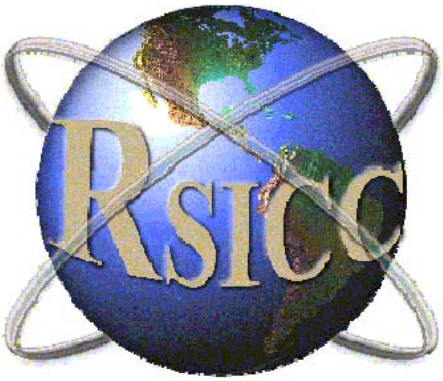
Radiation Safety Information Computational Center



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No. 540 **February 2010**

No enterprise can exist for itself alone. It ministers to some great need, it performs some great service, not for itself, but for others; or failing therein, it ceases to be profitable and ceases to exist.—Calvin Coolidge

CHANGES TO THE RSICC CODE AND DATA COLLECTION

PSR-530/BOT3P5.3

BOT3P5.3 was contributed by ENEA/FPN-FISNUC (Nuclear Data Centre), Bologna, Italy, through OECD Nuclear Energy Agency Data Bank, Issy-Les Molineaux, France. BOT3P was originally conceived as a set of standard Fortran 77 language programs to give users of DORT and TORT deterministic transport codes some useful diagnostic tools to prepare and check their input data files. Later versions extended the possibility to produce the geometrical, material distribution, and fixed neutron source data to other deterministic transport codes such as TWODANT/THREEDANT of the DANTSYS system, PARTISN and, potentially, to any transport code through BOT3P binary output files that can be easily interfaced [for example, the Russian two-dimensional (2D) and three-dimensional (3D) discrete ordinates neutron, photon and charged particle transport codes KASKAD-S-2.5 and KATRIN-2.0]. As from Version 5.1 BOT3P contained important additions specifically addressed to radiation transport analysis for medical applications.

BOT3P5.3 contains new pre-processing features for neutron source input and enhanced post-processing capabilities thanks to the revised RVARSCL module. The following programs are included in the BOT3P software package: GGDM, DDM, GGTM, DTM2, DTM3, RVARSCL, COMPARE, MKSRC, CATSM, DTET, and PDTM. The RSCORS Sandia National Laboratory library of graphical primitives is required to install and run BOT. RSCORS is distributed with the CCC-650/DOORS3.2 and

DOORS3.2a packages. Only a continuous space mesh grid can be generated by GGDM and GGTM and input to DDM, DTM2, DTM3, RVARSCL, COMPARE and MKSRC.

A Fortran 77 compiler is required to compile the codes on all computers. No BOT3P executables are included in this package, which is transmitted as a Unix tar file on a CD, containing the source files for all BOT3P5.3 programs, scripts, test cases, implementation instructions, sample problems, description of sample problems and documentation. Reference: FPN P9H6-011 (October 2008). Frotran 77, Unix/Linux Workstation (P00530MNYCP02).

PSR-544/ANGELO-LAMBDA

ANGELO-LAMBDA, contributed by NEA Data Bank, Issy-les-Moulineaux, France, includes the codes ANGELO-2.3 and LAMBDA-2.3 which are used for the interpolation of the cross section covariance data from the original to a user-defined energy group structure and for the mathematical tests of the matrices, respectively. The LAMBDA-2.3 code calculates the eigenvalues of the matrices (both for the original or the converted) and lists them accordingly into positive and negative matrices. This verification is strongly recommended before using any covariance matrices. They were specifically developed for the OECD LWR UAM benchmark, particularly for processing the SCALE5.1/COVA-44G cross section covariance matrix library retrieved from the SCALE-5.1 package. Either the original SCALE-5.1 libraries or the libraries separated into several files by nuclides can be (in principle) processed by the ANGELO/LAMBDA codes, but the use of the one-nuclide data is strongly recommended. Due to large deviations of the correlation matrix terms from unity observed in some SCALE5.1 covariance matrices, the previous, more severe acceptance condition in the ANGELO2.3 code was released. Where correlation coefficients exceed 1.0, only a warning message is issued and coefficients are replaced by 1.0. ANGELO-2.3 interpolates the covariance matrices to a union grid using flat weighting. The LAMBDA-2.3 code includes the mathematical routines to calculate the eigenvalues of the covariance matrices.

ANGELO-LAMBDA will run on personal computers running either Windows or Linux operating systems. The PC version was compiled with Lahey/Fujitsu Fortran 95 release 5.50h. This release was tested at RSICC on a Pentium PC running Microsoft Windows XP with Lahey/Fujitsu Fortran 95 release 5.50d. Included on the CD are the reference documents, Fortran 90 source code, test cases, and executables for Windows and Linux. Reference: NEA/NSC/DOC(2007)23 (December 2007). Fortran-90, DOS; Linux PC (P00544MNYCP00).

