

## Samios to Return to Research After 15 Years as BNL Director

Almost 15 years to the day that he assumed the mantle of Director of Brookhaven National Laboratory, Nicholas Samios will step down from that position and resume the distinguished research career in physics that he had put on hold since 1982.

Though Samios' decision to step down from the post he has held for three consecutive five-year terms — longer than any of the four previous BNL Directors — was announced last Friday, it was not a sudden move on his part. And, despite some media speculation to the contrary, it was unrelated to the Laboratory's current problems with a tritium plume emanating from the spent-fuel pool at the High Flux Beam Reactor.

"I had privately indicated to the Board of Trustees my intention to step down as Director of Brookhaven National Laboratory at the fifteenth anniversary of my appointment," Samios explained in a memo to all employees on March 7. "I delayed the formal announcement so as not to cause any interference with the search for a new AUI President. Now that the search is completed, I will step down as Director on April 30, 1997."

Tara O'Toole, U.S. Department of Energy (DOE) Assistant Secretary for Environment, Safety & Health, said, "It has been well known within the community that Dr. Samios intended to retire as Director of BNL and return to a full-time career in scientific research on his 15th anniversary as director. He graciously agreed to postpone that announcement to provide continuity in leadership during the search for a new AUI President. We wish Dr. Samios well in his future endeavors and congratulate him for his many scientific achievements as Director of Brookhaven National Laboratory."

The search for a new AUI President began in May



Roger Stoutenburgh

Nicholas Samios, in the tunnel for the Relativistic Heavy Ion Collider.

1996, when Robert Hughes announced his decision to step down. Lyle Schwartz's selection as the next AUI President was announced this past January, and Schwartz will assume his new duties on March 18.

With that issue resolved, the Executive Committee of the AUI Board accepted Samios' decision to step down from the Directorship at a meeting on Thursday, March 6. A Trustees' Search Committee is being appointed to assist in the process of selecting a new Director at the earliest possible date.

Outgoing AUI President Robert Hughes had planned to announce Samios' decision to all employees on Friday, the day after it had been accepted by the Executive Committee and public officials were informed. Likewise, Samios had planned to notify employees by memo at the same time. Those memos, however, were superseded by a *Newsday* story and subsequent radio stories that were based on information leaked to *Newsday* Thursday afternoon.

"I know that it was extremely distressing for BNL employees to wake up and learn about my decision in *Newsday* or hear it on the radio before they heard it through the planned channels at the Lab," Samios said this week. "It was also distressing, though not unexpected, to see this decision linked so often to the Lab's current problems. I want to assure you that notifying employees in a timely and appropriate way was always a major concern to me and to AUI, and, furthermore, that my decision to return to research has no relation to the tritium plume at the High Flux Beam Reactor [HFBR]."

Nonetheless, Samios remains committed to doing all possible to resolve the tritium crisis. "I will actively work with the HFBR Upgrade and Tritium Remediation Team to chart a course that will solve (continued on page 3)

### Samios' Career Advances BNL And Physics

Nicholas Samios has been associated with BNL for 45 years, one-third of them as Laboratory Director.

That association began in 1952 when, as an undergraduate physics student at Columbia University, he was a participant in the first year of BNL's Summer Student program, assigned to the Proton Synchrotron Division. That division was charged with building the Alternating Gradient Synchrotron (AGS), a particle accelerator that was designed to reach then unprecedented energies of 33 billion electron volts (GeV).

Samios completed his A.B. in physics in 1953, then continued at Columbia, receiving his Ph.D. in physics in 1957, having done much of his thesis research at BNL.

In 1956, he joined the faculty of Columbia's Physics Department — the same department where physicists I.I. Rabi and Norman Ramsey worked in 1947 when they formulated the idea for a national laboratory that would evolve into Brookhaven 50 years ago this month.

#### Two Major Discoveries

On June 4, 1959, Samios joined the staff of BNL's Physics Department as a high-energy physicist interested in (continued on page 2)

### To County Legislature, Samios Affirms Commitments, Outlines Plans for Pinpointing Tritium Leak And Reviewing Lab's Decision-Making Process

BNL and the U.S. Department of Energy (DOE) continue their aggressive efforts to address the groundwater contamination from a plume of radioactive tritium flowing southward from the High Flux Beam Reactor (HFBR).

At a hearing of the Suffolk County Legislature's Energy & Environment Committee this past Tuesday, March 11, BNL Director Nicholas Samios stated formally, "BNL is committed to performing our research activities in a safe and environmentally sound manner. We are also committed to remediating any environmental problems on our site."

Samios reviewed BNL's long history of groundwater monitoring, including Suffolk County's involvement since the Lab and the County signed a 1987 agreement. "Despite all this extensive activity, we missed the tritium plume. . . . We should have found it earlier. I want to express my regret for any anxiety that this has caused the public and this committee."

At that same meeting, Suffolk County Health Commissioner Mary Hibberd reiterated what both the Suffolk County Department of Health Services and the U.S. Environmental Protection Agency (EPA) have previously stated: The contamination poses no public health threat.

No drinking water, either on or off the Lab site, is affected by the HFBR-related tritium contamination. Additional wells are being installed at the site boundary south of the HFBR to confirm that the



Roger Stoutenburgh

Early this week, A&L Underground, Inc., a Kansas-based company, began drilling two thin, horizontal borings under the High Flux Beam Reactor (HFBR). These horizontal borings will allow for monitoring of groundwater directly below the HFBR's spent-fuel pool and are expected to help identify the source of the tritium leak. The scope of the project can be seen in the inset in the upper right corner.

contamination has not traveled that far, about 1.5 miles.

#### Eye on Decision-Making

In addition to the HFBR Upgrade and Tritium Remediation Team that Samios established in February to coordinate BNL's efforts to remediate the tritium plume and eliminate its source (see Brookhaven Bulletin, March 7, 1997), he last week approved an ad hoc committee to review the Lab's environment, safety and health (ES&H) decision-making process.

Chaired by Robert Bari, Chair of BNL's Department of Advanced Tech-

nology (DAT), and including Nora Volkow, Medical Department Chair and Charles Meinhold, Deputy Head of the Radiological Sciences Division, DAT, the committee is charged with evaluating decisions on allocation of Lab resources to ES&H activities, determination of priorities within ES&H activities, the appropriateness of the management level for the various decisions, and the effectiveness of the communication of information among the different decision-making levels.

