Radiation Safety Information Computational Center

Oak Ridge National Laboratory
POST OFFICE BOX 2008
OAK RIDGE, TENNESSEE 37831-6362

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Phone No. 865-574-6176
FAX 865-574-6182 Internet: PDC@ORNL.GOV
http://www-rsicc.ornl.gov/rsicc.html

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"Footprints on the sands of time are not made by sitting down" -- Anonymous

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

E. O. Lawrence Award Recipient

Paul J. Turinsky, ANS Fellow and member since 1971, is a recipient of the U.S. Dept. of Energy's E.O. Lawrence Award for outstanding contributions in the field of atomic energy. Turinsky, technical director of North Carolina State University's Electric Power Research Center and head of the university's department of nuclear engineering, is being honored for his contributions to the fuel cycle management of light water reactors that have significantly improved the safety and economics of nuclear power. The award was presented at a ceremony in Washington, D.C. on October 28.

ANS News, Sept./Oct. 2002

Updated RSICC Web Address

RSICC's new web address is **http://www-rsicc.ornl.gov/rsicc.html**. The only difference is we now have two c's at the end where there used to be only one. Everything should forward with no problem, but we thought you should know so you can update your links.

Visitors

On November 25, 2002, RSICC had three visitors from Japan, **Dr. Toshio Fujishiro** and **Kojiro Yamagishi** from RIST and **Dr. Yoshio Suzuki** from JAERI. In the morning program, RSICC director **Hamilton Hunter** gave a presentation on the RSICC program and its current activities. RSICC staff member, **Dr. Jy-An John Wang**, provided information on the recent developments in the Power Reactor Embrittlement Database, Information Fusion Technique and Spiral Notch Torsion Test for toughness evaluation. Dr. Fujishiro presented "Introduction to RIST and its Recent Activities," and Dr. Suzuki presented "Activities at CCSE/JAERI and the ITBL Project." **Dr. Xiao-Ming Xu** from the ORNL Physics Division gave a presentation on "Parallel Calculations for Relativistic Heavy Ion Collision Physics." **Dr. Al Ekkebus**, SNS User Coordinator, gave our visitors a guided tour of the SNS construction site, which was the highlight of the visit.

Greening of the Nuclear Age

The *Greening of the Nuclear Age* brochure prepared for the World Summit on Sustainable Development, is available for purchase from the American Nuclear Society. The price of the glossy six-page, color brochure is $1 each for up to 100 copies; larger quantities can be purchased at reduced prices. Click on "ANS Store," then "Public Information" at **www.ans.org,** or you can download it from **www.ans.org/pi/brochures**.

Available NRC Codes

Two 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-289/SKYSHINE-III
PSR-270/UPDATE

Changes to the Computer Code and Data Collection

Three changes were made to the computer code collection this month. All three are newly frozen versions and foreign contributions.

CCC-430/EDMULT 6.4

OP SYS: Unix, Windows
Language: Fortran 77
Computers: PC & IBM RS/6000
Format: tar and Windows

The Institute for Data Evaluation and Analysis, Sakai, Osaka, Japan; Research Institute for Advanced Science and Technology, Osaka Prefecture University, Sakai, Osaka Japan; Shanghai Applied Radiation Institute, Shanghai University, Jia Ding, Shanghai, China; and Department of Radiation Oncology, Indiana University School of Medicine, Indianapolis, Indiana, contributed a newly frozen version of EDMULT.

Version 6.4 evaluates depth-dose distributions produced by plane-parallel electron beams normally incident on one- to six-layer slab absorbers. EDMULT is based on an analytic expression of the depth-dose curve in semi-infinite medium and a simple model of electron penetration through a multilayer absorber. The effect of the different medium beyond an interface is accounted for by the difference of backscattering, which is evaluated by considering the branching of electron beam into transmitted and backscattered components. Special features of the present version compared with previous ones are as follows:

(1) Higher accuracy (root-mean-square deviations from accurate Monte Carlo results are 1-2% for effectively semi-infinite absorbers and 5-7% for absorbers consisting of more than two layers).
(2) Applicability to the absorbers consisting of a larger number of layers of different materials (up to six layers).
(3) Use of the mean atomic number given in ICRU Report 35 (page 37) for material mixtures and compounds instead of the effective atomic number used in earlier versions.

