Radiation Safety Information Computational Center

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We must drop the idea that change comes slowly. It does ordinarily — in part because we think it does. Today changes must come fast; and we must adjust our mental habits, so that we can accept comfortably the idea of stopping one thing and beginning another overnight. We must discard the idea that past routine, past ways of doing things, are probably the best ways. On the contrary, we must assume that there is probably a better way to do almost everything. We must stop assuming that a thing which has never been done before probably cannot be done at all.—Donald M. Nelson

New Radiation Danger Symbol Launched

The International Atomic Energy Agency (IAEA) and the International Organization for Standardization (ISO) has launched a new symbol to warn the public about radiation dangers. It will supplement the traditional three-cornered trefoil, international symbol for radiation.

"I believe the international recognition of the specific expertise of both organizations will ensure that the new standard will be accepted and applied by governments and industry to improve the safety of nuclear applications, protection of people and the environment," said Ms. Eliana Amaral, Director, Division of Radiation, Transport and Waste Safety, IAEA.

The symbol is intended for IAEA Category 1, 2, and 3 sources defined as dangerous sources capable of death or serious injury, including food irradiators, teletherapy machines for cancer treatment and industrial radiography units. The symbol is to be placed on the device housing the source, as a warning

not to dismantle the device or to get any closer. It will be visible only if someone attempts to disassemble the device. The symbol will not be located on building access doors, transportation packages or containers.

"The new ionizing radiation warning symbol (ISO 21482) is the latest successful result of long-standing cooperation between the IAEA and ISO. We encourage the symbol´s rapid adoption by the international community," said ISO Secretary-General Alan Bryden.

Many source manufacturers plan to use the symbol on new large sources. Strategies to apply the symbol on existing large sources are being developed by the IAEA.

Can Neutrons be Used in Quantum Computers?

Original story at www.physorg.com/news85828822.html; Published with permission.

By Miranda Marquit,

"In quantum mechanics, you typically have arguments about locality and non-locality," Yuji Hasegawa tells *PhysOrg.com*. "But in our experiment we are testing correlation between degrees of freedom."

Hasegawa, a scientist affiliated with the Atominstitut der Österreichischen Universitäten and PRESTO at the Japan Science and Technology Agency, feels that the most recent experiment undertaken by him and his colleagues will offer a new way to look at questions involving quantum information processing. The results of the experiment appear in *Physical Review Letters* with the title "Quantum Contextuality in a Single-Neutron Optical Experiment."

Hasegawa explains that photons are most often used in quantum information technology, but that he hopes that this recent experiment, which is fundamental in nature, will contribute to the consideration of different quantum systems, including neutrons, for quantum information processing.

Hasegawa and his colleagues, Rudolf Loidl and Matthias Baron from the Atominstitut and from the Institut Laue Langevin in France, and Gerald Badurek and Helmut Rauch at the Atominstitut, suggest that noncontextual theories involving neutrons are clearly violated with the results of this experiment. This most recent experiment is related to a paper published in 2003 in the journal *Nature*. In the previous paper, Hasegawa and his colleagues address Bell-like inequalities found in neutrons. However, with this new experiment the Kochen-Specker theorem is tackled, looking at quantum contextuality:

"We use a neutron interferometer, and the Schrödinger equation represents our phenomena. We wanted to show a contradiction in noncontextual theories. We wanted to show a prediction in quantum mechanics. There's a contradiction in Kochen-Specker with photons, and we wanted to show it with neutrons."

Hasegawa explains that the experiment took place at Institut Laue Langevin (ILL) in France, with the largest reactor in the world, and made use of polarized neutron beams split inside the interferometer. With some manipulation, observations of three separate products were measured. After the analysis was performed, the values were found to be outside the limits predicted by noncontextual hidden variable theory. The contradiction was found.

There is no way to obtain a completely ideal experimental situation, Hasegawa admits, but the interferometer was key to the experiment. "Our neutron interferometer experiment is one of the

best suited for such a fundamental experiment." He also points out that single neutrons were used. "Instead of two particles as usually used in two-photon entanglement experiments," Hasegawa says, "we used two degrees of freedom in single particles."

Even though entanglement between different particles is considered essential for their use in quantum information processing, this does not appear to be the case with single-neutrons. With the use of entanglement between degrees of freedoms in this experiment, Hasegawa believes that single particles are good candidates for quantum information processing: "This neutron case is completely different from the photon case," he says. "They have mass and spins and obey Schrödinger equation. This experiment shows that they can probably be used for information processing as well as for fundamental research in quantum mechanics just like photons."

Hasegawa continues: "I hope that this fundamental experiment can help with further technical development in quantum information processing."

ANS News

Apply for PWANS Funding— The Professional Women in the ANS (PWANS) is committed to encouraging women to enter the field of nuclear science and technology. Part of the plan to fulfill this commitment includes supplemental funding (up to a maximum of $500) to an ANS female student member to cover travel, hotel, and meal expenses for attending an ANS national meeting (either the Annual Meeting in June or the Winter Meeting in November). Applications must be submitted by **April 1** for the June meeting and **September 18** for the November meeting. The Application For Travel Funds can be found at http://committees.ans.org/pwans/Students.htm.

