Radiation Safety Information Computational Center

Oak Ridge National Laboratory
POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831-6171

Managed by
UT-Battelle, LLC
for the U.S. Department of Energy
under contract DE-AC05-00OR22725

Phone No. 865-574-6176 FAX 865-241-4046
Internet PDC@ORNL.GOV
http://rsicc.ornl.gov/

No. 482 April 2005

People seldom want to walk over you until you lie down. – Elmer Wheeler

NEW PRICING MATRIX

RSICC continues to provide services related to the acquisition, testing, and distribution of codes and data to over 4000 active customers per year. Unfortunately, the support provided by our sponsors does not cover all the expenses required to operate the Center. Therefore RSICC finds it necessary to increase our cost recovery charges to supplement the funding provided by our sponsors. RSICC wishes to thank those offices within DOE and NRC which provide the support that helps keep costs down and quality up. The following cost recovery fees will be effective April 1, 2005.

U.S. DOE and NRC offices that fund RSICC	No charge
Other US DOE offices, other government agencies, US educational institutions, Not For Profit organizations	$600
General public (includes other government contractors)	$800
ALL Non-US installations	$1000

Seldon Keith Penny, a Founder and First RSIC Director, Died March 17, 2005

Seldon Keith Penny came to the Oak Ridge National Laboratory's Neutron Physics Division in 1955 from Oklahoma where he had received a degree in Engineering Physics from Oklahoma University. He later attended the University of Tennessee and obtained a doctorate degree in Physics. He attended ORNL/ORSORT (Oak Ridge School of Reactor Technology) and became involved in shielding activities. He, with David Trubey and Betty F. Maskewitz, was selected to initiate a prototype 'information analysis center,' to preserve the information and technology generated in the Aircraft Nuclear Propulsion and related programs of the 1950s and 1960s.

The Radiation Shielding Information Center (RSIC) was established in 1962 with Penny as the first director. He and Trubey, with Peggy Emmett as programmer, developed SARIS (Storage & Retrieval Information System), the first of its kind as a repository of the published literature, in this case, in radiation transport and shielding.

Penny led RSIC in the formative years (1962–1966) with enthusiasm as the staff and volunteer coordinators within the user community worked cooperatively to build the RSIC base of selected literature, computer codes, and nuclear data. The seminar-workshop, as a device to disseminate a large body of information to an interested group of researchers, was initiated at ORNL in late 1965 under his leadership. The seminar featured Monte Carlo techniques and the computer code system, Oak Ridge Random Research Reactor System (O5R), was selected for the workshop.

The success of the seminar-workshop led to an invitation from the OECD Nuclear Energy Agency (NEA) Computer Programme Library, located at EURATOM, Ispra, Italy, to repeat the activity with the cooperating European shielding research community. Following the seminar-workshop (April 25–29, 1966), Penny and Maskewitz made RSIC orientation visits to nuclear research institutions in Italy, West Germany, France, Sweden, Denmark, the Netherlands, and the United Kingdom. A cooperative Agreement for Exchange, initiated in the early years, has continued between OECD/NEA Data Bank and DOE/ORNL RSICC.

Penny left RSIC in mid-year 1966 for an assignment with Union Carbide, NY. He returned to ORNL in March 1970 to work on various research programs, the last in the Computer Sciences. He retired in 1989 after 35 years of service.

Penny is survived by his wife Marvene, four children, twelve grandchildren, and one great granddaughter.

In memory of Lev Vasilievich Mayorov

Enrico Sartori has sent us the sad news that Dr. Lev Vasilievich Mayorov from the RRC “Kurchatov Institut” passed away on 15 February 2005. During his career Dr. Mayorov published more than 150 scientific papers on reactor physics, radiative transfer, and the Monte Carlo method. “All of us, who have met him and who have listened to his profound knowledge and wisdom and have enjoyed his cheerful company will miss him very much.”

