Radiation Safety Information Computational Center

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The man who will use his skill and constructive imagination to see how much he can give for a dollar, instead of how little he can give for a dollar, is bound to succeed.—Henry Ford

RSICC will observe the holiday season beginning December 23, 2005, through January 3, 2006. RSICC will be happy to respond to your requests upon our return.

Merry Christmas and Happy 2006!

HAPPY HOLIDAYS FROM THE RSICC STAFF.

Changes to the Computer Code and Data Collection

CCC-544/CEPXS/ONELD 1.0

Experimental and Mathematical Physics Consultants, Gaithersburg, Maryland, contributed a newly compiled PC version of CEPXS/ONELD 1.0. The Lahey Fortran 90 Compiler release 4.50i was used to create the included PC executables that can be run under either Windows XP or Windows 2000. Executables in the previous release were compiled with F77L-EM/32 Fortran compiler, Version 5.01, and are incompatible with current Windows operating systems.

This code system was originally developed at Los Alamos National Laboratory, Los Alamos, and Sandia National Laboratory, Albuquerque, New Mexico. CEPXS generates cross sections to be input to ONELD, a one-dimensional coupled electron-photon transport code. ONELD is a discrete ordinates code that uses linear-discontinuous spatial differencing and diffusion-consistent weighted diamond angular differencing. The equations are solved via source iteration with S 2 synthetic acceleration of the inner iterations. References: SAND89-1685 (October 1989), SAND89-1661 (September 1989), LA-9184-M,

Rev. (December 1989), SAND89-2211 (July 1990). Fortran 77; VAX, Cray, and PC 586. The VAX version includes a few lines of C. All of these versions are distributed on one CD as C00544MNYCP02.

PSR-481/TRAC PF1

For archival purposes, RSICC is releasing a PC version of TRAC PF1, which performs best estimate analyses of loss-of-coolant accidents and other transients in pressurized light water reactors. The program can also be used to model a wide range of thermal hydraulic experiments in reduced scale facilities. Models employed include reflood, multi-dimensional two-phase flow, nonequilibrium thermodynamics, generalized heat transfer, and reactor kinetics. Note that the NRC no longer supports the TRAC codes but currently develops and maintains the TRACE code system, which is the TRAC/RELAP Advanced Computational Engine.

TRAC-PF1 was developed on a CDC computer at Los Alamos National Laboratory in the 1980's. The PC version of TRAC PF1 was converted at Comissao Nacional de Energia Nuclear (CNEN), Rio de Janeiro, RJ (Brazil). It was submitted September 1989 and released "as is" by the ESTSC July 1993; it was later transferred to RSICC and re-released in November 2005 for archival purposes. No modifications were made to the code package at either ESTSC or RSICC. Records indicate that the PC version ran on an 80386 PC under DOS 3.2 using the SVS (Silicon Valley Software) Fortran 77 compiler. No executables are included in the package. The package is transmitted on a CD-ROM in a WinZIP file, which includes Fortran source, sample problems, control information, and auxiliary information. References: NUREG/CR-3567 (LA-9944-MS) (February 1984), NUREG/CR-3280 (LA-9704-M) July 1983, and LA-TIA-TN-82-1 (June 1982). Fortran 77 for IBM PC XT and AT (P00481IBMPC00).

News to Note

Francis Kam, 76, died November 15, 2005. He was a scientist at Oak Ridge National Laboratory for more than 20 years and made significant contributions to the American Society for Testing and Materials. He also made important contributions to various international activities sponsored by the International Atomic Energy Agency and the United States Nuclear Regulatory Commission. In the early to mid 1960's Frank was involved in the development and documentation of several computer codes (including O5R) used for neutron transport. He and Kylene Franz developed a code named ACTIFK to analyze the collision tapes from the O5R computer code which wrote user selected types of events such as boundary crossings and real collisions to a tape for later analysis. He was also involved in calculations of the SNAP reactor shielding benchmarks.

Graydon Duane Whitman died December 3, in Knoxville, Tennessee. Grady was a Manhattan Project veteran of ORNL, arriving in 1944 through an Army Corps of Engineers assignment. He went on to become an operations supervisor on the Aircraft Reactor Experiment, the forerunner of the Molten Salt Reactor. He managed and participated in a number of seismic analyses of gaseous diffusion plants and managed the Experimental Gas Cooled Reactor activities at ORNL.

