Radiation Safety Information Computational Center

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"The man who follows the crowd will usually get no further than the crowd. The man who walks alone is likely to find himself in places no one has ever been." - Alan Ashley-Pitt

Printable PDF file of this newsletter available at: **http://www-rsicc.ornl.gov/NEWSLETTER.html**.

No Fee Archived Codes, Now Available

RSICC has maintained an ever-widening set of software and data that span the last 30 years. Some of the older and yet very good software are less in demand today as they have spawned newer software that include increasing detail and more expansive application usage. Yet, RSICC holds the software as a valuable resource for those who wish to develop and update them to newer applications. In the spirit of encouraging the software reuse and redevelopment (perhaps increasing software quality assurance), RSICC is now allowing **registered users** to request these software packages at no charge with the hope that improvements will be made and recycled through the RSICC holdings for others to access. The software that has been selected for this no fee designation is identifiable through the WWW request listing of the codes, marked either *ARCHIVE* or *ARC-USSO*. A pdf list is available at **http://www-rsicc.ornl.gov/nofee.html** (from our homepage you can click on ANNOUNCEMENTS). Please note that there will be no support offered to users of this software, and it is hoped requesters will return their improved versions to RSICC. We request that users narrow their choices before making decisions on acquiring the software. A limit of two packages per order will be imposed.

More nice words about RSICC's 40th

Long-Standing Cooperation Between RSICC and the French Radiation Shielding Group

Jean Claude Nimal

RSICC is forty years old. When it was created, I was just beginning my work in the French Atomic Energy Commission (CEA) in Fontenay aux Roses near Paris. I have learnt early from Jean Rastoin and Pierre Lafore that they thought the relations between RSICC and the French radiation shielding group of CEA were very important. Unlike other research fields, the radiation shielding information was very open to the international community thanks to the existence of centers like RSICC and NEA. In 1965, with Jean Rastoin, I got some detailed and interesting information about the SN code NIOBE and the Monte-Carlo codes SANE and SAGE. This information has been very useful to the French shielding community in

Fontenay aux Roses and later in Saclay. After our first contact with Betty and Bob Roussin and in spite of my problems with English, several relationships were established in the Monte-Carlo and radiation shielding studies: International Conference on Radiation Shielding (ICRS), meetings on Monte-Carlo method at Saclay and at Oak Ridge. Some code exchanges have occurred: O5R, TRIPOLI2 with the participation of Betty and Fred Maienschein. The TRIPOLI report has been translated from French to English by Ernest Silver. Staff exchanges were arranged: Jean Gonnord went to Oak Ridge and Noel Cramer came to Saclay.

I am confident that, in spite of the geographic distance, the good relationship in the radiation shielding area will last and I wish that the RSIC founder members and their successors will have a good anniversary.

Henri Levy Dies

Henri Levy, a native of Oxnard, California, and a participant in the highly secretive World War II Manhattan Project, died March 25th at his home in Oak Ridge, Tennessee. After receiving his doctorate in physical chemistry from the California Institute of Technology in 1938 and studying chemical crystallography as a research fellow, he moved to what was then known as the Clinton Laboratory to use his chemical expertise in the war effort. He resumed his pre-war research in 1948. As group leader in chemical crystallography and structure of liquids, he and his associates took advantage of research opportunities offered by ORNL's Graphite Reactor, the Oak Ridge Research Reactor, the High Flux Isotopes Research Reactor, and ORNL's early computer, the ORACLE, and made discoveries and perfected techniques that have profoundly affected the work of crystallographers around the world. He continued his research after officially retiring from ORNL in 1978, including a joint project with Donald E. and Ada L. Olins on electron microscope tomography, combining multiple two dimensional images to solve the problem of imaging asymmetric biological structures in three dimensions. During his time at ORNL, he also held teaching positions at the University of Tennessee's graduate program in chemistry and at the University's School of Biomedical Science. He belonged to numerous professional societies, serving as president of the American Crystallographic Association and as a delegate to the International Union of Crystallography for many years. He was honored for his impressive contributions to the field of crystallography by the Antarctic Place-names Committee with the naming of Levy Island in Antarctica's Crystal Sound.

Sources: ***Inside VC*** newspaper, March 30, 2003; ***The Oak Ridger*** newspaper, March 27, 2003

Available NRC Codes

Three U.S. Nuclear Regulatory Commission (NRC) software packages transferred from the Energy Science and Technology Software Center, Oak Ridge, Tennessee, to RSICC were processed this month. Please browse the computer code abstracts available at RSICC's web site for more information on these packages.

CCC-419/CRAC2
CCC-400/DOSFACTER-II
CCC-416/CONDOS-II

Changes to the Computer Code and Data Collection

One new hardware version and two new packages were added to the computer code collection this month.

CCC-180/TDA

OP SYS: Solaris, AIX
Language: Fortran
Computers: Sun, IBM RS/6000
Format: tar

Sandia National Laboratory and ORNL recently contributed Unix versions of TDA (Time Dependent ANISN). This code system is a modified version of the one-dimensional discrete ordinates code, CCC-254/ANISN, with the time-dependent behavior of the particles of interest included in the difference equations. Delayed neutron and other time-dependent effects (such as changes in temperature, composition, etc.) are not accounted for in this version of the code. The time dependence included in the code is due entirely to what might be termed "time streaming" or the velocity of the particles. The results of application of the code can be applied to several nonphysical problems having approximate analytical solutions and to the real problem of a neutron-pulsed subcritical 239Pu sphere. In the latter problem, neutron and photon leakage rates are presented as functions of energy and time. The neutronic response time of this pure metal system is 10 to 20 nsec. The TDA code performs well, with the discrete limitation, provided that care is taken to assure proper convergence of the Sn iteration scheme.

