

Brookhaven Honors Four Scientists for Distinguished R&D Efforts

Four member of the Laboratory's scientific staff were honored in December with Distinguished Research and Development (R&D) Awards, under BNL's Employee Awards Program.

Interim BNL Director Peter Bond presented the four scientists — Richard Hahn, Chemistry Department; Jerome Hastings, National Synchrotron Light Source Department; Pavel Rehak, Instrumentation Division; and John Tranquada, Physics Department — with their awards.

"This is one of the most pleasant tasks I've had since becoming Interim Director," said Bond. "These four outstanding researchers represent the very best of Brookhaven, with their extraordinary talents, their boundless energy in the pursuit of knowledge



Roger Stoutenburgh

Pictured with the engraved mementos that symbolize their Distinguished Research & Development Awards are: (from left) Pavel Rehak, Instrumentation Division; John Tranquada, Physics Department; Jerome Hastings, National Synchrotron Light Source Department; and Richard Hahn, Chemistry Department.

Richard Hahn, Chemistry

Senior Chemist Richard Hahn was nominated, said Chemistry Department Chair Carol Creutz, based on his "outstanding role in international solar-neutrino research, which has profoundly altered our view of the neutrino itself. He brings great distinction to BNL though his crucial contributions to world neutrino collaborations."

Hahn's first appointments at BNL were as a research associate just before and after he received his 1960 Ph.D. in nuclear chemistry from Columbia University, which had followed his 1956 M.A. from Columbia and 1955 B.S. from Brooklyn College. He then spent 25 years at Oak Ridge National Laboratory, including ten years as Director of the Transuranium Research Laboratory there.

In September, 1986, he returned to
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Jerome Hastings, NSLS

In proposing Senior Physicist Jerry Hastings as a candidate, National Synchrotron Light Source (NSLS) Chair Michael Hart cited him for his "far-reaching contributions to the NSLS and NSLS-based science." Also, Hart noted, "His efforts have been instrumental in making the NSLS one of the foremost synchrotron radiation facilities in the world, and his breadth of knowledge of both instrumentation and science has put him in great demand as a resource

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Pavel Rehak, Instrumentation

Physicist Pavel Rehak "ranks with the very best in the particle and photon detector field," observed Instrumentation Division Head Veljko Radeka in nominating Rehak. "He belongs to the handful of persons who have made their imprint on instrumentation and who have helped transform particle-physics detectors into a scientific discipline. In addition, he is a

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and their fruitful efforts that are of immense importance to advances in so many fields."

As the highest honor in the Employee Awards Program, the Distinguished R&D Award is symbolized by an engraved memento and accompanied by a pre-tax award of \$5,000. The award is intended to reward notable contributions to BNL's research and development mission made over one or more years by a member of the scientific staff or an employee on the engineer/scientific associate/computer analyst schedule.

Below are summaries of the accomplishments of the four honorees.

— Liz Seubert

John Tranquada, Physics

In his strong recommendation of Physicist John Tranquada, Interim Physics Department Chair Michael Murtagh noted: "For his unique contributions to studies on electronic structure and antiferromagnetism in transition-metal oxides, John is truly deserving of such an honor. His incisive experiments and important discoveries in research on high-temperature (high- T_c) superconductors have made him a widely recognized leader in this field."

Tranquada received his B.A. in physics at Pomona College in 1977 and his Ph.D., also in physics, at the University of Washington, in 1983. After three years of postdoctoral work with the X-11 participating research team at BNL's National Synchrotron Light Source (NSLS), he joined Physics as an assistant physicist in 1986, the year that the first high- T_c super-
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Communiqué From BSA

Three Weeks Into Transition, Activities Remain on Schedule; Meet the Assistant Director for Environmental Management

This is one of a series of weekly messages about transition activities from Brookhaven Science Associates (BSA) Transition Manager Robert McGrath to BNL employees. BSA will assume the management of BNL from Associated Universities, Inc. (AUI) on March 1.

As we enter the fourth week of the BSA transition period, I'm pleased to

report that work continues on schedule:

- In **Science and Technology**, all program reviews have been completed, the first Science Council meeting was held on January 21, and the new management has completed visits to many DOE officers and program managers.
- In **Human Resources (HR)**, the employee "mapping" process, which

links people to their new home organization, is done; meetings have been held with key employee and retiree groups; and offer letters for employees to continue their BNL employment with BSA were mailed on or about January 26. In general, the HR team continues to strive to have as much dialog with employees as possible through meetings, the Q&A format of Brookhaven Bulletin articles, and the Hotline number.

- In the **Finance and Administration** area, assessments of property, information management, and accounting systems have been finished.
- In the **Environment, Safety & Health (ES&H)** area, one focus has been status assessment of leadership initiatives such as the Management Systems Improvement Program (MSIP) and Work Smart Standards.
- In the new BSA management team, Michael Schlender will be Assistant Director for **Environmental Management (EM)**.

The new EM directorate will bring together the Office of Environmental Restoration and the Waste Operations Group of the Safety & Environmental Protection Division under a single senior Level One Manager — Mike Schlender — who is accountable for all EM activities.

Mike joined Battelle Memorial In-

stitute in 1992, as part of Battelle's Environmental Management Organization. As senior project manager, he led a wide variety of projects for the Department of Energy (DOE), the Department of Defense and the Environmental Protection Agency (EPA) throughout the United States, involving environmental remediation of soils, sediments and groundwater; the disposition of nuclear materials and facilities; and the demonstration and deployment of new environmental technologies.