PSR-552/PLOT-S

PLOT-S was contributed by the Institut Jozef Stefan, Jamova 39, 1000 Ljubljana, Slovenia, through the OECD NEA Data Bank, Issy-les-Moulineaux, France. PLOT-S is a 2D-Cartesian coordinates plotting tool for MS Windows that creates graphs and manipulates 2D data from input files. This program has been written to display simple data passed through a table from a data input file to produce linear, logarithmic and semi-logarithmic graphs with a wide variety of available options.

For both the X- and Y- axis one or more columns can be given. For the X-axis one column is used except in the case of histogram plotting where two columns can be used for *from-to* values. Where more than one column is used for the Y-axis, the graph is composed of more curves. File values are separated by a comma, semicolon or space delimiter as defined in the relevant dialogue box (SLE, simple line editor for inputting short text).

The program PLOT-S enables general interpretation of the X values, which can be alphanumeric strings as well as normal numerical values. Depending on the user's wishes the graph can be saved as a JPG file (Graph.JPG) or to the MS Clipboard with optional comment lines at the beginning of the file. Users can also create graph title and curve labels. The program also includes a special option for plotting negative values in a logarithmic scale useful to plot the results of the SUSD3D sensitivity/uncertainty code. In this case negative values are presented in a separate graph and are taken as absolute values. The

package is transmitted on one CD in a compressed Windows file and contains the executable, the User's Manual, IJS-DP-9140, and the Alaska Xbase++ DLL's (Dynamic Link Libraries). Reference: IJS-DP-9140 (2006). Windows OS, PC (P00552PC58600).

PSR-553/THYDE-B1/MOD2

THYDE-B1/MOD2 was contributed by the Department of Nuclear Safety Evaluation, Japan Atomic Energy Research Institute (JAERI), Tokai-mura, Naka-gun, Ibaraki-Ken, Japan, through the OECD NEA Data Bank, Issy-les-Moulineaux, France. The coolant behavior in THYDE-B1/MOD2 is simulated with a volume-and-junction method based on the assumptions of thermal equilibrium and homogeneous conditions for two-phase flow. A characteristic feature of this code is a three-region representation of the state of the coolant in a control volume, in which three regions (i.e., sub cooled liquid, saturated mixture and saturated steam) are allowed to exist. The regions are separated by moving boundaries tracked by mass and energy balances in each region. The pressure vessel is represented by two volumes with three regions, one for the inside of the shroud and the other for the outside. Other portions of the system are treated with the homogeneous model. This method, although it seems to be very simple, has been verified to be adequate for cases of BWR SB-LOCAs in which the hydraulic transient is relatively slow and the cooling of the core strongly depends on the mixture level behavior in the vessel. In order to simulate the reactor system behavior, THYDE-B1/MOD2 is provided with analytical models for reactor kinetics, heat generation and conduction in fuel rods and structures, heat transfer between coolant and solid surfaces, coolant injection systems, breaks and discharge systems, jet pumps, and recirculation pumps. Because this code has been developed and verified for relatively slow transients of BWR, users should be careful when applying this code to any rapid transients such as an early phase of a large break LOCA.

The code was developed on FACOM mainframe computers and has not been ported to Unix or Windows operating systems. A Fortran compiler is required. Reference: JAERI-M 82-126 (August 1982). FACOM M-200; Fortran 77 (P00553FM20000).

PSR-554/THYDE-P2

THYDE-P2 was contributed by Department of Nuclear Safety Evaluation, Japan Atomic Energy Research Institute Tokai-mura, Naka-gun, Ibaraki-Ken, Japan through the OECD NEA Data Bank, Issy-les-Moulineaux, France. THYDE-P analyzes the behavior of LWR plants in response to various disturbances, including the thermal hydraulic transient following a break of the primary coolant pipe system, generally referred to as a loss-of-coolant-accident (LOCA). A LOCA can be considered as the most critical condition for testing the methods and models for plant dynamics, since thermal hydraulic conditions in the system change drastically during the transient. THYDE-P is capable of a complete LOCA calculation from start to complete reflooding of the core by sub-cooled water. The program performs steady-state adjustment, which is complete in the sense that the steady state obtained is a set of exact solutions of all the transient equations without time derivatives, not only for plant hydraulics but also for all the other phenomena in the simulation of a PWR plant.