The code is operable on almost any computer with a Fortran compiler. The developer ran it on several computers including Macintosh with the Absoft compiler. An executable created with the DVF 6.0 compiler is included in the package for PC Windows users. EDMULT was tested at RSICC on:

IBM RS/6000 Model 270 running AIX 4.3.3 with XL Fortran Version 7.1
Intel-Linux 7 with f77 Version 2.96 under RedHat Linux 7
Windows2000 on Pentium IV with Digital Visual Fortran 6.0

The package is transmitted on a CD which contains documentation, source, sample problem input and output, and PC Windows executable in 2 formats: a self-extracting compressed Windows file and a Unix tar file. Reference: RCOP TR-8 (November 1987). Fortran 77; Intel PC, MacIntosh, Workstations (C00430/MNYCP/01).

CCC-434/SNAP-3D

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

UKAEA Technology, Risley, United Kingdom, through the OECD Nuclear Energy Agency Data Bank, Issy-les-Moulineaux, France, contributed this one-, two-, or three-dimensional multigroup diffusion code system. SNAP-3D can also be used to carry out gamma-ray calculations if the diffusion approximation is accurate enough. It is suitable for fast and thermal reactor core calculations and for shield calculations. The problem classes are: 1) eigenvalue search for critical k-effective, 2) eigenvalue search for critical buckling, 3) eigenvalue search for critical time-constant, 4) fixed source problems in which the sources are functions of regions, and 5) fixed source problems in which the sources are provided, on disc, for every mesh point and group. The finite difference equations are solved by a combination of source iteration and successive over-relaxation. If desired, a coarse mesh rebalancing algorithm may be used at intervals to accelerate the source iterations.

SNAP-3D has run on DEC Vax 4000, DEC ALPHA Station 200-4/166, Pentium 166MHz, HP 9000/7xx, IBM RISC/6000, and SUN SPARCStation. The code is expected to run on any operating system on which a Fortran 77 compiler is available. Fortran compilers are required on all Unix machines. An executable created with Microsoft Powerstation 4.0 is included for PC users. The distribution CD contains the referenced documents and a self-extracting compressed file and a compressed tar file with the source, PC executable and test cases. References: AEA-RS-1214 (February 1993) and TRG Report 2677(R) (October 1975). Fortran 77 PC and workstation (C00434/MNYCP/01).

CCC-647/DRAGON 3.04e

OP SYS: Unix, Linux
Language: Fortran 77 & C
Computers: Workstation & PC
Format: tar

Ecole Polytechnique de Montreal, Canada, contributed a newly frozen version of this lattice cell code system. DRAGON is a collection of models to simulate the neutronic behavior of a unit cell or a fuel assembly in a nuclear reactor. It includes all of the functions that characterize a lattice cell code, namely: interpolation of microscopic cross sections supplied by means of standard libraries; resonance self-shielding calculations in multidimensional geometries; multigroup and multidimensional neutron flux calculations which can take into account neutron leakage; transport-transport or transport-diffusion equivalence calculations as well as editing of condensed and homogenized nuclear properties for reactor calculations; and finally isotopic depletion calculations.

DRAGON contains a multigroup iterator conceived to control a number of different algorithms for the solution of the neutron transport equation. Each of these algorithms is presented in the form of a one-group solution procedure where the contributions from other energy groups are included in a source term. The current version contains three such algorithms. The JPM option solves the integral transport equation using the interface current method applied to homogeneous blocks; the SYBIL option solves the integral transport equation using the collision probability method for simple one-dimensional (1-D) or two-dimensional (2-D) geometries and the interface current method for 2-D Cartesian or hexagonal assemblies; and the EXCELL option solves the integral transport equation using the collision probability method for more general 2-D geometries and for three-dimensional (3-D) assemblies. In addition, it is now possible to solve the transport equation for 2-D geometries using the method of cyclic characteristics.