In 1994, he joined forces with Ken Brog to tackle environmental-management and compliance-related problems facing Pacific Northwest National Laboratory (PNNL).

Remembering the challenges faced during PNNL's environmental culture change, Mike says his role involved
(continued on page 4)



Roger Stoutenburgh

Michael Schlender (left), who will be the Lab's Assistant Director for Environmental Management, pays close attention as Mike Bebon, BNL's current Deputy Director for Laboratory Operations, gives a presentation at a meeting last Monday.

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Meetings Address Issues Related to Health of BNL Employees

Topics Include: Lab's Environmental Emissions, Radiation Doses to Workers, DOE-Initiated Assessment of Cancer Incidence Among BNLees

Two meetings on employee health issues were held yesterday as part of a continuing effort by the U.S. Department of Energy (DOE) and BNL management, including Associated Universities, Inc., and Brookhaven Science Associates, to keep BNLees fully informed about Laboratory activities and how they may affect employees and retirees, as well as the Lab's neighbors and the environment.

Among the issues discussed at the meetings were: the Laboratory's emissions to the environment, the evolution of radiation-dose limits, BNL radiation doses to Lab workers, and an assessment that DOE has initiated with the New York State Cancer Registry to look at the incidence of cancer among BNL employees, past and present.

DOE has no reason to believe that the cancer incidence at BNL is unusual in any way, and recent yearly epidemiological reports based on data from Brookhaven's Occupational Medicine Clinic have supported this belief.

"However," said Dean Helms, Executive Manager of DOE's on-site Brookhaven Group, "the assessment will give DOE a more comprehensive indication of whether cancer among Lab employees falls within normal ranges or whether the subject should be looked at further. It is also an important part of our commitment to inform BNL employees, retirees and neighbors about environmental and health issues at the Laboratory."

Worker Cancer Assessment

Since 1992, the Occupational Medicine Clinic has been providing data regarding illnesses and injuries that cause Lab employees to call in sick for five days or more to DOE's Office of Epidemiologic Studies (OES). OES has been conducting an epidemiological surveillance of employees at several DOE sites, including BNL.

Cliff Strader, an epidemiologist with OES, came to BNL Thursday to participate in the employee meetings. He said that available data collected in this surveillance do not suggest that current Brookhaven workers are experiencing an increased risk of cancer, but that surveillance data provide only a limited assessment of worker health. OES has released these findings in reports for 1992 through 1994. They are available for viewing on the OES Internet home page at <http://tis-nt.eh.doe.gov/epi>.

Because OES's epidemiological surveillance covers only the most recent few years, DOE began pursuing a more comprehensive assessment in late 1996, when the Brookhaven Group and BNL inquired about conducting an epidemiologic study of Laboratory employees.

Much of the time since then has been spent working with BNL's Human Resources Division to create a computerized database of all of BNL's 21,263 current and former employees. The database includes each person's life number, name, residential address, social security number, job title, pay type (hourly or salaried), date of first hire, date of most recent hire, date employment ended, generic reason that employment ended, gender, race and date of birth. This database has been provided to OES, which, Strader said, will treat it with the utmost confidentiality.

He explained to the two groups of employees assembled in Berkner Hall that, under a Memorandum of Under-

standing between DOE and the U.S. Department of Health & Human Services, OES can request that the National Institute for Occupational Safety & Health (NIOSH) consider doing a health study of BNL workers. More detailed information about cancer rates among past and current Brookhaven workers would be valuable in NIOSH's consideration of whether to undertake a full study, Strader said.

To get a more complete determination of cancer rates among Brookhaven workers and to assess whether these rates are different from those of the surrounding population, Strader said, OES has requested the assistance of the New York State Cancer Registry. The Registry collects information on cancer incidence and mortality from doctors and hospitals statewide, storing this information in a computerized registry that is complete from 1979 to 1993.

Keeping all information completely confidential, Strader stressed, the New York State Cancer Registry has agreed to compare the BNL roster with its automated database and to calculate cancer rates for BNL workers.

Using a copy of the roster provided by the Office of Epidemiologic Studies, Registry staff will compare these rates with those of residents of New York State as a whole and with rates among residents of Long Island, with Suffolk and Nassau Counties combined. They will provide a final report evaluating whether BNL workers have higher cancer rates than expected.

Among the limitations of the Registry's assessment, noted Strader, are the facts that it will not include cancers diagnosed before 1979 or after 1993, cannot determine if cancers are occupational and will not include cancers of former BNL workers diagnosed out of state.

Strader said that results from the Registry's evaluation are expected to be available by early summer. In the interests of confidentiality, the Registry will provide only summaries of data to DOE.

When results are available, Helms said, "We will share the results and their significance with Laboratory employees, retirees and the outside community."

BNL Emissions to Environment

Following Strader's presentation, Gary Schroeder, a health physicist in BNL's Safety & Environmental Protection Division (SEP), spoke about BNL's environmental emissions.

"Some research facilities at BNL either use or produce radioactive materials," Schroeder said. "Any radioactive releases as a by-product of these processes are in accordance with the rules set forth by DOE, the U.S. Environmental Protection Agency (EPA), New York State and Suffolk County."

He noted that BNL has monitored environmental emissions and reported them annually to county, state and federal governments since 1971.

"The potential effect of a radiation

exposure depends on the dose, and regulatory agencies set dose limits well below the levels at which an observable health effect could be expected," Schroeder said.

Everyone living in the United States automatically receives an annual radiation dose of about 300 mrem from natural background radiation, said Schroeder. Sources of this background radiation are: food, about 39 mrem/yr.; soil and rocks, about 28 mrem/yr.; cosmic rays from the sun and outer space, about 28 mrem/yr.; and radon gas, about 200 mrem/yr. The quantity for radon can vary depending on location, type of home and whether the home has a basement.