THYDE-P2 contains among others the following improvements over THYDE-P1: (1) not only the mass and momentum equations but also the energy equation are included in the non-linear implicit scheme; (2) the valve model is implemented; (3) the relaxation equation for void fraction is theoretically derived; (4) vectorized programming is implemented; and (5) both EM (evaluation mode) and BE (best estimate) calculations are possible.

The code was developed on FACOM mainframe computers and has not been ported to Unix or Windows operating systems. A Fortran compiler is required. Reference: JAERI-1300 (December 1986). FACOM VP-100, Fortran 77 (P00553FV10000).

PSR-555/DANESS

DANESS was contributed by Argonne National Laboratory, Argonne, Illinois, through the Energy Science and Technology Software Center, Oak Ridge, Tennessee. DANESS is an integrated process model for nuclear energy systems allowing the simulation of multiple reactors and fuel cycles in a continuously changing nuclear reactor park configuration. The model is energy-demand driven and simulates all nuclear fuel cycle facilities, up to 10 reactors and fuels. Reactor and fuel-cycle facility history are traced and the cost of generating energy is calculated per reactor and for the total nuclear energy system. The DANESS model aims to perform dynamic systems analysis of nuclear energy development used for integrated analysis of development paths for nuclear energy, parameter scoping for new nuclear energy systems, economic analysis of nuclear energy, government role analysis, and education. The DANESS model is implemented in the iThink-software[*] which is system dynamic software based on the integration of finite-difference equations. The integration occurs internal to the iThink-software environment and is based on Fortran integration algorithms.

Recommended hardware needed for PC implementation is a PC Pentium 4, 1.5 GHz or above, 512 MB RAM, and 50 MB hard drive disk space. The CD rom includes media directory; software abstract; source code and manual. Reference: User's Manual (2004). PC and Mac (P00555MNYCP00).

ANS News

Seaborg Congressional Fellowship Call For Applications—The successful candidate will join a Congressional office in Washington, DC for calendar year 2011. Applications are due by **April 12, 2010**. For more information, go to http://www.ans.org/goto/nad.cgi?id=1264917600-5.

New/Revised Position Statements Online—"Creation of an Independent Entity to Manage U.S. Used Nuclear Fuel," is new, and "Nonproliferation," and "Utilization of Surplus Weapons Plutonium As Mixed Oxide Fuel," were updated during the ANS meeting in November. All are posted online at http://www.ans.org/goto/nad.cgi?id=1264917600-8.

Deadline Approaching for Incoming Freshman Scholarship Applications—April 1 is the deadline to apply for the ANS Incoming Freshman Scholarship for students entering their freshman year in college and pursuing degrees in nuclear science and engineering. Requirements and guidelines for applying may be found at http://www.ans.org/goto/nad.cgi?id=1264917600-11. The application is available online at http://www.ans.org/goto/nad.cgi?id=1264917600-12. If you have questions, call the Outreach Department at 708-352-6611.

Obituaries

Vitaly Lazarevich Ginzburg, Nobel Laureate, died November 8, 2009, at 93. Dr. Ginzburg spent most of his career at the P.N. Lebedev Physical Institute of the Russian Academy of Sciences, having earned a bachelor's, doctorate, and doctorate of science in physics at Moscow University in the late 1930s and early 1940s. His doctoral advisor, I. Tamm, recruited Ginzburg to work on the hydrogen bomb in 1948.[†] The 2003 Nobel Prize for Physics was awarded jointly to Alexei A. Abrikosov, Vitaly L. Ginzburg, and Anthony J. Leggett "for pioneering contributions to the theory of superconductors and superfluids."

[*] iThink is now available from http://www.iseesystems.com/.

[†] "….I was saved by the hydrogen bomb." from Ginzburg's autobiography as written for the Nobel Prize Committee (http://nobelprize.org/nobel_prizes/physics/laureates/2003/ginzburg-autobio.html).

INL ATR NSUF Users Week 2010

Users Week for the Advanced Test Reactor National Scientific User Facility (ATR NSUF) at Idaho National Laboratory will be held June 7–11, 2010. It is intended for participants from academia, industry, and national laboratories working or studying in the area of nuclear energy, including technical fields such as nuclear engineering, materials science, physics, and other related engineering and science fields. A half-day workshop will introduce ATR NSUF capabilities. Participants will also learn about current research projects being conducted at the ATR NSUF through a research forum which will include a facilitated discussion on potential university/laboratory/industry collaborations. Courses will be offered on nuclear fuels and materials, instrumentation, and irradiation experimentation. In addition, there will be a special event on the Chinese Light Water Reactor program and Light Water Reactor Sustainability. Participants will have a chance to tour the ATR, INL post irradiation examination facilities, and the historic EBR-1 Reactor. Each day a lunch speaker will provide an overview of an interesting nuclear technology topic. Information regarding the agenda, registration, etc., is available at https://secure.inl.gov/atrnsufuserweek2010/default.aspx.