Professor Tatiana "Tanya" Anotolievna Germogenova, April 10, 1930 – February 27, 2005

We regret the passing of Tatiana Germogenova, an authoritative scientist in the field of mathematical study of the linear transport equation. She was also investigations organizer, originator and manager of the Linear Transport Theory Group of the Keldysh Institute of Applied Mathematics (KIAM) of the Academy of Sciences. She is best known to RSICC for the many ways she sought to open lines of communication between the scientific communities of our respective countries, while under the former Soviet Union and continuing into the Russian era. She died in Moscow February 2, 2005.

Germogenova began working on transport theory problems in a post graduate course in the Physical Department of Moscow State University under Prof. E.S. Kousnetsov. In 1956, she joined the KIAM staff. Her PhD thesis (1972) was dedicated to boundary problems of the transport equation and local properties of its solutions.

The important cycle of Germogenova's work deals with actual problems of atmospheric optics. She proved that the set of physically realizable states of polarized light in the Stokes-Poincare representation is a cone in an appropriate functional space of 4-dimensional vector-functions (1978). This property was used for strict formulation of both the "non-negativity" property of the scattering matrix and the mathematical theory of the characteristic equation for the polarized light transport equation. She also derived the set of asymptotic approximations for transport problems in optically thick inhomogeneous finite size regions (1961).

Germogenova's results in the study of the method of averaged fluxes for acceleration of inner iterations convergence (1968-1969), Fourier analysis of stability of the WDD scheme, accuracy and stability analysis of the family of weighted nodal schemes (1994), and eigenfunctions of the finite moments method analysis (1996) are interesting and important. Under her guidance, a set of Russian codes (ROZ, ROZ-W, RADUGA, KASKAD-S and KATRIN) were developed for 1D, 2D, and 3D transport calculations for a serial computer. Much of her work was classified, not in the public domain but was recognized in 1987 when she was awarded the Soviet State Prize.

Prof. Germogenova participated in a number of international meetings on transport theory, was co-organizer of the Joint Workshop on Numerical Transport Theory (November 1961) at Texas A&M University in College Station, Texas, and the International Symposium on Numerical Transport Theory (May 1992) at Moscow State University, Moscow, Russia. She was also a member of the Transport Theory and Statistical Physics Editorial Board.

Germogenova is followed as Manager of KIAM Linear Transport Group by her colleague and friend, Dr. Andrei M. Voloschenko (volosch@kiam.ru).

Germogenova was versatile – student swimming titleholder at MSU, expert skier, boating and mountaineer enthusiast and a connoisseur of classical music. She is survived by her husband, Yuri Dnestrovski, a Professor at MSU. Both he and her son are plasma physicists associated with the TOKOMAK at Kurchatov Institute. Her daughter is a hydrobiologist. She is also survived by four grandchildren, two of whom are students at Moscow State University.

Betty F. Maskewitz

CONFERENCES, COURSES, SYMPOSIA

RSICC attempts to keep its users and contributors advised of conferences, courses, and symposia in the field of radiation protection, transport, and shielding through this section of the newsletter. Should you be involved in the planning/organization of such events, feel free to send your announcements and calls for papers via email to riceaf@ornl.gov with "conferences" in the subject line by the 20th of each month. Please include the announcement in its native format as an attachment to the message. If the meeting is on a website, please include the url.

Every attempt is made to ensure that the links provided in the Conference and Calendar sections of this newsletter are correct and live. However, the very nature of the web creates the possibility that the links may become unavailable. In that case, please call or mail the contact provided.

MCNPX Workshops

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

2006 Schedule		
January 9–13	Introductory	Las Vegas, NV
March 27–31	Intermediate	Cape Town, South Africa
June 12–16	Introductory	Santa Fe, NM

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

The workshops include hands-on instruction, generally on PC Windows machines. Subject to participant export approval from the MCNPX beta test team, participants will be able to access the Fortran 90 version of MCNPX 2.4, the LA150 (150 MeV) cross-section data for over 40 isotopes for incident neutrons and protons and 12 for photonuclear interactions, and a notebook of viewgraphs.

Follow-up consultation for class participants will be provided.

The classes are taught by experienced MCNPX code developers and instructors. More information on code versions and capabilities is available at MCNPX Workshops web site http://mcnpxworkshops.com.

Only a few places are still available for the January 2006 workshop. To register go to http://mcnpxworkshops.com/regform.html.

