

BNL, DOE Kick Off Series of Public Events on HFBR's Future

In the first step of a process that will help decide the future of BNL's High Flux Beam Reactor (HFBR), the U.S. Department of Energy (DOE) and BNL held a public information session last week that attracted about 60 people, including members of various activist groups, BNLeers, other interested citizens and about a half-dozen reporters.

The session, held at the Mastic-Moriches-Shirley Community Library on Thursday, August 14, from 6 to 9 p.m., followed a similar informational session for BNL employees that was held on site on Wednesday, August 13, at Berkner Hall.

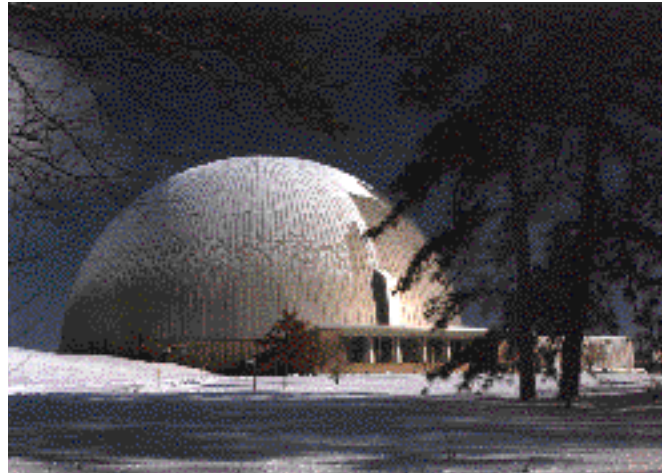
Both events were organized by DOE and BNL's Public Affairs Office, as a way to share information and solicit community opinion about the environmental, safety and scientific aspects of HFBR's operation, and the different options for the reactor's future.

Marge Lynch, Manager of BNL's Public Affairs Office, was pleased with the sessions. "I think both sessions went very well," Lynch said after the Thursday event. "They were an important first step toward obtaining stakeholder input on the options for the HFBR's continuation."

The format for both sessions was similar — an informal gathering around a series of 13 detailed posters, which were staffed by experts from

BNL's Reactor Division, Physics Department, Safety & Environmental Protection Division, Office of Environmental Restoration, and Public Affairs Office, as well as DOE's Brookhaven Group and Chicago Operations Office. No one gave a formal presentation, and community input was taken informally and through comment cards.

Two broad options exist for the HFBR's future, said Mike Holland, Director of the Nuclear Programs Division of the DOE Brookhaven Group: BNL and DOE will either work to restart the reactor or close it down. Before any decision is made on continuing operations, Holland says, environmental and safety reviews will be conducted on the reactor, and upgrades will be made to bring the HFBR in compliance with regulatory requirements, including a strict Suffolk County groundwater protection law called



BNL's High Flux Beam Reactor

Article 12.

The final decision to pursue restart of the HFBR will be made in January 1998 by Secretary of Energy Federico Peña, based on community input, the value of HFBR science, and the cost of

safety and environmental upgrades. Martha Krebs, Director of the Office of Energy Research at DOE, will evaluate the different factors and

make a recommendation to the Secretary prior to his decision.

The HFBR was shut down in January 1997, following discovery of tritium in a plume of groundwater near the reactor. The tritium plume has been the subject of intense focus by media, activists and politicians, as well as BNL and DOE officials.

HFBR Science and Safety

Many of the activists are dead set against reactor restart.

"The HFBR will never start again because we won't allow it to," maintained Bill Smith, a persistent Lab critic who operates Fish Unlimited, a small Shelter Island-based activist group.

Many BNLeers who are knowledgeable about reactor operations, however, say that some of the activists are exaggerating the dangers of the HFBR.

"The facility can be run efficiently, securely, and safely," said Joe Barkwill, Plant Manager for the Reactor Division, which oversees the HFBR. "The debate should be about 'Is the scientific need for this facility worth keeping it running?'"

Barkwill also emphasized the many differences between the HFBR and a typical commercial nuclear power plant.

The HFBR has a much lower operating temperature and pressure than

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Coming Up

As part of the BNL 50th Anniversary Distinguished Lecture Series, Nobel laureate Gerald Edelman will address the question: "Is it Possible to Construct a Perception Machine?" on Tuesday, September 2, at 4 p.m. in Berkner Hall.

Bright Lights, Big Machines:

ATF Achieves Milestone on the Road to Developing X-Ray Laser

Imagine a laser. What's the image?

A rock concert, with red, yellow, and green light beams shooting all over the auditorium, as the crowd listens to the pounding music and stares, hypnotized? A red beam in a glass case in a darkened science museum? A surveyor gazing over his tripod, lining up a faraway object? The bar code scanner in the supermarket?

