAB is able to:

- perform space-dependent inventory calculations allowing for multidimensional neutron flux distributions
- treat decay transitions that proceed from the ground, first, and second isomeric states; all neutron reactions that may occur are treated in the code
- deal with charged particle reactions
- predict damage/transmutation calculations
- treat actinides and fission products
- simulate realistic operational scenarios
- feed instantaneous and/or continuous materials into a system
- generate radionuclide activities, afterheat (total and contributions from the different types of radiation), neutron emission, radiotoxicity, decay gamma spectra, contact dose rates, waste disposal ratings, offsite doses to the most exposed individual, as well as collective doses and associated consequences
- identify critical radionuclides and pathways contributing to their production
- compute uncertainties to assess the impact of activation cross sections uncertainties on activation-related quantities.

The main computational algorithm is based on that of the ORIGEN code. The method to compute uncertainties is based on the application of the Monte Carlo technique and allows the user to deal efficiently with the synergic/global effect of the uncertainties of the total set of cross sections to obtain the overall uncertainty on the radiological calculations.

ACAB2008 runs on Unix workstations and personal computers. The package is transmitted on a CD-R including documentation, source code, executables for Windows and Linux, and example problems. Reference: User's Manual V.2008 (December 2008). FORTRAN 77; Linux and Windows PC. (C00758MNYCP01).

CCC-735/EASY-2010

EURATOM/CCFE Fusion Association, Culham Science Centre, Abingdon, Oxfordshire, United Kingdom through the OECD NEA Data Bank, Issy-les-Moulineaux, France, contributed the European Activation System - EASY-2010. EASY-2010 consists of a wide range of codes, data and documentation all aimed at satisfying the objective of calculating the response of materials irradiated in a neutron flux. The main difference from the previous version is the upper energy limit, which has increased from 20 to 60 MeV. It is designed to investigate both fusion devices and accelerator based materials test facilities that will act as intense sources of high-energy neutrons causing significant activation of the surrounding materials. The complete EASY package contains the FISPACT-2007 inventory code, the EAF-2003,

EAF-2005, EAF-2007 and EAF-2010 libraries, and the EASY User Interface for the Windows version.

Executables created by the developers are included for IBM-AIX, Compaq-Alpha, SUN-Solaris, IBM-PC's running Red Hat Linux and Windows. The package is transmitted on 2 DVDs, which includes the documents, executable files for all systems named above, source codes, Makefiles, Windows installer, data files and test cases. Fortran and C; IBM, Unix Workstations, Solaris, Mac. (C00735MNYCP02).

CCC-667/ SHIELD

Contributed by the Institute for Nuclear Research of the Russian Academy of Science (RAS), Moscow, Russia through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France. The SHIELD code considers interaction of high energy particles with condensed matter, including hadron-nucleus interactions inside the target, generation and transportation of secondary particles, deposition of energy and production of radionuclides in the target. The modern version of the SHIELD code allows simulation of the transfer of nucleons (including low energy neutrons), pions, kaons, antinucleons, and muons in energy range up to 1 TeV. Recently, the transfer of ions (arbitrary A,Z-nuclei) was added. The ionization loss and straggling (optionally) are taken into account as well as the main modes of the mesons decay. The transfer of neutrons (En<14.5 MeV) is simulated on the basis of the 28-group neutron data system BNAB. A special interface allows one to use the known EGS4 code for simulation of EM-showers initiated by products of mesons decay. The Monte Carlo method is used for simulation of the interaction process. Direct simulating is employed as a rule; weighted simulating mode is foreseen in the code also. Exclusive approach to modeling of inelastic hadron-nucleus interactions is realized.

Executables are not provided. A Fortran compiler is required. The package includes reference material, source, data, and sample input and output files. FORTRAN 77; PC, Linux, Mac (C00667MNYCP01).