Jose Reyes Jr. named ‘Role Model of the Week’

Our friend David W. DePaoli has alerted RSICC to a story in The Daily Barometer Online about an engineer inspired by Oak Ridge National Laboratory. Jose Reyes Jr. was honored by HENAAC, a national organization that promotes Hispanics in engineering, science, mathematics and technology, as “Role Model of the Week,” for his research in the Oregon State University Advanced Plant Experiment Reactor Facility and for including student assistants in his research. Reyes is a professor and interim head of the Oregon State University Department of Nuclear Engineering and Radiation Health Physics. His exploration of nuclear energy began when his father gave him a book about Oak Ridge National Laboratory. Reyes recently returned from a one-year project with the United Nations at the International Atomic Energy Agency. He helped establish an agreement between 14 countries, which have embarked on a four-year plan to enable member states to improve the “reliability, economics and safety” of reactors.

WIN Region II Conference Highlights

The WIN Region II Conference, hosted by the Oak Ridge Chapter of Women in Nuclear (WIN), attracted over 70 participants from a seven-state area February 2 -3, 2005. Dr. David Hill, Associate Laboratory Director for Energy and Engineering Sciences at ORNL, gave the opening remarks and introduced David Henderson, Program Manager of Nuclear Hydrogen Research with the DOE Office of Nuclear Energy at, who gave a presentation on the Nuclear Hydrogen Initiative.

Dr. Maureen McCarthy, Director of Research and Development in the Science and Technology Directorate of the Department of Homeland Security, gave a presentation on the purpose and current focus of her Directorate.

Presentations from a panel of speakers included Charles Forsberg, who spoke on the use of new reactor designs to produce hydrogen, Ray Holdaway who spoke on space applications of nuclear power and Professor Alireza Haghighat who spoke on nuclear research from an academic perspective.

Michelle Buchanan, Karen Downer and Crystal Schrof from ORNL and Maureen Dunn from TVA, led a panel discussion on Advancement in Management. Each woman provided a summary of her career path and leadership opportunities.

Jeanette Miller, DOE Oak Ridge Operations and past President of Federally Employed Women, spoke on "Enhancing Your Career Through Networking."

Tours of several facilities at ORNL, which included the I&C - Sensor and Instrument Research Group, SNS - Spallation Neutron Source, AGR - Advanced Gas Reactor (AGR) Fuel Development and Qualification Program and TRU - TRU Waste Project, were conducted for the participants.

The American Museum of Science and Energy in Oak Ridge hosted the conference attendees during the evening with featured guest speaker Betty Maskewitz, ORNL retiree, who reminisced about her experiences at ORNL starting in the early 1960's. Her efforts to explore and implement innovative ways to effectively share radiation protection and shielding technology throughout the world demonstrated outstanding international technical and policy leadership in the radiation protection and shielding field.

Primary financial support for this event was provided by Oak Ridge National Laboratory and UT-Battelle, LLC. Additional support was provided by the Department of Energy Federal Women's Program (FWP), the Oak Ridge Chapter of Women In Nuclear, the American Nuclear Society, and the Society of Women Engineers.

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. Below is a chronological list of the conferences. More details (if available) are provided following the table.

WORKSHOP on NJOY and USER GROUP MEETING

We wish to provide you with information on the forthcoming NJOY workshop and User Group meeting to be held at Issy les Moulineaux, France, on the 2 May 2005 starting at 14:00. This Workshop will be held at NEA Headquarters, 7th floor, 12 boulevard des Iles, 92130 Issy les Moulineaux, France. The proposed programme can be found at http://www.nea.fr/html/dbprog/Njoy/njoy-issy-05.html. If you are interested in attending the NJOY workshop, please fill in the linked participation form and send it via email to Enrico Sartori at sartori@nea.fr. You are invited to make a presentation or to contribute to the discussion under agenda items 4, Experience and Feedback from Users on NJOY99, and item 5, Experience in Processing Covariance Data.

On the basis of the presentations proposed a more detailed agenda will be distributed in advance of the workshop. Information on accommodation and transportation can be found at http://www.nea.fr/html/general/hotels.html and http://www.nea.fr/html/general/nea-access.html respectively.

