

Three Major Milestones Precede X-Ray Ring Recommissioning

For the first time since the completion of the major, scheduled shutdown, electron beam was circulated, stored and stacked within the x-ray ring of the National Synchrotron Light Source (NSLS). These three milestones were achieved with 17 hours of each other last week.

According to X-ray Ring Manager Benjamin Craft, these three milestones, occurring prior to the ring's recommissioning, mean that, after over a year of major improvements, the x-ray ring is well on the road to resuming regular operation, which is scheduled for mid-June.

The x-ray ring was shut down on February 28, 1987, to undertake improvements that will increase the number of experiments from about 30 to 60. As well, the work on the ring should improve its reliability and orbit stability.

"As a part of the NSLS Phase II upgrade, the completed shutdown will allow the installation of four high-brightness insertion devices and the LEGS [Laser Electron Gamma Source] experiment," explains NSLS Chairman Michael Knotek.

"This, along with the vacuum ultraviolet ring upgrade done previously, will lift NSLS to a new performance height across its entire spectral range — and bring forth a new generation of experimentation," Knotek adds.

Though the ring will provide x-ray light to illuminate a spectrum of ex-

periments, recommissioning is not as easy as switching on a light bulb: Started on April 11, recommissioning is expected to take two months.

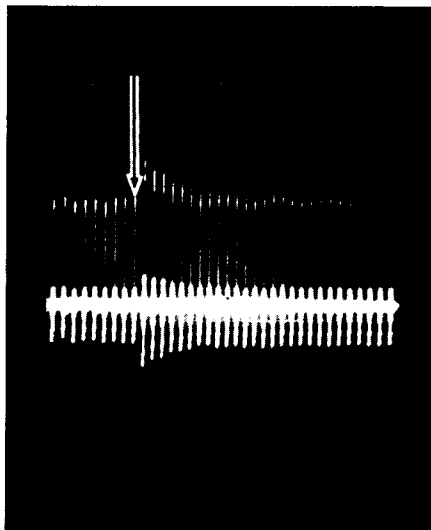
"The important point demonstrated by these three milestones is that the closed orbit of the electron beam has been properly defined by the magnet survey to lie within the beam pipe," says Craft. "As the survey was performed properly, the electrons can circulate in the ring — otherwise, they'd just crash into the walls of the beam pipe."

"Having the proper orbit inside the pipe allows us to proceed expeditiously in bringing the ring into operation for our users," says Samuel Krinsky, NSLS Deputy Chairman.

The shutdown achievements include: the replacing of six of the 16 dipole vacuum chambers to accommodate the insertion devices and LEGS; the changing of numerous magnet power supplies to improve beam stability; the upgrading of beam injection equipment; and the developing of all beam ports, bringing the total to 30.

The major work on the accelerator systems during this shutdown has been carried out by the NSLS Mechanical Engineering Section, under Associate Chairman Hank Hsieh; the Vacuum Group, headed by Henry Halama; and the Electrical Engineering staff, under Chief Electrical Engineer John Keane.

"The successful completion of the



Current spikes of the electron beam in the NSLS x-ray ring, seen on an oscilloscope attached to a part of the beam-orbit system. As electrons circulate, 1.76 million such spikes are created per second. The arrow shows the spike that indicates that the beam was stacked.

shutdown is the culmination of a year's hard work by the entire department," says Krinsky.

The first milestone was posted by Craft and Assistant Physicist Glenn Decker on Saturday, April 8, at 5 p.m., when the beam made it twice around the 16-sided ring. As electrons circumnavigate the 170-meter ring 1.76

million times per second, this trip did not take too long.

Then, that midnight, Krinsky and Operations & Control Room Manager Norman Fewell first stored electron beam within the ring. This means that the electrons are able to circulate for at least a few minutes.

On April 9 at 10 a.m., this accomplishment was followed by a third milestone, when the beam was stacked. This means that more electrons, called the injected beam, are added to the already circulating electrons, called the stored beam (see photograph). At that time, NSLS Associate Chairman John Galayda and Craft were in charge of the ring.