At the Suffolk County hearing on Tuesday, Samios said that it is the (continued on page 3)

#### In this issue . . .

- BNL 50th Anniversary Distinguished Lecture: Rita Colwell on Tracking Global Epidemics 2
- Brookhaven Lecture: Robert Crease on the Birth of BNL 3
- Meet the Candidates for BERA Board 4
- Supplement: other news and classified advertisements 5-6

## BNL 50th Anniversary Distinguished Lecture

# Tracking Global Epidemics: Cholera as a Paradigm

Cholera is an infectious disease, epidemics of which have been described in Asia and on other continents. Caused by the bacterium *Vibrio cholerae*, the gastrointestinal illness has led to thousands of deaths in outbreaks mostly in underdeveloped countries. The disease is spread by contaminated water, and scientists have recently linked the cholera-causing bacterium with plankton, tiny aquatic plants and animals.

Rita Colwell, a microbiologist and marine scientist who is President of the University of Maryland Biotechnology Institute, will explain the cholera and plankton link in a BNL 50th Anniversary Distinguished Lecture "Tracking Global Epidemics: Cholera as a Paradigm," on Thursday, March 20, at 4 p.m. in Berkner Hall. Refreshments will precede the lecture, which is the third in this series featuring talks on various topics throughout 1997 to celebrate Brookhaven's beginning a half-century ago.

An environmental source of cholera was hypothesized as early as the

late 19th century by Robert Koch, but not proven because of the ability of *Vibrio cholerae* to enter a dormant phase between epidemics. The sporadic and erratic nature of cholera epidemics can now be related to climate and climate events, like El Niño, an upwelling of warm waters in the Pacific Ocean, which contributes to weather changes around the world.

Recently, remote sensing by satellite and computer processing have been used to confirm the relationship of the cholera bacterium with plankton, as well as sea surface temperature, ocean height and currents. Data for Bangladesh indicate that cholera cases are numerous when the ocean height is high and the sea surface temperature is elevated. On the other hand, when the height of the ocean and its surface temperature are low, little or no cholera is recorded.

Colwell will describe how the relationship between global climate and cholera was discovered and how this may lead to predicting conditions conducive to disease outbreaks. Ulti-

mately, research in this area may lead to prevention of cholera epidemics.

Rita Colwell received a B.S. and an M.S. in genetics from Purdue University in 1956 and 1958, respectively. After receiving a Ph.D. in marine microbiology from the University of Washington in 1961, she joined the faculty of that university. In 1964, she became a faculty member at Georgetown University, until she joined the University of Maryland in 1972 as a microbiology professor. Under her leadership, the University's Sea Grant Program was designated a National Sea Grant College in 1983. She assumed her current position in 1991.

Awarded many honorary degrees and scientific awards, including the International Institute of Biotechnology Gold Medal in 1990, and, most recently, Barnard College's Medal of Distinction in 1996, Colwell has also served numerous times as a consultant to government, universities and industry. A presidential appointee to the National Science Board, 1984-90, and President of the American Asso-



**Rita Colwell**

ciation for the Advancement of Science, 1995-96, she has also served as President of both the American Society for Microbiology and the International Union of Microbiological Societies. Colwell is the author of 16 books and more than 450 scientific papers.

— Diane Greenberg

## Samios' Career

(cont'd.)

studying particle interactions. Thus Samios was on hand in July 1960, when the AGS first reached its design of energy of 33 GeV, setting the stage for his future discoveries of the omega-minus particle and the charmed baryon. These major findings in particle physics have played an important role in untangling symmetries underlying the particle spectrum and ultimately leading to the formation of the Standard Model.

The rising young physicist was named Associate Physicist in July 1962, then Physicist with tenure in July 1964 — six months after the BNL/Rochester/Syracuse collaboration that he led had discovered the omega-minus using the 80-inch bubble chamber at the AGS.

A year later, Samios became the Leader of what has become known in Physics as the Omega Group, and, in July 1968, he was named Senior Physicist.

At the 7-foot bubble chamber at the AGS, Samios led the experiment that discovered the charmed baryon in 1975.

Reflecting on Samios' discoveries, Samuel Ting, Massachusetts Institute of Technology, who won the Nobel Prize in Physics in 1976 for discovering the J particle at the AGS in 1974, said, in a *Newsday* article this past Sunday, "I think he is one of the truly great experimentalists of the 20th Century. He should have gotten the Nobel Prize a long time ago. He deserves it."

### New Directions as Director

In September of 1975, Samios became Physics Department Chairman. Then, in February 1981, he joined the Lab's Directorate as Deputy Director to then Director George Vineyard. Samios became Acting Director in January 1982 and Director in May 1982.

When Samios was named Director, the Laboratory was in turmoil. Difficulties with the then new technology of huge superconducting magnets had played havoc with the cost and construction schedule for the Lab's accelerator project ISABELLE. In anticipation of design changes that would put the project back on course, ISABELLE was renamed the Colliding Beam Accelerator (CBA) in the fall of 1982.

Despite the fact that the project's problems had been resolved, the U.S. Department of Energy's (DOE) High



**Nicholas Samios (left), Robert Palmer (right) and Ralph Shutt (not shown) shared the 1992 W.K.H. Panofsky Prize in recognition of the omega-minus discovery shown in the bubble-chamber photo in the background.**

Energy Physics Advisory Panel recommended in July 1983 that construction of the CBA be discontinued in favor of a superconducting super collider (SSC).

The SSC itself met a similar fate in 1993, but the CBA had somewhat of a rebirth. Under Samios' guidance, the nation's physics communities combined their talents and put their energies into converting the nearly completed CBA construction into a facility suitable to house the Relativistic Heavy Ion Collider (RHIC) — a completely new concept that has captured the imagination of high-energy and nuclear physicists alike.

RHIC was a bold concept that relied on two existing BNL machines — the Tandem Van de Graaff accelerator, where heavy ions would be generated, and the AGS, where heavy ions would be accelerated before injection into RHIC. It also required a new accelerator, a Booster to allow the AGS to accelerate all the heavy-ion species that the Tandem can generate.