Registration for the ATR NSUF Users Week 2010 is now available. There is no registration fee for the 2010 ATR NSUF User Week; however, a number of scholarships will be offered to university faculty and students on a competitive basis that include to-from travel, hotel, and meal expenses. Students applying for the scholarship must be enrolled at a U.S. university at the upper undergraduate or graduate level. Faculty seeking scholarships must also be employed by a U.S. university. Applications for scholarships are due **February 26, 2010**. Other participants will be responsible for their own travel, hotel and meals not provided as a part of Users Week. For questions or additional information please contact: Jeff Benson (208-526-3841, email Jeff.benson@inl.gov).

Handbook of Spallation Research Theory, Experiments and Applications

Dr. Detlef Filges has notified RSICC that he and Frank Goldenbaum, both of the Research Centre Jülich, Germany, have published *Handbook of Spallation Research: Theory, Experiments and Applications* through Wiley-Blackwell. The book is a comprehensive reference to spallation—from the foundations to the latest applications—written by two internationally renowned researchers. Clearly divided into three parts, it begins with the basic principles of the spallation process and the particle transport in matter, while the second part describes experiments in terms of secondary particle production as hadrons, pions, light and intermediate masses, isotope production, energy deposition, materials damage, target-moderator-reflector and shielding issues. Emphasis is laid on the most recent developments. The final part depicts the various issues associated with high intensity neutron spallation sources, accelerator systems, target engineering, transmutation of radioactive waste, the energy amplifier concept, as well as such advanced applications as proton therapy, neutrino factories, hazards in space and high energy physics detector aspects. The bibliography contains more than 1300 references. The book is available in hardback or as an ebook through http://www.wiley.com/WileyCDA/WileyTitle/productCd-3527407146.html.

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

Date 2010	Class	Location
March 29-April 2	MCNP5/MCNPX Intermediate Workshop	Paris
April 26-30	Introduction to MCNPX using the MCNPX Visual Editor	Las Vegas, NV
May 16-20	Advanced Visual Editor	Orlando, FL
May 24-28	MCNP5/MCNPX Intermediate Workshop	Orlando, FL
June 21-23	CAD to MCNP	Seattle, WA
July 12-16	Introduction to MCNPX using the MCNPX Visual Editor	Anaheim, CA
August 2-4	Visualization	Seattle, WA
August 16-20	MCNP5/MCNPX Intermediate Workshop	Seattle, WA
September 13-17	Introduction to MCNPX using the MCNPX Visual Editor	Myrtle Beach, SC
September 20-24	MCNP5/MCNPX Intermediate Workshop	Virginia Beach, VA
October 25-29	MCNP5/MCNPX Intermediate Workshop	Spain
November 15-19	Introduction to MCNPX using the MCNPX Visual Editor	Las Vegas, NV

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

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

MCNPX Training

2010 Classes		
Date	**Class**	**Location**
March 29–April 2	Intermediate MCNP5/MCNPX	Paris
May 24–28	Intermediate MCNPX	Orlando, FL
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.

PRACTICAL MCNP FOR THE HP, MEDICAL PHYSICIST, AND RAD ENGINEER

DATE: March 22-26, 2010
FEE: $1,800 per person
PLACE: RIO Grande Radiological Physics Group, LLC, 2820 Broadbent Parkway NE, Suite E&F, Albuquerque, New Mexico 87107 USA (www.riophysics.com).

Monte Carlo type calculations are ideally suited to solving a variety of problems in radiation protection and dosimetry. The Los Alamos MCNP™ code is a general and powerful Monte Carlo transport code for photons, neutrons, and electrons, and can be safely described as the "industry standard." This course is aimed at the HP, medical physicist, and rad engineer with no prior experience with Monte Carlo techniques. The focus is almost entirely on the application of MCNP™ to solve a variety of practical problems in radiation shielding and dosimetry. The intent is to "jump start" the student toward using MCNP™ productively. With a little practice and study of the examples, many will find they are able to solve problems that have, in the past, been out of reach. The lead instructor will be Dick Olsher, who developed the course at the Los Alamos National Laboratory, and has taught this course since its inception in 1996.