Stored and stacked beam are signposts indicating, respectively, that the system that injects electron beam into the ring works well and that the magnets that control the orbit of the electrons within the ring are properly aligned. The injection system was designed by Richard Heese, head of the Electrical Systems & Operations Section.

"After we get control over the electron orbit, we will bring the machine to high energy and begin vacuum conditioning of the chambers," says Craft. "Our goal is to achieve sufficient reliability, current and lifetime at the design energy of 2.5 GeV (billion electron volts) to begin the experimental program mid-June."

— Marsha Belford



Peter Horton

Light Source on Soviets' Itinerary

As part of their tour of U.S. synchrotron radiation facilities, two Soviet physicists visited the National Synchrotron Light Source (NSLS) in March.

Vladimir Stankevich (left), of the I.V. Kurchatov Institute of Atomic Energy, Moscow, and Grant Eritsyan (center), of the Yerevan Physics Institute, Yerevan, were guided around the two NSLS storage rings by NSLS Deputy Chairman Samuel Krinsky.

The two Soviets stopped to talk to the BNL scientists and guest users involved in the various experiments ongoing at the NSLS. As well, Stankevich and Eritsyan had discussions with the BNL physicists and engineers involved with the design and operation of the two synchrotrons and their beam lines.

The visit was arranged under the provisions of the U.S. and U.S.S.R. Joint Committee on Cooperation Agreement on Fundamental Properties of Matter.

Call for Proposals

The Department of Energy (DOE) has asked for proposals to be submitted under its R&D Laboratory Technology Transfer Program, for two types of funding support in fiscal year 1989:

- Industry-Laboratory Technology Exchanges, to allow industry scientists to spend appreciable time at DOE laboratories acquiring laboratory expertise for application in American industry.
- Laboratory Technology Transfer Initiatives, to develop ways to transfer technology that could be applicable for other laboratories.

Proposals for both programs should be submitted to allow for selection and funding at the beginning of fiscal year 1989. Funding will be up to \$50,000 per year. Industry is expected to share substantially in the cost of this effort.

For more information on these efforts and how to submit a proposal, contact William Marcuse, Head of BNL's Office of Research and Technology Applications, Bldg. 475, Ext. 2103.

Under this program, BNL has had three proposals accepted by DOE over the past two years. These include two Industry-Laboratory Technology Exchanges: a Medical Department collaboration working with Hamamatsu-InspeX, to perfect an imaging device for detecting small amounts of radiopharmaceuticals in a patient's extremities, and a Physics Department group collaborating with the Bicon Corporation to develop a technique for scanning crystals to determine their uniformity.

As the result of the third effort, a Laboratory Technology Transfer Initiative, a Center for the Development of Microelectronic Technology has been proposed at BNL.

Brookhaven Area Office Hosts Meeting



Peter Horton

Four times each year, managers or their representatives from the Area Offices that report to the Department of Energy's Chicago Operations Office (CH) meet with Chicago staff at one of the office sites. The most recent quarterly meeting was held at BNL in March and hosted by the Brookhaven Area Office (BHO), which oversees the operation of the Laboratory. On hand were (front, from left) Gregory Ogeka, BHO; Doris Porter, BHO; Paul Kearns, Solar Energy Research Institute Area Office; David Goldman, Assistant Manager for Laboratory Management, CH; Carson Nealy, New Brunswick Laboratory; Charles Pietri, CH; Anibal Taboas, Argonne Area Office; Larry Oldendorf, CH; (back, from left) Jerry Bellows, Manager, BHO; Andy Mravca, Batavia Area Office; Milton Johnson, Princeton Area Office; Philip Krey, Environmental Measurements Laboratory; and Edward Cumesty, Deputy Manager, CH.

Coming Up

Michael White, a chemist in the Chemistry Department, will deliver the next Brookhaven Lecture on Wednesday, April 27, at 4:30 p.m., in Berkner Hall. He will speak about "Modern Views of Molecules by Multiphoton Spectroscopy."

DCP Welcomes Alvis Nash — First Affirmative Action Intern

At the end of last summer, Alvis Nash, Riverhead resident and business graduate of Hampton University, Virginia, was looking for a job. After exploring the possibilities available in Suffolk at the time, she had still not found anything promising and was getting anxious.