The feasibility of the first part of this chain was proven in 1986, with the completion of a transfer line linking the Tandem with the AGS. With this step, heavy-ion research, independent of RHIC, was initiated at the AGS. The Booster project got under way in 1988, and, by 1991, the Booster was commissioned, adding to the AGS's experimental capabilities and ensuring RHIC's viability.

Since construction on RHIC offi-

cially began in 1991, the project has remained on schedule and within budget. In fact, last Friday, when the announcement of his resignation as Director was made, Samios was meeting with members of the Japan Society for the Promotion of Science, which has been supporting aspects of the RHIC Project, both financially and experimentally.

Samios has always recognized Brookhaven's uniqueness as a multiprogram laboratory, where scientists from different institutions and various disciplines can interact.

"He has done an absolutely super job for Brookhaven" in terms of opening the Lab's facilities to outside scientists, said D. Allan Bromley of Yale University, in *Newsday* on March 8. Bromley, who is President of the American Physical Society and former White House Science Advisor, said that, in this area, BNL under Samios



**Nicholas Samios in his Physics Department office in 1975, the year he became Department Chair and the charmed baryon was discovered.**

did the best of all the national labs.

Thus, under Samios' Directorship was born the Center for Imaging and Neurosciences, where researchers in medicine, chemistry and physics combine their talents and equipment to probe the secrets of the human brain.

Other milestones achieved during Samios' watch were expansions of the National Synchrotron Light Source, to include emphasis on structural biology; the creation of the Center for Accelerator Physics, where exciting new ideas for future accelerators and light sources are conceived and tested; support of a genome sequencing project in the Biology Department that could have implications for the national Human Genome Project; and the continuing clinical testing of boron neutron capture therapy to treat deadly

brain tumors.

In addition to these and many other research highlights, eight years into his tenure as Director, Samios helped break ground for the Lab's Child Development Center and Science Education Center. A year later, in 1991, the Radiation Therapy Facility opened in BNL's Medical Department, providing a place for cancer patients living on Long Island's east end to receive treatment from physicians affiliated with the University Medical Center at the State University of New York at Stony Brook.

### Exciting Opportunities Ahead

As to the future, Samios is looking forward to actively returning to research as well as speaking out and influencing science policy in the U.S. To his delight, he has already been contacted and been presented with several exciting opportunities.

"Nick Samios is a rare combination of superb physicist and great statesman of science," said Nobel laureate T.D. Lee, who won the Physics prize in 1957 for theoretical work that he and C.N. Yang did at BNL in the summer of 1956.

Samios will continue to hold the title of AUI Distinguished Scientist, an honor the Board of Trustees bestowed upon him 1992.

While Samios anticipates many years of exciting and fruitful research, he already has many such years behind him. And his work has been widely honored: In 1980, he

won DOE's E.O. Lawrence Memorial Award and the New York Academy of Science Award in Physical and Mathematical Sciences. In 1982, he was elected to the National Academy of Sciences, and, in 1993, he received the W.K.H. Panofsky Prize from the American Physical Society, specifically in recognition of the omega-minus discovery.

Elected into the Greek *Akademia Athenon* as Corresponding Member in 1994, Samios has received honorary doctorate degrees from Dowling College, 1992; Hofstra University, 1994; and Long Island University, 1995.

Samios is a member of the National Academy of Sciences, and a fellow of the American Academy of Arts & Sciences and the American Physical Society.

— Anita Cohen

## Brookhaven Lecture

# Robert Crease to Speak on the Birth of BNL

On March 21, 1947, Associated Universities, Incorporated, formally accepted responsibility from the Atomic Energy Commission (AEC) for BNL's 5,300-acre site, and about 300 employees, then with the AEC, were transferred to the Laboratory's payroll. Thus, BNL was born.

As one of a series of events being held this year to celebrate the Lab's beginning a half-century ago, Robert Crease, BNL Historian and Professor of Philosophy at the State University of New York (SUNY) at Stony Brook, will give a lecture entitled, "How Big Science Came to Long Island: The Birth of BNL," on Wednesday, March 19, at 4 p.m. in Berkner Hall.

The talk will be the 325th in the Brookhaven Lecture Series, and Crease's fourth such lecture on BNL's history. Crease draws on a unique mix of sources to illustrate his lectures, such as handwritten notes, newspaper clippings, lab notebooks and log-books, poems by BNL scientists and Christmas cards.

Crease's talk will cover the founding of BNL soon after World War II, as a peacetime facility to construct and maintain basic research instruments, such as nuclear reactors and particle accelerators, that were too large in scale for single institutions to build and operate. He will discuss the key figures involved in the founding of the Laboratory, including Nobel laureates I.I. Rabi and Norman Ramsey, as well as Donald Dexter Van Slyke, one of the most renowned medical researchers in American history.

In addition, he will review the construction of the Lab's first research instruments: the Brookhaven Graphite Research Reactor, the Cosmotron, the 3.5-million-volt Research Van de Graaff Accelerator, and the 60-inch cyclotron. He will also discuss the Laboratory's early relationship with the community and the news media.

From Crease's point of view, the founding of Brookhaven, the first na-



Robert Crease enjoys a bird's-eye view of the Laboratory site.

tional laboratory planned from the outset to do basic research not related to national defense, was an experiment in itself.

"Brookhaven was a new kind of institution that served many purposes simultaneously," Crease commented. "While nominally established as a place to build unique facilities too big for universities, the Lab also played a key role in education, technology transfer, and as a supplier of nuclear medicine to hospitals and research institutions in the Northeast."

But BNL's early existence was not easy. Crease will relate tales of the Lab's struggles to cope with security and Cold War paranoia, to build machines under stringent AEC-imposed conditions, and to attract a staff to an institution that some thought would never survive.

Crease promises to give a few facts in his stories of BNL's early days that even long-term employees and retirees may not recall. For instance: What forefront project would have made Brookhaven home to the most powerful accelerator in the world — if it had not been canceled in order to concen-

trate resources on a larger machine?

With a 1976 B.A. from Amherst College and a 1987 Ph.D. from Columbia University, Robert Crease joined the faculty at SUNY Stony Brook in 1987, and, in 1989, he began working part-time as the historian for BNL. He recently completed a book on the Lab's early years for Chicago University Press, which is due to be published within the year.