ANS RP&S Division Biennial Topical Meeting

The American Nuclear Society Radiation Protection and Shielding Division Biennial Topical Meeting will be held April 3–6, 2006, at the Pecos River Village in Carlsbad, New Mexico. The conference will open with a keynote address by Dr. Glenn Knoll. Other outstanding plenary speakers will include Dr. Kenneth Shultis, Dr. Cassiano de Oliveira and other special speakers.

Workshops will be offered on April 2 and 6, both morning and afternoon. These continuing education classes with the time and location are listed in the conference website.

There will be no charge to those registered for the conference for any of the workshops, although pre-registration is requested. Attendance at the conference will provide continuing education credits for various technical certifications depending on the degree of participation by the attendee.

Tours will be offered of the Waste Isolation Pilot Plant (WIPP), a licensed and operating deep geological repository for transuranic waste. The actual number of visitors WIPP can accommodate will depend on operational conditions and the work schedule of the facility. The WIPP site is a federal facility and advance notice will be required for a site visit so early registration is strongly encouraged.

The Trinity Site is also available to the general public independent of the conference on Saturday, April 1, 2006. The Trinity Site is the location of the world's first detonation of a nuclear weapon.

The call for papers, program and contact information for the conference can be found at http://www.ans-rpsw-carlsbad.com/.

NCRP 2006 Annual Meeting, "Chernobyl at Twenty"

The National Council on Radiation Protection and Measurements (NCRP) will hold its 2006 Annual Meeting April 3–4, at the Crystal City Marriott in Arlington, Virginia. The April 26, 1986, accident at the Chernobyl nuclear power plant near Kiev in the Ukrainian Republic of the Former Soviet Union was the worst nuclear power accident in history. Large numbers of people were contaminated in the Ukraine Republic, Belarus Republic, Western Russia, Western Europe, and Scandinavia. More than 200,000 people in the Ukraine and Belarus Republics were evacuated and resettled as a result of significant fallout from the Chernobyl accident.

On the twentieth anniversary of this disastrous event, the 2006 NCRP Annual Meeting will provide a comprehensive retrospective review and analysis of the effects of the Chernobyl nuclear accident on human health and the environment. Topics to be discussed by international experts include:

- the initial release, distribution and migration of radiation from Chernobyl;
- efforts to clean up, contain and dispose of radionuclides released by the accident;
- health effects observed in emergency responders and cleanup workers;
- exposures and health effects among populations living close to, and distant from, the Chernobyl reactor site;
- lessons learned from the Chernobyl accident, including improved nuclear safety procedures, better preparedness for future nuclear accidents, and more effective management and mitigation of human health consequences of such events; and
- international perspectives on the future use of nuclear technology and nuclear power in comparison with other power sources.

The program and registration for the meeting can be accessed at http://www.ncrponline.org/dates.html.

TRAINING COURSE ON NEUTRON SPECTRA UNFOLDING

This two-day training course on neutron spectra unfolding will be held April 7–8, 2006, in Cape Town, South Africa. The training course is organized by the Neutron Radiation department of the Physikalisch-Technische Bundesanstalt (PTB), Braunschweig, Germany. Additional support is provided by EURADOS. The course is intended for those who do spectrometry in neutron or mixed neutron/photon fields and need to analyze their data using unfolding procedures; emphasis is on practical aspects of unfolding.

A series of lectures in the morning sessions will provide an introduction to unfolding as well as allow for discussions on the theory of unfolding. In the afternoon sessions participants will work on specific examples at PC-workplaces using the UMG software package provided by PTB (UMG: Unfolding with GRAVEL and MAXED, currently distributed by NEA as code package NEA-1665 and by RSICC as code package PSR-529). We will focus on Bonner sphere measurements for our discussion of few-channel unfolding, and on liquid scintillation spectrometer (NE213) measurements for our discussion of multi-channel unfolding.

The number of participants will be restricted due to the limited number of PC-workplaces available. Therefore, you should register as soon as possible. For on-line registration and further information please visit the website at: http://www.ptb.de/utc2006/. Contact: Burkhard Wiegel, PTB, email Burkhard.Wiegel@ptb.de The fee for the course is 800 Euro and includes a CD with a complete set of notes and unfolding software, as well as refreshments.