How are environmental radiation levels measured? Schroeder explained that BNL maintains a network of 24 on-site and 25 off-site thermoluminescent dosimeters, the same technol-

Graphite Research Reactor (BGR), a 20-megawatt, air-cooled research reactor that ran from 1950 until 1968. The principal radionuclide released from the BGR was argon-41, via the red-and-white stack now used for the HFBR.

Depending on their locations, employees on site at that time could realistically have received doses of radiation from BGR emissions of up to about 8 to 19 millirems a year (mrem/yr.), Schroeder said. To put that in perspective, the federal limit for the amount of radiation a member of the public could receive was then 500 mrem/yr.

Airborne emissions from current operations at BNL would contribute less than 1 mrem/yr. to the radiation dose of a person working outdoors at the Lab 24 hours a day, Schroeder said. The current public dose limit is 100 mrem/yr.

Since the late 1960s, "The only significant liquid radiation release to the environment from BNL facility effluents has been tritium," Schroeder said, noting that tritium is a by-product of HFBR operations.

Tritium in liquid effluent is discharged to the Lab's sanitary system, where it eventually enters the Peconic River via the sewage treatment plant. A total of about one to three curies of tritium has reached the Peconic annually in the last decade, well below the EPA guideline.

In conclusion, Schroeder mentioned that BNL operates six on-site drinking water wells that are tested quarterly for radioactive parameters, as well as a full range of chemical contaminants.

Additionally, a tap water sample is tested daily for tritium.

Testing of the BNL water supply has been routine since the 1960s, he said, and radioactivity in the drinking water has never exceeded or approached the limits specified by the Safe Drinking Water Act.

Evolution of Dose Limits

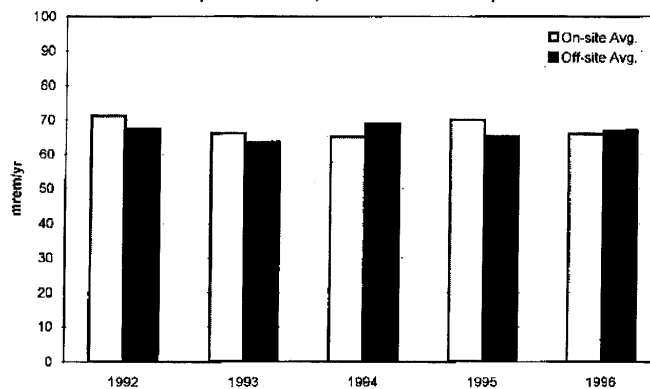
Senior Scientist Charles Meinhold of the Department of Advanced Technology spent the next few minutes explaining why radiation-dose limits to the public and to radiation workers have gotten smaller over the years.

Among the organizations concerned with recommending dose limits today are: the National Council on Radiation Protection (NCRP) & Measurements, of which Meinhold is currently president, and the International Commission on Radiological Protection (ICRP), of which he is vice chairman. Other organizations that review scientific data on radiation risks are the United Nations Scientific Committee on the Effects of Atomic Radiation, of which he is an advisor to the U.S. delegation, and the National Academy of Science's Committee on the Biological Effects of Ionizing Radiation.

Meinhold said that these groups now formulate limits based on "much better knowledge than was available during World War II," when man-made radiation became a factor in work environments. Because the threshold for radiation skin burns was 0.1 rem/day, that became the post-War dose limit.

Thinking began to change in the early 1950s, Meinhold recalled, as those responsible focused their attention on genetic effects. So, in 1956, a formula was introduced to prorate workers' lifetime exposures to: $5 \times (\text{age}-18) \text{ rem}$, with a limit of 3 rem per quarter. Thus, a 58-year-old worker's

Environmental TLD Measurements
(5 Year Trend, On-Site vs. Off-Site)



Radiation doses measured both on and off site from 1992 to 1996 are statistically the same, from about 60 to 70 millirems a year — right in line with national standards for terrestrial and cosmic rays.

ogy used in the badges that BNL workers wear.

When compared against known background radiation levels, quarterly collection of data from these dosimeters has verified that Lab operations have no impact on the off-site radiation environment, and the data indicate that measured exposures are due to natural radiation only.

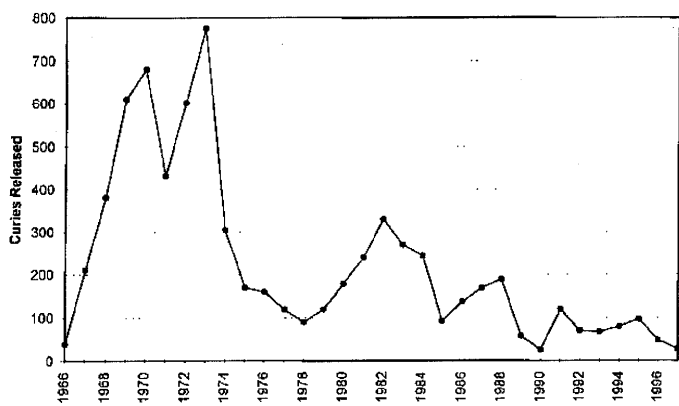
With two on-site exceptions, Schroeder said that the dosimeter network shows no difference in average annual exposure values for on- and off-site stations. The two on-site exceptions are the old hazardous-waste management area, which is now out of service, and the area south of the Alternating Gradient Synchrotron (AGS) and outside of Bldg. 197, where exposure values range from 10 to 20 mrem/yr. above background.