Change to the Computer Code and Data Collection

CCC-254/ANISN-ORNL

R. Tayloe Engineering Consultancy, Inc., Upper Arlington, Ohio, contributed a new Windows version of this code system for solving the one-dimensional Boltzmann transport equation for neutrons or gamma rays in slab, sphere, or cylindrical geometry. The source may be fixed, fission, or a subcritical combination of the two. Criticality search may be performed on any one of several parameters. Cross sections may be weighted using the space and energy dependent flux generated in solving the transport equation.

The ANISN-ORNL package was updated to add new executables compiled under the Windows XP operating system using the Lahey-Fujitsu Fortran 95 version 5.7 compiler. This update was necessary because Lahey F77L3-EM/32 Version 5.1 executables in the previous release from which the new version was derived are incompatible with Windows XP and generate stack fault errors when invoked. The new executables were tested at RSICC on a Pentium IV running Windows XP SP2 and were also tested under Windows Vista. Other older mainframe and workstation versions of ANISN-ORNL are retained in this package because the source files contain machine-dependent coding worth preserving but these older versions were not modified in the 2007 update. The package is transmitted on a CD which contains the referenced document in PDF format and Windows executables, Fortran source codes for all versions, JCL, sample input and output. Reference: K-1693 (March 1967). Fortran; PC Windows XP and older versions (C00254MNYCP02).

CCC-731/ORIP-XXI

The State Scientific Center of Russia, Research Institute of Atomic Reactors, Division of Radionuclide Sources and Preparations, Ulyanovsk region, Russia, contributed a corrected version of the ChainSolver module in the ORIP_XXI software. A minor bug in ChainSolver affected element mass calculations because the code confused one-letter elements with elements that have the same last letter in their names (i.e. U and Pu). The ORIP suite of computer codes was developed for the study of radioactive and stable isotope transmutation chains, i.e. networks with feedbacks. Using these programs, it is possible to estimate various quantitative characteristics of a transmutation chain both for nuclide irradiations in neutron fluxes and in case of pure radioactive decays. The main parts of ORIP_XXI are: NKE, the electronic nuclide chart; ChainFinder, the program for finding transmutation chains; and ChainSolver, the program for simulating transmutation.

The Windows 32 applications run on personal computers. The Borland Delphi™ Object Pascal and GNU Fortran compiler (MinGW port for Windows) were used to create the executables in the package. The package is transmitted on a CD in a WinZIP file which contains the source files, PC executables, and test data. References: Papers from State Scientific Centre of Russia – Research Institute of Atomic Reactors (May 2003). Pascal, Fortran 95; Pentium computers (C00731PC58601).

PSR-537/TRISTAN-IJS

Jozef Stefan Institute and Agencija za Radioaktivne Odpadke in Ljubljana, Slovenia, through the OECD Nuclear Energy Agency Data Bank, Issy−les-Moulineaux, France, contributed TRISTAN-IJS. This computer program calculates steady-state axial temperature distribution and flow velocity through a vertical coolant channel in a low-power TRIGA reactor core cooled by natural circulation. It is designed for steady-state thermohydraulic analysis of TRIGA research reactors operating at a low power level of 1–2 MW.

At RSICC, TRISTAN-IJS was compiled on a Pentium 4 running Windows XP SP2 with the Intel 9.0 ifort compiler for 32-bit Windows applications. This executable and the Fortran source code are included in the package. The package is transmitted on a CD that includes the referenced document and a WinZIP file which contains the Fortran source files, PC executables, data files, and test case input and outputs. Reference: IJS-DP-6548 (December 1992). Fortran 77; Pentium Personal Computers (P00537IBMPC00).

MIS-004/ANL-BPB

The OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France, contributed the *Argonne Code Center: Benchmark Problem Book* and supplements. The initial report was published in February 1968. This electronic version of the report was prepared in the framework of the OECD/Nuclear Energy Agency project on the International Reactor Physics Benchmark Experiments (IRPhE) in order to facilitate access to the information. The work was carried out with the help of DOE/OSTI, and the electronic version is dated July 2002. The PDF files contain benchmark problems relating to numerical determination of space, time, angle, or energy distribution of particles in an assembly. Reference: ANL-7416 (Feb. 1968). Many computers (M00004MNYCP00).

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.

Short Course on Introduction to Monte Carlo Treatment Planning

This short course on Monte Carlo treatment planning will be held April 12–14, 2007, at the Fox Chase Cancer Center, Department of Radiation Oncology, 333 Cottman Avenue, Philadelphia, PA 19111. The course is designed to train future Monte Carlo RTP users and researchers in the use of Monte Carlo treatment planning software. The course will include didactic instruction and hands-on workshops. It is specially suited for previous EGS4 and OMEGA/BEAM course participants who want to expand their research into clinical RTP. Working knowledge of a Unix/Linux-based system is expected to run our Monte Carlo RTP software. Enrollment is limited to 20 people to facilitate instruction at the hands-on labs. The $1,600 course registration fee covers the course materials, two lunches, two dinners and refreshments.

Further information is available at the website, http://www.fccc.edu/cancer/treatment/radonc/treatment/monte-carlo-course.html, or by contacting Jinsheng Li, PhD, Course Coordinator, Department of Radiation Oncology, FCCC, 333 Cottman Avenue, Philadelphia, PA 19111 (phone 215-728-5665, fax 215-728-4789, email Jinsheng.Li@fccc.edu).