Crease's books include *The Second Creation: Makers of the Revolution in Twentieth-Century Physics*, and *The Play of Nature: Experimentation as Performance*. He is a former contributing correspondent for *Science*, and, for the past eight years, he has written the "Overview" article for the *Encyclopedia Britannica Yearbook of Science and the Future*. Recently, Crease finished collaborating with noted theoretical physicist Robert Serber on the latter's memoirs for Columbia University Press, which Serber had presented at BNL in a Pegram Lecture Series in 1994.

To join the speaker for dinner after the lecture, call Bill Morse, Ext. 3859.

— Diane Greenberg

## Tritium Leak Update (cont'd.)

Lab's feeling that the decision-making process *does* need improvement, and he expects that the findings of this committee will help to remedy that in the future.

But Samios also stressed that the committee's main purpose will be to evaluate the decision-making process. It will not be prejudging anyone's decisions and will wait until all the evidence is in before deciding whether any actions were the result of negligence.

In response to the legislature's questions about what would happen to someone found negligent, Samios pointed out that the Laboratory has proven policies in place to deal with

issues of job performance.

Announcing the committee in a memo to employees on March 3, Samios noted that the group is required to submit a preliminary report in 30 days and a final report within 60 days of its formation. "This committee has an important task to accomplish in a short time," Samios said, "Please give them maximum cooperation."

### Four Focal Points

DOE and BNL's efforts have centered on four main areas:

- **Determining the extent of the plume** — As of earlier this week, four of the newly installed monitoring wells on Rowland Avenue, about 1,900 feet south of the HFBR, showed detectable tritium, though only two of the wells showed tritium at levels above the Environmental Protection Agency's (EPA) drinking water standard of 20,000 picocuries per liter (pCi/L).

- **Reviewing historical data** — Data collected routinely in the past are now being reviewed to see if they might shed any light on the tritium plume and how long it has been in existence. The review indicates that, in the mid-1980s, a now-unused BNL drinking water well, located about 900 feet southeast of the HFBR, contained tritium at levels far below the drinking water standard but above background levels seen on previous readings.

The well was also found to contain nonradioactive organic chemicals at levels above the drinking water standard, and, because of the chemical contamination, the well was taken out

of service in 1986. These historical monitoring data were published at the time in BNL's Site Monitoring Report for each year.

At the time, the tritium in this well was attributed to leaks in the Lab's sewer lines. In light of what is known now, however, it is at present suspected that the elevated tritium was caused by the same source as the plume currently under investigation.

- **Finding the source** — The most likely source of the tritium leak is the HFBR's 68,000-gallon, spent-fuel storage pool, which contains tritium at a concentration of 130 microcuries per liter.

A recent test that measures evaporation rates more precisely than past methods shows that the pool may be leaking 7 to 14 gallons of water per day. To verify the source of the tritium, additional tests are planned, including drilling horizontal monitoring wells under the HFBR building.

- **Remediating the contamination** — DOE and BNL are working with regulators to determine the most effective methods for cleaning up the contaminated water. DOE has directed BNL to make the necessary preparations to begin pumping water from the plume's leading edge as early as April 20.

### Groundwater Monitoring Results

Since the plume was discovered in January, more than 1,200 groundwater samples have been analyzed. Based on these analyses, DOE and BNL believe that the plume is moving south-

(continued on page 4)

## Samios Steps Down (cont'd.)

this dilemma to the satisfaction of all local residents, political leaders, and Lab staff members," Samios wrote to employees. "I am certain that, when I step down in May, the proactive plan we are putting in place will be in full swing and a solution will be in sight."

### Consistent High Points

While Samios acknowledged the Lab's current difficulties, he also recognized its ongoing and consistent high points: "In the 15 years since being named Director, I have had the pleasure of working with scientists and staff from every department and office at BNL. Together, we have launched many important initiatives that will have far-reaching effects on our world in the months, years and decades ahead."

Samios continued, "From such scientific ventures as the development of the Relativistic Heavy Ion Collider (RHIC) and the establishment of The Brookhaven Center for Imaging and Neurosciences, to our efforts to instill in children and students the same sense of wonder and enthusiasm for science that we share, I am confident that the measures we have put in place will provide long-term benefits for Long Island and the world."

"Having made the decision to step down has afforded me the opportunity to look back on my career at BNL," Samios reflected. "Both before and after becoming Director, I have had the opportunity to work with some of the finest people I have ever known. Each of these relationships confirms what I have always believed — that the entire Lab team is as fine and dedicated a group as there is worldwide."

"I look forward to continued interactions and the future challenges in research and scientific policy," he concluded.

Samios' achievements as BNL Director were summed up in the memo announcing his decision that AUI's Hughes sent to employees on Friday, March 7.

"The Trustees expressed their deep appreciation to Dr. Samios for his many accomplishments over his long stewardship of the Laboratory," said Hughes. "From his very first year in office when he led the Colliding Beam Accelerator Magnet Program to a successful conclusion, he has continually developed and supported major new enterprises across the entire spectrum of Laboratory activities."

"Of paramount importance was the conception and realization of RHIC, the Relativistic Heavy Ion Collider, soon to be a unique world center for nuclear research," said Hughes. "He fostered expansions of the National Synchrotron Light Source and the creation of the Center for Accelerator Physics."

"The Positron Emission Tomograph (PET) has been greatly expanded and now is imbedded in a new Imaging and Neurosciences Center," Hughes continued. "An important Genome Sequencing Project is well under way and a Boron Neutron Capture Therapy (BNCT) program for treating brain tumors has taken on national importance."

"These and many other achievements attest to the vision and strength that Dr. Samios brought to his role in leading the Laboratory into world-class science and productive interactions with the national and international scientific communities," added Hughes.

"As President of AUI," Hughes concluded, "I have gained a high respect and personal regard for Nick Samios and wish him well as he continues his scientific career at the Laboratory as AUI Distinguished Scientist."

— Anita Cohen

## BROOKHAVEN BULLETIN

Published weekly  
by the Public Affairs Office  
for the employees of  
BROOKHAVEN NATIONAL LABORATORY

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Bldg. 134, P.O. Box 5000  
Upton NY 11973-5000  
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World Wide Web:  
<http://www.pubaf.bnl.gov/bulletin.html>

The Brookhaven Bulletin is printed on paper containing at least 50 percent recycled materials, with 10 percent post-consumer waste. It can be recycled.