TDA was developed on an IBM 360/91 computer and was ported to CDC in the early 1970's. These mainframe versions were last updated in 1981. At Sandia National Laboratory, the IBM 360 version was recently converted to run on Sun workstations. At ORNL, the IBM 360 version was converted run on IBM RS/6000 workstations. These new workstation releases were added to the RSICC package in the April 2003 update. No changes were made to the mainframe versions, but they are still included in the distribution. At RSICC, the workstation versions were tested on:

Sun UltraSparc under SunOS 5.6 with Sun Workshop Fortran 77 5.0
IBM RS/6000 under AIX 4.3.3 with XL Fortran Ver 7.1

The package is transmitted on a CD which contains the referenced documents in a PDF file and an information file, source codes and sample problem input and output written in a Unix tar file.
References: LA-4557,ORNL-4662,SAI 70-125 (May 1971) and Appendix A excerpted from ORNL-TM-3646 (April 1972). Fortran; CDC, IBM 360/370, Sun, IBM RS/6000 (C00180/MNYWS/01).

CCC-714/SWAT

OP SYS: Unix
Language: Fortran 77
Computers: Workstations
Format: tar

Japan Research Institute, Ltd. Energy Technology Department, Tokyo, and Japan Atomic Energy Research Institute, Tokai-mura, Naka-gun, Ibaraki-ken, contributed the SWAT Step-Wise Burnup Analysis code system. SWAT solves the general criticality problems especially for burnup credit issues by driving codes CCC-716/SRAC95 and CCC-371/ORIGEN2.1 or ORIGEN2. A modified version of ORIGEN2 is included in this package, but SRAC is not included and must be requested separately. ORIGEN2(82) or ORIGEN2.1 are used for bumup calculation using the matrix exponential method. A decay library and updated photon library of activation products are included in this distribution. SWAT runs SRAC95 for neutron spectrum calculation in 107 groups, using the collision probability method for given geometry and isotopic composition. One or two dimensional cell geometries are supported in SRAC95. Several data libraries are included in the SRAC-95 package.

The code has been tested on HP, IBM, NEC, FACOM, Sun, and Linux-PC under Unix operating systems supporting a Fortran 77 compiler. RSICC tested SWAT on Sun Solaris 2.6 operating system. The package is distributed in a Unix tar file on a CD which contains the SWAT source, scripts, modified ORIGEN2 source and data libraries, and SWAT test cases. No executables are included. Note that the **SWAT report is written in Japanese**; no English translation is available at this time but will be added to the package when it is completed. Reference: SWAT Installation Guide (in English) (March 14, 2003) and JAERI-DATA/Code 2000-0027 (in Japanese) (2000). Fortran 77 and C; Sun, HP, Fujitsu, Hitachi, & Linux-PC (C00714/MNYWS/00).

CCC-716/SRAC95

OP SYS: Unix, Linux
Language: Fortran 77
Computers: Workstations, PC
Format: tar

Japan Atomic Energy Research Institute, Tokai-mura, Naka-gun, Ibaraki-ken, Japan, contributed this thermal reactor code system for reactor design and analysis. SRAC95 is a general purpose neutronics code system applicable to core analyses of various types of reactors, including cell calculation with burn up, core calculation for any type of thermal reactor, where core burn up calculation and fuel management were done by an auxiliary code. Since the publication of JAERI-1302 for the revised SRAC in 1986, a number of additions and modifications were made for nuclear data libraries and programs. In this version, many new functions and data are implemented to support nuclear design studies of advanced reactors. SRAC95 can be used for burnup credit analysis within the ORIGEN2 and SWAT (CCC-714) code system.

Collision probability method, 1D and 2D Sn for cell calculations, and 1D, 2D and 3D diffusion for core were used in SRAC95. The system includes several nuclear data libraries derived from ENDF/B-IV, -VI (R2 and R5), JENDL-3.1, JENDL-3.2, and JEF-2.2. Modified versions of five modular codes are integrated into SRAC95: collision probability calculation module (PIJ) for 16 types of lattice geometries, Sn transport calculation modules (ANISN, TWOTRAN), diffusion calculation modules (TUD, CITATION). Two optional codes are included for fuel assembly and core burn-up calculations (newly developed ASMBURN, revised COREBN).

SRAC95 can be run on almost any Unix or Linux operating system supporting a Fortran 77 compiler. The authors tested it on HP, IBM, NEC, Facom, Sun Solaris and PC Pentium computers. At RSICC SRAC95 was tested on a Pentium running the Linux operating system.

The package is transmitted on a CD which contains reports, source, test cases and data libraries in a Unix tar file (approximately 172 MB). References: JAERI 1302 (in English but for old version SRAC) (1986), JAERI JW282 (in English) (1994). Fortran 77 and C; Sun, IBM, HP, Facom, & Linux-PC (C00716/MNYWS/00).

Monthly Code Focus

As years have gone by many different codes and applications have been sent to RSICC for stewardship. We currently have over 1700 analytical code and data packages and distribute as many each year to 73 countries in the world. To help 'categorize' each package, we have developed a database of 'Subject Categories' to attach applications to the packages at RSICC. Doing so requires investigation into each code package, user feedback from end use statements, and extensive RSICC staff experience and analysis so that we can deliver useful information each month on the 30 different categories we have identified thus far. Links to the package abstracts are embedded into the WWW version of the RSICC Newsletter. Feedback from our Newsletter community is very valuable so please direct your comments and/or suggestions to **PDC@ORNL.GOV**. Many packages in the RSICC code collection are in this subject category. A few are highlighted here for your review. This month's code focus is **BENCHMARKS**. Please check out our BENCHMARK website: **http://www-rsicc.ornl.gov/ BENCHMARKS.html**.