The BNL facilities that release radioactive materials, said Schroeder, are the High Flux Beam Reactor (HFBR), the Brookhaven Medical Research Reactor, the AGS, the Brookhaven Linac Isotope Producer (BLIP), the facility in Bldg. 801 that processes targets for BLIP, the tritium evaporator housed in a building at the base of the HFBR, the incinerator at the waste-management facility and various laboratory hoods around the site.

The emissions from most of these facilities are airborne. Schroeder cited the main radioactive gases that are released to the air as: argon-41, which has a half-life of two hours; oxygen-15, half-life two minutes; and tritium, half-life 12 years. He added that several dozen other radionuclides may be released in very small quantities — thousands to millions of times less than the three main releases.

Looking back, Schroeder said, the most significant historic airborne release point at BNL was the Brookhaven

HFBR Airborne Tritium Releases 1966 to 1997



As shown in these charts of (left) airborne releases of tritium from the High Flux Beam Reactor (HFBR), 1966-97, and (right) tritium discharged to the Peconic River from the Lab, 1966-96, BNL's airborne and liquid tritium releases to the environment have both been declining since the early 1970s.

worker who received the maximum allowable dose, rather than average doses. The result was

that, today, the NCRP recommends a lifetime limit for radiation workers based on the formula: $1 \times \text{age rem}$, meaning that a 58-year-old worker's limit would be 58 rem. ICRP recommends a limit of 2 rem/yr. for workers. Both of these recommendations ensure that no worker exceeds 100 rem in a lifetime.

BNL Radiation Dose Records

The final speaker was George Holeman, a health physicist with SEP's Per-

Normal Superiore, Pisa, Italy, in 1972. He spent two years doing research at Kernforschungszentrum, Karlsruhe, Germany, then, on joining Yale University, was assigned to CERN. In 1976, he came to BNL's Physics Department as an associate physicist. Promoted to Physicist in 1979, he transferred to Instrumentation in 1994. He was awarded tenure in 1997.

Jerome Hastings (cont'd.)

for people embarking on the construction of new facilities."

A member of the NSLS Department since its inception in 1982, Hastings was instrumental in shaping much of its range of science. He has authored and co-authored many seminal papers describing innovative instrumentation for new types of experiments using synchrotron radiation, including milestone publications pertinent to the development of beam lines and programs at the NSLS and elsewhere.

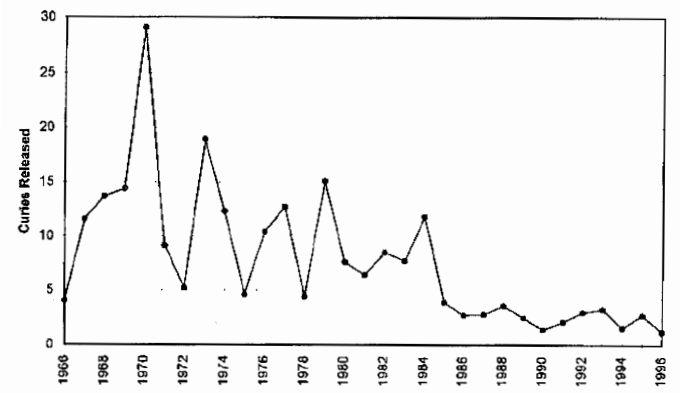
Among Hastings' most notable achievements was the most-copied beam line design, which involved a monochromator and grazing incidence focusing mirror. When he first built it in 1978, it was an innovation — now, it is the standard configuration.

Hastings played a significant role in the development of several techniques that are now widely used in facilities around the world, for example, high-resolution powder diffraction, inelastic x-ray scattering and nuclear forward scattering. He also proposed the use of soft x-ray reflectivity as a new tool for materials science studies, particularly in investigating magnetic structures.

Hastings and collaborators teamed in the world's first use of a synchrotron to perform direct Mössbauer spectroscopy in August 1990, on beam line X-27 of the NSLS x-ray ring. He serves on advisory panels for major new synchrotron radiation facilities in France, Korea and Japan.

Hastings earned his Ph.D. in applied physics at Cornell University in 1975, also working 1974-76 as a metallurgist at Oak Ridge National Laboratory. Then, he spent a year as a research associate at Stanford Synchrotron Radiation Laboratory. During the period 1973-77, he was also a guest scientist with the BNL Physics Department. In 1977, Hastings joined Physics full-time as an assistant physicist, moving to the NSLS in 1982. Granted tenure in 1986, he was named Senior Physicist in 1991. He is a fellow of the American Physical Society and a member of the American Crystallographic Association.

Tritium Activity Discharged to the Peconic River 1966 - 1996



lifetime dose limit would have been 200 rem (200,000 mrem).

In 1977, with firmer statistics about leukemia and solid cancers among the survivors of the atom bombs dropped on Japan during World War II, regulators held worker dose limits at 5 rem/yr. (5,000 mrem/yr.) and eliminated the allowance of 3 rem/quarter.

With new information about the Japanese survivors that became available in 1990, the NCRP and ICRP began to base limits on the risk to the

Pavel Rehak (cont'd.)

foremost intellectual resource in solving any instrumentation and measurement-related problem arising in experimental sciences from physics to biology."

Rehak's work has benefited the programs of the whole research community that uses semiconductors and gaseous particle and photon detectors. His most important contribution has been the unconventional idea and very successful realization of the silicon drift detector (SDD), with Emilio Gatti.