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

Payment: Register online (www.riophysics.com) or via mail. Major credit cards (VISA, MC & AMEX) are accepted. Inquiries regarding registration should be made to David Hunter, 505-341-4994; fax: 505-332-9320; e-mail: david@riophysics.com. Technical questions should directed to Dick Olsher, e-mail: dick@blackdahlia.com. Foreign students must obtain a licensed copy of the MCNP code prior to attending class.

SCALE Training Courses at ORNL

Date	Title	Description
March 1-5	SCALE Criticality Safety Course (**KENO V.a**)	Criticality safety with the most widely used version of KENO
March 8-12	SCALE Criticality Safety and Shielding Course (KENO-VI/MAVRIC)	KENO-VI: Criticality safety using the generalized geometry version of KENO MAVRIC: 3-D automated variance reduction for deep-penetration and complex shielding problems
March 15-19	SCALE Lattice Physics and Depletion Course (ORIGEN-ARP/TRITON)	ORIGEN-ARP: Isotopic depletion/decay and source terms using latest version of ORIGEN TRITON: 2-D reactor physics analysis using NEWT
March 22-26	SCALE Sensitivity/ Uncertainty Tools Course (**TSUNAMI**) **(Experienced KENO users only)**	1-D and 3-D sensitivity/uncertainty analysis using XSDRNPM and KENO V.a
April 29-30	Advanced TSUNAMI Sensitivity and Uncertainty Analysis Methods	NEA Data Bank, Paris
May 3-7	KENO-VI/MAVRIC	NEA Data Bank, Paris

The registration fee is $2000 for each course; after February 1 registration is $2300. 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.

NEA Training courses and workshops

- 9-12 March 2010
  A training course on the Monte Carlo computer code TRIPOLI-4, in co-operation with French Atomic Energy Commission (CEA), will be held at the OECD/NEA Data Bank, Issy-les-Moulineaux, France. Registration form; Programme.
- 29 March–2 April 2010
  MCNP/MCNPX Training course, OECD NEA Data Bank, co-sponsored by ORNL/RSICC, Issy-les-Moulineaux, France. Registration form; Syllabus.
- 6-9 April 2010
  Training course on Analytical Benchmarks: Case Studies in Neutron Transport Theory using the Handbook (including computer codes) published on “Analytical Benchmarks for Nuclear

Engineering Applications (Case Studies in Neutron Transport Theory)." This 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. Teacher: Prof. Barry D. Ganapol. Registration form.

- 3-7 May 2010
  SCALE Criticality Safety and Radiation Shielding Course, OECD/NEA Data Bank, co-sponsored by ORNL/RSICC, Issy-les-Moulineaux, France. Registration form.
- 5-8 July 2010
  Training course on PENELOPE 2008 - A code system for Monte Carlo simulation of electron and photon transport. Scope and objectives, syllabus and accommodation; Registration form

ORAU Offers Health Physics and Radiation Safety Training

Our customers recognize the value of the hands-on, laboratory-based health physics training offered by Oak Ridge Associated Universities' (ORAU) Professional Training Programs (PTP).

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
CHP Part I Review	April 6–8
Gamma Spectroscopy	April 12–16
Introduction to Radiation Safety	April 19–23
Environmental Monitoring	May 10–14
MARSSIM	May 17–21
Radiation Safety Officer Training	June 21–25
Medical Radiation Safety Officer Training	Aug. 16–20
Applied Health Physics	Sept. 13–Oct. 15
Air Sampling for Radioactive Materials	Oct. 18–22
MARSSIM	Oct. 25–29
Radiation Medicine for Safety Professionals	Nov. 1–5
Site Characterization in Support of Decommissioning: Planning, Implementation, and Evaluation	Nov. 1–5
Introduction to Radiation Safety	Nov. 8–12
Gamma Spectroscopy	Dec. 6–10

CONFERENCES

2010 ANS Student Conference

"Coming Together to Split the Atom" is the theme for this year's ANS Student Conference hosted by the University of Michigan ANS Student Section, April 8–11, 2010, at the Marriott at Eagle Crest resort in Ypsilanti, near Ann Arbor, MI. Conference registration is now open and the reduced student registration rate is valid through March 12. The schedule, call for papers, Career Fair details, registration and more are available online at http://www.studentans2010.org/. You may also contact ANS Student Conference, 2355 Bonisteel Blvd., Ann Arbor, MI 48109 (fax 734-763-4540 or the UM ANS chapter website, www.engin.umich.edu/societies/ans/).