MCNPX Workshops

2007 Schedule		
April 30–May 4	San Francisco, CA	Intermediate
June 4–8	Santa Fe, NM	Introductory
Sept 17–21	Santa Fe, NM	Advanced
October 22–26	Europe	Intermediate

MCNPX is packed with new and exciting plotting features, including numerous mesh tally options which can be superimposed on your geometry plot and plotted within the MCNPX run, eliminating the need for post-processing and costly additional plotting package(s). You can plot particle flux, tracks, dosage, and energy deposition as well as source points and many others.

The workshops include hands-on instruction, generally on PC Windows machines. Subject to participant export approval from the MCNPX beta test team, participants will be able to access the Fortran 90 version of MCNPX 2.6, the LA150 (150 MeV) cross-section data libraries for over 40 isotopes for incident neutrons and protons and 12 for photonuclear interactions, and a notebook of viewgraphs.

Follow-up consultation for class participants will be provided.

The classes are taught by experienced MCNPX code developers and instructors. More information on code versions and capabilities is available at the MCNPX Workshops web site http://mcnpx.lanl.gov/. The cost for U.S. workshops is $2,000 (U.S.) with a $300 early registration discount (30 days before the scheduled workshop). Workshops with fewer than 12 registrants on the early registration date are subject to cancellation or rescheduling. To register send an email to nbutner@lanl.gov indicating the workshop of interest to you.

Fall 2007 SCALE Training Courses at ORNL

Date	Title	Description
October 15–19	**ORIGEN-ARP/TRITON Course**	ORIGEN-ARP: Isotopic depletion/decay and source terms using latest version of ORIGEN TRITON: 2-D reactor physics analysis using NEWT
October 22–26	**KENO V.a**	CSAS/KENO V.a (including KENO3D and GeeWiz)
October 29–November 2	**TSUNAMI* Sensitivity/ Uncertainty Tools Course**	1-D and 3-D sensitivity/uncertainty analysis using XSDRNPM and KENO V.a
*Experienced KENO users only		

The registration fee is $1800 for each course. A late fee of $300 will be applied for late registrations. A discount of $300 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 5 or 5.1 users.** All foreign national visitors must register 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.

Introductory and Advanced MCNP Visual Editor Training

The Introductory class will be held May 7–11 and September 17–21, 2007, in Richland, Washington. It will be taught using the most recent (beta) version of the Visual Editor Code. Beta versions will only be available to students that own the RSICC version 5 release. Bring proof of ownership to the class.

The introductory classes combine teaching on MCNP physics, along with instructions on how to use the Visual Editor. Computer demonstrations and exercises will focus on creating and interrogating input files with the Visual Editor. Demonstrations of advanced visualization work using MCNP will also be made. The advanced class assumes the user has experience using MCNP and focuses on Visual Editor topics.

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.

McGill Workshop on Monte Carlo Techniques in Radiotherapy Delivery and Verification

"Monte Carlo Techniques in Radiotherapy Delivery and Verification: Third McGill International Workshop" will be held May 29–June 1, 2007, at McGill University in Montreal. This workshop intends to cover recent Monte Carlo code developments, applications to higher level biological models as well as the role of MC simulations in clinical applications related to improved estimations of delivered dose and the verification of delivered dose. In tune with the two previous workshops (2001, 2004) the present

workshop setup encourages in-depth discussions on specialized topics. To this end, the number of participants will be limited to around 100. For more information, a preliminary program and instructions for abstract submission, please see the link: http://www.medphys.mcgill.ca/~mcworkshop2007/. The deadline for submissions of abstracts is Friday, February 23 2007.

Note that the timeframe of this workshop is the week just before the "International Conference on the Use of Computers in Radiation Therapy (ICCR 2007)" in Toronto. Topics covered in the McGill workshop are designed to complement the program of the ICCR 2007 meeting (http://www.iccr2007.org/).

International Conference on Emerging Nuclear Energy Systems (ICENES 2007)

The committee for the 13th International Conference on Emerging Nuclear Energy Systems (ICENES 2007)will be held June 3–8, 2007, at Gazi University in Istanbul.

The main objective of ICENES is to provide a broad review and discussion of various advanced, innovative and non-conventional nuclear energy production systems to scientists, engineers, industry leaders, policy makers, decision makers and young professionals who will shape future energy supply and technology. ICENES 2007 will also open the forum to innovative non-nuclear technologies, such as hydrogen energy, solar energy, deep space exploration, etc. with an emphasis on *unthinkable ideas* with a sound scientific-technical basis. The program will include invited papers, submitted contributions in oral and poster sessions, as well as an industrial exhibition and social tours. Topical areas include:

- Advanced Fission Systems
- Fusion Energy Systems
- Accelerator Driven Systems
- Exotic Nuclear Reactor Concepts
- Transmutation and Fuel Cycle
- Co-Generation and Non-Electricity Production Applications
- Generation IV Reactors
- Space Power and Propulsion
- Deep Space Exploration, general
- Nuclear Hydrogen Production
- Radiation Protection & Shielding
- Hydrogen Energy, general including non-nuclear applications
- Solar Energy
- Other Alternative Energies
- Societal Issues

The official language of the conference will be English. The proceedings will be produced on an interactive CD-ROM with an ISBN registration number. A selection of ICENES 2007 papers will be published in a special edition of the journal *Energy Conversion & Management*. Scientific and technical inquiries may be directed to Prof. Dr. Sümer Şahin, Gazi University 06500 ANKARA/TURKEY (phone +90 (312) 212 43 04, fax +90 (312) 212 43 04, email sumersahin@icenes2007.org). Updated information will be posted to http://www.icenes2007.org/.