AIRFEWG
BP-6
BRMSTK
EURLIBIII
MOSRALIGHT
SINBAD 2000
TRANSMIT
VVER-BENCHMARKS

CONFERENCES, COURSES, SYMPOSIA

RSICC attempts to keep its users/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 **FINCHSY@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 condensed list of the **conferences** only. More details are listed following the table.

Condensed Table of Conferences

Name of Conference	Date and Location	Web Site	Abstract/Paper Submission Date
International Congress on Advanced Nuclear Power Plants (ICAPP '03)	May 4-7, 2003 Cordoba, Spain	**www.ans.org/goto/icapp03**	passed
2003 IEEE Nuclear and Space Radiation Effects Conference (NSREC)	July 21-23, 2003 Monterey, California	**http://www.nsrec.com/**	passed
21st International System Safety Conference	Aug. 4-8, 2003 Ottawa, Canada	**http://www.system-safety.org/**	passed
9th International Conf. on Environmental Remediation and Radioactive Waste Mgmt.	Sept. 21-25, 2003 Oxford, England	**http://www.icemconf.com**	passed
Supercomputing in Nuclear Applications (SNA-2003)	Sept. 22-24, 2003 Paris, France	**http://sna-2003.cea.fr/**	passed
Advances in Nuclear Fuel Management III	Oct. 5-8, 2003 Hilton Head Island, South Carolina	**http://rpd.ans.org/nfm.htm**	passed

Name of Conference	Date and Location	Web Site	Abstract/Paper Submission Date
6th International Symposium on ESR Dosimetry and Applications	Oct. 12-16, 2003 Campos do Jordão, Brazil	**http://www.if.usp.br/VI_ESR_2003/**	June 30, 2003
7th International Conference on Nuclear Criticality Safety (ICNC2003)	Oct. 20-24, 2003 Tokai-mura, Japan	**http://www.icnc.jp/**	passed
9th International Symposium on Radiation Physics (ISRP-9)	Oct. 27-31, 2003 Cape Town, South Africa	**www.medrad.tlabs.ac.za/isrp9.htm**	
11th International Conference on Fusion Reactor Materials (ICFRM-11)	Dec. 7-12, 2003 Kyoto, Japan	**icfrm.iae.kyoto-u.ac.jp**	passed
PHYSOR 2004	Apr. 25-29, 2004 Chicago, Illinois	**www.td.anl.gov/PHYSOR2004**	Sept. 5, 2003
Current Topics in Monte Carlo Treatment Planning	May 3-5, 2004 Montreal, Canada	**http://mctp.medphys.mcgill.ca**	Nov. 1, 2003
International Conference on Radiation Shielding (ICRS-10) and Topical Mtg. on Radiation Protection & Shielding (RPS 2004)	May 9-14, 2004 Funchal, Madeira Island (Portugal)	**http://www.itn.mces.pt/ICRS-RPS/**	

Advances in Nuclear Fuel Management III - Call For Papers

Preparations for the American Nuclear Society's Advances in Nuclear Fuel Management III Topical Meeting to be held in Hilton Head Island, South Carolina, during the period of **October 5-8, 2003**, have now begun in earnest. You are invited to serve on the Meeting's Technical Program Committee (TPC). In this capacity your commitment will include:

1. Electronically submit one or more papers, and encourage colleagues to do the same,
2. Help identify and organize special session(s) on timely topics you are interested in, and solicit participation, and
3. Electronically review papers assigned to you in a timely and professional manner

Please return the following information (name, affiliation, phone, alternative email if preferable, topics of interest) to Youssef A. Shatilla at **shatilya@westinghouse.com**.

The success of this meeting depends on your active support and involvement. Finally, please bookmark the conference web site: **http://rpd.ans.org/nfm.htm** and visit it occasionally for news and updates. Comments and suggestions are most welcome.

Current Topics in Monte Carlo Treatment Planning

This workshop will be held at McGill University, Montreal, Canada, from **May 3-5, 2004**, and aims to bring together medical physicists and researchers to discuss development, clinical implementation and clinical evaluation of Monte Carlo treatment planning techniques in radiotherapy. The meeting will have both invited speakers and proffered contributions and is designed to have plenty of opportunity for informal and in-depth discussions.

For details regarding registration, program, invited speakers, abstract submission, etc, please consult our workshop website: **http://mctp.medphys.mcgill.ca.** Early registration is encouraged as the number of participants will be limited to around 100.

2003 IEEE Nuclear and Space Radiation Effects Conference (NSREC)

The 2003 IEEE Nuclear and Space Radiation Effects Conference (NSREC) will be held in Monterey, California, **July 21-25, 2003**. This annual meeting of engineers and scientists presents the latest techniques for enhancing the performance of microelectronic devices and circuits that are used in radiation environments. The final call for papers for the 2003 IEEE Nuclear and Space Radiation Effects Conference (NSREC) is available on the web site at **www.nsrec.com**. Deadline for submission is February 7, 2003.

Make plans for the 2003 short course in Monterey. Joe Benedetto and his team of professors have put together an interesting program about radiation effects on device scaling. The syllabus is at **www.nsrec.com/short.htm**.

Forms to nominate an outstanding colleague for the 2003 Radiation Effects Award are at **www.nsrec.com/nominate.htm**. This award comes with a handsome IEEE plaque and $2000 check.

University professors - Forms are available on the NSREC web site to nominate an outstanding student for the 2003 IEEE NPSS Phelps Continuing Education Grant. The cash award ($500 - $1000) comes with an IEEE certificate and complimentary short course registration. NSREC plans to award two grants this year. See **www.nsrec.com/steering.htm**.

Keep checking the web site at **www.nsrec.com** for the latest NSREC information. Contact Paul Dodd, Sandia National Laboratories, 505-844-1447 if you have questions.