"You get to the end of a rope, tie a knot and hold on," said Nash. "I was holding on."

Then, in mid-November, Nash's life changed. She had got a job: It really interested her — and it used her business degree. Nash is the first intern to be sponsored in the Division of Contracts and Procurement (DCP) by BNL's Office of Affirmative Action.

Nash works with several buyers, learning the process of purchasing different materials needed on site. These materials include such items as chemicals, stationery, electronics, tools and computer supplies. The job of purchasing entails knowing which of the many possible choices is the best to buy. She finds electronics to be the most complex, due to the large



Alvis Nash

number of vendors and great variety of components and parts.

"Learning this job is a really good experience," said Nash. "Even though I had a friend in BNL's computer science summer program, I somehow didn't think of Brookhaven in connection with a business job. DCP has changed my mind."

How did Nash get from being a somewhat depressed job hunter to a person with a start in a worthwhile career?

"While interviewing and job hunting, I heard about the evening computer classes the Lab offers in Riverhead," she said. "They needed volunteers, and since I knew a little about computers, I went along to help. That was how I met Earl Blanton, who runs the program. When he learned that I was looking for a job, he suggested that I try at BNL."

Said Blanton, Assistant to the Director for Affirmative Action, "Alvis had been thinking of the Lab as a scientific institution, not realizing that the scientists are backed up by a large business organization. Her qualifications were excellent, and I

thought it quite possible that there might be a place for her in Contracts and Procurement.

"The Office of Affirmative Action can sometimes sponsor interns in appropriate jobs, if this fits in with the needs of the staff in the office concerned," continued Blanton. "I hoped that once Alvis had been interviewed by John King and others in DCP, this would prove to be the case."

Said John King, Contracts and Procurement Manager, "At first, when Earl Blanton approached me about establishing an intern program, I was hesitant. The program might have proved to be both time consuming and disruptive.

"I am pleased to say that my preconceived fears did not come true," continued King. "Alvis's personality and business qualifications resulted in her being a contributor and not a burden. In summary, I believe that Brookhaven has contributed to Alvis's professional growth — and Brookhaven has gained from this experience." — Liz Seubert

Do You Care About Child Care?

Electrician Patti Bender's workday begins with a stop at a local day-care center. There, she bids a loving goodbye to her soon to be three-year-old daughter Michele.

"I'm lucky — Michele is very happy and in an excellent program," says Bender, Plant Engineering. "Her day-care center is close by and affordable, so I don't have to worry about child care — unless Michele's sick or the center is closed but the Lab isn't."

In contrast to the suburban housewives of a few generations ago, now more than half of Long Island's women with school-age children work. About 80,000 working Long Island women have preschool-age children. Out of choice or necessity, women account for about 45 percent of the national work force, over 50 percent of workers on Long Island.

As more and more American women define themselves as workers and mothers, child care has become an issue for both women and men on a national and local, as well as a Laboratory, level.

To start addressing that issue at the Lab, a child-care survey form is being mailed today to all BNL employees and guests on site, under a cover letter signed by Laboratory Director Nicholas Samios. Please complete the survey — whether or not you require child-care services at present — and return it by April 29 to: Child-Care Survey, BNL Mail Room, Bldg. 179B.

The survey was formulated by the recently created Child-Care Initiative Committee, made up of representatives from many Lab groups. The Committee welcomes your input, so feel free to contact any of the members listed below:

	Ext.	Bldg.	Affiliation
Marsha Belford, Chair	5053	134	Brookhaven Women in Science
Patricia Bender	4669	452	International Brotherhood of Electrical Workers
Peter Cameron	7657	911A	concerned parent
Ruth Coughlan	3007	120	concerned parent
Margaret Alexoff	3356	462U	concerned parent
April Donegain	2459	134A	Afro-American Culture Club
Renée Flack	3316	185A	Affirmative Action Office
Susan Foster	2888	185	Employee Relations Counselor
Louise Hanson	7709	815	Brookhaven Women in Science
Mary McGrath	2815	197C	Professional Secretaries International
José Medina	7636	134C	Employee Relations Council
Jane Setlow	3420	463	Brookhaven Council
Avril Woodhead	3486	477A	Women's Program Coordinator



Michele and Patti Bender

Renew Your I.D. Card

Employees and guests: Please check your wallet. Has your I.D. card expired? If so, you may renew it on Monday, Wednesday and Friday, from 9:30 to 11 a.m., at Bldg. 50, Police Headquarters. No appointment is required. For more information, call Hank Raimondo, Ext. 7258.