DRAGON runs on IBM RS/6000, HP9000/700 workstations, SUN SparcStations and Linux systems. There is no Windows version of this release. At RSICC the system was successfully tested on an IBM RS/6000 model 270 under AIX 4.3.3 with XL Fortran version 7.1 and on an Intel PC under RedHat7.2 Linux with the GNU g77 0.5.26 compiler. The package is transmitted on a CD-ROM in a GNU

compressed Unix tar file which contains installation instructions, documentation, Fortran source, installation scripts, and test input and output for AIX and Linux. References: IGE-174 Rev. 5 (April 2000), IGE-232 Rev. 3 (April 2000), IGE-251 Rev. 1, (March 2002), IGE-236 Rev. 1 (October 2001), IGE-158 (March 2000), and IGE-163 (December 1999). Fortran 77 and C; Intel Linux, IBM RS/6000, and Sun(C00647/MNYWS/02).

Monthly Code Focus

Reactor Physics

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 'Main 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.

BOLD VENTURE IV
CANDULIB-AECL
CARMEN SYSTEM
CITATION-LDI2
COBRA-EN
DANCOFF-MC
DIF3D8-VARIANT8
EMPIRE-II
HATCHES
MOSRA-LIGHT
NORMA
NORMA-FP
ORIGEN-ARP-2
PWR-AXBUPRO-SNL
TDTORT
TRIGLAV
VENTURE-PC
VSOP94
WIMS-ANL 4.0
WIMSD 5B

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
14th Annual U.S. Hydrogen Meeting	Mar. 4-6, 2003 Washington, DC	**http://www.hydrogenconference.org/**	Feb. 3, 2003

ENS TopFuel 2003/ANS LWR Fuel Performance Meeting	Mar. 16-19, 2003 Wurzburg, Germany	**http://www.topfuel2003.de**	passed
Software Quality Forum 2003 (SQF 2003)	Mar. 25-26, 2003 Arlington, Virginia	**http://cio.doe.gov/sqas**	passed
M&C 2003	Apr. 6-10, 2003 Gatlinburg, Tennessee	**meetingsandconferences.com/MC2003**	still accepting
39th Annual National Council on Radiation Protection (NCRP)	Apr. 9-10, 2003 Arlington, Virginia	**http://www.ncrp.com**	
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/**	Feb. 7, 2003
21st International System Safety Conference	Aug. 4-8, 2003 Ottawa, Canada	**http://www.system-safety.org/**	Jan. 17, 2003
9th International Conference on Environmental Remediation and Radioactive Waste Management	Sept. 21-25, 2003 Oxford, England	**http://www.icemconf.com**	Jan. 3, 2003
Supercomputing in Nuclear Applications (SNA-2003)	Sept. 22-24, 2003 Paris, France	**http://sna-2003.cea.fr/**	Dec. 16, 2002
Advances in Nuclear Fuel Management III	Oct. 5-8, 2003 Hilton Head Island, South Carolina	**http://rpd.ans.org/nfm.htm**	Mar. 15, 2003
9th International Symposium on Radiation Physics (ISRP-9)	Oct. 27-31, 2003 Cape Town, South Africa	**www.medrad.tlabs.ac.za/isrp9.htm**	
The 11th International Conference on Fusion Reactor Materials (ICFRM-11)	Dec. 7-12, 2003 Kyoto, Japan	**icfrm.iae.kyoto-u.ac.jp**	Apr. 30, 2003

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.

ENS TopFuel 2003/ANS LWR Fuel Performance Meeting

The American Nuclear Society (ANS) and the European Nuclear Society (ENS) have agreed to bundle their conference activities concerning nuclear fuel. The well established ANS "LWR Fuel Performance Meeting" and the ENS "TopFuel Conference" will from now on be jointly held, alternating the location between the USA and Europe.

The first joined conference will be organized by the local nuclear society in Germany, the KTG (Kerntechnische Gesellschaft e.V.) from **March 16-19, 2003**, at Würzburg. The program will comprise invited and contributed papers. Please visit the website for more information: **http://www.topfuel2003.de**.