International Conference on Radiation Shielding (ICRS-10) and Topical Meeting on Radiation Protection & Shielding (RPS 2004)

The Tenth International Conference on Radiation Shielding (ICRS-10) and the Thirteenth Topical Meeting of the Radiation Protection and Shielding Division of the American Nuclear Society (RPS 2004) will be held **May 9-14, 2004**.

The Local Organization has been assigned to ITN (the Nuclear and Technological Institute, in Lisbon), a laboratory of the Portuguese Ministry of Science and Higher Education. At the international level, the joint organization is co-sponsored by the Nuclear Energy Agency (NEA) of the Organization for Economic Co-operation and Development (OECD), the Radiation Protection and Shielding Division (RPSD) of the American Nuclear Society (ANS), and the Radiation Safety Information Computational Center (RSICC, Oak Ridge National Laboratory).

It is anticipated that this will be the most important event in the areas of Radiation Shielding and Radiation Protection during 2004. For further information please refer to the Conferences' Web pages at the following URL **http://www.itn.mces.pt/ICRS-RPS**. Please don´t hesitate to contact the Conference Secretariat at **icrs-rps@itn.mces.pt**.

In addition, if you would be interested in serving on the Scientific Program Committee, and contribute to the success of the meeting by either submitting or encouraging colleagues to submit papers, and participating in the technical review process, please contact the Conference Secratariat at the above email and provide your name, organization, email and topics of interest or expertise. The Organizing Committee welcomes your comments and suggestions to make your meeting a success.

6th International Symposium on ESR Dosimetry and Applications

The 6th International Symposium on ESR Dosimetry and Applications will be held **October 12-16, 2003**, in Campos do Jordão, Brazil. For complete information, please see **http://www.if.usp.br/VI_ESR_2003/** and click on "second announcement (PDF version)" on the left side of the screen.

7th International Conference on Nuclear Criticality Safety (ICNC2003)

The 7th International Conference on Nuclear Criticality Safety (ICNC2003) will be held **October 20-24, 2003,** in Tokai-mura, Japan. This conference has been held approximately every 4 years under the support of OECD/Nuclear Energy Agency/Nuclear Science Committee. The last conference, hosted by Japan, was the 3rd conference held in Tokyo in 1987. In the Versailles conference held in 1999, over 300 people from 25 countries participated, and more than 200 presentations were given on the recent activities in research work, industrial applications, regulatory studies, and other topics related to criticality safety. ICNC2003 will provide a good opportunity for communication among researchers, engineers, plant operators, and regulators. The Conference will consist of invited talks, contributed talks, and poster sessions. On the final day of the conference, technical tours to nuclear facilities are scheduled, and social programs are planned during conference. Please see the website for more information: **http://www.icnc.jp/**.

9th International Conference on Environmental Remediation and Radioactive Waste Management

The conference will be held in Oxford, England, **September 21-25, 2003**. Session M-6 - Applying Strategic Planning, Decision-making, and Risk Reduction Methodologies in EM, includes the following:

-- Applications of strategic planning, decision-making, and/or risk reduction methodologies and tools (e.g., roadmapping) to resolve environmental management issues
-- Innovative approaches to decision-making to resolve problems/issues related to environmental management
-- Innovative approaches to assessing risk and cost-effective reduction of risk for issues related to environmental management
-- Innovative approaches to strategically plan for and implement science and technology (S&T) to resolve environmental barriers to project completion
-- Ways to effectively integrate strategic planning, decision-making, and risk reduction techniques and tools to resolve environmental management issues
-- Methodologies used in developing the sites' plans to meet DOE EM's goals of site closures, cost savings, schedule acceleration, and risk reduction

Additional details on the ICEM conference are on the website at **http://www.icemconf.com**.

21st International System Safety Conference

The System Safety Society is pleased to announce the 21st International System Safety Conference, **August 4-8, 2003**, in Ottawa, Ontario, Canada. The conference is an international forum for the technical presentation and discussion of all aspects and issues regarding system safety engineering and management. The conference theme is "Broader Perspectives, Focused Solutions." The emphasis is on the knowledge and skills necessary to create system safety solutions for increasingly complex technologies and missions. The range of topics will cover both the art and science of system safety and the organizational issues influencing the effective management of system safety in the product life cycle. This is the major conference for system safety and related professions, with a week of technical sessions, tutorials, workshops, special events, social affairs, luncheons, and the society's awards banquet. The conference proceedings are the premier collection of work in the system safety field. For more information, please visit: **http://www.russona.com/issc21/**.

9th International Symposium in Radiation Physics (ISRP-9)

The 9th International Symposium on Radiation Physics (ISRP-9) will be held in Cape Town, South Africa, **October 27-31, 2003**. This triennial event will be organized jointly by the International Radiation Physics Society (IRPS) and iThemba Laboratory for Accelerator Based Sciences (iThemba LABS) [formerly the National Accelerator Centre]. The Symposium is the latest in a series which began in Calcutta in 1974 and thereafter continued in Penang (1982), Ferrara (1985), São Paulo (1988), Dubrovnik (1991), Rabat (1994), Jaipur (1997) and Prague (2000). A 2½ day "Workshop on Radiation-Based Analytical Techniques" (WoRBAT) will be held prior to ISRP-9 (October 24-26, 2003) with emphasis on x-ray fluorescence and diffraction (XRF, XRD) and particle-induced x-ray emission (PIXE). For more information, please visit **www.medrad.tlabs.ac.za/isrp9.htm**.

MCNP Courses for 2003

Registration: **http://www-xdiv.lanl.gov/x5/MCNP/registration.html**
MCNP home page: http://www-xdiv.lanl.gov/x5/MCNP/index.html
LANL contact: **selcow@lanl.gov**
European contact: **sartori@nea.fr**
Japanese contact: **tadakazu@hero.tokai.jaeri.go.jp**

2003

May 12-16	Introductory class	Japan
June 10-13	Introductory class	Los Alamos National Laboratory
August date TBA	Advanced MCNP Topics	Los Alamos National Laboratory

The introductory class is for people who have little or no experience with MCNP. The intermediate to advanced class will be held for people who have used MCNP and want to extend their knowledge and understanding of the code system.