# BERA Board Elections Are Coming Up — So Meet Your Candidates

After the ballots are counted in the elections scheduled for the week of March 24, two of the four BNLers below will have been elected to the BERA Executive Board to represent the members of the Brookhaven Employees Recreations Association (BERA). You're automatically a BERA member if you're an employee of BNL, AUI or DOE or any permanent on-site contractor.

During four-year-terms, which will begin on May 1, the winners will have the opportunity to affect recreation policies and decisions for all members. So take a few

minutes to read about the candidates, then make an informed choice at the polls.

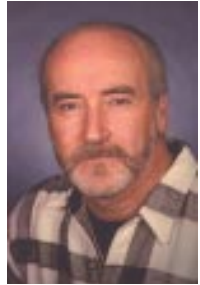
On Monday, Tuesday and Wednesday, March 24-26, you may cast your vote in Berkner Hall from 11:30 a.m. to 1:30 p.m.; on Thursday and Friday, March 27 & 28, votes may be cast at the Teachers Federal Credit Union from 10 a.m. to 2 p.m. If you will not be on site March 24-28, you may submit an absentee ballot in person at the Recreation Office, Bldg. 185, through March 21. — Liz Seubert

— Photos by Roger Stoutenburgh

## Jim Alduino

**Jim Alduino** is a design room supervisor in the Alternating Gradient Synchrotron Department. He joined the Lab 18 years ago and, he believes, "Aside from the obvious reasons people work at BNL, there is another reason — BERA."

BERA's recreational outlets have involved him with the Softball League, the Raquetball Club and the Body Building Club, which, he says, "has given me the opportunity to meet and become friends with people that I probably would not have met by just working here. Over the years, I have found it is easier to work with people when you also know them socially. What can I do for BERA? Well, I like people and I like recreation. Maybe, by being on the Board, I can help bring the two together."



## Deborah Botts

**Deborah Botts**, an administrative secretary in the Division of Contracts and Procurement, came to the Lab in 1989. She has been a member of the Volleyball League and the Softball League, and she has put in much willing effort as the Secretary for



the Bowling League for the past four years.

"I've enjoyed joining in activities at the Lab for eight years, and I think that BERA is an important part of why BNL people feel like a community," she said. "I've always taken an interest in helping people wherever and whenever I can, so being on the BERA Board would be a great opportunity to meet and interact with new people and get fresh ideas on improving community activities and perhaps start new ones."

## John McCaffrey Jr.

**John McCaffrey Jr.**, who in 1988 joined the Lab in the Alternating Gradient Synchrotron's Booster Group, is now a technical specialist with the Relativistic Heavy Ion Collider Project.

McCaffrey has both played and coached for BERA softball for nine years, as well as being a member of the Body Building Club and playing on the Touch Football League. "I know that a lot of BERA members would like to see the condition of the ball fields improved and get better equipment in the gym, and maybe see more trips planned for BNL families," he said. "But, usually, the problem is the cost. If I get on the Board, I'll try to find ways to fund these kinds of projects. Also, we might be able to organize more community fund-raising efforts to upgrade BERA facilities."



## Terry Sullivan

**Terry Sullivan**, a nuclear engineer in the Department of Advanced Technology, joined the Lab in 1983. His first BERA experience was with the BNL Roadrunners, but more latterly, he has concentrated on softball and volleyball, serving as Vice President and President of the Volleyball League and captaining two teams, Rude Dogs and Pass Set 'n' Crush.

"I believe that BERA plays a special role in building employee morale, helping people to meet each other and making BNL a better place to work," he said. "If I am elected to the Board, I would like to use the opportunity to make everyone more aware of what the Board members do to achieve this. Once people appreciate what is already being done, they might come up with new ideas for future directions."



## Tritium Leak Update (cont'd.)

ward from the HFBR in a narrow strip, at depths of up to 100-140 feet below land surface. As of last Monday, 80 samples had been taken from four of the seven Rowland Street wells. Data from the other three will be available soon.

Fifteen to 20 samples were taken from each well at depths ranging from 30 to 200 feet below the surface to

create a "vertical profile" of the groundwater. Two of the four wells had tritium above the drinking water standard, with their highest concentrations at 88,800 pCi/L and 70,200 pCi/L. The highest concentrations in the other two wells were 14,600 pCi/L and 2,590 pCi/L. These were all found at a depth of about 100 feet.

Based on these results and those from wells on the Lab's southern boundary announced in February, DOE and BNL are now focusing on the area between the two sets of wells to find the plume's leading edge. A new series of 19 vertical-profile wells has been installed on Princeton Avenue, just over two-thirds of a mile south of the HFBR and almost a mile from the Lab's southern boundary. More will be installed further south, including new wells on the boundary. Samples from three permanent wells at the site boundary, taken in February, showed only background levels of tritium.

Other results from temporary wells that were installed on site as part of the ongoing tritium investigation show low levels of radioactive cobalt-60 in four of these wells east of HFBR — over a mile from the southern boundary. The cobalt levels range from less than 1 pCi/L up to 6.6 pCi/L; the EPA's proposed drinking water standard is 200 pCi/L.

The cobalt is not believed to have come from the HFBR, and investigations to find its source are under way. Although tritium concentrations can be determined in a few days, complete

analyses for other radionuclides can take several weeks.

## Well Data Under Review

In a memo this past Monday, March 10, BNL Director Nicholas Samios informed employees: "Low-level concentrations of tritium and cobalt-60 were found between 1984 and 1986 in one of the Laboratory's potable wells, located 900 feet south of the HFBR. *These concentrations were never more than a fraction of the safe drinking water standard.* . . .

"I want to stress that *at no time* was anyone at BNL at risk from this low-level contamination," said Samios. "BNL's potable water has always been, and will always be, tested to ensure that it is well within the standards established for safe drinking water. The data are routinely provided to the Suffolk County Department of Health Services. The Laboratory is bound by the same law as the public water authorities to distribute water to our customers that meets the quality standards of the Safe Drinking Water Act. If water from a well does not meet the standards, it is treated before distribution to the BNL site, or the well is removed from service. As an indication of this commitment, the well in question was taken out of service in 1986 because testing found levels of an organic chemical, trichloroethane [TCA], that surpassed the drinking water standard."