Motorcycle Club

There will be a Cycle-Tron reunion tonight, at 5:15 p.m., in the Recreation Building. All Cycle-Trons — past and present — are welcome to attend.

PSI News

Avril Woodhead, BNL's Women's Program Coordinator, will speak on "Women and Aging — The Concerns and Delights," at the next monthly meeting of the Upton Chapter of Professional Secretaries International. She will also discuss care for the aged, on Thursday, April 21, at 6 p.m., in Berkner Hall, Room C.

Equipment Demo

On Friday, April 22, six nuclear support vendors will display their products in Berkner Hall from 9 a.m. to 4:30 p.m. The vendors and their products lines are:

- **Bicron Corp.** NaI(Tl) detectors, portable radiation survey instruments.
- **Canberra Corp.** Multichannel analyzers, germanium detectors, nim electronics.
- **Dosimeter Corp.** Portable radiation dosimeters, survey instruments.
- **EG&G-ORTEC.** Multichannel analyzers, germanium detectors, nim electronics.
- **Nuclear Data Inc.** Multichannel analyzers.
- **Tenelec.** Multichannel analyzers, germanium detectors, nim electronics.

Bowling

Red/Green League

High games were bowled by J. Roesler 226, H. Arnesen 218, E. Meier 218, L. Schairer 213, R. Sick 213, K. Riker 209, L. Jacobson 204, H. Marshall 203, K. Asselta 202, J. Mayeski 201, F. Griswold 200.

Purple League

Annemarie Spira rolled a 202, Dick Adams 201/200, Ruth Sheehan 182, Caryl MacDougall 180, Sharon Jones 180.

Leap Into Spring! Dance Tomorrow Night

Let the Conover five-piece band, which includes BNL's own Alan Bieber (back, center) on recorder and tin whistle, whisk you off your feet and onto the dance floor during the "Leap Into Spring" benefit dance tomorrow at 8 p.m.

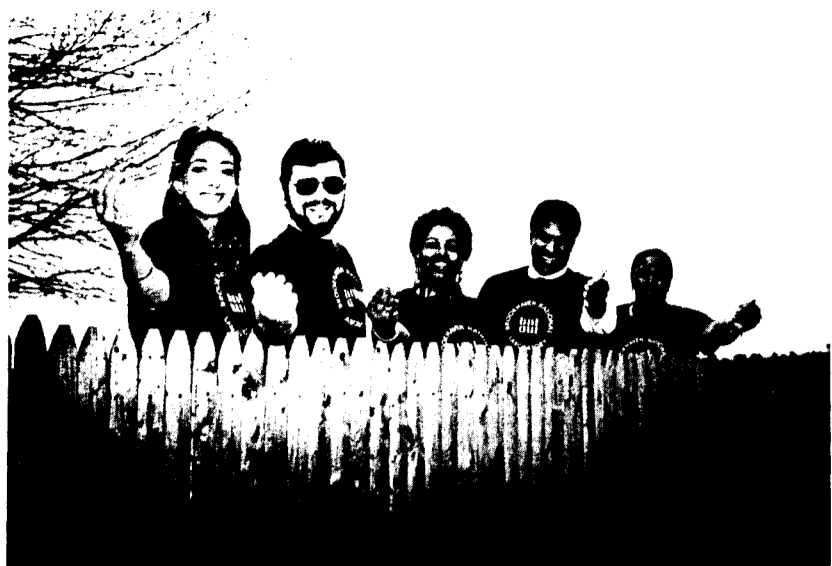
For \$5 admission per person to the Brookhaven Center, you can swing your partner, do-si-do and allemande the night away as you have fun learning to square dance and contradance, and as you benefit the Renate W. Chasman Scholarship Fund, sponsored by Brookhaven Women in Science.

