# Radiation Safety Information Computational Center


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***There is no doubt that the real destroyer of the liberties of any people is he who spreads among them bounties, donations and largess.—Plutarch***



## *Nuclear Computational Science: A Century in Review*

The long-awaited publication of the book inspired by the Ely Gelbard Lecture Series presented at the M&C 2003 Topical Meeting in Gatlinburg, Tennessee, is a *fait accompli*. Springer announced the availability of the 1st edition in early June. The occasion of the Topical Meeting early in the new century seemed like the time to look back on the accomplishments of the first half century of nuclear engineering, to discuss current developments in the assigned topics, and to look into the future for opportunities to meet the mathematical and computational challenges of advancing the nuclear renaissance.

The chapters in the book include:

1. Advances in Discrete-Ordinates Methodology—Edward W. Larsen and Jim. E. Morel
2. Second-order Neutron Transport Methods—E. E. Lewis
3. Monte Carlo Methods—Jerome Spanier
4. Reactor Core Methods—Robert Roy
5. Resonance Theory in Reactor Applications—Richard N. Hwang
6. Sensitivity and Uncertainty Analysis of Models and Data—Dan. G. Cacuci
7. Criticality Safety Methods—G. E. Whitesides, R. M. Westfall, and C. M. Hopper
8. Nuclear Reactor Kinetics: 1934–1999 and Beyond—Jack Dorning

Researchers and students interested in the application of mathematical theory to nuclear computational science will find this a worthy volume to add to their library. Ordering information can be found at http://www.springer.com/new+%26+forthcoming+titles+%28default%29/book/978-90-481-3410-6.

# CHANGES TO THE RSICC CODE AND DATA COLLECTION

## CCC-767/SWORD 3.2

The U.S. Naval Research Lab, Washington, DC, through the Department of Homeland Security, Washington, DC, has released SWORD 3.2. **S**oft**W**are for **O**ptimization of **R**adiation **D**etectors (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 hardware first, at sponsors who need to evaluate proposed or actual system designs independent of the supplier without having access to actual hardware, and at operators who want to use simulation to evaluate observed phenomena.

SWORD is vertically integrated and modular. It allows users to define their own simulated radiation detection scenarios, including detectors, targets, background sources and environmental objects, by building them from basic geometric "objects" and assigning those objects materials, detection, and/or radioactive emission properties. This process is accomplished by a CAD-like graphical user interface, in which objects may be defined, translated, rotated, grouped, arrayed, and/or nested to produce compound objects. In addition to providing the ability to build a detection system model from scratch, SWORD provides a library of "standard" detector design objects that can be used "as is" or modified by the user.

SWORD gives the user the option of running a simulation using one of two well known simulation engines: GEANT 4 from CERN and MCNPX (C00740MNYCP) from Los Alamos National Laboratory. Installation instructions are included in the documentation. Note: GEANT4 V8.1 is included with this distribution. MCNPX is distributed in the CCC740 package available from RSICC. **Note:** The MCNPX source code is required for users opting to use the MCNPX simulation engine.

SWORD 3.2 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. SWORD can run under a free VMware server or player (player recommended, http://www.vmware.com/) on a Windows or Linux host or under VMware Fusion (purchase only) on an Intel-based Mac OSX host. SWORD3.2 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; Linux (C00767MNYCP01).

## DLC-237/SINBAD 2010.05

OECD Nuclear Energy Agency Data Bank, Issy les-Moulineaux, France, and ORNL Radiation Safety Information Computational Center (RSICC), Oak Ridge, Tennessee, USA, contributed an updated version of this electronic database, which was developed to store a variety of radiation shielding benchmark data so that users can easily retrieve and incorporate the data into their calculations. This release of SINBAD includes a large set of 45 fission shielding benchmarks, 29 fusion neutronics shielding benchmarks, and 23 accelerator shielding benchmarks. The experimental results are distributed in tabular ASCII form that can easily be exported to different computer environments for further use. Additions to SINBAD 2010.05 include

NEA-1517 SINBAD REACTOR (last modified 17 September 2009) and
SNL Polyethylene_Reflected Plutonium Metal Spheres: Subcritical Neutron and Gamma.