Enrico Sartori
OECD NEA Data Bank

Reactor Dosimetry - 12th International Symposium

Approximately every three years the ASTM International Committee E10 on Nuclear Technology and Applications and the European Working Group on Reactor Dosimetry organize a symposium on reactor dosimetry. The 12th International Symposium on Reactor Dosimetry will be held in Gatlinburg, Tennessee, **May 8– 13, 2005.** This symposium will be of interest to anyone involved in reactor dosimetry, including researchers, manufacturers and representatives from industry, utilities and regulatory agencies. The symposium theme is dosimetry for the assessment of irradiated reactor materials and reactor experiments, featuring radiation metrology techniques, data bases and standardization. Additional information on paper submittal and specific focus topics can be obtained by visiting the Symposium's web site http://www.reactordosimetry.com. In addition to the 100 to 120 oral and poster papers on the topics given on the web site, the symposium will feature six informal round-table workshops and two introductory level tutorials. The workshops will focus on discussions of problems, conflicts, recommendations, news and ideas. The workshop titles for the 12th Symposium will be: Accelerators and Fusion, Adjustments Methods and Uncertainties, Cross Section Files and Uncertainties, LWR Surveillance Dosimetry, Radiation Damage Correlations, and Test and Research Facilities. The two introductory level tutorials will be held in parallel and will address the topics of "Radiation Effects in Reactor Materials" and "Neutron Scattering Applications in Material Science." This symposium is a must-attend meeting for those serious about the field of radiation dosimetry and will offer the opportunity for

sharing ideas and discussions with colleagues in the field of radiation dosimetry. This meeting will also be ideal for those new to the field who want to be up to date on dosimetry related issues.

2005 International Congress on Advances in Nuclear Power Plants (2005 ICAPP)

The 2005 International Congress on Advances in Nuclear Power Plants will be held from **May 15–19, 2005,** in Seoul, Korea. There is no doubt that continuing support and interest will be a crucial element for the success of the first ICAPP held in Asia. The ICAPP has grown in stature since the first congress was held in 2002 to share ideas and visions for advances in nuclear power plants among operators, researchers and scholars. The 2005 ICAPP will attract the attention of the world's nuclear experts with many outstanding presentations of new developments and approaches in various studies and industrial projects. Please take the opportunity to share the results of your latest studies at the 2005 ICAPP. To ensure a successful congress, the 2005 ICAPP will consist of invited plenary sessions and topical technical sessions, as follows:

1. Water-Cooled Reactor Programs and Issues,
2. High Temperature Gas-Cooled Reactors,
3. Long-Term Reactor Programs and Strategies,
4. Operations, Performance and Reliability Management,
5. Plant Safety Assessment and Regulatory Issues,
6. Thermal Hydraulic Analysis and Testing,
7. Core and Fuel Cycle Concepts and Experiments,
8. Materials and Structural Issues,
9. Nuclear Energy and Sustainability including Hydrogen, Desalination and Other Applications, and
10. Near-Term Deployment.

Visit the website http://www.icapp2005.org to find out more about the 2005 ICAPP in Seoul.

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

DATES: **June 6 –10, 2005** (4.5 days)
FEE: $1,450 per person
PLACE: The MESA Complex, Room 130, University of New Mexico-Los Alamos Campus

Monte Carlo calculations are ideally suited to solving a variety of problems in radiation protection and dosimetry. This course is aimed at the health physicist, 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. Extensive interactive practice sessions are conducted on personal computers. 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 comprehensive class manual and a diskette containing all of the practice problems. This course has been granted 32 Continuing Education Credits by the AAHP, 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: Los Alamos National Laboratory, Group HSR-4, MCNP Class, David Seagraves, Mail Stop J573, Los Alamos, NM 87545.

Inquiries regarding registration and class space availability should be made to David Seagraves, 505-667-4959, fax: 505-665-7686, email: dseagraves@lanl.gov. Technical questions may be directed to Dick Olsher, 505-667-3364; email: 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.

MCNP Intermediate/Advanced Class

An Intermediate/Advanced MCNP Topics class for the MCNP (Monte Carlo N-Particle) transport code will be held in Tokyo, Japan, **June 27–July 1, 2005.** This class will be taught by the team who develops and maintains MCNP.