Tickets can be purchased today in Berkner Hall from 11:30 a.m. to 1 p.m., or tomorrow night at the door.

The other members of the Conover band are: fiddler Erik Marten (back, left), caller David Conover (back, right), caller Margaret Conover (front, left) and wind player Judy Ogden. All are members of the Long Island Traditional Music Association. For the last three years, Bieber has played with the band, which performs at about a dozen dances a year.

Bieber reassures those with no prior traditional dancing experience that no dance will be too difficult and all the steps will be walked through in order preceding each dance.





Mort Rosen

Come Walk With Us

Inviting you to "Come walk with us!" as part of the BNL team for the March of Dimes' annual WalkAmerica, on Sunday, April 24, are (from left): Susan Foster, Christopher Robertson, Kay Hunt, Jeffrey Taylor and Jacqueline Larrie. By walking with your coworkers, friends and family, wearing the BNL/AUI T-shirts that will be given to all BNL participants, you can help raise money to help the fight against birth defects. For registration forms and route information, contact Kay Hunt at the Recreation Office in Personnel, Bldg. 185, Ext. 2873, or stop by the BERA Sales Office in Berkner Hall.

Cafeteria Menu

Week of April 18

Monday, April 18	
Beef noodle soup	(cup) .75 (bowl) .95
Baked ham w/raisin sauce & 1 veg.	2.95
Sautéed chicken livers w/1 veg.	2.75
Fried fish w/1 veg.	2.85
Summer fruit fiesta plate (lite-weight)	2.25
Hot deli: Pastrami	(bread) 2.75 (roll) 2.85 (hero) 2.95
Tuesday, April 19	
Chicken noodle soup	(cup) .75 (bowl) .95
Italian lasagna w/meat sauce & garlic toast	2.85
Shrimp chow mein over rice	2.85
Spinach, bacon & egg chef's platter (lite-weight)	2.25
Hot deli: Grilled Monte Cristo sandwich	2.85
Wednesday, April 20	
U.S. Senate bean soup	(cup) .75 (bowl) .95
Braised Swiss steak w/gravy & 1 veg.	2.95
Baked fish w/Creole sauce & 1 veg.	2.95
Buttered baked fish w/1 veg. (lite-weight)	2.85
Hot deli: Roast breast of turkey	(bread) 2.75 (roll) 2.85 (hero) 2.95
Thursday, April 21	
Chicken vegetable soup	(cup) .75 (bowl) .95
Baked meatloaf w/ gravy & 1 veg.	2.85
Veal curry over rice w/1 veg.	2.95
Pizza deluxe	(slice) 1.35
Chef's salad plate (lite-weight)	2.25

Hot deli: Corned beef (bread) 2.75 (roll) 2.85 (hero) 2.95

Friday, April 22	
New England clam chowder	(cup) .75 (bowl) .95
Roast turkey w/gravy & 1 veg.	2.85
Stuffed green peppers w/1 veg.	2.85
Baked fresh fish w/1 veg.	2.95
Hot deli: 2 Chili dogs on a bun	2.85

Volleyball

Standings — Week of April 4

League I		League II	
Upfagrabs	48-12	Nuts & Bolts	34-17
Dinkers	48-12	Set Ups	33-18
Xrayted	36-24	Slammers	30-21
Cannonballs	21-39	Fossils	28-26
Phoubars	18-42	Chunga's	
Bumpers	9-51	Revenge	25-26
		Upton Ups	17-34
		Photons	13-38
League III		Open League	
Sourcerers	43-14	Phoenix	40-8
Printouts	41-16	Dakota	40-8
Spikes	35-22	Serendipity	39-12
Renegades	31-26	Not Too Bad	22-29
MISfits	28-29	Rowdy	
Screwballs	23-34	Radicals	12-36
Airheads	14-43	Duituits	10-38
Good Times	13-44	Leftovers	8-40

Soccer Club

Pick-up games are now being held on Mondays, after 5 p.m., and on Wednesdays, at noon, on the BERA field. For more information, call Enrique Abola, Ext. 4383.