CCC-790/ STOPOW88

Contributed by Dresden Technical University, Mommsenstr. 13 Dresden, German Democratic Republic through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France. STOPOW calculates a set of stopping power values and ranges of fast ions in matter for any materials. Furthermore STOPOW can calculate a set of values for one special auxiliary function (e.g. kinematic factors, track structure parameters, time of flight or correction factors in the stopping function). The user chooses the physical units for stopping powers and ranges and the energy range for calculations. The program uses the method of ZIEGLER et al. with user-defined non-relativistic and relativistic corrections in the energy range up to 100 MeV/amu. For higher energies the treatment of AHLEN is used. The program calculates the stopping power and ranges for an energy grid with logarithmic equally-spaced steps. These values are given as arrays, printing tables or output files.

Executables are provided for Windows operating systems. Fortran and C compilers are required for Linux and Mac Operating Systems. The package includes source, data, executables for Windows OS and sample input and output files. FORTRAN 77; PC, Linux, Mac (C00790MNYCP00).

DLC-206/HATCHES-19

Serco Technical Consulting Services, Building 150 Thomson Avenue, Harwell Oxford, Didcot, OX11 0QB UK through the OECD NEA Data Bank, Issy-les-Moulineaux, France. has released HATCHES-19, a referenced, quality assured, thermodynamic database, developed for the UK's Nuclear Decommissioning Authority (NDA). Although originally compiled for use in radiochemical modeling work, HATCHES also includes data suitable for many other applications, e.g. toxic waste disposal, effluent treatment and chemical processing. It is used in conjunction with chemical and geochemical

computer programs, to simulate a wide variety of reactions in aqueous environments. The database includes thermodynamic data (the log formation constant and the enthalpy of formation for the chemical species) for the actinides, fission products and decay products. The datasets for Ni, Tc, U, Np, Pu and Am are based on the NEA reviews of the chemical thermodynamics of these elements. The data sets for these elements with oxalate, citrate and EDTA are based on the NEA-selected values. For isosaccharinic acid, additional data (non-selected values) have been included from the NEA review as well as data derived from other sources. HATCHES also includes data for many toxic metals and for elements commonly found in groundwater or geological materials.

HATCHES-19 has been updated since the previous release to provide consistency with the selected data from publications in the OECD Nuclear Energy Agency series on chemical thermodynamics:

Volume 11: Chemical Thermodynamics of Thorium.

PCs running at least Microsoft Windows NT, 2000 or later versions are required. Users require their own copy of Microsoft Access (Access 2000, XP, 2002 or 2003). If only data files for use with the geochemical programs PHREEQE, PHREEQC or eq3/6 are required, then users do not need to have Microsoft Access installed (D00206PC58602).

# 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 20$^{th}$ 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 | | |
|---|---|---|
| April 12, 2012 | Presentation at the ANS Student Conference. This is a four-hour workshop. | Las Vegas, NV |
| 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 |
| 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 | | |
|---|---|---|
| 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.

# SCALE

## Spring 2012 Training Courses

| Date | Title | Location | Registration Fee |
|---|---|---|---|
| April 9–13 | **SCALE Lattice Physics and Depletion Course**<br>*2D lattice physics calculations; 1D, 2D, and 3D depletion calculations; resonance self-shielding techniques including Monte Carlo; Dancoff factors for non-uniform lattices; generation of libraries for ORIGEN-ARP* | ORNL<br>Oak Ridge, TN, USA | $2000 |
| April 23–25 | **SCALE/ORIGEN Activation and Decay Calculations Course**<br>*Isotopic depletion/decay and source term characterization using ORIGEN/ORIGEN-ARP* | ORNL<br>Oak Ridge, TN, USA | $1500 |
| April 26–27 | **SCALE Criticality Accident Slide Rule Course**<br>*The Slide Rule for Nuclear Criticality Accident Response is intended for criticality safety and radiation protection engineers, health physicists,* | ORNL<br>Oak Ridge, TN, USA | $1200 |

| Date | Title | Location | Registration Fee |
|---|---|---|---|
| | *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.* | | |
| April 30–May 4 | **SCALE Criticality and Shielding Course** *Basic criticality calculations with KENO-VI; Shielding analysis with automated variance reduction using MAVRIC; Criticality accident alarm system analysis* | ORNL Oak Ridge, TN, USA | $2000 |
| 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, 2012, 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).