An international effort between the OECD Nuclear Energy Agency (NEA) and ORNL Radiation Safety Information Computational Center (RSICC) and invaluable contributions from many international nuclear data experts to the compilation, validation and review of the data combined to create this database. SINBAD is an excellent data source for users who require the quality assurance necessary in developing cross-section libraries or radiation transport codes. The future needs of the scientific community are best served by the electronic database format of SINBAD and its user-friendly interface, combined with its data accuracy and integrity. It includes data from nuclear reactor shielding, fusion blankets and accelerator shielding experiments.

The guidelines developed by the Benchmark Problems Group of the American Nuclear Society Standards Committee (ANS-6) on formats for benchmark problem description have been followed by SINBAD. Benchmark information is included for (1) the experimental facility and the source; (2) the benchmark geometry and composition; and (3) the detection system, measured data, and an error analysis. A reference section is included with each benchmark. Relevant graphical information, such as experimental geometry or spectral data, is included. All information that is compiled for inclusion with SINBAD has been verified for accuracy and reviewed by two scientists. Reference: SINBADIS.htm. SINBAD will work on all platforms and is distributed as HTML, PDF and ASCII text files. PC, UNIX Workstations, MAC (D00237MNYCP01).

# ANS News

## Five Fellows Honored at 2010 Annual Meeting

ANS Fellow is a lifetime honor that acknowledges the extraordinary leadership of nuclear professionals in different disciplines relating to research, invention, engineering, safety, technical leadership and teaching. Five outstanding professionals were honored at the Annual Meeting. They are:

**Theodore M. Besmann**, Group Leader at Oak Ridge National Laboratory, for the development of "innovative approaches and fundamental information for the thermodynamic modeling of nuclear fuels and waste forms. In particular, Dr. Besmann is being honored for his work in the thermochemical analyses of UO2 and alkali metal-oxide fuel systems (including fission products), nuclear waste glasses, and advanced transuranic fuels."

**Jean-Marc Delhaye**, Professor at Clemson University, for "extensive and outstanding original research contributions to nuclear thermal-hydraulics and two-phase flow instrumentation. Dr. Delhaye has achieved excellence in the education and dissemination of knowledge in the field of nuclear thermal-hydraulics in France and the United States."

**Hussein S. Khalil**, Nuclear Engineering Division Director at Argonne National Laboratory, for "outstanding contributions to the development of nuclear system modeling and simulation tools and extensive design innovations for fast spectrum nuclear reactors and fuel cycles. Dr. Khalil has provided international leadership in conceptualizing and conducting coordination research on advanced reactor and fuel cycle systems."

**Jim E. Morel**, Professor at Texas A&M University, for pioneering "research contributions to both deterministic and Monte Carlo charged-particle transport methods as well as many seminal contributions to general radiation transport discretization and solution techniques. Dr. Morel's contributions resulted in the development of the three major transport codes: CEPXS/ONELD, the MITS-adjoint Monte Carlo Code, and the ATTILA Code."

**"Farrokh Najmabadi**, Professor of Electrical & Computer Engineering at the University of California-San Diego, is the single most widely recognized expert in fusion power plant design and systems studies in the world. He has led these studies in the United States for over 20 years, resulting in a body of work that serves as both a technical reference and a guide for program planning. Dr. Najmabadi's work has impacted the direction of fusion research both in the United States and internationally, especially in the areas of power plant relevant tokomak physics regimes, use of advanced technologies needed to make fusion competitive, and alternative confinement concepts and applications of fusion energy."

*ANS News Release, June 15, 2010*

## Richard Stratford Receives Nuclear Statesman Award

The American Nuclear Society honored **Richard J.K. Stratford** with the 2010 Henry DeWolf Smyth Nuclear Statesman Award at the Annual Meeting in San Diego, CA. This prestigious award is jointly presented by the American Nuclear Society (ANS) and Nuclear Energy Institute (NEI).

Stratford is Director of the Office of Nuclear Energy, Safety & Security, U.S. Department of State. He is being recognized "for outstanding and statesmanlike contributions to the major aspects of nuclear energy activities in the United States and around the world over the past 25 years including having served twice as Chairman of the International Atomic Energy Agency (IAEA) Committee of the Whole and in leading the U.S. team that successfully negotiated the U.S.-India and the U.S.-Russia Agreements for Peaceful Nuclear Cooperation."