XVth International Conference on the Use of Computers in Radiation Therapy

The XVth International Conference on the Use of Computers in Radiation Therapy (ICCR 2007), will be held in Toronto, Canada, from June 4–7, 2007. This conference offers the opportunity to explore advancements in radiation oncology through investigations in modeling of biological systems, interactive radiation therapy treatment planning, deformation and shape change, schemes for adaptation/feedback, multi-modality image registration and image segmentation, and systems for fully four-dimensional radiotherapy. The early registration deadline is March 1. Registration and program details can be found at http://www.iccr2007.org/. If you require additional information, please contact the Secretariat at iccr@rmp.uhn.on.ca.

Practical MCNP for the Health Physicist, Medical Physicist, and Rad Engineer

DATES: June 18–22, 2007
FEE: $1,500 per person
PLACE: The MESA Complex, Room 130, University of New Mexico-Los Alamos Campus

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 MCNPTM 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.

Course content: Extensive interactive practice sessions are conducted on a personal computer. Topics will include an overview of the MCNPTM 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 comprehensive 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. The course is offered by the Health Physics Measurements Group at the Los Alamos National Laboratory and is co-sponsored by RSICC.

Registration is available online at: http://drambuie.lanl.gov/~esh4/mcnp.htm. Make checks payable to the University of California (checks must be in U.S. dollars on a U.S. bank) and mail together with name, address, and phone number to David Seagraves, Mail Stop J573, Los Alamos National Laboratory, Group RP-2, MCNP Class, Los Alamos, NM 87545. Inquiries regarding registration and class space availability should be made to David Seagraves, 505-667-4959, fax: 505-665-7686, e-mail: dseagraves@lanl.gov. Technical questions may also be directed to Dick Olsher, 505-667-3364; e-mail: dick@lanl.gov.

Please note that this course is separate from and independent of the courses being offered by the MCNP and MCNPX Teams at LANL.

Dick Olsher

ANS Annual Meeting

The 2007 ANS Annual Meeting will be held June 24–28, 2007, in Boston. The theme, "It's all About the People: The Future of Nuclear," is organized around the following tracks:

1. Meeting Theme—It's All About the People: The Future of Nuclear
2. Nuclear Power and New Construction of Nuclear Systems
3. Fuel Cycle, Waste Management, and Decommissioning Technologies
4. Nuclear Facility and Criticality Safety
5. Environmental Science and Technologies
6. Medical and Nonpower Applications of Radiation
7. Nuclear Science and Engineering
8. Advanced Energy Research and Emerging Technologies
9. Education, Training, and Communication with the Public
10. Nuclear Nonproliferation and Security

11. Professional Development

General Co-chairs of the meeting are J. Art Stall of Florida Power & Light and David P. Barry of Shaw Stone and Webster Nuclear Services. Raymond Klann of Argonne National Laboratory is the Technical Program Chair. Information may be found at http://www.ans.org/meetings/index.cgi?c=n.

Space Nuclear Conference 2007 (SNC '07)

The second topical meeting organized by the Aerospace Nuclear Science and Technology (ANST) technical group, Space Nuclear Conference 2007 (SNC '07), will take place June 24–27, 2007, in Boston. NASA funding has been established to develop capabilities for unmanned and manned missions to the moon, Mars, and beyond. Strategies implementing nuclear based power and propulsion technology, as well as radiation shielding protection, will be an integral part of these missions.

The purpose of the meeting is to bring together research and management personnel from government, industry, academia, and the national laboratory system and provide a forum for information exchange for those who are involved in space projects. The meeting will include topics ranging from overviews of current programs and plans to detailed issues related to space travel, such as nuclear-based power and propulsion systems designs, materials, testing, safety, space environmental effects and nuclear power system radiation shielding for humans and electronic components, and human factor strategies for the safe and reliable operation of nuclear power and propulsion plants. Full-length, peer-previewed technical papers will be published on a CD which will be available at the conference. The call for papers and other information relevant to the conference is available at the website, http://www.inspi.ufl.edu/space07/index.html, or contact Lynne Schreiber, Conference Administrator, (phone 352-392-9722, fax 352-392-8656, email space@ans.org).

AAPM Annual Meeting

The American Association of Physicists in Medicine (AAPM) is holding its 49th Annual Meeting July 22–26, 2007, in Minneapolis, Minnesota. The program will offer participants a significant opportunity to gain practical knowledge on emerging technical and professional issues. A major focus of the scientific program is the increasing integration of advanced imaging concepts in the routine practice of various therapies, especially radiotherapy. The scientific program will include the highest quality abstracts in oral, moderated poster, and poster sessions on basic research and clinical application topics in medical imaging and therapeutic medical physics. Continuing education will be offered through daily courses to keep the membership up to date on the current and new technologies and techniques. The registration and up-to-date meeting information can be found at http://aapm.org/meetings/07AM/.