Lasers may be beautiful and useful for many everyday technologies, but they are much more — they are valuable scientific tools. They are useful

because they produce an intensely bright beam of light which contains extremely pure colors, moves in unison and remains parallel for long distances. And physicists have worked for years to develop lasers that are ever more powerful — and more useful scientifically.

If a laser that emits an x-ray or vacuum ultraviolet beam can be developed, then new vistas of physics and chemistry will open — which may shed light on the chemistry of the Earth's atmosphere, the special prop-

erties of surfaces and the details of how molecules move during chemical reactions.

But the road to an x-ray laser has been a bumpy one, with many technical hurdles, as researchers have struggled to produce laser light with ever lower wavelengths and higher energies.

The long-sought x-ray laser will be a variety of laser called a free-electron laser (FEL), and BNL's National Synchrotron Light Source (NSLS) scientists have been at the forefront of FEL research for years, following key theoretical breakthroughs by the NSLS' Sam Krinsky and Li-Hua Yu.

This spring, Ilan Ben-Zvi's group at BNL's Accelerator Test Facility (ATF) achieved an important milestone on the long road to developing the elusive

x-ray FEL.

By magnetically wiggling a fast-moving beam of electrons, the group was able to produce a bright beam of radiation called a self-amplified spontaneous emission (SASE), with a wavelength of 0.6 micrometers (μm) — about ten times shorter than previously obtained.

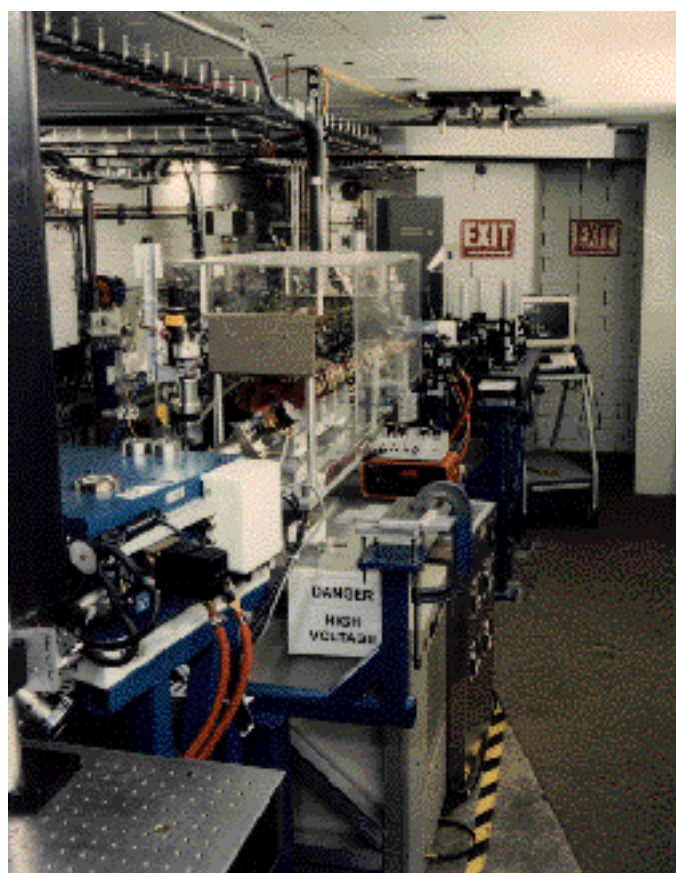
"This is a large step in the direction in which the community is interested," says Ben-Zvi, who is ATF Head.

Limits of Conventional Lasers

The word "laser" is an acronym which indicates the mechanics of the device: "Light Amplification by Stimulated Emission of Radiation."

"Stimulated" is the key," Ben-Zvi explains. "Stimulated radiation has

(continued on page 2)



This free-electron laser (FEL) at BNL's Accelerator Test Facility (ATF) was used this summer by ATF researchers to generate light with a wavelength of 0.6 micrometers, about ten times lower than ever before observed from a self-amplified spontaneous emission by an FEL. One of the key advances of the machine is the "microwiggler," a series of powerful, but compact and tunable magnets, with a period of 8.8 millimeters, which are seen here under the Plexiglas shield. To ensure

the safety of workers, the FEL is surrounded by walls of lead and concrete bricks, and it is operated by remote control from a separate room.

Clean Water Spilled on Contaminated Floor; No Environmental Release, Worker Exposure

When approximately 175 gallons of clean water from an emergency shower was accidentally spilled in Bldg. 801 last Friday, August 15, it became contaminated with low-level radioactivity from the floor of a former indoor waste-handling facility.