*ANS News Release, June 15, 2010*

# CONFERENCES, COURSES, SYMPOSIA

RSICC attempts to keep its users and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email to riceaf@ornl.gov with "conferences" in the subject line by the 20th of each month. Please include the announcement in its native format as an attachment to the message. If the meeting is on a website, please include the url.

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

## TRAINING

## Introductory MCNP, Advanced MCNP, 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.

| Date 2010 | Class | Location |
|---|---|---|
| July 19–23 | Intermediate MCNP Visual Editor | Las Vegas, NV |
| August 2–4 | Visualization of MCNP Data | Seattle, WA |
| September 13–17 | Introduction to MCNP using the MCNPX Visual Editor | Myrtle Beach, SC |
| November 15–19 | Introduction to MCNP using the MCNPX Visual Editor | Las Vegas, NV |

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

## MCNPX Training

| 2010 Classes | | |
|---|---|---|
| **Date** | **Class** | **Location** |
| August 16–20 | Intermediate MCNPX | Seattle, WA |
| September 20–24 | Intermediate MCNPX | Virginia Beach, VA |
| October 25–29 | Intermediate MCNP5/MCNPX | Barcelona |

The MCNPX team at Los Alamos National Laboratory offers interactive workshops for training users in the capabilities of MCNPX. Three levels are offered:

- introductory (for users with 0–1 year of experience),
- intermediate (for users with 1–3 years of experience), and
- advanced (for users with more than 3 years of experience).

The list of workshops is tentative, as workshops may be added, removed, or modified throughout the year, depending on user interests.

Cost of the U.S. workshops is $2,300 US with an early registration discount of $300 (i.e., if paid 30 days before the scheduled workshop). Workshops with fewer than 15 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, indicating the workshop of interest to you.

## SCALE Training Courses

| **Date** | **Title** | **Description** |
|---|---|---|
| October 11-15 | SCALE Criticality Safety and Shielding Course | KENO-VI: Criticality safety using the generalized geometry version of KENO<br>MAVRIC: 3-D Monte Carlo shielding analysis automated variance reduction for deep-penetration and complex shielding problems<br>Criticality accident alarm system analysis<br>**(KENO-VI/MAVRIC)** |
| October 18-22 | SCALE Lattice Physics and Depletion Course | ORIGEN-ARP: Isotopic depletion/decay and source terms using latest version of ORIGEN-S<br>TRITON: 2-D reactor physics analysis using NEWT/ORIGEN-S and 3-D Monte Carlo depletion using KENO/ORIGEN-S (**ORIGEN-ARP/TRITON**) |
| October 25-29 | SCALE Sensitivity/Uncertainty Tools Course | 1-D and 3-D sensitivity/uncertainty analysis using TSUNAMI with XSDRNPM and KENO. Advanced S/U methods for code and data validation. **(TSUNAMI)** |
| November 1-5 | SCALE Criticality Safety Course | Criticality safety with the most widely used version of KENO, KENO V.a. (**KENO V.a**) |

The registration fee is $2000 for each course. A discount of $200 per each additional week will be applied for registration to multiple courses. Class size is limited and course may be canceled if minimum enrollment is not obtained one month prior to the course. Course fees are refundable up to one month before each class. Note that all attendees must be registered SCALE 6 users. All foreign national visitors must register a minimum of 40 days prior to the start date of the training course they plan to attend. Course descriptions may be found at http://www.ornl.gov/sci/scale/course_description.htm.