AccApp'07

The jointly sponsored ANS/IAEA International Conference on Applications and Utilization of Accelerators (AccApp'07) to take place in Pocatello, Idaho, on July 30-August 2, 2007, will be hosted by Idaho State University and the Idaho Accelerator Center. There will be plenary sessions and a separate embedded Accelerator-Driven Subcritical System Experiments Workshop of five sessions. Program topics are listed in the following table. Dr. Denis Beller (University of Nevada, Las Vegas) is the general chair of the meeting. Questions or comments should be directed to the Conference Administrator, Ms. Nikki Iwert-Bays of the Idaho National Laboratory (Nikki.Iwert-Bays@inl.gov@inl.gov), who will direct your question to the responsible individual. The website is http://www.iac.isu.edu/accapp07/.

AccApp'07 Subject Areas		
High-power Accelerator Operations: • Operational Experience • Beam Interface Issues • Instrumentation & Controls • Shielding • Remote Handling • Health Physics & Dosimetry • Waste Management **Systems Engineering & Integration:** • Accelerator Driven System (ADS) Simulations • ADS Experiments • Design Optimizations • Reliability Analysis • Cost Estimating & Economics	**Applications:** • Spallation Neutron Sources • Industrial Applications • Accelerator Mass Spectrometry • Medical Imaging and Therapy • Nuclear Waste Transmutation • Energy Production • Environmental Applications • Food Safety • Free Electron Lasers • Portable Accelerators • Radioisotope Production • Inspection Technology for Explosives and Fissile Materials • Radiation Damage and Biological Effects • Imaging and Advances in Detectors	**Other:** • Neutronics Calculations • Codes and Models for Beam Transport and Experiment Validation • Nuclear Data • Photonuclear Cross Sections • Safety and Source Term • Subcritical Assembly Design • Transmutation fuels • Separations Technologies • Target Engineering • Materials for Accelerator Applications • Long-lived Fission Product Transmutation • Accelerator-driven University Neutron Sources • Positron Annihilation Spectroscopy

Global '07

The main focus of Global '07 will be "Advanced Nuclear Fuel Cycles and Systems." The conference, to be held September 9–13, 2007, in Boise, Idaho, is jointly sponsored by the Idaho National Laboratory, American Nuclear Society, Idaho Section of American Nuclear Society, European Nuclear Society and Atomic Energy Society of Japan. Conference topics include:

- Advanced Integrated Fuel Cycle Concepts
- Spent Nuclear Fuel Reprocessing
- Advanced Reprocessing Technology
- Advanced Fuels and Materials
- Advanced Waste Management Technology
- Novel Concepts for Waste Disposal and Repository Development
- Advanced Reactors
- Partitioning and Transmutation
- Hydrogen Production with Nuclear Energy
- Developments in Nuclear Nonproliferation Technology, Policy, and Implementation
- Sustainability and Expanded Global Utilization of Nuclear Energy
- International Cooperation on Nuclear Energy

Conference and registration information is posted to http://nuclear.inel.gov/global07/index.shtml.

Regional Congress for Central and Eastern Europe

The International Radiation Protection Association (IRPA) Regional Congress for Central and Eastern Europe will be held in Brasov, Romania, September 24–28, 2007. Organized by the Romanian Society for Radiological Protection (RSRP), this Regional Congress will present an opportunity to debate subjects which will determine the future of this specialty, ranging from the science of biological radiation effects to the regulation and practice of radiation protection, which includes the control of natural, occupational and medical exposures, the development of the radiological protection system, protection against non-ionizing radiation and the participation of the public. The Congress technical program will be led by renowned experts as invited speakers, with refresher courses and poster sessions, some of which will be selected for oral presentations. There will be an IRPA Associated Societies Forum and a Technical Exhibition, and the Third Workshop of the Regional East European and Central Asian Countries ALARA Network, which is supported by the IAEA, will take place during the same period. Topics include:

- Radiation biology
- Health effects of ionizing radiation
- Radiological protection infrastructure, regulation and policy
- From legal requirements to practical regional aspects
- Dosimetry and instrumentation
- Education and training
- Radiation protection at workplaces
- Radiation protection of patients
- Radiation protection, environment and public
- Waste management and treatment
- Decommissioning and site remediation
- Incidents, accidents and post accident
- Non-ionizing radiations
- Radiation protection and safety in nuclear fuel cycle

Complete and updated information can be found at http://www.irpa2007romania.com/.

"CMPWG-II" Computational Medical Physics Working Group Workshop II

"CMPWG-II" Computational Medical Physics Working Group Workshop II will be hosted by the University of Florida, in Gainesville on September 30–Oct 3, 2007. This is the Second Computational Medical Physics Working Group Workshop ("CMPWG-II"). The first workshop was held at Oak Ridge National Laboratory in 2005 and was well-attended. Guest speakers from Shands Hospital Oncology and Radiology will discuss the unique challenges ahead for medical physics simulations in therapy and diagnostic applications. The purpose of this meeting is to provide a technical exchange of ideas and a forum for novel approaches to simulating radiation transport and dosimetry for accurate and efficient assessments for the enhancement of dose assessment, treatment planning, image quality evaluations, calibration, etc. Conference Registration is $300/person, $100/student participants.