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

The Radiation Protection and Shielding Division, the Isotopes and Radiation Division, and the Biology and Medicine Division of ANS are joining to organize the 2010 Topical in Radiation Protection and Shielding (RPSD), Isotopes & Radiation (IRD), and Biology and Medicine (BMD), April 18–23, 2010, in Las Vegas, Nevada. Check the conference website, http://www.rpsd2010.com/ often for up-to-date information.

ND2010

The 2010 International Conference on Nuclear Data for Science and Technology (ND2010) will be held April 26–30, 2010, at Jeju Island, South Korea. The meeting is organized by the Korean Nuclear Society and Korea Atomic Energy Research Institute under the auspices of the OECD Nuclear Energy Agency. The conference is the 11th in a series held every three years.

The purpose of these conferences is to bring together scientists and engineers involved in the production or use of nuclear data for various applications. The ND2010 conference will cover measurements, theoretical model developments, evaluation, processing, validation, and dissemination activities. The scope of the conference includes the following fields of application: fission and fusion energy, accelerator technology, dosimetry and shielding, astrophysics and cosmology, safeguards and security, space, medicine, and environment. The corresponding needs for improved nuclear data will be addressed. Additional information about the conference may be obtained from Jonghwa Chang, jhchang@kaeri.re.kr or Young-Ouk Lee, yolee@kaeri.re.kr. The website is http://www.nd2010.org/.

PHYSOR 2010

The PHYSOR 2010 Topical Meeting will be held May 9–14, 2010, in Pittsburgh, Pennsylvania. The conference is sponsored by the American Nuclear Society (ANS) Reactor Physics Division and co-sponsored by the ANS Mathematics and Computation Division and the American Society of Mechanical Engineers (ASME). The conference theme, *Advances in Reactor Physics to Power the Nuclear Renaissance*, will provide a platform for international experts to exchange ideas and the latest developments in reactor physics, mechanical and material engineering and related nuclear technologies in light of the nuclear renaissance. Bookmark the website, www.physor2010.org, and check it periodically for news and updates. You may also contact the PHYSOR 2010 Technical Program Chair, Mohamed Ouisloumen, Westinghouse Electric Company, 4350 Northern Pike, Monroeville, PA 15146 (phone +1-412-374-2148, fax +1-412-374-4500, email info@physor2010.org).

ICONE18

The 18th International Conference on Nuclear Engineering (ICONE18) will be held May 17–21, 2010, in Xi'an, China. The American Society of Mechanical Engineers (ASME), Japan Society of Mechanical Engineers (JSME) and Chinese Nuclear Society (CNS) are jointly organizing the conference. Information regarding the conference can be found at the conference website, http://www.asmeconferences.org/ICONE18/index.cfm, which is also where abstracts must be submitted. In addition you may contact ICONE 18 Secretariat c/o Chinese Nuclear Society, P.O.Box 2125, Beijing 100822, China (phone 86-10-68555686, 68555597, fax 86-10-68527188, email icone18@ns.org.cn).

Symposium on Radiation Measurements and Applications

The 12th Symposium on Radiation Measurements and Applications (SORMA XII) will be hosted by the University of Michigan May 24–27, 2010. This Symposium has been held at four to five year intervals since the series of technical meetings dealing with ionizing radiation and its applications began in 1964. Its focus has expanded over the decades to include the breadth of ionizing radiation measurement applications and technologies. Interested authors are invited to review the primary topics of the symposium and submit an abstract and 2-page summary paper by **February 26, 2010**, through the symposium website. Papers physically presented at the conference by one of the authors and accepted for publication will appear in a special edition of *Nuclear Instruments and Methods in Physics Research A*. Topics include:

Technology Areas

Analytical standards
Advances/applications of radiation detectors
Neutron detection: materials & methods
Detector materials
Timing and spectroscopy
Elemental determination
Radiography
Radiation sources
Detector electronics and signal processing
X-ray analysis
Data analysis and image reconstruction

Application Areas

Energy technology
Environmental and geosciences
Examination and evaluation
Materials research
Medical applications
Life sciences
Nonproliferation and homeland security
Space and planetary science
Nuclear materials management

The conference chairman is Prof. David K. Wehe, SORMA XII, 1906 Cooley Building, University of Michigan, 2355 Bonisteel Boulevard, Ann Arbor, MI 48109-2104. Add the website, http://rma-symposium.engin.umich.edu/, to your bookmarks to keep up with current information.