## ORAU Offers Health Physics and Radiation Safety Training

ORAU is pleased to offer the following courses. If you wish to discuss having a customized course delivered at your site, please contact Paul Frame at 865-576-3388 or Paul.Frame@orau.org.

| Course | Dates |
|---|---|
| NEW—MARSAME | August 31–September 3, 2010 |
| Applied Health Physics | September 13–October 15, 2010 |
| Air Sampling for Radioactive Materials | October 18–22, 2010 |
| Radiation Medicine for Safety Professionals | November 1–5, 2010 |
| Introduction to Radiation Safety | November 8–12, 2010 |
| MARSSIM | November 1–5, 2010 |
| Gamma Spectroscopy | December 6–10, 2010 |
| MARSSIM | January 10–14, 2011 |
| Site Characterization in Support of Decommissioning: Planning, Implementation, and Evaluation | January 24–28, 2011 |
| Applied Health Physics | February 28–April 1, 2011 |
| CHP Part I Review | April 5–7, 2011 |
| Gamma Spectroscopy | April 11–15, 2011 |

## UNM Short Courses

The University of New Mexico Department of Chemical and Nuclear Engineering is offering the following short courses:

- Nuclear Criticality Safety Short Course, 19–23 July 2010, http://www-chne.unm.edu/crit/information.htm
- Assessments & Criticality Safety Evaluations Workshop, 27–29 July 2010, http://www-chne.unm.edu/crit/information.htm

All courses are held at the Embassy Suites Hotel in Albuquerque, New Mexico. You may contact: Cheryl M. Brozena at cbrozena@unm.edu for details.

# CONFERENCES

## AFRIRPA 2010

The Eastern Africa Association for Radiation Protection (EAARP) invites you to the 3rd African Regional IRPA Congress (AFRIRPA 2010) in Nairobi, Kenya, September 13–17, 2010. The theme is "Strengthening Radiation Protection Infrastructures in Africa: Towards Establishing Effective and Sustainable Regional Cooperation and Networks." AFRIRPA 2010 is co-sponsored by the International

Atomic Energy Agency (IAEA), World Health Organization (WHO), International Radiation Protection Associaton (IRPA), the Government of Kenya, and others. It is organized in collaboration with the Association Marocaine de Radioprotection (AMR), South African Radiation Protection Association (SARPA) and Egyptian Radiation Protection Association (Egypt-IRPA).

AFRIRPA 2010 will attract radiation protection professionals; users and manufacturers of radiation technologies; service providers; regulators; governmental, non-governmental and international organizations; and members of the general public. It will provide a platform to share the latest scientific updates, current developments, and future trends in radiation technology and radiation protection.

For information on registration, as well as sponsorship and exhibition opportunities, contact: Amidu Mustapha (email amustapha@uonbi.ac.ke, info@eaarp.or.ke, or eaarp@yahoo.co.uk). The conference website is http://www.eaarp.or.ke.

## SNA & MC 2010

Japan Atomic Energy Agency is organizing the Joint International Conference on Supercomputing in Nuclear Application + Monte Carlo 2010 Tokyo (SNA + MC2010) to be held in Tokyo, October 17–20, 2010, at the Hitotsubashi Memorial Hall. The conference is designed to discuss computational science, technology and applications concerning nuclear research and Monte Carlo simulation from wide viewpoints. The conference is mainly composed of plenary and technical sessions. Submitted papers will be presented in oral or poster sessions. It is planned that papers of high quality will be peer reviewed and published in special issues of *Journal of Nuclear Science and Technology*. Student awards will be given to young students presenting outstanding work. Bookmark the website, http://www.sna-mc-2010.org/, to keep abreast of developments for the meeting. You may also contact CCSE, Japan Atomic Energy Agency 8F, Sumitomo-Ueno Bldg. No.8 , 6-9-3 Higashi-Ueno, Taito-ku, Tokyo 110-0015, Japan (email: info@sna-mc-2010.org or fax: +81-3-5246-2537).

## 3D S.UN.COP 2010

The Nuclear Research Group of San Piero a Grado (GRNSPG) of University of Pisa (UNIPI), the Institute for Energy (IE) of the Joint Research Center (JRC) of European Commission (EC), the University of Zagreb (FER) and the School of Industrial Engineering of Barcelona (ETSEIB) are jointly organizing the Seminar and Training to transfer competence, knowledge and experience in the area of Scaling, Uncertainty and 3D Coupled Code Calculations (3D S.UN.COP 2010).