Abstracts of 500–1000 words, due by **August 1, 2007,** may be submitted to sjoden@ufl.edu . Full papers in MS-Word or PDF format for approved abstracts are due upon arrival at the workshop and will be published as Technical Proceedings. Instructions for accepted papers will be provided at the time of acceptance, on or before 15 August 2007. "Best" quality full papers presented upon registration will be selected and forwarded for further peer review and publication in a special edition of the *Nuclear Technology Journal*, a publication of the American Nuclear Society. A template will be made available for download at http://cmpwg.ans.org. The Technical Program Committee will select the best paper submitted by a graduate.

The conference will be held at the Hilton Hotel and Conference Center; reservations may be made directly with the hotel by specifying the rate code to be supplied later. Questions on facilities related to

the workshop can be directed to Geri Roberts, 352-392-1401, x306. For information about the conference, contact Dr. Glenn Sjoden, (352) 392-1401, x323, fax: (352) 392-3380, email: sjoden@ufl.edu.

CONRAD-WP4

The European Radiation Dosimetry Group (EURADOS) is sponsoring the CONRAD WP4 workshop on "Uncertainty Assessment in Computational Dosimetry: A Comparison of Approaches." The workshop will be held in Bologna, Italy, October 1–3, 2007. The aims of the workshop are to discuss the results of a questionnaire on the expression of uncertainties in dosimetry measurements and calculations and to present contributions of general relevance within the scope of the WP4 action. Summaries of the results will be presented together with oral and poster communications by the participants on the following topics:

Recoil-proton telescope detector
Bonner sphere spectrometer
Sigma simulated workplace neutron field
Photon irradiation facility
Manganese bath
Iron sphere experiments
Energy response characteristics of a RadFET radiation detector
Recoil-proton telescope detector; sensitivity and uncertainty analysis

The workshop chairman is Dr. Gianfranco Gualdrini, ENEA-Instituto di Radioprotezione, 16 Via dei colli, 40136 Bologna (BO) Italy (email gauald@bologna.enea.it. Phone 39 051-6098350, fax 39 051-6098003). Preliminary registration will begin February 15, 2007. Details and the latest news regarding the workshop can be found at http://www.eurados.org/.

10th International Nuclear Power Safety and Nuclear Education Conference

Obninsk State Technical University for Nuclear Power Engineering will host the 10th International Nuclear Power Safety and Nuclear Education Conference, October 1–7, 2007. Abstracts may be submitted until May 15 on the following topics:

- Innovative nuclear systems and fuel cycle
- Nuclear education, training and knowledge preservation
- Safety fundamentals of nuclear technologies
- Advanced fuel cycles and nonproliferation
- Radiological safety and environmental protection
- Reliability, endurance and lifetime resource management

Contact the Conference Secretary, Ms. Elena Zinovieva, Obninsk State Techn. Univ. (zev@iate.obninsk.ru) for details regarding registration and paper submission.

NUPPAC' 07

The 6th Conference on Nuclear and Particle Physics (NUPPAC '07) will be held 17–21 Nov. 2007, in Luxor, Egypt. The conference topics are:

- Nuclear Scattering and Reactions
- Nuclear Models and Spectroscopy
- High Energy and Particle Physics

- Neutron and Reactor Physics
- Plasma and Fusion Physics
- Relativistic and Quantum Physics
- Computer Codes (modeling, simulation, analysis)
- Nuclear Analytical Techniques
- Reactor and Accelerator Utilization
- Detectors and Instrumentation
- Radiation Measurements and Dosimetry
- Applied Nuclear Physics

The registration and instructions for submitting abstracts to the conference can be found at the website, http://www.geocities.com/Athens/Library/7348/NUPPAC_07.html. Correspondence should be addressed to Prof. Dr. M.N.H. Comsan, Chairman of NUPPAC' 07, Egyptian Nuclear Physics Association (ENPA), 3 Ahmed Elzomor St., Elzohour District, Nasr City, Cairo, Postal Code 11787, Egypt (phone 202-4021018, fax 202-2876031, email mnhcomsan@menanet.net or comsanmn@hotmail.com).

CALENDAR

April 2007

Short Course on Introduction to Monte Carlo Treatment Planning, April 12–14, 2007, Fox Chase Cancer Center, Philadelphia, PA. Contact: Jinsheng Li, PhD, Course Coordinator, Department of Radiation Oncology, FCCC, 333 Cottman Avenue, Philadelphia, PA 19111 (phone 215-728-5665, fax 215-728-4789, email Jinsheng.Li@fccc.edu) url http://www.fccc.edu/cancer/treatment/radonc/treatment/monte-carlo-course.html.

Joint International Topical Meeting on Mathematics & Computations and Supercomputing in Nuclear Applications (M&C+SNA), April 15–19, 2007, in Monterey, California. Contact: general questions (mcinfo@nuc.berkeley.edu); questions regarding the program (vujic@nuc.berkeley.edu) url http://mc-sna07.nuc.berkeley.edu/.

ASM Oak Ridge Chapter Educational Symposium on Neutrons for Materials Science and Engineering Workshop, April 18, 2007, ORNL's Spallation Neutron Source. Contact: Al Ekkebus (email ekkebusae@ornl.gov) url http://www.sns.gov/workshops/edsym2007/.

Neutron Stress, Texture, and Phase Transformation for Industry Workshop, April 19, 2007, ORNL's Spallation Neutron Source. Contact: Al Ekkebus (email ekkebusae@ornl.gov) url http://www.sns.gov/workshops/edsym2007/.