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

DATES: 17–21 July 2006 (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. The Los Alamos MCNP™ code is a general and powerful Monte Carlo transport code for photons, neutrons, and electrons, and can be safely described as the "industry standard." This course is aimed at the HP, medical physicist, and rad engineer with no prior experience with Monte Carlo techniques. The focus is almost entirely on the application of MCNP™ to solve a variety of practical problems in radiation shielding and dosimetry. The intent is to "jump start" the student toward using MCNP™ productively. With a little practice and study of the examples, many will find they are able to solve problems that have, in the past, been out of reach.

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

Registration is available online at: http://drambuie.lanl.gov/~esh4/mcnp.htm. Make checks (U.S. dollars on a U.S. bank) payable to the University of California and mail with name, address, and phone number to: David Seagraves, Mail Stop J573, Los Alamos National Laboratory, Group HSR-4, MCNP Class, Los Alamos, NM 87545.

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

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

Richard H. Olsher

PHYSOR 2006

The Canadian Nuclear Society has announced that the ANS Reactor Physics Topical PHYSOR-2006, "Advances in Nuclear Analysis and Simulation," will be held in Vancouver, BC, Canada, Sept. 10–14, 2006. The meeting is sponsored by the Reactor Physics Division of the ANS and co-sponsored by a host of international societies. The conference will be held at the Hyatt Regency in downtown Vancouver.

You are invited to visit the meeting website at http://www.cns-snc.ca/physor2006/ to obtain updated information and to download a copy of the call for papers. The conference chair is Benjamin Rouben, FCNS Manager, Reactor Core Physics Branch, AECL Sheridan Park (phone 905-823-9060 x 4550, fax: 905-822-0567, email: roubenb@aecl.ca). The technical program co-chair is Ken Kozier, Atomic Energy of Canada Limited (AECL), Chalk River Laboratories, Chalk River, Ontario, Canada K0J 1J0 (Phone: +1-613-584-8811 + ext.5059, email: physor2006@aecl.ca).

ISRP-10

The 10th International Symposium on Radiation Physics (ISRP-10) will be held at University of Coimbra, Portugal, 17–22 September 2006. This event is organized jointly by the International Radiation Physics Society (IRPS) and the Physics Department of Coimbra University. The meeting is devoted to current trends in radiation physics research and will include a series of plenary talks given by prominent international researchers. The symposium in Coimbra is the latest in a series of triennial symposia which began in Calcutta in 1974 and continued in Penang (1982), Ferrara (1985), São Paulo (1988), Dubrovnik (1991), Rabat (1994), Jaipur (1997), Prague (2000) and Cape Town (2003). A 2½ day Workshop on the Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors will be held immediately prior to ISRP-10 (15–17 September 2006).

More information on the Symposium, the associate Workshop, as well as on the venue, can be found at http://pollux.fis.uc.pt/isrp10.

ICNCT-12

The Twelfth International Congress on Neutron Capture Therapy (ICNCT-12) will be held October 9–13, 2006, in Takamatsu, Kagawa, Japan. The meeting is sponsored by the International Society for Neutron Capture Therapy (ISNCT) with the society president, Yoshinobu Nakagawa of the Kagawa National Children's Hospital, acting as chairman of the organizing committee. The meeting will focus on the many significant developments that have been made in neutron capture therapy in biology, medicine, chemistry, medical physics and engineering, and clinical trials. The most up-to-date information can be found at the conference website: http://icnct-12.umin.jp/index.html.

CALENDAR

January 2006

MCNPX Introductory Workshop, Jan. 9–13, 2006, Las Vegas, NV. Contact: Bill Hamilton (phone 806-928-6021, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com).

International Conference on Application of Radio-tracers in Chemical, Environmental and Biological Sciences (ARCEBS 06), Jan. 23–27, 2006, Kolkata, West Bengal, India. Contact: Susanta Lahiri at arcebs06@saha.ac.in.

Seminar and Training on Scaling, Uncertainty and 3D Coupled Code Calculations in Nuclear Technology, Jan. 23–Feb. 10, 2006, School of Industrial Engineering of Barcelona, Spain. Registration deadline is December 12, 2005. Contact: 3dsuncop2006@ing.unipi.it (url: http://dimnp.ing.unipi.it/3dsuncop/).

February 2006

German Atomic Forum Winter Meeting, Feb. 8–9, 2006, Berlin. Contact: Anette Wiederhold, dbcm GmbH, Conference Office WT 2006, Kamillenweg 16-18, D-53757 Sankt Augustin, Germany. (fax 49-0-2241-9389712, email Annette.wiederhold@dbcm.de).