The Seminar will take place from October 18–22, 2010, in Amsterdam, and October 25–November 5, 2010, at the Institute for Energy (IE) of JRC in Petten (The Netherlands). The deadline for registration is June 15, 2010. The seminar is divided into three parts and participants may choose to attend a one-, two- or three-week course depending on their interest in the following topics:

1) Fundamental Theoretical Aspects of the Methodologies;
2) Industrial Applications (e.g. AECL, AREVA, Westinghouse, GEH) Coupling Methodologies and Code Hands-on Training (e.g. RELAP, CATHARE, PARCS, TRACE, Star-CD) and Special Sessions devoted to Computational Fluid Dynamics, Severe Accident Analysis, WEER and CANDU Technologies and GEN-IV;
3) Advanced User Training, including Code Hands-on Training for Transient Analysis and Foundation of Statistical Methods.

Further details will be available at: http://nrgspg.ing.unipi.it/3dsuncop.

## INES-3

The Third International Symposium on Innovative Nuclear Energy Systems - Innovative Nuclear Technologies for Low-Carbon Society (INES-3) will be held on October 31–November 3, 2010, at Tokyo Institute of Technology, Tokyo, Japan. The Symposium aims to summarize recent research activities relevant to the development of innovative nuclear reactor systems and innovative separation/ transmutation systems with a broad perspective and flexible ideas for realization of a low-carbon society. The symposium is organized by the Center for Research into Innovative Nuclear Reactors, CRINES and Tokyo Tech. Conference topics include:

1. Innovative reactors
2. Innovative transmutation and separation systems
3. Fuel cycles including HLW disposal and nuclear nonproliferation issues
4. Innovative nuclear energy systems
5. Innovative neutron utilization
6. Materials for innovative nuclear energy systems

Please refer to the conference webpage, http://www.nr.titech.ac.jp/ines3/, for information regarding the submission of abstracts, registration, etc. You may also contact Yukitaka Kato, Associate Professor, CRINES, Tokyo Institute of Technology, 2-12-1-N1-22, Ookayama, Meguro-ku, Tokyo, 152-8550, Japan (phone/fax +81 3 5734 2967, email ines3@nr.titech.ac.jp).

## CONTE 2011

The 2011 Conference on Nuclear Training and Education (CONTE 2011) will be held in Jacksonville, Florida, February 6–9, 2011. A call for papers has been issued for summaries on the following topics:

1. Human Performance Improvement
2. Workforce Planning/Recruiting
3. Personnel Training/Qualification/Education
4. Accreditation
5. Developing Educational Partnerships – University/Industry/Government
6. Engineering Education/Distance Learning
7. Leadership Development
8. International Perspectives
9. Training for New Nuclear Power Facilities

Summaries must be submitted using the ANS Template and "Guidelines for Summary Preparation" provided on the ANS Web site, www.ans.org, by **October 29, 2010**. General chair of the meeting is Stephen Kuczynski, Senior VP of Engineering and Technical Services, Exelon Nuclear. For further information, please visit the ANS website, www.ans.org/meetings.

## NETS-2011

The Nuclear and Emerging Technologies for Space (NETS-2011) topical meeting will be held February 7-10, 2011, in Albuquerque, NM. The meeting is sponsored by the ANS Aerospace Nuclear Science and Technology Division and the ANS Trinity Section. NETS-2011 will address strategies for implementing advanced power and propulsion technologies, as well as radiation shielding protection, in support of manned and unmanned missions into space. It will provide a communications network and forum for information exchange for the wide cross section of research and management personnel from

government, industry, academia, and the national laboratory system that are involved in space nuclear activities. Papers may be submitted by **August 9, 2010**, on the following topics:

**Track I: Missions and Architectures**
- Space Science Missions
- Exploration Missions
- Spacecraft Concepts
- Lunar and Mars Surface Concepts
- Mission Analysis and Validation Missions
- Space Policy

**Track II: Fission Power and Propulsion**
- Reactor Design
- Shield Design
- Reactor Simulation
- Power Conversion
- Supporting Technologies (including Heat Rejection and Power Management and Distribution)
- Nuclear Electric Propulsion Systems
- Tools and Modeling
- Testing and Validation
- Materials and Radiation Testing

**Track III: Radioisotope Power SYSTEMS**
- Isotope Heat Sources
- Stirling Power Conversion
- Thermoelectric Power Conversion
- Advanced Power Conversion
- Mechanical, Thermal, and Electrical Integration
- Tools and Modeling
- Testing and Validation

**Track IV: Nuclear Thermal Propulsion**
- Fuel Development
- History
- Design Concepts
- System Integration
- Tools and Modeling
- Testing and Validation

**Track 5: Advanced Concepts**
- Multi-Megawatt Systems
- Fusion

Registration, program, exhibit, and other information may be found on the conference website at http://anstd.ans.org/NETS2011/AboutNETS2011.htm.