International Conference on Nuclear Data for Science and Technology, April 22–27, 2007, Nice, France. Contact: nd2007@cea.fr, url: http://www-dapnia.cea.fr/Sphn/nd2007/site_nd2007/.

Women in Nuclear (WIN) Global Conference 2007, April 22-27, 2007, Bali, Indonesia. Contact: Ms. Renaningsih, Center for Application of Isotope and Radiation Technology, (PATIR - BATAN) Jl. Cinere, Pasar Jumat, PO. Box 7002 JKSKL, Jakarta 12070, Indonesia (phone: +6221 7659375 / +6221 7690709, fax +6221 7691607 / +6221 7513270; or email: setjor@yahoo.com) url http://www.win-ina.org/.

MCNPX Intermediate Workshop, April 30–May 4, 2007, San Francisco, California. Contact: Nancy Butner, D-5 Nuclear Design and Risk Analysis Group (phone 505-667-8016, email nbutner@lanl.gov) url http://mcnpx.lanl.gov/.

May 2007

Introduction to MCNP Using the MCNP/MCNPX Visual Editor, May 7–11, 2007, Richland, WA. Contact: randyschwarz@mcnpvised.com or http://www.mcnpvised.com.

ICAPP '07, International Conference on Advances in Nuclear Power Plants, May 14–16, 2007, Nice, France. Contact: Philippe Pradel, general chair, CEA Centre de Saclay, Bat 121, 91191 Gif-sur-Yvette, Cedex, France (phone 33-169-08-6190, fax 33-169-08-6185, email philippe.pradel@cea.fr).

2007 North American Young Generation in Nuclear (NA-YGN) Annual Workshop, May 22–23, 2007, Aventura (North Miami Beach), Florida. Contact: Lisa Stiles Shell (phone 202.739.8143, email lss@nei.org) url http://www.nei.org/.

Annual Meeting on Nuclear Technology 2007, May 22–24, 2007, Karlsruhe, Germany. Contact: Congress Office, dbcm GmbH, Kamillenweg 16-18, 53757 Sankt Augustin, Germany (phone 49-0-2241-93897-33, fax 49-0-2241-93897-12, email jk@dbcm.de).

International Conference on Nuclear Criticality Safety (ICNC 2007), May 28–June 1, 2007, St. Petersburg, Russia. Contact: Boris Ryazanov, general chair, State Scientific Center of the Russian Federation, Inst. Of Physics and Power Engineering, Bondarendko Square 1, 249020 Obninsk, Kaluga Region, Russia (email ryazonov@ippe.ru) url http://www.icnc2007.com/.

McGill Workshop on Monte Carlo Techniques in Radiotherapy Delivery and Verification May 29–June 1, 2007, McGill University in Montreal. Contact: Jan Seuntjens, Medical Physics Unit, McGill University (phone 1 514 934 1934 Ext 44124, email: jseuntjens@medphys.mcgill.ca.

June 2007

ICENES 2007, June 3–8, 2007, Istanbul. Contact: Prof Dr. Sümer Şahin, Gazi University 06500 Ankara, Turkey Contact: Prof Dr. Sümer Şahin, Gazi University 06500 Ankara, Turkey (phone +90 312 212 43 04, fax +90 312 212 43 04, email sumersahin@icenes2007.org) url http://www.icenes2007.org/.

ICCR 2007, June 4–7, 2007, Toronto. Contact: Secretariat (email iccr@rmp.uhn.on.ca) url http://www.iccr2007.org/.

MCNPX Introductory Workshop, June 4–8, 2007, Santa Fe, New Mexico. Contact: Nancy Butner, D-5 Nuclear Design and Risk Analysis Group (phone 505-667-8016, email nbutner@lanl.gov) url http://mcnpx.lanl.gov/.

Practical MCNP for the Health Physicist, Medical Physicist, and Rad Engineer, June 18–22, 2007, University of New Mexico-Los Alamos Campus. Contact: David Seagraves (phone 505-667-4959, fax 505-665-7686, e-mail: dseagraves@lanl.gov) url http://drambuie.lanl.gov/~esh4/mcnp.htm

ANS Annual Meeting, "It's All About the People: The Future of Nuclear," June 24–28, 2007, Boston, Massachusetts. The url is http://www.ans.org/meetings/.

Space Nuclear Conference 2007 (SNC '07), an embedded topical of the ANS Annual Meeting, June 24–27, 2007, Boston. Contact: Lynne Schreiber, Conference Administrator, (phone 352-392-9722, fax 352-392-8656, email space@ans.org) url http://www.inspi.ufl.edu/space07/index.html.

July 2007

Sixth International Symposium on Physical, Molecular, Cellular, and Medical Aspects of Auger Processes, July 5–7, 2007, Harvard Medical School, Boston, MA. Contact: Amin I. Kassis, PhD, Radiation Biology and Experimental Radionuclide Therapy, Harvard Medical School, 200 Longwood Avenue, Boston MA 02115 (phone 617-432-7777, fax 617-432-2419, email amin_kassis@hms.harvard.edu or Auger6@hms.harvard.edu) url http://medapps.med.harvard.edu/Auger6/.

U.S. Women in Nuclear Conference 2007, July 15-17, 2007, Anaheim, Calif. URL http://www.winus.org/.

Advanced Visual Editor for Experienced MCNP/MCNPX Users Training, July 16–20, 2007, Richland, WA. Contact: randyschwarz@mcnpvised.com or http://www.mcnpvised.com.