SATIF-10

The tenth meeting of the task force on Shielding Aspects of Accelerators, Targets and Irradiation Facilities (SATIF-10) will be held June 2–4, 2010, in Geneva, Switzerland. Particle accelerators have evolved over the last decades from simple devices to powerful machines and are having an increasingly important impact on research, technology and lifestyle. Today they cover a wide range of applications including material science and medical applications. In recent years, requirements from new technological and research applications have emerged and the number of accelerator facilities in operation, being commissioned, designed or planned has significantly increased. Their parameters (such as the beam energy, beam currents and intensities, targets composition, etc.) vary widely giving rise to new radiation shielding aspects and problems.

The activities of the Task Force on Shielding Aspects of Accelerators, Targets and Irradiation Facilities (SATIF) are sponsored by the OECD Nuclear Energy Agency (NEA) and its Nuclear Science Committee (NSC). The main objectives of the SATIF Meetings are to:

* Promote the exchange of information among experts in the field of accelerator shielding and related topics,

* Identify areas where international co-operation can be fruitful, and

* Carry on a program of work in order to achieve progress in specific priority areas.

The conference website is http://www.cern.ch/SATIF-10. The conference chair, Marco Silari, can be reached at Marco.Silari@cern.ch.

Current Problems in Nuclear Physics and Atomic Energy

The 3rd International Conference on Current Problems in Nuclear Physics and Atomic Energy (NPAE-Kyiv 2010), which will be held June 7–12, 2010, in Kyiv, Ukraine. This conference is the continuation of the conferences held in Kyiv in 2006 and 2008. The NPAE-Kyiv2010 conference is organized by the National Academy of Sciences of Ukraine (NASU, http://www.nas.gov.ua) the Institute for Nuclear Research of NASU, Kyiv (KINR, http://www.kinr.kiev.ua) in collaboration with Taras Shevchenko National University of Kyiv (NTSU, http://www.univ.kiev.ua).

Authors are invited to submit a one page abstract (300–500 words) by **March 1, 2010**, via e-mail to npae-kyiv2010@kinr.kiev.ua on the following topics:

- Collective processes in atomic nuclei
- Nuclear reactions
- Nuclear structure and decay processes
- Rare nuclear processes
- Neutron and reactor physics, nuclear data
- Problems of atomic energy
- Applied nuclear physics in medicine and industry
- Experimental facilities and detection techniques

All correspondence concerning the scientific program, publications and other questions should be sent to:

Dr. Vitali Yu. Denisov
Institute for Nuclear Research,
Prospect Nauky, 47
Kyiv, 03680
Ukraine
(fax +38 044 525 44 63, email npae-kyiv2010@kinr.kiev.ua)

Information on the Conference can be found at the website: http://www.kinr.kiev.ua/NPAE-Kyiv2010.

ANS 2010 Annual Meeting

The theme for the 2010 ANS Annual Meeting is “Nuclear Science and Technology—The Right Fit. The Right Time.” It will be held in San Diego, CA, June 13–17, 2010. The general chairman is Ross T. Ridenoure of Southern California Edison, and the program Chair is Dr. A. Kurshad Muftuoglu of GE-Hitachi Nuclear Energy. Bookmark http://www.new.ans.org/meetings/ calendar/d_6-13-2010 where announcements and updates will be posted.

ITART 2010

Imaging for Treatment Assessment in Radiation Therapy (ITART 2010) is the first biennial meeting to focus on quantitative imaging in radiation therapy. It will be held June 21–22, 2010, at the Gaylord National Resort & Convention Center, National Harbor, Maryland. Cancer therapy is rapidly shifting from a population-based to a personalized patient-based treatment plan tailored to the spatial distribution of biological properties in the tumor. Incorporation of comprehensive patient- and tumor-specific information enables design of more effective therapies and monitoring the treatment response will provide grounds for treatment adaptation if necessary. Rapid developments in imaging, particularly adoption of molecular imaging, offer unprecedented opportunities for achieving these goals.

Unfortunately, several roadblocks, particularly related to inadequate image quantification, prevent full exploration of these strategies.

The American Association of Physicists in Medicine (AAPM), American Society for Therapeutic Radiation Oncology (ASTRO), European Society for Therapeutic Radiation Oncology (ESTRO), Radiological Society of North America (RSNA) and the National Cancer Institute (NCI) have come together to establish this biennial forum for basic and clinical researchers, practicing clinicians, industry and regulatory bodies to review what has already been achieved, brainstorm about needs and opportunities, and discuss strategies on how to most effectively overcome the roadblocks. The meeting forum has been christened ITART 2010, an acronym for Imaging for Treatment Assessment in Radiation Therapy. While radiation therapy is a specific focus, many of the topics will be of general interest to researchers involved in quantitative imaging applications. The meeting will feature a combination of renowned invited speakers and proffered content. Abstracts may be submitted by **March 10** via the website on the following topics:

- **Imaging for target definition:** How do we define the treatment target? How do we image the treatment target? How are we going to define the treatment target in 20 years?
- **Imaging for treatment assessment:** What can anatomical treatment assessment tell us? What can biological treatment assessment tell us? Are we forgetting normal tissue?
- **Image quantification:** How important is image quantification? How can we improve image quantification? What are broader coordinated initiatives to improve image quantification?
- **Industry, regulatory issues:** What is industry perspective on imaging as a biomarker? What are regulatory issues to qualify imaging biomarkers?