Microcomputer Club

Linda Munt, a representative of Valiant International Multi-Media Corporation, will demonstrate their TLEX Computer Image Projection System. The system projects computer images, text or graphics, onto a screen or wall by joining a personal computer and any standard overhead projector. The demonstration will take place at noon on Thursday, April 21, in the main conference room, Bldg. 475. For more information, contact Irving Montanez, Ext. 2540.

Basketball

Playoff games as of April 7

First Game		Longshots	52	Hollywood	51
J. Garrison	17	E. Meier	19		
T. Mayo	14	B. Gunther	8		
F. Thompson	9	J. Ripka	8		
S. Springston	8	L. James	7		
F. Malone	2	J. Monroe	4		
J. Wells	2	D. Nordstrum	4		
		G. Mack	1		
<i>Three-point shots: Garrison (3)</i>					
Second Game		Celtics	51	Runaways	59
J. Gaeta	19	P. Johnson	19		
P. Browne	14	R. Moran	17		
P. Ratzke	8	S. Gilbert	9		
M. Fulkerson	4	J. Shepherd	6		
C. Edwards	2	J. Desmond	3		
A. Ratti	2	R. Jackson	2		
N. Schaknowski	2	T. James	2		
		B. Doty	1		
<i>Three-point shots: Gaeta (1), Johnson (3)</i>					

Cooking Exchange

Huevos Rancheros — a Mexican breakfast of ranch-style eggs accompanied by refried beans and Spanish rice — will be the featured demonstration at the next meeting of the Cooking Exchange. This meal is a standard on the breakfast menu in restaurants throughout the Southwest.

This Mexican cookery demonstration will take place on Wednesday, April 27, from 12:30 p.m. to 2:30 p.m., in the Recreation Bldg. in the apartment area. All Brookhaven employees and spouses are invited to attend.

For a charge of \$2 per adult, to cover the cost of the demonstrated recipes' ingredients, you may sample the food and get copies of the recipes. Babysitting is provided at 50¢ per child.

Upton Station — Last Stop



Mort Rosen

It's the end of the line for this train.

Since the middle of March, the Department of Energy (DOE) has been allowing the Long Island Rail Road (LIRR) to park its excess diesel cars on BNL's rail spur off the LIRR's main line. After a few more deliveries, a total of 63 vintage-1950 cars is expected to make up this engineless train. One end of the train can be found at the end of Railroad Street, opposite the Bulk Warehouse, Bldg. 158.

Through a good-neighbor agreement between DOE, which owns the Lab property, and the Metropolitan Transit Authority (MTA), which runs the LIRR, the old cars will sit on site until the railroad finds a buyer or leaser of its excess equipment, or until August 31, whichever comes first. If the Lab needs to use its side track, the LIRR has agreed to move the cars within 24 hours.

As the LIRR's main line, which runs from Hicksville to Greenport, was recently electrified through to the Ronkonkoma station, these diesel cars became obsolete and were excessed when replaced by new, electric cars.

According to Lawrence Baggerly, LIRR Vice President - Operations, the Lab is a good, temporary train yard because the cars are safe from vandalism. The MTA had thought of the using the BNL spur because an agreement about its use and maintenance already existed and because the site is well protected. Over 30 years old, these cars have depreciated over the years, but each would cost about \$1 million today to replace.

The railroad spur connecting Camp Upton to the Long Island Rail Road was built during the summer of 1917 so supplies for the construction of the World War I Army cantonment could be delivered by rail. By late that summer, 55 railroad cars of supplies were being unloaded daily, and, on September 10, 1917, the first draftees — 2,000 men — arrived by rail as well.

During World War II, the rail spur was remobilized, again to carry men and supplies. Nowadays, according to John Hennessey, Plant Engineering Site Division Manager, the Lab uses its side track infrequently to receive deliveries of fuel oil, contractors' materials and other supplies.

— Marsha Belford

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