Since the contaminated water was immediately contained, no workers were exposed to it, and there was no known release to the environment. Within hours of the incident, the water was removed and handled as low-level radioactive waste for disposal by hazardous waste-management staff from the Lab's Safety & Environmental Protection Division.

The water was spilled when a forklift operator, employed by Site Remediation Services, Inc., of Connecticut, accidentally backed a fork-

lift into the pull chain for an emergency shower.

The operator was part of a crew that is renovating the Bldg. 801 waste-handling facility to bring it into compliance with Suffolk County's Article 12. As part of that renovation, the crew is removing radioactive contamination found on the floor and in other areas of the facility.

While the operator was untangling the forklift, the shower's water supply pipe was broken, releasing clean water onto the floor. The water flowed into an existing containment area which, lined with concrete and lead, is designed to collect spills of liquid radioactive waste within the facility. Within the containment, the water became contaminated with residual, low-level radioactivity from the floor.

X-Ray Laser (cont'd.)

the same phase, the same direction, the same wavelength or frequency as the input radiation."

Different types of lasers differ in the kind of electronic stimulation used to generate the laser beam.

In conventional lasers, a strong electric field is typically applied to gas in a sealed tube, causing the gas molecules to become excited and glow. The light is then amplified by passing it through the excited gas, bouncing it back and forth between two mirrors at the ends of the laser tube. This amplification is called "gain," and the gas is called the "gain medium." When the light finally escapes through a hole in one of the mirrors, the result is the familiar laser beam.

But conventional lasers can't operate in the vacuum ultraviolet and certainly not at x-ray wavelengths, says Ben-Zvi, for three reasons.

First, the light is not amplified enough to create the intense laser beam desired, and, second, the gas absorbs some of the light, much like the mute on a trumpet absorbs some of the sound of the instrument. Finally, powerful x-ray beams are so energetic that they can't be reflected by glass or metal mirrors, as visible light is in conventional lasers.

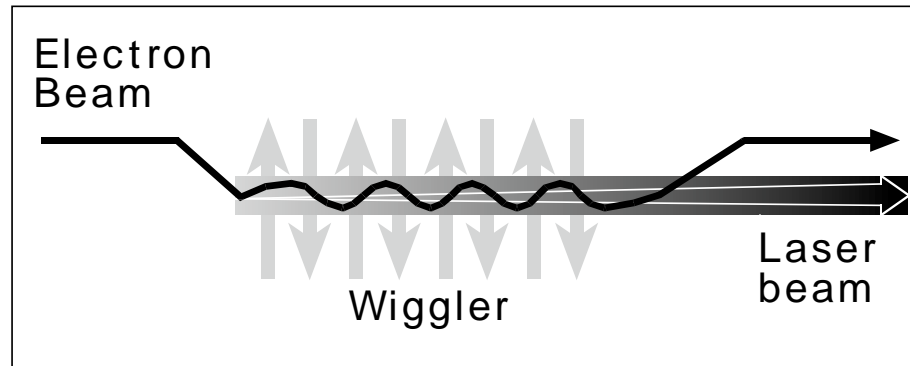
In addition, says Ben-Zvi, "The beam from an x-ray FEL would vaporize mirrors."

Wiggling Electrons

FELs solve these problems by using a beam of electrons as the gain medium. The beam is bent back and forth by powerful electromagnets in a device called a wiggler or undulator.

"When you bend an electron beam in a magnetic or electrical field, it will radiate," Ben-Zvi explains. "It's just another type of gain medium."

Wigglers cause the electron beam



Free-electron lasers generate and amplify light by magnetically wiggling a fast-moving electron beam, using a device called a wiggler, which applies alternating, tightly spaced magnetic fields. When moving electrons are bent, they emit light, and, in a single pass through the wiggler, that light is amplified to form a bright beam. Free-electron lasers overcome several limitations of conventional lasers and may be capable of generating ultraviolet and x-ray laser beams, which might lead to advances in the chemistry of ozone depletion and fossil fuel combustion, and new insights into the fundamental molecular processes of living cells.

to oscillate by applying a series of magnetic fields with alternating directions. The more the electron beam is bent back and forth, the more intense the radiation that can be generated. The result is the production of a powerful, amplified, laser beam of short-wavelength light.

"It reinforces the radiation in the forward direction," Ben-Zvi says. "It concentrates all the power into a tighter beam of radiation. In addition, the FEL can be used in a single-pass mode, eliminating the need for resonator mirrors."

The wiggler at the ATF FEL is a miniaturized version of the device called a microwiggler, and it was built by scientists from the Research Laboratory of Electronics at the Massachusetts Institute of Technology (MIT). Palma Catravas, an MIT graduate student, operates the MIT microwiggler at the ATF. The device allows shorter wavelengths of light to be generated with lower-energy electron beams, ren-

dering the FEL cheaper, more reliable and safer.

