RSIC Newsletter

RADIATION SHIELDING INFORMATION CENTER

OAK RIDGE NATIONAL LABORATORY

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A conference is a group of people who individually can do nothing, but who as a group can meet and decide that nothing can be done. . . .George Ellis

DEATH OF TOM JAEGER NOTED

It is with regret and with a great sense of loss that we note the death of Professor Dr.-Ing. Thomas A. Jaeger on August 21, 1980.

Jaeger matriculated at the Technical University of Dresden (DDR) and transferred to the Federal Republic of Germany in 1957. He joined the Bundesanstalt für Material-prüfung (BAM; Federal Institute for Materials Testing), became director and was also a full professor in structural mechanics in the Technical University of Berlin.

Although primarily a structural engineer, Tom had a keen interest in shielding. He was one of the leaders and an editor of the largest work ever published on shielding: the *Engineering Compendium on Radiation Shielding*, published by Springer-Verlag in three volumes under sponsorship of the International Atomic Energy Agency (IAEA). The board of editors was comprised of R. G. Jaeger (editor-in-chief), E. P. Blizard, A. B. Chilton, M. Grotenhuis, A. Hönig, T. A. Jaeger, and H. H. Eisenlohr.

As co-editor of *Nuclear Engineering and Design*, an international journal devoted to the thermal, mechanical and structural problems of nuclear energy, Tom worked diligently in the early years to promote that journal as a vehicle for shielding literature, but a few years ago the decision was made for the journal to concentrate on other topics.

He founded the Structural Mechanics in Reactor Technology (SMIRT) series of biannual conferences and served as General, Scientific, and Organizational Chairman of SMIRT-5, held in Berlin in August 1979. He was also a founder (1971) and served as president of the officially registered non-profit international scientific engineering society, International Association for Structural Mechanics in Reactor Technology (IASMIRT).

Although Tom Jaeger functioned in all phases of SMIRT-5 and put in daily appearances, he was known to be suffering from a malignancy diagnosed as terminal. This superbly organized conference was a tribute to him. During SMIRT-5 IASMIRT announced the establishment of a biannual award entitled the "Thomas A. Jaeger Plenary Lecture" where the lecturer chosen would receive a suitable honorarium. The fund established for this award is underwritten by the FRG ministry under which BAM operates, the Commission of the European Communities, and other SMIRT patrons.

As a friend and supporter of the Radiation Shielding Information Center (RSIC) since it was established in 1962, as an editor of the *Engineering Compendium on Radiation Shielding*, and as an editor of *Nuclear Engineering and Design*, he will be long remembered by both the radiation shielding and structural mechanics communities in the USA and in the world.

PERSONAL ITEMS

We are pleased to welcome **Shafiqul I. Bhuiyan**, Scientific Officer of the Bangladesh Atomic Energy Commission, who will spend one year in the ORNL Engineering Physics Division (EPD) on an IAEA Fellowship. He will work on concrete shielding studies with staff members of RSIC and the EPD Reactor Physics and Shielding Group.

XSDRNPM and a multidimensional depletion code CITATION. The spectrum was also used to a) calculate one-group, spectrum-averaged yields, and b) to calculate revised values for the ORIGEN flux parameters THERM, RES, and FAST. This type of information has been developed for U-Pu cycle PWRs and BWRs, alternative cycle PWRs, standard and alternative cycle LMFBRs, and CANDUs.

The decay and photon data have been updated, based on data from ENSDF (427 nuclides) and ENDF/B-IV (575 nuclides). The data were verified by comparison with the previously existing ORIGEN decay library and by comparison of decay heat calculations with the ANS decay heat standard. The photon data were updated using ENSDF as the data source. Gamma rays, x rays, and bremsstrahlung are included in the 12-energy-group (18 for actinides) photon library.

ORIGEN reactor models have also been updated to reflect current designs, including such parameters as charge and discharge masses per unit of reactor capacity, fuel assembly descriptions, and the non-actinide compositions of unirradiated fuels and structural materials.

A variety of miscellaneous data used by ORIGEN2 have been updated to include spontaneous fission, (α,n) neutron yields, and the recoverable energy per fission.

The code package, including data, contains approximately 89,000 records. Reference: ORNL/TM-7175. FORTRAN IV; IBM 360/91, 370/3033.

CCC-380/PALLAS-PL/SP

PALLAS-PL/SP, a one-dimensional neutron transport code system for slab or spherical geometry, was contributed by Ship Research Institute, Tokyo, Japan. General anisotropic scattering is calculated. PALLAS-PL/SP solves deep penetration problems in which angle-dependent neutron spectra are calculated in detail. Reference: Ship Research Institute Paper No. 42. FORTRAN IV; IBM 360.

CCC-384/ICRP

ICRP, a system of programs for performing dosimetric calculations, was contributed by the Oak Ridge National Laboratory. Implementing the recommendations of the ICRP Committee 2 for computing limits for occupational exposure of radionuclides, it contains three modules. The first module, called the SEE program, calculates specific effective energy. The second module, the ICRP TIMED program, computes the cumulated activity at a specified time after intake. A third module, called the DOSE program, combines the output of the SEE and ICRP TIMED program segments to compute dose equivalent and the secondary and derived limits for the control of internal dose. The SEE and ICRP TIMED modules may be used as "stand alone" codes for a specific calculational need. DOSE requires input from the other modules for execution. Reference: ORNL/TM-6980. FORTRAN IV; IBM 360.