Program information, exhibitor information, registration, etc. is available at the conference website, http://www.aapm.org/meetings/2010ITART/. For general meeting questions you may contact Corbi Foster at corbi@aapm.org.

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 other sponsors. 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.

Abstracts may be submitted by March 31. For information on abstract submission and 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.

2010 Joint Symposium on Supercomputing in Nuclear Applications + Monte-Carlo

The combined Supercomputing in Nuclear Applications (SNA) and Monte-Carlo (MC) 2010 meeting will be hosted by the Japan Atomic Energy Agency Center for Computational Science and e-systems and Nuclear Science and Engineering Directorate October 17–20, 2010, at the Hitotsubashi Memorial Hall in Tokyo. Bookmark the website, http://www.sna-mc-2010.org/, to keep abreast of developments for the meeting. You may also contact sna2010@ml.jaea.go.jp.

CALENDAR

April 2010

ANS Student Conference, April 8–11, 2010, Ann Arbor, Michigan. Contact Travis Trahan (tjtrahan@umich.edu) or Michaela Eddy (eddy.michaela@gmail.com) url: http://www.studentans2010.org/.

Pacific Northwest International Conference on Global Nuclear Security-the Decade Ahead, April 11–16, 2010, Portland OR. Contact: Carrie Mathews (phone 509-375-6783, email carrie.mathews@pnl.gov) url: http://pnwcgs.pnl.gov/PNIC/PNIC.stm.

1st Joint Topical Meeting of the Radiation Protection & Shielding, Isotopes & Radiation, and Biology & Medicine Divisions, April 18–23, 2010, Las Vegas, Nevada. Contact: http://www.rpsd2010.com/.

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

May 2010

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

1st Annual WNU School on Radioisotopes, May 15–June 4, 2010, Seoul, Republic of Korea. The website is http://www.world-nuclear-university.org/about.aspx?id=25726.

ICONE18, May 17–21, 2010, Xi'an, China. Contact: ICONE 18 Secretariat c/o Chinese Nuclear Society, P.O.Box 2125, Beijing 100822, China (phone 86-10-68555686, 68555597, fax 86-10-68527188, email icone18@ns.org.cn) url: http://www.asmeconferences.org/ICONE18/index.cfm.

SORMA XII, May 24–27, 2010, Ann Arbor, MI. Contact: Prof. David K. Wehe, SORMA XII, 1906 Cooley Building, University of Michigan, 2355 Bonisteel Boulevard, Ann Arbor, MI 48109-2104. The website is http://rma-symposium.engin.umich.edu/.

June 2010

SATIF-10, June 2–4, 2010, Geneva, Switzerland. Contact: Marco Silari (Marco.Silari@cern.ch) url: http://www.cern.ch/SATIF-10.

3rd International Conference "Current Problems in Nuclear Physics and Atomic Energy," (NPAE-Kyiv2010), June 7–12, 2010, Kyiv, NPAE Ukraine. Contact: Dr. Vitali Yu. Denisov, Institute for Nuclear Research, Prospect Nauky, 47, Kyiv, 03680, Ukraine (fax +38 044 525 44 63, email npae-kyiv2010@kinr.kiev.ua) url: http://www.kinr.kiev.ua/NPAE-Kyiv2010.

ANS Annual Meeting, June 13–17, 2010, San Diego, CA. Contact: url http://www.new.ans.org/meetings/file/133.

ITART 2010, June 21–22, 2010, National Harbor, MD. Contact: Corbi Foster (corbi@aapm.org) url: http://www.aapm.org/meetings/2010ITART/.

July 2010

International Youth Nuclear Congress, IYNC2010, July 12–18, 2010, Cape Town, South Africa. Contact: http://www.iync.org/iync-2010.html.

August 2010

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

October 2010

SNA2010 and MC2010, Oct. 18–21, 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/.

November 2010

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

March 2011

MTTA-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/.

June 2011

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