But the wiggler can't do the job alone — the quality of the electron beam has to be very high. Xijie Wang and Vitaly Yakimenko in the ATF group were able to produce and tune a high-current electron beam that had a smaller emittance than was ever before achieved at the ATF.

In addition, the work would all be for naught unless the beam could be effectively detected — the province of Project Engineer Marcus Babzien and former Columbia University graduate student Jimmy Fang, who helped build the FEL's optical systems.

Amplified Radiation

The work came together for the team with the self-amplified spontaneous emission measurement, which moved barriers of what was possible with FELs. The 0.6 μm red light emitted by the device was about ten times shorter than the previous low-wave-

length SASE, a 5 μm beam of light obtained from the CLIO-FEL at the LURE Institute in France in 1996.

The SASE measurement proved the quality of the electron beam, the utility of the microwiggler and the capability of the optical system — and moved the x-ray FEL one step closer to reality. "This is a significant step toward the dream of developing an x-ray FEL," says Ben-Zvi.

Other Avenues

The ATF team is working with other NSLS researchers to pursue other avenues that might lead toward advanced, short-wavelength FELs, Ben-Zvi adds. This fall, the ATF-NSLS team will begin construction of a unique experiment called a high-gain harmonic generation (HGHG) FEL.

Unlike the self-amplified spontaneous emission, which uses the wiggler to amplify the feeble and incoherent, or unsynchronized, light generated spontaneously by a slightly wobbling electron beam, the HGHG laser is "seeded" with a strong light beam from a separate laser. It then generates the shorter-wavelength harmonic of the beam and uses a wiggler to amplify it further.

By using a strong light source and an efficient amplification mechanism, the team hopes to generate a more coherent laser beam, with better-controlled properties. "We believe that this experiment, to be done in the infrared, is the proof of principle for future, shorter-wavelength FELs," Ben-Zvi says.

He also thinks that vacuum ultraviolet and x-ray lasers will happen — thereby advancing the understanding of basic physical and chemical processes: "We're talking about a tremendous investment in this research because of the usefulness of extremely short wavelengths." — Dan Ferber

Workers Accidentally Exposed to Asbestos During Ceiling-Tile Replacement

While workers were replacing ceiling tiles in a dropped ceiling in the lobby of Bldg. 902 from August 5 through 8, they and those working in or passing through the lobby may have been exposed to airborne asbestos.

The exposure to those working in or passing through the building, however, is estimated to have been at levels below the limits to protect worker health that are set by the federal Occupational Safety & Health

Administration. This estimation is based on air samples taken by BNL's Safety & Environmental Protection (SEP) Division during previous work on dropped ceilings with tiles known before the start of the project to contain asbestos. As a result of the estimated low exposure, no effects are expected on health of anyone who worked in or passed through the building.

To evaluate the exposures of work-

ers directly involved in replacing the asbestos-containing ceiling tiles, a committee reporting to Interim Deputy Director Michael Bebon is now investigating the incident.

"The estimation of a lack of high doses, however, does not diminish the seriousness of the incident or the thoroughness with which the Laboratory's Plant Engineering and Safety & Environmental Protection staffs are investigating the situation," states Bebon.

Employees involved in the ceiling-tile work or who are known to have worked in the area at the time were briefed on the situation during a meeting last Friday, August 15.

Those who were unable to make the meeting or who have since discovered that they might have been exposed as a result of visiting Bldg. 902 between August 5 and 8 are asked to inform their supervisors and call Bob Selvey, SEP, Ext. 3066.

Inside Info

BNL's **Fire/Rescue Group** in the Safety & Environmental Protection (SEP) Division received a letter of commendation on June 16 from the Chief Fire Marshal of the Town of Brookhaven, on behalf of Town Supervisor **Felix Grucci Jr.** and all the Town's fire marshals.

The letter came as a result of Fire/Rescue's successful response on June 12 at the request of the Town's Division of Fire Prevention to an incident involving hazardous materials (haz mat) in Ridge. Since July 1996, BNL and the Town have been partners in a Haz Mat Mutual Aid Agreement, which allows each to provide backup for the other upon demand.

The June 12 incident on the William Floyd Parkway in Ridge involved noxious chemicals which were causing distress to several occupants of a large office building.

As Brookhaven Town's Chief Fire Marshal **Joseph Sauerwein** explained, "When we needed additional resources in our efforts to positively identify the material as well as its origin, I called upon Chief **James Roesler** of the Lab's Fire/Rescue

Group. In short order, Chief Roesler and Deputy Chief **Mike Carroll** arrived at the scene, accompanied by Messrs. **Fred Horn, Bob Selvey** and **Ralph Wilson**," all of SEP.