The classes will be based on MCNP5 and will cover the new capabilities of version 5. Attendees may elect to receive the new package. If you have previously received an older registered version of MCNP from RSICC, you may request that the MCNP5 package be sent to you at no charge. If you have not received an older version of MCNP from RSICC, you will be charged the applicable transmittal fee.

The other capabilities on MCNP will also be covered, including: basic and advanced geometry, source definitions, tallies, data, variance reduction, statistical analysis, criticality, plotting of geometry, and particle tracks, neutron/photon/electron physics.

All classes provide interactive computer instruction. Time will be available to discuss individual questions and problems with MCNP experts or to pursue in more detail topics mentioned in the talks. Please note that other classes are offered based on MCNP. The classes mentioned here are the only ones that are taught by the people who develop and write MCNP.

MCNP Visual Editor Classes

The Visual Editor is a powerful visualization tool that can be used to rapidly create complex Monte Carlo N Particle (MCNP 4C2) geometry models, including lattices, universes, fills, and other geometrical transformations. The Visual Editor can:

Display MCNP 4C2 geometries in multiple plot windows,
Create surfaces and cells to build a geometry,
Create materials using the local xsdir file,
Store commonly used materials in a material library,
Sub-divide large cells into smaller cells,

Create cells containing universes and lattices,
Interactively set cell importances from the plot window, and
Display source points and collision points in the plot window.

Two classes are scheduled **June 2-6, 2003**, and **September 8-12, 2003,** both in Richland, Washington. The class will focus on the use of the visual editor, with an overview of MCNP. The fifth day is optional and will focus on using the Visual Editor and MCNP to do some example problems.

Class will include computer demonstrations and exercises that will focus on creating and interrogating input files with the Visual Editor. Advanced visualization work using MCNP will also be demonstrated. The class will be taught on Pentium computers running the Linux operating system and Windows NT. Class attendees can use either the Linux or Windows version of the visual editor. Attendees are encouraged to bring their own input files for viewing and modifying in the visual editor. Further information on this class can be located at: **http://www.mcnpvised.com/train.html**, or by contacting Randy Schwarz (email **randyschwarz@mcnpvised.com**).

MCNPX Workshops for 2003

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

2003

May 19-23	Introductory	Los Alamos/Santa Fe
May 26-30	Introductory	Los Alamos/Santa Fe
June 16-20	Introductory Med. Physics Emphasis	Houston, Texas
July 14-18	Intermediate	Los Alamos/Santa Fe
August 25-29	Advanced	Los Alamos/Santa Fe
October 6-10	Introductory	Stuttgart, Germany
November	Advanced	Japan

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, 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.

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**.

Workshop on Nuclear Data for the Transmutation of Nuclear Waste

The "Workshop on Nuclear Data for the Transmutation of Nuclear Waste" will be held **September 1-5, 2003,** at GSI-Darmstadt, Germany. The workshop is organized on the occasion of the end of the HINDAS research program, a collaboration of several European Institutes working on the subject of "High and Intermediate Nuclear Data for Accelerator Driven Systems." Please note that the topics included in the workshop are not restricted to the HINDAS research program. All contributions to the subject of the workshop are more than welcome.

The workshop time-schedule will be organized in the following way: Monday will be dedicated to a closed HINDAS meeting. On Tuesday, the open sessions will start and last till the end of the workshop on Friday.

Those who are interested in participating in the workshop are invited to register (no fee) before August 1, 2003, using the workshop website **http://www-wnt.gsi.de/tramu.** There is also information on workshop topics, accommodations, transportation, and key dates. Please contact Aleksandra Kelic, **A.Kelic@gsi.de** if you have questions.

PHYSOR 2004

The Chicago Section of the American Nuclear Society is pleased to announce that it will host the PHYSOR-2004 Topical Meeting, **April 25-29, 2004,** in Chicago, IL. The meeting is co-sponsored by the Reactor Physics Division of the ANS and the OECD Nuclear Energy Agency. The conference will be held at the Hyatt Regency in downtown Chicago.

The title for the meeting is "The Physics of Fuel Cycles and Advanced Nuclear Systems: Global Developments." The technical program will cover more than 15 topical focus areas; the deadline for submission of 1000-word summaries is September 5, 2003. You are invited to visit the meeting website at **www.td.anl.gov/PHYSOR2004** to obtain updated information and to download a copy of the meeting announcement. Contact: Ray Klann, Technical Program Co-Chair, at 630-252-4305 or **klann@anl.gov**.

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

DATE: **June 16-20, 2003** (4.5 days)
FEE: $1,450 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. 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. Extensive interactive practice sessions are conducted on a personal computer. Topics will include overview of the MCNP code and the Monte Carlo method, basic concepts, 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.

This course is offered by the Health Physics Measurements Group at LANL and is a completely separate offering from the other courses offered by other groups at Los Alamos.

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**.

Short Courses on Monte Carlo Analysis and Nuclear Criticality Safety

The Department of Nuclear Engineering at the University of Tennessee-Knoxville is offering two short courses for radiation transport and criticality safety specialists during Tennessee Industries Week (TIW-38), **August 11-15, 2003**. One course is on the Monte Carlo method and the other course is on Nuclear Criticality Safety.

Monte Carlo is often the method of choice to solve complex problems in nuclear criticality safety and radiation shielding. To use Monte Carlo effectively, the analyst must understand the theoretical and computational fundamentals of the method, as well as the computational options available in particular computer tools. Also, it is sometimes advantageous to create new special-purpose Monte Carlo programs to solve particular problems rather than use an existing program. The Monte Carlo course runs for 5 days.