## PSA 2011

The 2011 Probabilistic Safety Analysis conference (PSA 2011) will be held in Wilmington, North Carolina, March 13–17, 2011. The conference is sponsored by the ANS Nuclear Installations Safety Division (NISD) and the Wilmington Area Local Section of the ANS (WLS). Those who intend to submit a paper should contact Dennis@psa2011.org.

Papers describing significant work may be submitted electronically beginning September 2010 on the following topics:

Accident Analysis Level 2 & 3
Advanced Nuclear Systems
Dynamic PSA
Common Cause Failures
Computer Codes
Configuration Risk Management
Digital I&C
Cyber Security
Environmental Impact
Fire and NFPA 805
Flooding PSA
Fuel Cycle (Proliferation Risk)
Generation Risk (All operating modes)
Human Reliability
Human Factors and Behavioral Sciences
Incorporation of Ageing Aspects
Low Power / Shutdown PSA
Next-Generation Reactors
Non-Light Water Reactor
Mitigating Systems Performance Index (MSPI) Issues
NASA and Space Applications
Natural Hazards and External Events
Non-Reactor, Nuclear Applications
Parameter and Modeling Uncertainty
Passive Systems Safety
Proliferation Risk
PSA Challenges – Manpower
PSA in DOE Facilities (Panel)
PSA Standards Development
Reliability Centered Maintenance
Risk Informed Plant Security
Risk Informed Regulation & Licensing
Risk Perception and Communication
Safety Culture & Organizational Factors
Safety Margins and PSA
Significance Determination Process (SDP) Issues
Seismic PSA
Software Reliability and Data Analysis
Spent Fuel & Rad Waste Issues
Standardized Plant Analysis Risk (SPAR) Models Status
Standards and Peer Reviews
Structural Reliability Methods
PSA Training and Education
Transportation Risks
Waste Management and Decommissioning

Bookmark and check the conference website at http://meetingsandconferences.com/psa2011/ often to remain informed about deadlines and activities.

## MTAA 13

Texas A&M will host the 2011 Modern Trends in Activation Analysis (MTAA-13) Conference March 13–18, 2011—fifty years after the first MTAA conference also hosted by the what was then the A&M College of Texas. The scope of the conference will include activation analysis methodology, methodological enhancements, applications of activation analysis to the fields of energy, environment, biology and medicine, geology, archaeology, homeland security, etc. However, this conference will broaden the subject matter somewhat in that it will invite and entertain contributed presentations from all areas of nuclear analytical methods as well as competing technologies.

Conference organizers will provide incentives to selected potential attendees in the form of travel awards. We anticipate making up to twelve awards to students and another twelve to young scientists who submit applications. Awardees will be expected to participate in the meeting by submission of abstracts and manuscripts to the proceedings. While financial need will be considered, recipients will be those considered by the conference organizers to be most likely to provide meaningful participation and future advancement of the science. Details concerning application procedures and criteria for selection will appear in subsequent announcements as well as the conference website.

Make sure you are on the conference contact list by completing the form found at: https://tti.tamu.edu/conferences/mtaa13/registration_interest.htm. Information on the conference will be posted to http://tti.tamu.edu/conferences/mtaa13/. You may also contact William D. (Dennis) James, Center for Chemical Characterization and Analysis, Texas A&M University, 3144 TAMU, College Station, TX 77843-3144 (phone 979 845-7630, email wd-james@tamu.edu).