The Chief Fire Marshal continued, "They brought with them an impressive array of analytical equipment that resulted in the positive identification of the substance and helped to bring the incident to a safe conclusion."

He concluded, "On behalf of Supervisor Felix J. Grucci Jr. and the Fire Marshals of the Town of Brookhaven, as well as the many, many volunteers who operated at the location for more than six hours, please accept our sincere appreciation for this invaluable assistance."

IBEW Meeting

Local 2230, IBEW, will hold its regular monthly meeting on Monday, August 25, at 6 p.m. in the Knights of Columbus Hall, Railroad Avenue, Patchogue. There will be a meeting for shift workers at 3 p.m. at the union office. The agenda includes regular business, committee reports and the president's report.

1995 BNL Site Environmental Report Available

BNL has published its 1995 Site Environmental Report (SER), which presents the results of the Lab's 1995 environmental monitoring program and assesses its environmental impact. SERs summarize measurements of chemicals and radionuclides in the air, surface water, groundwater, soil, fish and vegetation around the Lab's 5,300-acre site.

According to the measurements taken, a hypothetical person who spent 24 hours a day throughout 1995 living at BNL's site boundary, drinking well water from the area and eating fish from the Peconic River, would have received a total radiation dose of less than 1 millirem, which is a unit of radiation. That dose is less than one percent of the annual dose of radiation that same individual would have received from natural sources already present in the environment.

To put this dose in perspective, an individual on Long Island receives an annual dose of about 300 millirems from natural background radiation. Radioactive materials are found in cosmic rays (a dose of 24 millirems), the earth (36 millirems), in food and

water (40 millirems) and radon (up to 200 millirems). In addition, the dose limit for the public set by federal regulations for human sources, excluding medical procedures, is 100 millirems per year.

The Lab's SERs are usually published a year after the actual report year, to allow time for BNL staff to review data, write the report and have it reviewed by the U.S. Department of Energy. The 1995 report was delayed to allow BNL's environmental staff to focus on testing and monitoring efforts in response to the recent tritium contamination at BNL, which the Lab discovered in January.

Recognizing public concerns about radiation in general and the effect of any emissions on Long Island's environmental resources, BNL distributes the report to an array of regulatory organizations and makes the report available to the public. The report is also available as a summary, with diagrams and explanations in non-technical terms.

For a free copy of the SER or the SER Summary, call BNL's Public Affairs Office, Ext. 2345.

HFBR Future (cont'd.)

a typical commercial reactor — 140° F and 200 pounds per square inch (PSI) for the HFBR compared to 600° F and more than 1,000 PSI for a commercial reactor. It uses much less fuel — 25 pounds of uranium, compared to 4,000 pounds in a commercial reactor.

Finally, it was designed with a different purpose — to produce neutrons for use in scientific experiments. “The purpose of their design is to produce electricity for financial gain,” Barkwill said. “Ours is to produce neutrons for scientific research.”

Other DOE and BNL staff discussed posters on the scientific, as well as the environmental and safety aspects of the reactor. For instance, John Axe, Scientific Program Head of the HFBR, spoke with community members about scientific studies conducted at the reactor that have led to a better understanding of blood enzymes used to treat heart attacks, better materials for cleaning up oil spills and many other scientific advances.

Ray Karol, Ken White and Doug Ports of the Reactor Division staffed posters that presented key details of the HFBR's safety procedures and emissions to the environment. Meanwhile, Bill Gunther, Manager of BNL's Office of Environmental Restoration, and Michael Butler, DOE's Project Manager for the Tritium Remediation Project, spoke about the Lab's environmental cleanup efforts. These include remediation of the tritium plume, which is believed to come from the spent-fuel pool at the HFBR.

Reaching Key Stakeholders

Last week's public information session is the beginning of an extended effort by BNL and DOE to educate the community on various aspects of HFBR operations and solicit their input on the question of reactor restart.

Two additional public information sessions are planned, the first on October 6 at Dayton Avenue School in Manorville, and the second on November 18 at an as-yet-undetermined location. Among other events, roundtables and briefings will be held for civic and business groups, elected officials and other community members.

“We have a very aggressive schedule for the rest of the year,” said Lynch, of Public Affairs. “We hope to reach all the key stakeholders.”

— Dan Ferber

If you are a member of civic, fraternal or other community group and would like to schedule an informational meeting about the HFBR for your group, contact BNL's Public Affairs Office, Ext. 2345.

Raphael Trio Returns Tuesday, August 26

Returning to BNL ten years after their first, very successful appearance here in 1987, the Raphael Trio, whose performances and recordings have received great critical and popular acclaim throughout the United States and Europe, will present a concert on Tuesday, August 26, at 8:30 p.m., in Berkner Hall. The event will be open to the public.