Engineers, scientists, and technical managers who wish to increase their knowledge and understanding of nuclear criticality safety will be interested in the criticality safety course, which also runs for five days. The topics covered in the course are based primarily on the experience of the five instructors which totals over 120 years of nuclear criticality safety related experience. Such a wealth of experience needs to be shared with the criticality safety community including both new professionals in the field as well as experienced professionals.

For additional information on these two and other courses offered during TIW-38, contact Kristin England at the University of Tennessee, phone (865) 974-5048, email **kengland@utk.edu**, url **www.engr.utk.edu/nuclear/TIW.html**.

Supercomputing in Nuclear Applications

The conference on "Supercomputing in Nuclear Applications" SNA-2003, will be held in Paris, **September 22-24, 2003**. The web pages (**http://sna-2003.cea.fr/**) were expanded to include information on tours, sightseeing and events scheduled at the time of the conference.

One of the events at SNA-2003 is linked to the museum of "arts et metier", literally of arts & crafts; art is here used in its primary meaning: skills acquired through studies and by practice, technical knowledge. In this museum are displayed among many other items the "supercomputer" of 1642: arithmetical machine by Blaise Pascal, the original pendulum of Foucault (1851) or the instrument he developed to measure the speed of light (1852), or a decimal clock with a day of 10 hours each of 100 minutes and a minute of 100 seconds etc.

CALENDAR

May 2003

Radiation Transport Calculations using the EGS Monte Carlo System, May 5-8, 2003, Ottawa, Canada. Contact: Blake Walters, Ionizing Radiation Standards, National Research Council of Canada, Ottawa, Canada, K1A 0R6. (tel 613-993-2715, fax 613-952-9865, email **bwalters@irs.phy.nrc.ca**, url **http://www.irs.inms.nrc.ca/inms/irs/papers/egsnrc/brochure.html**).

MCNP Course, May 12-16, 2003, Japan. Contact: Elizabeth Selcow (email **selcow@lanl.gov**, url **http://www-xdiv.lanl.gov/x5/MCNP/index.html**).

MCNPX Introductory Workshop, May 19-23, 2003, Los Alamos/Santa Fe, NM. Contact: Bill Hamilton (tel 505-445-0312, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

MCNPX Introductory Workshop, May 26-30, 2003, Los Alamos/Santa Fe, NM. Contact: Bill Hamilton (tel 505-445-0312, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

June 2003

Visual Editor for MCNP, June 2-6, 2003, Richland, Washington. Contact: Randy Schwarz (email **randyschwarz@mcnpvised.com**, url **http://www.mcnpvised.com/train.html**).

MCNP Course, June 10-13, 2003, Los Alamos National Laboratory, Los Alamos, NM. Contact: Elizabeth Selcow (email **selcow@lanl.gov**, url **http://www-xdiv.lanl.gov/x5/MCNP/index.html**).

Practical MCNP For The HP, Medical Physicist, And Rad Engineer, June 16-20, 2003, Los Alamos, NM. Contact: David Seagraves (tel 505-667-4959, fax 505-665-7686, email **dseagraves@lanl.gov**, url **drambuie.lanl.gov/~esh4/mcnp.htm**).

MCNPX Advanced Workshop, June 16-20, 2003, os Houston, TX. Contact: Bill Hamilton (tel 505-455-0312, email **registrar@mcnpxworkshops.com**, url **http://mcnpxworkshops.com** for details).

July 2003

PENELOPE Training Course, July 7-10, 2003, OECD/NEA Headquarters, France. Please see **http://www.nea.fr/lists/penelope.html** for official announcement.

Intercomparison on the Usage of Computational Codes in Radiation Dosimetry, July 14-16, 2003, Bologna, Italy. Contact: Gianfranco Gualdrini (tel 39-051-6098350, fax 39-051-6098003, email **guald@bologna.enea.it**, url **http://www.nea.fr/download/quados/quados.html**).

MCNPX Intermediate Workshop, July 14-18, 2003, Los Alamos/Santa Fe, NM. Contact: Bill Hamilton (tel 505-455-0312, email **registrar@mcnpxworkshops.com**, url **http://mcnpxworkshops.com** for details).

2003 IEEE Nuclear and Space Radiation Effects Conference (NSREC), July 21-25, 2003, Monterey, CA. Contact: Paul Dodd (tel 505-844-1447, url **http://www.nsrec.com**).

August 2003

21st International System Safety Conference, Aug. 4-8, 2003, Ottawa, Canada. Contact: Gerry Einarsson, Chair, (tel 613-824-2468, email **einargk@rogers.com**, url **http://www.russona.com/issc21/**).

Short Courses on Monte Carlo Analysis and Nuclear Criticality Safety, Aug. 11-15, 2003, Knoxville, TN. Contact: Kristin England (phone 865-974-5048, email: **kengland@utk.edu**, url **www.engr.utk.edu/nuclear/TIW.html**).

MCNPX Advanced Workshop, Aug. 25-29, 2003, Los Alamos /Sante Fe. Contact: Bill Hamilton (tel 505-455-0312, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

MCNP Course, Aug. 2003, (TBA), Los Alamos National Laboratory, Los Alamos, NM. Contact: Elizabeth Selcow (email **selcow@lanl.gov**, url **http://www-xdiv.lanl.gov/x5/MCNP/ index.html**).

September 2003

Workshop on Nuclear Data for the Transmutation of Nuclear Waste, Sept. 1-5, 2003, GSI-Darmstadt, Germany, Contact: Aleksandra Kelic (tel 49-0-6159-71-2727, fax 49-0-6159-71-2785, email **A.Kelic@gsi.de**, url **http://www-wnt.gsi.de/tramu**).