The SDD has had a worldwide impact in charged-particle tracking. First used at CERN, the European laboratory for particle physics, in two experiments at the Super Proton Synchrotron, the innovative concept of the SDD has made possible the silicon vertex detector for the STAR experiment at BNL's Relativistic Heavy Ion Collider.

SDD has inspired, among other things, a new type of charged coupled device as an imaging x-ray detector for astrophysics experiments at Germany's Max Planck Institute, and a high-resolution silicon x-ray detector, on which industry is basing electron microscopes that analyze traces of elements by x-ray fluorescence.

Other contributions by Rehak include his technique to reduce significantly a serious shortcoming in gaseous position-sensitive detectors — line broadening due to parallax that occurs in diffraction experiments using x-rays and neutrons. He has also collaborated at BNL, in Germany and in Italy, on forefront design and development of detector electronics.

After earning a doctoral RNDr degree in 1969, in natural sciences, at the University of Prague, Czechoslovakia, Rehak obtained a second Ph.D., in high-energy physics, at the Scuola

sonnel Monitoring Group, who focused on how BNL has kept track of radiation workers' exposures over the years.

Throughout the Lab's history, this has remained constant: Radiation workers have had monitoring devices to wear all the time while at the Lab, and others have had to wear them when visiting a radiation area.

What has varied over the years, Holeman said, are the types of monitoring devices and methods of record-keeping. From the beginning of BNL until 1974, he recalled, workers wore film badges. Personnel monitoring staff processed the film at the Lab and kept records of exposures manually. For the next ten years, film continued to be processed in house, but results were transferred to BNL's main-frame computer.

This changed again in 1984, when the Lab began to use a commercial film-badge service, which maintained its own database of results. Though BNL discontinued this service in 1994, the Laboratory still has access to those records.

In 1995, film badges were replaced by thermoluminescent dosimeters, and Personnel Monitoring has been operating an in-house TLD service, accredited by DOE under its dosimetry-accreditation program. Records are now available on a computerized database on the SEP network.

The exposure records, each of which will be kept for 75 years, do not include medical or other non-occupational exposures that workers may have received.

For the years 1993-96, Holeman said, records from control dosimeters in badge racks show that two-thirds of

BNL's approximately 3,000 employees got no exposures. For the 1,000 whose dosimeters recorded some dose, the averages were: 0.084 rem for 1993, 0.107 rem for 1994, 0.150 rem for 1995 and 0.08 rem for 1996 — as compared to the BNL administrative control level of 1.25 rem/yr. and the DOE administrative control level of 2 rem/yr.

During those same years, the maximum doses received by any employees were: 1.03 rem in 1993, 1.61 rem in 1994, 1.208 rem in 1995 and 1.103 rem in 1996. Even though the employee who received 1.61 rem in 1994 was over BNL's current administrative control level, he was below the DOE administrative control level and remains within DOE's lifetime guidance figures. Recalling our "average" 58-year-old worker, Holeman said, his lifetime dose should have been no more than 58 rem.

The vast majority of BNL workers through the years have fallen well within the guidance for lifetime radiation dose. About 25 had documented lifetime doses in the range of 40 to 80 rem. These lifetime doses are still below the lifetime exposure of 100 rem that formed the basis for the most recent NCRP and ICRP recommendations, as well as the DOE administrative control level.

Holeman said that employees who are issued dosimeters receive annual summaries of any radiation exposures.

Anyone with questions about dosimeters or other issues related to personnel monitoring, is encouraged to call Holeman at Ext. 7221.

— Anita Cohen

Suffolk County Task Force Finds No Link Between BNL and Cancer

According to the report of a study released yesterday by the Suffolk County Environmental Task Force on BNL, "cancer rates of all types of cancers [the task force] studied are not elevated near BNL" for the years 1979-93.

Task Force Chairman Roger Grimson, who is a biostatistician and an associate professor at the State University of New York at Stony Brook, concluded, in a *Newsday* article by Charlie Zehren that ran last Friday, "There is no link between Brookhaven National Lab and cancer."

The Task Force was created last spring by the Suffolk County Legislature. Their report specifically addresses two types of cancer: breast cancer and the childhood cancer called rhabdomyosarcoma.

Regarding breast cancer, the study found that, compared to the rest of Long Island, rates are rising significantly, and more quickly, on the Island's East End, on both the North and South Forks.

As *Newsday* reported: "Concerning breast cancer, Grimson said, the study does not implicate Brookhaven National Laboratory or any other particular facility or cause and noted that the breast cancer rate in the area immediately surrounding the lab is lower than on the North and South Forks."

Regarding rhabdomyosarcoma, the study says that there is no statistical evidence showing higher than normal rates in either Suffolk County or a 15-mile radius of the Lab. In fact, there were fewer cases of rhabdomyosarcoma in Suffolk County from 1979 through 1993, than there were on average in other New York State counties, including Nassau, Brooklyn and Queens.

According to the New York State Health Department, Grimson said in *Newsday*, for each million people under age 19, rhabdomyosarcoma occurred annually at a rate of 4.1 cases in Suffolk. The incidence rate was 5.3 per million statewide, 5.6 in Nassau, 6.4 in Queens and 7.0 in Brooklyn.

Regarding critics of the study, *Newsday* reported that Grimson said, "All I can say is let the critics seek the same data and analyze it for themselves. They will get the same results."

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Human Resources Transition Team Employee Briefings Scheduled for Next Week

During the transition to BNL's management by Brookhaven Science Associates (BSA), BSA's Human Resources (HR) transition team is providing Lab employees with updates on what you can expect and answering your questions.