The trio — violinist Charles Castleman, cellist Susan Salm and pianist Daniel Epstein — made their debut at Carnegie Hall in 1975, the same year they won the Concert Artists Guild Award.

Admired and sought after, they have performed extensively in concerts and international festivals worldwide. Critics have written of their “absorbing



musicianship,” their “singing quality,” and “lovely subtlety.” Recently, Robert Sherman of *The New York Times* referred to them as “eager, fervent and deeply committed,” with an “interpretive intensity that fired the evening.”

The program includes: Franz Schubert's Piano Trio in E-flat Major, *Notturmo*, Op. Post. 148; Ranier Bischof's Trio 89 — For the Raphael Trio (*Variations on La Marseillaise* in commemoration of the bicentennial of the French Revolution); Ludwig van Beethoven's *Variations on Ich bin der Schneider Kakadu* in G Major, Op. 121a; and Franz Schubert's Piano Trio in E-flat Major, Op. 100.

Tickets at the door are \$15 each, or \$10 for seniors and students.

In Memoriam: Paula Hughes, AGS

Paula Hughes, the Administrative Specialist who, for the last 15 years, had been the assistant to Alternating Gradient Synchrotron (AGS) Department Chairman Derek Lowenstein, died on Saturday, August 16, following a valiant battle against cancer. She was 57.

“The AGS Department has lost an extraordinary person and fellow employee,” noted the AGS Chairman. “Her dedication, sacrifice and accomplishments in her 30-year career will always remain with all of us at the AGS. Beyond her accomplishments, her legacy is her example to us and our memory of her as a person: an unselfish, meticulous and caring professional who gave her all, despite the foibles and vagaries of her boss and the system.”

Lowenstein added, “She was the guardian at the AGS gate, and no one could have asked for more. We do miss her very much.”

Hughes came to BNL 30 years ago, on August 7, 1967, after holding positions in New York City as a secretary with IBM, a patent secretary for the American Can Company, and an assistant personnel director for the Museum of Modern Art.

Starting as a secretary at BNL, she moved up the secretarial ladder with a promotion to an executive secretary in

July 1975 and to a senior executive secretary in September 1978. In October 1981, Hughes became an administrative assistant, and she was named senior administrative assistant in October 1984. She assumed her final title in October of 1992.

Spending her entire Lab career in the AGS Department, Hughes started in the then Conversion Division, enabling work on an AGS upgrade. She worked for then ISABELLE Project Head James Sanford before becoming the Chairman's assistant in 1982. Her illness forced her to leave work on June 10 of this year.

In addition to planning and organizing many workshops over the years, Hughes was selected as BNL's representative to the 18th annual training program sponsored by Federally Employed Women, which was held in St. Louis in 1987.

There, after the secretarial survival workshop in which Hughes participated, the workshop leader gained her permission to use as examples many of the organizational practices that Hughes had developed at the AGS.

“[It's] nice to be on the other side of the conference desk. I have worked a lot of summer studies and conferences here at BNL, so I know what it's like,” Hughes commented in a July 31, 1987, Brookhaven Bulletin story on her participation in the training program.

Having resided in Coram, Paula Hughes is survived by her husband Stephen, her son Michael and her daughter Barbara. Contributions in her memory may be sent to St. Charles Hospice, 222 Belle Terre Road, Port Jefferson NY 11777.

In Memoriam: Joseph Sylvester

The Brookhaven Bulletin was recently notified that retiree **Joseph Sylvester**, who had retired on June 30, 1978, with 16 years of service in the Medical Department, died on March 11. He was 84 years old. He had joined the Lab on March 19, 1962, as a medical services assistant III, and he was a hospital services assistant III at his retirement.

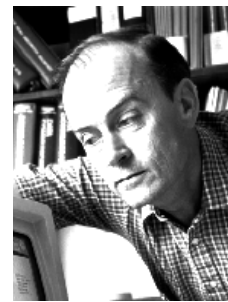
Arrivals & Departures

- Arrivals**
Dmitri E. Kharzeev.....Physics
- Departures**
 This list includes all employees who have terminated from the Lab, including retirees:
Ondrej Prasil.....App. Science
Donna-Ree A. Rodriguez.....CCD
Gregory J. Van Tuyle...Adv. Technology

New BERA Group for Retired Employees

On August 14, the BNL Retired Employees Association (BERA) sent out a news release announcing its formation. This new BERA group represents retirees' interests in developing BNL and the U.S. Department of Energy (DOE) policy and encourages retiree involvement in local community relations.

The new organization was formed primarily, to protect BNL's 1,800 retirees' benefits during the contractor selection and management-contract negotiation process. But, according to BERA founder Graham Campbell, who retired from the Computing & Communications Division in September 1995, it will also serve many other purposes.