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.

2003 International Congress on Advanced Nuclear Power Plants (ICAPP '03)

We are pleased to announce the call for papers for the "2003 International Congress on Advanced Nuclear Power Plants" (ICAPP '03) which will be held in Cordoba, Spain, **May 4-7, 2003,** at the Congress Palais. Please make note of the October 15, 2002 deadline for abstracts.

Following the highly successful ICAPP '02 meeting held in Hollywood, Florida, this international congress will bring together international experts of the nuclear industry involved in the operation, development, building, regulation, and research related to nuclear power plants. The conference is sponsored by the leading nuclear societies of Europe, Asia, and the USA.

The program will cover the full spectrum of nuclear power plant issues from design, deployment and construction of plants to research and development of future designs and advanced systems. The program is expected to cover lessons learned from power, research and demonstration reactors from over

50 years of experience with operation and maintenance, structures, materials, technical specifications, human factors, system design, and reliability. You may visit the ICAPP '03 website at **www.ans.org/goto/icapp03** for updated information on the congress and to download a copy of the Call For Papers.

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 is 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 knowledge and skills necessary to create the 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 professionals, 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 one 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 the 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**.

M&C 2003

The American Nuclear Society's Mathematics and Computation Topical Meeting, M&C 2003, will be held in Gatlinburg, Tennessee, **April 6-10, 2003**. The unique setup for this conference, entitled “Nuclear Mathematical and Computational Sciences: A Century in Review, A Century Anew,” promises to

provide an exciting and unprecedented opportunity for students and professionals in the field to learn about its rich intellectual heritage from leading figures. The Review section of the conference is comprised of eight lectures on selected topics of common interest to the membership of the Mathematics and Computation Division, the primary sponsor of the meeting. The Anew section of the meeting will include contributed and invited papers on standard topics in this series of conferences. Please refer to the conference web site **http://meetingsandconferences.com/MC2003/** for details on the lecture series and lecturers, a list of topics for contributed papers and special sessions, author instructions, and general information about the conference.

The web site for M&C 2003 is now open for submitting papers. Please check the "Call for Papers" link to learn about the topics of interest in this conference, including special session topics. The "Authors" link has templates for preparing full papers in MS Word, WordPerfect, and LaTeX. Please note that abstract submission is not required due to the Math & Computational Sciences Division's policy of reviewing only full papers for inclusion in meetings where the division is the primary sponsor. We look forward to welcoming you to Gatlinburg.

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

January 27-30	Introductory class	Mass. Inst. of Technology
February date TBA	To be determined	North Carolina State University
May 12-16	Introductory class	Japan
June date TBA	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. The code and data package will be available through RSICC at a reduced rate to class participants. The new capabilities of version 5 will be covered.

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 **March 17-21, 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

February 24-28*	Introductory	Orlando, Florida
March 31-April 4	Advanced	Knoxville, Tennessee
April 6 (Sunday)	(4-hour class in conjunction with MC2003 conference)	Gatlinburg, Tennessee **http://www.mcnpvised.com/ved/class7.html**
May	Introductory	Los Alamos/Santa Fe
June	To be decided	Europe

* REVISED DATE

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, September 1, 2003, 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, September 5, 2003.

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.

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**.

SAMMY WORKSHOP ANNOUNCED

RSICC is pleased to announce that a five-day workshop on Oak Ridge National Laboratory's (ORNL) SAMMY code will be held **May 12-16, 2003**, in Knoxville, Tennessee. This training course is intended for those who are interested in the theory of neutron cross sections in the resonance region, and in

the use of SAMMY for the analysis of experimental neutron-induced cross-section data for extracting values and covariances for resonance parameters. Both novice and experienced SAMMY users would benefit from the intensive and extensive examination of all aspects of resonance parameter analyses.

During the workshop, lectures and computer applications will alternate. Lectures will include both theoretical discussion and practical examples for each topic. The lecturer is Dr. Nancy Larson of the Nuclear Data and Information Analysis Group, Nuclear Science and Technology Division of ORNL, author of the SAMMY code.