PSR-140/FANG

FANG, an angular folding code package for channel theory analysis, was updated to reflect improvements made by the ORNL contributors in subroutine GRUNT. A mailing has been made informing current users of the program.

PSR-156/CHENDF

A group of codes for processing ENDF/B data, contributed by the National Nuclear Data Center, Brookhaven National Laboratory, Upton, New York, has been packaged and given the name CHENDF. Included in the package are: RIGEL5, STANDRD, CRECT, CHECK5, FIZCON, and INTEND. References: Informal notes. FORTRAN IV; IBM 360.

SCA-0/SCALE

SCALE, a modular code system for performing standardized computer analyses for licensing evaluation, has been updated to reflect improvements made by the code contributor, UCCND Computer Sciences Division at ORNL. The changes occurring in subroutine JOMCHK of KENO IV allow the hemisphere to be tangent to the end of the cylinder in the case of hemisphere extending past the end of the cylinder. Current users have been notified of the changes. FORTRAN IV; IBM 360/3033.

endeavored to tie together the many actions and procedures involved in developing a scientific concensus on the philosophy and recommendations involved in radiation protection and measurements. In addition to the written records, there are private notes made by Dr. Taylor during his attendance at meetings including the following: all but one meeting of the ICRP since 1928, all ICRU meetings from 1928 to 1969, all NCRP meetings since 1929, and all meetings of the standardization and protection committees of the Radiological Society of North America and the American Roentgen Ray Society from 1927 to 1946. All these records are used as a basis for a chronological history of the organized development of radiation protection standards.

This publication, DOE/TIC-10124, is available from the National Technical Information Service for $25.00.

IEEE STANDARDS WORKSHOP PROCEEDINGS AVAILABLE

Held in Myrtle Beach, South Carolina in December 1979, the IEEE Standards six-day workshop was the first of its kind. The interdisciplinary and international participation produced a frank and highly productive report. The theme of the workshop was: "The human--the key factor in nuclear safety."

The workshop considered such interest as: industry, government, legislators and the general public. Each of five working groups covered 1) Maintenance/Calibration/Standard Operating Procedures, 2) Operator Annunciation, 3) Situation Analysis, 4) Operator Action/Intervention, and 5) Situation Modification Factors. Each group recommended required standards, and research and development efforts. Since the key people involved were from divergent fields, a lively and fruitful discussion resulted between guest speakers and attendees.

The publication of the proceedings is a thorough report on a meeting that was itself an experiment in human factors and an ambitious undertaking that provided a significant and timely message to industry. Entitled the Conference Record (TH 0075-2), the report is available for $25.00 from IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854, phone 201-981-0060.

SYMPOSIUM ON ATMOSPHERIC TRANSPORT PROCESSES ANNOUNCED

A Symposium on Intermediate Range Atmospheric Transport Processes and Technology Assessment will be held October 1–3, 1980 in Gatlinburg, Tennessee. It is sponsored by the U.S. Department of Energy, the National Oceanic and Atmospheric Administration, and the Oak Ridge National Laboratory. Three keynote addresses will be featured: *The Meteorologist's Perspective*, (I. Van der Hoven, NOAA), *Nuclear Pollutants*, (P. S. Rohwer, ORNL), and *Nonnuclear Pollutants* (A. Bass, Environmental Research and Technology, Inc.).

For further information, contact Charles W. Miller, Bldg. 7509, ORNL, P. O. Box X, Oak Ridge, TN 37830, phone 615-576-2136.

ROCKWELL INTERNATIONAL COURSES ON RADIATION PROTECTION

The following two courses have been announced by Rockwell International Energy Systems Group.

A two-week course on *Health Physics* structured to help prepare nuclear utilities, university, and laboratory health physicists for the American Board of Health Physics Certification Exam will be held October 27 through November 7, 1980. This program is offered to the health physics community as an intensive training course at the professional level. Twenty-two health physics categories will be covered including sample problem solving in each area. A scientific calculator is required. The fee is $995.00.

A comprehensive home study course, *Radiation Protection Technology*, is being offered. It covers the three general areas of Health Physics Fundamentals, Radiation Measurements and Operational Health Physics Technology. The course includes 15 audio cassette tapes, a study guide, required reading, supplemental textbooks, 15 quizzes and a final examination. The course has two specific applications: 1) A convenient review for an experienced technologist planning to take the National Registry of Radiation Protection Technologists (NRRPT) examination; and 2) A complete, effective introduction and teaching aid for a technologist new in the field. It is NRRPT recognized, and the fee is $375.00 plus tax.

For additional information on the above courses, contact B. A. Davies, Rockwell International, Energy Systems Group, Nuclear Training Center, 8900 De Soto Avenue, Canoga Park, CA 91304; phone 213-341-1000, Ext. 2811.

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