## 3rd International Conference on Nuclear & Renewable Energy Resources

The 3rd International Conference on Nuclear & Renewable Energy Resources will be held on March 20-23, 2012, in Istanbul, Turkey. The 3rd International Conference on Nuclear and Renewable Energy Resources will seek to provide a platform in which to discuss safe, carbon-free energy production technologies for nuclear and renewable energy resources. For more information about this conference, see the flyer provided at the end of the newsletter and/or go to their website at http://www.nurer.org/index.php.

## 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.

## The International Youth Nuclear Congress 2012

The International Youth Nuclear Congress (IYNC) and the North American Young Generation in Nuclear (NA-YGN) invite you to attend the 7th IYNC in Charlotte, NC, August 5-11, 2012. The primary purpose of the Congress is to transfer knowledge from the current generation of leading scientists and engineers to the next generation. Scientific, political, public and corporate views regarding the development of different nuclear issues will be presented to provide comprehensive discussions on all sides of the subject. More information about this conference is available at http://www.iync.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.

The deadline for submitting abstracts was on 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.

## ICFO-sI 9

The 9th International Conference on Facility Operations- Safeguards Interface (ICFO-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

**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, TN. 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**

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

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

- ICAPP '12, June 24–28, 2012, Chicago, IL. 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, IL. 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, IL. Contact: Sue Aggarwal, Technical Program Chair (phone 303-984-5788, email saggarwal@nmnuclear.com) url http://ddrd.ans.org.

**July**

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

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.

**August**

IYNC2012, August 5-11, 2012, Charlotte, NC, USA. For up-to-date information, visit their website at http://www.iync.org/.

**September**

Workshop on Computational Medical Physics, September 2, 2012, Nara Prefectural New Public Hall, Nara, Japan. For more information, see the flyer at the end of the newsletter.

ICRS-12 ($12^{th}$ International Conference on Radiation Shielding) and RPSD-2012 ($17^{th}$ 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, CA, USA. For up-to-date information, visit their website at http://www.new.ans.org/meetings/c_1.

CMPWG

COMPUTATIONAL MEDICAL PHYSICS WORKING GROUP

# Workshop on Computational Medical Physics

September, 2, 2012
at Nara Prefectural New Public Hall, Nara, Japan

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Organizers: M. Ferenci, R. Howell, B. Kirk, W. Newhauser, T. Sato, P. Vaz, S. Yonai

The Workshop will be imbedded in the 12th International Conference on Radiation Shielding (ICRS-12, http://www.icrs12.org) and 17th Topical Meeting of the Radiation Protection and Shielding Division of the American Nuclear Society (RPSD-2012)

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## Workshop Programme

(preliminary, *4 to 5 papers per session will be accepted*)

**08:30-09:00 Opening keynote - *"Computational Medical Physics (CMP): State-of-the-Art, from Radiation Physics to the Clinical Environment"***

**09:00-10:40 Session 1 – *Radiation Protection in Diagnostic Imaging and Radiation Therapy (Organizers: W. Newhauser, M. Ferenci, R. Howell)***

**10:40-11:00** Coffee Break

**11:00-12:30 Session 2** – ***Computational and Experimental Benchmarks (Organizers: B. Kirk, S. Yonai)***

**12:30-13:00 Keynote on "CMP and TPS: a perspective from the industry and manufacturers"**

13:00 – 14:00 Lunch

**14:00-15:40 Session 3** – ***State-of-the-art on Computer Programs for Medical Physics calculations (Organizers: B. Kirk, T. Sato, P. Vaz)***

**15:40-16:00** Coffee Break

**16:00-16:45 Panel discussion – *"CMP: Development and Utilization of Voxel Phantoms" (several panelists, 5´ presentations from MPs, MDs, industry, etc.)***

16:50-17:00 Closing

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Important dates:

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| Deadline for abstract submission: | 15th March 2012 |
| Notification of acceptance: | 31st March 2012 |