Graham Campbell

Additional goals include: building closer ties between BNL and the surrounding communities, encouraging activities to bring retired employees together, offering retirees a newsletter dedicated to their issues, and encouraging retirees to support local community activities and charities.

Campbell sent out a letter on June 1 of this year to ask if retirees were interested in forming an organization, and he received a strong response — almost 400 positive replies.

On June 26, an organizational meeting for retirees was held at BNL, featuring a discussion with DOE representatives from the Source Evaluation Board, which will rate the prospective offerers' proposals to operate BNL.

As a result of the strong turnout at this meeting — some 200 attendees — and the discussions with DOE, Campbell said, the new association succeeded in having the language of the Request for Proposals recently issued by DOE modified from the original: The result is much more protective of the retirees' medical benefits.

As an interim measure until a more formal voting system is arranged, Campbell is BERA President, Stuart Rideout is Vice President, Stanley Seltzer is Secretary and Barney McAlary is Treasurer.

Regular BERA membership is open to all retired BNL employees and their spouses, while associate membership is available to all other members of the BNL community who share BERA's goals and interests.

To join, send your name, address; e-mail address, if any; phone number and date of retirement or associate member application request to: BERA, Bldg. 475C, Upton NY 11973-5000. Include a check for \$10 made out to BERA for the first year's dues.

Computer Training

The three-day Visual Basic Programming 4.0 class offered by the Computing & Communications Division has been rescheduled for August 27, 28 & 29. The training fee is \$615 per person.

To register or for more information, call Pam Mansfield, Ext. 7286, or Julie Pergan, Ext. 5196, by Tuesday, August 26.

Deadline for BB Notices

A new deadline has been set for submitting items for publication in the Brookhaven Bulletin: With the exception of notices from the Human Resources Division, all items must be received in the Bulletin Office by noon on the Friday before the week of publication. Yes, this includes *your* item!

Come tour the
High Flux Beam Reactor
 Sunday, August 24
 10 a.m. to 3 p.m.
 All are most welcome.

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Paula Hughes

Amateur Radio

The BERA Amateur Radio Club will next meet at noon on Thursday, August 28, in Room C, Berkner Hall. All BERA members and licensed amateur-radio operators are invited to attend. For more information, call Chris Neuberger, Ext. 4160, or Nick Franco, Ext. 5467.

Call for Bowlers

Summer may not yet be over, but it's time to "think bowling" again! Applications for the Tuesday night men's league in Port Jefferson and the Thursday night mixed league in Rocky Point are *only* available through Debbie Botts, Division of Contracts & Procurement, Bldg. 355. All BNL employees and their immediate family members can join, and all team registrations are due by August 26.

Also on that Tuesday, a captains' meeting will be held at noon in the South Room of the Brookhaven Center, Bldg. 30.

So join up for a night of fun each week — you don't have to be a great bowler, just a willing one! For information, call Debbie Botts, Ext. 3888, or Tracy Blydenburgh, Ext. 4422.

BERA Fall Offerings

This fall, BERA will offer the following entertainment opportunities. All bus and opera ticket sales are made at the BERA Sales Office, Berkner Hall, open weekdays, 9 a.m.-1:30 p.m. For more information, call M. Kay Dellimore, Ext. 2873, or Andrea Dehler, Ext. 3347.

Fall Bus Trips

• **New York Yankees vs. Toronto Blue Jays — Friday, September 19.** The bus will leave BNL at 4:30 p.m. arriving at Yankee Stadium for the 7:30 p.m. game. It will leave the stadium at approximately 10:30-11 p.m. to return home after the game. \$35/person.

• **New York City, Do Your Own Thing! — Saturday, October 18.** The bus will leave at 9 a.m. and drop off passengers at the Metropolitan Museum of Art on 5th Avenue & 82nd Street; or at the American Museum of Natural History on 79th Street & Central Park West. Or, passengers may explore 5th Avenue: Walk up to the Guggenheim Museum at 89th Street, or down to the Frick Museum at 70th Street. At 65th Street is the Central Park Zoo, and, further down, you can shop and sightsee at F.A.O. Schwarz, Trump Tower and Rockefeller Center, and recover with tea at the famed Plaza Hotel, 57th Street. The bus will leave at 5 p.m. to return home. \$16/person.

• **Atlantic City — Saturday, November 15.** The bus will leave at 8 a.m. and return at approximately 10 p.m., with a six-hour stay in Atlantic City. The name of the casino and its coin-return package will be announced later. \$20/person.

All departures will be made promptly at the scheduled time from the Brookhaven Center, Bldg. 30, with an extra pickup, if requested, at Exit 63 of the Long Island Expressway. Trips include admission and round-trip bus transportation from BNL on a video-and-bathroom-equipped bus. Paid reservations will be taken first come, first served.