Nuclear Energy for New Europe 2003, Sept. 8-11, 2003, Portorož, Slovenia, Contact: Tomaz Zagar (phone +386-1-588-5450, fax +386-1-561-2335, email **PORT2003@ijs.si,** url **http://www.drustvo -js.si/port2003/**).

Visual Editor for MCNP, Sept. 8-12, 2003, Richland, Washington. Contact: Randy Schwarz (email **randyschwarz@mcnpvised.com**, url **http://www.mcnpvised.com/train.html**)

9th International Conference on Environmental Remediation and Radioactive Waste Management, Sept. 21-25, 2003, Oxford, England. Contact: (url **www.icemconf.com**).

International Conference on Supercomputing in Nuclear Applications, SNA 2003, Sept. 22-24, 2003, Paris, France. Organizers: CEA,

SFANS, co-organizer: OECD/NEA. (email **SNA-2003@ cea.fr**, url **http://SNA-2003.cea.fr**).

October 2003

American Nuclear Society's Advances in Nuclear Fuel Management III Topical Meeting, Oct. 5-8, 2003, Hilton Head Island, SC. Contact: Youssef A. Shatilla (email **shatilya@westinghouse.com**, url **http://rpd.ans.org/nfm.htm**).

MCNPX Introductory Workshop, Oct. 6-10, 2003, Stuttgart, Germany. Contact: Bill Hamilton (tel 505-455-0312, email **registrar@mcnpxworkshops.com**, url **http://mcnpxworkshops.com** for details).

7th International Conference on Nuclear Criticality Safety (ICNC2003), Oct. 20-24, 2003, Contact: Dr. Yoshinori Miyoshi (tel +81-29-282-6671; fax +81-29-282-6798, email **icnc03miyoshi@nucef.tokai.jaeri.go.jp**, url **http://www.icnc.jp/**).

9th Triennial International Symposium in Radiation Physics, Oct. 27-31, 2003, Cape Town, South Africa. Contact: Dr. D. T. L. Jones (tel +27-21-843-1336, fax +27-21-843-3382, email **Jones@tlabs.ac.za** url **www.medrad.tlabs.ac.za/isrp9.htm**).

November 2003

ANS/ENS International Winter Meeting and Nuclear Technology Expo, Nov. 16-20, 2003, New Orleans, LA. Contact: (url **http://www.ans.org/meetings/**).

MCNPX Advanced Workshop, Nov. (tbd), 2003, Japan. Contact: Bill Hamilton (tel 505-455-0312, email **registrar@mcnpxworkshops. com,** url **http://mcnpxworkshops.com** for details).

December 2003

The 11th International Conference on Fusion Reactor Materials (ICFRM-11), Dec. 7-12, 2003, Kyoto, Japan. Contact ICFRM-11 secretariat (tel +81-774-38-3597, fax +81-774-38-3467, email **icfrm@iae.kyoto-u.ac.jp**, url **http://icfrm.iae.kyoto-u.ac.jp).**

January 2004

MCNPX Introductory Workshop, Jan.12-16, 2004, Las Vegas, NV. Contact: Bill Hamilton (tel 505-455-0312, Email **registrar@mcnpxworkshops.com**, url **http://mcnpxworkshops.com** for details).

April 2004

PHYSOR 2004 Reactor Physics Topical Meeting, Apr. 25-29, 2004, Chicago, IL. Jointly sponsored by the Reactor Physics Division of the ANS and the Nuclear Energy Agency of the OECD. **Contact:** Ray Klann (tel 630-252-4305, email **klann@anl.gov,** url **www.td.anl.gov/PHYSOR2004**).

May 2004

Current Topics in Monte Carlo Treatment Planning, May 3-5, 2004, McGill University, Montreal, Canada. Contacts: Jan Seutjens and Frank Verhaegen (tel 514-934-8052, url **http://mctp.medphys.mcgill.ca**).

International Conference on Radiation Shielding (ICRS-10) and Topical Mtg. on Radiation Protection & Shielding (RPS 2004), May 9-14, 2004, Funchal, Madeira Island (Portugal). Contact: Conference Secretariat (email **icrs-rps@itn.mces.pt,** url **http://www.itn.mces.pt/ICRS-RPS**).

ACCESSION OF NUCLEAR SYSTEMS LITERATURE

The nuclear systems literature (shielding, safety, materials) cited below has been reviewed and placed in the RSICC Information Storage and Retrieval Information System (SARIS), now searchable on the RSICC web server (**http://www-rsicc.ornl.gov/SARIS.html**). We now include medical physics in addition to material science, radiation dosimetry, radiation safety, reactor dynamics, reactor safeguards, risk assessment, waste management, fuel cycle, fusion and plasmas, high energy particle transport, and shielding. This early announcement is made as a service to the nuclear sciences community. Copies of the literature

are not distributed by RSICC. They may generally be obtained from the author or from a documentation center such as the National Technical Information Service (NTIS), Department of Commerce, Springfield, Virginia 22161. For literature listed as available from INIS contact INIS Clearinghouse, International Atomic Energy Agency, P.O. Box 100, A-1400 Vienna.

Nucl. Sci. Eng., 144, 1-22. . . *Analysis of Ray-Effect Mitigation Techniques.* . . .Morel, J.E. et al. . . . May 2003. . . Los Alamos National Laboratory, Los Alamos, NM.

Nucl. Sci. Eng., 144, 23-35. . . *Analytic Coarse-Mesh Finite-Difference Method Generalized for Heterogeneous Multidimensional Two-Group Diffusion Calculations.* . . .Garcia-Herranz, N. et al. . . . May 2003. . . Universidad Nacional de Educacion a Distancia, Madrid, Spain; Polytechnica University of Madrid, Spain.