Routine monitoring at the well starting in the mid-1970s showed expected background levels of tritium. In 1985, however, higher tritium readings of 1,080 pCi/L were obtained — far below the drinking water standard of 20,000 pCi/L, but above previous readings and above natural background levels of approximately 200 pCi/L. In 1986, the average tritium level in the well increased to 2,103 pCi/L, and the year's peak measurement was 6,690 pCi/L.

At this time, the well also began showing signs of contamination with TCA above the drinking water standard, so it was taken out of service. Although no official explanation was reported at the time, the tritium levels were attributed to leaks in nearby

BNL sewer lines. Radioactive contaminants from this well were below the drinking water standard, and no other wells tested positive for tritium.

But even if this well were a person's only supply of drinking water, a conservative analysis shows that no one could have received more than 0.1 millirem per year from this source. The EPA standard for radionuclides in drinking water is 4 millirem per year. Thus, the tritium in this well never presented any threat to employees' or visitors' health.

## To Find the Source

The recent estimates that 7 to 14 gallons of tritiated water may be leaking each day from the HFBR's spent-fuel pool were obtained from a leak-rate monitoring test that examined the level of water in the pool over several days. The test takes into account variations in pool level due to evaporation and temperature, and it is precise to within 3-4 gallons a day.

This leak-rate measurement will soon be corroborated by a second leak-rate test, as well as groundwater monitoring directly below the pool, which is expected to identify the source of the leak. As agreed to by federal, state and local regulators, two thin, horizontal borings, drilled under the HFBR building, will serve as monitoring wells.

A&L Underground, Inc., of Olathe, Kansas, began drilling early this week, using specialized directional boring techniques that will reach 50 feet below the building's foundation into the water table. Drilling the wells will not affect the structural integrity of the HFBR. The 5-inch-in-diameter horizontal borings will allow water samples to be taken 20 feet below the lowest part of the pool to identify the source of the tritium leak better.

The HFBR will remain shut down until the contamination's source has been pinpointed and the spent-fuel pool has been fitted with a liner to prevent further leaks. This process is expected to take about a year.

—Kara Villamil & Anita Cohen

## In Memoriam

**Felix Thompson**, who was a custodian in the Plant Engineering Division, died on February 18. He was 31 years old.

Thompson joined BNL in 1987 and held numerous short-term positions in PE, including working as a custodian, a laborer, a buildings & grounds utility worker, a Lab custodian and a driver.

"Felix Thompson was well-liked and always ready to take on any job — wherever he was needed," said his supervisor, Oscar Blevins. "He was an asset to the Division."

Clarence Hicks, a friend from PE's mason crew, remembers Thompson as "one of the best guys to work with. He was willing to work, and, also, fun to be around. Grounds will miss him."

Another PE member, rigger's assistant Antonio McGill, sometimes carpooled with Thompson and knew of his concern for education, which led him to spend time tutoring children after work. "He was a good friend," McGill said, "I really miss him."

A resident of Riverhead, Felix Thompson is survived by: his wife Sara Lee; three children, Hollie Lynn Johnson, Aereolle and Felix Jr.; his mother, Rena Thompson; two sisters, Beatrice Allen and Rena Loray; a sister-in-law, Tara Thompson; two brothers, Gregory and Paul; six nieces; three nephews; a grand nephew; four aunts; three uncles; and many cousins.

— Liz Seubert



## Coming Up

**Ivan Fedik, Director of Luch, the State Research Institute Scientific Industrial Association, Russia, will talk on "Fifty Years of Scientific Research at Luch." The talk, which will be of general interest, will be given on Wednesday, March 26, in the Hamilton Seminar Room in the Chemistry Department, Bldg. 555, at 3:30 p.m. Coffee will be served beforehand.**

See Supplement for other news and for classified ads.

## Computing Corner

The Computing & Communications Division (CCD) is offering the following training. For more information, contact: Pam Mansfield, Ext. 7286 or e-mail [pam@bnl.gov](mailto:pam@bnl.gov); or EdMcFadden, Ext. 4188 or e-mail [emc@bnl.gov](mailto:emc@bnl.gov).

### C++ Programming Class Rescheduled

The C++ programming class scheduled for March 10-14 has been rescheduled as follows. Employees who have sent in ILRs need not reapply:

date	time
Apr. 14 & 15	8:45 a.m. - 4:30 p.m.*
Apr. 16	8:45 a.m. - 12:30 p.m.**

\* two full days, \*\* one half day

### Perl, UNIX Intro to Be Rescheduled

The Perl programming class and introduction to UNIX classes will be rescheduled later. Registration for these classes will be accepted until next Friday, March 21; the per-person fee is \$300 for each class.

### March MIX Meeting Canceled

The Monthly Information eXchange (MIX) meeting scheduled for Wednesday, March 19, has been canceled.

## Lane Closing At Main Gate

Though it will be *open as usual for morning traffic*, the right lane at the main gate will be closed beginning next Monday, March 17, as follows: 9 a.m. to noon, and 1:30 to 4:30 p.m. The closing will last about a week, while a planter is constructed around the guard building.

## Equipment Demo

On Wednesday, March 19, from 11 a.m. to 2 p.m. in Berkner Hall, two representatives from ALLSTATE Gasket & Packing, Inc., will display the following: sheet gasketing material, floor matting, valve and pump compression packing, mechanical seals, gasket cutters, packing kits, O-ring kits, Cleaver Brooks boiler gaskets, fiberglass cloth and tapes, fire sleeving and more.

## Microcomputer Club

The BERA Microcomputer Club will hold an open house in the lobby of Berkner Hall on Thursday, March 20, from 11:30 a.m. to 1:30 p.m.

At that time, the club will demonstrate computers and software, explain how to create your own World Wide Web site, and display its software, hardware and printed information resources. Free shareware programs for Windows 95 will be given away, and club members will be available to answer any computer-related questions.

For more information, contact Steve Stein, Ext. 5694, or check the club's Web site at <http://www.bnlmcc.bnl.gov>.