Following the distribution of BSA offer letters, employees have been quick to return their signed offer packages. Within 24 hours of commencing distribution of BSA employment offer packages, over 50 percent of BNL employees had signed and returned their forms to department contacts.

If you're among those who have not yet signed and returned your offer package to your department administrator, please do so by the close of business next Friday, February 6.

Monitoring the distribution, the HR Transition Team was pleased to learn that many employee concerns had already been answered. Those who raised specific questions were referred to the appropriate HR Transition Team member; given the Hotline telephone number, Ext. 8200; or reminded that a separate retirement package, due to be mailed to employees on January 29, should answer many remaining questions. These efforts on the part of department contacts warrant our thanks and remind us all of the efficacy of BNL teamwork!

Lastly, aware that employees would like a transition update and that some may still have employment and benefit questions, the HR Transition Team has scheduled five briefing sessions, to be held in Berkner Hall next week, Monday through Thursday, starting February 2. You will be notified of your meeting time through your department or division contact.

A late afternoon session is scheduled for shift workers on Wednesday, February 4, at 4:30 p.m.

At these sessions, BSA and BNL staff will be on hand to tell you how the transition process is going, to give an update on HR Transition Team activities and to answer questions you may have about the BSA offer package and retirement plans. John Marburger, BSA President and BNL's next Director, will join us at these meetings as his schedule permits.

Following each presentation, HR Benefits staff will be available in Berkner Hall, Room D, to address employee questions and provide assistance on the retirement plan on a one-to-one basis.

Meanwhile, your Hotline and Question Box (located at the Employee Information Center in Berkner Hall) issues continue to be a focus of our attention. Recent questions include:

Q: *As retirees, we are concerned about our health insurance coverage. Will it change under BSA?*

Medical coverage for retirees will remain the same, with minor changes to accommodate differences in state and federal laws. To provide further information, Denise DiMeglio, BNL Benefits Manager, and John Ennis, Battelle Benefits Manager, will attend the Brookhaven Retired Employee Association (BREA) meeting scheduled for February 10, at 3:30 p.m. in Berkner Hall, Room B.

In addition, a letter containing benefits information will be sent to former employees, employees on approved leave of absence and the families participating in BNL benefits programs.

Q: *Will the Lab continue to contribute 10 percent of salary to the regular retirement program?*

Yes, BSA will continue to contribute 10 percent to the regular retirement program for eligible employees.

Q: *The Employee Patent Agreement*



Last week, Brookhaven Science Associates sent all BNL employees offer packages, which must be signed and returned to your department administrator by the close of business next Friday, February 6. Among the early birds returning their groups' signed offer packages to (from left) Louisa Barone, Bonnie Miller and Darlene Peragine of the Personnel Records Group in BNL's Human Resources Division are (from right) Stephanie Lamontagne, Relativistic Heavy Ion Collider Project, and Richard Spellman, Central Shops Division.

refers in item number 6 to a review of "non-classified material that I am desirous of publishing concerning or arising from work carried on by me in the course of my employment by BSA" prior to transmitting copy to the publisher. Who do I refer this material to?

Except for substituting the initials BSA for AUI, the Employee Patent Agreement remains the same as the one employees signed under AUI. Similarly, the procedure alluded to in the question remains the same. Employees should submit manuscripts for re-

view, together with a completed "Publication Review Form," to their Department Chair. Once approved, the form is forwarded to the Research Library.

Q: *When I call the Hotline, I get a recording. How can I speak to a person?*

If you feel comfortable leaving a message, this allows us to research your particular concern before responding to you. However, if you'd prefer not to leave a detailed message, simply leave your name and telephone number, and we'll call you back.

Richard Hahn (cont'd.)

BNL's Chemistry Department as a research collaborator and joined Chemistry as a chemist in February 1987, to lead the U.S. team in the international collaboration that mounted the GALLEX solar-neutrino experiment.

This experiment, developed at BNL in the late 1970s, is performed in the Gran Sasso underground laboratory in Italy. GALLEX has measured the low-energy neutrinos from the sun, with important implications for physics — nuclear physics, astrophysics and particle physics.

However, the measurement methods were radiochemical. From 30.3 tons of gallium in the form of a 100-ton gallium-trichloride solution, about five germanium-71 atoms formed by captured neutrinos had to be separated, purified and collected each month with absolute accuracy.

Hahn and his group were responsible for many chemical aspects of GALLEX. Hahn also devised a major experiment to measure the strength of an intensely radioactive chromium-51 source used to calibrate the GALLEX detector and collaborated on developing a test of the radiochemical procedures using radioactive arsenic-71.

Hahn also played a central role in analyzing and publishing the GALLEX results. With his group, he is now responsible for several key chemical aspects of the Sudbury Neutrino Observatory (SNO) project, a new experiment located in a deep mine in Sudbury, Canada, and seeking definitive evidence of neutrino flavor oscillations.

Granted BNL tenure in October 1987, Hahn took his current title in 1994. His honors include the 1977 Radiation Industry Award of the

American Nuclear Society for research on charged-particle activation analysis. He has repeatedly been elected an officer of the American Chemical Society's Division of Nuclear Chemistry & Technology, and has been vice-chair and chair of the National Research Council's Committee on Nuclear & Radiochemistry.

John Tranquada (cont'd.)

conductors were discovered. These ceramic compounds that lose all resistance to electricity at the relatively high temperature of 35 kelvins (-396°F) amazed and intrigued the scientific community.