Nucl. Sci. Eng., 144, 36-46. . . *A Finite Subelement Generalization of the Variational Nodal Method.* . . .Smith, M.A. et al. . . . May 2003. . . University of Missouri-Rolla, MO; Northwestern University, Evanston, IL; Argonne National Laboratory, Argonne, IL.

Nucl. Sci. Eng., 144, 47-74 . . . *The Reactivity Temperature Coefficient Analysis in Light Water Moderated UO2 and UO2-PuO2 Lattices.* . . .Erradi, L. et al. . . . May 2003. . . CEA/DEN, St. Paul Lez Durance, France.

Nucl. Sci. Eng., 144, 75-85. . . *Scaling and Parametric Studies of Condensation Oscillation in an In-Containment Refueling Water Storage Tank.* . . .No, H.C.; Lee, J.H. . . . May 2003. . . Korea Power Eng. Co., Gyeonggi-do, Korea; KAERI, Taejon, Korea.

Nucl. Sci. Eng., 144, 86-93. . . *Scattering of Intermediate-Energy Neutrons from Nuclei and the Ramsauer Hypothesis.* . . .Azam, M.; Gowda, R.S. . . . May 2003. . . Bhabha Atomic Research Center, Mumbai, India.

Nucl. Sci. Eng., 144, 94-107. . . *Neutron Capture Cross-Section Measurement of Rhodium in the Energy Region from 0.003 eV to 80 keV by Linac Time-of-Flight Method.* . . .Lee, S. et al. . . . May 2003. . . Kyoto University, Osaka, Japan; Kyungpook National University, Daegu, Korea; KAERI, Taejeon, Korea.

Nucl. Sci. Eng., 144, 108-112. . . *Angular Distribution and Cross-Section Measurements for 64Zn(n,a)61Ni Reaction at 5.0, 5.7, and 6.5 MeV.* . . Jing Yuan et al.. . . May 2003. . . Tsinghua University, Beijing, China; Peking University, Beijing,China; Joint Institute for Nuclear Research, Dubna, Russia.

Nucl. Technol., 141, 221-232. . . *Critical Experiments on 10% Enriched Uranyl Nitrate Solution Using an 80-CM-Diameter Cylindrical Core.* . . .Yamane, Y. et al. . . . March 2003. . . JAERI, Ibaraki-ken, Japan.

Nucl. Technol., 141, 233-243. . . *Theoretical Analysis for Corium Pool with Miscibility Gap.* . . .Seiler, J-M. et al. . . . March 2003. . . Commissarait a l'Energie Atomique, Grenoble, France.

Nucl. Technol., 141, 244-256. . . *Interaction of Failed Fuel Rods Under Air Ingress Conditions.* . . .Hozer, Z. et al.. . . March 2003. . . KFKI Atomic Energy Research Institute, Budapest, Hungary; Research Institute for Solid State Physics and Optics, Budapest, Hungary.

Nucl. Technol., 141, 257-274. . . *Low-Pressure Corium Dispersion Experiments with Simulant Fluids in a Scaled Annular Cavity.* . . .Gargallo, M.G.; Meyer, L. . . . March 2003. . . Forschungszentrum Karlsruhe, Karlsruhe, Germany.

Nucl. Technol., 141, 275-300. . . *Wavelet Integrated System to Calculate Radionuclide Release from a Repository in Fractured Media.* . . .Nasif, H.R. et al. . . . March 2003. . . Computer Software Development Co., Tokyo, Japan; Nuclear Waste Management Organization of Japan, Tokyo, Japan; University of Tokyo, Japan.

Trans. Plasma Sci., 30, 1764-1776. . . *Instability Growth in Magnetically Imploded High-Conductivity Cylindrical Linears with Material Strength.* . . .Reinovsky, R.E. et al. . . . October 2002. . . Los Alamos National Laboratory, Los Alamos, NM.

Trans. Plasma Sci., 30, 1793-1799. . . *Novel Designs for the DECADE Coaxial Plasma Gun.*. . .Smith, L.M. et al. . . . October 2002. . . University of Tennessee Space Institute, Tullahoma, TN.

Trans. Plasma Sci., 30, 1827-1831. . . *Employment of the Pulsed-Ion Accelerator as a High-Power Intermediate Energy Neutron Generator for Remote Detection of Nuclear Explosives.* . . .Chornyi, V.V. et al. . . . October 2002. . . Kharkov National University, Kharkov, Ukraine.

Trans. Plasma Sci., 30, 1975-1981. . . *High-Power Short-Pulsed Corona: Investigation of Electrical Performance, SO2 Removal, and Ozone Generation.* . . .Yankelevich, Y.; Pokryvailo, A. . . . October 2002. . . Propulsion Physics Laboratory, Yavne, Israel.

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Distributions Over Steps in RFD High-Density Plasmas. . . .Kim, D.; Economou, D.J. . . . October 2002. . . Plasma Processing Laboratory, Houston, TX.

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Trans. Plasma Sci., 30, 2089-2094. . . *Scope of Plasma Focus with Argon as a Soft X-Ray Source*.. . .Zakaullah, M. et al. . . . December 2002.

Trans. Plasma Sci., 30, 2095-2102. . . *Modeling of Argon Discharge Characteristics of Planar-Type Surface Wave Plasmas in an Electron Fluid Model*. . . .Toba, T.; Katsurai, M. . . . December 2002. . . University of Tokyo, Japan.

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Trans. Plasma Sci., 30, 2117-2123. . . *Design and Emission Uniformity Studies of a 1.5-MW Gyrotron Electron Gun.* . . .Anderson, J.P. et al. . . . December 2002. . . MIT, Cambridge, MA; Communications and Power Industries, Palo Alto, CA.

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KEK Report 2001-157. . . *KEKB Accelerator Papers*.. . .Kikutani, E. ed. . . . December 2001. . . High Energy Accelerator Research Organization, Ibaraki-ken, Japan.

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