Topics include (but are not limited to) the following:

I. R-matrix formalisms (both resolved and unresolved resonance region)
II. Simulation of experimental conditions
    A. Multiple nuclides in the sample
    B. Doppler- and resolution-broadening
    C. Self-shielding and multiple-scattering corrections
    D. Other data-reduction effects
III. Mathematical methods used for experimental data-fitting
    A. Use of covariance information
IV. Reporting results for Evaluated Nuclear Data Files
V. Features in the latest version of the analysis code SAMMY

The workshop will include hands-on computer applications using the latest version of SAMMY (M6). Computer exercises will lead participants through the various features of the code beginning with simple examples and leading to realistic situations. Participants who are experienced SAMMY users are encouraged to bring their own examples as well.

The number of PC workplaces available at the training center restricts the number of workshop participants accepted. Therefore, we encourage you to register as early as possible. The SAMMY workshop web site with further detailed information and on-line registration can be accessed at **http://www-rsicc.ornl.gov/SAMMY/intro.html**). Please bookmark the site and visit it occasionally for news and updates as they become available.

SCALE 5 Plus Workshop Announced

Version 5 of the SCALE software system is scheduled for release in 2003. This half-day tutorial workshop will highlight signficant new computational capabilities in SCALE 5 plus current developments that will appear in later SCALE releases. The workshop will be part of the American Nuclear Society **M&C 2003 Topical Meeting** in Gatlinburg, Tennessee. The workshop will be hosted by Oak Ridge National Laboratory at the conference hotel in Gatlinburg on Thursday afternoon **April 10, 2003**, immediately following the final technical sessions of the topical meeting.

The workshop will feature presentations on the following new computational capabilities to be released in SCALE 5:

- SEN3 3-D sensitivity/uncertainty sequence (using KENO V.a)
- TRITON/NEWT 2-D flexible mesh discrete ordinates automated sequences for criticality safety and depletion/source term analyses.
- New resonance cross-section processing capabilities using continuous energy and ENDF/B-VI cross sections.
- New 2-D interactive plotting of KENO and XSDRNPM results with Javapeno.

Plus, the workshop will also feature presentations on the following developments planned for release:

- Continuous energy version of the KENO V.a criticality safety code
- 3-D automated variance reduction for Monte Carlo radiation shielding analysis

The registration fee is $200. You can register online at **www.ornl.gov/scale/register_scale5.html** or as part of your M&C 2003 registration. The early registration deadline is February 28, 2003.

Software Quality Forum 2003 (SQF 2003)

The Forum will be held **March 25-26, 2003,** at the Crystal Gateway Marriott Hotel, which is conveniently located in Arlington, Virginia.

The Program Committee is now accepting presentation proposals for the Software Quality Forum 2003 (SQF 2003). The Forum offers an exciting opportunity for software professionals in the Department of Energy (DOE), other government agencies, private industry, and academia to share their knowledge about trends and technologies in the acquisition, development, support, and management of software intensive systems. Well-known keynote speakers, tutorials on key Forum topics, a showcase for high-visibility IT projects using cutting-edge technologies, and a vendor exhibit area are included in the program.

This is a tri-annual event sponsored by the Software Quality Assurance Subcommittee (SQAS) of the Quality Managers within the DOE Nuclear Weapons Complex. The 2003 Forum is co-hosted by the DOE Office of the Chief Information Officer and the National Nuclear Security Administration, Office of Advanced Simulation and Computing within the Office of Defense Programs.

Please note the following due dates: submission of proposal, abstract, and biography was due November 15, 2002, notification of acceptance was December 31, 2002, final abstract is January 15, 2003, and electronic and paper versions of presentation are due February 1, 2003.