Waste Management 2006 (WM'06) Feb. 26–Mar. 2, 2006, Tucson, AZ. Contact: WM Symposia, Inc., P.O. Box 35340, Tucson, AZ 85740 (phone 520-696-0399, fax 520-615-8997, www.wmsym.org).

March 2006

HEART Conference, March 6–10, 2006, Santa Clara, CA. Contact: Technical Program Chair, Dennis Breuner (phone 858-720-7072, email dbreuner@titan.com).

TopNux: Securing the Future—The Role of Nuclear Energy, March 21–23, 2006, London, England. Contact: Dionne Bosma, ENS (phone 32-2-505-3054, fax 32-2-502-3902, email Dionne.boxma@euronuclear.org).

MCNPX Intermediate Workshop, March 27–31, 2006, Cape Town, South Africa. Contact: Bill Hamilton (phone 806-928-6021, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com).

April 2006

NCRP 2006 Annual Meeting April 3–4, 2006, Arlington, Virginia. URL: http://www.ncrponline.org/dates.html.

14th Biennial Topical Meeting of the ANS Radiation Protection and Shielding Division, April 3–6, 2006, Carlsbad, New Mexico. Contact: Dr. Chuan-Fu Wu (phone: 505-234-7552, email chuan.wu@wipp.ws) or Mr. Russell McCallister (phone 505-234-7395, russell.mccallister@wipp.ws) http://www.ans-rpsw-carlsbad.com/.

Methods and Applications of Radioanalytical Chemistry (MARC VII), April 3–7, 2006, Kona, Hawaii. Contact: B. Stephen Carpenter, General Chair, National Institute of Standards and Technology, 100 Bureau Dr., Stop 1090, Gaithersburg, MD 20899 (phone 301-975-4119).

Two-day training course on neutron spectra unfolding, April 7–8, 2006, Cape Town, South Africa. Contact: Burkhard Wiegel, PTB, email Burkhard.Wiegel@ptb.de or http://www.ptb.de/utc2006/.

International High-Level Radioactive Waste Management Conference (2006 IHLWM), April 30–May 4, 2006, Las Vega, Nevada. Contact: Daniel B. Bullen, General Chair, Exponent, 185 Hansen Court, Suite 100, Wood Dale, IL 60191 (phone 630-274-3223, fax 630-274-3299, email dbullen@exponent.com).

June 2006

ANS Annual Meeting, "A Brilliant Future: Nexus of Public Support in Nuclear Technology," June 4–8, 2006, Reno, Nevada. URL: http://www.ans.org/meetings/index.cgi?c=n.

MCNPX Introductory Workshop, June 12–16, 2006, Santa Fe, NM. Contact: Bill Hamilton (phone 806-928-6021, email bill@mcnpxworkshops.com, url http://mcnpxworkshops.com).

EXRS 2006–European Conference on X-Ray Spectrometry, June 19–23, 2006, Paris, France. Contact: exrs2006@cea.fr, http://www.nucleide.org/exrs2006/.

September 2006

PHYSOR-2006, "Advances in Nuclear Analysis and Simulation," Sept. 10–14, 2006, Vancouver, BC, Canada. Contact: Ken Kozier, Technical Program Co-Chair, Atomic Energy of Canada Limited (AECL), Chalk River Laboratories, Chalk River, Ontario, Canada K0J 1J0 (Phone: 613-584-8811 ext.5059, email: physor2006@aecl.ca, web http://www.cns-snc.ca/physor2006/).

Workshop on the Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors, Sept. 15–17, 2006, Coimbra, Portugal. Contact: workshop@lipc.fis.uc.pt (http://pollux.fis.uc.pt/isrp10/workshop/index.htm),

ISRP-10, Sept. 17–22, 2006, Coimbra, Portugal. Contact: isrp10@pollux.fis.uc.pt (http://pollux.fis.uc.pt/isrp10).

November 2006

ANS Winter Meeting and Nuclear Technology Expo, "Securing the Future in Times of Change," Nov. 12–16, 2006, Albuquerque, NM. Contact: Robert W. Kuckuck (phone 505 667 5101, email bobkuck@lanl.gov) http://www.ans.org/meetings/index.cgi?c=n.

September 2007

ICENES2007, Istanbul. Contact: http://www.icenes2007.org/