Tranquada used x-ray absorption near-edge spectroscopy (XANES) at the NSLS and neutron-scattering techniques at the High Flux Beam Reactor to explore the behavior of these materials. In his first use of XANES in experiments to study the charge carriers responsible for superconductivity, his findings were contrary to then popular opinion. However, his work was instrumental in establishing what is now the accepted microscopic model of the high- T_c superconductors.

Then, in a series of neutron-scattering experiments, Tranquada and collaborators found key evidence that the materials that exhibit high- T_c superconductivity behave like electronically doped insulators.

Perhaps Tranquada's most important contribution has been to discover that the physics of high- T_c superconductors involves a mechanism called charge segregation, which enables coexistence of conducting and insulating properties. This work has helped establish that the local electronic structure of high- T_c superconductors con-

Communiqué From BSA (cont'd.)

issues or projects nobody wanted, "the really nasty ones."

He is enthusiastic about the opportunity to team once again with Brog and the new ES&H/Quality organization here at BNL, to support the science while achieving operational excellence and thereby regaining stakeholder trust.

Prior to joining Battelle, Mike managed environmental programs for Golder Associates based in Australia and Seattle, conducting environmental-remediation projects in the western U.S., Canada, Australia and southeast Asia.

"Performing environmental work outside the U.S. was a tremendous experience," he said. "These international projects were typically less driven by regulatory compliance than by technical outcomes and operational effectiveness — a good lesson for application to our domestic environmental regulatory programs."

Mike also has a strong technology and environmental-compliance background. During 1993, he led a PNNL team that successfully demonstrated an innovative soil-heating technology for DOE at the Savannah River site. He was a project manager for DOE's EM 50 In-Situ Remediation Integrated Program. Most recently Mike served as program manager for strategic planning at PNNL, and, in a second role, to Bechtel Hanford.

He has regulatory experience with the states of Washington and Oregon, acting as a civil and criminal investigator for hazardous- and solid-waste programs, and as a section chief for quality assurance with EPA Region X. His formal training includes a B.S. in chemistry/biochemistry from Eastern Washington University, and an M.S. in environmental science/chemistry from Western Washington University.

The goal of BSA's EM transition work is to provide for continuity of operations and a smooth handoff in responsibility from AUI to BSA. The EM transition team is focusing on the safety of existing operations and the overall readiness of environmental-restoration and waste-management programs during and immediately following transition.

Facility walk-downs, document reviews, staff interviews, and project/operational assessments will provide BSA with the basis for assuring DOE that the EM program is ready. The EM activities are being coordinated with the ES&H/Q and Facility & Operations transition teams so as to minimize disruptions of ongoing BNL work. The EM team will also be assessing the environmental-monitoring programs at BNL, with the intention of bringing together responsibility for monitoring programs under a new senior manager within the EM directorate.

— Robert McGrath
BSA Transition Manager

sists of fluctuating strings of charge, information that is increasingly influencing current models of high- T_c superconductors.

Cited for outstanding scientific accomplishment in solid-state physics in 1988, Tranquada was a member of a BNL group that won a U.S. Department of Energy Materials Sciences Research Competition. In 1990, he was named Physicist, and he was granted tenure in 1992. He is a member of the American Association for the Advancement of Science and was recently elected to fellowship in the American Physical Society.

See Supplement for other news and for classified ads.

\$100,000! BNL Goes Over Goal For United Way

On Monday, January 26, thanks to a last-minute, make-it-happen \$110 donation from a member of the Biology Department, BNL's 1998 United Way Fund Drive Chair, Ann Emrick, called the Brookhaven Bulletin and said: "We've done it! Donations from BNLers to the United Way this year just reached \$100,000 — \$10,000 over our original goal. Thanks, everyone who contributed, for being so neighborly."

In Memoriam: John Weeks

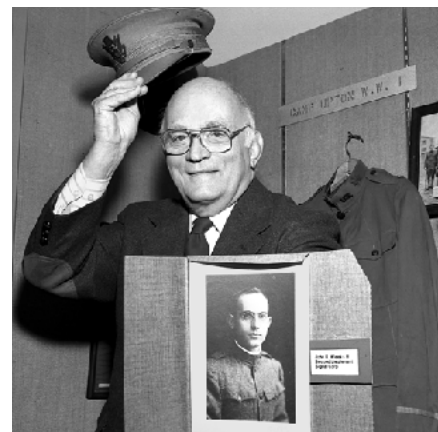
John Randel Weeks IV, who had retired as Senior Metallurgist from the Department of Advanced Technology (DAT) on December 31, 1995, died on January 9. He was 70 years old.

Upon learning of Weeks's death, Ray Hunter, Deputy Director of the U.S. Department of Energy's (DOE) Office of Nuclear Energy, Science & Technology, said, "I held John Weeks in very high esteem. He made significant contributions to the understanding of materials used in a wide range of applications. His friends at the Department of Energy are saddened by

the loss of his technical expertise and quick wit."

Weeks joined BNL as an associate metallurgist in January 1953, after receiving his Ph.D. in metallurgy from the University of Utah in 1952. He had taken his M.S. in 1950, also in metallurgy from Utah, and earned a 1949 bachelor's degree in metallurgical engineering from the Colorado School of Mines.

At BNL, Weeks worked on various aspects of liquid-metal technology, heading studies on corrosion mechanisms and the properties of liquid al-



John Weeks, at BNL's Camp Upton Exhibit, holds his father's photo and uniform from his years in the service.

Softball: Elections Kick Off New Season, Congratulations to Champs From Last Season

The 1998 BERA Softball Board Elections will be held on Wednesday, February 4, at noon, in Room B of Berkner Hall. All returning Captains should attend or send a representative.