AAPM Annual Meeting, July 22–26, 2007, Minneapolis, MN. Contact: Lisa Rose Sullivan (email lrose@aapm.org) url http://aapm.org/meetings/07AM/.

ANS/IAEA International Conference on Applications and Utilization of Accelerators (AccApp'07), July 30-Aug. 2, 2007, Pocatello, Idaho. Contact: Conference Administrator, Ms. Nikki Iwert-Bays (Nikki.Iwert-Bays@inl.gov@inl.gov) url: http://www.iac.isu.edu/accapp07/.

September 2007

ICEM'07, the 11th International Conference on Environmental Remediation and Radioactive Waste Management, Sept. 2–6, 2007 Bruges, Belgium. Contact: Gary Benda, WM'07 Conference Organizer, STUDSVIK/RACE, LLC, (phone +1-803-345-2170, email GBenda_use@hotmail.com) url http://icemconf.com/index.htm.

Global '07 "Advanced Nuclear Fuel Cycles and Systems" Sept. 9–13, 2007, Boise, Idaho. Information is posted at http://nuclear.inel.gov/global07/contacts.shtml.

2007 Decommissioning, Decontamination, and Reutilization Meeting and Expo, Sept. 16–19, 2007, Chattanooga, Tennessee. Contact: Joe Carignan, General Chair (phone 423-875-4555, email jecarignan@aol.com) url http://www.ans.org/meetings/index.cgi?c=t#ddr07.

MCNPX Advanced Workshop, Sept 17–21, 2007, Santa Fe, New Mexico. Contact: Nancy Butner, D-5 Nuclear Design and Risk Analysis Group (phone 505-667-8016, email nbutner@lanl.gov) url http://mcnpx.lanl.gov/.

International Radiation Protection Association (IRPA) Regional Congress for Central and Eastern Europe, Sept. 24–28, 2007, Brasov, Romania. Contact: Constantin Milu, Institute of Public Health, Str. dr. Leonte No.1-3, RO-050463 Bucharest 35, Romania (phone (40 21) 3141971, fax (40 21) 3183635, email irpa2007@ispb.ro) url: http://www.irpa2007romania.com/.

"CMPWG-II" Computational Medical Physics Working Group Workshop II, September 30–Oct 3, 2007, University of Florida-Gainesville. Contact: Dr. Glenn Sjoden, (352) 392-1401, x323, fax: (352) 392-3380, email: sjoden@ufl.edu.

October 2007

CONRAD WP4 workshop on "Uncertainty Assessment in Computational Dosimetry: A Comparison of Approaches," Oct. 1–3, 2007, Bologna, Italy. Contact: Dr. Gianfranco Gualdrini, ENEA-Instituto di Radioprotezione, 16 Via dei colli, 40136 Bologna (BO) Italy (email gauald@bologna.enea.it, phone 39 051-6098350, fax 39 051-6098003) url: http://www.eurados.org/.

10th International Nuclear Power Safety and Nuclear Education Conference, October 1–7, 2007, Obninsk, Russia. Contact: Ms. Elena Zinovieva, Obninsk State Techn. Univ. (zev@iate.obninsk.ru).

SCALE Training: ORIGEN-ARP/TRITON Course,Oct. 15–19, 2007, Oak Ridge National Laboratory, Oak Ridge, TN. Information and registration can be found at http://www.ornl.gov/sci/scale/training.htm.

SCALE Training: KENO-VI Course, Oct. 22–26, 2007, Oak Ridge National Laboratory, Oak Ridge, TN. Information and registration can be found at http://www.ornl.gov/sci/scale/training.htm.

MCNPX Intermediate Workshop, October 22–26, 2007, Europe. Contact: Nancy Butner, D-5 Nuclear Design and Risk Analysis Group (phone 505-667-8016, email nbutner@lanl.gov) url http://mcnpx.lanl.gov/.

SCALE Training: TSUNAMI Sensitivity/Uncertainty Tools Course, Oct. 29–Nov. 2, 2007, Oak Ridge National Laboratory, Oak Ridge, TN. Information and registration can be found at http://www.ornl.gov/sci/scale/training.htm.

November 2007

NUPPAC ’07, 17–21 Nov. 2007, Luxor, Egypt. Contact: Prof. Dr. M.N.H. Comsan, Chairman of NUPPAC' 07, Egyptian Nuclear Physics Association (ENPA), 3 Ahmed Elzomor St., Elzohour District, Nasr City, Cairo, Postal Code 11787, Egypt (phone 202-4021018, fax 202-2876031, email mnhcomsan@menanet.net or comsanmn@hotmail.com) url: http://www.geocities.com/Athens/Library/7348/NUPPAC_07.html.

April 2008

11th International Conference on Radiation Shielding (ICRS-11) and the 15th Topical Meeting of the Radiation Protection and Shielding Division (RPSD-2008) of the American Nuclear Society, April 13–18, 2008, Callaway Gardens, Pine Mountain, Georgia. Contact: General Chair, Nolan Hertel, Georgia Institute of Technology (email nolan.hertel@me.gatech.edu) or General Co-Chair, Pedro Vaz, ITN, Portugal (email pedrovaz@itn.pt) url http://icrs11.me.gatech.edu/index.htm.