Metropolitan Opera Tickets

The complete list of BERA-subscription family-circle tickets and dates for certain performances during the 1997-1998 Metropolitan Opera season may now be reviewed at the BERA Sales Office. There, tickets will be on sale starting Wednesday, September 3. Employees may purchase up to three pairs of tickets at one time. Additional sales may be made at a later date. All sales will be final, with no refunds or exchanges.

Whiz Bang Science — That's Entertainment!

This Sunday, August 24, is the last day of this year's BNL Summer Sunday tours, so become one of the parents or whiz kids who have delighted in the Lab's free "Whiz Bang Science Show." This one-hour interactive demonstration of scientific principles has a message: Science is amazing, amusing and altogether admirable! One young visitor loves the show so much that she has returned each week, bringing a different friend along each time; and at least two children have held their birthday parties during Summer Sundays, entertaining party-goers with the Whiz Bang Show. The show will run only four more times this year: this Sunday at 10:30 a.m., noon, 1:30 p.m. and 3 p.m., as part of the last free BNL Summer Sunday tour run by the Museum Programs of the Public Affairs Office.

Also on this last Sunday, visitors can once again tour the High Flux Ream Reactor, where reactor staff will be on hand to explain the science and operations of this world-class research facility, and answer questions in understandable terms. All are welcome, and no reservations are needed.

Classified Advertisements

Placement Notices

The Laboratory's placement policy is to select the best-qualified candidate for an available position. Candidates are considered 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, disability or veteran status.

Each week, the Human Resources Division lists new placement notices, first, so employees may request consideration for themselves, and, second, for 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; call the JOBLINE, Ext. 7744 (344-7744), for a complete list of all job openings; use a TDD system to access job information by calling (516) 344-6018; or access current job openings on the World Wide Web at <http://www.bnl.gov/JOBS/jobs.html>.

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

POSTDOCTORAL RESEARCH ASSOCIATE - Trained in physics, with experience in semiconductor-circuit design, with emphasis on low-noise circuits, for the design of analog CMOS integrated circuits. Experience with computer-aided circuit design tools, such as SPICE, and integrated circuit layout is also required. Knowledge of front-end electronics for nuclear spectroscopy, and x-ray, gamma-ray and particle detection is desirable. Will be responsible for specific integrated-circuit designs to support CRADA programs. Contact: Paul O'Connor, Instrumentation Division.

OPEN RECRUITMENT - Opportunities for Laboratory employees and outside candidates.

NS 0092. PROGRAMMER/ANALYST POSITION - (term appointment) Requires M.S. or Ph.D. in computer science and experience in: relational and object-oriented database design; design and implementation of formal languages and automata parsing techniques; advanced C/C++ programming skills; distributed object- and agent-computing technology; and UNIX and NT operating systems. As part of the re-engineering project of the Protein Data Bank, will design and implement parts of the meta-database, and the installation, maintenance, documentation and/or development of software modules as required. Biology Department.

DD0494. MASTER METAL WORKER - (term appointment) Works from prints, sketches or verbal instructions. Sets up and operates machine tools and performs benchwork, in the fabrication and finishing of metal or associated products on jobs which require the application of individual ingenuity in solving problems of method or results required where previous standards of operation have not been established. Central Shops Division.

NS 4739. PC SUPPORT SPECIALIST/ANALYST - Requires AAS in an IS/IT-related or scientific field, BSCS preferred, and 2-5 years' experience supporting the Microsoft Office environment. Requires working knowledge of Windows NT server and client, and ability to provide high-level support for MS Word, Excel, Outlook, Exchange, PowerPoint and Access. The ability to provide programming support for administration applications is also necessary. Advanced programming experience developing databases or Microsoft certification is a plus. Must have demonstrated experience on a help desk, and extensive knowledge of PC hardware, configurations and communications/networking issues. Will serve as part of the PC Resource Center which supports over 3,000 employees. Computing & Communications Division

Atoms for Peace Stamps Now at the Upton P.O.

Due to popular demand, another 300 of the 1955 Atoms for Peace 3c stamps are available for sale at 50c each at the window of the Upton Post Office, Bldg. 179.

Designed by the late BNL graphic artist George Cox, these collectors' items were featured during the August 1st 50th-anniversary celebration of the founding of Upton town and the Upton P.O. — and 500 of them were sold that day.

In addition to purchasing the restocked Atoms for Peace stamps, post-office goers may still, through September 1, have their mail hand-cancelled with the Upton P.O.'s 50th-anniversary postmark, which is based on the Lab's 50th-anniversary logo designed by BNL graphic designer Theresa Esposito. For more information, call Ext. 2539.