Advanced classes are for people with MCNP experience who want to extend their knowledge and gain depth of understanding. Most areas of MCNP operation will be discussed in detail, with emphasis on advanced geometry, advanced variance reduction techniques, and other advanced features of the program. Time will be available to discuss approaches to specific problems of interest to students.

The class fee includes a notebook with all class viewgraphs (over 300) and handouts. Dinner the first evening is included as part of your registration fee and snacks and refreshments are provided during class breaks.

All classes provide interactive computer learning. Time will be available to discuss individual questions and problems with MCNP experts. To register for the class, go to http://www-xdiv.lanl.gov/x5/MCNP/classinformation.html.

MCNPX Workshops

Lead Teachers: Drs. John Hendricks, Gregg McKinney, Laurie Waters
Organizer: HQC Professional Services Contact: bill@mcnpxworkshops.com
More Information: http://mcnpxworkshops.com MCNPX homepage: http://mcnpx.lanl.gov

June 13–17	Introductory	Santa Fe, NM
Aug. 8–12	TBD	Seoul, Korea
Sept. 5–9	Advanced	Bologna, Italy
Sept. 19–23	Intermediate	Washington, D.C.
Nov. 7–11	Introductory	Santa Fe, NM

MCNPX is the LANL all-particle, all-energy (eV-TeV) Monte Carlo transport code based on MCNP4C, LAHET, CEM, etc. MCNPX has been in active development since 1995 and is sponsored by the particle accelerator community. It has now become an accepted tool for a broad range of applications by nuclear engineers, physicists, and scientists. The MCNPX development effort has expanded the use of the Los Alamos tools to applications such as APT, waste transmutation, accelerator shielding and health physics, particle beam cancer therapy, space shielding and cosmic ray analysis, single event effects in semiconductors, radiography, and more detailed analysis of the effects of light and heavy ions in matter. In addition, the entire functionality of MCNP4C is retained. New variance reduction and data analysis techniques, many adapted from high-energy accelerator methodologies, have also been added, such as the extensive "mesh tally" capability which allows up to 3-d plotting of particle tracks, fluence and fluence-derived quantities, energy deposition, next event estimator generation contributions and particle sources.

The workshops include hands-on instruction, generally on PC Windows machines. Subject to participant export approval for the MCNPX beta test team, participants will be able to access the Fortran-90 version of MCNPX 2.4, the LA150 (150 MeV) cross-section data 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 MCNPX Workshops web site http://mcnpxworkshops.com.

Electron-Photon Transport Modelling with PENELOPE-2005 – Physics, Code Structure and Operation

PENELOPE is being updated to include several new features and an updated database. An advanced training course/workshop entitled "Electron-Photon Transport Modelling with PENELOPE-2005 - Physics, Code Structure and Operation" is scheduled for July 4–7, 2005, at the Facultat de Fisica (ECM), Universitat de Barcelona, Diagonal 647, 08028 BARCELONA, Spain.

This course is addressed to researchers in radiation physics and its applications. The main objective is to provide the participants with a detailed description of PENELOPE-2005 with an ample perspective on Monte Carlo methods for simulation of electron/photon transport. The reliability of the interaction models and the accuracy of the numerical methods and approximations implemented in the code will be discussed. Examples of simulation results and benchmark comparisons with experiment will be presented. The course will include practical sessions on the use of the generic main programs, PENCYL (cylindrical geometries) and PENMAIN (quadric geometries), and on the design of the main program for specific applications.

Accommodation at the facilities of the University will be available and the weather is known to be very pleasant then. The deadline for registration is **April 30, 2005.** Links to the syllabus and registration form may be found at http://www.nea.fr/html/dbprog/Newsletter/Dec2004.htm#training.