As the Softball League makes plans for a new season, the Bulletin salutes those who were softball champs for the summer of 1997. — Photos by Roger Stoutenburgh



Magnuts were magnificent in League E1: (front, from left) John Mingoia, Rich Chorzempa, John White, John Benante, Mark McNeil, Lenny Campione; (back, from left) John Bohnenblusch, Steve Pontieri, Lou Tenreiro, Rick Mastromatteo, John DeBoer and Jim Leskowicz. Not pictured: Steve Bubka and Don Von Lintig.

Stingrays stung everyone in League M1: (front, from left) Barbara Royce, Bubbie Brown, Michi Miura, Mark Renner; (center, from left) Ed Gregory, Leroy James, Jean Odin-McCabe, Domenick Milidantri, Anette Meier, Brian Hobson; and (back) Letesha Smith. Not pictured: Jim Garrison, Bob Medina, Patti Medina, Gail Penny, Junior Santiago and Captain Ken Sutter.



Varmints vanquished the opposition in League M2: (front, from left) Sue Cataldo, John Addressi, Al Della Penna, Lou Addressi, Ed Sperry, Jay Adams; (back, from left) Sonny Dimaiuta, Joe Gormley, Susan Borrelli, Bob Geib; and (kneeling) Anthony Borrelli. Not pictured: Kelly Bornhoft, Kay Conkling, Michael Lowell, Claudia Jones, Ali Lopez and Jessie Wilke.



Contaminators won the contest for League E2: (front, from left) Don Sievers, Brandon Sievers; (center, from left) Co-captain Joel Scott, Captain Patrick Moylan, Dave Bingham, Dave Fish, Paul Lang; (back, from left) Guy Hartsough and Tom Daniels. Not pictured: Steve Coleman, Craig Diaz, John Duggan, Lou Evers, John Fish, Gary Jayne, Kerry Laube, Joe MacKenna, Rob Merkel, Steve Nappi and Mike Pankowski.



Surefire was a sure bet in League E3: (front, from left) Tom Baldwin, Greg Stawski, Danny Carneiro, Don Zaharatos, Dan Galligan; (back) Frank Trapani and Co-captain Steve Okula. Not pictured: John Berry, Brian Collinson, Bob Danowski, Ed Diaz, Captain Steve Eckhoff, Steve Ficner, John Giarratano, Wally Hughes, Denis Joyce, Scott Krsnak, Al Liotta, Ron Mayo, Jerry Magee, Phil Pizzo and Boyze Singh.

loys. He produced many publications in the areas of corrosion, stress-corrosion cracking and failure analysis of materials used in nuclear power plants. Promoted to metallurgist in 1959, he was granted tenure in 1962. From 1969 to 1977, he joined the Department of Applied Science, then returned to DAT and became Senior Metallurgist in 1980. After retiring, he continued as a DAT consultant.

Among Weeks's career highlights, he had served as metallurgical advisor to the designers of the High Flux Beam Reactor (HFBR). He proposed using a low-magnesium aluminum alloy for the vessel to avoid radiation-induced changes to the alloy's mechanical properties. The HFBR vessel alloy performance to date has borne out Weeks's recommendation. In a similar reactor in Grenoble, France, an alloy containing a greater amount of magnesium was used, but the whole vessel has had to be replaced.

As a consultant for the U.S. Defense Nuclear Facilities Safety Board, Weeks evaluated metallurgical safety at plutonium-production reactors at DOE's Savannah River site.

He was also a longtime primary consultant for the Nuclear Regulatory Commission (NRC) on stress-corrosion cracking at nuclear power plants.

More recently, he had visited Russia as metallurgy consultant on VVER and RBMK-types of reactor.

Weeks also served as an adjunct associate professor of materials science at the State University of New York at Stony Brook. He was a member of the American Nuclear Society and chaired the Long Island branch of the American Society for Metals (ASM) International. Named an ASM fellow, he was cited for contributions to the safe operation of nuclear reactors and chemical-processing equipment resulting from research on corrosion of materials in liquid metals and aqueous environments.

Carl Czajkowski, a BNL colleague for many years, remembers Weeks as "remarkably insightful, with an amazing memory for facts in the nuclear industry." Czajkowski also recalls Weeks's enjoyment of a good joke and his liking for puns.

In addition to Weeks's work at the Lab, for nearly two decades, he had conducted BNL's choral group, arranging the carols that they sang annually at the cafeteria Christmas lunch.

A resident of Stony Brook, Weeks is survived by his wife Barbara Ann Brewster Weeks, son John Randel Weeks V, daughter Ann Brewster Weeks, son-in-law Eric Lustig, granddaughter Eleanor Lustig, sister and brother-in-law Susie and Calvin English, cousin Janet Boettger, and four nephews and nieces.

Donations may be sent to: L.I. Baroque Ensemble, PO Box 7, Locust Valley, NY 11560, or Mt. Sinai Hospital Medical Center, c/o Dr. Lewis Silverman, 1, Gustave L. Levy Place, New York, NY 10029, for research with azacytidine to treat pre-leukemic myelodysplastic syndrome.

— Liz Seubert

Correction

The last paragraph in the article "BNL Bashing, Untruths Dominate Last Friday's Montel Williams Show," which ran in the Brookhaven Bulletin on Friday, January 16, 1998, should have stated: "BNL was not aware of the leak in the spent-fuel pool of the HFBR until January 8, 1997, just over one year ago (not 1996 as was printed). Also, Cathy Lawson, one of the BNLers who was interviewed for the show (though the show chose not use the footage), is a researcher in the Biology Department, not the Department of Applied Science."