## MC 2011

The 2011 International Conference on Mathematics and Computational Methods applied to Nuclear Science and Engineering (MC 2011) will be held in Rio de Janeiro, May 8–12. The conference will provide an international forum for scientists to present their most recent work and exchange ideas on a powerful class of methodologies extensively used for solving mathematical models of physical phenomena and processes applied to nuclear science and engineering. One of the aims is to promote new research tools and procedures that help link mathematics, applied sciences and technology. Therefore, MC 2011 will offer an opportunity for direct information exchange between participants from both academia and industry. The interdisciplinary technical program will consist of plenary sessions, workshops, parallel oral presentation sessions and poster sessions. Papers may be submitted electronically by **October 31, 2010**, on the following subject categories:

- Accelerator and Subcritical Systems
- Advanced Nuclear Reactor Concepts
- Atmospheric and Ocean Radiative Transfer
- Computational Fluid Dynamics and Thermal Hydraulics
- Deterministic and Stochastic Neutral and Charged Particle Transport Modeling
- High-Fidelity Multiphysics Simulations
- Medical Physics
- Nuclear Chemistry
- Nuclear Criticality Safety
- Nuclear Data Evaluation and Application
- Nuclear Fuel Cycle
- Nuclear Fuels
- Nuclear Geophysics
- Nuclear Materials Sciences
- Nuclear Non-Proliferation and Homeland Security
- Nuclear Production of Hydrogen
- Nuclear Radiation Shielding and Dosimetry

- Nuclear Reactor Analysis
- Optimization, Data Assimilation and Artificial Intelligence
- Plasma Physics/Fusion
- Radiobiology
- Structural Mechanics
- Uncertainty Quantification
- Verification and Validation

General Chair of the meeting is Cassiano de Oliveira (cassiano@unm.edu). Bookmark the conference website, http://www.mc2011.org, to keep abreast of conference information.

## ISRD-14

The 14th International Symposium on Reactor Dosimetry (ISRD-14) will be held May 22–27, 2011, at the Omni Mount Washington Resort, Bretton Woods, New Hampshire. This Symposium is held approximately every three years to provide a forum for the interchange of state-of-the-art techniques, data bases and standardization of radiation metrology. The Symposium will be of value to those involved in reactor dosimetry, including researchers, manufacturers and representatives from industry, utilities and regulatory agencies. The Symposium is jointly sponsored by ASTM International and the European Working Group on Reactor Dosimetry (EWGRD). It is organized by ASTM Committee E10 on Nuclear Technology and Applications.

The Symposium theme is dosimetry for the assessment of irradiated reactor materials and reactor experiments, featuring radiation metrology techniques, data bases and standardization. Under this theme, summaries must be submitted electronically by **September 10, 2010,** in the following areas:

- Reactor surveillance and plant-life management
- Data evaluation, uncertainty analysis, and adjustment methods
- Retrospective dosimetry and decommissioning
- Dosimetry for assessment of reactor structural materials
- Neutron and gamma-ray transport calculations
- Dosimetry for core characterization and reactor physics
- Characterization of neutron and gamma-ray environments
- Damage correlation and exposure parameters
- Monitoring of irradiation experiments
- Nuclear data for dosimetry
- Benchmarking, calibrations and standards
- Fusion and high-energy neutrons
- Reactor and accelerator neutron sources
- Irradiation processing and testing of electronics
- Experimental techniques, new developments and optical methods
- Dosimetry for space nuclear power

Papers in these and other areas are expected to cover such applications as fission and fusion energy research and test and research reactor experiments. Health physics papers are outside the scope of this Symposium. The Symposium will be organized into oral and poster presentations, as well as informal round-table workshops. The meeting language will be English. All papers presented at the symposium will be subject to peer-review before acceptance for publication in the on-line *Journal of ASTM International*. Bookmark the conference website, http://www.reactordosimetry.com/, to remain current with conference information.

# CALENDAR

**August 2010**

2010 ASME Fluids Engineering Division Summer Meeting Symposium on "Application of Best Estimate and Uncertainty Methods," Aug. 1–4, 2010, Montreal, Canada. Contact: http://www.asmeconferences.org/FEDSM2010.