230th American Chemical Society National Meeting

Applied Modeling and Computations in Nuclear Science will be held in Washington, DC, August 28–September 1, 2005. The meeting is sponsored by the Division of Nuclear Chemistry and Technology (NUCL) of the American Chemical Society (ACS), and the American Nuclear Society (ANS). The purpose of this Symposium is to bring theoretical and computational work in applied nuclear science under one umbrella, so that the nuclear scientists interested in modeling could have a broader forum for their research, as well as to enable learning related techniques. Cross-disciplinary computations are also of interest. Tentative topics include:

1. Statistical aspects of radioactivity, such as uncertainties, detection limits, novel statistics.
2. Radiation transport methods (Monte Carlo and deterministic), and nuclear data evaluations.
3. Calculating of the response and theoretical designing of radiation detectors.
4. Spectral deconvolution and fitting: alpha, beta, gamma spectroscopy.
5. Calculations of chemical structure and reactions involving radionuclides.
6. Transport models of radioactive contaminants in the environment.
7. Health physics calculations: dosimetry and risk assessment.
8. Medical radiation physics calculations: radiotherpy and imaging.
9. Nuclear sensing: modeling of well logging and gauges.
10. Computers in nuclear science laboratory, QA/QC, LIMS, etc.
11. Novel and sophisticated methods of nuclear data analysis.
12. Nuclear modeling of interest to counter-terrorism.
13. Novel computational algorithms of interest to applied nuclear science.

April 29, 2005, is the deadline for on-line abstract submission. Formal acceptance of abstracts will be sent in May 2005. Registration and housing reservations open on-line and the final program appears in C&EN and on the ACS web page in June/July 2005. Full papers are due at the conference August/September 2005 in MS Word format only. Instructions will be distributed to the accepted speakers.

The ACS web page is www.chemistry.org. For further information please contact Thomas Semkow, Wadsworth Center, New York State Department of Health and SUNY, P.O. Box 509, Albany, NY 12201-0509, Phone: +518-474-6071, Fax: +518-474-8590, Email: tms15@health.state.ny.us. The complete announcement as submitted by Thomas M. Semkow can be found at http://www.cofc.edu/~nuclear/2005WashingtonComputationSymposium.pdf.

Nuclear Applications of Accelerator Technology "AccApp05"

The forthcoming International Topical Meeting on Nuclear Applications of Accelerator Technology (AccApp'05) is the seventh in a series of international meetings of the Accelerator Applications Division of the ANS. It is scheduled for **August 28–September 1, 2005,** on the Island of San Servolo, Venice, Italy. The purpose of AccApp'05 is to provide an international forum for presenting and discussing the use of particle accelerator technology for a variety of applications. It is intended to focus on a wide area of applications including, spallation neutron sources, isotope production, medical therapy, nuclear waste transmutation, energy production, high power accelerators under construction and future projects, material issues in a particle environment, nuclear data and experiments, codes and models for particle transport, system engineering, thermo hydraulics, contraband detection and radiation protection. For more information see: http://www.nea.fr/listsmh/satif/pdf00004.pdf.

International Topical Meeting on Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications

The International Topical Meeting on Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear and Biological Applications will be held at the 'Palais des Papes,' Avignon, France, **September 12–15, 2005.**

The meeting offers an environment for interdisciplinary exchange among researchers in the nuclear field and comprises 19 General Technical sessions and 13 Invited Technical sessions. Details on the sessions and on the organization of the meeting are given at the web site: http://mcavignon2005.cea.fr/.

Papers are solicited in all areas of computational and mathematical methods and related disciplines including reactor physics, material sciences, shielding, fluid-dynamics, medical and biological applications, environmental sciences, fundamental mathematics and benchmarking.

We are now less than one year from the meeting dates and our web has been opened for the submission of extended summaries (1000 words < 1500 words). The deadline for summary submission is January 15, 2005. Instructions on summary submission are given in the web pages under the 'Authors' button.

11th International Topical Meeting on Nuclear Reactor Thermal Hydraulics

NURETH is the foremost international technical meeting on nuclear technology thermal hydraulics. The NURETH-11 meeting will be held in the historic Palace of the Popes in Avignon, France, **October 2–6, 2005.** For more information please go to http://nureth11.com/.

CALENDAR

May 2005

NJOY workshop and User Group Meeting, Issy les Moulineaux, France, 2 May 2005. Contact: Enrico Sartori at sartori@nea.fr.