## Weight Watchers

In its approach to weight management, Weight Watchers offers a nutritious food plan, an activity plan and a behavioral support plan. Registration for the next on-site, lunchtime Weight Watchers series will be held on Wednesday, March 19, from noon to 1 p.m. in the South Dining Room of the Brookhaven Center.

The class will meet on Wednesday for eight to ten weeks, depending upon the number of people who sign up. Since the Lab pays \$10 per participant, the fee is \$89 per person.

For more information, call Health Promotion Specialist Mary Wood, Ext. 5923.

## Next BERA Concert To Feature Renowned String Quartet and Fortepianist

The next BERA concert of the 1996-97 season will feature a blending of period string instruments and fortepiano by internationally acclaimed performers — the Festetics Quartet and fortepianist Maria Rose. It will be held on Sunday, March 23, at 2 p.m. in Berkner Hall.



The Festetics Quartet, with Maria Rose (inset)

Coming from Budapest, the Festetics Quartet combines historical performance techniques with the concert tradition of Hungarian string quartets. Named after a Hungarian family who founded the famous Helikon Music Library, the Festetics Quartet is the only string quartet of its kind in central Europe, and it has been invited to many prestigious concert halls and festivals both in the U.S. and abroad. The group has a special affinity to the music of Haydn, who spent a large part of his life in Hungary.

A native of Holland, Maria Rose is a fortepianist known internationally for her elegant and personable style. She gives frequent solo recitals and chamber music concerts in the U.S. and Europe and has appeared with orchestras in the U.S. and Canada.

The program for the concert consists of Haydn's String Quartet in D Major, Op. 64, No. 5, "The Lark," Hob. III:63; Mozart's Piano Concerto in E-flat Major No. 14, K 449; and Schubert's String Quartet in A minor, Op. 29 (D.804), "Rosamunde."

Tickets for the concert cost \$14 for general admission, \$9 for seniors, and \$5 for students and youths under 18. Purchase them at the BERA Sales Office, from 9 a.m. to 1:30 p.m. on weekdays, or at the door on the afternoon of the performance.

For more information about the concert, including any cancellation due to inclement weather, call Ext. 3550 for a recorded message. — Diane Greenberg

## Look for 1997 Benefit Summary

Next week, the Human Resources Division will provide eligible employees with summaries of their individual benefits, containing information on

each employee benefit, as well as on the coverage you have under each. The information will be current as of February 1997.

### Healthline-Outreach Workshop — For Women Only

#### Menopause: Latest Research

The natural physiologic cessation of menstruation, menopause is a complex subject for women and society because of its many aspects. Three of those — the biomedical, psychological and social aspects of menopause — will be discussed during a three-session workshop sponsored by the Health Promotion Program (HPP) and the Employee Assistance Program (EAP) of the Occupational Medicine Clinic.

To be presented by health educator Mary Wood, HPP, and clinical psychologist Dianne Polowczyk, EAP, "Menopause: The Latest Research and Current Understanding" will be offered noon to 1 p.m. on Wednesday, March 19 & 26, and April 12. The workshop is limited to 12 female BNL participants, who are asked to bring their questions, concerns and experiences to the discussion. For more information and to register, call Wood, Ext. 5923, or Polowczyk, Ext. 4567.

### Healthline Lecture — Not for Men Only

#### Prostate Cancer: A Medical Update

Though it is not the most deadly, prostate cancer is the most common malignant tumor in men. Affecting the glandular organ surrounding the urethra at the neck of the urinary bladder in men, prostate cancer is often less dreaded than the traditional treatments recommended to check or cure the disease.

The detection, diagnosis and treatment of this disease will be discussed by urologist Wayne Waltzer during "Prostate Cancer: A Medical Update," the next Healthline lecture. Sponsored by the Health Promotion Program (HPP) of the Occupational Medicine Clinic, the talk will be given on Tuesday, March 18, from noon to 1 p.m. in Berkner Hall. All are

invited, and the lecture will be available on audiocassette afterwards in the Research Library, Bldg. 477.

Board-certified in urology, Wayne Waltzer is the Chairman of the Department of Urology at University Medical Center, Stony Brook, and a professor of surgery and urology in, respectively, the Departments of Surgery and Urology at the State University of New York at Stony Brook.

To register for this lecture, return the completed bottom portion of the Healthline flyer recently sent to all employees to Health Promotion Specialist Mary Wood, Bldg. 490. For more information about HPP and its Healthline lecture series, call Ext. 5923.

## Celebrate Spring

The BERA Indo-American Association invites all to join them in celebrating Holi, the festival of spring, on Saturday, March 29, from 2:30 to 5:30 p.m. in Berkner Hall. A program of skits, dances and music based on tradition themes will be presented, and local artists will perform a dance drama based on the Indian epic Ramayana.

Admission is \$10 for adults and \$5 for children 12-6 years of age. Proceeds will go to the Association for India's Development (AID), a non-profit Maryland-based organization that supports self-help projects in India. During the afternoon, a documentary of AID's work will be shown.

For more information, call Anand Saxena, Ext. 4844 or 689-9771; Piyush Joshi, Ext. 3847 or 744-0217; Animesh Jain, Ext. 7329 or 474-0056; or Ranga-sayi Halthore, Ext. 7920 or 689-1486.

## Bowlers: Sign Up For Scotch Doubles

Enjoy a day of fun at the Scotch Doubles Tournament, to be held on Sunday, April 13, at 1:30 p.m. sharp, at Port Jeff Bowl. The cost of \$30 per couple includes bowling, prizes and buffet. The tournament is open to BNL employees and their immediate-family members.

Pick up applications at the BERA Sales Office, Berkner Hall, weekdays, 9 a.m. to 1:30 p.m., and return them by Friday, April 4. If you need a partner or have any questions, contact Debbie Botts, Ext. 3888.

## Arrivals & Departures

### Arrivals

**Christine L. Brakel**.....Director's Off.  
**Elizabeth A. Kazmark**....Occ. Med. Clinic  
**Lijun Wu**.....Applied Science

### Departures

This list includes all employees who have terminated from the Lab, including retirees:

**Min Li**.....Adv. Technology

### Note to Employees:

Attendance at lectures, meetings and other special programs held during normal working hours is subject to supervisory concurrence.