International Course on Thermalhydraulics of Light Water Reactors, Aug.23–Sept 3, 2010, Saclay, France. Contact: European Nuclear Education Network Association, Centre CEA de Saclay – INSTN – Bldg 395, F-91191 Gif-sur-Yvette Cedex, France (phone +33 1 69 08 97 57, fax +33 1 69 08 99 50, email sec.enen@cea.fr) url http://www.enen-assoc.org/en/activities/for-students/education.html.

**September 2010**

African Regional IRPA Congress (AFRIRPA 2010), Sept. 13–17, 2010, Nairobi, Kenya. Contact: Amidu Mustapha (email amustapha@uonbi.ac.ke, info@eaarp.or.ke, or eaarp@yahoo.co.uk) url http://www.eaarp.or.ke/ .

**October 2010**

Supercomputing in Nuclear Application and the 3rd Monte Carlo (SNA + MC2010), Oct. 17–20, 2010, Tokyo. Contact: CCSE, Japan Atomic Energy Agency, 8F, Sumitomo-Ueno Bldg. No.8, 6-9-3 Higashi-Ueno, Taito-ku, Tokyo 110-0015, Japan (email info@sna-mc-2010.org, fax +81-3-5246-2537) url: http://www.sna-mc-2010.org/.

3D S.UN.COP 2010, Oct. 18–22, 2010, Amsterdam, and Oct. 25–Nov. 5, 2010, Petten, The Netherlands. Contact: Alessandro Petruzzi (email: a.petruzzi@ing.unipi.it, fax 0039 050 2210384) url http://nrgspg.ing.unipi.it/3dsuncop.

International Symposium on Innovative Nuclear Energy Systems (INES-3), Oct. 31–Nov. 3, 2010, Tokyo. Contact:Yukitaka Kato, Associate Professor, CRINES, Tokyo Institute of Technology, 2-12-1-N1-22, Ookayama, Meguro-ku, Tokyo, 152-8550, Japan (phone/fax +81 3 5734 2967, email ines3@nr.titech.ac.jp) url http://www.nr.titech.ac.jp/ines3/.

**November 2010**

2010 ANS Winter Meeting and Nuclear Technology Expo, Nov. 7–11, 2010, Las Vegas, NV. Url: http://www.new.ans.org/meetings/c_1.

**February 2011**

Conference on Nuclear Training and Education (CONTE 2011), Feb. 6–9, 2011, Jacksonville, Florida. Contact: Stephen Kuczynski, Senior VP of Engineering and Technical Services, Exelon Nuclear. The website is www.ans.org/meetings.

Nuclear and Emerging Technologies for Space 2011 (NETS 2011), February 7-10, 2011, Albuquerque, NM Url http://anstd.ans.org/NETS2011/AboutNETS2011.htm

**March 2011**

International Topical Meeting on Probabilistic Safety Assessment and Analysis (PSA 2011), March 13-17, 2011, Hilton Wilmington Riverside, Wilmington, NC. Meeting information: http://www.ans.org/goto/nad.cgi?id=1273208400-24

Modern Trends in Activation Analysis (MTAA-13), March 13–18, 2011, College Station, TX. Contact: William D. (Dennis) James, Center for Chemical Characterization and Analysis, Texas A&M University, 3144 TAMU, College Station, TX 77843-3144 (phone 979 845-7630, email wd-james@tamu.edu) url: http://tti.tamu.edu/conferences/mtaa13/.

**May 2011**

MC 2011, May 8–12, 2011, Rio de Janeiro, Brazil. Meeting information: http://www.mc2011.org/.

International Symposium on Reactor Dosimetry (ISRD-14), May 22–27, 2011, Bretton Woods, New Hampshire. Contact: Dr. David W. Vehar, Sandia National Laboratories (dwvehar@sandia.gov) url http://www.reactordosimetry.com/.

**June 2011**

ANS Annual Meeting, June 26–30, 2011, Hollywood, FL. Contact: http://www.new.ans.org/meetings.

Industrial Radiation and Radioisotope Measurement Applications (IRRMA-8), June 26–July 1, 2011, Kansas City, MO. Contact: William L. Dunn, Kansas State University (email dunn@k-state.edu) url http://www.dce.k-state.edu/conf/irrma/.