For more information visit the web site **http://cio.doe.gov/sqas**. Look for the "Forum 2003" heading on the left side of the home page. There will be a website devoted to the SQF 2003 in a week or so, which will be linked from the above website. If you have questions, send email to Kathleen Canal at **kathleen.canal@ hq.doe.gov**. If interested in submitting a presentation proposal, please contact Brenda Coblentz, Program Committee Chair, at **brenda.coblentz@hq.doe.gov**.

Supercomputing in Nuclear Applications

The deadline for submitting abstracts for the international conference on "Supercomputing in Nuclear Applications" SNA-2003, Paris, **September 22-24, 2003**, was extended to December 16, 2002.

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. Abstracts can be submitted **http://www.nea.fr/html/science/meetings/sna2003/registration.html**.

CALENDAR

January 2003

2nd International Workshop on Advanced Radiation Transport Simulation with PENELOPE, Jan. 8-10, 2003, Tarragona, Spain. Contact: Dr Francesc Salvat (tel 34 9340 21186, fax 34 9340 21174, email **cesc@ecm.ub.es**).

MCNP Course, Jan. 27-30, 2003, Mass. Inst. of Technology, Cambridge, MA. Contact: Elizabeth Selcow (email **selcow@lanl.gov**, url **http://www-xdiv.lanl.gov/x5/MCNP/index.html**).

February 2003

MCNPX Workshop, Feb. 24-28, 2003, Las Vegas, NV. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com**, url **http://mcnpxworkshops.com** for details).

MCNP Course, Feb. 2003, (TBA), North Carolina State University. Contact: Elizabeth Selcow

(email **selcow@lanl.gov**, url **http://www-xdiv.lanl.gov/x5/MCNP/index.html**).

March 2003

14th Annual U.S. Hydrogen Meeting, Mar. 4-6, 2003, Washington, DC. Contact: Catherine E. Grégoire Padró (tel 303-275-2919, fax 303-275-2905, email **owner-hydrogen@mail.nrel.gov**, url **http://www.hydrogenconference.org/**).

Software Quality Forum 2003, Mar. 24-26, 2003, in Arlington, VA. Contact: Kathleen Canal (email **kathleen.canal@hq.doe.gov**, url **http://cio.doe.gov/sqas**).

MCNPX Workshop, Mar. 31-Apr. 4, 2003, Knoxville, TN. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com** url **http://mcnpxworkshops.com** for details).

SCALE5 Workshop, Mar. 31-Apr. 4, 2003, Oak Ridge, TN. Contact: Kay Lichtenwalter (email **x4s@ornl.gov**, **scalehelp@ornl.gov**, url **http://www.ornl.gov/scale/workshop_mc2003.html**).

April 2003

ANS Topical Meeting, Nuclear Mathematical and Computational Sciences: A Century in Review, A Century Anew, Apr. 6-10, 2003, Gatlinburg, TN. Co-sponsored by the American Nuclear Society's Reactor Physics, and Radiation Protection and Shielding Divisions, as well as the ANS Oak Ridge/Knoxville Local Section, Oak Ridge National Laboratory's Radiation Safety Information Computational Center, the Nuclear Energy Agency of the OECD, the Korean Nuclear Society, and the Canadian Nuclear Society. Contacts: Yousry Azmy (tel 814-865-0039, email **yya3@psu.edu** or Bernadette Kirk (tel 865-74-6176, email **kirkbl@ornl.gov**, url **http://meetingsandconferences.com/MC2003/index.html**).

Visual Editor for MCNP, Apr. 6, 2003, Gatlinburg, TN. Contact: Randy Schwartz (url **http://www.mcnpvised.com/ved/class7.html**).

39th NCRP Meeting, Apr. 9-10, 2003, Arlington, VA. Contact: William Beckner (tel 301-657-2652, fax 301-907-8768, url **http://www.ncrp.com**).

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 Workshop, May 2003, Los Alamos/Santa Fe, NM. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

June 2003

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 Workshop, June 2003, Europe. Contact: Bill Hamilton (tel 505-662-9097, email **registrar@mcnpxworkshops.com,** url **http://mcnpxworkshops.com** for details).

MCNP Course, June 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**).

July 2003

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/**).

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/**).

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**).

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**).

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**).

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.

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