## Basketball

### Games on March 6

Magic 109	Knicks 55
Terry Buck 22	Andy Byers 25
Chris Ingoglia 21	Pat Woodward 13
Greg Mack 18	Mike Mallardi 6
Hector Machado 17	Dwayne Eleazer 4
Jerry Gaeta 15	Bob Wells 4
Ray Jackson 8	Dan Delgado 3
Al Langhorn 6	
Fred Maier 2	

Three-point shots: Ingoglia (3), Machado (3), Woodward (3), Mallardi (2), Gaeta.

PE Wolfpack 60	Chemistry 58
Charlie Edwards 11	Simon North 19
Darren Harris 10	Steve Springston 10
Jerry Hobson 10	Dennis Ryan 8
Rob Singleton 10	Tracey Fontaine 7
Troy Mayo 6	Dorian Mergen 7
Mike Fulkerson 5	Lee Walcott 7
Hal Van Deroef 6	
Brian Hobson 2	

Three-point shots: J. Hobson (2), Fulkerson, Ryan, Walcott.

### Standings as of March 6

PE Wolfpack 5-0	Scream 1-3
Magic 4-1	Knicks 0-5
Chemistry 2-3	

## Corrections

Among the items announced last week as part of the events for BNL's 50th anniversary year celebrations:

- The **Reminiscence Seminars** to be held in May will include a seminar on the Biology Department and the Medical Department to be held on May 13, not May 16;
- "The Quest Continues," a Lab history photograph exhibit in Berkner Hall lobby May through August is organized by the Brookhaven Science Museum staff, not by the Photography Club as announced.

## Pick a Student

Until Friday, March 21, those interested in sponsoring a 1997 summer student may review the applications submitted to the Office of Educational Programs (OEP), in the Science Education Center, Bldg. 438.

In the summer-student program, junior and senior undergraduates receive ten-week research appointments, June 2 to August 8. This year, OEP will be able to pay seven weeks of the stipends, as well as each student's round-trip transportation.

Those sponsoring students will be responsible for paying the remaining three weeks of stipends at \$225 per student per week plus G&A, as well as each student's housing expense of \$105 per week for the ten weeks.

A special effort is made to offer minority students summer research opportunities at BNL. So, if your student choice is a minority, then you will substantively contribute to this effort.

All requests for students must be submitted to department coordinators by Monday, March 24. For more information, call OEP, Ext. 4503.

## MRI Volunteers Needed

Healthy males and females above 18 years of age are needed to volunteer for magnetic resonance imaging (MRI) studies. For more information, call Noelwah Netusil, Ext. 8032, after 9:30 a.m.

## BNL Gospel Choir Performs Tomorrow

The BNL Gospel Choir will be in concert tomorrow, Saturday, March 15, at the Wading River Congregational Church at 7:30 p.m. Admission is free, though donations will be accepted. For more information, call Frances Ligon, Ext. 3709, or Peter Vibert, church pastor, 929-8849.

## Volleyball

### Standings as of March 6

Open League		League I	
Shank, Carry & Throw	43-14	Bikers 'n Spikers	52-14
Far Side	36-21	Rude Dogs	49-14
Pass, Set & Crush	32-25	Scared Hitless	31-32
Spikers	17-41	Net(e)scapers	17-49
Death Volley	16-41	Set to Kill	13-53
League II		League III	
Safe Sets	37-8	Silver Bullets	52-2
Spiked Jello	35-10	Group Sets	34-20
Fossils	27-18	Just 4 Fun	32-22
Jao-About-That	26-19	Upton Ups	30-24
Monday Nite Live!	26-19	New Comers	29-25
Lift Carry Throw	17-28	Night Court	12-12
Nuts & Bolts	14-31	Court Hogs	18-36
Jolly VOLLIES	7-38	OER	9-45

Each week, the Human Resources Division lists new placement notices, first, to give employees an opportunity to request consideration for themselves through Human Resources, and second, for general recruiting under open recruitment. Because of the priority policy stated above, each listing does not necessarily represent an opportunity for all people.

Except when operational needs require otherwise, positions will be open for one week after publication.

For more information, contact the Employment Manager, Ext. 2882, or call the JOBLINE, Ext. 7744 (344-7744), for a complete listing of all openings.

Current job openings can also be accessed via the BNL Home Page on the World Wide Web. Outside users should open "http://www.bnl.gov/bnl.html", then, under "Information," select "Jobs." For scientific staff openings, select "Scientific Personnel Openings"; for all other vacancies, select "General Personnel Openings."

**SCIENTIFIC RECRUITMENT** - Doctorate usually required. Candidates may apply directly to the department representative named.

**POSTDOCTORAL RESEARCH ASSOCIATE** - Trained in accelerator, high energy or nuclear physics, to work in the RHIC Project. Will address accelerator-physics design issues, develop high-level controls software and participate in accelerator commissioning. Experience in accelerator operations is desired, and strong proficiency in accelerator hardware and/or software is preferred. Contact: Stephen Peggs, RHIC Project.

**LABORATORY RECRUITMENT** - Opportunities for Laboratory employees.

DD 4866. MAIL CLERK - (temporary o/a 5/5/97 to 9/5/97) Must possess a valid New York State driver's license. Administrative Support Division.

DD 3646. SECRETARIAL POSITION - (term appointment) Must possess basic secretarial skills, knowledge of WordPerfect, knowledge of office practices and procedures, and the ability to work within tight schedules and deadlines. Duties will include extensive foreign and domestic travel preparations, and conference scheduling. Will provide varied secretarial support to the Safeguards, Safety and Nonproliferation Division and its US/FS Safeguards Cooperation Group. Department of Advanced Technology.

## SOS - FOOD DRIVE PICKUP this MONDAY



No Time to shop? Send personal checks to BNL FOOD DRIVE, c/o Rita Kilo, Bldg. 460; or Donna Wadman, Bldg. 599.

## Classified Advertisements

### Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Consideration is given to candidates in the following order: (1) present employees within the department/division and/or appropriate bargaining unit, with preference for those within the immediate work group; (2) present employees within the Laboratory; and (3) outside applicants. In keeping with the Affirmative Action plan, selections are made without regard to age, race, color, religion, national origin, sex, handicap or veteran status.