12th International Symposium on Reactor Dosimetry, May 8–13, 2005, Gatlinburg, TN. Contact: Dr. James M. Adams (tel 301-975-6205, fax 301-926-1604, url http://reactordosimetry.com).

Radiation Transport Calculations Using the EGS Monte Carlo System, May 9–13, 2005, Ottawa, Canada. Contact: Nikki Dignard (tel 613-520-4388, fax 613-520-4389, email NikkiDignard@pigeon.carleton.ca, url http://www.physics.carleton.ca/~drogers/EGScourse05/).

2005 International Congress on Advances in Nuclear Power Plants, May 15–19, 2005, Seoul, Korea. Website http://www.icapp2005.org.

1st International Nuclear Chemistry Society (INCS), May 22–29, 2005, Kusadasi, Turkey. For more information: http://incs.ege.edu.tr/1st-INCC.html.

June 2005

ANS Annual Summer Meeting, June 5-9, 2005, San Diego, CA. For more information: url http://www.ans.org/meetings/.

Practical MCNP for the Health Physicist, Medical Physicist, and Rad Engineer, June 6–10, 2005. Contact David Seagraves (phone 505-667-4959, fax 505-665-7686, email dseagraves@lanl.gov).

MCNPX Introductory Workshop, June 13–17, 2005, Santa Fe, CA. Contact: Bill Hamilton (tel 505-455-0312, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com for details).

Intermediate/Advanced MCNP Topics Class for the MCNP (Monte Carlo N-Particle) transport code, June 27–July 1, 2005, Tokyo, Japan. Registration http://www-xdiv.lanl.gov/x5/MCNP/classinformation.html.

July 2005

PENELOPE-2005 Training Course, July 4-7, 2005, Barcelona, Spain. http://www.nea.fr/html/dbprog/Newsletter/Dec2004.htm#training.

August 2005

MCNPX Workshop, Aug. 8–12, 2005, Seoul, Korea. Contact: Bill Hamilton (tel 505-455-0312, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com for details).

12th International Conference on Emerging Nuclear Energy Systems (ICENES 2005), Aug. 21–26, 2005, Brussels, Belgium. For more information: http://www.sckcen.be/sckcen_en/activities/conf/conferences/icenes2005/date_place.shtml.

Seventh Topical Conference on Nuclear Applications of Accelerator Technology "AccApp05", Aug. 28–Sept. 1, 2005, Venice, Italy. For more information: http://www.nea.fr/listsmh/satif/pdf00004.pdf.

Applied Modeling and Computations in Nuclear Science, Aug. 28–Sept. 1, 2005, Washington, DC. Contact Thomas Semkow (phone +518-474-6071, fax +518-474-8590, email tms15@health.state.ny.us).

September 2005

XIX Nuclear Physics Divisional Conference (NPDC19) of the European Physical Society, Sept. 5–9, 2005, Pavia, Italy. Contact: Saverio Altieri (email saverio.altieri@pv.infn.it, url http://www.pv.infn.it/~npdc19).

MCNPX Advanced Workshop, Sept. 5–9, Bologna, Italy. Contact: Bill Hamilton (tel 505-455-0312, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com for details).

International Topical Meeting on Mathematics and Computation, Supercomputing, Reactor Physics and Nuclear Biological Applications (M&C 2005), Sept. 12–15, 2005, Avignon, France. Contact: Dr. Richard Sanchez (email avignon2005@drnsac.cea.fr; url http://mcavignon2005.cea.fr).

MCNPX Intermediate Workshop, Sept. 19–23, 2005, Boston, MA, or Washington, D.C. Contact: Bill Hamilton (tel 505-455-0312, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com for details).

2005 NCSD Topical Meeting, Sept. 19–22, 2005, Knoxville, TN. For more information: http://meetingsandconferences.com/ncsd2005/.

October 2005

11th International Topical Meeting on Nuclear Reactor Thermal Hydraulics, Oct. 2–6, 2005, Avignon, France. For more information: http://nureth11.com, nureth11@cea.fr.

November 2005

MCNPX Introductory Workshop, Nov. 7–11, 2005, Santa Fe, CA. Contact: Bill Hamilton (tel 505-455-0312, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com for details).